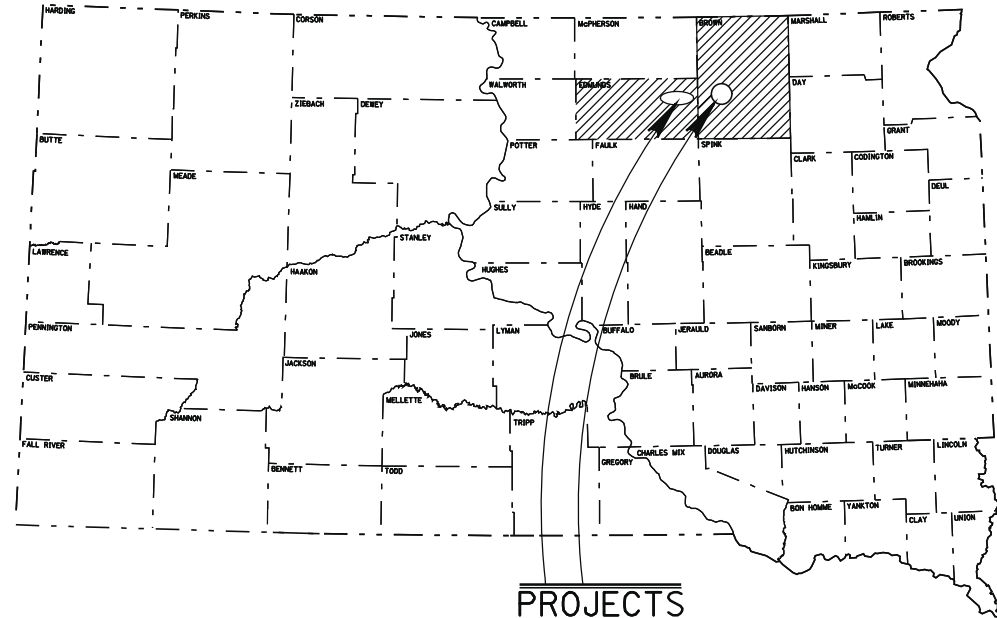


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PROJECTS

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECTS: 281 S-151, 012-151
& 012-152
U.S. HIGHWAY 281 &
U.S. HIGHWAY 12
BROWN & EDMUNDS COUNTIES

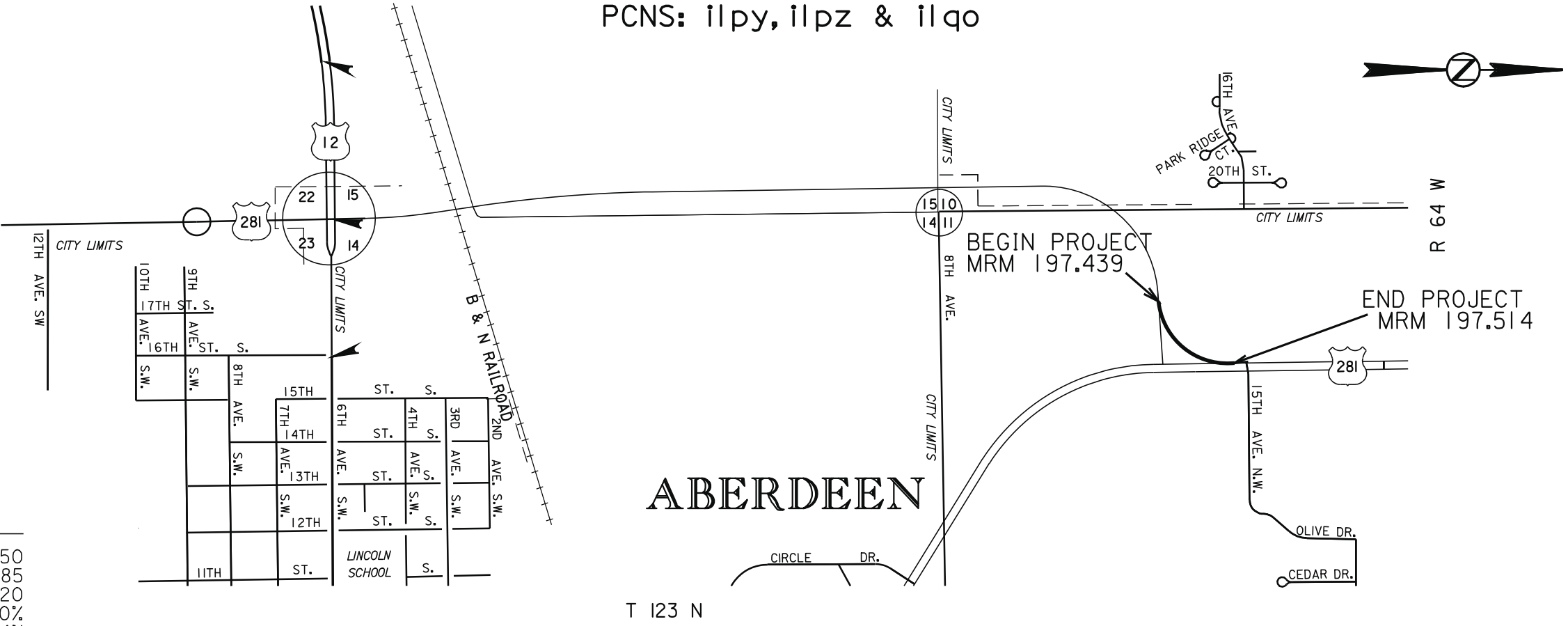
CONCRETE REPAIR
PCNS: ilpy, ilpz & ilqo

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	1	40
Plotting Date: 30-APR-2010			

INDEX OF SHEETS		
Sheet No.	1-4	Title Sheet and Layout Maps
Sheet No.	5	Estimate of Quantities
Sheet No.	6-7	Table of Quantities
Sheet No.	8-11	Typical Sections
Sheet No.	12-18	Plan Notes
Sheet No.	19-25	Traffic Control
Sheet No.	26-31	PCC Pavement Repair Details
Sheet No.	32-33	Pavement Marking Details
Sheet No.	34-40	Standard Plates

DESIGN DESIGNATION	281 S-151
ADT (2009)	3450
ADT (2029)	4785
DHV	720
D	100%
T DHV	4.4%
T ADT	9.7%

Storm Water Permit
No Permit Required



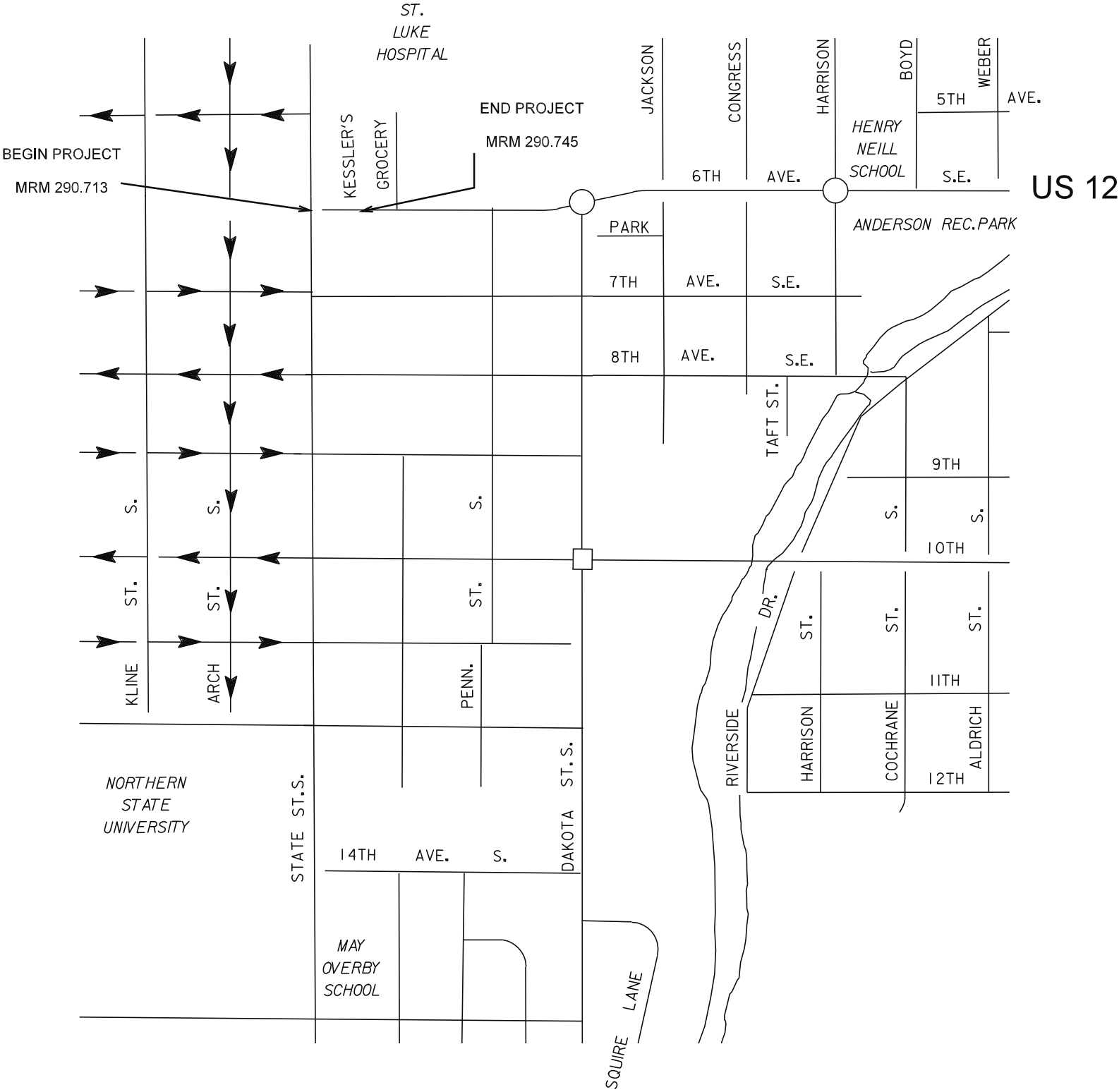
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	2	40
Plotting Date: 30-APR-2010			

012-151
BROWN COUNTY

DESIGN DESIGNATION

ADT 2009	25200
ADT 2029	33790
DHV	3615
D	50%
T DHV	2.0%
T ADT	4.3%



City of Aberdeen

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	3	40
Plotting Date: 30-APR-2010			

012-151
BROWN COUNTY

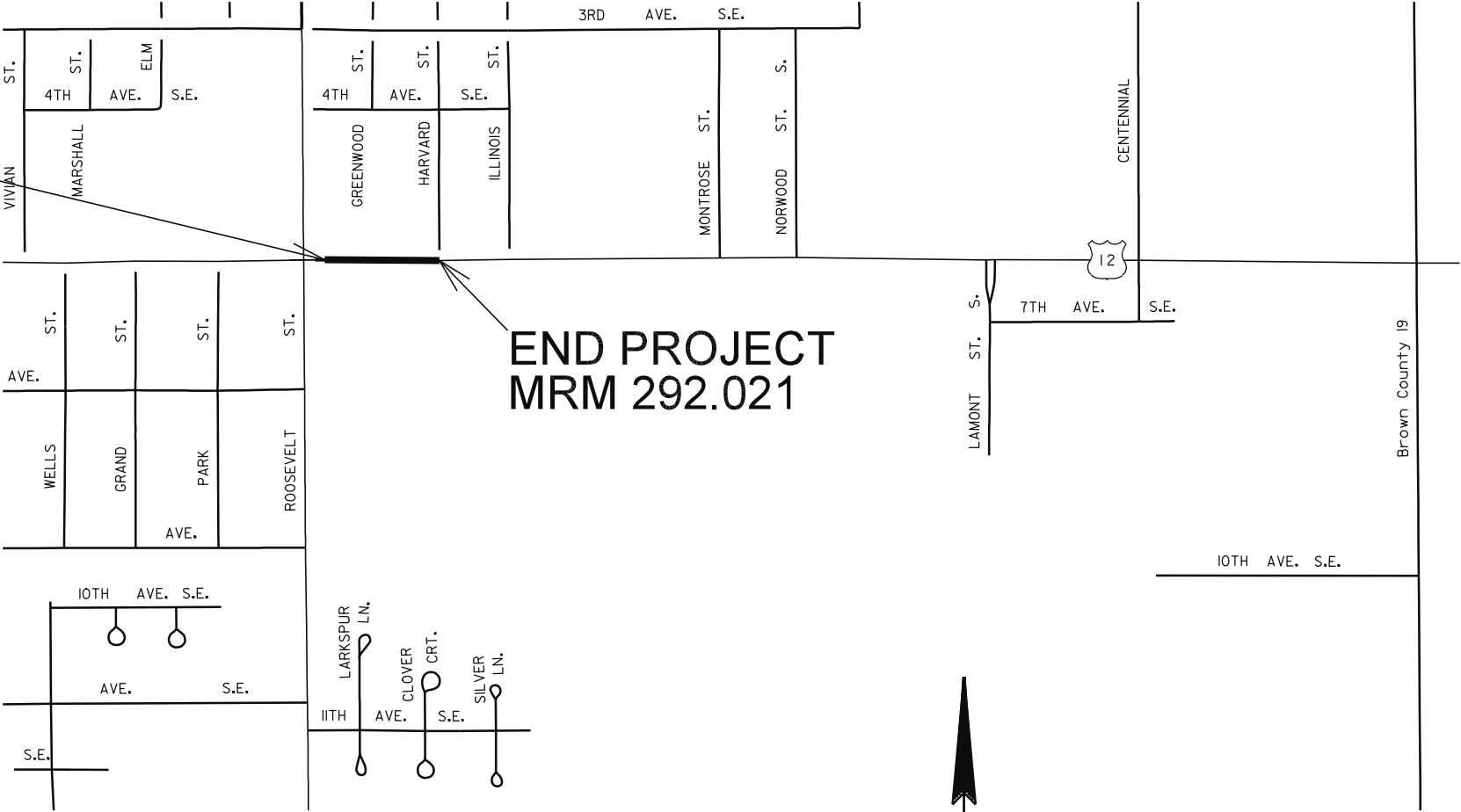
City of Aberdeen

BEGIN PROJECT
MRM 291.968

END PROJECT
MRM 292.021

DESIGN DESIGNATION

ADT (2009)	25200
ADT (2029)	33790
DHV	3615
D	50%
T DHV	2.0%
T ADT	4.3%



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	4	40
Plotting Date: 30-APR-2010			

012-152
EDMUNDS COUNTY



DESIGN DESIGNATION

ADT (2009)	2685
ADT (2029)	3365
DHV	505
D	50%
T DHV	9.0%
T ADT	19.8%

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151		
	012-151 & 012-152	5	40

ESTIMATE OF QUANTITIES

BID ITEM						
<u>NUMBER</u>	<u>BID ITEM</u>	<u>281 S-151</u>	<u>012-151</u>	<u>012-152</u>	<u>TOTAL</u>	<u>UNIT</u>
009E0010	Mobilization	LS	LS	LS	LS	LS
120E0100	Unclassified Excavation, Digouts	25	25	25	75	CuYd
260E1010	Base Course	32			32	Ton
260E2010	Gravel Cushion	50	50	50	150	Ton
380E4080	9.5" PCC Fillet Section		15.3		15.3	SqYd
380E5020	Fast Track Concrete for PCC Pavement Repair		19.1	797.9	817	SqYd
380E5030	Nonreinforced PCC Pavement Repair		700		700	SqYd
380E5080	Nonmetallic Fiber Reinforced PCC Pavement Repair	807.8			807.8	SqYd
380E6000	Dowel Bar	380	286	239	905	Each
380E6110	Insert Steel Bar in PCC Pavement	235	463	1457	2155	Each
633E0010	Cold Applied Plastic Pavement Marking, 4"	177	350		527	Ft
633E0025	Cold Applied Plastic Pavement Marking, 12"	201			201	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"		40		40	Ft
633E5000	Groove Pavement for Pavement Marking, 4"	177	350		527	Ft
633E5010	Groove Pavement for Pavement Marking, 12"	201			201	Ft
633E5015	Groove Pavement for Pavement Marking, 24"		40		40	Ft
634E0010	Flagging	20	20	20	60	Hour
634E0100	Traffic Control	399	454	442	1295	Unit
634E0120	Traffic Control, Miscellaneous	LS	LS	LS	LS	LS
634E0420	Type C Advance Warning Arrow Panel		1		1	Each
634E0610	4" Temporary Pavement Marking Tape Type 2	600		7800	8400	Ft
650E0095	Type B69.5 Concrete Curb & Gutter		126		126	Ft
650E2100	Special Curb & Gutter		24.5		24.5	Ft
651E0040	4" Concrete Sidewalk		342		342	SqFt
734E0010	Erosion Control	LS			LS	LS
734E0845	Sediment Control at Inlet with Frame & Grate		2		2	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet		26		26	Ft
734E5010	Sweeping	4			4	Hour
900E1080	Orange Plastic Safety Fence		60		60	Ft

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151		
	012-151 & 012-152	6	40

TABLE OF PAVEMENT REMOVAL AND REPAIR - US 281

				380E5030	380E6000	380E6110		260E1010	633E0010	633E0025
MRM	Description	Dimensions		Nonmetallic Fiber Reinforced PCC Pavement Repair (8.5")	Dowel Bar	Insert Steel Bar In PCC Pavement		Base Course	Cold Applied Plastic Pavement Markings 4" (Yellow)	Cold Applied Plastic Pavement Markings 12" (White)
		Length	Width			Each				
		Ft	Ft	Sq.Yd.	Each	#5	1 1/4"	Ton	Ft	Ft
197.439 to 197.514 Lt	On ramp for US 281 South Bound Lane	393.0	18.5	807.8	380	210	25	32.0	177	201

Note: Quantities provided are for information only. Actual quantities to be determined on construction.

TABLE OF PAVEMENT REMOVAL AND REPAIR - US 12/6th Avenue

				380E4080	650E0095	380E6000	380E6110			651E0040	650E2100	633E0010	633E0010	633E0030	380E5020	380E5030	Remarks
MRM	Description	Dimensions		9.5" PCC Fillet Sections	Type B69.5 Concrete Curb and Gutter	Dowel Bar	Insert Steel Bar In PCC Pavement			4" Concrete Sidewalk	Special Curb & Gutter	Cold Applied Plastic Pavement Markings 4" (Yellow)	Cold Applied Plastic Pavement Markings 4" (White)	Cold Applied Plastic Pavement Markings 24" (White)	Fast Track Concrete for PCC Pavement Repair	Nonreinforced PCC Pavement Repair (9.5")	
		Length	Width				Each										
		Ft	Ft	Sq.Yd.	Ft	Each	#5	#9	1 1/4"	Sq.Ft.	Ft	Ft	Ft	Ft	Sq.Yd.	Sq.Yd.	
290.713 to 290.745 LT	NE Quadrant US 12 & State Street			6.1	119.0		52			342	24.5						WBL from State St. west 125'
290.713 to 290.721 RT	SE Quadrant US 12 & State Street			* 9.2	7.0		10										EBL from State St. west 30'
291.632 Rt	EBL Manhole						8								2.2		Diamonds around Manholes
291.706 Rt	EBL Manhole						8								2.2		Diamonds around Manholes
291.732 Rt	EBL Manhole						8								2.2		Diamonds around Manholes
291.968 to 292.021 RT	EBL's on US 12	280	22.5			286	294		44			280	70	40		700	EBL'S from Roosevelt St. east 280' (Curb and Gutter was placed monolithically and will need to be saw cut because it remains in place)
292.268 Lt	WBL's on US 12						8	14	6						10.7		WBL'S by Ramada Inn
292.268 Rt	EBL's on US 12						4	3	4						1.8		EBL passing lane by Ramada Inn
TOTALS =				15.3	126	286	392	17	54	342	24.5	280	70	40	19.1	700	

Note: Quantities provided are for information only. Actual quantities to be determined on construction.

* 3.3 Square Yards are for repair around Type S Reinforced Concrete Drop Inlet

The above quantities are included in the Estimate of Quantities

TABLE OF CONCRETE REMOVAL AND REPAIR - US 12 IPSWICH TO MINA

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	7	40

MRM	Description	380E5020	380E6110			380E6000
		Fast Track Concrete for PCC Pavement Repair	Insert Steel Bar In PCC Pavement			Dowel Bars
		Sq.Yd.	Each			Each
			#5	#9	1 1/4"	
264.476	Westbound Lane	21.8	10		8	
264.527	Westbound Lane	30.7	52		8	8
264.804	Westbound Lane	26.6	34		20	10
264.938	Westbound Lane	74.2	120		28	28
265.016	Westbound Lane	20	26		10	5
265.074	Westbound Lane	9.8	10		10	
265.091	Westbound Lane	22	24		12	6
265.207	Westbound Lane	22.6	28		10	10
265.318	Westbound Lane	12.7	12		12	
265.531	Westbound Lane	28.9	40		10	10
265.523	Eastbound Lane	58.7	50		16	24
265.538	Westbound Lane	35.3	40		12	12
265.646	Westbound Lane	36.7	50	3	6	19
265.659	Westbound Lane	55.6	78		10	25
267.165	Westbound Lane	14.7	24		8	4
268.225	Eastbound Lane	12	6	8	12	
268.410	Eastbound Lane	7	4	6	9	
268.414	Eastbound Lane	7	4	6	9	
268.872	Eastbound Lane	12.4	11		14	
268.937	Eastbound Lane	3.1	4	5	7	
268.960	Eastbound Lane	27.9	24	3	19	7
268.994	Eastbound Lane	3.1	8	3	4	
269.519	Eastbound Lane	16.7	8	8	12	
270.343	Westbound Lane	41.7	58		10	20
271.677	Eastbound Lane	10.7	18	3	4	4
271.761	Eastbound Lane	6.2	10		8	
272.233	Eastbound Lane	6.7	16	4	5	6
272.788	Westbound Lane	15.3	16	4	6	6
272.834	Eastbound Lane	5.6	6	3	5	
273.014	Eastbound Lane	1.8	4	3	4	
273.044	Eastbound Lane	6.2	10		8	
273.652	Westbound Lane	6	8	3	4	
274.434	Eastbound Lane	5.3	8	3	4	
274.484	Westbound Lane	2.4	4	4	5	
274.489	Westbound Lane	4.3	4	5	7	
274.539	Westbound Lane	9.5	12		8	
274.715	Eastbound Lane	29.8	52		8	8
274.720	Westbound Lane	34.7	40		12	12
275.436	Eastbound Lane	52.2	64		22	15
	TOTALS =	797.9	997	74	386	239

Note: Quantities provided are for information only. Actual quantities to be determined on construction.
The above quantities are included in the Estimate of Quantities

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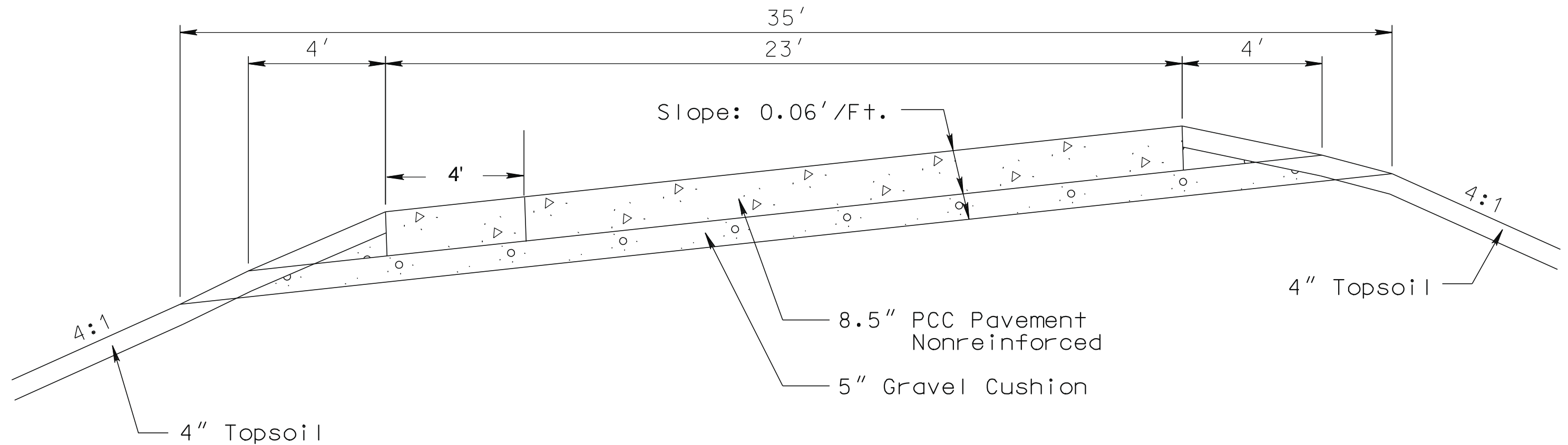
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151	8	40
	012-151 & 012-152		
Plotting Date: 30-APR-2010			

TYPICAL SECTION US 281

Original Construction
(For Information Only)

Ramp to US 281



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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	9	40
Plotting Date: 30-APR-2010			

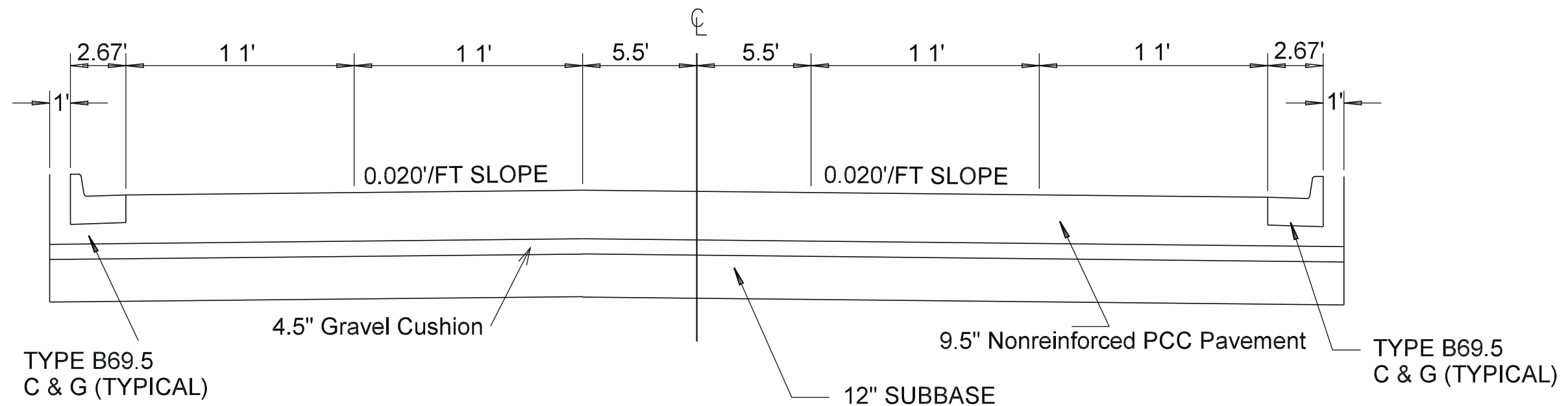
TYPICAL SECTION

US 12 & Roosevelt Street

Original Construction

(For Information Only)

US 12



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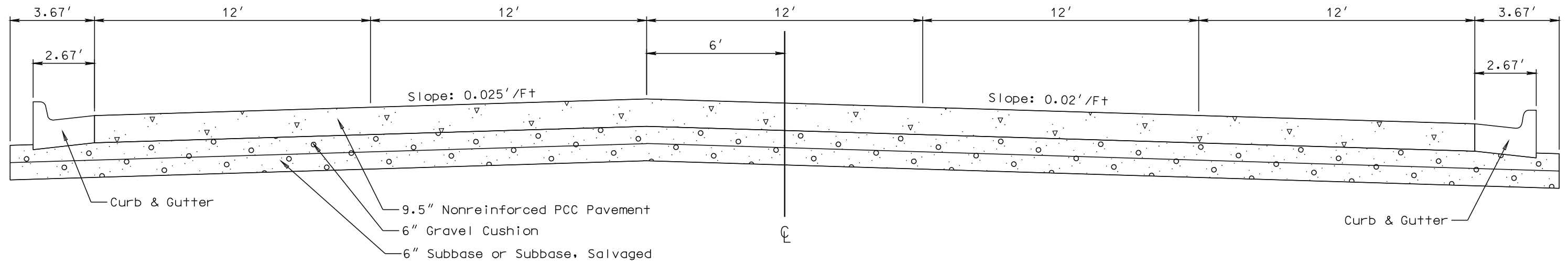
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	10	40
Plotting Date: 30-APR-2010			

TYPICAL SECTION US 12 & State Street

Original Construction
(For Information Only)

US 12



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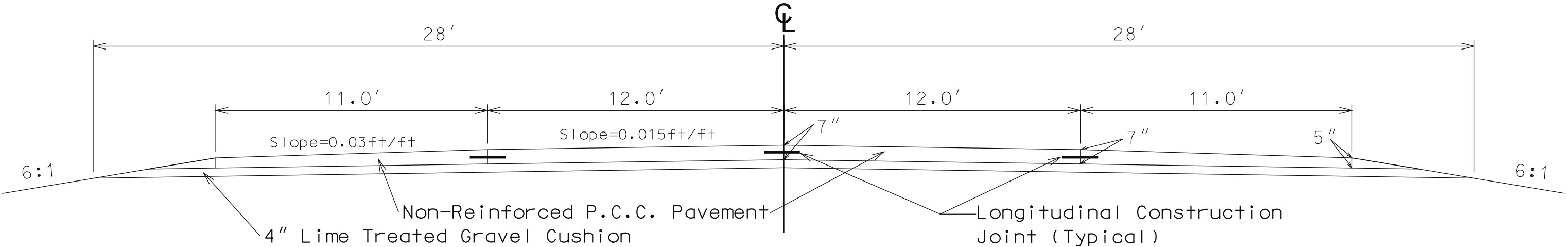
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152		
Plotting Date: 30-APR-2010		11	40

TYPICAL SECTION US 12 IPSWICH TO MINA

Original Construction
(For Information Only)

US 12



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PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	12	40

SPECIFICATIONS

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

SCOPE OF WORK

Work on this project includes, but is not limited to PCC Pavement repair, replacing curb, gutter and sidewalk, and repairing a Sioux Falls Drop Inlet.

SEQUENCE OF OPERATIONS

The following Sequence of Operations shall be adhered to. Any change must be approved in writing by the Engineer prior to the change being made.

- PCC pavement replacement Bypass US 281
- Replace curb, gutter, and sidewalk US 12
- PCC pavement repair US 12

Construction activities will be permitted during daylight hours only.

Only one quadrant at the intersection of US 12 and State Street shall be permitted to be worked on at one time.

The Contractor will be required to maintain access to the pedestrian crosswalk buttons for pedestrian crossing.

PREQUALIFICATION

Pursuant to South Dakota Administrative Rules 70:07:02, Classification and Bidding Capacity Rating for Highway Contracts, and Section 2.1 of the SDDOT Standard Specifications For Roads and Bridges, all bidders on highway construction projects over \$99,999.99 shall be prequalified. Maintenance stockpile projects are excluded from this requirement.

Bidders on projects let through the informal process (being let using a DOT 123 contract form) are excluded from having to submit a request for Plans and Bid Proposal form as required in Standard Specification Section 2.3, showing the bidders status at the time as to their ability to handle the work for which they are submitting a bid. All other portions of Section 2.3 are to remain in effect.

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:

- 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”.
- 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.

EXISTING PCC PAVEMENT

The existing PCC Pavement at US 281 & US 12/6th Avenue is non-reinforced and was constructed using crushed ledge rock aggregate. Load transfer bars are located in the transverse joints. The joint spacing on the project is 20 feet. Transverse joints were sealed with hot poured elastic joint sealer.

The existing PCC Pavement at US 12, (Ipswich to Mina) is non-reinforced and was constructed using crushed ledge rock aggregate. The joint spacing on the project is (14, 16, 17, 19 feet) repeating with a 2 foot skew per 12 foot of lane. Transverse joints were sealed with low modulus silicone sealant.

DIMENSIONS OF EXISTING CONTRACTION JOINTS

All details and dimensions of the existing contraction joints contained in these plans are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and necessary dimensions affecting the satisfactory completion of the work required for this project.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC 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 no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to Tom Lehmkuhl, DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT		SHEET NO.	TOTAL SHEETS
	281	S-151		
012-151 & 012-152			13	40

MAINTENANCE OF TRAFFIC

The maximum length of a work zone shall not exceed 2,000 feet. The length of a work zone shall be measured from the beginning of the lane closure taper to the end of the work zone closure.

There is one set of signs for the US 12 (Ipswich to Mina) project. The Contractor shall be required to move and reset these signs according to their operations. All costs associated with moving and resetting of the traffic control shall be incidental to the contract lump sum price for TRAFFIC CONTROL MISCELLANEOUS.

Due to the narrow lane widths on US 12/6th Avenue from MRM 290.713 to MRM 290.745 lane closures shall not be occurring simultaneously in the East bound and West bound outside lanes at the same location. There is one set of signs for that intersection and the Contractor shall be required to relocate these signs from the SE quadrant to the NE quadrant. All costs associated with moving and resetting these signs shall be incidental to the contract lump sum price for TRAFFIC CONTROL MISCELLANEOUS.

Through the project, the Contractor must maintain local traffic and access to businesses, residences, and city alleys at all times.

The Contractor shall use 42” cones as channelizing devices along centerline.

No more than 1 Type C Advanced Arrow Panel will be measured and paid for. No payment will be made for panels being reused at different repair areas as determined by the Engineer.

Road Work Ahead (W20-1) signs shall be placed on the intersecting side street (State) along the project. 2 Road Work Ahead (W20-1) signs have been included in the Itemized List for Traffic Control Table for this purpose. These signs may be located on temporary or permanent supports. These signs shall be covered or removed when work activities are not present within 750 feet of the intersecting street.

One lane of traffic shall be maintained in each direction at all times on US Highway 12. Crossing of traffic into the center turn lane or oncoming lane will not be allowed.

All operations in the outside lane shall be confined to the 11 ft or 12 ft lane plus the gutter, leaving the adjoining lane open for thru traffic.

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

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

Locations of signs on traffic control layouts are diagrammatic. Portable stands may be used on the shoulders or on driving lanes closed to traffic. The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas.

Type III Barricades 8’ wide shall protect PCC Pavement replacement during open excavation and concrete cure periods.

Removal of 4” white skips or solid white lane lines in the traffic control lane tapers shall be incidental to the contract lump sum price for TRAFFIC CONTROL, MISCELLANEOUS.

The Contractor shall not park equipment or store materials within the ROW, unless allowed by the Engineer.

Orange plastic safety fence shall be provided to enclose any areas that are unsafe for pedestrian traffic. All related costs to furnish, place and maintain the fence shall be incidental to the contract unit price per foot for ORANGE PLASTIC SAFETY FENCE. There are sixty feet of orange plastic safety fence included in the estimate of quantities for the US 12 and State Street work.

All breakaway sign supports shall comply with FHWA NCHRP 350 crashworthy requirements. The Contractor shall provide post installation details at the preconstruction meeting for all steel post breakaway sign support assemblies.

Sidewalk closures consisting of a 5’ wide Type I barricade and a “SIDEWALK, CLOSED” sign shall be installed to mark and protect the sidewalk repair areas. A detectable edge shall be placed at ground level at the same location as a barricade used for sidewalk closure. The detectable edge shall consist of a prefabricated lightweight section of plastic, metal, wood or other suitable material fixed in place to form a continuous edge. The detectable edge shall be orange or white and should match the colors used on the barricade. Cost for detectable edge shall be incidental to the contract lump sum price for TRAFFIC CONTROL, MISCELLANEOUS.

The Contractor shall designate an employee to maintain traffic as described in Section 634.3 of the Standard Specifications. This person shall be required to do routine night and weekend checks to ensure traffic control devices are in satisfactory condition. The Contractor shall submit a weekly log stating time and date of all such inspections. The log shall be signed by the person doing the inspections. The cost of the traffic control person shall be incidental to the contract lump sum price for TRAFFIC CONTROL, MISCELLANEOUS.

REMOVE CONCRETE PAVEMENT

Approximate locations of existing non-reinforced concrete pavement to be removed are provided in the Table of Pavement Removal and Repair. Prior to removal the Contractor shall saw cut full depth at the limits of the removal area as directed by the Engineer. Existing concrete in the replacement areas shall be removed by the lift out method or by means that minimize damage to the sides of the remaining in place concrete. Removed concrete panels shall not be placed on the roadway surface. All removed concrete shall be removed from within the right of way by the end of the workday and disposed of at the Contractor’s waste disposal site.

The Contractor shall notify the Engineer two working days prior to beginning work at each particular location so the Engineer may mark removal limits. The Engineer shall mark exact dimensions prior to removal of concrete pavement. Payment will be made for quantity marked and measured in the field. Variations from plans estimated quantities and/or locations will not be considered cause for re-negotiation of the contract unit prices.

Care shall be exercised in the removal of concrete slab panels to avoid damage to adjacent pavement, manholes, drop inlets, and growth joints. Existing growth joints shall be preserved and remain in place. Damage to adjacent pavement, manholes, drop inlets and/or growth joints shall be repaired to the satisfaction of the Engineer at the Contractor’s expense.

After concrete removal has been accomplished, the Contractor shall shape, water and recompact the remaining granular material prior to placement of concrete. Any additional gravel cushion required to prepare the area shall be furnished and placed by the Contractor and shall be incidental to the contract unit price per square yard for the various PCC Pavement Repair bid items.

Gravel cushion material shall be from a Contractor furnished source. Water content and compaction shall be to the satisfaction of the Engineer.

Removal of Concrete Pavement and PCC Fillet Section pavement will be incidental to the various PCC Pavement repair bid items. This payment will be full compensation for full and partial depth sawing, removal of all PCC Pavement and PCC Fillet Sections, disposal of all removed material, and all equipment, labor, and incidentals necessary to satisfactorily complete work.

REMOVE CONCRETE CURB AND GUTTER

Approximate locations of existing concrete curb and gutter to be removed are provided in the Table of Pavement Removal and Repair. Prior to removal the Contractor shall saw cut full depth at the limits of the removal area as directed by the Engineer. Existing concrete in the replacement areas shall be removed by means that minimize damage to the sides of the remaining in place concrete pavement and sidewalk. All removed concrete shall be removed from within the right of way by the end of the workday and disposed of at the Contractor’s waste disposal site. At the NE quadrant of 6th Avenue and State Street the Contractor shall be required to saw cut full depth through the steel in front of the Sioux Falls drop inlet at the edge of the gutter pan. The concrete shall remain in place.

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REMOVE CONCRETE CURB AND GUTTER (CONTINUED)

After concrete removal has been accomplished, the Contractor shall shape, water and recompact the remaining granular material prior to placement of concrete. Any additional gravel cushion required to prepare the area shall be furnished and placed by the Contractor and shall be incidental to the contract unit price per foot for the various concrete curb and gutter bid items.

Gravel cushion material shall be from a Contractor furnished source. Water content and compaction shall be to the satisfaction of the Engineer.

Removal of concrete curb and gutter will be incidental to the various concrete curb and gutter bid items. This payment will be full compensation for full and partial depth sawing, removal of all curb and gutter, disposal of all removed material, and all equipment, labor, and incidentals necessary to satisfactorily complete work.

REMOVAL OF SIDEWALK

The contractor shall be require to saw cut the concrete sidewalk full depth from behind the curb and gutter 1’, that will be removed at the NE quadrant of State St. and 6th Avenue on US 12 from MRM 290.713 to MRM 290.745 LT. Upon completion of concrete removal, the contractor shall add two inches of gravel cushion and two inches of asphalt concrete composite. All costs associated with acquiring, placing and compacting of the gravel cushion and asphalt concrete composite shall be incidental to the contract bid item per square foot of 4” CONCRETE SIDEWALK. The compaction shall be to the satisfaction of the Engineer.

There are nine panels that will be removed and replaced at the NE quadrant of State St. and 6th Avenue on US 12 from MRM 290.745 to MRM 290.722 LT. The Contractor shall notify the Engineer two working days prior to beginning work at each particular location so the Engineer may mark removal limits.

After sidewalk removal has been accomplished, the Contractor shall shape, water and recompact the remaining granular material prior to placement of concrete. Any additional gravel cushion required to prepare the area shall be furnished and placed by the Contractor and shall be incidental to the contract unit price per square foot for 4” CONCRETE SIDEWALK.

Gravel cushion material shall be from a Contractor furnished source. Water content and compaction shall be to the satisfaction of the Engineer.

All costs associated with sidewalk removal shall be incidental to the contract unit price per square foot for 4” CONCRETE SIDEWALK. This payment will be full compensation for full and partial depth sawing, removal of all sidewalks, disposal of all removed material, and all equipment, labor, and incidentals necessary to satisfactorily complete work.

EXCAVATION OF UNSTABLE MATERIAL

Included in the Estimate of Quantities are **25** Cubic Yards of Unclassified Excavation, Digouts for each project for the necessary removal of unstable material.

Backfill shall be Gravel Cushion paid for at the contract unit price per ton.

GRAVEL CUSHION

Gravel Cushion shall conform to the requirements of the Standard Specifications.

Included in the Estimate of Quantities is **50** tons of Gravel Cushion for each project for backfill of Unclassified Excavation, Digouts. The only time Gravel Cushion will be measured and paid for is in locations where digouts are required.

BASE COURSE

Aggregate for Base Course shall conform to the Standard Specifications, except that the density shall be to the satisfaction of the Engineer.

The base course shall be placed at the intersection of the south bound lanes at US 281 and the bypass turning ramp as directed by the Engineer. The area shall require the contractor to remove and stockpile the topsoil and unclassified excavation in separate piles before placement of the base course. The base course shall be maintained at the discretion of the Engineer. After construction the contractor shall remove the base course and replace the unclassified excavation and topsoil. The base course shall become the property of the contractor for their disposal. All costs associated with removal, replacing material and maintaining the base course shall be incidental to the contract unit price per ton for BASE COURSE.

STEEL BAR INSTALLATION

The Contractor shall install the steel bars (**1 1/4** inch epoxy coated plain round dowel bars and No. **5** and No. **9** 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.

The steel bars shall be cut to the specified length by sawing and shall be free from burring or 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).

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.

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 from the back to the front 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 hole prior to steel bar insertion. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping method will not be allowed.

Steel bars shall not be placed closer than 3 inches to any longitudinal joint, not closer than 18 inches to any transverse joint, and not closer than 15 inches to any construction joint.

Concrete shall be placed when the epoxy for anchoring the steel bars has hardened sufficiently to permit no movement of the steel bars.

All costs for the installation of steel bars shall be incidental to the contract unit price per each for INSERT STEEL BAR IN PCC PAVEMENT.

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NONMETALLIC FIBER REINFORCED PCC PAVEMENT REPAIR

Concrete shall meet the requirements of the Standard Specifications Section 380, except as modified by the following notes:

The concrete on US 281 shall require fiber from W.R.Meadows, Strux 90-40 Synthetic Macro Fiber Reinforcement or an approved equivalent. The application rate shall be at 5 pounds per cubic yard. All costs associated with adding the fiber to the concrete shall be incidental to the contract bid item for NONMETALLIC FIBER REINFORCED PCC PAVEMENT REPAIR.

The concrete mix design shall be Class A45 in accordance with section 460 of the standard specifications. Class F Modified Fly Ash shall be substituted for 20% of the cement in accordance with section 605 of the standard specifications. The slump and air requirements will be in accordance with section 380. The concrete shall obtain a minimum compressive strength of 4,000 psi before opening to traffic.

A broom finish will be required. A transverse metal tine finish will be required as specified by the Engineer.

Transverse joints shall be constructed in accordance with the details shown on Sheet **25**. Transverse joint should be sealed as per 380.03 and 650.90. The transverse joints shall be sawed to **1/4** inch width and filled with HOT POURED ELASTIC JOINT FILLER. If any sealant is disrupted outside this area the Contractor shall replace it at no additional cost to the State.

Traffic will not be allowed on pavement until hot poured elastic joint filler has cured.

All costs associated with sawing and sealing of the joints shall be incidental to the various PCC Pavement repair bid items regardless if the joints are in new or existing pavement.

Transverse joints shall be sealed from the top back edge of the curb to the opposite top back edge of curb as per standard plate 650.90.

Longitudinal Joints shall be constructed in accordance with the Standard Plate 380.10. Longitudinal joint sealing will not be measured and paid for, but shall be incidental to the various pavement repair bid items.

If the area of removal requires a transverse contraction joint to be reestablished, a dowel bar assembly shall be installed at the joint and paid for at the contract unit price per each for DOWEL BAR. Centerline of individual dowel bars in the dowel bar assembly shall be parallel to the roadway centerline. Sawing of the contraction joint shall commence when the concrete has hardened sufficiently to permit sawing without raveling.

Tie bars that require drilling holes and epoxy injection shall be measured and paid for at the contract unit price per each for INSERT STEEL BAR IN PCC PAVEMENT.

Placement of NONMETALLIC FIBER REINFORCED PCC PAVEMENT REPAIR will be paid for at the contract unit price per square yard. This payment will be full compensation for removal of in place concrete, for concrete, and for equipment, labor, and incidentals necessary to satisfactorily complete the work.

NONREINFORCED PCC PAVEMENT REPAIR

Concrete shall meet the requirements of the Standard Specifications Section 380, except as modified by the following notes:

The concrete mix design shall be Class A45 in accordance with section 460 of the standard specifications. Class F Modified Fly Ash shall be substituted for 20% of the cement in accordance with section 605 of the standard specifications. The slump and air requirements will be in accordance with section 380. The concrete shall obtain a minimum compressive strength of 4,000 psi before opening to traffic.

A broom finish will be required. A transverse metal tine finish will be required as specified by the Engineer.

Transverse joints shall be constructed in accordance with the details shown on Sheet **25**. Transverse joint should be sealed as per 380.03 and 650.90. The transverse joints shall be sawed to **1/4** inch width and filled with HOT POURED ELASTIC JOINT FILLER. If any sealant is disrupted outside this area the Contractor shall replace it at no additional cost to the State.

Traffic will not be allowed on pavement until hot poured elastic joint filler has cured.

All costs associated with sawing and sealing of the joints shall be incidental to the various PCC Pavement repair bid items regardless if the joints are in new or existing pavement.

Transverse joints shall be sealed from the top back edge of the curb to the opposite top back edge of curb as per standard plate 650.90.

Longitudinal Joints shall be constructed in accordance with the Standard Plate 380.10. Longitudinal joint sealing will not be measured and paid for, but shall be incidental to the various pavement repair bid items.

If the area of removal requires a transverse contraction joint to be reestablished, a dowel bar assembly shall be installed at the joint and paid for at the contract unit price per each for DOWEL BAR. Centerline of individual dowel bars in the dowel bar assembly shall be parallel to the roadway centerline. Sawing of the contraction joint shall commence when the concrete has hardened sufficiently to permit sawing without raveling.

Tie bars that require drilling holes and epoxy injection shall be measured and paid for at the contract unit price per each for INSERT STEEL BAR IN PCC PAVEMENT.

Placement of NONREINFORCED PCC PAVEMENT REPAIR will be paid for at the contract unit price per square yard. This payment will be full compensation for removal of in place concrete, for concrete, and for equipment, labor, and incidentals necessary to satisfactorily complete the work.

FAST TRACK CONCRETE FOR PCC PAVEMENT REPAIR

Fast Track Concrete shall be used at all repair locations to ensure that the pavement repair area has obtained 3800 psi within 8 hours after placement. No PCC pavement removal is to occur after 11:00 am and all Fast Track Concrete shall be placed prior to 1:00 PM. After 8 hours, the Engineer will

make a determination if the actual in-place strength is acceptable for opening the newly placed concrete for use by the traveling public. An initial cylinder shall be made and the Engineer shall calibrate a Swiss Hammer to it. All subsequent 8 hour strength tests shall be by Swiss Hammer. Cylinders will be made according to Materials Manual Requirements and the Swiss

Hammer calibration regularly updated according to the early break cylinders. The Engineer will test the area after the initial 8 hour cure period by Swiss Hammer. If the area does not meet strength after the 8 hour cure period, the area will be tested every 2 hours until 10:00 P.M., and then not again until 6:00 A.M. No section is to be opened without permission of the Engineer.

PCC Pavement Repair areas shall be removed and replaced the same day during daylight hours. The new PCC Pavement thickness for repair areas shall be 8 or 7.5 inches, as indicated on the corresponding in place typical sections.

The slump requirement prior to use of a set accelerator or super-plasticizer will be limited to 2 inches maximum. After the addition of all admixtures the maximum slump shall be 8 inches and the concrete shall contain 4.5 to 7.5 percent entrained air. The concrete mixture shall contain a minimum of 50% coarse aggregate by weight. The concrete mix shall contain at least 700 pounds of type I, II, or III cement per cubic yard. The minimum 28 day compressive strength shall be 4000 psi. 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 Contractor is responsible for the mix design used. The Contractor shall submit a mix design and supporting documentation for approval at least 2 weeks prior to use.

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

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 3800 psi strength is attained.

If the area of removal requires a transverse contraction joint to be reestablished, a dowel bar assembly shall be installed at the joint and paid for at the contract unit price per each for DOWEL BAR. Centerline of individual dowel bars in the dowel bar assembly shall be parallel to the roadway centerline. Sawing of the contraction joint shall commence when the concrete has hardened sufficiently to permit sawing without raveling.

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 joints, labor, tools and equipment shall be included in the contract unit price per square yard for FAST TRACK CONCRETE FOR PCC PAVEMENT REPAIR.

PLOTTED FROM - TRAB12245

FAST TRACK CONCRETE FOR PCC PAVEMENT REPAIR (CONTINUED)

The concrete repair area shall be removed, replaced, and opened to traffic in the same day. Once Fast Track Concrete is placed, if the concrete does not achieve the required 3800 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 3800 psi has been obtained. This includes any overnight traffic control if needed.

If the concrete cannot be placed within the same day the Contractor shall place and compact gravel cushion within the repair area prior to nightfall and the roadway shall be opened to normal traffic. The Contractor shall be responsible for all additional costs for providing, placing, compacting and removing the gravel cushion. The Contractor shall install LOOSE GRAVEL and BUMP signs at each location where gravel cushion has been placed. The contractor shall be responsible for all costs for additional signing.

The shoulders of the roadway contain rumble strips. Any repair area that encompasses a rumble strip shall have the rumble strip reestablished as per Standard Plate 380.15.

Cost for performing the aforementioned work including sawing and removing concrete, furnishing and placing Fast Track Concrete, sawing joints, labor, tools and equipment shall be included in the contract unit price per square yard for FAST TRACK CONCRETE FOR PCC PAVEMENT REPAIR.

ALKALI SILICA REACTIVITY

Fine aggregate with a 14 day expansion value of 0.400 and greater shall not be used.

The Department will use the running average of the last three known expansion test results or less for determining acceptability of source and the required type of cement. These expansion results are reported in the preceding table. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

The values listed in the table are intended for use in bidding. If a previously tested pit by SDDOT with acceptable test values (less than 0.250) is discovered after letting and Type V cement is required (values greater than 0.250), the Department will accept financial responsibility for the change from Type II to Type V cement.

Type II or Type V cement will not change the requirement for the fly ash. The cost for either type of cement shall be subsidiary to the contract item.

Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

TABLE OF KNOWN FINE AGGREGATE SOURCES

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
B&B ready Mix	Flandreau, SD	0.113
Birdsall S&G	Blunt, SD	0.223
Birdsall S&G	Creston, SD	0.170
Birdsall S&G	Oral, SD	0.136
Birdsall S&G	Wasta, SD	0.177
Bitterman	Delmont, SD	0.314*
Concrete Materials	Corson, SD	0.158
Emme Sand & Gravel	Oneil, NE	0.217
Fischer S&G	Fort Yates, ND	0.264*
Fischer S&G	Rapid City, SD	0.092
Fischer S&G	Spearfish, SD	0.053
Fischer S&G	Wasta, SD	0.152
Fuchs	Pickstown, SD	0.275*
Henrick & Son	Bigstone, SD	0.140
Higman	Akron, IA	0.194
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.123
L.G. Everist	Hawarden, IA	0.179
L.G. Everist	Summit, SD	0.163
McLaughlin	Watertown, SD	0.124
Mission Hills	Yankton, SD	0.261*
Morris – Richards pit	Onida, SD	0.214
Morris – Schmitgen	Onida, SD	0.158
Myrl & Roys Paving-Nelson Pit	Sioux Falls, SD	0.158
Northern Concrete Agg.	Rauville, SD	0.105
Northern Concrete Agg.	Luverne, MN	0.124
Opperman - Gunvordahl Pit	Burke, SD	0.337*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.329*
Opperman – Randall Pit	Pickstown , SD	0.211
Sisseton Ready Mix	Sisseton, SD	0.106
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Wagner, SD	0.241

* These sources will require Type V cement in the concrete mix design and Class F (Modified) fly ash as specified.

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9.5” PCC FILLET SECTIONS

Payment for 9.5” PCC FILLET SECTION shall be based on plans quantity. If additions or reductions to the area of PCC fillet sections are ordered by the Engineer, payment will be made in accordance with the contract unit price per square yard for 9.5” PCC FILLET SECTION.

All costs associated with removal and disposal of the in place concrete pavement, and concrete curb and gutter shall be incidental to the contract unit price per square yard for 9.5” PCC FILLET SECTION.

A Concrete Fillets shall be removed and replaced in the NE & SE quadrants of the State Street Intersection. A Type 3 Curb Ramp shall be constructed.

TYPE B69.5 CONCRETE CURB AND GUTTER

Replacement areas of curb and gutter and P gutter may exist adjacent to full depth concrete repair, including full depth repair that shall be repaired with Fast Track Concrete. If the Contractor elects to install the concrete for the full depth repair at a separate time from the curb and gutter replacement, tie bars shall be installed to tie the curb and gutter to the full depth repair.

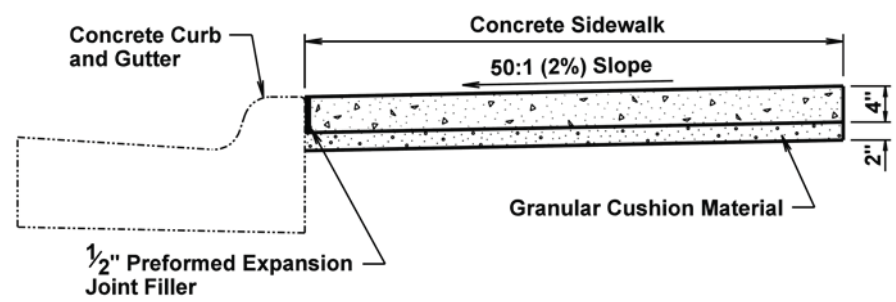
CURING OF CONCRETE

Portland Cement Concrete Pavement shall be cured with Linseed Oil Base Emulsion Compound in accordance with Section 821 of Standard Specifications.

SPECIAL CURB AND GUTTER

The Contractor shall saw cut full depth around the fillet section on the edge of the gutter pan at the NE quadrant of US 12 and State Street. The curb and gutter shall be removed and reinforcing steel inserted. The Contractor shall replace the Type 3 Curb Ramp curb and gutter. All costs associated with removal, disposal and concrete placement shall be incidental to the contract unit price per foot for SPECIAL CURB AND GUTTER.

CONCRETE SIDEWALK



The concrete sidewalk shall be constructed in accordance with Section 651 of the Standard Specifications. The sidewalk details shown above are typical however, the sidewalk widths will vary.

The Contractor shall furnish and install a 4” PVC pipe as a block out at any location where a street sign is present in the sidewalk itself. Cost of the block out shall be incidental to the contract unit price per square foot for 4” CONCRETE SIDEWALK. Location of the 4” PVC pipe block out shall be determined by the Engineer.

Sidewalk repair locations and quantities are shown on the Table of Pavement Removal and Repair US12/6th Avenue.

The amount of time that the sidewalk is closed shall be kept to a minimum. In no case shall the sidewalk be closed more than 48 hours for repairs to be completed.

GROOVE PAVEMENT FOR PAVEMENT MARKING

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

Groove tolerance shall be limited to 1” maximum beyond the edge of any arrow or area markings.

PAVEMENT MARKING

Pavement markings shall be replaced in their entirety.

On US 12 and Roosevelt Street the Cold Applied Plastic Pavement Markings shall be applied as follows:

Included in the Estimate of Quantities are 280 Feet of COLD APPLIED PLASTIC PAVEMENT MARKING, 4” YELLOW, 70 Feet of COLD APPLIED PLASTIC PAVEMENT MARKING, 4” WHITE and 40 Feet of COLD APPLIED PLASTIC PAVEMENT MARKING, 24” WHITE to repair markings disturbed by PCCP repair on US 12. All costs associated with cleaning the roadway surface and applying the cold applied plastic pavement markings shall be incidental to the contract price per foot for COLD APPLIED PLASTIC PAVEMENT MARKINGS.

On US 281 from MRM 197.439 to 197.514 Lt the Cold Applied Plastic Pavement Markings shall be applied as follows:

Included in the Estimate of Quantities are 177 Feet of COLD APPLIED PLASTIC PAVEMENT MARKING, 4” YELLOW & 201 Feet of COLD APPLIED PLASTIC PAVEMENT MARKING, 12” WHITE to repair markings disturbed by PCCP repair on US 281. All costs associated with cleaning the roadway surface and applying the cold applied plastic pavement markings shall be incidental to the contract price per foot for COLD APPLIED PLASTIC PAVEMENT MARKINGS.

The SDDOT Region Operations Traffic Unit shall apply the permanent paint on US 12 from Ipswich to Mina. The contractor shall inform the Project Engineer two weeks prior to completion of work on US 12.

SWEEPING OF ROADWAY

The Contractor shall use a pickup broom having integral mounted self-contained storage to clean the roadway. The pickup broom used shall be a minimum of 6 feet wide and have working gutter brooms. Cost of cleaning the roadway with a pickup broom shall be incidental to the contract unit price per hour for SWEEPING. Sweeping will be measured and paid for to the nearest 0.1 hours.

- At a minimum, sweeping will be required:
- Prior to opening any segment of roadway to traffic.
 - Following pavement grooving operations and prior to the application of the pavement marking tape.

When sawing operations are underway in the inside driving lanes, the outside driving lanes and gutter may need to be swept to control dust

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SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlets with Frame and Grates shall be installed prior to working in the vicinity of the drop inlets.

The Contractor shall be responsible for maintaining and repairing the sediment control device for the duration of the project for which sediment control measures are required. Maintenance shall be scheduled to prevent storm water from backing up into the driving lane.

“Sediment Control at Inlets with Frames and Grates” will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlets with Frames and Grates shall be incidental to the contract unit price per each for “Sediment Control at Inlet with Frame and Grate”.

Sediment collection device shall be:

A sediment control device as shown on Standard Plate 734.10. Filter fabric used for constructing the sediment control at inlets with frames and grates shall be the same type of fabric that is used in high flow silt fence from the approved product list. The approved product list may be viewed at the following internet site:

<http://www.state.sd.us/Applications/HC54ApprovedProducts/main.asp>

Sediment Control at Inlet with Frame and Grate Approved List:	
Product	Manufacturer
InfraSafe Debris Collection Device with filter sock	Royal Environmental Systems, Inc. Stacy, MN Phone: 1-800-817-3240 www.royalenterprises.net
Dandy Curb Sack	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 952-461-4376 www.silttrapper.com
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 605-520-0555 www.skyviewconst.com

TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

MRM	L/R	Quantity (Each)
290.741	L	1
292.021	R	1
Total:		2

SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

The sediment control device provided shall be from the list shown below. Refer to Standard Plate 734.11 for details.

Product	Manufacturer
Dandy Curb	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Gutterbuddy	ACF Environmental Richmond, VA Phone: 1-800-448-3636 www.acfenvironmental.co m
SS-300	Silt-Saver, Inc. Conyers, GA Phone: 1-888-382-7458 www.siltsaver.com

TABLE OF SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

MRM	L/R	Clear Opening Width (Ft)	Quantity* (Ft)
290.718	L	11	13
290.718	R	11	13
Total:			26

PERMANENT SEEDING

The area to be seeded comprises of the section on US 281 where the base course was placed to facilitate turning movements on to the 281 South Bound Lanes.

All permanent seed shall be planted in the topsoil at a depth of ¼” to ½”.

All seed broadcast must be raked or dragged in (incorporated) within the top ¼” to ½” of topsoil when possible.

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
Total:		18

The area to be seeded is estimated at 0.02 acres.

Application of fertilizer will not be required on this project.

Seeding will not be measured for payment but shall be incidental to the contract lump sum price for EROSION CONTROL.

MULCHING (GRASS HAY OR STRAW)

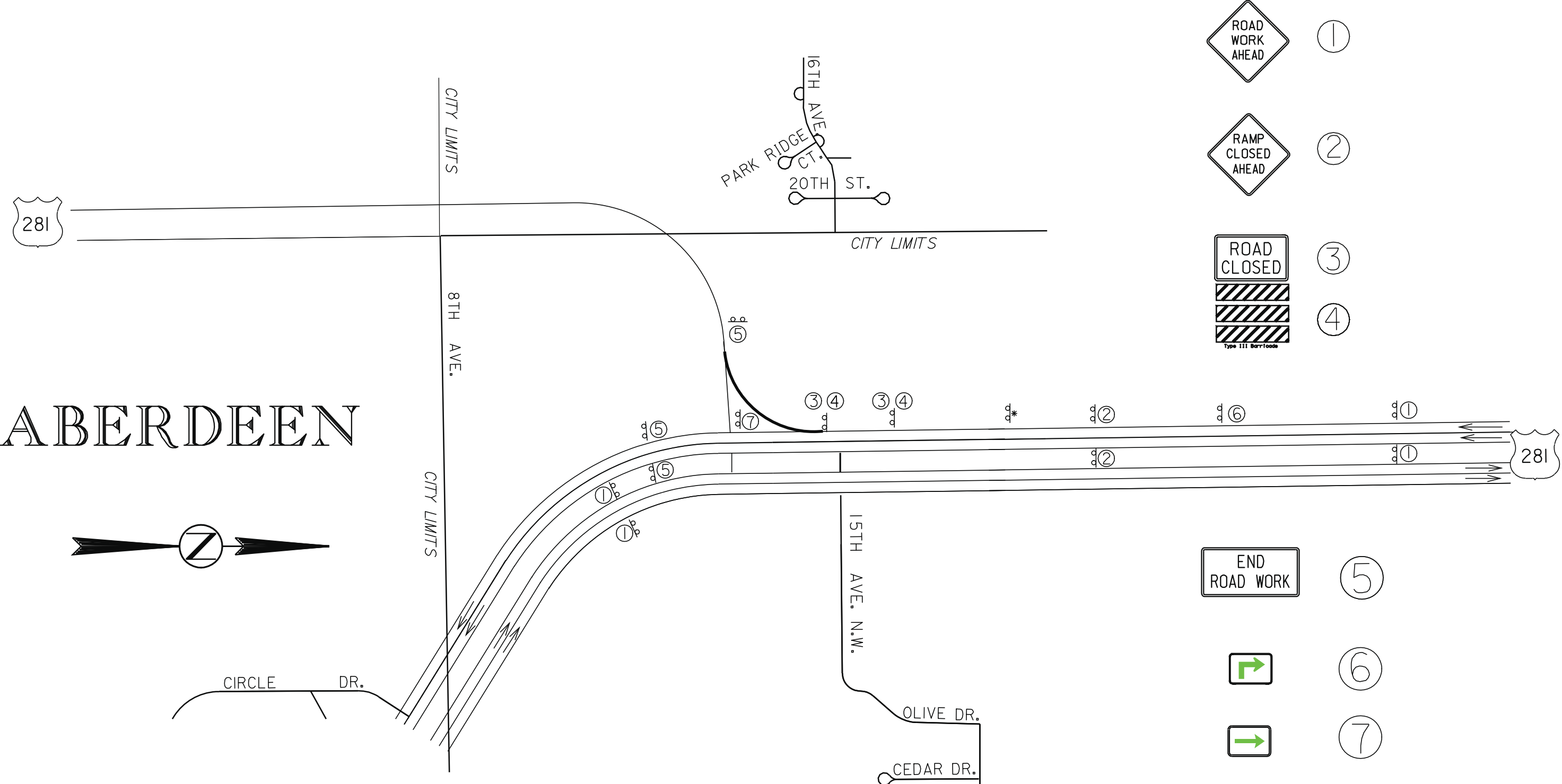
Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project. All costs associated with mulching shall be incidental to the lump sum price for EROSION CONTROL.

PLOT SCALE - 119.072978:1.000000

PLOTTED FROM - TRAB12245

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FIXED LOCATION SIGN LAYOUT



Signs 6 & 7 shall be mounted on the existing sign post over the top of the directional arrow in place.

* Contractor shall cover the directional arrow sign. All costs associated with covering the sign shall be incidental to the lump sum item of Traffic Control, Miscellaneous

The diagram illustrates a two-lane road construction zone with a 100-foot wide work area. Traffic is controlled by two flaggers positioned at the ends of the work zone. The approach to the work zone includes a 'DO NOT PASS' sign, a '45 M.P.H.' speed limit sign, and a 'ROAD WORK 1/2 MILE' advance warning sign. The work zone itself is marked with 'ROAD WORK 1000 FT' and 'ROAD WORK 1/2 MILE' signs, along with a 'SHOULDER DROP-OFF' sign. The exit of the work zone is marked with an 'END ROAD WORK' sign. The diagram also shows the placement of channelizing devices (drums) along the edges of the work area and the use of Type III Barricades to delineate the work space. Dimensions for sign placement and work zone length are provided throughout the diagram.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151		
	012-151 & 012-152	20	40
Plotting Date: 30-APR-2010			

GUIDES FOR TRAFFIC CONTROL DEVICES SIDEWALK CLOSURES

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	21	40
Plotting Date: 03-MAY-2010			

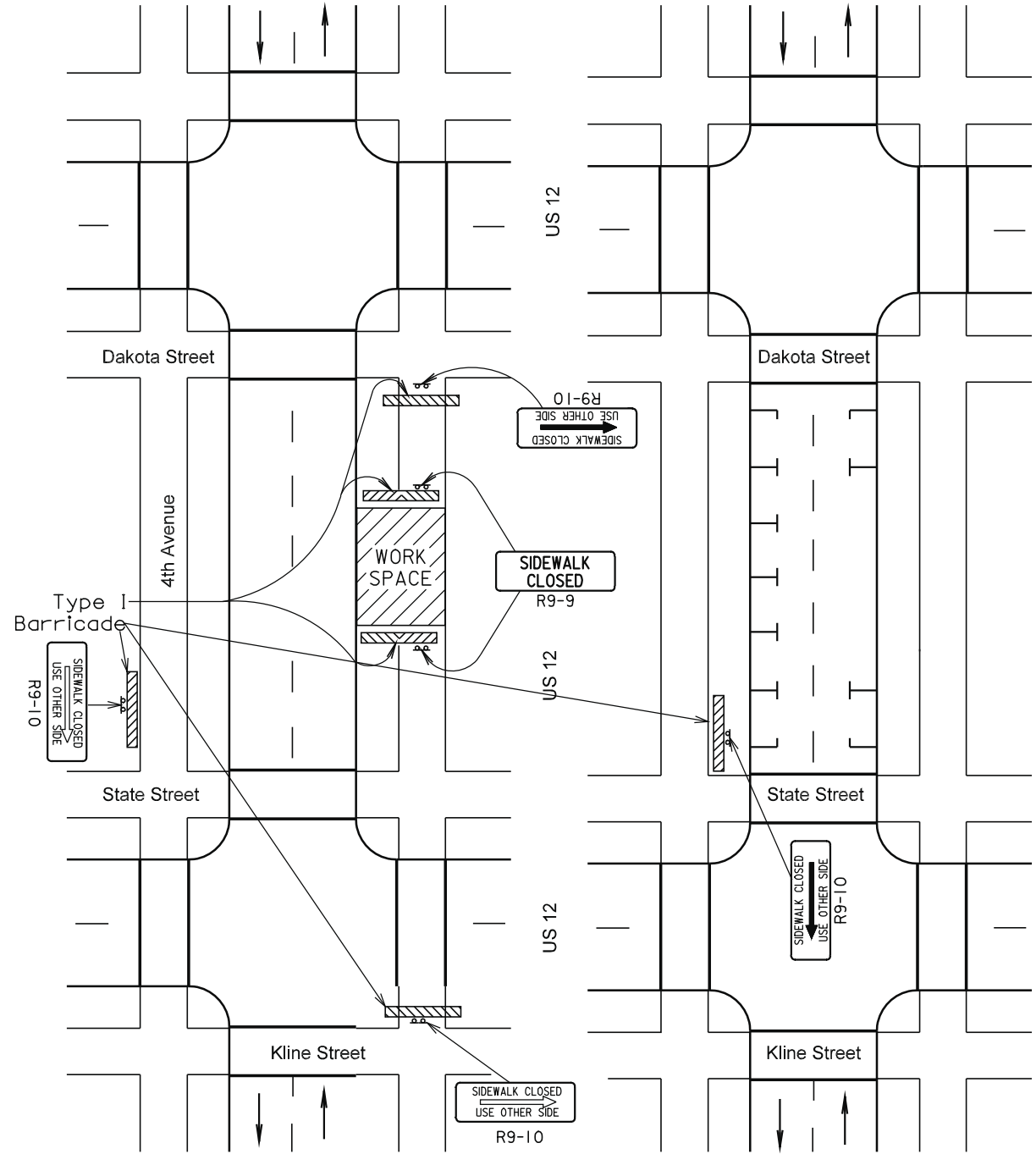
Only the traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets. Use lane closure signing or ROAD NARROWS signs, as needed.

Signs may be placed along a temporary walkway to guide or direct pedestrians. Examples include KEEP RIGHT and KEEP LEFT signs.

Additional advance warning may be necessary.

For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing walkways. Type C steady-burn lights may be used on channelizing devices separating the temporary walkway from vehicular traffic.

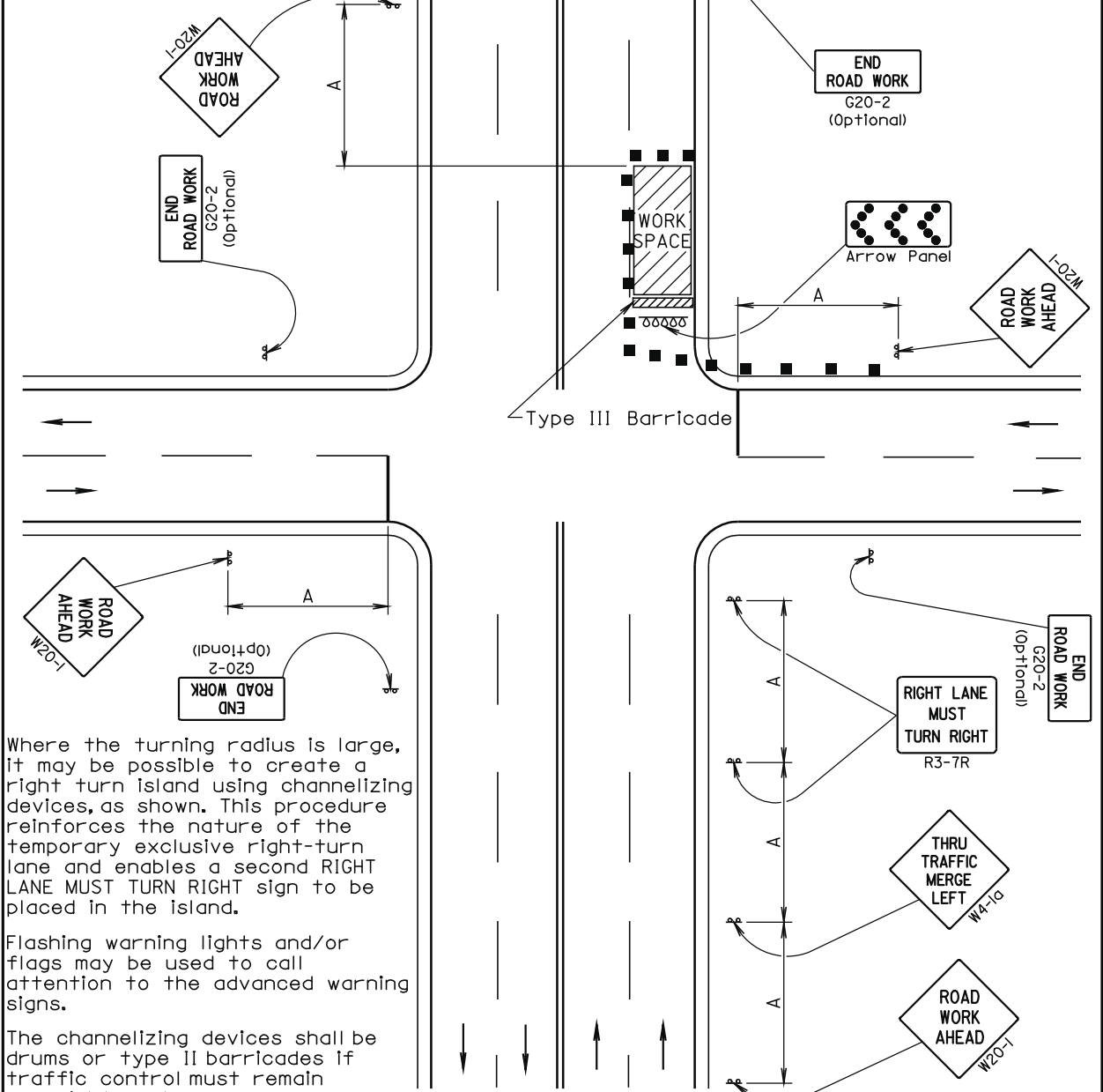
Street lighting should be considered.



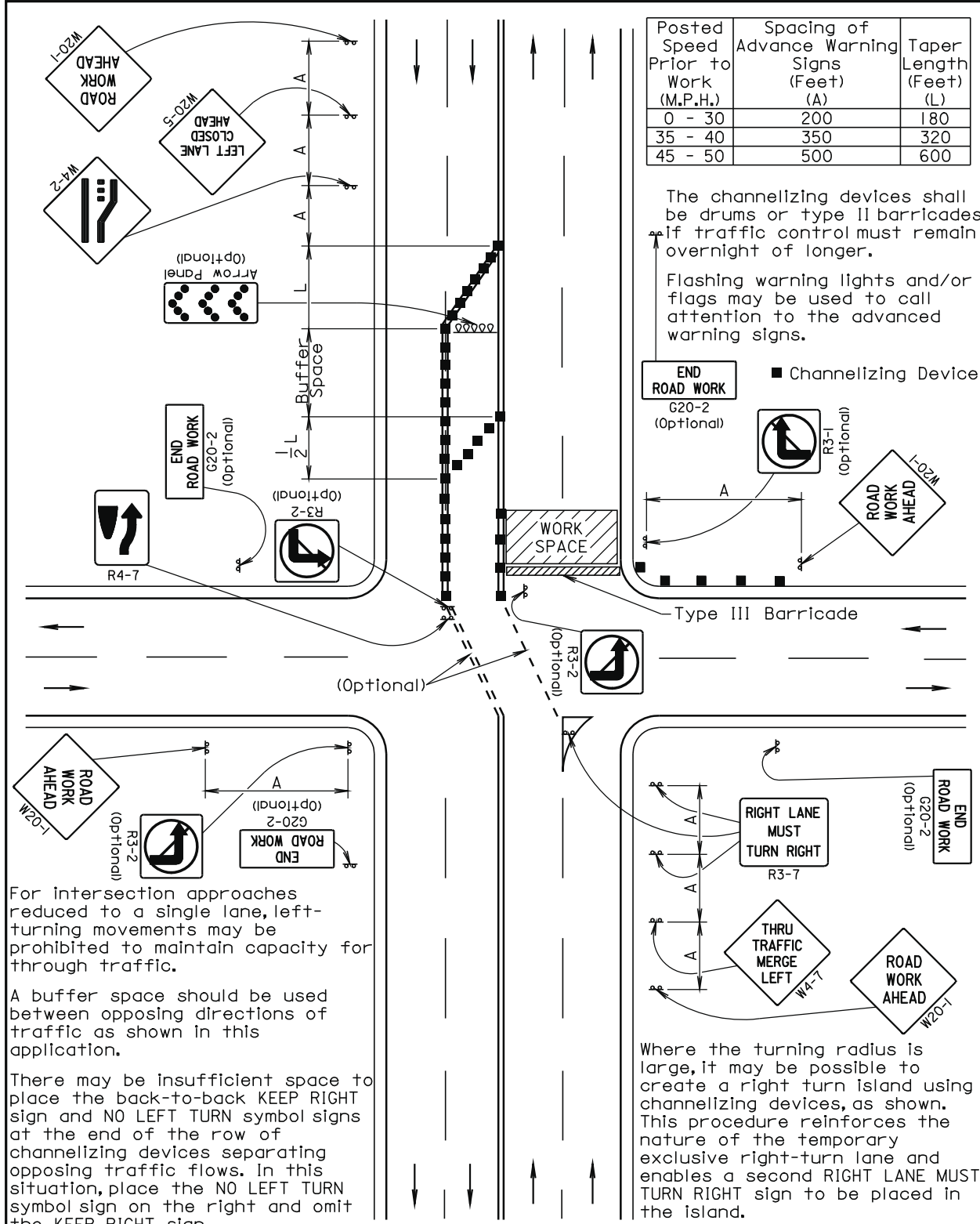
Plotting Date: 03-MAY-2010

For intersection approaches reduced to a single lane, left-turning movements may be prohibited to maintain capacity for through traffic.

The standard procedure is to close on near side of the intersection any lane that is not carried through the intersection. However, when this results in the closing of a right lane having significant right-turning movements, then the right lane may be restricted to right turns only, as shown.



December 23, 2008



December 23, 2008

Plotting Date: 03-MAY-2010

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

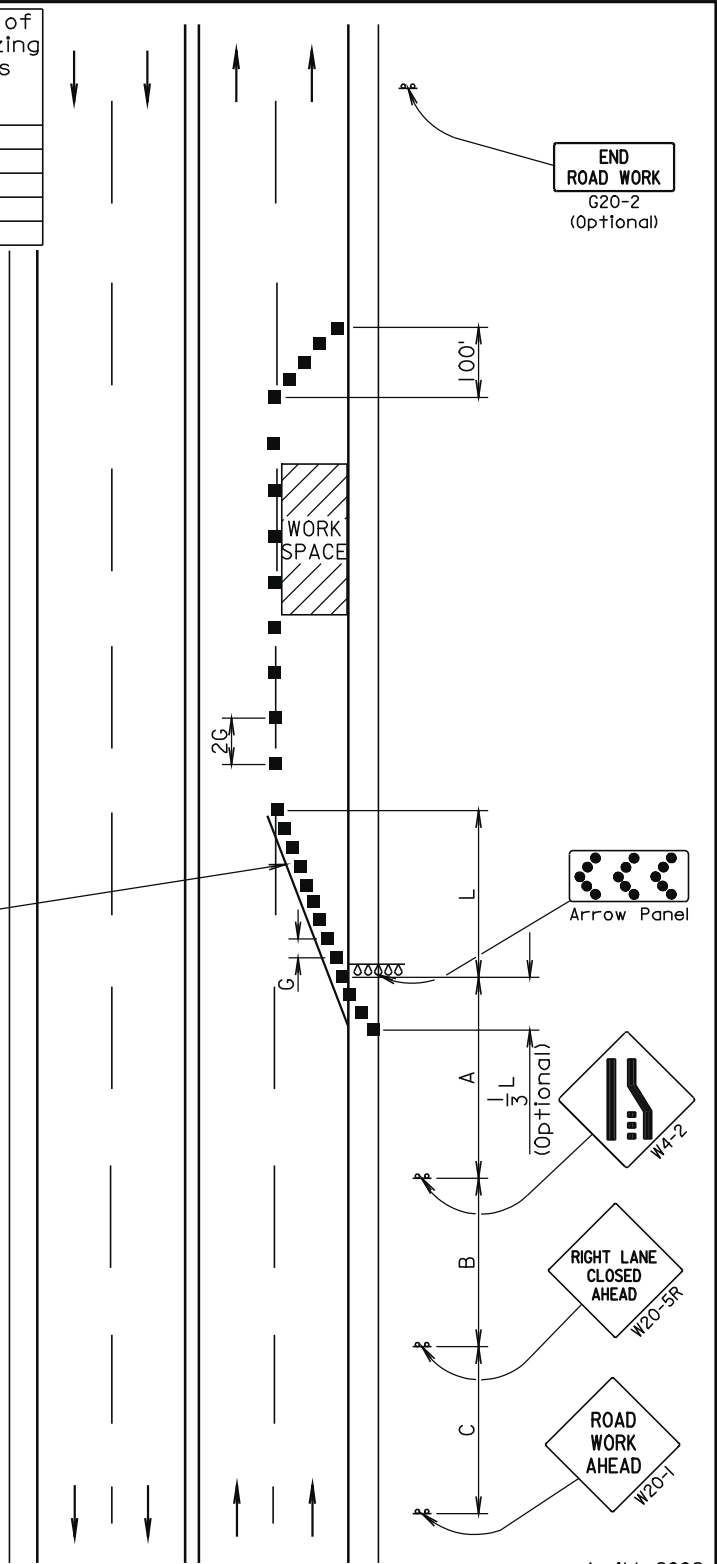
■ Channelizing Device

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

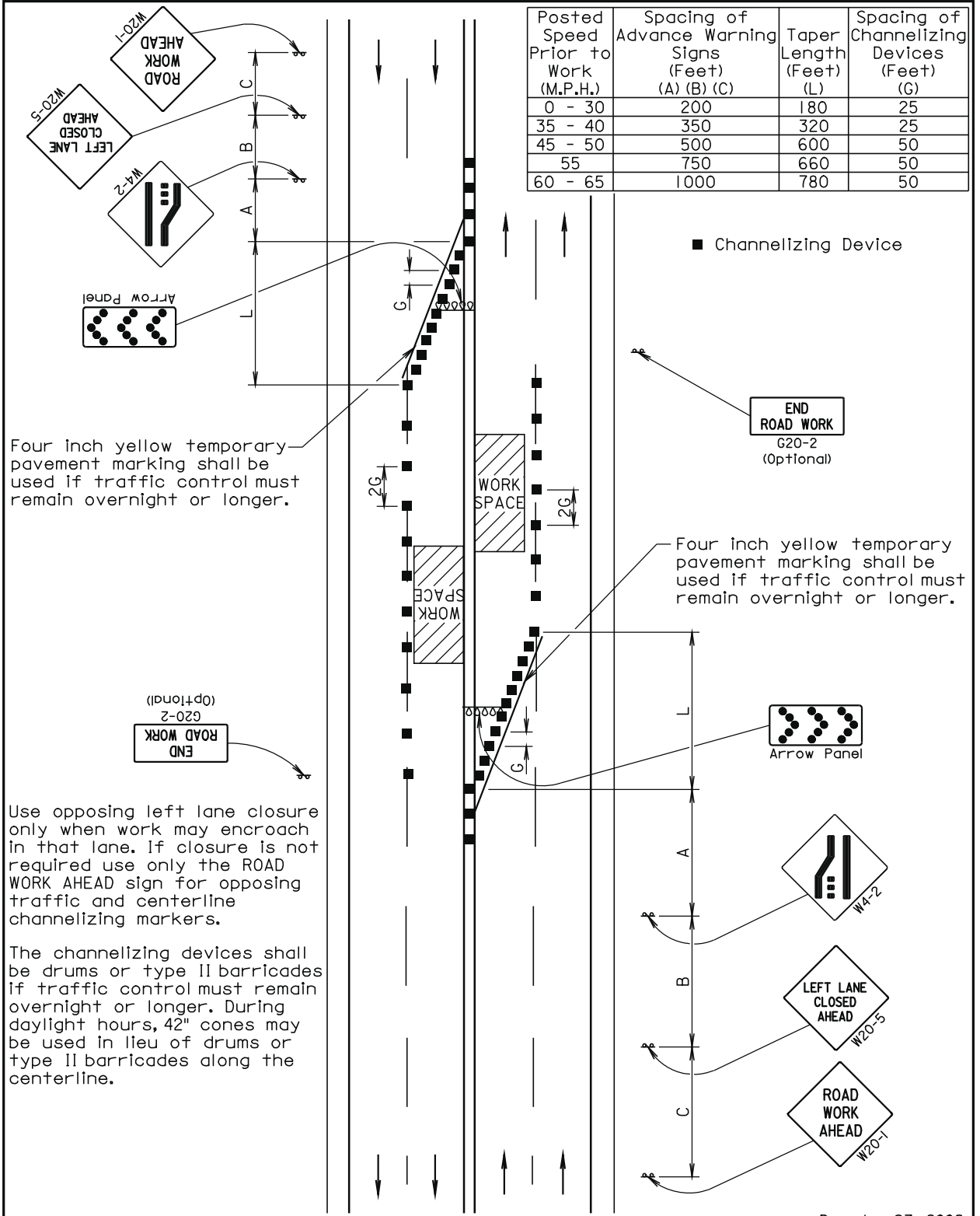
42" cones may be used along centerline

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

Four inch white temporary pavement marking shall be used if traffic control must remain overnight or longer.

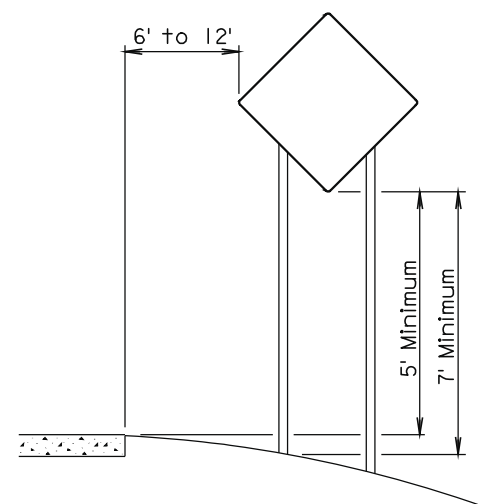


April 1, 2008

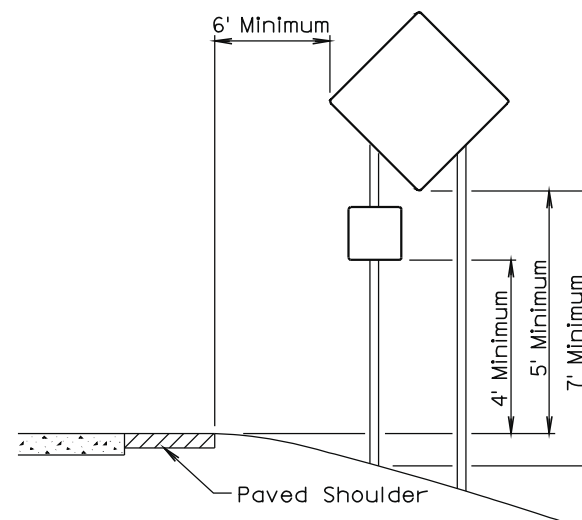


December 23, 2008

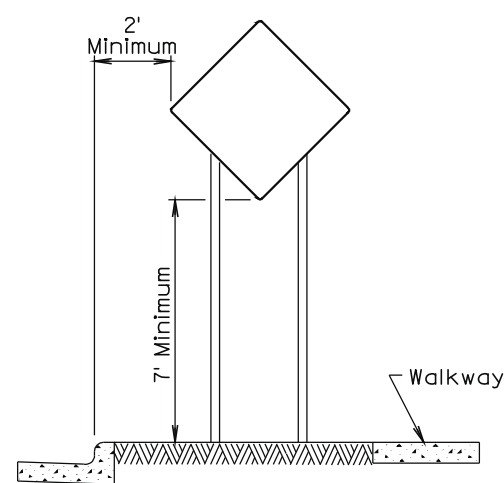
Plotting Date: 03-MAY-2010



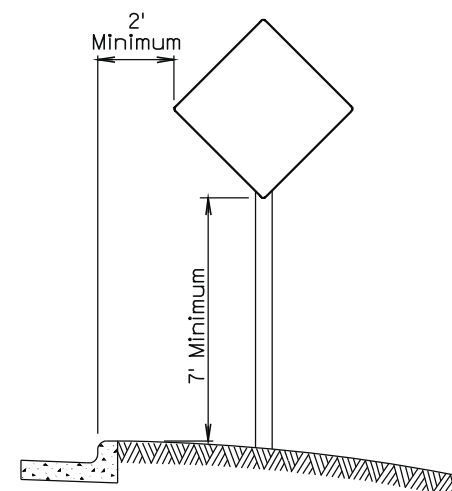
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT



URBAN DISTRICT

December 23, 2003

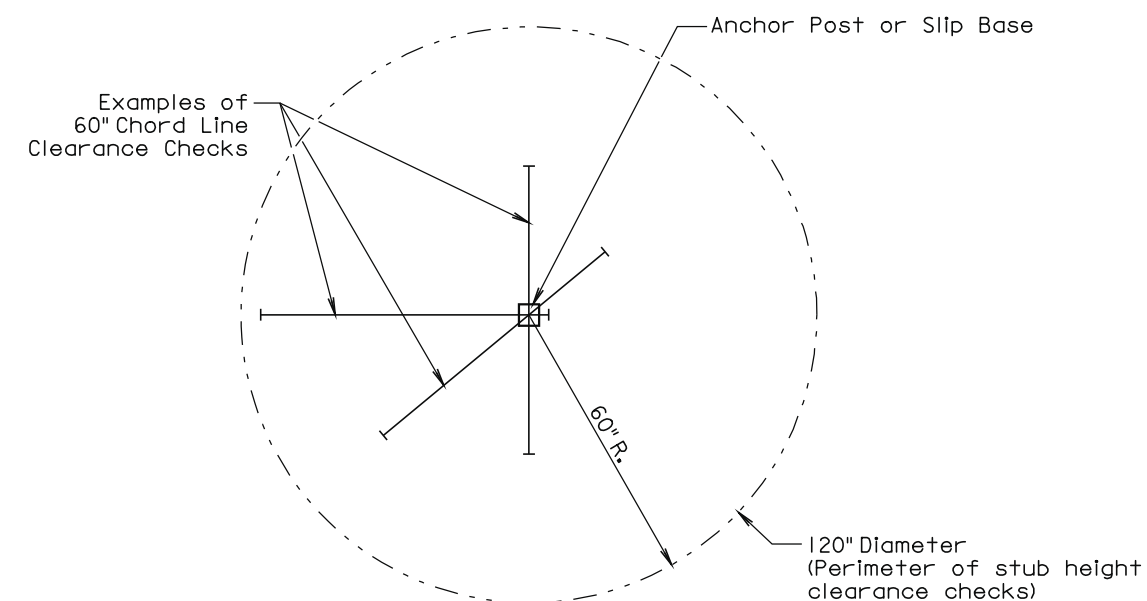
Published Date: 2nd Qtr. 2010

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BREAKAWAY SIGN SUPPORTS
(Typical Construction Signing)

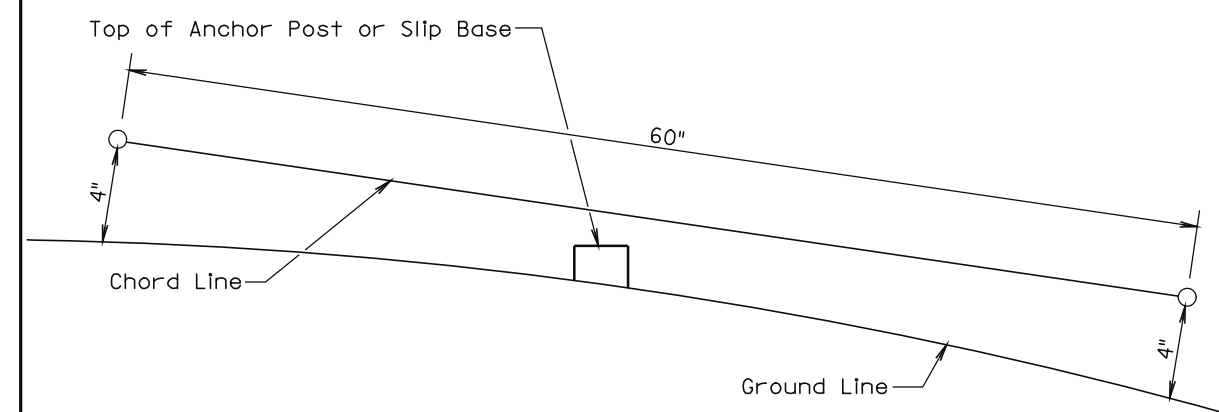
PLATE NUMBER
634.85

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. 2010

**S
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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT		SHEET NO.	TOTAL SHEETS
	281	S-151	25	40
012-151 & 012-152				

ITEMIZED LIST FOR TRAFFIC CONTROL
US 281

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2A	36" x 18"	END ROAD WORK	3	17	51
M5-1	21" x 15"	ADVANCE TURN 90 DEGREE (LEFT OR RIGHT)	1	5	5
M6-1	21" x 15"	DIRECTION ARROW - HORIZONTAL SINGLE HEAD	1	5	5
R11-2	48" x 30"	ROAD CLOSED	2	27	54
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	4	34	136
W20-3	48" x 48"	RAMP CLOSED AHEAD	2	34	68
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED LEFT	2	40	80
TOTAL UNITS					399

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:
Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:
If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.
If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL
US 12/6th Avenue

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2A	36" x 18"	END ROAD WORK	1	17	17
R3-7R	30" x 30"	RIGHT LANE MUST TURN RIGHT	1	21	21
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	1	18	18
R9-9	24" x 12"	SIDEWALK CLOSED	2	4	8
R9-10	24" x 12"	SIDEWALK CLOSED USE OTHER SIDE	4	4	16
W4-1a	48" x 48"	THRU TRAFFIC MERGE LEFT	1	34	34
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
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	1	34	34
W20-5	48" x 48"	LEFT LANE CLOSED AHEAD	2	34	68
W20-5R	48" x 48"	RIGHT LANE CLOSED AHEAD	1	34	34
TOTAL UNITS					454

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:
Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:
If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.
If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL
US 12 (Ipswich to Mina)

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2A	36" x 18"	END ROAD WORK	2	17	34
R4-1	24" x 30"	DO NOT PASS	2	18	36
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	2	18	36
W1-3	48" x 48"	REVERSE TURN SIGN (LEFT OR RIGHT)	1	34	34
W1-6	48" x 24"	LARGE ARROW	1	24	24
W8-9a	48" x 48"	SHOULDER DROP-OFF	1	34	34
W13-1	24" x 24"	ADVISORY SPEED PLATE	3	16	48
W21-4E	48" x 48"	ROAD WORK 1/2 MILE	2	34	68
W21-4C	48" x 48"	ROAD WORK 1000 FEET	2	34	68
*****	*****	TYPE III BARRICADE - 6 FT. SINGLE SIDED	2	30	60
TOTAL UNITS					442

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:
Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:
If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.
If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

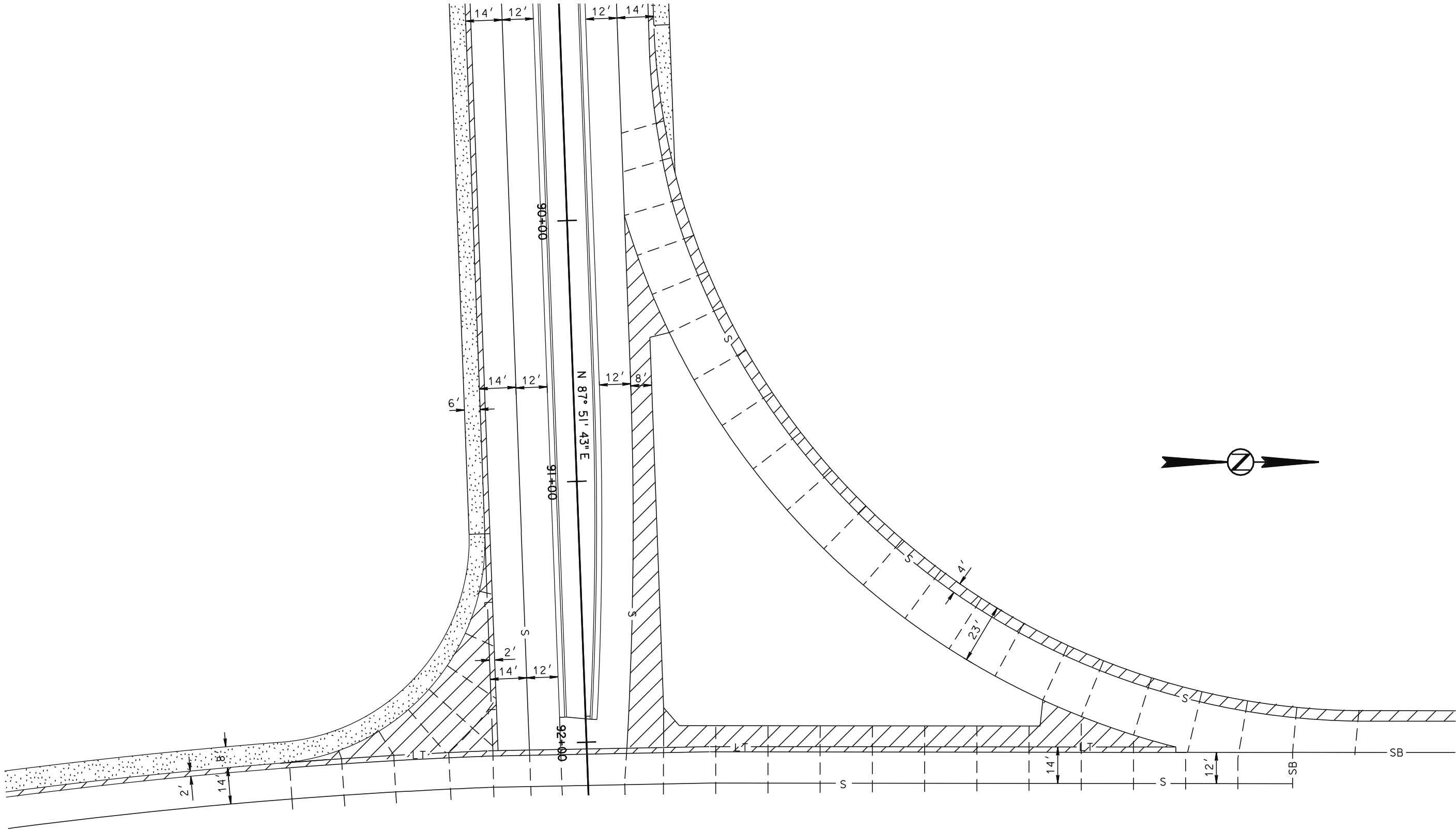
PLOT SCALE - 38.000000:1.000000

PLOTTED FROM - TRAB17882

EXISTING PCC PAVEMENT JOINT LAYOUT

US 281

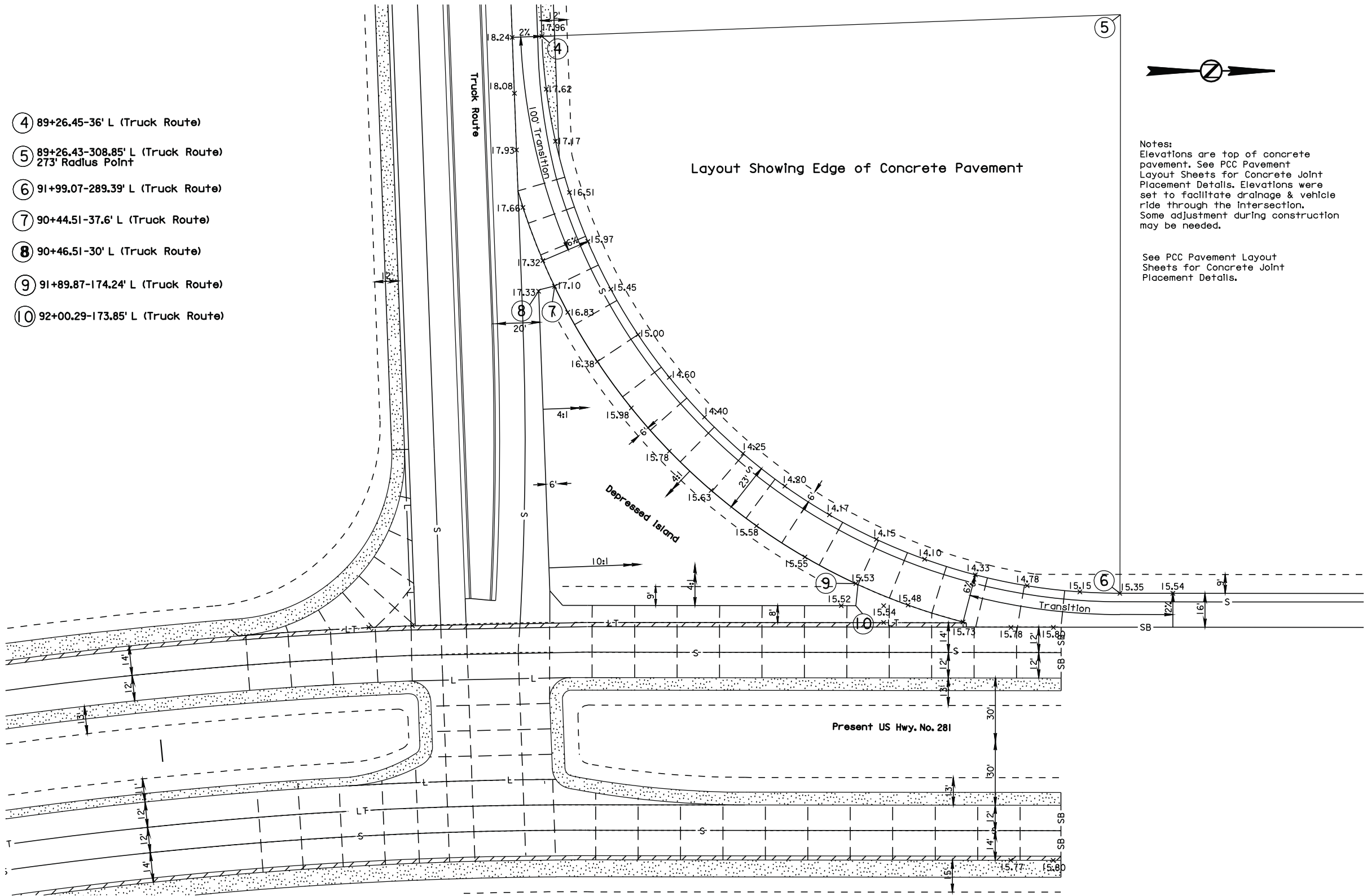
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152		
Plotting Date: 04-MAY-2010		26	40



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
		27	40
Plotting Date: 04-MAY-2010			

EXISTING INTERSECTION LAYOUT

US 281



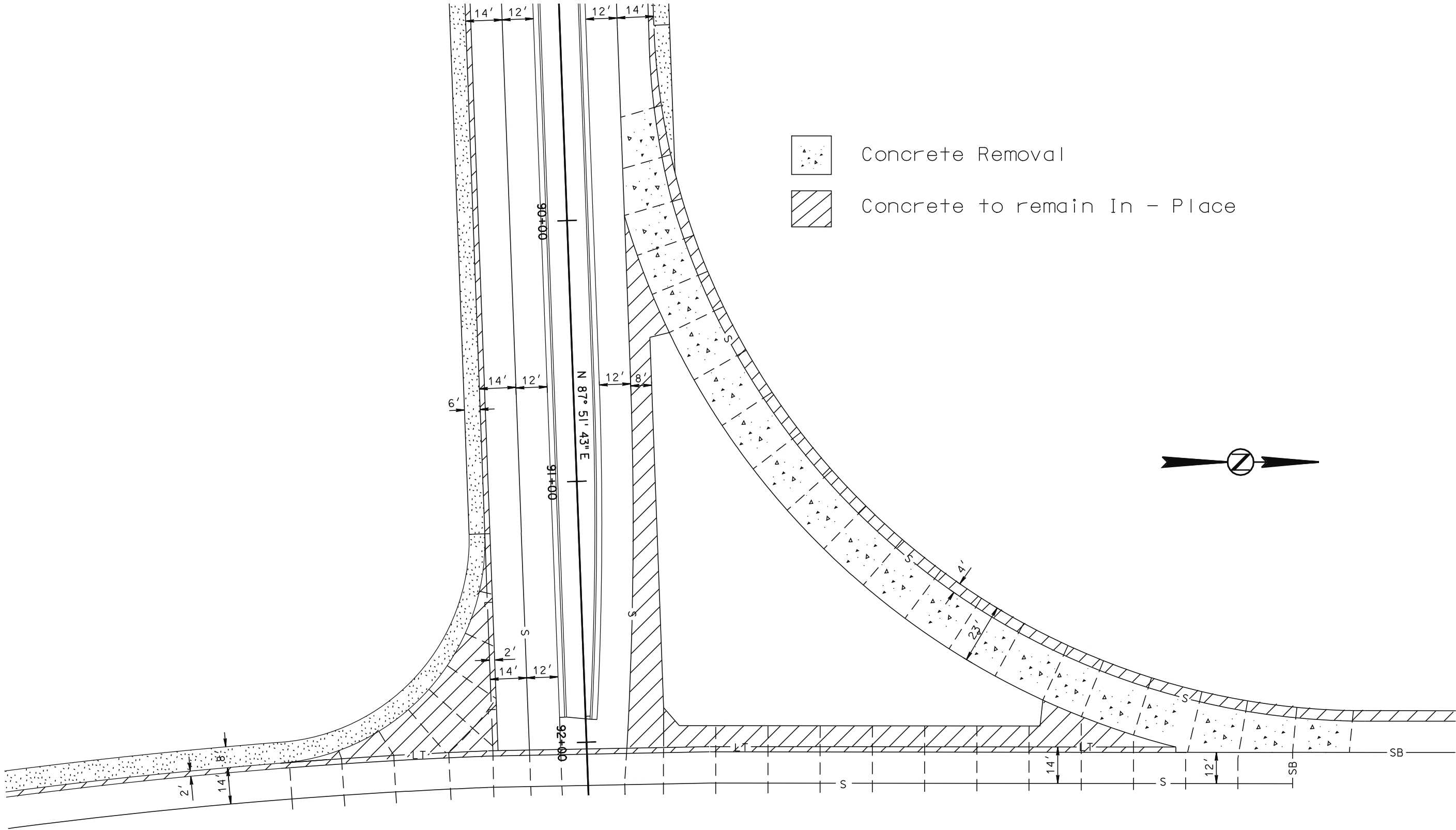
PLOT SCALE - 38.000000:1.000000

PLOTTED FROM - TRAB17882

PCC PAVEMENT REMOVAL

US 281

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	29	40
Plotting Date: 04-MAY-2010			



PLOT NAME - CONCRETE REMOVAL 281

FILE - U:\REGIONAL\PROJECTS\CONCRETE REMOVAL 281.DGN

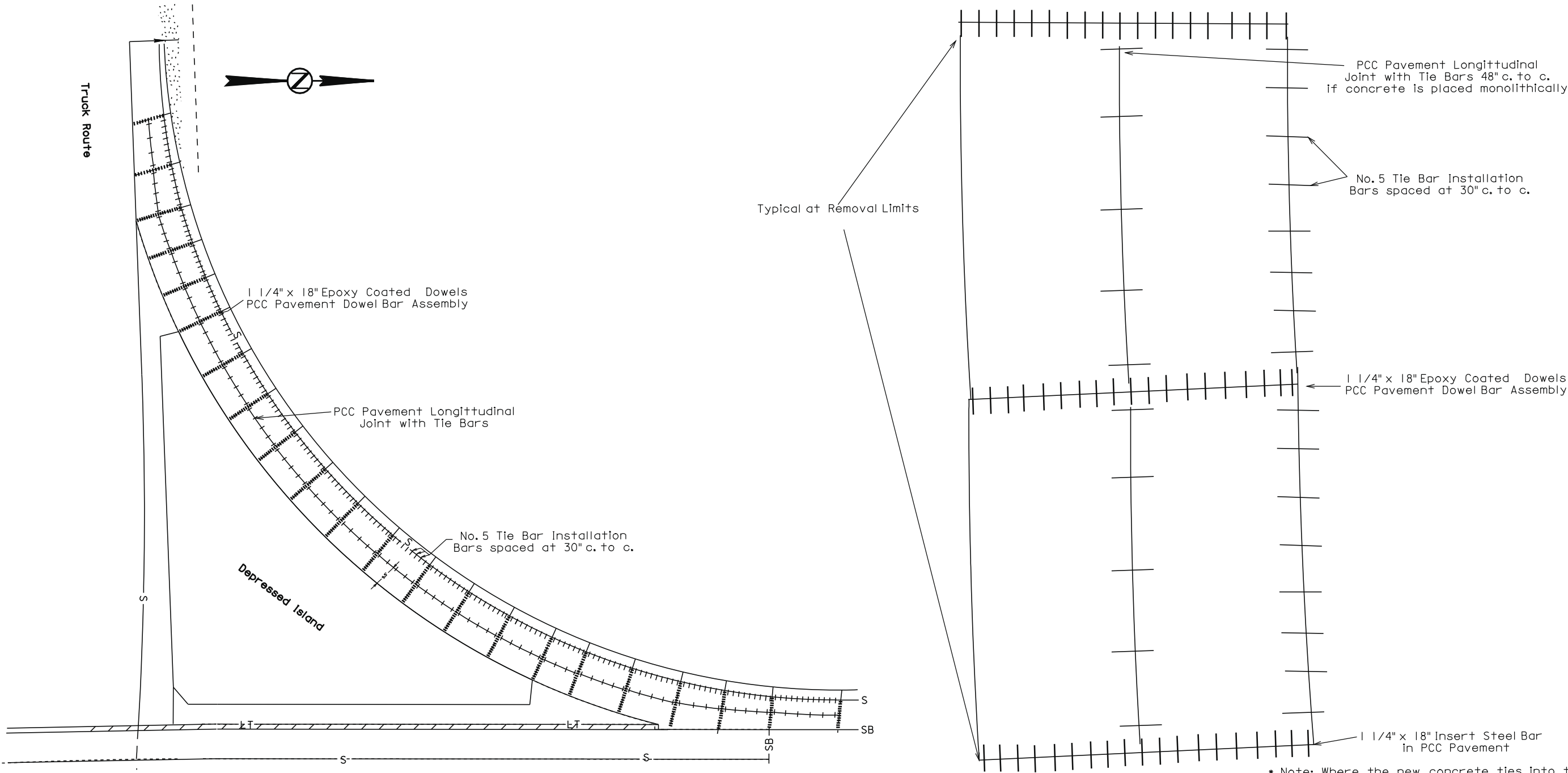
PLOT SCALE - 44.000000:1.000000

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	30	40
Plotting Date: 03-MAY-2010			

REINFORCING STEEL LAYOUT

US 281



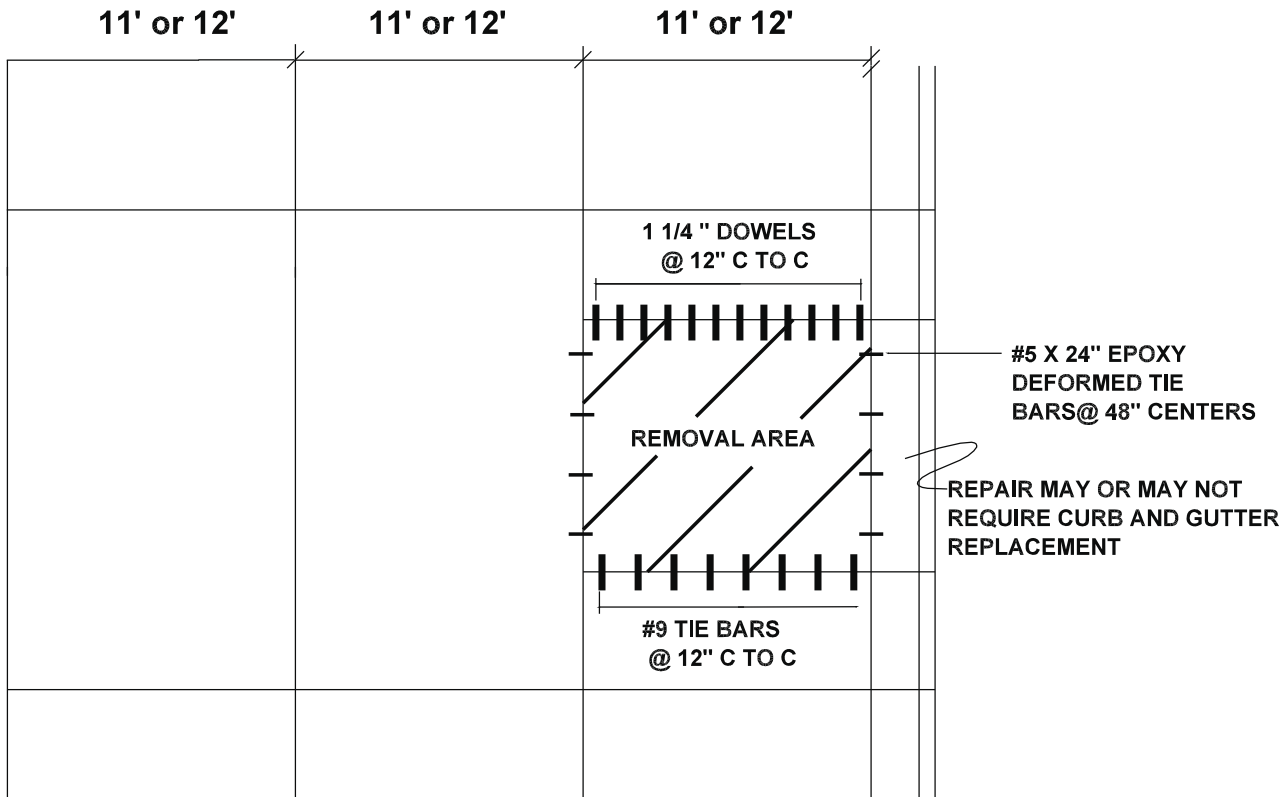
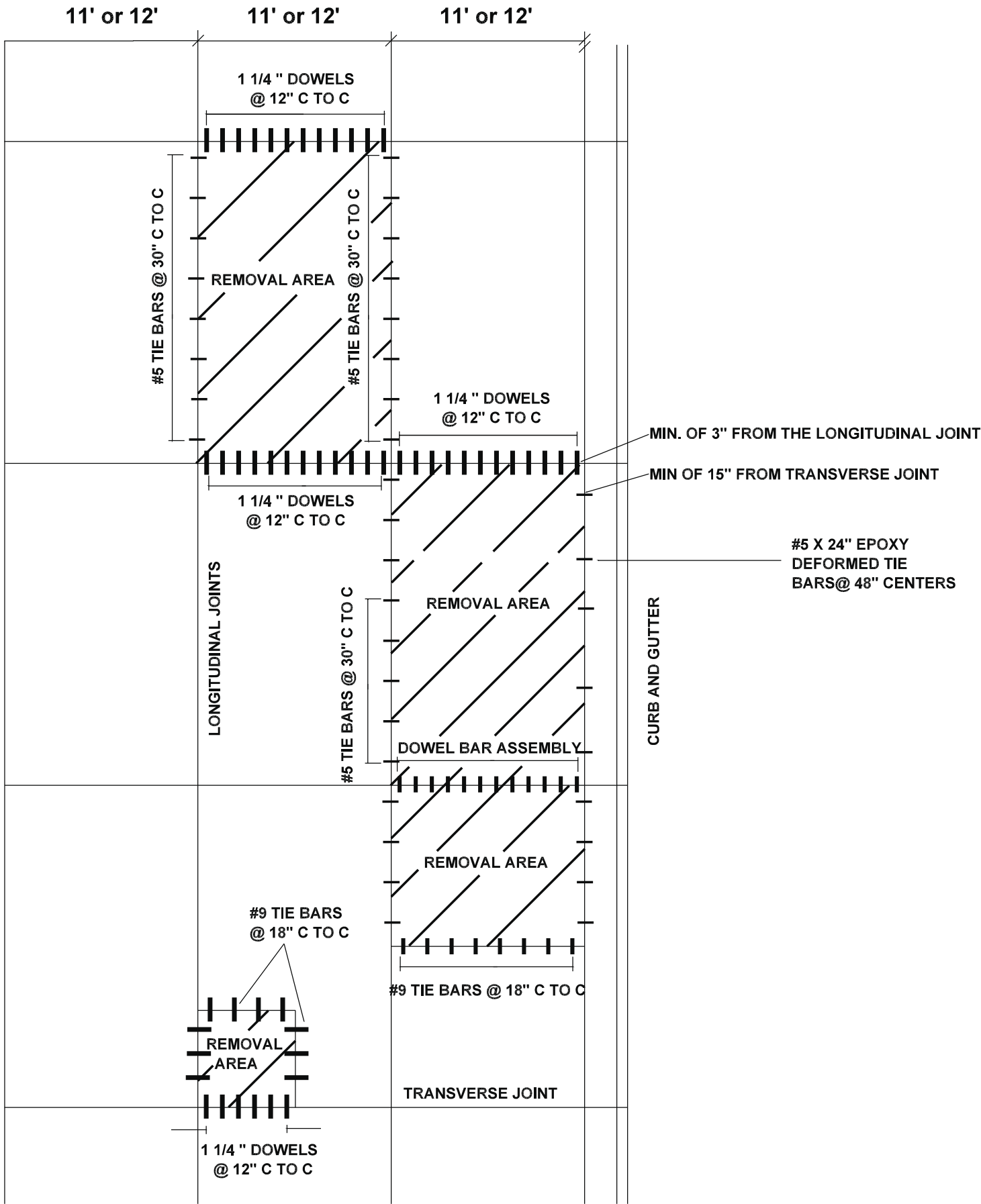
* Note: Where the new concrete ties into the existing concrete the contractor will be required to place 1/2" Preformed Expansion Joint Filler.

PLOT SCALE - 200,000:1,000,000

PLOTTED FROM - TRAB12245

FULL DEPTH CONCRETE PAVEMENT REPAIR

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152	31	40
Plotting Date: 03-MAY-2010			



FILE - N:\ABERDEEN\DESIGN\CURRENT\DESIGNS\CONCRETE REPAIR 2010\PCCP_REPAIR_DETAILS3 PCCP_REPAIR_DETAILS3

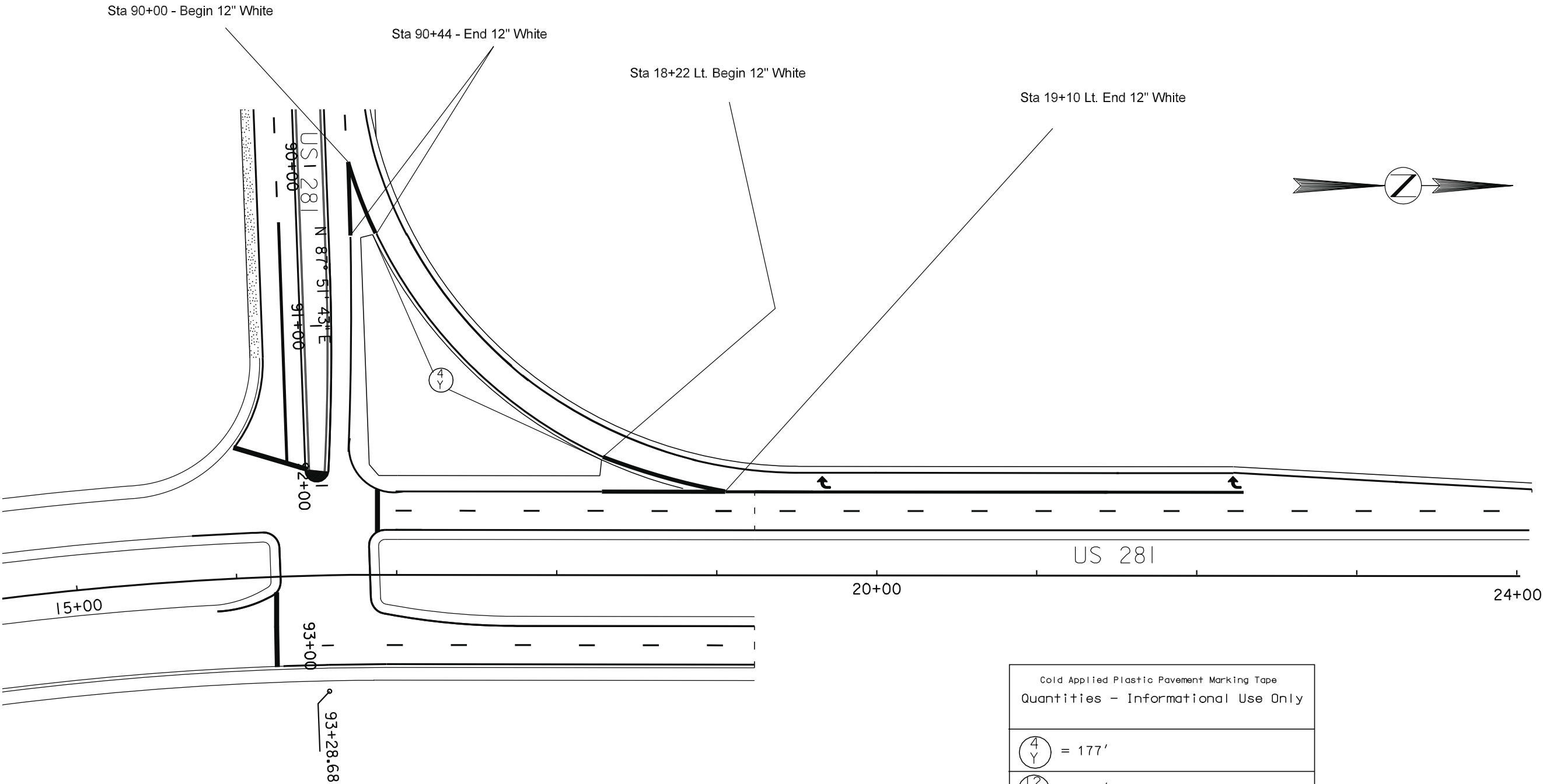
PLOT SCALE - 70.000000:1.000000

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151		
	012-151 & 012-152	32	40
Plotting Date: 30-APR-2010			

PAVEMENT MARKING LAYOUT

US 281



FILE - N:\ABERDEEN\DESIGN\CURRENT\DESIGNS\CONCRETE REPAIR 2010\PAVEMENT MARKING 012-151 & 012-152.DWG

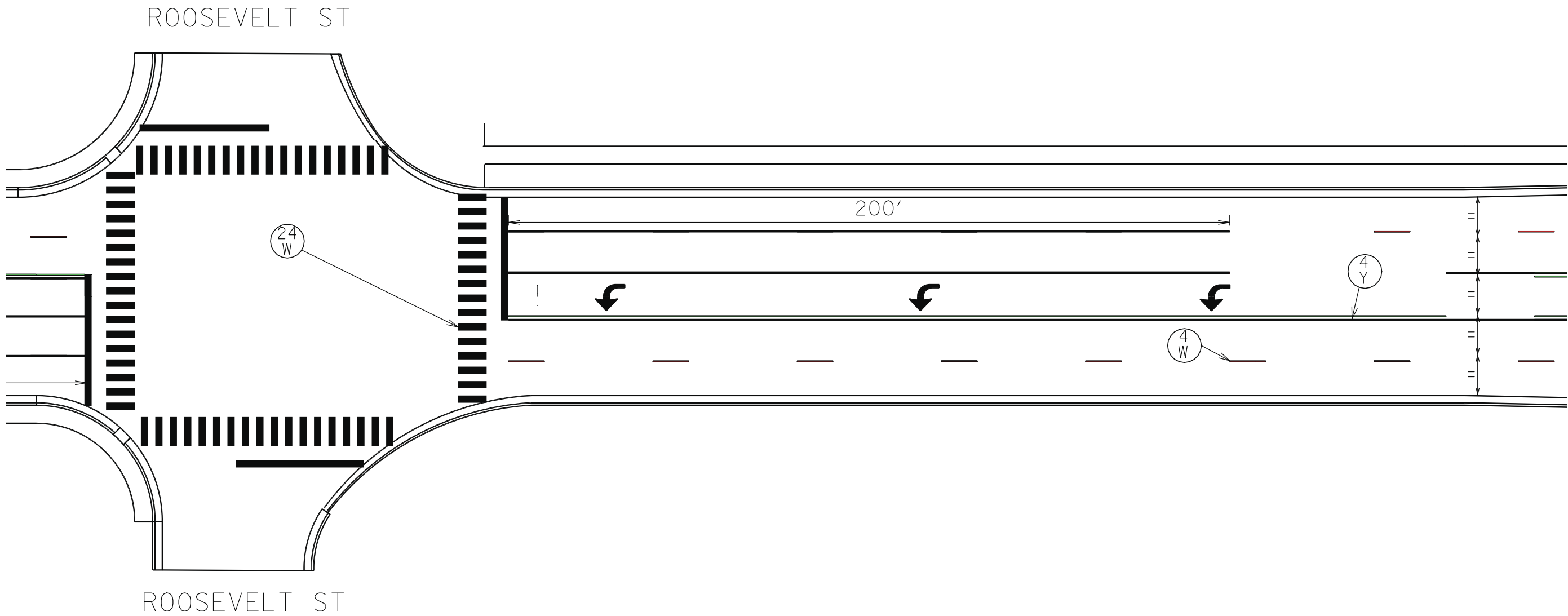
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PLOTTED FROM - TRAB12245

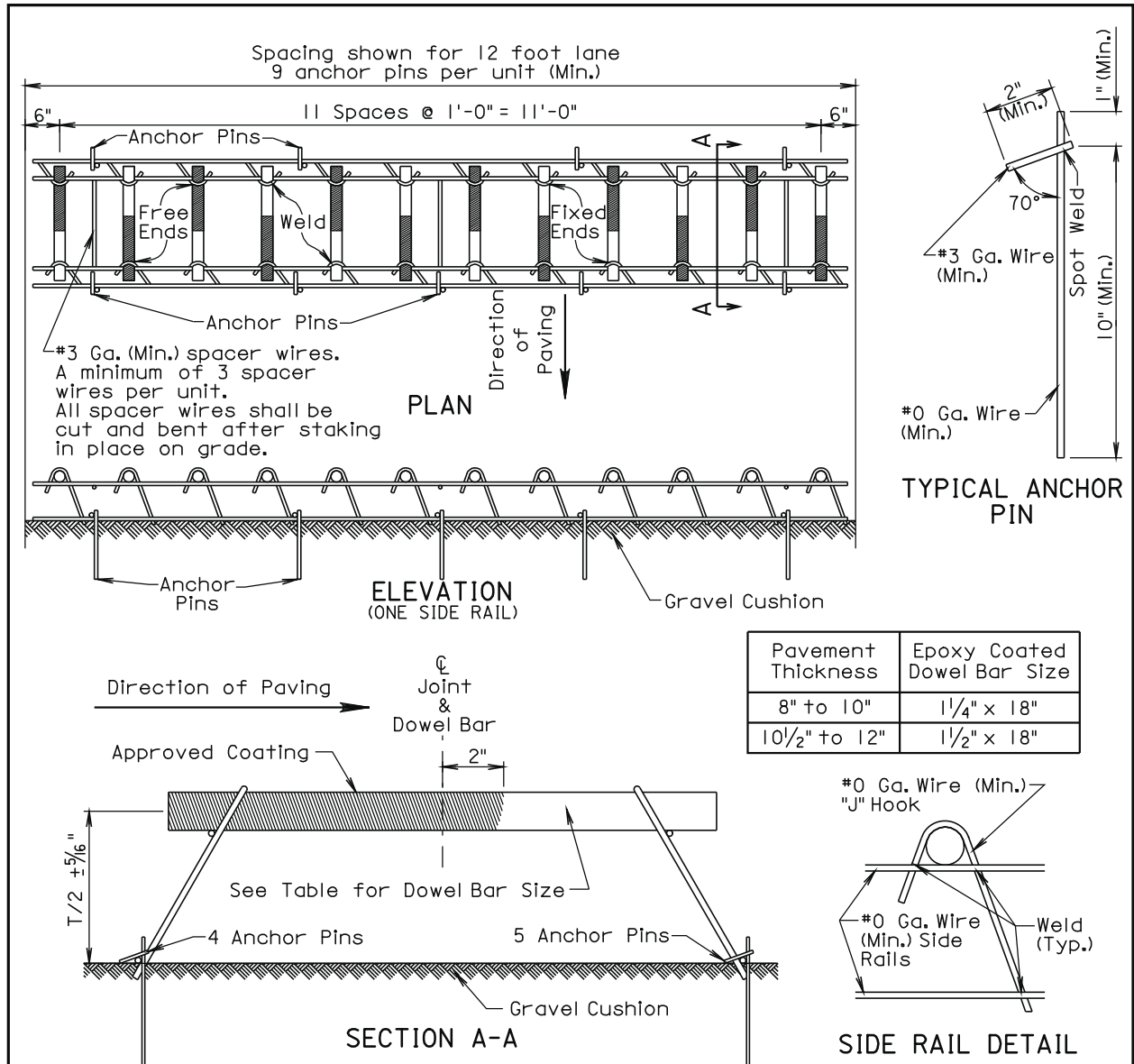
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	281 S-151 012-151 & 012-152		
Plotting Date: 03-MAY-2010		33	40

PAVEMENT MARKING DETAILS

6th Avenue & Roosevelt Street



FILE - N:\ABERDEEN\DESIGN\CURRENT\DESIGNS\CONCRETE REPAIR 2010\PAVEMENT MARKING DETAILS\ROOSEVELT MARKING DETAIL ROOSEVELT



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 $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.

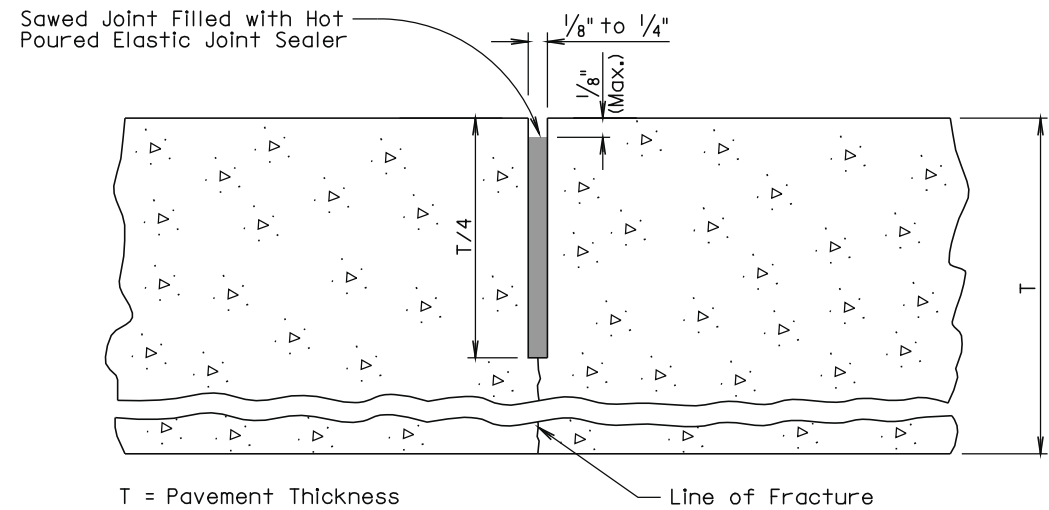
Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

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: 2nd Qtr. 2010	S D D O T	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS	PLATE NUMBER 380.01
			Sheet 1 of 1



GENERAL NOTES:

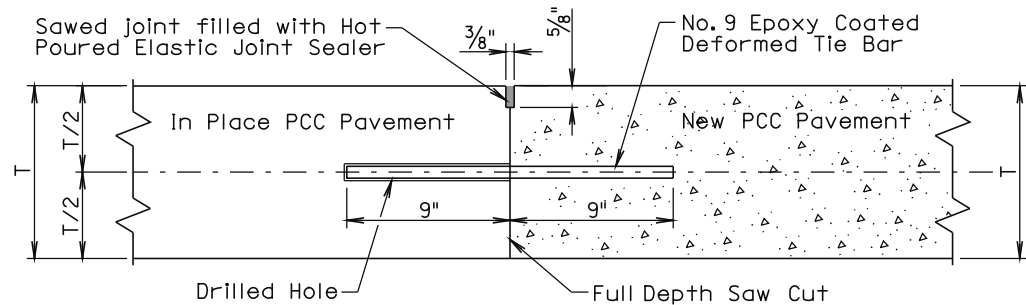
The saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement.

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: 2nd Qtr. 2010	S D D O T	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:

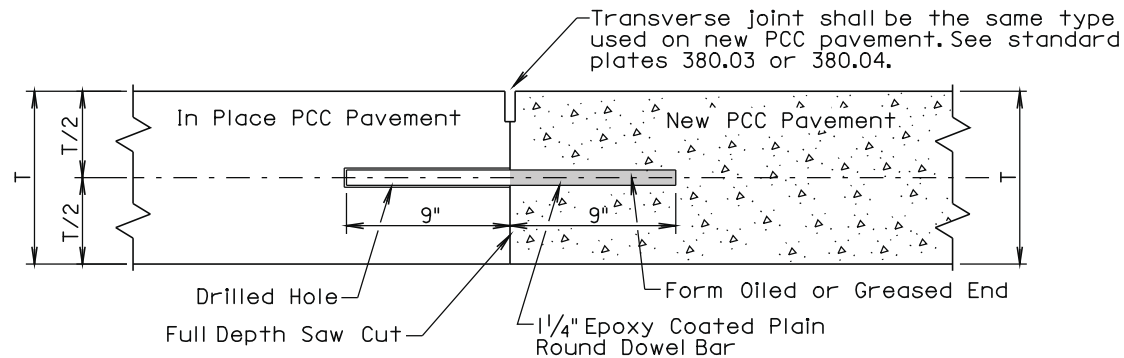
This detail shall be used when the transverse joint is less than 15 feet from the existing transverse contraction joint.

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 inch 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: 2nd Qtr. 2010

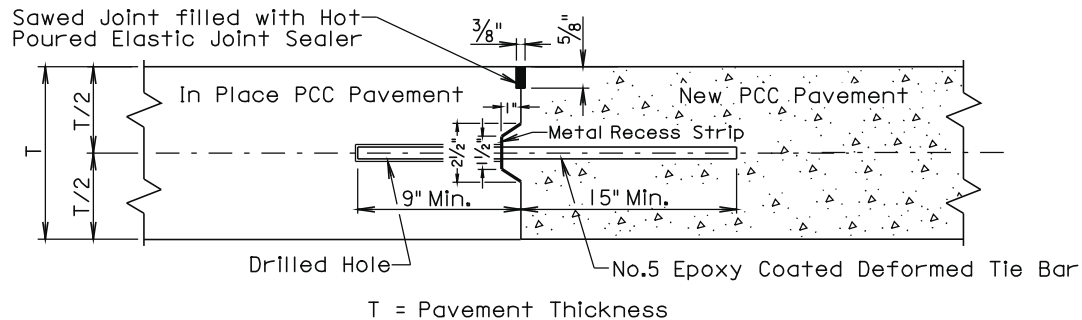
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PCC PAVEMENT TRANSVERSE CONSTRUCTION
JOINTS WITH TIE BARS OR DOWEL BARS

PLATE NUMBER
380.06

Sheet 1 of 1

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DRILLED IN BARS)



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.

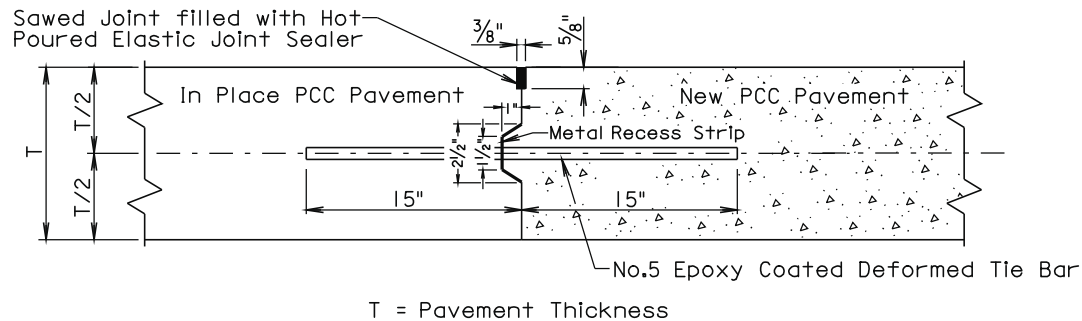
No. 5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

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)



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: 2nd Qtr. 2010

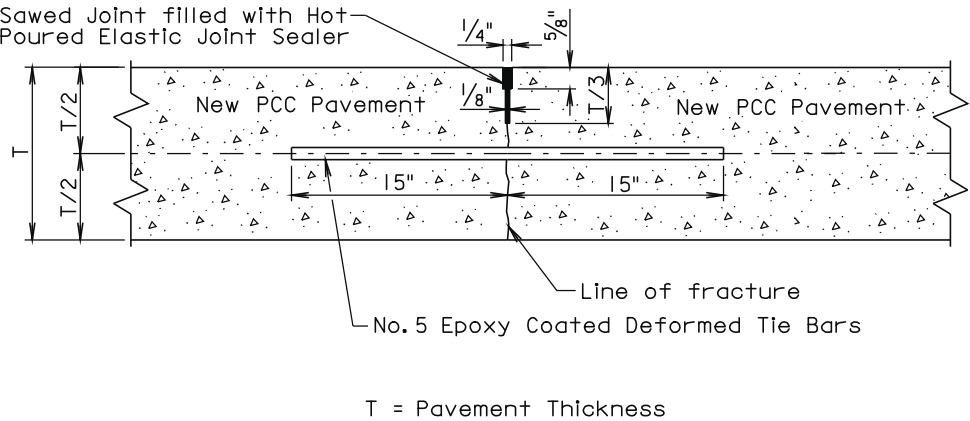
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PCC PAVEMENT LONGITUDINAL
JOINTS WITH TIE BARS

PLATE NUMBER
380.10

Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS
(POURED MONOLITHICALLY)



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

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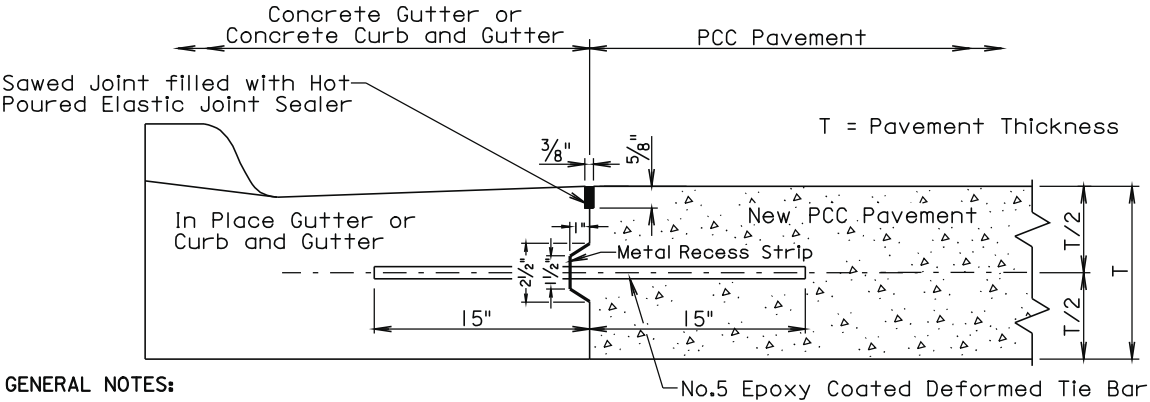
PCC PAVEMENT LONGITUDINAL
JOINTS WITH TIE BARS

PLATE NUMBER
380.10

Sheet 2 of 2

Published Date: 2nd Qtr. 2010

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.

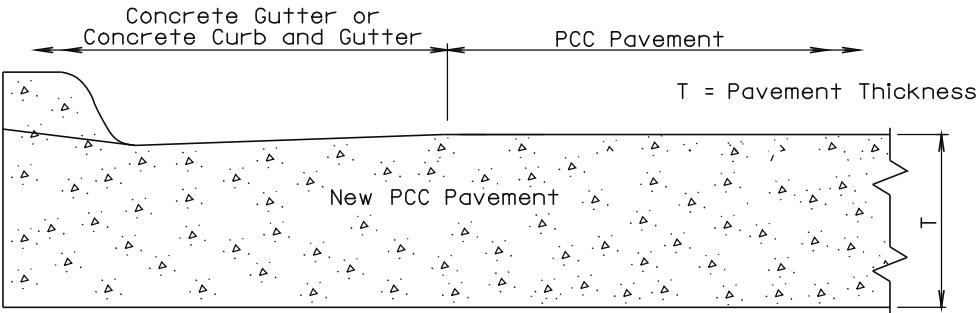
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

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 1/2" 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

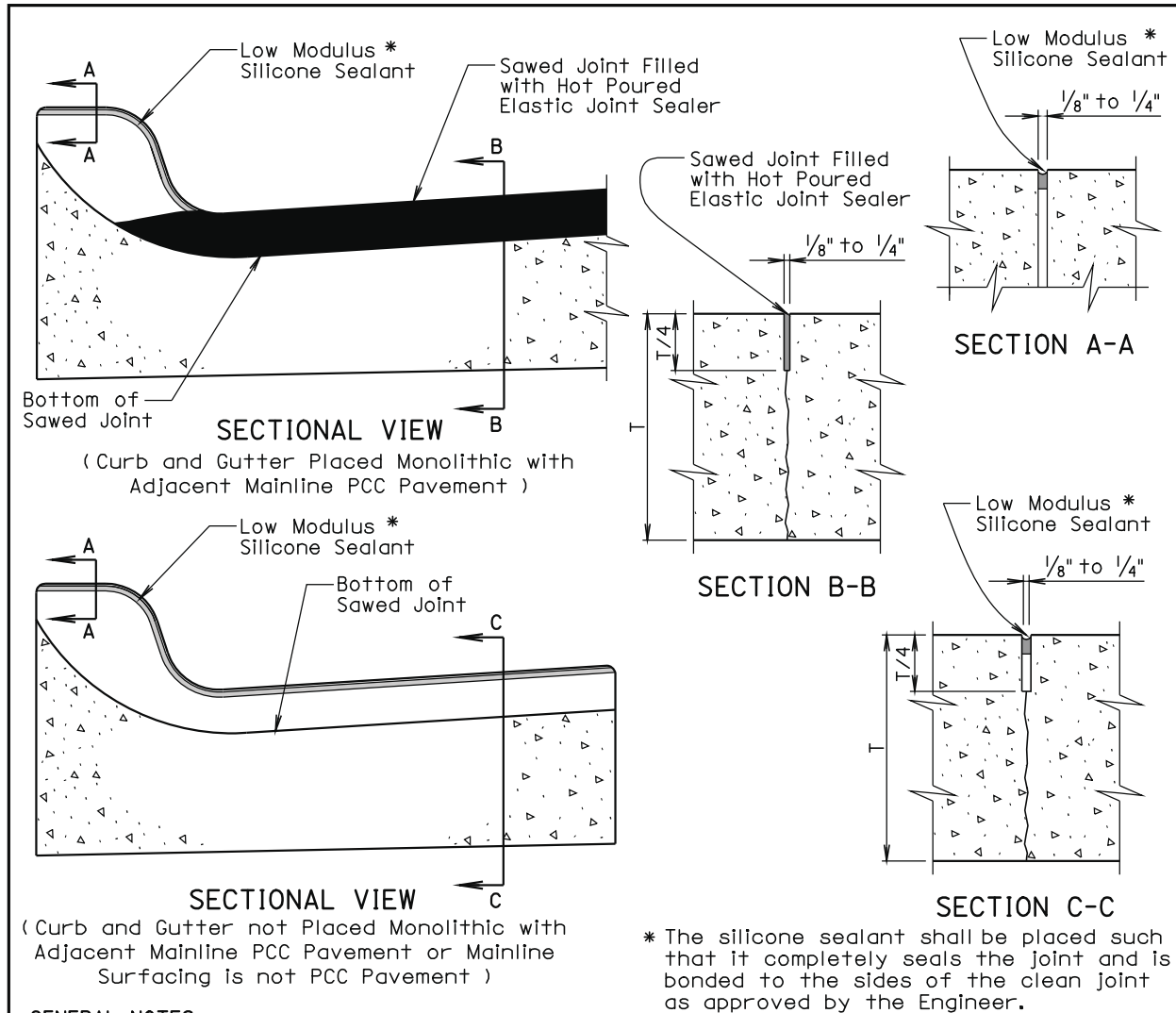
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PCC PAVEMENT LONGITUDINAL CONSTRUCTION
JOINTS WITH CONCRETE GUTTER OR
CONCRETE CURB AND GUTTER

PLATE NUMBER
380.11

Sheet 1 of 1

Published Date: 2nd Qtr. 2010



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:

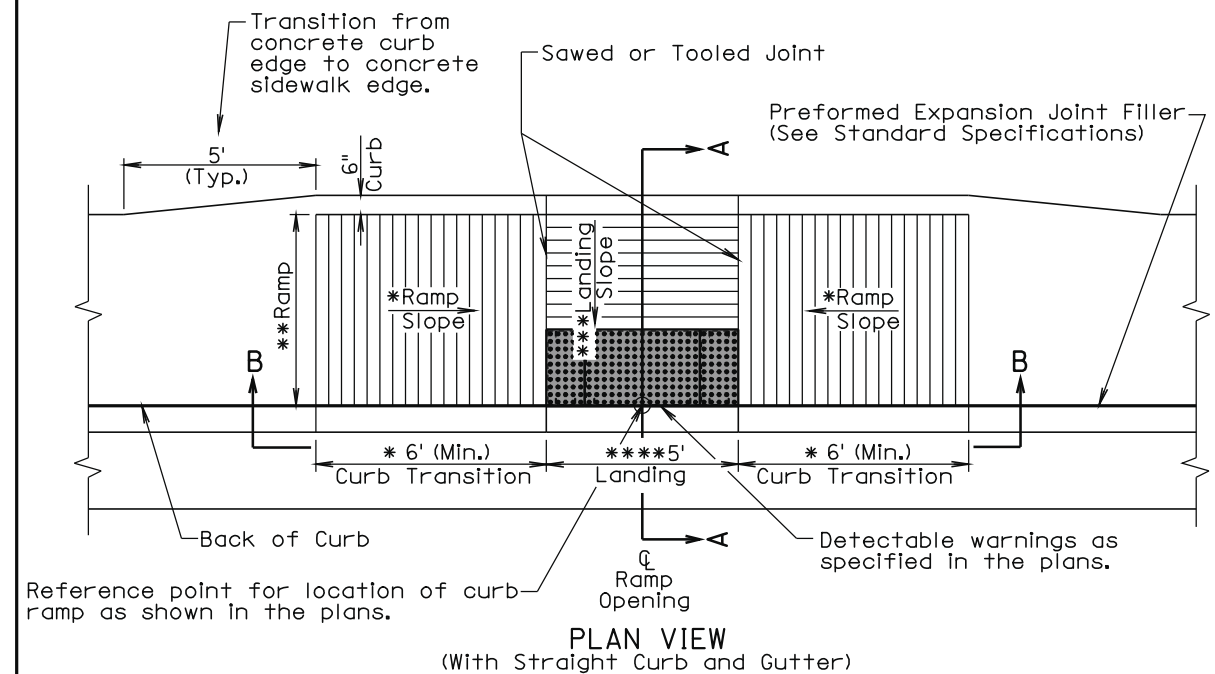
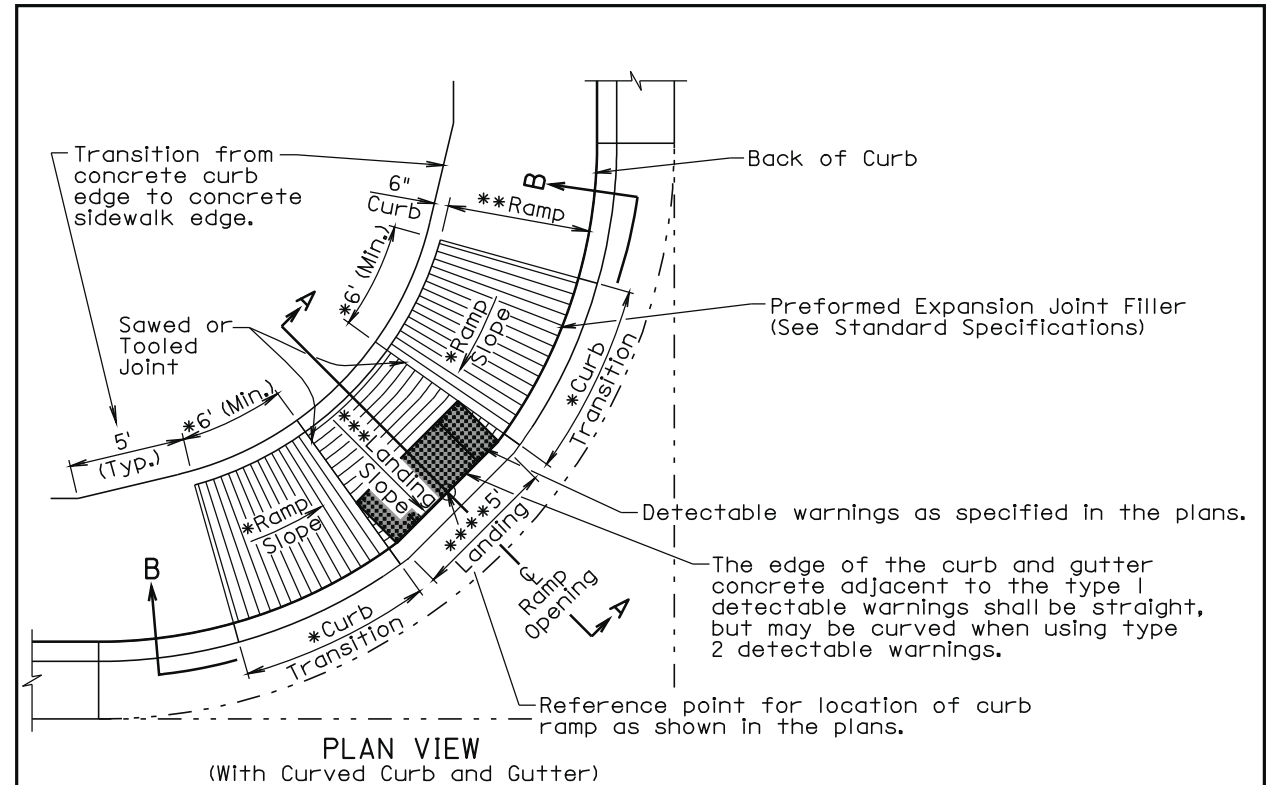
1. At each junction between the radius return of curb and gutter and curb and gutter which is parallel to the project centerline.
2. At each junction between new curb and gutter and existing curb and gutter.

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

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			650.90
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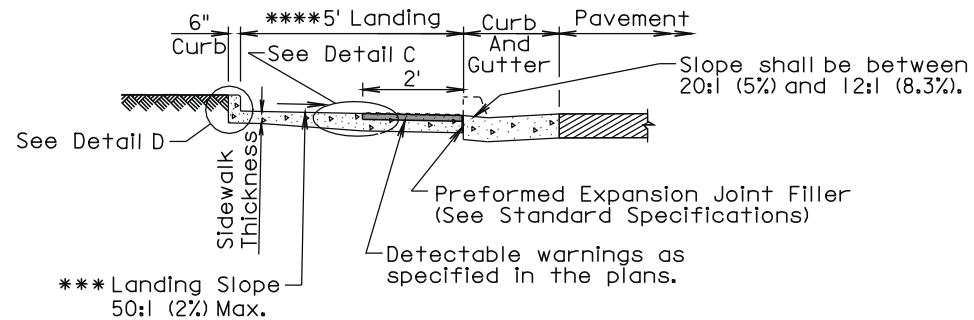
Published Date: 2nd Qtr. 2010	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER
			651.03
			Sheet 1 of 3

* The curb transition slope shall match the ramp slope. The ramp slope, at any location of the ramp, shall be 12:1 (8.3%) maximum. The ramp length shall not exceed 15' unless stated otherwise in the plans. Ramp slopes are designed at 12:1 (8.3%) unless stated otherwise in the plans. The minimum length of the curb transition shall be 6'.

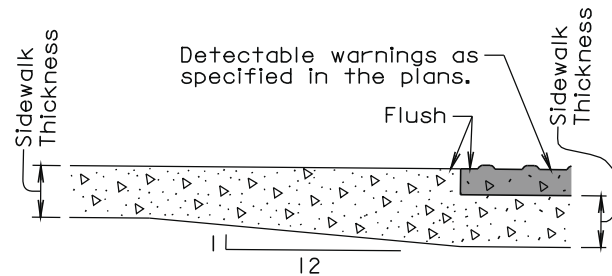
** The ramp cross slope shall not be steeper than a 50:1 (2%) and the ramp width is 5' unless stated otherwise in the plans.

*** The landing slope shall not be steeper than a 50:1 (2%) in any direction of pedestrian travel.

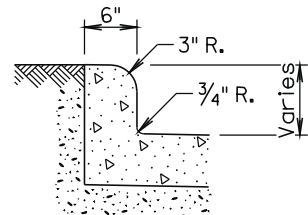
**** The landing is 5' x 5' unless stated otherwise in the plans.



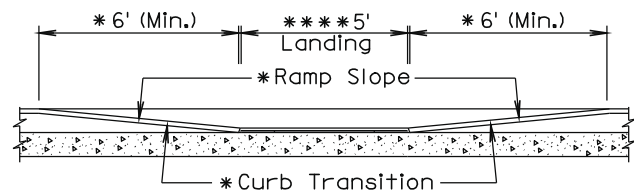
SECTION A-A



DETAIL C



DETAIL D



SECTIONAL VIEW B-B

June 26, 2009

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GENERAL NOTES:

For illustrative purpose only, type 1 detectable warnings are shown in the drawings.

For illustrative purpose only, a PCC fillet section is shown in one of the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section, with curved curb and gutter, or with straight curb and gutter.

The curb ramp shall be placed at the location stated in the plans.

Sidewalk adjacent to the curb ramp shall be as shown in the plans.

Care shall be taken to ensure a uniform grade on the ramp, free of sags and short grade changes.

Surface texture of the ramp shall be obtained by coarse brooming transverse to the slope of the ramp.

The normal gutter line profile shall be maintained through the area of the ramp.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking (see plan view for joint location).

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings and the curb along the short radius shall be included in the measured and paid for quantity of sidewalk.

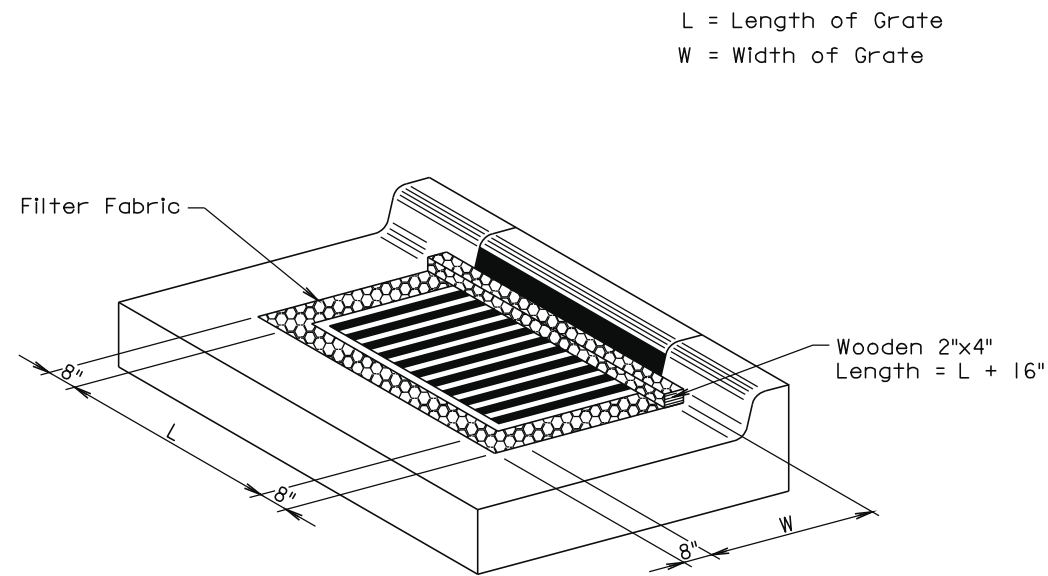
The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

June 26, 2009

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ISOMETRIC VIEW

GENERAL NOTES:

The grate and curb and gutter shown are for illustrative purposes only.

The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.

The filter fabric shall be the type specified in the plans.

The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.

The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

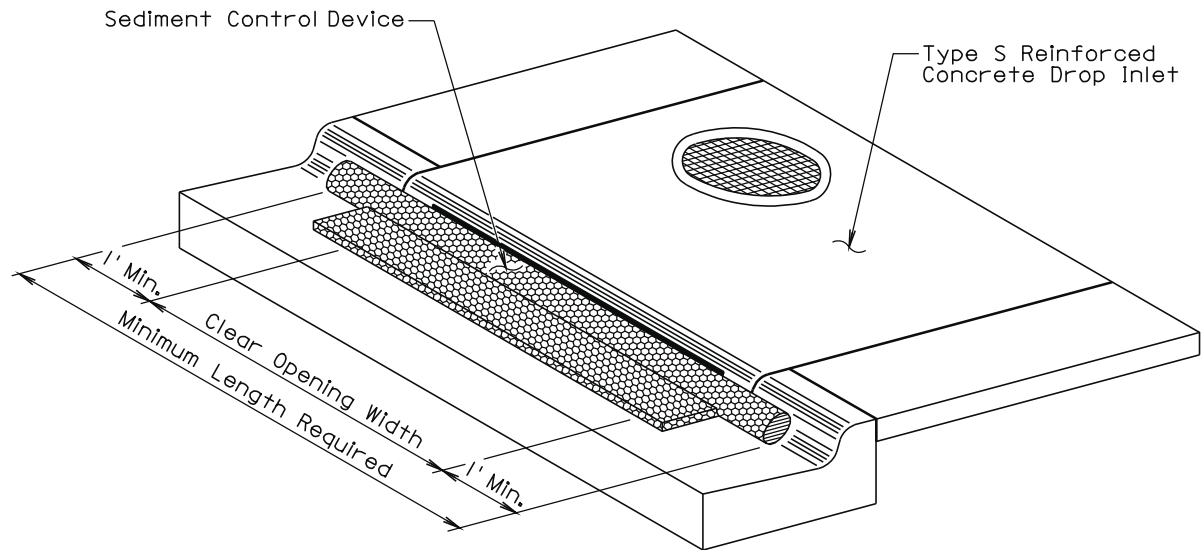
Published Date: 2nd Qtr. 2010

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**SEDIMENT CONTROL AT INLETS
WITH FRAMES AND GRATES**

**PLATE NUMBER
734.10**

Sheet 1 of 1



ISOMETRIC VIEW

GENERAL NOTES:

The type of sediment control device shown is for illustrative purposes only.

The type of sediment control device used shall be one of the types as specified in the plans.

The sediment control device shall be placed at the drop inlets according to the manufacturers' Installation Instructions.

The sediment control at inlet for type S reinforced concrete drop inlet shall be placed at locations stated in the plans or at locations determined by the Engineer.

The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing the device, removing accumulated sediment, and resetting the device.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

Payment for the "Sediment Control at Type S Drop Inlet" shall be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.

All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

September 14, 2005

Published Date: 2nd Qtr. 2010

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**SEDIMENT CONTROL AT INLETS
FOR TYPE S REINFORCED CONCRETE
DROP INLETS**

**PLATE NUMBER
734.11**

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