

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED  
**PROJECT 090W-451**  
**INTERSTATE 90**  
**MEADE COUNTY**

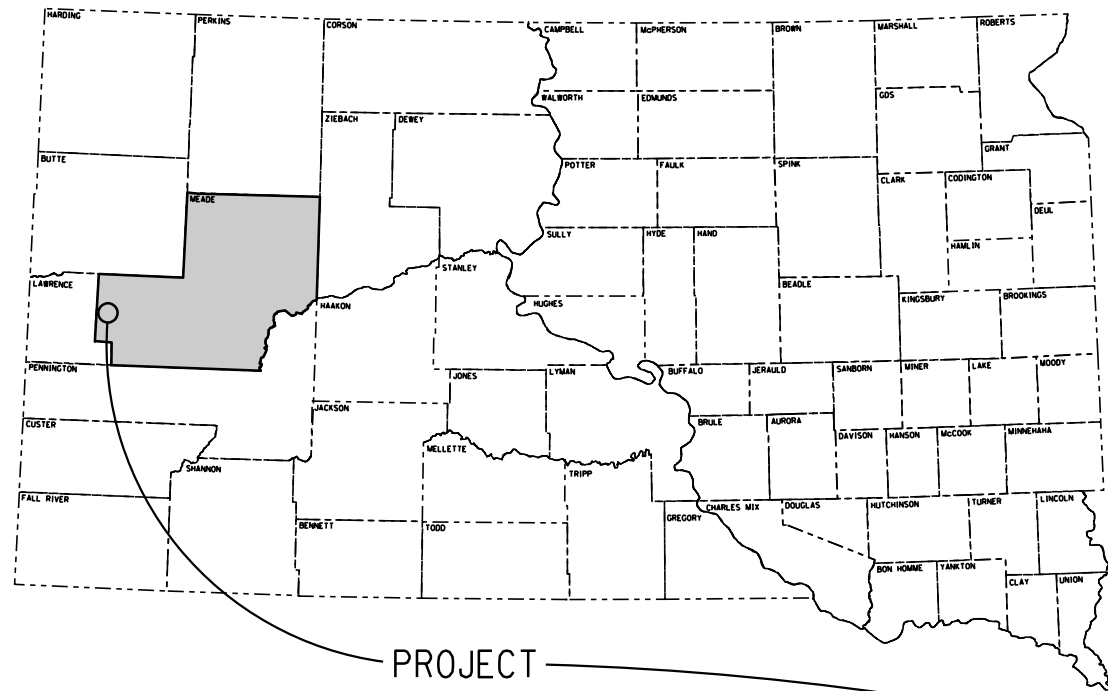
CONCRETE SLOPE PROTECTION  
PCN i2fd

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	090W-451	1	22

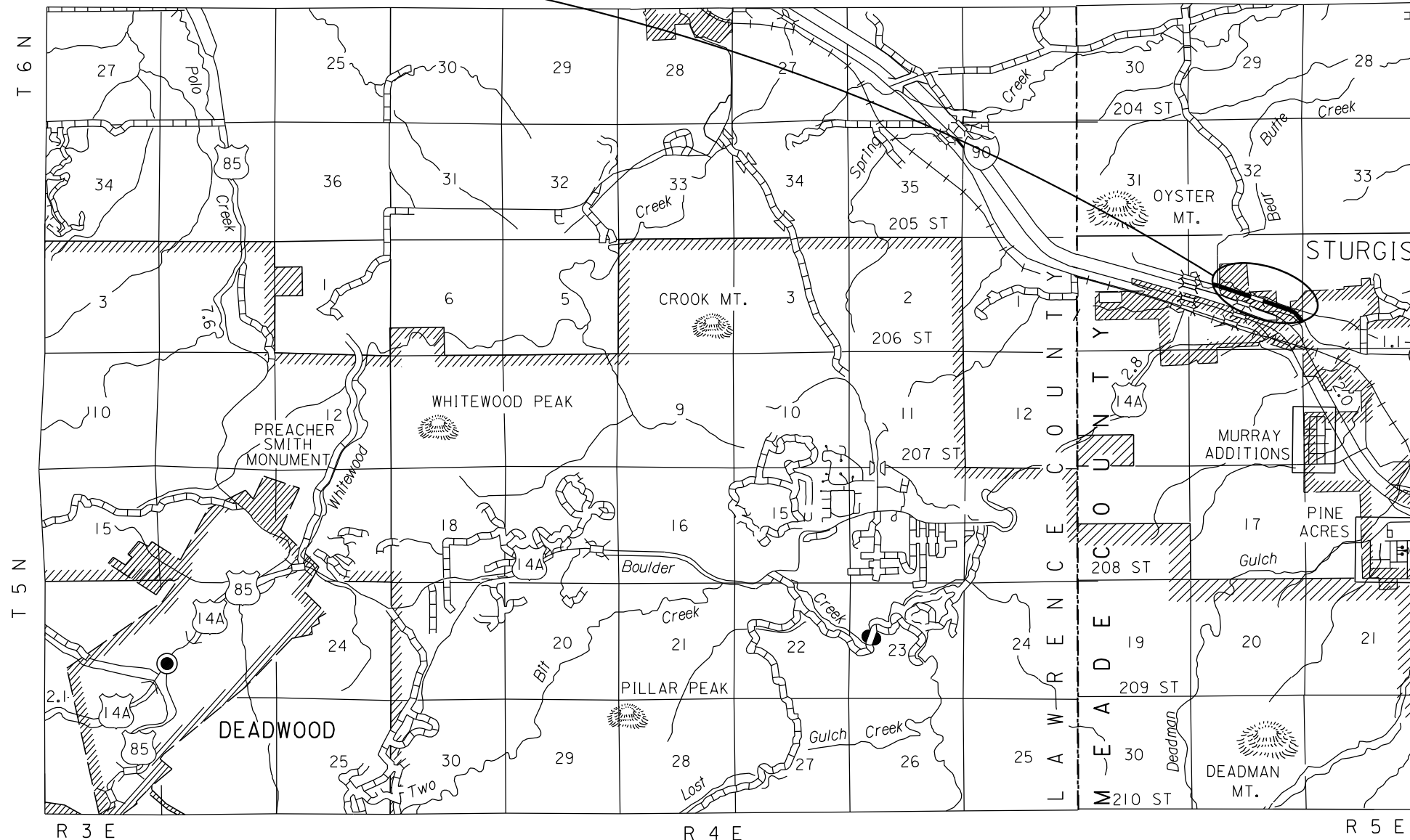
Plotting Date: 03/07/2012

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PROJECT  
MRM 29.84



DESIGN DESIGNATION

ADT (2010)	5415
ADT (2030)	7061
DHV	1073.3
D	50%
T DHV	7.8
T ADT	17.2%
V	80 mph

STORM WATER PERMIT

Major Receiving  
Body of Water: Bear Butte Creek  
Area Disturbed: 0.03 ac.  
Total Project Area: 0.03 ac.  
Approx. Begin Lat/Long 44° 25' 18" / 103° 32' 28"

PLOTTED FROM - ITRC12508

PLOTTED FROM - ITRC12508

PLOT NAME - 1

FILE - ... \DESIGN\12FD\_TITLE.DGN

## ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1100	Remove Concrete Pavement	113.0	SqYd
110E1690	Remove Sediment	2.0	CuYd
110E7802	Remove Fence for Reset	40	Ft
120E0010	Unclassified Excavation	36	CuYd
230E0020	Placing Contractor Furnished Topsoil	10	CuYd
260E2010	Gravel Cushion	15.0	Ton
380E1030	8" Miscellaneous PCC Pavement	126.5	SqYd
380E6000	Dowel Bar	85	Each
380E6110	Insert Steel Bar in PCC Pavement	34	Each
620E4100	Reset Fence	40	Ft
634E0010	Flagging	50	Hour
634E0100	Traffic Control	340	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
650E0080	Type B68 Concrete Curb and Gutter	27	Ft
700E0110	Class A Riprap	44.0	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0104	Type 4 Erosion Control Blanket	23	SqYd
734E0154	12" Diameter Erosion Control Wattle	30	Ft
831E0110	Type B Drainage Fabric	40	SqYd

## SPECIFICATIONS

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

## WORK DESCRIPTION

Work on this project will consist of the following:

1. Remove broken concrete slabs
2. Reconstruct ditch block
3. Install concrete slope protection

## UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the contractor shall contact the project engineer to determine modifications that will be necessary to avoid utility impacts.

## SEQUENCE OF OPERATIONS - GENERAL

1. The intent of the plan sequence of operations is to have the least amount of impact on the traveling public and adjacent landowners. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of two week prior to potential implementation.

## SEQUENCE OF OPERATIONS

1. Set up traffic control.
2. Remove fence for reset.
3. Remove concrete.
4. Shape embankments and construct ditch block.
5. Construct concrete slope protection.
6. Construct concrete channel over ditch block.
7. Install riprap.
8. Install erosion control.
9. Reset fence
10. Remove traffic control.

## 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 the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). 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.

## 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".
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.

## UNCLASSIFIED EXCAVATION

Unclassified Excavation is provided for the construction of the ditch block, excavation of the riprap trench at the bottom of the PCCP panels, and for slope preparation.

Excess excavation on the project shall be handled as waste and hauled off the project.

The Contractor shall add water as needed to meet the moisture content and density requirements as directed by the Engineer.

No field measurement of Unclassified Excavation will be required and plans quantity shall be the basis of payment.

## WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the DOT Environmental Office.

The DOT Environmental Office contact is the Environmental Project Scientist, 605-773-3268. The WATER SOURCE plan note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE).

## WORK AFFECTING WATERWAYS

### A. WATER QUALITY

#### Storm Water

The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the DENR General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by offsite activities, such as borrow and staging areas, which are the responsibility of the Contractor.

A major component of the storm water construction permit is development and implementation of a storm water pollution prevention plan (SWPPP). This plan is a joint effort and responsibility of the DOT and the Contractor. The SWPPP is a dynamic document and is to be available on-site at all times. Information on storm water requirements and SWPPP are available on the following websites:

DOT: [http://www.sddot.com/pe/projdev/environment\\_stormwater.asp](http://www.sddot.com/pe/projdev/environment_stormwater.asp)

DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

## PLACING CONTRACTOR FURNISHED TOPSOIL

It is anticipated that a larger volume of topsoil will be needed for the new grade than can be salvaged from the existing grade. The Contractor will be required to furnish and place 4 inches of topsoil on roadway inslopes and areas as determined by the Engineer during construction.

All costs to furnish and place the topsoil shall be incidental to the contract unit price per cubic yard for Placing Contractor Furnished Topsoil.

## REMOVE CONCRETE PAVEMENT

Care shall be taken not to damage existing concrete that is to remain in place. Any damage to existing concrete shall be repaired or replaced at the Contractor's expense.

## GRAVEL CUSHION

Gravel Cushion shall be obtained from the stockpile site(s) provided by the Contractor and may be used without further quality and gradation testing.

Gravel Cushion shall be placed 2" deep throughout the project.

Compaction of the Gravel Cushion shall be to the satisfaction of the Engineer.

All other requirements for Gravel Cushion shall apply.

## 8" MISCELLANEOUS PCC PAVEMENT

The fine aggregate may require screening as determined by the Engineer.

Fine aggregate shall conform to Section 800.2.D Alkali Silica Reactivity (ASR) Requirements of the Standard Specifications.

The concrete mix shall be Class A40 or concrete paving mix when slipform construction is used and Class A45 when formed construction is used. Class F Modified Fly Ash shall be substituted for 20 percent of the cement in accordance with Section 605 of the Standard Specifications.

Suitable equipment may be used to bring the gravel cushion to final grade prior to placement of concrete.

Tining will not be required on this project.

Automatic dowel bar inserters will not be allowed on this project.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

Joints shall be sealed in accordance with the standard plates.

Double thickness preformed expansion joint filler shall be placed around each bridge column. All costs associated with this work shall be incidental to the contract unit price per square yard for 8" Miscellaneous PCC Pavement.

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## ALKALI SILICA REACTIVITY

Fine aggregate shall conform to Section 800.2.D Alkali Silica Reactivity (ASR) Requirements.

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

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Birdsall S&G	Creston, SD	0.158
Birdsall S&G	Oral, SD	0.131
Birdsall S&G	Wasta, SD	0.170
Bitterman	Delmont, SD	0.314*
Concrete Materials	Corson, SD	0.170
Croell	Quinn, SD	0.089
Emme Sand & Gravel	Oneil, NE	0.217
Fischer S&G	Rapid City, SD	0.092
Fischer S&G	Spearfish, SD	0.053
Fuchs	Pickstown, SD	0.275*
Higman	Akron, IA	0.198
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.186
L.G. Everist	Hawarden, IA	0.166
L.G. Everist	Summit, SD	0.141
Morris	Blunt, SD	0.192
Morris – Richards pit	Onida, SD	0.188
Myrl & Roys Paving-Nelson Pit	Sioux Falls, SD	0.156
Northern Concrete Agg.	Rauville, SD	0.113
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	0.321*
Opperman – Randall Pit	Pickstown, SD	0.239
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Wagner, SD	0.241
Wasta Sand & Gravel	Wasta, SD	0.159

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

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 to require Type V cement (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.

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## **STEEL BAR INSERTION**

Locations and quantities of deformed steel bars 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 (1/2" x 12" epoxy coated smooth tie bars) into drilled holes in the existing 4" thick concrete slabs on either side of the repair area. The bars shall be drilled in 6 inches deep into adjacent PCCP. Bars shall be evenly spaced horizontally at one-foot intervals along each end of the repair area.

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).

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 sidewalk 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.

## **REMOVE AND RESET FENCE**

All costs associated with the removal of the three post panel and 40' of fence shall be incidental to the contract unit price per foot for Remove Fence for Reset.

All costs associated with resetting of the three post panel and 40' of fence shall be incidental to the contract unit price per foot for Reset Fence.

## **GENERAL MAINTENANCE OF TRAFFIC**

1. The Contractor shall at all times, keep the portion of the project being used by the traveling public in a condition that will adequately and safely accommodate traffic.
2. Storage of vehicles, materials, and equipment shall be not closer than 30' from the edge of the driving lane. 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.
3. The Contractor shall coordinate his operations such that during non-working hours the roadway shall be open to normal flow of traffic.
4. Work activities shall only be during daylight hours. Daylight hours are considered to be 1/2 hour before sunrise until 1/2 hour after sunset.
5. The Contractor will be allowed to use Avalanche Road for the delivery of construction materials, equipment and the disposal of waste material generated on the project. Prior to using Avalanche Road the Contractor shall set up a meeting with Ken McGirr, Meade County Highway Superintendent, 605-347-4565 and the State to inspect this road prior to hauling material and equipment. Following inspection of the road, an agreement shall be prepared on Form DOT-45A, signed by the Contractor and Meade County documenting existing conditions. When hauling operations are complete, Avalanche Road shall be repaired to the condition it was in prior to construction. All costs for repair shall be the responsibility of the Contractor.

## **TRAFFIC CONTROL**

1. Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. The cost of this work shall be incidental to the various contract bid 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.
2. The Contractor shall furnish, install, and maintain Truck Crossing signs. The exact number and location will be determined upon construction. Payment for additional signs will be based on the contract unit price per unit for Traffic Control. The Truck Crossing signs shall be displayed at all times when haul vehicles are hauling material. When the truck haul condition no longer exists, the signs shall be covered or removed from view.
3. Traffic control shall be in accordance with the MUTCD 2009 Edition, the Standard Specifications and the layouts contained in these plans.
4. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
5. Traffic shall be returned to normal two-way flow on Avalanche Road during non-working hours including nights and weekends.
6. Non-applicable signing will be covered or removed and reset during periods of in-activity. All costs to do this work shall be incidental to Traffic Control, Miscellaneous.
7. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed supports, unless approved by the Engineer.
8. All Contractors' vehicles or equipment entering or leaving a closed work area shall display a flashing amber light visible in all directions at a minimum distance of 1/4 mile.
9. The Contractor or designated traffic control subcontractor shall make night (after dark) inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the related contract items.
10. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.



**INVENTORY OF TRAFFIC CONTROL DEVICES**

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W8-6	48" x 48"	TRUCK CROSSING	2	34	68
W20-1	48" x 48"	ROAD WORK AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	3	34	102
<b>TOTAL UNITS</b>					<b>340</b>

**TYPE B68 CONCRETE CURB AND GUTTER AND PAVED CHANNEL**

A paved channel shall be constructed using Type B68 Curb and Gutter and PCCP pavement. Type B68 Curb and Gutter shall be constructed as shown on the Plan Sheet and cross section sheet as directed by the Engineer. A concrete slab shall be constructed between the curb and gutter to form a paved channel over the berm.

Where portland cement concrete pavement (PCCP) is placed adjacent to existing 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.

**CLASS A RIPRAP**

It is estimated that 44 tons of Class A Riprap will be required to build to the limits shown in these plans.

A factor of 1.4 Tons/CuYd was used to convert CuYds of Class A Riprap to Tons

**EROSION CONTROL**

Areas disturbed shall be seeded, fertilized and mulched.

Contractor Furnished Topsoil and Type 4 Erosion Control Blanket shall be placed on the downstream side of the newly constructed ditch block.

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. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Western Wheatgrass	Flintlock, Rodan, Rosana	1.3
Green Needlegrass	Lodorm	0.8
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	0.6
Blue Grama	Bad River, Willis	0.4
Oats or Spring Wheat: April through July; Winter Wheat: August through November		1.9
Total:		5.0

A commercial fertilizer with a minimum guaranteed analysis of 13-13-13, 18-46-0, 11-52-0, or an approved alternate fertilizer sold for use as a lawn starter fertilizer shall be applied to all areas designated for permanent seeding. The application rate of fertilizer shall be 3 pounds per 1000 SqFt.

Fiber mulch shall be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the list below. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

Fiber mulch shall be applied at the rate of 2000 pounds per acre.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract lump sum price for Erosion Control.

**EROSION CONTROL (CONTINUED)**

The fiber mulch used on this project shall be one from the list below:

<u>Product</u>	<u>Manufacturer</u>
Mat-Fiber Plus	Mat, Inc. Floodwood, MN Phone: 1-888-477-3028 <a href="http://www.matinc.biz">www.matinc.biz</a>
Conwed Hydro Mulch 2000	Profile Products LLC Buffalo Grove, IL Phone: 1-800-366-1180 <a href="http://www.conwedfibers.com">www.conwedfibers.com</a>
EcoFibre Plus Tackifier	Profile Products LLC Buffalo Grove, IL Phone: 1-800-366-1180 <a href="http://www.profile-eco.com">www.profile-eco.com</a>
Terra Wood with Tacking Agent 3	Profile Products LLC Buffalo Grove, IL Phone: 1-800-726-6371 <a href="http://www.terra-mulch.com">www.terra-mulch.com</a>
Bindex Wood WT	American Excelsior Co. Arlington, TX Phone: 1-800-777-7645 <a href="http://www.curlex.com">www.curlex.com</a>
Second Nature Wood Fiber Mulch Plus	Central Fiber LLC Canton, OH Phone: 1-888-452-2630 <a href="http://www.centralfiber.com">www.centralfiber.com</a>

Approximately 500 SqFt will require permanent seeding. All costs associated with permanent seeding, fertilizing, and fiber mulching shall be incidental to the contract lump sum for price for Erosion Control.

It is the Contractor's responsibility to verify estimated acreage. No adjustment in quantity will be allowed unless additional work is ordered by the Engineer.

## EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations determined by the Engineer during construction. Refer to Std. Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

A quantity of 30 feet of 12" Diameter Erosion Control Wattles has been placed in the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels, backslopes, and inslopes.

The erosion control wattle provided shall be from the list shown below:

<u>Product</u>	<u>Manufacturer</u>
Curlex Sediment Log	American Excelsior Company Arlington, TX Phone: 1-800-777-7645 <a href="http://www.amerexcel.com">www.amerexcel.com</a>
Aspen Excelsior Logs	Western Excelsior Corporation Mancos, CO Phone: 1-800-833-8573 <a href="http://www.westernexcelsior.com">www.westernexcelsior.com</a>
Amber Waves Straw Wattles	Limpert Environmental Litchfield, MN Phone: 1-320-693-2565 <a href="http://www.limpertenvironmental.com">www.limpertenvironmental.com</a>
Bio Logs	Flaxtech, LLC Rock Lake, ND Phone: 1-866-444-3529
Winters Wattles	Winters Excelsior Company Birmingham, AL Phone: 1-800-248-7237 <a href="http://www.wintersexcelsior.com">www.wintersexcelsior.com</a>
Patriot Wood Fiber Logs and Patriot Straw Wattles	Patriot Environmental Products, Inc. Mesa, AZ Phone: 1-480-345-7293 <a href="http://www.digitaldesigncore.com/patriot/WattleSpecs.pdf">www.digitaldesigncore.com/patriot/WattleSpecs.pdf</a>

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## STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)

### ❖ SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - Clearing and grubbing
  - Excavation/borrow
  - Grading and shaping
  - Filling
  - Cutting and filling
  - Other (describe):
- **Total Project Area** 0.03 ac. **(4.2 1.b.)**
- **Total Area To Be Disturbed** 0.03 ac. **(4.2 1.b.)**
- **Existing Vegetative Cover (%)**
- **Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Bear Butte Creek **(4.2 1.e.)**

### ❖ ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Special sequencing requirements** (see sheet).
- **Install stabilized construction entrance(s).**
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install utilities, storm sewers, curb and gutter.**
- **Install inlet and culvert protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **Complete final paving and sealing of concrete.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities.**

### ❖ EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - Temporary Seeding (Cover Crop Seeding)
  - Permanent Seeding
  - Sodding
  - Planting (Woody Vegetation for Soil Stabilization)
  - Mulching (Grass Hay or Straw)
  - Hydraulic Mulch (Wood Fiber Mulch)
  - Soil Stabilizer
  - Bonded Fiber Matrix
  - Erosion Control Blankets or Mats
  - Vegetation Buffer Strips
  - Roughened Surface (e.g. tracking)
  - Dust Control
  - Other:

### ➤ Structural Temporary Erosion and Sediment Controls

- Silt Fence
- Floating Silt Curtain
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Turf Reinforcement Mat
- Rip Rap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection (Area Drain)
- Curb Inlet Protection
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Interceptor Ditch
- Concrete Washout Area
- Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Other:

### ➤ Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes  No  If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

### ➤ Storm Water Management (4.2 2.b., (1) and (2))

Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

### ➤ Other Storm Water Controls (4.2 2.c., (1) and (2))

#### ▪ Waste Disposal

All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

#### ▪ Hazardous Waste

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.

#### ▪ Sanitary Waste

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

### ❖ Maintenance and Inspection (4.2 3. and 4.2 4.)

#### ➤ Maintenance and Inspection Practices

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches  $\frac{1}{3}$  of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches  $\frac{1}{2}$  the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

### ❖ Non-Storm Water Discharges (3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

### ❖ Materials Inventory (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other:

❖ **Spill Prevention (4.2 2.c.(2))**

➤ **Material Management**

▪ Housekeeping

- Only needed products will be stored on-site by the contractor.
- Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

▪ Hazardous Materials

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➤ **Product Specific Practices (6.8)**

▪ Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

▪ Fertilizers

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

▪ Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

▪ Concrete Trucks

Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➤ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
  - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
  - The discharge causes an immediate danger to human health or safety.
  - The discharge exceeds 25 gallons.
  - The discharge causes a sheen on surface water.
  - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
  - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
  - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
  - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.



❖ **CERTIFICATIONS**

➤ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➤ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Authorized Signature (See the General Permit, Section 6.7.1.C.)

➤ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

❖ **CONTACT INFORMATION**

➤ **Contractor Information:**

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **Erosion Control Supervisor**

- Name:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **SDDOT Project Engineer**

- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **SD DENR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SD DENR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

# PLAN SHEET

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090W-451	10	22

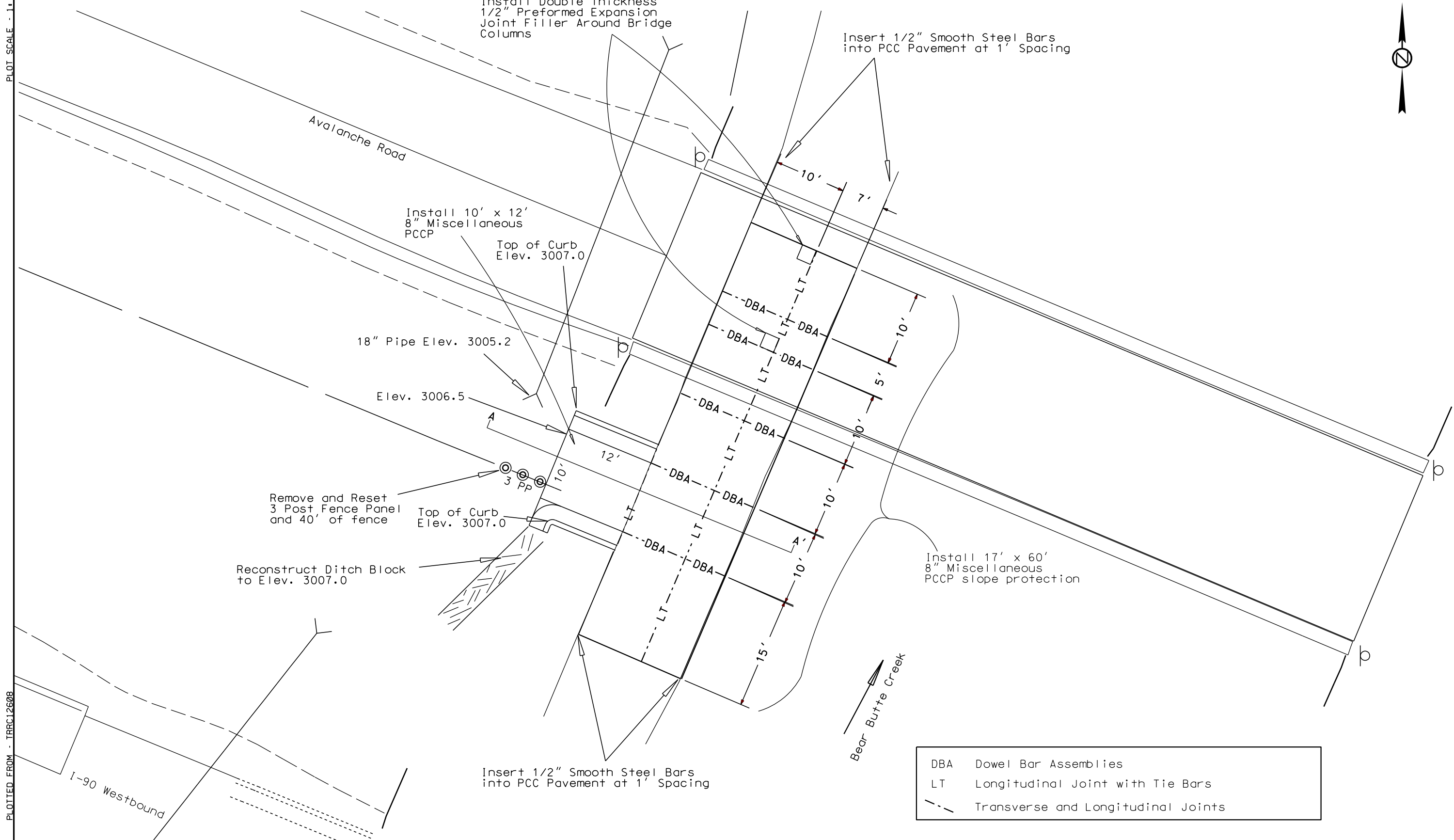
Plotting Date: 03/07/2012

PLOT SCALE - 1:12.5

PLOT NAME - 2

FILE - ... \DESIGN\12FD.DGN

PLOTTED FROM - TRRC12508



DBA	Dowel Bar Assemblies
LT	Longitudinal Joint with Tie Bars
- - -	Transverse and Longitudinal Joints

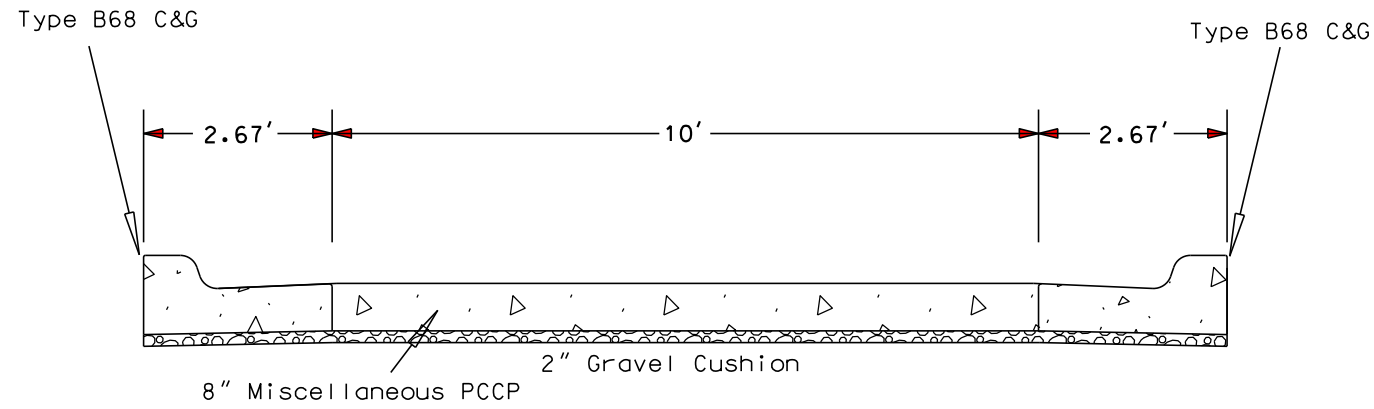
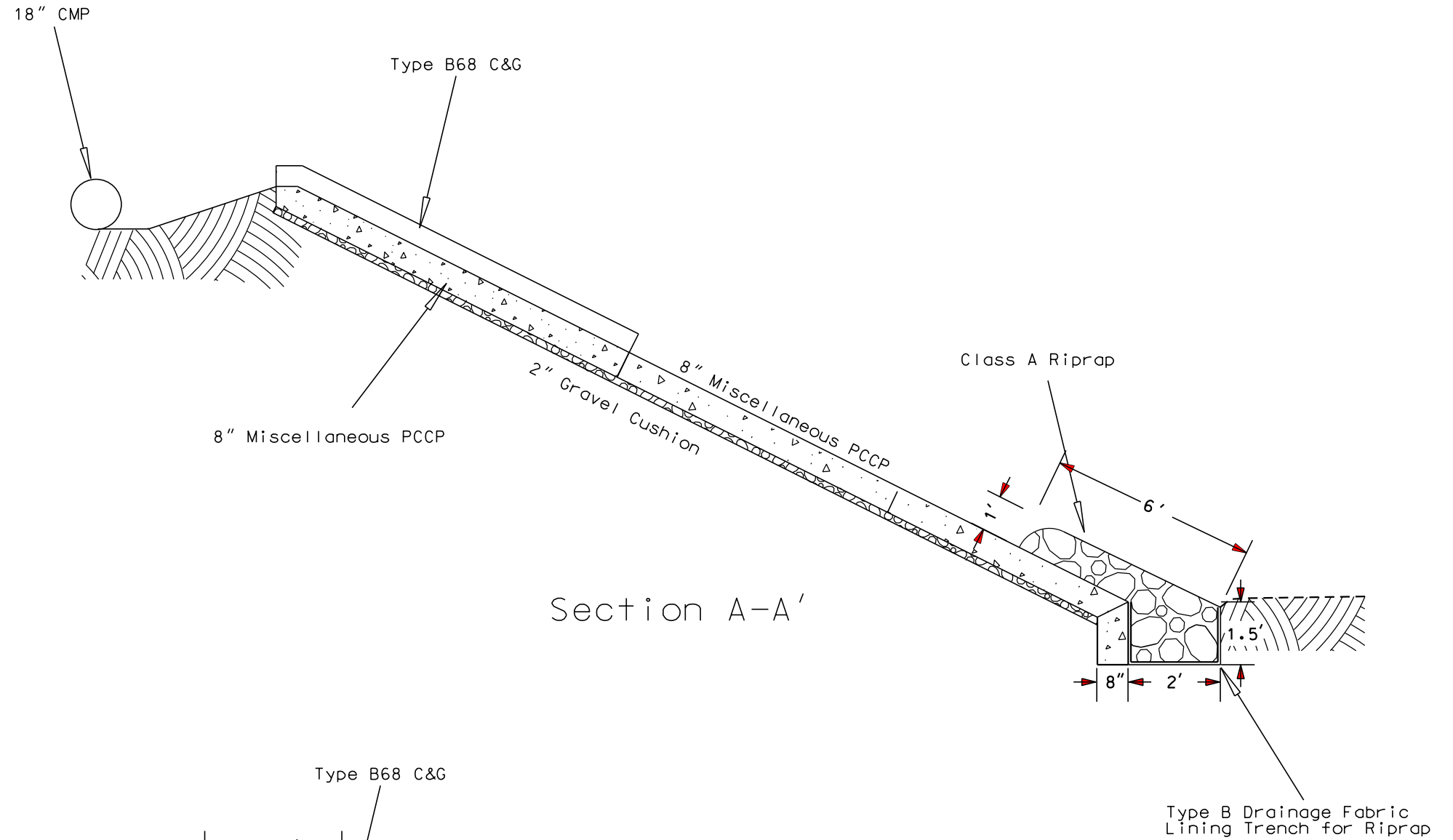
# CROSS SECTIONAL DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090W-451	11	22

Plotting Date: 03/07/2012

PLOT SCALE - 1:12.5

PLOT NAME - 3



PLOTTED FROM - TRRC12508

FILE - ... \DESIGN\12508.DGN

# EROSION CONTROL

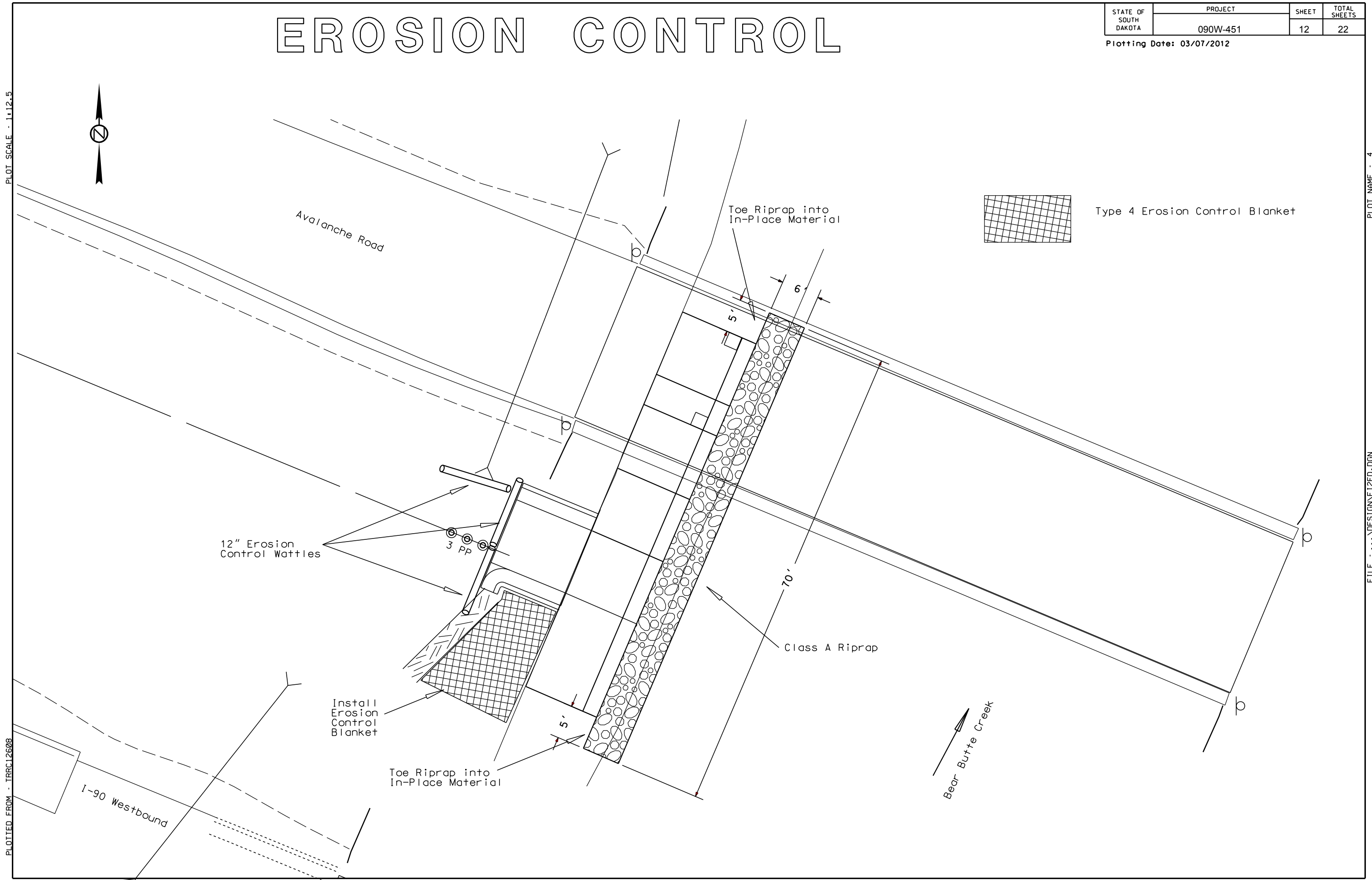
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090W-451	12	22

Plotting Date: 03/07/2012

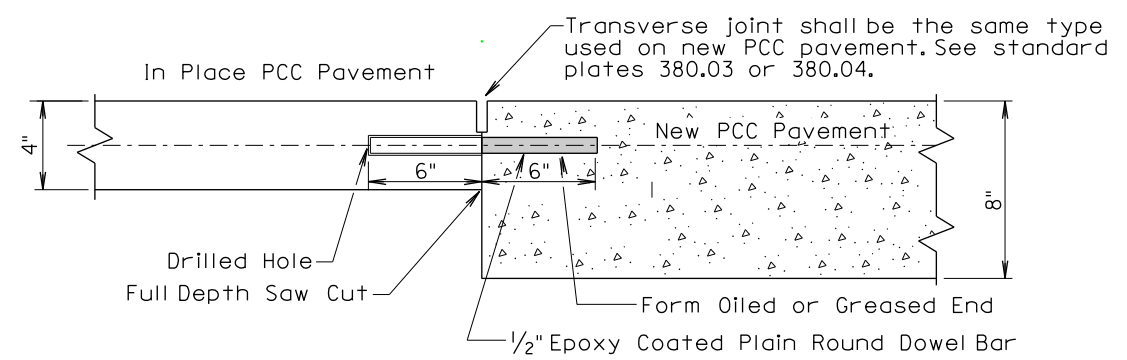
PLOT SCALE - 1:12.5

PLOT NAME - 4

FILE - ... \DESIGN\12FD.DGN



TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



GENERAL NOTES:

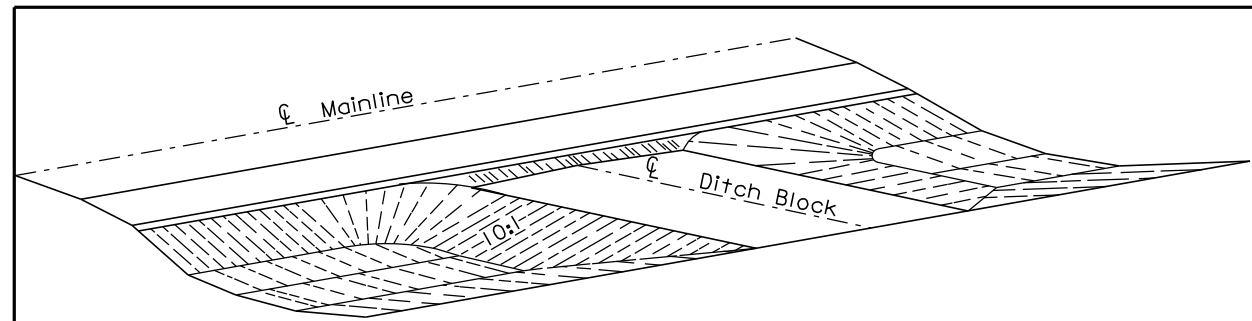
The plain round dowel bars shall be embedded a minimum depth of 6 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

The 1/2" 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.

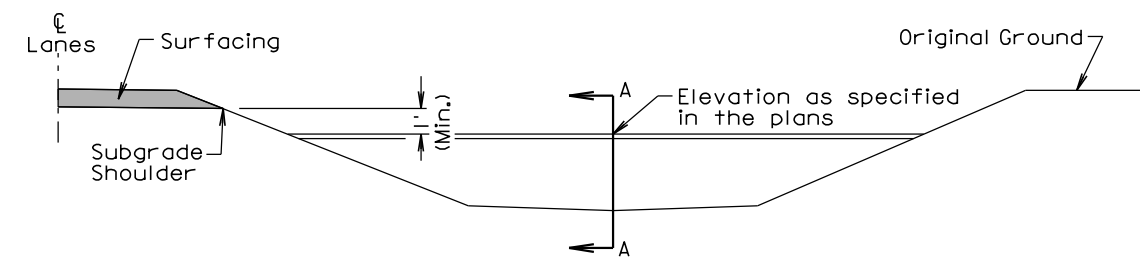
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

SPECIAL DETAIL FOR PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS

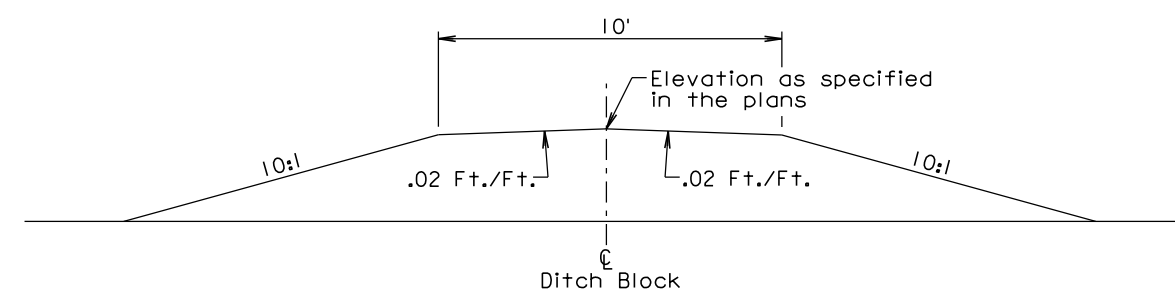




PERSPECTIVE OF DITCH BLOCK



ELEVATION VIEW



SECTION A-A

**GENERAL NOTES:**

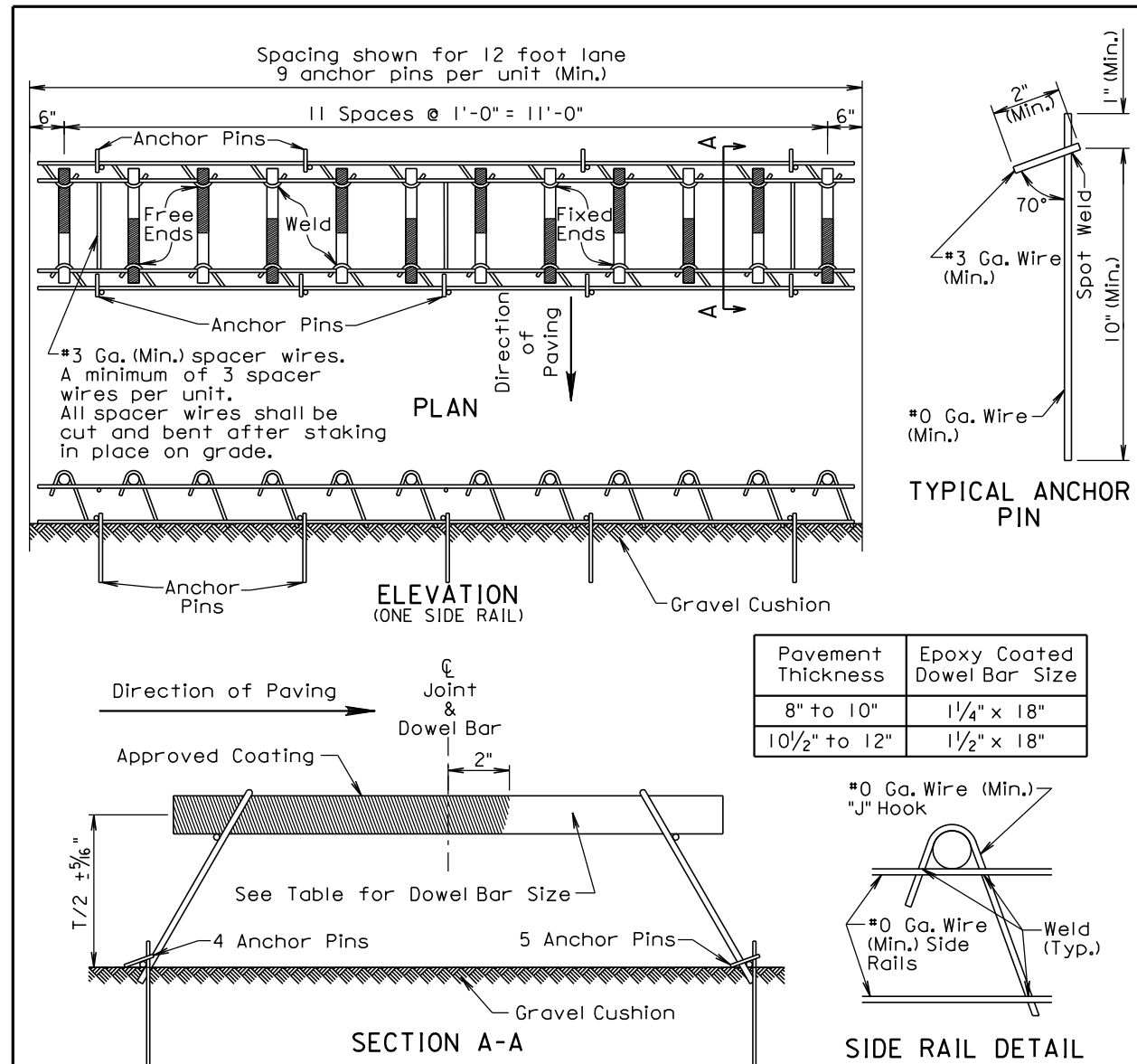
The ditch section shown above in the perspective and elevation view is only for illustrative purposes.

The inslopes of the ditch block shall be 10:1 or as specified in the plans.

The transition area between the mainline inslope and the ditch block inslope shall be rounded to eliminate an abrupt transition.

February 14, 2011

Published Date: 1st Qtr. 2012	S D D O T	DITCH BLOCK	PLATE NUMBER 120.02
			Sheet 1 of 1



**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.

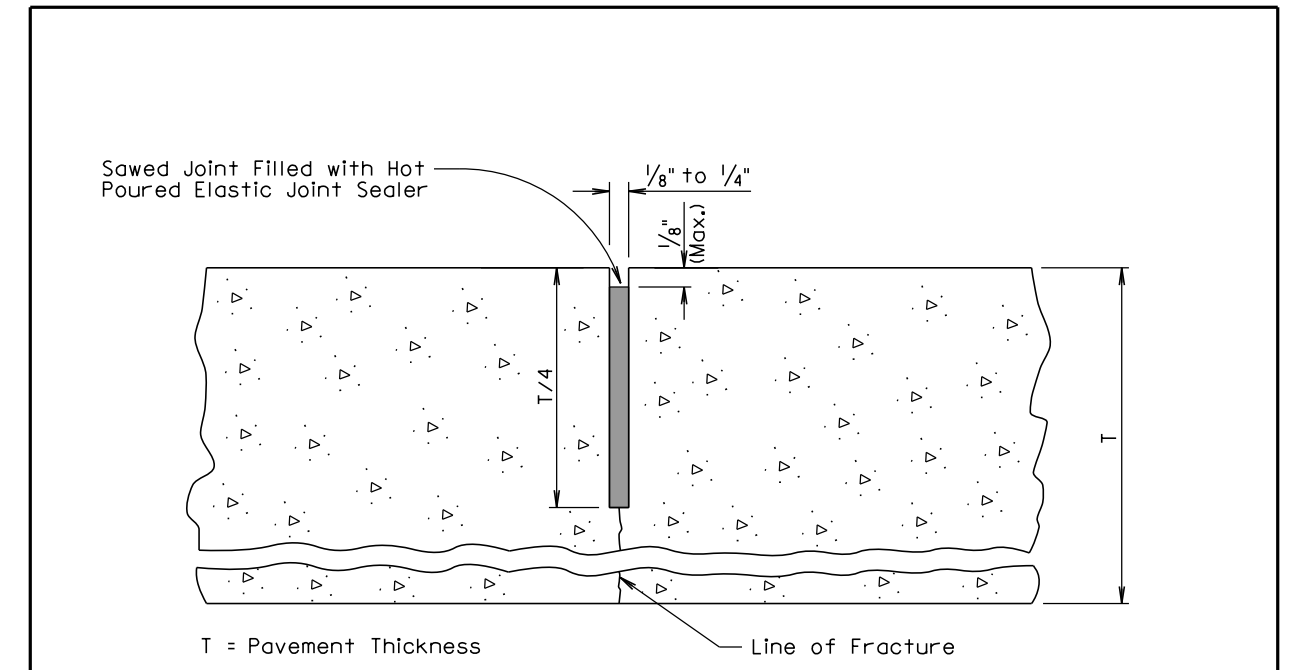
Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

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: 1st Qtr. 2012	S D D O T	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS	PLATE NUMBER 380.01
			Sheet 1 of 1



**GENERAL NOTES:**

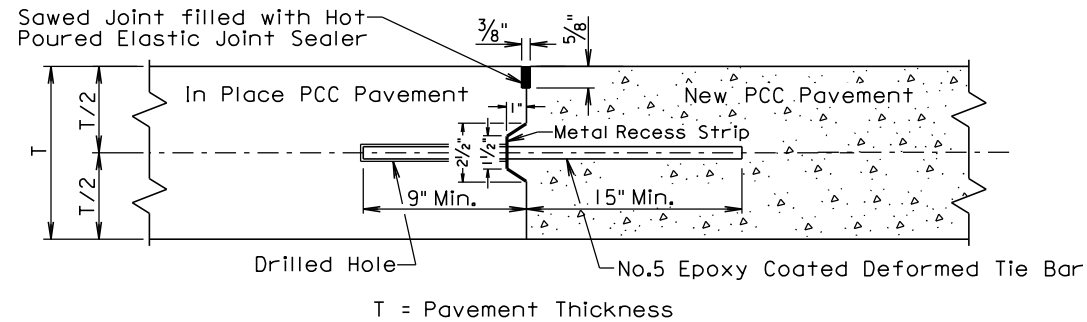
The saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement.

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: 1st Qtr. 2012	S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.03
			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.

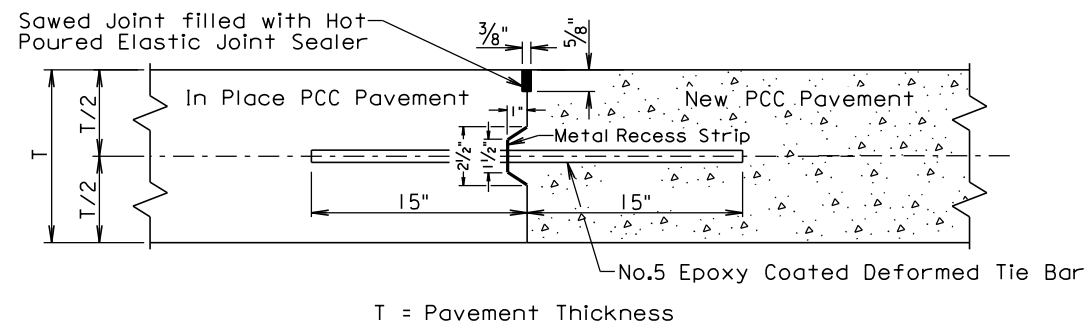
No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

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.

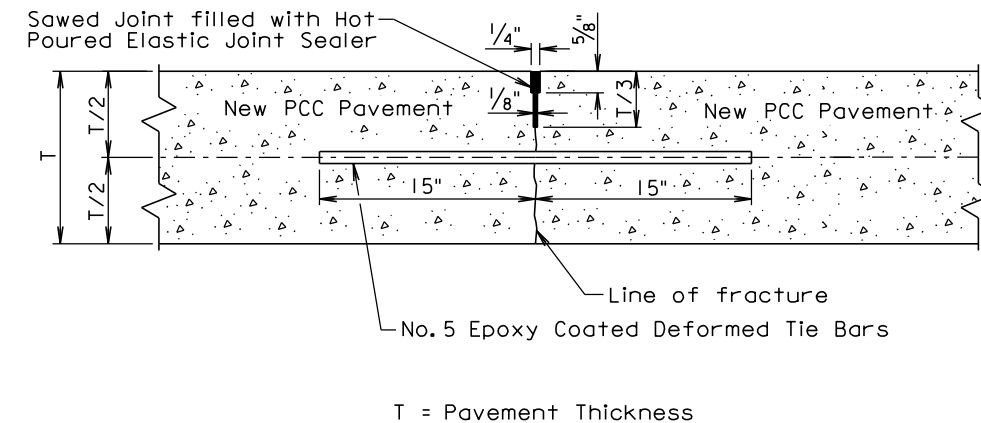
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

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

<i>Published Date: 1st Qtr. 2012</i>	<b>S D D O T</b>	<b>PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS</b>	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.

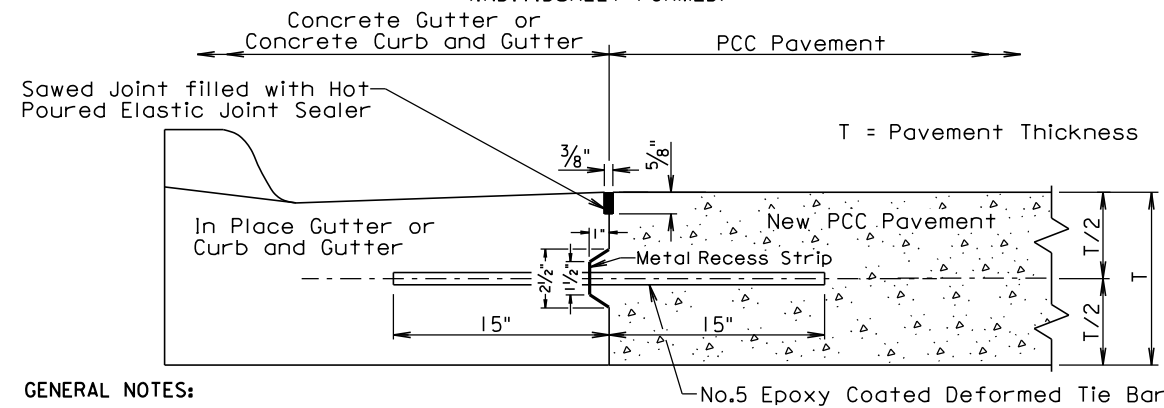
The tie bars shall be placed a minimum of 15 inches from the existing transverse contraction joints.

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

<i>Published Date: 1st Qtr. 2012</i>	<b>S D D O T</b>	<b>PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS</b>	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.

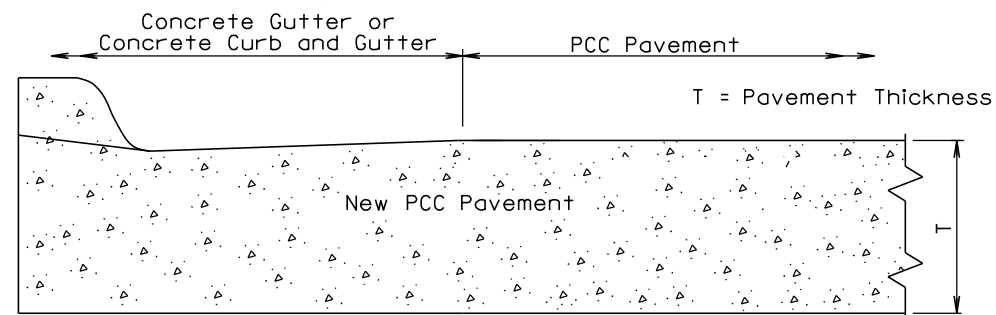
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

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 1/2" 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.

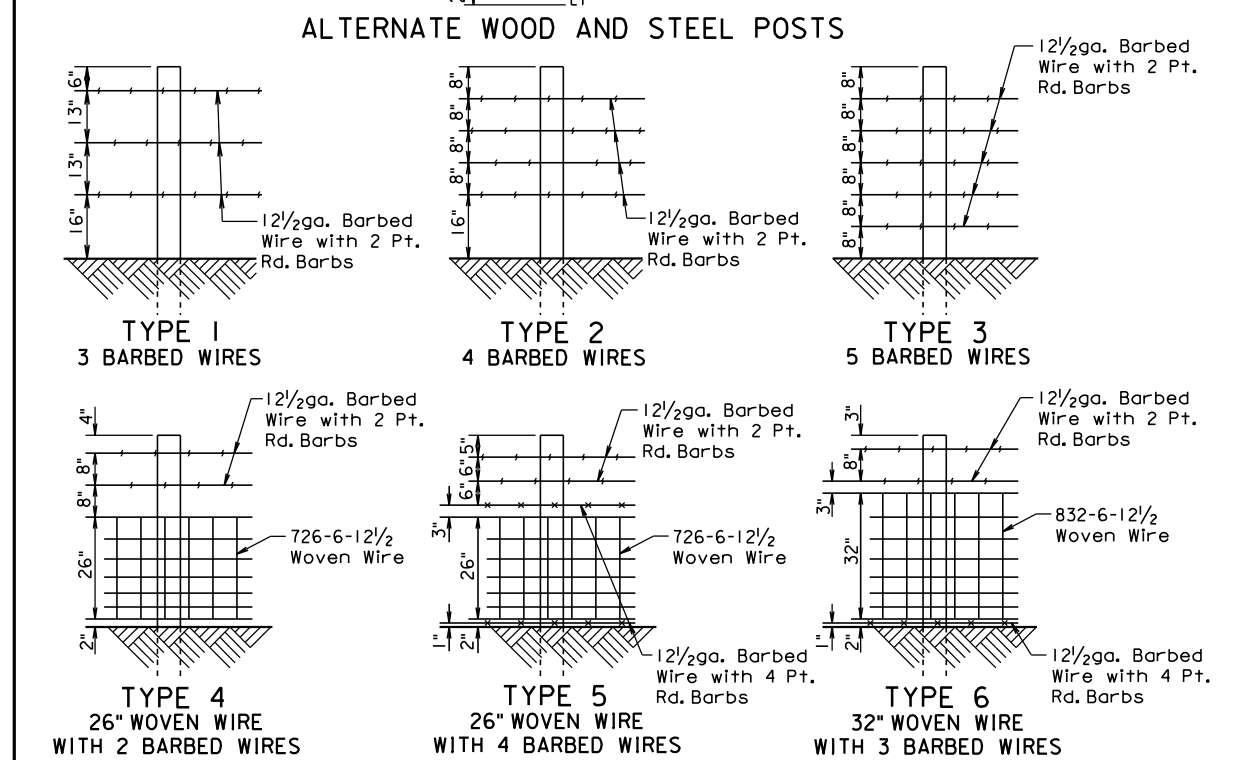
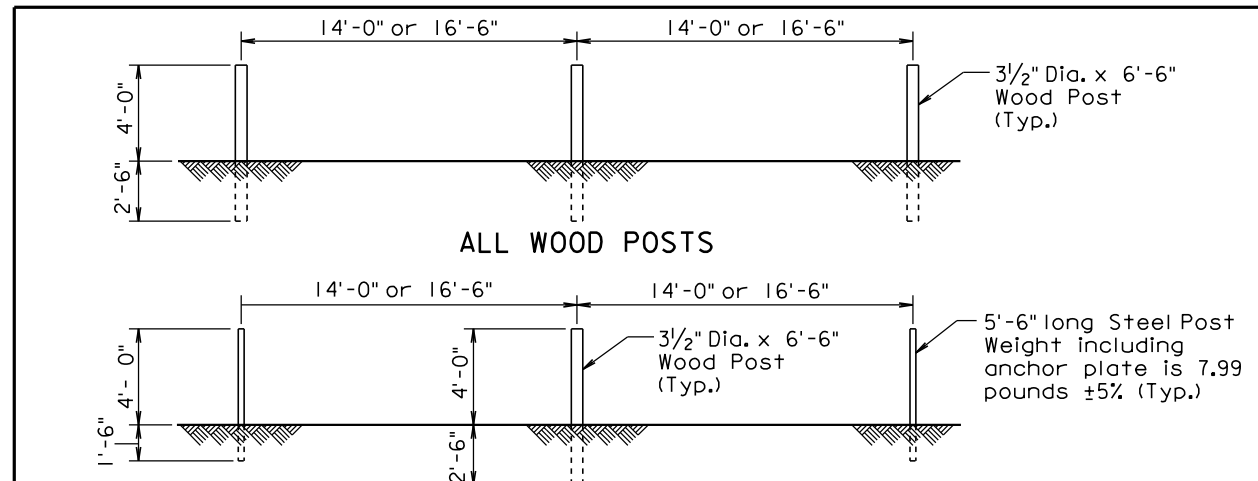
The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

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

<b>S D D O T</b>	<b>PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER</b>	PLATE NUMBER 380.11
		Sheet 1 of 1

Published Date: 1st Qtr. 2012

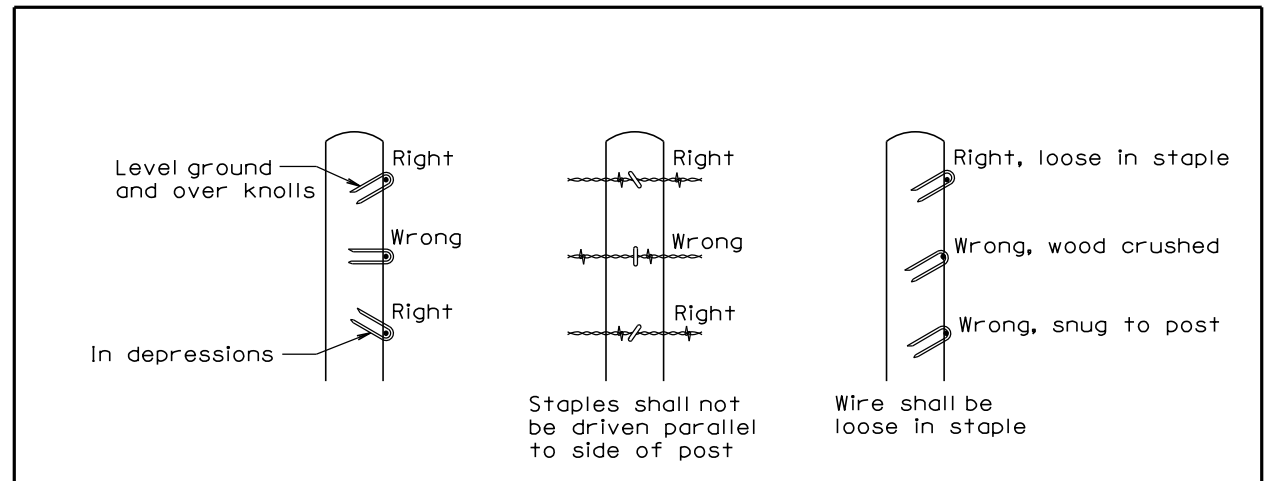


TYPE OF FENCE		LINE POST SPACING	WIRE GAGE	BARBED WIRE	WOVEN WIRE
TYPE	DESCRIPTION			NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12/2	2 Point Round	—
2	4 Barbed Wires	16'-6"	12/2	2 Point Round	—
3	5 Barbed Wires	16'-6"	12/2	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12/2	2 Point Round	726-6-12/2
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12/2	2 wires with 2 Pt. Rd., 2 wires with 4 Pt. Rd.	726-6-12/2
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12/2	2 wires with 2 Pt. Rd., 1 wire with 4 Pt. Rd.	832-6-12/2

**GENERAL NOTES:**  
 Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.  
 When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.  
 All degrees of curvature stated for fence are at centerline of roadway.

September 14, 2009

Published Date: 1st Qtr. 2012	S D D O T	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
			Sheet 1 of 1



**STAPLE INSTALLATION**

**GENERAL NOTES:**

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

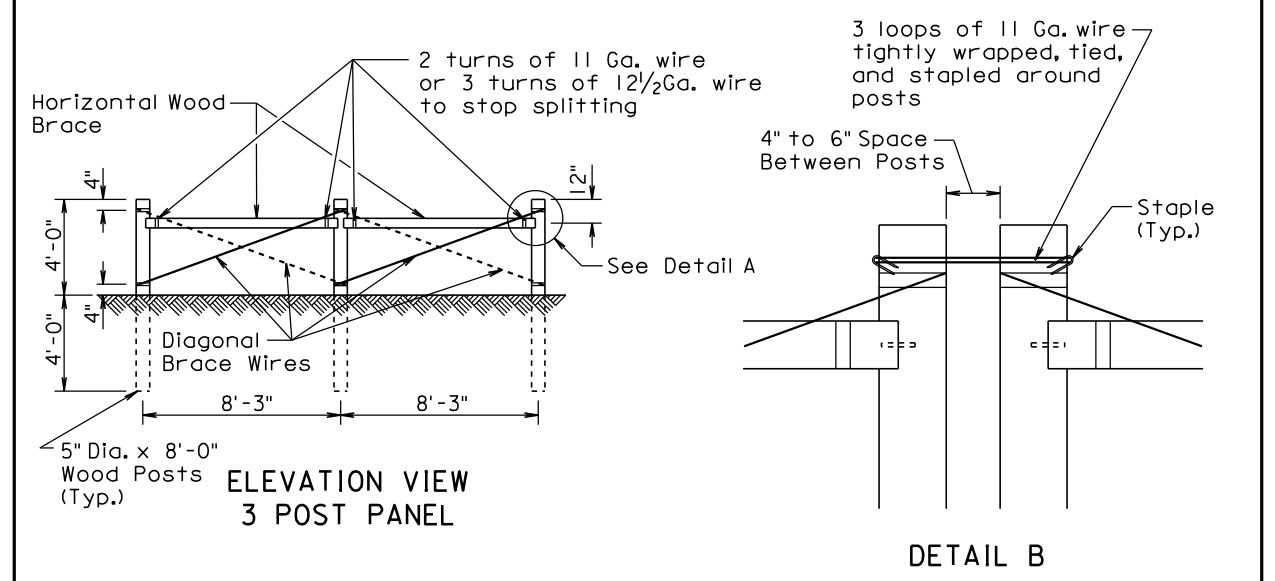
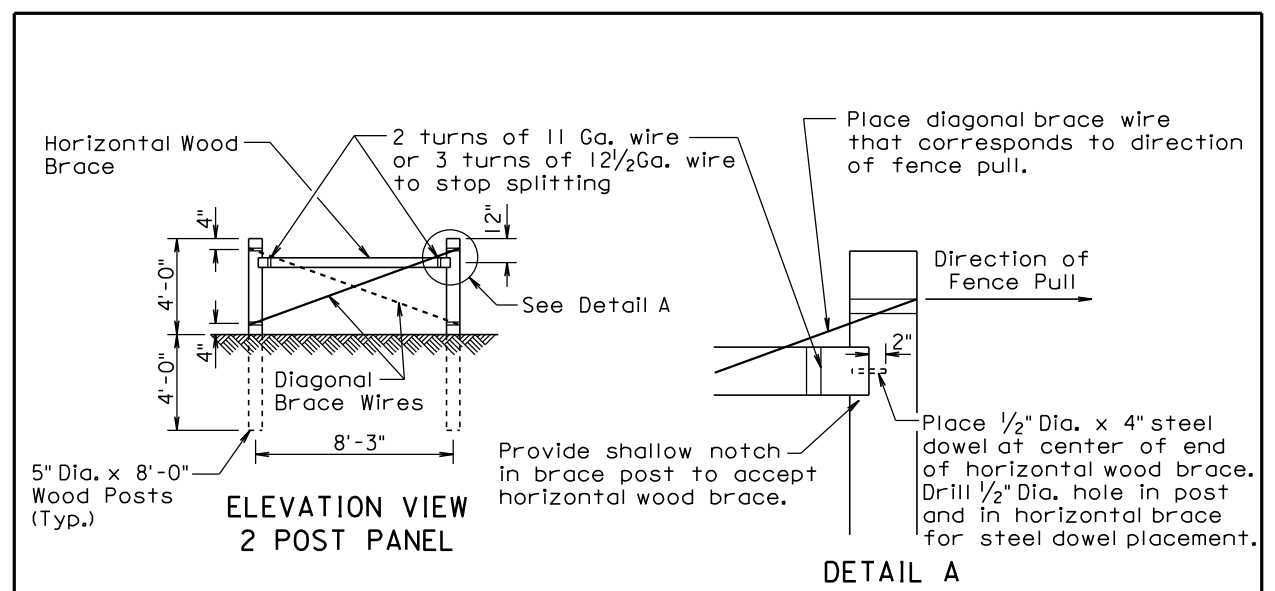
Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

December 23, 2004

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**GENERAL NOTES:**

Two Post Panels shall be installed at least every 1320' between corners.

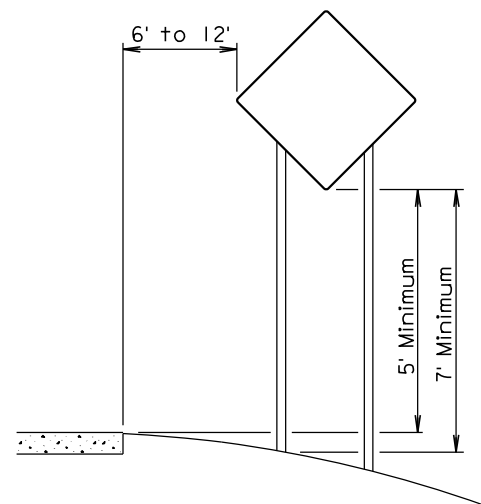
Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

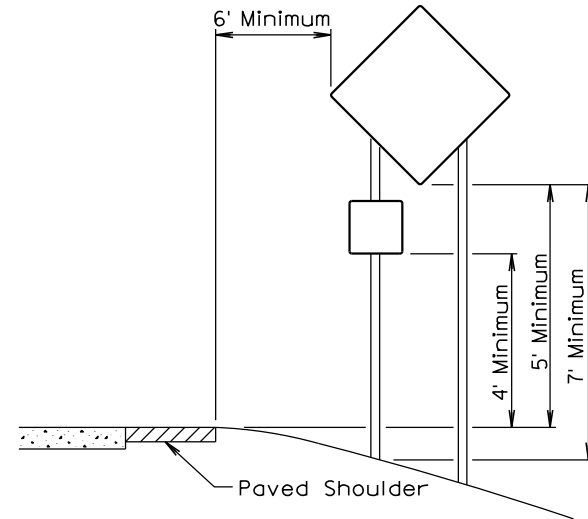
Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

December 23, 2004

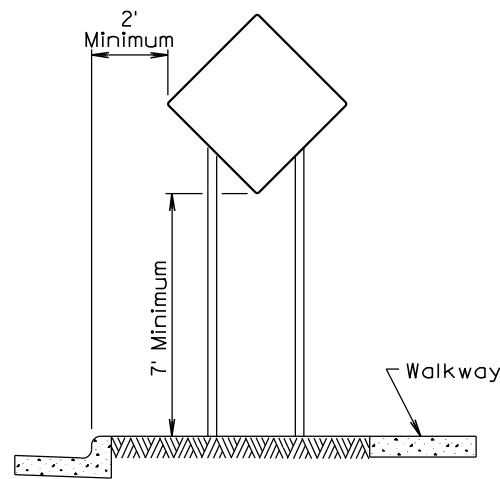




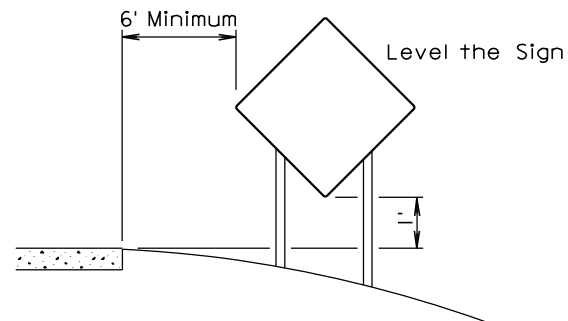
RURAL DISTRICT



RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



URBAN DISTRICT



RURAL DISTRICT  
3 DAY MAXIMUM

February 14, 2011

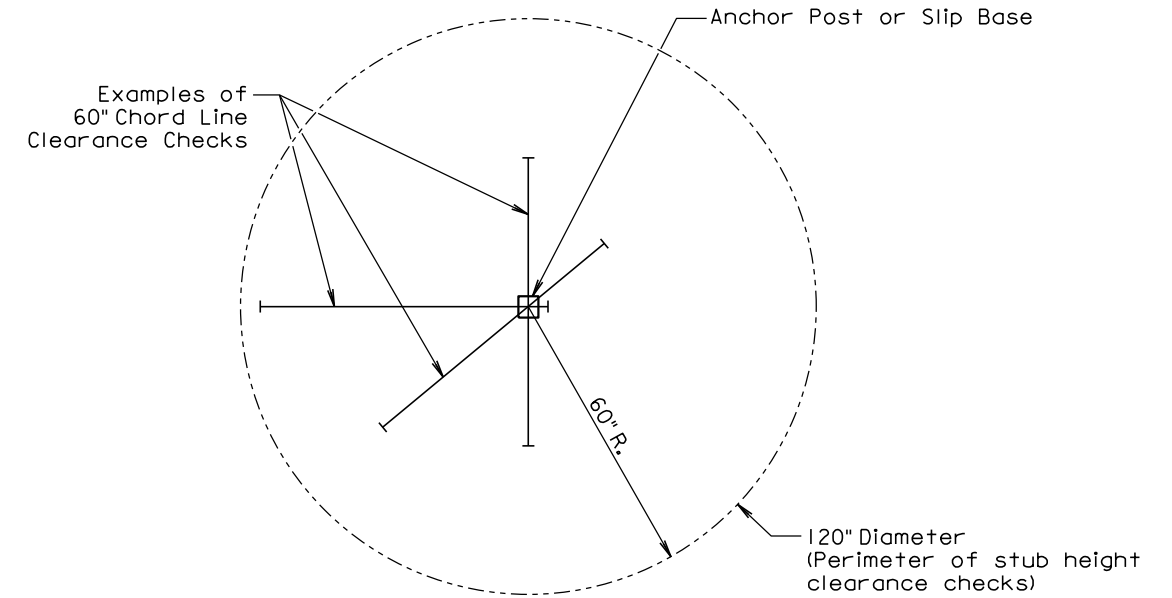
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**CRASHWORTHY SIGN SUPPORTS**  
(Typical Construction Signing)

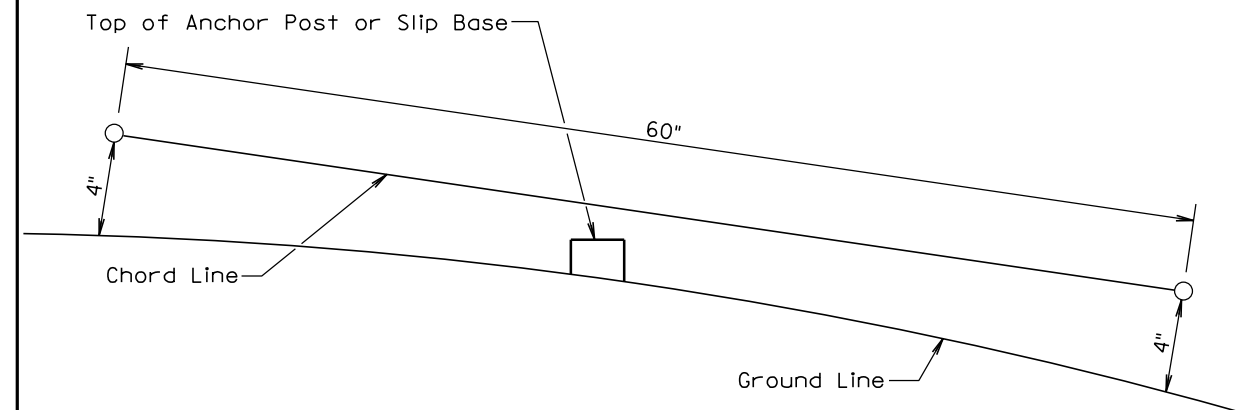
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Sheet 1 of 1



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: 1st Qtr. 2012

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**BREAKAWAY SUPPORT STUB CLEARANCE**

PLATE NUMBER  
634.99

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