

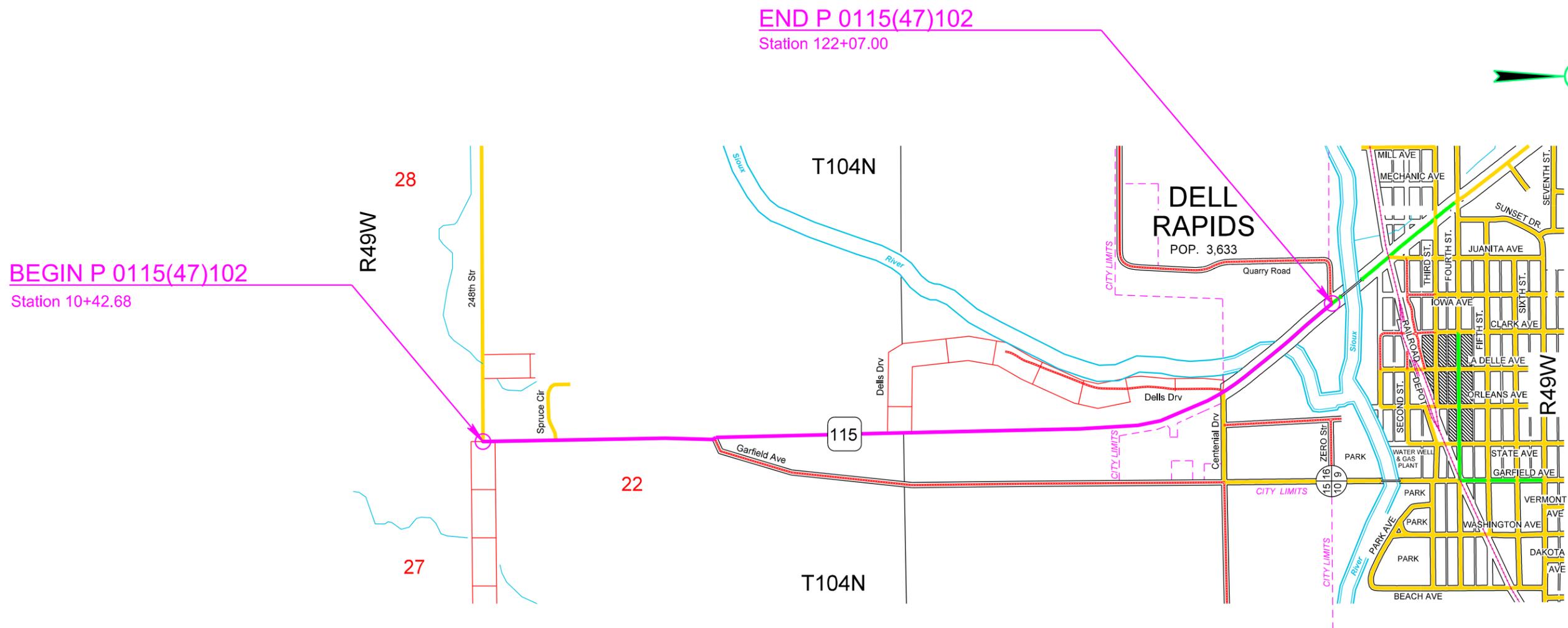
# SECTION D: EROSION AND SEDIMENT CONTROL PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0115(47)102	D1	D24
Plotting Date:		11/23/2015	

### INDEX OF SHEETS

D1	General Layout with Index
D2-D6	Estimate with General Notes & Tables
D7-D9	Stormwater Pollution Prevention Plan Checklist
D10	Erosion and Sediment Control Legend
D11-D18	Erosion and Sediment Control Plan Sheets
D19	SDDOT Construction Entrance Details
D20-D24	Standard Plates

Plot Scale - 1:200



**SECTION D ESTIMATE OF QUANTITIES**

STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D2	TOTAL SHEETS D24
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Plotting Date: 11/23/2015

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1690	Remove Sediment	7.0	CuYd
110E1695	Remove Sediment Filter Bag	168	Ft
110E1700	Remove Silt Fence	705	Ft
230E0010	Placing Topsoil	12,194	CuYd
730E0251	Special Permanent Seed Mixture 1	702	Lb
732E0100	Mulching	54.0	Ton
734E0102	Type 2 Erosion Control Blanket	896	SqYd
734E0103	Type 3 Erosion Control Blanket	364	SqYd
734E0132	Type 2 Turf Reinforcement Mat	4,511.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	2,200	Ft
734E0165	Remove and Reset Erosion Control Wattle	550	Ft
734E0180	Sediment Filter Bag	168	Ft
734E0325	Surface Roughening	1.6	Acre
734E0510	Shaping for Erosion Control Blanket	567	Ft
734E0602	Low Flow Silt Fence	1,640	Ft
734E0604	High Flow Silt Fence	1,177	Ft
734E0610	Mucking Silt Fence	195	CuYd
734E0620	Repair Silt Fence	705	Ft
734E0630	Floating Silt Curtain	400	Ft
734E0845	Sediment Control at Inlet with Frame and Grate	5	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet	12	Ft
900E1320	Construction Entrance	2	Each

**PLACING TOPSOIL**

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

The estimated amount of topsoil to be placed is as follows:

Station	to Station	Topsoil (CuYd)
10+42.68	Begin 25+00	1,670
25+00	40+00	2,060
40+00	55+00	1,927
55+00	70+00	1,464
70+00	85+00	1,801
85+00	100+00	1,379
100+00	115+00	1,020
115+00	122+15 End	873
Total:		12,194

**MYCORRHIZAL INOCULUM**

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

- Glomus intraradices* 25%
- Glomus aggregatu* 25%
- Glomus mosseae* 25%
- Glomus etunicatum* 25%

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum shall be as shown below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 <a href="http://www.mycorrhizae.com/">http://www.mycorrhizae.com/</a>

**PERMANENT SEEDING**

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

Special Permanent Seed Mixture 1 shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk	3
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	3
QuickGuard or Regreen	-use April through November	10
Oats or Spring Wheat	-use April through May	
Winter Wheat	-use August through November	
Total:		26

**SURFACE ROUGHENING**

Surface roughening shall be done after topsoil placement and before permanent seeding and mulching applications. Refer to Standard Plate 734.25 for details.

**TABLE OF SURFACE ROUGHENING**

Station	Location	Quantity (Acre)
13+00 L to 15+60 L	INSLOPE	0.3
15+85 L to 18+00 L	INSLOPE	0.2
56+30 L to 59+50 L	INSLOPE	0.4
56+30 R to 59+00 R	INSLOPE	0.3
68+00 L to 70+20 L	INSLOPE	0.4
Total:		1.6

**MULCHING (GRASS HAY OR STRAW)**

Grass Hay or Straw Mulch for temporary stabilization is to be used on this project at locations noted in the table and at locations determined by the Engineer during construction. The quantity in the Estimate of Quantities includes Grass Hay or Straw Mulch for temporary stabilization and Grass Hay or Straw Mulch for after permanent seeding. Two applications of Grass Hay or Straw Mulch on areas that received temporary Grass Hay or Straw Mulch will not be required. Permanent seeding can be done on areas that received temporary Grass Hay or Straw Mulch using a no-till drill.

**TABLE OF GRASS HAY OR STRAW MULCH FOR TEMPORARY STABILIZATION APPLIED AT 2 TONS/ACRE**

Station	Location	Quantity (Ton)
23+50 R to 29+00 R	BACKSLOPE	1.2
27+00 L to 29+00 L	BACKSLOPE	0.3
Total:		1.5

1:200 Plot Scale -

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**EROSION CONTROL WATTLE**

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

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

Erosion control wattles shall remain on the project to decompose.

An additional quantity of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

The erosion control wattle provided shall be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

**TABLE OF EROSION CONTROL WATTLE**

Station	Diameter (Inch)	Location	Quantity (Ft)
22+00 R	12	HIGHWAY DITCH CHANNEL	30
22+75 R	12	HIGHWAY DITCH CHANNEL	30
23+50 R	12	HIGHWAY DITCH CHANNEL	30
24+25 R	12	HIGHWAY DITCH CHANNEL	30
ENT 2494 L 0+75 L	12	HIGHWAY DITCH CHANNEL	30
ENT 2494 L 0+75 R	12	HIGHWAY DITCH CHANNEL	30
25+00 R	12	HIGHWAY DITCH CHANNEL	30
25+75 R	12	HIGHWAY DITCH CHANNEL	30
26+00 L	12	HIGHWAY DITCH CHANNEL	30
26+50 R	12	HIGHWAY DITCH CHANNEL	30
26+75 L	12	HIGHWAY DITCH CHANNEL	30
27+25 R	12	HIGHWAY DITCH CHANNEL	30
27+50 L	12	HIGHWAY DITCH CHANNEL	30
28+00 R	12	HIGHWAY DITCH CHANNEL	30
28+25 L	12	HIGHWAY DITCH CHANNEL	30
28+75 R	12	HIGHWAY DITCH CHANNEL	30
29+00 L	12	HIGHWAY DITCH CHANNEL	30
29+50 R	12	HIGHWAY DITCH CHANNEL	30
29+75 L	12	HIGHWAY DITCH CHANNEL	30
30+25 R	12	HIGHWAY DITCH CHANNEL	30
30+50 L	12	HIGHWAY DITCH CHANNEL	30
31+00 R	12	HIGHWAY DITCH CHANNEL	30
31+25 L	12	HIGHWAY DITCH CHANNEL	30
42+00 R	12	HIGHWAY DITCH CHANNEL	30
43+50 R	12	HIGHWAY DITCH CHANNEL	30
45+00 R	12	HIGHWAY DITCH CHANNEL	30
46+50 R	12	HIGHWAY DITCH CHANNEL	30
50+00 L	12	HIGHWAY DITCH CHANNEL	30
51+50 L	12	HIGHWAY DITCH CHANNEL	30

53+00 L	12	HIGHWAY DITCH CHANNEL	30
79+00 R	12	HIGHWAY DITCH CHANNEL	30
79+50 R	12	HIGHWAY DITCH CHANNEL	30
110+39.27 BRIDGE	12	INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER DURING CONSTRUCTION TO PROTECT RIVER	300
122+25+/-	12	INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER DURING CONSTRUCTION TO PROTECT RIVER	500
ADDITIONAL QUANTITY			440
Total:			2,200

**LOW FLOW SILT FENCE**

The low flow silt fence fabric provided shall be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

Low flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

An additional quantity of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

**TABLE OF LOW FLOW SILT FENCE**

Station	Location	Quantity (Ft)
47+50 L to 48+25 L	PERIMETER CONTROL	75
48+45 L to 50+00 L	PERIMETER CONTROL	155
47+00 R to 48+25 R	PERIMETER CONTROL	125
48+45 R to 50+00 R	PERIMETER CONTROL	155
110+39.27 BRIDGE	INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER DURING CONSTRUCTION TO PROTECT RIVER	300
122+25+/-	INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER DURING CONSTRUCTION TO PROTECT RIVER	500
ADDITIONAL QUANTITY		330
Total:		1,640

**HIGH FLOW SILT FENCE**

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

High flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

**TABLE OF HIGH FLOW SILT FENCE**

Station	Location	Quantity (Ft)
10+98 R	INLET END OF PIPE	18
13+55 R	INLET END OF PIPE	18
19+33 R	INLET END OF PIPE	18
21+05 R	INLET END OF PIPE	18
31+99 R	INLET END OF PIPE	18
31+99 L	INLET END OF PIPE	18
35+37 R	ACROSS DITCH AT INLET END OF PIPE (30 FT EACH SIDE)	60
ENT 3950 R	INLET END OF PIPE	18
39+50 R		
40+43 R	ACROSS DITCH AT INLET END OF PIPE (30 FT EACH SIDE)	60
44+70 L	INLET END OF PIPE	18
48+36 R	ACROSS DITCH AT INLET AND OUTLET ENDS OF PIPE (60 FT EACH END)	120
50+88 R	INLET END OF PIPE	18
52+95 R	INLET END OF PIPE	18
57+24	ACROSS DITCH AT INLET AND OUTLET ENDS OF PIPE (60 FT EACH END)	120
64+48 R	INLET END OF PIPE	18
69+42 R	INLET END OF PIPE	18
74+34 R	INLET END OF PIPE	18
78+56 R	ACROSS DITCH AT INLET END OF PIPE (30 FT EACH SIDE)	60
80+27 R	INLET END OF PIPE	18
80+43 L	INLET END OF PIPE	18
85+06 R	INLET END OF PIPE	18
89+38 R	INLET END OF PIPE	18
89+48 L	INLET END OF PIPE	18
98+49 R	INLET END OF PIPE	18
98+85 L	INLET END OF PIPE	18
ENT 10307	INLET END OF PIPE	18
103+07 L		

**TABLE OF HIGH FLOW SILT FENCE (continued)**

ENT 10307	INLET END OF PIPE	18	
103+07 R			
116+88 L	INLET END OF PIPE	18	
	ADDITIONAL QUANTITY	215	
	Total:	1,049	

Note: This table does not include the quantity of High Flow Silt Fence that is to be used for Interim Sediment Control at Inlets, Manholes, and Junction Boxes After Surfacing Removal and Before Placement of Surfacing.

**FLOATING SILT CURTAIN**

Floating silt curtains shall be installed at locations noted in the table and at locations determined by the Engineer during construction.

The Contractor shall determine the water depth and other waterway characteristics such as stream flow velocity and seek technical advice from the manufacturer before ordering the floating silt curtain so that the floating silt curtain installed is the correct type for the individual sites.

The Contractor shall install the floating silt curtain according to the manufacturer's installation instructions or as directed by the Engineer.

The Contractor shall maintain the floating silt curtains for the duration of the project to ensure continuous protection of the waterway.

A list of known manufacturers of floating silt curtain is shown below for informational purpose. Contractors may also use Engineer approved floating silt curtain from manufacturers that are not included in the list.

ABASCO, LLC  
Houston, TX  
Phone: 1-800-242-7745  
[www.abasco.net](http://www.abasco.net)

Aer-Flo, Inc.  
Bradenton, FL  
Phone: 1-800-823-7356  
[www.aerflo.com](http://www.aerflo.com)

American Boom and Barrier Corp.  
Cape Canaveral, FL  
Phone: 1-800-843-2110  
[www.abbcoboom.com](http://www.abbcoboom.com)

ENVIRO-USA, LLC  
Cocoa, FL  
Phone: 1-321-222-9551  
[www.enviro-usa.com](http://www.enviro-usa.com)

Elastec/American Marine, Inc.  
Carmi, IL  
Phone: 1-618-382-2525  
[www.turbiditycurtains.com](http://www.turbiditycurtains.com)

Geo-Synthetics, LLC (GSI)  
Waukesha, WI  
Phone: 1-800-444-5523  
[www.geosynthetics.com](http://www.geosynthetics.com)

Parker Systems, Inc.  
Chesapeake, VA  
Phone: 1-866-472-7537  
[www.parkersystemsinc.com](http://www.parkersystemsinc.com)

**TABLE OF FLOATING SILT CURTAIN**

Station	Location	Quantity (Ft)
110+39.27 BRIDGE	PROTECT RIVER	400
	Total:	400

**EROSION CONTROL BLANKET**

Erosion control blanket shall be installed 20 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

The erosion control blanket provided shall be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

Additional quantities of Erosion Control Blanket have been added to the Estimate of Quantities for temporary erosion control.

**TABLE OF EROSION CONTROL BLANKET**

Station	Location	Type	Quantity (SqYd)
ENT 2494 L	HIGHWAY DITCH CHANNEL	3	156
0+50 L to 1+20 L			
ENT 2494 L	HIGHWAY DITCH CHANNEL	3	133
0+50 R to 1+10 R			
104+00 L to 107+10 L	INSLOPE	2	716
	ADDITIONAL QUANTITY	2	180
	ADDITIONAL QUANTITY	3	75
	Total Type 2 Erosion Control Blanket:		896
	Total Type 3 Erosion Control Blanket:		364

**SHAPING FOR EROSION CONTROL BLANKET**

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01.

**TURF REINFORCEMENT MAT**

Turf Reinforcement Mat shall be installed 20 feet wide at locations shown in the table, and at locations determined by the Engineer during construction. The Contractor shall use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

An additional quantity of Turf Reinforcement Mat has been added to the Estimate of Quantities to be used at locations determined by the Engineer during construction.

**TABLE OF TURF REINFORCEMENT MAT**

Station	Location	Type	Quantity (SqYd)
21+10 R to 31+60 R	HIGHWAY DITCH CHANNEL	2	2,333
25+50 L to 31+25 L	HIGHWAY DITCH CHANNEL	2	1,278
	ADDITIONAL QUANTITY	2	900
	Total Type 2 Turf Reinforcement Mat:		4,511

**INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING**

Refer to Standard Plate 734.05 for details of installation of high flow silt fence at drop inlets, manholes, and junction boxes.

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

In addition, the Contractor shall do the following for this installation:

- A space of at least 1' shall be provided between the silt fence installation and the inlet. This space shall be filled completely with a 2" depth of aggregate, 2" minus or smaller.
- The top elevation of the silt fence shall be such that a 12" horizontal flap of silt fence will remain at the bottom.
- The base of the silt fence shall conform to the natural ground profile but does not need to be trenched in at the bottom.
- The extra 12" of the silt fence material may be cut so that the material will lay flat upon the subgrade.
- Sediment filter bags shall be placed on the 12" flap around the perimeter of the silt fence installation. The sediment filter bags shall overlap 6" at the ends and be placed tightly together.
- The sediment filter bags shall be filled with clean aggregate 2" minus or smaller.

**Sediment Filter Bag**

Product	Manufacturer
Snake Bag	Sacramento Bag Manufacturing Co. Sacramento, CA Phone: 1-800-287-2247 <a href="http://www.sacbag.com">www.sacbag.com</a>

The sediment filter bag shall be the Snake Bag from Sacramento Bag Manufacturing Company or an approved equal.

All costs for furnishing and installing the sediment filter bags shall be incidental to the contract unit price per foot for "Sediment Filter Bag."

All costs for removing the sediment filter bags shall be incidental to the contract unit price per foot for "Remove Sediment Filter Bag".

Payment for high flow silt fence shall be as stated in Section 734.5 of the Specifications.

All costs for furnishing, installing, and removing the 2" depth of aggregate shall be incidental to other erosion and sediment control bid items.

All costs for removing and disposing of sediment collected by the sediment control device shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

**INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING (continued)**

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.

The Contractor and Engineer shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event greater than 1/2".

**TABLE OF INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING**

Station	High Flow Silt Fence Quantity (Ft)	Sediment Filter Bag Quantity (Ft)
105+50-21.17' L	18	24
108+00-21.17' L	18	24
114+45.76-23.63' L	38	48
115+00-21.17' L	18	24
117+30-21.17' L	18	24
119+20-21.17' L	18	24
<b>Totals:</b>	<b>128</b>	<b>168</b>

**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 devices 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 devices shall be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer's recommendations.

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 <a href="http://www.royalenterprises.net">www.royalenterprises.net</a>

Dandy Curb Sack  
Dandy Products Inc.  
Dublin, OH  
Phone: 1-800-591-2284  
[www.dandyproducts.com](http://www.dandyproducts.com)

Silt Trapper  
Storm Water Solutions  
Lakeville, MN  
Phone: 1-952-461-4376  
[www.silttrapper.com](http://www.silttrapper.com)

DIP Basket  
Skyview Construction Co., LLC  
Waubay, SD  
Phone: 1-605-520-0555  
[www.skyviewconst.com](http://www.skyviewconst.com)

FLEXSTORM Inlet Filters  
Inlet and Pipe Protection, Inc.  
Naperville, IL  
Phone: 1-866-287-8655  
[www.inletfilters.com](http://www.inletfilters.com)

GR-8 Guard  
or  
Combo Guard  
ERTEC Environmental Systems LLC  
Alameda, CA  
Phone: 1-866-521-0724  
[www.ertecsystems.com](http://www.ertecsystems.com)

Sediment Catchers  
Shaun Jensen  
Brookings, SD  
Phone: 1-605-690-4950  
Enviroscape ECM, Ltd.  
Oakwood, OH  
Phone: 1-419-594-3210  
[www.strawblanket.com](http://www.strawblanket.com)

Grate FX, Slammer, or VertPro

BX Inlet Sediment Boxes  
BX Civil and Construction  
Dell Rapids, SD  
Phone: 1-605-428-5483  
[bx-cc.com](http://bx-cc.com)

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

Station	Quantity (Each)
	1
105+50-21.17' L	1
108+00-21.17' L	1
115+00-21.17' L	1
117+30-21.17' L	1
<b>Totals:</b>	<b>5</b>

STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D5	TOTAL SHEETS D24
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Plotting Date: 11/23/2015

**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 <a href="http://www.dandyproducts.com">www.dandyproducts.com</a>
Gutterbuddy	ACF Environmental Richmond, VA Phone: 1-800-448-3636 <a href="http://www.acfenvironmental.com">www.acfenvironmental.com</a>
SS-300	Silt-Saver, Inc. Conyers, GA Phone: 1-888-382-7458 <a href="http://www.siltsaver.com">www.siltsaver.com</a>
Curb Inlet Guard	ECTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 <a href="http://www.ertecsystems.com">www.ertecsystems.com</a>

**TABLE OF SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS**

Station	Clear Opening Width (Ft)	Quantity* (Ft)
114+45.76-23.63' L	10	12
<b>Total:</b>		<b>12</b>

\* Quantity shown is the minimum length required and shall be the basis of payment.

## CONSTRUCTION ENTRANCE

The Contractor shall install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list provided in these notes, or other products or processes as approved by the Engineer during construction.

If the Contractor elects to use one of the products listed in the table, then the Contractor shall install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor shall maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance shall be routinely inspected and the Contractor shall repair or replace material as deemed necessary by the Engineer.

All costs for furnishing, installing, maintaining, and removal of the construction entrance including equipment, labor, materials, and incidentals shall be included in the contract unit price per each for "Construction Entrance".

The following table is a list of known construction entrance products available for use:

<u>Product</u>	<u>Manufacturer</u>
Grizzly Rumble Grate (10' width and 24' length required)	Trackout Control, LLC Tempe, AZ Phone: 1-800-761-0056 <a href="http://www.trackoutcontrol.com">www.trackoutcontrol.com</a>
Rumble Grid (12' width and 24' length including combination of grids and ramps required)	Pro-Tec Equipment, Inc. Charlotte, MI Phone: 1-800-292-1225 <a href="http://www.pro-tecequipment.com">www.pro-tecequipment.com</a>

## SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor shall install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material shall be obtained from a granular source and shall conform to the following gradation:

<u>Sieve Size</u>	<u>Percent Passing</u>
6"	100%
#4	0-60%
#200	0-20%

The pit run material shall be compacted to the satisfaction of the Engineer.

The aggregate for the granular material shall conform to the following gradation requirements:

<u>Sieve Size</u>	<u>Percent Passing</u>
3"	100%
2 1/2"	90-100%
1 1/2"	25-60%
3/4"	0-10%
1/2"	0-5%

The granular material shall be placed in 6" maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The reinforcement fabric (MSE) shall conform to Section 831 of the Specifications. The MSE geotextile shall be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The reinforcement fabric (MSE) should be kept as taut as possible prior to placing.

Equipment shall not be allowed on the reinforcement fabric (MSE) until the first lift of granular material is in place.

All seams in the reinforcement fabric (MSE) shall be overlapped at least 2' and shingled.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0115(47)102	D6	D24

Plotting Date: 11/23/2015

### 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 51 Acres (4.2 1.b.)**
- **Total Area To Be Disturbed 27 Acres (4.2 1.b.)**
- **Existing Vegetative Cover (%) 65**
- **Soil Properties: AASHTO Soil Classification: A-6, A-7-6**
- **USDA Soil Texture: Clay silt, silty clay, sandy clay (4.2 1. d.)**
- **Name of Receiving Water Body/Bodies Big Sioux River (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 Section C: Traffic Control).**
  - **Install stabilized construction entrances as needed.**
  - **Install perimeter protection where runoff sheets from the site.**
  - **Clearing and grubbing.**
  - **Remove and stockpile topsoil.**
  - **Stabilize disturbed areas with surface roughening, temporary mulch, erosion control wattles, etc. for temporary stabilization as work progresses.**
  - **Complete final grading.**
  - **Complete surfacing.**
  - **Complete traffic control installation.**
  - **Place topsoil, permanent seed, mulch, install erosion control blanket, etc. to finish graded areas for final stabilization.**

#### ❖ **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:

The alternatives to sediment basins and/or traps on this project include erosion control wattles as ditch checks, silt fence as silt traps and project phasing to limit the amount of area disturbed at one time. These alternatives are being used because of the large drainages on the project and large surface areas it would take to build sediment basins and/or traps.

#### ➤ **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 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 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:

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0115(47)102	D8	D24

Plotting Date: 11/23/2015

**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.

STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D9	TOTAL SHEETS D24
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Plotting Date: 11/23/2015

❖ **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.

# EROSION AND SEDIMENT CONTROL LEGEND

STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D10	TOTAL SHEETS D24
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Plotting Date: 11/23/2015

-  Low Flow Silt Fence
-  High Flow Silt Fence
-  High Flow Silt Fence at Pipe
-  Sediment Control at Inlet After Placement of Surfacing
-  Sediment Control at Inlet Before Placement of Surfacing
-  Temporary Sediment Barrier
-  Temporary Water Barrier
-  Floating Silt Curtain
-  Sediment Filter Bags
-  Triangular Silt Barriers
-  Erosion Control Wattles on Slopes
-  Erosion Control Wattles at Inlets
-  Erosion Control Wattles in Ditches
-  Erosion Bales
-  Surfacing Roughening
-  Temporary Grass Hay or Straw Mulch/ Soil Stabilizer
-  Cut Interceptor Ditch
-  Temporary Slope Drain
-  Bonded Fiber Matrix/ Fiber Reinforced Matrix
-  Rock Check Dam
-  Type 1 Erosion Control Blanket
-  Type 2 Erosion Control Blanket
-  Type 3 Erosion Control Blanket
-  Type 4 Erosion Control Blanket
-  Type 1 Turf Reinforcement Mat
-  Type 2 Turf Reinforcement Mat
-  Type 3 Turf Reinforcement Mat
-  Transition Mat
-  Silt Trap
-  Type 1 Sediment Trap
-  Type 2 Sediment Trap
-  Type 3 Sediment Trap

## BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are split into three categories and are to be used throughout construction.

### INITIAL PHASE

BMPs from the Legend shown as Orange Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Initial Phase prior to earth disturbing activities and remain in place for the Intermediate Phase for temporary stabilization and in the Final Phase to achieve final stabilization.

### INTERMEDIATE PHASE

BMPs from the Legend shown as Blue Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Intermediate Phase for temporary stabilization and remain in place in the Final Phase to achieve final stabilization.

### FINAL PHASE

BMPs from the Legend shown as Green Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Final Phase to achieve final stabilization.

If these items are applicable they are to be shown in the updated SWPPP using the Symbols given.

-  Topsoil Stockpile
-  On-Site Construction Material Storage Area
-  Borrow Area
-  Spill Kit
-  Stabilized Construction Entrance
-  Work Platform
-  Vegetated Buffer Strip
-  Concrete Washout
-  Asphalt Plant Site
-  Concrete Plant Site
-  Vehicle and Equipment Parking, Fueling, and Maintenance Areas
-  Dumpster or other Trash and Debris Containers

STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D11	TOTAL SHEETS D24
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Plotting Date: 11/23/2015

Install High Flow Silt Fence at the following locations:  
 10+98 R Inlet end of pipe 18 Ft  
 13+55 R Inlet end of pipe 18 Ft  
 19+33 R Inlet end of pipe 18 Ft  
 21+05 R Inlet end of pipe 18 Ft

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:  
 22+00 R 30 Ft  
 22+75 R 30 Ft  
 23+50 R 30 Ft  
 24+25 R 30 Ft  
 ENT 2494 L 0+75 L 30 Ft  
 ENT 2494 L 0+75 R 30 Ft

Utilize Surface Roughening for temporary stabilization at the following locations:  
 13+00 L to 15+60 L Inslope 0.3 Acres  
 15+85 L to 18+00 L Inslope 0.2 Acres

Place topsoil and apply grass hay or straw mulch at 2 Tons/acre for temporary stabilization until permanent seeding can be done at the following locations:  
 23+50 R to 29+00 R Backslope 1.2 Ton

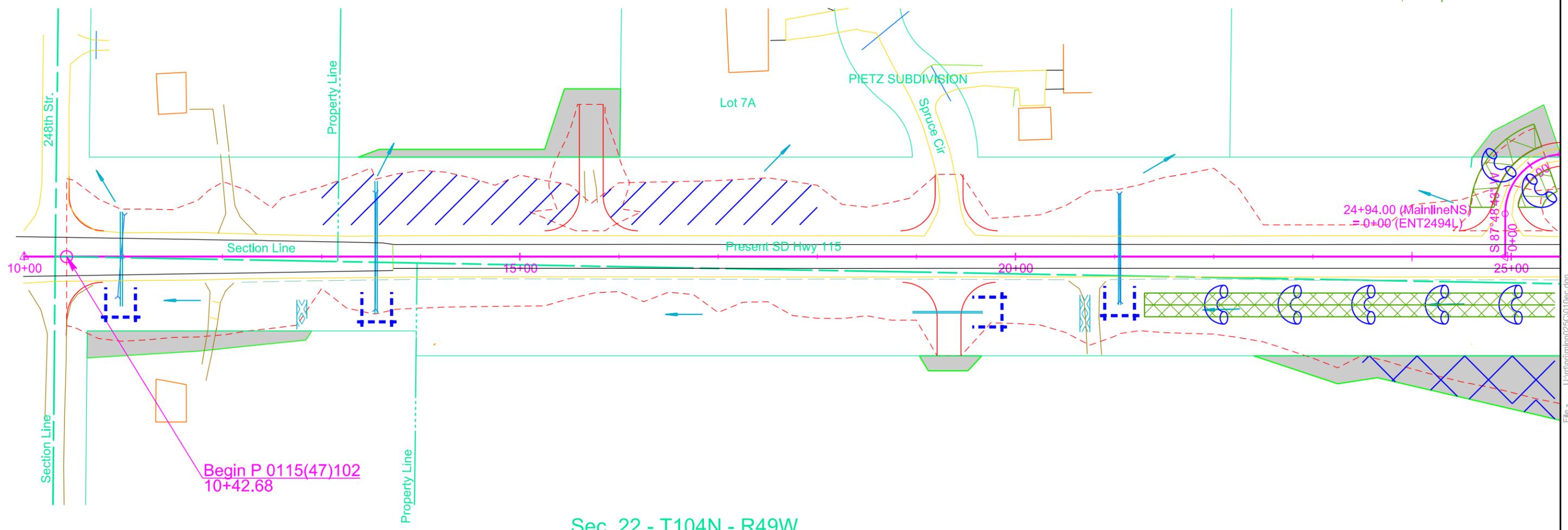
Install Type 3 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 ENT 2494 L 0+50 L to 1+20 L 156 SqYd  
 ENT 2494 L 0+50 R to 1+10 R 133 SqYd



Install Type 2 Turf Reinforcement Mat in the highway ditch channel bottom at the following locations:  
 21+10 R to 31+60 R 2,333 SqYd

Sec. 21 - T104N - R49W

Sec. 22 - T104N - R49W



Begin P.0115(47)102  
10+42.68

24+94.00 (Mainline NS)  
=0+00 (ENT2494L)

Plot Scale - 1:100

Plotted From - TRPR17200

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Plotting Date: 11/23/2015

Install High Flow Silt Fence at the following locations:  
 31+99 R Inlet end of pipe 18 Ft  
 31+99 L Inlet end of pipe 18 Ft  
 35+37 R Across ditch at inlet end of pipe (30 Ft each side) 60 Ft  
 ENT 3950 R 39+50 R Inlet end of pipe 18 Ft

Place topsoil and apply grass hay or straw mulch at 2 Tons/acre for temporary stabilization until permanent seeding can be done at the following locations:  
 27+00 L to 29+00 L Backslope 0.3 Ton

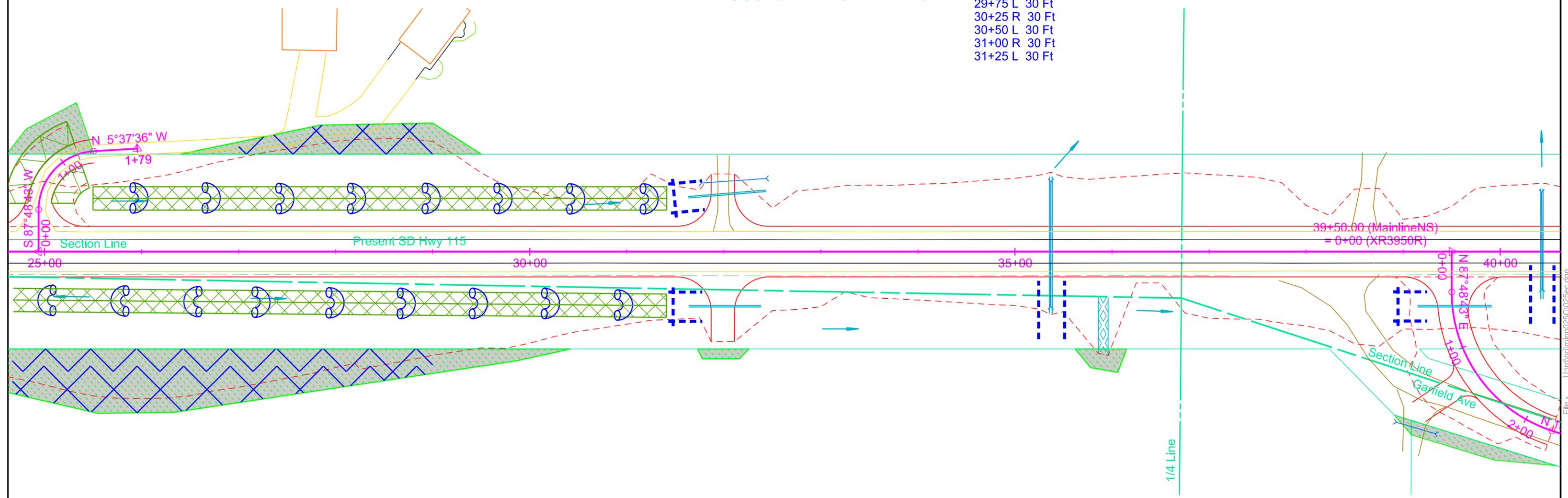
Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:  
 25+00 R 30 Ft  
 25+75 R 30 Ft  
 26+00 L 30 Ft  
 26+50 R 30 Ft  
 26+75 L 30 Ft  
 27+25 R 30 Ft  
 27+50 L 30 Ft  
 28+00 R 30 Ft  
 28+25 L 30 Ft  
 28+75 R 30 Ft  
 29+00 L 30 Ft  
 29+50 R 30 Ft  
 29+75 L 30 Ft  
 30+25 R 30 Ft  
 30+50 L 30 Ft  
 31+00 R 30 Ft  
 31+25 L 30 Ft

Install Type 2 Turf Reinforcement Mat in the highway ditch channel bottom at the following locations:  
 25+50 L to 31+25 L 1,278 SqYd



Sec. 21 - T104N - R49W

Sec. 22 - T104N - R49W



Plot Scale - 1:100

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**Install Low Flow Silt Fence**  
at the following locations:  
47+50 L to 48+25 L Perimeter control 75 Ft  
48+45 L to 50+00 L Perimeter control 155 Ft  
47+00 R to 48+25 R Perimeter control 125 Ft  
48+45 R to 50+00 R Perimeter control 155 Ft

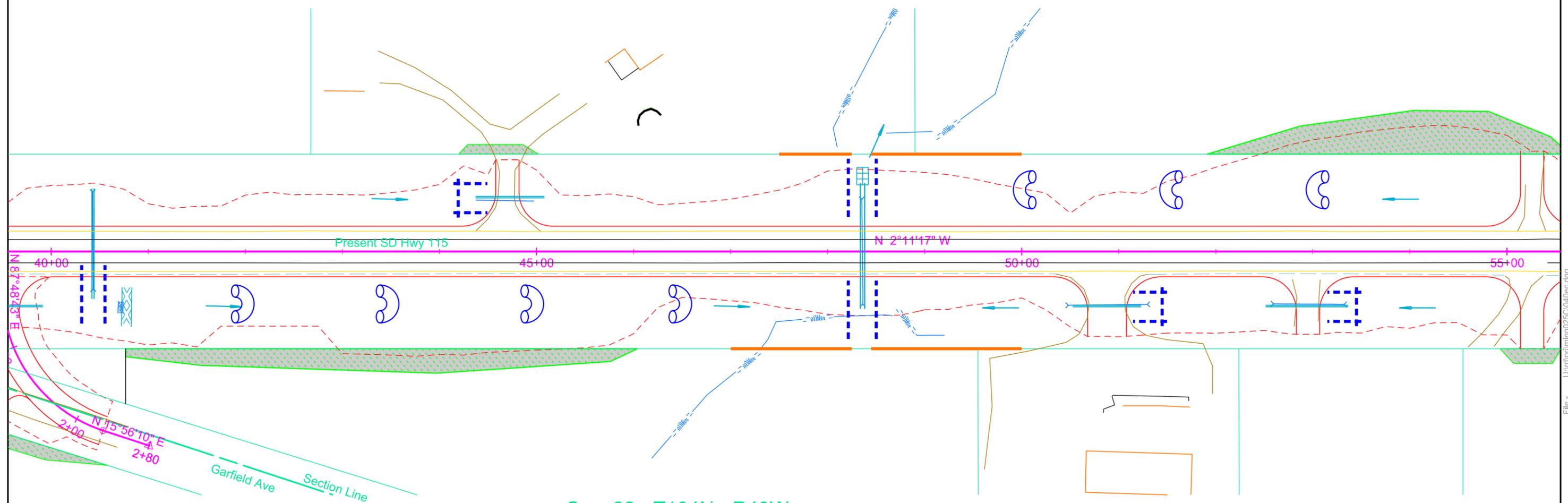
**Install High Flow Silt Fence**  
at the following locations:  
40+43 R Across ditch at inlet end of pipe (30 Ft each side) 60 Ft  
44+70 L Inlet end of pipe 18 Ft  
48+36 Across ditch at inlet and outlet ends of pipe (60 Ft each end) 120 Ft  
50+88 R Inlet end of pipe 18 Ft  
52+95 R Inlet end of pipe 18 Ft

**Install 12" Diameter Erosion Control Wattles**  
across the highway ditch channel bottom  
at the following locations:  
42+00 R 30 Ft  
43+50 R 30 Ft  
45+00 R 30 Ft  
46+50 R 30 Ft  
50+00 L 30 Ft  
51+50 L 30 Ft  
53+00 L 30 Ft



Sec. 21 - T104N - R49W

Sec. 22 - T104N - R49W



Plot Scale - 1:100

Plotted From - TRPR17200

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0115(47)102	D14	D24

Plotting Date: 11/23/2015

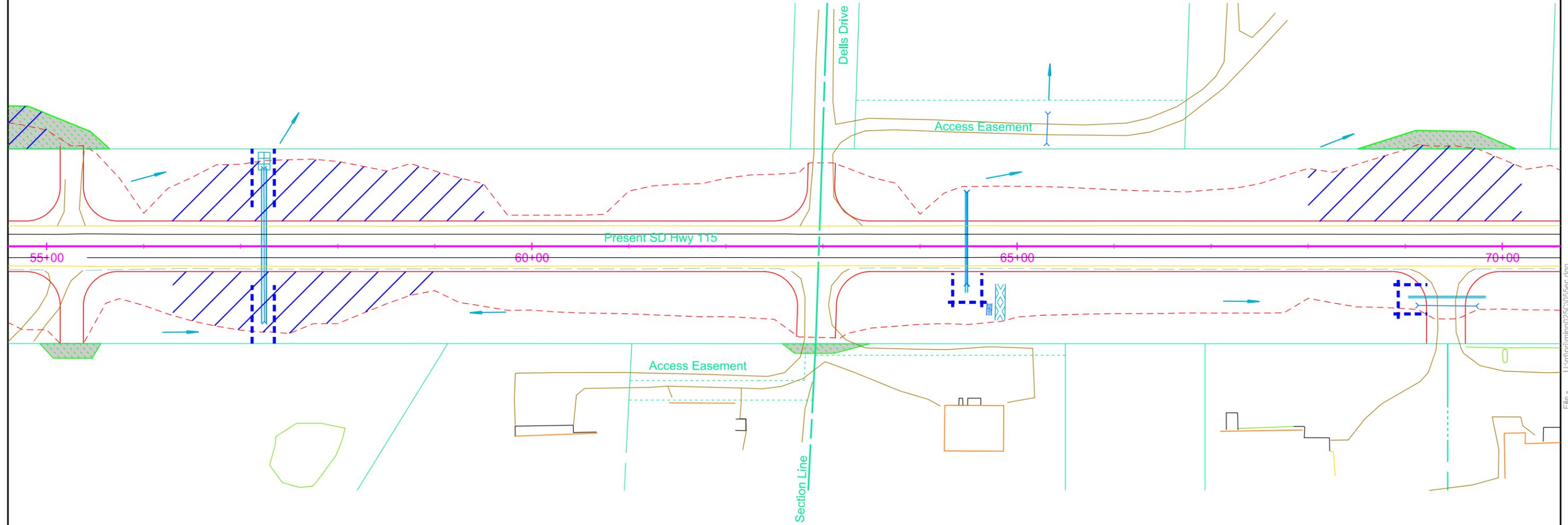


Install High Flow Silt Fence  
at the following locations:  
57+24 Across ditch at inlet and outlet ends of pipe (60 Ft each end) 120 Ft  
64+48 R Inlet end of pipe 18 Ft  
69+42 R Inlet end of pipe 18 Ft

Utilize Surface Roughening  
for temporary stabilization  
at the following locations:  
56+30 L to 59+50 L Inslope 0.4 Acres  
56+30 R to 59+00 R Inslope 0.3 Acres  
68+00 L to 70+20 L Inslope 0.4 Acres

Sec. 21 - T104N - R49W

Sec. 16 - T104N - R49W



Sec. 21 - T104N - R49W

Sec. 16 - T104N - R49W

Plot Scale - 1:100

Plotted From - TRPR17200

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STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D15	TOTAL SHEETS D24
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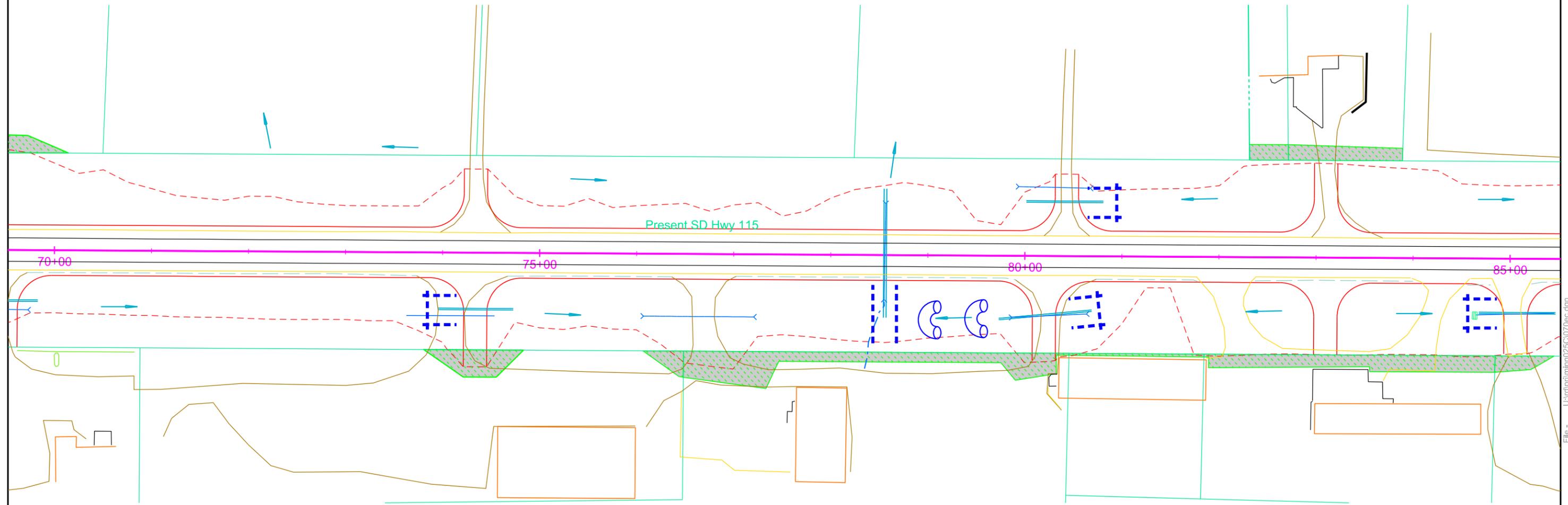
Plotting Date: 11/23/2015



Install High Flow Silt Fence  
at the following locations:  
74+34 R Inlet end of pipe 18 Ft  
78+56 R Across ditch at inlet end of pipe (30 Ft each side) 60 Ft  
80+27 R Inlet end of pipe 18 Ft  
80+43 L Inlet end of pipe 18 Ft

Install 12" Diameter Erosion Control Wattles  
across the highway ditch channel bottom  
at the following locations:  
79+00 R 30 Ft  
79+50 R 30 Ft

Sec. 16 - T104N - R49W



Sec. 16 - T104N - R49W

Plot Scale - 1:100

Plotted From - TRPR17200

File - U:\trp\jmm\2550\7dec.dgn

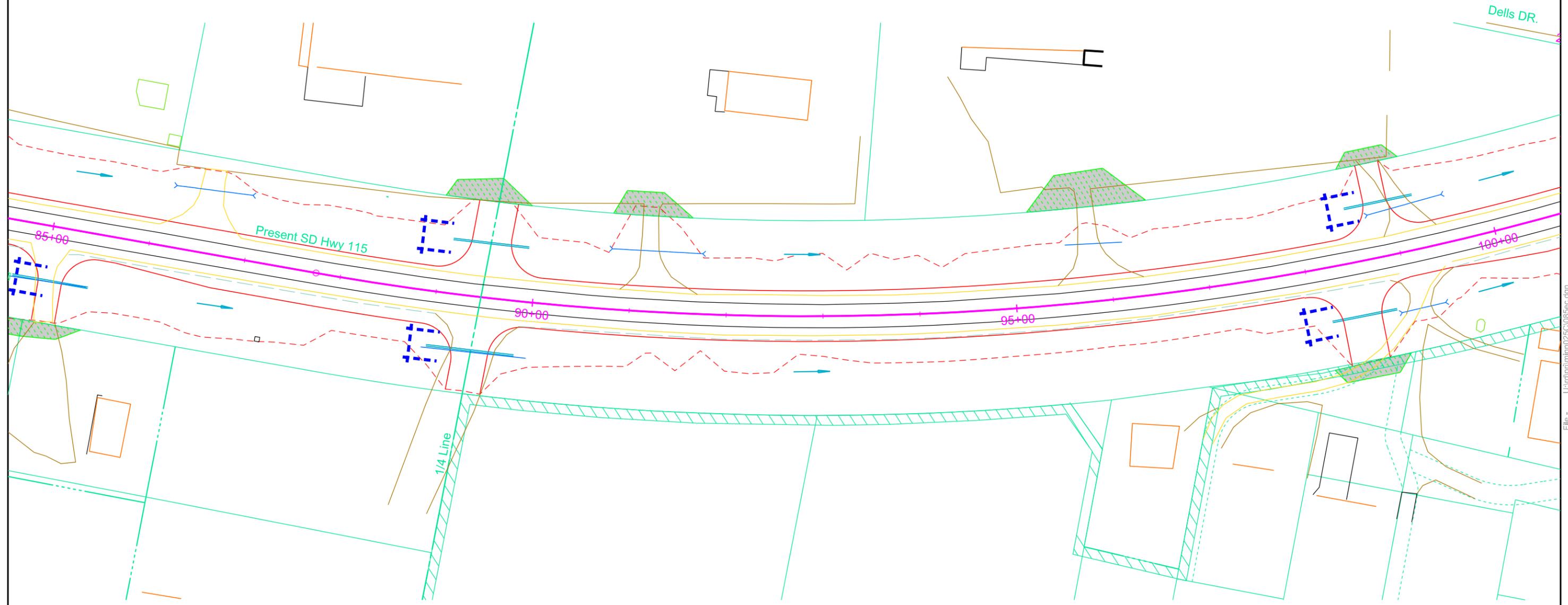
STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D16	TOTAL SHEETS D24
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Plotting Date: 11/23/2015



Install High Flow Silt Fence  
at the following locations:  
85+06 R Inlet end of pipe 18 Ft  
89+38 R Inlet end of pipe 18 Ft  
89+48 L Inlet end of pipe 18 Ft  
98+49 R Inlet end of pipe 18 Ft  
98+85 L Inlet end of pipe 18 Ft

Sec. 16 - T104N - R49W



Sec. 16 - T104N - R49W

Plot Scale - 1:100

Plotted From - TRPR17200

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See Special Provision for Construction Practices in Streams Inhabited by the Topeka Shiner.  
 See Section A for information regarding the comprehensive Construction Plan that is required to be submitted by the Contractor.  
 See Sections B and E for information regarding bridge demolition and construction.

Install High Flow Silt Fence at the following locations:  
 ENT 10307 103+07 L Inlet end of pipe 18 Ft  
 ENT 10307 103+07 R Inlet end of pipe 18 Ft

Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:  
 105+50-21.17' L 18 Ft High Flow Silt Fence 24 Ft Sediment Filter Bags  
 108+00-21.17' L 18 Ft High Flow Silt Fence 24 Ft Sediment Filter Bags  
 114+45.76-23.63' L 38 Ft High Flow Silt Fence 48 Ft Sediment Filter Bags

Install 12" Diameter Erosion Control Wattles for temporary stabilization at the following locations:  
 110+39.27 Bridge  
 Installed at locations determined by the Engineer during construction to protect River 300 Ft

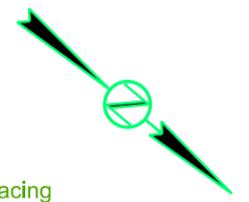
Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:  
 105+50-21.17' L 1 Each  
 108+00-21.17' L 1 Each

Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:  
 115+45.76-23.63' L 12 Ft

Install Type 2 Erosion Control Blanket at the following locations:  
 104+00 L to 107+10 L Inslope 716 SqYd

Install Low Flow Silt Fence at the following locations:  
 110+39.27 Bridge  
 Installed at locations determined by the Engineer during construction to protect River 300 Ft

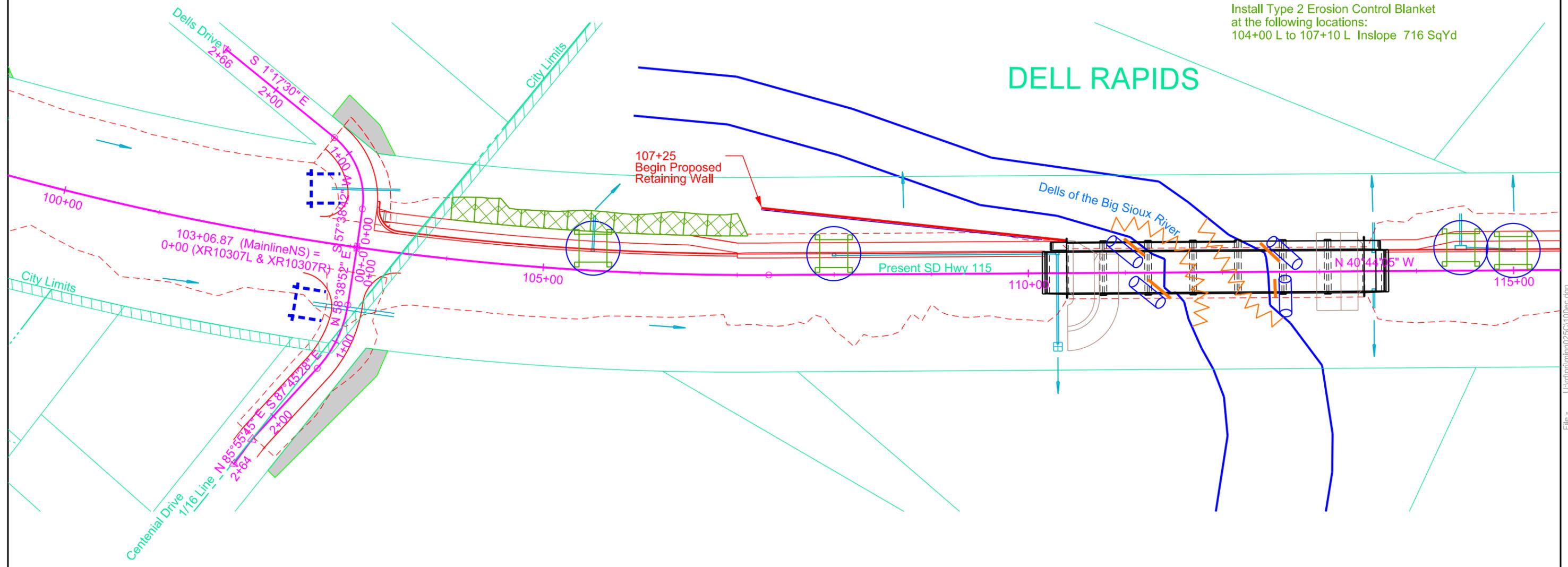
Install Floating Silt Curtain at the following locations:  
 110+39.27 Bridge Protect River 400 Ft



Plot Scale - 1:100

Plotted From - TRPR17200

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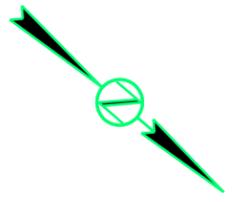
Install Low Flow Silt Fence  
at the following locations:  
122+25+/- Installed at locations determined by the  
Engineer during construction to protect River 500 Ft

Install High Flow Silt Fence  
at the following locations:  
116+88 L Inlet end of pipe 18 Ft

Install 12" Diameter Erosion Control Wattles  
for temporary stabilization  
at the following locations:  
122+25+/- Installed at locations determined by the  
Engineer during construction to protect River 500 Ft

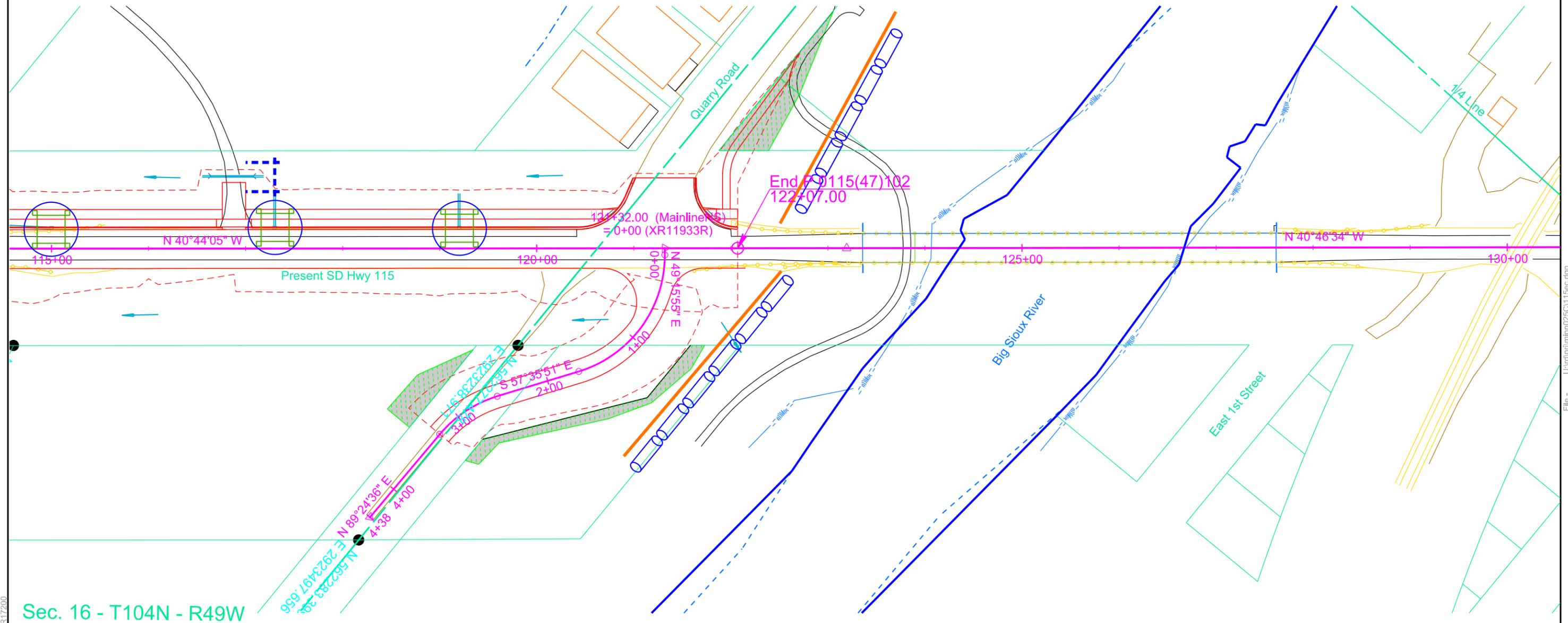
Install Sediment Control at  
Inlets with Frames and Grates  
after the placement of surfacing  
at the following locations:  
115+00-21.17' L 1 Each  
117+30-21.17' L 1 Each  
119+20-21.17' L 1 Each

Install Interim Sediment Control at Inlets, Manholes, and  
Junction Boxes before the placement of surfacing  
at the following locations:  
115+00-21.17' L 18 Ft High Flow Silt Fence 24 Ft Sediment Filter Bags  
117+30-21.17' L 18 Ft High Flow Silt Fence 24 Ft Sediment Filter Bags  
119+20-21.17' L 18 Ft High Flow Silt Fence 24 Ft Sediment Filter Bags



Sec. 16 - T104N - R49W

Sec. 9 - T104N - R49W



End of P 0115(47)102  
122+07.00

122+32.00 (Mainline)  
= 0+00 (XR11933R)

N 40°44'05" W

N 40°46'34" W

Present SD Hwy 115

Big Sioux River

East 1st Street

Sec. 16 - T104N - R49W

Sec. 9 - T104N - R49W

N 89°24'36" E  
4+38 4+00  
N 56°22'23.29"  
E 2923.497.656

Plot Scale - 1:100

Plotted From - TRPR17200

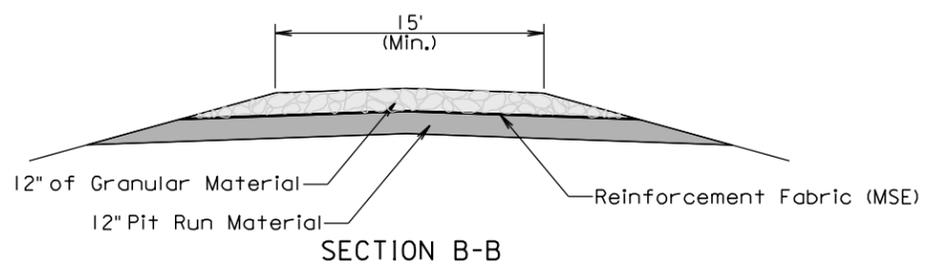
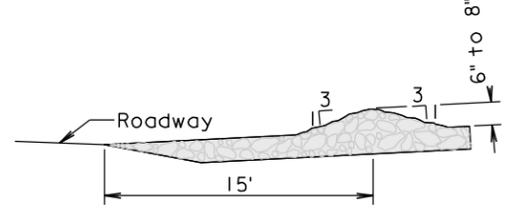
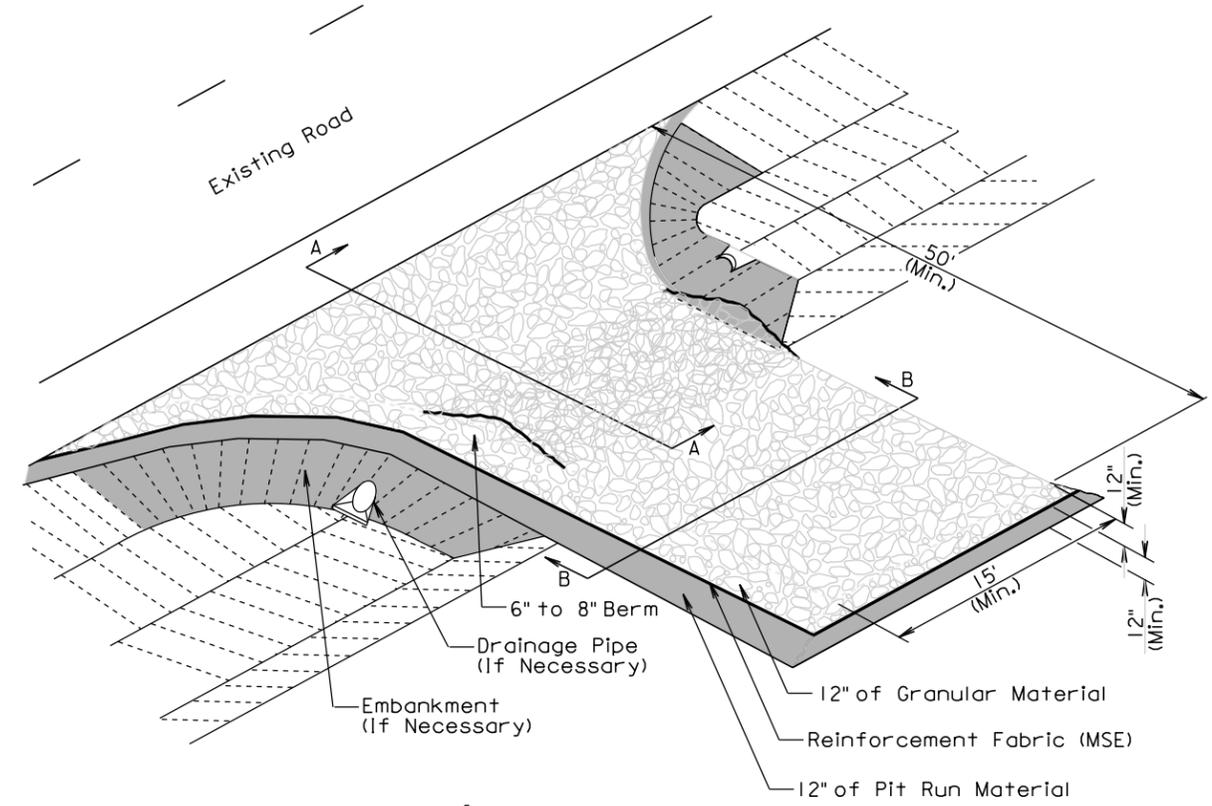
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# SDDOT CONSTRUCTION ENTRANCE

STATE OF SOUTH DAKOTA	PROJECT P 0115(47)102	SHEET D19	TOTAL SHEETS D24
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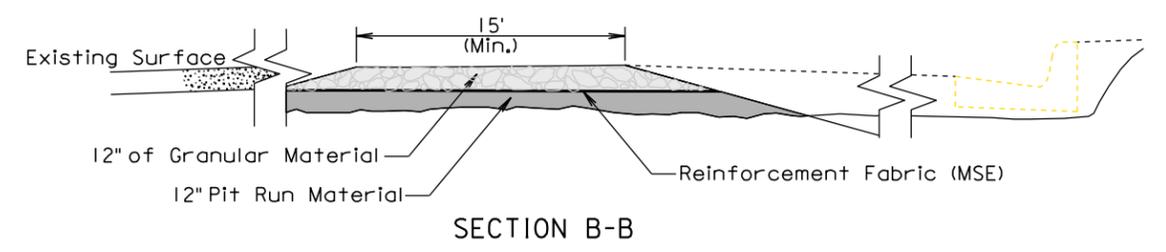
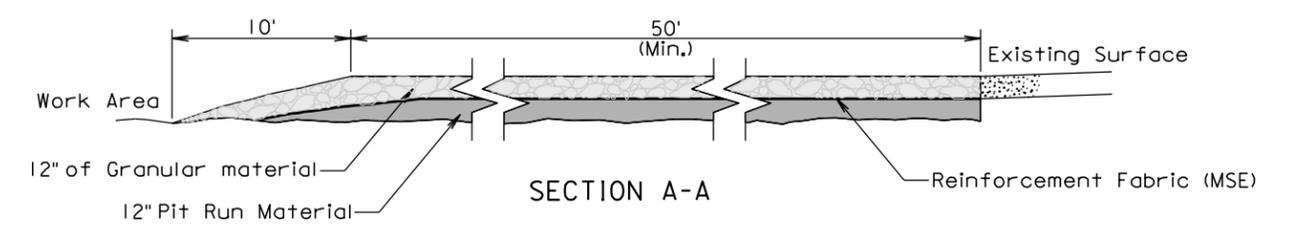
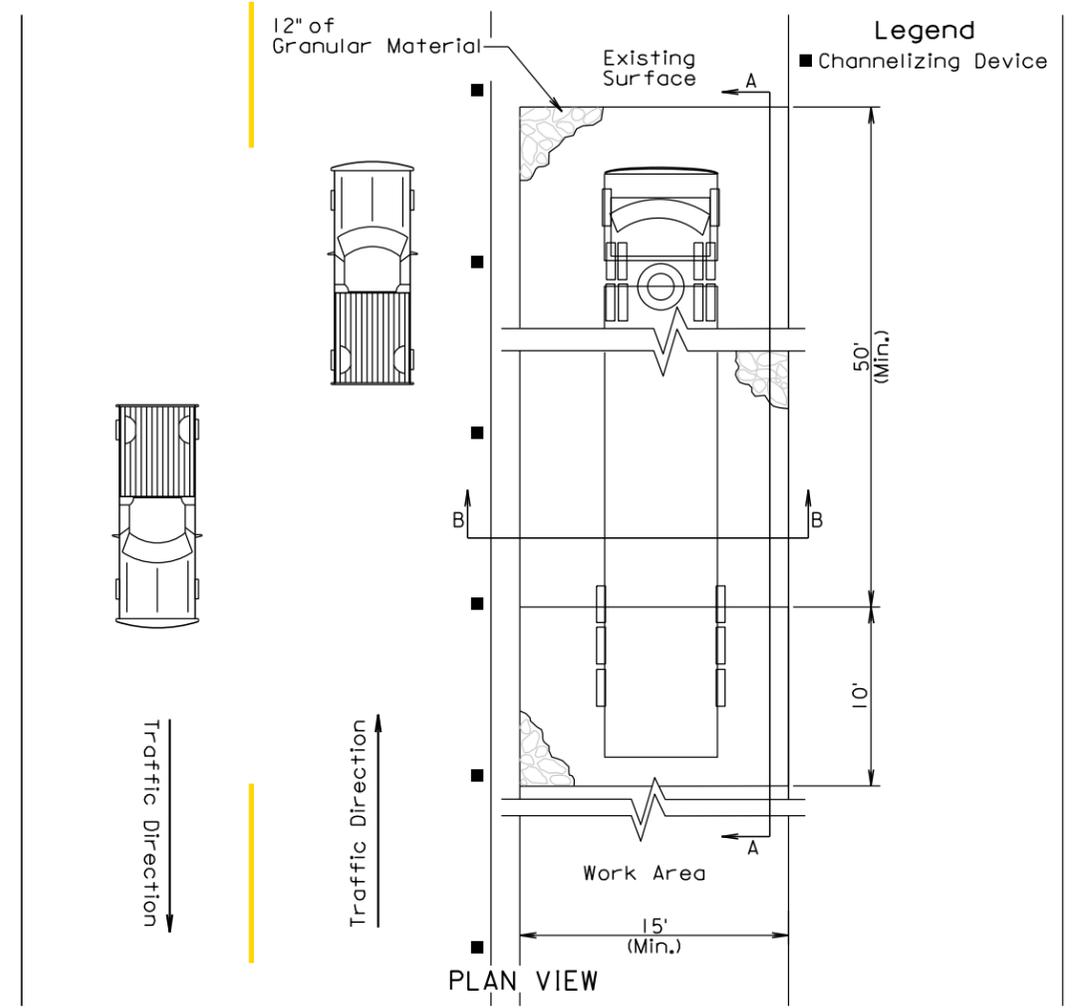
Plotting Date: 11/23/2015



**GENERAL NOTES:**

- If the grade of the entrance slopes down to the roadway, a berm of extra rock shall be used to prevent sediment or mud from being deposited on the roadway. See SECTION A-A.
- If a drainage pipe is necessary the size and type shall be determined by the Contractor to meet field conditions. All cost shall be incidental to the various bid items.
- If embankment is necessary it shall be pit run material.

## TRANSVERSE TO ROADWAY

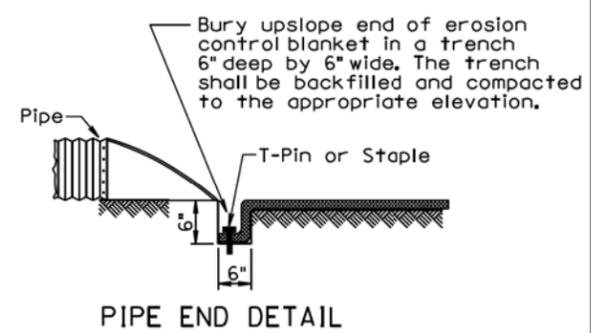
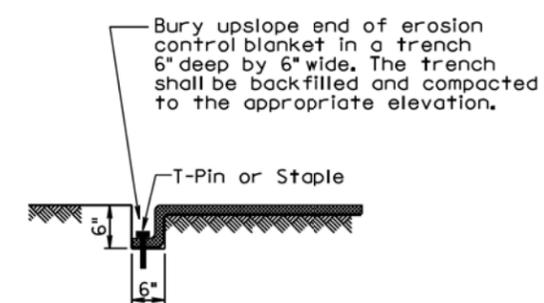
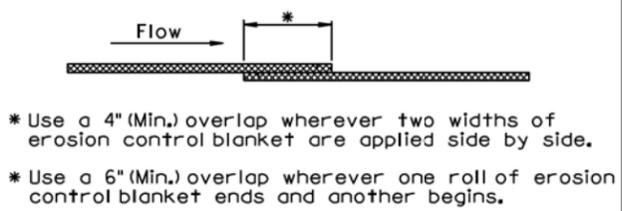
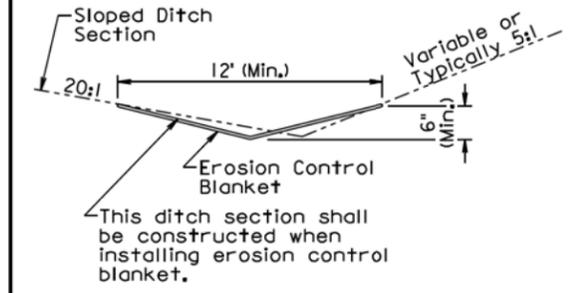
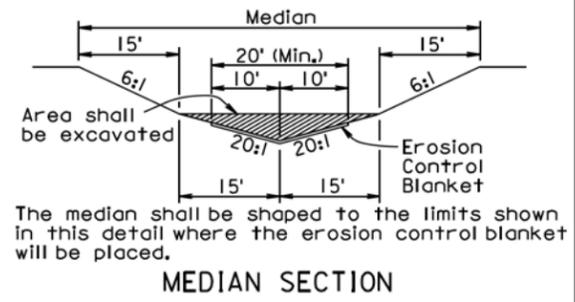
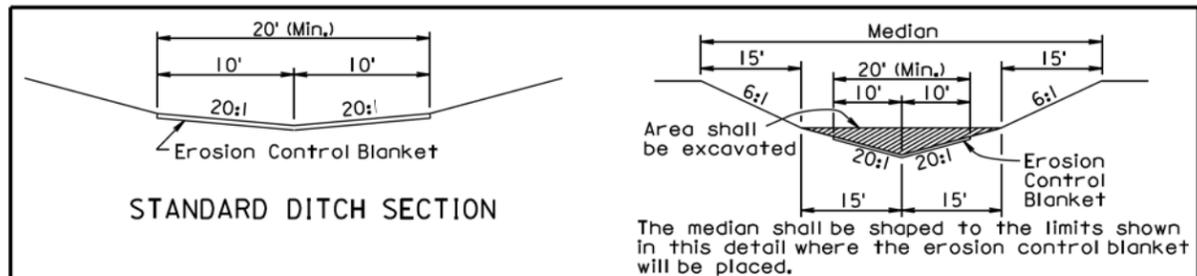


## PARALLEL TO ROADWAY

Plot Scale - 1:200

Plotted From - TRPR17200

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**GENERAL NOTES:**

Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

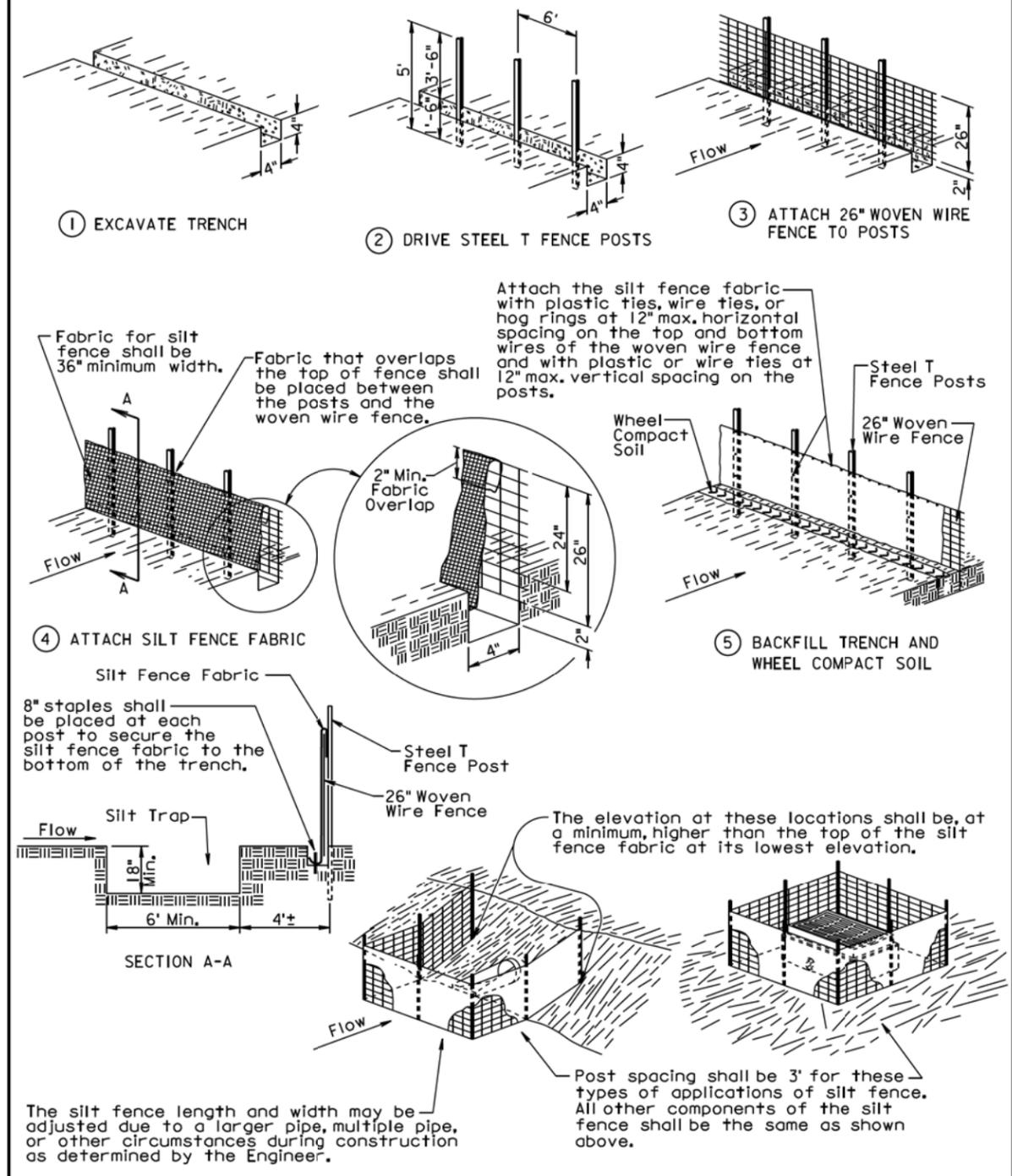
December 23, 2004

<b>S D D O T</b>	<b>EROSION CONTROL BLANKET</b>	PLATE NUMBER <b>734.01</b>
		Sheet 1 of 1

Published Date: 4th Qtr. 2015

1:200  
Plotted From: TRPR17200  
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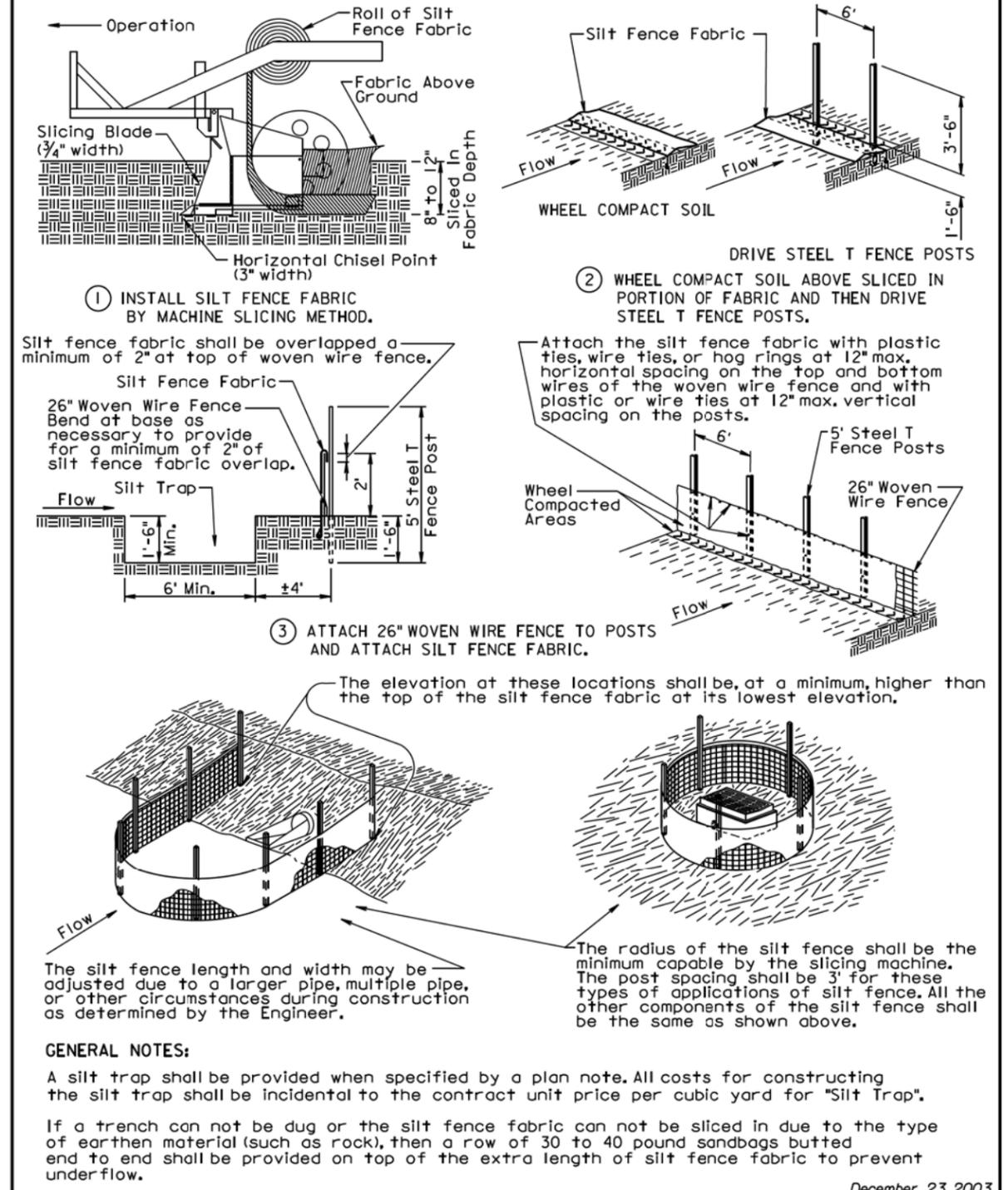
### MANUAL LOW FLOW SILT FENCE INSTALLATION



December 23, 2003

<b>S D D O T</b>	<b>LOW FLOW SILT FENCE AND SILT TRAP</b>	PLATE NUMBER <b>734.04</b>
	Published Date: 4th Qtr. 2015	Sheet 1 of 2

### MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



December 23, 2003

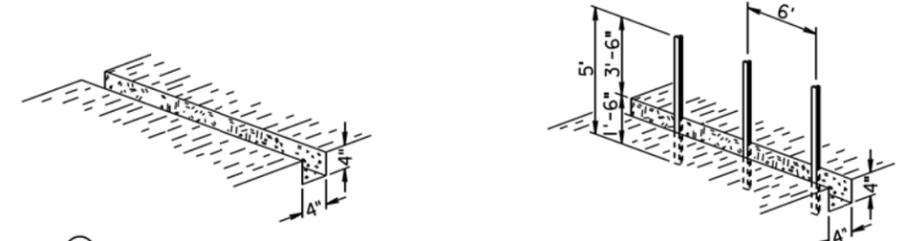
<b>S D D O T</b>	<b>LOW FLOW SILT FENCE AND SILT TRAP</b>	PLATE NUMBER <b>734.04</b>
	Published Date: 4th Qtr. 2015	Sheet 2 of 2

Plot Scale: 1:200

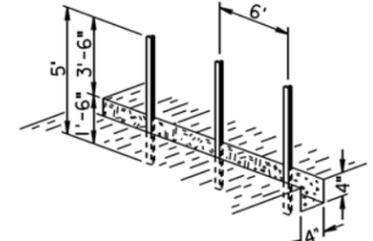
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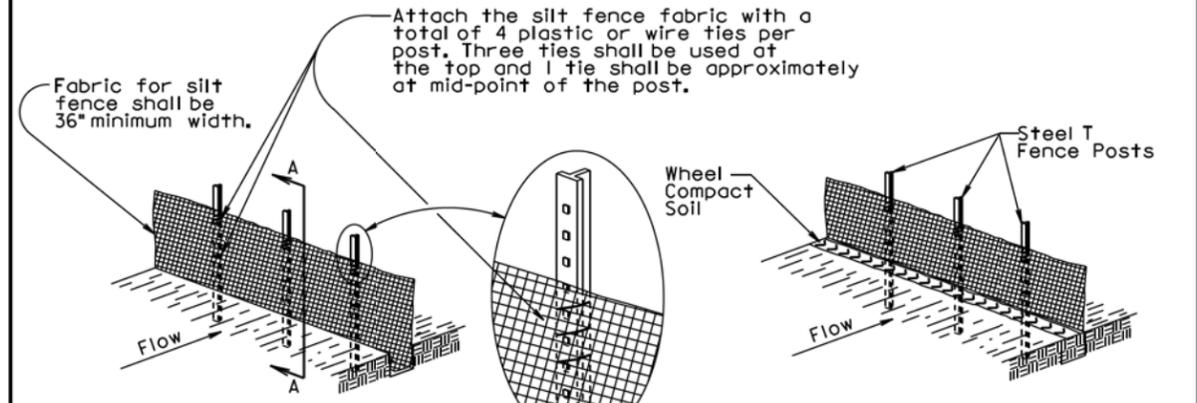
### MANUAL HIGH FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH

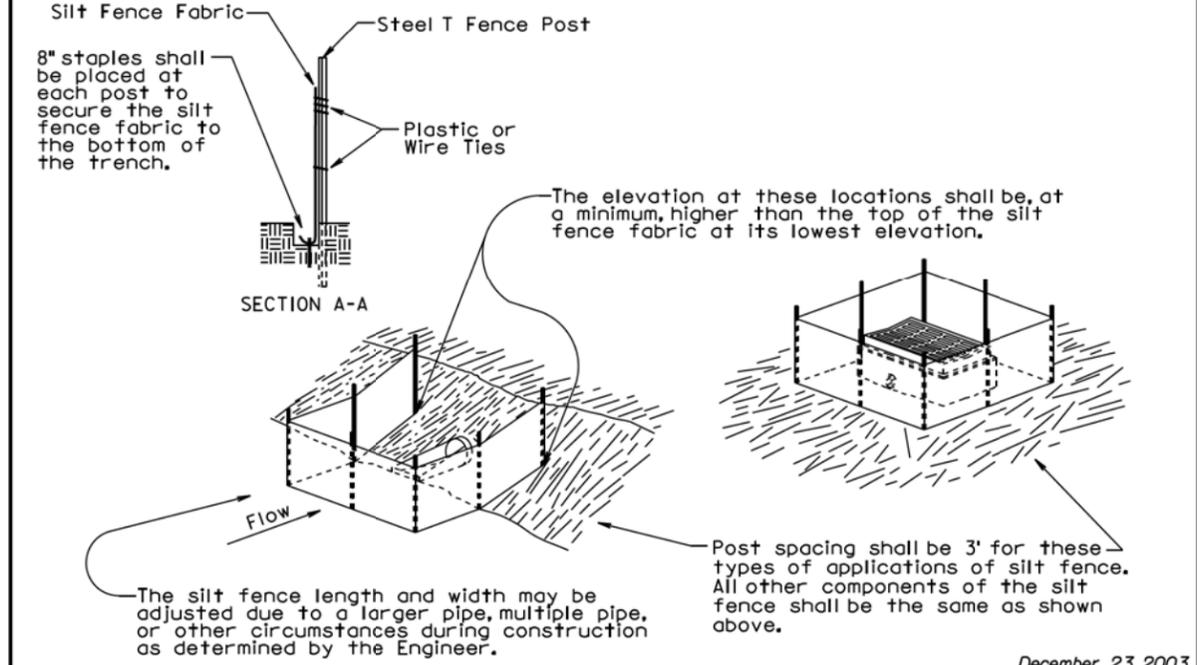


② DRIVE STEEL T FENCE POSTS



③ ATTACH SILT FENCE FABRIC

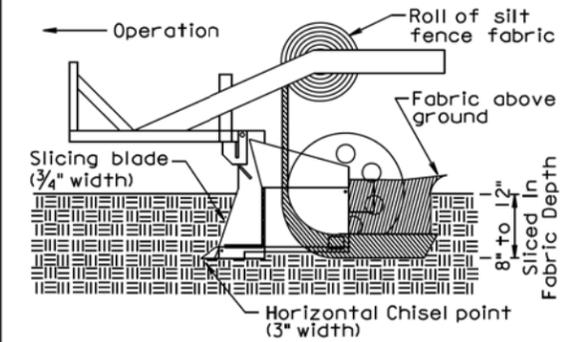
④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



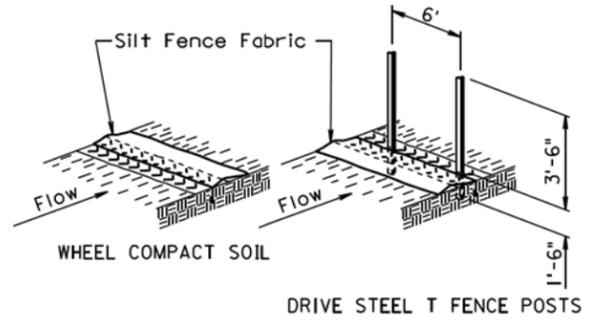
December 23, 2003

<b>S D D O T</b>	<b>HIGH FLOW SILT FENCE</b>	PLATE NUMBER <b>734.05</b>
	Published Date: 4th Qtr. 2015	Sheet 1 of 2

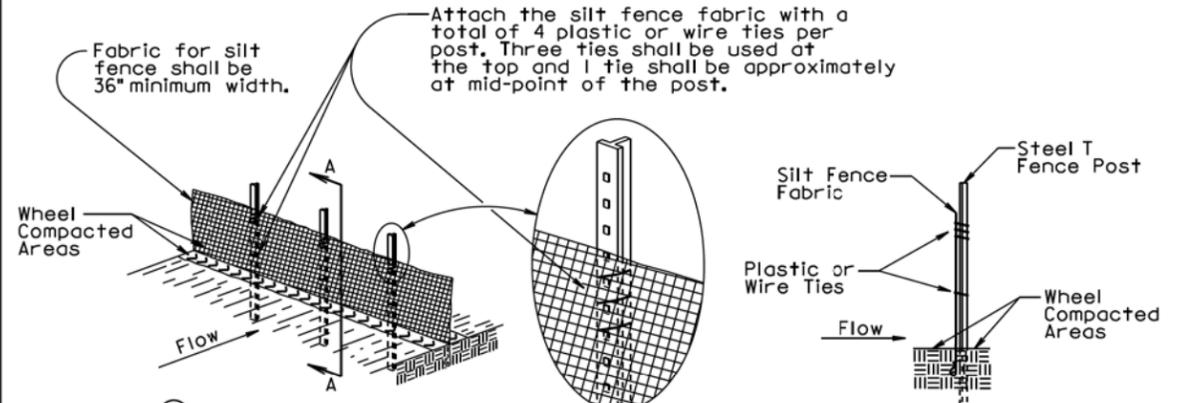
### MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



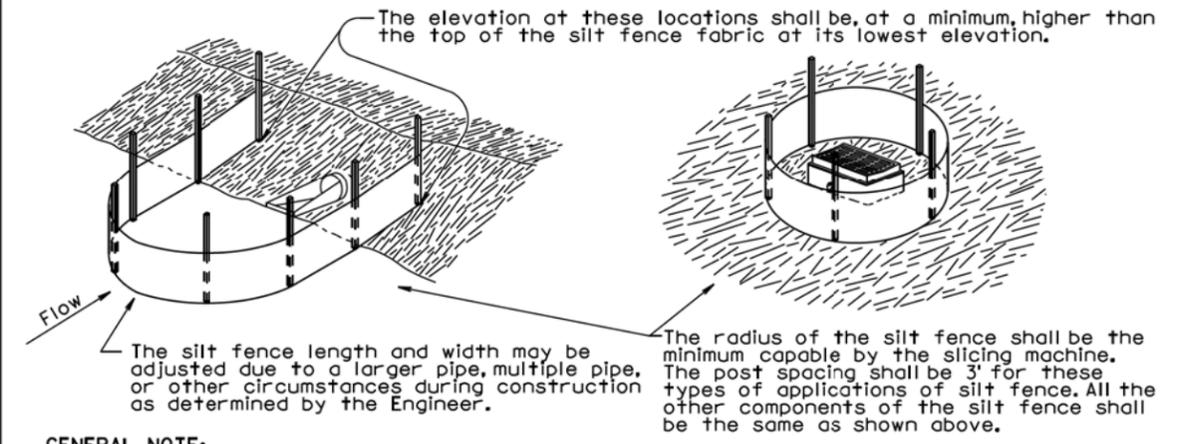
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



③ ATTACH SILT FENCE FABRIC



**GENERAL NOTE:**

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

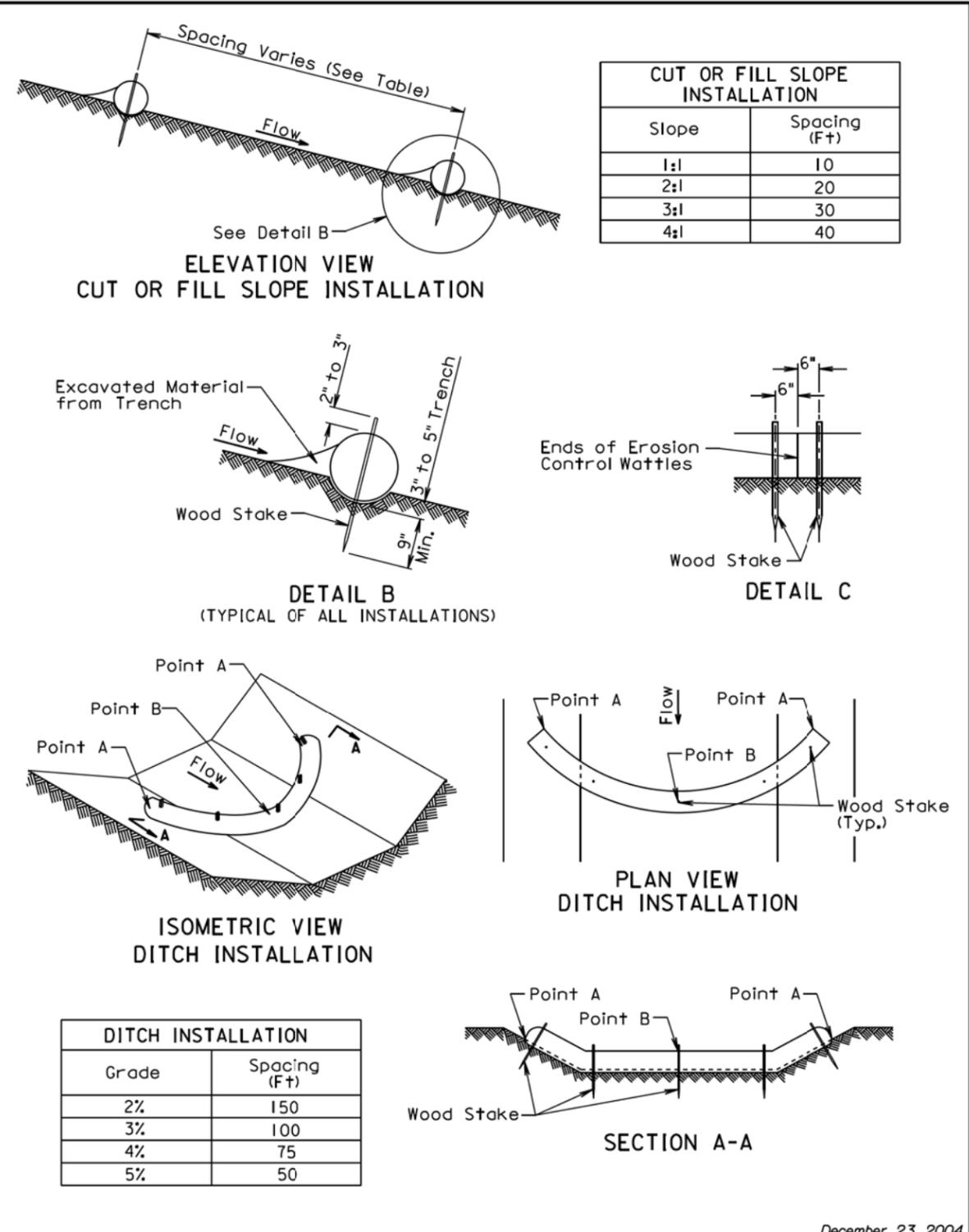
December 23, 2003

<b>S D D O T</b>	<b>HIGH FLOW SILT FENCE</b>	PLATE NUMBER <b>734.05</b>
	Published Date: 4th Qtr. 2015	Sheet 2 of 2

Plot Scale: 1:200

Plotted From: TRPR17200

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December 23, 2004

<b>S D D O T</b>	<b>EROSION CONTROL WATTLE</b>	PLATE NUMBER <b>734.06</b>
		Sheet 1 of 2

Published Date: 4th Qtr. 2015

**GENERAL NOTES:**

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

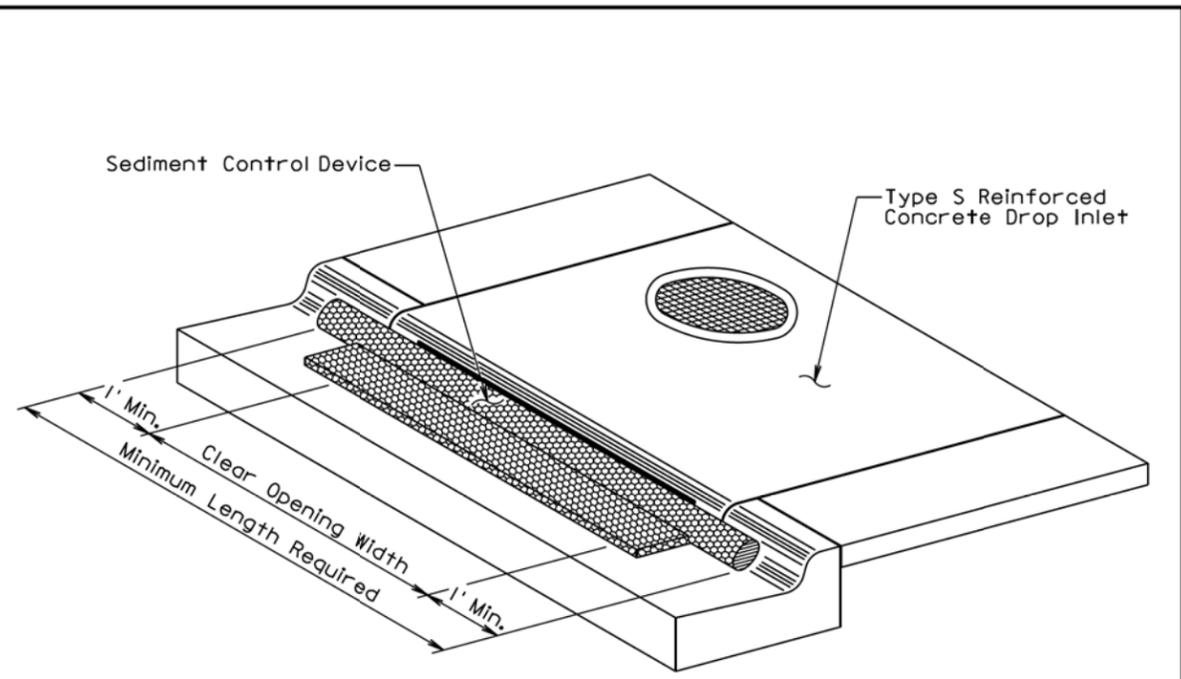
<b>S D D O T</b>	<b>EROSION CONTROL WATTLE</b>	PLATE NUMBER <b>734.06</b>
		Sheet 2 of 2

Published Date: 4th Qtr. 2015

Plot Scale - 1:200

Plotted From - TRPR17200

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ISOMETRIC VIEW

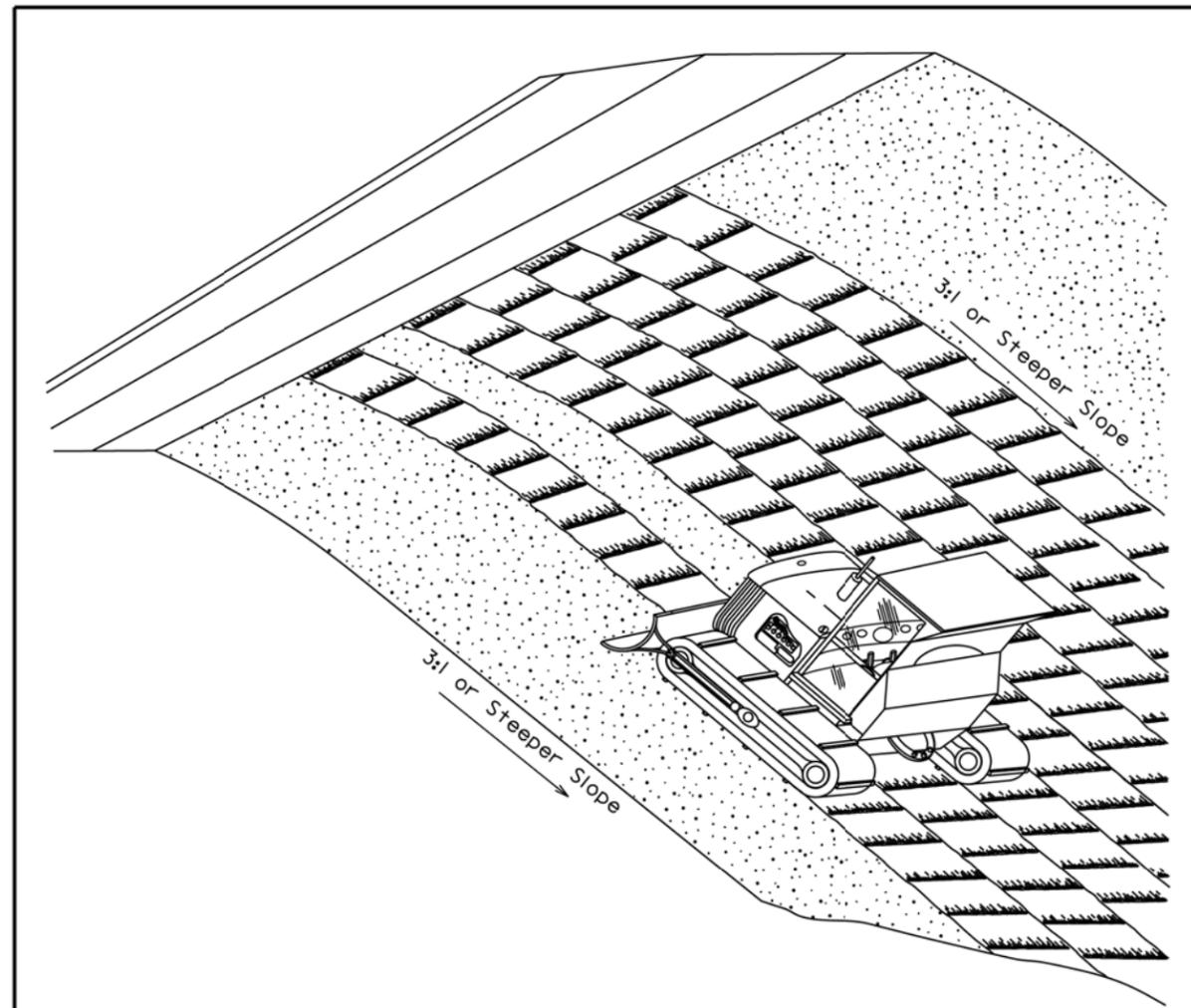
**GENERAL NOTES:**

- 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

<b>S D D O T</b>	<b>SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS</b>	PLATE NUMBER <b>734.11</b>
		Sheet 1 of 1

Published Date: 4th Qtr. 2015



**GENERAL NOTES:**

- Where practical, surface roughening shall be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.
- The equipment used for surface roughening shall be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening shall be approved by the Engineer.
- Measurement for surface roughening shall be to the nearest tenth of an acre.
- All costs associated with surface roughening including labor, equipment, and materials shall be incidental to the contract unit price per acre for "Surface Roughening".

June 26, 2009

<b>S D D O T</b>	<b>SURFACE ROUGHENING</b>	PLATE NUMBER <b>734.25</b>
		Sheet 1 of 1

Published Date: 4th Qtr. 2015

Plot Scale - 1:200

Plotted From - TRPR17200

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