

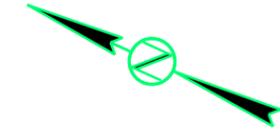
# SECTION D: EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	D1	D27

Plotting Date: 04/30/2014

## INDEX OF SHEETS

D1	General Layout with Index
D2 to D6	Estimate with General Notes and Tables
D7 to D9	Stormwater Pollution Prevention Plan Checklist
D10	Erosion and Sediment Control Legend
D11 to D22	Erosion and Sediment Control Plan Sheets
D23	Stabilized Construction Entrance Details
D24 to D27	Standard Plates

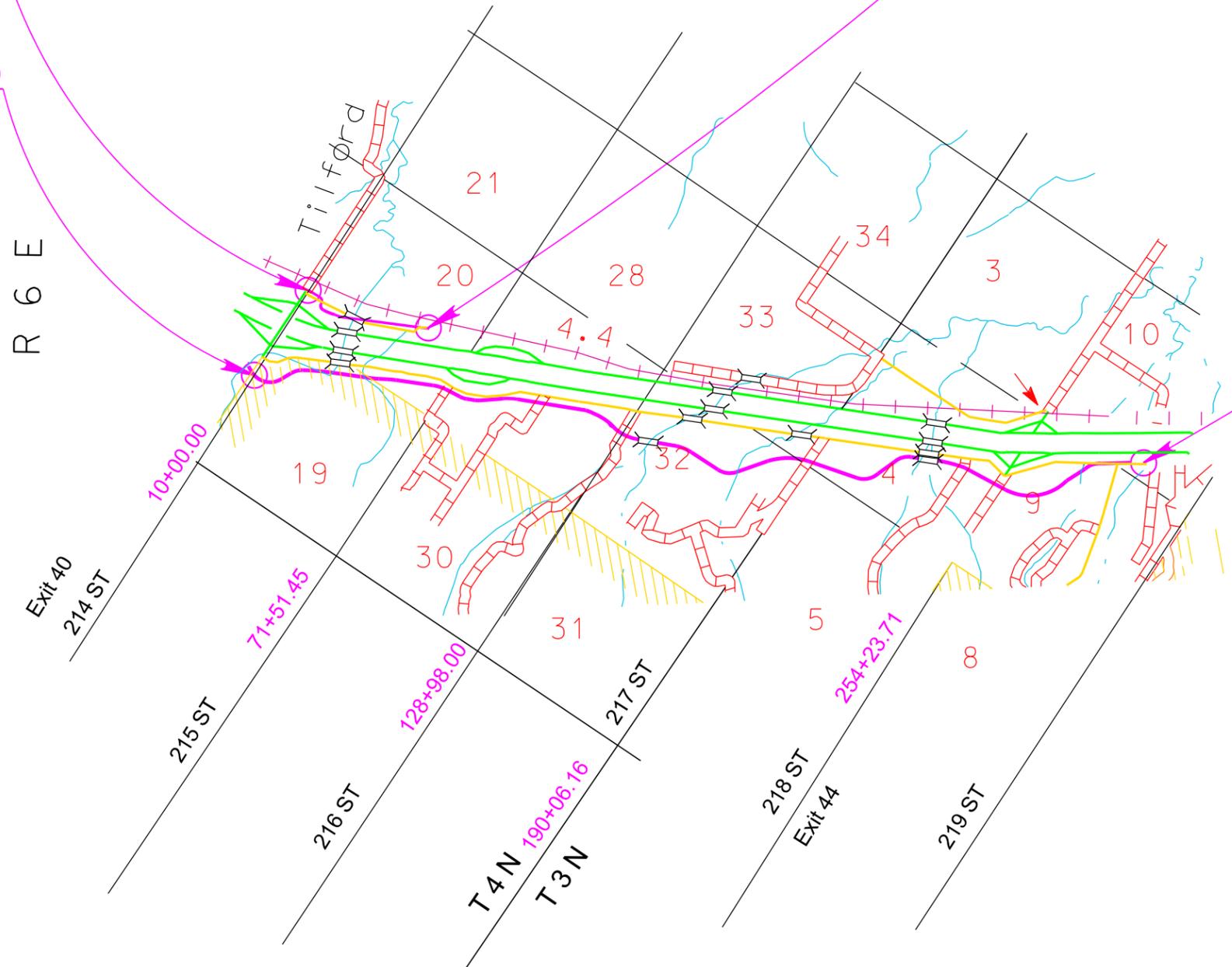


**BEGIN IM 0901(148)40**  
Station 510+00 Clover Place

**BEGIN IM 0901(148)40**  
Station 10+00 South Service Road

**END IM 0901(148)40**  
Station 555+17 Clover Place

**END IM 0901(148)40**  
Station 285+00 South Service Road



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**SECTION D ESTIMATE OF QUANTITIES**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	D2	D27

Plotting Date: 04/30/2014

Bid Item Number	Item	Quantity	Unit
110E1690	Remove Sediment	35.0	CuYd
110E1693	Remove Erosion Control Wattle	3,670	Ft
110E1700	Remove Silt Fence	625	Ft
230E0010	Placing Topsoil	48,065	CuYd
730E0100	Cover Crop Seeding	28.0	Bu
730E0210	Type F Permanent Seed Mixture	2,886	Lb
731E0200	Fertilizing	111.00	Ton
732E0100	Mulching	222.0	Ton
734E0044	Soil Stabilizer	25.0	Acre
734E0102	Type 2 Erosion Control Blanket	7,935	SqYd
734E0131	Type 1 Turf Reinforcement Mat	5,165.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	14,675	Ft
734E0165	Remove and Reset Erosion Control Wattle	3,670	Ft
734E0170	Temporary Sediment Barrier	4,055	Ft
734E0325	Surface Roughening	23.5	Acre
734E0510	Shaping for Erosion Control Blanket	12,325	Ft
734E0604	High Flow Silt Fence	2,500	Ft
734E0610	Mucking Silt Fence	175	CuYd
734E0620	Repair Silt Fence	625	Ft
734E0845	Sediment Control at Inlet with Frame and Grate	4	Each
900E1320	Construction Entrance	1	Each
900E5147	Articulated Concrete Mattress	507.0	SqYd

**PLACING TOPSOIL**

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. Wetland topsoil salvage from this project will be placed on or near the wetland on this project. The topsoil thickness for the option borrow pits shall be as stated on the option borrow pit sheets. The estimated amount of topsoil to be placed is as follows:

Station to	Station	CuYd
XR10 1+30	5+18	141
10+00	30+00	1,608
30+00	60+00	2,575
60+00	90+00	3,230
90+00	120+00	2,392
120+00	150+00	4,125
150+00	180+00	3,221
180+00	210+00	1,977
210+00	240+00	1,664
240+00	270+00	3,743
270+00	285+00	1,387
FR10 510+00	530+00	1,334
FR10 530+00	555+17	2,112
FR140 400+00	415+56	1,606
Median Crossovers		250
Subtotal:		31,365
Option Borrow Pit No. 1		3,250
Option Borrow Pit No. 2		3,500
Option Borrow Pit No. 3		5,300
Option Borrow Pit No. 4		3,000
Option Borrow Pit No. 5		1,650
Subtotal:		16,700
Total:		48,065

**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:

<i>Glomus intraradices</i>	25%
<i>Glomus aggregatu</i>	25%
<i>Glomus mosseae</i>	25%
<i>Glomus etunicatum</i>	25%

Seed shall be inoculated with 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 from the list 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>

**FERTILIZING**

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 2,000 pounds per acre.

The all-natural slow release fertilizer shall be from the list below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 <a href="http://www.sustane.com/">http://www.sustane.com/</a>

**DRILLS**

In addition to the drills specified in Section 730 of the Standard Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of 1/4" to 1/2".

**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. Approximately 34 acres of option borrow pits may need to be seeded and is included in the fertilizing, seeding, and mulching quantities.

All permanent seed shall be planted in the topsoil at a depth of 1/4" to 1/2".

All seed broadcast must be raked or dragged in (incorporated) within the top 1/4" to 1/2" 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.

The varieties listed for the seed mixture are preferred varieties.

Native harvest seed will be allowed.

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Blue Grama	Bad River, Willis	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

**COVER CROP SEEDING**

Oats or spring wheat seed shall be used April through July and winter wheat seed shall be used August through November.

Cover crop seeding may be used on this project as a temporary erosion control measure, especially on topsoil stockpiles and during seasonal permanent seeding restrictions. The quantity of cover crop seeding was estimated at 25% of the disturbed earthen areas. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

**MULCHING (GRASS HAY OR STRAW)**

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

The Contractor shall mulch all disturbed areas prior to the ground freezing whether or not seeding has been completed.

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**SURFACE ROUGHENING**

Surface Roughening shall be utilized in ditches, in wetlands, and on steep slopes when final stabilization (seeding and mulching) cannot be completed due to seasonal restrictions. Areas most likely to need surface roughening are cross-hatched blue. Refer to Standard Plate 734.25 for details.

**TABLE OF TEMPORARY SEDIMENT BARRIER**

Stationing	Feet
9+00 R	30
XR10 3+40 to 3+92 L	55
XR10 6+00 L	30
22+65 to 25+30 L	300
44+25 to 46+25 R	225
46+50 R	35
49+00 L	30
59+25 to 60+25 R	100
60+00 R	30
117+55 to 117+68 L	175
DR 152 0+63	40
167+44 to 167+95 L	50
173+58 to 174+13 L	60
179+34 to 180+23 L	130
190+00 L	25
194+50 L	15
203+00 to 204+50 L	170
220+20 to 221+00 L	150
239+00 to 239+50 L	50
248+80 to 249+20 L	40
254+54 to 254+76 L	25
270+97 to 271+08 R	30
273+50 R	30
283+26 R	30
510+05 to 510+30 L	25
513+65 to 514+65 L	150
519+00 to 521+12 L	150
521+38 to 522+00 L	60
527+90 to 528+22 L	40
528+53 to 529+02 L	50
529+76 to 546+45 L	1,675
554+83 L	25
554+83 R	25
<b>Total</b>	<b>4,055</b>

**TEMPORARY SEDIMENT BARRIER**

Temporary sediment barriers shall be installed at locations noted in the table and at locations determined by the Engineer during construction.

All costs for furnishing, installing, and maintaining the temporary sediment barrier including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per foot for "Temporary Sediment Barrier".

The temporary sediment barriers shall be from the list below or an approved equal:

<u>Product</u>	<u>Manufacturer</u>
ProWattle Perimeter Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com
Compost Filter Sock 9" and 12"	Dioten Engineering, Inc. Rapid City, SD Phone: 1-605-430-7213
SedimentSTOP Or SediMax-FR Filtration Rolls	North American Green Poseyville, IN Phone: 1-800-772-2040 www.tensarnagreen.com
Typar Geocells	Fiberweb Inc. Old Hickory, TN Phone: 1-615-847-7500 www.typargeocells.com
Silt Sock 8" and 12"	Aspen Ridge Lawn and Landscaping, LLC Rapid City, SD Phone: 1-605-415-0695 www.siltsocksd.com
Terra-Tubes	Profile Products LLC Buffalo Grove, IL Phone: 1-800-366-1180 www.profileproducts.com

**SOIL STABILIZER**

An estimated quantity of 25 acres of soil stabilizer has been included in the Estimate of Quantities. The soil stabilizer shall be used for temporary stabilization on areas deemed necessary by the Engineer.

The Contractor shall apply soil stabilizer according to the manufacturer's application instructions and at the rate specified in the list of approved soil stabilizers.

Wood fiber mulch that contains a green dye shall be mixed with the soil stabilizer to be used as a tracer when the soil stabilizer is applied hydraulically. Wood fiber mulch shall be added at a rate of 300 pounds per acre to all of the approved soil stabilizers listed in the table except for the Pam-12 Plus product. The wood fiber mulch shall be a 100% wood fiber product and does not need to contain a tackifier.

All costs for furnishing and applying the soil stabilizer including wood fiber mulch, hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per Acre for "Soil Stabilizer".

The soil stabilizer shall be from the list below or an approved equal:

<u>Product</u>	<u>Manufacturer</u>
Pam-12 Plus Applied at a rate of: <u>Slope</u> None to 4:1 1000 Lb/Acre 4:1 to 3:1 1000 to 2000 Lb/Acre 3:1 to 2:1 2000 to 3000 Lb/Acre	ENCAP, LLC Green Bay, WI Phone: 1-877-405-5050 http://professional.encap.net/
Enviropam Applied at a rate of 9 Lb/Acre	Innovative Turf Solutions, LLC Cincinnati, OH Phone: 1-513-317-8311 www.innovativeturfsolutions.com
HydraTack, Tack Plus, Tack-P, or Tack-P Plus Applied at a rate of 30 Lb/Acre	Innovative Turf Solutions, LLC Cincinnati, OH Phone: 1-513-317-8311 www.innovativeturfsolutions.com
FI-1045 Hydrobond or FI-1046 Hydrobond Applied at a rate of 15 Lb/Acre	JRM Chemical, Inc. Cleveland, OH Phone: 1-216-475-8488 www.soilmoist.com
HF5000 Tack Applied at a rate of 60 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
SpecTac Applied at a rate of: <u>Slope</u> None 30 to 80 Lb/Acre 4:1 50 to 100 Lb/Acre 3:1 80 to 120 Lb/Acre 2:1 100 to 170 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
EarthGuard SFM Applied at a rate of 60 LB/Acre (3approx.. 6 Gallons/Acre)	Terra Novo Inc. Bakersfield, CA Phone: 1-661-747-5956 www.terranovo.com

**REMOVE AND RESET EROSION CONTROL WATTLE**

Erosion control wattles may be removed and reset as necessary as work progresses. The erosion control wattles removed and reset shall be in useable condition. All costs for removing and resetting the erosion control wattles shall be incidental to the contract unit price per foot for "Remove and Reset Erosion Control Wattle".

STATE OF SOUTH DAKOTA	PROJECT IM 0901(148)40	SHEET D3	TOTAL SHEETS D27
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Plotting Date: 04/30/2014

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**TABLE OF EROSION CONTROL WATTLE**

Stationing	Placement	Feet
XR10 3+66 L	30' apart in channel	90
9+50 to 10+00 R	50' apart in ditches	60
10+50 L	25' apart in ditches	120
10+50 to 15+00 R	50' apart in ditches	270
12+00 to 14+00 L	100' apart in ditches	90
17+00 to 18+00 R	100' apart in ditches	60
17+00 to 24+00 L	30' apart on slope	750
18+50 to 28+00 R	50' apart in ditches	600
29+50 to 31+00 R	50' apart in ditches	120
30+50 to 31+50 L	50' apart in ditches	90
33+00 to 33+50 L	50' apart in ditches	60
33+00 to 40+50 L	150' apart in ditches	180
38+09 R	Inlet Protection	20
45+60 to 49+80 R	24' apart on slope	450
46+35 to 50+38 L	18' apart on slope	420
54+?? R	Inlet Protection	20
58+00 to 59+50 L	50' apart in ditches	120
59+50 to 60+00 L	50' apart in ditches	120
59+60 to 62+50 R	on slope 16' from ditch bottom	400
66+40 to 72+13 L	24' apart on slope	610
72+30 to 75+95 R	32' apart on slope	450
81+22 to 84+93 R	30' apart on slope	600
90+50 to 100+00 L	50' apart in ditches	600
129+00-32' R	Inlet Protection	20
131+91 R (Skew 40 LHF)	Inlet Protection	20
405+22-76'L	Inlet Protection	20
407+30 L	Inlet Protection	20
407+30 R	Inlet Protection	20
408+85 L	Inlet Protection	20
408+85 R	Inlet Protection	20
410+43 L	Inlet Protection	20
411+33 R	Inlet Protection	20
414+10 R (Skew 27 LHF)	Inlet Protection	20
415+35-L	Inlet Protection	20
235+40 R	Inlet Protection	20
259+45 to 264+65 R	25' apart on slope	570
264+22 to 268+19 L	50' apart on slope	1,500
268+76 to 274+31 R	25' apart on slope	560
270+76 L	Inlet Protection	10
282+98 to 283+13 R	The middle of the backslope	100
283+68 R	Inlet Protection	10
	Subtotal	9,290

**TABLE OF EROSION CONTROL WATTLE (continued)**

Stationing	Placement	Feet
510+20 R	Inlet Protection	20
510+84 R	Inlet Protection	20
511+58 R	Inlet Protection	20
514+00 R	Inlet Protection	20
518+00 to 521+50 L	18' apart on slope	330
528+00 R	Inlet Protection	10
528+65 L	Inlet Protection	10
528+67 to 546+00 L	On slope at 3600 Ft	1,750
546+00 to 548+50 L	16' apart on slope	250
553+50 to 554+50 L	50' apart on slope	90
	Subtotal	2,520
	Additional Quantity	2,865
	Total	14,675

**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 placed as part of final stabilization shall remain on the project to decompose or until vegetation has been established and then they shall be removed in accordance with the Engineer.

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>

**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**

Stationing	Location	Feet
10+00-43' R	Across Ditch at Inlet of Pipe	30
28+57-57' R	Across Ditch at Inlet of Pipe	30
31+52 R (Skew 32 LHF)	At Inlet of Pipe	30
32+00 L	Across Ditch at Inlet of Pipe	50
33+80 L	At Inlet of Existing Pipe	18
47+78 R (Skew 58 LHF)	At Inlet of Pipe	40
49+10 R	At Inlet of Pipe	18
68+33 R (Skew 26 LHF)	At Inlet of Pipe	35
68+60 L	At Inlet of Existing Pipe	18
71+44 R	At Inlet of Pipe	18
77+40 R	At Inlet of Pipe	18
90+03 (Skew 26 LHF)	At Inlet of Pipe	18
90+49-62' R & Bk	At Inlet of Pipe	18
100+48 R	Across Ditches near Pipe Inlet	35
100+74 R	Across Ditch near Pipe Inlet	50
113+14 R (Skew 24 LHF)	At Inlet of Pipe	18
117+01 R (Skew 16 LHF)	Across Ditch near Pipe Inlet	65
117+25 R (Skew 16 LHF)	Across Ditch near Pipe Inlet	40
122+41-49' L	At Inlet of Pipe	18
123+00 R	Across Ditch near Twin Inlets	50
151+61 R	Across Ditch near Pipe Inlet	100
151+85 R	Across Ditch near Pipe Inlet	110
166+89 R (Skew 43 LHF)	Across Ditch near Pipe Inlets	50
173+55 R	At Inlet of Pipe	18
178+63 R	At Inlet of Pipe	18
189+66 R (Skew 25 LHF)	At Inlet of Pipe	18
199+28 L (Skew 30 RHF)	Near Box Culvert	200
204+54 R (Skew 30 RHF)	At Inlets of Pipes	50
218+80 R	At Inlet of Pipe	18
220+19 R (Skew 25 LHF)	At Inlets of Twin Pipes	36
239+51 R (Skew 18 RHF)	At Inlet of Pipe	18
249+00 R	At Inlet of Pipe	18
254+72 R	At Inlet of Pipe	18
275+25-45' R	Across Ditch at inlet of pipe	18
279+17 R	Across Ditch at inlet of pipe	40
280+10' R	Across Ditch at inlet of pipes	110
283+68 R	Across Ditch at outlet of pipe	30
284+67 L	At Inlet of Pipe	18
529+85 R (Skew 37.5 LHF)	At Inlet of Pipe	18
546+78.91 L (Skew 30 LHF)	Near Box Culvert Outlet	200
	Additional Quantity	777
	Total	2,500

### MUCKING SILT FENCE

Mucking silt fence shall consist of removing muck trapped by the silt fence and spreading the material evenly over the adjacent area to conform to the existing grade.

### REMOVE SILT FENCE

Silt fence shall be removed when vegetation is established. Some or all of the silt fence may be left on the project until vegetation is established.

### EROSION CONTROL BLANKET

Type 2 Erosion Control Blanket shall be installed 8 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>

The Contractor shall install erosion control blanket according to the manufacturer's installation instructions.

### TABLE OF EROSION CONTROL BLANKET

Stationing	Shaping	SqYd
10+28 to 14+25 L	475	425
44+50 to 45+75 R	135	120
45+50 to 48+70 L	325	290
50+50 to 54+21 R	375	335
50+75 to 58+00 L	740	660
54+70 to 56+55 R	150	135
59+90 to 64+20 R	430	385
83+75 to 90+50 L	700	625
91+00 to 100+80 R	985	880
143+10 to 143+78 R	80	75
166+45 to 167+35 R	100	90
172+00 to 174+50 R	225	200
191+00 to 194+50 L	360	320
227+05 to 227+30 R	35	35
249+00 L	145	130
254+60 to 257+00 L	240	215
254+67 to 257+82 R	320	285
260+60 to 270+77 L	1,025	915
265+50 to 270+77 R	500	450
275+70 to 279+00 R	330	295
543+50 to 555+00 R	1,200	1,070
	8,875	7,935

### SHAPING FOR EROSION CONTROL BLANKET

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

All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

### TURF REINFORCEMENT MAT

Turf Reinforcement Mat shall be installed at locations shown in the table 8' wide (unless otherwise noted), 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>

Installation of the Turf Reinforcement Mat shall be according to the manufacturer's installation instructions.

### TABLE OF TURF REINFORCEMENT MAT

Stationing	Shaping	SqYd
8+90 to 9+90 R	100	90
10+23 to 15+00 R	500	445
16+50 to 28+50 R	1,200	1,070
29+00 to 31+22 R	230	205
68+15 to 71+10 R	300	270
71+70 to 77+00 R	575	515
DR 152 L 48' wide	425	2,225
168+00 L 32' wide	90	315
173+62 to 173+84 L	30	30
	3,450	5,165

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

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

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

Stationing	Each
143+76-16.62'L	1
143+76-16.62'R	1
227+09-16.62' L	1
227+09-16.62' R	1
	4

### ARTICULATED CONCRETE MATTRESS

Articulated concrete mattress shall be installed 24' wide at the spillway.

Installation of the articulated concrete mattress shall be according to the manufacturer's installation instructions.

An excelsior erosion control blanket shall be installed under the concrete mattress. The blanket is incidental to the contract unit price per square yard for "Articulated Concrete Mattress". The Flexamat product may be manufactured with an excelsior erosion control blanket attached to the back of the mattress.

All costs for furnishing and installing the articulated concrete mattress including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per square yard for "Articulated Concrete Mattress".

The articulated concrete mattress on this project shall be one from the list below or an approved equal:

Product	Manufacturer
Cable Concrete	Royal Erosion Control Systems, LLC Stacy, MN Phone: 1-800-817-3240 <a href="http://www.royalenterprises.net">www.royalenterprises.net</a>
Flexamat	Motz Enterprises, Inc. Cincinnati, OH Phone: 1-513-772-6689 <a href="http://www.flexamat.com/">http://www.flexamat.com/</a>

### 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 www.trackoutcontrol.com
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 www.pro-tecequipment.com

Maintenance includes clearing rock and/or rumble strips of sediment. This can be done by using a loader to scarify the sediment laden rock to cause the fines to settle to the bottom. It may also be necessary to occasionally add rock to the construction entrance device. Some devices may be cleaned using a sweeper. Geotextiles that separate underlying soil from rock can reduce maintenance by keeping soil from seeping up from under the rock and clogging the device. Some manufactured track-out control devices include freeboard for additional sediment capture and may reduce the amount of maintenance required. Manufactured devices can be installed in a variety of ways to reduce maintenance costs. No matter the device or method used, the Contractor will be required to repair or replace the construction entrance whenever sediment is tracked onto the traveled roadway. If sediment is tracked off-site the contractor will be required to clean it up without additional payment. If it is determined that the source of tracking was from an area or areas where a construction entrance was not available, the contractor will be paid per each additional construction entrance needed and maintained.

### 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 MSE geotextile shall conform to Section 831 of the Standard 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 MSE geotextile should be kept as taut as possible prior to placing.

Equipment shall not be allowed on the MSE geotextile until the first lift of granular material is in place.

All seams in the MSE geotextile shall be overlapped at least 2' and shingled.

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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 117.9 Acres (4.2 1.b.)
- Total Area To Be Disturbed 111 Acres (4.2 1.b.)
- Existing Vegetative Cover (%) 100
- Soil Properties: Silty Clay, Clay Silt, Silty Sand, Sandy Gravel (4.2 1. d.)
- Name of Receiving Water Body/Bodies Elk 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 Section C).
- Install stabilized construction entrances.
- Install perimeter protection prior to earth-moving activities (silt fence, erosion control wattles, and or temporary sediment barriers.
- Complete off-line work first
  - Box Culvert and Pipe installations
  - New Roadway alignment
- Use the following for temporary erosion and sediment control during construction:
  - Soil Stabilizer
  - Surface Roughening
  - Erosion Control Wattles
  - Temporary Sediment Barriers
  - High Flow Silt Fence
  - Sediment Control at Inlets with Frames and Grates
- After topsoil is placed do the following:
  - Fertilizing
  - Cover Crop or Surface Roughening if summer
  - Permanent Seeding if not seasonally restricted
  - Mulch or install erosion control blanket or turf reinforcement mat
  - Place Articulated Concrete Mattresses at spillway

### ❖ 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
    - Erosion Control Blankets or Mats
    - Vegetation Buffer Strips
    - Roughened Surface (e.g. tracking)
    - Dust Control

### ➤ 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)
- 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: Articulated Concrete Mattresses

### ➤ 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:

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## ❖ 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.

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❖ **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:
- Address:
- City:                      State:                      Zip:
- Office Phone:                      Field:
- Cell Phone:                      Fax:

➤ **Erosion Control Supervisor**

- Name:
- Address:
- 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.**

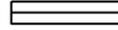
- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

# EROSION AND SEDIMENT CONTROL LEGEND

## SYMBOLOLOGY FOR BEST MANAGEMENT PRACTICES

-  STORM WATER DISCHARGE POINT
-  LOW FLOW SILT FENCE
-  HIGH FLOW SILT FENCE
-  HIGH FLOW SILT FENCE AT PIPE INLET
-  SILT TRAP
-  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
-  SURFACE ROUGHENING
-  SOIL STABILIZER / TEMPORARY MULCH / DUST CONTROL
-  CUT INTERCEPTOR DITCH
-  TEMPORARY SLOPE DRAIN
-  SEDIMENT CONTROL AT INLET AFTER PLACEMENT OF SURFACING
-  HYDRAULIC STRAW MULCH / FIBER MULCHING / BONDED FIBER MATRIX / FIBER REINFORCED MATRIX
-  ROCK CHECK DAM
-  SODDING
-  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
-  ARTICULATED CONCRETE MATTRESS
-  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.

### INTERIM PHASE

BMPs from the Legend shown as Blue Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Interim 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.

- |  |   |  |   |
|--|---|--|---|
|  TS   | TOPSOIL STOCKPILES  |  M    | ON-SITE CONSTRUCTION MATERIAL STORAGE AREAS |
|  B   | BORROW AREAS  |  SK  | SPILL KIT                                   |
|  CE | STABILIZED CONSTRUCTION ENTRANCES                             |  WP | WORK PLATFORM                               |
|  VB | VEGETATED BUFFER STRIPS                                       |     | DRAINAGE ARROW                              |
|  CW | CONCRETE WASHOUTS   |  |   |
|  AP | ASPHALT PLANT SITES   |  |   |
|  CP | CONCRETE PLANT SITES  |  |   |
|  V  | VEHICLE AND EQUIPMENT PARKING, FUELING, AND MAINTENANCE AREAS |  |   |
|  D  | DUMPSTER OR OTHER TRASH AND DEBRIS CONTAINERS                 |  |   |

# EROSION AND SEDIMENT CONTROL PLAN

## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:  
 22+65 to 25+30 L 300 Ft  
 XR10 3+92 to 3+40 L 55 Ft

Install 12" Diameter Erosion Control Wattles in the channel bottom at 30 Ft spacing at the following locations:  
 XR10 3+66 L 90 Ft

## INTERIM PHASE

Install Temporary Sediment Barriers at the following locations:  
 9+00 R 30 Ft  
 XR10 6+00 L 30 Ft

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:  
 9+50 to 10+00 R 50' apart in ditches 60 Ft  
 10+50 L 25' apart in ditches 120 Ft  
 10+50 to 15+00 R 50' apart in ditches 270 Ft  
 12+00 to 14+00 L 100' apart in ditches 90 Ft  
 17+00 to 18+00 R 100' apart in ditches 60 Ft  
 18+50 to 28+00 R 50' apart in ditches 600 Ft

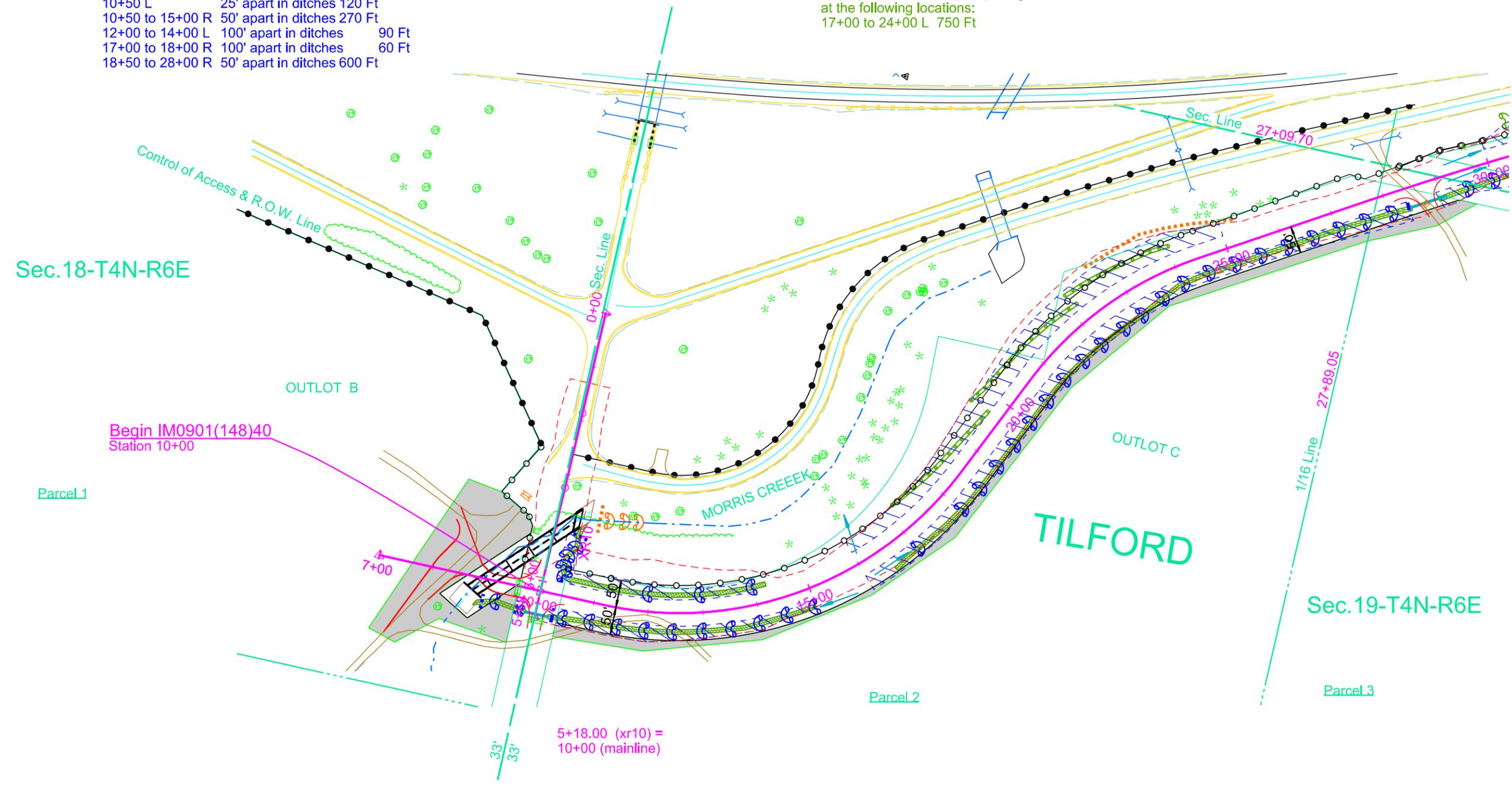
Install High Flow Silt Fence at the following locations:  
 10+00-43' R Across Ditch at Inlet of Pipe 30 Ft  
 28+57-57' R Across Ditch at Inlet of Pipe 30 Ft  
 Around topsoil stockpiles--quantity and location to be determined

## FINAL PHASE

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 10+28 to 14+25 L 475' shaping 425 SqYd

Install Turf Reinforcement Mat in the highway ditch channel bottom at the following locations:  
 8+90 to 9+90 R 100' shaping 90 SqYd  
 10+23 to 15+00 R 500' shaping 445 SqYd  
 16+50 to 28+50 R 1200' shaping 1070 SqYd

Install 12" Diameter Erosion Control Wattles on slope contour at 30 Ft spacing at the following locations:  
 17+00 to 24+00 L 750 Ft



Plot Scale - 1:200

Plotted From - tpr13525

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# EROSION AND SEDIMENT CONTROL PLAN

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## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:  
 44+25 to 46+25 R 225 Ft  
 49+00 L 30 Ft  
 59+25 to 60+25 R 100 Ft

Install 12" Diameter Erosion Control Wattles at the following location:  
 59+50 to 60+00 L 50' apart in ditches 120 Ft

Install High Flow Silt Fence at the following locations:  
 33+80 L At Inlet of Existing Pipe 18 Ft

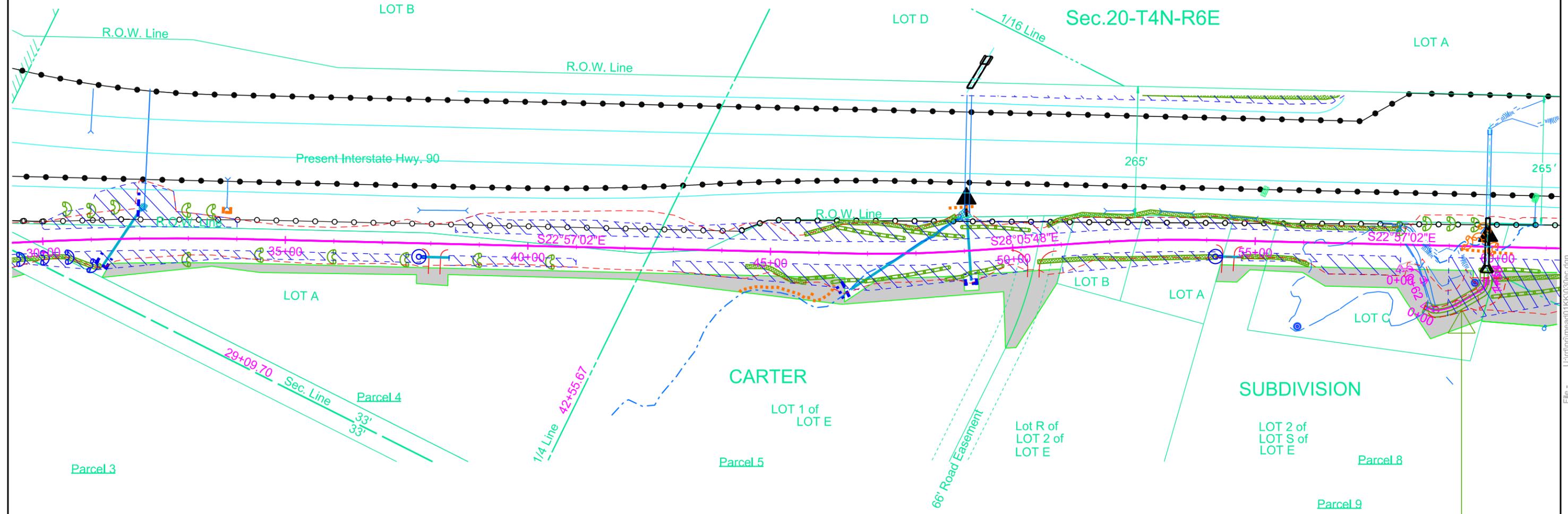
## INTERIM PHASE

Install Temporary Sediment Barriers at the following locations:  
 46+50 R 35 Ft

Install 12" Diameter Erosion Control Wattles at the following locations:  
 29+50 to 31+00 R 50' apart in ditches 120 Ft  
 38+09 R Inlet Protection 20 Ft  
 54+?? R Inlet Protection 20 Ft

Install High Flow Silt Fence at the following locations:  
 31+52 R (Skew) At Inlet of Pipe 30 Ft  
 32+00 L Across Ditch at Inlet of Pipe 50 Ft  
 47+78 R (Skew) At Inlet of Pipe 40 Ft  
 49+10 R At Inlet of Pipe 18 Ft  
 Around topsoil stockpiles--quantity and location to be determined

Plot Scale - 1:200



## Sec.19-T4N-R6E

## FINAL PHASE

Install Turf Reinforcement Mat in the highway ditch channel bottom at the following locations:  
 29+00 to 31+22 R 230' shaping 205 SqYd

Install 12" Diameter Erosion Control Wattles at the following locations:  
 30+50 to 31+50 L 50' apart in ditches 90 Ft  
 33+00 to 33+50 L 50' apart in ditches 60 Ft  
 33+00 to 40+50 L 150' apart in ditches 180 Ft  
 45+60 to 49+80 R 24' apart on slope 450 Ft  
 46+35 to 50+38 L 18' apart on slope 420 Ft  
 58+00 to 59+50 L 50' apart in ditches 120 Ft

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 44+50 to 45+75 R 135' shaping 120 SqYd  
 45+50 to 48+70 L 325' shaping 290 SqYd  
 50+50 to 54+21 R 375' shaping 335 SqYd  
 50+75 to 58+00 L 740' shaping 660 SqYd  
 54+70 to 56+55 R 150' shaping 135 SqYd

Install Articulated Concrete Mattress 24' wide from the top of the Spillway to the edge of the box culvert inlet at a width of 24 feet: 507 SqYd

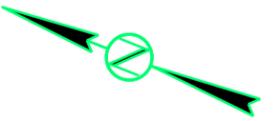
Plotted From - 1:pr15525

File - U:\tr\proj\mead01\K103\dec.dgn

# EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT IM 0901(148)40	SHEET D13	TOTAL SHEETS D27
-----------------------	---------------------------	--------------	---------------------

Plotting Date: 04/30/2014



## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:  
60+00 R 30 Ft

Install High Flow Silt Fence at the following locations:  
68+60 L At Inlet of Existing Pipe 18 Ft

## INTERIM PHASE

Install High Flow Silt Fence at the following locations:  
68+33 R (Skew) At Inlet of Pipe 35 Ft  
71+44 R At Inlet of Pipe 18 Ft  
77+40 R At Inlet of Pipe 18 Ft  
90+03 (Skew) At Inlet of Pipe 18 Ft  
90+49-62' R & Bk At Inlet of Pipe 18 Ft

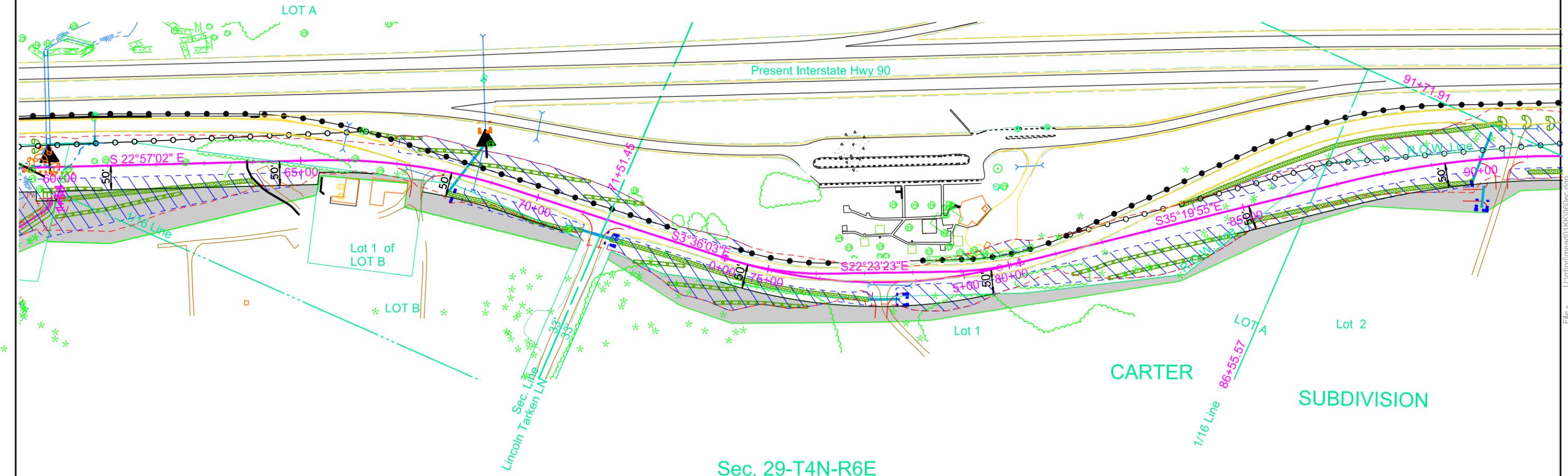
## FINAL PHASE

Install 12" Diameter Erosion Control Wattles at the following locations:  
59+60 to 62+50 R on slope 16' from ditch bottom 400 Ft  
66+40 to 72+13 L 24' apart on slope 610 Ft  
72+30 to 75+95 R 32' apart on slope 450 Ft  
81+22 to 84+93 R 30' apart on slope 600 Ft

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom 8' wide at the following locations:  
59+90 to 64+20 R 430' shaping 385 SqYd  
83+75 to 90+50 L 700' shaping 625 SqYd

Install Turf Reinforcement Mat in the highway ditch channel bottom at the following locations:  
68+15 to 71+10 R 300' shaping 270 SqYd  
71+70 to 77+00 R 575' shaping 515 SqYd

Sec.20-T4N-R6E



Sec. 29-T4N-R6E

Plot Scale - 1:200

Plotted From - tpr13525

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# EROSION AND SEDIMENT CONTROL PLAN

## INITIAL PHASE

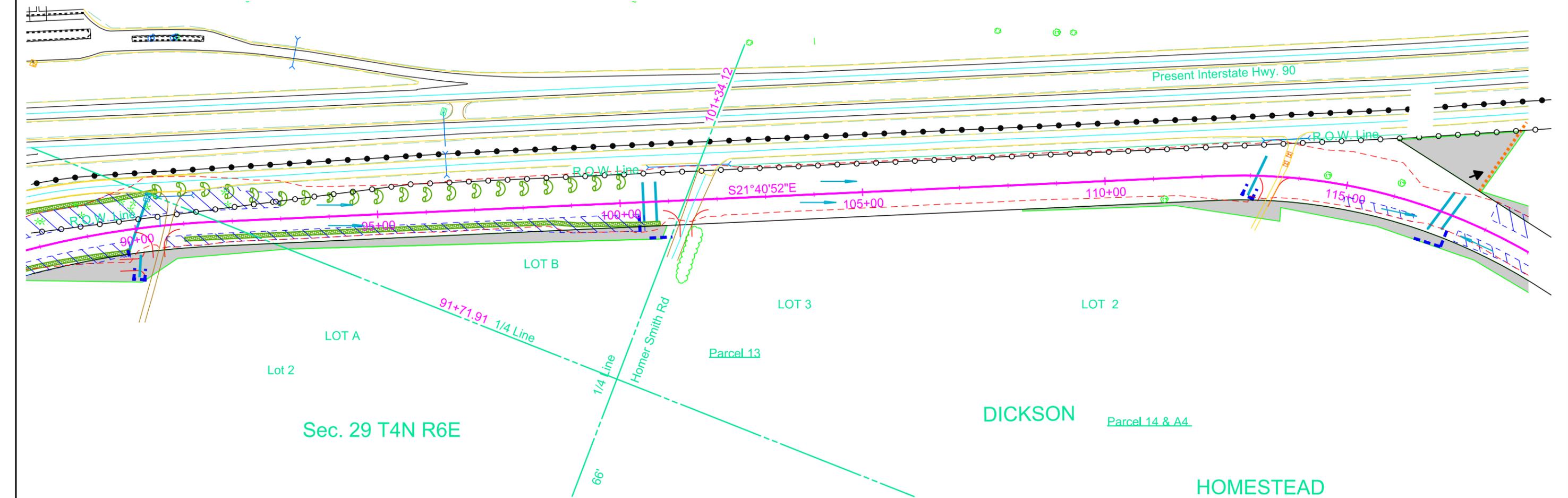
Install Temporary Sediment Barriers at the following locations:  
 117+55 to 117+68 L 175 Ft

## INTERIM PHASE

Install High Flow Silt Fence at the following locations:  
 100+48 R Across Ditches near Pipe Inlet 35 Ft  
 100+74 R Across Ditch near Pipe Inlet 50 Ft  
 113+14 R (Skew) At Inlet of Pipe 18 Ft  
 117+01 R (Skew) Across Ditch near Pipe Inlet 65 Ft  
 117+25 R (Skew) Across Ditch near Pipe Inlet 40 Ft  
 Around topsoil stockpiles--quantity and location to be determined



Plot Scale - 1:200



## FINAL PHASE

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 91+00 to 100+80 R 985' shaping 880 Ft

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:  
 90+50 to 100+00 L 50' apart in ditches 600 Ft

Plotted From - tpr13525

File - U:\tr\proj\mead01\K109\dec.dgn

# EROSION AND SEDIMENT CONTROL PLAN

## INTERIM PHASE

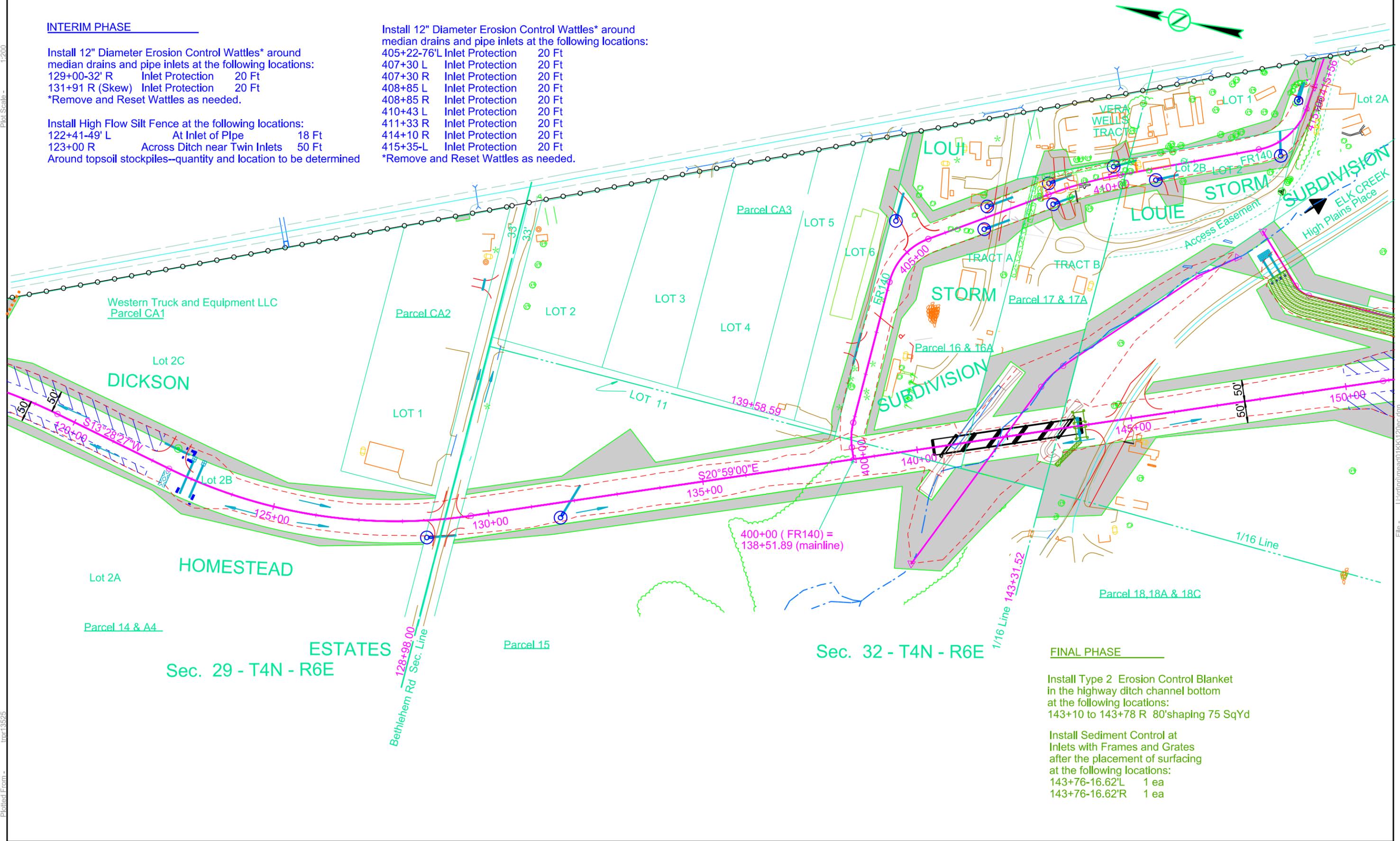
Install 12" Diameter Erosion Control Wattles\* around median drains and pipe inlets at the following locations:  
 129+00-32' R Inlet Protection 20 Ft  
 131+91 R (Skew) Inlet Protection 20 Ft  
 \*Remove and Reset Wattles as needed.

Install High Flow Silt Fence at the following locations:  
 122+41-49' L At Inlet of Pipe 18 Ft  
 123+00 R Across Ditch near Twin Inlets 50 Ft  
 Around topsoil stockpiles--quantity and location to be determined

Install 12" Diameter Erosion Control Wattles\* around median drains and pipe inlets at the following locations:  
 405+22-76'L Inlet Protection 20 Ft  
 407+30 L Inlet Protection 20 Ft  
 407+30 R Inlet Protection 20 Ft  
 408+85 L Inlet Protection 20 Ft  
 408+85 R Inlet Protection 20 Ft  
 410+43 L Inlet Protection 20 Ft  
 411+33 R Inlet Protection 20 Ft  
 414+10 R Inlet Protection 20 Ft  
 415+35-L Inlet Protection 20 Ft  
 \*Remove and Reset Wattles as needed.

Plot Scale - 1:200

Plotted From -



## FINAL PHASE

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 143+10 to 143+78 R 80'shaping 75 SqYd

Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:  
 143+76-16.62'L 1 ea  
 143+76-16.62'R 1 ea

File - U:\tr\proj\mead01\K112\dec.dgn

# EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT IM 0901(148)40	SHEET D16	TOTAL SHEETS D27
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Plotting Date: 04/30/2014

## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:

DR 152 0+63	40 Ft
167+44 to 167+95 L	50 Ft
173+58 to 174+13 L	60 Ft
179+34 to 180+23 L	130 Ft

## INTERIM PHASE

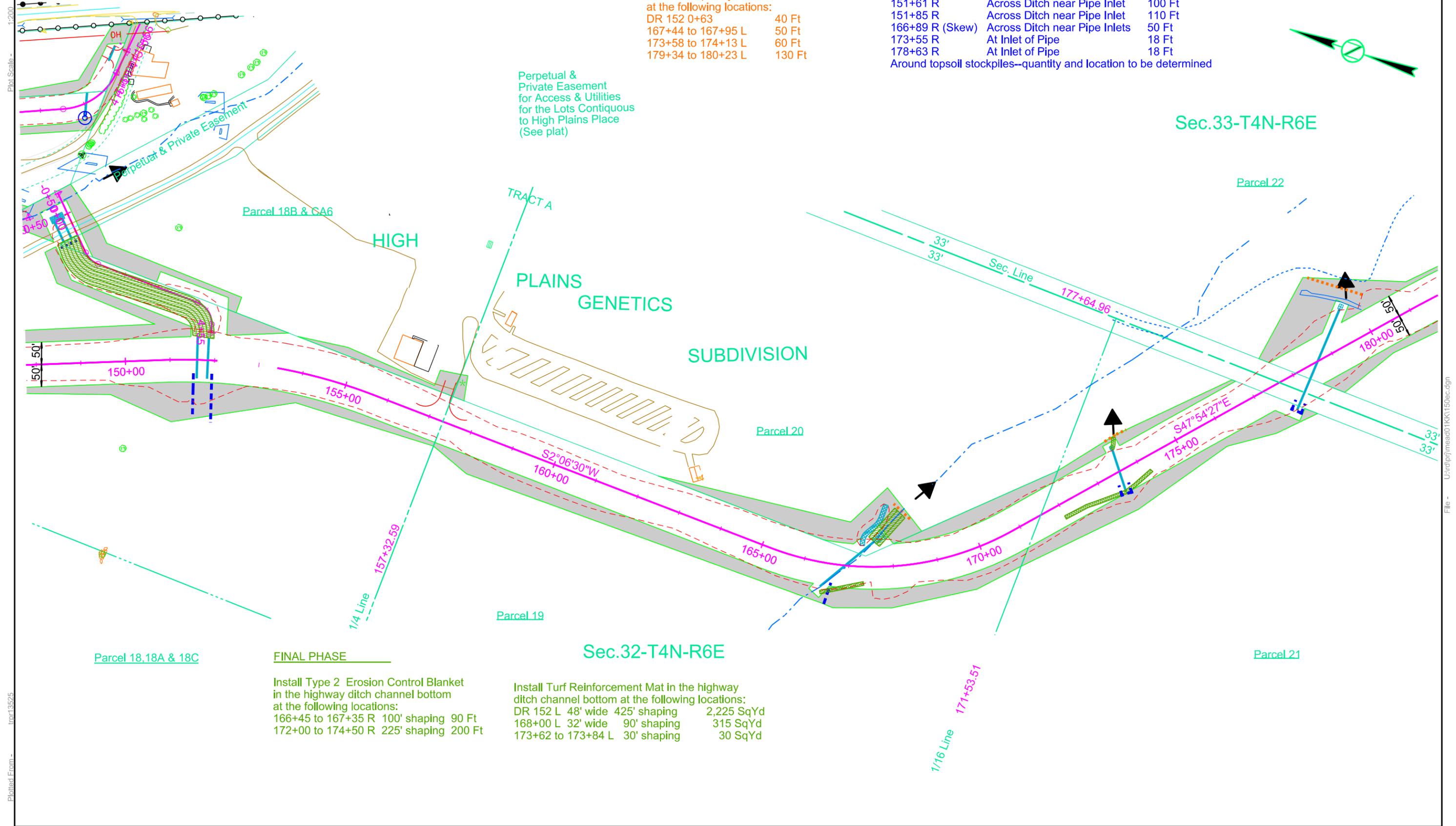
Install High Flow Silt Fence at the following locations:

151+61 R	Across Ditch near Pipe Inlet	100 Ft
151+85 R	Across Ditch near Pipe Inlet	110 Ft
166+89 R (Skew)	Across Ditch near Pipe Inlets	50 Ft
173+55 R	At Inlet of Pipe	18 Ft
178+63 R	At Inlet of Pipe	18 Ft

Around topsoil stockpiles--quantity and location to be determined

Perpetual & Private Easement for Access & Utilities for the Lots Contiguous to High Plains Place (See plat)

Sec.33-T4N-R6E



## FINAL PHASE

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:

166+45 to 167+35 R	100' shaping	90 Ft
172+00 to 174+50 R	225' shaping	200 Ft

Install Turf Reinforcement Mat in the highway ditch channel bottom at the following locations:

DR 152 L	48' wide	425' shaping	2,225 SqYd
168+00 L	32' wide	90' shaping	315 SqYd
173+62 to 173+84 L	30' shaping		30 SqYd

Plot Scale - 1:200

Plotted From - tpr13525

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# EROSION AND SEDIMENT CONTROL PLAN

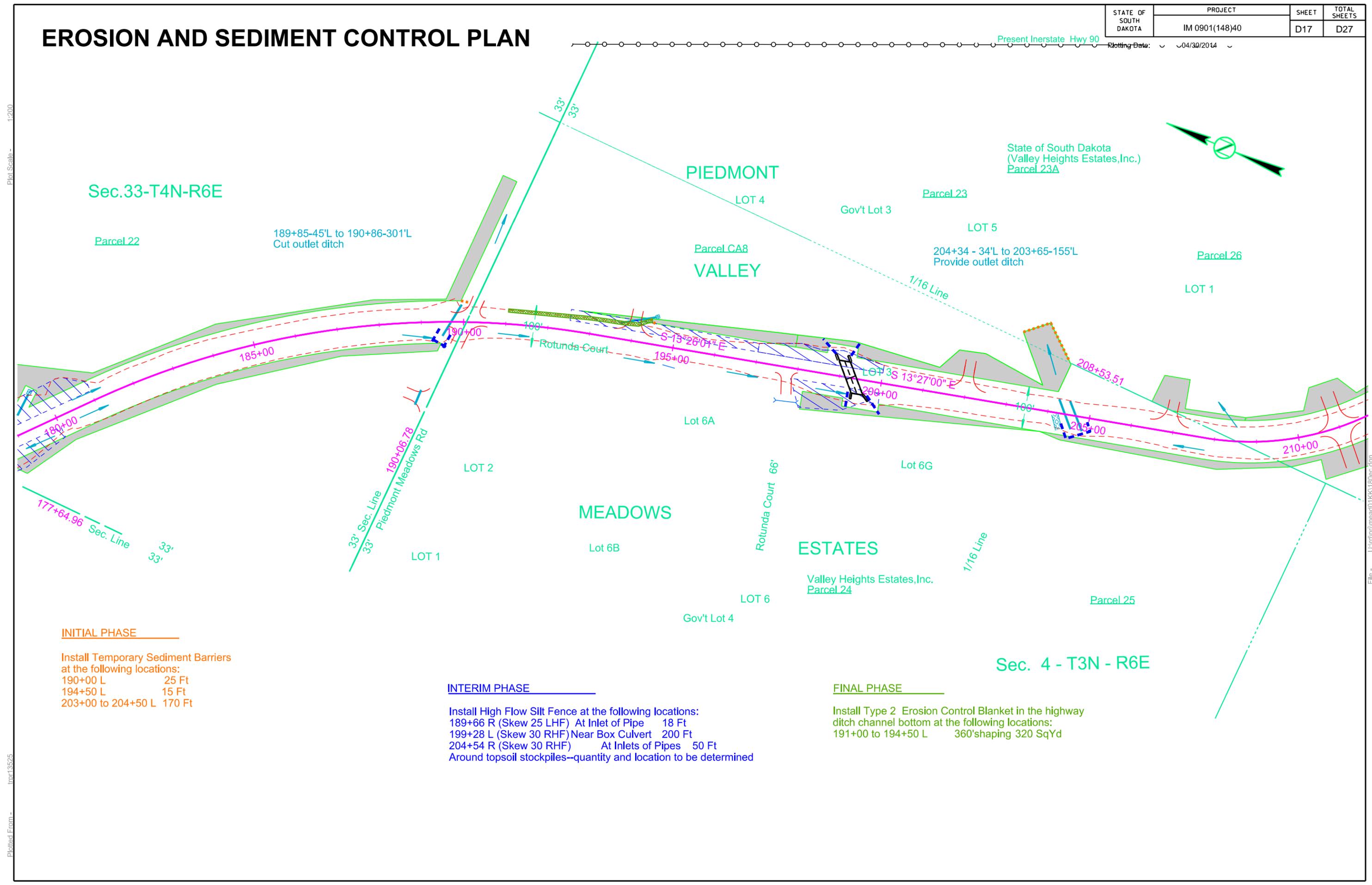
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	D17	D27

Plotting Date: 04/30/2014

Present Interstate Hwy 90

Plot Scale - 1:200

Plotted From - tpr13525



**INITIAL PHASE**

Install Temporary Sediment Barriers at the following locations:  
 190+00 L 25 Ft  
 194+50 L 15 Ft  
 203+00 to 204+50 L 170 Ft

**INTERIM PHASE**

Install High Flow Silt Fence at the following locations:  
 189+66 R (Skew 25 LHF) At Inlet of Pipe 18 Ft  
 199+28 L (Skew 30 RHF) Near Box Culvert 200 Ft  
 204+54 R (Skew 30 RHF) At Inlets of Pipes 50 Ft  
 Around topsoil stockpiles--quantity and location to be determined

**FINAL PHASE**

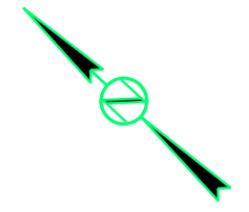
Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 191+00 to 194+50 L 360'shaping 320 SqYd

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# EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT IM 0901(148)40	SHEET D18	TOTAL SHEETS D27
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Plotting Date: 04/30/2014



## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:  
 220+20 to 221+00 L 150 Ft  
 239+00 to 239+50 L 50 Ft

## INTERIM PHASE

Install High Flow Silt Fence at the following locations:  
 218+80 R At Inlet of Pipe 18 Ft  
 220+19 R (Skew 25 LHF) At Inlets of Twin Pipes 36 Ft  
 239+51 R (Skew 18 RHF) At Inlet of Pipe 18 Ft  
 Around topsoil stockpiles--quantity and location to be determined

Install Erosion Control Wattles at the following locations:  
 235+40 R At Inlet of Pipe 18 Ft

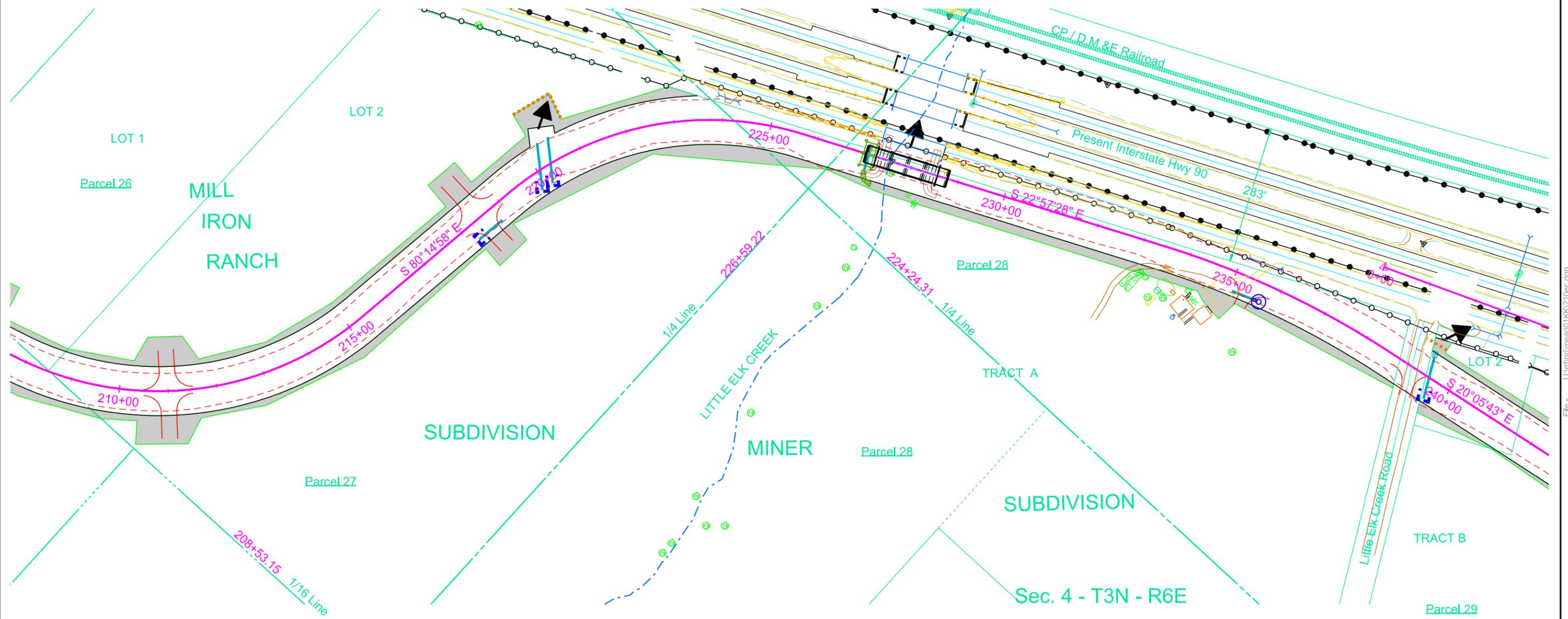
## FINAL PHASE

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 227+05 to 227+30 R 35'shaping 35 SqYd

Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:  
 227+07-16.62' L 1 ea  
 227+09-16.62' R 1 ea

Plot Scale - 1:200

Plotted From -



File - U:\tr\proj\mead01\K121\dec.dgn

# EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	D19	D27

Plotting Date: 04/30/2014

## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:  
 254+54 to 254+76 L 25 Ft

## INTERIM PHASE

Install Temporary Sediment Barriers at the following locations:  
 248+80 to 249+20 L 40 Ft

Install High Flow Silt Fence at the following locations:

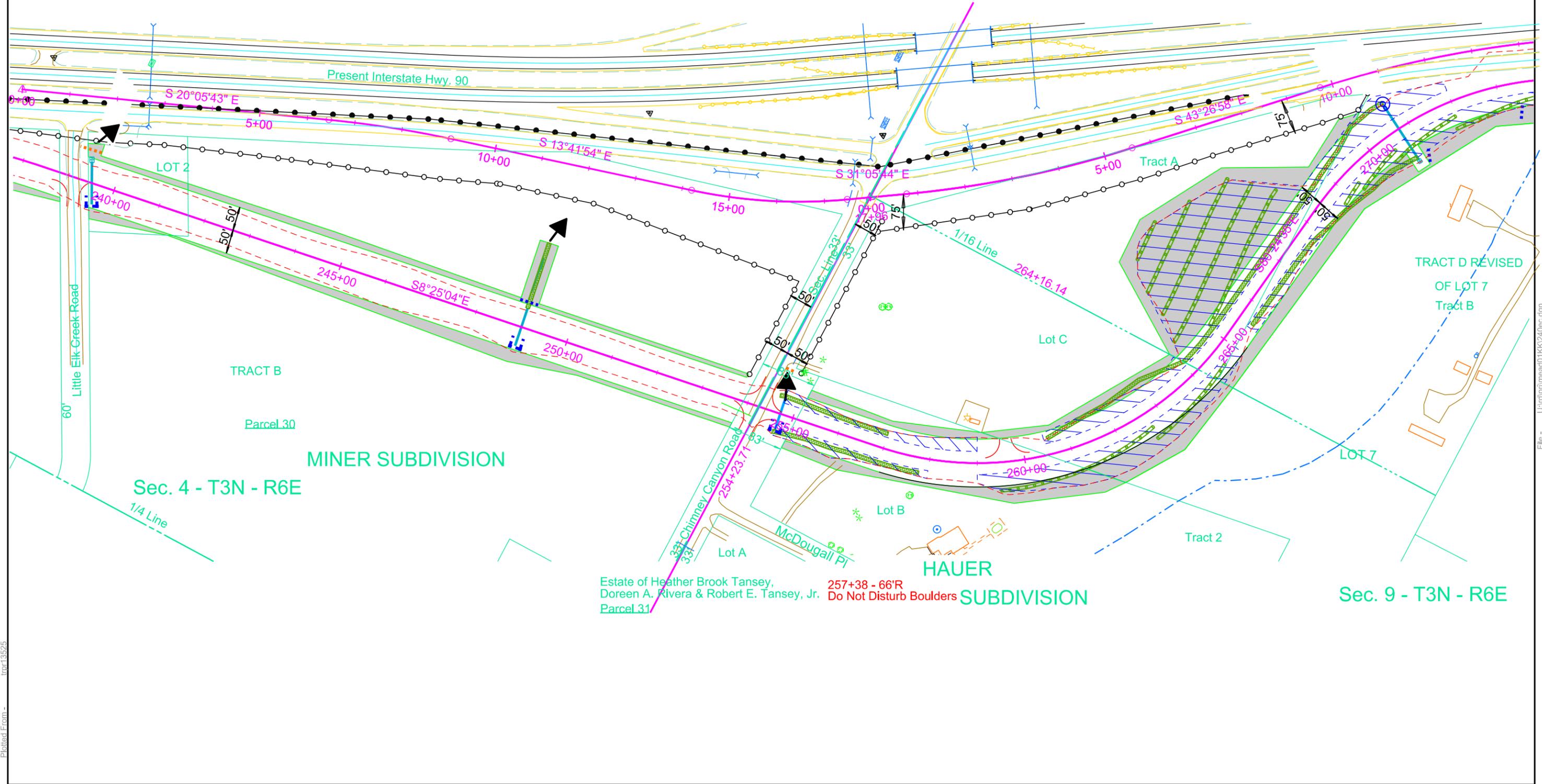
249+00 R At Inlet of Pipe 18 Ft  
 254+72 R At Inlet of Pipe 18 Ft  
 Around topsoil stockpiles--quantity and location to be determined

## FINAL PHASE

Install 12" Diameter Erosion Control Wattles on slope contour at the following locations:  
 259+45 to 264+65 R 25' apart on slope 570 Ft  
 264+22 to 268+19 L 50' apart on slope 1500 Ft  
 268+76 to 274+31 R 25' apart on slope 560 Ft

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:

249+00 L	144' shaping	130 SqYd
254+60 to 257+00 L	240' shaping	215 SqYd
254+67 to 257+82 R	320' shaping	285 SqYd
260+60 to 270+77 L	1025' shaping	915 SqYd
265+50 to 270+77 R	500' shaping	450 SqYd



Plot Scale - 1:200

Plotted From - tpr13525

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# EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	D20	D27

Plotting Date: 04/30/2014

## INITIAL PHASE

Install High Flow Silt Fence at the following locations:  
284+67 L At Inlet of Pipe 18 Ft

Install High Flow Silt Fence at the following locations:  
275+25-45' R Across Ditch at inlet of pipe 18 Ft  
279+17 R Across Ditch at inlet of pipe 40 Ft  
280+10' R Across Ditch at inlet of pipes 110 Ft  
283+68 R Across Ditch at outlet of pipe 30 Ft  
284+67 L At Inlet of Pipe 18 Ft  
Around topsoil stockpiles--quantity and location to be determined

## FINAL PHASE

Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
275+70 to 279+00 R 330' shaping 295 SqYd

Install 12" Diameter Erosion Control Wattles on slope contour at the following locations:  
282+98 to 283+13 R The middle of the backslope 100 Ft

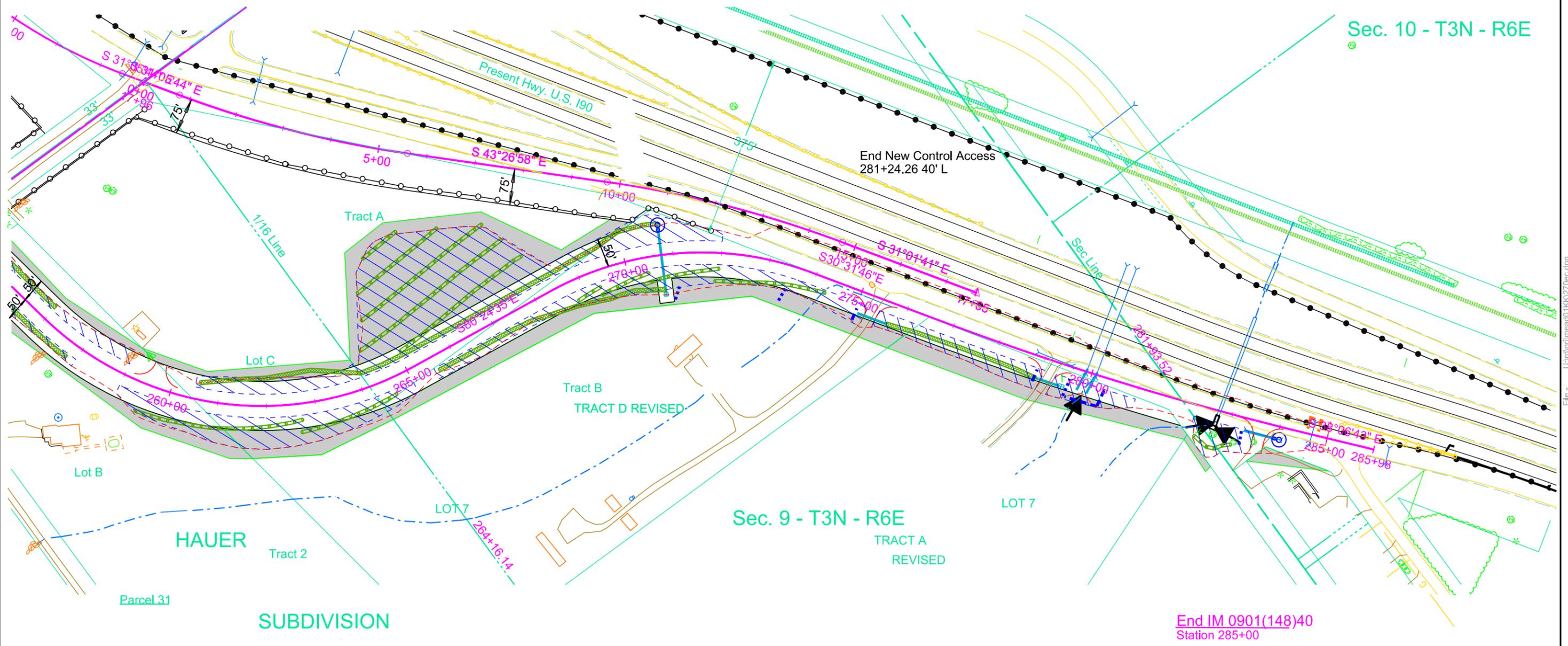
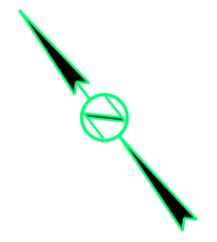
## INTERIM PHASE

Install Temporary Sediment Barriers at the following locations:  
270+97 to 271+08 R 30 Ft  
273+50 R 30 Ft  
283+26 R 30 Ft

Install 12" Diameter Erosion Control Wattles\* around median drains and pipe inlets at the following locations:  
270+76 L 10 Ft  
283+68 R 10 Ft  
\*Remove and Reset Wattles as needed.

Plot Scale - 1:200

Plotted From - tpr13525



Sec. 10 - T3N - R6E

Sec. 9 - T3N - R6E  
TRACT A  
REVISED

End IM 0901(148)40  
Station 285+00

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# EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	D21	D27

Plotting Date: 04/30/2014

## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:  
 529+76 to 546+45 L 1675 Ft  
 554+83 L 25 Ft  
 554+83 R 25 Ft

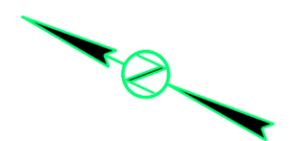
## INTERIM PHASE

Install High Flow Silt Fence at the following locations:  
 546+78.91 L (Skew 30 LHF) Near Box Culvert Outlet 200 Ft  
 Around topsoil stockpiles--quantity and location to be determined

## FINAL PHASE

Install 12" Diameter Erosion Control Wattles on slope contour at the following locations:  
 528+67 to 546+00 L On slope at 3600 Ft 1750 Ft  
 546+00 to 548+50 L 16' apart on slope 250 Ft  
 553+50 to 554+50 L 50' apart on slope 90 Ft

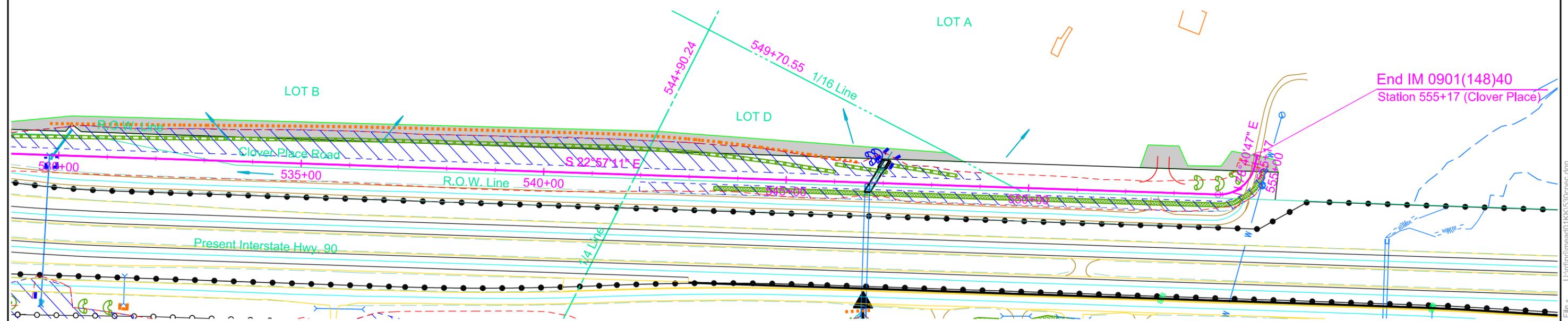
Install Type 2 Erosion Control Blanket in the highway ditch channel bottom at the following locations:  
 543+50 to 555+00 R 1200' shaping 1070 SqYd



Plot Scale - 1:200

Plotted From - tpr13525

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# EROSION AND SEDIMENT CONTROL PLAN

## INITIAL PHASE

Install Temporary Sediment Barriers at the following locations:

510+05 to 510+30 L	25 Ft
513+65 to 514+65 L	150 Ft
519+00 to 521+12 L	150 Ft
521+38 to 522+00 L	60 Ft
527+90 to 528+22 L	40 Ft
528+53 to 529+02 L	50 Ft

## INTERIM PHASE

Install 12" Diameter Erosion Control Wattles\* around median drains and pipe inlets at the following locations:

510+20 R	Inlet Protection	20 Ft
510+84 R	Inlet Protection	20 Ft
511+58 R	Inlet Protection	20 Ft
514+00 R	Inlet Protection	20 Ft
528+00 R	Inlet Protection	10 Ft
528+65 L	Inlet Protection	10 Ft

\*Remove and Reset Wattles as needed.

Install High Flow Silt Fence at the following locations:  
 529+85 R (Skew 37.5 LHF) At Inlet of Pipe 18 Ft  
 Around topsoil stockpiles--quantity and location to be determined

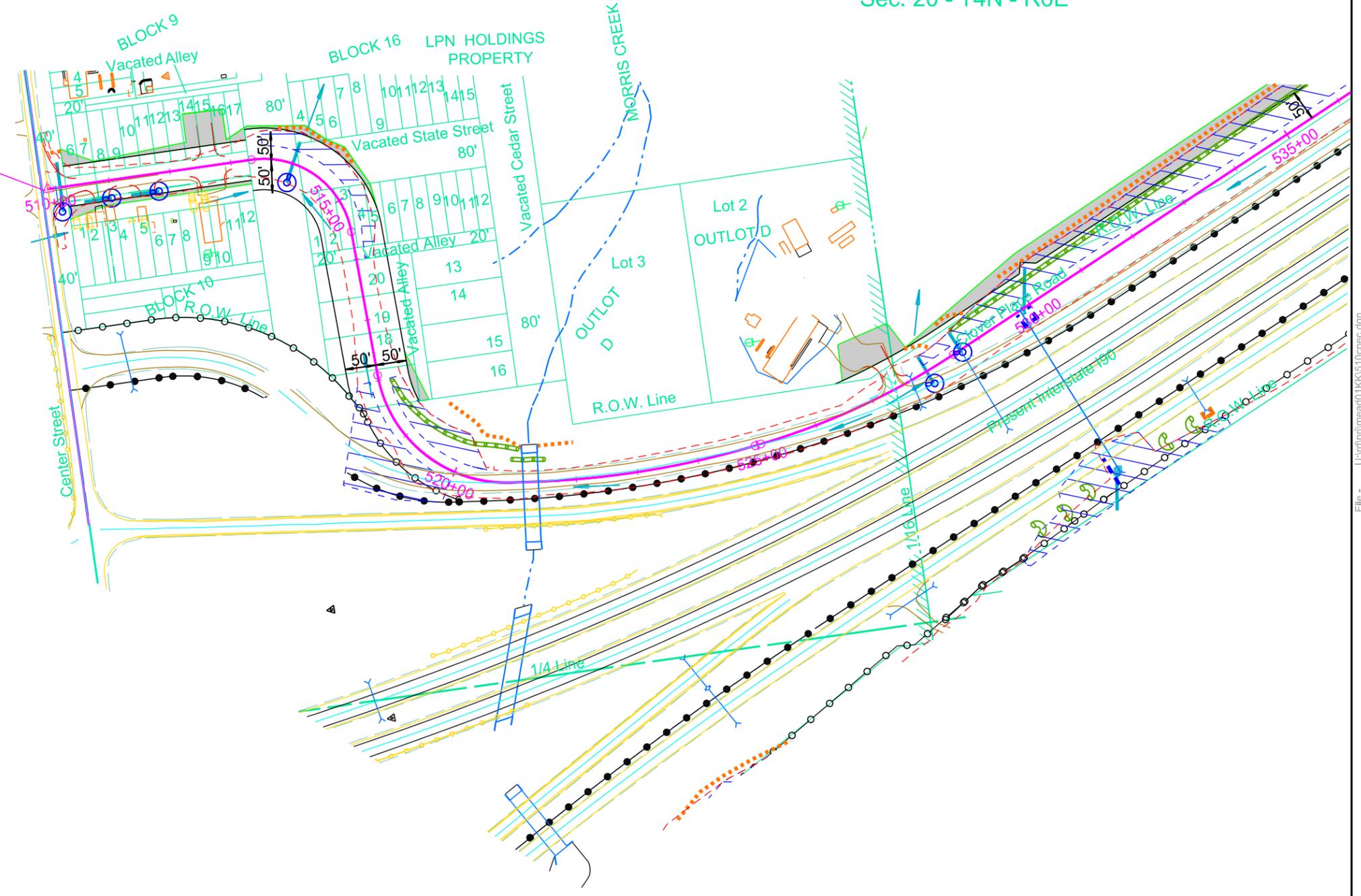
## FINAL PHASE

Install 12" Diameter Erosion Control Wattles at the following locations:  
 518+00 to 521+50 L 18' apart on slope 330 Ft



Sec. 20 - T4N - R6E

Begin IM0901(148)40  
 Station 510+00 (FR10)



Plot Scale - 1:200

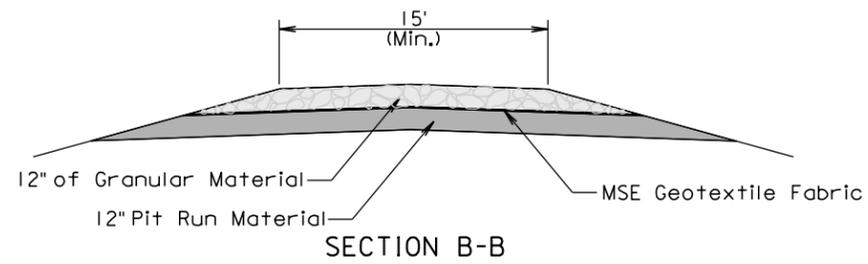
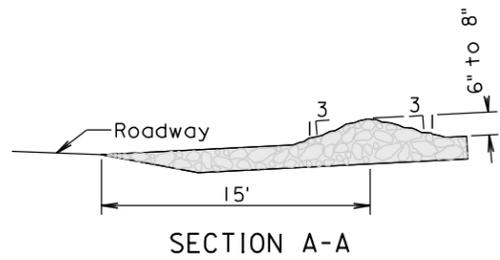
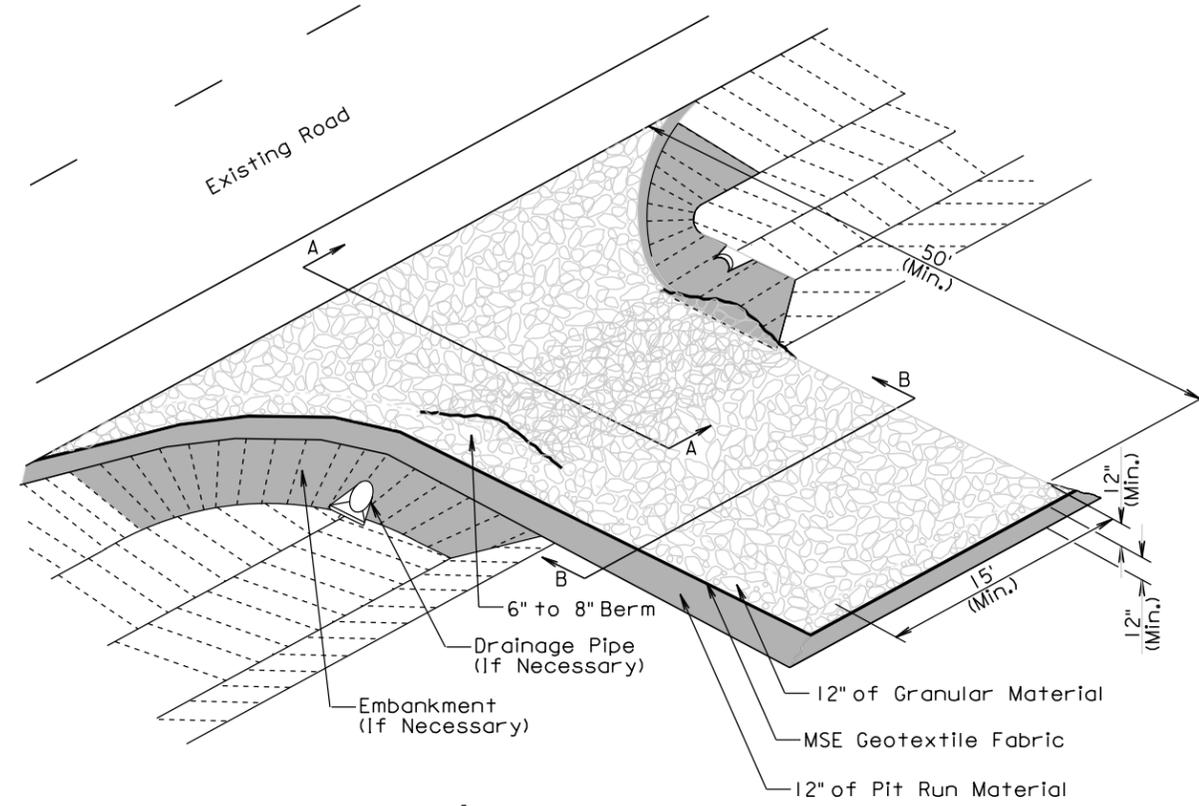
Plotted From - tpr13525

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# CONSTRUCTION ENTRANCE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	D23	D27

Plotting Date: 04/30/2014



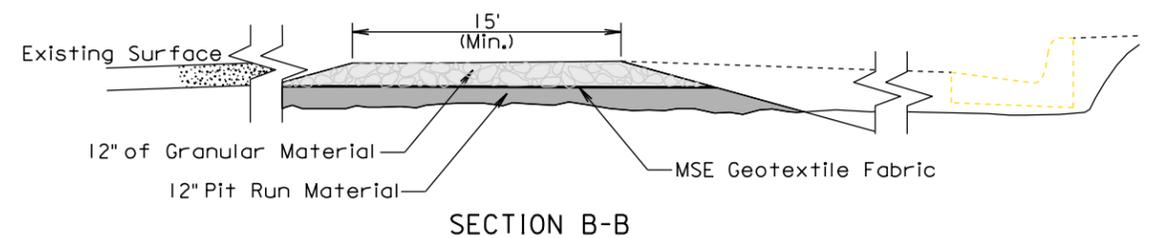
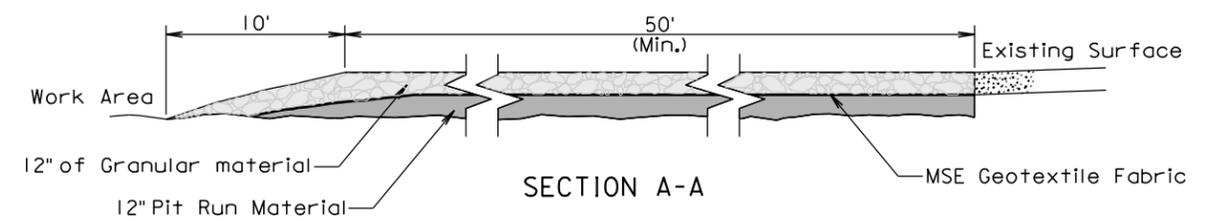
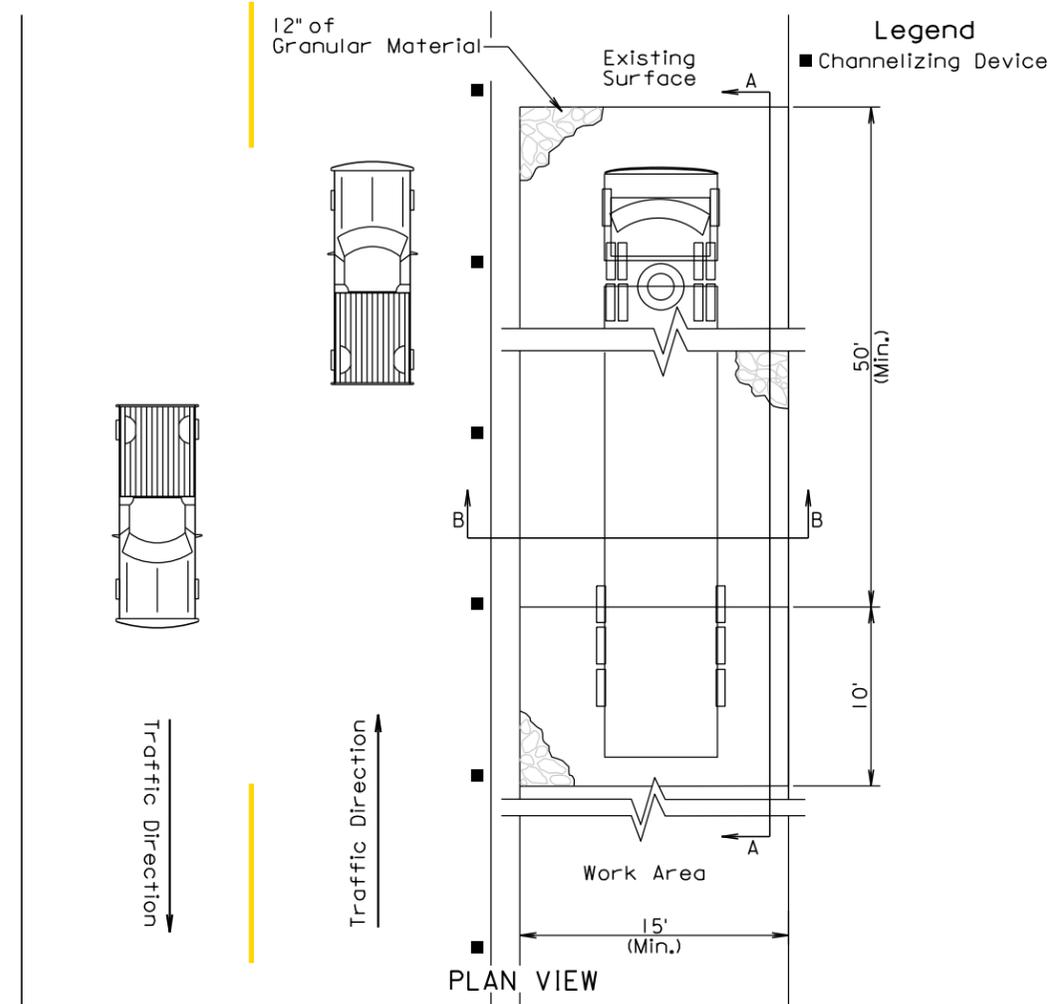
### GENERAL NOTES:

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.

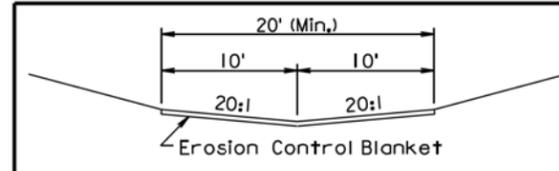
If a drainage pipe is necessary the size and type shall be determined by the Contractor to meet field conditions. All cost shall be incidental to the various bid items.

If embankment is necessary it shall be pit run material.

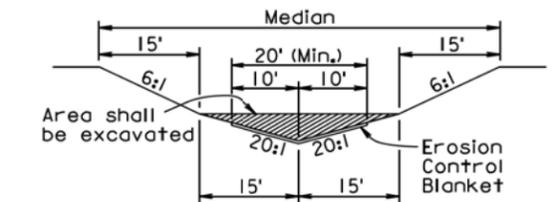
## TRANSVERSE TO ROADWAY



## PARALLEL TO ROADWAY

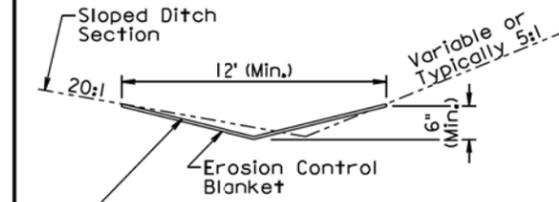


STANDARD DITCH SECTION



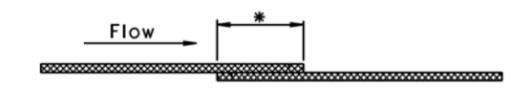
MEDIAN SECTION

The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.



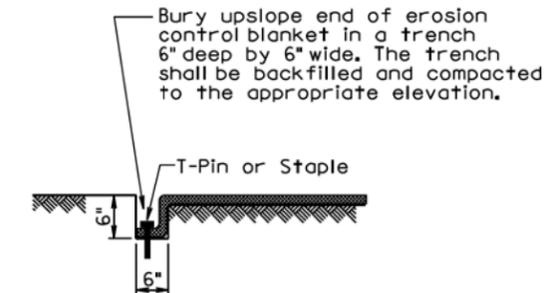
SLOPED DITCH SECTION

This ditch section shall be constructed when installing erosion control blanket.

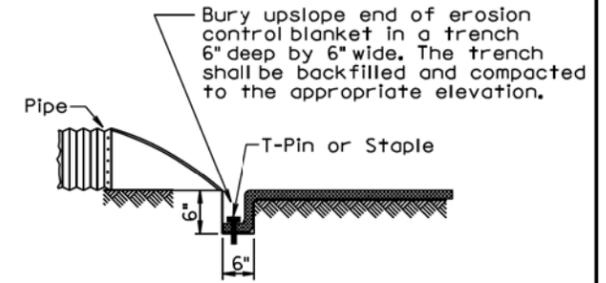


- \* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.
- \* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

**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.

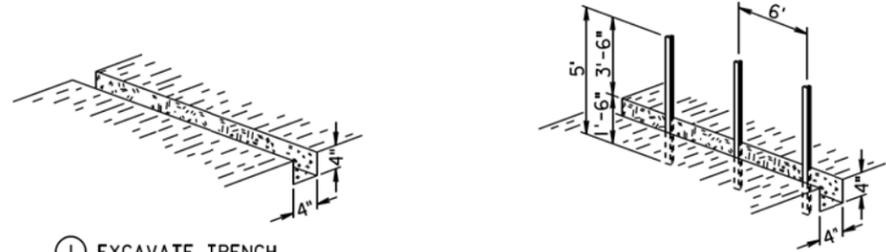
After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

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".

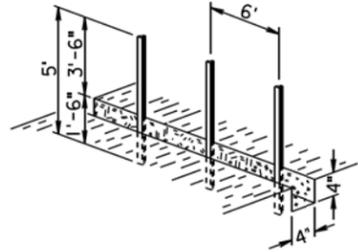
December 23, 2004

Published Date: 2nd Qtr. 2014	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

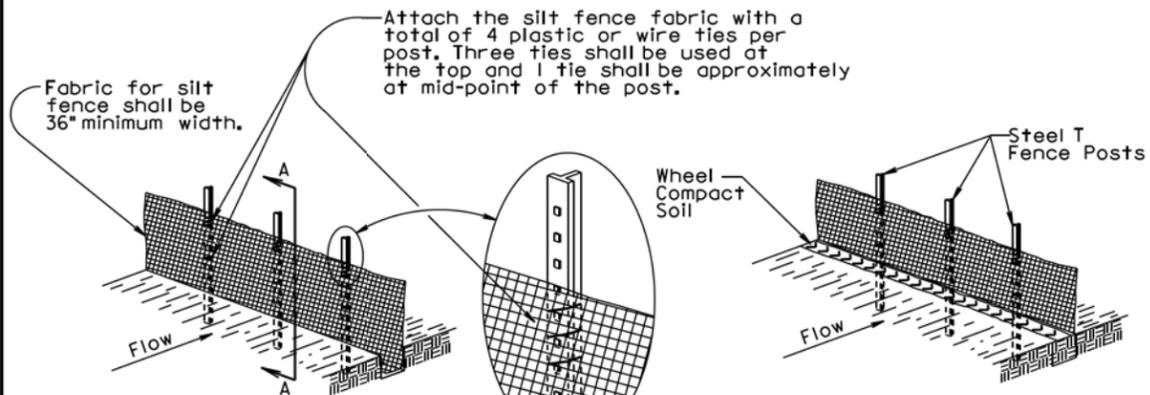
### MANUAL HIGH FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH

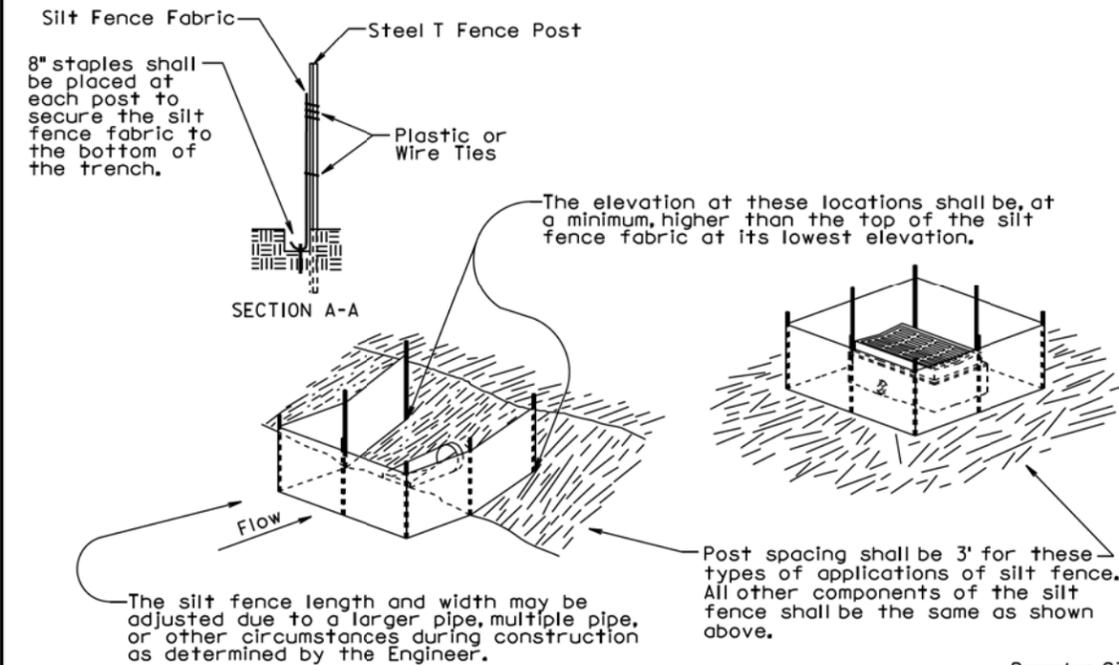


② DRIVE STEEL T FENCE POSTS



③ ATTACH SILT FENCE FABRIC

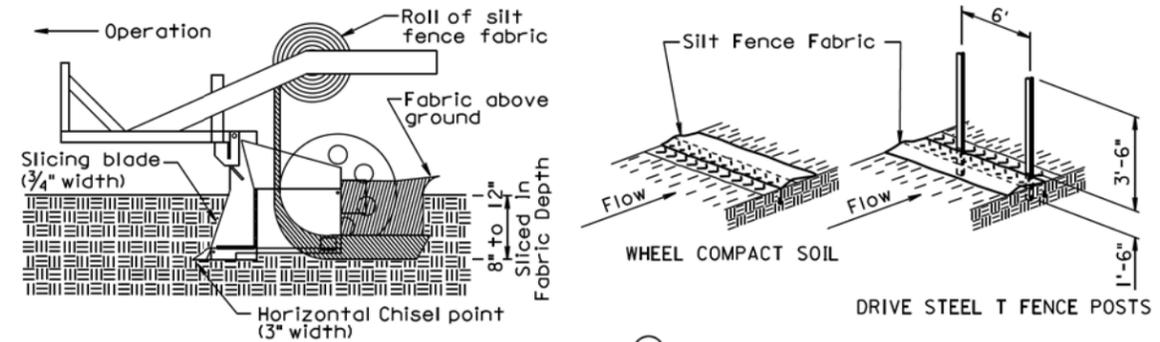
④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



December 23, 2003

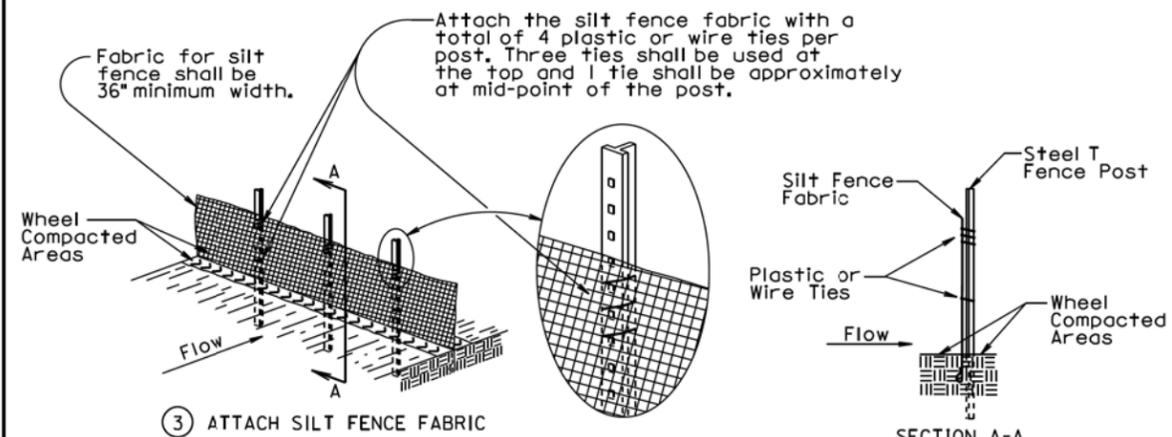
<b>S D D O T</b>	<b>HIGH FLOW SILT FENCE</b>	PLATE NUMBER <b>734.05</b>
	Published Date: 2nd Qtr. 2014	Sheet 1 of 2

### MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

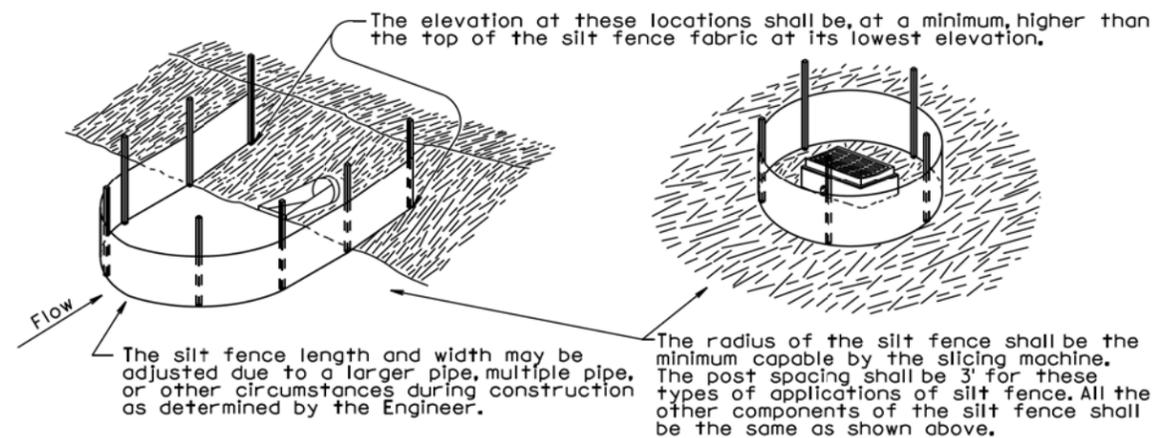


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

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



③ ATTACH SILT FENCE FABRIC

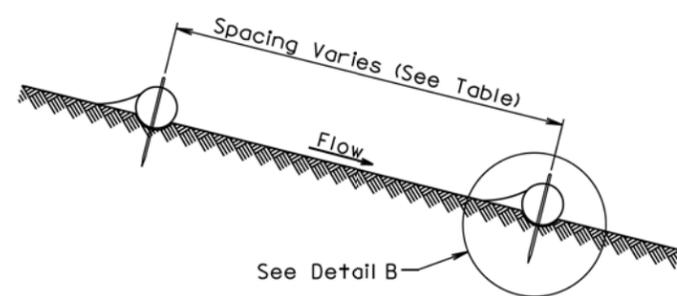


**GENERAL NOTE:**

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.

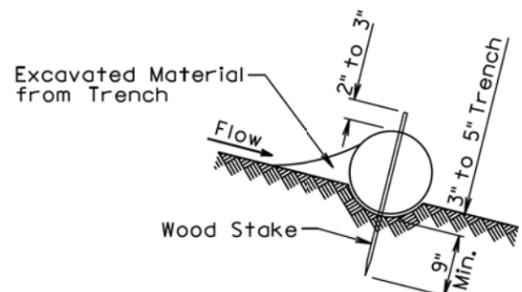
December 23, 2003

<b>S D D O T</b>	<b>HIGH FLOW SILT FENCE</b>	PLATE NUMBER <b>734.05</b>
	Published Date: 2nd Qtr. 2014	Sheet 2 of 2

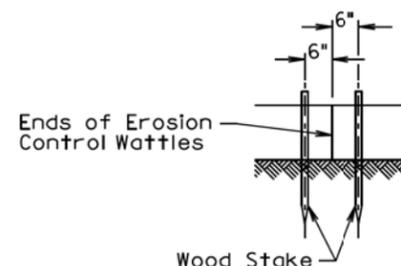


**ELEVATION VIEW  
CUT OR FILL SLOPE INSTALLATION**

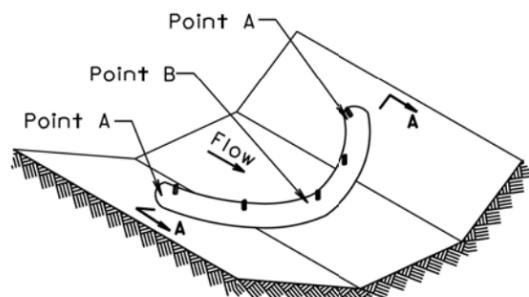
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



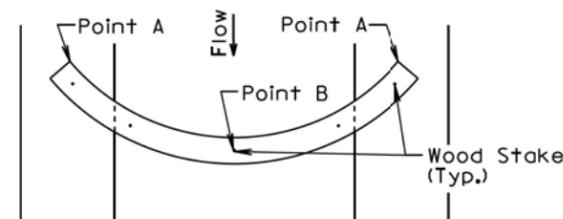
**DETAIL B  
(TYPICAL OF ALL INSTALLATIONS)**



**DETAIL C**

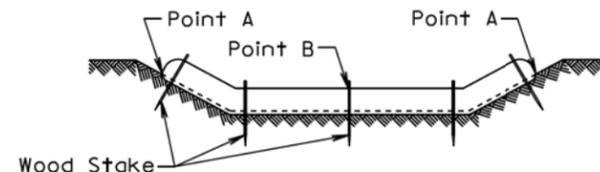


**ISOMETRIC VIEW  
DITCH INSTALLATION**



**PLAN VIEW  
DITCH INSTALLATION**

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



**SECTION A-A**

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: 2nd Qtr. 2014

**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".

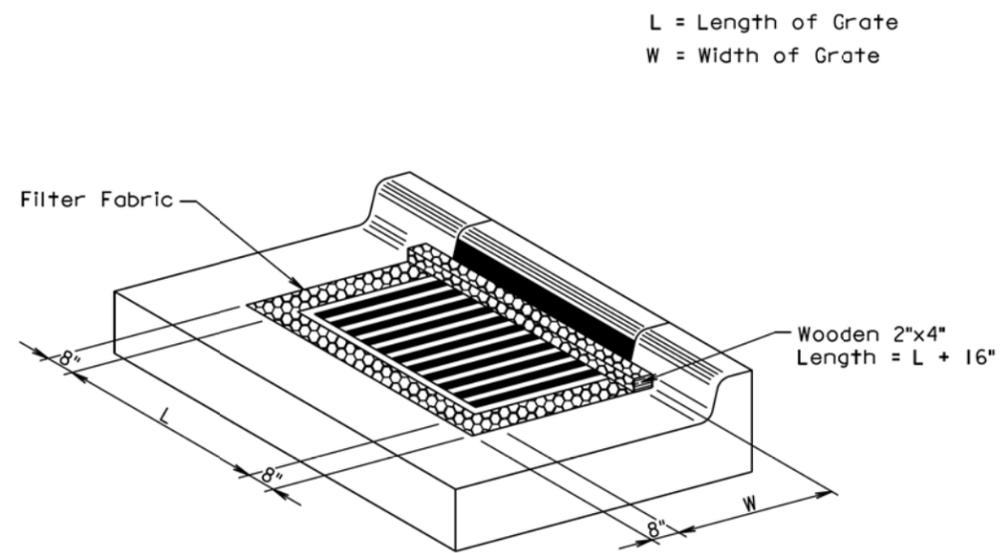
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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: 2nd Qtr. 2014



ISOMETRIC VIEW

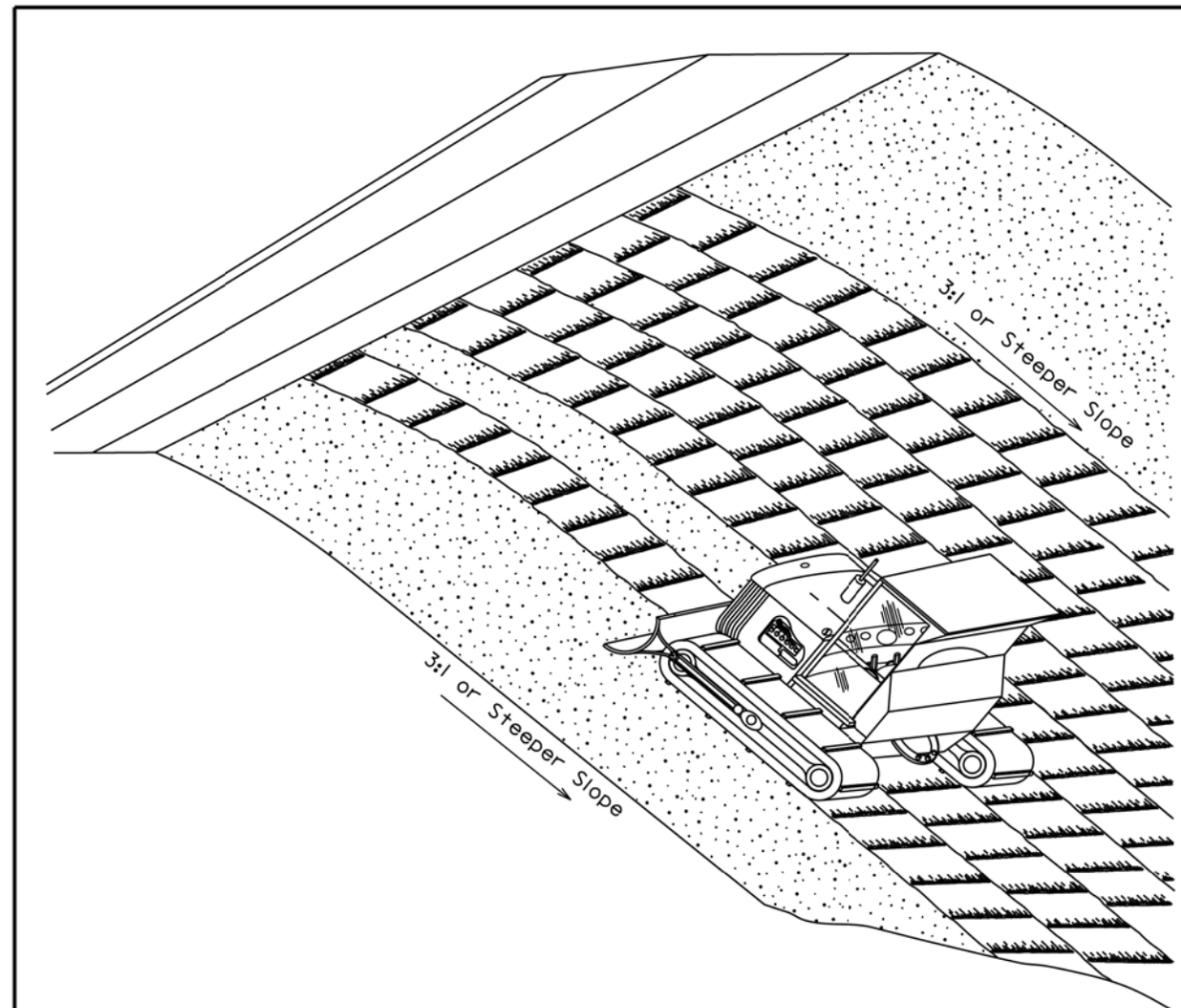
**GENERAL NOTES:**

- The grate and curb and gutter shown are for illustrative purposes only.
- The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.
- The filter fabric shall be the type specified in the plans.
- The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.
- The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.
- The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.
- All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

<b>S D D O T</b>	<b>SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES</b>	PLATE NUMBER 734.10
		Sheet 1 of 1

Published Date: 2nd Qtr. 2014



**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 734.25
		Sheet 1 of 1

Published Date: 2nd Qtr. 2014