SECTION D: EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D1	D26

Plotting Date: 10/27/2014

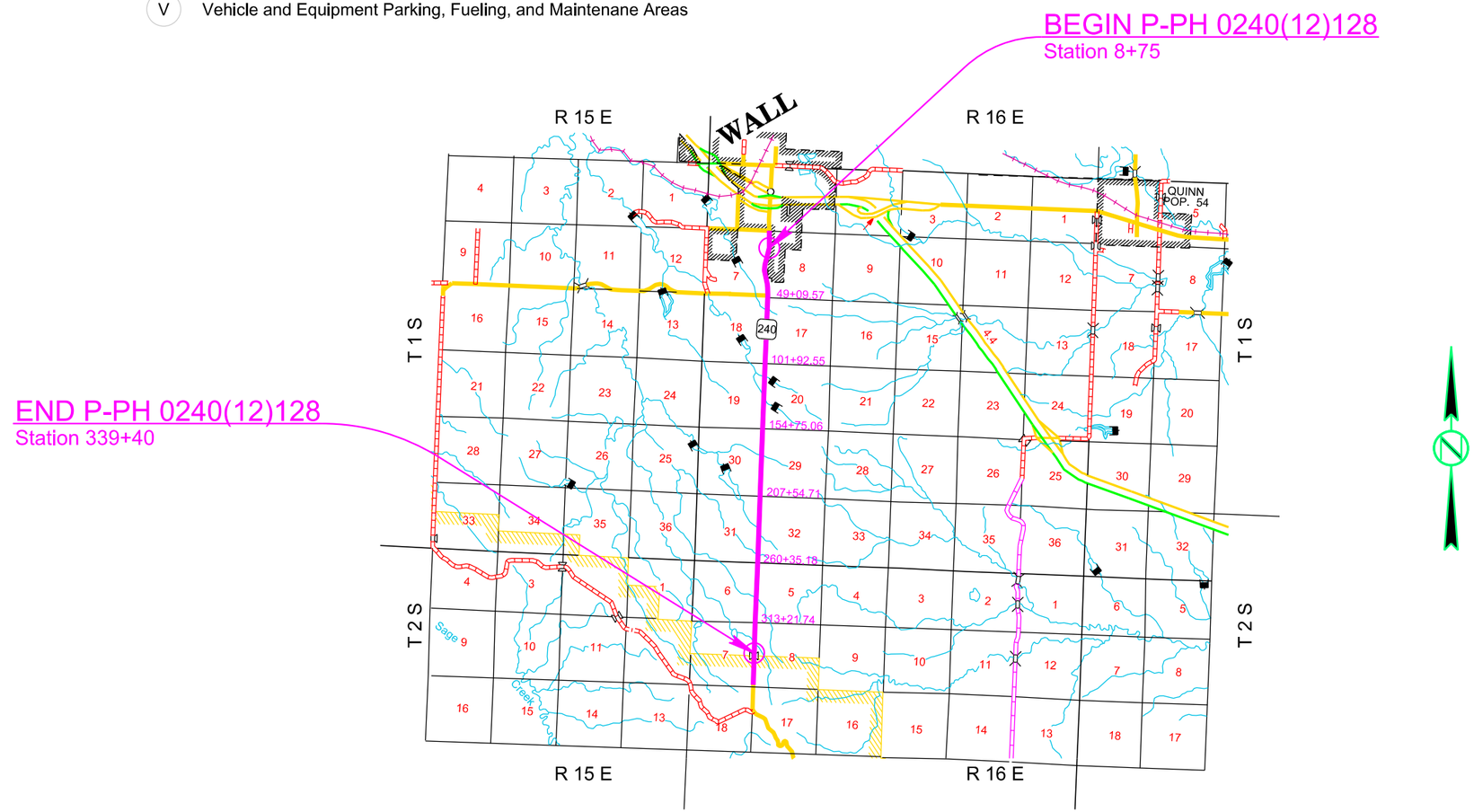
LEGEND

Symbols in the Legend are to be shown in the updated SWPPP on this title sheet and/or in the plan sheets if they are applicable.

- Drainage Arrows
- VB Vegetated Buffer Strips
- CE Stabilized Construction Entrances
- TS Topsoil Stockpiles
- M On-Site Construction Material Storage Areas
- D Dumpster or other Trash and Debris Containers
- V Vehicle and Equipment Parking, Fueling, and Maintenane Areas
- CP Concrete Plant Sites
- CW Concrete Washouts
- AP Asphalt Plant Sites
- WP Work Platfrom
- B Borrow Areas
- SK Spill Kit

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 D26	Standard Plates



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SECTION D ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
110E1693	Remove Erosion Control Wattle	3,823	Ft
110E1700	Remove Silt Fence	1,610	Ft
230E0010	Placing Topsoil	63,702	CuYd
730E0251	Special Permanent Seed Mixture 1	1,960	Lb
731E0200	Fertilizing	98.00	Ton
732E0100	Mulching	196.0	Ton
732E0550	Fiber Reinforced Matrix	1,960	Lb
734E0103	Type 3 Erosion Control Blanket	59,280	SqYd
734E0131	Type 1 Turf Reinforcement Mat	19,685.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	14,000	Ft
734E0160	20" Diameter Erosion Control Wattle	1,290	Ft
734E0165	Remove and Reset Erosion Control Wattle	3,823	Ft
734E0325	Surface Roughening	53.9	Acre
734E0510	Shaping for Erosion Control Blanket	29,630	Ft
734E0604	High Flow Silt Fence	6,425	Ft
734E0610	Mucking Silt Fence	447	CuYd
734E0620	Repair Silt Fence	1,610	Ft
900E1320	Construction Entrance	1	Each

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. The topsoil thickness for waste sites shall be as directed by the Engineer.

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

Station	to	Station	Topsoil (CuYd)
8+75		30+00	2,448
30+00		60+00	3,108
60+00		90+00	4,361
90+00		120+00	6,503
120+00		150+00	6,075
150+00		180+00	6,064
180+00		210+00	4,862
210+00		240+00	4,283
240+00		270+00	3,578
270+00		300+00	4,829
300+00		330+00	4,672
330+00		339+40	435
xr 0+00		xr 2+70	195
		Subtotal:	51,414
		Waste Site #1	1,936
		Waste Site #2	3,227
		Waste Site #3	1,479
		Waste Site #4	1,613
		Waste Site #5	4,033
		Subtotal:	12,288
		Total:	63,702

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to permanent seeding. 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 as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

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 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 http://www.mycorrhizae.com/

PERMANENT SEEDING

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

All permanent seed shall be planted in the topsoil at a depth of ½"-1".

All seed broadcast must be raked or dragged in (incorporated) within the top ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Seed must be a variety as listed below or originate in South Dakota, North Dakota, Nebraska, Wyoming, or Minnesota.

Special Permanent Seed Mixture 1 shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	4
Prairie Sand Reed	Pronghorn, Bowman	3
Blue Grama	Bad River, Willis	2
Little Bluestem	Badlands	1
Regreen or Quickguard Sterile Covercrops		10
	Total:	20

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 ¼" to ½".

FIBER REINFORCED MATRIX

Fiber reinforced matrix shall be applied along the east side of XR23 for interim and final stabilization. Fiber reinforced matrix shall be applied according to manufacturer. Areas designated for fiber reinforced matrix application do not require a grass hay or straw mulch application. Fiber reinforced matrix is effective upon application. The application rate is 4,500 pounds per acre.

All costs for furnishing and applying the fiber reinforced matrix including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per pound for "Fiber Reinforced Matrix".

The fiber reinforced matrix shall be from the list below:

Product	Manufacturer
Flexterra FGM or CocoFlex ET-FGM	Profile Products LLC Buffalo Grove, IL Phone: 1-800-508-8681 www.profileproducts.com
Flex Guard	Mat, Inc. Floodwood, MN Phone: 1-888-477-3028 www.matinc.biz

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TABLE OF SURFACE ROUGHENING

Stationing	Acres
13+00 to 23+00 R	1.47
16+00 to 21+00 L	0.47
29+00 to 35+00 L	0.62
35+50 to 41+50 R	0.73
59+00 to 66+50 L	0.94
59+00 to 68+00 R	1
69+00 to 80+00 L	2.36
69+50 to 72+00 R	0.27
81+00 to 88+50 L	1.47
81+00 to 88+50 R	1.45
89+50 to 93+00 L	0.68
89+50 to 101+00 R	1.8
103+00 to 120+00 L	3.49
103+00 to 114+00 R	2.84
115+00 to 120+00 R	1.13
120+00 to 125+00 L	1.57
120+00 to 124+00 R	0.77
132+75 to 143+50 R	1.11
133+00 to 150+00 L	2.85
148+00 to 150+00 R	0.58
150+00 to 154+00 L	1.17
150+00 to 154+00 R	0.79
155+25 to 158+75 L	0.53
162+00 to 167+00 L	0.91
170+00 to 180+00 L	2.02
173+00 to 180+00 R	1.68
180+00 to 187+00 L	1.29
180+00 to 187+00 R	1.44
196+00 to 203+00 L	1
196+00 to 203+00 R	0.68
208+00 to 218+00 L	1.69
208+00 to 218+00 R	1.14
237+50 to 240+00 R	0.4
240+00 to 246+50 R	0.97
248+50 to 253+00 R	0.71
257+00 to 265+00 R	1.08
280+00 to 287+00 L	1.39
288+00 to 292+50 L	0.47
293+00 to 300+00 R	1.42
300+00 to 313+00 R	3.3
313+75 to 319+75 R	0.62
323+00 to 330+00 L	0.85
323+00 to 330+00 R	0.74
	53.89

SURFACE ROUGHENING

Surface roughening may be done at any time for temporary erosion and sediment control in long or steep ditches or slopes or where a large area is disturbed and highly erodible. Refer to Standard Plate 734.25 for details.

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.

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 until vegetation has been established.

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 12" DIAMETER EROSION CONTROL WATTLE

Stationing	Location	Feet
8+49-78' L	Inlet	20
12+38-51' R	Inlet	20
12+38-77' L	Inlet	20
27+75 L	Ditch	30
28+00 L	Ditch	30
37+00 L	Ditch	30
38+00 L	Ditch	30
39+00 L	Ditch	30
40+00 L	Ditch	30
41+00 L	Ditch	30
42+08-55'L	Inlet	20
47+50 L	Ditch	30
58+00 L	Ditch	30
58+00 R	Ditch	30
63+90 to 65+30 R	Slope	150
67+05-51' L	Inlet	20
73+00 to 77+50 L	Slope	450
86+20 to 90+00 R	Slope	550
91+00 to 95+75 R	Slope	520
93+00 to 96+50 L	Slope	400
103+50 to 106+75 R	Slope	350
105+00 to 110+75 L	Slope	570
112+00 to 116+00 R	Slope	650
113+50 to 116+50 L	Slope	290
118+50 to 122+00 R	Slope	330
119+75 to 124+00 L	Slope	430
123+50 R	Ditch	30
131+00 L	Ditch	30
140+50 to 145+50 L	Slope	580
147+00 L	Ditch	30
148+50 L	Ditch	30
148+00 to 150+00 R	Slope	220
149+50 to 153+50 L	Slope	400
150+00 to 151+50 R	Slope	150
152+00 L	Ditch	30
152+00 R	Ditch	30
153+50 L	Ditch	30
153+50 R	Ditch	30
157+40 to 160+70 R	Slope	350
157+55 to 160+80 L	Slope	350
164+50 L	Ditch	30
166+00 L	Ditch	30
166+00 R	Ditch	30
167+00 R	Ditch	30
189+00 R	Ditch	30
189+50 L	Ditch	30
190+50 L	Ditch	30
191+00 R	Ditch	30
200+00 L	Ditch	30
200+00 R	Ditch	30
202+00 L	Ditch	30
204+00 L	Ditch	30
204+00 R	Ditch	30
205+00 L	Ditch	30
221+00 L	Ditch	30
222+00 L	Ditch	30
222+50 L	Ditch	30
223+50 L	Ditch	30
224+00 L	Ditch	30
225+00 R	Ditch	30
228+00 L	Ditch	30
228+50 R	Ditch	30

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TABLE OF 12" DIAMETER EROSION CONTROL WATTLES cont.

Stationing	Location	Feet
229+50 R	Ditch	30
230+00 R	Ditch	30
230+50 L	Ditch	30
231+00 R	Ditch	30
231+50 R	Ditch	30
232+50 L	Ditch	30
232+50 R	Ditch	30
233+00 R	Ditch	30
234+00 L	Ditch	30
234+50 R	Ditch	30
235+50 R	Ditch	30
236+00 R	Ditch	30
239+50 L	Ditch	30
240+50 L	Ditch	30
242+75 L	Ditch	30
243+25 L	Ditch	30
247+50 L	Ditch	30
248+00 L	Ditch	30
249+50 L	Ditch	30
249+00 L	Ditch	30
250+50 L	Ditch	30
251+00 L	Ditch	30
253+50 L	Ditch	30
254+50 L	Ditch	30
255+50 L	Ditch	30
256+50 L	Ditch	30
257+50 L	Ditch	30
259+50 L	Ditch	30
264+00 L	Ditch	30
264+50 L	Ditch	30
268+00 R	Ditch	30
269+00 R	Ditch	30
269+50 R	Ditch	30
270+50 R	Ditch	30
271+00 R	Ditch	30
273+50 R	Ditch	30
274+00 R	Ditch	30
276+00 R	Ditch	30
277+00 R	Ditch	30
278+00 R	Ditch	30
280+00 to 284+50 R	Slope	450
282+00 to 287+00 L	Slope	500
285+00 R	Ditch	30
286+00 R	Ditch	30
287+00 R	Ditch	30
288+00 R	Ditch	30
294+00 R	Ditch	30
294+50 L	Ditch	30
293+50 L	Ditch	30
308+00 to 312+35 R	Slope	430
316+00 L	Ditch	30
317+00 L	Ditch	30
318+00 L	Ditch	30
319+00 L	Ditch	30
321+00 L	Ditch	30
321+50 L	Ditch	30
322+50 L	Ditch	30
330+00 R	Ditch	30
331+00 L	Ditch	30
331+00 R	Ditch	30
332+00 L	Ditch	30
332+00 R	Ditch	30
333+00 L	Ditch	30
333+00 R	Ditch	30
	Additional Quantity	2,750
Total12" Diameter Erosion Control Wattles:		14,000

TABLE OF 20" DIAMETER EROSION CONTROL WATTLES

Stationing	Location	Feet
9+00 R	Inlet end of pipe	20
10+06-60' L	Inlet end of pipe	20
35+00 L	Inlet end of pipe	20
48+34 L	Inlet end of pipe	20
58+93 L	Inlet end of pipe	20
68+58 L	Inlet end of pipe	20
80+48 L	Inlet end of pipe	20
88+99 R	Inlet end of pipe	20
93+87 L	Inlet end of pipe	100
101+93-51' L	Inlet end of pipe	20
101+93-51' R	Inlet end of pipe	20
114+90 L	Inlet end of pipe	60
125+18 L	Inlet end of pipe	20
127+50-59' L	Inlet end of pipe	20
129+37	Inlet end of pipe	60
132+36 R	Inlet end of pipe	20
146+24 L	Inlet end of pipe	30
147+75-54' R	Inlet end of pipe	20
154+75-51' L	Inlet end of pipe	20
154+75-51' R	Inlet end of pipe	20
158+95 L	Inlet end of pipe	100
167+84 L	Inlet end of pipe	30
177+22 L	Inlet end of pipe	100
190+41-51'R	Inlet end of pipe	20
194+04 L	Inlet end of pipe	20
203+38 L	Inlet end of pipe	20
219+99 L	Inlet end of pipe	30
226+29 L	Inlet end of pipe	30
227+30-51' R	Inlet end of pipe	20
236+82 L	Inlet end of pipe	30
260+04 L	Inlet end of pipe	20
266+03 R	Inlet end of pipe	20
275+22 R	Inlet end of pipe	20
278+88-51' R	Inlet end of pipe	20
288+02 L	Inlet end of pipe	20
292+66 L	Inlet end of pipe	60
303+99 R	Inlet end of pipe	20
313+68 L	Inlet end of pipe	20
319+98 L	Inlet end of pipe	20
330+23 L	Inlet end of pipe	100
Total 20" Diameter Erosion Control Wattles:		1,290

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".

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.

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.

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TABLE OF HIGH FLOW SILT FENCE

Stationing	Location	Feet
34+00 to 35+75 R	Perimeter Protection	175
46+00 to 48+50 R	Perimeter Protection	250
59+80 to 60+00 R	Perimeter Protection	120
63+00 to 64+50 R	Perimeter Protection	150
68+10 to 69+50 R	Perimeter Protection	140
78+80 to 81+00 R	Perimeter Protection	220
86+00 R	Perimeter Protection	60
93+50 to 94+57 R	Perimeter Protection	180
111+13 to 111+35 L	Perimeter Protection	35
113+35 to 114+73 R	Perimeter Protection	140
123+95 to 124+60 R	Perimeter Protection	80
124+90 to 125+80 R	Perimeter Protection	100
127+50 to 128+90 R	Perimeter Protection	150
132+00 to 134+70 L	Perimeter Protection	280
143+10 to 144+20 R	Perimeter Protection	110
158+30 to 159+60 R	Perimeter Protection	185
167+25 to 168+25 R	Perimeter Protection	100
176+80 to 177+25 R	Perimeter Protection	50
194+50 to 195+65 R	Perimeter Protection	115
202+30 to 204+00 R	Perimeter Protection	200
216+00	Box Culvert	300
219+50 to 221+50 R	Perimeter Protection	200
225+30 to 226+50 R	Perimeter Protection	120
236+25 to 238+25 L	Perimeter Protection	200
236+25 to 237+75 R	Perimeter Protection	150
257+70 to 259+90 R	Perimeter Protection	230
259+90 to 260+90 L	Perimeter Protection	100
265+50 to 266+70 L	Perimeter Protection	100
274+80 to 275+50 L	Perimeter Protection	80
291+70 to 293+50 R	Perimeter Protection	180
303+50 to 304+50 L	Perimeter Protection	100
313+35 to 314+50 L	Perimeter Protection	115
319+75 to 322+50 R	Perimeter Protection	275
328+10 to 329+65 R	Perimeter Protection	160
	Additional Quantity	1,275
		6,425

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 24 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 TYPE 3 EROSION CONTROL BLANKET

Stationing in Ditch Bottom	Shaping (Feet)	Quantity (SqYd)
10+54 to 12+24 L	175	470
12+65 to 21+00 L	860	2,300
12+73 to 23+00 R	1,070	2,860
29+00 to 35+00 L	620	1,660
35+50 to 41+50 R	620	1,660
55+00 to 60+00 R	520	1,390
57+00 to 60+00 L	310	830
60+00 to 66+65 L	675	1,800
60+00 to 63+20 R	330	880
65+00 to 68+00 R	310	830
67+40 to 74+50 L	720	1,920
69+50 to 72+00 R	260	700
102+28 to 105+88 L	370	990
102+28 to 105+88 R	370	990
123+00 to 127+00 L	425	1,140
128+26 to 129+00 L	80	220
132+75 to 143+50 R	1,115	2,980
134+20 to 146+00 L	1,230	3,280
144+40 to 147+16 R	280	750
180+00 to 186+00 L	590	1,580
180+00 to 186+00 R	600	1,600
208+00 to 218+00 L	1,040	2,780
208+00 to 218+00 R	1,040	2,780
236+40 to 240+00 R	270	720
240+00 to 246+50 R	675	720
248+50 to 253+00 R	465	1,800
253+00 to 260+20 L	745	1,240
275+00 to 278+45 R	355	1,990
285+00 to 293+80 L	810	2,160
285+00 to 288+40 R	350	940
294+00 to 300+00 R	625	1,670
300+00 to 313+00 R	1,340	3,580
313+60 to 320+10 R	670	1,790
316+00 to 319+75 L	385	1,030
323+00 to 330+00 L	725	1,940
323+00 to 329+50 R	570	1,520
330+00 to 333+00 L	310	830
330+00 to 333+50 R	360	960
	22,265	59,280

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 and turf reinforcement mat 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 24 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

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

TABLE OF TYPE 1 TURF REINFORCEMENT MAT

Stationing	Shaping (Feet)	Quantity (SqYd)
25+00 to 27+50 L	260	700
80+00 to 86+00 R	980	2,620
80+50 to 90+00 L	635	1,700
90+00 to 94+00 L	405	1,080
94+00 to 101+85 R	760	2,030
109+00 to 119+00 R	1,080	2,880
110+00 to 119+00 L	970	2,590
155+22 to 158+75 L	370	990
166+85 to 167+50 R	65	175
174+00 to 180+00 L	665	1,780
174+00 to 180+00 R	660	1,760
260+00 to 265+00 R	515	1,380
	7,365	19,685

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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:

Product	Manufacturer
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

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:

Sieve Size	Percent Passing
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:

Sieve Size	Percent Passing
3"	100%
2 ½"	90-100%
1 ½"	25-60%
¾"	0-10%
½"	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** 158 Acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 115 Acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)**
- **Soil Properties:** Clay Loam, Silty Clay Loam, Weathered Bedrock
- **Receiving Water Bodies** Cottonwood Creek and Bull Creek

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

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

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

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

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - ☐ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding with cover crop
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☒ Mulching (Grass Hay or Straw)
  - ☐ Hydraulic Mulch (Wood Fiber Mulch)
  - ☒ Fiber Reinforced Matrix
  - ☐ Bonded Fiber Matrix
  - ☒ Erosion Control Blankets or Mats
  - ☒ Vegetation Buffer Strips
  - ☒ Roughened Surface (e.g. tracking)
  - ☐ Dust Control
  - ☐ Other:
- **Structural Temporary Erosion and Sediment Controls**
  - ☒ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☒ Straw Wattles or Rolls
  - ☒ Turf Reinforcement Mat
  - ☐ Rip Rap
  - ☒ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☒ Inlet Protection
  - ☐ Outlet Protection
  - ☐ Surface Inlet Protection (Area Drain)
  - ☐ Curb Inlet Protection
  - ☒ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☐ Concrete Washout Area
  - ☐ Temporary Diversion Channel
  - ☐ Work Platform
  - ☐ Temporary Water Barrier
  - ☐ Temporary Water Crossing
  - ☐ Other:
- **Wetland Avoidance**

  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.
- **Storm Water Management (4.2 2.b., (1) and (2))**

  Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**

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

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

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

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

- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^{1}/_{3}$ 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 ½ 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, de-greasing 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.

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EROSION AND SEDIMENT CONTROL LEGEND

SYMBOLOGY 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
- INTERMEDIATE PHASE--SOIL STABILIZER, FINAL PHASE--FIBER REINFORCED MATRIX
- ROCK CHECK DAM
- VEGETATED BUFFER STRIP
- 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
- SYNTHETIC CHANNEL PROTECTION
- 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.

- TS — TOPSOIL STOCKPILES
- B — BORROW AREAS
- CE — STABILIZED CONSTRUCTION ENTRANCES
- VB — VEGETATED BUFFER STRIPS
- 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
- M — ON-SITE CONSTRUCTION MATERIAL STORAGE AREAS
- SK — SPILL KIT
- WP — WORK PLATFORM

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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EROSION AND SEDIMENT CONTROL PLAN

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom and around retained pipes for perimeter protection at the following locations:
8+49-78' L 20 Ft
12+38-77' L 20 Ft
27+75 L 30 Ft
28+00 L 30 Ft

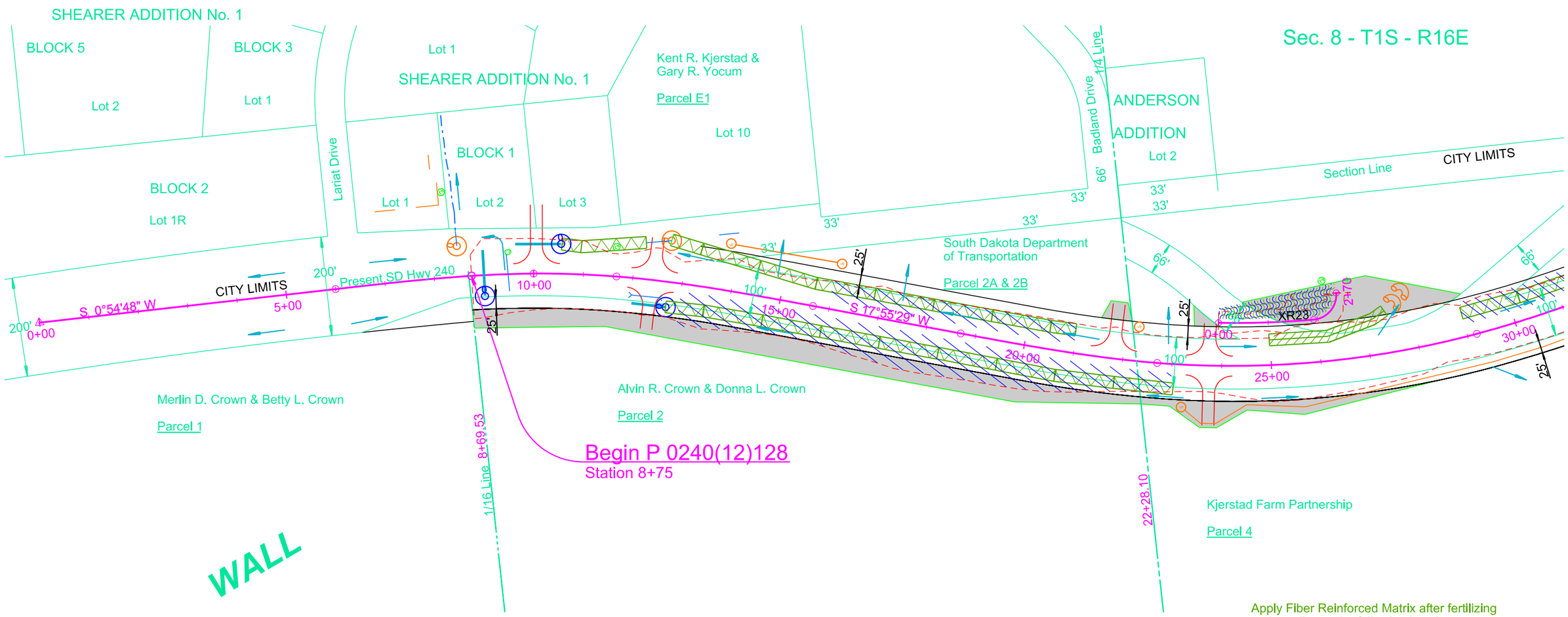
Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install 20" Diameter Erosion Control Wattles at the following locations:
9+00 R Inlet end of pipe 20 Ft
10+06-60' L Inlet end of pipe 20 Ft

Install 12" Diameter Erosion Control Wattles around the pipe inlet at the following location:
12+38-51' R 20 Ft

Apply Fiber Reinforced Matrix during active construction for temporary erosion control at the following locations:
XR 23 L 980 Lbs

Utilize Surface Roughening at the following locations:
13+00 to 23+00 R Inslope/Backslope/Ditch 63,931 SqFt 1.47 Acres
16+00 to 21+00 L Inslope/Ditch 20,413 SqFt 0.47 Acres



Apply Fiber Reinforced Matrix after fertilizing and seeding at the following locations:
XR 23 L 980 Lbs

Install Type 3 Erosion Control Blanket in the highway ditch channel bottom 24' wide at the following locations:
10+54 to 12+24 L 175 Ft Shaping 470 SqYd
12+65 to 21+00 L 860 Ft Shaping 2,300 SqYd
12+73 to 23+00 R 1070 Ft Shaping 2,860 SqYd

Apply Fiber Reinforced Matrix at the following locations instead of Grass Hay/Straw Mulch for Final Stabilization:
XR 23 L 9,493 SqFt

Install Turf Reinforcement Mat in the highway ditch channel bottom 24' wide at the following locations:
25+00 to 27+50 L 260 Ft Shaping 700 SqYd

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EROSION AND SEDIMENT CONTROL PLAN

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom and around retained inlets for perimeter control at the following locations:
37+00 L 30 Ft
38+00 L 30 Ft
39+00 L 30 Ft
40+00 L 30 Ft
41+00 L 30 Ft
42+08-55' L 20 Ft

Install High Flow Silt Fence at the following locations:
34+00 to 35+75 R 175 Ft
46+00 to 48+50 R 250 Ft
59+80 to 60+00 R 120 Ft

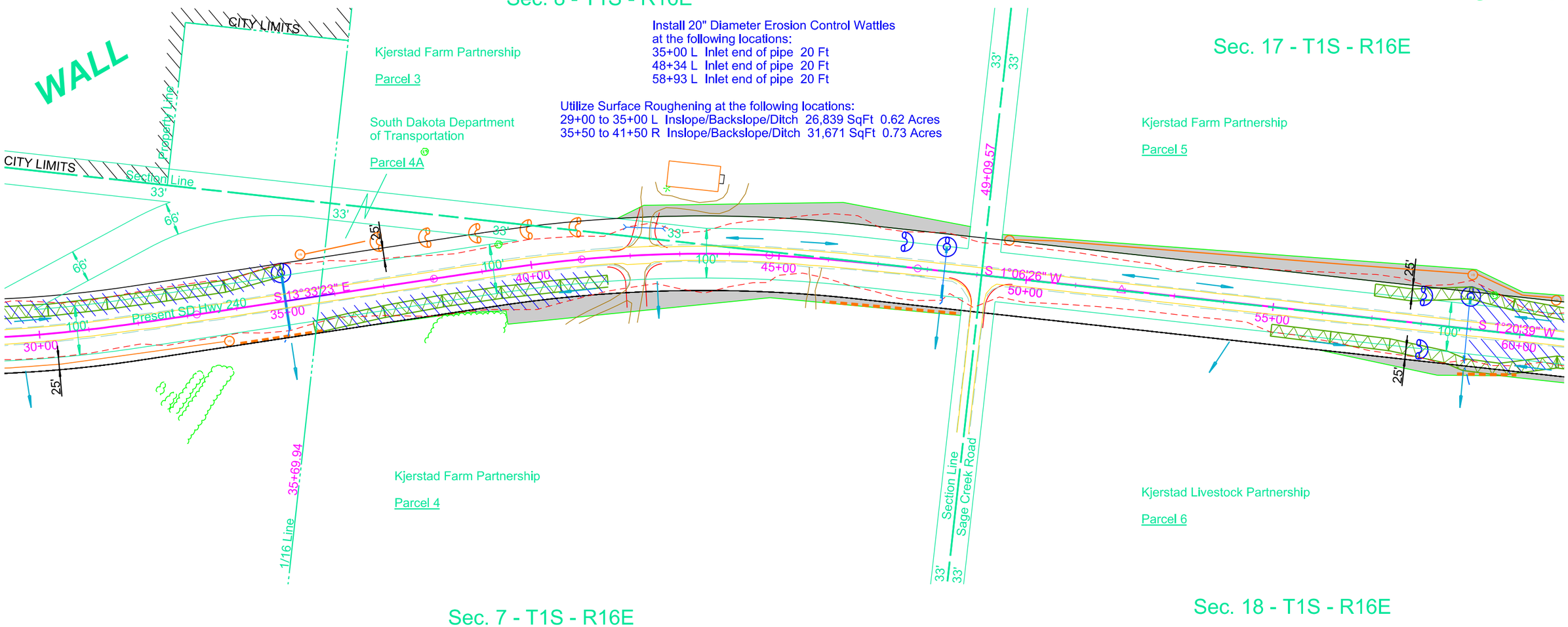
Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
47+50 L 30 Ft
58+00 L 30 Ft
58+00 R 30 Ft

Install Type 3 Erosion Control Blanket 24' wide in the highway ditch channel bottom at the following locations:
29+00 to 35+00 L 620 Ft Shaping 1,660 SqYd
35+50 to 41+50 R 620 Ft Shaping 1,660 SqYd
55+00 to 60+00 R 520 Ft Shaping 1,390 SqYd
57+00 to 60+00 L 310 Ft Shaping 830 SqYd

Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install 20" Diameter Erosion Control Wattles at the following locations:
35+00 L Inlet end of pipe 20 Ft
48+34 L Inlet end of pipe 20 Ft
58+93 L Inlet end of pipe 20 Ft

Utilize Surface Roughening at the following locations:
29+00 to 35+00 L Inslope/Backslope/Ditch 26,839 SqFt 0.62 Acres
35+50 to 41+50 R Inslope/Backslope/Ditch 31,671 SqFt 0.73 Acres



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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EROSION AND SEDIMENT CONTROL PLAN

Install High Flow Silt Fence
for perimeter control
at the following locations:
63+00 to 64+50 R 150 Ft
68+10 to 69+50 R 140 Ft
78+80 to 81+00 R 220 Ft
86+00 R 60 Ft

Leave vegetated buffer strips for sediment capture
and erosion control at the locations shown.

Install 20" Erosion Control Wattles
at the following locations:
68+58 L Inlet end of pipe 20 Ft
80+48 L Inlet end of pipe 20 Ft
88+99 R Inlet end of pipe 20 Ft

Install 12" Diameter Erosion Control Wattles
around the pipe inlet at the following location:
67+05-51' L 20 Ft

Utilize Surface Roughening at the following locations:

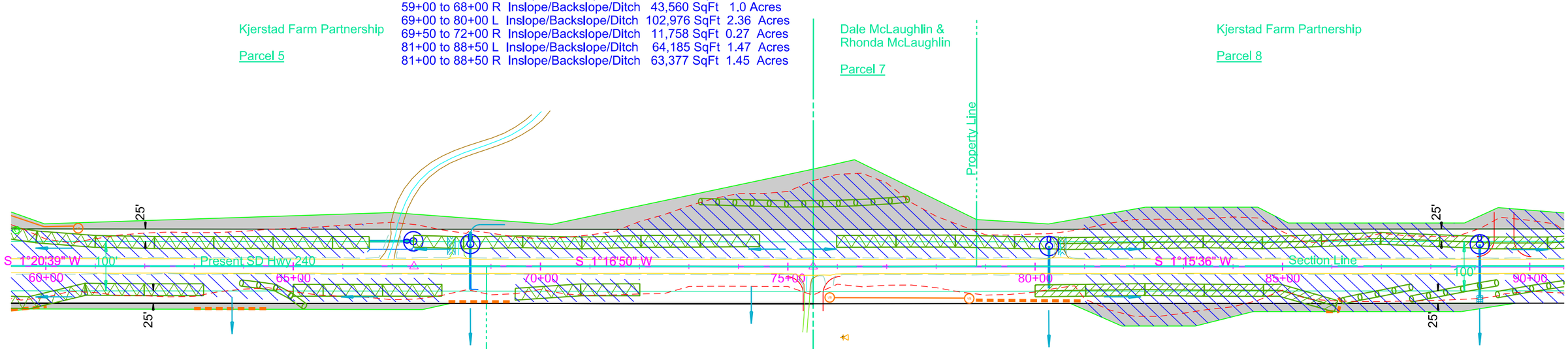
59+00 to 66+50 L	Inslope/Backslope/Ditch	40,719 SqFt	0.94 Acres
59+00 to 68+00 R	Inslope/Backslope/Ditch	43,560 SqFt	1.0 Acres
69+00 to 80+00 L	Inslope/Backslope/Ditch	102,976 SqFt	2.36 Acres
69+50 to 72+00 R	Inslope/Backslope/Ditch	11,758 SqFt	0.27 Acres
81+00 to 88+50 L	Inslope/Backslope/Ditch	64,185 SqFt	1.47 Acres
81+00 to 88+50 R	Inslope/Backslope/Ditch	63,377 SqFt	1.45 Acres

Sec. 17 - T1S - R16E

Kjerstad Farm Partnership
Parcel 5

Dale McLaughlin &
Rhonda McLaughlin
Parcel 7

Kjerstad Farm Partnership
Parcel 8



Kjerstad Livestock Partnership
Parcel 6

1/64 Line

Travis L. Frink & Amanda L. Frink
Parcel 6A

1/4 Line

U.S. Department of Agriculture-Forest Service
Parcel 9

Sec. 18 - T1S - R16E

Install Turf Reinforcement Mat in
the highway ditch channel bottom
at the following locations:
80+00 to 86+00 R 980 Ft Shaping 2,620 SqYd
80+50 to 90+00 L 635 Ft Shaping 1,700 SqYd

Install Type 3 Erosion Control Blanket
in the highway ditch channel bottom
at the following locations:

60+00 to 66+65 L	675 Ft Shaping	1,800 SqYd
60+00 to 63+20 R	330 Ft Shaping	880 SqYd
65+00 to 68+00 R	310 Ft Shaping	830 SqYd
67+40 to 74+50 L	720 Ft Shaping	1,920 SqYd
69+50 to 72+00 R	260 Ft Shaping	700 SqYd
76+00 to 80+50 L	470 Ft Shaping	1,260 SqYd

Install 12" Diameter Erosion Control Wattles
on slope contour at the following locations:
63+90 to 65+30 R 150 Ft
73+00 to 77+50 L 450 Ft
86+20 to 90+00 R 550 Ft

Plot Scale - 1:200
Plotted From - trgt13525
File - U:\rdprj\penn\038D\060ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D14	D26

Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install High Flow Silt Fence for Perimeter Protection at the following locations:
93+50 to 94+57 R 180 Ft
111+13 to 111+35 L 35 Ft
113+35 to 114+73 R 140 Ft

Install 20" Diameter Erosion Control Wattles at the following locations:
93+87 L Inlet End of Pipe 100 Ft
101+93-51' L Inlet End of Pipe 20 Ft
101+93-51' R Inlet End of Pipe 20 Ft
114+90 L Inlet End of Pipe 60 Ft

Utilize Surface Roughening at the following locations:
89+50 to 93+00 L Inslope/Backslope/Ditch 29,728 SqFt 0.68 Acres
89+50 to 101+00 R Inslope/Backslope/Ditch 78,512 SqFt 1.80 Acres
103+00 to 120+00 L Inslope/Backslope/Ditch 152,063 SqFt 3.49 Acres
103+00 to 114+00 R Inslope/Backslope/Ditch 123,856 SqFt 2.84 Acres
115+00 to 120+00 R Inslope/Backslope/Ditch 49,235 SqFt 1.13 Acres

Sec. 17 - T1S - R16E

Kjerstad Farm Partnership

Parcel 8

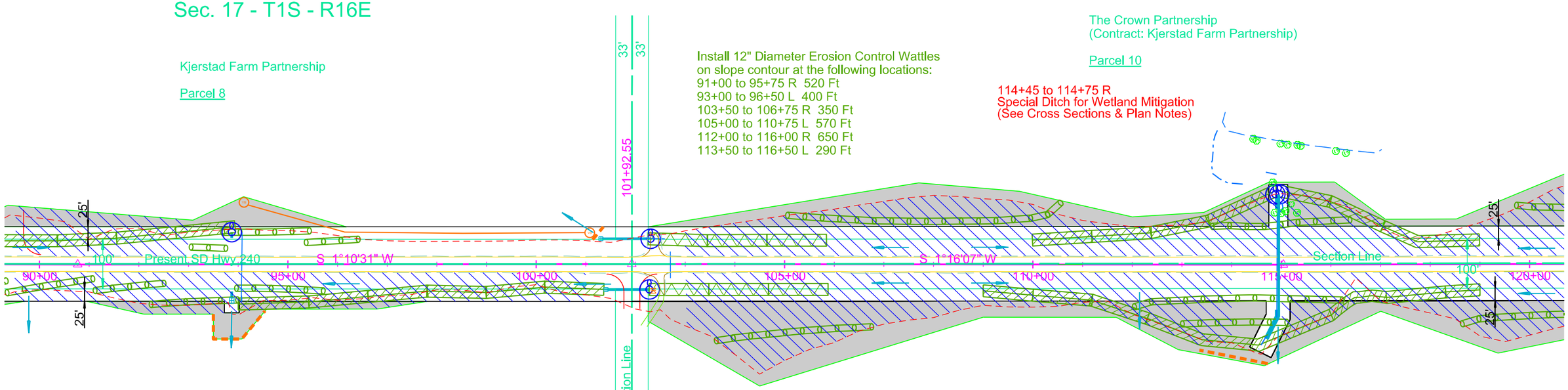
Install 12" Diameter Erosion Control Wattles on slope contour at the following locations:
91+00 to 95+75 R 520 Ft
93+00 to 96+50 L 400 Ft
103+50 to 106+75 R 350 Ft
105+00 to 110+75 L 570 Ft
112+00 to 116+00 R 650 Ft
113+50 to 116+50 L 290 Ft

Sec. 20 - T1S - R16E

The Crown Partnership
(Contract: Kjerstad Farm Partnership)

Parcel 10

114+45 to 114+75 R
Special Ditch for Wetland Mitigation
(See Cross Sections & Plan Notes)



93+80 to 94+10 R
Special Ditch for Wetland Mitigation
(See Cross Section & Plan Notes)

Install Type 3 Erosion Control Blanket in the highway ditch channel bottom 24' wide at the following locations:
102+28 to 105+88 L 370 Ft Shaping 990 SqYd
102+28 to 105+88 R 370 Ft Shaping 990 SqYd

U.S. Department of Agriculture-Forest Service

Parcel 9

U.S. Department of Agriculture-Forest Service

Parcel 11

Install Turf Reinforcement Mat in the highway ditch channel bottom at the following locations:
90+00 to 94+00 L 405 Ft Shaping 1,080 SqYd
94+00 to 101+85 R 760 Ft Shaping 2,030 SqYd
109+00 to 119+00 R 1,080 Ft Shaping 2,880 SqYd
110+00 to 119+00 L 970 Ft Shaping 2,590 SqYd

Sec. 18 - T1S - R16E

Sec. 19 - T1S - R16E

Plot Scale - 1:200
Plotted From - trpr13525
File - U:\rd\prj\penn038D\090ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D15	D26

Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

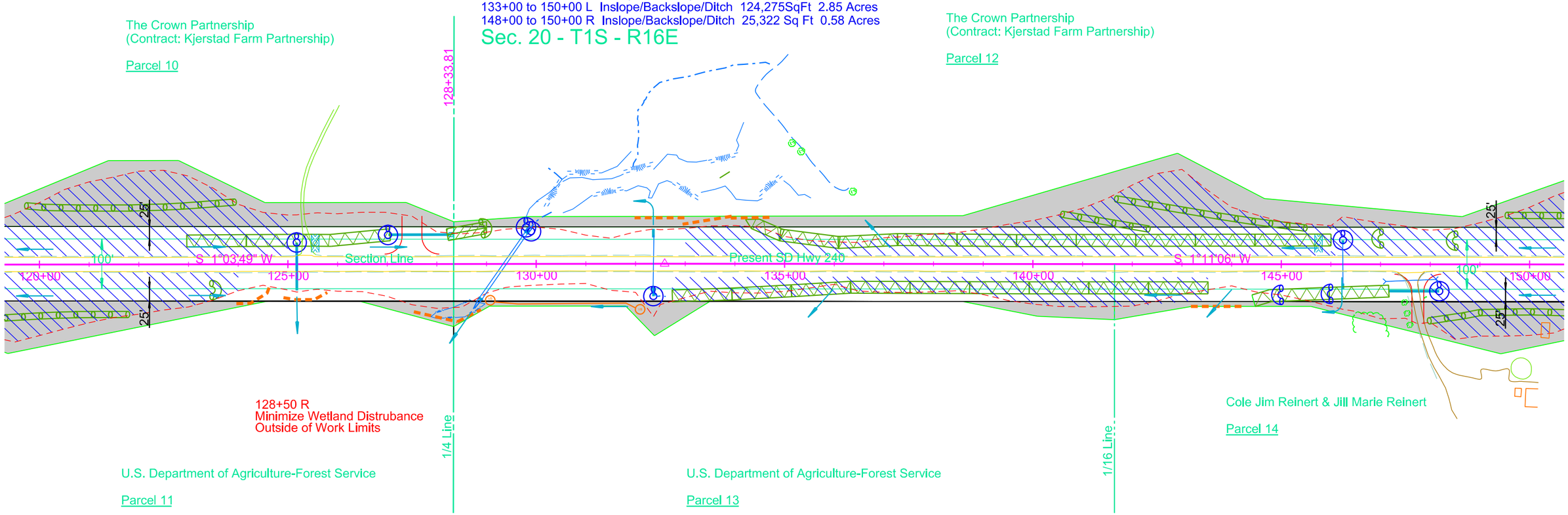
Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install High Flow Silt Fence for perimeter protection at the following locations:
123+95 to 124+60 R 80 Ft
124+90 to 125+80 R 100 Ft
127+50 to 128+90 R 150 Ft
132+00 to 134+70 L 280 Ft
143+10 to 144+20 R 110 Ft

Install 20" Diameter Erosion Control Wattles at the following locations:
125+18 L Inlet end of pipe 20 Ft
127+50-59' L Inlet end of pipe 20 Ft
129+37 (Skew 26° LHF) L Inlet end of pipe 60 Ft
132+36 R Inlet end of pipe 20 Ft
146+24 L Across ditch at inlet end of pipe 30 Ft
147+75-54' R Inlet end of pipe 20 Ft

Utilize Surface Roughening at the following locations:
120+00 to 125+00 L Inslope/Backslope/Ditch 68,538 SqFt 1.57 Acres
120+00 to 124+00 R Inslope/Backslope/Ditch 33,608 SqFt 0.77 Acres
132+75 to 143+50 R Inslope/Backslope/Ditch 48,153 SqFt 1.11 Acres
133+00 to 150+00 L Inslope/Backslope/Ditch 124,275SqFt 2.85 Acres
148+00 to 150+00 R Inslope/Backslope/Ditch 25,322 Sq Ft 0.58 Acres

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
145+00 R 30 Ft
146+00 R 30 Ft



Sec. 19 - T1S - R16E

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
123+50 R 30 Ft
131+00 L 30 Ft
147+00 L 30 Ft
148+50 L 30 Ft

Install 12" Diameter Erosion Control Wattles on slope contour at the following locations:
118+50 to 122+00 R 330 Ft
119+75 to 124+00 L 430 Ft
140+50 to 145+50 L 580 Ft
148+00 to 150+00 R 220 Ft

Install Type 3 Erosion Control Blanket in the highway ditch channel bottom 24' wide at the following locations:
123+00 to 127+00 L 425 Ft Shaping 1,140 SqYd
128+26 to 129+00 L 80 Ft Shaping 220 SqYd
132+75 to 143+50 R 1,115 Ft Shaping 2,980 SqYd
134+20 to 146+00 L 1,230 Ft Shaping 3,280 SqYd
144+40 to 147+16 R 280 Ft Shaping 750 SqYd

Plot Scale - 1:200
Plotted From - trpr13525
File - U:\rdprj\penn038D\120ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D16	D26

Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install High Flow Silt Fence for perimeter protection at the following locations:
158+30 to 159+60 R 185 Ft
167+25 to 168+25 R 100 Ft
176+80 to 177+25 R 50 Ft

Utilize Surface Roughening at the following locations:
150+00 to 154+00 L Inslope/Backslope/Ditch 51,152 SqFt 1.17 Acres
150+00 to 154+00 R Inslope/Backslope/Ditch 34,204 SqFt 0.79 Acres
155+25 to 158+75 L Inslope/Backslope/Ditch 23,051 SqFt 0.53 Acres
162+00 to 167+00 L Inslope/Backslope/Ditch 39,480 SqFt 0.91 Acres
170+00 to 180+00 L Inslope/Backslope/Ditch 88,012 SqFt 2.02 Acres
173+00 to 180+00 R Inslope/Backslope/Ditch 73,250 SqFt 1.68 Acres

Install 12"Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
152+00 L 30 Ft
152+00 R 30 Ft
153+50 L 30 Ft
153+50 R 30 Ft
164+50 L 30 Ft
166+00 L 30 Ft
166+00 R 30 Ft
167+00 R 30 Ft

Install Turf Reinforcement Mat in the highway ditch channel bottom 24' wide at the following locations:
155+22 to 158+75 L 370 Ft Shaping 990 SqYd
166+85 to 167+50 R 65 Ft Shaping 175 SqYd
174+00 to 180+00 L 665 Ft Shaping 1,780 SqYd
174+00 to 180+00 R 660 Ft Shaping 1,760 SqYd

Install 20" Diameter Erosion Control Wattles at the following locations:
154+75-51' L Inlet end of pipe 20 Ft
154+75-51' R Inlet end of pipe 20 Ft
158+95 L Across ditch at inlet of pipe 100 Ft
167+84 L Inlet end of pipe 30 Ft
177+22 L Across ditch at inlet of pipe 100 Ft

Install 12" Diameter Erosion Control Wattles on slope contour at the following locations:
149+50 to 153+50 L 400 Ft
150+00 to 151+50 R 150 Ft
157+40 to 160+70 R 350 Ft
157+55 to 160+80 L 350 Ft

Sec. 20 - T1S - R16E

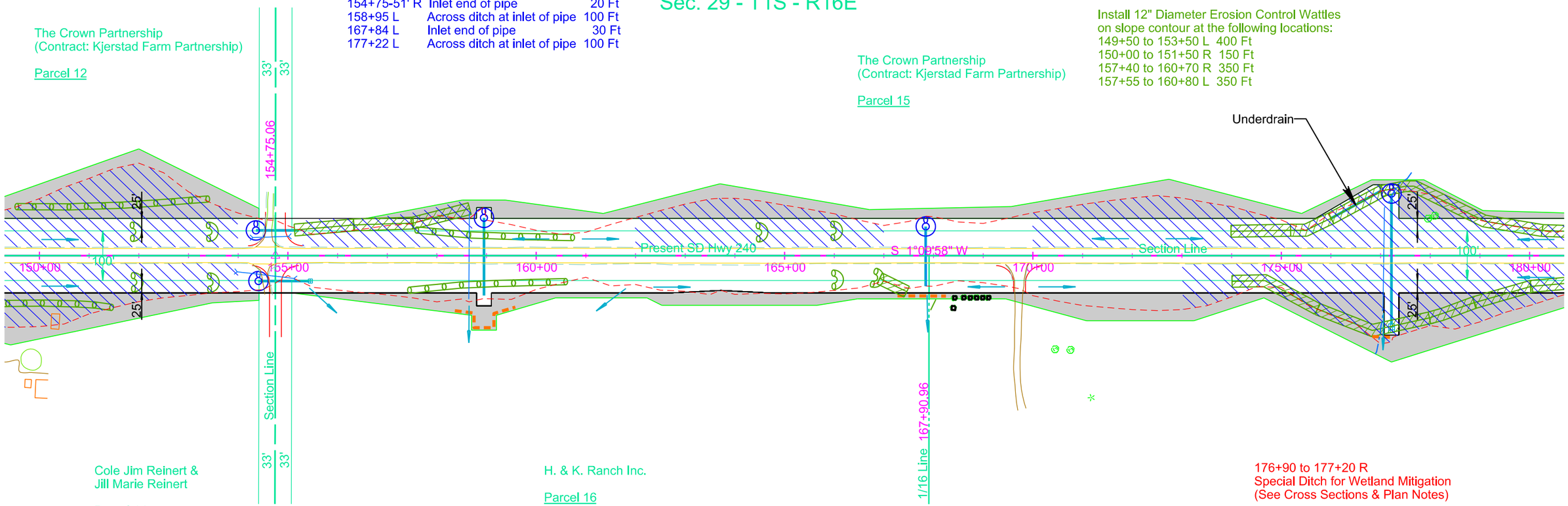
Sec. 29 - T1S - R16E

The Crown Partnership
(Contract: Kjerstad Farm Partnership)

Parcel 12

The Crown Partnership
(Contract: Kjerstad Farm Partnership)

Parcel 15



Cole Jim Reinert &
Jill Marie Reinert

Parcel 14

H. & K. Ranch Inc.

Parcel 16

176+90 to 177+20 R
Special Ditch for Wetland Mitigation
(See Cross Sections & Plan Notes)

Scott W. Kroells & Susan K. Kroells

Parcel 17

Sec. 19 - T1S - R16E

Sec. 30 - T1S - R16E

Plot Scale - 1:200

Plotted From - tnpr13525

File - U:\rdprj\penn038D\150ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D17	D26

Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

Install High Flow Silt Fence
for perimeter control
at the following locations:
194+50 to 195+65 R 115 Ft
202+30 to 204+00 R 200 Ft

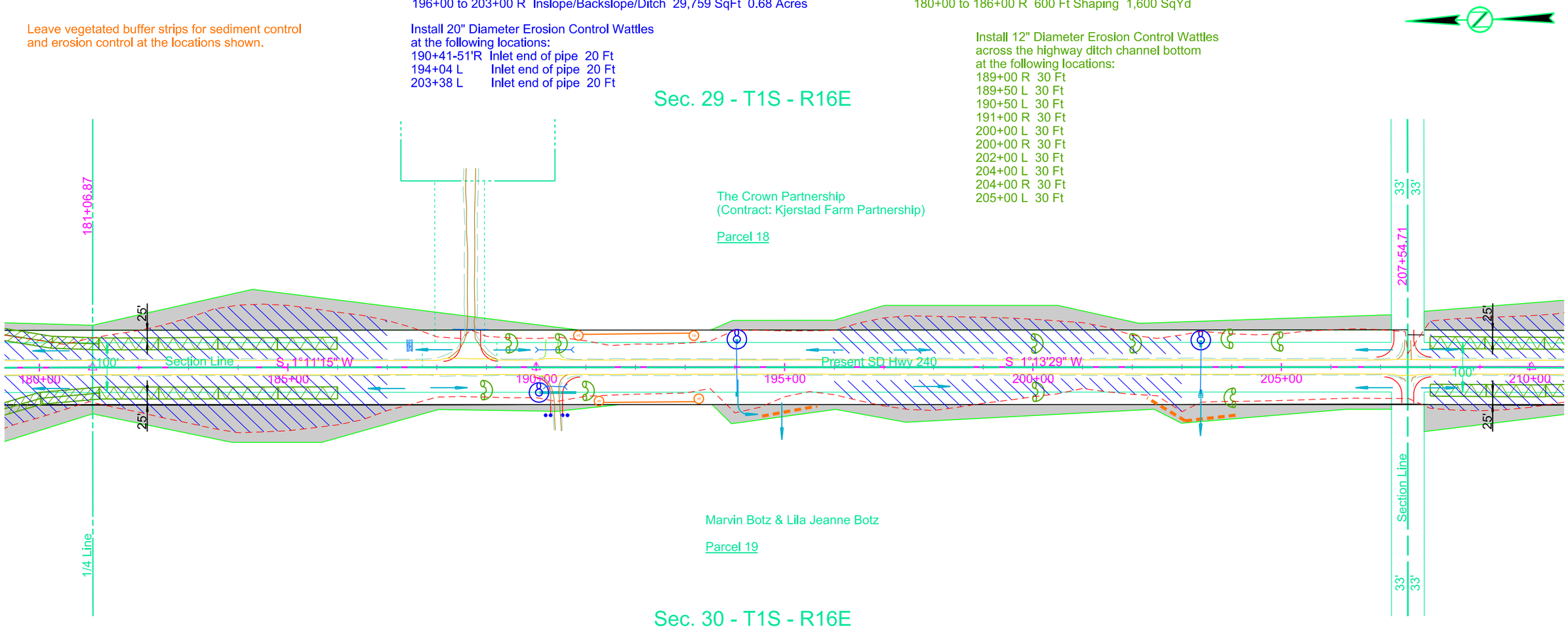
Leave vegetated buffer strips for sediment control
and erosion control at the locations shown.

Utilize Surface Roughening at the following locations:
180+00 to 187+00 L Inslope/Backslope/Ditch 56,366 SqFt 1.29 Acres
180+00 to 187+00 R Inslope/Backslope/Ditch 62,917 SqFt 1.44 Acres
196+00 to 203+00 L Inslope/Backslope/Ditch 43,358 SqFt 1.0 Acres
196+00 to 203+00 R Inslope/Backslope/Ditch 29,759 SqFt 0.68 Acres

Install 20" Diameter Erosion Control Wattles
at the following locations:
190+41-51'R Inlet end of pipe 20 Ft
194+04 L Inlet end of pipe 20 Ft
203+38 L Inlet end of pipe 20 Ft

Install Type 3 Erosion Control Blanket
in the highway ditch channel bottom
24' wide at the following locations:
180+00 to 186+00 L 590 F Shaping 1,580 SqYd
180+00 to 186+00 R 600 Ft Shaping 1,600 SqYd

Install 12" Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
189+00 R 30 Ft
189+50 L 30 Ft
190+50 L 30 Ft
191+00 R 30 Ft
200+00 L 30 Ft
200+00 R 30 Ft
202+00 L 30 Ft
204+00 L 30 Ft
204+00 R 30 Ft
205+00 L 30 Ft



Plot Scale - 1:200

Plotted From - trpr13525

File - U:\rd\prj\penn038D\180ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D18	D26

Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install High Flow Silt Fence
for perimeter control
at the following locations:
219+50 to 221+50 R 200 Ft
225+30 to 226+50 R 120 Ft
236+25 to 238+25 L 200 Ft
236+25 to 237+75 R 150 Ft

Install 20" Diameter Erosion Control Wattles
at the following locations:
219+99 L Inlet end of pipe 30 Ft
226+29 L Inlet end of pipe 30 Ft
227+30-51' R Inlet end of pipe 20 Ft
236+82 L Inlet end of pipe 30 Ft

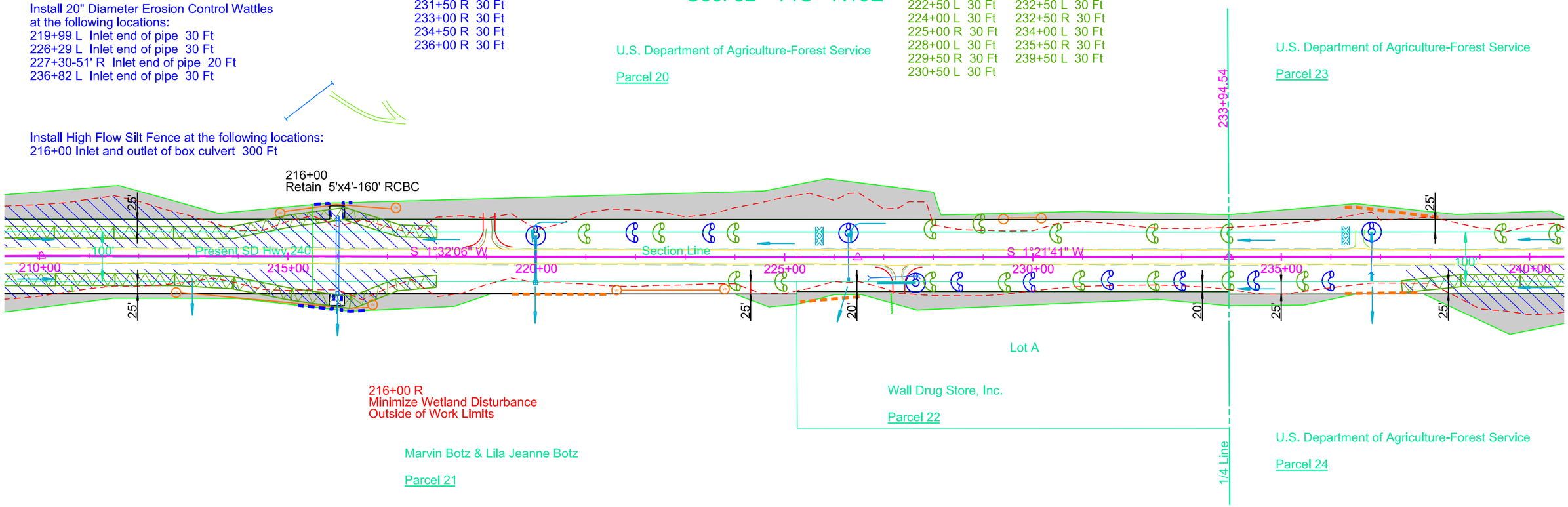
Install High Flow Silt Fence at the following locations:
216+00 Inlet and outlet of box culvert 300 Ft

Utilize Surface Roughening at the following locations:
208+00 to 218+00 L Inslope/Backslope/Ditch 73,823 SqFt 1.69 Acres
208+00 to 218+00 R Inslope/Backslope/Ditch 49,864 SqFt 1.14 Acres
237+50 to 240+00 R Inslope/Backslope/Ditch 17,418 SqFt 0.40 Acres

Install 12" Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
222+00 L 30 Ft
223+50 L 30 Ft
228+50 R 30 Ft
230+00 R 30 Ft
231+50 R 30 Ft
233+00 R 30 Ft
234+50 R 30 Ft
236+00 R 30 Ft

Install Type 3 Erosion Control Blanket
in the highway ditch channel bottom
24' wide at the following locations:
208+00 to 218+00 L 1,040 Ft Shaping 2,780 SqYd
208+00 to 218+00 R 1,040 Ft Shaping 2,780 SqYd
236+40 to 240+00 R 270 Ft Shaping 720 SqYd

Install 12" Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
221+00 L 30 Ft
222+50 L 30 Ft
224+00 L 30 Ft
225+00 R 30 Ft
228+00 L 30 Ft
229+50 R 30 Ft
230+50 L 30 Ft
231+00 R 30 Ft
232+50 L 30 Ft
232+50 R 30 Ft
234+00 L 30 Ft
235+50 R 30 Ft
239+50 L 30 Ft



Plot Scale - 1:200
Plotted From - trpr13525
File - U:\rd\prj\penn038D\210ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D19	D26

Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

Install High Flow Silt Fence
for perimeter protection
at the following locations:
257+70 to 259+90 R 230 Ft
259+90 to 260+90 L 100 Ft
265+50 to 266+70 L 100 Ft

Leave vegetated buffer strips for sediment capture
and erosion control at the locations shown.

Install 12" Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
248+00 L 30 Ft 256+50 L 30 Ft
249+50 L 30 Ft 257+50 L 30 Ft
251+00 L 30 Ft 259+50 L 30 Ft
253+50 L 30 Ft 264+50 L 30 Ft
254+50 L 30 Ft 269+00 R 30 Ft
255+50 L 30 Ft

Utilize Surface Roughening at the following locations:
240+00 to 246+50 R Inslope/Backslope/Ditch 42,130 SqFt 0.97 Acres
248+50 to 253+00 R Inslope/Backslope/Ditch 30,976 SqFt 0.71 Acres
257+00 to 265+00 R Inslope/Backslope/Ditch 46,878 SqFt 1.08 Acres

Install 20" Diameter Erosion Control Wattles
at the following locations:
260+04 L Inlet end of pipe 20 Ft
266+03 R Inlet end of pipe 20 Ft

Install 12" Diameter Erosion Control Wattles
across the highway ditch channel bottom
at the following locations:
240+50 L 30 Ft 250+50 L 30 Ft
242+75 L 30 Ft 264+00 L 30 Ft
243+25 L 30 Ft 268+00 R 30 Ft
247+50 L 30 Ft 269+50 R 30 Ft
249+00 L 30 Ft

Install Type 3 Erosion Control Blanket
in the highway ditch channel bottom
24' wide at the following locations:
240+00 to 246+50 R 675 Ft Shaping 1,800 SqYd
248+50 to 253+00 R 465 Ft Shaping 1,240 SqYd
253+00 to 260+20 L 745 Ft Shaping 1,990 SqYd

Install Turf Reinforcement Mat in
the highway ditch channel bottom
24' wide at the following locations:
260+00 to 265+00 R 515 Ft Shaping 1,380 SqYd

Sec. 32 - T1S - R16E

U.S. Department of Agriculture-Forest Service

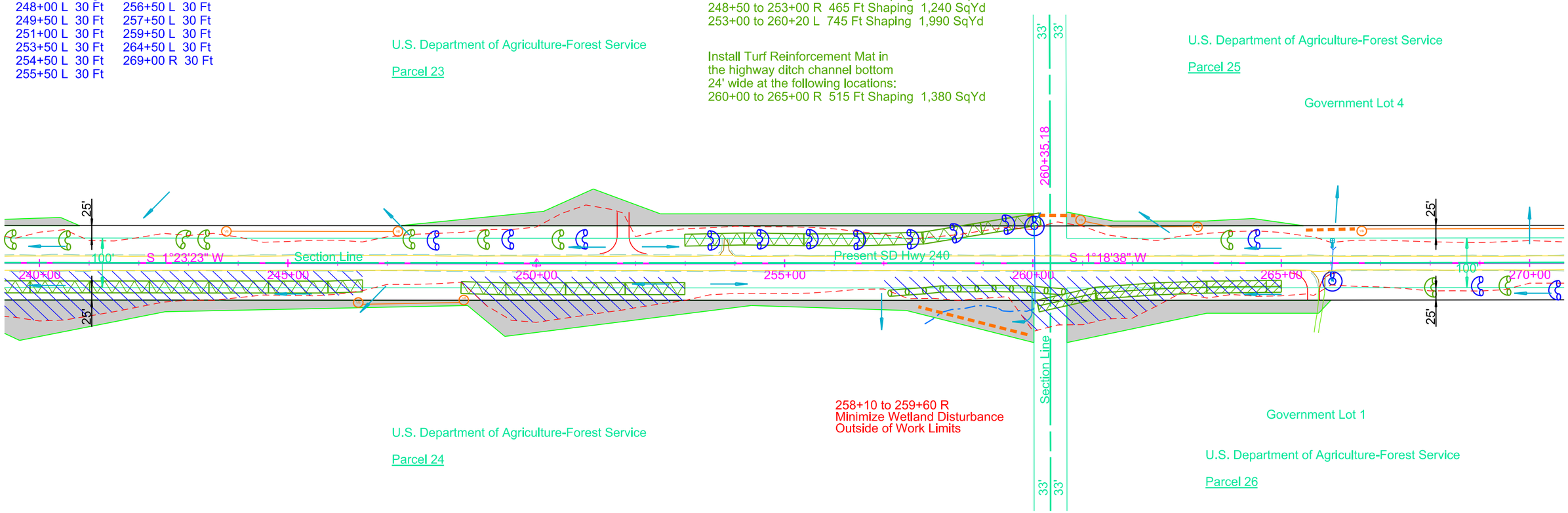
Parcel 23

Sec. 5 - T2S - R16E

U.S. Department of Agriculture-Forest Service

Parcel 25

Government Lot 4



258+10 to 259+60 R
Minimize Wetland Disturbance
Outside of Work Limits

U.S. Department of Agriculture-Forest Service

Parcel 24

Government Lot 1

U.S. Department of Agriculture-Forest Service

Parcel 26

Sec. 31 - T1S - R16E

Sec. 6 - T2S - R16E

Plot Scale - 1:200

Plotted From - trpt13525

File - U:\rdprj\penn\038D\240ec.dgn

EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D20	D26

Plotting Date: 10/27/2014

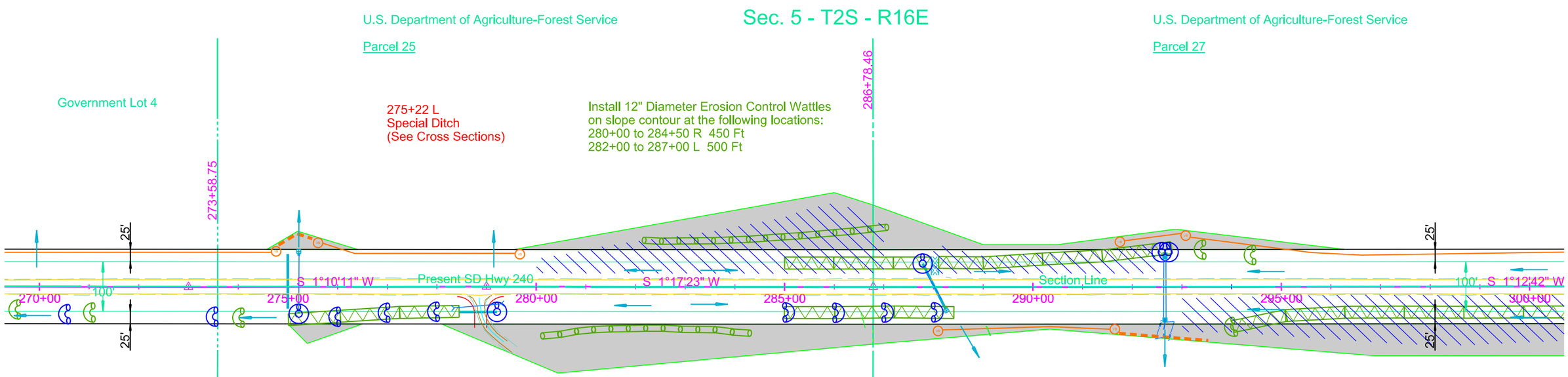
Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install High Flow Silt Fence for perimeter protection at the following locations:
274+80 to 275+50 L 80 Ft
291+70 to 293+50 R 180 Ft

Install 20" Diameter Erosion Control Wattles at the following locations:
275+22 R Inlet end of pipe 20 Ft
278+88-51' R Inlet end of pipe 20 Ft
288+02 L Inlet end of pipe 20 Ft
292+66 L Inlet ends of pipes 60 Ft

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
270+50 R 30 Ft
273+50 R 30 Ft
276+00 R 30 Ft
277+00 R 30 Ft
278+00 R 30 Ft
285+00 R 30 Ft
286+00 R 30 Ft
287+00 R 30 Ft
288+00 R 30 Ft

Utilize Surface Roughening at the following locations:
280+00 to 287+00 L Inslope/Backslope/Ditch 60,642 SqFt 1.39 Acres
288+00 to 292+50 L Inslope/Backslope/Ditch 20,329 SqFt 0.47 Acres
293+00 to 300+00 R Inslope/Backslope/Ditch 62,016 SqFt 1.42 Acres



Government Lot 1

1/16 Line

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
271+00 R 30 Ft
274+00 R 30 Ft
293+50 L 30 Ft
294+00 R
294+50 L

Install Type 3 Erosion Control Blanket in the highway ditch channel bottom 24' wide at the following locations:
275+00 to 278+45 R 355 Ft Shaping 950 SqYd
285+00 to 293+80 L 810 Ft Shaping 2,160 SqYd
285+00 to 288+40 R 350 Ft Shaping 940 SqYd
294+00 to 300+00 R 625 Ft Shaping 1,670 SqYd

1/4 Line

292+66 R
Minimize Wetland Disturbance
Outside of Work Limits

Donald M. Kelly

Parcel 28

U.S. Department of Agriculture-Forest Service

Parcel 26

Sec. 6 - T2S - R16E

Plot Scale - 1:200

Plotted From - trpr13525

File - U:\rdprj\penn038D\270ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D21	D26

Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install High Flow Silt Fence for perimeter protection at the following locations:
303+50 to 304+50 L 100 Ft
313+35 to 314+50 L 115 Ft
319+75 to 322+50 R 275 Ft
328+10 to 329+65 R 160 Ft

Install 20" Diameter Erosion Control Wattles at the following locations:
303+99 R Inlet end of pipe 20 Ft
313+68 L Inlet end of pipe 20 Ft
319+98 L Inlet end of pipe 20 Ft

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
316+00 L 30 Ft
317+00 L 30 Ft
318+00 L 30 Ft
319+00 L 30 Ft
321+50 L 30 Ft
322+50 L 30 Ft
330+00 R 30 Ft

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
321+00 L 30 Ft
322+00 L 30 Ft

Install 12" Diameter Erosion Control Wattles on slope at the following locations:
308+00 to 312+35 R 430 Ft

Install Type 3 Erosion Control Blanket in the highway ditch channel bottom 24' wide at the following locations:
300+00 to 313+00 R 1,340 Ft Shaping 3,580 SqYd
313+60 to 320+10 R 670 Ft Shaping 1,790 SqYd
316+00 to 319+75 L 385 Ft Shaping 1,030 SqYd
323+00 to 330+00 L 725 Ft Shaping 1,940 SqYd
323+00 to 329+50 R 570 Ft Shaping 1,520 SqYd

Sec. 5 - T2S - R16E

Sec. 8 - T2S - R16E

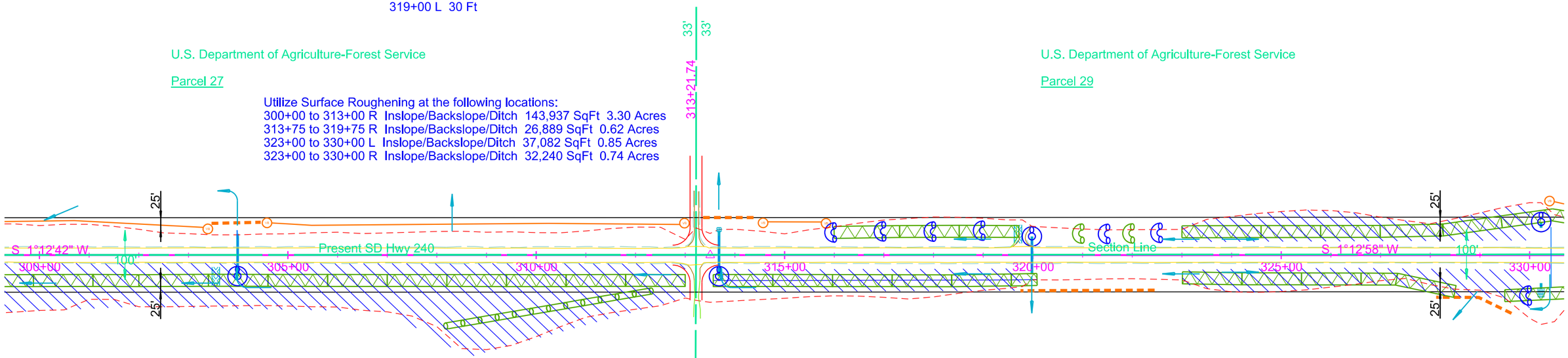
U.S. Department of Agriculture-Forest Service

Parcel 27

U.S. Department of Agriculture-Forest Service

Parcel 29

Utilize Surface Roughening at the following locations:
300+00 to 313+00 R Inslope/Backslope/Ditch 143,937 SqFt 3.30 Acres
313+75 to 319+75 R Inslope/Backslope/Ditch 26,889 SqFt 0.62 Acres
323+00 to 330+00 L Inslope/Backslope/Ditch 37,082 SqFt 0.85 Acres
323+00 to 330+00 R Inslope/Backslope/Ditch 32,240 SqFt 0.74 Acres



Donald M. Kelly

Parcel 28

Donald M. Kelly

Parcel 30

Section Line

33'
33'

Sec. 6 - T2S - R16E

Sec. 7 - T2S - R16E

Plot Scale - 1:200

Plotted From - trpr13525

File - U:\rdprj\penn038D\300ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D22	D26

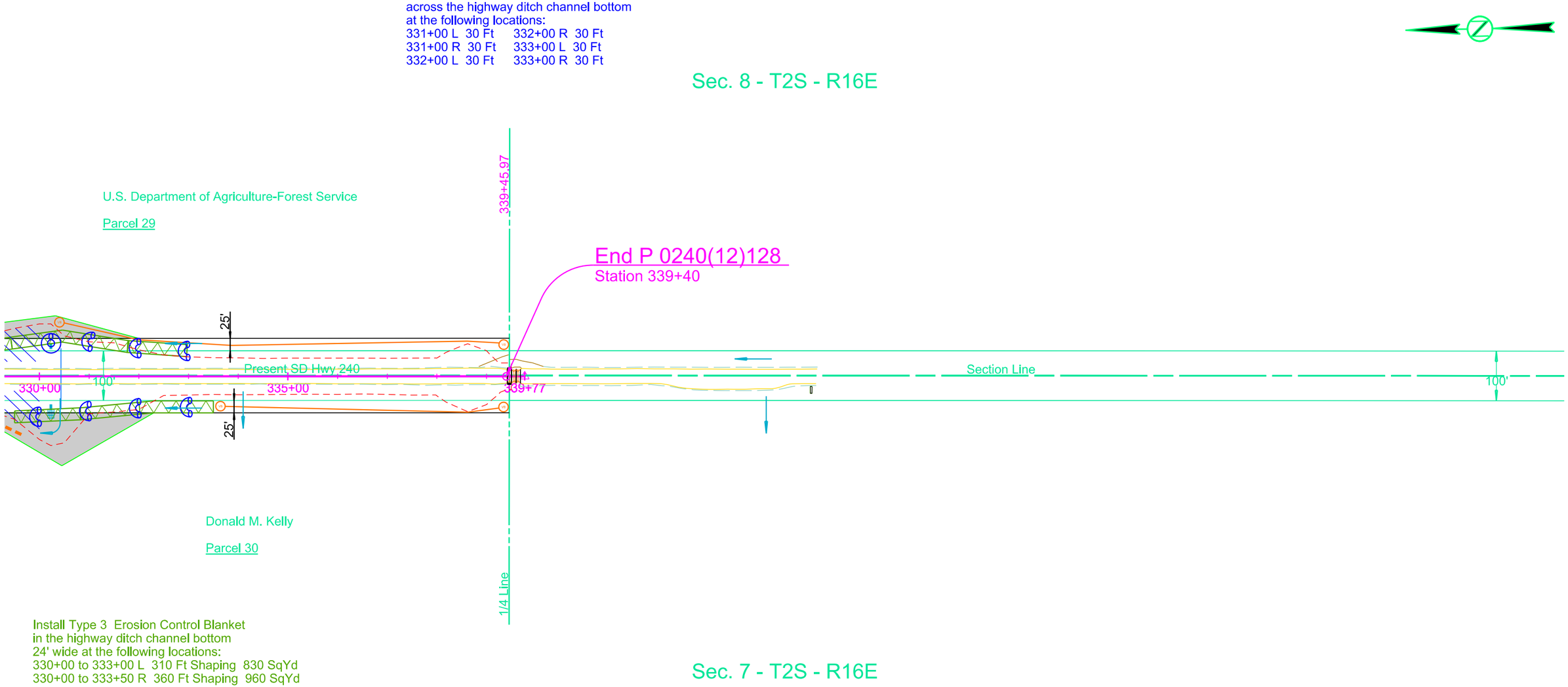
Plotting Date: 10/27/2014

EROSION AND SEDIMENT CONTROL PLAN

Leave vegetated buffer strips for sediment capture and erosion control at the locations shown.

Install 20"Diameter Erosion Control Wattles at the following locations:
330+23 L Inlet end of pipe 100 Ft

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:
331+00 L 30 Ft 332+00 R 30 Ft
331+00 R 30 Ft 333+00 L 30 Ft
332+00 L 30 Ft 333+00 R 30 Ft



Install Type 3 Erosion Control Blanket in the highway ditch channel bottom 24' wide at the following locations:
330+00 to 333+00 L 310 Ft Shaping 830 SqYd
330+00 to 333+50 R 360 Ft Shaping 960 SqYd

Plot Scale - 1:200

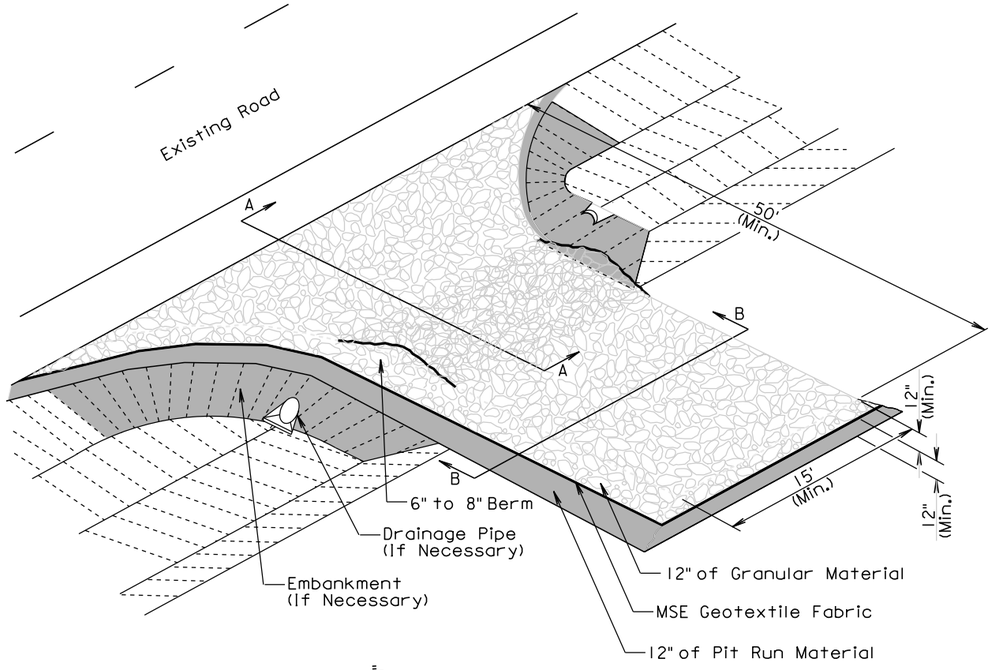
Plotted From - trpr13525

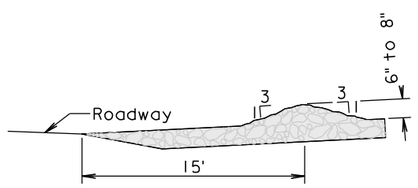
File - U:\rd\prj\penn038D\330ec.dgn

CONSTRUCTION ENTRANCE

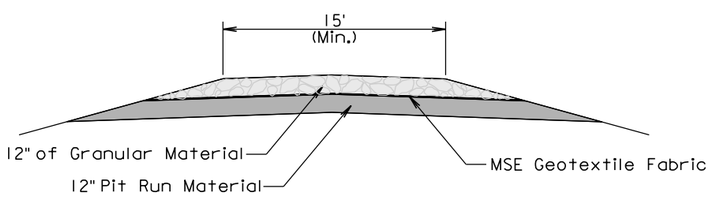
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	D23	D26

Plotting Date: 10/27/2014





SECTION A-A



SECTION B-B

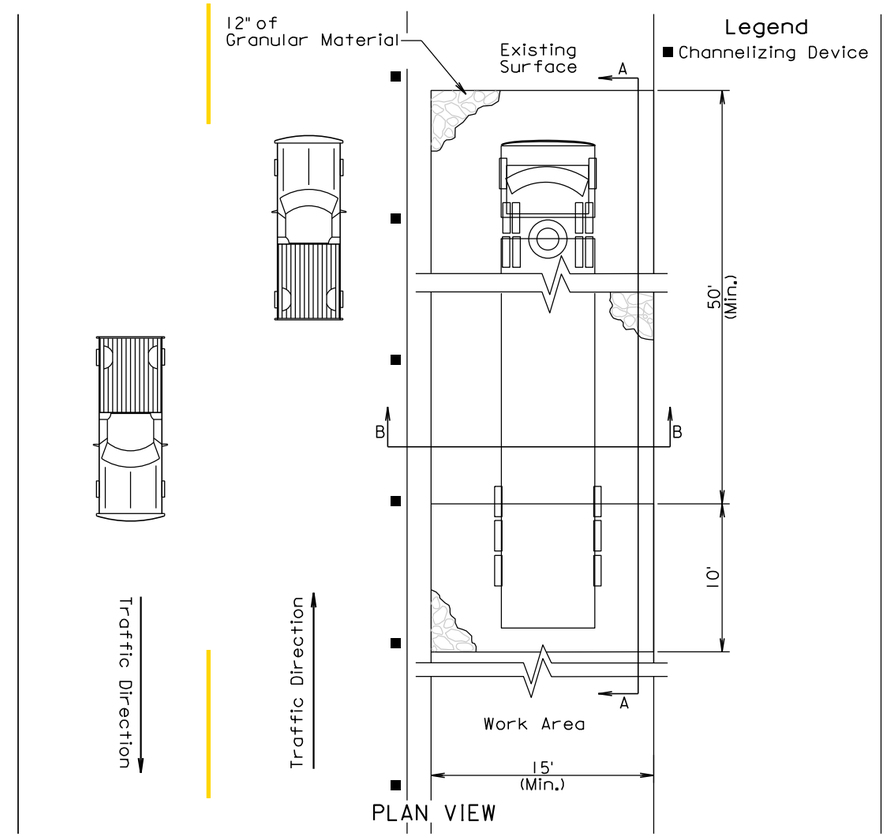
GENERAL NOTES:

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.

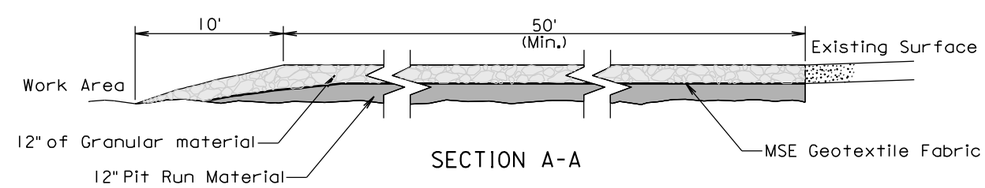
If a drainage pipe is necessary the size and type shall be determined by the Contractor to meet field conditions. All cost shall be incidental to the various bid items.

If embankment is necessary it shall be pit run material.

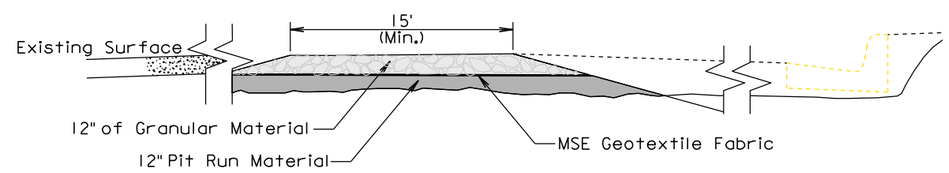
TRANSVERSE TO ROADWAY



PLAN VIEW



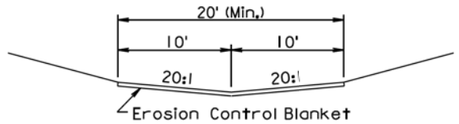
SECTION A-A



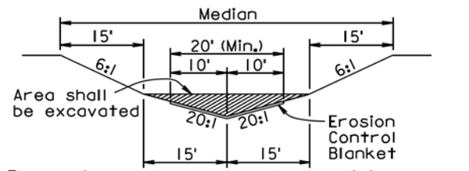
SECTION B-B

PARALLEL TO ROADWAY

Plot Scale - 1:200
Plotted From - tpgr13525
File - ...\penn038D\Stabilizedconent.dgn

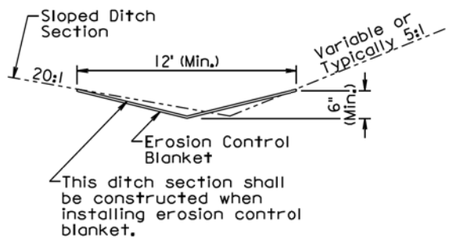


STANDARD DITCH SECTION

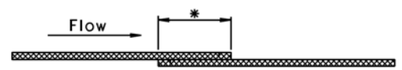


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



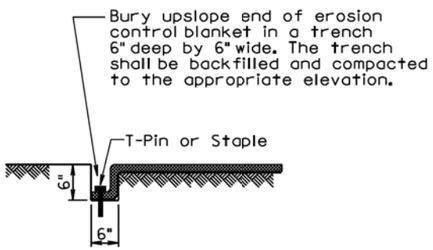
SLOPED DITCH SECTION



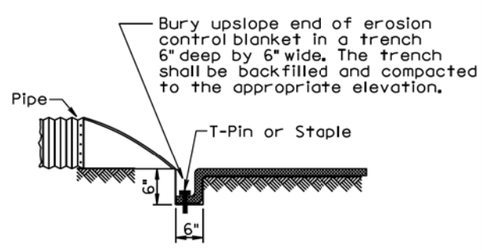
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* 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.

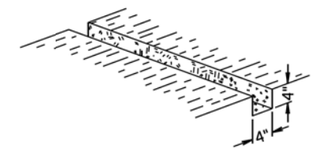
After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

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".

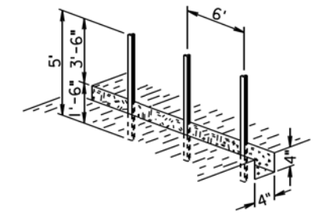
December 23, 2004

Published Date: 3rd Qtr. 2014	SDDOT	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

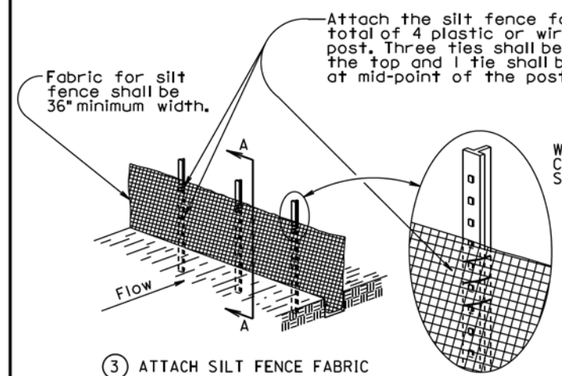
MANUAL HIGH FLOW SILT FENCE INSTALLATION



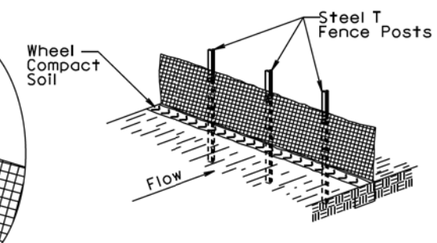
1 EXCAVATE TRENCH



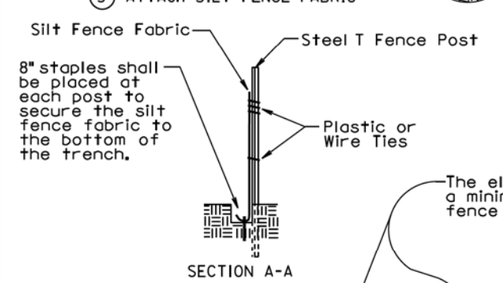
2 DRIVE STEEL T FENCE POSTS



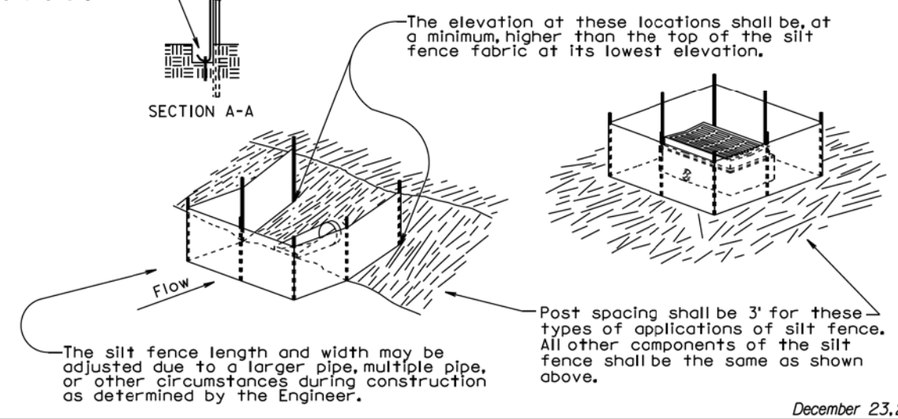
3 ATTACH SILT FENCE FABRIC



4 BACKFILL TRENCH AND WHEEL COMPACT SOIL



SECTION A-A

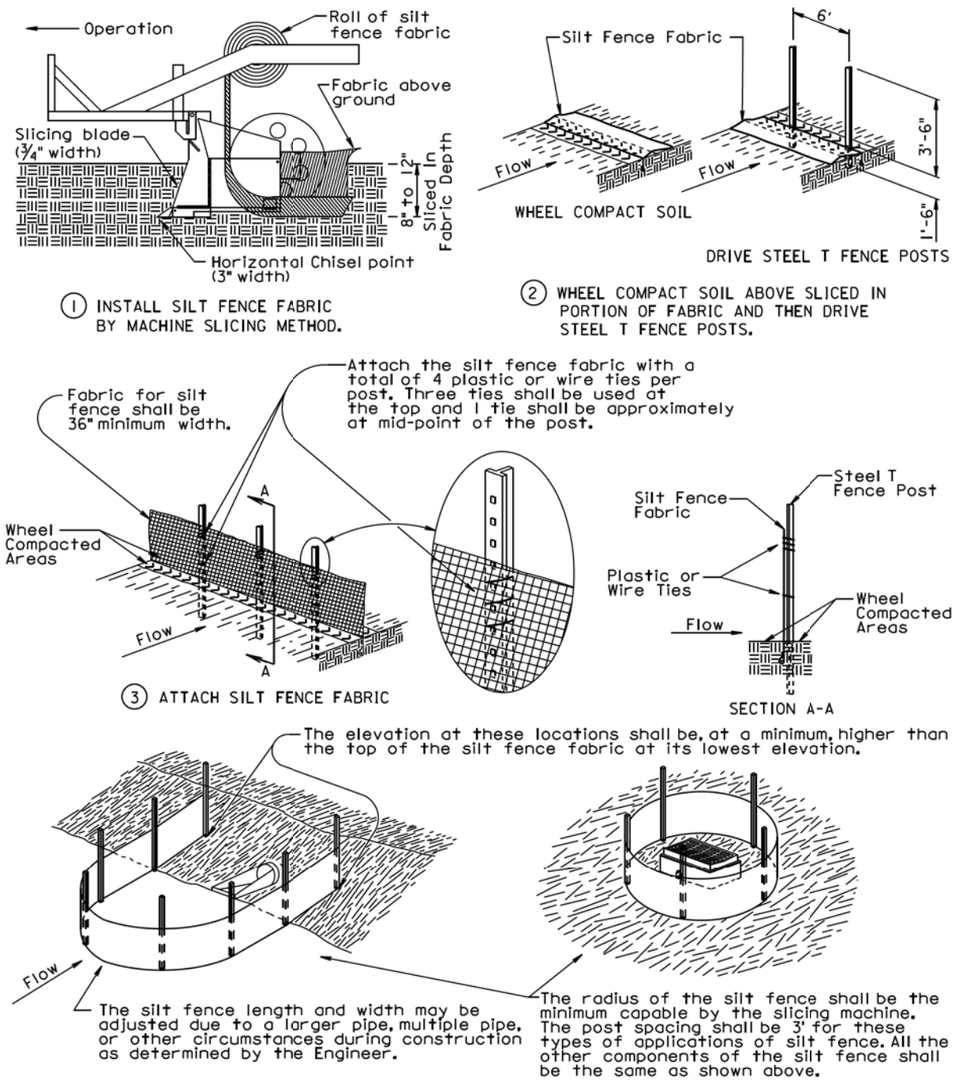


December 23, 2003

Published Date: 3rd Qtr. 2014	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

Plot Scale - 1:200
- Plotted From - tnpr13525
File - ...\penn038Dis\73401s\73405_1.dgn

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

SECTION A-A

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

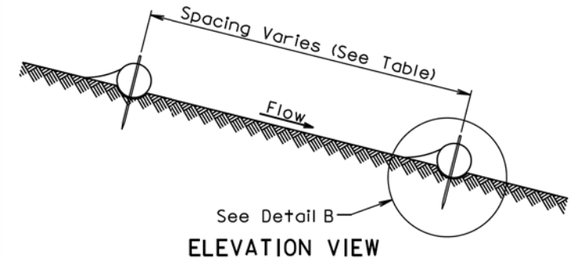
The radius of the silt fence shall be the minimum capable by the slicing machine. The post spacing shall be 3' for these types of applications of silt fence. All the other components of the silt fence shall be the same as shown above.

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.

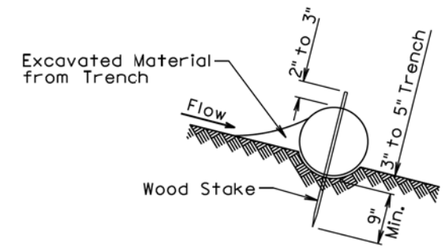
December 23, 2003

Published Date: 3rd Qtr. 2014	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

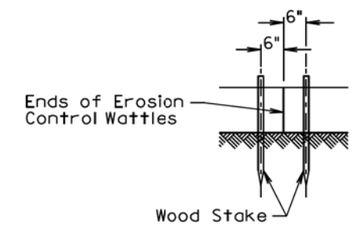


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

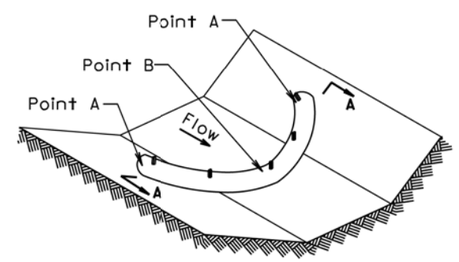
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



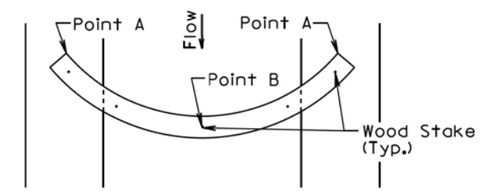
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

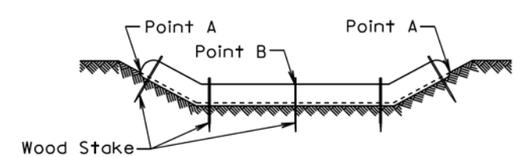


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

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



SECTION A-A

December 23, 2004

Published Date: 3rd Qtr. 2014	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

Plot Scale - 1:200
File - ...\penn038D\s73405_2s73406_1.dgn
Plotted From - trpr13525

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.

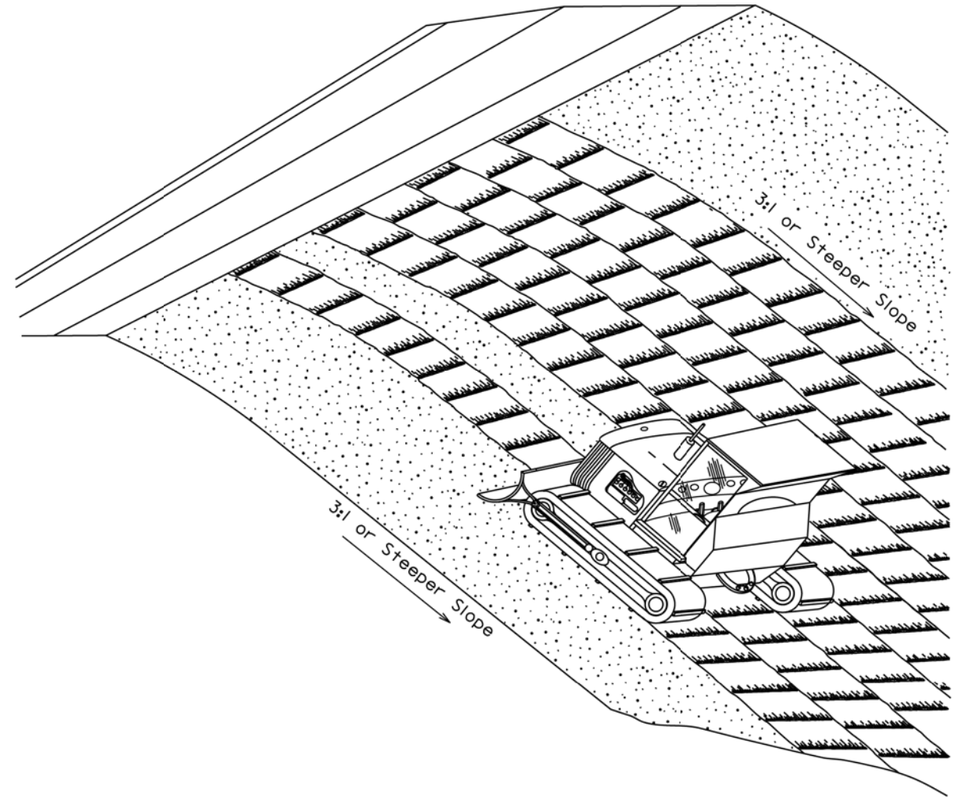
Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

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

Published Date: 3rd Qtr. 2014	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2



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

Published Date: 3rd Qtr. 2014	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25
			Sheet 1 of 1

Plot Scale - 1:200
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Plotted From - trpr13525