

PLOT SCALE - 1:200

PLOTTED FROM - TRRC12608

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED

PROJECT 0009-451  
SDDOT MAINTENANCE YARD  
LAWRENCE COUNTY

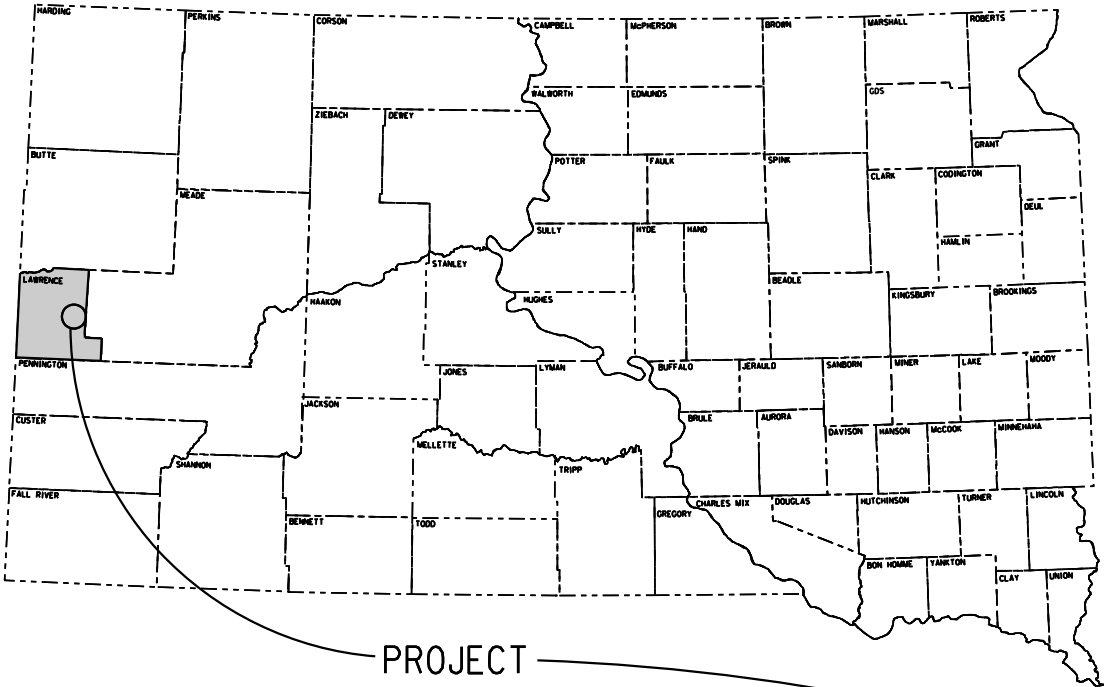
DRAINAGE REPAIR  
PCN 12j6

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-451	1	15

Plotting Date: 04/13/2012

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T5N

R3E

DEADWOOD

STORM WATER PERMIT  
No Storm Water Permit required

PLOT NAME - 1

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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
100E0020	Clear and Grub Tree	2	Each
110E1690	Remove Sediment	0.3	CuYd
120E0010	Unclassified Excavation	210	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	4.2	Ton
320E1200	Asphalt Concrete Composite	4.4	Ton
450E0122	18" RCP Class 2, Furnish	66	Ft
450E0130	18" RCP, Install	66	Ft
450E2008	18" RCP Flared End, Furnish	1	Each
450E2009	18" RCP Flared End, Install	1	Each
670E4200	Type M Median Drain	1	Each
734E0010	Erosion Control	Lump Sum	LS
734E0104	Type 4 Erosion Control Blanket	157	SqYd
734E0154	12" Diameter Erosion Control Wattle	174	Ft

SPECIFICATIONS

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

UTILITIES

Gas and Telecommunications utilities will be affected on this project. The contractor shall coordinate with the effected utilities to move the facilities as directed by the Engineer. If additional utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the contractor shall contact the project engineer to determine modifications that will be necessary to avoid utility impacts.

STORM WATER

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to prevent the discharge of pollutants from the construction site.

SEQUENCE OF OPERATIONS

- Construct outlet ditch.
- Place erosion control measures in ditch.
- Install flared end section and half of pipe.
- Fill in and place gravel over the first half of the pipe installation.
- Install second half of pipe and Type M Median Drain.
- Fill in and place gravel over the second half of the pipe installation.

CLEARING

Before clearing activities begin, the Contractor shall contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are supposed to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor shall replace them with the same size and type at the Contractor's expense.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

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

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-451	2	15

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

- Construction/demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
- Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

UNCLASSIFIED EXCAVATION

Unclassified Excavation is provided for the construction of the outlet ditch.

Excess material not required shall be handled as waste.

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

The outlet end of the outlet ditch shown is an approximation and may require further excavation to provide positive drainage of the ditch. The Contractor is urged to visit the project site prior to preparing a bid. No field measurement of Unclassified Excavation will be required and plans quantity shall be the basis of payment.

SAWING

The existing surface will be sawed full depth to a true line with a vertical face where asphalt concrete is to be placed adjacent to existing asphalt or concrete.

All costs associated with this work shall be incidental to the contract unit price per cubic yard for Unclassified Excavation.

REMOVE AND REPLACE TOPSOIL

Prior to beginning ditch grading operations, topsoil shall be stripped from the ditch construction area. Following completion of excavation operations, topsoil shall be bladed back down the ditch slopes and bottom.

The estimated amount of topsoil to be removed and replaced is 40 CuYd.

All cost associated with removing and replacing the topsoil along areas to be resurfaced shall be incidental to the lump sum price for "Remove and Replace Topsoil".

BASE COURSE

All requirements of the Standard Specifications for Base Course shall apply, except that Base Course for Backfill shall be compacted to the satisfaction of the Engineer.

Base Course shall be placed 6" deep adjacent to in-place base course for repair of the road bed where the culvert is being installed.

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 1 specifications.

All other requirements in the Standard Specifications for Asphalt Concrete Composite shall apply.

The asphalt binder used in the mixture shall be PG 64-22, PG 64-28 or PG 64-34 Asphalt Binder.

Asphalt Concrete Composite shall be placed 6" deep adjacent to in-place base course for repair of the road bed where the culvert is being installed.

18" RCP AND FLARED END

This project will require 66 feet of 18" RCP and 1-18" RCP Flared End Section.

MAINTENANCE OF TRAFFIC

Maintenance of traffic for this project will be provided by the SDDOT.

The Contractor shall notify the SDDOT two weeks prior to beginning construction to coordinate traffic control for the project.

TABLE OF TYPE M MEDIAN DRAINS

(Quantities Shown for Information Only)

Station	Class M6 Concrete (CuYd)	Reinforcing Steel (Lb)	Type M Frame and Grate Assembly (Each)
0+13.30	1.25	86.25	1
Totals	1.25	86.25	1

TYPE 4 EROSION CONTROL BLANKET

Type 4 Erosion Control Blanket shall be installed 16 feet wide at the location noted on the plans and at locations determined by the Engineer during construction.

The Type 4 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://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp>

The Contractor shall install Type 4 Erosion Control Blanket according to the manufacturer's installation instructions.

The outlet end of the outlet ditch shown is an approximation and may require additional Type 4 Erosion Control Blanket. The Contractor is urged to visit the project site prior to preparing a bid. Plans quantity shall be the basis of payment.

EROSION CONTROL

Areas disturbed during construction of this project with the exception of the roadway surface shall be seeded, fertilized and mulched.

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

All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type F Permanent Seed Mixture shall consist of the following:

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

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

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

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

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

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

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

EROSION CONTROL (CONTINUED)

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

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

Approximately 2900 SqFt will require permanent seeding. All costs associated with permanent seeding, fertilizing, and fiber mulching shall be incidental to the contract lump sum for price for Erosion Control.

The outlet end of the outlet ditch shown is an approximation and may require additional Erosion Control

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

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations 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.

An additional quantity of 30 feet of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control.

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

Product	Manufacturer
AEC Premier Straw Wattles	American Excelsior Company Arlington, TX Phone: 1-800-777-7645 <a href="http://www.amerexcel.com">www.amerexcel.com</a>
Excel Straw Logs	Western Excelsior Corporation Mancos, CO Phone: 1-800-833-8573 <a href="http://www.westernexcelsior.com">www.westernexcelsior.com</a>
Earth Saver Rice Straw Wattles	R.H. Dyck Inc. Winters, CA Phone: 1-866-928-8537 <a href="http://www.earth-savers.com">www.earth-savers.com</a>
Amber Waves Straw Wattles	GroNatural Winsted, MN Phone: 1-320-485-2800 <a href="http://www.gronatural.com">www.gronatural.com</a>
EarthTec Erosion Control Wattles	EarthTec/the Dukes, Inc. Devils Lake, ND Phone: 1-701-662-6666
Bio Logs	Flaxtech, LLC Rock Lake, ND Phone: 1-866-444-3529
Stenlog	Erosion Control Blanket Riverton, MB Phone: 1-866-280-7327 <a href="http://www.erosioncontrolblanket.com">www.erosioncontrolblanket.com</a>
Winters Wattles	Winters Excelsior Company Birmingham, AL Phone: 1-800-248-7237 <a href="http://www.wintersexcelsior.com">www.wintersexcelsior.com</a>
Patriot Straw Wattles	Patriot Environmental Products, Inc. Mesa, AZ Phone: 1-480-345-7293 <a href="http://www.digitaldesigncore.com/patriot/WattleSpecs.pdf">www.digitaldesigncore.com/patriot/WattleSpecs.pdf</a>

TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
0+80 to 1+40	L/R	12	Around the Type 4 Erosion Control Blanket as shown on the Erosion Control sheet.	144
Additional Quantity:				30
Total:				174

HORIZONTAL ALIGNMENT

Type	Station	Northing	Easting
POB 0+00.00		223919.428	997751.568
	TL= 9.03 N 0°48'49" E		
PI 0+09.03		223928.455	997751.696
	TL= 72.00 N 0°48'49" E		
PI 0+81.03		224000.448	997752.718
	TL= 55.27 N 0°48'49" E		
POE 1+36.30		224055.712	997753.503

PLOT SCALE - 1"=30.25'

PLOTTED FROM - TRRC12608

0+13.30  
Install Type M  
Median Drain

0+15.03 to 0+81.03  
Install 66' of 18" RCP

0+81.03  
Install 18" RCP  
Flared End

0+81.03 to 1+40 (approximate)  
Construct ditch to daylight point  
as directed by the Engineer.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-451	5	15

Plotting Date: 04/13/2012

PLOT NAME - 2

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Property Line

Crescent Drive

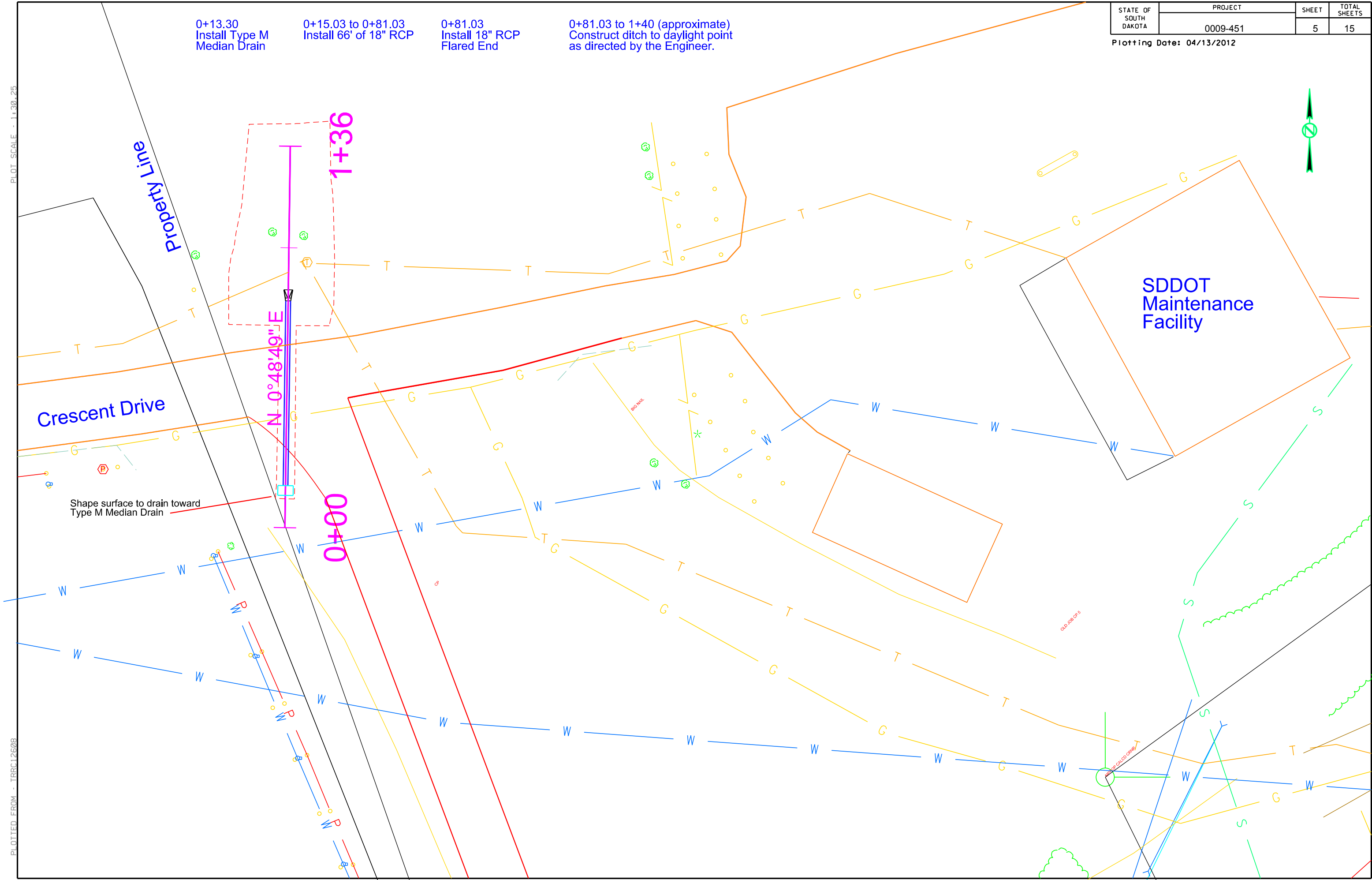
Shape surface to drain toward  
Type M Median Drain

N 0°48'49"E

0+00

1+36

SDDOT  
Maintenance  
Facility

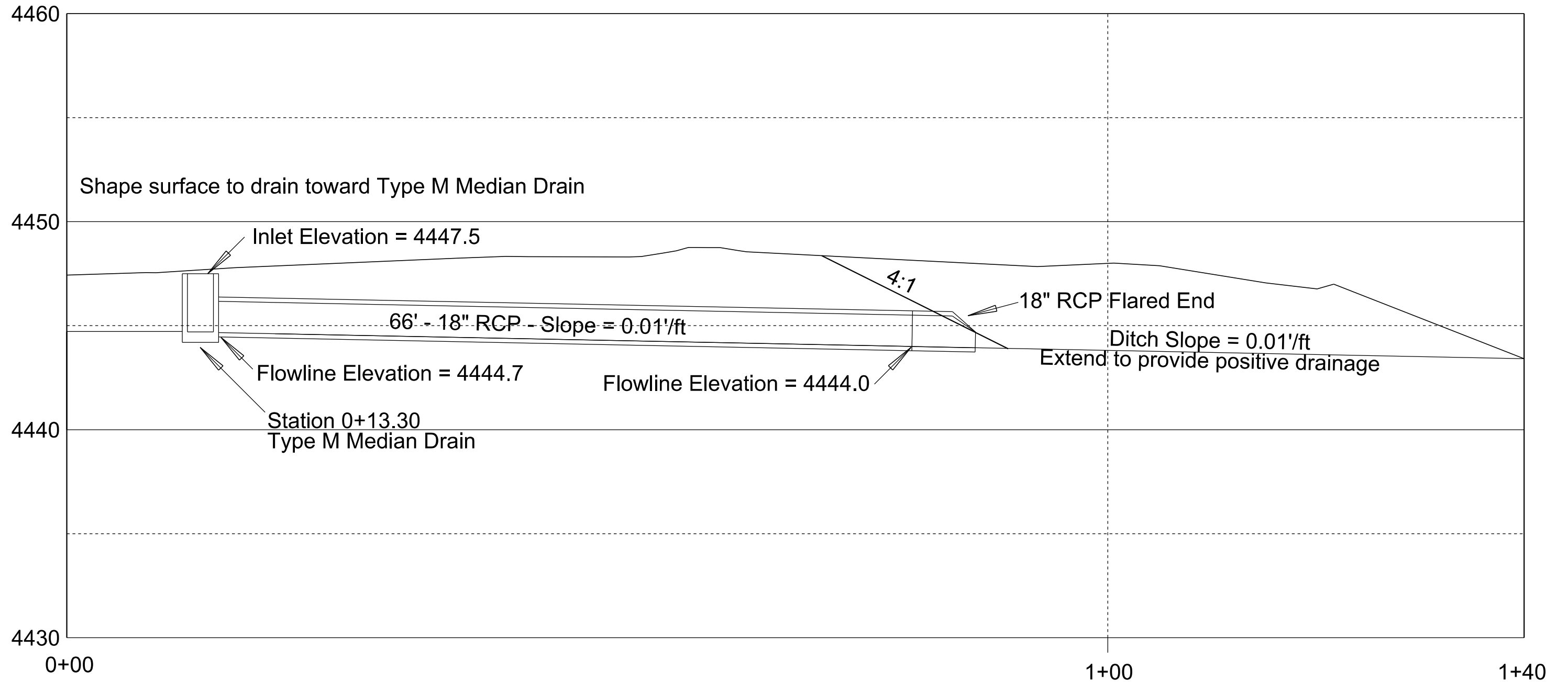




# PROFILE SHEET

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-451	6	15

Plotting Date: 04/13/2012

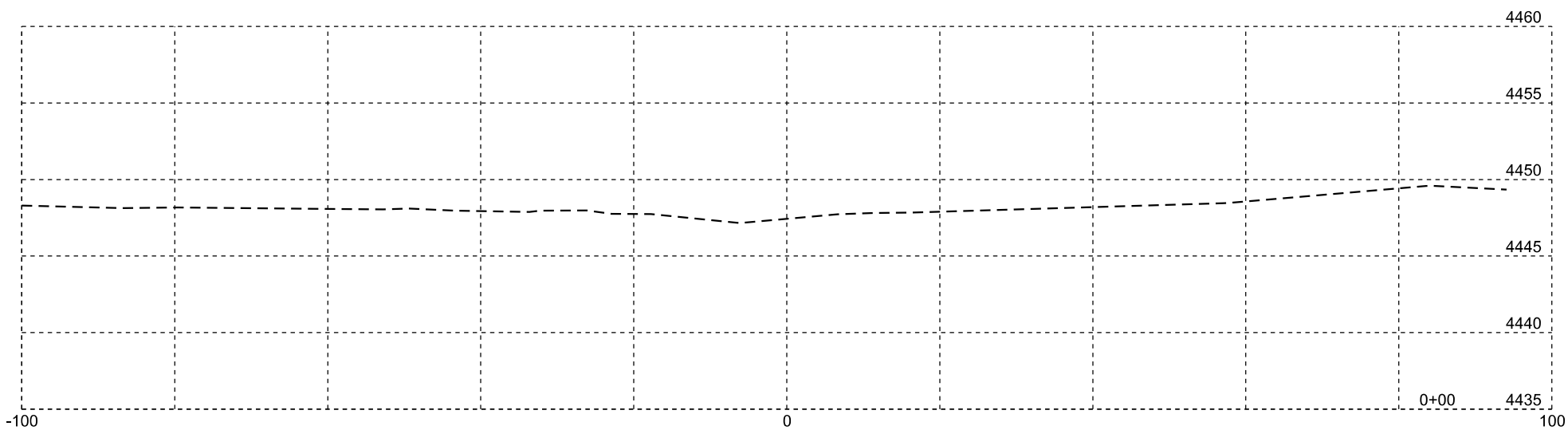
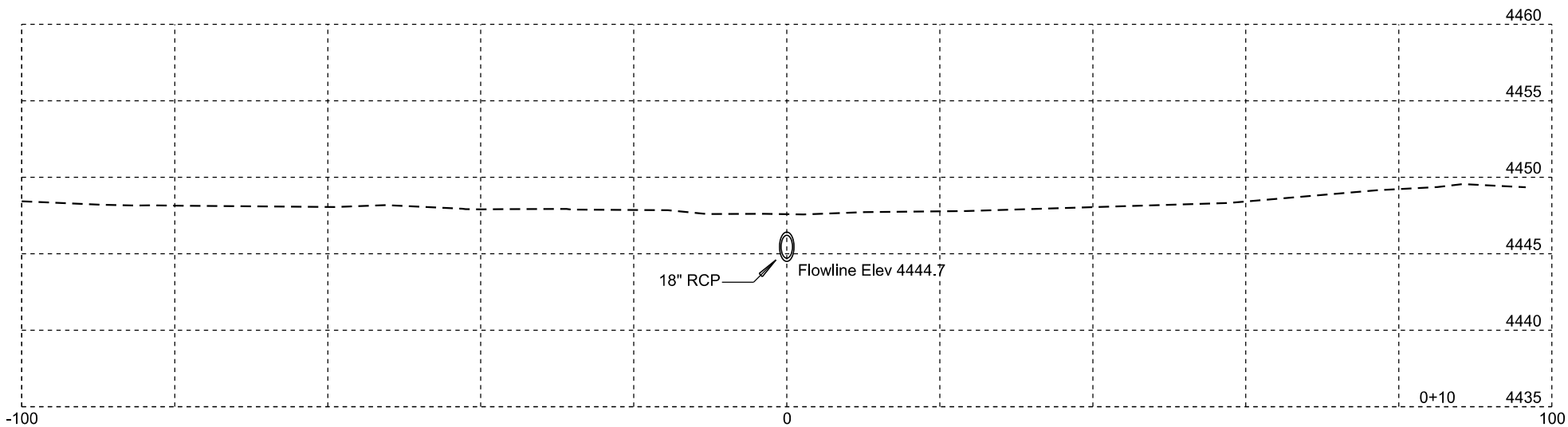
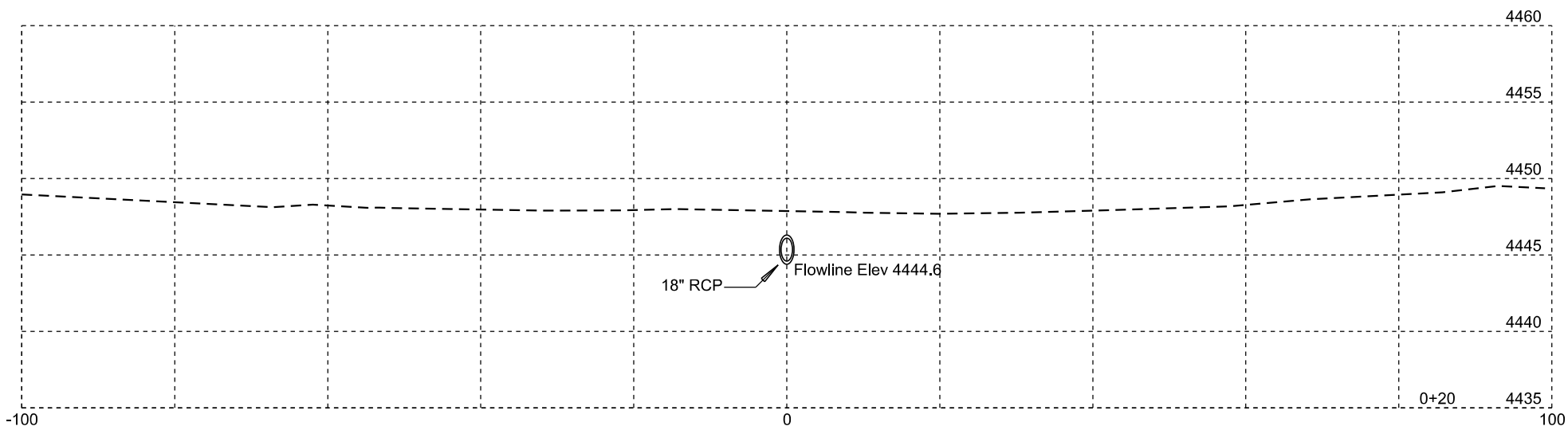
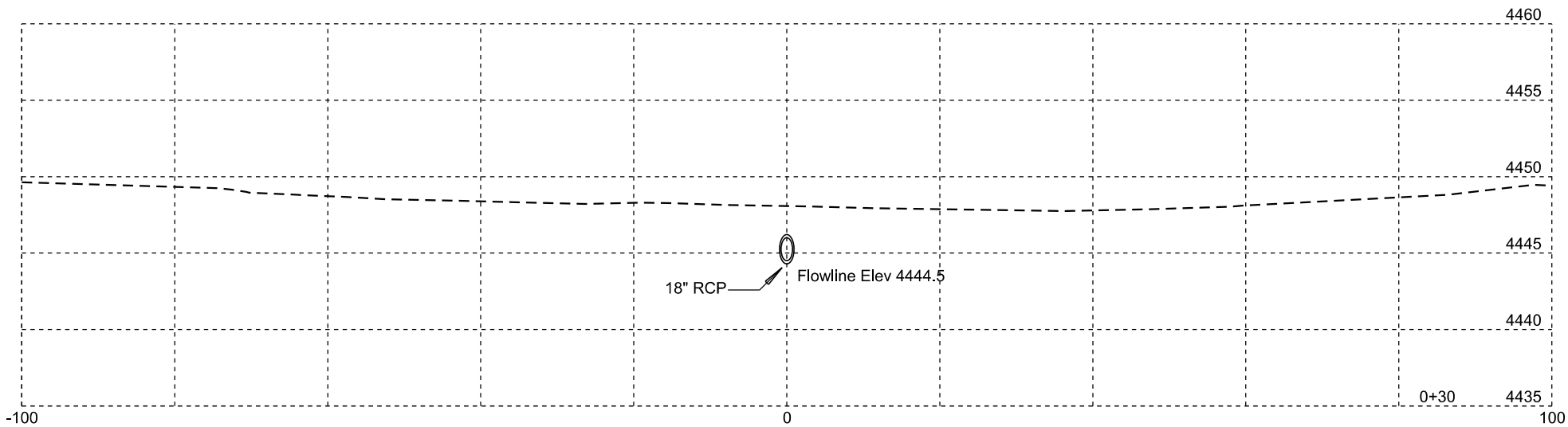
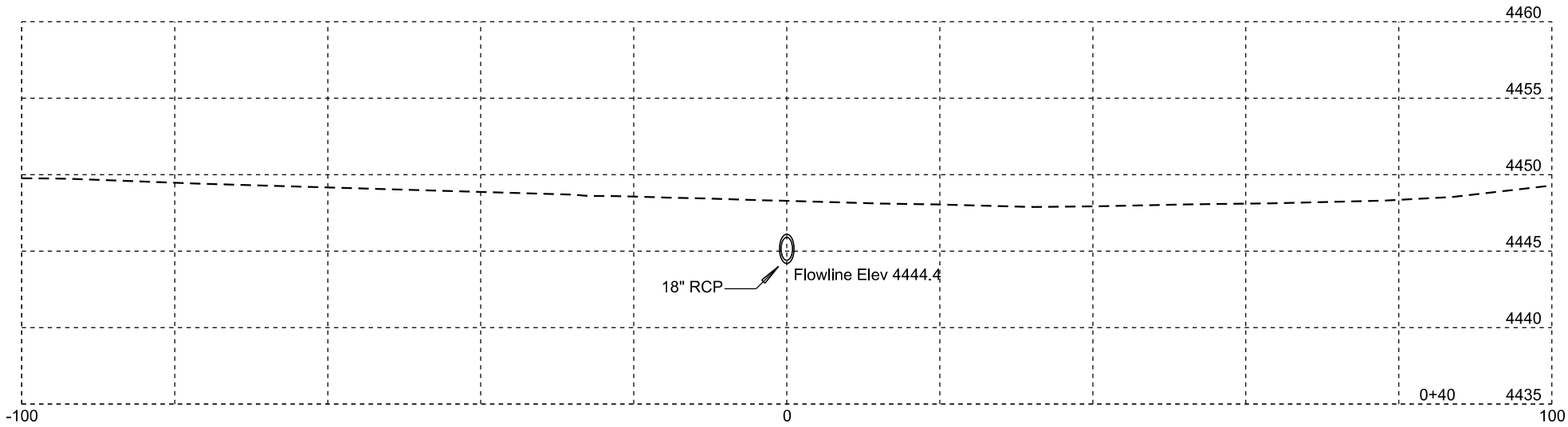


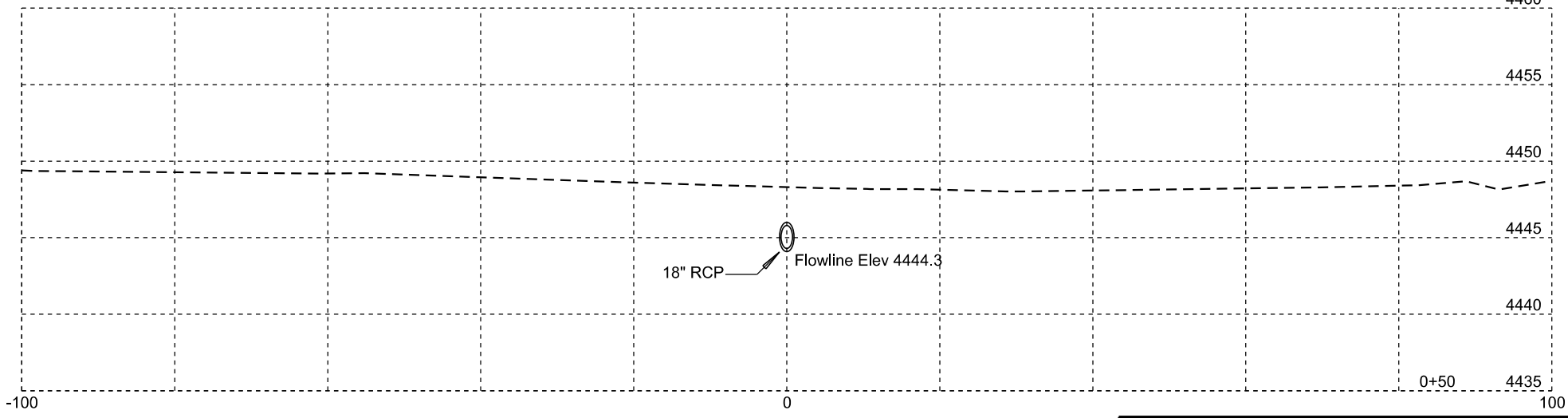
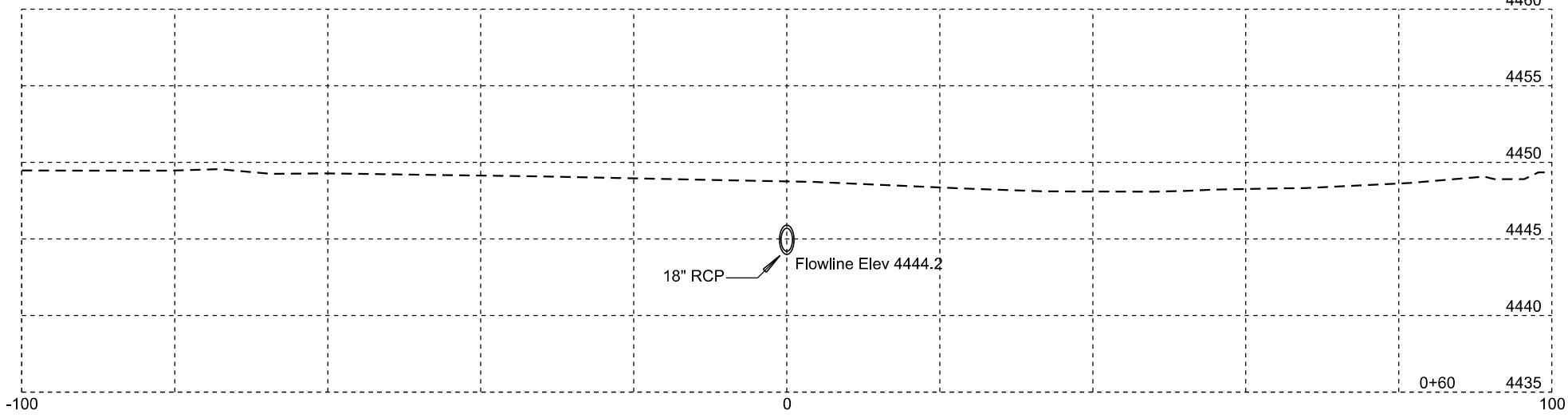
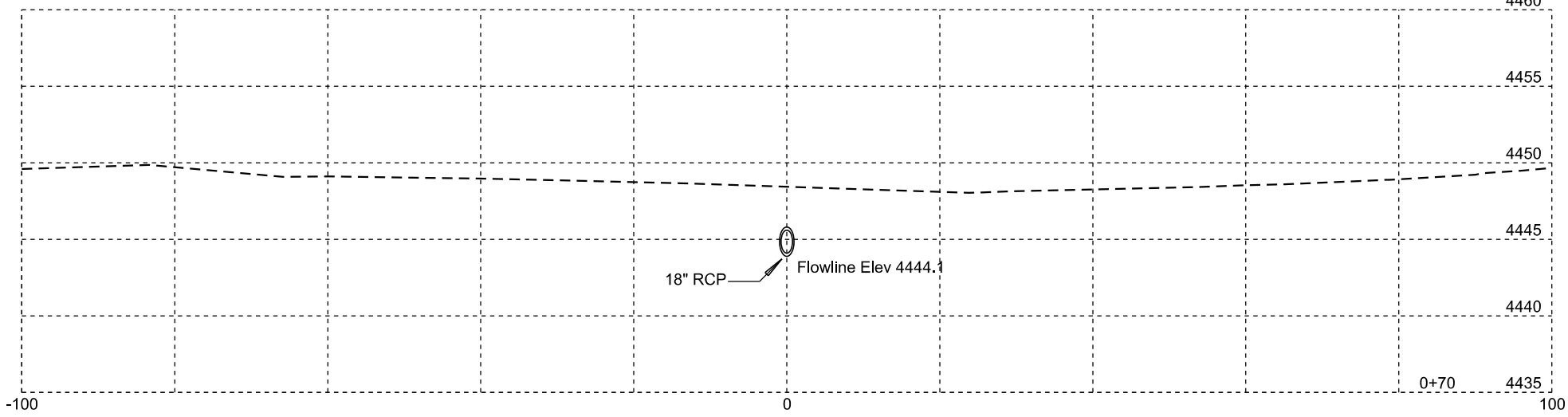
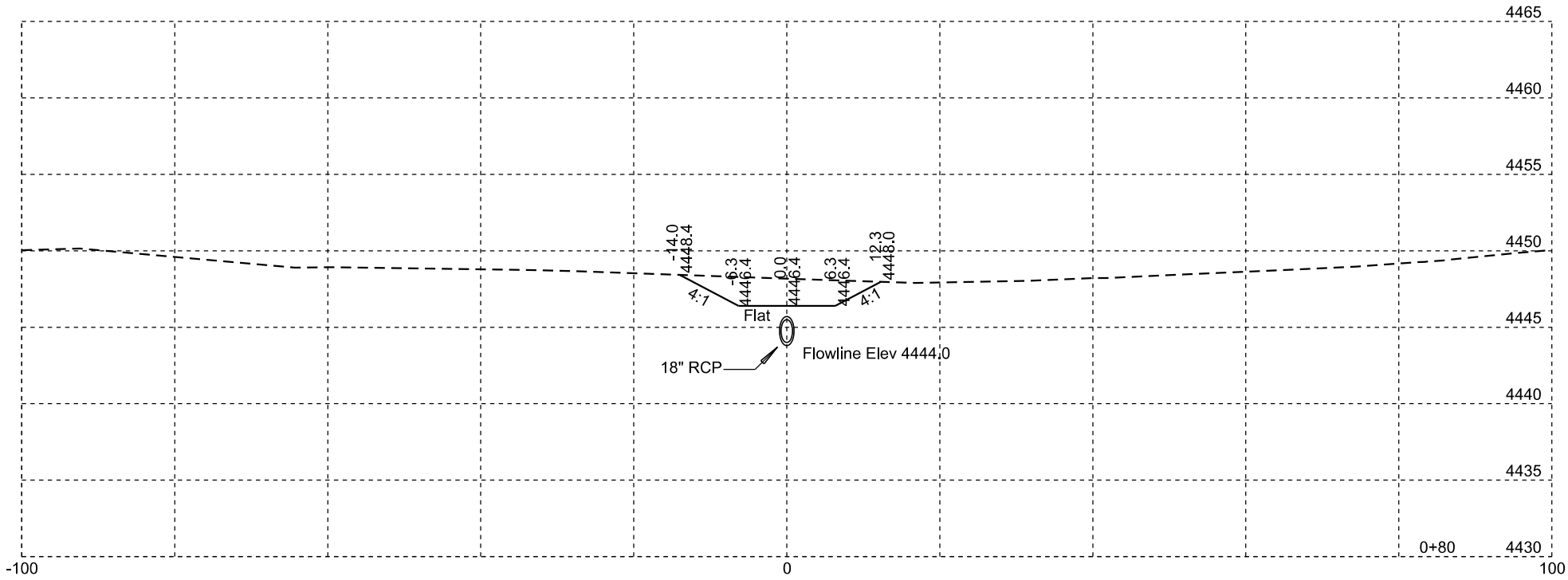
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PLOTTED FROM - TRRC12608

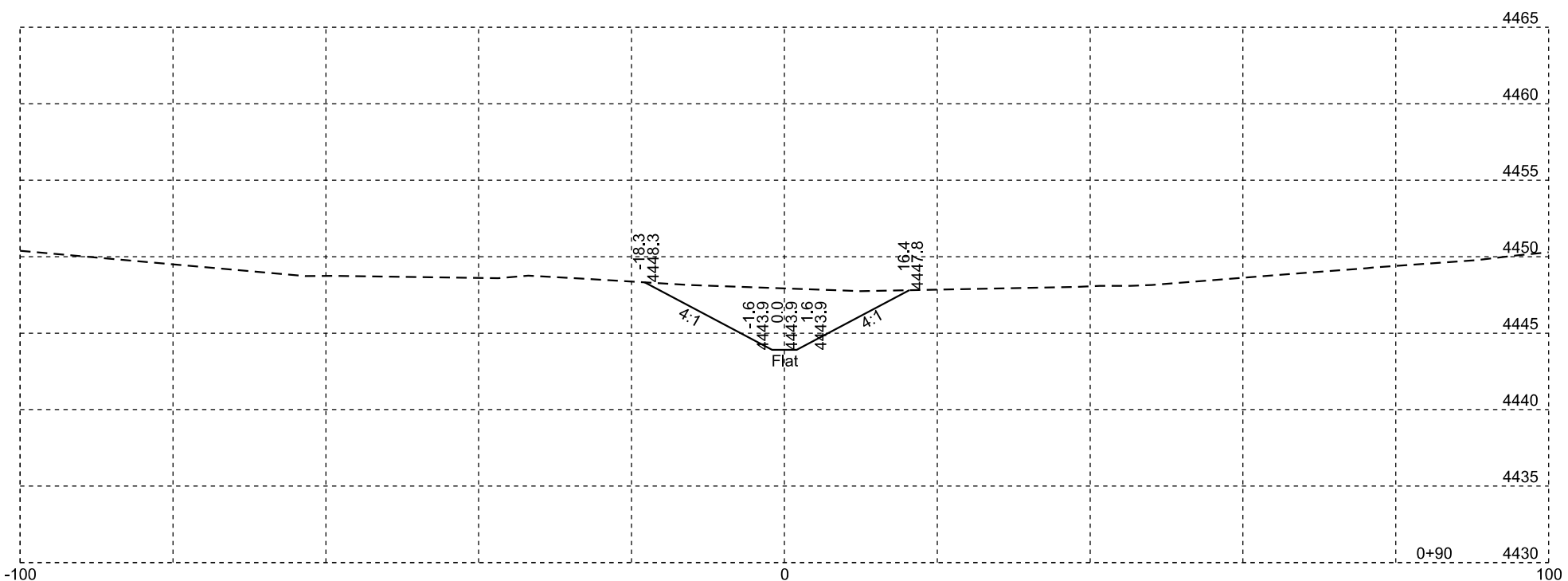
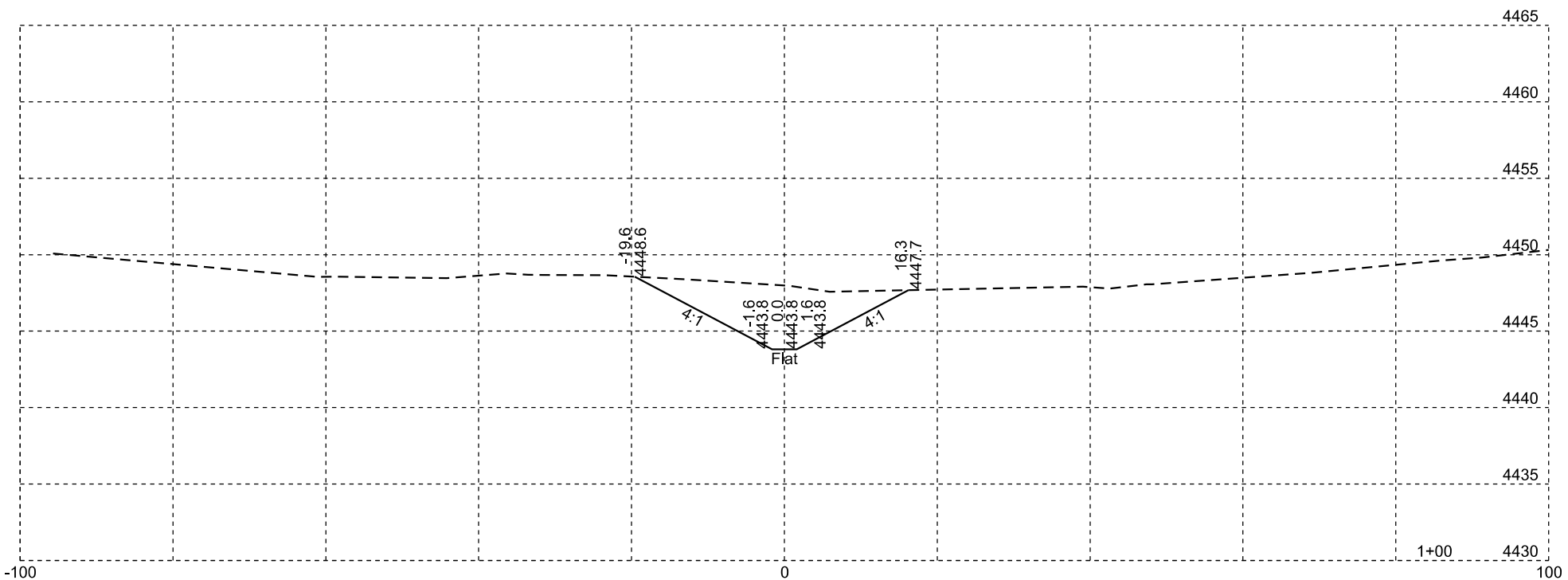
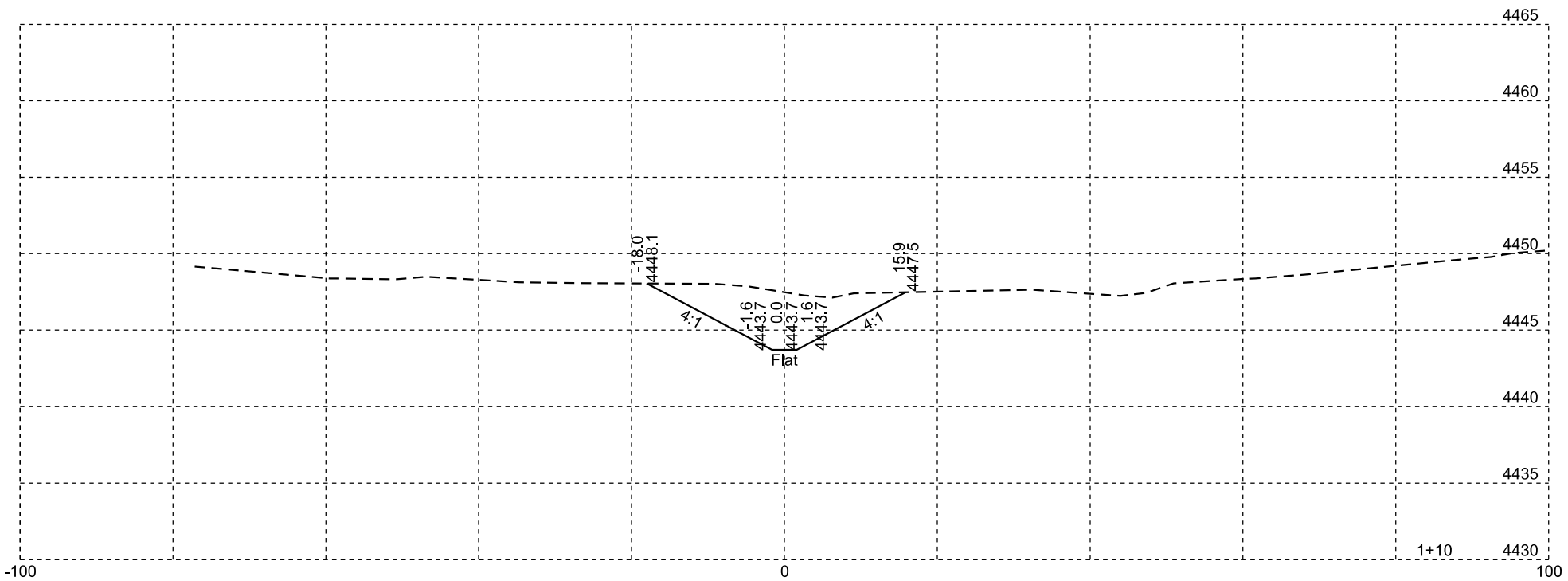
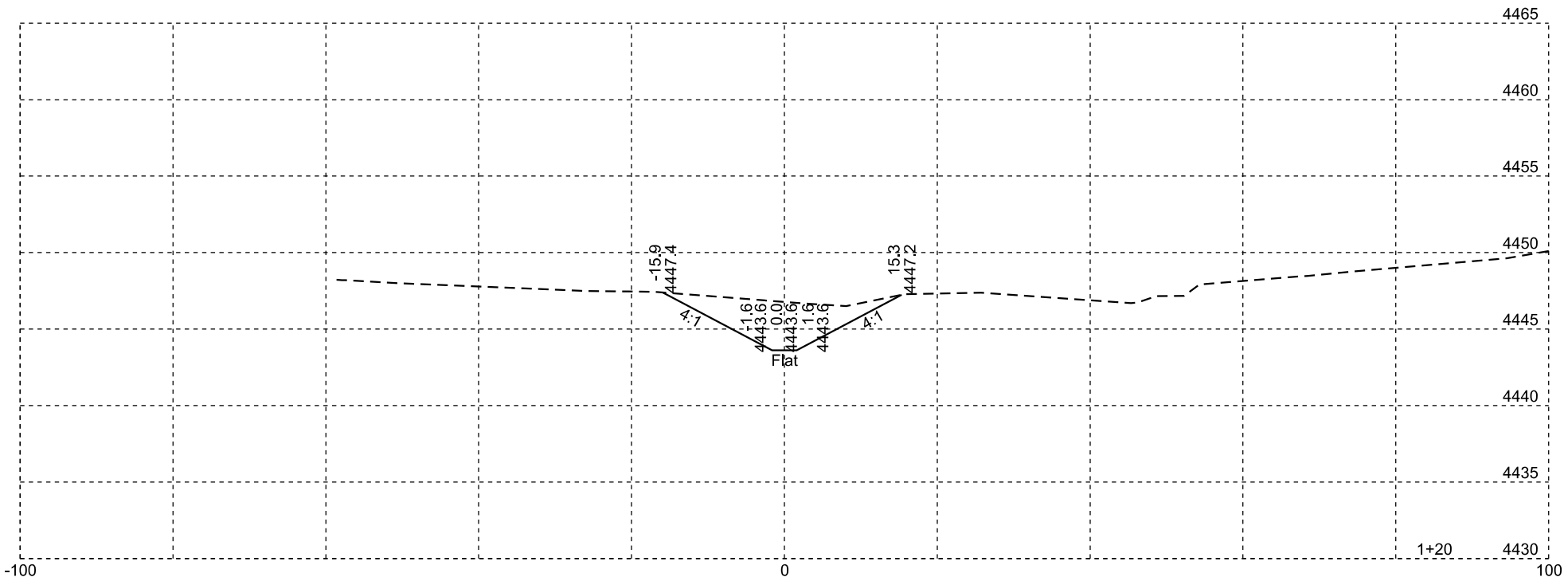
PLOT NAME - 3

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# EROSION CONTROL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0009-451	10	15

Plotting Date: 04/13/2012

PLOT SCALE - 1"=30.25'

PLOTTED FROM - TRRC12608

PLOT NAME - 7

FILE - ...\\12J6\_CRESENTDR\\E12J6EC.DGN

0+00 to 0+40  
Install 50 SqYd of Type 4  
Erosion Control Blanket

0+80 to 1+40 (approximate)  
Install 107 SqYd of Type 4  
Erosion Control Blanket

0+80 to 1+40 (approximate)  
Install 144 ft of 12" Diameter  
Erosion Control Wattles



Type 4 Erosion Control Blanket



12" Erosion Control Wattle



SDDOT Property Line

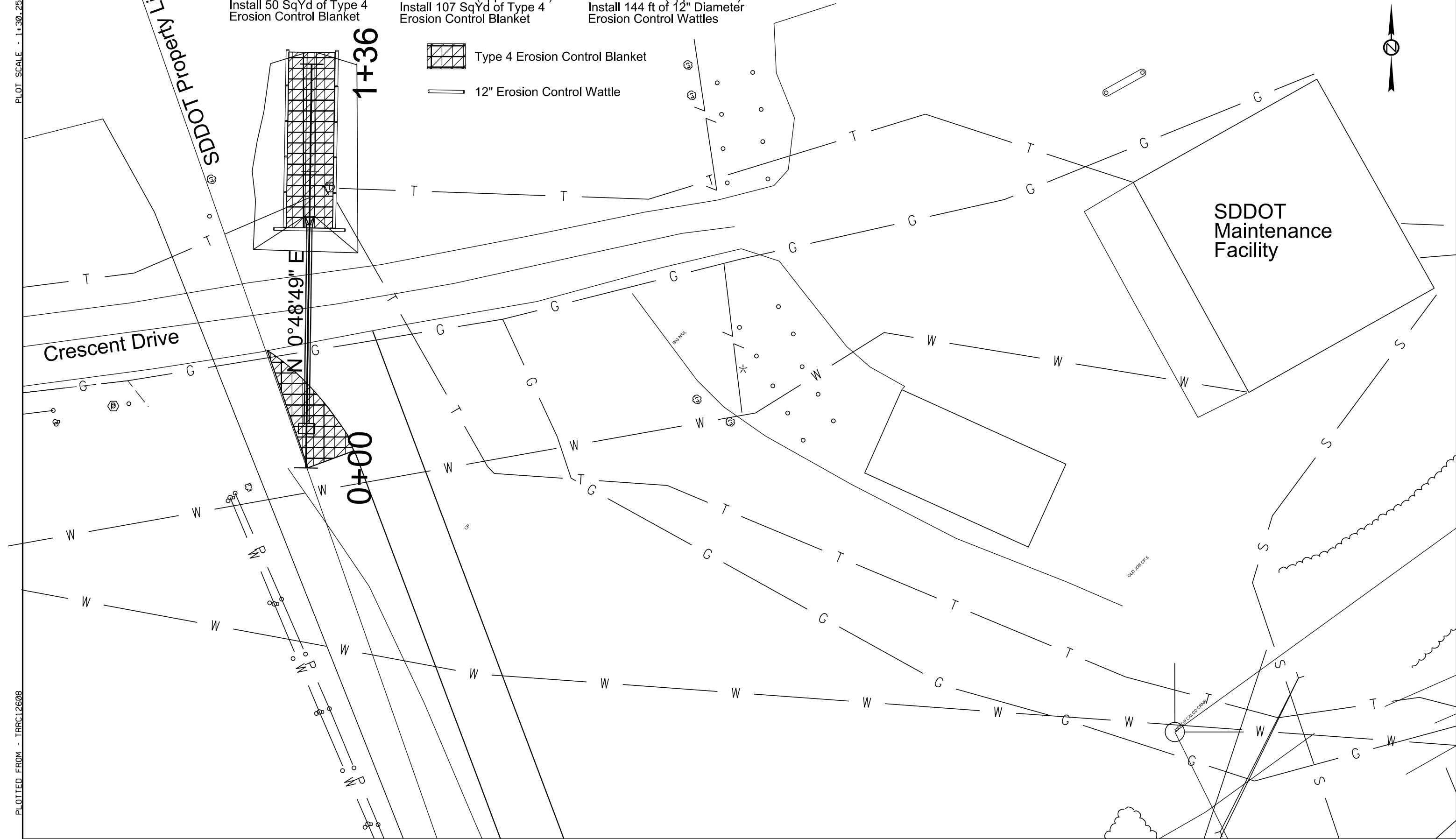
Crescent Drive

SDDOT  
Maintenance  
Facility

0+00

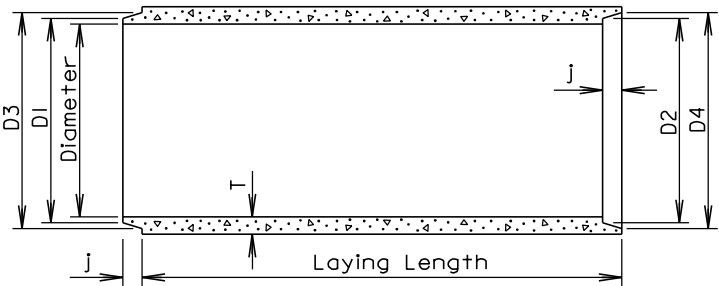
1+36

N 0°48'49" E

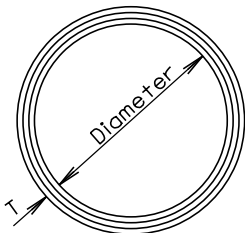


TOLERANCES IN DIMENSIONS

Diameter:  $\pm 1.5\%$  for 24" Dia. or less and  $\pm 1\%$  or  $\frac{3}{8}"$  whichever is more for 27" Dia. or greater.  
Diameters at Joints:  $\pm 3/16"$  for 30" Dia. or less and  $\pm 1/4"$  for 36" or greater.  
Length of joint (J):  $\pm 1/4"$ .  
Wall thickness (T): not less than design T by more than 5% or  $\frac{3}{16}"$ , whichever is greater.  
Laying length: shall not underrun by more than  $\frac{1}{2}"$ .



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Construction of R.C.P. shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.

Not more than 2 four foot sections shall be permitted near the ends of any culvert. Four foot lengths shall be used only to secure the required length of culvert.

Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 1/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
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March 31, 2000

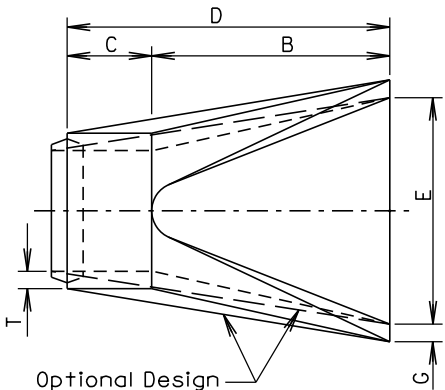
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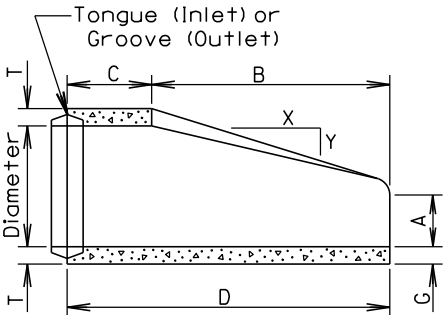
REINFORCED CONCRETE PIPE

PLATE NUMBER  
450.01

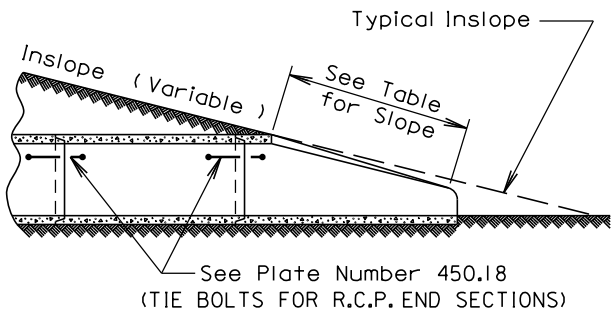
Sheet 1 of 1



TOP VIEW



LONGITUDINAL SECTION

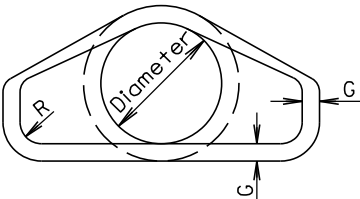


SLOPE DETAIL

GENERAL NOTES:

Lengths of concrete pipe shown on Plan Sheets are between flared Ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: 1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4: 1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3: 1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4: 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5: 1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5: 1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5: 1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5: 1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5: 1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5: 1	5	24	72	26	98	84	5	1 1/2
54	8240	2: 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9: 1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7: 1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8: 1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8: 1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6: 1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5: 1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

March 31, 2000

Published Date: 1st Qtr. 2012

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R. C. P. FLARED ENDS

PLATE NUMBER  
450.10

Sheet 1 of 1

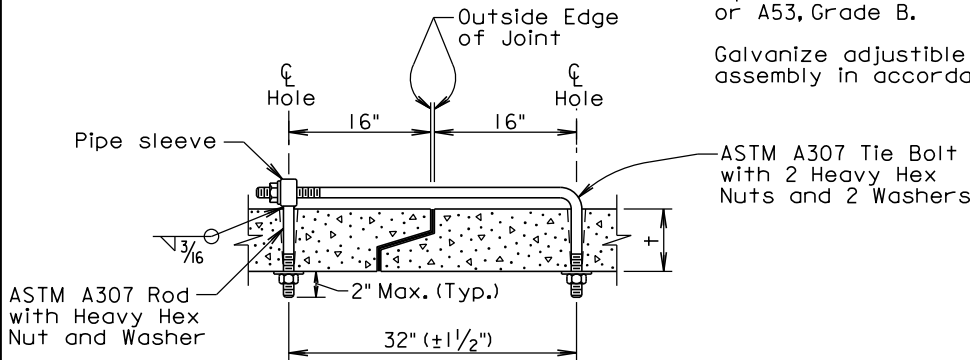
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
$\leq 3\frac{1}{4}$	$\frac{5}{8}$	$\frac{3}{4}$
$3\frac{1}{2}$ - $6\frac{1}{2}$	$\frac{3}{4}$	1
$\geq 7$	1	$1\frac{1}{4}$

GENERAL NOTES:

Tie bolts shall conform to ASTM A307, Grade C. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

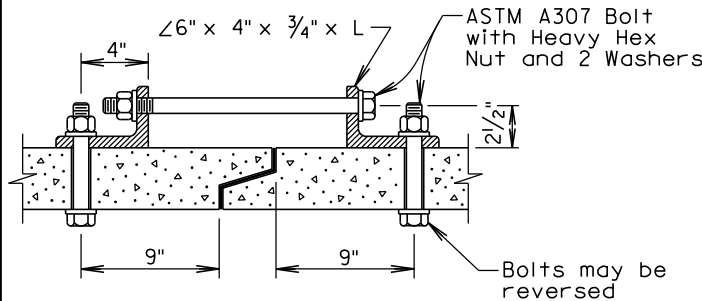
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
$\leq 48$	4	$\frac{3}{4}$
$> 48$	6	1

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



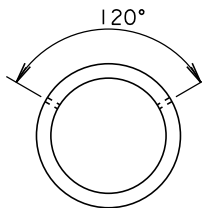
ANGLE AND BOLT TIE

GENERAL NOTES:

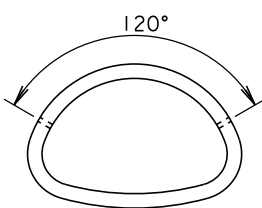
In lieu of tie bolts detailed above, tecktonius fasteners or other type tie bolt connections may be installed if approved by the Engineer.

The first three sections (both inlet and outlet) of R.C.P. and R.C.P. Arch up to and including the 78" diameter or equivalent pipe shall be tied with tie bolts. Pipe sizes larger than 78" diameter or equivalent diameter shall have all sections tied. Each end section is considered as one section.

There will be no separate measurement or payment for tie bolts. The cost of the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.



END VIEW  
"CIRCULAR"



END VIEW  
"ARCH"

September 14, 2011

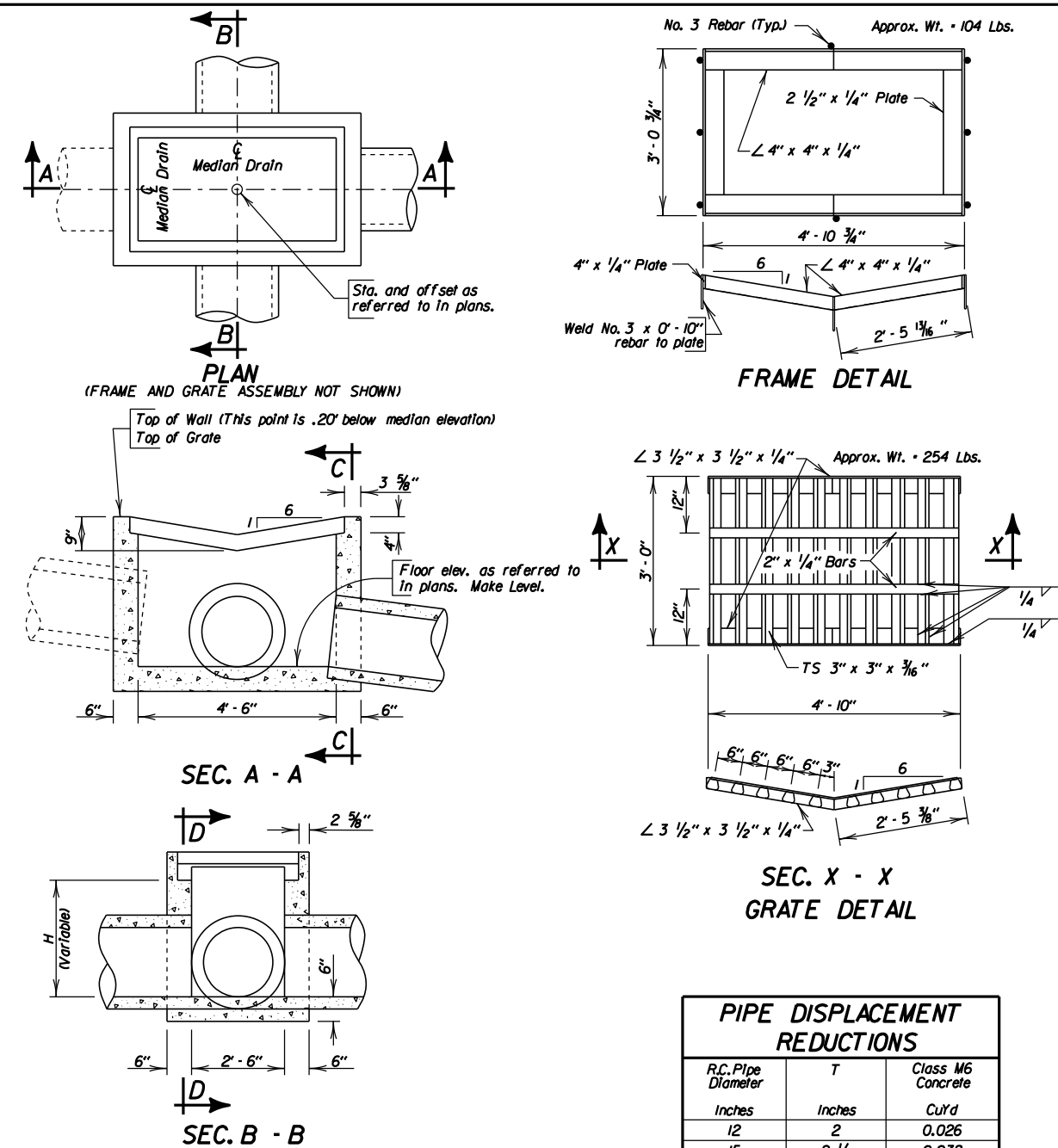
Published Date: 1st Qtr. 2012

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TIE BOLTS FOR  
R.C.P. END SECTIONS

PLATE NUMBER  
450.18

Sheet 1 of 1



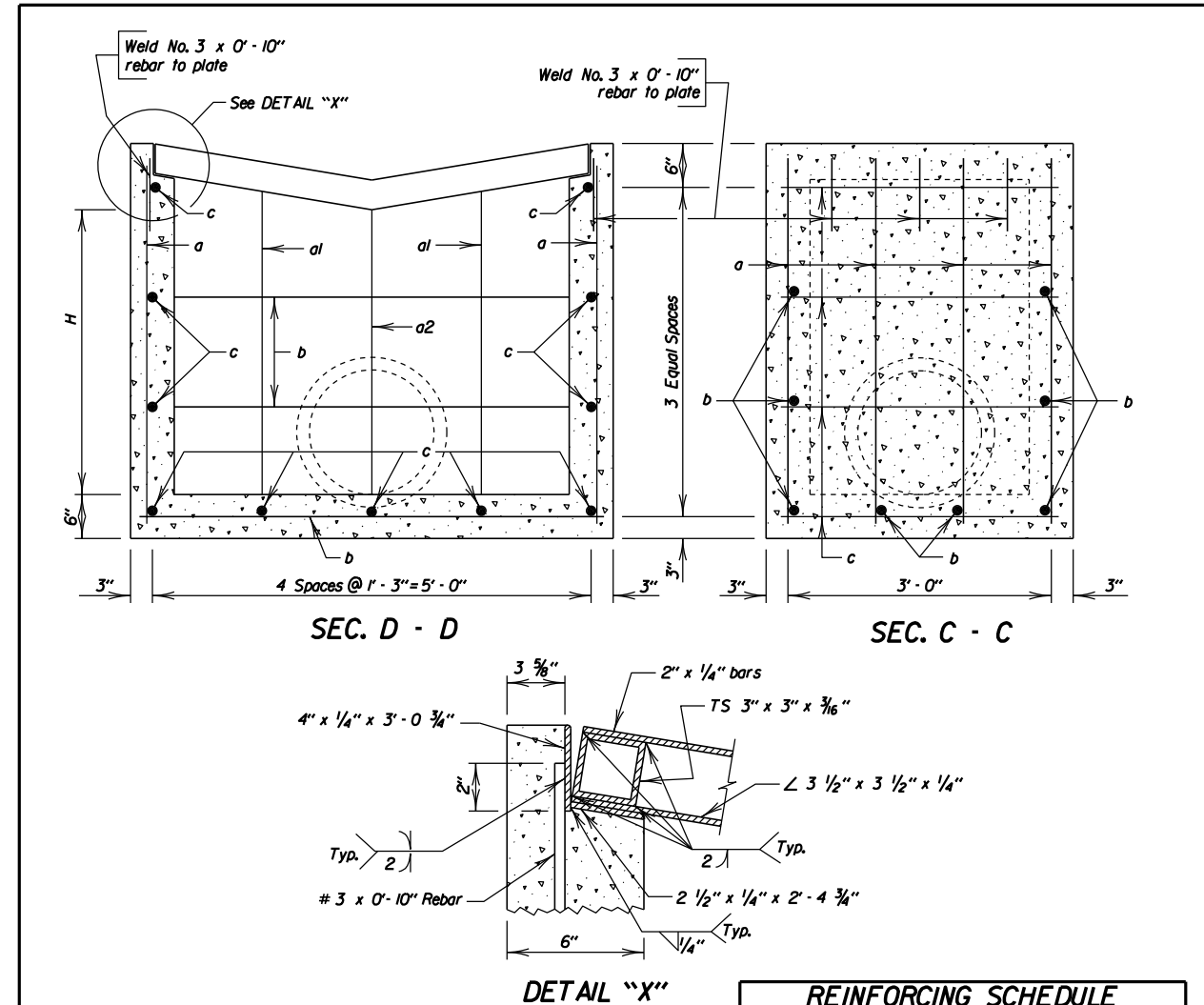
ESTIMATED QUANTITIES			
Item	Unit	Constant Quantity	Variable Quantity
* Class M6 Concrete	CuYd	0.49	0.30H
Reinforcing Steel	Lb	61	9.35H
Type M Frame and Grate Assembly	Each	1	

\* Reduce total quantities of concrete by the volume displaced by the pipe.

PIPE DISPLACEMENT REDUCTIONS		
R.C. Pipe Diameter	T	Class M6 Concrete
Inches	Inches	CuYd
12	2	0.026
15	2 1/4	0.038
18	2 1/2	0.053
24	3	0.091
30	3 1/2	0.138
36	4	0.196
42	4 1/2	0.263

September 14, 2001

Published Date: 1st Qtr. 2012	S D D O T	TYPE M MEDIAN DRAIN	PLATE NUMBER 670.65
			Sheet 1 of 2



#### GENERAL NOTES:

Maximum H = 4'-0"

The dimension of H is in feet.

The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Cut and bend reinforcing steel during construction as necessary to accommodate pipe outlet.

All Concrete shall be Class M6.

All reinforcing steel shall conform to ASTM A615 Grade 60.

All structural steel shall conform to ASTM A36. Tubes shall conform to ASTM A500 or A501.

All exposed edges shall be chamfered 3/4 inch.

Use 1 1/2 inch clear cover on all reinforcing steel except as shown.

After welding is complete, galvanize the frame and grate assembly in accordance with AASHTO M111 (ASTM A123). For information only, the estimated weight of the frame and grate assembly is 358 pounds.

Type M Median Drain shall be paid for at the contract unit price per each or by the individual bid items as shown in the plans, which shall be full compensation for furnishing all materials and labor including necessary excavation and backfill required to construct one complete drain.

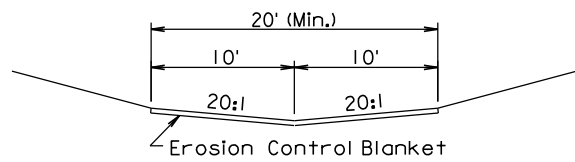
The location and size of pipe outlet from the drain shall be as noted on cross section sheets.

REINFORCING SCHEDULE (For 1 drain)					
Mk.	No.	Size	Length	Type	
a	8	4	H + 12"	Str.	
a1	4	4	H + 10"	Str.	
a2	2	4	H + 9"	Str.	
b	8	4	5' - 3"	Str.	
c	11	4	3' - 3"	Str.	

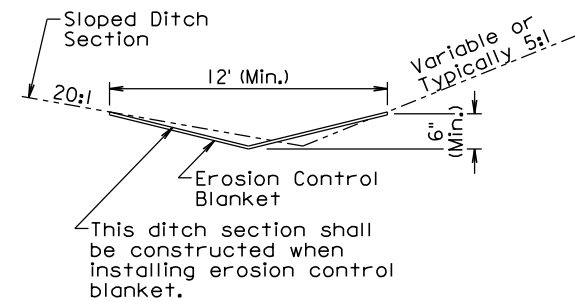
NOTE:  
All dimensions are out to out of bars.

September 14, 2001

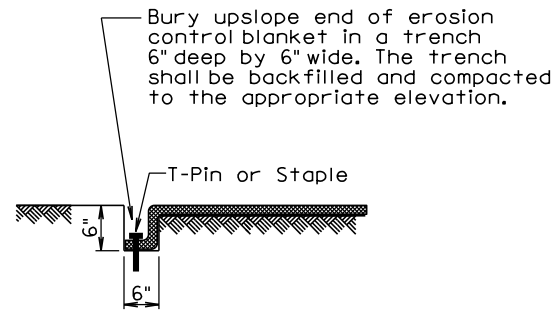
Published Date: 1st Qtr. 2012	S D D O T	TYPE M MEDIAN DRAIN	PLATE NUMBER 670.65
			Sheet 2 of 2



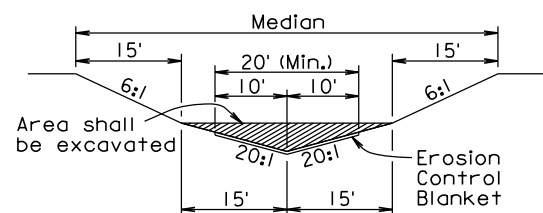
STANDARD DITCH SECTION



SLOPED DITCH SECTION

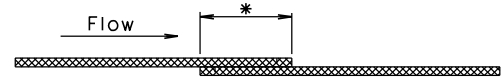


TRENCH DETAIL



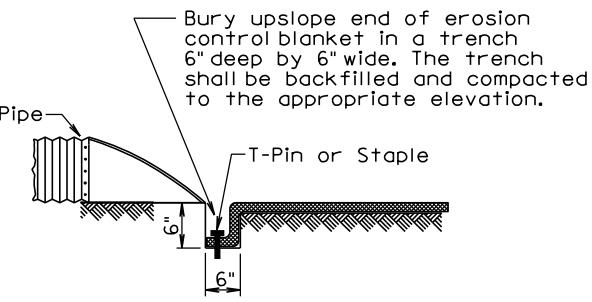
The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN 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



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.

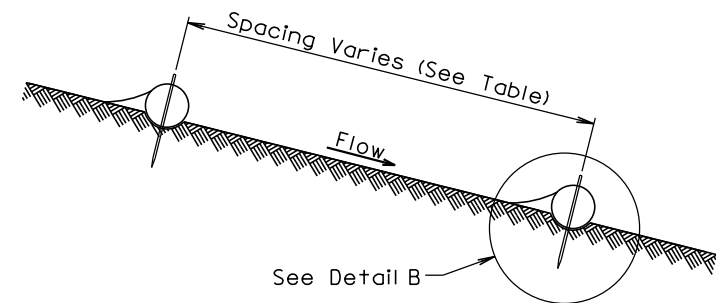
The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

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".

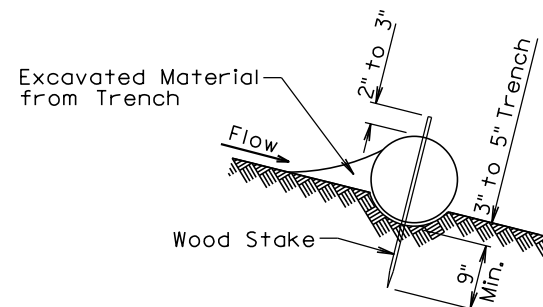
December 23, 2004

Published Date: 1st Qtr. 2012	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

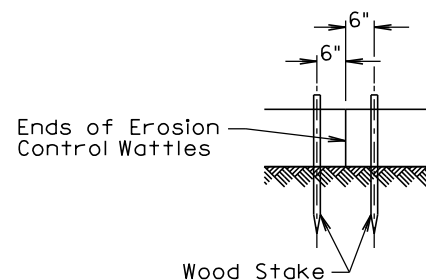


ELEVATION VIEW  
CUT OR FILL SLOPE INSTALLATION

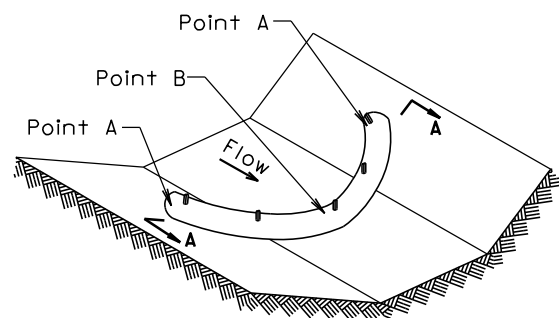
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



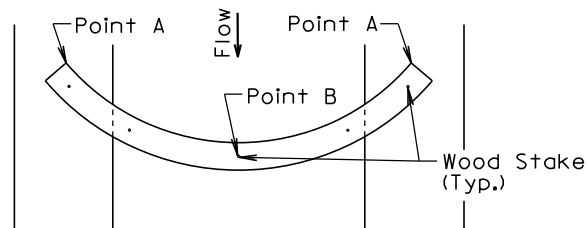
DETAIL B  
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

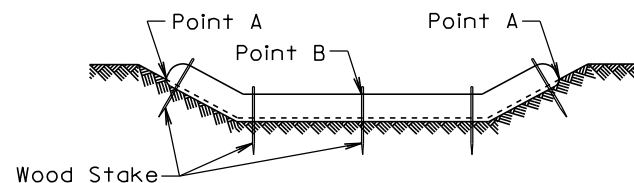


ISOMETRIC VIEW  
DITCH INSTALLATION



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: 1st Qtr. 2012

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EROSION CONTROL WATTLE

PLATE NUMBER  
734.06

Sheet 1 of 2

#### 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: 1st Qtr. 2012

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EROSION CONTROL WATTLE

PLATE NUMBER  
734.06

Sheet 2 of 2