

STATE OF SOUTH DAKOTA  
 DEPARTMENT OF TRANSPORTATION  
 PLANS FOR PROPOSED

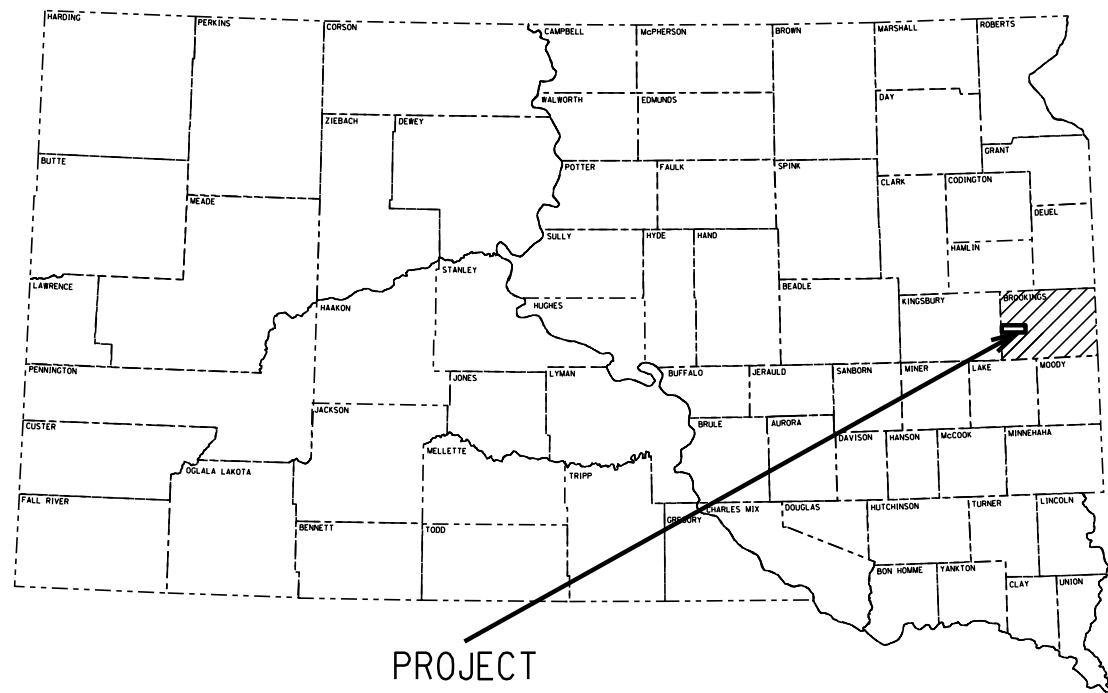
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	1	22
Plotting Date: 05/15/2017			

**PROJECT 014 E-171 & 014-171**  
**U.S. HIGHWAY 14E & 14**  
**BROOKINGS COUNTY**

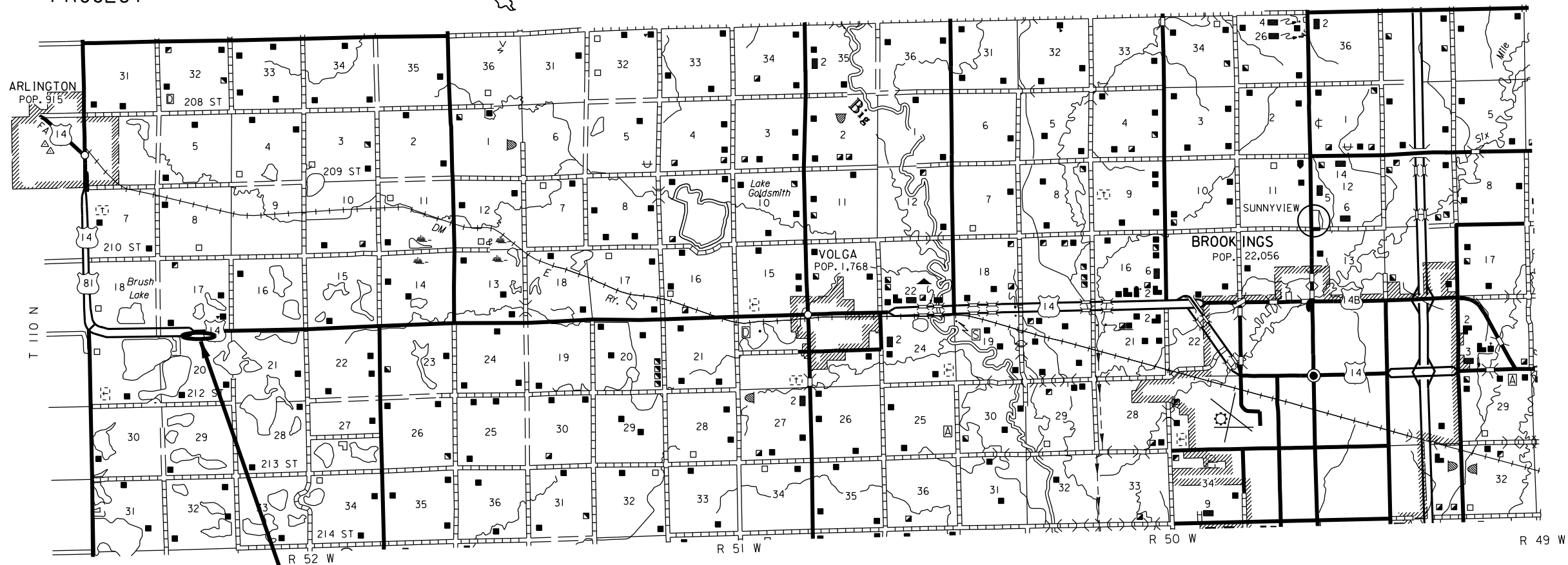
REPAIR INSLOPE EROSION  
 PCN i48g & i48h

INDEX OF SHEETS

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PROJECT



Project 014 E-171 & 014-171  
 PCN i48G & i48H  
 MRM 404.3 to 404.7

SCALES

PLAN	RURAL	1"=200'
PROFILE	HORIZONTAL:	1"=200'
	VERTICAL:	1"=20'
CROSS SECTIONS	HORIZONTAL:	1"=40'
	VERTICAL:	1"=20'

DESIGN DESIGNATION  
 US 14

ADT (2015)	4294
ADT (2035)	5681
DHV	915
D	50%
T DHV	8.6%
T ADT	19.0%

STORM WATER PERMIT  
 (None Required)

PLOT SCALE - 1"=9000'

PLOTTED FROM - TRAB17882

PLOT NAME - 1

FILE - ... \148F TITLE SHEET.DGN

# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	014 E-171 & 014-171	2	22

## 014 E-171, PCN i48g

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow Excavation	116	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	92.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0210	Class B Riprap	1,033.0	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0630	Floating Silt Curtain	475	Ft
831E0110	Type B Drainage Fabric	1,410	SqYd

## 014-171, PCN i48h

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1700	Remove Silt Fence	25	Ft
120E0600	Contractor Furnished Borrow Excavation	91	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	92.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0210	Class B Riprap	918.0	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0602	Low Flow Silt Fence	90	Ft
734E0610	Mucking Silt Fence	6	CuYd
734E0620	Repair Silt Fence	25	Ft
734E0630	Floating Silt Curtain	315	Ft
831E0110	Type B Drainage Fabric	1,254	SqYd

### SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

### ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

#### COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

#### Action Taken/Required:

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

#### COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

#### Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for 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 Project Engineer.

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

1. Construction and/or 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 and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public 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 Public ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10.06.

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

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

#### COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

#### Action Taken/Required:

All earth disturbing activities require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC 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 artifacts have not been found on the site.

# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	014 E-171 & 014-171	3	22

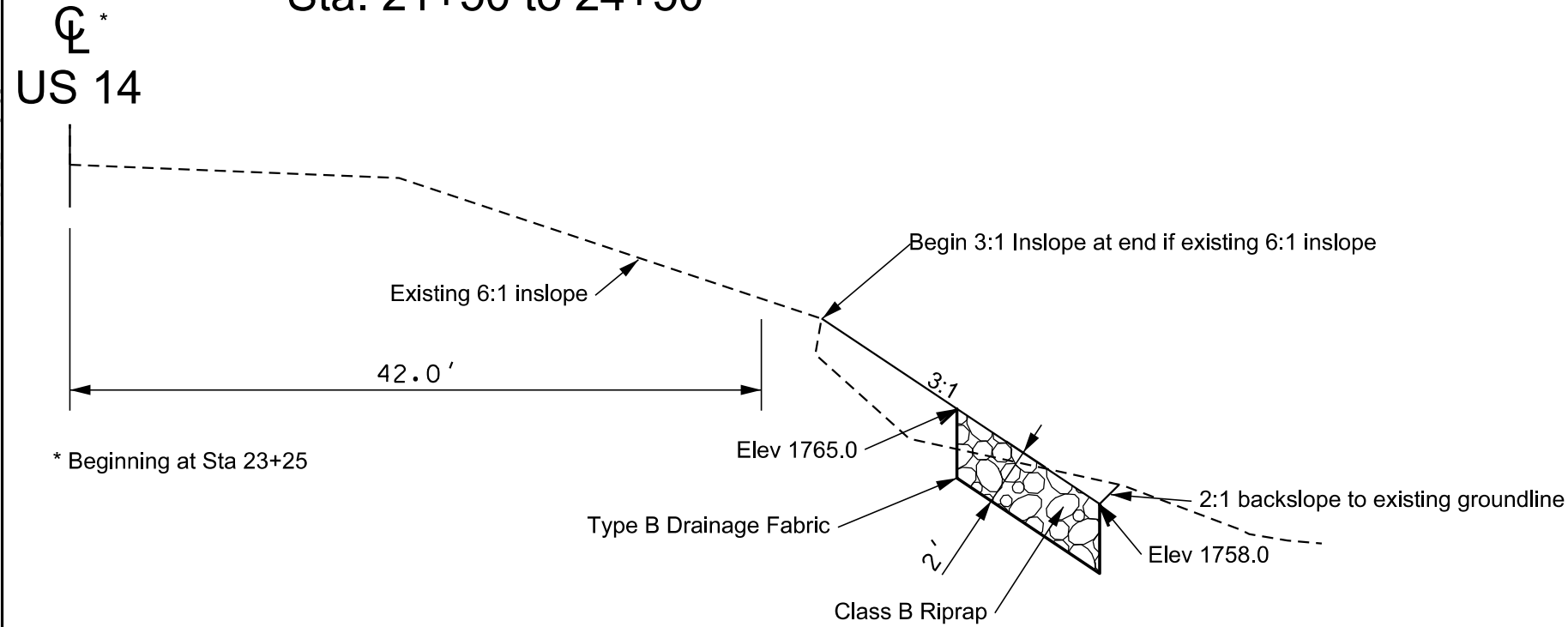
The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

The Contractor obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	4	22
Plotting Date: 03/20/2017			

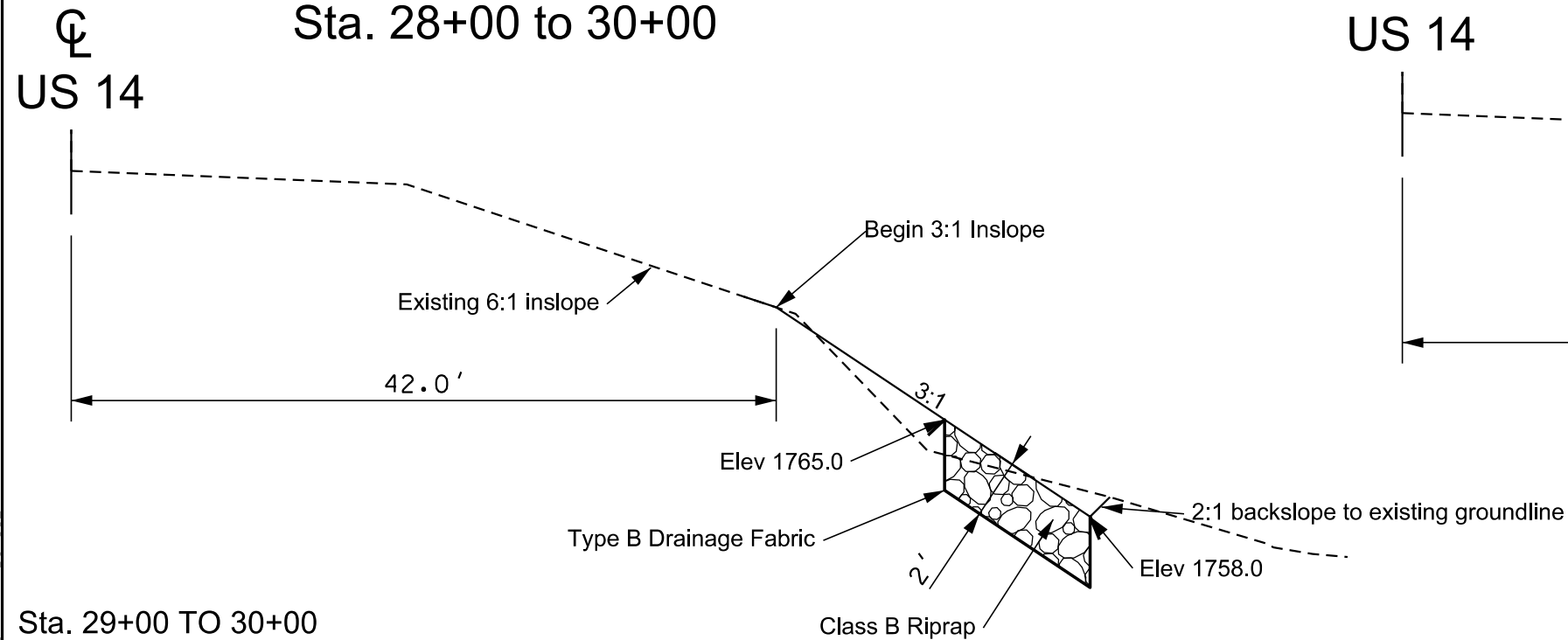
### TYPICAL RIPRAP DETAIL Sta. 21+50 to 24+50



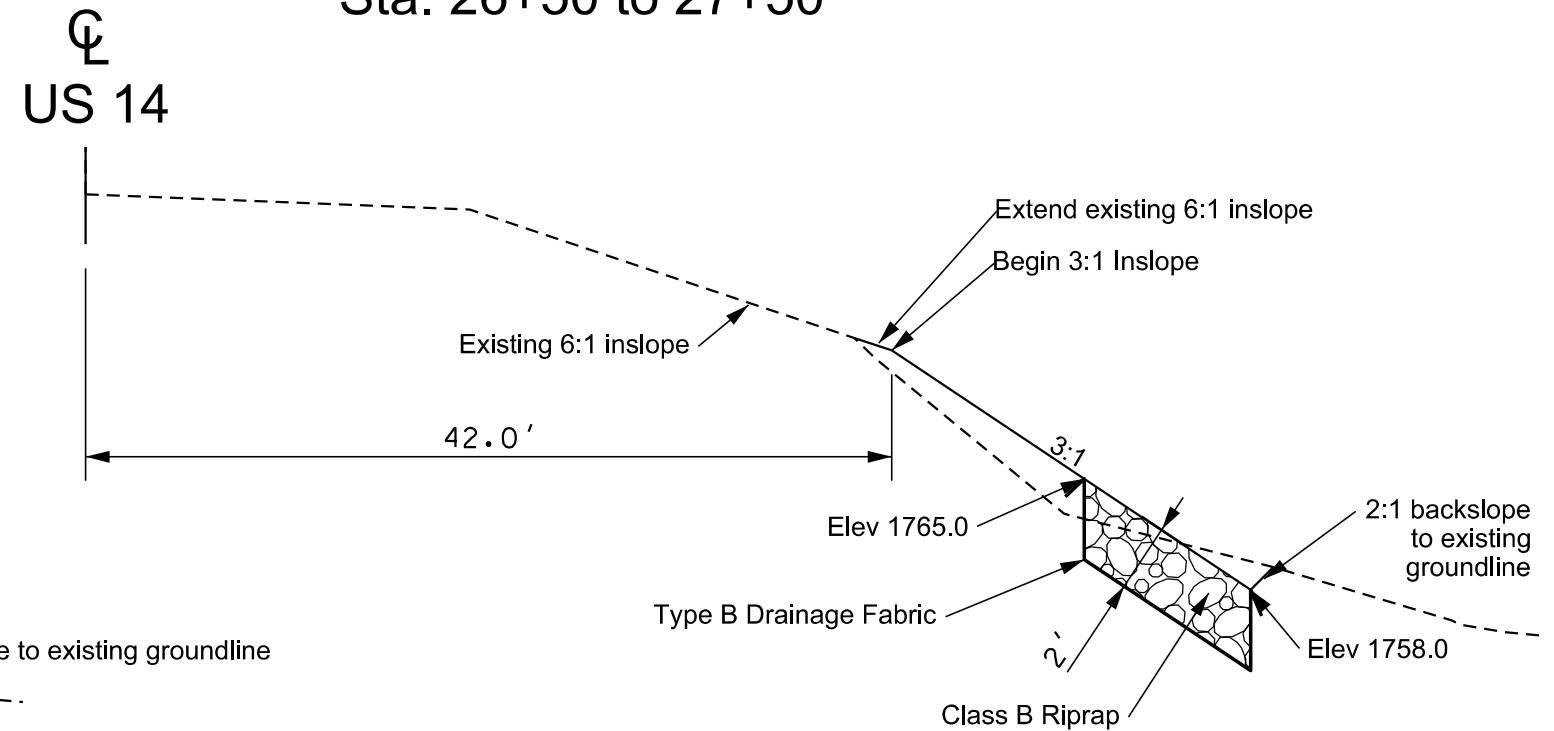
Water Elevation on 3-29-16  
1762.0

\* Beginning at Sta 23+25

### TYPICAL RIPRAP DETAIL Sta. 25+00 to 26+00 Sta. 28+00 to 30+00



### TYPICAL RIPRAP DETAIL Sta. 26+50 to 27+50



Sta. 29+00 TO 30+00  
Class B Riprap shall be buried within present inslope.

Sta 28+50 to 29+00  
Transition from Class B Riprap being exposed to Class B Riprap being buried within present inslope.

PLOT SCALE - 1:10

PLOT NAME - 2

FILE - ... \148F TYPICALS.DGN

PLOTTED FROM - TRAB17882

**SCOPE OF WORK**

Work on this project involves restoring and protecting the inslope with riprap on US14.

**SEQUENCE OF OPERATIONS**

The following general Sequence of Operations shall be adhered to. Any changes must be approved in writing by the Area Engineer prior to changes being made.

1. Install temporary erosion measures.
2. Complete inslope restoration.
3. Complete erosion control.
4. Complete any remaining project cleanup.

**UTILITIES**

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

**TRAFFIC CONTROL**

Flaggers and FLAGGER symbol signs shall be in place when hauling material to the project site. These shall also be provided when work activities or equipment present a hazard to workers and/or through traffic, or encroaches into driving lanes open to traffic.

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost of this work shall be incidental to the various contract items unless otherwise specified in the plans. Delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Work activities during non-daylight hours are subject to prior approval.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

Traffic Control signs, as shown in the Itemized List for Traffic Control Signs, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

**REMOVE AND REPLACE TOPSOIL**

Topsoil shall be salvaged and stockpiled prior to construction. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

All costs associated with removing and replacing the topsoil shall be incidental to the contract lump sum price for "Remove and Replace Topsoil".

**DRAINAGE FABRIC AND RIPRAP**

The drainage fabric and riprap shall be placed as per Typical Section on the inslopes. The limits of riprap placement may be adjusted in the field by the Engineer. 1' of additional fabric at the top and bottom limits of riprap placement has been added to the estimate of quantities for Type B Drainage Fabric.

Compaction of inslope embankments shall be to the satisfaction of the Engineer.

Class B Riprap shall be measured and paid for by the ton in place as shown on the weigh ticket which shall accompany each load.

The Contractor shall be required to place fabric and riprap around any pipe culverts and not obstruct water flow in these areas. Riprap placement shall not damage or impede culverts.

The quantity of Type B Drainage Fabric shown in the Estimate of Quantities is based upon the typical sections.

**CONTRACTOR FURNISHED BORROW EXCAVATION**

The Contractor shall provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer. The plans quantity for "Contractor Furnished Borrow Excavation" as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site shall be the responsibility of the Contractor.

Material removed for the installation of the Riprap may be used for Contractor furnished borrow excavation material, with the approval of the Engineer.

Compaction of Contractor furnished borrow excavation material shall be to the satisfaction of the Engineer.

**LOW FLOW SILT FENCE**

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

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

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

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

**TABLE OF LOW FLOW SILT FENCE**

Station	L/R	Location	Quantity (Ft)
28+65 to 30+35	R	Lake	70
		Additional Quantity:	20
		Total:	90

**FLOATING SILT CURTAIN**

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

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

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

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

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

ABASCO, LLC Houston, TX Phone: 1-800-242-7745 <a href="http://www.abasco.net">www.abasco.net</a>	Aer-Flo, Inc. Bradenton, FL Phone: 1-800-823-7356 <a href="http://www.aerflo.com">www.aerflo.com</a>
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American Boom and Barrier Corp. Cape Canaveral, FL Phone: 1-800-843-2110 <a href="http://www.abbcoboom.com">www.abbcoboom.com</a>	ENVIRO-USA, LLC Cocoa, FL Phone: 1-321-222-9551 <a href="http://www.enviro-usa.com">www.enviro-usa.com</a>
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Elastec/American Marine, Inc. Carmi, IL Phone: 1-618-382-2525 <a href="http://www.turbiditycurtains.com">www.turbiditycurtains.com</a>	Geo-Synthetics, LLC (GSI) Waukesha, WI Phone: 1-800-444-5523 <a href="http://www.geosynthetics.com">www.geosynthetics.com</a>
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Parker Systems, Inc.  
Chesapeake, VA  
Phone: 1-866-472-7537  
[www.parkersystemsinc.com](http://www.parkersystemsinc.com)

**TABLE OF FLOATING SILT CURTAIN**

Station	to	Station	L/R	Quantity (Ft)
21+25		29+15	R	790
Total:				790

**EROSION CONTROL**

The estimated area requiring erosion control is 1/4 acre, plus any additional area the control disturbs to complete the work. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, inoculum and mulching shall be incidental to the contract lump sum price for "Erosion Control".

The limits of erosion control work will be determined by the Engineer during construction.

**Mulching (Grass Hay or Straw)**

Grass Hay or Straw Mulch shall be placed as an Intermediate Phase temporary stabilization as well as for the Final Phase of stabilization with the permanent seeding on areas determined by the Engineer during construction.

**Mycorrhizal Inoculum**

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

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

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre.

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

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

**Fertilizing**

Application of fertilizer will not be required on this project.

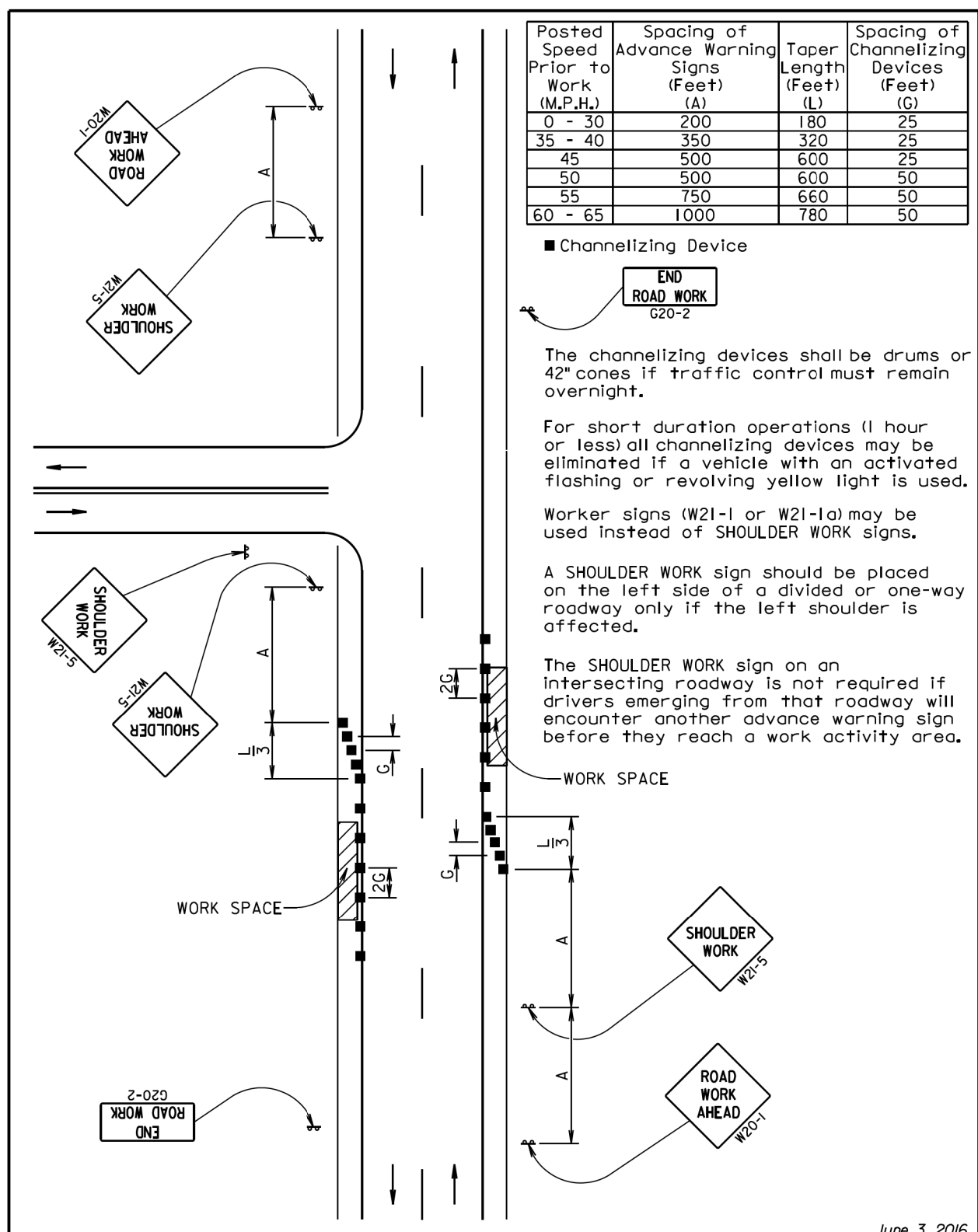
**Permanent Seeding**

The areas to be seeded consist of all disturbed areas within the project limits

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
Total:		18

PLOT SCALE - 1:200



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

**END ROAD WORK G20-2**

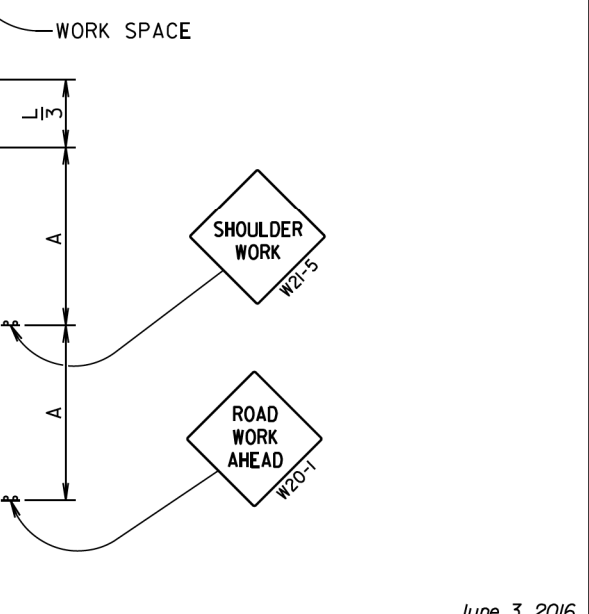
The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

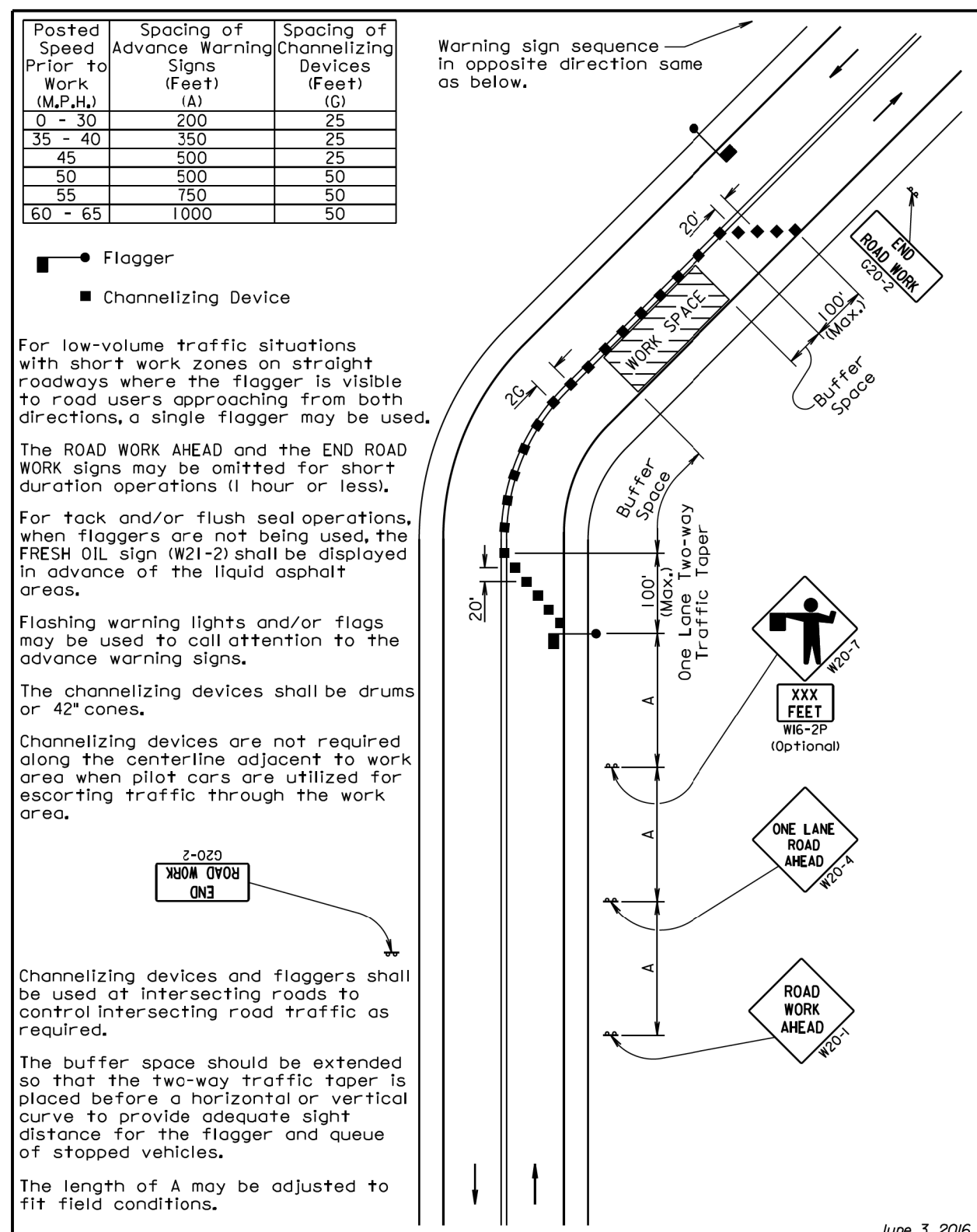
A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.



June 3, 2016

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS</b>	PLATE NUMBER <b>634.03</b>
	Published Date: 2nd Qtr. 2017	Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

● Flagger

■ Channelizing Device

Warning sign sequence in opposite direction same as below.

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

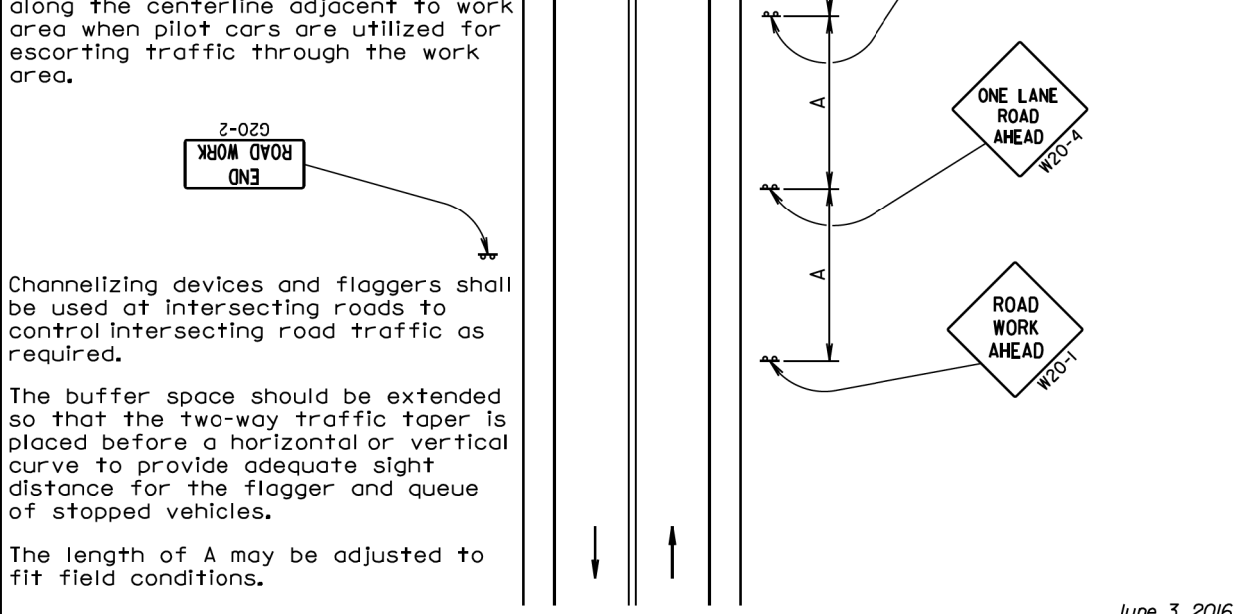
The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



June 3, 2016

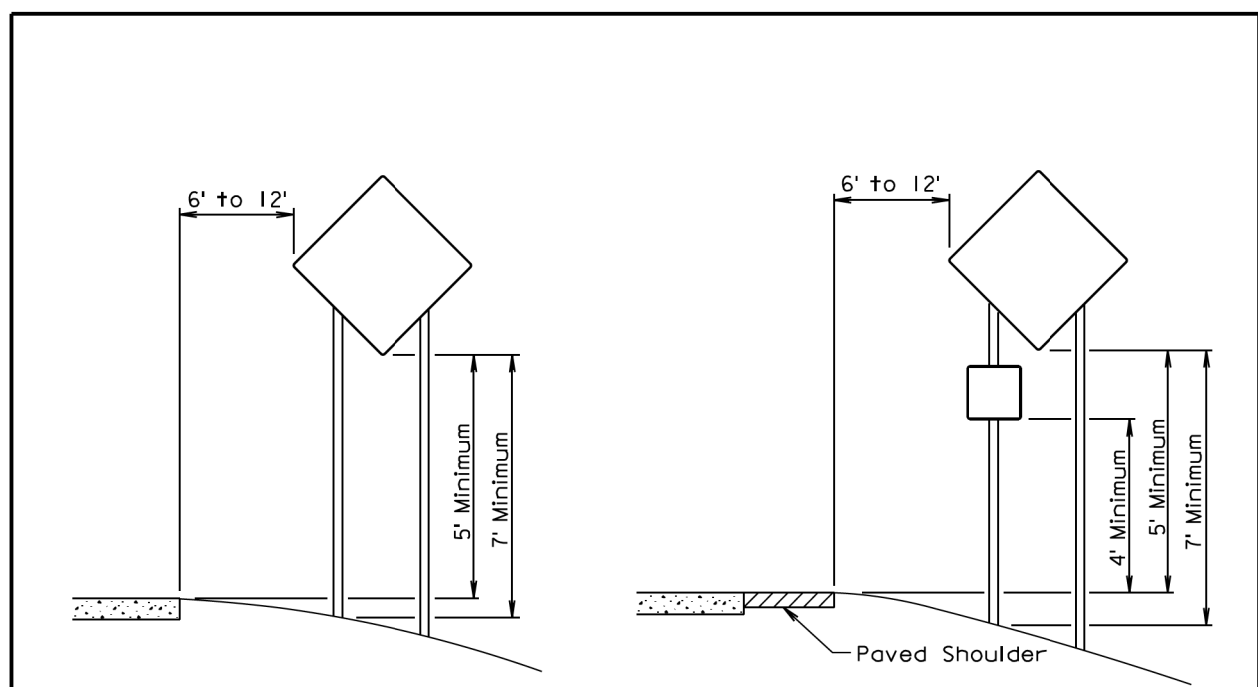
<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED</b>	PLATE NUMBER <b>634.23</b>
	Published Date: 2nd Qtr. 2017	Sheet 1 of 1

PLOT NAME - 7  
FILE - ... \63403\_ & 63423.DGN

PLOT SCALE - 1:200

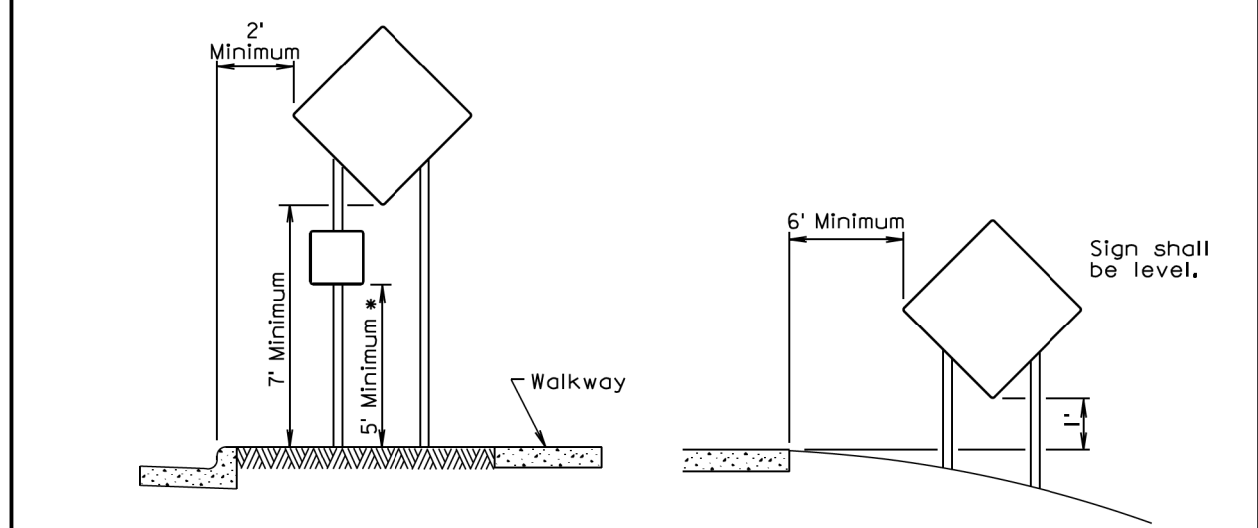
PLOT NAME - 8

FILE - ... \63485\_ & 63499.DGN



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

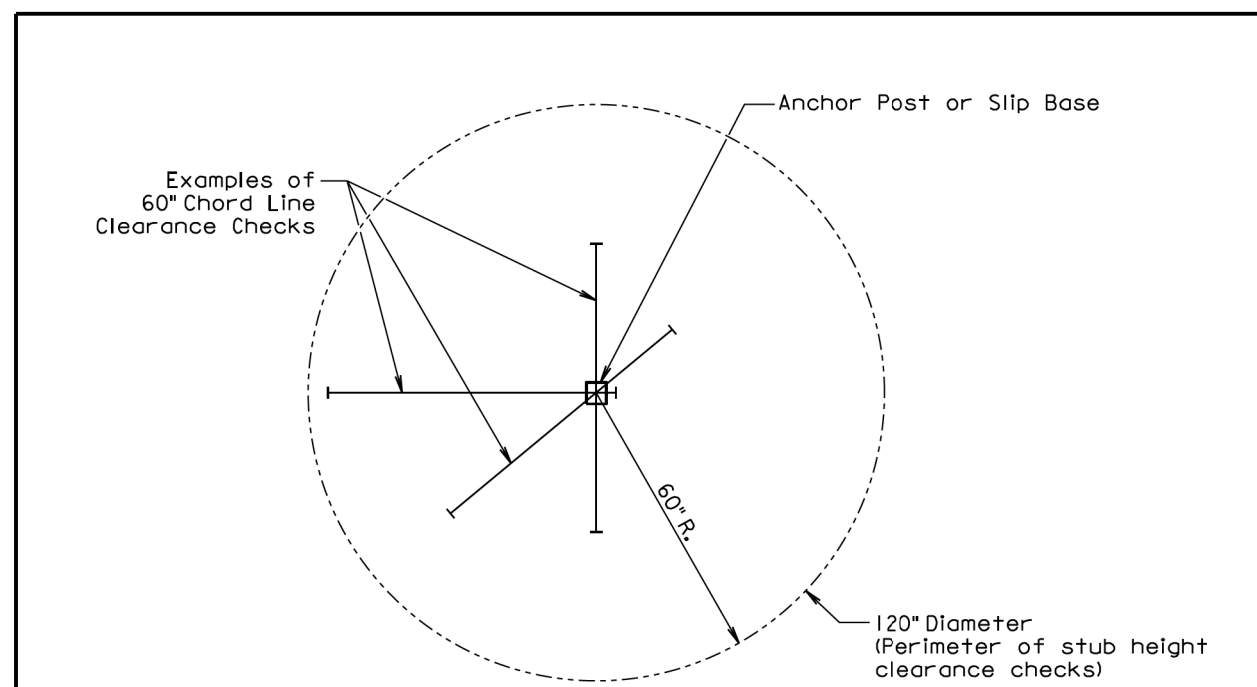
RURAL DISTRICT 3 DAY MAXIMUM

\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

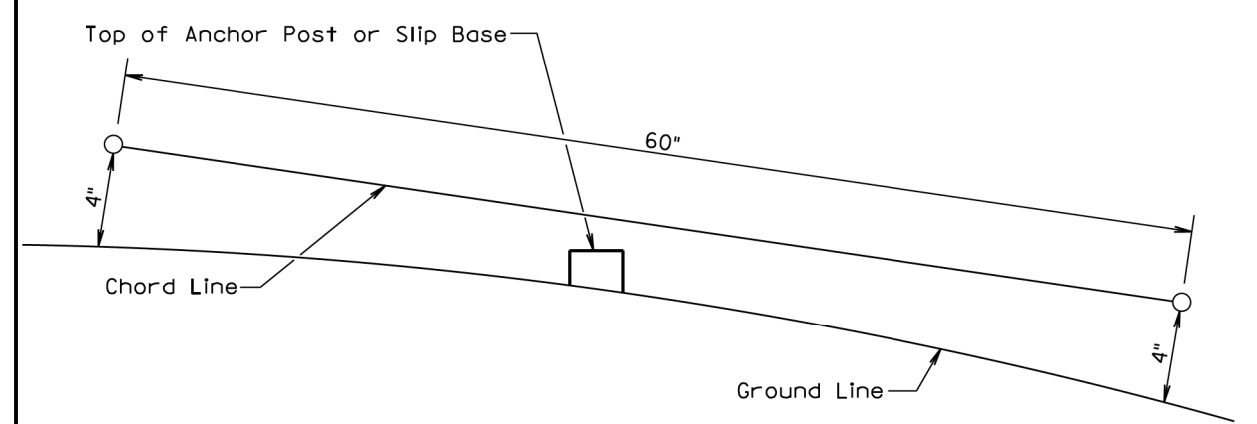
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 2nd Qtr. 2017	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW  
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.  
 At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.  
 The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 2nd Qtr. 2017	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	9	22

**ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS**

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	3	48" x 48"	16.0	48.0
W20-4	ONE LANE ROAD AHEAD	3	48" x 48"	16.0	48.0
W20-7	FLAGGER (symbol)	3	48" x 48"	16.0	48.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			<b>185.0</b>

# HORIZONTAL ALIGNMENT DATA

## US 14 MAINLINE

<u>Type</u>	<u>Station</u>			<u>Northing</u>	<u>Easting</u>
POB	20+78.42			1931050.657	2726837.567
		TL= 1169.39	N 87°51'45" E		
PI	32+47.81			193149.270	2728006.142
		TL= 2085.50	N 87°53'10" E		
POE	53+33.31			193226.194	2730090.228

# LEGEND

STATE OF SOUTH DAKOTA	PROJECT 014 E-171 014-171	SHEET 11	TOTAL SHEETS 22
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Plotting Date: 03/20/2017

Plot Scale - 1:200

Plotted From - trab17882

Anchor		Hedge		Shrub Tree		State and National Line	
Antenna		Highway R.O.W. Marker		Sidewalk		County Line	
Approach		Interstate Close Gate		Sign Face		Section Line	
Assumed Corner		Iron Pin		Sign Post		Quarter Line	
Azimuth Marker		Irrigation Ditch		Slough Or Marsh		Sixteenth Line	
BBQ Grill/ Fireplace		Lake Edge		Spring		Property Line	
Bearing Tree		Lawn Sprinkler		Stream Gauge		Construction Line	
Bench Mark		Mailbox		Street Marker		R. O. W. Line	
Box Culvert		Manhole Electric		Subsurface Utility Exploration Test Hole		New R. O. W. Line	
Bridge		Manhole Gas		Telephone Fiber Optics		Cut and Fill Limits	
Brush		Manhole Misc		Telephone Junction Box		Control of Access	
Buildings		Manhole Sanitary Sewer		Telephone Pole		New Control of Access	
Bulk Tank		Manhole Storm Sewer		Television Cable Jct Box		Proposed ROW (After Property Disposal)	
Cattle Guard		Manhole Telephone		Television Tower			
Cemetery		Manhole Water		Test Wells/Bore Holes			
Centerline		Merry-Go-Round		Traffic Signal			
Cistern		Microwave Radio Tower		Trash Barrel			
Clothes Line		Misc. Line		Tree Belt		Drainage Arrow	
Commercial Sign Double Face		Misc. Property Corner		Tree Coniferous			
Commercial Sign One Post		Misc. Post		Tree Deciduous		Remove Concrete Pavement	
Commercial Sign Overhead		Overhang Or Encroachment		Tree Stumps		Remove Concrete Driveway Pavement	
Commercial Sign Two Post		Overhead Utility Line		Triangulation Station		Remove Asphalt Concrete Pavement	
Concrete Symbol		Parking Meter		Underground Electric Line		Remove Concrete Sidewalk	
Creek Edge		Pipe With End Section		Underground Gas Line		Remove Concrete Approach Pavement	
Curb/Gutter		Pipe With Headwall		Underground High Pressure Gas Line		Remove Concrete Median Pavement	
Curb		Pipe Without End Section		Underground Sanitary Sewer		Remove Concrete Curb	
Dam Grade/Dike/Levee		Playground Slide		Underground Storm Sewer		Remove Concrete Curb and Gutter	
Deck Edge		Playground Swing		Underground Tank		Remove Concrete Gutter	
Ditch Block		Power And Light Pole		Underground Telephone Line			
Doorway Threshold		Power And Telephone Pole		Underground Television Cable		Detectable Warning	
Drainage Profile		Power Meter		Underground Water Line		Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope	
Drop Inlet		Power Pole		Warning Sign One Post			
Edge Of Asphalt		Power Pole And Transformer		Warning Sign Two Post			
Edge Of Concrete		Power Tower Structure		Water Fountain			
Edge Of Gravel		Propane Tank		Water Hydrant			
Edge Of Other		Property Pipe		Water Meter			
Edge Of Shoulder		Property Pipe With Cap		Water Tower			
Elec. Trans./Power Jct. Box		Property Stone		Water Valve			
Environmental Sensitive Site		Public Telephone		Water Well			
Fence Barbwire		Railroad Crossing Signal		Weir Rock			
Fence Chainlink		Railroad Milepost Marker		Windmill			
Fence Electric		Railroad Profile		Wingwall			
Fence Misc.		Railroad R.O.W. Marker		Witness Corner			
Fence Rock		Railroad Signs					
Fence Snow		Railroad Switch					
Fence Wood		Railroad Track					
Fence Woven		Railroad Trestle					
Fire Hydrant		Rebar					
Flag Pole		Rebar With Cap					
Flower Bed		Reference Mark					
Gas Valve Or Meter		Regulatory Sign One Post					
Gas Pump Island		Regulatory Sign Two Post					
Grain Bin		Retaining Wall					
Guardrail		Riprap					
Guide Sign One Post		River Edge					
Guide Sign Two Post		Rock And Wire Baskets					
Gutter		Rockpiles					
Guy Pole		Satellite Dish					
Haystack		Septic Tank					

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	12	22
Plotting Date: 03/20/2017			

21+50 to 30+00  
Install 1951 Ton Class B Riprap and  
2664 SqYd Type B Drainage Fabric

26+50  
Retain In Place 24" CMP Downspout

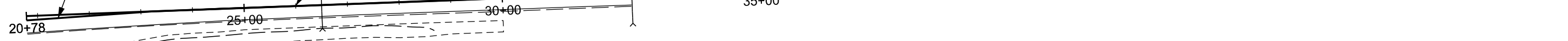
Begin 014 E-171  
PCN i48G  
Sta. 21+50

End 014 E-171  
PCN i48G  
Begin 014-171  
PCN i48H  
Sta. 26+00

End 014-171  
PCN i48H  
Sta. 30+00

Sec. 17 - T110N - R52W

Present US Hwy. 14 WBL



LITTLE BRUSH WPA LAKE

Sec. 20 - T110N - R52W

PLOT SCALE - 1:200
























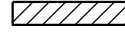

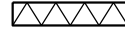
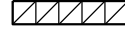


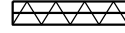




PLOT NAME - 4

PLOTTED FROM - TRAB17882

FILE - ... \SOUTH SIDE ONLY\148F.DGN

# EROSION AND SEDIMENT CONTROL LEGEND

## SYMBOLOLOGY FOR BEST MANAGEMENT PRACTICES

-  STORM WATER DISCHARGE POINT
-  LOW FLOW SILT FENCE
-  HIGH FLOW SILT FENCE
-  HIGH FLOW SILT FENCE AT PIPE INLET
-  SILT TRAP
-  SEDIMENT CONTROL AT INLET BEFORE PLACEMENT OF SURFACING
-  TEMPORARY SEDIMENT BARRIER
-  TEMPORARY WATER BARRIER
-  FLOATING SILT CURTAIN
-  SEDIMENT FILTER BAGS
-  TRIANGULAR SILT BARRIERS
-  EROSION CONTROL WATTLES ON SLOPES
-  EROSION CONTROL WATTLES AT INLETS
-  EROSION CONTROL WATTLES IN DITCHES
-  EROSION BALES
-  SURFACE ROUGHENING
-  SOIL STABILIZER / TEMPORARY MULCH / DUST CONTROL
-  CUT INTERCEPTOR DITCH
-  TEMPORARY SLOPE DRAIN
-  SEDIMENT CONTROL AT INLET AFTER PLACEMENT OF SURFACING
-  HYDRAULIC STRAW MULCH / FIBER MULCHING / BONDED FIBER MATRIX / FIBER REINFORCED MATRIX
-  ROCK CHECK DAM
-  SODDING
-  TYPE 1 EROSION CONTROL BLANKET
-  TYPE 2 EROSION CONTROL BLANKET
-  TYPE 3 EROSION CONTROL BLANKET
-  TYPE 4 EROSION CONTROL BLANKET
-  TYPE 1 TURF REINFORCEMENT MAT
-  TYPE 2 TURF REINFORCEMENT MAT
-  TYPE 3 TURF REINFORCEMENT MAT
-  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.

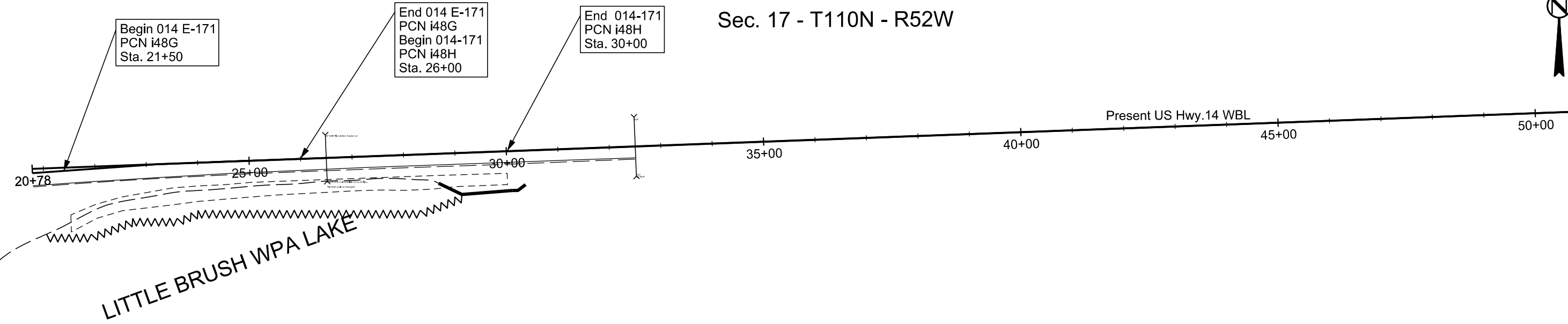
-  TOPSOIL STOCKPILES
-  BORROW AREAS
-  STABILIZED CONSTRUCTION ENTRANCES
-  VEGETATED BUFFER STRIPS
-  CONCRETE WASHOUTS
-  ASPHALT PLANT SITES
-  CONCRETE PLANT SITES
-  VEHICLE AND EQUIPMENT PARKING, FUELING, AND MAINTENANCE AREAS
-  DUMPSTER OR OTHER TRASH AND DEBRIS CONTAINERS
-  ON-SITE CONSTRUCTION MATERIAL STORAGE AREAS
-  SPILL KIT
-  WORK PLATFORM

# EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	14	22
Plotting Date: 05/15/2017			

PLOT SCALE - 1:200

PLOT NAME - 6



Sec. 17 - T110N - R52W

Sec. 20 - T110N - R52W

**INITIAL PHASE**  
Install Floating Silt Curtain  
at the following locations:  
21+25 Rt to 29+15 Rt Perimeter control to protect lake 790 Ft

**INITIAL PHASE**  
Install Low Flow Silt Fence  
at the following locations:  
28+65 Rt to 30+35 Rt Perimeter control at lake 70 Ft

**INTERMEDIATE PHASE**  
Type B Drainage Fabric  
for temporary stabilization  
at the following locations:  
Exposed slopes where riprap is to be placed  
to prevent sedimentation into the lake

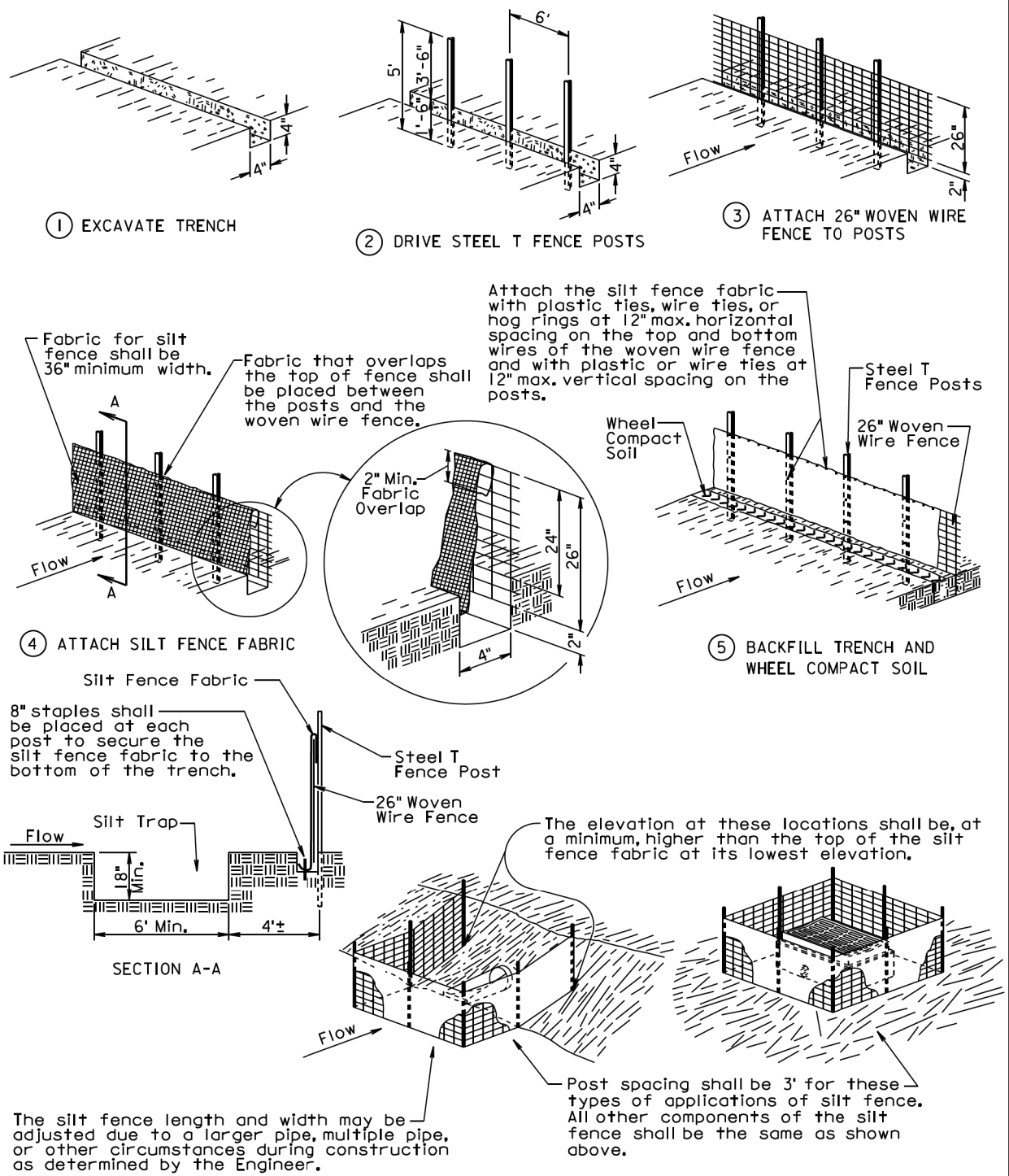
**INTERMEDIATE PHASE**  
Apply grass hay or straw mulch at 2 Tons/Acre  
for temporary stabilization  
at the following locations:  
Area disturbed for Riprap Placment

**FINAL PHASE**  
Install Final Erosion Control (Seeding, Mulching)

PLOTTED FROM - TRAB17882

FILE - ... \SOUTH SIDE ONLY\G148F.DGN

### MANUAL LOW FLOW SILT FENCE INSTALLATION

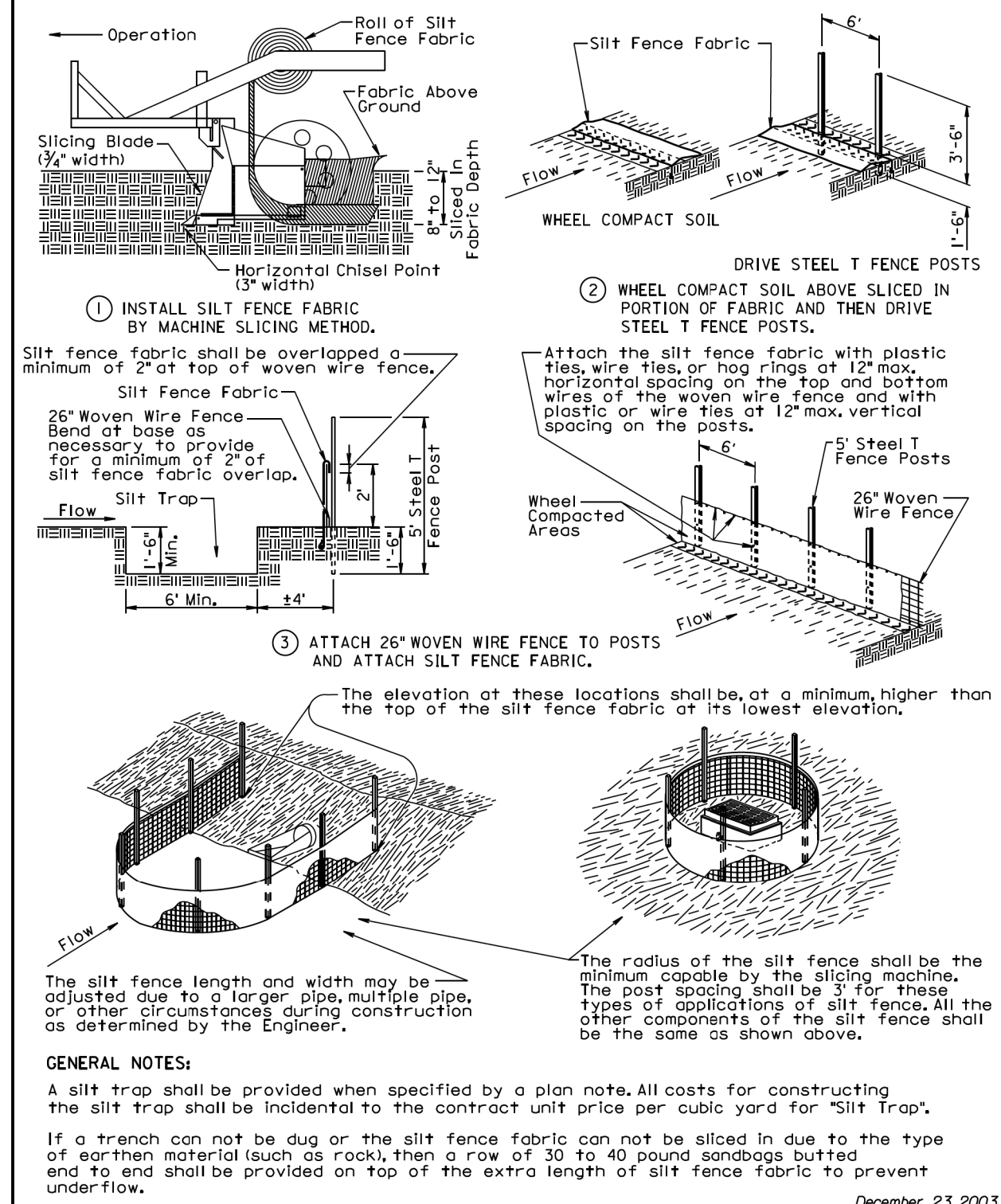


December 23, 2003

<b>S D D O T</b>	<b>LOW FLOW SILT FENCE AND SILT TRAP</b>	PLATE NUMBER <b>734.04</b>
		Sheet 1 of 2

Published Date: 2nd Qtr. 2017

### MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



December 23, 2003

<b>S D D O T</b>	<b>LOW FLOW SILT FENCE AND SILT TRAP</b>	PLATE NUMBER <b>734.04</b>
		Sheet 2 of 2

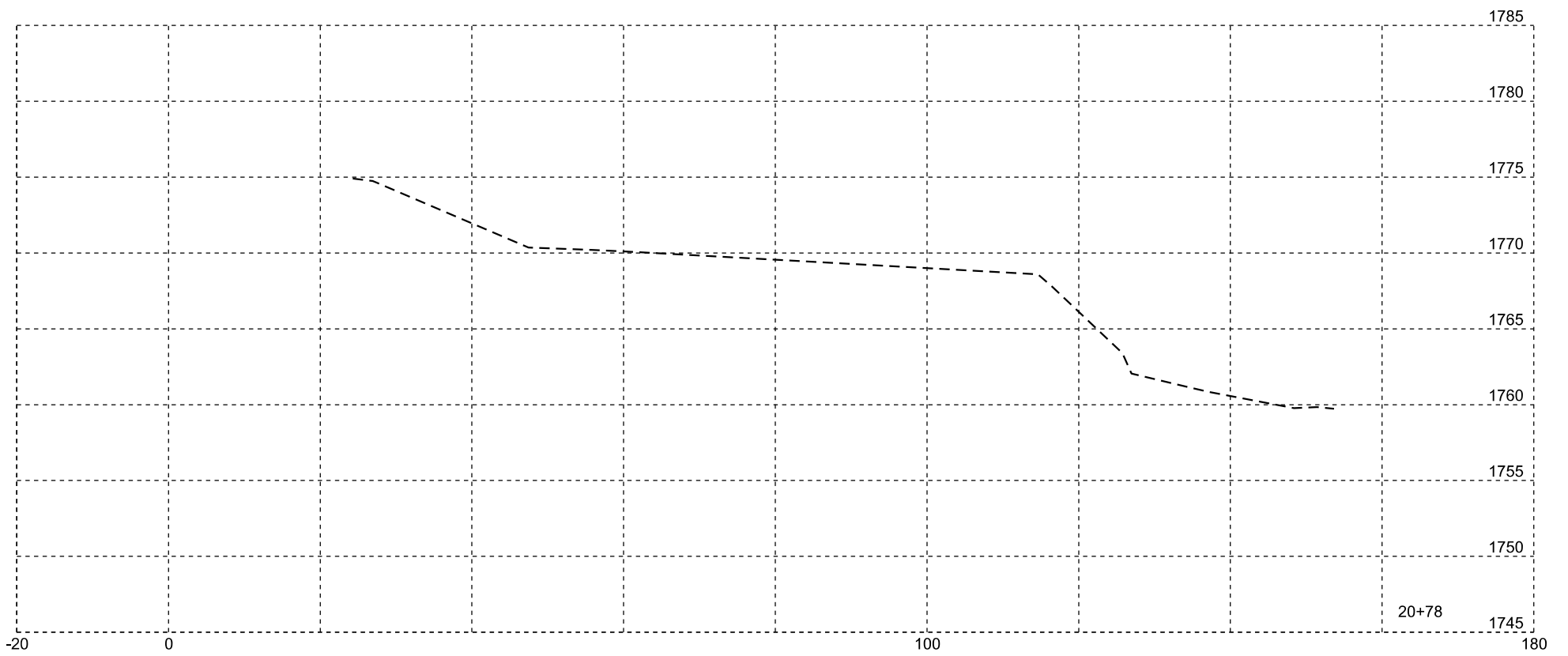
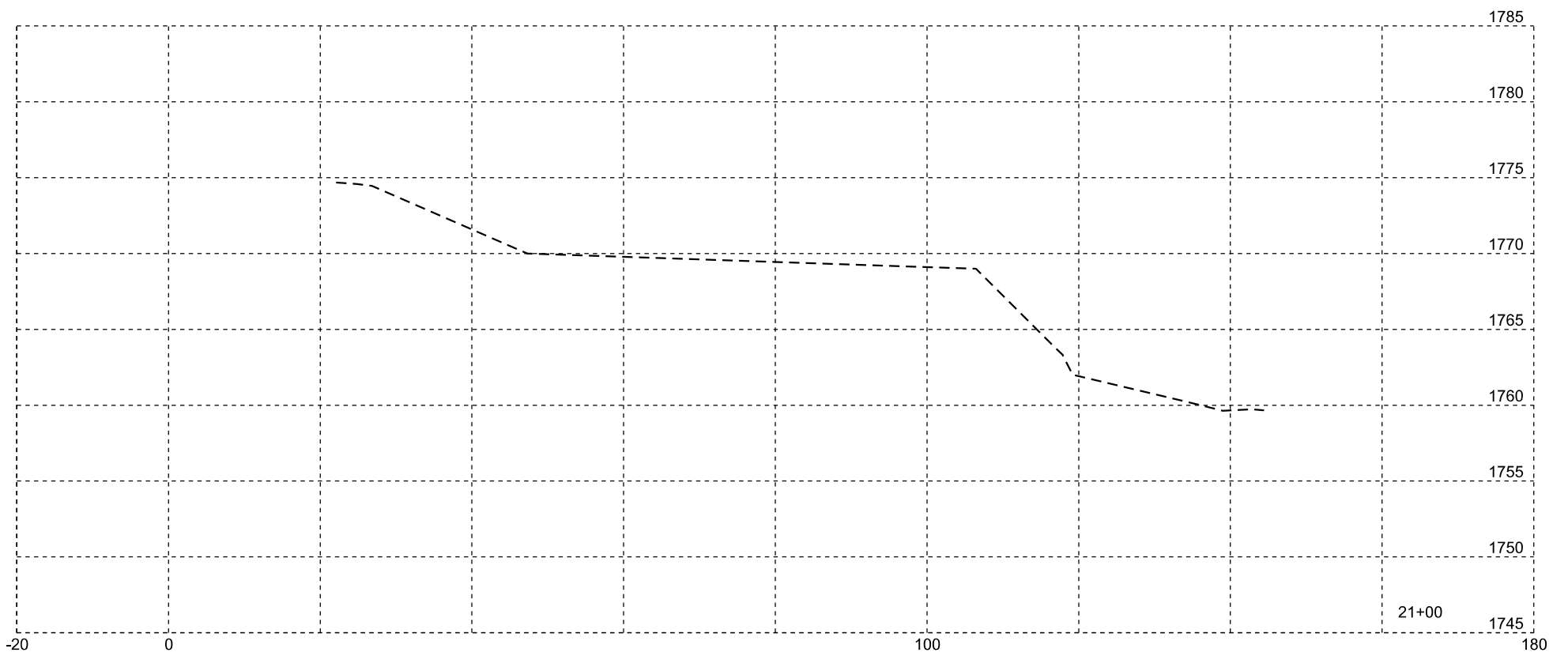
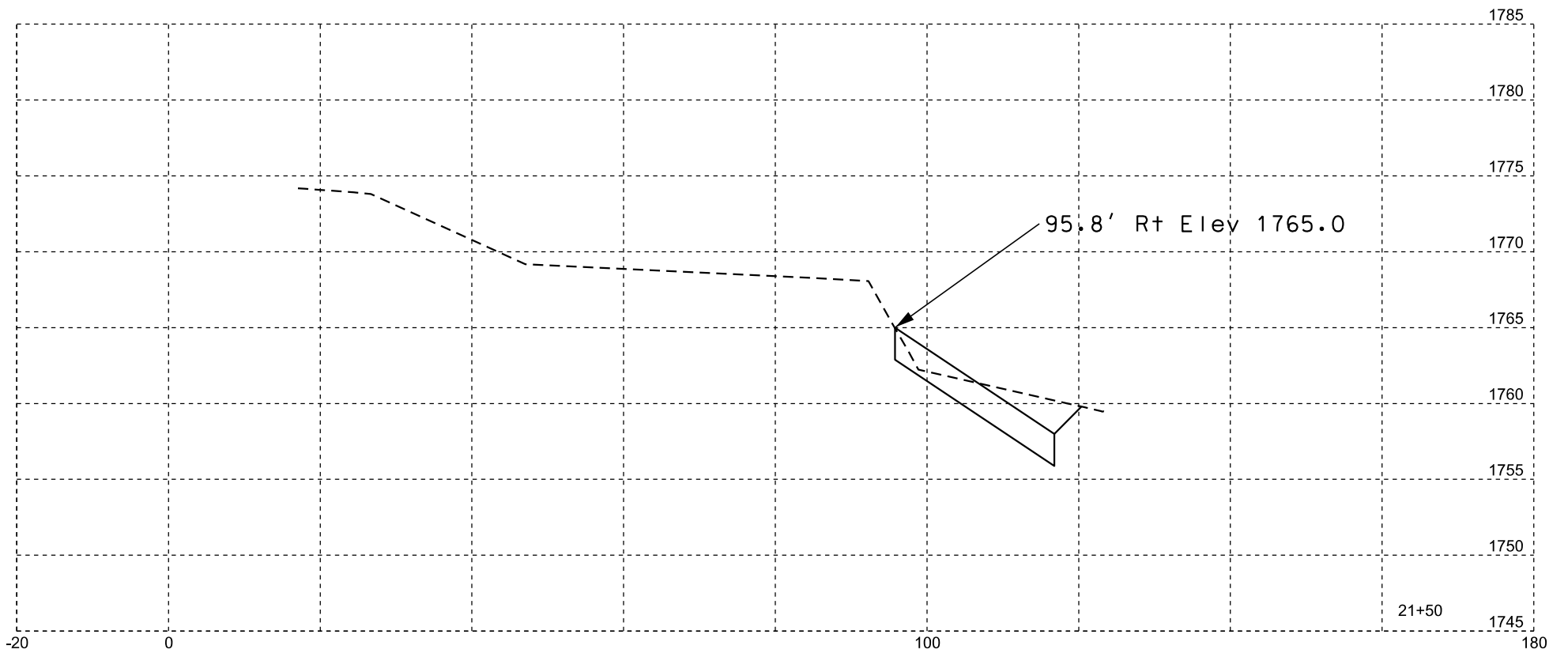
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PLOT SCALE - 1:200

PLOTTED FROM - TRAB17882

PLOT NAME - 9

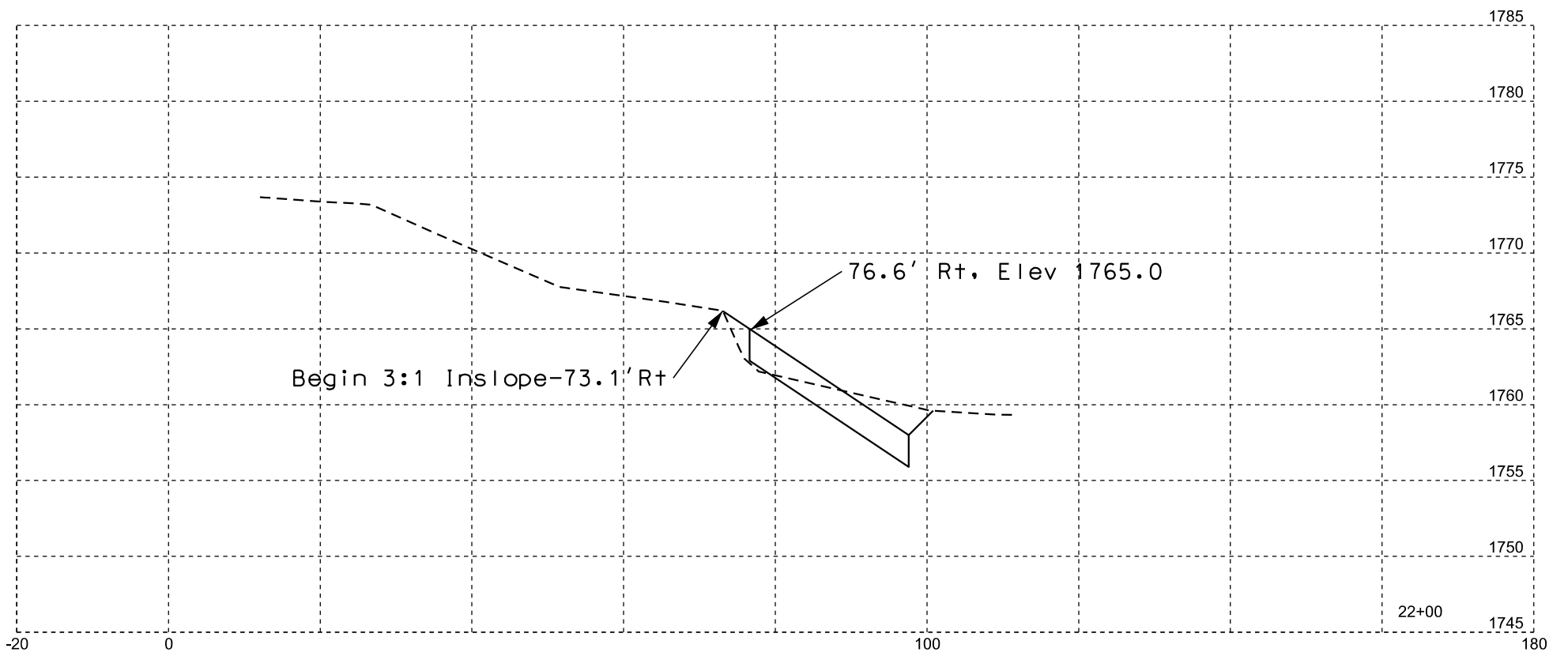
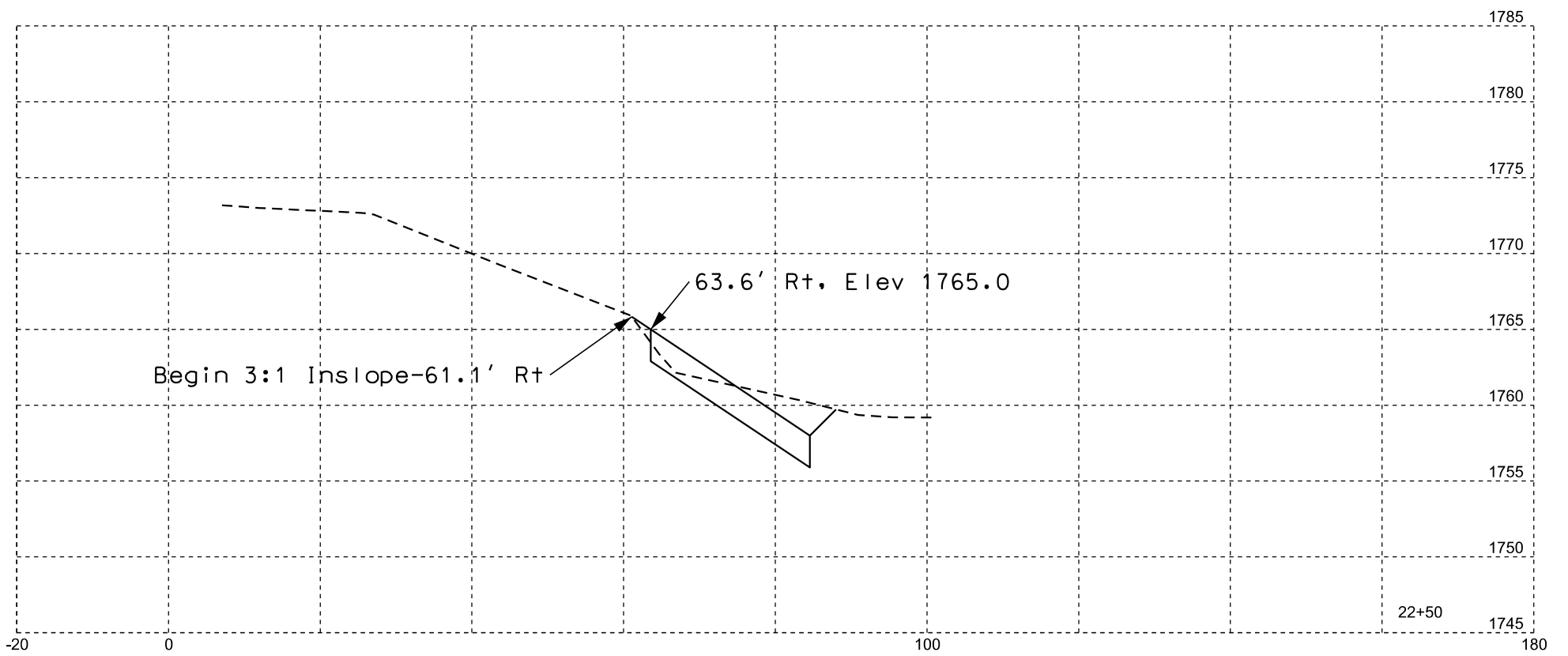
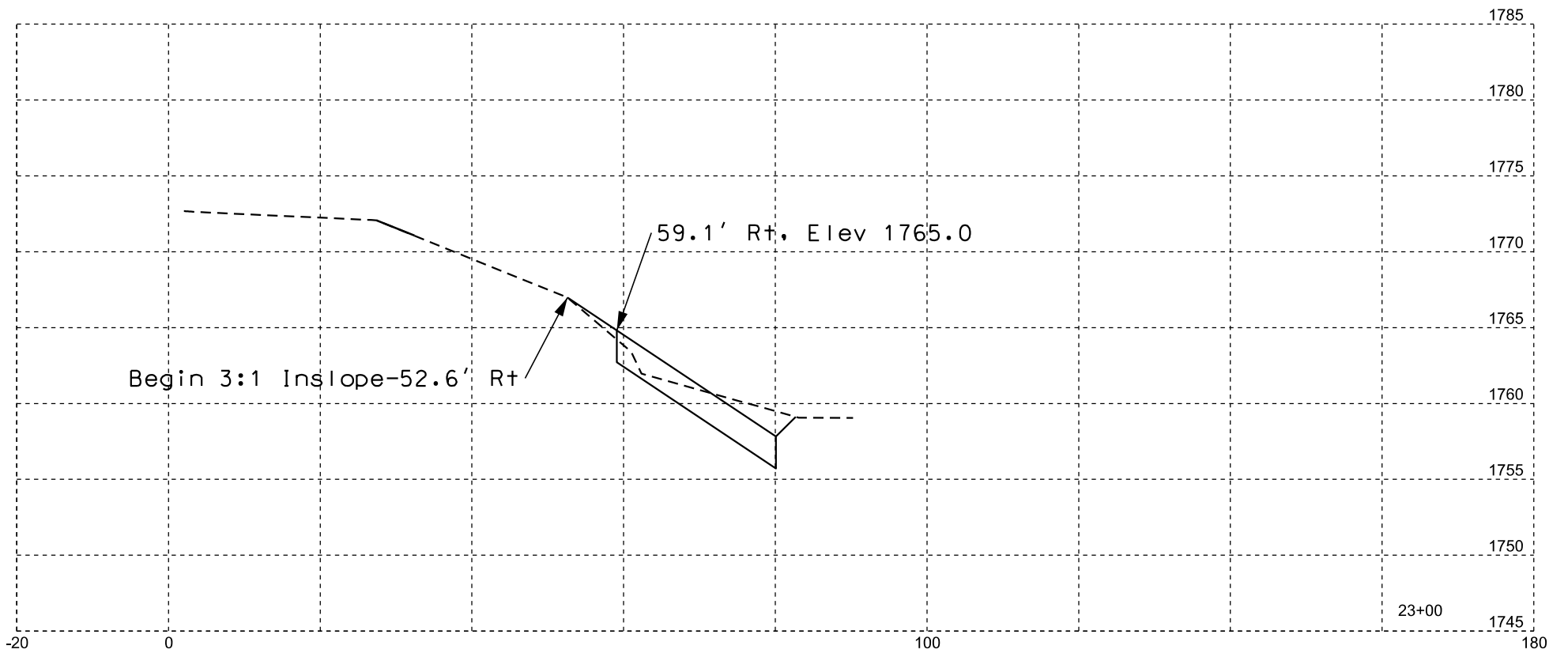
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Plotting Date: 03/20/2017

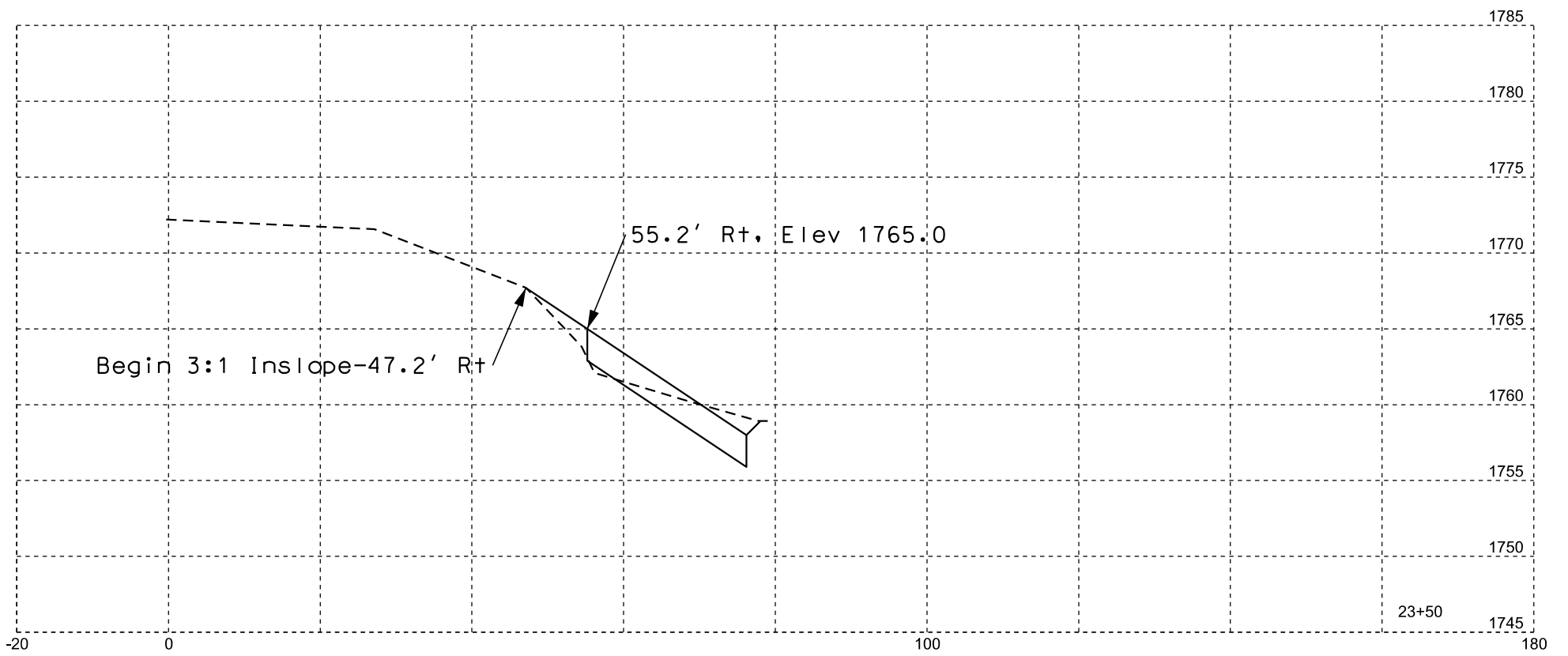
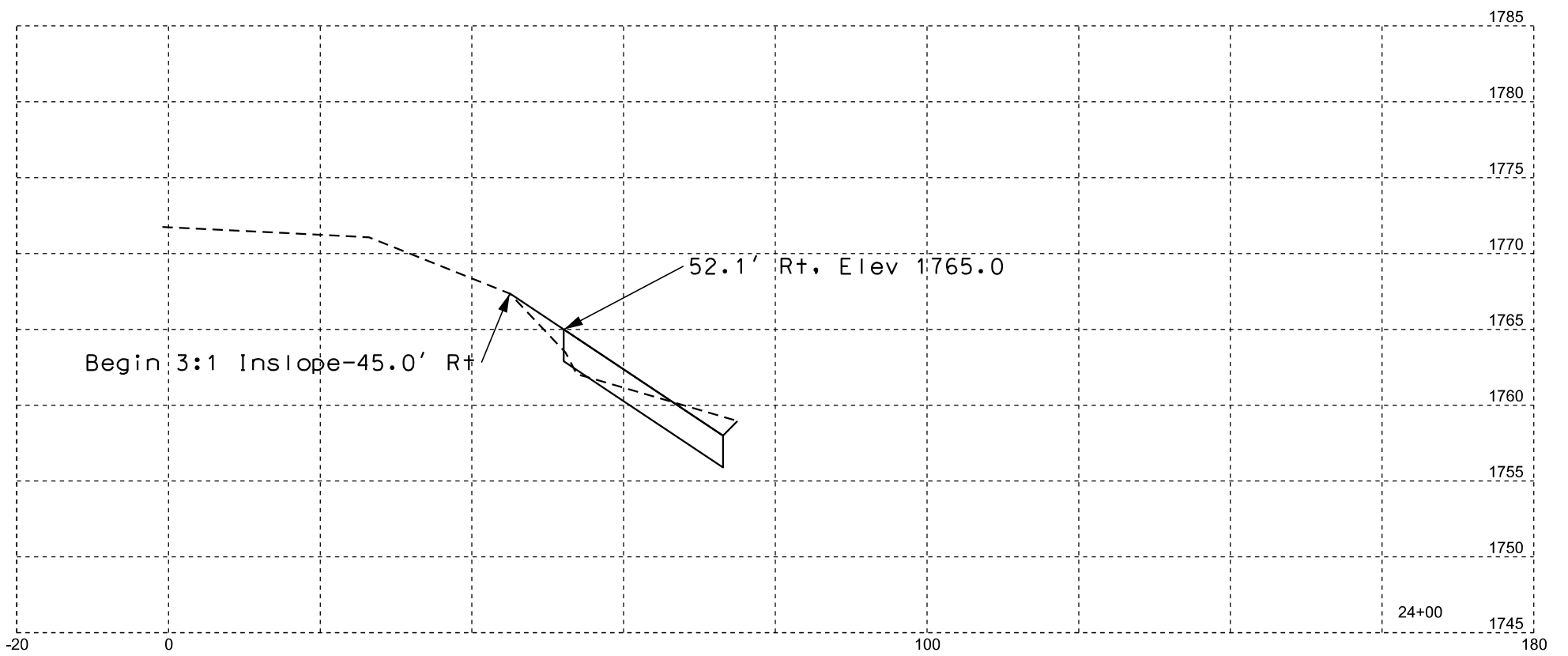
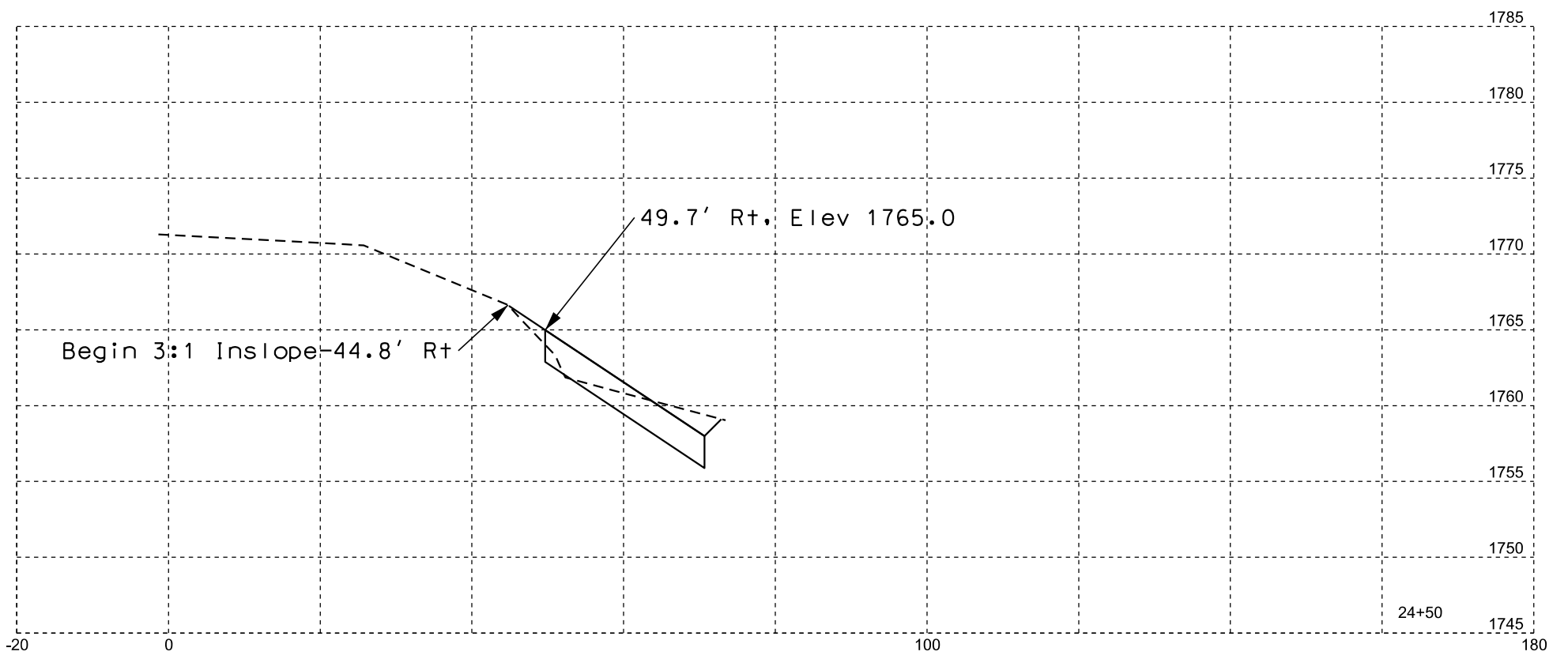
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	16	22





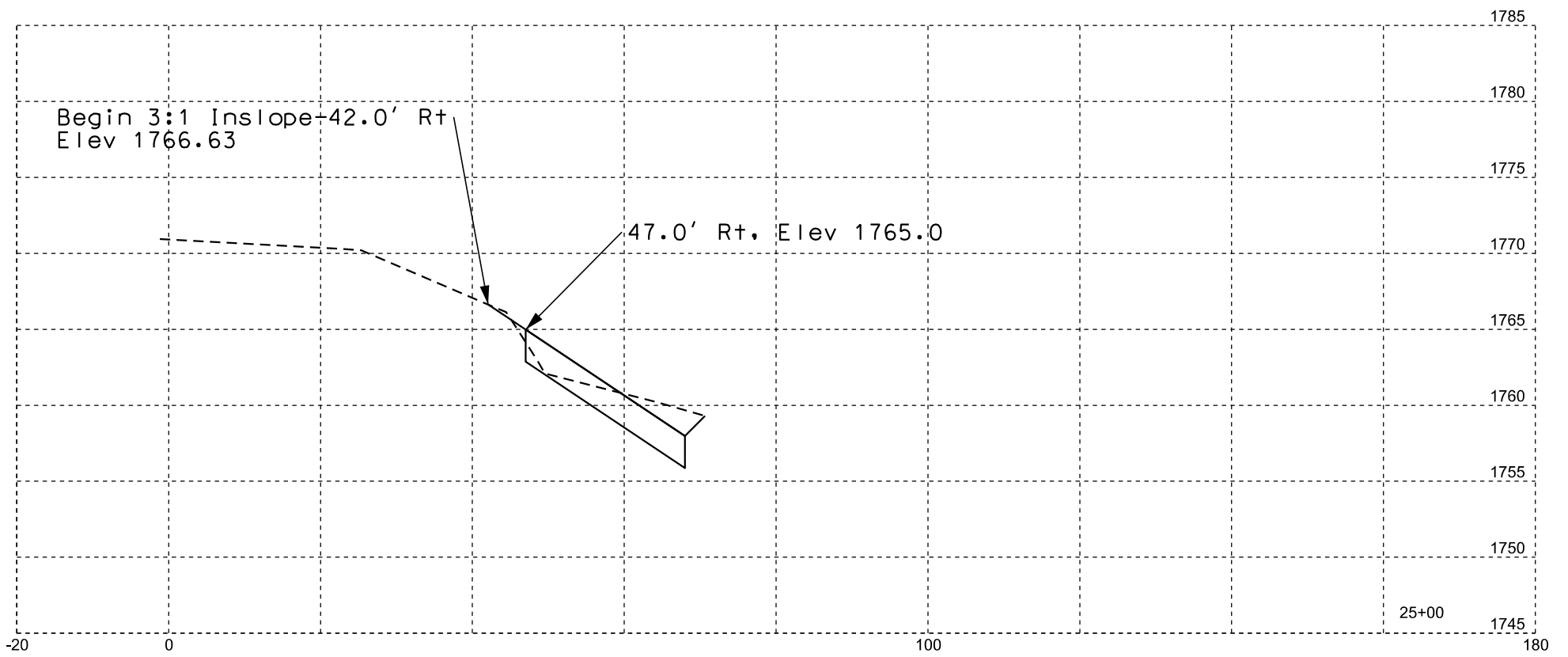
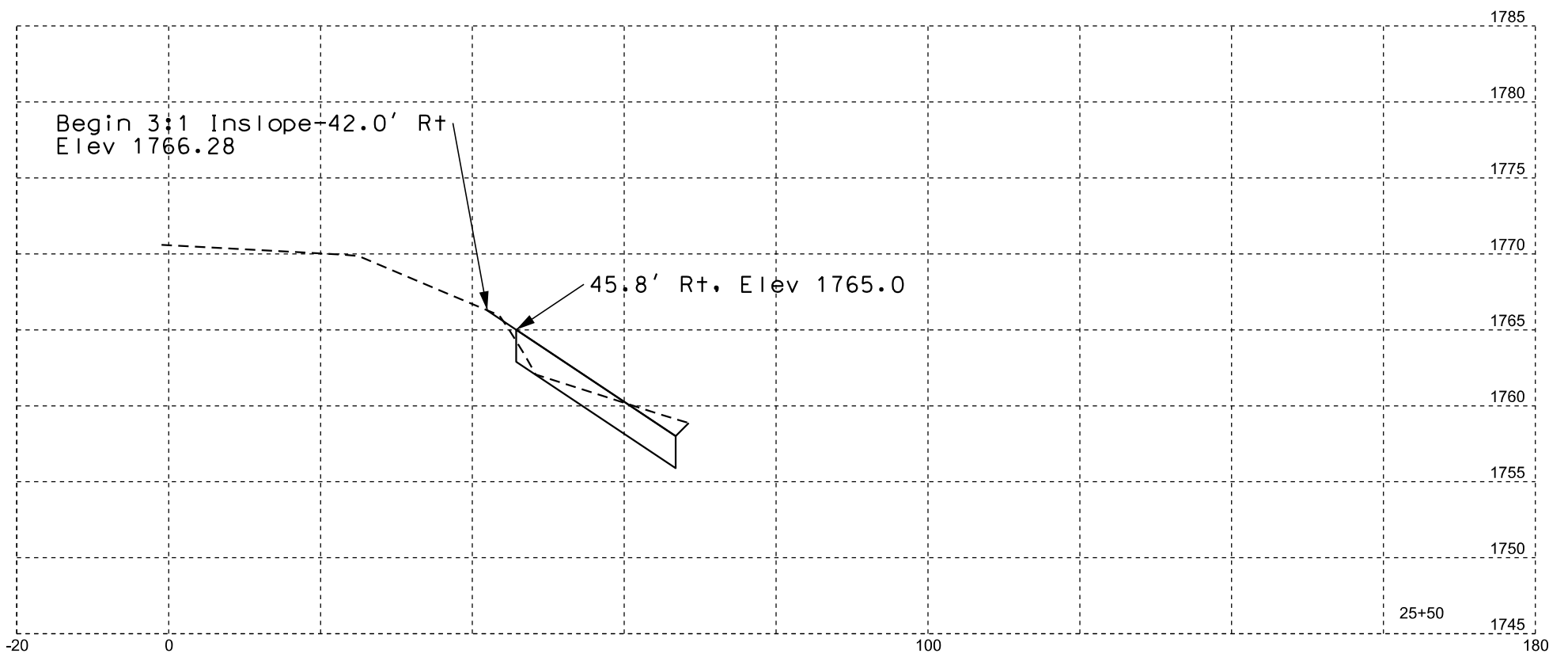
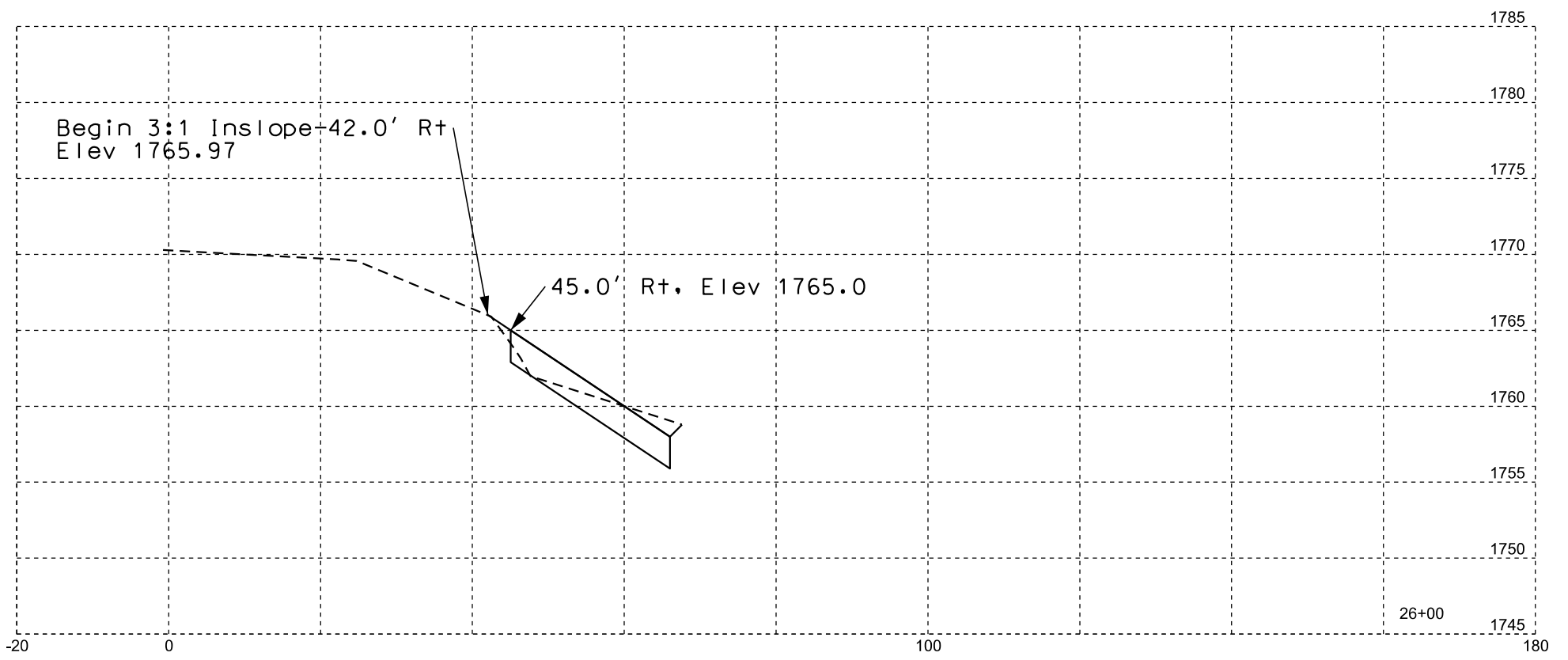
Plotting Date: 03/20/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	17	22



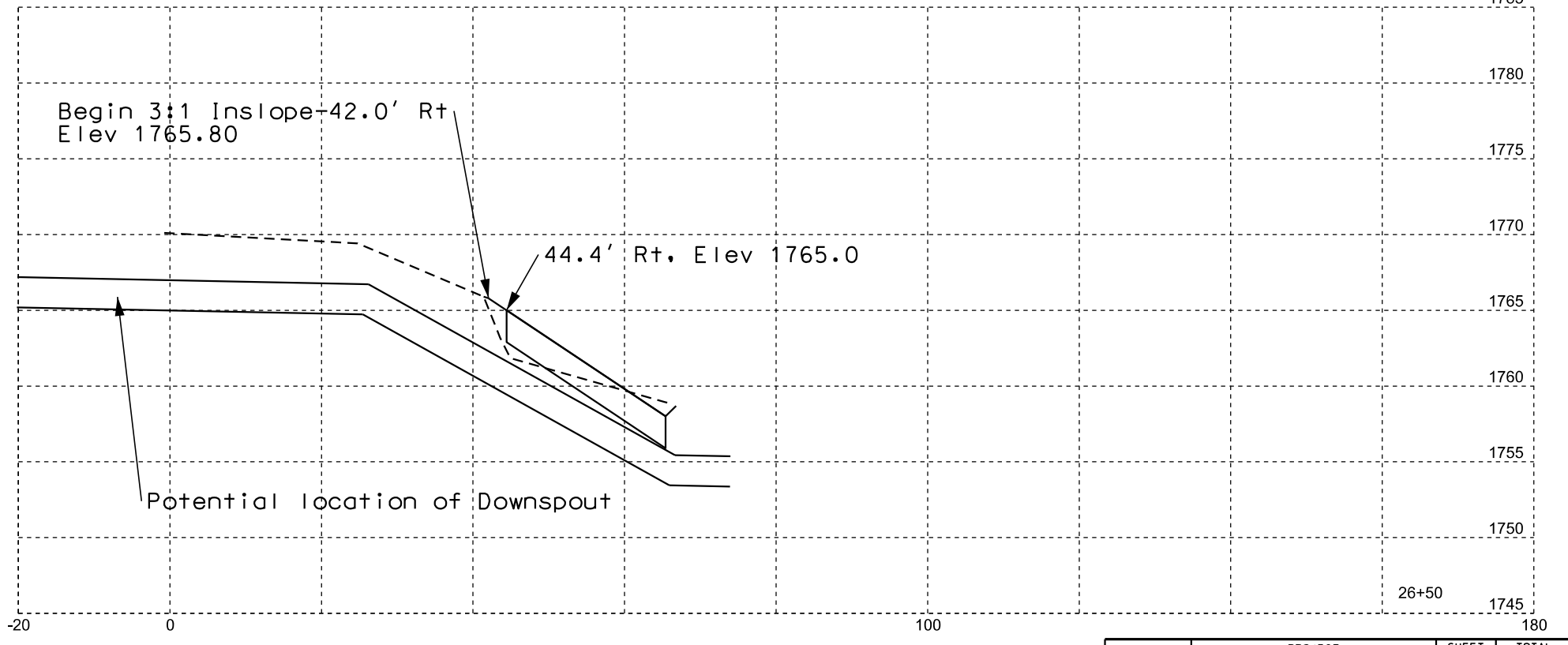
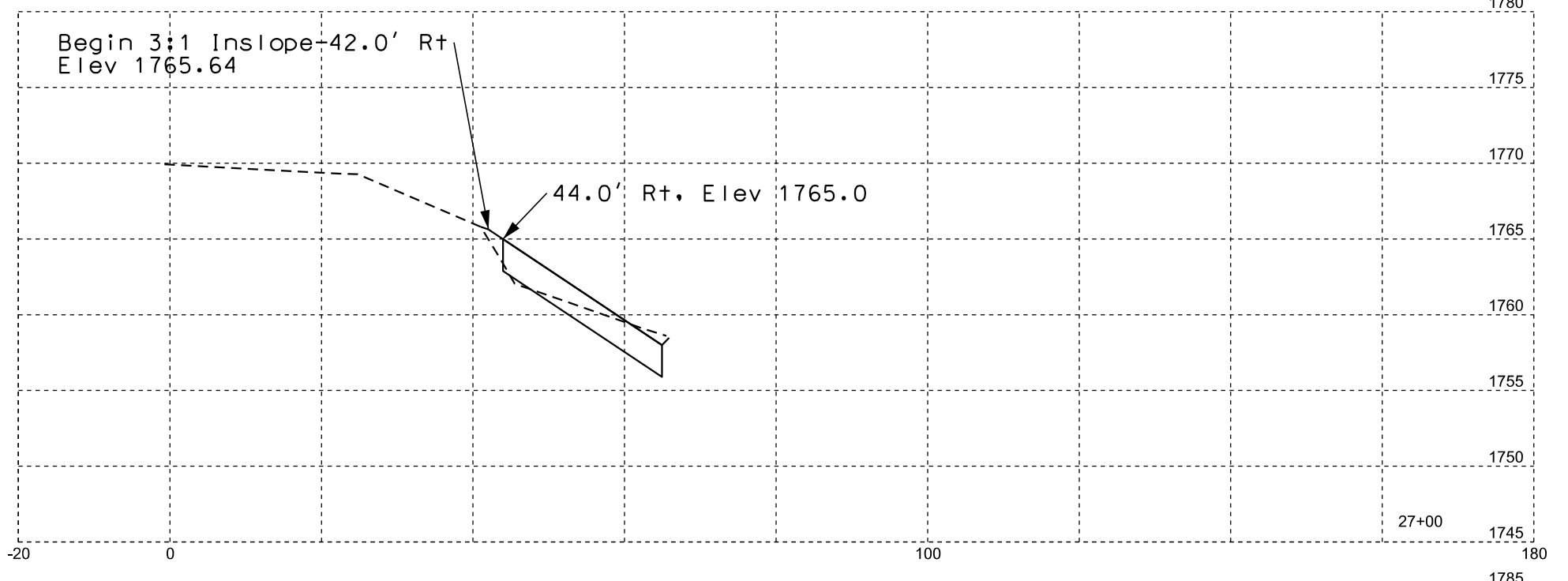
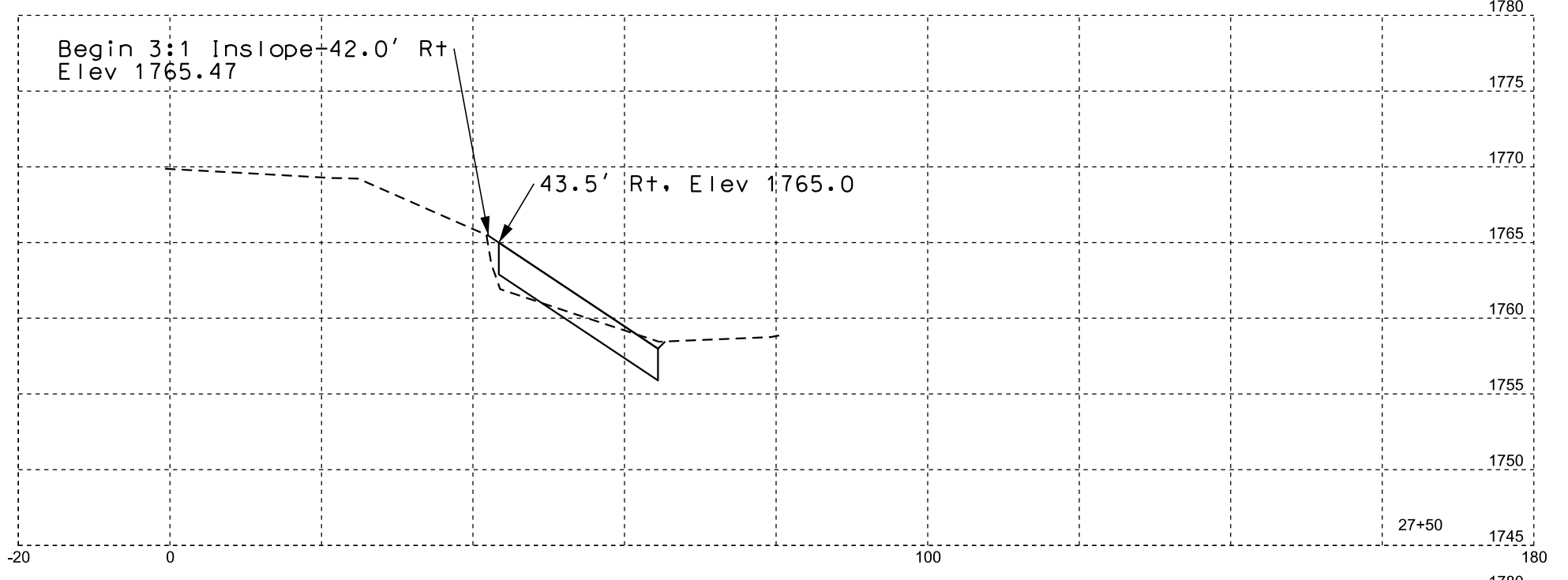
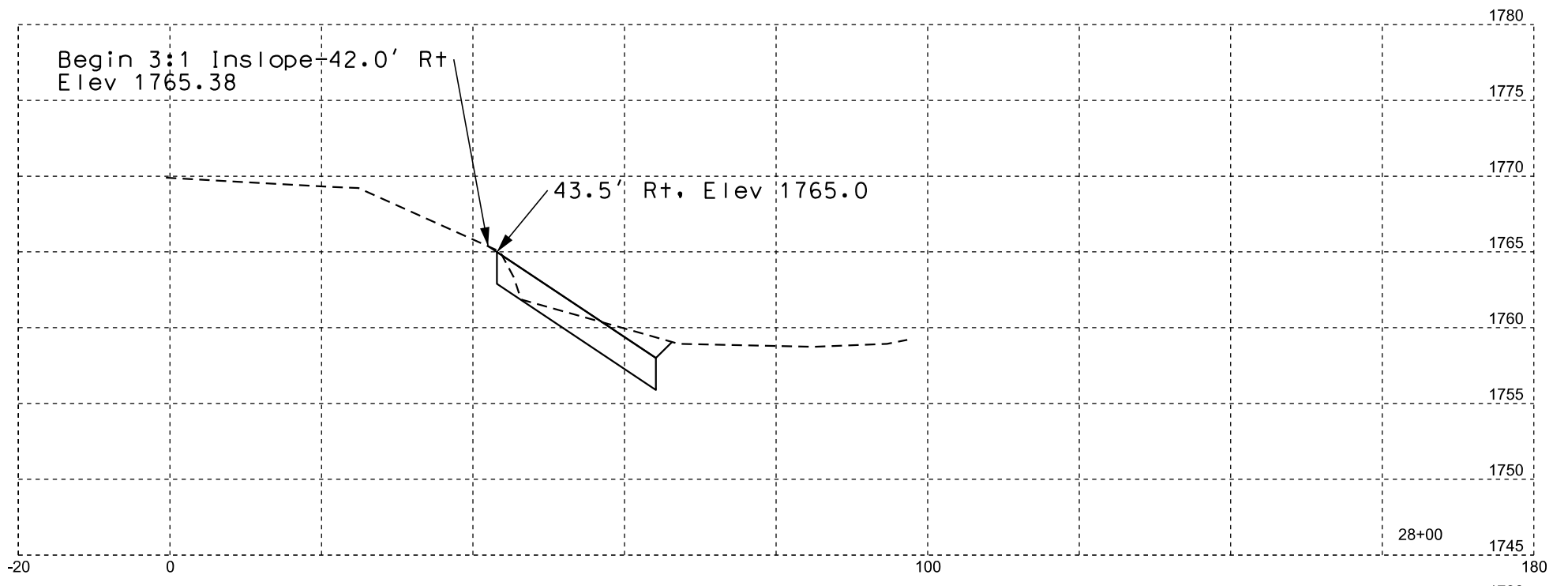
Plotting Date: 03/20/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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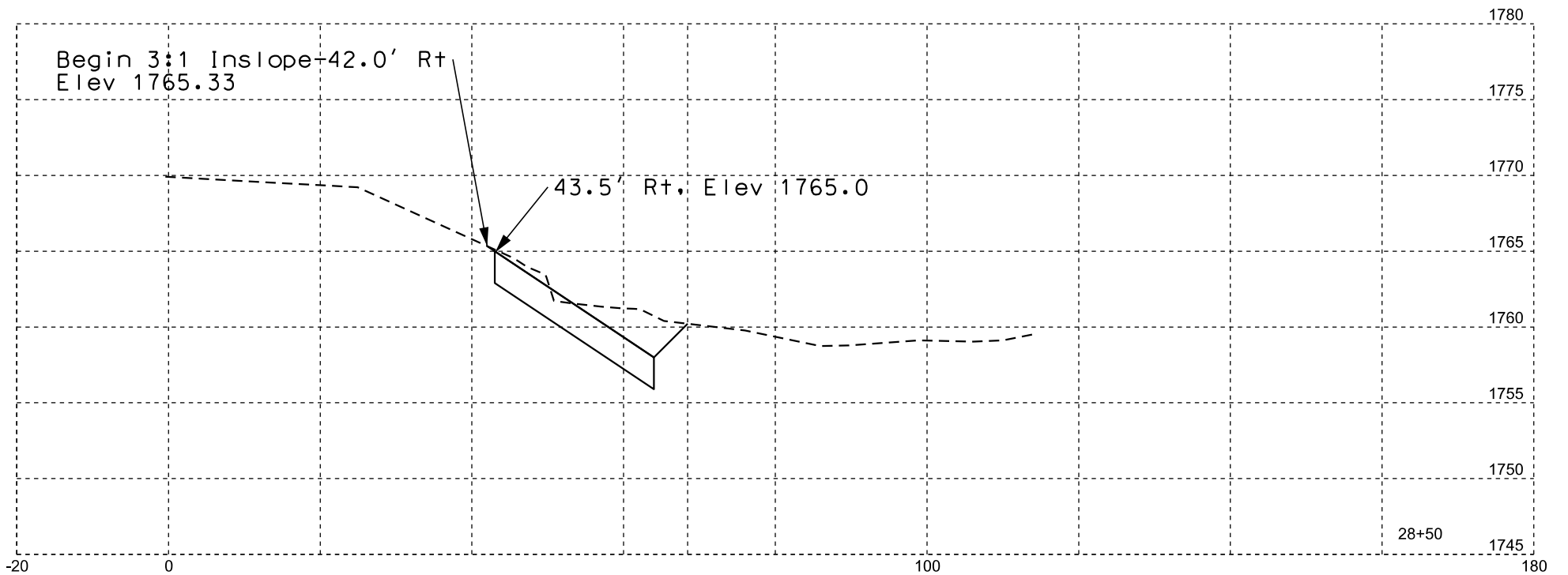
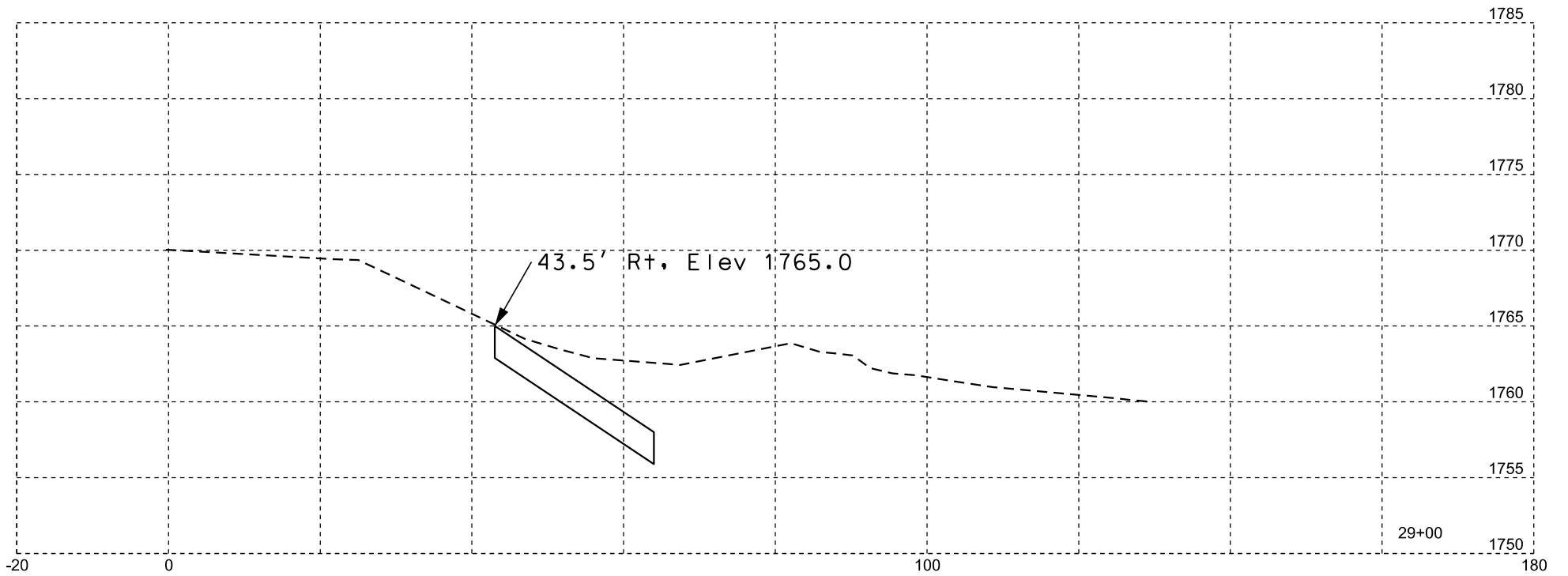
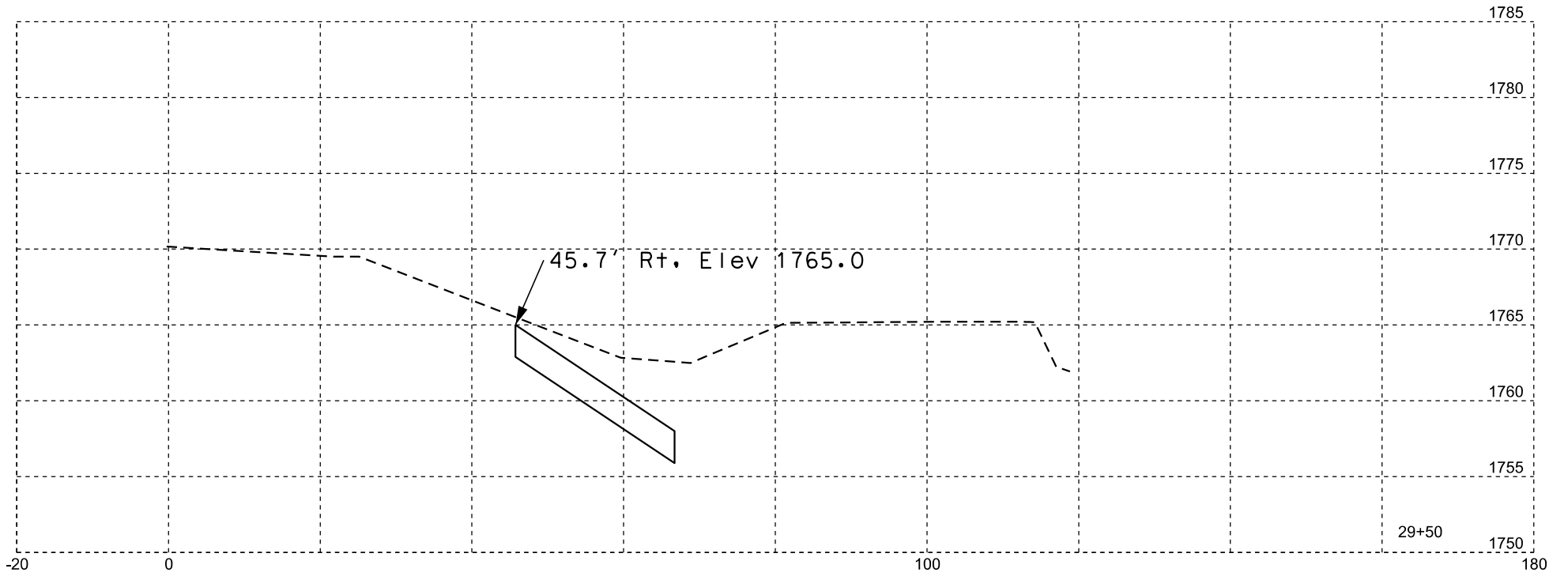
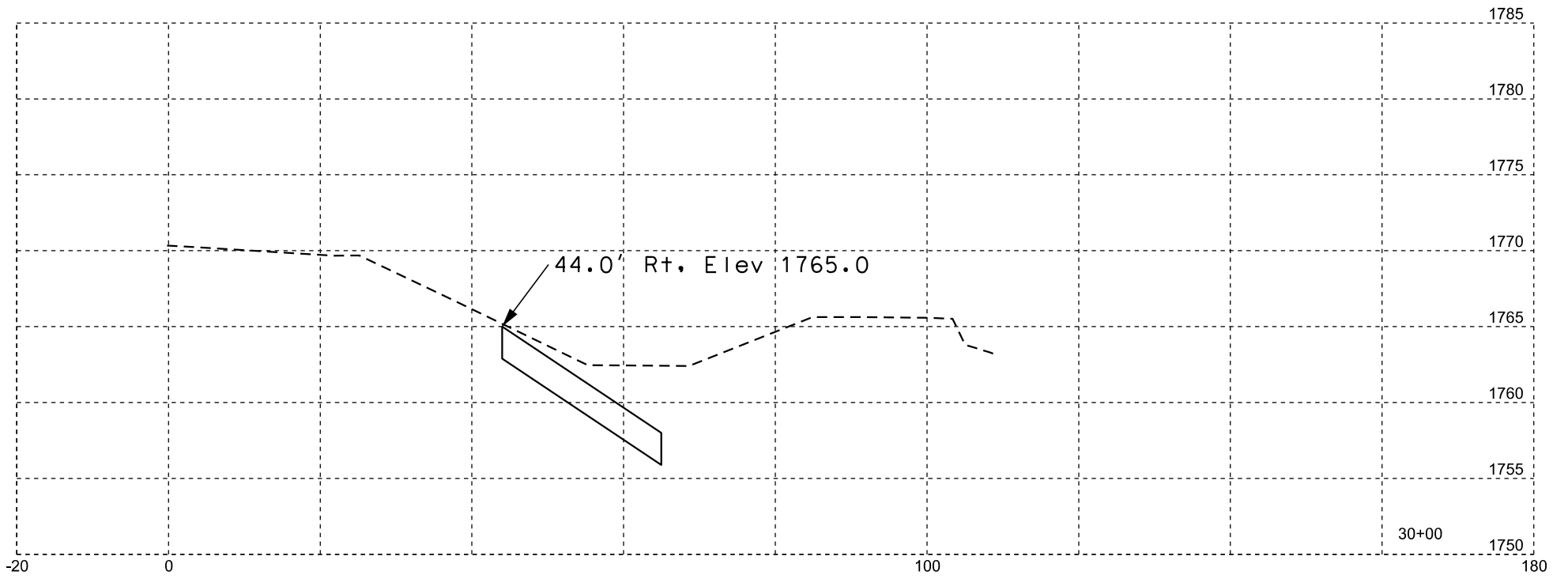
Plotting Date: 03/20/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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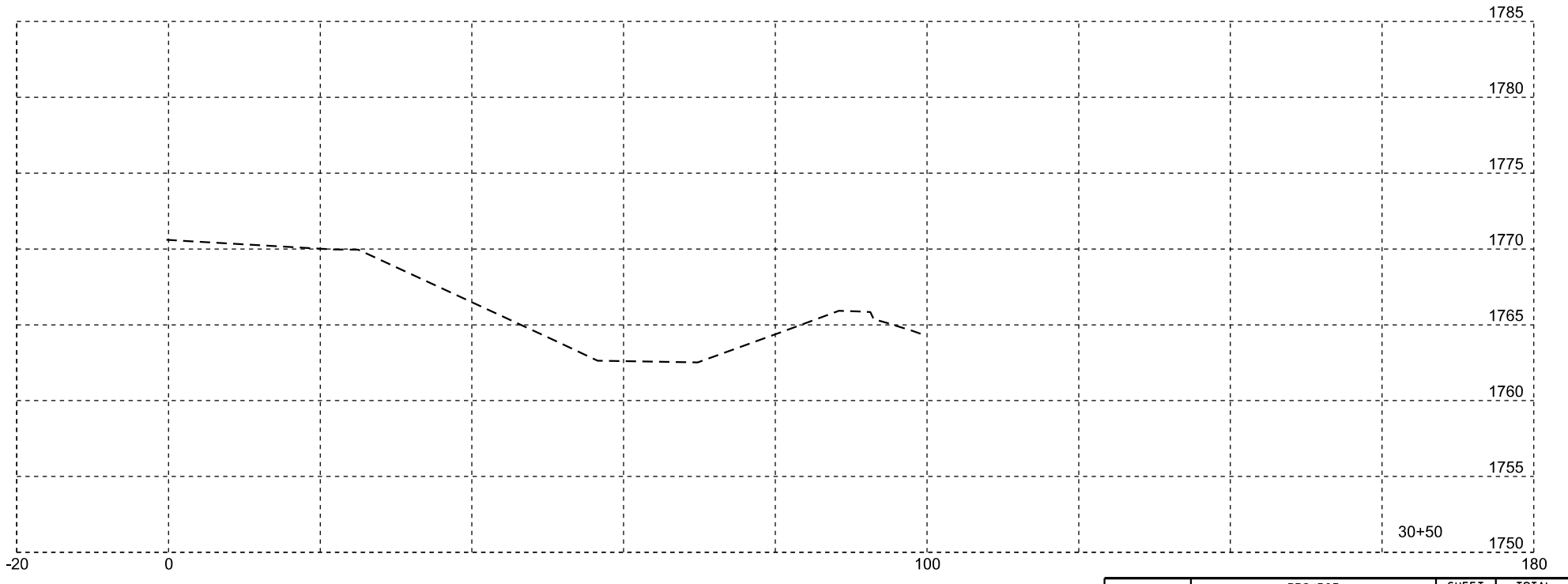
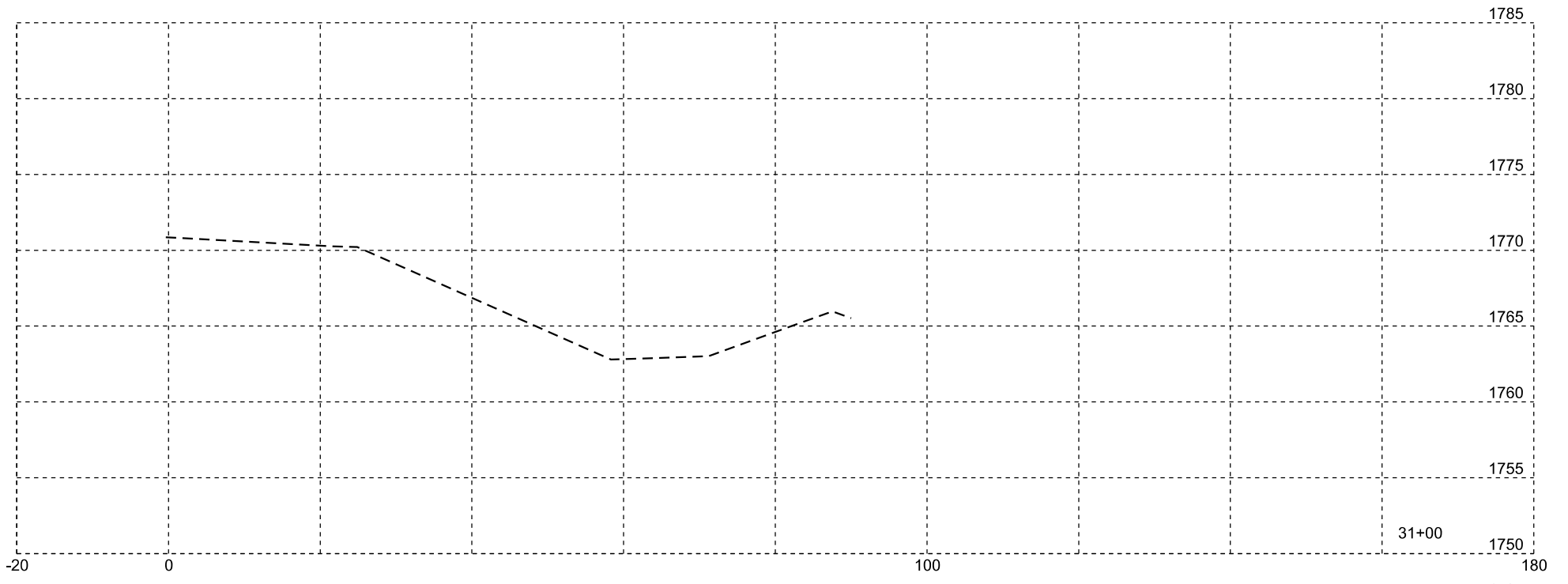
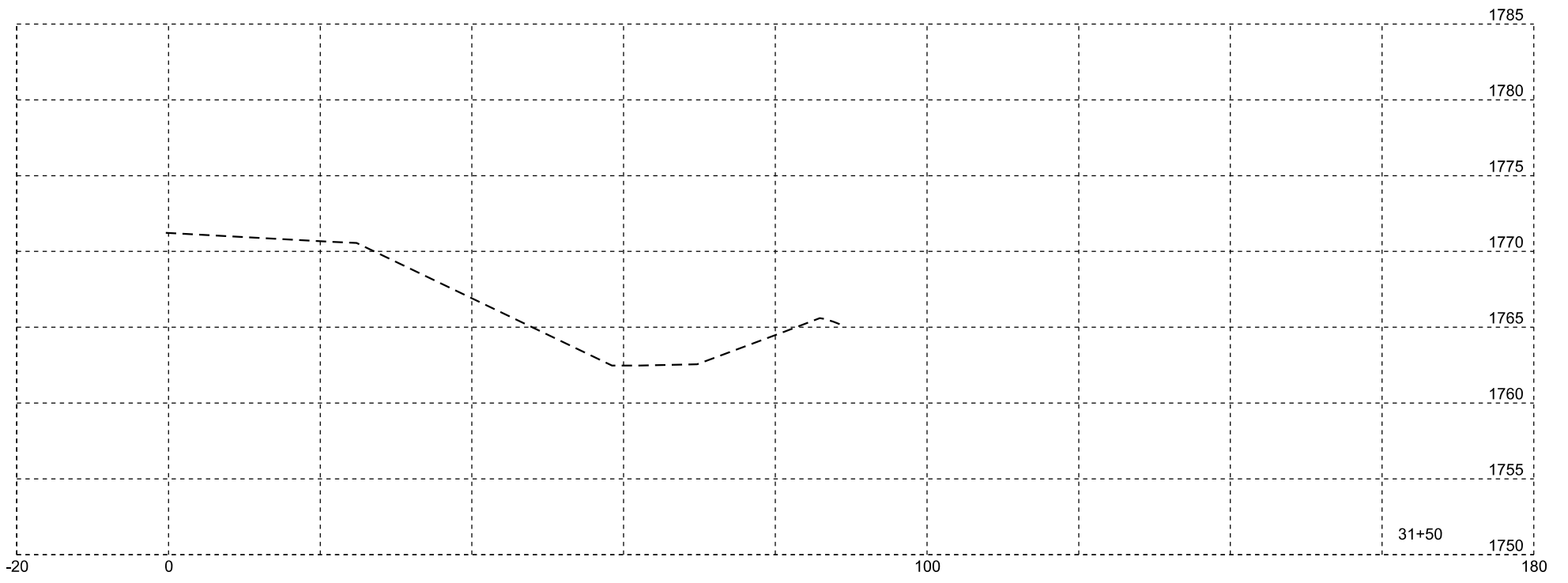
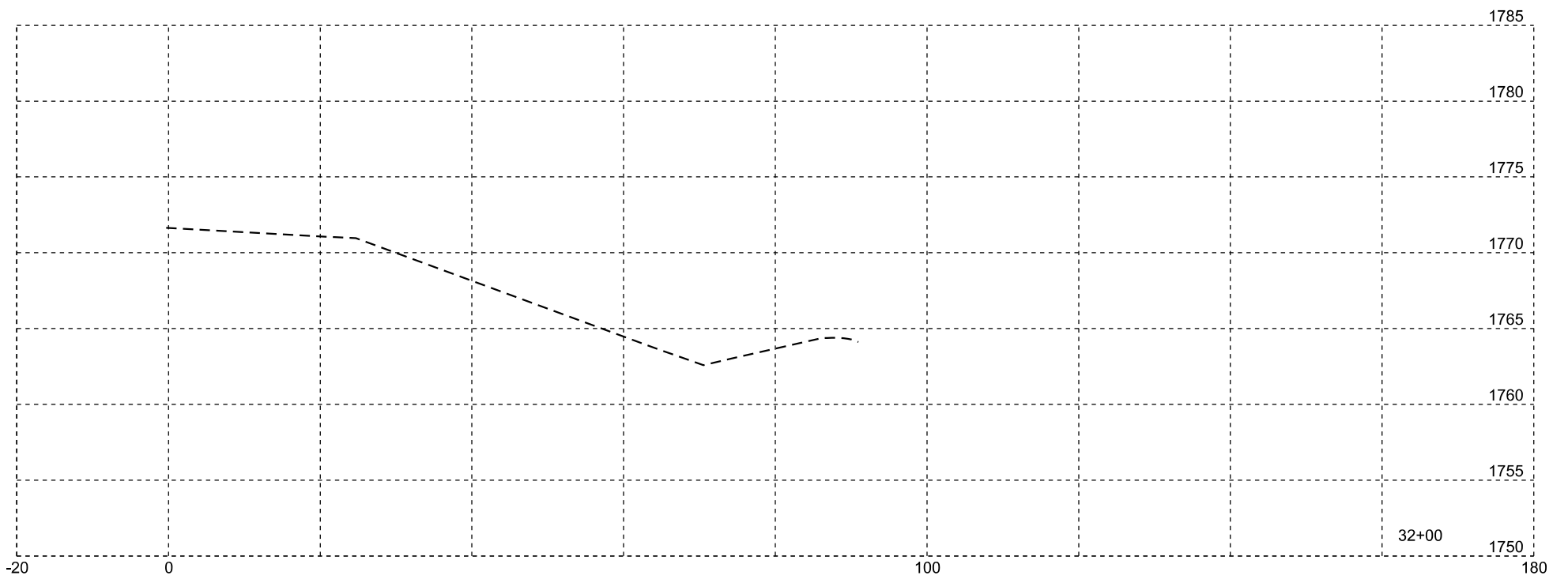
Plotting Date: 03/20/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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	014-171		
	20	22	



Plotting Date: 03/20/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	21	22



Plotting Date: 03/20/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	014 E-171 014-171	22	22