

Lyman County
P 000S(00)08
PCN 04AY

A Pre-Bid meeting will be held at the Oacoma Community Center conference room (100 E 3rd Street) from 1:30pm to 3:30pm CT on Thursday May 22, 2014. All interested parties are strongly encouraged to attend.

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT P 000S(00)08
GEORGE S. MICKELSON
SHORELINE DRIVE
LYMAN COUNTY

GRADING FOR BERM CONSTRUCTION & SLIDE REPAIR,
RIPRAP, CULVERT EXTENSION, EROSION CONTROL
& SHARED USE PATH RECONSTRUCTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	1	110

Plotting Date: 04/08/2014

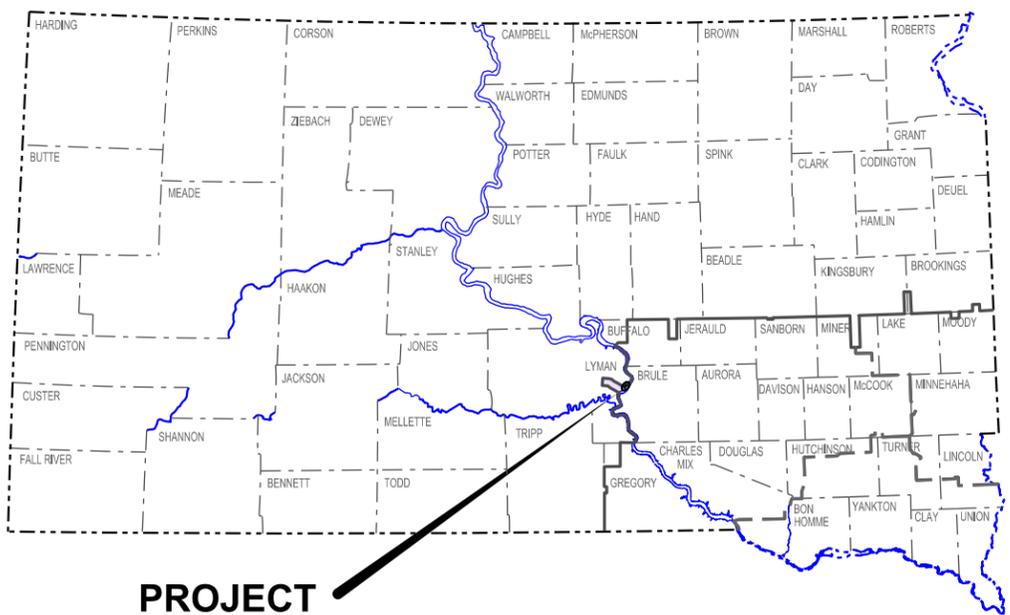
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PLOT SCALE - 1:63000

PLOT NAME -

FILE - ... \PRJ2014\LYMAN04AY\TTL04AY.DGN



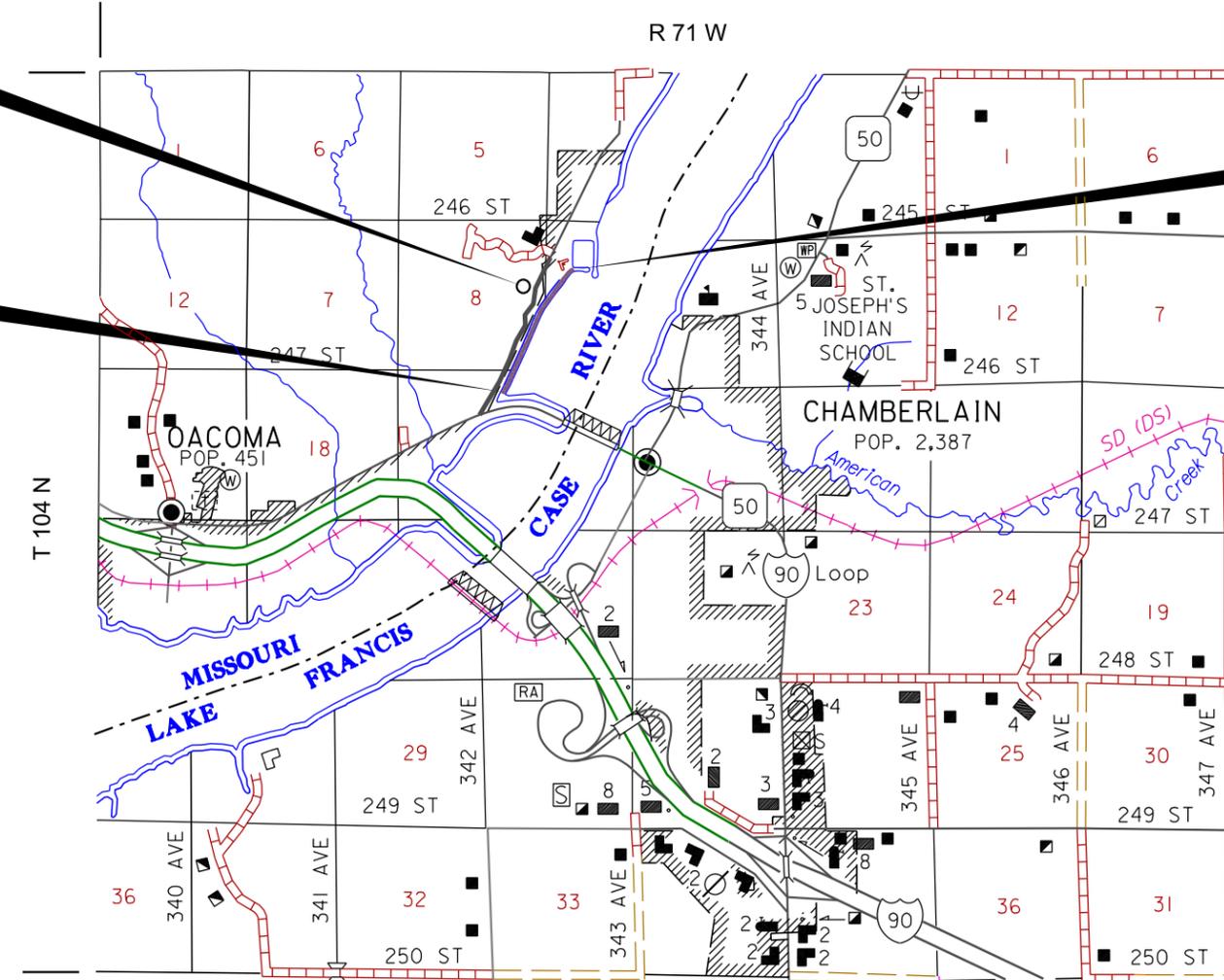
PROJECT

PCN 04AY

BORROW PIT
In the SE 1/4 of
Sec 8 - T104N - R71W

BEGIN PROJECT
STA. 0+00

END PROJECT
STA. 58+00



STORM WATER PERMIT
Receiving Waters:
Missouri River /
Lake Francis Case
Area Disturbed: 14.4 Acres
Total Project Area: 31.8 Acres
Latitude: 43.8144 (Google Maps)
Longitude: -99.3528 (Google Maps)

Length: 5,800' 1.098 Miles

6

ESTIMATE OF QUANTITIES

The Estimate of Quantities below shows the items that are included to complete the work from Station 47+00 to 58+00. This is the area along Game, Fish & Parks Campground. These quantities are also included in the main Estimate of Quantities to the Left.

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
009E3210	Construction Staking	1.100	Mile
009E3250	Miscellaneous Staking	1.100	Mile
009E3300	Three Man Survey Crew	40.0	Hour
100E0100	Clearing	Lump Sum	LS
110E1140	Remove Concrete Sidewalk	2,517.9	SqYd
110E1690	Remove Sediment	19.3	CuYd
110E1693	Remove Erosion Control Wattle	8,390	Ft
110E1700	Remove Silt Fence	1,703	Ft
110E5451	Salvage Riprap	3,230.0	Ton
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	28,660	CuYd
120E0300	Borrow Unclassified Excavation	52,540	CuYd
120E6100	Water for Embankment	812.0	MGal
230E0010	Placing Topsoil	3,500	CuYd
230E0020	Placing Contractor Furnished Topsoil	2,123	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
450E0202	48" RCP Class 2, Furnish	52	Ft
450E0210	48" RCP, Install	52	Ft
450E4759	18" CMP 16 Gauge, Furnish	348	Ft
450E4760	18" CMP, Install	348	Ft
450E4769	24" CMP 16 Gauge, Furnish	82	Ft
450E4770	24" CMP, Install	82	Ft
450E4809	48" CMP 16 Gauge, Furnish	84	Ft
450E4810	48" CMP, Install	84	Ft
450E5010	18" CMP Elbow, Furnish	8	Each
450E5011	18" CMP Elbow, Install	8	Each
450E5015	24" CMP Elbow, Furnish	2	Each
450E5016	24" CMP Elbow, Install	2	Each
450E5035	48" CMP Elbow, Furnish	2	Each
450E5036	48" CMP Elbow, Install	2	Each
450E9001	Reset Pipe End Section	1	Each
600E0200	Type II Field Laboratory	1	Each
634E0010	Flagging	120	Hour
634E0100	Traffic Control	544	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
651E0140	4" Reinforced Concrete Sidewalk	22,716	SqFt
700E0210	Class B Riprap	20,673.0	Ton
700E2010	Place Riprap	3,230.0	Ton
730E0100	Cover Crop Seeding	40.0	Bu
730E0200	Type A Permanent Seed Mixture	259	Lb
731E0200	Fertilizing	8.02	Ton
732E0100	Mulching	48.8	Ton
734E0044	Soil Stabilizer	2.6	Acre
734E0151	9" Diameter Erosion Control Wattle	8,390	Ft
734E0165	Remove and Reset Erosion Control Wattle	2,098	Ft
734E0325	Surface Roughening	2.6	Acre
734E0602	Low Flow Silt Fence	6,810	Ft
734E0610	Mucking Silt Fence	473	CuYd
734E0630	Floating Silt Curtain	5,905	Ft
831E0110	Type B Drainage Fabric	27,383	SqYd
831E1000	Slope Face Stabilization Fabric	19,514	SqYd

Bid Item Number	Item	Quantity	Unit
110E1700	Remove Silt Fence	300	Ft
110E5451	Salvage Riprap	2,080.0	Ton
120E0010	Unclassified Excavation	5,945	CuYd
120E0300	Borrow Unclassified Excavation	10,510	CuYd
120E6100	Water for Embankment	165.0	MGal
230E0010	Placing Topsoil	360	CuYd
230E0020	Placing Contractor Furnished Topsoil	56	CuYd
634E0010	Flagging	30	Hour
700E0210	Class B Riprap	2,859.0	Ton
700E2010	Place Riprap	2,080.0	Ton
730E0200	Type A Permanent Seed Mixture	14	Lb
731E0200	Fertilizing	0.60	Ton
732E0100	Mulching	1.6	Ton
734E0602	Low Flow Silt Fence	1,200	Ft
734E0610	Mucking Silt Fence	83	CuYd
734E0630	Floating Silt Curtain	1,170	Ft
831E0110	Type B Drainage Fabric	5,027	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	3	110

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 B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

The Contractor is responsible for hiring a qualified person acceptable to USFWS to identify potential eagle nests within the Project area prior to construction activities occurring. If eagle nests are spotted by the surveyor, appropriate avoidance or mitigation as prescribed by USFWS will be taken prior to construction activities.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the Project Engineer. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

This segment of Lake Francis Case/Missouri River is classified as a warm water permanent fishery with a total suspended solids standard of 90 milligrams/liter.

Action Taken/Required:

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environment and Natural Resources (DENR), apply to this project. Special construction measures shall be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

This segment of Lake Francis Case/Missouri River is classified as a warm water permanent/warm water semi-permanent fishery with a Surface Water Discharge standard of 90 milligrams/liter total suspended solids.

Action Taken/Required:

If construction dewatering is required, the Contractor shall obtain a Temporary Discharge Permit from the DENR and provide a copy to the Project Engineer. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT:

<http://sddot.com/transportation/highways/environmental/stormwater/Default.aspx>

DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The "Department of Environment and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at:

<http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf>

ENVIRONMENTAL COMMITMENTS

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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 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 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 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".
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

The SDGFP has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

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.

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 within 100 feet of the materials 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.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites 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.

COMMITMENT J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

The Contractor is advised that special construction measures have to be taken to ensure that the waterways of the U.S. are not impacted.

Action Taken/Required:

No excavation shall be made below the ordinary high water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting; and the natural streambed shall not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high water elevations.

All dredged or excavated materials shall be placed at a site above the ordinary high water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway. No borrow activity should occur in Waters of the U.S.

The construction of temporary work platforms, crossings, or berms below the ordinary high water elevation will be allowed provided that all material placed below the ordinary high water elevation consists of Class B or larger riprap.

All temporary caissons, cribs, cofferdams, steel piling, sheeting, work platforms, crossings, and berms shall be removed with minimal disturbance to the streambed. Proper construction practices shall be used to minimize increases in suspended solids and turbidity in the waterway.

Bridge berms, wing dams, traffic diversions, channel reconstruction, grading, etc. shall be constructed in close conformity with the plans to ensure that the hydraulic capacity of the waterway is not changed.

Temporary waterway crossings required for the Contractors construction operations shall be constructed with an adequate drainage structure size and minimum fill height to reduce the potential for upstream flooding. The Contractor will be responsible for sizing the temporary drainage structure for these crossings.

Table of U.S. Waterways to Protect

Waterway	Ordinary High Water Elevation
Lake Francis Case – Missouri River	1365.00

ENVIRONMENTAL COMMITMENTS

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COMMITMENT N: SECTION 404 PERMIT

The SDGFP has obtained a Section 404 permit and a Section 10 permit from the US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

The Contractor shall comply with all requirements contained in the Section 404 permit and the Section 10 permit.

The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

COMMITMENT S: MIGRATORY BIRDS WORK RESTRICTION

Removal of inactive nests of migratory birds should not be accomplished prior to consultation with USFWS.

Action Taken/Required:

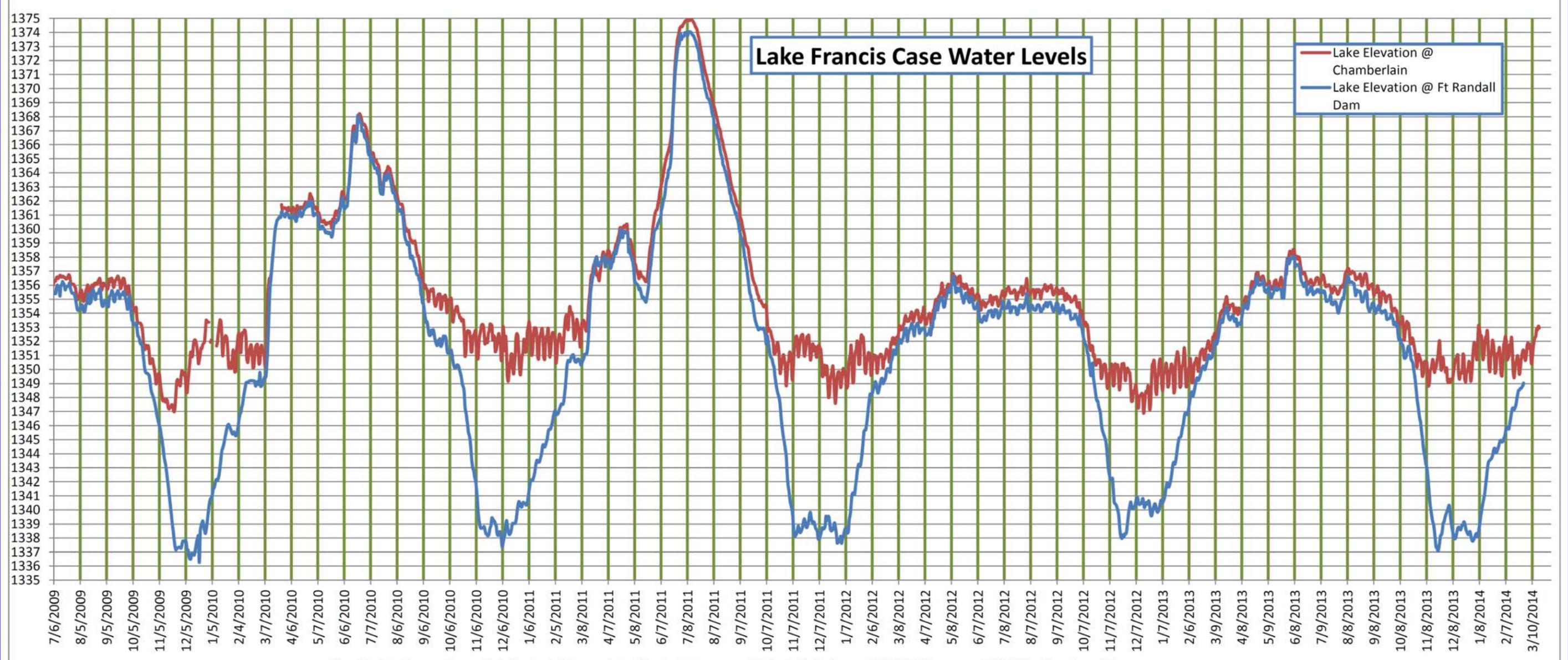
A permit may be required for removal of inactive nests. Removal of habitat (that is, clearing and grubbing prior to nesting) for the migratory birds prior to the nesting season, April to September, can greatly reduce the chance of impacting migratory birds.

LAKE FRANCIS CASE WATER LEVELS

The information on this page is intended for the Contractors information to use as a scheduling tool.

The data is believed to be accurate but may have errors.

Note: The red line in the graph pertains to the project area. The blue line is not relevant to the project.



Data Sources: Chamberlain Stream Gauge: U.S. Geological Survey, http://waterdata.usgs.gov/sd/nwis/dv/?site_no=06442996&agency_cd=USGS&referred_module=sw.
Fort Randall Dam: U.S. Army Corps of Engineers Reservoir Control Center, <http://www.nwd-mr.usace.army.mil/rcc/programs/bullext.html>

A link is provided for the daily water level fluctuations: http://waterdata.usgs.gov/sd/nwis/dv?cb_00065=on&format=gif_default&period=&begin_date=2009-07-06&end_date=2014-03-10&site_no=06442996&referred_module=sw

The Mitchell Area Office has an assortment of pictures showing project area during a low pool period. You may contact the Area Office to get the available pictures. 605-995-8120

UTILITIES

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

It is noted that there is buried fiber optic line within the project boundaries. The Contractor will need to coordinate with Midstate Communications to accomplish work in areas of the fiber optic cable.

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.

TYPE II FIELD LABORATORY

Substitution of a cellular telephone for the hard-wired touch-tone telephone is not allowed, as state personnel need the ability to download information over direct phone lines. The phone is intended for state personnel usage only. Contractor personnel are prohibited from using this phone unless pre-approved by the Project Engineer. The Contractor shall submit a copy of each monthly bill for calls charged to this phone at the end of each month. The Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual phone calls made, including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items shall be incidental to the contract unit price per each for "Type II Field Laboratory".

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

If significant changes to the cross sections are necessary during construction, the Engineer shall contact the Designer for the proposed change.

SHRINKAGE FACTOR: Embankment +35%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Borrow Unclass. Exc. (CuYd)	Total Excavation (CuYd)	** Dead Haul (CuYdSta)
0+00	47+00	22215	39530	61745	830130
47+00	58+00	5945	10010	15955	135135
Totals:		28160	49540	77700	0

* The quantities for these items are in the Estimate of Quantities under their respective bid items.

** The quantities for these items are for information only.

TABLE OF UNCLASSIFIED EXCAVATION

Excavation	28160
Topsoil	500
Total	28660

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity shall be used for final payment. If final cross sections are taken in the field, add all of the items in the Table of Unclassified Excavation using the following procedures:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finaling a project, the Unstable Material Excavation quantity shall be added to the Excavation quantity to compute the Unclassified Excavation quantity.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil shall be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed.

TABLE OF BORROW UNCLASSIFIED EXCAVATION

Borrow Unclassified Excavation	(CuYd)	49,540
Topsoil in Borrow Pit		3,000
Total:		52,540

DEAD HAUL

Included in the Table of Excavation Quantities by Balances is Dead Haul. This is not a pay item and is for informational purposes only. The mass haul diagram is available at the Mitchell Region and Mitchell Area offices for use in figuring this haul.

Dead Haul: Estimated quantity (CuYdSta) for moving borrow excavation material from the borrow site to the centerline mainline station listed in the Table of Borrow Pits.

TABLE OF BORROW PITS

Site	Station	L/R	Dead Haul Distance (Sta)	Borrow Exc. (CuYd)	Dead Haul (CuYdSta)
1	30+00	L	21	39,530	830,130
1	54+50	L	13.5	10,010	135,135

Stations in the above table are not pit locations, but stations where the borrow is interjected into the earthwork balance for haul calculations.

The quantities listed in the above table for Dead Haul are for information only. The Dead Haul quantities are also included in the Table of Excavation Quantities by Balances.

The quantities listed in the above table for Borrow Excavation are also included in the Table of Excavation Quantities by Balances.

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CLASSIFICATION OF EXCAVATION

All materials encountered during the construction of this project, regardless of their nature or the manner, in which they are excavated, will be considered Unclassified Excavation.

Most of the material encountered should be able to be excavated using conventional methods. Prospective bidders are encouraged to review the boring information and geology report compiled by the SDDOT Geotechnical Engineering Activity as well as observe the project conditions in the field. The geology report is available at the Mitchell Area Office.

UNSTABLE EXCAVATION

Unstable Excavation will be required throughout the project limits to excavate saturated or weak compressible soils and other organic materials. A nominal 3 ft. depth of compressible material is anticipated to be removed from each fill footprint prior to construction of the embankment. The depth of unstable excavation may be adjusted by the Engineer to ensure a solid foundation free of organic, soft, unstable material is prepared. Inplace chalk shall not be excavated. Unstable and/or highly organic material shall be stockpiled for use as topsoil or wasted at a site approved by the Engineer.

LANDSLIDE DEBRIS EXCAVATION

Landslide Debris Excavation will be required at various locations throughout the project limits as shown on the cross sections. It is anticipated that most of the excavated Landslide Debris can be used in embankment construction. Borrow will be required to construct the remaining embankment. The Landslide Debris Excavation limits shall not exceed those shown on the cross sections unless directed by the Engineer. The temporary backslopes required to excavate Landslide Debris will become unstable over the long-term. However, the temporary 1 ½:1 or 2:1 excavated backslopes should remain globally stable over the short-term during construction provided that measures are taken to divert runoff away from the slope and regular monitoring of the slope is conducted. Construction activities shall be sequenced to minimize the amount of time the steep temporary backslopes are left exposed and unsupported. Landslide Debris Excavation shall be paid for as Unclassified Excavation.

EMBANKMENT CONSTRUCTION

Embankment construction will be required at the 8 sites within the project limits. Embankment construction shall not begin until all vegetation and unstable compressible materials have been excavated from the embankment footprint to the satisfaction of the Engineer. A suitable embankment foundation consists of in-place rock or compacted soil which does not pump, rut, or otherwise displace when traveled over with construction equipment. Embankment material shall be free of debris and organic material. Each embankment shall be benched into the existing slopes in accordance with Section 120.3.B.1 of the specifications. Embankment shall be compacted through the use of a sheepfoot or padfoot roller. Ripping and disking of the face stabilized embankment is prohibited. It is anticipated that embankment material will be processed at the stockpile or borrow location then transported for use in embankment construction. Individual rocks and/or blocks of raw shale greater than 6" in diameter will not be allowed in the embankment. Compaction of the embankment will be according to the Specified Density Method. The minimum density testing requirements will vary with the type of embankment being constructed. For each embankment one density test shall be completed per zone per site. The thickness of each zone shall be 3 feet for the 2:1 face stabilized slopes at the following sites:

Station 6+50± to Station 9+50±
 Station 13+00± to Station 19+25±
 Station 34+00± to Station 38+00±
 Station 42+50± to Station 45+50±

If Slope Face Stabilization Fabric placement will interfere with the testing location, the testing will be done prior to the fabric installation.

The thickness of each zone shall be 5 feet for embankments at the following sites:

Station 19+25± to Station 23+00±
 Station 23+00± to Station 29+00±
 Station 29+00± to Station 34+00±
 Station 38+00± to Station 42+50±

Moisture testing shall remain as per Minimum Sample Testing Requirements.

FACE STABILIZED SLOPE

The proposed 2:1 embankment slopes shall be constructed with Slope Face Stabilization Fabric as per the Typical Installation Procedure and Slope Face Stabilization Tables listed below and as shown on the cross sections and in Figures 1, 2, & 3.

Typical Installation Procedure

1. Embankment shall be benched into the existing slope and constructed in accordance with Section 120 of the specifications.
2. Any rocks or other protrusions that might damage the geotextile will be removed prior to placing the geotextile.
3. The fabric shall be unrolled parallel to the slope face and shall cover the area a minimum of 11 feet back from the edge of the inslope (see Figure 2).
4. The geotextile should be kept as taut as possible prior to backfilling.
5. Embankment material shall be dumped at least 20 feet behind the leading edge of the fill and pushed into place with a loader or dozer.
6. No equipment shall be allowed on the geotextile until one lift of the embankment material has been placed.
7. All seams in the geotextile shall be overlapped at least 2 feet and shingled as shown in Figure 3.
8. Each successive layer of embankment and geotextile shall be placed as level and smooth as possible.

The Slope Face Stabilization Fabric will conform to Section 831.1.A, Woven Geotextile Separator. Woven Geotextile Separator will be paid for at the contract unit price per square yard for Slope Face Stabilization Fabric. Estimated quantities are based on 11 foot wide by 300 foot long rolls plus 2 feet per seam for overlap. Payment will be full compensation for furnishing and installing the Woven Geotextile Separator only. Backfill materials will be paid for as Unclassified Excavation.

Downspouts connecting to culverts underneath the roadway are to be placed in three locations within the Face Stabilized Areas. The downspouts shall be placed before the Face Stabilizing layers are placed. The pipe installation cross sections depict that the downspouts will be located behind the Face Stabilization. The Contractor shall take precautions to no damage the downspout as he places the layers of fill for the Face Stabilization and shall replace any pipe that is damaged. The Contractor is not allowed to trench in the downspouts after the placement of the Face Stabilization.

SLOPE FACE STABILIZATION TABLE

Elevation of Geotextile Layer	Geotextile Layer Start Station	Geotextile Layer Length (feet)
Sta. 6+50 to 9+50		
1388	6+89	235
1386	6+88	237
1384	6+87	238
1382	6+86	239
1380	6+85	240
1378	6+84	239
1376	6+83	238
1374	6+82	237
1372	6+81	236
1370	6+80	235
1368	6+90	216
1366	7+00	205
1364	7+75	100
1362	8+00	50
Subtotal		2945
Sta. 13+00 to 17+50		
1395	13+50	100
1393	13+42	408
1391	13+35	415
1389	13+28	413
1387	13+21	412
1385	13+14	411
1383	13+07	410
1381	13+00	409
1379	13+00	400
1377	13+00	375
1375	13+00	350
1373	13+00	325
1371	13+00	300
1369	13+75	200
1367	14+50	100
Subtotal		5028

SLOPE FACE STABILIZATION TABLE (CONTINUED)

Elevation of Geotextile Layer	Geotextile Layer Start Station	Geotextile Layer Length (feet)
Sta. 34+00 to 39+00		
1383	34+45	120
1381	34+15	185
1379	34+13	237
1377	34+12	388
1375	34+11	389
1373	34+10	390
1371	34+08	392
1369	34+07	393
1367	34+06	394
1365	34+04	396
1363	34+03	397
1361	34+01	399
1359	34+00	400
1357	34+00	370
Subtotal.		4850
Sta. 42+00 to 45+00		
1377	42+38	162
1375	42+31	269
1373	42+25	276
1371	42+17	283
1369	42+10	290
1367	42+03	297
1365	42+00	300
1363	42+00	300
1361	42+00	300
1359	42+00	300
1357	42+40	260
Subtotal.		3037
Additional for Overlap Length		106
Grand Total Length		15966

Multiplying the Grand Total Length by 11 feet (the width of the roll) the Estimated Quantity for Slope Face Stabilization Fabric is 19514 Square Yards.

RIPRAP PLACEMENT

The Contractor shall salvage existing riprap in areas where fill or cut is to be done as shown in Cross Section sheets. In areas of existing riprap the highest point on the slope is shown on the cross sections. It is noted that not all riprap will need to be disturbed. The Cross Sections depict areas where new riprap will be placed adjacent to existing riprap. All Salvaged Riprap will be placed back on the project.

Riprap and Type B Drainage Fabric shall be placed on existing cutbank and finished embankment slopes from elevation 1355 to elevation 1370. Vegetation and loose debris shall be removed from areas to be armored prior to drainage fabric and riprap placement. Drainage fabric shall be held in place by a method approved by the Engineer. Riprap shall be placed on cutbank slopes as steep as possible while maintaining total coverage of the slope with the minimum required thickness of riprap. Riprap shall be keyed in or placed to form a riprap apron on the shoreline at the base of the bank slope. Riprap and drainage fabric required for apron construction shall be placed directly on the shoreline surface and seated into place.

Cost to salvage the riprap will be included in the contract unit price per ton for Salvage Riprap. Cost to place the salvaged riprap will be included in the contract unit price per ton for Place Riprap.

Cost to furnish and place Type B Drainage Fabric shall be included in the contract unit price per square yard for Type B Drainage Fabric.

Cost to furnish and place new Riprap will be included in the contract unit price per ton for Class B Riprap

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station to Station	Salvage Riprap (Ton)	Place Riprap (Ton)	Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)
0+00 to 47+00	1150	1150	17814	22356
47+00 to 58+00	2080	2080	2859	5027
Totals	3230	3230	20673	27383

INCIDENTAL WORK, GRADING

Station	Remarks
0+92-65' L to 0+96-19' R	Remove 18" CMP Downspout back to RCP
8+16-77' L to 8+33-7' R	Remove 24" CMP Downspout back to RCP
14+24-86' L to 14+28-0' R	Remove 18" CMP Downspout back to RCP
17+09-67' L to 17+08-25' R	Remove 18" CMP Downspout back to RCP
21+78-100' L to 21+71.94-5' R	Remove 18" CMP Downspout back to RCP
30+49-71' L to 30+62-19' R	Remove 48" CMP Downspout back to RCP

TABLE OF SIDEWALK REMOVAL

Station to	Station	L/R	Quantity (SqYd)
0+73	1+17	L	44.4
6+50	8+50	L	208.9
13+50	17+52	L	340.4
21+45	22+09	L	44.4
29+99	30+68	L	89.8
35+34	45+34	L	900
Additional Quantity			890
			2517.9

CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 3/8-inch X 1/2-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes shall have 3-inch X 1-inch or 5-inch X 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

PIPE FOR DOWNSPOUTS

High density polyethylene pipe may be substituted for corrugated metal pipe downspouts at no additional cost to the State. All necessary connections and transitions shall be approved by the Engineer.

Acceptance of high density polyethylene pipe will be by certification.

REINFORCED CONCRETE SIDEWALK

The reinforcing steel shall conform to Section 1010 of the specifications. The Contractor shall be in conformance with the construction requirements of Section 480.3 of the specifications.

When lapping of reinforcing steel is necessary, the No. 3 rebar shall be lapped 12".

The reinforced concrete sidewalk shall conform to the requirements of Section 651 of the specifications.

All costs for constructing the reinforced concrete sidewalk including labor, equipment, tools, backfilling, furnishing and placing materials, including granular cushion, reinforcing steel, preformed expansion joint filler, and incidentals shall be included in the contract unit price per square foot for the corresponding reinforced concrete sidewalk bid item.

TABLE OF 4" REINFORCED CONCRETE SIDEWALK

Station to	Station	L/R	4" Reinforced Concrete Sidewalk (SqYd)
0+73	1+17	L	400
6+50	8+50	L	1880
13+50	17+52	L	3064
21+45	22+09	L	400
29+99	30+68	L	808
35+34	45+34	L	8064
Additional Quantity			8100
			22716

PLACING TOPSOIL

The thickness will be approximately 4 inches within the project disturbed limits. The topsoil thickness for the option borrow pits shall be as stated on the borrow pit sheets.

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

Station	to	Station	Topsoil (CuYd)
0+00		47+00	140
47+00		58+00	360
		Subtotal:	500
		Borrow Pit No. 1	3000
		Subtotal:	3000
		Total:	3500

PLACING CONTRACTOR FURNISHED TOPSOIL

It is anticipated that a larger volume of topsoil will be needed for the new grade than can be salvaged from the existing grade. The Contractor will be required to furnish and place 4 inches of topsoil on newly graded areas except for the riprap areas.

Station	to	Station	Contractor Furnished Topsoil (CuYd)
0+00		47+00	2067
47+00		58+00	56
		Tota,:	2123

All costs to furnish and place the topsoil shall be incidental to the contract unit price per cubic yard for "Placing Contractor Furnished Topsoil".

MYCORRHIZAL INOCULUM

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

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

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

The mycorrhizal inoculum shall be from the list below or an approved equal:

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

FERTILIZING

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

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

The application rate is 1,500 pounds per acre.

The Borrow Pit area will shall not have fertilizer applied

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

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

DRILLS

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

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project including the borrow pit.

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.

The varieties listed for seed mixtures are preferred varieties.

Native harvest seed will be allowed.

Type A Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Blue Grama	Bad River, Willis	2
Canada Wildrye	Mandan	2
Total:		18

COVER CROP SEEDING

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

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

SURFACE ROUGHENING

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

TABLE OF SURFACE ROUGHENING

Station	to	Station	Area (Acre)
6+40		9+50	0.3
13+00		19+00	0.9
20+50		28+00	0.7
29+50		31+00	0.1
34+50		45+00	0.6
			2.6

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.

An additional 20 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

SOIL STABILIZER

Soil stabilizer shall be applied on the areas listed in the table and any other areas deemed necessary by the Engineer. The soil stabilizer limits shall be adjusted as necessary by the Engineer during construction.

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

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

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

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

Product	Manufacturer
<p>StarTak 600 Applied at a rate of 150 Lb/Acre</p>	<p>Chemstar Products Company Minneapolis, MN Phone: 1-800-328-5037 www.chemstar.com</p>
<p>Pam-12 Plus Applied at a rate of: Slope None to 4:1 1000 Lb/Acre 4:1 to 3:1 1000 to 2000 Lb/Acre 3:1 to 2:1 2000 to 3000 Lb/Acre</p>	<p>ENCAP, LLC Green Bay, WI Phone: 1-877-405-5050 http://professional.encap.net/</p>
<p>M-Binder Applied at a rate of 150 Lb/Acre</p>	<p>Ecology Controls Carpinteria, CA Phone: 1-805-684-0436 www.ssseeds.com</p>

SOIL STABILIZER (CONTINUED)

FiberRX
Applied at a rate of:
Slope
None to 4:1 50 Lb/Acre
3:1 60 Lb/Acre
2:1 70 Lb/Acre
1:1 or steeper 80 Lb/Acre

Enviropam
Applied at a rate of 9 Lb/Acre

HydraTack, Tack Plus,
Tack-P, or Tack-P Plus
Applied at a rate of 30 Lb/Acre

FI-1045 Hydrobond or
FI-1046 Hydrobond
Applied at a rate of 15 Lb/Acre

HF5000 Tack
Applied at a rate of 60 Lb/Acre

R-Tack
Applied at a rate of 150 Lb/Acre

SpecTac
Applied at a rate of:
Slope
None 30 to 80 Lb/Acre
4:1 50 to 100 Lb/Acre
3:1 80 to 120 Lb/Acre
2:1 100 to 170 Lb/Acre

Super Tack
Applied at a rate of 60 Lb/Acre

EarthGuard SFM
Applied at a rate of 60 LB/Acre
(approx. 6 Gallons/Acre)

Hydrostraw, LLC
Manteno, IL
Phone: 1-800-545-1755
<http://hydrostraw.com/>

Innovative Turf Solutions, LLC
Cincinnati, OH
Phone: 1-513-317-8311
www.innovativeturfsolutions.com

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Cincinnati, OH
Phone: 1-513-317-8311
www.innovativeturfsolutions.com

JRM Chemical, Inc.
Cleveland, OH
Phone: 1-216-475-8488
www.soilmoist.com

Rantec Corporation
Ranchester, WY
Phone: 1-307-655-9565
www.ranteccorp.com

Terra Novo Inc.
Bakersfield, CA
Phone: 1-661-747-5956
www.terrano.com

TABLE OF SOIL STABILIZER

Station to	Station	Area (Acre)
6+40	9+50	0.3
13+00	19+00	0.9
20+50	28+00	0.7
29+50	31+00	0.1
34+50	45+00	0.6
		2.6

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 and then they shall be removed in accordance with the Engineer.

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

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

TABLE OF EROSION CONTROL WATTLE

Station to	Station	Diameter (Inch)	Location	Quantity (Ft)
6+40	9+50	9	New Slope Face	650
13+00	19+00	9	New Slope Face	1825
20+50	28+00	9	New Slope Face	1545
29+50	31+00	9	New Slope Face	150
34+50	45+00	9	New Slope Face	1220
Borrow Pit Area		9	Locations Determined by the Engineer	1500
Additional Quantity:				1500
Total:				8390

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".

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 to	Station	Location	Quantity (Ft)
6+40	9+50	Adjacent to Top of Riprap	310
13+00	19+00	Adjacent to Top of Riprap	600
20+50	28+00	Adjacent to Top of Riprap	750
29+50	31+00	Adjacent to Top of Riprap	150
34+50	45+00	Adjacent to Top of Riprap	1050
48+50	58+00	Adjacent to Top of Riprap	950
Borrow Pit Area		Locations Determined by the Engineer	1000
Additional Quantity			2000
Total:			6810

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.

FLOATING SILT CURTAIN

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

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

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

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

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

ABASCO, LLC
Houston, TX
Phone: 1-800-242-7745
www.abasco.net

American Boom and Barrier Corp.
Cape Canaveral, FL
Phone: 1-800-843-2110
www.abbcoboom.com

Elastec/American Marine, Inc.
Carmi, IL
Phone: 1-618-382-2525
www.turbiditycurtains.com

Parker Systems, Inc.
Chesapeake, VA
Phone: 1-866-472-7537
www.parkersystemsinc.com

Aer-Flo, Inc.
Bradenton, FL
Phone: 1-800-823-7356
www.aerflo.com

ENVIRO-USA, LLC
Cocoa, FL
Phone: 1-321-222-9551
www.enviro-usa.com

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

TABLE OF FLOATING SILT CURTAIN

Station to	Station	Quantity (Ft)
5+70	10+50	465
12+80	28+50	1580
28+50	45+70	1690
47+10	58+50	1170
Additional Quantity:		1000
Total:		5905

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
 - Cutting and filling
 - Other (describe):
- **Total Project Area** 31.8 acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 14.4 acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 60
- **Soil Properties:** AASHTO Soil Classification A6 and A7 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Missouri River **(4.2 1.e.)**

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

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

- **Install perimeter protection where runoff sheets from the site.**
- **Clearing and Grubbing**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Complete final grading.**
- **Place Riprap**
- **Install New Sidewalk**
- **Reseed areas disturbed by removal activities.**
- **Install Final Erosion Control Items**

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

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
 - Temporary Seeding (Cover Crop Seeding)
 - Permanent Seeding
 - Sodding
 - Planting (Woody Vegetation for Soil Stabilization)
 - Mulching (Grass Hay or Straw)
 - Hydraulic Mulch (Wood Fiber Mulch)
 - Soil Stabilizer
 - Bonded Fiber Matrix
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Dust Control
 - Other:
- **Structural Temporary Erosion and Sediment Controls**
 - Silt Fence
 - Floating Silt Curtain
 - Straw Bale Check
 - Temporary Berm
 - Temporary Slope Drain
 - Straw Wattles or Rolls

- Turf Reinforcement Mat
- Rip Rap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection (Area Drain)
- Curb Inlet Protection
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Interceptor Ditch
- 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 $\frac{1}{3}$ of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches $\frac{1}{2}$ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

❖ **Materials Inventory (4.2. 2.c.(2))**

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other:

❖ **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.

SEQUENCE OF OPERATIONS

The Contractor shall submit a detailed sequence of operations to the Area Engineer as required in the Special Provision for Contractor Administered Preconstruction Meetings.

A general sequence of operations is noted below but not limited to:

1. Install traffic control for the project.
2. Install erosion and sediment control measures prior to earth disturbing activities.
3. Perform clearing activities needed for construction.
4. Strip topsoil and remove unstable/landslide excavation. Care shall be taken so topsoil is not stripped until immediately before the embankment construction begins.
5. Install CMP downspouts.
6. Prepare material in borrow pit for embankment construction.
7. Construct embankment and face stabilized slope areas identified in the plans. Care shall be taken to not damage CMP downspouts and slope face stabilization fabric during this process.
8. Place riprap as per the typical sections. The contractor shall take advantage of low pool elevations.
9. Place topsoil and install permanent erosion control measures once earth disturbing activities have been completed at a location.

MAINTENANCE OF TRAFFIC

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

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

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.

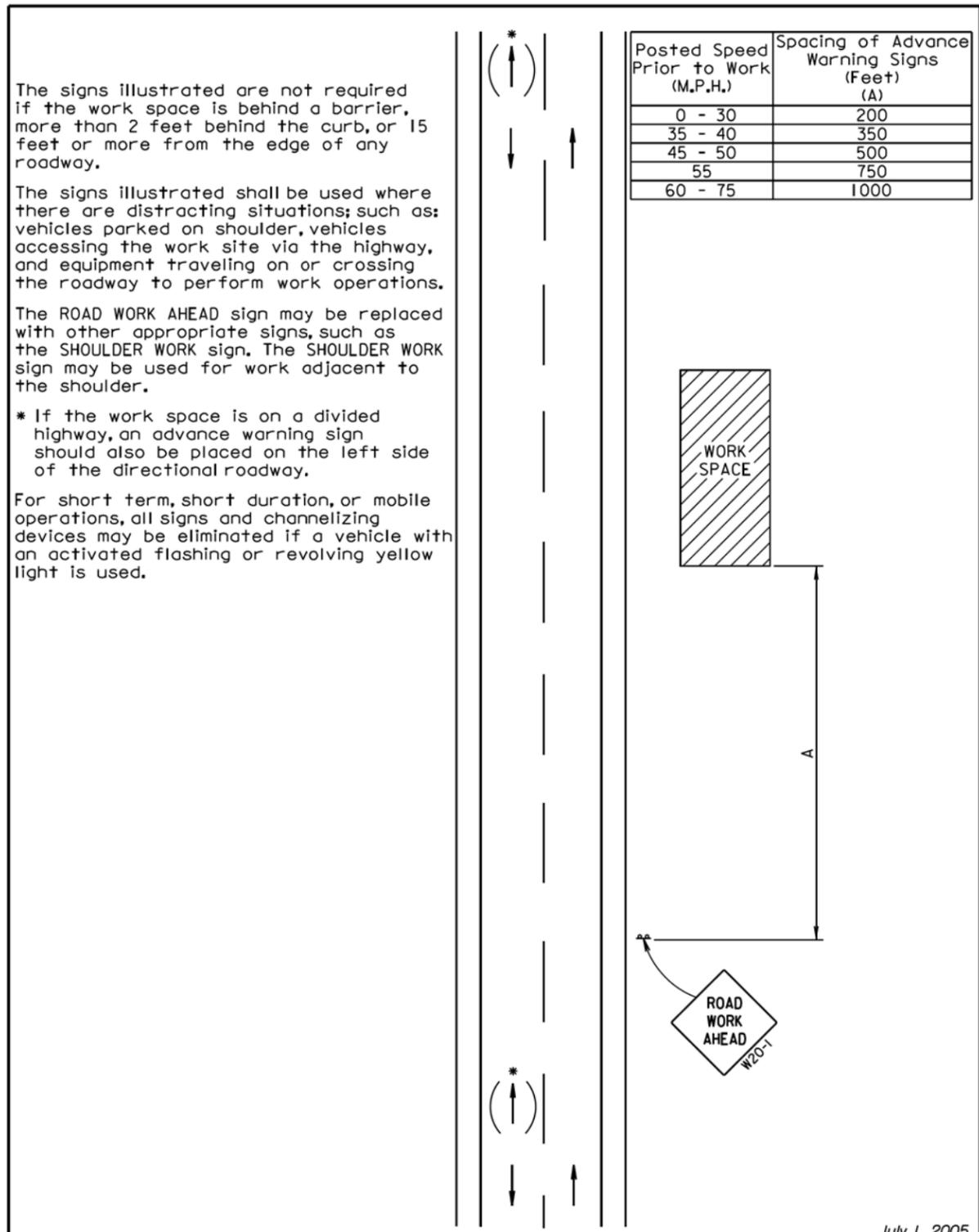
The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Sufficient traffic control devices have been included in these plans to sign two workspaces. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per unit for Traffic Control.

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
E5-1	36" x 32"	EXIT GORE SIGN		24	
G20-2	36" x 18"	END ROAD WORK		17	
R1-1	48" x 48"	STOP		34	
R1-2	48" x 48"	YIELD		34	
R2-1	30" x 36"	SPEED LIMIT 45		23	
R2-1	36" x 48"	SPEED LIMIT ___		29	
R2-1	48" x 60"	SPEED LIMIT ___		38	
R2-6aP	36" x 24"	FINES DOUBLE		20	
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)		18	
R5-1	48" x 48"	DO NOT ENTER		34	
R5-1a	42" x 30"	WRONG WAY		25	
R10-6	24" x 36"	STOP HERE ON RED		20	
R11-2	48" x 30"	ROAD CLOSED		27	
R11-3a	60" x 30"	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY		30	
R11-4	60" x 30"	ROAD CLOSED TO THRU TRAFFIC		30	
SW12-1b	120" x 60"	HIGHWAY WORKERS GIVE'EM A BRAKE		80	
W1-1	48" x 48"	LEFT OR RIGHT TURN ARROW		34	
W1-2	48" x 48"	LEFT OR RIGHT CURVE ARROW		34	
W1-3	48" x 48"	REVERSE TURN SIGN (LEFT OR RIGHT)		34	
W1-4	48" x 48"	REVERSE CURVE SIGN (LEFT OR RIGHT)		34	
W3-1	48" x 48"	STOP AHEAD (SYMBOL)		34	
W3-2	48" x 48"	YIELD AHEAD (SYMBOL)		34	
W3-3	48" x 48"	SIGNAL AHEAD (SYMBOL)		34	
W3-4	48" x 48"	BE PREPARED TO STOP	4	34	136
W3-5	48" x 48"	SPEED REDUCTION (___ MPH)		34	
W4-1	48" x 48"	MERGE (SYMBOL)		34	
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)		34	
W5-2	48" x 48"	NARROW BRIDGE		34	
W5-3	48" x 48"	ONE LANE BRIDGE		34	
W7-3aP	30" x 24"	NEXT ___ MILES		18	
W8-1	36" x 36"	BUMP		27	
W8-6	48" x 48"	TRUCK CROSSING	4	34	136
W8-7	36" x 36"	LOOSE GRAVEL		27	
W8-9a	48" x 48"	SHOULDER DROP-OFF		34	
W8-11	48" x 48"	UNEVEN LANES		34	
W8-15	36" x 36"	GROOVED PAVEMENT		27	
W13-1	24" x 24"	ADVISORY SPEED PLATE		16	
W16-2P	30" x 24"	SUPPLEMENTAL DISTANCE PLAQUE		18	
W20-1	48" x 48"	ROAD WORK AHEAD	4	34	136
W20-2	48" x 48"	DETOUR AHEAD		34	
W20-3	48" x 48"	ROAD CLOSED AHEAD		34	
W20-4	48" x 48"	ONE LANE ROAD AHEAD		34	
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD		34	
W20-7	48" x 48"	FLAGGER	4	34	136
W21-1a	48" x 48"	WORKERS (SYMBOL)		34	
W21-2	36" x 36"	FRESH OIL		27	
W21-3	48" x 48"	ROAD MACHINERY AHEAD		34	
W21-5	48" x 48"	SHOULDER WORK		34	
W21-5a	48" x 48"	RIGHT SHOULDER CLOSED		34	
W21-5b	48" x 48"	RIGHT SHOULDER CLOSED AHEAD		34	
*****	12" x 36"	TYPE III OBJECT MARKER		15	
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED		40	
*****	*****	TYPE III BARRICADE - 8 FT. DOUBLE SIDED		56	
TOTAL UNITS				544	

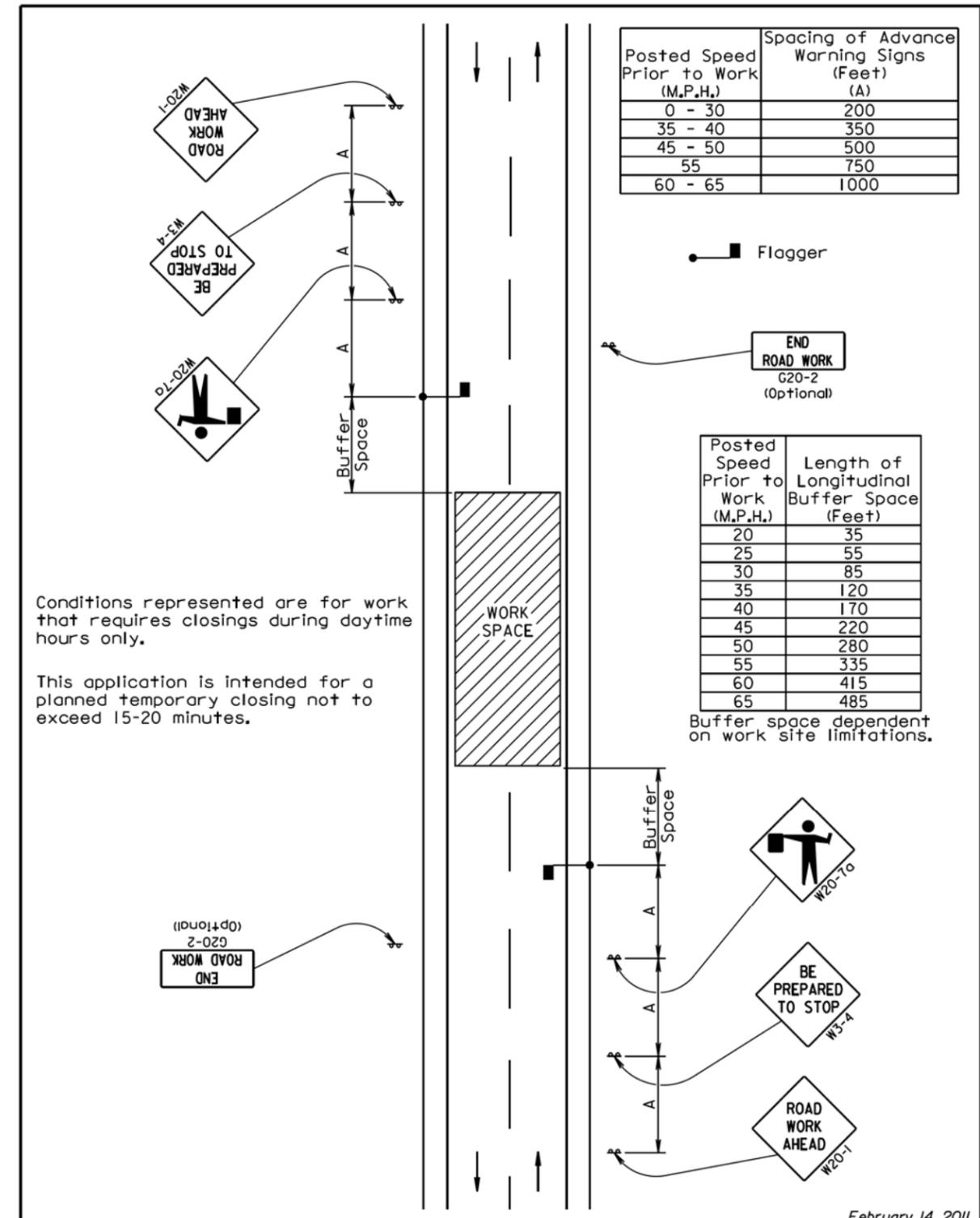
Plotting Date: 04/04/2014



July 1, 2005

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
		Sheet 1 of 1

Published Date: 1st Qtr. 2014



February 14, 2011

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES TEMPORARY ROAD WORK	PLATE NUMBER 634.30
		Sheet 1 of 1

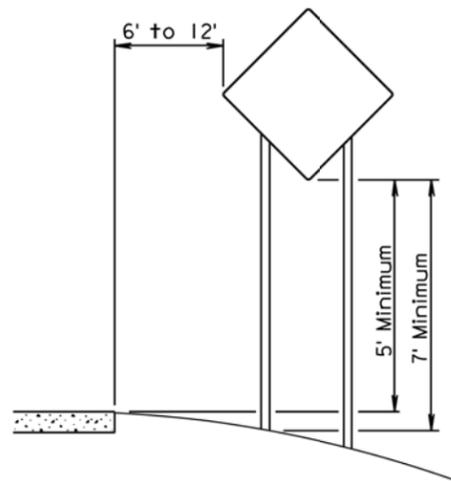
Published Date: 1st Qtr. 2014

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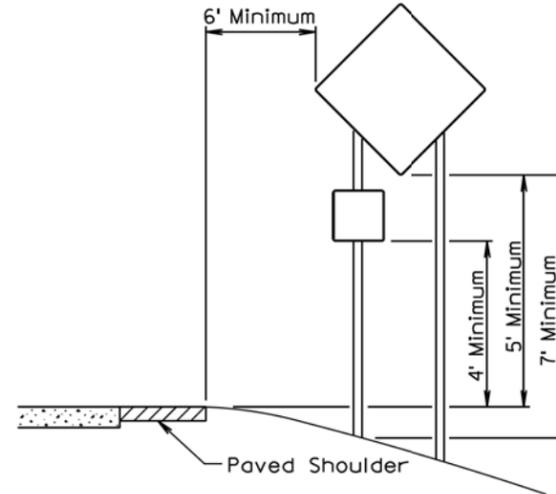
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PLOT NAME - 1

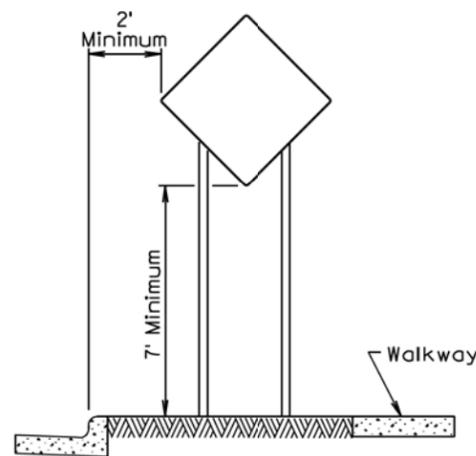
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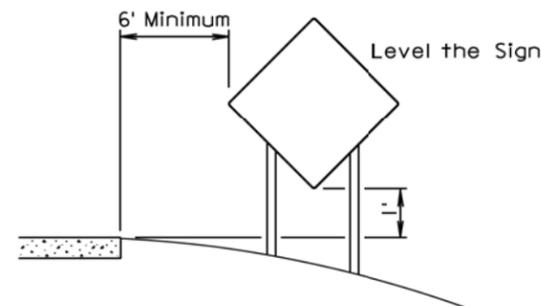
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



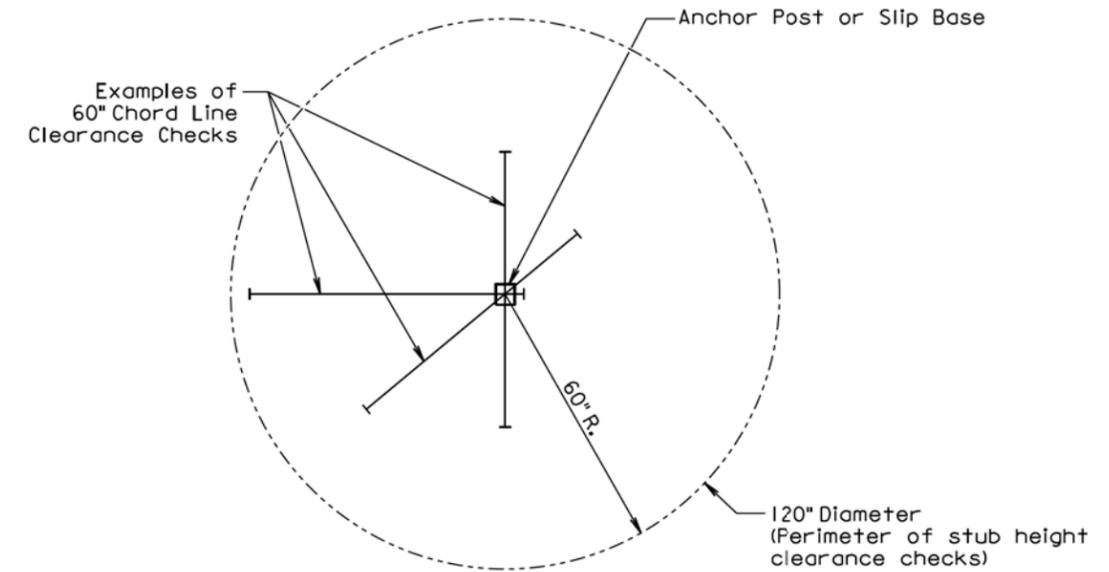
URBAN DISTRICT



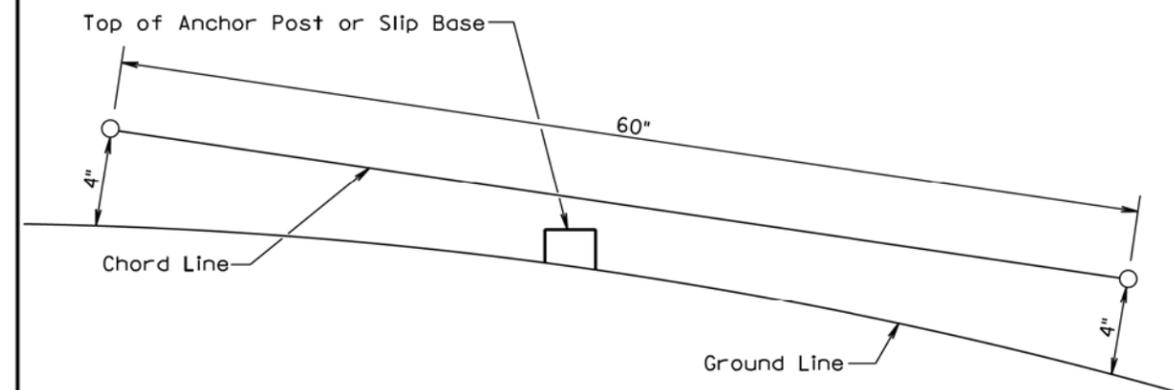
RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

Published Date: 1st Qtr. 2014	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: 1st Qtr. 2014	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

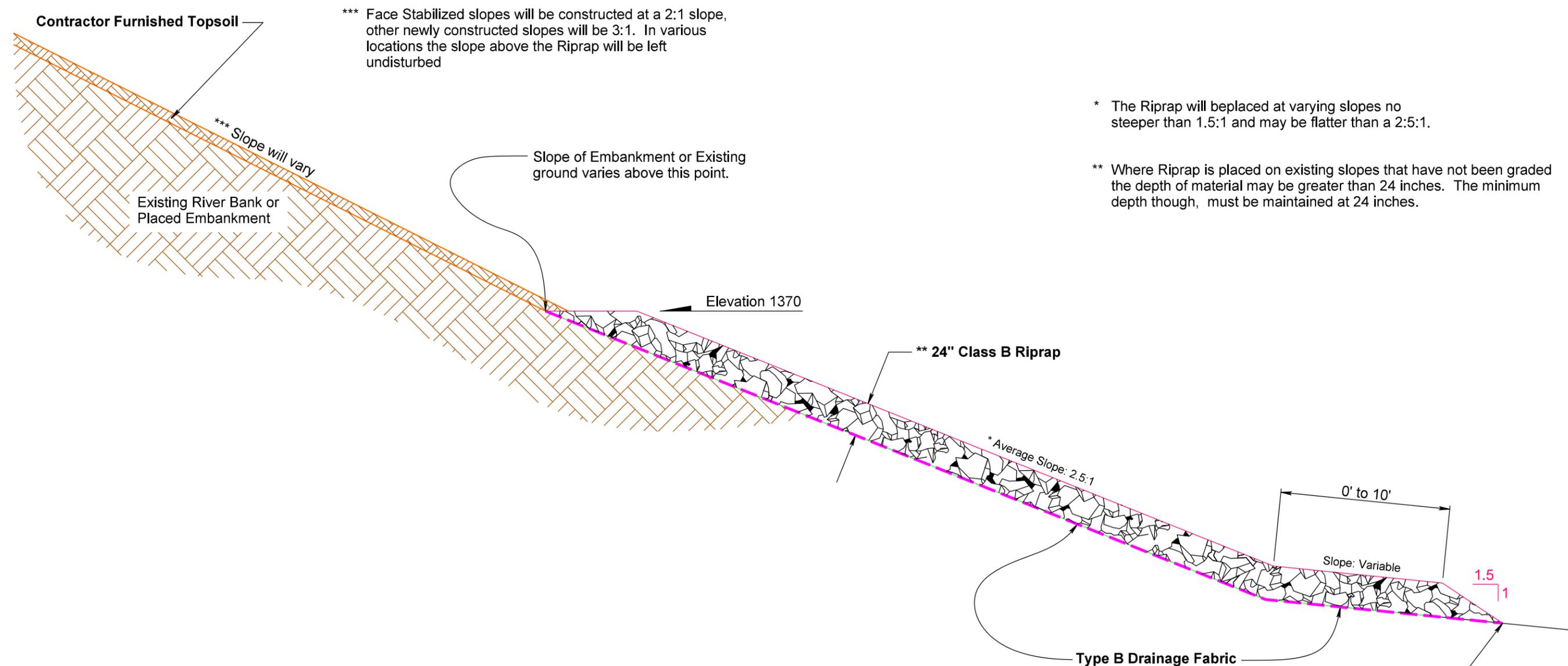
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	21	110

Plotting Date: 04/07/2014

TYPICAL RIPRAP SECTION

PLOT SCALE - 1:6.25

PLOT NAME - 2



*** Face Stabilized slopes will be constructed at a 2:1 slope, other newly constructed slopes will be 3:1. In various locations the slope above the Riprap will be left undisturbed

* The Riprap will be placed at varying slopes no steeper than 1.5:1 and may be flatter than a 2:5:1.

** Where Riprap is placed on existing slopes that have not been graded the depth of material may be greater than 24 inches. The minimum depth though, must be maintained at 24 inches.

Typical Elevation 1355
 The lower limits of Riprap shall typically be at elevation 1355. This elevation will vary, see cross sections for detailed placement. Also see cross for placement shape at the lower limits of the Riprap.

PLOTTED FROM - IRWIN16

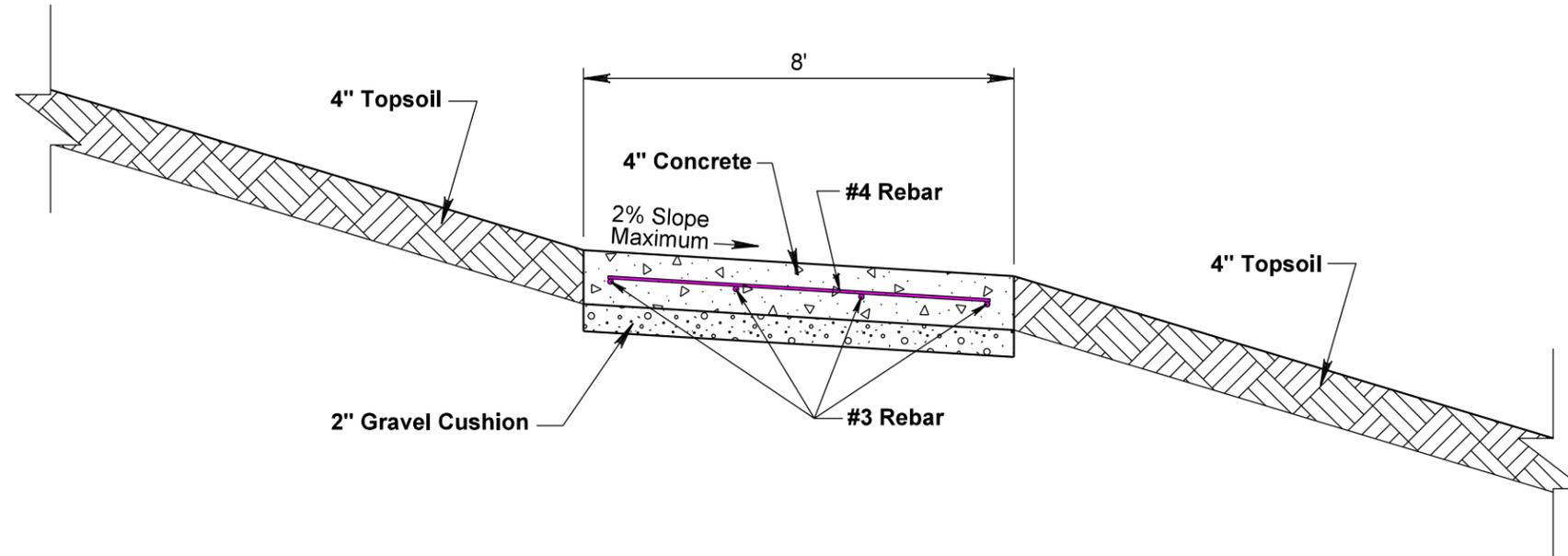
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SIDEWALK DETAILS

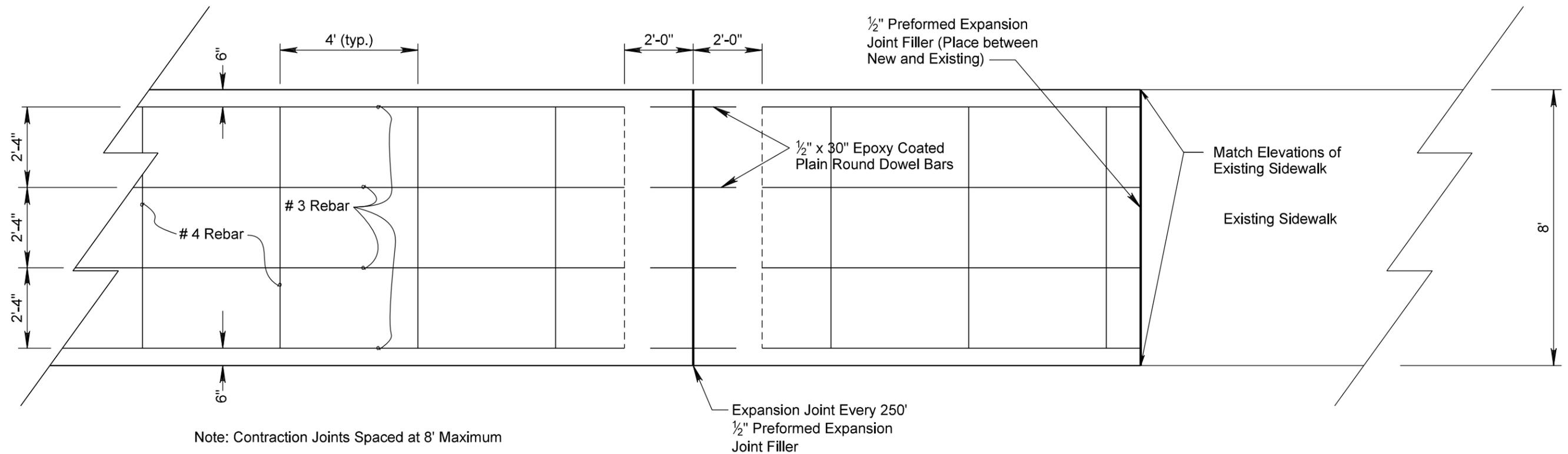
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	22	110

Plotting Date: 04/07/2014

TYPICAL SECTION FOR NEW SIDEWALK LOCATION



TYPICAL JOINT AND REBAR LAYOUT



PLOT SCALE - 1:3.125

PLOTTED FROM - TRWJINT16

PLOT NAME - 3

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FACE STABILIZATION DETAILS

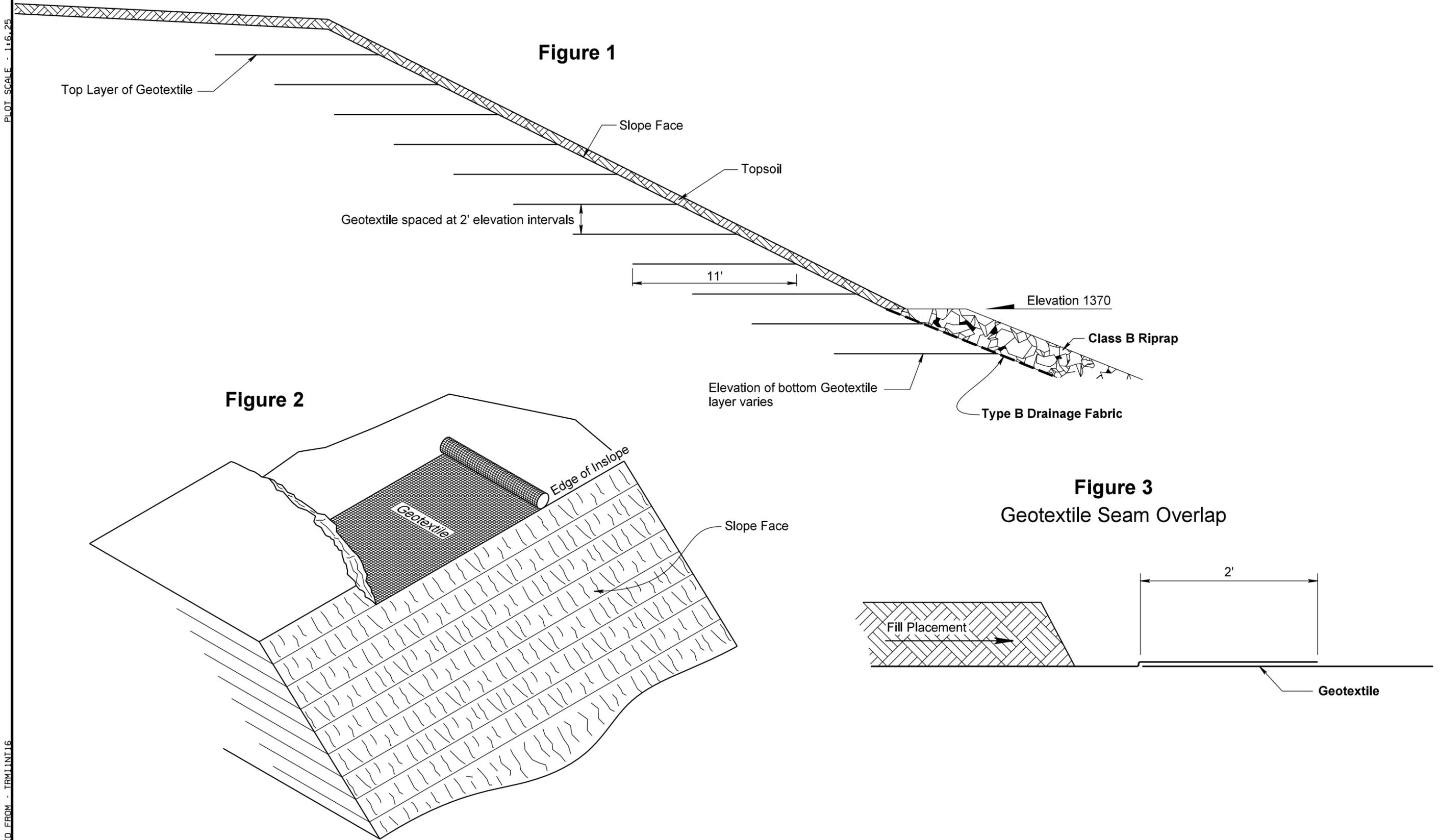
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	23	110

Plotting Date: 04/07/2014

PLOT SCALE - 1:6.25

PLOT NAME - 4

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PLOTTED FROM - IRWJINT16

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	24	110

Plotting Date: 04/07/2014

PIT INFORMATION SHEET BORROW

PIT NO. **BORROW PIT 1**

PROJECT NO. **P 000S(00)08** COUNTY **Lyman**

LOCATION **NE 1/4** SEC. **8** TOWNSHIP **104N** RANGE **71W**

PIT OWNER **Edward and Deette Geddes & Daniel Konz and Mike Jacobson** ADDRESS _____

AVERAGE DEPTH OF MATERIAL **9'** AVERAGE DEPTH OF TOPSOIL **0.5'**

MATERIAL AVAILABLE **50,000** CU.YDS.

ESTIMATED CU. YDS. OF TOPSOIL **3,000**

2,100' DEADHAUL TO STATION **30+00**

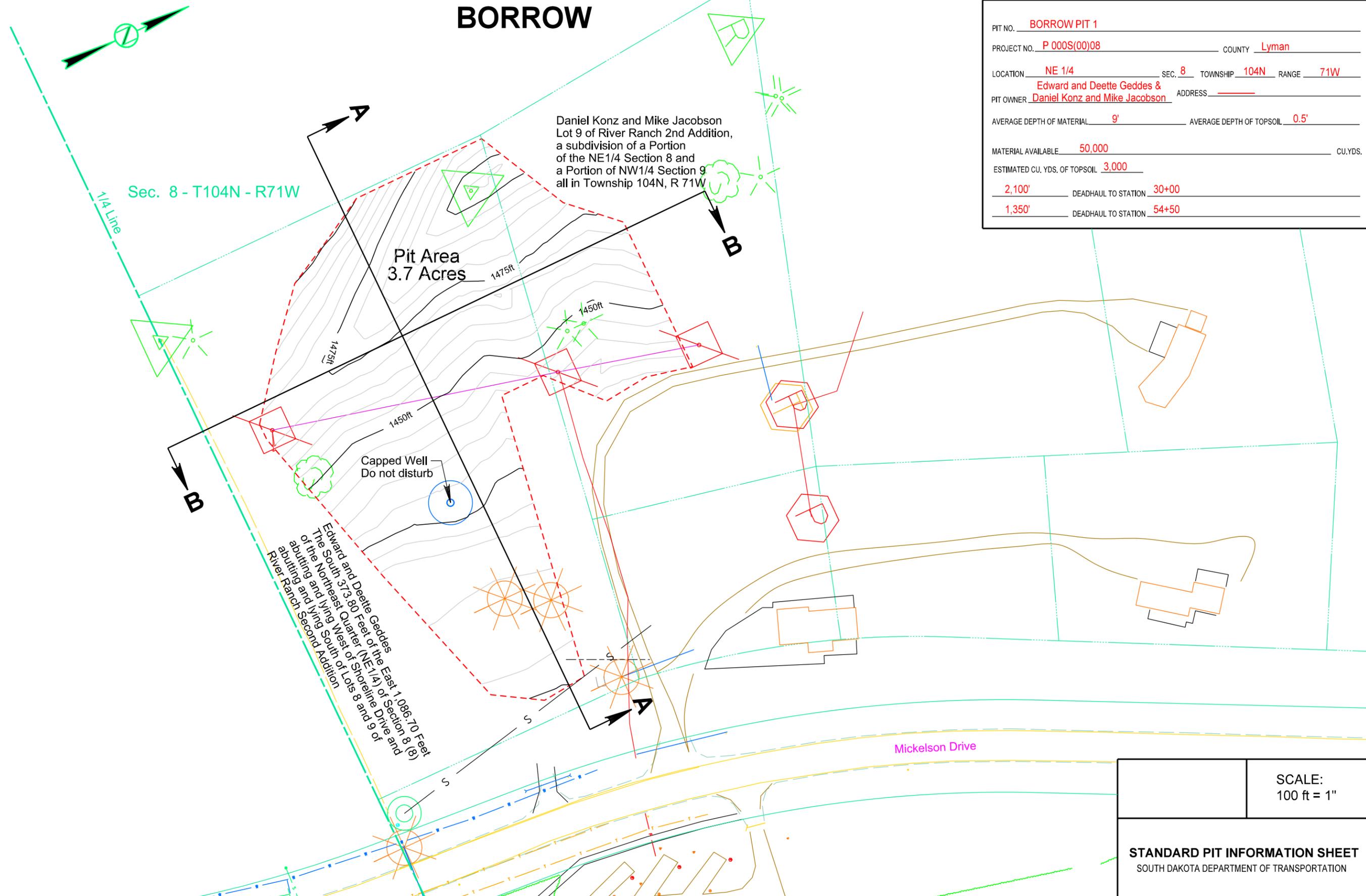
1,350' DEADHAUL TO STATION **54+50**

PLOT SCALE - 1:1000

PLOT NAME - 5

PLOTTED FROM - IRMIN116

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SCALE:
100 ft = 1"

STANDARD PIT INFORMATION SHEET
SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	25	110

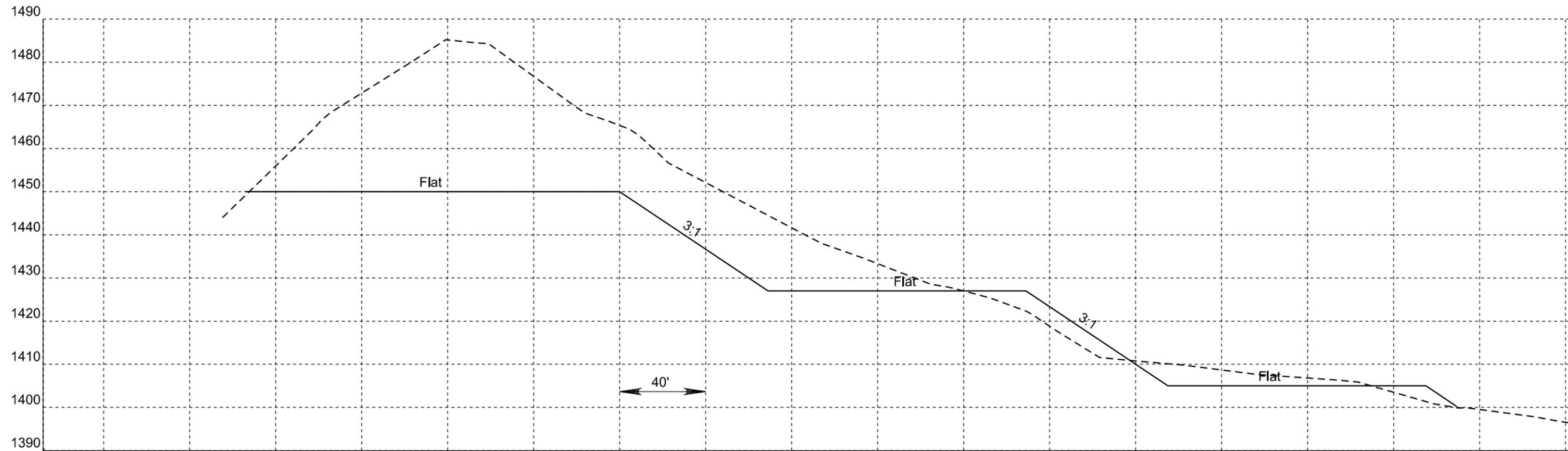
Plotting Date: 04/07/2014

PIT INFORMATION SHEET BORROW

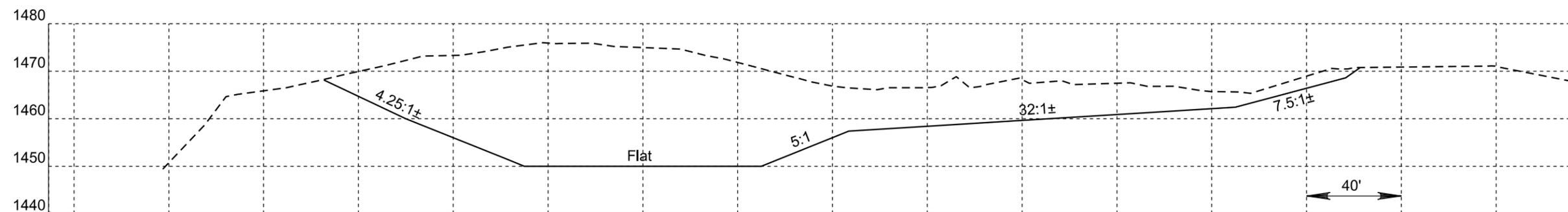
PLOT SCALE - 1:50

PLOT NAME - 6

Section A-A



Section B-B



PLOTTED FROM - IRWIN116

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CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	26	110

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1	0+53.16	615.61 L	ON RIVER BANK SOUTH OF I90 LOOP - EAST SIDE OF GRAVEL TURN AROUND	540696.280	2226722.460	1396.040
CP2	9+05.47	56.73 L	CP2 NOT FOUND	541937.810	2227458.010	1396.320
CP3	45+67.15	166.29 L	CP3 NOT FOUND	545239.940	2228861.570	1393.400
CP4	51+44.02	480.91 L	CP4 - FOUND	545926.590	2228939.860	1401.610
CP5	59+32.87	615.50 L	CP5 NOT FOUND	546574.240	2229244.540	1401.730
CP6	61+48.63	1172.47 L	5/8" REBAR & CAP STAMPED "SDDOT CONTROL POINT" WEST DITCH OF SHORELINE DRIVE	547548.971	2229722.707	1398.402

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.
South Zone (NAD 83/88) SF = 0.99983312
The elevations shown on this sheet are based on NAVD 88.

HORIZONTAL ALIGNMENT DATA

MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			541141.422	2227160.683
		TL= 50.87	N 57°48'46" W		
PC	0+50.87			541168.517	2227117.635
PI	0+65.67	R = 17.50	R	541176.402	2227105.108
PT	0+75.44			541190.064	2227110.805
		TL= 90.06	N 22°38'14" E		
PC	1+65.50			541273.189	2227145.47
PI	1+87.77	R = 67.50	R	541293.741	2227154.041
PT	2+08.52			541305.159	2227173.157
		TL= 8.44	N 59°09'02" E		
PC	2+16.96			541309.487	2227180.403
PI	2+60.11	R = 107.50	L	541331.614	2227217.449
PT	2+99.03			541373.215	2227228.915
		TL= 93.46	N 15°24'29" E		
PC	3+92.49			541463.317	2227253.747
PI	4+23.85	R = 92.50	R	541493.552	2227262.079
PT	4+52.96			541512.485	2227287.082
		TL= 2.03	N 52°52'00" E		
PC	4+54.99			541513.71	2227288.7
PI	5+31.74	R = 207.50	L	541560.037	2227349.882
PT	6+02.01			541635.027	2227366.195
		TL= 79.29	N 12°16'23" E		
PC	6+81.30			541712.506	2227383.051
PI	7+59.30	R = 292.50	R	541788.73	2227399.633
PT	8+33.76			541846.574	2227451.969
		TL= 84.50	N 42°08'18" E		
PC	9+18.26			541909.232	2227508.661
PI	9+44.54	R = 57.50	L	541928.716	2227526.29
PT	9+67.55			541954.795	2227523.098
		TL= 18.53	N 6°58'39" W		
PC	9+86.09			541973.192	2227520.846
PI	10+12.21	R = 67.50	R	541999.121	2227517.673
PT	10+35.93			542020.431	2227532.781
		TL= 409.42	N 35°20'07" E		
PC	14+45.35			542354.427	2227769.573
PI	15+07.27	R = 357.50	L	542404.938	2227805.383
PT	15+67.97			542464.55	2227822.121
		TL= 151.00	N 15°41'01" E		
PC	17+18.97			542609.924	2227862.939
PI	17+63.16	R = 342.50	R	542652.471	2227874.885
PT	18+06.87			542690.593	2227897.241
		TL= 159.06	N 30°23'17" E		

MAINLINE (CONTINUED)

Type	Station			Northing	Easting
PC	19+65.93			542827.805	2227977.704
PI	19+89.28	R = 357.50	Delta = 7°28'20" L	542847.942	2227989.513
PT	20+12.55			542869.445	2227998.603
		TL= 132.86	N 22°54'57" E		
PC	21+45.42			542991.821	2228050.337
PI	21+80.47	R = 357.50	L	543024.108	2228063.986
PT	22+15.30			543058.431	2228071.104
		TL= 145.94	N 11°42'57" E		
PC	23+61.24			543201.332	2228100.739
PI	24+02.51	R = 442.50	R	543241.746	2228109.12
PT	24+43.55			543279.912	2228124.83
		TL= 247.57	N 22°22'24" E		
PC	26+91.12			543508.849	2228219.067
PI	27+17.96	R = 92.50	R	543533.67	2228229.284
PT	27+43.37			543549.166	2228251.199
		TL= 70.57	N 54°44'08" E		
PC	28+13.94			543589.91	2228308.82
PI	28+41.95	R = 52.50	L	543606.08	2228331.687
PT	28+65.40			543634.078	2228330.993
		TL= 111.56	N 1°25'17" W		
PC	29+76.96			543745.606	2228328.225
PI	30+45.00	R = 142.50	R	543813.623	2228326.538
PT	31+03.91			543857.698	2228378.369
		TL= 100.79	N 49°37'24" E		
PC	32+04.70			543922.991	2228455.152
PI	32+95.75	R = 257.50	L	543981.97	2228524.508
PT	33+79.73			544071.436	2228541.38
		TL= 79.40	N 10°40'47" E		
PC	34+59.13			544149.465	2228556.096
PI	35+08.35	R = 192.50	R	544197.833	2228565.217
PT	35+55.51			544235.886	2228596.436
		TL= 66.53	N 39°21'55" E		
PC	36+22.03			544287.32	2228638.632
PI	36+50.76	R = 307.50	L	544309.526	2228656.849
PT	36+79.31			544334.721	2228670.639
		TL= 60.37	N 28°41'33" E		
PC	37+39.68			544387.675	2228699.621
PI	37+68.81	R = 207.50	L	544413.231	2228713.609
PT	37+97.57			544441.651	2228720.018
		TL= 120.93	N 12°42'30" E		

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/88) SF = 0.99983312

HORIZONTAL ALIGNMENT DATA

MAINLINE (CONTINUED)

Type	Station			Northing	Easting
PC	39+18.50			544559.622	2228746.621
PI	39+81.07	R = 292.50	R	544620.659	2228760.386
PT	40+41.78			544670.723	2228797.916
		TL= 13.07	N 36°51'25" E		
PC	40+54.86			544681.184	2228805.759
PI	40+80.62	R = 107.50	L	544701.8	2228821.214
PT	41+05.43			544727.183	2228825.643
		TL= 80.94	N 9°53'59" E		
PC	41+86.37			544806.915	2228839.559
PI	42+17.41	R = 292.50	R	544837.495	2228844.895
PT	42+48.22			544866.273	2228856.532
		TL= 145.86	N 22°00'56" E		
PC	43+94.09			545001.5	2228911.21
PI	44+22.40	R = 292.50	R	545027.75	2228921.824
PT	44+50.54			545051.476	2228937.275
		TL= 650.26	N 33°04'26" E		
PI	51+00.80			545596.371	2229292.132
		TL= 300.00	N 38°00'46" E		
PI	54+00.80			545832.734	2229476.884
		TL= 394.86	N 38°35'09" E		
PC	57+95.66			546141.387	2229723.154
PI	58+13.05	R = 107.50	L	546154.98	2229734
PT	58+30.14			546171.299	2229740.007
		TL= 74.19	N 20°12'29" E		
PC	59+04.33			546240.919	2229765.633
PI	59+50.45	R = 167.50	R	546284.203	2229781.566
PT	59+94.34			546313.23	2229817.409
		TL= 125.08	N 50°59'56" E		
PI	61+19.43			546391.95	2229914.616
		TL= 134.45	N 79°09'20" E		
POE	62+53.87			546417.245	2230046.663

SIDEWALK 10

Type	Station			Northing	Easting
POB	0+00.00			541692.494	2227327.81
		TL= 53.21	N 12°19'27" E		
PI	0+53.21			541744.474	2227339.167
		TL= 40.54	N 13°10'15" E		
PI	0+93.75			541783.951	2227348.405
		TL= 59.36	N 19°31'17" E		
PI	1+53.11			541839.902	2227368.242
		TL= 60.33	N 23°03'52" E		
PI	2+13.44			541895.407	2227391.876
		TL= 21.32	N 24°45'43" E		
PI	2+34.76			541914.765	2227400.805
		TL= 107.92	N 25°09'06" E		
PI	3+42.68			542012.451	2227446.672
		TL= 60.19	N 26°37'13" E		
PI	4+02.87			542066.265	2227473.644
		TL= 61.27	N 28°50'00" E		
PI	4+64.14			542119.941	2227503.193
		TL= 50.00	N 35°15'39" E		
PI	5+14.14			542160.768	2227532.058
		TL= 200.00	N 35°21'56" E		
PI	7+14.14			542323.863	2227647.816
		TL= 131.58	N 36°16'14" E		
PI	8+45.73			542429.95	2227725.66
		TL= 55.11	N 23°22'13" E		
PI	9+00.84			542480.539	2227747.521
		TL= 86.99	N 19°26'14" E		
PI	9+87.83			542562.57	2227776.468
		TL= 50.16	N 20°11'27" E		
PI	10+37.98			542609.643	2227793.779
		TL= 58.79	N 21°11'34" E		
POE	10+96.77			542664.458	2227815.033

HORIZONTAL ALIGNMENT DATA

SIDEWALK 40

Type	Station			Northing	Easting
POB	0+00.00			544204.291	2228530.436
		TL= 41.61	N 29°48'24" E		
PC	0+41.61			544240.395	2228551.119
PI	0+67.04	R = 150.00	R	544262.459	2228563.758
PT	0+91.99			544279.124	2228582.963
		TL= 32.35	N 49°02'57" E		
PC	1+24.34			544300.327	2228607.397
PI	1+59.11	R = 150.00	L	544323.117	2228633.659
PT	1+92.67			544355.136	2228647.215
		TL= 14.10	N 22°56'50" E		
PI	2+06.77			544368.117	2228652.711
		TL= 59.15	N 22°56'50" E		
PC	2+65.92			544422.586	2228675.773
PI	3+22.18	R = 275.00	L	544474.396	2228697.708
PT	3+76.91			544530.658	2228697.534
		TL= 35.30	N 0°10'41" W		
PC	4+12.21			544565.952	2228697.424
PI	4+76.04	R = 275.00	R	544629.783	2228697.226
PT	5+37.65			544687.175	2228725.165
		TL= 101.53	N 25°57'27" E		
PC	6+39.17			544778.46	2228769.604
PI	6+60.88	R = 250.00	Delta = 9°55'33" R	544797.979	2228779.106
PT	6+82.48			544815.568	2228791.83
		TL= 20.44	N 35°52'59" E		
PC	7+02.92			544832.126	2228803.809
PI	7+22.68	R = 275.00	Delta = 8°13'13" L	544848.137	2228815.392
PT	7+42.37			544865.64	2228824.566
		TL= 17.59	N 27°39'46" E		
PC	7+59.96			544881.217	2228832.731
PI	8+23.68	R = 800.00	Delta = 9°06'29" L	544937.653	2228862.315
PT	8+87.13			544998.061	2228882.591
		TL= 102.30	N 18°33'17" E		
PI	9+89.43			545095.041	2228915.144
		TL= 61.69	N 16°28'25" E		
PI	10+51.12			545154.198	2228932.637
		TL= 60.61	N 3°25'03" W		
POE	11+11.72			545214.695	2228929.024

EXISTING TOPOGRAPHY SYMBOLOGY AND LEGEND

PLOT SCALE - 1:200

PLOTTED FROM - IRMIN116

FILE - ... \PRJ2014\TYM044\TYTOPOSymb.dgn

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	31	110

Plotting Date: 04/07/2014



0+92-65' L to 0+96-19' R
 Take Out Existing Downspout
 18"-80' CMP
 2 - CMP Elbows
 18"-8' CMP &
 1 CMP Safety End
 (Remove Downspout back to
 RCP to CMP Transition)
 (Incidental Work, Grading)

0+92-65' L to 0+96-19' R
 Install 18"-13° CMP Elbow,
 18"-56' CMP, 18"-13° CMP Elbow &
 18"-22' CMP
 (Connect to existing RCP to CMP Transition)

8+16-77' L to 8+33-7' R
 Take Out Existing Downspout
 24"-70' CMP
 2 - CMP Elbows
 24"-10' CMP &
 1 CMP Safety End
 (Remove Downspout back to
 RCP to CMP Transition)
 (Incidental Work, Grading)

8+16-77' L to 8+33-7' R
 Install 24"-24' CMP, 24"-22° CMP Elbow,
 24"-44' CMP, 24"-22° CMP Elbow &
 24"-14' CMP
 (Connect to existing RCP to CMP Transition)

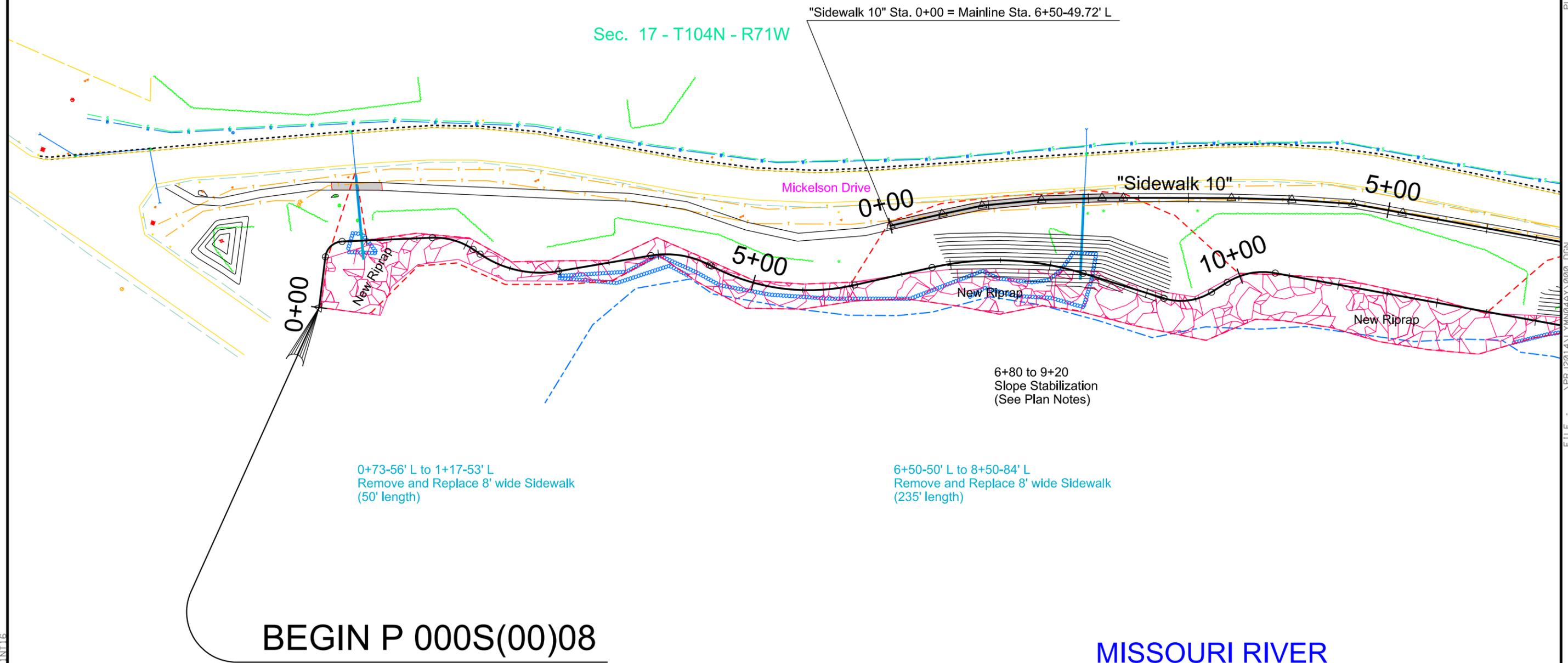
PLOT SCALE - 1:1000

PLOT NAME - 8

FILE - ... \PRJ2014\TMIN0441\000.DGN

Sec. 17 - T104N - R71W

"Sidewalk 10" Sta. 0+00 = Mainline Sta. 6+50-49.72' L



BEGIN P 000S(00)08

Station 0+00

MISSOURI RIVER

LAKE FRANCIS CASE

PLOTTED FROM - IRMIN116

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	32	110

Plotting Date: 04/07/2014



14+24-86' L to 14+28-0' R
 Take Out Existing Downspout
 18"-106' CMP
 2 - CMP Elbows
 18"-10' CMP &
 1 CMP Safety End
 (Remove Downspout back to
 RCP to CMP Transition)
 (Incidental Work, Grading)

17+09-67' L to 17+08-25' R
 Take Out Existing Downspout
 18"-102' CMP
 2 - CMP Elbows
 18"-8' CMP &
 1 CMP Safety End
 (Remove Downspout back to
 RCP to CMP Transition)
 (Incidental Work, Grading)

21+78-100' L to 21+71.94-5' R
 Take Out Existing Downspout
 18"-102' CMP
 2 - CMP Elbows
 18"-8' CMP &
 1 CMP Safety End
 (Remove Downspout back to
 RCP to CMP Transition)
 (Incidental Work, Grading)

Retain CMP Downspout
 22+97-29'R to 23+02-1'R

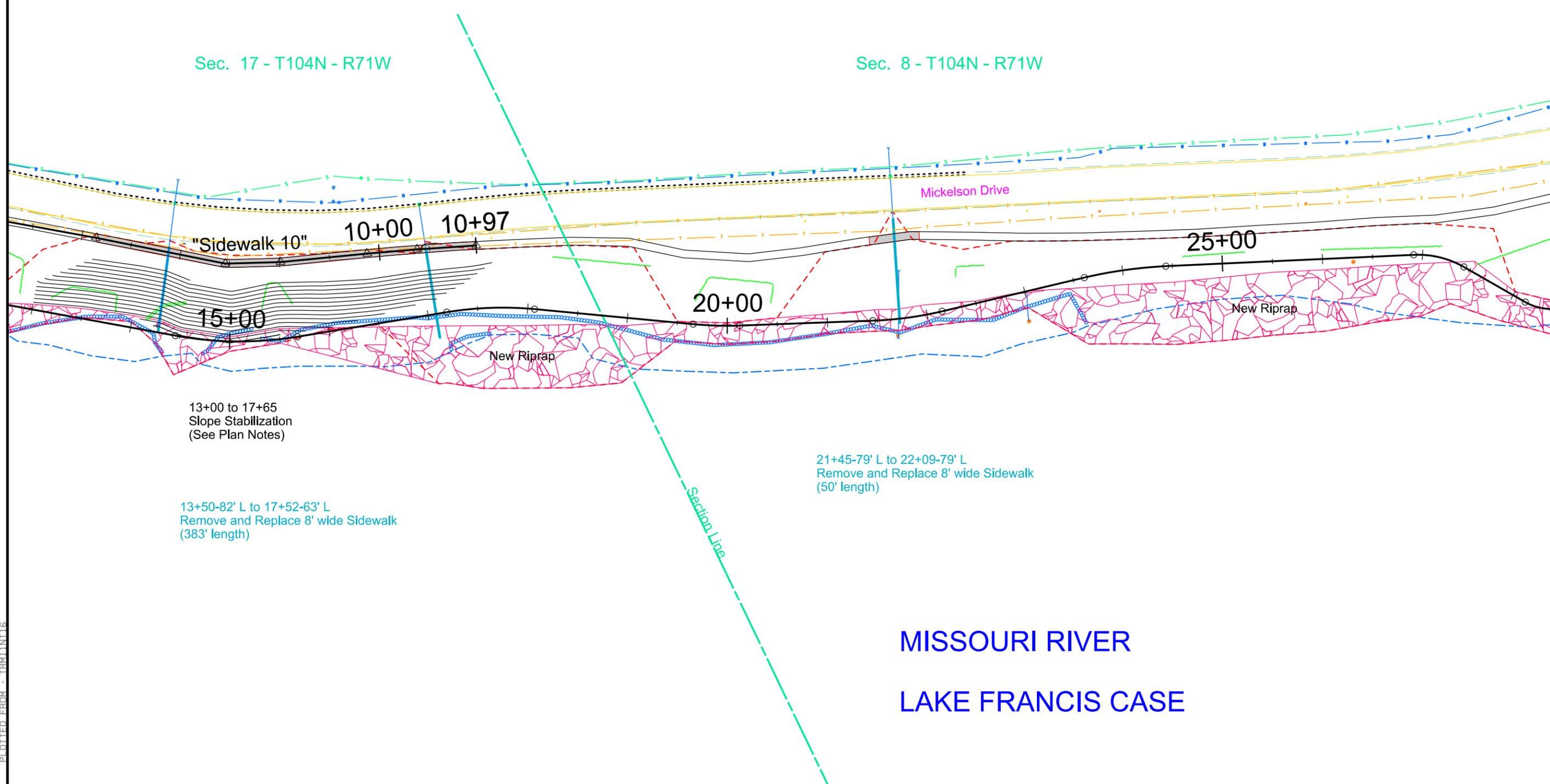
14+24-86' L to 14+28-0' R
 Install 18"-12' CMP, 18"-22° CMP Elbow,
 18"-62' CMP, 18"-22° CMP Elbow &
 18"-10' CMP
 (Connect to existing RCP to CMP Transition)

17+09-67' L to 17+08-25' R
 Install 18"-20° CMP Elbow,
 18"-64' CMP, 18"-20° CMP Elbow &
 18"-20' CMP
 (Connect to existing RCP to CMP Transition)

21+78-100' L to 21+71.94-5' R
 Install 18"-15° CMP Elbow,
 18"-80' CMP, 18"-15° CMP Elbow &
 18"-20' CMP
 (Connect to existing RCP to CMP Transition)

Sec. 17 - T104N - R71W

Sec. 8 - T104N - R71W



13+00 to 17+65
 Slope Stabilization
 (See Plan Notes)

13+50-82' L to 17+52-63' L
 Remove and Replace 8' wide Sidewalk
 (383' length)

21+45-79' L to 22+09-79' L
 Remove and Replace 8' wide Sidewalk
 (50' length)

MISSOURI RIVER
 LAKE FRANCIS CASE

PLOT SCALE - 1:1000

PLOTTED FROM - IRWIN116

PLOT NAME - 9

FILE - ... \PRJ2014\TMD04Y\013.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	33	110

Plotting Date: 04/07/2014



30+49-71' L to 30+62-19' R
 Take Out Existing Downspout
 48"-16' CMP
 2 - CMP Elbows
 48"-20' CMP &
 1 CMP Sloped End
 (Remove Downspout back to
 RCP to CMP Transition)
 (Incidental Work, Grading)

30+49-71' L to 30+62-19' R
 Install 48"-8° CMP Elbow,
 48"-64' CMP, 48"-8° CMP Elbow &
 48"-20' CMP
 (Connect to existing RCP to CMP Transition)

40+11-39' L to 40+19-21' R
 Remove 48" RCP Flared End for Reset
 Install 48"-52' RCP
 Reset 48" RCP Flared End

"Sidewalk 40" Sta. 0+00 = Mainline Sta. 35+00-40.61' L

Sec. 8 - T104N - R71W

Mickelson Drive

30+00

0+00

35+00

5+00 "Sidewalk 40"

40+00

New Riprap

New Riprap

34+00 to 38+00
 Slope Stabilization
 (See Plan Notes)

42+00 to 45+00
 Slope Stabilization
 (See Plan Notes)

29+99-71' L to 30+68-63' L
 Remove and Replace 8' wide Sidewalk
 (101' length)

35+34-39' L to 45+34-60' L
 Remove and Replace 8' wide Sidewalk
 (1008' length)

MISSOURI RIVER

LAKE FRANCIS CASE

PLOT SCALE - 1:1000

PLOTTED FROM - IRMIN116

PLOT NAME - 10

FILE - ... \PRJ2014\TYND041\026.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	34	110

Plotting Date: 04/08/2014



PLOT SCALE - 1:1000

PLOT NAME - 11

FILE - ... \PRJ2014\LMND44Y\044.DGN

Borrow Pit

Mickelson Drive

Sec. 8 - T104N - R71W

Sec. 9 - T104N - R71W

10+00

11+12

45+00

New Riprap

50+00

New Riprap

55+00

New Riprap

42+00 to 45+00
Slope Stabilization
(See Plan Notes)

Plotting Date: 04/08/2014

Section Line

1/4 Line

MISSOURI RIVER

LAKE FRANCIS CASE

END P 000S(00)08

Station 58+00

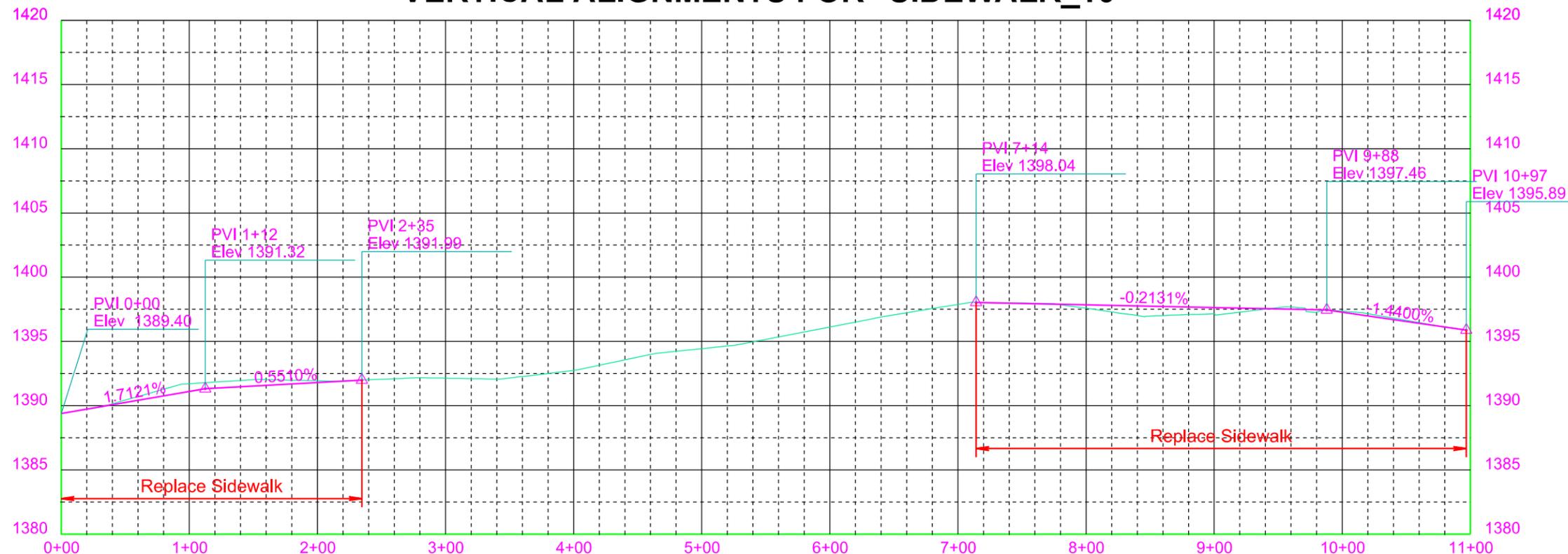
PLOTTED FROM - IRWIN1116

SIDEWALK PROFILES

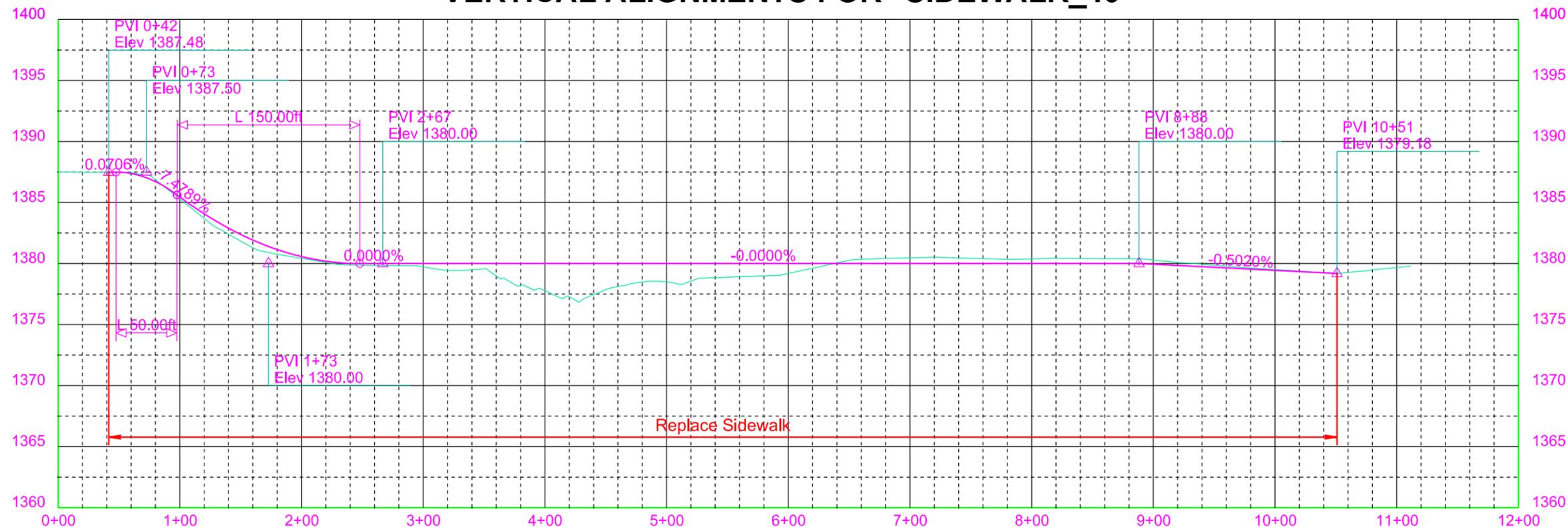
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	35	110

Plotting Date: 04/07/2014

VERTICAL ALIGNMENTS FOR "SIDEWALK_10"



VERTICAL ALIGNMENTS FOR "SIDEWALK_40"



PLOT SCALE - 1:1000

PLOTTED FROM - IRWIN116

PLOT NAME - 12

FILE - ... \L\YMN04\4\SIDEWALK_PROF.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.

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

PLOT SCALE - 1:200

PLOT NAME - 13

PLOTTED FROM - TRM1INT16

FILE - ... \LYM024\X\ES&SCLLEGEND.DGN

EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	37	110

Plotting Date: 04/07/2014

Install Floating Silt Curtain
at the following locations:
5+70 to 10+50 - 465 FT

Install 9" Diameter Erosion Control Wattles
on slope contour at 20 FT spacing
at the following locations:
6+40 to 9+50 650 FT

Surface Roughening
at the following locations:
6+40 to 9+50 3:1 or less slopes 0.3 Acre

Install Low Flow Silt Fence
at the following locations:
6+40 to 9+50 Adjacent to Top of Riprap 310 FT



Sec. 17 - T104N - R71W

"Sidewalk 10" Sta. 0+00 = Mainline Sta. 6+50-49.72' L

Mickelson Drive

"Sidewalk 10"

5+00

5+00

10+00

0+00

New Riprap

New Riprap

New Riprap

BEGIN P 000S(00)08

Station 0+00

MISSOURI RIVER

LAKE FRANCIS CASE

PLOT SCALE - 1:1000

PLOTTED FROM - IRMIN116

PLOT NAME - 14

FILE - ... \PRJ2014\LT\TMO441\000EC.DGN

EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	38	110

Plotting Date: 04/07/2014



Install Floating Silt Curtain
at the following locations:
12+80 to 28+50 - 1580 FT

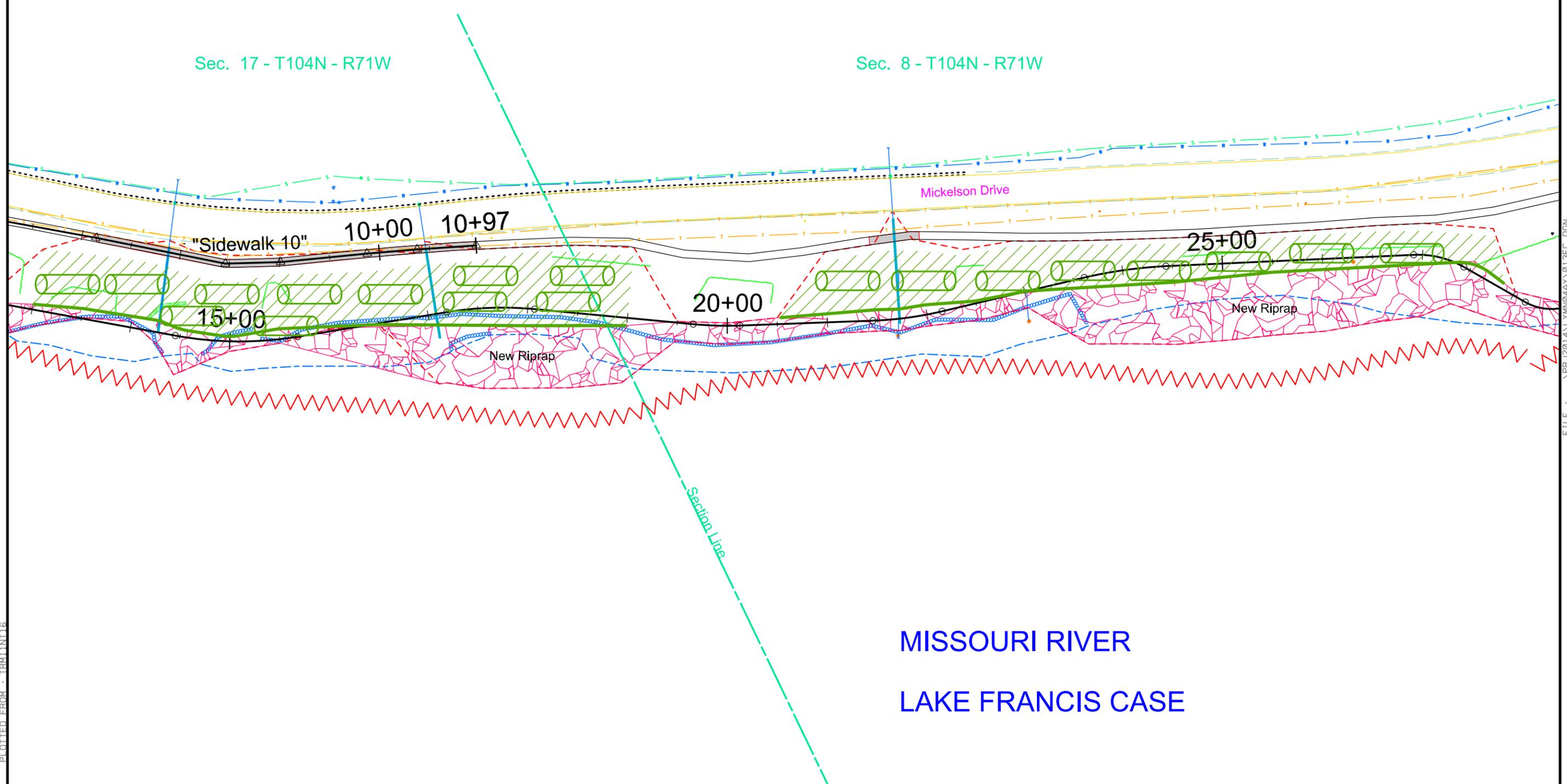
Install 9" Diameter Erosion Control Wattles
on slope contour at 20 FT spacing
at the following locations:
13+00 to 19+00 1825 FT
20+50 to 28+00 1545 FT

Surface Roughening
at the following locations:
13+00 to 19+00 3:1 or less slopes 0.9 Acre
20+50 to 28+00 3:1 or less slopes 0.7 Acre

Install Low Flow Silt Fence
at the following locations:
13+00 to 19+00 Adjacent to Top of Riprap 600 FT
20+50 to 28+00 Adjacent to Top of Riprap 750 FT

Sec. 17 - T104N - R71W

Sec. 8 - T104N - R71W



PLOT SCALE - 1:1000

PLOT NAME - 15

PLOTTED FROM - IRWIN116

FILE - ... \PRJ2014\17M044Y\013EC.DGN

MISSOURI RIVER
LAKE FRANCIS CASE

EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	39	110

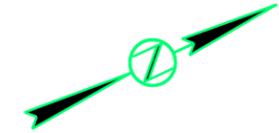
Plotting Date: 04/07/2014

Install Floating Silt Curtain
at the following locations:
28+50 to 45+70 - 1690 FT

Surface Roughening
at the following locations:
29+50 to 31+00 3:1 or less slopes 0.1 Acre
34+50 to 45+00 3:1 or less slopes 0.6 Acre

Install 9" Diameter Erosion Control Wattles
on slope contour at 20 FT spacing
at the following locations:
29+50 to 31+00 150 FT
34+50 to 45+00 1220 FT

Install Low Flow Silt Fence
at the following locations:
29+50 to 31+00 Adjacent to Top of Riprap 150 FT
34+50 to 45+00 Adjacent to Top of Riprap 1050 FT



"Sidewalk 40" Sta. 0+00 = Mainline Sta. 35+00-40.61' L

Sec. 8 - T104N - R71W

Mickelson Drive

5+00 "Sidewalk 40"

30+00

0+00

35+00

40+00

New Riprap

New Riprap

MISSOURI RIVER

LAKE FRANCIS CASE

PLOT SCALE - 1:1000

PLOT NAME - 16

PLOTTED FROM - IRMIN16

FILE - ... \PRJ2014\TYND04Y\028EC.DGN

EROSION AND SEDIMENT CONTROL PLAN

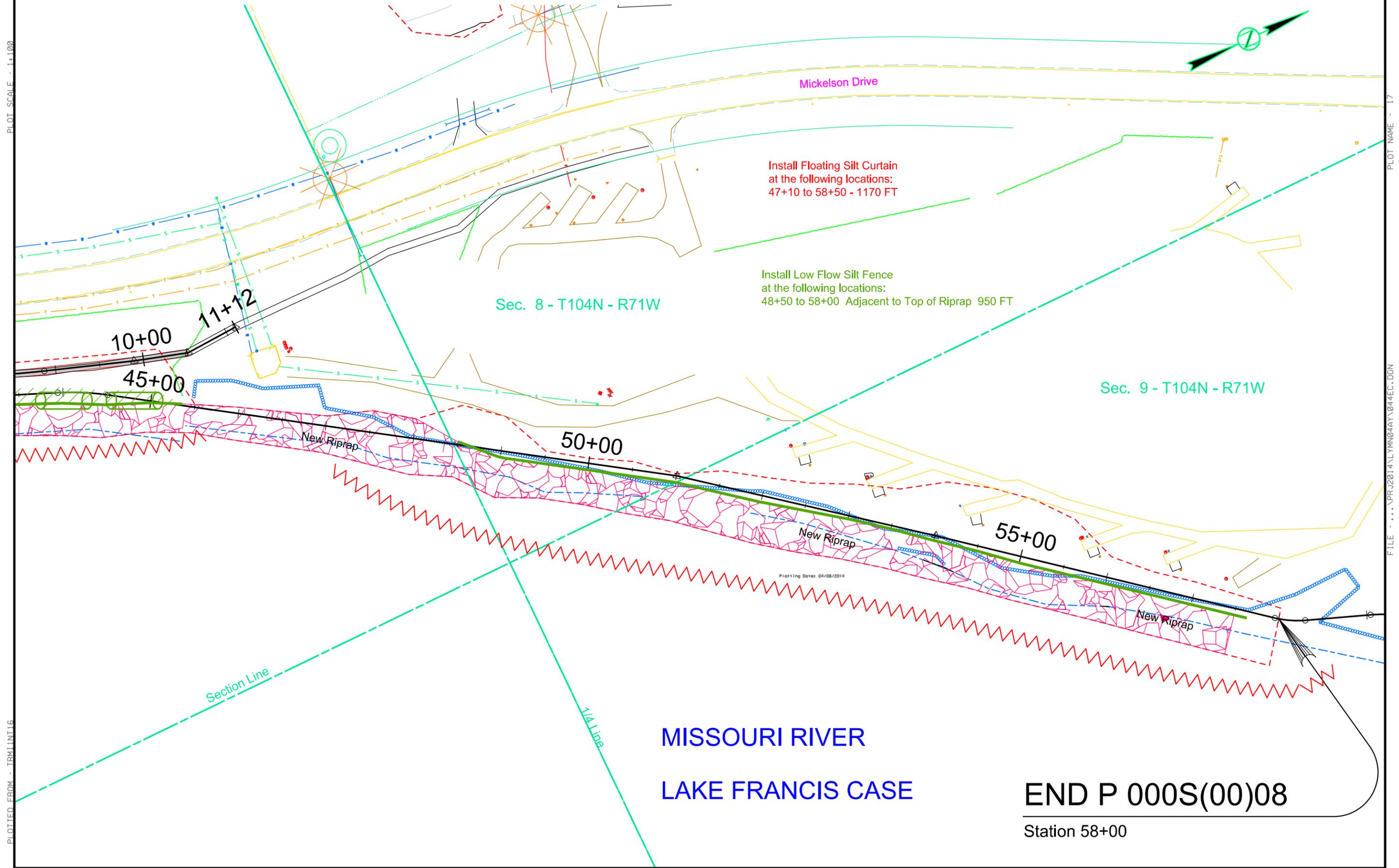
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	40	110

Plotting Date: 04/08/2014



PLOT SCALE - 1:1000

PLOT NAME - 17



PLOTTED FROM - IRWIN116

FILE - ... \PRJ2014\TYND04Y\044EC.DGN

MISSOURI RIVER

LAKE FRANCIS CASE

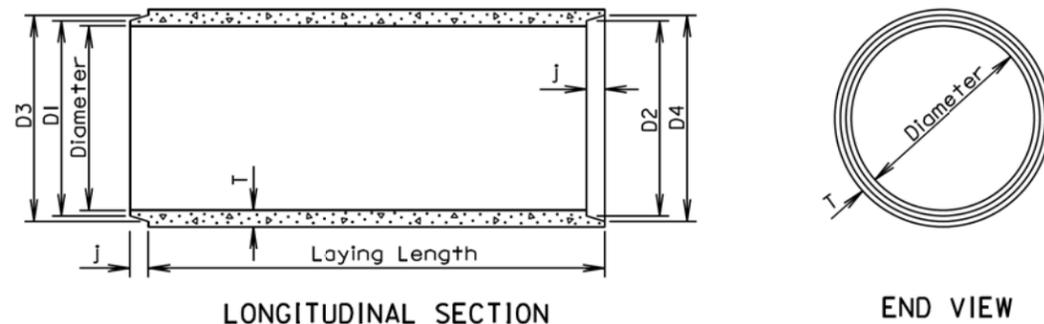
END P 000S(00)08

Station 58+00

Plotting Date: 04/08/2014

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 3/8	14 1/4
15	127	2 1/4	2	16 1/2	16 3/8	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 1/8	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 3/8
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 1/8	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 3/8	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
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

March 31, 2000

S D D O T	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
	Published Date: 1st Qtr. 2014	Sheet 1 of 1

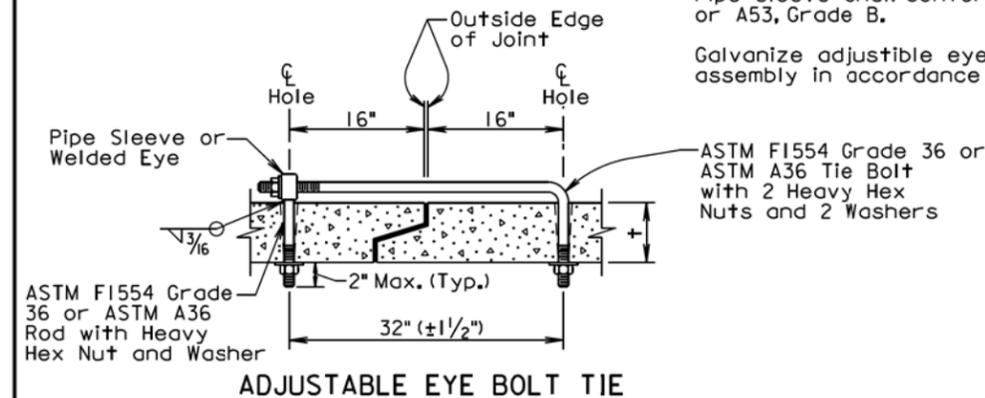
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
$\leq 3/4$	5/8	3/4
3/2-6/2	3/4	1
≥ 7	1	1 1/4

GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. 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

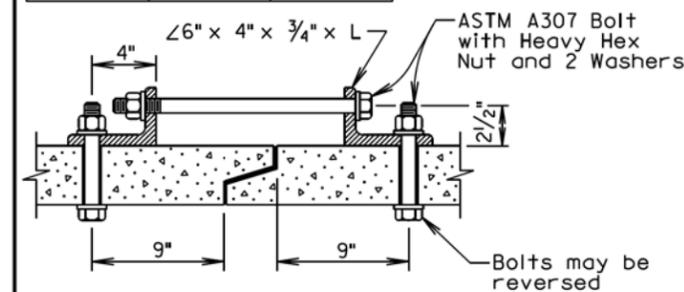
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1

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.



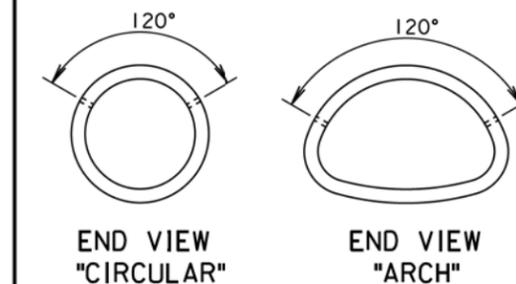
ANGLE AND BOLT TIE

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing 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"

February 28, 2013

S D D O T	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
	Published Date: 1st Qtr. 2014	Sheet 1 of 1

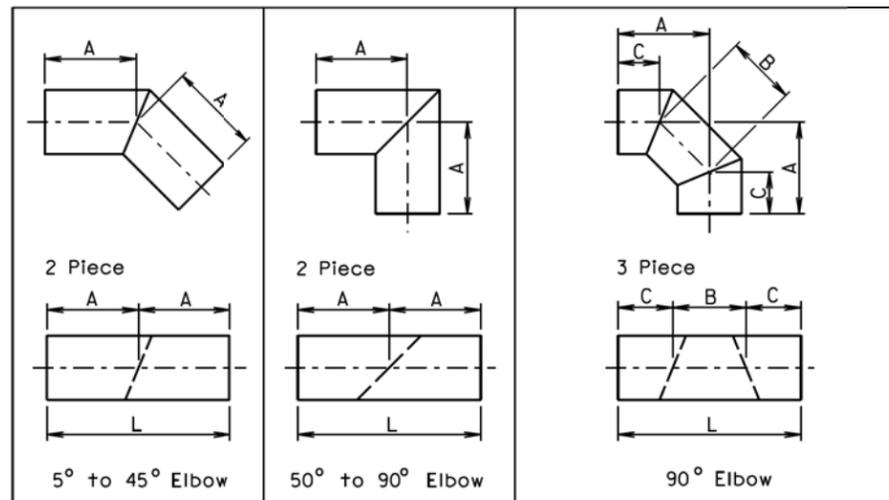
PLOT SCALE - 1:200

PLOTTED FROM - TRWJINT16

PLOT NAME - 1

FILE - ... \STANDARDPLATES_044Y - COPY.DGN

Plotting Date: 04/08/2014



Diameter	A	L	Diameter	A	L	Diameter	A	B	C	L
Inches	Feet	Feet	Inches	Feet	Feet	Inches	Inches			Feet
12	1	2	12	2	4	12	25½	11	18½	4
15	1	2	15	2	4	15	26½	12	18	4
18	1	2	18	2	4	18	27	14	17	4
21	2	4	21	2	4	21	27	15	16½	4
24	2	4	24	2	4	24	27½	16	16	4
27	2	4	27	2	4	27	27½	17	15½	4
30	2	4	30	3	6	30	40	19	26½	6
33	2	4	33	3	6	33	40	20	26	6
36	2	4	36	3	6	36	40½	21	25½	6
42	2	4	42	3	6	42	41	23	24½	6
48	2	4	48	4	8	48	53½	26	35	8
54	3	6	54	4	8	54	54	28	34	8
60	3	6	60	4	8	60	54½	31	32½	8
66	3	6	66	4	8	66	54	33	31½	8
72	3	6	72	5	10	72	67½	36	42	10
78	3	6	78	5	10	78	68	39	40½	10
84	3	6	84	5	10	84	68½	41	39½	10
90	3	6	90	6	12	90	70	46	37	10
96	3	6	96	6	12	96	82	46	49	12

FABRICATED ELBOW LENGTHS FOR ALL CORRUGATIONS

GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

June 26, 2001

Published Date: 1st Qtr. 2014

**S
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T**

C.M.P. FABRICATED LENGTHS FOR ELBOWS

PLATE NUMBER
450.32

Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRWJINT16

PLOT NAME - 2

FILE - ... \STANDARDPLATES_044Y - COPY.DGN

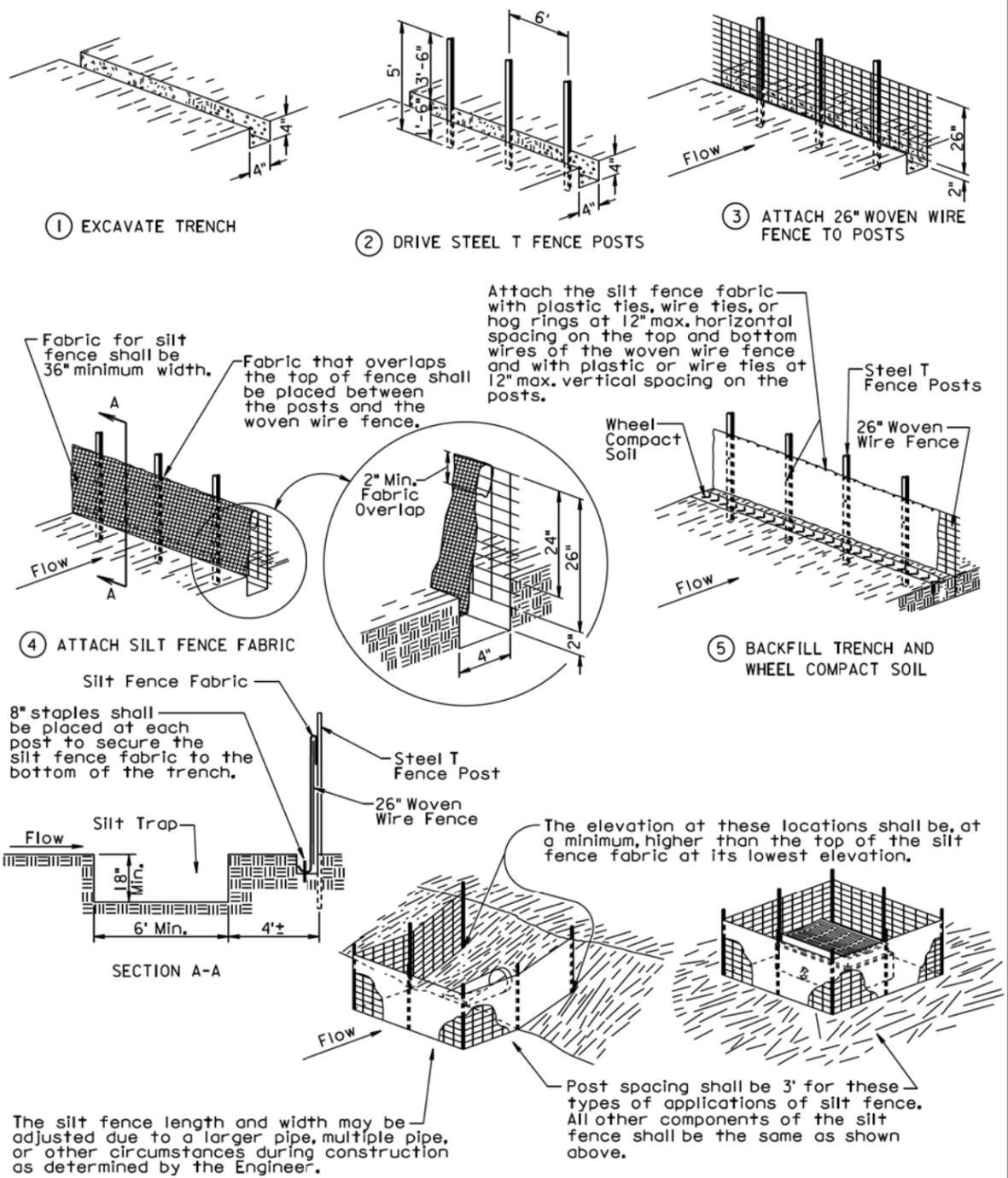
Plotting Date: 04/08/2014

PLOT SCALE - 1:200

PLOT NAME - 3

FILE - ... \STANDARDPLATES_044Y - COPY.DGN

MANUAL LOW FLOW SILT FENCE INSTALLATION

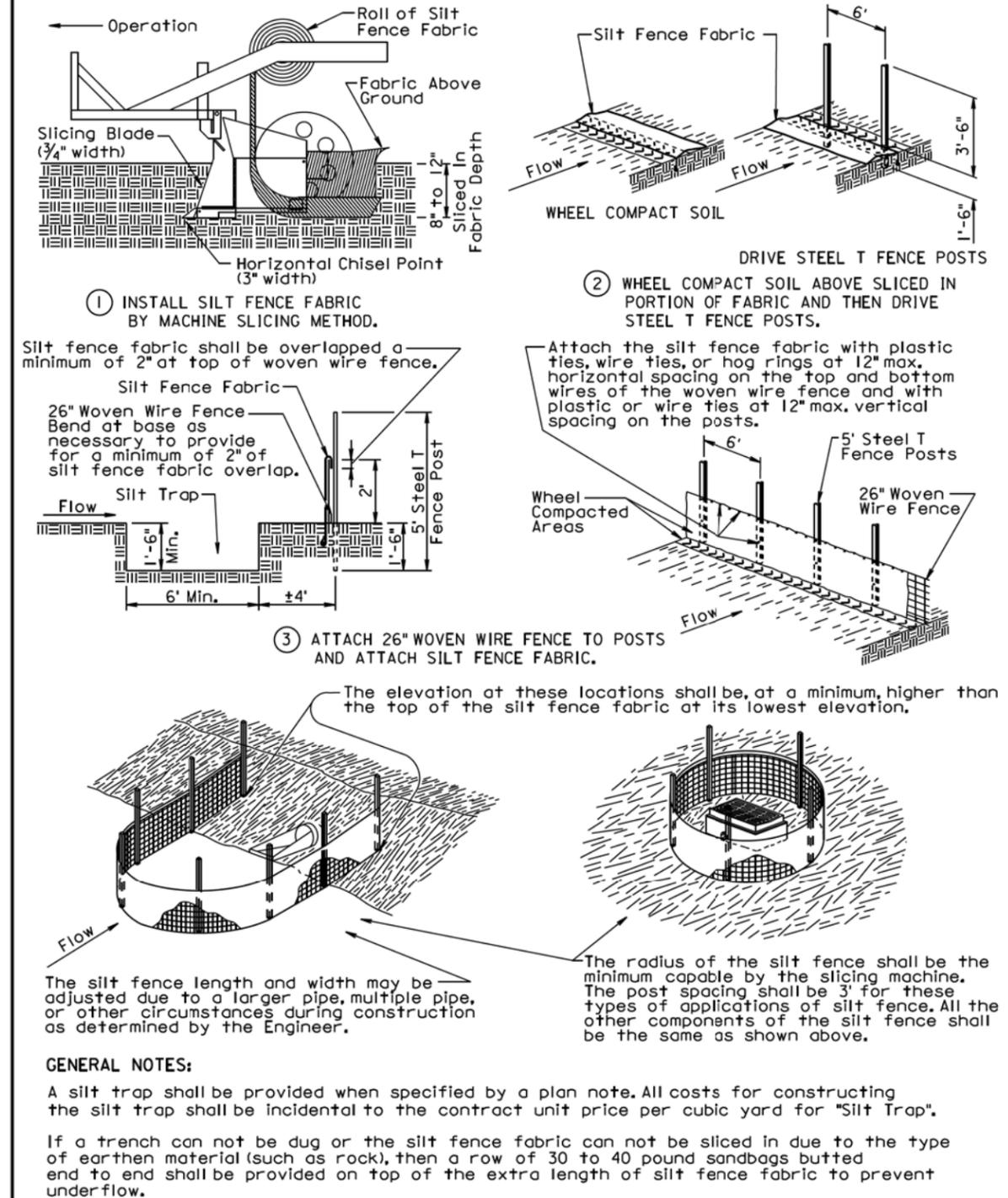


December 23, 2003

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

Published Date: 1st Qtr. 2014

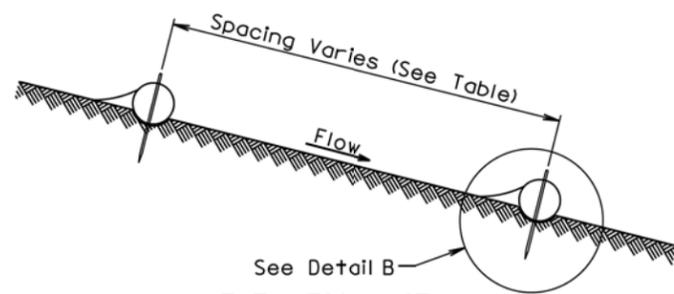
MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



December 23, 2003

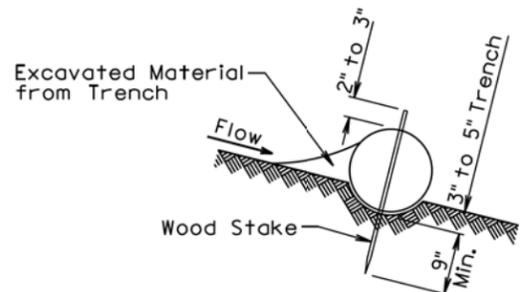
S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
		Sheet 2 of 2

Published Date: 1st Qtr. 2014

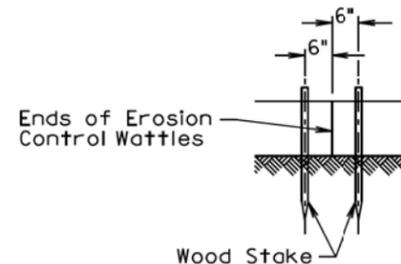


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

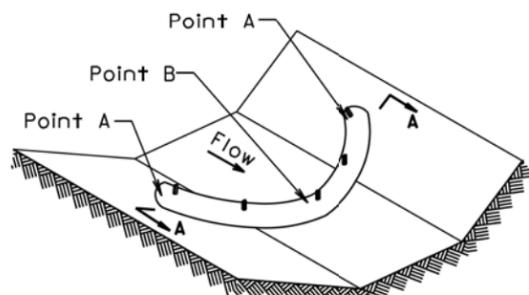
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



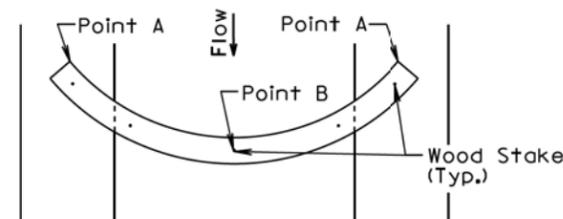
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

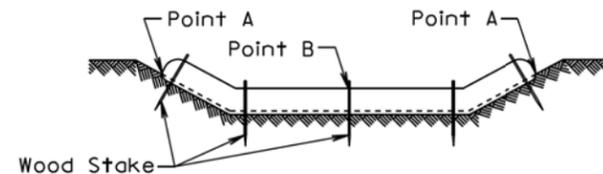


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

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



SECTION A-A

December 23, 2004

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 1 of 2

Published Date: 1st Qtr. 2014

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

December 23, 2004

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 2 of 2

Published Date: 1st Qtr. 2014

PLOT SCALE - 1:200

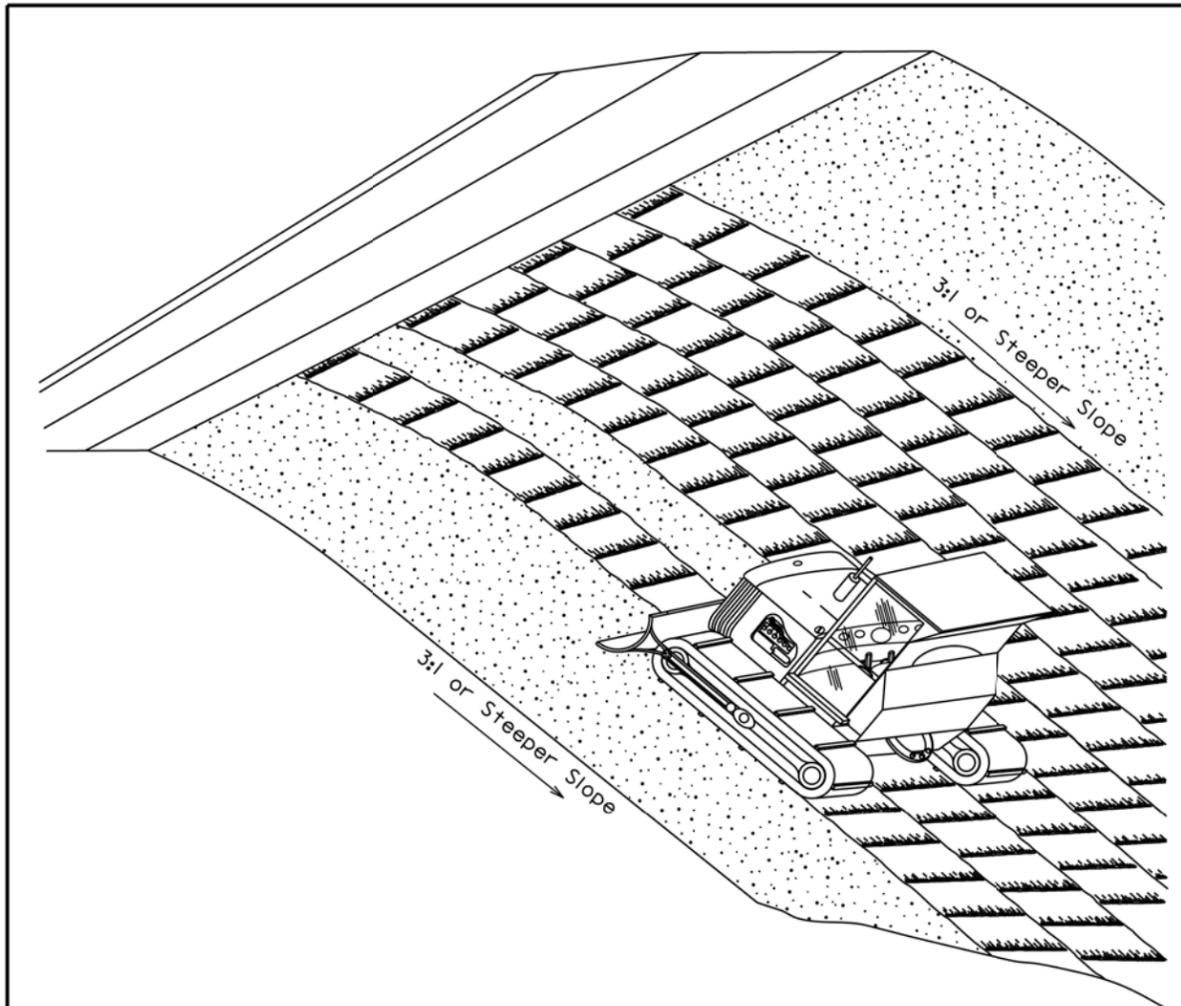
PLOTTED FROM - TRWJINT16

PLOT NAME - 4

FILE - ... \STANDARDPLATES_044Y - COPY.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	45	110

Plotting Date: 04/08/2014



GENERAL NOTES:

Where practical, surface roughening shall be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

The equipment used for surface roughening shall be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening shall be approved by the Engineer.

Measurement for surface roughening shall be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials shall be incidental to the contract unit price per acre for "Surface Roughening".

June 26, 2009

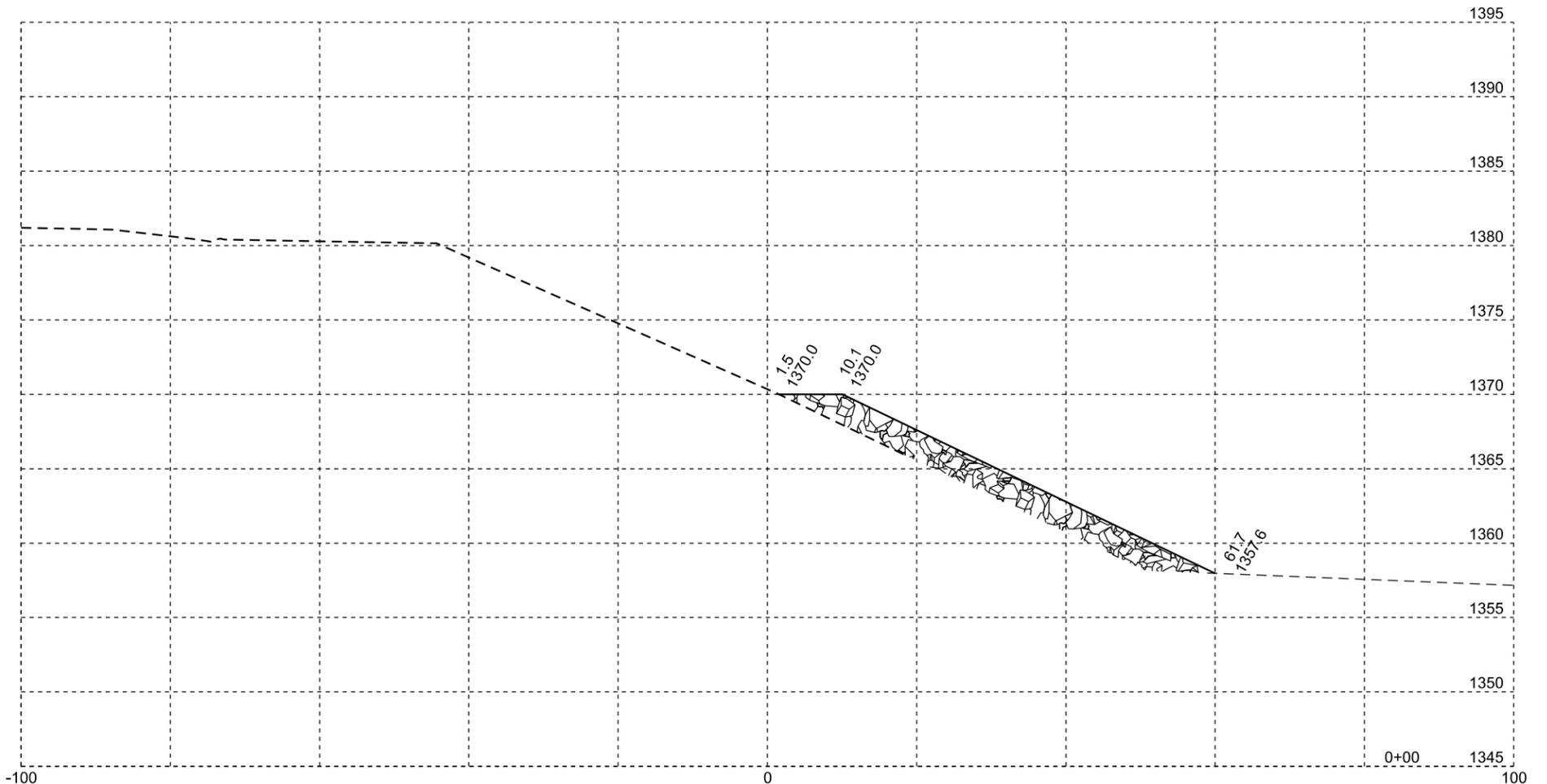
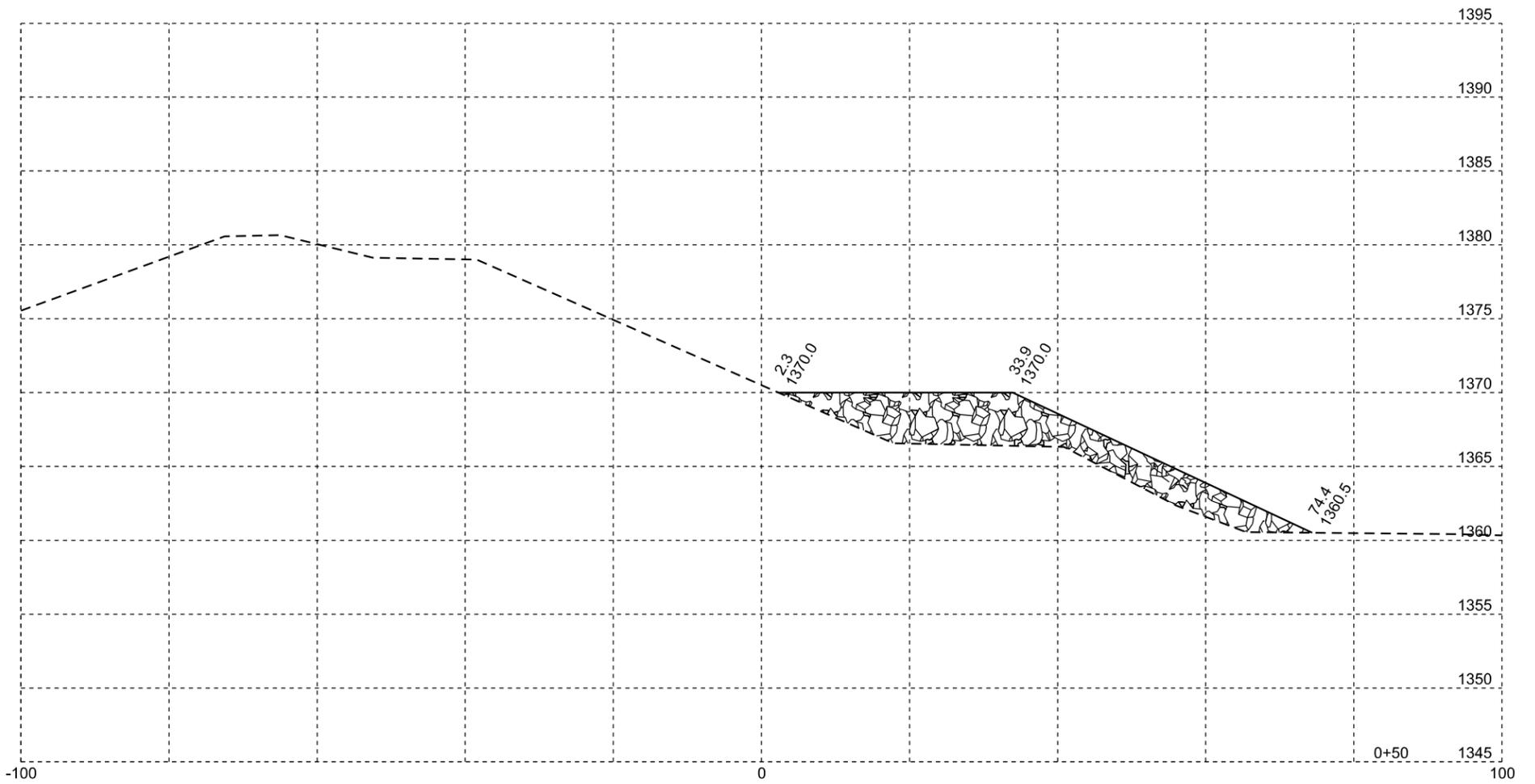
<i>Published Date: 1st Qtr. 2014</i>	S D D O T	SURFACE ROUGHENING	PLATE NUMBER 734.25
			Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - IRWIN16

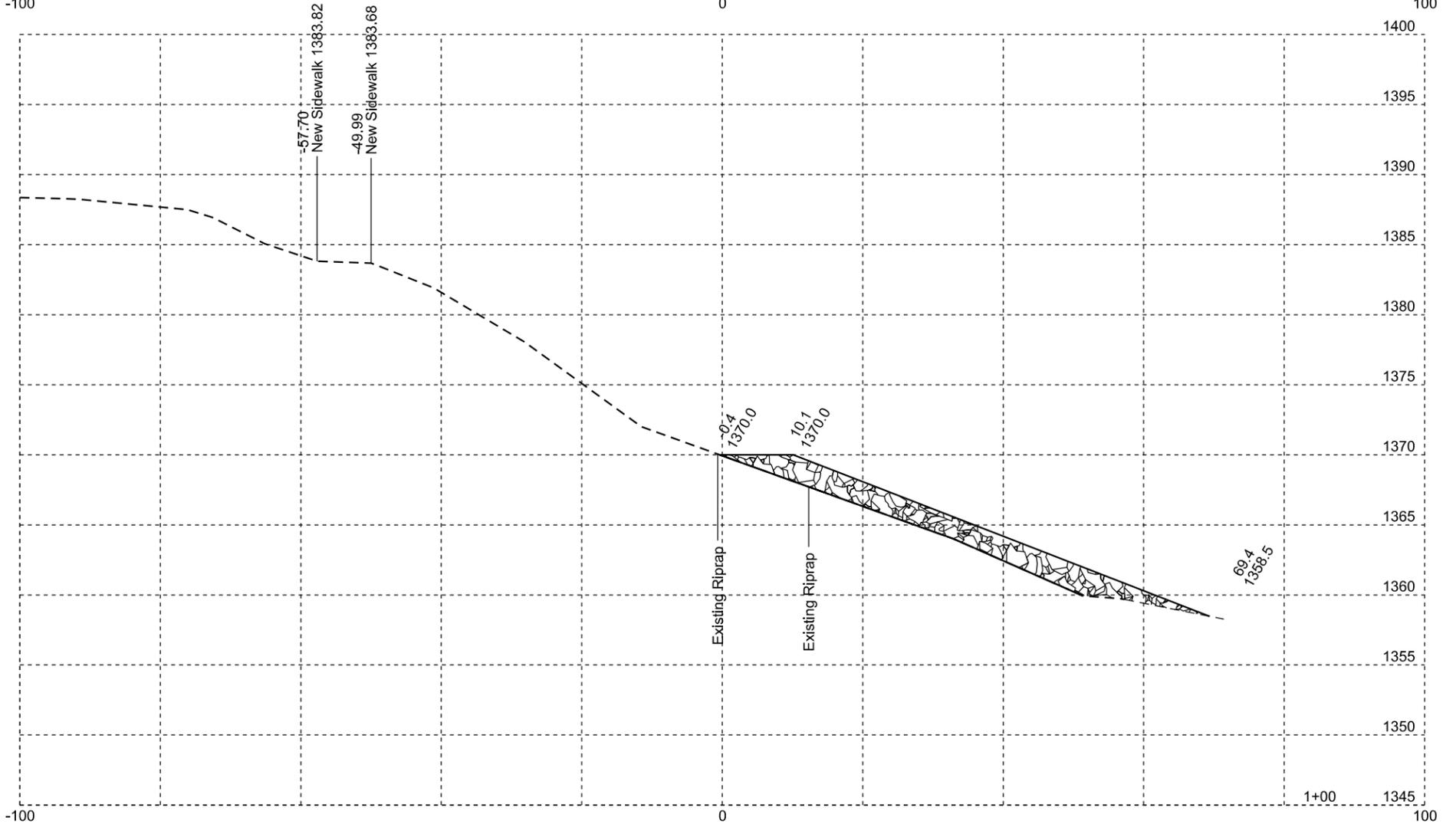
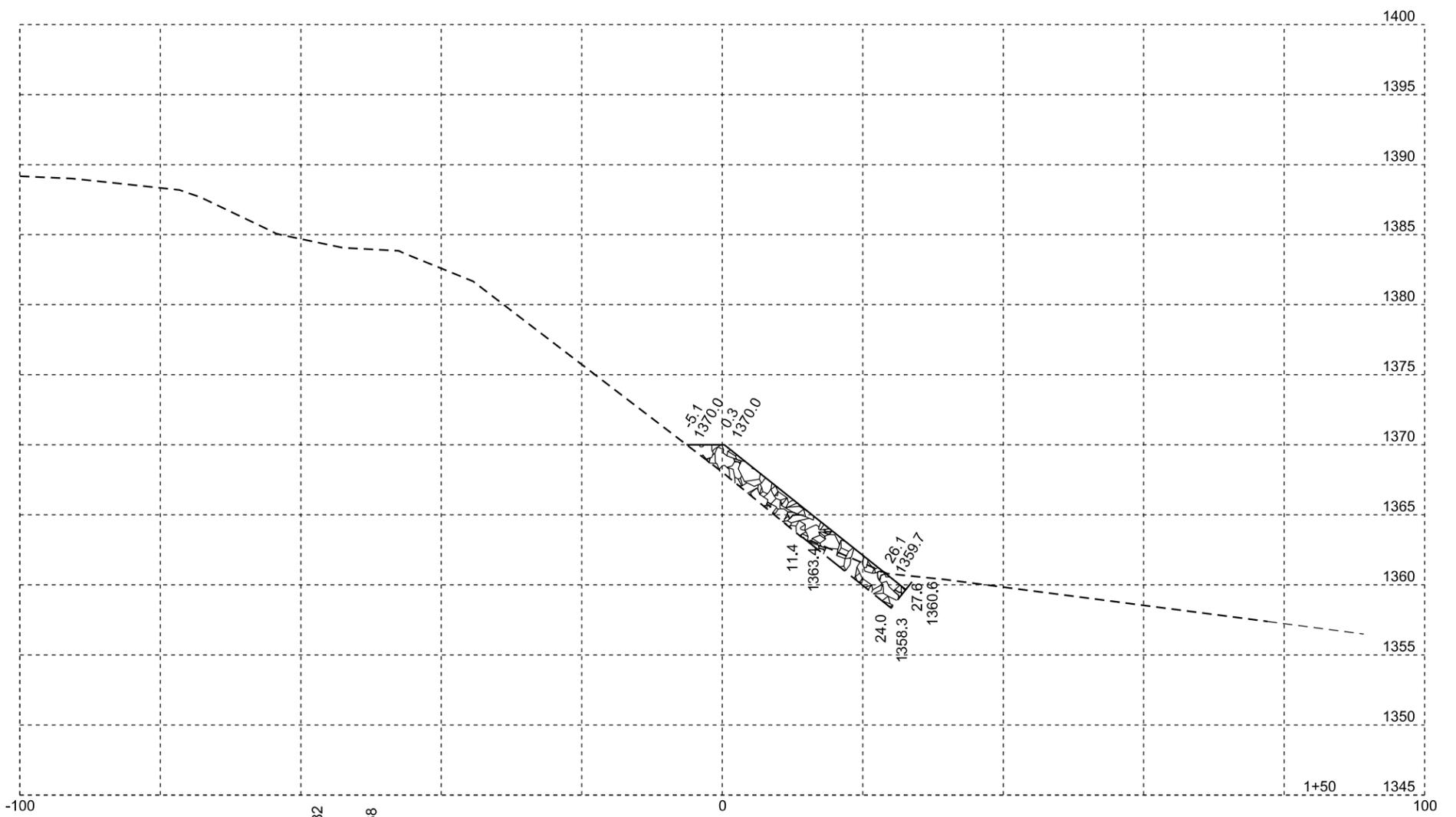
PLOT NAME - 5

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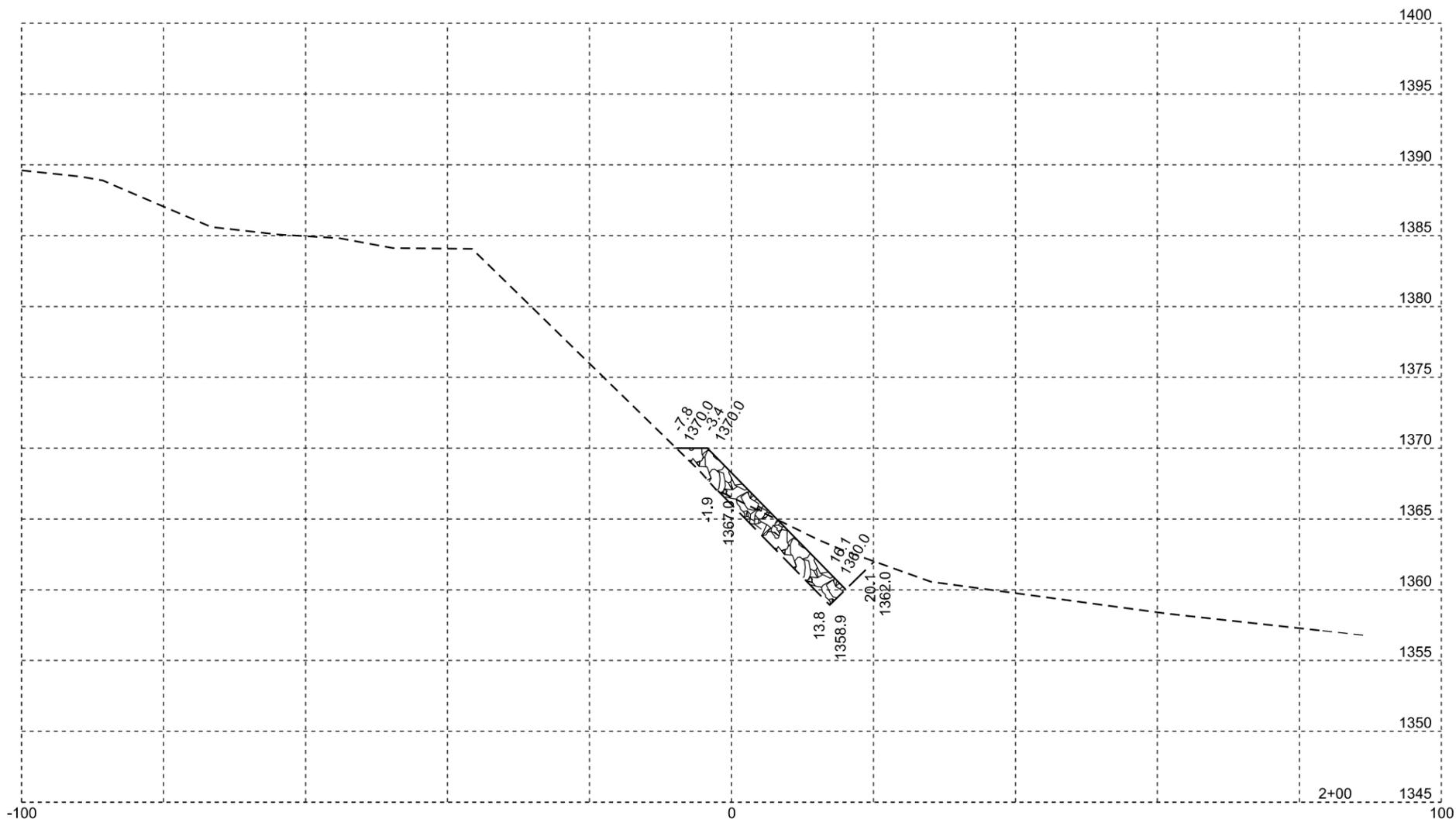
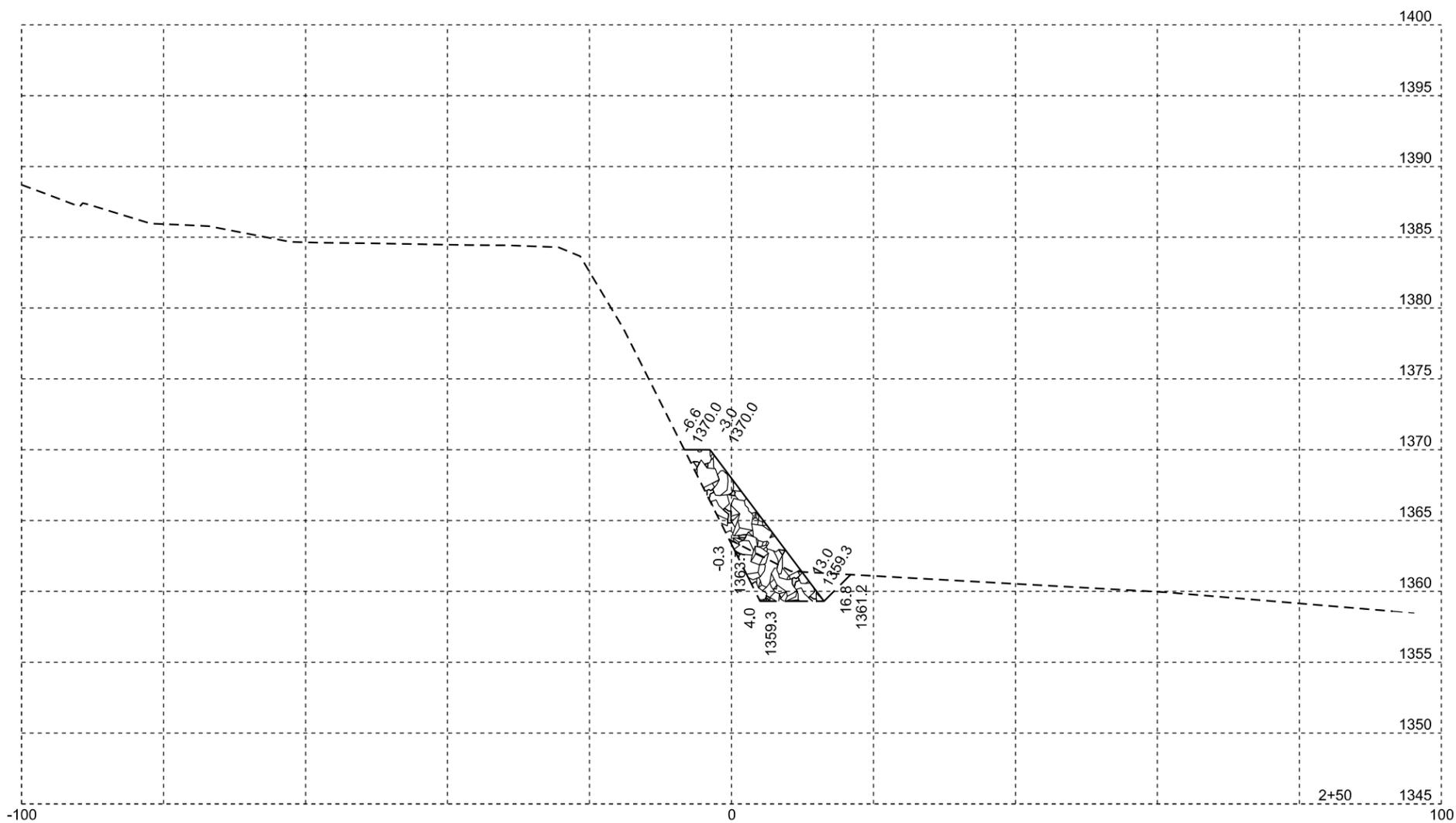
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	46	110



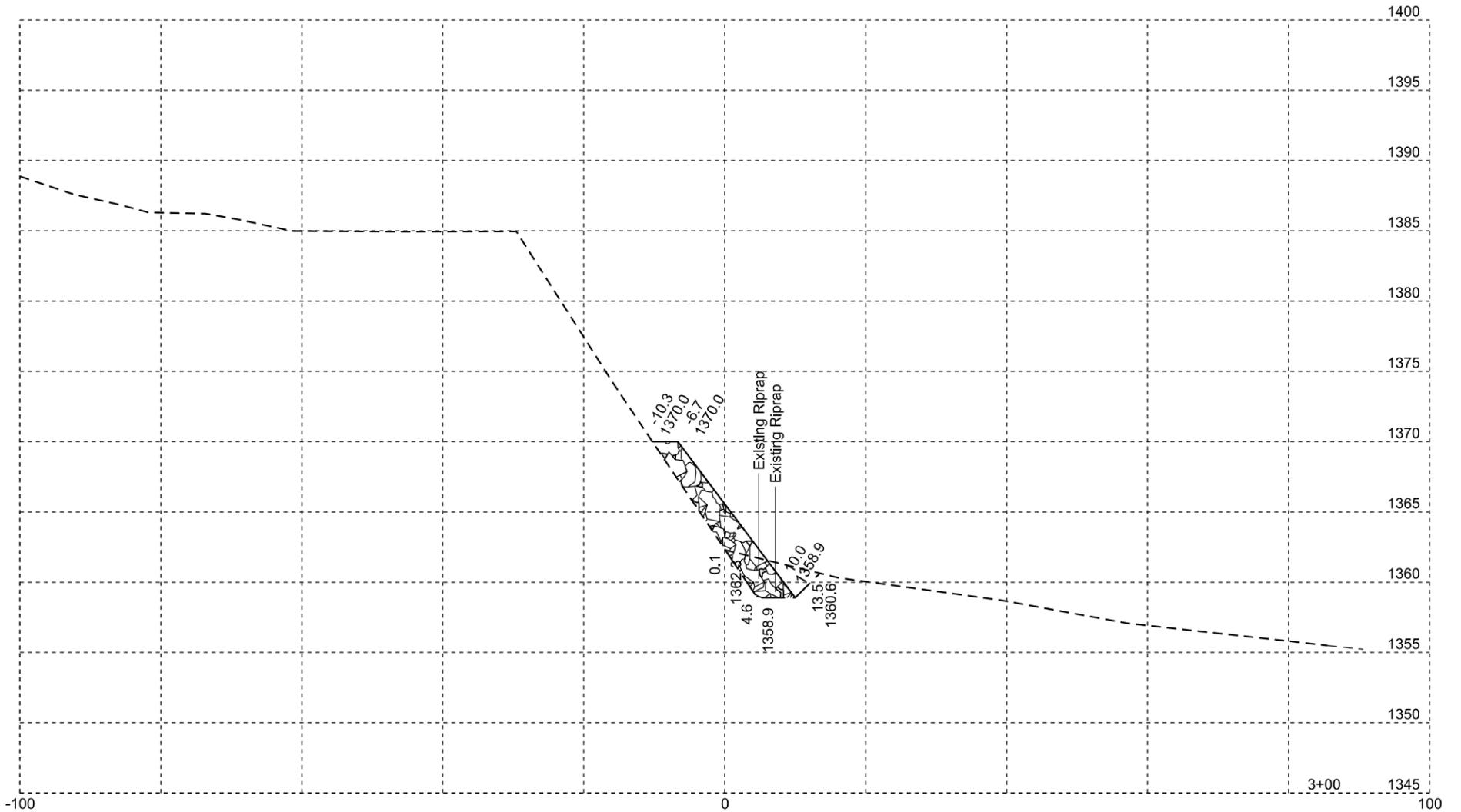
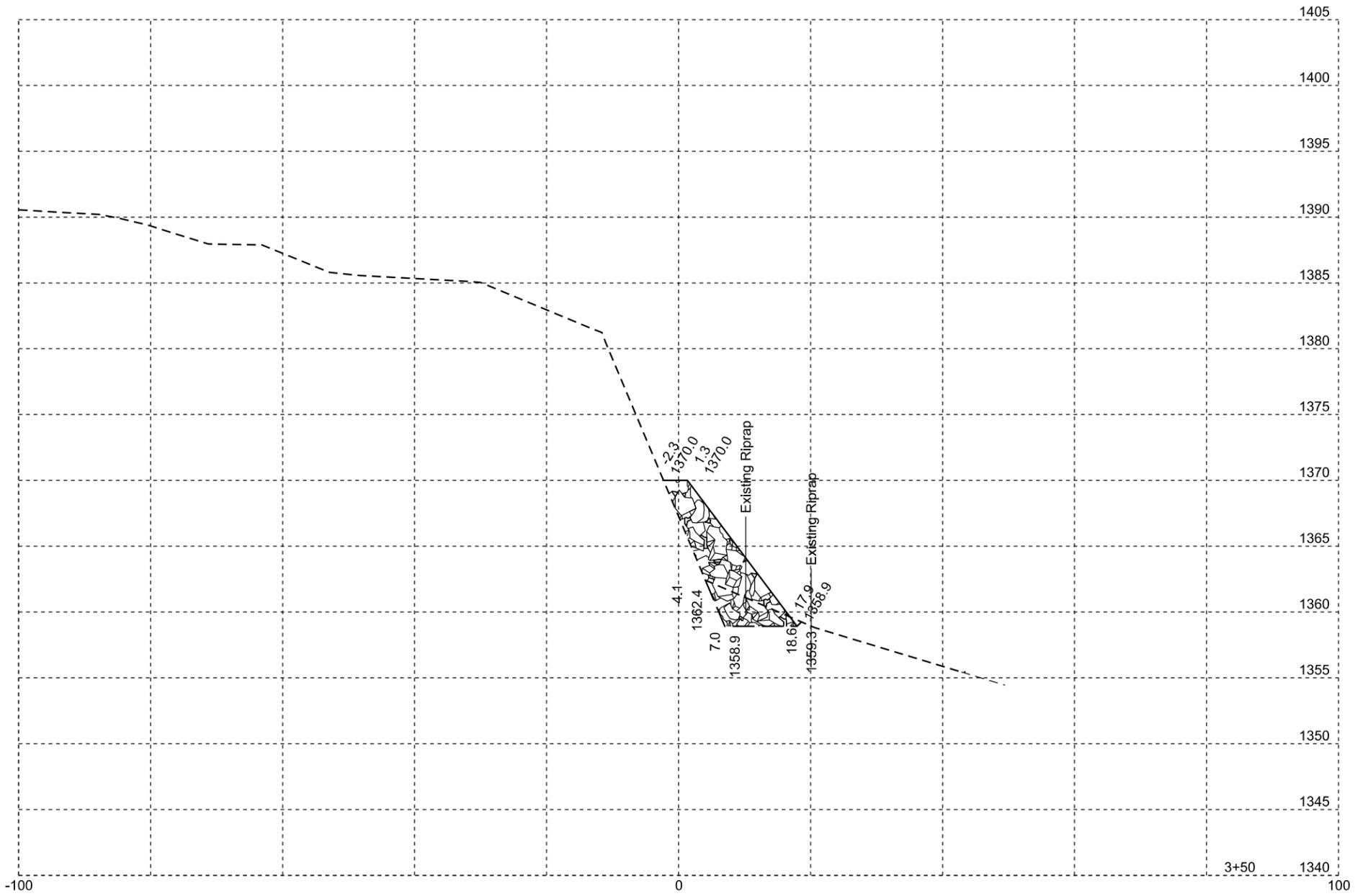
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	47	110



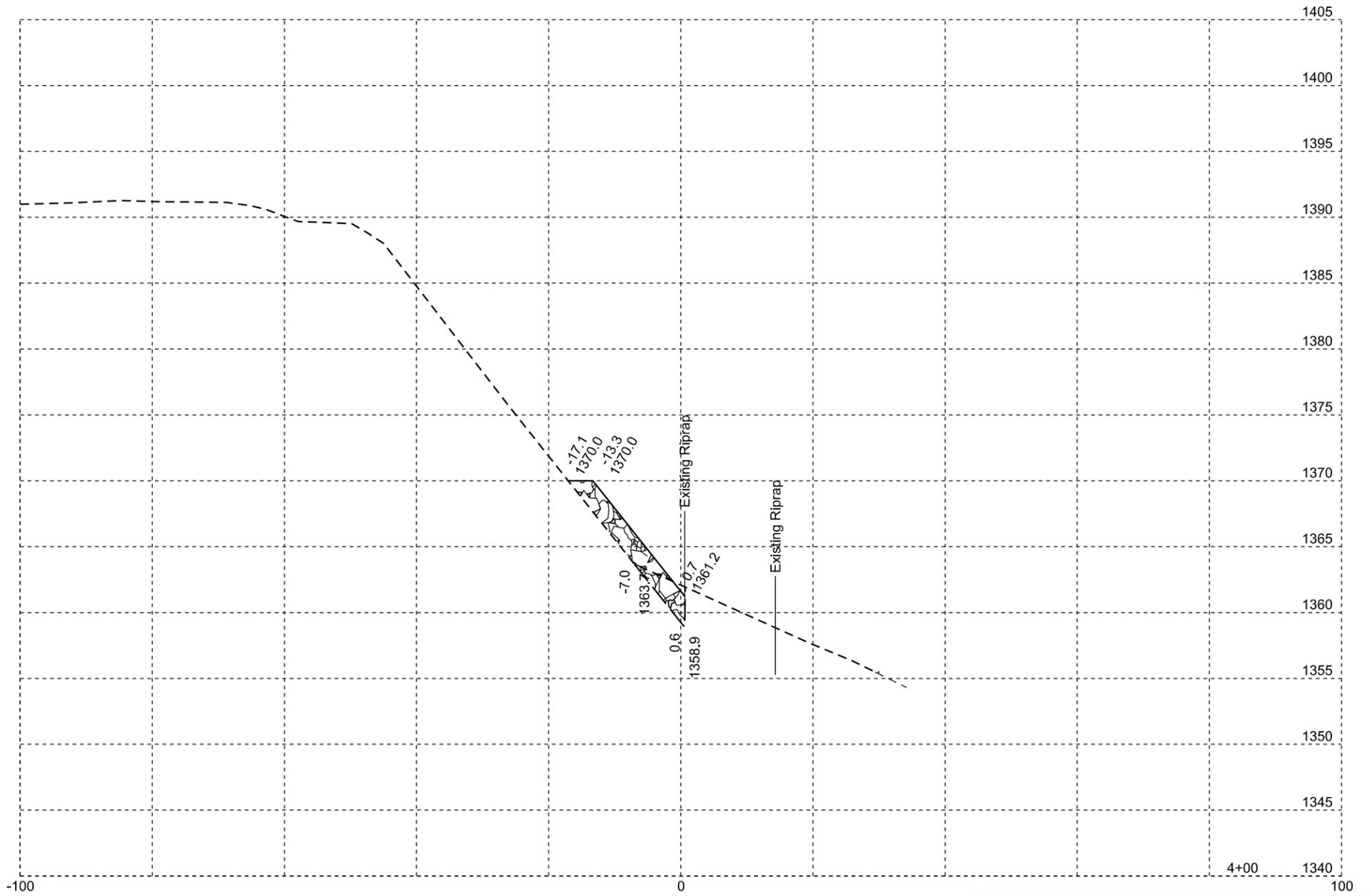
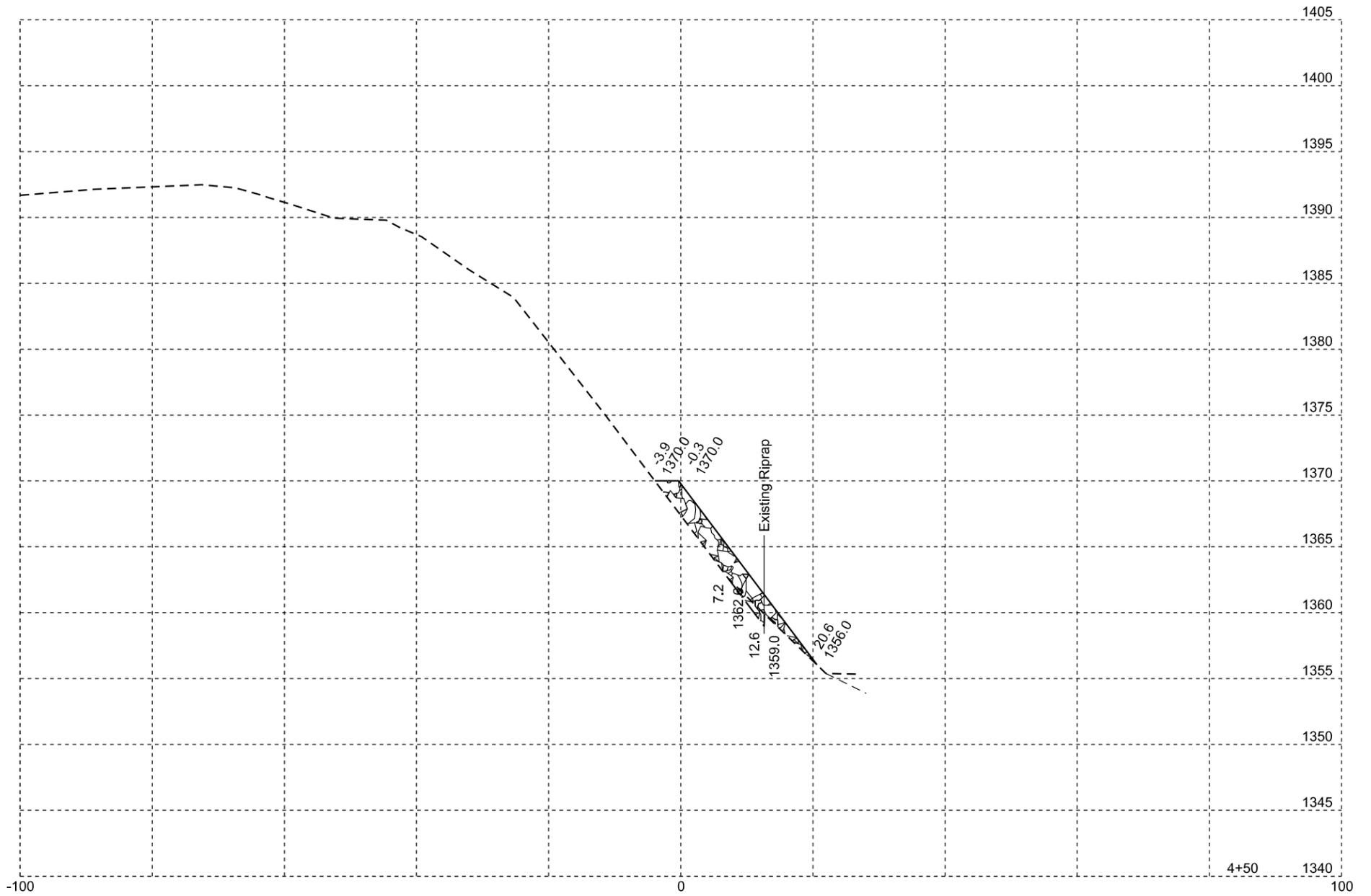
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	48	110



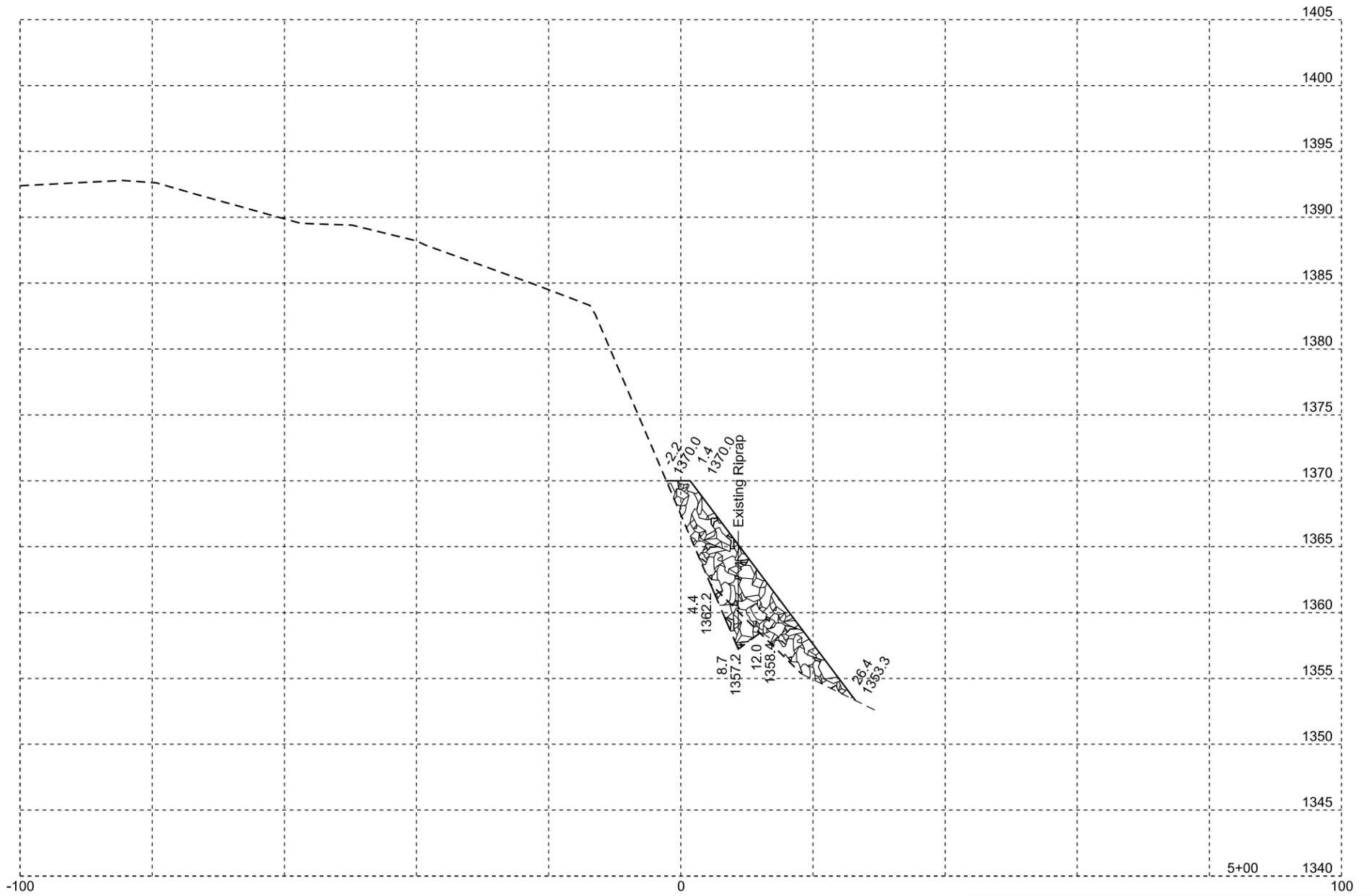
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	49	110



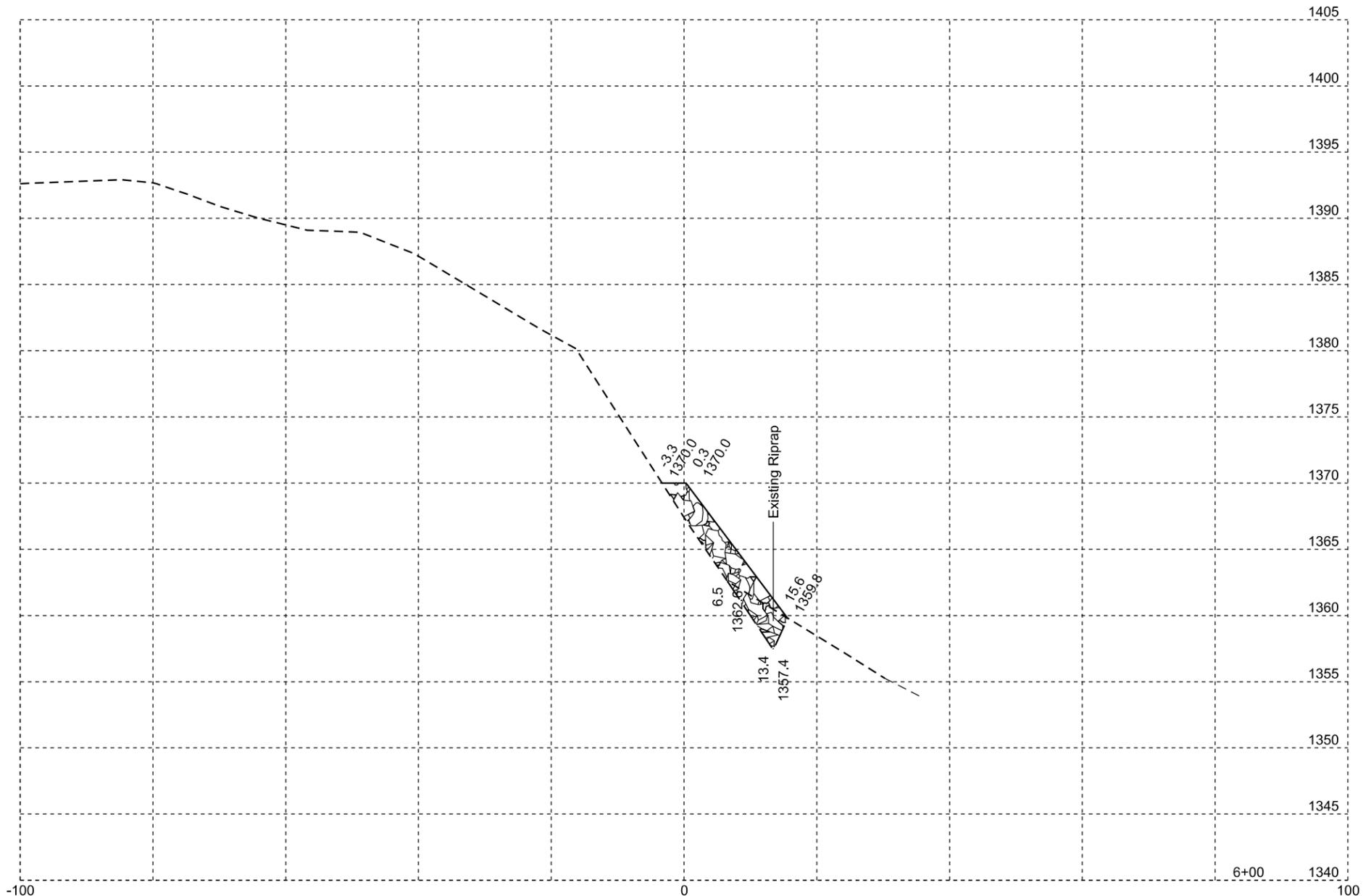
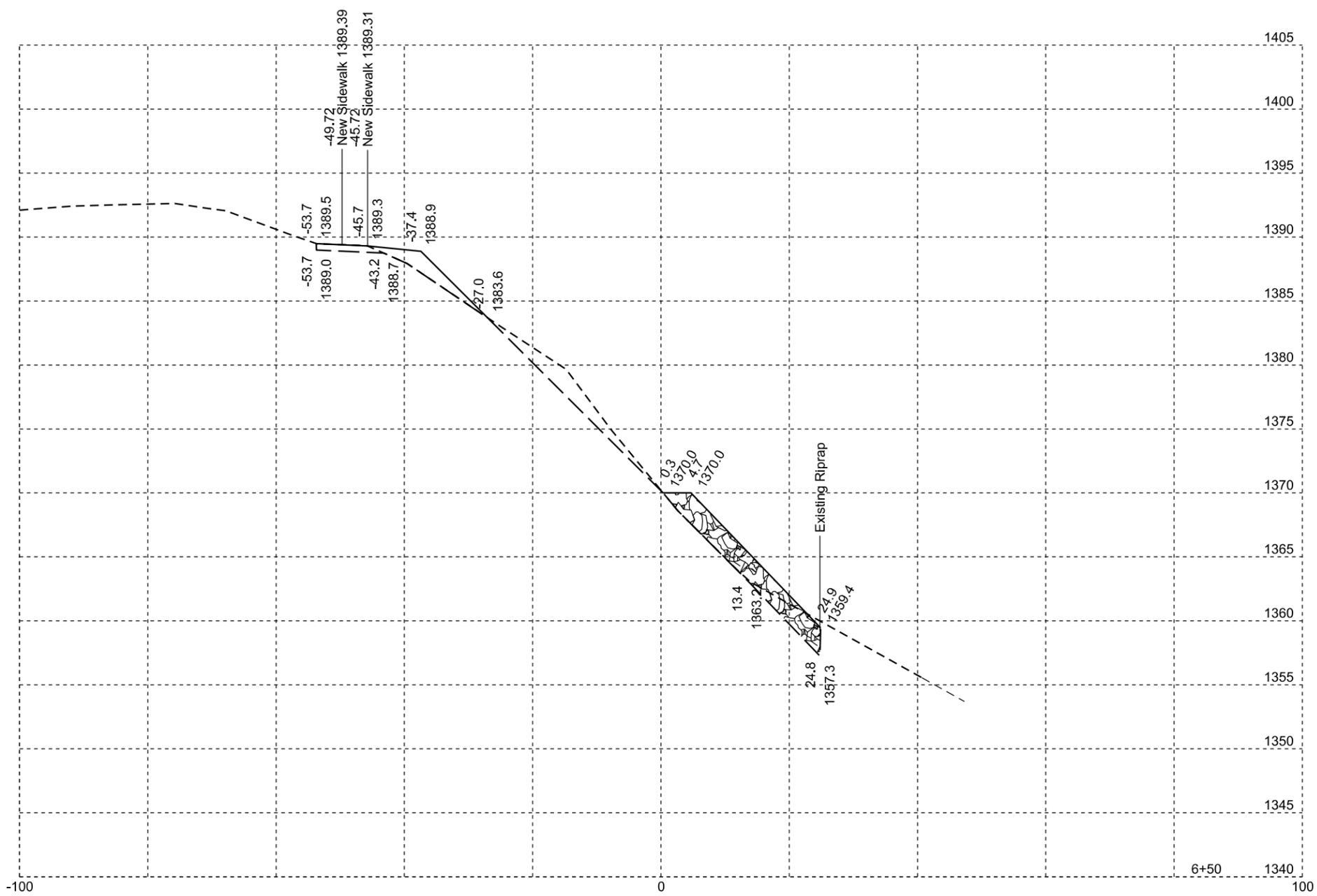
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	50	110



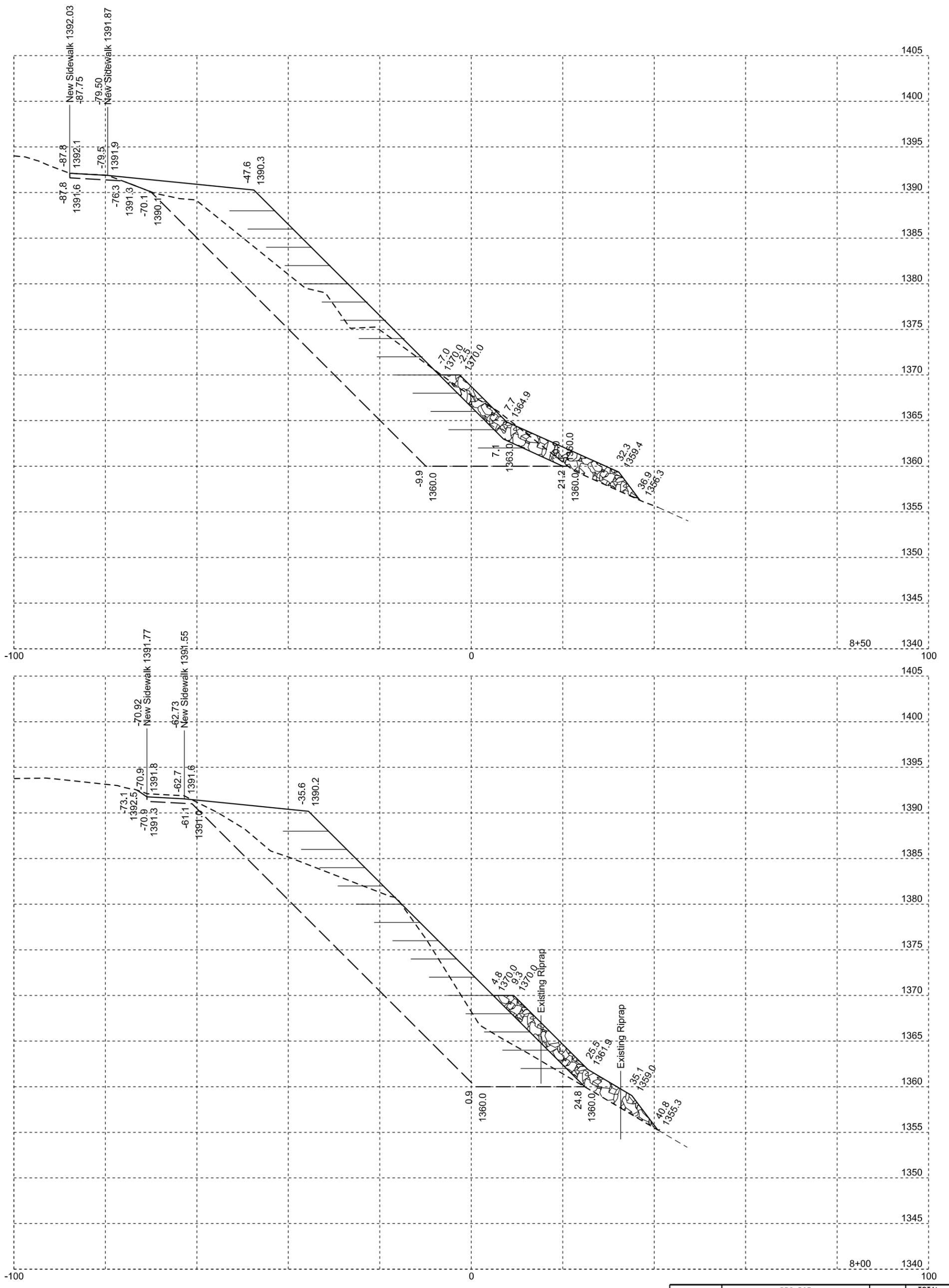
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	51	110



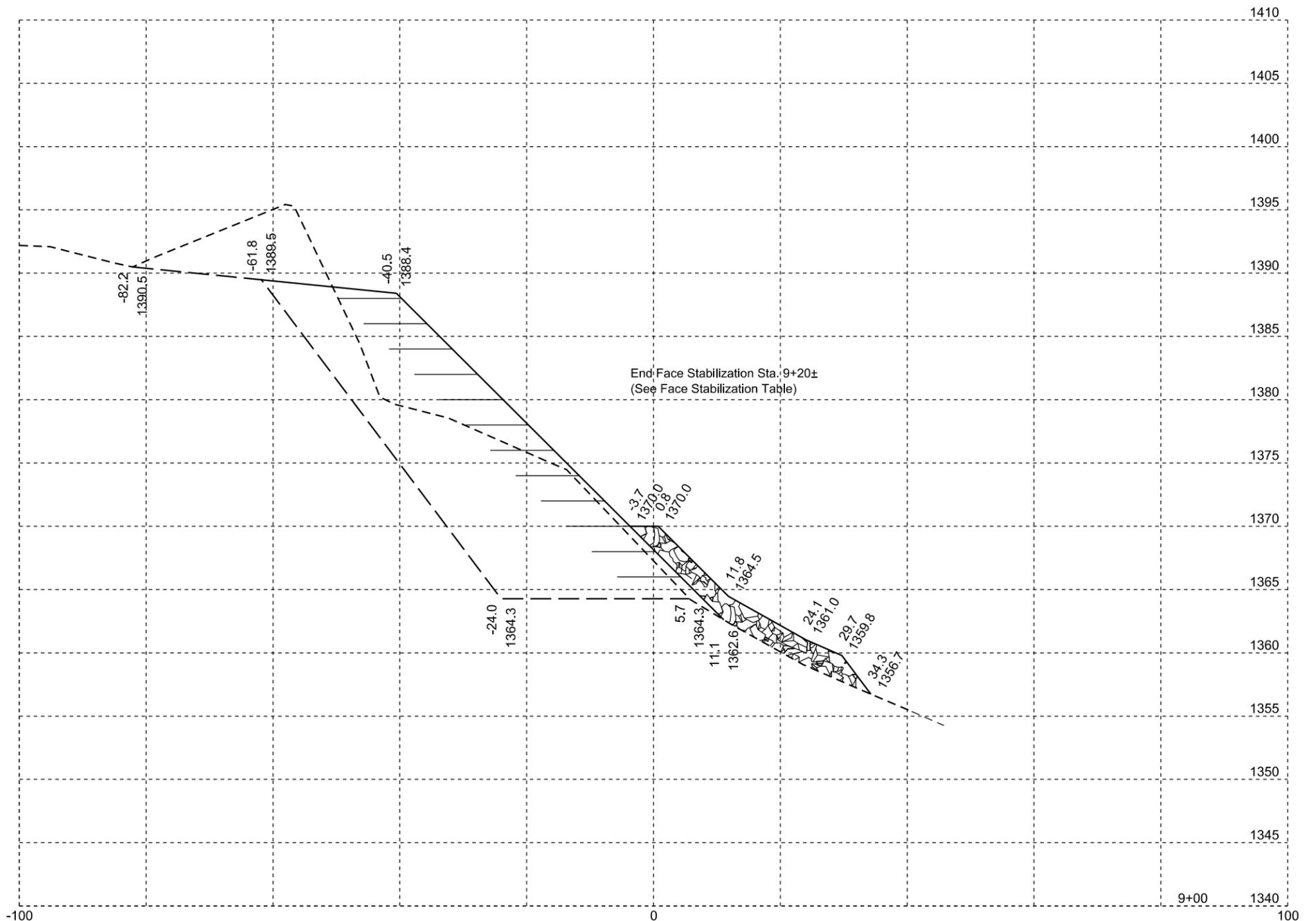
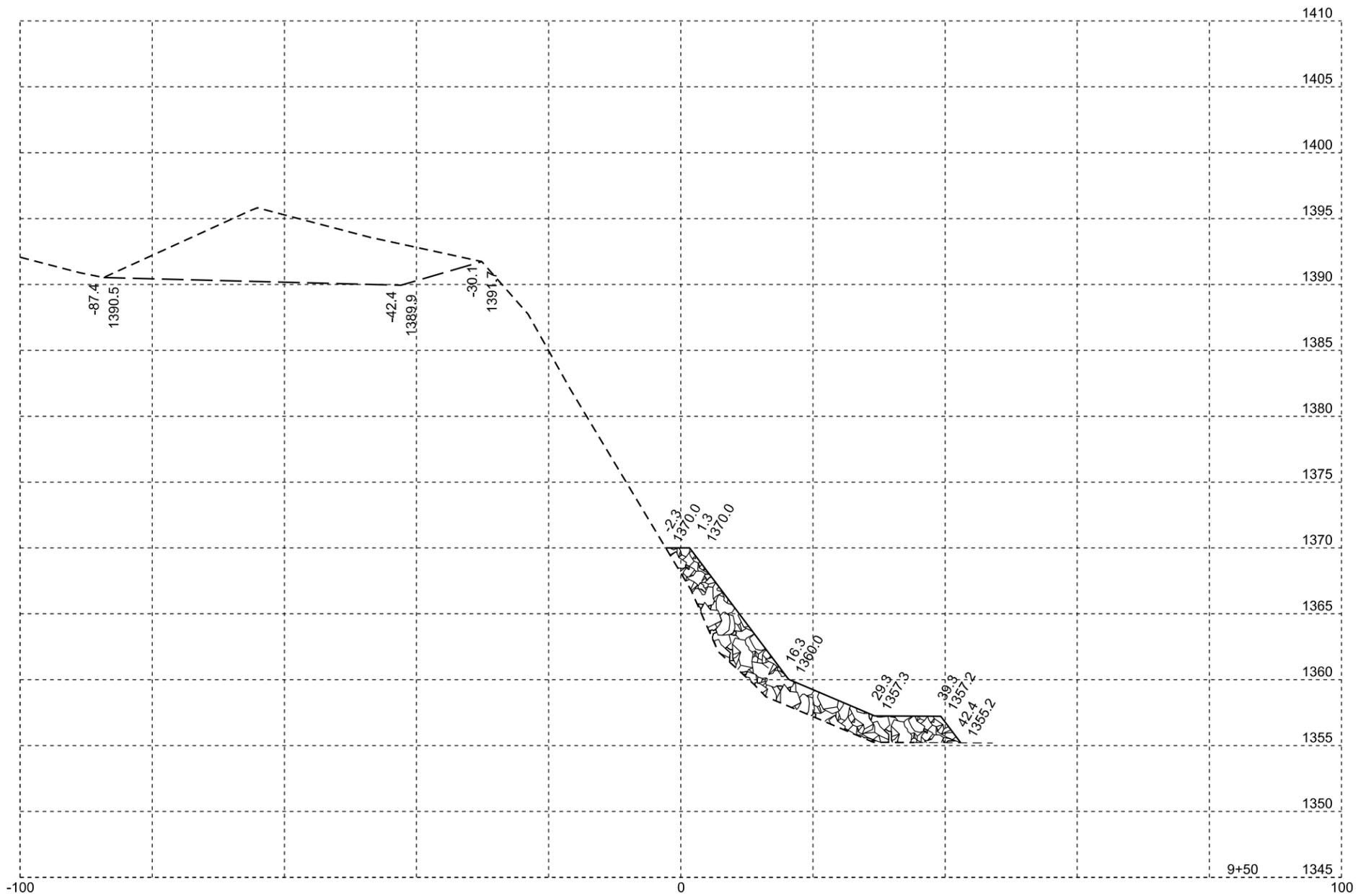
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	52	110



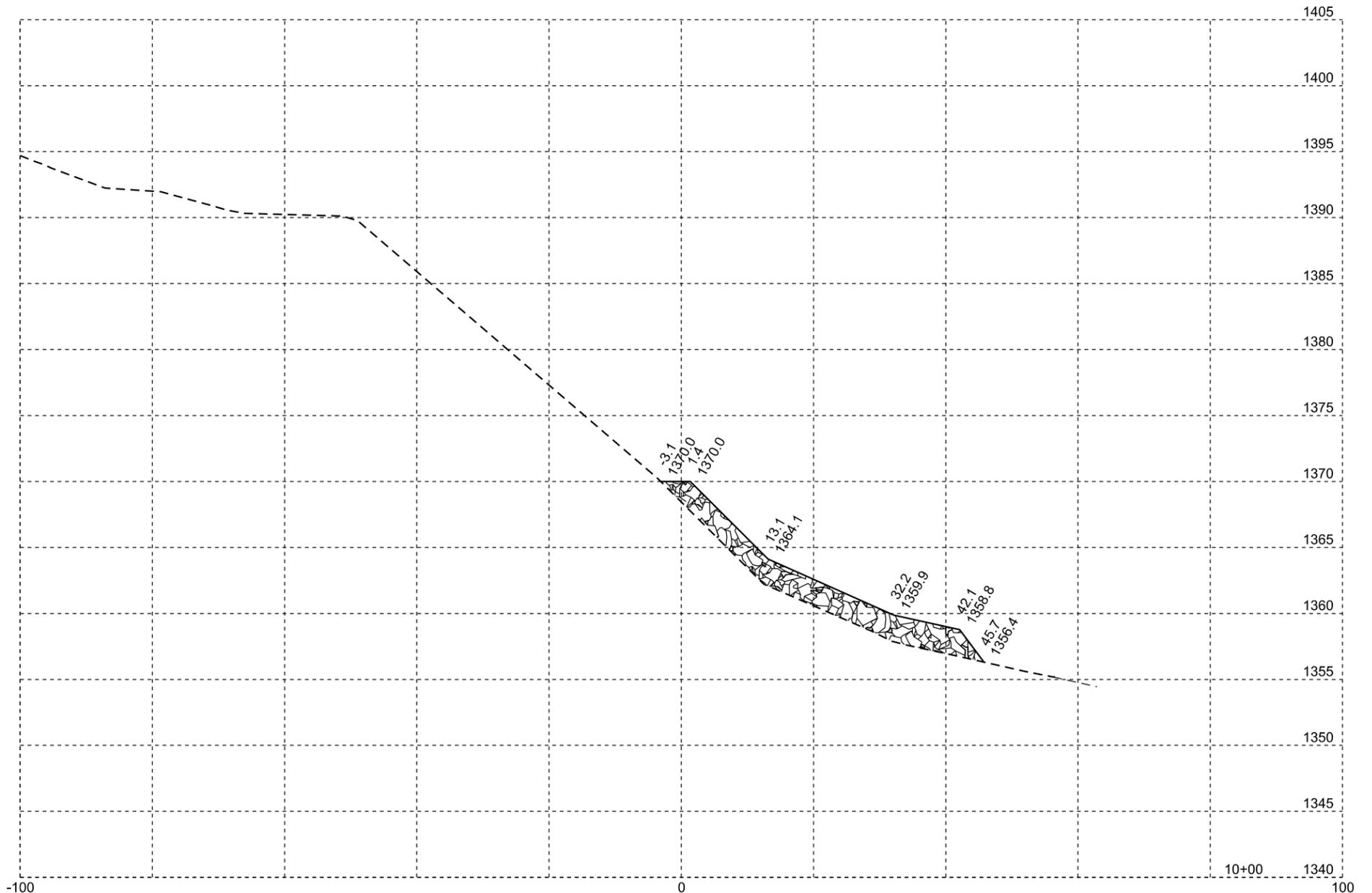
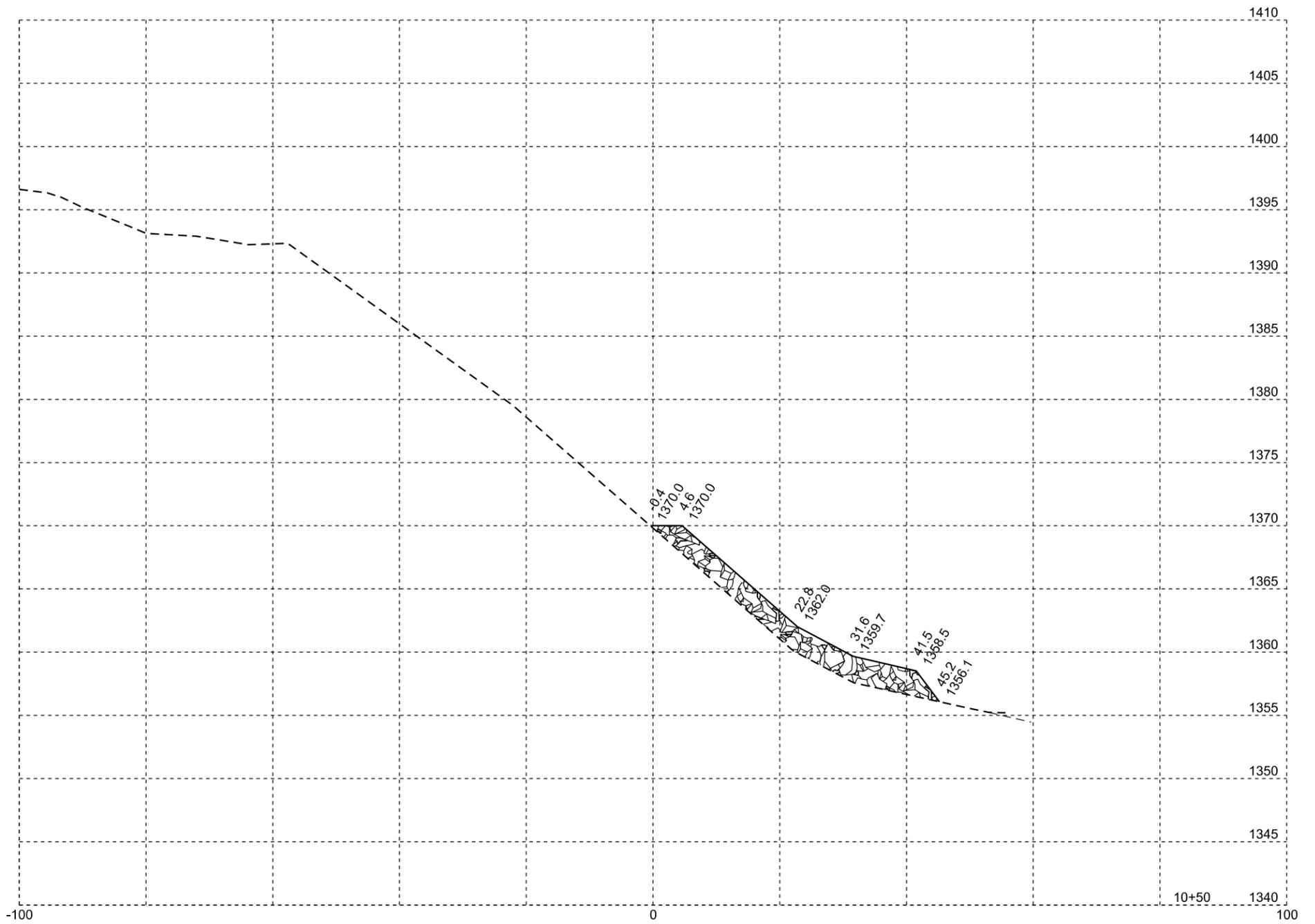
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	54	110



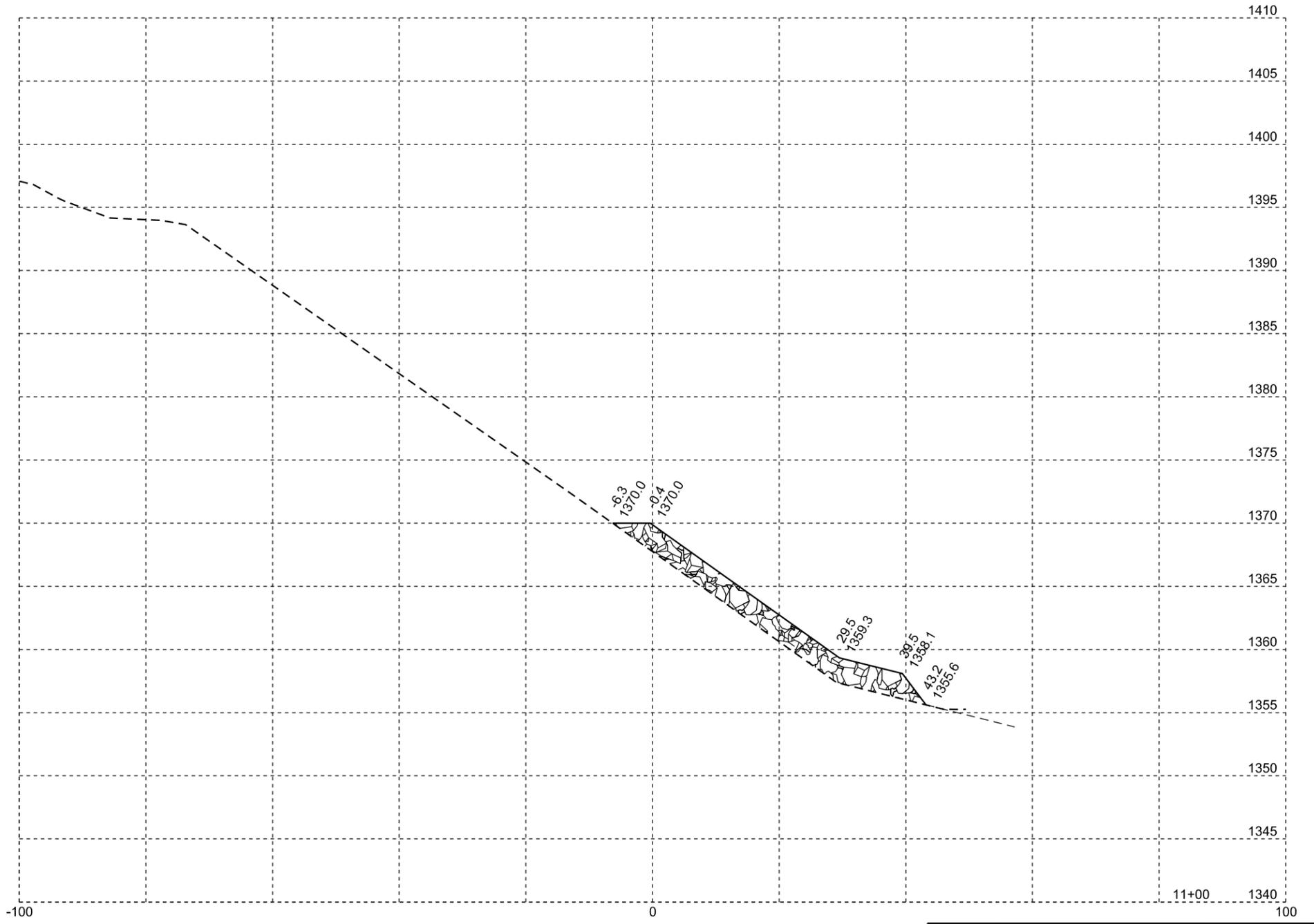
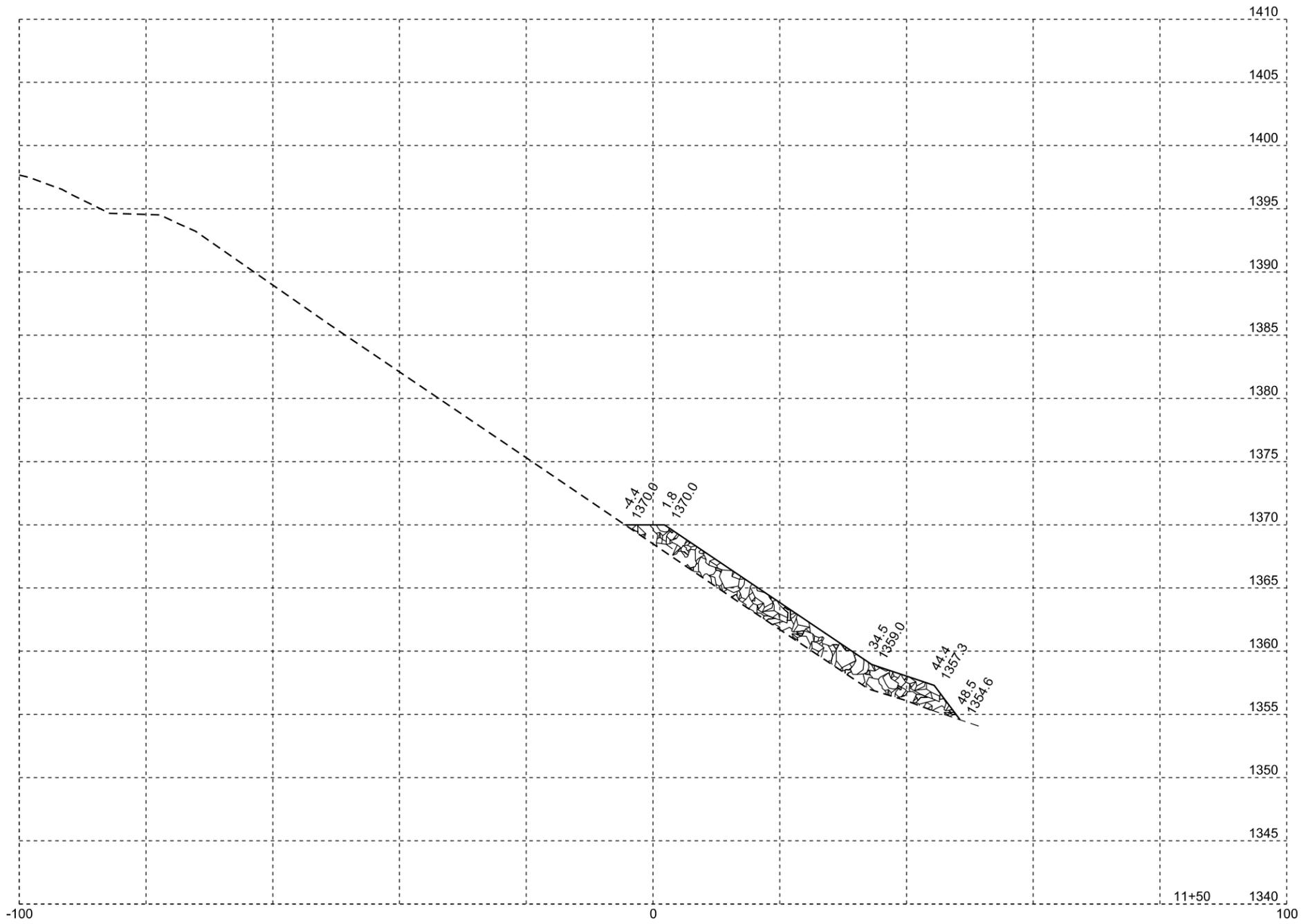
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	55	110



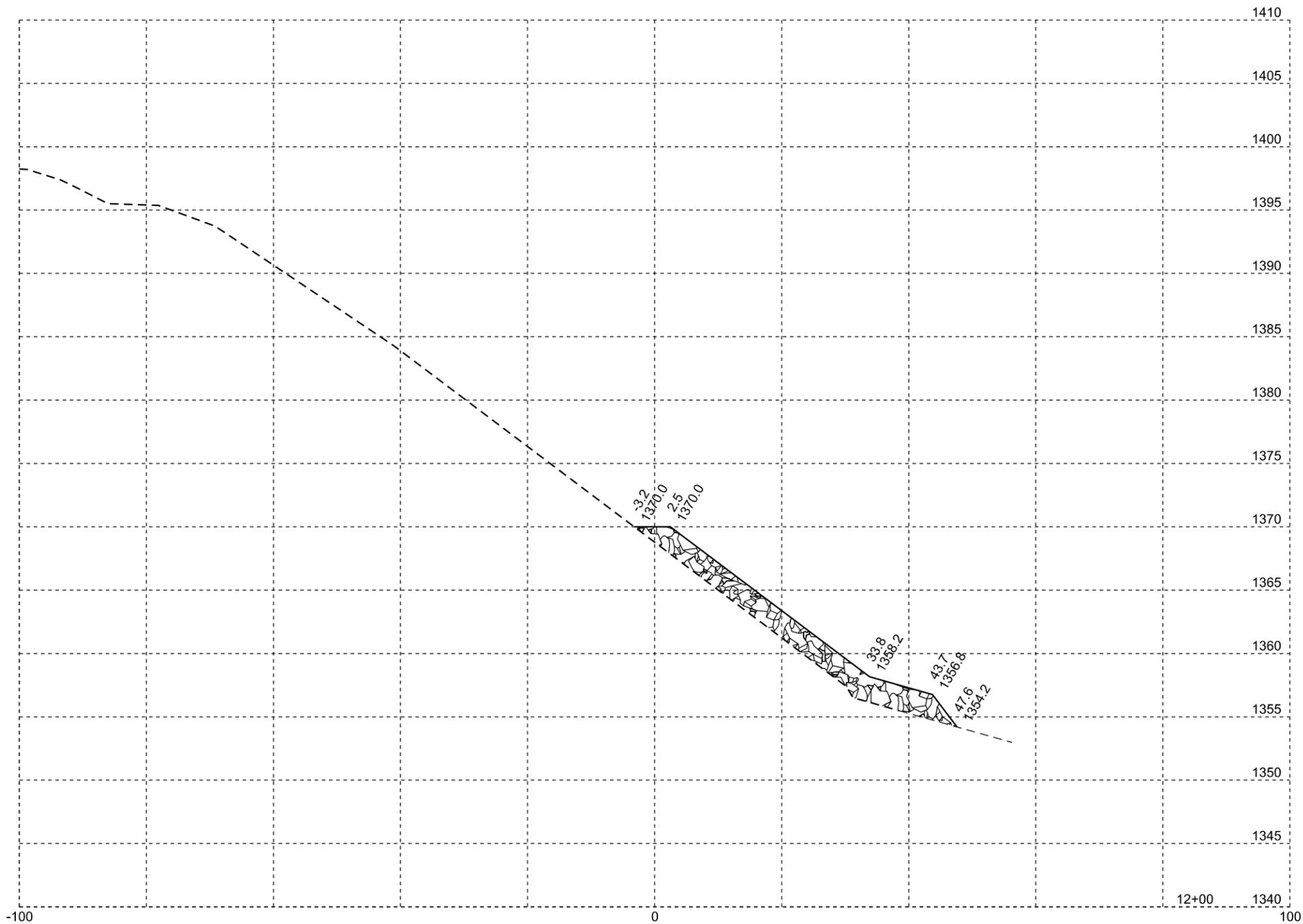
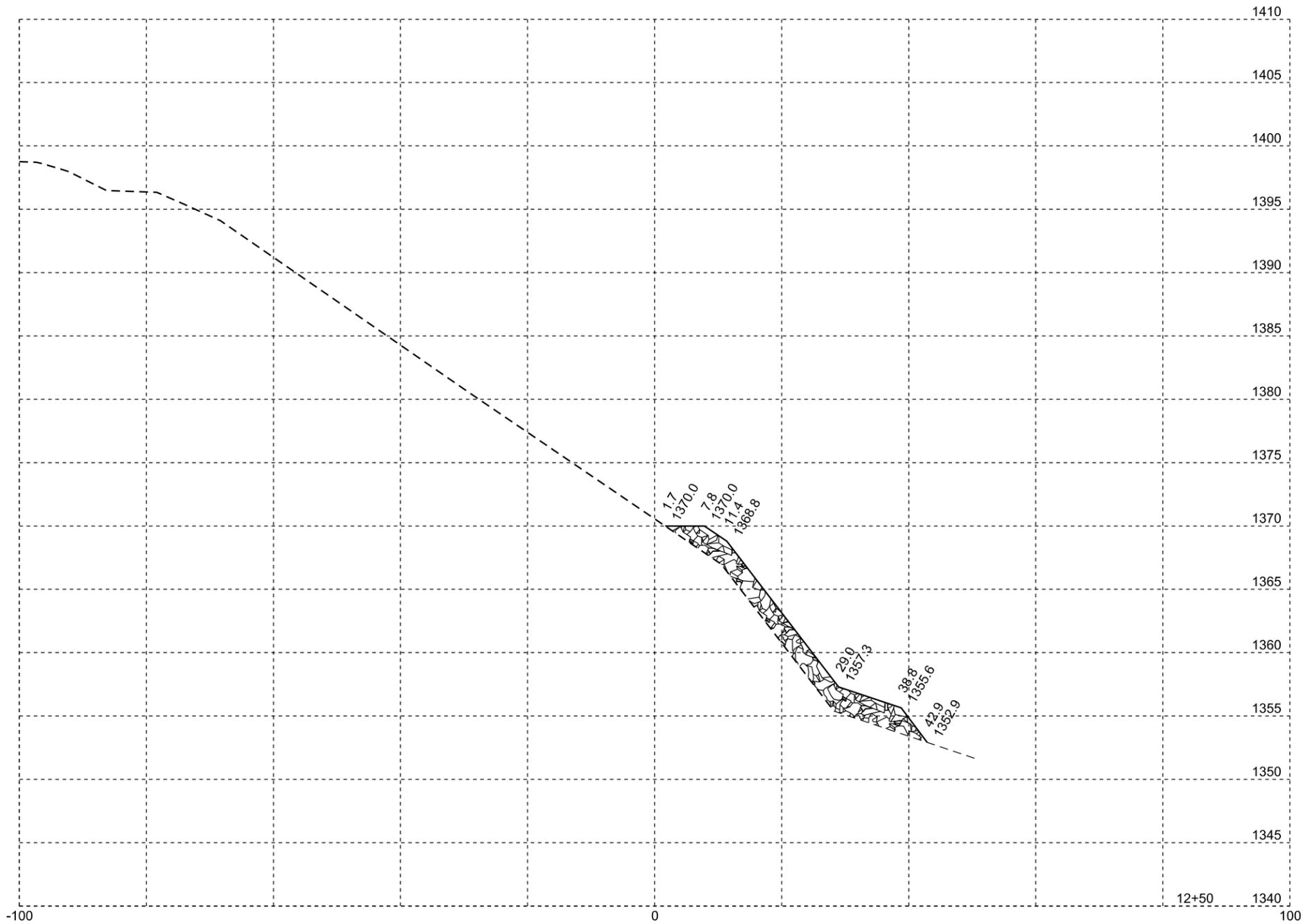
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	56	110



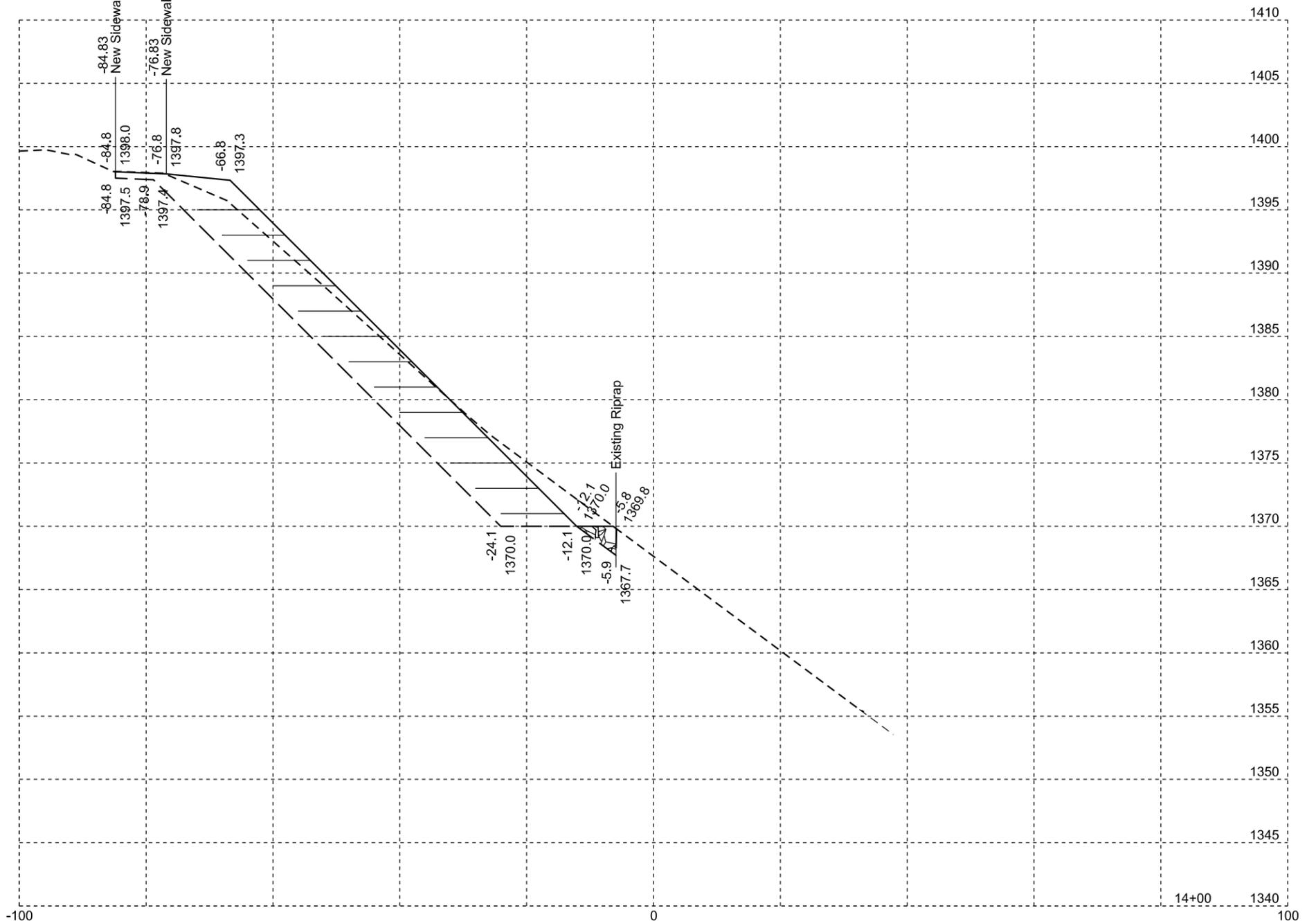
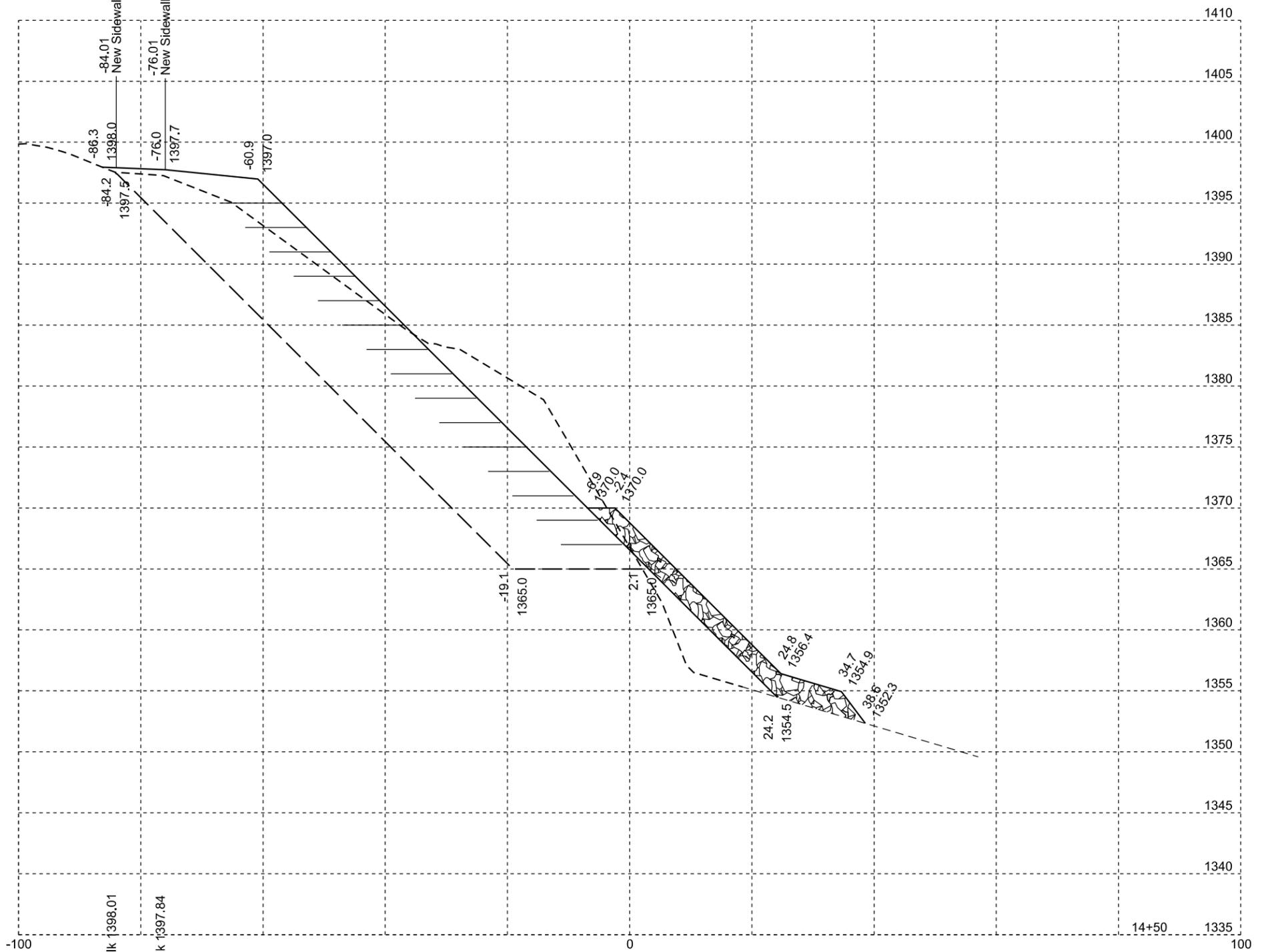
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	57	110



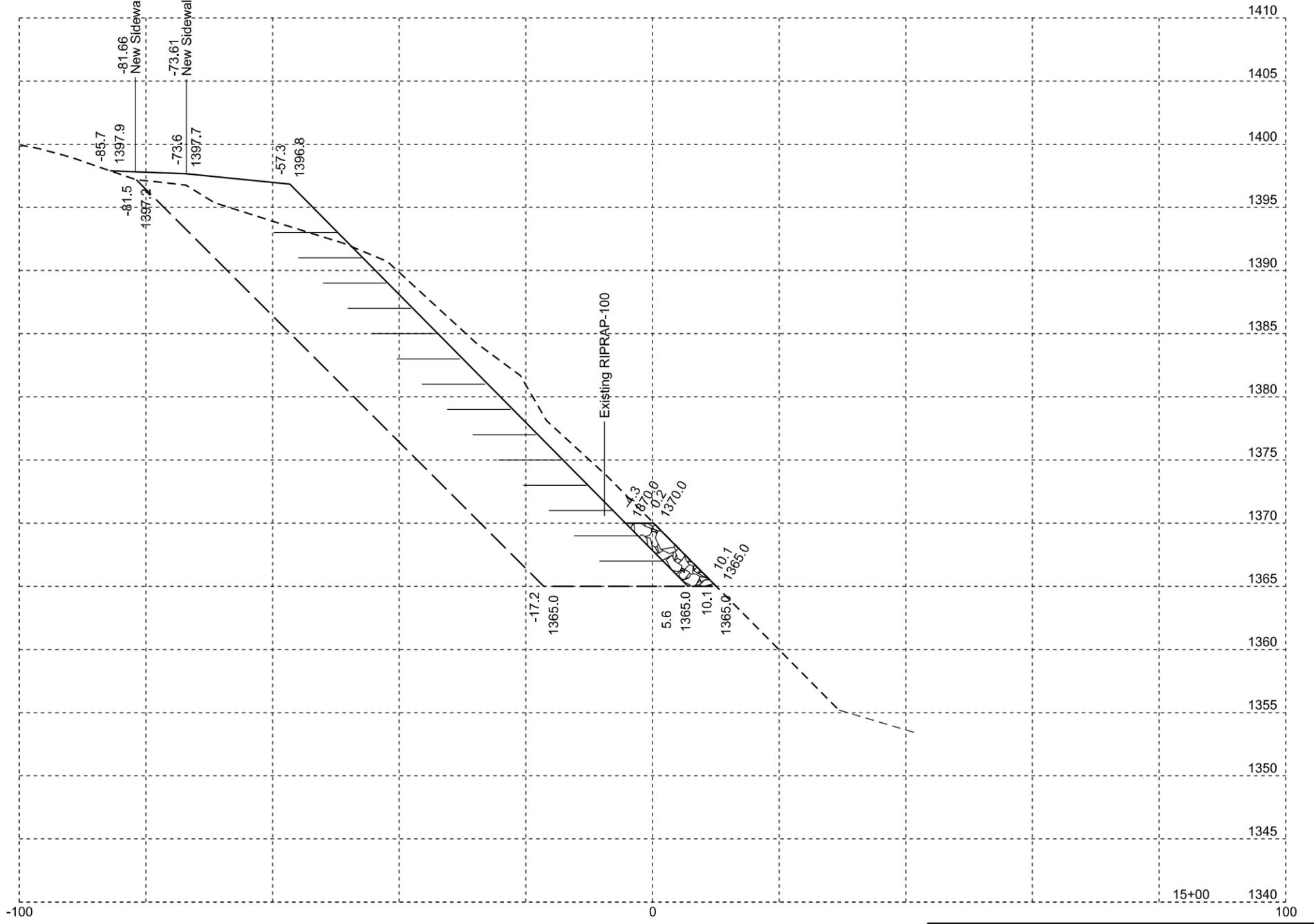
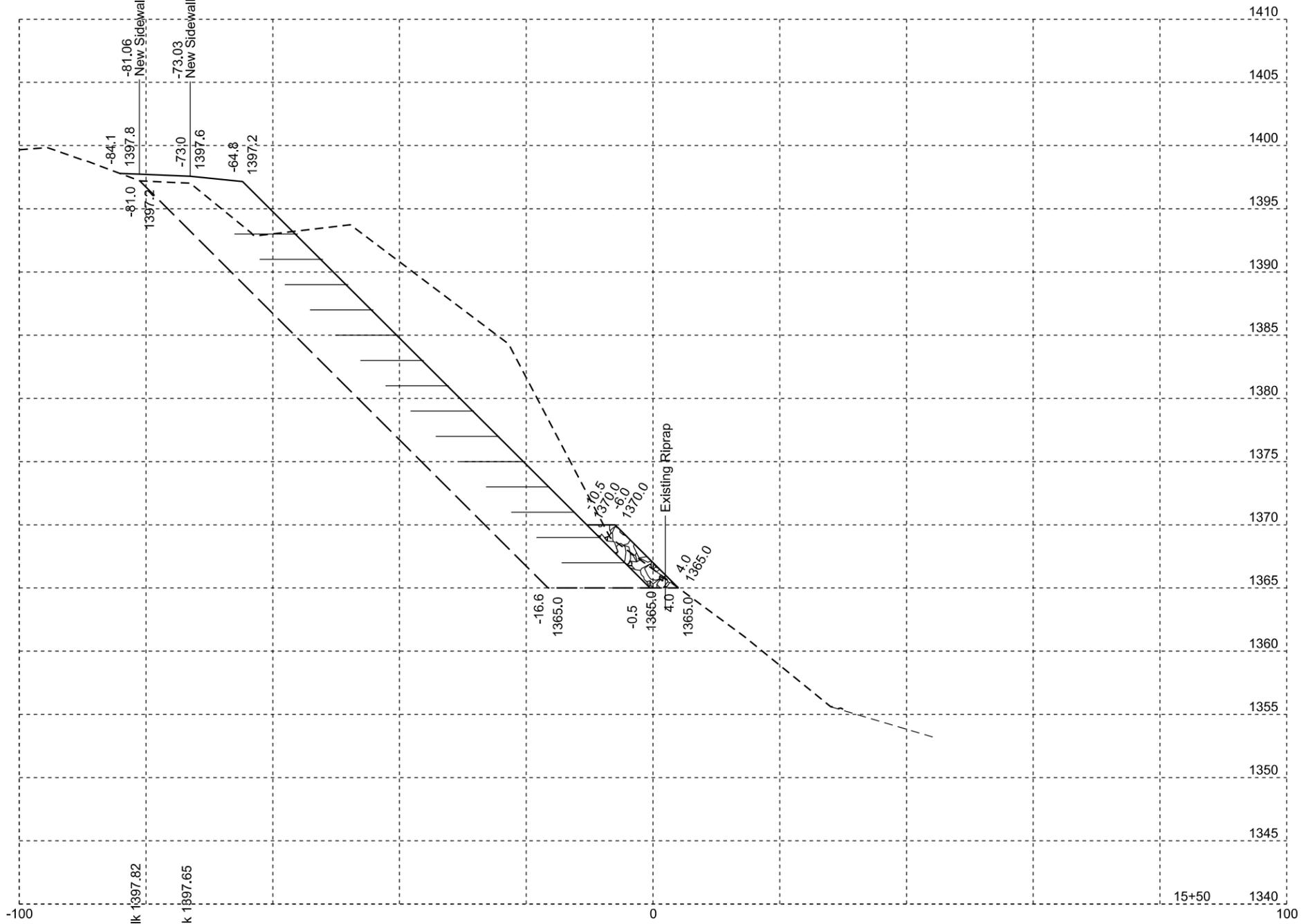
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	58	110



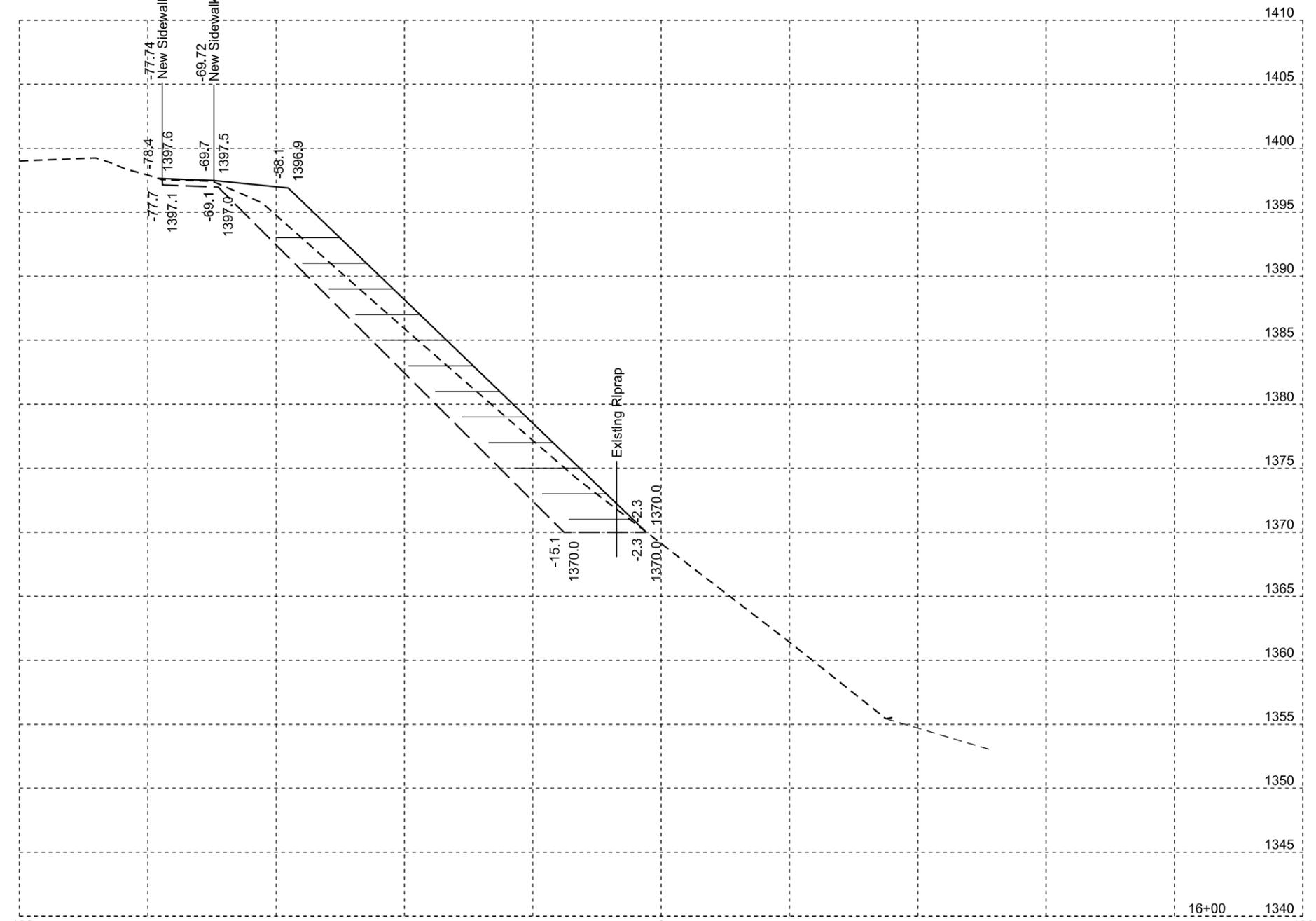
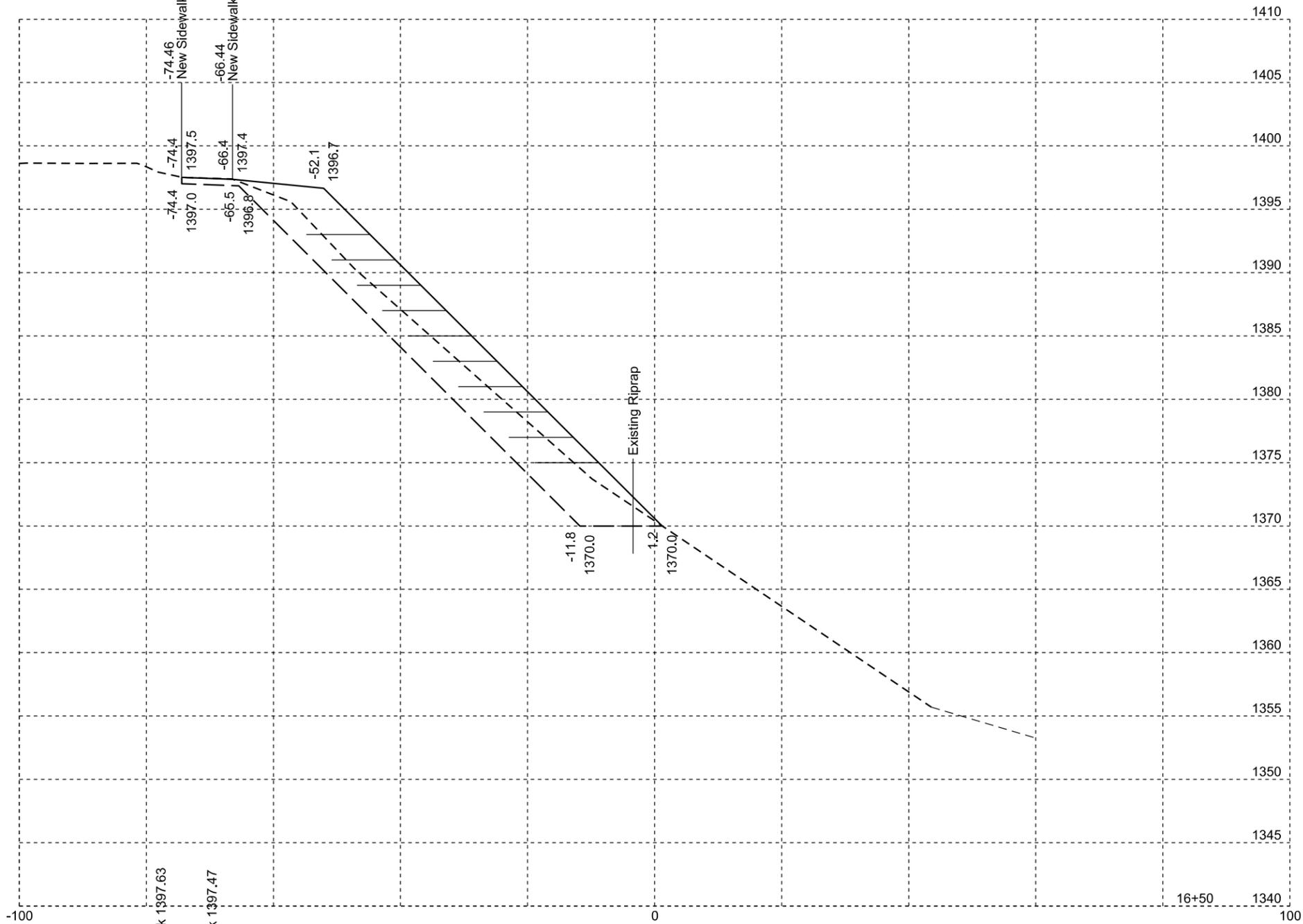
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	60	110



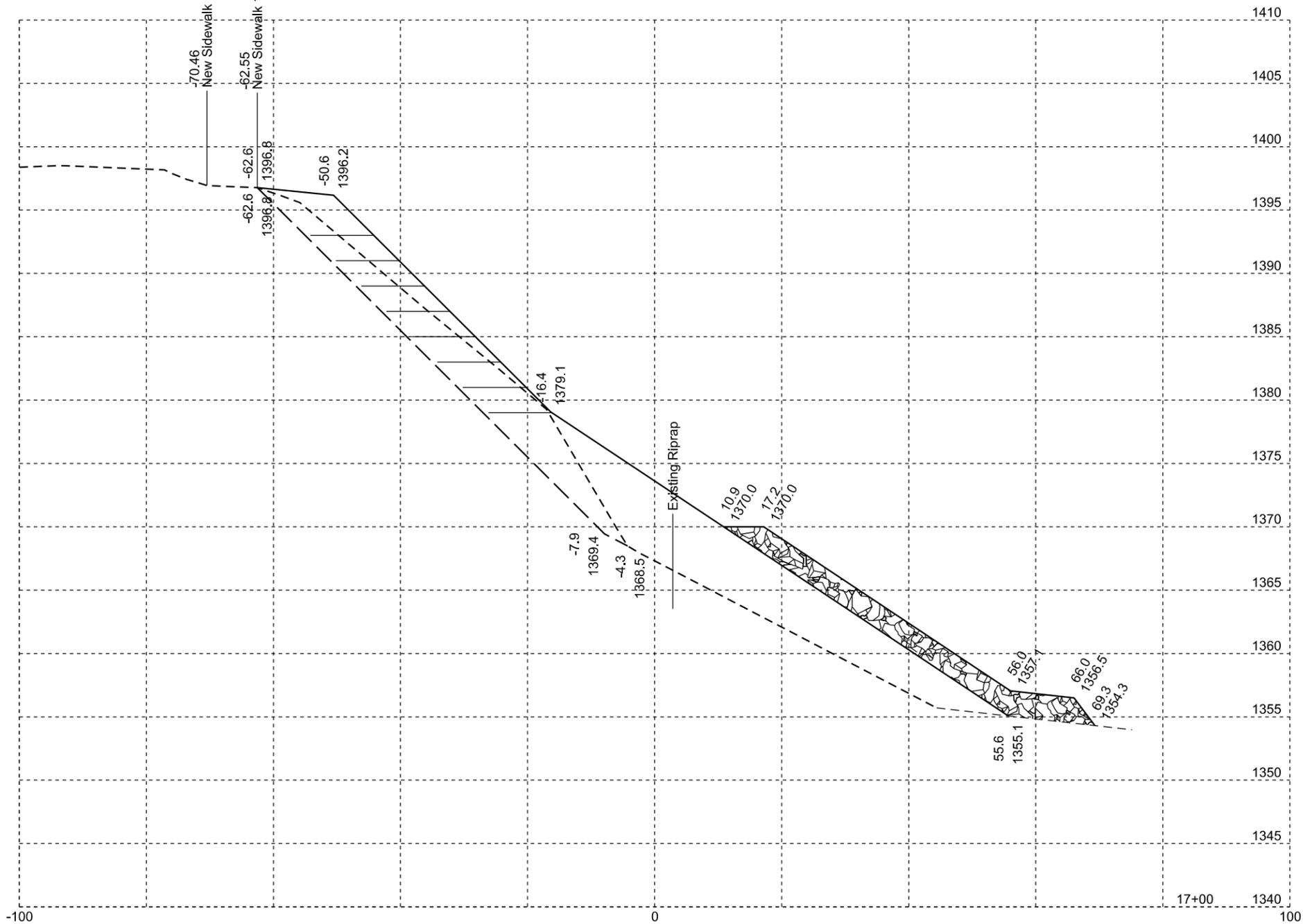
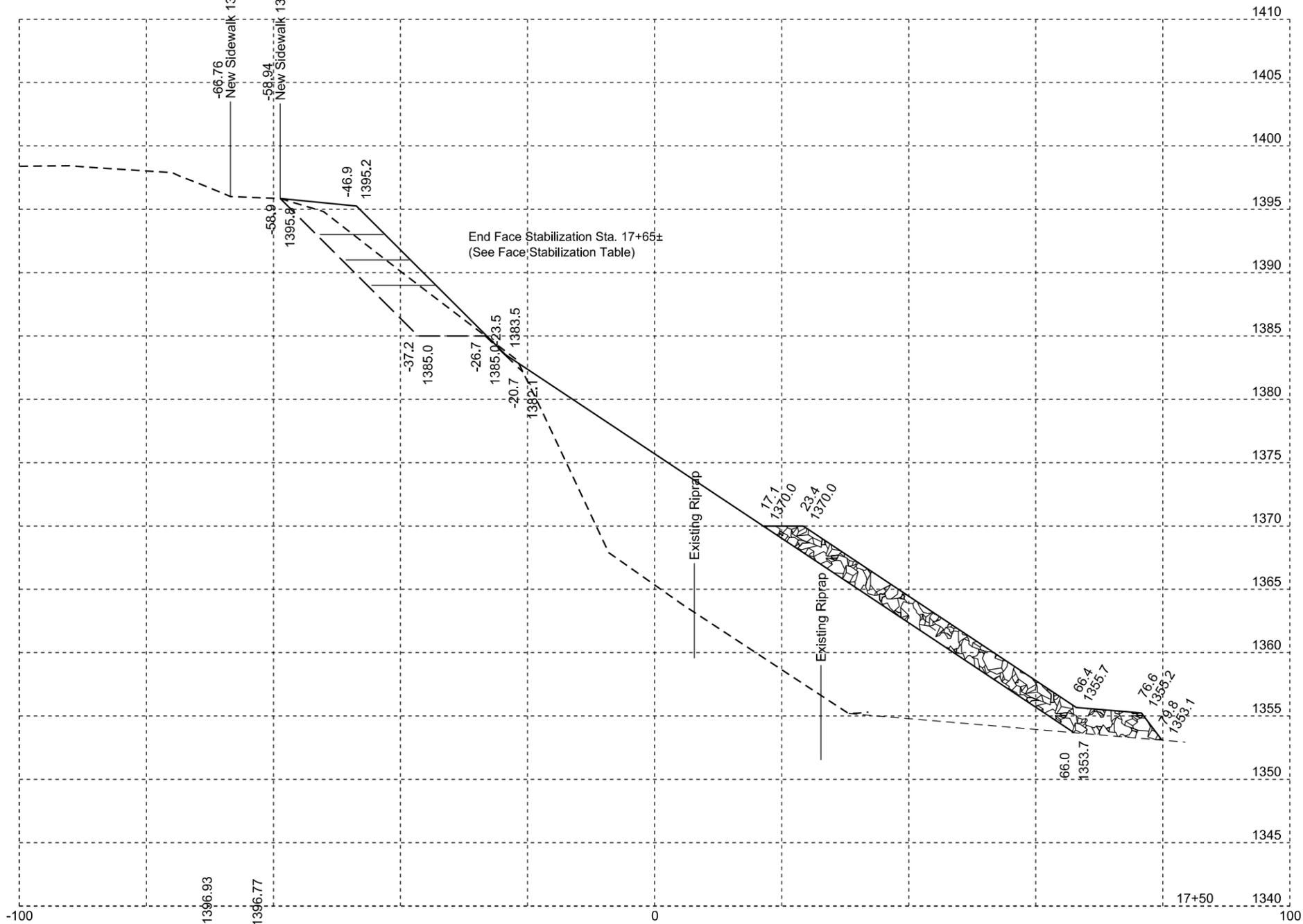
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	61	110



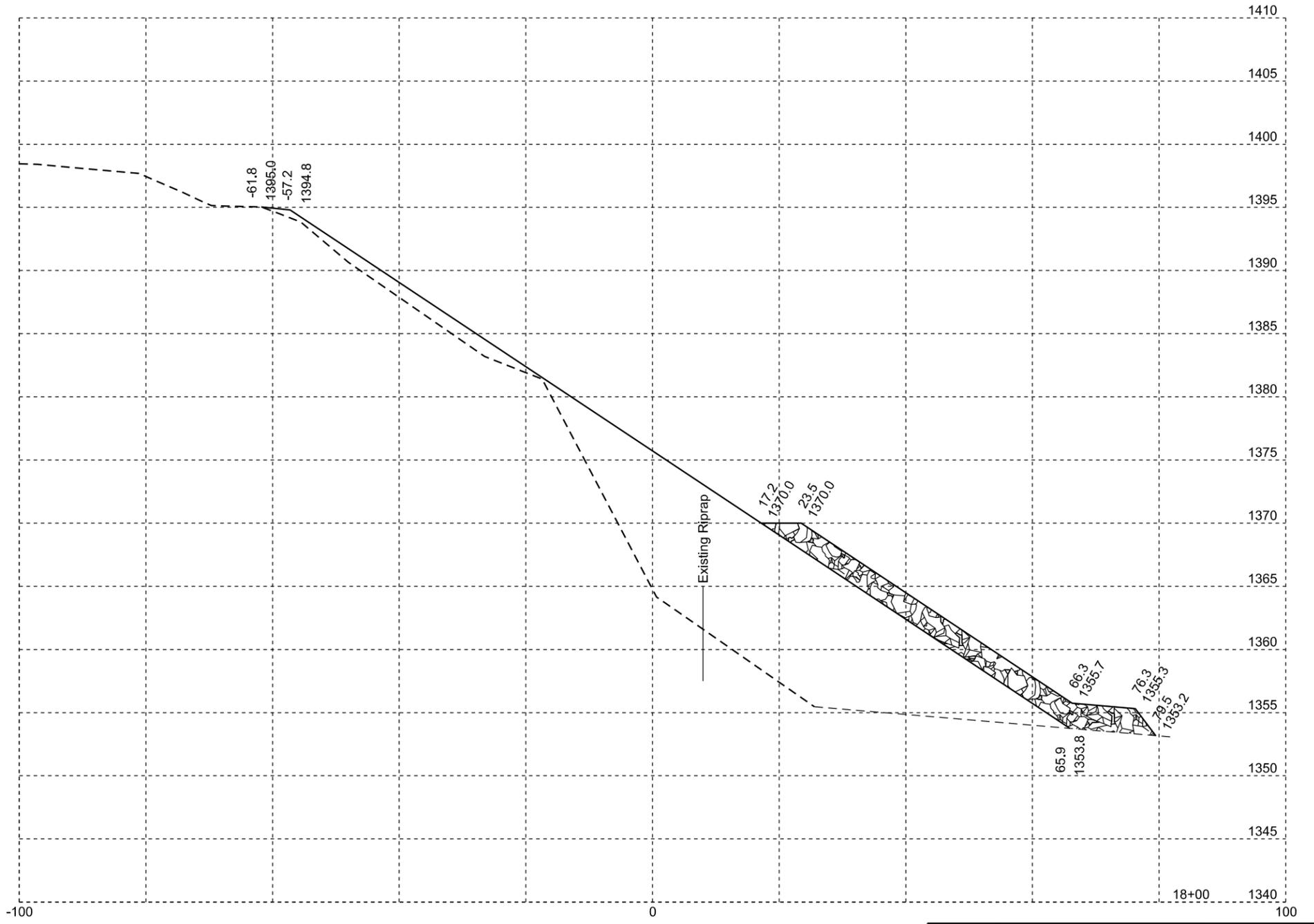
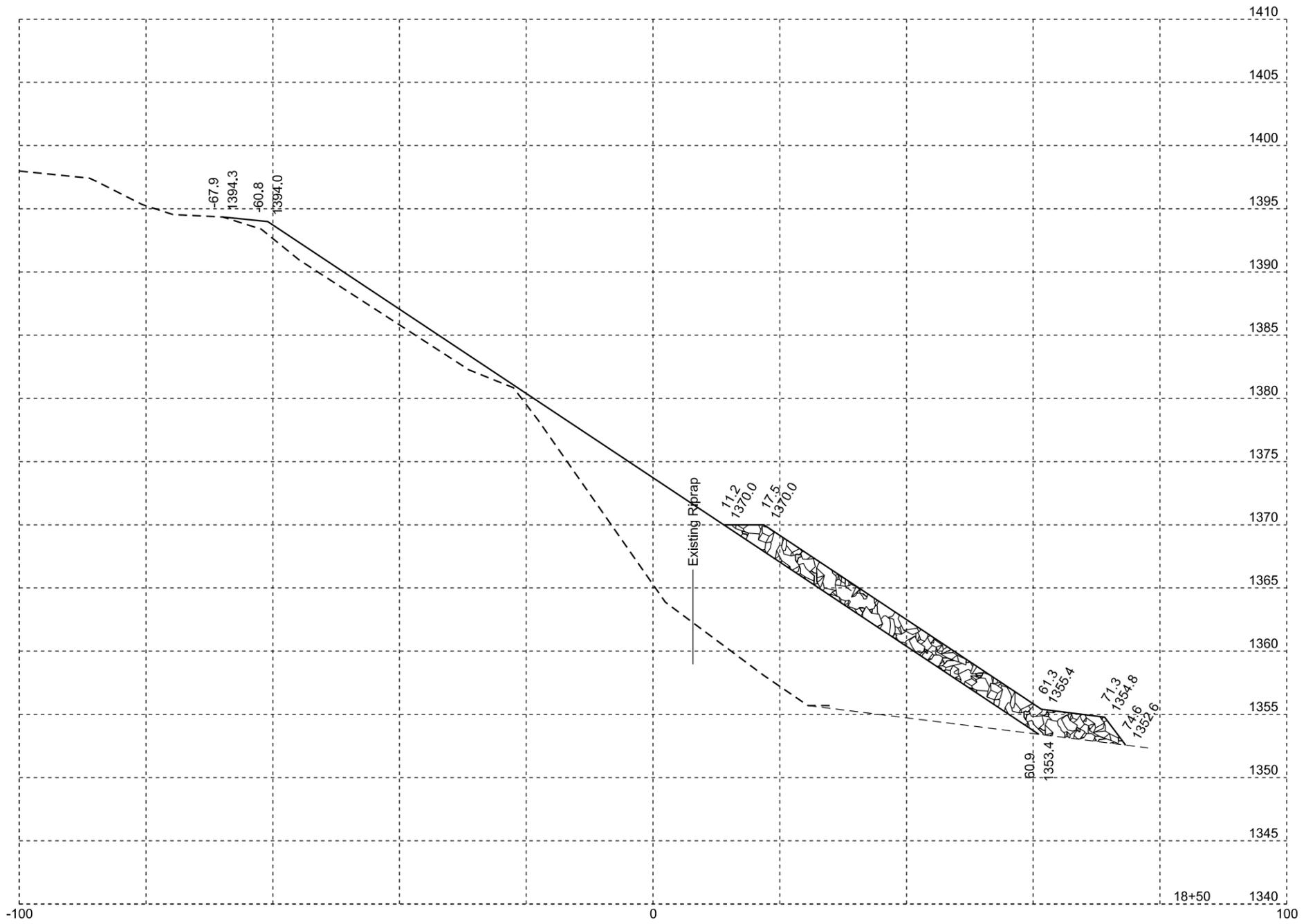
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	62	110



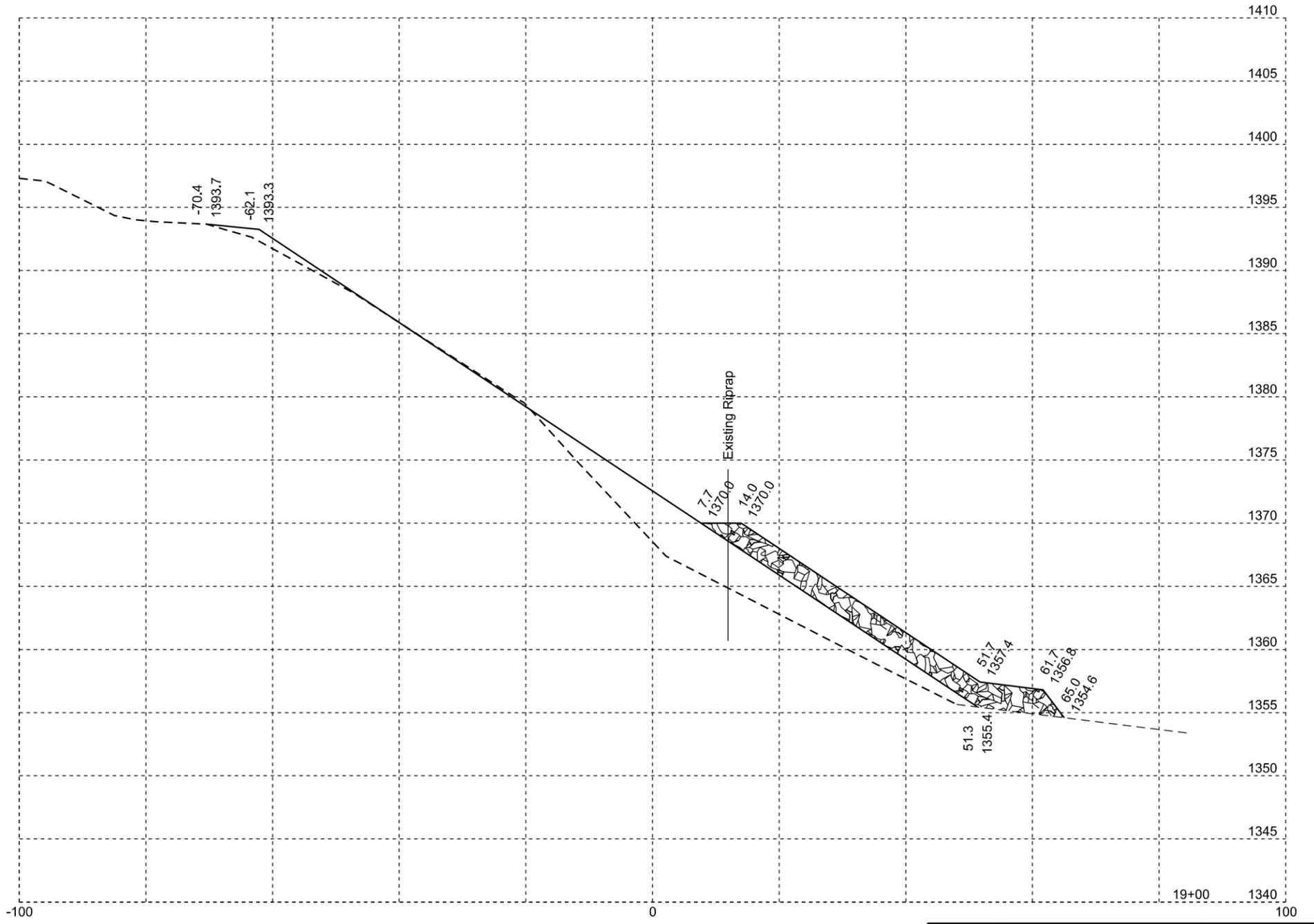
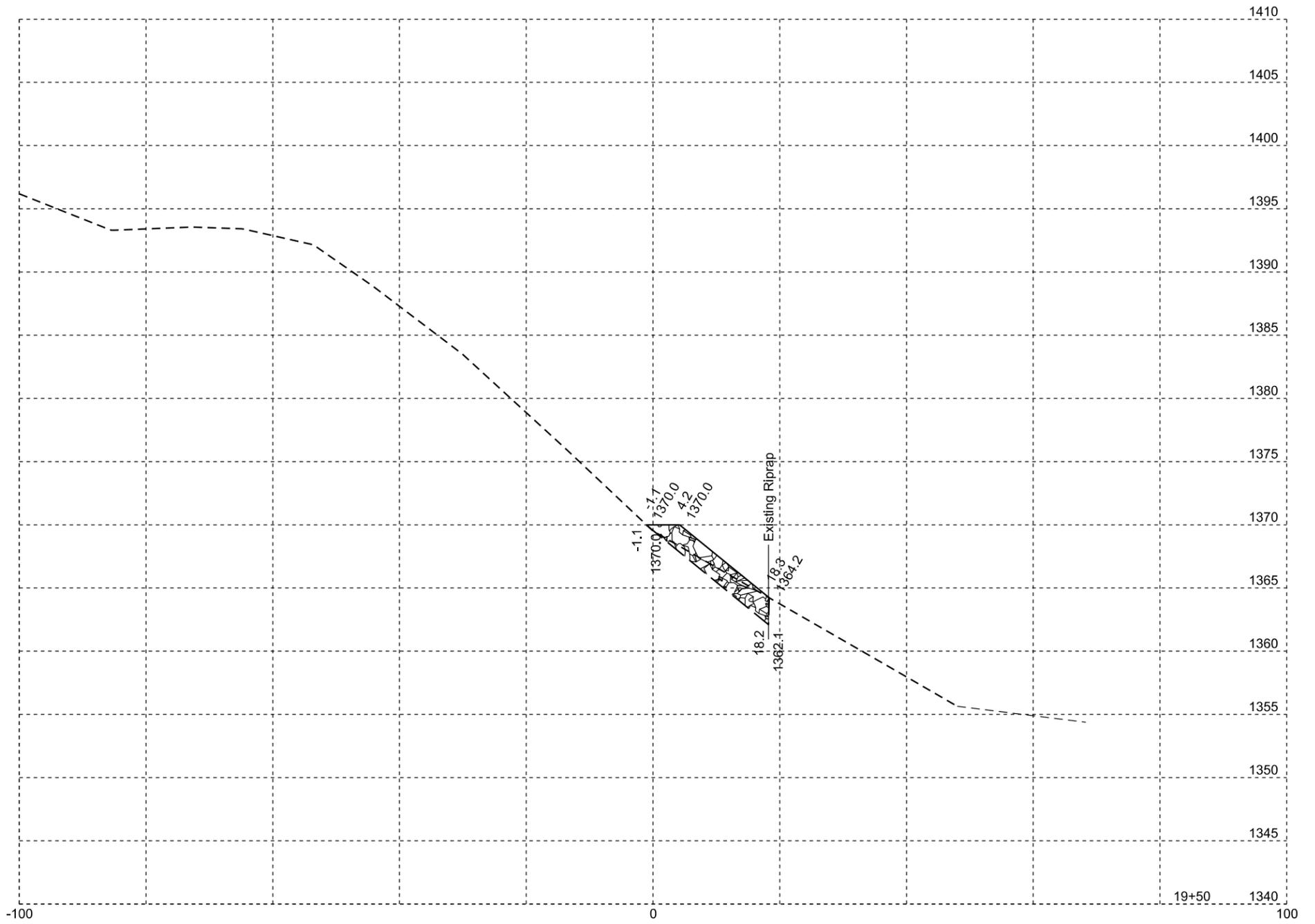
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08		
	63	110	



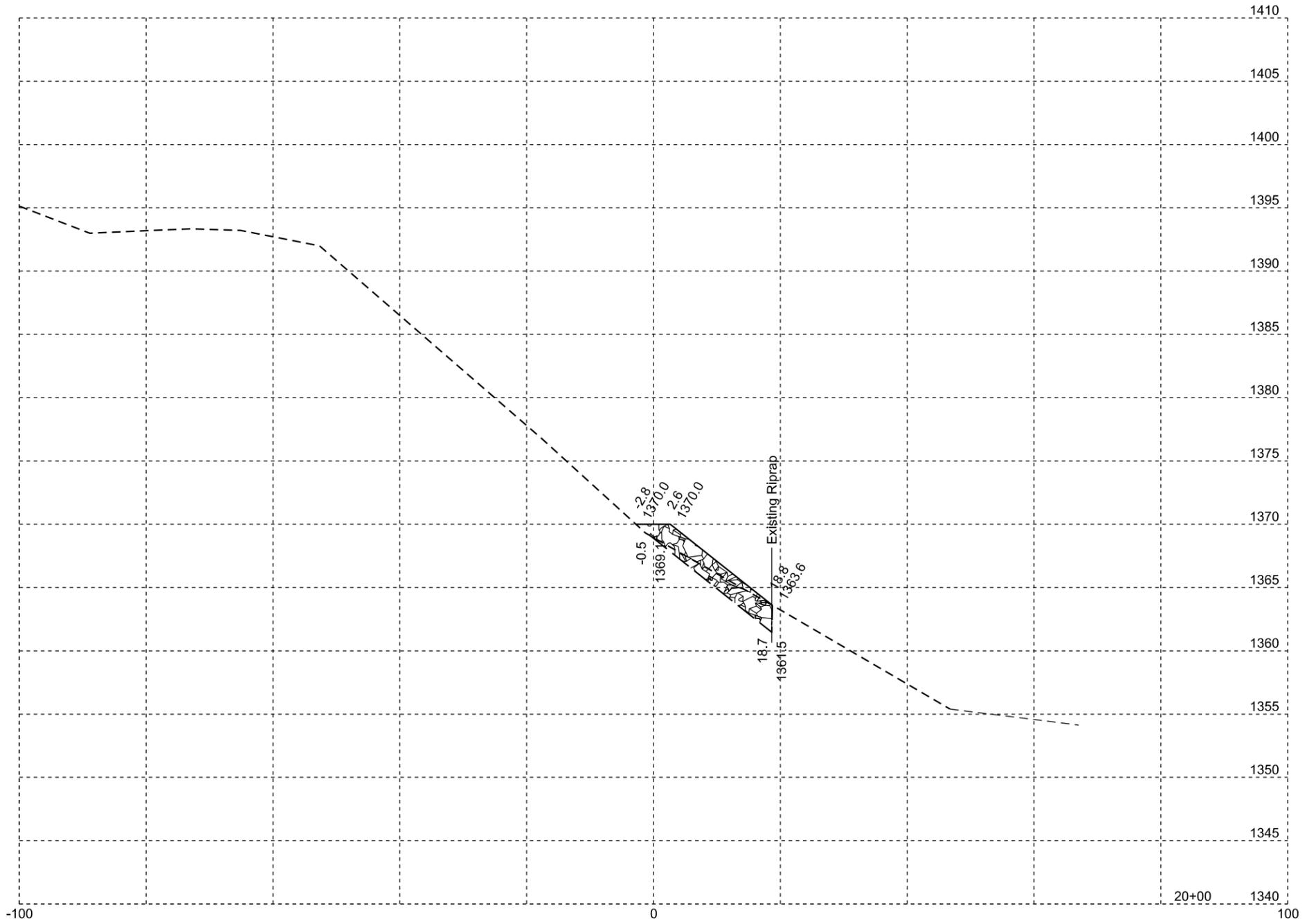
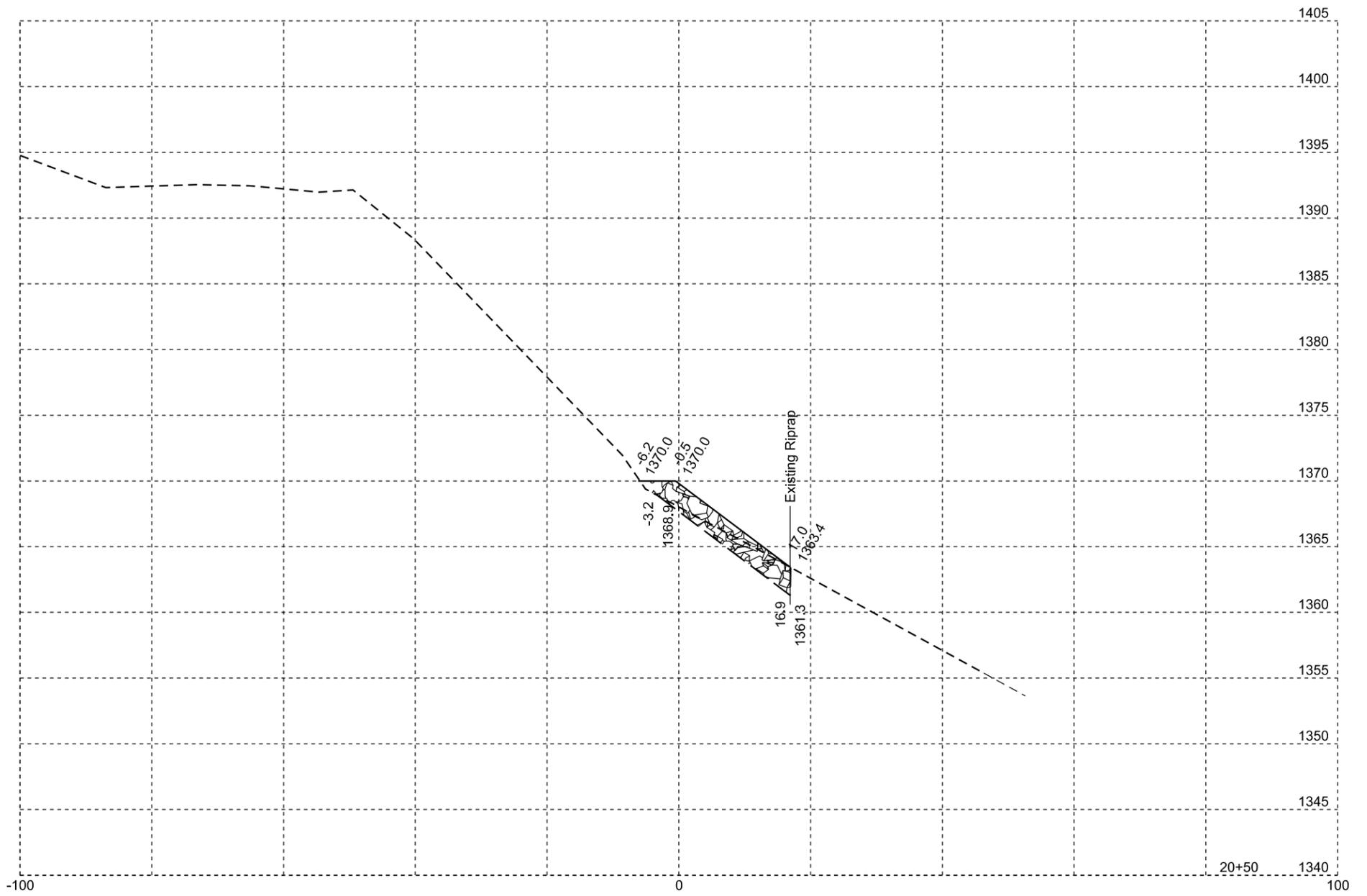
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	64	110



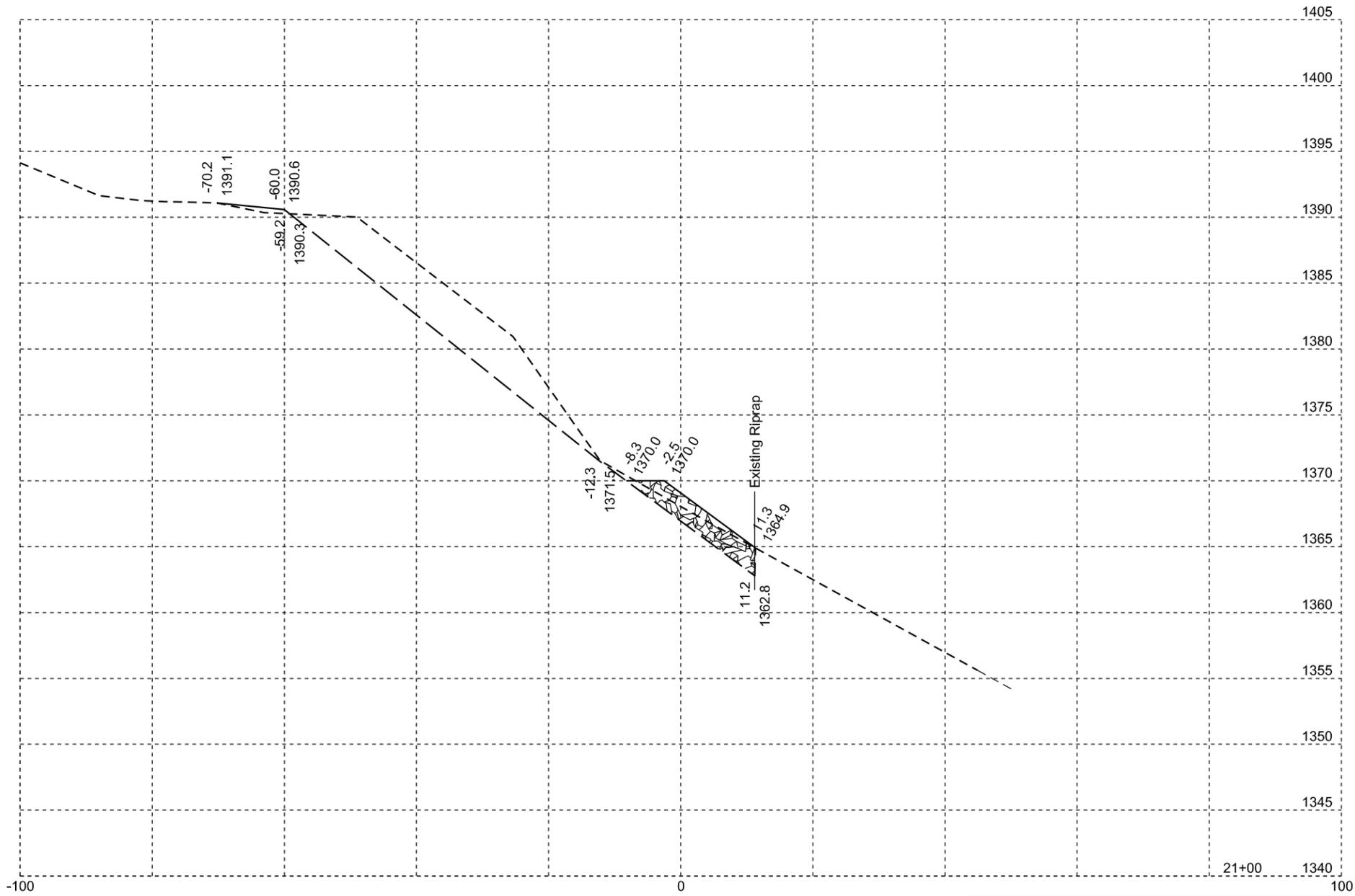
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	65	110



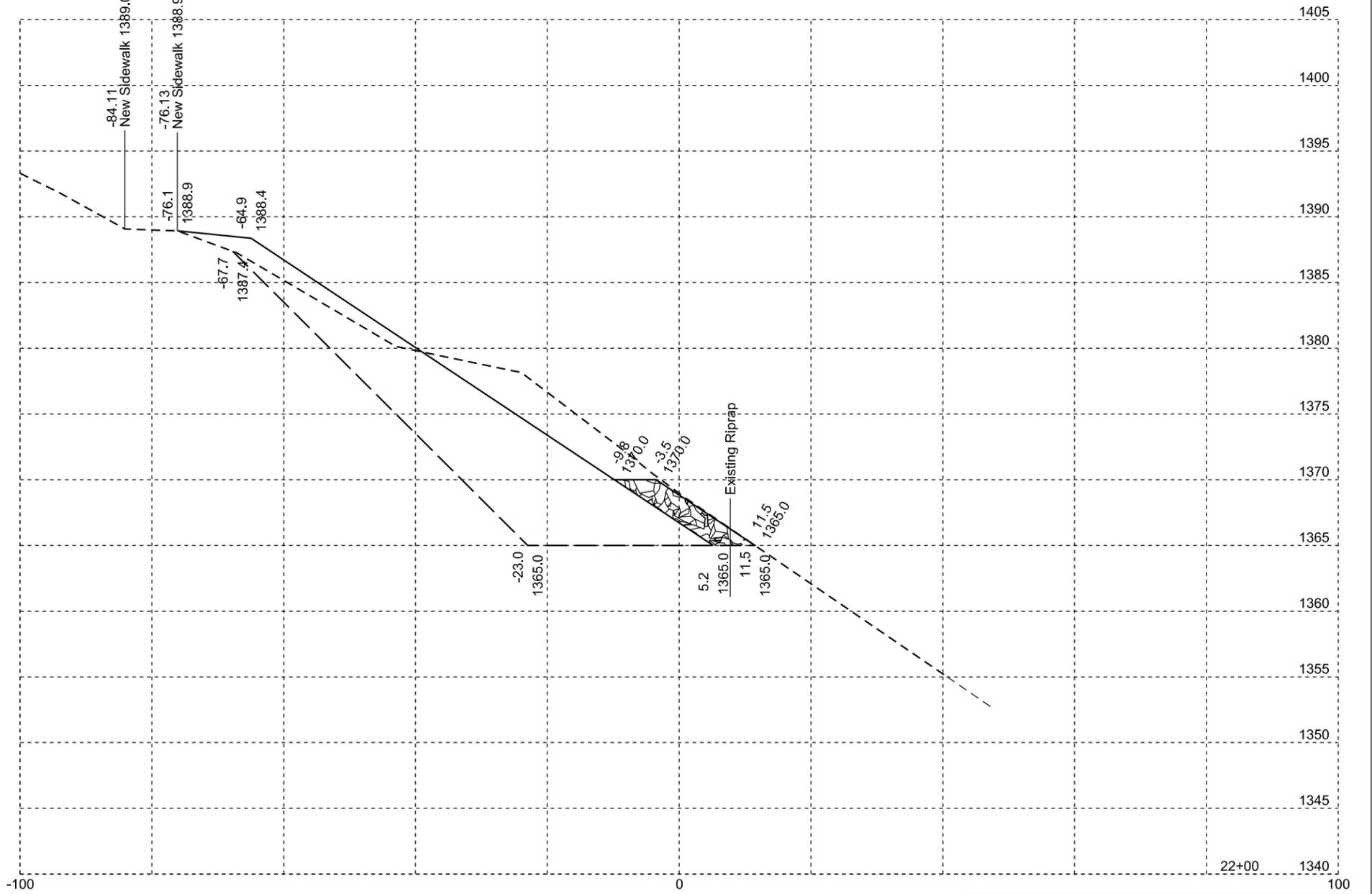
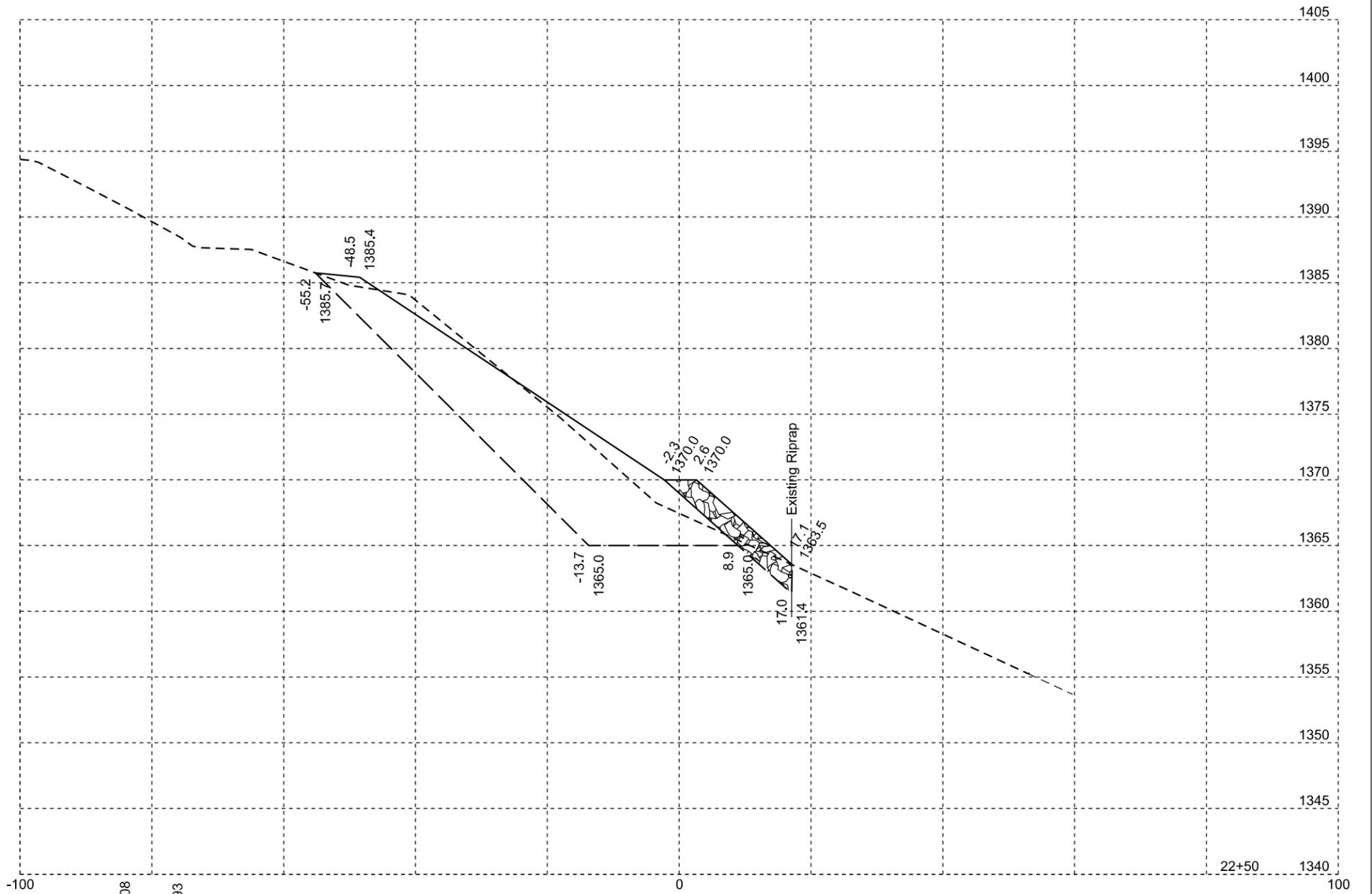
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	66	110



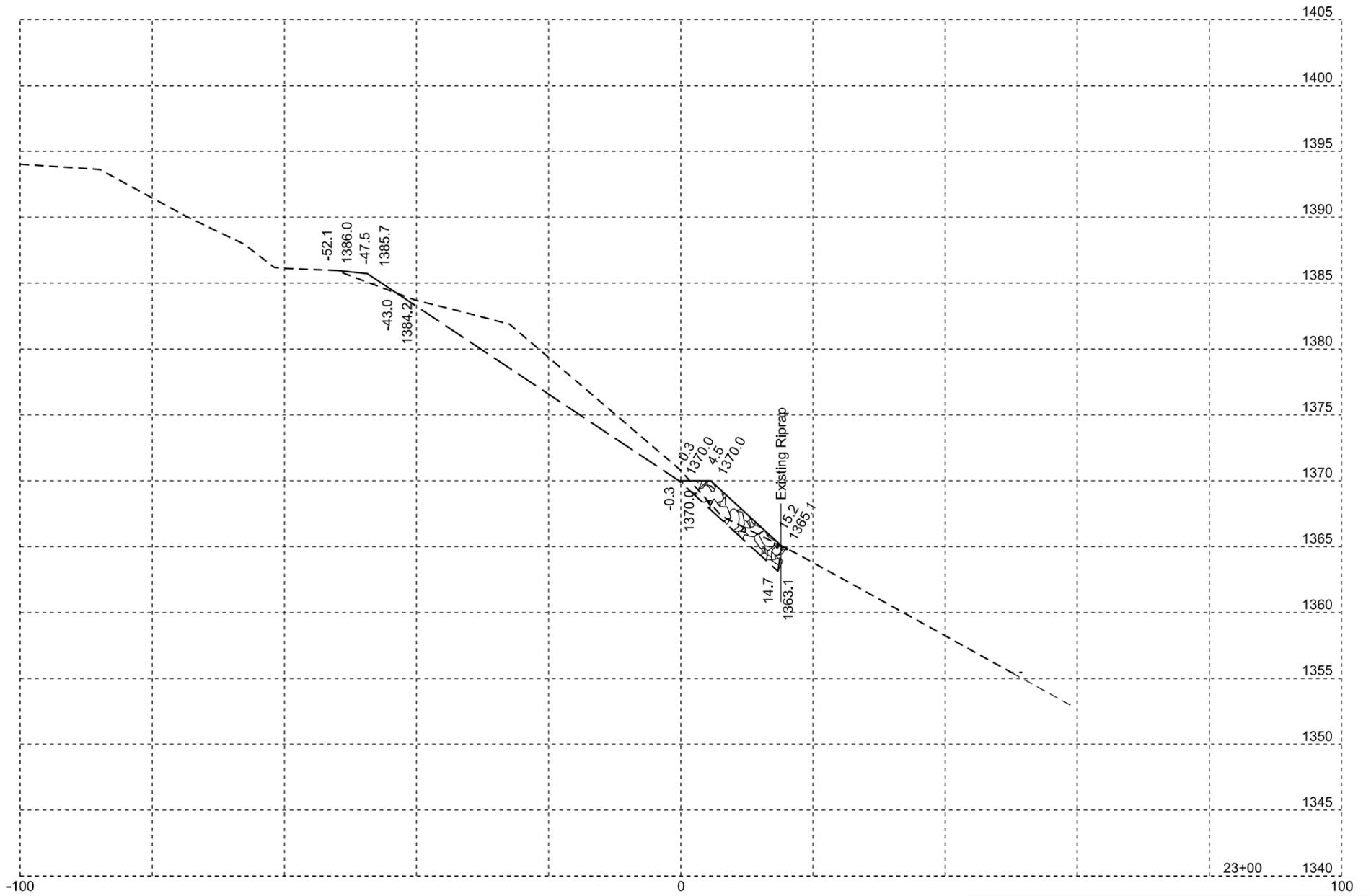
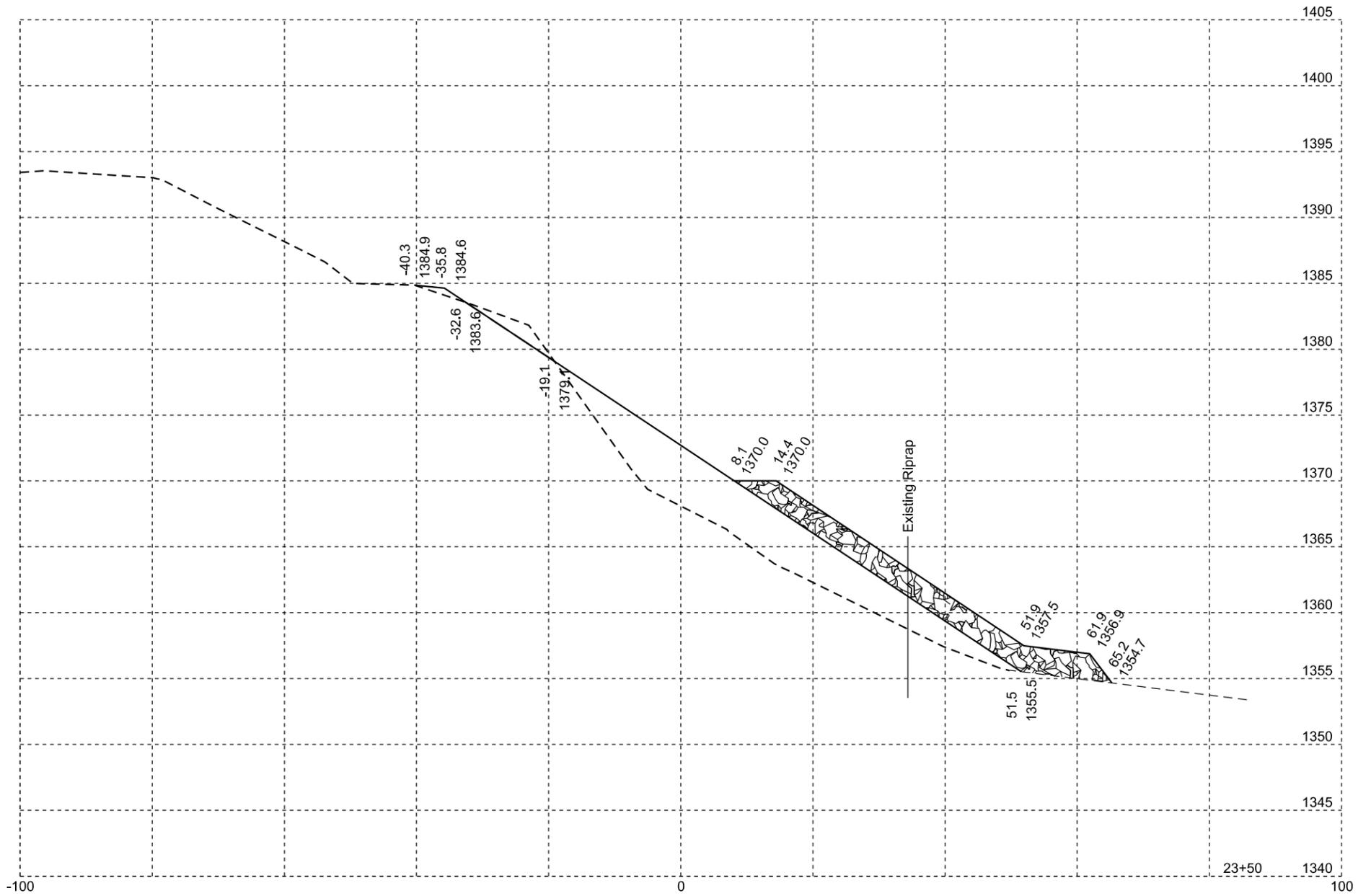
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	67	110



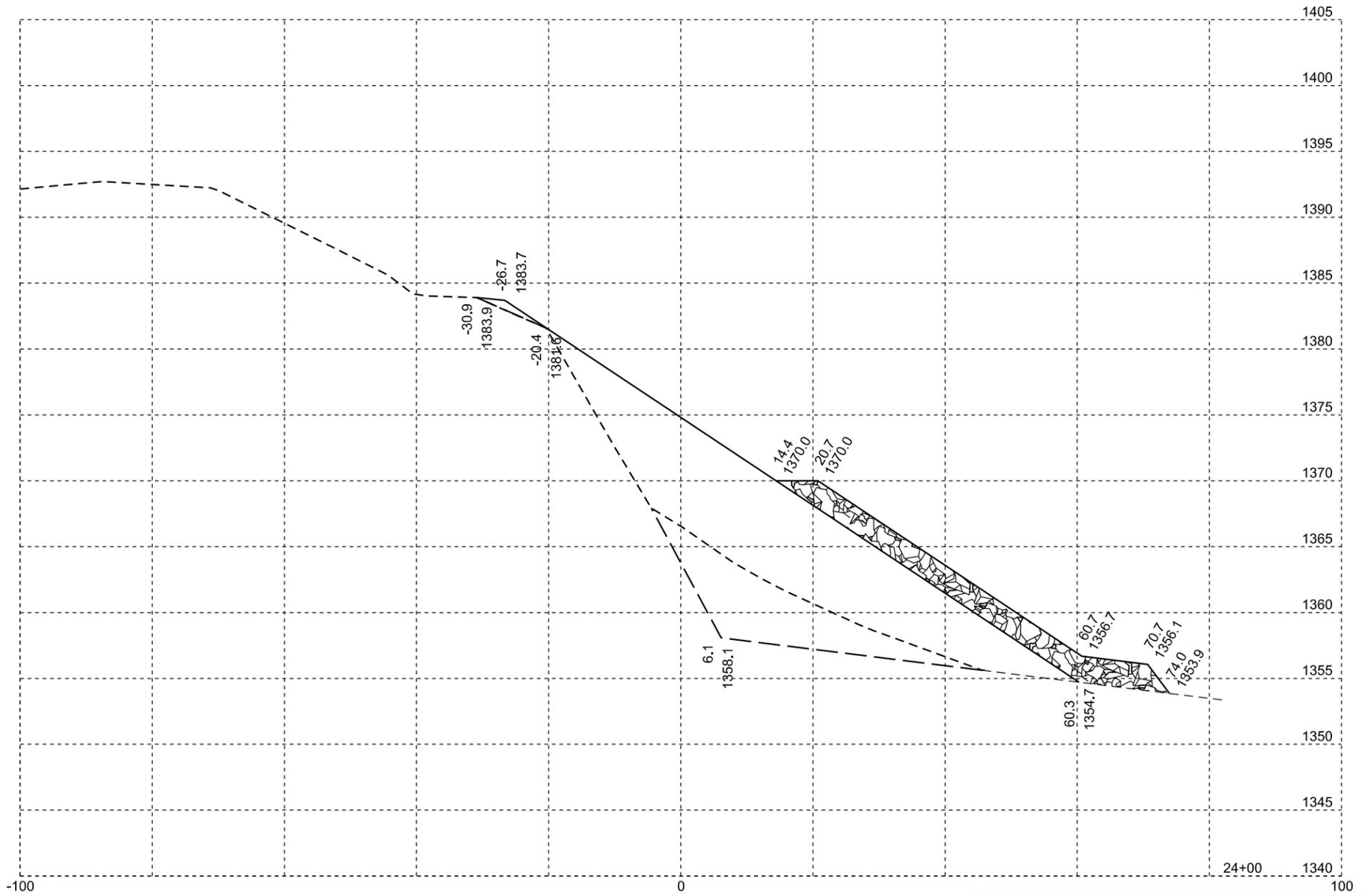
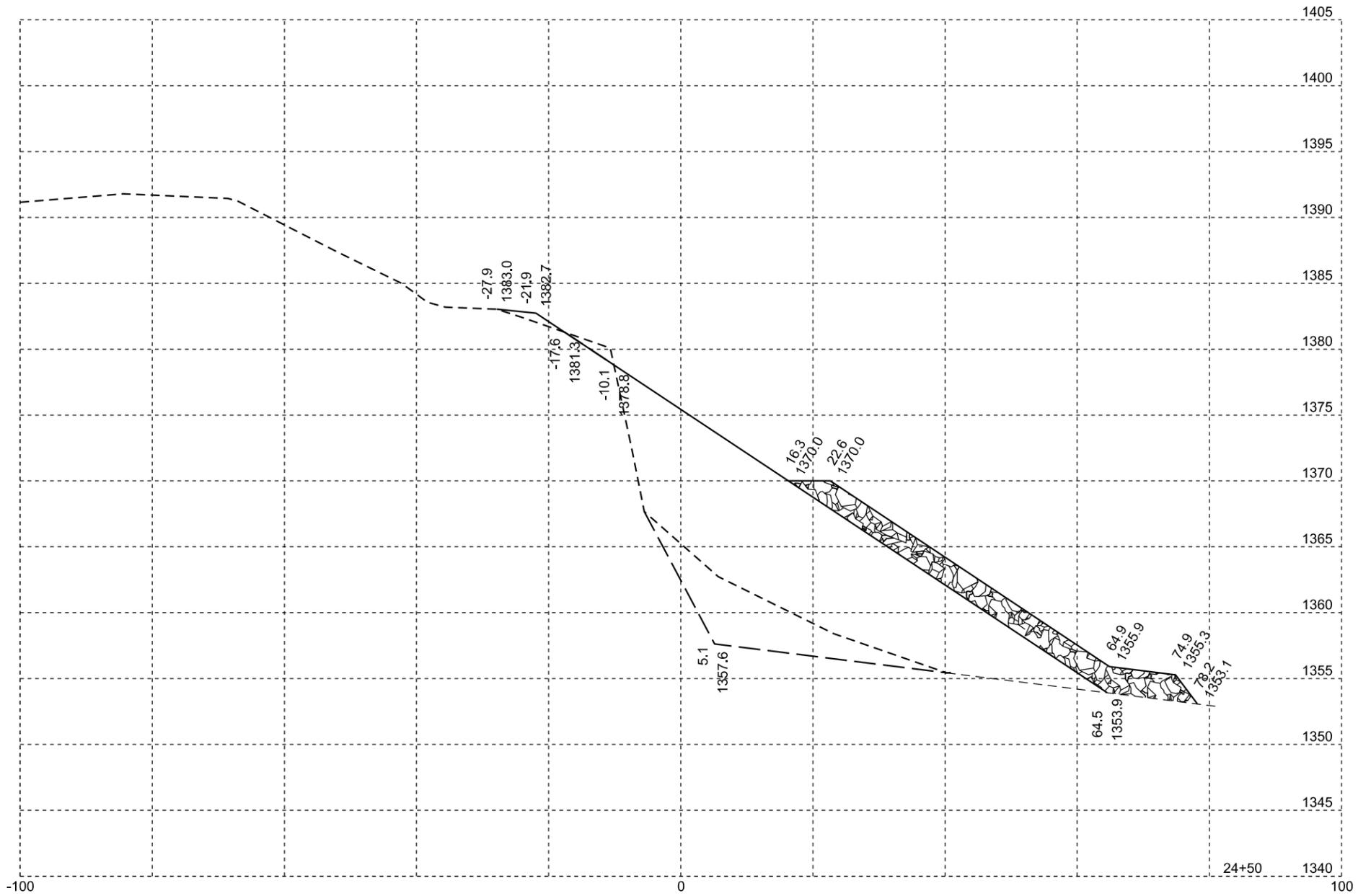
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	68	110



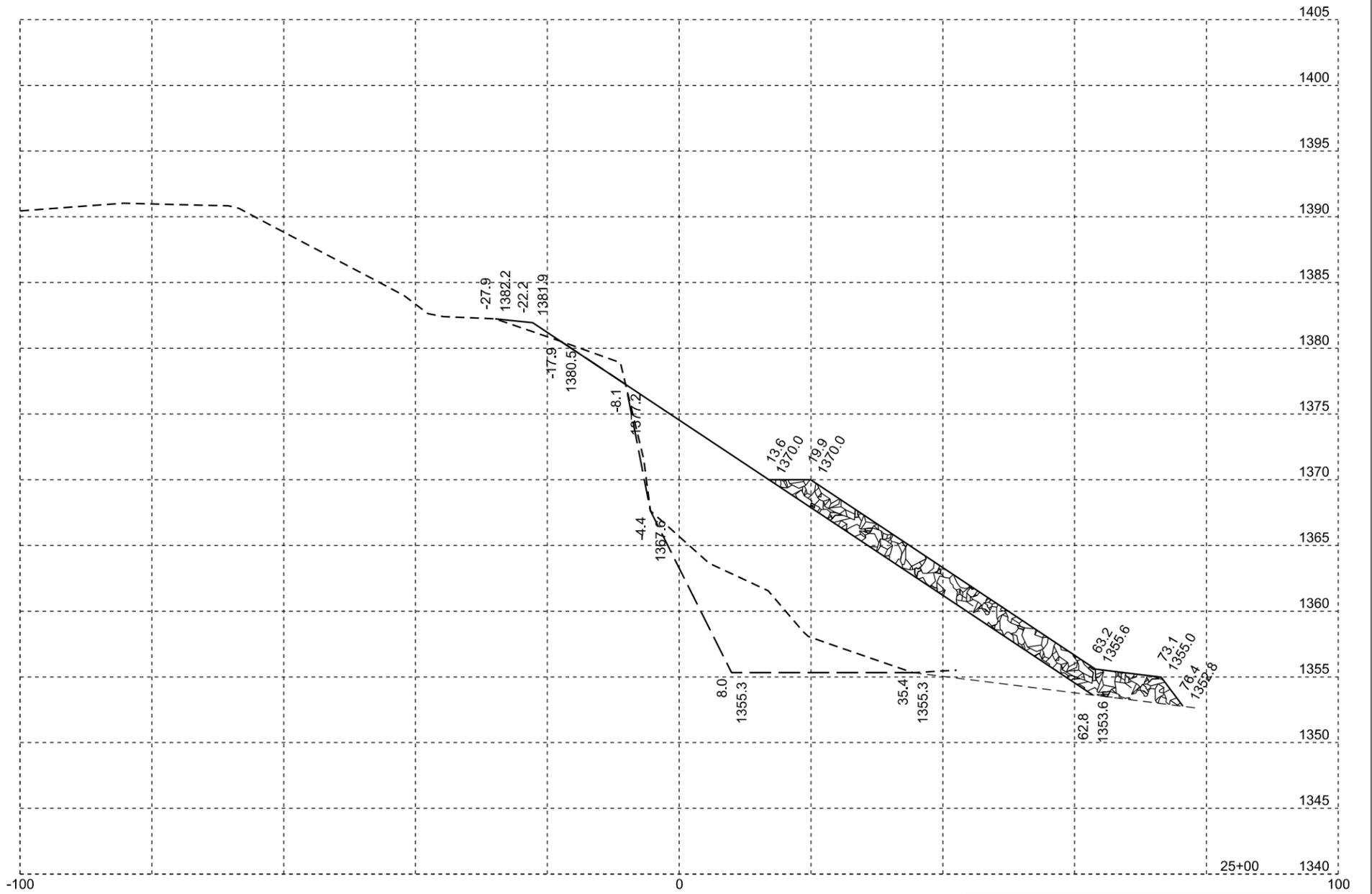
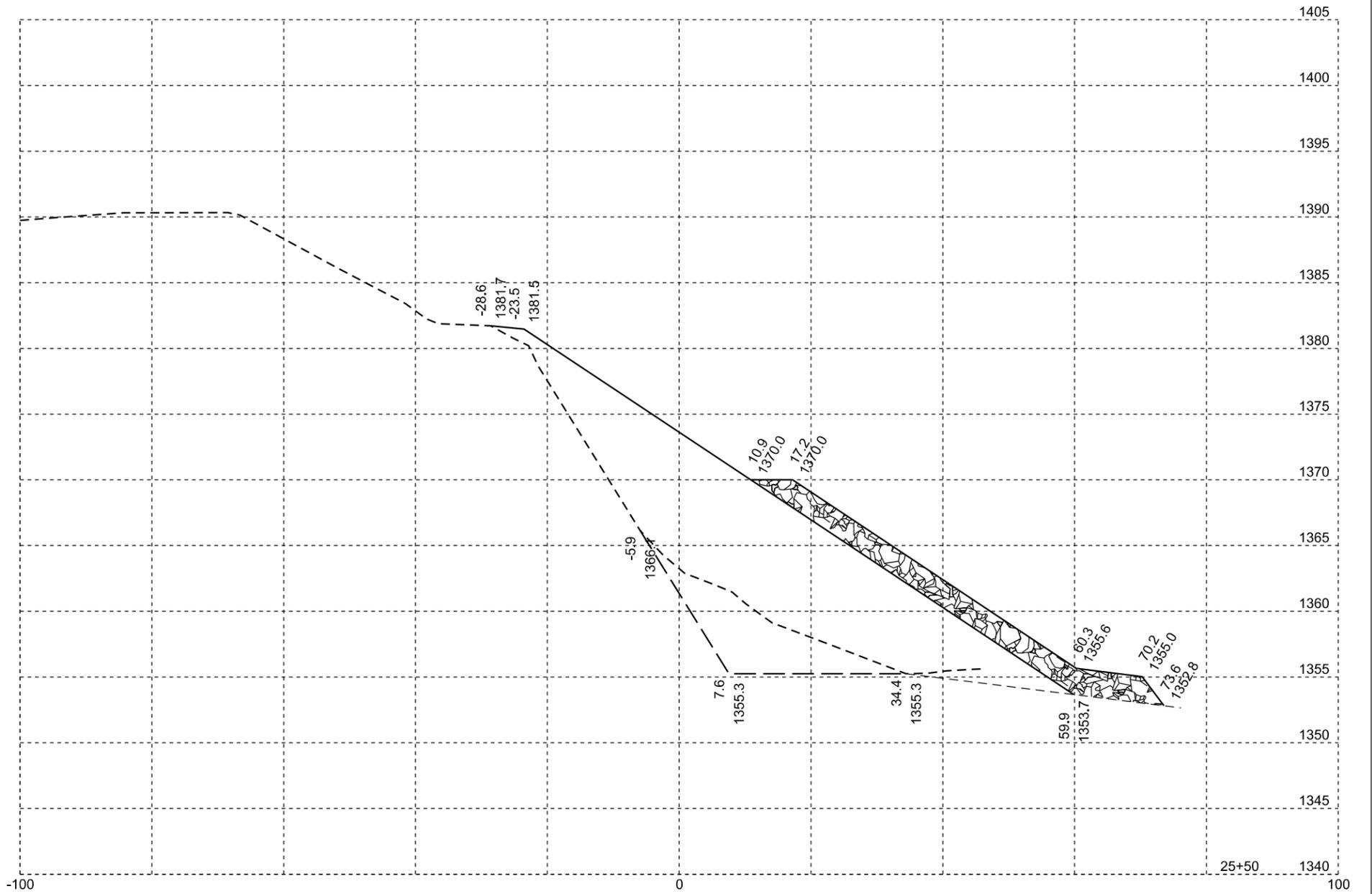
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	69	110



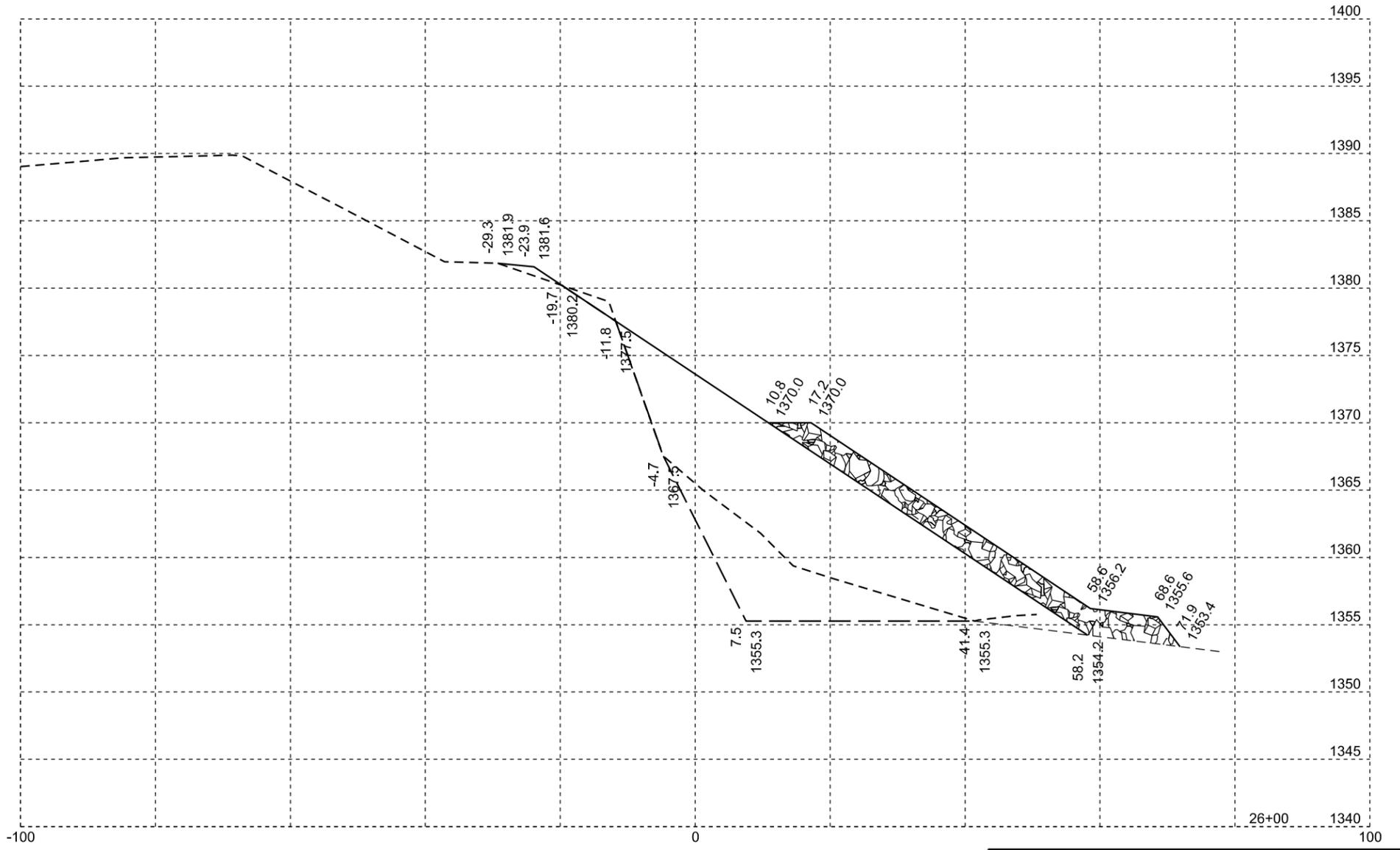
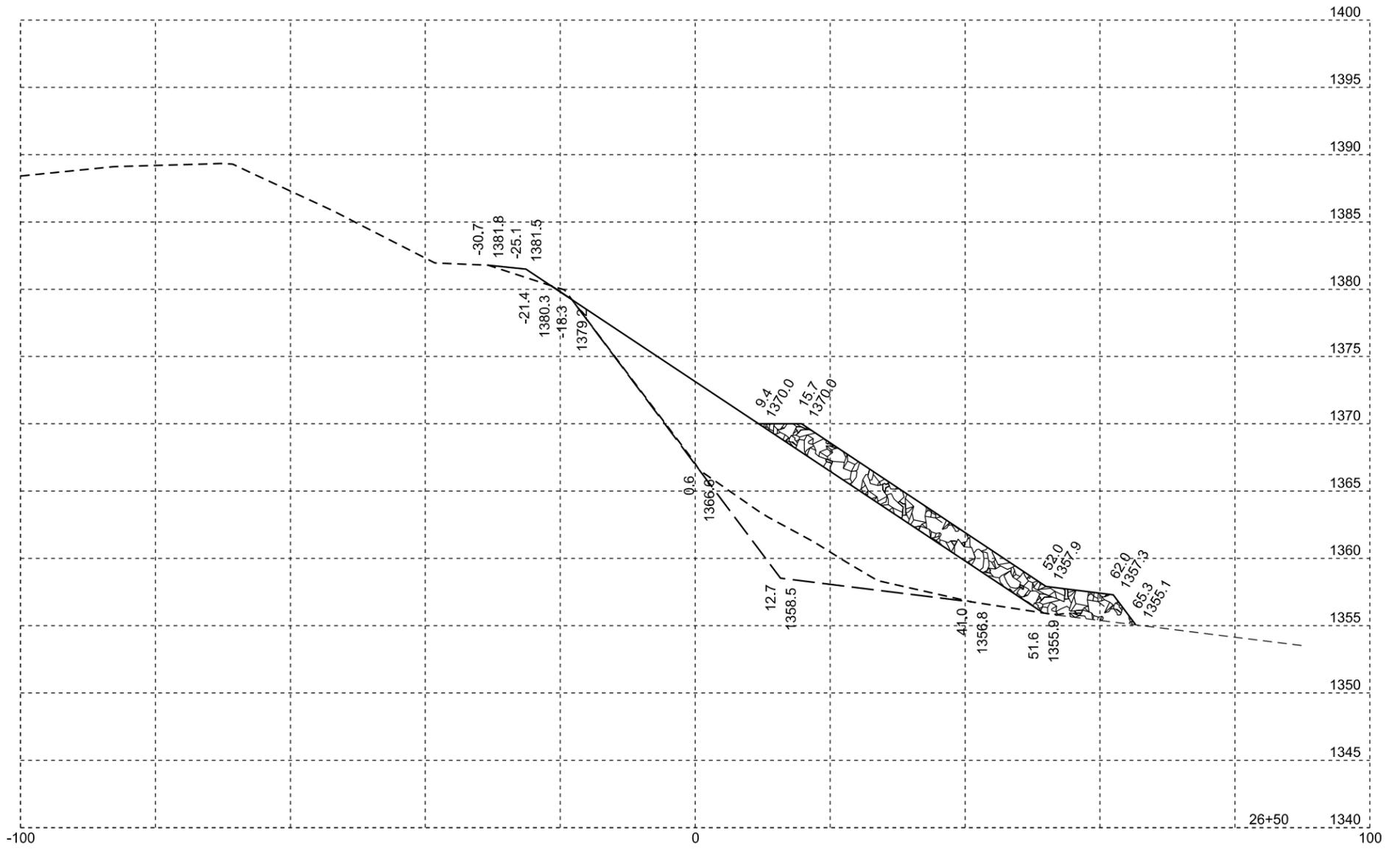
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	70	110



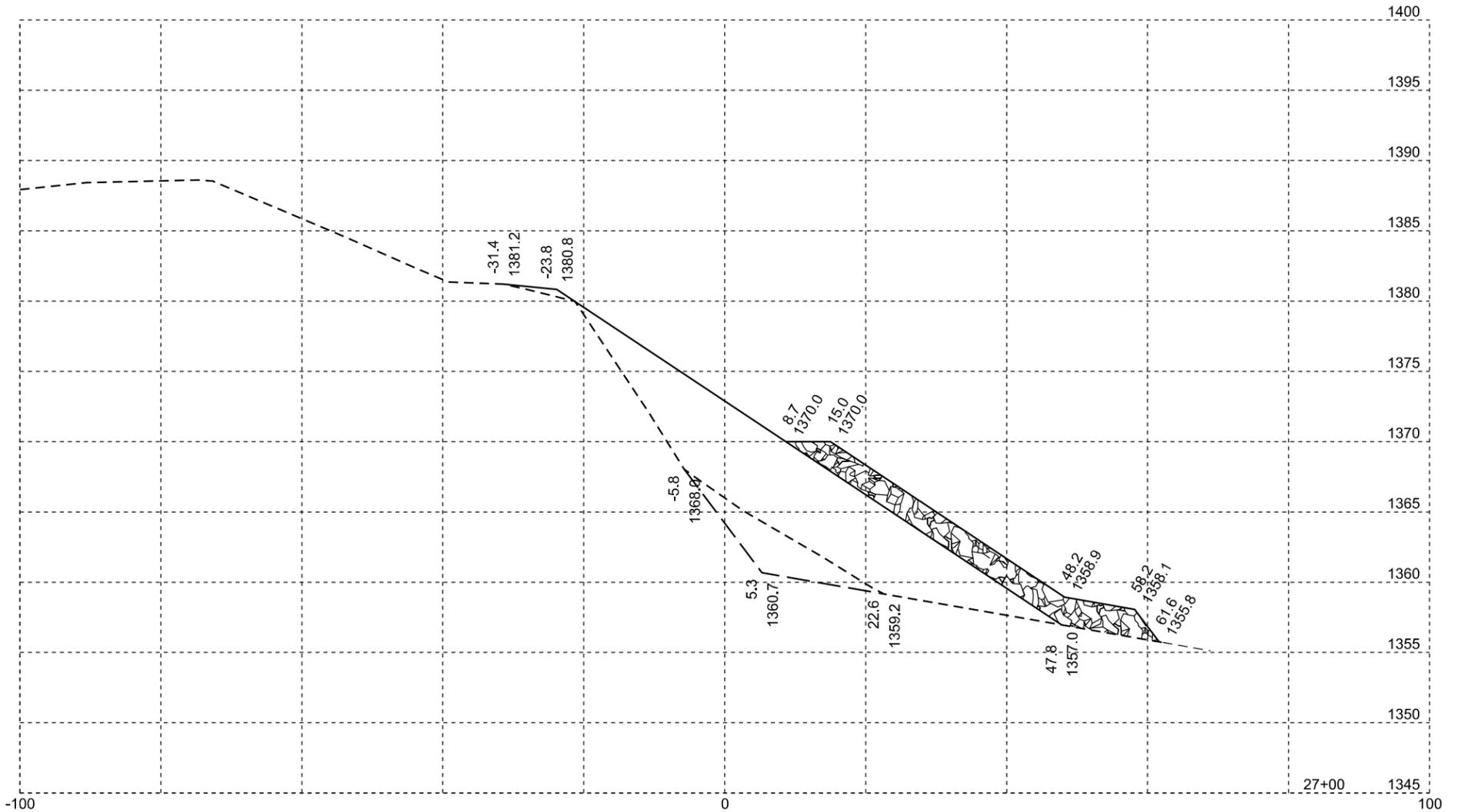
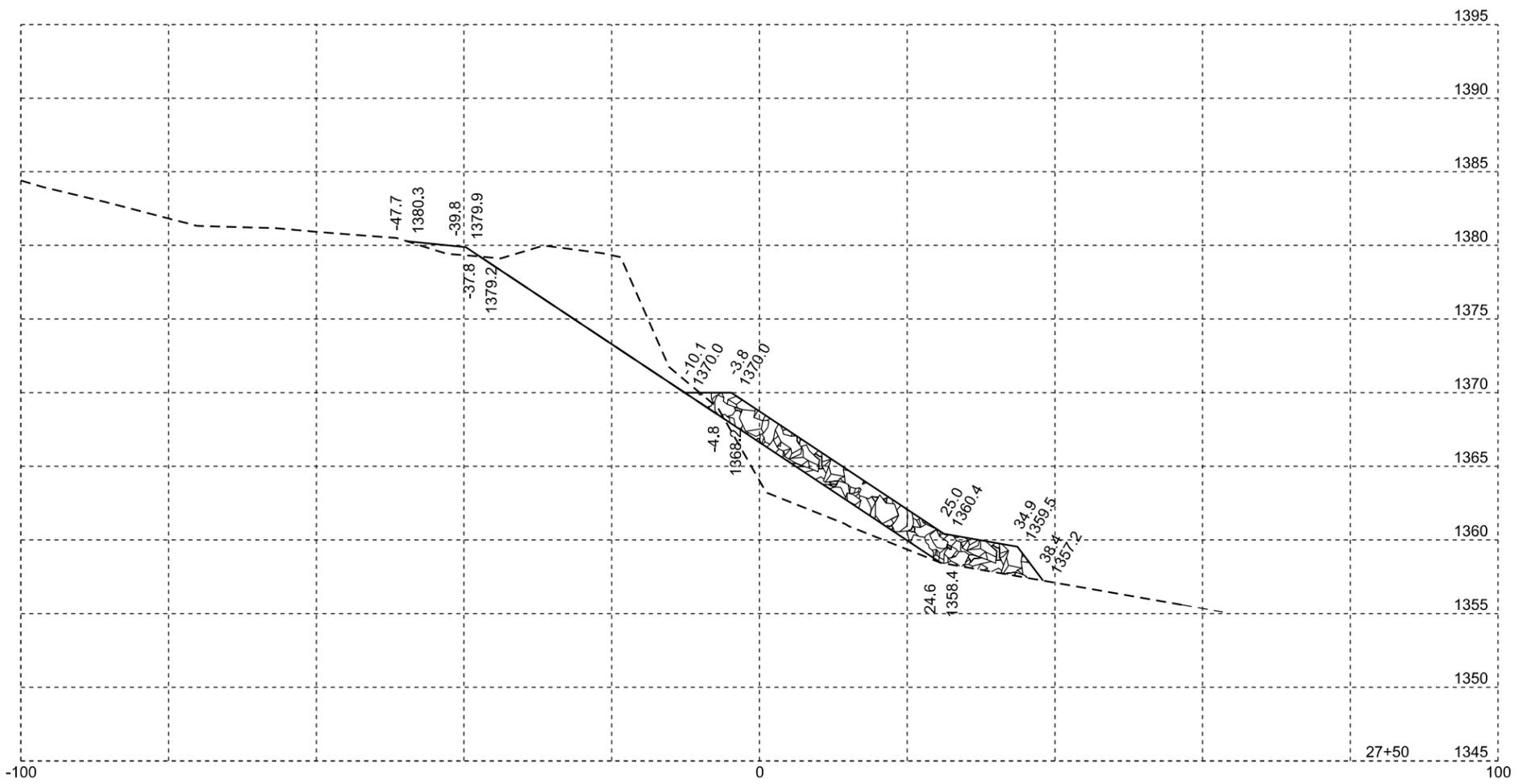
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	71	110



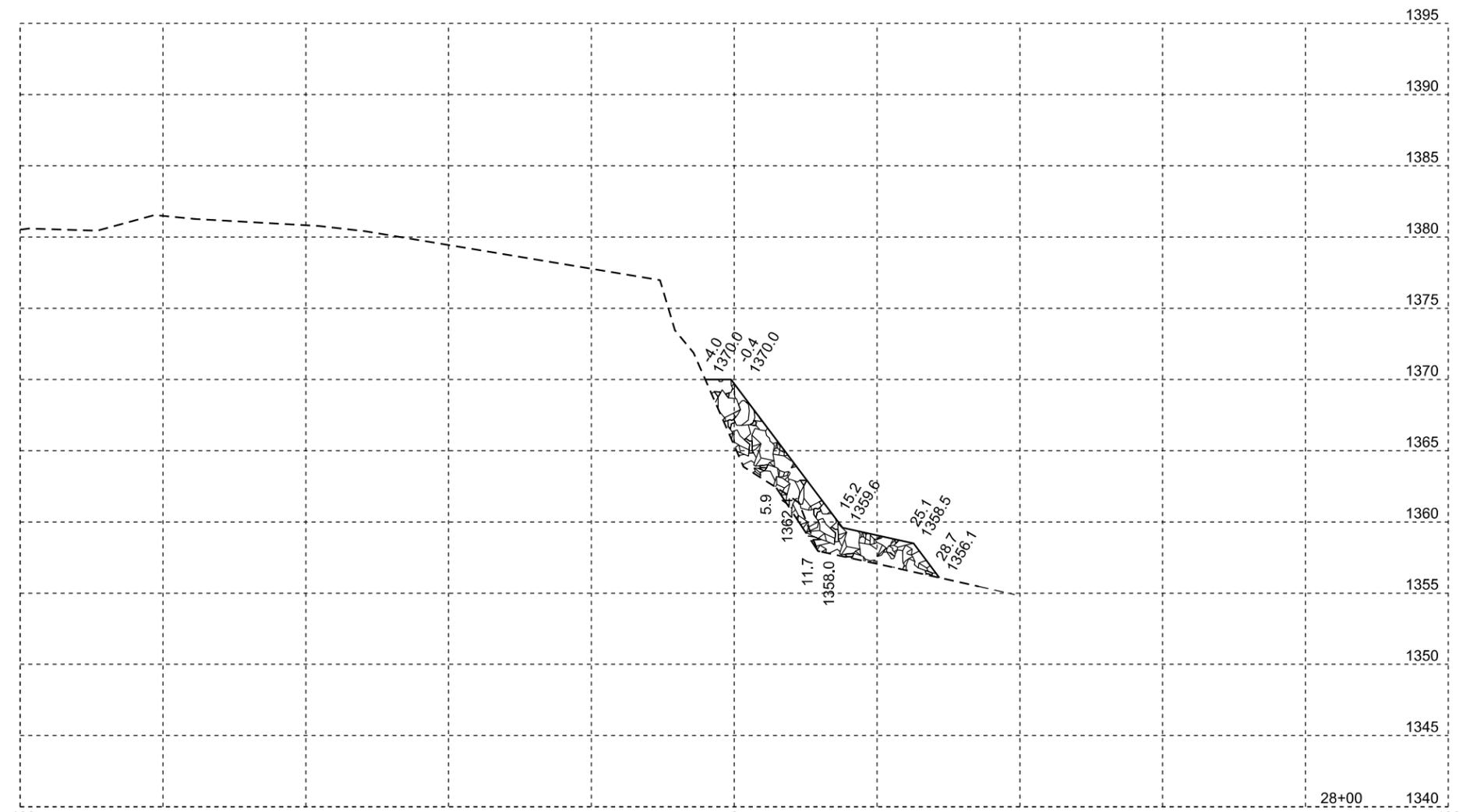
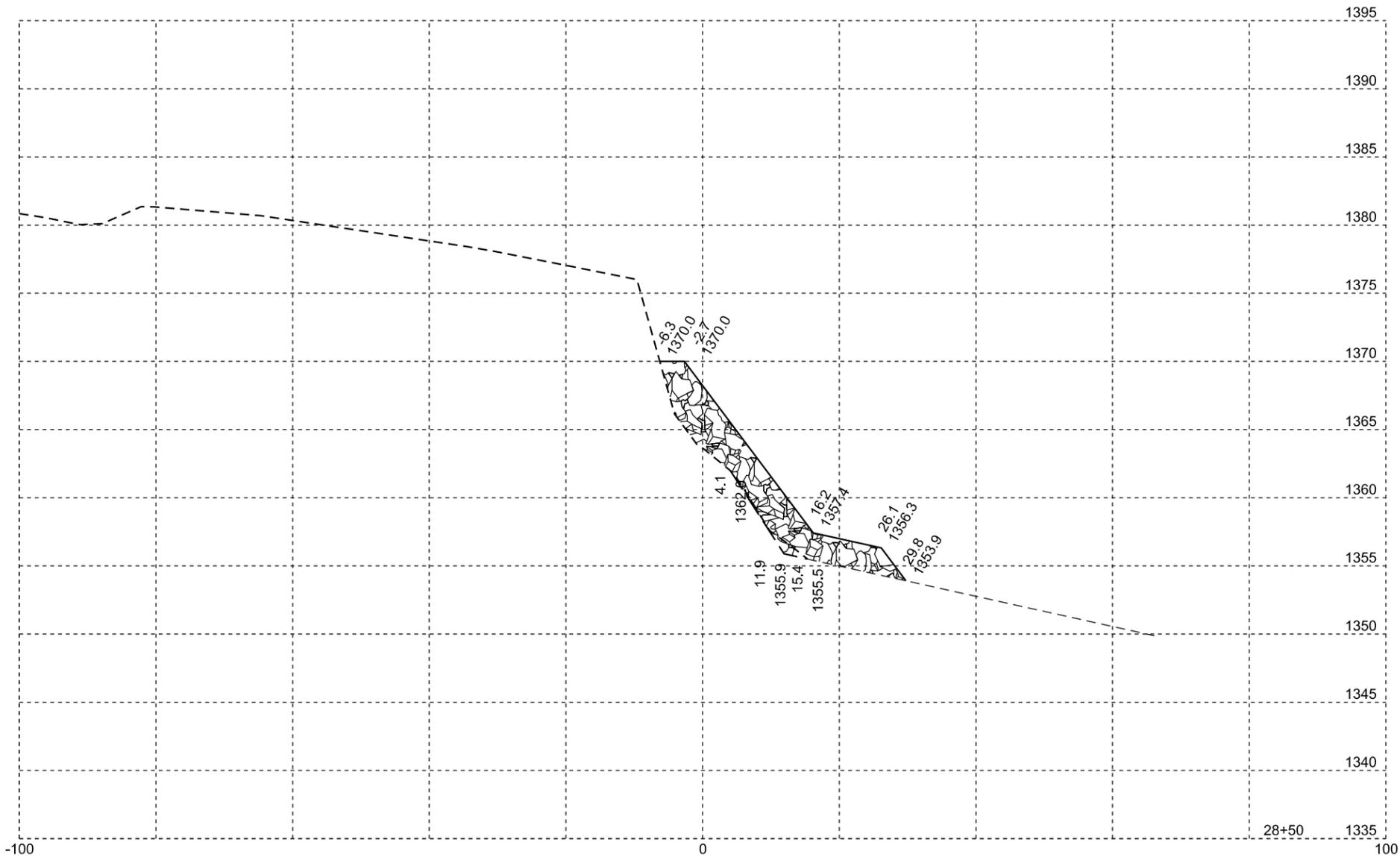
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	72	110



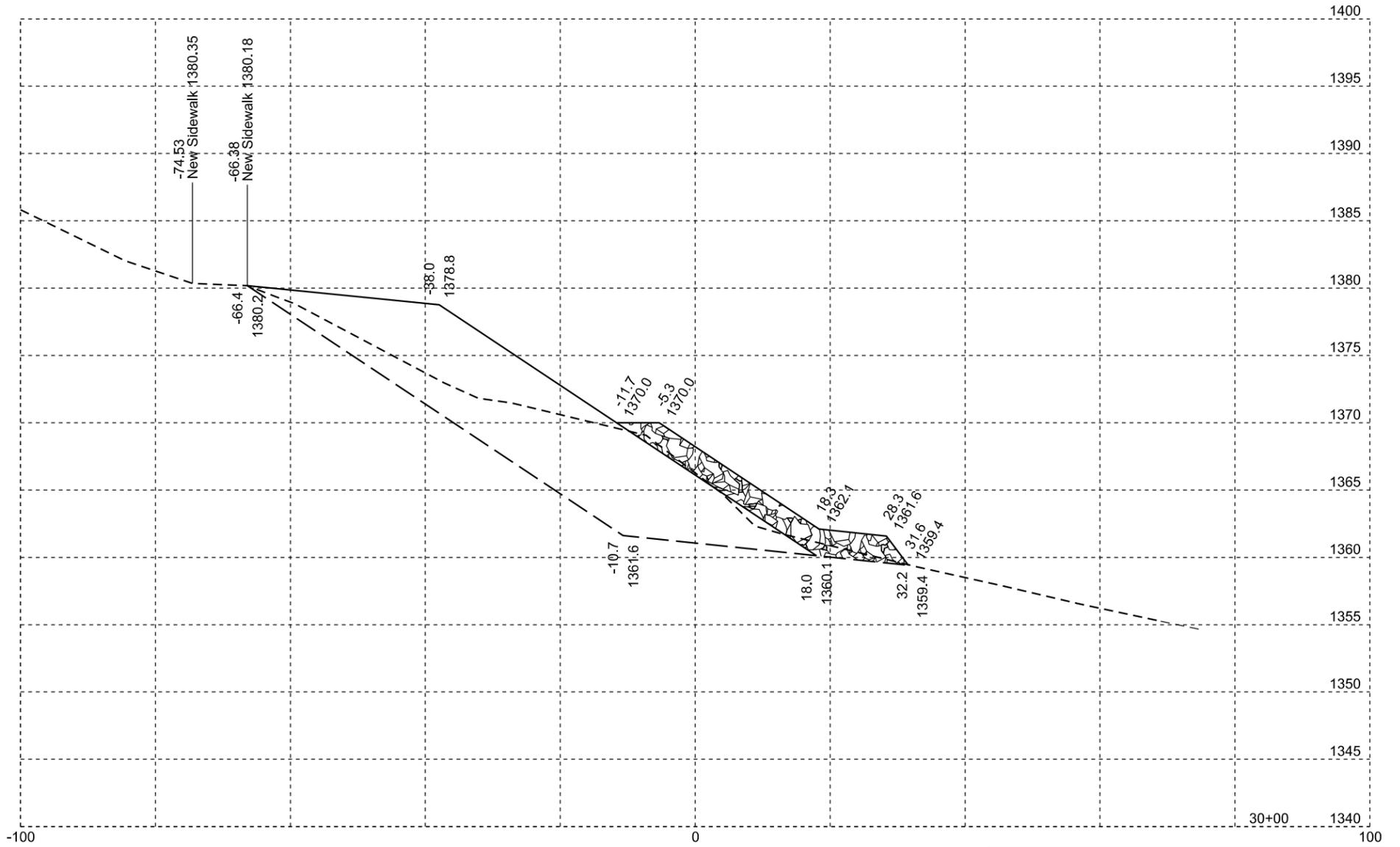
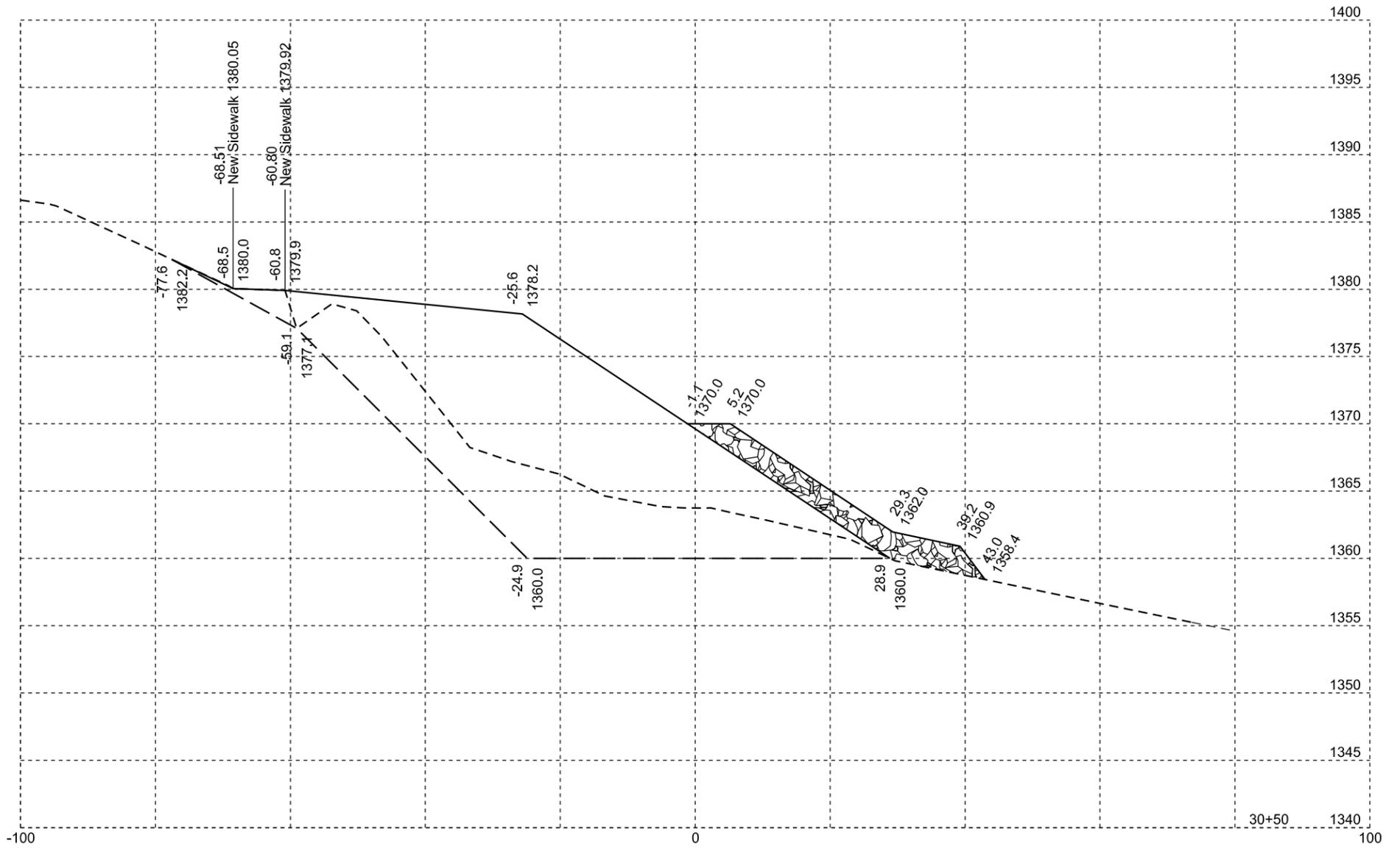
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	73	110



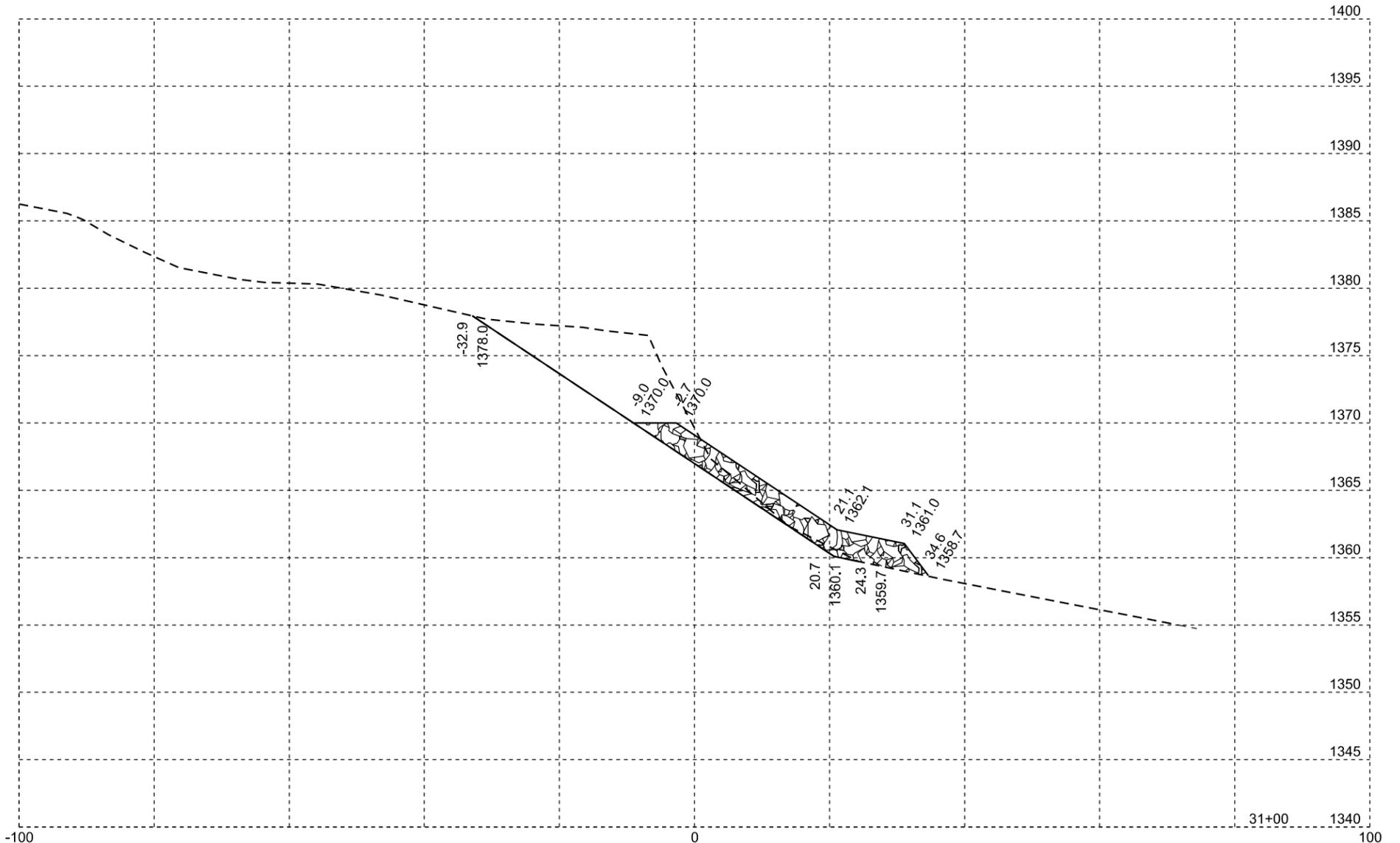
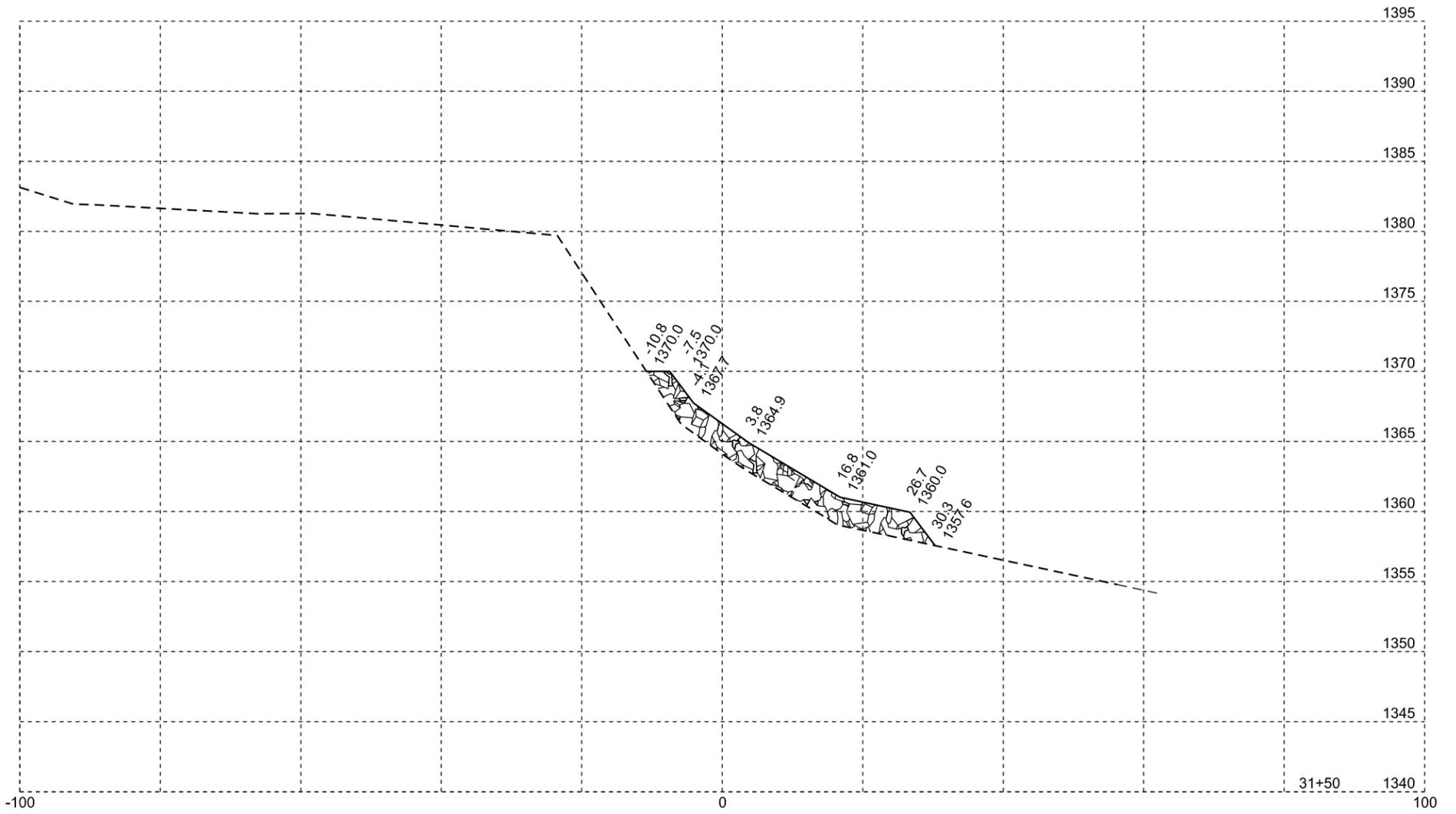
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	74	110



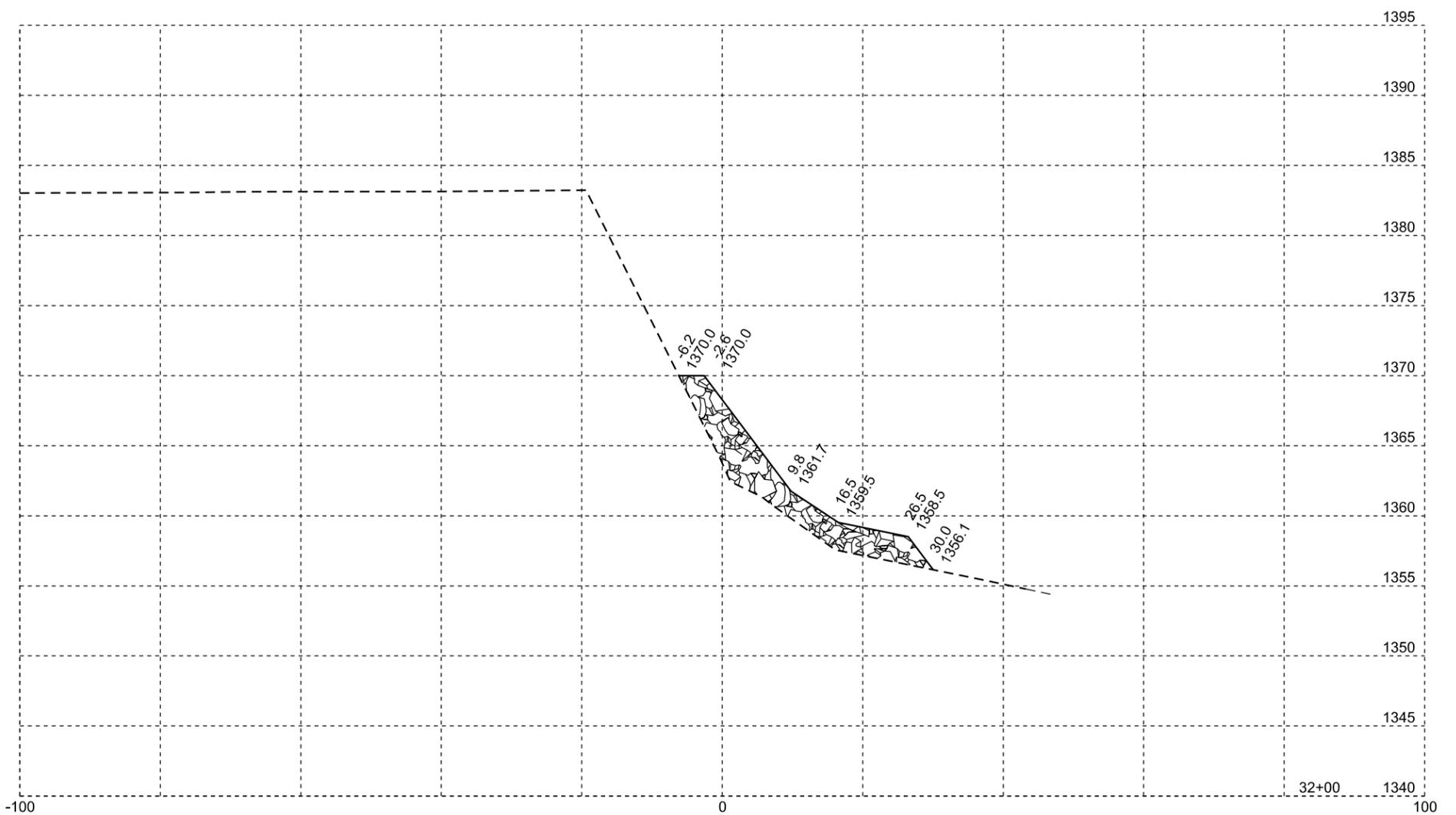
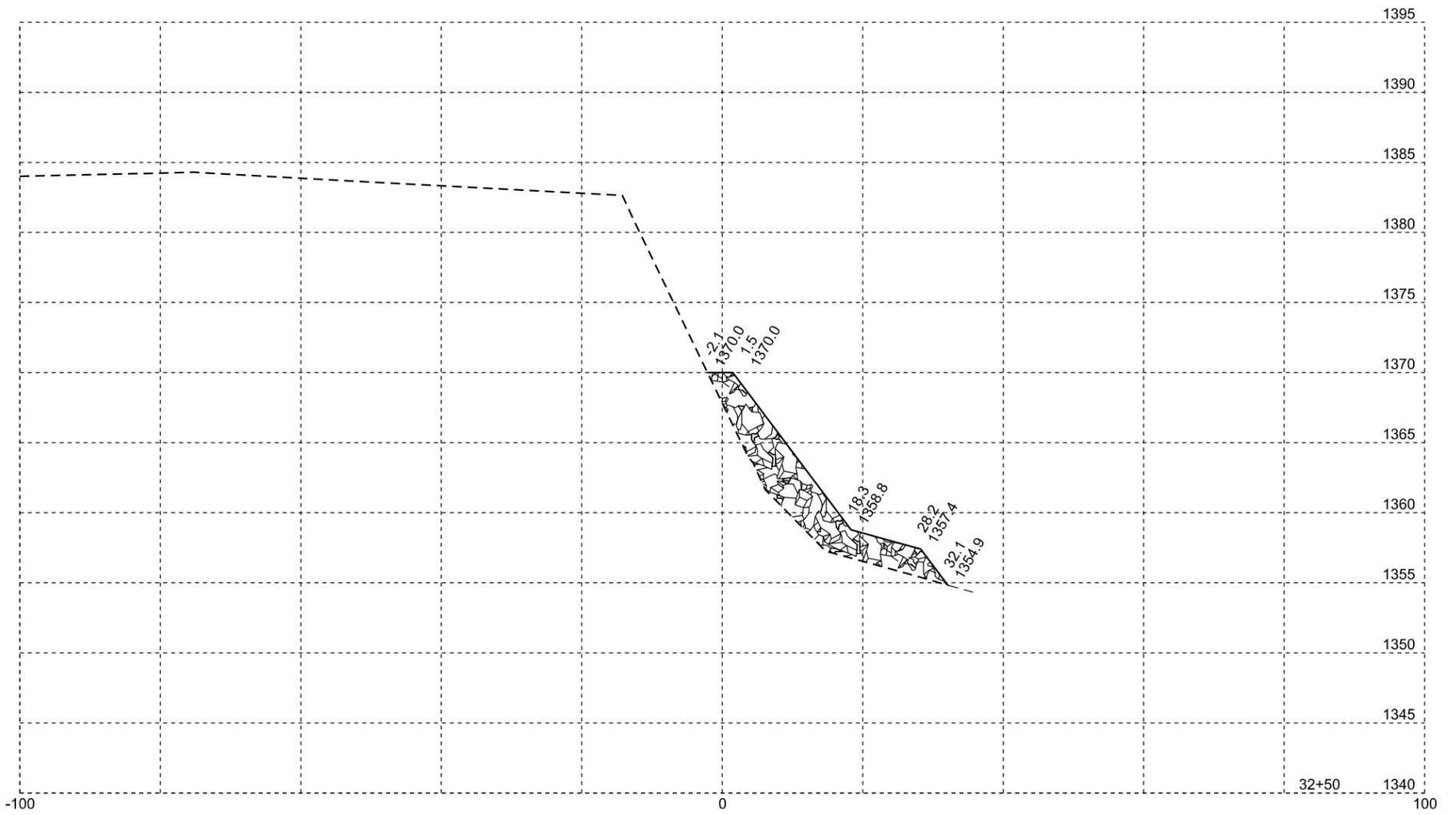
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	76	110



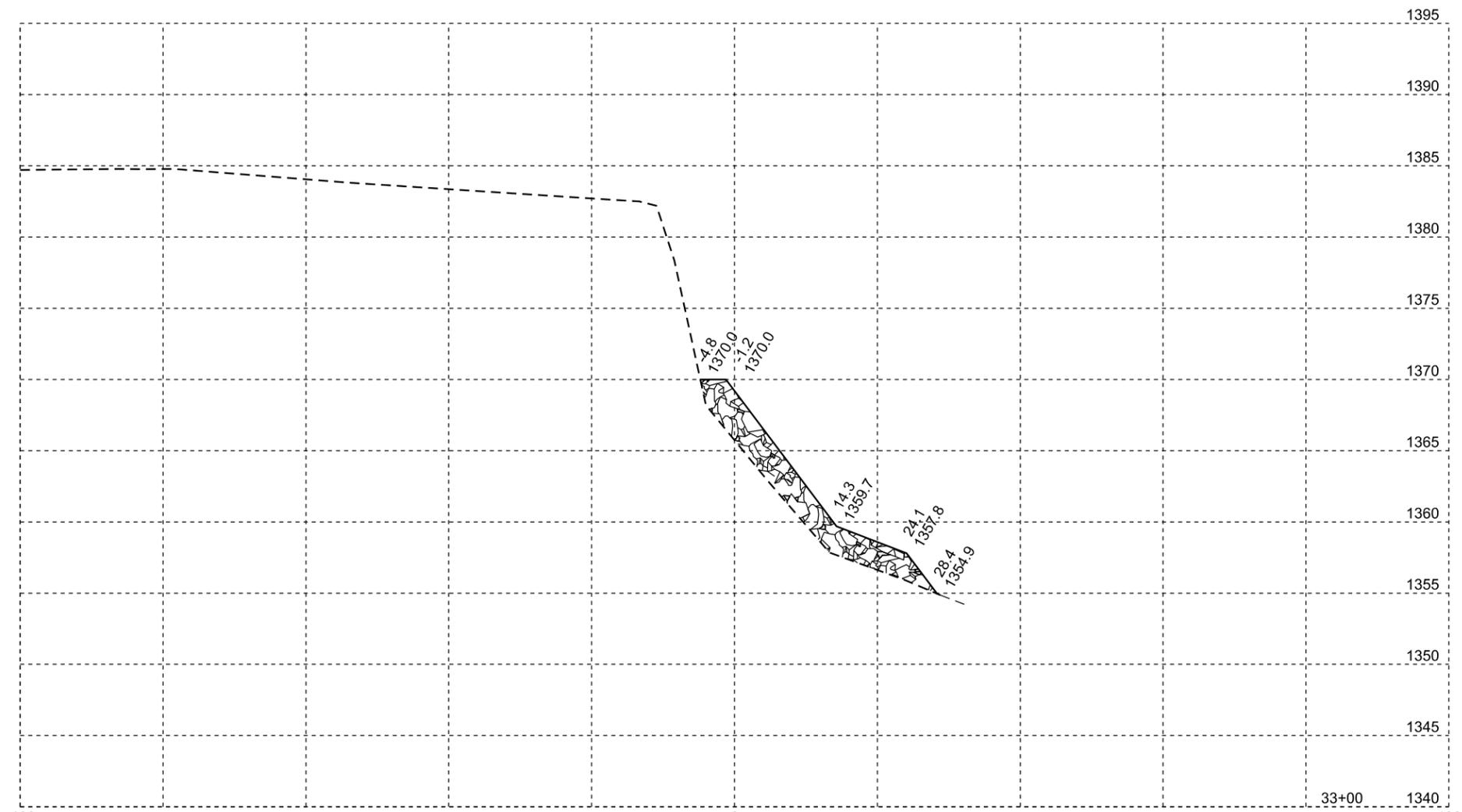
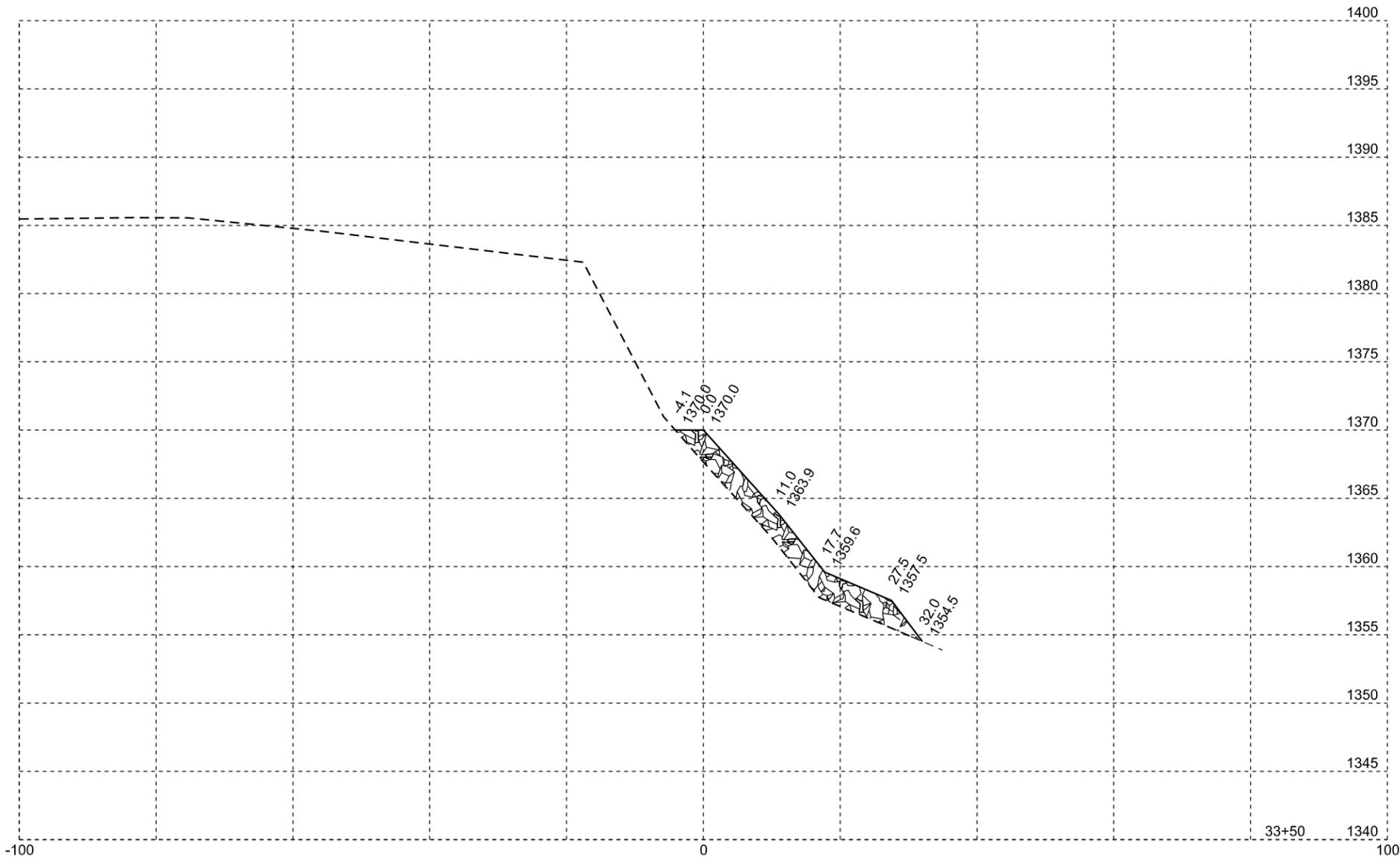
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	77	110



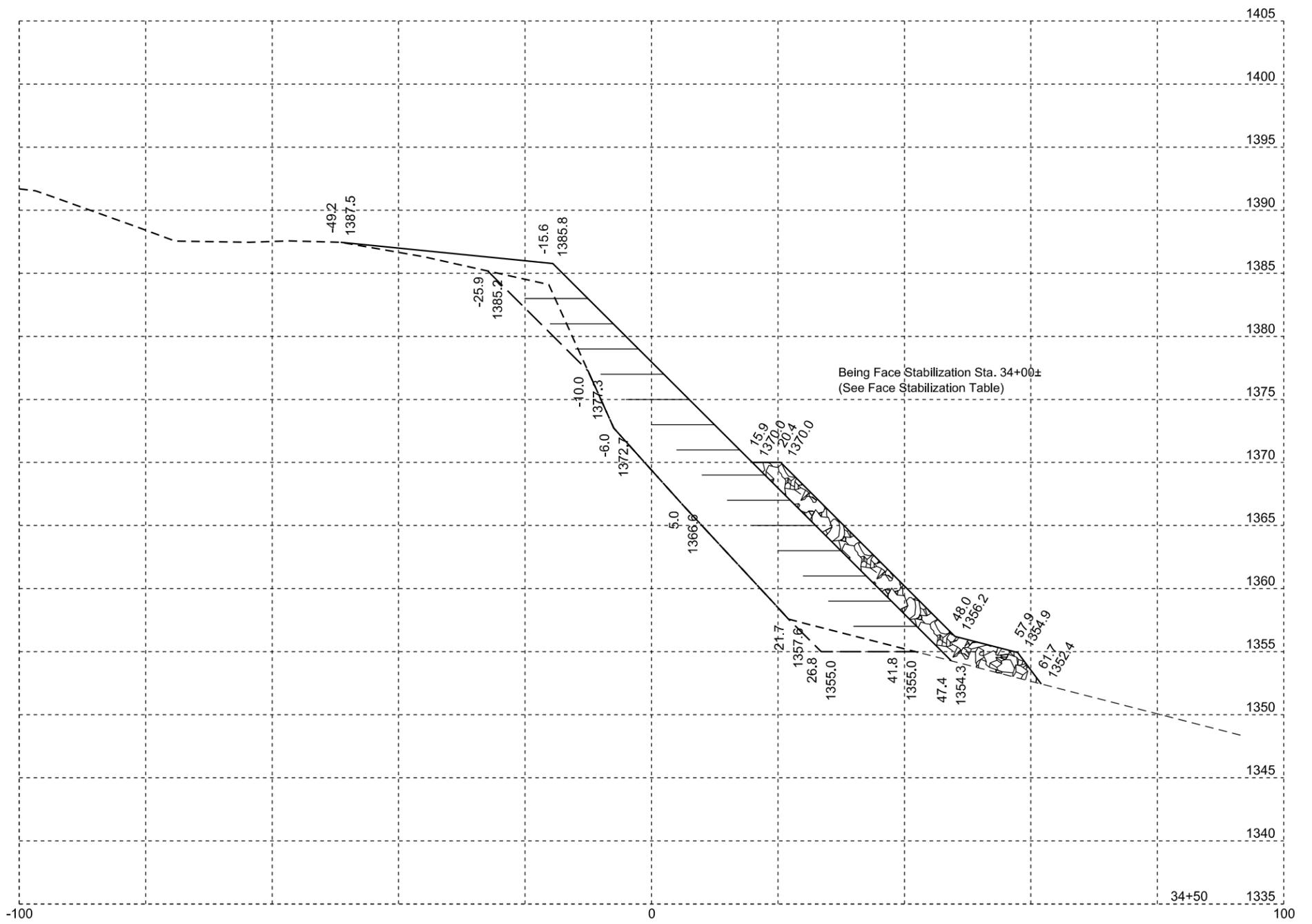
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	78	110



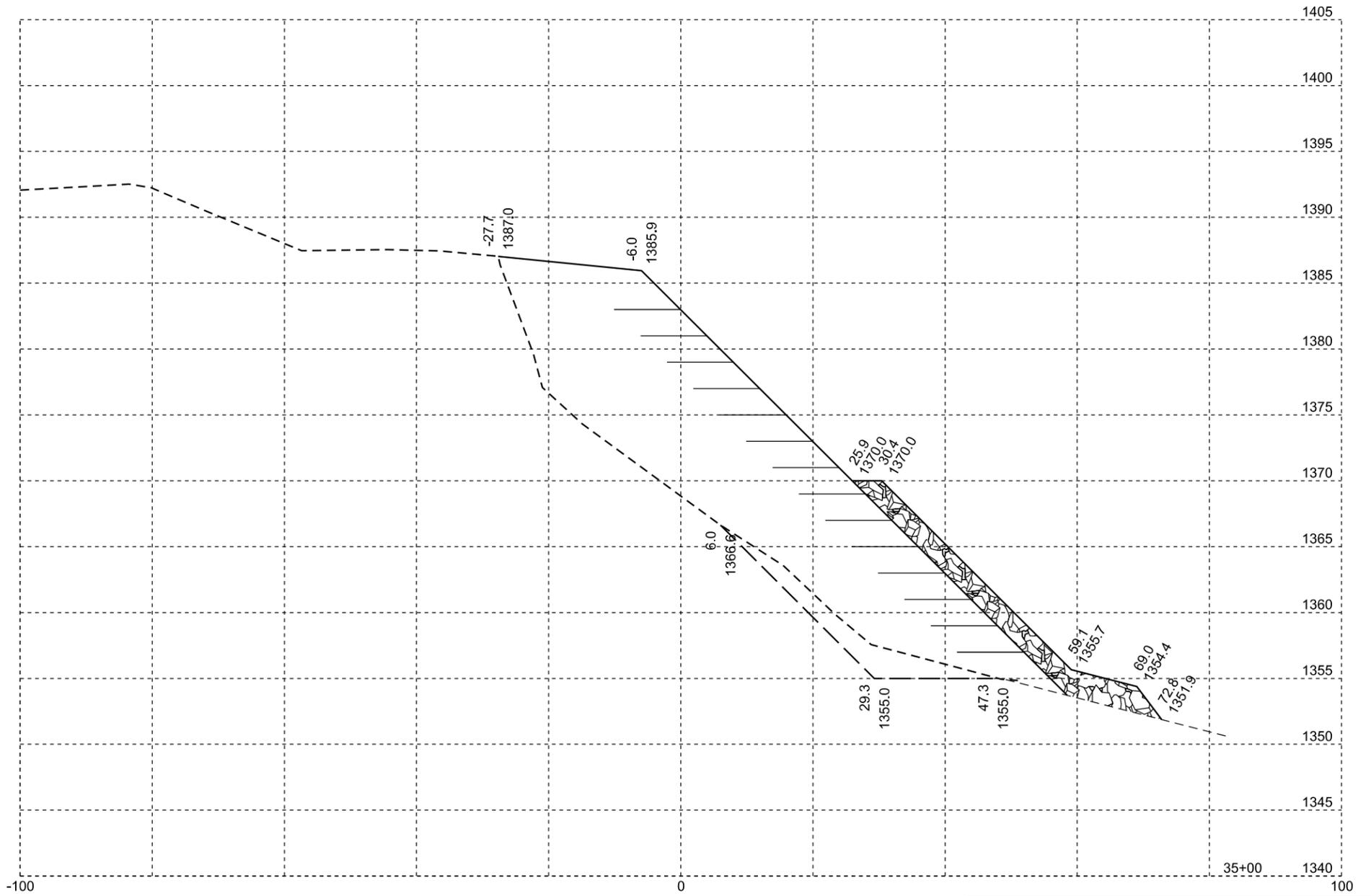
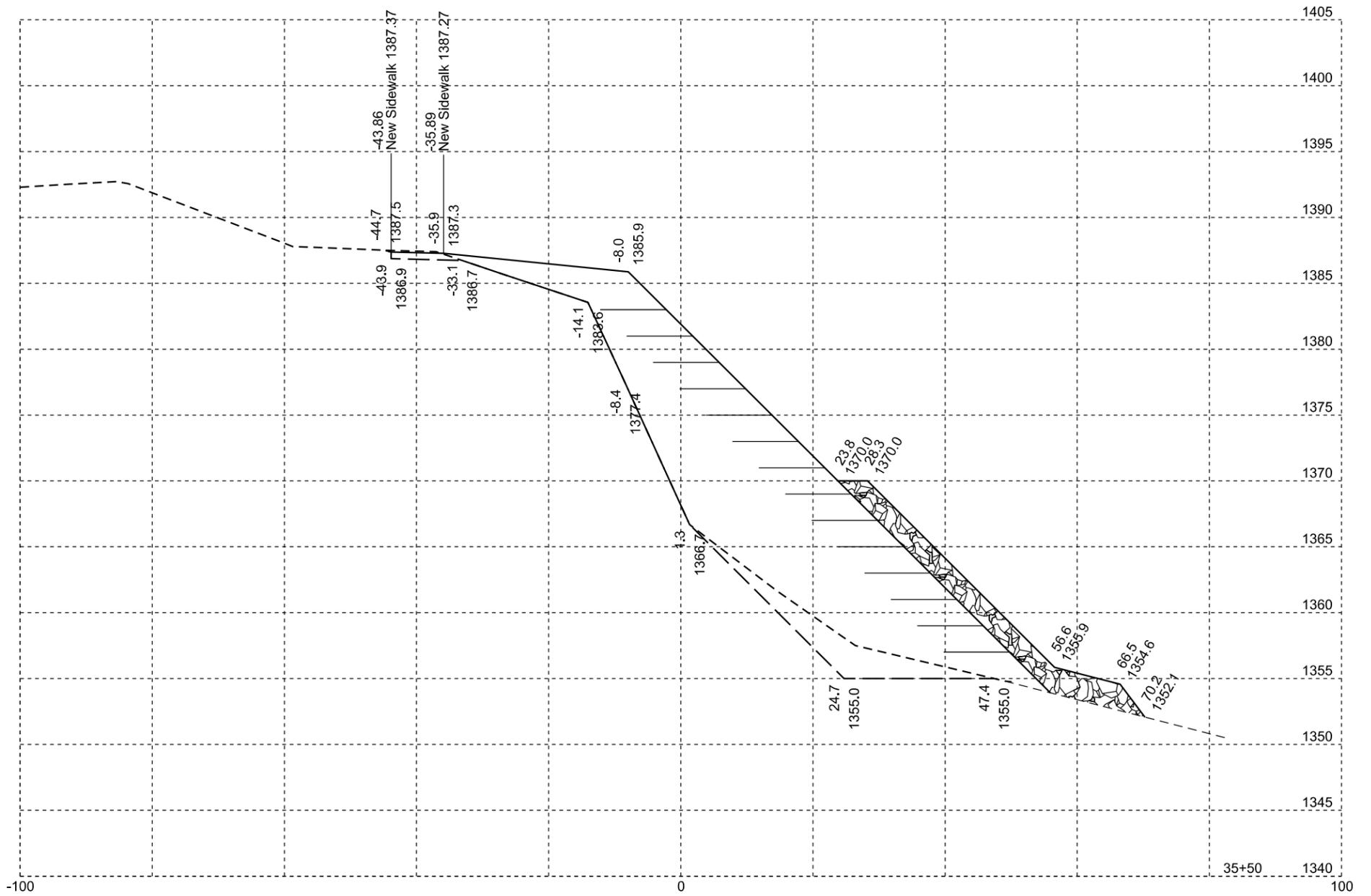
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	79	110



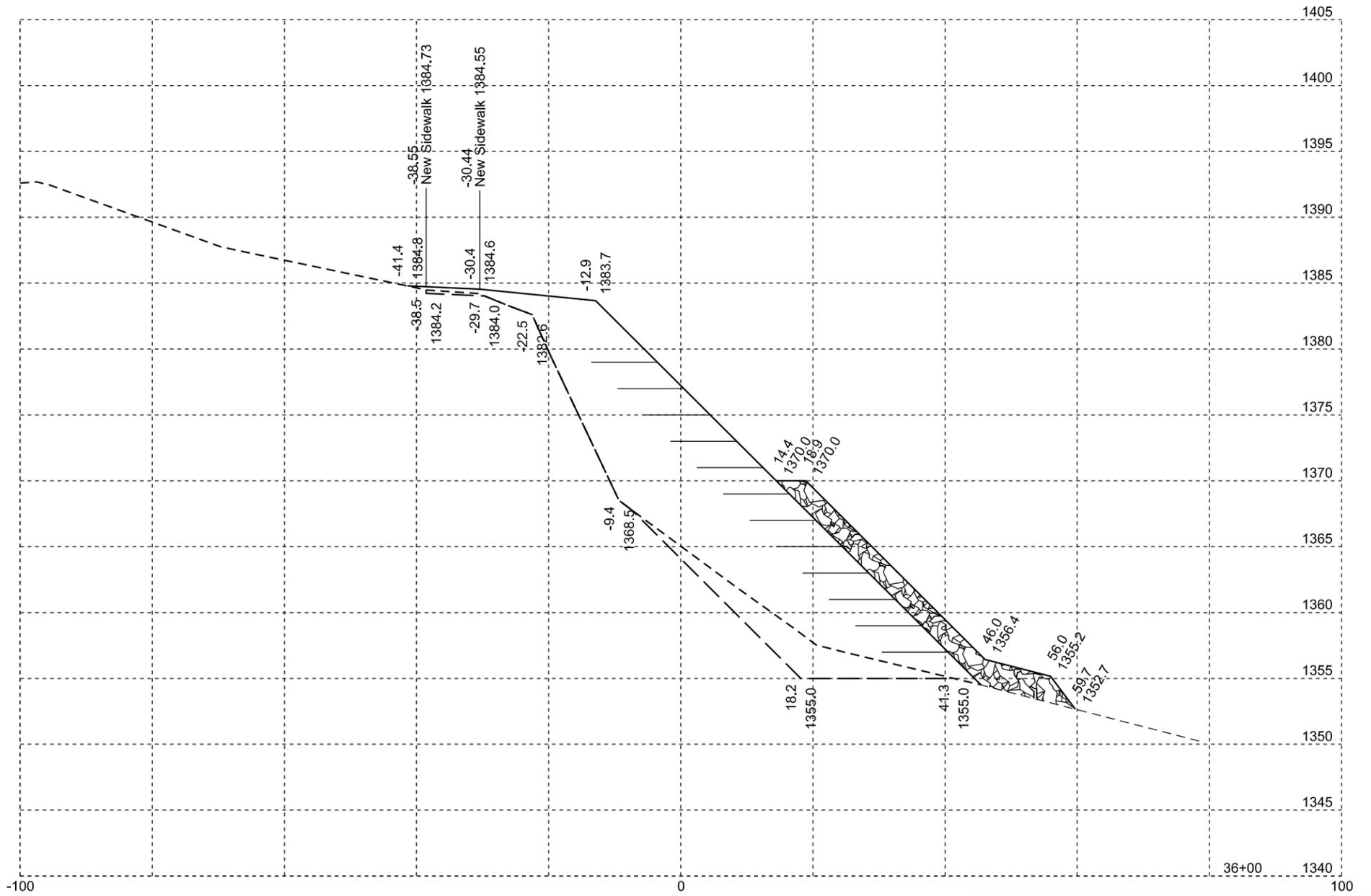
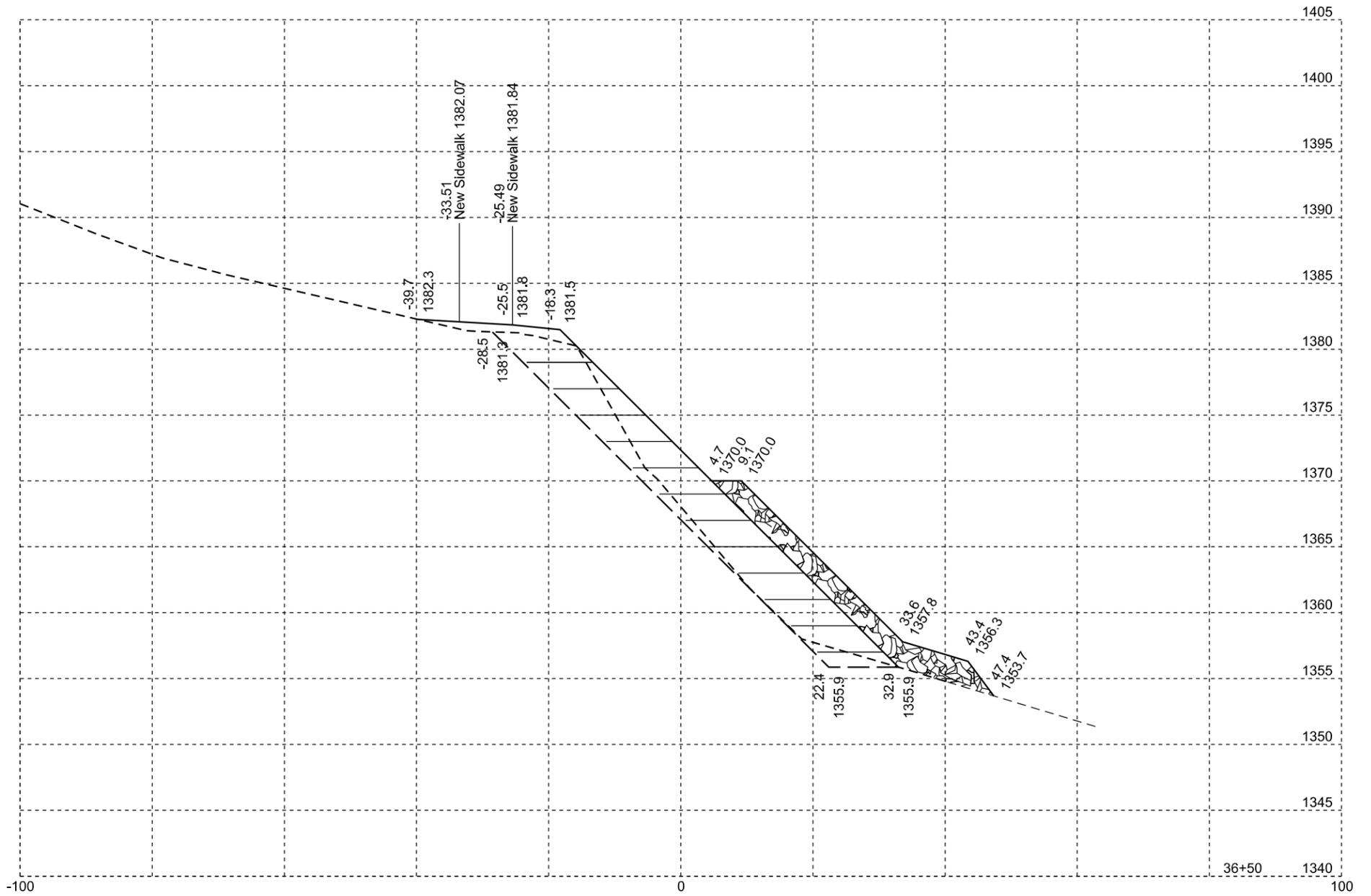
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	80	110



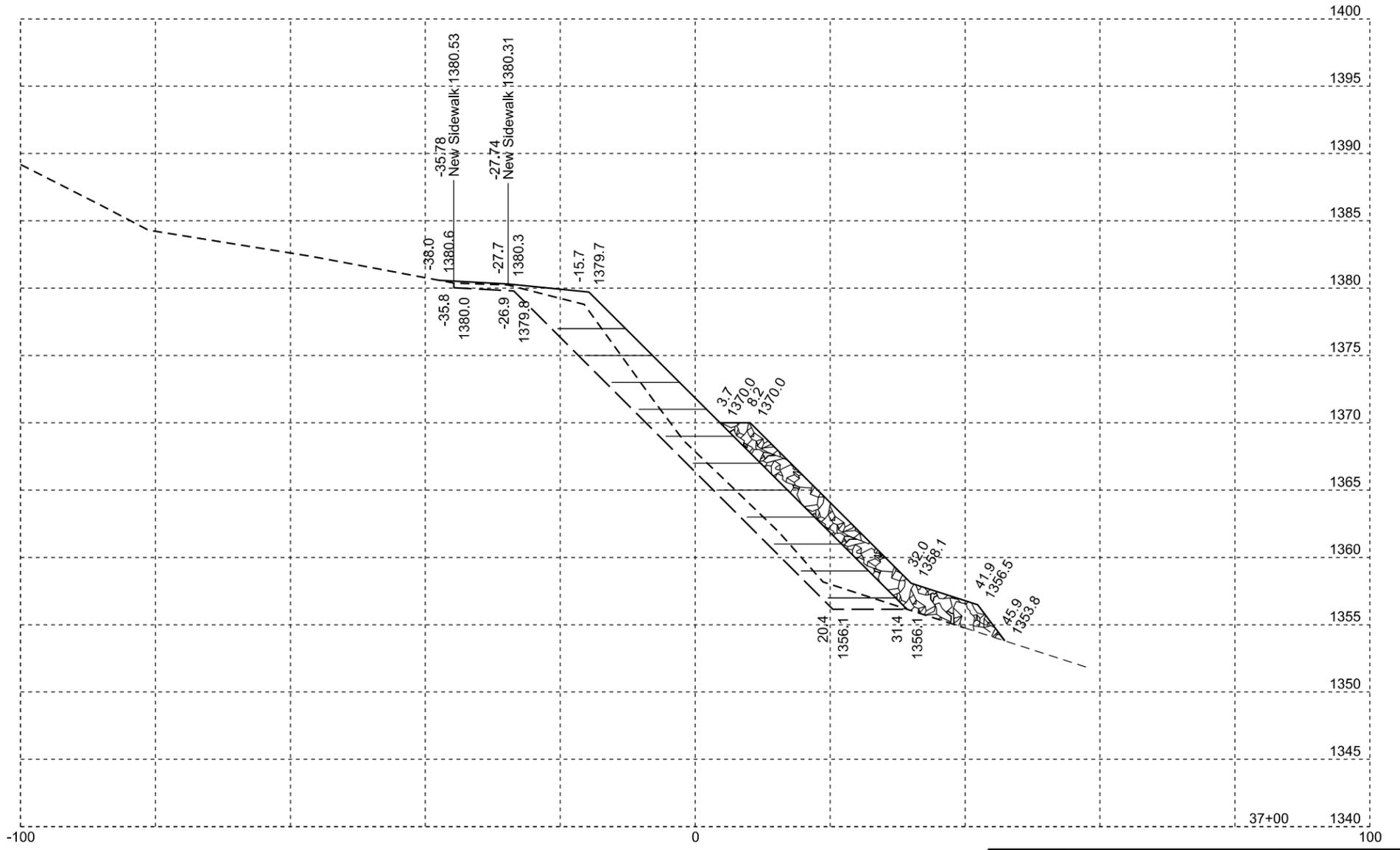
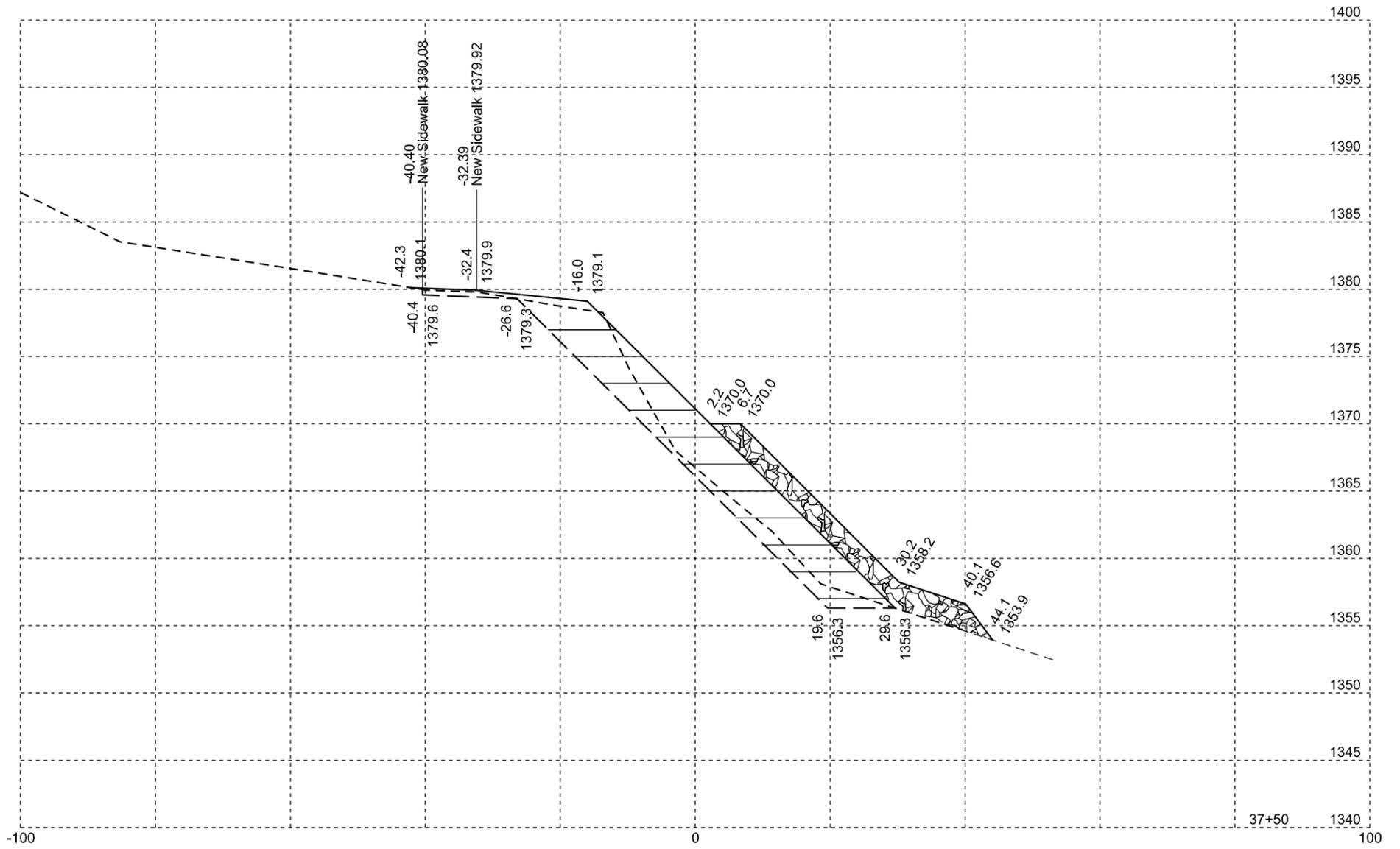
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	81	110



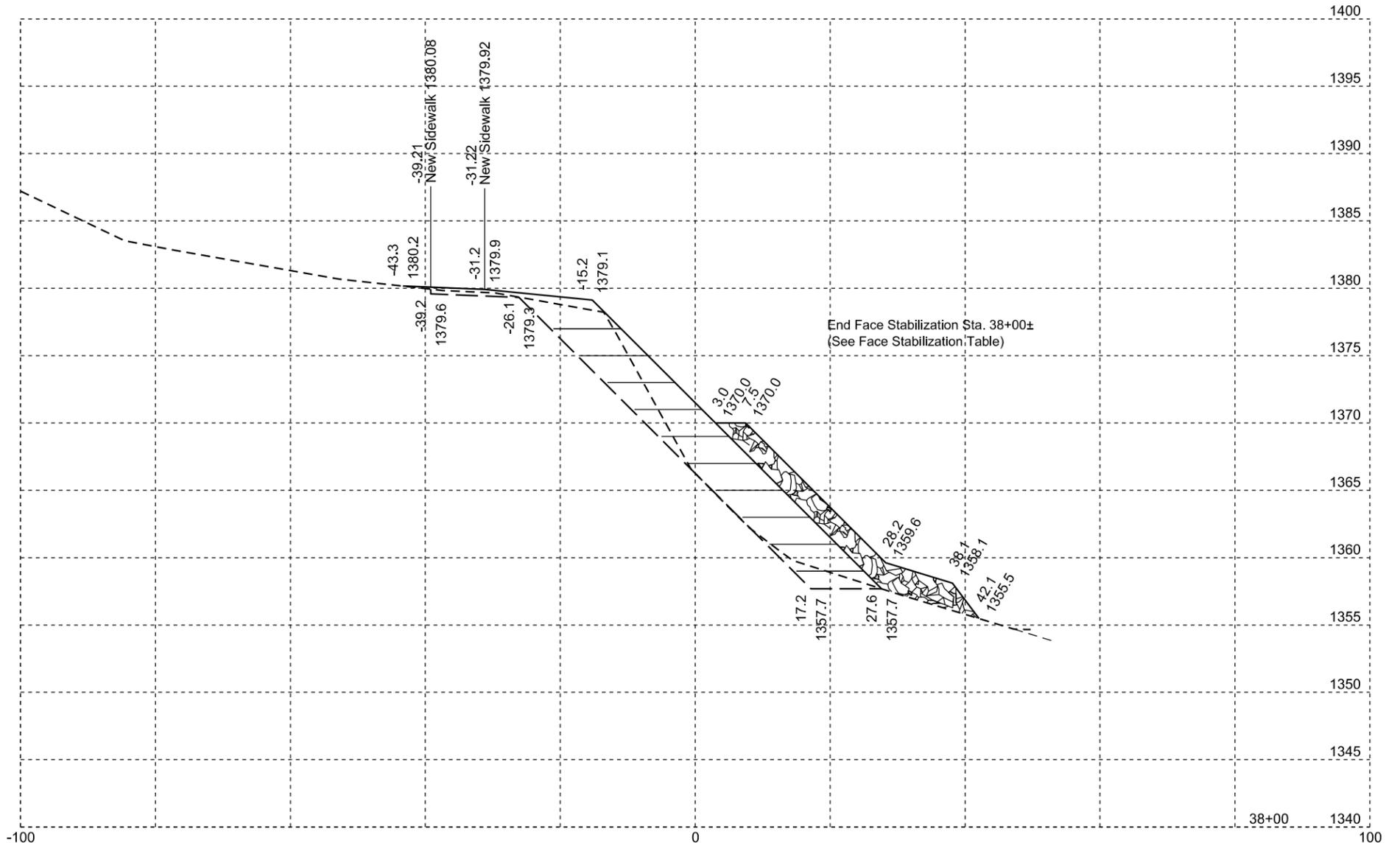
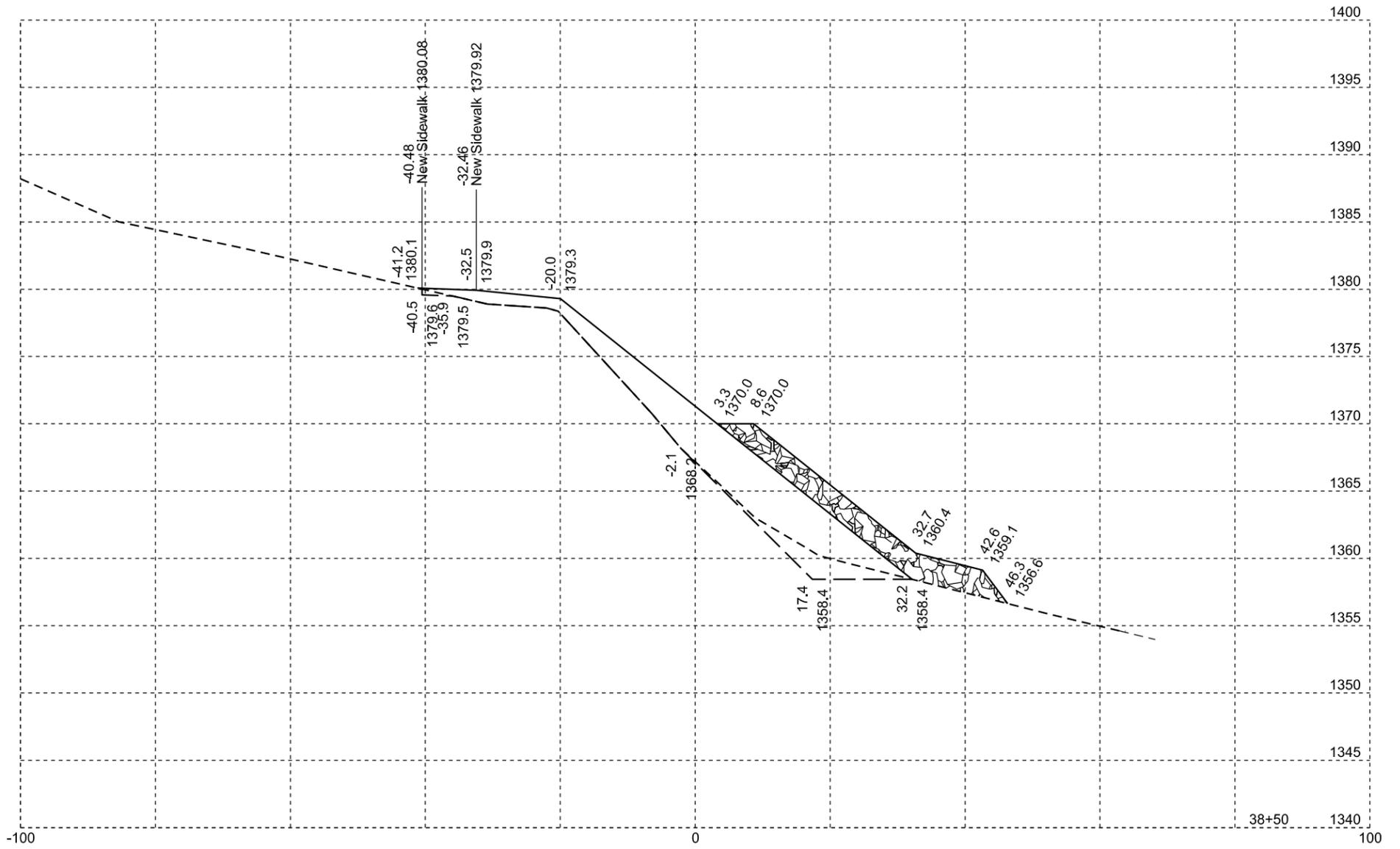
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	82	110



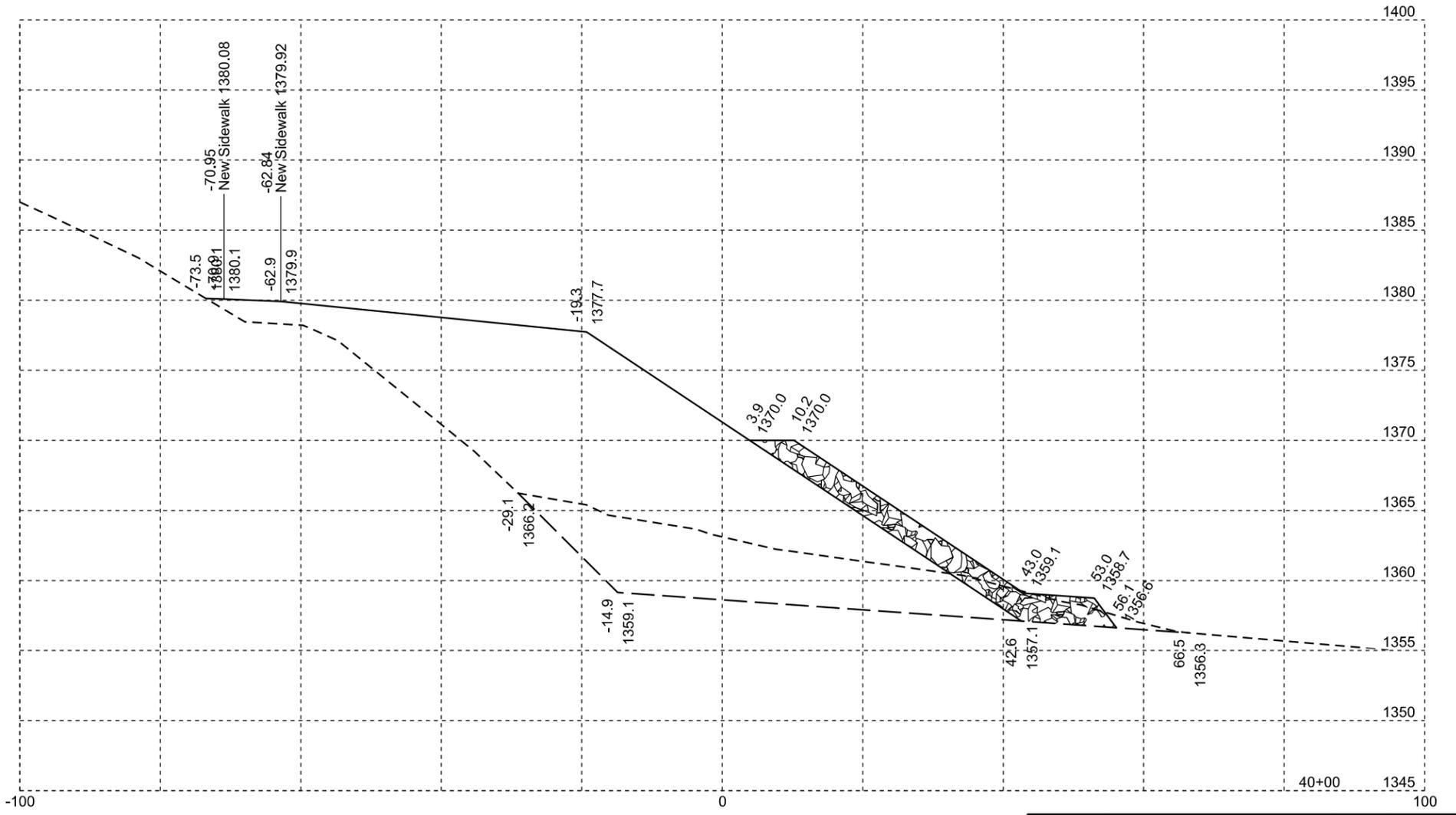
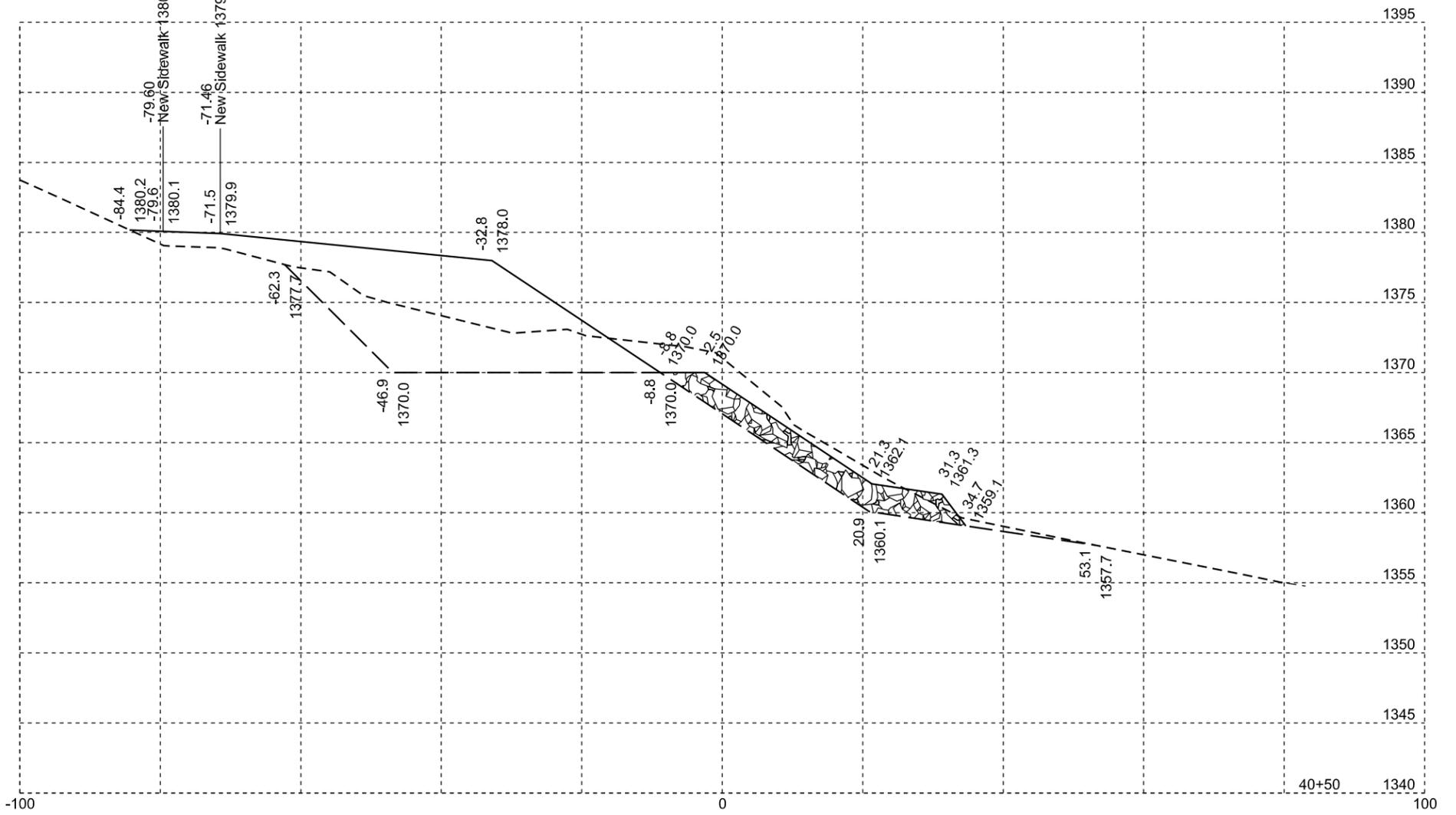
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	83	110



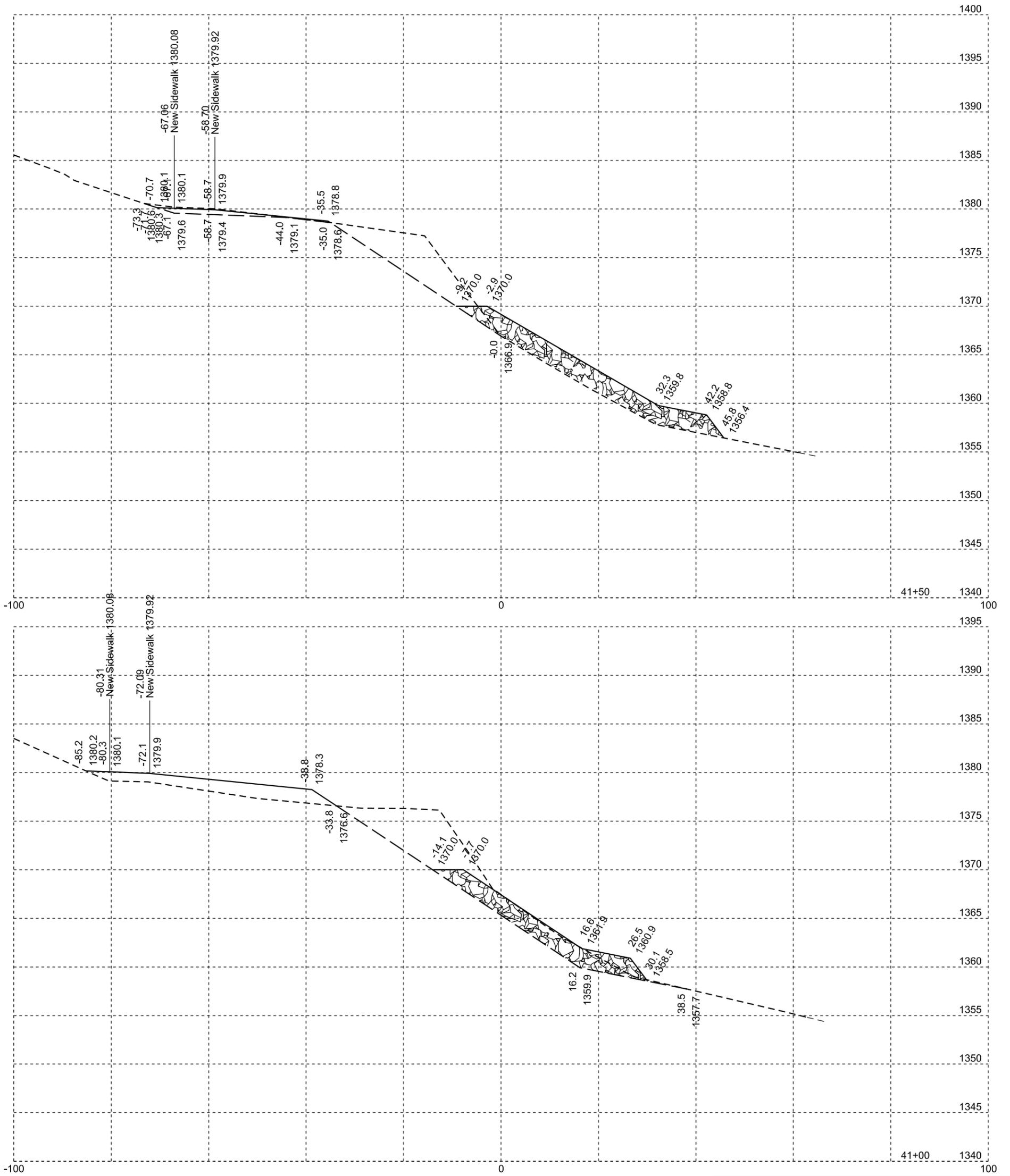
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	84	110



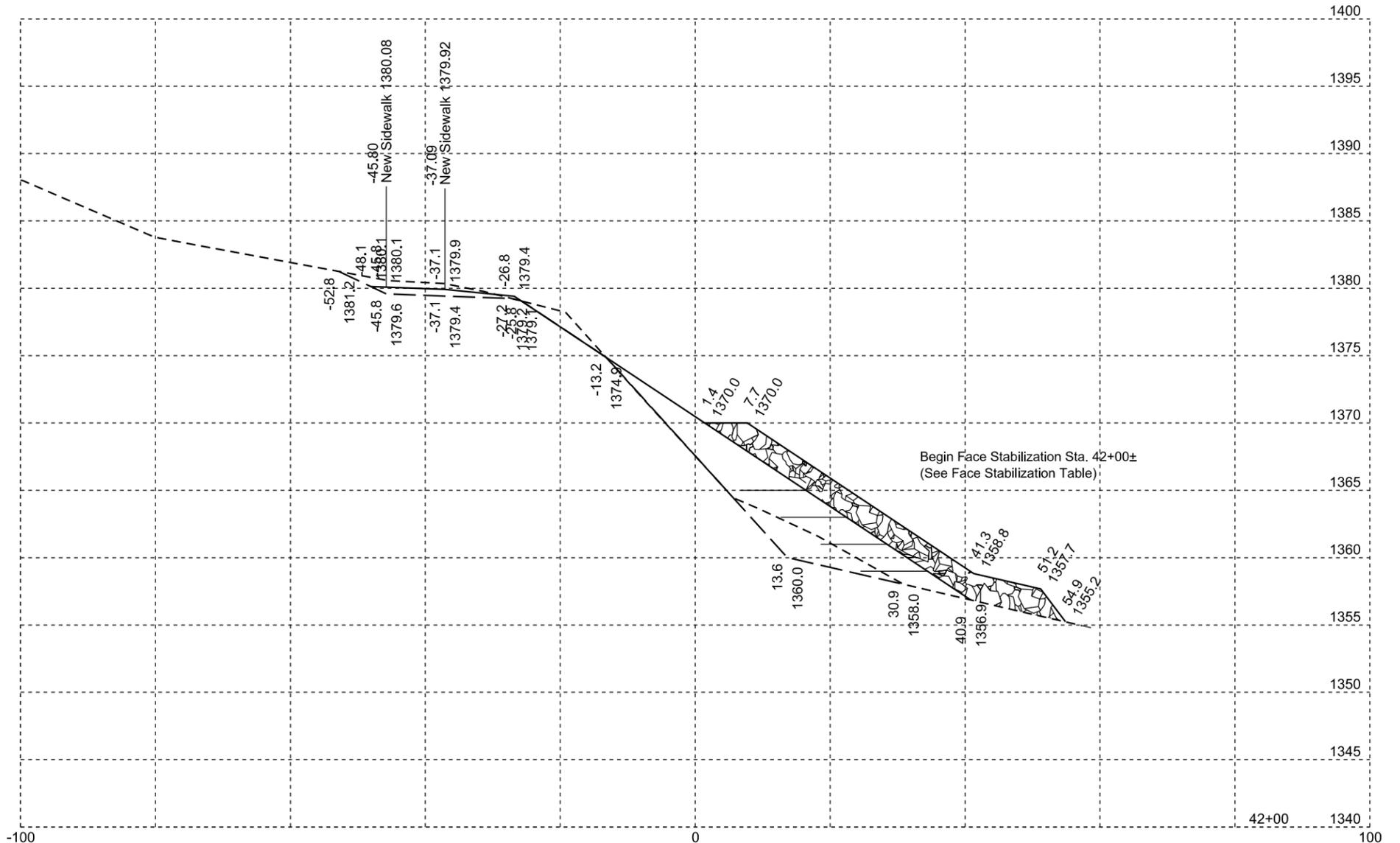
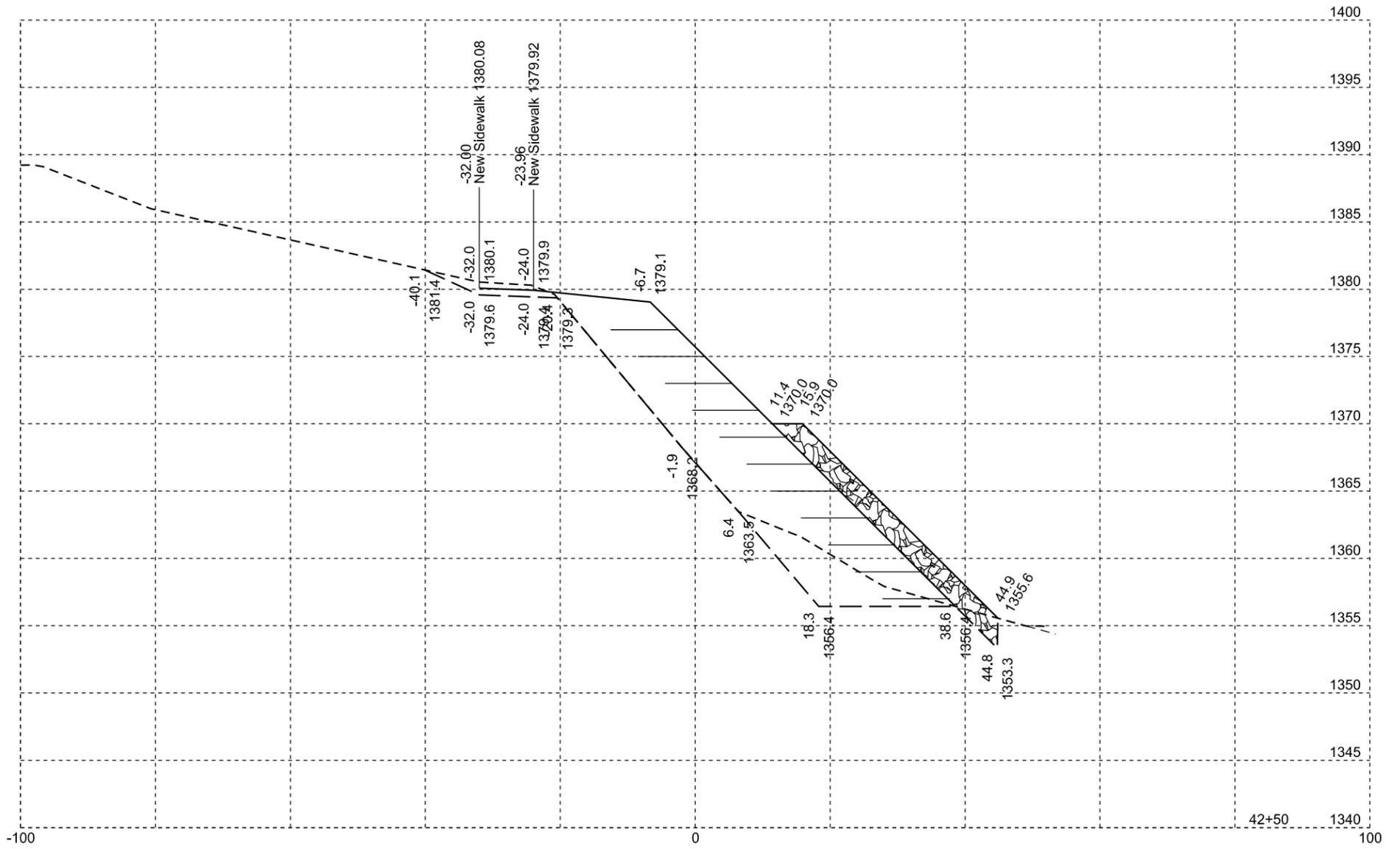
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	86	110



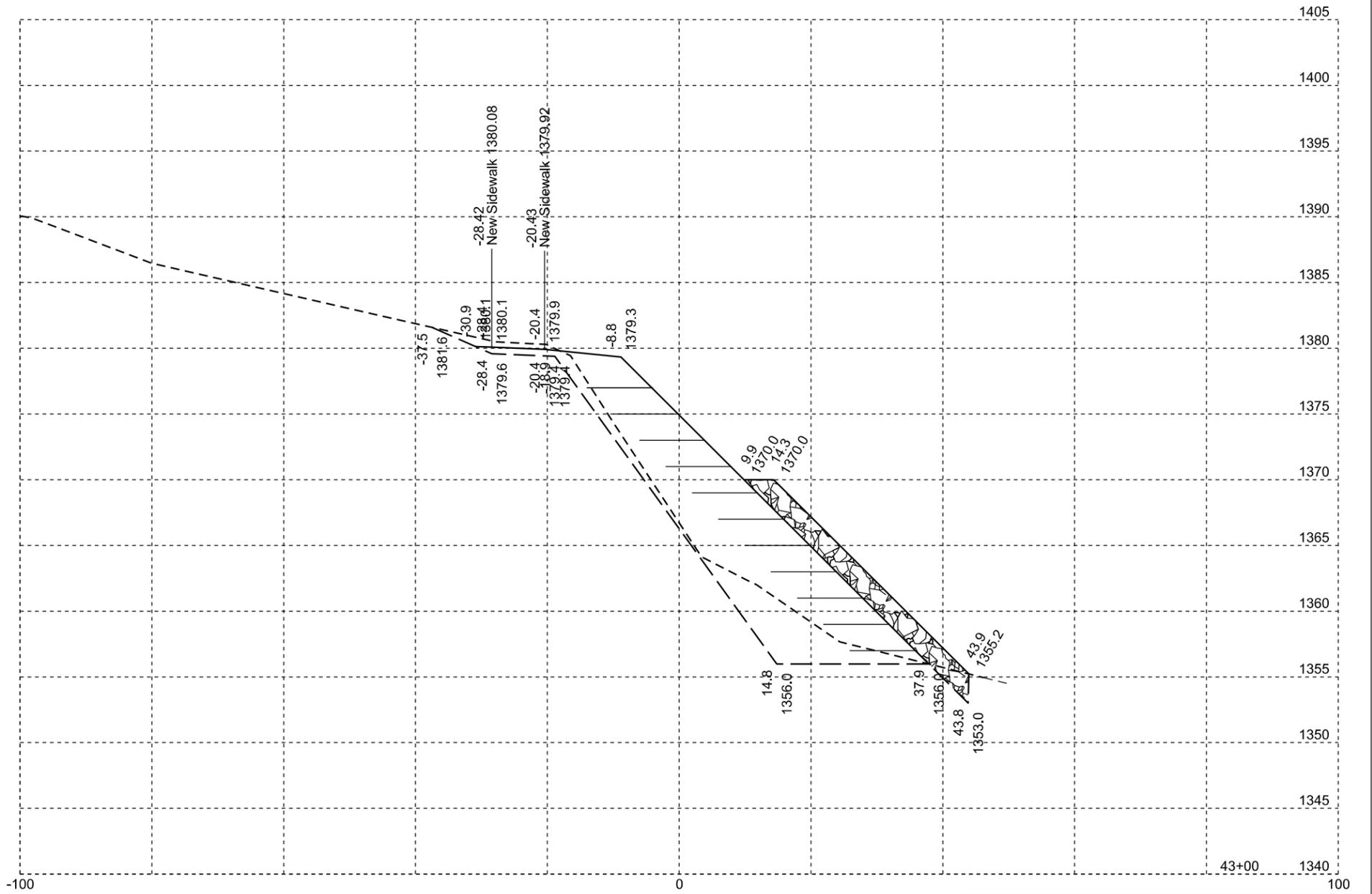
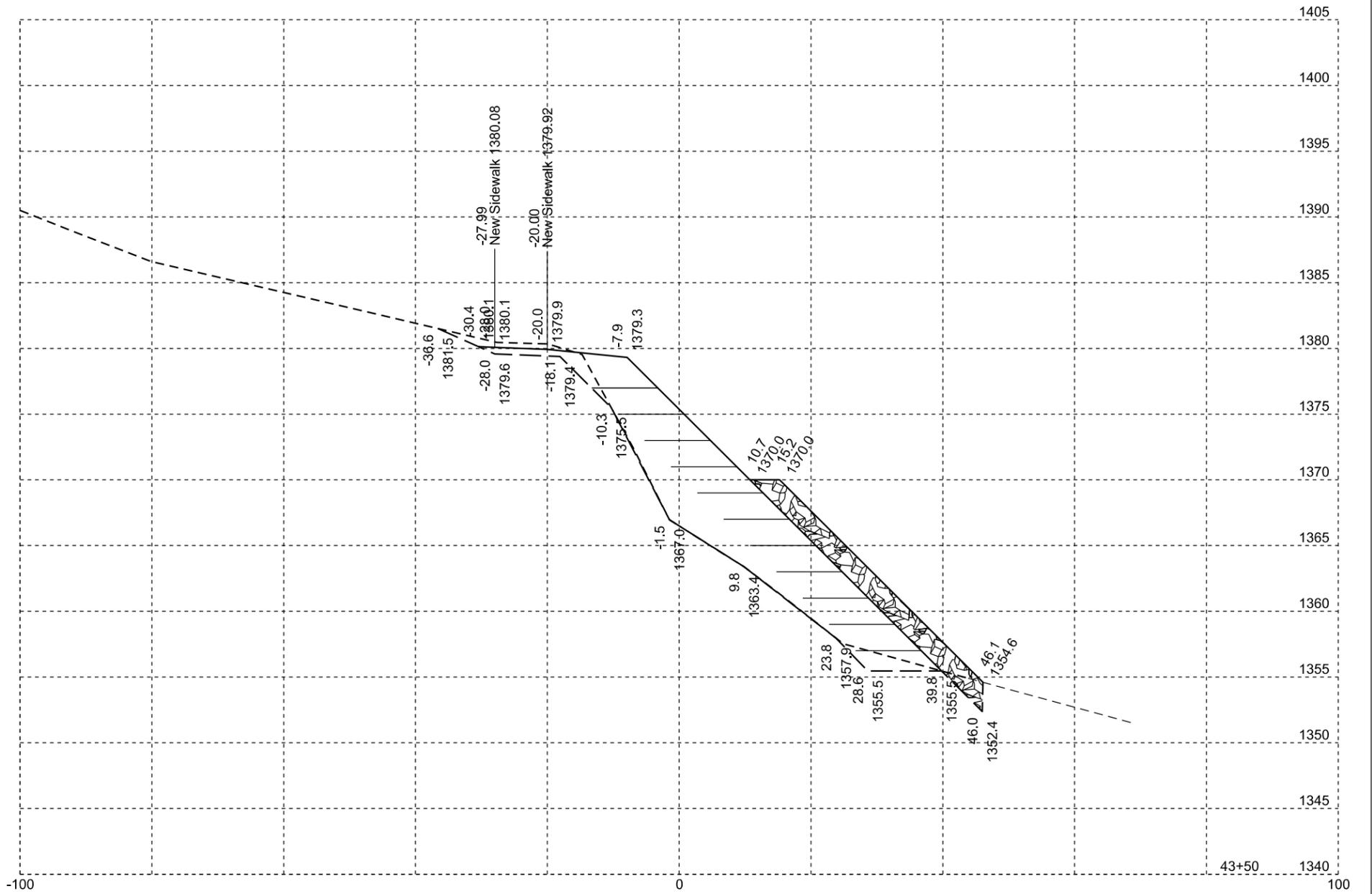
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	87	110



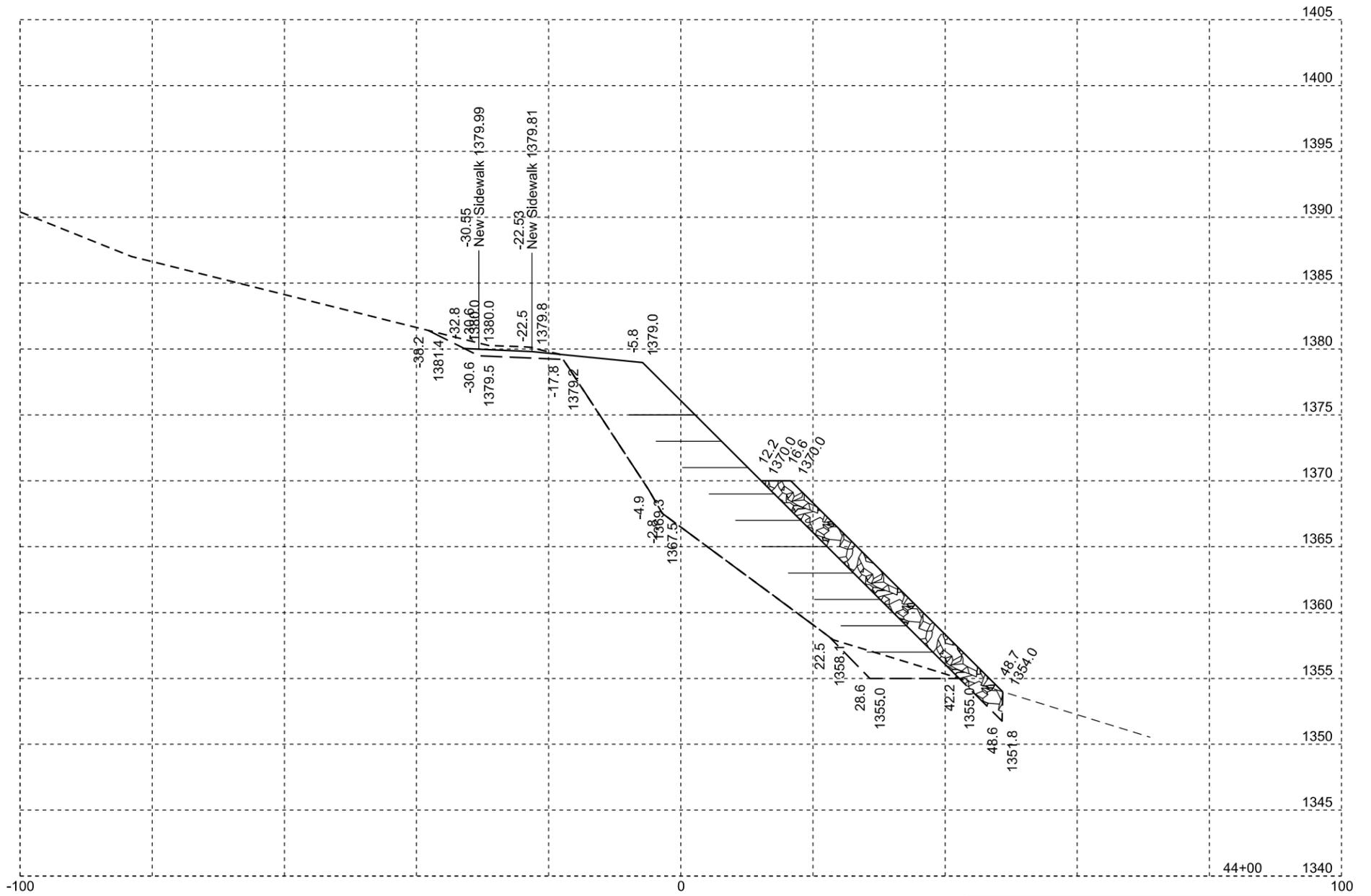
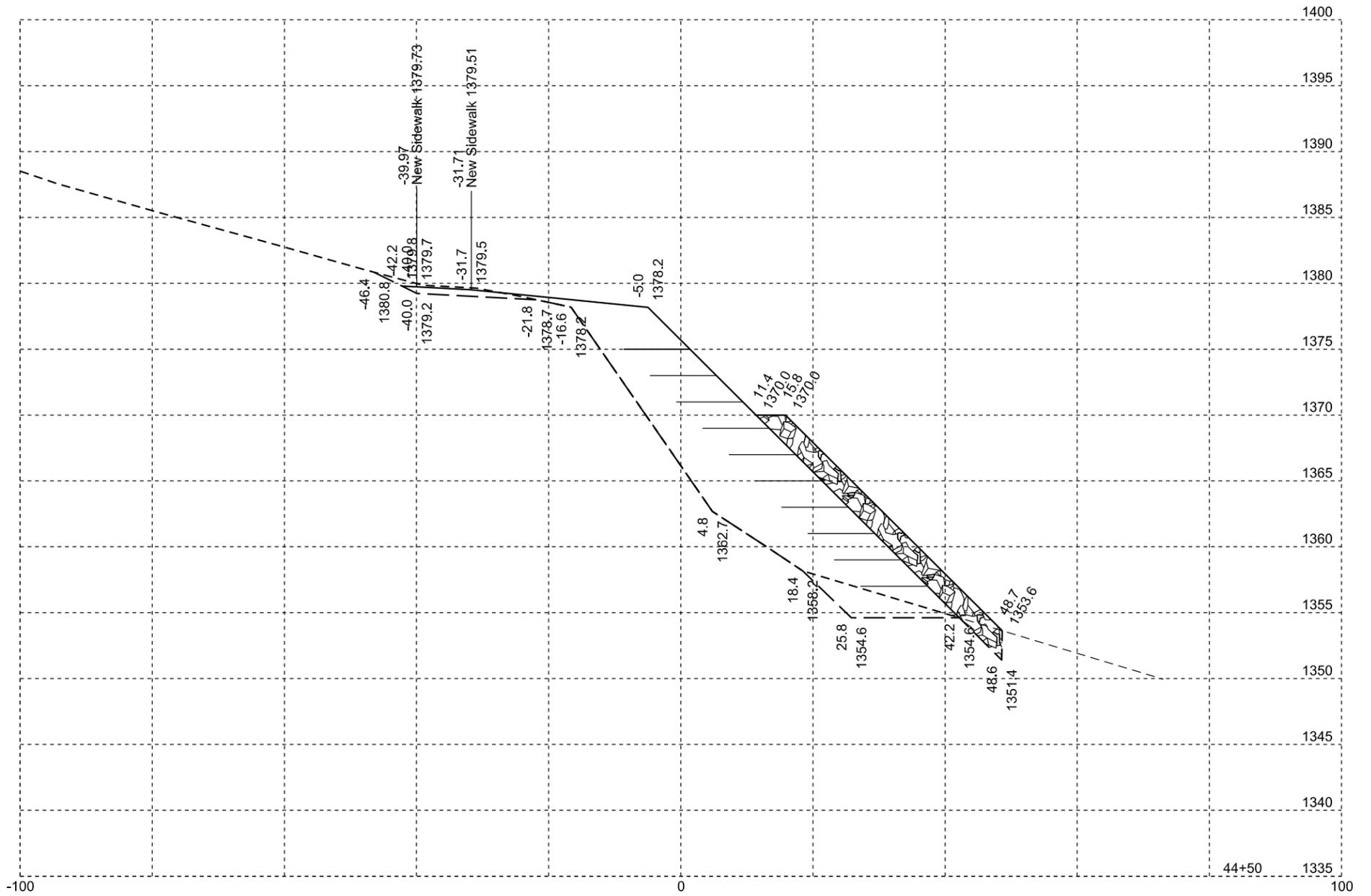
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	88	110



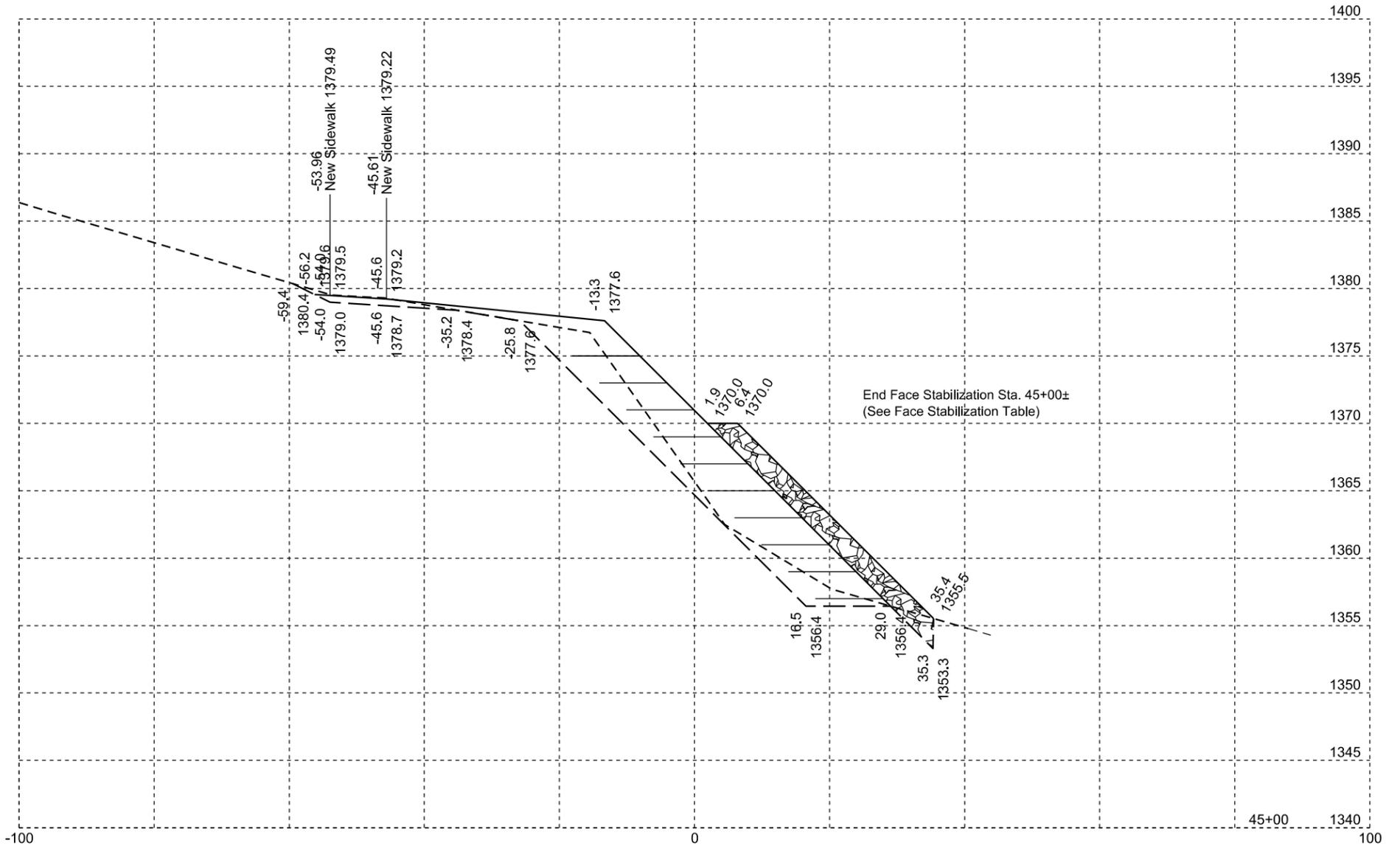
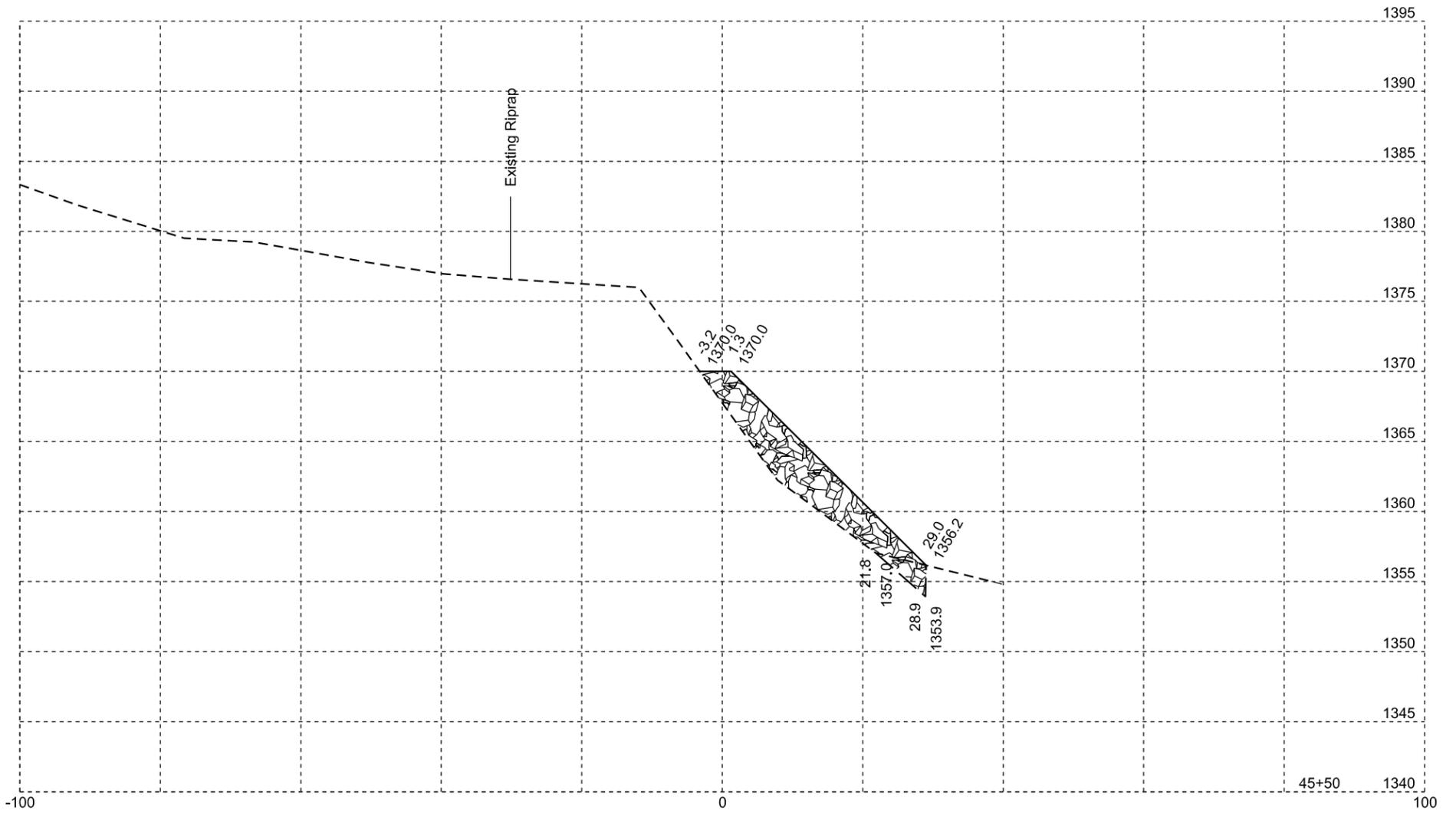
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	89	110



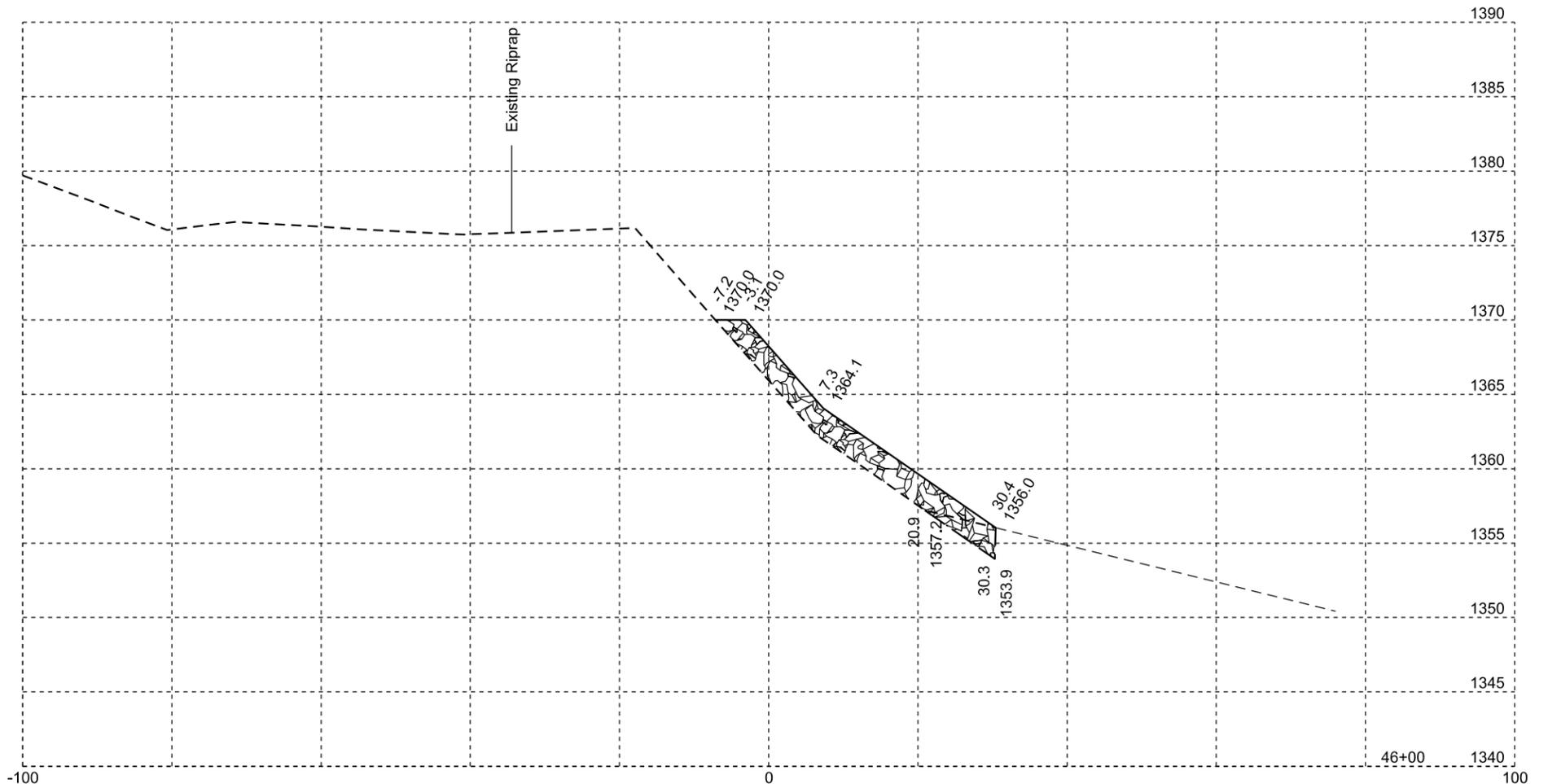
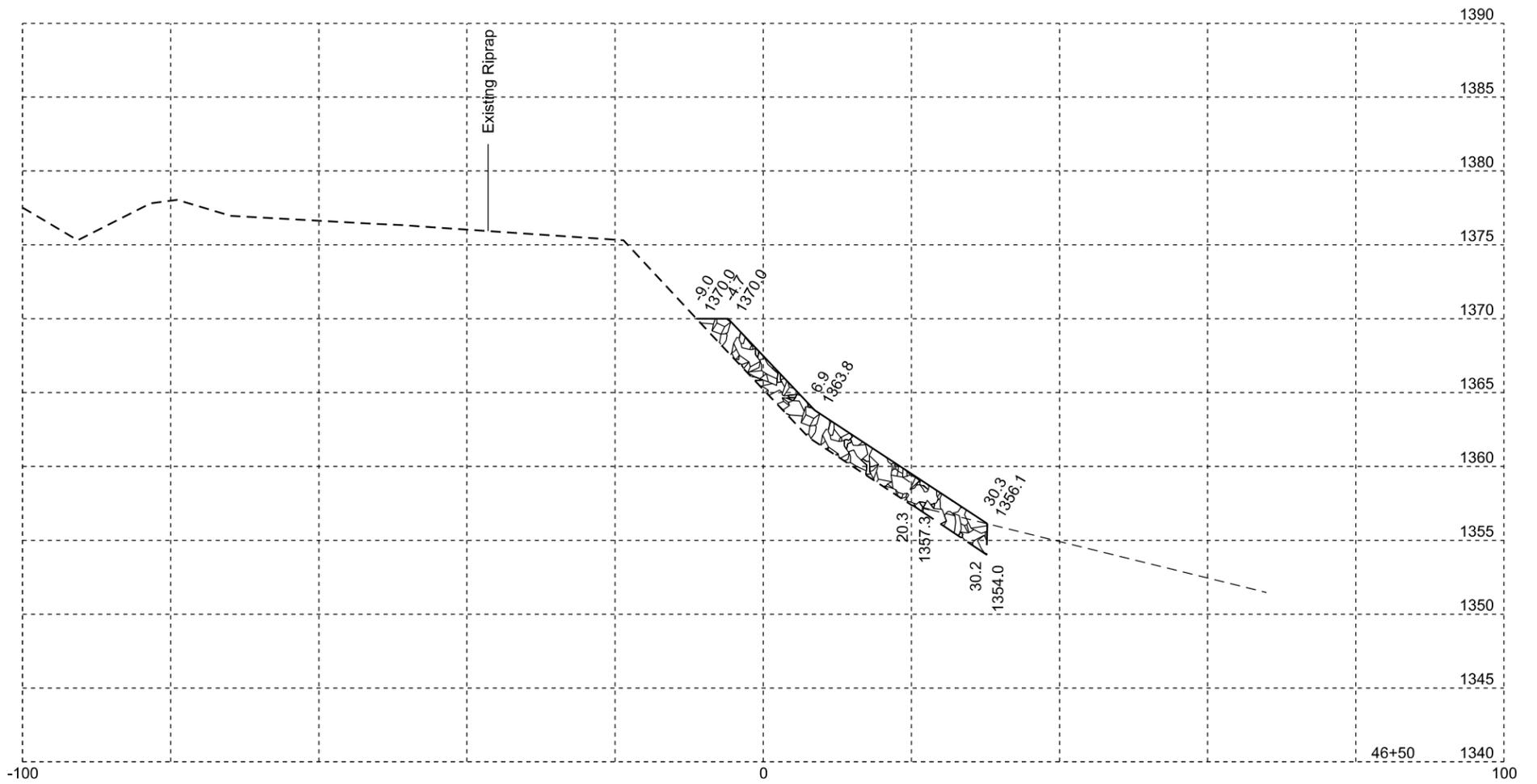
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	90	110



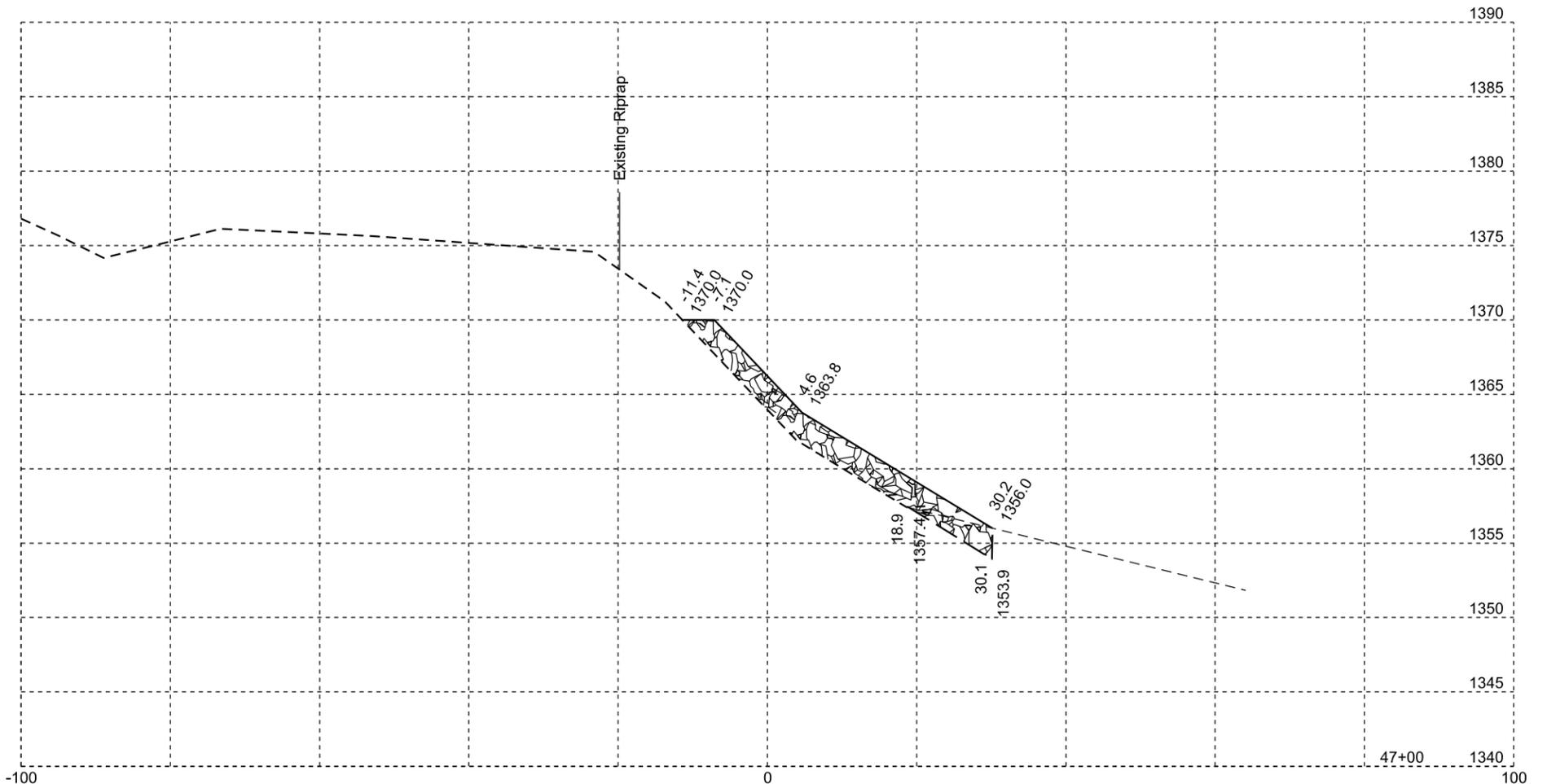
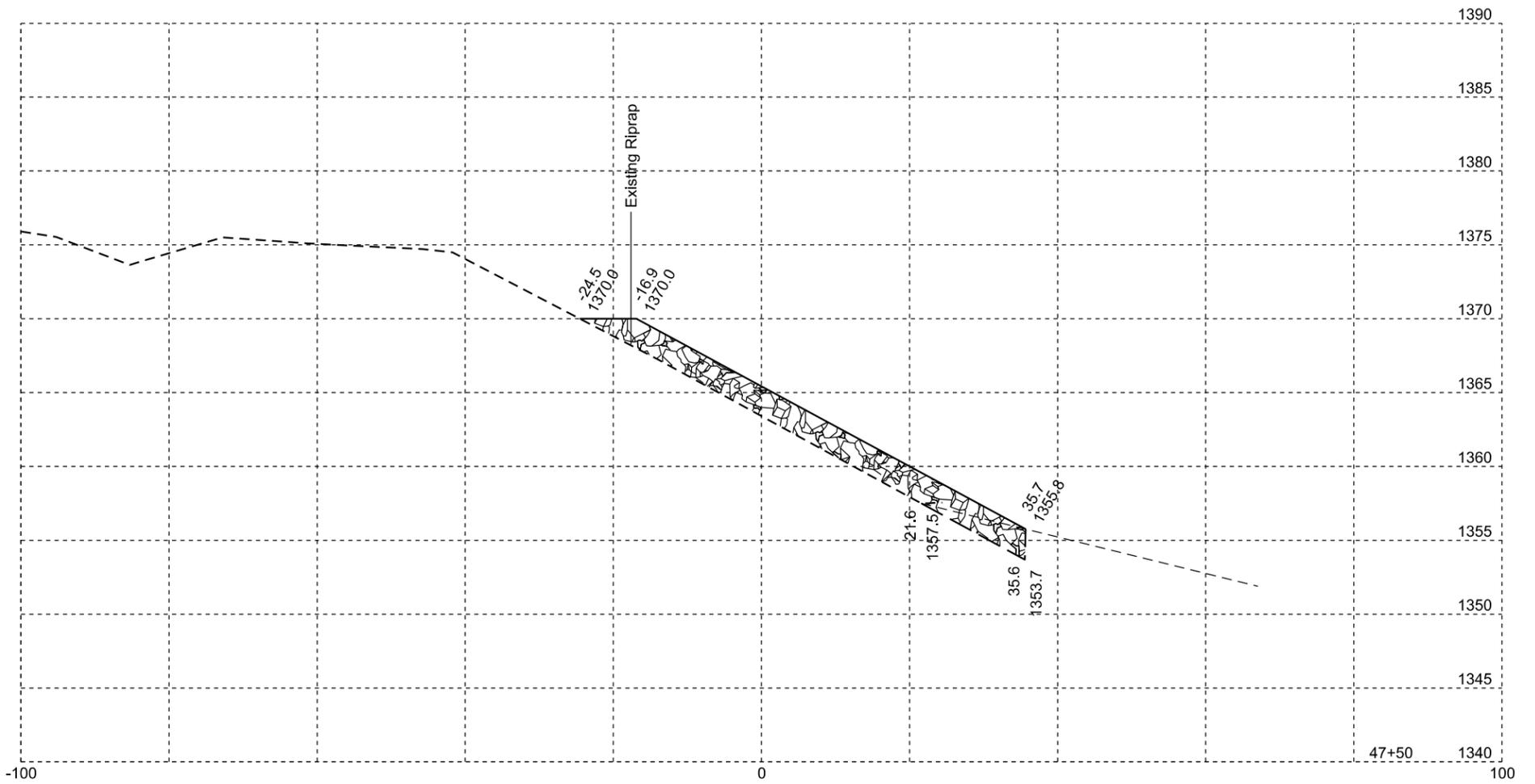
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	91	110



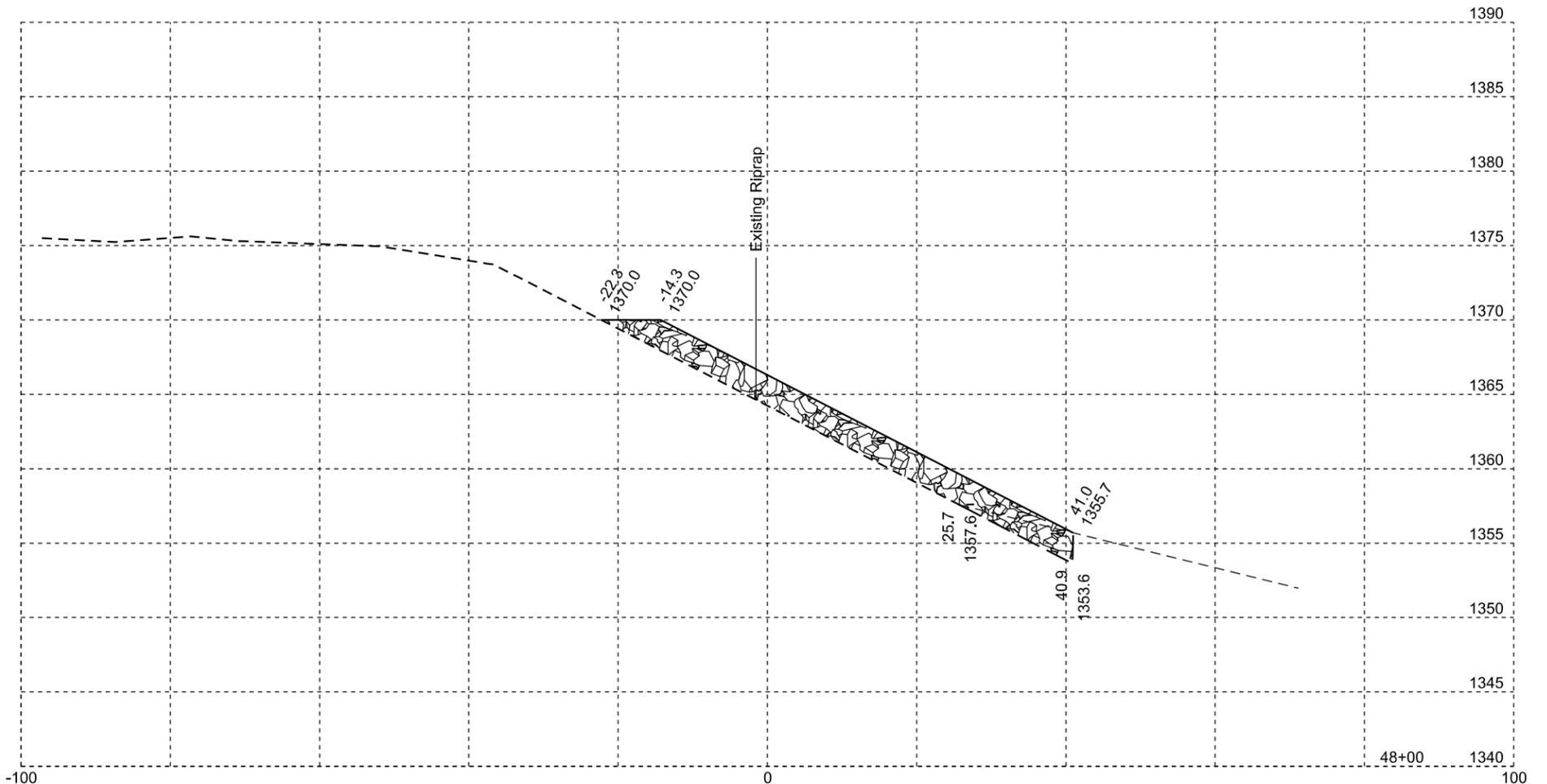
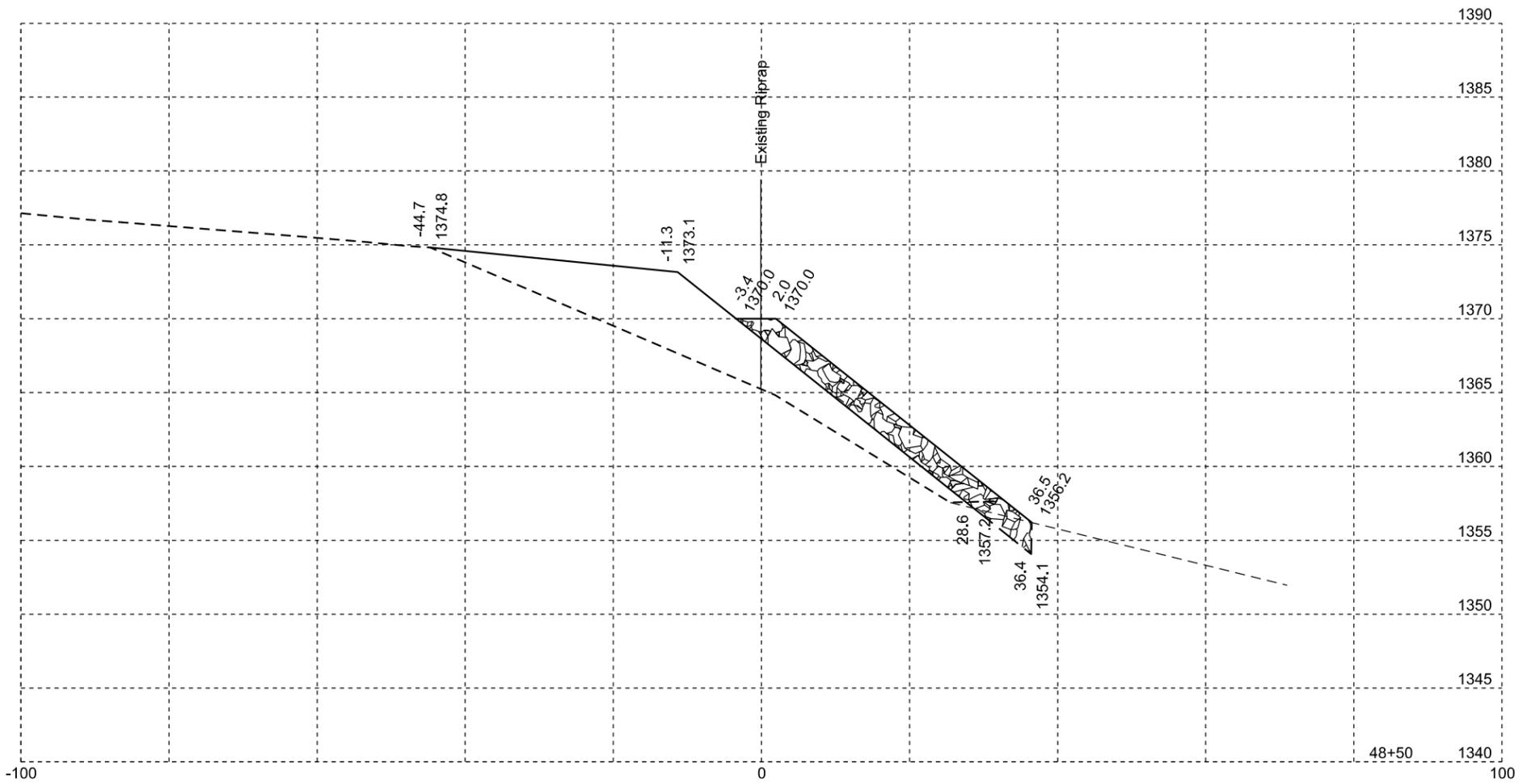
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	92	110



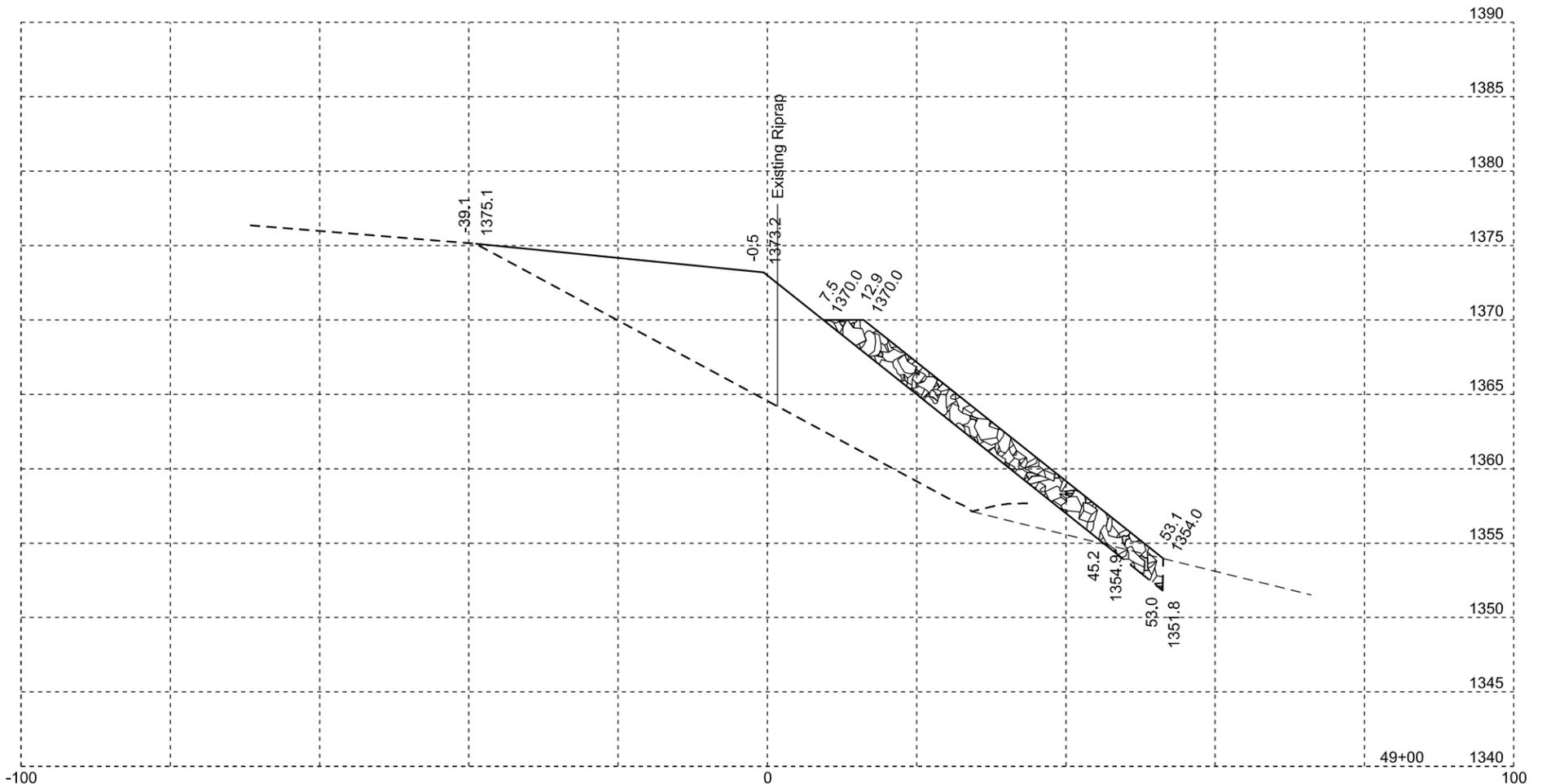
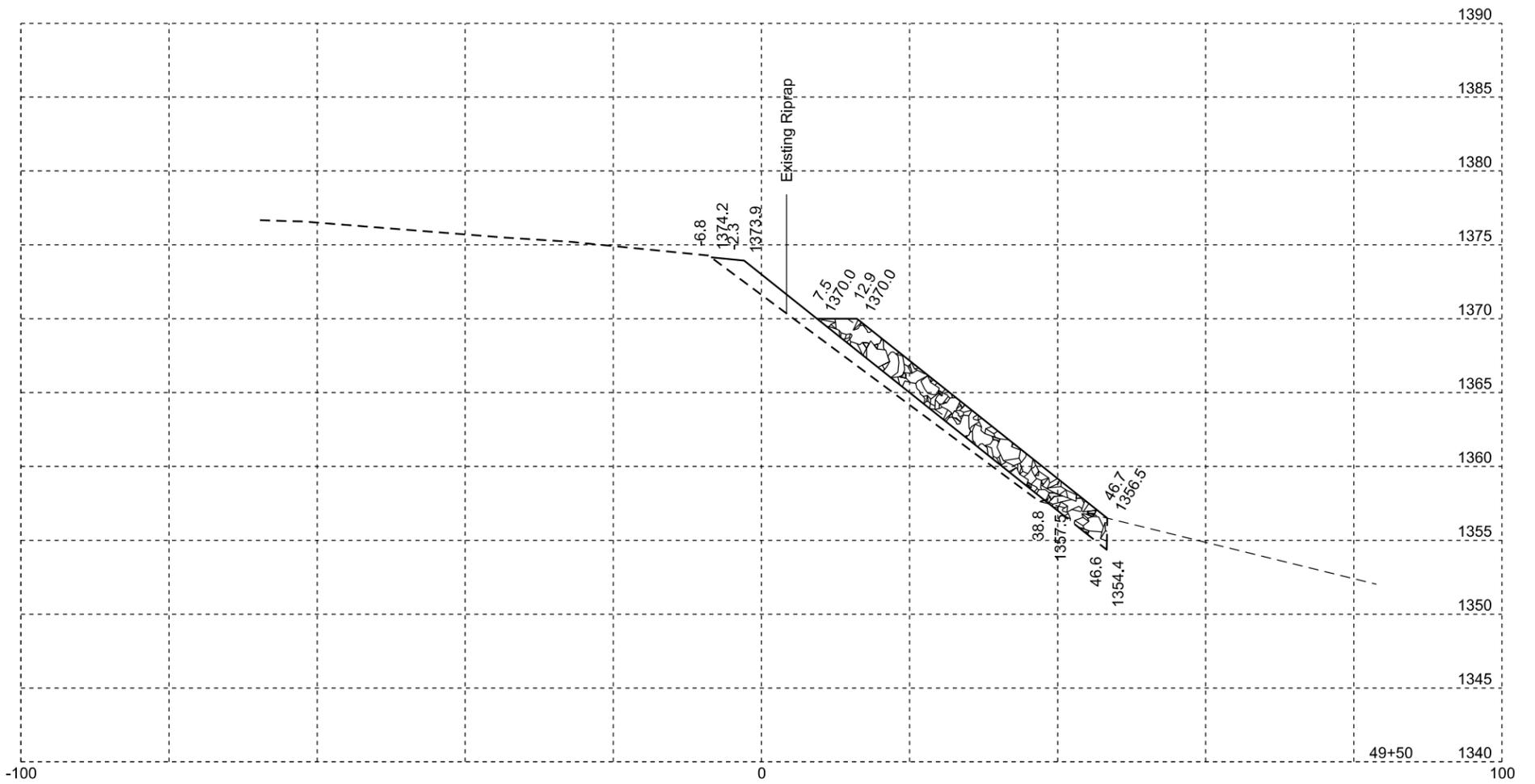
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	93	110



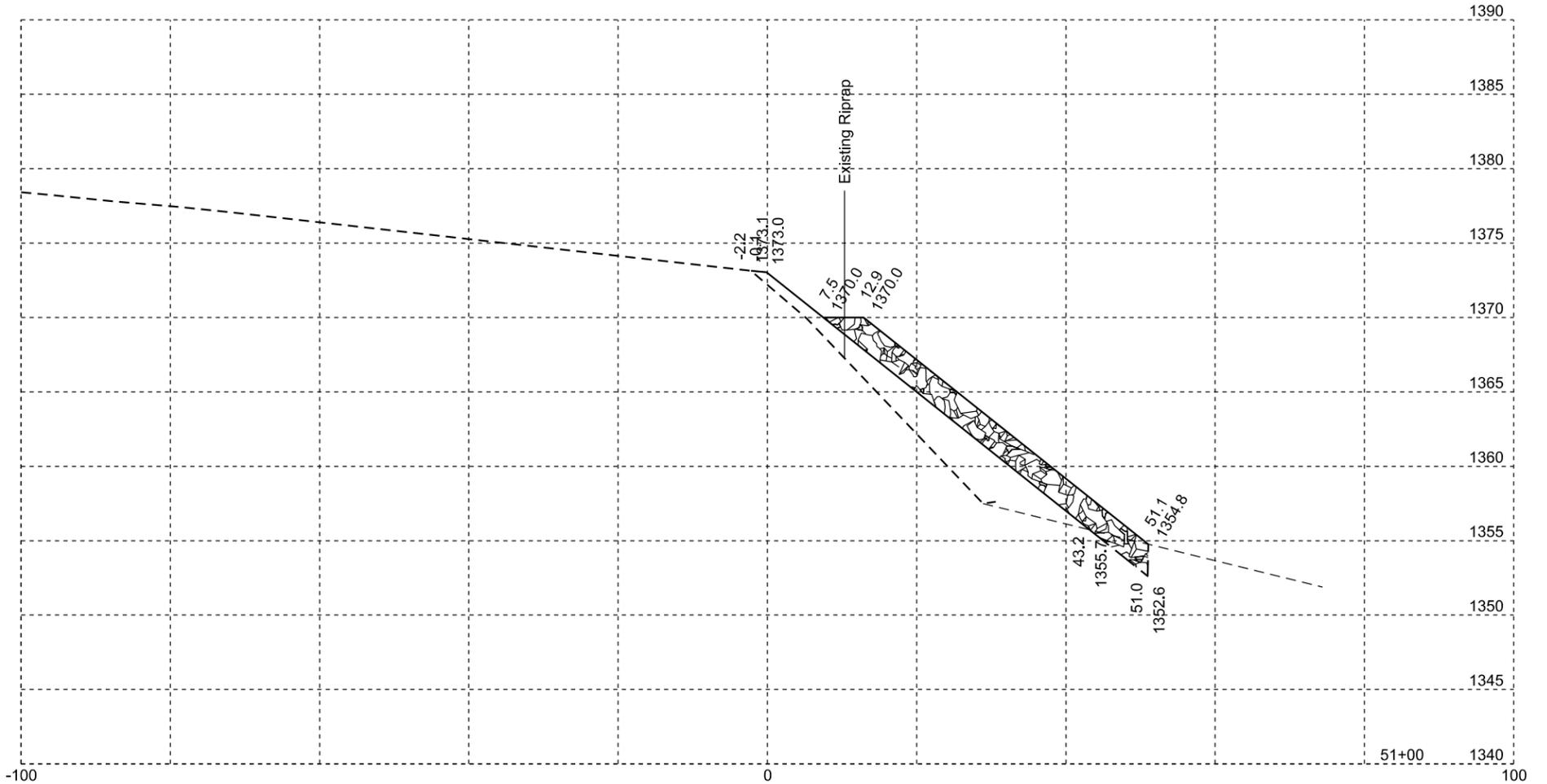
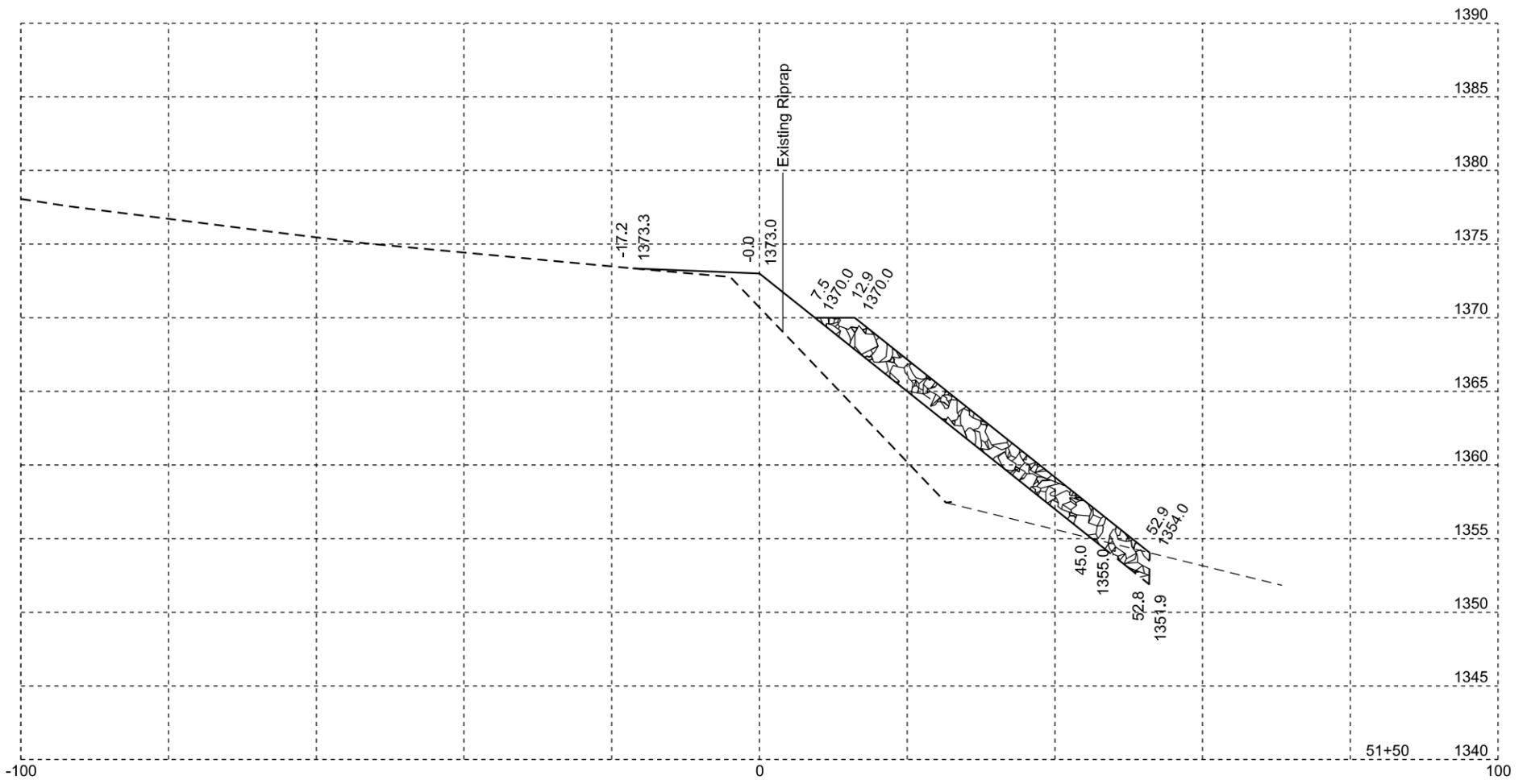
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	94	110



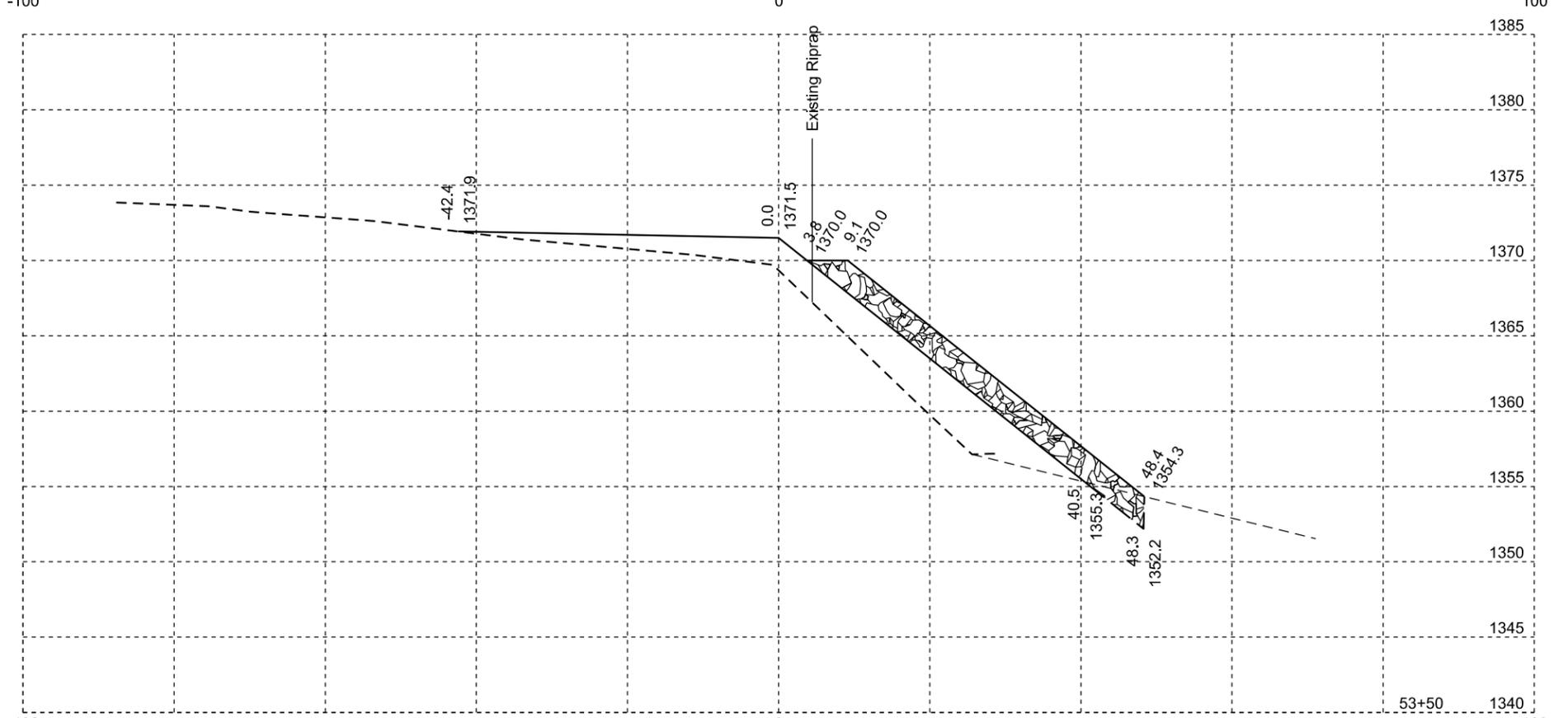
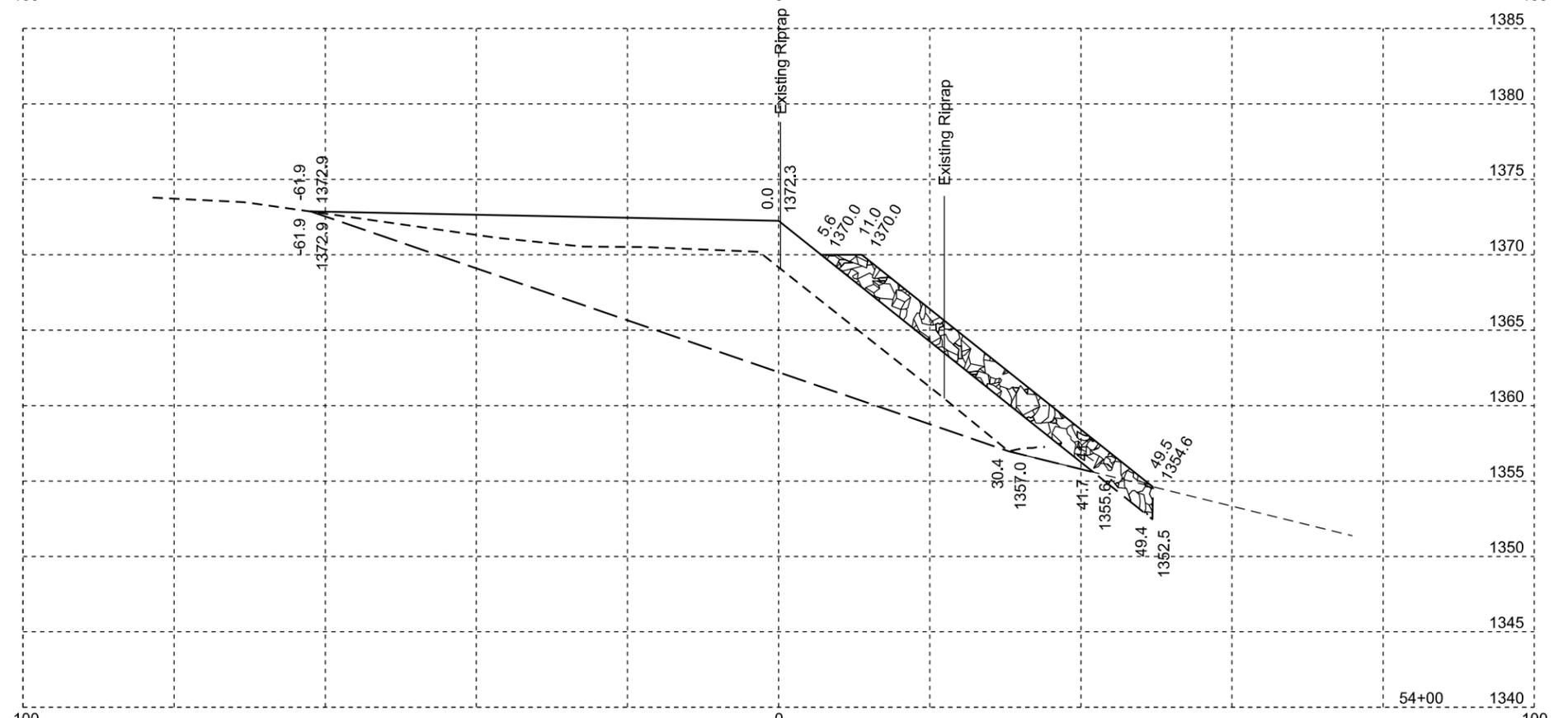
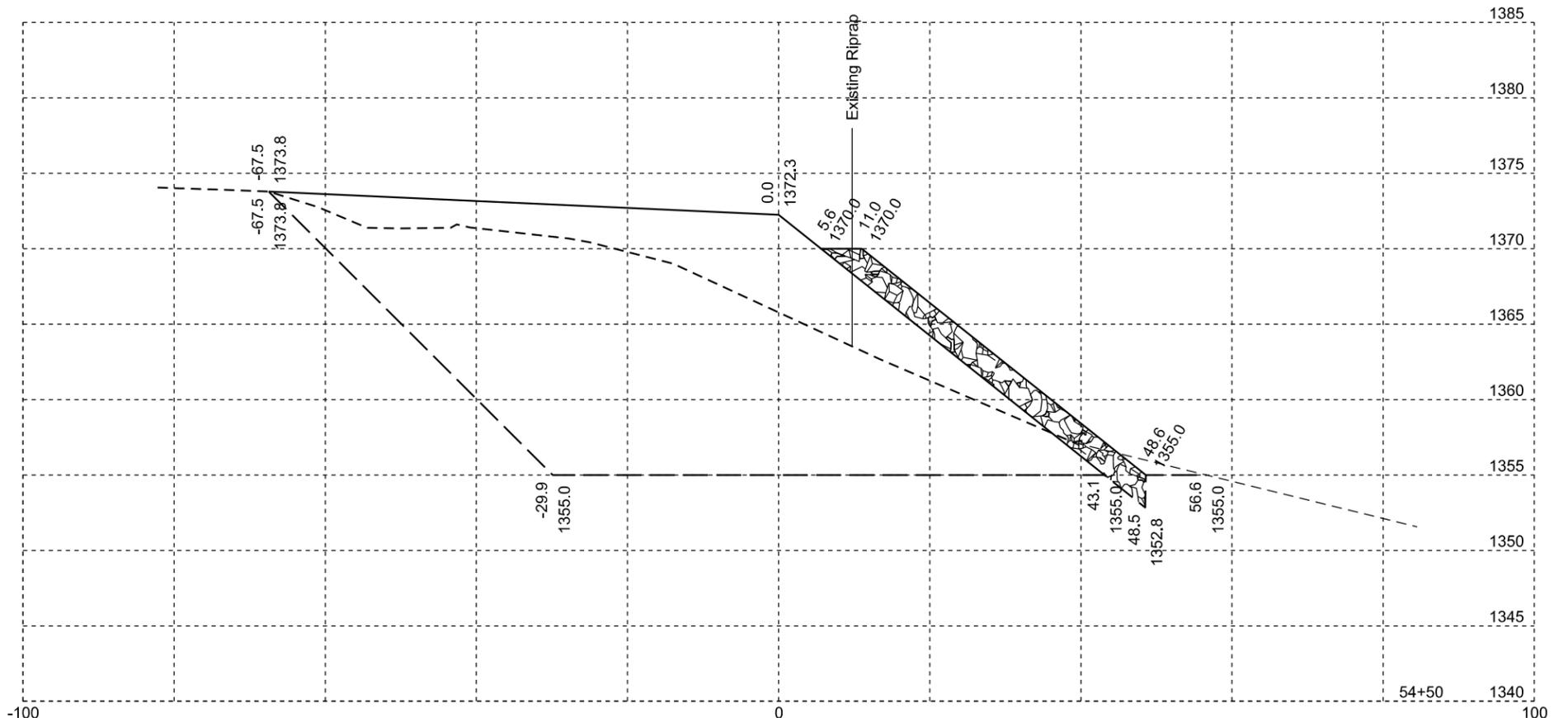
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	95	110



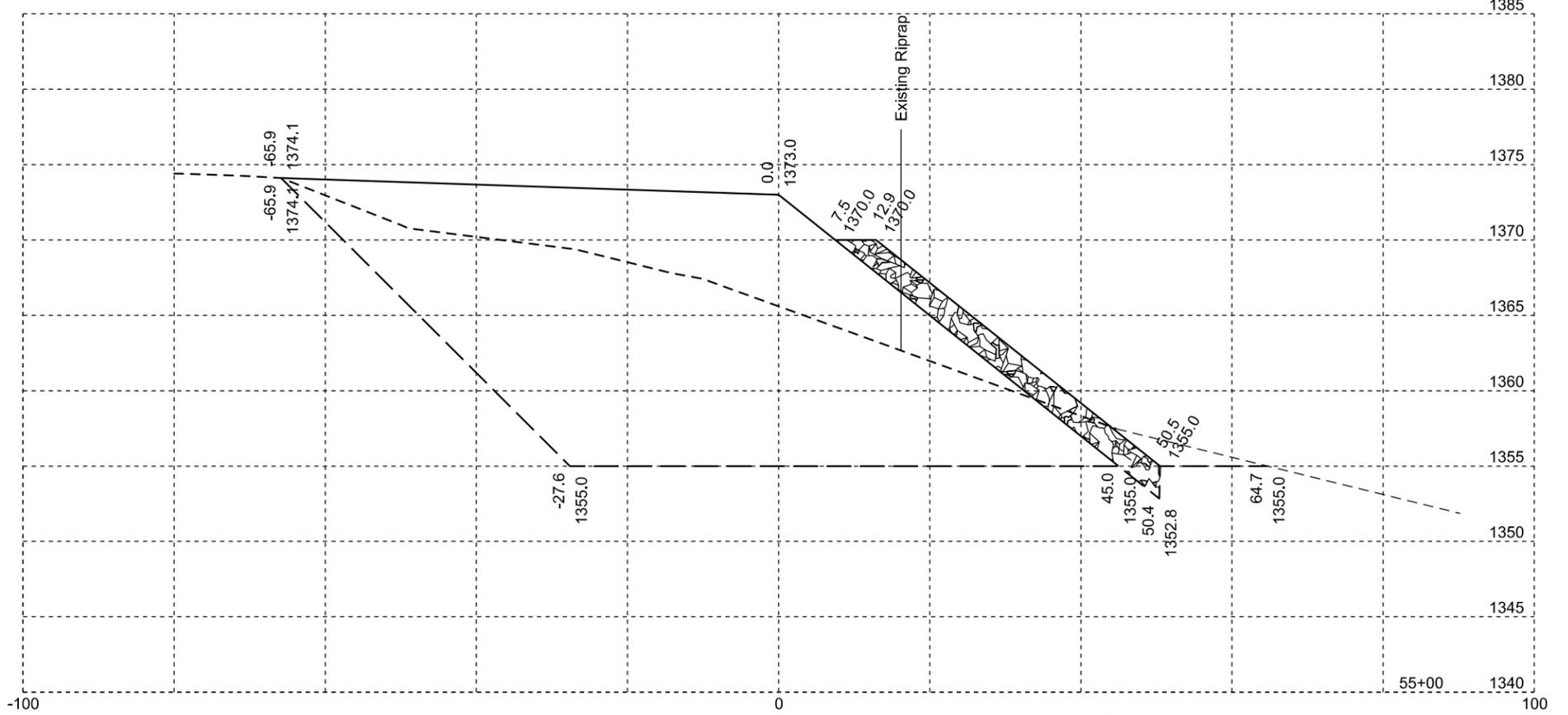
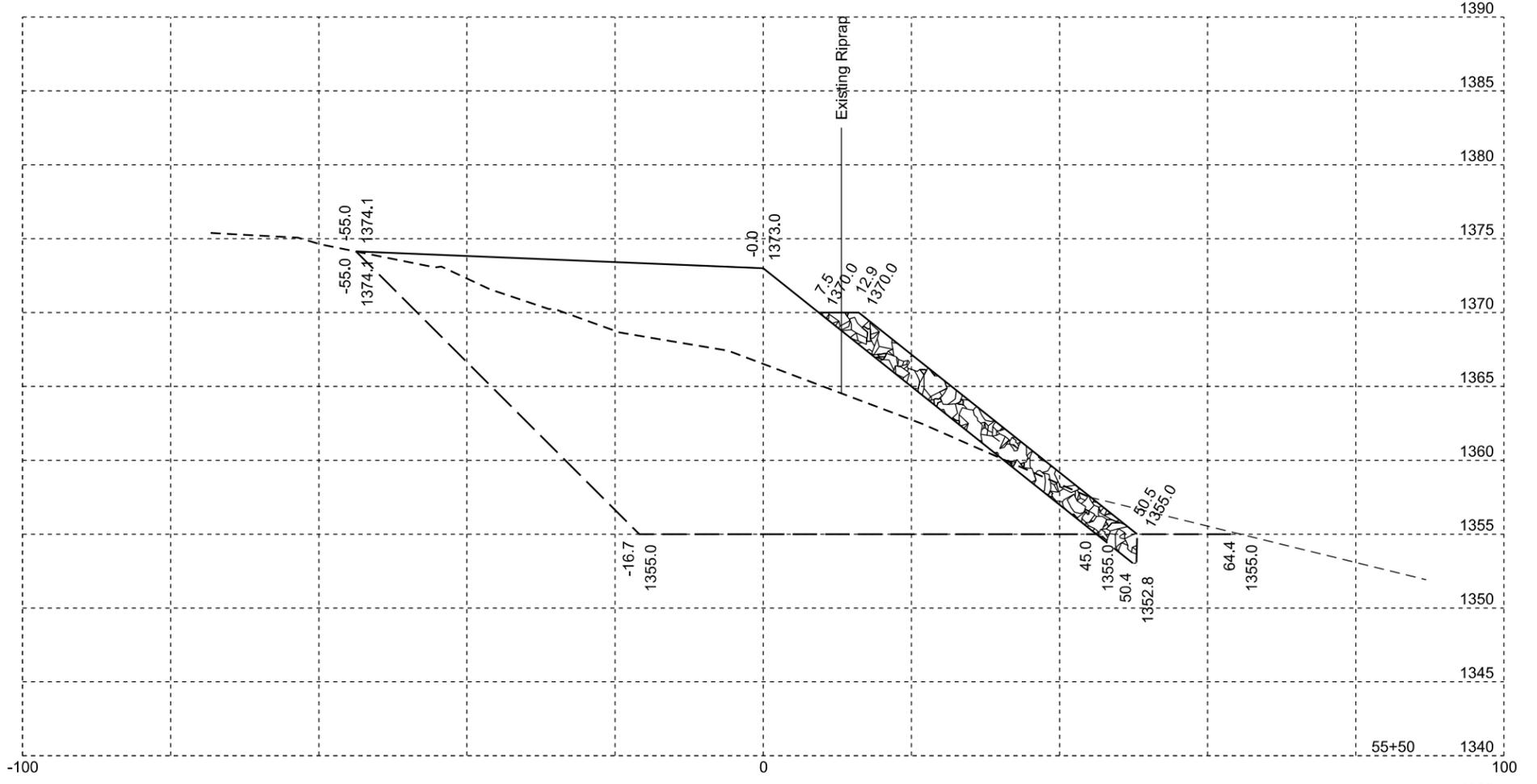
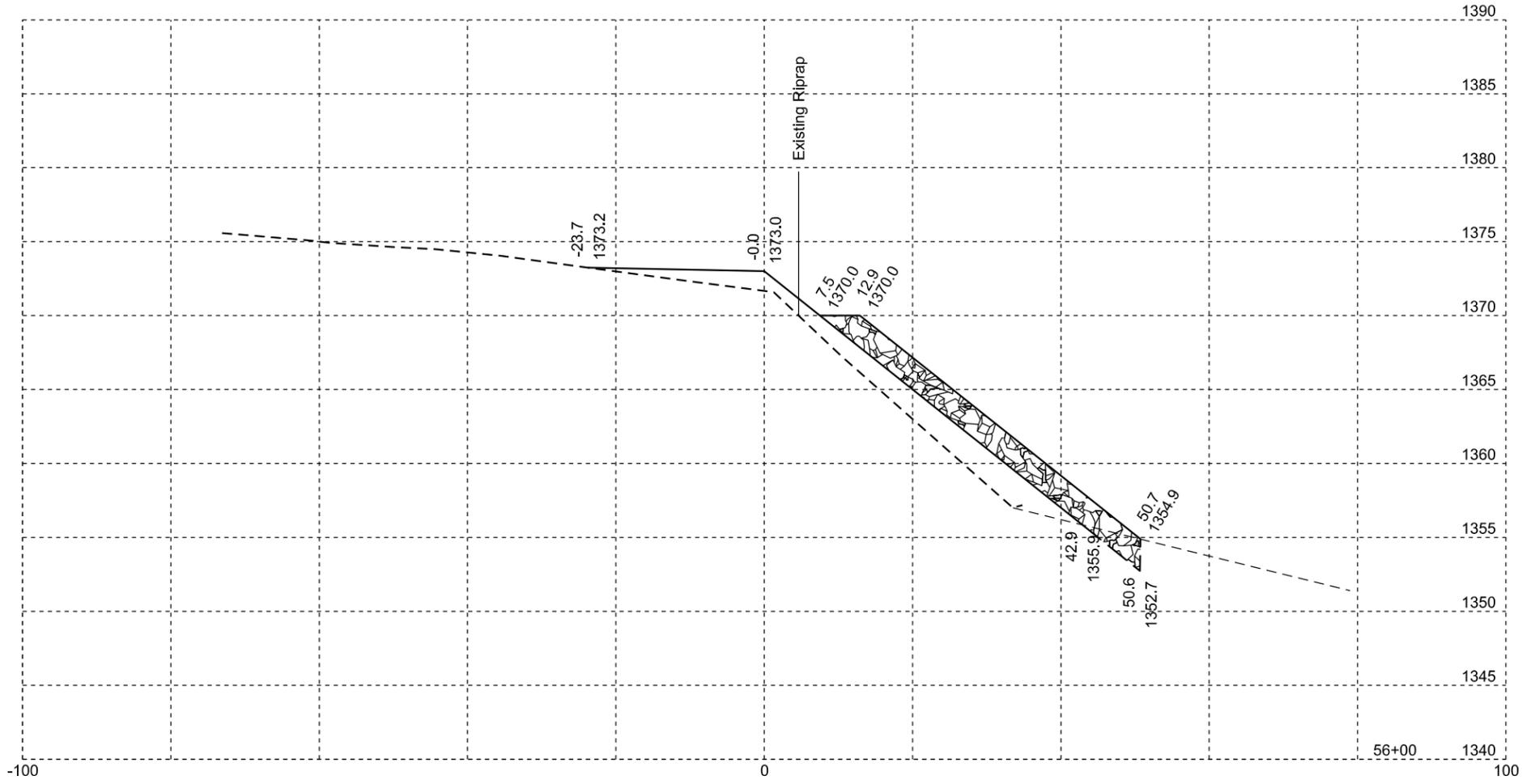
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	97	110



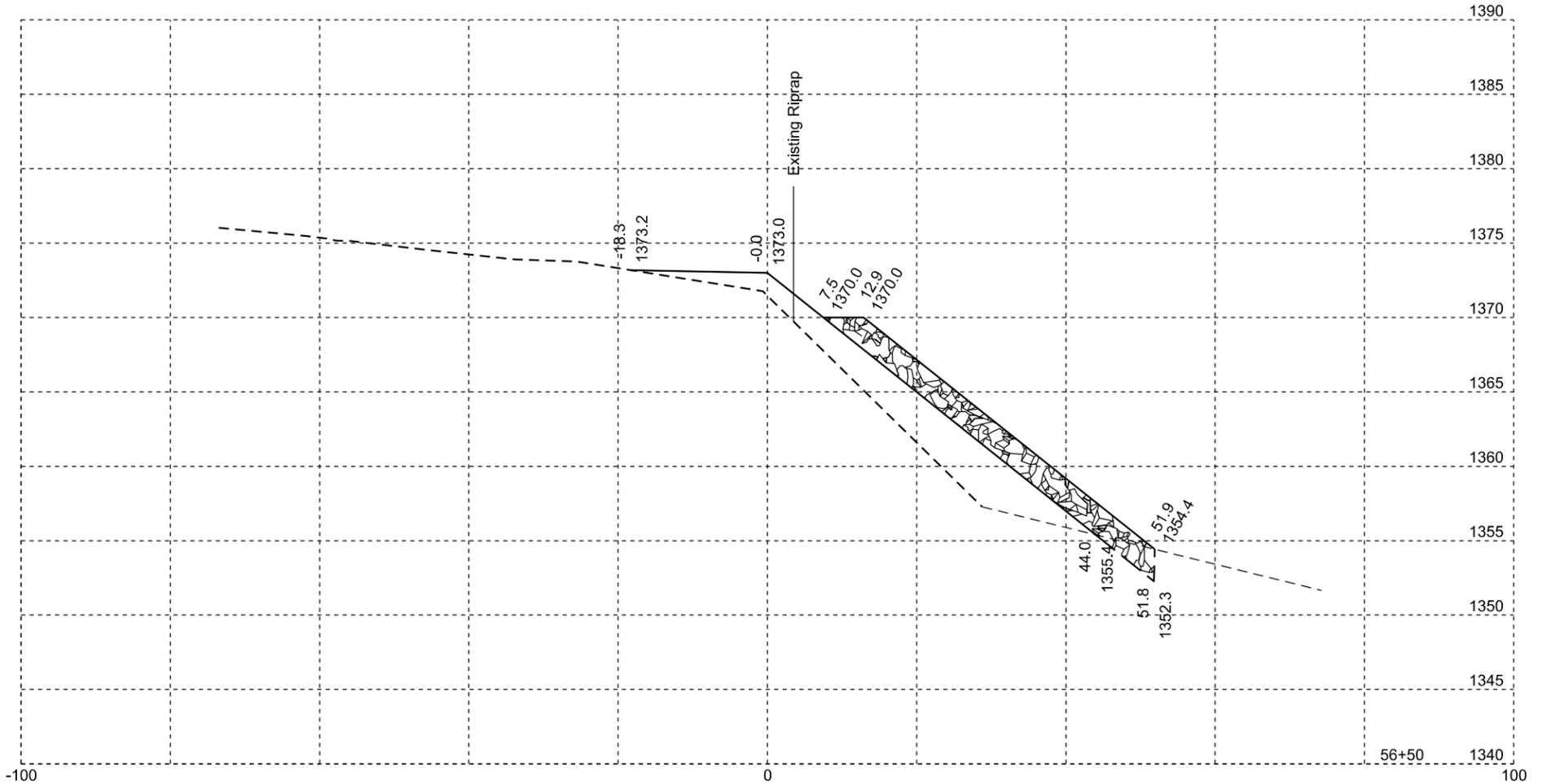
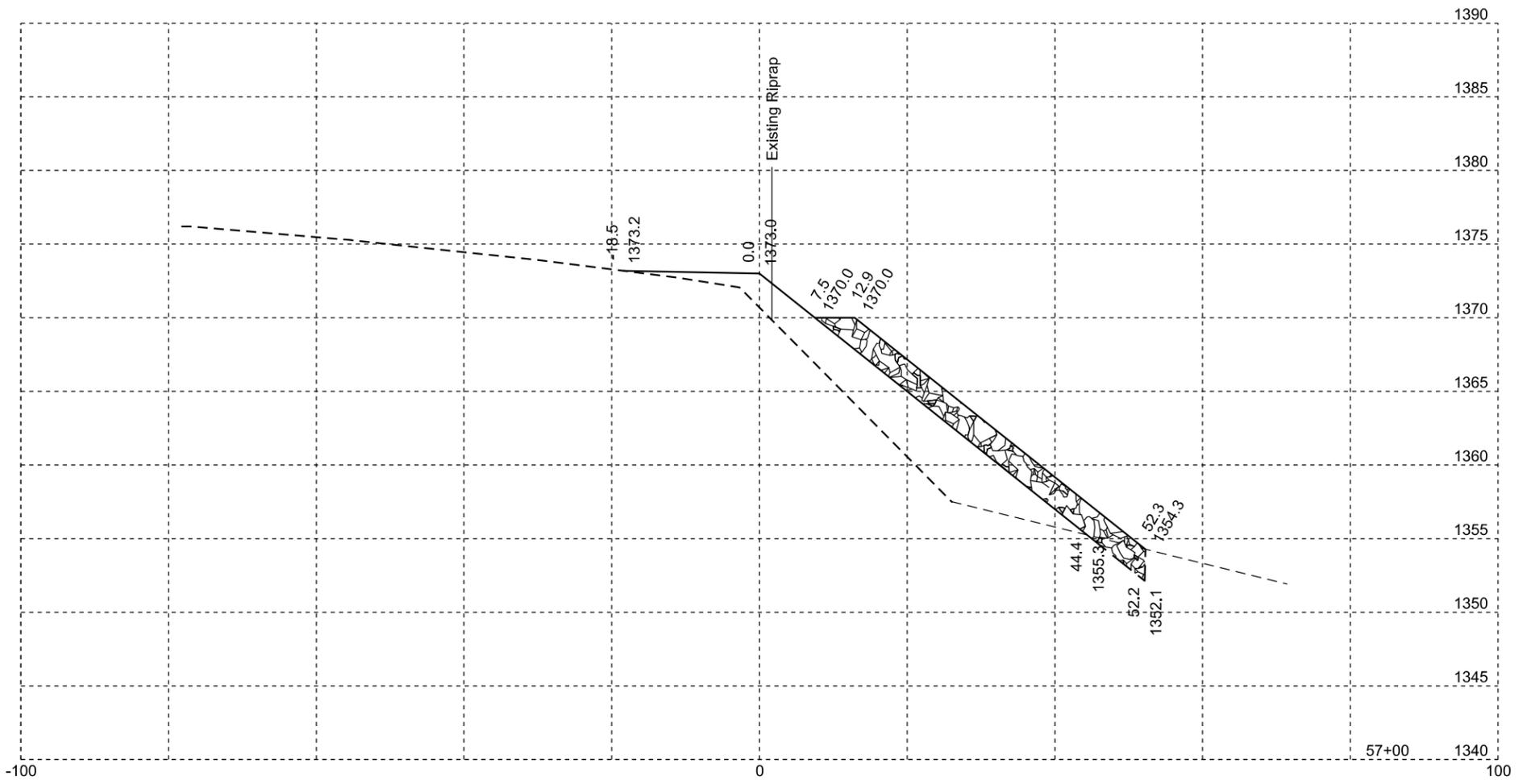
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	99	110



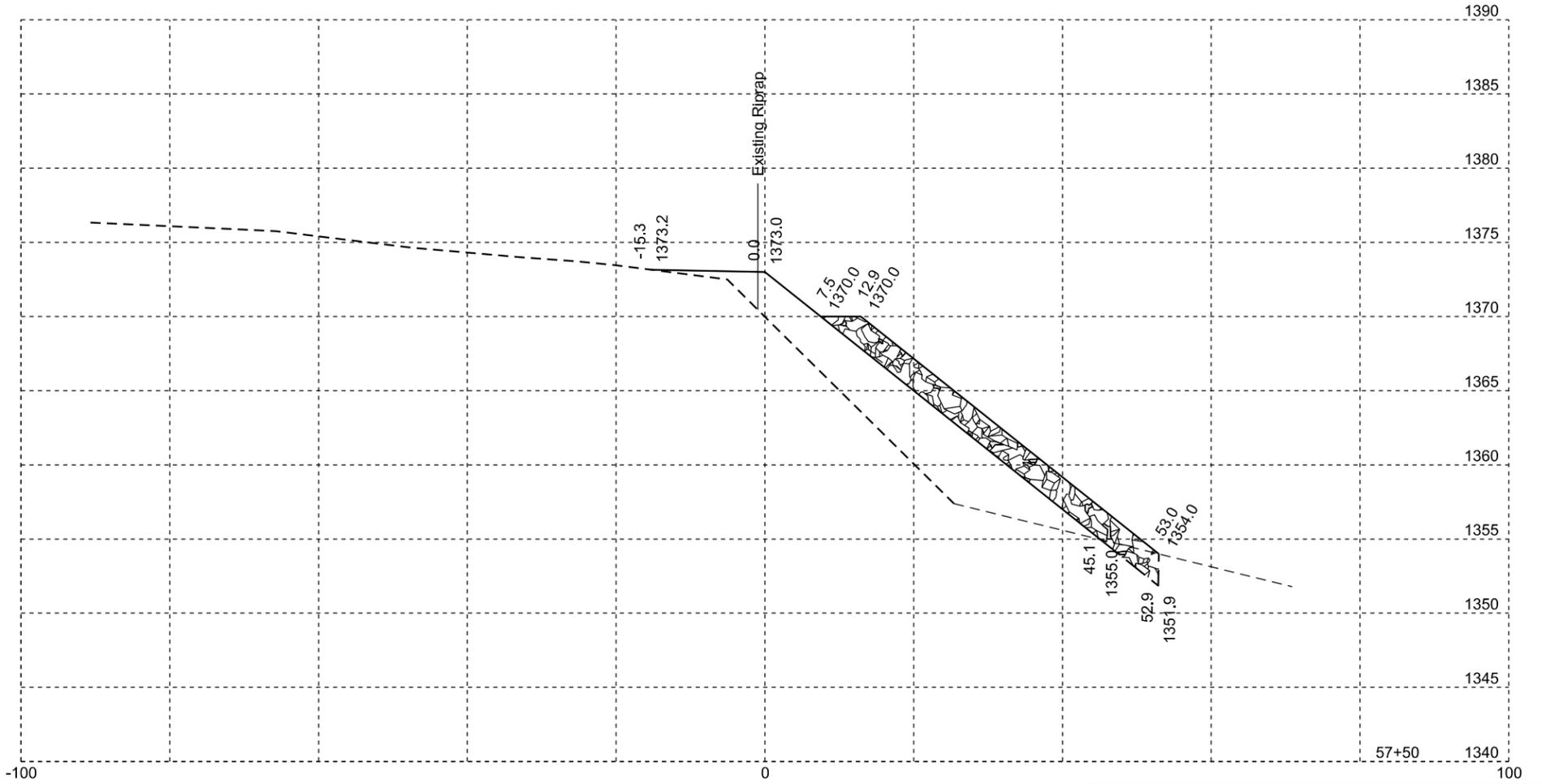
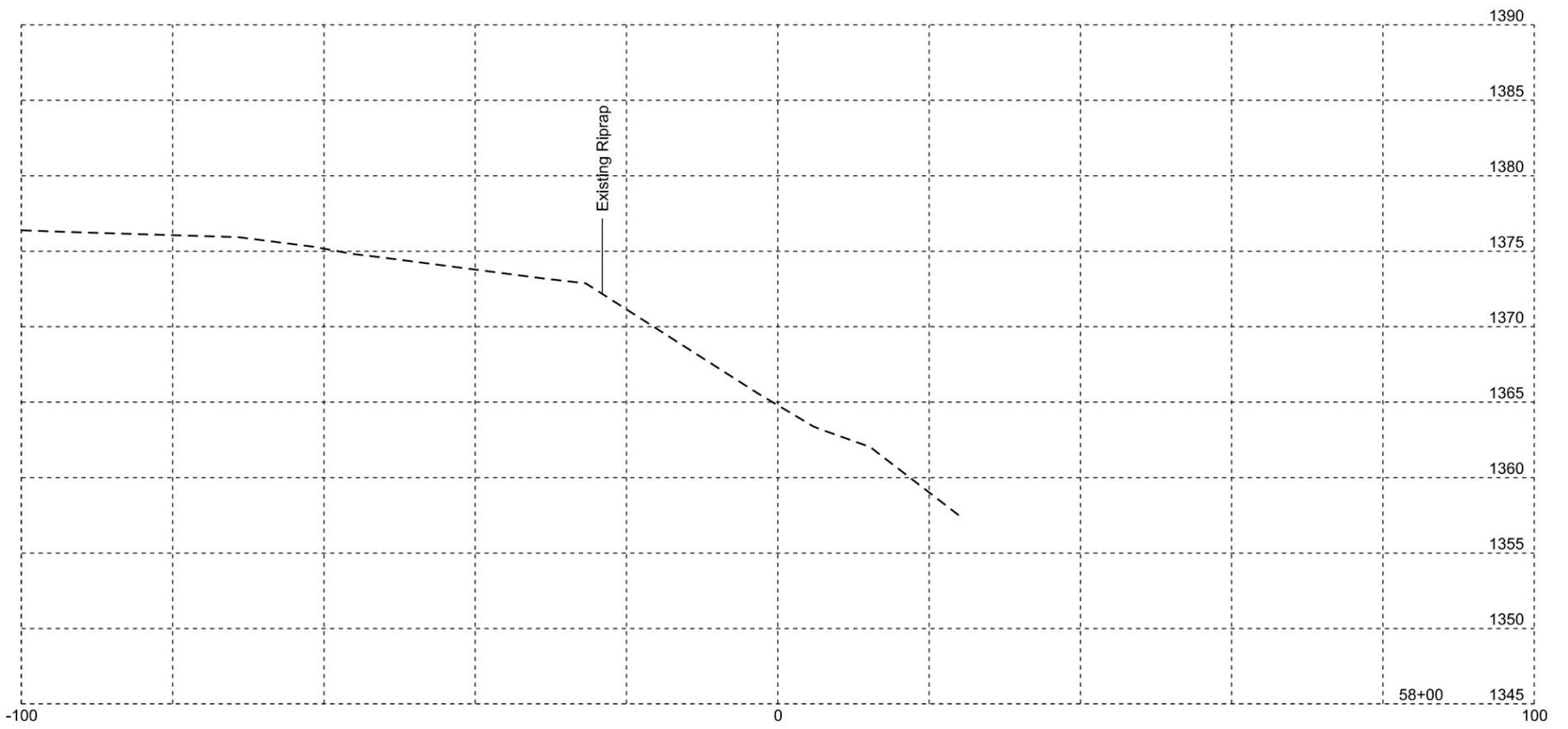
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	100	110



Plotting Date: 04/08/2014

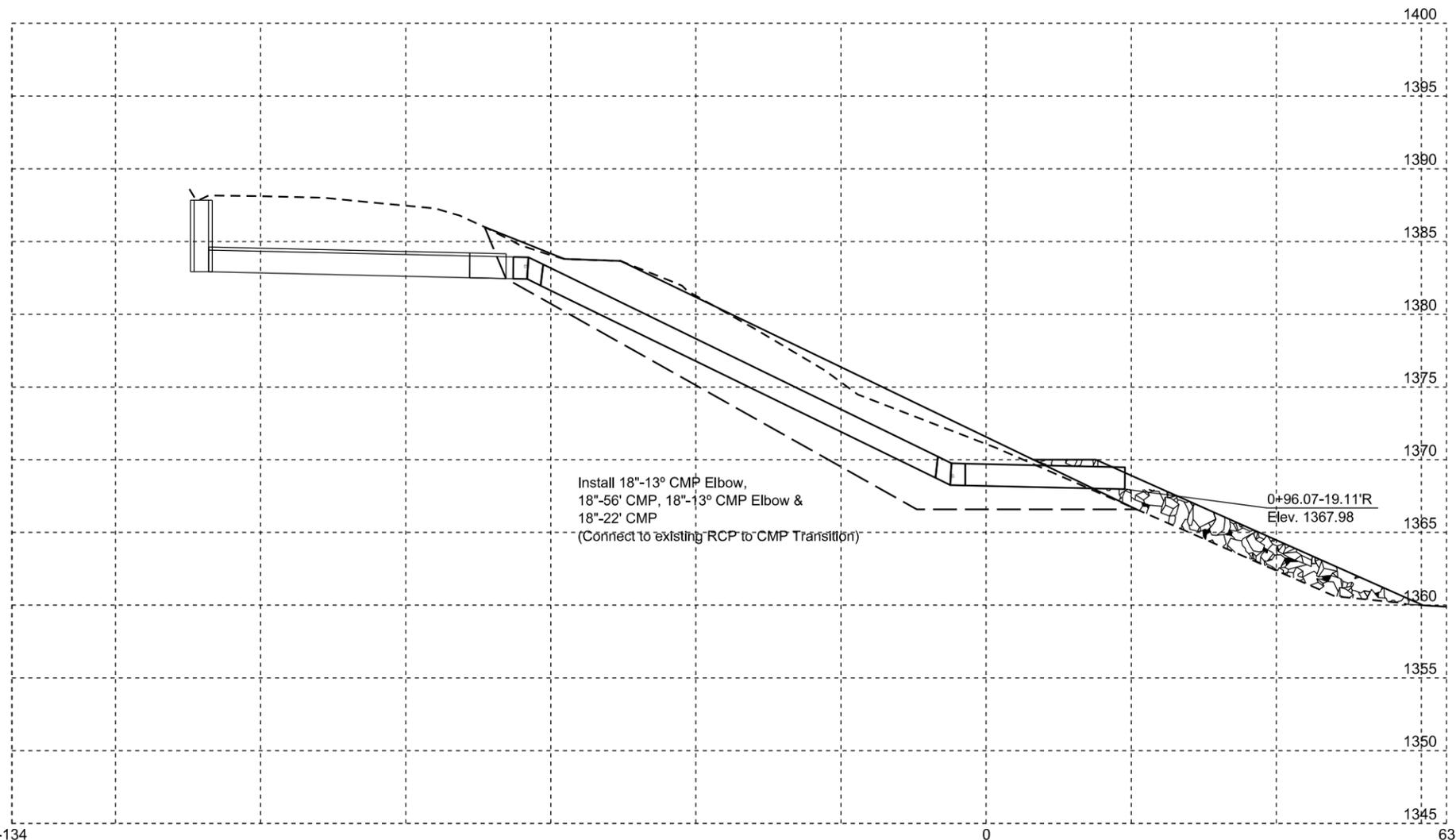
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	101	110



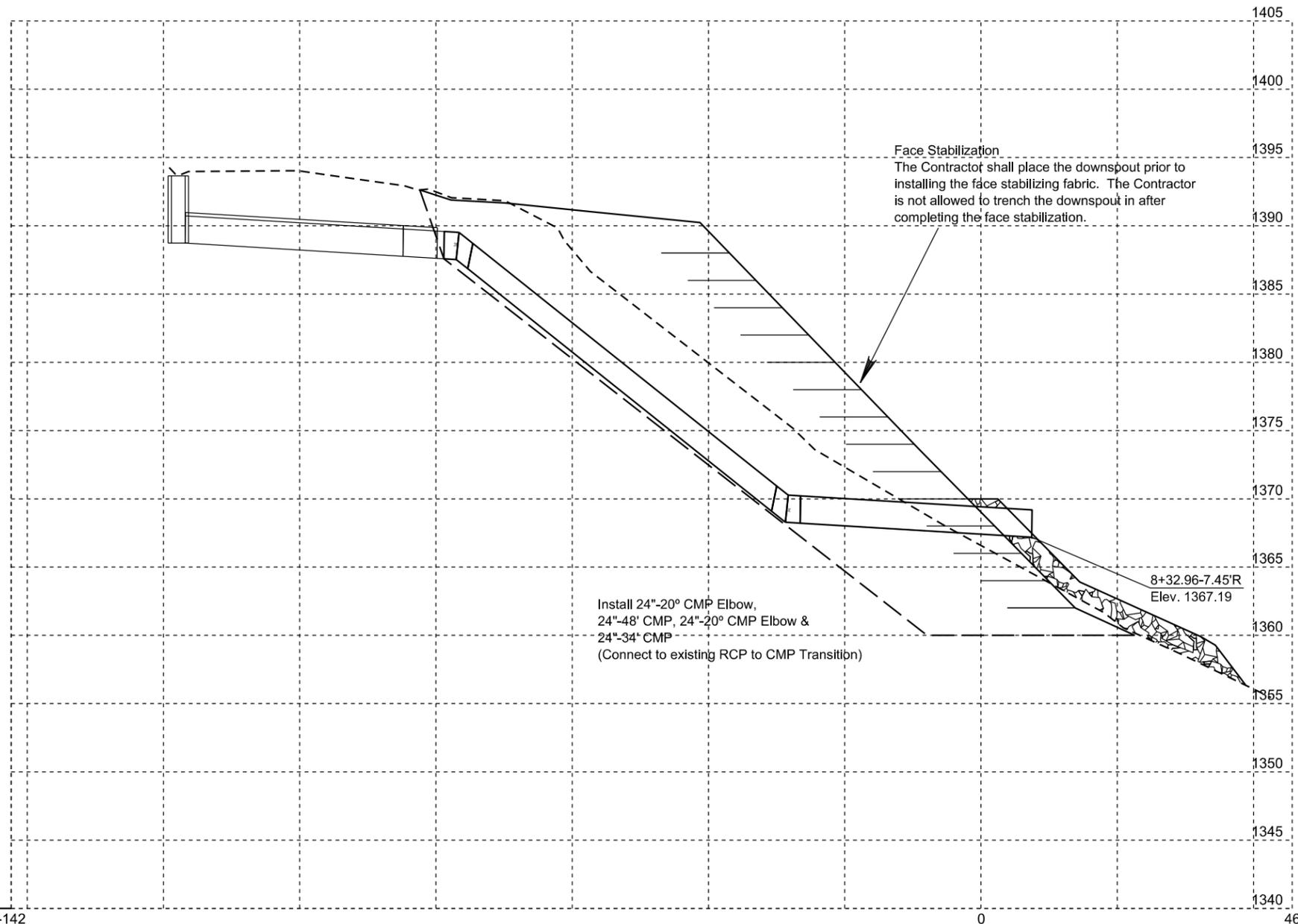
Plotting Date: 04/08/2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 000S(00)08	102	110

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 000S(00)08	103	110



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 000S(00)08	104	110

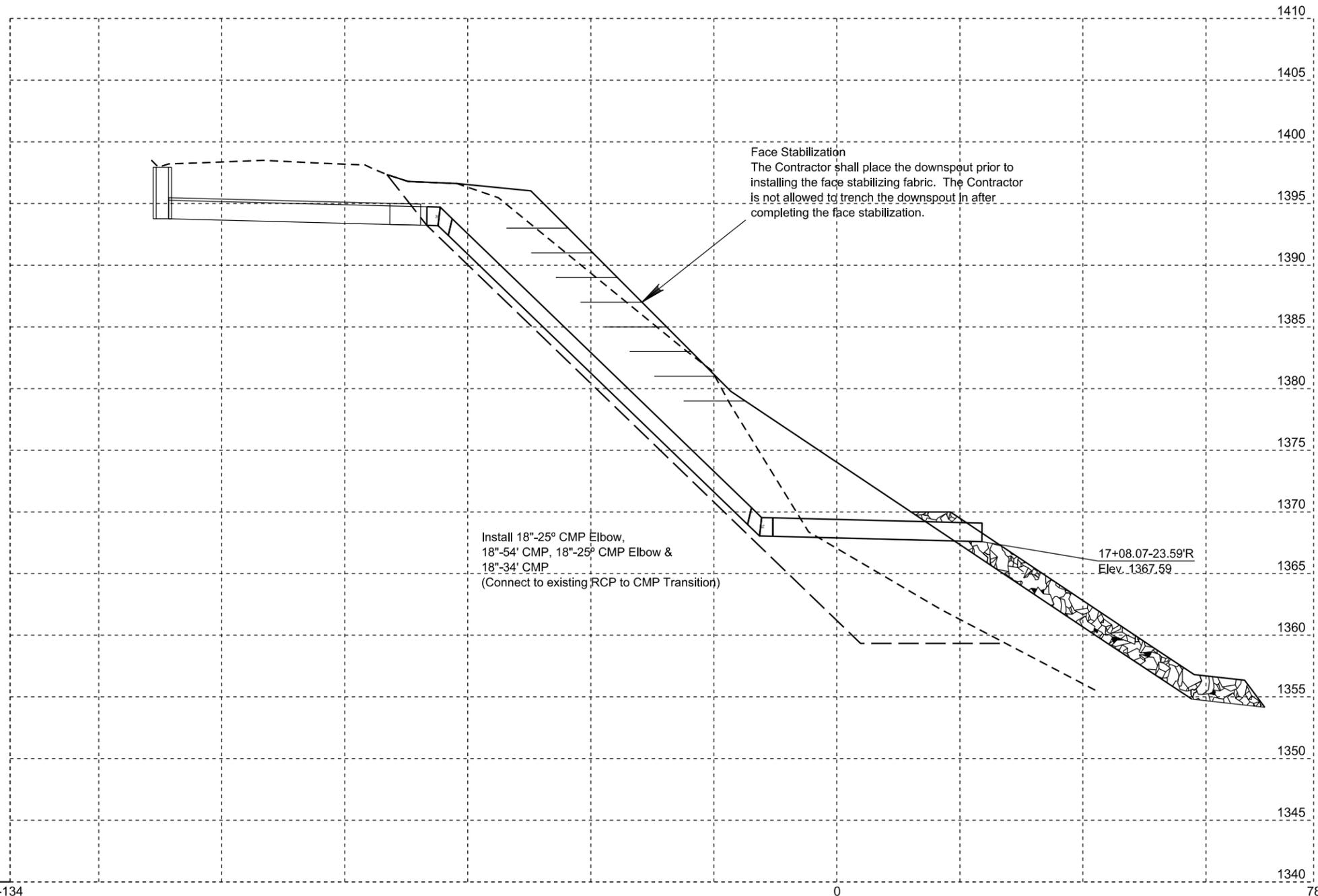


Face Stabilization
The Contractor shall place the downspout prior to installing the face stabilizing fabric. The Contractor is not allowed to trench the downspout in after completing the face stabilization.

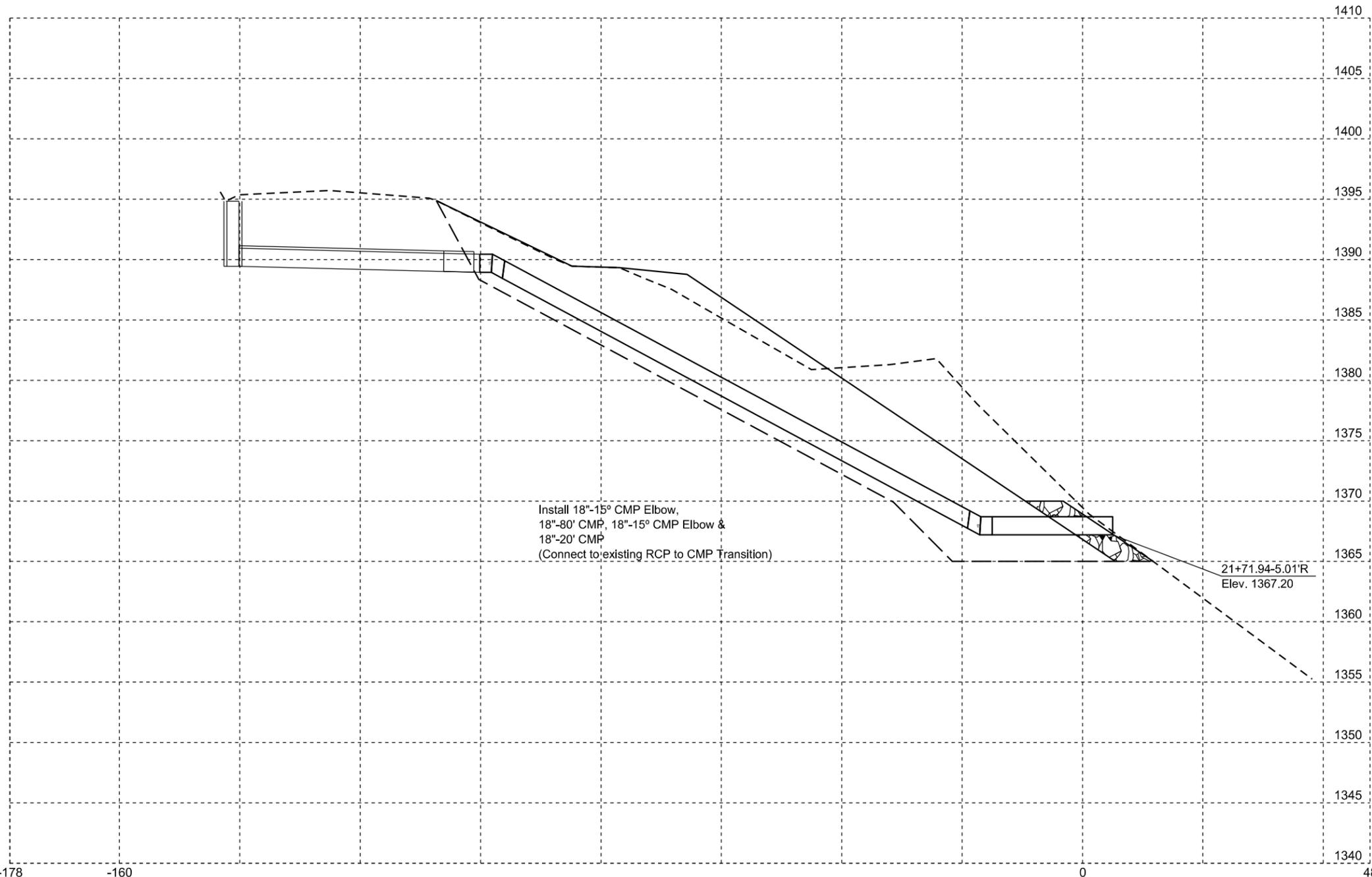
Install 24"-20° CMP Elbow,
24"-48' CMP, 24"-20° CMP Elbow &
24"-34' CMP
(Connect to existing RCP to CMP Transition)

8+32.96-7.45'R
Elev. 1367.19

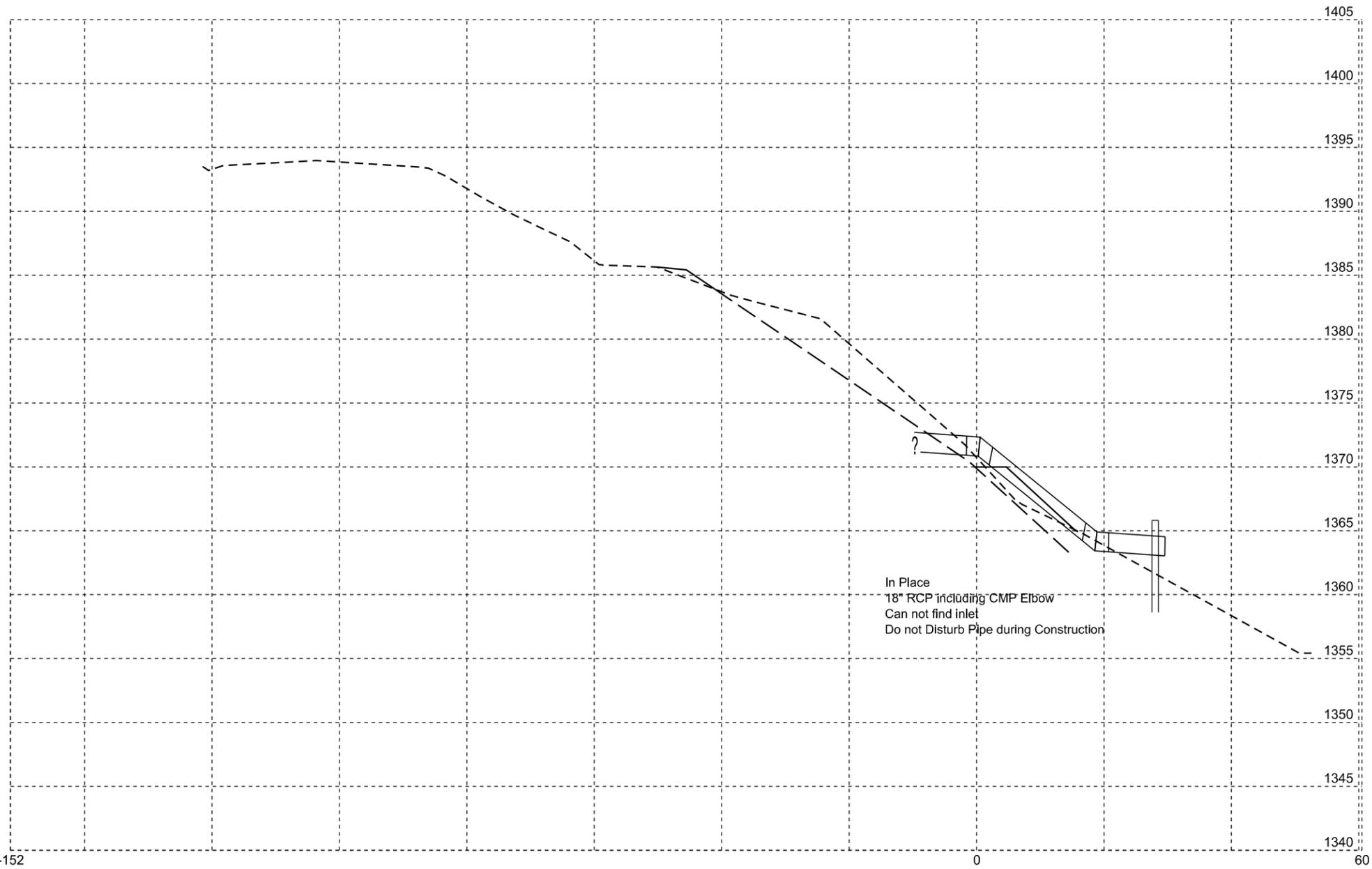
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 000S(00)08	106	110



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 000S(00)08	107	110



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 000S(00)08	108	110



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 000S(00)08	109	110

