

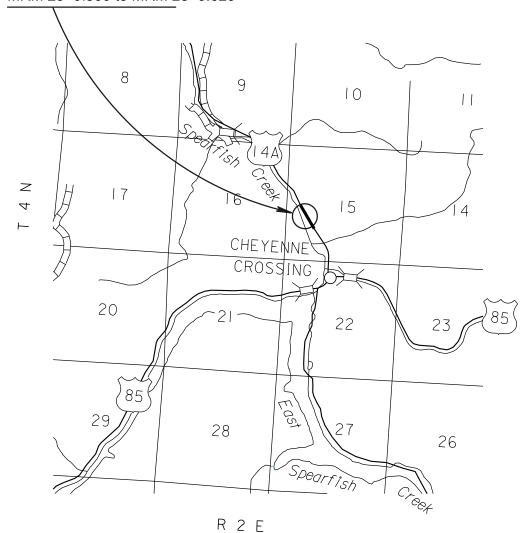
STATE OF SOUTH DAKOTA **DEPARTMENT OF TRANSPORTATION**

PLANS FOR PROPOSED

PROJECT PT 014A(35)28 **US HIGHWAY 14A** LAWRENCE COUNTY

SLIDE REPAIR PCN 0954

PROJECT LOCATION MRM 28+0.500 to MRM 28+0.620



INDEX OF SHEETS

DOT

Plotting Date: 4/29/2025

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PT 014A(35)28

SHEET

1/37

Non

19 **Dewatering Detail** 20-28 Cross Sections 29-36 Standard Plates 37 Pipe Cross Sections



November 19, 2025

DESIGN DESIGNATION

ADT (2024)	989
ADT (2044)	1433
DHV `	235
D	51%
T DHV	1.4%
TADT	3.1%
\/	25 MDL

STORM WATER PERMIT

Major Receiving Body of Water: Spearfish Creek Area Disturbed: 1.0 Acre Total Project Area: 1.5 Acre Approx. Begin Lat, Long: 44.30489, -103.87128

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	528.0	SqYd
110E1700	Remove Silt Fence	5	Ft
120E0010	Unclassified Excavation	3,644	CuYd
230E0020	Contractor Furnished Topsoil	370	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	533.6	Ton
320E1200	Asphalt Concrete Composite	252.1	Ton
450E0142	24" RCP Class 2, Furnish	40	Ft
450E0150	24" RCP, Install	40	Ft
450E2016	24" RCP Flared End, Furnish	1	Each
450E2017	24" RCP Flared End, Install	1	Each
632E2510	Type 2 Object Marker Back to Back	2	Each
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	396	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	94	Ft
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	188.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	2	Each
634E0310	Temporary Flexible Vertical Markers (Tabs)	2,625	Ft
634E0600	4" Temporary Pavement Marking Tape Type I	288	Ft
634E0900	Portable Temporary Traffic Control Signal	2	Unit
670E2015	3' x 4' Type C Drop Inlet	1	Each
680E0240	4" Corrugated Polyethylene Drainage Tubing	27	Ft
680E2000	Concrete Headwall for Underdrain	1	Each
700E0410	Class D Riprap	8,625.1	Ton
730E0210	Type F Permanent Seed Mixture	26	Lb
731E0100	Fertilizing	1,500	Lb
732E0250	Fiber Mulching	3,000	Lb
734E0103	Type 3 Erosion Control Blanket	512	SqYd
734E0325	Surface Roughening	0.7	Acre
734E0604	High Flow Silt Fence	20	Ft
734E0610	Mucking Silt Fence	1	CuYd
734E0620	Repair Silt Fence	5	Ft
831E0110	Type B Drainage Fabric	2,888	SqYd

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at https://dot.sd.gov/doing-business/contractors/standard-specifications.

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with

permitting authority can delay a project if identified 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. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B6: MIGRATORY BIRDS WORK RESTRICTION

Migratory birds are known to use the project area for nesting, which primarily occurs from April 1st to August 31st.

Action Taken/Required:

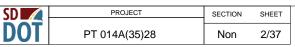
The Contractor is responsible for contacting the SDDOT Environmental Office to conduct a presence/absence survey prior to April 1st to determine if there are current nests and to determine offsetting measures to compensate for impacts to migratory birds. A survey will be conducted annually for each year of construction. Contractor will coordinate the survey findings with the Project Engineer. If any nests are found, appropriate minimization measures will need to be developed in cooperation with the Environmental Office.

Construction activities should not occur in the locations listed in the table below during the migratory bird work restriction without prior approval from the SDDOT Environmental Office to avoid conflicts with nesting migratory birds.

Station	Migratory Bird Restriction
0+00 to 9+50 (R)	April 1 to August 31

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.



Revised: 9-24-25

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:

< https://sdleastwanted.sd.gov/maps/default.aspx >

South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04 >

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Spearfish Creek is classified as a cold water permanent fishery with a total suspended solids standard of less than 30 mg/L 30-day average, less than 53 mg/L daily maximum.

Spearfish Creek is classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

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

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

Action Taken/Required:

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

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

COMMITMENT E: STORM WATER, CONTINUED

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.

The form can be found at:

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https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPApp endixCCA2018Fillable.pdf >

The Contractor is advised that permit coverage may also be required for offsite activities, such as borrow and staging areas, which are the responsibility of the Contractor.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site.

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

SDDOT: < https://dot.sd.gov/doing-business/environmental/stormwater>

DANR:<

https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.as
px >

EPA: < https://www.epa.gov/npdes >

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

The waste disposal site(s) will 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 Environmental Office and the Project Engineer.

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

- 1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with 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 not to exceed the duration of the project. Prior to project completion, the waste will 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) will be incidental to the various contract items.

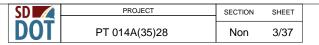
COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.



The Contractor will provide ARC with the following: a topographical map or aerial view in 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 will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the "Special Provision for Fire Plan".

COMMITMENT T: AMERICAN DIPPER

American Dippers are known to use the project area vicinity for nesting, which primarily occurs from April 1st to August 1st.

Action Taken/Required:

The Contractor is responsible for contacting the SDDOT Environmental Office to conduct a presence/absence survey to determine if American Dippers are actively nesting within 0.25 miles of the project area along Spearfish Creek. A survey will be conducted annually for each year of construction. Contractor will coordinate the survey findings with the Project Engineer. If any nests are found to be active, construction or demolition activities should not take place within 0.25 miles of the nest(s) from April 1 to August 1 to avoid conflicts with nesting American Dippers.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 30 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

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.

Special ditch grades and other sections of the roadway different than the typical sections will be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer will contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

UTILITIES

The Contractor will 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 will 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.

Black Hills Energy 1251 Otter Tail Road Sturgis, SD 57785 Ken.meirose@blackhillscorp.com CONTACT: KEN MEIROSE, TELE. #605-390-6731

Lumen
612 Mt. Rushmore Rd
Rapid City, SD 57701
Arthur.turner@lumen.com
CONTACT: ARTHUR TURNER, TELE. #605-394-4577

CLEARING AND DISPOSAL OF TIMBER

A. U.S. Forest Service Land

The Department has purchased the merchantable timber within the project limits.

The Contractor will dispose of the brush and timber. The brush and timber designated by the USFS for removal will become the property of the Contractor and removed from Forest Service land.

All stumps, slash, root wads, and residual waste material generated from the harvest must be removed from Forest Service Lands.

GENERAL GEOLOGY

Materials at this location consist of landslide debris and colluvium borne of the Deadwood and Winnipeg Formations. Included may be silt to boulder sized clasts of siltstone, shale, sandstone, limestone, and dolomite. Excavation of in-place rock is not anticipated. Water has been noted seeping out of the slope face and along the existing toe the entire length of the slide mass. Groundwater will be encountered within the buttress excavation.

CLASSIFICATION OF EXCAVATION

Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation.

CONSTRUCTION SEQUENCE

Mitigate the landslide issues at this site by excavating landslide debris and constructing a rock buttress. The construction sequence will rely heavily on the site conditions and weather at the time of construction. Prolonged periods of precipitation and/or highly saturated and unstable landslide debris may require that the rock buttress and associated excavation be completed in small segments. Temporary backslopes will not be left unsupported for extended periods of time. The Contractor will backfill exposed 1 ½:1 temporary backslopes with Class D riprap to finished riprap elevation within 5 calendar days from when excavation has begun. Construction materials required to complete the Rock Buttress will be staged on site to expedite construction and minimize the amount of time the slope is left unsupported.

LANDSLIDE DEBRIS EXCAVATION

Landslide Debris Excavation will be required as shown on the cross sections. Landslide Debris Excavation will be completed in such a manner to not undermine or destabilize the surrounding slopes. The temporary 1 ½:1 backslopes required for buttress construction will become unstable over the long-term. However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slopes and construction activities are sequenced to minimize the amount of time the temporary backslopes are left exposed and unsupported. Regular monitoring of temporary slopes is required during construction. If temporary slopes become unstable, excavation will cease, and the slope will be evaluated by the Engineer.

Some of the excavated material may be utilized in the proposed Rock Buttress or overlying fill. Durable, oversize material will be incorporated into the Rock Buttress or wasted at a site approved by the Engineer. Excavated soil and cobbles will be used in fill construction above the Rock Buttress.



Revised: 6-10-25

ROCK BUTTRESS CONSTRUCTION

Construct a 2:1 Rock Buttress from Station 2+50± to Station 5+75±, Rt. The Rock Buttress will be, at a minimum, constructed to the lines shown in the plans. Construction activities will be sequenced to minimize the amount of time the steep temporary backslopes are left exposed and unsupported. Site conditions may require that the Rock Buttress be constructed in small segments.

Place Type B Drainage Fabric on all excavated slopes encapsulating the Rock Buttress. Rock will meet the requirements for Class D Riprap and will be properly seated and compacted as directed by the Engineer. Rock will be placed on the slope uniformly without segregation or large voids. Place drainage fabric over the completed Rock Buttress prior to placement of the overlying fill.

TYPE B DRAINAGE FABRIC

Installation Procedure

Vegetation and loose debris will be removed from areas to be covered prior to drainage fabric and riprap placement.

The fabric will be placed as taut as possible with minimal wrinkles. Placement will be done so that subsequent riprap placement does not shove, wrinkle, or distort the in-place fabric. All seams in the fabric will be stitched in accordance with the fabric seaming procedure and as shown on the detail labeled "Seam Types".

Drainage fabric will be held in place by a method approved by the Engineer. No traffic or equipment will be allowed on the uncovered fabric.

Riprap and fill material will be dumped at least 20 feet behind the leading edge of the backfill and pushed into place with a loader or dozer from the covered areas to the uncovered areas.

Fabric Seaming Procedure

The sewn seams will consist of two parallel rows of stitching ("prayer" seam, TypeSSa-2), or will consist of a J-seam, (Type SSn-1), using a single row of stitching. The stitching will be a lock type stitch.

If the SSa-2 seam is used, the two rows of stitching will be 1" apart with a tolerance of plus or minus 1/2" and will not cross, except for restitching. The minimum seam allowance, i.e., the minimum distance from the fabric edge to the stitch line nearest to that edge, will be 1.5".

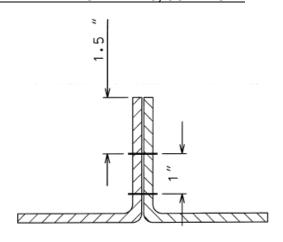
If the J seam, Type SSn-1, is used, the minimum seam allowance will be 1".

The seam, stitch type, and the equipment used to perform the stitching will be as recommended by the manufacturer of the fabric and approved by the Engineer.

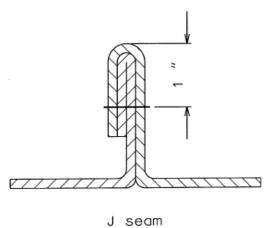
The seams will be sewn in such a manner that the seam can be readily inspected by the Engineer.

Thread used will be high strength polypropylene, polyester, or Kevlar thread. Nylon threads will not be allowed.

TYPE B DRAINAGE FABRIC, CONTINUED



Flat or "prayer" seam
Type SSa-2



Type SSn-1

TABLE OF RIPRAP AND DRAINAGE FABRIC

		Class D	Type B
		Riprap	Drainage Fabric
Station	L/R	(Ton)	(SqYd)
2+50 to 5+75	R	8625	2888

EMBANKMENT CONSTRUCTION

Complete the 2:1 backslope construction by placing fill material adjacent to and on top of the Rock Buttress from Station 2+50± to Station 5+75±. Warp fill to fit the adjacent undisturbed backslopes. Prior to fill placement, Type B Drainage Fabric will be placed around and over the Rock Buttress to prevent migration of soil into the rock. Care will be taken to not damage the drainage fabric during fill placement. Excavated Landslide Debris may be utilized to construct embankment. It is anticipated that re-vegetation of the newly constructed slope will be difficult due to the steepness of the slope and the material used to construct the embankment. Special erosion control measures may be required to establish vegetation on the newly constructed slope. Install erosion control as required.

UNDERDRAIN

The proposed grading will require the relocation of an existing underdrain outlet. Remove the existing outlet headwall at Station 2+75±, 95' Rt. and couple an additional 25 feet of drainage tubing onto the existing drainage tubing. Install a new headwall and daylight the underdrain outlet tubing at approximately Station 2+75±, 70'Rt. as directed by the Engineer.

Other existing underdrains found substantially within the excavation for the rock buttress will be removed at the discretion of the Engineer.

Estimate of Quantities:

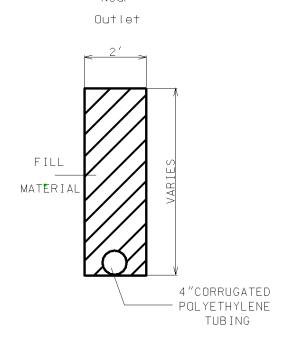
4-inch Corrugated Polyethylene Tubing

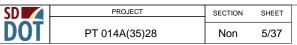
27 feet

The underdrain trench shall be graded to maintain a minimum of .01ft/ft or 1-% drop from beginning to outlet. The Outlet Headwall will be placed to blend in with the surrounding topography with the outlet tubing placed to permit proper flow from the outlet.

Care must be taken to ensure that the underdrain and outlet tubing is not damaged during construction. Sufficient cover material is to be placed over the underdrain before heavy equipment is allowed to work over the underdrain.

The underdrain locations and elevations given are based on the best information available to the Geotechnical Engineering Activity. Actual field conditions may require that adjustments be made by the Engineer during construction to provide for sufficient drainage.





Revised: 6-10-25

SHRINKAGE FACTOR: Embankment +20%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

			* Excavation	* Waste
		Excavation	Incidental to Riprap	
Station to	Station	(CuYd)	(CuYd)	(CuYd)
2+50	5+75	3644	6160	6777

* The quantities for these items are for information only.

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

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.

The volume of in place Asphalt Surfacing removed will NOT be paid for as Unclassified Excavation.

When finaling a project, the estimated quantity of 95 cubic yards of Asphalt Pavement removed from the cut sections will be subtracted from the Unclassified Excavation quantity for final payment. The quantity of Concrete Pavement and Asphalt Pavement from cut sections subtracted from the Unclassified Excavation quantity will be plans quantity and will not be adjusted according to field measurements.

WASTE EXCAVATION

No excess excavation material will be disposed of on U.S. Forest Service property.

PIPE CULVERT UNDERCUT

Pipe culvert undercut may be required for this project. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

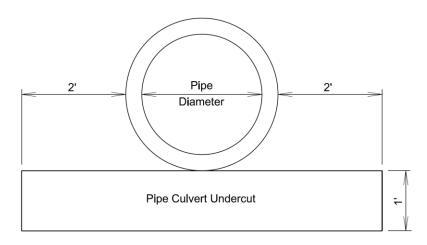
If pipe culvert undercut is required, the table below contains the rate for onefoot depth of pipe culvert undercut per foot of pipe length. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

PIPE CULVERT UNDERCUT, CONTINUED

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

Pipe Diameter	Round Pipe Undercut Rate for 1' Depth	Arch Pipe Undercut Rate for 1' Depth
(ln)	(CuYd/Ft)	(CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	
72	0.4136	0.4630
78	0.4352	
84	0.4568	0.5123
90	0.4784	



INCIDENTAL WORK, GRADING

Station	L/R	Remarks
2+75	95' R	Remove Concrete Headwall for Underdrain
4+11	R	Remove Grate Inlet
4+11		Remove 18" – 42' CMP
5+46		Remove 18" – 32' CMP

TABLE OF DROP INLETS AND QUANTITIES

		3' x 4' Type C
		Drop Inlet
Station	L/R	(Each)
5+46	R	1

Table of Pipe Quantities				
	24"	24" RCP		
	Circular	Flared		
US 14A	RCP	End		
Station	Ft	Ea		
5+46	40	1		

TYPE 2 OBJECT MARKERS

Remove and replace objects markers at the end of the pipe if they exist. All cost for removing and replacing the object markers will be incidental to the contract unit price per each for "Type 2 Object Markers Back-to-Back".

REMOVE ASPHALT CONCRETE PAVEMENT

An estimated 88 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing highway according to the in-place surfacing typical sections and wasted as directed by the Engineer.

The quantity of removed asphalt material is estimated from the in-place surfacing typical sections. This estimated quantity is not included in the unclassified excavation quantities.

SURFACING THICKNESS DIMENSIONS

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will include MC-70 Asphalt for Prime placed at the rate of 0.30 gallons per square yard. The Asphalt for Prime will be applied to the Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

Asphalt Concrete Composite will be paved in 2 - 3" lifts.

	PROJECT	SECTION	SHEET	
OT	PT 014A(35)28	Non	6/37	

Revised: 6-24-25

	Table of Material Quantities							
	US 14A		Length	Remove Asphalt Concrete Pavement	Base Course	Asphalt Concrete Composite		
	Station to	Station	Ft	SqYd	Ton	Ton		
	2+50	6+25	375	500.0	505.3	238.7		
Additional Quantities:				28.0	28.3	13.4		
			Totals:	528.0	533.6	252.1		

Table of Additional Material Quantities					
Remove					
	Asphalt		Asphalt		
	Concrete	Base	Concrete		
	Pavement	Course	Composite		
US 14A	SqYd	Ton	Ton		
Pipe Replacement	28.0	28.3	13.4		

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 roadway inslopes and areas as determined by the Engineer during construction.

Contractor furnished topsoil will be free from stones, coarse gravel, or similar objects larger than 3/4 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, liter, or any other material which may be harmful to plant growth will not be allowed. Organic material will be decomposed.

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

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will 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 will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All seed will 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 will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (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 will 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 will 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 will 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 fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

The Fertilizer provided will be from the approved product list. The approved product list may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

PERMANENT SEEDING

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

Type F Permanent Seed Mixture will consist of the following:

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

SURFACE ROUGHENING

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

FIBER MULCHING

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

Fiber mulch will be applied at the rate of 3,000 pounds per acre.

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

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract unit price per pound for "Fiber Mulching".

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF FIBER MULCHING

		Quantity
Station	Location	(Lb)
2+50 to 5+75 R	Backslope above Riprap	1971
2+50 to 5+75 R	Inslope	133
	Additional Quantity:	896
	Total:	3000

HIGH FLOW SILT FENCE

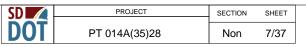
The high flow silt fence fabric provided will be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

High flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

TABLE OF HIGH FLOW SILT FENCE

Station	Location	Quantity (Ft)
5+46 R	Type C Inlet	20



Revised: 6-10-25

EROSION CONTROL BLANKET

Erosion control blanket will be installed 8 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL BLANKET

			Quantity
Station	Location	Type	(SqYd)
2+50 to 5+75 R	2:1 Compacted Soil Backslope	3	512

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

(The numbers left of the title headings are **reference numbers** to the <u>GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED</u> WITH CONSTRUCTION ACTIVITIES (Stormwater Permit))

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- > 5.3 (3a): Project Limits (See Title Sheet)
- > 5.3 (3a): Project Description (See Title Sheet)
- > 5.3 (4): Site Map(s) (See Title Sheet and Plans)
- Major Soil Disturbing Activities (check all that apply)
 - ⊠Clearing and grubbing
 - ⊠Excavation/borrow
 - ⊠Grading and shaping
 - Filling
- Other (describe):
- > 5.3 (3b): Total Project Area 1.5 Acre
- > 5.3 (3b): Total Area to be Disturbed 1.0 Acre
- > 5.3 (3c): Maximum Area Disturbed at One Time 1.0 Acre
- > 5.3 (3d): Existing Vegetative Cover (%)
- > 5.3 (3d): Description of Vegetative Cover
- > 5.3 (3e): Soil Properties: A-4, A-6, A-7
- > 5.3 (3f): Name of Receiving Water Body/Bodies Spearfish Creek

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install stabilized construction entrance(s).	
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Install utilities, storm sewers, curb and gutter.	
Install inlet and culvert protection after completing storm drainage and other utility installations.	
Final grading.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

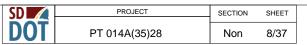
All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report. Include the technical reasoning for selecting each control. (check all that apply)

Perimeter Controls (See Detail Plan Sheets)

Description	Estimated Start Date
☐ Natural Buffers (within 50 ft of Waters of State)	
☐ Silt Fence	
☐ Erosion Control Wattles	
☐ Temporary Berm / Windrow	
☐ Floating Silt Curtain	
☐ Stabilized Construction Entrances	
☐ Entrance/Exit Equipment Tire Wash	
Other:	

Structural Erosion and Sediment Controls

Description	Estimated Start Date
⊠ Silt Fence	
☐ Temporary Berm/Windrow	
☐ Erosion Control Wattles	
☐ Temporary Sediment Barriers	
☐ Erosion Bales	
☐ Temporary Slope Drain	
☐ Turf Reinforcement Mat	
Riprap	
Gabions	
☐ Rock Check Dams	
☐ Sediment Traps/Basins	
Culvert Inlet Protection	
☐ Transition Mats	
☐ Median/Area Drain Inlet Protection	
☐ Curb Inlet Protection	
☐ Interceptor Ditch	
☐ Concrete Washout Facility	
☐ Work Platform	
☐ Temporary Water Barrier	
☐ Temporary Water Crossing	
Permanent Stormwater Ponds	
☐ Permanent Open Vegetated Swales	
☐ Natural Depressions to allow for Infiltration	
☐ Sequential Systems that combine several practices	
Other:	



Dust	Controls
------	----------

Description	Estimated Start Date
☐ Tarps & Wind impervious fabrics	
Watering	
Stockpile location/orientation	
☐ Dust Control Chlorides	
Other	

Dewatering BMPs

Description	Estimated Start Date
☐ Sediment Basins	
☐ Dewatering bags	
☐ Weir tanks	
☐ Temporary Diversion Channel	
Other:	

Stabilization Practices (See Detail Plan Sheets)

(Stabilization measures will begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization will be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities (3.18))

Description	Estimated Start Date
☐Vegetation Buffer Strips	
☐ Temporary Seeding (Cover Crop Seeding)	
□ Permanent Seeding	
Sodding	
☐ Planting (Woody Vegetation for Soil Stabilization)	
☐ Mulching (Grass Hay or Straw)	
☐ Fiber Mulching (Wood Fiber Mulch)	
☐ Soil Stabilizer	
☐ Bonded Fiber Matrix	
☐ Fiber Reinforced Matrix	
Surface Roughening (e.g. tracking)	
☐ Other:	

Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes \square No \boxtimes 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.

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- 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 to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and 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.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

Stormwater management will be handled by temporary controls outlined in "DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES" above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

Material Management

- <u>Housekeeping</u>
- Only needed products will be stored on-site by the Contractor.
- Except for bulk materials the contractor will store all materials under cover and/or 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.

Hazardous Materials

- Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
- 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 stormwater system or stormwater 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 stormwater runoff.

> Spill Control Practices

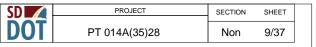
In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup 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 cleanup 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.

> Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater 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 SDDANR.
- Personnel with primary responsibility for spill response and cleanup 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.

5.3 (8b): WASTE MANAGEMENT PROCEDURES

Waste Disposal

 All liquid waste materials will be collected and stored in approved sealed containers. 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. The Contractor is responsible for ensuring 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 Contractor 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 which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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 heading "POLLUTION PREVENTION PROCEDURES" (check all that apply).

	☐ Concrete and Portland Cement
	☐ Detergents
	□ Paints
	☐ Metals
	□ Petroleum Based Products
	□ Diesel Exhaust Fluid
	☐ Cleaning Solvents
\triangleright	⊠ Wood
	☐ Cure
	☐ Texture
	☐ Chemical Fertilizers
	Other:

Product Specific Practices

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 stormwater. 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 facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.

7.0: 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 SDDANR immediately if any one of the following conditions exists:
 - The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
 - The release or spill causes an immediate danger to human health or safety
 - The release or spill exceeds 25 gallons
 - The release or spill causes a sheen on surface water
 - The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
 - The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01
 - The release or spill of any substance that harms or threatens to harm wildlife or aquatic life
 - The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.
- ➤ To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.



5.4: SWPPP CERTIFICATIONS

Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

> South Dakota Department of Transportation

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Mysterk

Authorized Signature (See the General Permit, Section 7.4 (1))

> Prime Contractor

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature	

CONTACT INFORMATION

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

Contractor Information:

Prime Contractor Name:

 Contractor Co 	ntact Name:	
Address:		
•		
• City:	State:	Zip:
Office Phone:	Field: _	
■ Cell Phone:	Fax:	

> Erosion Control Supervisor

Name:

Addroso.

_	Address		_	
•			_	
•	City:	State:	Zip:	
	Office Phone:	Field:		

Fax:

Cell Phone: _____SDDOT Project Engineer

•	Name:		_	
•	Business Address:			
•	Job Office Location:			
•	City:	State:	Zip:	
•	Office Phone:	Field:		
_	Call Dhamas			

> SDDANR Contact Spill Reporting

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

> SDDANR Contact for Hazardous Materials.

• (605) 773-3153

> National Response Center Hotline

• (800) 424-8802.

> SDDANR Stormwater Contact Information

- SDDANR Stormwater (800) 737-8676
- Surface Water Quality Program (605) 773-3351

SD 🗾	PROJECT	SECTION	SHEET
DOT	PT 014A(35)28	Non	11/37

5.5: REQUIRED SWPPP MODIFICATIONS

> 5.5 (1): Conditions Requiring SWPPP Modification The SWPPP must be modified, including the site map(s), in

The SWPPP must be modified, including the site map(s), in response to any of the following conditions:

- When a new operator responsible for implementation of any part the SWPPP begins work on the site.
- When changes to the construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered by inspections.
- To reflect areas on the site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
- If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with the Stormwater Permit.
- To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.
- If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of application.

> 5.5 (2): Deadlines for SWPPP Modification

Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.

> 5.5 (3): Documentation of Modifications to the Plan

All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.

> 5.5 (4): Certification Requirements

All modifications made to the SWPPP must be signed and certified as required in Section 7.4.

> 5.5 (5): Required Notice to Other Operators

If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the needed changes. Copies of the DOT 298 forms and the SWPPP will be retained on site in a designated place for review throughout the course of the project. A copy of the DOT 298 form will be given to the Contractor Erosion Control Supervisor and a copy will be emailed to the SDDOT Environmental Section in accordance with the DOT 298 Form.

SEQUENCE OF OPERATIONS

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

- Set up temporary traffic control using standard plate 634.26
- Excavate landslide debris, install underdrain, install rock buttress, and construct embankment above the buttress
- Install pipe (1/2 at a time) and drop inlet at Sta. 5+46
- Shape disturbed area, seed, fertilize, mulch, and install erosion control measures
- Remove and replace asphalt concrete and base course surfacing
- Complete permanent marking and remove temporary traffic control

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All construction operations will be conducted in the general direction of traffic movement

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 3:1.

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

It is required that the flaggers be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

TEMPORARY PAVEMENT MARKING TAPE, TYPE I

Temporary pavement marking for stop lines will consist of 4" Temporary Pavement Marking Tape Type I. Placement of each 24" white stop line will be accomplished by placing six pieces of 4" x 12' tape adjacent to one another. Each workspace requires two stop lines which is an equivalent of approximately 144' of 4" tape (2 workspaces at 144' = 288'). Temporary pavement marking on centerline will consist of temporary flexible vertical markers (tabs) or temporary raised pavement markers and will be used as depicted on standard plate 634.26. Temporary tape will be removed upon completion of the project.

TEMPORARY PAVEMENT MARKING

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

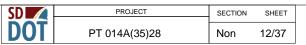
Tabs quantities as follows: 2100' - standard plate 634.26, 525' - new tapers for second half of pipe installation and new asphalt concrete resurfacing

PORTABLE TEMPORARY TRAFFIC CONTROL SIGNAL

The Contractor will furnish, install, operate, and maintain a portable temporary traffic control signal during construction phases as determined by the Engineer. There will be one controller and one slave unit per location.

The portable temporary traffic control signal will be set up to dwell in red. Detection will be video, microwave, or radar. The green time may be adjusted as needed. The Engineer will contact the Region Traffic Engineer one week prior to activation to obtain the appropriate signal timings.

All vehicle signal heads will have backplates with retroreflective border. The vehicle signal head backplates will have a factory applied 3-inch wide yellow retroreflective border. Sheeting for the border will be Type IX or Type XI in conformance with ASTM D4956.



Revised: 6-11-25

Signal backplates will be polycarbonate, aluminum, or aluminum-composite. Minimum material thicknesses are:

Polycarbonate, 0.10-inch Aluminum, 0.06-inch Aluminum-Composite, 0.08-inch

Signal backplates will extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides.

All traffic signal equipment and materials will meet the requirements of Sections 635 and 985 of the Specifications except the controller requirements.

All costs involved with constructing the portable temporary traffic control signal as specified above and on the plans, will be included in the contract unit price per unit for "Portable Temporary Traffic Control Signal".

INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, the Lawrence County Sheriff and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a press release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor will provide the Engineer with pertinent information 7 days prior to any phase change or any other major change that affects traffic flow.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
R10-6	STOP HERE ON RED	2	24" x 36"	6.0	12.0
W1-3	REVERSE TURN (L or R)	1	48" x 48"	16.0	16.0
W3-3	SIGNAL AHEAD (symbol)	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
			VENTIONAL I CONTROL SI		188.0

PAVEMENT MARKING PAINT

All No Passing Zones will be reviewed prior to the application of any new centerline markings. The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of permanent pavement markings to allow the State to mark the locations of No Pass Zones. State forces will not be available to mark the No Pass Zones from 07-21-25 to 08-13-25.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 22.5 Gals/Mile Dashed 4" line = 6.2 Gal/Mile Glass Beads = 8 Lbs/Gal.

All cost for materials, labor, and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 14 days and within 42 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

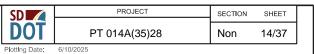
If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m²/lux for white and 170 mc/m²/lux for yellow.

SD	PROJECT	SECTION	SHEET
DOT	PT 014A(35)28	Non	13/37

Revised: 6-10-25

TYPICAL GRADING SECTION



US 14A Sta. 2+50 to 5+75

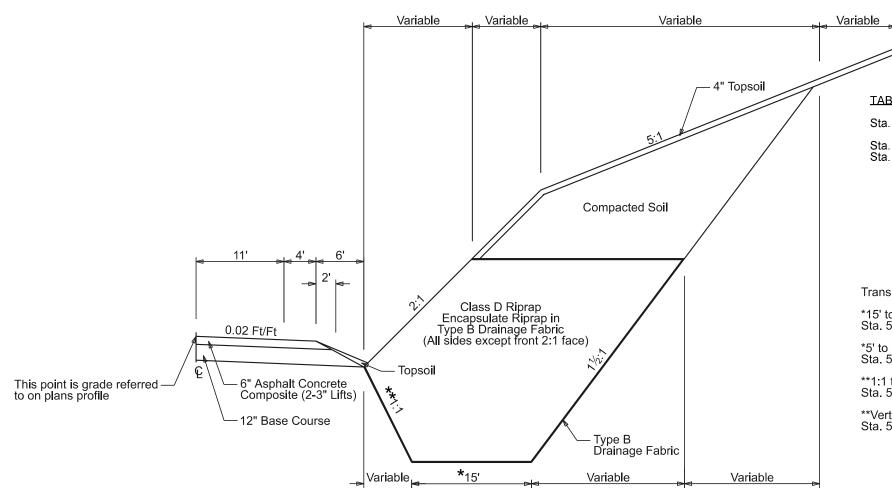


TABLE OF SUPERELEVATION

Sta. 2+50
Sta. 4+90 to 6+25
Sta. 6+2

Transititons:

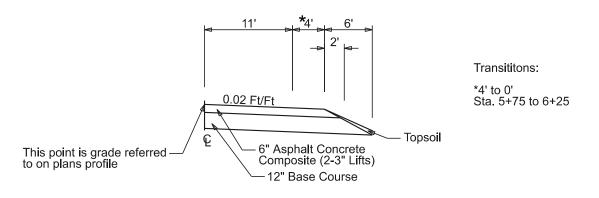
*15' to 5' Sta. 5+25 to 5+50

*5' to 3' Sta. 5+50 to 5+75

**1:1 to Vertical Sta. 5+25 to 5+46

**Vertical to 1:1 Sta. 5+46 to 5+75

US 14A Sta. 5+75 to 6+25



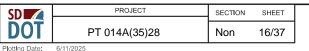
HORIZONTAL ALIGNMENT AND CONTROL DATA

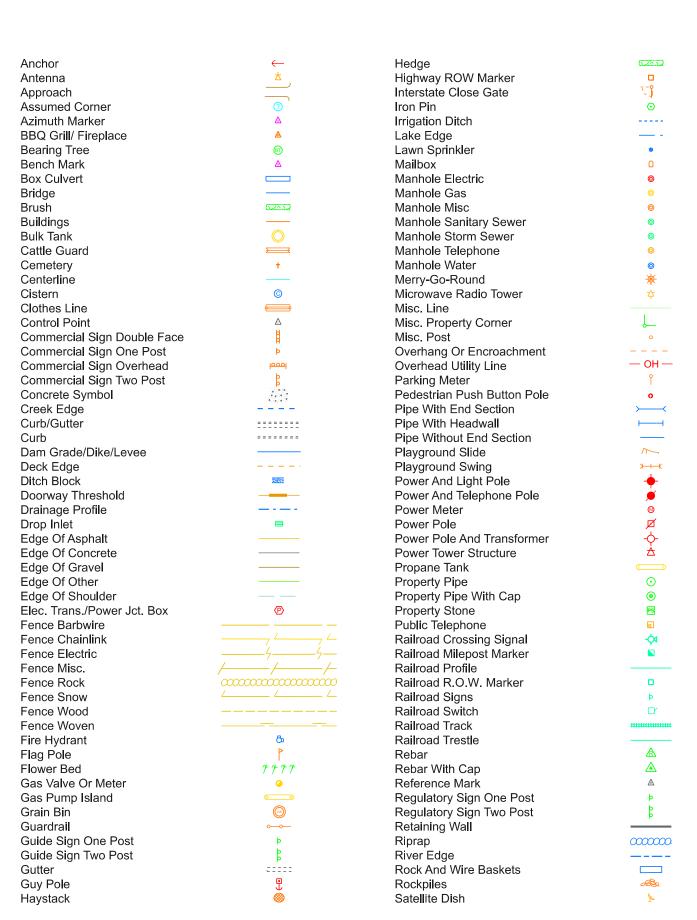
Туре	Station			Northing	Easting
POB	0+00.000			195755.408	955644.595
		TL= 242.043	N34°56'53"W		
PC	2+42.043			195953.803	955505.945
PI	3+75.297	R = 1060.829	Delta = 14°19'09" R	196063.028	955429.612
PT	5+07.162			196187.738	955382.665
		TL= 8.216	N20°37'44"W		
PC	5+15.378			196195.427	955379.770
PI	5+75.825	R = 701.577	Delta = 09°50'55" L	196251.998	955358.474
PT	6+35.973			196304.092	955327.816
		TL= 94.458	N30°28'39"W		
PC	7+30.431			196385.499	955279.907
PI	7+82.846	R = 1978.995	Delta = 03°02'03" R	196430.671	955253.322
PT	8+35.235			196477.187	955229.166
		TL= 114.912	N27°26'36"W		
POE	9+50.147			196579.168	955176.207

Control Data						
POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION		
14A 29.13	REFMRK – SDDOT REBAR AND CP CAP	193600.913	956482.036	5329.200		
14A 27.53	REFMRK - SDDOT REBAR AND CP CAP	200308.113	951808.947	5222.980		
14A 25.53	REFMRK - SDDOT REBAR AND CP CAP	207809.274	945886.053	5060.979		
14A 23.73	REFMRK - SDDOT REBAR AND CP CAP	214458.369	940486.248	4986.039		

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/2011); epoch 2010; Geoid 12A; SF = 0.99991471. The elevations shown on this sheet are based on NAVD 88.

LEGEND





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State and National Line County Line Section Line Quarter Line Sixteenth Line Property Line Construction Line ROW Line New ROW Line Cut and Fill Limits Control of Access New Control of Access Proposed ROW (After Property Disposal)	
Drainage Arrow	
Remove Concrete Pavement Remove Concrete Driveway Pavement Remove Asphalt Concrete Pavement Remove Concrete Sidewalk Remove Concrete Median Pavement Remove Concrete Curb and/or Gutter	at Williams
Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope	<b>□ □ □</b>

## **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 activitles 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.

#### INAL 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.

2+75 - 95' R Remove Concrete Headwall for Underdrain (Incidental Work, Grading)

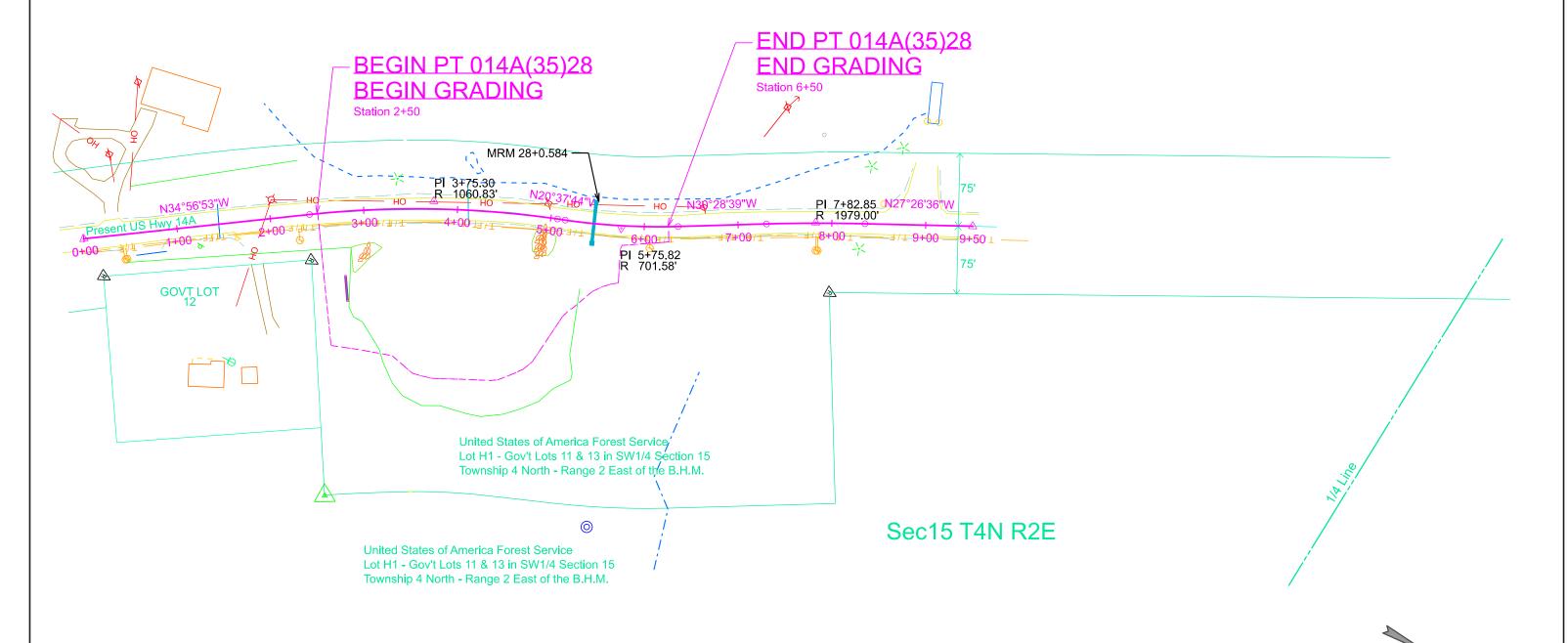
2+75 - 95' R to 2+75 - 70' R Install 4" - 25' Corrugated Polyethylene Tubing & Concrete Headwall for Underdrain

4+11
Remove 18" - 42' CMP
(Incidental Work, Grading)
4+11 - R
Remove Grate Inlet
(Incidental Work, Grading)

5+46 Remove 18" - 32' CMP (Incidental Work, Grading)

5+46 - 20.95' R Install Type C 3'x4' Inlet 5+46 Install 24" - 40' RCP & 24" RCP Flared End

5+46 Install 4" - 2' Corrugated Polyethylene Tubing from bottom of buttress into Type C Inlet



Install Type 3 Erosion Control Blanket on 2:1 compacted soil backslope:

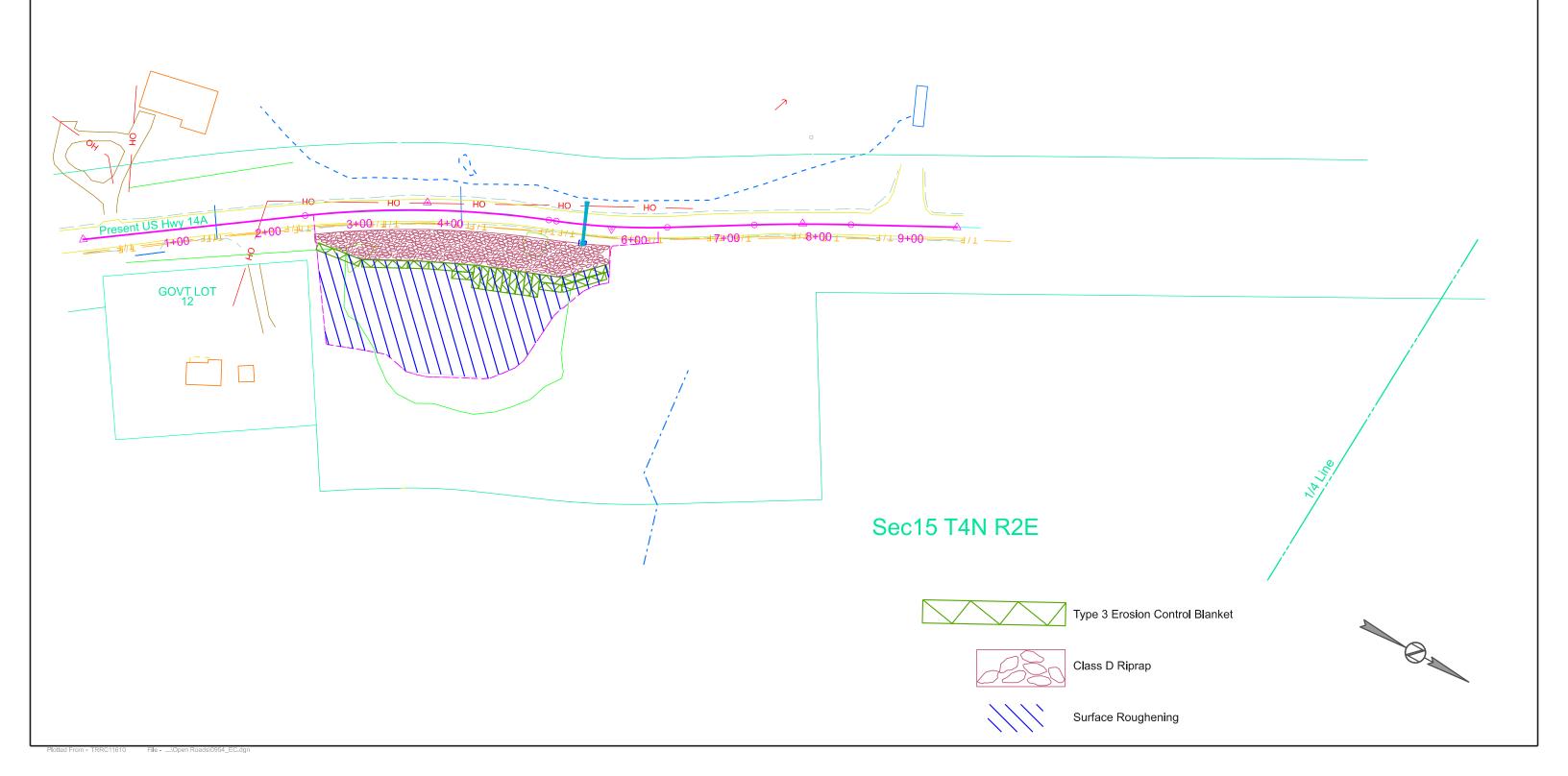
Sta. 2+50 R to 5+75 R - 512 SqYd

Install High Flow Silt Fence at the following locations:

5+46 R At Type C Inlet - 20 Ft

Utilize Surface Roughening on compacted soil backslope:

Sta. 2+50 R to 5+75 R - 0.7 ac



#### PROJECT SECTION SHEET DOT PT 014A(35)28 Non 19/37

#### OPTIONS ARE NOT LIMITED TO WHAT IS SHOWN ON THIS SHEET

Various systems, devices, and products are shown on this sheet to give the Contractor ideas of what may be used for water treatment. Other systems, devices, and products are available and can be used with approval from the Engineer. Minnesota DOT also has options and practices available at: ftp://ftp2.dot.state.mn.us/pub/outbound/erosion/CSM2017

The Contractor may elect to block a portion of storm sewer near the outfall with sand bags and pump the water out to be treated with a flocculent or allow the water to set in a lined dumpster until sediment to falls out of suspension before discharging the water. Drop inlet protection devices could also be used as part of a treatment train. The Contractor may pump dirty water into a hydroseeder and mix it with a flocculent, and spray the mixture back onto a sediment pond. No matter the system or method used, the Contractor must meet the terms of the Temporary Discharge Permit and the Stormwater Permit for Construction Activities.

#### PURPOSE

The purpose of a dewatering and sediment collection system is to collect turbid storm water on the project, treat it with flocculents as needed, and capture the sediment that falls out of suspension before the water is discharged into "Waters of the US" or "Waters of the State". Refer to the Environmental Commitments for the specific requirements for each body of water on this project.

The Contractor will need to create a Pollution Prevention Plan (PPP) for dewatering and sediment collection if the Contractor choses to discharge the water into "Waters of the US" or "Waters of the State" instead of disposing of the water off-site, using it for irrigation, or using it for hydroseeding. The Contractor will also need to obtain a Temporary Discharge Permit from the South Dakota Department of Environment & Natural Resources (DENR) on all projects outside of Indian Reservation boundaries.

Suggestions for dewatering and sediment collection may be shown on the plan sheets. It is ultimately the Contractor's responsibility to dewater and collect sediment. The Contractor will have to intercept and treat the stormwater before storm sewer outfalls into "Waters of the US" or "Waters of the State". The Contractor may need more than one dewatering and sediment collection system to capture and treat stormwater at multiple outfalls and/or locations simultaneously during each phase of the project.

#### PAYMENT

Payment for Dewatering and Sediment Collecting including all incidental items will be included with the lump sum for Dewatering and Sediment Collection

#### DEWATERING BAGS AND SOCKS capture sediment and should be placed on pavement, vegetated areas, or gravel.

Dandy Dewatering Bag Dandy Products, Inc. Powell, OH

Phone: 1.800.591.2284 www.dandyproducts.com

Ultra-Dewatering Bag UltraTech International, Inc Jacksonville, FL Phone: 1.800.764.9563 www.spillcontainment.com

Non-woven Sediment Filter Bags Indian Valley Industries, Inc. Johnson City, NY Phone: 1.800.659.5111 www.iviindustries.com

Heavy Duty Dirtbag 55 ACF Environmental Richmond, VA Phone 1.800.223.9021 www.acfenvironmental.com Taurus Dewatering Bags/Socks SolHuTec Group, Inc. Sebastian, FL Phone: 1.888.703.9889 www.solhutec.com

Pump-It Tube Flo-Water, LLC West Des Moines, IA Phone 1.515.577.6763 www.flo-water.net

#### FLOCCULENTS listed below are considered to be safe for the environment, if used as directed:

APS 700 Series Floc Logs Applied Polymer Systems, Inc. Woodstock, GA Phone: 1.866.200.9868

http://www.siltstop.com

Terra-Tubes ACF Environmental Buffalo Grove, IL Phone: 1.800.366.1180 www.terratubes.com

Floc. Floc Soc. Floc Bag Innovative Turf Solutions Products

Cincinnati, OH

Phone: 1.513.317.8311

http://www.innovativeturfsolutions.com

FI-3500 Tablets JRM Chemical, Inc. Cleveland, OH Phone: 1.216.475.8488 http://www.soilmoist.com

Hild & Associates, Inc. Stillwater, MN Phone 1.715.426.5131 www.biostar-ch.com

Biostar CH

Tigerfloc Floc Systems Inc. Surrey, British Columbia Phone: 1.604.343.2046 www.flocsystems.com

PORTABLE FLOCCULENT SYSTEMS

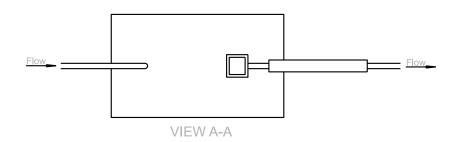
Eco Pond Rescue Water Wagon Eco Pond Rescue LLC Seminole, Florida Phone: 1.727.412.4323 www.ecopondrescue.com

WTS2000 Portable Sediment Tank Aqualete Industries, LLC Ocean, New Jersey Phone 1,732,695,6336 http://aqualeteindustries.com

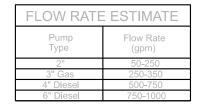
Dry Flocculent Mixing System Innovative Equipment Solutions Hot Springs, Arkansas Phone: 1.501.525.8484 http://www.neptunewash.com

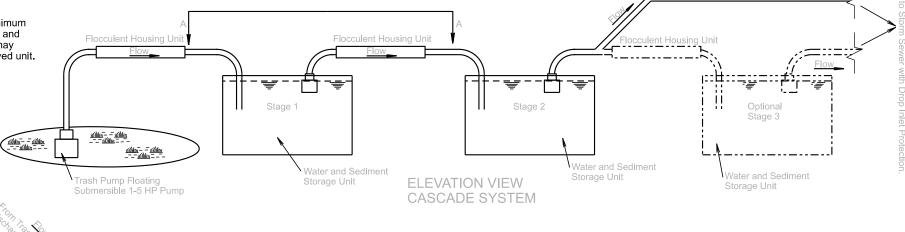
#### THE CASCADE SYSTEM

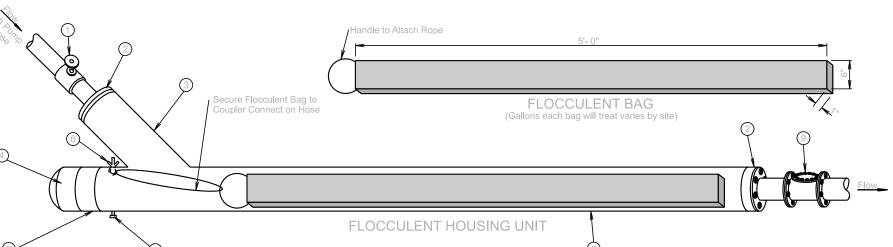
The cascade system is shown below and to the right for conceptual purposes only; however, the cascade system shall at a minimum incorporate the use of 2 flocculent housing units and 2 water and sediment storage units. Design and construction of the water and sediment storage units are project site specific and shall be the Contractor's responsibility. A water and sediment storage unit may consist of a storage bin lined with plastic, the bed of a dump truck lined with plastic, a sediment basin, or other Engineer approved unit. The treatment flocculent bag may be from the list or an approved equal.

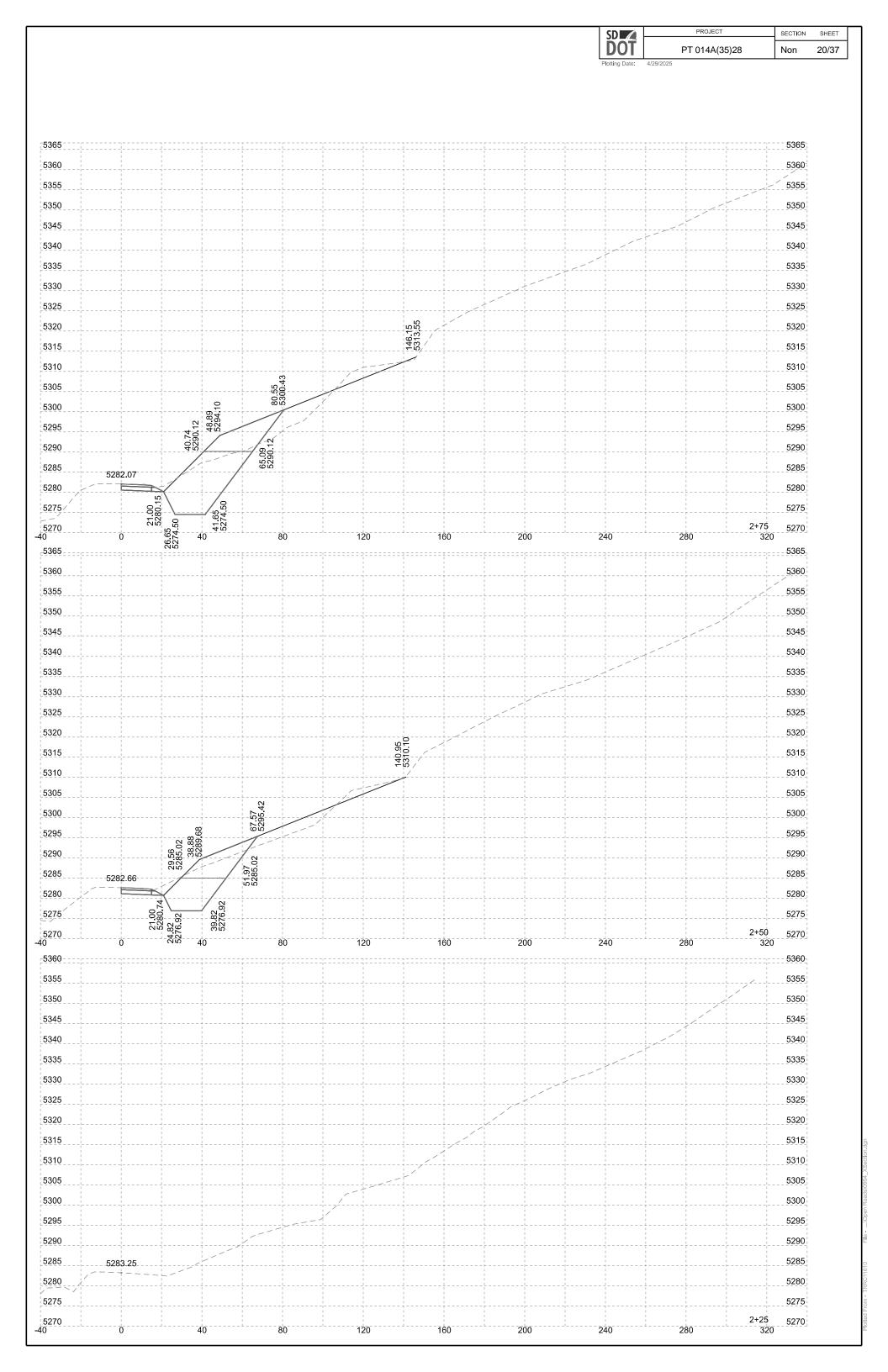


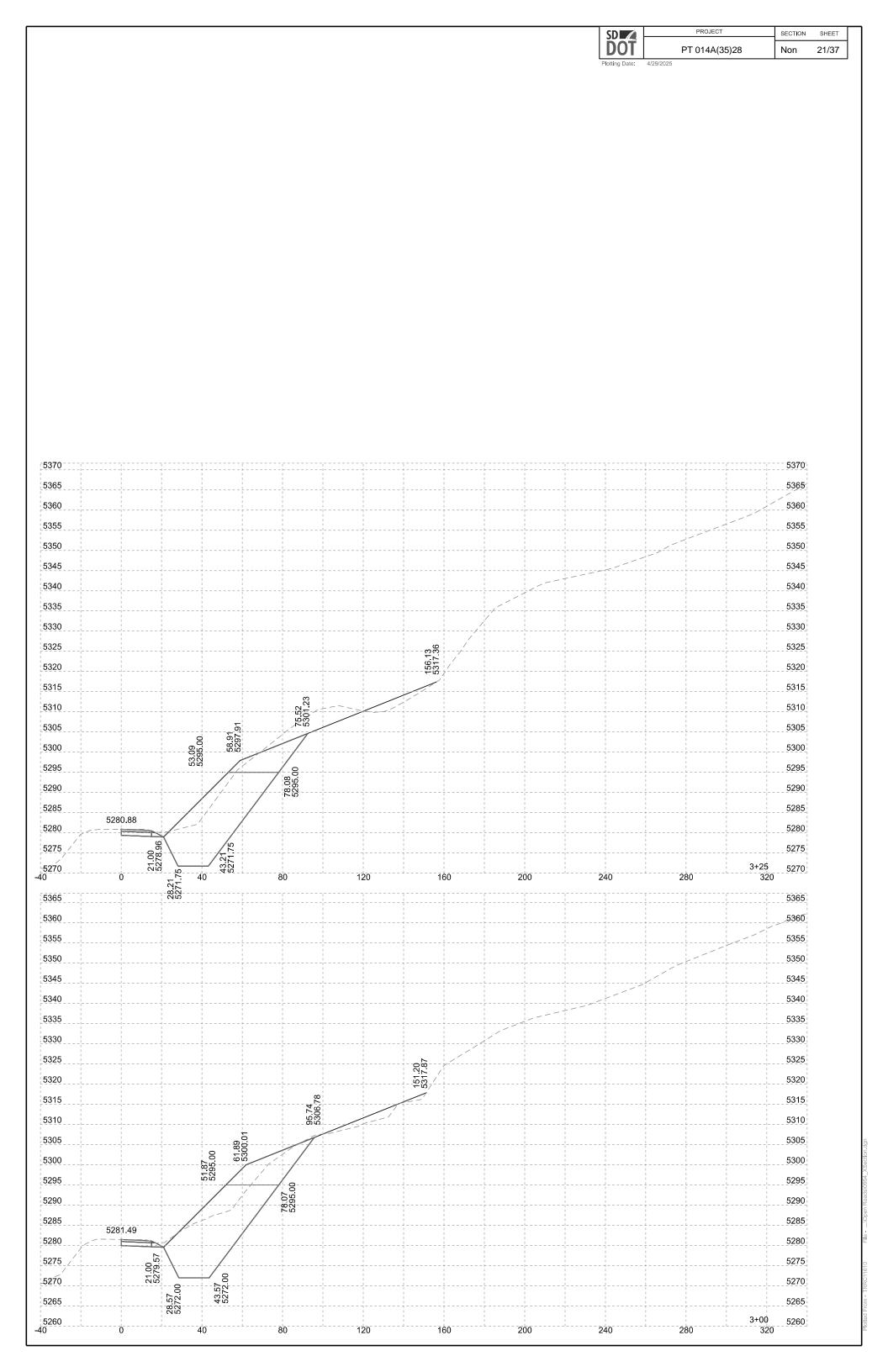
	FLOCCULENT HOUSING UNIT									
	(estimated quantities for information only)									
NO.	DESCRIPTION	QUANTITY	UNIT							
1	4" or 6" Dia. Sch. 40 Gate Valve	1	Each							
2	4" X 6" or 6" X 8" Sch. 40 PVC Bushing	2	Each							
3	6" or 8" Dia. Sch. 40 PVC "Y"	1	Each							
4	6" or 8" Dia. Sch. 40 PVC Female Threaded Cap	1	Each							
5	1" Dia. Sch. 80 PVC Drain Valve	1	Each							
6	1/2" Eye Bolt with Wing Nut and Rubber Gromets	1	Each							
7	6" or 8" Dia. Sch. 40 PVC Pipe	10	Ft.							
8	6" or 8" Dia. Sch. 40 PVC Male Adapter	1	Each							
9	4" or 6" Dia. Sch. 40 PVC Swing Check Valve	1	Each							

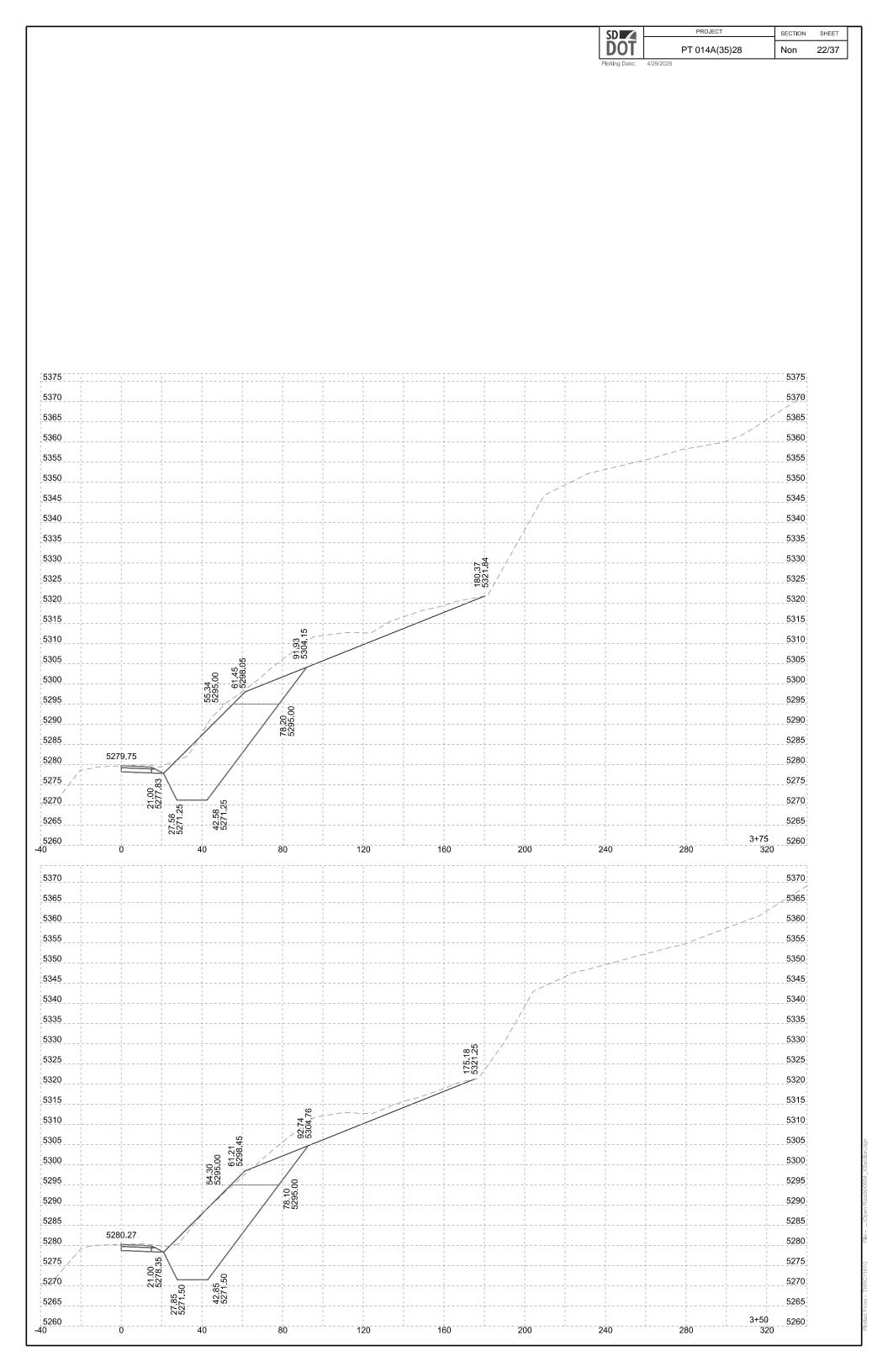


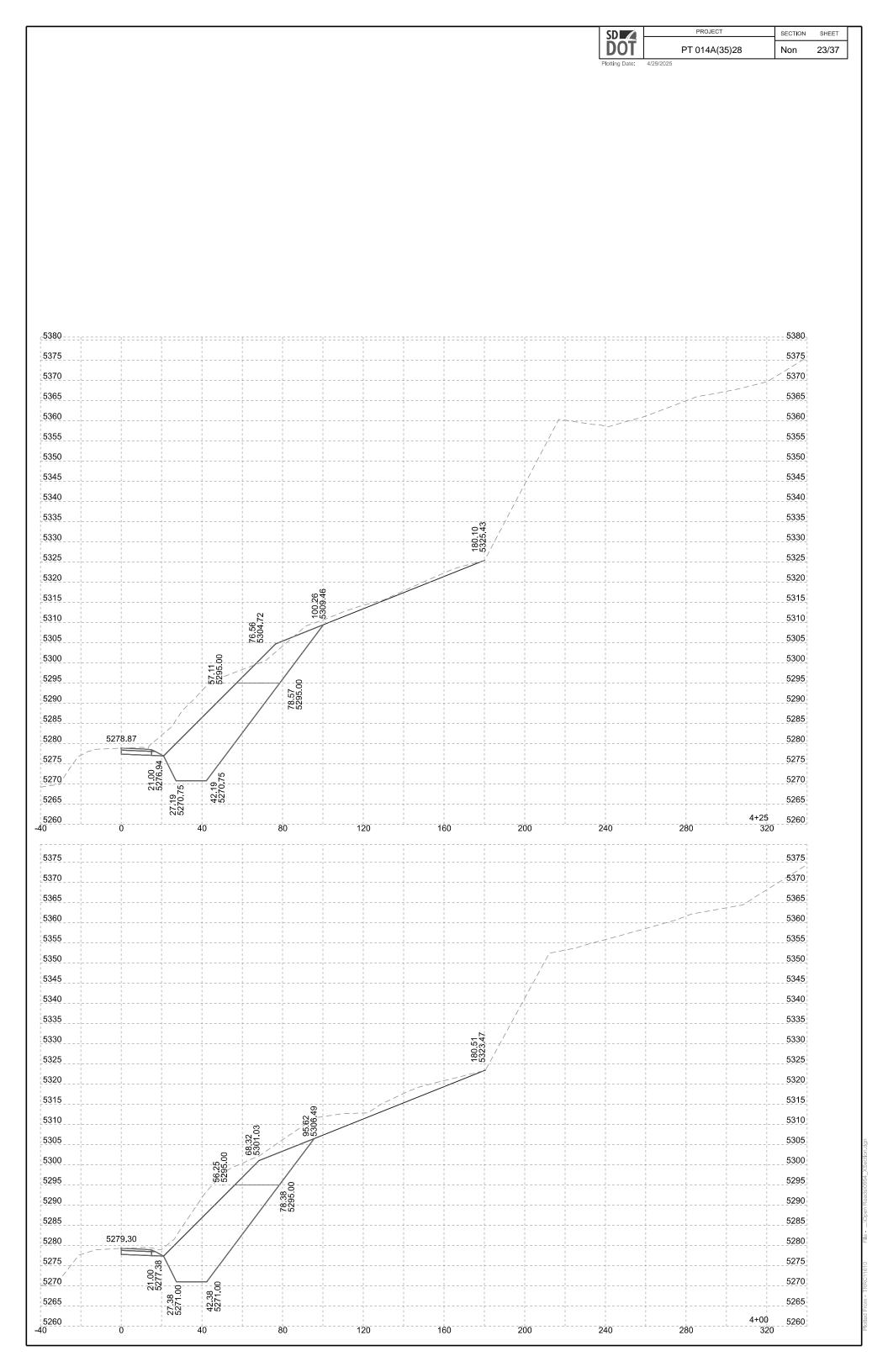


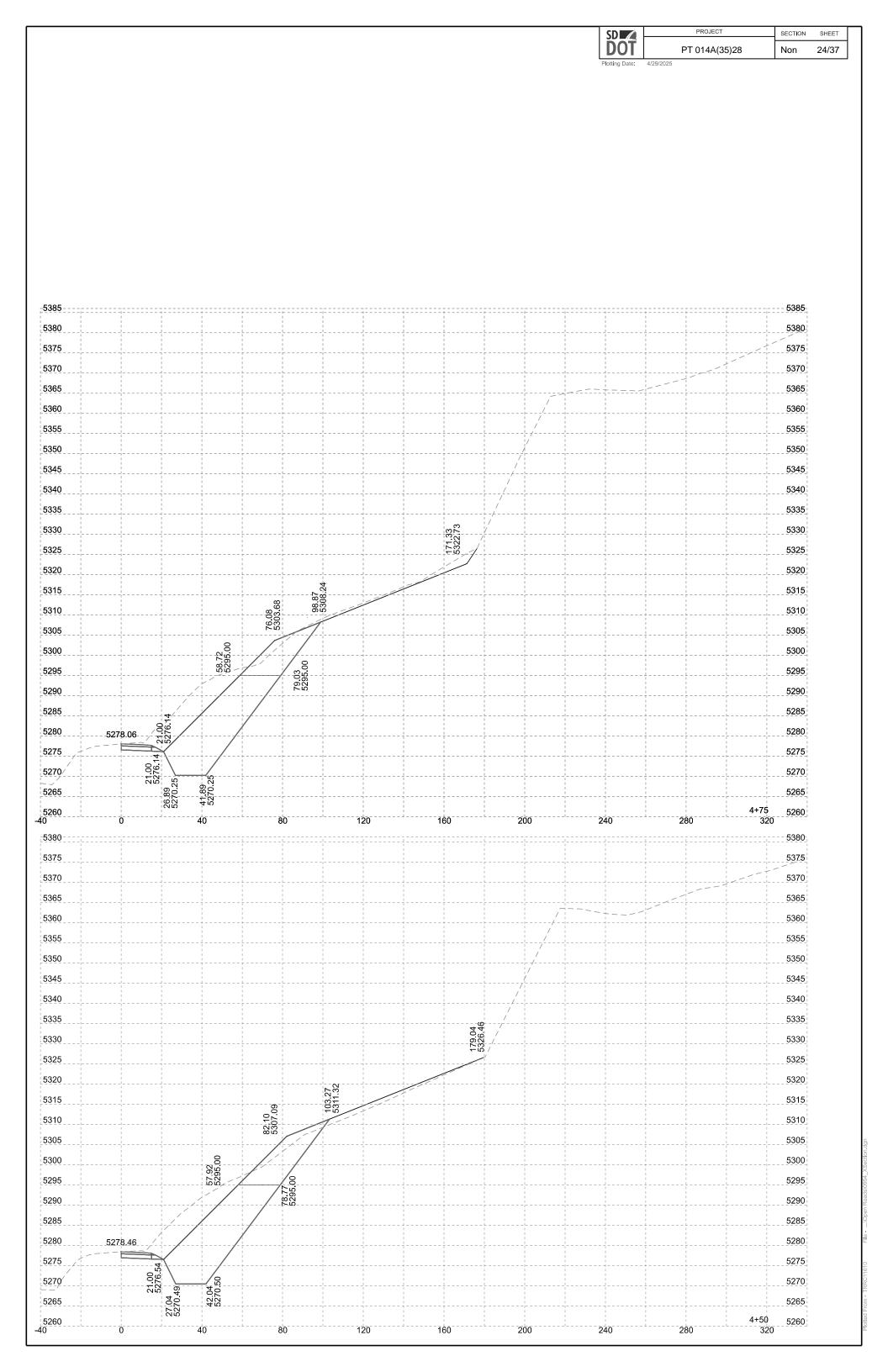


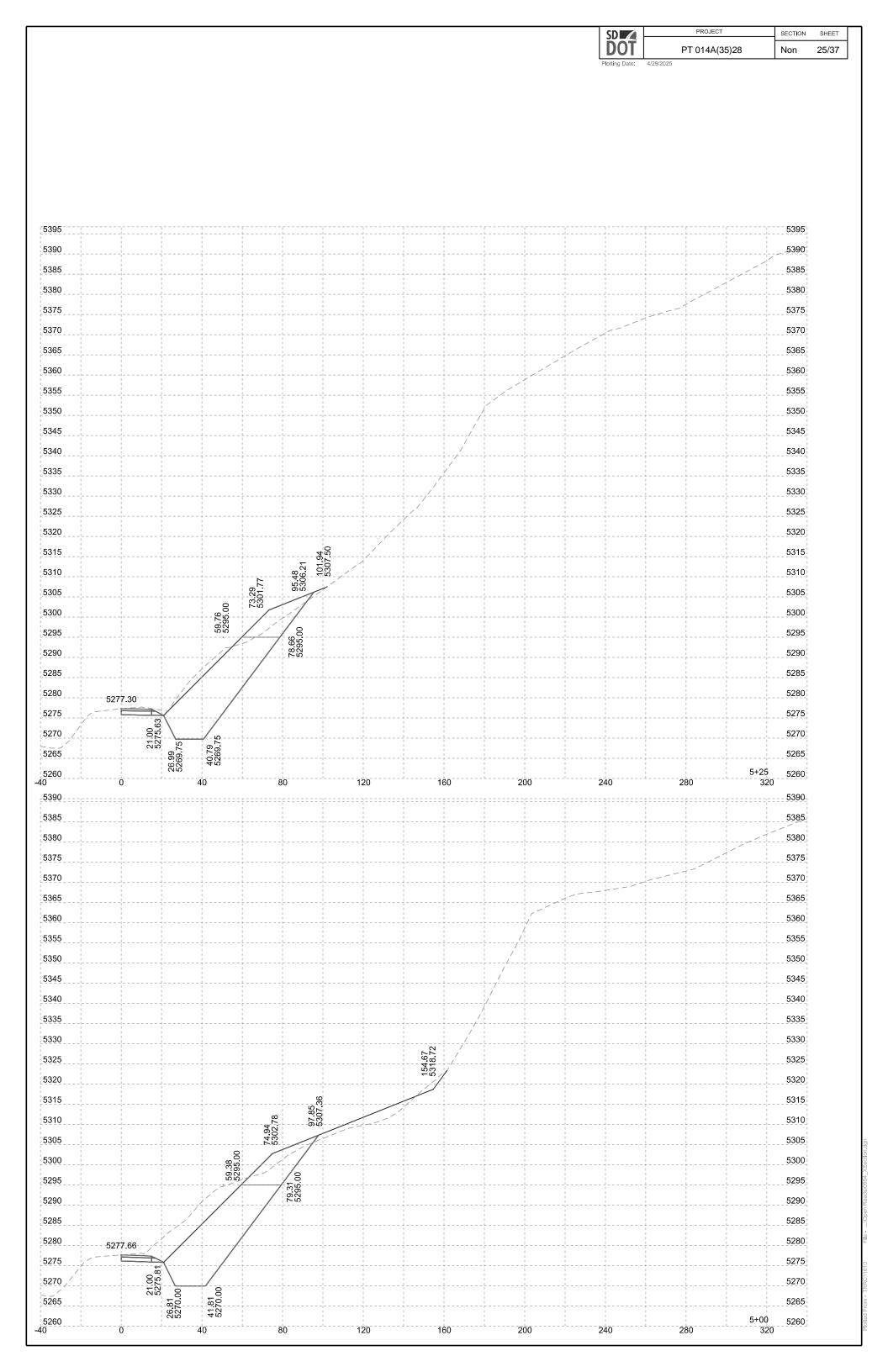


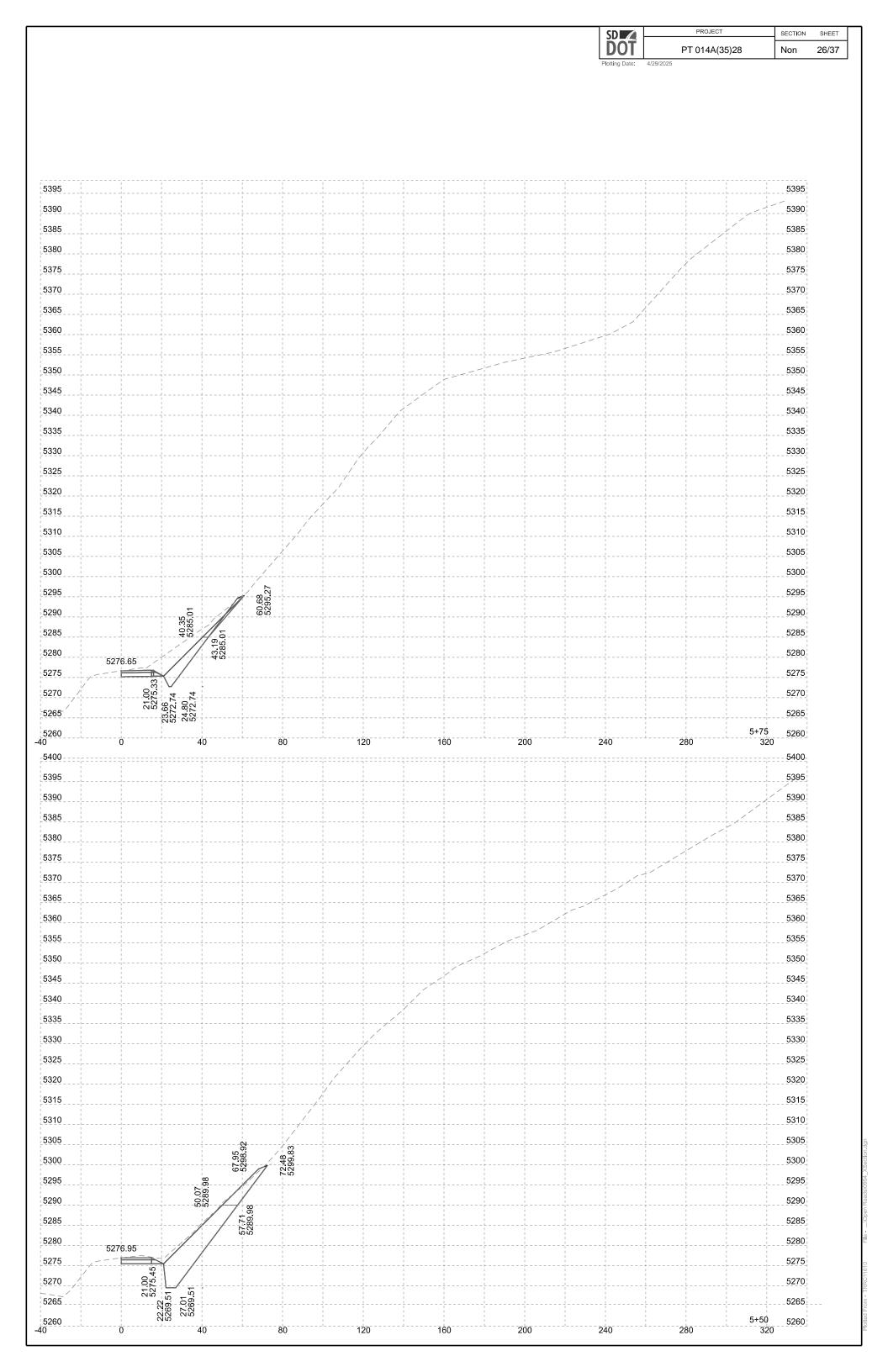


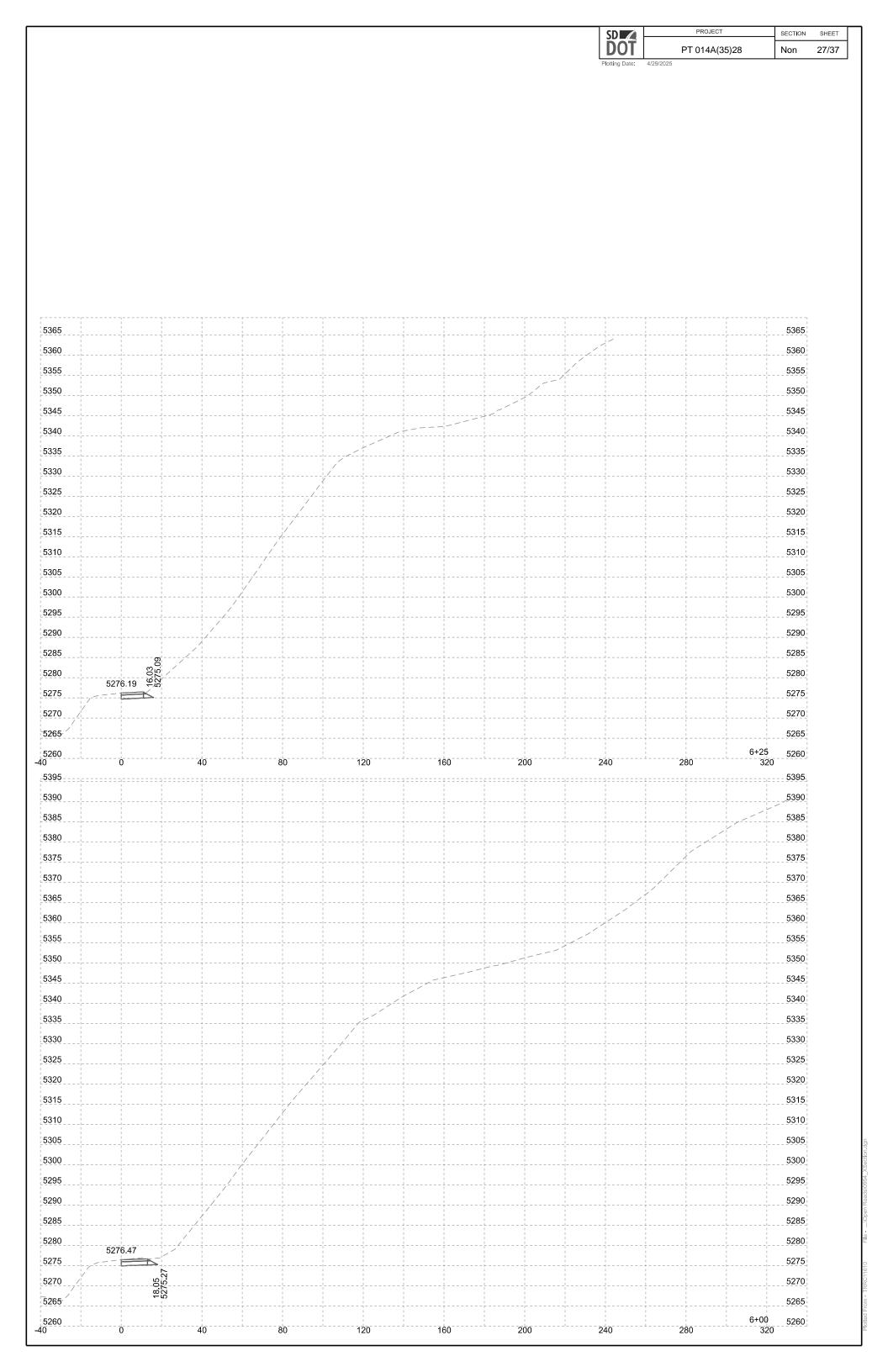


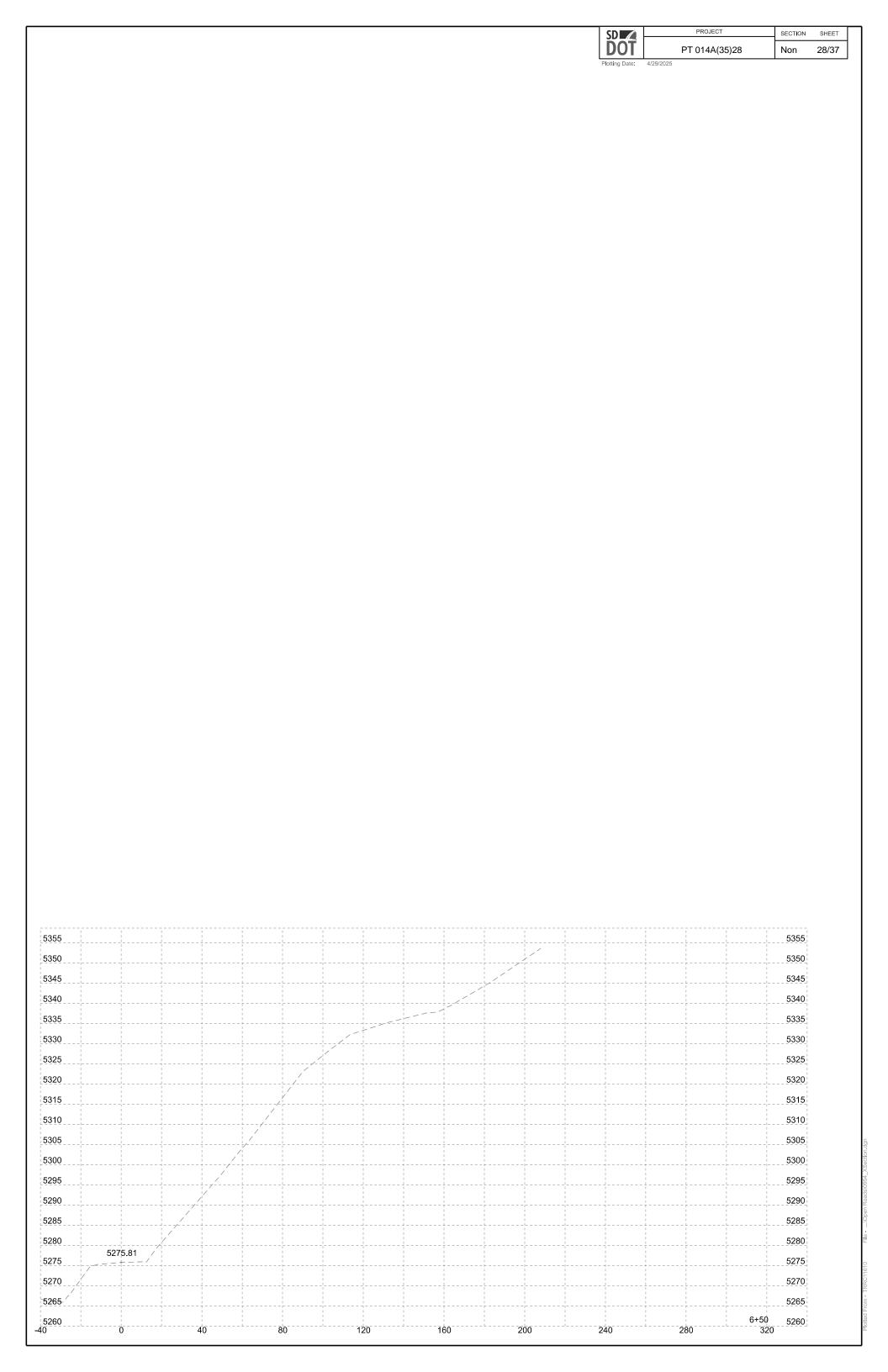








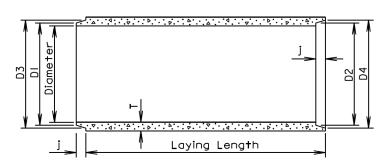


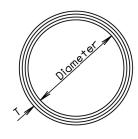


## TOLERANCES IN DIMENSIONS

Diameter:  $\pm 1.5\%$  for 24"Dia.or less and  $\pm 1\%$  or  $\frac{3}{6}$ " whichever is more for 27"Dia.or greater. Diameters at joints:  $\pm \frac{3}{6}$ " for 30"Dia.or less and  $\pm \frac{1}{4}$ " for 36" or greater. Length of joint (j):  $\pm \frac{1}{4}$ ".

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 Specifications.

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. (Ib.)	T (in.)	J (in.)	DI (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	13/4	13 ¹ / ₄	13%	13%	141/4
15	127	21/4	2	161/2	16%	171/4	175/8
18	168	21/2	21/4	195/8	20	20¾	20¾
21	214	23/4	21/2	22 1/8	231/4	23¾	241/8
24	265	3	23/4	26	26¾	27	27¾
27	322	31/4	3	291/4	295/8	30 ¹ / ₄	305/8
30	384	31/2	31/4	323/8	32¾	331/2	33%
36	524	4	33⁄4	38¾	391/4	40	401/2
42	685	41/2	4	451/8	45%	461/2	47
48	867	5	41/2	511/2	52	53	531/2
54	1070	51/2	41/2	57%	58 <b>%</b>	59¾	59%
60	1296	6	5	64 ¹ / ₄	64¾	66	661/2
66	1542	61/2	51/2	70%	711/8	721/2	73
72	1810	7	6	77	771/2	79	791/2
78	2098	71/2	61/2	83%	83%	85%	861/8
84	2410	8	7	89¾	901/4	921/8	925/8
90	2740	81/2	7	95¾	96 ¹ / ₄	981/8	985/8
96	2950	9	7	1021/8	102%	1041/2	105
102	3075	91/2	71/2	109	1091/2	1111/2	112
108	3870	10	71/2	1151/2	116	118	1181/2

June 26, 2015

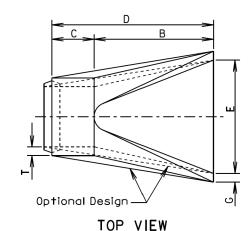
Published Date: 2025

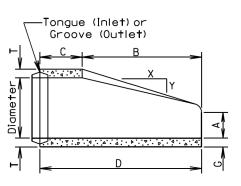
S D D O T

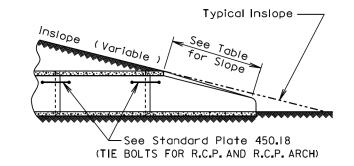
REINFORCED CONCRETE PIPE

PLATE NUMBER 450.01

Sheet I of I





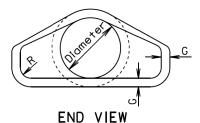


## SLOPE DETAIL

#### GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



LONGITUDINAL SECTI	ON
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Published Date: 2025

Dia. (in.)	Approx. Wt. of Section (Ibs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	c (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: I	2	4	24	48 1/8	72 1/8	24	2	11/2
15	740	2.4: I	21/4	6	27	46	73	30	21/4	11/2
18	990	2.3: 1	21/2	9	27	46	73	36	21/2	11/2
21	1280	2.4: I	23/4	9	36	371/2	731/2	42	23/4	11/2
24	1520	2 <b>.</b> 5: I	3	91/2	431/2	30	731/2	48	3	11/2
27	1930	2 <b>.</b> 5: I	31/4	101/2	491/2	24	731/2	54	31/4	11/2
30	2190	2.5: I	31/2	12	54	19¾	73¾	60	31/2	11/2
36	4100	2.5: I	4	15	63	34¾	97¾	72	4	11/2
42	5380	2.5: I	$4^{1}/_{2}$	21	63	35	98	78	41/2	11/2
48	6550	2 <b>.5:</b> I	5	24	72	26	98	84	5	11/2
54	8240	2 <b>:</b> I	51/2	27	65	33 ¹ / ₄	98 ¹ / ₄	90	51/2	11/2
60	8730	1 <b>.</b> 9:1	9	35	60	39	99	96	5	11/2
66	10710	1.7:1	61/2	30	72	27	99	102	51/2	11/2
72	12520	1.8: I	7	36	78	21	99	108	6	11/2
78	14770	I.8: I	71/2	36	90	21	111	114	61/2	11/2
84	18160	1 <b>.</b> 6 <b>:</b> 1	8	36	901/2	21	1111/2	120	61/2	11/2
90	20900	1 <b>.</b> 5 <b>:</b> 1	81/2	41	871/2	24	1111/2	132	61/2	6

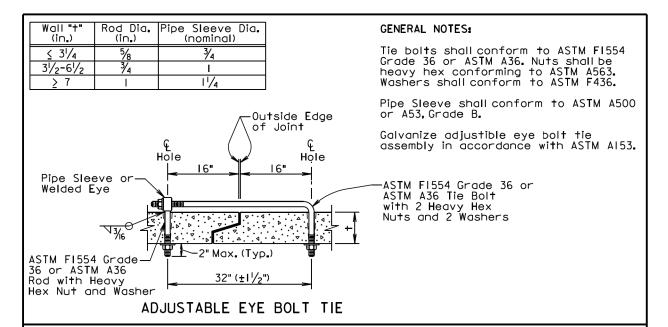
June 26, 2015

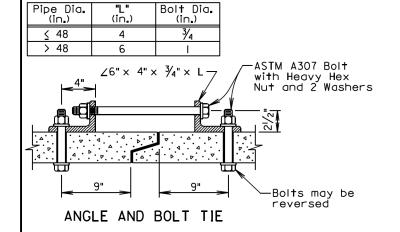
S D D R. C. P. FLARED ENDS

PLATE NUMBER 450.10

Sheet I of I

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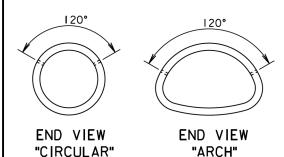
#### GENERAL NOTES:

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 AI53.

## 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.

February 28, 2013

Published Date: 2025

D D

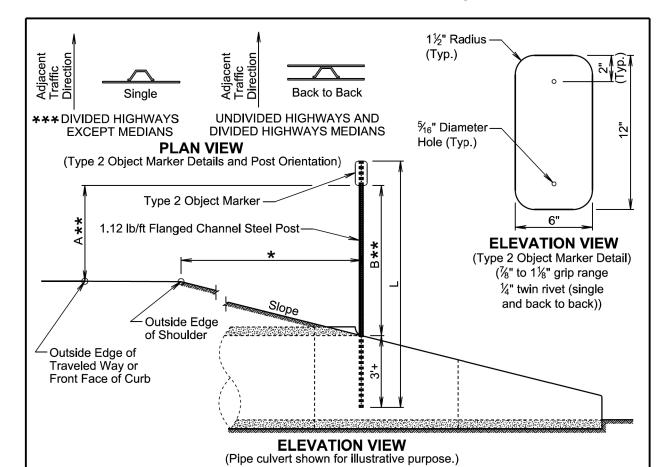
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TIE BOLTS FOR R.C.P. AND R.C.P. ARCH

PLATE NUMBER
450.18

 SD
 PROJECT
 SECTION
 SHEET

 DOT
 PT 014A(35)28
 Non
 30/37



#### **TYPE 2 OBJECT MARKER POST LENGTHS** OFFSET (*) 2' 3' 4' 5' Greater Than 8' 6' **POST LENGTH (L)** 8'-6" 8'-9" 9'-3" 9'-6" 9'-9" 10'-3" 10'-6" 10'-9" 8'-0" 8'-6" 8'-9" 9'-0" 9'-3" 9'-9" 9'-9" 10'-0" 10'-3" 8'-0" 8'-3" 8'-6" 8'-9" 9'-0" 9'-3" 9'-3" 9'-6" 9'-9" 8'-0" S 8'-3" 8'-6" 8'-9" 8'-9" 9'-0" 9'-3" 9'-3" 9'-6" 8'-0"

#### **GENERAL NOTES:**

*** The type 2 object marker may be installed back to back when specified in the plans.

S

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Post Length L was calculated based on a shoulder width of 6 feet at a crosslope of 4 percent and L was rounded up to the nearest 3 inches.

** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

The type 2 object marker and the 1.12 lb/ft flanged channel steel post will be in conformance with Specifications Section 982.2 J.

Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

PLATE NUMBER 632.01

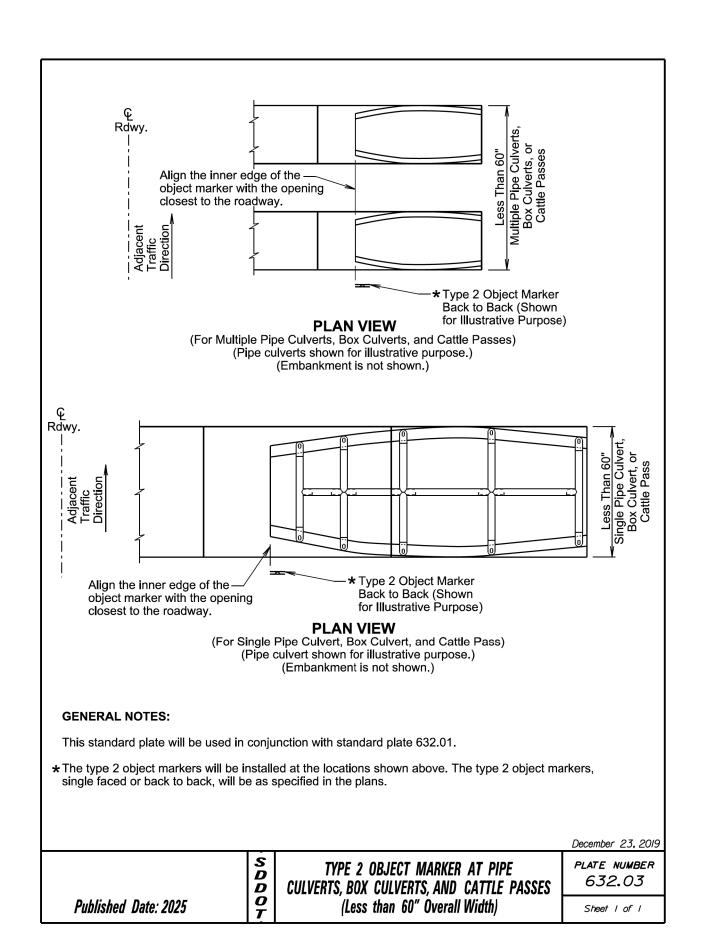
Published Date: 2025

TYPE 2 OBJECT MARKER (DIRECT DRIVE)

Sheet I of I

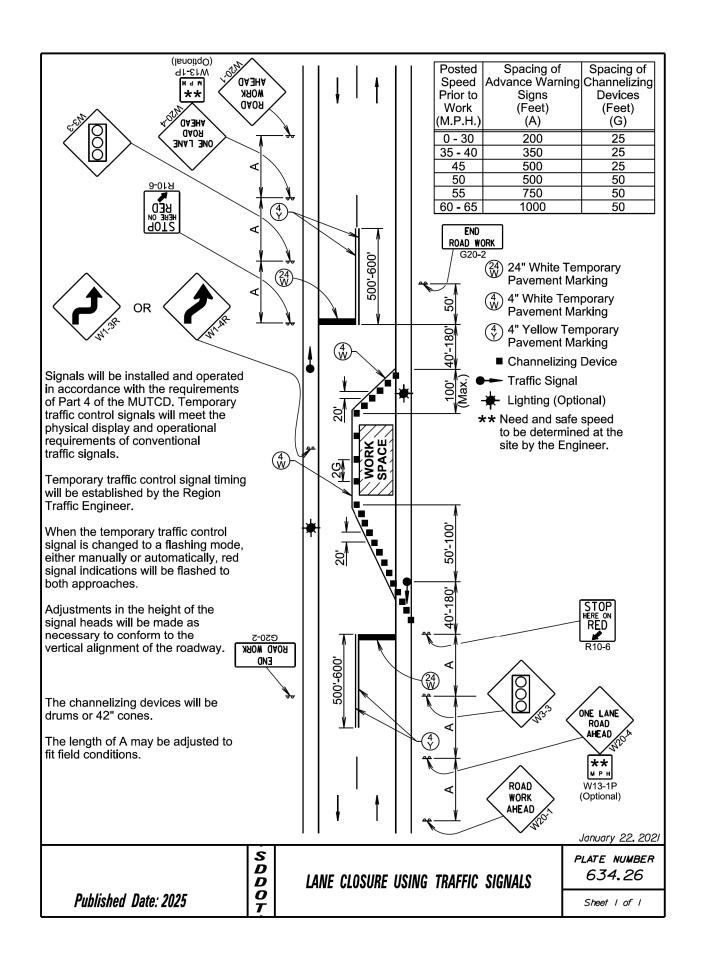
December 23, 2019

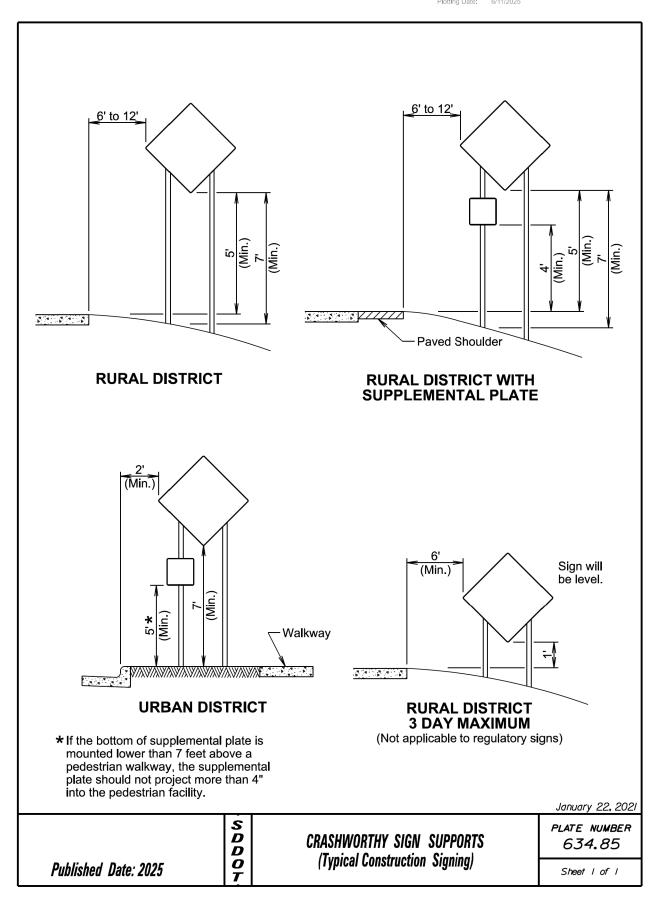
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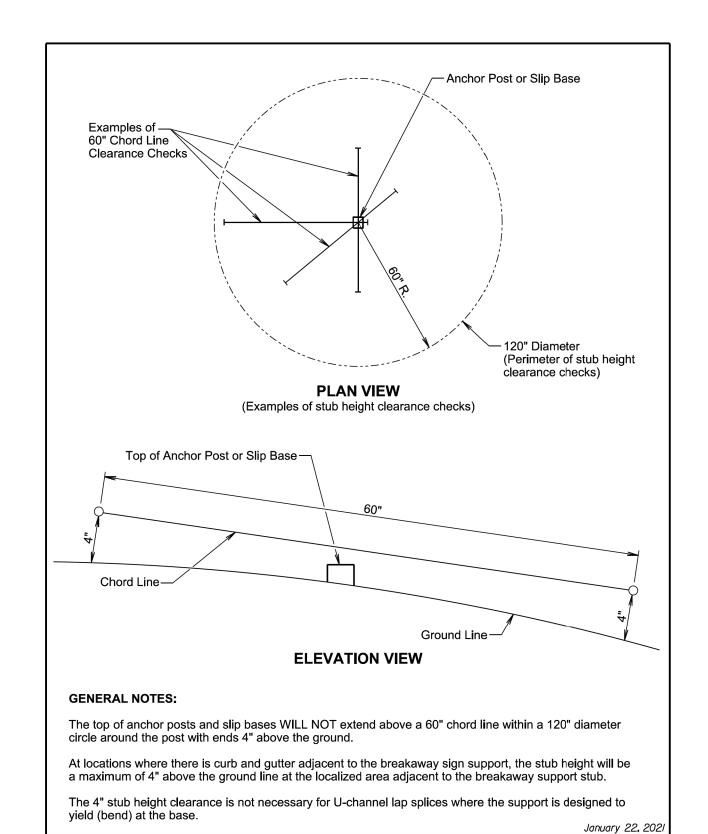




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(M.P.H.)	(A)	(G)							/ /	// / /
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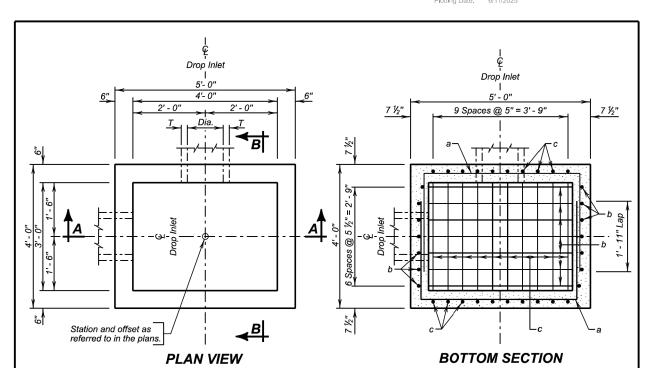




D D

O

BREAKAWAY SUPPORT STUB CLEARANCE



ESTIMATED QUANTITIES							
ITEM UNIT CONSTANT VARIABLE QUANTITY QUANTITY							
★ Class M6 Concrete	Cu. Yd.	0.43	0.30H				
Reinforcing Steel	Lb.	90.90	40.53H				
Frame and Grate Assembly	Each	1					

#### DROP INLETS FOR 12" TO 36" DIAMETER PIPE

#### **SPECIFICATIONS**

Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition.

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

#### GENERAL NOTES:

Design Live Load: HL-93. No construction loading in excess of legal load was considered.

Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12 inches with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Drop inlet may be precast. If precast drop inlet details differ from this standard plate, submit a checked design done by a SD registered P.E. and shop plans to the Office of Bridge Design for approval.

Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop inlet shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering drop inlet must fit between the inside face of walls and shall not enter through the corners.

Maximum R.C.P. diameter shall not exceed 24 inches (24 inches for R. C. arch) on the 3-foot wide side and shall not exceed 36 inches (30 inches for R. C. arch) on the 4-foot wide side of the drop inlet.

The dimension of H is in feet. Maximum H is 10 feet.

	DISPLACEMENT REDUCTIONS								
	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)						
	12	2	0.03						
٠.	15	2 1/4	0.04						
R.C.P.	18	2 ½	0.05						
К.(	24	3	0.09						
	30	3 1/2	0.14						
	36	4	0.20						
Ж	18	2 ½	0.05						
R.C. ARCH	24	3 1/2	0.09						
	30	4	0.14						
R.C									

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3'X 4'TYPE C REINFORCED CONCRETE DROP INLET PLATE NUMBER 670.10

Sheet I of 2

December 16, 2015

Published Date: 2025

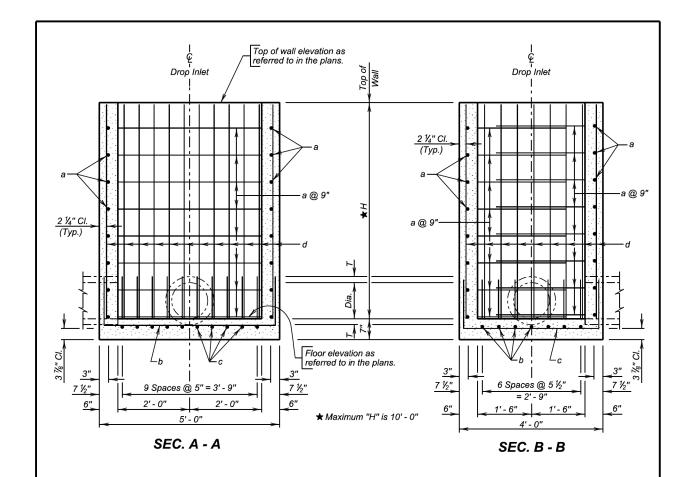
PLATE NUMBER

634.99

Sheet I of I

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Published Date: 2025



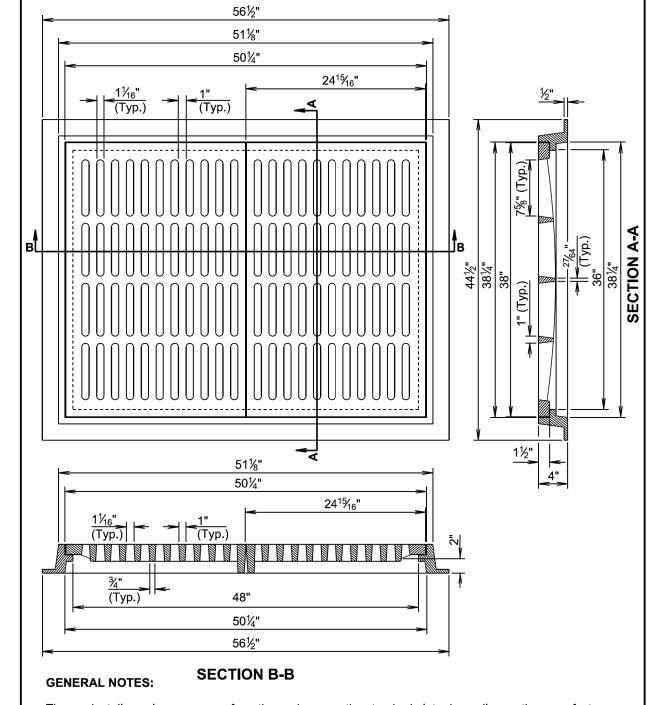
REINFORCING SCHEDULE							
Mk.	No.	Size	Length	Туре	Bending Details		
а	2.67H	4	10' - 0"	17			
b	7	5	7' - 3"	17	0 0		
С	10	4	6' - 3"	17	* * * *		
d	34	4	H - 2"	Str.			
, ur a.	monac	ino di o	out to out c	, sur	a 2' - 8 \( \frac{4}{2}'' \) b 1' - 4 \( \frac{1}{2}'' \) Type 17		

December 16, 2015

S D D O T

3'X 4'TYPE C REINFORCED CONCRETE DROP INLET PLATE NUMBER 670.10

Sheet 2 of 2



The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity. Any variation in dimensions will be approved by the Engineer and the type C frame and grate will be from a manufacturer on the approved products list.

Design load for the grate will meet the requirements of AASHTO HL-93.

March 31, 2024

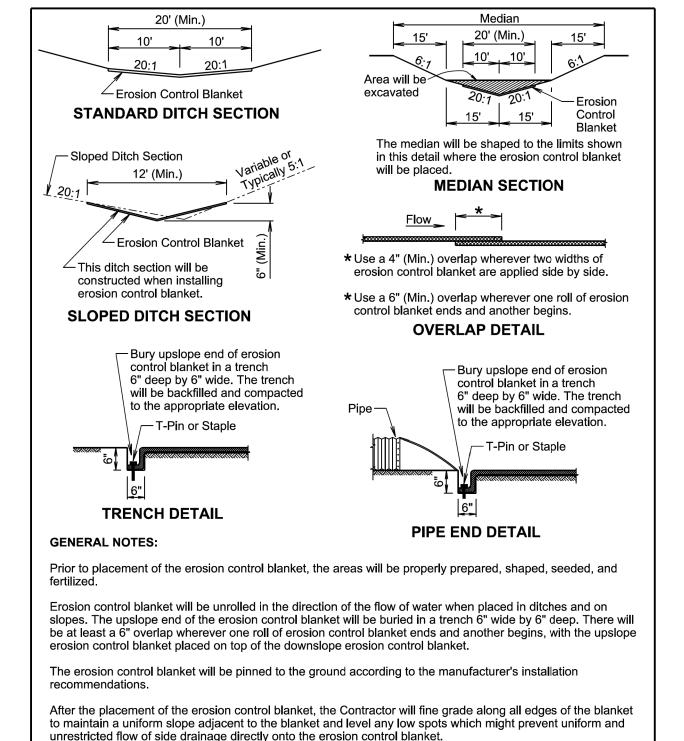
Published Date: 2025

TYPE C FRAME AND GRATE

PLATE NUMBER 670.82

Sheet I of I

Published Date: 2025



All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches

EROSION CONTROL BLANKET

February 14, 2020

PLATE NUMBER

734.01

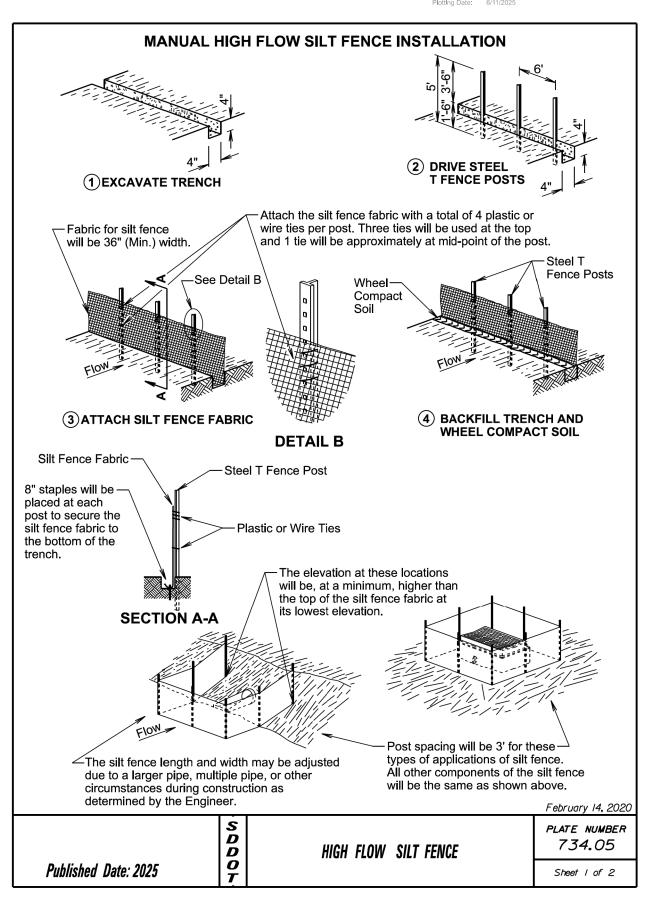
Sheet I of I

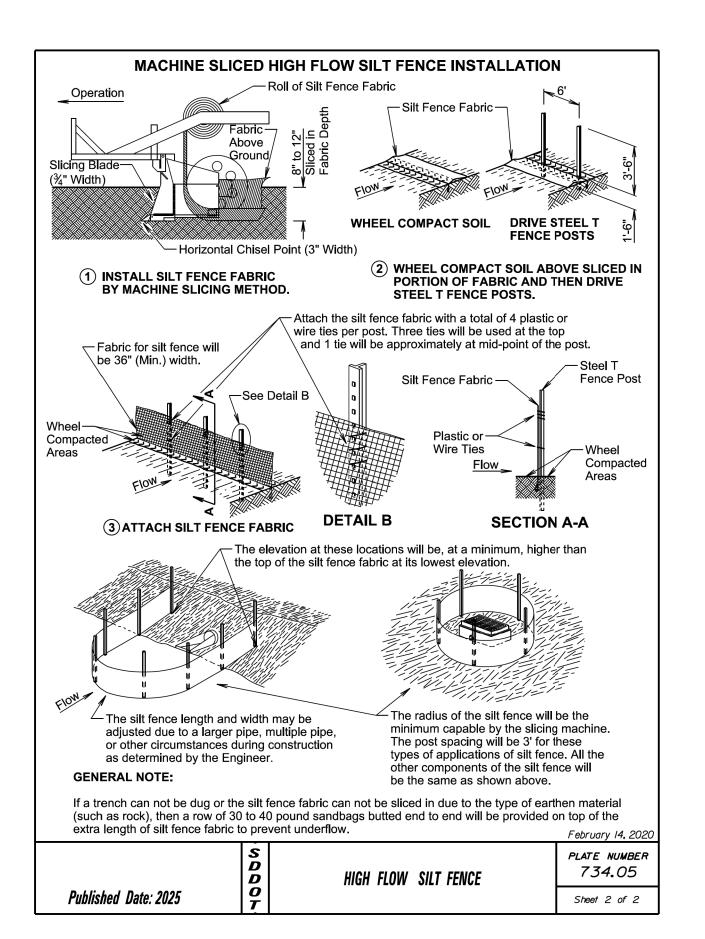
will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

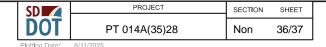
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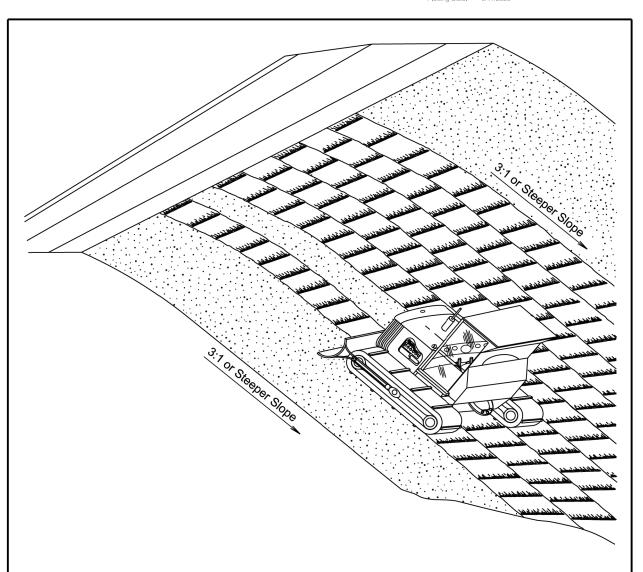
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Published Date: 2025









#### **GENERAL NOTES:**

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

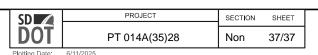
The equipment used for surface roughening will be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening will be approved by the Engineer.

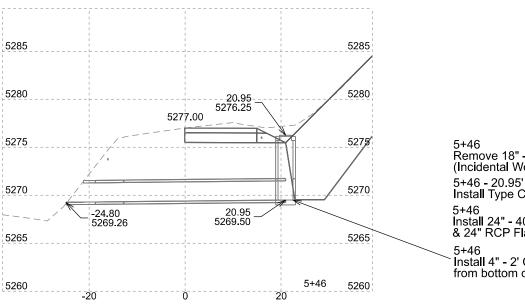
Measurement for surface roughening will be to the nearest tenth of an acre.

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

February 14, 2020

	S D D	SURFACE ROUGHENING	PLATE NUMBER 734.25
ublished Date: 2025	OT		Sheet I of I





5+46 Remove 18" - 32' CMP (Incidental Work, Grading) 5+46 - 20.95' R Install Type C 3'x4' Inlet 5+46 Install 24" - 40' RCP & 24" RCP Flared End

5+46 Install 4" - 2' Corrugated Polyethylene Tubing from bottom of buttress into Type C Inlet