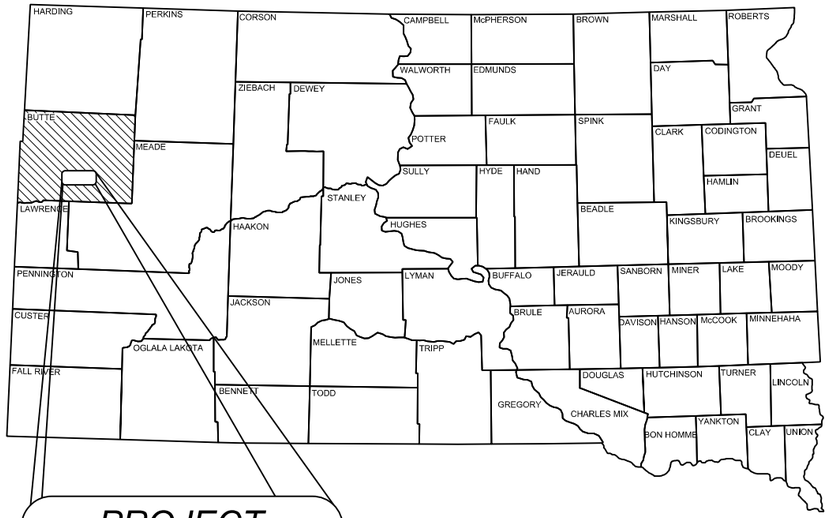
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	1	46

FOR BIDDING PURPOSES ONLY



PROJECT

1.0 mile South and 3.0 miles West of Newell, SD on Viken Road over Horse Creek

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
BRO-B 8010(29)
BUTTE COUNTY

Structure Replacement and Approach Grading

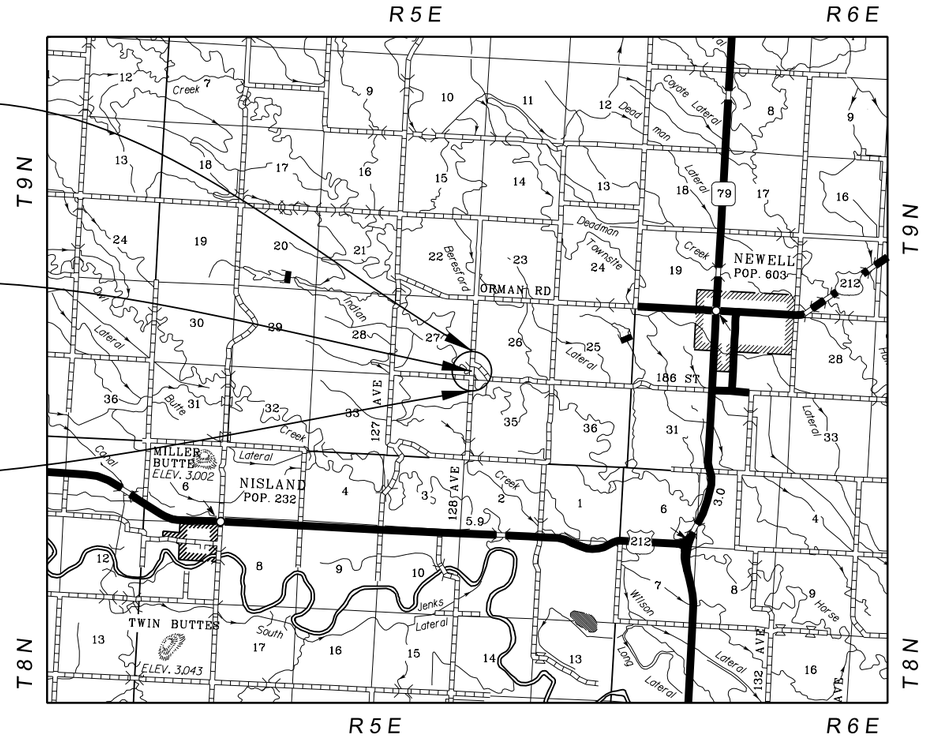
Str. No. 10-280-349
PCN 08ML

INDEX OF SHEETS

END PROJECT BRO-B 8010(29)
At Sta. 13+50.00

Str. No. 10-280-349

BEGIN PROJECT BRO-B 8010(29)
At Sta. 6+50.00



DESIGN DESIGNATION

ADT (2020)	47
ADT (2040)	67
DHV	10
d	50%
T DHV	3.7%
T ADT	8.1%
V	25 mph

STORM WATER PERMIT DATA

Major Receiving Body of Water: Horse Creek
Area Disturbed: 1.73 Acres
Total Project Area: 6.54 Acres
Latitude: 44° 42' 20.5" N
Longitude: 103° 29' 11.9" W

Plans By:
Brosz Engineering, Inc.
Consulting Engineers

Brosz Project No. 2203223

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
7/1/24

2

November 6, 2024

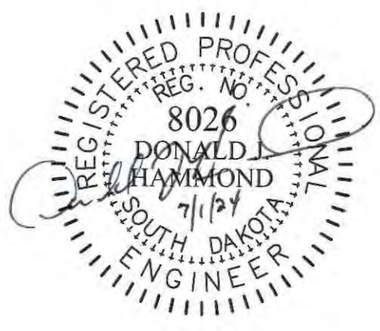
ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8010(29)	2	46

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0135	Remove Delineator	19	Each
110E1690	Remove Sediment	1.1	CuYd
110E5020	Salvage Traffic Sign	5	Each
110E7150	Remove Sign for Reset	5	Each
120E0010	Unclassified Excavation	2,579	CuYd
230E0010	Placing Topsoil	539	CuYd
260E3030	Gravel Surfacing, Salvaged	685.1	Ton
270E0110	Salvage and Stockpile Granular Material	685.1	Ton
450E0142	24" RCP Class 2, Furnish	38	Ft
450E0150	24" RCP, Install	38	Ft
450E2016	24" RCP Flared End, Furnish	2	Each
450E2017	24" RCP Flared End, Install	2	Each
632E3500	Reset Sign	5	Each
634E0110	Traffic Control Signs	218.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	16	Each
730E0210	Type F Permanent Seed Mixture	46	Lb
732E0100	Mulching	4.6	Ton
734E0154	12" Diameter Erosion Control Wattle	500	Ft
734E0604	High Flow Silt Fence	600	Ft
734E0610	Mucking Silt Fence	42	CuYd
734E0620	Repair Silt Fence	150	Ft



Structure No. 10-280-349

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	431.0	SqYd
120E7000	Select Granular Backfill	11.2	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0100	Structure Excavation, Bridge	105	CuYd
430E0200	Bridge End Embankment	380	CuYd
430E0300	Granular Bridge End Backfill	30.2	CuYd
460E0030	Class A45 Concrete, Bridge Deck	218.3	CuYd
460E0050	Class A45 Concrete, Bridge	98.6	CuYd
465E0100	Class A45 Concrete, Drilled Shaft	33.6	CuYd
465E0200	Drilled Shaft Excavation	47.2	CuYd
465E1038	38" Permanent Casing	43.6	Ft
470E0420	Type T101 Bridge Railing	286	Ft
480E0100	Reinforcing Steel	29,434	Lb
480E0200	Epoxy Coated Reinforcing Steel	72,309	Lb
480E0505	No. 5 Rebar Splice	160	Each
510E0300	Preboring Pile	100	Ft
510E3361	HP 10x42 Steel Test Pile, Furnish and Drive	100	Ft
510E3365	HP 10x42 Steel Bearing Pile, Furnish and Drive	360	Ft
700E0210	Class B Riprap	2,371.6	Ton
700E1100	Overburden Excavation for Riprap	554	CuYd
831E0110	Type B Drainage Fabric	2,065	SqYd
831E1030	Perforated Geocell	320	SqFt

SPECIFICATIONS

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

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 A: AQUATIC RESOURCES

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.23 acres of stream (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
Horse Creek	10+00	0.02	0.02	0.09	0.10	0.23

Action Taken/Required:

It has been determined that project impacts do not require mitigation. Temporary impacts identified in the Table of Impacted Streams will not be mitigated as the finished ground under the bridge will be shaped to match the upstream channel and flood plain and the existing low water channel will be maintained as near as practical to the existing location as designated in the plans.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any stream. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any streams beyond the work limits and easements shown in the plans.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES (CONT.)

Action Taken/Required:

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

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.

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

Horse Creek is classified as a warm water permanent fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

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 D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold water permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

Refer to Commitment D1: Surface Water Quality for stream classification.

Action Taken/Required:

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:

< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTempInfoFillable.pdf >

The Contractor will provide a copy of the approved permit or the submitted dewatering information to the Project Engineer prior to proceeding with any dewatering activities. The approved permit or submitted dewatering information must be kept on-site and as part of the project records.

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx >

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.”

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:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2018Fillable.pdf >

The Contractor is advised that permit coverage may also be required for off-site 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.aspx >

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.

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

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

Action Taken/Required:

Excavation will not occur below the ordinary high-water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting. The natural streambed will not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high-water elevations. Any structure work over or within the waterway will be constructed according to Section 7.21 C of the Specifications.

All dredged or excavated materials will be placed at a site above the ordinary high-water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway.

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

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

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

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

All temporary works in waterways of the US are required to be covered in the Corp of Engineers 404 Permit. At the time of the preconstruction meeting, the Contractor will submit documentation for all temporary works for the purpose of complying with the 404 Permit requirements in accordance with Section 423.3 A of the Specifications.

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
10+00	Horse Creek	2,792.6’

Stream channel excavation within “Waters of the US” is subject to USACE regulatory jurisdiction. Stream channel excavation cannot exceed the permitted quantities and/or surface area. The 404 Permit is included in the Special Provisions.

The Contractor will take all precautions necessary to prevent any incidental discharges associated with the excavation and hauling of material from the stream channel. This pertains to any excavation operations such as, foundation, pier, or abutment excavation, channel cleanout, excavation for riprap protection, and removal of any temporary fill associated with construction activities.

COMMITMENT M: SECTION 4(f)/6(f) RESOURCES

COMMITMENT M1: SECTION 4(f) PROPERTY

A Section 4(f) Evaluation concluded there are no feasible and prudent alternatives to avoiding Section 4(f) property located within the project.

Station	Section 4(f) Property
10+00	Historic Structure 10-280-349

Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property.

The removal and replacement of structure 10-280-349 has resulted in an Adverse Effect to historic properties. A Memorandum of Agreement was signed and MOA stipulations must be fulfilled prior to construction. The SDDOT Environmental Office will ensure MOA Stipulations I-III are completed prior to construction.

A programmatic Section 4(f) Evaluation for Use of Historic Bridge 10-280-349 was approved by FHWA.

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the USACE for the permanent actions associated with this project.

Action Taken/Required:

The Contractor will comply with all requirements contained in the Section 404 Permit.

The Contractor will also be responsible for obtaining a Section 404 Permit for any dredge, excavation, or fill activities associated with material sources, storage areas, waste sites, and Contractor work sites outside the plan work limits that affect wetlands, floodplains, or waters of the United States.

BUTTE COUNTY REQUIREMENTS

The County will be responsible for the following items without federal participation.

1. Right of way and temporary and permanent easements.
2. Coordination of any utility adjustments.
3. Furnish and install final surfacing.
4. Furnish and install temporary and/or permanent fencing.
5. Furnish and install new permanent signing.
6. Remove silt fence in permanently seeded areas.

GRADING OPERATIONS

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

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

Overburden Excavation for Riprap is not included in the Unclassified Excavation quantity. Refer to the Structure Plans for information regarding the Overburden Excavation for Riprap. The excavated material from the construction of the Bridge Berm(s) and shaping the bridge waterway channel(s) should be disposed of at a site provided by the Contractor and approved by the Engineer. This waste material is not included in the Waste shown in the Table of Excavation Quantities by Balances.

Special ditch grades and other sections of the roadway different than the typical section 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.

CLEARING

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

SHRINKAGE FACTOR

A shrinkage factor for embankment of +30% was used.

UNCLASSIFIED EXCAVATION

All excavation that must be performed to construct the new grade in conformance with the cross sections and plan details will be included in the contract unit price per cubic yards for "Unclassified Excavation". The plans quantity for "Unclassified Excavation" as shown in the Estimate of Quantities will be the basis of payment for this item without further field measurement. If changes are necessary during construction, the altered quantities will be measured by payment.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation (Viken Road)	1356
Topsoil	539
Excavation (Hope Road)	334
Salvage and Stockpile Granular Material	350
Total	**2579**

SALVAGE AND STOCKPILE GRANULAR MATERIAL

The Contractor will salvage and stockpile the existing gravel surfacing from the mainline roadway and intersection with Hope Road. The existing surfacing consists of approximately 6 inches of gravel surfacing. Scrapers may be used for removal of the existing surfacing; however, scrapers will not be driven over top of the existing or new structures. Stockpiling procedures will be done in accordance with the Specifications. Contamination of the gravel will be kept to a minimum, to the satisfaction of the Engineer. Sieve analysis requirements will be waived.

The cost for all labor, materials, and equipment required for removal, haul, and stockpile the salvaged surfacing will be included in the contract unit price per ton for "Salvage and Stockpile Granular Material." Plan's quantity will be used for this contract item without further field measurement.

"Gravel Surfacing, Salvaged" will be obtained from the salvaged and stockpiled granular material and may be used without further testing.

The cost for all labor, materials, and equipment needed to haul, install, and compact the salvaged surfacing will be included in the contract unit price per ton for "Gravel Surfacing, Salvaged." Plan's quantity will be used for this contract item without further field measurement.

The County will be responsible for the proper and timely placement of gravel surfacing on the completed placed salvage gravel. Subgrade damage caused by either improper or delayed gravel surfacing placement by the County will be the responsibility of the County.

REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Remove and Reset Signs.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for "Remove Sign for Reset". All costs for resetting the existing signs will be incidental to the contract unit price per each for "Reset Sign". All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

TABLE OF REMOVE & RESET SIGNS

Location	L/R	Remarks
7+40	L	Stop Sign
8+50	L	Street Sign
8+50	L	Stop Sign
8+50	L	Double Arrow
12+75	R	Street Sign

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 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 County.

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

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.

Unless otherwise stated in these plans, 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.

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

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

Station	to	Station		Topsoil (CuYd)
6+50		13+50		539
			Subtotal:	539
			Total:	539

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.

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com
LALRISE Prime and Max WP	Lallemand Specialties Inc. Milwaukee, WI Phone: 1-844-590-7781 www.lallemandplantcare.com

Application of fertilizer will not be required on this project.

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

MULCHING (GRASS HAY OR STRAW)

An additional 2 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched into the soil at a 3-inch depth.

TABLE OF MULCHING (GRASS HAY OR STRAW)

Station		Location	Quantity (Ton)
6+50 to 13+50	L/R	Inslope/Backslope/Ditch	2.6
		Additional Quantity:	2.0
		Total Quantity for Permanent Stabilization:	4.6

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles will remain on the project to decompose.

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

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

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (Inch)	Quantity (Ft)
6+75 to 8+25 R	Toe of Inslope	12	150
10+50 to 11+75 R	Toe of Inslope	12	150
	Additional Quantity:	12	200
		Total:	500

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.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Station	Location	Quantity (Ft)
9+00 to 10+00 L	Edge of Creek	300
10+50 to 11+00 L	Edge of Creek	100
	Additional Quantity:	200
	Total:	600

REMOVE DELINEATORS

Existing signs that are shown as being removed in the Table of Remove Delineators will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for “Remove Delineator”. Quantities will be per assembly at the contract unit price per each.

TABLE OF REMOVE DELINEATORS

Station	L/R	Remarks	Quantity
10+00	L&R	Delineator	15
10+00	L&R	Type 3 Object Marker	4
		Total:	19

SALVAGE TRAFFIC SIGN

All signs listed for salvage in the Table of Salvage Traffic Signs will have the existing posts, bases, and signs dismantled and delivered to the County. The Contractor will notify the Engineer two days prior to time of delivery to the Maintenance Yard so correct placement for storage and inventory of materials can be made upon receipt. All bolts, nuts, and washers will be placed in individual 5-gallon pails. Wooden posts will be stockpiled separately from steel posts. All signs listed for salvage will be handled with care so that the signs are not damaged during removal or transport. The Contractor will replace and pay for any salvaged signs damaged in their care.

All costs for labor and equipment necessary to remove, dismantle, and deliver signs to the County will be incidental to the contract unit price per each for Salvage Traffic Sign. The quantity of signs to be salvaged is shown in the Table of Salvage Traffic Signs. The plans quantity is shown as per assembly. Payment for salvaging signs will be paid per assembly at the contract unit price per each for “Salvage Traffic Sign”.

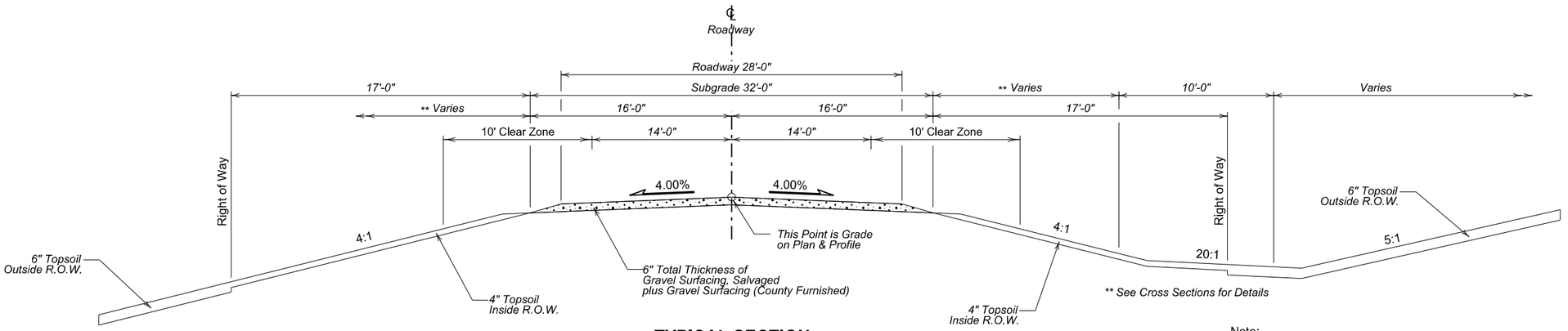
TABLE OF SALVAGE TRAFFIC SIGNS

Station	L/R	Remarks	Quantity
10+00	L&R	“Narrow Bridge” Sign	2
10+00	L&R	Load Posting Sign	2
10+00	L&R	Stop Sign	1
		Total:	5

TYPICAL SECTIONS AND CONTROL DATA

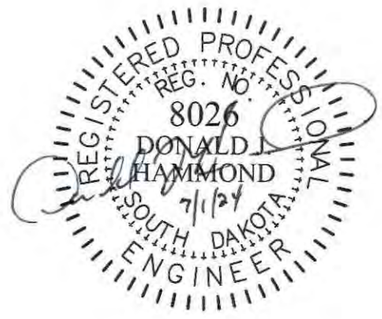
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	8	46



TYPICAL SECTION
Sta. 6+50 to Sta. 13+50

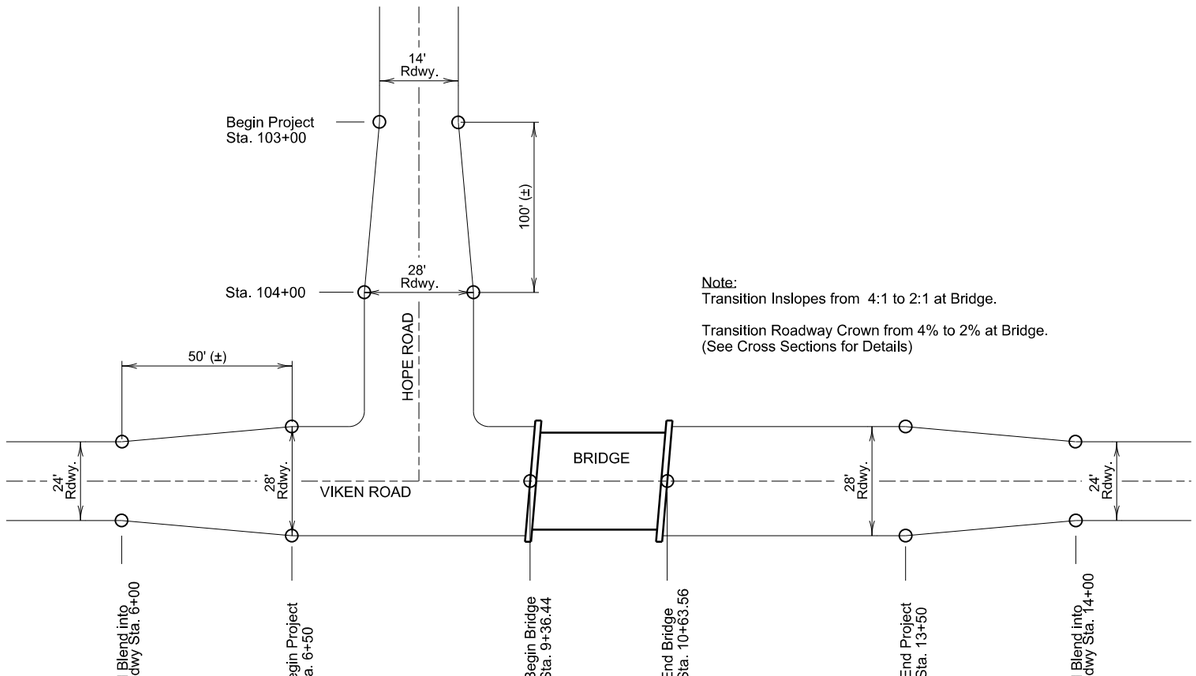
Note:
Transition Inslopes from
4:1 to 2:1 at Bridge



HORIZONTAL ALIGNMENT (VIKEN ROAD)				
Element	Curve Data	Station	Northing	Easting
POB		-0+84.31	336449.78	1062241.77
POE	Tangent Direction = N 2°25'01" E	35+26.76	340057.64	1062394.06

HORIZONTAL ALIGNMENT (HOPE ROAD)				
Element	Curve Data	Station	Northing	Easting
POB		100+00.00	337399.30	1061781.40
POE	Tangent Direction = S 87°35'23" E	105+00.00	337378.27	1062280.96

CONTROL POINTS						
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESC.
CP1	8+11.72	251.06' Lt.	337355.600	1062028.716	2807.44	SPIKE
CP2	8+36.33	43.60' Lt.	337371.441	1062237.027	2800.61	REBAR
CP3	8+36.38	847.01' Rt.	337333.928	1063126.813	2801.06	REBAR



Note:
Transition Inslopes from 4:1 to 2:1 at Bridge.

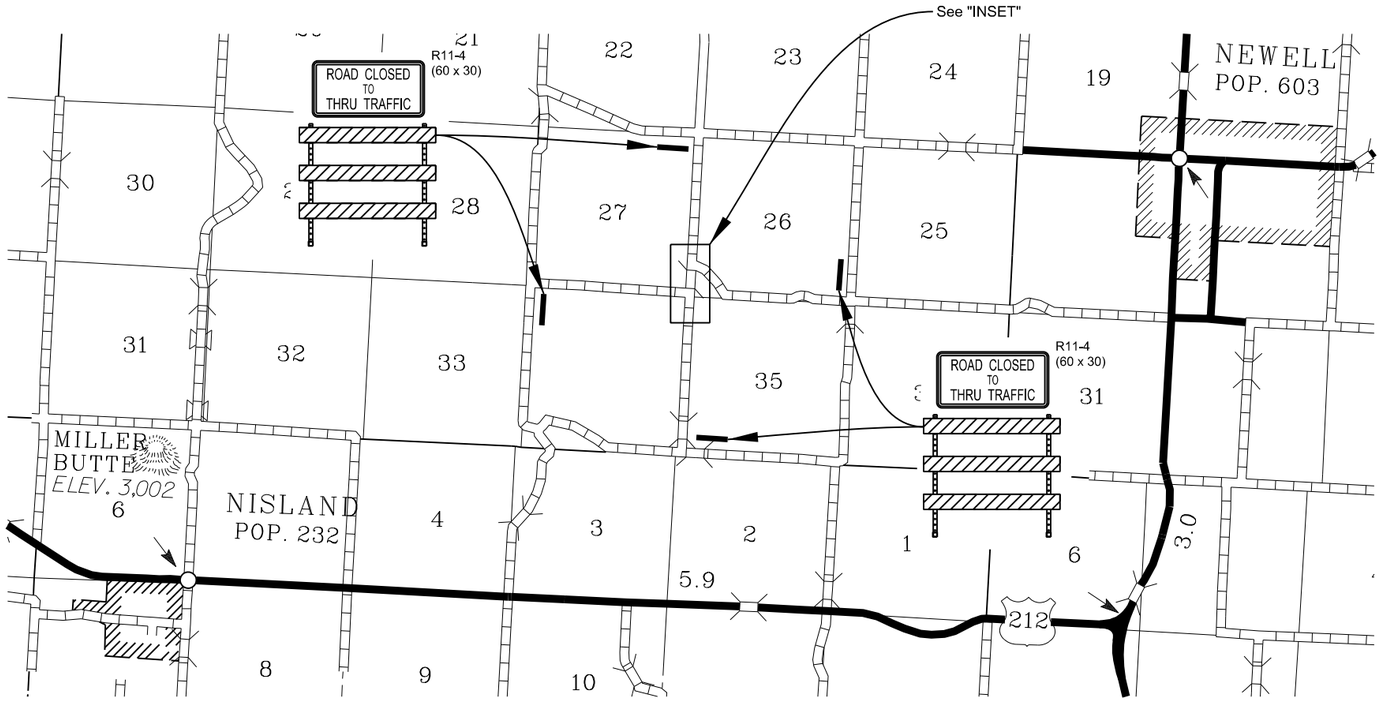
Transition Roadway Crown from 4% to 2% at Bridge.
(See Cross Sections for Details)

TYPICAL ROADWAY TRANSITION DETAIL
(Not to Scale)

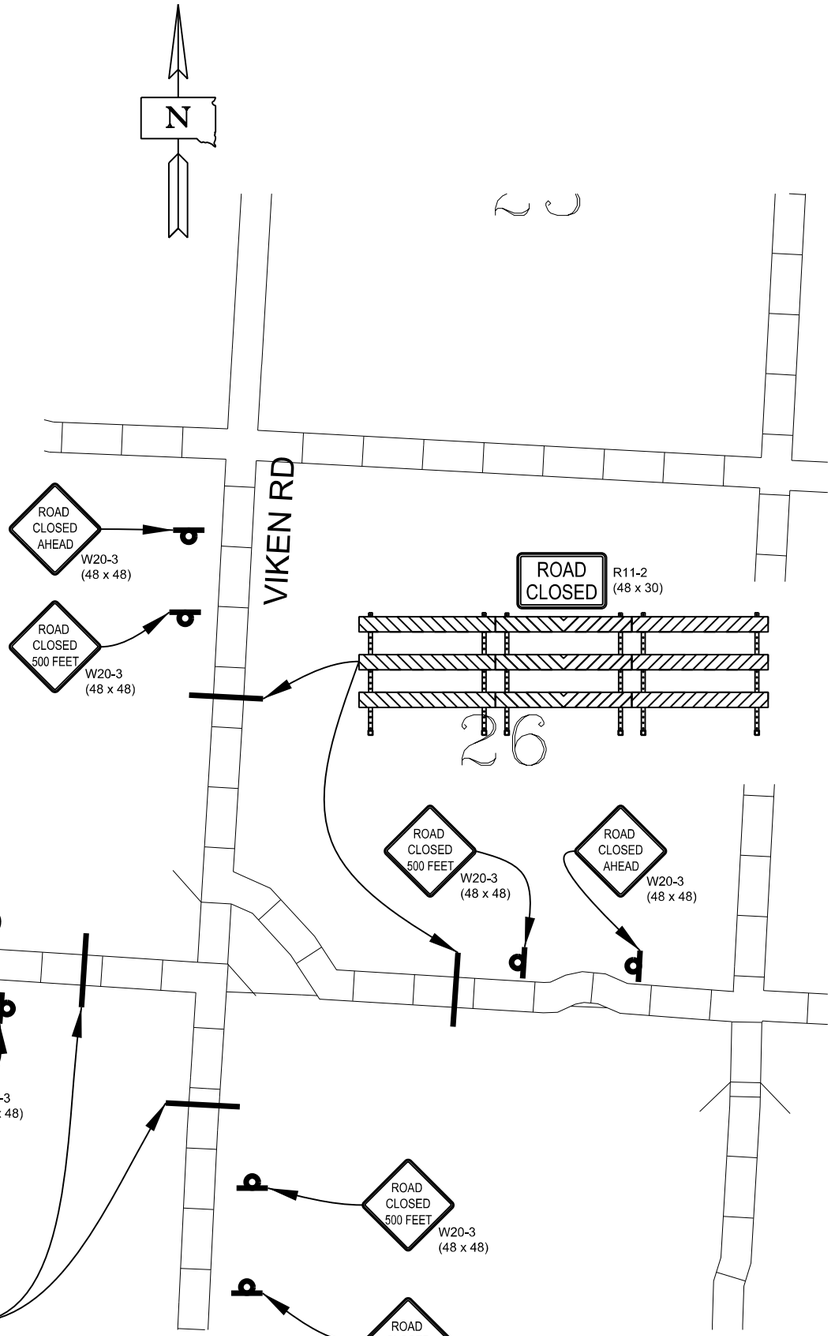
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	9	46

FOR BIDDING PURPOSES ONLY

TRAFFIC CONTROL DETAILS



AREA MAP



INSET

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	4	48" x 30"	10.0	40.0
R11-4	ROAD CLOSED TO THRU TRAFFIC	4	60" x 30"	12.5	50.0
W20-3	ROAD CLOSED AHEAD	4	48" x 48"	16.0	64.0
W20-3	ROAD CLOSED 500 FT	4	48" x 48"	16.0	64.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			218.0

EROSION AND SEDIMENT CONTROL DETAILS

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	10	46

Scale: 1"= 100'

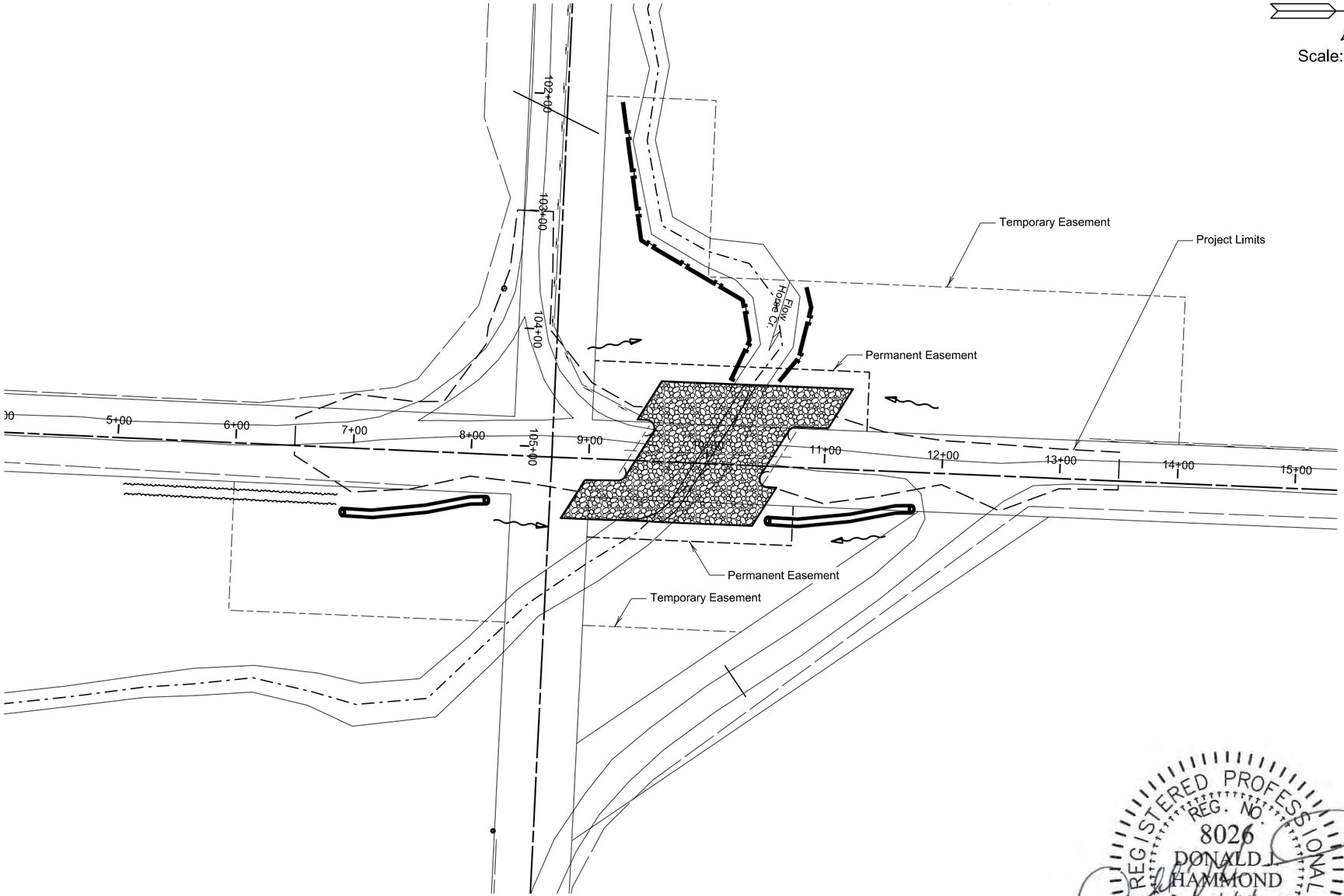


Table of Erosion Control Wattles

Station	L/R	Location	Quantity (Ft.)
6+75 to 8+25	R	Toe of Inslope	150
10+50 to 11+75	R	Toe of Inslope	150
Additional Quantity:		Engineer's Discretion	200
		Total:	500

Table of High Flow Silt Fence

Station	L/R	Location	Quantity (Ft.)
9+00 to 10+00	L	Edge of Creek	300
10+50 to 11+00	L	Edge of Creek	100
Additional Quantity:		Engineer's Discretion	200
		Total:	600

LEGEND:

- High Flow Silt Fence
- 12" Dia. Erosion Control Wattle
- Riprap and Drainage Fabric
- Drainage Arrow

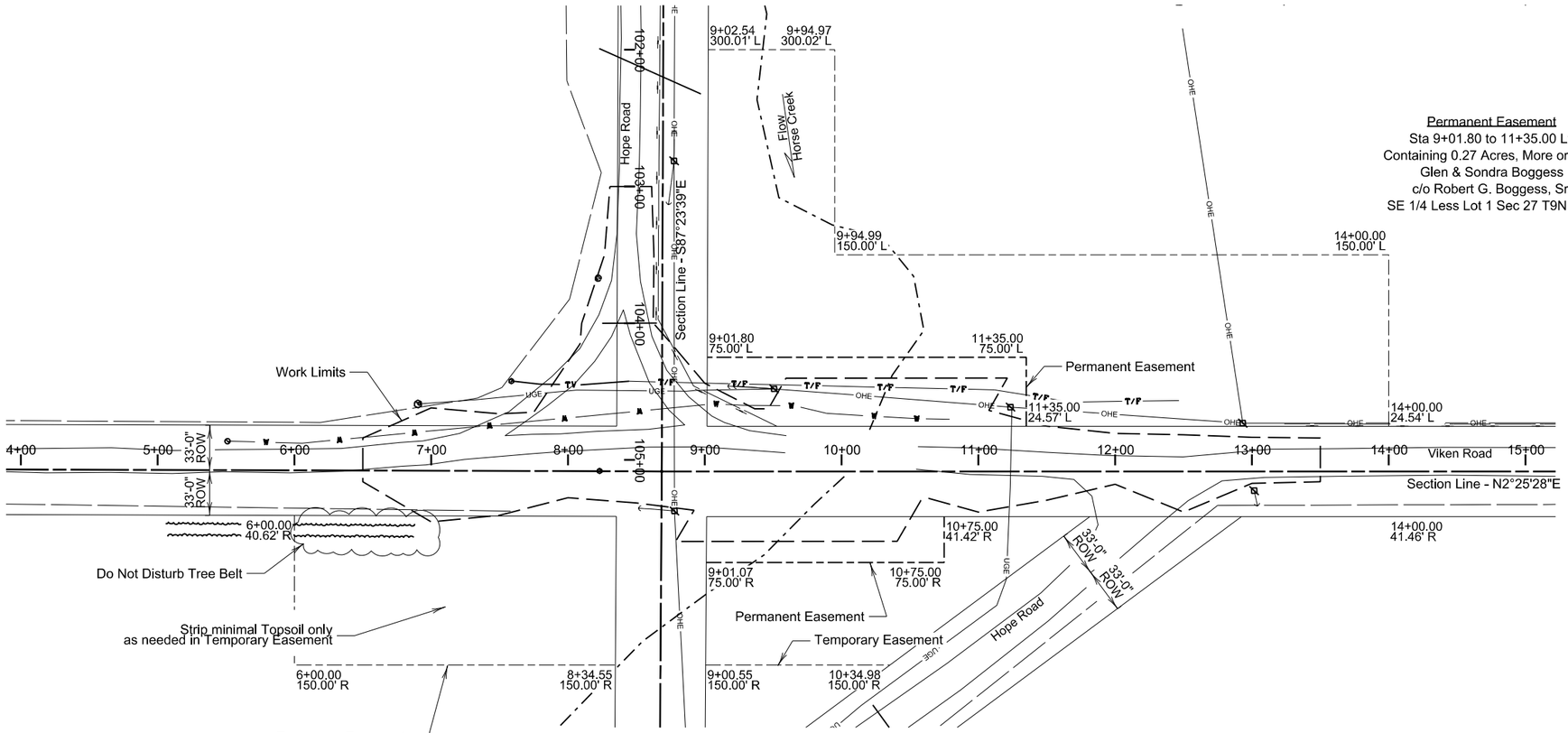
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
7/1/24

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	11	46

EASEMENTS

FOR BIDDING PURPOSES ONLY

Scale: 1"= 100'



Permanent Easement
Sta 9+01.80 to 11+35.00 Lt.
Containing 0.27 Acres, More or Less
Glen & Sondra Boggess
c/o Robert G. Boggess, Sr.
SE 1/4 Less Lot 1 Sec 27 T9N R5E

Temporary Easement
Sta. 9+02.54 to 14+00.00 Lt
Containing 1.48 Acres, More or Less
Glen & Sondra Boggess
c/o Robert G. Boggess, Sr.
SE 1/4 Less Lot 1 Sec 27 T9N R5E

Temporary Easement
Sta. 6+00.00 to 8+34.55 Rt
Containing 0.59 Acres, More or Less
James T. McDermott and Edna I. Booth
NW 1/4 Sec 35 T9N R5E

Permanent Easement
Sta 9+01.07 to 10+75.00 Rt.
Containing 0.13 Acres, More or Less
Kevin & Ashlee Jaeger
S 1/2 SW 1/4 Sec 26 T9N R5E

Temporary Easement
Sta. 9+00.55 to 10+34.98 Rt
Containing 0.38 Acres, More or Less
Kevin & Ashlee Jaeger
S 1/2 SW 1/4 Sec 26 T9N R5E

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8010(29)	12	46

FOR BIDDING PURPOSES ONLY

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers left of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED 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** 6.54 Acre
- **5.3 (3b): Total Area to be Disturbed** 1.73 Acre
- **5.3 (3c): Maximum Area Disturbed at One Time**1.73 Acre
- **5.3 (3d): Existing Vegetative Cover (%)** 70%
- **5.3 (3d): Description of Vegetative Cover**Grass, shrubs, few trees

- **5.3 (3e): Soil Properties:** USDA-NRCS Soil Series Classification Baca silty clay loam; Glenberg and Halverson Soils
- **5.3 (3f): Name of Receiving Water Body/Bodies** Horse Creek
- **5.3 (3g): Location of Construction Support Activity Areas** Temporary Easement

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
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 inlet and culvert protection after completing storm drainage installations.	
Final grading.	
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	
☐ Erosion Control Blankets	
☐ Surface Roughening (e.g. tracking)	
☐ Other:	

Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

FOR BIDDING PURPOSES ONLY

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**

- Housekeeping
  - Only needed products will be stored on-site by the Contractor.
  - Except for bulk materials the contractor will store all materials under cover and/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
- ☐ Bituminous Materials
- ☐ Petroleum Based Products
- ☐ Diesel Exhaust Fluid
- ☒ Cleaning Solvents
- ☒ 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).

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

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.

_____

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 Contact Name: _____
- Address: _____
- _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **Erosion Control Supervisor**

- Name: _____
- Address: _____
- _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **SDDOT Project Engineer**

- Name: _____
- Business Address: _____
- Job Office Location: _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **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

5.5: REQUIRED SWPPP MODIFICATIONS

➢ **5.5 (1): Conditions Requiring SWPPP Modification**

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.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	16	46

FOR BIDDING PURPOSES ONLY

VIKEN ROAD PLAN AND PROFILE

Sta. 9+60.77 to 10+51.04
Remove 93'-0" Single Span
Ten Panel Pony Truss Bridge
(Incidental Work, Structure)

Sta. 10+00.00 Lt & Rt
Remove all Delineators
near the existing bridge, 15 Total

Sta. 10+00.00 Lt & Rt
Remove Type 3 Object Marker
near the 4 Corners of Existing Bridge, 4 Total

Sta. 10+00.00 Lt & Rt
Remove & Salvage "Narrow Bridge" Signs,
Load Posting Signs near the approaches
of the Existing Bridge, and Stop Sign on
Hope Road curve, 5 Total

Sta. 6+50 to 13+50 Lt & Rt
Remove all trees in Work Limits, ROW,
and Permanent Easement. Remove all trees
in Jaeger's Temporary Easement.
(Clearing)

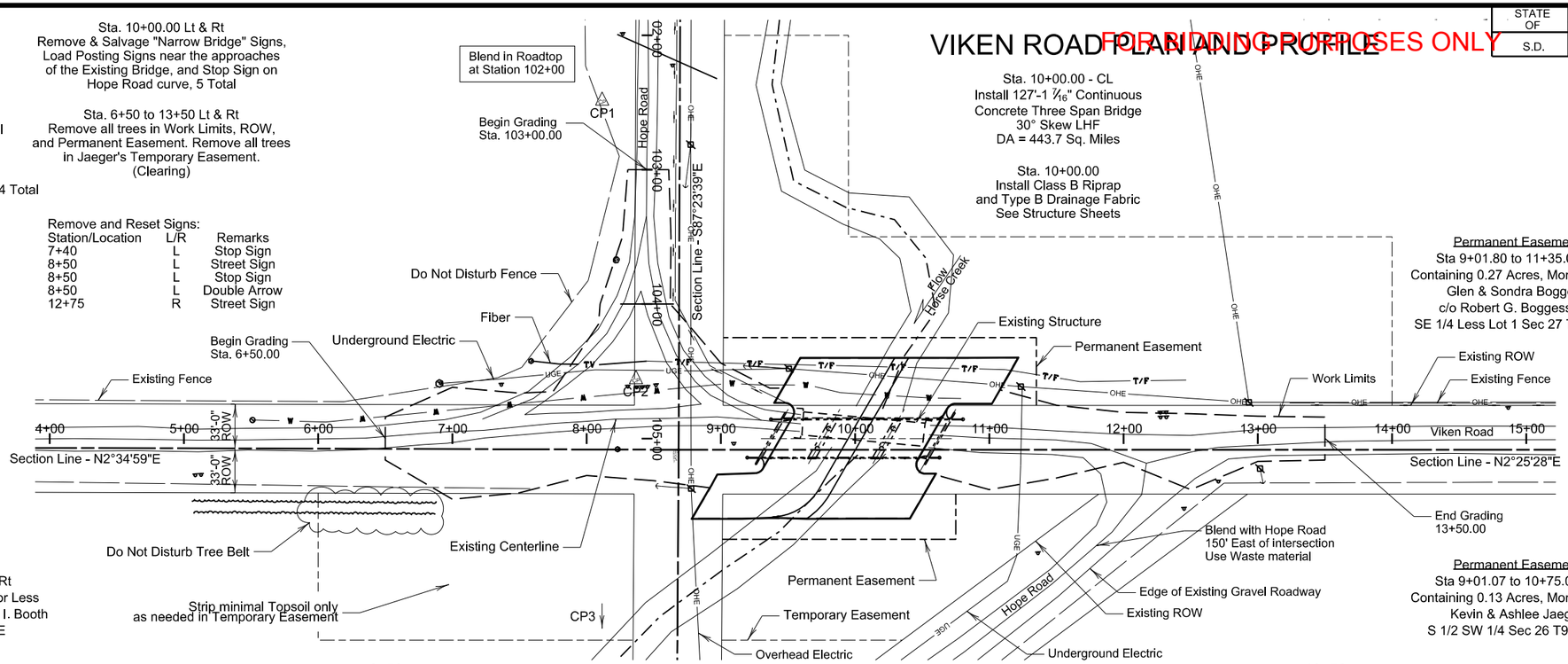
Remove and Reset Signs:

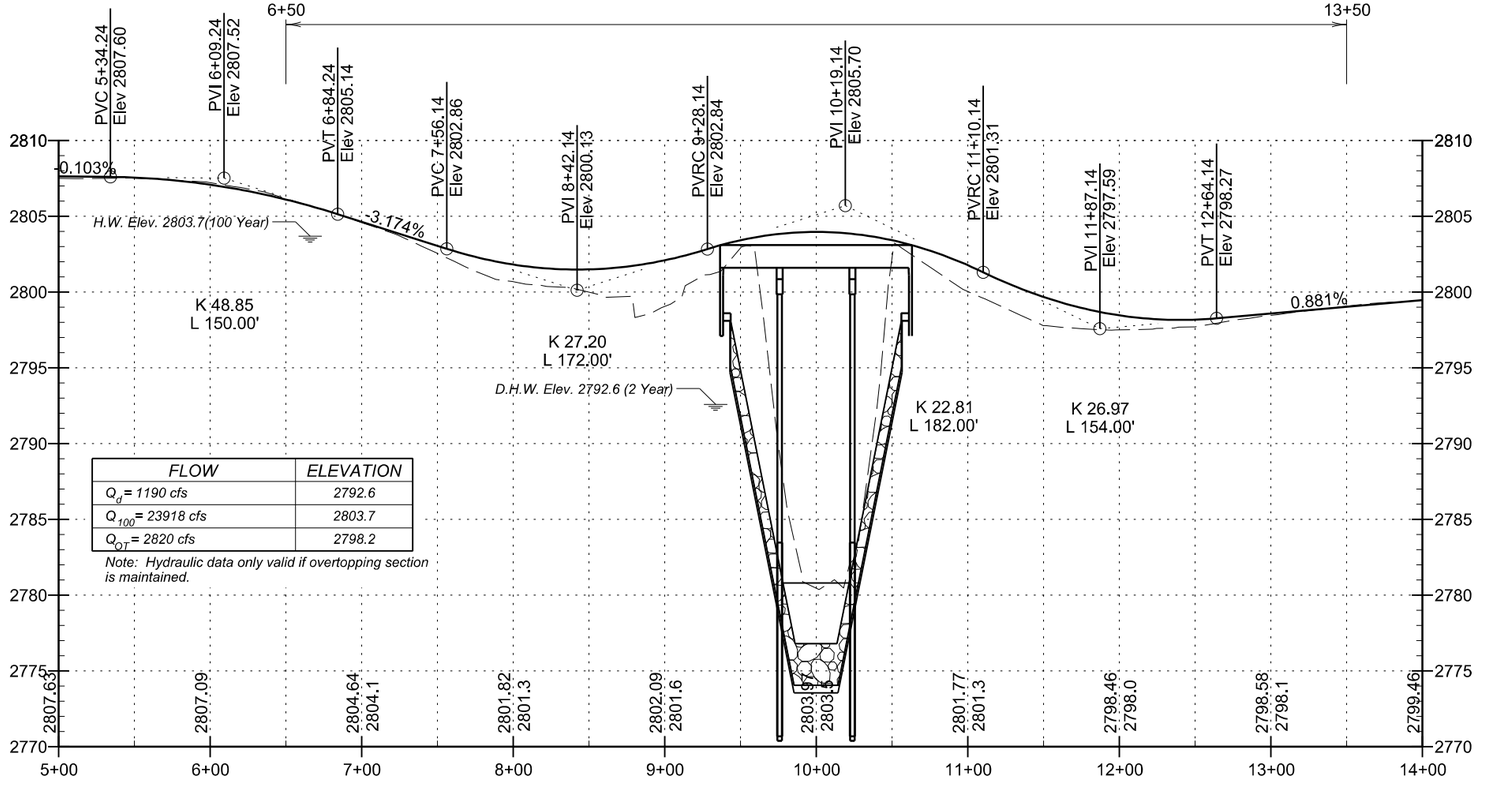
Station/Location	L/R	Remarks
7+40	L	Stop Sign
8+50	L	Street Sign
8+50	L	Stop Sign
8+50	L	Double Arrow
12+75	R	Street Sign

Sta. 10+00.00 - CL
Install 127'-1 7/16" Continuous
Concrete Three Span Bridge
30° Skew LHF
DA = 443.7 Sq. Miles

Sta. 10+00.00
Install Class B Riprap
and Type B Drainage Fabric
See Structure Sheets

Scale: 1"= 100'





FLOW	ELEVATION
Q_d = 1190 cfs	2792.6
Q_{100} = 23918 cfs	2803.7
Q_{OT} = 2820 cfs	2798.2

Note: Hydraulic data only valid if overtopping section is maintained.

Excav. = 1356 C.Y. Emb. = 1240 C.Y.
Borrow = 256 C.Y. (+30%) = 372 C.Y.
Total = 1612 C.Y. Total = 1612 C.Y.
Topsoil = 539 C.Y.

NOTE: Borrow will be obtained from waste resulting from Hope Road excavation.

<u>Permanent Easement</u>
Sta 9+01.80 to 11+35.00 Lt.
Containing 0.27 Acres, More or Less
Glen & Sondra Boggess
c/o Robert G. Boggess, Sr.
SE 1/4 Less Lot 1 Sec 27 T9N R5E

<u>Temporary Easement</u>
Sta. 9+02.54 to 14+00.00 Lt
Containing 1.48 Acres, More or Less
Glen & Sondra Boggess
c/o Robert G. Boggess, Sr.
SE 1/4 Less Lot 1 Sec 27 T9N R5E

<u>Temporary Easement</u>
Sta. 6+00.00 to 8+34.55 Rt
Containing 0.59 Acres, More or Less
James T. McDermott and Edna I. Booth
NW 1/4 Sec 35 T9N R5E

<u>Permanent Easement</u>
Sta 9+01.07 to 10+75.00 Rt.
Containing 0.13 Acres, More or Less
Kevin & Ashlee Jaeger
S 1/2 SW 1/4 Sec 26 T9N R5E

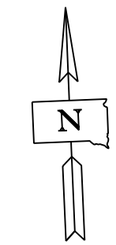
Temporary Easement
Sta. 9+00.55 to 10+34.98 Rt
Containing 0.38 Acres, More or Less
Kevin & Ashlee Jaeger
S 1/2 SW 1/4 Sec 26 T9N R5E

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
7/1/24

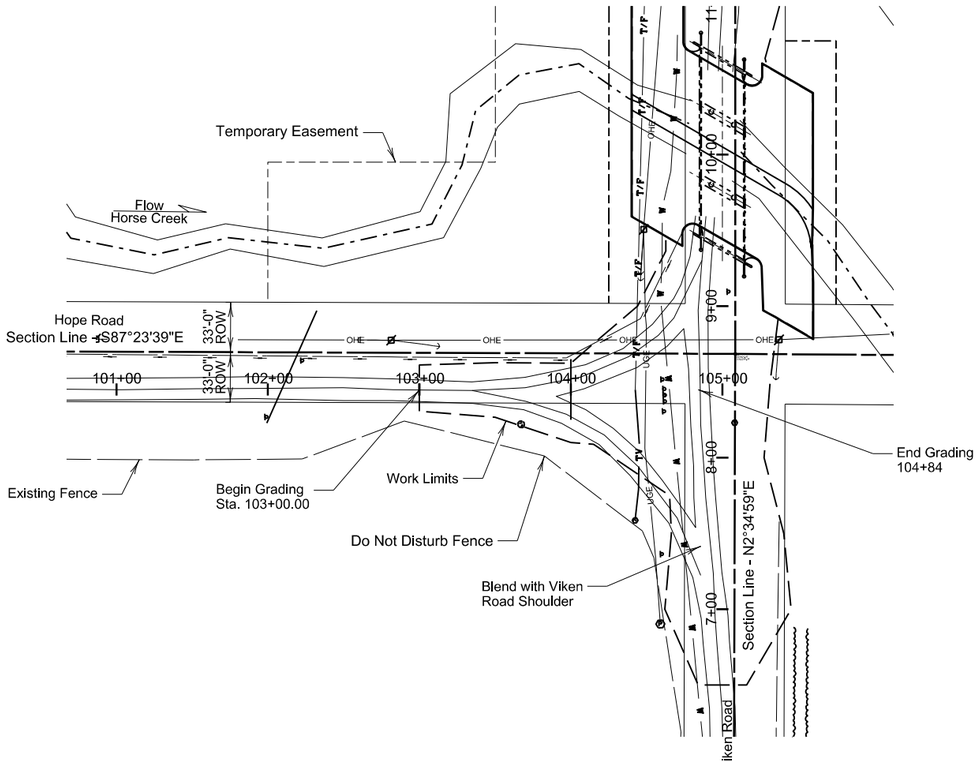
HOPE ROAD PLAN AND PROFILE

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	17	46

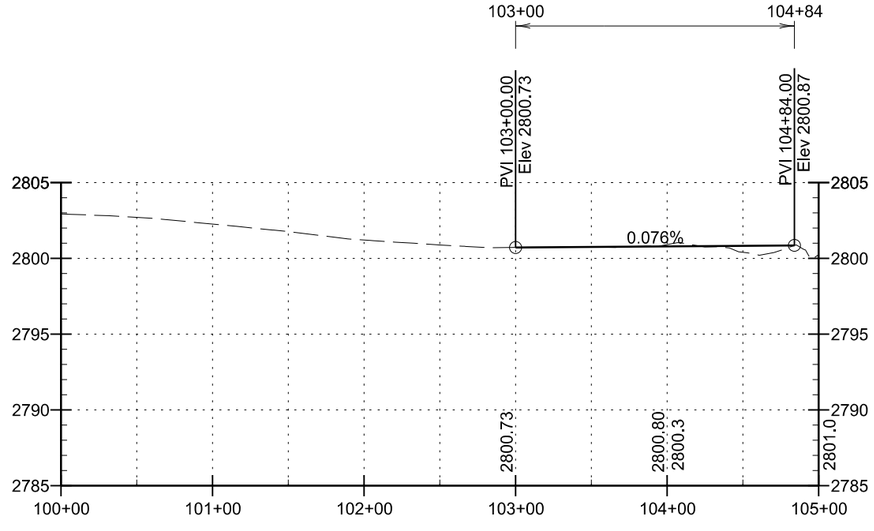


Scale: 1"= 100'



Blend in Roadtop at Station 102+00

Sta 104+00
Install 24" Diameter RCP
38'-0" Long and
Two Flared End Sections



Excav. =	334 C.Y.	Emb. =	19 C.Y.
		(+30%) =	6 C.Y.
		Waste =	309 C.Y.
Total =	334 C.Y.	Total =	334 C.Y.

NOTE: Waste will be used to flatten Hope Road intersection to NE of bridge.

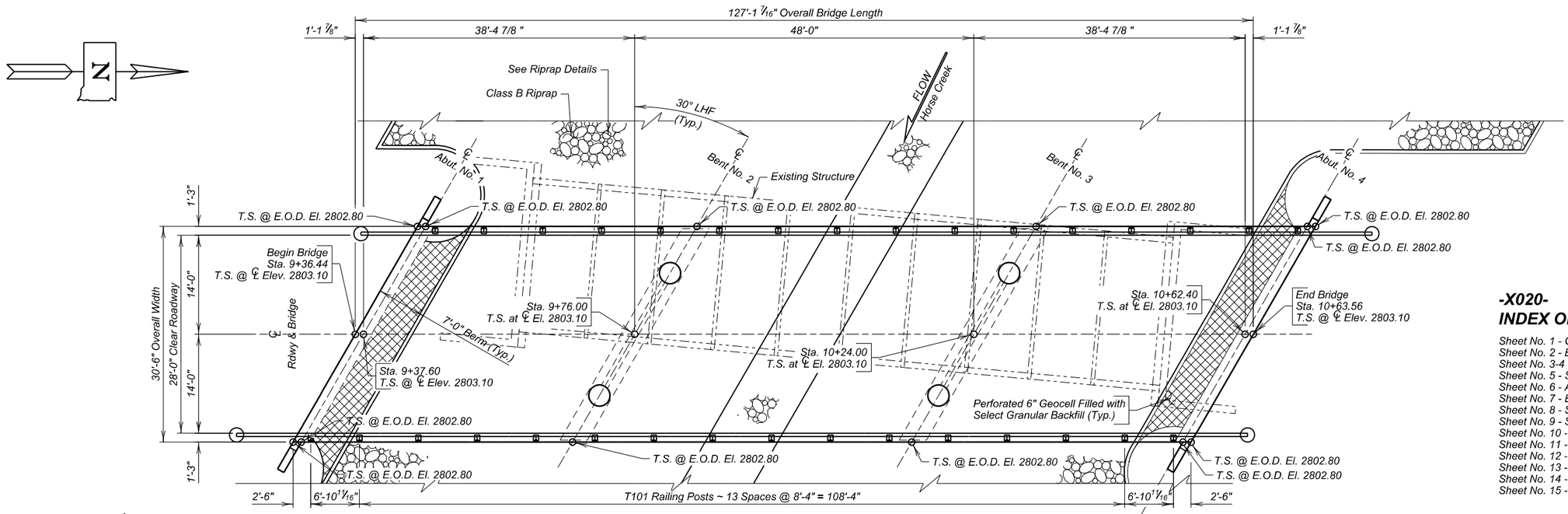
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

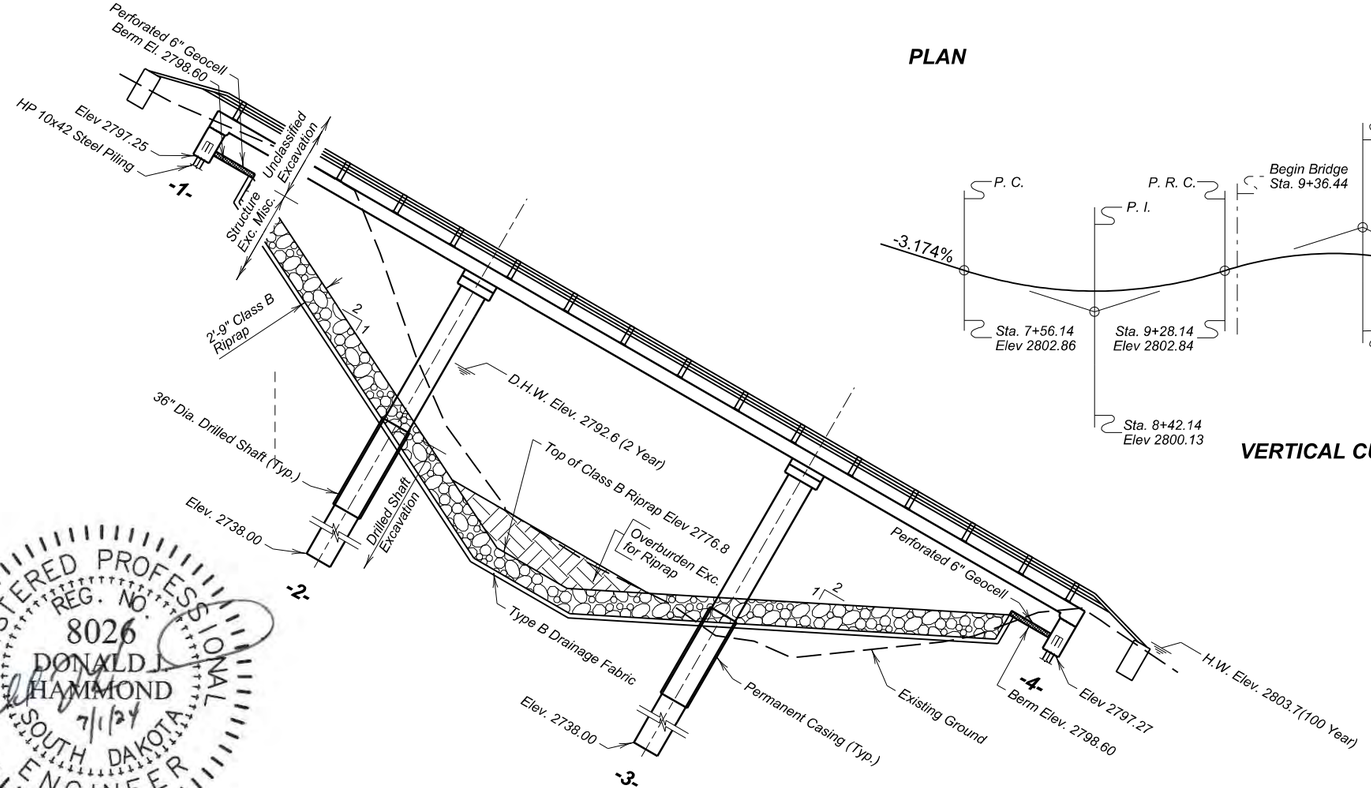
T. S. @ ℄ El. = Top of Slab at Centerline Elevation
T. S. @ E.O.D. El. = Top of Slab at Edge of Deck Elevation

FOR BIDDING PURPOSES ONLY

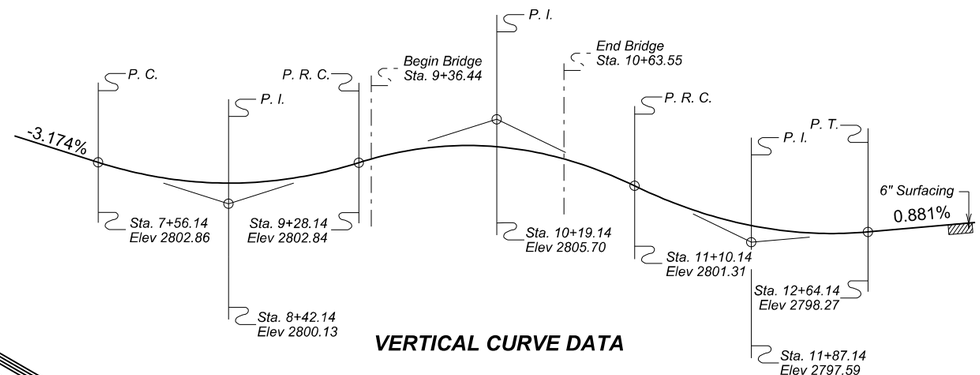
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	18	46



PLAN



ELEVATION



VERTICAL CURVE DATA

-X020-
INDEX OF BRIDGE SHEETS

HYDRAULIC DATA

Q_d	1190 cfs
A_d	541 sq ft
V_d	2.2 fps
QF	1190 cfs
Q_{100}	23918 cfs
$Q_{OT_{fr}}$	2820 cfs
V_{Max}	7.2 fps

Q_d = Design discharge for the proposed bridge based on 2 year frequency. El. 2792.6.

Q_{OT} = Overtopping discharge and frequency 4.4 year recurrence interval. El. 2798.2 at Station 12+33.

Q_F = Designated peak discharge for the basin approaching proposed project based on 2 year frequency.

Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. El. 2803.7.

V_{max} = Maximum computed outlet velocity for the proposed bridge based on 100 year frequency.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
7/1/24

GENERAL DRAWING

FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

Plans By:
Brosz Engineering, Inc.
Consulting Engineers

- X020 -

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

ESTIMATE OF STRUCTURE QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	431.0	SqYd
120E7000	Select Granular Backfill	11.2	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0100	Structure Excavation, Bridge	105	CuYd
430E0200	Bridge End Embankment	380	CuYd
430E0300	Granular Bridge End Backfill	30.2	CuYd
460E0030	Class A45 Concrete, Bridge Deck	218.3	CuYd
460E0050	Class A45 Concrete, Bridge	98.6	CuYd
465E0100	Class A45 Concrete, Drilled Shaft	33.6	CuYd
465E0200	Drilled Shaft Excavation	47.2	CuYd
465E1038	38" Permanent Casing	43.6	Ft
470E0420	Type T101 Bridge Railing	286	Ft
480E0100	Reinforcing Steel	29,434	Lb
480E0200	Epoxy Coated Reinforcing Steel	72,309	Lb
480E0505	No. 5 Rebar Splice	160	Each
510E0300	Preboring Pile	100	Ft
510E3361	HP 10x42 Steel Test Pile, Furnish and Drive	100	Ft
510E3365	HP 10x42 Steel Bearing Pile, Furnish and Drive	360	Ft
700E0210	Class B Riprap	2,371.6	Ton
700E1100	Overburden Excavation for Riprap	554	CuYd
831E0110	Type B Drainage Fabric	2,065	SqYd
831E1030	Perforated Geocell	320	SqFt

BRIDGE SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required provisions, supplemental specifications, and special provisions as included in the proposal.

BRIDGE DESIGN LOADING

1. AASHTO HL-93.
2. Dead Load includes 22 psf for future wearing surface on the roadway.

DESIGN MATERIAL STRENGTHS

Class A45 Concrete	f'_c = 4,500 psi
Reinforcing Steel (ASTM A615, Gr. 60)	f_y = 60,000 psi
Piling (ASTM A572 Grade 50)	f_y = 50,000 psi

GENERAL CONSTRUCTION

1. All lap splices shown are contact lap splices unless noted otherwise.
2. All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
3. Use 2-inch clear cover on all reinforcing steel except as shown.
4. Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
5. Requests for construction joints or reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.
6. Bridge berms will be constructed to the plans template prior to any pile driving or construction of abutment footings. See Standard Plate 120.10. Berm slopes will not be disturbed after construction. Any alterations to the berm or slopes after berm construction will be submitted to the Bridge Construction Engineer for approval. Allow 30 days for review of proposals.
7. The elevation of the bridge deck is 6 inches above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

1. In place Sta. 9+60.82 – 11.21' Lt. to Sta. 10+50.96 - 1.73' Lt. is a 93.0' single (1) span ten (10) panel pony (Pratt) truss bridge with a 20.2' deck width. The superstructure consists of a gusseted trusses with reinforced concrete deck. Bridge guardrail consists of two lines of angle iron rail that is attached to the inside faces of the trusses. The substructure consists of reinforced concrete abutments. The abutments are founded on steel 8x32.5 H-Beam piles.
2. Break down and remove the existing bridge to 1-foot below the channel flowline, or as required to construct the new structure in accordance with Section 110 of the Construction Specifications. All portions of the existing bridge will be removed and disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitments Notes in the plans.
3. The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it will be the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved.

DESIGN MIX OF CONCRETE

1. All structural concrete will be Class A45 unless otherwise indicated.
2. Type II cement is required

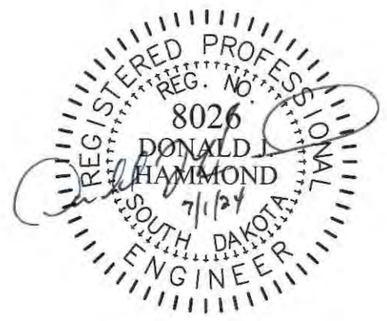
ABUTMENTS

1. Preboring piling at each abutment is required to whichever is greater, ten feet or to natural ground.
2. The HP 10x42 Piling were designed using a factored bearing resistance of 77 tons per pile. Piling will develop a field verified nominal bearing resistance of 192 tons per pile.
3. One test pile will be driven at each abutment and will become part of the pile group.
4. The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.
5. Piles will not be driven out of position by more than three inches in the direction parallel to the girder centerline. A pile-driving template will be used to ensure this accuracy.
6. Each finished abutment will include a Bridge Survey Marker. See Standard Plate 460.05.

PILE DRIVING

A driveability analysis was performed using the wave equation analysis program (GRLWEAP). A list of acceptable hammers is provided below. Pile hammers not listed will require evaluation and approval prior to use from the Geotechnical Engineering Activity. Requests for evaluation of hammers not listed will be submitted a minimum of 5 business days prior to installation of piles.

Delmag D19-42 MVE M-19 APE D19-42



ESTIMATE OF QUANTITIES AND NOTES FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

Str. No. 10-280-349

JULY 2024

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
CH	CH	DH	
CNTYPCNX	PCNXNOTE		BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

BENTS

1. The design of the drilled shafts is based upon encountering competent Pierre Shale at elevation 2770. If competent Pierre Shale is not encountered at or above this elevation, contact the Office of Bridge Design, through proper channels, before proceeding with the drilled shaft construction. Geotechnical Engineering Activity personnel will be present during the drilling operations to confirm these elevations and to observe placement of the drilled shafts. The Geotechnical Engineering Activity will be notified a minimum of two weeks prior to the start of excavation for the drilled shafts.

2. The drilled shafts will be constructed using the permanent casing method in conformance with the Special Provision for Drilled Shaft Construction. Permanent casings for the drilled shafts will be installed and seated immediately prior to drilled shaft excavation. A construction joint will be placed at the top of the permanent casing and the permanent casing will extend a minimum of 1'-0" above the groundline, waterline, or construction platform elevation, whichever is higher.

BENTS (CONT.)

3. The construction joint locations and quantities provided on the plans are based upon the estimated existing groundline and waterline elevations. It is the responsibility of the Contractor to verify the existing elevations and have a drilled shaft installation plan submitted and approved prior to ordering the casing. If the Contractor intends to use construction platforms, etc. that would require any of the construction joints to be at a location other than the location shown in the plans, the Contractor will include these proposed changes in the drilled shaft installation plan for approval by the Office of Bridge Design.

4. The quantities for Drilled Shaft Excavation; 38-inch Permanent Casing; Class A45 Concrete, Drilled Shaft; and Class A45 Concrete, Bridge are based upon the construction joint locations as shown in the plans. Payment for these items will be at the contract unit price for the plans shown quantities regardless of any approved changes in the location of the construction joints as requested by the Contractor due to the construction of work platforms, etc. Measurement and payment will be made at the contract unit prices for any changes due to variations in the competent foundation soil or in the locations of the existing groundline and waterline elevations as ordered by the Engineer.

5. The H1 bars are detailed with one lap of the Drilled Shaft and Column and are provided in the reinforcing schedule with an additional length of bar sufficient to provide one lap splice. The lower lap will be placed in the bottom of the shaft. Once the construction joint elevations have been verified and established, contact lap splice details showing location and lap length will be submitted with the drilled shaft installation plan for approval. Any costs involved in cutting reinforcing steel and any other items incidental to providing the contact lap splice will be included in the contract unit price per pound for Reinforcing Steel.

6. Spiral reinforcement may be fabricated from cold drawn wire conforming to ASTM A1064 or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.

7. Wet drilled shaft excavations will be cleaned by using an air lift system. Details for the air lift system will be included as part of the Drilled Shaft Installation Plan.

8. The drilled shaft contractor will include the name of the CSL testing organization meeting the requirements of Section 465.3J with the submittal of the Drilled Shaft Installation Plan.

CSL ACCESS TUBES

1. Access tubes will be furnished and installed in each of the drilled shafts in accordance with Section 465 of the Construction Specifications.

2. These access tubes are to be used for crosshole sonic log testing of the drilled shaft in the event that the Department deems that the quality of the drilled shaft is suspect. In order for the Department to determine if crosshole sonic log testing is necessary, no subsequent work above the construction joint will be allowed for 7 days or until authorized by the Engineer, whichever comes first. Upon authorization by the Engineer and prior to any subsequent concrete placement above the construction joint, the Contractor will remove the water from the access tubes, cut the access tubes off flush with the top of the drilled shaft and completely fill the access tubes with grout.

SUPERSTRUCTURE

1. Preplanned construction joints may be used in accordance with Section 460.3 of the Construction Specifications. Contact the Office of Bridge Design for joint configuration and allowable location. Emergency slab construction joints will be as shown with the superstructure details. If an emergency slab joint is used, contact the Office of Bridge Design before proceeding with deck pour.

2. The use of an approved deck finishing machine will be required during placement of bridge deck concrete. The deck finishing machine will be adjusted and operated in such a manner that the screed or screeds are parallel with the centerline of the bridge. The finish machine and concrete placement will be parallel to the skew of the bridge.

3. Superstructure falsework will not be removed until bridge deck concrete has attained a strength of 2400 psi.

4. The minimum pour rate will be in accordance with Section 460.3.J.2 of the Construction Specifications.

5. Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with the reinforcing steel.

6. See Special Provision for Concrete Penetrating Sealer.

SHOP PLANS

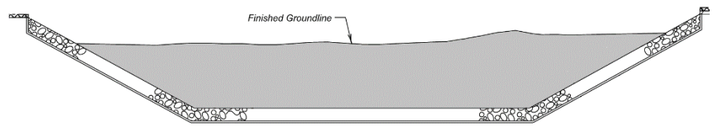
The fabricator will submit shop plans in accordance with the Construction Specifications. Send shop plan submittals to Brosz Engineering, Inc., 2309 W. 50th Street, Sioux Falls, SD 57005 (donh@broszengineering.com). After review, corrections (if necessary), and approval by Brosz Engineering, the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

RIPRAP

Berm slope and embankments will be compacted to the Specified Density Method in accordance with Section 120.3.a of the Construction Specifications. Riprap gradation and Drainage Fabric will comply with Section 700.2 of Construction Specifications. Placement of Riprap and Drainage Fabric will be in accordance with Section 700.3 of the Construction Specification and placed in the dry.

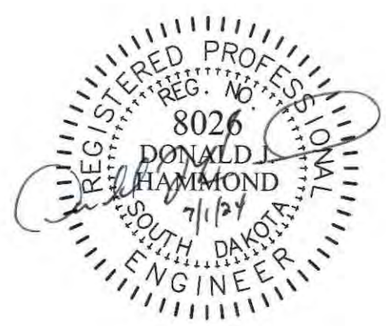
OVERBURDEN EXCAVATION FOR RIPRAP

1. This work will consist of the removal and replacement of material between the limits of the finished groundline and the top of the riprap. See diagram below (overburden is in grey). Cofferdams will likely be required.



2. Excavation is to be completed in the dry. This river is not normally dry.

3. The removed material will be placed on top of the riprap to the natural ground, proposed groundline, or specified shape and elevations shown in plans. When overburden extends into the streambed it will form the channel bottom and profile as specified in plans. The finished ground under the bridge will be shaped to match the upstream and downstream channel and flood plain.



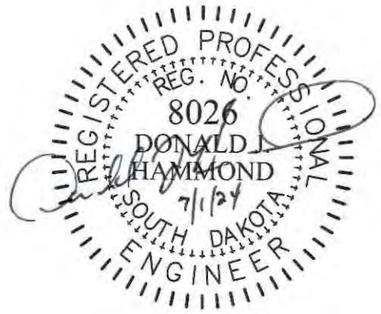
NOTES (CONTINUED)
FOR
127'-1 7/16" CONT. CONCRETE BRIDGE

Str. No. 10-280-349

JULY 2024

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
CH	CH	DH	BRIDGE ENGINEER
CNTYPCNX	PCNXNOTE		

FOR BIDDING PURPOSES ONLY



OVERBURDEN EXCAVATION FOR RIPRAP (CONT.)

4. The overburden material will be placed on top of the riprap and have a maximum lift depth of 1’ – 0” and compacted free of flowing water or standing water in excess or four inches above the riprap at the lowest elevation.

5. Compaction effort will produce a surface that does not pump, rut, or otherwise displace when traveled over with construction equipment to the satisfaction of the Engineer. Material may be added to excavated material to facilitate compaction and handling. Importing, stockpiling, blending, and/or wasting of materials will be incidental to the contract unit price for Overburden Excavation for Riprap.

6. Payment for Overburden Excavation for Riprap will be at the contract unit price and will be full compensation for labor, equipment, tools, and incidentals, including furnishing, installing, and removal of any temporary works necessary to complete the work. Payment will be for plans quantity unless measurement is ordered by the Engineer.

7. Before preparing the bid, it is the responsibility of the Contractor to verify existing conditions to determine if a temporary diversion method and/or dewatering will be required. If required, the Contractor must submit the temporary diversion method and/or dewatering for approval to the Construction Engineer 30 days prior to construction.

PERFORATED GEOCELL

1. Perforated Geocell will be from the following company or equivalent:

   Company: Agtec
   Phone: 1-818-724-7657
   Website: http://www.agtec.com

2. Perforated Geocell will be 6 inches tall with Type B Drainage Fabric underlying the perforated Geocell. Installation will adhere to the manufacturer’s recommendation.

3. Perforated Geocell will be filled with the Select Granular Backfill in accordance with Section 850 of the Construction Specifications.

4. Perforated Geocell will be paid for at the contract unit price per square foot. Payment will be full compensation for furnishing and installing the Perforated Geocell.

5. Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

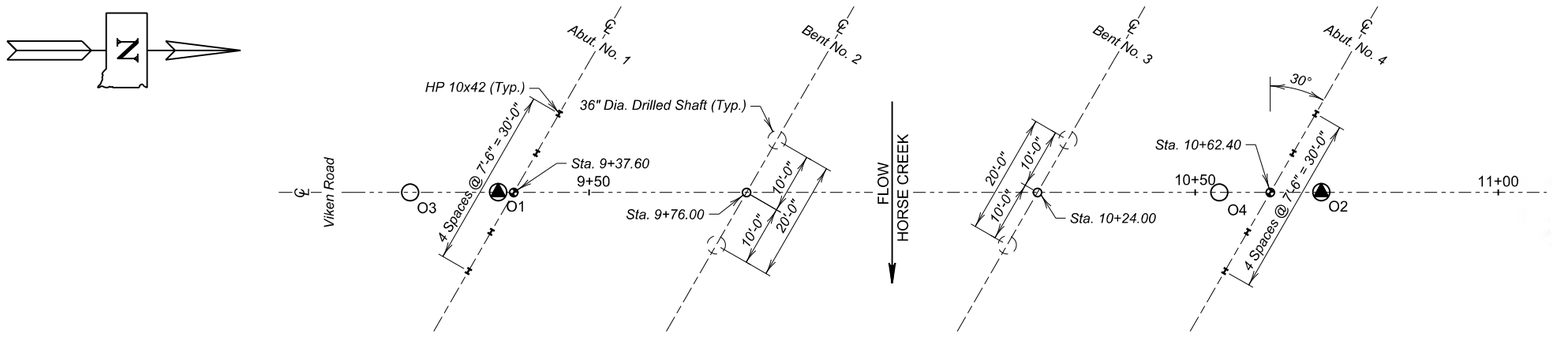
NOTES (CONTINUED)
FOR
127’-1 7/16” CONT. CONCRETE BRIDGE

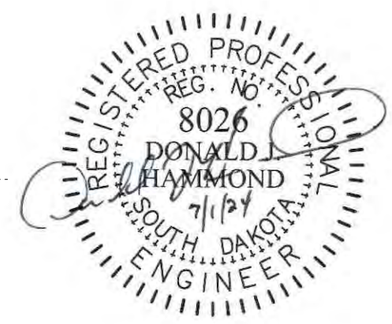
Str. No. 10-280-349

JULY 2024

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
CH	CH	DH	
CNTYPCNX	PCNXNOTE		BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY





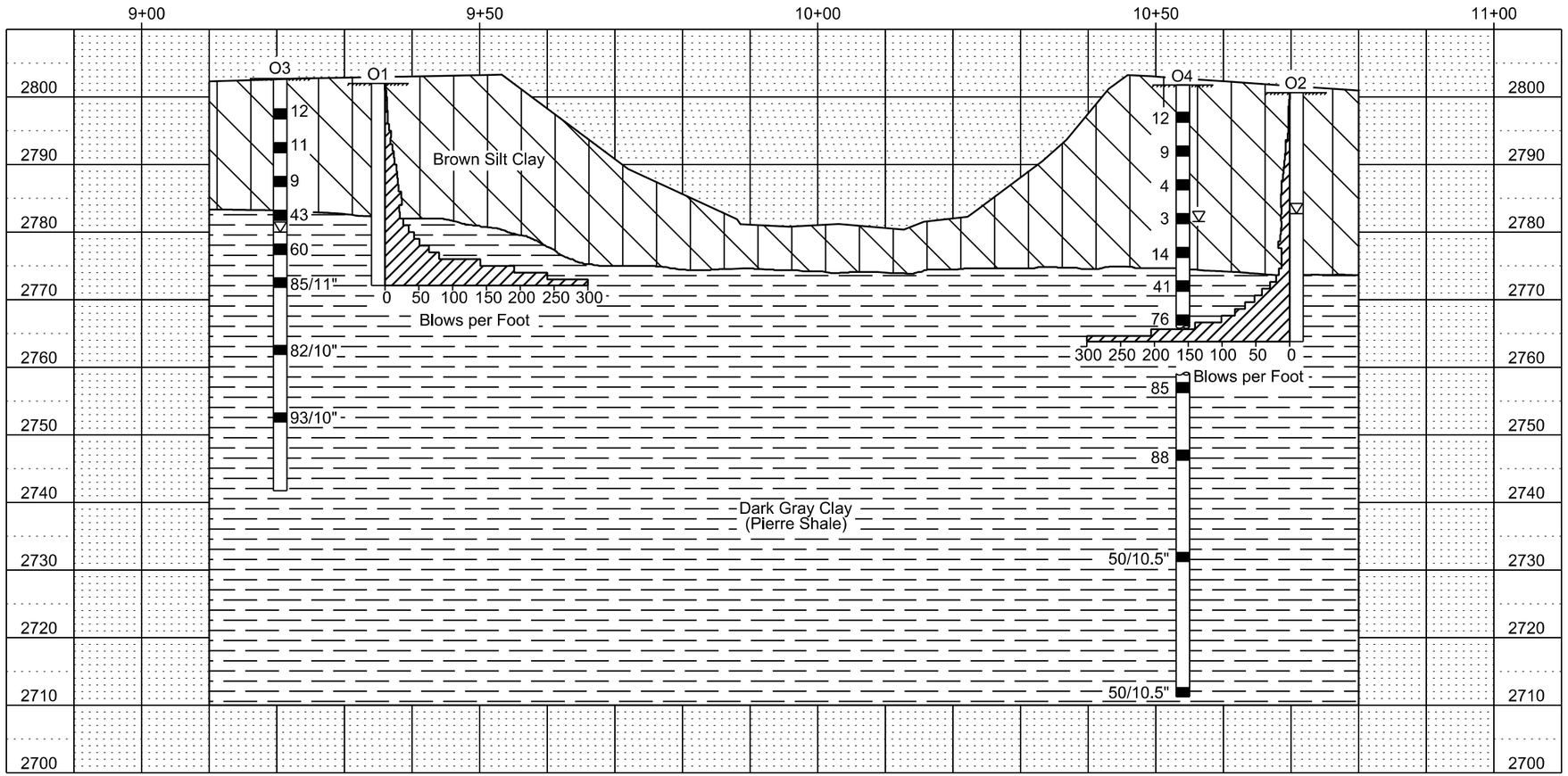
Hole Number	O3	
Station	9+20.5	
Depth	21	ft
Soil Color	Brown	
Classification	Silt Clay	
Strength (Qu)	7,202	psf
Dry Density	105.0	pcf
Wet Density	123.9	pcf
Moisture	18.1	%
Pass No. 10	99.6	%
Pass No. 40	98.9	%
Pass No. 200	97.7	%
Sand Content	1.9	%
Silt Content	49.9	%
Clay Content	47.8	%

Hole Number	O3	
Station	9+20.5	
Depth	41	ft
Soil Color	Dark Gray	
Classification	Silt Clay	
Strength (Qu)	16,150	psf
Dry Density	116.7	pcf
Wet Density	135.5	pcf
Moisture	16.1	%
Pass No. 10	100.0	%
Pass No. 40	100.0	%
Pass No. 200	99.6	%
Sand Content	0.4	%
Silt Content	49.2	%
Clay Content	50.4	%

PILING AND DRILLED SHAFT LAYOUT

Hole Number	O4	
Station	10+54	
Depth	29.8	ft
Soil Color	Brown	
Classification	Silt Clay	
Strength (Qu)	4,420	psf
Dry Density	104.7	pcf
Wet Density	125.4	pcf
Moisture	19.8	%
Pass No. 10	100.0	%
Pass No. 40	100.0	%
Pass No. 200	97.8	%
Sand Content	2.2	%
Silt Content	49.4	%
Clay Content	48.4	%

Hole Number	O4	
Station	10+54	
Depth	54.8	ft
Soil Color	Dark Gray	
Classification	Clay	
Strength (Qu)	11,830	psf
Dry Density	112.1	pcf
Wet Density	13.3	pcf
Moisture	18.0	%
Pass No. 10	100.0	%
Pass No. 40	100.0	%
Pass No. 200	99.4	%
Sand Content	0.6	%
Silt Content	47.0	%
Clay Content	52.4	%



Pierre Shale is a marine shale with a textural classification that varies from silt clay to clay silt. Color varies from buff gray to black. The formation may contain concretion zones that are normally thin but occasionally are massive. These zones may be considered hard and dense. Thin zones may be present that are cemented resulting in claystone or siltstone seams. Bentonite zones may be encountered but are normally less than one half inch thick. Nonweathered Pierre Shale is considered to be "Soft Rock".

The Geotechnical Engineering Activity has all of the boring logs and laboratory test results available for review at the Central Office in Pierre.

LEGEND

Penetration Test
Drive Test
Water
Caved
Sample Zone

Drive tests are conducted by dropping a 490 pound hammer 30 inches to drive a 2⅞ inch drill stem to measure the resistance to penetration of the soil.

Penetration test holes are drilled with a 6⅝ inch diameter hollow stem auger. Penetration tests are conducted by dropping a 140 pound hammer 30 inches to collect samples and measure the resistance to penetration of the soil. Samples are collected using a lined Modified California Sampler. Penetration test results are listed as uncorrected "N" values in blows per foot. Blows over inches are listed if refusal is achieved, which is 50 blows within one 6 inch set.

GROUNDWATER ELEVATIONS

DECEMBER 2022

O1	DRY
O2	2782.7

JANUARY 2023

O3	2780.0
O4	2781.5

MEASURED SKIN FRICTION

	ELEV.	PSF
O1	2772.1	1732
O2	2762.8	1488

SUBSURFACE INVESTIGATION & PILING LAYOUT
FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	23	46

FOR BIDDING PURPOSES ONLY

REINFORCING SCHEDULE
(for One Abutment)

Mk.	No.	Size	Length	Type
S0	1	9	44'-3"	Str.
S1	1	9	34'-11"	Str.
△ S2	2	9	34'-11"	Str.
S3	2	9	5'-0"	19B
S4	2	9	4'-7"	19B
T1	6	5	34'-11"	Str.
T2	4	5	44'-3"	Str.
T3	10	5	6'-5"	Str.
△ T4	4	5	5'-11"	Str.
△ T5	4	5	4'-2"	Str.
△ U1	34	6	10'-6"	17
U2	34	4	6'-3"	17
△ U3	34	4	2'-11"	S12A
U4	16	6	9'-4"	17
△ U5	8	4	7'-2"	17

Bending Details

Type 17

U1	1'-8"
U2	1'-9"
U4	8"
U5	8"

Type S12A

Type 19B

NOTES:
All dimensions are out to out of bars.
△ Bars to be Epoxy Coated.
⏍ Bend in field as necessary to fit.

PLAN
(Abut. No. 1 Shown Abut No. 4 similar by opposite hand.)

ELEVATION

SEC. A - A

SEC. B - B

SEC. C - C

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Abut. No. 1	Abut. No. 4
Class A45 Concrete, Bridge	Cu. Yd.	12.7	12.7
Reinforcing Steel	Lb.	1,565	1,565
Epoxy Coated Reinforcing Steel	Lb.	526	526
Structure Excavation, Bridge	Cu. Yd.	31.3	39.5
HP 10 X 42 Steel Test Pile, Furnish and Drive	Ft.	1 @ 45' = 45'	1 @ 55' = 55'
HP 10 X 42 Steel Bearing Pile, Furnish and Drive	Ft.	4 @ 40' = 160'	4 @ 50' = 200'
Preboring Pile	Ft.	5 @ 10' = 50'	5 @ 10' = 50'

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

ABUTMENT DETAILS
FOR
127'-1 7/16" CONT. CONCRETE BRIDGE

OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

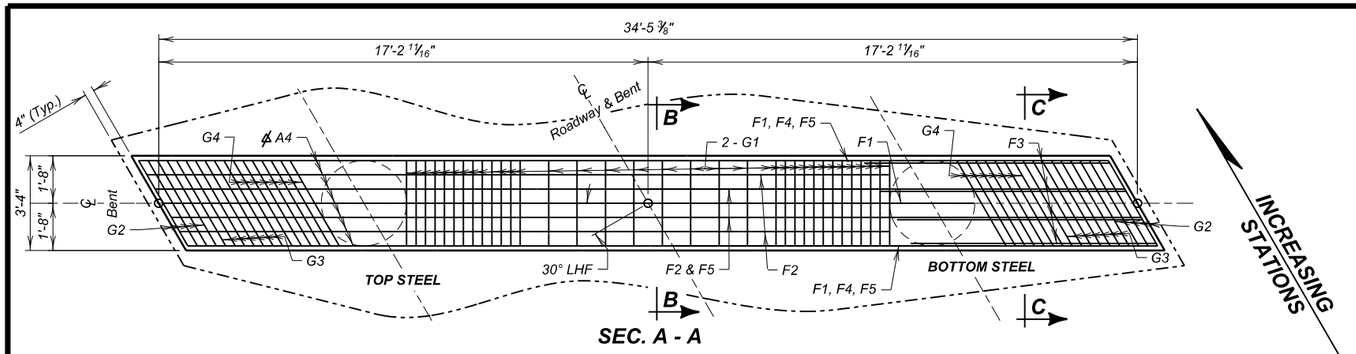
BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

6 OF 15

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

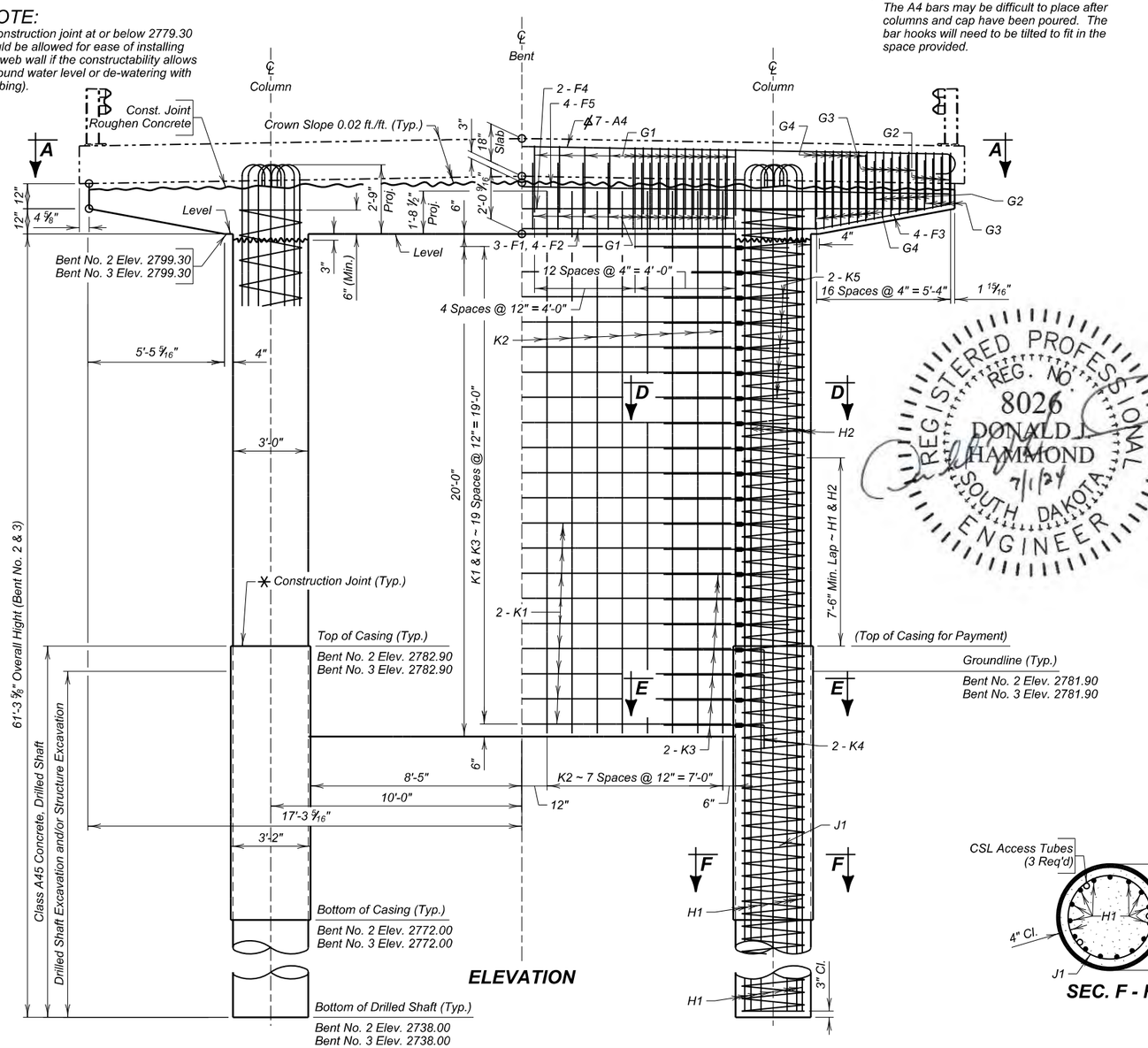
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	24	46

FOR BIDDING PURPOSES ONLY



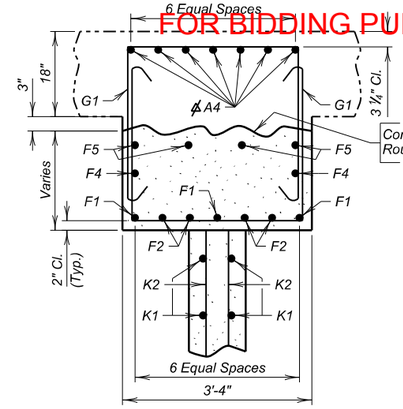
SEC. A - A

✳ *NOTE:*
A construction joint at or below 2779.30 would be allowed for ease of installing the web wall if the constructability allows (Ground water level or de-watering with cribbing).

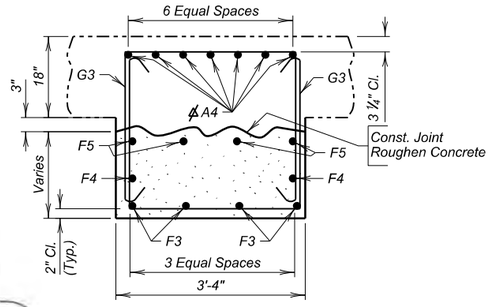


ELEVATION

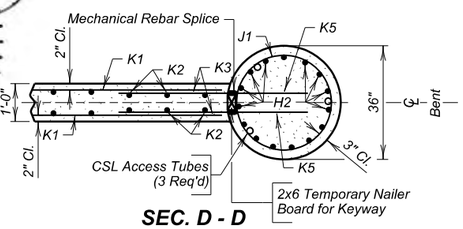
A4 *NOTE:*
The A4 bars may be difficult to place after columns and cap have been poured. The bar hooks will need to be tilted to fit in the space provided.



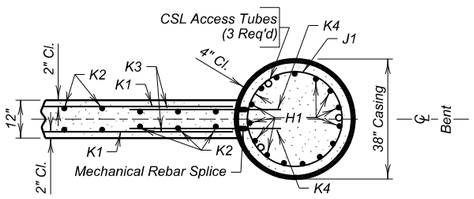
SEC. B - B



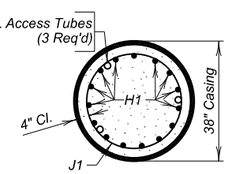
SEC. C - C



SEC. D - D



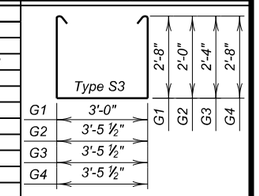
SEC. E - E

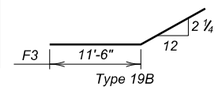


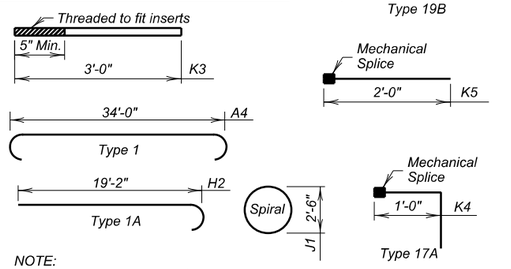
SEC. F - F

REINFORCING SCHEDULE
(For One Bent)

	Mk.	No.	Size	Length	Type
℄	A4	7	9	36'-6"	1
	F1	3	9	23'-0"	Str.
	F2	4	9	17'-0"	Str.
	F3	8	6	8'-8"	19B
	F4	2	4	32'-0"	Str.
	F5	4	6	34'-2"	Str.
℄	G1	68	5	9'-1"	S3
℄	G2	16	5	8'-3"	S3
℄	G3	24	5	8'-11"	S3
℄	G4	28	5	9'-7"	S3
	H1	30	10	50'-2"	Str.
	H2	30	10	20'-5"	1A
	J1	2	4	1006'-2"	Spiral
	K1	40	5	16'-8"	Str.
	K2	34	5	21'-7"	Str.
	K3	80	5	3'-0"	Str.
★	K4	16	5	2'-0"	17A
★	K5	64	5	2'-0"	Str.







NOTE:
Spirals - Use 6" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap at splice as required, or weld as approved by the Engineer.
Use 3 vertical spacer bars per column. Spirals may be smooth bars.
Bar length shown does not include splices.

NOTE-
All dimensions are out to out of bars.
℄ *Bars to be Epoxy Coated.*
★ *Paid as Mechanical Splice.*

ESTIMATED QUANTITIES
(For One Bent)

	ITEM	UNIT	QUANTITY Bent No. 2	QUANTITY Bent No. 3
	Class A45 Concrete, Bridge	Cu. Yd.	36.6	36.6
	Class A45 Concrete, Drilled Shaft	Cu. Yd.	16.8	16.8
△	Reinforcing Steel	Lb.	13,152	13,152
	Epoxy Coated Reinforcing Steel	Lb.	2,154	2,154
	38" Permanent Casing	Ft.	21.8	21.8
✳	Drilled Shaft, Excavation	Cu. Yd.	23.6	23.6
	Structure Excavation, Bridge	Cu. Yd.	24.4	9.4
	No. 5 Rebar Splice	Each	80	80

△ *Includes 265 Lb. for spacer bars at each bent. Each spacer bar is computed at 0.75 lb per linear foot regardless of type furnished.*

✳ *Drilled Shaft Excavation per foot of depth per column equals 0.262 cubic yards. Quantity shown is based on a column construction joint at Elev. 2782.90*

BENT DETAILS

FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

7 OF 15

NOTES:
Substructure shoring will remain in place until Superstructure shoring is removed.

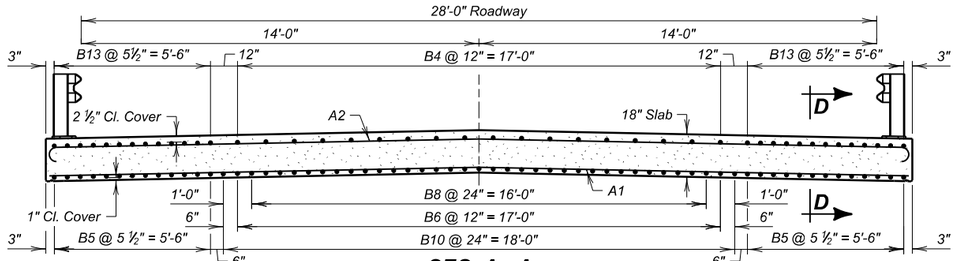
F2 bars are to be placed symmetrical between columns.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

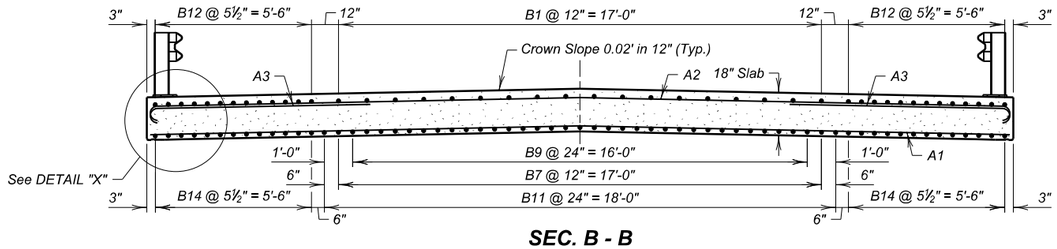
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	25	46

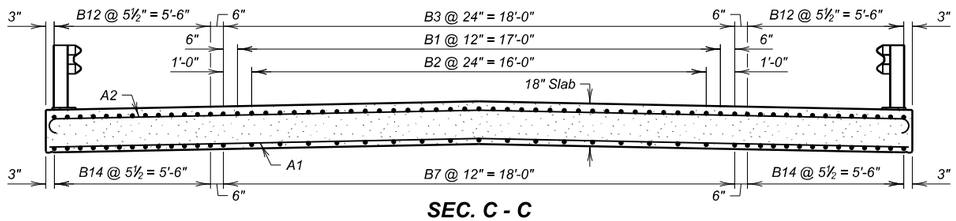
FOR BIDDING PURPOSES ONLY



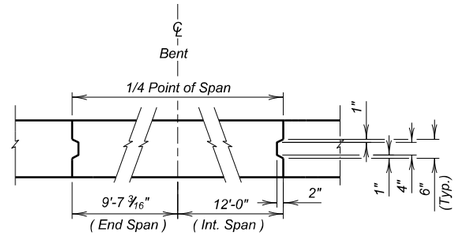
SEC. A - A



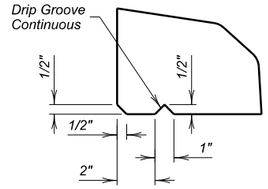
SEC. B - B



SEC. C - C



DETAIL "E"

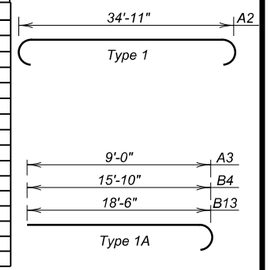


DETAIL "X"

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
A1	234	4	34'-11"	Str.
A2	172	4	35'-11"	1
A3	126	6	9'-8"	1A
B1	36	10	57'-2"	Str.
B2	18	10	16'-11"	Str.
B3	20	10	24'-2"	Str.
B4	36	9	17'-1"	1A
B5	52	9	38'-9"	Str.
B6	36	9	38'-9"	Str.
B7	18	9	48'-0"	Str.
B8	18	9	26'-3"	Str.
B9	9	9	21'-0"	Str.
B10	20	9	33'-2"	Str.
B11	10	9	34'-0"	Str.
B12	52	10	55'-0"	Str.
B13	52	10	19'-11"	1A
B14	26	9	48'-0"	Str.

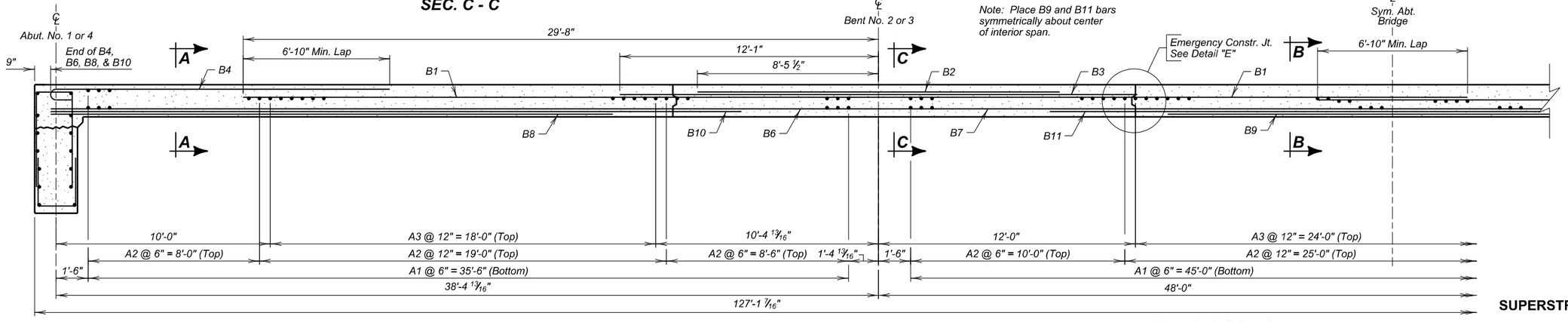
Bending Details



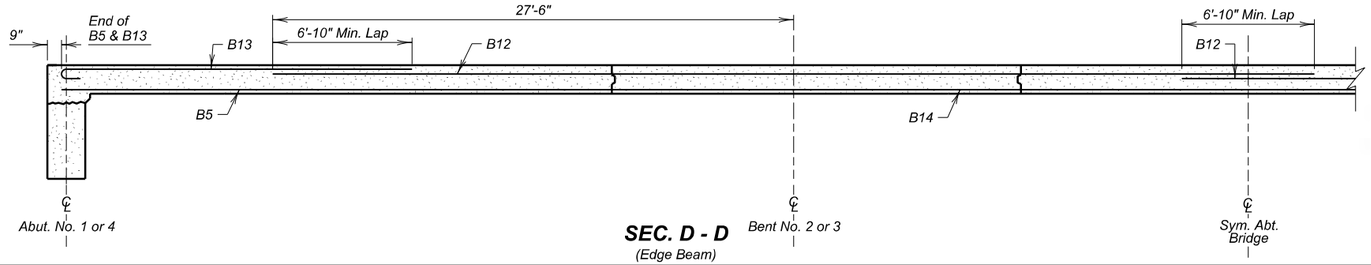
NOTE-
All dimensions are out to out of bars.
All reinforcing steel will be epoxy coated.

ESTIMATED QUANTITIES

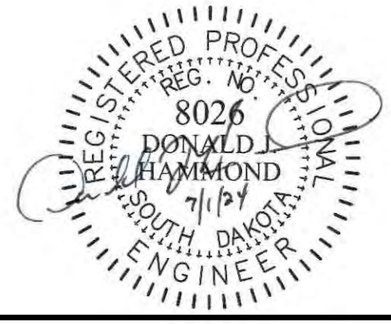
ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge Deck	Cu. Yd.	218.3
Epoxy Coated Reinforcing Steel	Lb.	66,949
Concrete Penetrating Sealer	Sq. Yd.	431



HALF LONGITUDINAL SECTION VIEW



SEC. D - D
(Edge Beam)



SUPERSTRUCTURE DETAILS (A)

FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

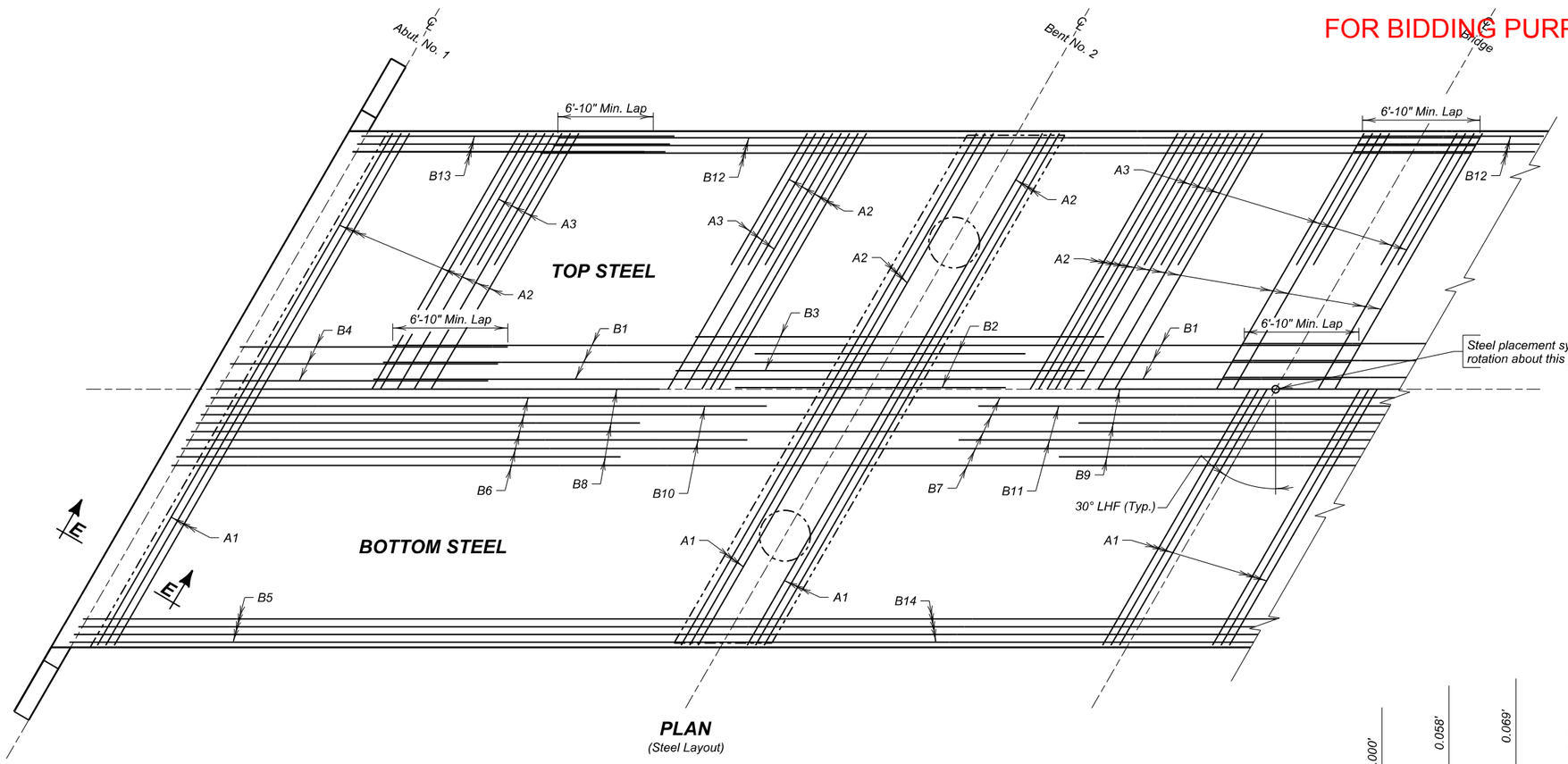
OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

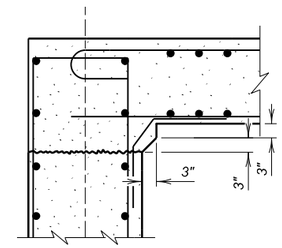
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

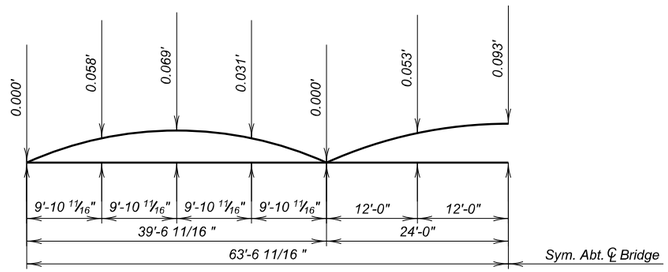
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	26	46



PLAN
(Steel Layout)

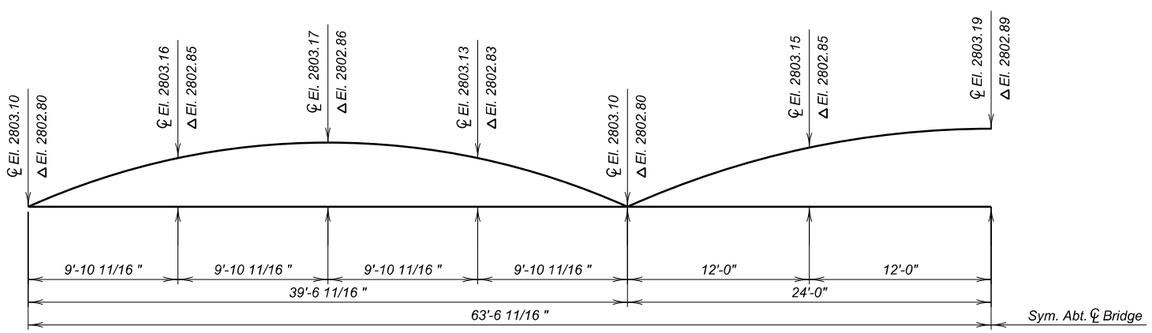


SEC. E - E



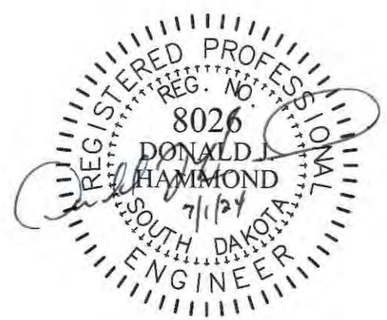
CAMBER DIAGRAM

Camber is calculated for dead load deflection plus plastic flow and shall be added to the proposed grade elevations at the respective stations to establish the elevations on the top of the finished roadway slab.



CENTERLINE AND CURB ELEVATIONS

Elevations indicated with △ are Top of Finished Slab at Left and Right Curb Line, with ℄ are Top of Finished Slab at Centerline Roadway. Camber for Dead Load Plus Plastic Flow have been included in the elevations shown above.



SUPERSTRUCTURE DETAILS (B)

FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

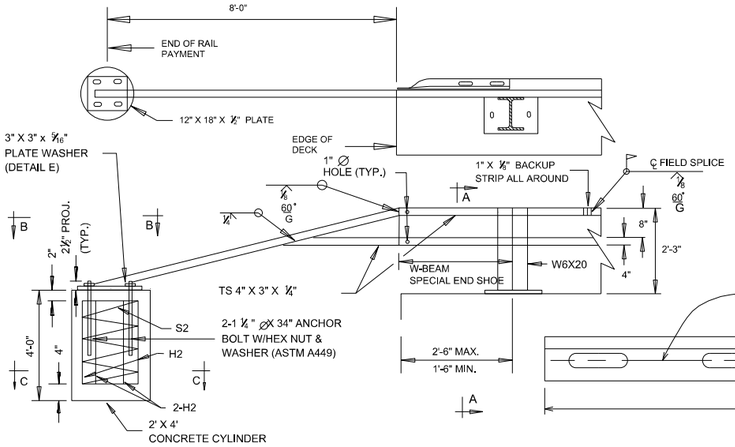
OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

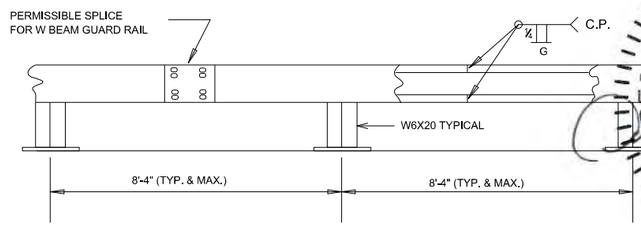
BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

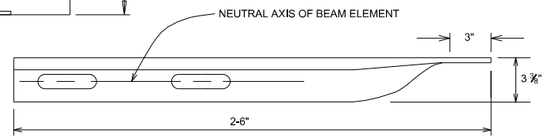
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

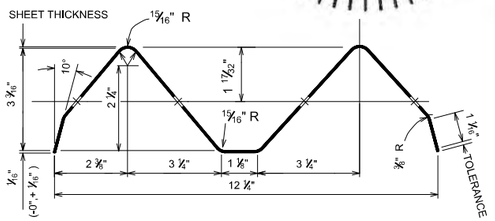
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	27	46

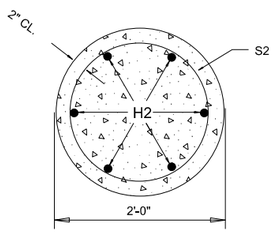




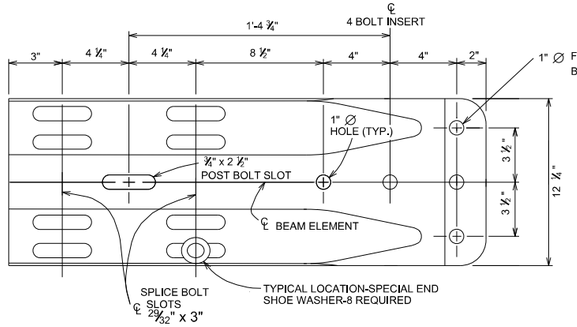




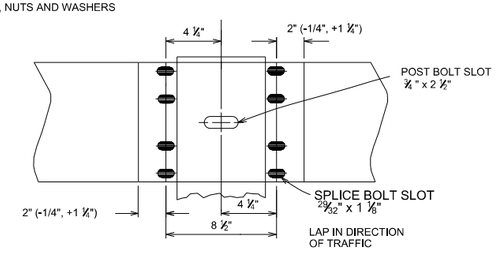
RAIL MEMBER



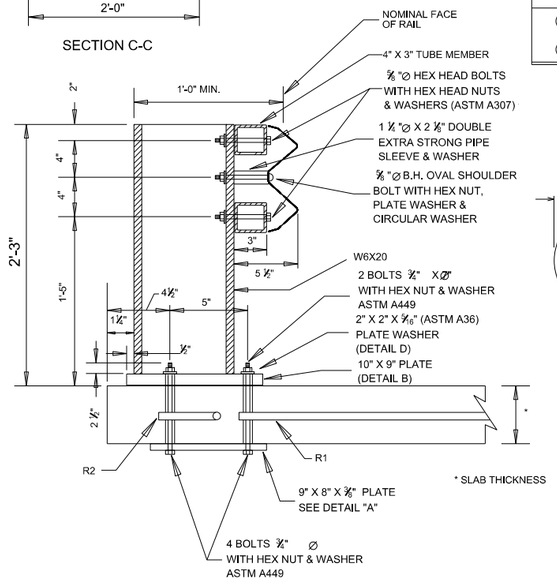
SECTION C-C



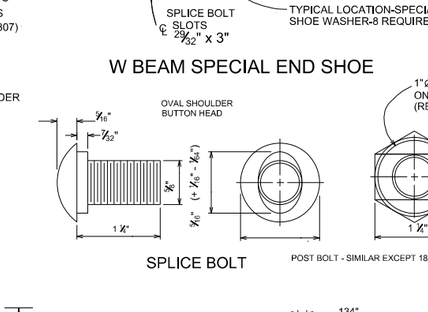
W BEAM SPECIAL END SHOE



RAIL SPLICE

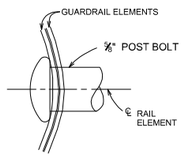


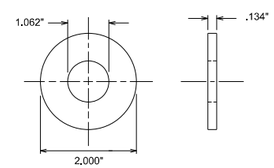
SECTION A-A



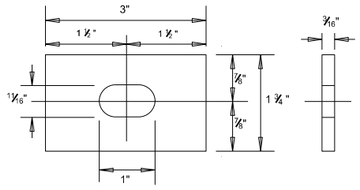
SPLICE BOLT

POST BOLT - SIMILAR EXCEPT 18" LONG

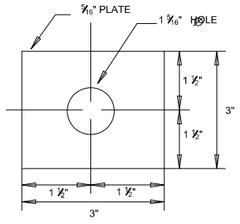




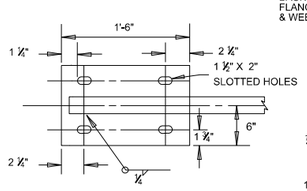
SPECIAL END SHOE WASHER



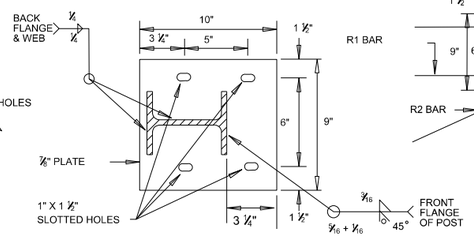
RECTANGULAR PLATE WASHER



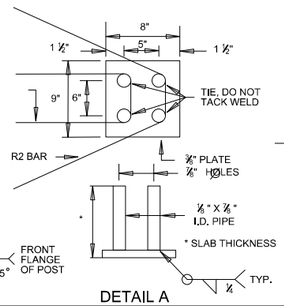
DETAIL E



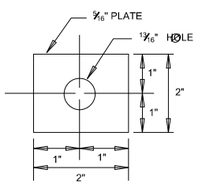
SECTION B-B



DETAIL B



DETAIL A



DETAIL D

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
TYPE T101 STEEL RAILING	LF.	286

REVISED 3/6/01, 10/16/03, 7/20/16, 12/21/16, 2/15/19 NJC
REVISED 3-30-98. BS

GENERAL NOTES:

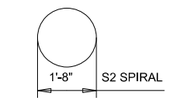
1. RAIL POSTS SHALL BE PERPENDICULAR TO CENTERLINE OF ROADWAY.
2. W-BEAM GUARD RAIL, PIPE SLEEVES NUTS, WASHERS, AND PLATE WASHERS THAT GO WITH THESE SHALL BE GALVANIZED. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED ACCORDING TO ASTM F2329. PIPE SLEEVES SHALL BE GALVANIZED ACCORDING TO ASTM A123.
3. POST BOLTS SHALL BE ¾" DIAMETER ASTM A3125 GRADE A325 OR GRADE A490. EACH BOLT SHALL HAVE ONE HARDENED AND ONE 2" X 2" X 5/16" ASTM A36 PLATE WASHER. NUTS SHALL BE A563.
4. STEEL W BEAM GUARD RAIL SHALL BE CLASS A, TYPE 1, CONFORMING TO AASHTO M180 AND SHALL BE FABRICATED FROM STANDARD 12.5' OR 25' NOMINAL W-BEAM SECTIONS.
5. THE RAIL POSTS, 4" X 3" TUBE MEMBERS, BASE PLATES AND PROJECTING PORTIONS OF THE ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE SATISFACTORILY PAINTED IN ACCORDANCE WITH SECTION 411 OF THE S.D. STANDARD SPECIFICATIONS. THE COLOR OF THE FINISH COAT SHALL BE AN APPROVED GREEN, FEDERAL STANDARD NO. 24108. THE NUTS, BOLTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329. THE RAIL POSTS AND TUBE MEMBERS MAY BE GALVANIZED IN ACCORDANCE WITH ASTM A123 IN SUBSTITUTION FOR PAINTING. IF GALVANIZING IS SELECTED, NO PAINT WILL BE APPLIED OVER GALVANIZED SURFACES.
6. ALL STRUCTURAL STEEL PARTS FOR THE TYPE T101 STEEL RAILING SHALL CONFORM TO ASTM A709 GR. 36. TUBES SHALL CONFORM TO ASTM A500 GR. B.
7. PROVIDE 1 ½" DRAIN HOLES IN THE TUBES NEAR ENDS OF RAIL AND NEAR SPLICES.
8. ALL CONCRETE SHALL BE CLASS M6 AS SPECIFIED IN SECTION 462.
9. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GR 60.
10. ALL BOLTS, NUTS, WASHERS, POSTS, PLATES, PIPE SLEEVES, STEEL W BEAM GUARD RAIL, WELDING, PAINTING OR GALVANIZING, AND ALL COSTS OF INSTALLING FOUR RAIL ANCHORS INCLUDING CONCRETE, EXCAVATION, FORMING, REINFORCING STEEL, AND ANCHOR BOLTS SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT FOR T101 STEEL RAILING.
11. MEASURMENT FOR PAYMENT SHALL BE FROM CENTER OF ANCHOR TO CENTER OF ANCHOR FOR EACH SIDE OF THE BRIDGE.

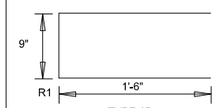
REINFORCING SCHEDULE

MK.	NO.	SIZE	LENGTH	TYPE	BENDING DETAIL
S2	4	3	51'-7"	SPIRAL	
H2	24	5	3'-6"	STR.	
R1	32	4	3'-9"	17	
R2	32	4	4'-9"	17A	

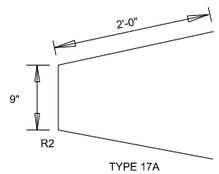
NOTE: ALL DIMENSIONS ARE OUT TO OUT OF BARS. SPIRAL-6" PITCH AND 1 ½ TURNS AT EACH END. USE 1 ½ TURNS FOR LAP SPLICES AS REQUIRED.

USE 2 VERTICLE SPACE BARS.





TYPE 17



TYPE 17A

T101 RAILING DETAILS
FOR
127'-1 7/16" CONT. CONCRETE BRIDGE

OVER HORSE CREEK
STA. 10 + 00.00
STR. NO. 10-280-349
PCN 08ML

30° LHF SKEW
SEC. 26&27 T9N-R5W
HL-93

BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

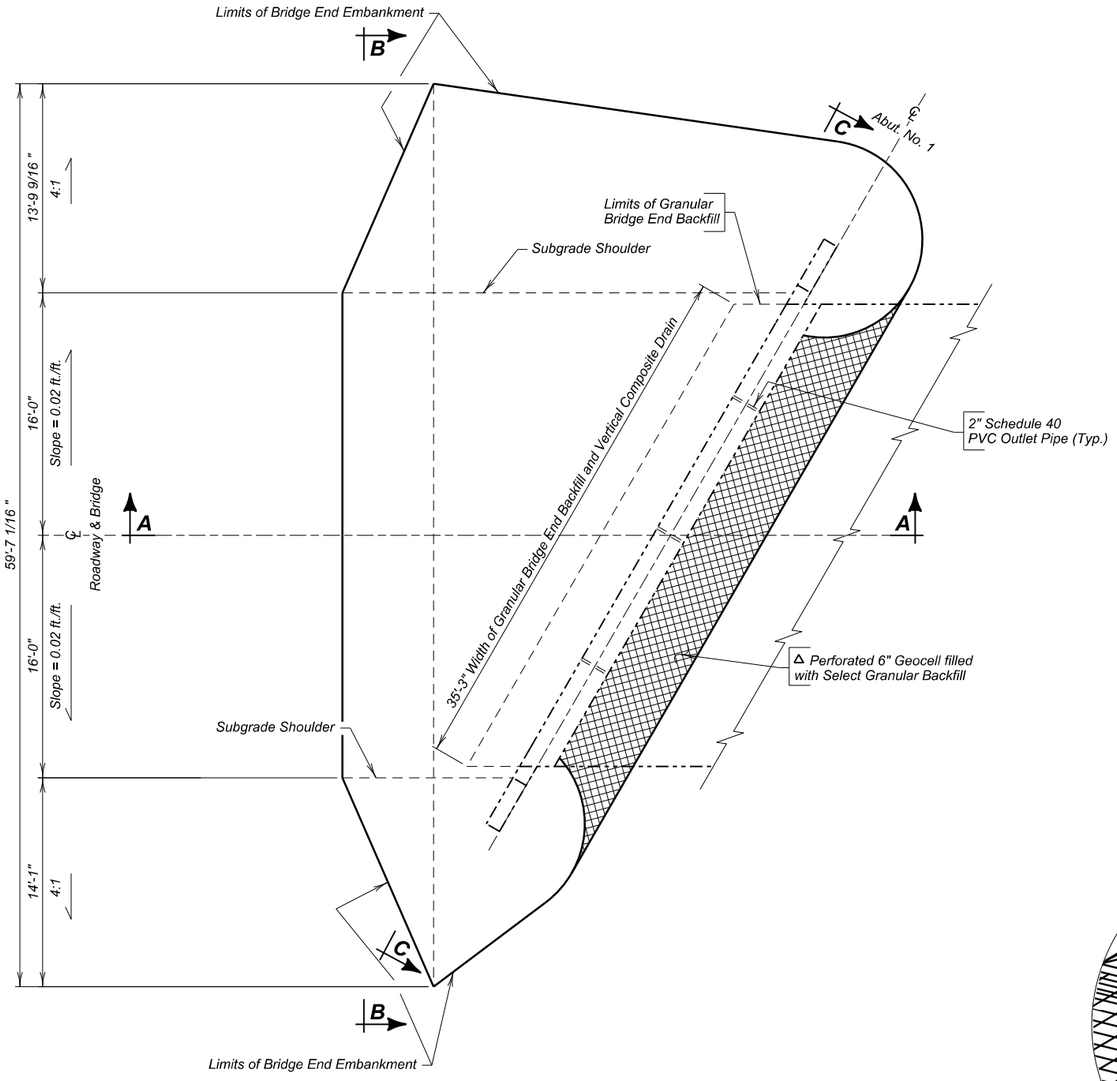
10 OF 15

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	28	46

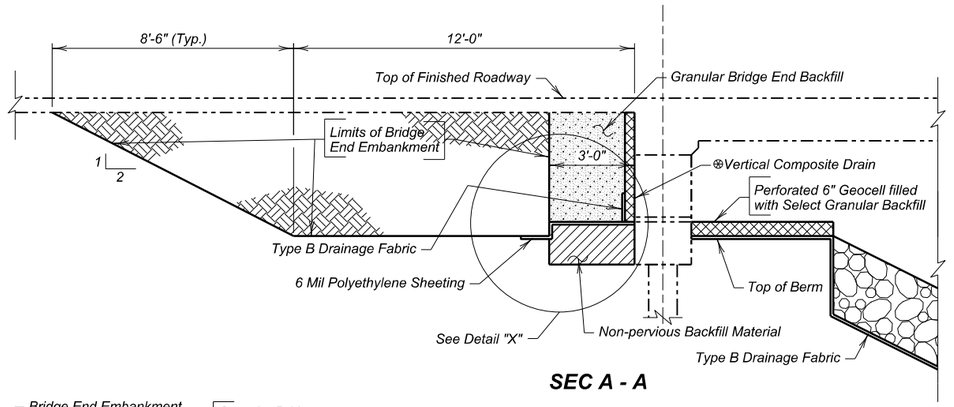
FOR BIDDING PURPOSES ONLY

⊛ *Provide hole in Vertical Composite Drain to provide drainage through weep holes.*

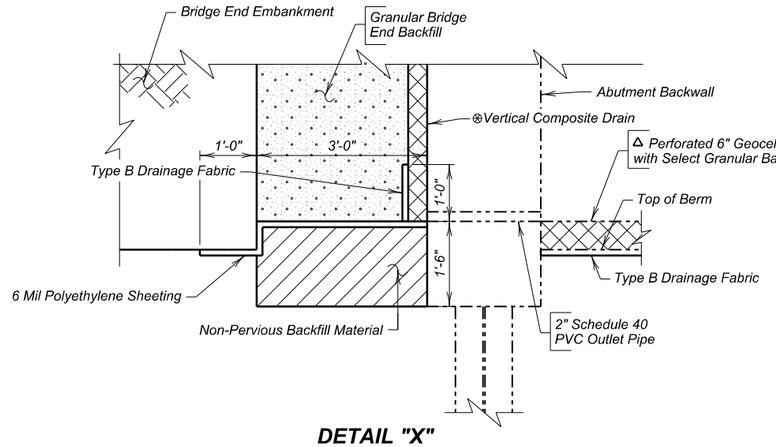


PLAN

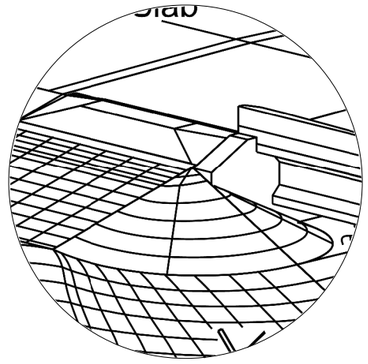
(Bridge End Backfill shown adjacent ot Abut. No. 1
Abut. No. 4 similar by rotation)



SEC A - A



DETAIL "X"



SPILL CONE DETAIL AT EMBANKMENT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

BRIDGE END BACKFILL DETAILS (A)

FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

BUTTE COUNTY

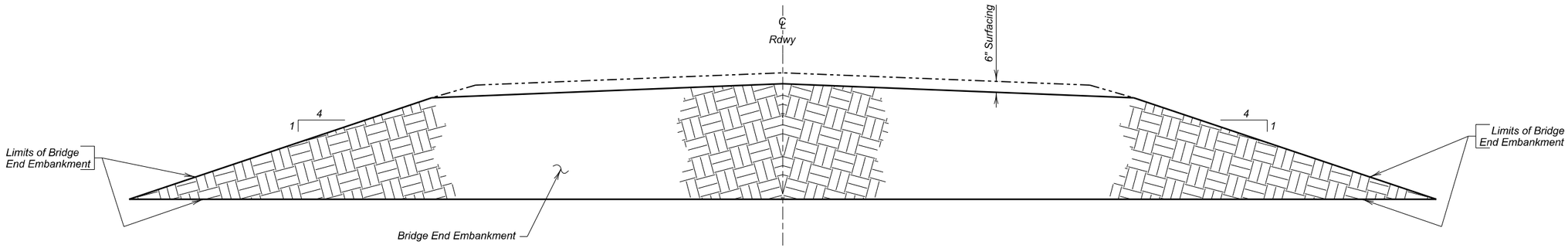
S. D. DEPT. OF TRANSPORTATION

JULY 2024

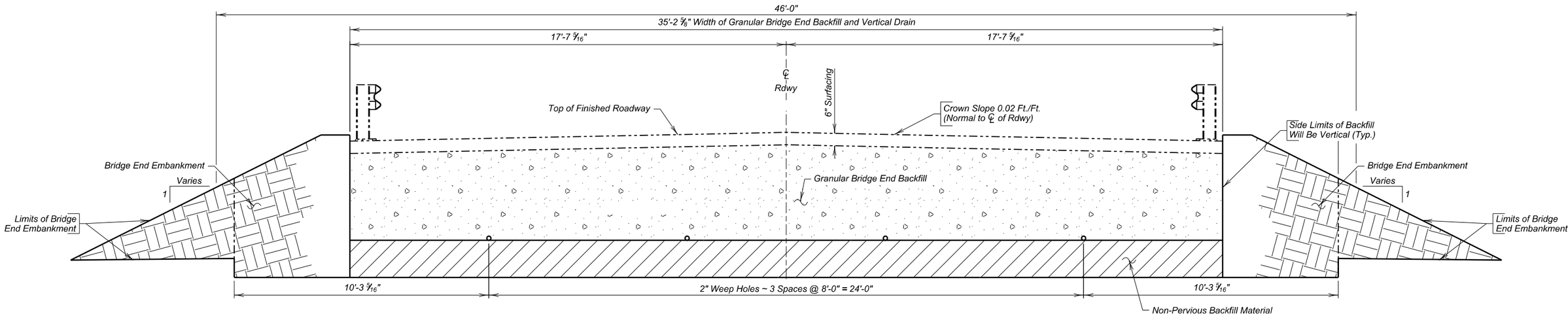
11 OF 15

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



SEC. B - B



SEC. C - C

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY	
			ABUT. NO. 1	ABUT. NO. 4
	Granular Bridge End Backfill	Cu. Yd.	15.1	15.1
⊿	Bridge End Embankment	Cu. Yd.	190	190
⏢	Select Granular Backfill	Ton	5.6	5.6
△	Perforated Geocell	Sq. Ft.	160	160

⏢ For estimating purposes only, a factor of 1.89 tons/cu. yd. was used to convert cu. yds. to tons.
⊿ Shrinkage Factor of 1.25 Used.
△ See Perforated Geocell notes for payment information.

	ABUT. NO. 1	ABUT. NO. 4
1. 6 mil Polyethylene Sheeting, not including laps.	159 Sq. Ft.	159 Sq. Ft.
2. Type B Drainage Fabric	22 Sq. Yd.	22 Sq. Yd.

Items 1 and 2 are approximate quantities contained in the Granular Bridge End Backfill Bid Item and are for information only.

3. 2" Dia. PVC Outlet Pipe	8 Ft.	8 Ft.
4. Vertical Composite Drain	136 Sq. Ft.	136 Sq. Ft.

Items 3 and 4 are approximate quantities for information only and are incidental to Select Granular Backfill

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

BRIDGE END BACKFILL DETAILS (B)

FOR

127'-1 7/16" CONT. CONCRETE BRIDGE

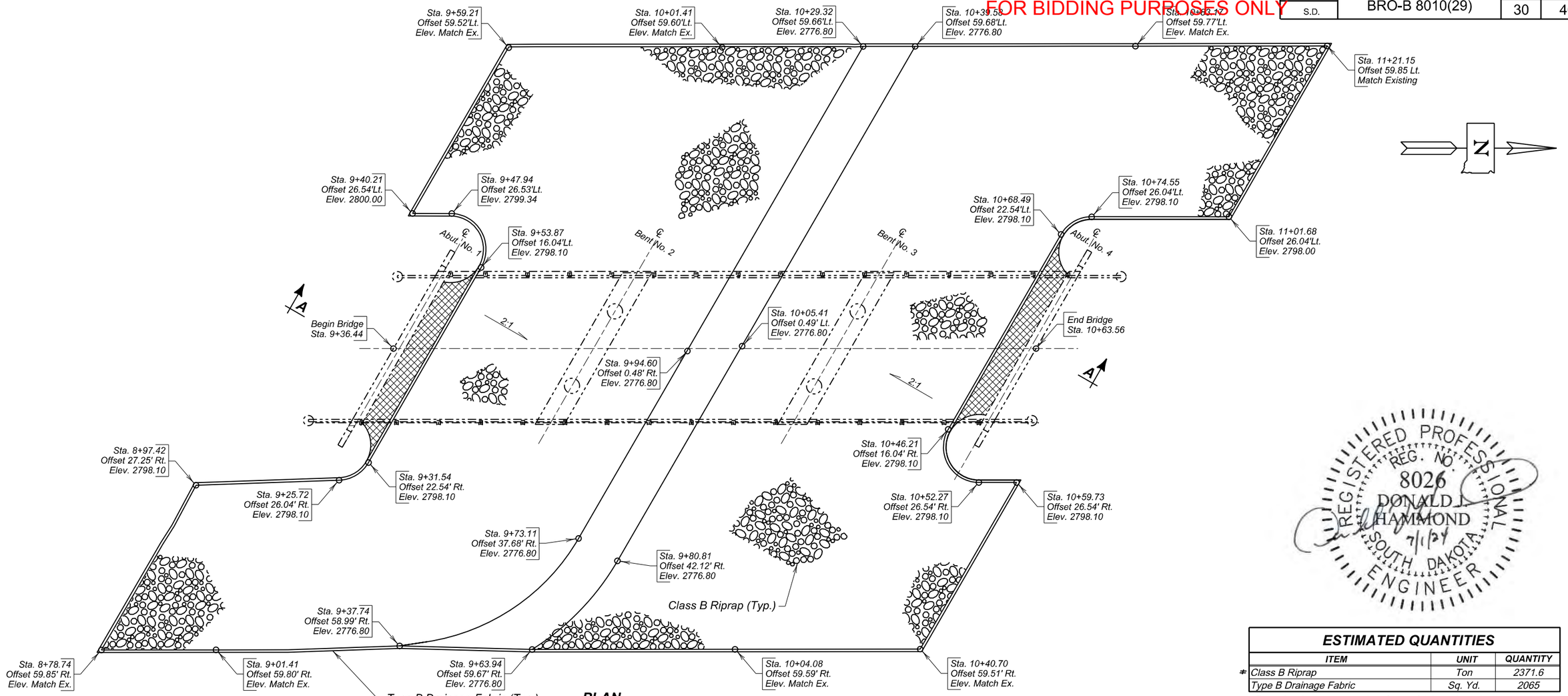
OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

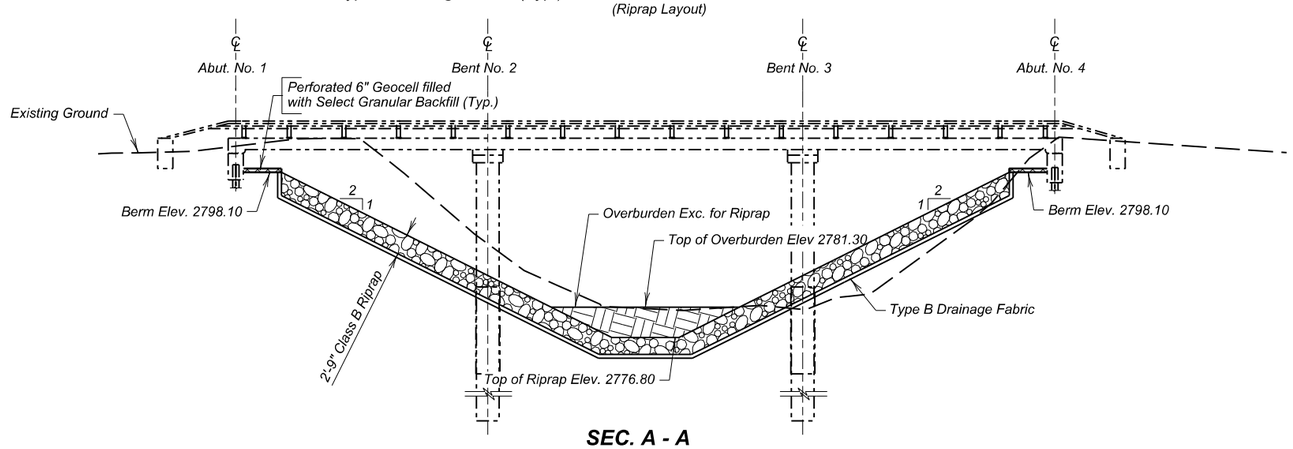
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	CH	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	30	46

FOR BIDDING PURPOSES ONLY



PLAN
(Riprap Layout)



SEC. A - A
(Riprap Layout)

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
#	Class B Riprap	Ton	2371.6
	Type B Drainage Fabric	Sq. Yd.	2065

\# For estimating purposes only, a factor of 1.4 tons/ cu.yd. was used to convert Cu. Yds. to Tons.

Note: For informational purposes, it is estimated that 554 Cu. Yds. of overburden will be required.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

RIPRAP DETAILS

FOR

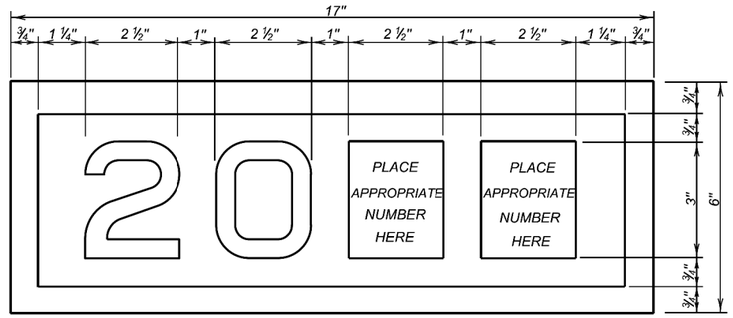
127'-1 7/16" CONT. CONCRETE BRIDGE

OVER HORSE CREEK — 30° LHF SKEW
STA. 10 + 00.00 — SEC. 26&27 T9N-R5W
STR. NO. 10-280-349 — HL-93
PCN 08ML

BUTTE COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

13 OF 15

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CH	DH	BW/CH	BRIDGE ENGINEER



YEAR PLATE DETAILS

GENERAL NOTES:

1. Year plates of the general dimensions shown will be constructed on all box culverts and bridges. The year plates will be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.

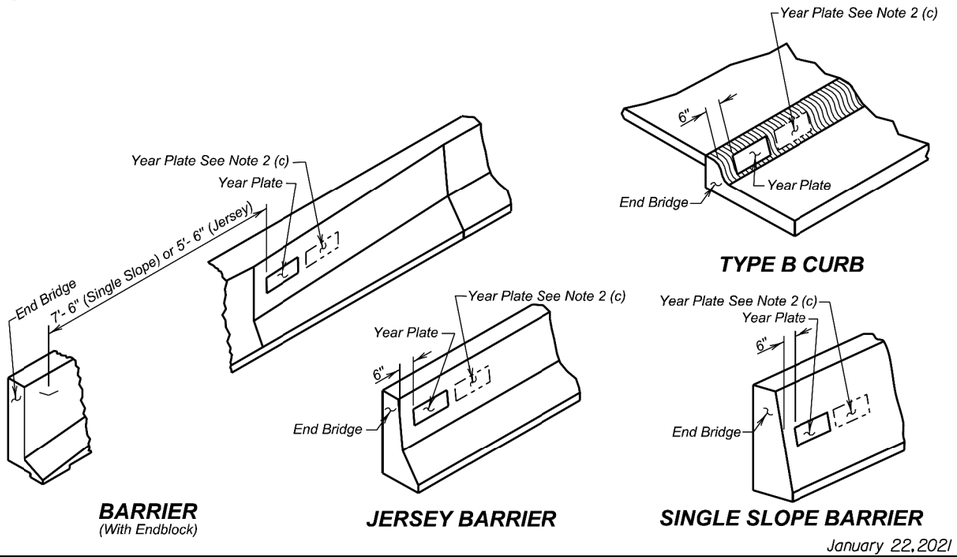
2. Year plates will be located on structure(s) as follows:

   a. On cast-in-place box culverts the year plates will be four and one - half (4 ½) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate will be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate will be centered in an adjacent barrel.

   b. On bridges with six (6) inch curbs, "Jersey" shaped barriers with no endblocks, or "Single Slope" shaped barriers with no endblocks, the year plate will be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with barrier endblocks, the year plate will be centered on the upper sloped portion of the barrier approximately 5'- 6" for "Jersey" shaped barriers from the end of the bridge and 7'-6" for "Single Slope" shaped barriers from the end of bridge, or as designated by the Engineer. There will be one year plate at each end of the bridge on opposite sides.

   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date will be placed as listed above and the other located adjacent to it. Both year plates will be shown at each end of the bridge on opposite sides.

3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work will be incidental to other contract items.



BARRIER
(With Endblock)

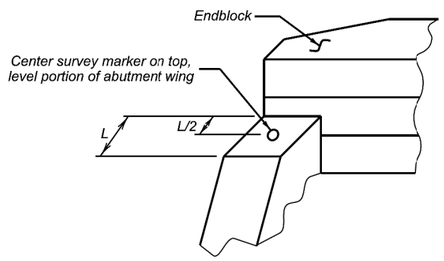
JERSEY BARRIER

SINGLE SLOPE BARRIER

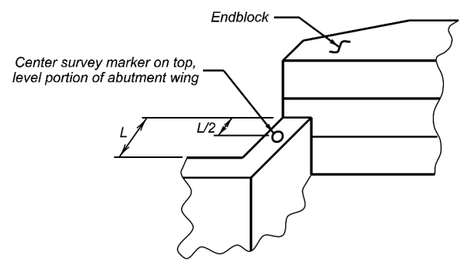
TYPE B CURB

January 22,2021

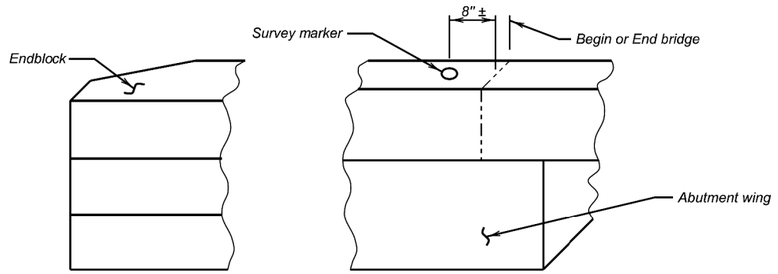
Published Date: 2025	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



ABUTMENT WITH "STRAIGHT" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS
(Endblock on top of wings)

GENERAL NOTES:

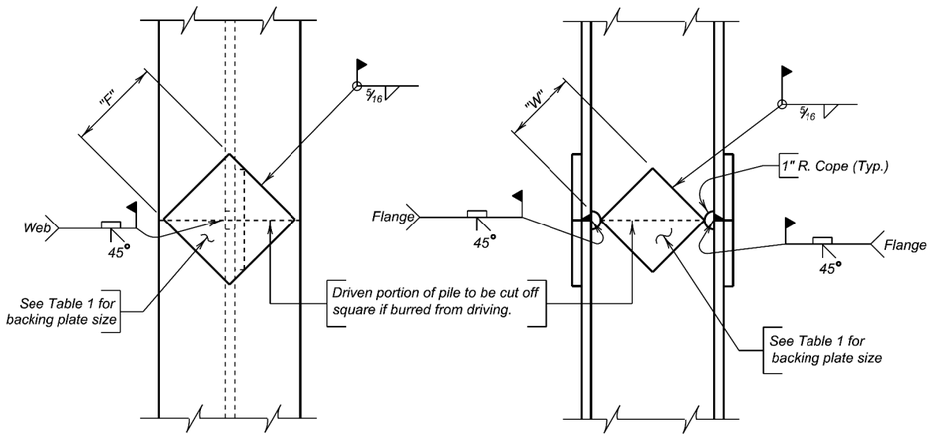
1. Survey markers shall be located at each abutment on the same side of the bridge as the year plate. Place survey markers on abutment wings as shown. Two survey markers will be required at each bridge.

2. Survey markers shall be of a type intended for installation in concrete, be made of solid brass or bronze, have a domed top and be either a 3" top diameter (with a ¾" X 2" long ribbed shank), or a US Army Corps of Engineers Type C Disc with a 3 ½" top diameter.

3. There will be no separate measurement or payment made for survey markers. All costs for this work shall be incidental to the other contract items.

June 26,2012

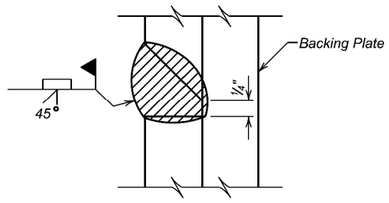
Published Date: 2025	SDDOT	BRIDGE SURVEY MARKER	PLATE NUMBER 460.05
			Sheet 1 of 1



NOTE:

Prepare joint surfaces lower end of upper section on the ground and weld on backing plates; then place upper section on lower section and weld.

COMPLETE JOINT PENETRATION WELD DETAIL



GENERAL NOTES:

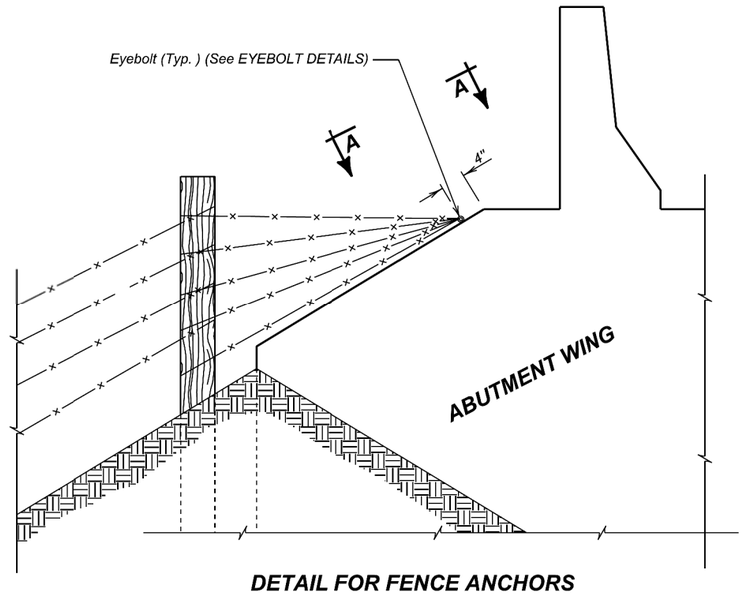
1. Steel for backing plates shall conform to ASTM A709 Grade 50.
2. Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
3. Welder must be certified and registered with the SDDOT.
4. Backing plate shall at a minimum be as thick as the web of the pile being spliced.
5. Web must be coped with 1 inch radius.
6. Submit Welding Procedure Specification (WPS) to Bridge Construction Engineer for approval prior to pile driving.

TABLE 1
(BACKING PLATES)

PILE	10"	12"	14"
"F" FLANGE	6 ½"	8"	10"
"W" WEB	4 ¾"	6 ¼"	7 ½"

December 23, 2012

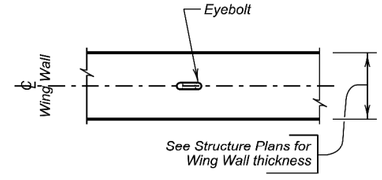
Published Date: 2025	SDDOT	STEEL PILE SPLICE DETAILS	PLATE NUMBER 510.40
			Sheet 1 of 1



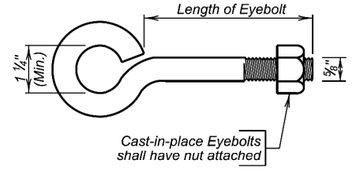
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the bridge abutment wings.
3. Eyebolts shall be ⅝ inch diameter and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
5. Cast-in-place eyebolts shall have a nut attached, be 4 ½ inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the ⅝ inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



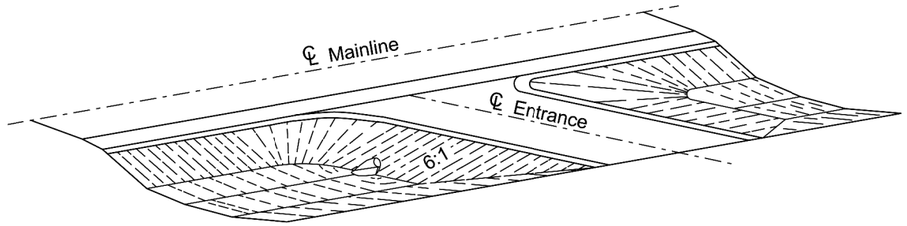
VIEW A - A



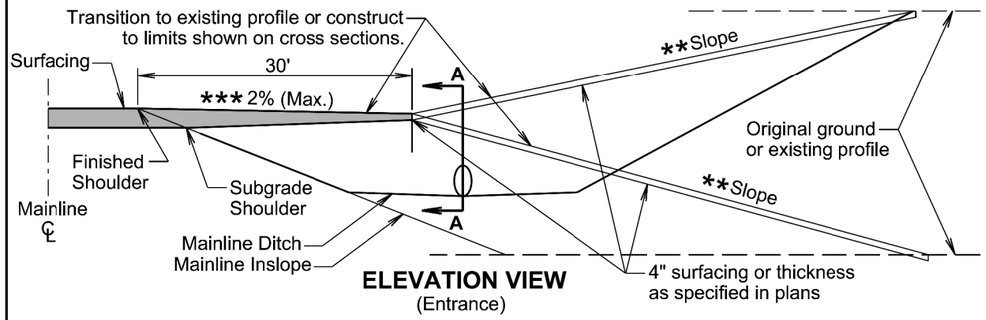
EYEBOLT DETAILS

December 23, 2012

Published Date: 2025	SDDOT	FENCE ANCHORS FOR BRIDGE ABUTMENT WINGS (WINGS 6' AND SHORTER)	PLATE NUMBER 620.18
			Sheet 1 of 1



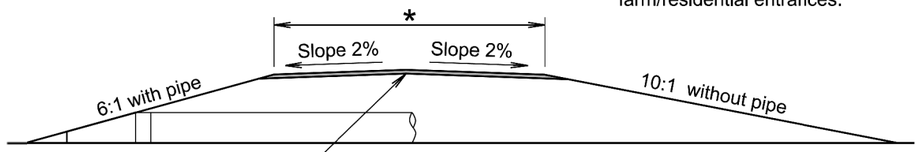
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A
(Entrance and Intersecting Road)

* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

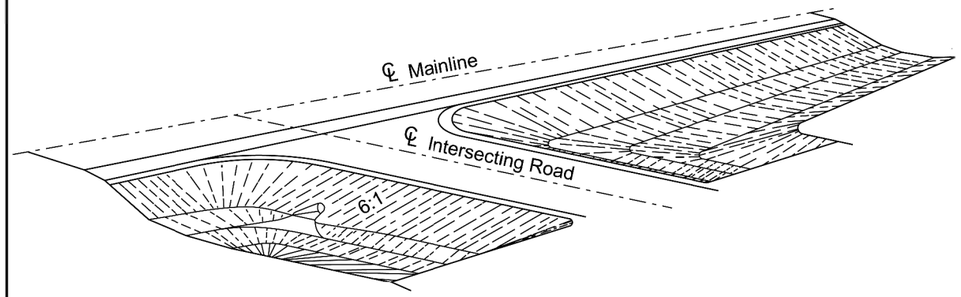
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

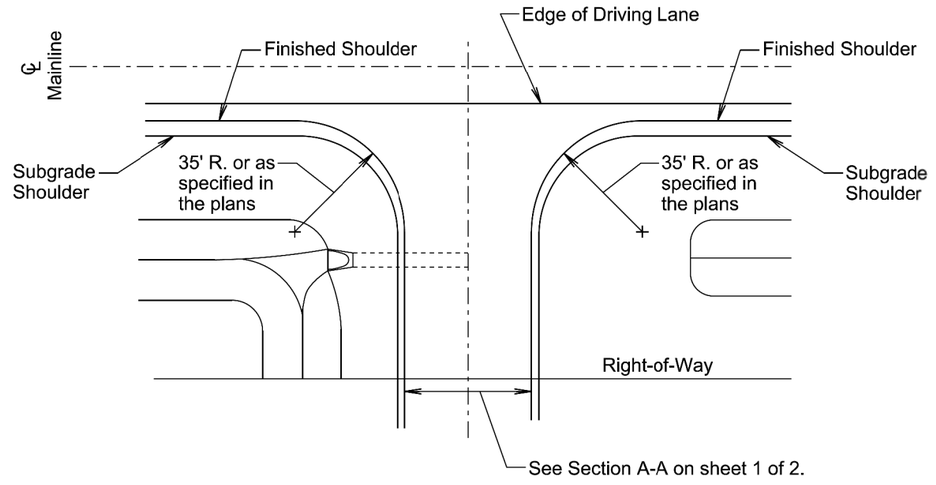
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

GENERAL NOTES:

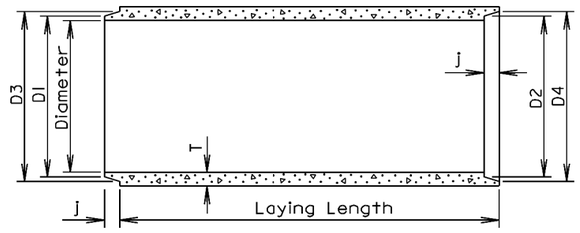
The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

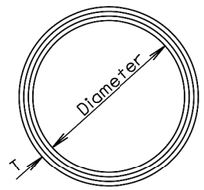
Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

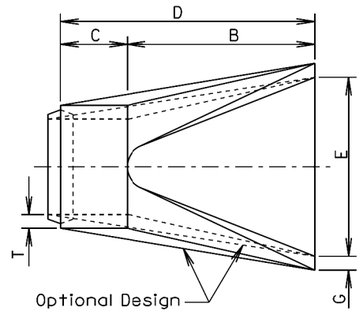
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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.

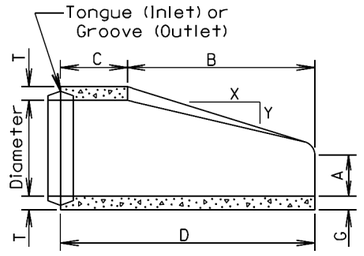
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

June 26, 2015

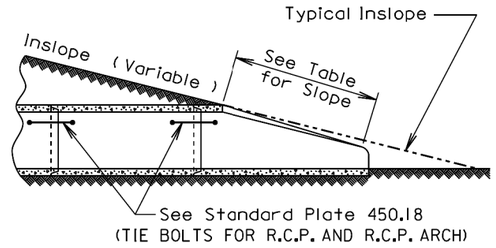
Published Date: 2025 | SDDOT | REINFORCED CONCRETE PIPE | PLATE NUMBER 450.01 | Sheet 1 of 1



TOP VIEW



LONGITUDINAL SECTION

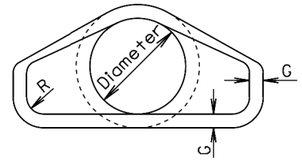


SLOPE DETAIL

GENERAL NOTES:

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

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

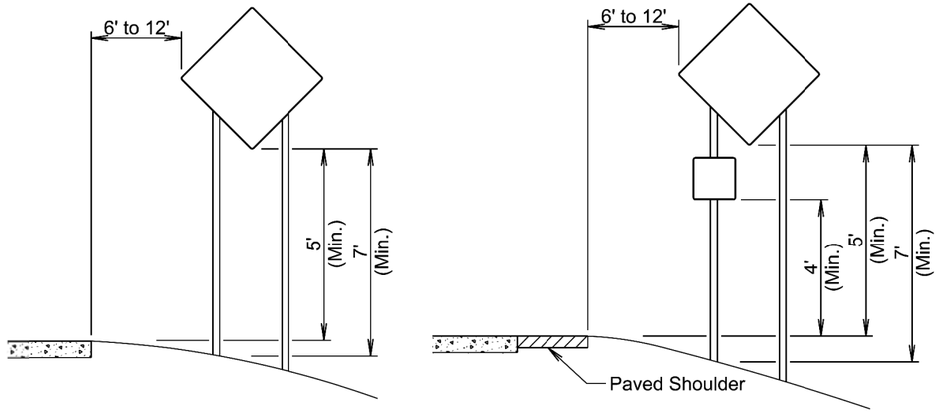


END VIEW

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

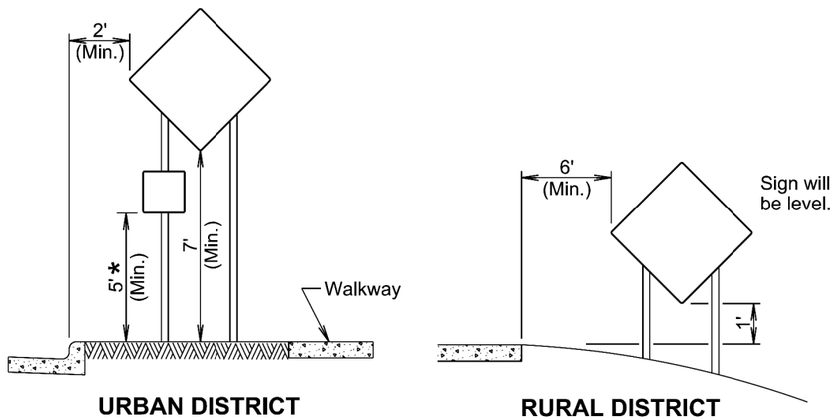
June 26, 2015

Published Date: 2025 | SDDOT | R. C. P. FLARED ENDS | PLATE NUMBER 450.10 | Sheet 1 of 1



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



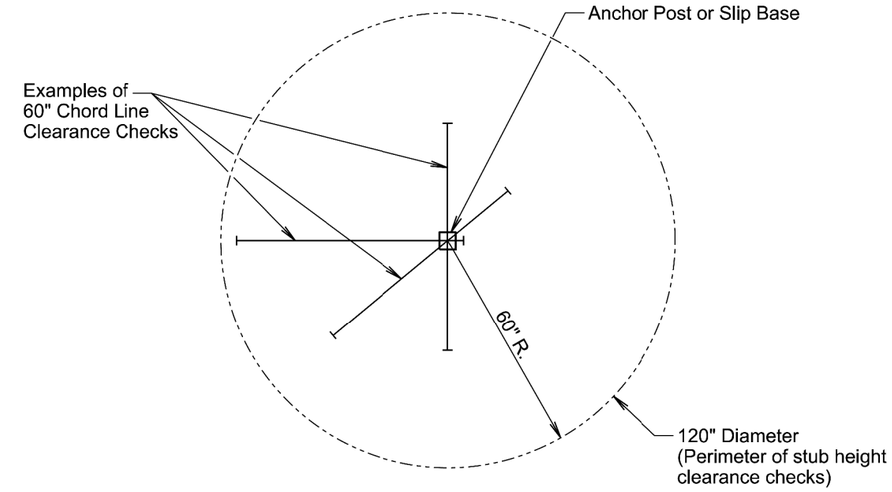
URBAN DISTRICT

RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

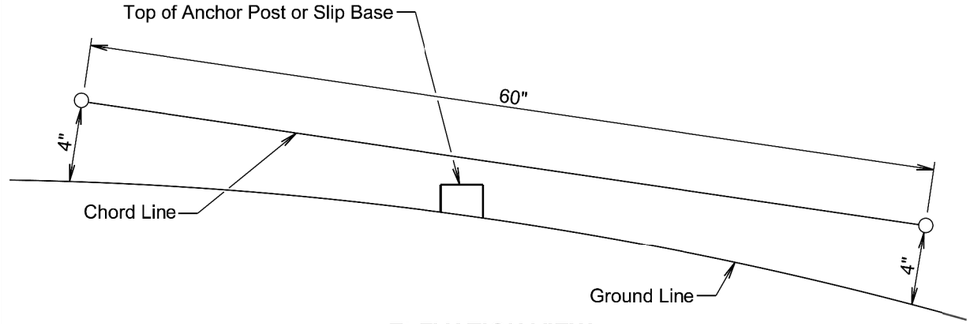
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

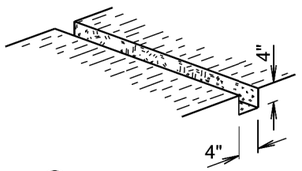
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

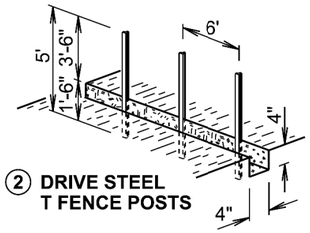
Published Date: 2025	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

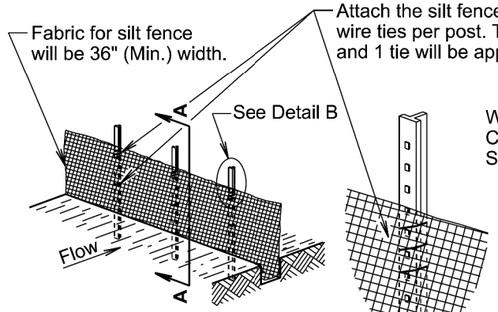
MANUAL HIGH FLOW SILT FENCE INSTALLATION



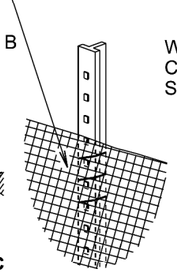
① EXCAVATE TRENCH



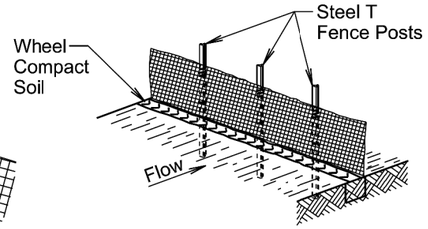
② DRIVE STEEL T FENCE POSTS



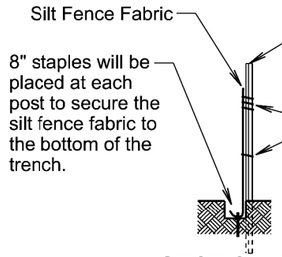
③ ATTACH SILT FENCE FABRIC



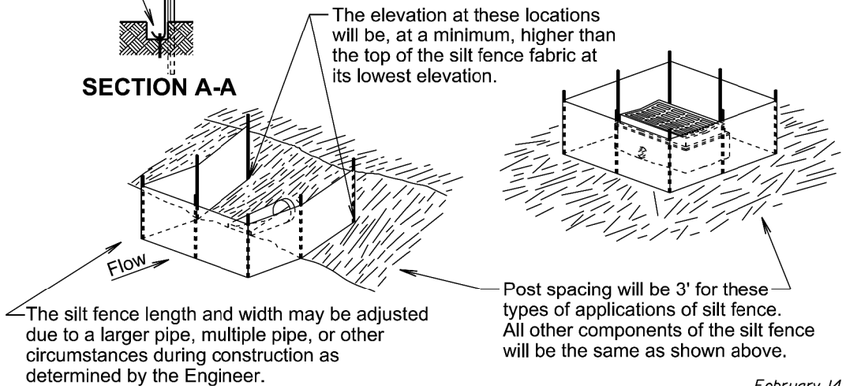
DETAIL B



④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



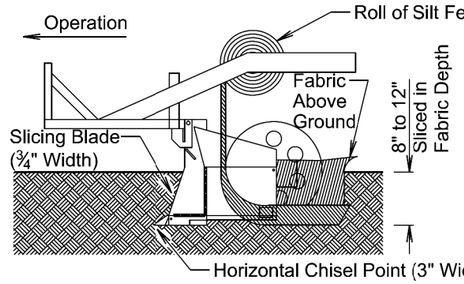
SECTION A-A



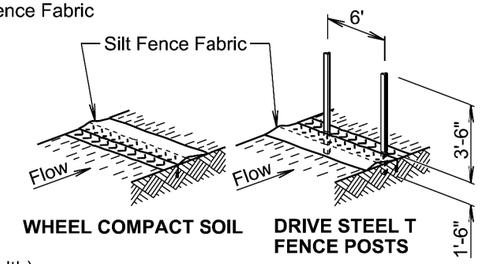
February 14, 2020

Published Date: 2025	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

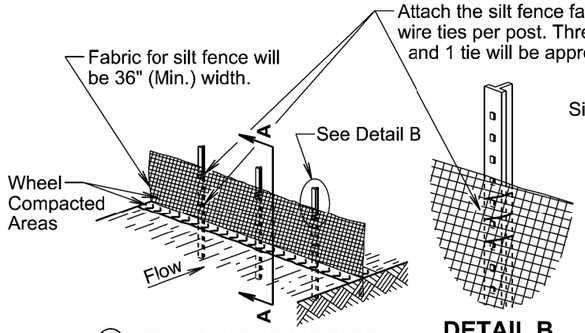


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



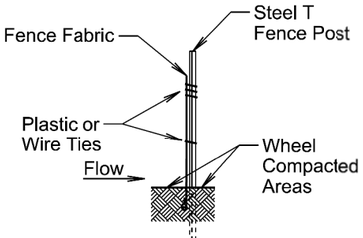
WHEEL COMPACT SOIL — DRIVE STEEL T FENCE POSTS

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

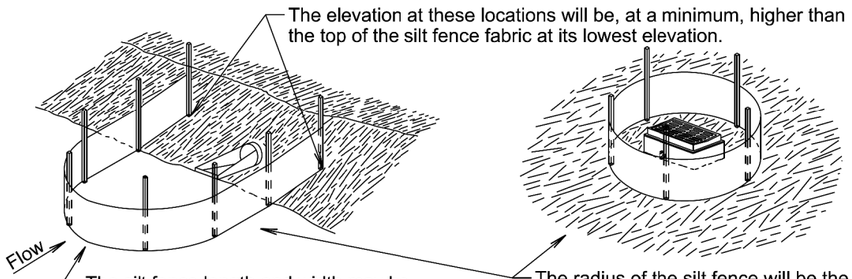


③ ATTACH SILT FENCE FABRIC

DETAIL B



SECTION A-A

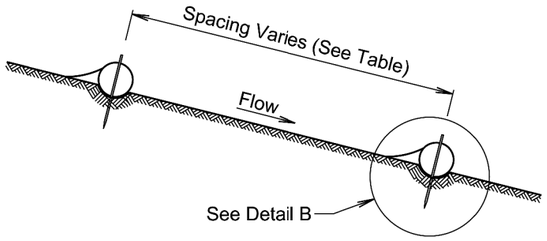


GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

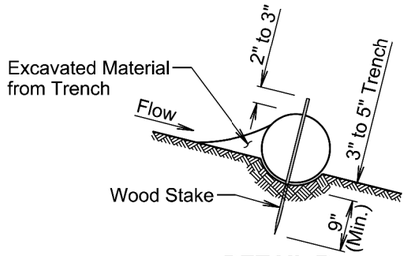
February 14, 2020

Published Date: 2025	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

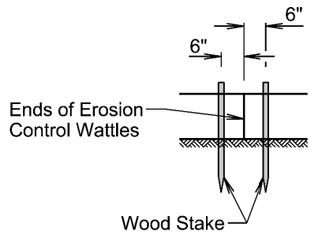


ELEVATION VIEW
(Cut or Fill Slope Installation)

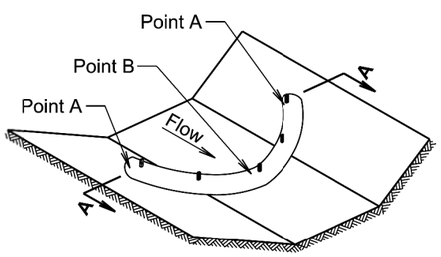
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



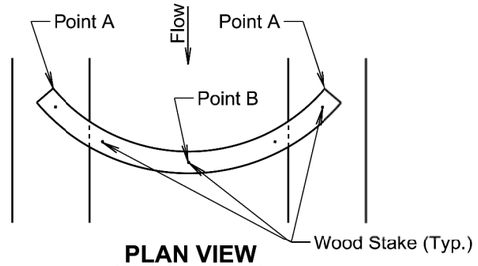
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

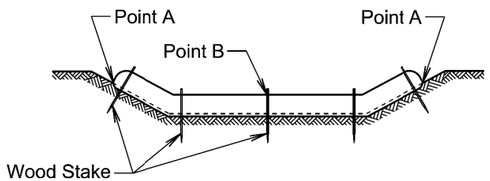


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

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



SECTION A-A

February 14, 2020

Published Date: 2025	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

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

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

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

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

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

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

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

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

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

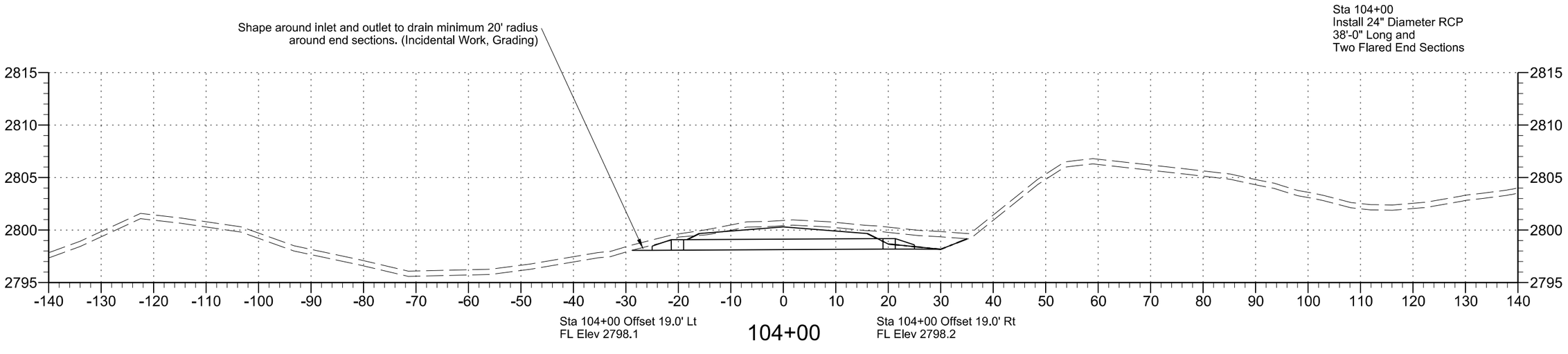
February 14, 2020

Published Date: 2025	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	38	46

FOR BIDDING PURPOSES ONLY

MAINLINE PIPE CROSS SECTION

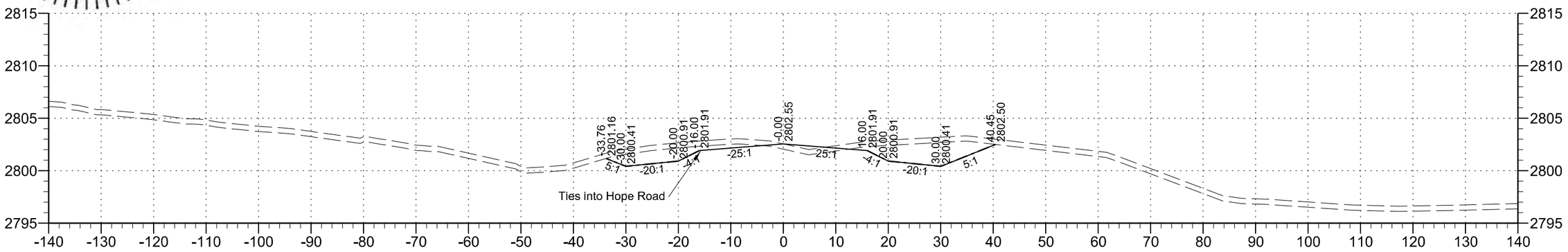


STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	39	46

FOR BIDDING PURPOSES ONLY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

VIKEN ROAD CROSS SECTION



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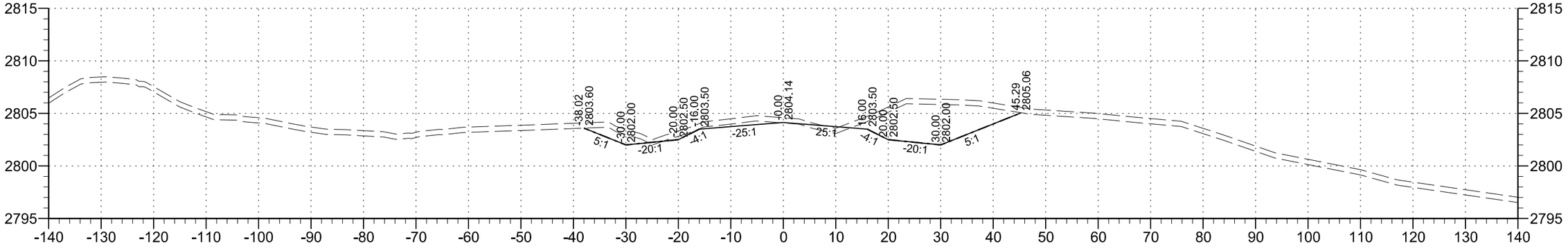

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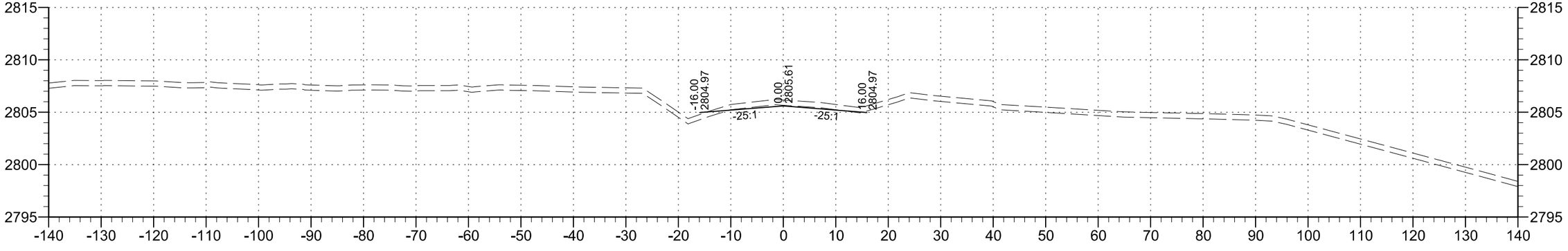

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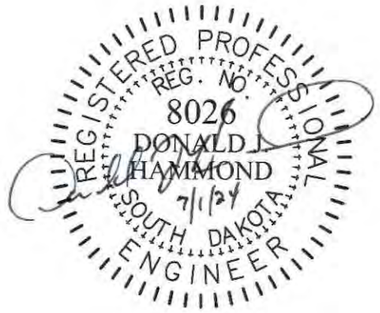
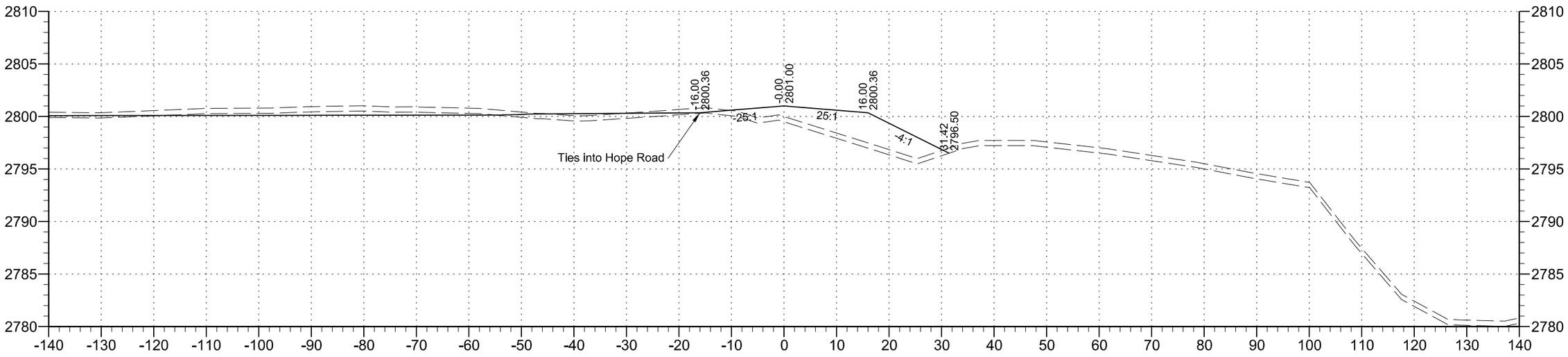


STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	40	46

FOR BIDDING PURPOSES ONLY

VIKEN ROAD CROSS SECTION



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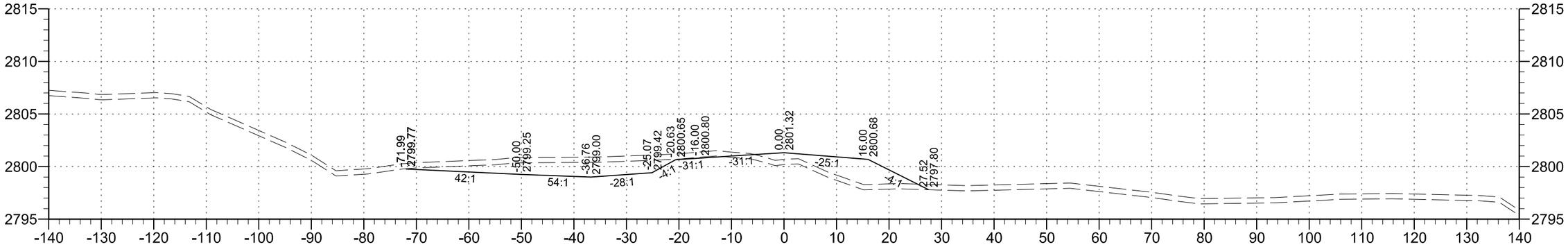

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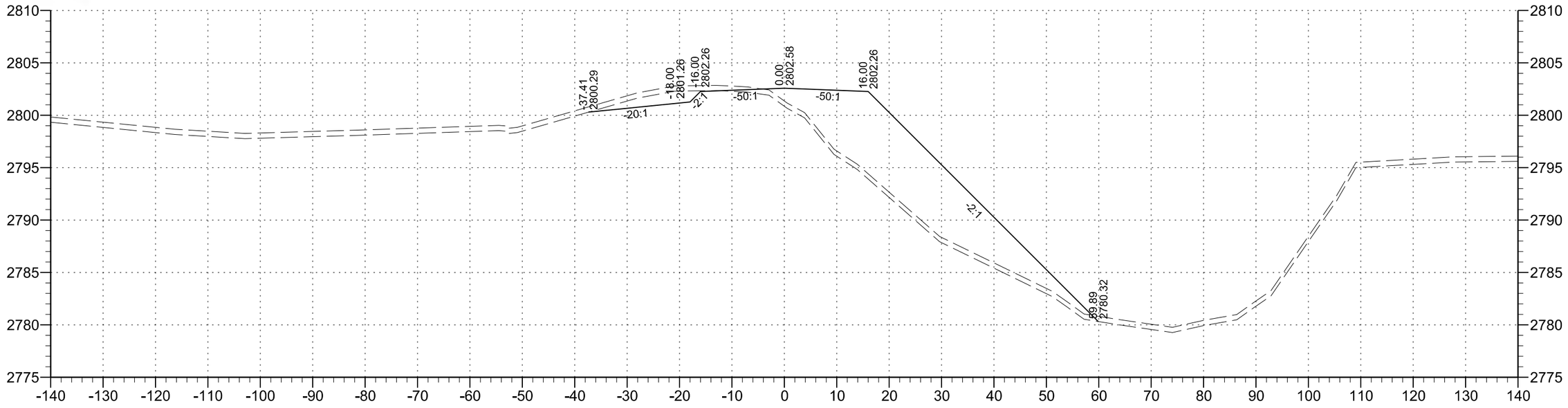
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	41	46

FOR BIDDING PURPOSES ONLY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
7/1/24

VIKEN ROAD CROSS SECTION



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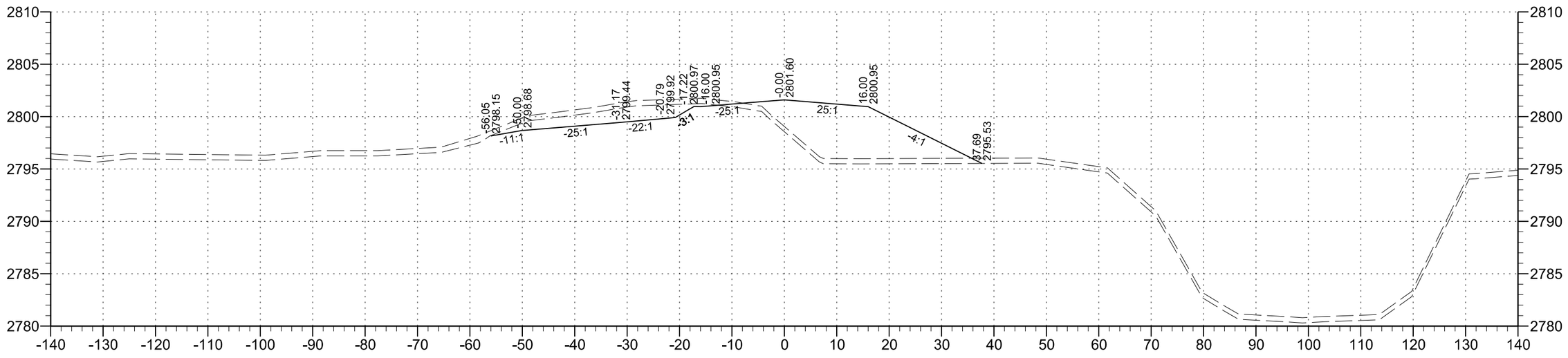

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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	42	46

VIKEN ROAD CROSS SECTION

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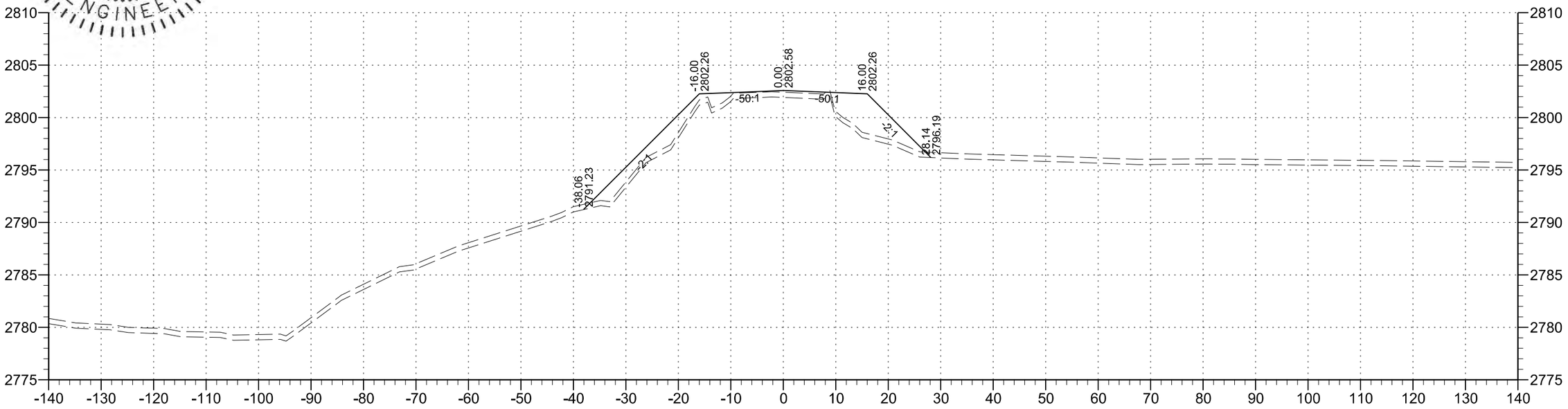
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
7/1/24



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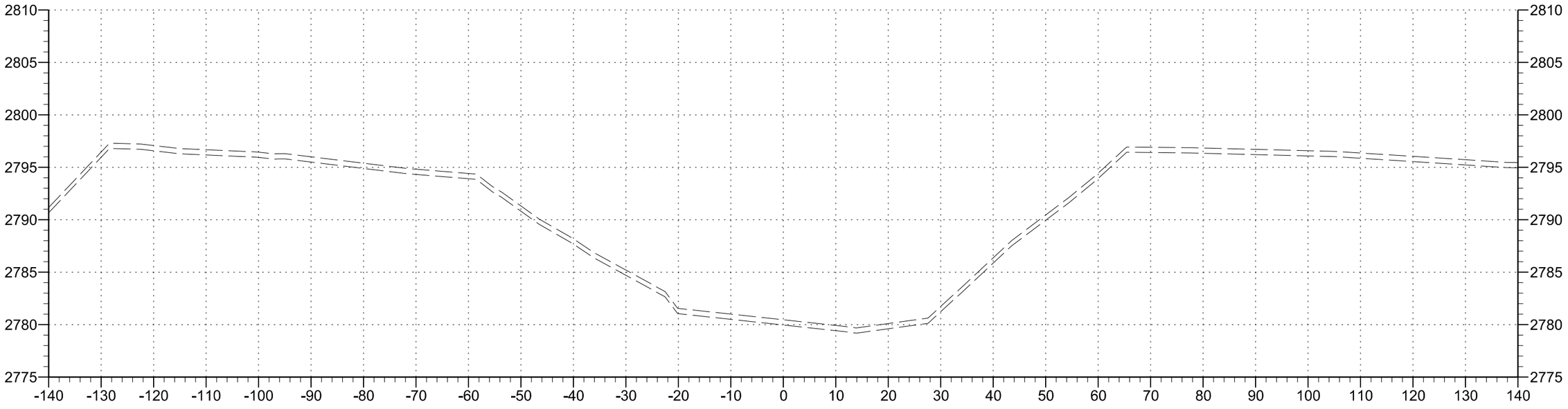

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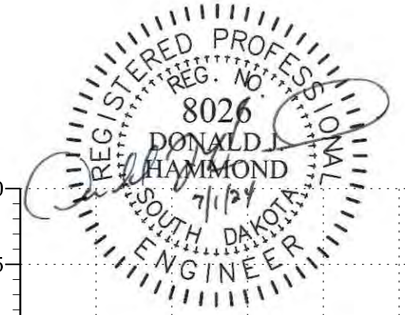
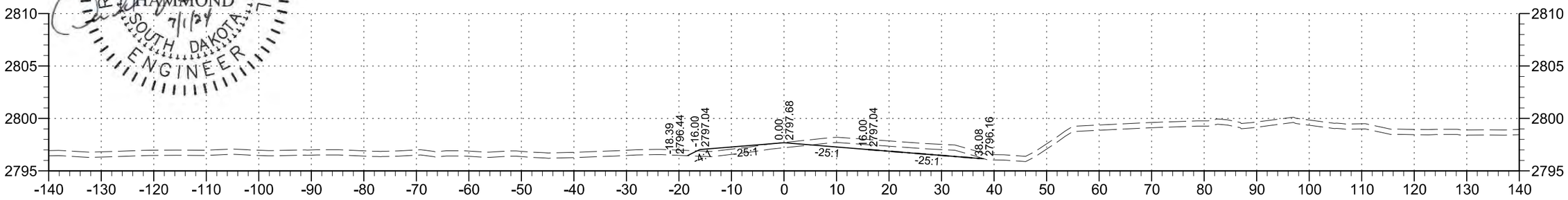
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	43	46

FOR BIDDING PURPOSES ONLY

VIKEN ROAD CROSS SECTION





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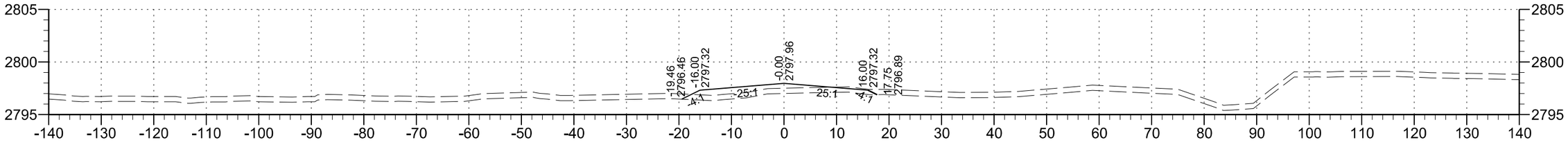

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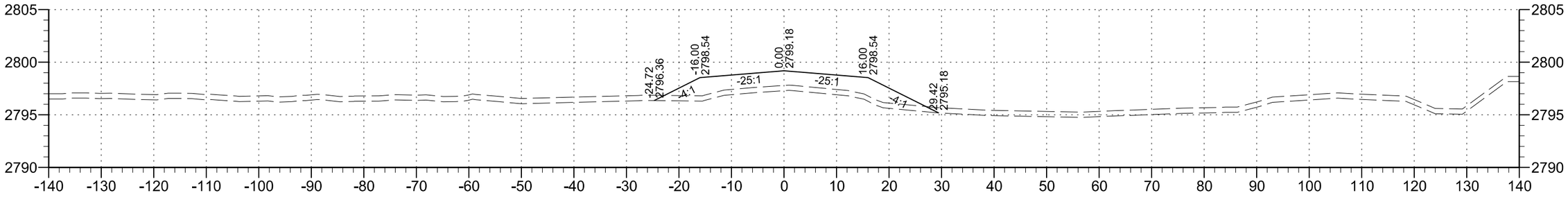

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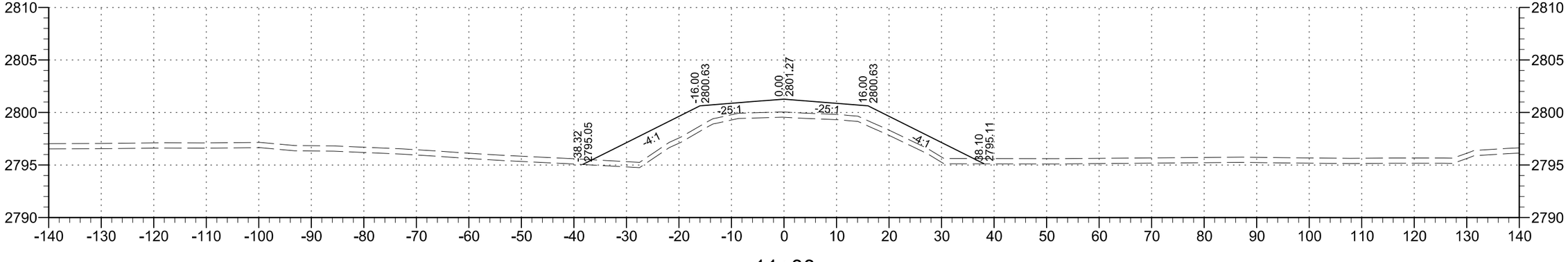

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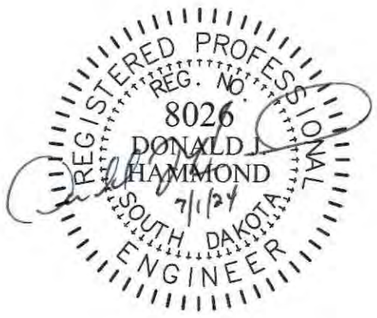
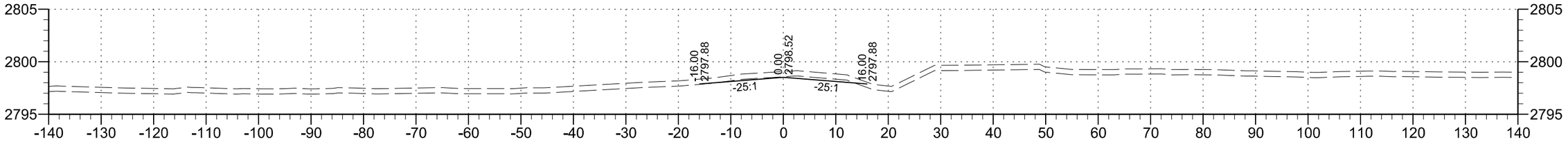


STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	44	46

FOR BIDDING PURPOSES ONLY

VIKEN ROAD CROSS SECTION



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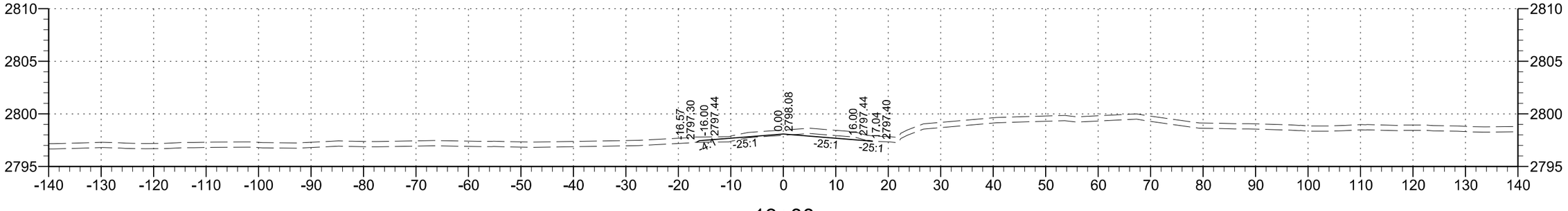

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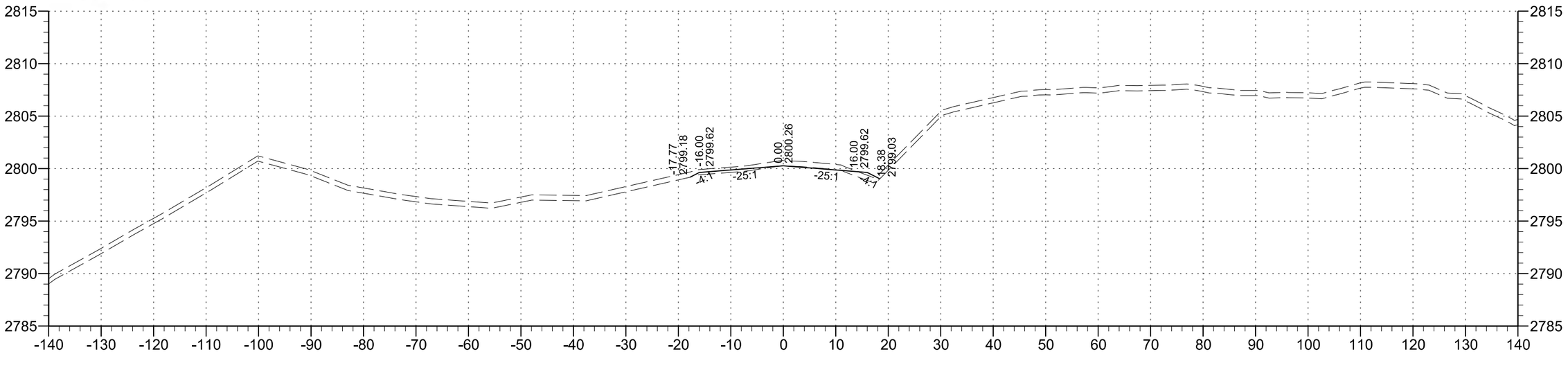
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	45	46

FOR BIDDING PURPOSES ONLY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/1/24
SOUTH DAKOTA

HOPE ROAD CROSS SECTION



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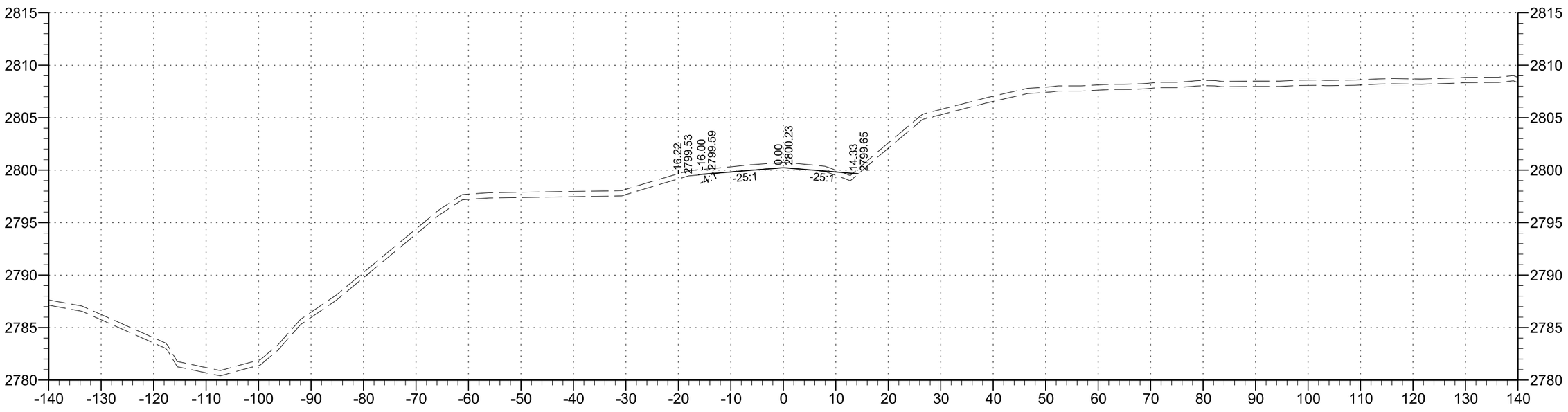

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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8010(29)	46	46

FOR BIDDING PURPOSES ONLY

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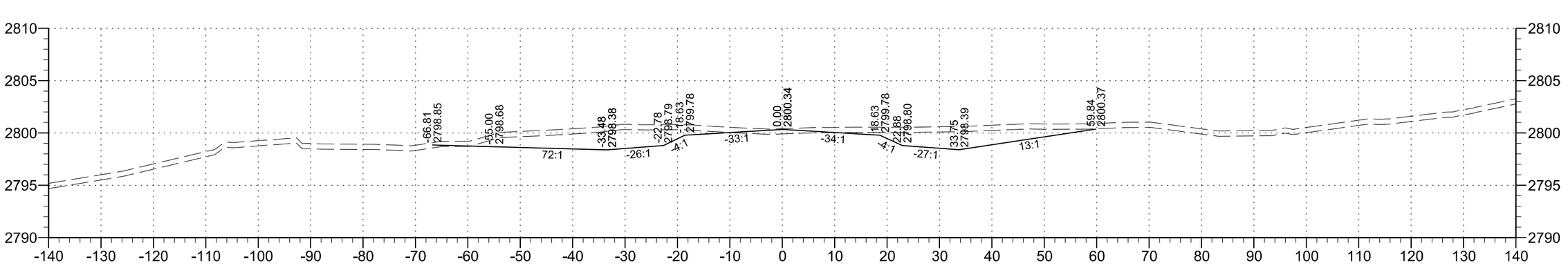
7/1/24
SOUTH DAKOTA

HOPE ROAD CROSS SECTION



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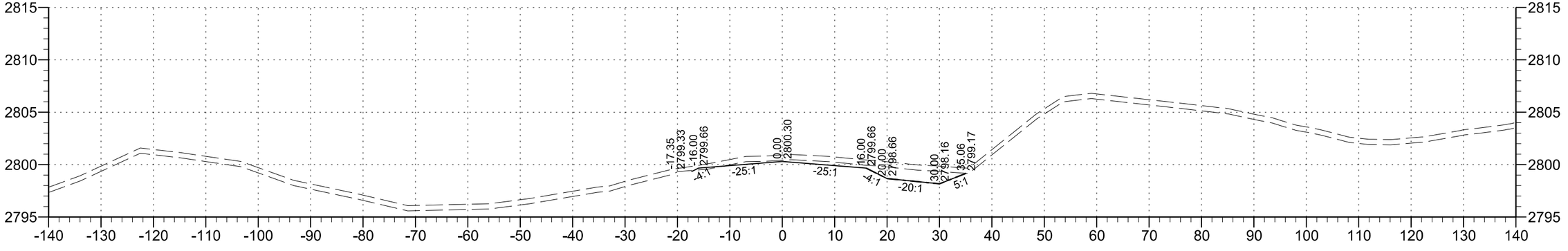

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