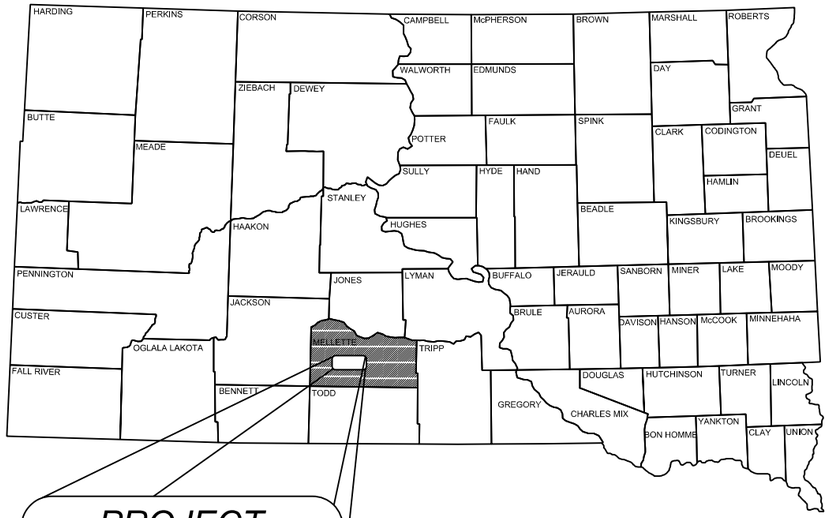
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	1	37

FOR BIDDING PURPOSES ONLY

Revised 6-26-25



PROJECT

5.0 miles West and 0.8 miles South of White River, SD on Pine Creek Road over Pine Creek

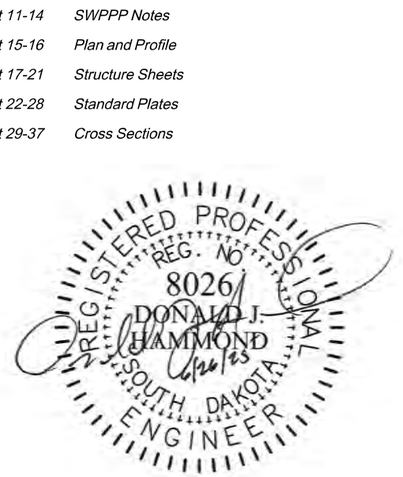
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

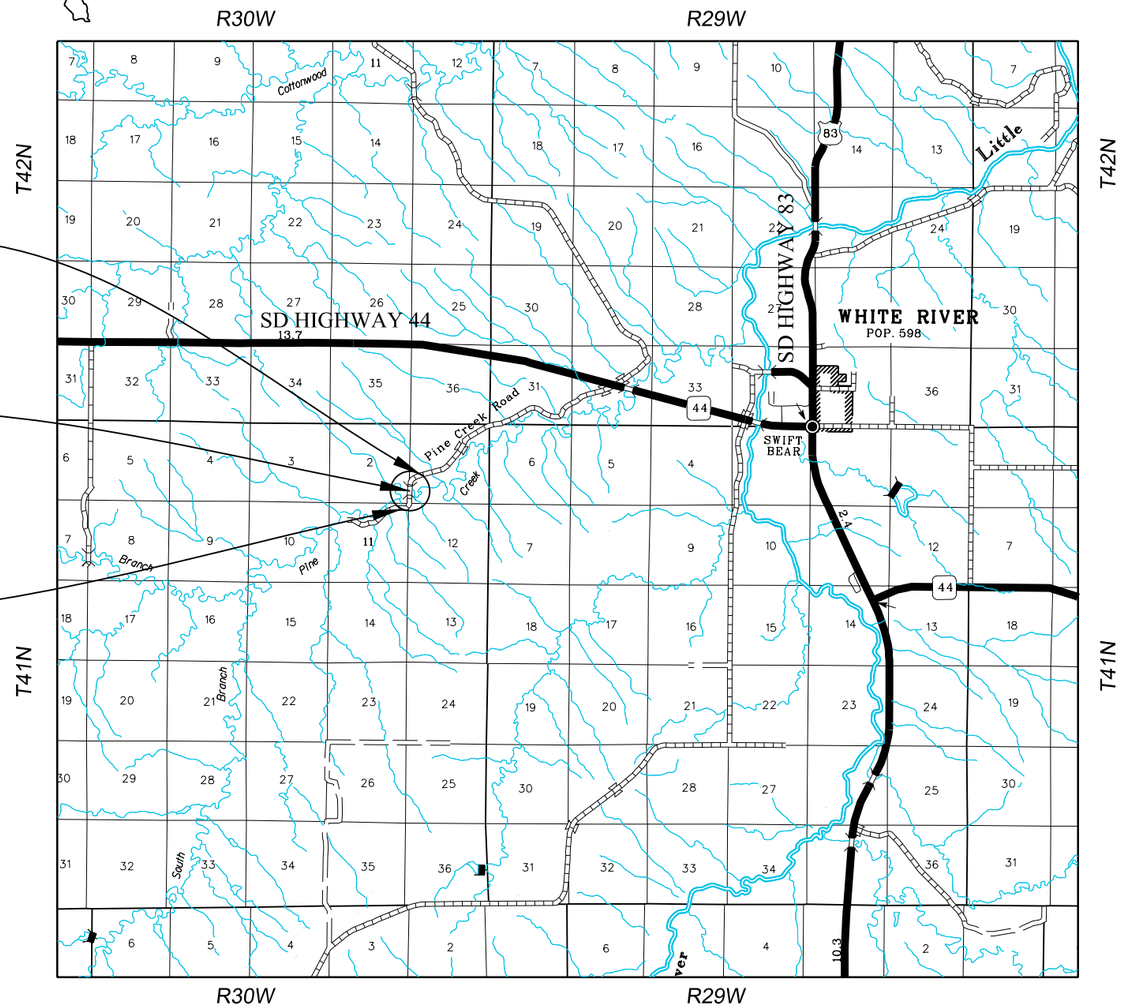
PLANS FOR PROPOSED
BRO-B 8048(05)
MELLETTE COUNTY

Structure Replacement and Approach Grading

Str. No. 48-200-218
PCN 09A6

INDEX OF SHEETS





END PROJECT BRO-B 8048(05)
At Sta. 18+50.00
1694.8' North and 282.9' East of the SW Corner of Sec. 1 - T41N - R30W

Str. No. 48-200-218

BEGIN PROJECT BRO-B 8048(05)
At Sta. 1+50.00
125.2' North and 3.2' East of the SW Corner of Sec. 1 - T41N - R30W

DESIGN DESIGNATION

ADT (2018)	10
ADT (2038)	20
DHV	7
d	50%
T DHV	3.5%
T ADT	7.7%
V	35 mph

STORM WATER PERMIT DATA

Major Receiving Body of Water: Pine Creek
Area Disturbed: 3.47 Acres
Total Project Area: 8.37 Acres
Latitude: 43° 33' 10.78" N
Longitude: -100° 50' 59.71" W

Brosz ENGINEERING, INC.

Brosz Project No. 2203214

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

Revised 7/16/25

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8048(05)	2	37

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0030	Maintenance of Traffic Diversion(s)	Lump Sum	LS
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.284	Mile
009E3250	Miscellaneous Staking	0.284	Mile
009E3280	Slope Staking	0.284	Mile
009E3290	Structure Staking	1	Each
009E3301	Engineer Directed Surveying/Staking	20.0	Hour
100E0100	Clearing	Lump Sum	LS
120E0010	Unclassified Excavation	8,043	CuYd
230E0010	Placing Topsoil	1,267	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
450E4758	18" CMP 14 Gauge, Furnish	96	Ft
450E4760	18" CMP, Install	96	Ft
450E5306	18" CMP Sloped End, Furnish	4	Each
450E5307	18" CMP Sloped End, Install	4	Each
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	217.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	6	Each
730E0210	Type F Permanent Seed Mixture	174	Lb
731E0200	Fertilizing	5.00	Ton
732E0100	Mulching	16.0	Ton
734E0102	Type 2 Erosion Control Blanket	977	SqYd
734E0154	12" Diameter Erosion Control Wattle	880	Ft
734E0602	Low Flow Silt Fence	505	Ft
734E0610	Mucking Silt Fence	5	CuYd
734E0620	Repair Silt Fence	100	Ft

Section E – Structure
Structure No. 48-200-218

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	104	CuYd
421E0200	Box Culvert Undercut	339	CuYd
464E0100	Controlled Density Fill	30.9	CuYd
560E0196	12'x12' Precast Concrete Box Culvert, Furnish	48.0	Ft
560E0197	12'x12' Precast Concrete Box Culvert, Install	48.0	Ft
560E1196	12'x12' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E1197	12'x12' Precast Concrete Box Culvert End Section, Install	2	Each
560E2178	2-12'x12' Precast Concrete Box Culvert, Furnish	48.0	Ft
560E2179	2-12'x12' Precast Concrete Box Culvert, Install	48.0	Ft
560E3178	2-12'x12' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E3179	2-12'x12' Precast Concrete Box Culvert End Section, Install	2	Each
700E0210	Class B Riprap	79.0	Ton
831E0110	Type B Drainage Fabric	693	SqYd
831E0300	Reinforcement Fabric (MSE)	492	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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 0.119 acres) of stream (includes temporary and permanent) becoming impacted.

Table of Impacted Streams

Stream Name	Station	Perm. Impact (Acres)	Temp. Impact (Acres)	Total Impact (Acres)
Pine Creek	10+00	0.028	0.091	0.119

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 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.

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 B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

Project activities that include tree removal, structure work, and/or work within one-quarter mile of a known hibernacula or 150 feet of a known maternity roost tree, or suitable habitat should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

NLEB Seasonal Work Restriction
April 1 to October 31

Tree removal will occur between November 1st and March 31st.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
7/16/25
SOUTH DAKOTA

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

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

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

Action Taken/Required:

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

COMMITMENT 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.

COMMITMENT H: WASTE DISPOSAL SITE (Cont.)

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 or THPO) 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/THPO 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	Pine Creek	2060.8

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 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.

MELLETTE COUNTY REQUIREMENTS

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

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

SEQUENCE OF OPERATIONS

It should be noted that a traffic diversion has previously been installed by Mellette County. This diversion is to be used during construction of the precast box culvert and will be maintained by the Contractor during the project operations. Traffic is to remain open during all construction operations. The following sequence of operations will be followed:

1) Install traffic control signing as required for construction of box culvert.
2) Install perimeter control and other erosion control measures as necessary.
3) Install precast box culvert sections with exception of inlet (west) sections.
4) Complete grading operations to allow passage of traffic over east portion of constructed box culvert.
5) Install traffic control necessary to facilitate traffic across box culvert.
6) Remove existing Traffic Diversion and perform necessary channel shaping at inlet.
7) Install inlet (west) box culvert sections.
8) Complete remaining grading & shaping and install erosion control measures.
9) Remove signing.

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

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 62 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

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

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

SHRINKAGE FACTOR: Embankment +35%

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 roject, 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.

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 on construction, the altered quantities will be measured for payment.

TABLE OF UNCLASSIFIED EXCAVATION

		(CuYd)
Roadway Excavation		2647
Topsoil		1267
Exc. for Precast BC Installation		4129
	Total	8043

INCIDENTAL WORK, GRADING

Station	L/R	Remarks
10+00	L	Remove and Salvage 60" – 40' CMP

SALVAGED ITEMS

All salvaged items noted on the plans will be salvaged for future highway use and hauled to the Mellette County Highway Department as directed by the Engineer. The Contractor will coordinate transfer and storage with Mellette County forces (605-259-3050). Care will be taken not to damage the structural properties of the items during dismantling and transporting. All broken concrete and materials not salvaged will be disposed of in accordance with the Specifications. All costs for salvaging and transporting the items will be incidental to the contract lump sum price for "Incidental Work, Grading". Before preparing his/her bid, the Contractor will make a visual inspection of the project to verify the extent of the work and material involved.

WASTE MATERIAL

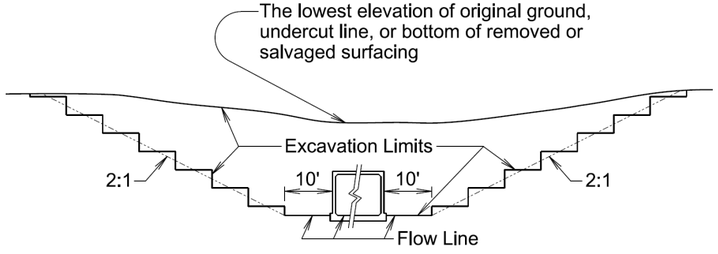
It is estimated that approx. 1646 Cubic Yards of waste material will be present at the completion of roadway excavation and box culvert excavation operations. This material is to be placed at the plan shown location. No fill material will be placed below the Elevation of 2066. Prior to placement of this material topsoil will be removed and stockpiled for future placement at a depth of 6". Fill areas will not be steeper than 4:1, and will be shaped in a smooth manner which will allow for continuation of adjacent land use operations. All costs for topsoil removal, shaping of filled areas and reclamation are included in the various bid items.

EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION

Included in the quantity of "Unclassified Excavation" are 4,129 cubic yards of excavation for installation of reinforced concrete box culverts.

All work necessary to excavate a trench for installation of reinforced concrete box culverts including labor, equipment, and incidentals will be incidental to the contract unit price per cubic yard for "Unclassified Excavation". Payment for excavation of reinforced concrete box culverts will be based only on plans quantity and measurement of these excavation quantities during construction will not be performed.

The excavation quantities for installation of reinforced concrete box culverts are not included with the earthwork balance quantities on the plans profile sheets. The quantities computed for excavation of the reinforced concrete box culverts are based on the limits shown in the drawing below.



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)
1+50		18+50	1267
		Total:	1267

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

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	(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

FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P_2O_5) available phosphate, a minimum of 4% (K_2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

The all-natural slow release fertilizer will be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com
Nature Safe	Nature Safe Fertilizers Irving, TX Phone: 1-605-759-5622 www.naturesafe.com

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)
1+50 to 18+50 L/R	Inslope/Backslope/Ditch	14
	Additional Quantity:	2
	Total:	16

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.

An additional quantity of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

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)
3+00 L & R	Ditch Bottom	12	40
3+50 L & R	Ditch Bottom	12	40
4+00 L & R	Ditch Bottom	12	40
4+50 L & R	Ditch Bottom	12	40
5+00 R	Ditch Bottom	12	20
5+50 R	Ditch Bottom	12	20
6+50 L & R	Ditch Bottom	12	40
8+00 L & R	Ditch Bottom	12	40
9+50 L & R	Ditch Bottom	12	40
10+65 L	Toe of Fillslope	12	140
10+75 L & R	Ditch Bottom	12	40
12+50 L & R	Ditch Bottom	12	40
13+00 L & R	Ditch Bottom	12	40
13+50 L & R	Ditch Bottom	12	40
14+00 L & R	Ditch Bottom	12	40
16+50 L	Ditch Bottom	12	20
	Additional Quantity:	12	200
		Total:	880

LOW FLOW SILT FENCE

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

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

Low 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 734.04 for details.

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

TABLE OF LOW FLOW SILT FENCE

Station	Location	Quantity (Ft)
10+75 to 12+00 L	Perimeter of Storage	275
11+75 L	Pipe Inlet	40
11+75 L	Pipe Inlet	40
	Additional Quantity:	150
	Total:	505

EROSION CONTROL BLANKET

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

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

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

An additional quantity of Type 2 Erosion Control Blanket has been added to the Estimate of Quantities for temporary erosion control.

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
9+65 to 9+95 R	Inslope – SE Corner of Box & Channel Bank	2	200
9+65 to 9+95 L	Inslope – SW Corner of Box & Channel Bank	2	222
10+51 to 10+50 R	Inslope – NE Corner of Box & Channel Bank	2	211
10+51 to 10+50 L	Inslope – NW Corner of Box & Channel Bank	2	244
	Additional Quantity:	2	100
	Total Type 2 Erosion Control Blanket:		977

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking				Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
					Length (Mile)	Lane Factor	*Sets of Stakes	**Grade Staking Quantity (Mile)			
Pine Creek Road	1+50	16+50	2	1500	0.284	1	1	0.284	0.284	0.284	
Structure No. 69-203-288 (Precast Box Culvert)	9+84.80	10+25.20									1
							Totals:	0.284	0.284	0.284	1

* 1 = Blue Top Stakes Only (Subgrade for Gravel Surface)
2 = Blue Top and Paving Hub Stakes (PCC Pavement)

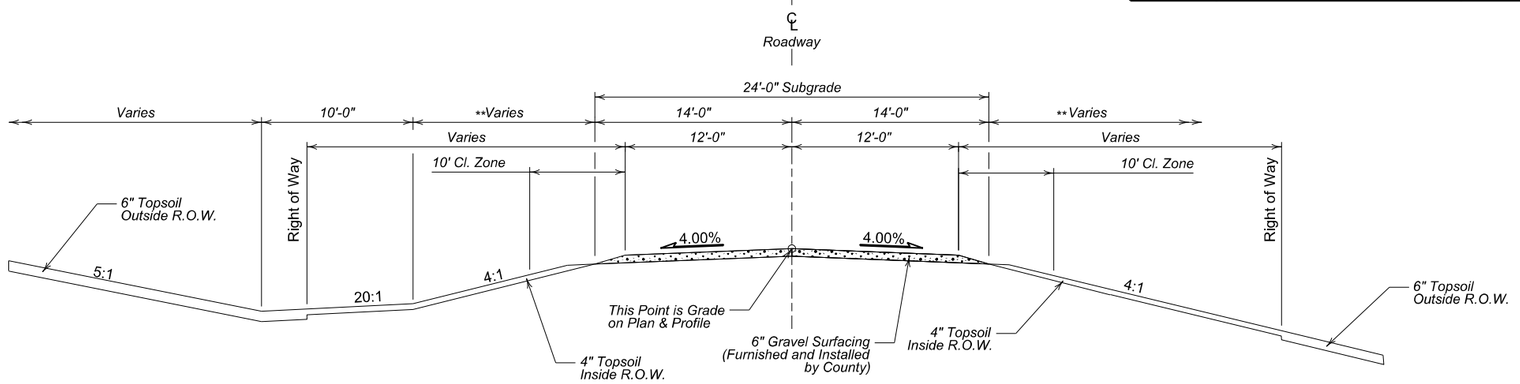
** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

TYPICAL SECTIONS AND CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	8	37

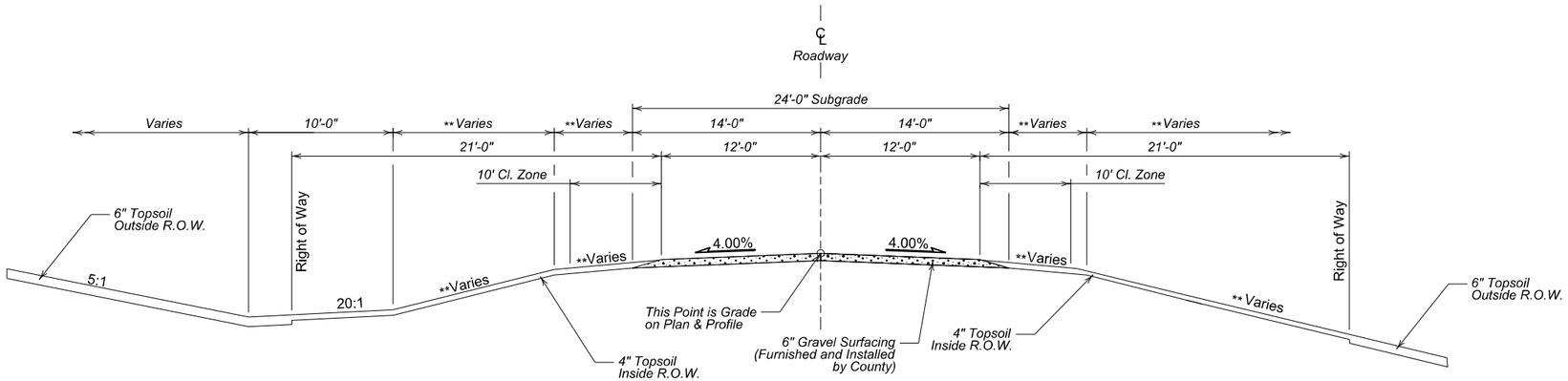
HORIZONTAL ALIGNMENT (ROADWAY)				
Element	Curve Data	Station	Northing	Easting
POB	POB	-0+33.37	443935.73	1831492.48
			Tangent Direction = N 34°14'48" E	
PC		-0+33.37	443935.73	1831492.48
PI		0+96.47	444043.06	1831565.54
PT		2+18.22	444172.89	1831564.04
	Delta = 34°54'41" L			
	DOC = 13°52'35"			
	R = 412.90'			
	L = 251.59'			
	T = 129.84'			
			Tangent Direction = N 0°39'53" W	
PI		5+0.891	444463.56	1831560.66
			Tangent Direction = N 0°51'59" E	
PC		13+93.99	445348.54	1831574.05
PI		15+72.78	445527.31	1831576.75
PT		17+16.49	445609.99	1831735.26
	Delta = 61°35'08" R			
	DOC = 19°05'55"			
	R = 300.00'			
	L = 322.46'			
	T = 178.79'			
			Tangent Direction = N 62°27'07" E	
POE		20+28.12	445754.13	1832011.59



** See Cross Sections for Details and Transitions

TYPICAL SECTION

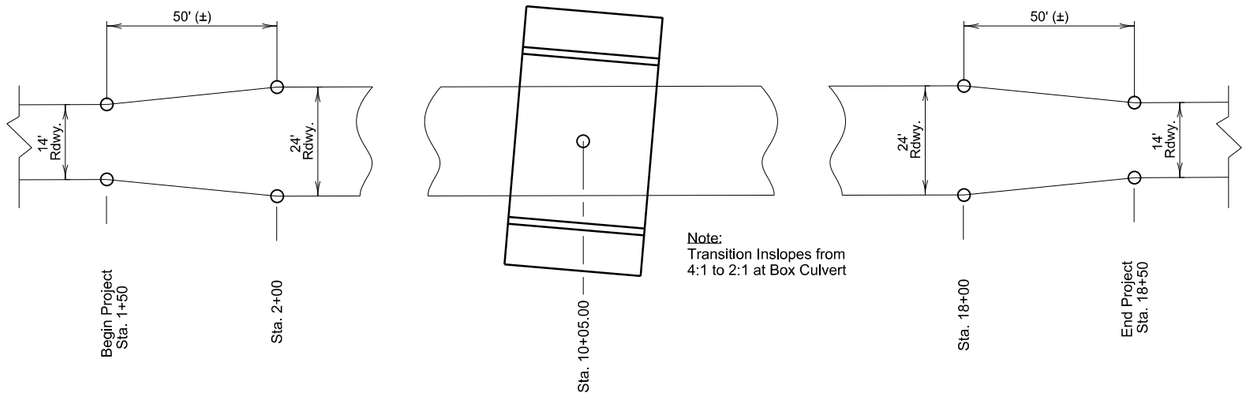
Sta. 1+50 to Sta. 8+50
Sta. 11+50 to Sta. 18+50



** See Cross Sections for Details and Transitions

TYPICAL SECTION

Sta. 8+50 to Sta. 11+50



TYPICAL ROADWAY TRANSITION DETAIL

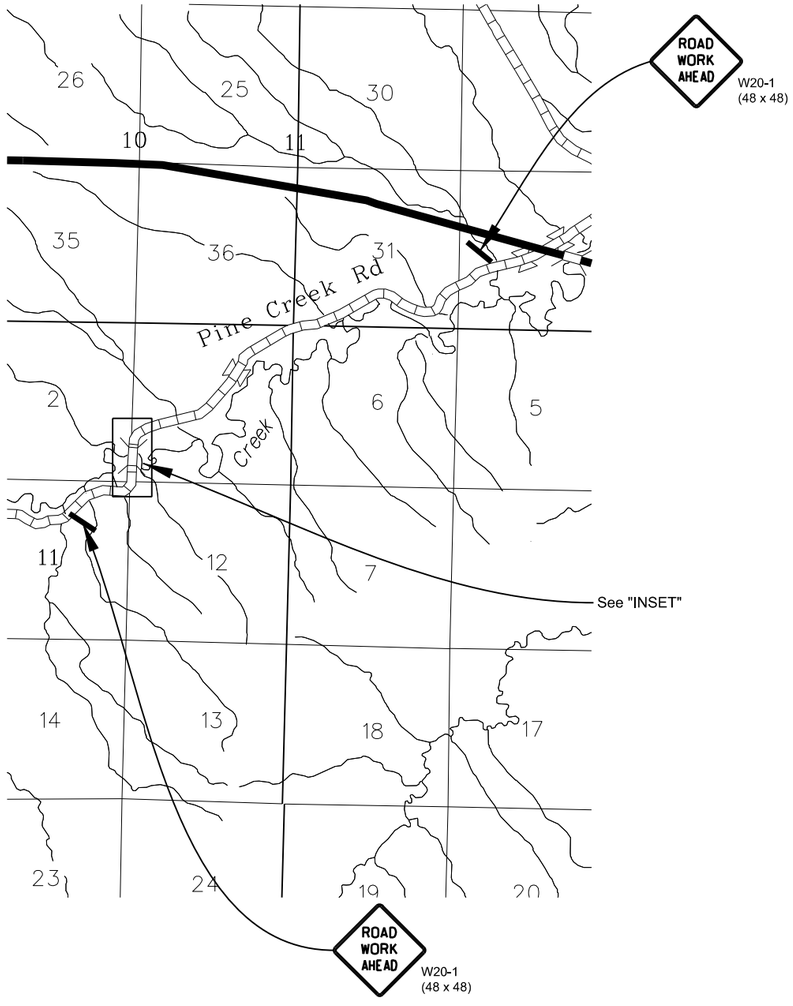
(Not to Scale)

CONTROL POINTS						
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESC.
CP1	14+86.12	54.24' Lt.	445456.180	1831538.000	2084.38	REBAR
CP2	11+71.68	75.71' Rt.	445125.110	1831646.380	2073.00	REBAR
CP3	0+45.73	49.63' Rt.	443985.360	1831576.070	2089.99	REBAR

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	9	37

FOR BIDDING PURPOSES ONLY

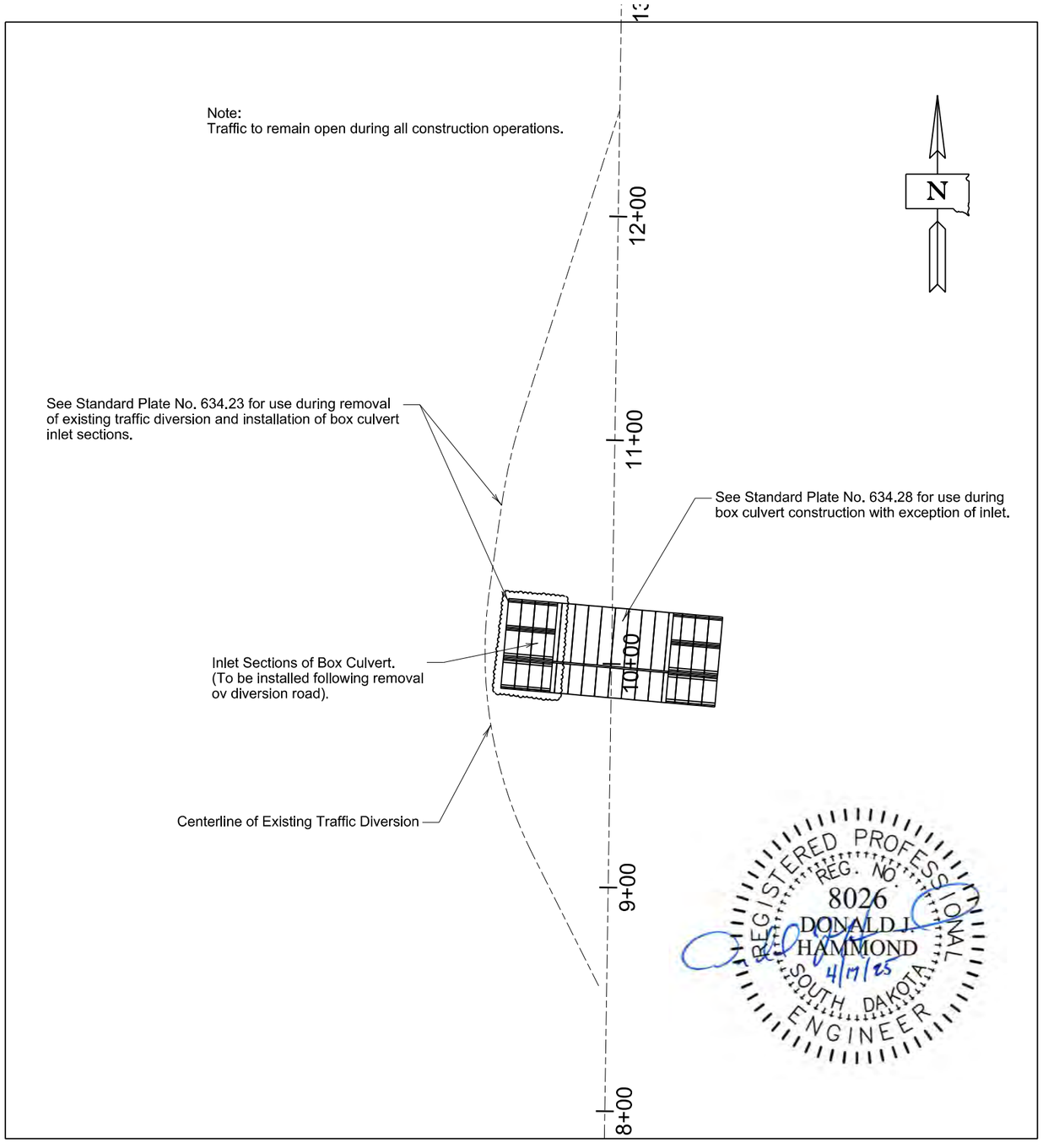
TRAFFIC CONTROL DETAILS



AREA MAP

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W1-3	REVERSE TURN (L or R)	4	48" x 48"	16.0	64.0
W1-6	LARGE ARROW (one direction)	6	48" x 24"	8.0	48.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			217.0



INSET

EROSION AND SEDIMENT CONTROL DETAILS

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	10	37

Table of Erosion Control Wattles

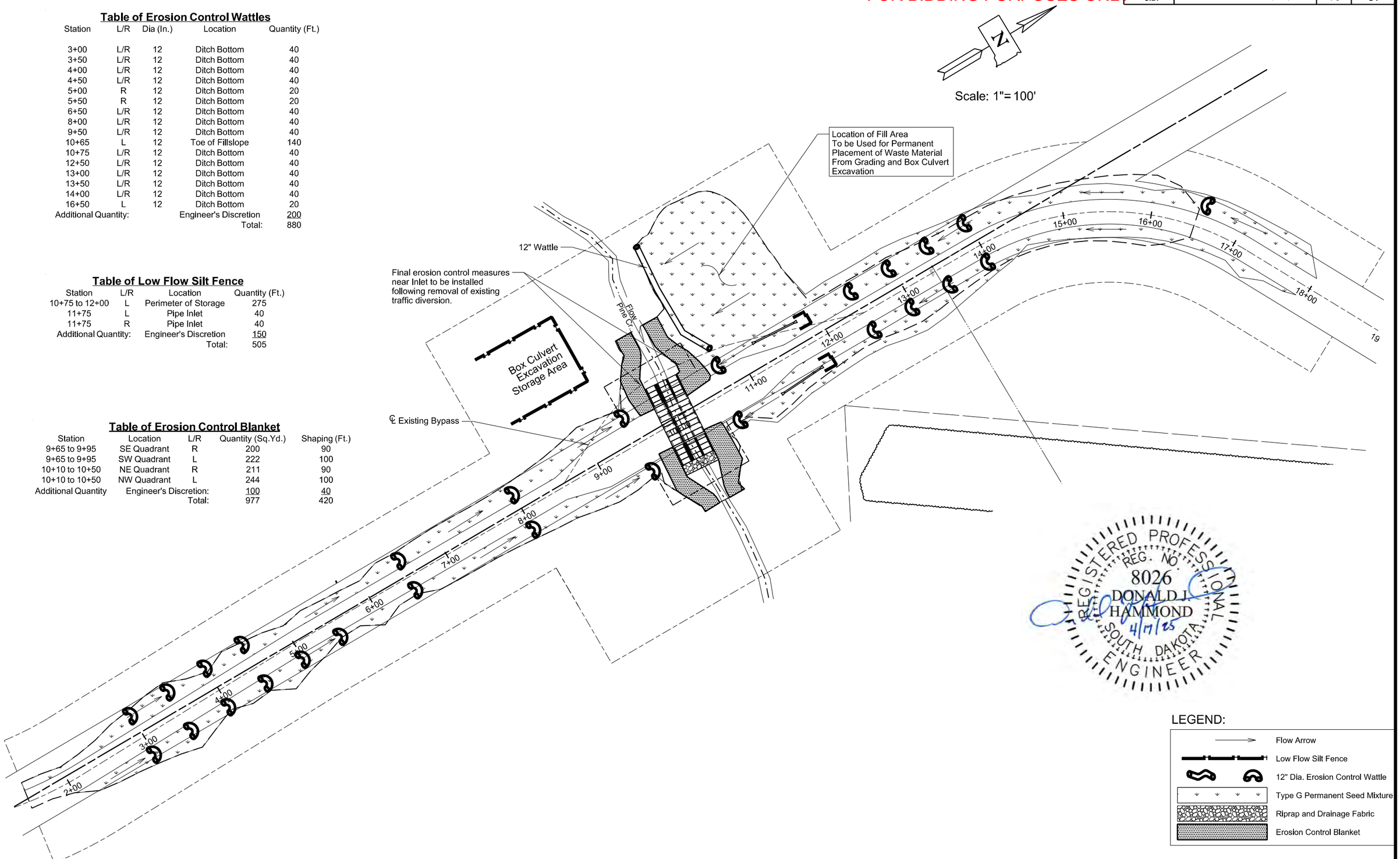
Station	L/R	Dia (In.)	Location	Quantity (Ft.)
3+00	L/R	12	Ditch Bottom	40
3+50	L/R	12	Ditch Bottom	40
4+00	L/R	12	Ditch Bottom	40
4+50	L/R	12	Ditch Bottom	40
5+00	R	12	Ditch Bottom	20
5+50	R	12	Ditch Bottom	20
6+50	L/R	12	Ditch Bottom	40
8+00	L/R	12	Ditch Bottom	40
9+50	L/R	12	Ditch Bottom	40
10+65	L	12	Toe of Fillslope	140
10+75	L/R	12	Ditch Bottom	40
12+50	L/R	12	Ditch Bottom	40
13+00	L/R	12	Ditch Bottom	40
13+50	L/R	12	Ditch Bottom	40
14+00	L/R	12	Ditch Bottom	40
16+50	L	12	Ditch Bottom	20
Additional Quantity:			Engineer's Discretion	200
			Total:	880

Table of Low Flow Silt Fence

Station	L/R	Location	Quantity (Ft.)
10+75 to 12+00	L	Perimeter of Storage	275
11+75	L	Pipe Inlet	40
11+75	R	Pipe Inlet	40
Additional Quantity:		Engineer's Discretion	150
		Total:	505

Table of Erosion Control Blanket

Station	Location	L/R	Quantity (Sq.Yd.)	Shaping (Ft.)
9+65 to 9+95	SE Quadrant	R	200	90
9+65 to 9+95	SW Quadrant	L	222	100
10+10 to 10+50	NE Quadrant	R	211	90
10+10 to 10+50	NW Quadrant	L	244	100
Additional Quantity	Engineer's Discretion:		100	40
	Total:		977	420



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
4/17/25

LEGEND:

- Flow Arrow
- Low Flow Silt Fence
- 12" Dia. Erosion Control Wattle
- Type G Permanent Seed Mixture
- Riprap and Drainage Fabric
- Erosion Control Blanket

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** 8.37 Acres
- **5.3 (3b): Total Area to be Disturbed** 3.47 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time**3.47 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** Grass, trees, and shrubs.
- **5.3 (3d): Description of Vegetative Cover**100%

- **5.3 (3e): Soil Properties:** AASHTO Soil Classification
  Bigbend silty clay loam, 0 to 3 percent slopes, rarely flooded; Hilmoe soils, 0 to 6 percent slopes, occasionally flooded; Kyle clay; Wendte soils, channeled, occasionally flooded.
- **5.3 (3f): Name of Receiving Water Body/Bodies** Pine Creek
- **5.3 (3g): Location of Construction Support Activity Areas** SE or SW within Temporary Easement Areas

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.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
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.

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 8048(05)	15	37

PLAN VIEW

FOR BIDDING PURPOSES ONLY

Revised 6-26-25

Sta. 9+80.0 to 10+19.9
Remove 40'-0" Single Span Steel
Non-Typical Member Bridge
(Incidental Work, Structure)

Sta. 10+00 - Lt.
Remove 60" - 40' CMP for Salvage
During Removal of Traffic Diversion
(Incidental Work, Grading)

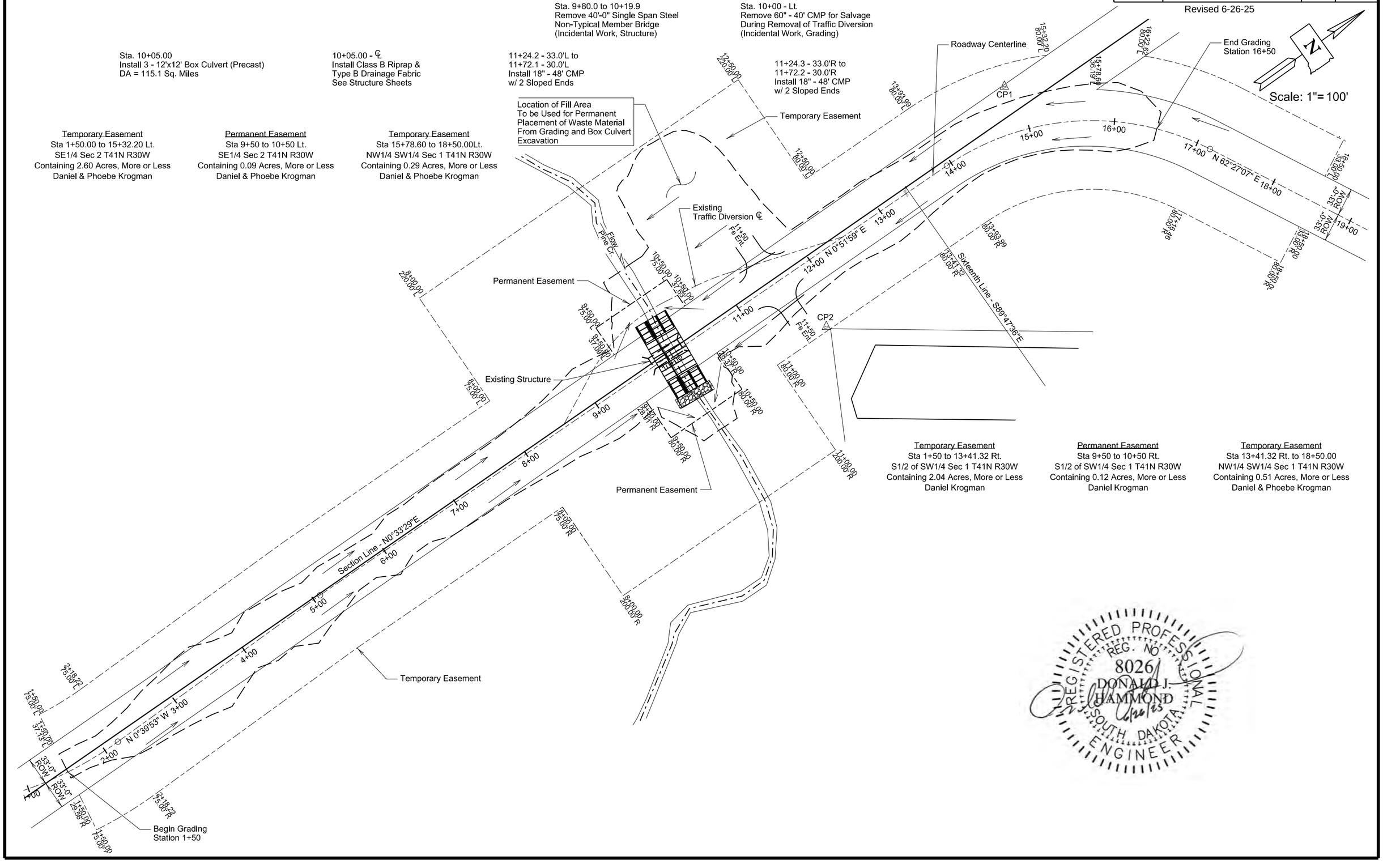
Sta. 10+05.00
Install 3 - 12'x12' Box Culvert (Precast)
DA = 115.1 Sq. Miles

10+05.00 - ℄
Install Class B Riprap &
Type B Drainage Fabric
See Structure Sheets

11+24.2 - 33.0'L to
11+72.1 - 30.0'L
Install 18" - 48' CMP
w/ 2 Sloped Ends

11+24.3 - 33.0'R to
11+72.2 - 30.0'R
Install 18" - 48' CMP
w/ 2 Sloped Ends

Location of Fill Area
To be Used for Permanent
Placement of Waste Material
From Grading and Box Culvert
Excavation



Temporary Easement
Sta 1+50.00 to 15+32.20 Lt.
SE1/4 Sec 2 T41N R30W
Containing 2.60 Acres, More or Less
Daniel & Phoebe Krogman

Permanent Easement
Sta 9+50 to 10+50 Lt.
SE1/4 Sec 2 T41N R30W
Containing 0.09 Acres, More or Less
Daniel & Phoebe Krogman

Temporary Easement
Sta 15+78.60 to 18+50.00Lt.
NW1/4 SW1/4 Sec 1 T41N R30W
Containing 0.29 Acres, More or Less
Daniel & Phoebe Krogman

Temporary Easement
Sta 1+50 to 13+41.32 Rt.
S1/2 of SW1/4 Sec 1 T41N R30W
Containing 2.04 Acres, More or Less
Daniel Krogman

Permanent Easement
Sta 9+50 to 10+50 Rt.
S1/2 of SW1/4 Sec 1 T41N R30W
Containing 0.12 Acres, More or Less
Daniel Krogman

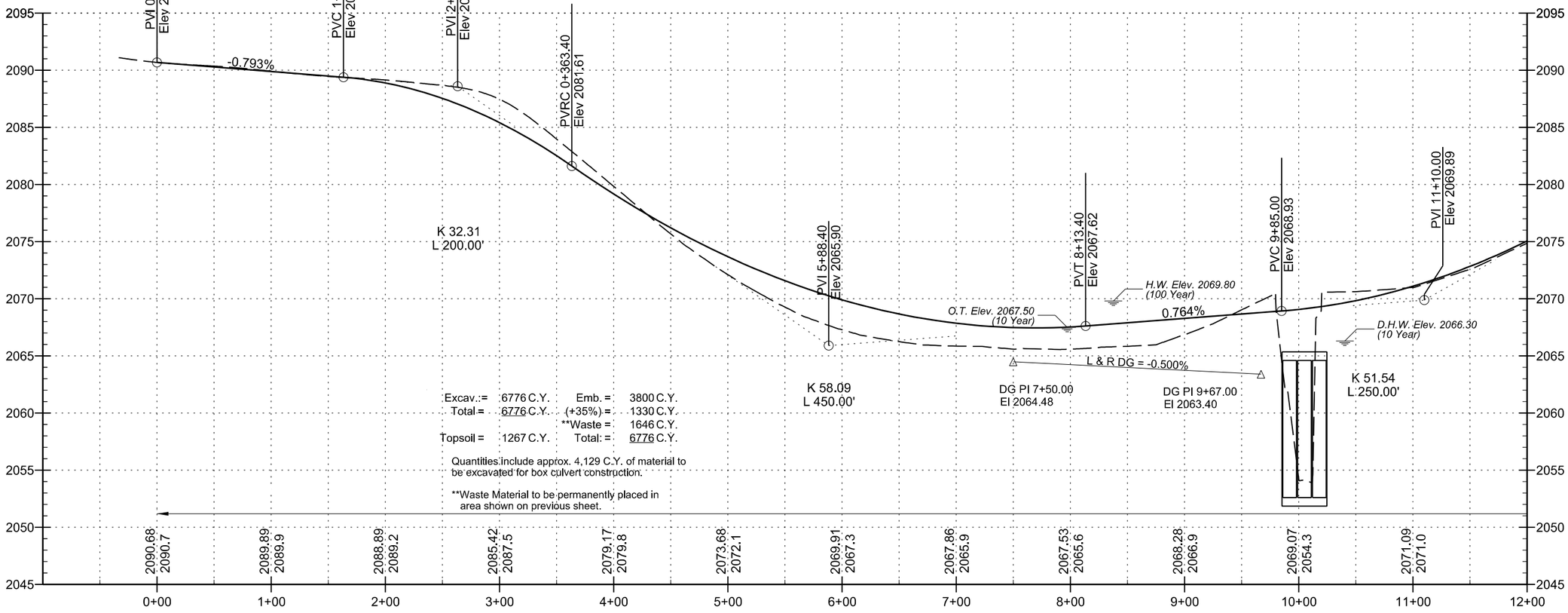
Temporary Easement
Sta 13+41.32 Rt. to 18+50.00
NW1/4 SW1/4 Sec 1 T41N R30W
Containing 0.51 Acres, More or Less
Daniel & Phoebe Krogman

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
4/22/25

PROFILE VIEWS

FOR BIDDING PURPOSES ONLY

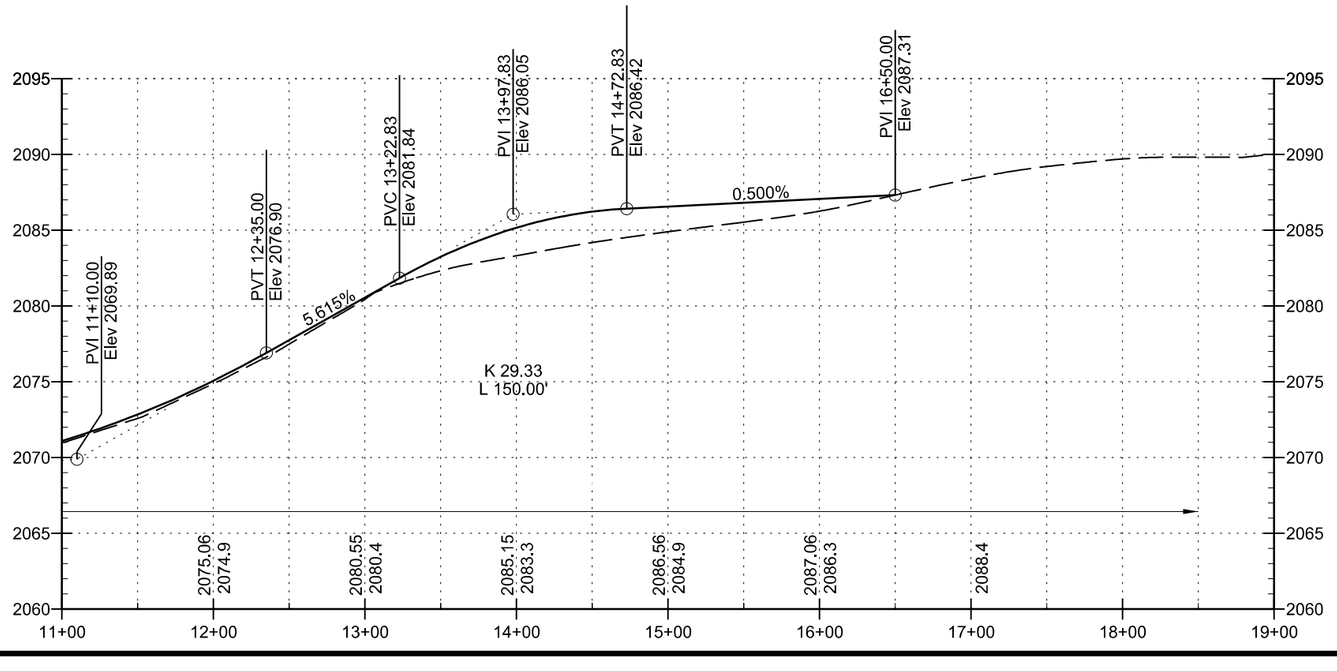
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	16	37



Excav.: =	6776 C.Y.	Emb. =	3800 C.Y.
Total =	6776 C.Y.	(+35%) =	1330 C.Y.
		**Waste =	1646 C.Y.
Topsoil =	1267 C.Y.	Total: =	6776 C.Y.

Quantities include approx. 4,129 C.Y. of material to be excavated for box culvert construction.

**Waste Material to be permanently placed in area shown on previous sheet.



FLOW	ELEVATION
Q_d = 1950 cfs	2066.30
Q_{100} = 5560 cfs	2069.80
Q_{OT} = 2420 cfs	2067.50

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

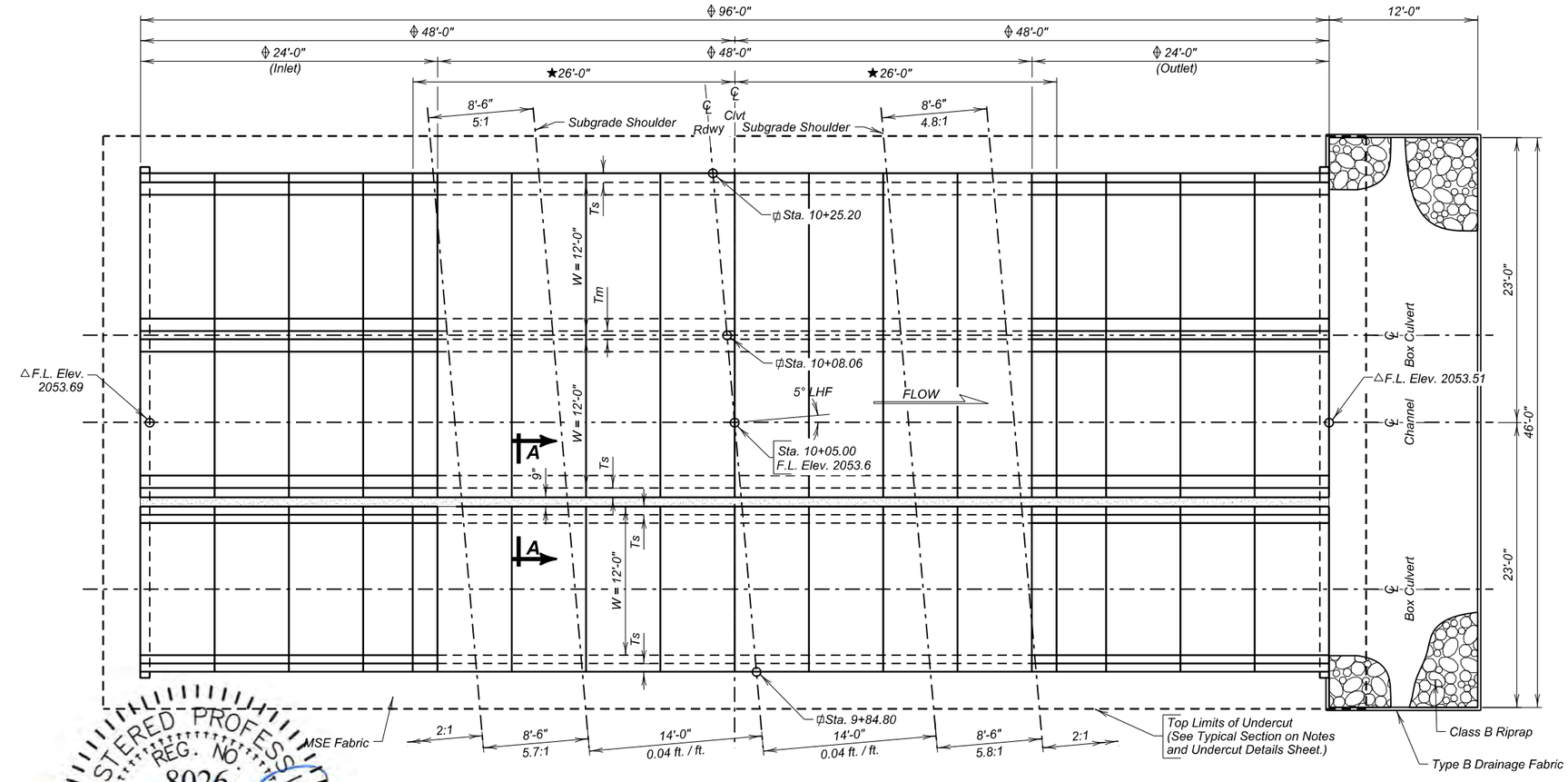
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
8026
DONALD J.
HAMMOND
SOUTH DAKOTA
4/17/25

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

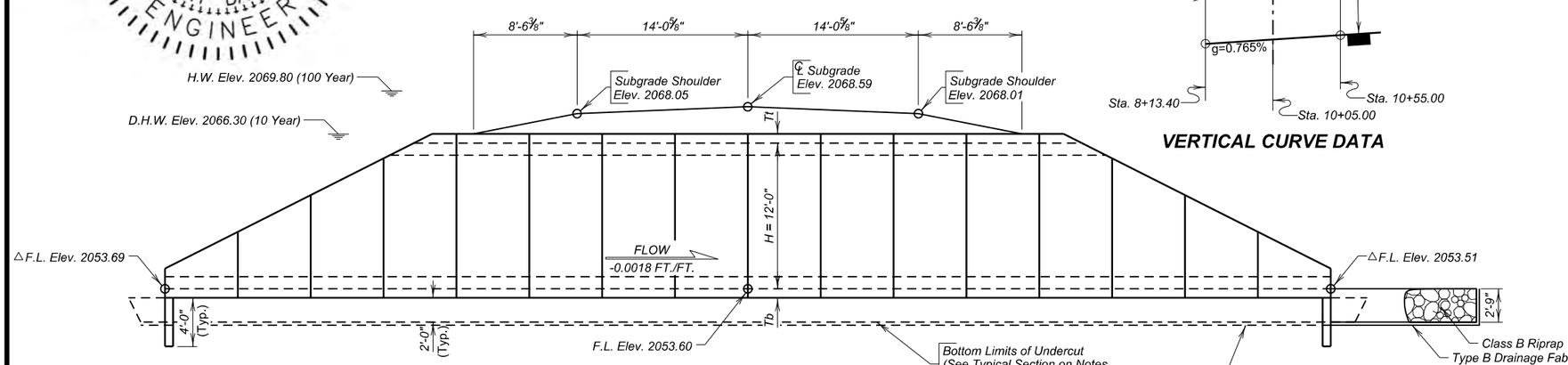
⧳ Dimension may vary with fabricator and/or installation. See Shop Plans for actual installation length.
★ Minimum distance to satisfy fill slope.
△ Based on dimensions shown.
⌀ Based on 8" Walls.

FOR BIDDING PURPOSES ONLY

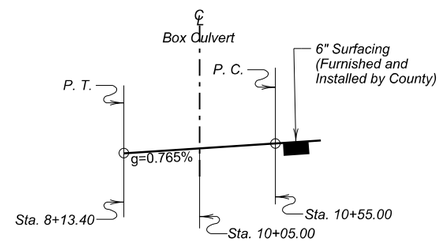
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	17	37



PLAN

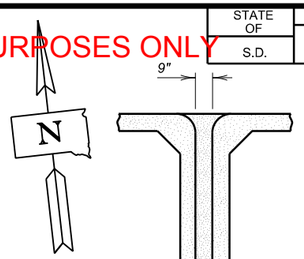


ELEVATION



VERTICAL CURVE DATA

NOTE:
Box culvert flow line has been depressed 1' - 0" below channel flow line to accomodate aquatic organisms. The 1' - 0" depression will be allowed to fill in naturally over time.



SEC. A-A

-X028-
INDEX OF CULVERT SHEETS

HYDRAULIC DATA

Q_d	1950 cfs
A_d	398 sq ft
V_d	4.9 fps
Q_F	1950 cfs
Q_{100}	5560 cfs
Q_{OT}	2420 cfs
V_{Max}	7.6 fps

LEGEND

W = Width of Opening
H = Height of Opening
Tl = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
Tm = Thickness of Middle Wall

Q_d = Design discharge for the proposed culvert based on 10 year frequency. El. 2066.30

Q_{OT} = Overtopping discharge and frequency 15.9 year recurrence interval. El. 2067.50 at Station 7+69

Q_F = Designated peak discharge for the basin approaching proposed project based on 10 year frequency.

Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. El. 2069.80

V_{max} = Maximum computed outlet velocity for the proposed culvert based on 50 year frequency.

Note: Hydraulic data only valid if overtopping section is maintained. Alteration of the overflow section will require re-analysis of the hydraulics at this site to determine its effect on public safety.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
	Incidental Work, Structure	L.S.	L.S.
∢	Structure Excavation, Box Culvert	Cu. Yd.	104
	Box Culvert Undercut	Cu. Yd.	339
	Controlled Density Fill	Cu. Yd.	30.9
	12'x12' Precast Concrete Box Culvert, Furnish	Ft.	48.0
	12'x12' Precast Concrete Box Culvert, Install	Ft.	48.0
	12'x12' Precast Concrete Box Culvert End Section, Furnish	Each	2
	12'x12' Precast Concrete Box Culvert End Section, Install	Each	2
	2-12'x12' Precast Concrete Box Culvert, Furnish	Ft.	48.0
	2-12'x12' Precast Concrete Box Culvert, Install	Ft.	48.0
	2-12'x12' Precast Concrete Box Culvert End Section, Furnish	Each	2
	2-12'x12' Precast Concrete Box Culvert End Section, Install	Each	2
#	Class B Riprap	Ton	79.0
	Type B Drainage Fabric	Sq. Yd.	693
	Reinforcement Fabric (MSE)	Sq. Yd.	492

∢ Quantity is based on 9" bottom slab, 9" top slab and 8" walls.

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

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
4/17/25
SOUTH DAKOTA

GENERAL DRAWING AND QUANTITIES

FOR

3 - 12' X 12' BOX CULVERT (PRECAST)

OVER PINE CREEK — 5° SKEW LHF
STA. 10+05.00 — SEC. 01&02-T41N-R30W
STR. NO. 48-200-218 — BRO-B 8048(05)
PCN 09A6 — HL-93

MELLETTE COUNTY

S. D. DEPT. OF TRANSPORTATION

- X028 - APRIL 2025 — 1 OF 5

Plans By:
Brosz Engineering, Inc.
Consulting Engineers

DESIGNED BY	CK. DES. BY	DRAFTED BY	
SDD	DJH	ZBW	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	18	37

FOR BIDDING PURPOSES ONLY

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.*

INCIDENTAL WORK, STRUCTURE

1. *The in-place structure is a Single Span Non-Typical Steel Member Bridge with Steel Deck with Reinforced Concrete Footings and Timber Substructure. The Contractor will remove and dispose of the in-place structure. The abutments will be removed 1' below the bottom of the undercut.*
2. *The foregoing is a general description of the in-place structure and should not be considered complete in all details. Before preparing a bid, it is the Contractor's responsibility to make a visual inspection of the structure to verify the extent of work and materials involved.*
3. *All costs associated with the aforementioned work will be incidental to the contract lump sum price for "Incidental work, Structure".*

GENERAL NOTES

Design shall be in accordance with Section 560 of the Specifications, with the following criteria:

1. *Box culvert and box culvert end section design will conform to the AASHTO LRFD Bridge Design Specifications, 9th Edition.*
2. *Design Live Load: HL-93. No construction loading in excess of legal load is anticipated. If construction loading in excess of legal load is anticipated by the Contractor, the Contractor will submit a proposal including a design analysis for the anticipated construction loading, through the proper channels, to Brosz Engineering for approval. Upon approval, the construction load will not be applied until the depth of fill over the box culvert as required by analysis has been placed. At a minimum, 4 feet of fill will be placed over the box culvert prior to applying the construction load. All costs associated with accommodating any construction loads will be borne by the Contractor.*
3. *The box culvert will be load rated in accordance with the AASHTO Manual for Bridge Evaluation, 2018 Edition with latest Interim Revisions using the LRFR method. The rating will include evaluation of the Design HL-93 truck at both Inventory and Operating levels and a Legal Load rating for the three SD legal trucks (Type 3, 3S2, and 3-2) as well as the notional rating load and four specialized hauling vehicles. The structure will also be evaluated for the emergency vehicles, EV2 and EV3, at the legal load rating level. All sections of the box culvert will rate at HL-93 or better (Inventory Level). The three SD Legal Loads, the notional rating load, the four specialized hauling vehicles, and two emergency vehicles will rate greater than 1.0 at legal load rating level. AASHTOWare Bridge Rating (BrR) is required to be used to rate the box culvert. Include the BrR rating model and a load rating summary table with load rating calculations. Submit load rating calculations with the design and independent check design calculations or shop plans, as appropriate. The Consultant will submit the load rating to the LGA office.*
4. *The design of the barrel sections will be based on a minimum fill height of 0 feet and include all subsequent fill heights up to and including the maximum fill height of 5 feet over the box culvert.*
5. *Minimum inside corner fillet will be 6-inch.*
6. *Typical precast barrel section length will be 6-foot sections; however, no more than two 4-foot sections are allowed in any one length of precast barrel.*
7. *Lift holes will be plugged with an approved non-shrinkable grout.*
8. *The fabricator will imprint on the structure the date of construction as specified and detailed on Standard Plate 460.02.*
9. *Alternate end section details will be allowed, subject to the approval of the Bridge Construction Engineer. No additional payment will be made for any change in the barrel/end section configuration.*
10. *Installation of the precast sections will be in accordance with the final approved shop plans.*
11. *Care will be taken when placing sections. Sections will be only moved using the lifting holes by approved equipment.*
12. *Compaction of earth embankment and box culvert backfill material will be governed by the Ordinary Compaction method.*
13. *Adjust cutoff wall shown on Standard Plates 560.11 and 560.21 to extend the full width of the end sections (out to out) plus the 9 inch spacing.*
14. *Dewatering will be required to construct the box culvert.*
15. *Soils below the bottom of the proposed RCBC, the material north of the channel consists of gray silt clay (Pierre Shale), and the material south of the channel consists of soft brown sandy silt (Floodplain Alluvium).*
16. *Groundwater was encountered in the borings at an elevation of 2054.7 feet during the subsurface investigation conducted in November 2021.*

REINFORCEMENT FABRIC (MSE)

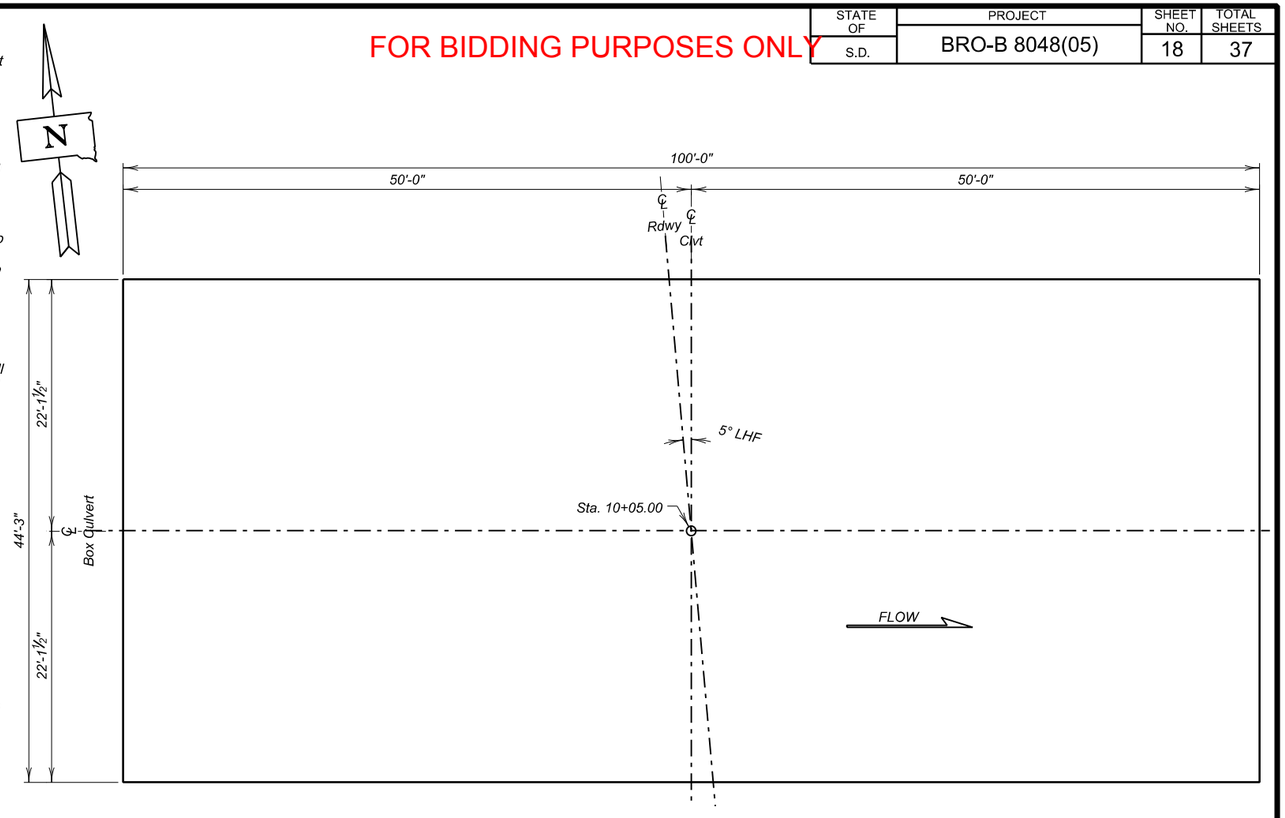
1. *A layer of Reinforcement Fabric (MSE) will be placed at the bottom of the undercut prior to backfilling with granular material.*
2. *Reinforcement Fabric (MSE) will conform to Section 831. The Reinforcement Fabric (MSE) provided will be on the Approved Products List or will be certified by the supplier to meet this specification prior to installation.*
3. *Reinforcement Fabric (MSE) will be paid for at the contract price per sq. yd. for Reinforcement Fabric (MSE). Payment will be full compensation for furnishing and installing the Reinforcement Fabric (MSE) only. Granular backfill materials will be paid for as part of the Box Culvert Undercut bid item.*
4. *Place the Reinforcement Fabric (MSE) on as level and smooth of a surface as possible. Any protrusions that might damage the geotextile will be removed prior to placing the geotextile. All seams in the geotextile will be stitched in accordance with the seaming procedure and as shown on the detail labeled "Seam Types". No equipment will be allowed on the geotextile until the granular backfill material is in place. The geotextile will be kept as taut as possible prior to backfilling. Granular backfill material will be dumped behind the leading edge of the fill and pushed into place with a loader or dozer.*
5. *The sewn seams will consist of two parallel rows of stitching ("prayer" seam, Type SSa-2), or a J-seam (Type SSN-1) using a single row of stitching. The stitching will be a lock type stitch. If the Type SSa-2 seam is used, the two rows of stitching will be 1" apart with a tolerance of plus or minus 0.5" and will not cross, except for restitching. The minimum seam allowance, i.e., minimum distance from the geotextile edge to the stitch line nearest to that edge, will be 1.5". If the J seam (Type SSn-1) is used, the minimum seam allowance will be 1". The seam, stitch type, and the equipment used to perform the stitching will be as recommended by the geotextile manufacturer and approved by the Engineer. The seams will be sewn in such a manner that the seam can be readily inspected by the Engineer. The thread used will be high-strength polypropylene, polyester, or Kevlar thread. Nylon threads will not be allowed.*

DESIGN MIX OF CONCRETE

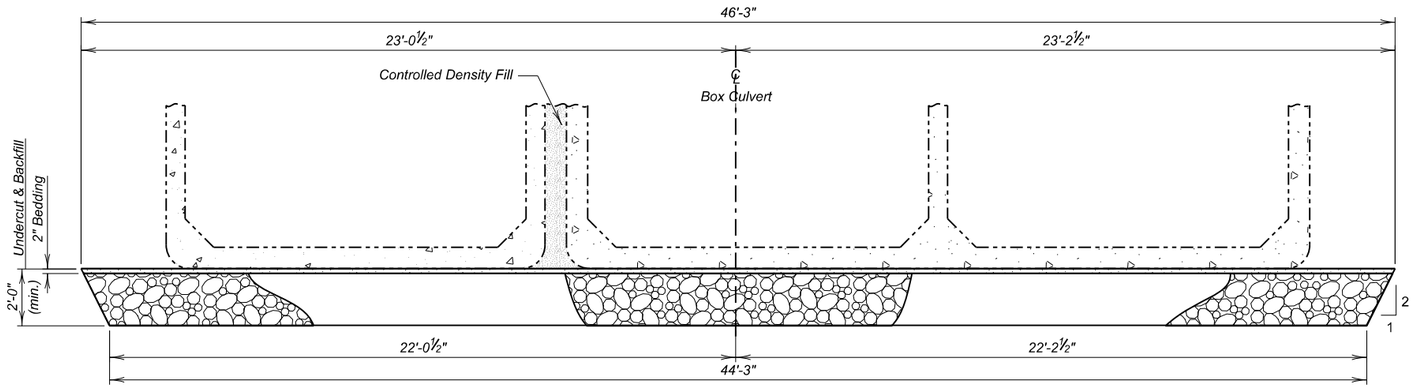
1. *Mix will be as per fabricator's design; however, a minimum compressive strength will not be less than 4,500 psi at 28 days.*
2. *Type II cement is required.*

SHOP PLANS

The fabricator will submit shop plans in accordance with the Construction Specifications to Brosz Engineering, Inc., 2309 W. 50th street, Sioux Falls, SD 57105 (donh@broszengineering.com). After review and corrections (if necessary), Brosz Engineering will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.



UNDERCUT LAYOUT
(Bottom Dimensions)



TYPICAL SECTION
(For Limits of Undercut)

GEOTEXTILE SEAM TYPES

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
℄ Box Culvert Undercut	Cu. Yd.	339

℄ *For payment, quantity is based on plan shown undercut dimensions and will not be measured unless the Engineer orders a change.*

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
4/17/25

NOTES AND UNDERCUT DETAILS
FOR
3 - 12' X 12' BOX CULVERT (PRECAST)

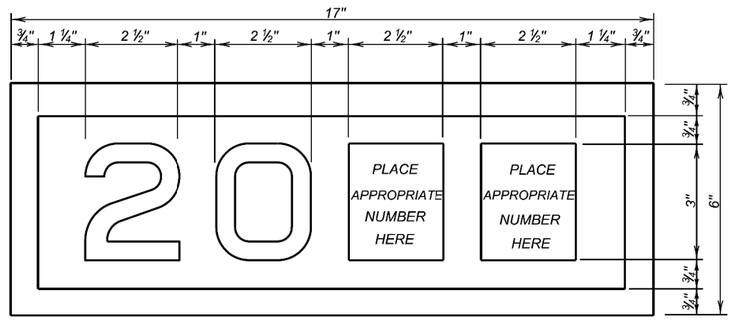
Over Pine Creek — 5° SKEW LHF
STA. 10+05.00 — SEC. 01&02-T41N-R30W
STR. NO. 48-200-218 — BRO-B 8048(05)
PCN 09A6 — HL-93

MELLETTE COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
SDD	DJH	ZBW	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

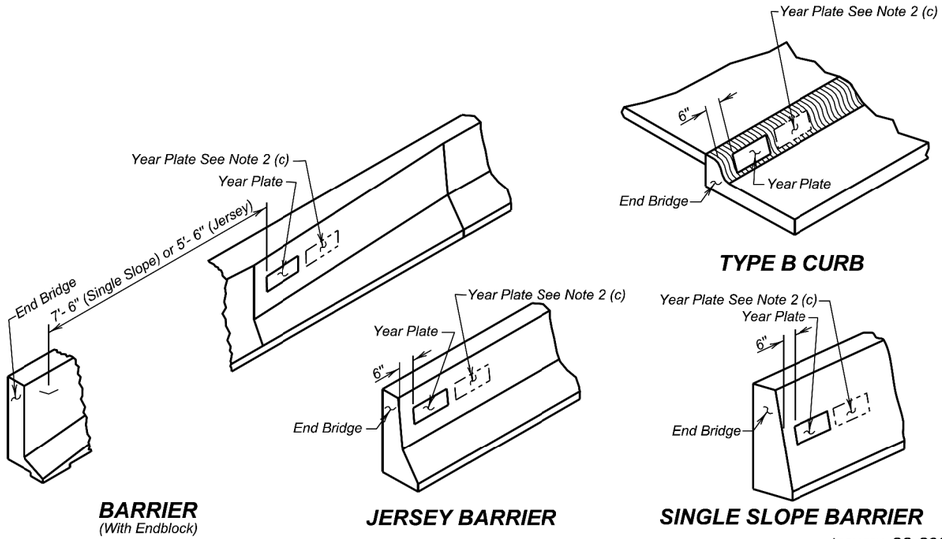
Revised 6-26-25



YEAR PLATE DETAILS

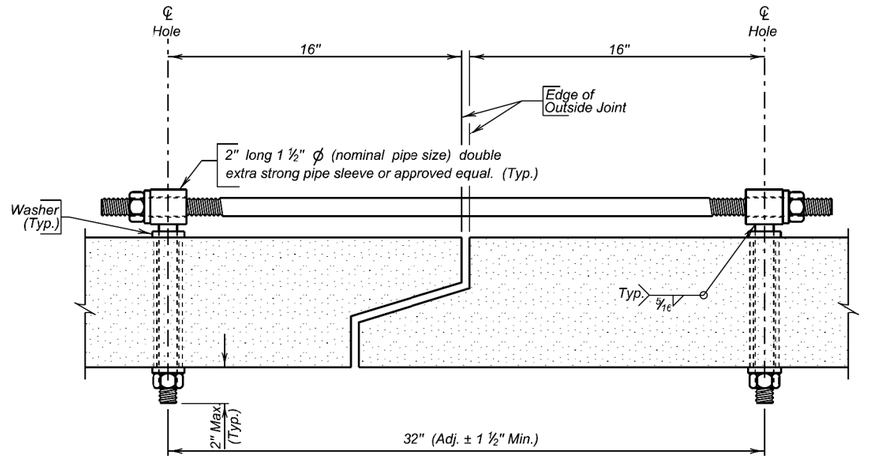
GENERAL NOTES:

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.



January 22, 2021

Published Date: 2026	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



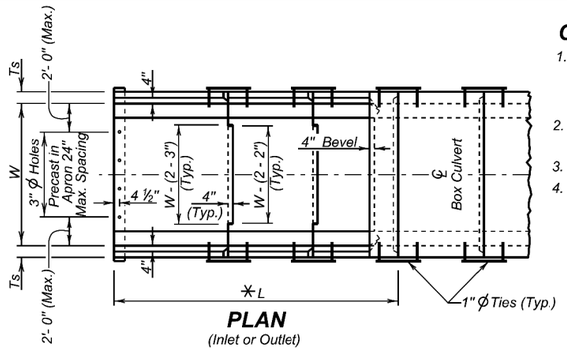
TIE BOLT ASSEMBLY

GENERAL NOTES:

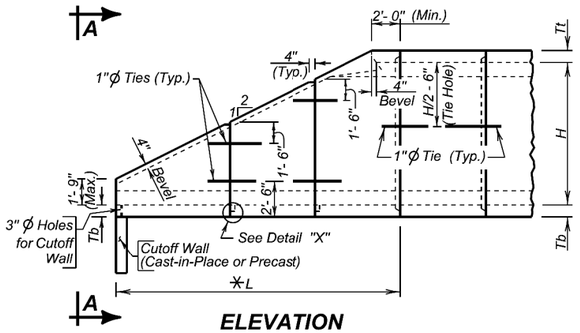
1. All holes for tie bolts shall be cast-in-place,16 inches from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.
2. Ties shall be 1 inch ϕ and conform to the requirements of ASTM A36, ASTM A307, or ASTM F1554, Gr. 36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.
3. Welding and weld inspection shall be in conformance with AWS/ANSI D1.1 - (Current Year) Structural Welding Code - Steel.
4. Tie Bolt Assembly shall be galvanized in accordance with ASTM A153 or ASTM F2329 as applicable.
5. Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.
6. All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per Foot for "Precast Concrete Box Culvert, Furnish".

March 21, 2016

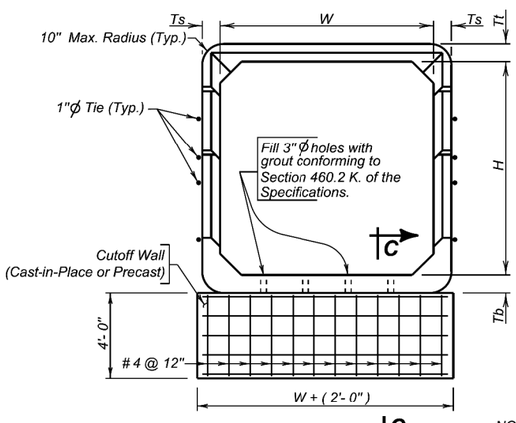
Published Date: 2026	SDDOT	PRECAST BOX CULVERT TIE BOLT ASSEMBLY DETAILS	PLATE NUMBER 560.01
			Sheet 1 of 1



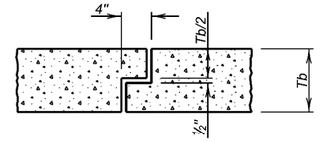
PLAN
(Inlet or Outlet)



ELEVATION
(Inlet or Outlet)

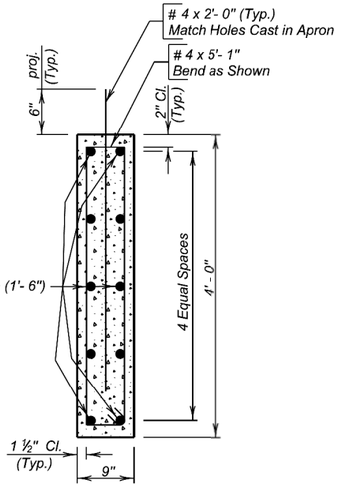


VIEW A - A



DETAIL " X "

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



SEC. C - C

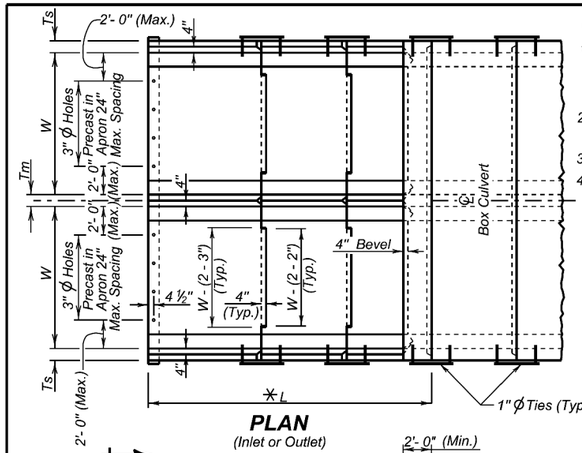
LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
L = Length of End Section

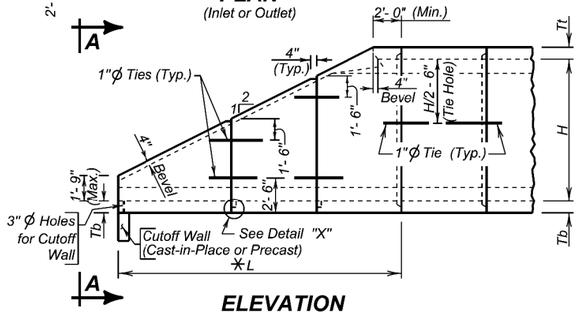
NOTES:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, L, and Ts dimensions shall be furnished by the Contractor.
⚹ Length and number of units may vary from that shown.

June 26, 2015

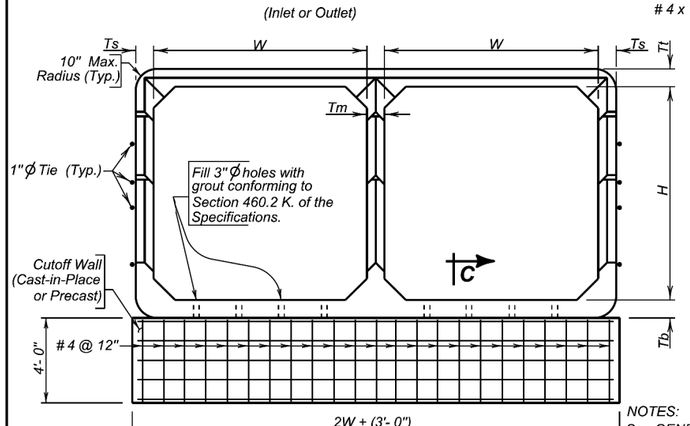
Published Date: 2026	SDDOT	PRECAST SINGLE BOX CULVERT SLOPED END SECTION DETAILS WITH 4'–0" CUTOFF WALL	PLATE NUMBER 560.11
			Sheet 1 of 1



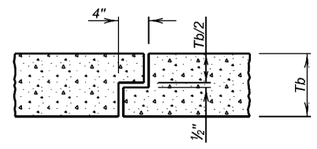
PLAN
(Inlet or Outlet)



ELEVATION
(Inlet or Outlet)

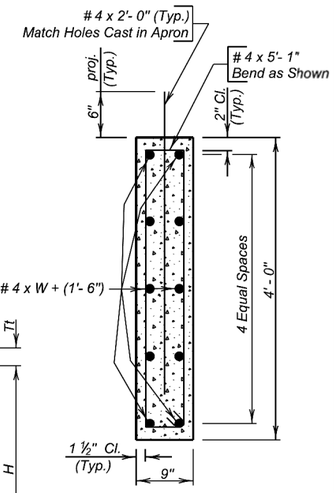


VIEW A - A



DETAIL " X "

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



SEC. C - C

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
Tm = Thickness of Middle Wall
L = Length of End Section

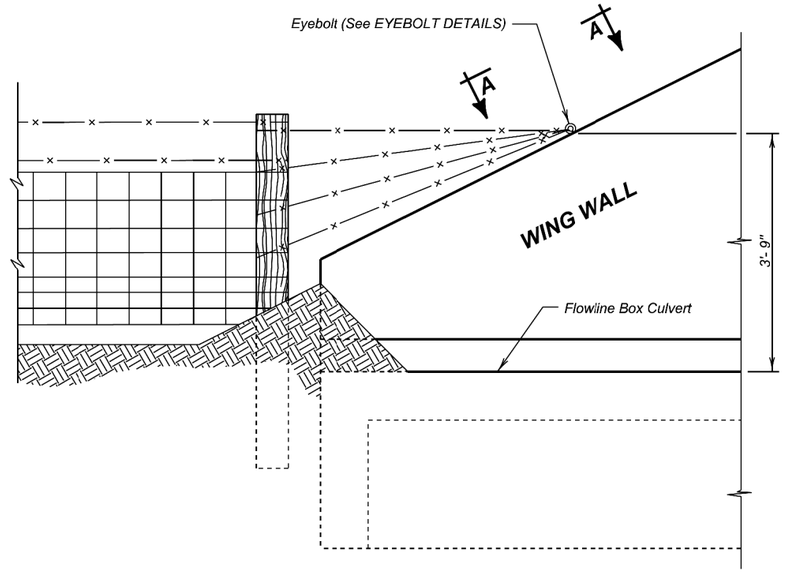
NOTES:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, Tm, L, and Ts dimensions shall be furnished by the Contractor.
⚹ Length and number of units may vary from that shown.

June 26, 2015

Published Date: 2026	SDDOT	PRECAST DOUBLE BOX CULVERT SLOPED END SECTION DETAILS WITH 4'–0" CUTOFF WALL	PLATE NUMBER 560.21
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

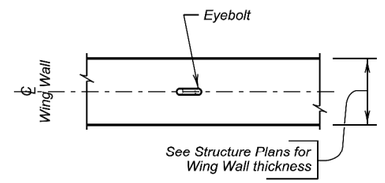
Revised 6-26-25



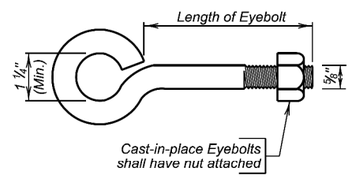
DETAIL FOR FENCE ANCHORS

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 box culvert wing walls.
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.



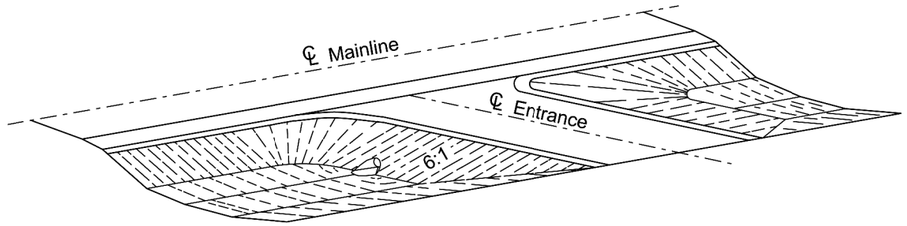
VIEW A - A



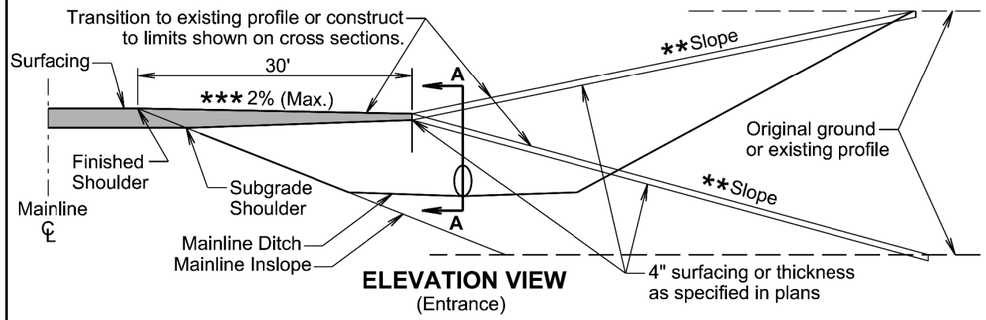
EYEBOLT DETAILS

December 23,2012

Published Date: 2026	SDDOT	FENCE ANCHORS FOR BOX CULVERT WING WALLS	PLATE NUMBER 620.16
			Sheet 1 of 1



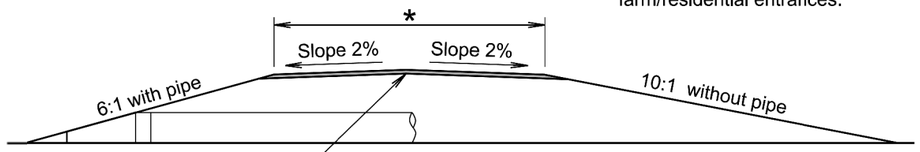
PERSPECTIVE OF ENTRANCE



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.

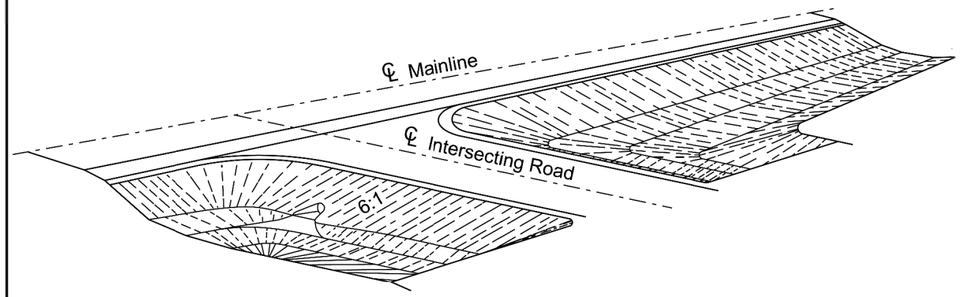
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

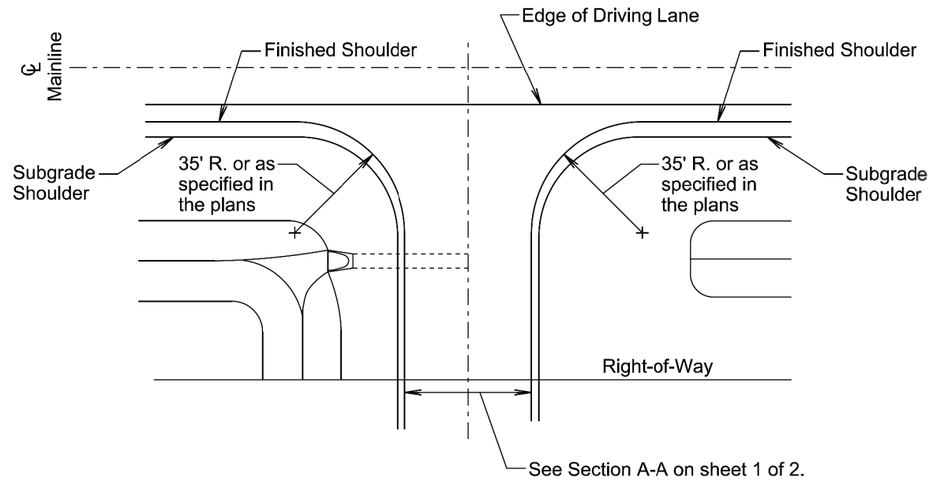
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



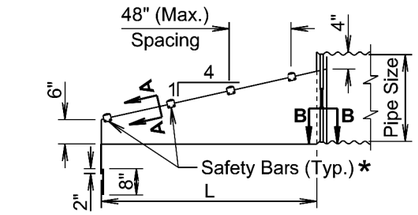
PLAN VIEW

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.

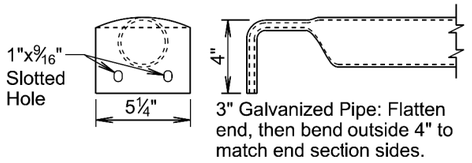
November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

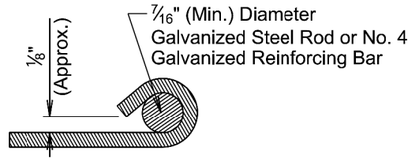


* Number of bars required will vary depending on the length of the end section.

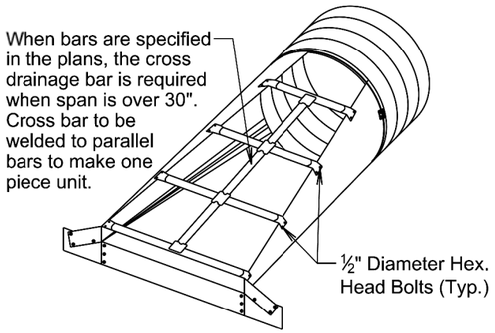
ELEVATION VIEW



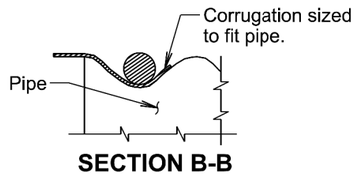
DETAIL OF SAFETY BARS



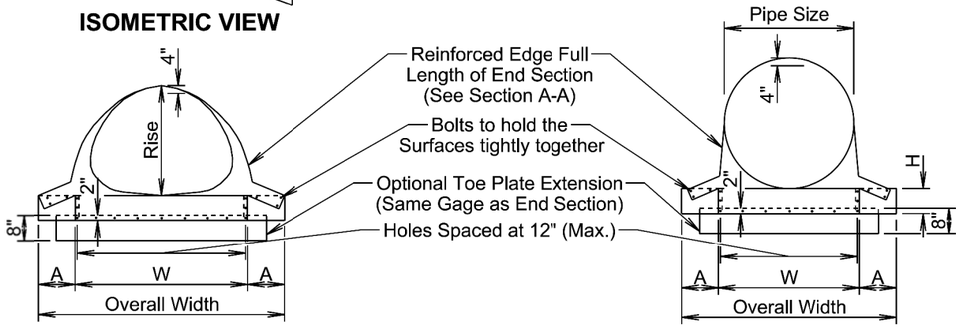
SECTION A-A



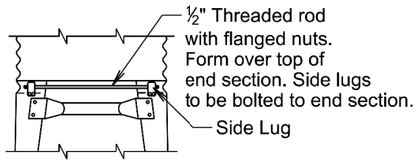
ISOMETRIC VIEW



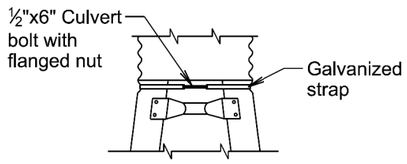
SECTION B-B



FRONT VIEW **FRONT VIEW**



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21"x15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 1 of 2

ARCH C.M.P. SLOPED ENDS

Equiv. Dia. (Inch)	(Inches) Span	Rise	(Min.) Thick. Inch	Gage	Dimensions (Inches) A	H	W	L Dimensions Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	4:1	20
21	24	18	.064	16	8	6	30	46	4:1	32
24	28	20	.064	16	8	6	34	50	4:1	40
30	35	24	.079	14	12	9	41	65	4:1	56
36	42	29	.109	12	12	9	48	72	4:1	76
42	49	33	.109	12	16	12	55	87	4:1	92
48	57	38	.109	12	16	12	63	95	4:1	112
54	64	43	.109	12	16	12	70	102	4:1	132
60	71	47	.109	12	16	12	77	109	4:1	148
72	83	57	.109	12	16	12	89	121	4:1	188

CIRCULAR C.M.P. SLOPED ENDS

Pipe Dia. (Inch)	(Min.) Thick. Inch	Gage	Dimensions (Inches) A	H	W	L Dimensions Overall Width	Slope	Length (Inch)
15	.064	16	8	6	21	37	4:1	20
18	.064	16	8	6	24	40	4:1	32
21	.064	16	8	6	27	43	4:1	44
24	.064	16	8	6	30	46	4:1	56
30	.109	12	12	9	36	60	4:1	80
36	.109	12	12	9	42	66	4:1	104
42	.109	12	16	12	48	80	4:1	128
48	.109	12	16	12	54	86	4:1	152
54	.109	12	16	12	60	92	4:1	176
60	.109	12	16	12	66	98	4:1	200

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Sloped ends will be fabricated from galvanized steel and will conform to the requirements of the Specifications.

Safety bars will be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5x.216 in conformance with ASTM A500, grade B or C.

Slotted holes for safety bar attachment will be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter will be made with Type #1 straps. All other sizes will be attached with Type #2 rods and lugs.

When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

Cost of all work and materials required for fabrication and installation of sloped ends will be incidental to the bid items for the various sizes of sloped ends.

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 2 of 2

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

Flagger

Channelizing Device

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

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

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

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

The channelizing devices will be drums or 42" cones.

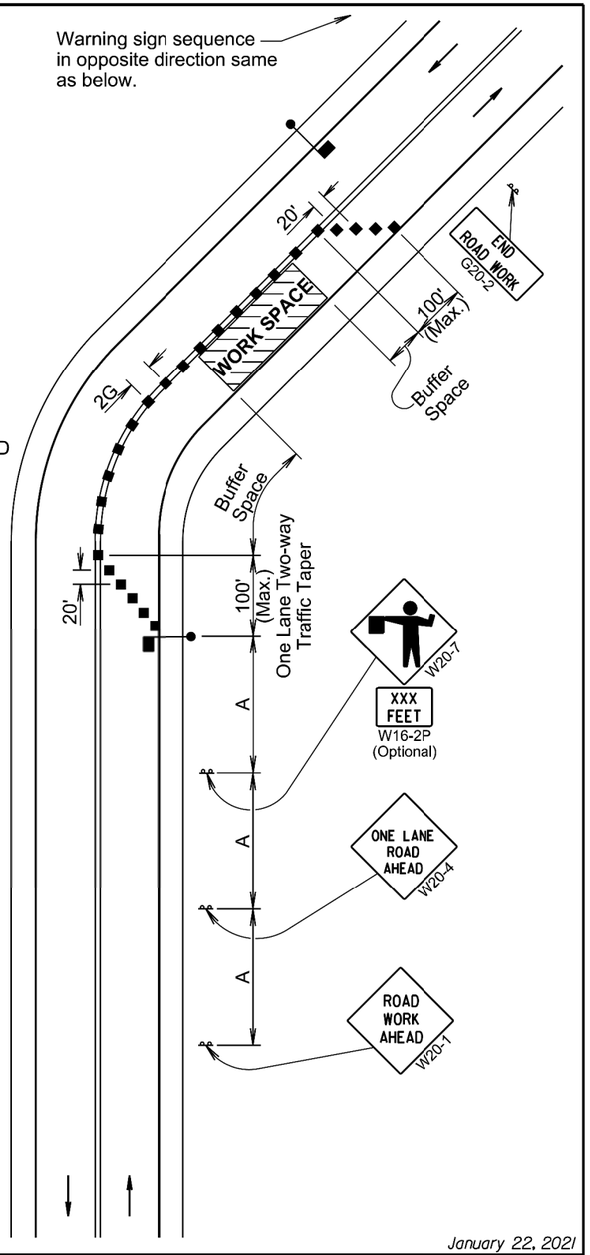
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

END ROAD WORK G20-2

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

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

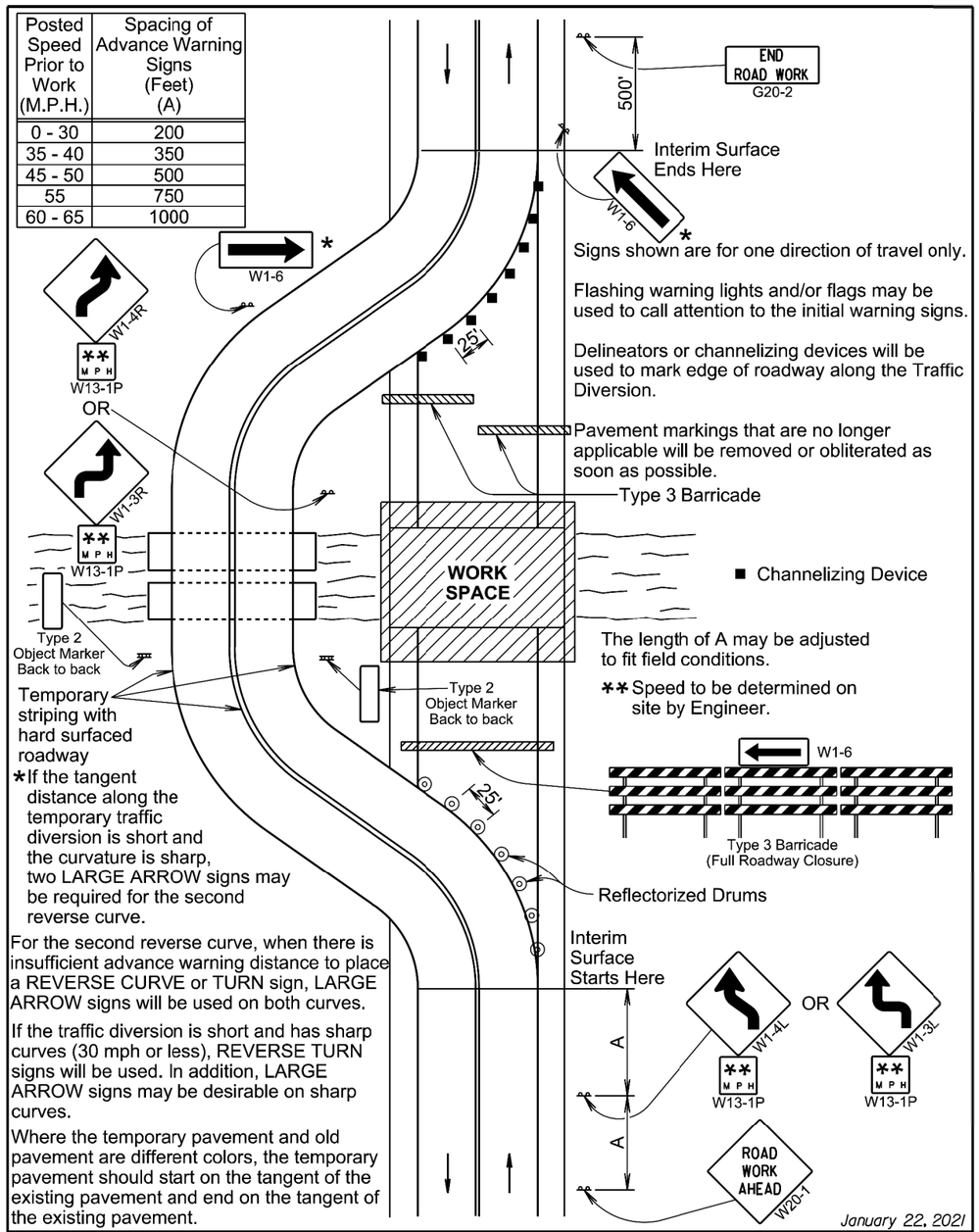
The length of A may be adjusted to fit field conditions.



January 22, 2021

Published Date: 2026	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

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



Signs shown are for one direction of travel only.

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

Delineators or channelizing devices will be used to mark edge of roadway along the Traffic Diversion.

Pavement markings that are no longer applicable will be removed or obliterated as soon as possible.

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

** Speed to be determined on site by Engineer.

Temporary striping with hard surfaced roadway

* If the tangent distance along the temporary traffic diversion is short and the curvature is sharp, two LARGE ARROW signs may be required for the second reverse curve.

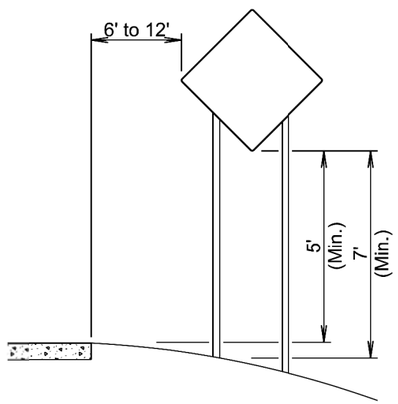
For the second reverse curve, when there is insufficient advance warning distance to place a REVERSE CURVE or TURN sign, LARGE ARROW signs will be used on both curves.

If the traffic diversion is short and has sharp curves (30 mph or less), REVERSE TURN signs will be used. In addition, LARGE ARROW signs may be desirable on sharp curves.

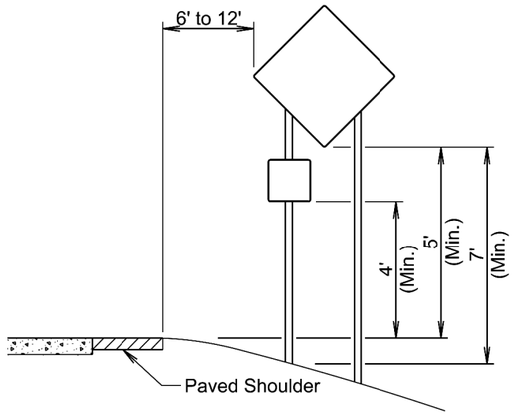
Where the temporary pavement and old pavement are different colors, the temporary pavement should start on the tangent of the existing pavement and end on the tangent of the existing pavement.

January 22, 2021

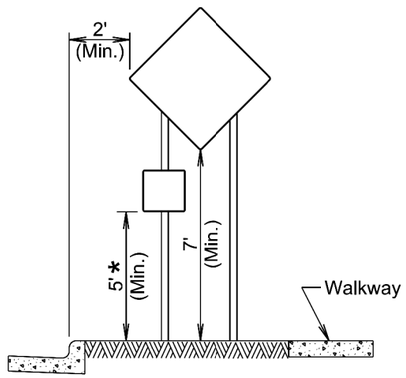
Published Date: 2026	SDDOT	ROAD CLOSED WITH TRAFFIC DIVERTED	PLATE NUMBER 634.28
			Sheet 1 of 1



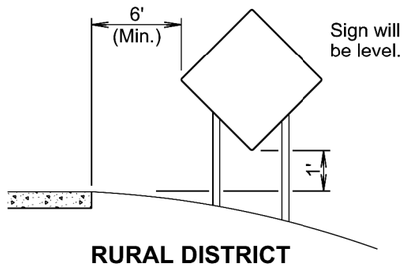
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

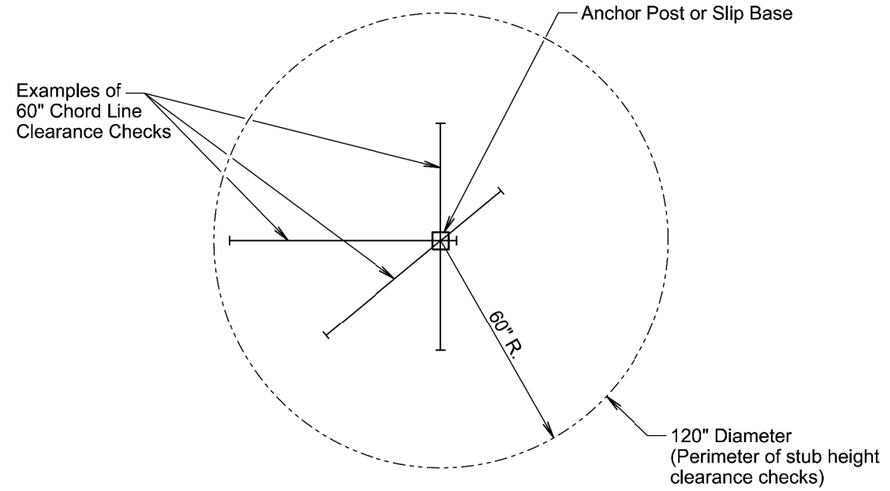


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

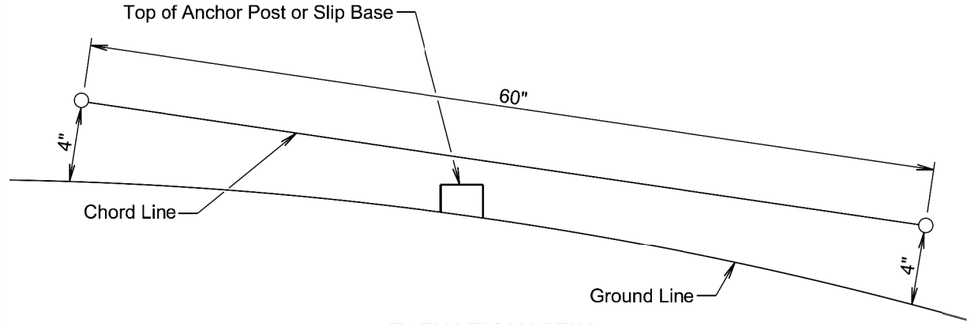
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2026	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:

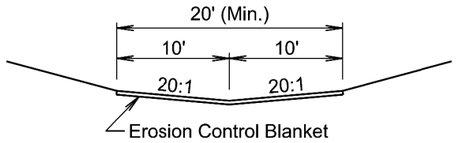
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

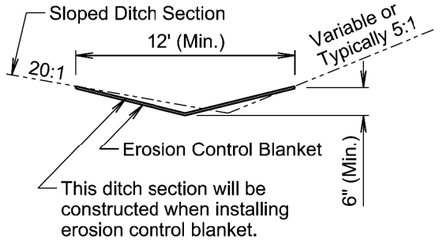
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

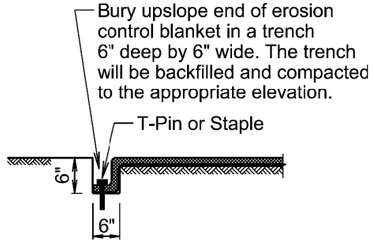
Published Date: 2026	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



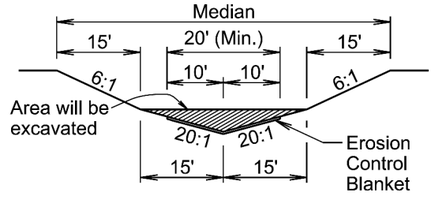
STANDARD DITCH SECTION



SLOPED DITCH SECTION

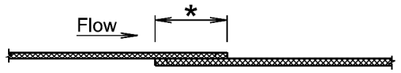


TRENCH DETAIL



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

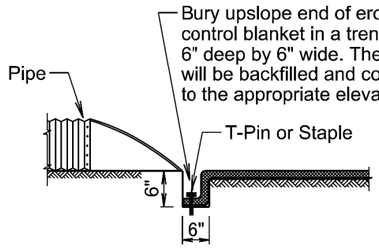
MEDIAN SECTION



* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas will be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket will be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket will be buried in a trench 6" wide by 6" deep. There will be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

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

After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

February 14, 2020

Published Date: 2026	SDDOT	*EROSION CONTROL BLANKET*	*PLATE NUMBER 734.01* *Sheet 1 of 1*

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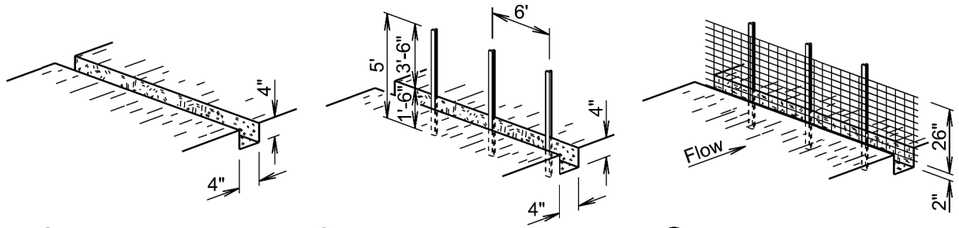
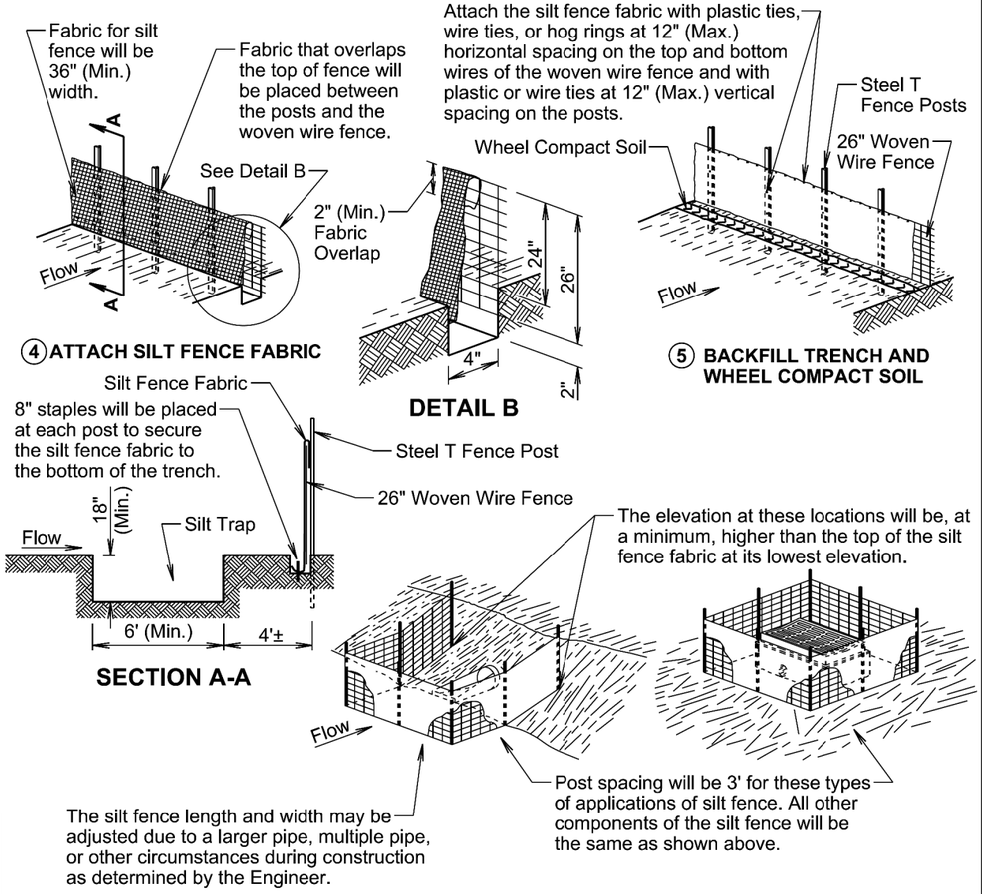
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	27	37

Revised 6-26-25

MANUAL LOW FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH ② DRIVE STEEL T FENCE POSTS ③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



④ ATTACH SILT FENCE FABRIC

DETAIL B

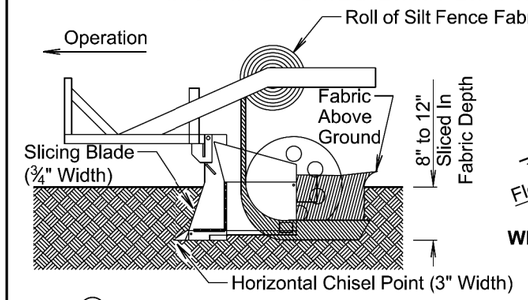
SECTION A-A

⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL

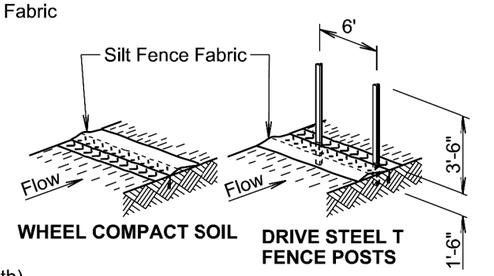
February 14, 2020

Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



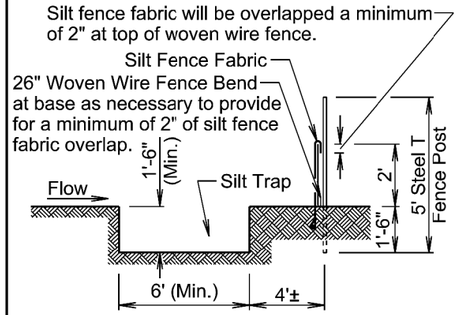
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



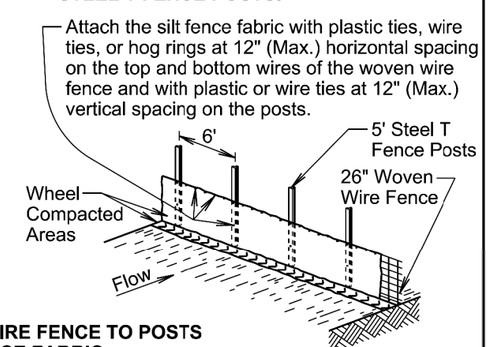
② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

WHEEL COMPACT SOIL

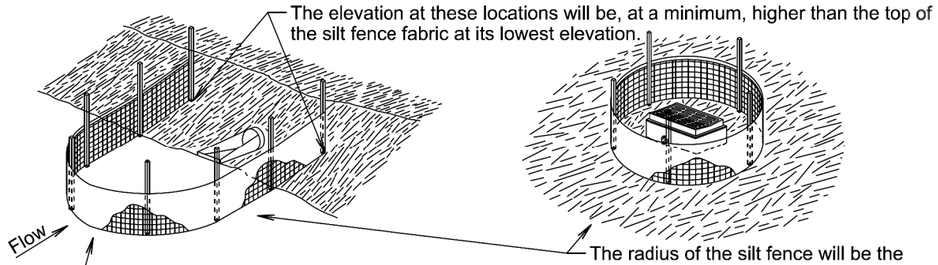
DRIVE STEEL T FENCE POSTS



Silt fence fabric will be overlapped a minimum of 2" at top of woven wire fence.



③ ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



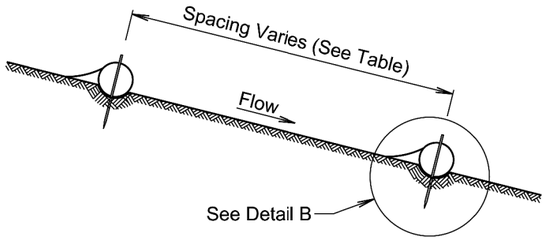
GENERAL NOTES:

A silt trap will be provided when specified by a plan note. All costs for constructing the silt trap will be incidental to the contract unit price per cubic yard for "Silt Trap".

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.

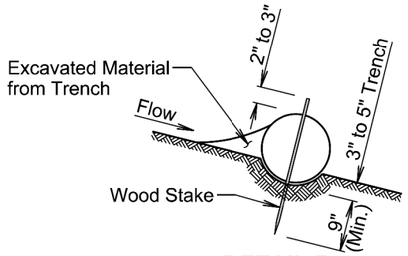
February 14, 2020

Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 2 of 2

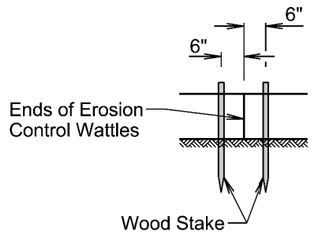


ELEVATION VIEW
(Cut or Fill Slope Installation)

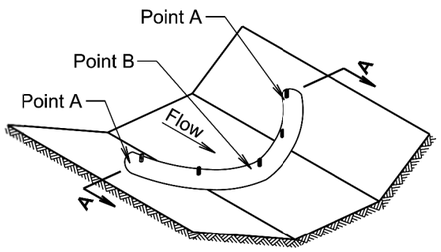
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



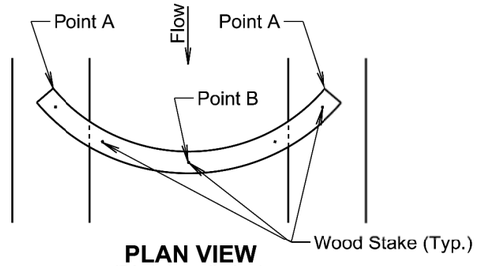
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

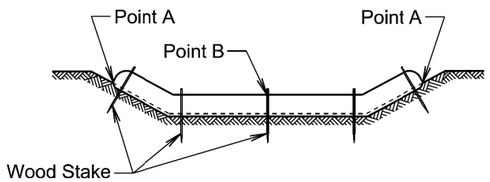


ISOMETRIC VIEW
(Ditch Installation)



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: 2026	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".

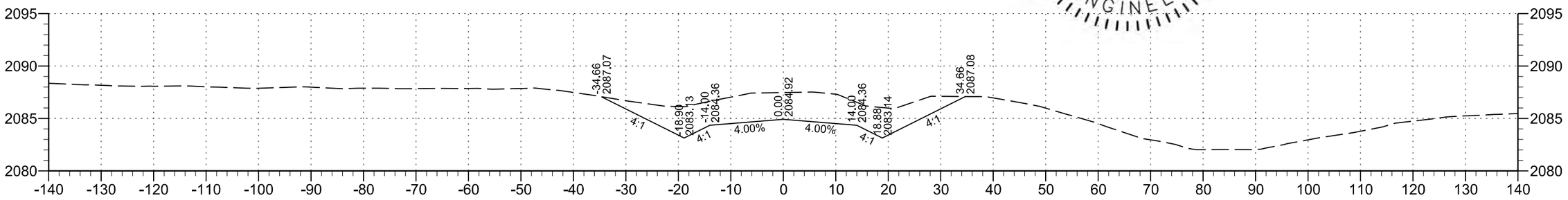
February 14, 2020

Published Date: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	29	37

FOR BIDDING PURPOSES ONLY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
4/17/25
SOUTH DAKOTA



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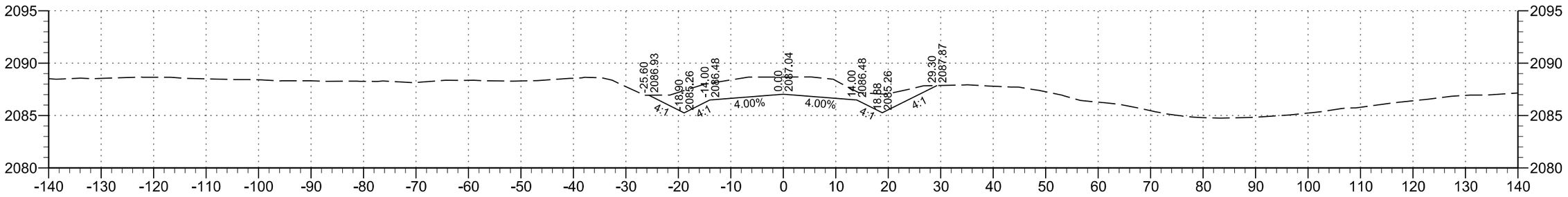

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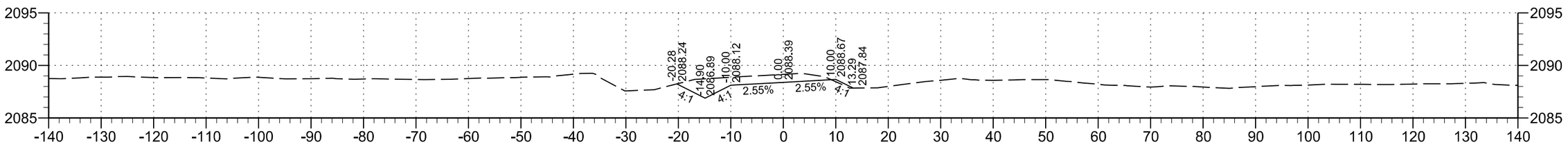

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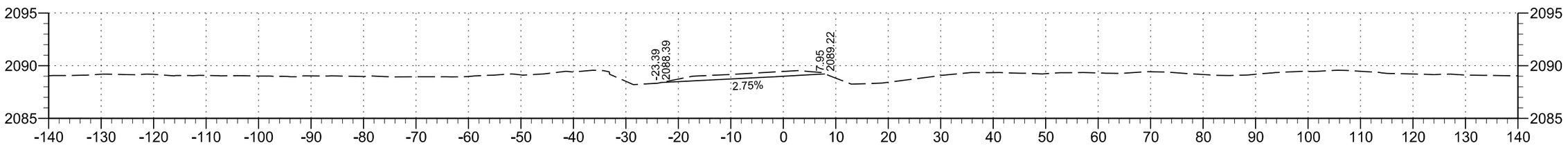

1+50

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	30	37

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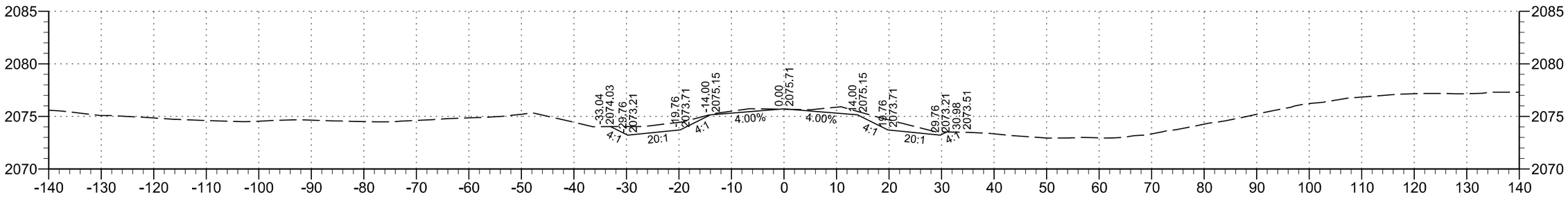
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
4/17/25



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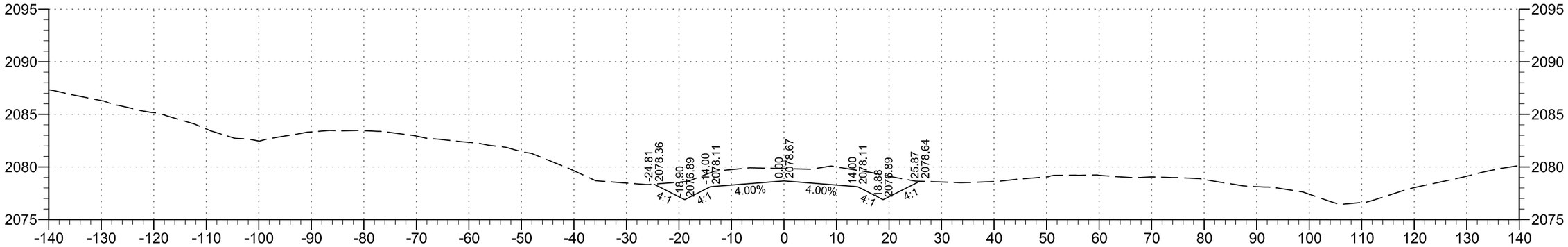

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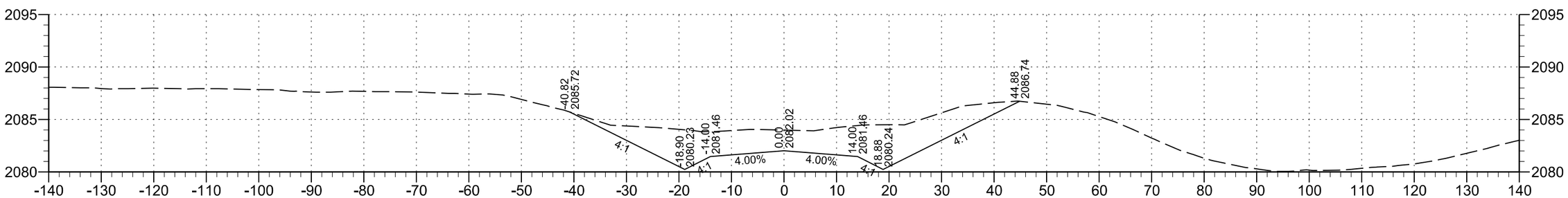

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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	31	37

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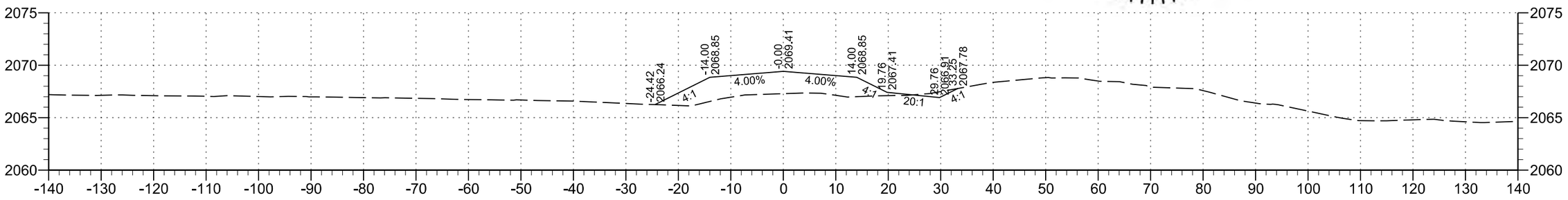
REG. NO. 8026
DONALD J. HAMMOND
4/17/25
SOUTH DAKOTA



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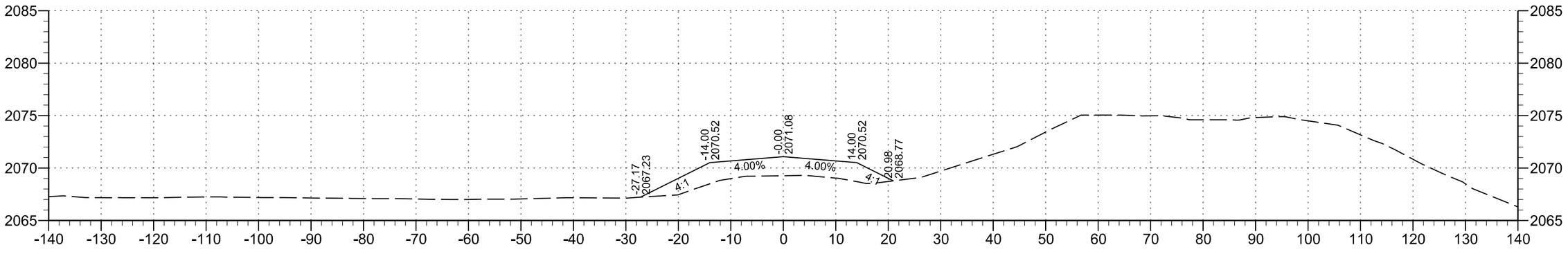

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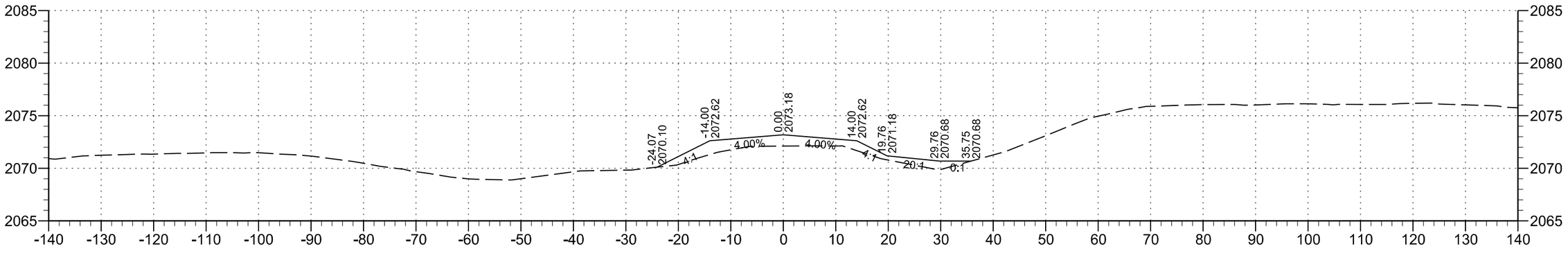

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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	32	37

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SOUTH DAKOTA
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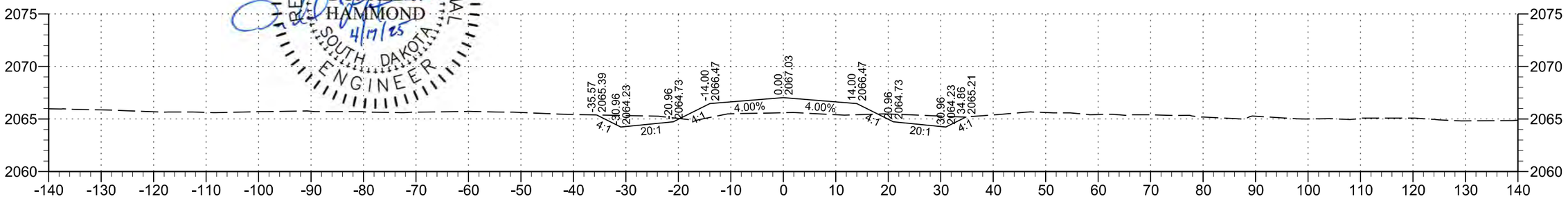

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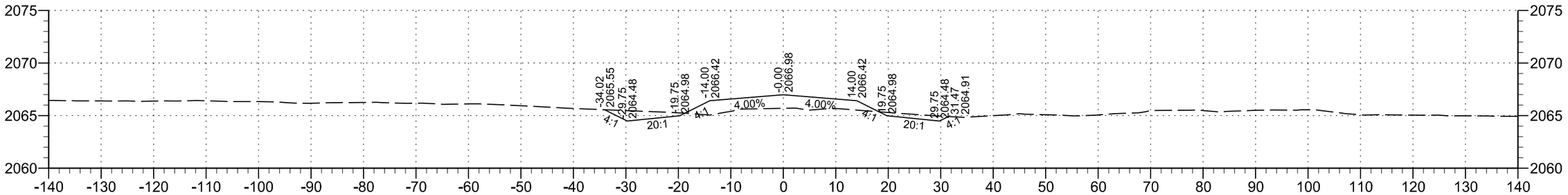

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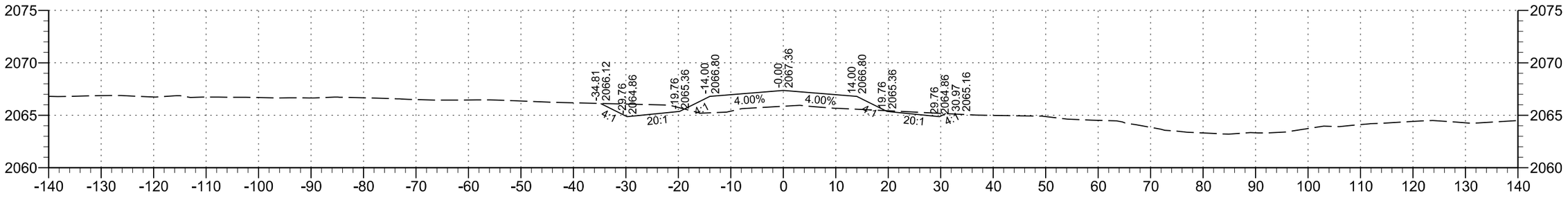

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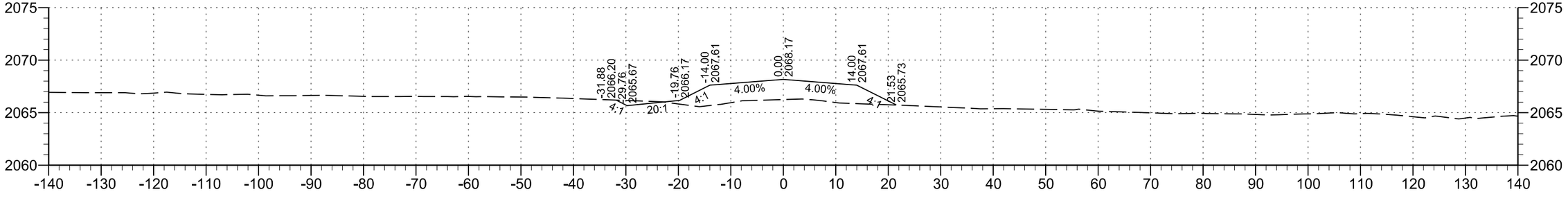

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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	33	37

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REGISTERED PROFESSIONAL ENGINEER
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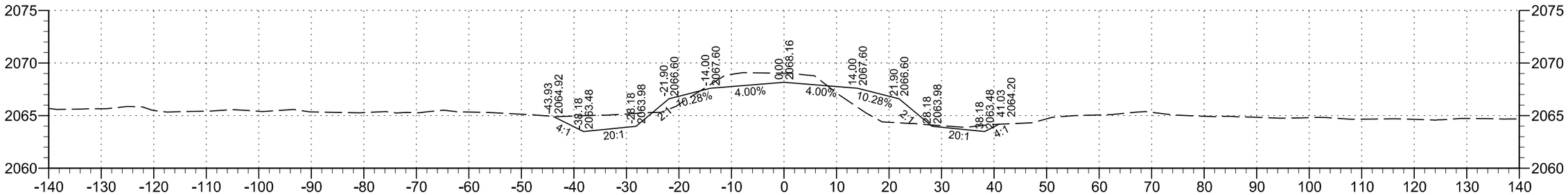
DONALD J. HAMMOND
SOUTH DAKOTA
4/7/25



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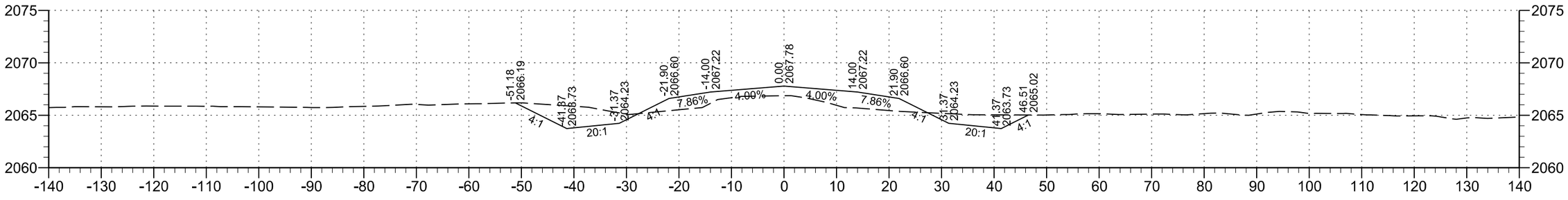

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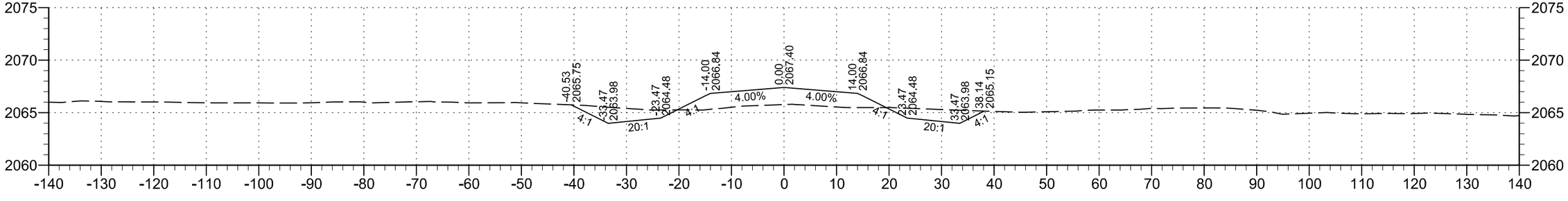

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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	34	37

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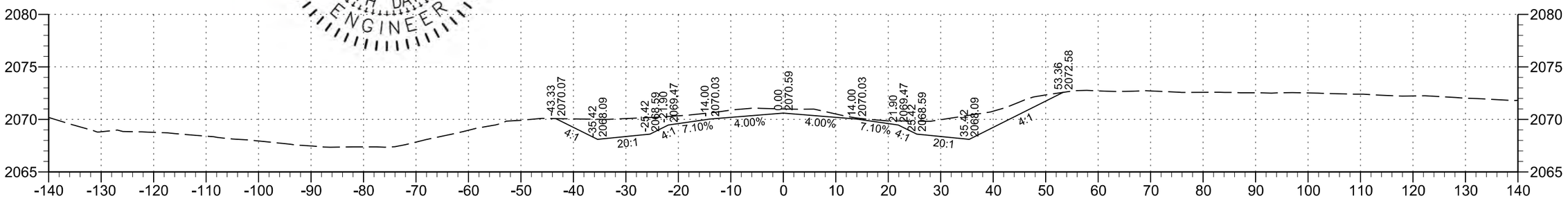
REG. NO.
8026
DONALD J.
HAMMOND
SOUTH DAKOTA
4/17/25



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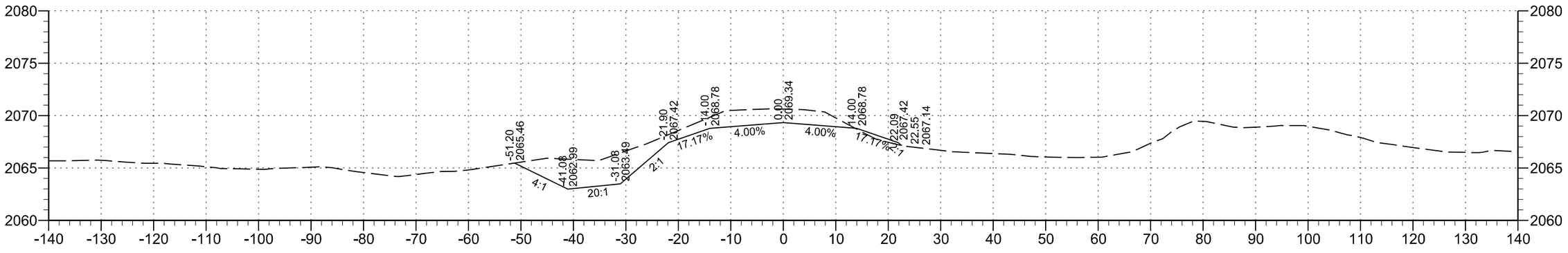

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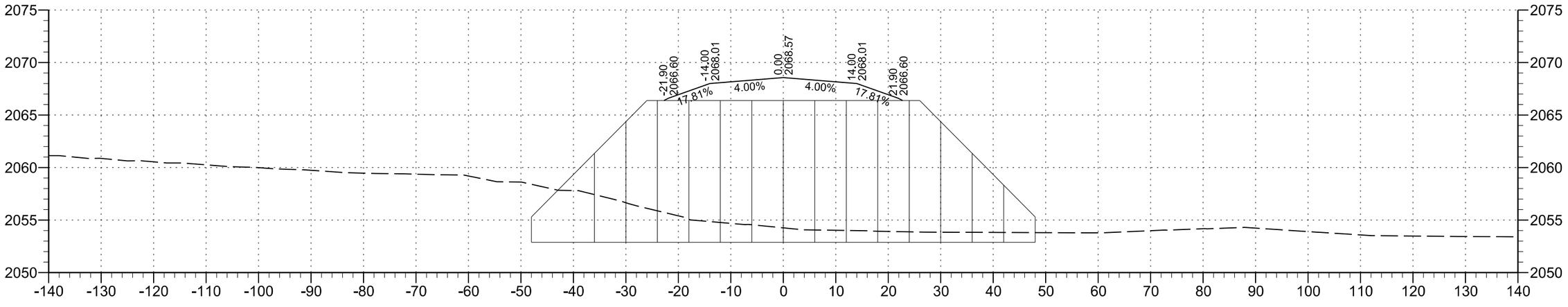

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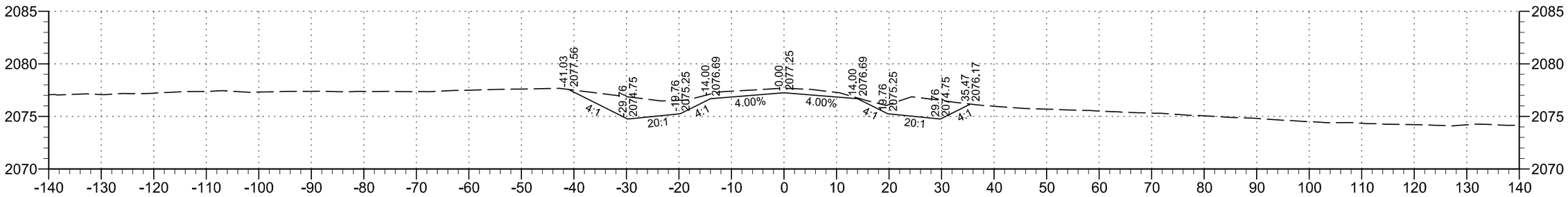
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	35	37

FOR BIDDING PURPOSES ONLY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
4/17/25



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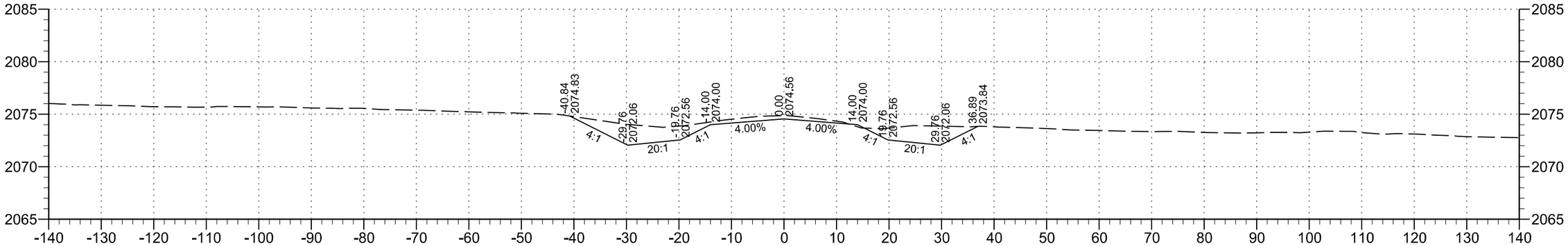

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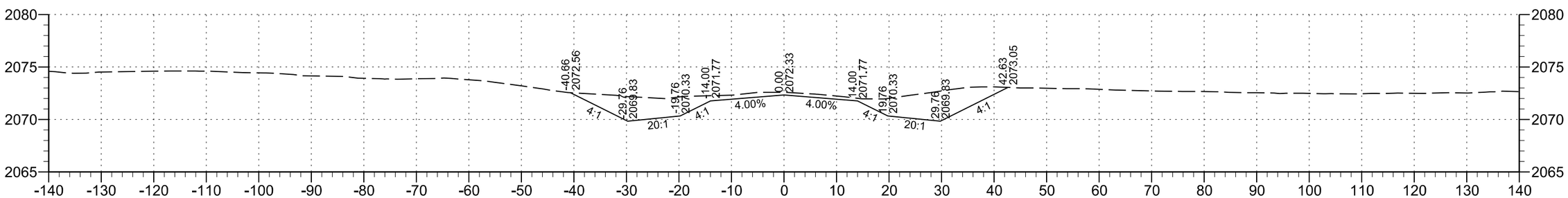

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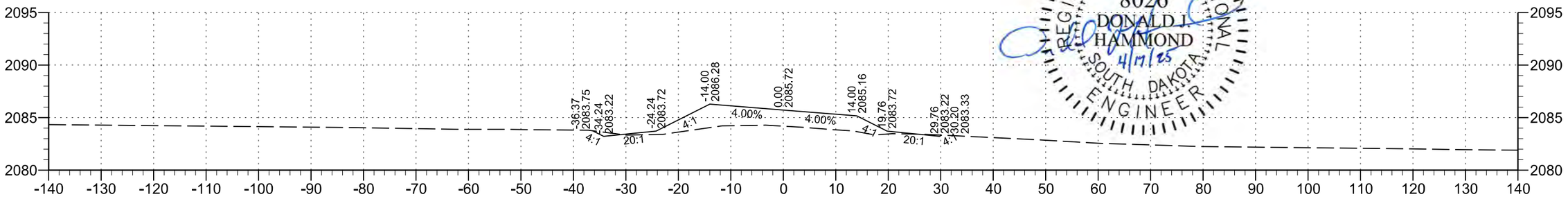
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	36	37

FOR BIDDING PURPOSES ONLY

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8026
DONALD J. HAMMOND
SOUTH DAKOTA
4/17/25



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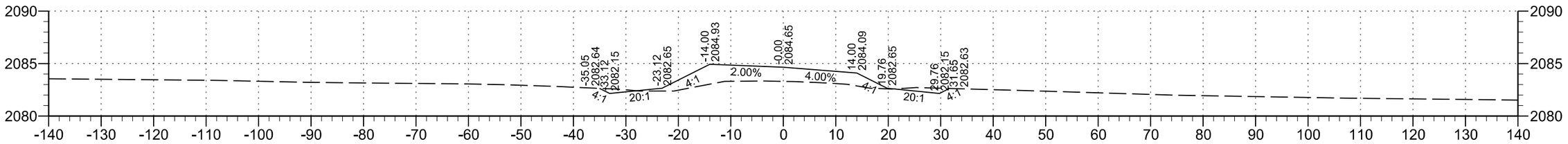

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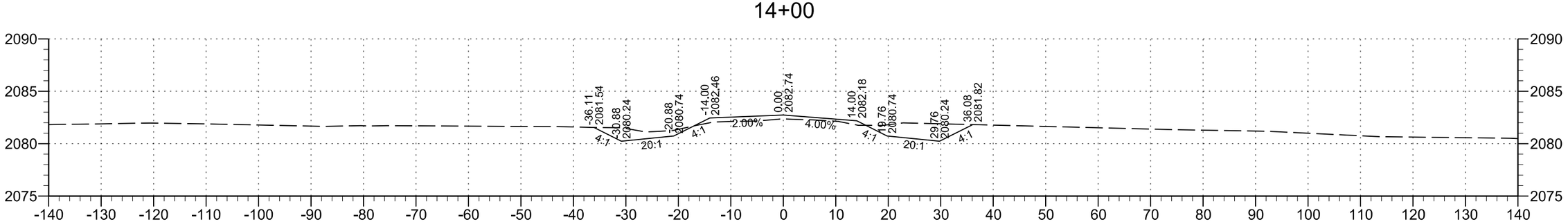

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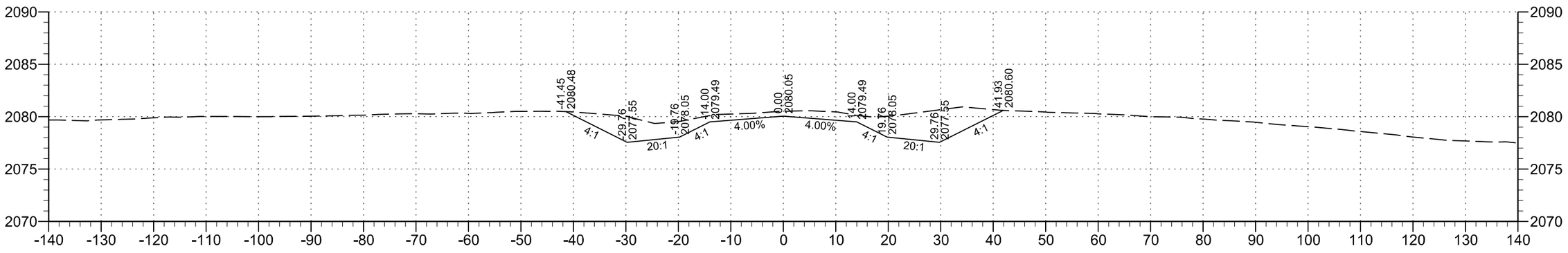

13+00

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8048(05)	37	37

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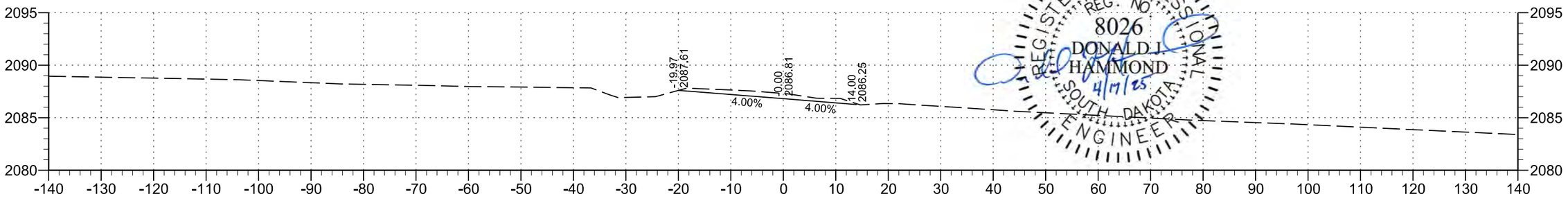

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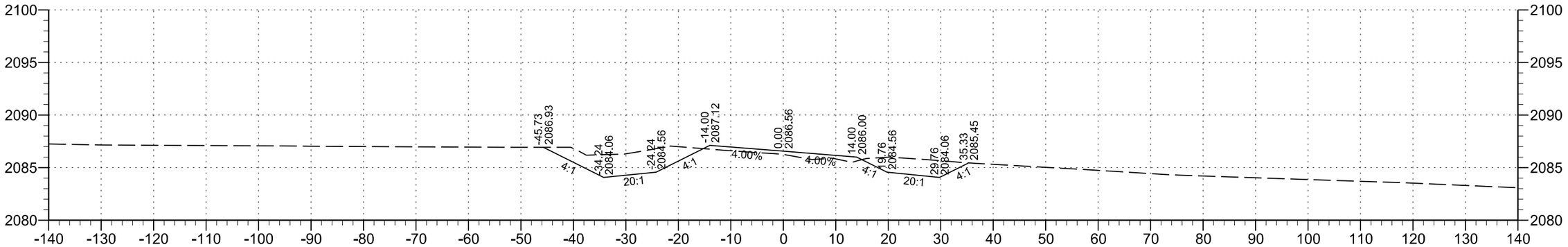

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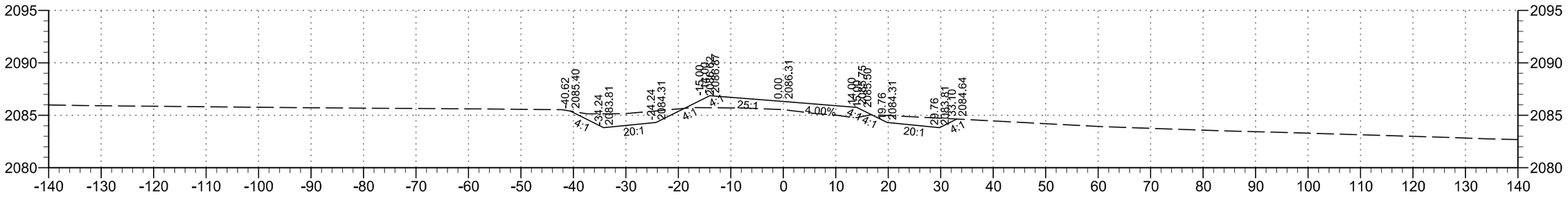

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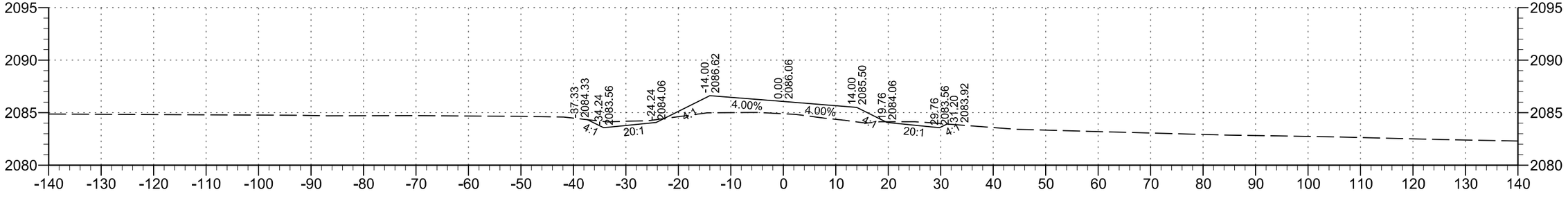

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