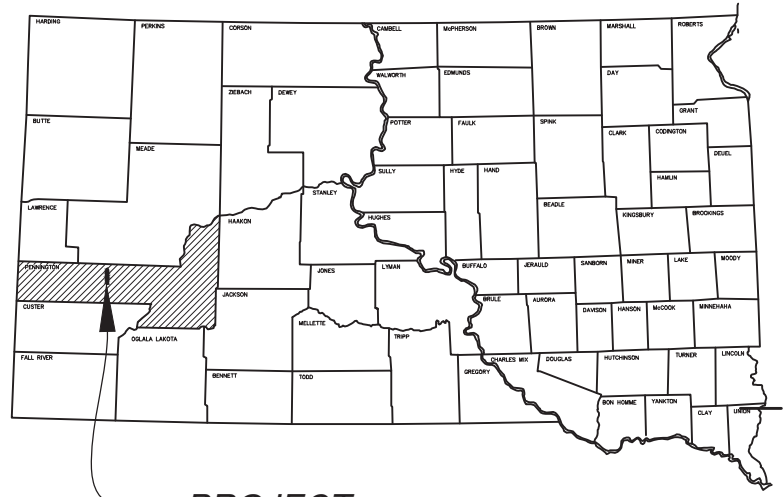


PLANS FOR PROPOSED

PROJECT BRO-B 8052(76) THUNDERHEAD FALLS ROAD PENNINGTON COUNTY

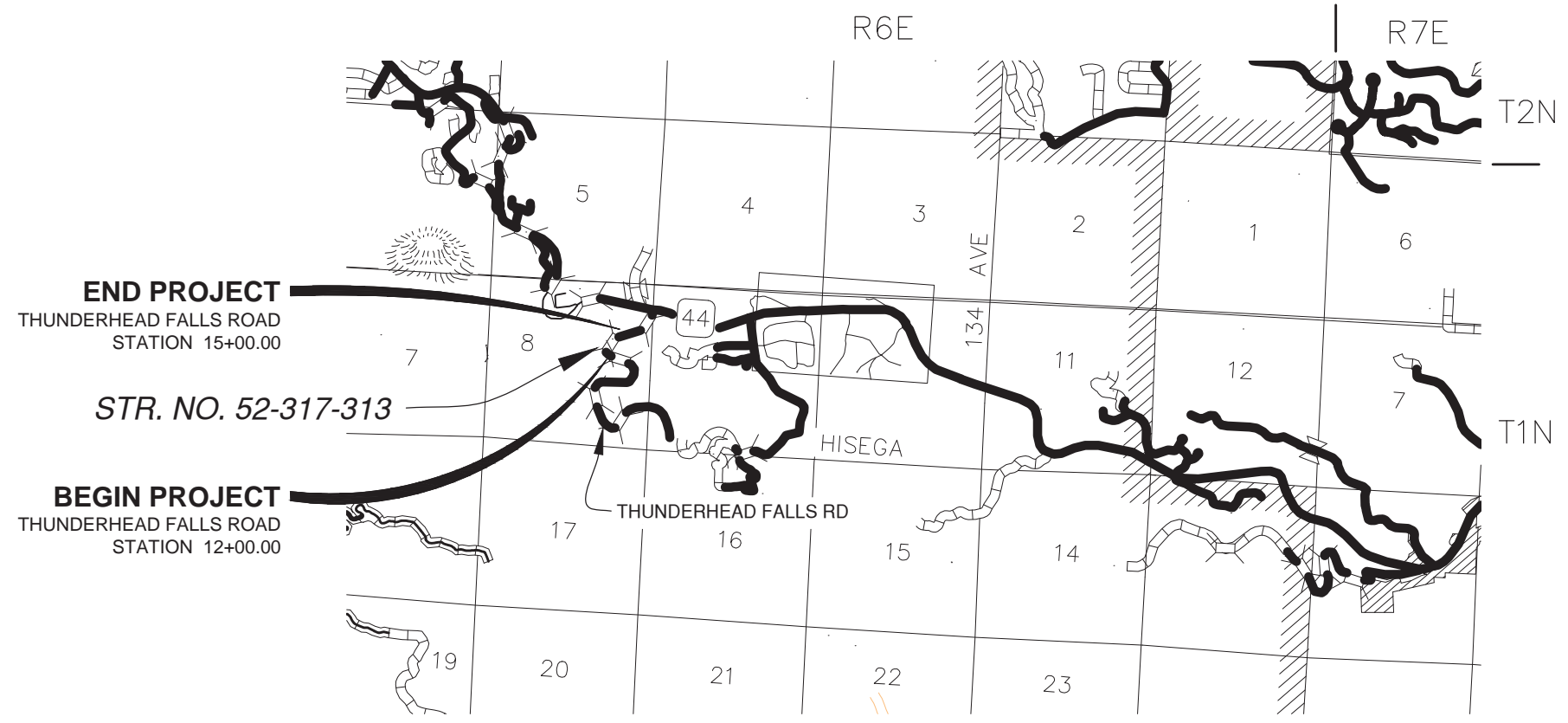
STRUCTURE REPLACEMENT AND APPROACH GRADING PCN 08N2



PROJECT

INDEX OF SHEETS

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DESIGN DESIGNATION

ADT (2022)	218
ADT (2042)	258
DHV	37
d	50%
T DHV	2.9%
T ADT	4.3%
V	25 mph

STORM WATER PERMIT

Major Receiving	Rapid Creek
Body of Water:	0.54 Acres
Area Disturbed:	0.54 Acres
Total Project Area:	0.54 Acres
Approx. Begin Lat,Long:	44°, 3', 44" N - 103°, 25', 5" W (Google Earth)

Gross Length	300 Feet	0.057 Miles
Length of Exceptions	0 Feet	0 Miles
Net Length	300 Feet	0.057 Miles

3

January 22, 2025

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	2	47

Estimate of Quantities

Structure No. 52-317-313

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
009E3200	Construction Staking	Lump Sum	LS
009E3301	Engineer Directed Surveying/Staking	10.0	Hour
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	233	Ft
110E1010	Remove Asphalt Concrete Pavement	615.4	SqYd
120E0010	Unclassified Excavation	159	CuYd
120E0600	Contractor Furnished Borrow Excavation	564	CuYd
230E0010	Placing Topsoil	95	CuYd
260E1010	Base Course	323.2	Ton
260E3010	Gravel Surfacing	83.0	Ton
* 320E1200	Asphalt Concrete Composite	158.7	Ton
560E8830	Noise Wall Panel	400.0	SqFt
* 620E0300	Special Right-of-Way Fence	233	Ft
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	11	Each
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	600	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	600	Ft
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	291.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	6	Each
634E0310	Temporary Flexible Vertical Markers (Tabs)	840	Ft
634E0600	4" Temporary Pavement Marking Tape Type I	120	Ft
634E0700	Traffic Control Movable Concrete Barrier	2	Each
634E0900	Portable Temporary Traffic Control Signal	2	Unit
733E0100	Sodding	280	SqYd
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	150	SqYd
734E0602	Low Flow Silt Fence	215	Ft
734E0610	Mucking Silt Fence	10	CuYd
734E0620	Repair Silt Fence	54	Ft
734E0630	Floating Silt Curtain	330	Ft
831E0110	Type B Drainage Fabric	270	SqYd
900E0010	Refurbish Single Mailbox	1	Each
900E1080	Orange Plastic Safety Fence	100	Ft
900E5410	Modify Sprinkler System	Lump Sum	LS

* Non-participating item

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	150.0	SqYd
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0100	Structure Excavation, Bridge	436	CuYd
430E0200	Bridge End Embankment	469	CuYd
430E0300	Granular Bridge End Backfill	44.7	CuYd
460E0030	Class A45 Concrete, Bridge Deck	88.6	CuYd
460E0050	Class A45 Concrete, Bridge	52.7	CuYd
470E0420	Type T101 Bridge Railing	132	Ft
480E0100	Reinforcing Steel	5,192	Lb
480E0200	Epoxy Coated Reinforcing Steel	19,266	Lb
510E0100	Extract Pile	2	Each
510E3120	HP 10 Pile Tip Reinforcement	10	Each
510E3371	HP 10x57 Steel Test Pile, Furnish and Drive	40	Ft
510E3375	HP 10x57 Steel Bearing Pile, Furnish and Drive	120	Ft
635E8120	2" Rigid Conduit, Schedule 40	16	Ft
700E0210	Class B Riprap	329.8	Ton
831E0110	Type B Drainage Fabric	369	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 0.114 acre of stream (includes temporary and permanent) becoming impacted.

Table of Impacted Streams

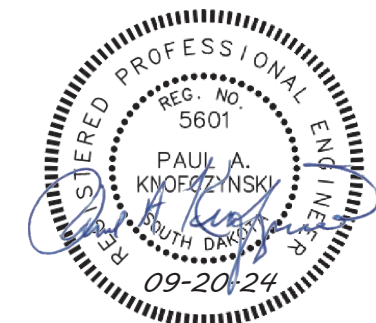
Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
Rapid Creek	13+30	0.018	0.016	0.011	0.069	0.114

Action Taken/Required:

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

The contractor will complete excavation after temporary diversion is in place, if required, with minimal standing water to create the profile of slope protection specified in plans. Once the instream work is completed, the removed material will be placed on top of the riprap to match the natural ground, proposed groundline, or specified shape and elevations shown in plans. When overburden extends into the streambed it will form the channel bottom and profile as specified in plans. The finished ground under the bridge will be shaped to match the upstream and downstream channel and flood plain.

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 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: <http://sdleastwanted.com/maps/default.aspx>

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

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

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_AddTemplInfoFillable.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_CGPAappendixCCA2018Fillable.pdf

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

Storm Water Pollution Prevention Plan

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

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

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

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

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

DANR: < <https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx> >

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



COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

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

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

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

Action Taken/Required:

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

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

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

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

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

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

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

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
13+30	Rapid Creek	4145.8

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

COMMITMENT M1: SECTION 4(f) PROPERTY

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

Station	Section 4(f) Property
Traffic Diversion: 50+00 - 52+73.70	ESS-1

Action Taken/Required:

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

- The duration of occupancy is temporary and less than the time needed for construction of the project, and no permanent change in ownership of the land will occur;
- The scope of work is minor, in that both the nature and magnitude of the changes to the existing 4(f) property are minimal;
- There are no anticipated permanent adverse physical impacts, nor interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;
- And any land to be disturbed will be fully restored and returned to a condition which is at least as good as that which existed prior to the project.

The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

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.

COMMITMENT Q: ARCHAEOLOGICAL COORDINATION

As a result of a Cultural Resources Survey, historic properties have been identified within and/or adjacent to the project rights-of-way.

The following historic property have been identified that requires avoidance of construction activities:

Table of Historic Properties

Station	Offset (Ft.)	L/R	Environmental Sensitive Site	Action
Traffic Diversion: 50+00 – 51+00	15 to 125	R	ESS-1	Site Fencing along Temporary Easement line

The locations and boundaries of the site for avoidance are shown on the Plan and Profile sheet.

Action Taken/Required:

If evidence for cultural resources is uncovered 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 consult with the Archaeological Research Center (ARC), the SHPO, and FHWA, to determine the appropriate course of action.

All artifacts, features, or other items of interest uncovered by project construction activities will not be displaced unless the landowner and SHPO consent to it.

Prior to the pre-construction meeting, the Contractor will contact the ARC (Phone: 605-394-1936) to coordinate the installation schedule of orange plastic safety fence around the perimeter of the sensitive site listed in the Table of Historic Properties to ensure proper location, quality, and visibility of the orange safety fence. The exact location of the safety fence will be determined later in the field by the ARC representative.

The Contractor will give written notice to the Engineer seven (7) days prior to the commencement of earth disturbing activities near listed sites identified in the Table of Historic/Archaeological Site so the Engineer may notify ARC of the day work will start and schedule the installation of orange safety fence.

Work within the vicinity of the site(s) will not begin until the safety fence is installed. All costs associated with furnishing and installing the orange safety fence will be incidental to the contract unit price per foot for "Orange Plastic Safety Fence". These identified sites cannot be used for material sources, storage areas, waste sites, and/or any other project related activities outside the plan work limits.

These identified sites cannot be used for material sources, storage areas, waste sites, and/or any other project related activities outside the plan work limits.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

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

Action Taken/Required:

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

COMMITMENT T: American Dipper

SDGFP identified the presence of American Dippers within the project area.

Action Taken/Required:

A presence/absence survey for nesting American Dippers will be conducted by SDDOT Wildlife Biologist (605-773-3309) prior to construction activities starting. If a nest is observed, construction or demolition activities will not take place during the Work Restriction listed in the below table to avoid conflicts with nesting American Dippers. The Contractor will not conduct work within 0.25 miles of an active nest during the Work Restriction without prior approval from the SDDOT Environmental Office.

Stream Name	Work Restriction
Rapid Creek	March 1 to July 31



SEQUENCE OF OPERATIONS

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

1. Install traffic control signs and devices
2. Install erosion and sediment control measures
3. Construct temporary traffic diversion
4. Dismantle and remove the existing structure
5. Construct the new structure
6. Install base course and asphalt paving
7. Remove temporary traffic diversion
8. Seeding, restoration, and final site clean-up
9. Remove traffic control signs and devices

COUNTY RESPONSIBILITIES

Pennington County will be responsible for the following at no cost to the Contractor.

1. Right of way and temporary and permanent easements.
2. Coordination of any utility adjustments.
3. Remove silt fence in permanently seeded areas.

GENERAL TRAFFIC CONTROL

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

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

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

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

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

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

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

Special Conditions

The Contractor will maintain access to existing driveways within the project limits throughout duration of the project. The driveways at Station 12+00-L and 15+50-L will be delineated with reflective drums to prevent access from diversion traffic.

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

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

Black Hills Electric Cooperative P.O. Box 792 Custer, SD 57730 Phone: 800-742-0085	Lumen Technologies 612 Mount Rushmore Rd. Rapid City, SD 57701 Phone: 605-394-4720
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TRAFFIC DIVERSION

The traffic diversion is located between Station 12+50 to 15+00. The traffic diversion will be constructed according to Section 4.5 A of the Specifications. Installation and removal of the traffic diversion will meet all requirements as set forth in the South Dakota Surface Water Quality Standards.

The traffic diversion will be constructed according to the geometric layouts shown in the plans with the temporary drainage structures provided in the following table. The temporary structure sizes are designed to pass the design flood frequency flows without overtopping the traffic diversion grade, to minimize potential upstream flooding.

The structures will be placed at the flowline elevation and location as stated in the "Table of Temporary Drainage Structures in Traffic Diversions". If the Contractor proposes to use a different size drainage structure and/or a different geometric layout for the temporary diversion, the proposal must be submitted to the Engineer during the project preconstruction meeting. Construction of the traffic diversion will not be allowed until the proposal is approved.

Table of Temporary Drainage Structures in Traffic Diversions

Traffic Diversion Location	Design Flood Frequency	* Flowline Elevation	Ordinary High Water Elevation	Temporary Structure
51+60	2 year	4143.8	4145.8	3-60" CMP Arch

* The flowline elevation is at the centerline of the traffic diversion.

Costs to provide temporary drainage structures will be incidental to the contract lump sum price for "Maintenance of Traffic Diversion(s)".

The traffic diversion will be constructed such that only Class B Riprap will be allowed to be placed or removed below the ordinary high water elevation. Type B Drainage Fabric will be placed over the riprap and under any diversion embankment that is placed in the waterway area as shown in the construction plans.

The quantity of riprap used in the traffic diversion is included in the quantity for "Class B Riprap" in the Estimate of Structure Quantities. The quantity of riprap used for the traffic diversion will be reused as riprap for the structure and all costs incurred to remove the riprap at the traffic diversion and subsequently place the riprap at the structure will be incidental to the contract unit price per ton for "Class B Riprap". The traffic diversion will be built in close conformity to the plan gradeline.

TABLE OF TRAFFIC DIVERSION QUANTITIES

Station	L/R	Ordinary High Water Elevation	Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)	Gravel Surfacing (Ton)
50+00 to 52+73.70	L/R	4145.8	170.0	270	83.0
Totals			170.0	270	83.0

Topsoil will be salvaged and stockpiled prior to construction. Limits of the work and depth of salvage will be directed by the Engineer. The stockpile location will be determined by the Contractor and approved by the Engineer. All costs to remove and stockpile the topsoil will be included in the contract unit price per cubic yard for "Unclassified Excavation".

Unless otherwise shown in the plans, the traffic diversions will be removed such that the original ground surface contours and elevations are restored and the hydraulic capacity of the waterway is maintained. The removal will be done in such a manner that there is minimal disturbance to the channel bed. Any excess material will be wasted in a manner and location approved by the Engineer.

All costs for materials, labor and equipment necessary to remove the traffic diversion will be incidental to the contract lump sum price for "Remove Traffic Diversion(s)".



PORTABLE TEMPORARY TRAFFIC CONTROL SIGNAL

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

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

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

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

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

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

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

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

WATER FOR DUST CONTROL

The Contractor will apply water for dust control to the temporary traffic diversion which meets the requirements of Section 205 of the Specifications. No separate payment will be made for water used as dust control. All water used for dust control will be incidental to the contract lump sum price for "Maintenance of Traffic Diversion(s)".

CORRUGATED METAL PIPE

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

EXISTING SPRINKLER SYSTEM

The Contractor will take care to protect the existing landscaping and sprinkler system located within the private property at diversion Station 51+80 to 52+73. Damage to the sprinkler system components, including buried lines, heads, or any other appurtenances associated with the sprinkler system, will be replaced in kind.

The Contractor will coordinate removal and replacement of the sprinkler system with the owner. After damage to the sprinkler system is repaired, the Contractor will obtain the owner's acceptance of the repaired system.

All work required to protect, repair, and/or replace the sprinkler system will be paid for at the contract lump sum price for "Modify Sprinkler System".

EXISTING SEPTIC COVER

An existing concrete septic cover is located at approximate diversion Station 50+20-R. The Contractor will place precast concrete jersey barriers in front of the cover to delineate traffic away from the septic area. The area around the cover will not be disturbed during installation and removal of the traffic diversion and reshaping of the existing ground contours. Any damage to the septic cover will be repaired at the Contractor's expense at no cost to the County.

NOISE/DUST BARRIER

The Contractor will construct a temporary noise and dust barrier, i.e., 92% Privacy Fence Wind Screen, at approximate diversion Station 51+98-R to 52+26-R along the temporary easement as shown in the plans. The wall will be 10' tall and constructed of wood or steel posts and Polyethylene mesh. The mesh will be fastened at a minimum spacing of 24" to a cable or support fence per the manufacturer's recommendation.

The mesh must have a closure of at least 92%. The mesh must be securely tied to the posts/cable and mesh support. The wall must be continuous and dust proof. One example reference is Tarps Now.

The Contractor is responsible for maintaining and repairing the wall throughout the duration of the project. The Contractor will be responsible for any damage to trees or private property caused by the wall. All cost associated with furnishing, labor, erecting, maintaining and removing the wall will be incidental to the contract unit price per square foot of "Noise Wall Panel".

TEMPORARY PAVEMENT MARKING TAPE, TYPE I

Temporary pavement marking for stop bars will consist of 4" Temporary Pavement Marking Tape, Type I. Placement of each 24" white stop bar will be accomplished by placing six pieces of 4" tape adjacent to one another. The workspace requires two stop bars which is an equivalent of approximately 120' of 4" tape.

Temporary pavement marking on centerline will consist of temporary flexible vertical markers (tabs) and will be used as depicted on standard plate 634.26 when the stop condition must remain in place during nighttime hours, 9:00 pm to 6:00 am.

The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

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

No adjustment in the contract unit price per foot for temporary pavement markings will be made because of a variation in quantities.

TABLE OF TEMPORARY PAVEMENT MARKING

Station	L/R	Location	Type	Quantity (Ft)	
9+25 to 11+25	L/R	Centerline	Temporary Flexible Vertical Markers (Tabs)	400	
11+25	R	Stop Bar	4" Temporary Tape, Type I	60	
16+75	L	Stop Bar	4" Temporary Tape, Type I	60	
16+75 to 18+75	L/R	Centerline	Temporary Flexible Vertical Markers (Tabs)	400	
Additional Temporary Flexible Vertical Markers (Tabs) Quantity:				40	
				4" Temporary Tape, Type I Total:	120
				Temporary Flexible Vertical Markers (Tabs) Total:	840

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
12+00		13+05	L/R	262.8
13+55		15+00	L/R	352.6
Total:				615.4

UNCLASSIFIED EXCAVATION

The plans quantity for "Unclassified Excavation" as shown in the Table of Earthwork Quantities will be the basis of payment.

Topsoil will be salvaged and stockpiled prior to construction. Limits of the work and depth of salvage will be approved by the Engineer. The stockpile location will be determined by the Contractor and approved by the Engineer.

All costs to remove and stockpile the topsoil will be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

The excavation quantities from individual balances and the Table of Earthwork Quantities have been reduced by the volume of in place surfacing that will be removed and/or salvaged.



CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

TABLE OF CONTRACTOR FURNISHED BORROW EXCAVATION

	(CuYd)
Borrow Excavation (Diversion)	564
Total	564

PLACING EMBANKMENT

Embankment material is available from the excess waste material left over from the structure excavation. All costs to place the embankment will be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

Compaction of the fill material will be governed by the specified density method in accordance with Section 120 of the Specifications and to the satisfaction of the Engineer.

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 1 MGal. No separate payment will be made for Water for Embankment and all costs associated with Water for Embankment will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

Any excess excavated material will become the property of the Contractor for disposal offsite. All costs associated with the disposal of waste material will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

SHRINKAGE FACTOR: Embankment +35%

TABLE OF EARTHWORK QUANTITIES

Excavation (Mainline)	2 CY
Excavation at Bridge Berms	62 CY
Topsoil	95 CY
Total Unclassified Excavation	159 CY
Embankment (Mainline)	36 CY
35% Shrinkage	13 CY
Total Placing Embankment	49 CY

TOPSOIL

Following completion of construction, topsoil will be spread evenly over the disturbed areas. The thickness will be approximately 4 inches within the right-of-way and 6 inches within the temporary easements. Payment for Placing Topsoil will be plans quantity unless changes are directed by the Engineer.

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

Station	to	Station	L/R	Quantity (CuYd)
12+00		13+00	L	4
12+00		13+10	R	4
13+48		14+50	L	7
13+62		14+50	R	2
Traffic Diversion			L/R	78
Total:				95

All costs to place the topsoil will be incidental to the contract unit price per cubic yard for "Placing Topsoil".

SUBGRADE PREPARATION & MAINTENANCE

The subgrade will be scarified a minimum of eight inches (8") and recompacted to the specifications governed by the specified density method in accordance with Section 120.3 B.3 of the Specifications and to the satisfaction of the Engineer. Scarification and recompaction will be considered incidental to the bid item "Unclassified Excavation," and no extra payment will be allowed.

The Contractor will maintain the completed compacted subgrade and base course. Where completed subgrade and base course areas are disturbed by subsequent construction operations or adverse weather, the Contractor will scarify the surface, reshape, and compact the material to required density prior to further construction.

No extra payment will be made for subgrade maintenance.

BASE COURSE

Base course will meet the requirements of Section 882.2 of the Specifications.

Before placement of the Base Course, the subgrade will be proof rolled in the presence of the Engineer with a loaded truck to verify compaction requirements. Any soft areas will be repaired by the Contractor.

Compaction of the base course will be governed by the specified density method in accordance with Section 260.3 B of the Specifications and to the satisfaction of the Engineer.

ASPHALT CONCRETE COMPOSITE

The surfacing section will be eight inches (8") of base course, and four inches (4") of asphalt concrete. Asphalt concrete will be placed in two (2) equal lifts.

Compaction of asphalt concrete will be by the Specified Roller Coverage Method.

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

TABLE OF ASPHALT CONCRETE COMPOSITE

Station	to	Station	Base Course (Ton)	Asphalt Concrete Composite (Ton)
12+00		13+10	127.3	62.5
13+48		15+00	175.9	86.2
Additional Quantity:			20.0	10.0
Total:			323.2	158.7

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

Reflective media will consist of glass beads.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 27.8 Gals/Mile
 Dashed 4" line = 7.6 Gal/Mile
 Glass Beads = 8 Lbs/Gal.

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



WOOD RAIL FENCE

Portions of existing wood rail fences along Thunderhead Falls Road will be removed and replaced at the locations shown in the plans. Fence materials and dimensions will be verified by the Contractor prior to removal of the existing fence. New wood rail fence will match the existing fence as closely as practical and to the satisfaction of the Owners.

Payment for removal of the existing wood rail fence and installation of new wood rail fence will be made under the contract items per foot for "Remove Fence" and "Special Right-of-Way Fence" respectively.

TABLE OF WOOD RAIL FENCE REMOVAL

Station	to	Station	L/R	Quantity (Ft)
11+94		12+60	R	70
12+20		12+90	L	72
13+05		13+15	R	10
13+73		14+58	R	81
Total:				233

MAILBOXES

Mailboxes will be moved and adjusted to the correct height and location by resetting the posts in accordance with Standard Plate 900.01. The local Postmaster will determine the recommended mounting height. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for "Refurbish Single Mailbox".

TABLE OF REFURBISH SINGLE MAILBOX

Station	L/R	Refurbish Mailbox (Each)
12+93	R	1
Total:		1

CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

All construction staking will be incidental to the contract lump sum price for "Construction Staking".

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Lane Factor	Grade Staking				
							*Sets of Stakes	**Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
Roadway	12+00	15+00	2	300	0.057	1	1	0.057	0.057	0.057	
Temporary Traffic Diversion	50+00	52+74	1	274	0.052	0.5	1	0.026	0.026	0.026	
Structure #52-317-313	13+05	13+55									1
Totals:								0.083	0.083	0.083	1

* 1 = Blue Top Stakes Only (Asphalt Concrete Pavement)

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



EROSION CONTROL

The estimated area requiring erosion control is 13,070 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, surface roughening, seeding, fertilizing, fiber mulching, & water for vegetation will be incidental to the contract lump sum price for "Erosion Control".

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

Surface Roughening

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

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 20,000 live propagules of mycorrhizal fungi per 1,000 square feet. All costs of inoculating the seed will be incidental to the contract lump sum price for "Erosion Control".

Prior to placing sod, apply a minimum of 25,000 live propagules of inoculum per 1,000 square feet on bare soil. All costs of inoculating for the sod will be incidental to the contract unit price per square yard for "Sodding".

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

Fertilizing

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure

presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The application rate is 34 pounds per 1,000 square feet.

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

Permanent Seeding

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

Type D Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet, Action	1.4
Perennial Ryegrass	Turf Type Varieties	1.4
Creeping Red Fescue	Epic, Boreal, Chantilly	1.4
Chewings Fescue	Ambrose, K2, Zodiac, Shadow III	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
Total:		7

Water for Vegetation

Water for vegetation consists of applying water to seeded areas to enhance germination and/or root growth. When watering, use the following guidelines:

Immediately after seeding:

- Keep the topsoil moist but not excessively wet until the seed has germinated.
- Water a minimum of 3 days a week for 2 weeks preferably watering 2 or 3 times a day in small quantities.
- Use fine spray and low pressure to avoid topsoil wash and to prevent uncovering buried seeds.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	10	47

After emergence:

- Topsoil will be kept thoroughly moistened by sprinkling, as necessary, for 6 weeks. After the 6-week period, an inspection will be made to determine if grass is established enough to suspend watering. Continue watering until grass has been thoroughly established.
- Never apply water at a rate faster than the topsoil can absorb.
- Water during early morning hours or early evening hours.
- Do not water when rain is forecasted for the area.
- If rainfall occurs, suspend watering according to rainfall amount.

SODDING

Sod will be placed at locations specified in the plans and at locations determined by the Engineer during construction.

Water will be applied to the new sod at a rate of 18 gallons per square yard of sod. An estimated quantity of 10 Mgal of water will be required to thoroughly establish the sod. All costs involved for watering the sod will be incidental to the contract lump sum price for "Erosion Control".



FIBER MULCHING

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

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

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

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract lump sum price per for "Erosion Control".

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

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

TABLE OF FIBER MULCHING

Station	Location	Quantity (Lb)
51+00 to 51+20 L/R	Temporary easement	29
13+40 to 13+75 L	Temporary easement	16
	Additional Quantity:	10
	Total:	55

LOW FLOW SILT FENCE

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

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

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	L/R	Location	Quantity (Ft)
12+75 to 12+94	L	Temporary easement	29
13+26 to 13+74	L	Temporary easement	62
13+48 to 14+35	R	Temporary easement	58
14+67 to 14+83	R	Temporary easement	47
		Additional Quantity:	19
		Total:	215

FLOATING SILT CURTAIN

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

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

The Contractor will install the floating silt curtain in accordance with the manufacturer's installation instructions or as directed by the Engineer.

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

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

ABASCO, LLC
Humble, TX
Phone: 1-281-466-1500
www.abasco.net

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

ACME Environmental
Tulsa, OK
Phone: 1-855-563-2666
www.acmeboom.com

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

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

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

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

TABLE OF FLOATING SILT CURTAIN

Station	to	Station	L/R	Quantity (Ft)
12+94 L		13+37 R	L/R	88
13+26 L		13+65 R	L/R	87
13+59		13+84	R	73
13+93		14+24	R	70
		Additional Quantity:		12
		Total:		330

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	11	47

EROSION CONTROL BLANKET

Erosion control blanket will be installed 12 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

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

All costs for shaping for erosion control blanket will be incidental to the contract unit price per square yard for "Type 2 Erosion Control Blanket".

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 to	Station	L/R	Location	Type	Quantity (SqYd)
12+88	12+99	L	Road Inslope	2	10
13+02	13+12	R	Road Inslope	2	11
13+34	14+35	R	Along Traffic Diversion	2	100
13+48	13+54	L	Road Inslope	2	9
13+62	13+76	R	Road Inslope	2	9
			Additional Quantity:		11
Total Type 2 Erosion Control Blanket:					150




Plot Scale- 1" = 5'

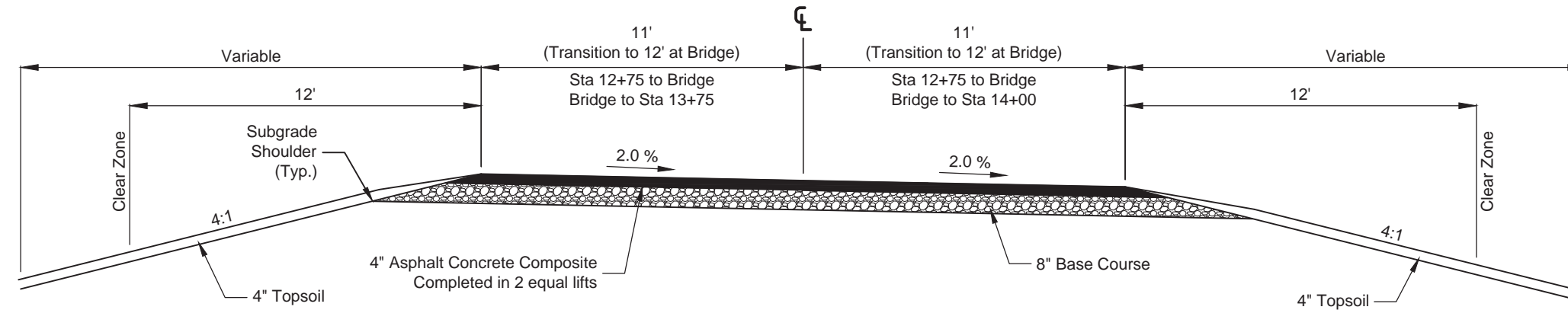
Plotted From- zach.vlamnick

TYPICAL GRADING SECTIONS

FOR BIDDING PURPOSES ONLY

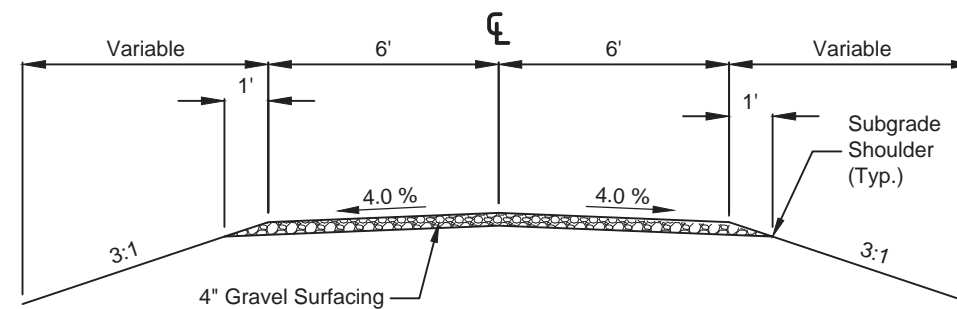
 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	12	47

Plotting Date: 9/19/2024



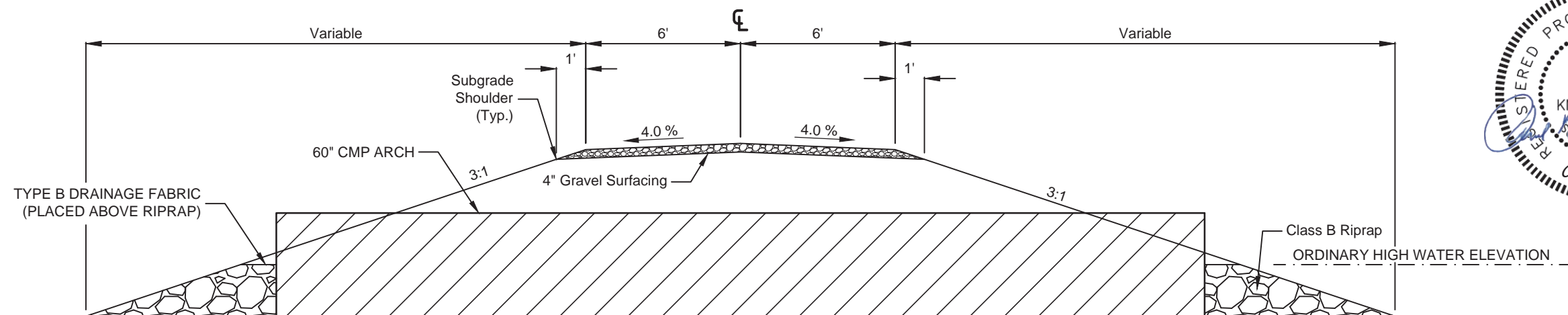
THUNDERHEAD FALLS ROAD

STATION 12+00 TO 15+00



TEMPORARY TRAFFIC DIVERSION

STATION 50+00 TO 52+46.14



TEMPORARY TRAFFIC DIVERSION

CULVERT CROSSING
STATION 51+64

PLACE TYPE B DRAINAGE FABRIC BELOW ANY EMBANKMENT THAT IS PLACED IN WETLAND AREAS AS SHOWN.



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TRAFFIC CONTROL

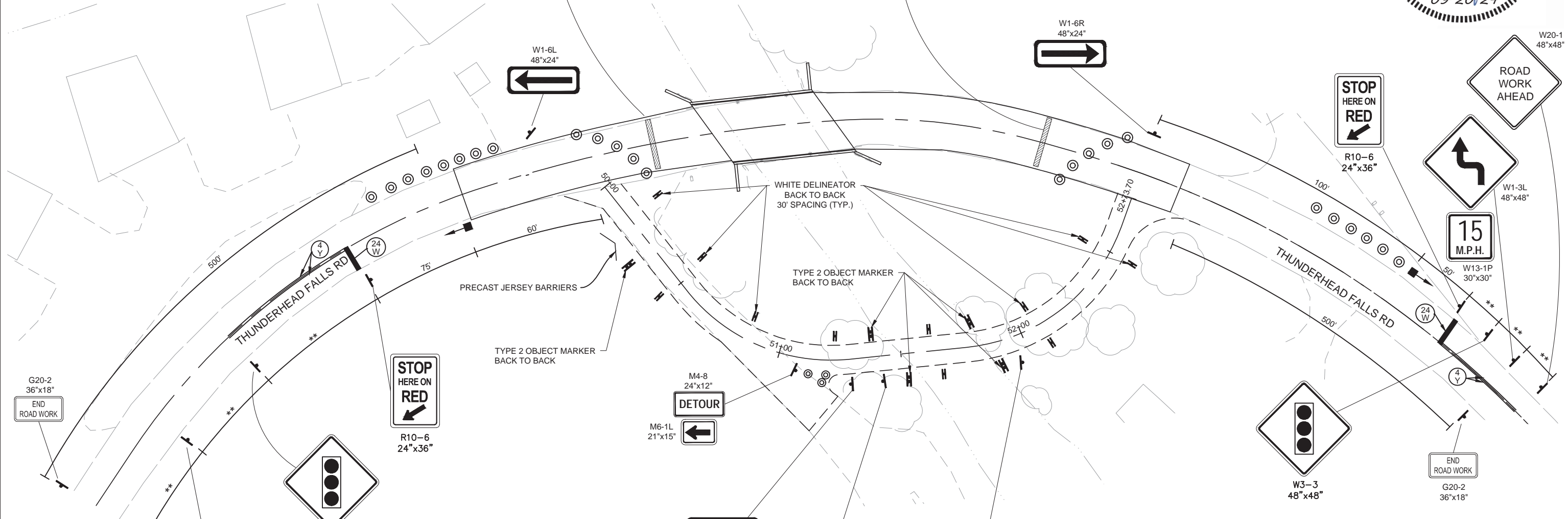
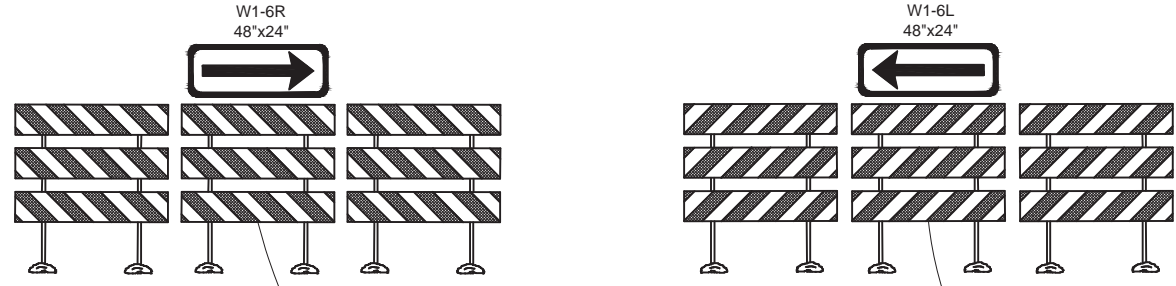
FOR BIDDING PURPOSES ONLY

Plotting Date: 9/19/2024

LEGEND

- ⊙ REFLECTORIZED DRUMS
- ④ 4" YELLOW TEMPORARY PAVEMENT MARKING
- Ⓜ 24" WHITE TEMPORARY PAVEMENT MARKING
- ← TEMPORARY TRAFFIC SIGNAL

TRAFFIC CONTROL WILL BE INSTALLED IN ACCORDANCE WITH SDDOT STANDARD PLATES 634.26 & 634.28.



ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R10-6	STOP HERE ON RED	2	24" x 36"	6.0	12.0
W1-3	REVERSE TURN (L)	4	48" x 48"	16.0	64.0
W1-6	LARGE ARROW (L)	5	48" x 24"	8.0	40.0
W3-3	SIGNAL AHEAD (symbol)	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
M4-8	DETOUR	1	24" x 12"	2.0	2.0
M6-1	DIRECTION ARROW - Horizontal Single Head (L)	1	21" x 15"	2.2	2.2
-	TYPE 2 OBJECT MARKER BACK TO BACK	5	6" x 12"	1.0	5.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			291.4


Plot Scale: 1" = 40'

Plotted From: zach.vlamnick

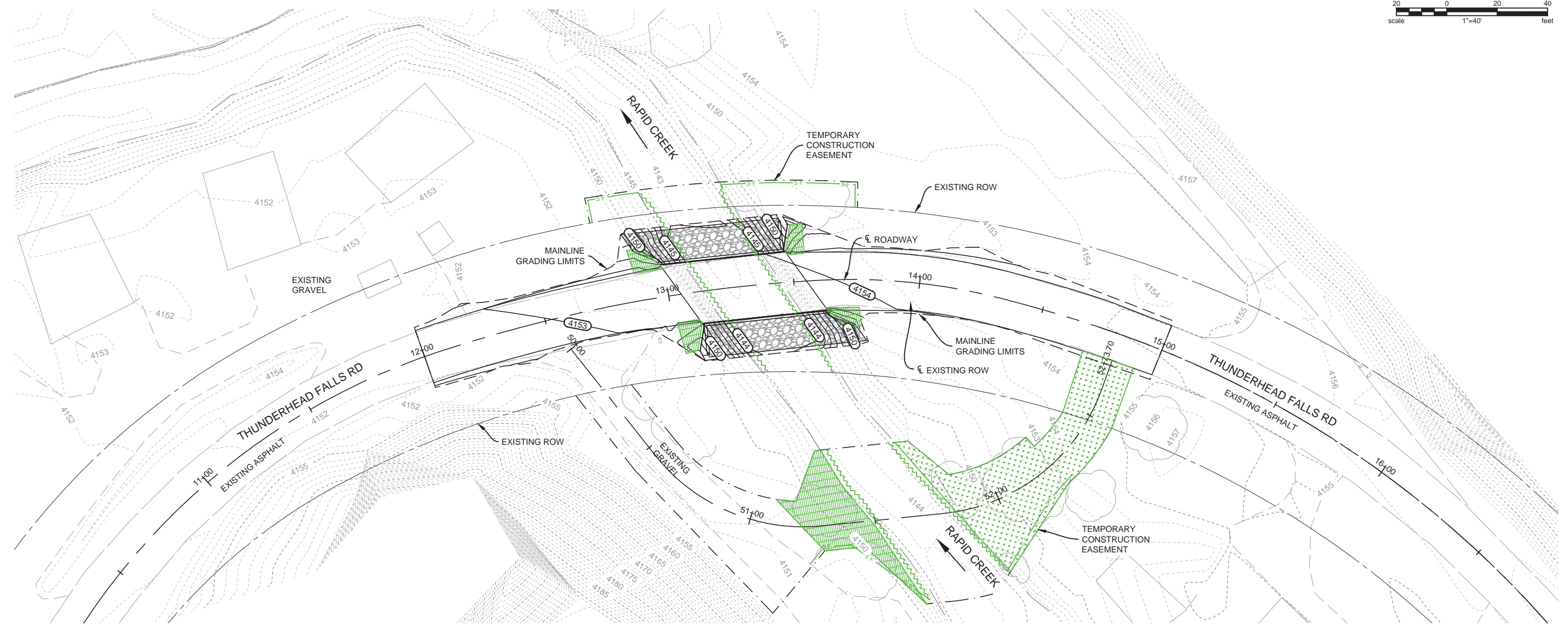
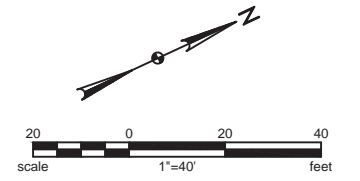
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
EROSION AND SEDIMENT CONTROL PLAN

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	14	47

Plotting Date: 9/19/2024



LEGEND	
	EROSION CONTROL BLANKET
	FLOATING SILT CURTAIN
	LOW FLOW SILT FENCE
	SODDING

PERIMETER CONTROL

Install Floating Silt Curtain along the banks of the creek at the following locations:

- 12+94 L to 13+37 R 88 Ft
- 13+26 L to 13+65 R 87 Ft
- 13+59 R to 13+84 R 73 Ft
- 13+93 R to 14+24 R 70 Ft

Install Low Flow Silt Fence at the following locations:

- 12+75 to 12+94 L Inside perimeter of temporary easement 29 Ft
- 13+26 to 13+74 L Inside perimeter of temporary easement 62 Ft
- 13+48 to 14+35 R Inside perimeter of temporary easement 58 Ft
- 14+67 to 14+83 R Inside perimeter of temporary easement 47 Ft

FINAL STABILIZATION

Install Type 2 Erosion Control Blanket at the following locations:

- 12+88 to 12+99 - L Road inslope adjacent to wingwall 10 SqYd
- 13+02 to 13+12 - R Road inslope adjacent to wingwall 11 SqYd
- 13+34 to 14+35 - R Along Traffic Diversion 100 SqYd
- 13+48 to 13+54 - L Road inslope adjacent to wingwall 9 SqYd
- 13+62 to 13+76 - R Road inslope adjacent to wingwall 9 SqYd

Install Sodding at the following locations:

- 13+96 to 14+83 - R Along Traffic Diversion 280 SqYd



Plot Scale: #####

Plotted From: zach.vlamnick

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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** 0.54 Acres
- **5.3 (3b): Total Area to be Disturbed** 0.54 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 0.54 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 75
- **5.3 (3d): Description of Vegetative Cover** Mix of native grasses, shrubs and trees.
- **5.3 (3e): Soil Properties:** Reddish-brown clay-silt and sand with gravel overlaying schist bedrock. Schist is a foliated fine grained crystalline rock.
- **5.3 (3f): Name of Receiving Water Body/Bodies** Rapid Creek
- **5.3 (3g): Location of Construction Support Activity Areas** Onsite

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements** (see sheet).
- The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install traffic control signs and devices	
Install erosion and sediment control measures	
Construct temporary traffic diversion	
Dismantle and remove the existing structure	
Construct the new structure	
Install base course and asphalt paving	
Remove temporary traffic diversion	
Seeding, restoration, and final site clean-up	
Remove traffic control signs and devices	

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
<input checked="" type="checkbox"/> Natural Buffers (within 50 ft of Waters of State)	
<input checked="" type="checkbox"/> Silt Fence	
<input type="checkbox"/> Erosion Control Wattles	
<input type="checkbox"/> Temporary Berm / Windrow	
<input checked="" type="checkbox"/> Floating Silt Curtain	
<input type="checkbox"/> Stabilized Construction Entrances	
<input type="checkbox"/> Entrance/Exit Equipment Tire Wash	
<input type="checkbox"/> Other:	

Structural Erosion and Sediment Controls

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

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Dust Controls

Description	Estimated Start Date
<input type="checkbox"/> Tarps & Wind impervious fabrics	
<input checked="" type="checkbox"/> Watering	
<input type="checkbox"/> Stockpile location/orientation	
<input type="checkbox"/> Dust Control Chlorides	
<input type="checkbox"/> Other	

Dewatering BMPs

Description	Estimated Start Date
<input type="checkbox"/> Sediment Basins	
<input type="checkbox"/> Dewatering bags	
<input type="checkbox"/> Weir tanks	
<input type="checkbox"/> Temporary Diversion Channel	
<input type="checkbox"/> 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
<input type="checkbox"/> Vegetation Buffer Strips	
<input type="checkbox"/> Temporary Seeding (Cover Crop Seeding)	
<input checked="" type="checkbox"/> Permanent Seeding	
<input checked="" type="checkbox"/> Sodding	
<input type="checkbox"/> Planting (Woody Vegetation for Soil Stabilization)	
<input type="checkbox"/> Mulching (Grass Hay or Straw)	
<input checked="" type="checkbox"/> Fiber Mulching (Wood Fiber Mulch)	
<input type="checkbox"/> Soil Stabilizer	
<input type="checkbox"/> Bonded Fiber Matrix	
<input type="checkbox"/> Fiber Reinforced Matrix	
<input checked="" type="checkbox"/> Erosion Control Blankets	
<input checked="" type="checkbox"/> Surface Roughening (e.g. tracking)	
<input type="checkbox"/> 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 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The 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.

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	16	47

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 described in the specifications. 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: _____

➤ **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 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 Project Engineer in accordance with the DOT 298 Form.

HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	19	47

Plotting Date: 9/19/2024

Plot Scale: #####

Table of Alignment Data - Thunderhead Falls Road CL

Type	Parameter Constraint	Length	Radius	Direction	Start Station	End Station	Delta Angle	Chord length	Chord Direction	PI Station	Start Point (E, N)	End Point (E, N)
Line	Two points	25.833'		N26° 17' 47.73"W	10+00.00'	10+25.83'					(1157880.1856',644912.1399')	(1157868.7413',644935.2992')
Curve	Passthrough radius	179.548'	270.000'		10+25.83'	12+05.38'	38.1013 (d)	176.258'	N7° 14' 45.33"W	11+19.07'	(1157868.7413',644935.2992')	(1157846.5101',645110.1498')
Curve	Three points	154.313'	580.000'		12+05.38'	13+59.69'	15.2440 (d)	153.859'	N19° 25' 36.24"E	12+83.00'	(1157846.5101',645110.1498')	(1157897.6837',645255.2490')
Curve	Three points	72.545'	240.000'		13+59.69'	14+32.24'	17.3190 (d)	72.270'	N35° 42' 29.52"E	13+96.25'	(1157897.6837',645255.2490')	(1157939.8644',645313.9319')
Curve	Three points	40.832'	580.000'		14+32.24'	14+73.07'	4.0337 (d)	40.824'	N46° 23' 04.23"E	14+52.66'	(1157939.8644',645313.9319')	(1157969.4203',645342.0929')
Curve	Passthrough radius	266.208'	410.000'		14+73.07'	17+39.28'	37.2015 (d)	261.557'	N67° 00' 07.55"E	16+11.06'	(1157969.4203',645342.0929')	(1158210.1885',645444.2825')
Line	Two points	87.455'		N85° 36' 10.28"E	17+39.28'	18+26.74'					(1158210.1885',645444.2825')	(1158297.3856',645450.9876')

Table of Alignment Data - Temporary Traffic Diversion CL

Type	Parameter Constraint	Length	Radius	Direction	Start Station	End Station	Delta Angle	Chord length	Chord Direction	PI Station	Start Point (E, N)	End Point (E, N)
Line	Two points	53.795'		N81° 42' 14.79"E	50+00.00'	50+53.79'					(1157872.0229',645156.6487')	(1157925.2547',645164.4105')
Curve	Three points	75.100'	75.000'		50+53.79'	51+28.89'	57.3723 (d)	72.002'	N53° 01' 04.57"E	50+94.83'	(1157925.2547',645164.4105')	(1157982.7714',645207.7242')
Line	Two points	48.158'		N24° 19' 54.34"E	51+28.89'	51+77.05'					(1157982.7714',645207.7242')	(1158002.6135',645251.6048')
Curve	Three points	84.201'	75.00'		51+77.05'	52+61.25'	64.3249 (d)	79.848'	N07° 49' 50.44"W	52+24.21'	(1158002.6135',645251.6048')	(1157991.7345',645330.7084')
Line	Two points	12.446'		N39° 59' 35.21"E	52+61.25'	52+73.70'					(1157991.7345',645330.7084')	(1157983.7357',645340.2434')

Coordinate System

Name: United States/State Plane 1983
 Datum: NAD83/2011 (epoch 2010.00)
 Zone: South Dakota South 4002
 Geoid: GEOID18
 Vertical datum: NAVD 88 (Rapid City Control)
 Units: US Survey Feet
 CSP(Grid to Ground): 1.000259356




Plotted From: zach.vlamnick





File: K:\Projects\State\SD\DOT\2102_00971_Thunderhead_Falls\CAD\Design\Plans\Sections\2102-00971_Alignment_Control_Layout.dwg

CONTROL DATA

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	20	47

Plotting Date: 9/19/2024

HORIZONTAL AND VERTICAL CONTROL							
SYMBOL	POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION	STATION	OFFSET
	CP 1	RCPC3 AC IN CONCRETE	646419.620	1158985.180	4185.69	N/A	N/A
	CP 2	5/8" REBAR WITH KLJ CAP	645425.014	1158194.442	4155.78	17+21.33	17.63' Rt
	CP 3	5/8" REBAR WITH KLJ CAP	645324.733	1157920.710	4153.69	14+27.03	21.31' Lt
	CP 4	5/8" REBAR WITH KLJ CAP	644982.542	1157833.647	4151.60	10+80.79	16.45' Lt

Coordinate System
 Name: United States/State Plane 1983
 Datum: NAD83/2011 (epoch 2010.00)
 Zone: South Dakota South 4002
 Geoid: GEOID18
 Vertical datum: NAVD 88 (Rapid City Control)
 Units: US Survey Feet
 CSP(Grid to Ground): 1.000259356



Plot Scale: #####

Plotted From: zach.vlamnick

File: K:\Projects\State\SD\DOT\2102_00971_Thunderhead_Fails\CAD\Design\Plans\Sections\2102-00971_Alignment_Control_Layout.dwg

LEGEND

EXISTING	ITEM	PROPOSED
	FIRE HYDRANT	
	GATE VALVE	
	CURB STOP	
	YARD HYDRANT	
	BEND	
	TEE	
	CROSS	
	REDUCER	
	COUPLER	
	VERTICAL BEND	
	WATER MANHOLE	
	SPRINKLER HEAD	
	WATER METER	
	CATHODIC TEST STATION	
	TRACER WIRE ACCESS BOX	
	SANITARY MANHOLE	
	SANITARY FORCEMAIN MANHOLE	
	SANITARY MANHOLE W. VALVE	
	CLEANOUT	
	STORM SEWER MANHOLE	
	CURB INLET	
	CATCH BASIN	
	POWER POLE	
	GUY WIRE	
	LIGHT POLE	
	ELECTRICAL PEDESTAL	
	ELECTRICAL METER	
	ELECTRICAL JUNCTION (PULL BOX)	
	ELECTRICAL BOX	
	ELECTRICAL OUTLET/PLUG-IN	
	ELECTRICAL MANHOLE	
	TELEPHONE MANHOLE	
	TELEPHONE PEDESTAL	
	CABLE TV PEDESTAL	
	FIBER OPTIC PEDESTAL	
	GAS METER	
	GAS MANHOLE	
	FUEL DISPENSER	
	UTILITY MARKER	
	GAS VENT PIPE	
	TREES CONIFEROUS/ DECIDUOUS	
	BUSH/SHRUB	
	SIGN	
	CONTROL POINT	
	BENCHMARK	
	PIPE CAP	
	MAIL BOX	
	PROPERTY PIN	

LEGEND

EXISTING	ITEM	PROPOSED
	ASPHALT EDGE	
	BUILDING CANOPY	
	CABLE TV - UNDERGROUND	
	CENTERLINE	
	CONSTRUCTION LIMITS	
	ELECTRICAL - OVERHEAD	
	ELECTRICAL - UNDERGROUND	
	FENCE - BARBED WIRE	
	FENCE - CHAINLINK	
	FENCE - PLASTIC, VINYL	
	FENCE - WOOD	
	FENCE - WOVEN WIRE	
	FIBER - UNDERGROUND	
	GAS - UNDERGROUND	
	GRAVEL EDGE	
	SANITARY SEWER FORCE MAIN	
	SANITARY SEWER SERVICE LINE	
	SANITARY SEWER (LESS THAN 24")	
	SANITARY SEWER (24" OR MORE)	
	STORM SEWER EDGEDRAIN	
	STORM SEWER (LESS THAN 24")	
	STORM SEWER (24" OR MORE)	
	TELEPHONE - OVERHEAD	
	TELEPHONE - UNDERGROUND	
	WATER SERVICE LINE	
	WATER MAIN	

AC	ASPHALT CEMENT	ESMT	EASEMENT
AGGR	AGGREGATE	EX	EXISTING
AHD	AHEAD	EXC	EXCAVATION
APPROX	APPROXIMATE OR APPROXIMATELY	FES	FLARED END SECTION
ARV	AIR RELEASE VALVE	FF	FINISHED FLOOR
ASPH	ASPHALT	FG	FINISHED GRADE
BIT	BITUMINOUS	GR	GRAVEL
BK	BACK	HDPE	HIGH DENSITY POLYETHYLENE PIPE
BM	BENCH MARK	HORZ	HORIZONTAL
BLDG	BUILDING	HP	HIGH POINT
C&G	CURB & GUTTER	HYD	HYDRANT
CI	CAST IRON	INST	INSTALL
CMES	CORRUGATED METAL END SECTION	INV	INVERT
CMP	CORRUGATED METAL PIPE	JB	JUNCTION BOX
CP	CONTROL POINT	L	LENGTH
CPP	CORRUGATED PLASTIC PIPE	LF	LINEAR OR LINEAL FEET
CONST	CONSTRUCTION	LONG	LONGITUDINAL
CONC	CONCRETE	LP	LOW POINT OR LIGHT POLE
CPLG	COUPLING	LS	LUMP SUM
CS	CURB STOP	LT	LEFT
CY	CUBIC YARD	MAX	MAXIMUM
D	DEGREE OF CURVATURE	ME	MATCH EXISTING
DB	DITCH BLOCK	MH	MANHOLE
DEFL	DEFLECTION	MIN	MINIMUM
DG	DITCH GRADE	PVC	POLYVINYL CHLORIDE PIPE
EA	EACH	P & P	PLAN & PROFILE
EL	ELEVATION	PC	POINT OF CURVATURE
ELEC	ELECTRIC	PCC	POINT OF COMPOUND CURVE
EMB	EMBANKMENT	PI	POINT OF INTERSECTION
EQ	EQUATION	PIV	POST INDICATOR VALVE
ES	END SECTION	POC	POINT ON CURVE

POT	POINT ON TANGENT
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RCES	REINFORCED CONCRETE END SECTION
RCP	REINFORCED CONCRETE PIPE
RDWY	ROADWAY
RR	RAILROAD
RT	RIGHT
R/W ROW	RIGHT-OF-WAY
SALV	SALVAGE
SAN	SANITARY
SE	SUPERELEVATION
SEC	SECTION
SF	SQUARE FEET
SHLDR	SHOULDER
SSD	STOPPING SIGHT DISTANCE
SEC LINE	SECTION LINE
SPEC	SPECIFICATION
STA	STATION
STD	STANDARD
STRUCT	STRUCTURE
SURV	SURVEY
SW	SIDEWALK
SY	SQUARE YARD
T	TANGENT
TA	TOP OF ASPHALT
TBC	TOP BACK OF CURB
TC	TOP OF CONCRETE
TEL	TELEPHONE
TEMP	TEMPORARY
THEOR	THEORETICAL
TP	TOP OF PAVEMENT
TR	TRAFFIC
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
WM	WATER MAIN
WV	WATER VALVE
XSEC	CROSS SECTION

Plot Scale: #####

Plotted From: zach.vlamnick

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FOR BIDDING PURPOSES ONLY

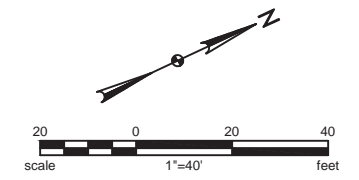
Plotting Date: 9/19/2024

PLAN AND PROFILE

MAINLINE

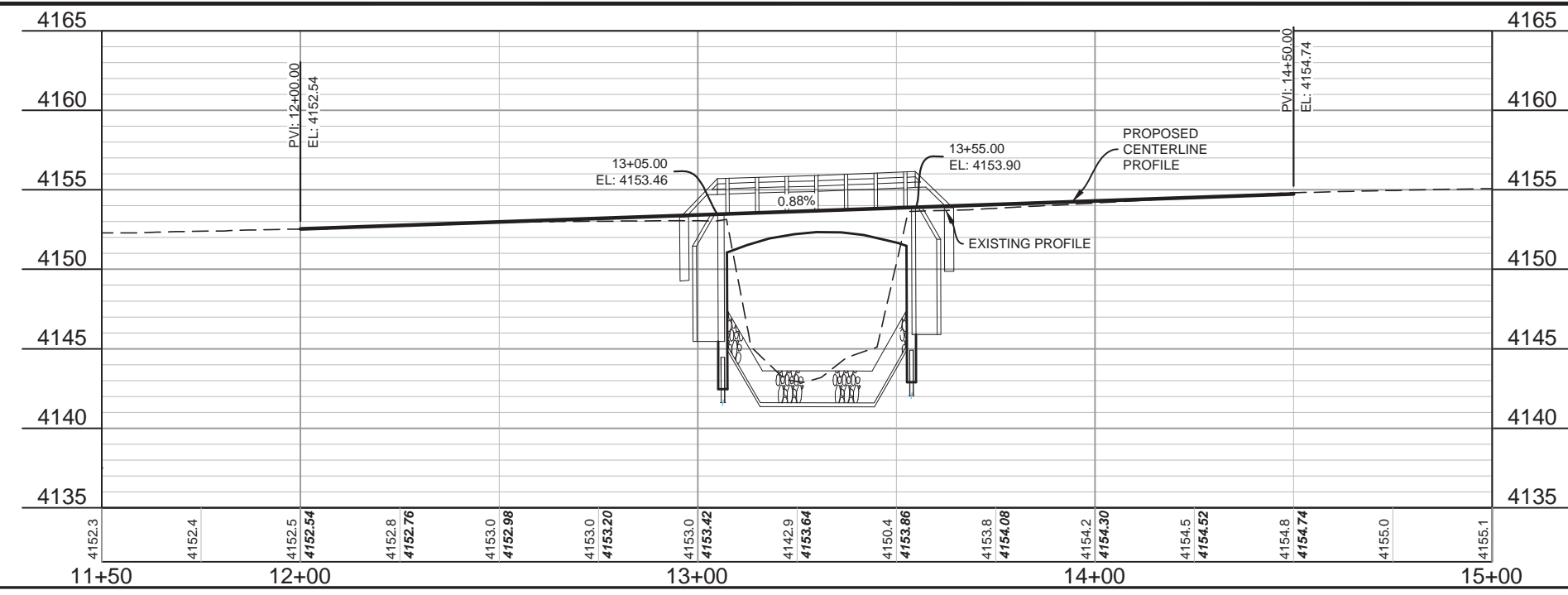
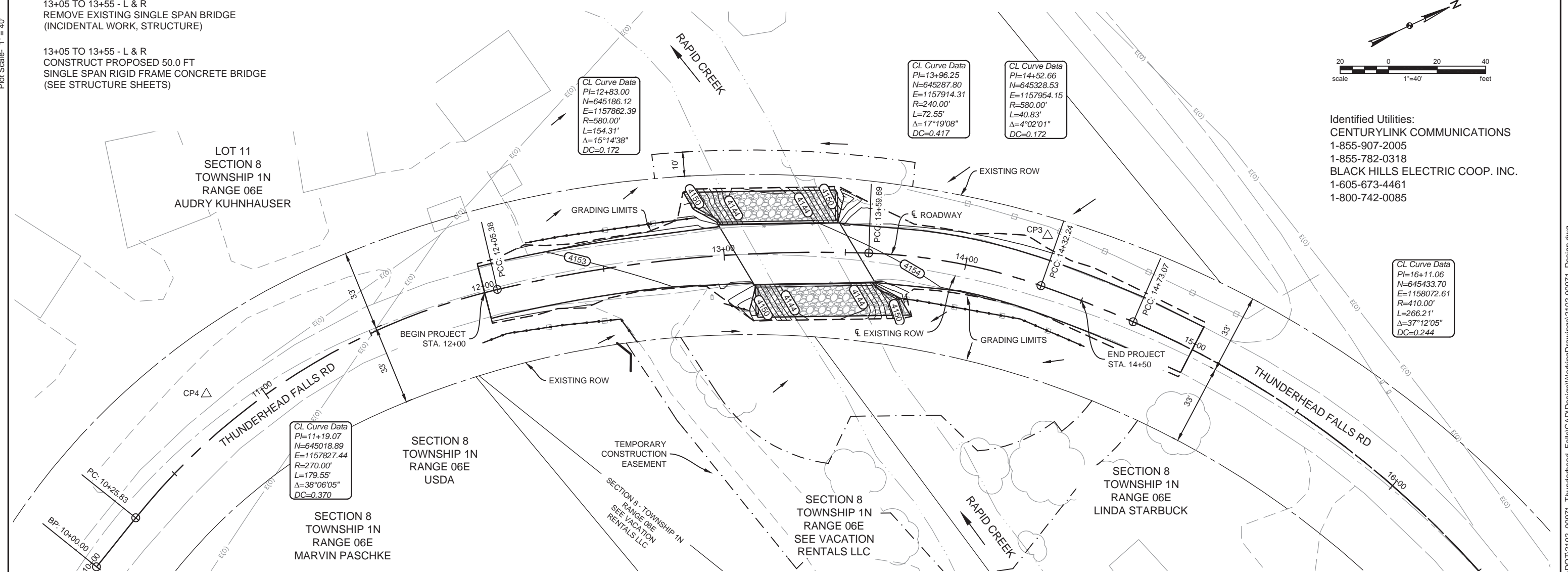
13+05 TO 13+55 - L & R
REMOVE EXISTING SINGLE SPAN BRIDGE
(INCIDENTAL WORK, STRUCTURE)

13+05 TO 13+55 - L & R
CONSTRUCT PROPOSED 50.0 FT
SINGLE SPAN RIGID FRAME CONCRETE BRIDGE
(SEE STRUCTURE SHEETS)



Identified Utilities:
CENTURYLINK COMMUNICATIONS
1-855-907-2005
1-855-782-0318
BLACK HILLS ELECTRIC COOP. INC.
1-605-673-4461
1-800-742-0085

Plot Scale- 1" = 40'



RAPID CREEK HYDRAULIC DATA		
Flow		Elev.
Q _d =	938 cfs	4150.4
Q ₁₀₀ =	3400 cfs	4155.2
Q _{OT} = Q ₄₀	1600 cfs	4152.3



Plotted From- zach.vlamnick

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PLAN AND PROFILE

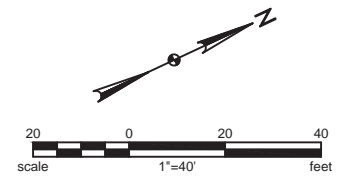
TEMPORARY TRAFFIC DIVERSION

Revised 10/2/24 FOR BIDDING PURPOSES ONLY

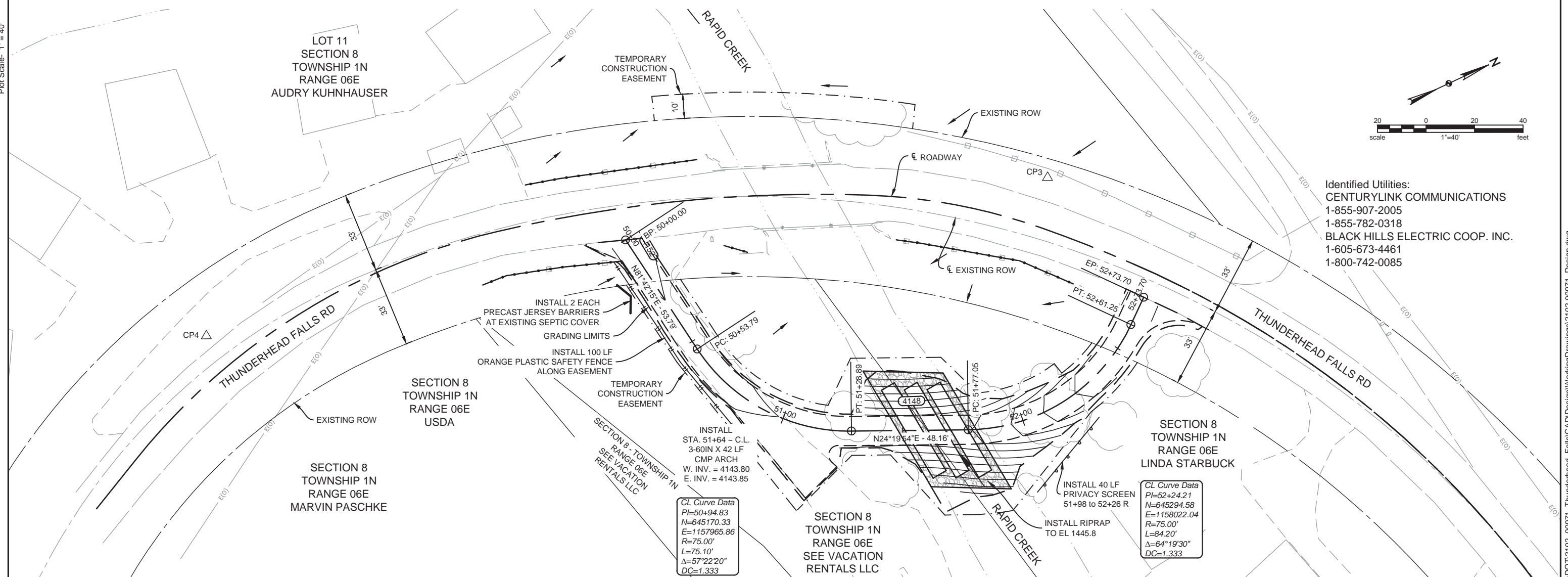
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	23	47

Plotting Date: 10/2/2024

Plot Scale- 1" = 40'

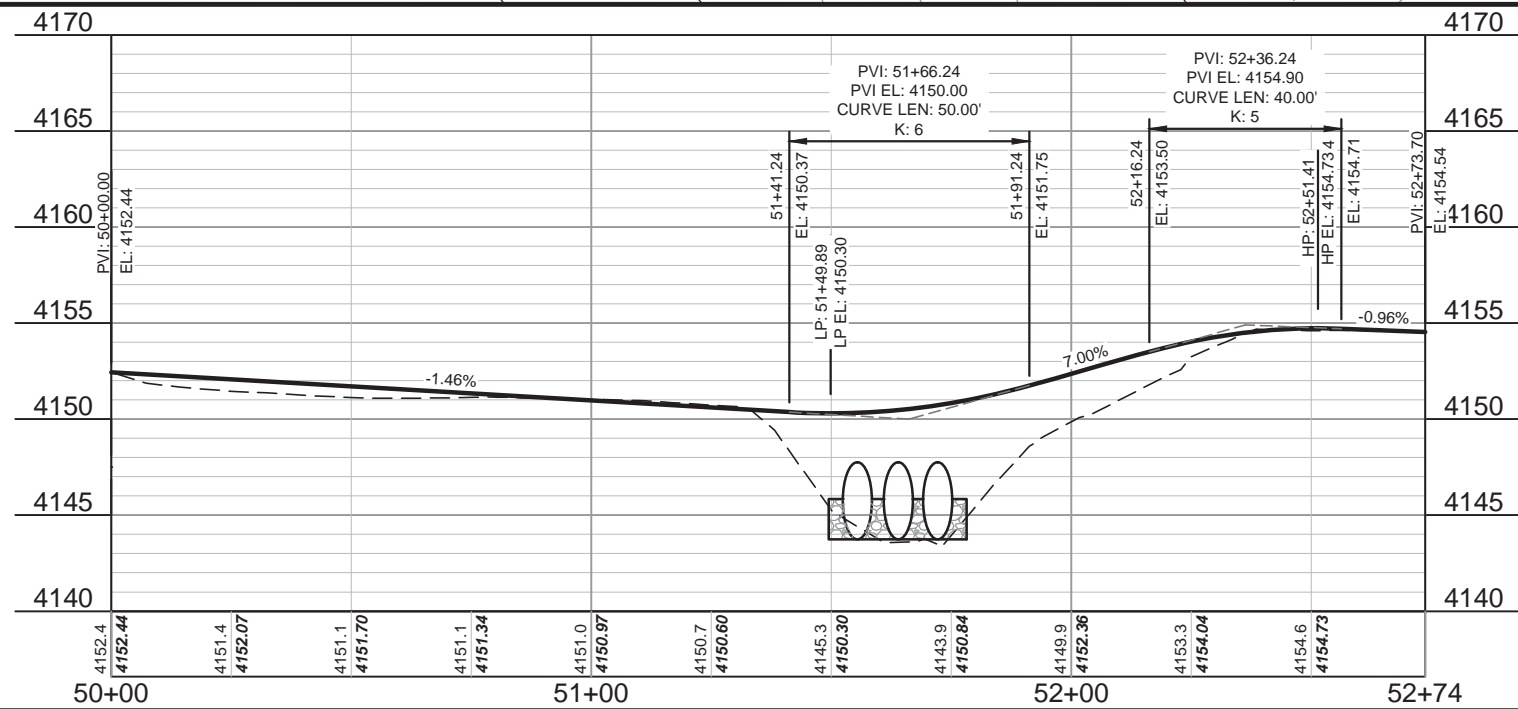


Identified Utilities:
 CENTURYLINK COMMUNICATIONS
 1-855-907-2005
 1-855-782-0318
 BLACK HILLS ELECTRIC COOP. INC.
 1-605-673-4461
 1-800-742-0085



CL Curve Data
 PI=50+94.83
 N=645170.33
 E=1157965.86
 R=75.00'
 L=75.10'
 Δ=57°22'20"
 DC=1.333

CL Curve Data
 PI=52+24.21
 N=645294.58
 E=1158022.04
 R=75.00'
 L=84.20'
 Δ=64°19'30"
 DC=1.333



Plotted From- zach.vlamnick

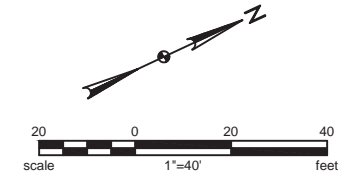
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EASEMENT PLAN

FOR BIDDING PURPOSES ONLY

KLI STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	24	47

Plotting Date: 9/19/2024



Plot Scale- 1" = 40'

Plotted From- zach.vlamnick

LOT 11
SECTION 8
TOWNSHIP 1N
RANGE 06E
AUDRY KUHNHAUSER

SECTION 8
TOWNSHIP 1N
RANGE 06E
USDA

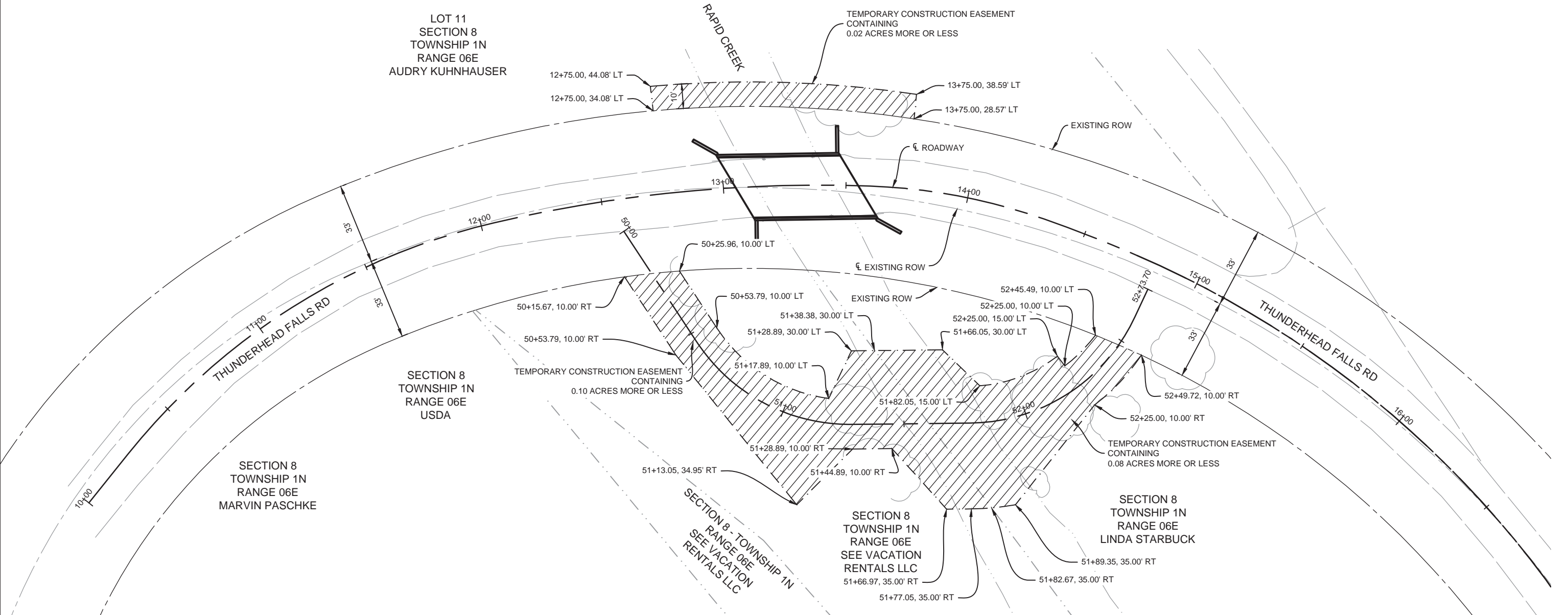
SECTION 8
TOWNSHIP 1N
RANGE 06E
MARVIN PASCHKE

SECTION 8 - TOWNSHIP 1N
RANGE 06E
SEE VACATION
RENTALS LLC

SECTION 8
TOWNSHIP 1N
RANGE 06E
SEE VACATION
RENTALS LLC

SECTION 8
TOWNSHIP 1N
RANGE 06E
LINDA STARBUCK


LEGEND	
	TEMPORARY CONSTRUCTION EASEMENT



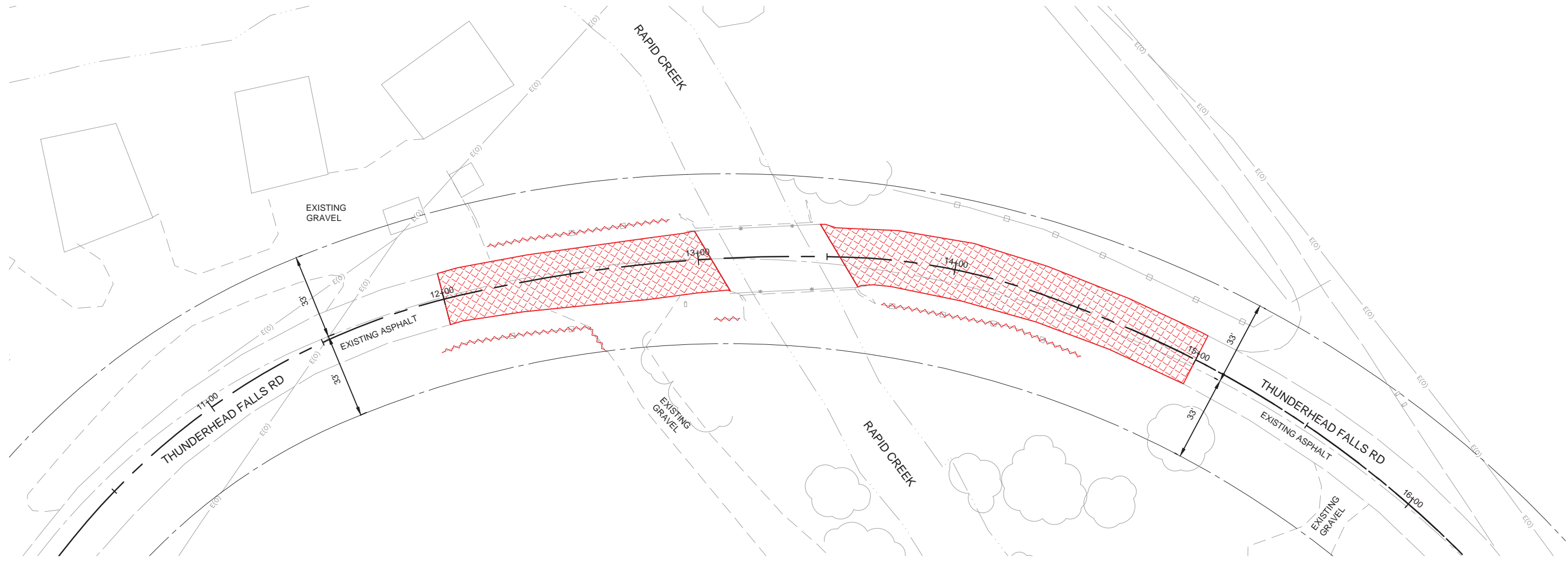
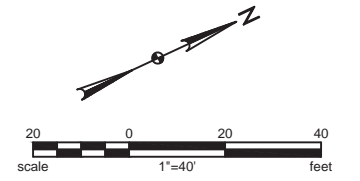
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REMOVAL PLAN

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	25	47

Plotting Date: 9/19/2024



LEGEND	
	REMOVE ASPHALT CONCRETE PAVEMENT
	REMOVE WOOD RAIL FENCE

- 11+94 TO 12+60 - R
REMOVE 70 FT WOOD RAIL FENCE
- 12+20 TO 12+90 - L
REMOVE 72 FT WOOD RAIL FENCE
- 13+05 TO 13+15 - R
REMOVE 10 FT WOOD RAIL FENCE
- 13+73 TO 14+58 - R
REMOVE 81 FT WOOD RAIL FENCE

- 12+00 TO 13+05 - L & R
REMOVE 262.8 SQ. YD ASPHALT CONCRETE PAVEMENT
- 13+55 TO 15+00 - L & R
REMOVE 352.6 SQ. YD ASPHALT CONCRETE PAVEMENT




Plot Scale- 1" = 40'

Plotted From- zach.vlamnick

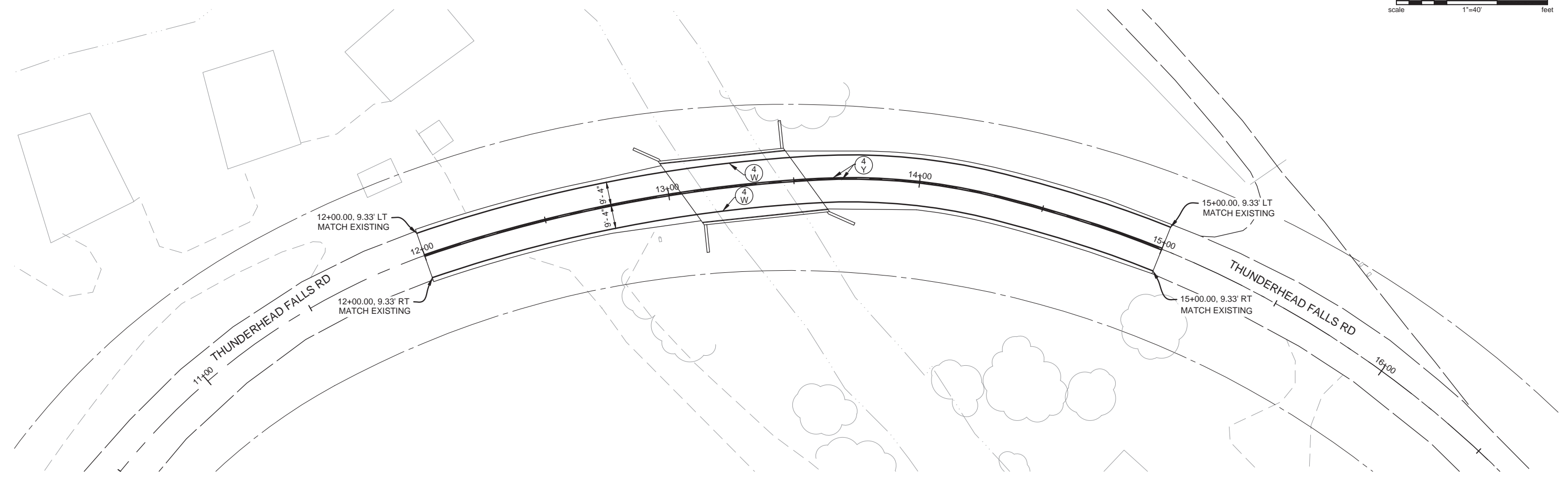
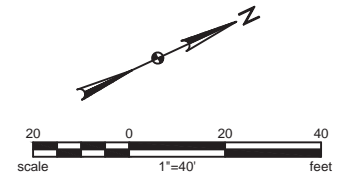
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PAVEMENT MARKING LAYOUT

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	26	47

Plotting Date: 9/19/2024



ESTIMATE OF QUANTITIES			
KEY	ITEM	UNIT	QUANTITY
(4 W)	High Build Waterborne Pavement Marking Paint, 4" White	Ft	600
(4 Y)	High Build Waterborne Pavement Marking Paint, 4" Yellow	Ft	600



Plot Scale: #####

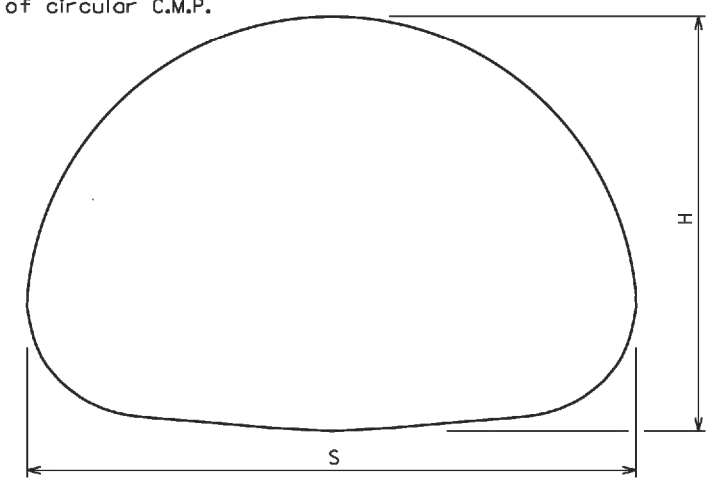
Plotted From: zach.vlamnick

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Plotting Date: 09/19/2024

2 ² / ₃ " x 1/2" CORRUGATIONS				3" X 1" CORRUGATIONS		
• Dia. (in.)	S Span (in.)	H Rise (in.)	Area (Sq. Ft.)	S Span (in.)	H Rise (in.)	Area (Sq. Ft.)
15	17	13	1.1			
18	21	15	1.6			
21	24	18	2.2			
24	28	20	2.8			
30	35	24	4.4			
36	42	29	6.4	40	31	7.0
42	49	33	8.7	46	36	9.4
48	57	38	11.4	53	41	12.3
54	64	43	14.3	60	46	15.6
60	71	47	17.6	66	51	19.3
66	77	52	21.3	73	55	23.2
72	83	57	25.3	81	59	27.4
78				87	63	32.1
84				95	67	37.0
90				103	71	42.4
96				112	75	48.0
102				117	79	54.2
108				128	83	60.8
114				137	87	67.4
120				142	91	74.5

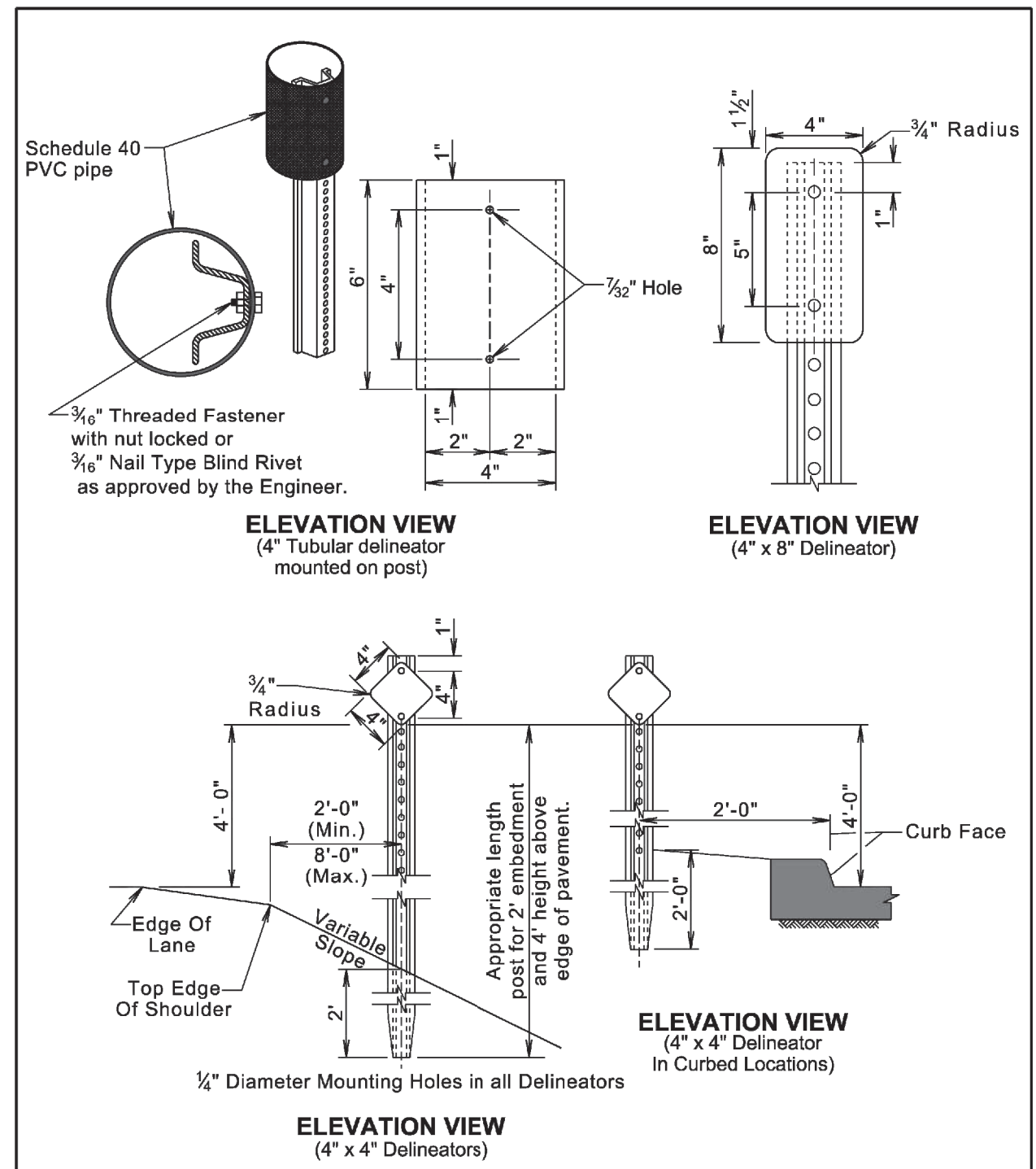
* Equivalent diameter of circular C.M.P.



GENERAL NOTE:
All dimensions measured from inside crest.

March 31, 2000

S D D O T	CORRUGATED METAL PIPE ARCH CULVERT	PLATE NUMBER 450.30
	<i>Published Date: 2025</i>	Sheet 1 of 1



GENERAL NOTES:

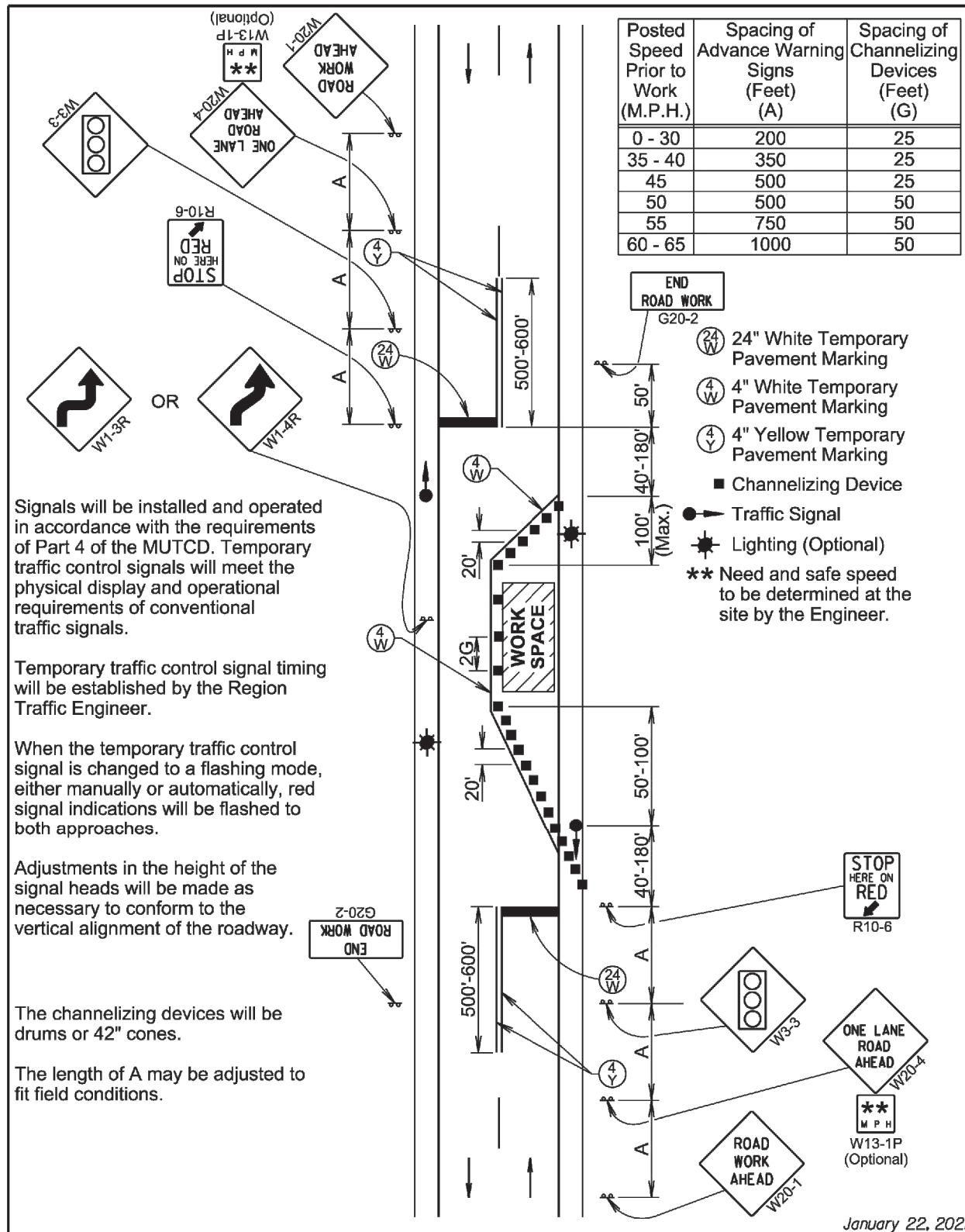
Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

March 31, 2024

S D D O T	DELINEATOR INSTALLATION DETAIL	PLATE NUMBER 632.42
	<i>Published Date: 2025</i>	Sheet 1 of 1

Plotted From: zach vlamincik

File: K:\Projects\State\SD\DOT\2102_00971_Thunderhead_Fails\CAD\Design\Plans\Sections\2102-00971_Standard Plates.dwg



Published Date: 2025

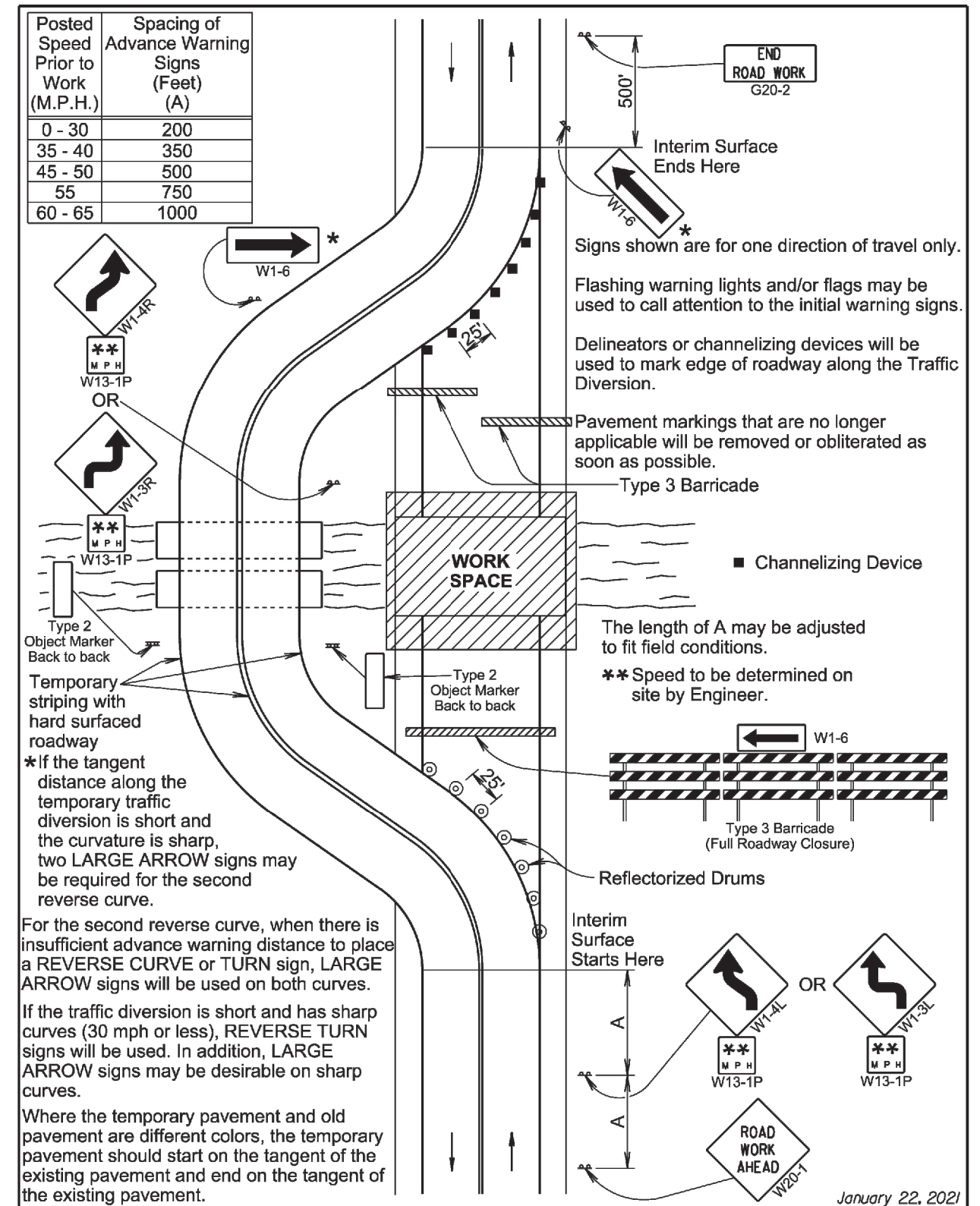
SD DOT

LANE CLOSURE USING TRAFFIC SIGNALS

PLATE NUMBER 634.26

Sheet 1 of 1

January 22, 2021



Published Date: 2025

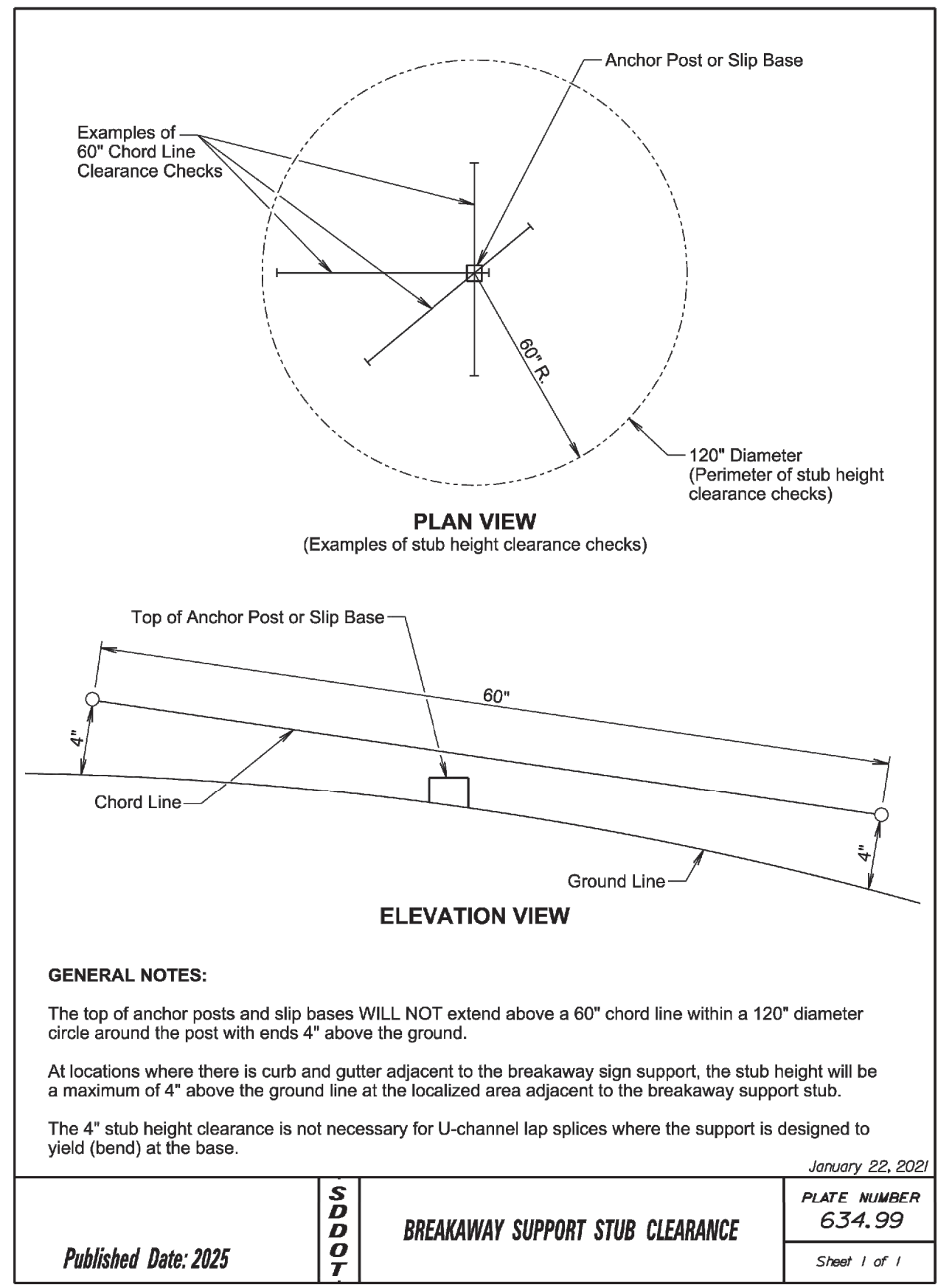
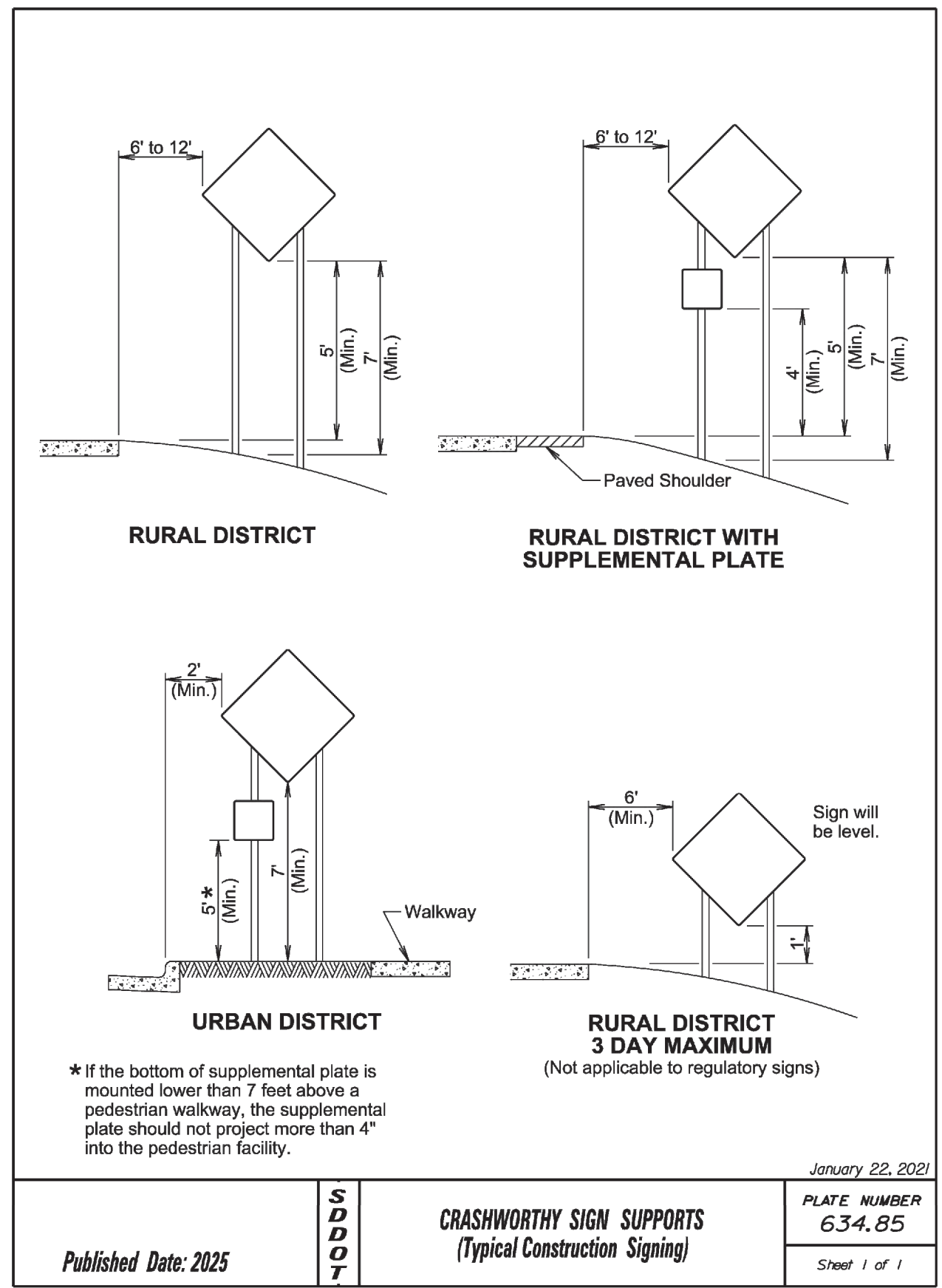
SD DOT

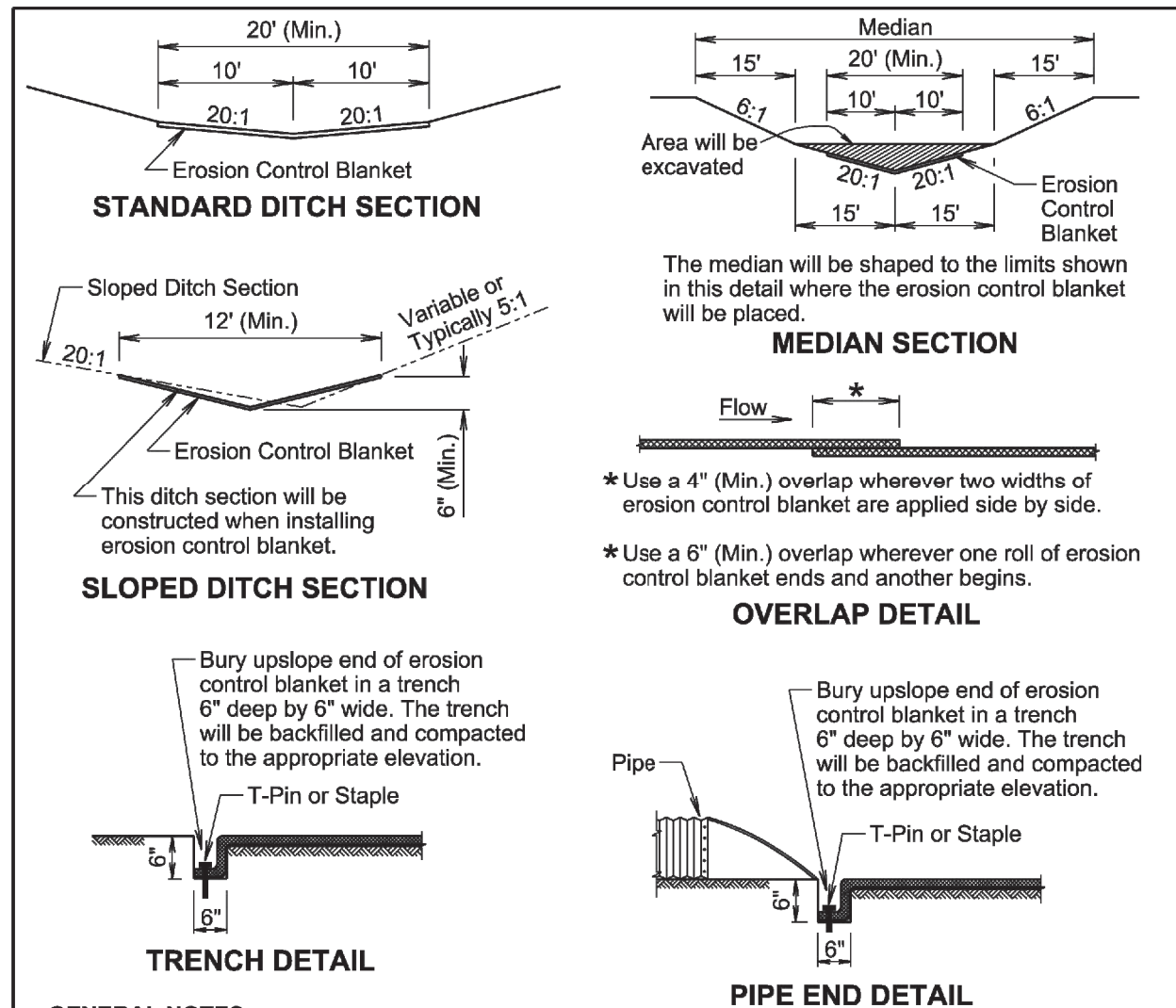
ROAD CLOSED WITH TRAFFIC DIVERTED

PLATE NUMBER 634.28

Sheet 1 of 1

January 22, 2021





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.

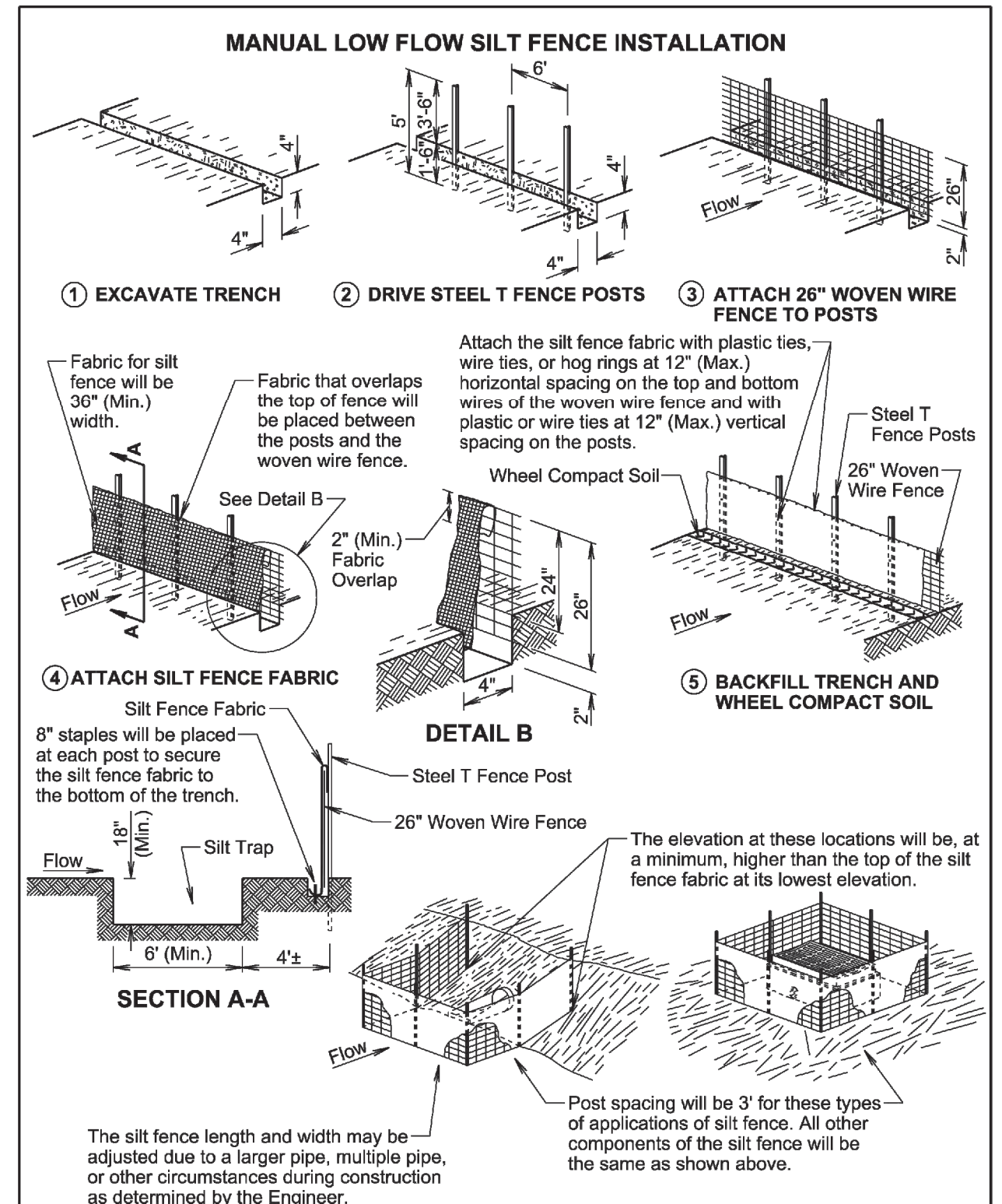
The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

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: 2025	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1



February 14, 2020

Published Date: 2025	S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

Plotting Date: 09/19/2024

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

1 INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.
Silt fence fabric will be overlapped a minimum of 2" at top of woven wire fence.

2 WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.
Attach the silt fence fabric with plastic ties, wire ties, or hog rings at 12" (Max.) horizontal spacing on the top and bottom wires of the woven wire fence and with plastic or wire ties at 12" (Max.) vertical spacing on the posts.

3 ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.
The elevation at these locations will be, at a minimum, higher than the top of the silt fence fabric at its lowest elevation.

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

The radius of the silt fence will be the minimum capable by the slicing machine. The post spacing will be 3' for these types of applications of silt fence. All the other components of the silt fence will be the same as shown above.

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

SD DOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
	Published Date: 2025	Sheet 2 of 2

GENERAL NOTES:
Where practical, surface roughening will be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.
The equipment used for surface roughening will be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening will be approved by the Engineer.
Measurement for surface roughening will be to the nearest tenth of an acre.
All costs associated with surface roughening including labor, equipment, and materials will be incidental to the contract unit price per acre for "Surface Roughening".

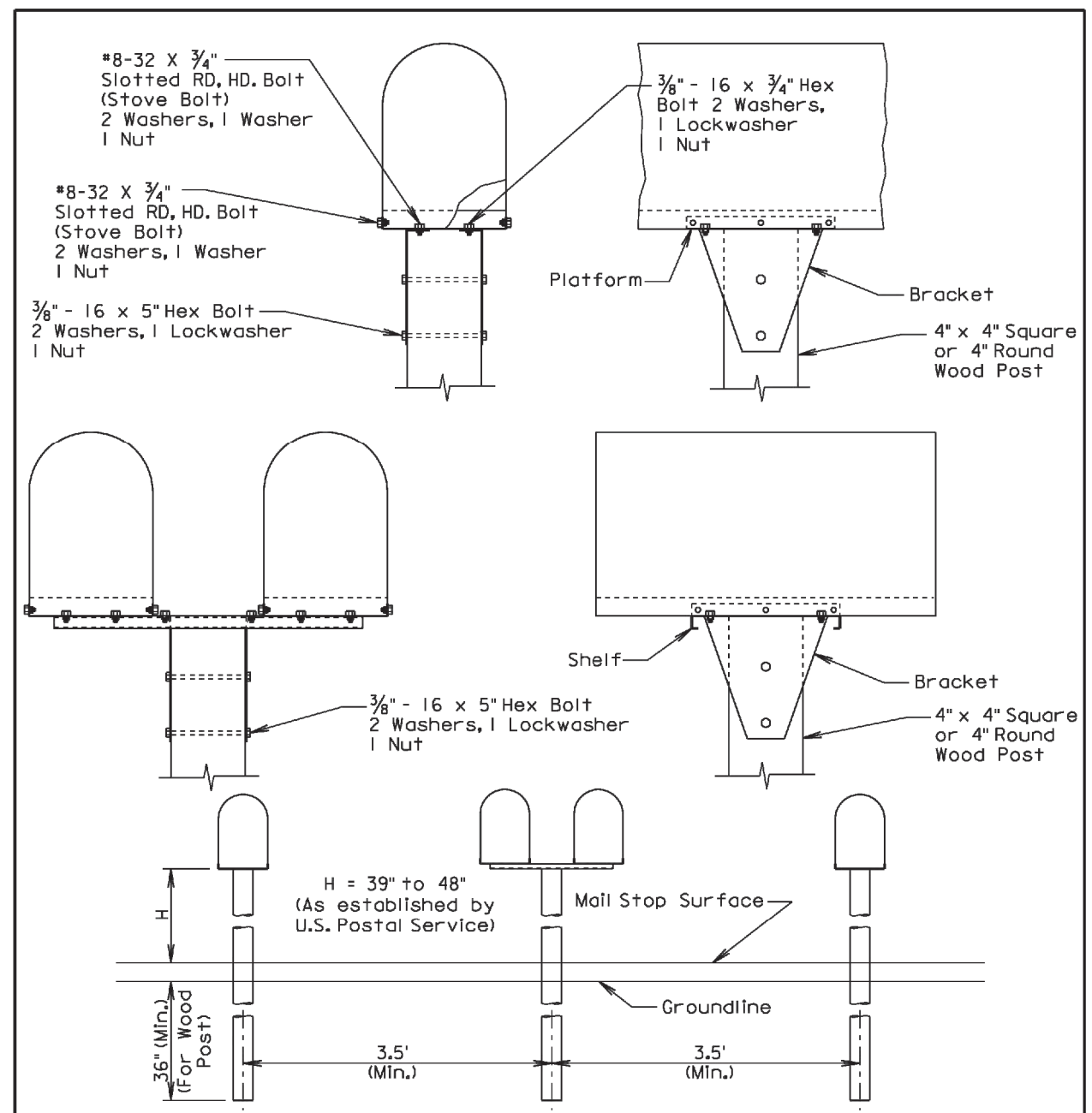
February 14, 2020

SD DOT	SURFACE ROUGHENING	PLATE NUMBER 734.25
	Published Date: 2025	Sheet 1 of 1

Plotted From: zach vlaminc

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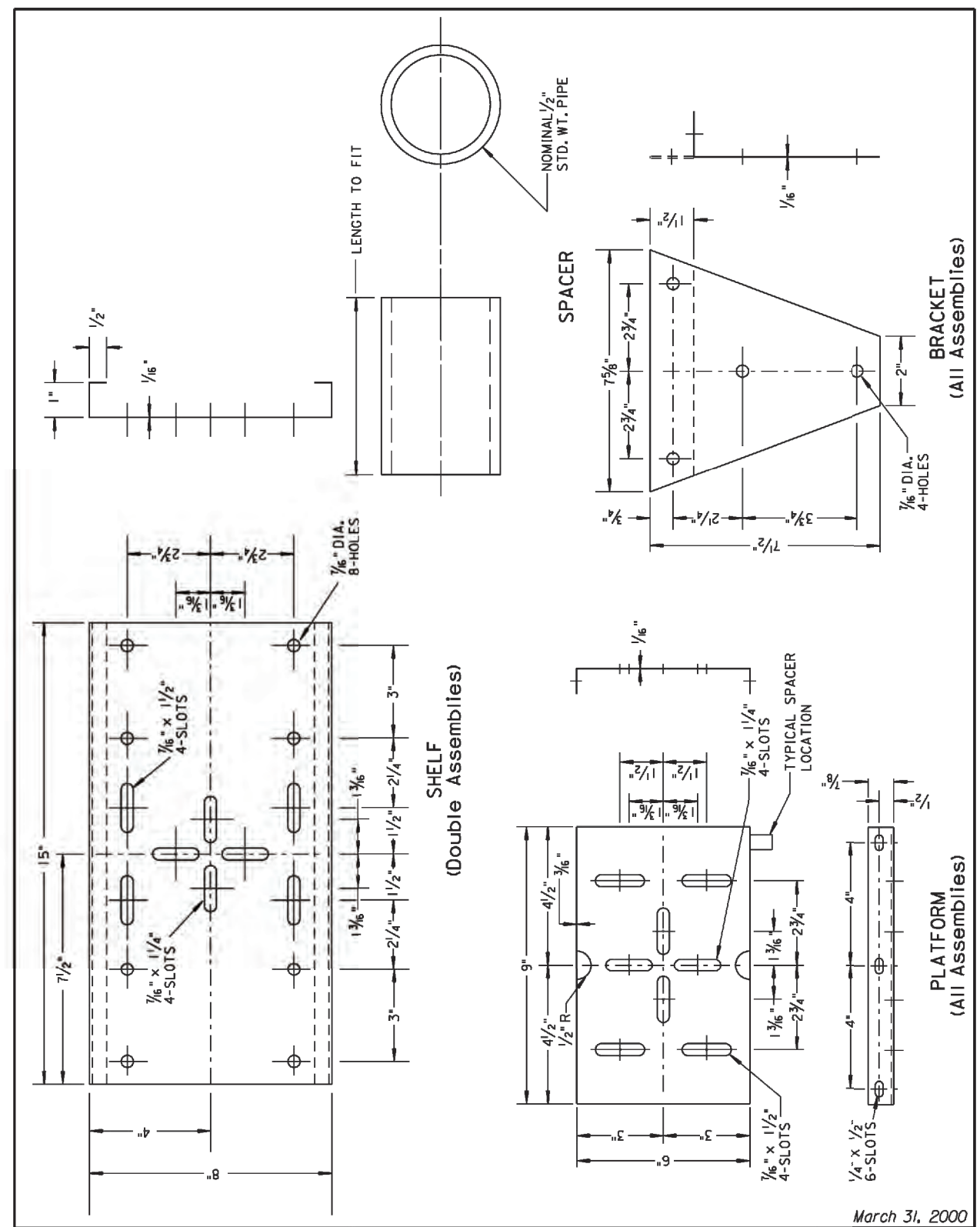
Plotting Date: 09/19/2024



GENERAL NOTES:
SPACING FOR MULTIPLE POST INSTALLATION
 The post support assemblies provided should be consistent throughout the project. Single and double mailboxes may be in any sequence.
 Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.
 Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

<i>Published Date: 2025</i>	S D D O T	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
			Sheet 1 of 1



<i>Published Date: 2025</i>	S D D O T	MAILBOX SUPPORT HARDWARE	PLATE NUMBER 900.03
			Sheet 1 of 1


Plotted From: zach vlaminc

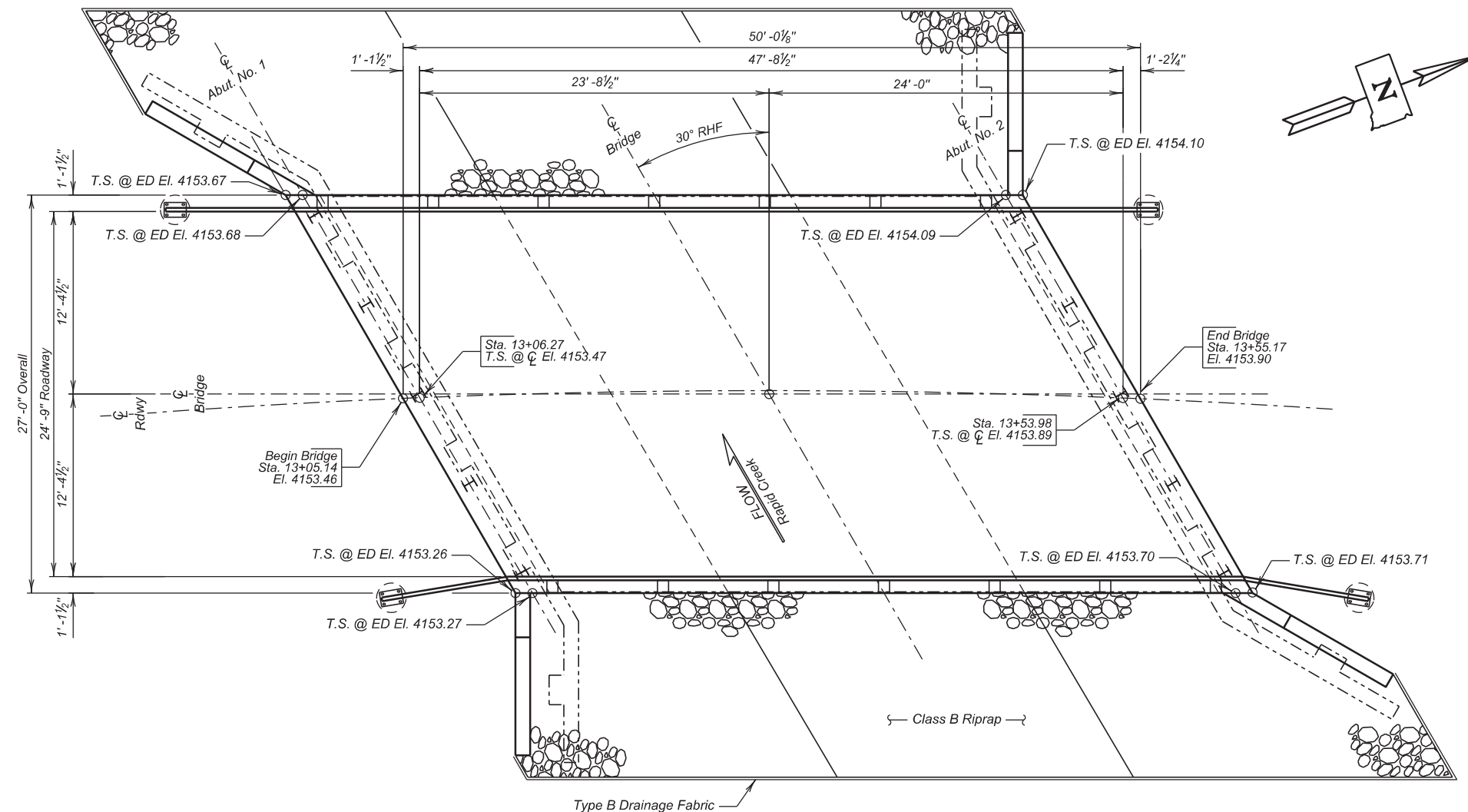
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The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

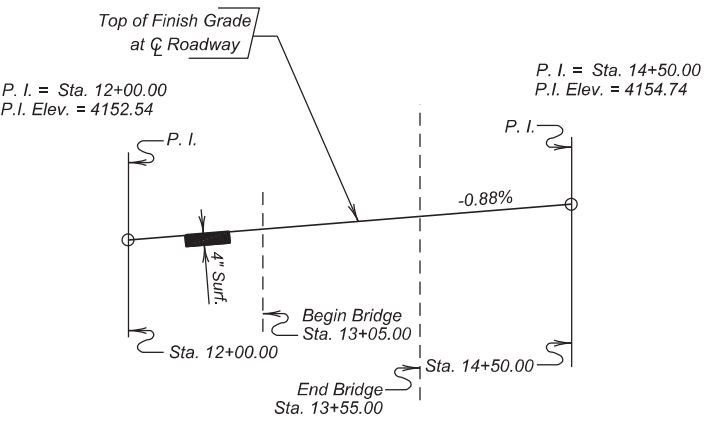
NOTES:
 T.S. @ C Elev. = Top of Slab at Centerline Elevation
 T.S. @ ED Elev. = Top of Slab at Edge of Deck

FOR BIDDING PURPOSES ONLY

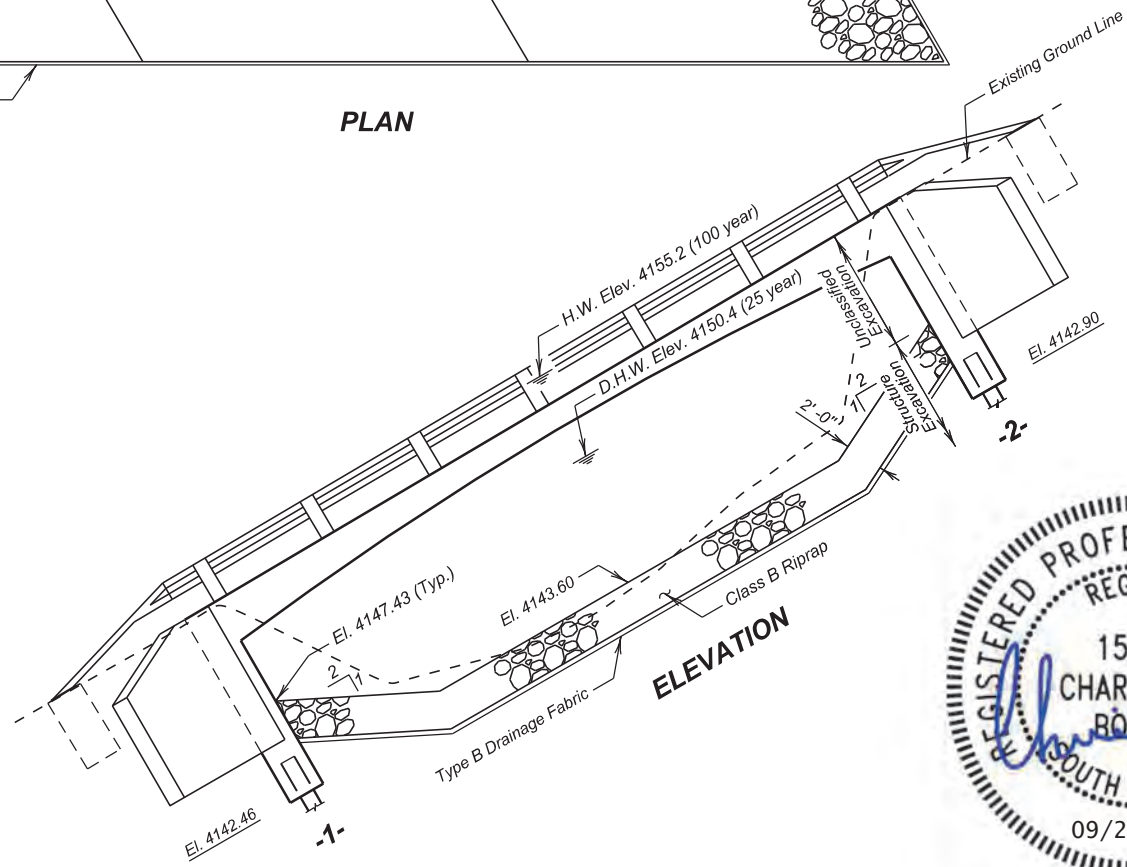
 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	33	47



PLAN



GRADELINE DATA



ELEVATION

**-X020-
INDEX OF BRIDGE SHEETS**

- Sheet No. 1 - General Drawing
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Subsurface Investigation and Pile Layout
- Sheet No. 5 - Abutment Details (A)
- Sheet No. 6 - Abutment Details (B)
- Sheet No. 7 - Abutment Details (C)
- Sheet No. 8 - Superstructure Details (A)
- Sheet No. 9 - Superstructure Details (B)
- Sheet No. 10 - Type T101 Bridge Railing Details
- Sheet No. 11 - Details of Bridge End Backfill
- Sheet No. 12 - Riprap Layout
- Sheet No. 13 - Standard Plates

HYDRAULIC DATA

Q_d	938 cfs
A_d	275 sq. ft.
V_d	4.5 fps
Q_F	938 cfs
Q_{100}	3400 cfs
$Q_{OT_{fr}}$	1600 cfs
V_{MAX}	4.8 fps

Q_d = Design discharge for the proposed bridge based on 25 year frequency. Elev. 4150.4
 $Q_{OT_{fr}}$ = Overtopping discharge and frequency 40 year recurrence interval. Elev. 4152.3 @ Sta. 11+50
 Q_F = Designated peak discharge for the basin approaching proposed project based on 25 year frequency.
 Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. Elev. 4155.2
 V_{MAX} = Maximum computed outlet velocity for the proposed bridge, based on 100 year frequency.
 The hydraulic data contained in these plans is valid only if the overflow 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.



**GENERAL DRAWING
FOR
50'-0" CONCRETE RIGID FRAME BRIDGE**
 24'-6" ROADWAY
 OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313
 PCN 08N2

SEC. 8-T1N-R6E
 30° RHF SKEW
 BRO-B 8052(76)
 HL-93

PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

DESIGNED BY EW	CK. DES. BY CB	DRAFTED BY BJ	BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM	QUANTITY	UNIT	Remarks
Concrete Penetrating Sealer	150.0	SqYd	See Special Provision
Incidental Work, Structure	Lump Sum	LS	
Structure Excavation, Bridge	436	CuYd	
Bridge End Embankment	469	CuYd	
Granular Bridge End Backfill	44.7	CuYd	
Class A45 Concrete, Bridge Deck	88.6	CuYd	
Class A45 Concrete, Bridge	52.7	CuYd	
Type 101 Bridge Railing	132	Ft	
Reinforcing Steel	5,192	Lb	
Epoxy Coated Reinforcing Steel	19,266	Lb	
Extract Pile	2	Each	
HP 10 Pile Tip Reinforcement	10	Each	
HP 10X57 Steel Test Pile, Furnish and Drive	40	Ft	
HP 10X57 Steel Bearing Pile, Furnish and Drive	120	Ft	
2" Rigid Conduit, Schedule 40	16	Ft	
Class B Riprap	329.8	Ton	
Type B Drainage Fabric	369	SqYd	

BRIDGE SPECIFICATIONS

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

BRIDGE DESIGN LOADING

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

DESIGN MATERIAL STRENGTHS

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

GENERAL CONSTRUCTION

1. All mild reinforcing will conform to ASTM A615, Grade 60.
2. All lap splices shown are contact lap splices unless noted otherwise.

3. All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
4. Use 2-inch clear cover on all reinforcing steel except as shown.
5. Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
6. Requests for construction joints or reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.
7. The elevation of the bridge deck is 12 inches above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

1. In place centerline Sta. 13+07 to centerline Sta. 13+53 is a 45' single span bridge with a 24'-0" clear roadway. The superstructure consists of seven precast prestressed concrete double tee beams with steel bridge railings mounted to the beams. The top flanges of the beams serve as the deck and has been overlaid with 2 inches of asphalt. The abutments and wingwalls are vertical concrete supported by steel H-piles.
2. Break down and remove the existing bridge to 1-foot below finished groundline, or as required to construct the new structure in accordance with Section 110 of the Construction Specifications. All portions of the existing bridge will be removed and disposed of by the Contractor on a site obtained by the Contractor and approved by the Engineer in accordance with the Environmental Commitments.
3. During demolition of the structure, efforts will be taken to prevent material from falling into the creek. Under no circumstances is asphalt allowed to fall into the creek.
4. It is anticipated that at least two (2) existing steel piles will interfere with piling for the new structure. Any existing steel pile that interferes with piling for the new structure will be extracted. Payment for the extraction of pile will be contract unit price per each for Extract Pile and will be full compensation for extracting piling including materials, labor, and equipment necessary or incidental to the satisfactory completion of this work.
5. The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it will be the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved.

NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure may contain lead. The Contractor should plan operations accordingly and inform employees of the hazards of lead exposure.

DESIGN MIX OF CONCRETE

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

ABUTMENTS

1. The HP 10x57 Piling were designed using a factored bearing resistance of 105 tons per pile. Piling will develop a field verified nominal bearing resistance of 262 tons per pile.
2. One test pile will be driven at each abutment and will become part of the pile group.
3. Piles will not be driven out of position by more than three inches in the direction parallel to the slab centerline. A pile-driving template will be used to ensure this accuracy.
4. It is anticipated that cofferdams will be necessary. Cofferdams will be designed and constructed in accordance with Section 423 of the specifications.
5. Construct the wingwalls and backfill behind the abutment after the footing, abutment wall and superstructure have reached design strength. Maintain equal backfill depth in front of and behind the abutment and wingwalls to maintain balanced loading. Both abutments will be backfilled simultaneously.
6. Pile tip reinforcement will be required. See Standard Plate 510.30.



ESTIMATE OF QUANTITIES AND NOTES FOR 50'-0" CONCRETE RIGID FRAME BRIDGE

Str. No. 52-317-133

2 OF 13

DESIGNED BY: EW	DRAWN BY: BJ	CHECKED BY: CB	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8052(76)	35	47

PILE DRIVING

Steel piling will obtain bearing on schist bedrock. This material is extremely hard and impermeable by nature. Care will be taken during pile driving operations not to overstress the piles when the tips encounter bedrock.

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

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

ABUTMENT BACKWALL COATING

The material for waterproofing the abutment backwall will be one of the products from the approved products list. The acceptable abutment backwall coating suppliers are listed on the approved products list at the following Internet address:

<http://apps.sd.gov/applications/HC60ApprovedProducts/ProductList.aspx>

The cost of furnishing and applying the coating will be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge.

SUPERSTRUCTURE

1. Preplanned construction joints may be used in accordance with Section 460.3 of the Construction Specifications. Contact the Office of Bridge Design for joint configuration and allowable location. Emergency slab construction joints will be as shown with the superstructure details. If an emergency slab joint is used, contact the Office of Bridge Design before proceeding with deck pour.
2. The use of an approved deck finishing machine will be required during placement of bridge deck concrete. The deck finishing machine will be adjusted and operated in such a manner that the screed or screeds are parallel with the centerline of the bridge. The finish machine and concrete placement will be parallel to the skew of the bridge.
3. Superstructure falsework will not be removed until bridge deck concrete, has attained a strength of 2400 psi.
4. The minimum pour rate will be in accordance with Section 460.3.J.2 of the Construction Specifications.
5. See Special Provisions for Concrete Penetrating Sealer.

SHOP PLANS

Shop plans will be required as specified by the Construction Specifications.

The fabricator will submit shop plans in accordance with the Construction Specifications. Send shop plan submittals to KLJ Engineering, 330 Knollwood Drive, Rapid City, SD 57701 (shawn.mayfield@kljeng.com). After review, corrections (if necessary), and approval by KLJ Engineering, the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

CHANNEL WORK

In order to assure the hydraulic capacity of the bridge, the finished ground under the bridge will be shaped to match the upstream channel and flood plain. The existing low water channel will be maintained as near as practical to the existing location. Bridge berms will be built as shown on the General Drawing sheet.

EXCAVATION SIDE SLOPES

All excavations will comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches". This document States that the excavations safety is the responsibility of the Contractor.

BRIDGE END BACKFILL

Large compaction equipment will not be used adjacent to the abutment walls or wingwalls.

BOLT TESTING

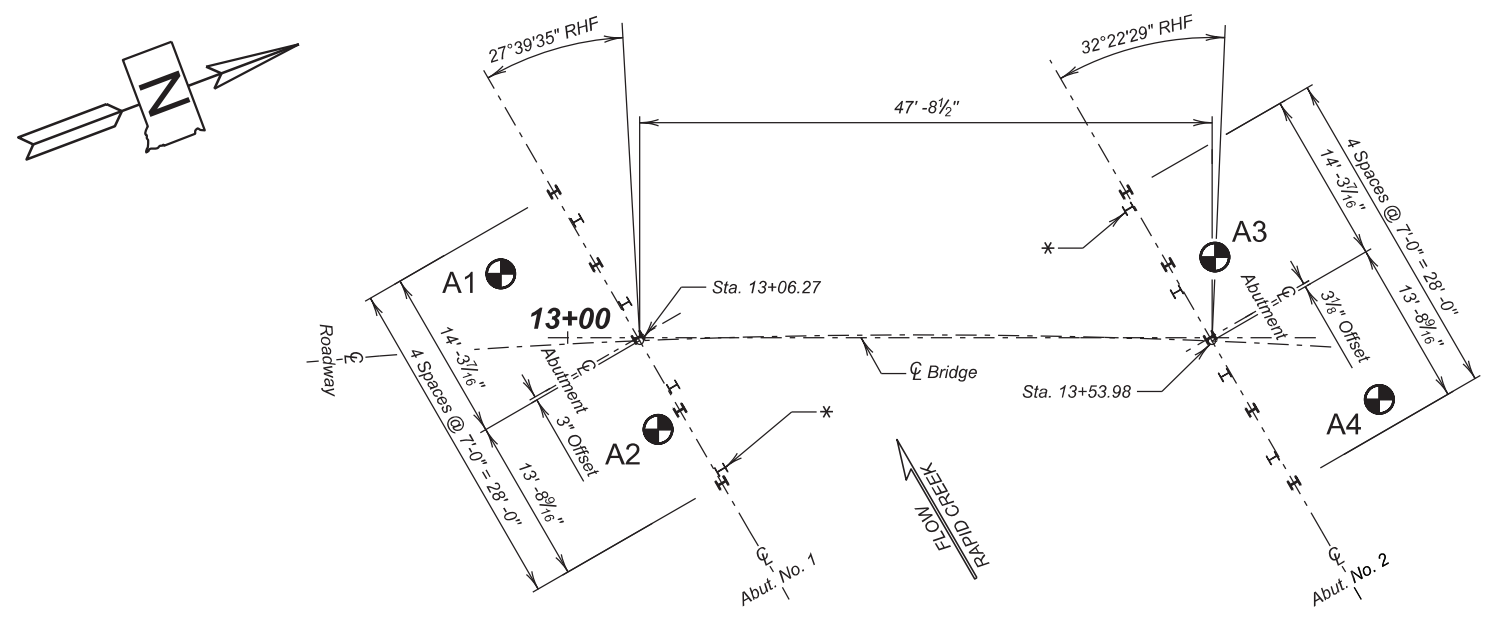
The certificate mill test reports for all bolts used on the project will include the test results for all testing specified in section 972.2 D of the Construction Specifications. Some of these tests are supplemental tests that must be requested at the time the bolts are ordered. It is the responsibility of the Contractor to notify the bolts supplier of these requirements.



NOTES (CONTINUED)
FOR
**50'-0" CONCRETE RIGID FRAME
BRIDGE**

Str. No. 52-317-313 3 OF 13

DESIGNED BY: EW	DRAWN BY: BJ	CHECKED BY: CB	BRIDGE ENGINEER
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PILING LAYOUT

NOTE:
* Existing pile to be extracted

Schist is a foliated metamorphic rock formed by metamorphosis of mudstone and shale. Slabs of schist can range from a few inches to a few feet thick. The orientation and durability of schist may be affected by intrusions of quartz or other igneous rocks

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

LEGEND

- ⊕ Auger Test
- ▽ Water

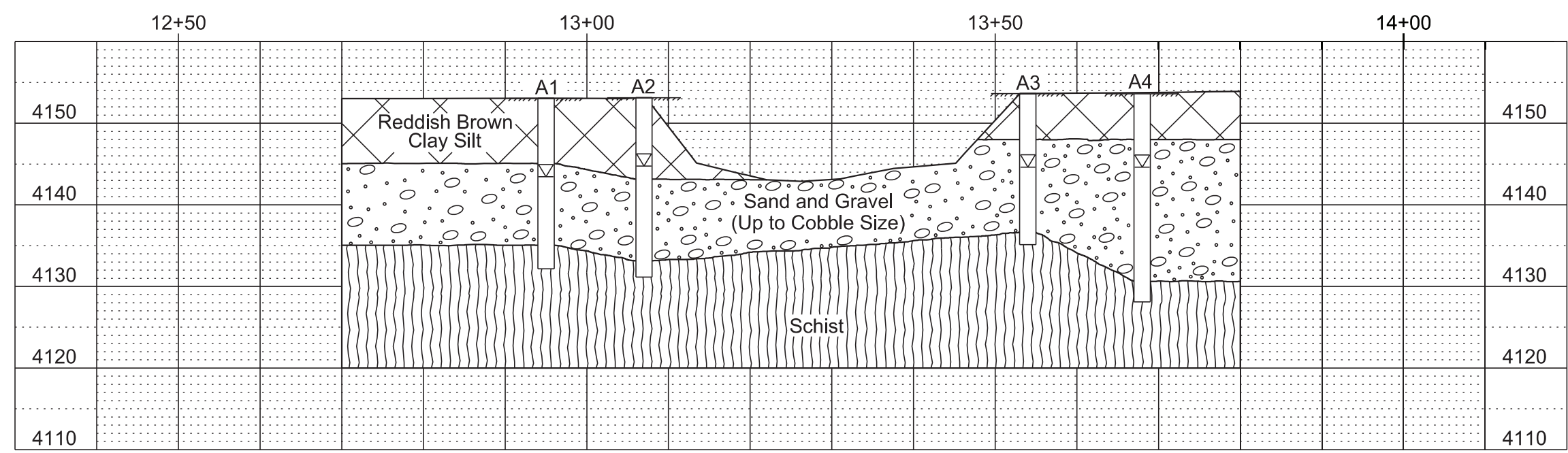
All auger test holes are drilled with a 4 1/2 inch diameter continuous flight auger.



GROUNDWATER ELEVATIONS

AUGUST 2022

A1	4143.5
A2	4144.7
A3	4144.6
A4	4144.6

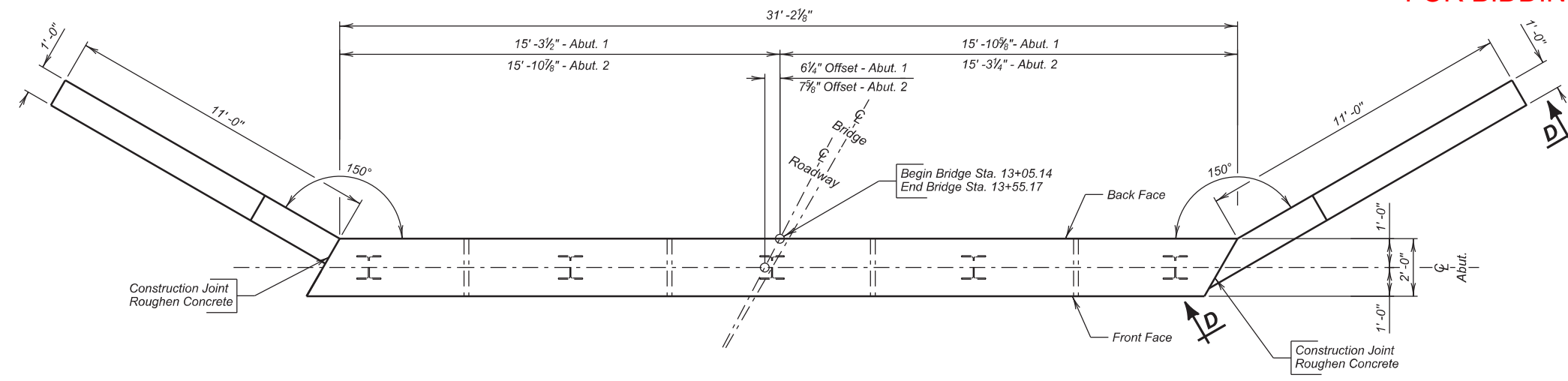


SUBSURFACE INVESTIGATION AND PILE LAYOUT FOR
50'-0" CONCRETE RIGID FRAME BRIDGE
 24'-6" ROADWAY OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313 PCN 08N2
 SEC. 8-T1N-R6E 30° RHF SKEW
 BRO-B 8052(76) HL-93

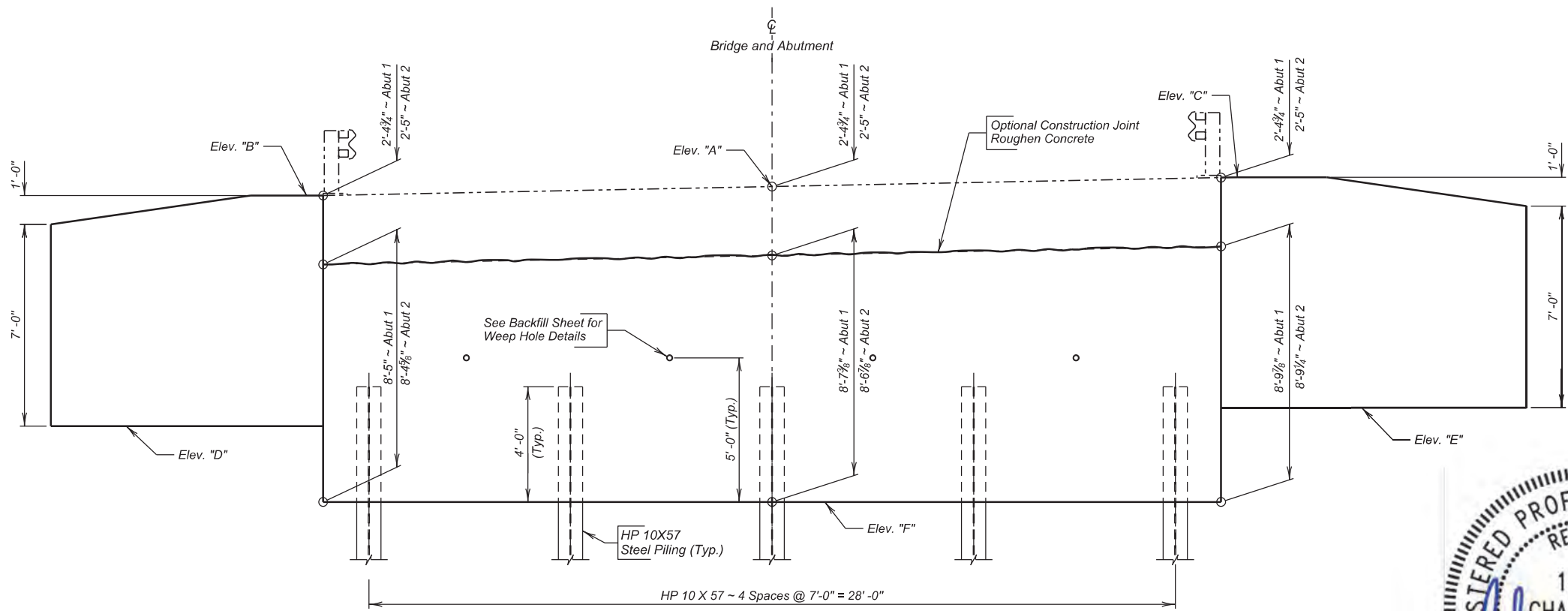
PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

DESIGNED BY EW	CK. DES. BY KG	DRAFTED BY HK	BRIDGE ENGINEER
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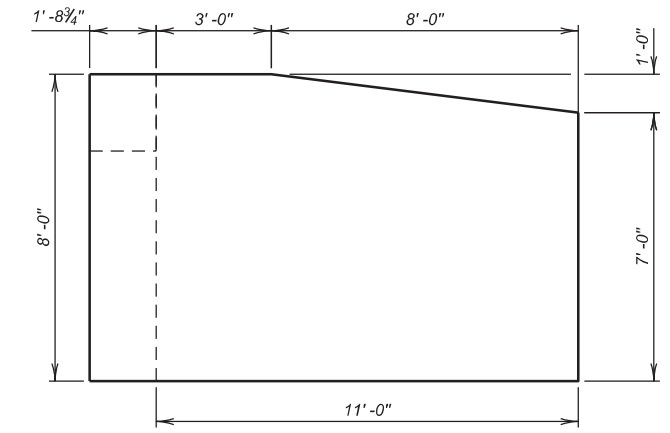
PLAN
(Abut. No. 1 Shown, Abut. No. 2 Similar, by opposite hand)



ELEVATION
(Along ϕ Abutment)

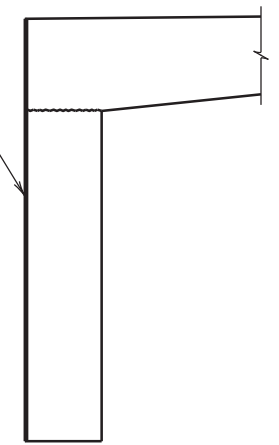
NOTE:
Elevations "B" and "C" are top of slab @ edge of deck @ centerline of abutment.

TABLE OF ELEVATIONS						
Abutment	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"
No. 1	4153.47	4153.27	4153.68	4145.27	4145.68	4142.46
No. 2	4153.89	4153.70	4154.09	4145.70	4146.09	4142.90



VIEW D - D

Coat backface of Abut. between wings with approved waterproof sealant. (See Notes regarding Backwall Coating)



ABUTMENT BACKWALL COATING DETAILS

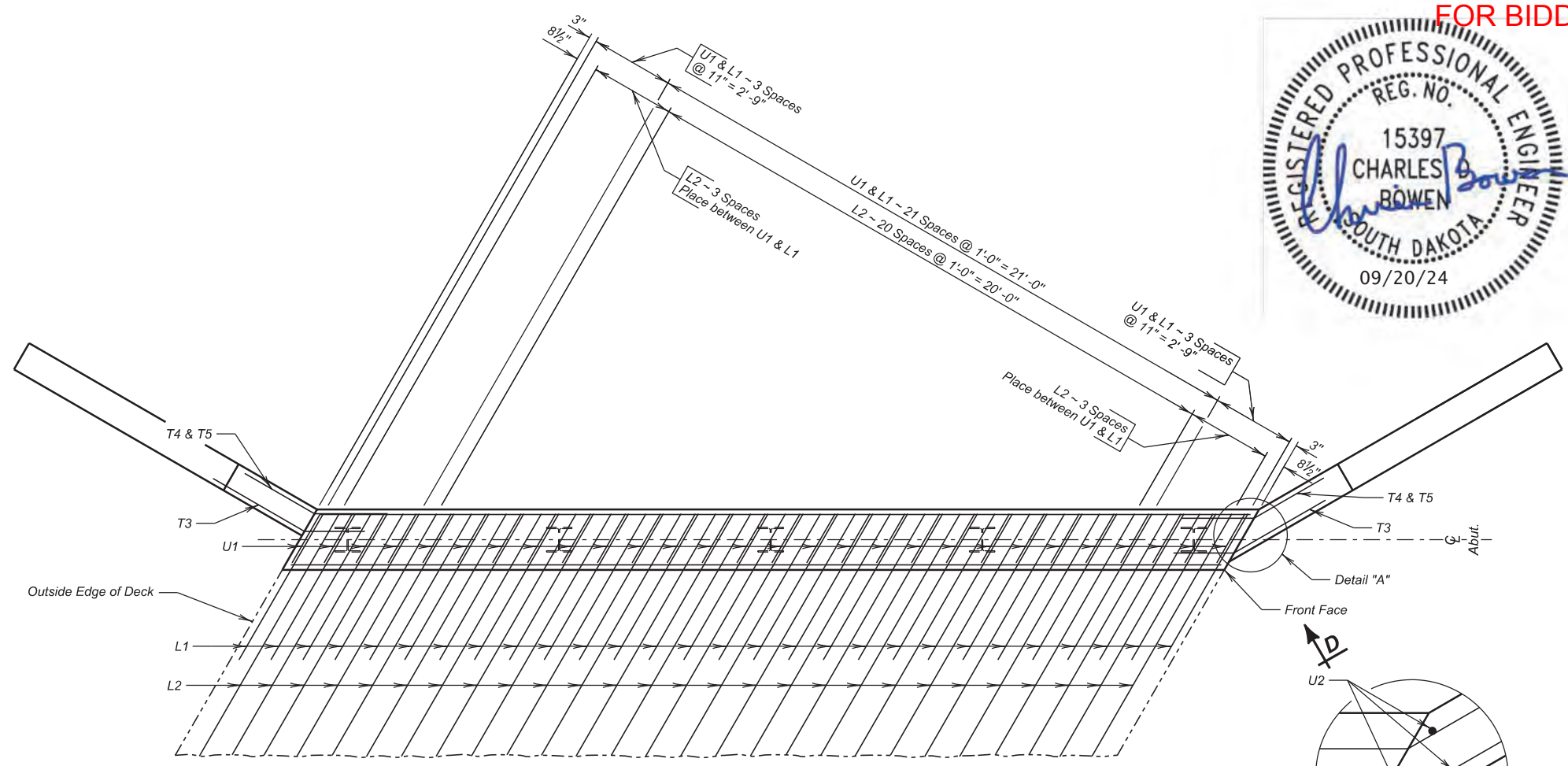
ABUTMENT DETAILS (A)
FOR

50'-0" CONCRETE RIGID FRAME BRIDGE
 24'-6" ROADWAY OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313
 PCN 08N2

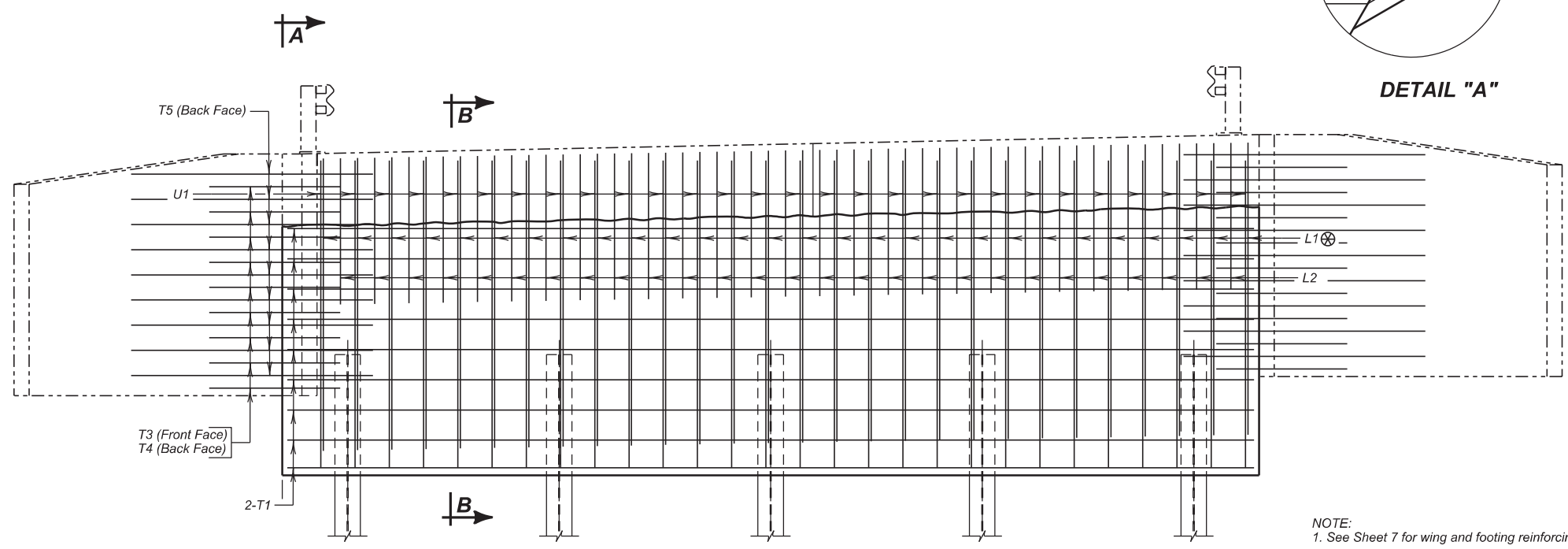
SEC. 8-T1N-R6E
 30° RHF SKEW
 BRO-B 8052(76)
 HL-93



FOR BIDDING PURPOSES ONLY

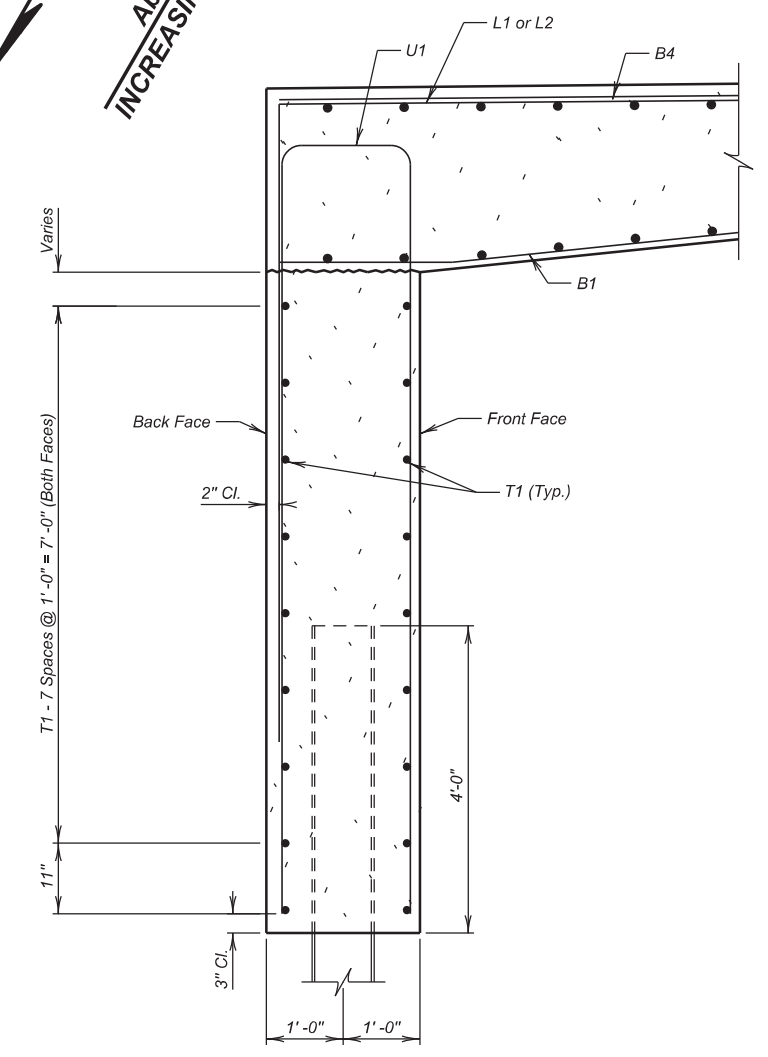
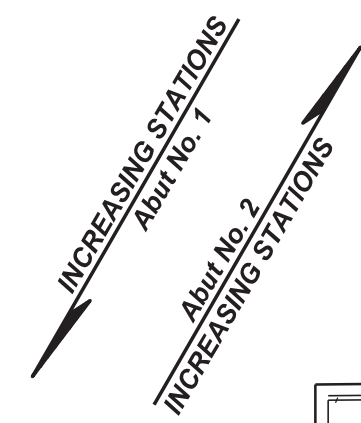


PLAN



ELEVATION

- NOTE:
- See Sheet 7 for wing and footing reinforcing details.
 - Bundle L1 and U1 reinforcement bars.
 - Top of L1 follows cross slope. Adjust lap length with U1 bar to maintain 2 1/2" between the top of the L1 bar and the finished concrete surface.
 - Weep holes may be shifted ±6" horizontally to fit around rebar.



SEC. B - B

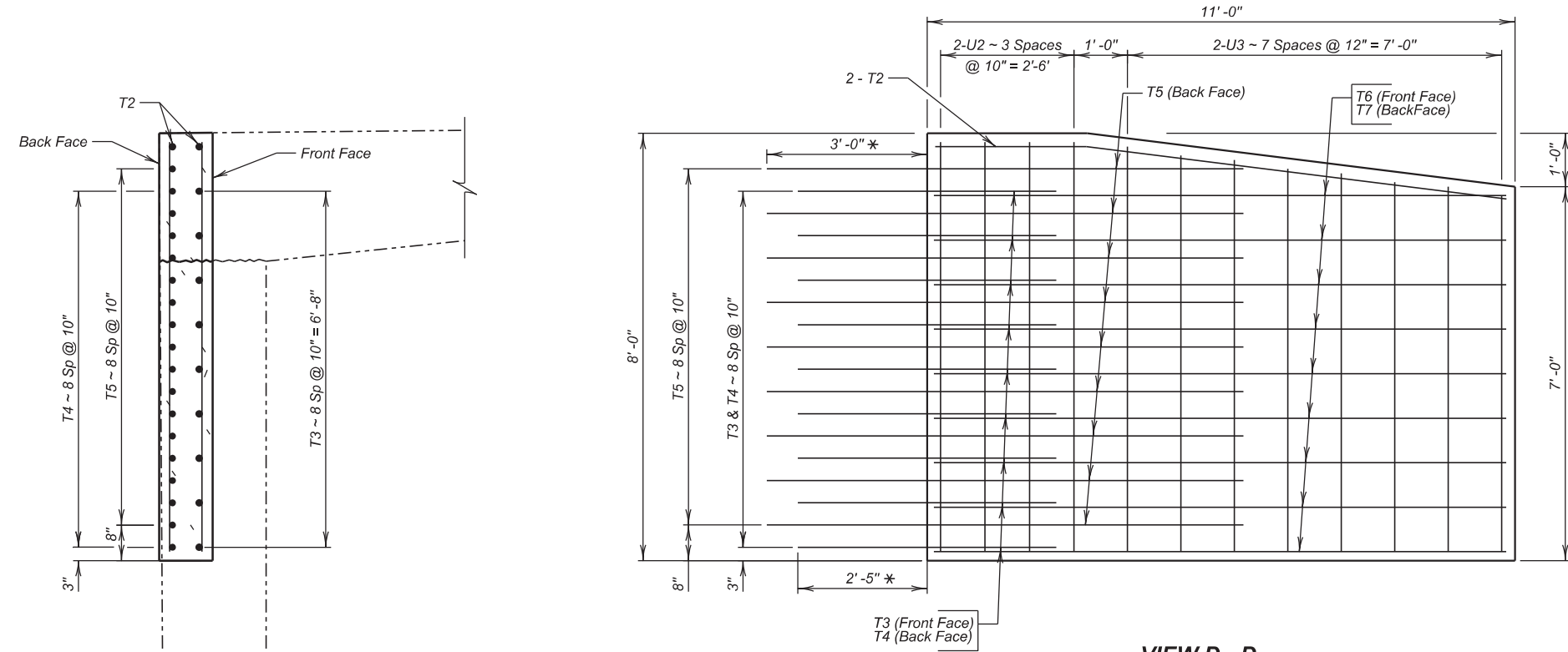
ABUTMENT DETAILS (B)
FOR

50'-0" CONCRETE RIGID FRAME BRIDGE
 24'-6" ROADWAY OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313
 PCN 08N2

SEC. 8-T1N-R6E
 30° RHF SKEW
 BRO-B 8052(76)
 HL-93

PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

DESIGNED BY EW	CK. DES. BY CB	DRAFTED BY BJ	BRIDGE ENGINEER
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REINFORCING SCHEDULE

(For One Abutment)

Mk.	No.	Size	Length	Type
Δ	L1	28	9	15'-4" 14A
Δ	L2	27	8	12'-10" 14A
	T1	18	5	30' - 10" Str.
	T2	4	4	10'-9" 19B
*	T3	9	4	5'-6" 19B
*	T4	9	5	5'-1" 19B
*	T5	9	8	8'-11" 19B
	T6	9	4	10'-9" Str.
	T7	9	5	10'-9" Str.
	U1	28	7	22'-3" 17
	U2	19	4	7'-8" Str.
#	U3	16	4	14'-3" Str.

Bending Details

NOTES:
 All dimensions are out to out of bars.
 Δ Bars to be Epoxy Coated.
 # Denotes cut bars.
 * Embed leg in abutment

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Abut. No. 1	Abut. No. 2
Class A45 Concrete, Bridge	Cu. Yd.	26.4	26.3
Reinforcing Steel	Lb.	2,596	2,596
Epoxy Coated Reinforcing Steel	Lb.	2,385	2,385
Structure Excavation, Bridge	Cu. Yd.	218	218
HP 10 X 57 Steel Test Pile, Furnish and Drive	Ft.	1 @ 20' = 20'	1 @ 20' = 20'
HP 10 X 57 Steel Bearing Pile, Furnish and Drive	Ft.	4 @ 15' = 60'	4 @ 15' = 60'



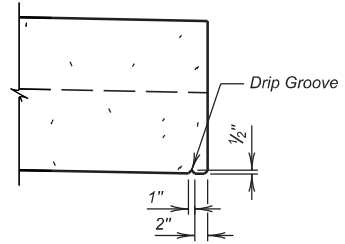
ABUTMENT DETAILS (C)
 FOR
50'-0" CONCRETE RIGID FRAME BRIDGE
 24'-6" ROADWAY OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313
 PCN 08N2

SEC. 8-T1N-R6E
 30° RHF SKEW
 BRO-B 8052(76)
 HL-93

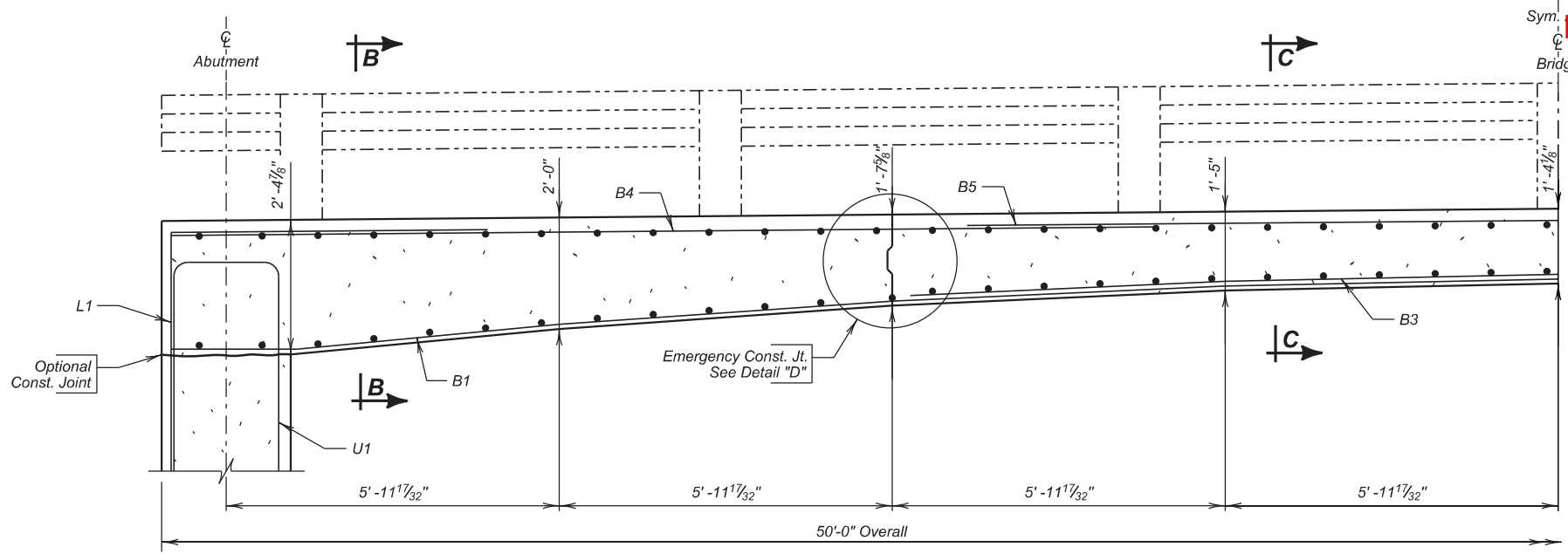
PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

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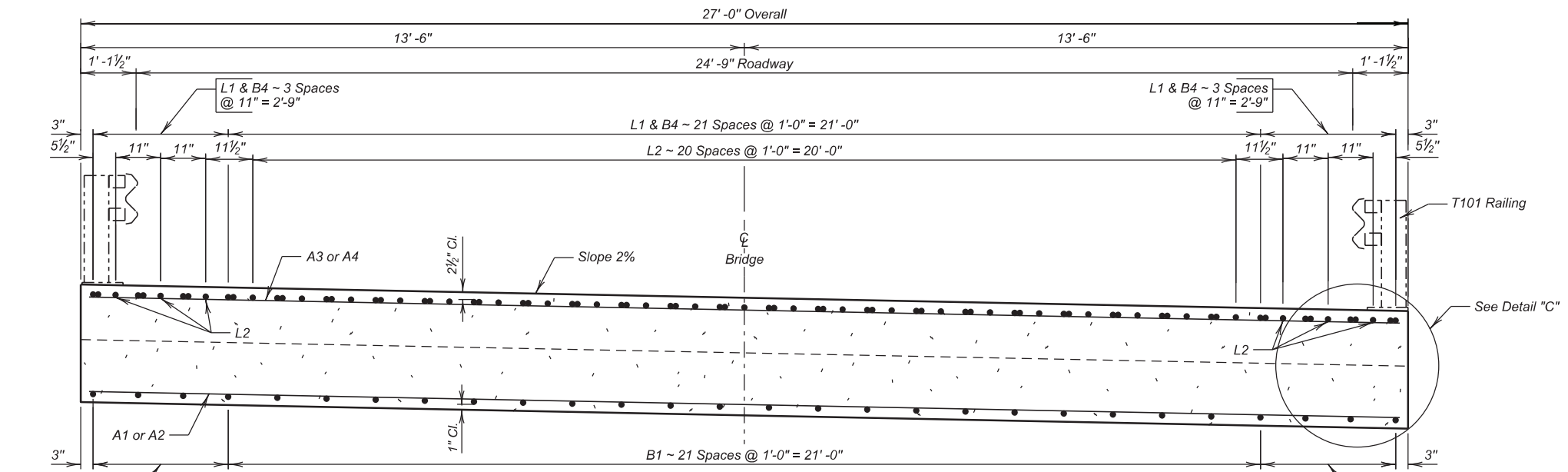
FOR BIDDING PURPOSES ONLY



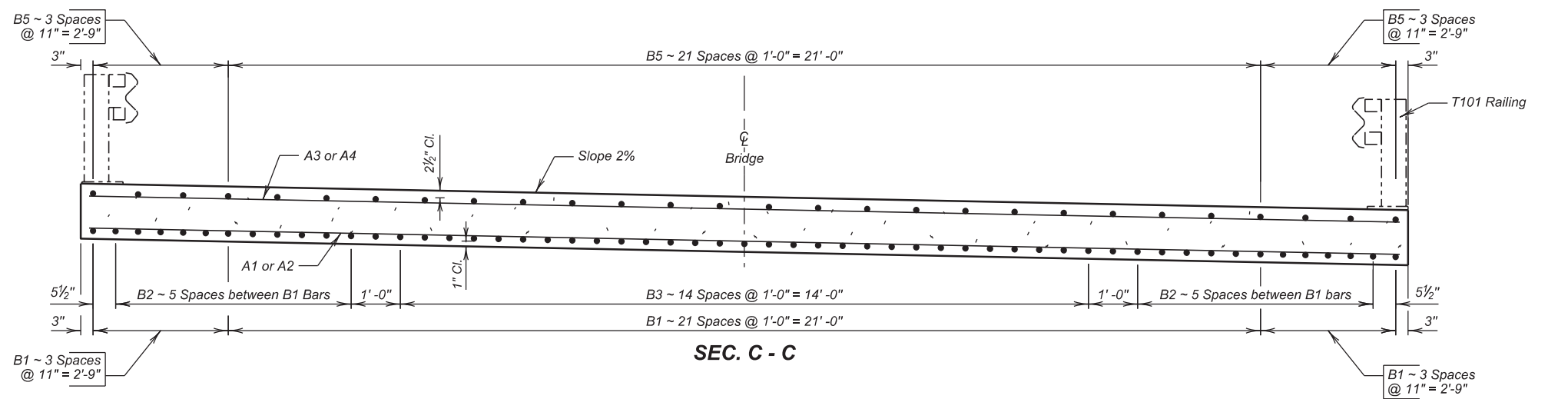
DETAIL "C"



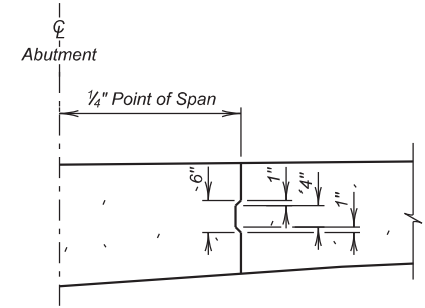
SEC. A-A



SEC. B - B



SEC. C - C



DETAIL "D"
Emergency Construction Joint

SUPERSTRUCTURE DETAILS (A)
 FOR
50'-0" CONCRETE RIGID FRAME BRIDGE
 24'-6" ROADWAY OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313 PCN 08N2
 SEC. 8-T1N-R6E 30° RHF SKEW
 BRO-B 8052(76) HL-93

PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

DESIGNED BY EW	CK. DES. BY CB	DRAFTED BY BJ	BRIDGE ENGINEER
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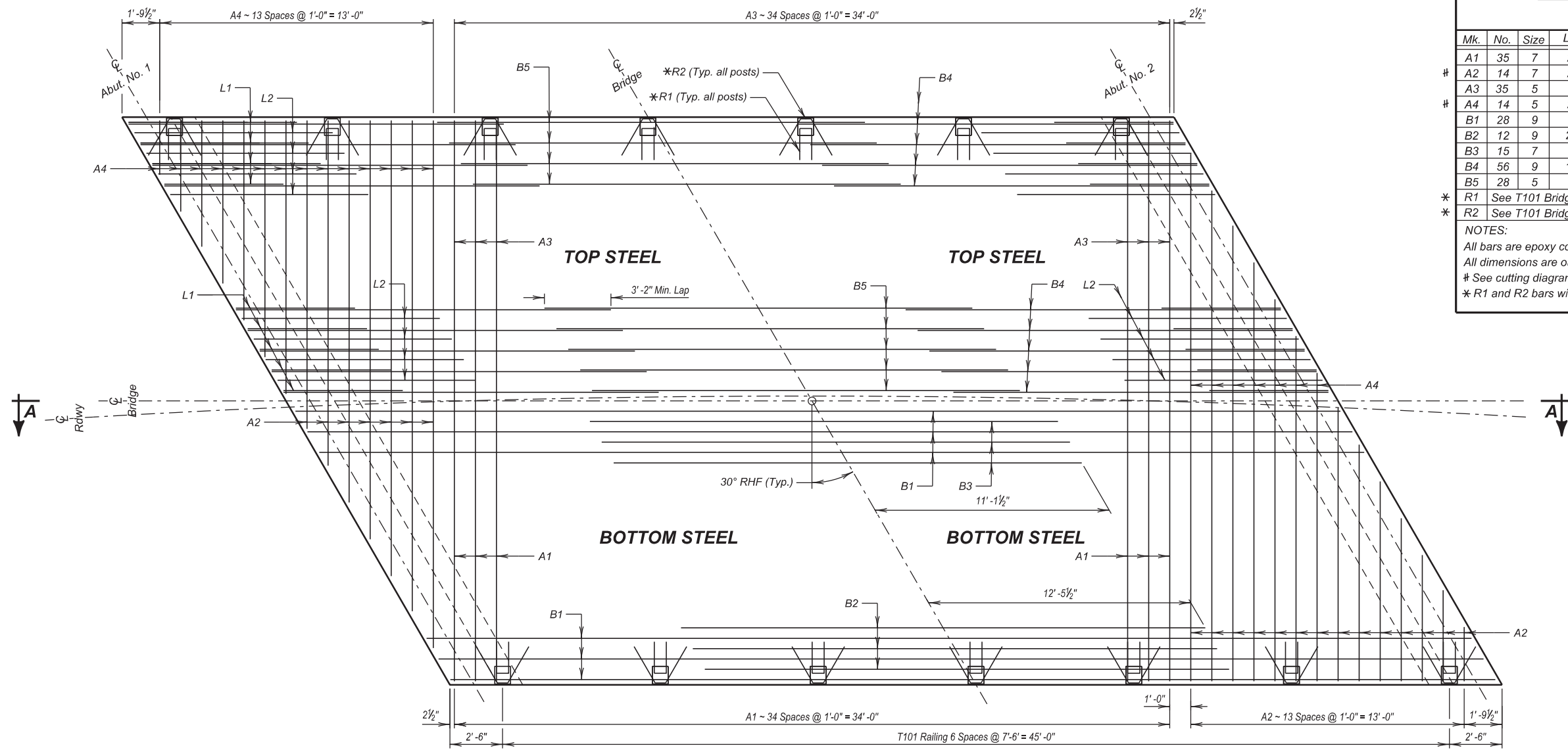
FOR BIDDING PURPOSES ONLY

REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
A1	35	7	26'-8"	Str.
A2	14	7	27'-8"	Str.
A3	35	5	26'-8"	Str.
A4	14	5	27'-8"	Str.
B1	28	9	49'-8"	Str.
B2	12	9	24'-11"	Str.
B3	15	7	22'-3"	Str.
B4	56	9	17'-10"	Str.
B5	28	5	20'-5"	Str.
* R1	See T101 Bridge Rail Details			
* R2	See T101 Bridge Rail Details			

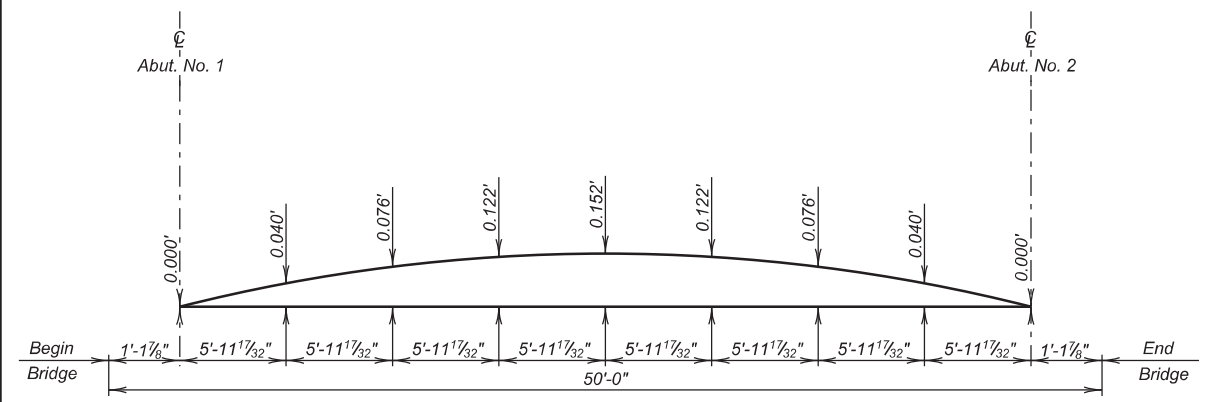
Bending Details	
#	A2 2'-7" 25'-1"
#	A2 25'-1" 2'-7"
#	A4 2'-7" 25'-1"
#	A4 25'-1" 2'-7"

NOTES:
 All bars are epoxy coated
 All dimensions are out to out of bars.
 # See cutting diagram.
 * R1 and R2 bars will be paid for under T101 Bridge Rail

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete Penetrating Sealer	Sq. Yd.	150.0
Class A45 Concrete, Bridge Deck	Cu. Yd.	88.6
Epoxy Coated Reinforcing Steel	Lb.	14,496

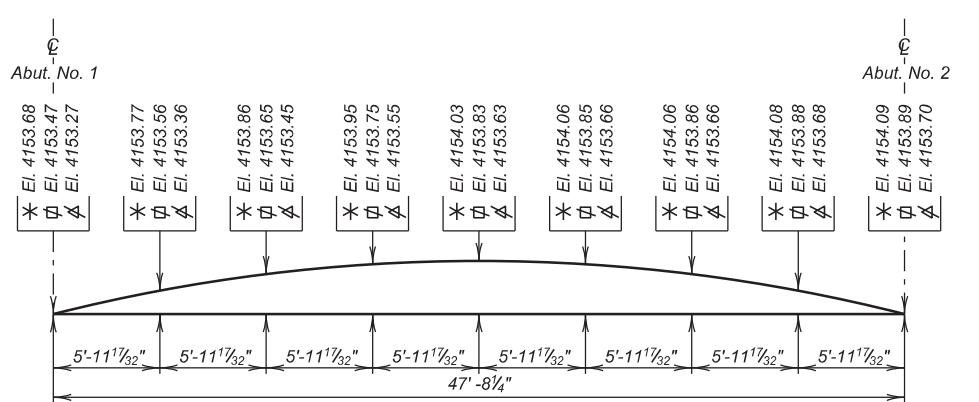


PLAN



CAMBER DIAGRAM

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



EDGE OF DECK AND CENTERLINE ELEVATION

Elevations with a * are Top of Finished Slab at Left Edge.
 Elevations with a phi are Top of Finished Slab at Centerline Bridge.
 Elevations with a delta Top of Finished Slab at Right Edge.
 Camber for Dead Load Plus Plastic Flow, shown on this sheet have been included in the Elevations shown above.



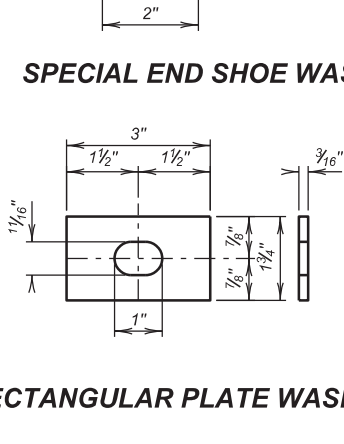
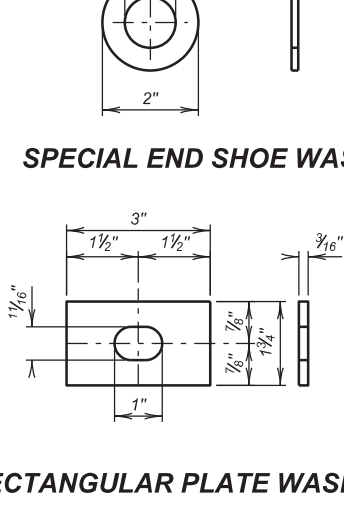
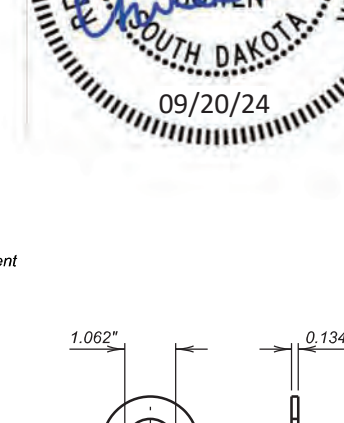
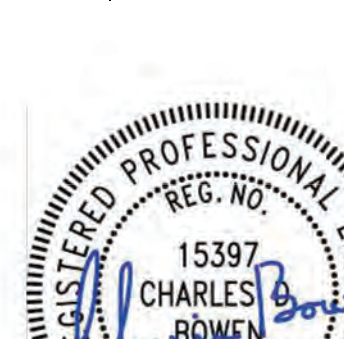
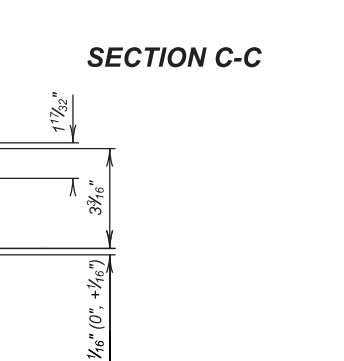
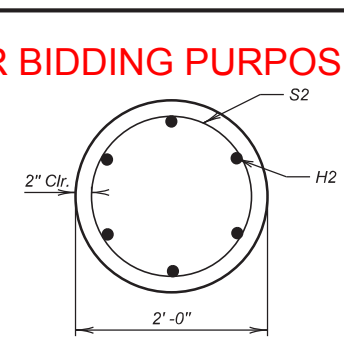
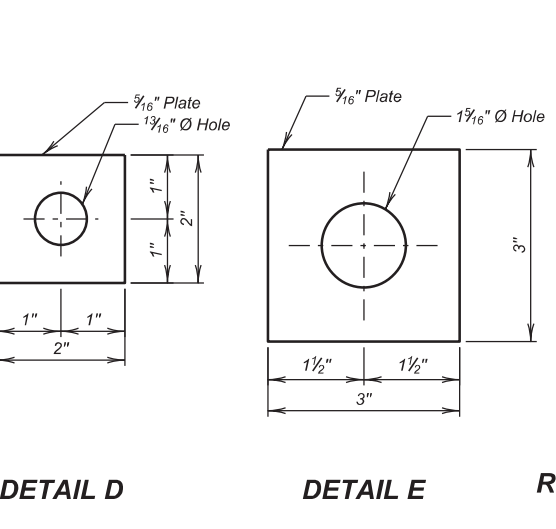
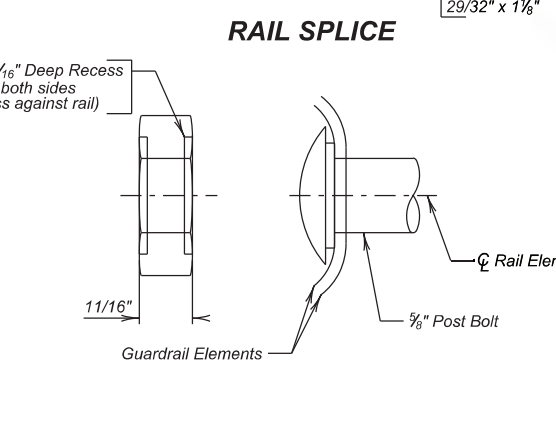
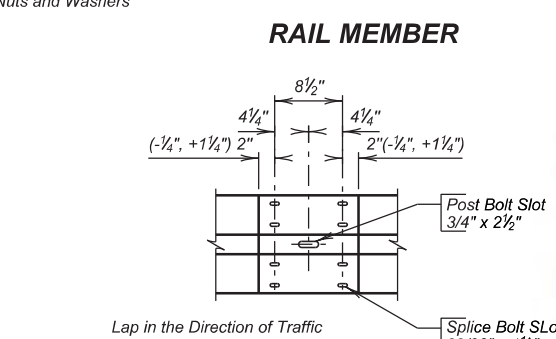
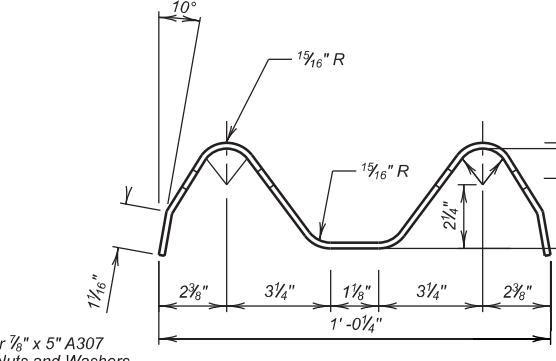
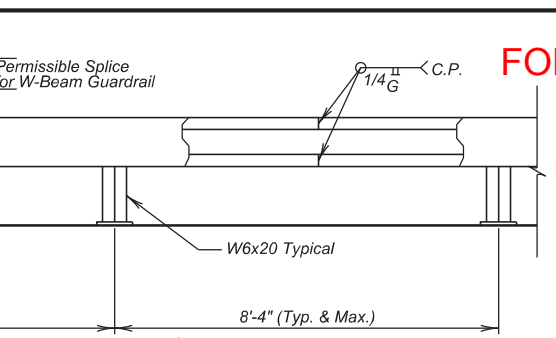
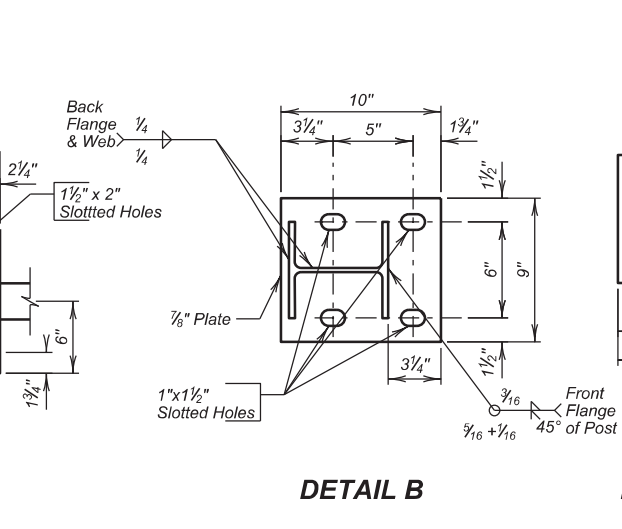
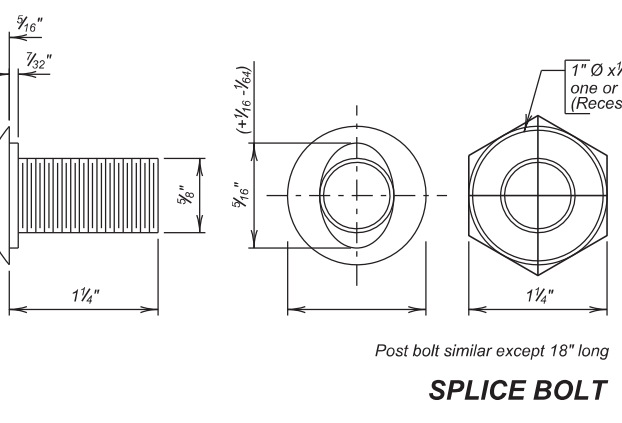
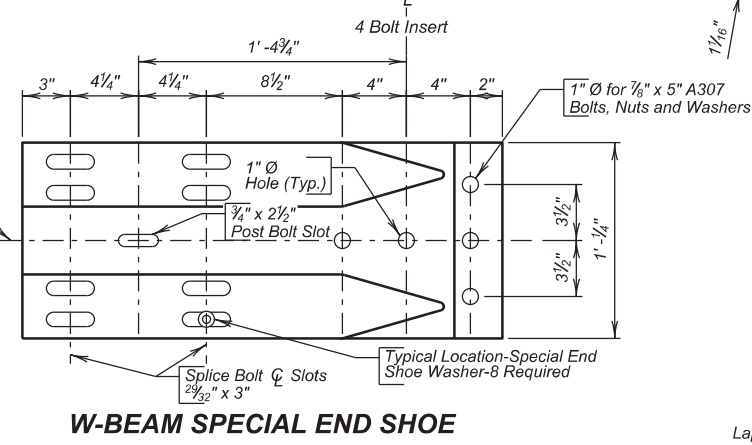
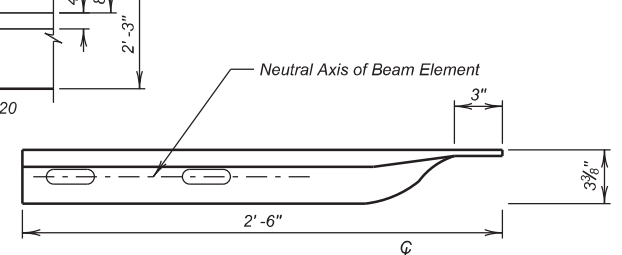
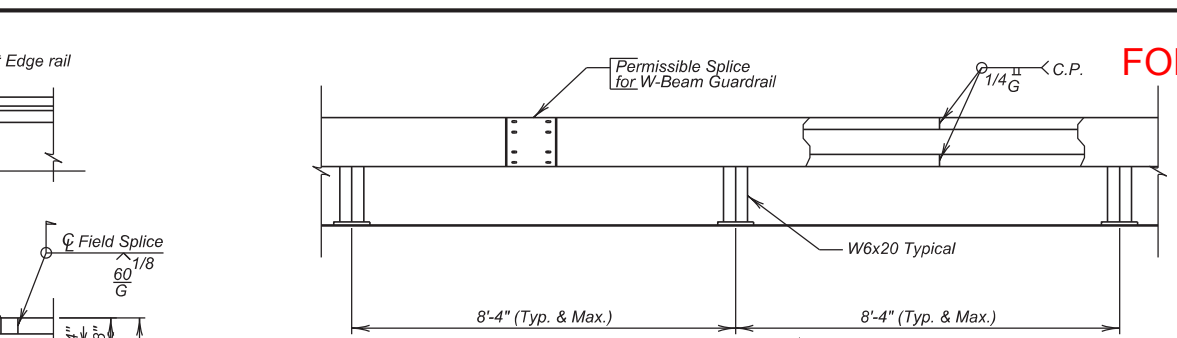
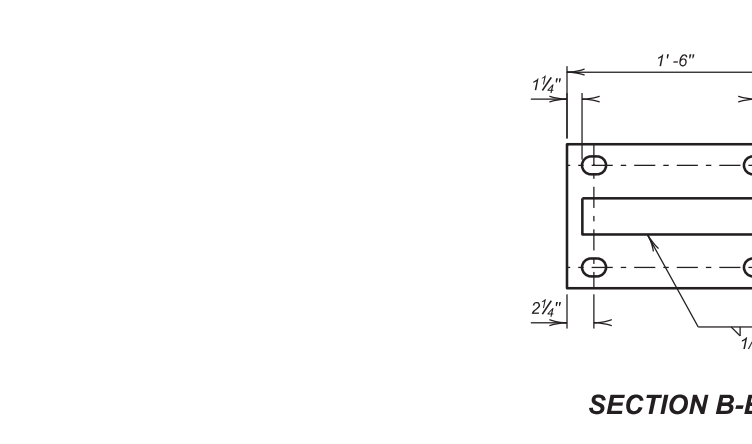
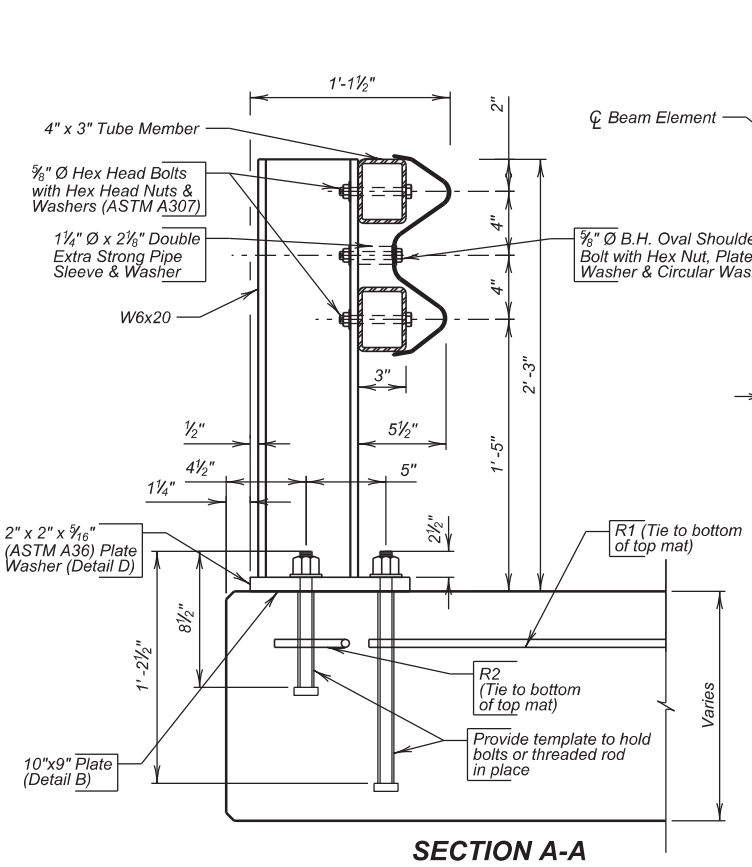
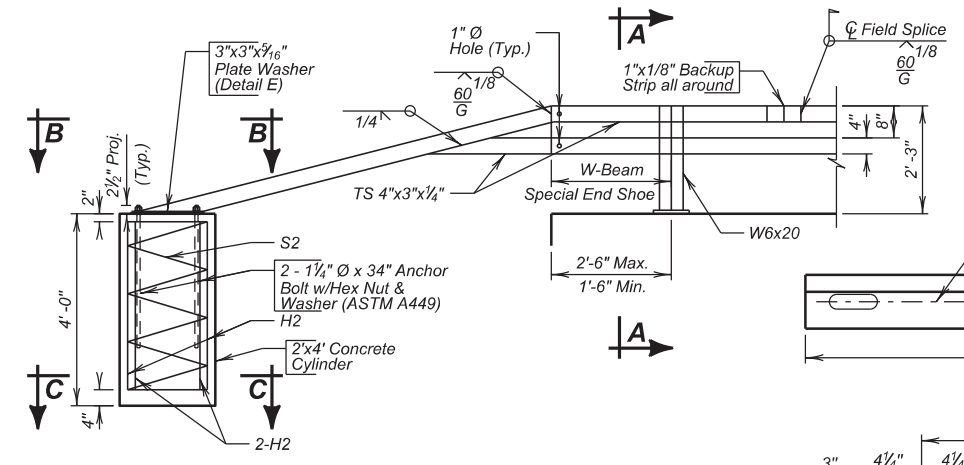
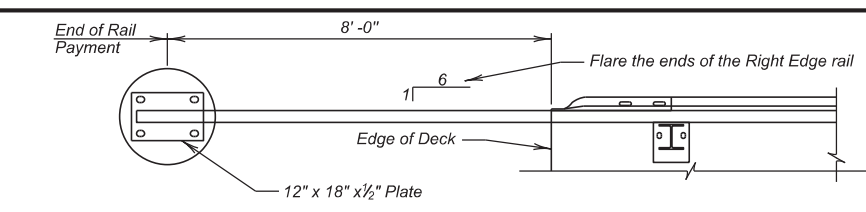
SUPERSTRUCTURE DETAILS (B)
 FOR
50'-0" CONCRETE RIGID FRAME BRIDGE
 24'-6" ROADWAY OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313
 PCN 08N2

SEC. 8-T1N-R6E
 30° RHF SKEW
 BRO-B 8052(76)
 HL-93

FOR BIDDING PURPOSES ONLY

GENERAL NOTES:

1. Rail posts will be perpendicular to centerline of roadway.
2. W-beam guardrail, pipe sleeves nuts, washers, and plate washers that go with these will be galvanized. Bolts, nuts, and washers will be galvanized according to ASTM F2329. Pipe sleeves will be galvanized according to ASTM A123.
3. Post anchor bolts will be 3/4" diameter ASTM F3125 Gr. A325 bolts (or ASTM A354 Gr. BC threaded rod with one tack welded nut each) with one hex nut and one 1 1/2" O.D. hardened washer (0.122" Min thick) and one 2"x2"x7/16" ASTM A35 plate washer (Detail D) at each bolt. Nuts will conform to A563 requirements. Threads for bolts and nuts will have Class 2A and 2B fit tolerances in accordance with ASME B1.1.
4. Steel W-Beam guardrail will be Class A, Type 1, conforming to AASHTO M180 and will be fabricated from standard 12.5' or 25' nominal W-beam sections.
5. The rail posts, 4" x 3" tube members, and base plates will be galvanized in accordance with ASTM A123. All bolts, nuts, and washers will be galvanized in accordance with F2329.
6. All structural steel parts for the Type T101 Steel Railing will conform to ASTM A709 Gr. 36. Tubes shall conform to ASTM A500 GR. B.
7. Provide 1 1/2" drain holes in the tubes near ends of rail and near splices.
8. All concrete will be Class M6 as specified in section 462 of the specifications.
9. All reinforcing steel will conform to ASTM A615, Gr 60.
10. All bolts, nuts, washers, posts, plates, pipe sleeves, steel W-beam guardrail, welding, painting or galvanizing, and all costs of installing four rail anchors including concrete, excavation, forming, reinforcing steel, and anchor bolts will be included in the unit price bid per linear foot for "Type T101 Bridge Railing".
11. Measurement for payment will be from center of anchor to center of anchor for each side of the bridge.



ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Type T101 Steel Railing	Ft.	132

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
H2	24	5	3'-6"	Str.
R1	14	6	3'-9"	17
R2	14	6	4'-9"	17A
S2	4	3	51'-7"	Spiral

NOTE: Spirals - Use 6" pitch and 1 1/2 extra turns at each end. Use 1 1/2 turns for lap at splice as required. All dimensions are out to out of bars. Use 2 vertical spacer bars.

NOTE: R1 and R2 Bars placed during Superstructure Construction. See Superstructure Details Sheets.

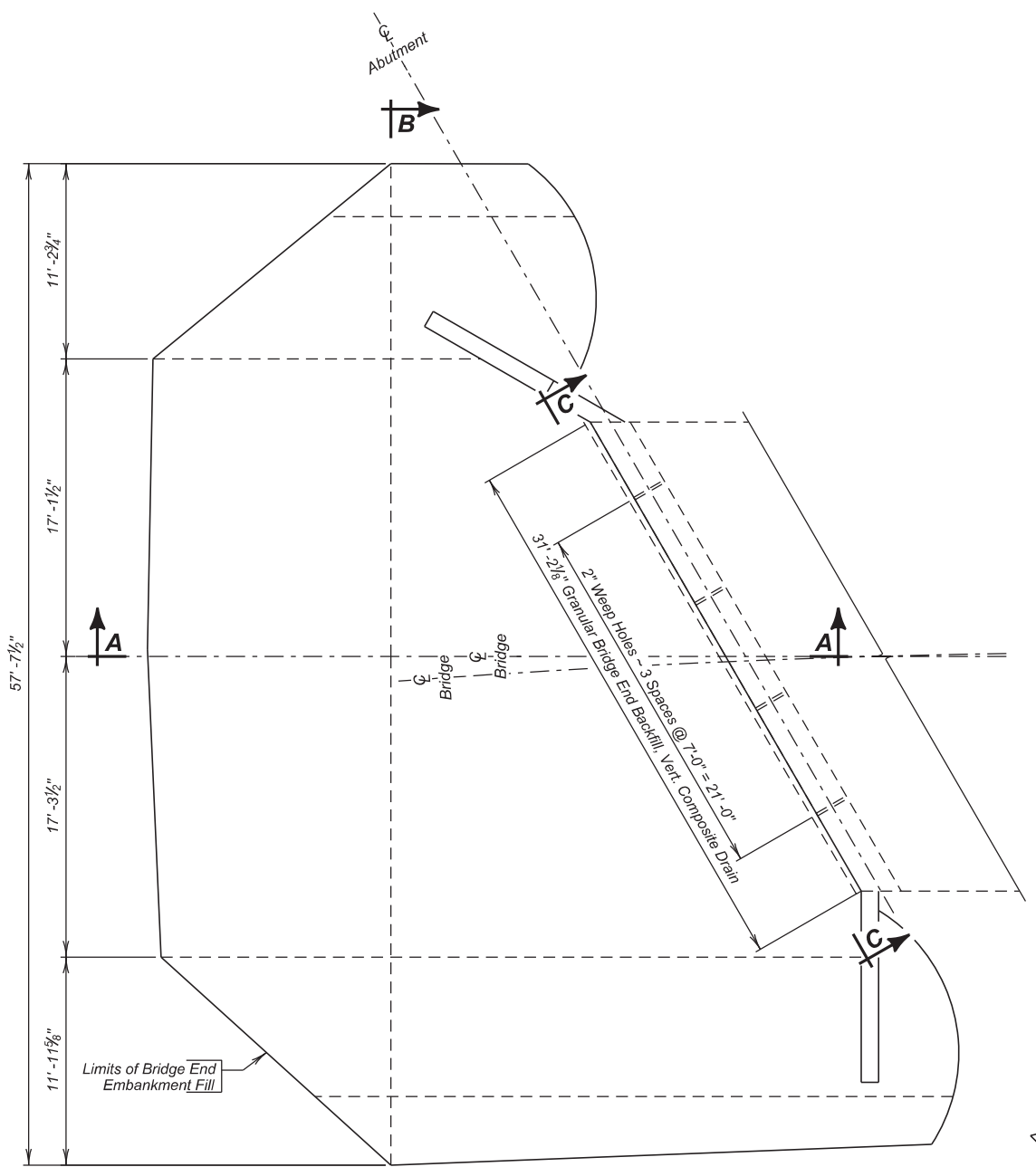
TYPE T101 BRIDGE RAILING DETAILS FOR 50'-0" CONCRETE RIGID FRAME BRIDGE
 24'-6" ROADWAY OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313
 PCN 08N2

SEC. 8-T1N-R6E
 30° RHF SKEW
 BRO-B 8052(76)
 HL-93

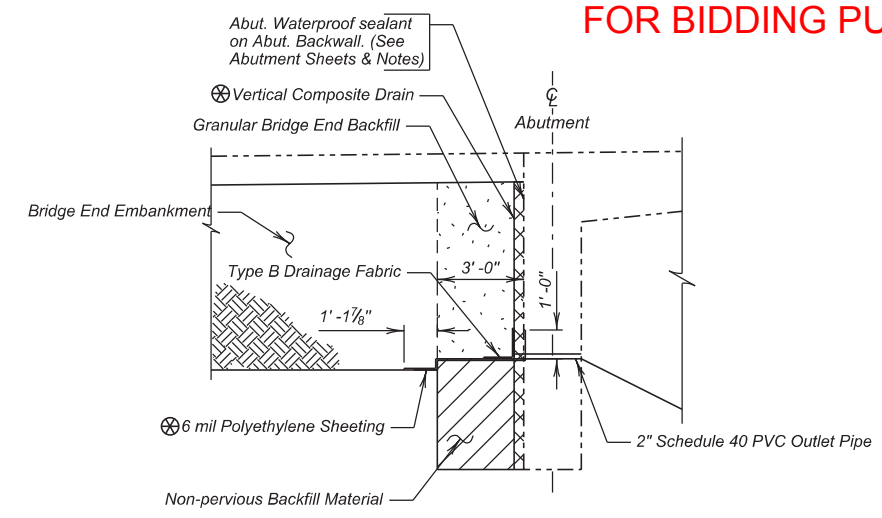
PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

DESIGNED BY EW	CK. DES. BY CB	DRAFTED BY EW	BRIDGE ENGINEER
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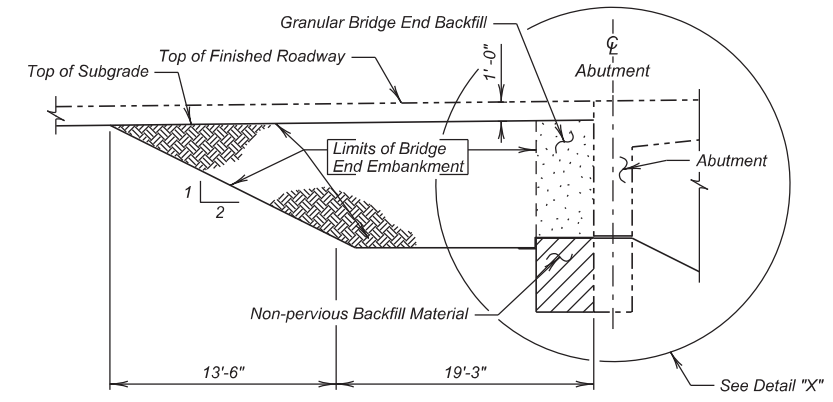
FOR BIDDING PURPOSES ONLY



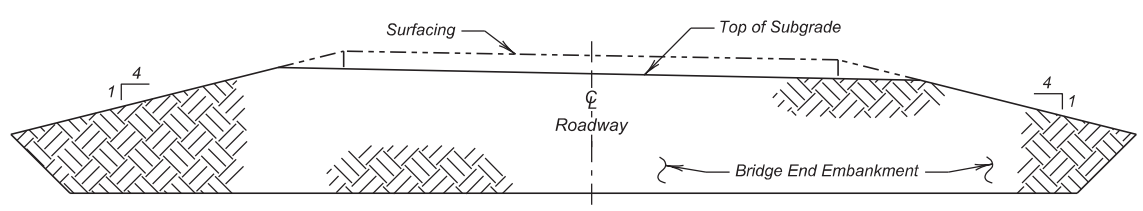
PLAN
(Shown at Abut. No. 1, Abut. No.2 Opposite)



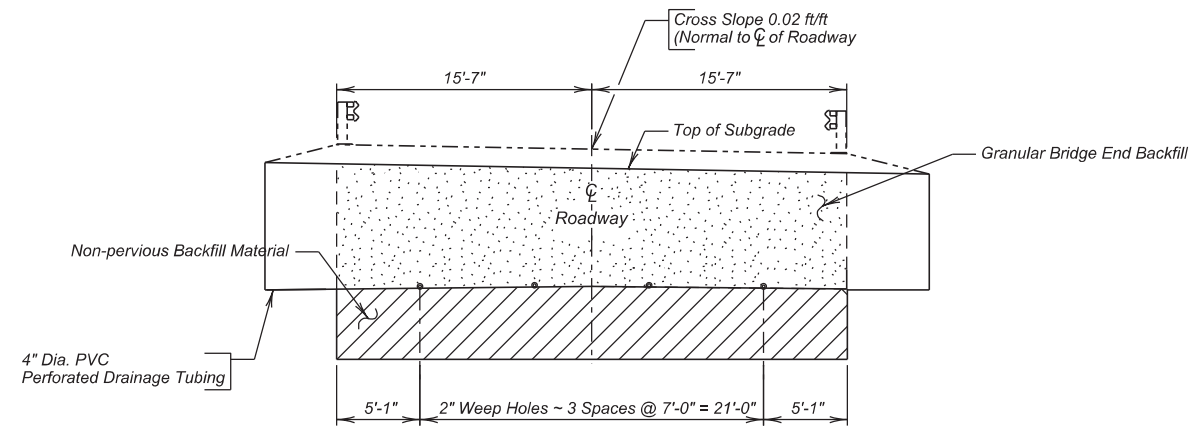
DETAIL "X"



SEC. A-A
(at Rdwy.)



SEC. B-B



SEC. C-C

ESTIMATED QUANTITIES (For Two Abutments)		
ITEM	UNIT	QUANTITY
Granular Bridge End Backfill	Cu. Yd.	44.7
Bridge End Embankment	Cu. Yd.	469
2" Rigid Conduit, Schedule 40	Ft.	16

These items are approximate quantities and contained in the 2" Rigid Conduit, Schedule 40 bid item and are for information only.

- 16 ft. of 2" Dia. Schedule 40 PVC.
- 500 Sq. Ft. of Vertical Composite Drain.

These items are contained in the "Granular Bridge End Backfill" bid item and are for information only.

- 290 Sq. Ft. of 6 mil polyethylene Sheeting (not including laps).
- 14 Sq. Yds. of Type B Drainage Fabric.

Shrinkage Factor of 1.25 used.

Provide hole in vertical composite drain and 6 mil polyethylene sheeting to provide drainage through weepholes.



DETAILS OF BRIDGE END BACKFILL
FOR
50'-0" CONCRETE RIGID FRAME BRIDGE
24'-6" ROADWAY
OVER RAPID CREEK
STA. 13+05.00 to STA. 13+55.00
STR. NO. 52-317-313
PCN 08N2


SEC. 8-T1N-R6E
30° RHF SKEW
BRO-B 8052(76)
HL-93

PENNINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
SEPTEMBER 2024

DESIGNED BY EW	CK. DES. BY CB	DRAFTED BY BJ	BRIDGE ENGINEER
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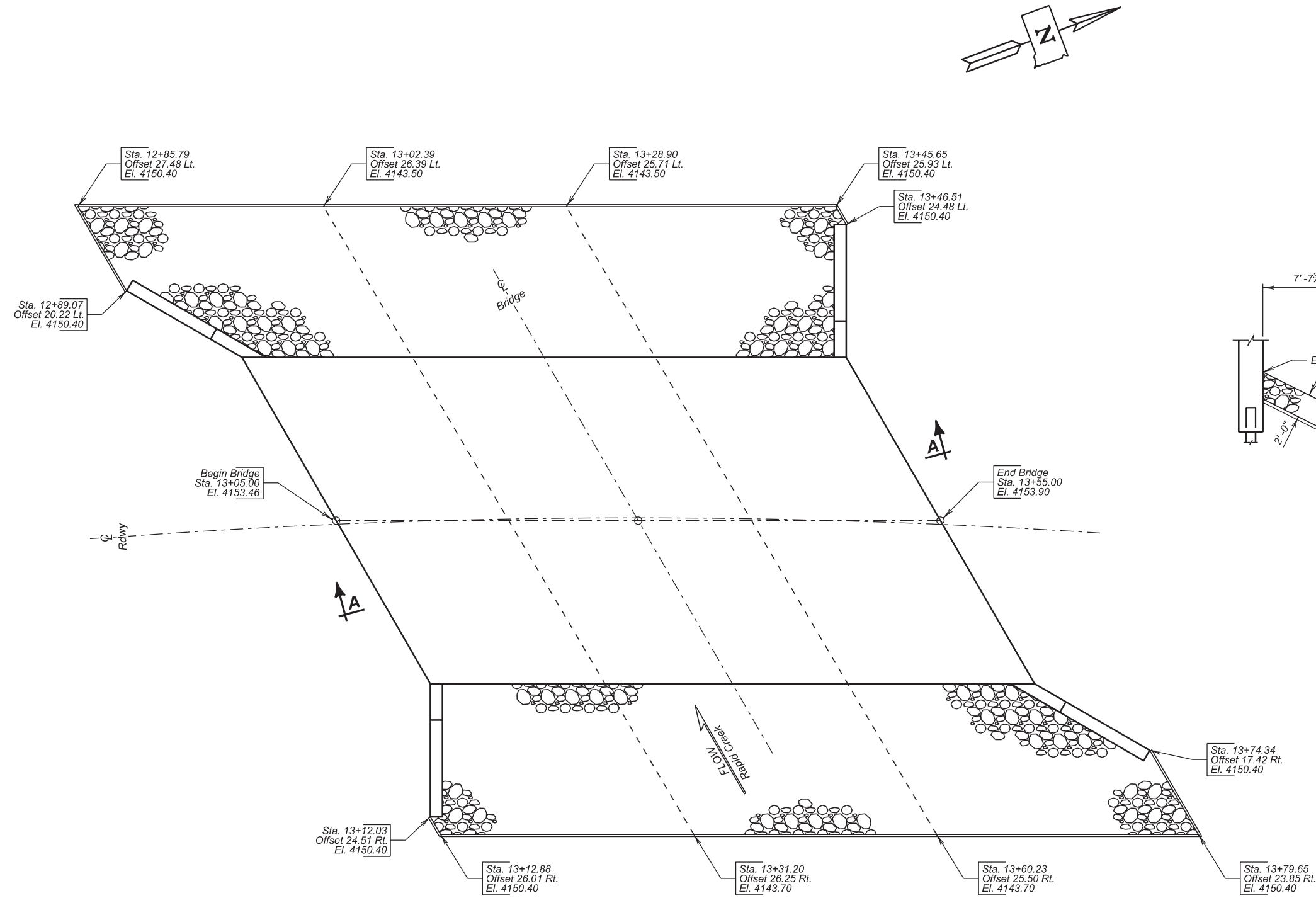
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

FOR BIDDING PURPOSES ONLY

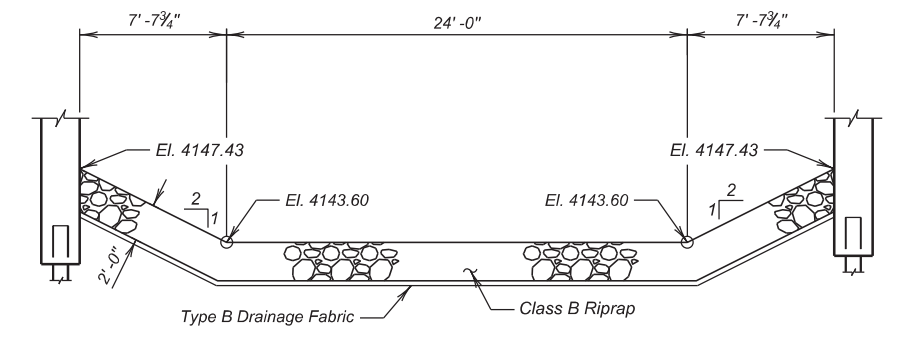
 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	44	47

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class B Riprap	Ton	329.8
Type B Drainage Fabric	Sq. Yd.	369

For estimating purposes only, a factor of 1.6 tons/cu.yd. was used to convert Cu. Yds. to Tons.



PLAN



SEC. A-A



RIPRAP LAYOUT FOR

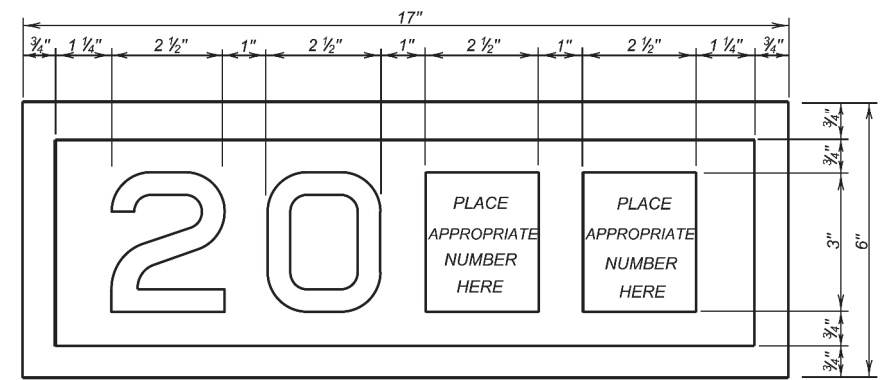
50'-0" CONCRETE RIGID FRAME BRIDGE

24'-6" ROADWAY
 OVER RAPID CREEK
 STA. 13+05.00 to STA. 13+55.00
 STR. NO. 52-317-313
 PCN 08N2

SEC. 8-T1N-R6E
 30° RHF SKEW
 BRO-B 8052(76)
 HL-93

PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

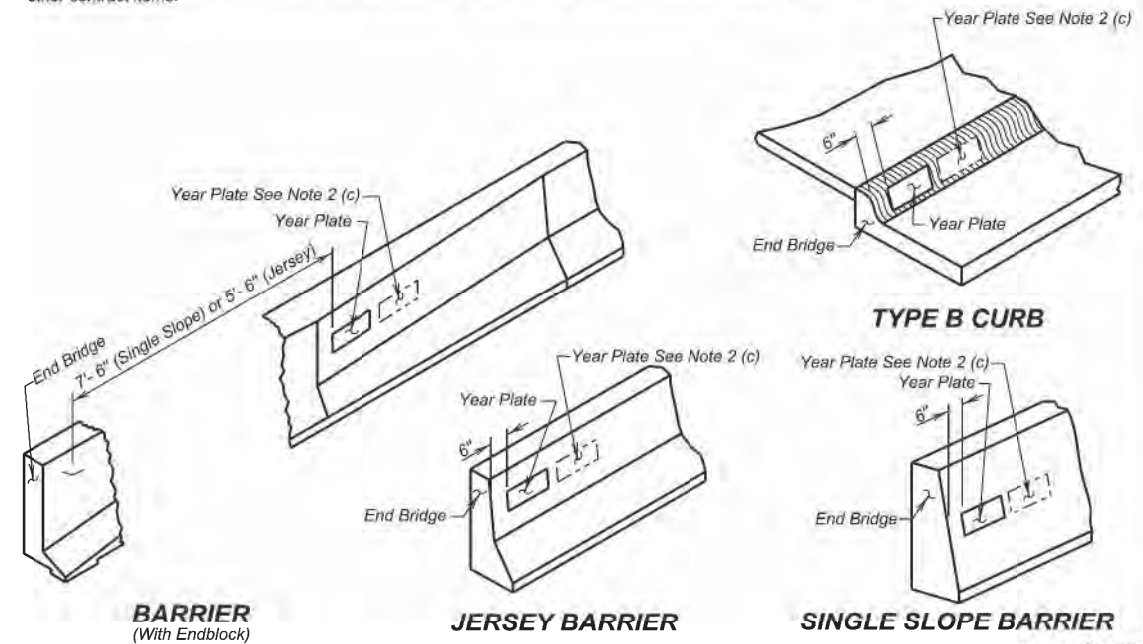
DESIGNED BY EW	CK. DES. BY CB	DRAFTED BY BJ	BRIDGE ENGINEER
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YEAR PLATE DETAILS

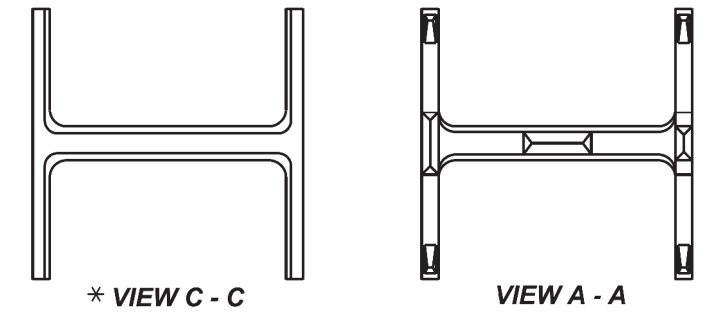
GENERAL NOTES:

- 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.
- Year plates will be located on structure(s) as follows:
 - On cast-in-place box culverts the year plates will be four and one-half (4 1/2) 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.
 - 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.
 - 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.
- 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.

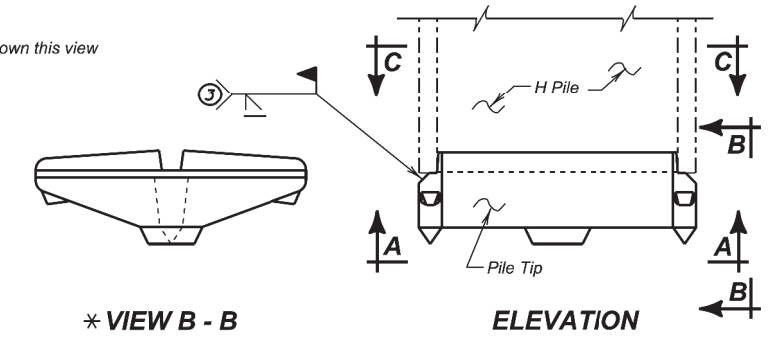


January 22, 2021

Published Date: 2025 S D D O T	YEAR PLATE DETAILS	PLATE NUMBER 460.02
		Sheet 1 Of 1



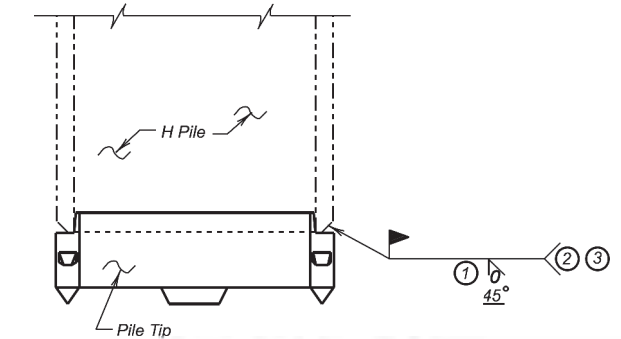
* H Pile not shown this view



*** VIEW B - B**

ELEVATION

- ② See Table 1
- ③ Typical Both Flanges



ALTERNATE WELD ATTACHMENT

TABLE 1

① DEPTH OF PREPARATION	PILE
3/8	HP 14 X 102 HP 14 X 89 HP 12 X 74
5/16	HP 14 X 73 HP 12 X 63 HP 10 X 57
1/4	HP 12 X 53 HP 10 X 42 HP 8 X 36

GENERAL NOTES:

- Pile tip reinforcement shall be one-piece cast steel points commercially available and produced by a manufacturer who regularly produces pile points as a production item available to the public.
- Material for pile points shall conform to ASTM A27, Grade 65-35, Class 2.
- Pile points shall contain teeth designed to dig into obstructions and bearing materials in order to develop the maximum carrying capacity of the materials encountered.
- Welding and weld inspection shall be in conformance with AWS D1.5 - (Current Year) Bridge Welding Code - Steel.

December 23, 2012

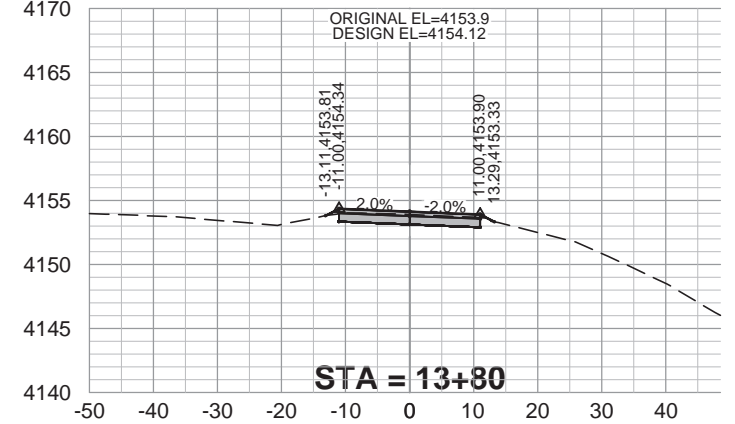
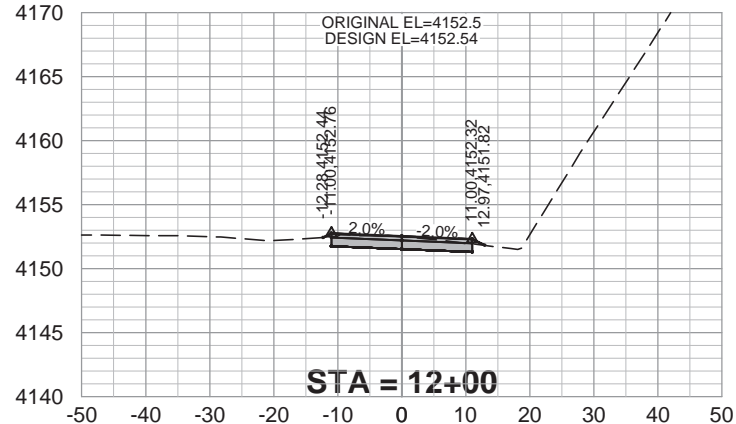
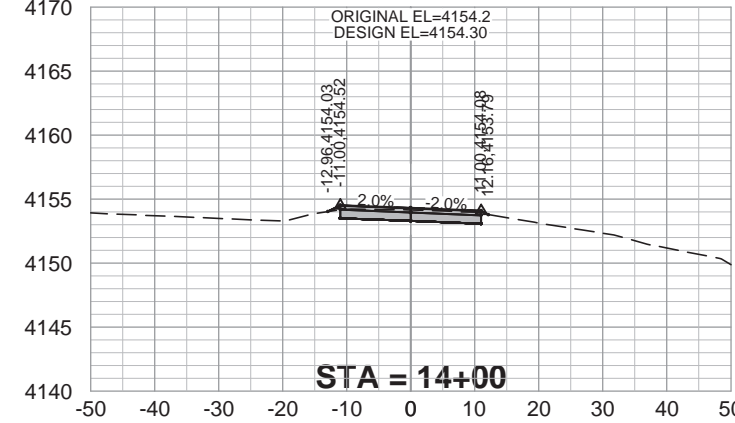
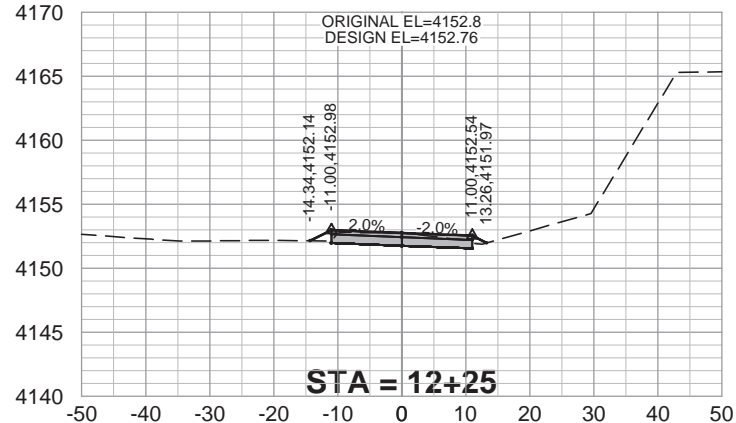
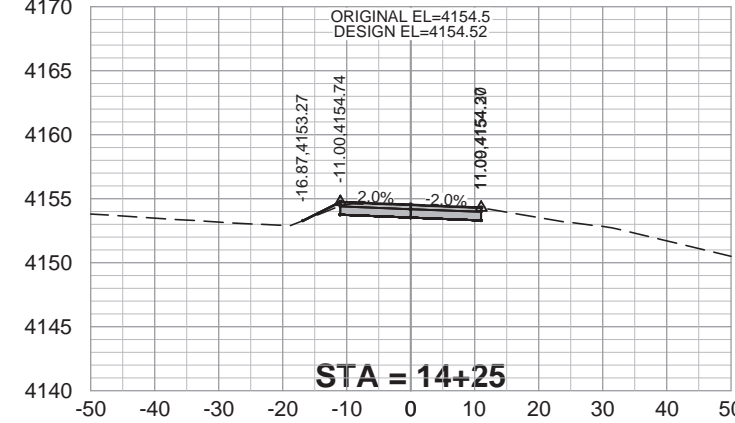
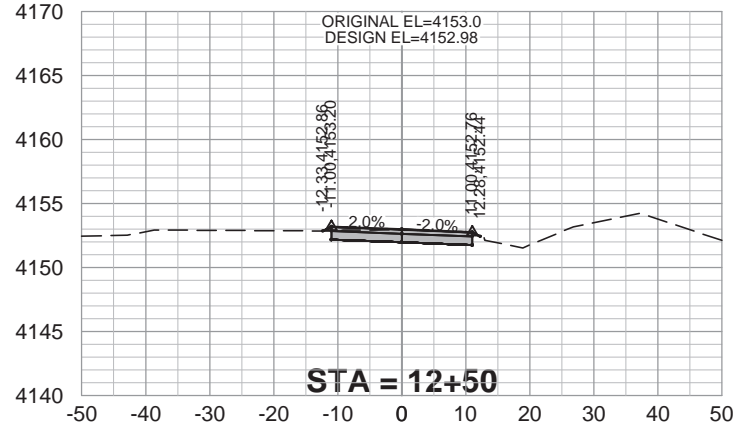
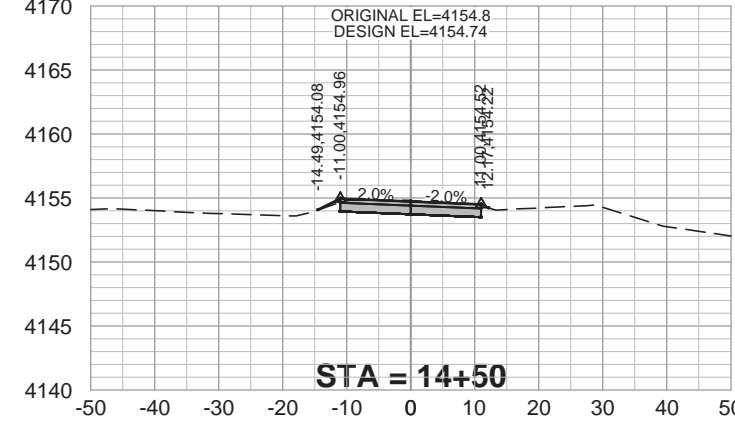
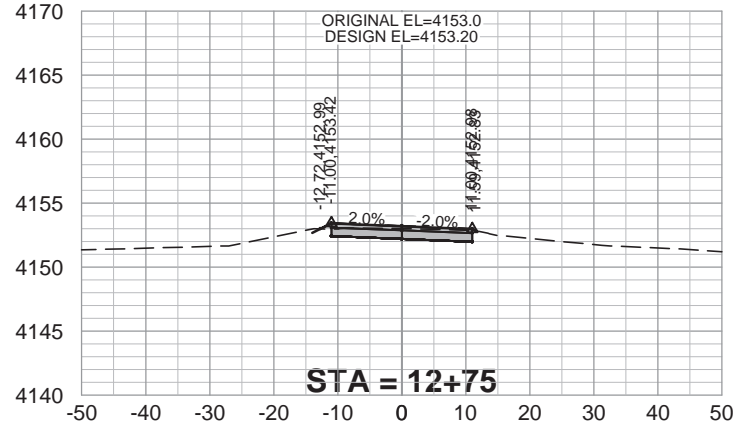
Published Date: 2025 S D D O T	H PILE TIP REINFORCEMENT	PLATE NUMBER 510.30
		Sheet 1 Of 1

CROSS SECTIONS

MAINLINE

Plot Scale- 1" = 30'


Plotted From- zach.vlamnick



CROSS SECTIONS

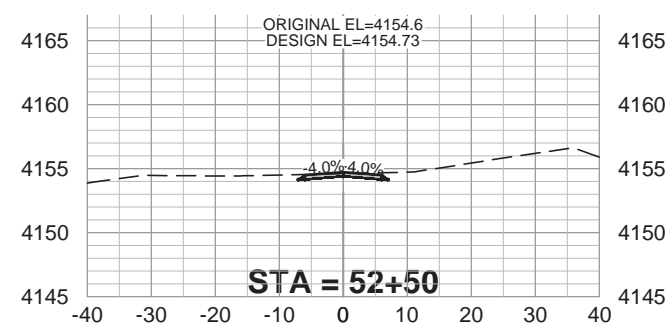
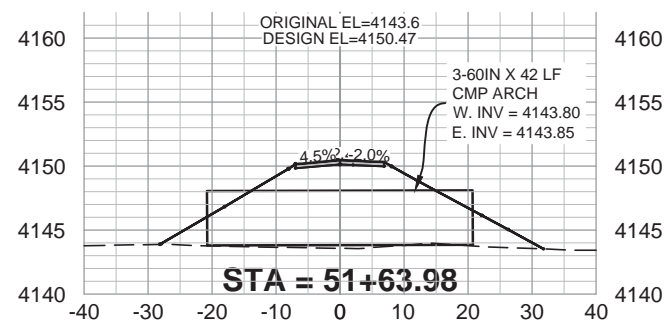
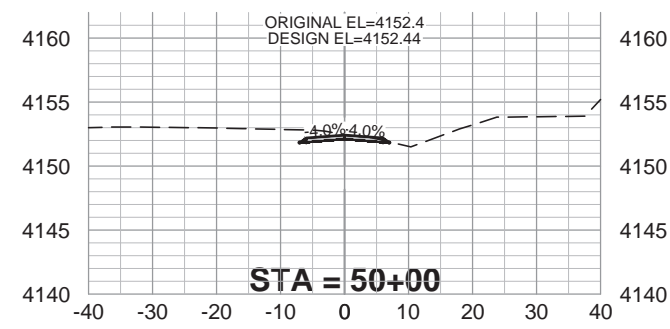
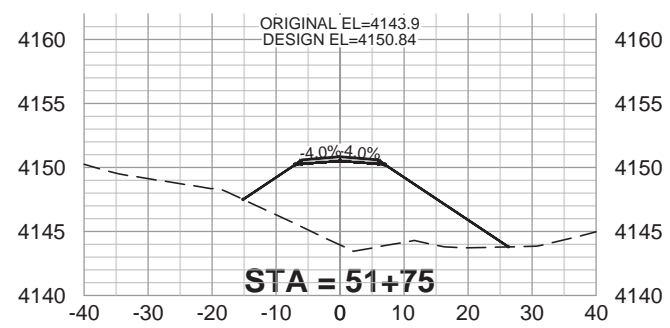
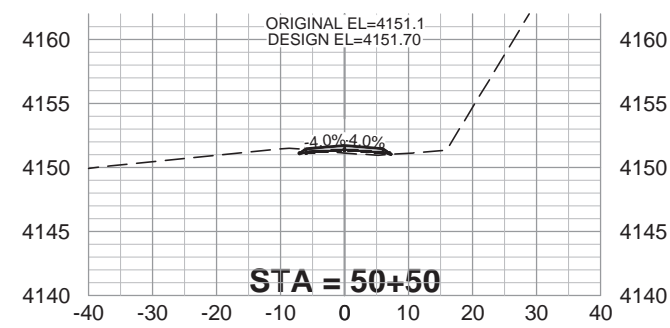
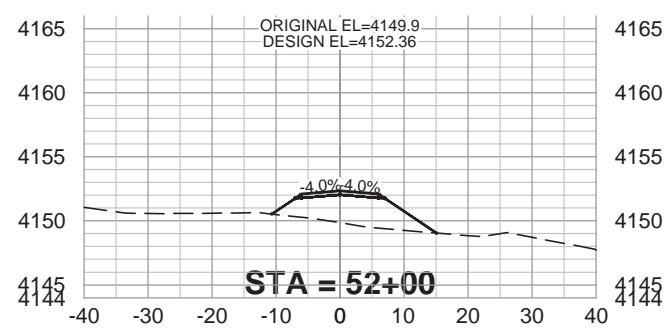
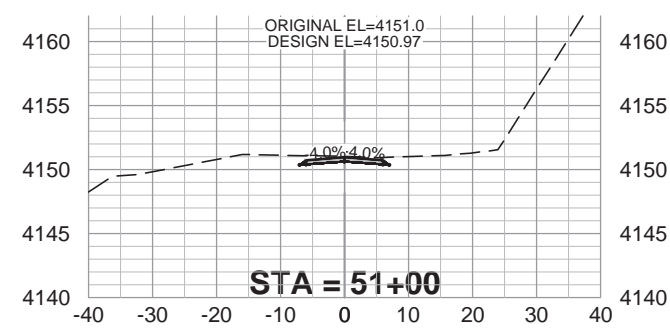
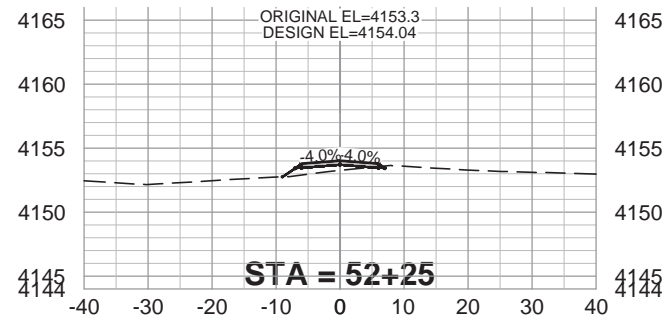
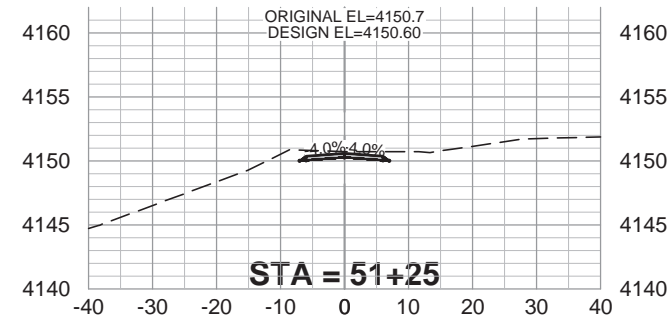
TEMPORARY TRAFFIC DIVERSION

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(76)	47	47

Plotting Date: 9/19/2024

Plot Scale- 1" = 30'



Plotted From- zach.vlamnick

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