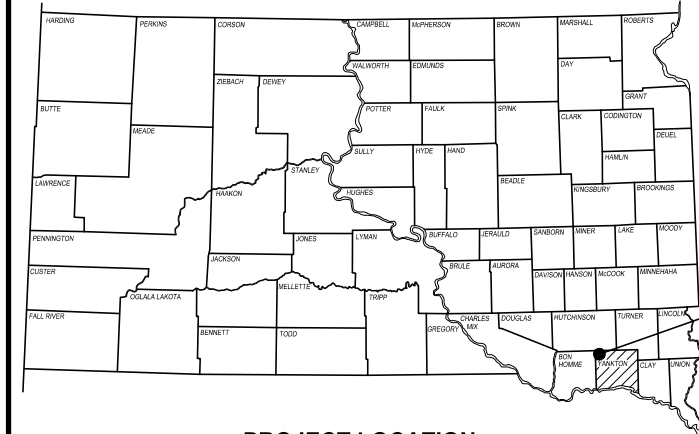




PROJECT LOCATION

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT BRF-B 6213(15)
YANKTON COUNTY

STRUCTURE, APPROACH GRADING, AND ASPHALT SURFACING
STR. NO. 68-030-018
PCN 09M6

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	1	99

INDEX OF SHEETS

Sheet No. 1	Title Sheet
Sheet No. 2 - 5	Estimate of Quantities and Environmental Commitments
Sheet No. 6 - 10	General Notes and Tables
Sheet No. 11 - 14	Storm Water Pollution Prevention Plan
Sheet No. 15	Typical Grading Section
Sheet No. 16 - 17	Traffic Control
Sheet No. 18 - 23	Erosion and Sediment Control
Sheet No. 24	Horizontal and Vertical Control Data
Sheet No. 25	Legend
Sheet No. 26 - 28	Plan and Profile
Sheet No. 29	ROW Layout
Sheet No. 30 - 44	Standard Plates
Sheet No. 45	Guardrail Layout
Sheet No. 46 - 88	Details for the Proposed Structure
Sheet No. 89 - 99	Cross Sections

DESIGN DESIGNATION

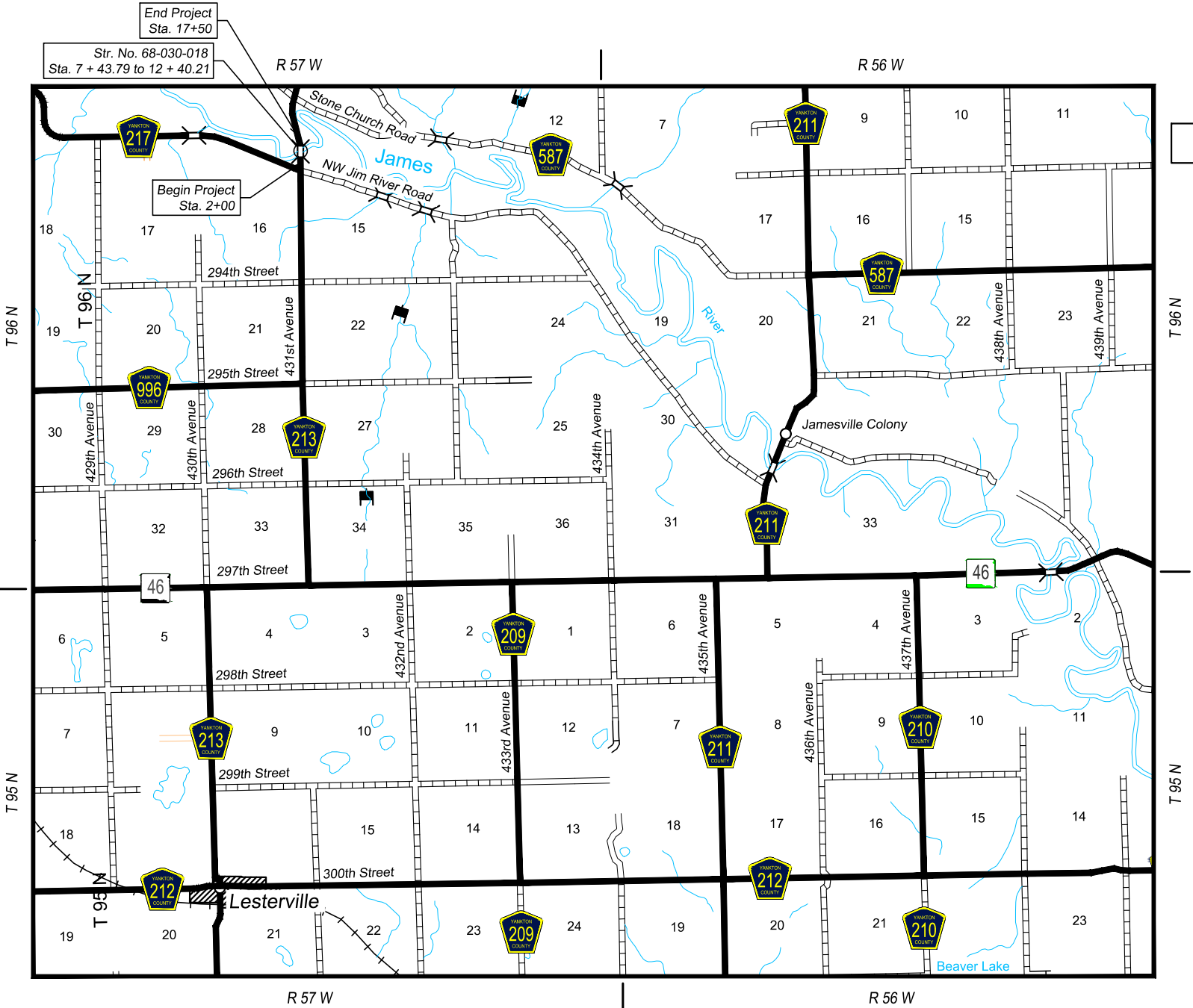
ADT (2020)	225
ADT (2040)	305
DHV	46
d	50%
T DHV	3.5%
T ADT	7.7%
V	45 mph

STORM WATER PERMIT

Major Stream:	James River
Area Disturbed:	4.17 Acres
Project Area:	7.92 Acres
Latitude:	N 43.1447°
Longitude:	W -97.5773°



Know what's below.
Call before you dig.



LOCATION MAP

COUNTY OFFICIALS

Highway Superintendent

Mike Sedlacek
3302 W City Limits Road
Yankton, SD 57078
Phone: (605) 260-4473
Fax: (605) 260-4492

Commissioners

John Marquardt
Wanda Howey-Fox
Dan Klimisch
Don Kettering
Ryan Heine



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November 19, 2025

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	2	99

Revised: 10/3/2025 (ARP)

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.294	Mile
009E3250	Miscellaneous Staking	0.294	Mile
009E3280	Slope Staking	0.294	Mile
009E3290	Structure Staking	1	Each
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0500	Remove Pipe Culvert	33	Ft
110E1010	Remove Asphalt Concrete Pavement	3,217.6	SqYd
110E1690	Remove Sediment	1.0	CuYd
110E1693	Remove Erosion Control Wattle	120	Ft
110E1700	Remove Silt Fence	2,800	Ft
110E7150	Remove Sign for Reset	5	Each
120E0010	Unclassified Excavation	5,335	CuYd
120E0600	Contractor Furnished Borrow	12,383	CuYd
230E0010	Placing Topsoil	1,778	CuYd
260E1010	Base Course	2,015.5	Ton
* 320E1200	Asphalt Concrete Composite	864.5	Ton
630E0110	Straight Double Class A Thrie Beam Guardrail with Wood Posts	50.0	Ft
630E1010	Straight Class A W Beam Guardrail with Wood Posts	100.0	Ft
630E2000	W Beam to Thrie Beam Guardrail Transition	4	Each
630E2015	W Beam Guardrail Flared End Terminal	4	Each
632E2220	Guardrail Delineator	16	Each
632E3500	Reset Sign	5	Each
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	3,095	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	2,040	Ft
634E0110	Traffic Control Signs	96.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	11	Each
634E0310	Temporary Flexible Vertical Markers (Tabs)	3,100	Ft
634E1002	Detour and Restriction Signing	726.6	SqFt
734E0010	Erosion Control	Lump Sum	LS
734E0131	Type 1 Turf Reinforcement Mat	13,496.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	120	Ft
734E0165	Remove and Reset Erosion Control Wattle	30	Ft
734E0604	High Flow Silt Fence	2,800	Ft
734E0610	Mucking Silt Fence	194	CuYd
734E0620	Repair Silt Fence	700	Ft
734E0630	Floating Silt Curtain	700	Ft
734E0635	Remove and Reset Floating Silt Curtain	175	Ft

* - Denotes Non-Participating

Str. No. 68-030-018

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	1,544.5	SqYd
120E7000	Select Granular Backfill	14.0	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0020	Structural Steel	Lump Sum	LS
410E2300	Strip Seal Expansion Joint	69.0	Ft
420E0100	Structure Excavation, Bridge	1,035	CuYd
430E0200	Bridge End Embankment	1,322	CuYd
430E0300	Granular Bridge End Backfill	71.4	CuYd
430E0510	Approach Slab Underdrain Excavation	2.8	CuYd
430E0700	Precast Concrete Headwall for Drain	4	Each
460E0030	Class A45 Concrete, Bridge Deck	489.2	CuYd
460E0050	Class A45 Concrete, Bridge	372.0	CuYd
460E0150	Concrete Approach Slab for Bridge	156.8	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	33.2	SqYd
460E0500	Deck Drain, Girder Bridge	16	Each
480E0100	Reinforcing Steel	57,661	Lb
480E0200	Epoxy Coated Reinforcing Steel	144,066	Lb
510E0100	Extract Pile	5	Each
510E0300	Preboring Pile	160	Ft
510E3421	HP 12x74 Steel Test Pile, Furnish and Drive	615	Ft
510E3425	HP 12x74 Steel Bearing Pile, Furnish and Drive	9,250	Ft
680E0040	4" Underdrain Pipe	285	Ft
680E2500	Porous Backfill	20.8	Ton
700E0210	Class B Riprap	1,177.4	Ton
700E1100	Overburden Excavation for Riprap	1,892	CuYd
831E0110	Type B Drainage Fabric	2,061	SqYd
831E1030	Perforated Geocell	399	SqFt

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

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

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

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



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	3	99

Revised: 9/16/2025 (ARP)

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.134 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	11+00	0.000	0.000	0.134	0.000	0.134

Action Taken/Required:

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in the plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.18 C of the Specifications.

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

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.046 acres of stream (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
James River	9+00	0.00	0.00	0.046	0.00	0.046

Action Taken/Required:

It has been determined that project impacts do not require stream 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.

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 ($\geq 140^{\circ}\text{F}$) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

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

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
< <https://sdleastwanted.sd.gov/maps/default.aspx> >

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

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

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

Action Taken/Required:

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

COMMITMENT D2: SURFACE WATER DISCHARGE

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

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

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

Action Taken/Required:

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

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



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	4	99

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_CGPApendixCCA2018Fillable.pdf >

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

Storm Water Pollution Prevention Plan

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

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

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

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

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06. Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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



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Revised: 9/16/2025 (ARP)

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 7.18 D 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
9+00	James River	1,179.4'

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

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

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

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



COUNTY RESPONSIBILITIES

Yankton 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. Furnish and install temporary and/or permanent fencing.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 168.7 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of Unclassified Excavation.

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

The estimated cubic yards of excavation and/or embankment required for constructing the bridge berm(s) between bridge abutments and to shape bridge waterway channel(s) is included in the earthwork balance notes on the profile sheets and the quantity is noted under the balance note. The excavation required for placing the Granular Bridge End Backfill is listed in the Table of Unclassified Excavation.

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

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

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

UTILITIES

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

NorthWestern Energy
3010 W. 69th Street
Sioux Falls, SD 57108
Phone: (800) 245-6977

NorthWestern Energy owns the overhead power line on the east side of the bridge. This power line will be deenergized and taken down for the duration of the project. The poles next to the bridge will be removed.

East River Electric Power Cooperative, Inc.
PO Box 227
211 S. Harth Avenue
Madison, SD 57042
Phone: (605) 256-8249

East River Electric owns the overhead power line on the west side of the bridge. This power line is 115KV and will not be deenergized for the project.

SHRINKAGE FACTOR

Embankment +35%.

EARTHWORK BALANCE

Excavation	2,585	CuYd	Embankment	12,483	CuYd
Other Excavation	3,768	CuYd	35% Shrinkage	4,369	CuYd
Contractor Furnished Borrow Excavation	12,383	CuYd	Waste	1,884	CuYd
Total	18,736	CuYd		18,736	CuYd

Excavation is the quantity of Unclassified Excavation less the quantity of topsoil and existing base course.

Other Excavation includes the sum of the quantities for the following:
Structure Excavation (1,035 CuYd)
Excavation for Class B Riprap (841 CuYd)
Overburden Excavation for Riprap (1,892 CuYd)

These quantities are for information purposes only, compensation for these are accounted for within various bid items.

The Contractor may, at the discretion of the Engineer, use the material from Other Excavation in the inslopes and as sub-base with the condition that said material meets all requirements as set forth in the Specifications.

It is assumed (for the purposes of earthwork balance) that the Contractor will be able to use 50% of the material from Other Excavation and will have to waste the remaining material at (a) site(s) provided by the Contractor and approved by the Engineer. All costs for labor, materials, and equipment necessary to waste material as well as restoration of the waste site(s) will be incidental to the contract unit price per cubic yard for Unclassified Excavation.

TABLE OF UNCLASSIFIED EXCAVATION

Excavation	2,585 CuYd
Topsoil	1,778 CuYd
Exc. for Granular Bridge End Backfill and/or Bridge End Embankment	436 CuYd
Existing Base Course	536 CuYd
Total	5,335 CuYd

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

The plans quantity for "Unclassified Excavation" as shown in the Estimate of Quantities will be the basis of payment. The Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

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.

COMPACTION

Compaction of the earth embankment and bridge berm material will be governed by the Specified Density Method.

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station to	Station	L/R	Quantity (SqYd)
2+00.00	8+14.24	L/R	1,649.2
11+86.53	17+50.00	L/R	1,568.4
	Total:		3,217.6



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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	7	99

Revised: 9/16/2025 (ARP)

TABLE OF GUARDRAIL

Location	Straight Double Class A Thrie Beam Guardrail with Wood Posts (Ft)	Straight Class A W Beam Guardrail with Wood Posts (Ft)	W Beam to Thrie Beam Guardrail Transition (Each)	W Beam Guardrail Flared End Terminal (Each)
Str. No. 68-030-018				
Begin Bridge Lt.	12.5	25.0	1	1
Begin Bridge Rt.	12.5	25.0	1	1
End Bridge Lt.	12.5	25.0	1	1
End Bridge Rt.	12.5	25.0	1	1
Totals:	50.0	100.0	4	4

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the County's intent for traffic control and sequencing of the work.

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.

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, signposts, and breakaway bases will be removed within 7 calendar days following pavement marking.

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

TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated to be 1,375 feet.

It is estimated that two DO NOT PASS (R4-1) and two PASS WITH CARE (R4-2) signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary flexible vertical markers (tabs) will be required on the top lift of asphalt concrete surfacing.

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

Any temporary flexible vertical markers (tabs) with covers removed before the flush seal will be replaced prior to application of the flush seal. 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 State.

Quantities of Temporary Flexible Vertical Markers (Tabs) consist of:

- One pass on top of the 2nd lift of asphalt concrete
- One pass to remove the covers after the flush seal

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

PERMANENT PAVEMENT MARKING

The Contractor will be required to repaint all existing pavement markings including centerline, edge line, and lane lines. This list is approximate. The Contractor will be required to document and be able to relocate for replacement of the existing markings before the markings are obliterated. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

PLACING TOPSOIL

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

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

Sta.	to	Sta.	Topsoil (CuYd)
2+00		17+50	1,778
		Total:	1,778



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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	8	99

EROSION CONTROL

The estimated area requiring erosion control is 121,458 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, and seeding 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.

Mycorrhizal Inoculum

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract lump sum price for Erosion Control.

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

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

Permanent Seeding

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

Special Permanent Seed Mixture will consist of the following:

Scientific Name	Common Name	Pure Live Seed (PLS) (Pounds/Acre)
Andropogon gerardii	Big Bluestem	3.04
Beckmannia syzigachne	American Sloughgrass	1.58
Bouteloua curtipendula	Side oats grama	2.37
Carex vulpinoidea	Fox Sedge	0.77
Elymus canadensis	Canada wildrye, Nodding Wild Rye	3.27
Koeleria cristat	Prairie June Grass	0.43
Schizachyrium scoparium	Little Bluestem	1.93
Lolium multiflorum	Annual Ryegrass	6.69
Panicum virgatum	Switch Grass	2.80
Paycopyrum smithii	Western wheatgrass	4.36
Poa palustris	Fowl Bluegrass	1.32
Spartina pectinata	Prairie Cordgrass	0.64
Puccinellia distans	Salty Alkaligrass	2.09
Sorghastrum nutans	Indian Grass	1.43
Total:		32.73

EROSION CONTROL WATTLE

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

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

Erosion control wattles will remain on the project to decompose.

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

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

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

TABLE OF EROSION CONTROL WATTLE

Sta.	L/R	Diameter (Inch)	Temporary / Permanent Erosion Control	Location	Quantity (Ft)
2+03	L	12	Temporary	Inslope	20
2+03	R	12	Temporary	Inslope	20
17+47	L	12	Temporary	Inslope	20
17+47	R	12	Temporary	Inslope	20
Additional Quantity:					40
Total:					120

HIGH FLOW SILT FENCE

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

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

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

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

TABLE OF HIGH FLOW SILT FENCE

Station	Location	Quantity (Ft)
2+03 to 7+22 L	Project Limits	574
2+03 to 8+65 R	Project Limits	711
11+50 to 17+47 L	Project Limits	606
12+08 to 17+47 R	Project Limits	641
Additional Quantity:		268
Total:		2,800



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.

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

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

TABLE OF FLOATING SILT CURTAIN

Station - Side		Station - Side	Quantity (Ft)
7+22 - 133' Lt.	To	8+65 - 127' Rt.	353
11+50 - 112' Lt.	To	12+08 - 137' Rt.	313
Additional Quantity			34
Total:			700

TURF REINFORCEMENT MAT

Turf Reinforcement Mat will be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor will use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

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

Turf Reinforcement Mat will be installed in accordance with the manufacturer's installation instructions. Turf Reinforcement Mat will be trenched and tucked under asphalt surfacing.

TABLE OF TURF REINFORCEMENT MAT

Sta.	to	Sta.	L/R	Location	Type	Quantity (SqYd)
2+00		8+38	L/R	Inslope	1	7,472.0
11+52		17+50	L/R	Inslope	1	6,024.0
Total Type 1 Turf Reinforcement Mat:						13,496.0

SURFACING THICKNESS DIMENSIONS

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

ASPHALT CONCRETE COMPOSITE

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

Asphalt for Tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.05 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for Tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

The asphalt binder used in the mixture will be PG 64-28, 58-34, or 64-34.

SUMMARY OF QUANTITIES

	5" Asphalt Concrete Composite (Ton)	5" Base Course Shoulders (Ton)	8" Base Course (Ton)	2" Asphalt Concrete Composite (Ton)	11" Base Course (Ton)
Sta. 2+00.00 to Sta. 7+43.79 - Mainline	417.7	68.5	823.7	-	-
Sta. 5+13.85 to Sta. 7+43.79 Lt. - Guardrail Taper	-	-	-	15.7	81.6
Sta. 5+31.20 to Sta. 7+43.79 Rt. - Guardrail Taper	-	-	-	15.7	81.7
Sta. 12+40.21 to Sta. 14+06.55 Lt. - Guardrail Taper	-	-	-	10.8	56.2
Sta. 12+40.21 to Sta. 14+06.55 Rt. - Guardrail Taper	-	-	-	13.0	67.4
Sta. 12+40.21 to Sta. 17+50.00 - Mainline	391.6	64.2	772.2	-	-
Total	809.3	132.7	1,595.9	55.2	286.9

PAVEMENT MARKING PAINT

All materials will be applied as per the Manufacturer's recommendations.

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

The application of permanent pavement marking will begin no sooner than 7 calendar days following completion of the fog or flush seal. Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

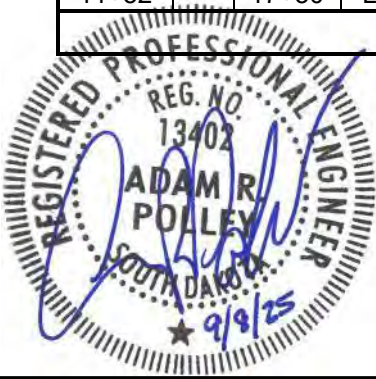
All cost for materials, labor, and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

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

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



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	BRF-B 6213(15)	10	99

GENERAL PERMANENT SIGNING

New sign installations will be staked in the field by the Contractor and checked by the Engineer. The Contractor will give the Engineer a minimum of one week to check staked locations prior to signpost installation. Lateral offset of signs will be as shown in the plans or as directed by the Engineer.

The Contractor will be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

When signs are mounted in an assembly, they will be 1-2 inches apart vertically and horizontally.

The height of the post must not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign will be cut off. No separate payment will be made for cutting the post or for that length cut off.

Aluminum U-Channel stiffeners will be used on all signs 36 inches or greater in width and will conform to ASTM B221 Alloy 6063-T6 or 6061-T6. The U-Channel will be 2 inches in width and free of holes. The U-Channel stiffeners will also be used to connect various signs together so that an entire sign assembly can be erected on a single installation. Stiffeners may be fastened to signs by use of 1/4-inch diameter drive rivets.

The Contractor will use 3/8-inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts will extend through each post.

Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

Prior to use, the Contractor will provide documentation for the sign support devices showing they meet the applicable NCHRP 350 or MASH requirements.

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking				Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
					Length (Mile)	Lane Factor	*Sets of Stakes	**Grade Staking Quantity (Mile)			
431 st Avenue	2+00	17+50	2	1,550	0.294	1	1	0.294	0.294	0.294	-
Str. No. 68-030-018	7+43.79	12+40.21									1
Totals:								0.294	0.294	0.294	1

* 1 = Blue Top Stakes Only (Asphalt Surfacing)

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

REMOVE SIGN FOR RESET AND RESET SIGN

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

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

TABLE OF PERMANENT SIGNING

Sta.	L/R	Action	Description
6+93.93	23.27' R	Remove Sign for Reset	Curve Arrow
6+93.93	23.27' R	Reset Sign	Curve Arrow
12+69.65	24.48' R	Remove Sign for Reset	Chevron
12+69.65	24.48' R	Reset Sign	Chevron
13+94.90	16.56' R	Remove Sign for Reset	Chevron
13+94.90	16.56' R	Reset Sign	Chevron
15+15.86	18.02' R	Remove Sign for Reset	Chevron
15+15.86	18.02' R	Reset Sign	Chevron
16+47.44	33.70' R	Remove Sign for Reset	Chevron
16+47.44	33.70' R	Reset Sign	Chevron



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 7.92 Acres
- 5.3 (3b): Total Area to be Disturbed 4.17 Acres
- 5.3 (3c): Maximum Area Disturbed at One Time 4.17 Acres
- 5.3 (3d): Existing Vegetative Cover (%) 75%
- 5.3 (3d): Description of Vegetative Cover Herbaceous Species
- 5.3 (3e): Soil Properties: AASHTO Soil Classification A-2, A-4, A-5, A-6
- 5.3 (3f): Name of Receiving Water Body/Bodies James
- 5.3 (3g): Location of Construction Support Activity Areas N/A

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Final grading.	
Final asphalt paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

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

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

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

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

Stabilization Practices (See Detail Plan Sheets)

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

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

Wetland Avoidance

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

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure’s capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor’s Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

- **Material Management**
 - Housekeeping
 - Only needed products will be stored on-site by the Contractor.
 - Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
 - Products must be stored in original containers and labeled.
 - Material mixing will be conducted in accordance with the manufacturer’s recommendations.
 - When possible, all products will be completely used before properly disposing of the container off-site.
 - The manufacturer’s directions for disposal of materials and containers will be followed.
 - The Contractor’s site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
 - Dust generated will be controlled in an environmentally safe manner.
 - Hazardous Materials
 - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
 - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
 - If surplus product must be disposed of, manufacturer’s label directions for disposal will be followed.

- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

➤ **Spill Control Practices**

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

- For all hazardous materials stored on site, the manufacturer’s recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor’s site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator.

➤ **Spill Response**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor’s site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.

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- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent’s designee will be responsible for completing the spill reporting form and for reporting the spill to SDDANR.
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor’s site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

5.3 (8b): WASTE MANAGEMENT PROCEDURES

➤ **Waste Disposal**

- All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.

➤ **Hazardous Waste**

- All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.

➤ **Sanitary Waste**

- Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the heading “POLLUTION PREVENTION PROCEDURES” (check all that apply).

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

Product Specific Practices

- **Petroleum Products**
All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- **Fertilizers**
Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- **Paints**
All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
- **Concrete Trucks**
Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

In the event of a spill, the Contractor’s site superintendent will make the appropriate notification(s), consistent with the following procedures:

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

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	13	99

5.4: SWPPP CERTIFICATIONS

➤ Certification of Compliance with Federal, State, and Local Regulations

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

➤ South Dakota Department of Transportation

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

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

➤ Prime Contractor

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

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

Authorized Signature

CONTACT INFORMATION

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

➤ Contractor Information:

- Prime Contractor Name: _____
- Contractor Contact Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ Erosion Control Supervisor

- Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ SDDOT Project Engineer

- Name: _____
- Business Address: _____
- Job Office Location: _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ SDDANR Contact Spill Reporting

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

➤ SDDANR Contact for Hazardous Materials.

- (605) 773-3153

➤ National Response Center Hotline

- (800) 424-8802.

➤ SDDANR Stormwater Contact Information

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

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	14	99

5.5: REQUIRED SWPPP MODIFICATIONS

➤ 5.5 (1): Conditions Requiring SWPPP Modification

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

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

➤ 5.5 (2): Deadlines for SWPPP Modification

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

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

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

➤ 5.5 (4): Certification Requirements

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

➤ 5.5 (5): Required Notice to Other Operators

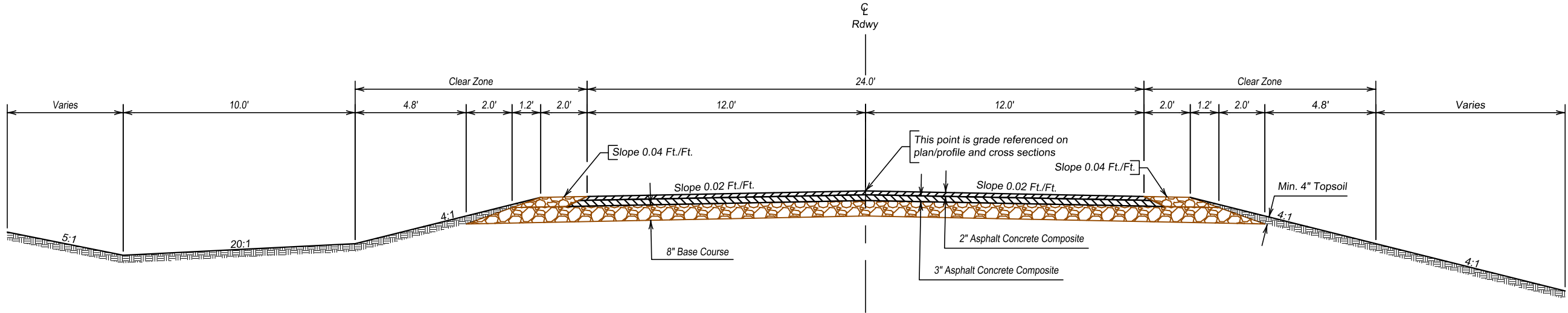
If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

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

TYPICAL GRADING SECTION
Sta. 2+50 to Sta. 17+00

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	15	99

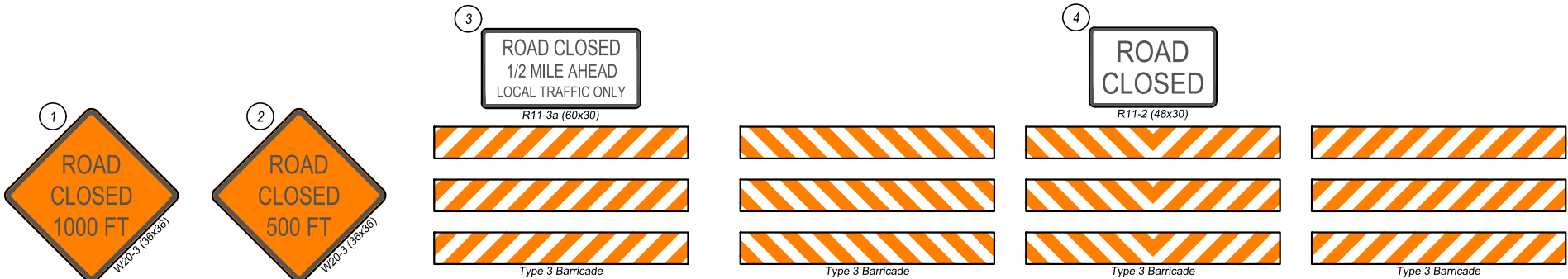
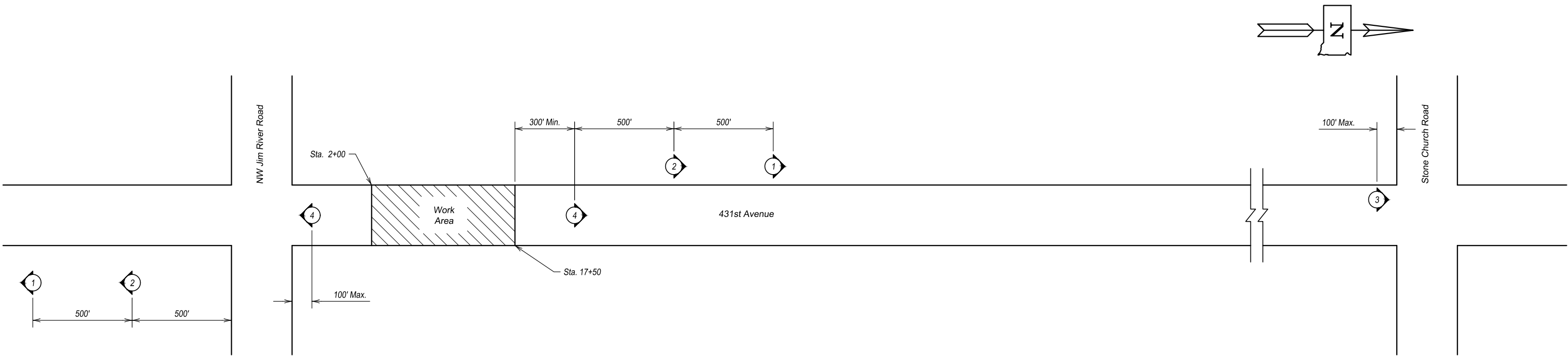


*Transitions: Sta. 2+00 to Sta. 2+50 transition existing roadway section (roadway width, shoulder, and ditch) to typical roadway section.
Sta. 5+14 to Sta. 7+44 transition typical roadway section to Standard Plate 630.86.
Sta. 7+44 to Sta. 12+40 Across Bridge.
Sta. 12+40 to Sta. 14+07 transition Standard Plate 630.86 to typical roadway section.
Sta. 17+00 to Sta. 17+50 transition typical roadway section to existing roadway section (roadway width, shoulder, and ditch).



TRAFFIC CONTROL - STRUCTURE FOR BIDDING PURPOSES ONLY

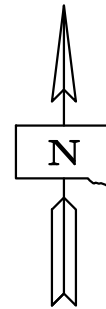
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	16	99



ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	2	48" x 30"	10.0	20.0
R11-3a	ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY	1	60" x 30"	12.5	12.5
W20-3	ROAD CLOSED 500FT	2	48" x 48"	16.0	32.0
W20-3	ROAD CLOSED 1000FT	2	48" x 48"	16.0	32.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			96.5





NOTE:
See Standard Plate No. 634.29 for spacing of signs.

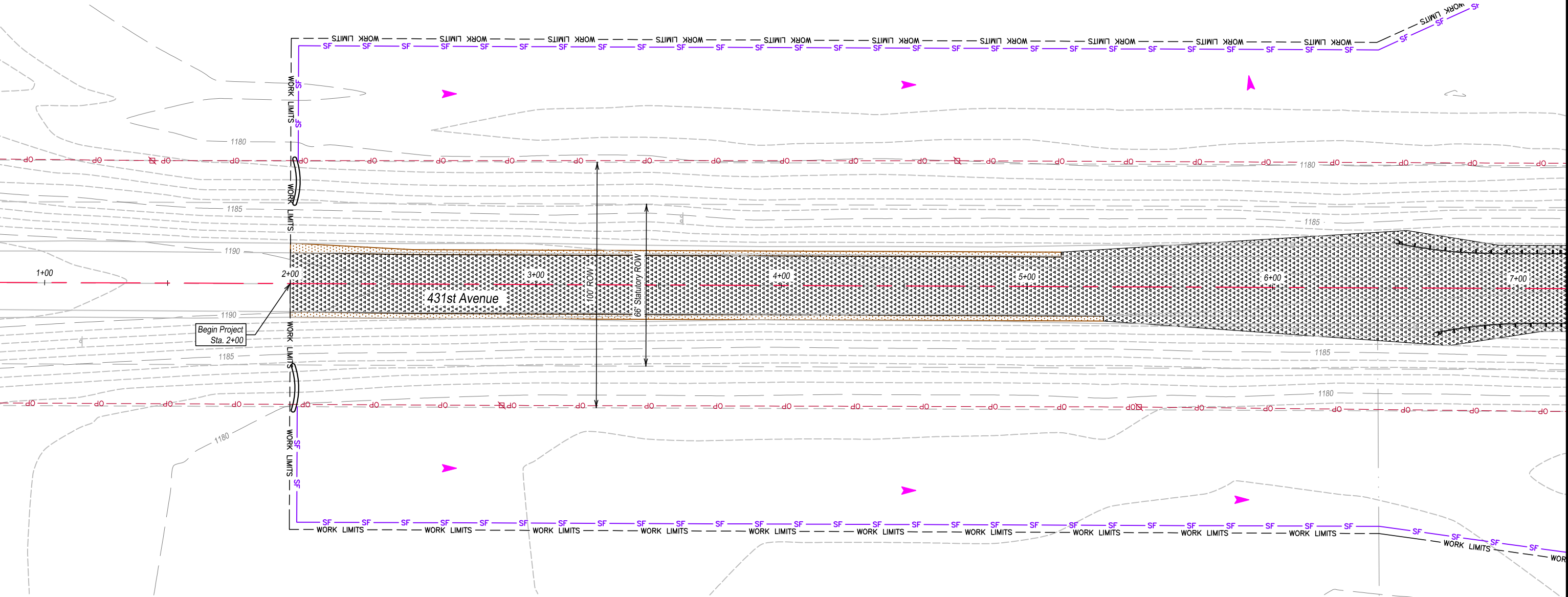


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

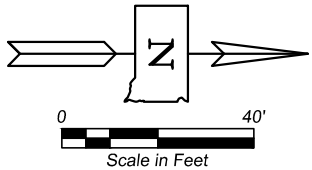
TEMPORARY EROSION AND SEDIMENT CONTROL (1 OF 3)FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	18	99

Revised: 9/16/2025 (ARP)



- NOTES:
- Stockpiles will be 10' from edge of bank.
 - Contractor is responsible for temporary erosion control for stockpiles.
 - Minimize exposed soil.
 - Waters of the United States are regulated by the Corps of Engineers.



EROSION CONTROL LEGEND	
Erosion Control Wattle - 20'	
Drainage Arrows	
High Flow Silt Fence	
Floating Silt Curtain	

HIGH FLOW SILT FENCE				
Sta. 2+03 - 50' Lt.	to	Sta. 7+22 - 133' Lt.	574'	
Sta. 2+03 - 50' Rt.	to	Sta. 8+65 - 127' Rt.	711'	
Additional Quantity			115'	
Total			1400'	

TEMPORARY EROSION CONTROL WATTLES		
Sta. 2+03	42' Lt.	20'
Sta. 2+03	43' Rt.	20'
Additional Quantity		20'
Total		60'

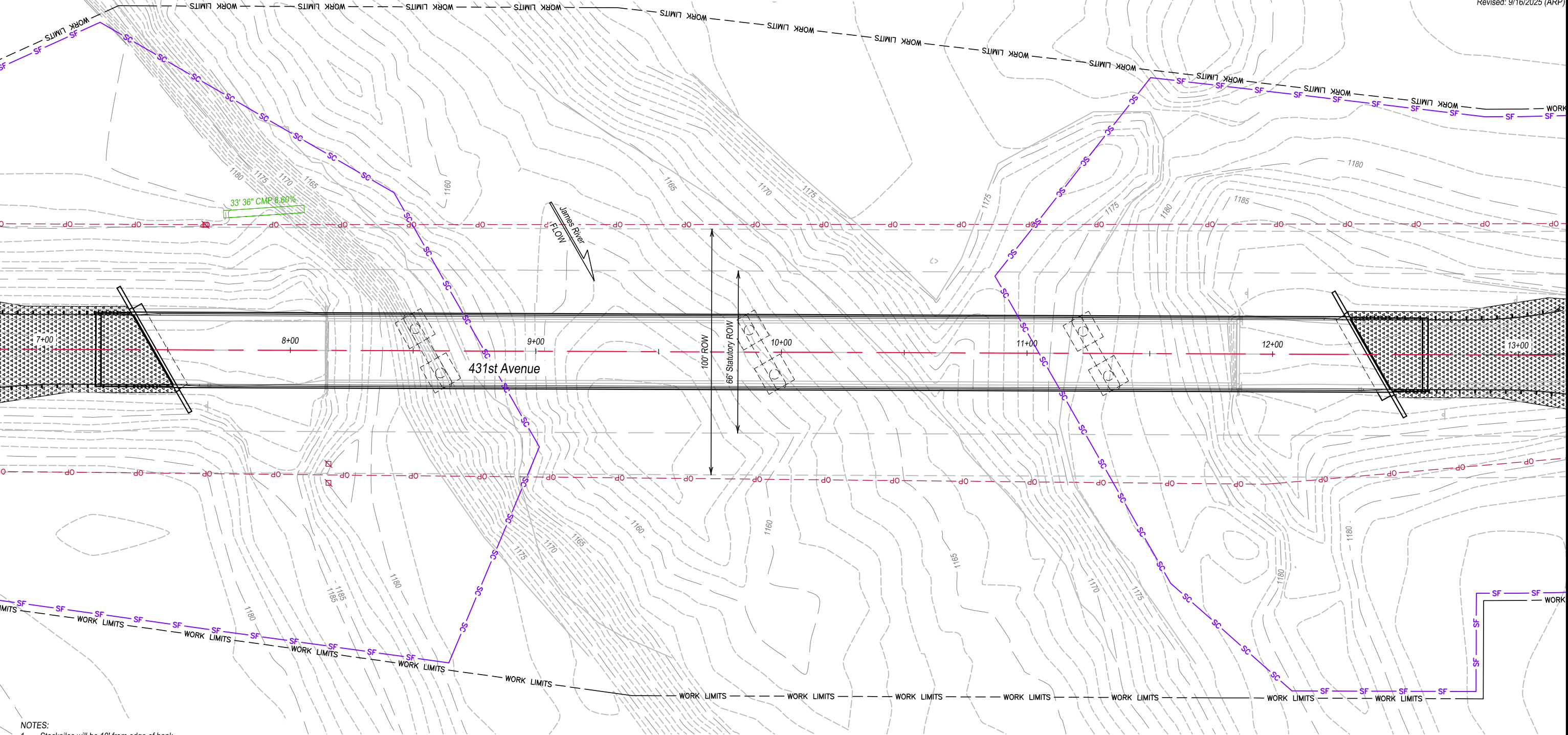


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

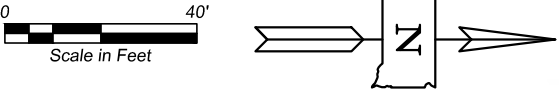
TEMPORARY EROSION AND SEDIMENT CONTROL (2 OF 3) FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	19	99

Revised: 9/16/2025 (ARP)



- NOTES:
1. Stockpiles will be 10' from edge of bank.
 2. Contractor is responsible for temporary erosion control for stockpiles.
 3. Minimize exposed soil.
 4. Waters of the United States are regulated by the Corps of Engineers.



EROSION CONTROL LEGEND	
Erosion Control Wattle - 20'	
Drainage Arrows	
High Flow Silt Fence	
Floating Silt Curtain	

FLOATING SILT CURTAIN				
Sta. 7+22 - 133' Lt.	to	Sta. 8+65 - 127' Rt.	353'	
Sta. 11+50 - 112' Lt.	to	Sta. 12+08 - 137' Rt.	313'	
Additional Quantity			34'	
Total			700'	

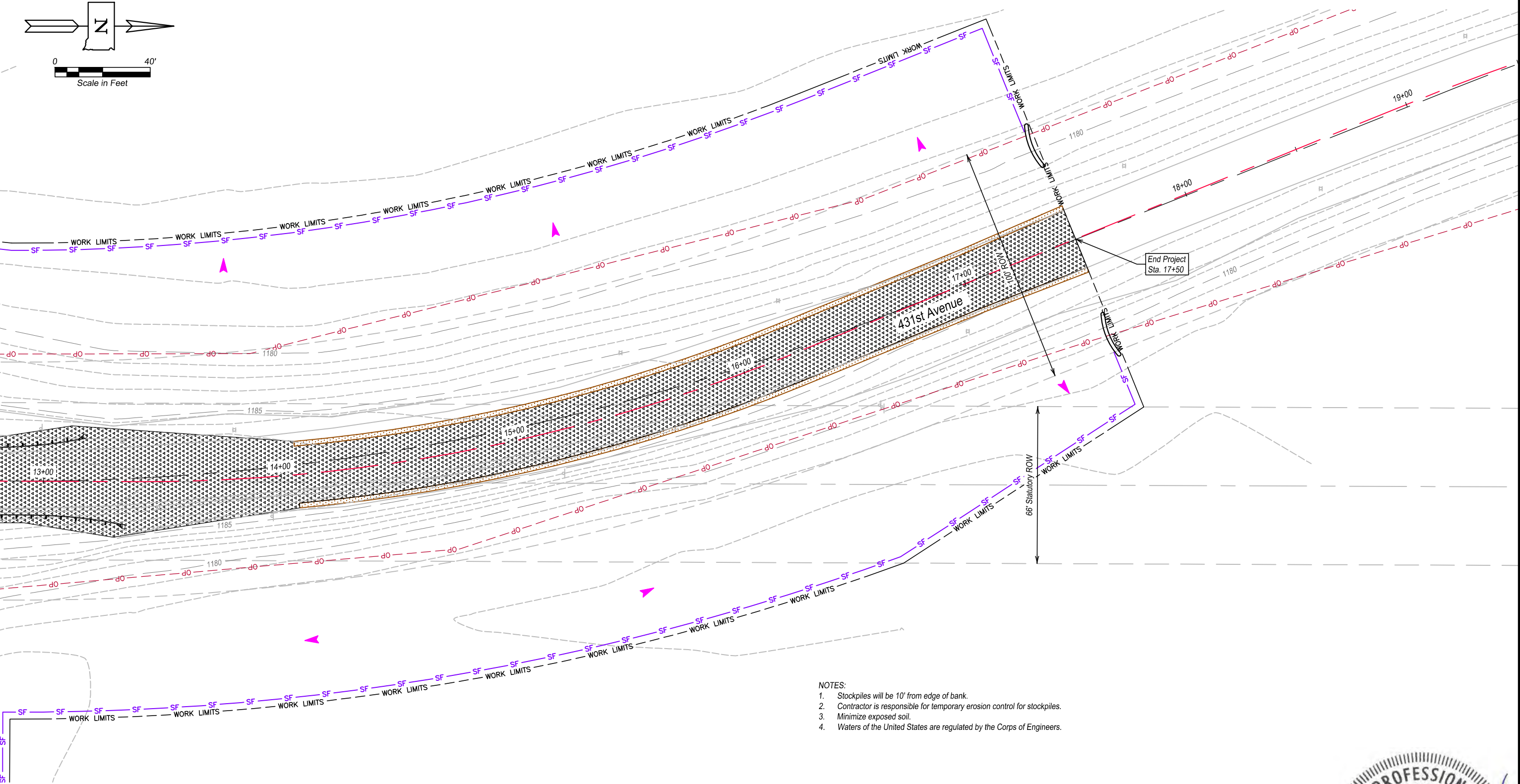
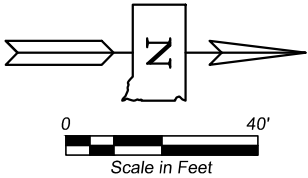


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

TEMPORARY EROSION AND SEDIMENT CONTROL (3 OF 3) FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	20	99

Revised: 9/16/2025 (ARP)



- NOTES:
1. Stockpiles will be 10' from edge of bank.
 2. Contractor is responsible for temporary erosion control for stockpiles.
 3. Minimize exposed soil.
 4. Waters of the United States are regulated by the Corps of Engineers.

EROSION CONTROL LEGEND	
Erosion Control Wattle - 20'	
Drainage Arrows	
High Flow Silt Fence	
Floating Silt Curtain	

HIGH FLOW SILT FENCE				
Sta. 11+50 - 112' Lt.	to	Sta. 17+47 - 50' Lt.	606'	
Sta. 12+08 - 137' Rt.	to	Sta. 17+47 - 50' Rt.	641'	
Additional Quantity			153'	
Total			1400'	

TEMPORARY EROSION CONTROL WATTLES			
Sta. 17+47	43' Lt.	20'	
Sta. 17+47	43' Rt.	20'	
Additional Quantity			20'
Total			60'

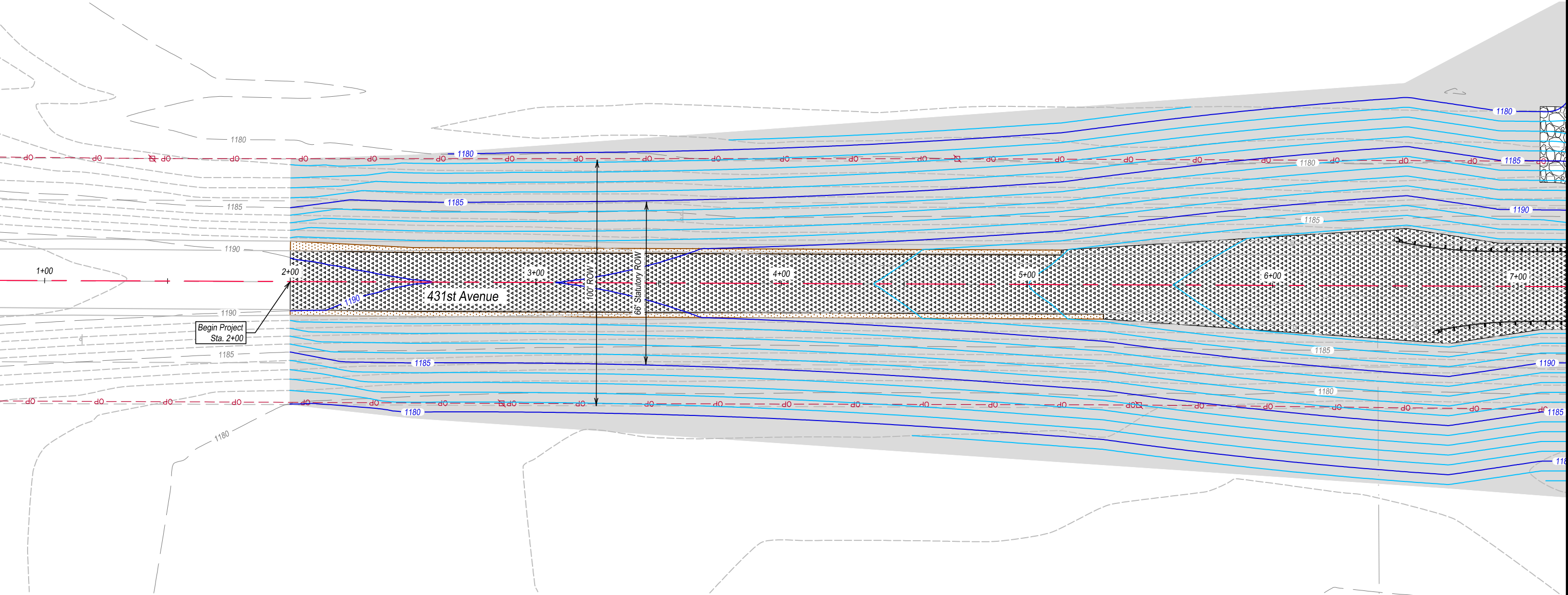


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

PERMANENT EROSION AND SEDIMENT CONTROL (1 OF 3) FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	21	99

Revised: 9/16/2025 (ARP)



NOTE:
Stabilization measures must begin within 24 hours of when earth disturbing activities have ceased.

EROSION CONTROL LEGEND	
Turf Reinforcement Mat	
Class B Riprap	

TURF REINFORCEMENT MAT			
Sta. 2+00	to	Sta. 8+38	7472.0 Sq. Yd.
Total			7472.0 Sq. Yd.

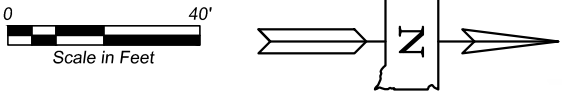
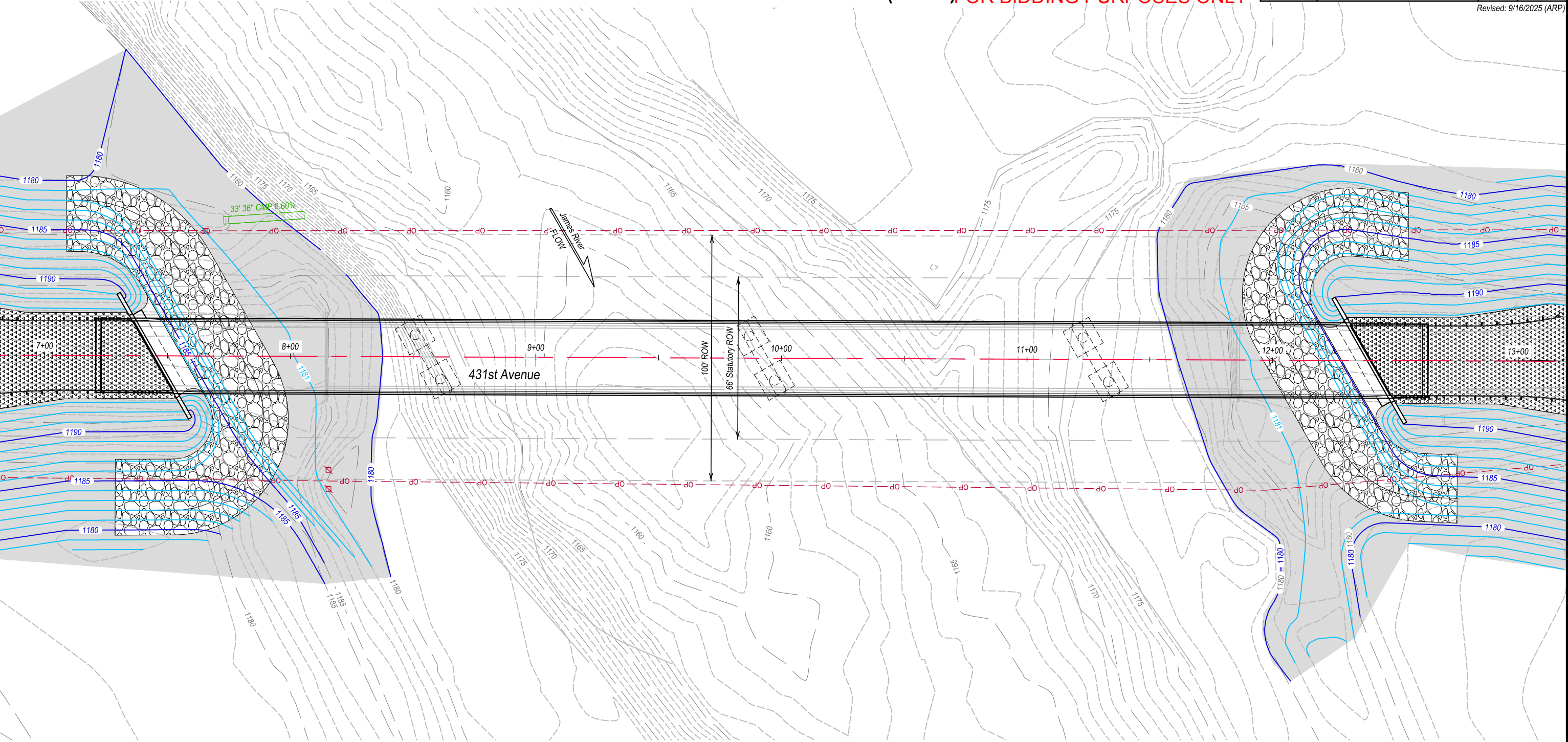


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

PERMANENT EROSION AND SEDIMENT CONTROL (2 OF 3)FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	22	99

Revised: 9/16/2025 (ARP)



NOTE:
Stabilization measures must begin within 24 hours of when earth disturbing activities have ceased.

EROSION CONTROL LEGEND	
Turf Reinforcement Mat	
Class B Riprap	



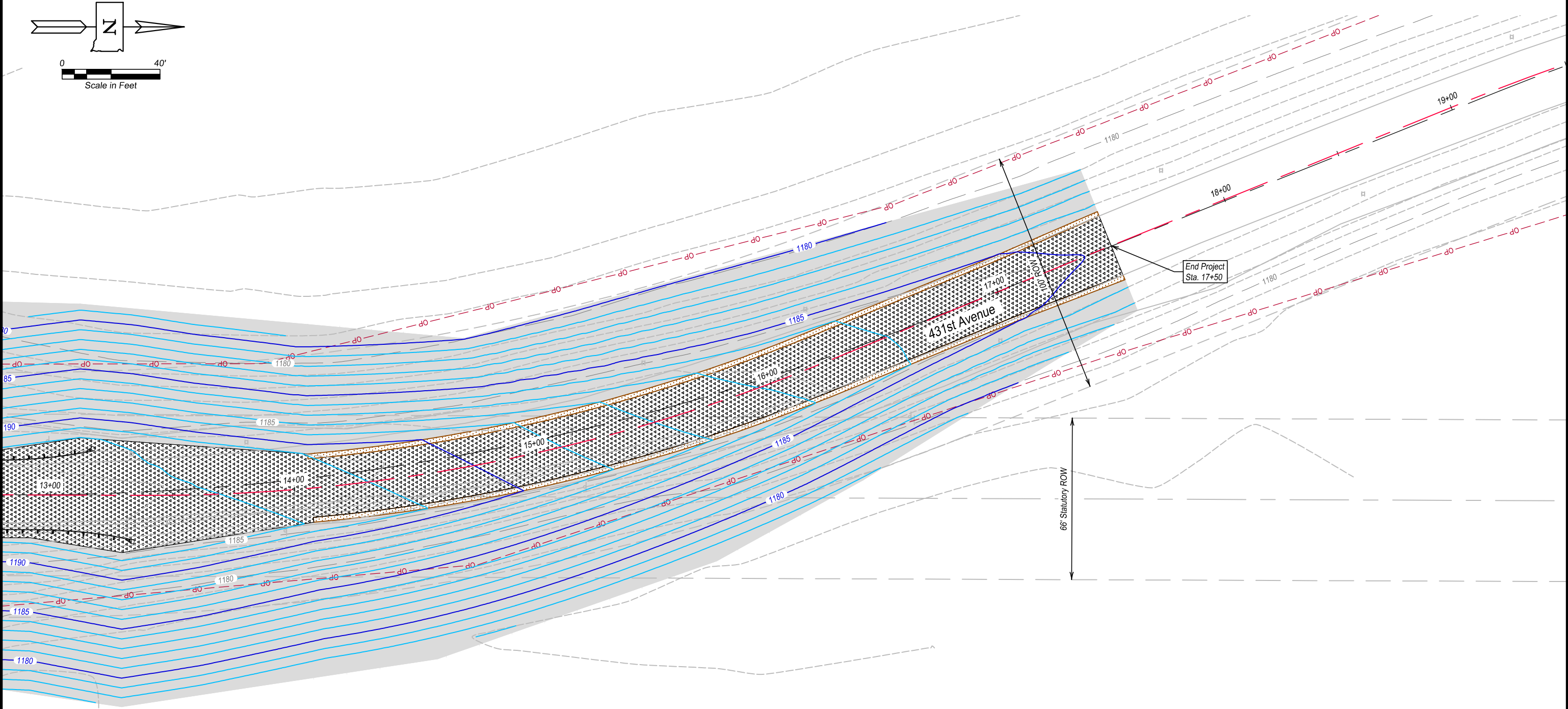
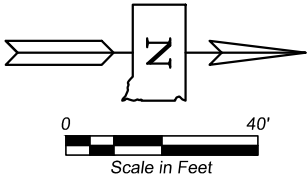
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The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

PERMANENT EROSION AND SEDIMENT CONTROL (3 OF 3) FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	23	99

Revised: 9/16/2025 (ARP)



NOTE:
Stabilization measures must begin within 24 hours of when earth disturbing activities have ceased.

EROSION CONTROL LEGEND	
Turf Reinforcement Mat	
Class B Riprap	

TURF REINFORCEMENT MAT			
Sta. 11+52	to	Sta. 17+50	6024.0 Sq. Yd.
Total			6024.0 Sq. Yd.



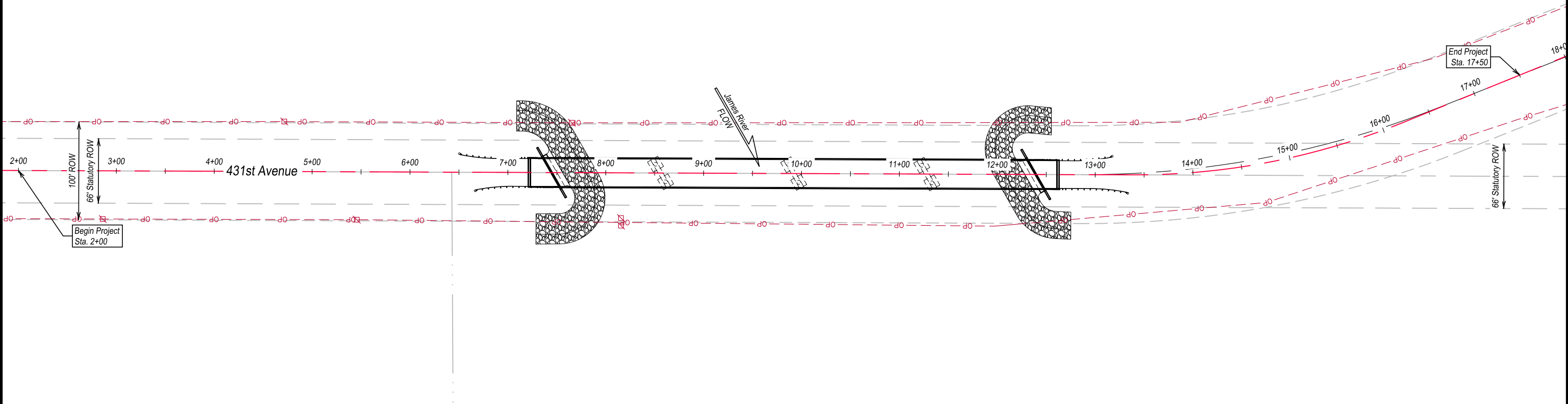
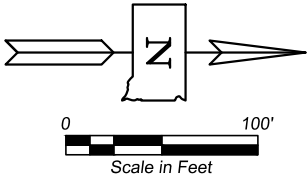
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The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

HORIZONTAL AND VERTICAL CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	24	99



HORIZONTAL ALIGNMENT DATA							
Type	Sta.	Length	Radius	Direction	Delta (Δ)	Northing (y)	Easting (x)
PI 1	-3+00.00					15674079.65	2019976.68
		1638.21'		N0°13'34.16"E			
PC 2	13+38.21					15675717.84	2019983.15
		282.86'	725.00'	N10°57'03.59"W	22°21'15.48" (Lt.)		
PT 3	16+21.07					15675993.80	2019929.75
		280.59'		N22°07'41.33"W			
PC 4	19+01.66					15676253.72	2019824.06
		97.32'	1000.00'	N19°20'24.96"W	5°34'32.74" (Rt.)		
PT 5	19+98.97					15676345.51	2019791.84
		1025.46'		N16°33'08.59"W			
PC 6	30+24.43					15677328.47	2019499.70
		576.02'	926.00'	N01°16'04.77"E	35°38'26.70" (Rt.)		
PT 7	36+00.45					15677895.10	2019512.24
		397.32'		N19°05'18.12"E			
PI 8	39+97.77					15678270.57	2019642.18

HORIZONTAL/VERTICAL CONTROL POINTS						
Point	Sta.	Offset	Northing (y)	Easting (x)	Elevation (z)	Description
CP 51	-	-	15673712.50	2019975.47	1239.24	5/8" Rebar
CP 53	-0.17.29	49.87' Lt.	15674362.56	2019927.93	1194.37	5/8" Rebar
CP 54	-1+22.92	49.88' Lt.	15674256.92	2019927.50	1195.01	5/8" Rebar
CP 57	19+16.06	178.96' Rt.	15676332.11	2019985.46	1176.39	5/8" Rebar



LEGEND

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	25	99

CONTROL LEGEND	
Benchmark	
Control Point	
GPS Base Point	
Photo Control Target	
Temporary Benchmark	
Temporary Control Point	

SANITARY SEWER LEGEND	
Lift Station	
Sanitary Manhole	
Sanitary Marker	
Septic Tank Lid	
Sewer Cleanout	
Underground Sanitary Sewer	

STORM SEWER LEGEND	
Drop Inlet	
Storm Manhole	
Storm Marker	
Underground Storm Sewer	
Corrugated Metal Pipe	
Arch Corrugated Metal Pipe	
Reinforced Concrete Pipe	
Arch Reinforced Concrete Pipe	
Polyvinyl Chloride Pipe	
Cast or Ductile Pipe	
Drain Tile	
Ribbed High Density Polyethylene Pipe	

SIGN LEGEND	
Single Post Sign	
Double Post Sign	
Triple Post Sign	
Delineator	
Mailbox	
Mile Marker	
No Passing Zone	
Speed Limit	
Stop Sign	
Street Sign	
Yield Sign	

WATER LEGEND	
Curb Stop	
Fire Hydrant - 2 Connectors	
Fire Hydrant - 3 Connectors	
Post Indicator Valve	
Stand Pipe	
Water Cistern	
Water Fountain	
Water Hydrant	
Water Manhole	
Water Marker	
Water Meter	
Water Valve	
Water Well	
Underground Water	

COMMUNICATIONS LEGEND	
Antenna	
Siren	
Fiber Optic Marker	
Fiber Optic Pedestal	
Fiber Optic Cable	
Telegraph Pole	
Overhead Telegraph	
Public Telephone	
Telephone Manhole	
Telephone Pedestal	
Overhead Telephone	
Underground Telephone	
Satellite Dish	
Television Pedestal	
Overhead Television	
Underground Television	

GAS LEGEND	
Gas Manhole	
Gas Marker	
Gas Meter	
Gas Pump	
Gas Valve	
Gas Vent	
Underground Gas Line	

POWER LEGEND	
Air Conditioner/Cooling Unit	
Electric Outlet	
Fuse Box	
Guy Pole	
Guy Wire	
Light Pole	
Parking Meter	
Power Box	
Power Manhole	
Power/Electric Meter	
Power Pedestal	
Power Pole	
Power Pole With Light	
Street Light	
Traffic Signal	
Overhead Power	
Underground Power	

FENCING/POST LEGEND	
Concrete Post	
Guard Post/Bollard	
Steel Post	
Wood Post	
Barbed Wire Fence	
Barbed & Woven Wire Fence	
Chain Link Fence	
Electric Fence	
Generic Fence	
Vinyl Fence	
Wooden Fence	
Woven Wire Fence	

PARK/YARD LEGEND	
BBQ Grill	
Merry Go Round	
Trash Barrel	
Decorative Yard Lamp	
Flag Pole	
Lawn Sprinkler	
Sprinkler Head	

VEGETATION LEGEND	
Bush	
Coniferous Tree	
Coniferous Tree Row	
Dead Tree	
Deciduous Tree	
Deciduous Tree Row	
Hedge	
Tree Stump	
Edge of Woods	

EROSION CONTROL LEGEND	
Drainage Arrows	
Turf Reinforcement Mat	
Erosion Control Wattles	
RipRap	
Silt Curtain	
Silt Fence	
Temporary Diversion Channel	
Straw Mulch	

BOUNDARY	
Found Corner	
Set Corner	
Section Line	
Quarter Line	
16th Line	
32nd Line	
Easement Line	
Right of Way Line	
Original Right of Way Line	



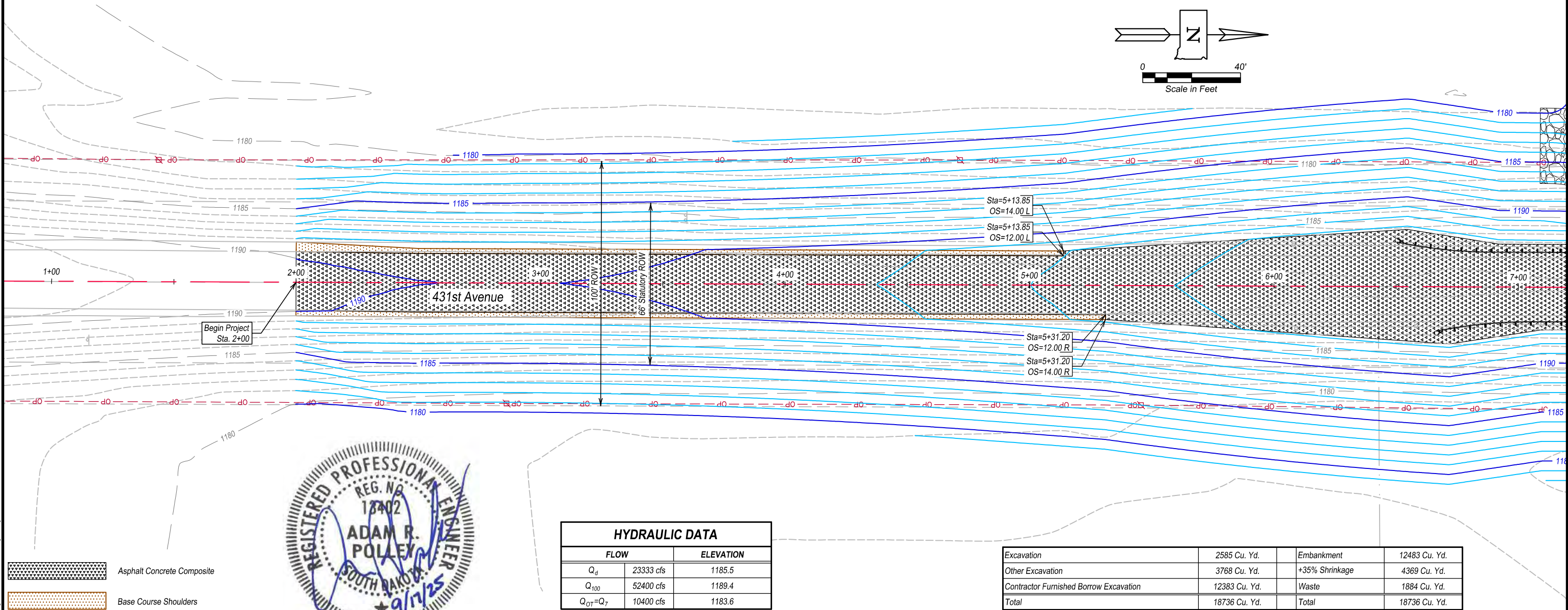
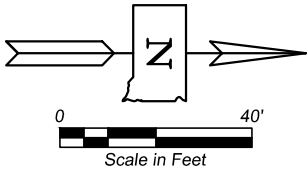
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

PLAN AND PROFILE (1 OF 3)

FOR BIDDING PURPOSES ONLY

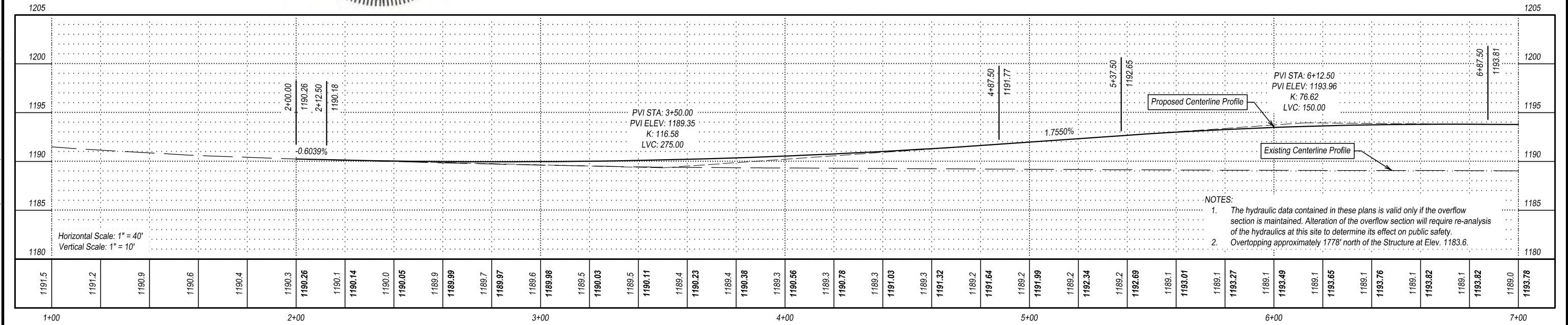
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	26	99

Revised: 9/16/2025 (ARP)



HYDRAULIC DATA			
FLOW		ELEVATION	
Q_d	23333 cfs	1185.5	
Q_{100}	52400 cfs	1189.4	
$Q_{OT}=Q_7$	10400 cfs	1183.6	

Excavation	2585 Cu. Yd.	Embankment	12483 Cu. Yd.
Other Excavation	3768 Cu. Yd.	+35% Shrinkage	4369 Cu. Yd.
Contractor Furnished Borrow Excavation	12383 Cu. Yd.	Waste	1884 Cu. Yd.
Total	18736 Cu. Yd.	Total	18736 Cu. Yd.



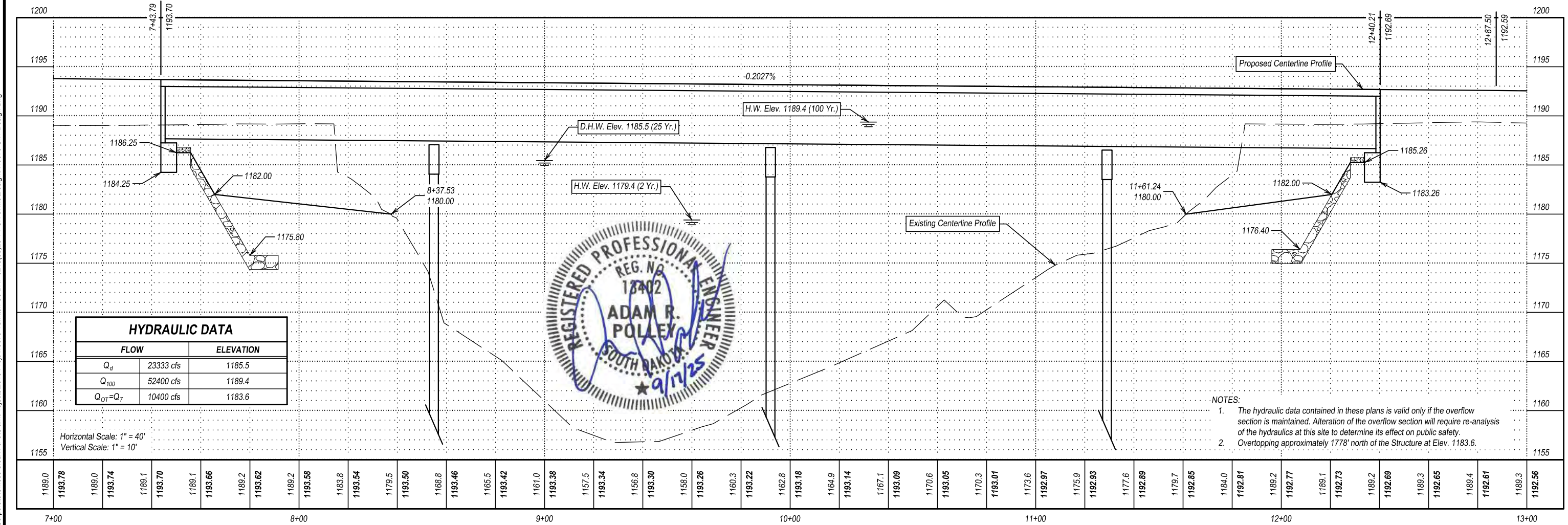
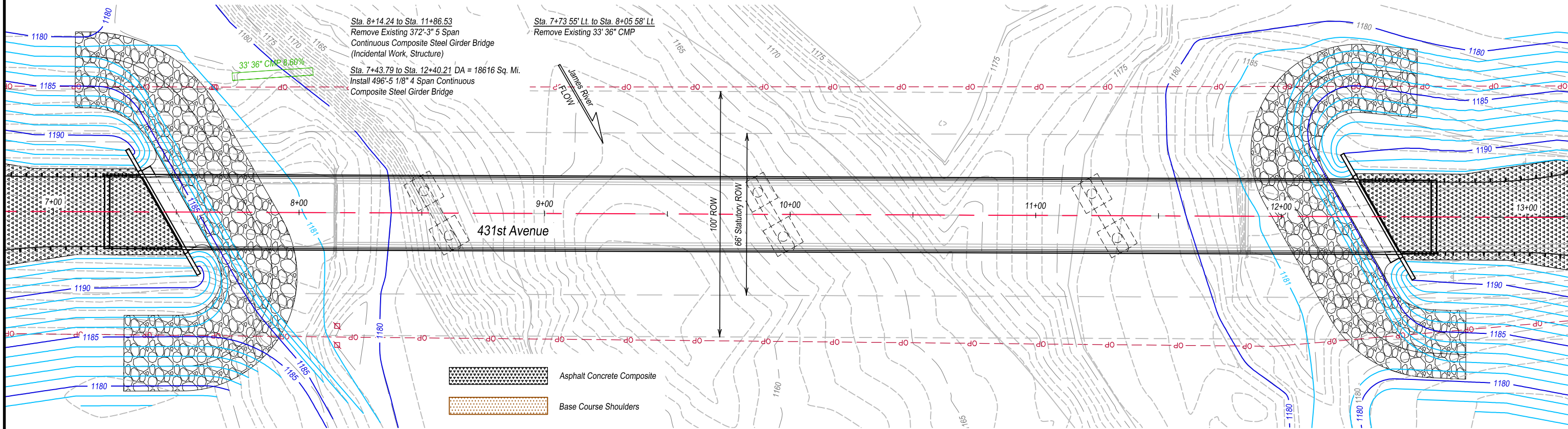
- NOTES:
- The hydraulic data contained in these plans is valid only if the overflow section is maintained. Alteration of the overflow section will require re-analysis of the hydraulics at this site to determine its effect on public safety.
 - Overtopping approximately 1778' north of the Structure at Elev. 1183.6.

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Plotted by: Adam R. Polley

FOR BIDDING PURPOSES ONLY

SHEET	TOTAL SHEETS
27	99

Revised: 9/16/2025 (ARI)



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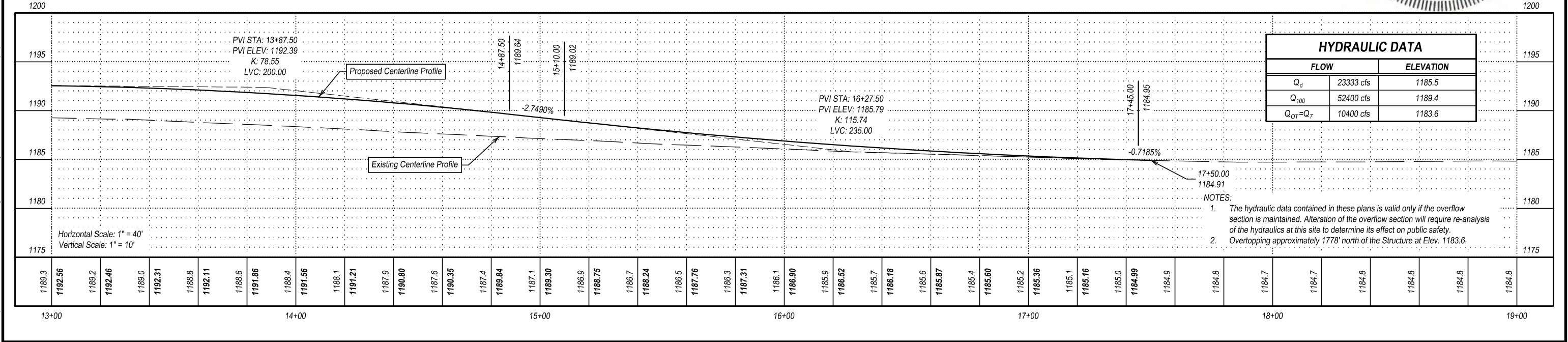
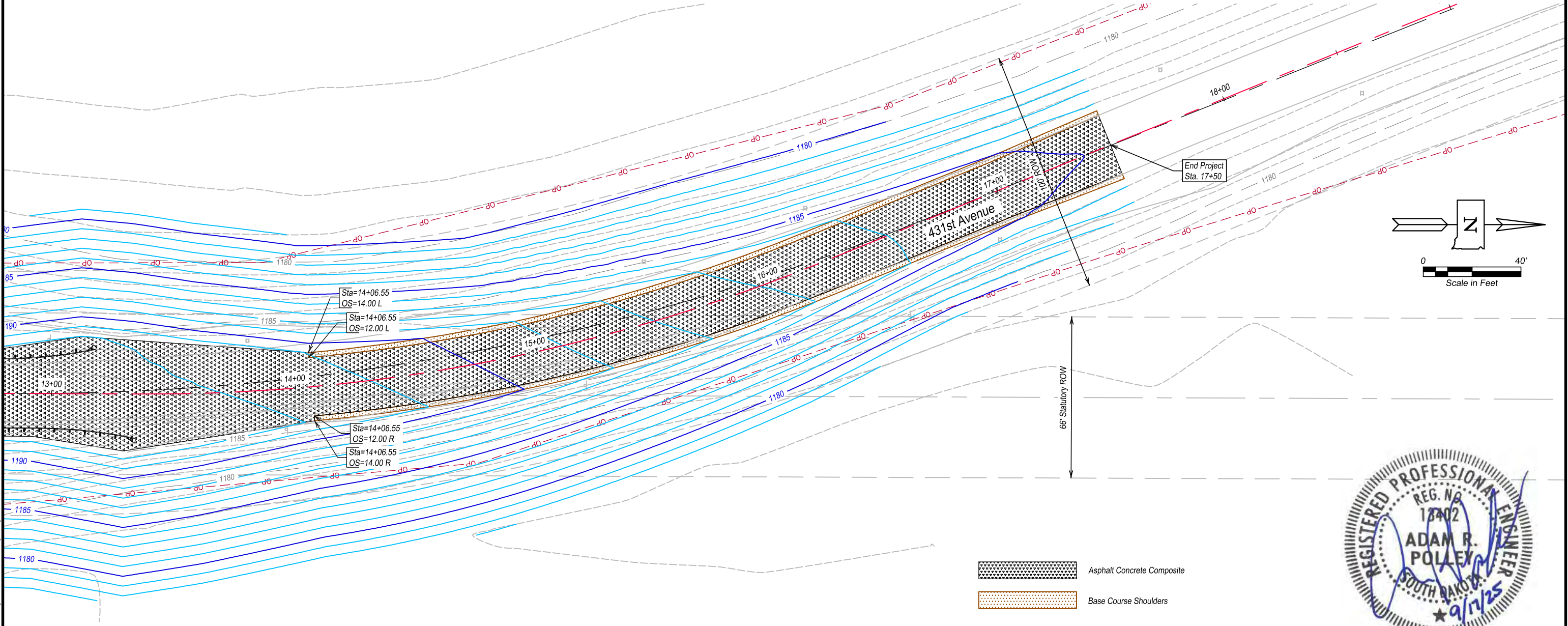
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

PLAN AND PROFILE (3 OF 3)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	28	99

Revised: 9/16/2025 (ARP)



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

ROW LAYOUT

FOR BIDDING PURPOSES ONLY

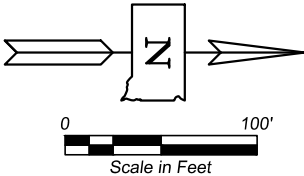
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	29	99

Savanah Debelts
2713 West 95th Street
Sioux Falls, SD 57108

Tract 2, Zeeb Addition, in Government Lots Eight (8) and Nine (9), and in the Southwest Quarter of the Southeast Quarter (SW 1/4 SE 1/4), of Section Nine (9), Township Ninety-six (96), Range Fifty-seven (57), West of the 5th P.M., Yankton County, South Dakota.

Sta. 7+00 Lt. to Sta. 7+70 Lt.
Permanent Easement
Containing 0.05 Acres, More or Less

Sta. 2+00 Lt. to Sta. 8+03 Lt.
Temporary Easement
Containing 0.68 Acres, More or Less

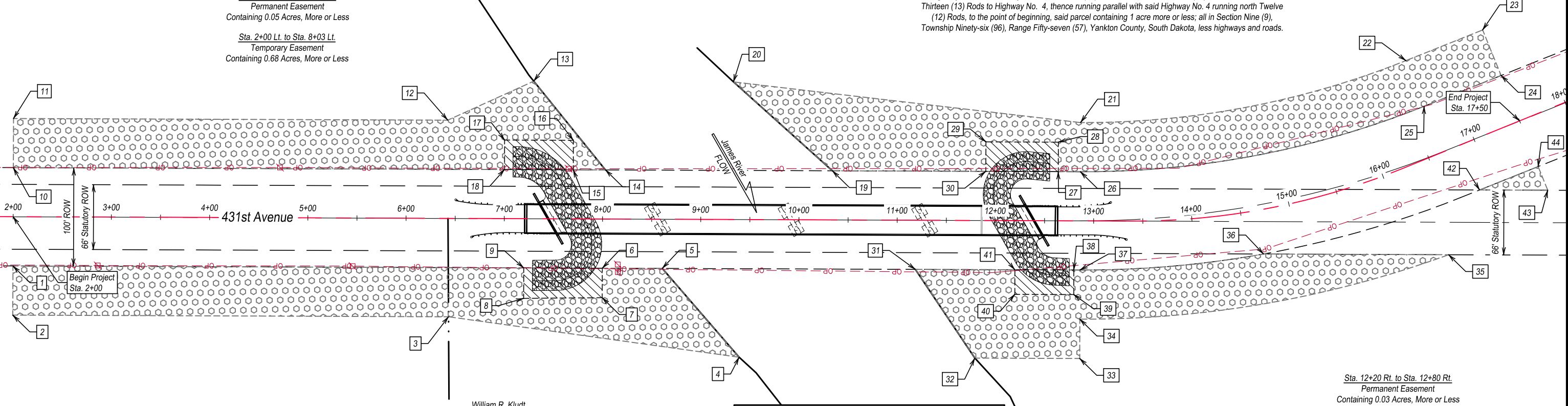


Curtis Ulmer and Barbara Ulmer
48936 433rd Avenue
Menno, SD 57045

Government Lot Four (4) and Government Lot Five (5); AND the Northeast Quarter of the Northeast Quarter (NE 1/4 NE 1/4), EXCEPT a parcel lying south of the section line of Section Nine (9) and being situated west of State Highway 431 and being situated north and northeasterly of a county gravel road extending in a northwesterly and southeasterly direction, said parcel being triangular in shape and containing 11 acres more or less; and FURTHER EXCEPTING a parcel in the Northeast Quarter of the Northeast Quarter (NE 1/4 NE 1/4) commencing as a place of beginning at a point where what is known as County Highway No. 4 running north and south, that intersects with a highway running east and west, as a point of beginning, thence parallel along said highway in a northwesterly direction Thirteen (13) Rods, thence south Twelve (12) Rods, thence southeast Thirteen (13) Rods to Highway No. 4, thence running parallel with said Highway No. 4 running north Twelve (12) Rods, to the point of beginning, said parcel containing 1 acre more or less; all in Section Nine (9), Township Ninety-six (96), Range Fifty-seven (57), Yankton County, South Dakota, less highways and roads.

Sta. 11+90 Lt. to Sta. 12+64 Lt.
Permanent Easement
Containing 0.05 Acres, More or Less

Sta. 9+33 Lt. to Sta. 17+50 Lt.
Temporary Easement
Containing 0.91 Acres, More or Less



Sta. 2+00 to Sta. 17+50
Work limits are within ROW and Easements

William R. Kludt
43127 NW Jim River Road
Lesterville, SD 57040

The North Half of the Southwest Quarter of the Southwest Quarter (N1/2SW1/4SW1/4) and Lots Seven (7), Eight (8), Nine (9), Ten (10), and Eleven (11) in Section Ten (10), Township Ninety-six (96) North, Range Fifty-seven (57), West of the 5th P.M., Yankton County, South Dakota.

Sta. 7+20 Rt. to Sta. 8+00 Rt.
Permanent Easement
Containing 0.06 Acres, More or Less

Sta. 2+00 Rt. to Sta. 9+40 Rt.
Temporary Easement
Containing 0.85 Acres, More or Less

PERMANENT AND TEMPORARY EASEMENT					
	Sta.	Offset	Northing (y)	Easting (x)	
1	2+00.00	50.13' Rt.	15674579.45	2020028.78	
2	2+00.00	100.13' Rt.	15674579.25	2020078.78	
3	6+43.63	100.07' Rt.	15675022.87	2020080.47	
4	9+39.61	140.03' Rt.	15675318.69	2020121.60	
5	8+61.06	50.04' Rt.	15675240.50	2020031.30	
6	8+00.00	50.05' Rt.	15675179.44	2020031.07	
7	8+00.00	80.05' Rt.	15675179.32	2020061.07	
8	7+20.00	81.08' Rt.	15675099.32	2020061.78	
9	7+20.00	50.06' Rt.	15675099.44	2020030.76	
10	2+00.00	49.87' Lt.	15674579.84	2019928.78	
11	2+00.00	99.87' Lt.	15674580.04	2019878.78	
12	6+42.08	99.93' Lt.	15675022.11	2019880.47	
13	7+29.44	139.95' Lt.	15675109.63	2019840.80	
14	8+02.81	49.96' Lt.	15675182.65	2019931.08	
15	7+70.00	49.95' Lt.	15675149.84	2019930.95	
16	7+70.00	79.95' Lt.	15675149.96	2019900.95	
17	7+00.00	79.94' Lt.	15675079.96	2019900.69	
18	7+00.00	49.94' Lt.	15675079.84	2019930.69	

PERMANENT AND TEMPORARY EASEMENT				
	Sta.	Offset	Northing (y)	Easting (x)
19	10+33.76	49.99' Lt.	15675413.60	2019931.96
20	9+32.76	139.97' Lt.	15675312.95	2019841.57
21	12+86.30	100.02' Lt.	15675666.34	2019882.92
22	16+65.89	100.35' Lt.	15675997.51	2019819.91
23	17+50.00	99.82' Lt.	15676075.63	2019788.72
24	17+50.00	49.82' Lt.	15676094.47	2019835.04
25	16+65.57	50.35' Lt.	15676016.05	2019866.34
26	12+86.31	50.02' Lt.	15675666.15	2019932.92
27	12+63.78	50.02' Lt.	15675643.61	2019932.84
28	12+63.78	80.02' Lt.	15675643.73	2019902.84
29	11+90.00	80.01' Lt.	15675569.95	2019902.55
30	11+90.00	50.01' Lt.	15675569.83	2019932.55
31	11+18.71	50.00' Rt.	15675498.15	2020032.28
32	11+79.60	139.99' Rt.	15675558.69	2020122.51
33	12+86.34	139.98' Rt.	15675665.42	2020122.92
34	12+86.33	99.98' Rt.	15675665.57	2020082.92
35	16+31.83	98.94' Rt.	15676041.03	2020017.35
36	14+65.86	44.86' Rt.	15675852.56	2020016.63
37	12+86.33	49.98' Rt.	15675665.76	2020032.92
38	12+80.00	49.98' Rt.	15675659.44	2020032.90
39	12+80.00	74.98' Rt.	15675659.34	2020057.90
40	12+20.00	74.99' Rt.	15675599.34	2020057.67
41	12+20.00	49.99' Rt.	15675599.44	2020032.67
42	16+85.83	49.78' Rt.	15676072.54	2019951.47
43	17+50.00	76.16' Rt.	15676141.92	2019951.73
44	17+50.00	50.19' Rt.	15676132.13	2019927.68

Sta. 12+20 Rt. to Sta. 12+80 Rt.
Permanent Easement
Containing 0.03 Acres, More or Less

Sta. 11+19 Rt. to Sta. 17+50 Rt.
Temporary Easement
Containing 0.61 Acres, More or Less

Curtis Ulmer and Barbara Ulmer
48936 433rd Avenue
Menno, SD 57045

Government Lot One (1) and Government Lot Two (2), Section Ten (10), Township Ninety-six (96), Range Fifty-seven (57), Yankton County, South Dakota, less highways and roads.

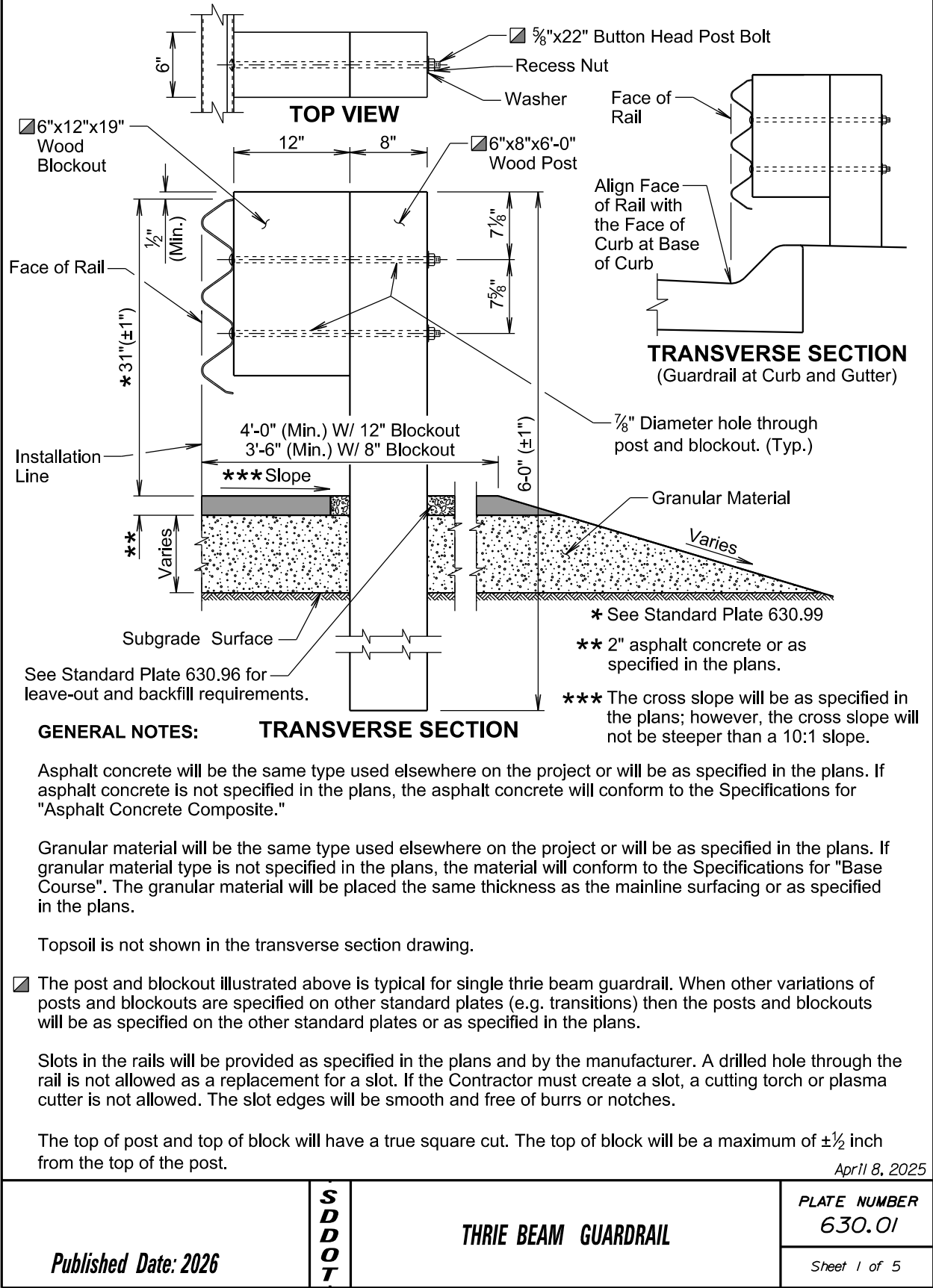
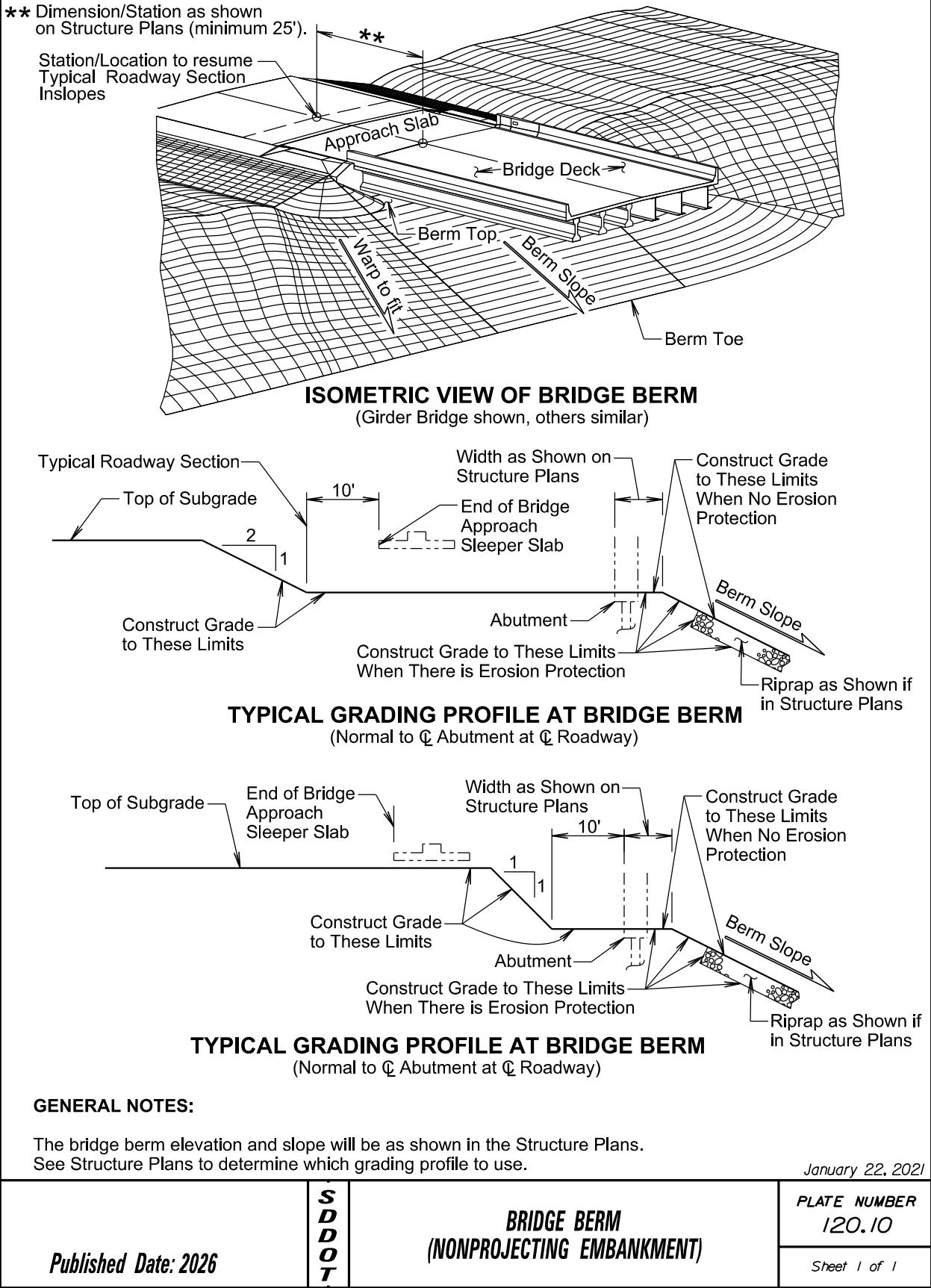
LEGEND	
Permanent Easement	
Temporary Easement	

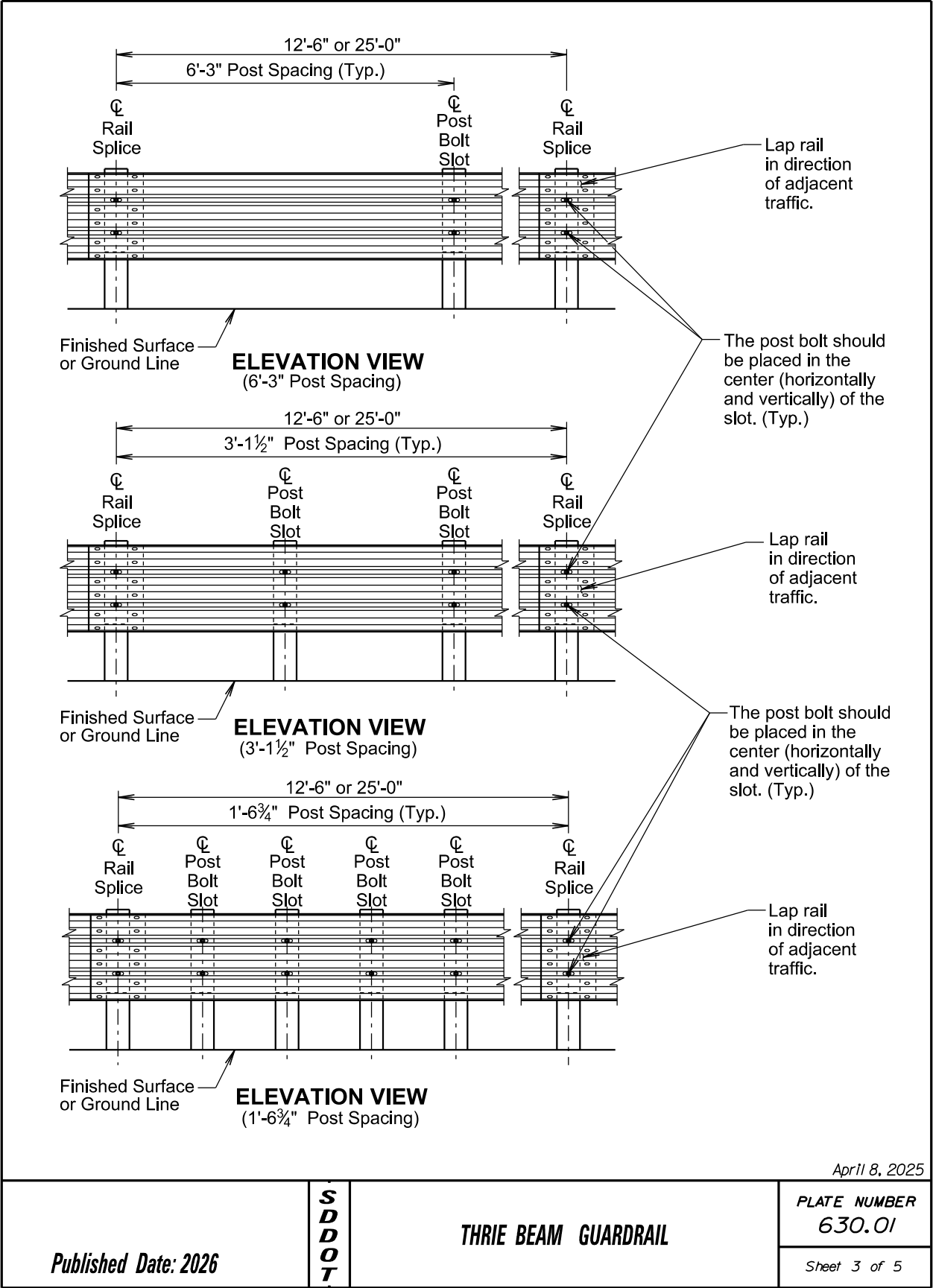
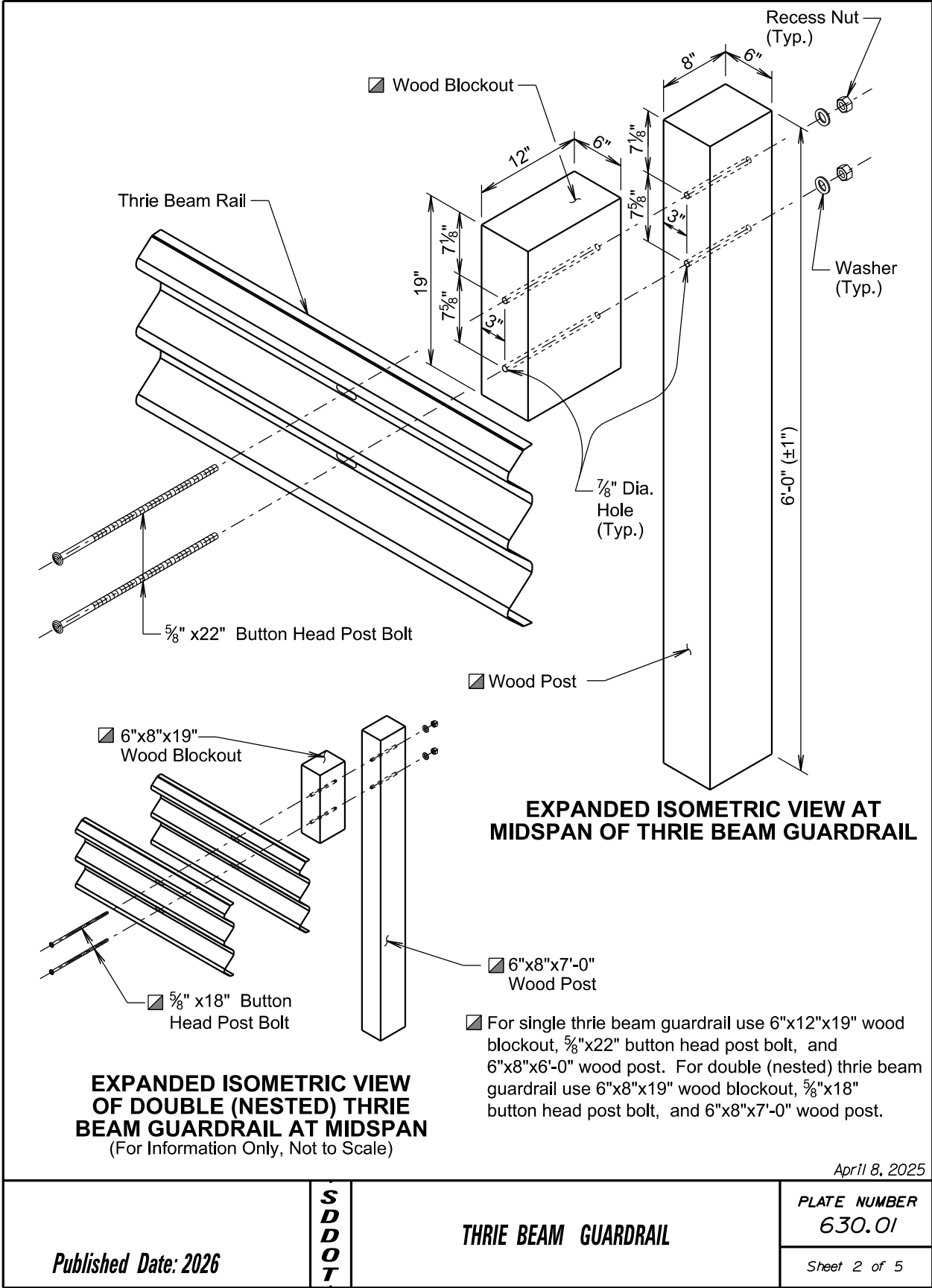


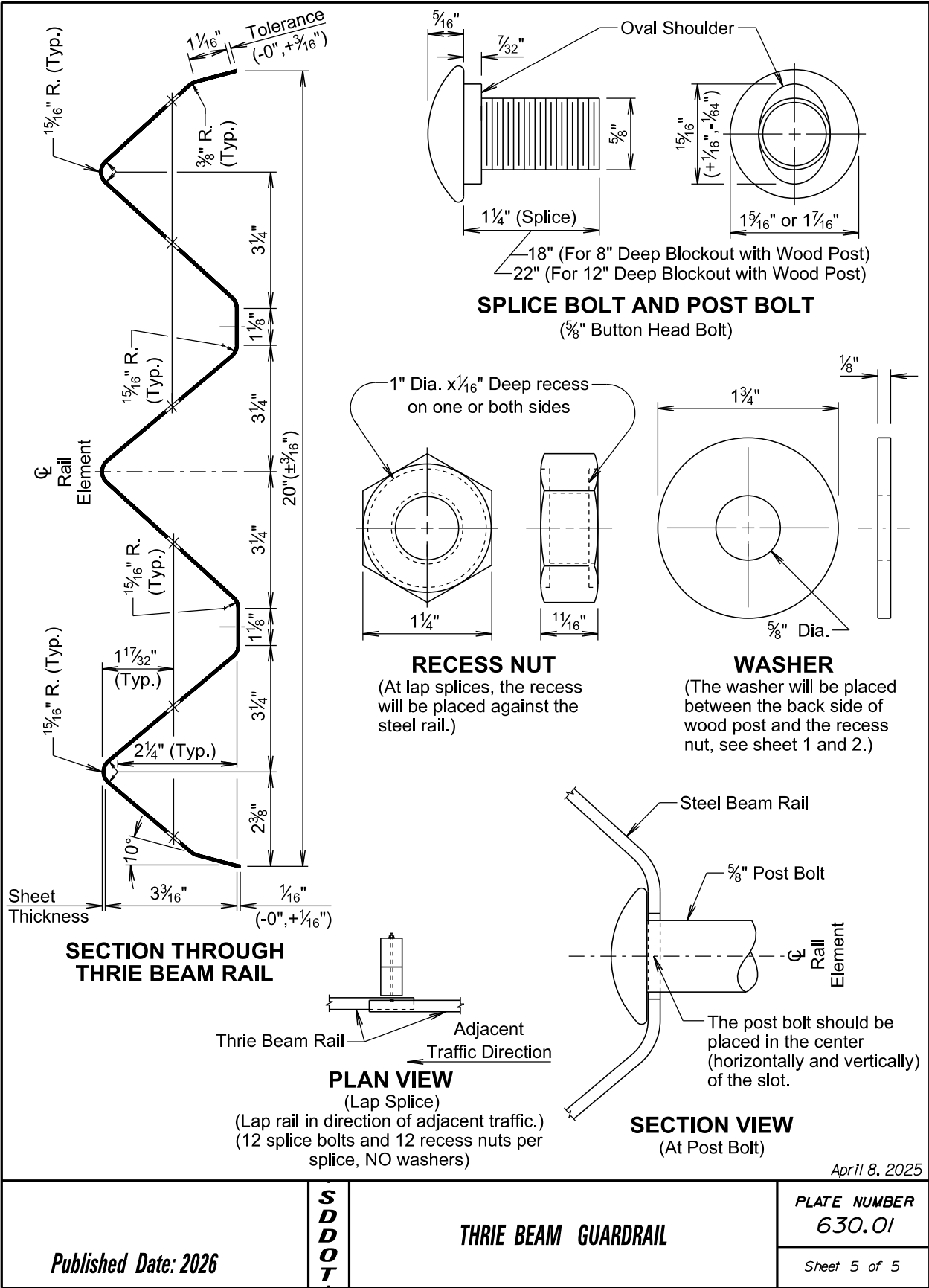
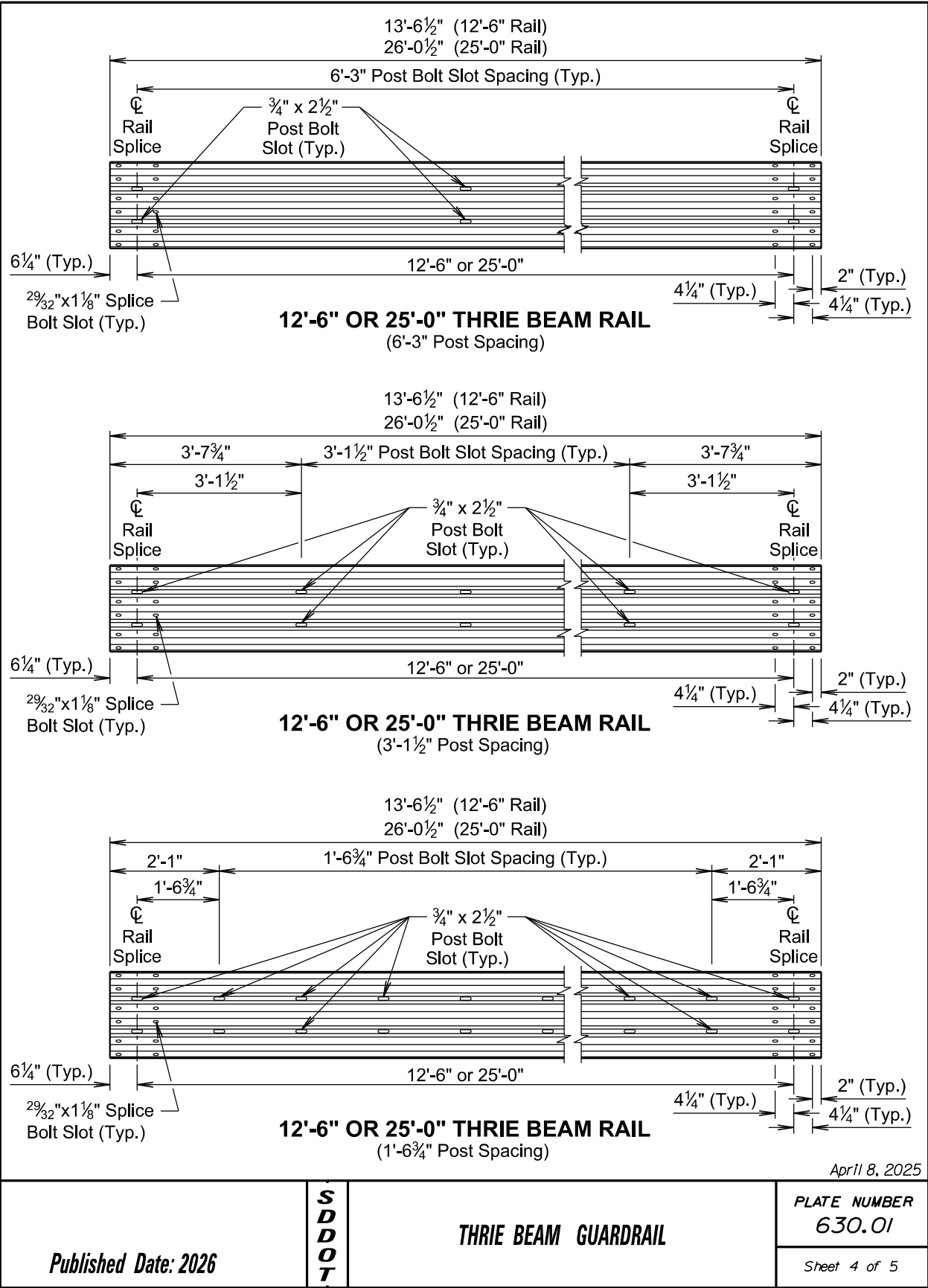
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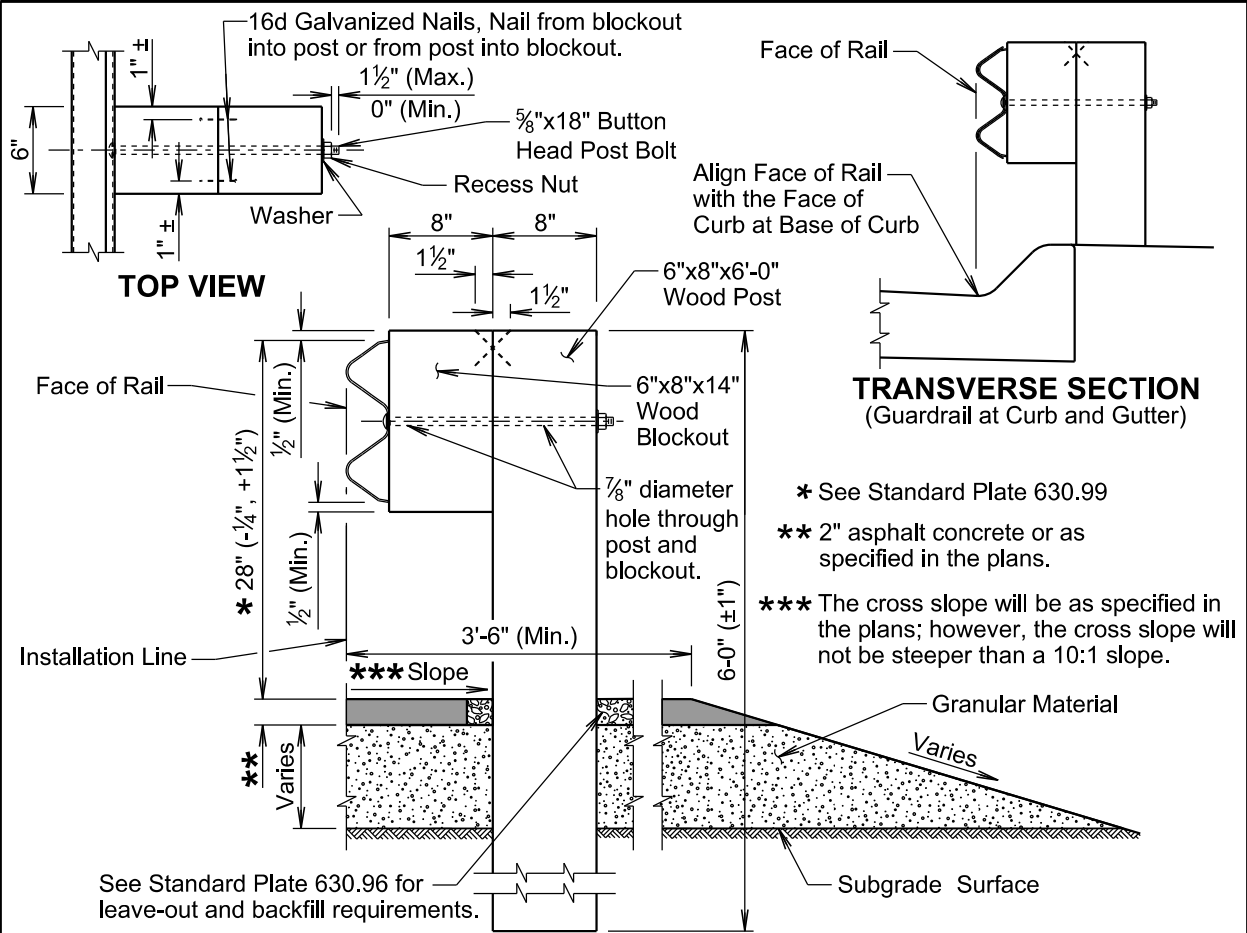
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	30	99









GENERAL NOTES:

TRANSVERSE SECTION

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite".

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

Topsoil is not shown in the transverse section drawing.

All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

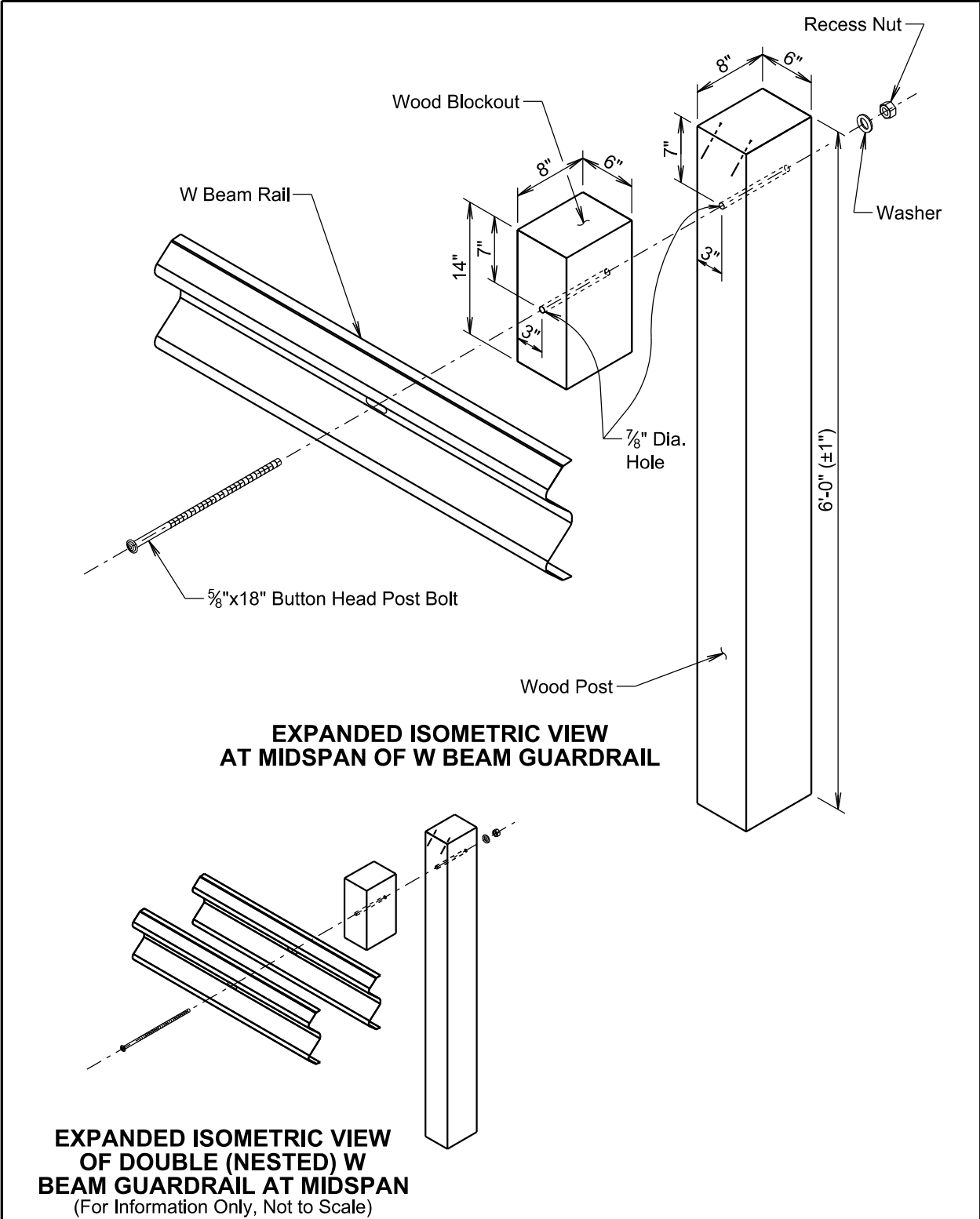
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

The top of post and top of block will have a true square cut. The top of block will be a maximum of $\pm \frac{1}{2}$ inch from the top of the post.

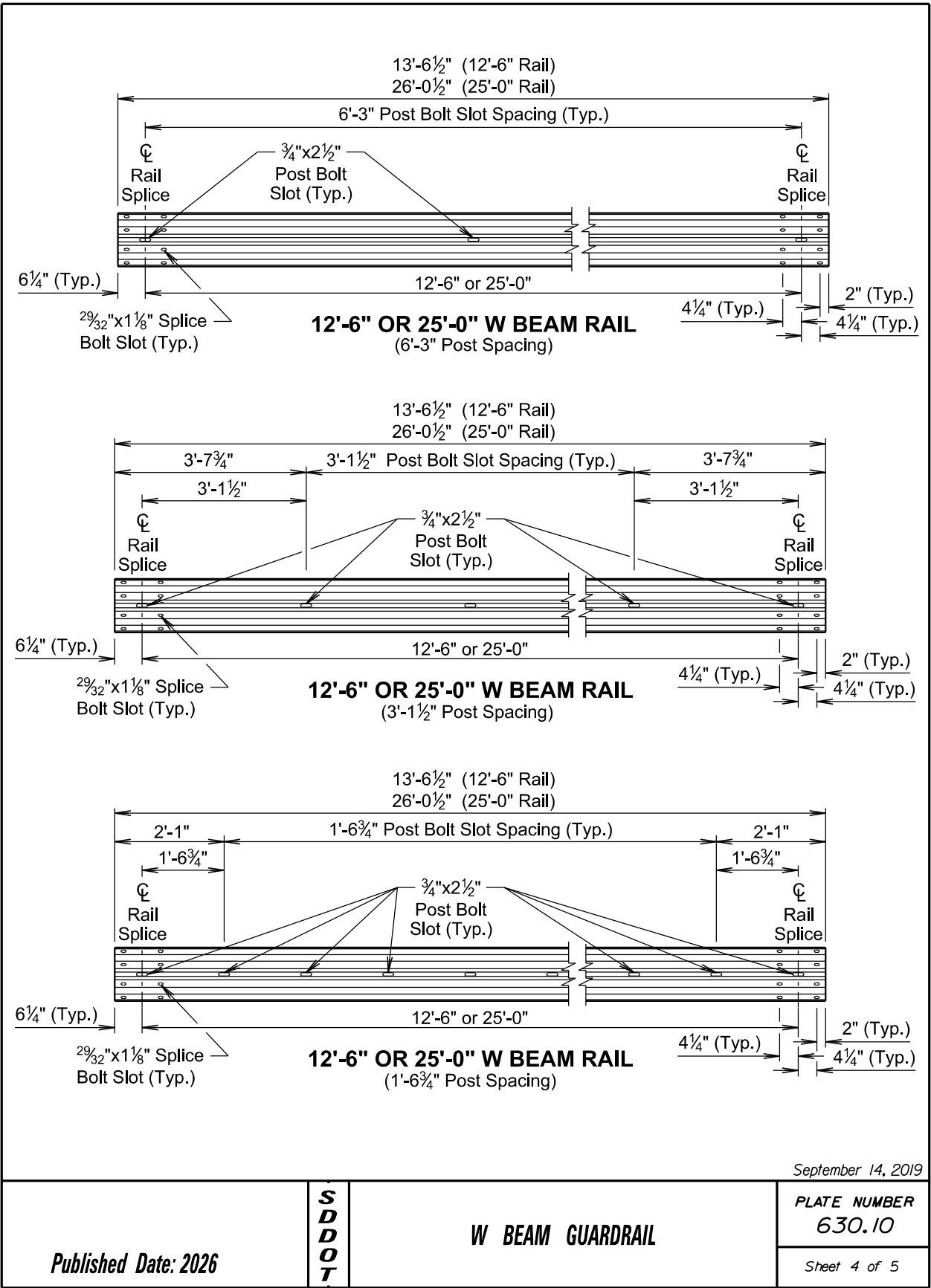
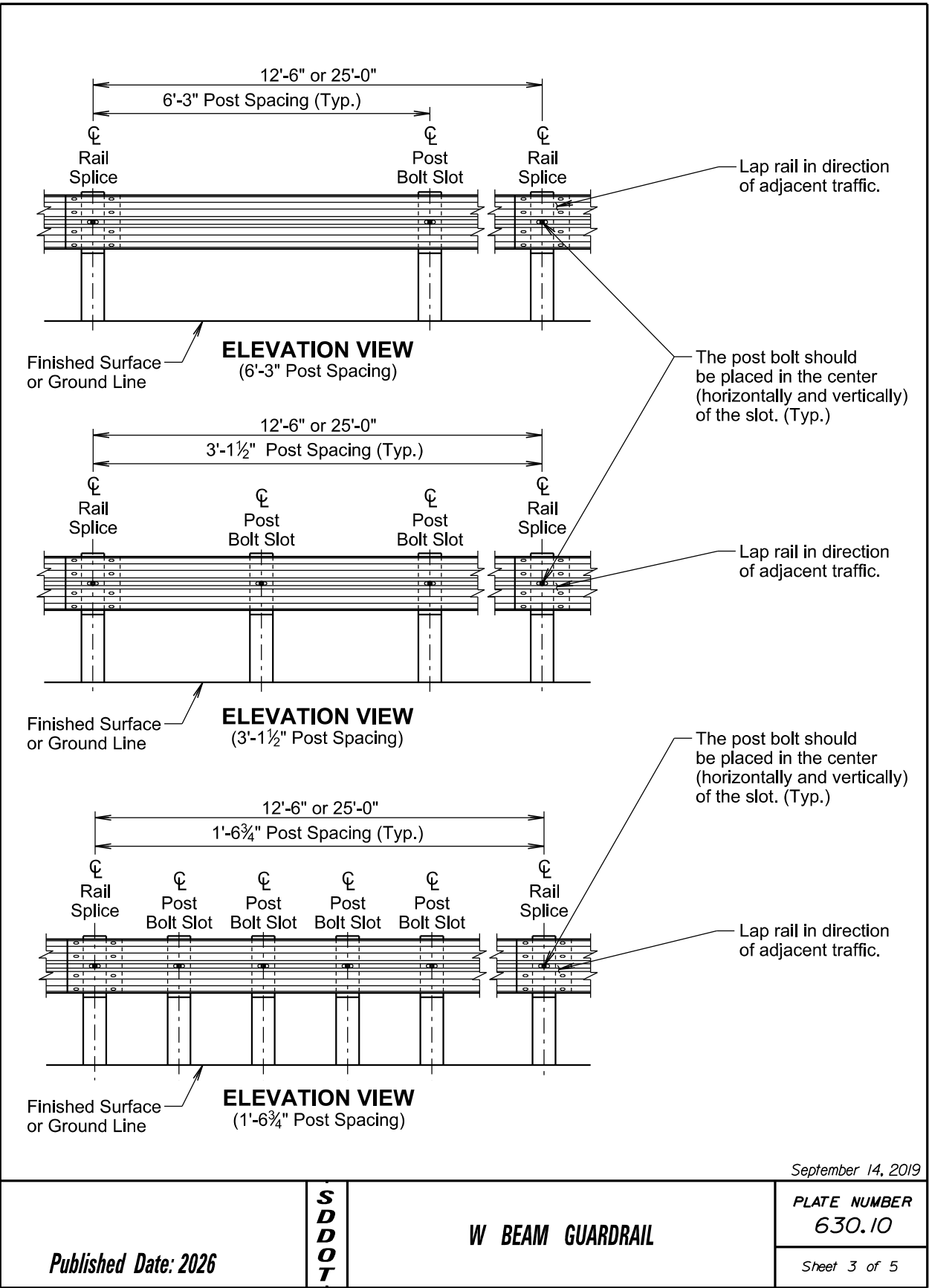
September 14, 2019

Published Date: 2026	S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
			Sheet 1 of 5



September 14, 2019

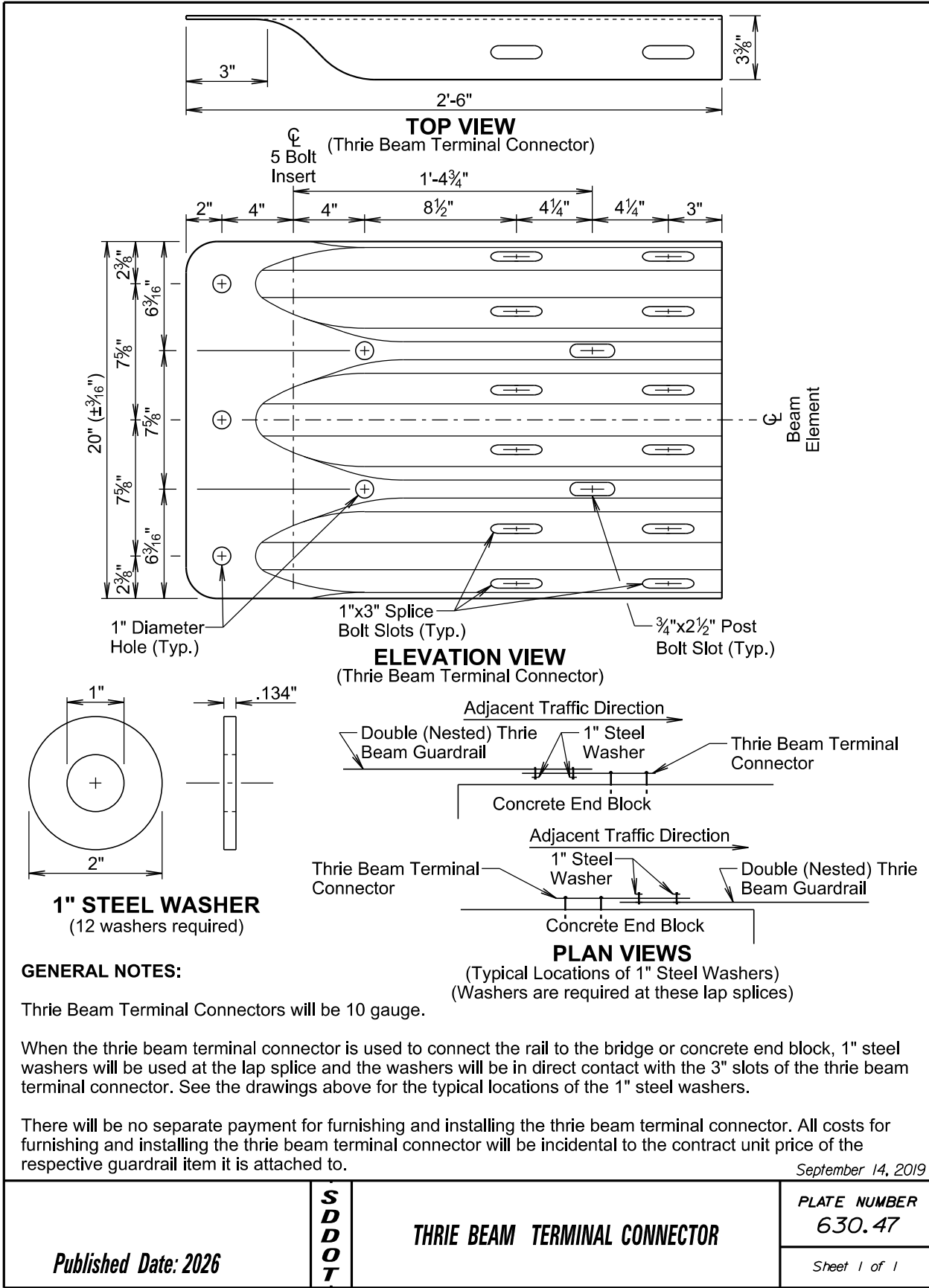
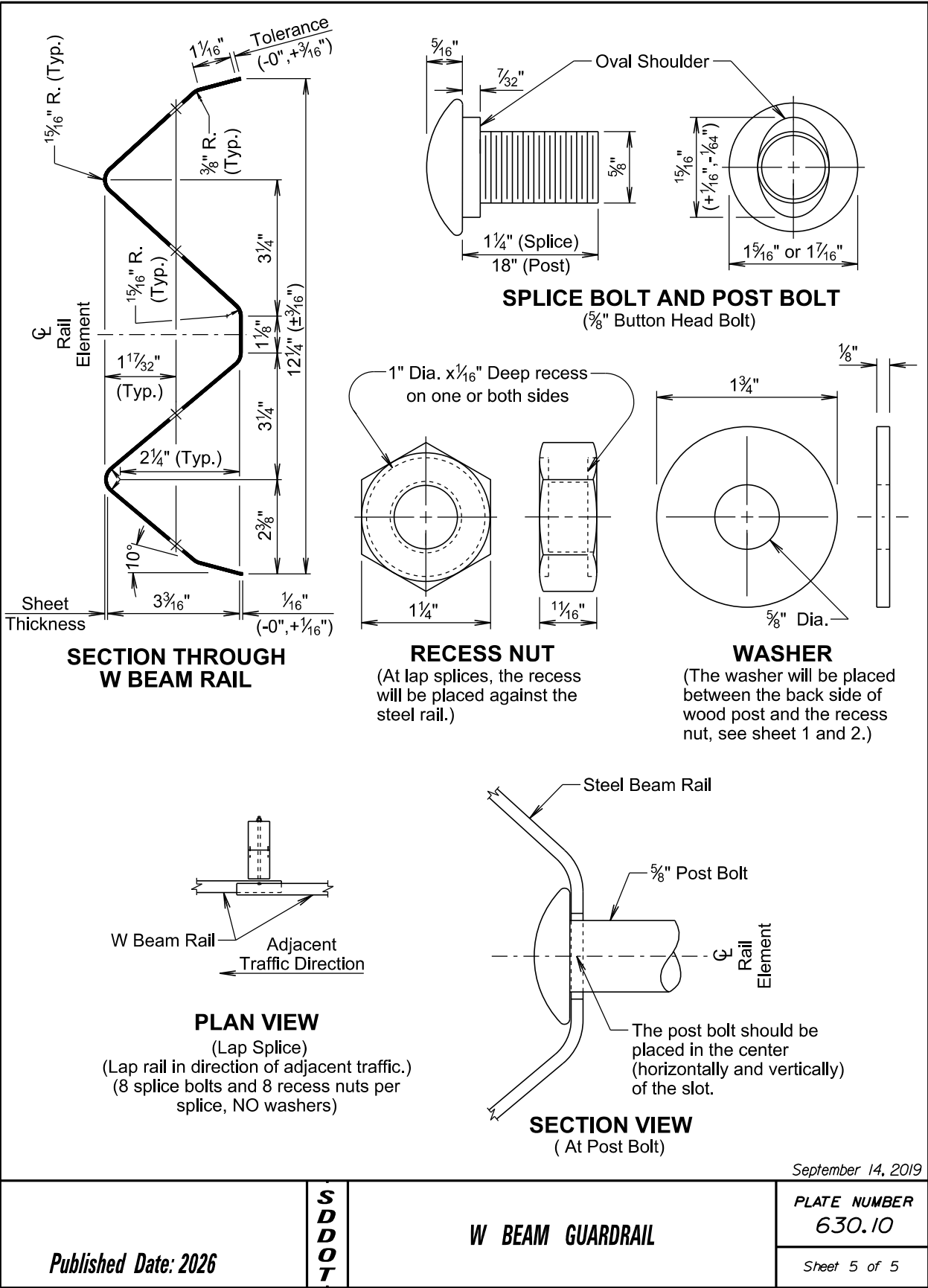
Published Date: 2026	S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
			Sheet 2 of 5



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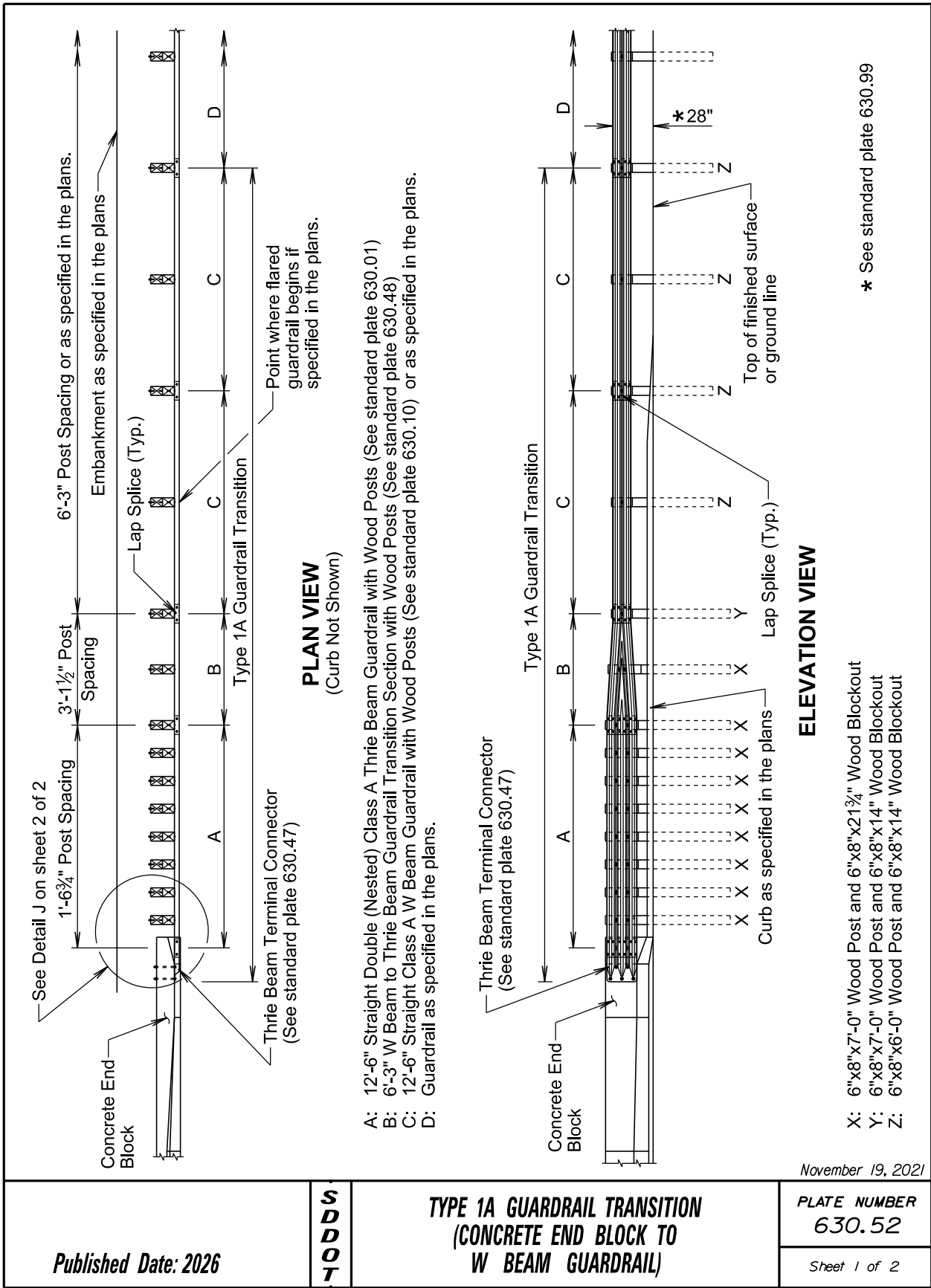
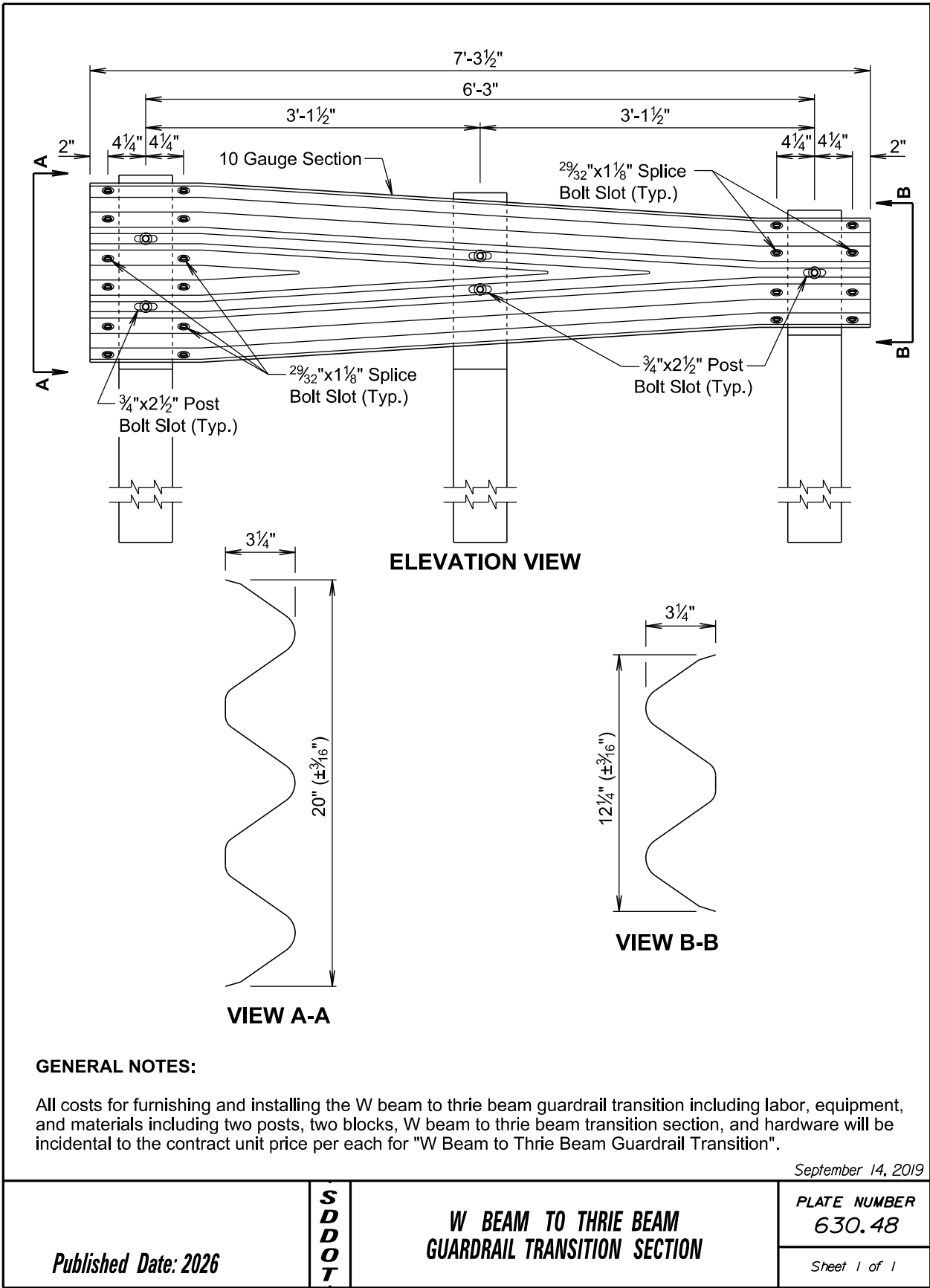
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	35	99



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	36	99





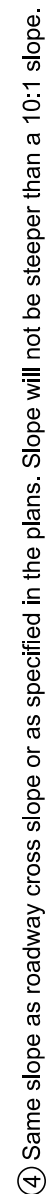
All costs for furnishing and installing the type 1A guardrail transition including labor, equipment, and materials will be included in the contract unit price for the respective guardrail contract items.

Published Date: 2026

**TYPE 1A GUARDRAIL TRANSITION
(CONCRETE END BLOCK TO
W BEAM GUARDRAIL)**

PLATE NUMBER
630.52

Sheet 2 of 2

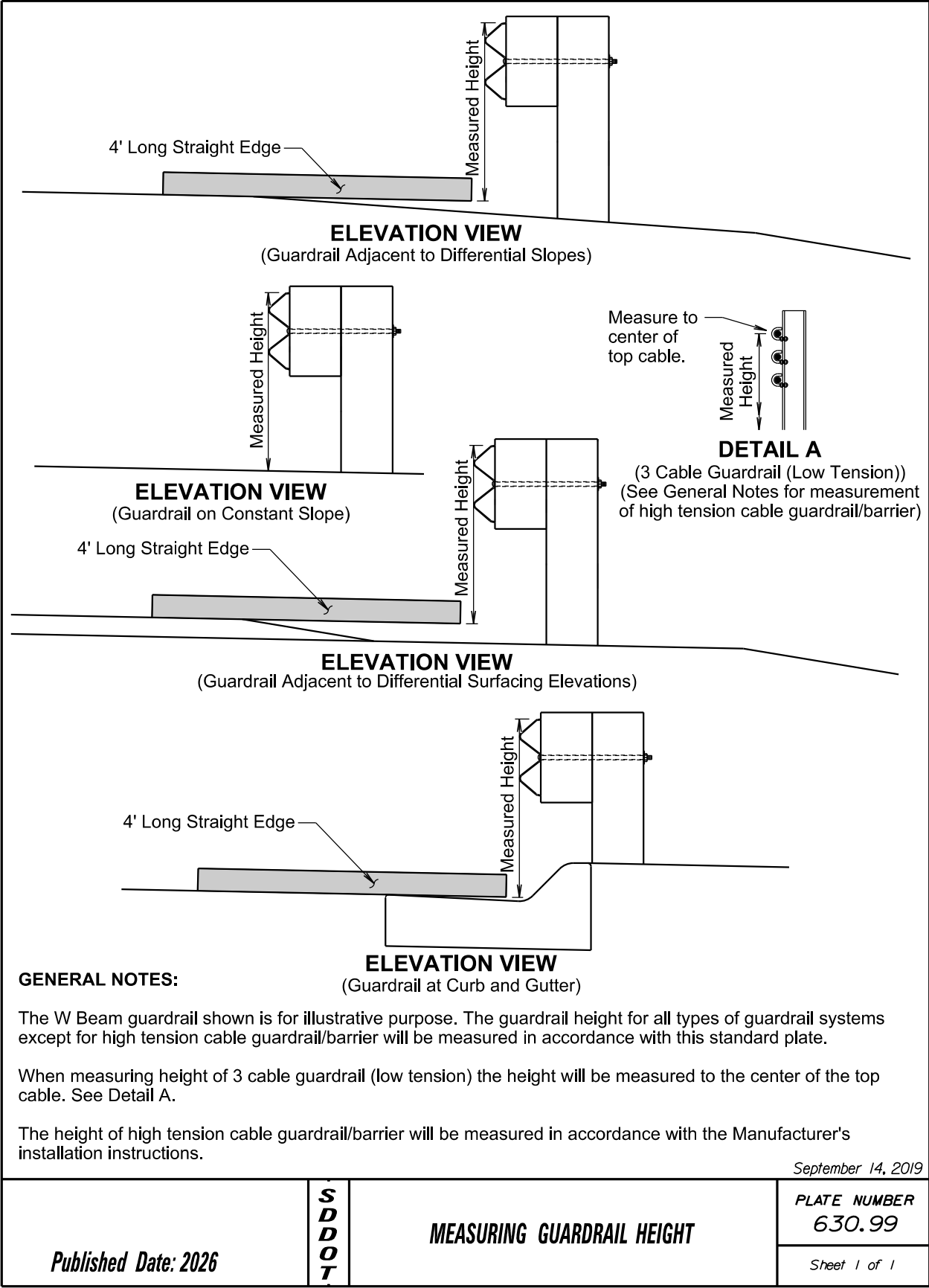
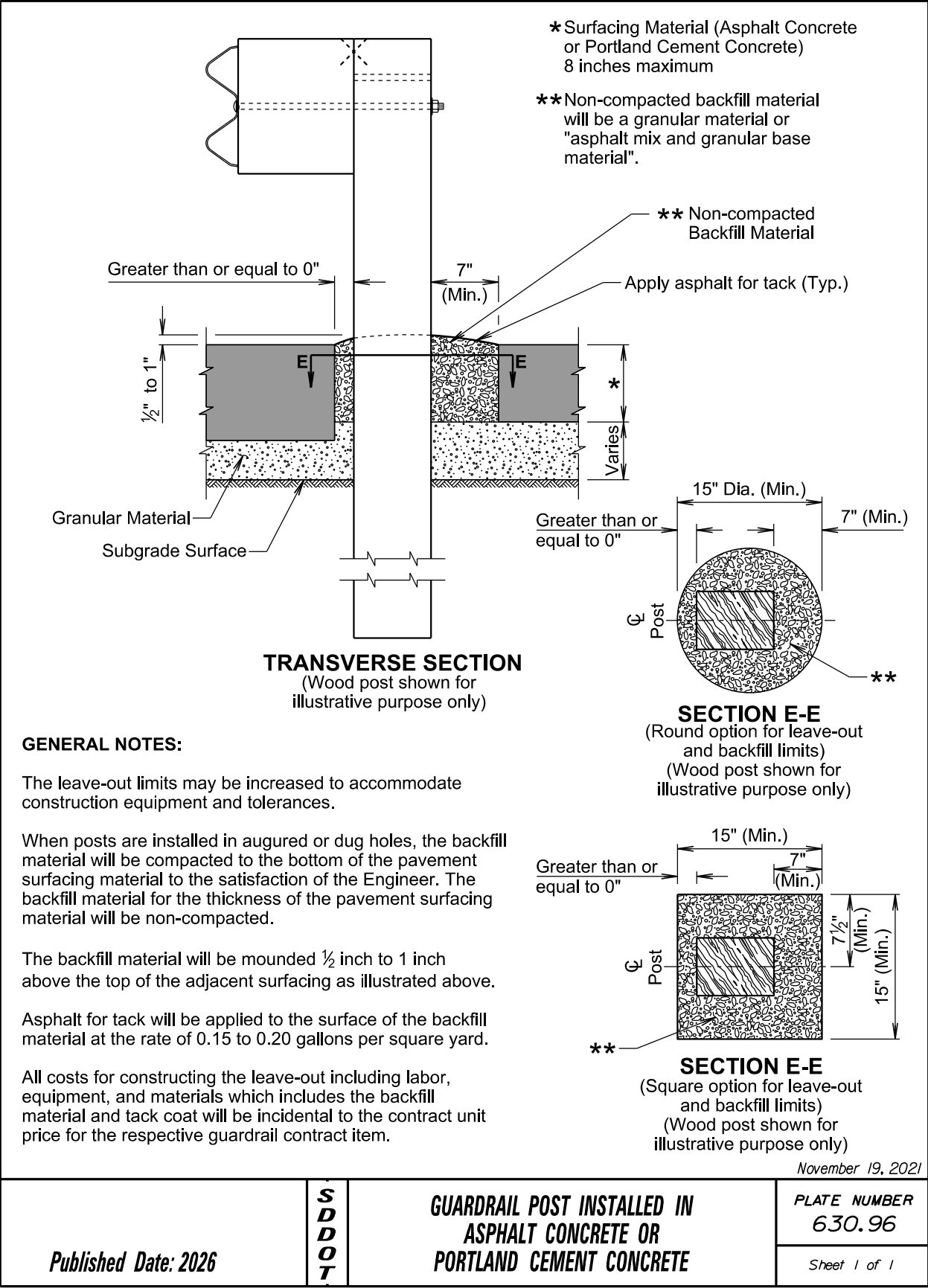


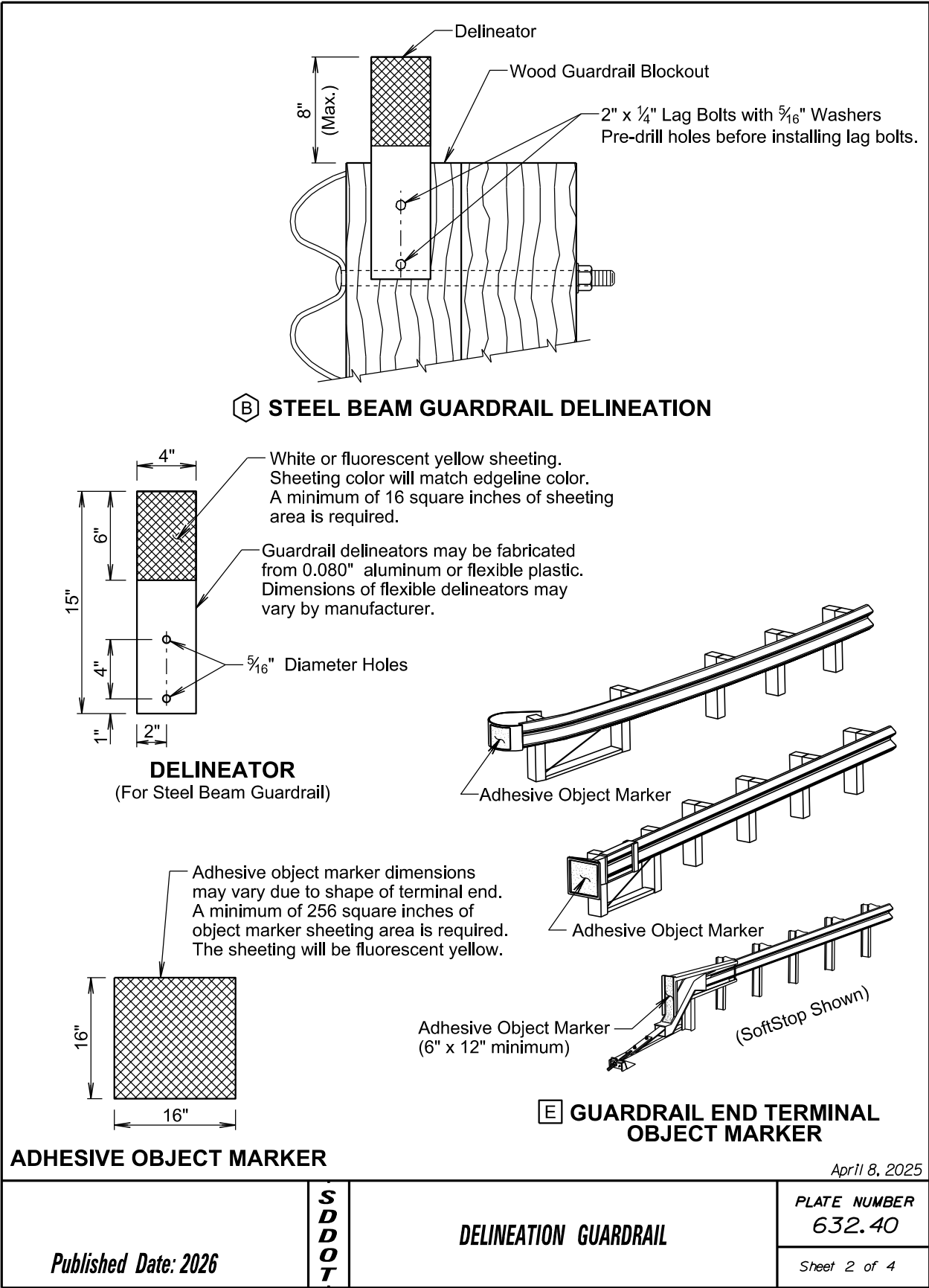
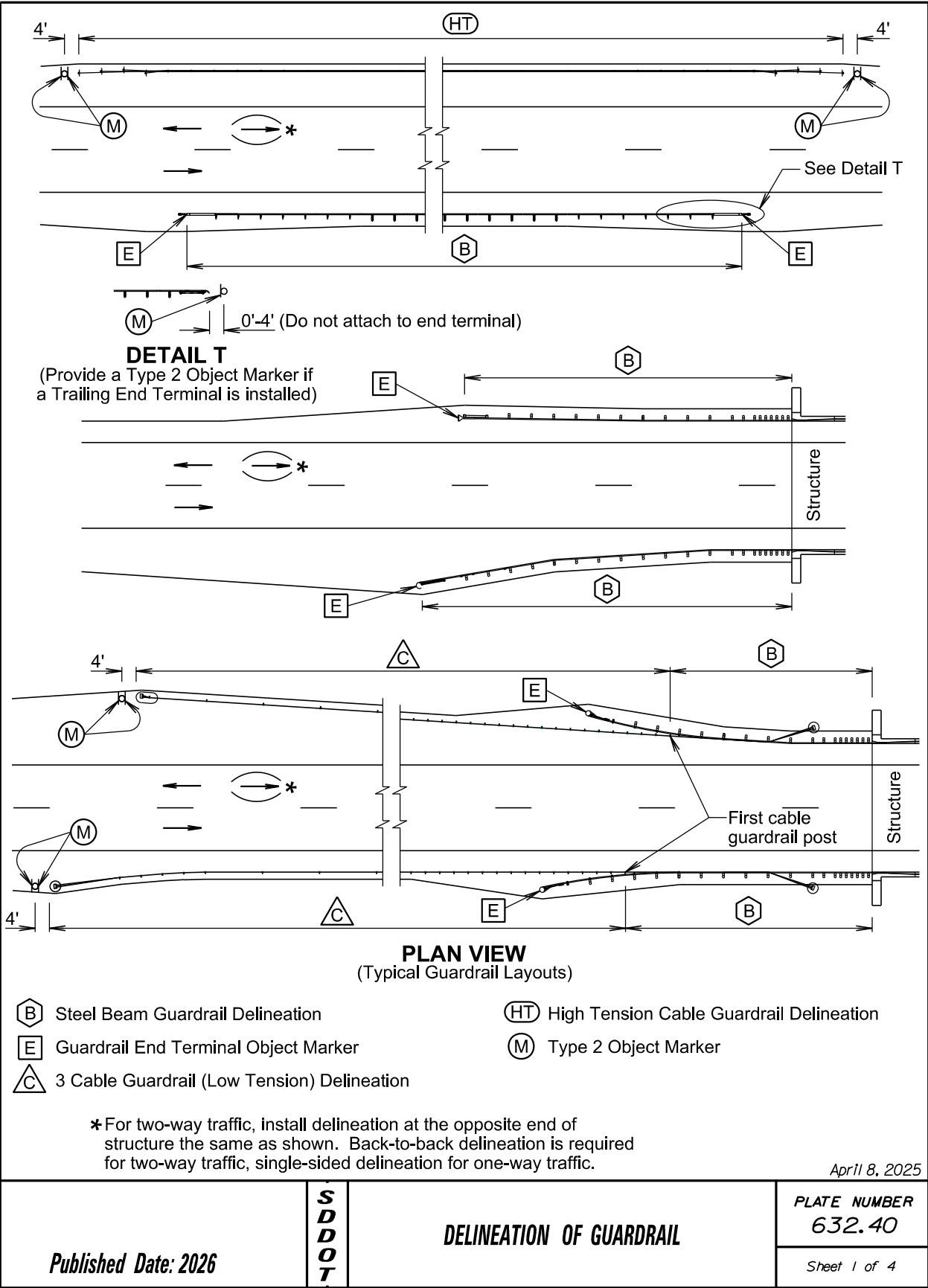
Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR W BEAM GUARDRAIL FLARED END TERMINAL

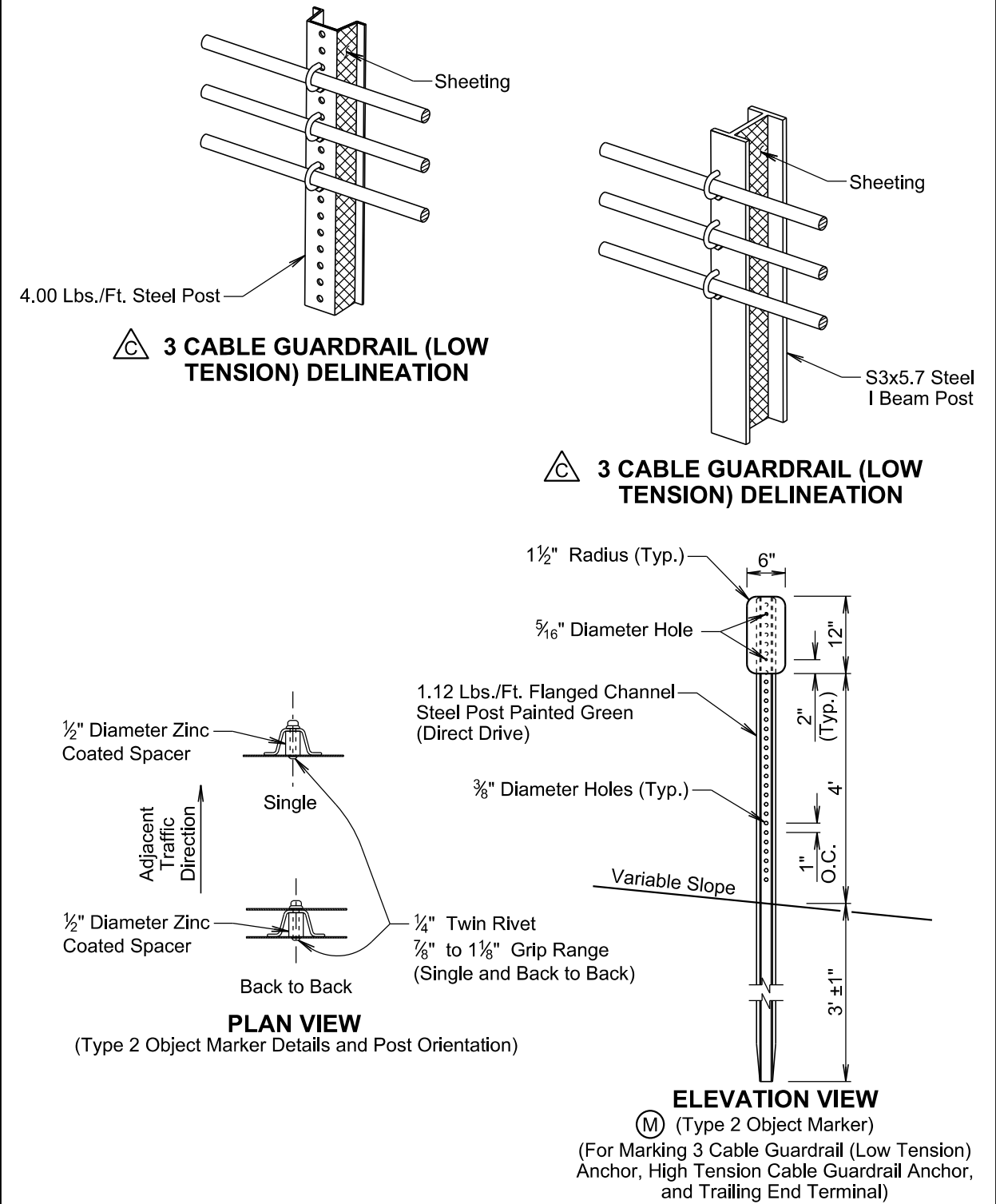
PLATE NUMBER
630.86

Sheet 1 of 1





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	40	99



<i>Published Date: 2026</i>	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 3 of 4

GENERAL NOTES:

The delineation of high tension cable guardrail will be reflective sheeting placed back to back on every third post cap or cable spacer. Maximum spacing of delineation will not exceed 35 feet. The sheeting will be type XI in conformance with ASTM D4956. The color of the reflective sheeting will be the same as the nearest pavement marking.

The delineators for steel beam guardrail and sheeting on 3 cable guardrail (low tension) posts will be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting will be type XI in conformance with ASTM D4956. Along two-way roadways the sheeting will be on both sides of the delineators and guardrail posts and will be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

When steel beam guardrail is attached to a bridge the first delineator will be attached to the post nearest the bridge.

At bridges with guardrail less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object marker. The spacing between the delineators will be approximately one third of the length of the guardrail.

At bridges with guardrail 200 feet and greater in length, including bridges that have steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

Steel beam guardrail that is not attached to a bridge and is less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object markers. The spacing between the delineators will be approximately one third of the length of the guardrail.

Steel beam guardrail that is not attached to a bridge and is 200 feet and greater in length, including steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

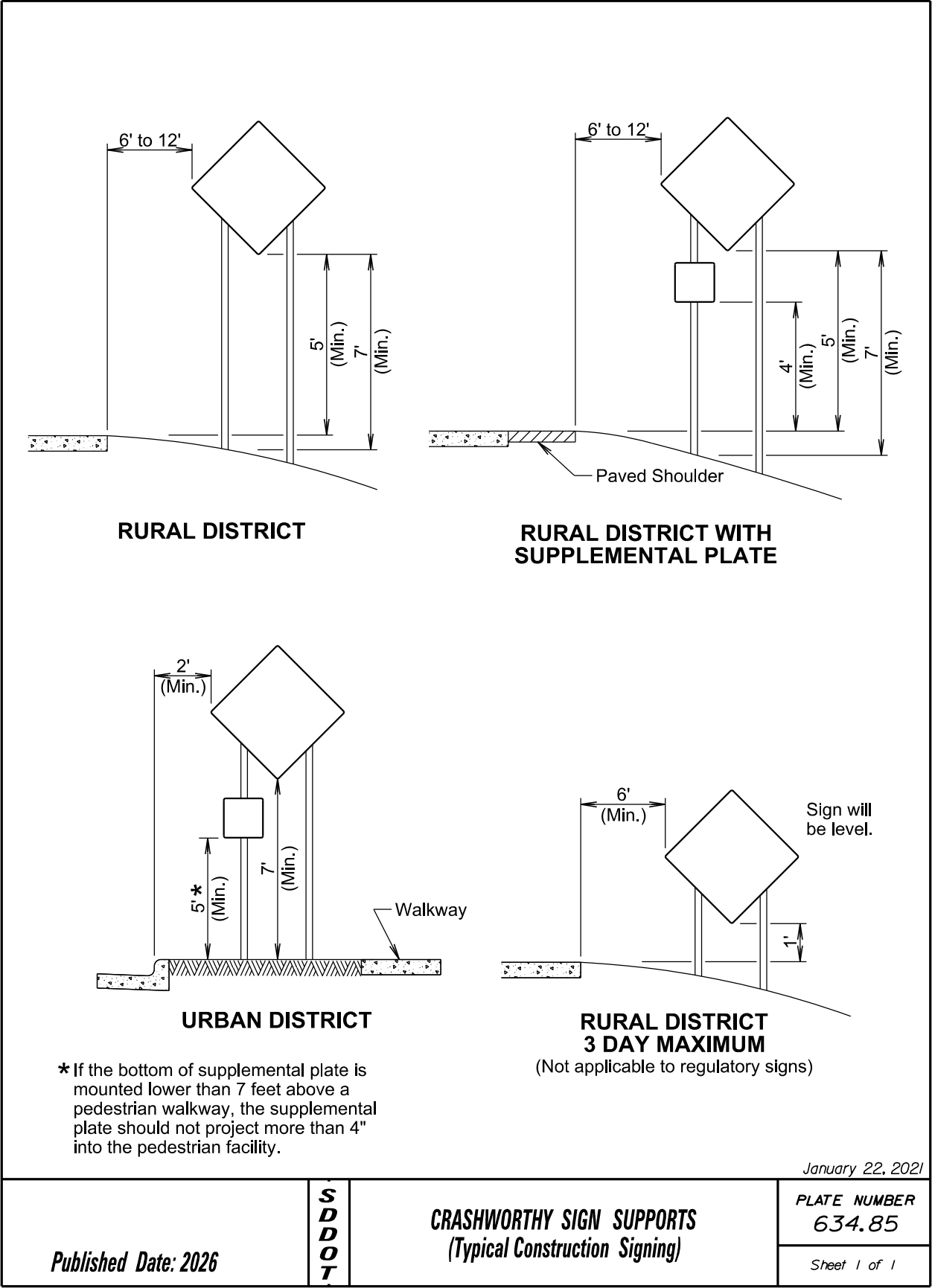
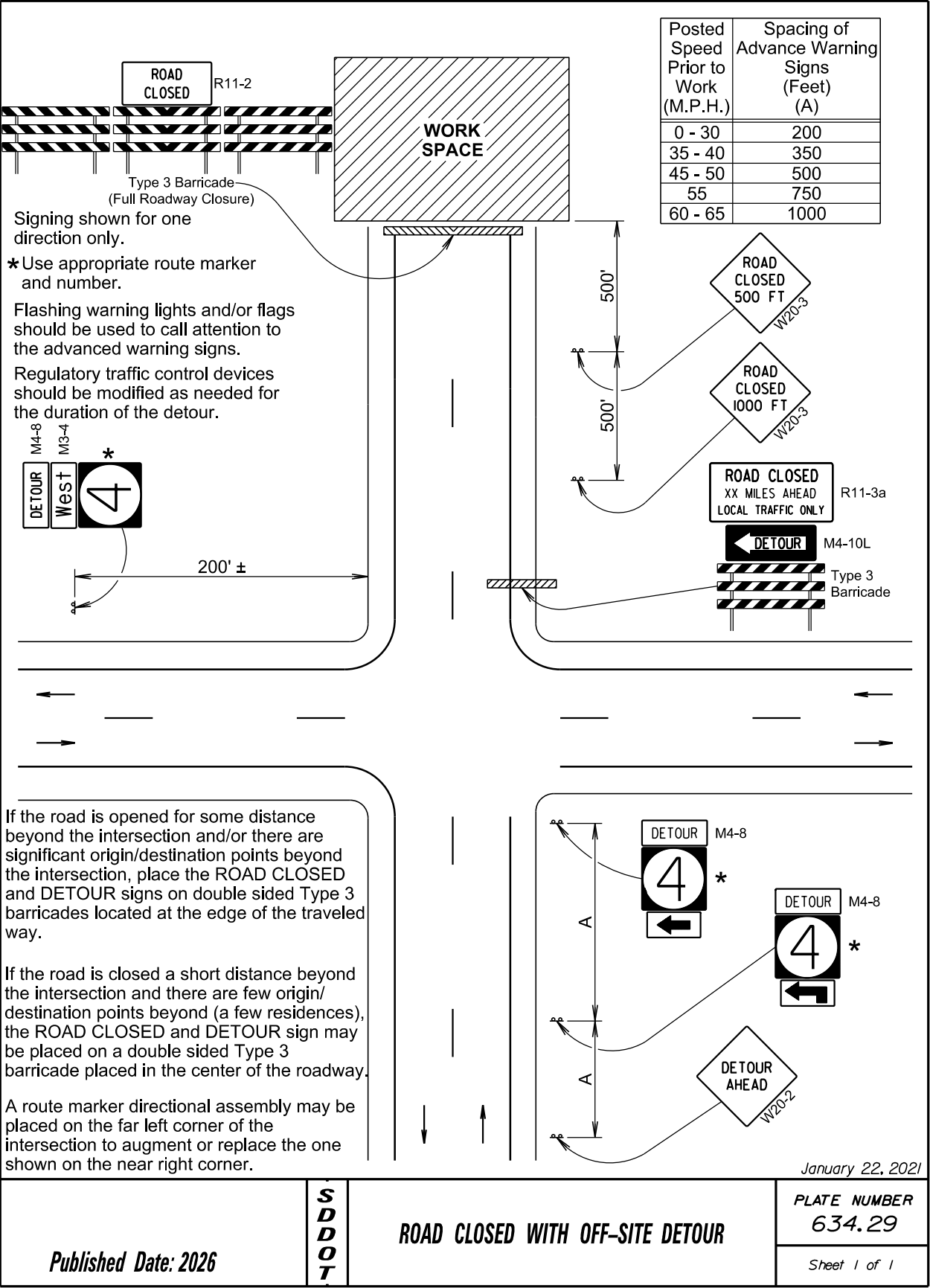
All costs for furnishing and installing single or back to back guardrail delineation on 3 cable guardrail and steel beam guardrail will be included in the contract unit price per each for "Guardrail Delineator".

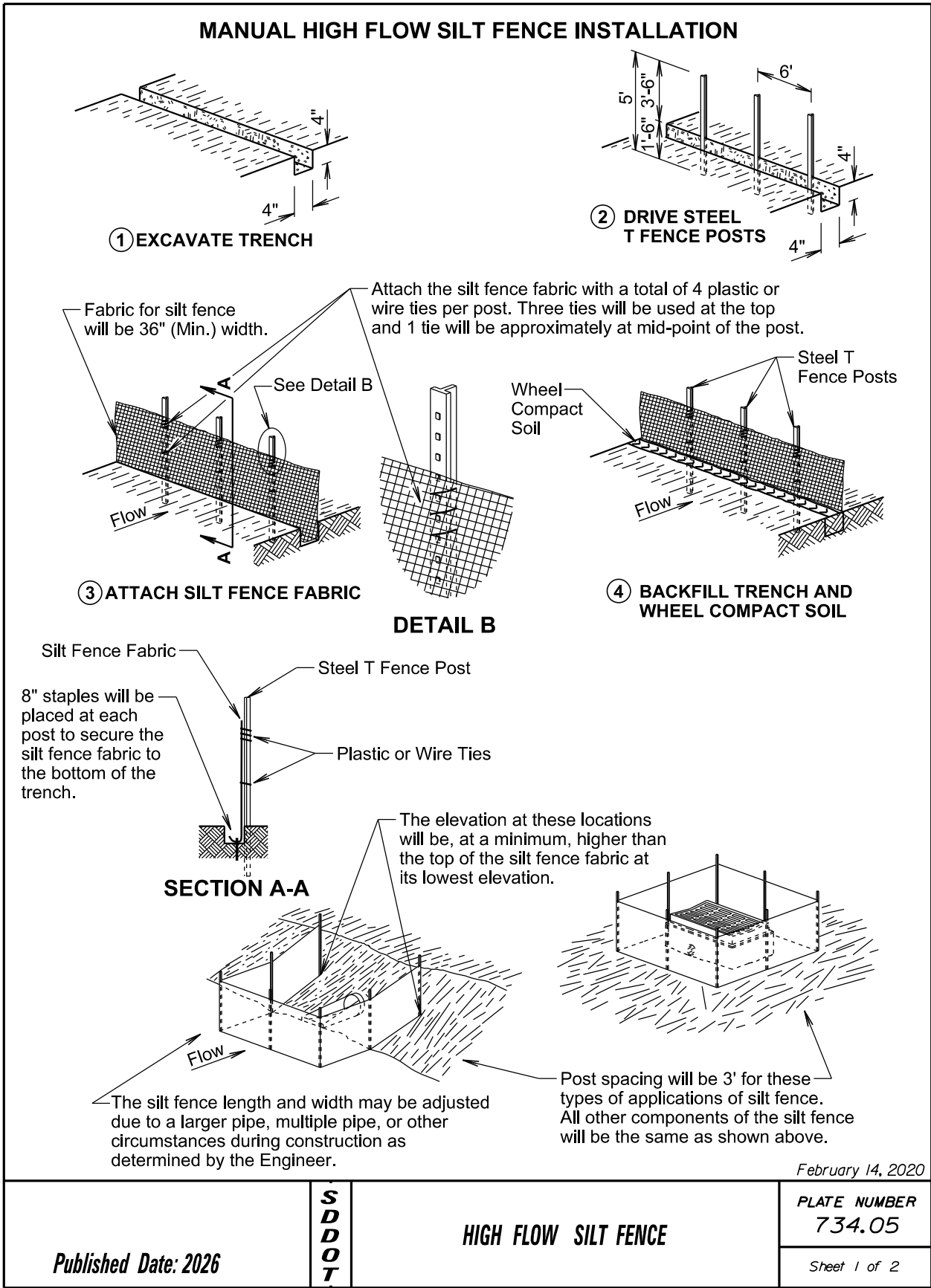
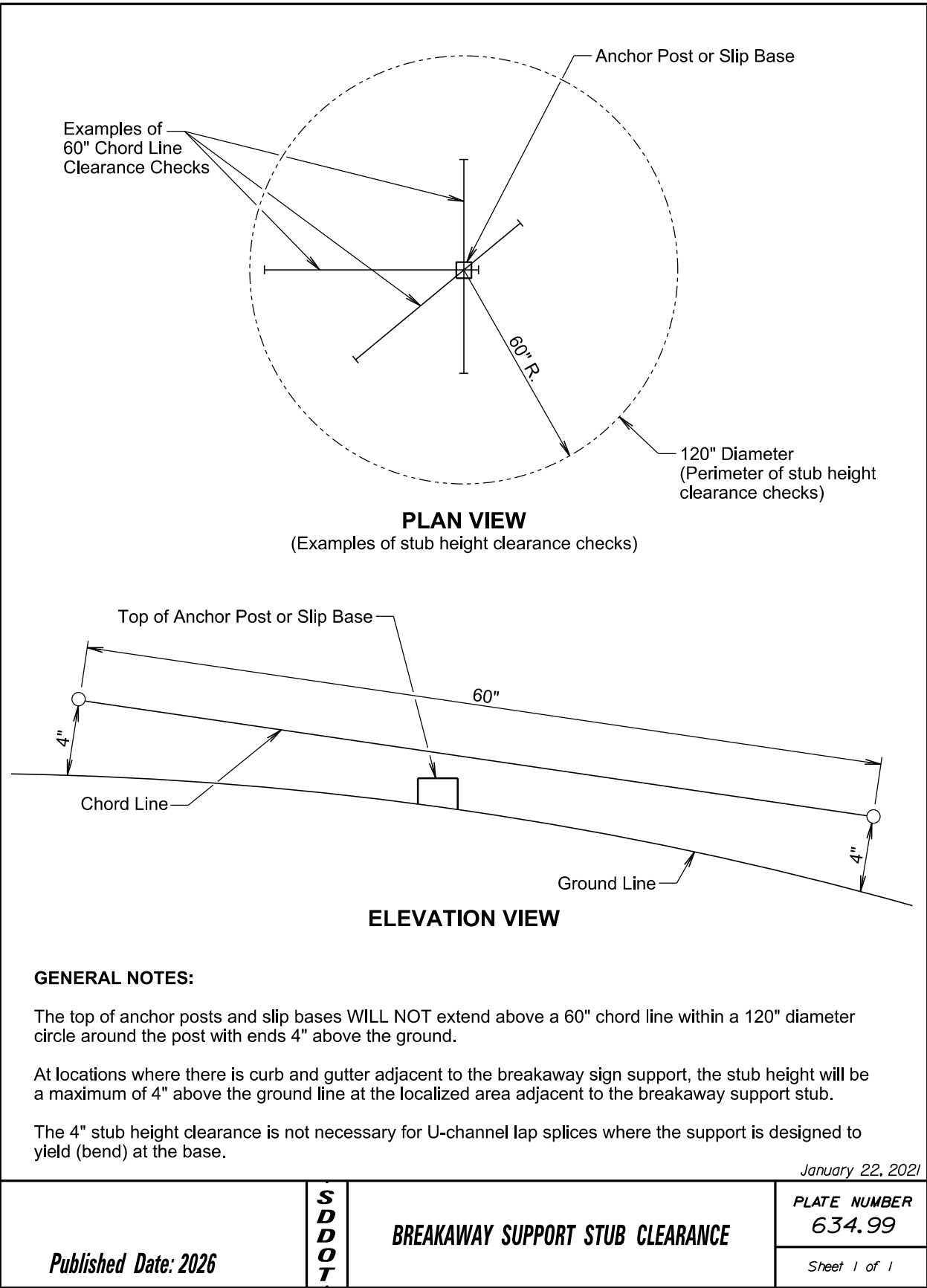
All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required on end terminals with sufficient surface area. Other end terminals (SoftStop) will require an adhesive object marker with a minimum size of 6" x 12". The reflective sheeting will be fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the adhesive object marker will be incidental to various contract items.

A type 2 object marker will be placed such that the edges of the type 2 object marker and the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, or the trailing end terminal that are nearest to the roadway will be installed in line with the same lateral offset from the traveled way at the location as noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") will have fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware will be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

<i>Published Date: 2026</i>	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4





MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

1 INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

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

3 ATTACH SILT FENCE FABRIC

DETAIL B

SECTION A-A

GENERAL NOTE:

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

February 14, 2020

Published Date: 2026	S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

ELEVATION VIEW
(Cut or Fill Slope Installation)

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

DETAIL B
(Typical of All Installations)

DETAIL C
(See General Notes)

ISOMETRIC VIEW
(Ditch Installation)

PLAN VIEW
(Ditch Installation)

SECTION A-A

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

February 14, 2020

Published Date: 2026	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	44	99

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

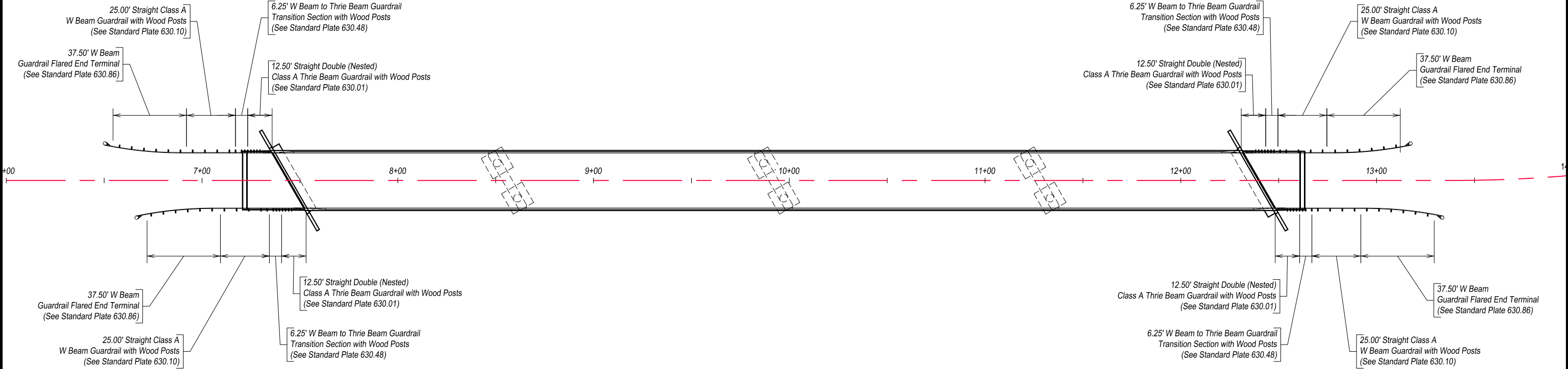
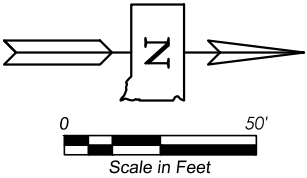
February 14, 2020

Published Date: 2026	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

GUARDRAIL LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	45	99



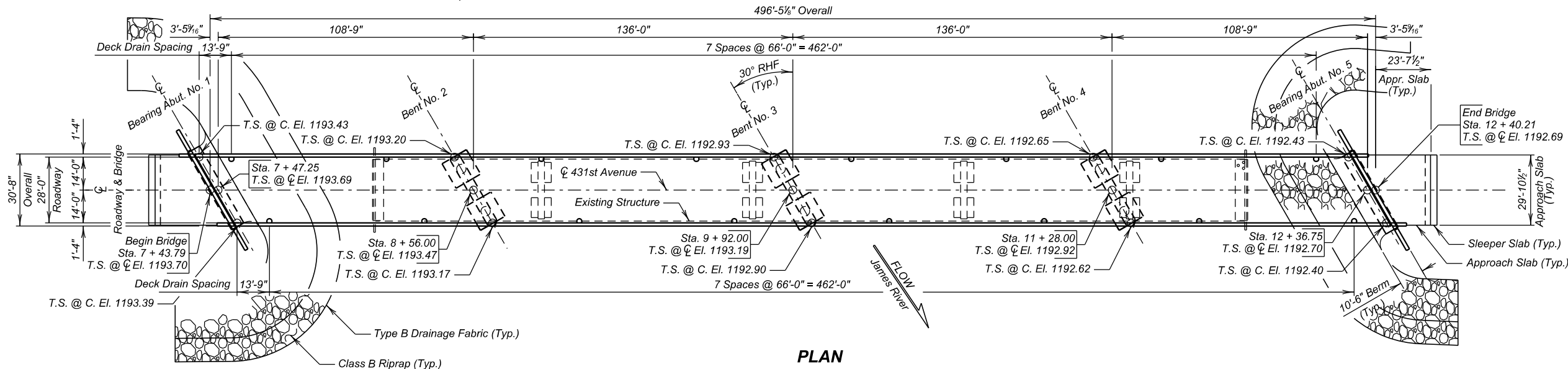
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

Note:
T. S. at ∇ El. = Top of Slab at Centerline Elevation
T. S. at C. El. = Top of Slab at Curb Elevation

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	46	99

Revised: 9/16/2025 (ARP)



PLAN

HYDRAULIC DATA

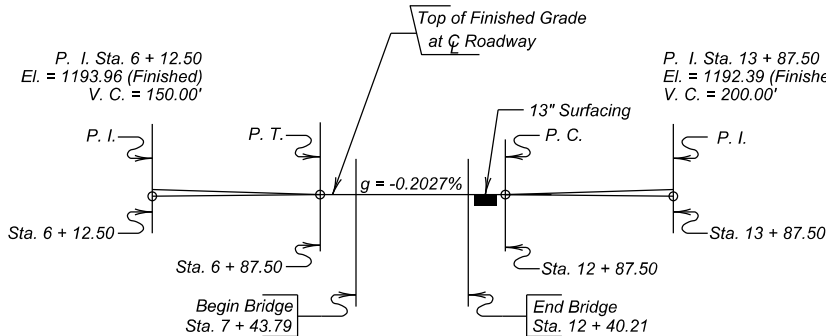
Q_d	23,333 cfs
A_d	5,426 sq ft
V_d	4.3 fps
Q_F	24,500 cfs
Q_{100}	52,400 cfs
Q_{OT_7}	10,400 cfs
V_{MAX}	6.3 fps

Q_d = Design discharge for the proposed bridge based on 25 year frequency. El. 1185.5
 Q_{OT_7} = Overtopping discharge and frequency estimated 7 year recurrence interval. El. 1183.6. Location Sta. 27 + 70.00.
 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. El. 1189.4
 V_{MAX} = Maximum computed outlet velocity for the proposed culvert or bridge, based on a 50 year frequency.

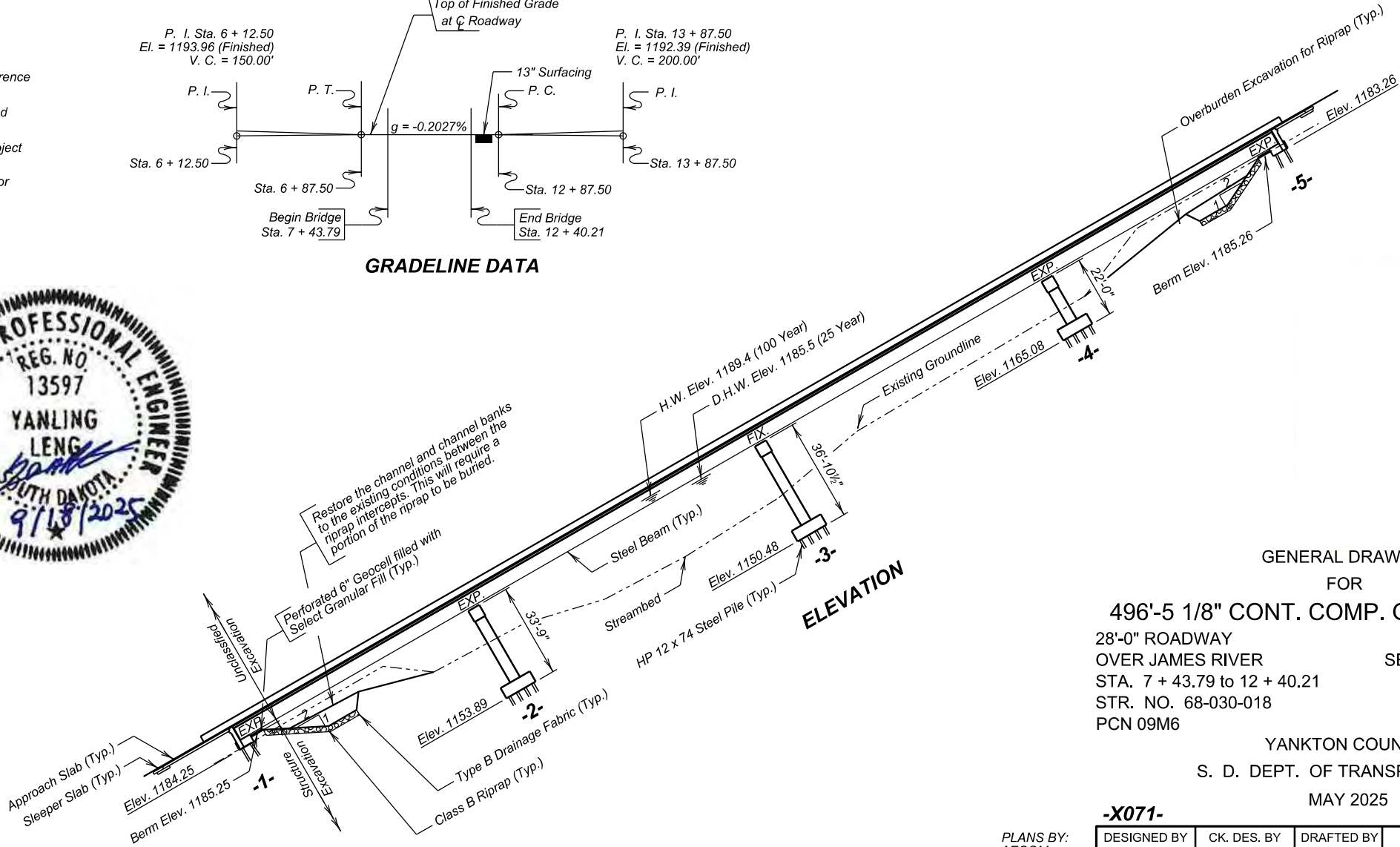
-X071-

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 - Notes (Continued)
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- Sheet No. 7 - Piling Layout Details
- Sheet No. 8 - Abutment Details (A)
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- Sheet No. 26 - Bolted Field Splice & Diaphragm Details
- Sheet No. 27 - Bumper Details
- Sheet No. 28 - Bearing Details (A)
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- Sheet No. 30 - Framing Diagram, Camber and Erection Data
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- Sheet No. 32 - Details of Bridge End Backfill (A)
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- Sheet No. 34 - Details of Approach Slab Adjacent to Bridge (A)
- Sheet No. 35 - Details of Approach Slab Adjacent to Bridge (B)
- Sheet No. 36 - Riprap Details
- Sheet No. 37 - As-Built Elevation Survey (A)
- Sheet No. 38 - As-Built Elevation Survey (B)
- Sheet No. 39 - As-Built Elevation Survey (C)
- Sheet No. 40 - As-Built Elevation Survey (D)
- Sheet No. 41 - Details of Standard Plate No.'s 430.50 and 460.02
- Sheet No. 42 - Details of Standard Plate No.'s 460.05 and 510.40
- Sheet No. 43 - Details of Standard Plate No.'s 620.17 and 630.92



GRADELINE DATA



ELEVATION

GENERAL DRAWING

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
PCN 09M6

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2025

-X071-

PLANS BY:
AECOM

DESIGNED BY	CK. DES. BY	DRAFTED BY	BRIDGE ENGINEER
YL	BS	EAN	

ESTIMATE OF STRUCTURE QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	1,544.5	SqYd
120E7000	Select Granular Backfill	14.0	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0020	Structural Steel	Lump Sum	LS
410E2300	Strip Seal Expansion Joint	69.0	Ft
420E0100	Structure Excavation, Bridge	1,035	CuYd
430E0200	Bridge End Embankment	1,322	CuYd
430E0300	Granular Bridge End Backfill	71.4	CuYd
430E0510	Approach Slab Underdrain Excavation	2.8	CuYd
430E0700	Precast Concrete Headwall for Drain	4	Each
460E0030	Class A45 Concrete, Bridge Deck	489.2	CuYd
460E0050	Class A45 Concrete, Bridge	372.0	CuYd
460E0150	Concrete Approach Slab for Bridge	156.8	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	33.2	SqYd
460E0500	Deck Drain, Girder Bridge	16	Each
480E0100	Reinforcing Steel	57,661	Lb
480E0200	Epoxy Coated Reinforcing Steel	144,066	Lb
510E0100	Extract Pile	5	Each
510E0300	Preboring Pile	160	Ft
510E3421	HP 12x74 Steel Test Pile, Furnish and Drive	615	Ft
510E3425	HP 12x74 Steel Bearing Pile, Furnish and Drive	9,250	Ft
680E0040	4" Underdrain Pipe	285	Ft
680E2500	Porous Backfill	20.8	Ton
700E0210	Class B Riprap	1,177.4	Ton
700E1100	Overburden Excavation for Riprap	1,892	CuYd
831E0110	Type B Drainage Fabric	2,061	SqYd
831E1030	Perforated Geocell	399	SqFt

BRIDGE SPECIFICATIONS

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges is available for download and viewing at <https://dot.sd.gov/doing-business/contractors/standard-specifications>.
- All welding and welding inspections will be in conformance with the latest edition of AASHTO/AWS D1.5/D1.5M Bridge Welding Code unless noted otherwise in the plans.

BRIDGE DESIGN LOADING

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

DESIGN MATERIAL STRENGTHS

Class A45 Concrete	$f'_c = 4,500$ psi
Reinforcing Steel (ASTM A615, Gr. 60)	$f_y = 60,000$ psi
Piling (ASTM A572 Grade 50)	$f_y = 50,000$ psi
Structural Steel (ASTM A709 Gr. 50WT2)	$f_y = 50,000$ psi

GENERAL CONSTRUCTION

- All lap splices shown are contact lap splices unless noted otherwise.
- All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
- Use 2-inch clear cover on all reinforcing steel except as shown otherwise on plans.
- The Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
- Barrier curbs and end blocks will be built perpendicular to the roadway grade line.
- 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.
- Bridge berms will be constructed to the plans template prior to any pile driving or construction of abutment footings. See Standard Plate 120.10 as appropriate. Berm slopes will not be disturbed after construction. Any alterations to the berm or slopes after berm construction will be submitted to the Engineer for approval. Allow 30 days for review of proposals.
- The elevation of the bridge deck is 13 inches above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

- In place centerline Sta. 8+14.24 to centerline Sta. 11+86.53 is a 372'-3", 5 span continuous composite steel girder bridge with a 24'-0" clear roadway. The superstructure consists of W27x94 steel girders in the northern-most span and W30x108 steel girders in the remaining four spans. The steel girders are composite with a reinforced concrete slab. The railing consists of steel channel mounted on steel rail posts. The deck has been overlaid with a Two Coat Bridge Deck Polymer Chip Seal. The substructure consists of 2-column reinforced concrete bents and reinforced concrete abutments, all of which are supported on timber piling.
- 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 at an approved site. An appropriate site will be as described in the Environmental Commitments Notes in the plans.
- During demolition of the structure, efforts will be taken to prevent material from falling into the river. Under no circumstances is asphalt allowed to fall into the river.

- 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 is the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved. If desired by the Contractor, a copy of the original construction plans may be obtained through the Engineer.

NOTICE - LEAD BASED PAINT

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

DESIGN MIX OF CONCRETE

- All structural concrete will be Class A45 Concrete unless otherwise indicated.
- Type II cement conforming to Section 750 of the Construction Specifications is required.
- Grout design mix will be as specified in Section 460.2 K of the Construction Specifications. A compressive strength of 2000 psi will be attained by the grout prior to erection of any beams. Chamfer edges of grout pads 3/4-inch. The quantity of grout is included in and will be paid for at the contract unit price per cubic yard for Class A45 Concrete, Bridge.

ABUTMENTS

- Preboring piling at each abutment is required to whichever is greater, ten feet or to natural ground.
- The HP 12x74 Piling were designed using a factored bearing resistance of 137 tons per pile. Piling will develop a field verified nominal bearing resistance of 342 tons per pile.
- One test pile will be driven at each abutment and will become part of the pile group. The test pile will be driven before any other pile and will be driven to the required field verified nominal bearing resistance or as directed by the Engineer prior to driving any portion of the bearing piles.
- The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.
- Each finished abutment will include a Bridge Survey Marker. See Standard Plate 460.05

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY	30° RHF SKEW
OVER JAMES RIVER	SEC. 9/10-T96N-R57W
STA. 7 + 43.79 to 12 + 40.21	BRF-B 6213(15)
STR. NO. 68-030-018	HL-93

YANKTON COUNTY
S.D. DEPT. OF TRANSPORTATION
MAY 2025



DESIGNED BY YL	DRAWN BY EAN	CHECKED BY BS	APPROVED
BRIDGE ENGINEER			

PILE DRIVING

1. A drivability analysis was performed using the wave equation analysis program (GRLWEAP). The following pile hammers were evaluated and found to produce acceptable driving stresses:

Delmag D36-23 APE D36-26 SPI D36-26

2. 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.

BENTS

1. All Swedge Bolts will be 1 1/2-inch diameter x 2'-6" F1554, Grade 55 bolts with heavy hex nut and cut washer (listed with structural steel in Superstructure quantities). A minimum of 20% of the embedded bolt surface will be covered with deformations whose radial dimensions are 15 to 20% of the bolt diameter.
2. The HP 12x74 Piling were designed using a factored bearing resistance of 137 tons per pile. Piling will develop a field verified nominal bearing resistance of 342 tons per pile.
3. One test pile will be driven at each bent and will become part of the pile group. The test pile will be driven before any other pile and will be driven to the required field verified nominal bearing resistance or as directed by the Engineer prior to driving any portion of the bearing piles.
4. The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.
5. Spiral reinforcement may be fabricated from cold drawn wire conforming to ASTM A1064 or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.
6. It is anticipated that cofferdams will be necessary. Cofferdams will be designed and constructed in accordance with Section 423 of the Construction Specifications.

SUPERSTRUCTURE

1. Structural steel will conform to ASTM A709 Gr. 50WT2. Steel for diaphragms and stiffeners may conform to ASTM A709 Gr. 50. Shear connectors will conform to Section 7.3 Type B of the Bridge Welding Code.
2. Bolts, nuts, and washers will conform to ASTM F3125, Grade A325, Type 3.
3. Shear connectors will be field welded to the girders in accordance with the Shear Connector Field Installation Special Provision.
4. All butt-welded girder splices will be ultrasonically inspected.
5. The cost of welding and weld inspection will be incidental to the contract lump sum price for Structural Steel.

6. Structural steel used in all girder web plates, girder flanges, and girder splice plates will comply with the Charpy-V-Notch toughness requirements set forth in Section 970 of the Construction Specifications. Material greater than 1 1/2 inches in thickness will require frequency (P) testing in lieu of heat lot (H) testing. See Girder Layout for location of tension and stress reversal areas of girder flanges.
7. 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.
8. An admixture is required to ensure the concrete remains plastic for 6 hours after placement. The concrete bridge deck will be placed and finished at a minimum rate of 66 feet of deck per hour measured along centerline roadway. If concrete cannot be placed and finished at this rate, the Engineer will order a header installed and operations stopped. If a header is required sometime during the pour operation, its location will be at or as near as possible to the three-quarter point of the span. Notify the Bridge Engineer if deck pour operations are stopped. Operations may resume only when the Engineer is satisfied that a rate of 66 feet per hour can be maintained and the concrete has attained a minimum compressive strength of 2000 psi.
9. Dead Load camber will be cut into the girder webs. Do not induce or correct camber in plate girders by local heating without prior approval from the Engineer.
10. All structural steel surfaces of the superstructure will be blast cleaned to a commercial finish, in accordance with SSPC SP6, at the Fabricator. Abrasives used for blast cleaning will be clean dry sand, steel shot, mineral grit or manufactured grit. Fins, tears, slivers, and burred or sharp edges will be removed by grinding and then re-blasted to achieve the specified finish.
11. If the substructure units are not protected from precipitation running off of the girders during construction, the concrete surfaces may become stained. If staining of the substructure units does occur, it will be removed to the satisfaction of the Engineer. The Contractor will absorb all costs associated with removal of any stains.
12. Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with the reinforcing steel.
13. The Contractor is required to submit a detailed plan showing the proposed girder erection. The girder erection plan will be designed and stamped by a Professional Engineer registered with the State of South Dakota. The plan must be submitted 30 days prior to the start of work for approval by the Engineer. The plan will include, but not limited to, complete sequencing details, splice bolt up procedures, girder pick point locations, temporary shoring details, and temporary bracing details.
14. All single girder segments will be adequately braced or held in position until the adjacent girder segment is placed and all diaphragms between the segments are fully installed, and bolts fully tightened. Single girder segments will not be allowed to remain in place beyond the end of a work shift without connection to an adjacent girder segment with all diaphragms between the segments fully connected. At no time will a single girder segment be allowed over traffic.

FOR BIDDING PURPOSES ONLY

15. See Special Provision for Concrete Penetrating Sealer.

BEARINGS

1. All steel for the bearings will conform to ASTM A709, Gr. 50.
2. The pre-formed fabric pads will be composed of multiple layers of 8-ounce cotton duck impregnated and bonded with high quality natural rubber or of equivalent and equally suitable materials compressed into resilient pads of uniform thickness, after compression and vulcanization. The finished pads will withstand compression loads perpendicular to the plane of the laminations of not less than 10,000 psi without detrimental reduction in thickness or extrusion.
3. The bearing plates will be shop painted with 3 mils of inorganic zinc primer in accordance with Section 411 of the Construction Specifications. No topcoat of polyurethane will be applied.
4. Tolerances and surface finish for Rocker Plates will be as follows:
- | | |
|-----------------------------------|----------------------------|
| Convex Radius Dimension | +0.000-inch to -0.010-inch |
| Surface Finish, Machined Surfaces | 125 RMS or Better |
| Surface Finish, Other Surfaces | 230 RMS or Better |
5. Payment for furnishing and installing the bearings, including the pre-formed fabric pads under the bearing plates and painting, will be incidental to the contract lump sum price for Structural Steel.

FIELD BOLTED GIRDER SPLICES

1. Steel for splice and filler plates will conform to ASTM A709 Gr. 50WT2.
2. Bolts in flange splices will be placed with the heads down.
3. Bolts in web splices of exterior girders will be placed with the heads on the exterior face of girders.
4. All bolts will be fully tightened prior to removing temporary supports.

NOTES (CONTINUED)
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY	30° RHF SKEW
OVER JAMES RIVER	SEC. 9/10-T96N-R57W
STA. 7 + 43.79 to 12 + 40.21	BRF-B 6213(15)
STR. NO. 68-030-018	HL-93

YANKTON COUNTY
S.D. DEPT. OF TRANSPORTATION
MAY 2025



DESIGNED BY YL	DRAWN BY EAN	CHECKED BY BS	APPROVED BRIDGE ENGINEER
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WELDING AND WELD INSPECTION

Main members referred to in Section 6.7 Nondestructive Testing of the Bridge Welding Code are identified as follows: girder webs, girder flanges, and bearing stiffeners. Ultrasonic testing of groove welds will be used in lieu of radiography. See girder layout for locations of tension and stress reversal areas of the girder flanges.

DECK DRAINS

- Deck Drains will be 4-inch diameter x 5'-7" Fiberglass Pipe conforming to the requirements of ASTM D2996.
- The Fiberglass Pipe Sleeves can be made from a 4-inch diameter Fiberglass Pipe Fitting. They will be attached to the 4-inch diameter Fiberglass Pipe, as shown in the plans, per the Manufacturer's recommendation.
- All fiberglass pipe and pipe fittings will be handled and installed according to the guidelines and procedures recommended by the Manufacturer. Pipe and pipe fittings must be from the same manufacturer.
- Use fiberglass wear pads to protect against contact with supports or U-bolts.
- The 1/2-inch diameter U-bolts, nuts and washers will conform to ASTM A307 and will be galvanized in accordance with ASTM F2329 then painted in accordance with Section 411 of the Construction Specifications. The topcoat will be an approved brown (AMS STD 595 Color 30045).
- Steel for the bent plates and washers will conform to ASTM A709, Gr. 50W.
- Washers will be plate washers or a continuous bar at least 5/16-inch thick with standard holes and completely cover the slot after installation.
- The 1/2-inch diameter bolts and nuts will conform to ASTM F3125, Gr. A325.
- The deck drains to girder connection as shown in the plans allows the deck drain location to be adjusted slightly to clear transverse slab reinforcement.
- All fiberglass pipes and pipe fittings will use pigmented resin throughout the wall. The color will be an approved brown (AMS STD 595 Color 30045).
- Payment for deck drains will be at the contract unit price per each for Deck Drains, Girder Bridge, and will be full compensation for furnishing, fabricating, and installing the deck drains and all attaching hardware in accordance with the plans and Construction Specifications.

FALL PROTECTION

- The Contractor will install a Fall Protection System conforming to OSHA Regulations. When working on the girders prior to decking installation, a Horizontal Lifeline – or other OSHA approved system will be installed. The Contractor will have one Personal Fall Arrest System (PFAS) available for use by a Department Inspector. The PFAS will be compatible with the installed Fall Protection System.

- Modifications to any bridge components used to accommodate the Fall Protection System will be shown on the Falsework Plans and the appropriate Shop Plans. Field welding to bridge components will not be allowed. Field placed concrete inserts or drilled-in anchor bolts will be allowed if approved by the Engineer. All costs associated with providing the Fall Protection System will be incidental to the other contract items.

BOLT TESTING

The certified mill test reports for all bolts used on the project will include the test results for all the 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 bolt supplier of these requirements.

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 IMEG Corporation, 1410 W. Russell Street, Sioux Falls, SD 57104 (Adam.R.Polley@IMEGCorp.com). After review, corrections (if necessary), and approval by IMEG Corporation, the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

SHEAR STUD CONNECTOR

- Prior to the welding of the studs to the girders, the top surface of the girders that are to have studs welded on will be clean of all dirt, rust, and any other foreign matter.
- The shear connector that will be attached to the girder will be 7/8-inch diameter x 5 inches long and will conform to ASTM 108, Gr. 1015, 1018, or 1020. The connector will meet the following minimum mechanical property requirements for Type B studs:

Tensile	60 ksi
Yield Strength	60 ksi
Elongation	20%
Reduction of Area	50%
- The shear connector will be installed in accordance with the Special Provision for Shear Connector Field Installation (Incidental).

APPROACH SLABS

- Sleeper slab riser will be cast with or later than the approach slab. Care will be taken to ensure the correct grade is maintained across the top of the sleeper slab riser.
- The portion of the sleeper slab below the construction joint may be precast. If the bottom portion of the sleeper slab is precast, the Contractor will submit proposed lifting and setting plans to the Bridge Construction Engineer for approval. In addition, if reinforcing or other details differ from those shown in the plans, the Contractor will submit proposed alternate details for approval.
- The use of an approved finishing machine will be required during placement of Class A45 Concrete for the approach slabs. Concrete placement in front of the machine will be kept parallel to the screed.

- Concrete Approach Sleeper Slab for Bridge, whether cast-in-place or precast, will be paid for at the contract unit price per square yard. This payment will be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete and reinforcing steel; for disposal of all surplus materials; and for labor, tools, equipment, and any incidentals necessary to complete this item of work.
- Concrete Approach Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete, asphalt paint or 6 mil polyethylene sheeting, elastic joint sealer, and reinforcing steel; for disposal of all excavated material and surplus materials and for labor, tools, equipment, and any incidentals necessary to complete this item of work.

APPROACH SLAB UNDERDRAIN SYSTEM

- An underdrain system will be placed underneath the sleeper slabs and behind the abutments as shown in the plans in accordance with Section 435 of the Construction Specifications.
- The 4-inch diameter Perforated PVC Drain Pipe will be SDR 35 Solvent Weld PVC Pipe conforming to ASTM D3034 and ASTM F758. The 4-inch diameter PVC Outlet Pipe will be Schedule 40 PVC Pipe conforming to ASTM D1785 designated as PVC 1120, PVC 1220, or PVC 2120. Pipe sections will be connected using a PVC Solvent Cement conforming to ASTM D2564. The Drain Sleeve will conform to ASTM D6707.
- Care will be taken to ensure that the 4-inch diameter Perforated PVC Drain Pipe and the 4-inch diameter PVC Outlet Pipe are not damaged during construction. Sufficient cover material will be placed over the pipes before compaction equipment is allowed over the underdrain system. Any damaged pipes will be replaced by the Contractor at no additional cost to the Department.
- All labor, tools, equipment, and any incidentals necessary for the Installation of 4-inch diameter Perforated PVC Drain Pipe, 4-inch diameter PVC Outlet Pipe, SDR Solvent Weld PVC Coupling, and PVC Cement will be incidental to the contract unit price per foot for 4" Underdrain Pipe.

NOTES (CONTINUED)
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S.D. DEPT. OF TRANSPORTATION
MAY 2025



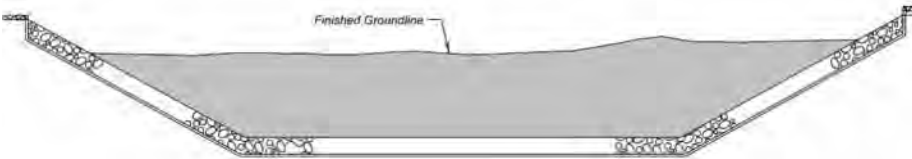
DESIGNED BY YL	DRAWN BY EAN	CHECKED BY BS	APPROVED BRIDGE ENGINEER
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	50	99

Revised 10/07/2025 JMP

OVERBURDEN EXCAVATION FOR RIPRAP

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



2. Excavation is to be completed after temporary diversion method is in place, if required, with minimal standing water to create the profile of slope protection specified in plans. Contractor will provide a sequence of operations to complete the overburden excavation for riprap.
3. The removed material will be placed on top of the riprap to the natural ground, proposed groundline, or specified shape and elevations shown in plans. When overburden extends into the streambed, it will form the channel bottom and profile as specified in the plans. The finished ground under the bridge will be shaped to match the upstream and downstream channel and flood plain.
4. The overburden material will be placed on top of the riprap and have a maximum lift depth of 1'-0" and compacted free of flowing water or standing water in excess of four inches above the riprap at the lowest elevation.
5. Compaction effort will produce a surface that does not pump, rut, or otherwise displace when traveled over with construction equipment to the satisfaction of the Engineer. Material may be added to excavated material to facilitate compaction and handling. Importing, stockpiling, blending, and/or wasting of materials will be incidental to the contract unit price for Overburden Excavation for Riprap.
6. Payment for Overburden Excavation for Riprap will be at the contract unit price and will be full compensation for labor, equipment, tools, and incidentals, including furnishing, installing, and removal of any temporary works necessary to complete the work. Payment will be for plans quantity unless measurement is ordered by the Engineer.
7. Before preparing the bid, it is the responsibility of the Contractor to verify existing conditions to determine if a temporary diversion method and/or dewatering will be required. If required, the Contractor must submit the temporary diversion method and/or dewatering for approval to the Construction Engineer 30 days prior to construction.

STRIP SEAL INSTALLATION

The hot rolled steel extrusions that are to be cast into the sleeper slabs and approach slabs will be set at the correct grade and crown slope and securely supported during placement of the Class A45 Concrete, Bridge. Care will be taken to ensure that the correct grade is maintained across the joint.

DECK AND BARRIER EXPANSION DEVICES AT ABUTMENTS

1. Steel for the Armor Angle Assembly will conform to ASTM A709, Gr. 36. The Automatic End Welded Deformed Bar Anchor Studs will conform to ASTM A496. The Armor Angle Assembly complete in-place will be a continuous unit.
2. Galvanize the Armor Angles and anything welded to them after all welding is completed. They will be galvanized in accordance with AASHTO M111 (ASTM A123). If welded splices are used subsequent to galvanizing, the weld details and the procedures for preparing the surface for welding and repairing the galvanizing after welding will be included with the shop plans. Repair of galvanizing will be by the zinc-based solder method in conformance with ASTM A780.
3. Welding for the Armor Angle Assembly will be in accordance with AWS Bridge Welding Code D1.5.
4. The plain ferrule inserts in the expansion device will be 3/4" diameter commercially available regular steel inserts to be positioned by welding onto the plate of the expansion device as shown in the plans.
5. Material for the Neoprene Extrusion will conform to ASTM D2628 modified to omit the recovery test. No splices will be permitted in the Neoprene Strip.
6. Since the configuration and dimensions of the steel extrusions may vary according to each manufacturer's design, they need not conform exactly to that shown in the plans. However, any deviations from that shown in the plans must be approved by the Bridge Engineer.
7. The shape of the Preformed Neoprene Seal may vary from that shown in the plans. However, the wedge lugs must properly fit the groove in the Steel Extrusion. Before installation, shop plans of the proposed joint modifications showing fixed dimensions, thickness of Preformed Neoprene Seal, and dimensions pertinent to the fit of the Preformed Neoprene Seal in the Steel Extrusion will be submitted to and approved by the Engineer.
8. The strip seal supplier will submit a detailed gland installation procedure with the shop plans.
9. The neoprene strip seal will be supplied one foot longer than the overall length of the steel extrusion. The neoprene strip seal will be centered in the steel extrusion such that an equal amount will overhang each end of the device.
10. The Steel Extrusions will be dry, clean, and free from dirt, grease, and contaminants at the time the Preformed Neoprene Seal is installed. The installation of the Preformed Neoprene Seal will be as recommended by the Manufacturer.
11. The two steel extrusions will be placed parallel to each other and will be set at correct grade and crown. The top surfaces of the two sides will be level with one another. The gap between the two steel extrusions will be set using the Joint Installation Table shown on the plan sheet. Strict adherence to these openings at the specified installation temperature is required for the joint to function properly.
12. The new concrete surfaces of the bridge deck in the area of the steel extrusions will be finished in accordance with Sections 460.3.M.4.b and 460.3.M.c of the Construction Specifications.

13. All costs involved in furnishing, galvanizing, welding, and installing all required materials including neoprene strip seal, labor, equipment, and incidentals necessary to complete the work in accordance with the plans will be included in the contract unit price per foot for Strip Seal Expansion Joint.

PERFORATED GEOCELL

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

Phone:

Website:
- Agtec

1-818-724-7657

<http://www.agtec.com>
2. Perforated Geocell will be 6 inches tall with Type B Drainage Fabric underlying the perforated Geocell. Installation will adhere to the Manufacturer's recommendation.
3. Perforated Geocell will be filled with the Select Granular Backfill in accordance with Section 850 of the Construction Specifications.
4. Perforated Geocell will be paid for at the contract unit price per square foot. Payment will be full compensation for furnishing and installing the Perforated Geocell.
5. Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

NOTES (CONTINUED)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY

OVER JAMES RIVER

STA. 7 + 43.79 to 12 + 40.21

STR. NO. 68-030-018

30° RHF SKEW

SEC. 9/10-T96N-R57W

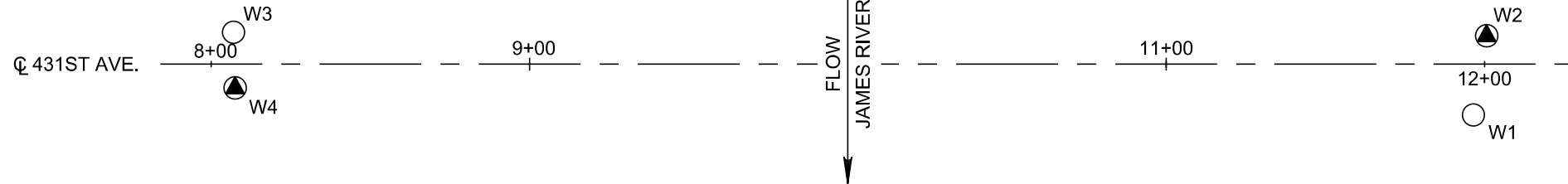
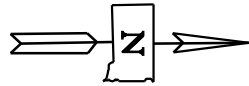
BRF-B 6213(15)

HL-93

YANKTON COUNTY
S.D. DEPT. OF TRANSPORTATION



DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
YL	EAN	BS	



COFFERDAM SOIL PARAMETERS

	Friction Angle (Φ)	Cohesion (c)	Wet Unit Weight (γ_w)
Dark Brown Silt Clay	17°	390 psf	113 pcf
Gray Sand	32°	0 psf	121 pcf
Dark Gray Clay with Intermittent Sand Pockets	14°	270 psf	107 pcf

Soil properties were obtained by testing disturbed and undisturbed samples. Disturbed samples were collected with a lined modified California Sampler. Undisturbed samples were collected with a thin-walled tube.

Hole Number	W5
Station	10+17
Depth	30.2 ft
Soil Color	Dark Gray
Classification	Silt Clay
Strength (Qu)	975 psf
Dry Density	79.9 pcf
Wet Density	111.8 pcf
Moisture	39.9 %
Pass No. 10	100.0 %
Pass No. 40	99.9 %
Pass No. 200	98.4 %
Sand Content	1.6 %
Silt Content	44.0 %
Clay Content	54.4 %

Hole Number	W5
Station	10+17
Depth	30.2 ft
Soil Color	Dark Gray
Classification	Silt Clay
Strength (Qu)	975 psf
Dry Density	79.9 pcf
Wet Density	111.8 pcf
Moisture	39.9 %
Pass No. 10	100.0 %
Pass No. 40	99.5 %
Pass No. 200	87.8 %
Sand Content	12.2 %
Silt Content	43.4 %
Clay Content	44.4 %

Hole Number	W5
Station	10+17
Depth	50.5 ft
Soil Color	Dark Gray
Classification	Clay
Strength (Qu)	1,628 psf
Dry Density	70.2 pcf
Wet Density	104.9 pcf
Moisture	49.3 %
Pass No. 10	100.0 %
Pass No. 40	99.9 %
Pass No. 200	99.6 %
Sand Content	0.4 %
Silt Content	33.2 %
Clay Content	66.4 %

Hole Number	W1
Station	11+96.53
Depth	20.5 ft
Soil Color	Dark Brown
Classification	Silt Clay
Strength (Qu)	815 psf
Dry Density	73.8 pcf
Wet Density	106.7 pcf
Moisture	44.6 %
Pass No. 10	100.0 %
Pass No. 40	100.0 %
Pass No. 200	98.6 %
Sand Content	1.4 %
Silt Content	48.6 %
Clay Content	50.0 %

Hole Number	W1
Station	11+96
Depth	30.5 ft
Soil Color	Dark Gray
Classification	Sand
Strength (Qu)	241 psf
Dry Density	99.3 pcf
Wet Density	122.7 pcf
Moisture	23.6 %
Pass No. 10	99.9 %
Pass No. 40	94.4 %
Pass No. 200	15.9 %
Sand Content	84.0 %
Silt Content	7.9 %
Clay Content	8.0 %

- Penetration Test
● Drive Test
⊙ Auger Test
▽ Water
⊖ Caved
■ Sample Zone

Drive tests are conducted by dropping a 490 pound hammer 30 inches to drive a 2 $\frac{7}{8}$ inch drill stem to measure the resistance to penetration of the soil.

Penetration test holes are drilled with a 6 $\frac{3}{8}$ inch diameter hollow stem auger. Penetration tests are conducted by dropping a 140 pound hammer 30 inches to collect samples and measure the resistance to penetration of the soil. Samples are collected using a lined Modified California Sampler. Penetration Test results are listed as uncorrected "N" values in blows per foot. Blows over inches are listed if refusal is achieved, which is 50 blows within one 6 inch set.

GROUNDWATER ELEVATIONS

FEBRUARY 2021

W1	1170.2	MEASURED SKIN FRICTION	
W2	1170.2	ELEV.	PSF
W3	1169.6	W2	1062.2 524
W4	1169.6	W4	1064.1 539
APRIL 2021			
W5	1170.0		
W6	1170.0		

SUBSURFACE INVESTIGATION & PILING LAYOUT FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY OVER JAMES RIVER
30° RHF SKEW
SEC. 9/10-T96N-R57W
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
BRF-B 6213(15)
HL-93

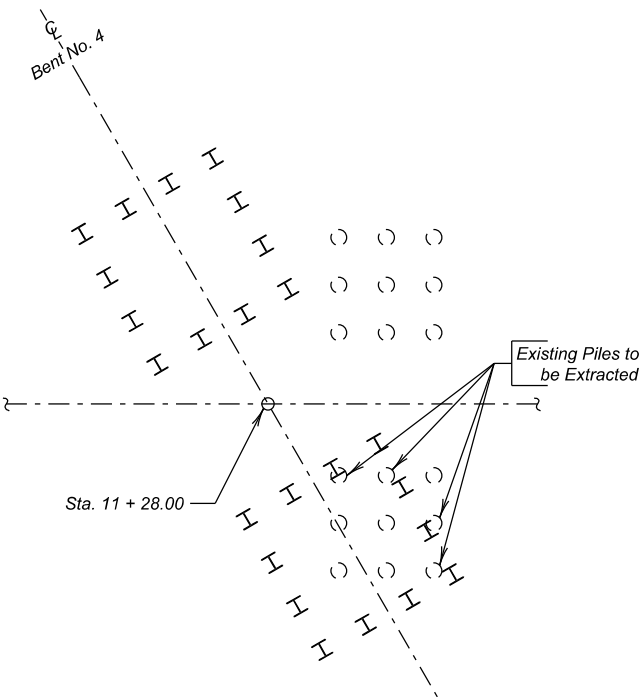
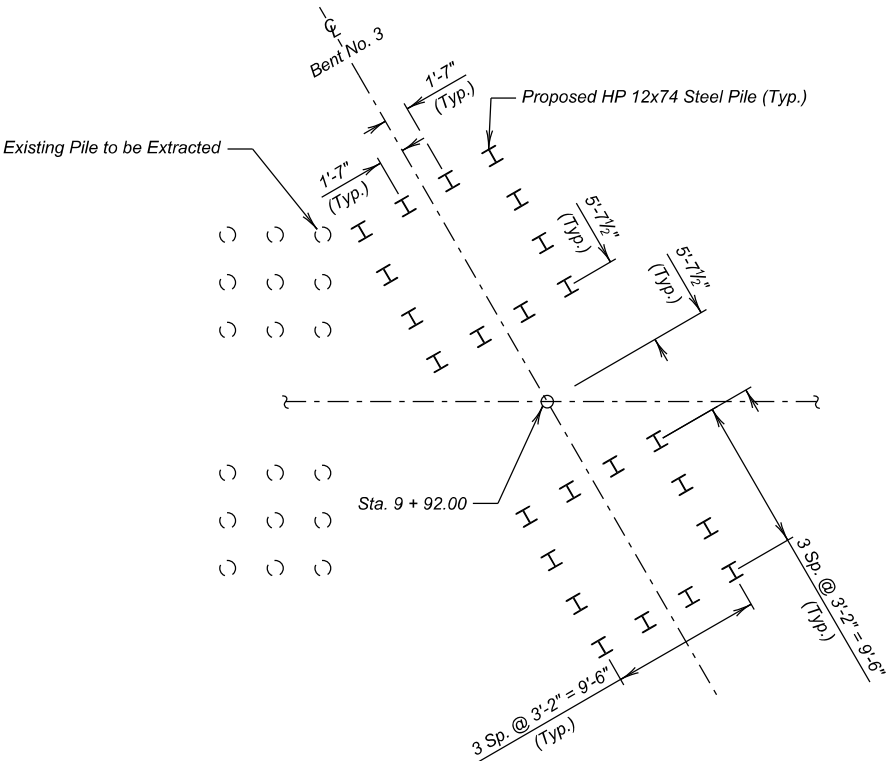
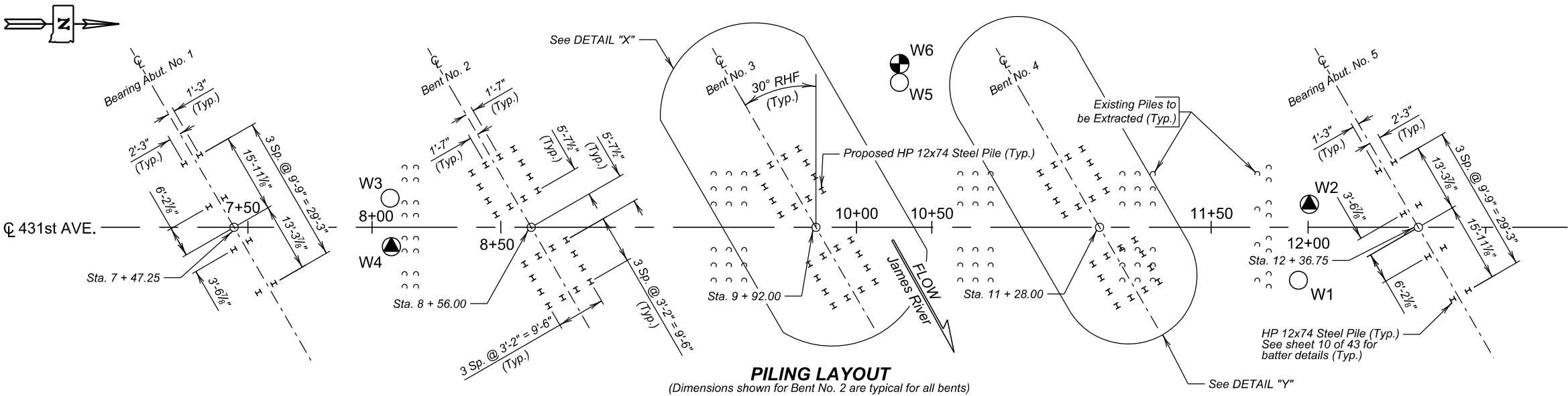
YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

6 OF 43

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	52	99



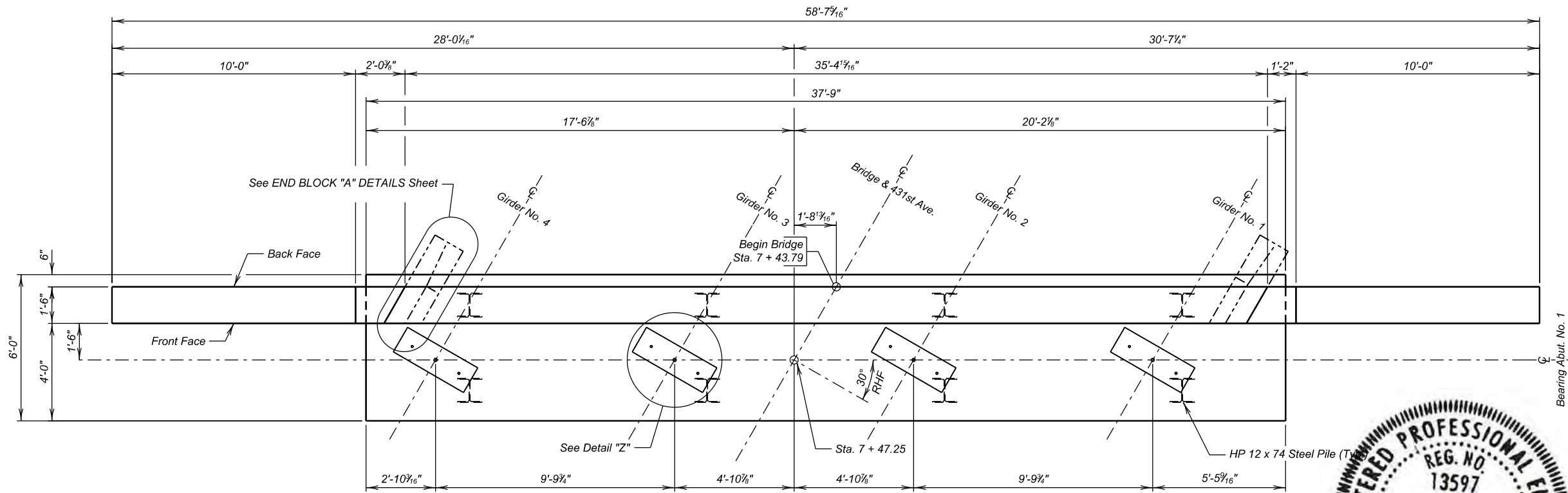
PILING LAYOUT DETAILS
FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

NOTE -
This sheet is to be used in conjunction with the SUBSURFACE
INVESTIGATION AND PILING LAYOUT sheet.

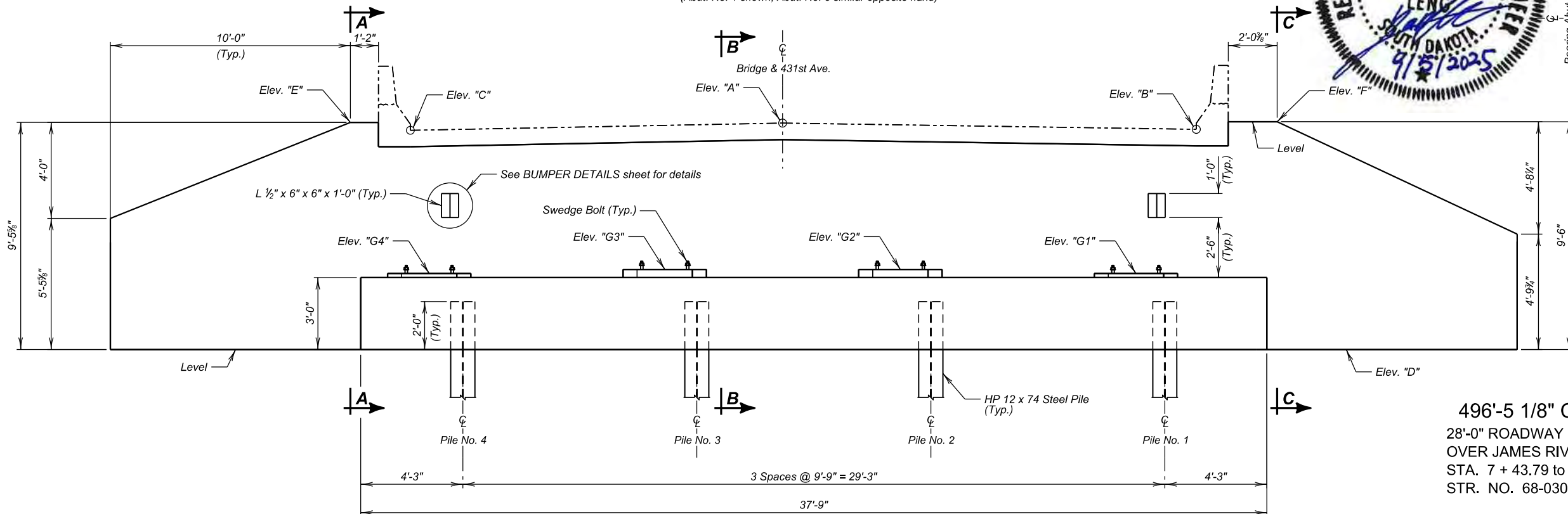
DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	53	99



PLAN
(Abut. No. 1 shown, Abut. No. 5 similar opposite hand)



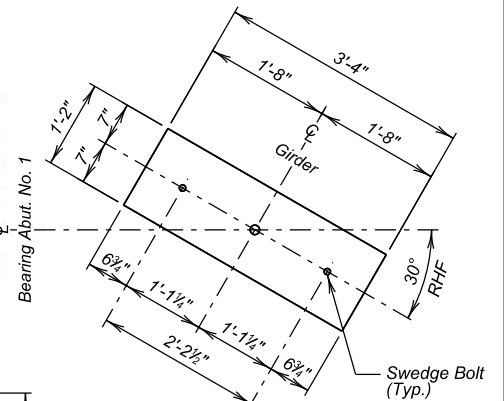
ELEVATION
(Along C Abutment)

TABLE OF ELEVATIONS										
Abut. No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G1"	Elev. "G2"	Elev. "G3"	Elev. "G4"
1	1193.69	1193.43	1193.39	1184.25	1193.72	1193.75	1187.97	1188.13	1188.12	1187.94
5	1192.70	1192.43	1192.40	1183.26	1192.73	1192.76	1186.98	1187.14	1187.13	1186.95

NOTE:
Elev. "A", "B" and "C" are top of slab at C of Abutment.
Elev. "G1", "G2", "G3" and "G4" are top of grout pad elevations at C Abutment.
Top of Grout Pads will be Level and Smooth.

This sheet is to be used in conjunction with the sheets 9 & 10 of 43.

INCREASING STATIONS
Abut. No. 1
INCREASING STATIONS
Abut. No. 5



DETAIL "Z"
(Grout Pad)

ABUTMENT DETAILS (A)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

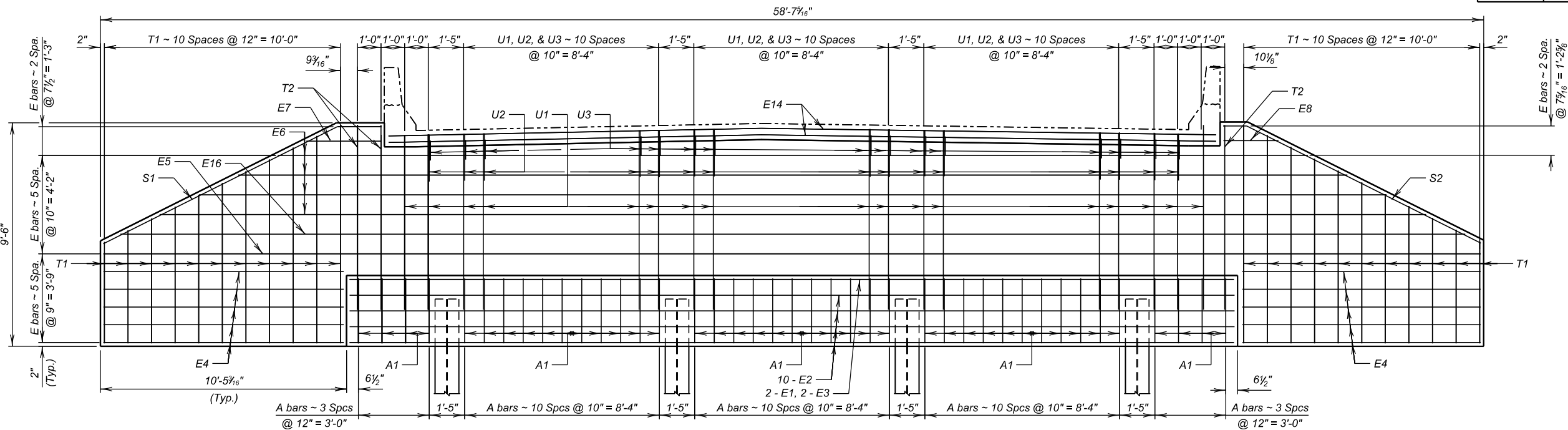
MAY 2025

8 OF 43

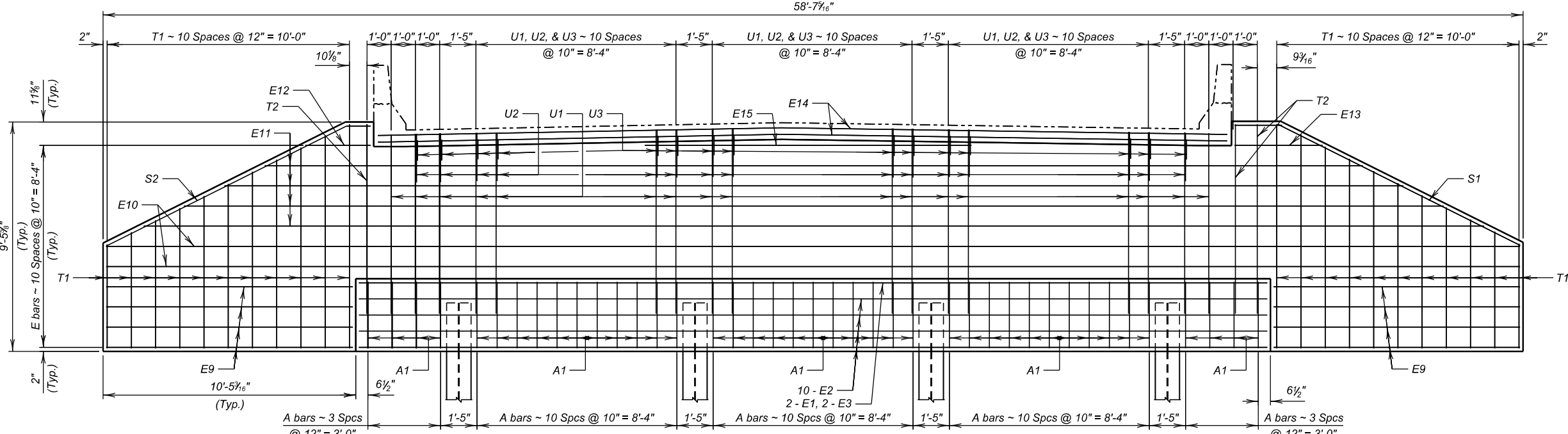
DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

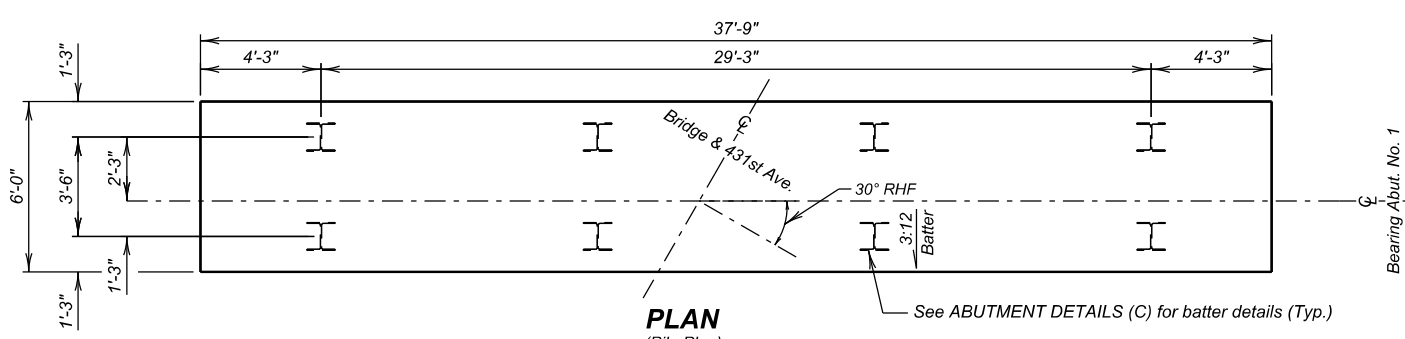
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	54	99



ELEVATION
(Back Face)



ELEVATION
(Front Face)



PLAN
(Pile Plan)



ABUTMENT DETAILS (B)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

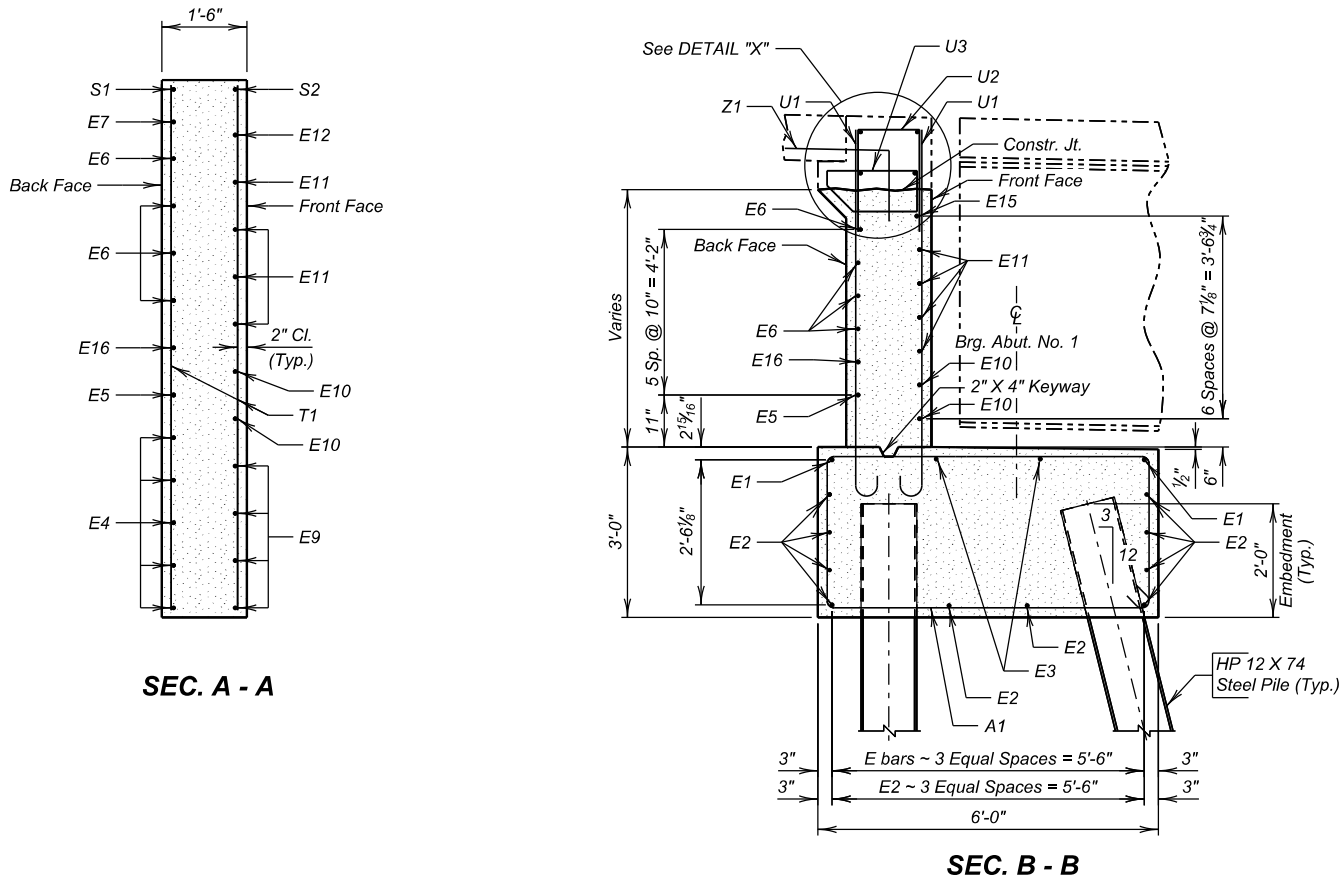
MAY 2025

9 OF 43

NOTE:
This sheet is to be used in conjunction with the sheets 8 & 10 of 43.

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	55	99

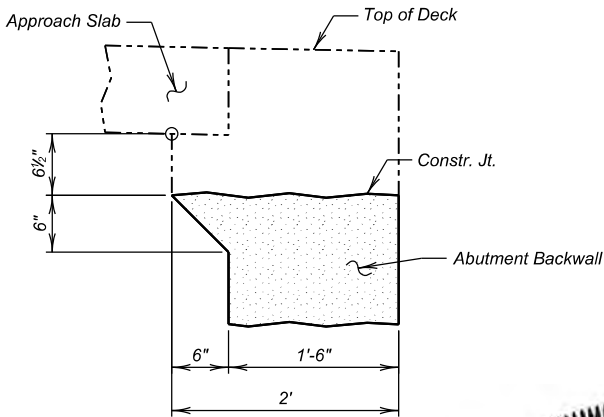


NOTE:
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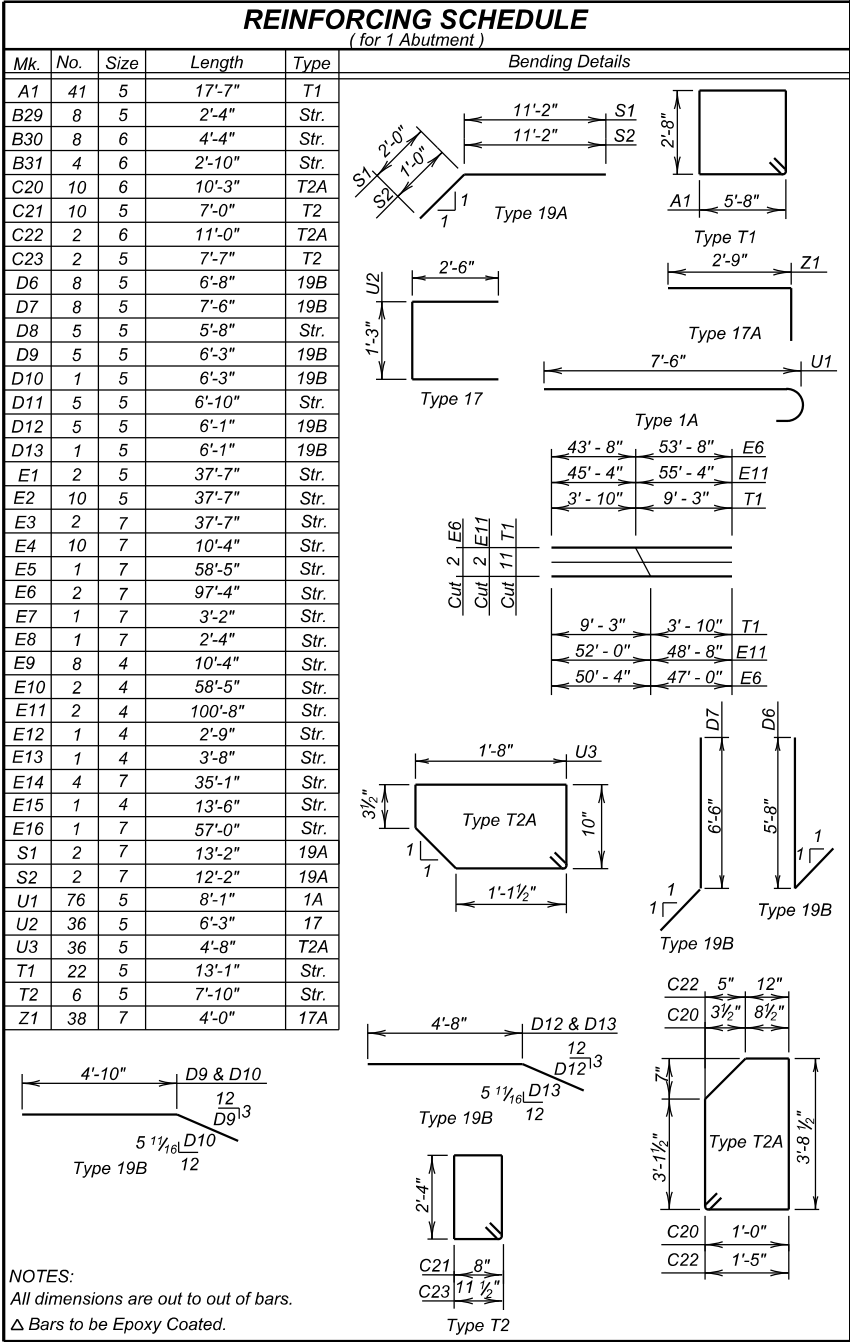
ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Abut. No. 1	Abut. No. 5
Class A45 Concrete, Bridge	Cu. Yd.	48.8	48.8
Reinforcing Steel	Lb.	2945	2945
Epoxy Coated Reinforcing Steel	Lb.	2295	2295
Structure Excavation, Bridge	Cu. Yd.	30.8	30.8
HP 12 X 74 Steel Test Pile, Furnish and Drive	Ft.	1 @ 140' = 140'	1 @ 140' = 140'
HP 12 X 74 Steel Bearing Pile, Furnish and Drive	Ft.	7 @ 135' = 945'	7 @ 135' = 945'
Preboring Pile	Ft.	8 @ 10' = 80'	8 @ 10' = 80'

Includes 0.4 Cu.Yd. for grout pads.

NOTE:
Concrete will be placed in the space under the beams (within the backwall width) during the pour. Care will be taken to get the concrete vibrated into this area. If upon form removal the space is not completely filled and consolidated, the Contractor will grout in the remaining voids.



DETAIL "X"
(Resteel not shown)



ABUTMENT DETAILS (C)
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RH SKW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

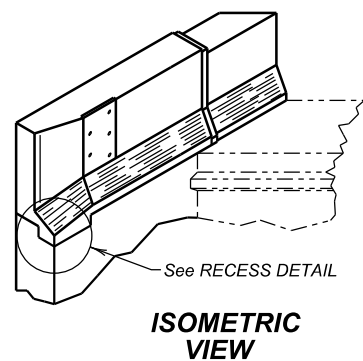
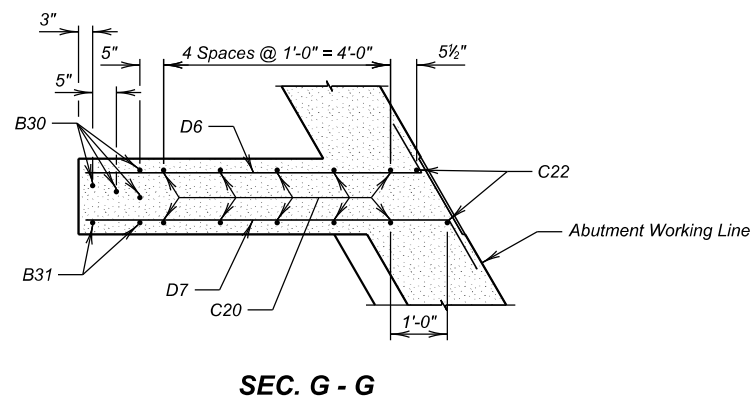
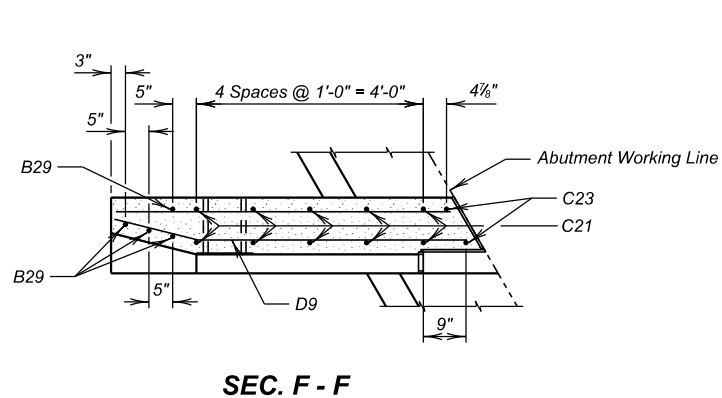
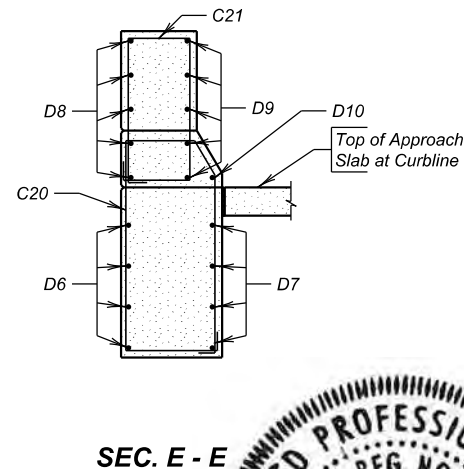
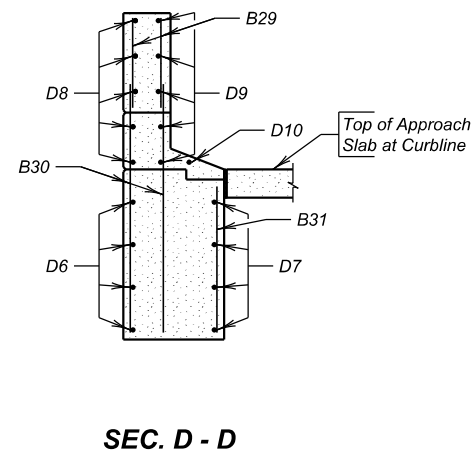
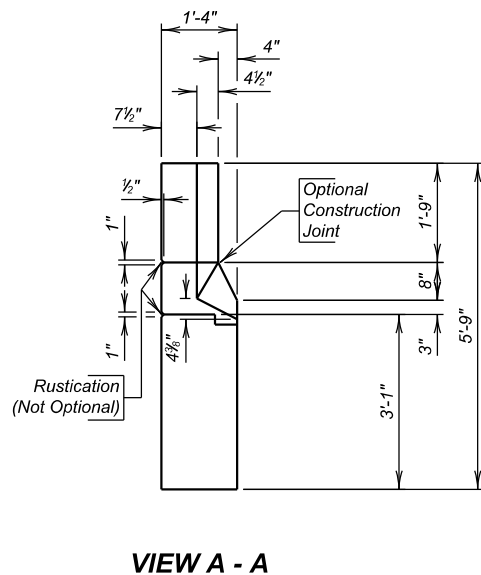
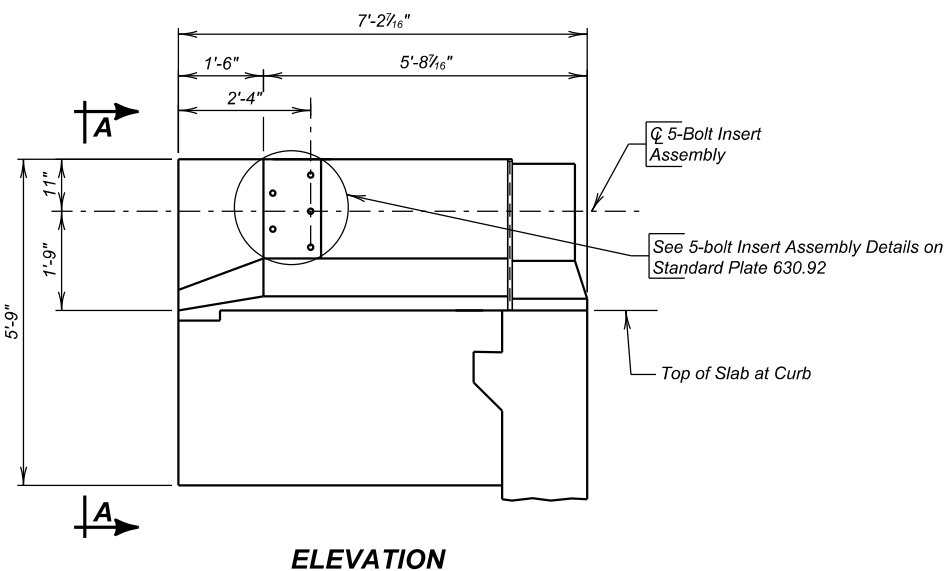
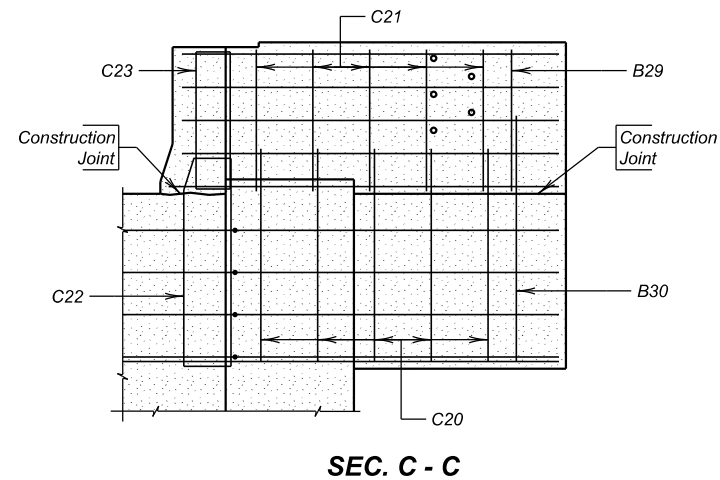
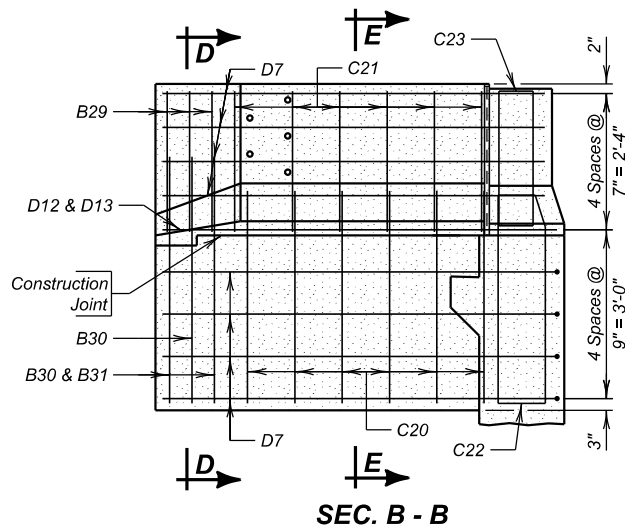
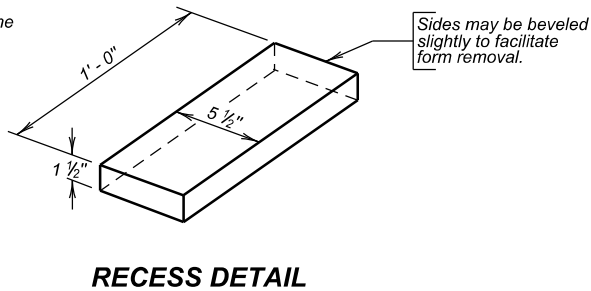
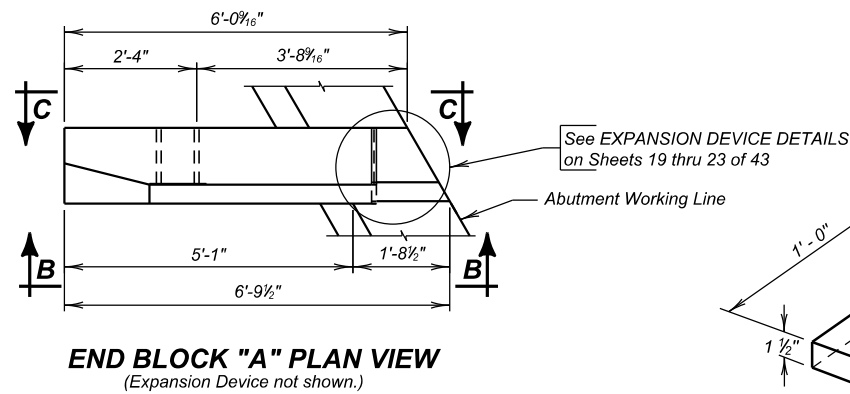
YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025



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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	56	99



END BLOCK "A" DETAILS
FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RH SKW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

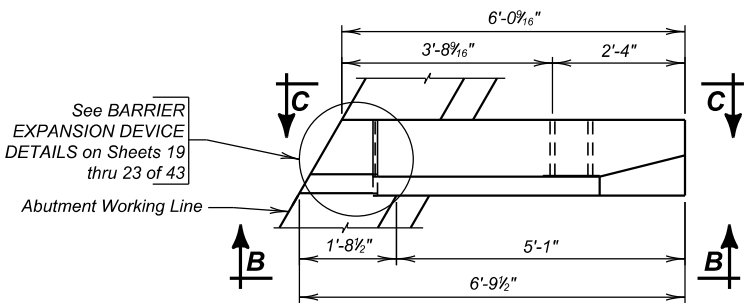
YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

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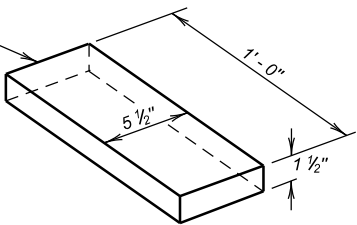
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	57	99

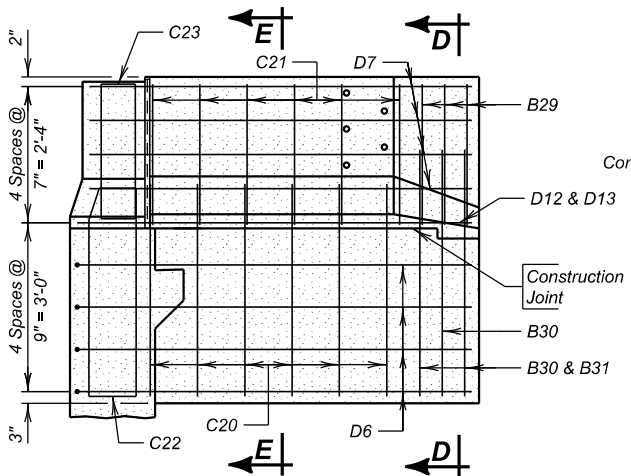


END BLOCK "B" PLAN VIEW
(Expansion Device not shown.)

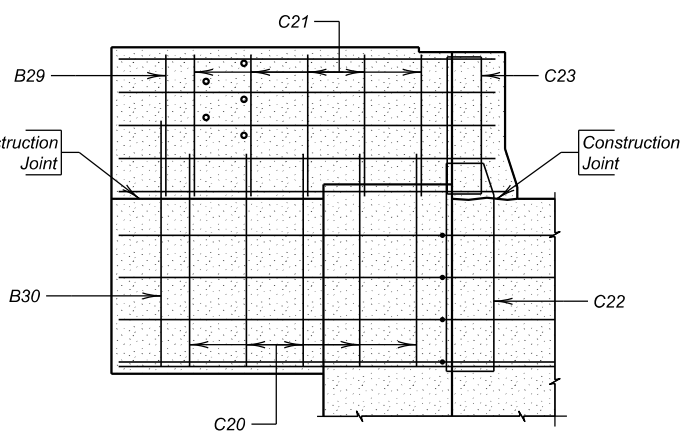
Sides may be beveled slightly to facilitate form removal.



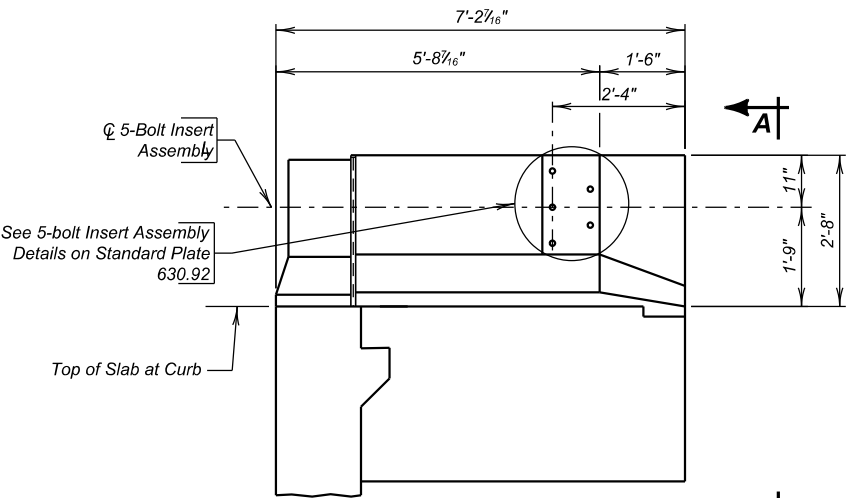
RECESS DETAIL



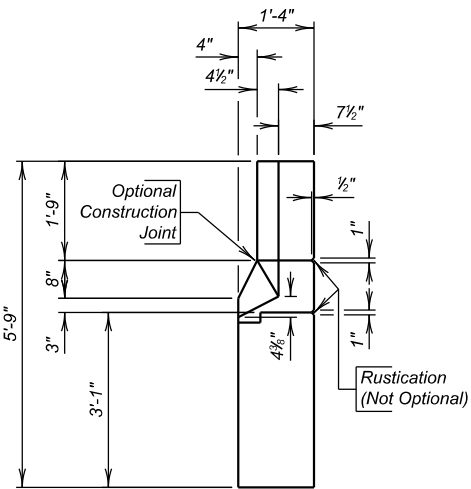
SEC. B - B



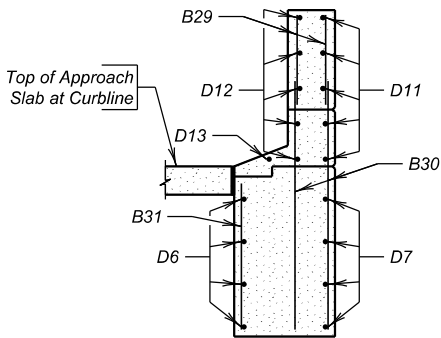
SEC. C - C



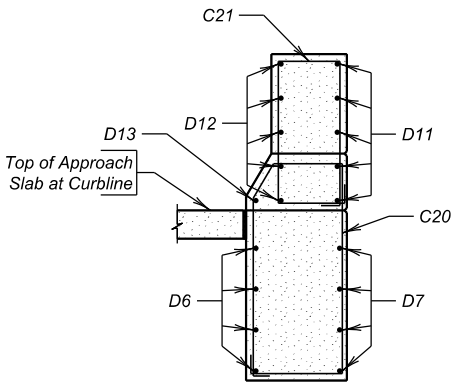
ELEVATION



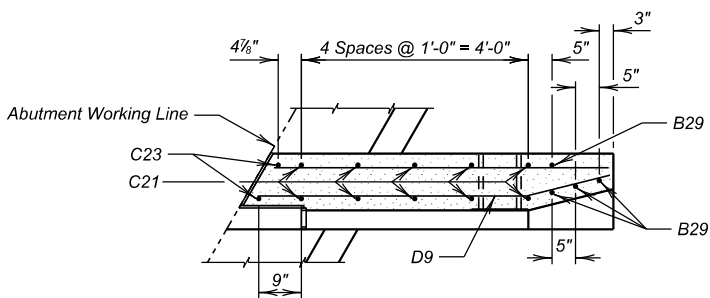
VIEW A - A



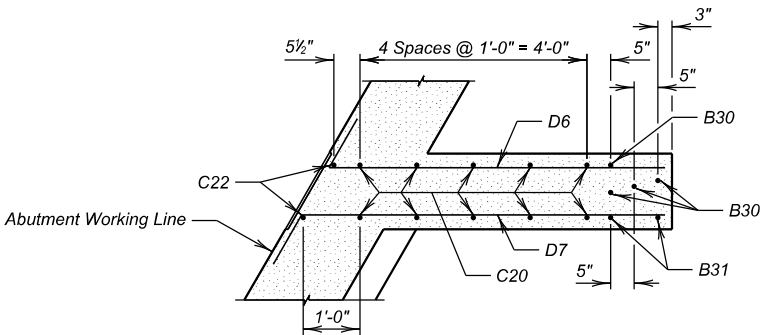
SEC. D - D



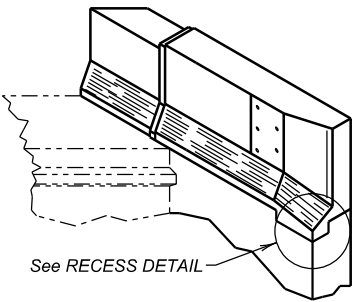
SEC. E - E



SEC. F - F



SEC. G - G



ISOMETRIC VIEW



END BLOCK "B" DETAILS
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	58	99



Diagram illustrating the cross-section (SEC. A - A) of a bridge deck, showing reinforcement details and dimensions.

Dimensions:

- Overall width: 9'-0"
- Side width: 1'-1 1/2"
- Central width: 4'-0"
- Reinforcement spacing: 2 - G3 - 9 Spaces @ 12" = 9'-0"

Reinforcement Details:

- 2 - G3 - 1 Sp. @ 4 1/2" = 4 1/2"
- 2 - G3 - 1 Sp. @ 12" = 12"
- 2 - G3 - 5 Sp. @ 6" = 2'-6"
- 2 - G3 - 7 Sp. @ 6" = 3'-6"

Labels:

- Sym. Abt.
- Bent
- Roadway
- F5
- F2
- F9
- 5 - F8
- 2 - G3 (TYP.)
- (Bottom Steel)
- (Top Steel)
- SEC. A - A

SEC. A - A



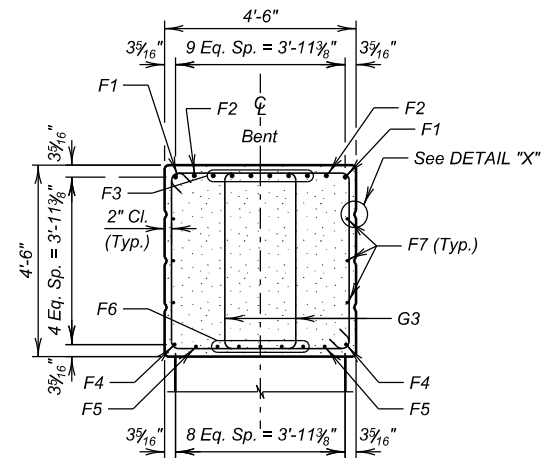
Bent No.	Elev. "A"	Elev. "B"	Elev. "G1"	Elev. "G2"	Elev. "G3"	Elev. "G4"
2	1187.64	1153.89	1187.75	1187.91	1187.90	1187.72
3	1187.36	1150.48	1187.47	1187.63	1187.62	1187.44
4	1187.08	1165.08	1187.20	1187.36	1187.35	1187.17

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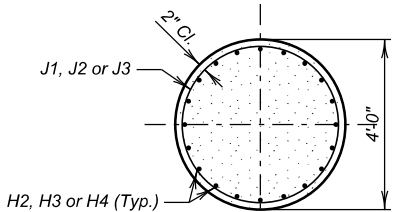
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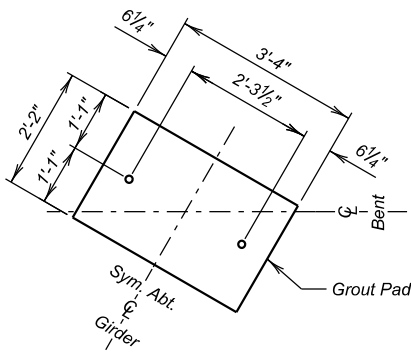
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	59	99



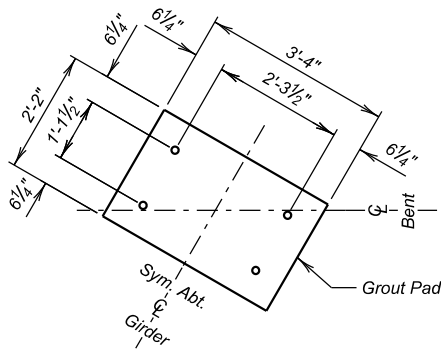
SEC. B - B



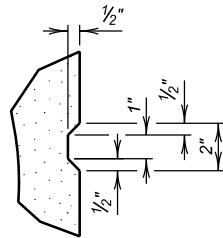
SEC. C - C



DETAIL "Z"
(Bents No's. 2 & 4 shown)



DETAIL "Z"
(Bent No. 3 shown)



DETAIL "X"



REINFORCING SCHEDULE (For One Bent, Except h and j Bars)				
Mk.	No.	Size	Length	Type
F1	2	11	33' - 4"	1
F2	2	11	35' - 8"	1
F3	6	11	36' - 7"	1
F4	2	9	30' - 6"	Str.
F5	2	9	33' - 0"	Str.
F6	5	9	33' - 10"	Str.
F7	6	4	30' - 6"	Str.
F8	10	5	14' - 7"	S11
F9	4	5	12' - 4"	17
G3	84	5	15' - 7"	T1
H1	40	11	12' - 2"	17A
H2	40	11	29' - 9"	1
H3	40	11	32' - 10"	1
H4	40	11	18' - 0"	1
J1	2	4	639' - 11"	Spiral
J2	2	4	700' - 6"	Spiral
J3	2	4	357' - 6"	Spiral
K1	68	9	11' - 8"	Str.
K2	52	6	11' - 8"	Str.

28' - 2"

31' - 3"

16' - 5"

30' - 6"

32' - 10"

33' - 9"

Type 1

4' - 4"

Type 17

4' - 0"

4' - 2"

(Exact)

Type T1

G3

3' - 2"

10' - 2"

H1

Type 17A

4' - 0"

F8

Type S11

4' - 2"

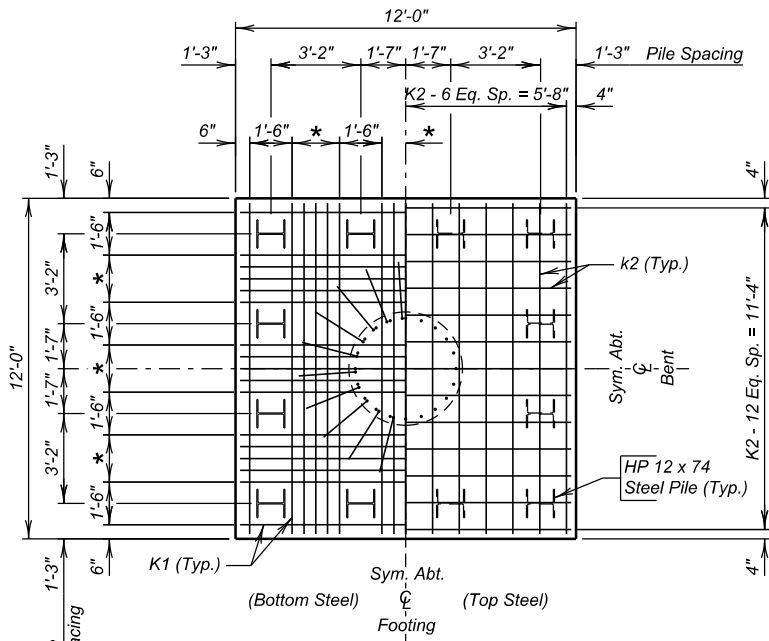
Spiral

3' - 8"

2' - 0"

NOTES:
All dimensions are out to out of bars.
Spirals - Use 6" pitch and 1 1/2 extra turns at each end. Use 1 1/2 turns for lap at splice as required, or weld as approved by the Engineer
Use 3 vertical spacer bars per column. Spirals may be smooth bars.
Bar length shown doesn't not include splices.
Spiral J1 is at Bent 2; Spiral J2 is at Bent 3 and Spiral J3 is at Bent 4.
Bars H2, H3 and H4 are at Bent 2, Bent 3 and Bent 4 respectively.

NOTE:
This sheet is to be used in conjunction with the sheet 13 of 43.



SEC. D - D

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Bent No. 2		
Class A45 Concrete, Bridge	Cu. Yd.	94.1
Reinforcing Steel	Lb.	17970
Structure Excavation, Bridge	Cu. Yd.	417.1
HP 12 X 74 Steel Test Pile, Furnish & Drive	Ft.	1 @ 110' = 110'
HP 12 X 74 Steel Bearing Pile, Furnish & Drive	Ft.	23 @ 105' = 2415'
Bent No. 3		
Class A45 Concrete, Bridge	Cu. Yd.	97.1
Reinforcing Steel	Lb.	18706
Structure Excavation, Bridge	Cu. Yd.	357.5
HP 12 X 74 Steel Test Pile, Furnish & Drive	Ft.	1 @ 105' = 105'
HP 12 X 74 Steel Bearing Pile, Furnish & Drive	Ft.	23 @ 100' = 2300'
Bent No. 4		
Class A45 Concrete, Bridge	Cu. Yd.	83.2
Reinforcing Steel	Lb.	15095
Structure Excavation, Bridge	Cu. Yd.	198.6
HP 12 X 74 Steel Test Pile, Furnish & Drive	Ft.	1 @ 120' = 120'
HP 12 X 74 Steel Bearing Pile, Furnish & Drive	Ft.	23 @ 115' = 2645'

Includes 0.2 Cu. Yds. for Grout Pads per Bent

BENT DETAILS (B)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY

OVER JAMES RIVER

STA. 7 + 43.79 to 12 + 40.21

STR. NO. 68-030-018

30° RHF SKEW

SEC. 9/10-T96N-R57W

BRF-B 6213(15)

HL-93

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

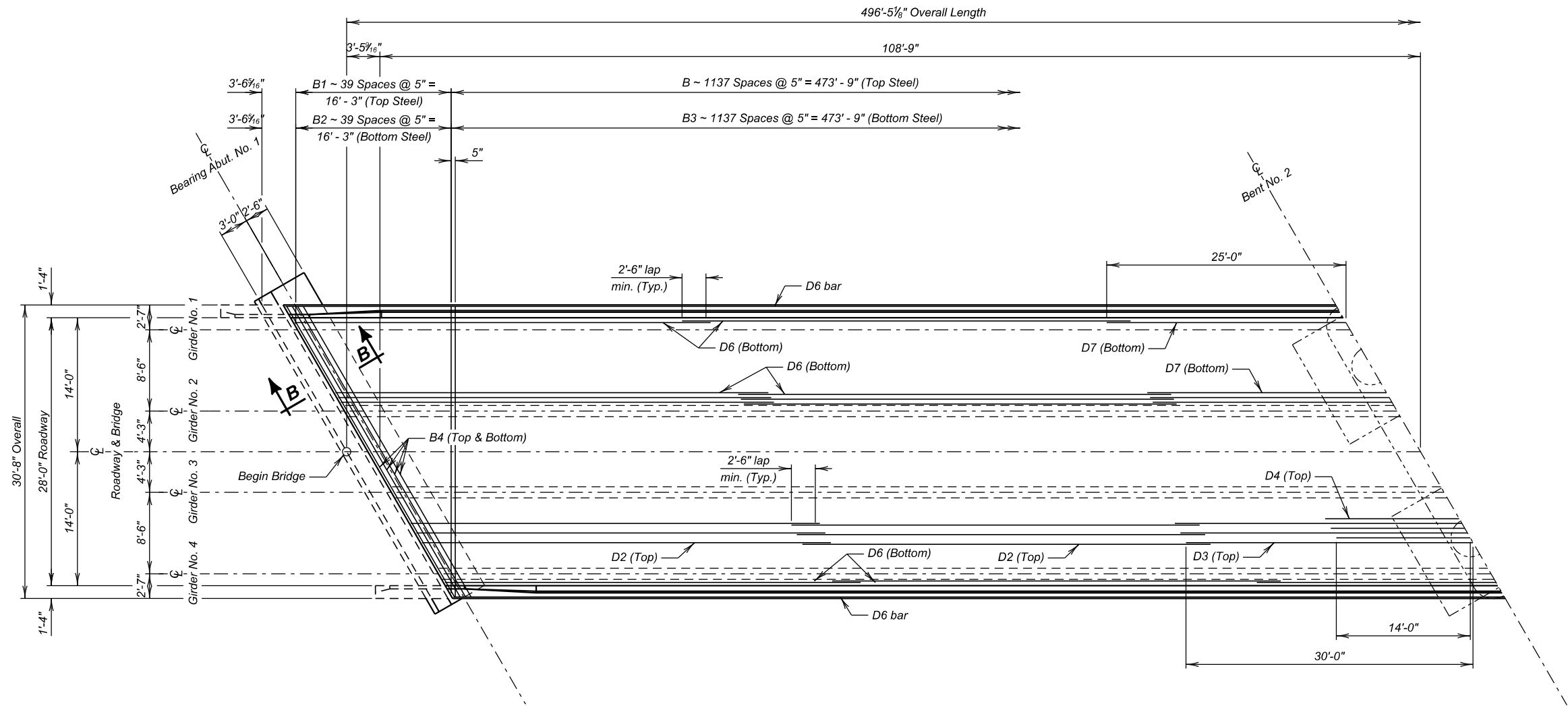
MAY 2025

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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	60	99



PLAN

NOTE:
This sheet to be used in conjunction
with Superstructure Details (C).

SUPERSTRUCTURE DETAILS (A)
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2025

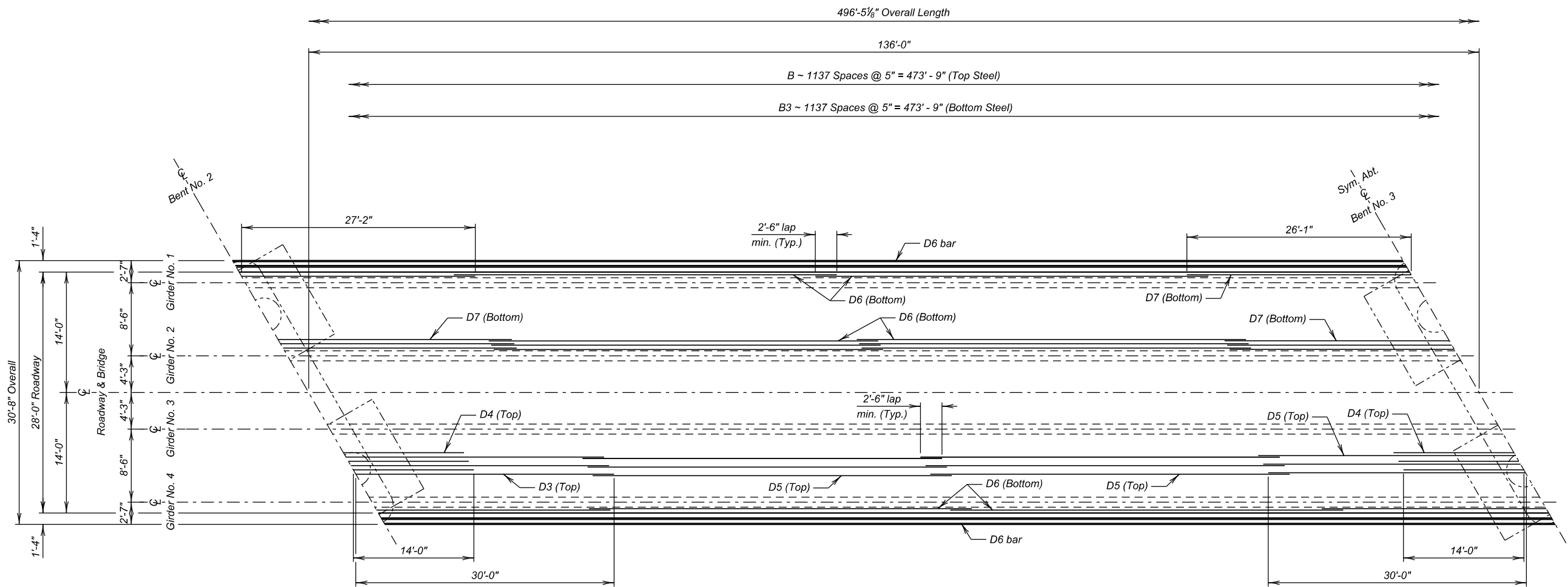
15 OF 43



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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	61	99



PLAN

NOTE:
This sheet to be used in conjunction
with Superstructure Details (C).

SUPERSTRUCTURE DETAILS (B)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2025

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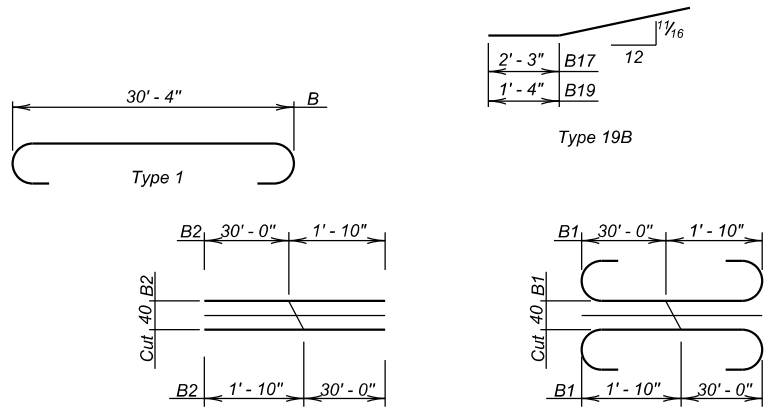
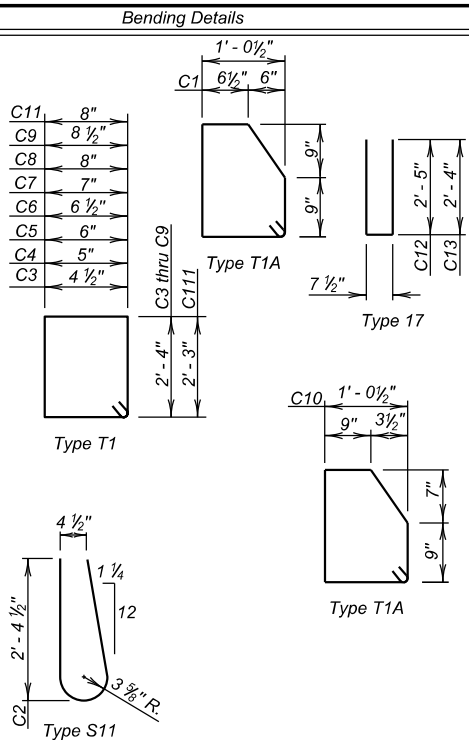
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STATE OF SOUTH DAKOTA	PROJECT BRF-B 6213(15)	SHEET NO. 62	TOTAL SHEETS 99
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REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
B	1138	5	31' - 6"	1
B1	40	5	33' - 0"	1
B2	40	5	31' - 10"	Str.
B3	1138	5	30' - 4"	Str.
B4	16	5	35' - 0"	Str.
B15	6	5	13' - 0"	Str.
B16	22	4	47' - 0"	Str.
B17	6	8	12' - 0"	19B
B18	6	5	12' - 0"	Str.
B19	6	8	11' - 3"	19B
C1	966	5	5' - 10"	T2A
C2	952	5	5' - 1"	S11
C3	4	5	6' - 4"	T1
C4	4	5	6' - 5"	T1
C5	4	5	6' - 7"	T1
C6	4	5	6' - 8"	T1
C7	4	5	6' - 9"	T1
C8	4	5	6' - 11"	T1
C9	4	5	7' - 0"	T1
C10	12	5	5' - 8"	T1A
C11	12	5	6' - 9"	T1
D0	44	5	47' - 0"	Str.
D1	120	5	49' - 10"	Str.
D2	116	5	42' - 8"	Str.
D3	87	5	60' - 0"	Str.
D4	84	5	28' - 0"	Str.
D5	116	5	41' - 9"	Str.
D6	352	5	45' - 3"	Str.
D7	132	5	52' - 2"	Str.

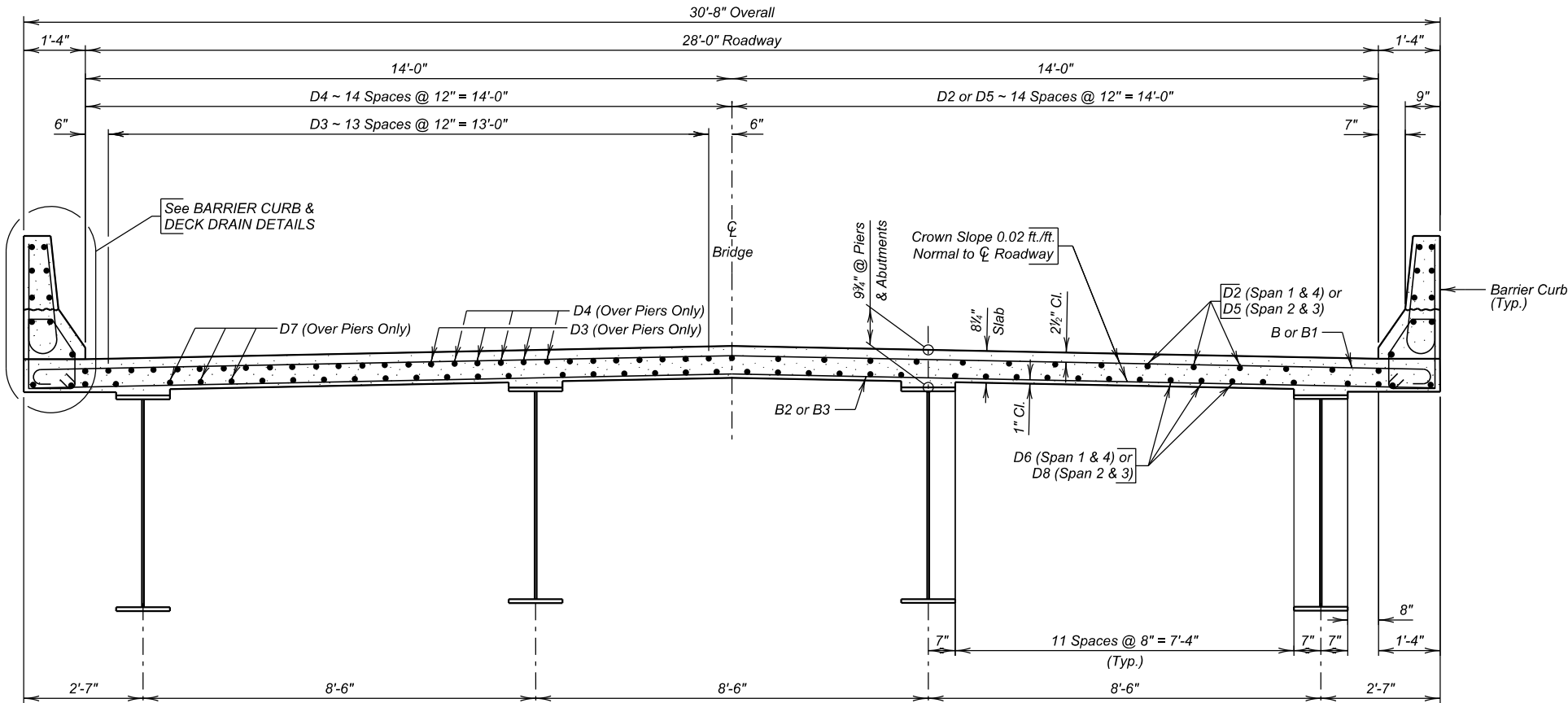


NOTES -
All reinforcing steel will be epoxy coated except as noted.
See Approach Slab sheet for location of Z1 bars.
All dimensions are out to out of bars.
Tip bars as required to maintain top and bottom clear cover.
See cutting diagram.

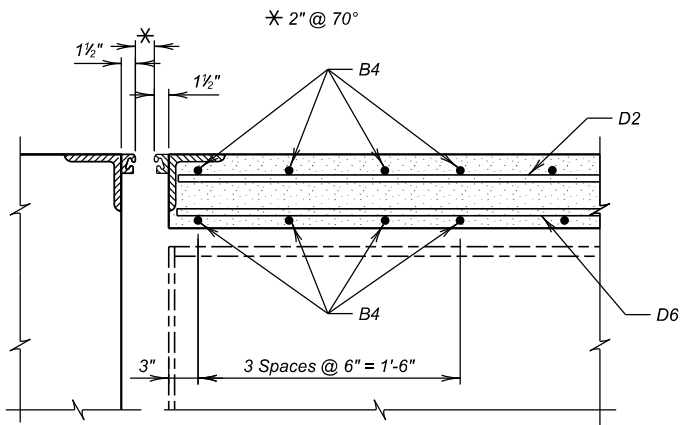
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge Deck	Cu.Yd.	489.2
Epoxy Coated Reinforcing Steel	Lb.	139476
Structural Steel	LS	Lump Sum
Concrete Penetrating Sealer	Sq.Yd.	1544.5
Deck Drain, Girder Bridge	Each	16

Includes quantities for Barrier Curbs and Slab.
Includes quantities for Barrier Curbs, Slab, Haunch, and End Blocks.
(Average depth of 2" used for Haunch Quantity.) Concrete Quantity for Barrier Curbs is 0.0836 Cu.Yd. / Ft. and for End blocks is 1.83 Cu.Yd. each.
For informational purpose only, the estimated weight of the Structural Steel is 478,802 pounds.



SEC. THRU SUPERSTRUCTURE



SEC. B-B
(Reinforcing Steel not shown in Abutment)

NOTE -
See Sheet No. 19 of 43 for Expansion Joint Details.
See Sheet No. 10 of 43 for Abutment Reinforcement Details.



SUPERSTRUCTURE DETAILS (C)

FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RH SKW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2025

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DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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GENERAL NOTES:

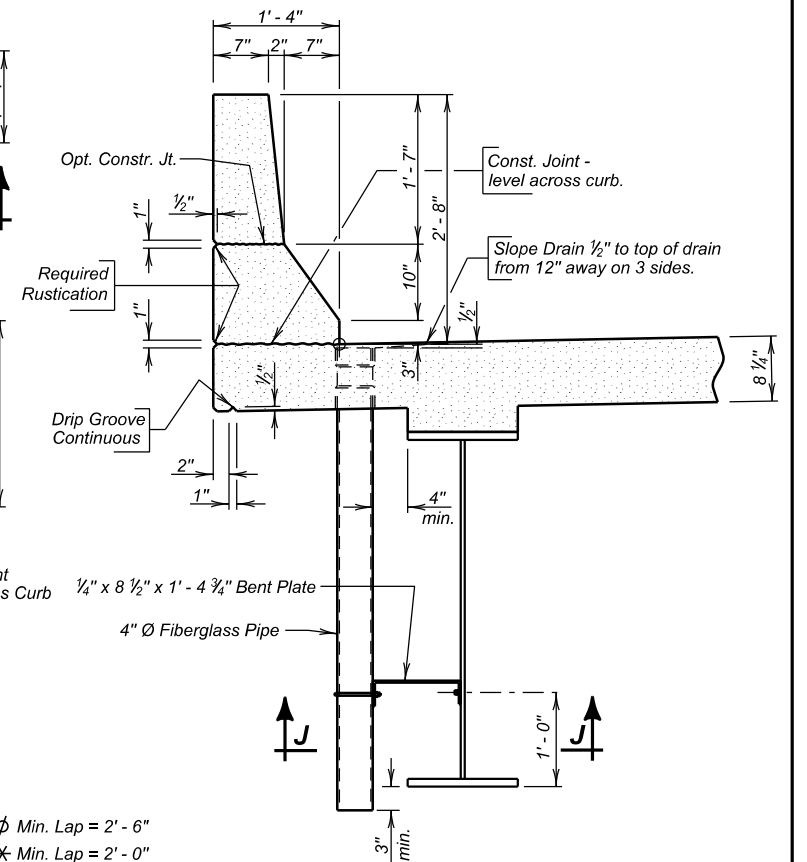
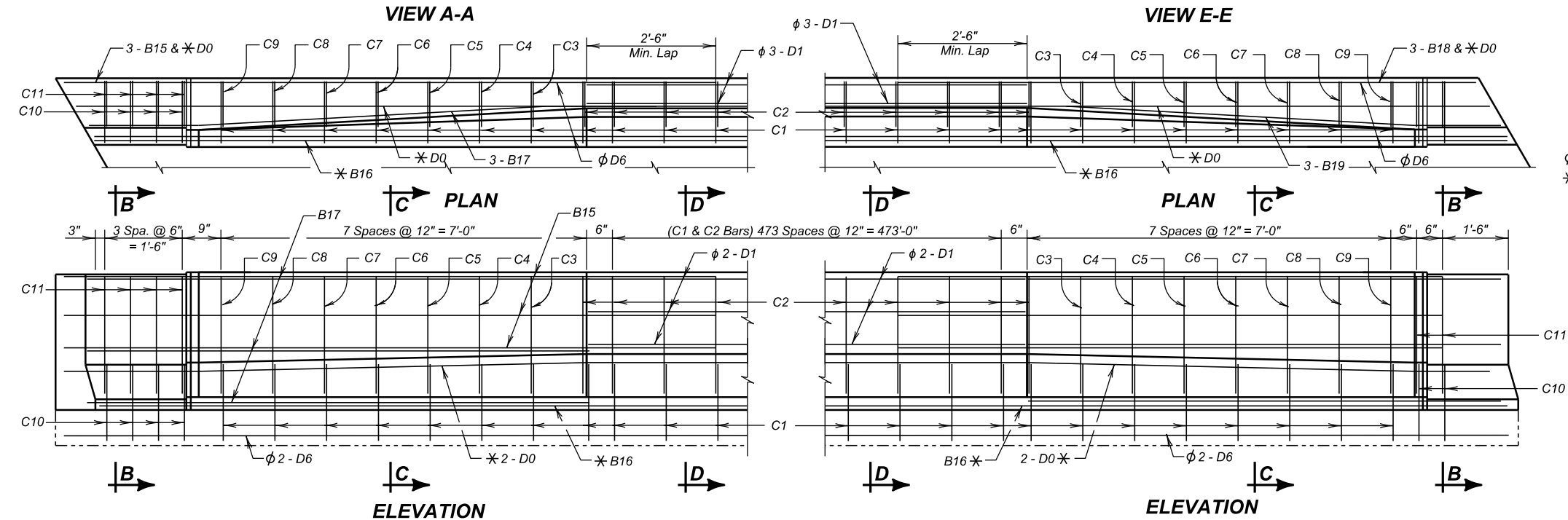
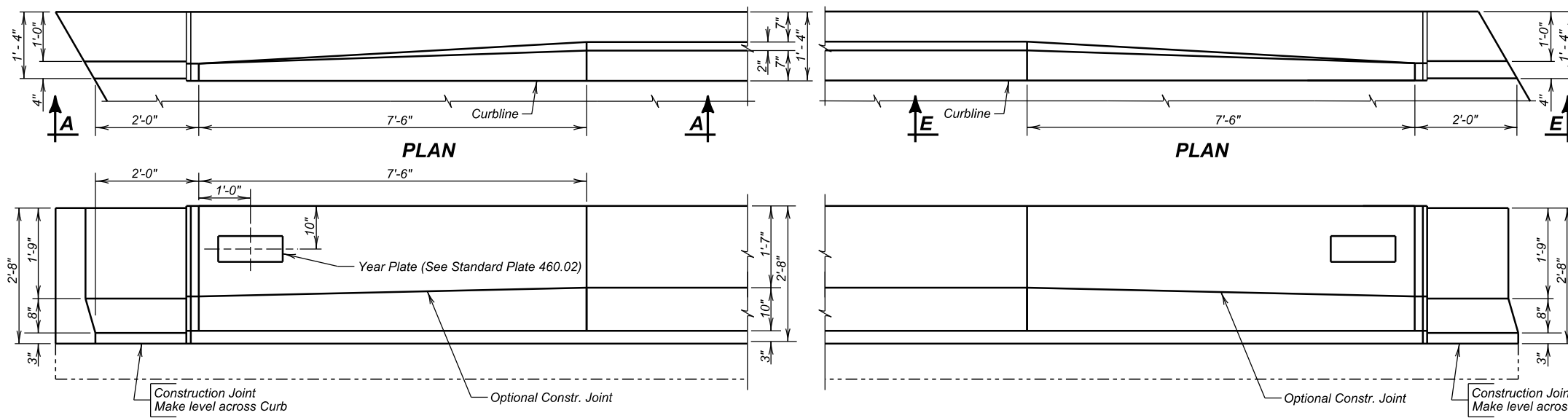
1. Use 1 1/2" Clear Cover on all bars except as shown.
2. Reinforcing Steel will conform to ASTM - A615, Grade 60

NOTES:

For listing of rebars See Reinforcing
Schedule Sheet No. 17 of 43.

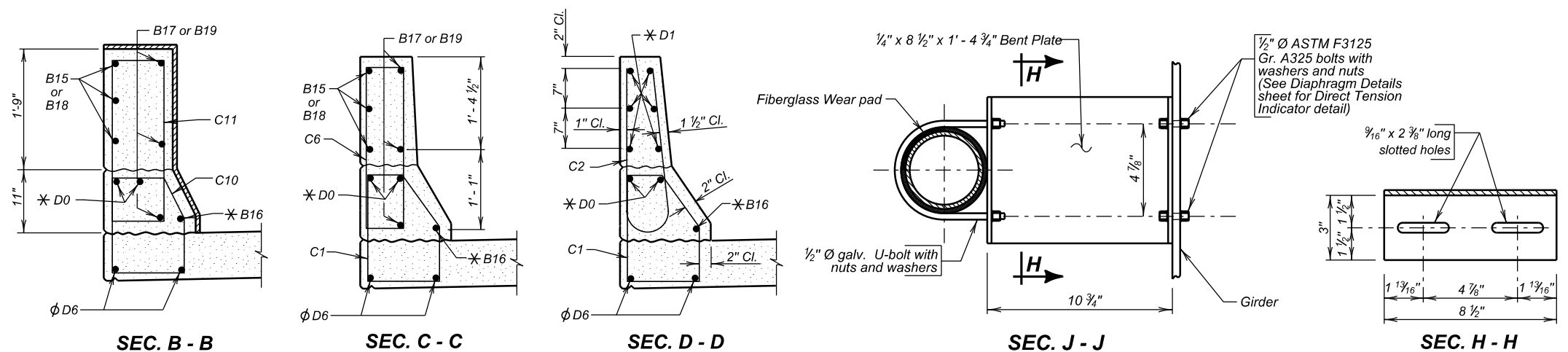
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	63	99



BARRIER & DECK DRAIN DETAILS

NOTE: The connection between the drop tube and web of girder will be made prior to the placing of the deck slab. See General Drawing for spacing of deck drains and note sheets for notes regarding deck drains.



BARRIER CURB & DECK DRAIN DETAILS

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RH SKW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2025

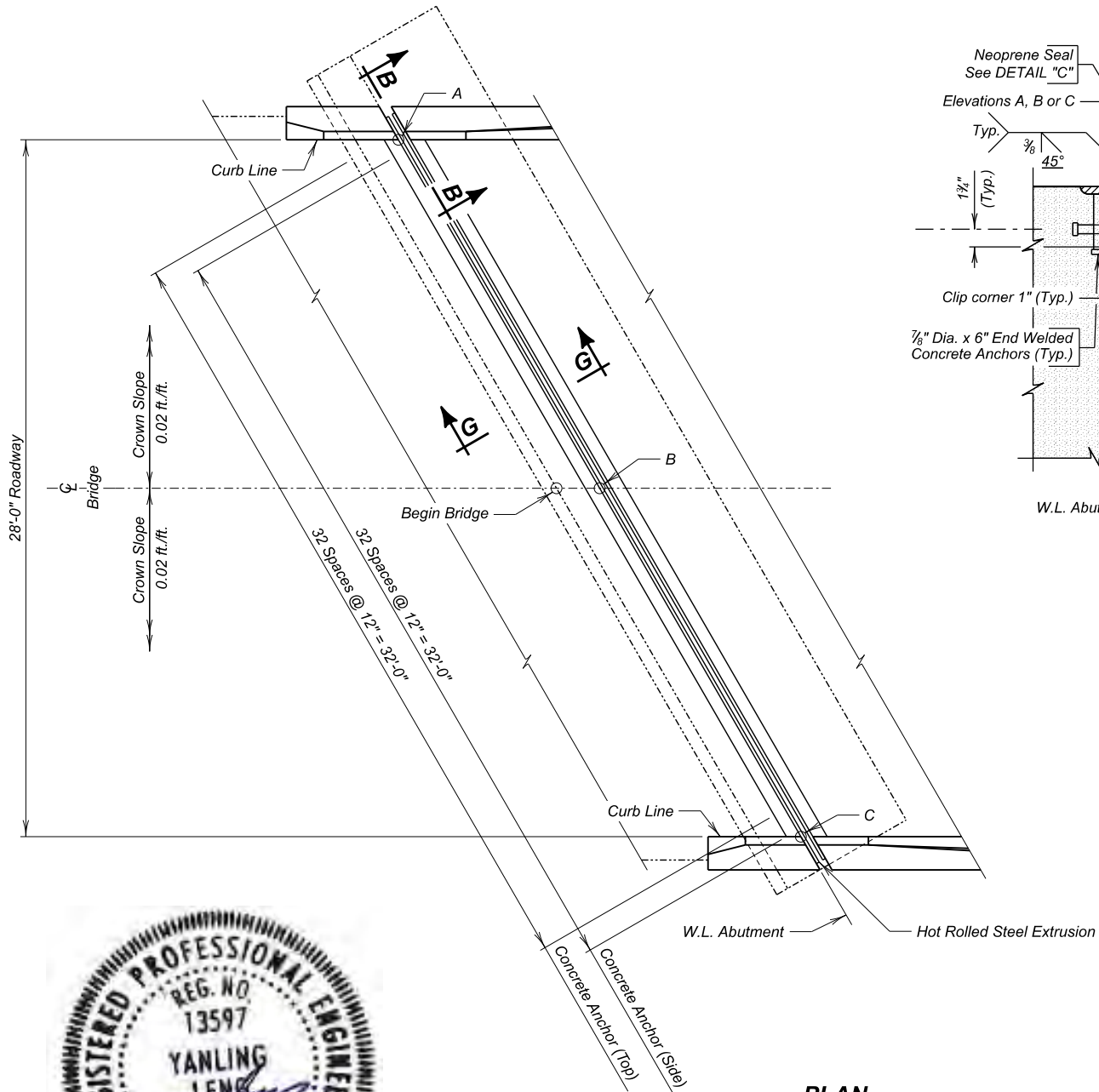
18 OF 43

DESIGNED BY	CK. DES. BY	DRAFTED BY	BRIDGE ENGINEER
YL	BS	EAN	

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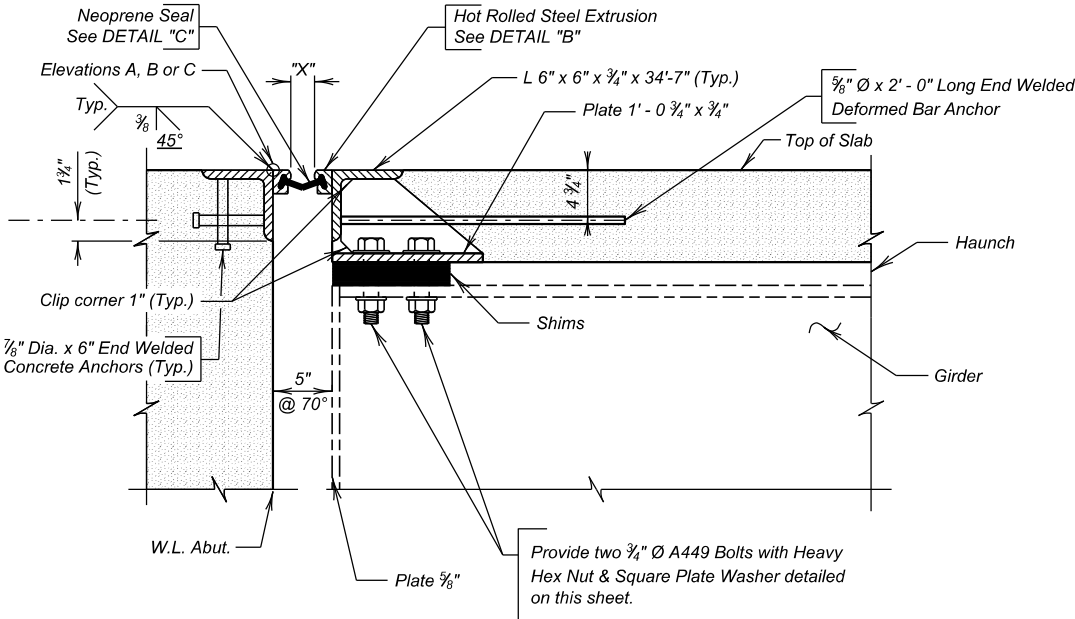
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	64	99

Revised 10/07/2025 JMP



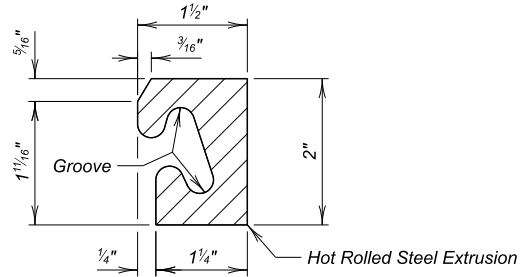
PLAN

(Deck Expansion Device - Abut. No. 1 shown
Abut. No. 5 similar by rotation)



SEC. G - G

Temp.	Dimension "X"
30°	3"
40°	2 3/4"
50°	2 1/2"
60°	2 1/4"
70°	2"
80°	1 3/4"
90°	1 1/2"



DETAIL "B"
HOT ROLLED STEEL EXTRUSION



DETAIL "C"
PREFORMED NEOPRENE SEAL

Note:
Neoprene Seal will have a 4" Movement Capacity.

ESTIMATED QUANTITIES (For Two Abutments)		
ITEM	UNIT	QUANTITY
Strip Seal Expansion Joint	L.F.	69.0

For information purposes the weight of structural steel in the expansion device at both abutments and the cover plated barrier curbs at all four corners is 8,302 Lbs.

Note:
Use this sheet in conjunction with Sheets No. 20 thru 23 of 43.

EXPANSION DEVICE DETAILS

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.22
STR. NO. 68-030-018

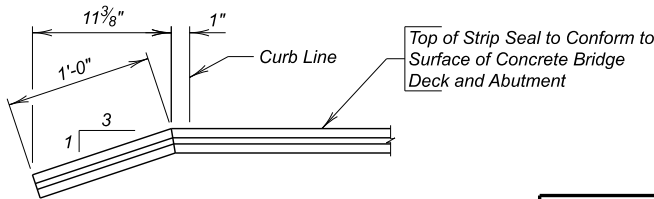
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

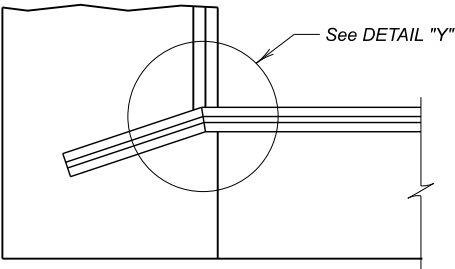
OCTOBER 2025

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DETAIL "Y"

TABLE OF ELEVATIONS			
Point	Elev. "A"	Elev. "B"	Elev. "C"
Begin Bridge	1193.42	1193.69	1193.39
End Bridge	1192.42	1192.69	1192.39

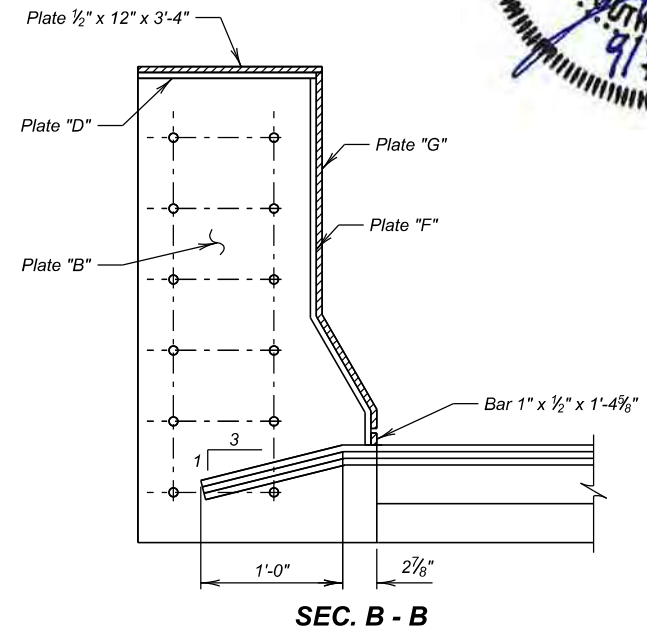
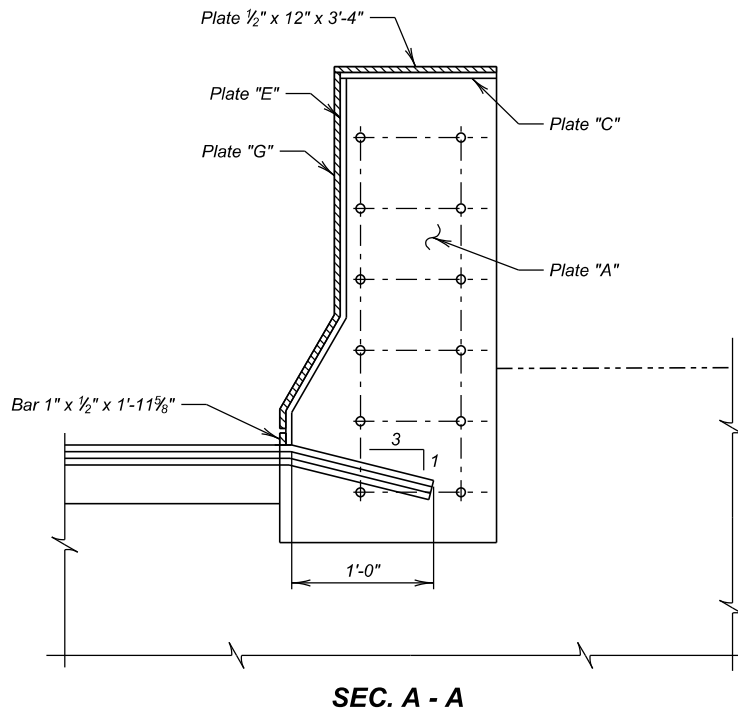
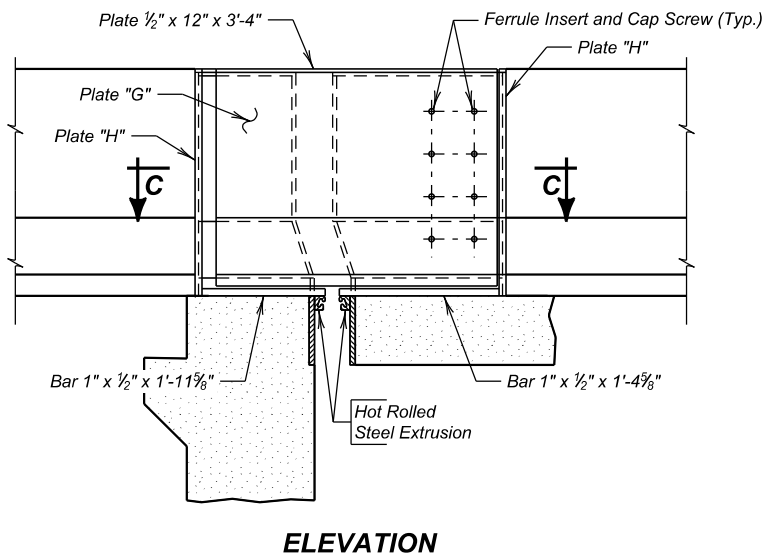
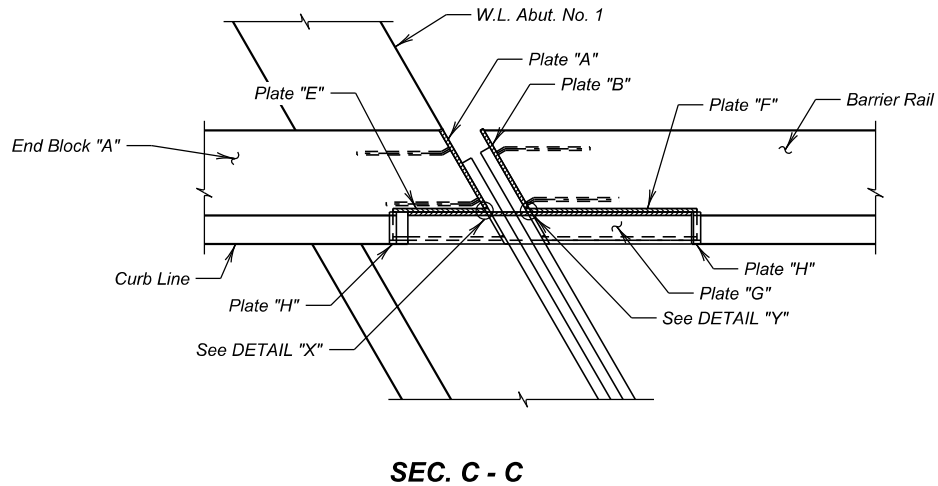
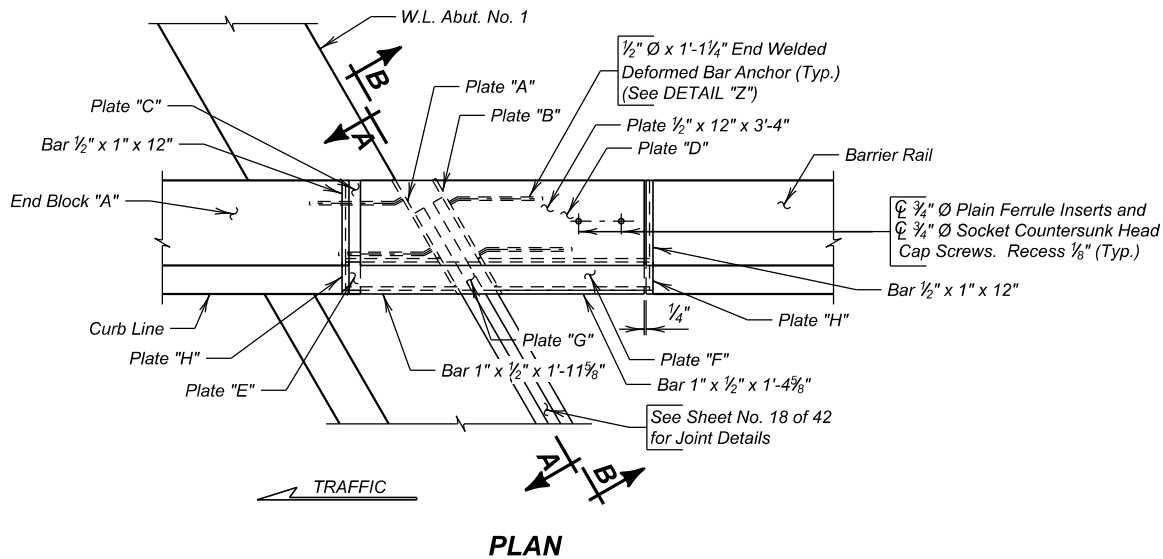


VIEW B - B

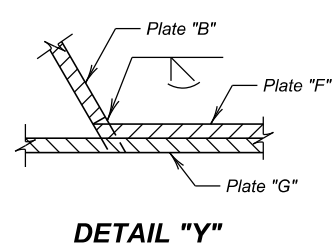
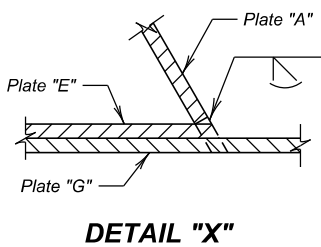
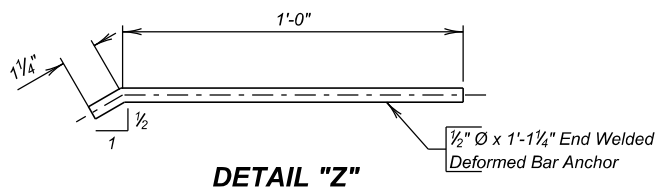
DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF-B 6213(15)	SHEET NO. 65	TOTAL SHEETS 99
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NOTE:
Use this sheet in conjunction with Sheet No. 22 of 43.



BARRIER EXPANSION DEVICE "A"
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

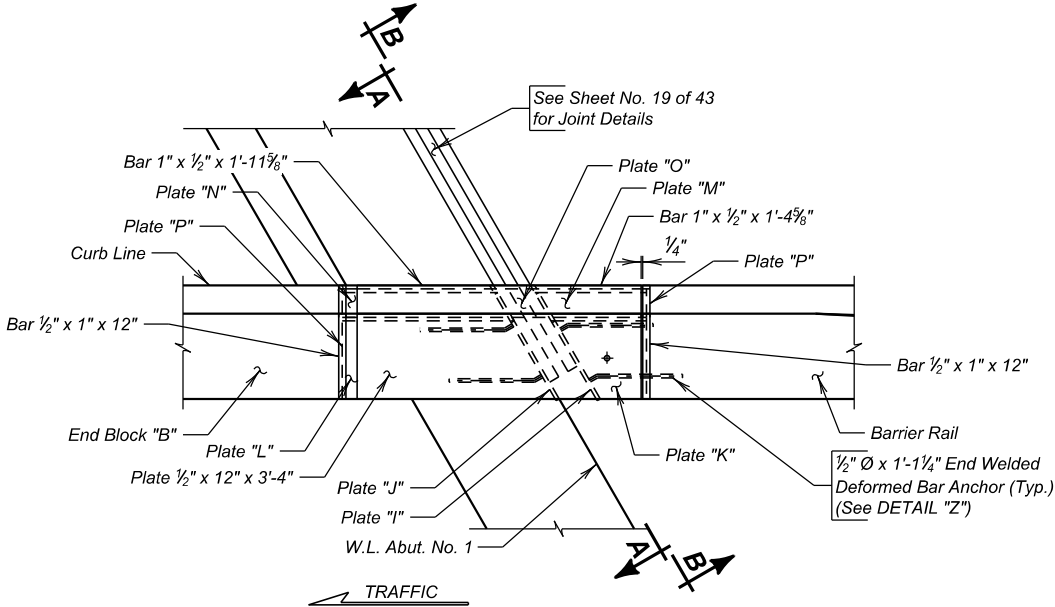
YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

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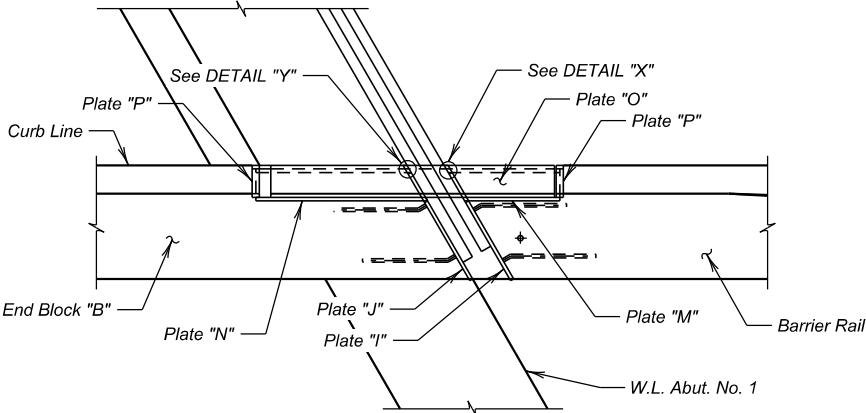
DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

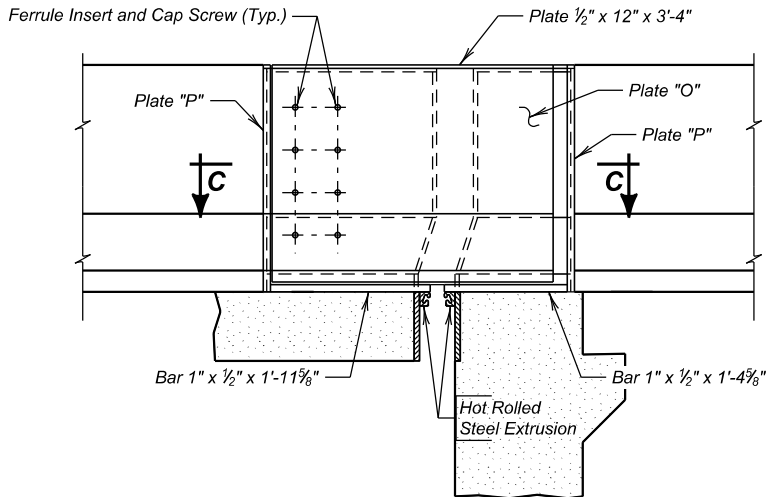
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	66	99



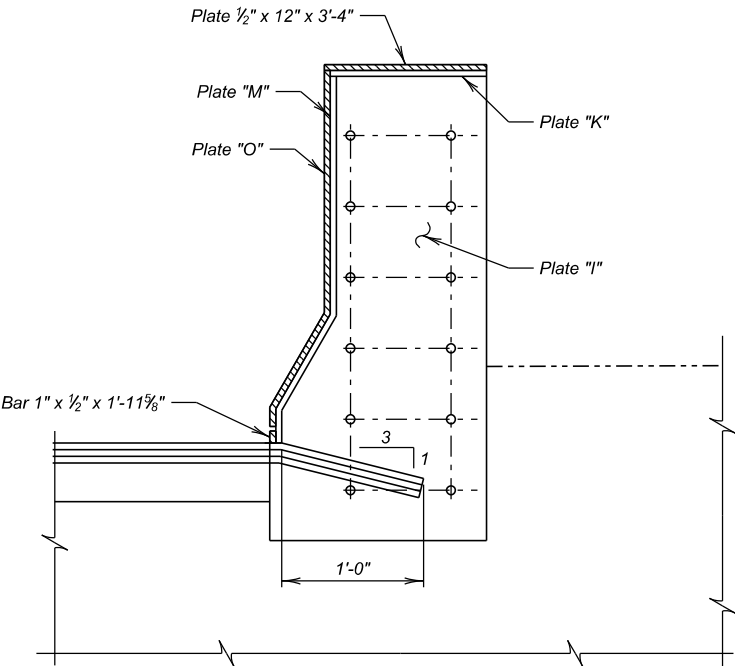
PLAN



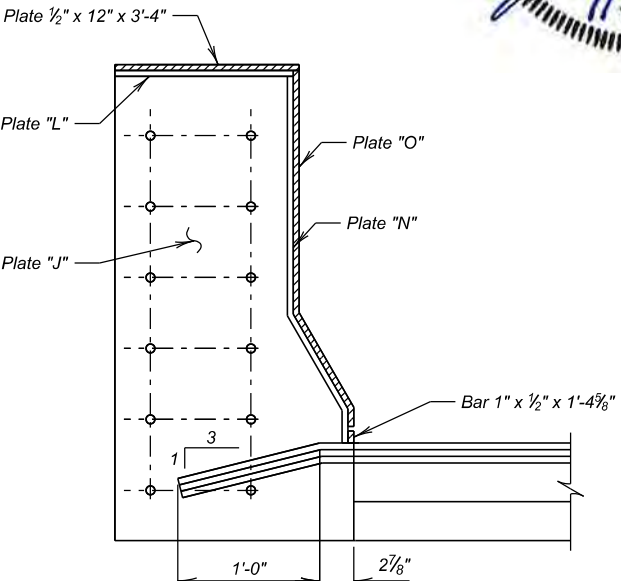
SEC. C - C



ELEVATION



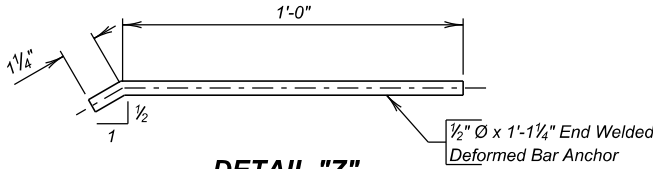
SEC. A - A



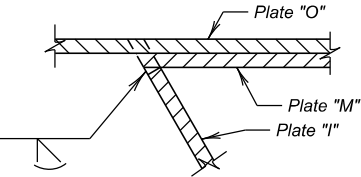
SEC. B - B



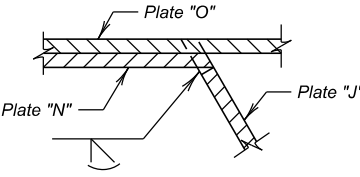
NOTE:
Use this sheet in conjunction with Sheet No. 23 of 43.



DETAIL "Z"



DETAIL "X"



DETAIL "Y"

BARRIER EXPANSION DEVICE "B"
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	67	99



Use this sheet in conjunction with Sheet No. 20 of 43.

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

(22) OF (43)

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	
			BRIDGE ENGINEER

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	68	99



SEC. A - A



Use this sheet in conjunction with Sheet No. 21 of 43.



SEC. B - B



SEC. C - C

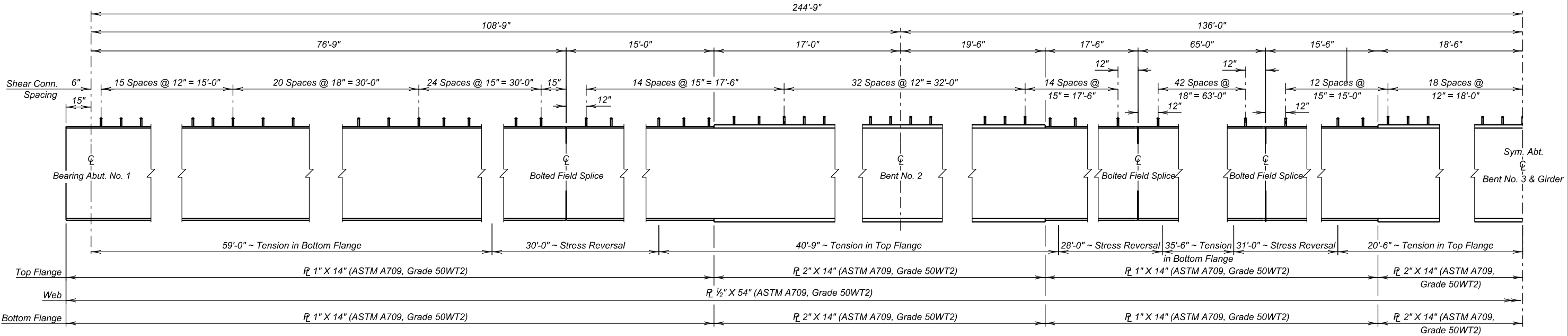


VIEW D - D

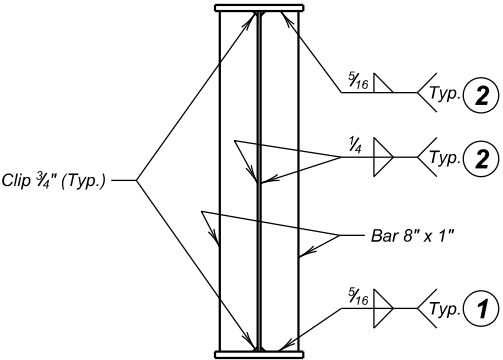
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

(23) OF (43)

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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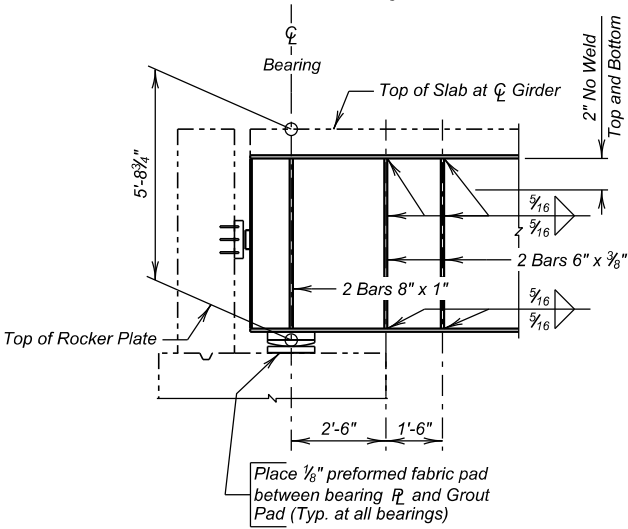
GIRDER LAYOUT



BEARING STIFFENER DETAIL

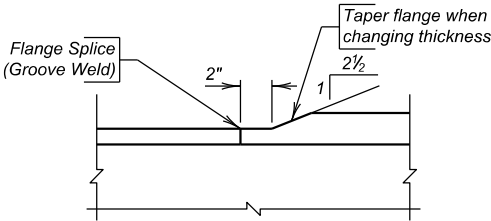
(At $\varnothing$ Bearing)

① NOTE: All fillet welds attaching diaphragm or bearing stiffeners to girder flanges, will terminate 1/2" from edge of stiffener, edge of flange, or clip as appropriate. Weld size to be as indicated in the table of Flange to Web Welds



TYPICAL SECTION AT ABUTMENTS

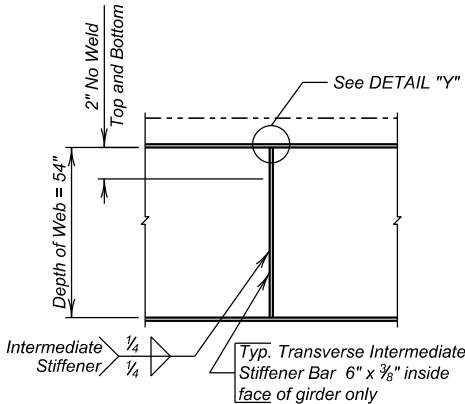
(Strip Seal not shown)



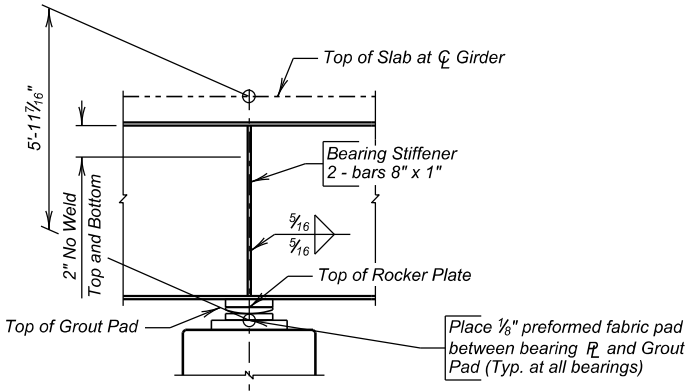
TYPICAL SECTION AT SHOP SPLICE

② NOTE: All fillet welds will terminate 1/2" from edge of stiffener, edge of flange, or clip as appropriate, except weld from clip to edge of stiffener at top flange.

FLANGE TO WEB WELDS	
Flange Thickness	Fillet Welds
1"	5/16"
2"	3/4"

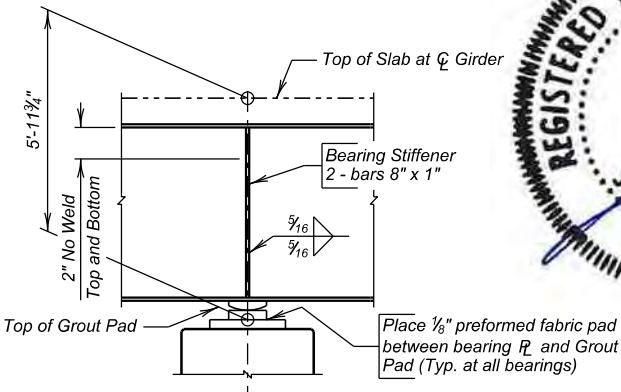


TYPICAL SECTION AT INTERMEDIATE STIFFENER



TYPICAL SECTION AT EXPANSION BENT

(Diaphragm not shown)



TYPICAL SECTION AT FIXED BENT

(Diaphragm not shown)

- NOTES:
1. See BOLTED FIELD SPLICE & DIAPHRAGM DETAILS Sheet for Diaphragm Details.
 2. See FRAMING DIAGRAM, CAMBER, AND ERECTION DATA Sheet for spacing of Diaphragms, Stiffeners, and Girder Camber.
 3. All dimensions shown are horizontal or vertical.
 4. All Stiffeners and Girder Ends will be made normal to flanges, except bearing stiffeners at bents & abutments will be vertical.
 5. Stiffeners to have tight fit top and bottom.
 6. Dimensions shown are for steel temperature of 45° F.
 7. See BARRIER CURB AND DECK DRAIN DETAILS Sheet for Deck Drain Details.
 8. See BEARING DETAILS Sheet for End Plate.
 9. See BUMPER DETAILS Sheet for Bumper Details.



GIRDER LAYOUT & DETAILS (A)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RH SKW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY

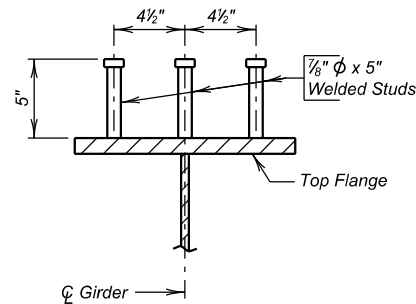
S. D. DEPT. OF TRANSPORTATION

MAY 2025

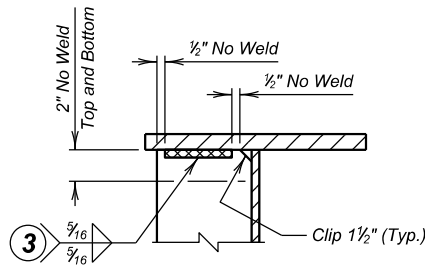
24 OF 43

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	70	99

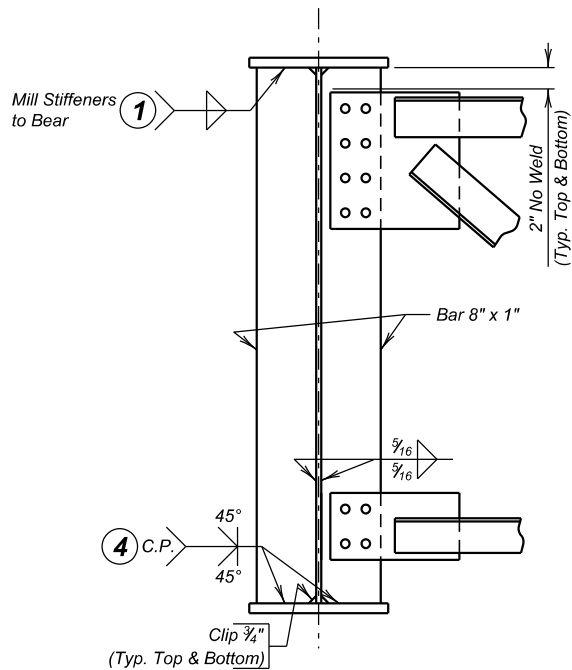


SHEAR CONNECTOR DETAIL
Welded Shear Stud Connectors are spaced as shown on Girder Layout. Payment for Field Installing Shear Connectors will be included in the Lump Sum bid for Structural Steel. 1,170 Shear Connectors per Girder.



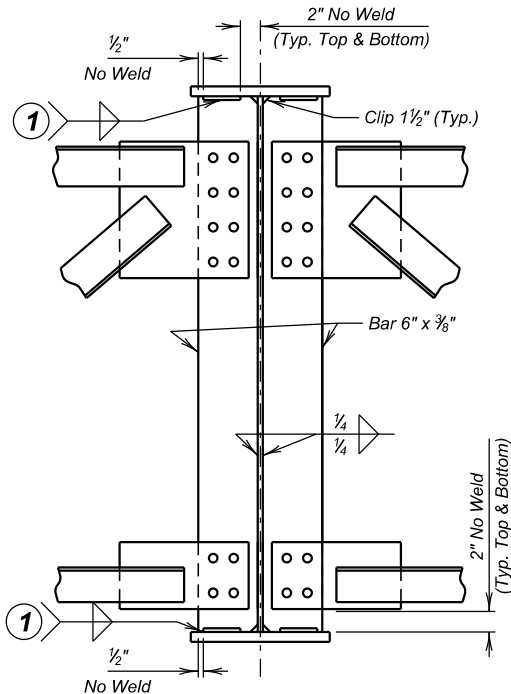
DETAIL Y

3 Transverse Intermediate Stiffener will be welded to the compression flange as shown in DETAIL "Y". In zones of stress reversal the Transverse Intermediate Stiffener will not be attached to either flange. Ends of Stiffeners not welded will fit tight.



DETAIL OF STIFFENERS AT BEARINGS
(Exterior Girder shown)

4 Alternately, Mill Stiffeners to Bear & use 5/16" Fillet Weld, same as at Top Flange.



DETAIL OF STIFFENERS AT INTERMEDIATE DIAPHRAGMS
(Interior Girder shown)



GIRDER LAYOUT & DETAILS (B)
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

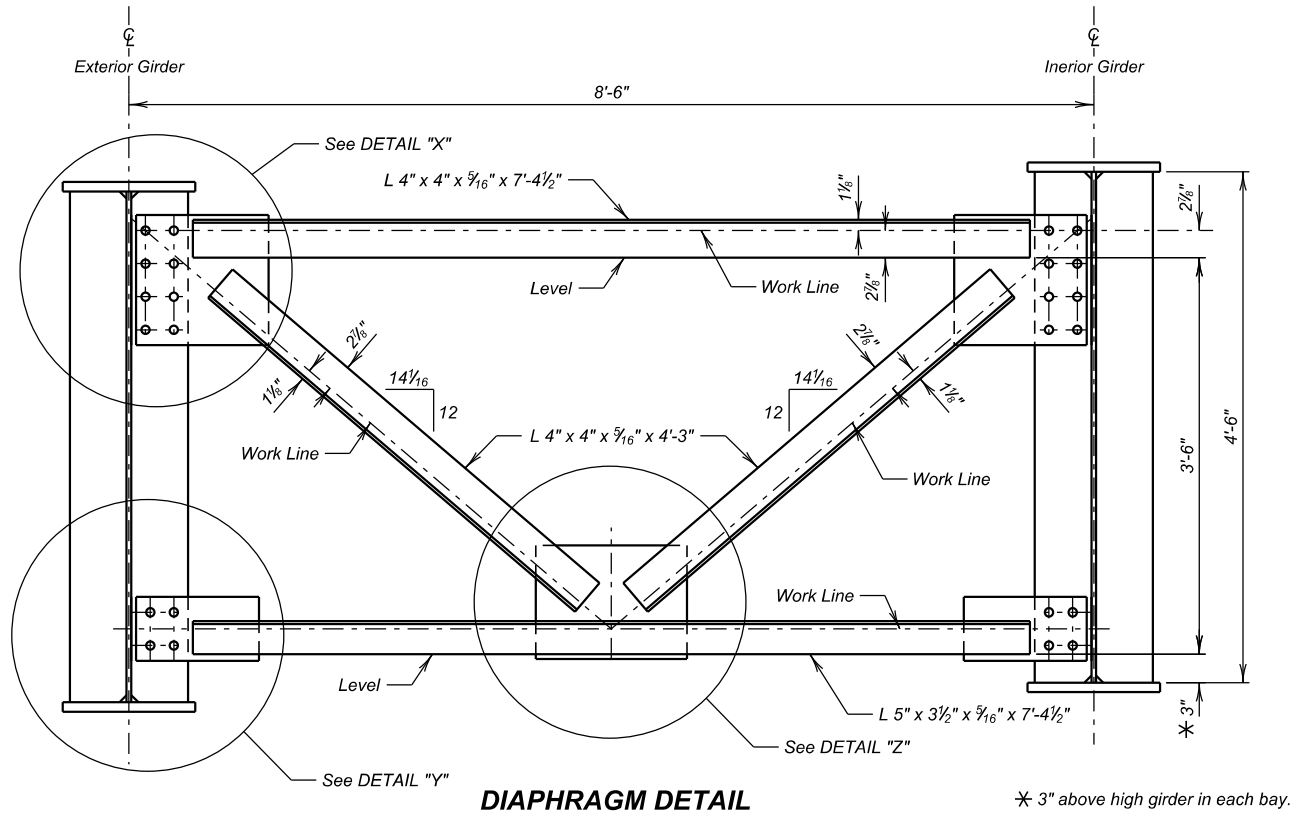
YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

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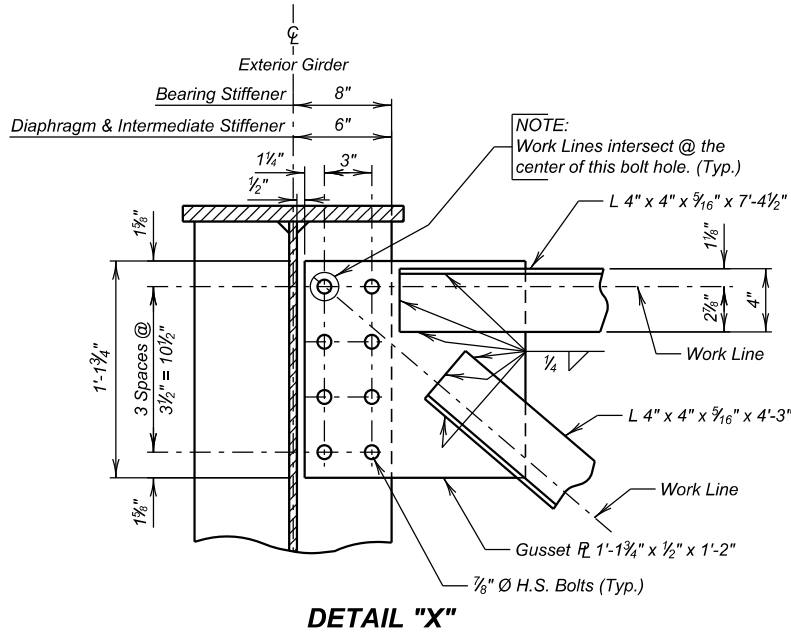
DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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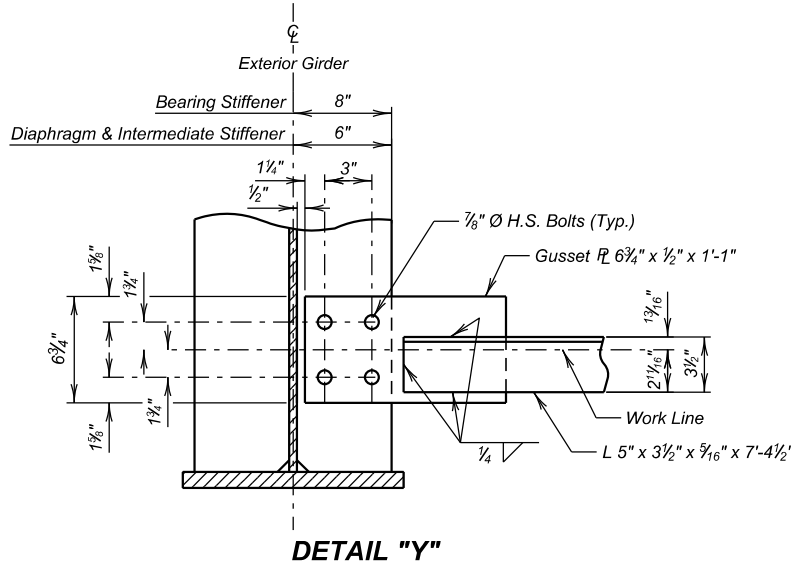
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	71	99



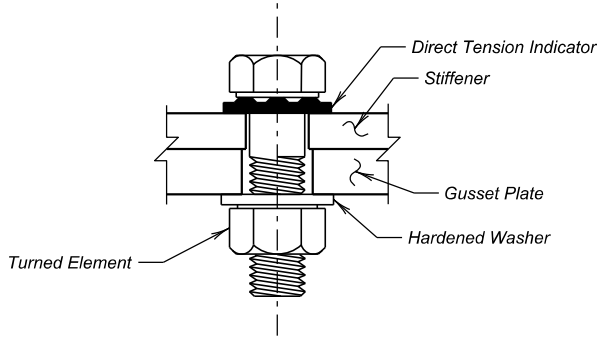
DIAPHRAGM DETAIL
(Weight of One Unit = 305 lbs.)



DETAIL "X"



DETAIL "Y"

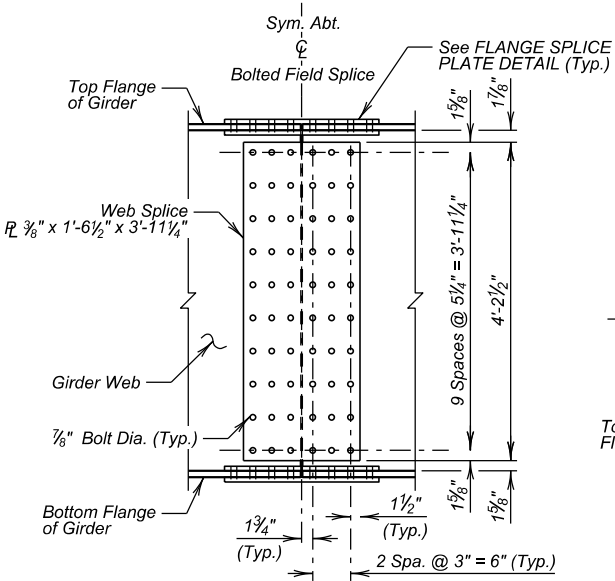


**DIRECT TENSION INDICATOR
DETAIL**

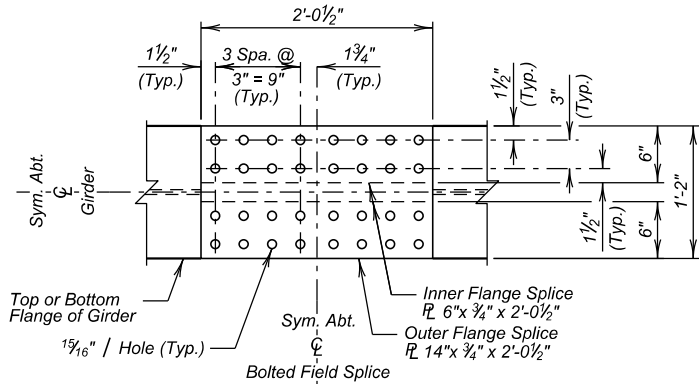


GENERAL NOTES:

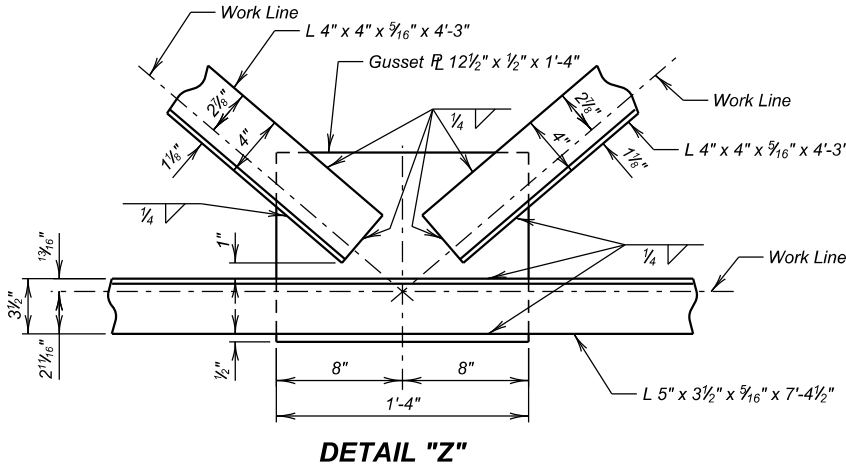
- The Steel Diaphragms are included in the quantity for Structural Steel.
- Use 1/16" Ø bolt holes in the 1/2" gusset plates. Use 5/16" Ø bolt holes in the stiffener plates.
- Install bolt heads on the side of the connection with the 1/16" Ø bolt holes. Install direct tension indicators under the bolt heads.
- The 7/8" High Strength bolts, nuts, and washers will conform to ASTM F3125 Grade A325. The bolts will be the heavy hexagon head structural type with heavy semi-finished hexagon nut and hardened washer.
- Terminate all welds 1/2" from the edges of the gusset plates.



WEB SPLICE PLATE DETAIL



FLANGE SPLICE PLATE DETAIL



DETAIL "Z"

**BOLTED FIELD SPLICE & DIAPHRAGM DETAILS
FOR**

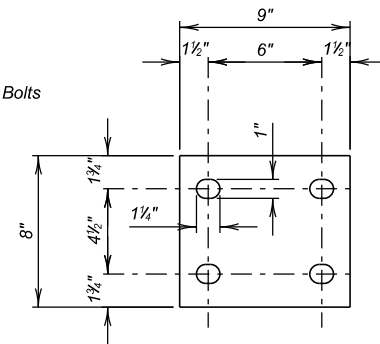
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

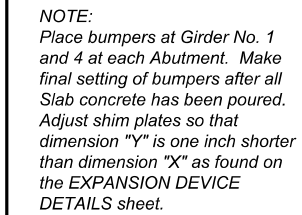
YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
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DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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SHIM PLATE



<i>Temp.</i>	<i>Dimension "Y"</i>
30°	3⅞"
40°	2⅞"
50°	2⅞"
60°	2⅞"
70°	2⅞"
80°	1⅞"
90°	1⅞"
100°	1⅞"

Provide the following shims at each bumper:

- 1 - $\frac{1}{2}$ " Thick
- 1 - $\frac{1}{4}$ " Thick
- 4 - $\frac{1}{8}$ " Thick
- 4 - $\frac{1}{16}$ " Thick



496'-5 1/8" CONT. COMP. GIRDER BRIDGE
 28'-0" ROADWAY 30° RHF SKEW
 OVER JAMES RIVER SEC. 9/10-T96N-R57W
 STA. 7 + 43.79 to 12 + 40.21 BR-F-B 6213(15)
 STR. NO. 68-030-018 HL-93

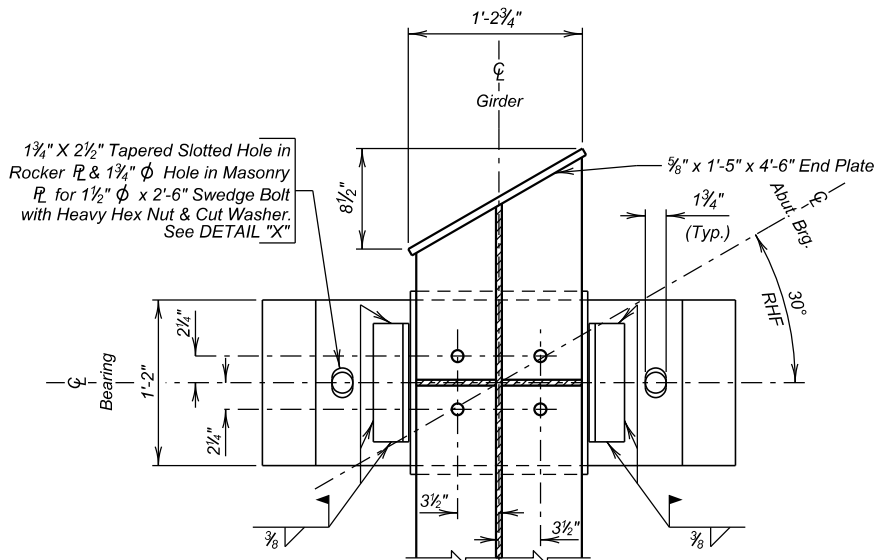
27 OF 43

NOTE:
See GIRDER LAYOUT & DETAILS for location of bumper on the girder
and ABUTMENT DETAILS (A) for location of angle on Abutment Backwall.

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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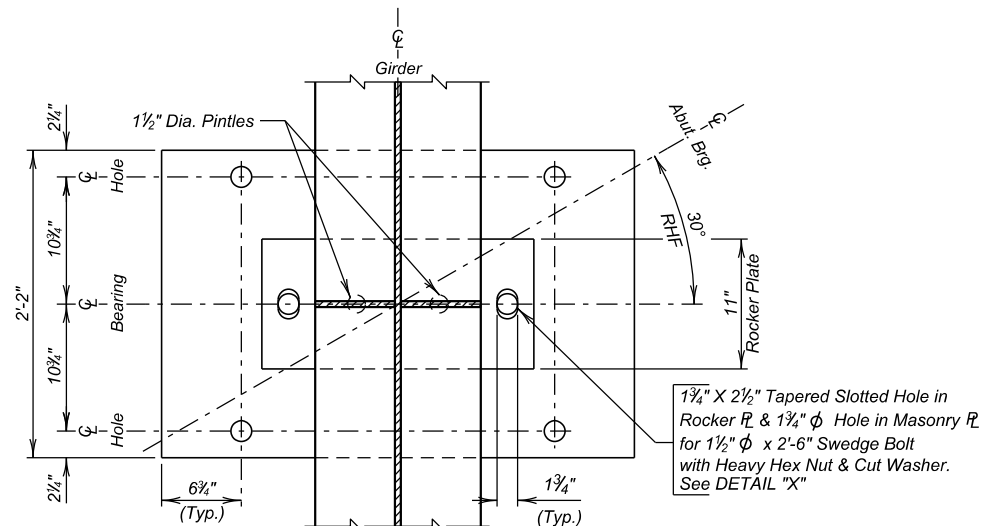
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF-B 6213(15)	SHEET NO. 73	TOTAL SHEETS 99
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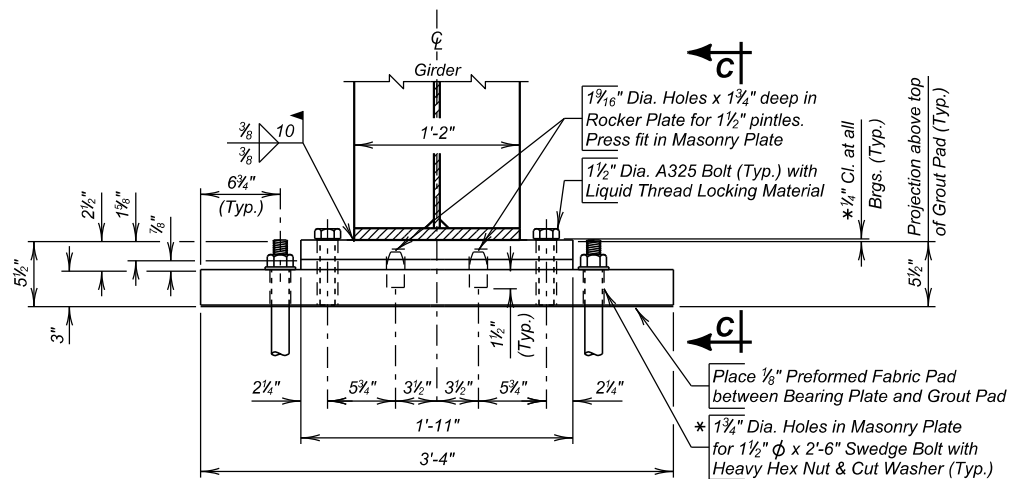
PLAN

(Bolts & Washers not shown this view)



PLAN

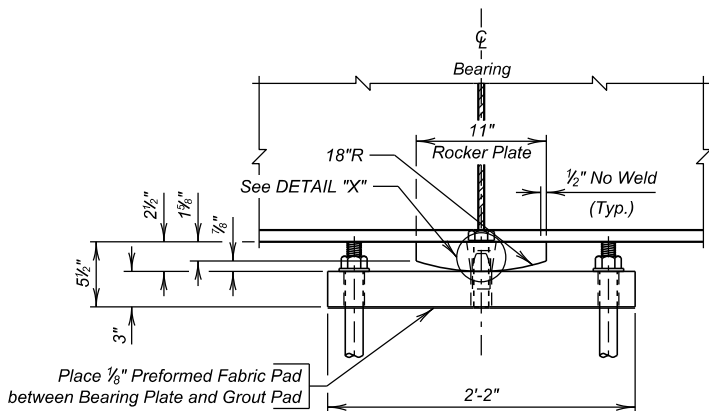
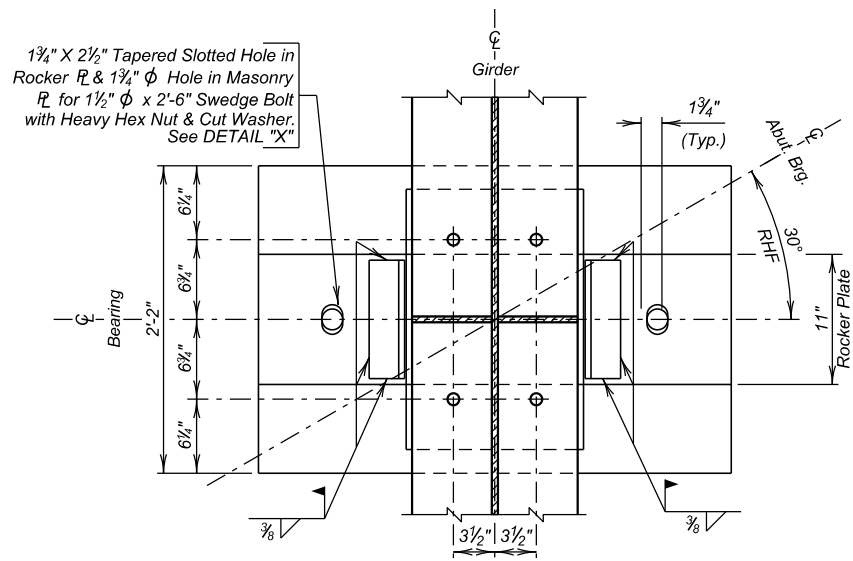
(Bolts & Washers not shown this view)



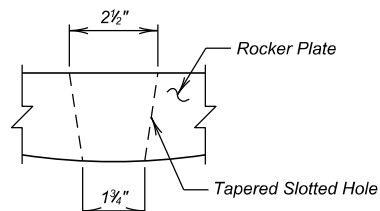
ELEVATION
FIXED BEARING

(Bent No. 3)

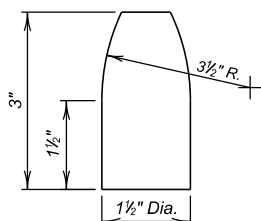
* NOTE:
Punch mark threads and nuts to prevent roatation.



VIEW C - C



DETAIL "X"



PINTLE DETAIL



BEARING DETAILS (A)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

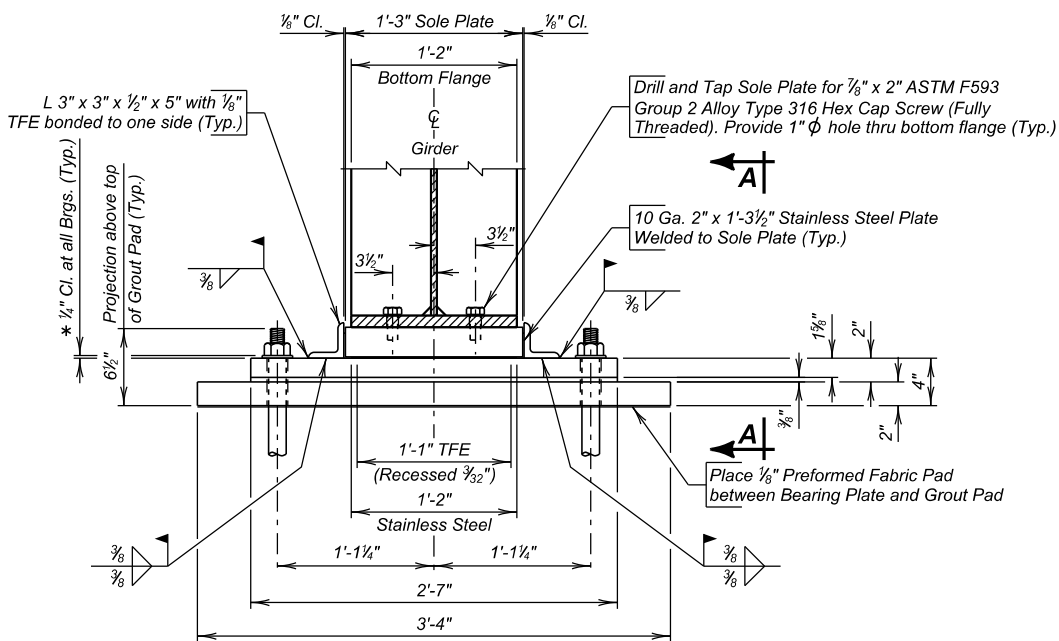
YANKTON COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2025

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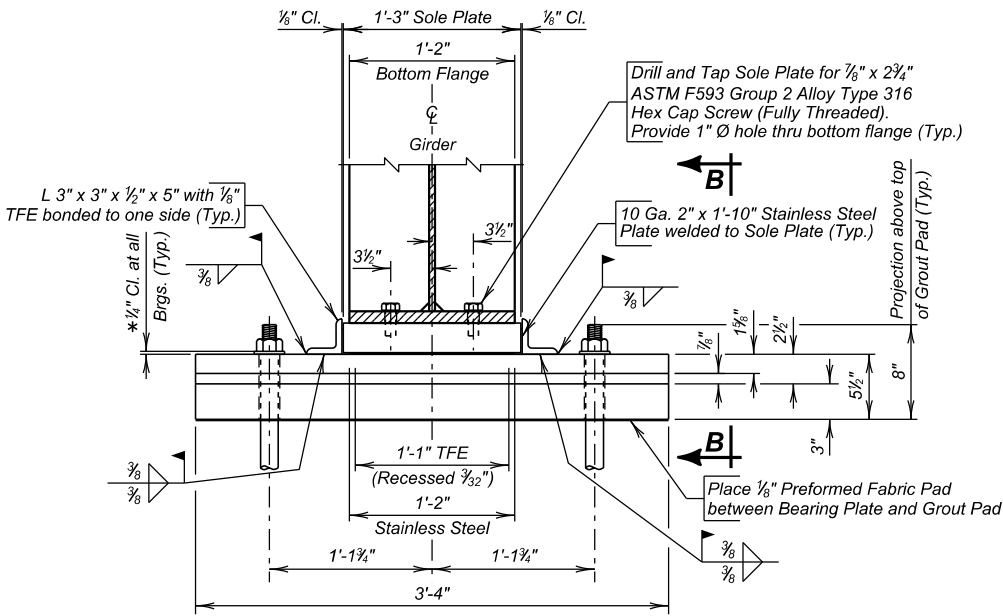
DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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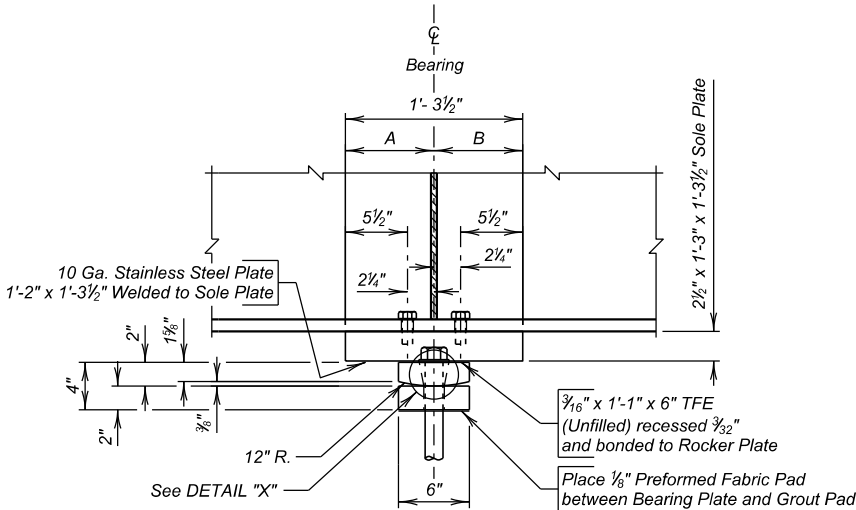
ELEVATION
ABUTMENT EXPANSION BEARING

AT ABUTMENTS		
Temp.	"A"	"B"
30°	6 1/2"	9"
40°	6 3/16"	8 1 1/16"
50°	7 1/8"	8 5/8"
60°	7 1/16"	8 1/16"
70°	7 3/4"	7 3/4"
80°	8 1/16"	7 1/16"
90°	8 3/8"	7 1/8"
100°	8 1 1/16"	6 1 3/16"

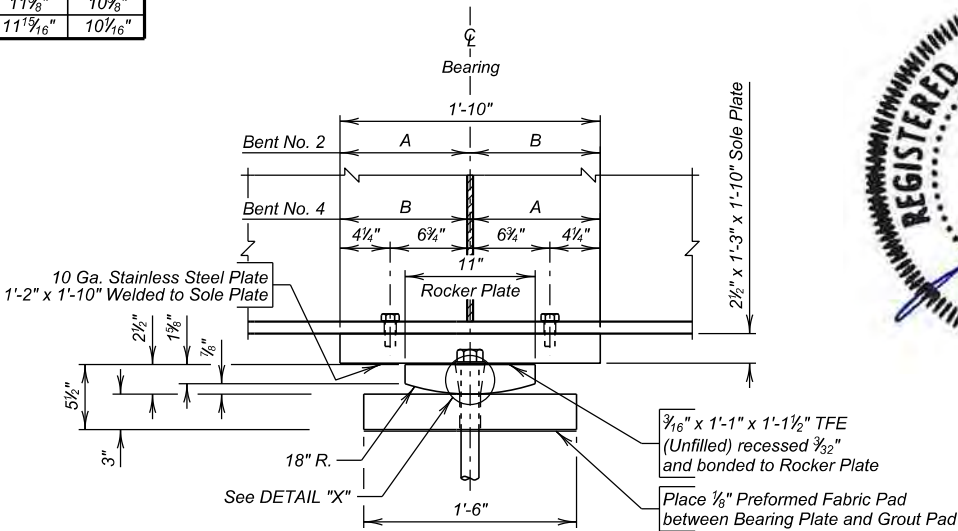
AT BENT NO.'S. 2 & 4		
Temp.	"A"	"B"
30°	9 3/4"	12 1/4"
40°	10 1/16"	11 1 3/16"
50°	10 3/8"	11 5/8"
60°	10 1 1/16"	11 1 1/16"
70°	11"	11"
80°	11 5/16"	10 1 1/16"
90°	11 3/8"	10 3/8"
100°	11 1 1/16"	10 1/16"



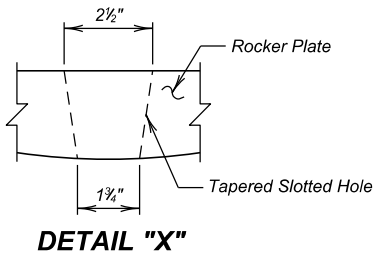
ELEVATION
EXPANSION BEARING
(Bents No.'s 2 & 4)



VIEW A - A



VIEW B - B



DETAIL "X"



BEARING DETAILS (B)
FOR

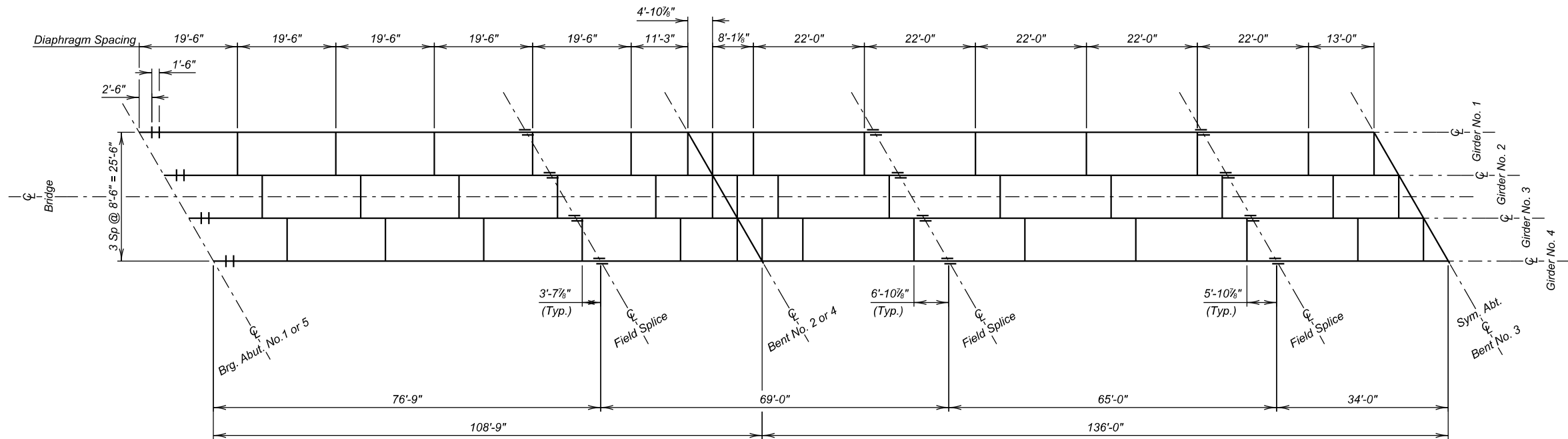
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RH SKW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	75	99



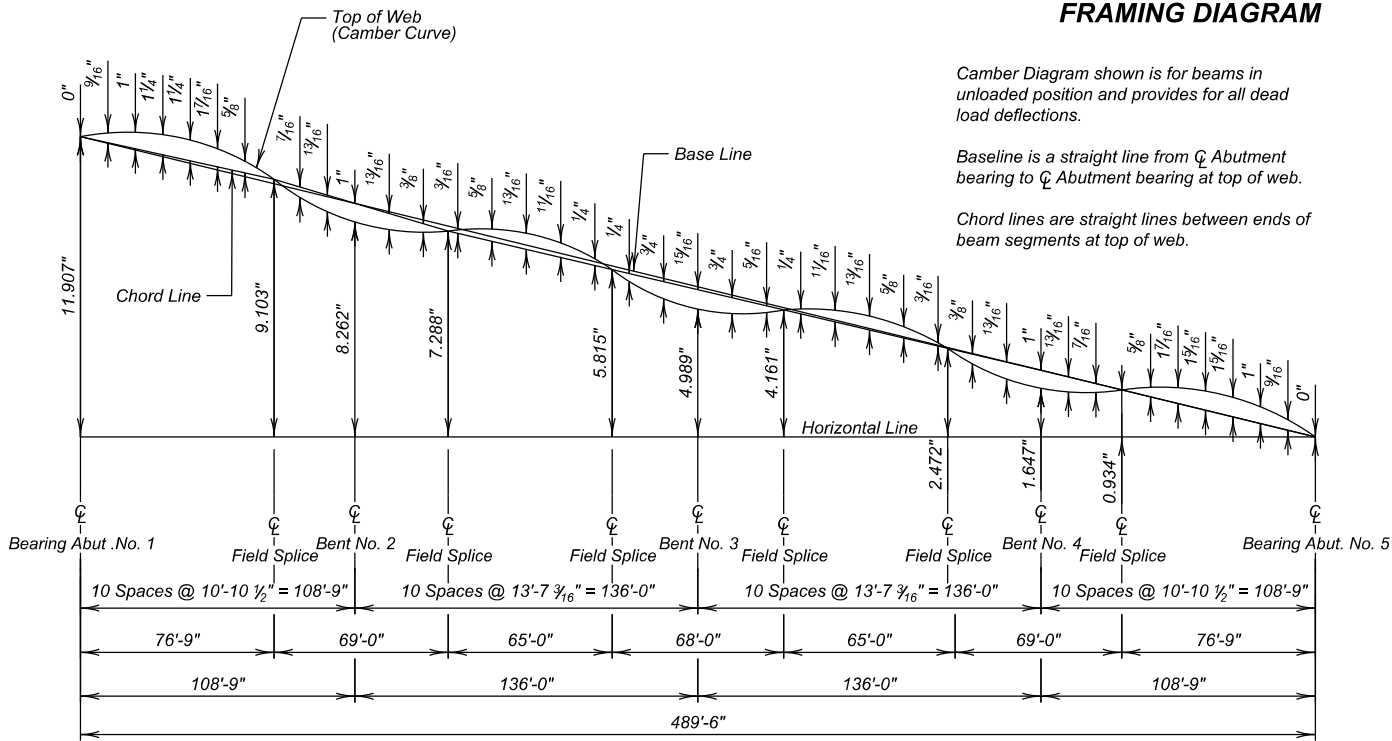
- 1 Deflection due to weight of Structural Steel
- 2 Deflection due to all Dead Loads above Girders (Slab & Barrier Curb)
- 3 Top of erected girder in theoretical position (no fabrication or erection tolerance or deflection in girder shown)

FRAMING DIAGRAM

Camber Diagram shown is for beams in unloaded position and provides for all dead load deflections.

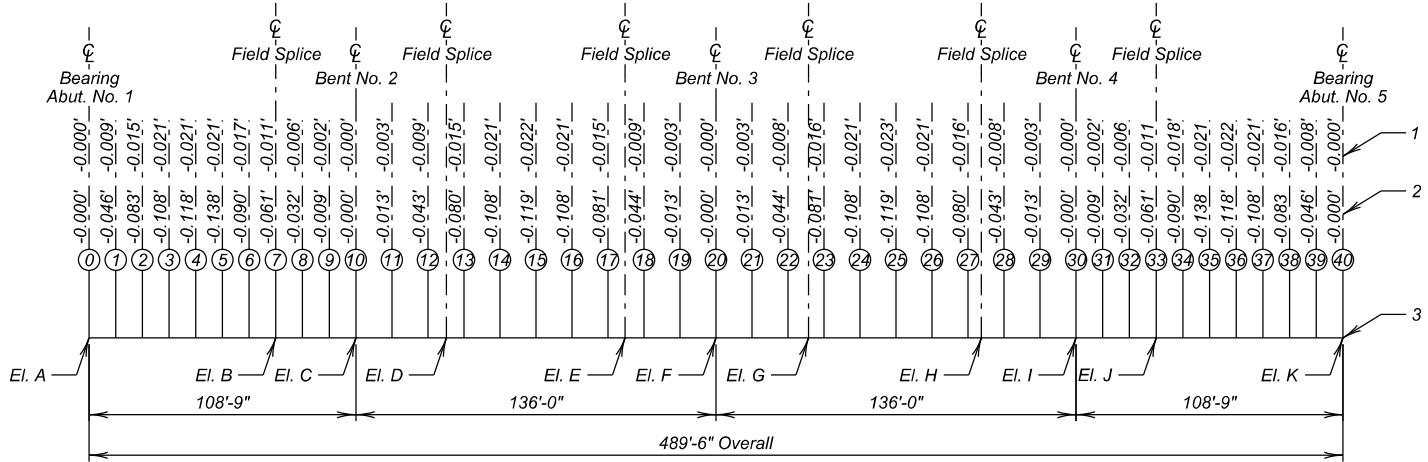
Baseline is a straight line from ϕ Abutment bearing to ϕ Abutment bearing at top of web.

Chord lines are straight lines between ends of beam segments at top of web.



CAMBER CUTTING DIAGRAM

(Cut camber into webs of all girders as shown)



GIRDER ERECTION DIAGRAM

FRAMING DIAGRAM, CAMBER, & ERECTION DATA
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY 30° RHF SKEW
OVER JAMES RIVER SEC. 9/10-T96N-R57W
STA. 7 + 43.79 to 12 + 40.21 BRF-B 6213(15)
STR. NO. 68-030-018 HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2025

30 OF 43

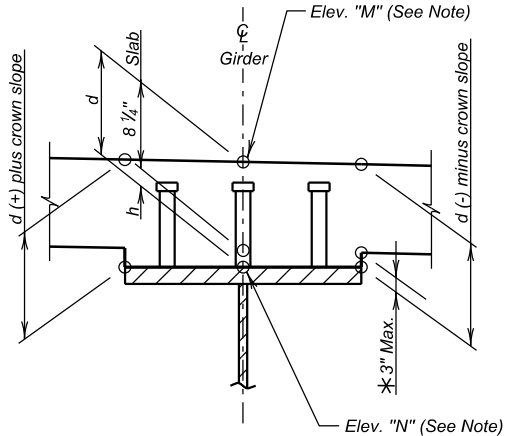
NOTE:
 ϕ These elevations and slopes occur at a time after girder erection is completed but prior to any placement of concrete. Slopes shown are an imaginary straight line between points at beam ends and are (+) towards increasing stations.

ϕ GIRDER ERECTION ELEVATIONS AND SLOPES																		
Girder No.	ELEVATIONS (Top of Girder)											SLOPES (%)						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"	"a"	"b"	"c"	"d"	"e"	"f"	"g"
1	1192.898	1192.753	1192.677	1192.615	1192.481	1192.401	1192.343	1192.213	1192.125	1192.071	1191.904	-0.188	-0.200	-0.206	-0.203	-0.200	-0.207	-0.217
2	1192.888	1192.743	1192.667	1192.605	1192.471	1192.391	1192.333	1192.203	1192.115	1192.061	1191.894	-0.188	-0.200	-0.206	-0.203	-0.200	-0.207	-0.217
3	1192.878	1192.733	1192.657	1192.595	1192.461	1192.381	1192.323	1192.193	1192.105	1192.051	1191.884	-0.188	-0.200	-0.206	-0.203	-0.200	-0.207	-0.217
4	1192.868	1192.723	1192.647	1192.585	1192.452	1192.371	1192.313	1192.183	1192.095	1192.041	1191.874	-0.188	-0.200	-0.206	-0.203	-0.200	-0.207	-0.217

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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		TABLE OF SLAB FORM ELEVATIONS AND CALCULATIONS																														
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Girder No. 1	Elev. "M"	1216.575	1216.722	1216.864	1216.998	1217.120	1217.229	1217.324	1217.407	1217.478	1217.540	1217.598	1217.744	1217.886	1218.020	1218.142	1218.251	1218.347	1218.431	1218.503	1218.567	1218.627	1218.773	1218.915	1219.049	1219.171	1219.281	1219.377	1219.460	1219.532	1219.596	1219.655
	(-) Elev. "N"																															
	(=) d																															
	(-) 0. 688'																															
	(=) h																															
Girder No. 2	Elev. "M"	1216.738	1216.884	1217.027	1217.160	1217.282	1217.391	1217.487	1217.569	1217.640	1217.703	1217.761	1217.907	1218.049	1218.182	1218.304	1218.414	1218.510	1218.593	1218.666	1218.730	1218.789	1218.936	1219.078	1219.211	1219.334	1219.443	1219.539	1219.623	1219.695	1219.759	1219.818
	(-) Elev. "N"																															
	(=) d																															
	(-) 0. 688'																															
	(=) h																															
Girder No. 3	Elev. "M"	1216.900	1217.047	1217.189	1217.323	1217.445	1217.554	1217.649	1217.732	1217.803	1217.865	1217.923	1218.069	1218.211	1218.345	1218.467	1218.576	1218.672	1218.756	1218.828	1218.892	1218.952	1219.098	1219.240	1219.374	1219.496	1219.606	1219.702	1219.785	1219.857	1219.921	1219.980
	(-) Elev. "N"																															
	(=) d																															
	(-) 0. 688'																															
	(=) h																															
Girder No. 4	Elev. "M"	1216.738	1216.884	1217.027	1217.160	1217.282	1217.391	1217.487	1217.569	1217.640	1217.703	1217.761	1217.907	1218.049	1218.182	1218.304	1218.414	1218.510	1218.593	1218.666	1218.730	1218.789	1218.936	1219.078	1219.211	1219.334	1219.443	1219.539	1219.623	1219.695	1219.759	1219.818
	(-) Elev. "N"																															
	(=) d																															
	(-) 0. 688'																															
	(=) h																															

		TABLE OF SLAB FORM ELEVATIONS AND CALCULATIONS																													
		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Girder No. 1	Elev. "M"	1219.802	1219.944	1220.077	1220.200	1220.309	1220.405	1220.489	1220.561	1220.625	1220.684	1220.830	1220.972	1221.105	1221.227	1221.337	1221.433	1221.516	1221.589	1221.653	1221.712	1221.859	1222.001	1222.135	1222.257	1222.366	1222.461	1222.544	1222.615	1222.677	1222.735
	(-) Elev. "N"																														
	(=) d																														
	(-) 0. 688'																														
	(=) h																														
Girder No. 2	Elev. "M"	1219.964	1220.106	1220.240	1220.362	1220.472	1220.568	1220.651	1220.723	1220.787	1220.846	1220.992	1221.134	1221.268	1221.390	1221.499	1221.595	1221.679	1221.751	1221.815	1221.875	1222.021	1222.164	1222.297	1222.419	1222.528	1222.624	1222.706	1222.777	1222.840	1222.898
	(-) Elev. "N"																														
	(=) d																														
	(-) 0. 688'																														
	(=) h																														
Girder No. 3	Elev. "M"	1220.127	1220.269	1220.402	1220.525	1220.634	1220.730	1220.814	1220.886	1220.950	1221.009	1221.155	1221.297	1221.430	1221.552	1221.662	1221.758	1221.841	1221.914	1221.978	1222.037	1222.184	1222.326	1222.460	1222.582	1222.691	1222.786	1222.869	1222.940	1223.002	1223.060
	(-) Elev. "N"																														
	(=) d																														
	(-) 0. 688'																														
	(=) h																														
Girder No. 4	Elev. "M"	1219.964	1220.106	1220.240	1220.362	1220.472	1220.568	1220.651	1220.723	1220.787	1220.846	1220.992	1221.134	1221.268	1221.390	1221.499	1221.595	1221.679	1221.751	1221.815	1221.875	1222.021	1222.164	1222.297	1222.419	1222.528	1222.624	1222.706	1222.777	1222.840	1222.898
	(-) Elev. "N"																														
	(=) d																														
	(-) 0. 688'																														
	(=) h																														



NOTE —

This Table contains the necessary information to determine the depth of concrete, in feet, over the girders at the points shown. All calculations can be carried out in the space provided. Elevation "M" is theoretical top of slab elevation before any concrete has been poured. This elevation includes correction for deflection due to Dead Load above girders. Elevation "N" is a field measured elevation take on top of girders st points shown. This elevation must be taken after girder erection is complete, but prior to placing any of the slab concrete. Girders will not be supported by construction shoring while elevations are taken.

This sheet is to be used in conjunction with FRAMING DIAGRAM, CAMBER, & ERECTION DATA Sheet.

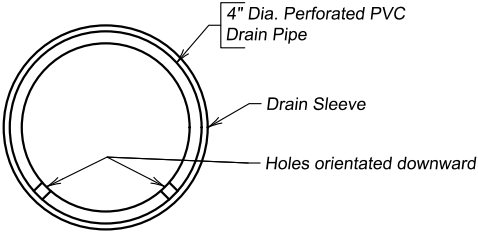
✱ If during construction, it is found that this dimension will be exceeded or is less than zero, corrective measures must be taken as approved by the Engineer.



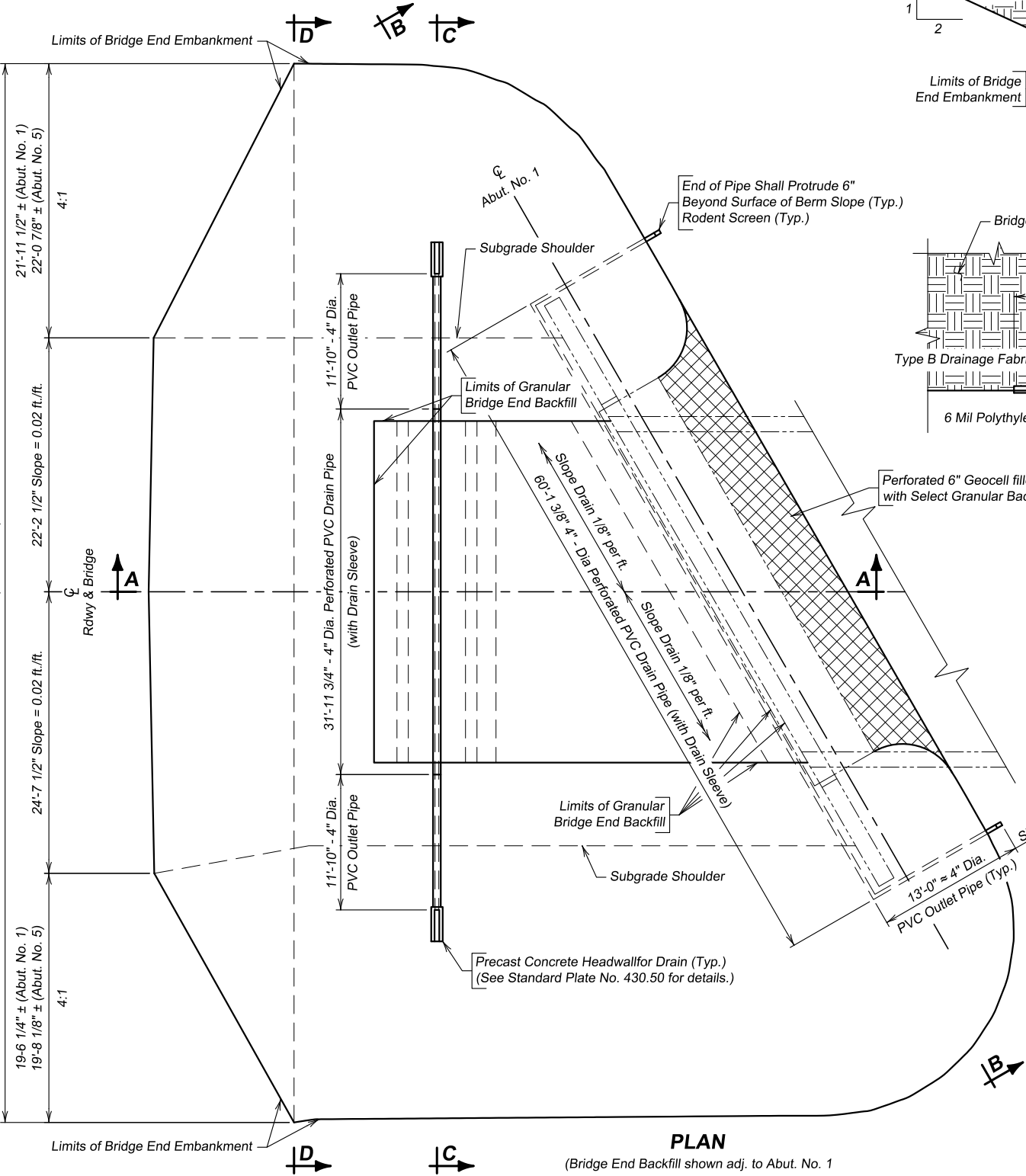
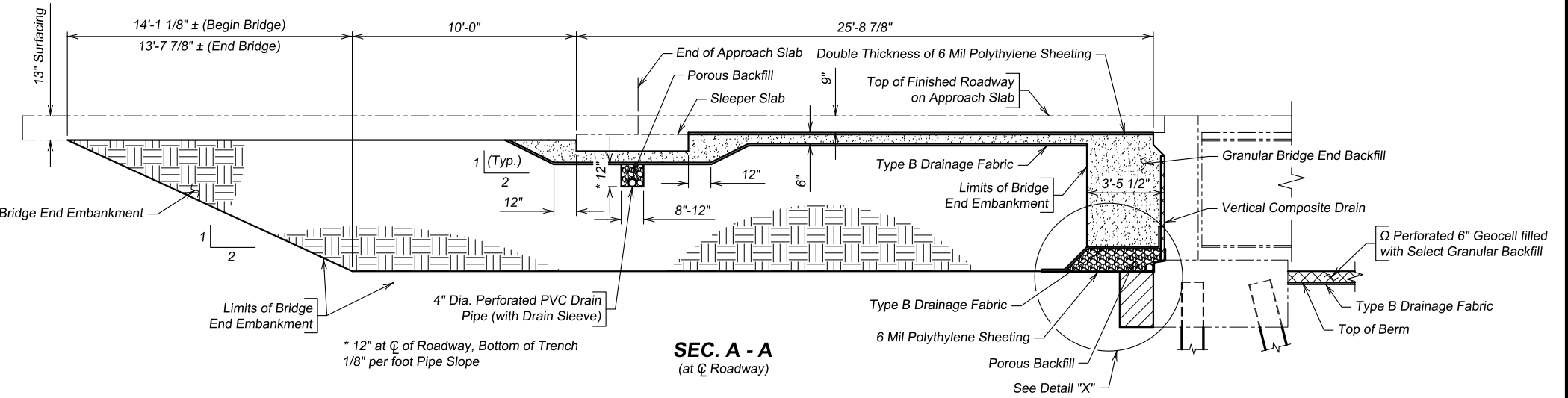
SLAB FORM ELEVATIONS
FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

FOR BIDDING PURPOSES ONLY

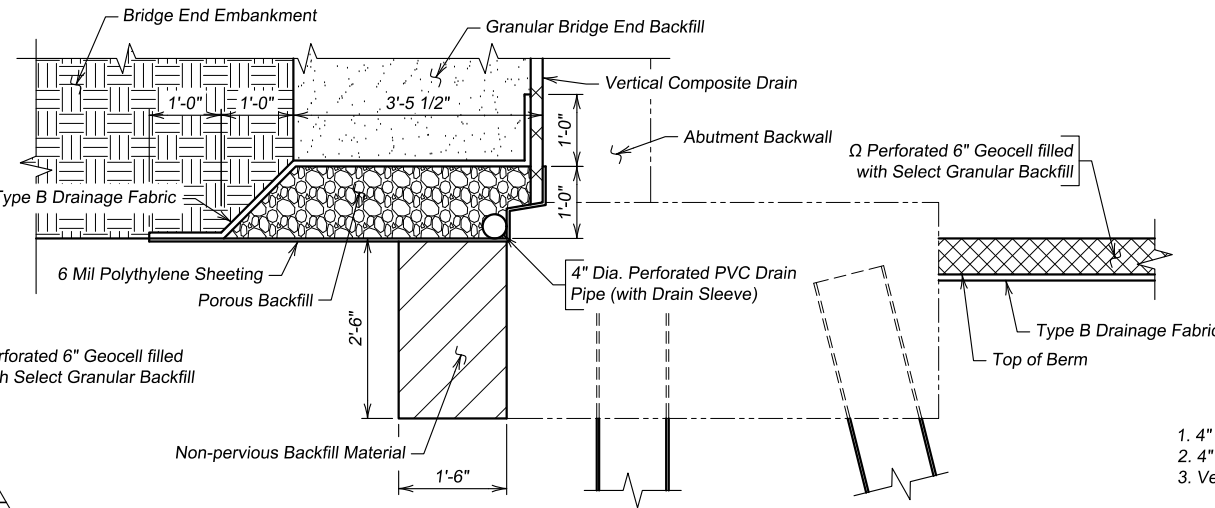


DRAIN DETAIL

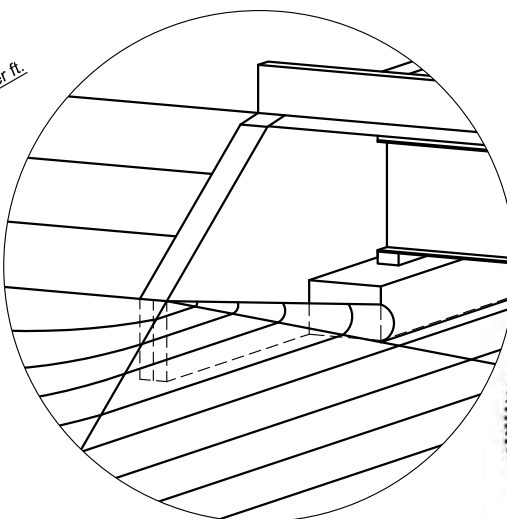


PLAN

(Bridge End Backfill shown adj. to Abut. No. 1
Abut. No. 5 similar by rotation except as shown.)



DETAIL "X"



SPILL CONE DETAIL
AT EMBANKMENT

Ω See PERFORATED GEOCELL notes for payment information.

ESTIMATED QUANTITIES		
(FOR TWO ABUTMENTS)		
ITEM	UNIT	QUANTITY
Granular Bridge End Backfill	Cu. Yd.	71.4
Bridge End Embankment	Cu. Yd.	1322
Porous Backfill	Ton	20.8
4" Underdrain Pipe	Ft.	285
Approach Slab Underdrain Excavation	Cu. Yd.	2.8
Select Granular Backfill	Ton	14.0
Perforated Geocell	Sq. Ft.	399
Precast Concrete Headwall For Drain	Each	4

1. 4" Dia. Perforated PVC Drain Pipe (with Drain Sleeve)185 Ft.
2. 4" Dia. PVC Outlet Pipe with Rodent Screens100 Ft.
3. Vertical Composite Drain162 Sq. Ft.

Items 1 thru 3 are approximate quantities contained in the 4" Underdrain Pipe bid item and are for information only.

4. 6 mil Polythylene Sheeting, not including laps1686 Sq. Ft.
5. Type B Drainage Fabric225 Sq. Yd.

Items 4 and 5 are approximate quantities contained in the Granular Bridge End Backfill bid item and are for information only.

- ◇ For estimating purposes only, a factor of 1.89 Tons/Cu. Yd. was used to convert Cu. Yds. to Tons.
- ≈ Shrinkage Factor of 1.25 used.
- ≠ Quantity based on a 12" wide trench.

NOTE: Use this sheet in conjunction with sheet 33 of 43.

DETAILS OF BRIDGE END BACKFILL (A)

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY

30° RHF SKEW

STA. 7 + 43.79 TO 12 + 40.21

SEC. 9/10-T96N-R57W

OVER JAMES RIVER

BRF-B 6213(15)

STR. NO. 68-030-018

HL-93

YANKTON COUNTY
S.D. DEPT. OF TRANSPORTATION
MAY 2025

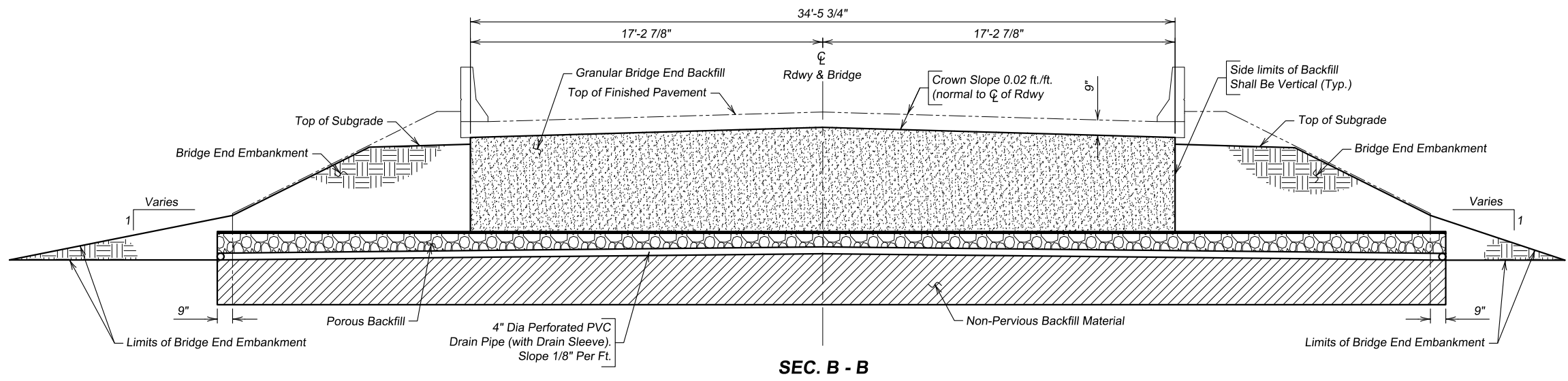
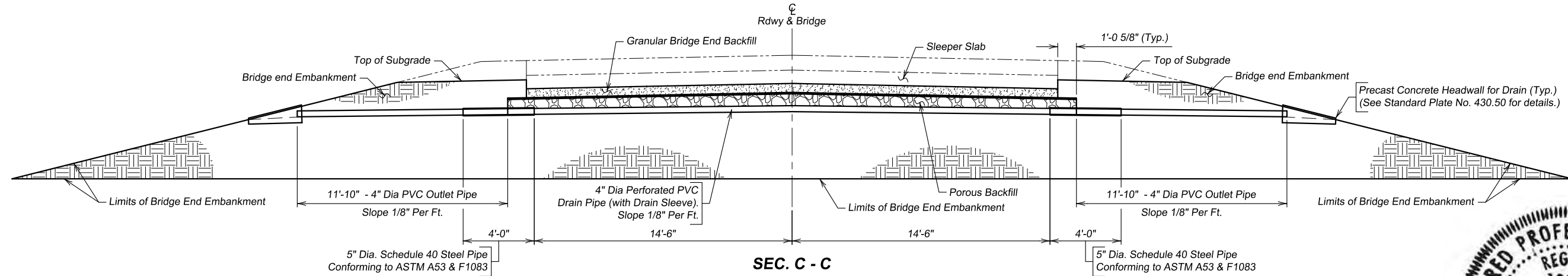
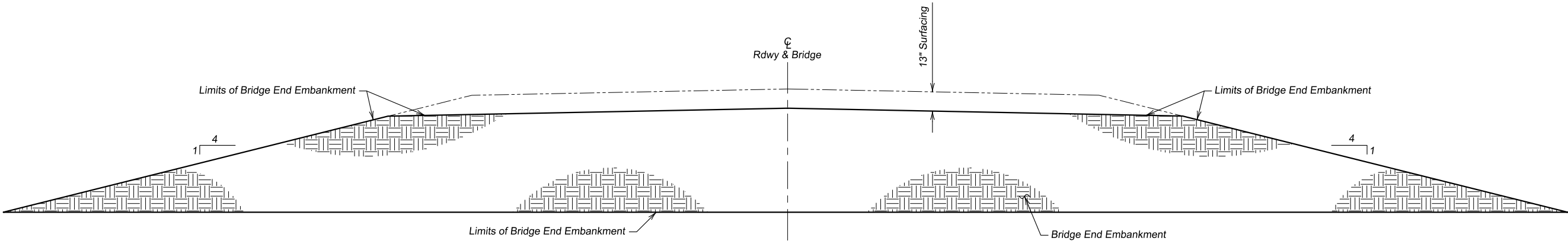


DESIGNED BY YL	DRAWN BY TAS	CHECKED BY BS	APPROVED
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BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	78	99



NOTE: Use this sheet in conjunction with sheet 32 of 43.

DETAILS OF BRIDGE END BACKFILL (B)
FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
STA. 7 + 43.79 TO 12 + 40.21
OVER JAMES RIVER
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

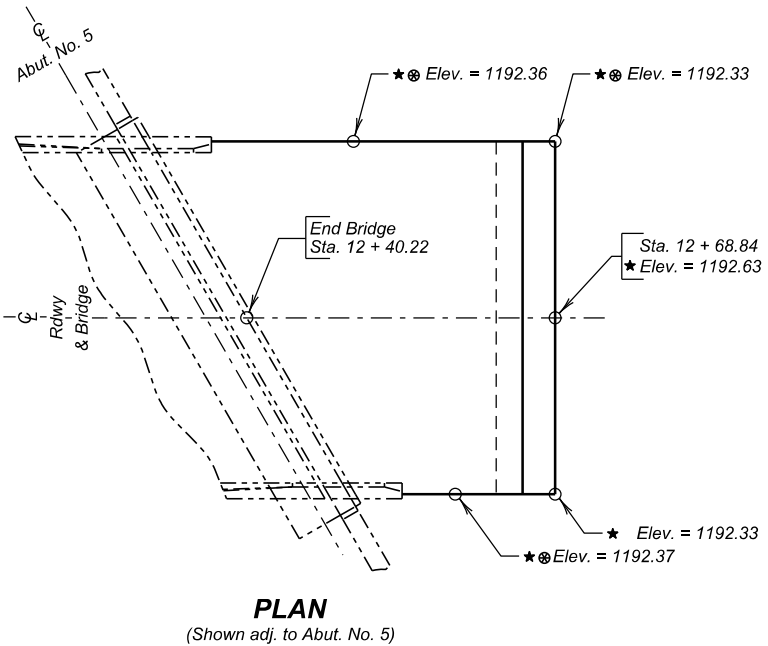
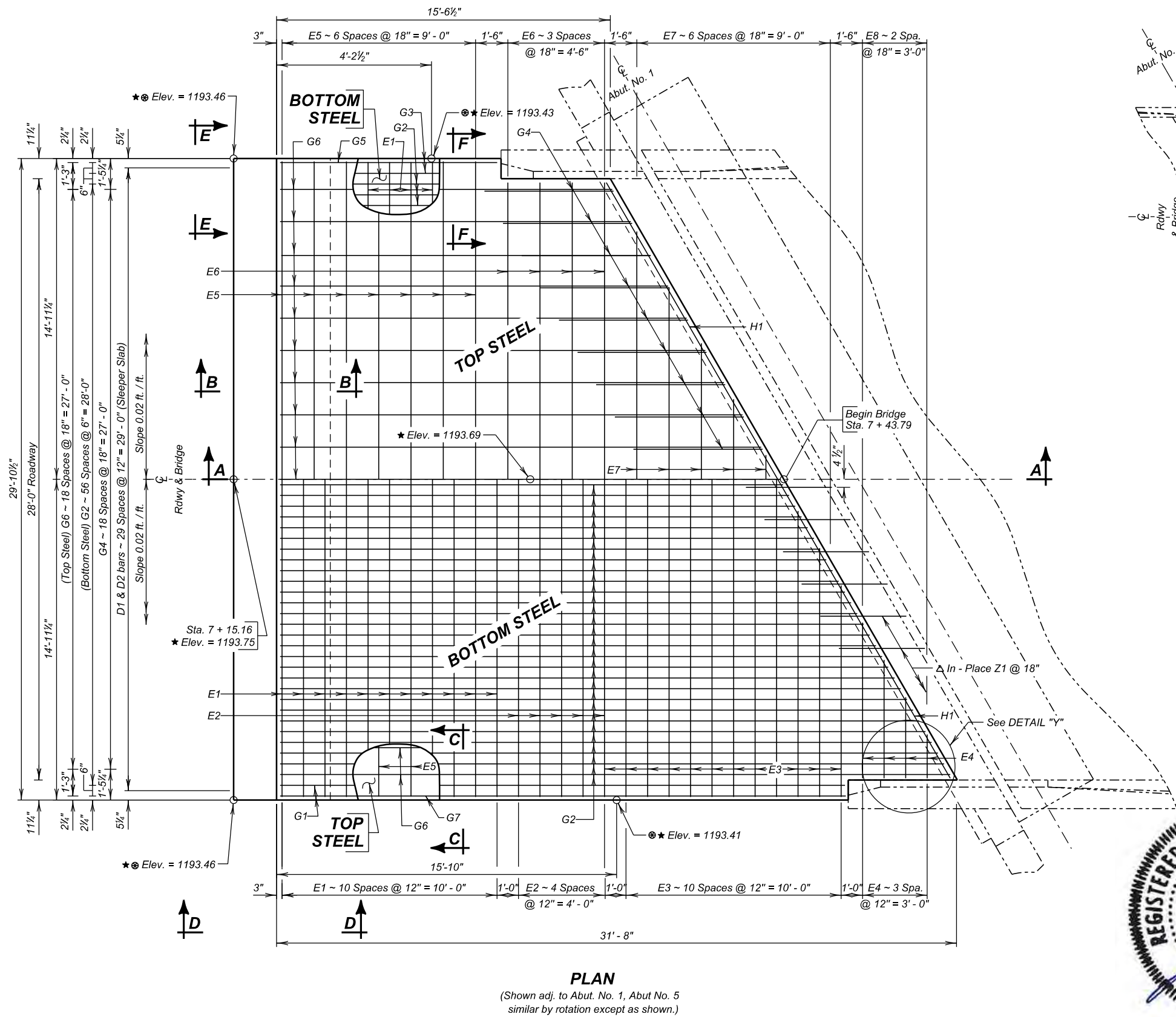
YANKTON COUNTY
S.D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY YL	DRAWN BY TAS	CHECKED BY BS	APPROVED BRIDGE ENGINEER
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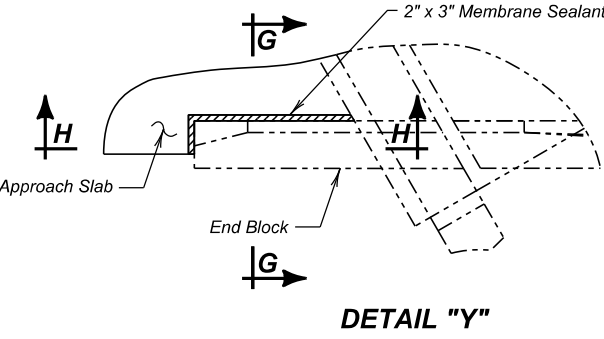
NOTES:
★ Elevations may need to be adjusted for a smooth ride from the final bridge deck elevations prior to final pavement elevations.
△ In-place Z1 bars are listed and included in abutment quantities. See ABUTMENT DETAILS (C) sheets.
See DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (B) sheet for details of section cuts.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	79	99



PLAN
(Shown adj. to Abut. No. 5)



DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (A)
FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RH SKW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93



YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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NOTES:
★ Elevations may need to be adjusted for a smooth ride from the final bridge deck elevations prior to final pavement elevations.

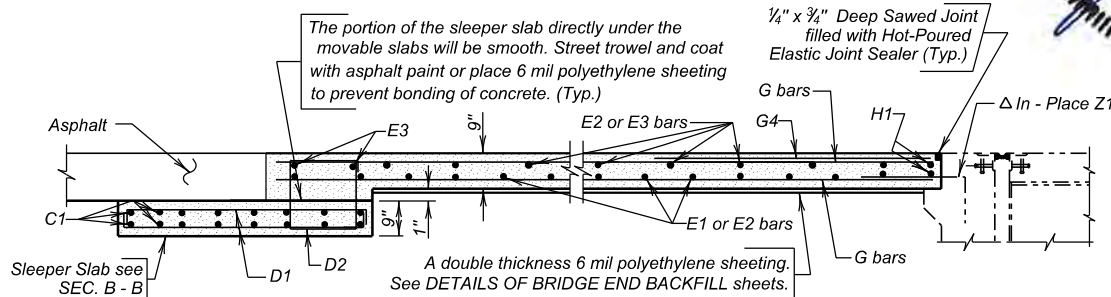
△ In-place Z1 bars are listed and included in abutment quantities. See ABUTMENT DETAILS (C) sheets.

See APPROACH SLAB JOINT DETAILS sheet for notes regarding Membrane Sealant Expansion Joint.

See DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (A) sheet for locations of section cuts.

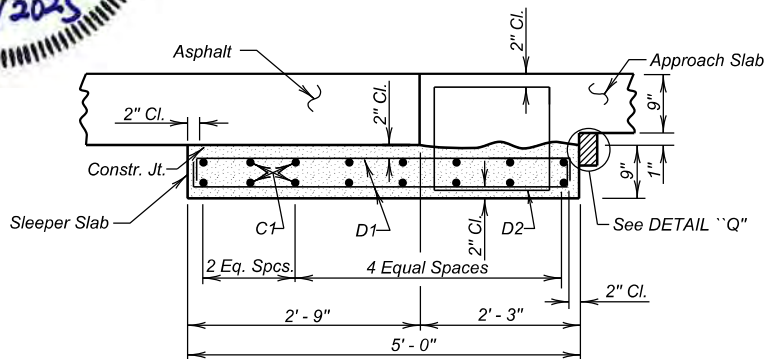
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	80	99

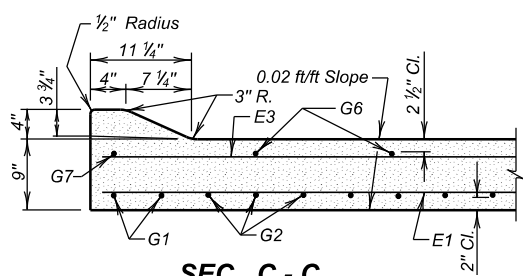


SEC. A - A

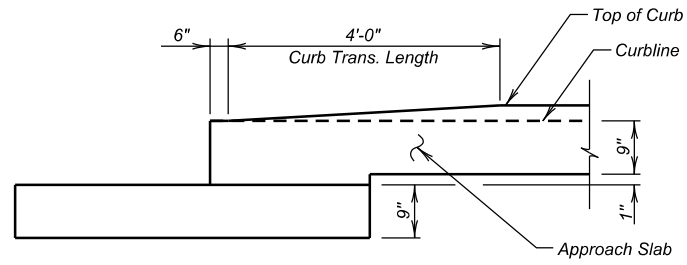
△ In - Place Z1 bars and Mechanical Splices are listed and included in abutment quantities. See ABUTMENT DETAILS (C) Sheets.



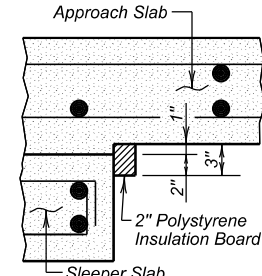
SEC. B - B
(Sleeper Slab)



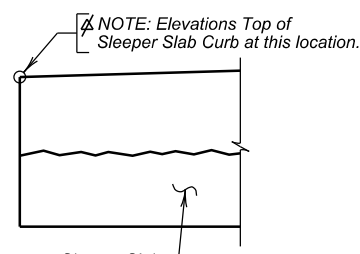
SEC. C - C



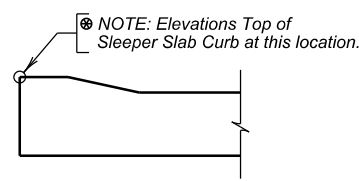
VIEW D - D



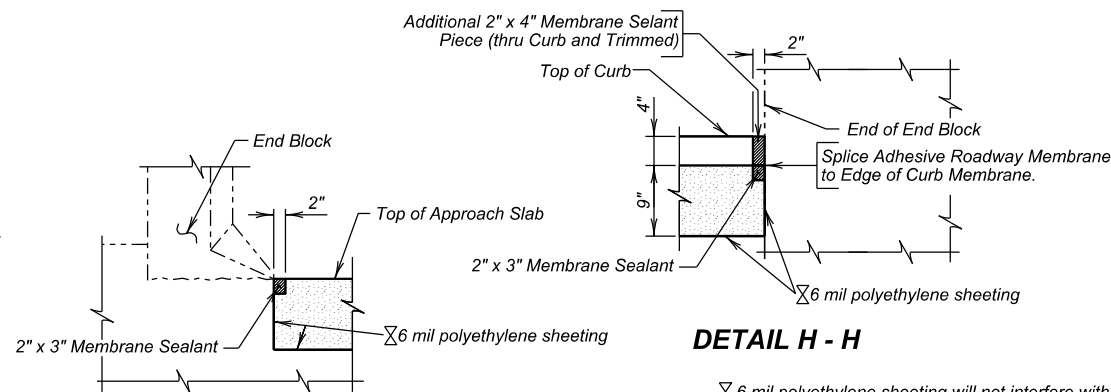
DETAIL "Q"



VIEW E - E



VIEW F - F



DETAIL G - G

DETAIL H - H

6 mil polyethylene sheeting will not interfere with the bond between the Membrane Sealant and the approach slab

REINFORCING SCHEDULE

(For Two Approach Slabs & Two Sleeper Slabs)

Mk.	No.	Size	Length	Type	Bending Details
Sleeper Slabs					
C1	32	5	29' - 9"	Str.	
D1	60	4	5' - 6"	2	
D2	60	4	7' - 6"	T2	
Approach Slabs					
A3	8	4	8' - 0"	19A	
E1	22	6	29' - 6"	Str.	
E2	10	6	28'-8"	Str.	
E3	11	6	36'-11"	Str.	
E4	4	6	9'-3"	Str.	
E5	14	4	29'-6"	Str.	
E6	8	4	28'-8"	Str.	
E7	7	4	37'-1"	Str.	
E8	3	4	9'-2"	Str.	
G1	4	8	26'-4"	Str.	
G2	57	8	46' - 4"	Str.	
G3	4	8	10'-2"	Str.	
G4	38	4	6' - 0"	Str.	
G5	2	4	10'-2"	Str.	
G6	19	4	46' - 8"	Str.	
G7	2	4	26'-4"	Str.	
H1	4	6	32' - 0"	Str.	

Cutl. 7	E7
Cutl. 3	E8
Cutl. 57	G2
Cutl. 19	G6
Cutl. 4	E4
Cutl. 11	E3

E7	26' - 4"	10' - 9"
E8	7' - 2"	2' - 0"
G2	31' - 3"	15' - 1"
G6	31' - 2"	15' - 6"
E4	7' - 3"	2' - 0"
E3	27' - 0"	9' - 11"

NOTE:
All bars to be epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

(For Two Approach Slabs and Two Sleeper Slabs)

ITEM	UNIT	QUANTITY
Concrete Approach Slab for Bridge	Sq. Yd.	156.8
Concrete Approach Sleeper Slab for Bridge	Sq. Yd.	33.2

- 40.3 Cu. Yds. Concrete in Approach Slabs.
- 22,323 Lbs. Epoxy Coated Re-Steel in Approach Slabs.
- 8.3 Cu. Yds. Concrete in Sleeper Slabs.
- 3028 Lbs. Epoxy Coated Re-Steel in Sleeper Slabs.
- 19 Sq. Ft. of 2" Polystyrene Insulation Board.

Items 1 thru 5 are approximate quantities contained in the above bid items and are for information only.

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (B)
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018

30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	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).

STATE OF
SOUTH
DAKOTA

PROJECT

BRF-B 6213(15)

SHEET

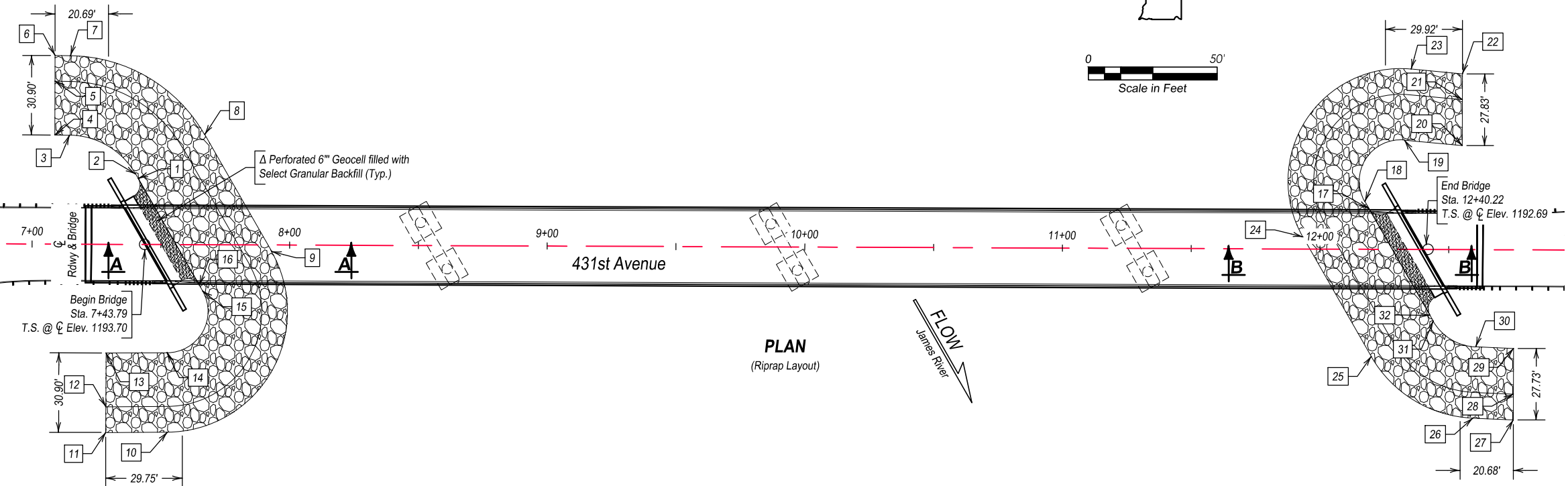
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TOTAL
SHEETS

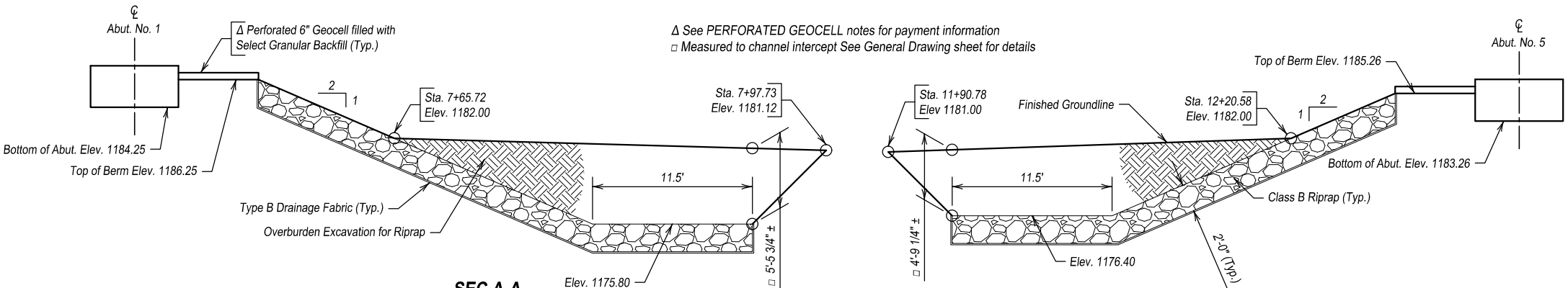
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Revised: 9/16/2025 (ARP)

FOR BIDDING PURPOSES ONLY

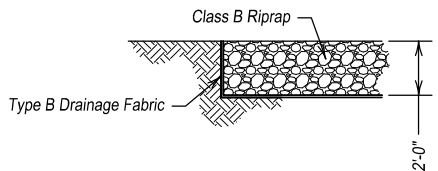


PLAN
(Riprap Layout)



SEC A-A

SEC B-B



DRAINAGE FABRIC DETAIL

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Overburden Excavation for Riprap	Cu. Yd.	1892
Class B Riprap	Ton	1177.4
Type B Drainage Fabric	Sq. Yd.	2061

For estimating purposes only, a factor of 1.4 Tons/CuYd was used to convert CuYds to Tons. The estimate is equivalent to approximately 841 CuYds.

CLASS B RIPRAP POINTS					
	Station	Offset	Northing (y)	Easting (x)	Elevation (z)
1	7+41.16	25.55 Lt.	15675120.92	2019955.24	1186.25
2	7+40.14	27.32 Lt.	15675119.89	2019953.47	1186.25
3	7+14.40	42.32 Lt.	15675094.21	2019938.36	1187.20
4	7+08.67	42.37 Lt.	15675088.48	2019938.30	1187.20
5	7+08.67	63.26 Lt.	15675088.56	2019917.40	1175.80
6	7+08.66	73.26 Lt.	15675088.59	2019907.40	1175.80
7	7+14.65	73.22 Lt.	15675094.58	2019907.47	1175.80
8	7+66.90	42.77 Lt.	15675146.70	2019938.12	1175.80
9	7+93.07	2.56 Rt.	15675172.70	2019983.56	1175.80
10	7+52.83	72.91 Rt.	15675132.18	2020053.74	1175.80
11	7+28.91	73.10 Rt.	15675108.26	2020053.84	1175.80
12	7+28.90	63.10 Rt.	15675108.30	2020043.84	1175.80
13	7+28.90	42.20 Rt.	15675108.37	2020022.94	1187.20
14	7+52.58	42.01 Rt.	15675132.06	2020022.84	1187.20
15	7+66.31	18.01 Rt.	15675145.88	2019988.90	1186.25
16	7+65.03	15.80 Rt.	15675144.61	2019996.68	1186.25
17	12+18.97	15.82 Lt.	15675598.67	2019966.88	1185.26
18	12+17.40	18.52 Lt.	15675597.11	2019964.15	1185.26
19	12+32.69	42.46 Lt.	15675612.49	2019940.27	1187.19
20	12+55.10	40.44 Lt.	15675634.90	2019948.38	1187.16
21	12+55.10	58.23 Lt.	15675634.96	2019924.59	1176.40
22	12+55.09	68.27 Lt.	15675635.00	2019914.55	1176.40
23	12+35.17	70.06 Lt.	15675615.08	2019912.68	1176.40
24	11+93.40	4.66 Lt.	15675573.05	2019977.91	1176.40
25	12+20.12	41.62 Rt.	15675599.59	2020024.30	1176.40
26	12+59.63	65.44 Rt.	15675639.01	2020048.28	1176.40
27	12+75.33	66.04 Rt.	15675654.71	2020048.93	1176.40
28	12+75.33	56.03 Rt.	15675654.75	2020038.93	1176.40
29	12+75.32	38.30 Rt.	15675654.81	2020021.20	1187.20
30	12+60.68	37.75 Rt.	15675640.17	2020020.59	1187.15
31	12+44.12	27.76 Rt.	15675623.64	2020010.54	1185.26
32	12+42.84	25.55 Rt.	15675622.38	2020008.32	1185.26

RIPRAP DETAILS

FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY

OVER JAMES RIVER

STA. 7 + 43.79 TO 12 + 40.21

STR. NO. 68-030-018

30° RHF SKEW

SEC. 9/10-T96N-R57W

BRF-B 6213(15)

HL-93

YANKTON COUNTY
S.D. DEPT. OF TRANSPORTATION
MAY 2025

36 OF 43

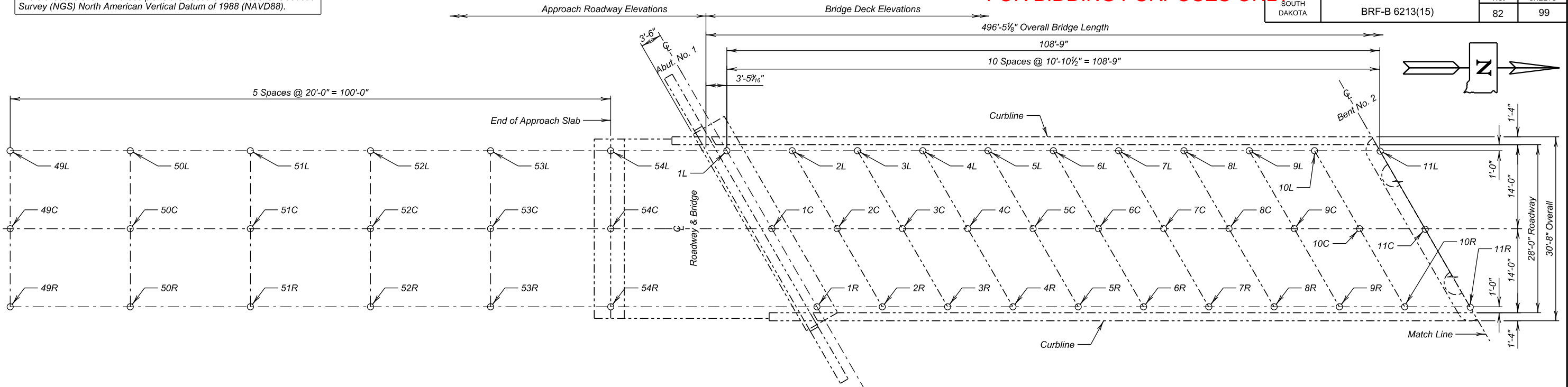
DESIGNED BY YL	DRAWN BY TAS	CHECKED BY BS	APPROVED BRIDGE ENGINEER
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The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	82	99



PLAN



Table of As-Built Elevations - Bridge Deck					
Location	Elevation	Location	Elevation	Location	Elevation
1L		1C		1R	
2L		2C		2R	
3L		3C		3R	
4L		4C		4R	
5L		5C		5R	
6L		6C		6R	
7L		7C		7R	
8L		8C		8R	
9L		9C		9R	
10L		10C		10R	
11L		11C		11R	

NOTE :
As-Built Elevation Survey will be completed by the Engineer.

Table of As-Built Elevations - Approach Roadway					
Location	Elevation	Location	Elevation	Location	Elevation
48L		48C		48R	
49L		49C		49R	
50L		50C		50R	
51L		51C		51R	
52L		52C		52R	
53L		53C		53R	
54L		54C		54R	

Table of Elevations - Bridge Survey Markers		
Location	Station - Offset	Elevation
Begin Bridge		
End Bridge		

AS-BUILT ELEVATION SURVEY (A)
FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

37 OF 43

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

496'-5 $\frac{1}{8}$ " Overall Bridge Length

136'-0"

10 Spaces @ 13'-7 $\frac{3}{16}$ " = 136'-0"

Bent No. 2

Bent No. 3

Curbline

Match Line

11L, 12L, 13L, 14L, 15L, 16L, 17L, 18L, 19L, 20L, 21L

11C, 12C, 13C, 14C, 15C, 16C, 17C, 18C, 19C, 20C, 21C

11R, 12R, 13R, 14R, 15R, 16R, 17R, 18R, 19R, 20R, 21R

1'-4"

1'-0"

14'-0"

28'-0" Roadway

30'-8" Overall

North Arrow

PLAN

Table of Elevations - Bridge Survey Markers		
Location	Station - Offset	Elevation
Begin Bridge		
End Bridge		

AS-BUILT ELEVATION SURVEY (B)
FOR

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

38 OF 43

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	
			BRIDGE ENGINEER



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 NO.	TOTAL SHEETS
	BRF-B 6213(15)	84	99

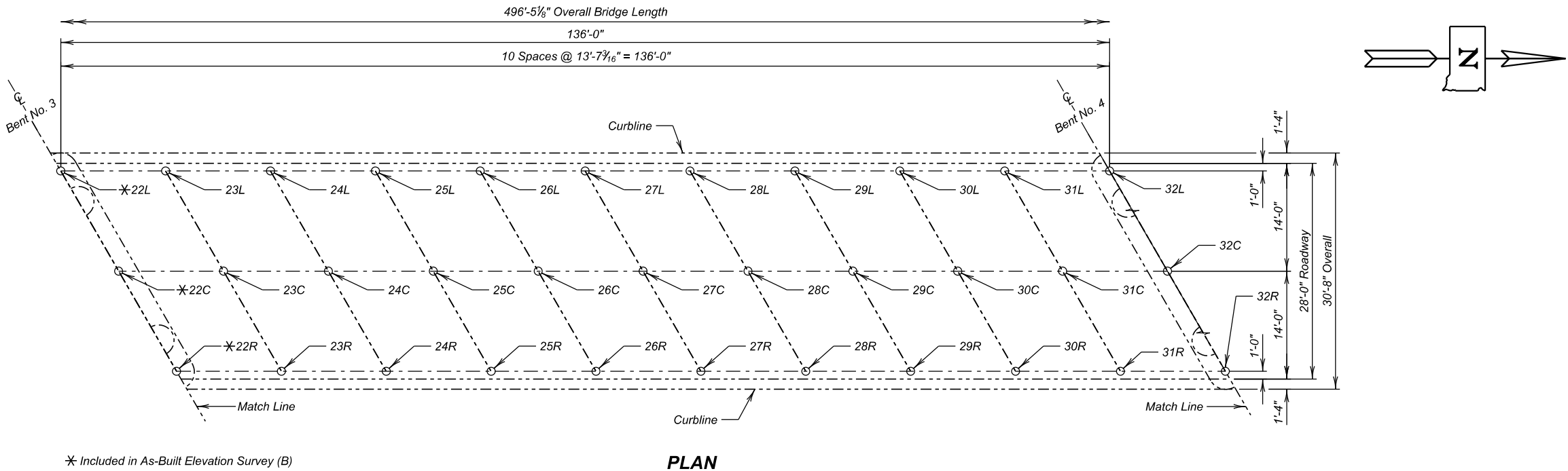


Table of As-Built Elevations - Bridge Deck					
Location	Elevation	Location	Elevation	Location	Elevation
22L		22C		22R	
23L		23C		23R	
24L		24C		24R	
25L		25C		25R	
26L		26C		26R	
27L		27C		27R	
28L		28C		28R	
29L		29C		29R	
30L		30C		30R	
31L		31C		31R	
32L		32C		32R	

NOTE :
As-Built Elevation Survey will be completed by the Engineer.

Table of Elevations - Bridge Survey Markers		
Location	Station - Offset	Elevation
Begin Bridge		
End Bridge		



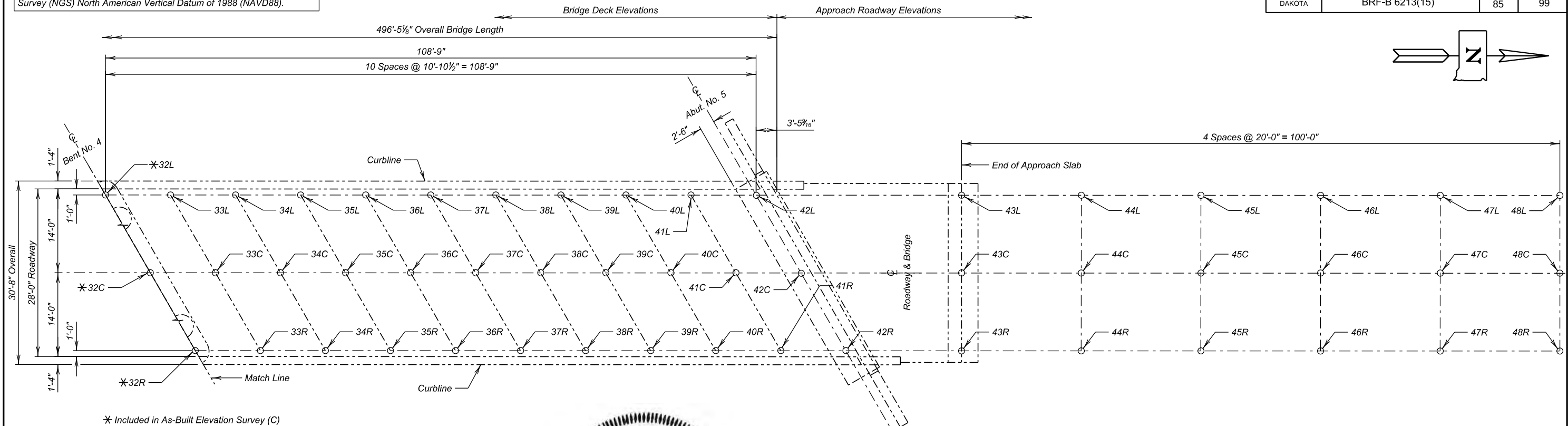
AS-BUILT ELEVATION SURVEY (C)
FOR
496'-5 1/8" CONT. COMP. GIRDER BRIDGE
28'-0" ROADWAY
OVER JAMES RIVER
STA. 7 + 43.79 to 12 + 40.21
STR. NO. 68-030-018
30° RHF SKEW
SEC. 9/10-T96N-R57W
BRF-B 6213(15)
HL-93

YANKTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	85	99



PLAN



Location	Elevation	Location	Elevation	Location	Elevation
33L		33C		33R	
34L		34C		34R	
35L		35C		35R	
36L		36C		36R	
37L		37C		37R	
38L		38C		38R	
39L		39C		39R	
40L		40C		40R	
41L		41C		41R	
42L		42C		42R	

NOTE :
As-Built Elevation Survey will be completed by the Engineer.

Table of As-Built Elevations - Approach Roadway					
Location	Elevation	Location	Elevation	Location	Elevation
43L		43L		43R	
44L		44C		44R	
45L		45C		45R	
46L		46C		46R	
47L		47C		47R	
48L		48C		48R	

Table of Elevations - Bridge Survey Markers		
Location	Station - Offset	Elevation
Begin Bridge		
End Bridge		

AS-BUILT ELEVATION SURVEY (D)
FOR

496'-5 1/8" CONT. COMP. GIRDER BRIDGE

28'-0" ROADWAY

OVER JAMES RIVER

STA. 7 + 43.79 to 12 + 40.21

STR. NO. 68-030-018

30° RHF SKEW

SEC. 9/10-T96N-R57W

BRF-B 6213(15

HL-93

YANKTON COUNTY

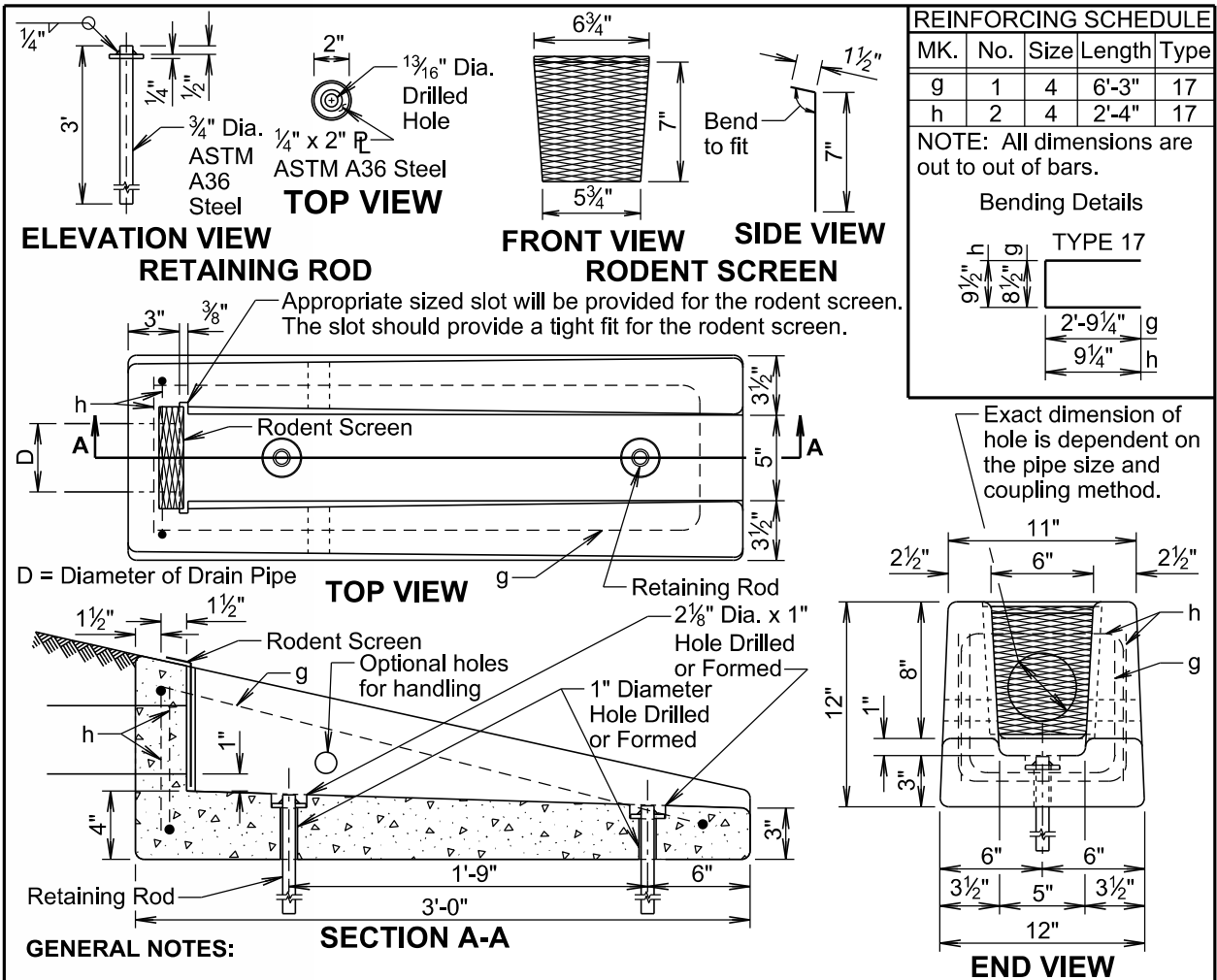
S. D. DEPT. OF TRANSPORTATION

MAY 2025

40 OF 43

DESIGNED BY YL	CK. DES. BY BS	DRAFTED BY EAN	
			BRIDGE ENGINEER

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	86	99



GENERAL NOTES:

The concrete will be Class M6. The concrete will conform to the requirements of Section 462 of the Specifications. It is estimated that each unit weighs approximately 210 pounds.

All reinforcing steel will conform to ASTM A615, Grade 60 and will be epoxy coated. The reinforcing steel will be securely retained to prevent displacement during placement of concrete. It is estimated that 7.3 pounds of reinforcing steel is required for each unit.

The pipe will be placed in the concrete headwall with the pipe end flush with the concrete surface adjacent to the rodent screen.

The rodent screen will be galvanized 13 Ga. steel with a diamond shaped flattened mesh pattern. The size will be 1/2". The size refers to the measurement across the smallest diamond shaped opening measured from the centers of the wires.

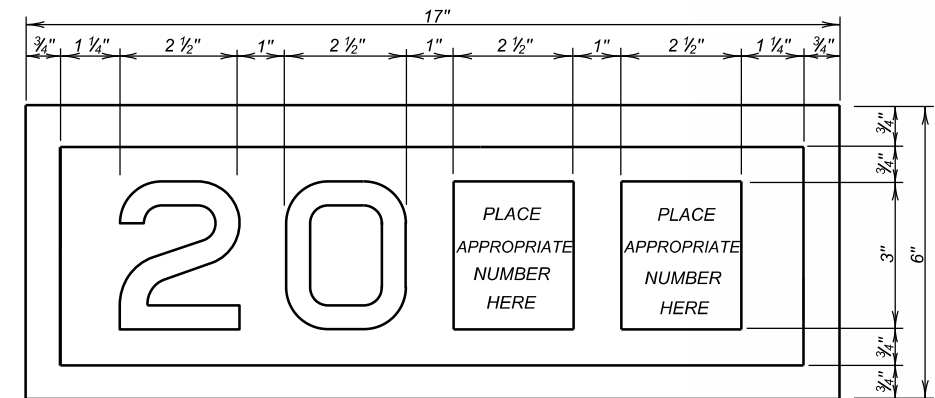
The retaining rod will be galvanized in accordance with ASTM A123 after all shop welding has been completed.

The drawing indicates using 1/2" fillets; however, 3/4" chamfers may be substituted for the 1/2" fillets.

All costs for furnishing and installing the concrete headwall including equipment, labor, and materials including concrete, reinforcing steel, retaining rods, and rodent screen will be incidental to the contract unit price per each for "Precast Concrete Headwall for Drain".

November 19, 2021

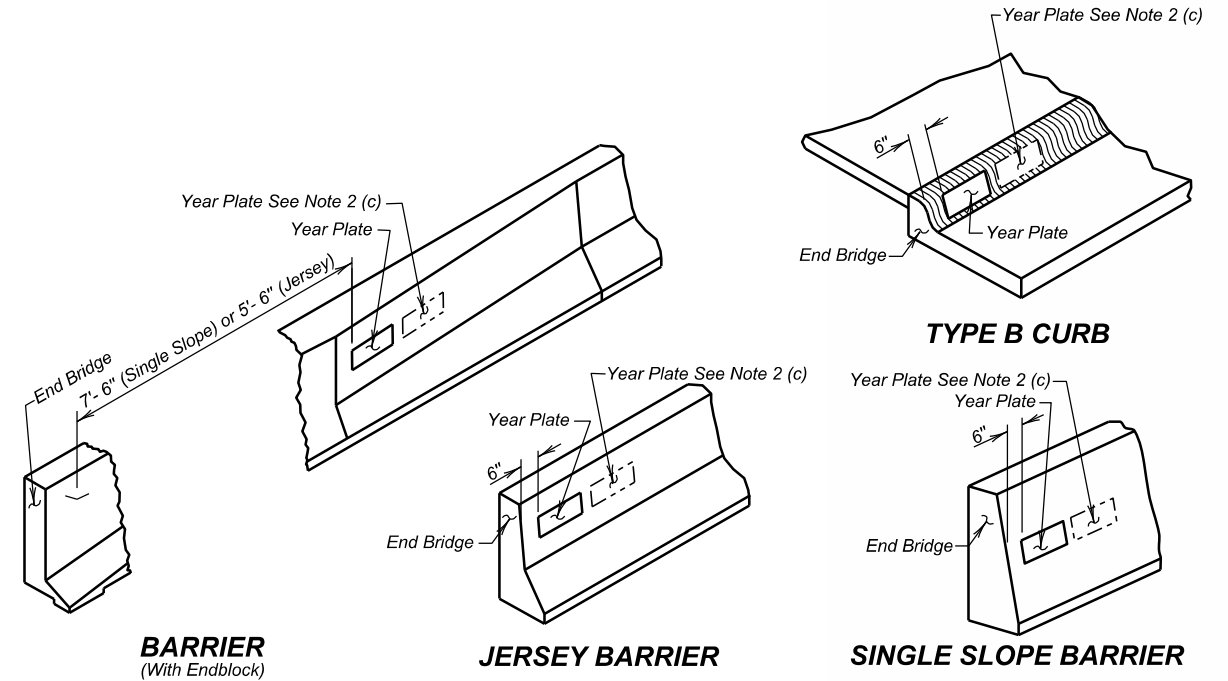
Published Date: 2026	S D D O T	PRECAST CONCRETE HEADWALL FOR DRAIN	PLATE NUMBER 430.50
			Sheet 1 of 1



YEAR PLATE DETAILS

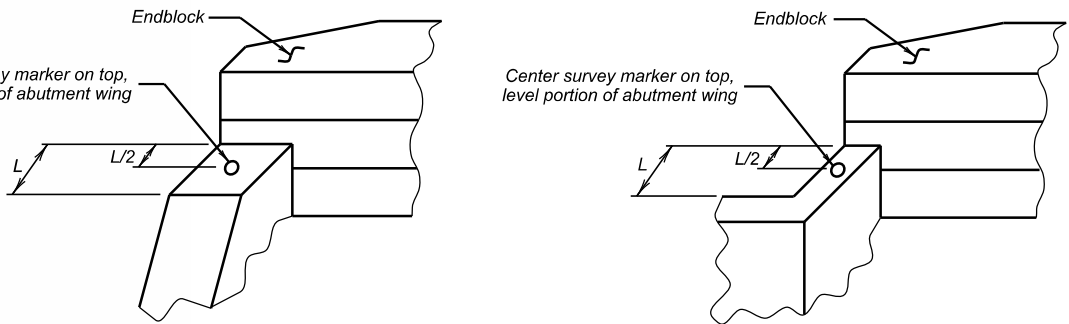
GENERAL NOTES:

- 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.



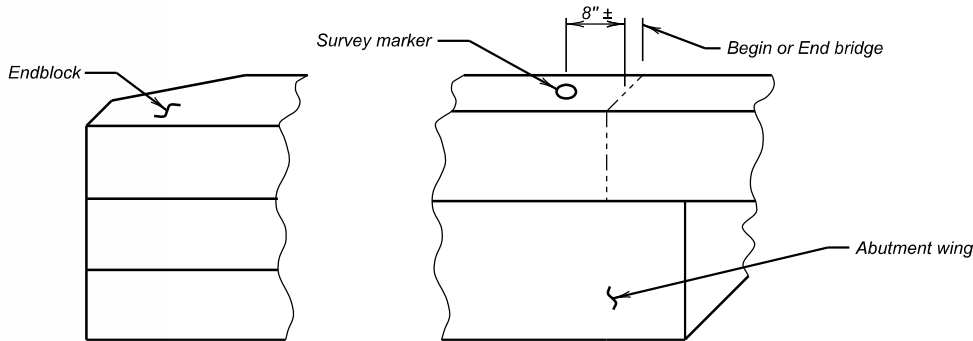
Published Date: 2026	S D D O T	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	87	99



ABUTMENT WITH
"STRAIGHT" WINGS

ABUTMENT WITH
"SWEPT BACK" WINGS



ABUTMENT WITH
"SWEPT BACK" WINGS

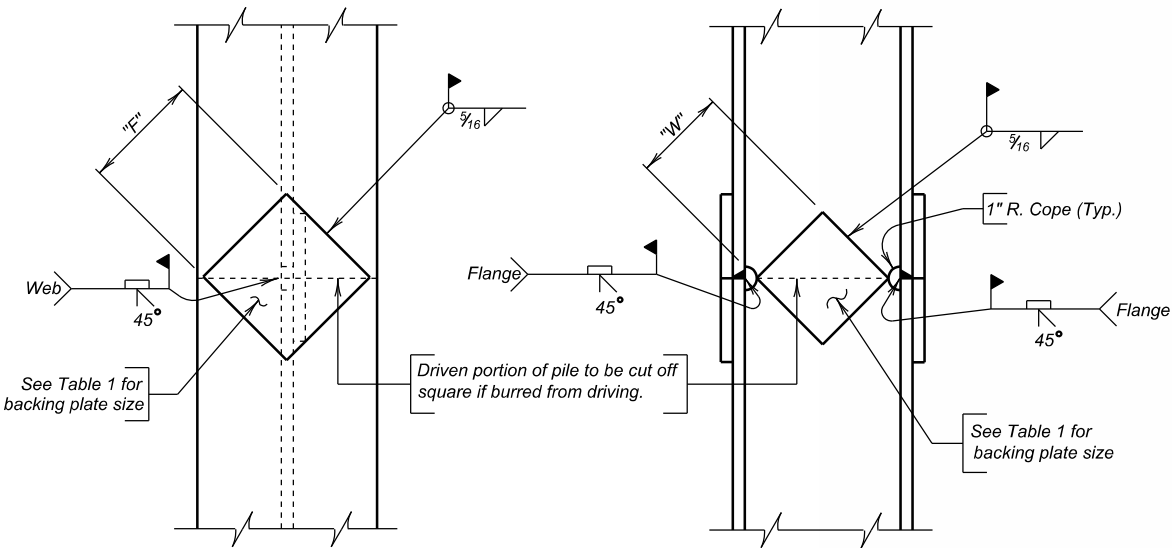
(Endblock on top of wings)

GENERAL NOTES:

- Survey markers shall be located at each abutment on the same side of the bridge as the year plate. Place survey markers on abutment wings as shown. Two survey markers will be required at each bridge.
- Survey markers shall be of a type intended for installation in concrete, be made of solid brass or bronze, have a domed top and be either a 3" top diameter (with a 3/4" X 2" long ribbed shank), or a US Army Corps of Engineers Type C Disc with a 3 1/2" top diameter.
- There will be no separate measurement or payment made for survey markers. All costs for this work shall be incidental to the other contract items.

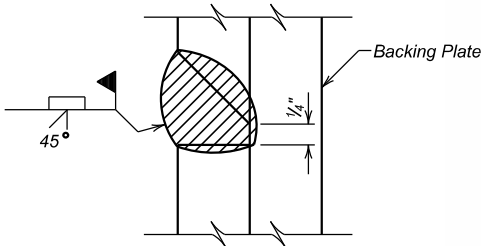
June 26, 2012

Published Date: 2026	S D D O T	BRIDGE SURVEY MARKER	PLATE NUMBER 460.05
			Sheet 1 of 1



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

COMPLETE JOINT PENETRATION WELD DETAIL



GENERAL NOTES:

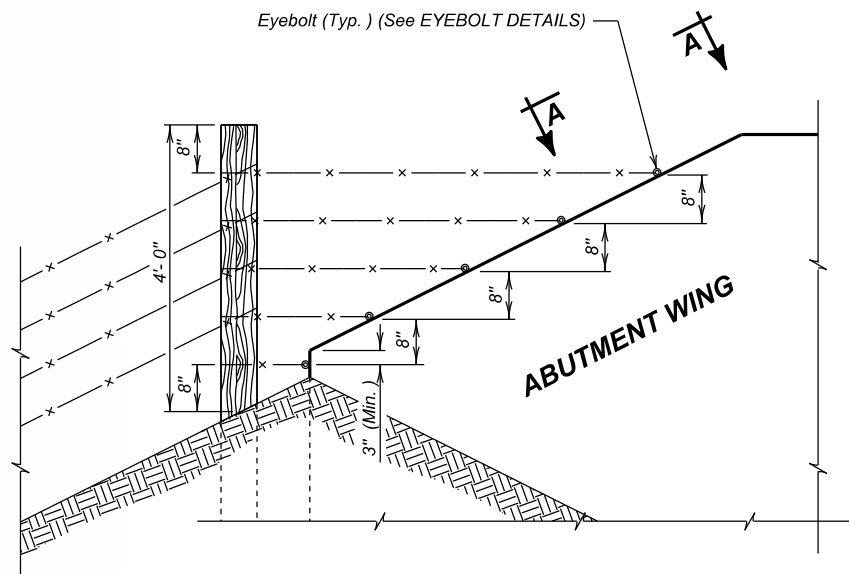
- Steel for backing plates shall conform to ASTM A709 Grade 50.
- Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
- Welder must be certified and registered with the SDDOT.
- Backing plate shall at a minimum be as thick as the web of the pile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

TABLE 1 (BACKING PLATES)			
PILE	10"	12"	14"
"F" FLANGE	6 1/2"	8"	10"
"W" WEB	4 3/4"	6 1/4"	7 1/2"

December 23, 2012

Published Date: 2026	S D D O T	STEEL PILE SPLICE DETAILS	PLATE NUMBER 510.40
			Sheet 1 of 1

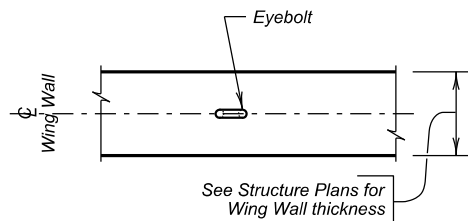
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF-B 6213(15)	88	99



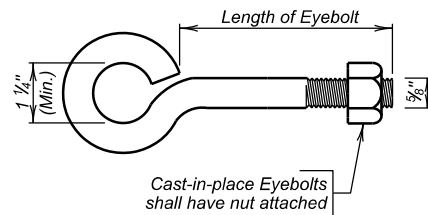
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

- The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
- Eyebolts shall be placed on all of the bridge abutment wings.
- Eyebolts shall be 5/8 inch diameter and shall conform to ASTM A307.
- Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
- Cast-in-place eyebolts shall have a nut attached, be 4 1/2 inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the 5/8 inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
- The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



VIEW A - A



EYEBOLT DETAILS

December 23, 2012

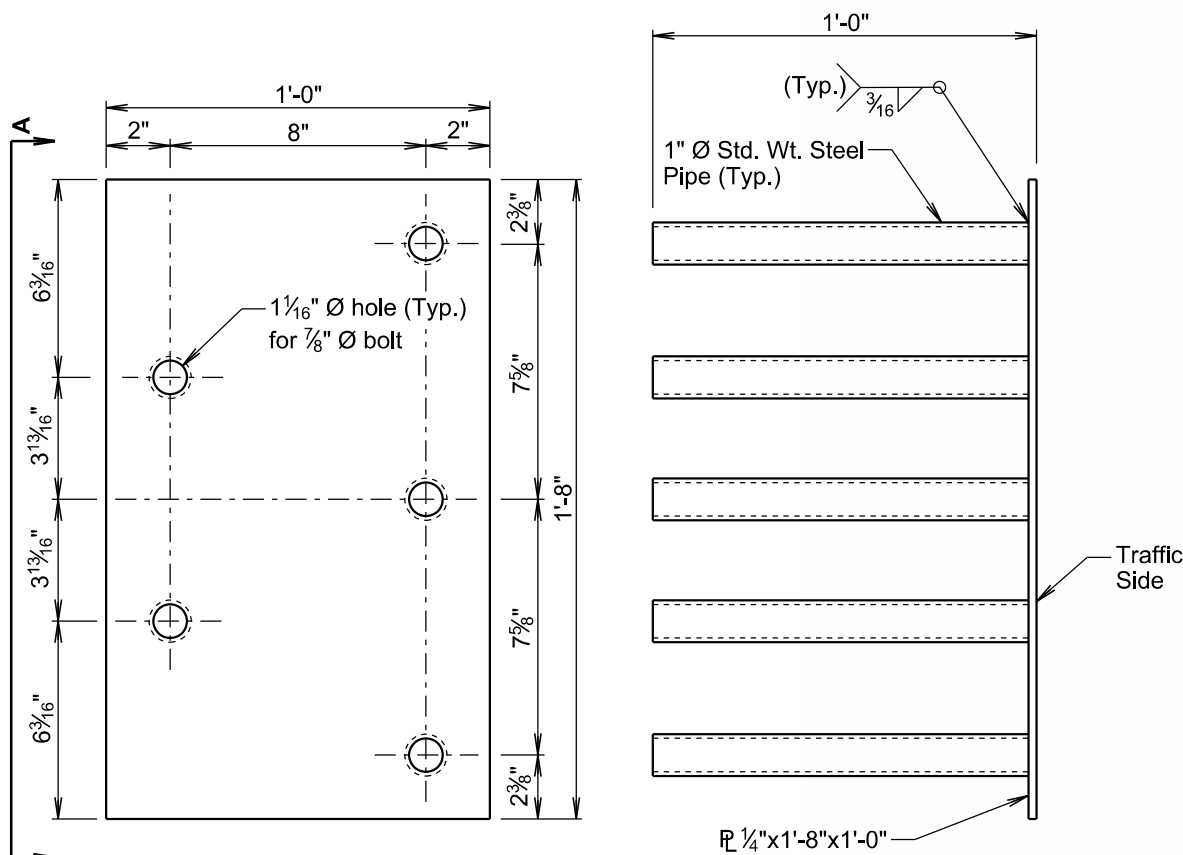
Published Date: 2026

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T

FENCE ANCHORS FOR BRIDGE ABUTMENT WINGS
(WINGS LONGER THAN 6')

PLATE NUMBER
620.17

Sheet 1 of 1



ELEVATION VIEW

VIEW A - A

GENERAL NOTES:

Steel plate for the insert assembly will conform to ASTM A709, Grade 36. The steel pipes will conform to ASTM A53, Grade B or ASTM A500, Grade B or C.

Welding and weld inspection will be in conformance with AWS D1.1 - (Current Year) Structural Welding Code - Steel.

After fabrication, galvanize in accordance with AASHTO M111 (ASTM A123).

Bolts, nuts, and washers will be provided with each assembly. Bolts will be galvanized and conform to the requirements of ASTM A307, F3125 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

Bolt heads will be placed on the traffic side of the endblock. Bolt projection at the back side of the insert will not exceed 1 inch beyond the nut.

The cost of the 5 bolt insert plate assembly complete in place including welding and galvanizing will be incidental to the contract unit price per cubic yard for "Class A45 Concrete, Miscellaneous", "Class A45 Concrete, Bridge Deck", or "Class A45 Concrete, Bridge Repair", as applicable.

April 8, 2025

Published Date: 2026

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T

5 BOLT INSERT PLATE ASSEMBLY

PLATE NUMBER
630.92

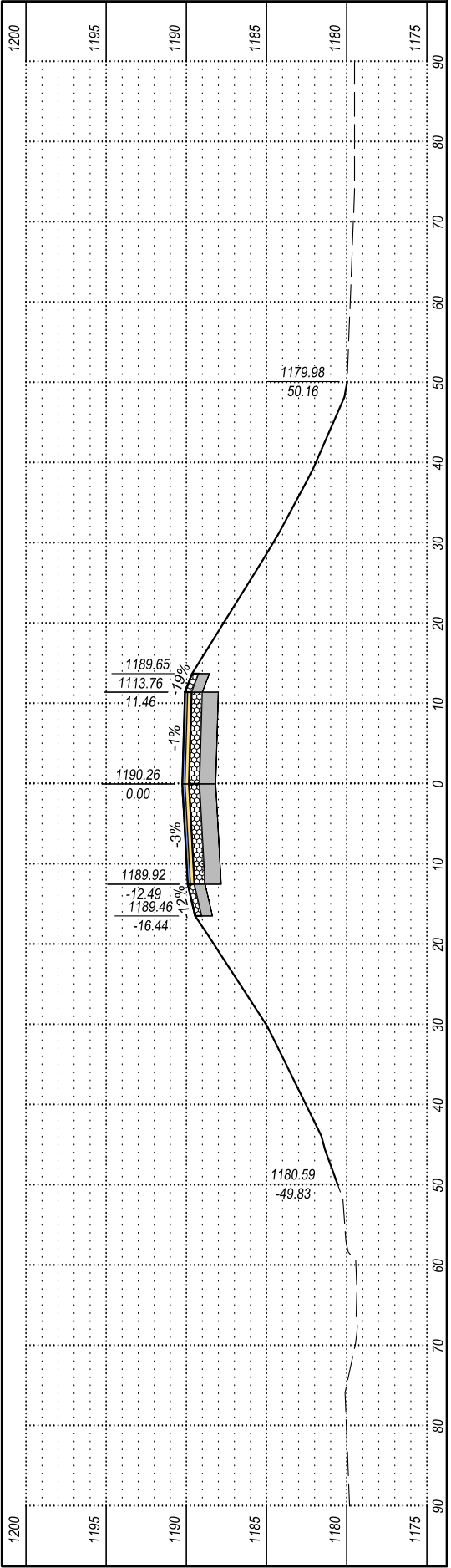
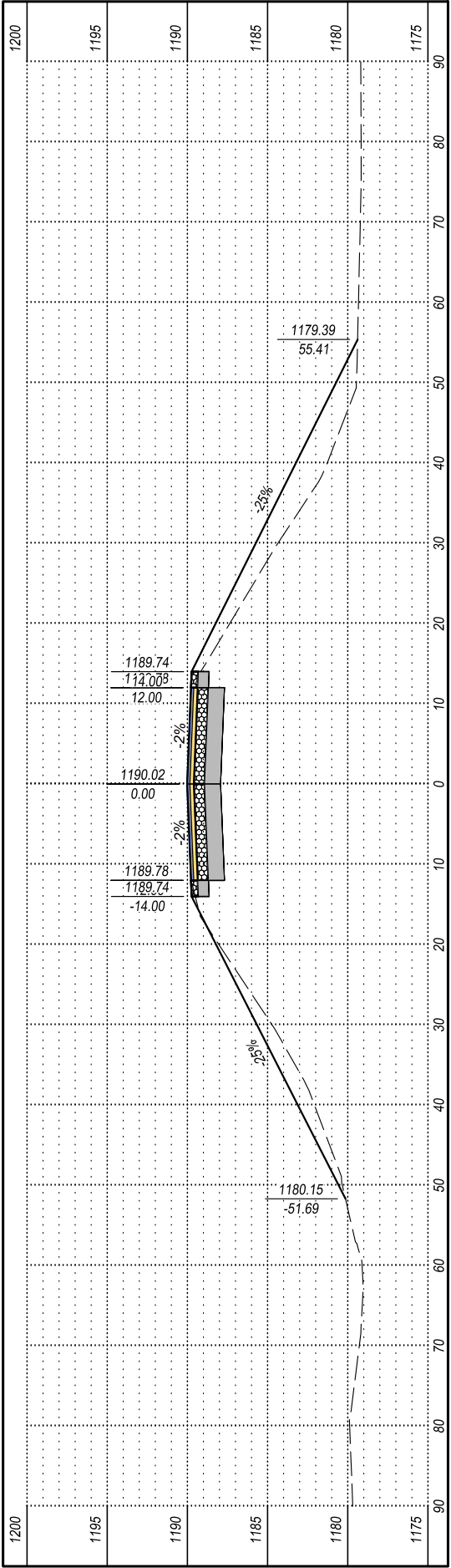
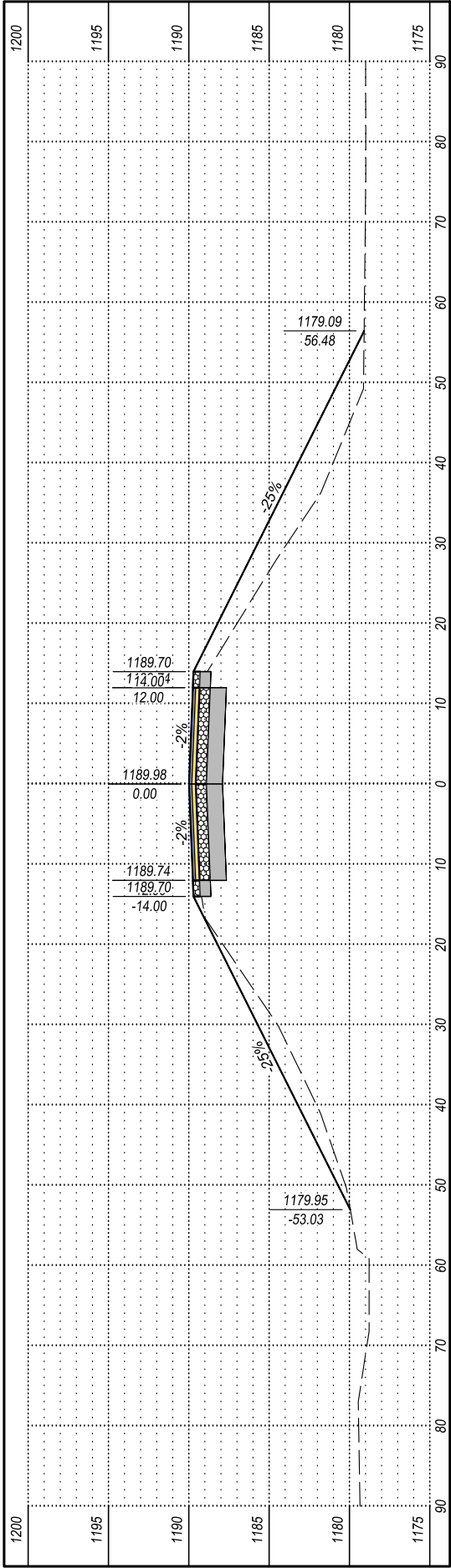
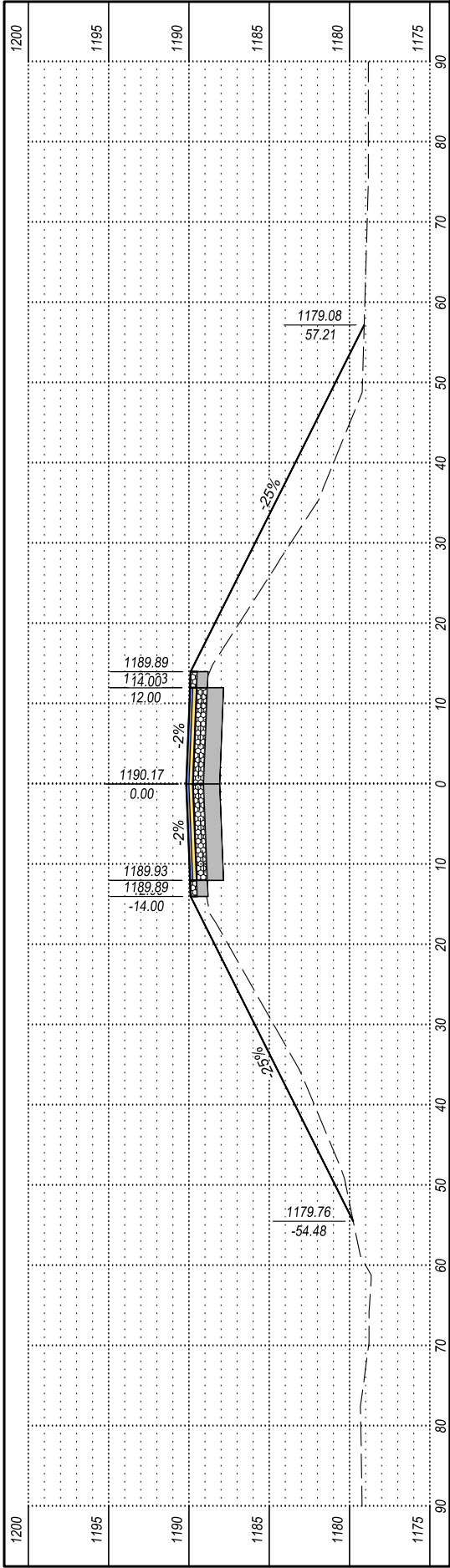
Sheet 1 of 1

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

CROSS SECTIONS (1 OF 11)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	89	99

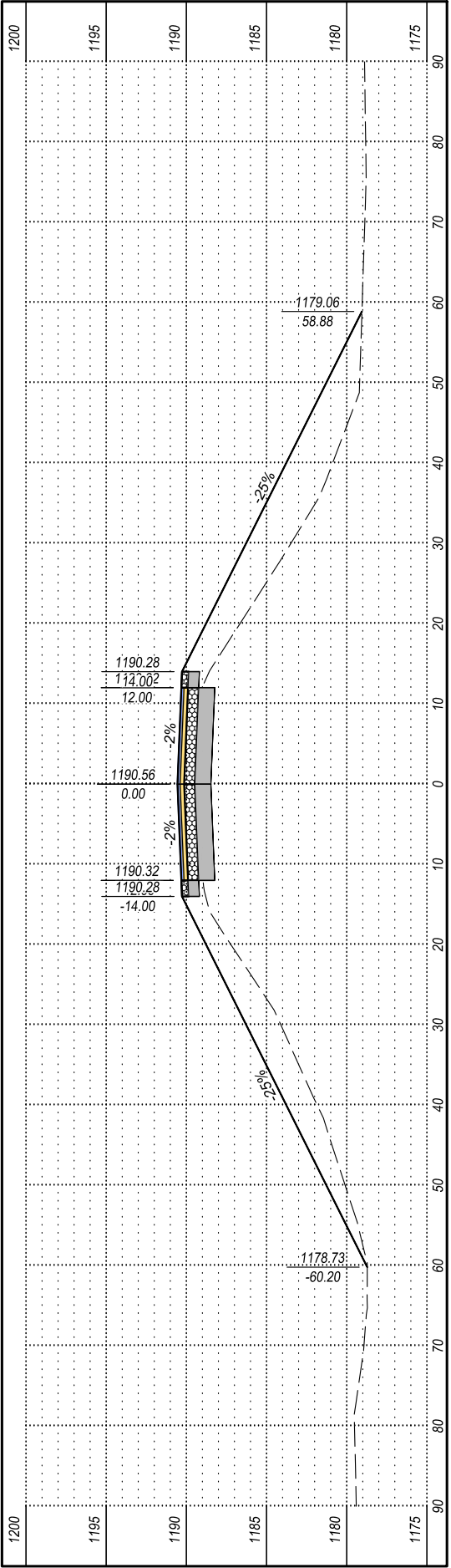
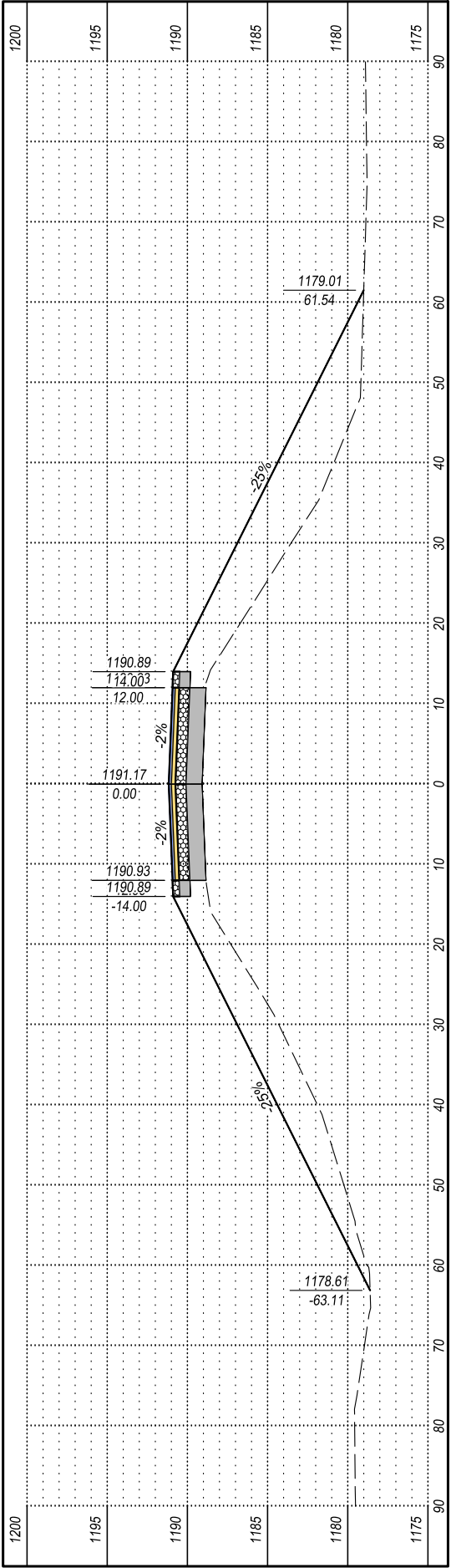
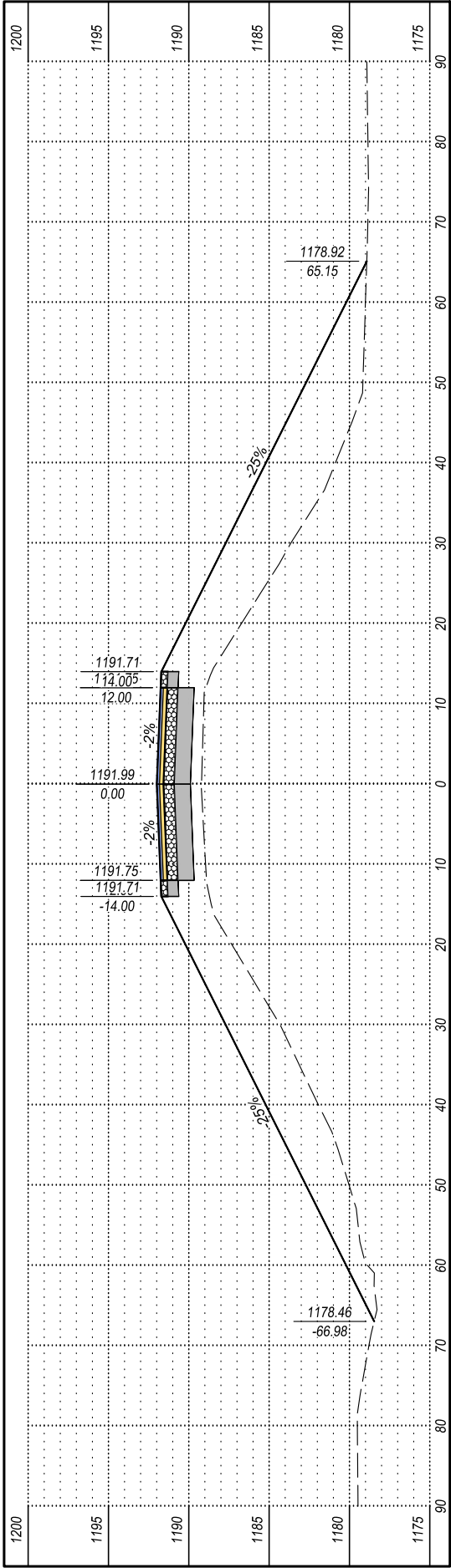
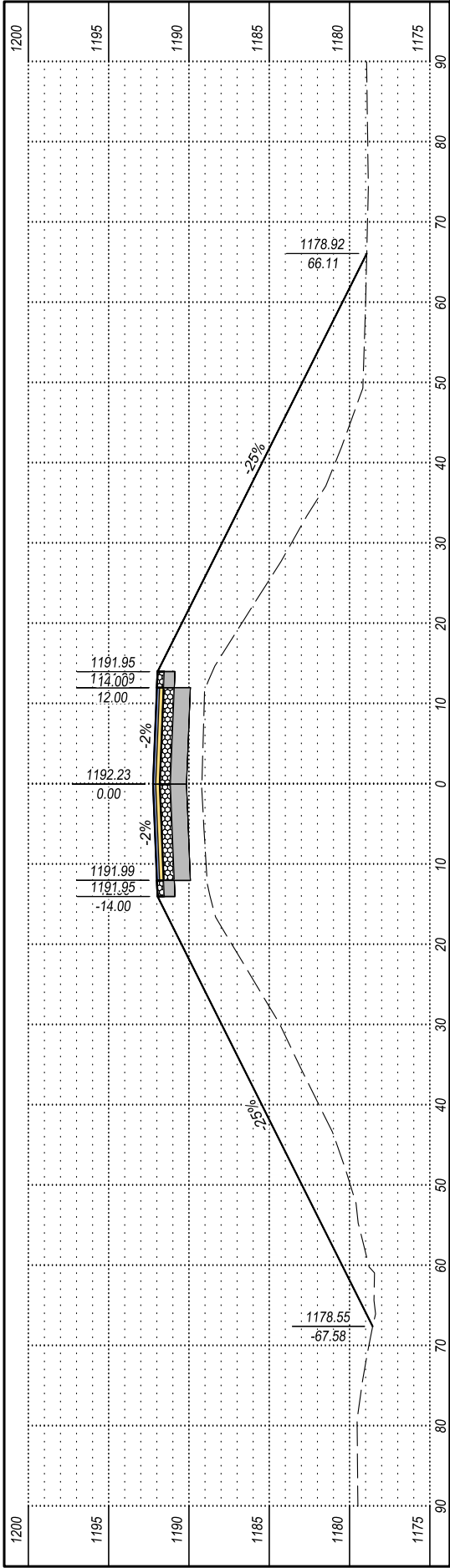


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

CROSS SECTIONS (2 OF 11)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	90	99

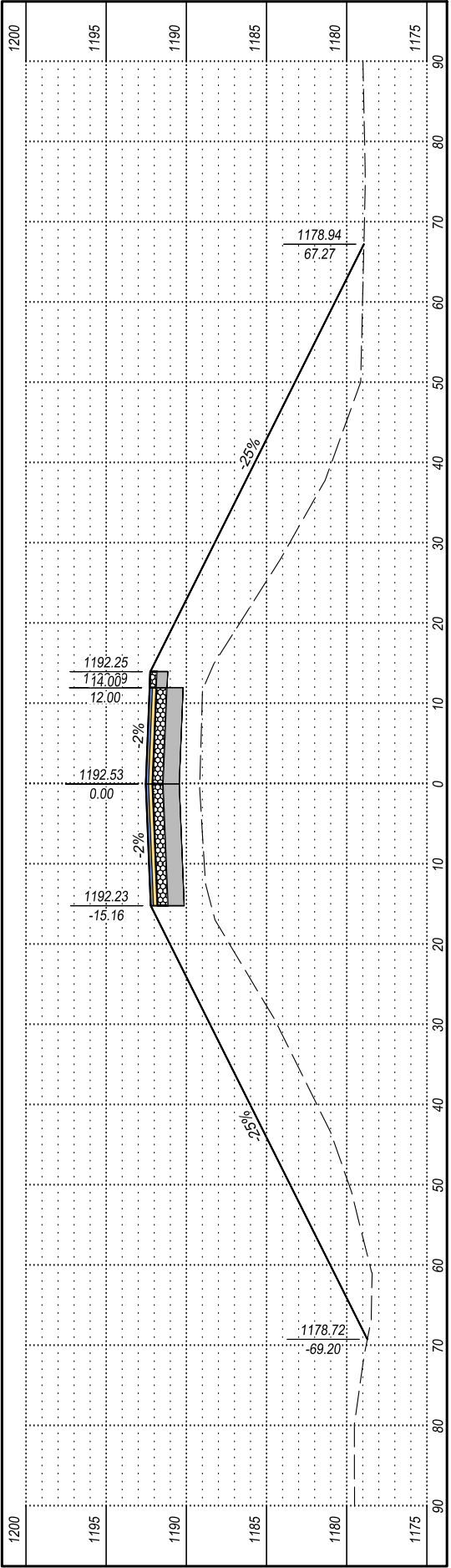
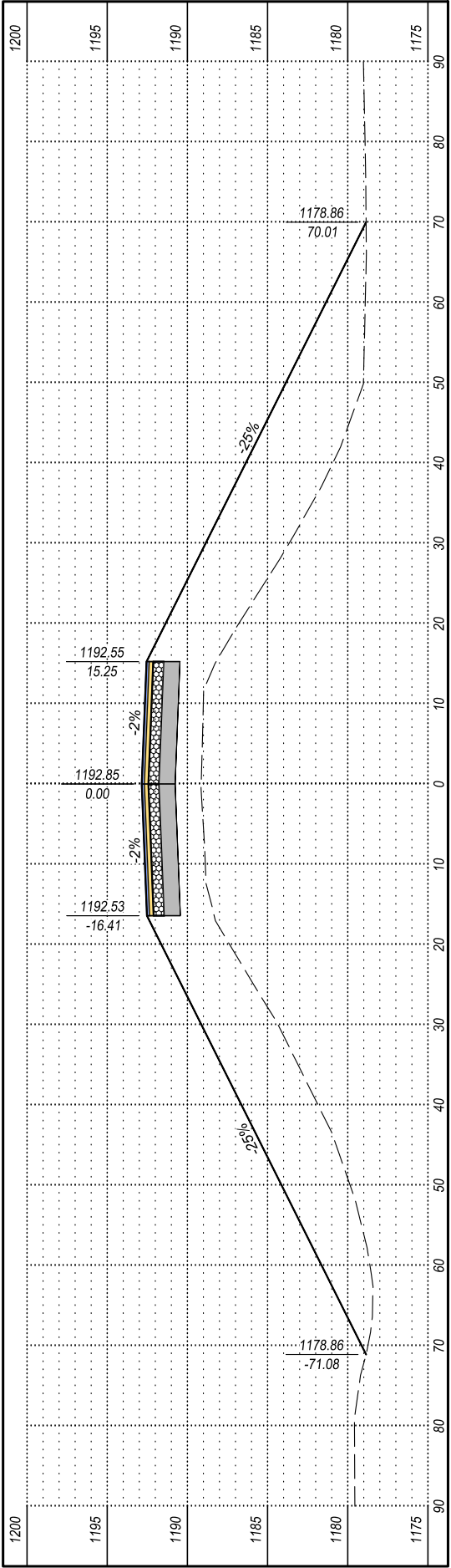
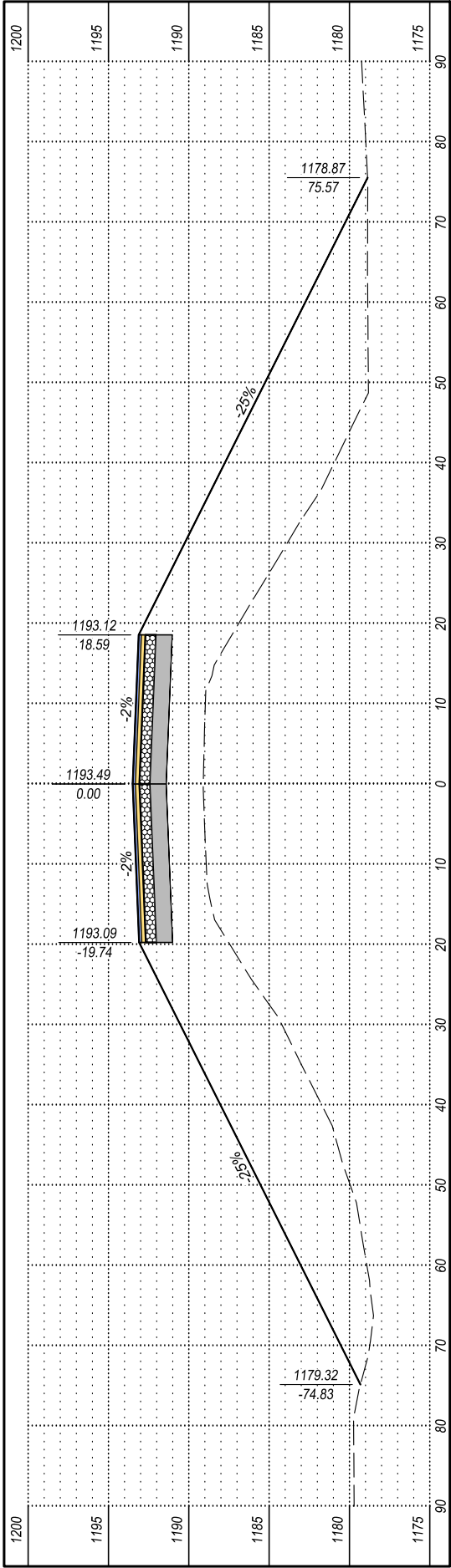
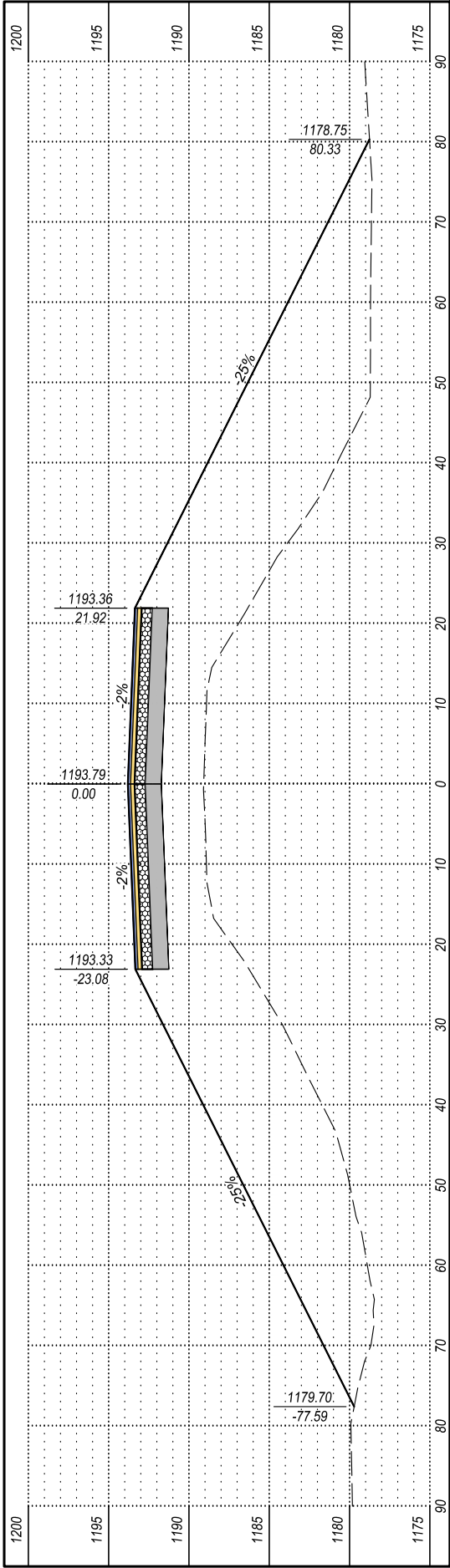


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

CROSS SECTIONS (3 OF 11)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	91	99

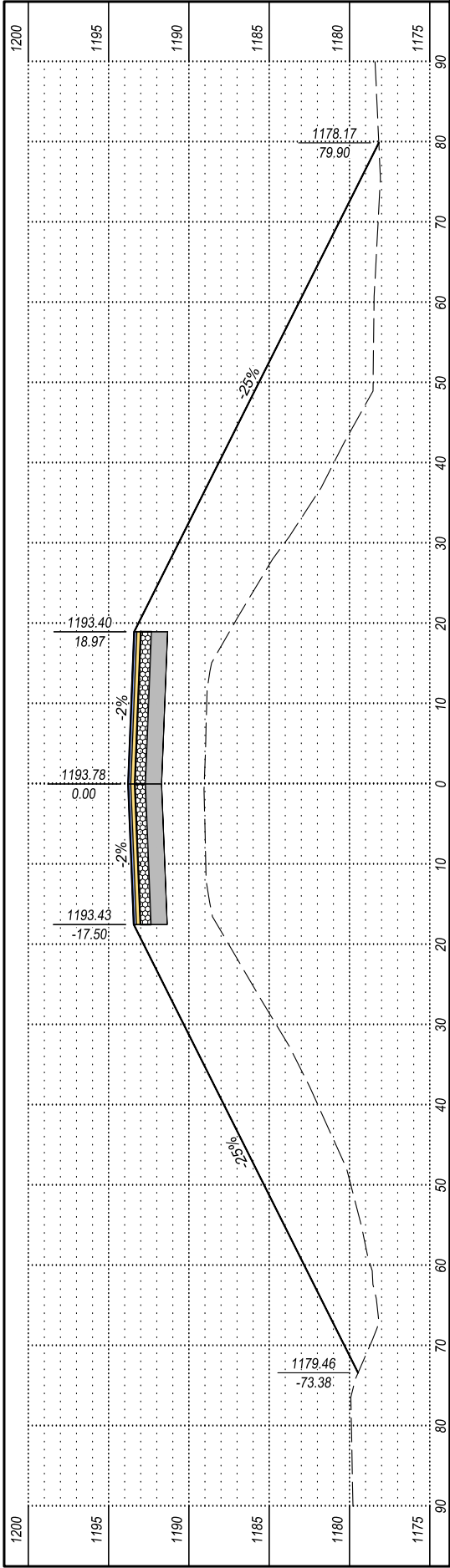


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

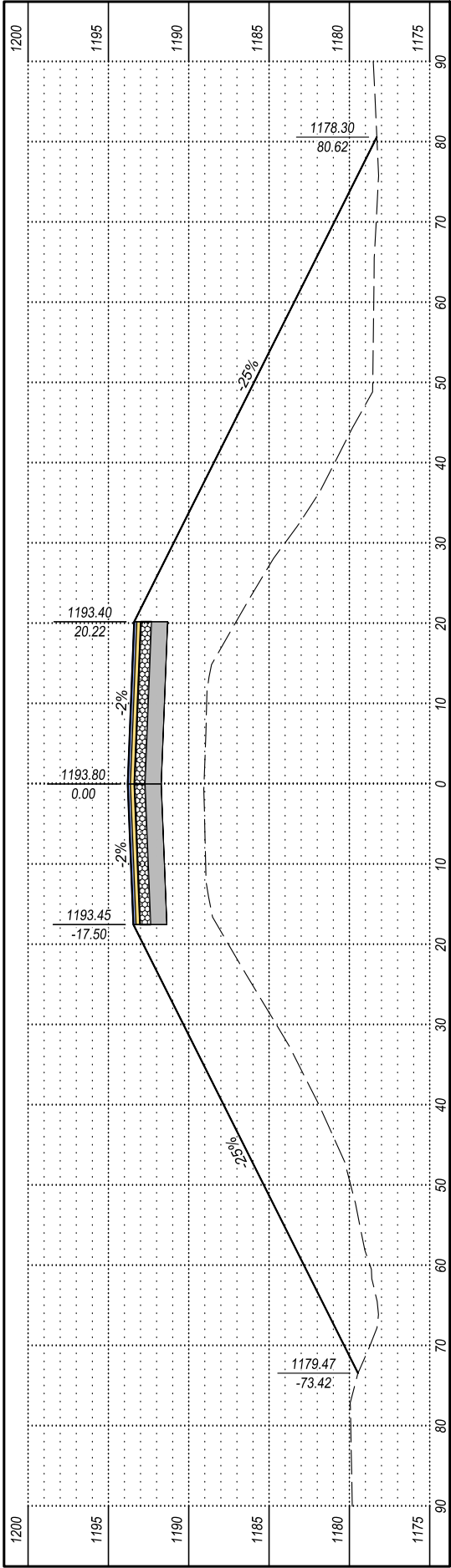
CROSS SECTIONS (4 OF 11)

FOR BIDDING PURPOSES ONLY

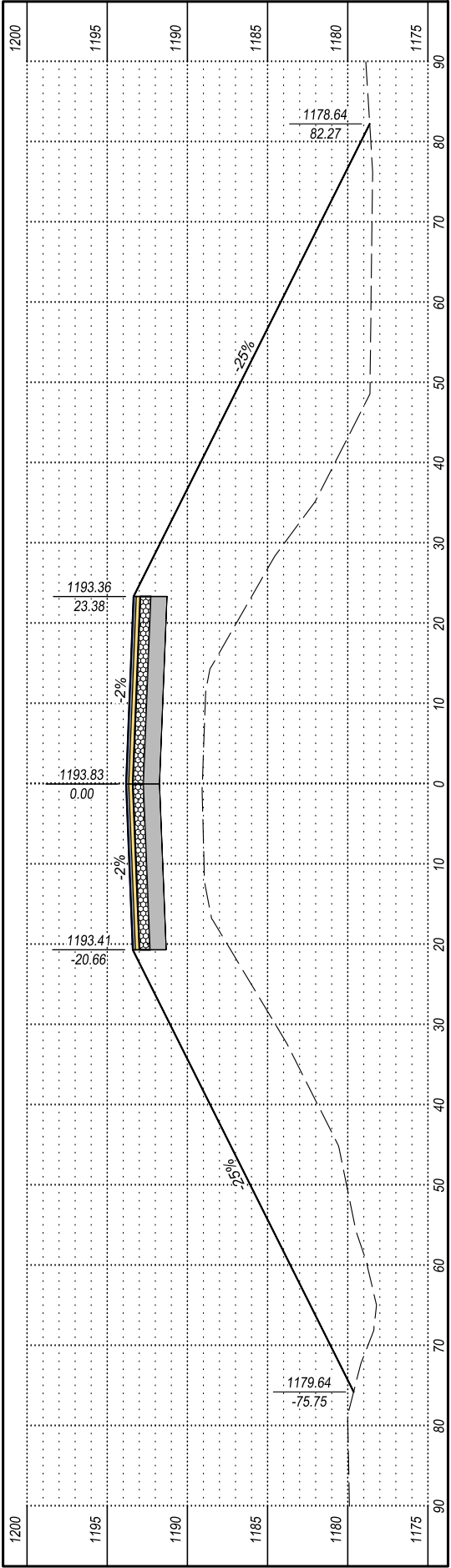
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	92	99



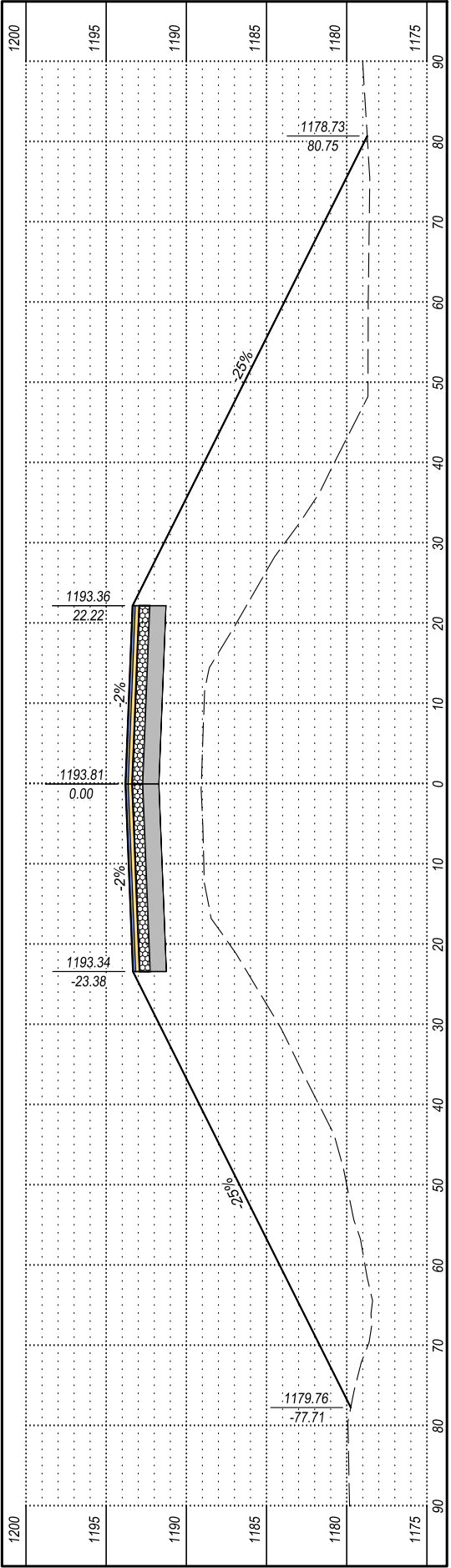
STA=7+00



STA=6+91.99



STA=6+71.90



STA=6+54.55



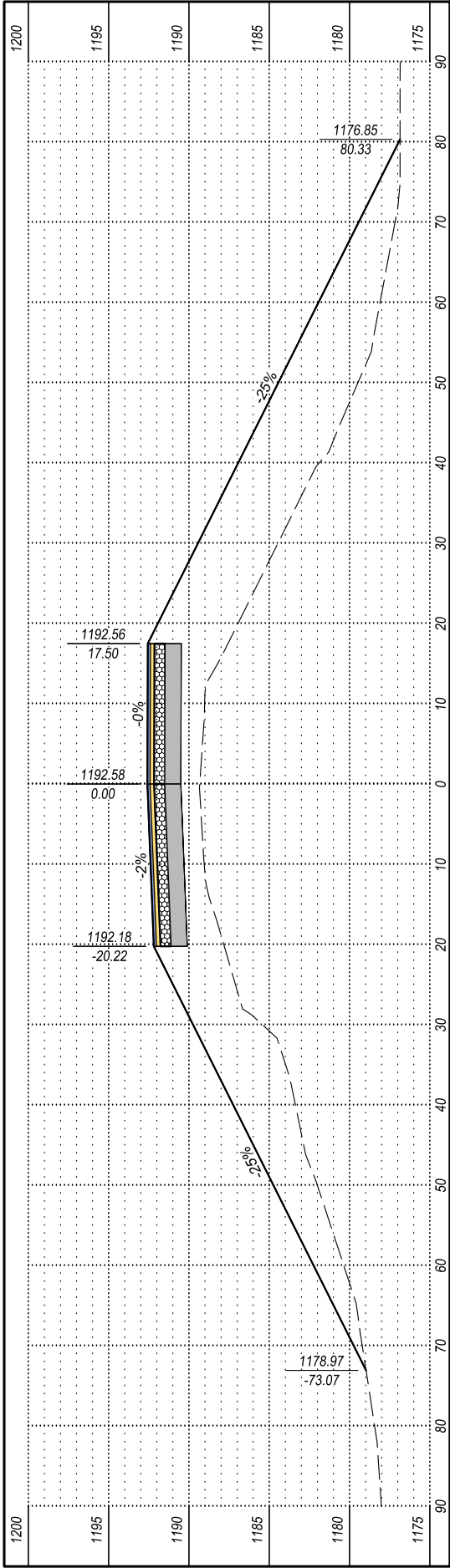
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

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

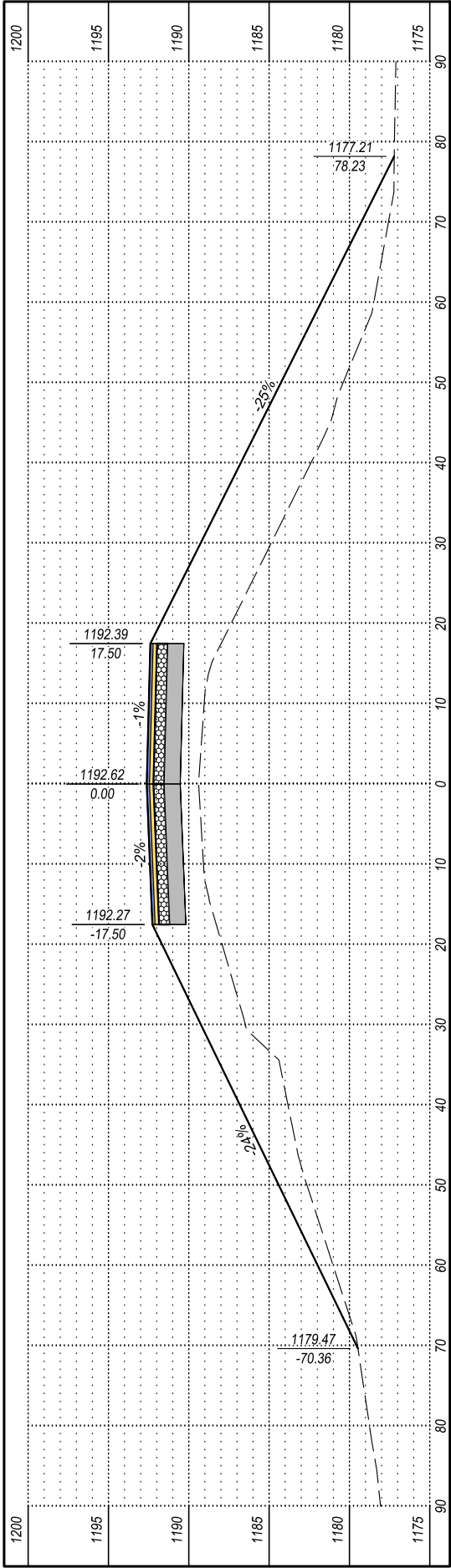
CROSS SECTIONS (5 OF 11)

FOR BIDDING PURPOSES ONLY

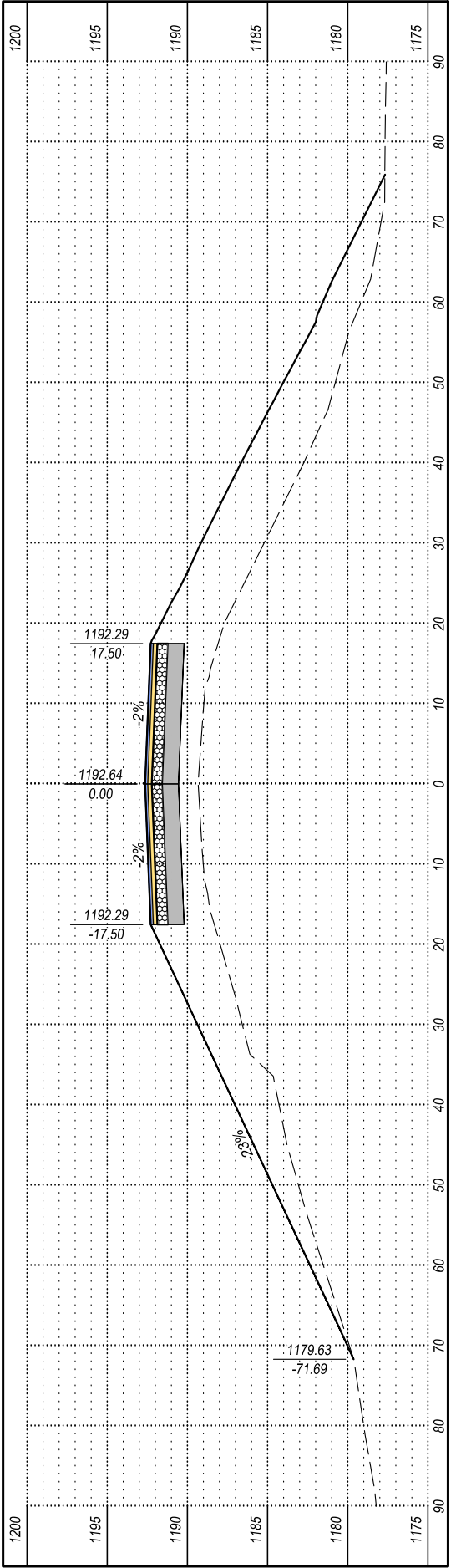
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	93	99



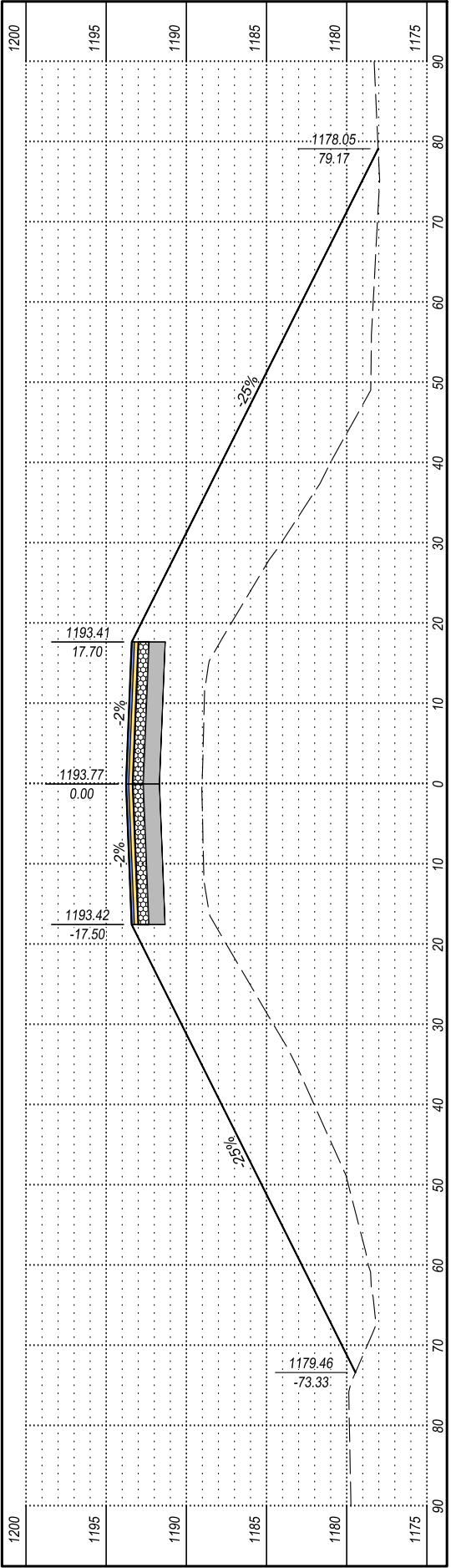
STA=12+92.01



STA=12+74.67



STA=12+63.53



STA=7+08.05



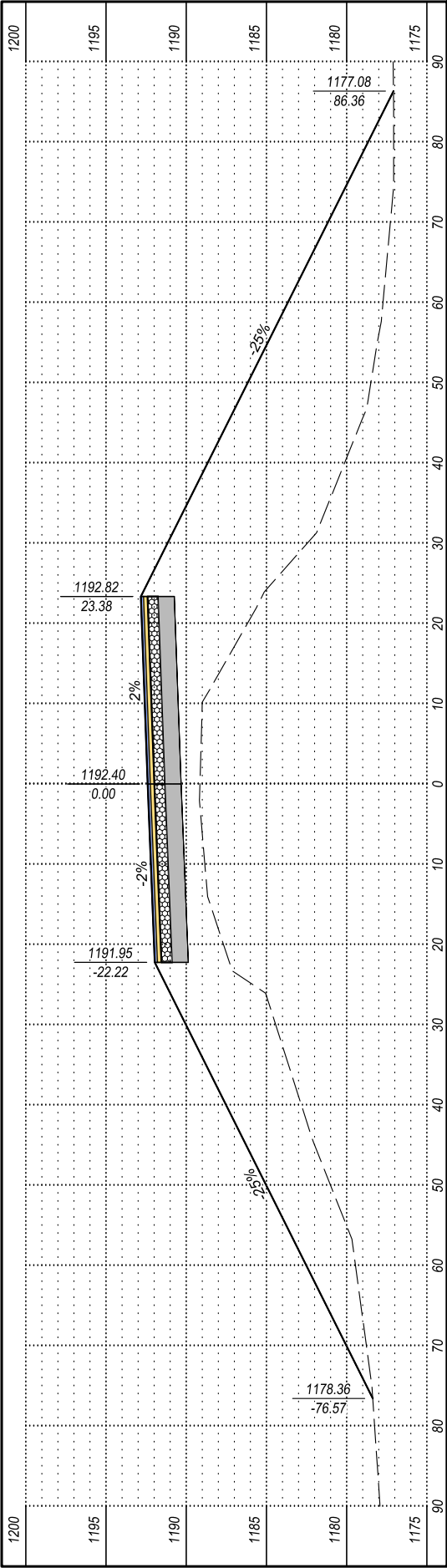
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

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

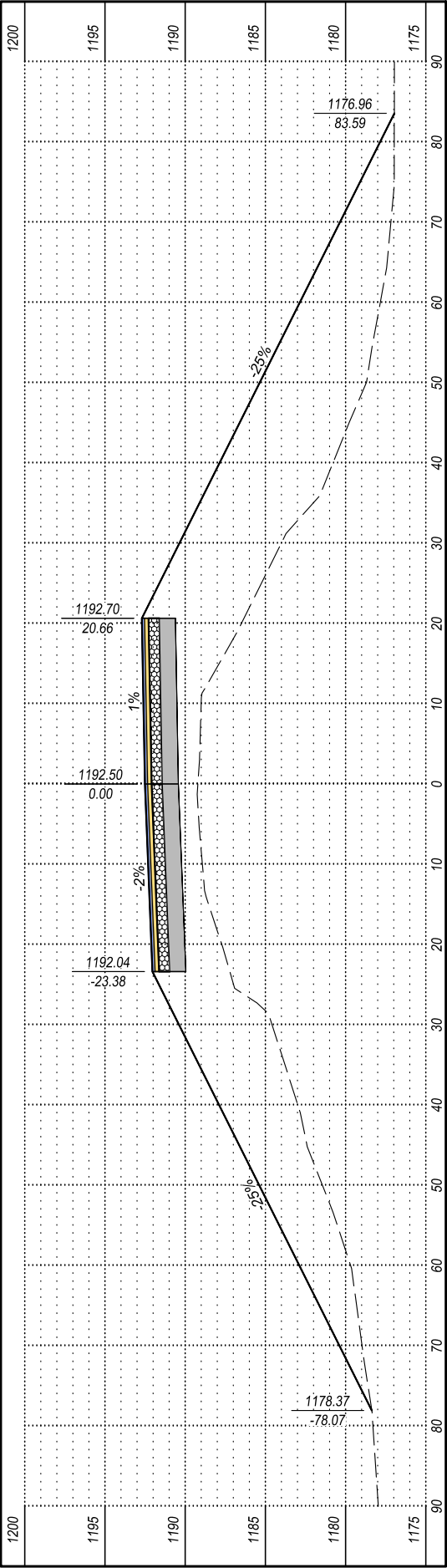
CROSS SECTIONS (6 OF 11)

FOR BIDDING PURPOSES ONLY

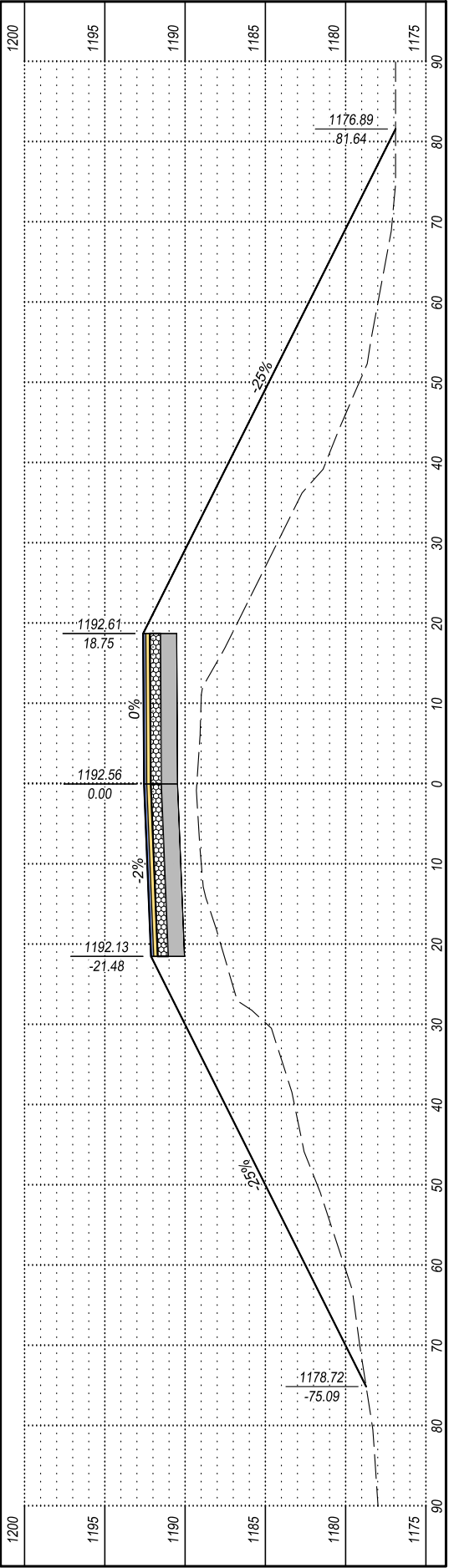
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	94	99



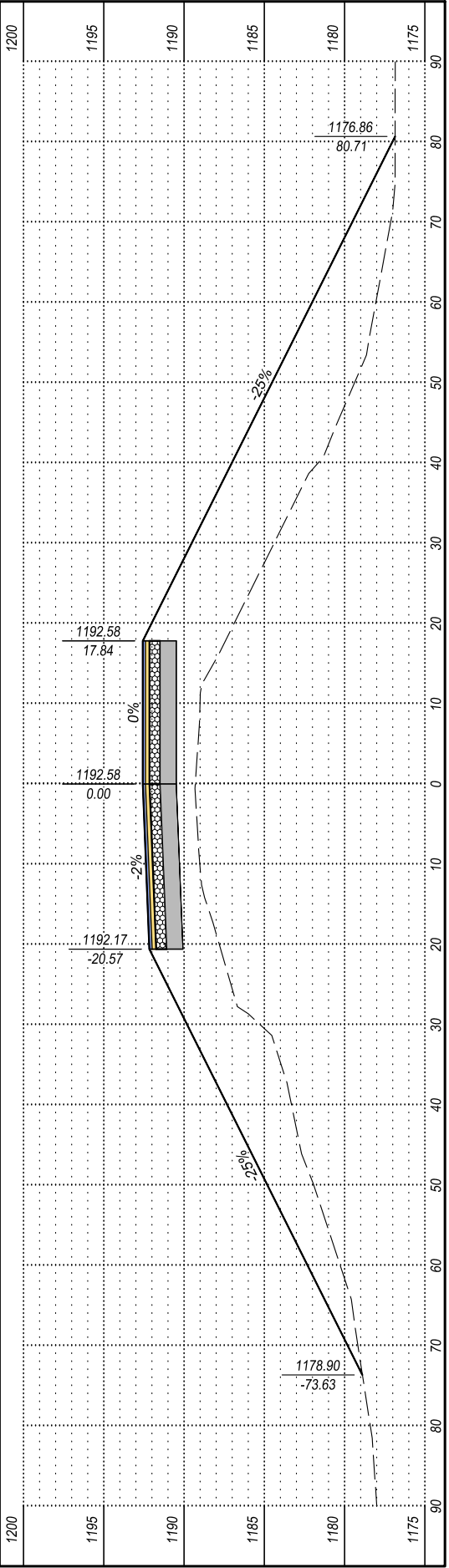
STA=13+29.45



STA=13+12.10



STA=13+00



STA=12+94.21



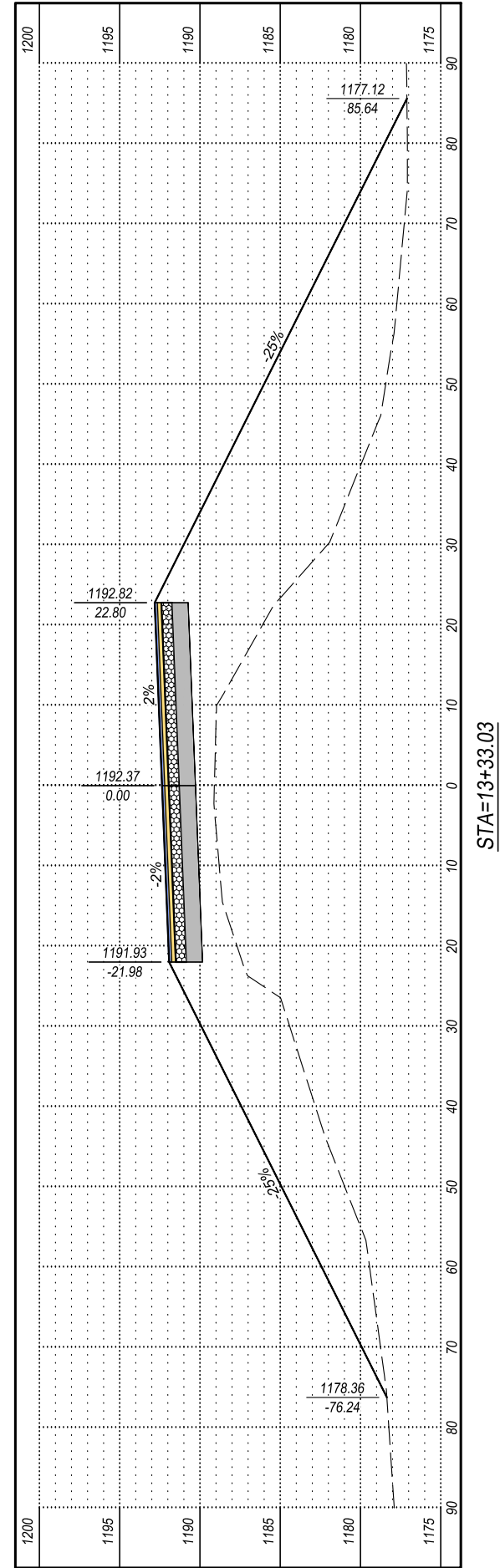
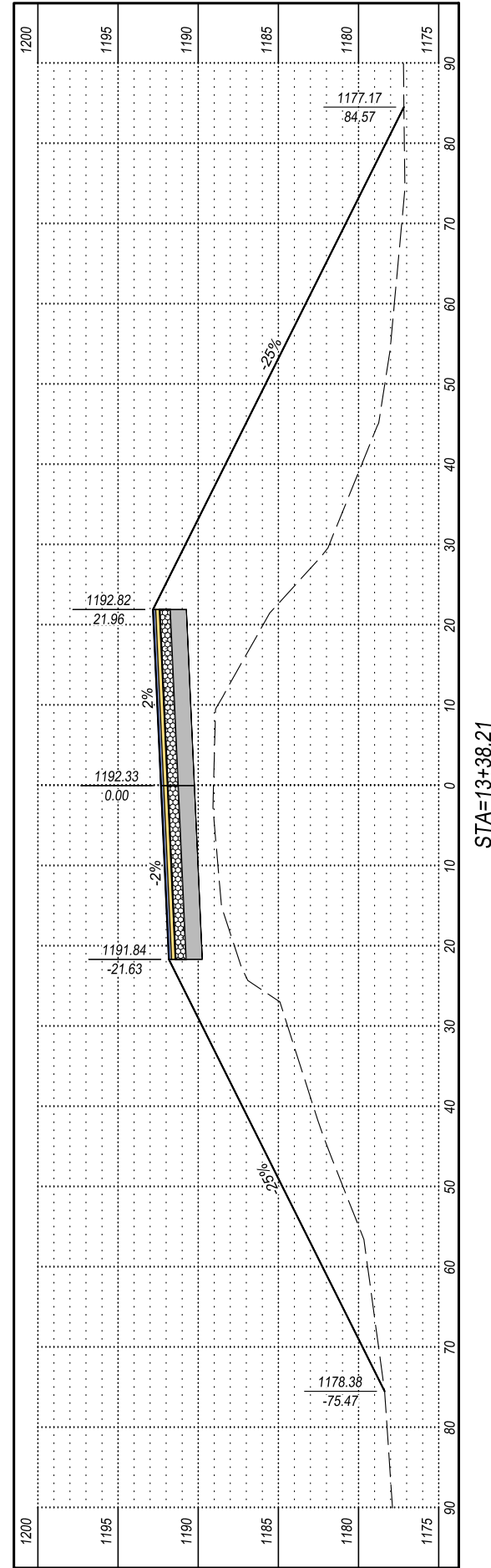
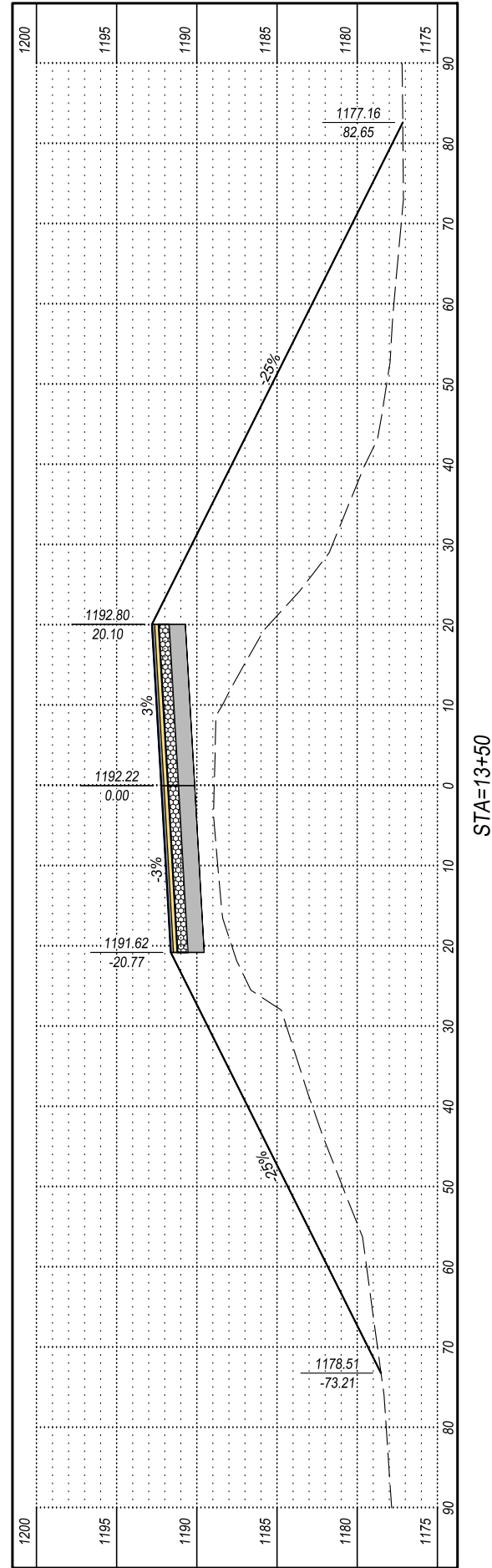
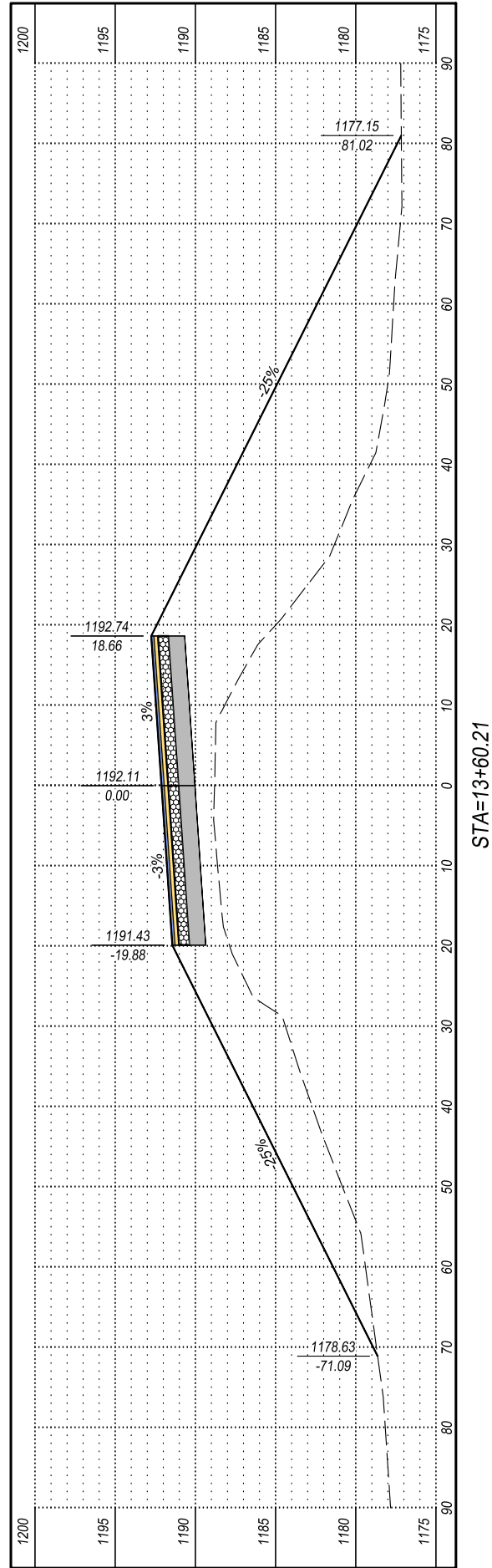
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

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

CROSS SECTIONS (7 OF 11)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	95	99



Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'



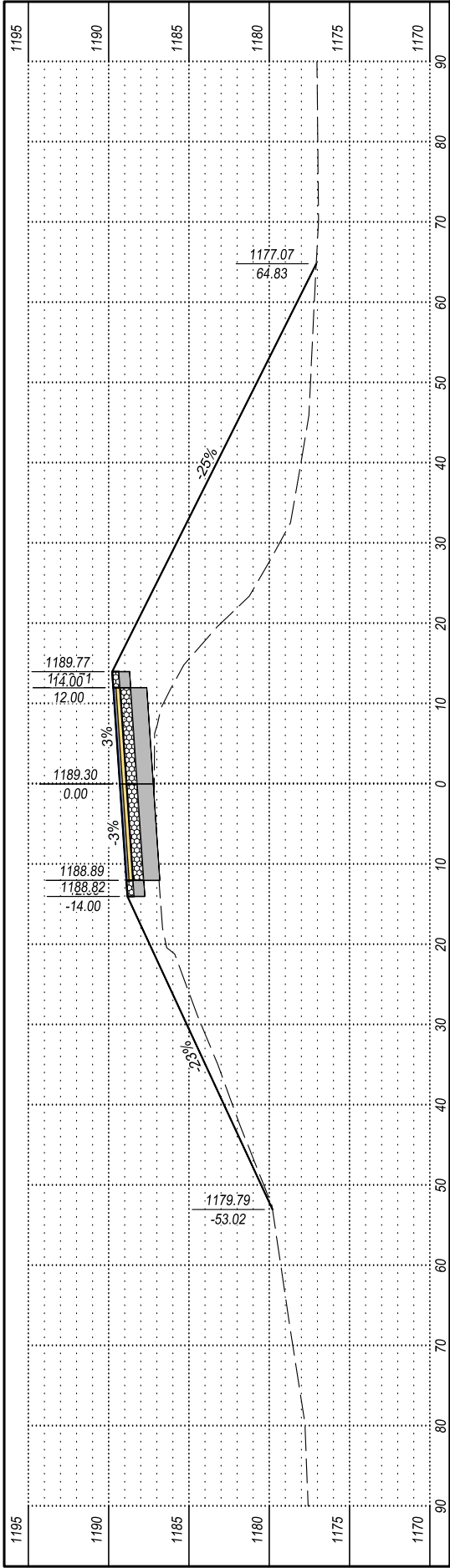
Plotted on: 5/2/25 3:15:39 PM Plotted by: Justin M. Pump
O:\Sioux Falls\Clark\Projects\2019 Proj\X19079 Yankton Co BR# 6213(00)20-1 PCN 07M5\Design\X19079 Civil Design.dwg

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

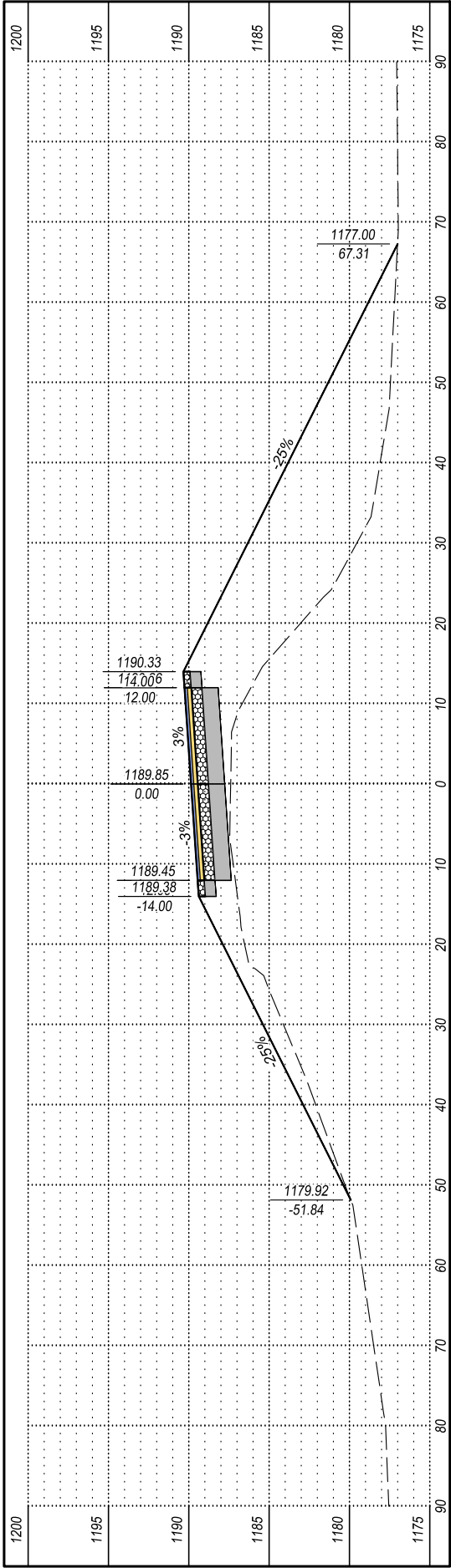
CROSS SECTIONS (8 OF 11)

FOR BIDDING PURPOSES ONLY

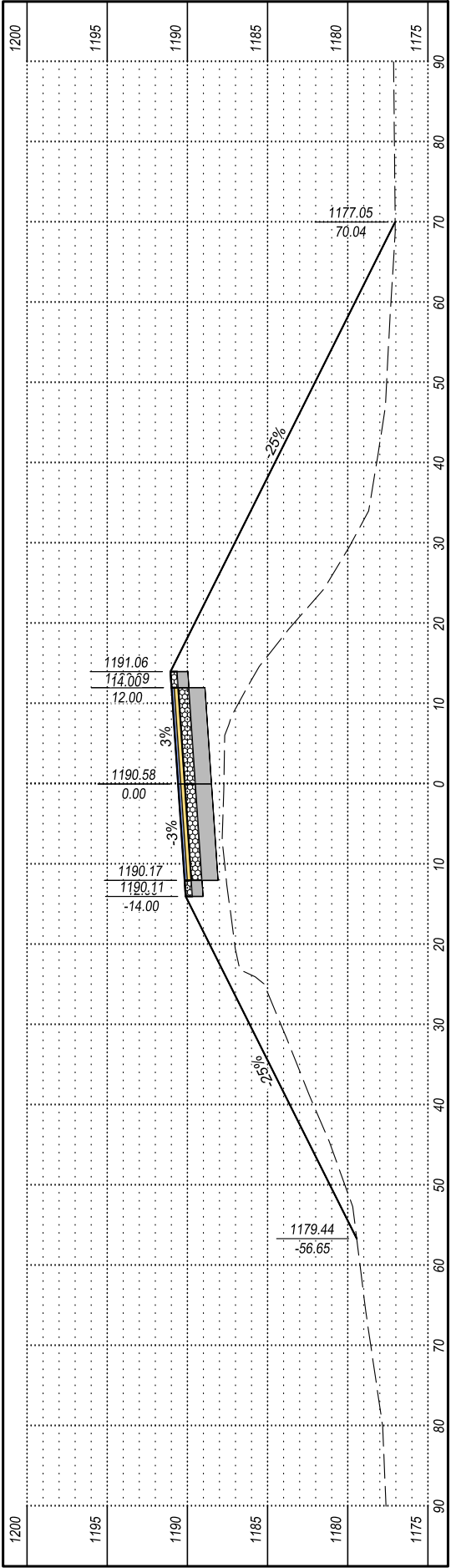
PROJECT	SHEET	TOTAL SHEETS
STATE OF SOUTH DAKOTA	96	99



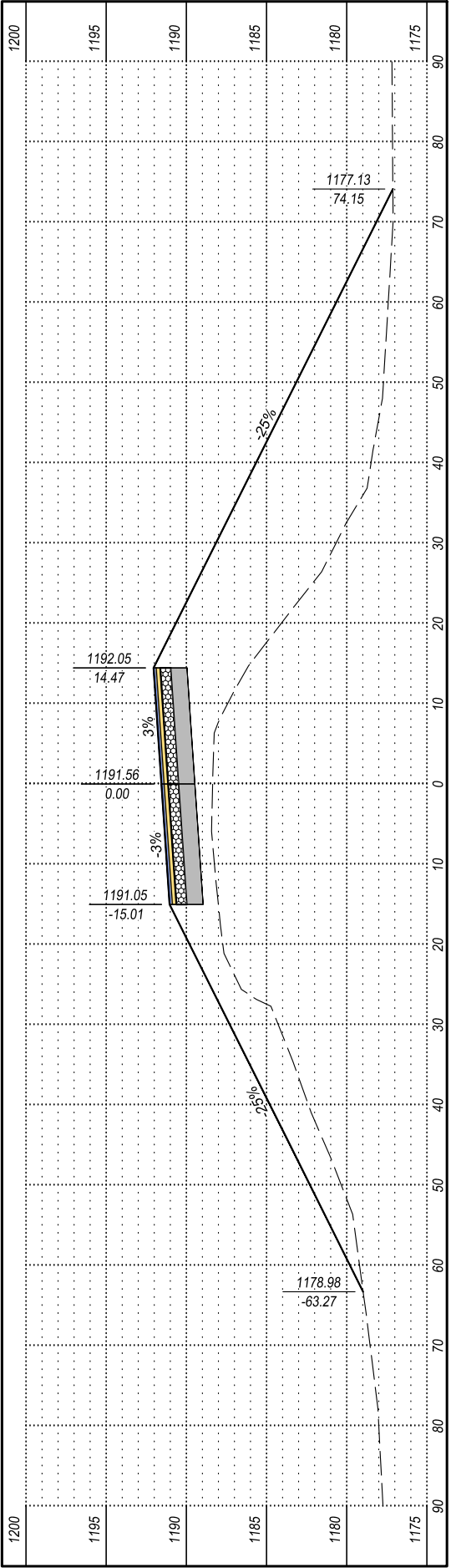
STA=15+00



STA=14+79.64



STA=14+50



STA=14+00

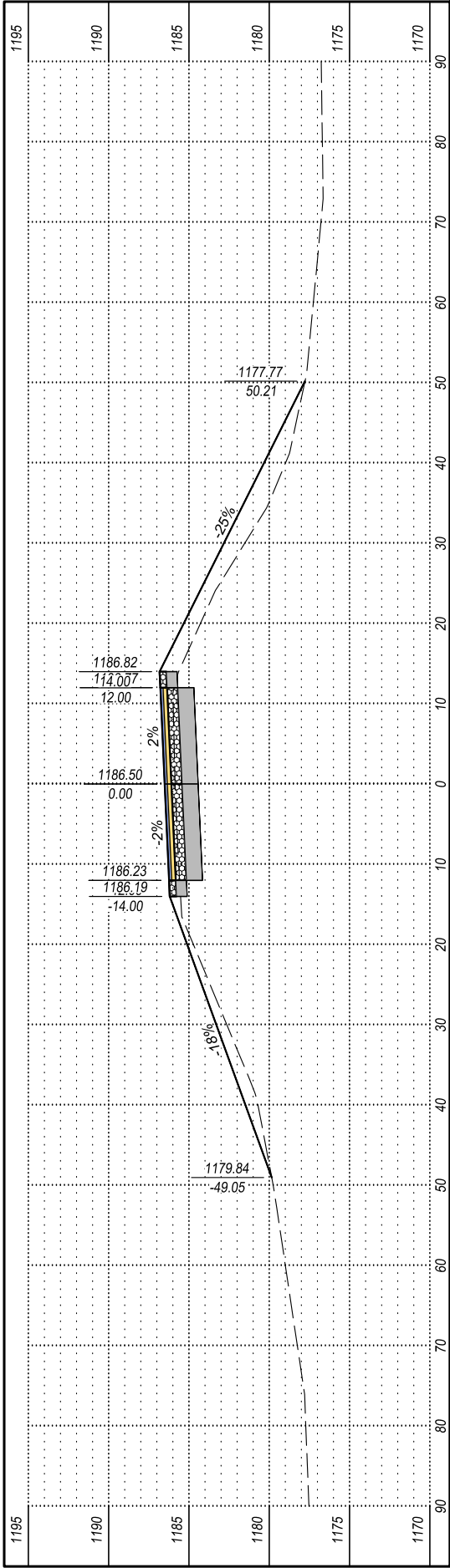


The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

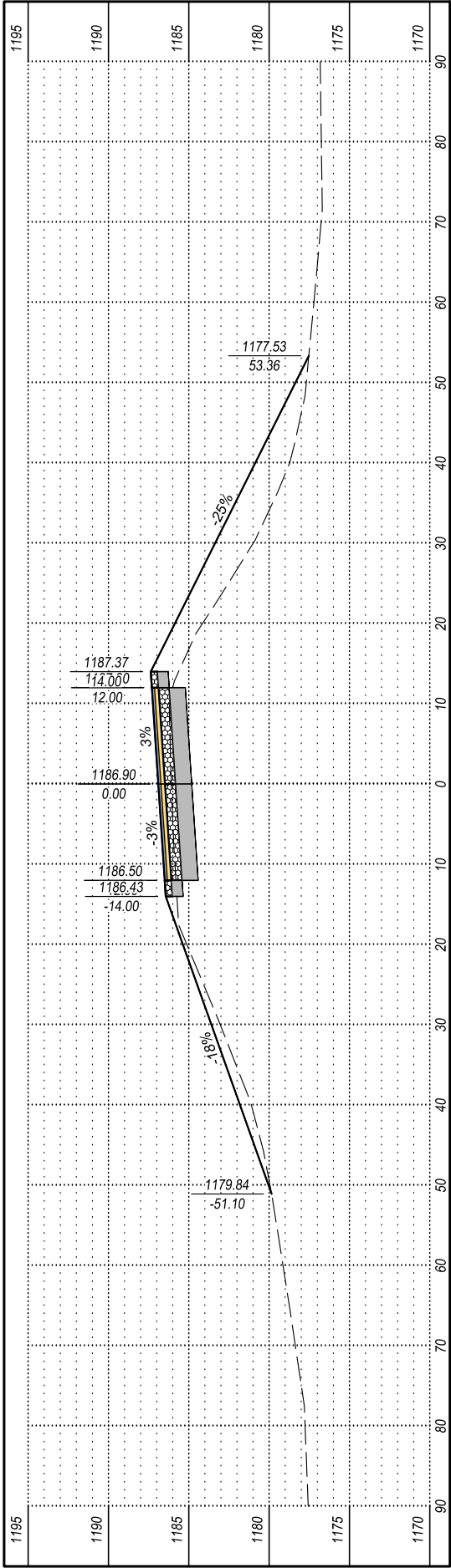
CROSS SECTIONS (9 OF 11)

FOR BIDDING PURPOSES ONLY

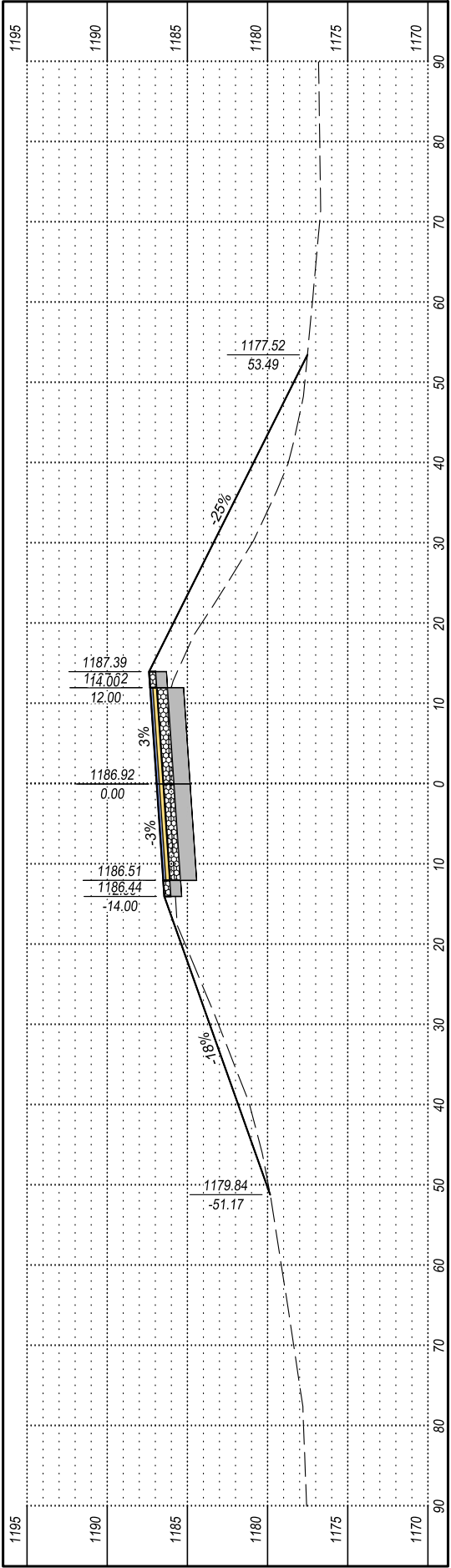
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	97	99



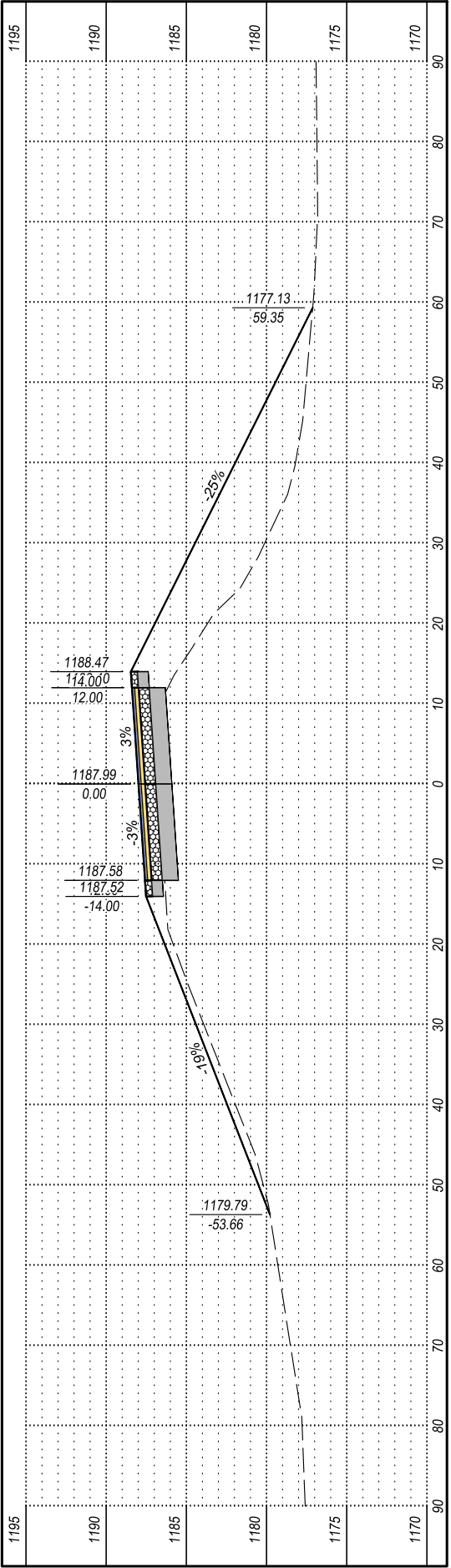
STA=16+21.07



STA=16+00



STA=15+99.07



STA=15+50



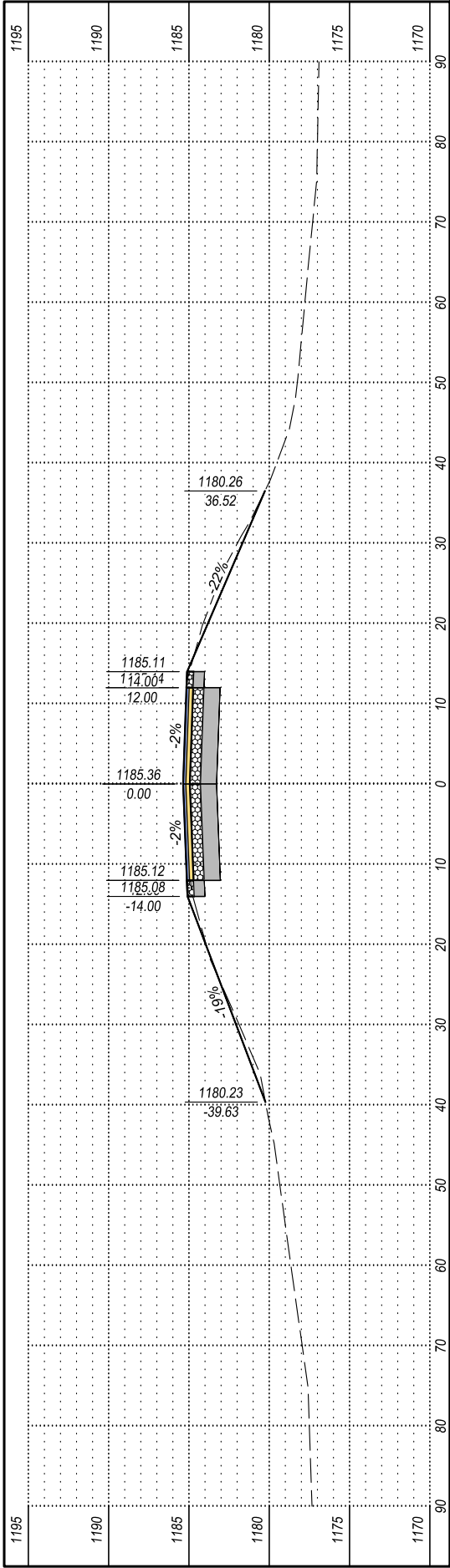
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

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

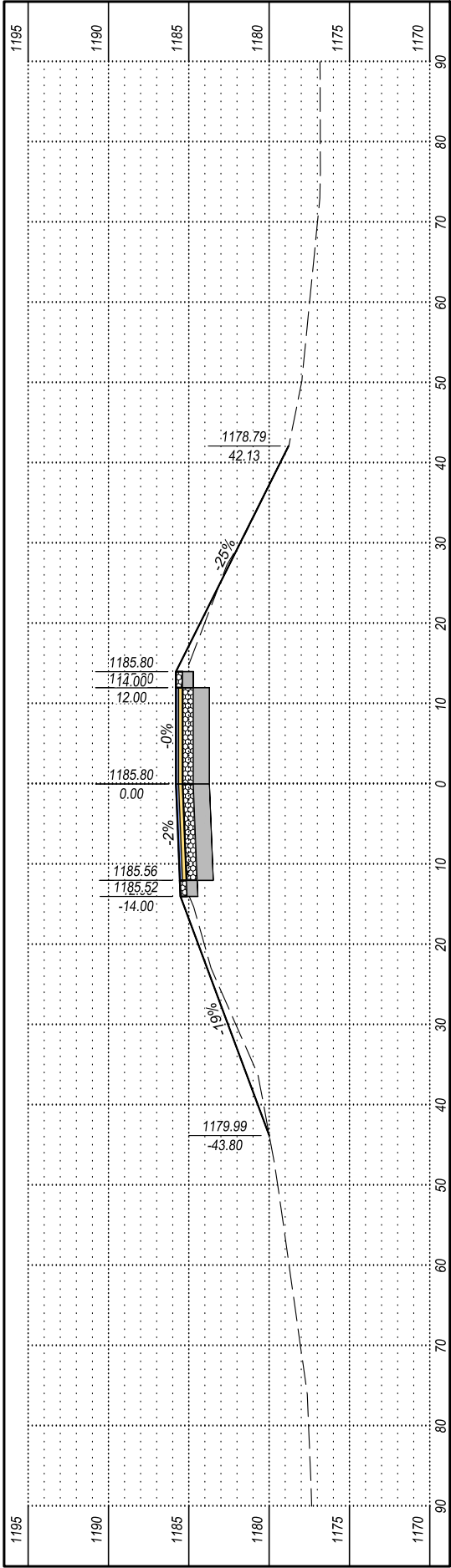
CROSS SECTIONS (10 OF 11)

FOR BIDDING PURPOSES ONLY

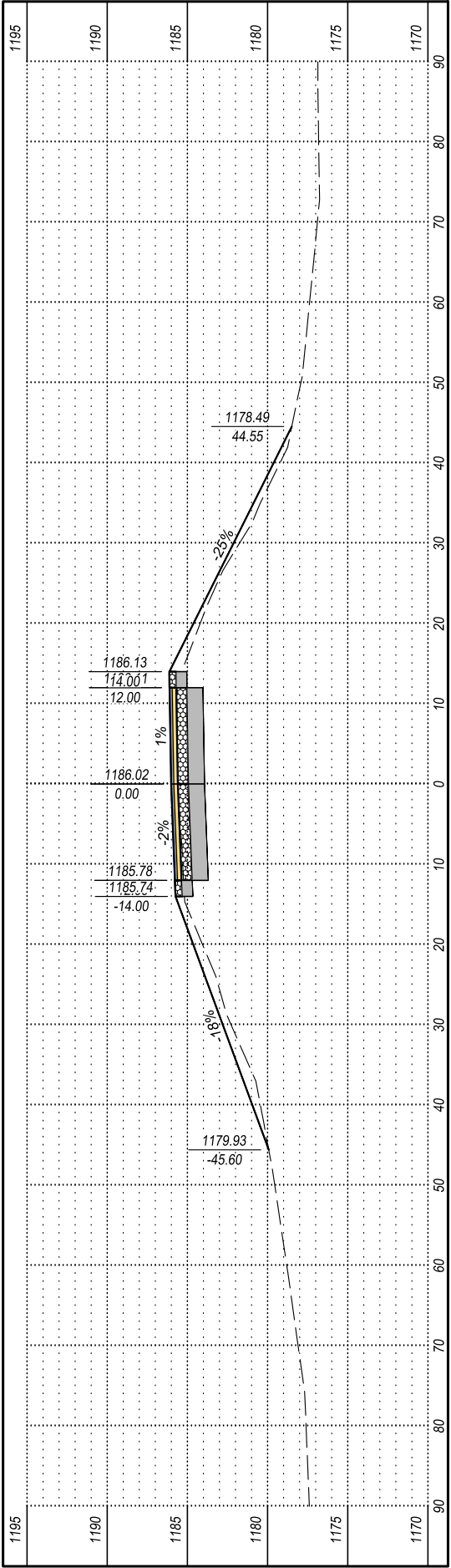
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	98	99



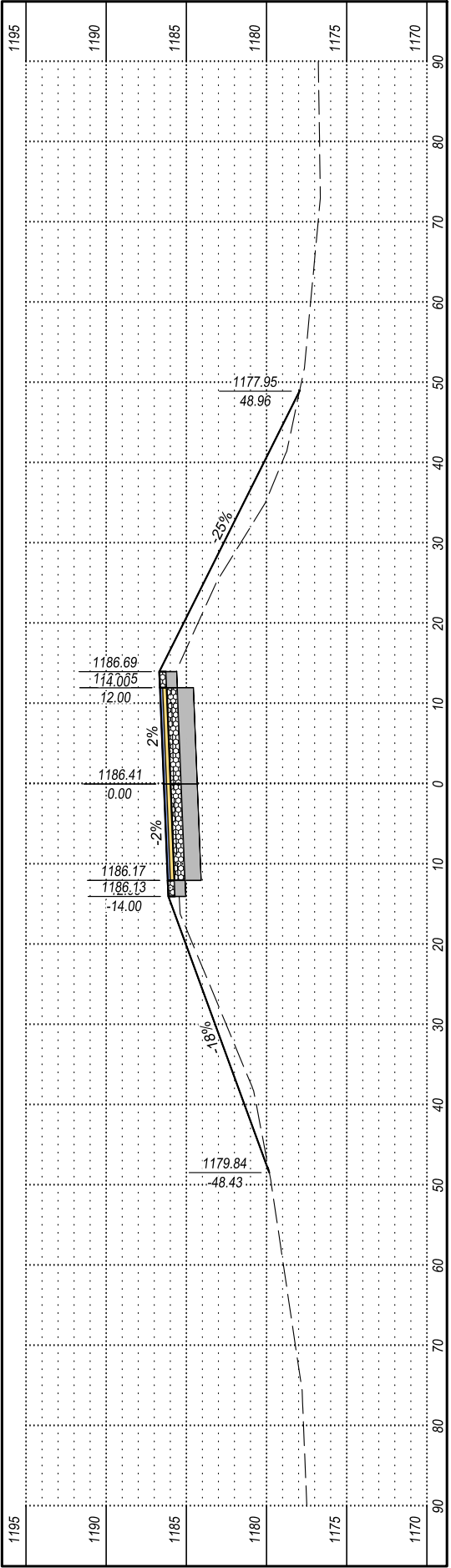
STA=17+00



STA=16+65.07



STA=16+50



STA=16+26.25



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

CROSS SECTIONS (11 OF 11)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6213(15)	99	99

