



Planning & Engineering
Office of Project Development
700 East Broadway Avenue
Pierre, South Dakota 57501-2586
O: 605.773.3275
dot.sd.gov

September 11, 2026

To Whom it May Concern,

Beginning with the 10/7/2026 letting, the SDDOT will be using the new Electronic Standard Specifications for Roads and Bridges, 10-7-26 Version. The Standard Specifications for Roads and Bridges is available for download and viewing at <https://dot.sd.gov/doing-business/contractors/standard-specifications> . A printed version of the Standard Specifications for Roads and Bridges will not be provided.

A revised Buy America specification is in effect beginning with the 10/7/26 letting, which aligns with the expiration of the Federal Manufactured Products General Waiver. Contractors should be aware that new provisions for manufactured products, along with updates to material classifications, documentation requirements, and compliance procedures, are included in Section 6.9 of the Standard Specifications (10/07/2026 version). All contractors and suppliers are strongly encouraged to review the updated specification in full. Contractors are encouraged to attend the Buy America Informational Webinar being put on by the SDDOT and AGC. Information on the webinar can be found at:

<https://dot.sd.gov/doing-business/contractors/webinars/>

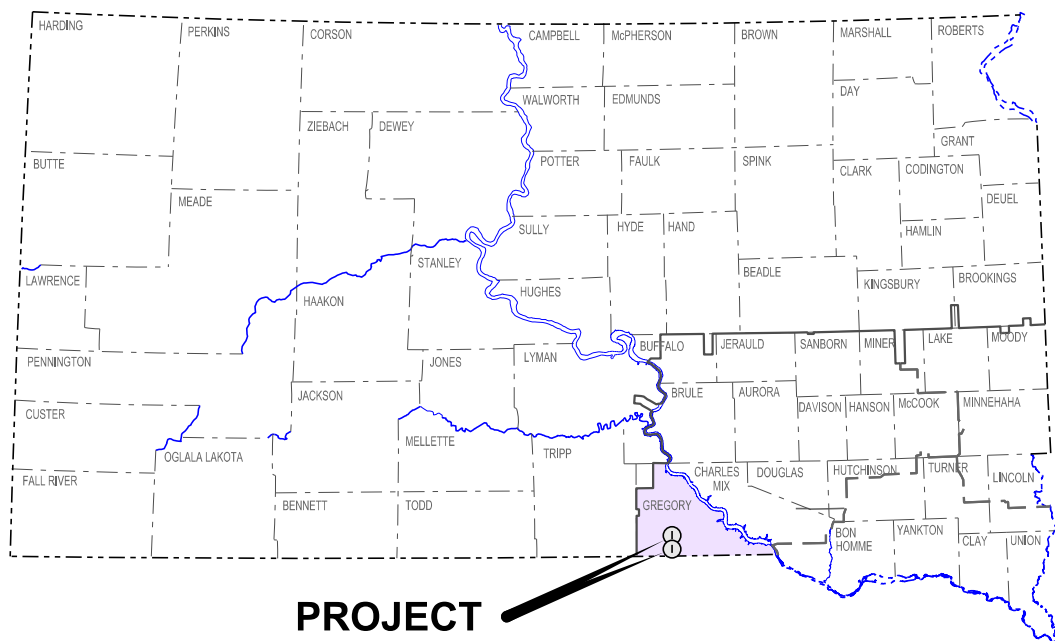
FHWA has updated the FHWA-1273 commonly known as the "Pink Sheets". The new FHWA-1273 will be incorporated into all contracts awarded after 10/7/26. Additional information regarding the updated FHWA-1273 can be found at:

<https://www.fhwa.dot.gov/construction/cqit/form1273.cfm>

Sincerely,
SDDOT – Bid Letting Office

PLOT SCALE - 1"=7000'

PLOTTED FROM - TRM111118



PROJECT

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT P 0047(125)2
SD HIGHWAY 47
GREGORY COUNTY
BRIDGE DECK OVERLAYS, BARRIER CURB REPAIR,
CONCRETE BLOCK ON CURB, APPROACH PAVEMENT,
PAVEMENT MARKING & GUARDRAIL
PCN 08J8

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	1	82

Plotting Date: 06/29/2026

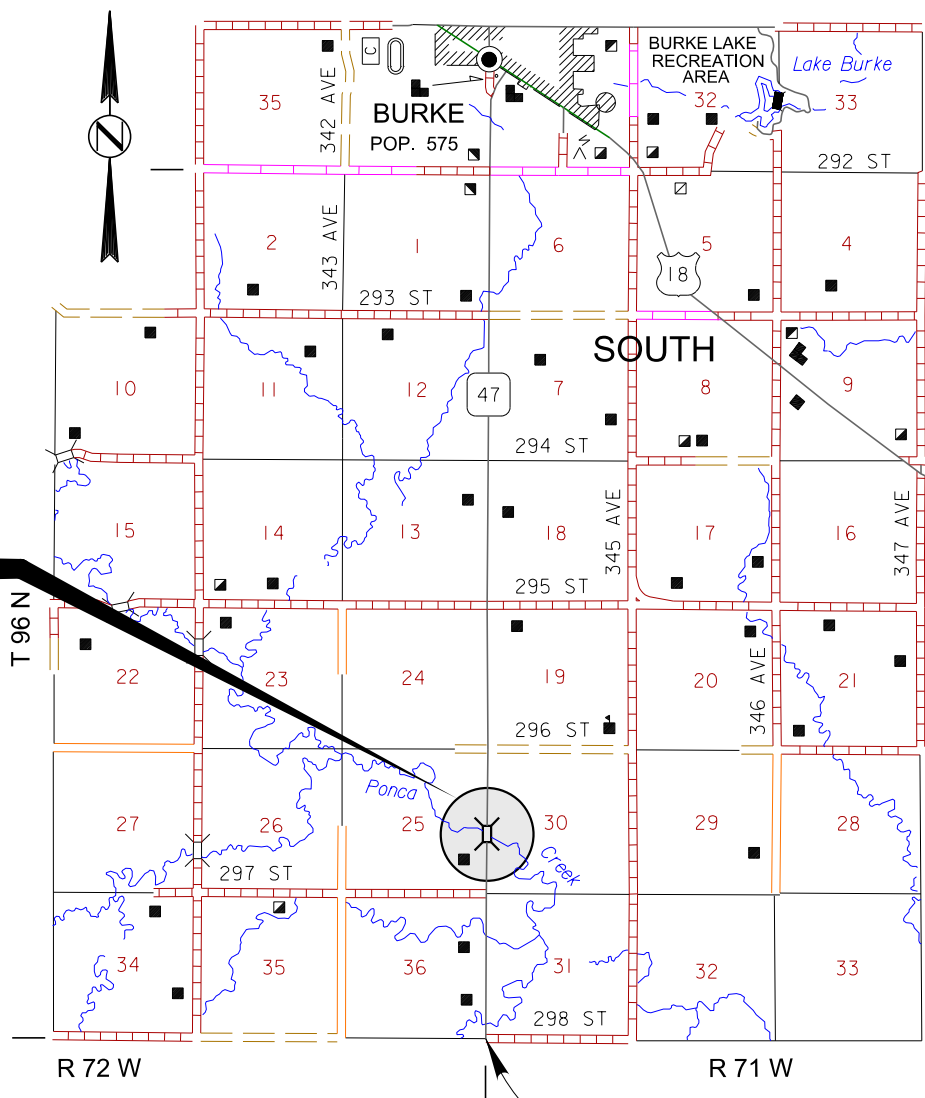
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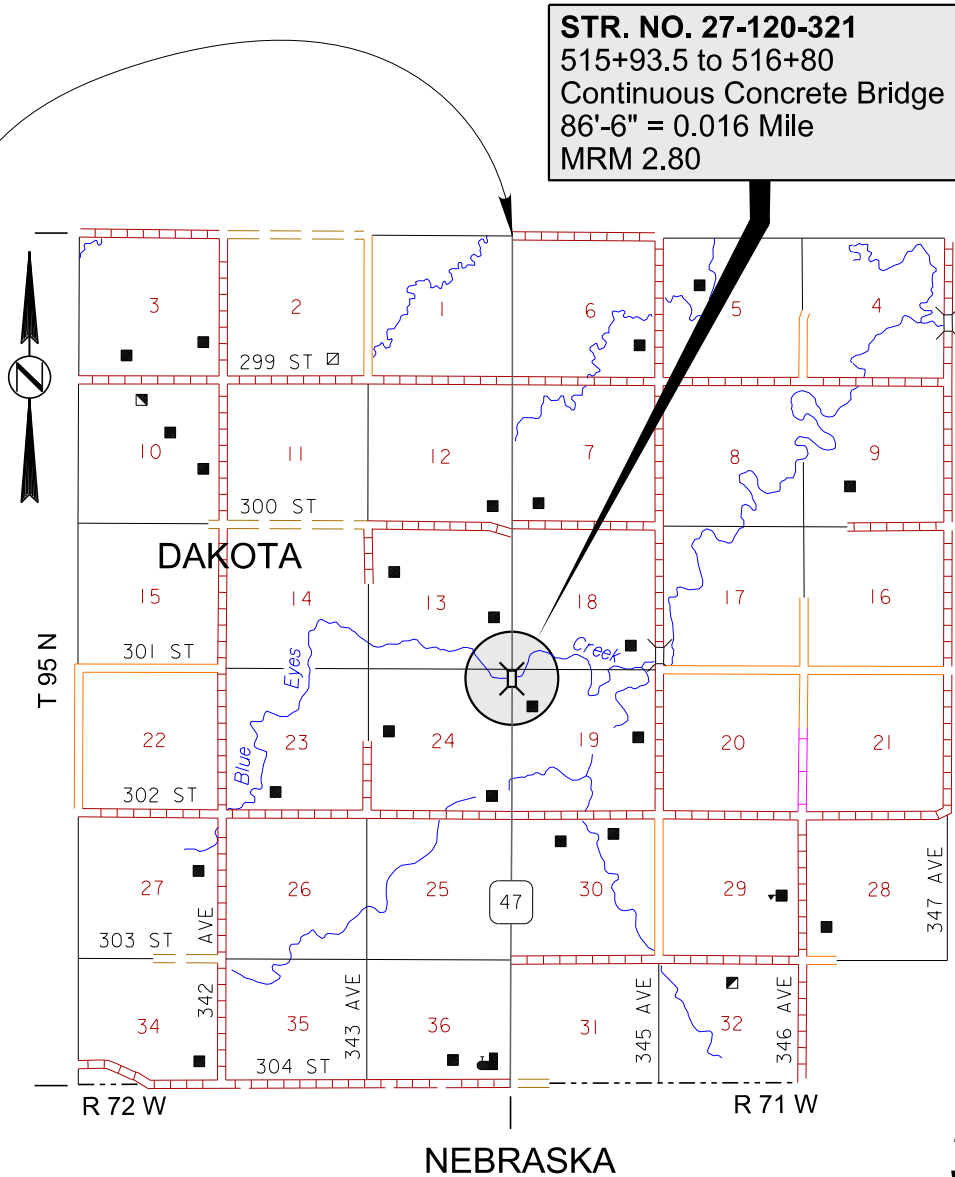
DESIGN DESIGNATION	
ADT(2025)	292
ADT(2045)	403
DHV	47
D	50%
T DHV	12.8%
T ADT	28.2%
V	65 MPH

STR. NO. 27-120-276
280+23.59 to 282+08.40
Cont. Comp. Girder Bridge
184'=9¾" = 0.035 Mile
MRM 7.29

STORM WATER PERMIT		
SD47 MRM:	7.29	2.80
Receiving Waters:	Ponca Creek	Blue Eyes Creek
Area		
Disturbed:	0.55 Acre	0.35 Acre
Total Area:	4.5 Acres	4.0 Acres
Latitude:	43.1028	43.0383
Longitude:	-99.2969	-99.2968



IDENTICAL POINTS



STR. NO. 27-120-321
515+93.5 to 516+80
Continuous Concrete Bridge
86'-6" = 0.016 Mile
MRM 2.80

ESTIMATE OF QUANTITIES & ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	2	82

PCN 08J8

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E0730	Remove Beam Guardrail	350.0	Ft
110E0800	Remove W Beam Guardrail End Terminal	8	Each
120E0600	Contractor Furnished Borrow	785	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	104.0	Ton
320E1200	Asphalt Concrete Composite	436.0	Ton
332E0010	Cold Milling Asphalt Concrete	2,512	SqYd
630E0500	Type 1 MGS	200.0	Ft
630E1500	Type 1 Guardrail Transition	4	Each
630E1501	Type 1 Retrofit Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	8	Each
632E2220	Guardrail Delineator	32	Each
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	2,063	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	317	Ft
634E0010	Flagging	140.0	Hour
634E0110	Traffic Control Signs	390.8	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	2	Each
634E0600	4" Temporary Pavement Marking Tape Type I	288	Ft
634E0640	Temporary Pavement Marking	2,960	Ft
734E0010	Erosion Control	Lump Sum	LS

STR. NO. 27-120-276

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0020	Remove Bridge Railing	370	Ft
120E3120	Bridge Berm Repair	2	Each
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
420E0400	Structure Excavation, Miscellaneous	8.4	CuYd
460E0010	Class A45 Concrete, Bridge Barrier	22.8	CuYd
460E0174	Concrete Patching Material, Miscellaneous	120.0	CuFt
460E0300	Breakout Structural Concrete	5.6	CuYd
460E0380	Install Dowel in Concrete	406	Each
480E0200	Epoxy Coated Reinforcing Steel	2,650	Lb
480E5000	Galvanic Anode	190	Each
550E0010	Low Slump Dense Concrete Bridge Deck Overlay	53	CuYd
550E0100	Concrete Removal Type 1A	589.1	SqYd
550E0105	Concrete Removal Type 2A	147.2	SqYd
550E0110	Concrete Removal Type 1B	255.4	SqYd
550E0120	Concrete Removal Type 1C	127.6	SqYd
550E0130	Concrete Removal Type 1D	127.6	SqYd
550E0140	Concrete Removal Type B	20.0	Ft
550E0200	Class A45 Concrete Fill	21.2	CuYd
550E0500	Finishing and Curing	589.0	SqYd

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/doing-business/environmental/about-environmental/>

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

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

STR. NO. 27-120-321

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
120E3120	Bridge Berm Repair	2	Each
460E0174	Concrete Patching Material, Miscellaneous	36.0	CuFt
460E0300	Breakout Structural Concrete	1.4	CuYd
460E0380	Install Dowel in Concrete	16	Each
480E0200	Epoxy Coated Reinforcing Steel	58	Lb
480E5000	Galvanic Anode	74	Each
550E0010	Low Slump Dense Concrete Bridge Deck Overlay	22	CuYd
550E0100	Concrete Removal Type 1A	285.0	SqYd
550E0105	Concrete Removal Type 2A	71.3	SqYd
550E0110	Concrete Removal Type 1B	121.2	SqYd
550E0120	Concrete Removal Type 1C	60.6	SqYd
550E0130	Concrete Removal Type 1D	60.6	SqYd
550E0140	Concrete Removal Type B	20.0	Ft
550E0200	Class A45 Concrete Fill	18.6	CuYd
550E0500	Finishing and Curing	285.0	SqYd

ENVIRONMENTAL COMMITMENTS (CONTINUED)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	3	82

COMMITMENT C: WATER SOURCE

If a Contractor needs access to state waters for extraction, the Contractor must obtain a water right, through the application of a Temporary Permit to Use Public Waters before work begins.

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

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

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 (SDDANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Temporary permit to use public waters for highway construction purposes application can be found on the SDDANR website:
<https://danr.sd.gov/OfficeOfWater/WaterRights/PermitForms/default.aspx>

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

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

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

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.

Cost 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.

TABLE FOR REMOVAL AND INSTALLATION OF GUARDRAIL AND RELATED ITEMS

LOCATION	REMOVE BEAM GUARDRAIL	REMOVE W BEAM GUARDRAIL END TERMINAL	CONTRACTOR FURNISHED BORROW EXCAVATION	BASE COURSE	ASPHALT CONCRETE COMPOSITE	TYPE 1 MGS	TYPE 1 GUARDRAIL TRANSITION	TYPE 1 RETROFIT GUARDRAIL TRANSITION	MGS MASH FLARED END TERMINAL
BRIDGE CORNER									
STR. NO. 27-120-276									
MRM 7.29									
SE Corner of Bridge	43.75	1	140	13	13	25	1	-	1
SW Corner of Bridge	43.75	1	142	13	13	25	1	-	1
NE Corner of Bridge	43.75	1	109	13	13	25	1	-	1
NW Corner of Bridge	43.75	1	98	13	13	25	1	-	1
STR. NO. 27-120-321									
MRM 2.80									
SE Corner of Bridge	43.75	1	82	13	12	25	-	1	1
SW Corner of Bridge	43.75	1	82	13	12	25	-	1	1
NE Corner of Bridge	43.75	1	66	13	13	25	-	1	1
NW Corner of Bridge	43.75	1	66	13	13	25	-	1	1
TOTALS:									
	350	8	785	104	102	200	4	4	8

TABLE OF GUARDRAIL DELINEATORS & OBJECT MARKERS

LOCATION	GUARDRAIL END TERMINAL OBJECT MARKER (ADHESIVE)	GUARDRAIL DELINEATOR	
	N.A.B.I.	BEAM / MGS	
BRIDGE CORNER	E #	B #	
		Yellow	White
STR. NO. 27-120-276			
MRM 7.29			
SE Corner of Bridge	1		4
SW Corner of Bridge	1		4
NE Corner of Bridge	1		4
NW Corner of Bridge	1		4
STR. NO. 27-120-321			
MRM 2.80			
SE Corner of Bridge	1		4
SW Corner of Bridge	1		4
NE Corner of Bridge	1		4
NW Corner of Bridge	1		4
TOTALS		8	- 32
# - For KEY, Refer to Standard Plate 632.40.		32	

N.A.B.I. = Not A Bid Item - Cost is incidental to the contract unit prices for the various items.

UTILITIES

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

If utilities are identified near the improvement area through the SD One Call process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25; the Contractor will contact the Project Engineer to modifications that will be necessary to avoid utility impacts.

PROTECTION OF BRIDGE JOINTS

The Contractor and Engineer will inspect all bridge expansion joints for preexisting damage prior to pavement removal. The Engineer will inspect all joints for work-related damage following removal and again following completion of final surfacing.

It may be necessary to use special methods and equipment to remove/place material as close as practical to structure appurtenances. Also, the Contractor will mask all expansion joints prior to any removal/placement of material near the joints. The joints will be protected throughout completion of the work. Once the masking has been removed any loose material contained within the joint will be cleaned from the joint. Any damage to the expansion joints along with any existing structure appurtenances will be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Department. Cost related to this work will be incidental to various contract items.

REMOVE AND REPLACE TOPSOIL

Prior to beginning surfacing operations, a 4" depth of topsoil will be salvaged from the inslopes adjacent to surfacing shown on the Layouts for Approach Pavement Work. Following completion of surfacing operations, topsoil will be replaced on the inslope up to the asphalt concrete edge.

The estimated amount of topsoil to be removed and replaced is:

Str. No.	Location	Description	Estimated Quantity CuYds
27-120-276	SE Corner	GR Embankment	68
27-120-276	SW Corner	GR Embankment	70
27-120-276	NE Corner	GR Embankment	53
27-120-276	NW Corner	GR Embankment	49
27-120-321	SE Corner	GR Embankment	40
27-120-321	SW Corner	GR Embankment	40
27-120-321	NE Corner	GR Embankment	31
27-120-321	NW Corner	GR Embankment	31
Total:			382 CuYds

Cost for removing and replacing the topsoil will be included in the contract lump sum price for Remove and Replace Topsoil.

SHOULDER WORK

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the shoulder, to the satisfaction of the Engineer, following completion of the guardrail embankment surfacing operations.

Cost for shoulder work will be incidental to the contract unit prices for the various items. Separate measurement and payment will not be made.

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. Plans quantity for Contractor Furnished Borrow Excavation as shown in the Estimate of Quantities will be the basis of payment for this item.

The Contractor will be allowed to place topsoil in lieu of fill material if the fill depth is one foot or less. By doing this the Contractor will not be required to remove and replace the four inches of in place topsoil.

Compaction of the fill material will be to the satisfaction of the Engineer.

It is not anticipated that water for compaction will be required; however, if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer. Cost for water will be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

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

COLD MILLING ASPHALT CONCRETE

Cold milling operations ahead of asphalt concrete laydown will be limited by particular job conditions and be subject to approval of the Engineer.

The requirement for a traveling stringline will be waived.

Cold milled asphalt concrete material will become the property of the Contractor for disposal.

If resurfacing as shown on the Layouts for Approach Pavement Work cannot be placed immediately after cold milling, then temporary asphalt mix ramps will be placed as directed by the Engineer. Cost for placing and removing the temporary ramps will be incidental to the contract unit prices for the various items.

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 for Prime will not be required.

Asphalt for tack SS-1h or CSS-1h will be applied to each lift of asphalt concrete in accordance with Section 324.3.C.

Asphalt for flush seal SS-1h or CSS-1h will be applied to the top of Asphalt Concrete Composite. Asphalt for flush seal will be applied at a rate of 0.05 gallon per square yard. The Asphalt for flush seal will be applied for the full width of the top layer of Asphalt Concrete Composite including bevels. Sand for flush seal will not be required.

FLUSH SEAL

Application of the flush seal will be completed within 10 working days following completion of the asphalt concrete resurfacing.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

EROSION CONTROL

The estimated area requiring erosion control is 0.9 acre. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding and mulching 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.

Permanent Seeding

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways.

Type A Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Canada Wildrye	Mandan	2
Total:		18

Mycorrhizal Inoculum

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

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The Mycorrhizal Inoculum 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>

Mulching (Grass Hay or Straw)

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

Plotted From - Plotted E:\B\13315 TRM13315 Plot Scale - Plot Scale: 1:85,259

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	6	82

Plotting Date: 06/24/2026

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 Department's intent for traffic control and sequencing of the work.

Guardrail removal will be limited to the side of the roadway where bridge work is underway.

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 existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost of 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, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans.

FLAGGING

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

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

TEMPORARY PAVEMENT MARKING

Temporary flexible vertical markers (tabs) may be used as detailed in the specifications.

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

TEMPORARY PAVEMENT MARKING (CONTINUED)

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.

TEMPORARY PAVEMENT MARKING (CONTINUED)

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

PAVEMENT MARKING PAINT

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.

Cold weather waterborne paint will not be required after October 15th per Section 633.3 B.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to 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.

Cost for material, labor, and equipment necessary to furnish and install the pavement marking will be incidental to the contract unit prices for the respective High Build Waterborne Pavement Marking Paint items.

Plot Name - \$Subname\$\$ File - ..\Files\608 TC.dgn Final0608 TC.dgn

Plotting Date: 06/24/2026

TWO LANE ROADWAY



Traffic Control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights and advance warning arrow board.

All pavement marking dimensions are based on 12' driving lanes.

* Messages on signs will vary depending on the operation being conducted.

Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

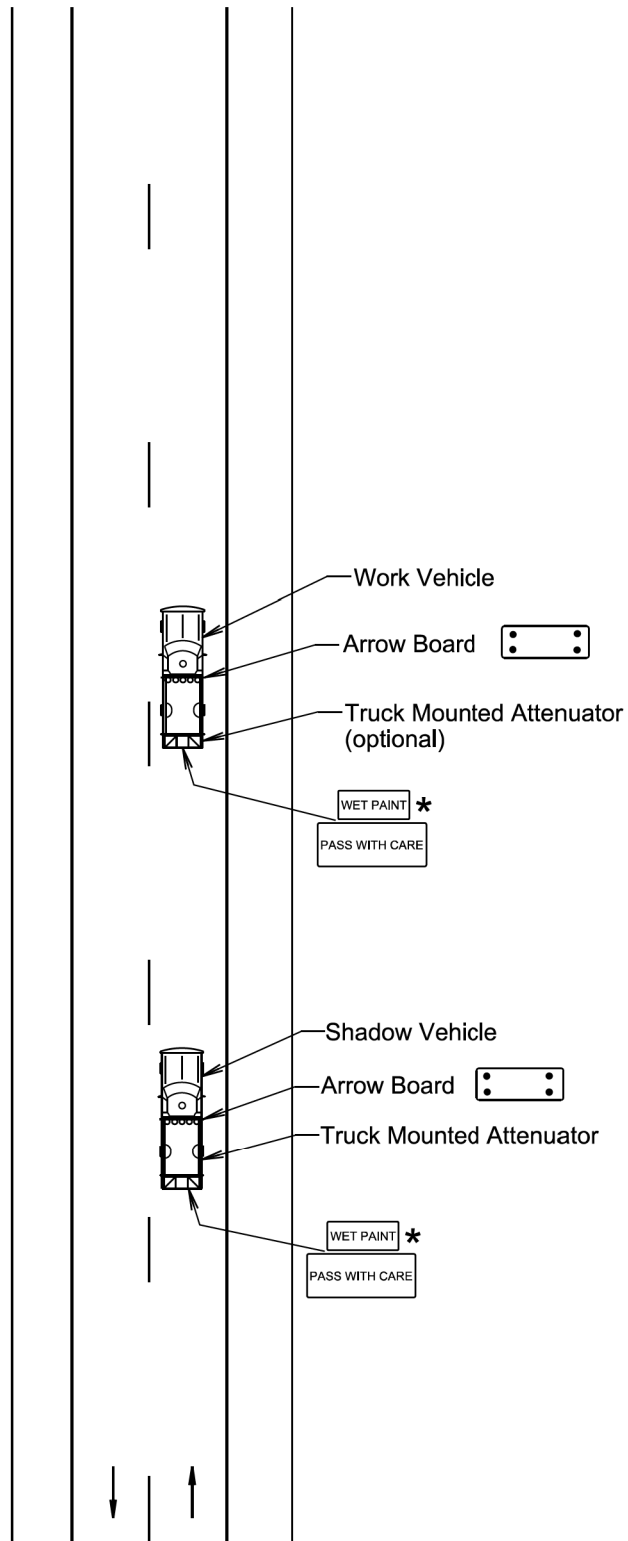
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



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MOBILE OPERATIONS ON 2-LANE ROAD

PLATE NUMBER
634.06

Sheet 1 of 1

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

- Flagger
- Channelizing Device

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

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

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

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

The channelizing devices will be drums or 42" cones.

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

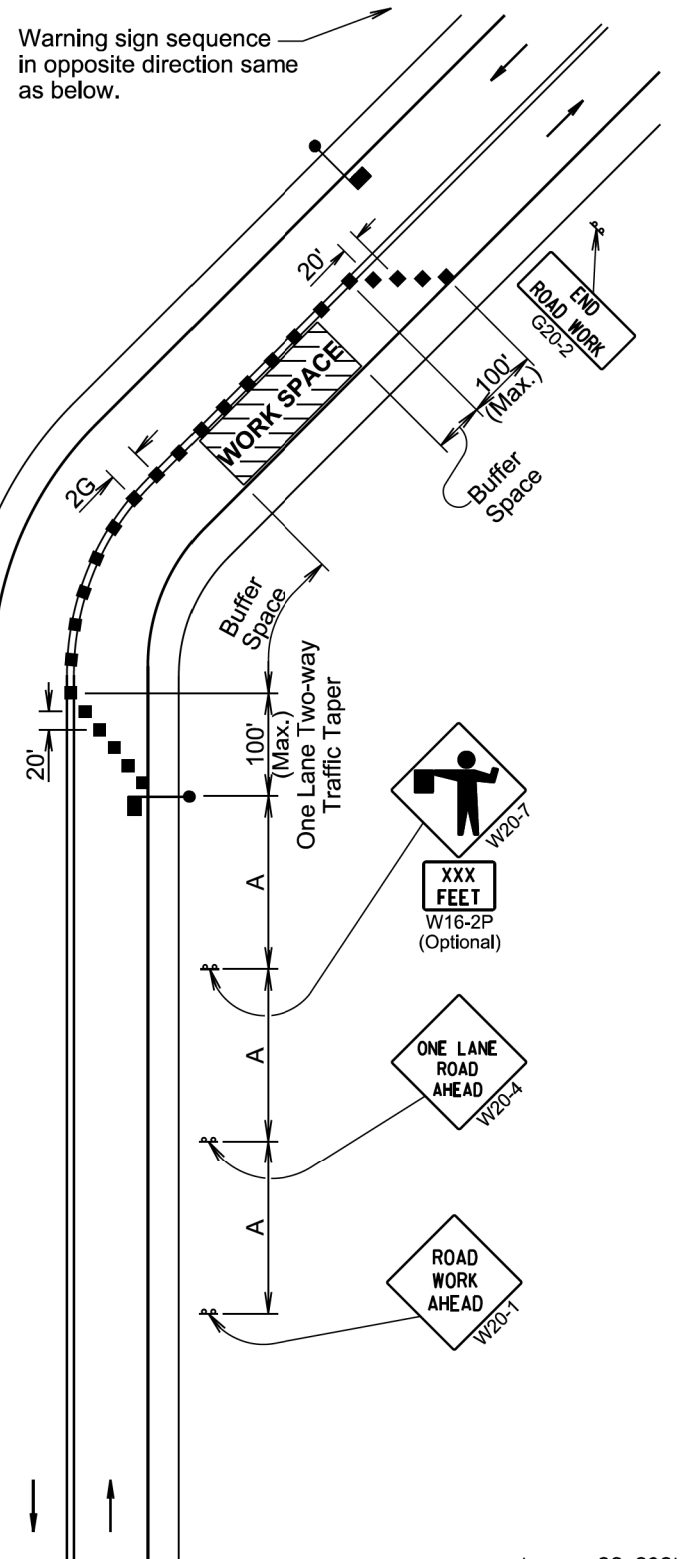
Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

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

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

END
ROAD WORK
G20-2

Warning sign sequence in opposite direction same as below.



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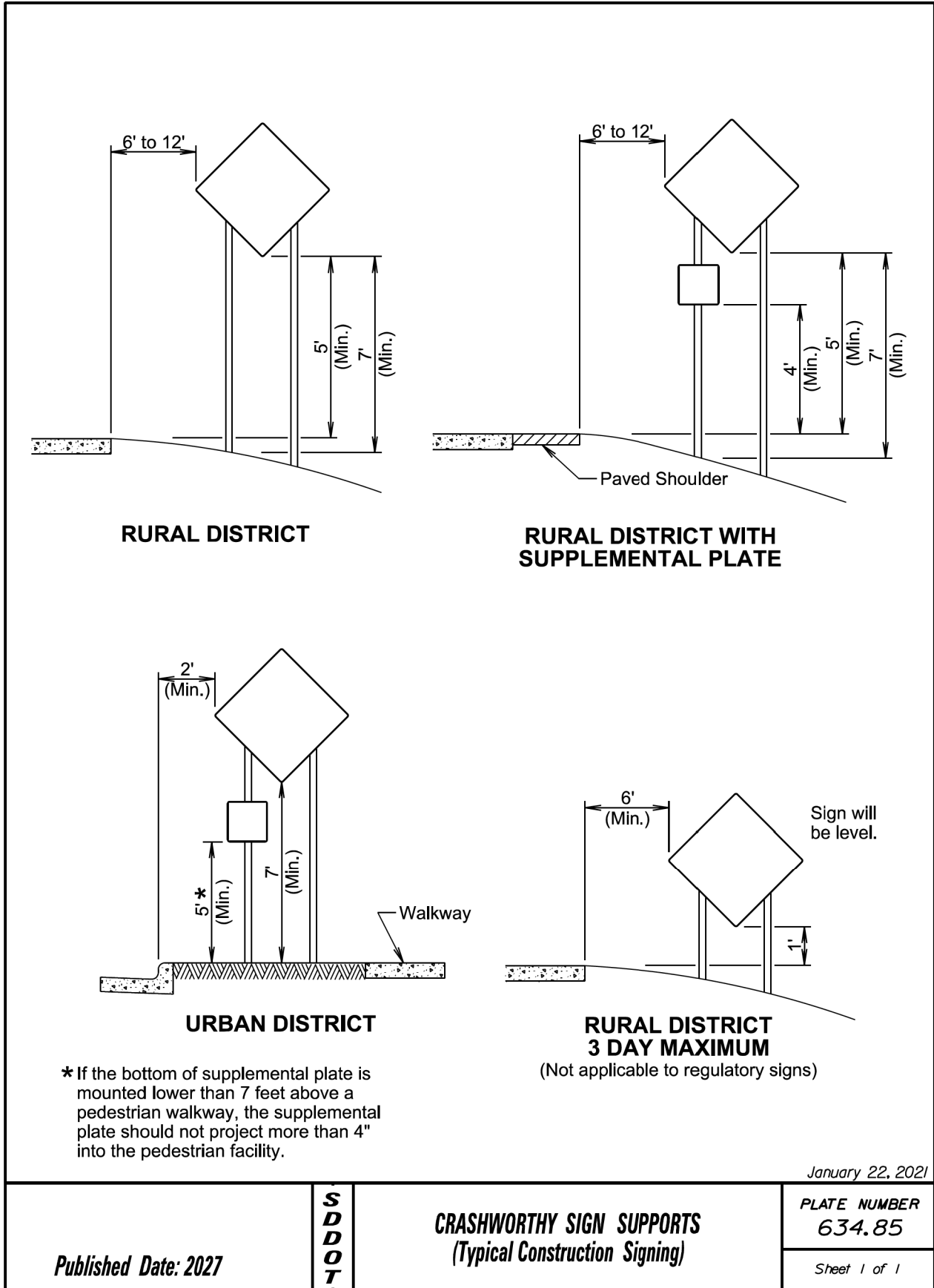
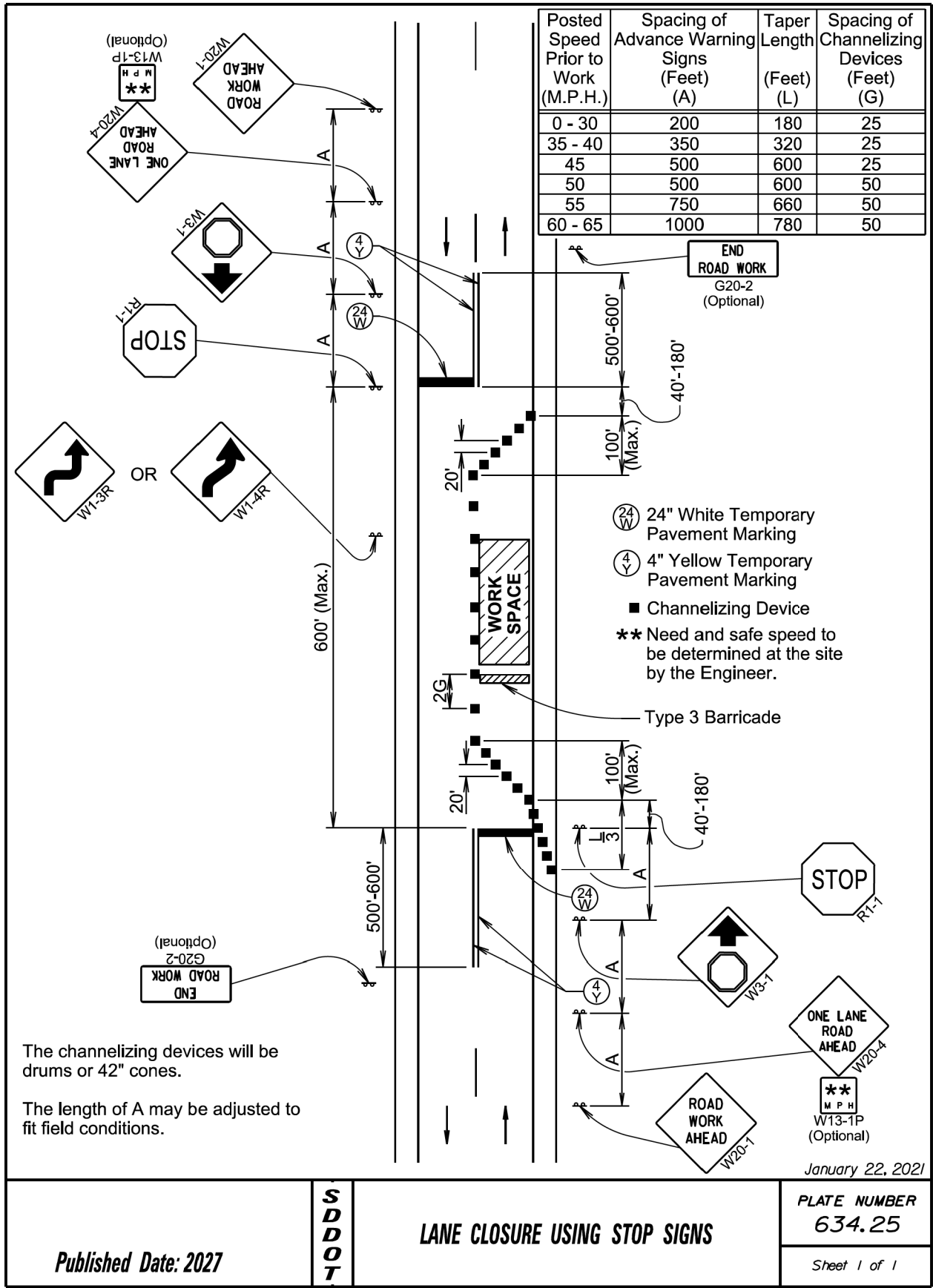
Published Date: 2027

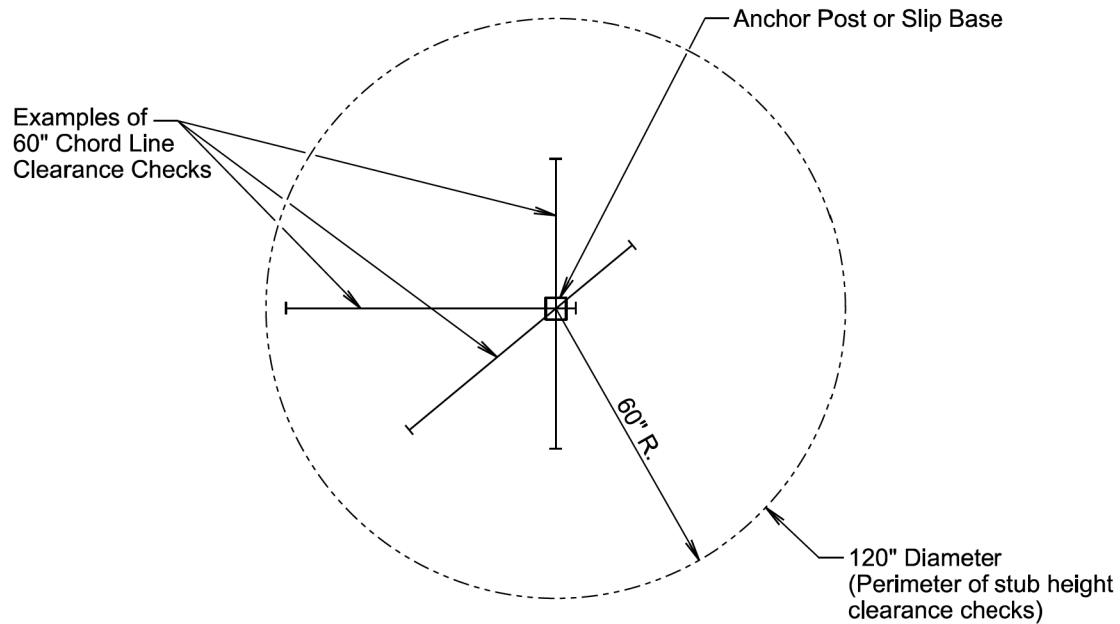
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LANE CLOSURE WITH FLAGGER PROVIDED

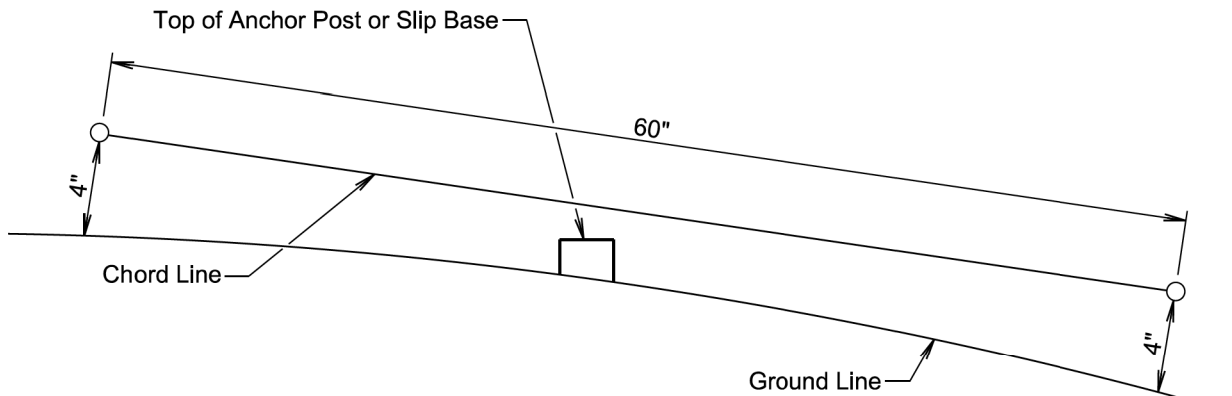
PLATE NUMBER
634.23

Sheet 1 of 1





PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0020	Remove Bridge Railing	370	Ft
120E3120	Bridge Berm Repair	2	Each
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
420E0400	Structure Excavation, Miscellaneous	8.4	CuYd
460E0010	Class A45 Concrete, Bridge Barrier	22.8	CuYd
460E0174	Concrete Patching Material, Miscellaneous	120.0	CuFt
460E0300	Breakout Structural Concrete	5.6	CuYd
460E0380	Install Dowel in Concrete	406	Each
480E0200	Epoxy Coated Reinforcing Steel	2,650	Lb
480E5000	Galvanic Anode	190	Each
550E0010	Low Slump Dense Concrete Bridge Deck Overlay	53	CuYd
550E0100	Concrete Removal Type 1A	589.1	SqYd
550E0105	Concrete Removal Type 2A	147.2	SqYd
550E0110	Concrete Removal Type 1B	255.4	SqYd
550E0120	Concrete Removal Type 1C	127.6	SqYd
550E0130	Concrete Removal Type 1D	127.6	SqYd
550E0140	Concrete Removal Type B	20.0	Ft
550E0200	Class A45 Concrete Fill	21.2	CuYd
550E0500	Finishing and Curing	589.0	SqYd

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: Standard Specifications for Roads and Bridges, 10-7-26 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>.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

- All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.
- The stationing shown in the original construction plans is reversed from the current project. As such, labels for the begin and end of bridge as well as the substructure units are reversed.
- The elevations shown in the original construction plans are not based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer a minimum of two weeks prior to the pre-construction meeting.

- Accomplish all Concrete Removal Type 1A, 1B, 1C, 1D, 2A, and B and place Class A45 Concrete Fill to the satisfaction of the Engineer for the first phase of construction.
- Sawcut, breakout, and remove the existing material in the paving notches located at the beginning and end of the bridge and any delaminated concrete adjacent to the paving notches for the first phase of construction.
- Breakout and repair curb for the first phase of construction.
- Modify the existing bridge rail, for the first phase of construction, by removing the steel rail and placing a concrete barrier on top of the existing bridge curb. Place new end blocks at the bridge ends to allow for the attachment of thrie beam approach railing.
- Install dowels and galvanic anodes as necessary for the first phase of construction.
- Fill paving notch using Low Slump Dense Concrete and place a Low Slump Dense Concrete Bridge Deck Overlay to the elevations shown in the plans on the bridge deck for the first phase of construction.
- Apply Commercial Texture Finish to the newly constructed barrier, curb, and end block surfaces as outlined in the plans for the first phase of construction.
- Switch traffic and repeat steps 1 through 7 for the second phase of construction.
- Reconstruct bridge berms to original template.

GENERAL CONSTRUCTION - BRIDGE

- All reinforcing steel will conform to ASTM A615, Grade 60.
- All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise in the plans. Match the existing chamfer if the existing chamfer differs.
- Use 2-inch clear cover on all reinforcing steel except as shown otherwise.
- The Contractor will only imprint one year-plate on the structure. The year-plate will contain the date the existing bridge was built and will be located as specified and detailed on Standard Plate No. 460.03.
- Barrier curbs and end blocks will be built normal to the grade.

- 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.
- 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 reinforcing steel.
- All lap splices are contact lap splices unless noted otherwise.

NOTICE - LEAD BASED PAINT

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

REMOVAL OF EXISTING BRIDGE RAIL

- The existing rail, spacer blocks, w-beam rail, and rail posts on the bridge will be completely removed by the Contractor and disposed of in accordance with the Environmental Commitments. If the Contractor elects to salvage the rail and the rail posts for his own use, they must be removed from view of the ROW to the satisfaction of the Engineer prior to project completion.
- The existing rail anchor bolts protruding from the concrete will be cut off and ground flush with the concrete surface as approved by the Engineer. The exposed ends will be coated with a zinc-rich galvanizing paint in conformance with ASTM A780.
- The bridge railing to be removed consists of the steel rail, wood spacer blocks, rub rail, and any hardware attaching the railing to the bridge. Payment limits for these items will be in plans quantities; no measurements will be made. The cost of all labor, tools, materials, and incidentals necessary to cut and remove the steel rail, cut off the anchor bolts, and paint their exposed ends will be incidental to the contract price per foot for Remove Bridge Railing.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES

FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

STR. NO. 27-120-276

MAY 2026

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CONCRETE BREAKOUT

- The existing barrier curbs will be broken out to the limits shown on the plans. Breakout limits will be defined with a 3/4" deep sawcut (unless specified otherwise in these plans), where practical, as approved by the Engineer. Reinforcing steel that is exposed and is scheduled for use in the new construction will be cleaned and straightened to the satisfaction of the Engineer. Care will be taken not to damage the existing reinforcing steel that is to be reused in the new construction during concrete breakout. Any reinforcing steel that is damaged during concrete breakout will be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.
- All broken out concrete and discarded reinforcing steel will become the property of the Contractor and will be disposed of at a site obtained by the Contractor and approved by the Engineer. An appropriate site will be as described in the Environmental Commitment Notes in the plans.
- During concrete removal operations, no concrete will be allowed to fall into Ponca Creek.
- The contract unit price per cubic yard for Breakout Structural Concrete will include breaking out concrete, cleaning, straightening reinforcing steel, and disposal of all broken out material.

CURB SPALL REPAIR

- Concrete used in vertical patching applications on the barriers where forms are not practical will consist of one of the following products, or equal as approved by the Office of Bridge Design.
 - HD 25 VO
Dayton Superior
1125 Byers Road
Miamisburg, OH 45342
Phone: (800) 745-3700
 - Sika Repair 223
Sika Corporation US
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: (201) 933-8800
 - Meadow-Patch 20
W.R.Meadows, Inc.
P.O. Box 338
Hampshire, IL 60140-0338
Phone: (847) 214-2100
 - Speed Crete Red Line
The Euclid Chemical Company
19215 Redwood Rd.
Cleveland, OH 44110
Phone: (800) 321-7628
- The concrete patch material will be applied and cured as recommended by the Manufacturer and as approved by the Engineer.

- The cost of furnishing and placing vertical patching material including all labor, equipment, tools, and any incidentals necessary to complete the work will be paid for at the contract unit price per cubic foot for Concrete Patching Material, Miscellaneous.
- The Contractor will have the option of forming and pouring the curb repair with an approved A45 mix meeting the requirement for bridge barrier curbs mixed and proportioned in accordance with Section 460 of the Construction Specifications with the following modifications: the coarse aggregate gradation will be in accordance with Section 820 of the Construction Specifications and size #3 will be substituted in lieu of sizes #1 and #15. The use of an A45 mix in lieu of the specified patching materials will be at no additional cost to the Department.

INSTALL DOWEL IN CONCRETE

- Holes drilled in the existing concrete will be true and normal or as shown in the plans. Drilling holes using a core drill will not be allowed. Care will be taken not to damage the existing reinforcing steel. It is likely that some of the existing reinforcing steel shown in the original construction plans may have been placed out of position during original construction. Therefore, prior to the start of drilling any holes in the concrete, an effort will be made by Department forces to mark on the concrete surface where practical any locations of the in-place reinforcing steel. Despite this precaution, the Contractor can still expect to encounter and have to drill through reinforcing steel or shift the dowel spacing as approved by the Engineer to miss the existing reinforcing steel. If the Contractor shifts the dowel spacing, the unused drill holes will be completely filled with epoxy resin as approved by the Engineer.
- The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 1, 2, or 3 (Equivalent to ASTM C881, Type IV). Grade 1, 2 or 3 may be used for vertical dowels.
- The diameter of the drilled holes will not be less than 1/8-inch greater, nor more than 3/8-inch greater than the diameter of the dowels or as per the Manufacturer's recommendations. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.
- Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes 1/3 to 1/2 full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel bar. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping or painting method will not be allowed.
- No loads will be applied to the epoxy grouted dowel bars until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.

- Dowel bars will be deformed bars conforming to ASTM A615, Grade 60.
- The cost of epoxy resin, dowels, installation, and other incidental items will be incidental to the contract unit price per each for Install Dowel in Concrete.

SURFACE FINISH

- All of the surfaces visible to the traveling public on the new concrete barriers on curb and end blocks will be given a Class B Commercial Texture Finish in accordance with Section 460.3 L.1.c. of the Construction Specifications. Visible surfaces include the front face, top, and back face of the barrier on curb; front and top face of the curb repair; and all faces of the end blocks.
- The concrete surfaces requiring the application of the Commercial Texture Finish will be prepared in accordance with the manufacturer's recommendations. The Contractor will submit a product data sheet, or an approved equal, documenting all pertinent information with regard to preparation of the concrete surfaces, materials and equipment required, mixing requirements, and application procedures to the Engineer in advance of the application of the Commercial Texture Finish for review and approval.
- For informational purposes the amount of surface area requiring the Class B Commercial Texture Finish is 1,115 square feet for Phase 1 and 1,115 square feet for Phase 2.
- Any damage to the commercial texture finish during the construction including abrasion from traffic due to the traffic control will be repaired by the Contractor, as approved by the Engineer, at no expense to the Department.
- The cost of the commercial texture finish will be included in the contract unit price per cubic yard for Class A45 Concrete, Bridge Barrier. This payment will be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to the application of this finish.

NOTES (CONTINUED)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
STR. NO. 27-120-276
MAY 2026

GALVANIC ANODE

1. The Contractor will furnish and place galvanic anodes in the concrete repair areas specified in this plan set.
2. The galvanic anodes will be supplied as one of the following:
 - a. Galvashield XP2
Vector Corrosion Technologies
800 Winchester Road, Suite 175
Lexington, KY 40505
Phone: (612) 248-5651
 - b. Sentinel Silver
Euclid Chemical Company
19215 Redwood Road
Cleveland, OH 44110
Phone: (800) 321-7628
 - c. Sika FerroGard 670
Sika Corporation US
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: (201) 933-8800
3. The anodes will be placed in accordance with manufacturer's recommendations and as approved by the Engineer. The anodes have not been shown on the drawings. The Contractor will provide shop drawings of the galvanic anode installation including locations of the individual anodes to the Office of Bridge Design.
4. The anodes will be placed with a minimum 3/4-inch cover and will be set in embedding mortar per the manufacturer's recommendations. The anodes will be fully encased in the concrete repair material. Where adequate cover does not exist, a concrete pocket will be chipped out behind the anode to provide sufficient cover. The Contractor may need to chip around the reinforcing bar locally at the anode installation to make the electrical connection. The reinforcing steel at the connection location will be cleaned per the manufacturer's recommendations to provide sufficient electrical connection and mechanical bond.
5. The electrical continuity of the connections and reinforcing steel will be confirmed per the manufacturer's recommendations.
6. In area of concrete repair where anodes are placed, the epoxy coating on the reinforcing steel will not require touch up.
7. The Contractor will provide manufacturer's product literature and installation instructions to the Engineer 10 days prior to installation.
8. All costs associated with placing anodes including labor, equipment, materials, and incidentals will be included in the contract unit price per each for Galvanic Anode.

9. The Contractor has the option of providing galvanic strip anodes in place of the Galvanic Anodes for the curb repair. The galvanic strip anodes will conform to the same requirements listed above for Galvanic Anode. The use of galvanic strip anodes in place of Galvanic Anodes will be at no additional cost to the Department. The galvanic strip anodes will be supplied as the following or an approved equivalent as approved by the Office of Bridge Design:

Galvanode DAS
Vector Corrosion Technologies
800 Winchester Road, Suite 175
Lexington, KY 40505
Phone: (612) 248-5651

END BLOCK EXPANSION JOINTS

1. All new structural steel plates and bars will conform to ASTM A709, Grade 50. Material less than 1/4-inch thick may be ASTM A1011, Grade 36. The 1/2-inch diameter end welded deformed bar anchors will be a commercially available Fluxed Deformed Bar Anchor Stud, automatically end welded, with material conforming to ASTM A1064. All steel components, steel plates, ferrule inserts, bars, and structural shapes will be galvanized after shop welding in accordance with ASTM A123.
2. The 3/4-inch diameter bolts will conform to ASTM A307 and will be galvanized in accordance with ASTM F2329.
3. The end welded concrete anchors will conform to Type A steel studs of the latest edition of the AWS D1.5 Bridge Welding Code.
4. All costs associated with the installation of the end block expansion plates will be incidental to the contract lump sum price for Structural Steel, Miscellaneous.

LOW SLUMP DENSE CONCRETE BRIDGE DECK OVERLAY

1. The preparation for resurfacing consists of Concrete Removal Type 1A on the entire bridge deck; 2A as specified by the Engineer; and Type 1B, Type 1C, Type 1D, and Type B over the deck surface as detailed on the plan sheets. Such removal will be in conformance with these plans and Section 550 of the Construction Specifications.
2. Concrete Removal Type 1A will consist of removing the existing concrete overlay to a depth of 2 inches. There are some specific areas, identified on the Deck Profile plan sheets that require removal in excess of 2 inches.
3. Extreme care will be taken during Removal Type 1B, 1C, 1D, and B to ensure that the existing reinforcing steel is not damaged. In the event reinforcing steel damage inadvertently occurs, the Bridge Construction Engineer will be immediately notified. Any damaged reinforcing steel will be repaired by the Contractor, as approved by the Engineer, at no additional cost to the Department.

4. Removal Type 2A, 1B, 1C, 1D, and B and Class A45 Concrete Fill may not be encountered and may be omitted from the project as determined by the Engineer.
5. Concrete Removal Type 1C, Concrete Removal Type 1D, and Class A45 Concrete Fill are not anticipated to exceed the plan shown quantities. If the Engineer determines that Concrete Removal Type 1C, Concrete Removal Type 1D, and/or Class A45 Concrete Fill in excess of the plan quantity shown is necessary, payment for the additional quantity will conform with Section 550.5 of the Construction Specifications.
6. Concrete used in the Low Slump Dense Concrete Bridge Deck Overlay will meet the requirements of Section 550 of the Construction Specifications. Class A45 Concrete Fill will be an approved A45 Concrete Mix Design mixed and proportioned in accordance with Section 460 of the Construction Specifications with the following modifications: the coarse aggregate gradation will be in accordance with Section 820 of the Construction Specifications and the size #3 will be substituted in lieu of sizes #1 and #15. In addition, both the Low Slump Dense Concrete Bridge Deck Overlay and Class A45 Concrete Fill will conform to the following Alkali Silica Reactivity (ASR) requirements:
 - a. Fine aggregates from sources that have not been tested by the Department will be submitted to the Department's Materials and Surfacing Central Materials Laboratory for ASR testing 30 days prior to performing the concrete mix design.
 - b. When a fine aggregate supplier changes location within the pit, the fine aggregate from the new location in the pit will be submitted for testing.
 - c. When more than one source of fine aggregate is blended to meet the gradation specifications, the expansion value of the blended sands will be used. Blended sources will be treated as a new source, and it will be the responsibility of the Contractor to submit the blended samples for testing 30 days prior to performing the concrete mix design.
 - d. ASR testing will be performed in accordance with ASTM C1260, except that the gradation of the material used for testing will be as produced from the source. The fine aggregate will only be sampled at the source by a Department representative or in the presence of a Department representative.
 - e. The Department will use the running average of the last three known expansion test results or less for determining acceptability of the source. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

NOTES (CONTINUED)

FOR

184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

STR. NO. 27-120-276

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LOW SLUMP DENSE CONCRETE BRIDGE DECK OVERLAY
(CONTINUED)

- f. A list of known fine aggregate sources and the average corresponding 14-day expansion values as of October 2025 is provided below in Table 1.

Table 1 Fine Aggregate Sources, October 2025

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.146
Concrete Materials – Vellek Pit	Yankton, SD	0.442**
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Blair Pit	W of Vale, SD	0.171
Fisher S&G – Mickelson Pit	E of Nisland, SD	0.129
Fisher S&G – Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Henning – Tilstra	Ash Creek, MN	0.199
Higman	Hudson, SD	0.187
Jensen	Herried, SD	0.276*
L.G. Everist	Akron, IA	0.257*
L.G. Everist	Brookings, SD	0.297*
L.G. Everist – Ode Pit	E Sioux Falls, SD	0.222
L.G. Everist – Nelson Pit	NE Sioux Falls, SD	0.156
L.G. Everist	Hawarden, IA	0.211
L.G. Everist	Summit, SD	0.184
Mark’s S&G – Moerke Pit	Underwood, MN	0.165
Morris – Birdsall	Blunt, SD	0.229
Morris – Leesman	Blunt, SD	0.231
Morris – Richards Pit	Onida, SD	0.188
Morris – Shawn’s Pit	E of Sturgis, SD	0.186
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.154
Opperman – Gunvordahl Pit	Burke, SD	0.363*
Opperman – Cahoy Pit	Herrick, SD	0.307*

Opperman – Jones Pit	Burke, SD	0.321*
Opperman – Randall Pit	Pickstown, SD	0.250*
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.157
Pete Lien & Sons	Wasta, SD	0.255*
Simon Materials – Beltline Pit	Scottsbluff, NE	0.277*
Thorpe Pit	Britton, SD	0.098
Valley S&G – Van Beek Pit	Rock Valley, IA	0.228
Wagner Building Supplies	Pickstown (Wagner), SD	0.251*
Winter Brothers – Whitehead Pit	Brookings, SD	0.197

* Consult Table 2 for these sources.
** These sources will not be used.

- g. The values in Table 1 are intended for use in bidding. If a pit, previously tested by SDDOT, with a test value less than 0.250 is discovered after letting to be 0.250 or greater, then the Department will accept financial responsibility if higher costs are incurred due to a higher required percentage of fly ash and/or a higher amount of Lithium Nitrate is added to the concrete mix.
- h. Based on coarse aggregate composition and expansion test results, the Contractor will use Table 2 to determine the percentage of cement to be replaced with Class F Modified Fly Ash (in accordance with Section 605 of the Construction Specifications) and/or specified rate of Lithium Nitrate (30% solution by weight) to be provided in the concrete mix for the Low Slump Dense Concrete Bridge Deck Overlay and Class A45 Concrete Fill. Fine aggregate with a 14-day expansion value of 0.400 or greater will not be used.

Table 2 Cement Replacement

Coarse Aggregate	Fine Aggregate Expansion Value	Cement Type	Fly Ash	Lithium Nitrate
Limestone or Granite	< 0.250	Type I or II	-----	2.0 gallon/cubic yard
		Type I or II	20% Min.	-----
Limestone or Granite	≥ 0.250	Type I or II	-----	3.0 gallon/cubic yard
		Type I or II	25%	-----
Quartzite	< 0.250	Type I or II	-----	3.0 gallon/cubic yard
		Type I or II	25%	-----

Quartzite	≥ 0.250	Type I or II	-----	3.5 gallon/cubic yard
		Type I or II	25%	1.5 gallon/cubic yard
		Type I or II	30%	-----

- i. Grout for bonding new concrete to old concrete will meet the requirements of Section 550 of the Construction Specifications.
- j. All material, labor, equipment, and incidental costs to meet ASR requirements will be included in the contract unit price per cubic yard for Low Slump Dense Concrete Bridge Deck Overlay or Class A45 Concrete Fill.
7. Lithium Nitrate proposed for use must be approved by the Concrete Engineer.
8. No traffic will be allowed to operate on the scarified portion of the bridge deck. If it appears that the entire Low Slump Dense Concrete Bridge Deck Overlay cannot be completed prior to winter, Concrete Removal Type 1A, 1B, 1C, 1D, and B will not be done until work resumes in the spring. In the event, scarification has been started and due to unforeseen circumstances, it becomes impossible to complete the placement of the overlay on the entire surface of the structure prior to winter the Office of Bridge Design will be notified. Recommendations for handling winter traffic will then be made. These recommendations may include, but are not limited to, filling extra depth removal areas with Class A45 Concrete, placing an asphalt overlay on the uncompleted area so that the entire roadway width may be opened to traffic, removal of the asphalt overlay when work is resumed and scarifying an additional 1/4" of depth on the bridge deck. The cost of this work, including asphalt overlay, scarification, Class A45 Concrete, extra low slump dense concrete and all other items incidental to this work, will be at the expense of the Contractor.
9. The paving notch will be cleaned by abrasive blasting as approved by the Engineer. In the event the Contractor encounters unsound concrete under the steel extrusions adjacent to the paving notches, the Bridge Construction Engineer will be immediately notified. Reinforcing steel will be placed in the paving notch according to the plans. The modified paving notch will be filled with Low Slump Dense Concrete during the placement of the Low Slump Dense Concrete Bridge Deck Overlay. The use of a spud vibrator will be required to prevent voids in this location.

NOTES (CONTINUED)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

STR. NO. 27-120-276
MAY 2026

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LOW SLUMP DENSE CONCRETE BRIDGE DECK OVERLAY (CONTINUED)

10. It will be necessary for the Contractor to shape the surface of the Low Slump Dense Concrete Bridge Deck Overlay within one foot of the curb to ensure that water drains to the deck drains or off the ends of the bridge.

AS - BUILT ELEVATION SURVEY

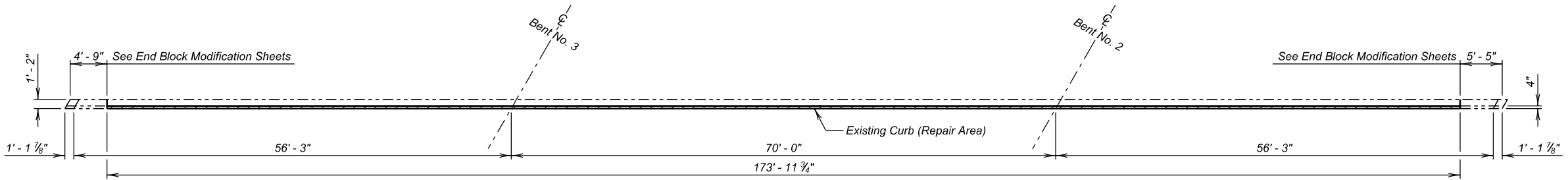
The Contractor will be responsible for producing an as-built elevation survey soon after construction is complete and before the bridge is completely opened to traffic. The Contractor will be responsible for recording the as-built deck elevations at the locations shown by the table of as-built elevations shown in the plans. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The Contractor will be responsible for establishing a NAVD88 elevation for the benchmark provided in the plans. All costs associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor and any incidentals required will be incidental to the contract lump sum price for Bridge Elevation Survey.

BRIDGE BERM REPAIR

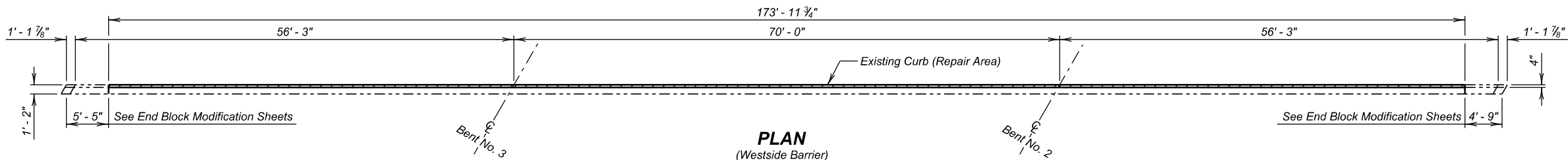
1. The bridge berms have erosion channels and settlement voids on the berm slope. The bridge berms will be rebuilt and reshaped to their original template.
2. Fill voids under the abutments and fill in erosion channels on the berm slope. Reconstruct the berms to at least 1-foot above the bottom of the abutment backwall. The berm slope will be benched into stable embankment during reshaping and reconstruction. The soil will be placed in horizontal lifts perpendicular to the centerline of the structure.
3. Shape the fill in front of the wing walls to divert runoff from the inslopes away from the face of the berm slope. Reshape the inslopes from the wing walls to approximately 20 feet from the ends of the bridge.
4. At the upper part of the berm slope, clearance between the structure and berm will prohibit the use of large compaction equipment. The soil in this area will be compacted using hand operated compaction equipment. Berm material will be placed in reduced lift thicknesses with adequate moisture to obtain density requirements.
5. Soil used to reconstruct the berm slope will be furnished by the Contractor and approved by the Engineer. The soil will have 100% passing the 1 ½ inch sieve, a maximum of 70% passing the #4 sieve, have a maximum Liquid Limit (LL) of 45 and a Plastic Index (PI) greater than 10 but less than 25. The Contractor will be responsible for one gradation, LL and PI test for each borrow source for berm reconstruction. The test results will be supplied to the Engineer in writing.

6. Compaction of the reconstructed berm and inslopes will be governed by the Ordinary Compaction Method.
7. No informational quantities are available. The Contractor will visit the site prior to determine necessary quantities.
8. The cost of the berm reconstruction will be incidental to the contract unit price per each for Bridge Berm Repair. This payment will be full compensation for furnishing all materials, labor, tools, and equipment necessary or incidental to the reconstruction of the bridge berm.

NOTES (CONTINUED)
FOR
184' - 9 ¾" CONT. COMP. GIRDER BRIDGE
STR. NO. 27-120-276
MAY 2026



PLAN
(Eastside Barrier)

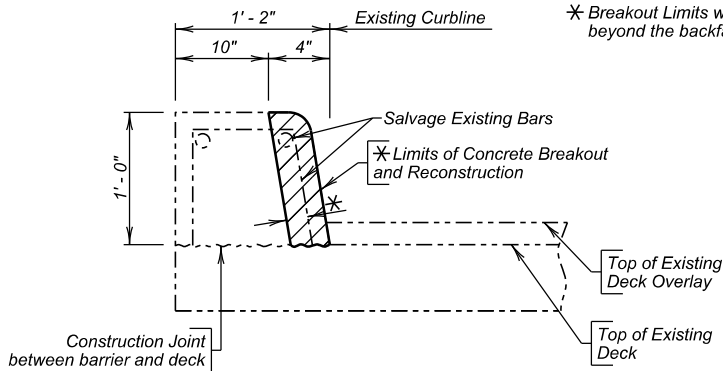


PLAN
(Westside Barrier)

 Shaded areas indicate approximate location of unsound concrete requiring concrete repair.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Concrete Patching Material, Miscellaneous	CuFt	60.0	60.0
Breakout Structural Concrete	CuYd	2.3	2.3
Galvanic Anode	Each	87	87



TYPICAL CURB BREAKOUT SECTION
(Concrete shading not shown for clarity)

BARRIER CURB REPAIR DETAILS

FOR

184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276

30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2026

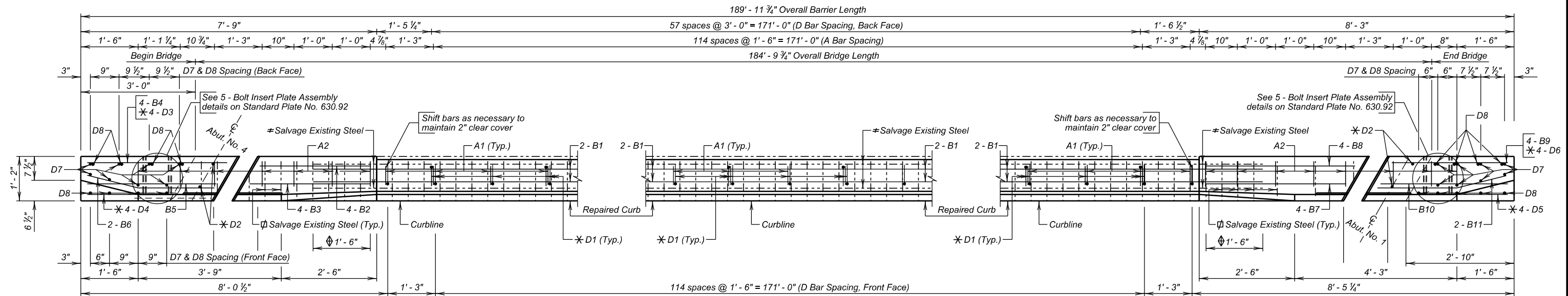
7 OF 27

DESIGNED BY
AP
GREG08J8

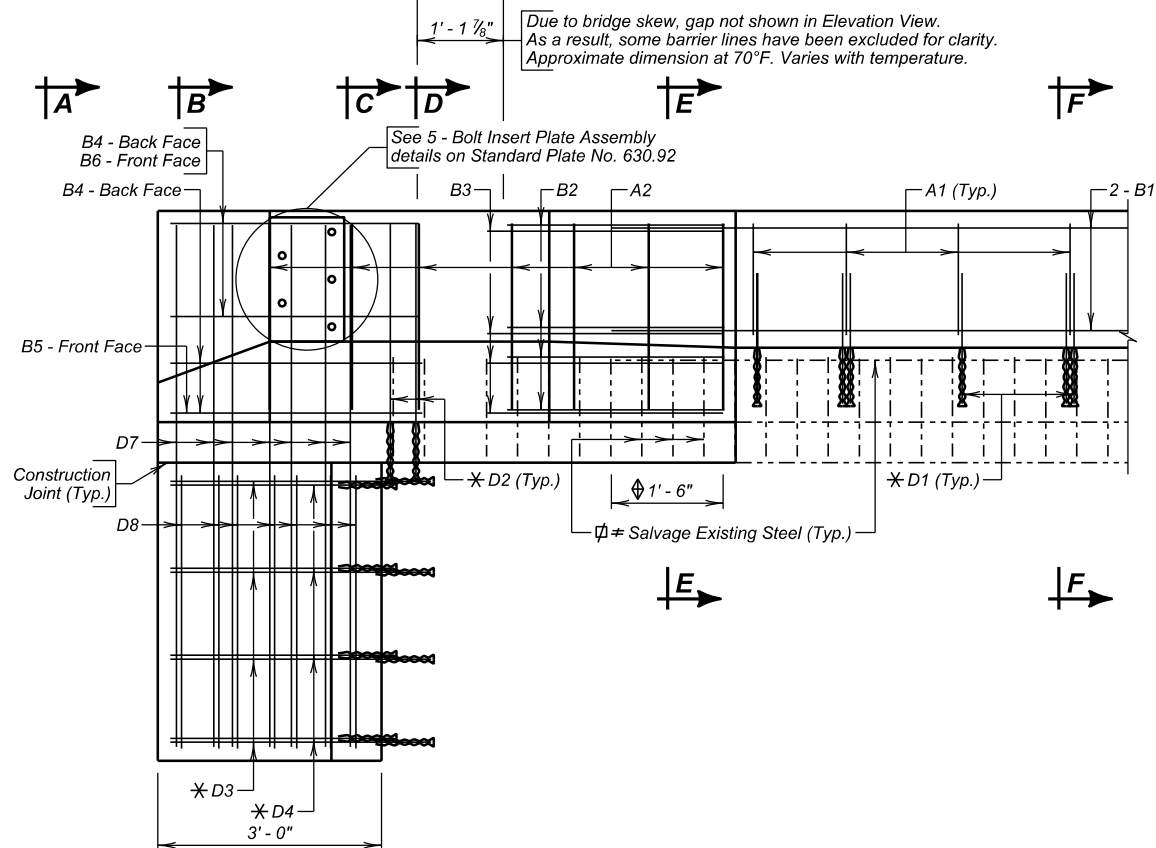
CK. DES. BY
JKI
08J8PA07

DRAFTED BY
JKI/AP

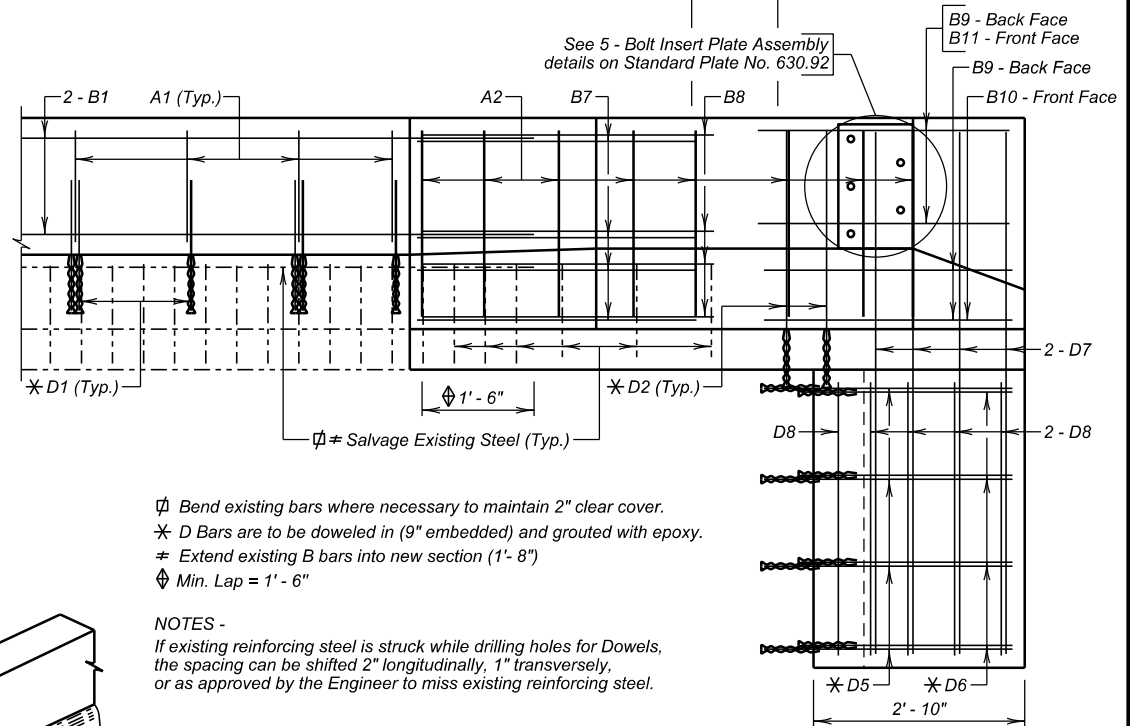
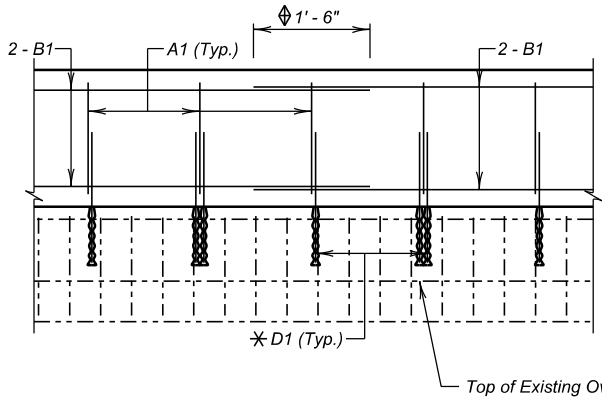

BRIDGE ENGINEER



PLAN
(Phase 1 shown, Phase 2 similar by rotation)
(Only embedded End Block Expansion Plates shown for clarity)



ELEVATION
(Some barrier lines excluded for clarity)
(End Block Expansion Plates excluded for clarity)



- ∅ Bend existing bars where necessary to maintain 2" clear cover.
✱ D Bars are to be doweled in (9" embedded) and grouted with epoxy.
≠ Extend existing B bars into new section (1'- 8")
⌀ Min. Lap = 1' - 6"

NOTES -
If existing reinforcing steel is struck while drilling holes for Dowels, the spacing can be shifted 2" longitudinally, 1" transversely, or as approved by the Engineer to miss existing reinforcing steel.

**END BLOCK MODIFICATION AND
RAIL REPLACEMENT DETAILS (A)**

FOR

184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

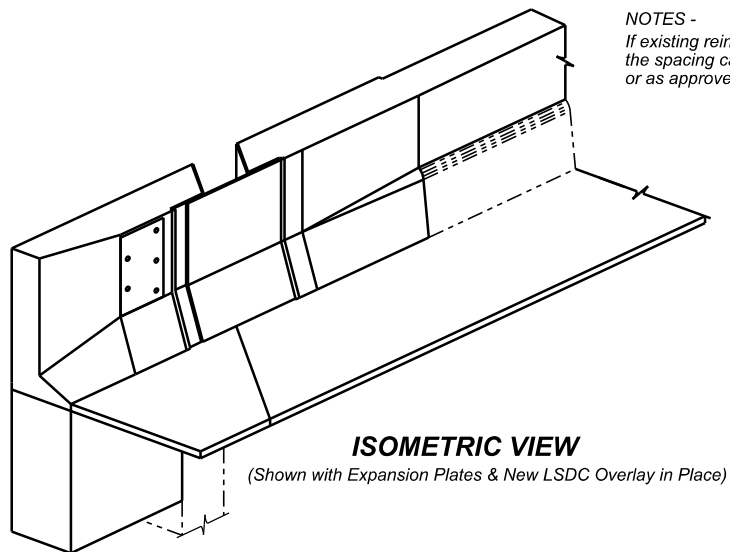
30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276

30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION

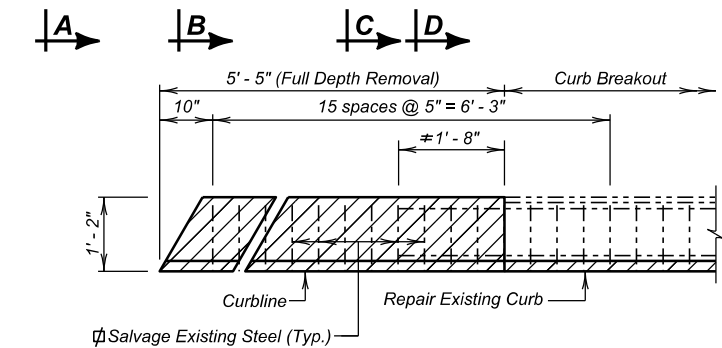
MAY 2026

8 OF 27



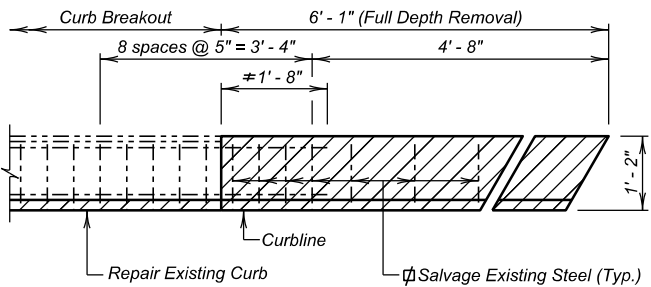
ISOMETRIC VIEW

(Shown with Expansion Plates & New LSDC Overlay in Place)



PARTIAL PLAN

(Showing Curb Breakout for New End Block at Abut. No. 4)



PARTIAL PLAN

(Showing Curb Breakout for New End Block at Abut. No. 1)

REINFORCING SCHEDULE					
(Quantities for both Phase 1 & Phase 2 shown)					
Mk.	No.	Size	Length	Type	Bending Details
A1	234	4	4' - 9"	T2	
A2	30	4	7' - 1"	T2	
B1	32	4	45' - 6"	Str.	
B2	8	4	2' - 11"	Str.	
B3	8	4	3' - 2"	Str.	
B4	8	4	3' - 8"	Str.	
B5	2	4	3' - 5"	Str.	
B6	4	4	3' - 4"	19A	
B7	8	4	3' - 8"	Str.	
B8	8	4	3' - 11"	Str.	
B9	8	4	3' - 1"	Str.	
B10	2	4	3' - 4"	Str.	
B11	4	4	3' - 5"	19A	
Δ D1	350	6	2' - 5"	1A	
Δ D2	8	6	3' - 5"	Str.	
Δ D3	8	6	3' - 6"	Str.	
Δ D4	8	6	3' - 0"	Str.	
Δ D5	8	6	3' - 4"	Str.	
Δ D6	8	6	2' - 10"	Str.	
D7	32	6	7' - 0"	Str.	
D8	34	7	3' - 8"	Str.	

NOTES :
Δ Dowels
All bars are epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		PHASE 1	PHASE 2
Remove Bridge Railing	Ft	185	185
Structure Excavation, Miscellaneous	CuYd	4.2	4.2
Class A45 Concrete, Bridge Barrier	CuYd	11.4	11.4
Breakout Structural Concrete	CuYd	0.5	0.5
Install Dowel in Concrete	Each	195	195
⊗ Epoxy Coated Reinforcing Steel	Lb	1292	1292
Galvanic Anode	Each	8	8

⊗ Does not include the following quantities for D1 through D6 bars as these are incidental to the contract unit price per each for Install Dowel in Concrete.

	PHASE 1	PHASE 2
Epoxy Coated Reinforcing Steel Dowel	732 Lb	732 Lb

The informational quantity is an approximate quantity contained in the above contract item and is for information only.

END BLOCK MODIFICATION AND
RAIL REPLACEMENT DETAILS (B)

FOR

184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276

30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2026

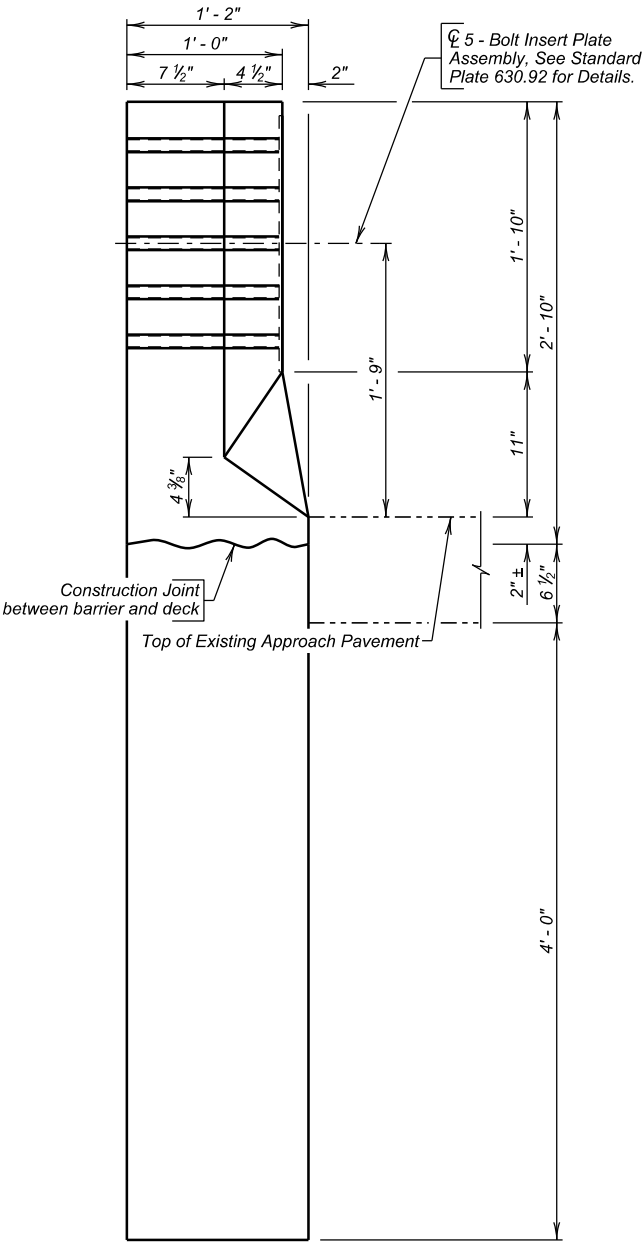
9 OF 27

DESIGNED BY
JKI
GREG08J8

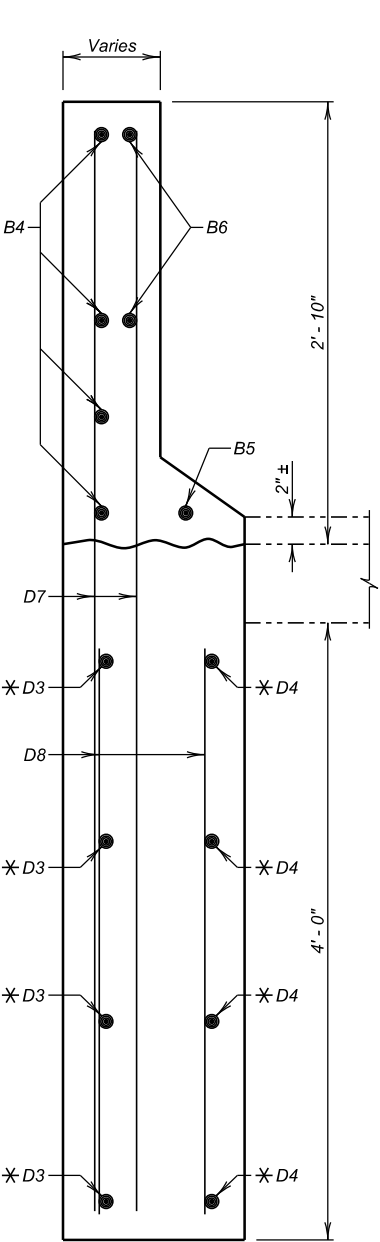
CK. DES. BY
AP
08J8PA09

DRAFTED BY
JKI

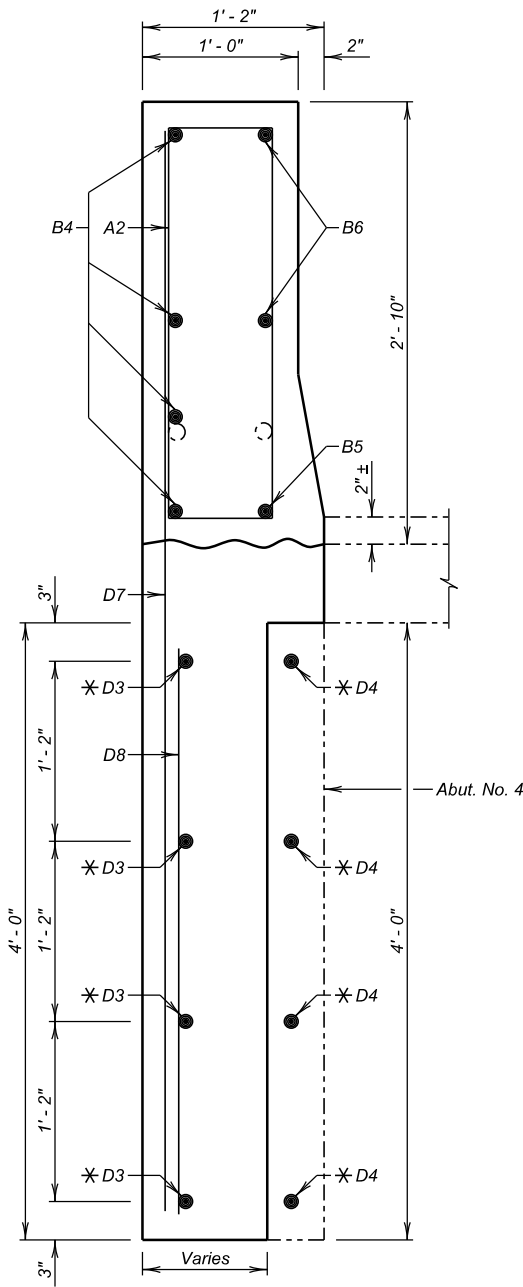
Steve A. Johnson
BRIDGE ENGINEER



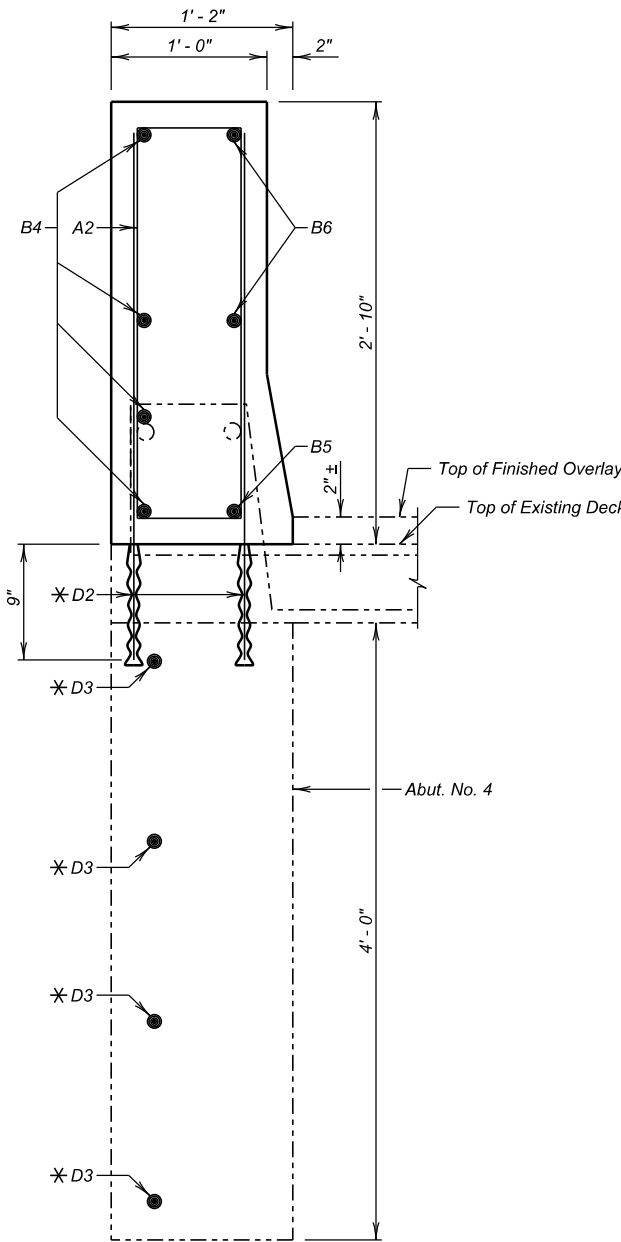
VIEW A - A



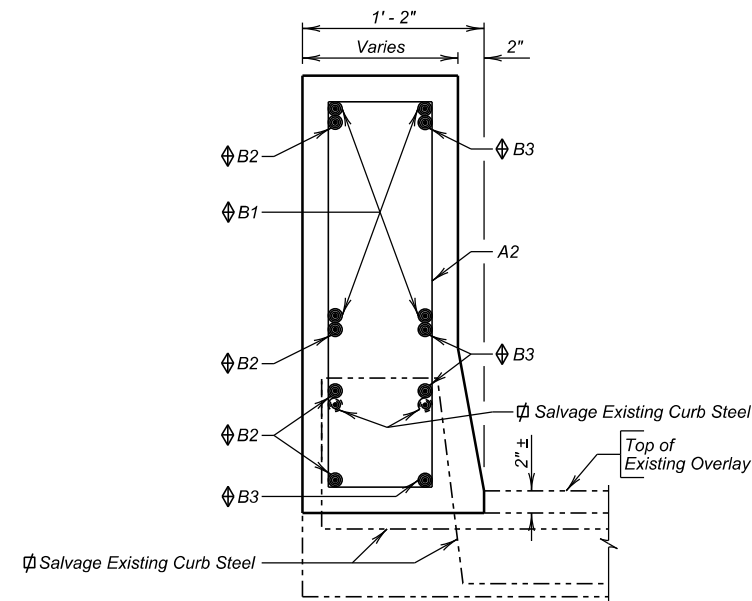
SECTION B - B



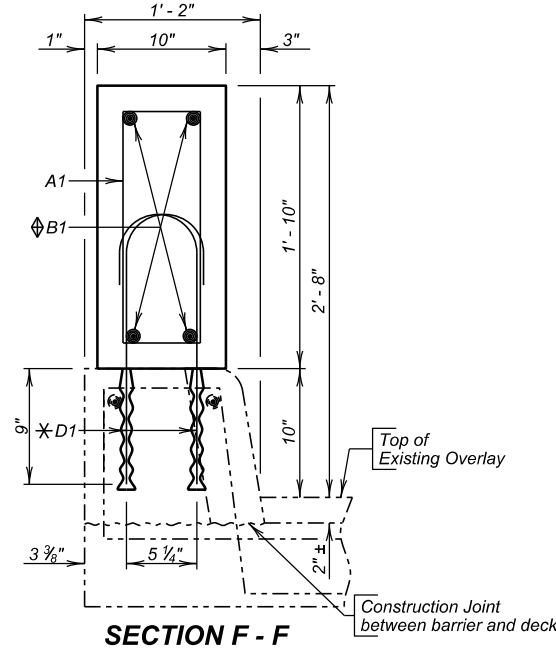
SECTION C - C



SECTION D - D



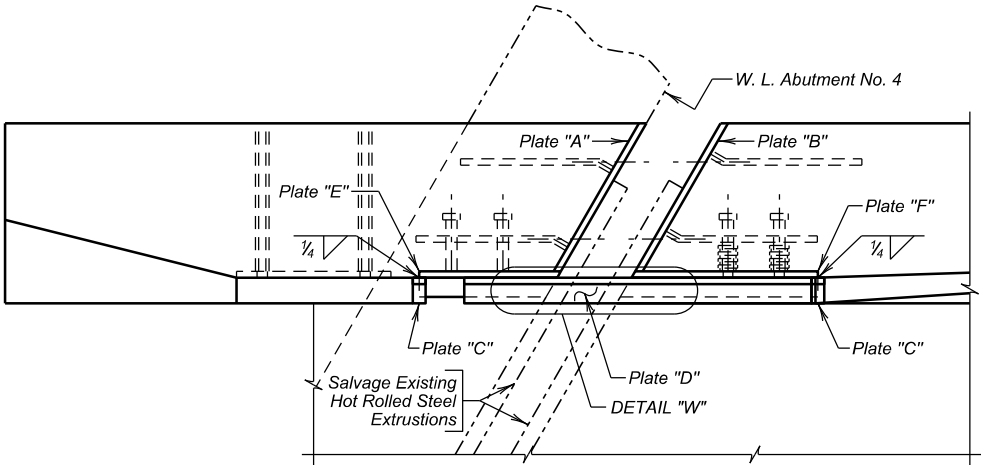
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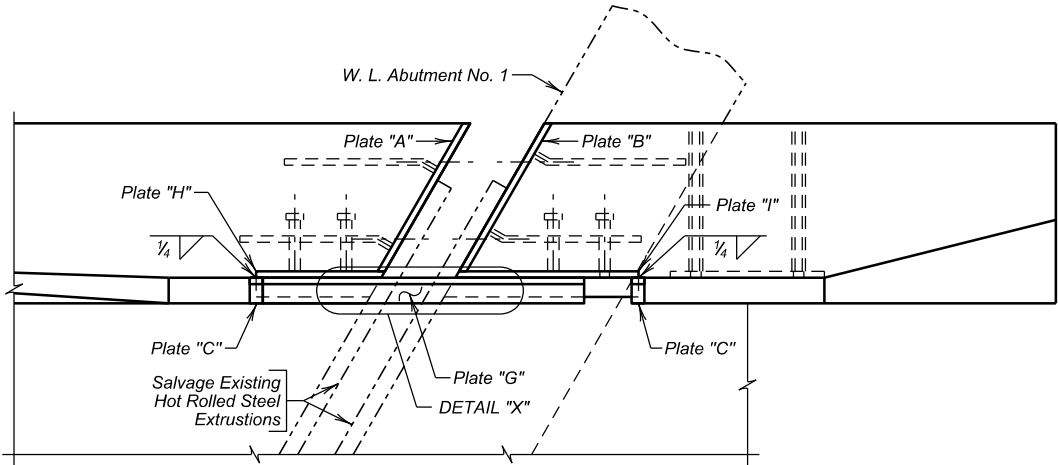
SECTION F - F

⌀ Bend existing bars where necessary to maintain 2" clear cover.
✱ D Bars are to be doweled in (9" embedded) and grouted with epoxy.
⌀ Min. Lap = 1' - 6"

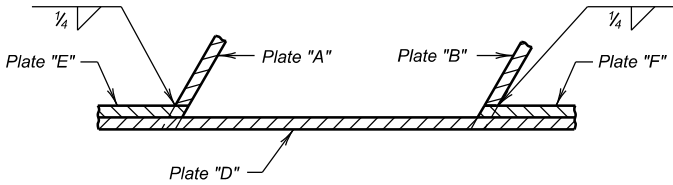
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0047(125)2	20	82



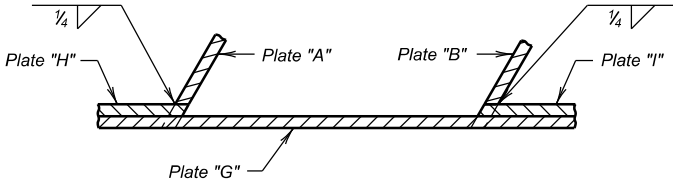
PLAN
(Abutment No. 4 - NE Corner Shown)



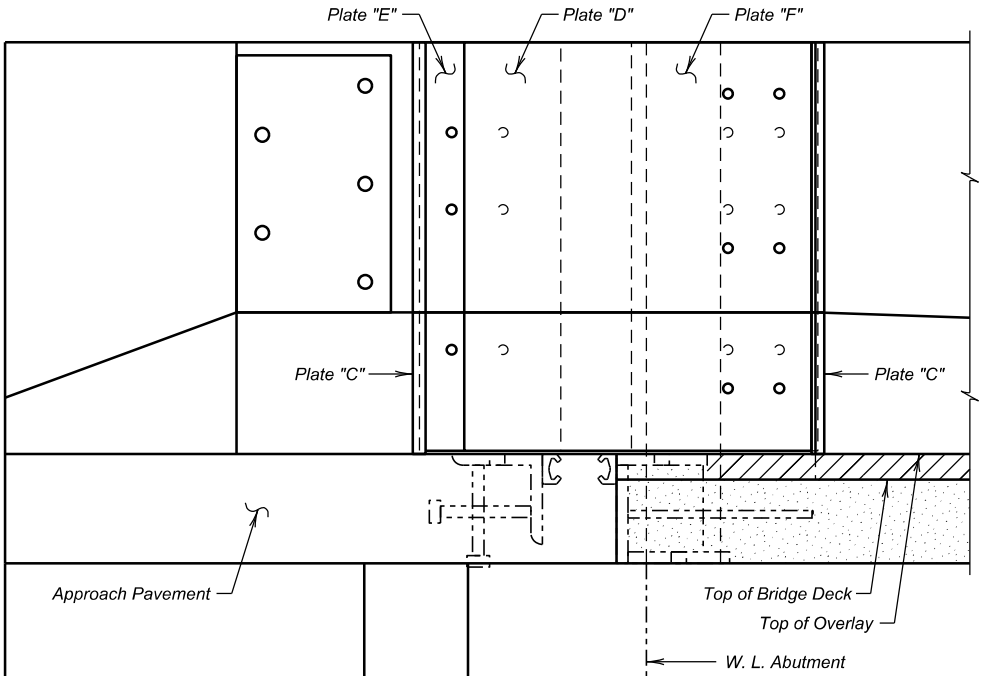
PLAN
(Abutment No. 1 - SE Corner Shown)



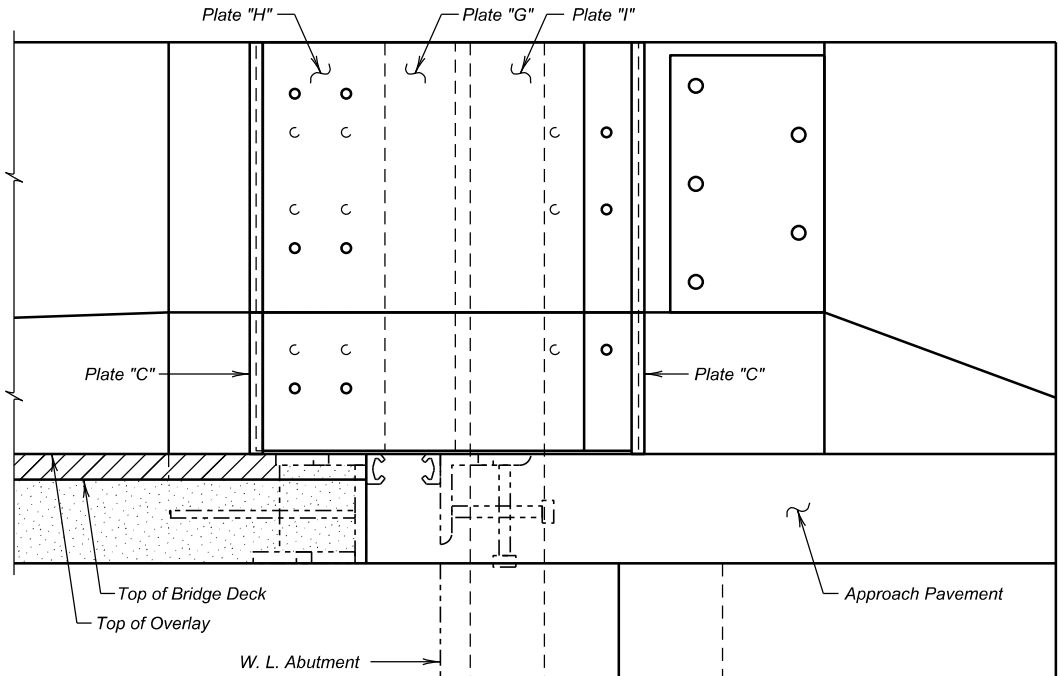
DETAIL "W"



DETAIL "X"



ELEVATION
(Abutment No. 4 - NE Corner Shown)



ELEVATION
(Abutment No. 1 - SE Corner Shown)

END BLOCK EXPANSION PLATES (A)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276

30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2
GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2026

DESIGNED BY JKI GREG08J8	CK. DES. BY AP 08J8PA10	DRAFTED BY JKI	<i>Steve A. Johnson</i> BRIDGE ENGINEER
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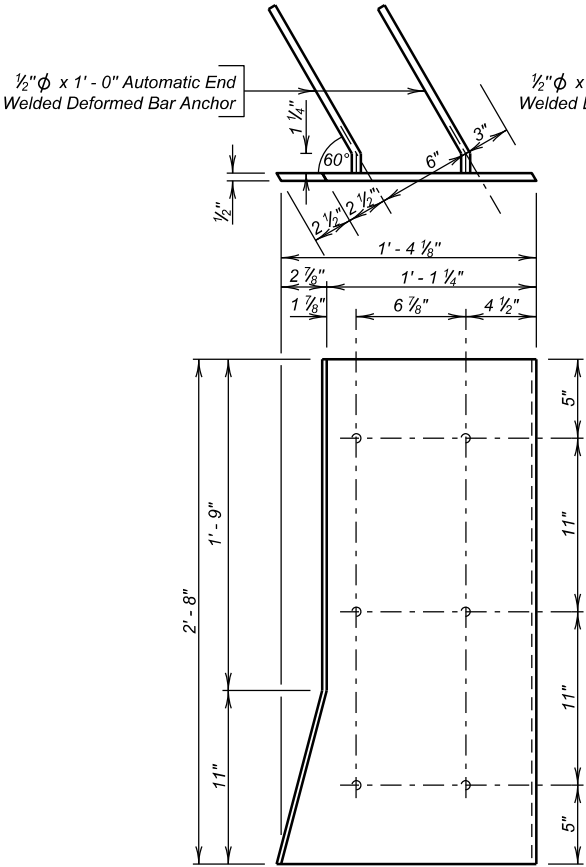


PLATE "A"

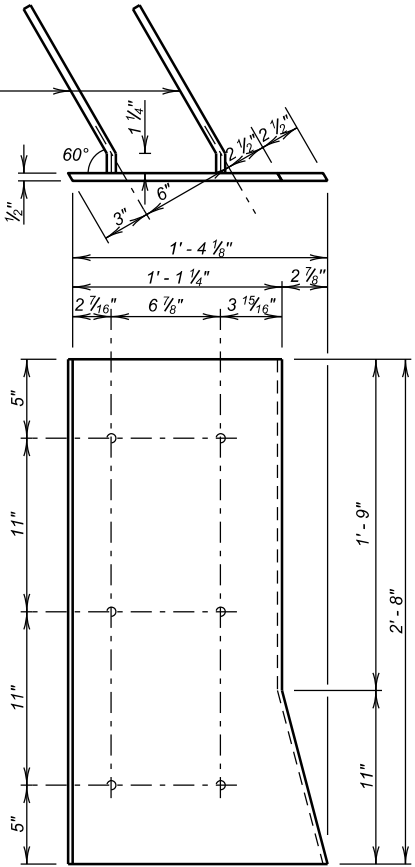


PLATE "B"

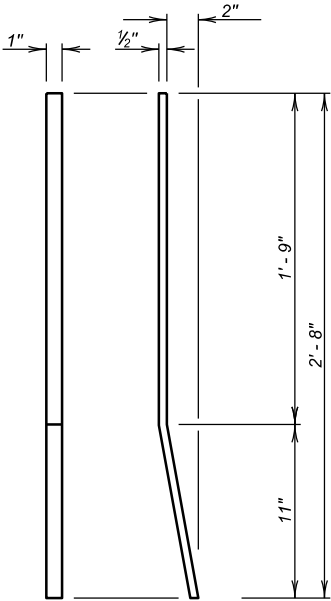


PLATE "C"

Spacing for 3/4" diameter x 2 1/2" Socket Counter Sunk Head Cap Screw. (Recess 1/8")

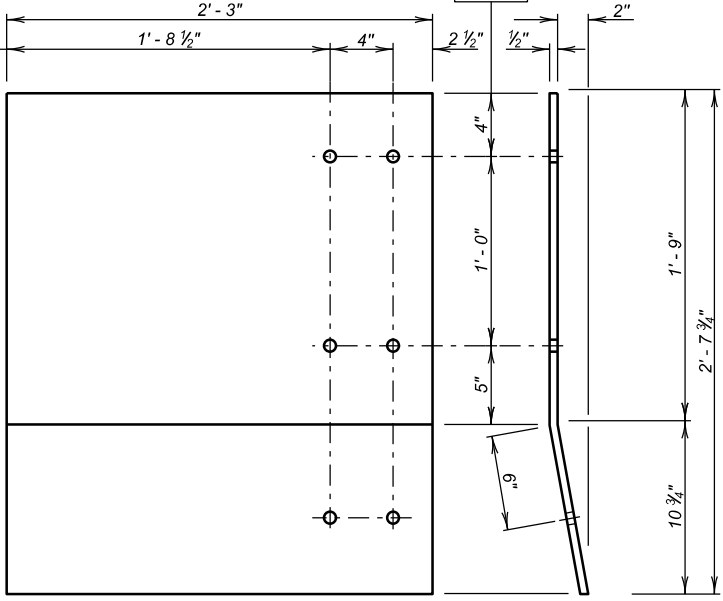


PLATE "D"

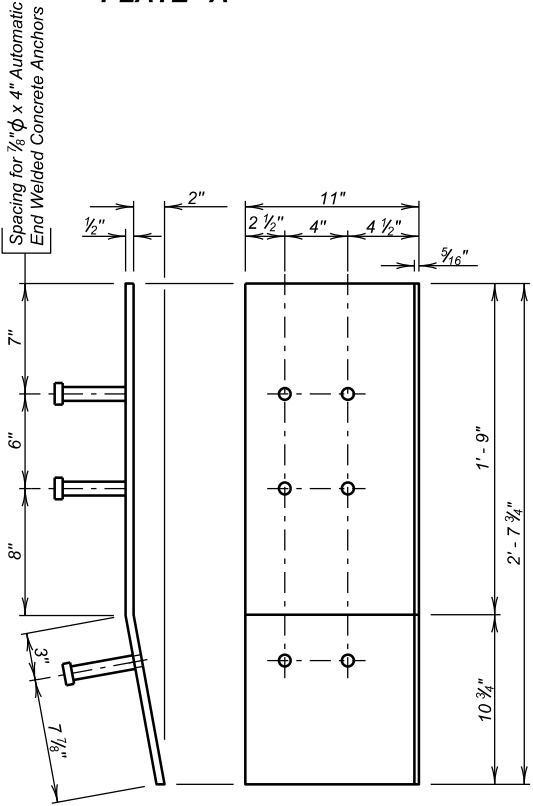


PLATE "E"

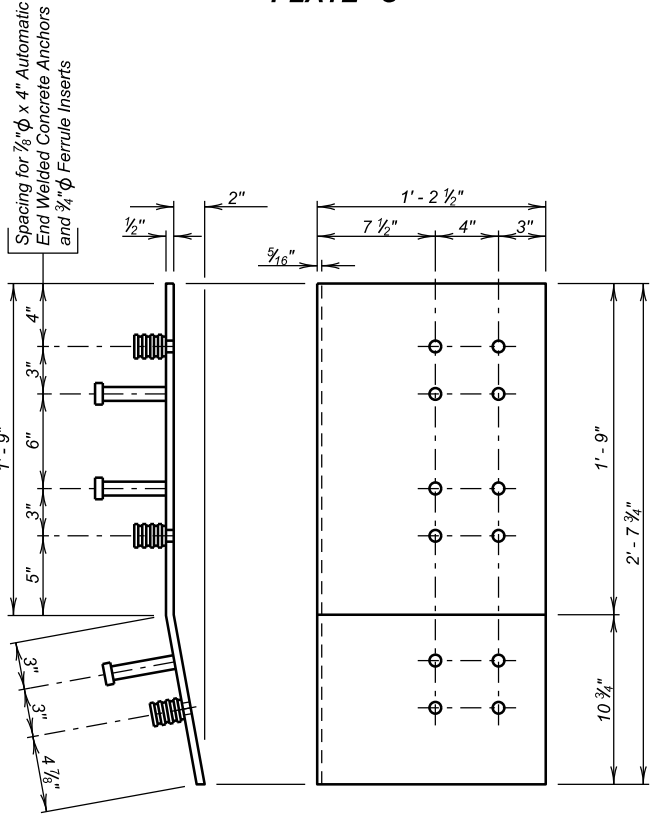


PLATE "F"

END BLOCK EXPANSION PLATES (B)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276
30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2026

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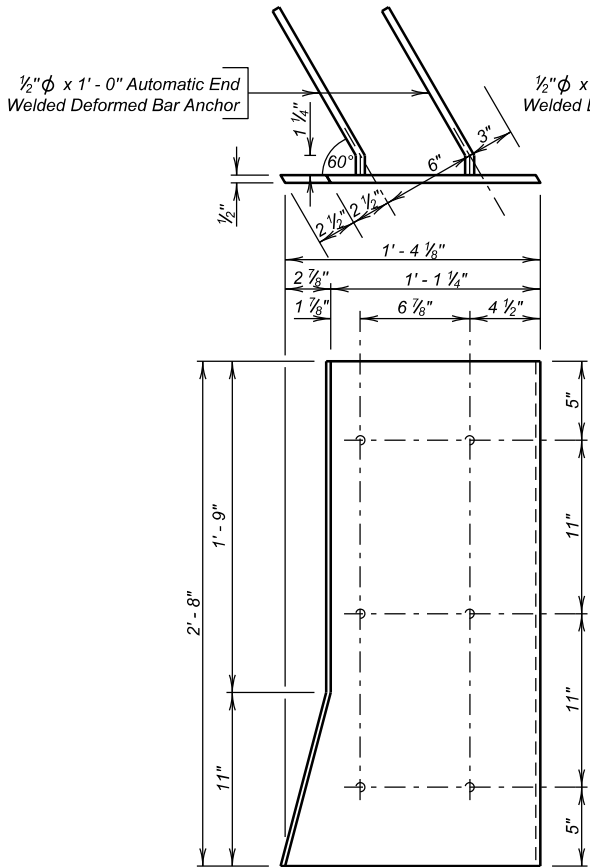


PLATE "A"

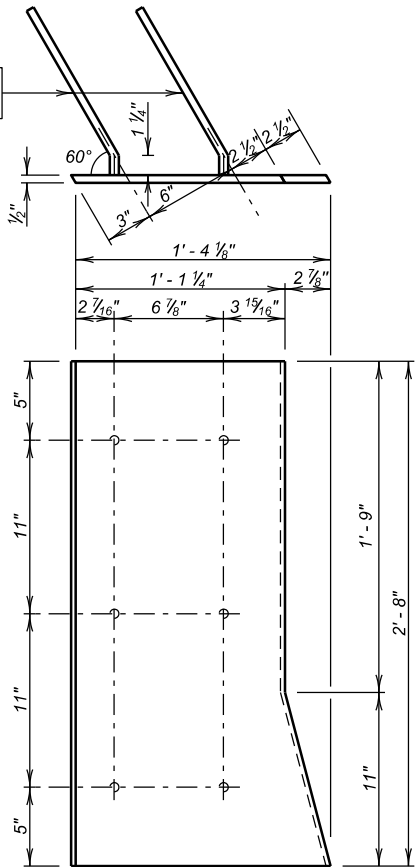


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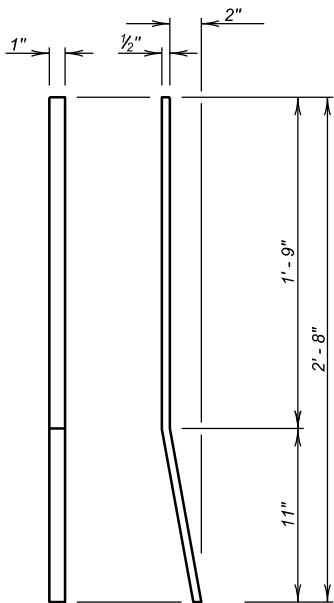


PLATE "C"

Spacing for 3/4" x 2 1/2" Socket Counter Sunk Head Cap Screw. (Recess 1/8")

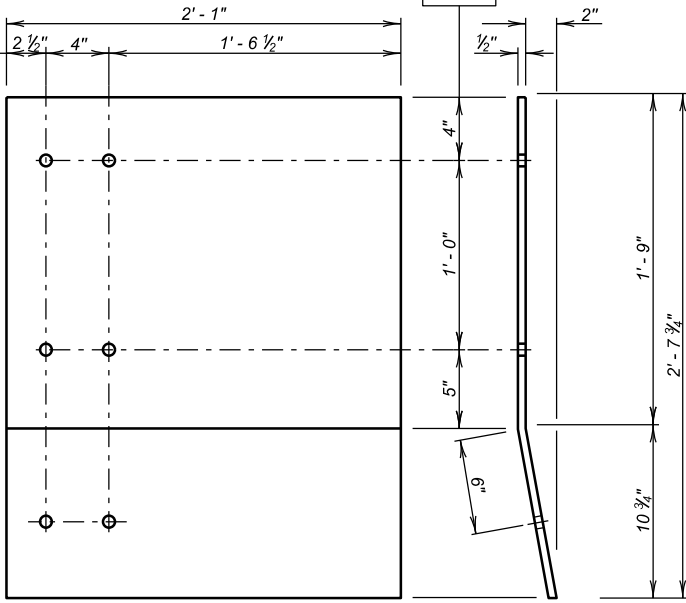


PLATE "G"

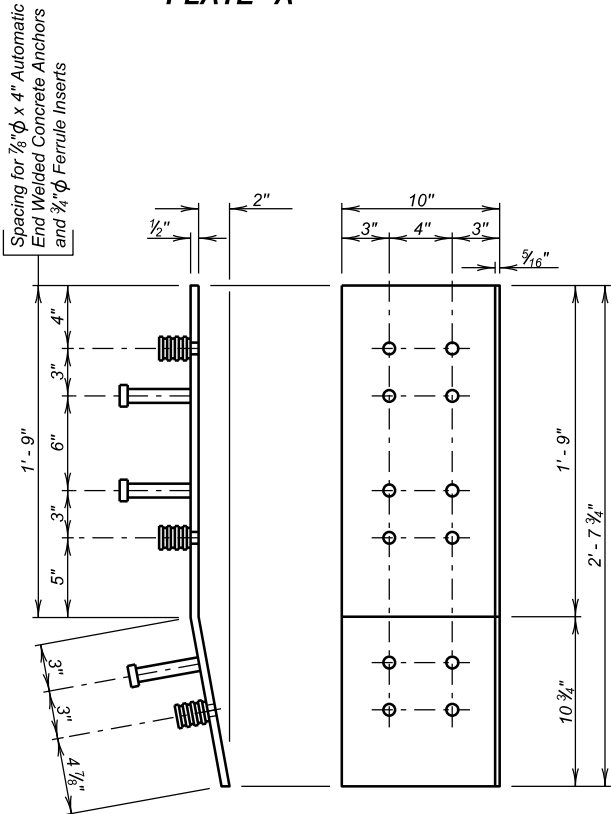


PLATE "H"

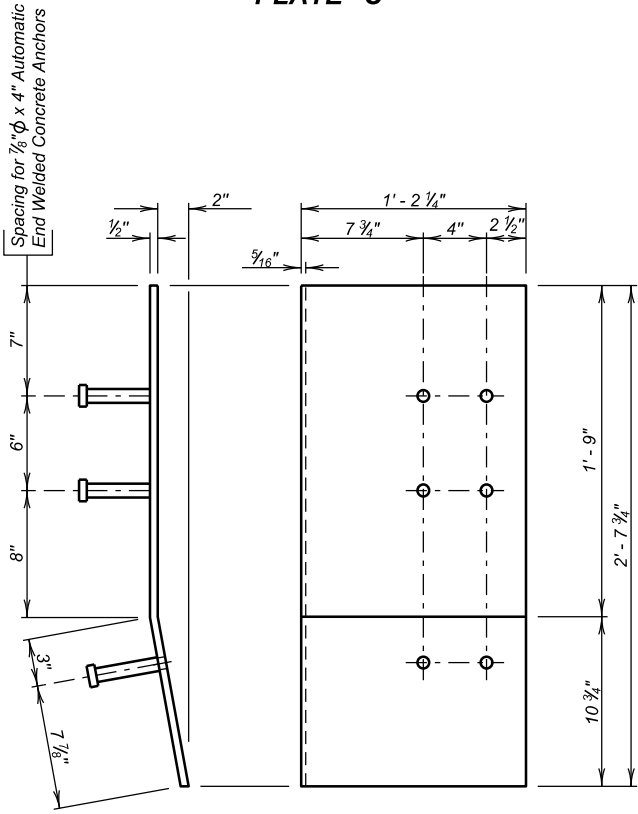


PLATE "I"

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Structural Steel, Miscellaneous	Lump Sum	LS

PHASE 1 PHASE 2
758 Lb 758 Lb Structural Steel

For informational purposes, the estimated weight of structural steel for the expansion plates for all 4 end blocks is 1,516 Lbs.

END BLOCK EXPANSION PLATES (C)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276

30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2026

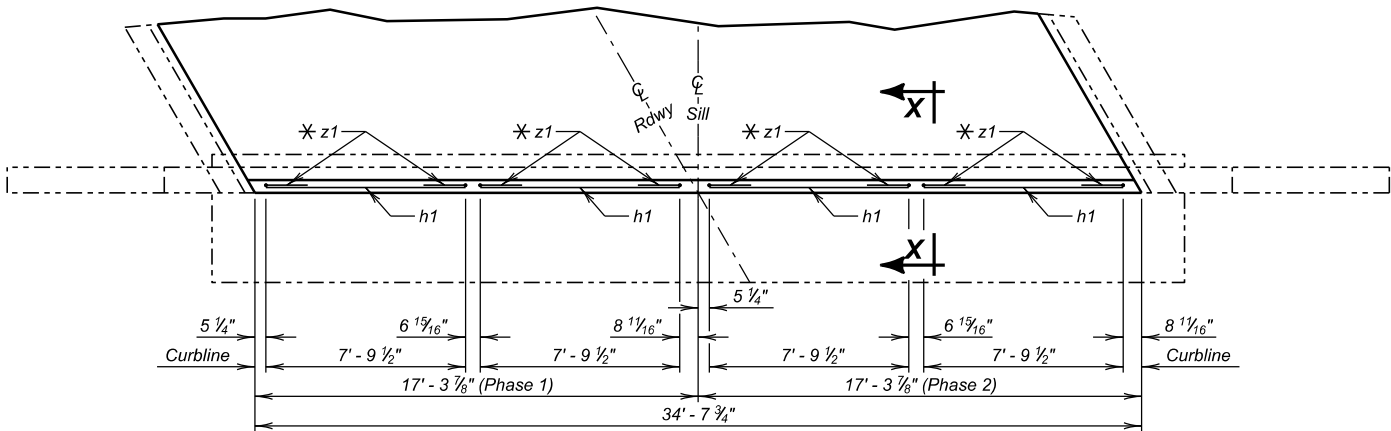
12 OF 27

DESIGNED BY
JKI
GREG08J8

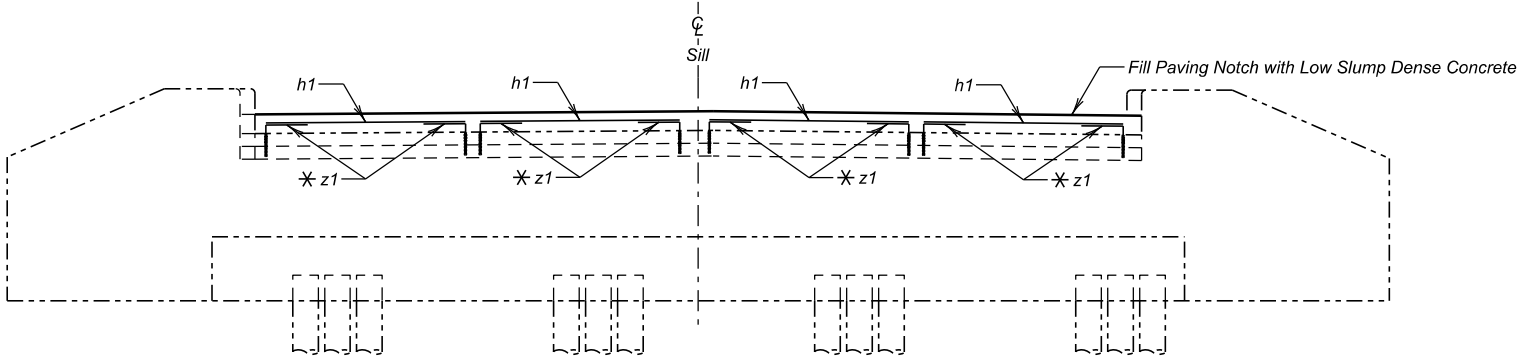
CK. DES. BY
AP
08J8PA12

DRAFTED BY
JKI

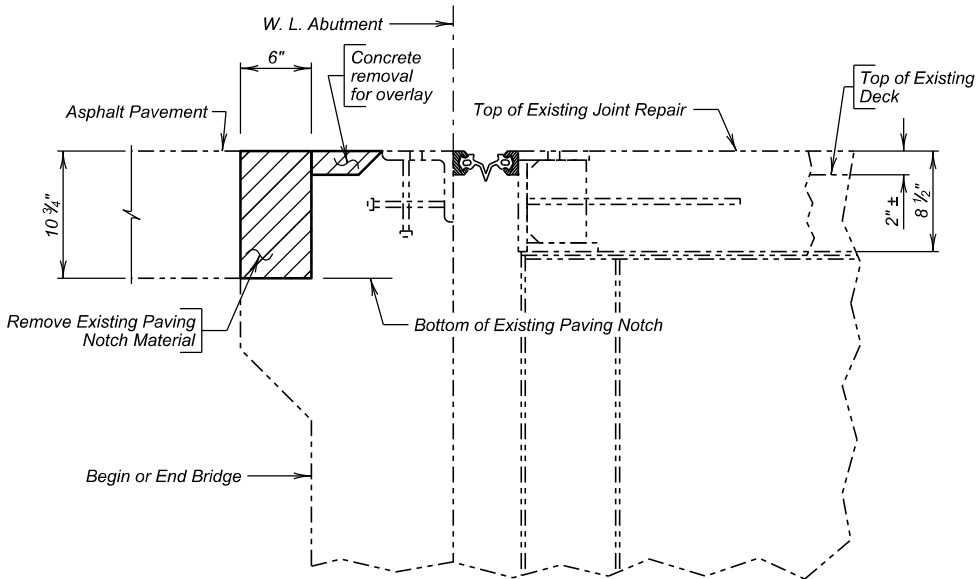
Steve A. Johnson
BRIDGE ENGINEER



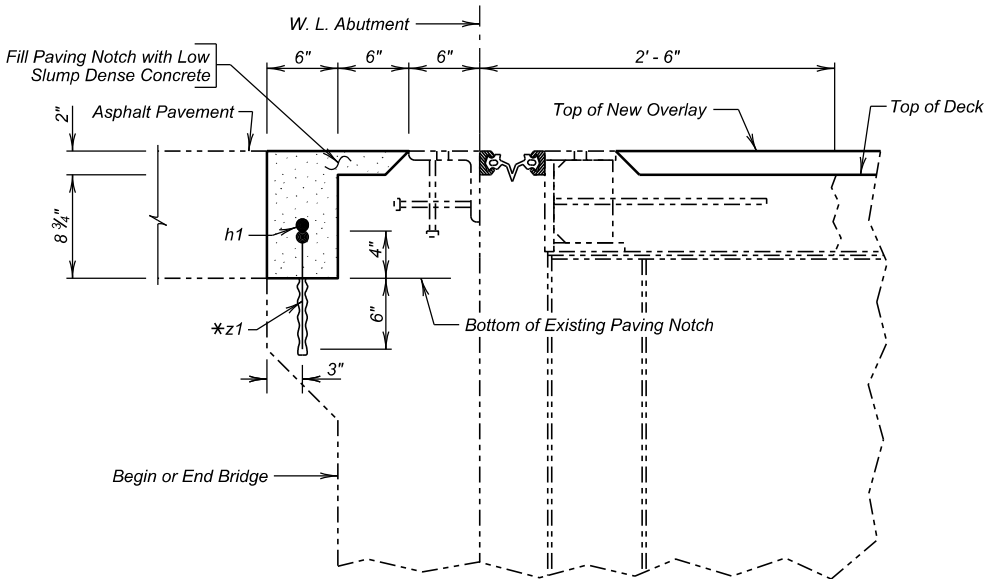
PLAN
(Shown adjacent to Abut. No. 4, Abut. No. 1 similar by rotation)



ELEVATION
(Bridge Barrier Not Shown)



SECTION X - X
(Concrete Removal Shown)



SECTION X - X
(Section after Reconstruction)

REINFORCING SCHEDULE					
(For Both Ends of Bridge)					
Phase	Mk.	No.	Size	Length	Type
Phase 1	Δ z1	8	5	2' - 3"	17A
	h1	4	5	7' - 10"	Str.
Phase 2	Δ z1	8	5	2' - 3"	17A
	h1	4	5	7' - 10"	Str.

NOTES:
All Dimensions are out to out of bars.
All Bars to be Epoxy Coated.
Δ Dowels

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Install Dowel in Concrete	Each	8	8
Epoxy Coated Reinforcing Steel	Lb	33	33
Low Slump Dense Concrete Bridge Deck Overlay	CuYd	1.0	1.0

⊗ Does not include the following quantity for z1 bars as these are incidental to the contract unit price per each for Install Dowel in Concrete.

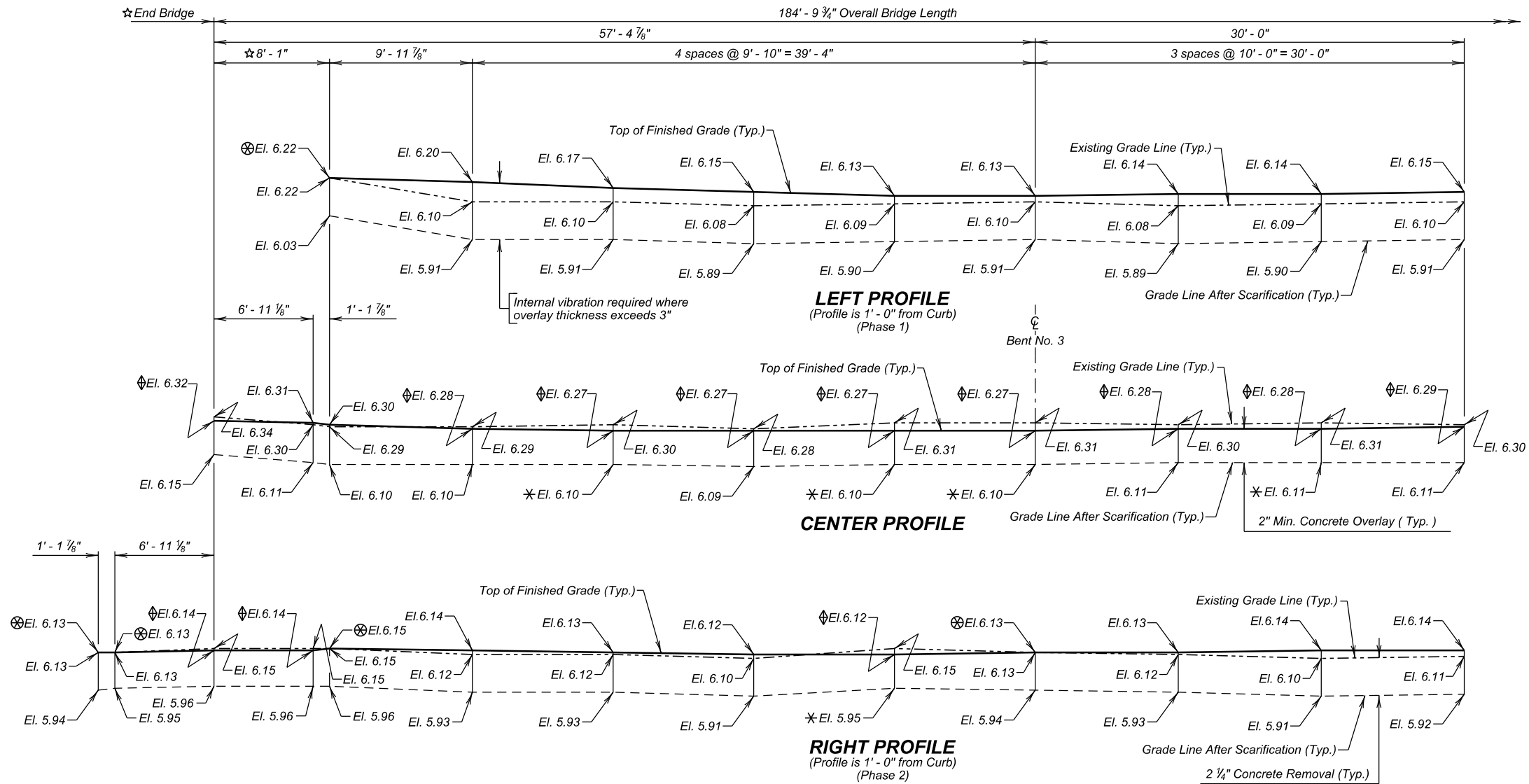
	PHASE 1	PHASE 2
Epoxy Coated Reinforcing Steel Dowel	19 Lb	19 Lb

The informational quantity is an approximate quantity contained in the above contract item and is for information only.

PAVING NOTCH REPAIR
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276

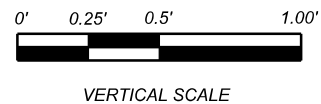
30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2026



Survey Reference:

Location Description: NW Wingwall SB Lane
Elevation: 1987.00



NOTE :

Add 1980.00 all elevations shown on profiles.

⊗ Existing Elevation is the same as the Finished Surface Elevation.

⬢ Existing Elevation is higher than the Finished Surface Elevation.

* Scarify in excess of 2 1/4" in these areas. Extreme care will be taken not to damage the existing reinforcing steel.

☆ The dimension provided is based on a temperature of 70°F. The actual dimension may vary. The overlay begins and ends at the paving notch. The finished overlay elevation will match the joint plate elevation.

LOW SLUMP DENSE CONCRETE OVERLAY DETAILS (A)

FOR

184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276

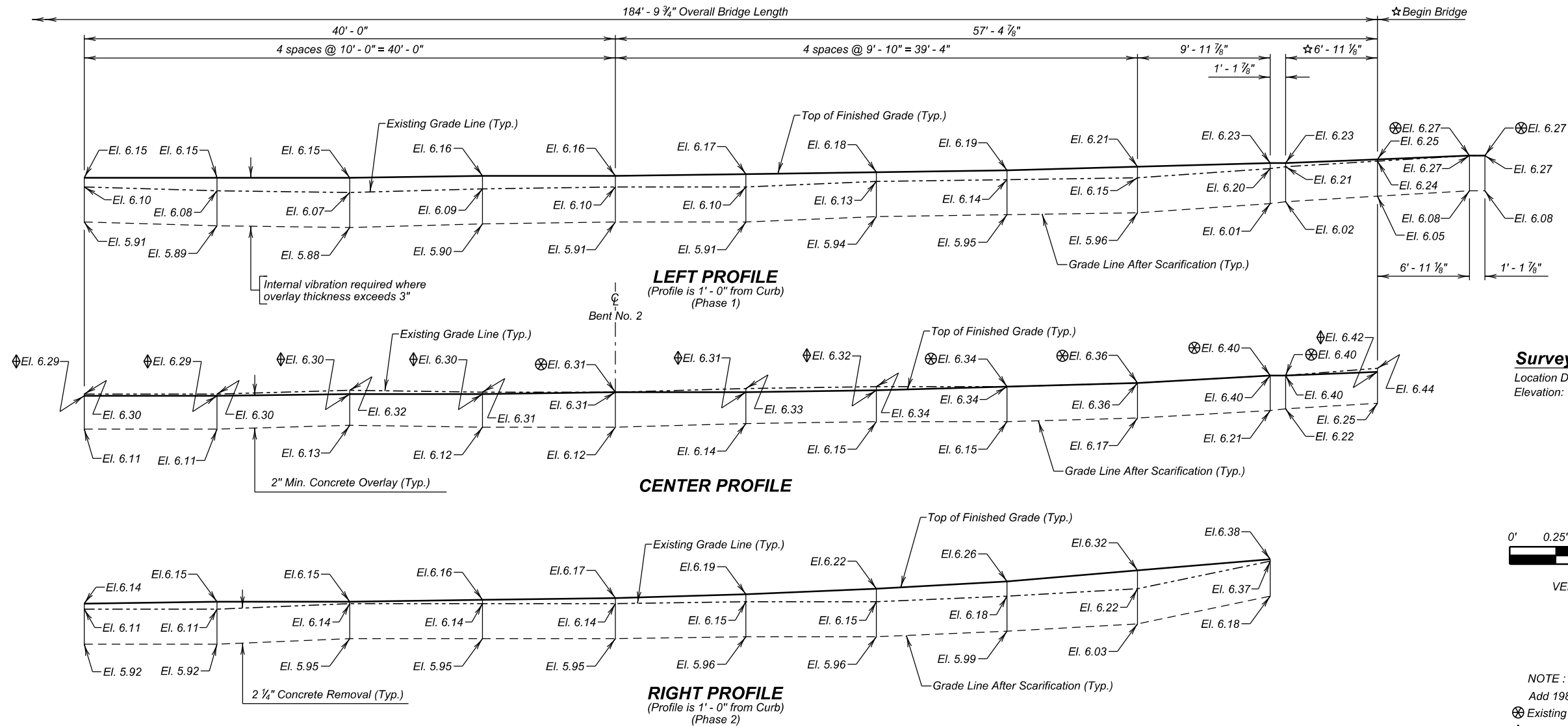
30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION

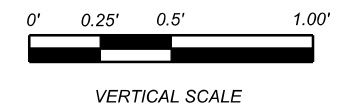
MAY 2026

14 OF 27

DESIGNED BY JKI GREG08J8	CK. DES. BY AP 08J8RA14	DRAFTED BY KR	Steve A. Johnson BRIDGE ENGINEER
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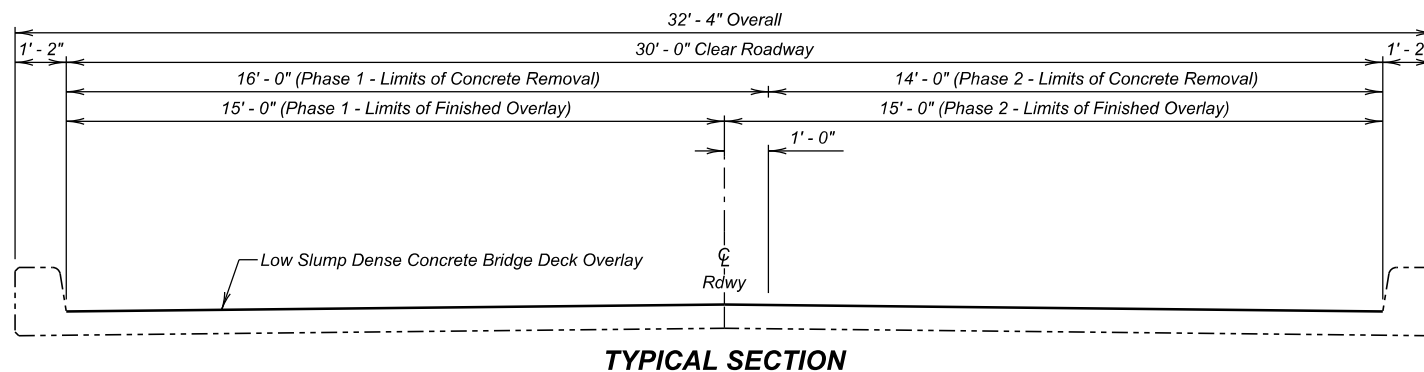


Survey Reference:
Location Description: NW Wingwall SB Lane
Elevation: 1987.00



NOTE :
Add 1980.00 all elevations shown on profiles.

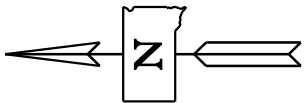
- ⊕ Existing Elevation is the same as the Finished Surface Elevation.
- ⬆ Existing Elevation is higher than the Finished Surface Elevation.
- ✱ Scarify in excess of 2 1/2" in these areas. Extreme care will be taken not to damage the existing reinforcing steel.
- ☆ The dimension provided is based on a temperature of 70°F. The actual dimension may vary. The overlay begins and ends at the paving notch. The finished overlay elevation will match the joint plate elevation.



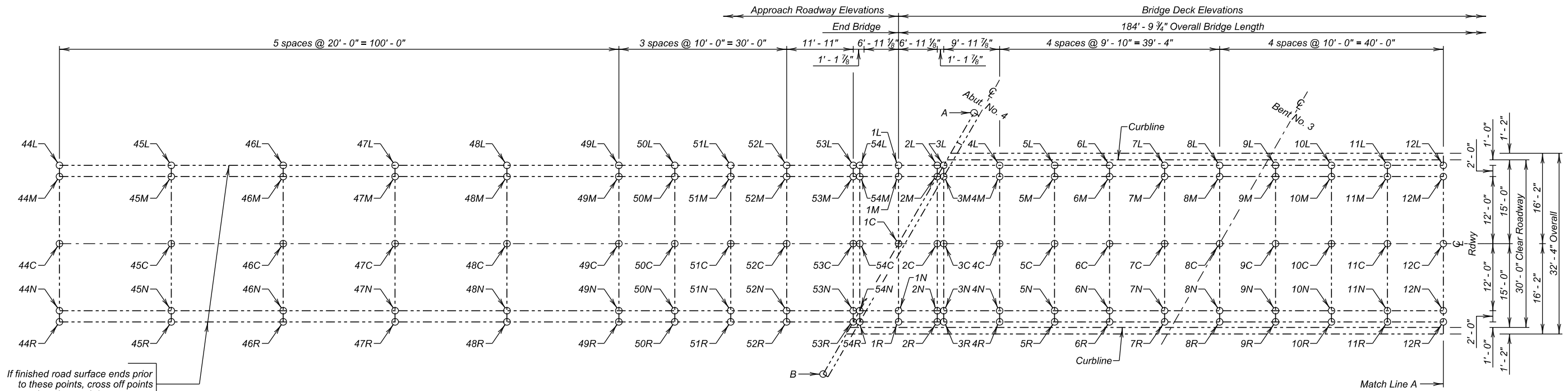
ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Low Slump Dense Concrete Bridge Deck Overlay	CuYd	26.0	25.0
Concrete Removal Type 1A	SqYd	314.2	274.9
Concrete Removal Type 2A	SqYd	78.5	68.7
Concrete Removal Type 1B	SqYd	127.7	127.7
Concrete Removal Type 1C	SqYd	63.8	63.8
Concrete Removal Type 1D	SqYd	63.8	63.8
Concrete Removal Type B	Ft	10.0	10.0
Class A45 Concrete Fill	CuYd	10.6	10.6
Finishing and Curing	SaYd	294.5	294.5

LOW SLUMP DENSE CONCRETE OVERLAY DETAILS (B)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276
30° L.H.F. SKEW
SEC. 25/30-T96N-R72/71
P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2026



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0047(125)2	26	82



PARTIAL PLAN

Table of Elevations - Approach Roadway									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
44L		44M		44C		44N		44R	
45L		45M		45C		45N		45R	
46L		46M		46C		46N		46R	
47L		47M		47C		47N		47R	
48L		48M		48C		48N		48R	
49L		49M		49C		49N		49R	
50L		50M		50C		50N		50R	
51L		51M		51C		51N		51R	
52L		52M		52C		52N		52R	
53L		53M		53C		53N			
54L		54M		54C					
1L		1M							
2L									

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
						54N		53R	
						54R			
				1C		1N		1R	
		2M		2C		2N		2R	
3L		3M		3C		3N		3R	
4L		4M		4C		4N		4R	
5L		5M		5C		5N		5R	
6L		6M		6C		6N		6R	
7L		7M		7C		7N		7R	
8L		8M		8C		8N		8R	
9L		9M		9C		9N		9R	
10L		10M		10C		10N		10R	
11L		11M		11C		11N		11R	
12L		12M		12C		12N		12R	

NOTE:
The As-Built Elevations will be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

Bridge Ends	
Location	Elevation
A	
B	

Benchmark Description:
Location Description: NW Wingwall SB Lane
Elevation: 1987

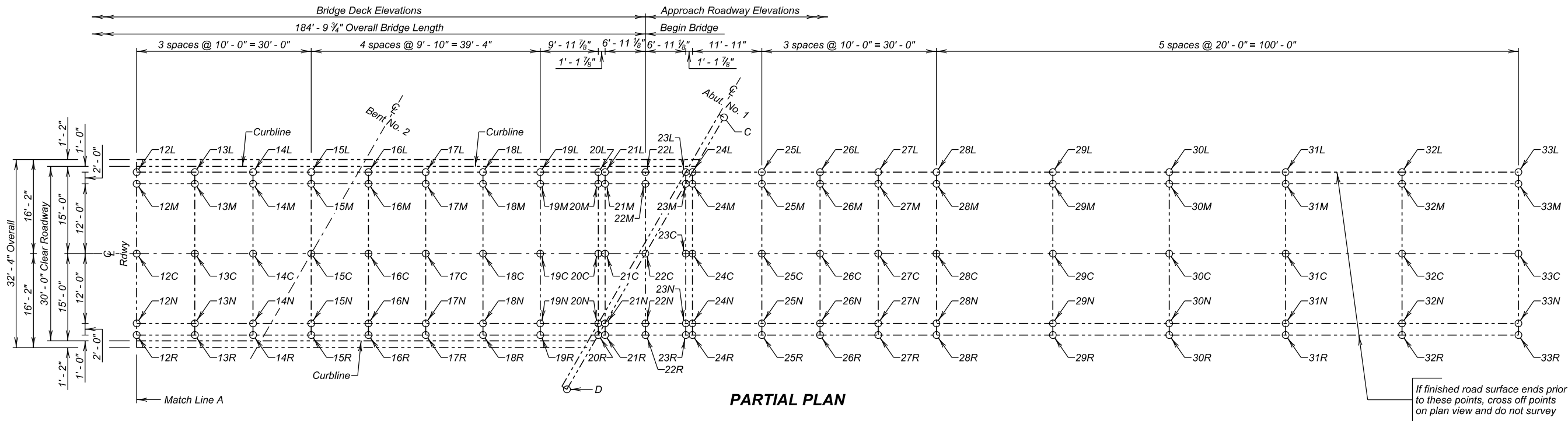
AS-BUILT ELEVATION SURVEY (A)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER PONCA CREEK
STR. NO. 27-120-276
30° SKEW L.H.F.
SEC. 25/30-T96N-R72/71W
P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2026

16 OF 27

DESIGNED BY JKI GREG08J8	CK. DES. BY AP 08J8RA16	DRAFTED BY KR	Steve A. Johnson BRIDGE ENGINEER
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PARTIAL PLAN

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
12L		12M		12C		12N		12R	
13L		13M		13C		13N		13R	
14L		14M		14C		14N		14R	
15L		15M		15C		15N		15R	
16L		16M		16C		16N		16R	
17L		17M		17C		17N		17R	
18L		18M		18C		18N		18R	
19L		19M		19C		19N		19R	
20L		20M		20C		20N		20R	
21L		21M		21C		21N			
22L		22M		22C					
23L		23M							
24L									

Table of Elevations - Approach Roadway									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
								21R	
						22N		22R	
				23C		23N		23R	
		24M		24C		24N		24R	
25L		25M		25C		25N		25R	
26L		26M		26C		26N		26R	
27L		27M		27C		27N		27R	
28L		28M		28C		28N		28R	
29L		29M		29C		29N		29R	
30L		30M		30C		30N		30R	
31L		31M		31C		31N		31R	
32L		32M		32C		32N		32R	
33L		33M		33C		33N		33R	

Bridge Ends	
Location	Elevation
C	
D	

Benchmark Description:
Location Description: NW Wingwall SB Lane
Elevation: 1987

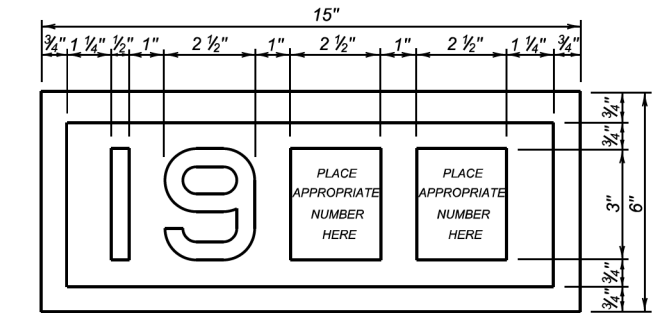
NOTE:
The As-Built Elevations will be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

AS-BUILT ELEVATION SURVEY (B)
FOR
184' - 9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY 30° SKEW L.H.F.
OVER PONCA CREEK SEC. 25/30-T96N-R72/71W
STR. NO. 27-120-276 P 0047(125)2

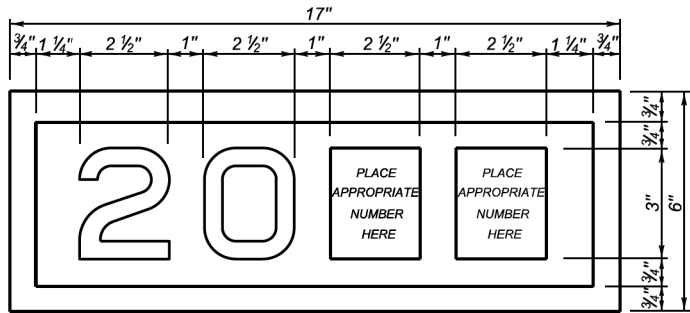
GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION

MAY 2026

YEAR PLATE
DETAILS FOR
ORIGINAL CONSTRUCTION

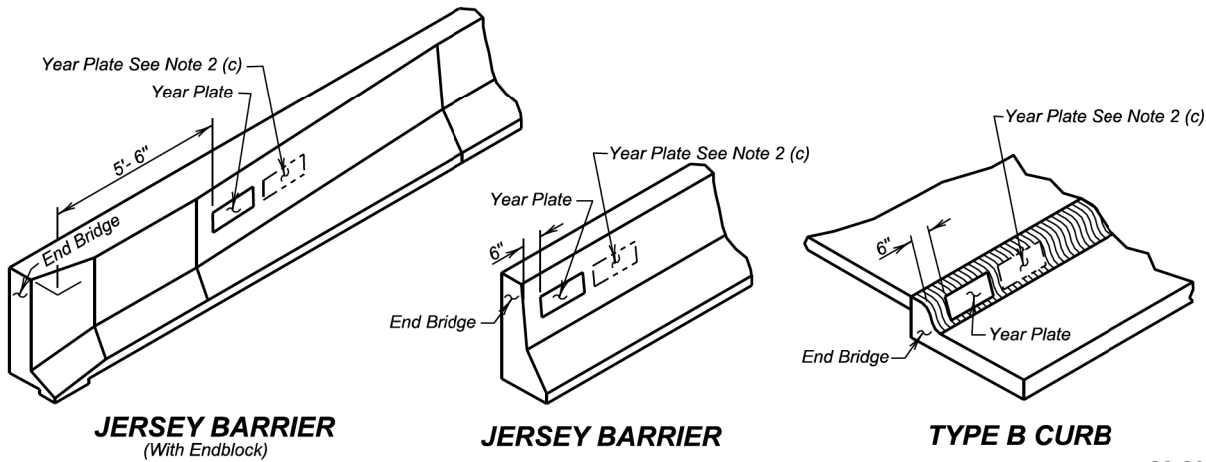


YEAR PLATE
DETAILS FOR
NEW CONSTRUCTION



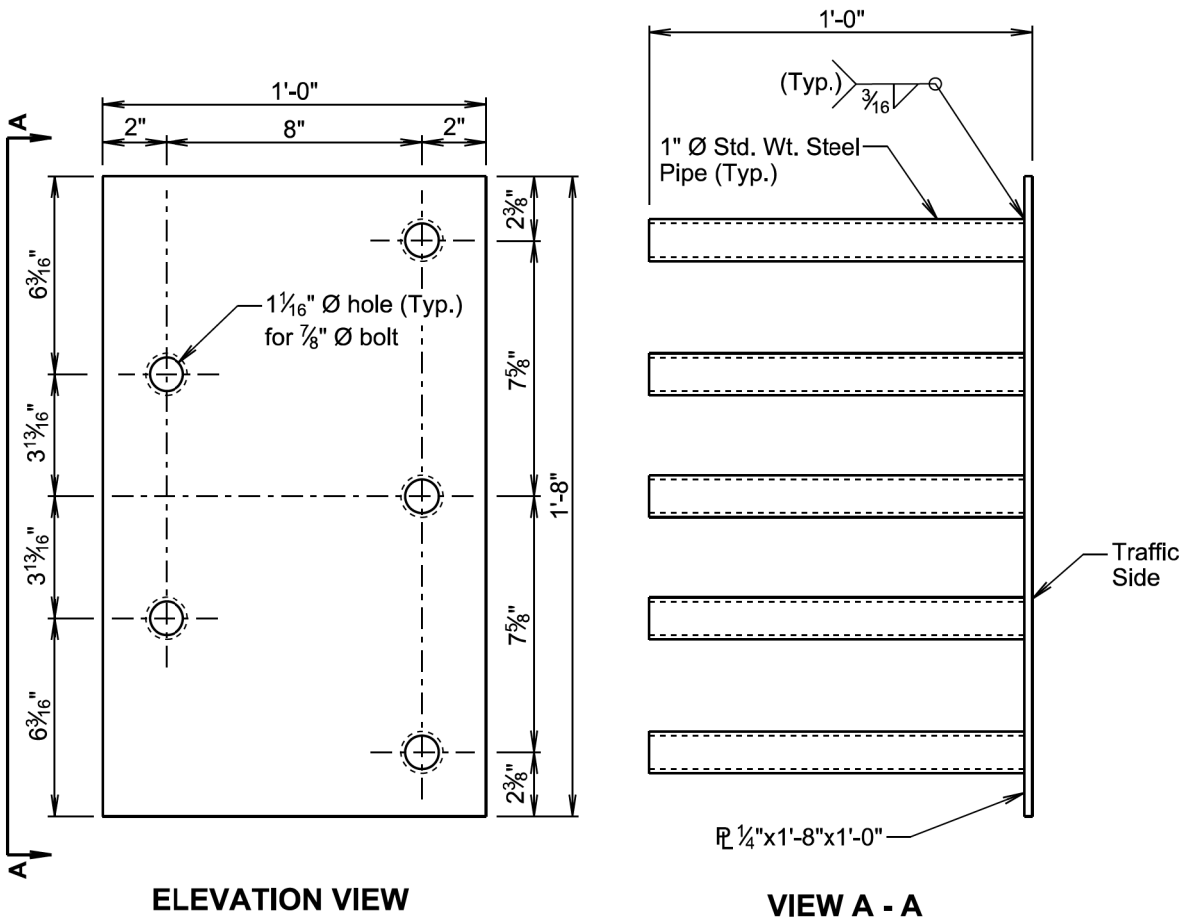
GENERAL NOTES:

- Year plates of the general dimensions shown shall be constructed on all box culverts and bridges. The year plates shall 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 shall be located on structure(s) as follows:
 - On cast-in-place box culverts the year plates shall 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 shall be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate shall be centered in an adjacent barrel.
 - On bridges with six (6) inch curbs or "Jersey" shaped barriers with no endblocks, the year plate shall 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 "Jersey" shaped barrier endblocks, the year plate shall be centered on the upper sloped portion of the barrier approximately 5'- 6" from the end of the bridge, or as designated by the Engineer. There shall 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 shall be placed as listed above and the other located adjacent to it. Both year plates shall 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 shall be incidental to other contract items.



June 26, 2012

Published Date: 2027	S D D O T	DUAL DATE YEAR PLATE DETAILS	PLATE NUMBER 460.03
			Sheet 1 of 1



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", "Class A45 Concrete, Bridge Barrier", or "Class A45 Concrete, Bridge Repair", as applicable.

April 17, 2026

Published Date: 2027	S D D O T	5 BOLT INSERT PLATE ASSEMBLY	PLATE NUMBER 630.92
			Sheet 1 of 1

184' - 9 3/4" CONT. COMP. GIRDER BRIDGE

STR. NO. 27-120-276
MAY 2026

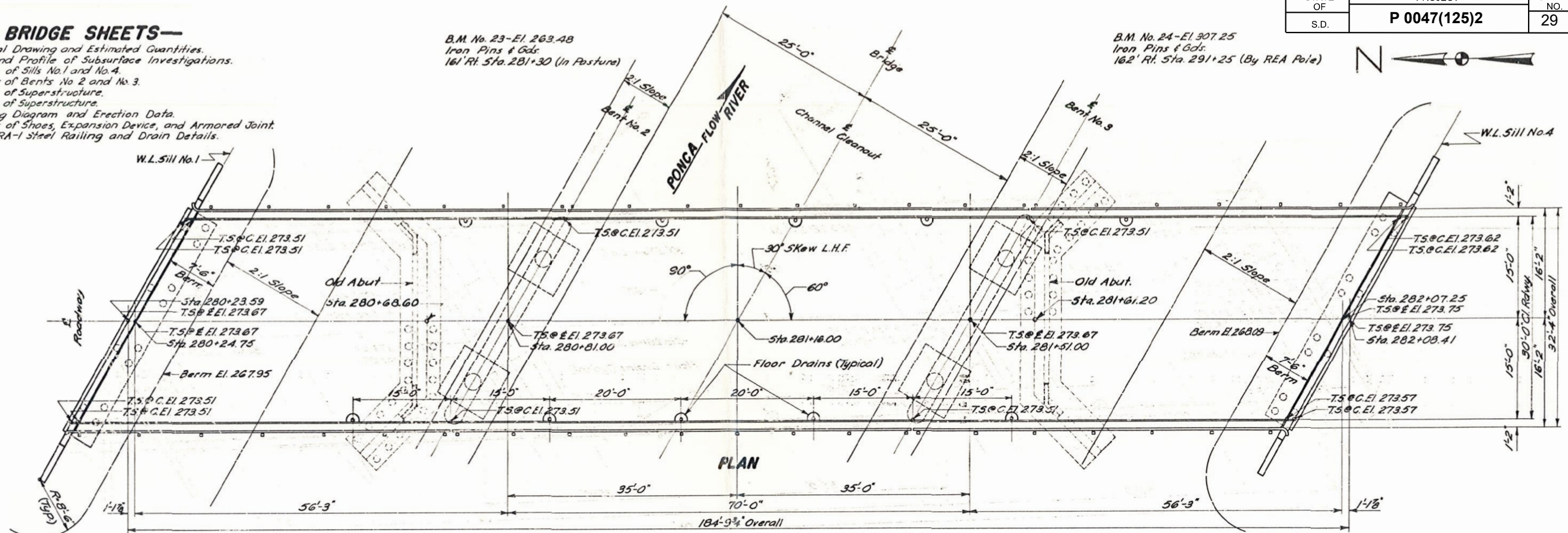
-X031- INDEX OF BRIDGE SHEETS-

Sheet No.1-General Drawing and Estimated Quantities.
Sheet No.2-Plan and Profile of Subsurface Investigations.
Sheet No.3-Details of Sills No.1 and No.4.
Sheet No.4-Details of Bents No.2 and No.3.
Sheet No.5-Details of Superstructure.
Sheet No.6-Details of Superstructure.
Sheet No.7-Framing Diagram and Erection Data.
Sheet No.8-Details of Shoes, Expansion Device, and Armored Joint.
Sheet No.9-Type RA-1 Steel Railing and Drain Details.

B.M. No. 23-El. 263.48
Iron Pins & Gds.
161' Rt. Sta. 281+30 (In Pasture)

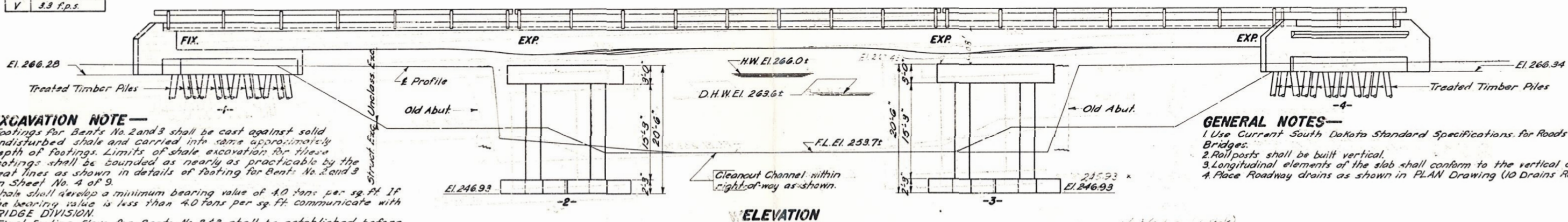
B.M. No. 24-El. 307.25
Iron Pins & Gds.
162' Rt. Sta. 291+25 (By REA Pole)

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0047(125)2	29	82



NOTE:—
T.S.C. = Top of Slab at Curb.
T.S.E. = Top of Slab at Centerline.

Q	2,400 c.f.s.
A	728 "
V	3.3 f.p.s.

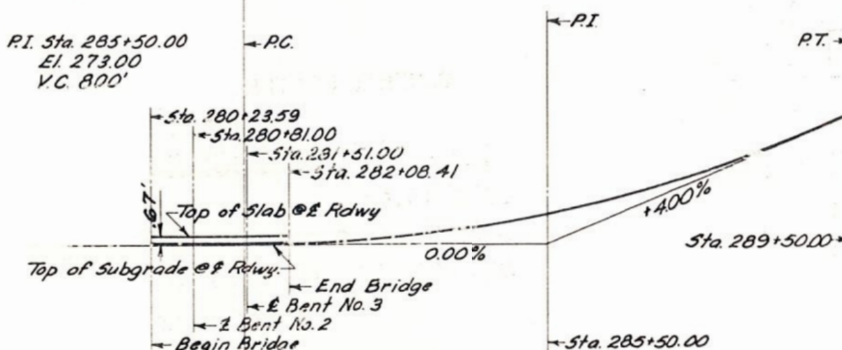


EXCAVATION NOTE—

- Footings for Bents No. 2 and 3 shall be cast against solid undisturbed shale and carried into same approximately depth of footings. Limits of shale excavation for these footings shall be bounded as nearly as practicable by the neat lines as shown in details of footing for Bents No. 2 and 3 on Sheet No. 4 of 9.
- Shale shall develop a minimum bearing value of 4.0 tons per sq. ft. If the bearing value is less than 4.0 tons per sq. ft. communicate with BRIDGE DIVISION.
- Final Footing Elev. for Bents No. 2 & 3 shall be established before ordering column reinforcing steel for the respective Bents.

GENERAL NOTES—

- Use Current South Dakota Standard Specifications for Roads and Bridges.
- Railposts shall be built vertical.
- Longitudinal elements of the slab shall conform to the vertical curve.
- Place Roadway drains as shown in PLAN Drawing (10 Drains Required).



VERTICAL CURVE DATA

ESTIMATED QUANTITIES						
ITEM	C/A Conc. Cu Yds.	Steel Lbs.	Rein. St. Feet	Bridge RA-1 Steel Railing Lbs.	Treated Timber Piles Lin. Ft.	Estimated Bulk Structural Uncl. Lbs.
Superstructure	133.0	35,720	89,550	370.2		
Sill No. 1	29.3	2,440			12 @ 20' x 24"	20.0
Bent No. 2	27.1	5,185				65.0
Bent No. 3	27.4	5,185				65.0
Sill No. 4	28.4	2,950			12 @ 20' x 24"	20.0
Totals	245.2	40,620	89,550	370.2	48 @	170.0

One Treated Timber Test Pile shall be driven at Sills No. 1 & No. 4 before remaining piles are ordered.
See Grading Plans for Structure Excavation.
INCIDENTAL WORK: In place on E Sta. 280+68.6 to Sta. 281+61.2 old single span 32.6' x 19.5' roadway steel Pony Truss Bridge with concrete floor. Break down old concrete floor with care not to injure the structural properties of floor beams or lateral bracing. Remove Pony Truss Span intact as a unit and store at a site 300' from present location as directed by the ENGINEER, to be picked up by County Forces. Care shall be taken not to injure the structural properties of any member of Pony Truss Span during storing operation. Break down old concrete abutments to 1' below finished ground line, except remove as necessary to construct new bents No. 2 & No. 3. Satisfactory broken concrete shall be used as slope protection on the upstream embankments at Sill No. 1 & Sill No. 4 as directed by the ENGINEER. All other broken concrete and materials not salvaged shall be disposed of as directed by the ENGINEER.

ORIGINAL CONSTRUCTION PLANS

GENERAL DRAWING & ESTIMATED QUANTITIES

FOR 184'-9 3/4" CONT. COMP. GIRDER VIADUCT

30'-0" ROADWAY 30° SKEW L.H.F.
OVER PONCA RIVER SEC. 25/30-T96N-R72/71
STA. 280+23.59 TO 282+08.41 S 1441

GREGORY COUNTY H20-S16-4
STR. NO. 27-120-276 SOUTH DAKOTA

DEPARTMENT OF HIGHWAYS

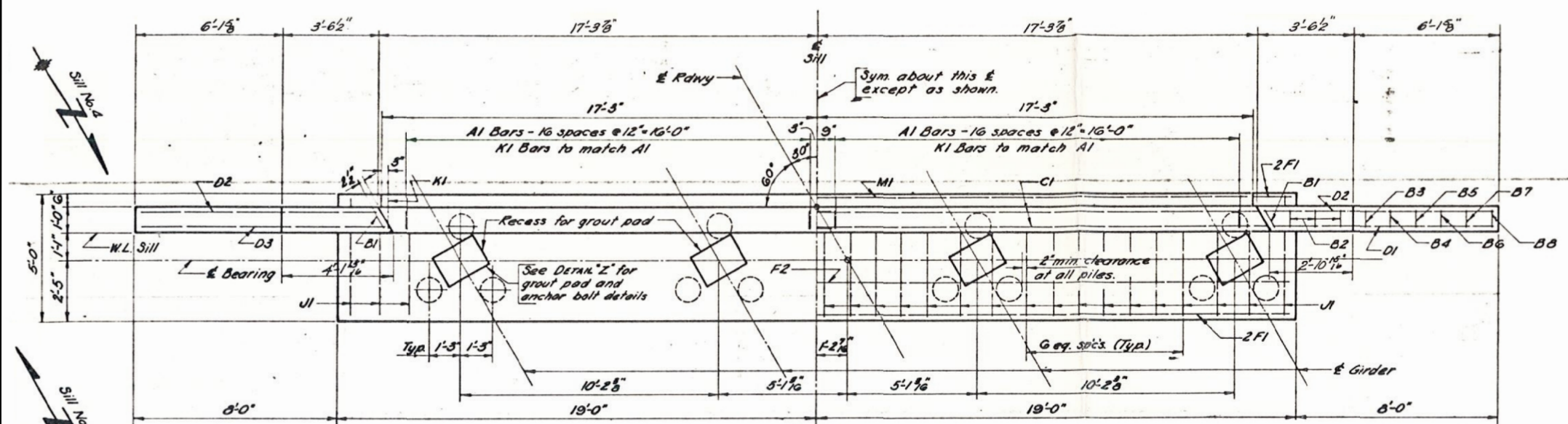
AUG. 1960

19 OF 27

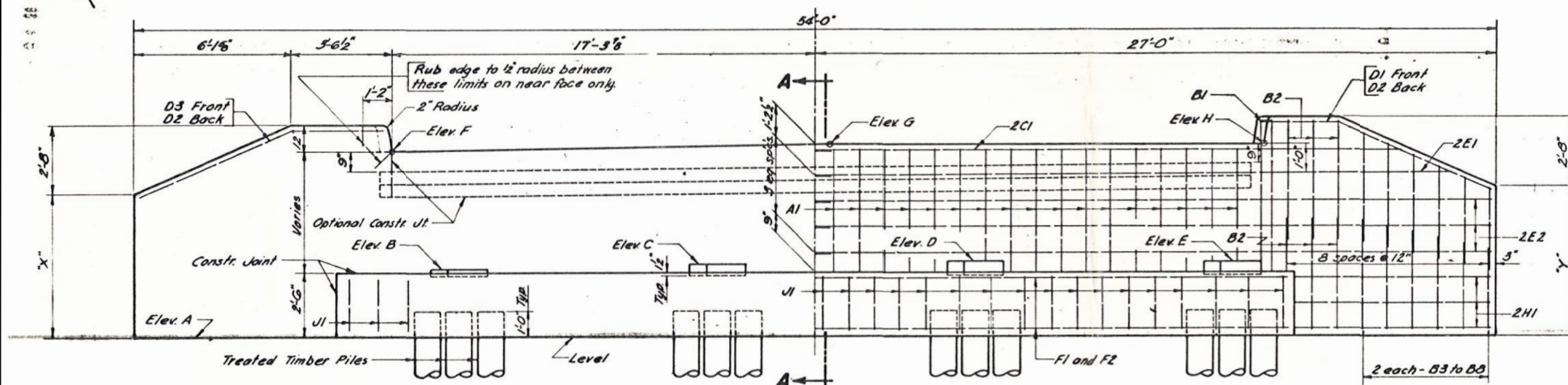
-X031-

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
	O.C.	CHW	J. P. Durr

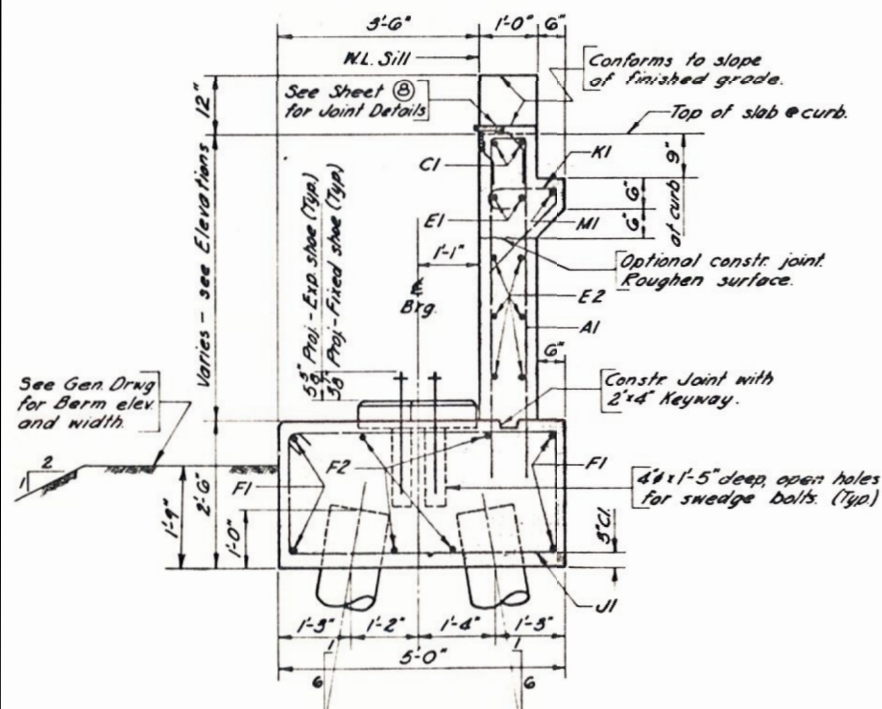
BRIDGE ENGINEER



PLAN
Sill No.1 and Sill No.4

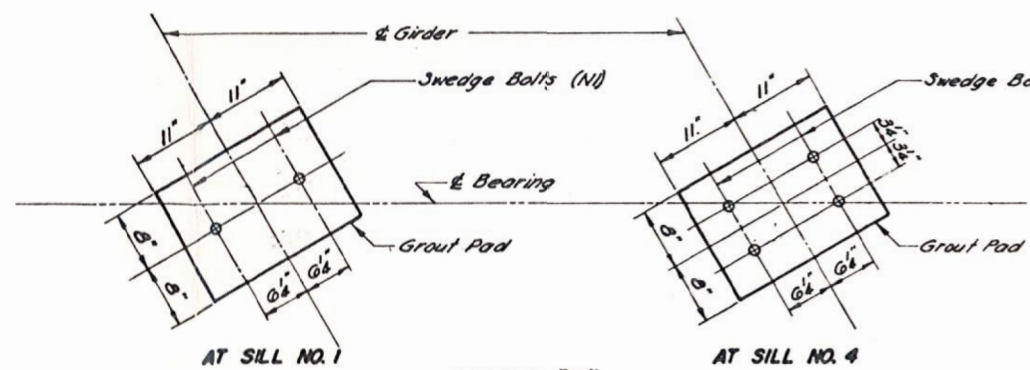


ELEVATION



SECTION A-A

SILL	DIMENSIONS		ELEVATIONS							
	X	Y	A	B	C	D	E	F	G	H
No.1	5'-6 3/4"	5'-6 3/4"	266.28	268.91	269.00	269.00	268.91	273.51	273.67	273.51
No.4	5'-7 3/8"	5'-6 3/4"	266.34	269.01	269.08	269.07	268.97	273.62	273.75	273.57



DETAIL "Z"

REINFORCING SCHEDULE

Mark	No	Size	Length	Type
A1	34	4	12'-0"	S10
B1	2	1	13'-9"	
B2	12		9'-0"	
B3	4		9'-3"	
B4	4		8'-9"	
B5	4		8'-3"	
B6	4		7'-9"	
B7	4		7'-6"	
B8	4		7'-0"	S10
C1	4	6	24'-0"	Str
D1	1	5	9'-3"	19A
D2	2	5	9'-9"	19A
D3	1	5	10'-3"	19A
E1	4	4	26'-0"	Str
E2	12	4	27'-3"	Str
F1	4	11	37'-6"	Str
F2	4	5	37'-6"	Str
H1	12	7	9'-6"	Str
J1	33	4	14'-3"	T1
K1	35	4	3'-6"	12
M1	1	4	34'-0"	Str
N1	8	1/4"	1'-9"	
N2	16	1/4"	1'-6"	

Dimensions of bars are out to out.

Type S10

Type 12

Type T1

Type 19A

* Swedge bolts with cut washer and heavy hex nut. Provide N1 swedge bolts at Sill No.1, and N2 swedge bolts at Sill No.4.

ESTIMATED QUANTITIES

ITEM	UNIT	SILL NO.1	SILL NO.4
Class A Concrete	cu yds	24.9	29.4
Reinforcing Steel	Lbs	2640	2680
Structure Exc.	cu yds	20	20
Treated Timber Piles	Ng	12	12

*Includes 0.1 cu yds. of grout for pads.

- ### GENERAL NOTES—
- All exposed edges shall be chamfered 1" except as shown.
 - Chamfer grout pads 3".
 - Use 2" clear cover on all reinforcing except as shown.
 - Specifications for grout shall be the same as for Class A Concrete except that maximum size of aggregate shall be reduced to 1/2". The quantity of Portland Cement Grout is included in and shall be paid for as Class A Concrete.
 - Piling shall develop a minimum bearing value of 20 Tons per pile.
 - See General Drawing for lengths of Treated Timber Piles.
 - Design Loading: H20-S16-44(1967) A.A.S.H.O.
 - Unit Stresses: R_s -Steel- f_s -20,000 p.s.i. (Int. Grade)
Concrete- f_c -1600 p.s.i.

ORIGINAL CONSTRUCTION PLANS

DETAILS OF SILLS NO.1 AND NO.4

FOR
184'-9 3/4" CONT. COMP. GIRDER VIADUC
30'-0" ROADWAY 30° SKEW L.H.
OVER PONCA RIVER SEC.25/30-T96N-R72/71
STA.280+23.59 TO STA.282+08.41 S 1441
GREGORY COUNTY H20-S16-4
STR. NO. 27-120-276 SOUTH DAKOTA
DEPARTMENT OF HIGHWAYS
MAY 1959

DESIGNED BY

DRAWN BY
H.C.N.

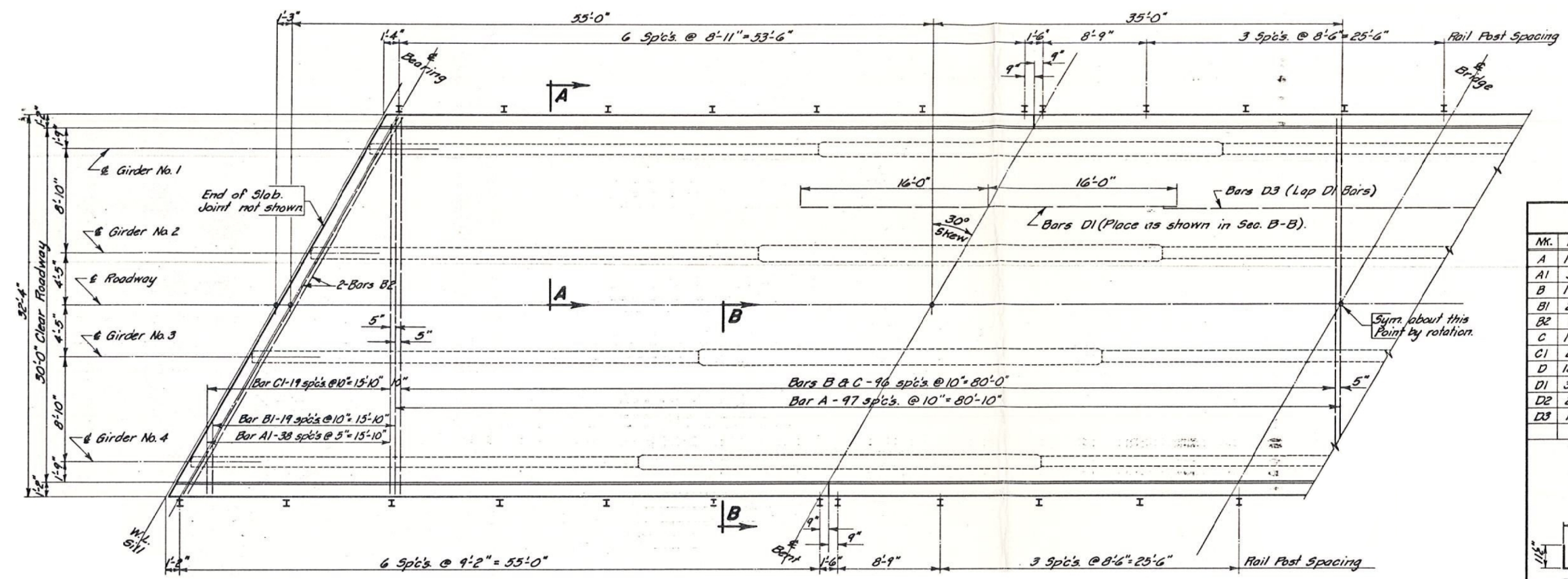
CHECKED BY
F.H.

APPROVED
J.R. Plummer
BRIDGE ENGINEER

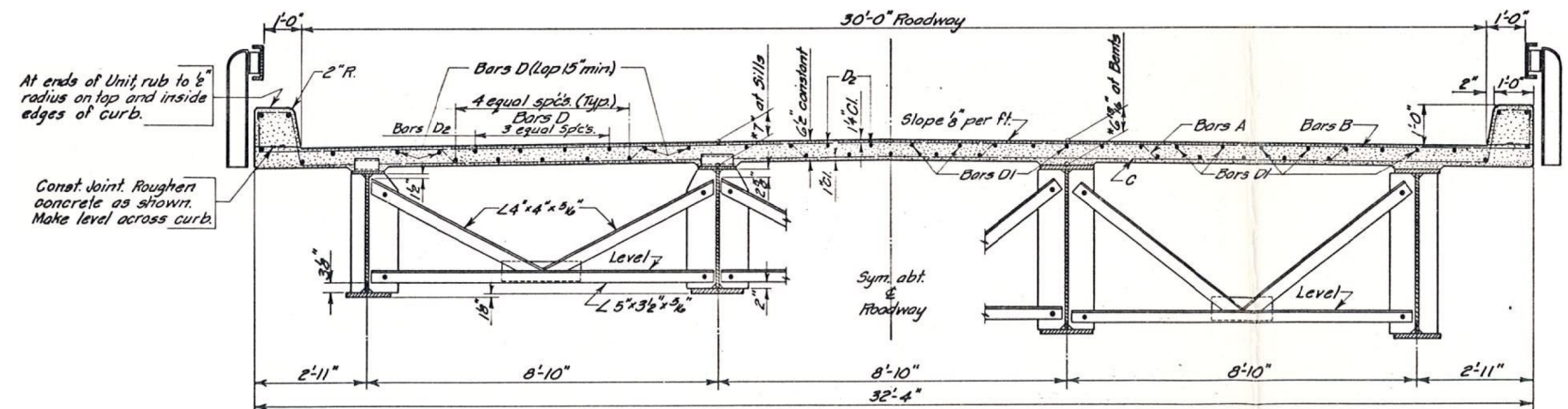
Rev. Elk Point O.H. 8-24-60 D.P.

20

OF 27



HALF PLAN
(Shear Connectors not shown)



SECTION A-A

SECTION B-B

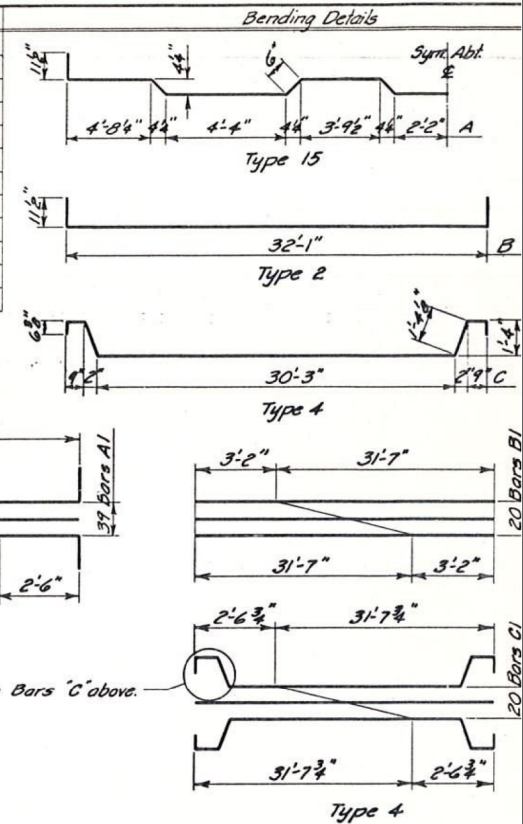
*Dimensions at $\frac{1}{2}$ of bearings. At interior points dimensions must be corrected according to the Erection Diagram. See Sheet No. 7.
NOTE - For complete diaphragm details see Sheet No. 7.

CONCRETE PLACING NOTES-

The concrete slab shall preferably be placed in one continuous pour. However, if the Contractor deems it advisable to use construction joints, a plan showing type of joint and pouring procedure shall be submitted to the BRIDGE DIVISION for approval.
The curb shall be poured after all of slab has been poured.

REINFORCING SCHEDULE

NK.	No.	Size	Length	Type
A	195	5	34'-6"	15
A1	39	5	36'-0"	2
B	194	5	34'-0"	2
B1	20	5	34'-9"	Str.
B2	3	6	37'-0"	Str.
C	194	5	35'-6"	4
C1	20	5	37'-6"	4
D	185	5	37'-6"	Str.
D1	32	5	32'-0"	Str.
D2	24	4	37'-6"	Str.
D3	12	4	40'-0"	Str.



NOTE: All dimensions are out to out of bars.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class 'A' Concrete	cu. yds.	1890
Reinforcing Steel	lbs.	33,720
Structural Steel	lbs.	99,550
Railing	lin. ft.	370.2

ORIGINAL CONSTRUCTION PLANS

DETAILS OF SUPERSTRUCTURE

FOR

184'-9 3/4" CONT. COMP. GIRDER VIADUCT

30'-0" ROADWAY

30° SKEW L.H.

OVER PONCA RIVER

SEC. 25/30-T96N-R72/

STA 280+23.59 TO STA. 282+08.41

S 1441

GREGORY COUNTY H20-S16-44

STR. NO. 27-120-276 SOUTH DAKOTA

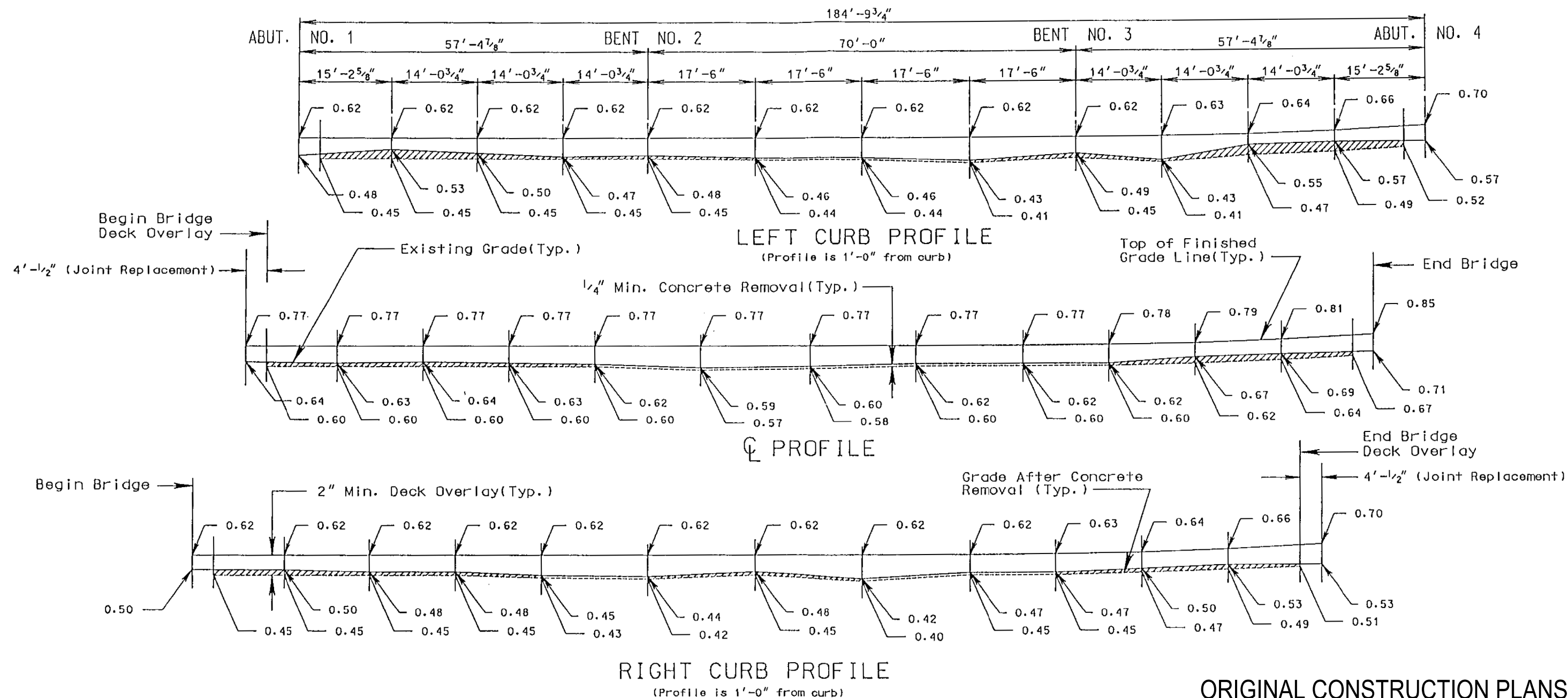
DEPARTMENT OF HIGHWAYS

AUG. 1960

(21) OF (27)

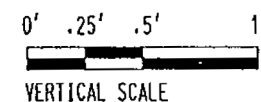
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	SG	O.C.	A. H. Seuss
			BRIDGE ENGINEER

STR. NO. 27-120-276



NOTE: Add 273.00 to all elevations shown on profiles.

Scarify in excess of 1/4" in these areas.



ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Type 1A Removal (Concrete)	Sq. Yd.	589.1
Type 1B Removal (Concrete)	Sq. Yd.	2.1
Low Slump Dense Conc. Bridge Deck Overlay	Cu. Yd.	44.8
Finishing and Curing	Sq. Yd.	589.1

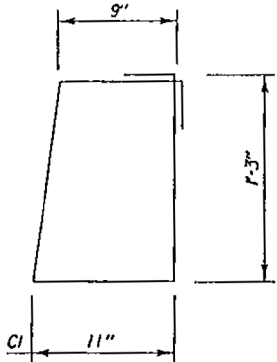
ORIGINAL CONSTRUCTION PLANS

DECK PROFILES FOR UPGRADING
OF
184'-9 3/4" CONT. COMP. GIRDER BRIDGE
30'-0" ROADWAY 30° SKEW L.H.F.
OVER PONCA RIVER SEC. 25/30-T96N-R72/71W
STA. 280+23.59 TO 282+08.41 P 3047(4)7
STR. NO. 27-120-276 HS 20
GREGORY COUNTY
S.D. DEPT. OF TRANSPORTATION
DECEMBER 1993

* See Sheet No. 3 of 19 for Section A - A.

Δ See Sheet No. 4 of 19 for View B - B, C - C, D - D and E - E.

φ Complete Joint Penetration Butt Splice at construction joint to be shown on Shop Plans for approval.



CI BAR BENDING
(10 - No. 4 bars Required)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Replace Expansion Device	Each	2

Items 1 thru 4 are approximate quantities contained in the above bid items and are for informational purposes only.

1. 7.0 Cu Yds. Class AAS Concrete.
2. 6.48 lbs. Epoxy Coated Reinforcing Steel.
3. 7222 lbs. Structural Steel.
4. 5.8 Cu Yds. Breakout Structural Concrete.
5. 16 Each No. 5 Rebar Splice.

ORIGINAL CONSTRUCTION PLANS

REPLACE EXPANSION DEVICES AT ABUTMENTS

FOR

184'-9³/₄" CONT. COMP. GIRDER BRIDGE

30' - 0" ROADWAY 30° SKEW L.H.F.
OVER PONCA RIVER SEC. 25/30-T96N-R72/71W
STA. 280 + 23.59 TO 282 + 08.41
STR. NO. 27-120-276 P 3047(4) 7

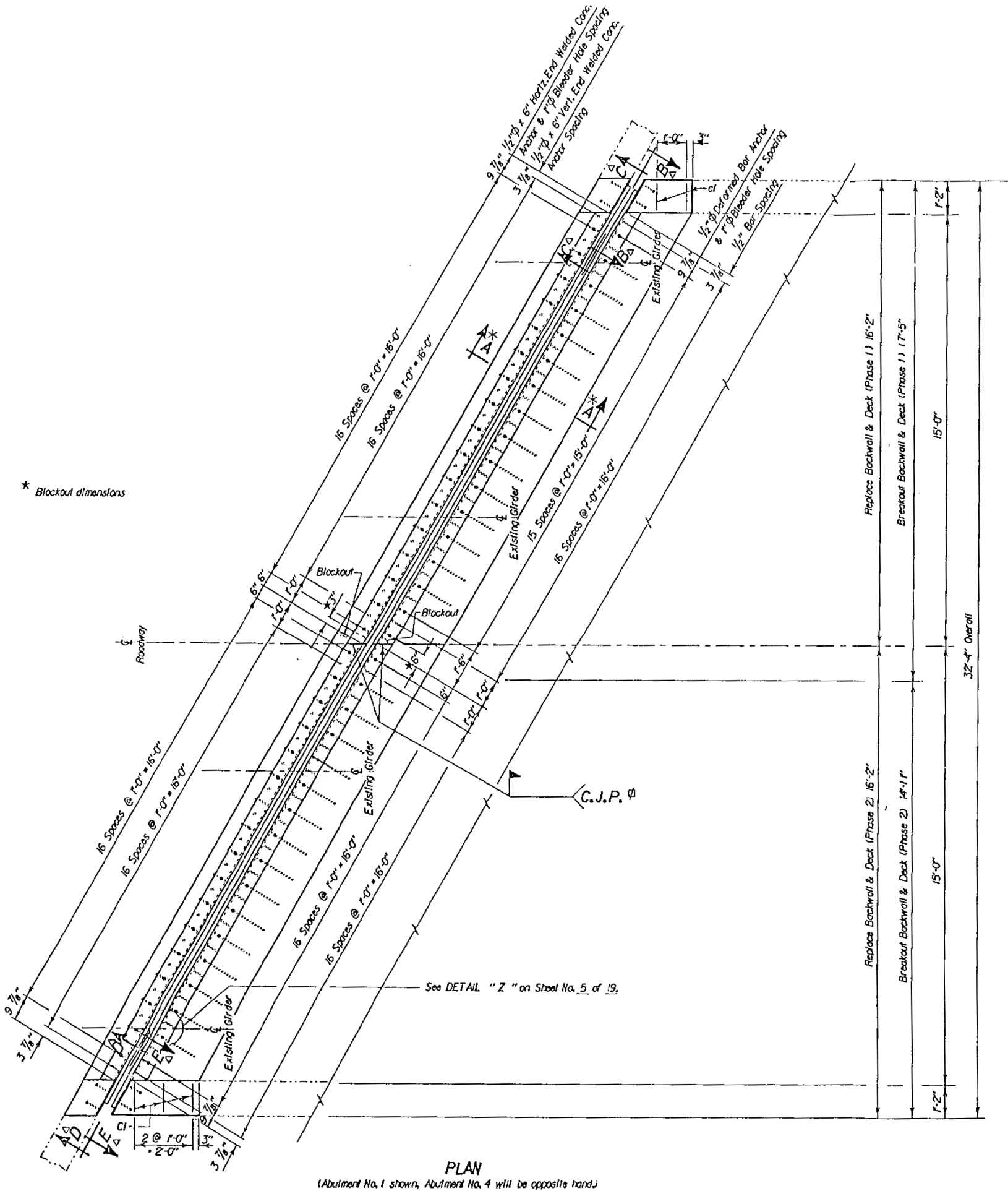
GREGORY COUNTY

S. D. DEPT. OF TRANSPORTATION

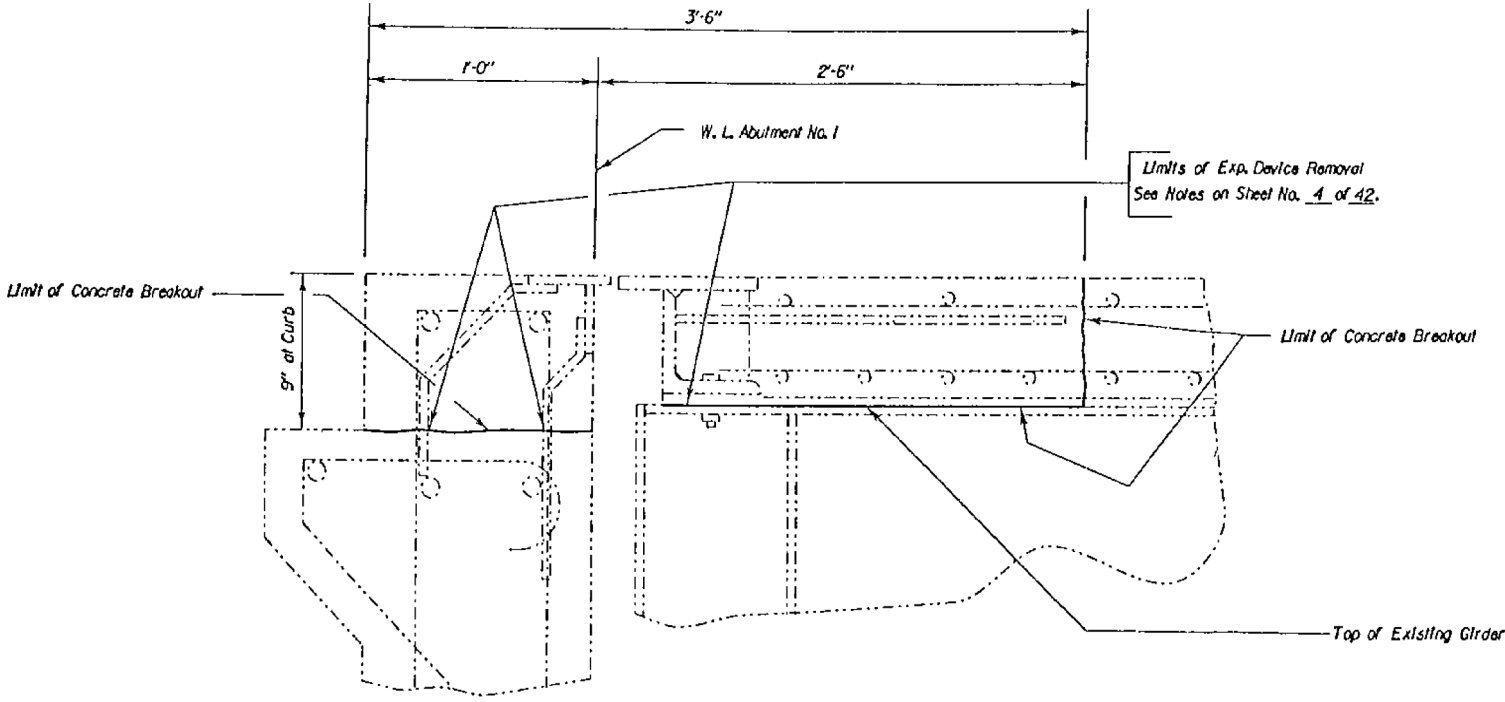
JUNE 1993

23 OF 27

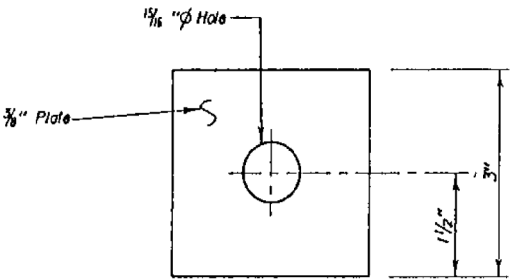
DESIGNED BY CJD/EJA GREG3125	DRAWN BY CJD 3125C002	CHECKED BY EJA/TST	APPROVED BRIDGE ENGINEER
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(Abutment No. 1 shown, Abutment No. 4 will be opposite hand)

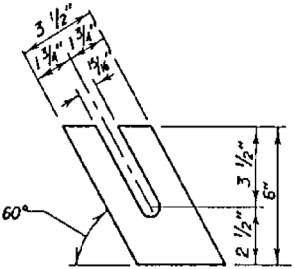


SEC. A-A
(Removal Shown)

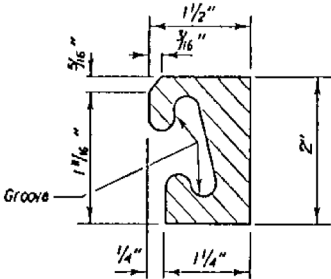


SQUARE PLATE WASHER

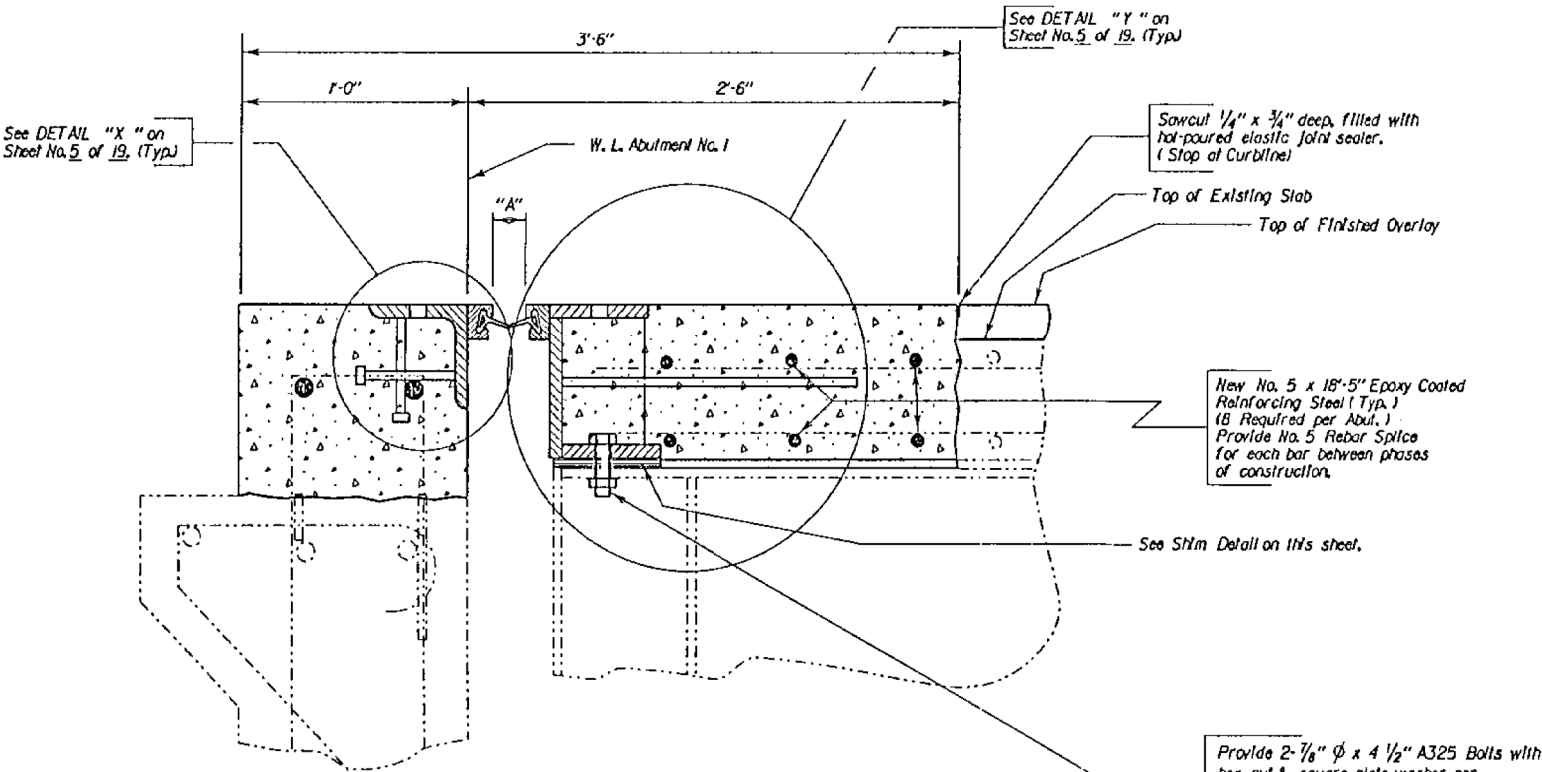
TEMPERATURE-DIMENSION TABLE	
Temp.	Dimension "A"
30°	2 1/2"
40°	2 3/8"
50°	2 1/4"
60°	2 1/8"
70°	2"
80°	1 7/8"
90°	1 3/4"
100°	1 5/8"



SHIM DETAIL



HOT ROLLED STEEL EXTRUSION



SEC. A-A
(New Construction Shown)



PREFORMED NEOPRENE SEAL

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

ORIGINAL CONSTRUCTION PLANS

REPLACE EXPANSION DEVICES AT ABUTMENTS

FOR

184'-9 3/4" CONT. COMP. GIRDER BRIDGE

30' - 0" ROADWAY

30° SKEW L.H.F.

OVER PONCA RIVER

SEC. 25/30-T96N-R72/71W

STA. 280 + 23.59 TO 282 + 08.41

STR. NO. 27-120-276

P 3047(4) 7

GREGORY COUNTY

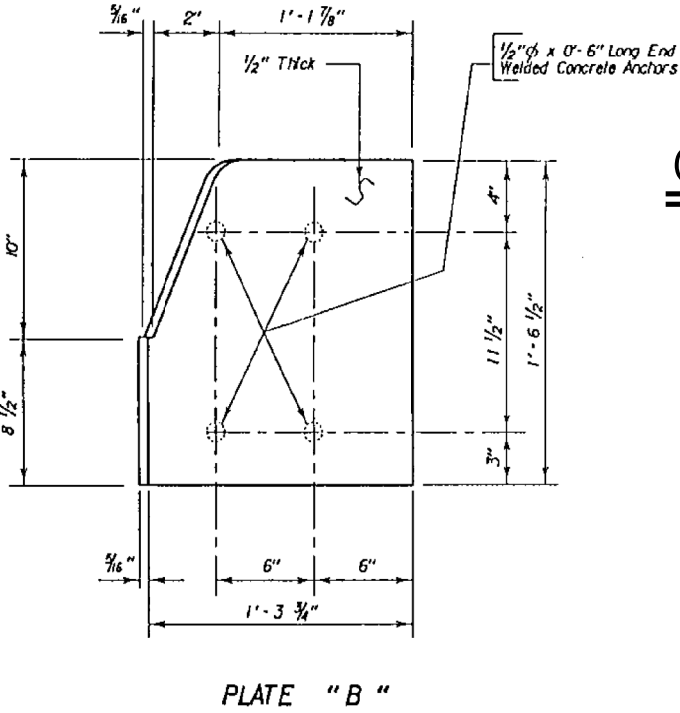
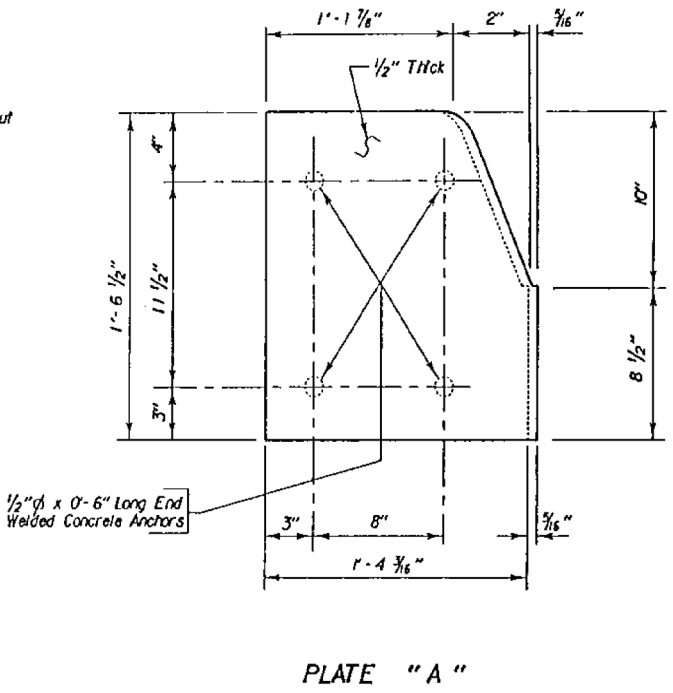
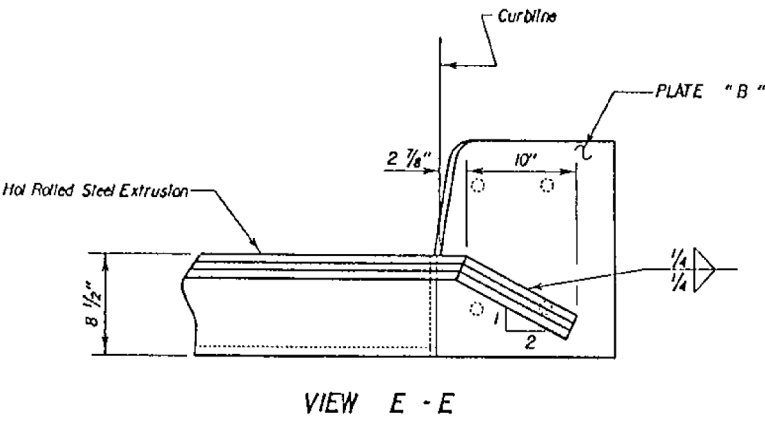
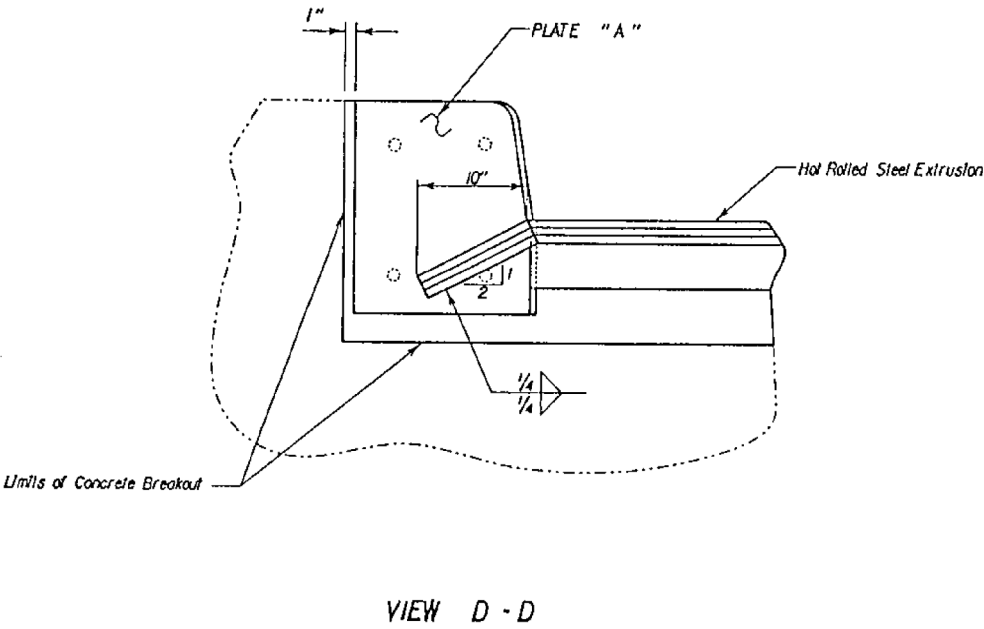
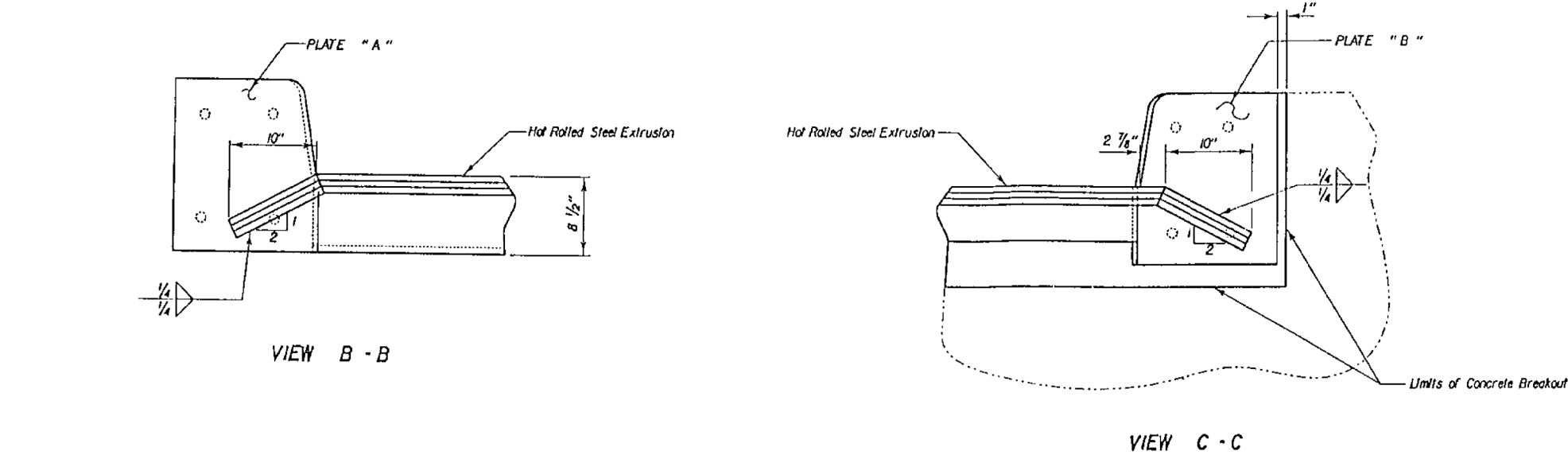
S. D. DEPT. OF TRANSPORTATION

JUNE 1993

24 OF 27

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
CJD/EJA	CJD	EJA/TST	
GREG3125	3125C003		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0047(125)2	35	82



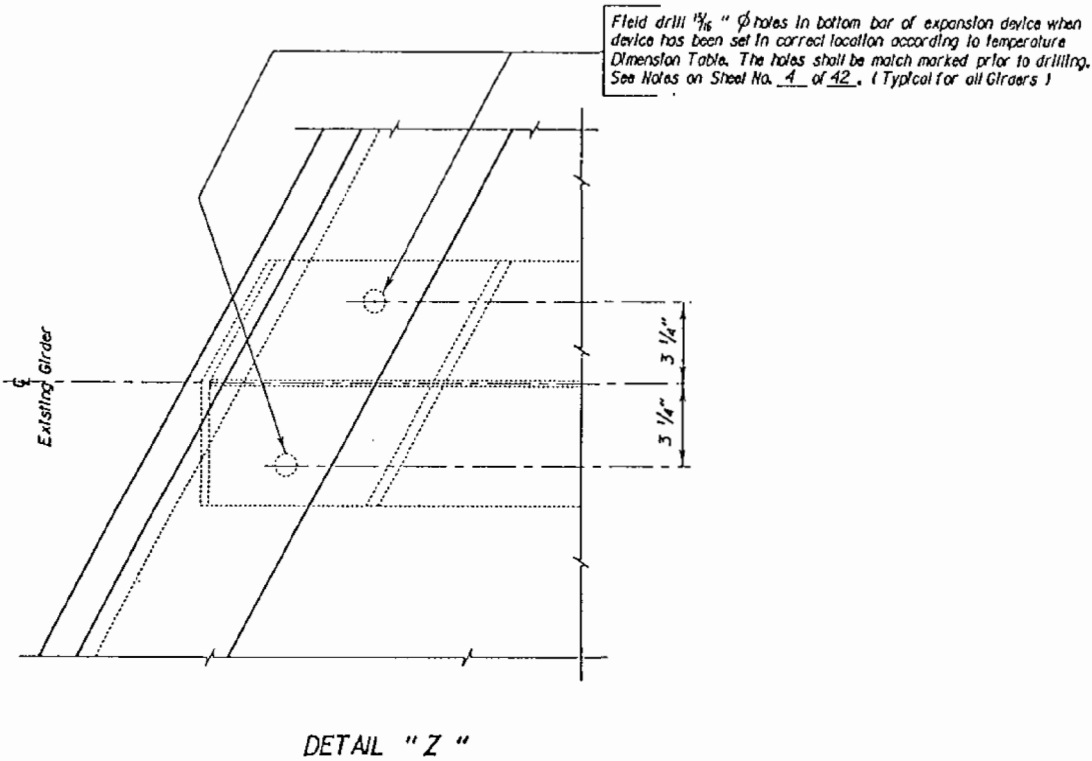
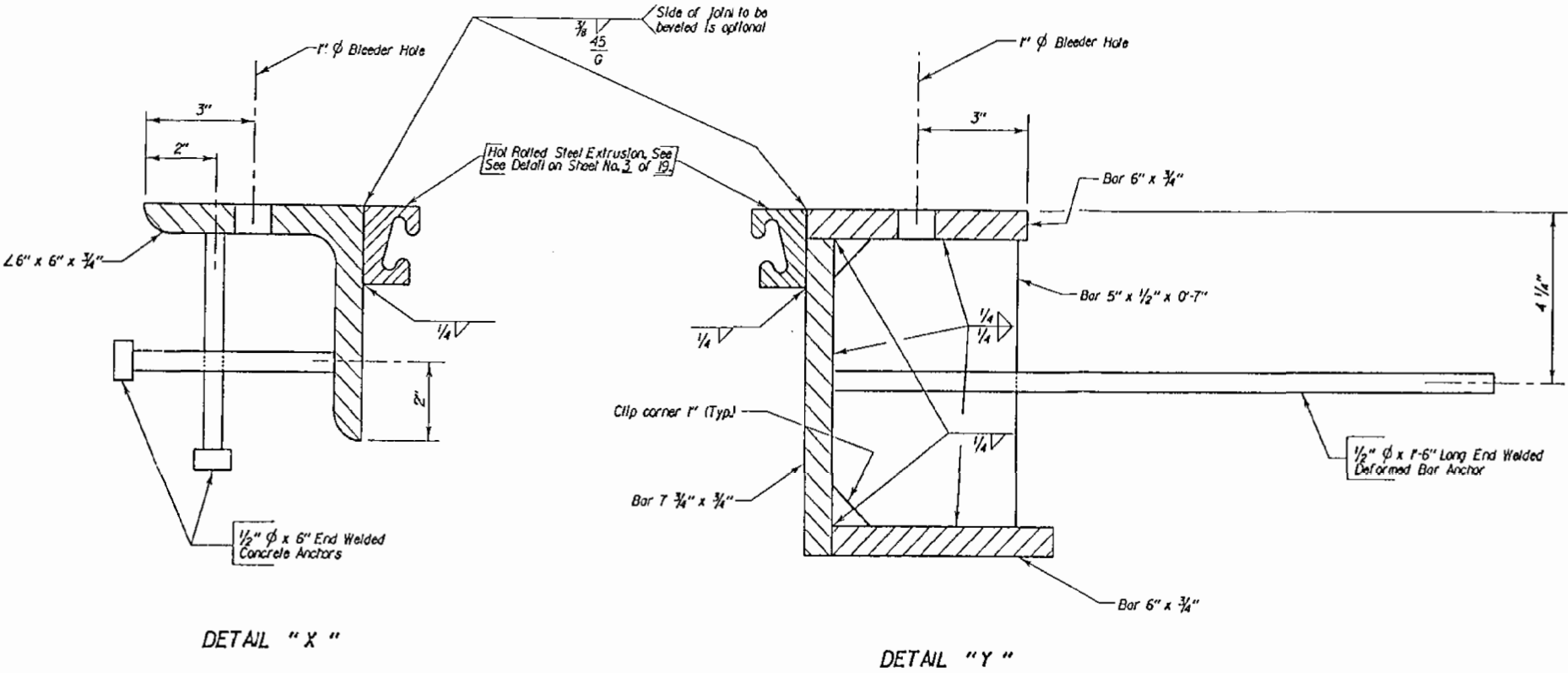
ORIGINAL CONSTRUCTION PLANS

REPLACE EXPANSION DEVICES AT ABUTMENTS
FOR
184'-9 3/4" CONT. COMP. GIRDER BRIDGE
30' - 0" ROADWAY 30° SKEW L.H.F.
OVER PONCA RIVER SEC. 25/30-T96N-R72/71W
STA. 280 + 23.59 TO 282 + 08.41
STR. NO. 27-120-276 P 3047(4) 7

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION
JUNE 1993 (25) OF (27)

DESIGNED BY CJD/EJA GREG3125	DRAWN BY CJD 3125C004	CHECKED BY EJA/TST	APPROVED BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0047(125)2	36	82



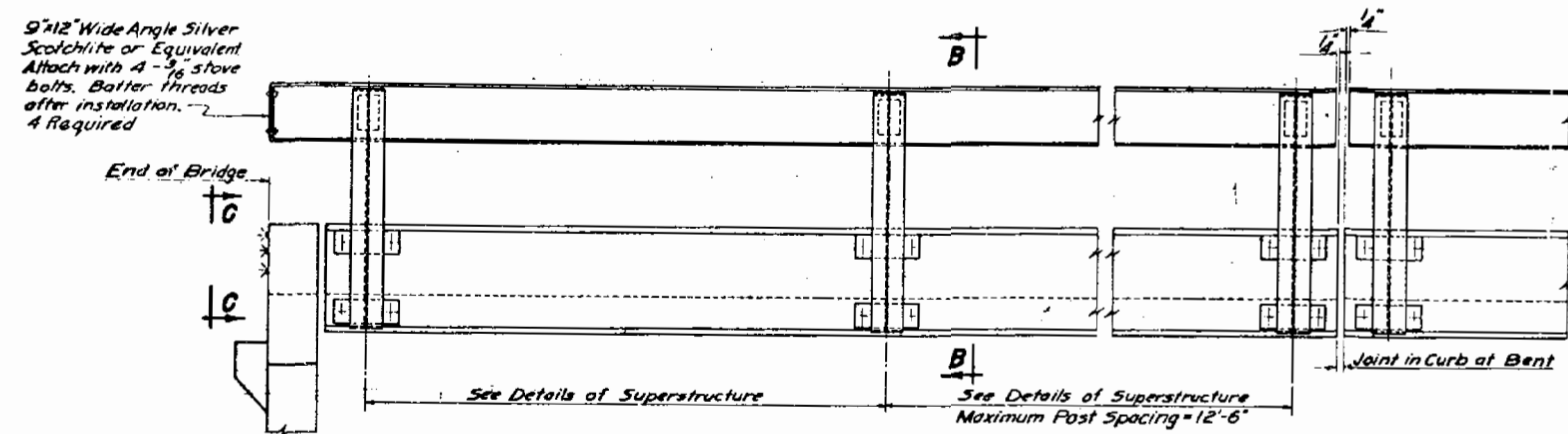
ORIGINAL CONSTRUCTION PLANS

REPLACE EXPANSION DEVICES AT ABUTMENTS
 FOR
 184'-9 3/4" CONT. COMP. GIRDER BRIDGE
 30' - 0" ROADWAY 30° SKEW L.H.F.
 OVER PONCA RIVER SEC. 25/30-T96N-R72/71W
 STA. 280 + 23.59 TO 282 + 08.41
 STR. NO. 27-120-276 P 3047(4) 7

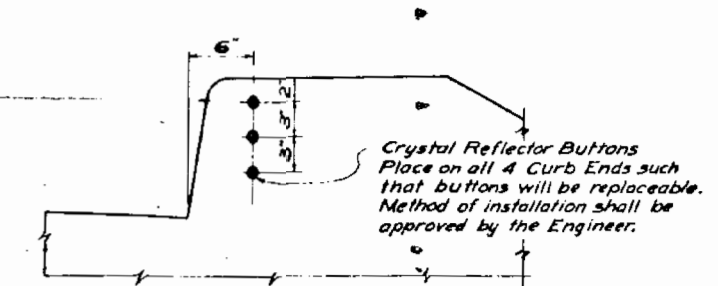
GREGORY COUNTY
 S. D. DEPT. OF TRANSPORTATION

JUNE 1993 26 OF 27

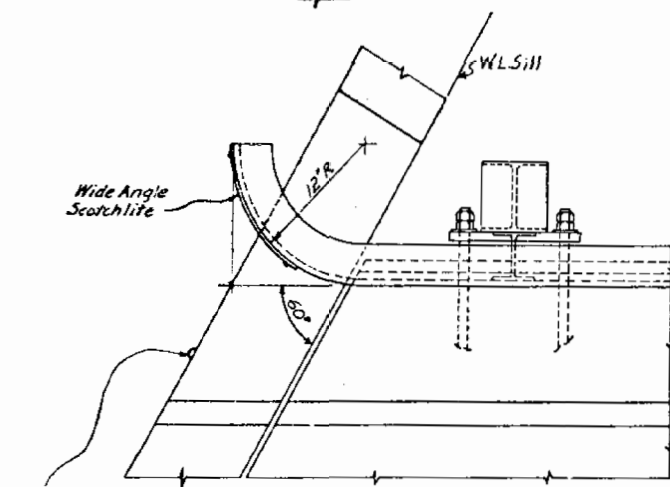
DESIGNED BY CJD/EJA GREG3125	DRAWN BY CJD 3125C005	CHECKED BY EJA/TST	APPROVED <i>[Signature]</i> BRIDGE ENGINEER
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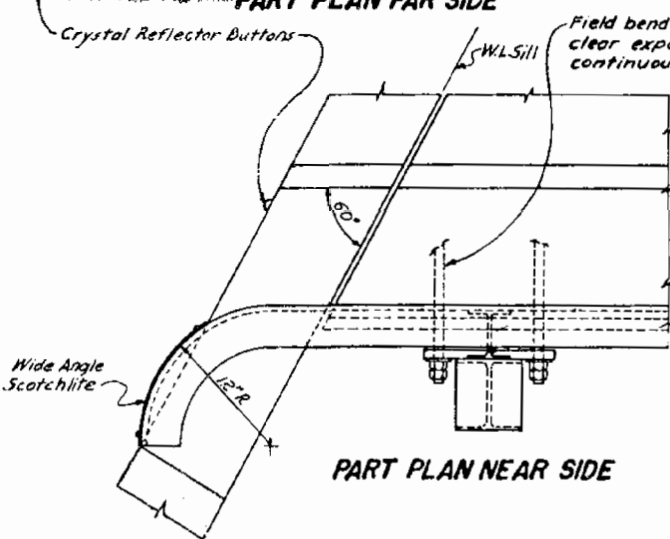
ELEVATION



SECTION C-C

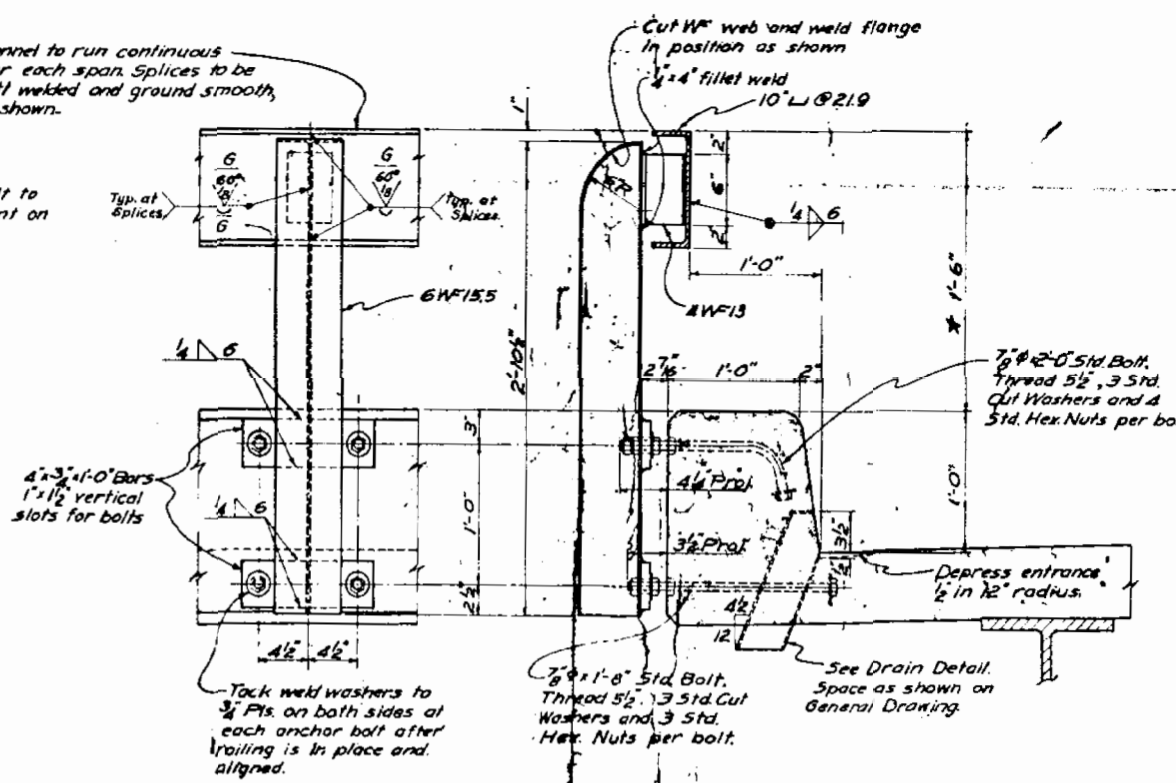


PART PLAN FAR SIDE

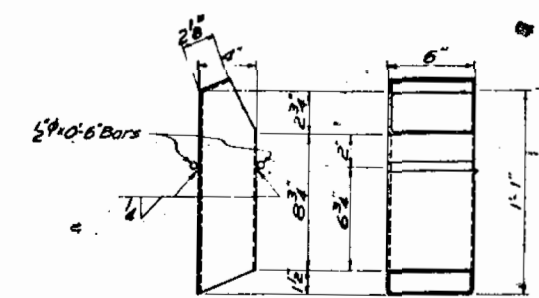


PART PLAN NEAR SIDE

Channel to run continuous over each span. Splices to be butt welded and ground smooth, as shown.



SECTION B-B



DETAIL OF DRAIN

GENERAL NOTES:-

Cost of Anchor Bolts, Nuts, & Washers shall be absorbed in the unit price bid for Railing.
 Cost of Scotchlite (or equiv) shall be absorbed in the unit price bid for Railing.
 Cost of Crystal Reflector Buttons shall be absorbed in the unit price bid for Class A Concrete.
 Railing shall be painted with one shop coat of Red Lead Paint and two field coats of Aluminum or other approved paint. Cost of painting of Railing shall be absorbed in the unit price bid for Railing.
 All Railing Posts shall be constructed vertical.
 Railing anchor bolts shall be bent at the acute angle end of skewed spans to provide a minimum cover of 1 1/2" of concrete.
 Cost of welding shall be absorbed in the unit price bid for Railing.

TYPE RA-1 STEEL
 RAILING AND DRAIN DETAILS
 FOR

184'-9 3/4" CONT. COMP. GIRDER VIADUCT
 30'-0" ROADWAY 30° SKEW L
 OVER PONCA RIVER SEC. 25/30-T96N-R72
 STA. 280+23.59 TO STA. 282+08.41 S 1441

GREGORY COUNTY H20-S16-
 SOUTH DAKOTA

DEPARTMENT OF HIGHWAYS

AUG. 1960 27 OF 27

ORIGINAL CONSTRUCTION PLANS

DESIGNED BY: DRAWN BY: CHECKED BY: APPR: BY:

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
120E3120	Bridge Berm Repair	2	Each
460E0174	Concrete Patching Material, Miscellaneous	36.0	CuFt
460E0300	Breakout Structural Concrete	1.4	CuYd
460E0380	Install Dowel in Concrete	16	Each
480E0200	Epoxy Coated Reinforcing Steel	58	Lb
480E5000	Galvanic Anode	74	Each
550E0010	Low Slump Dense Concrete Bridge Deck Overlay	22	CuYd
550E0100	Concrete Removal Type 1A	285.0	SqYd
550E0105	Concrete Removal Type 2A	71.3	SqYd
550E0110	Concrete Removal Type 1B	121.2	SqYd
550E0120	Concrete Removal Type 1C	60.6	SqYd
550E0130	Concrete Removal Type 1D	60.6	SqYd
550E0140	Concrete Removal Type B	20.0	Ft
550E0200	Class A45 Concrete Fill	18.6	CuYd
550E0500	Finishing and Curing	285.0	SqYd

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: Standard Specifications for Roads and Bridges, 10-7-26 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>.

GENERAL CONSTRUCTION - BRIDGE

- All reinforcing steel will conform to ASTM A615, Grade 60.
- All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise in the plans. Match the existing chamfer if the existing chamfer differs.
- Use 2-inch clear cover on all reinforcing steel except as shown otherwise.
- 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.
- All lap splices are contact lap splices unless noted otherwise.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

- All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.
- The stationing shown in the original construction plans is reversed from the current project. As such, labels for the begin and end of bridge as well as the substructure units are reversed.
- The elevations shown in the original construction plans are not based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer a minimum of two weeks prior to the pre-construction meeting.

- Sawcut, breakout, and remove the existing material in the paving notches located at the beginning and end of the bridge and any delaminated concrete adjacent to the paving notches for the first phase of construction.
- Install dowels and galvanic anodes as necessary
- Accomplish all Concrete Removal Type 1A, 1B, 1C, 1D, 2A, and B and place Class A45 Concrete Fill to the satisfaction of the Engineer for the first phase of construction.
- Fill paving notch using Low Slump Dense Concrete and place a Low Slump Dense Concrete Bridge Deck Overlay to the elevations shown in the plans on the bridge deck for the first phase of construction.
- Switch traffic and repeat steps 1 through 4 for the second phase of construction.
- Reconstruct bridge berms to original template.

BRIDGE BERM REPAIR

- The bridge berms have erosion channels and settlement voids on the berm slope. The bridge berms will be rebuilt and reshaped to their original template.
- Fill voids under the abutments and fill in erosion channels on the berm slope. Reconstruct the berms to at least 1-foot above the bottom of the abutment backwall. The berm slope will be benched into stable embankment during reshaping and reconstruction. The soil will be placed in horizontal lifts perpendicular to the centerline of the structure.

- Shape the fill in front of the wing walls to divert runoff from the inslopes away from the face of the berm slope. Reshape the inslopes from the wing walls to approximately 20 feet from the ends of the bridge.
- At the upper part of the berm slope, clearance between the structure and berm will prohibit the use of large compaction equipment. The soil in this area will be compacted using hand operated compaction equipment. Berm material will be placed in reduced lift thicknesses with adequate moisture to obtain density requirements.
- Soil used to reconstruct the berm slope will be furnished by the Contractor and approved by the Engineer. The soil will have 100% passing the 1 1/2 inch sieve, a maximum of 70% passing the #4 sieve, have a maximum Liquid Limit (LL) of 45 and a Plastic Index (PI) greater than 10 but less than 25. The Contractor will be responsible for one gradation, LL and PI test for each borrow source for berm reconstruction. The test results will be supplied to the Engineer in writing.
- Compaction of the reconstructed berm and inslopes will be governed by the Ordinary Compaction Method.
- No informational quantities are available. The Contractor will visit the site prior to determine necessary quantities.
- The cost of the berm reconstruction will be incidental to the contract unit price per each for Bridge Berm Repair. This payment will be full compensation for furnishing all materials, labor, tools, and equipment necessary or incidental to the reconstruction of the bridge berm.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES

FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE

STR. NO. 27-120-321

MAY 2026

2 OF 17

CONCRETE BREAKOUT

- The existing barrier curbs will be broken out to the limits shown on the plans. Breakout limits will be defined with a 3/4" deep sawcut (unless specified otherwise in these plans), where practical, as approved by the Engineer. Reinforcing steel that is exposed and is scheduled for use in the new construction will be cleaned and straightened to the satisfaction of the Engineer. Care will be taken not to damage the existing reinforcing steel that is to be reused in the new construction during concrete breakout. Any reinforcing steel that is damaged during concrete breakout will be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.
- All broken out concrete and discarded reinforcing steel will become the property of the Contractor and will be disposed of at a site obtained by the Contractor and approved by the Engineer. An appropriate site will be as described in the Environmental Commitment Notes in the plans.
- During concrete removal operations, no concrete will be allowed to fall into the creek.
- The contract unit price per cubic yard for Breakout Structural Concrete will include breaking out concrete, cleaning, straightening reinforcing steel, and disposal of all broken out material.

CURB SPALL REPAIR

- Concrete used in vertical patching applications on the barriers where forms are not practical will consist of one of the following products, or equal as approved by the Office of Bridge Design.
 - HD 25 VO
Dayton Superior
1125 Byers Road
Miamisburg, OH 45342
Phone: (800) 745-3700
 - Sika Repair 223
Sika Corporation US
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: (201) 933-8800
 - Meadow-Patch 20
W.R.Meadows, Inc.
P.O. Box 338
Hampshire, IL 60140-0338
Phone: (847) 214-2100
 - Speed Crete Red Line
The Euclid Chemical Company
19215 Redwood Rd.
Cleveland, OH 44110
Phone: (800) 321-7628
- The concrete patch material will be applied and cured as recommended by the Manufacturer and as approved by the Engineer.

- The cost of furnishing and placing vertical patching material including all labor, equipment, tools, and any incidentals necessary to complete the work will be paid for at the contract unit price per cubic foot for Concrete Patching Material, Miscellaneous.
- The Contractor will have the option of forming and pouring the curb repair with an approved A45 mix meeting the requirement for bridge barrier curbs mixed and proportioned in accordance with Section 460 of the Construction Specifications with the following modifications: the coarse aggregate gradation will be in accordance with Section 820 of the Construction Specifications and size #3 will be substituted in lieu of sizes #1 and #15. The use of an A45 mix in lieu of the specified patching materials will be at no additional cost to the Department.

INSTALL DOWEL IN CONCRETE

- Holes drilled in the existing concrete will be true and normal or as shown in the plans. Drilling holes using a core drill will not be allowed. Care will be taken not to damage the existing reinforcing steel. It is likely that some of the existing reinforcing steel shown in the original construction plans may have been placed out of position during original construction. Therefore, prior to the start of drilling any holes in the concrete, an effort will be made by Department forces to mark on the concrete surface where practical any locations of the in-place reinforcing steel. Despite this precaution, the Contractor can still expect to encounter and have to drill through reinforcing steel or shift the dowel spacing as approved by the Engineer to miss the existing reinforcing steel. If the Contractor shifts the dowel spacing, the unused drill holes will be completely filled with epoxy resin as approved by the Engineer.
- The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV. (Equivalent to ASTM C881, Type IV). Grade 1, 2 or 3 may be used for vertical dowels.
- The diameter of the drilled holes will not be less than 1/8-inch greater, nor more than 3/8-inch greater than the diameter of the dowels or as per the Manufacturer's recommendations. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.
- Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes 1/3 to 1/2 full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel bar. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping or painting method will not be allowed.
- No loads will be applied to the epoxy grouted dowel bars until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.

- Dowel bars will be deformed bars conforming to ASTM A615, Grade 60.
- The cost of epoxy resin, dowels, installation, and other incidental items will be incidental to the contract unit price per each for Install Dowel in Concrete.

GALVANIC ANODE

- The Contractor will furnish and place galvanic anodes in the concrete repair areas specified in this plan set.
- The galvanic anodes will be supplied as one of the following:
 - Galvashield XP2
Vector Corrosion Technologies
800 Winchester Road, Suite 175
Lexington, KY 40505
Phone: (612) 248-5651
 - Sentinel Silver
Euclid Chemical Company
19215 Redwood Road
Cleveland, OH 44110
Phone: (800) 321-7628
 - Sika FerroGard 670
Sika Corporation US
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: (201) 933-8800
- The anodes will be placed in accordance with manufacturer's recommendations and as approved by the Engineer. The anodes have not been shown on the drawings. The Contractor will provide shop drawings of the galvanic anode installation including locations of the individual anodes to the Office of Bridge Design.

NOTES (CONTINUED)
FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE

STR. NO. 27-120-321
MAY 2026

GALVANIC ANODE (CONTINUED)

4. The anodes will be placed with a minimum 3/4-inch cover and will be set in embedding mortar per the manufacturer's recommendations. The anodes will be fully encased in the concrete repair material. Where adequate cover does not exist, a concrete pocket will be chipped out behind the anode to provide sufficient cover. The Contractor may need to chip around the reinforcing bar locally at the anode installation to make the electrical connection. The reinforcing steel at the connection location will be cleaned per the manufacturer's recommendations to provide sufficient electrical connection and mechanical bond.
5. The electrical continuity of the connections and reinforcing steel will be confirmed per the manufacturer's recommendations.
6. In area of concrete repair where anodes are placed, the epoxy coating on the reinforcing steel will not require touch up.
7. The Contractor will provide manufacturer's product literature and installation instructions to the Engineer 10 days prior to installation.
8. All costs associated with placing anodes including labor, equipment, materials, and incidentals will be included in the contract unit price per each for Galvanic Anode.
9. The Contractor has the option of providing galvanic strip anodes in place of the Galvanic Anodes for the curb repair. The galvanic strip anodes will conform to the same requirements listed above for Galvanic Anode. The use of galvanic strip anodes in place of Galvanic Anodes will be at no additional cost to the Department. The galvanic strip anodes will be supplied as the following or an approved equivalent as approved by the Office of Bridge Design:

Galvashield DAS
Vector Corrosion Technologies
800 Winchester Road, Suite 175
Lexington, KY 40505
Phone: (612) 248-5651

LOW SLUMP DENSE CONCRETE BRIDGE DECK OVERLAY

1. The preparation for resurfacing consists of Concrete Removal Type 1A on the entire bridge deck; 2A as specified by the Engineer; and Type 1B, Type 1C, Type 1D, and Type B over the deck surface as detailed on the plan sheets. Such removal will be in conformance with these plans and Section 550 of the Construction Specifications.
2. Concrete Removal Type 1A will consist of removing the existing concrete overlay to a depth of 2 inches. There are some specific areas, identified on the Deck Profile plan sheets that require removal in excess of 2 inches.

3. Extreme care will be taken during Removal Type 1B, 1C, 1D, and B to ensure that the existing reinforcing steel is not damaged. In the event reinforcing steel damage inadvertently occurs, the Bridge Construction Engineer will be immediately notified. Any damaged reinforcing steel will be repaired by the Contractor, as approved by the Engineer, at no additional cost to the Department.
4. Removal Type 2A, 1B, 1C, 1D, and B and Class A45 Concrete Fill may not be encountered and may be omitted from the project as determined by the Engineer.
5. Concrete Removal Type 1C, Concrete Removal Type 1D, and Class A45 Concrete Fill are not anticipated to exceed the plan shown quantities. If the Engineer determines that Concrete Removal Type 1C, Concrete Removal Type 1D, and/or Class A45 Concrete Fill in excess of the plan quantity shown is necessary, payment for the additional quantity will conform with Section 550.5 of the Construction Specifications.
6. Concrete used in the Low Slump Dense Concrete Bridge Deck Overlay will meet the requirements of Section 550 of the Construction Specifications. Class A45 Concrete Fill will be an approved A45 Concrete Mix Design mixed and proportioned in accordance with Section 460 of the Construction Specifications with the following modifications: the coarse aggregate gradation will be in accordance with Section 820 of the Construction Specifications and the size #3 will be substituted in lieu of sizes #1 and #15. In addition, both the Low Slump Dense Concrete Bridge Deck Overlay and Class A45 Concrete Fill will conform to the following Alkali Silica Reactivity (ASR) requirements:
- a. Fine aggregates from sources that have not been tested by the Department will be submitted to the Department's Materials and Surfacing Central Materials Laboratory for ASR testing 30 days prior to performing the concrete mix design.
- b. When a fine aggregate supplier changes location within the pit, the fine aggregate from the new location in the pit will be submitted for testing.
- c. When more than one source of fine aggregate is blended to meet the gradation specifications, the expansion value of the blended sands will be used. Blended sources will be treated as a new source, and it will be the responsibility of the Contractor to submit the blended samples for testing 30 days prior to performing the concrete mix design.
- d. ASR testing will be performed in accordance with ASTM C1260, except that the gradation of the material used for testing will be as produced from the source. The fine aggregate will only be sampled at the source by a Department representative or in the presence of a Department representative.
- e. The Department will use the running average of the last three known expansion test results or less for determining acceptability of the source. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

- f. A list of known fine aggregate sources and the average corresponding 14-day expansion values as of October 2025 is provided below in Table 1.

Table 1 Fine Aggregate Sources, October 2025

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.146
Concrete Materials – Vellek Pit	Yankton, SD	0.442**
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Blair Pit	W of Vale, SD	0.171
Fisher S&G – Mickelson Pit	E of Nisland, SD	0.129
Fisher S&G – Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Henning – Tilstra	Ash Creek, MN	0.199
Higman	Hudson, SD	0.187
Jensen	Herried, SD	0.276*
L.G. Everist	Akron, IA	0.257*
L.G. Everist	Brookings, SD	0.297*
L.G. Everist – Ode Pit	E Sioux Falls, SD	0.222
L.G. Everist – Nelson Pit	NE Sioux Falls, SD	0.156
L.G. Everist	Hawarden, IA	0.211
L.G. Everist	Summit, SD	0.184
Mark's S&G – Moerke Pit	Underwood, MN	0.165
Morris – Birdsall	Blunt, SD	0.229
Morris – Leesman	Blunt, SD	0.231
Morris – Richards Pit	Onida, SD	0.188
Morris – Shawn's Pit	E of Sturgis, SD	0.186

NOTES (CONTINUED)
FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE

STR. NO. 27-120-321

MAY 2026

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LOW SLUMP DENSE CONCRETE BRIDGE DECK OVERLAY
(CONTINUED)

Table 1 Fine Aggregate Sources, October 2025 (CONTINUED)

Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.154
Opperman – Gunvordahl Pit	Burke, SD	0.363*
Opperman – Cahoy Pit	Herrick, SD	0.307*
Opperman – Jones Pit	Burke, SD	0.321*
Opperman – Randall Pit	Pickstown, SD	0.250*
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.157
Pete Lien & Sons	Wasta, SD	0.255*
Simon Materials – Beltline Pit	Scottsbluff, NE	0.277*
Thorpe Pit	Britton, SD	0.098
Valley S&G – Van Beek Pit	Rock Valley, IA	0.228
Wagner Building Supplies	Pickstown (Wagner), SD	0.251*
Winter Brothers – Whitehead Pit	Brookings, SD	0.197

* Consult Table 2 for these sources.

** These sources will not be used.

- g. The values in Table 1 are intended for use in bidding. If a pit, previously tested by SDDOT, with a test value less than 0.250 is discovered after letting to be 0.250 or greater, then the Department will accept financial responsibility if higher costs are incurred due to a higher required percentage of fly ash and/or a higher amount of Lithium Nitrate is added to the concrete mix.
- h. Based on coarse aggregate composition and expansion test results, the Contractor will use Table 2 to determine the percentage of cement to be replaced with Class F Modified Fly Ash (in accordance with Section 605 of the Construction Specifications) and/or specified rate of Lithium Nitrate (30% solution by weight) to be provided in the concrete mix for the Low Slump Dense Concrete Bridge Deck Overlay and Class A45 Concrete Fill. Fine aggregate with a 14-day expansion value of 0.400 or greater will not be used.

Table 2 Cement Replacement

Coarse Aggregate	Fine Aggregate Expansion Value	Cement Type	Fly Ash	Lithium Nitrate
Limestone or Granite	< 0.250	Type I or II	-----	2.0 gallon/cubic yard
		Type I or II	20% Min.	-----
Limestone or Granite	≥ 0.250	Type I or II	-----	3.0 gallon/cubic yard
		Type I or II	25%	-----
Quartzite	< 0.250	Type I or II	-----	3.0 gallon/cubic yard
		Type I or II	25%	-----
Quartzite	≥ 0.250	Type I or II	-----	3.5 gallon/cubic yard
		Type I or II	25%	1.5 gallon/cubic yard
		Type I or II	30%	-----

- i. Grout for bonding new concrete to old concrete will meet the requirements of Section 550 of the Construction Specifications.
- j. All material, labor, equipment, and incidental costs to meet ASR requirements will be included in the contract unit price per cubic yard for Low Slump Dense Concrete Bridge Deck Overlay or Class A45 Concrete Fill.
7. Lithium Nitrate proposed for use must be approved by the Concrete Engineer.
8. No traffic will be allowed to operate on the scarified portion of the bridge deck. If it appears that the entire Low Slump Dense Concrete Bridge Deck Overlay cannot be completed prior to winter, Concrete Removal Type 1A, 1B, 1C, 1D, and B will not be done until work resumes in the spring. In the event, scarification has been started and due to unforeseen circumstances, it becomes impossible to complete the placement of the overlay on the entire surface of the structure prior to winter the Office of Bridge Design will be notified. Recommendations for handling winter traffic will then be made. These recommendations may include, but are not limited to, filling extra depth removal areas with Class A45 Concrete, placing an asphalt overlay on the uncompleted area so that the entire roadway width may be opened to traffic, removal of the asphalt overlay when work is resumed and scarifying an additional 1/4" of depth on the bridge deck. The cost of this work, including asphalt overlay, scarification, Class A45 Concrete, extra low slump dense concrete and all other items incidental to this work, will be at the expense of the Contractor.

9. The paving notch will be cleaned by abrasive blasting as approved by the Engineer. In the event the Contractor encounters unsound concrete under the steel extrusions adjacent to the paving notches, the Bridge Construction Engineer will be immediately notified. Reinforcing steel will be placed in the paving notch according to the plans. The modified paving notch will be filled with Low Slump Dense Concrete during the placement of the Low Slump Dense Concrete Bridge Deck Overlay. The use of a spud vibrator will be required to prevent voids in this location.
10. It will be necessary for the Contractor to shape the surface of the Low Slump Dense Concrete Bridge Deck Overlay within one foot of the curb to ensure that water drains to the deck drains or off the ends of the bridge.

AS - BUILT ELEVATION SURVEY

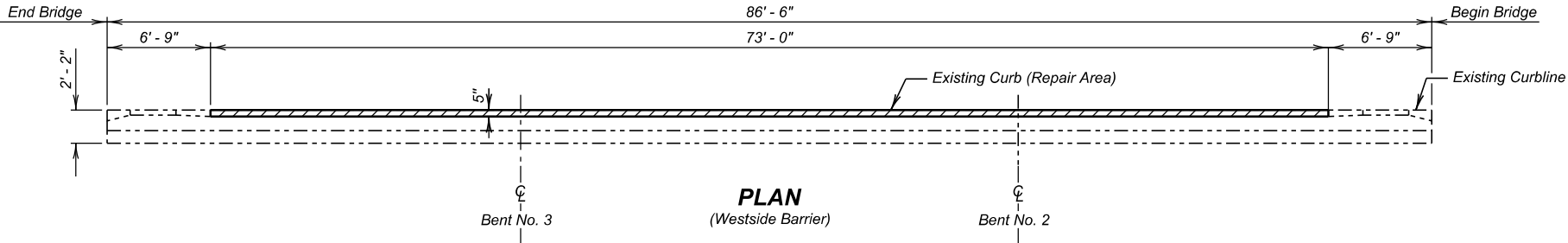
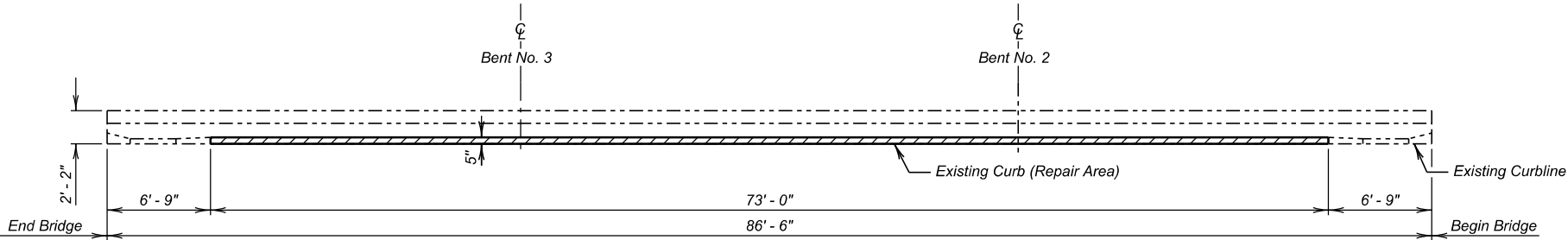
The Contractor will be responsible for producing an as-built elevation survey soon after construction is complete and before the bridge is completely opened to traffic. The Contractor will be responsible for recording the as-built deck elevations at the locations shown by the table of as-built elevations shown in the plans. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The Contractor will be responsible for establishing a NAVD88 elevation for the benchmark provided in the plans. All costs associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor and any incidentals required will be incidental to the contract lump sum price for Bridge Elevation Survey.

NOTES (CONTINUED)
FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE

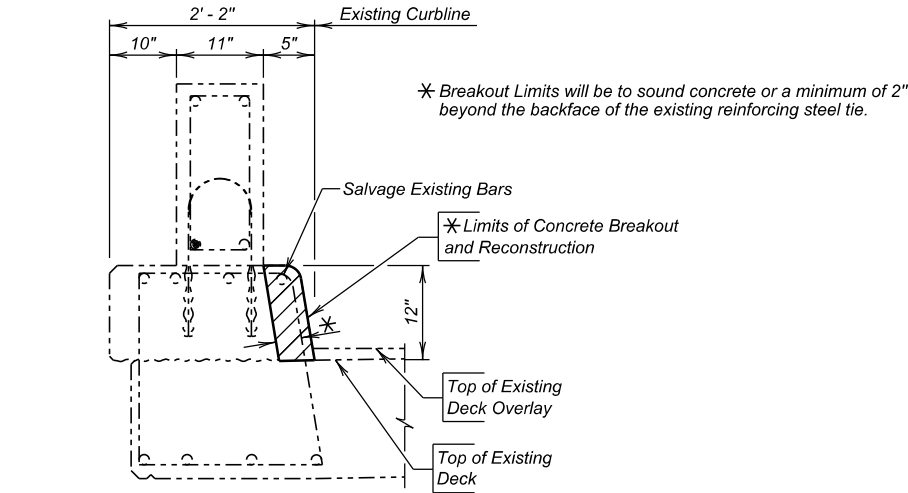
STR. NO. 27-120-321

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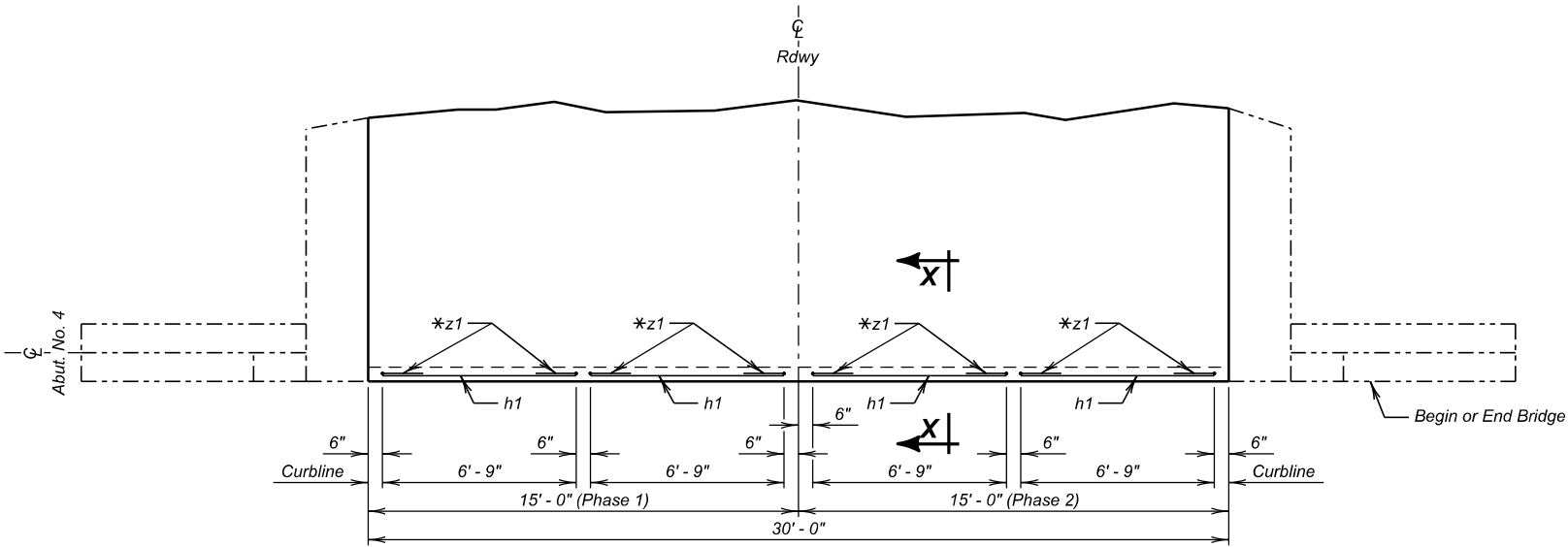
 Shaded areas indicate approximate location of unsound concrete requiring concrete repair.



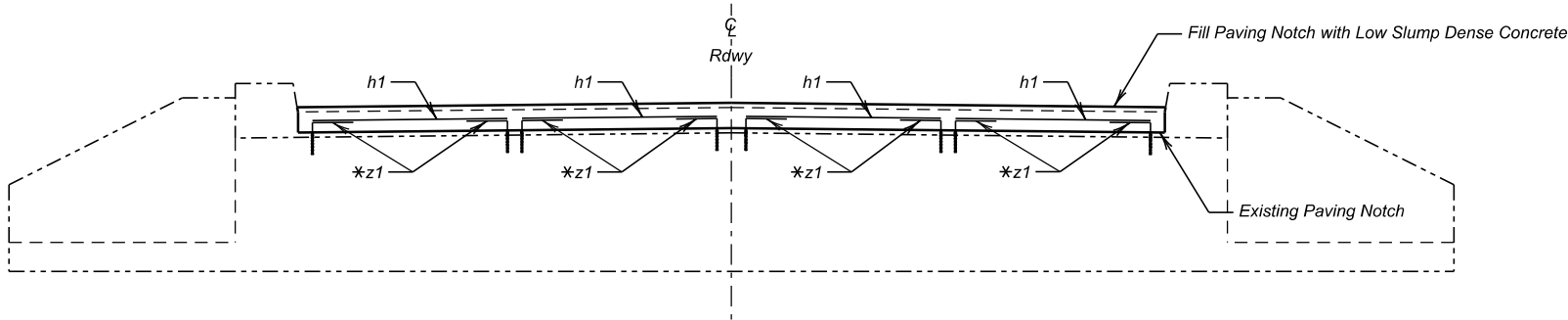
ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Concrete Patching Material, Miscellaneous	CuFt	18.0	18.0
Breakout Structural Concrete	CuYd	0.7	0.7
Galvanic Anode	Each	37	37

BARRIER CURB REPAIR DETAILS
FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE
30' - 0" ROADWAY 0° SKEW
OVER BLUE EYES CREEK SEC. 24-19-T95N-R72/71W
STR. NO. 27-120-321 P 0047(125)2

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2026



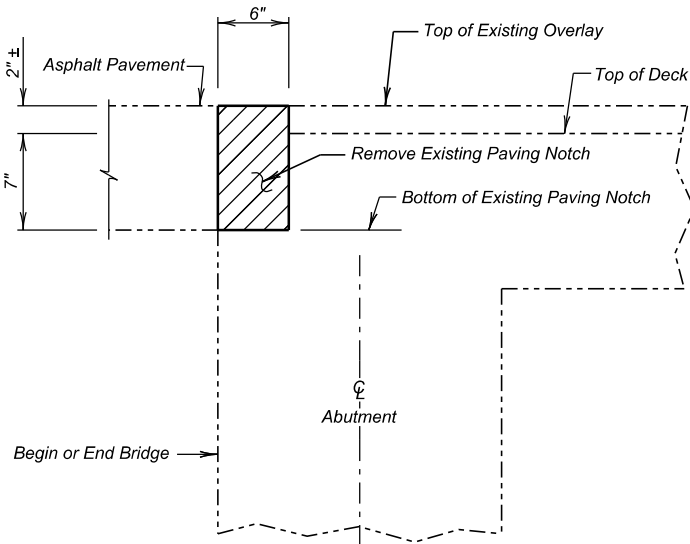
PLAN
(Shown adjacent to Abut. No. 4, Abut. No. 1 similar by rotation)



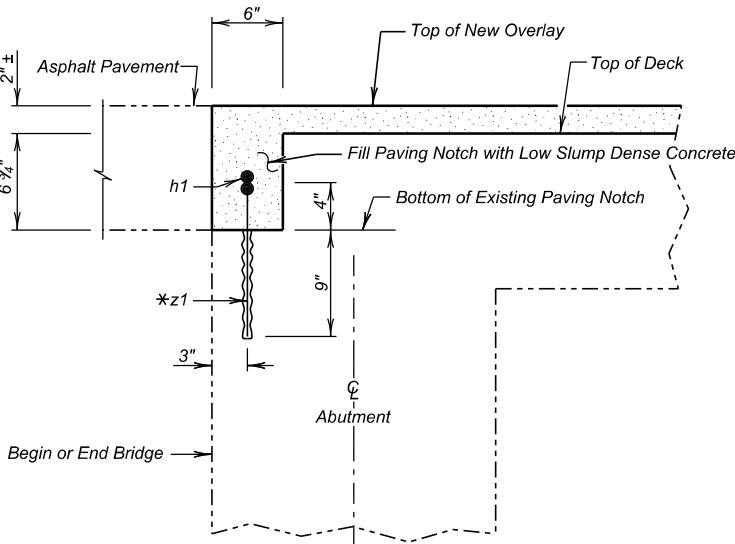
ELEVATION
(Bridge Barrier Not Shown)

* z1 Dowels are to be drilled in and grouted with epoxy.

Shaded areas indicate approximate location of unsound concrete requiring concrete repair.



SECTION X - X
(Concrete Removal Shown)



SECTION X - X
(Section after Reconstruction)

REINFORCING SCHEDULE					
(For Both Ends of Bridge)					
Phase 1	Mk.	No.	Size	Length	Type
	Δ z1	8	5	2' - 6"	17A
Phase 2	h1	4	5	6' - 9"	Str.
	Δ z1	8	5	2' - 6"	17A
	h1	4	5	6' - 9"	Str.

NOTES:
All Dimensions are out to out of bars.
All Bars to be Epoxy Coated.
Δ Dowels

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Install Dowel in Concrete	Each	8	8
Epoxy Coated Reinforcing Steel	Lb	29	29
Low Slump Dense Concrete Bridge Deck Overlay	CuYd	0.6	0.6

Does not include the following quantity for z1 bars as these are incidental to the contract unit price per each for Install Dowel in Concrete.

PHASE 1 PHASE 2
21 Lb 21 Lb

The informational quantity is an approximate quantity contained in the above contract item and is for information only.

PAVING NOTCH REPAIR
FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE
30' - 0" ROADWAY 0° SKEW
OVER BLUE EYES CREEK SEC. 24/19-T95N-R72/71W
STR. NO. 27-120-321 P 0047(125)2

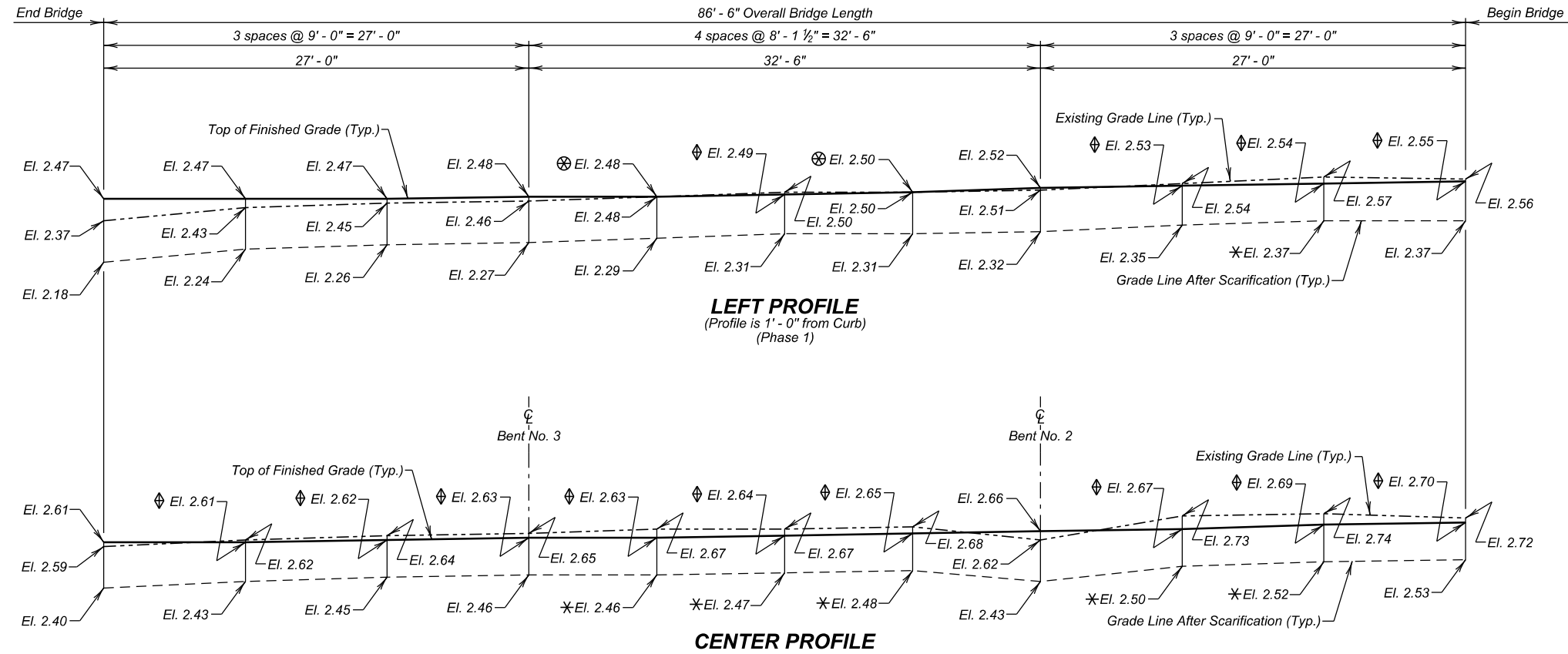
GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2026

DESIGNED BY
AP
GREG08J8

CK. DES. BY
JKI
08J8PB07

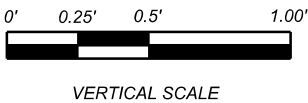
DRAFTED BY
AP

Steve A. Johnson
BRIDGE ENGINEER



Survey Reference:

SD 47 - MRM 2.80
Control point located on Southeast Wingwall
Elevation 2102.89



NOTE :

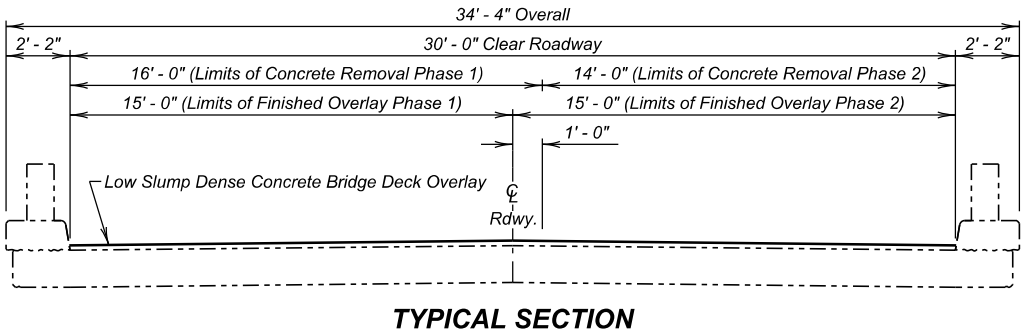
Add 2100.00 all elevations shown on profiles.

⊗ Existing Elevation is the same as the Finished Surface Elevation.

⬢ Existing Elevation is higher than the Finished Surface Elevation.

* Scarify in excess of 2 1/4" in these areas. Extreme care will be taken not to damage the existing reinforcing steel.

⌘ Internal vibration required where overlay thickness exceed 3".



ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Low Slump Dense Concrete Bridge Deck Overlay	CuYd	11.1	9.7
Concrete Removal Type 1A	SqYd	152.0	133.0
Concrete Removal Type 2A	SqYd	38.0	33.3
Concrete Removal Type 1B	SqYd	60.6	60.6
Concrete Removal Type 1C	SqYd	30.3	30.3
Concrete Removal Type 1D	SqYd	30.3	30.3
Concrete Removal Type B	Ft	10.0	10.0
Class A45 Concrete Fill	CuYd	9.3	9.3
Finishing and Curing	SqYd	142.5	142.5

LOW SLUMP DENSE CONCRETE OVERLAY DETAILS
FOR

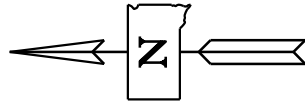
86' - 6" CONTINUOUS CONCRETE BRIDGE

30' - 0" ROADWAY 0° SKEW
OVER BLUE EYES CREEK SEC. 24-19-T95N-R72/71W
STR. NO. 27-120-321 P 0047(125)2

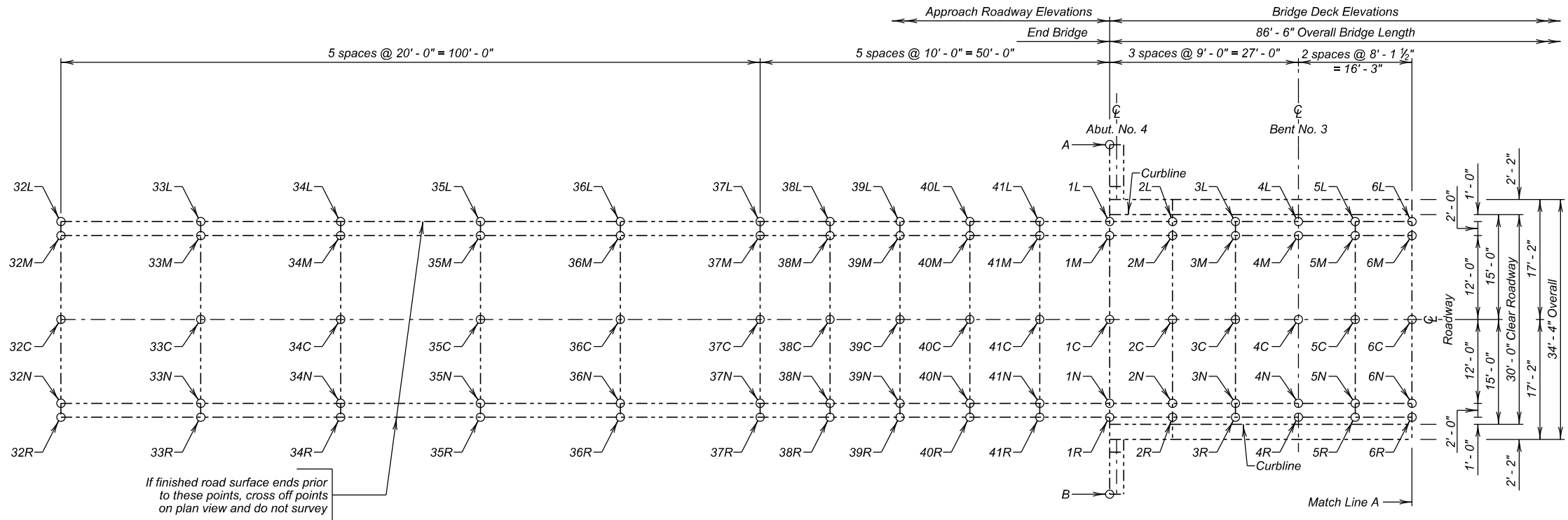
GREGORY COUNTY
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MAY 2026

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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0047(125)2	46	82



PARTIAL PLAN

Table of Elevations - Approach Roadway									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
32L		32M		32C		32N		32R	
33L		33M		33C		33N		33R	
34L		34M		34C		34N		34R	
35L		35M		35C		35N		35R	
36L		36M		36C		36N		36R	
37L		37M		37C		37N		37R	
38L		38M		38C		38N		38R	
39L		39M		39C		39N		39R	
40L		40M		40C		40N		40R	
41L		41M		41C		41N		41R	

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
1L		1M		1C		1N		1R	
2L		2M		2C		2N		2R	
3L		3M		3C		3N		3R	
4L		4M		4C		4N		4R	
5L		5M		5C		5N		5R	
6L		6M		6C		6N		6R	

Bridge Ends	
Location	Elevation
A	
B	

Benchmark Description:

SD 47 - MRM 2.80
Control point on Southeast WingWall
Elevation 2102.89

NOTE:

The As-Built Elevations will be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

AS-BUILT ELEVATION SURVEY (A)

FOR

86' - 6" CONTINUOUS CONCRETE BRIDGE

30' - 0" ROADWAY

0° SKEW

OVER BLUE EYES CREEK

SEC. 24/19-T95N-R72/71W

STR. NO. 27-120-321

P 0047(125)2

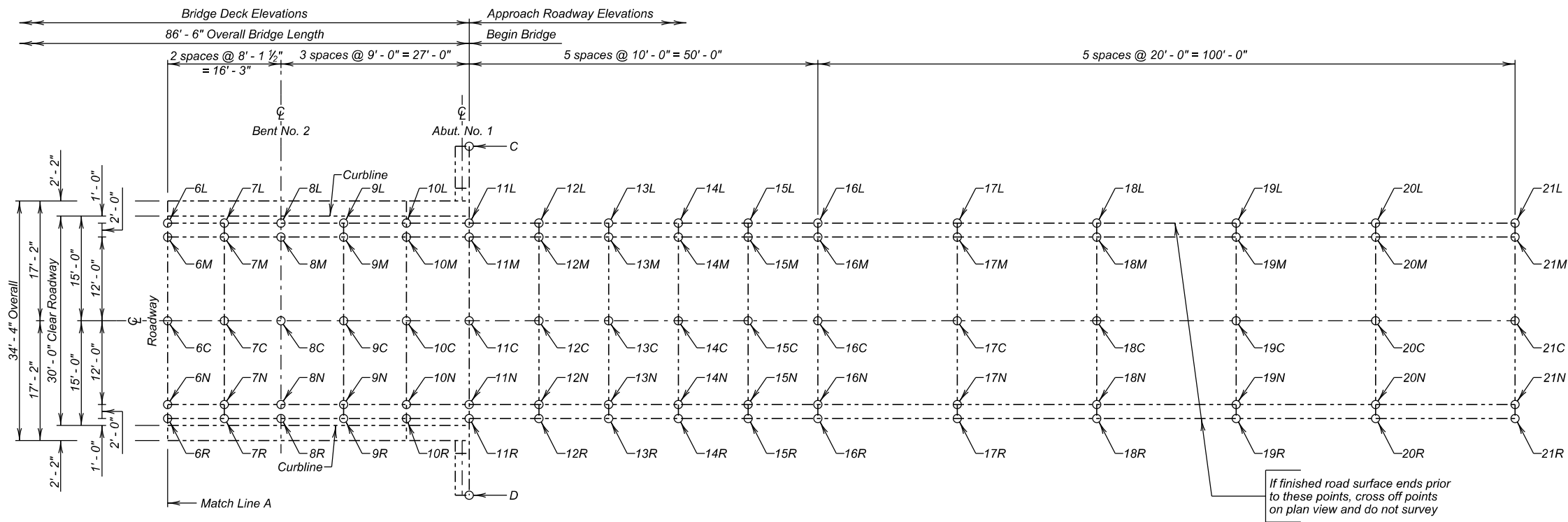
GREGORY COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2026

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DESIGNED BY JKI GREG08J8	CK. DES. BY AP 08J8RB09	DRAFTED BY KR	Steve A. Johnson BRIDGE ENGINEER
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PARTIAL PLAN

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
6L		6M		6C		6N		6R	
7L		7M		7C		7N		7R	
8L		8M		8C		8N		8R	
9L		9M		9C		9N		9R	
10L		10M		10C		10N		10R	
11L		11M		11C		11N		11R	

Table of Elevations - Approach Roadway									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
12L		12M		12C		12N		12R	
13L		13M		13C		13N		13R	
14L		14M		14C		14N		14R	
15L		15M		15C		15N		15R	
16L		16M		16C		16N		16R	
17L		17M		17C		17N		17R	
18L		18M		18C		18N		18R	
19L		19M		19C		19N		19R	
20L		20M		20C		20N		20R	
21L		21M		21C		21N		21R	

Bridge Ends	
Location	Elevation
C	
D	

Benchmark Description:

SD 47 - MRM 2.80
Control point on Southeast WingWall
Elevation 2102.89

NOTE:

The As-Built Elevations will be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

AS-BUILT ELEVATION SURVEY (B)

FOR

86' - 6" CONTINUOUS CONCRETE BRIDGE

30' - 0" ROADWAY 0° SKEW
OVER BLUE EYES CREEK SEC. 24/19-T95N-R72/71W
STR. NO. 27-120-321 P 0047(125)2

GREGORY COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2026

-X020-

INDEX OF BRIDGE SHEETS—

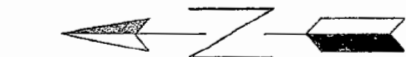
Sheet No. 1 General Drawing and Quantities

Sheet No. 2 Details for Std Superstructure FBOP-CS-30-00-119-13 (10-10-57)

Sheet No. 3 Details for Std Substructure FBOP-CS-30-00-209-23

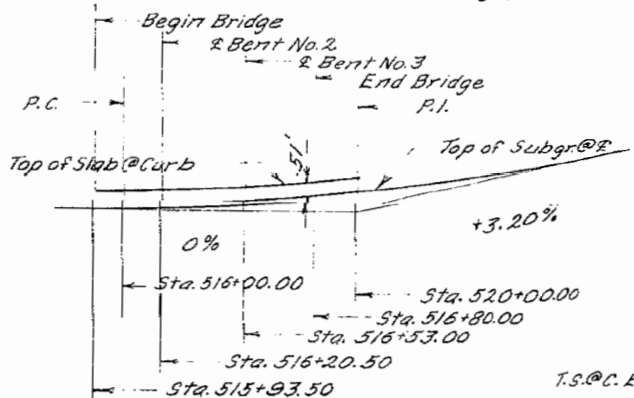
Sheet No. 4 Details of Type-B Railing CS-RB-00-119-3-3 (12-31-54)

Sheet No. 5 Plan & Profile of Subgrade Investigations



Q	1000 cfs.
A	23.2 sq. ft.
V	4.3 fps.

P.I. Sta 520+00.00
El. 389.00
V.C. 800'



SUBGRADE CURVE DATA

*F1.389.57	*F1.389.51	*F1.389.51	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.389.53	*F1.38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CURB & E ELEVATIONS

NOTE: Elevations shown are * top of finished slab @ Rwy. and * at curb, which provide Camber for Dead Load Deflection and Plastic Flow. Do not use Camber dimensions shown on Sheet No. 2 of Bridge Plans.

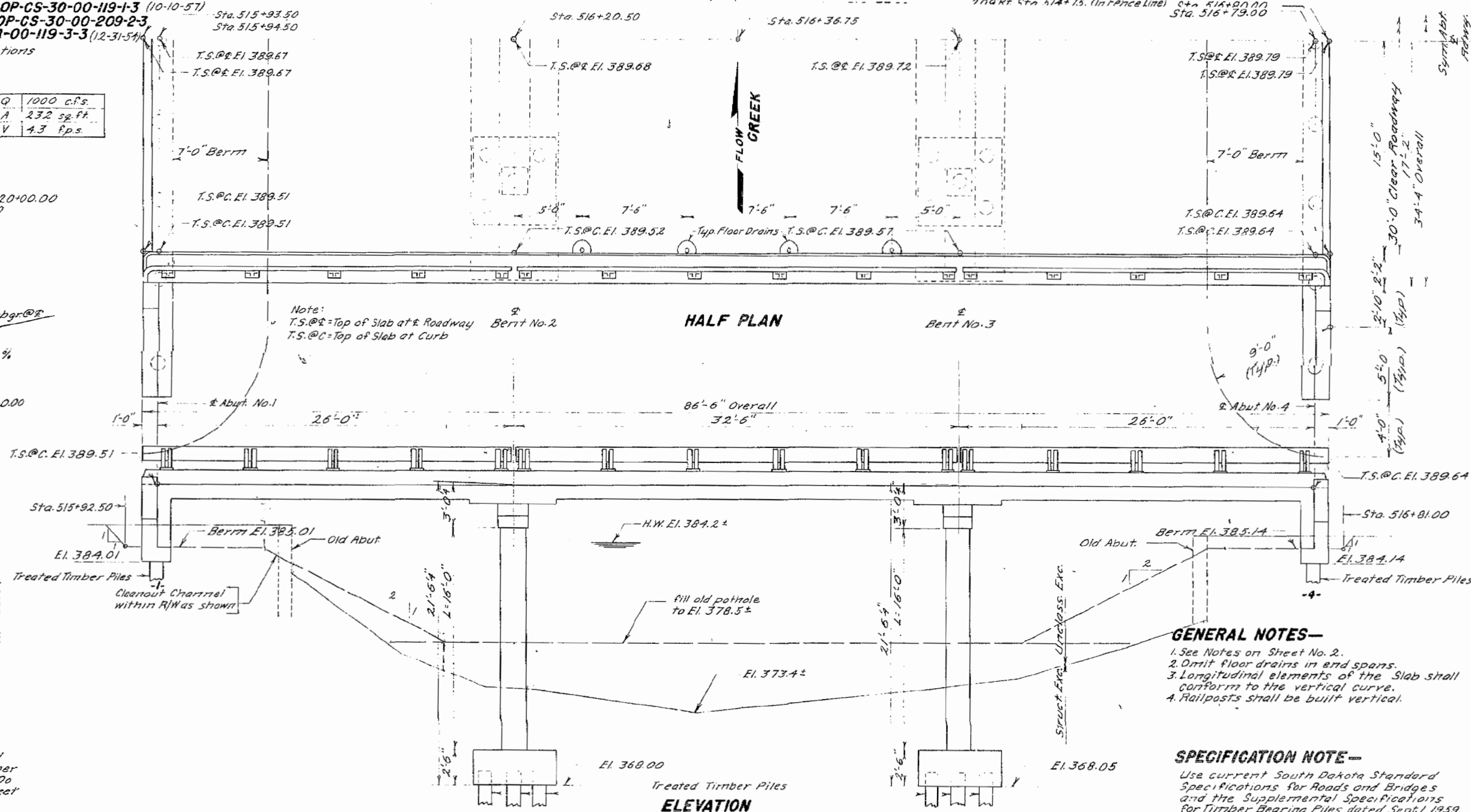
ITEM	T.F. Pile	Qty.	Unit	Vol.
Abut. 1	229	10	cu. yd.	22.9
Abut. 2	163	10	cu. yd.	16.3
Abut. 3	157	5	cu. yd.	7.85
Abut. 4	228	2	cu. yd.	4.56
TOTAL	777	37	cu. yd.	51.61

B.M. No. 41 - El. 400.02
Iron Pin & Gds.
12' x 1" x Sta. 504+4.5 (In Fence Line)

Bridge
Channel Clearance

B.M. No. 42 - El. 382.61
Iron Pin & Gds.
12' x 1" x Sta. 514+7.5 (In Fence Line)

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0047(125)2	48	82



GENERAL NOTES—

- See Notes on Sheet No. 2.
- Omit floor drains in end spans.
- Longitudinal elements of the Slab shall conform to the vertical curve.
- Railposts shall be built vertical.

SPECIFICATION NOTE—

Use current South Dakota Standard Specifications for Roads and Bridges and the Supplemental Specifications for Timber Bearing Piles dated Sept. 1, 1959.

ORIGINAL CONSTRUCTION PLANS

GENERAL DRAWING AND QUANTITIES

FOR

86'-6" CONTINUOUS CONCRETE BRIDGE

30'-0" ROADWAY

OVER CREEK

SEC. 24/19 - T 95N - R 72/71W

STA. 515+93.50 TO 516+80.00

S1441

STR. NO. 27-120-321

GREGORY COUNTY

SOUTH DAKOTA

DEPARTMENT OF HIGHWAYS

AUGUST 1960

11 OF 17

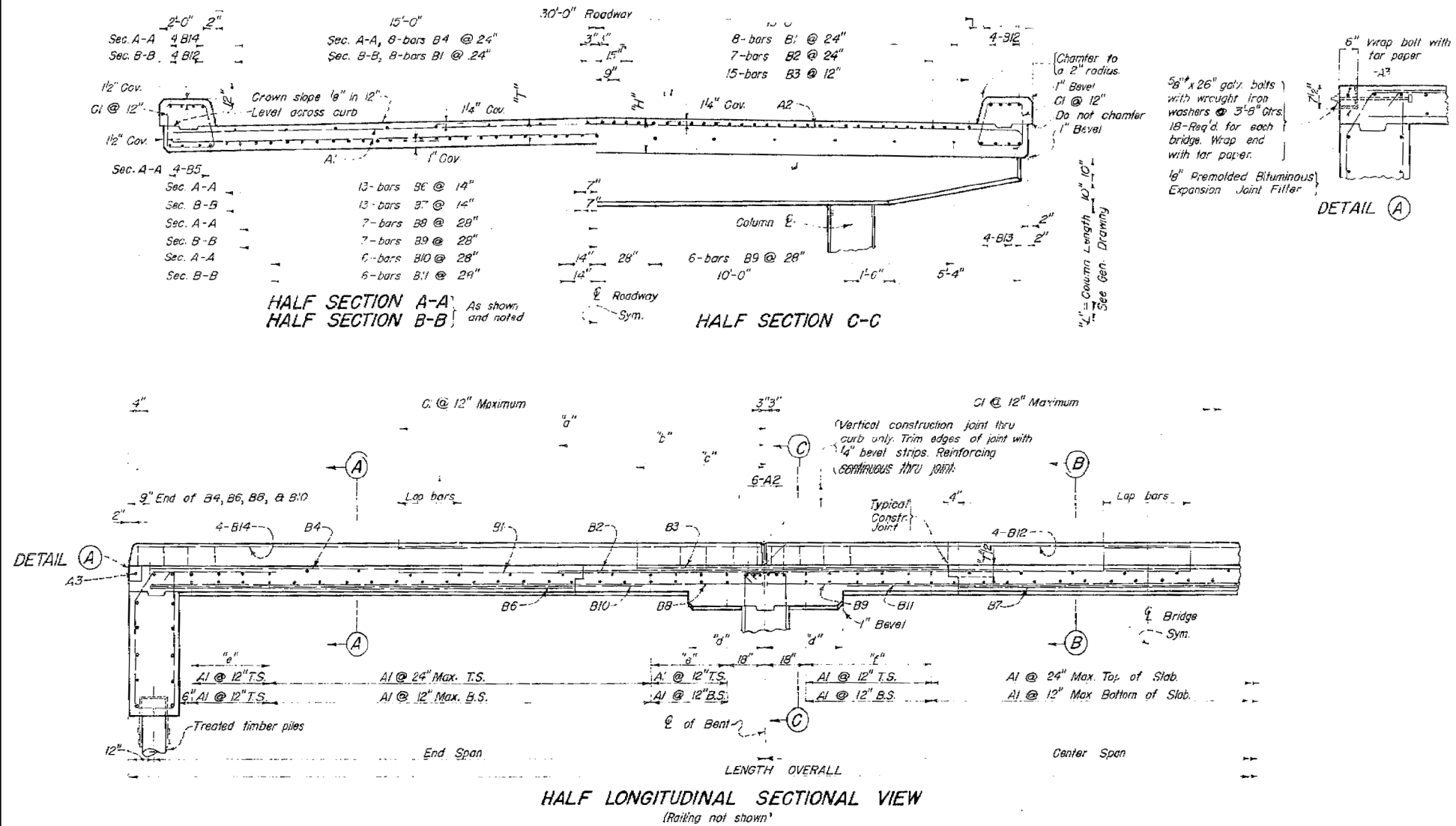
-X020-

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	H.C.P.	E.E.M.	J.R. Scur

ESTIMATED QUANTITIES							
ITEM	Concrete	Steel Piles	Type-B Railing	Reinforcing Steel	Treated Timber	Excavation - Cu. Yds.	Struct. Exc. - Cu. Yds.
Superstructure	124.4	26.965	1.25	115.3	18@25' = 450	15	60
Abutments No. 1 & No. 4	35.6	1.830	0.55		20@15' = 300		
Bents No. 2 & No. 3	21.2	1.010					
TOTALS	181.2	29.805	1.80	115.3	675	15	60

* One Treated Timber Test Pile shall be driven at Abut. No. 1 & No. 4 and Bents No. 2 & No. 3, before remaining piles are ordered.
* See Grading Plans for Unclassified Excavation.

* INCIDENTAL WORK: In place on Sta. 516+03 to 516+72 old 49' Pony Truss Span with 20' simple wooden approach span, 16' roadway. Remove steel railing, wooden floor and timber approach span. Remove Pony Truss span intact. Dismantle and remove old substructure to 1' below finished ground line, except at Bent No. 3 remove old substructure as necessary for construction of new footing. Care shall be taken not to injure the structural properties of the timbers, planks, Pony Truss span, railing, and other salvaged materials during dismantling and storing at site 300' from present location as directed by the ENGINEER, to be picked up by County forces. All spikes, nails, bolts and screws shall be removed from salvaged timber materials. Satisfactory broken concrete and masonry shall be used as slope protection as directed by the ENGINEER. All unsalvaged materials shall be disposed of as directed by the ENGINEER.



NOTES

These notes cover substructure, superstructure, and railing details. The General Plan for each structure will show spans, elevations, and other necessary notes and details.

CONSTRUCTION SPECIFICATIONS: South Dakota Highway Commission's "Standard Specifications for Roads and Bridges," current issue, shall govern unless noted otherwise herein, on plans, or in Special Provisions.

FILLING: All piles shall be treated timber. Filling will not be necessary under footings if the soil bearing pressure exceeds 3 1/2 Tons/sq ft. If piles are not used on interior bents, decrease footing thickness to two feet, change quantity of Class A Concrete accordingly, and relocate footing reinforcing steel to allow 4" cover from bottom of footing.

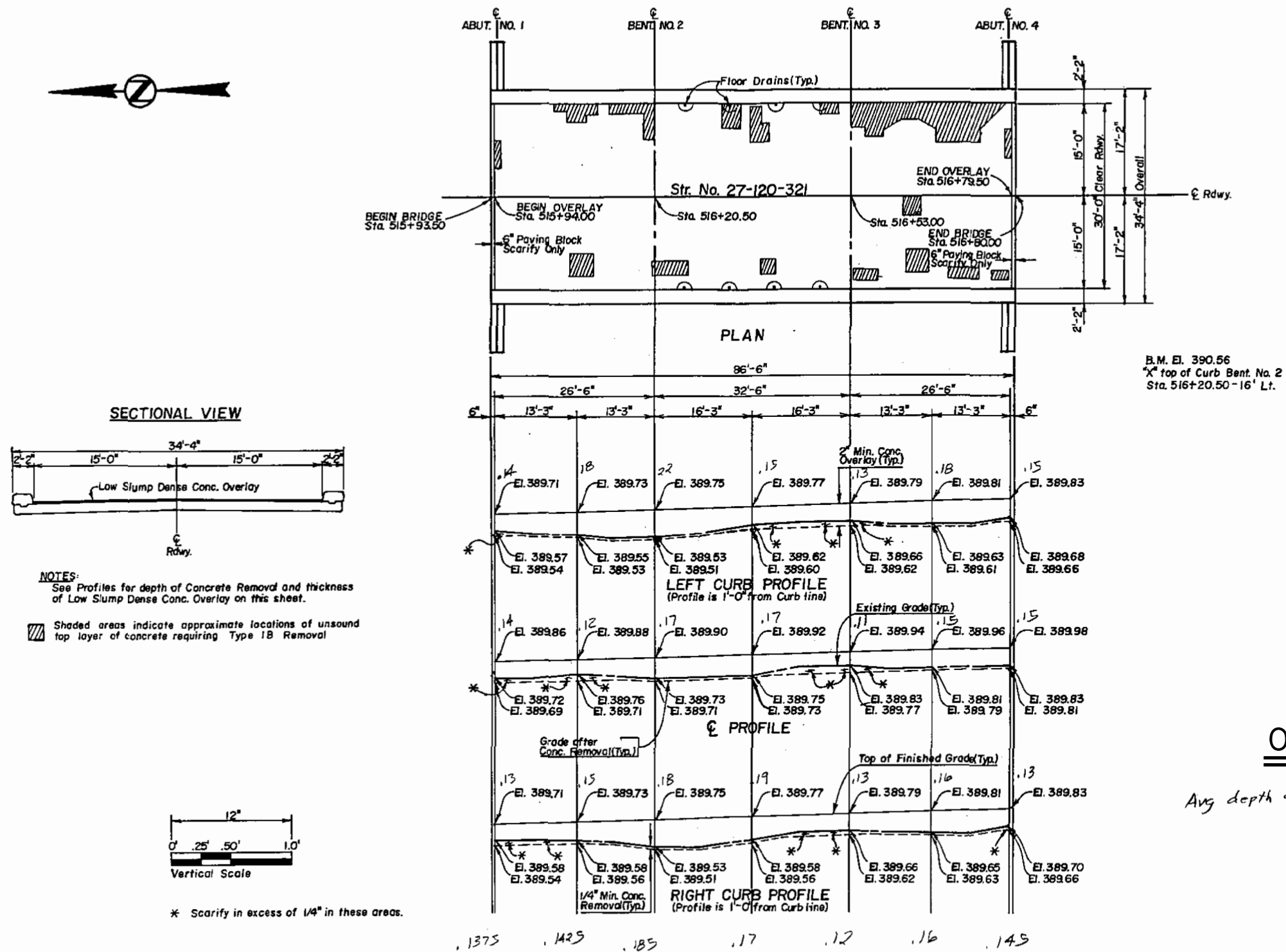
STRUCTURAL STEEL: All 5/8" and 1" bolts including washers, 4"x5/8" bent bars, and floor drains shall be paid for as Structural Steel.

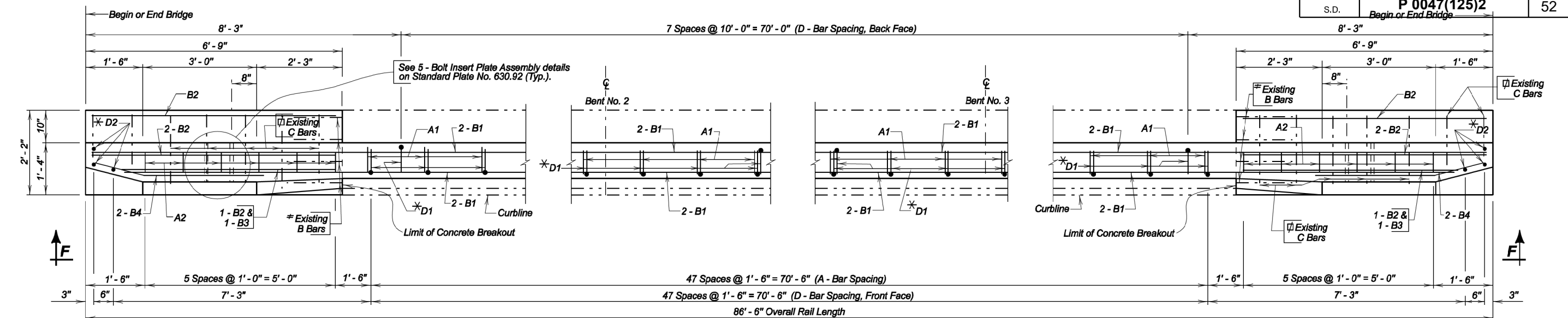
CONCRETE: Class A Concrete shall develop a minimum ultimate compressive strength of 4000 p.s.i. at 28 days. All exposed concrete corners and edges shall be chamfered to a 3/4" bevel unless noted otherwise. If necessary to facilitate construction, transverse construction joints may be made at the quarter points of each or any span, adjacent to interior bents. A 1/4" wearing surface integral with the slab has been allowed for and is included in the slab thicknesses tabulated. All costs for expansion joint filler and tar paper shall be included in the unit price bid per cu yd. for Class A Concrete.

DESIGN DATA: Design loading: H20-44 (T 3-45) A.L.S.H.O. Unit stresses: Concrete, $f_c = 1350$ p.s.i., $n = 8$; Reinforcing, $f_s = 20,000$ p.s.i. (Int. Grade Steel). Column design: American Concrete Institute Requirements (ACI 318-47). Equivalent fluid pressure of earth at 40' sq. ft. Minimum pile loading = 20 Tons per pile.

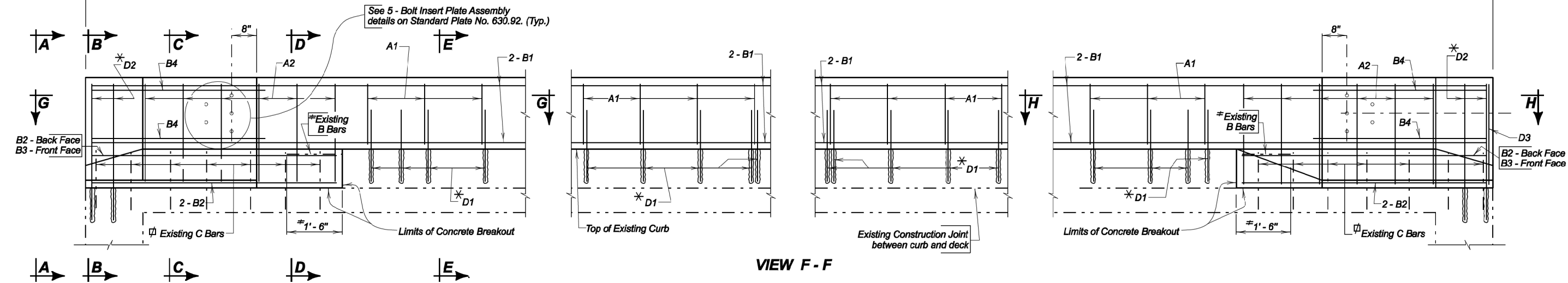
ORIGINAL CONSTRUCTION PLANS

				SLAB DATA																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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				A1		A2		A3		B1		B2		B3		B4		B5		B6		B7		B8		B9		B10		B11		B12		B13		B14		C1																																																																																																																																																																																																																																																																																																																																																																																																																											
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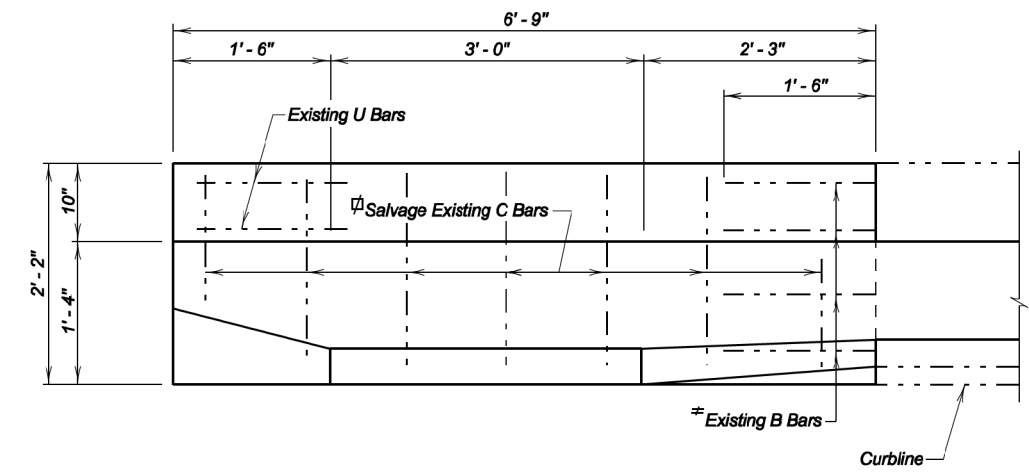
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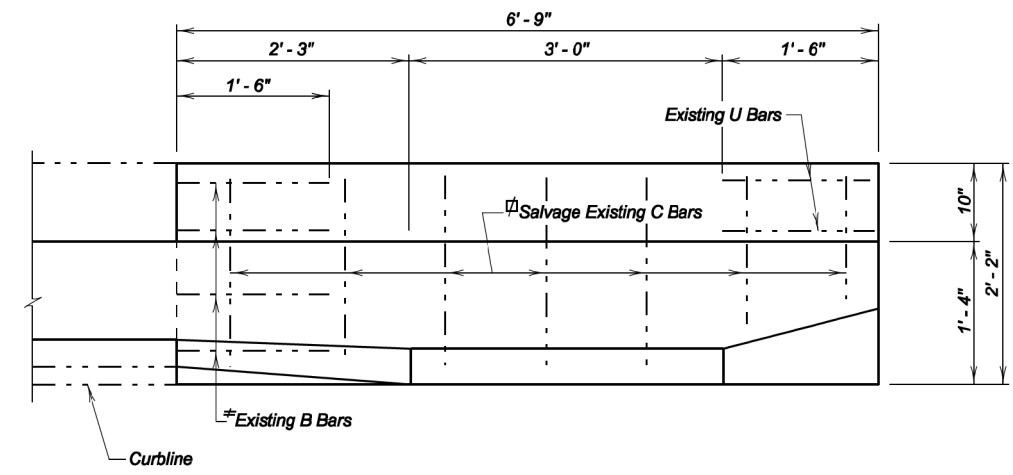
VIEW F - F

□ Bend Existing Bars where necessary to maintain 2" clear cover.
 * D1 and D2 are to be drilled in and grouted with epoxy.
 ≠ Extend existing B bars into new section (1' - 6").

NOTES -
 1. For location of View and Sections, see Sheet No. 6 of 16.
 2. If existing resteel is struck while drilling holes for Dowels the spacing can be shifted 2" longitudinally, 1" transversely or as approved by the Engineer to miss existing resteel.



VIEW G - G
 (New reinforcing steel not shown)



VIEW H - H
 (New reinforcing steel not shown)
 (Off End shown)

ORIGINAL CONSTRUCTION PLANS

END BLOCK MODIFICATION AND
 RAIL REPLACEMENT LAYOUT

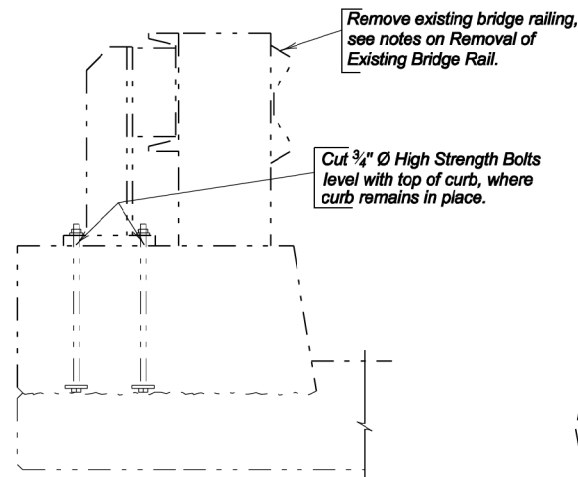
FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE
 30' - 0" ROADWAY
 OVER CREEK
 STR. NO. 27-I20-321

GREGORY COUNTY
 S. D. DEPT. OF TRANSPORTATION

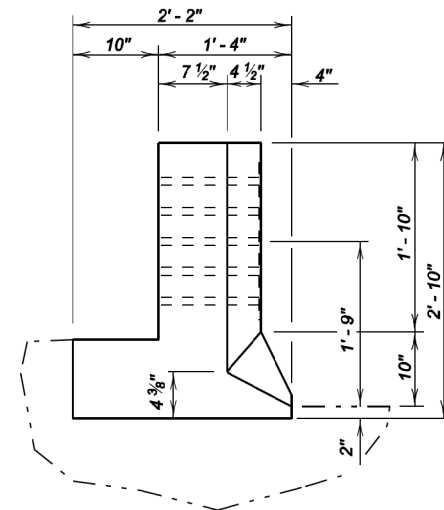
MAY 2010

15 OF 17

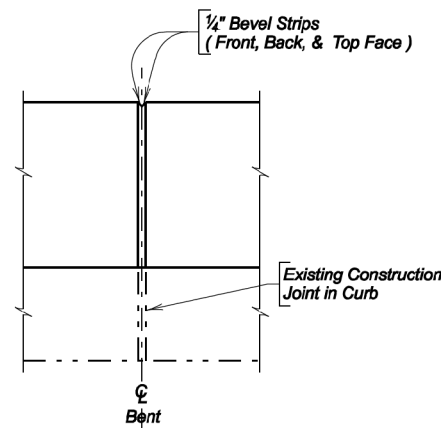
DESIGNED BY BWS	DRAWN BY CJD	CHECKED BY DJS	BRIDGE ENGINEER Kevin N. Goeden
GREG026J	026JLA05		



EXISTING CURB & RAIL

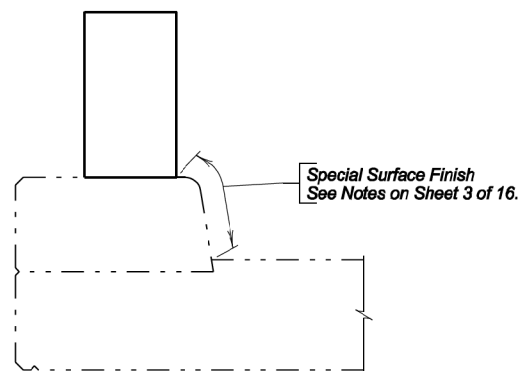


VIEW A - A

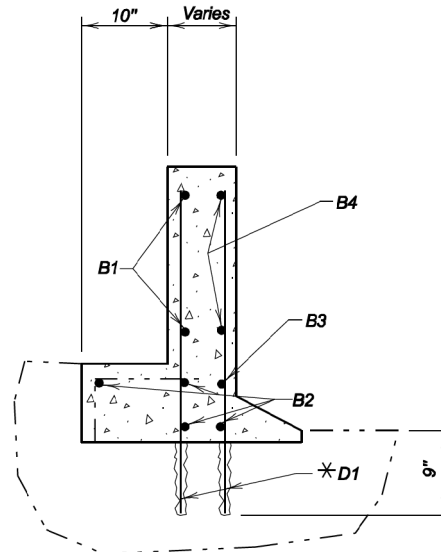


CHAMFER DETAIL

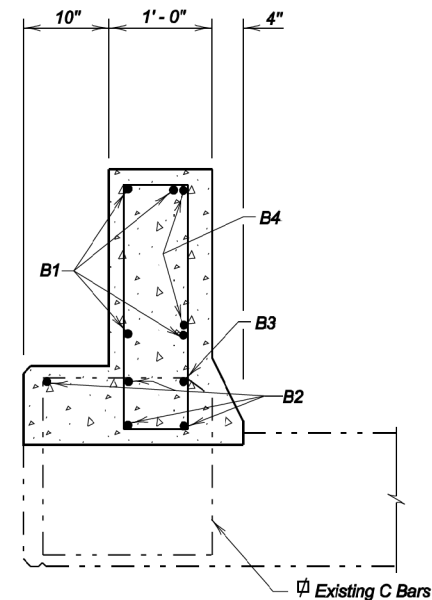
(Typical Detail for Chamfering Curb Barrier Face at Existing Construction Joints in Curb)



SPECIAL SURFACE FINISH

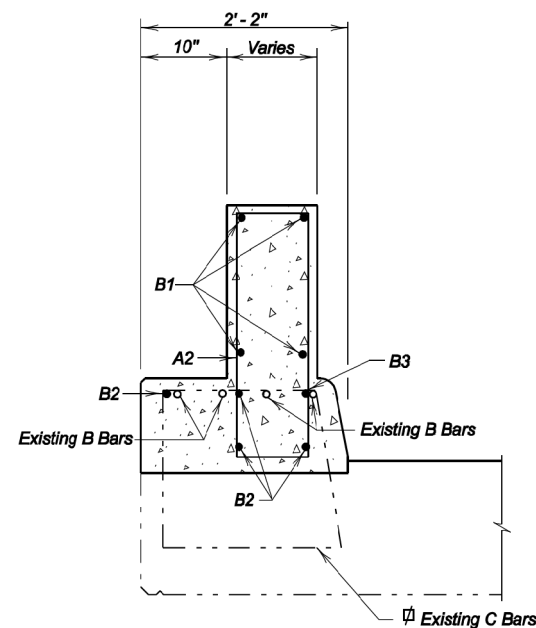


SECTION B - B

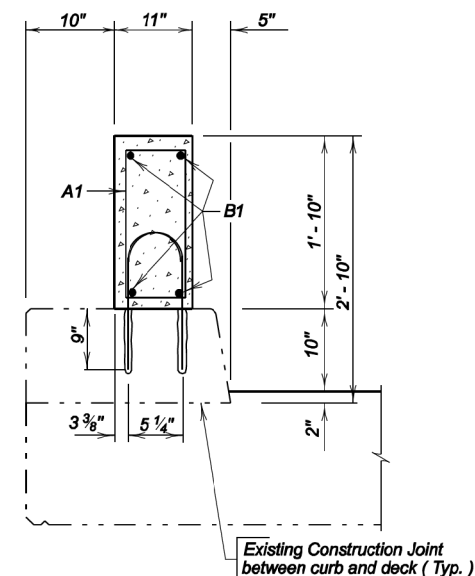


SECTION C - C
(5-Bolt Insert Assembly Not Shown)

- ⊘ Bend existing C bars where necessary to maintain 2" clear cover.
- * D1 and D2 Dowels are to be drilled in and grouted with epoxy.



SECTION D - D



SECTION E - E

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
A1	48	4	4' - 11"	T2	
A2	12	4	7' - 2"	T2	
B1	8	4	43' - 9"	Str.	
B2	8	4	6' - 7"	Str.	
B3	2	4	5' - 3"	Str.	
B4	4	4	4' - 10"	19A	
D1	56	6	2' - 6"	1A	
D2	6	6	3' - 5"	Str.	
A1	48	4	4' - 11"	T2	
A2	12	4	7' - 2"	T2	
B1	8	4	43' - 9"	Str.	
B2	8	4	6' - 7"	Str.	
B3	2	4	5' - 3"	Str.	
B4	4	4	4' - 10"	19A	
D1	56	6	2' - 6"	1A	
D2	6	6	3' - 5"	Str.	

NOTES:
⊘ Min. Lap = 1' - 3"
Δ Dowels
All bars are epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		PHASE 1	PHASE 2
Remove Bridge Railing	FL	86.5	86.5
Class A45 Concrete, Bridge Repair	Cu.Yd.	6.4	6.4
Special Surface Finish	Sq. Ft.	78.4	78.4
Breakout Structural Concrete	Cu.Yd.	1.0	1.0
Install Dowel in Concrete	Each	62	62
Epoxy Coated Reinforcing Steel	Lb.	504	504

* Does not include the following quantities for D1 & D2 bars as these are paid for in the Bid Item "Install Dowel in Concrete".

PHASE 1
241 Lb.

PHASE 2
241 Lb.

NOTES:
Use this sheet in conjunction with Sheet No. 5 of 16.
If existing steel is struck while drilling holes for D1 or D2 dowels, the spacing can be shifted 2" longitudinally, 1" transversely, or as approved by the Engineer to miss existing steel.

ORIGINAL CONSTRUCTION PLANS

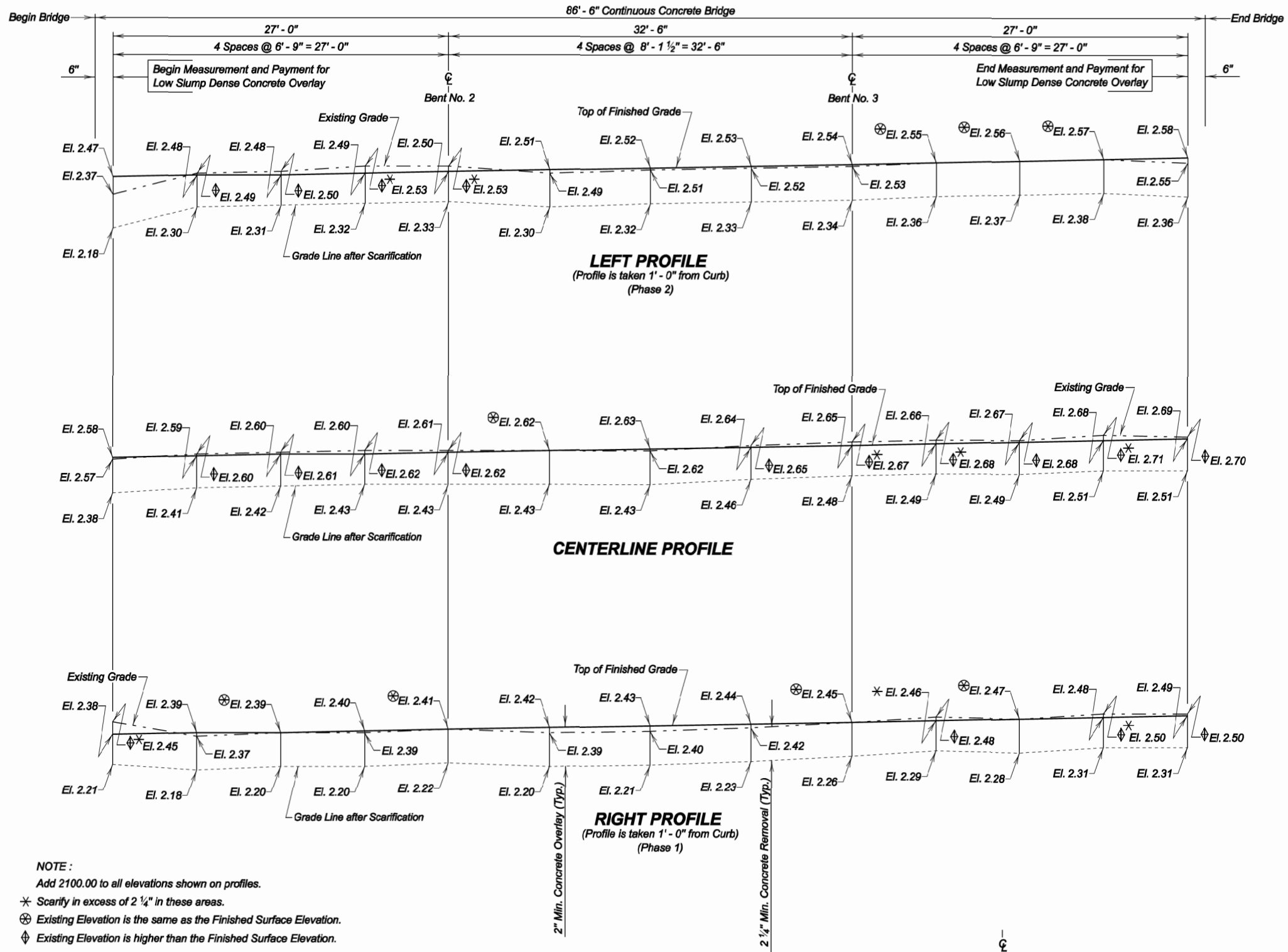
END BLOCK MODIFICATION AND
RAIL REPLACEMENT DETAILS
FOR
86' - 6" CONTINUOUS CONCRETE BRIDGE
30' - 0" ROADWAY
OVER CREEK
STR. NO. 27-I20-32I

0° SKEW
SEC 24/I9-T95N-R72/7IW
P 0045(43)56

GREGORY COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2010

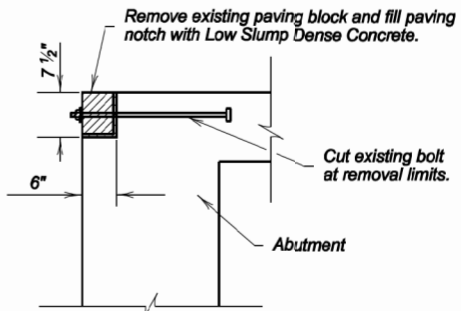
16 OF 17

DESIGNED BY BWS GREG026J	DRAWN BY BWS 026JLA06	CHECKED BY DJS	Kevin N. Goeden BRIDGE ENGINEER
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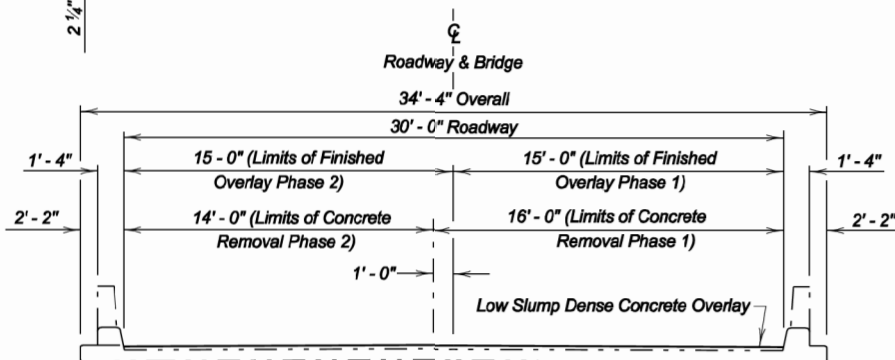


Benchmark Description:

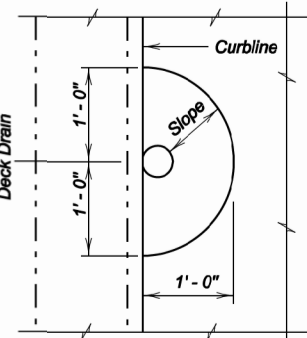
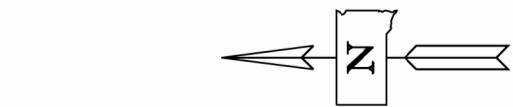
B.M. Control point set by Kary Gregoire located on Southeast WingWall
SD 047 - MRM 2.80
Elevation: 2102.89



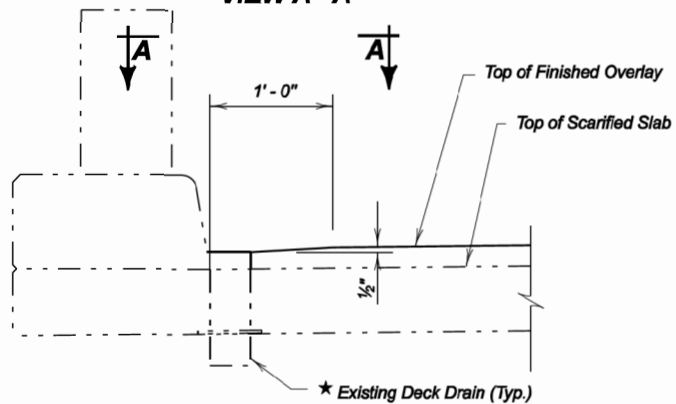
DETAIL "X"



TYPICAL SECTION



VIEW A - A



TYPICAL SECTION AT DECK DRAINS

* For location of Existing Deck Drains
See Sheet No. 11 of 16.

ORIGINAL CONSTRUCTION PLANS

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Low Slump Dense Concrete Deck Overlay	Cu. Yd.	11.0	10.8
Concrete Removal Type 1A	Sq. Yd.	152.0	133.0
Concrete Removal Type 2A	Sq. Yd.	39.2	34.3
Concrete Removal Type 1B	Sq. Yd.	15.4	13.5
Concrete Removal Type 1C	Sq. Yd.	19.6	17.2
Concrete Removal Type 1D	Sq. Yd.	19.6	17.2
Concrete Removal Type B	Ft.	10.0	10.0
Class A45 Concrete Fill	Cu. Yd.	8.1	5.4
Finishing and Curing	Sq. Yd.	142.5	142.5

DECK PROFILES FOR LOW SLUMP DENSE CONCRETE OVERLAY

FOR

86' - 6" CONTINUOUS CONCRETE BRIDGE
30' - 0" ROADWAY
OVER CREEK
STR. NO. 27-I20-32I

0° SKEW

SEC 24/19-T95N-R72/71W
P 0047(193)0

GREGORY COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2010

17 OF 17

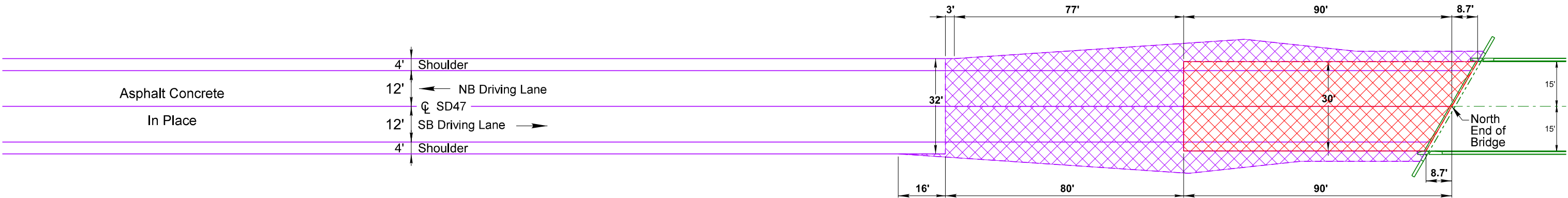
DESIGNED BY BWS GREG026J	DRAWN BY JWL 026JLA07	CHECKED BY DJS	Kevin N. Gordon BRIDGE ENGINEER
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COLD MILLING ASPHALT CONCRETE

STR. 27-120-276 SD47 MRM 7.29 OVER PONCA CREEK AT NORTH END OF BRIDGE

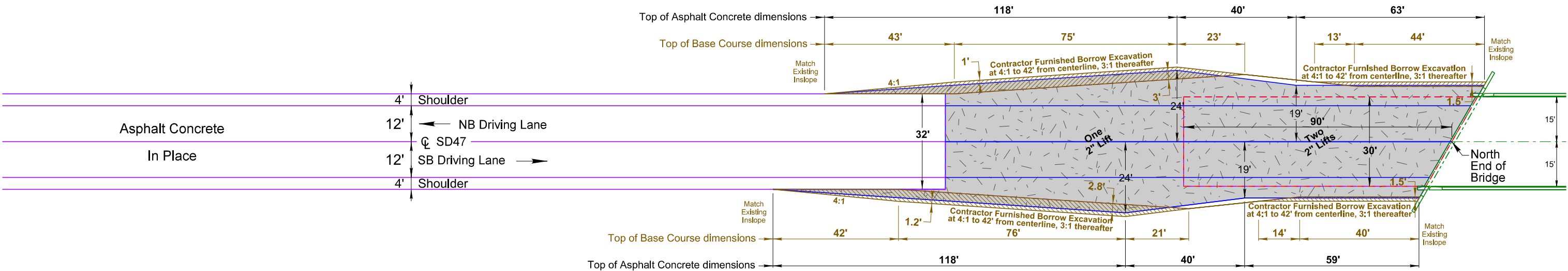
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	55	82

Plotting Date: 06/16/2026



ASPHALT CONCRETE RESURFACING

STR. 27-120-276 SD47 MRM 7.29 OVER PONCA CREEK AT NORTH END OF BRIDGE



Estimated Quantities At North End of Bridge	Str. No.	27-120-276			
	Location	NBL & Shoulder		SBL & Shoulder	
Item		Quantity	Unit	Quantity	Unit
Contractor Furnished Borrow Excavation		109	CuYd	98	CuYd
Cold Milling Asphalt Concrete		373	SqYd	361	SqYd
Base Course		13	Ton	13	Ton
Asphalt Concrete Composite		61 *	Ton	61 *	Ton

* Includes 13 Tons for guardrail embankment resurfacing and 48 Tons for mainline resurfacing.

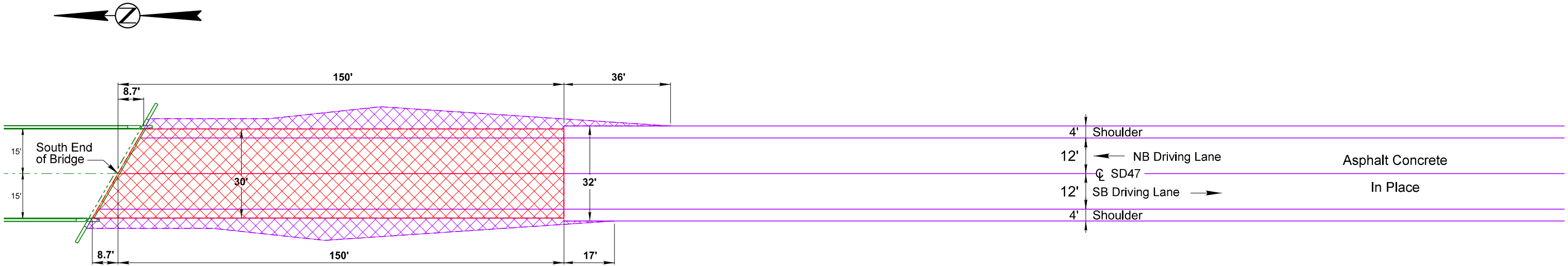
- Cold Milling Asphalt Concrete (2" Depth - depth varies, refer to profiles)
- Cold Milling Asphalt Concrete (4" Depth - depth varies, refer to profiles)
- Base Course (4" Depth)
- Asphalt Concrete Composite

COLD MILLING ASPHALT CONCRETE

STR. 27-120-276 SD47 MRM 7.29 OVER PONCA CREEK AT SOUTH END OF BRIDGE

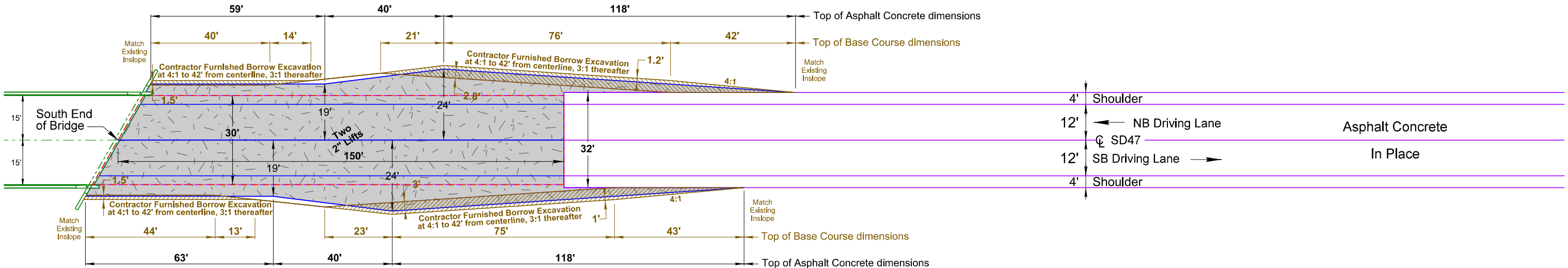
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2		
		56	82

Plotting Date: 06/16/2026



ASPHALT CONCRETE RESURFACING

STR. 27-120-276 SD47 MRM 7.29 OVER PONCA CREEK AT SOUTH END OF BRIDGE



Estimated Quantities At South End of Bridge	Str. No.	27-120-276			
	Location	NBL & Shoulder		SBL & Shoulder	
Item		Quantity	Unit	Quantity	Unit
Contractor Furnished Borrow Excavation		140	CuYd	142	CuYd
Cold Milling Asphalt Concrete		326	SqYd	338	SqYd
Base Course		13	Ton	13	Ton
Asphalt Concrete Composite		69 *	Ton	69 *	Ton

* Includes 13 Tons for guardrail embankment resurfacing and 56 Tons for mainline resurfacing.

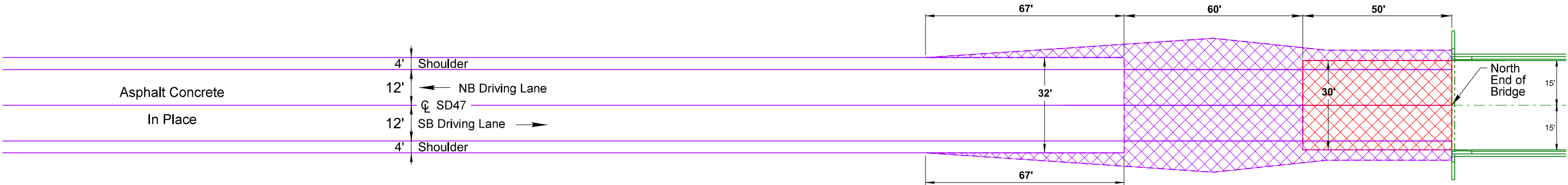
- Cold Milling Asphalt Concrete (2" Depth - depth varies, refer to profiles)
- Cold Milling Asphalt Concrete (4" Depth - depth varies, refer to profiles)
- Base Course (4" Depth)
- Asphalt Concrete Composite

COLD MILLING ASPHALT CONCRETE

STR. 27-120-321 SD47 MRM 2.80 OVER BLUE EYES CREEK AT NORTH END OF BRIDGE

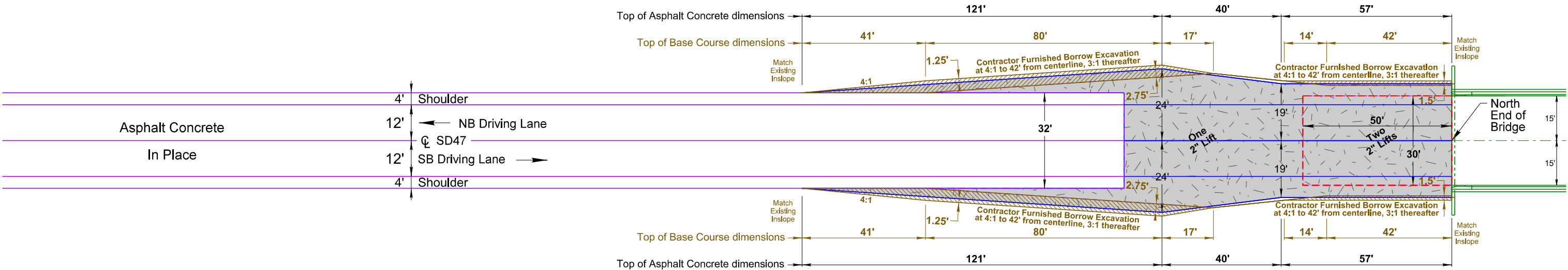
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	57	82

Plotting Date: 06/16/2026



ASPHALT CONCRETE RESURFACING

STR. 27-120-321 SD47 MRM 2.80 OVER BLUE EYES CREEK AT NORTH END OF BRIDGE



Estimated Quantities At North End of Bridge	Str. No.	27-120-321			
	Location	NBL & Shoulder		SBL & Shoulder	
Item		Quantity	Unit	Quantity	Unit
Contractor Furnished Borrow Excavation		66	CuYd	66	CuYd
Cold Milling Asphalt Concrete		261	SqYd	261	SqYd
Base Course		13	Ton	13	Ton
Asphalt Concrete Composite		42 *	Ton	42 *	Ton

* Includes 12 Tons for guardrail embankment resurfacing and 30 Tons for mainline resurfacing.

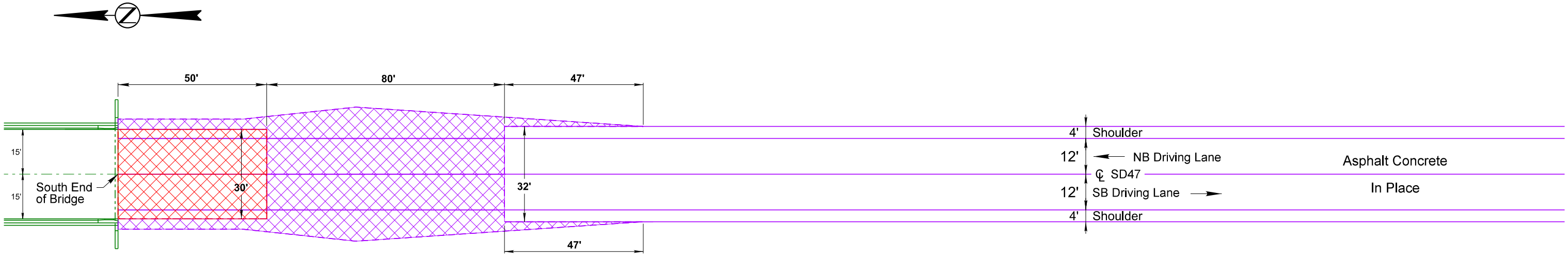
- Cold Milling Asphalt Concrete (2" Depth - depth varies, refer to profiles)
- Cold Milling Asphalt Concrete (4" Depth - depth varies, refer to profiles)
- Base Course (4" Depth)
- Asphalt Concrete Composite

COLD MILLING ASPHALT CONCRETE

STR. 27-120-321 SD47 MRM 2.80 OVER BLUE EYES CREEK AT SOUTH END OF BRIDGE

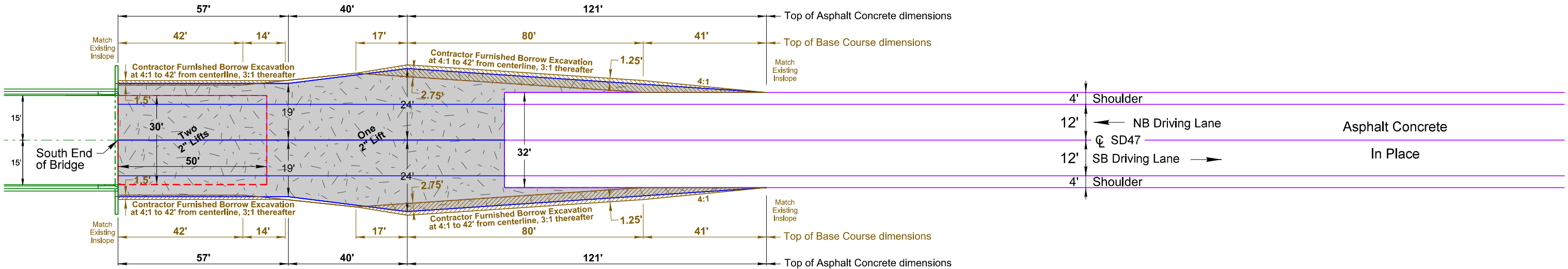
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2		
		58	82

Plotting Date: 06/16/2026



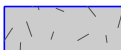
ASPHALT CONCRETE RESURFACING

STR. 27-120-321 SD47 MRM 2.80 OVER BLUE EYES CREEK AT SOUTH END OF BRIDGE



Estimated Quantities At South End of Bridge	Str. No.	27-120-321			
	Location	NBL & Shoulder		SBL & Shoulder	
Item		Quantity	Unit	Quantity	Unit
Contractor Furnished Borrow Excavation		82	CuYd	82	CuYd
Cold Milling Asphalt Concrete		296	SqYd	296	SqYd
Base Course		13	Ton	13	Ton
Asphalt Concrete Composite		46 *	Ton	46 *	Ton

* Includes 13 Tons for guardrail embankment resurfacing and 33 Tons for mainline resurfacing.

-  Cold Milling Asphalt Concrete (2" Depth - depth varies, refer to profiles)
-  Cold Milling Asphalt Concrete (4" Depth - depth varies, refer to profiles)
-  Base Course (4" Depth)
-  Asphalt Concrete Composite

PLOT SCALE - 1"=9.6'

PLOTTED FROM - IRMI11118



APPROACH PAVEMENT PROFILES

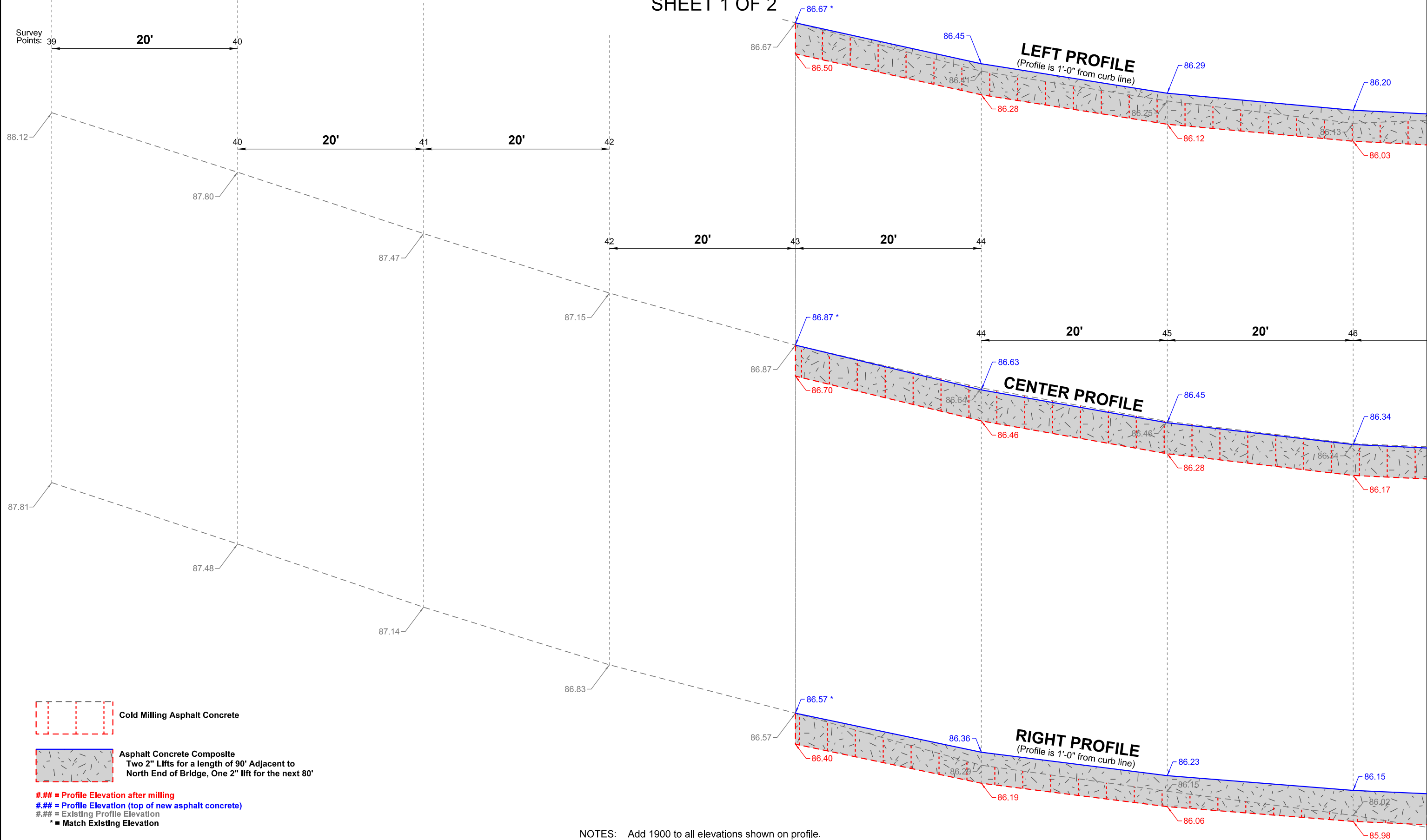
STR. NO. 27-120-276 OVER PONCA CREEK (NORTH END OF BRIDGE)
SHEET 1 OF 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	59	82

Plotting Date: 06/16/2026

PLOT NAME - 6

FILE - ... \PROJ\08.08 27-120-276.DGN



NOTES: Add 1900 to all elevations shown on profile.



APPROACH PAVEMENT PROFILES

STR. NO. 27-120-276 OVER PONCA CREEK (NORTH END OF BRIDGE)

SHEET 2 OF 2

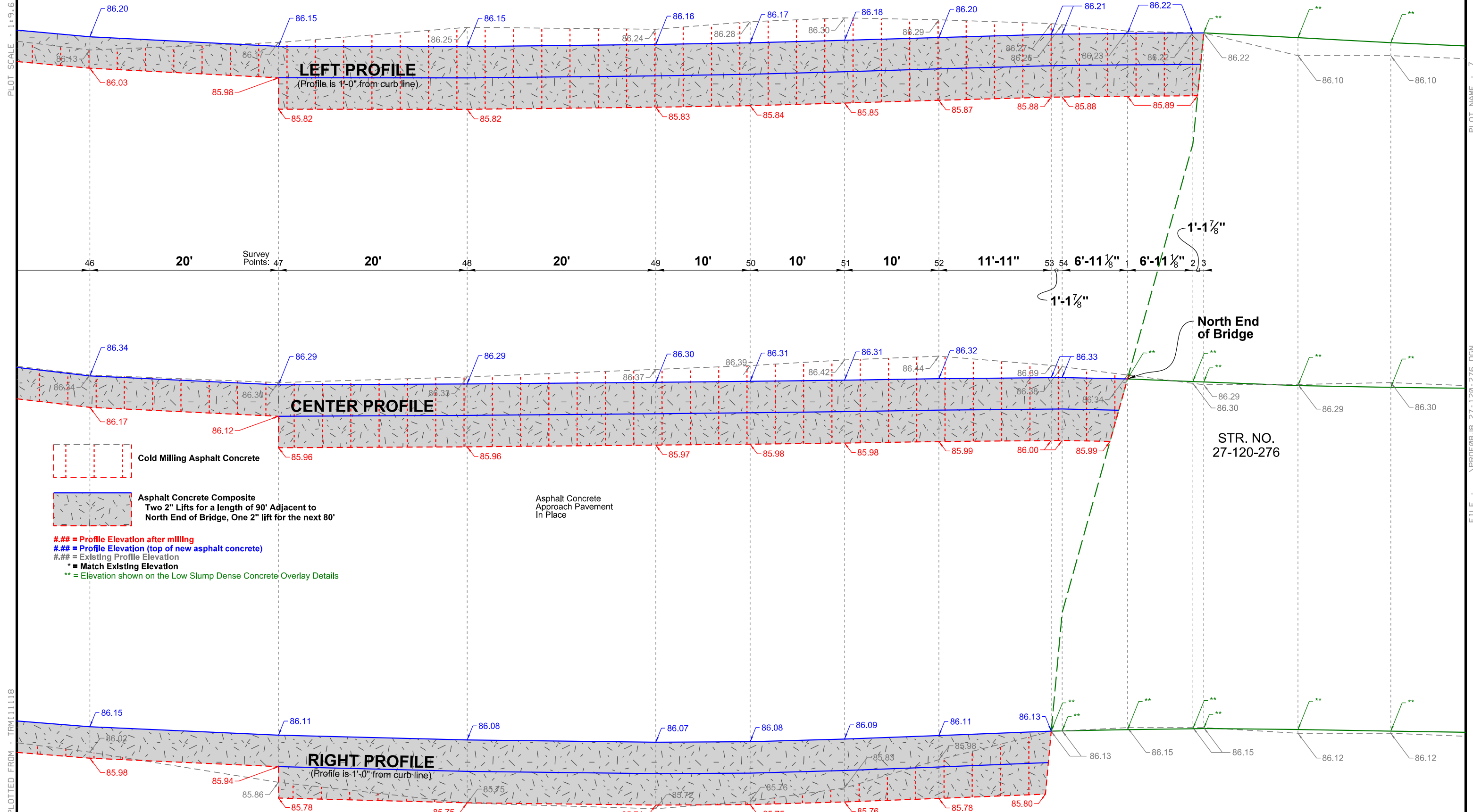
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	60	82

Plotting Date: 06/16/2026

PLOT SCALE - 1"=9.6'

PLOT NAME - 7

FILE - ... \PROJ\08.08 27-120-276.DGN



NOTES: Add 1900 to all elevations shown on profile.

PLOTTED FROM - TRM111118



APPROACH PAVEMENT PROFILES

STR. NO. 27-120-276 OVER PONCA CREEK (SOUTH END OF BRIDGE)
SHEET 1 OF 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	61	82

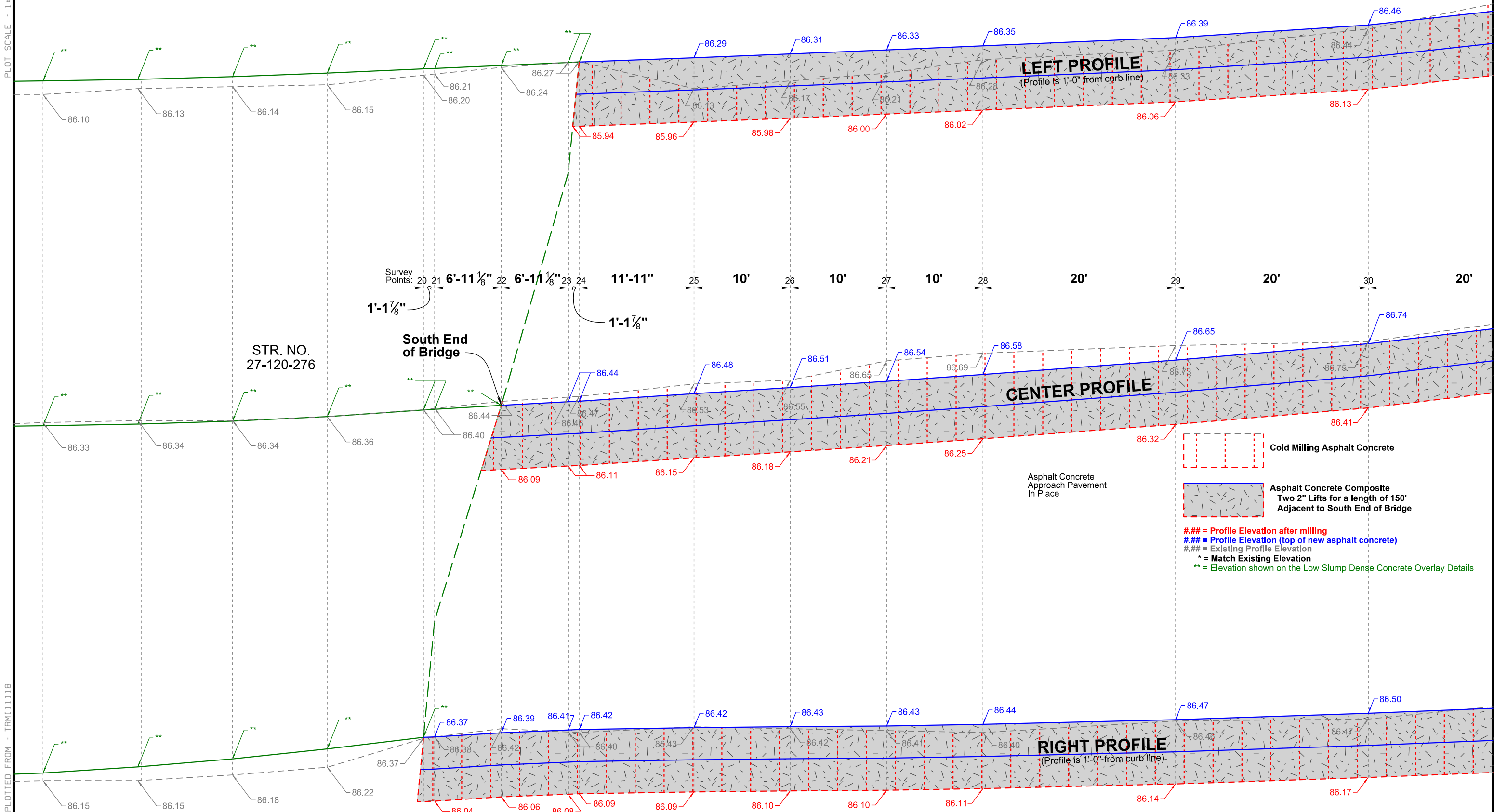
Plotting Date: 06/16/2026

PLOT SCALE - 1"=9.6'

PLOT NAME - 8

PLOTTED FROM - JRM111118

FILE - ... \PROF0808 27-120-276.DGN



NOTES: Add 1900 to all elevations shown on profile.



APPROACH PAVEMENT PROFILES

STR. NO. 27-120-276 OVER PONCA CREEK (SOUTH END OF BRIDGE)

SHEET 2 OF 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	62	82

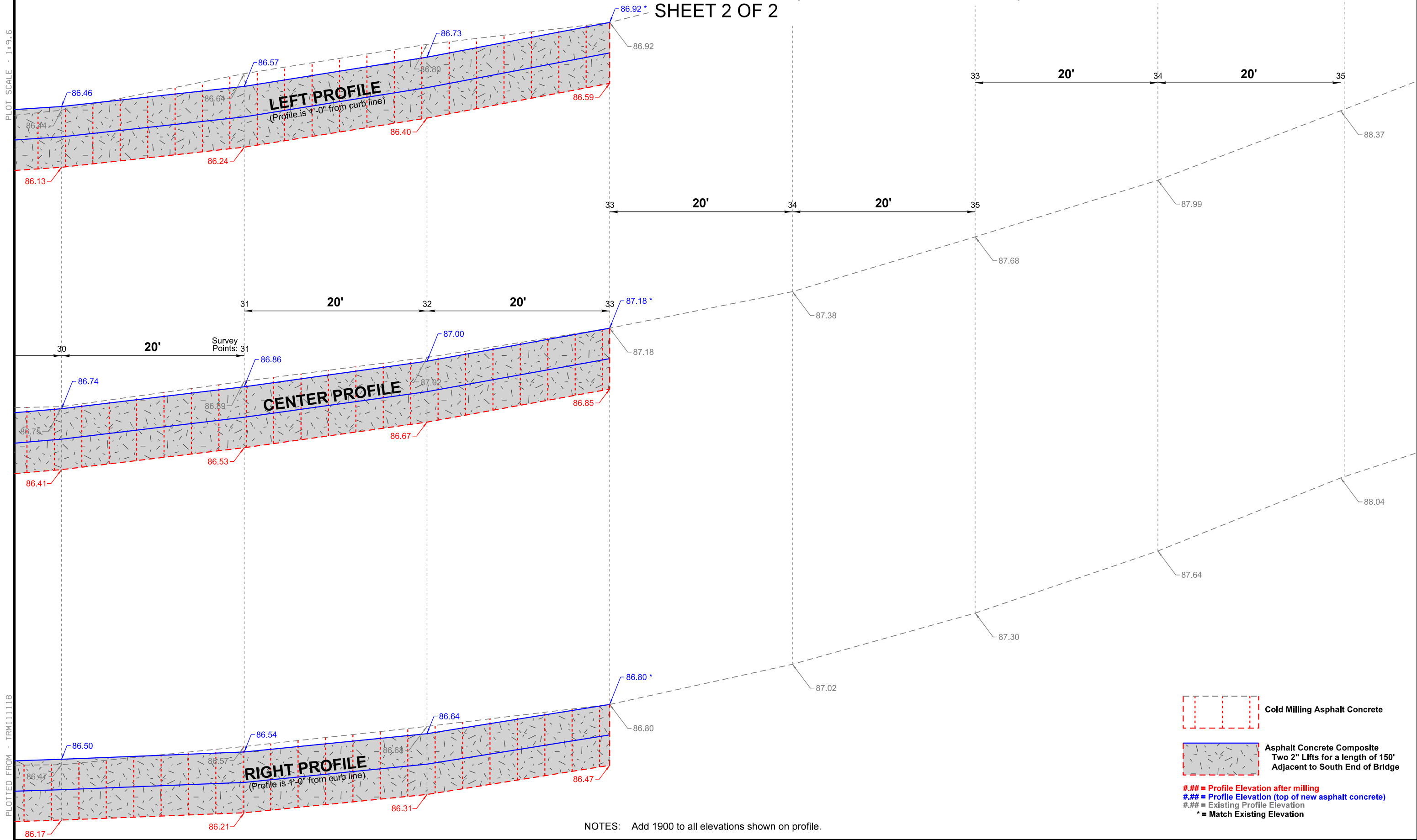
Plotting Date: 06/16/2026

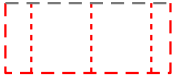
PLOT SCALE - 1"=9.6'

PLOTTED FROM - TRM111118

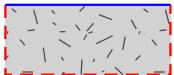
PLOT NAME - 9

FILE - ... \PROF0808 27-120-276.DGN





Cold Milling Asphalt Concrete



Asphalt Concrete Composite
Two 2" Lifts for a length of 150'
Adjacent to South End of Bridge

= Profile Elevation after milling
= Profile Elevation (top of new asphalt concrete)
= Existing Profile Elevation
* = Match Existing Elevation

NOTES: Add 1900 to all elevations shown on profile.



APPROACH PAVEMENT PROFILES

STR. NO. 27-120-321 OVER BLUE EYES CREEK (NORTH END OF BRIDGE)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	63	82

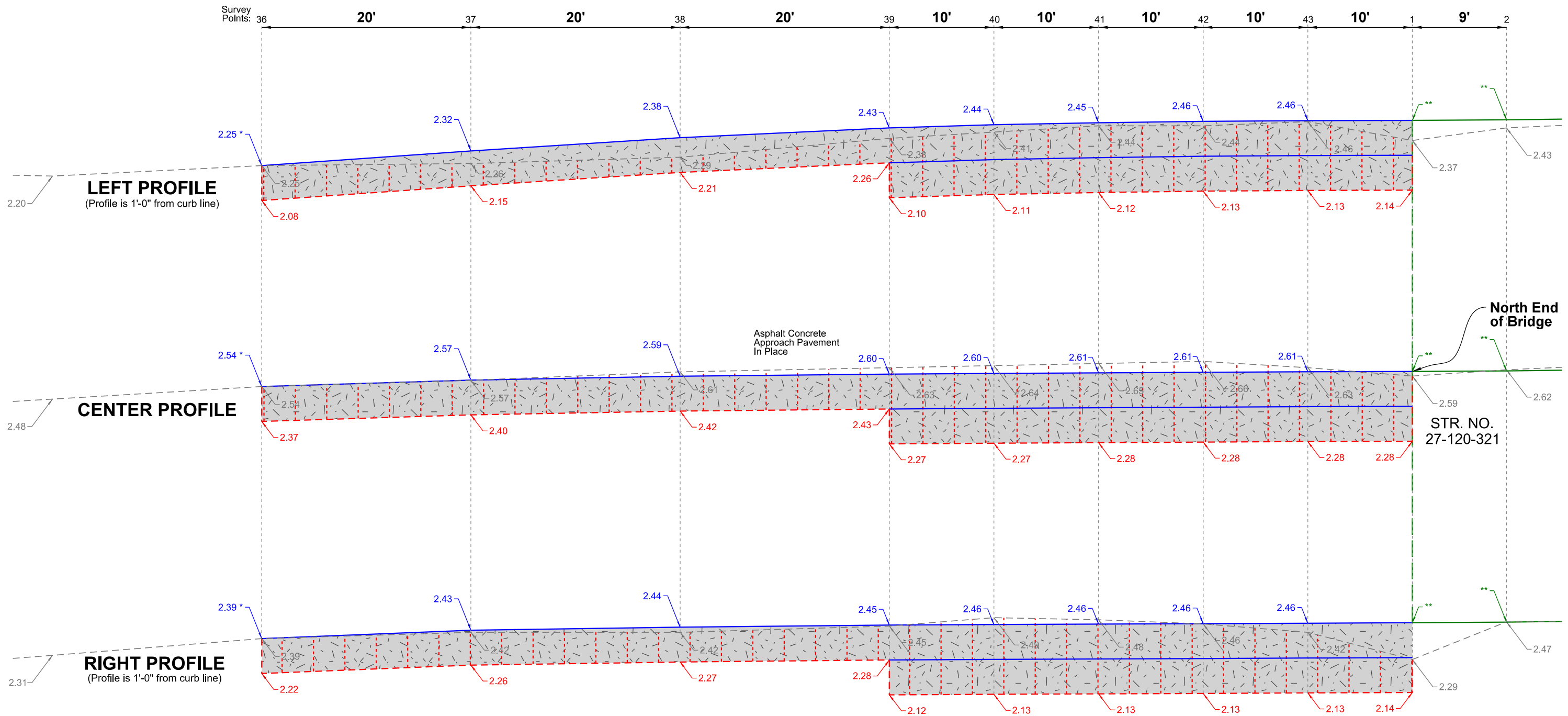
Plotting Date: 06/16/2026

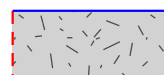
PLOT SCALE - 1"=9.6'

PLOT NAME - 10

FILE - ... \PROF0808 27-120-321.DGN

PLOTTED FROM - TRM111118



-  Cold Milling Asphalt Concrete
-  Asphalt Concrete Composite
Two 2" Lifts for a length of 50' Adjacent to
the bridge ends, One 2" lift for the next 60'
- ### = Profile Elevation after milling
= Profile Elevation (top of new asphalt concrete)
= Existing Profile Elevation
* = Match Existing Elevation

NOTES: Add 2100 to all elevations shown on profile.



APPROACH PAVEMENT PROFILES

STR. NO. 27-120-321 OVER BLUE EYES CREEK (SOUTH END OF BRIDGE)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	64	82

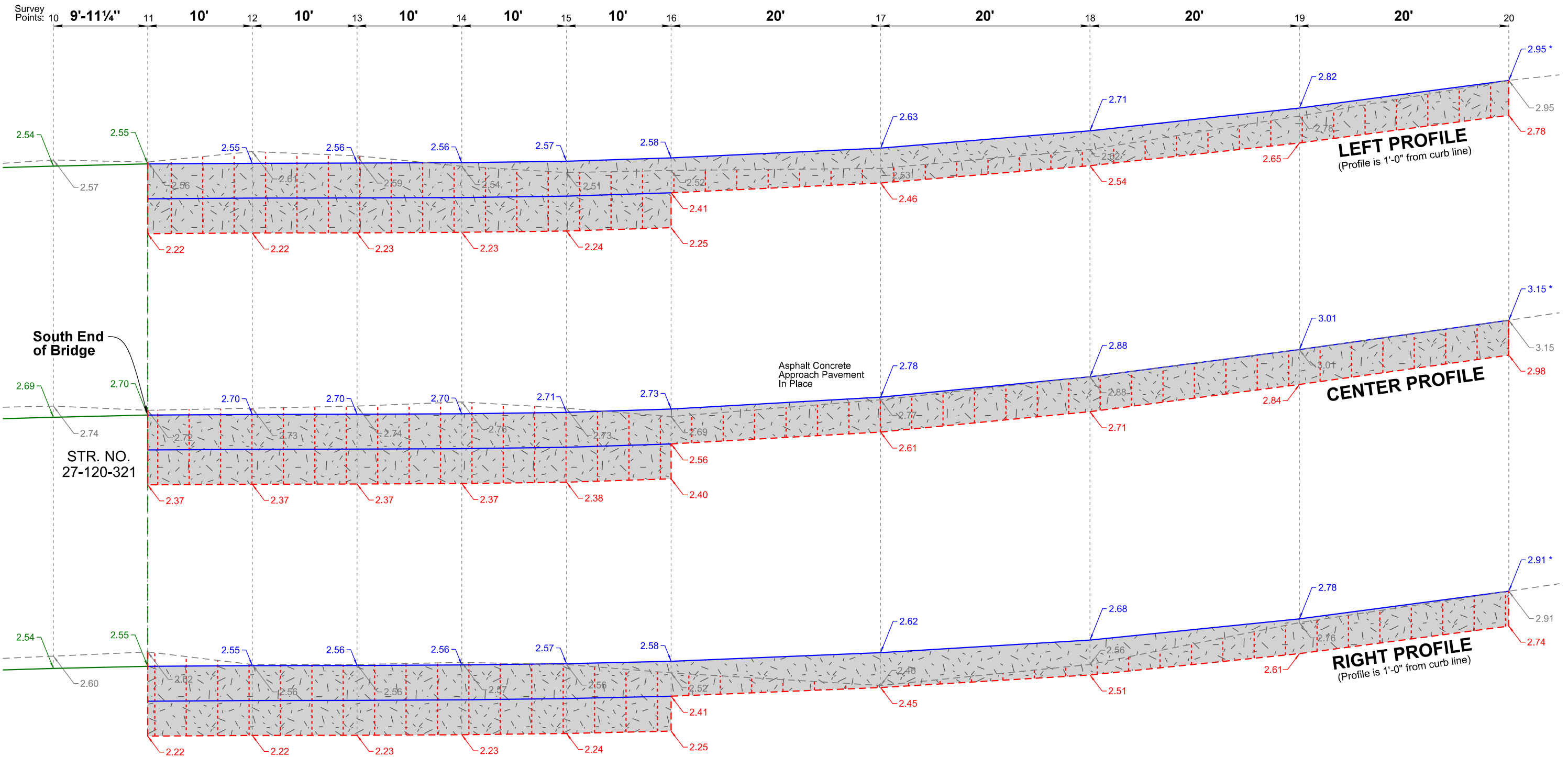
Plotting Date: 06/16/2026

PLOT SCALE - 1"=9.6'

PLOT NAME - 11

FILE - ... \PROF0808 27-120-321.DGN

PLOTTED FROM - TRM111118



NOTES: Add 2100 to all elevations shown on profile.

PLOT SCALE - 1:33,333

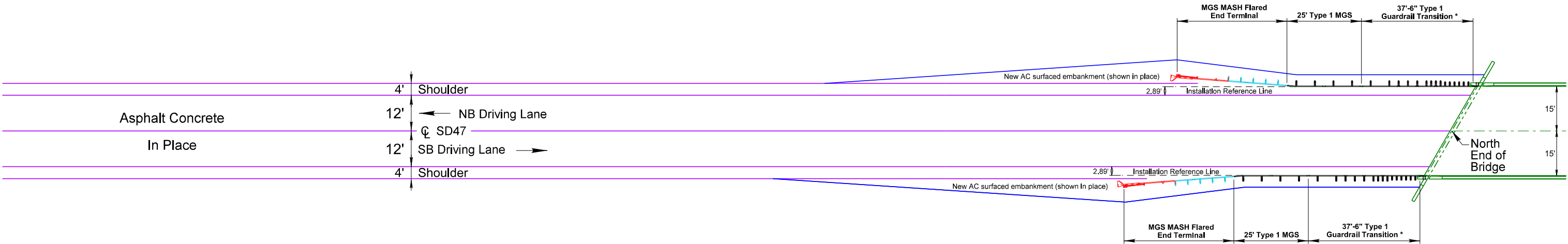
PLOTTED FROM - TRM111118

INSTALLATION OF GUARDRAIL

STR. 27-120-276 SD47 MRM 7.29 OVER PONCA CREEK AT NORTH END OF BRIDGE

STATE OF SOUTH DAKOTA	PROJECT	SHEET 65	TOTAL SHEETS 82
	P 0047(125)2		

Plotting Date: 06/16/2026



* 10" of guardrail overlaps onto end block

FILE - ... \PRJ2027\GREG08 JB\PLAN08 JB.DGN

PLOT NAME - 12

PLOT SCALE - 1:33,333

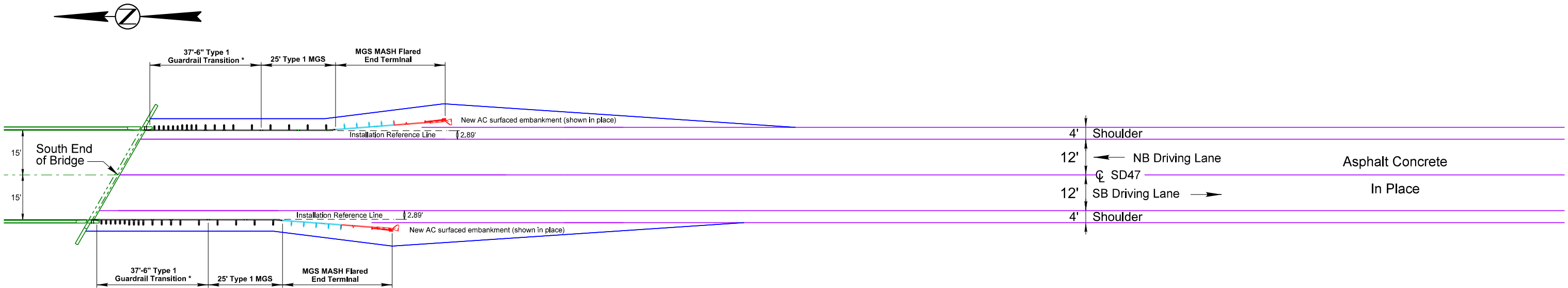
PLOTTED FROM - TRM111118

INSTALLATION OF GUARDRAIL

STR. 27-120-276 SD47 MRM 7.29 OVER PONCA CREEK AT SOUTH END OF BRIDGE

STATE OF SOUTH DAKOTA	PROJECT	SHEET 66	TOTAL SHEETS 82
	P 0047(125)2		

Plotting Date: 06/16/2026



* 10" of guardrail overlaps onto end block

FILE - ... \PRJ2027\GREG08 JB\PLAN08 JB.DGN PLOT NAME - 13

STR. 27-120-321 SD47 MRM 2.80 OVER BLUE EYES CREEK AT NORTH END OF BRIDGE

Plotting Date: 06/16/2026

New AC surfaced embankment (shown in place)

- North End of Bridge

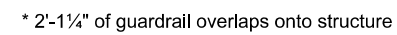
FILE - ... \152027 \01500000\1 CHIN0000.D01

PLOT SCALE - 1:33.3333

FLOOR NAME - 14

PLOTTED FROM - TRMI11118

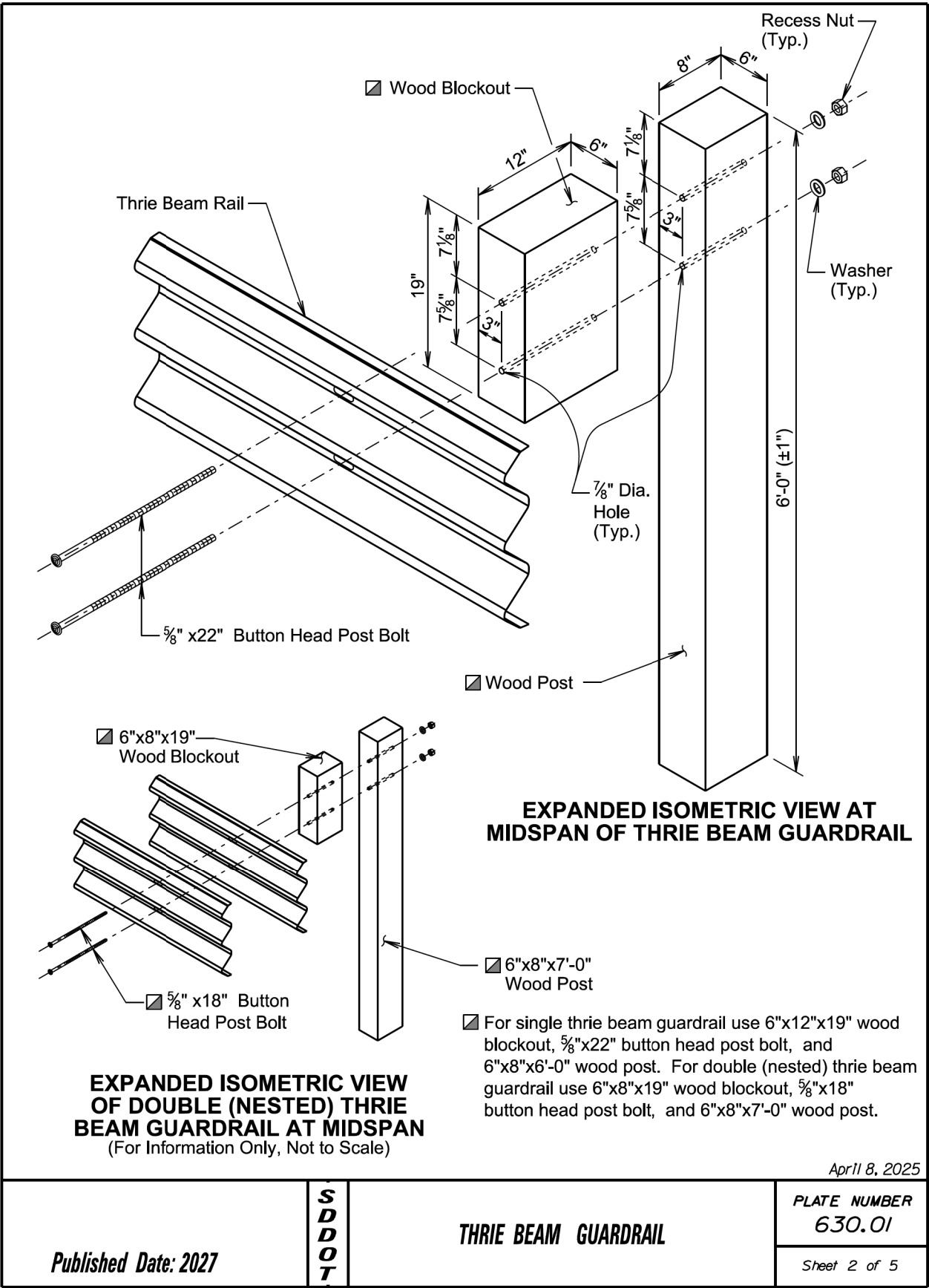
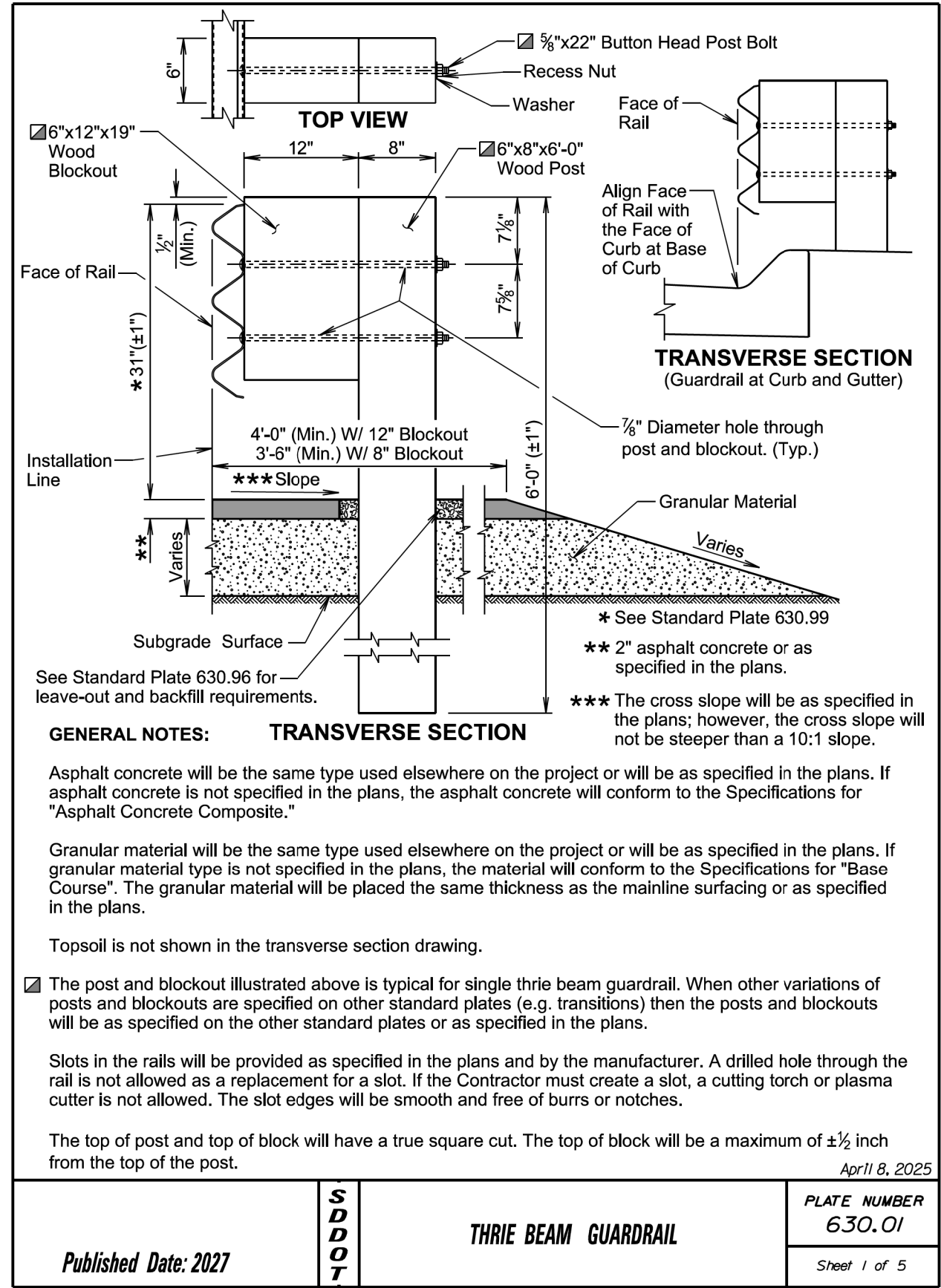
STR. 27-120-321 SD47 MRM 2.80 OVER BLUE EYES CREEK AT SOUTH END OF BRIDGE

Plotting Date: 06/16/2026

PLOT NAME - 15

FILE - ..\PRJ2027\GREG08J8\PLAN08J8.DGN

PLOTTED FROM - TRM111118



Published Date: 2027

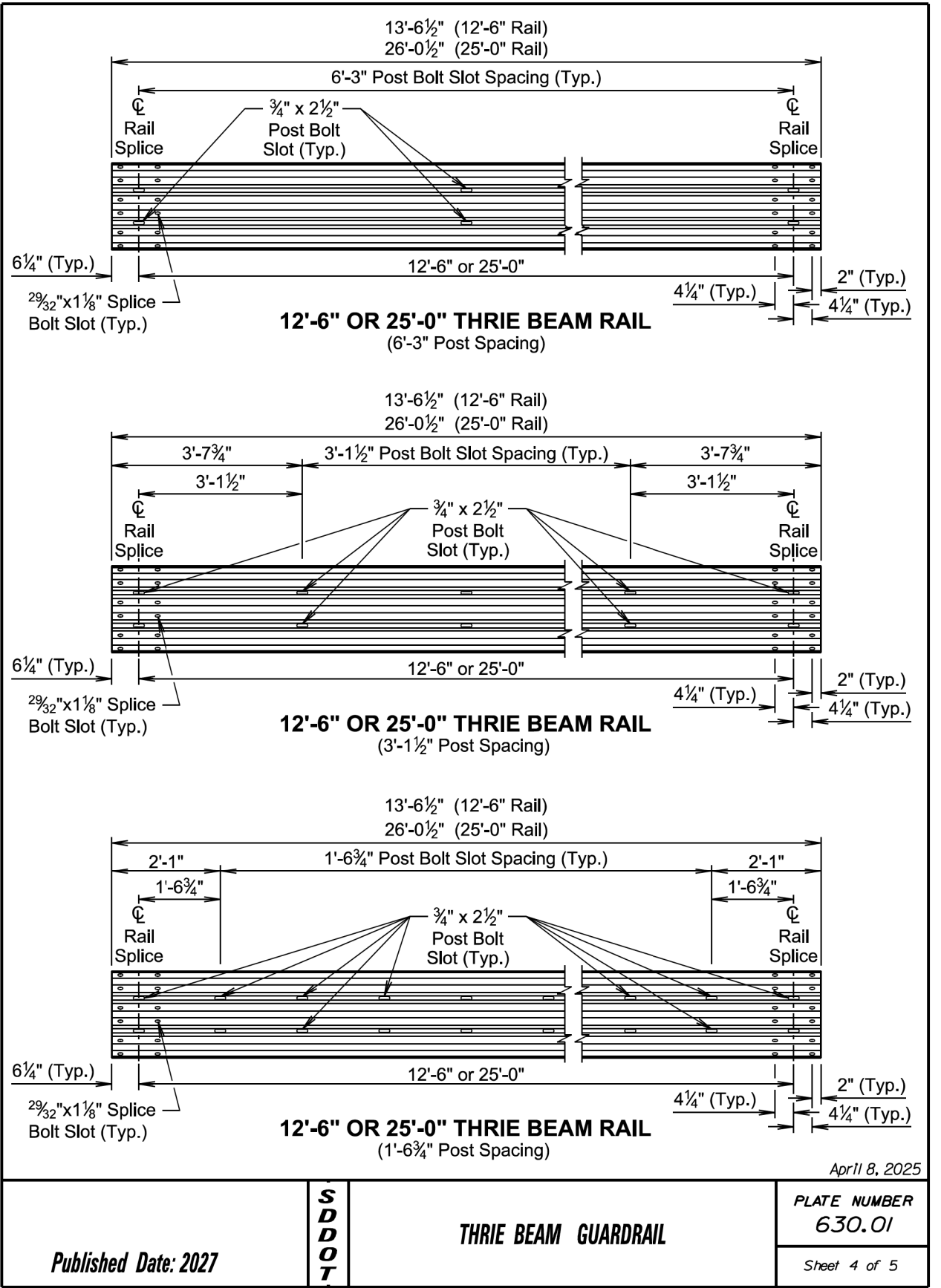
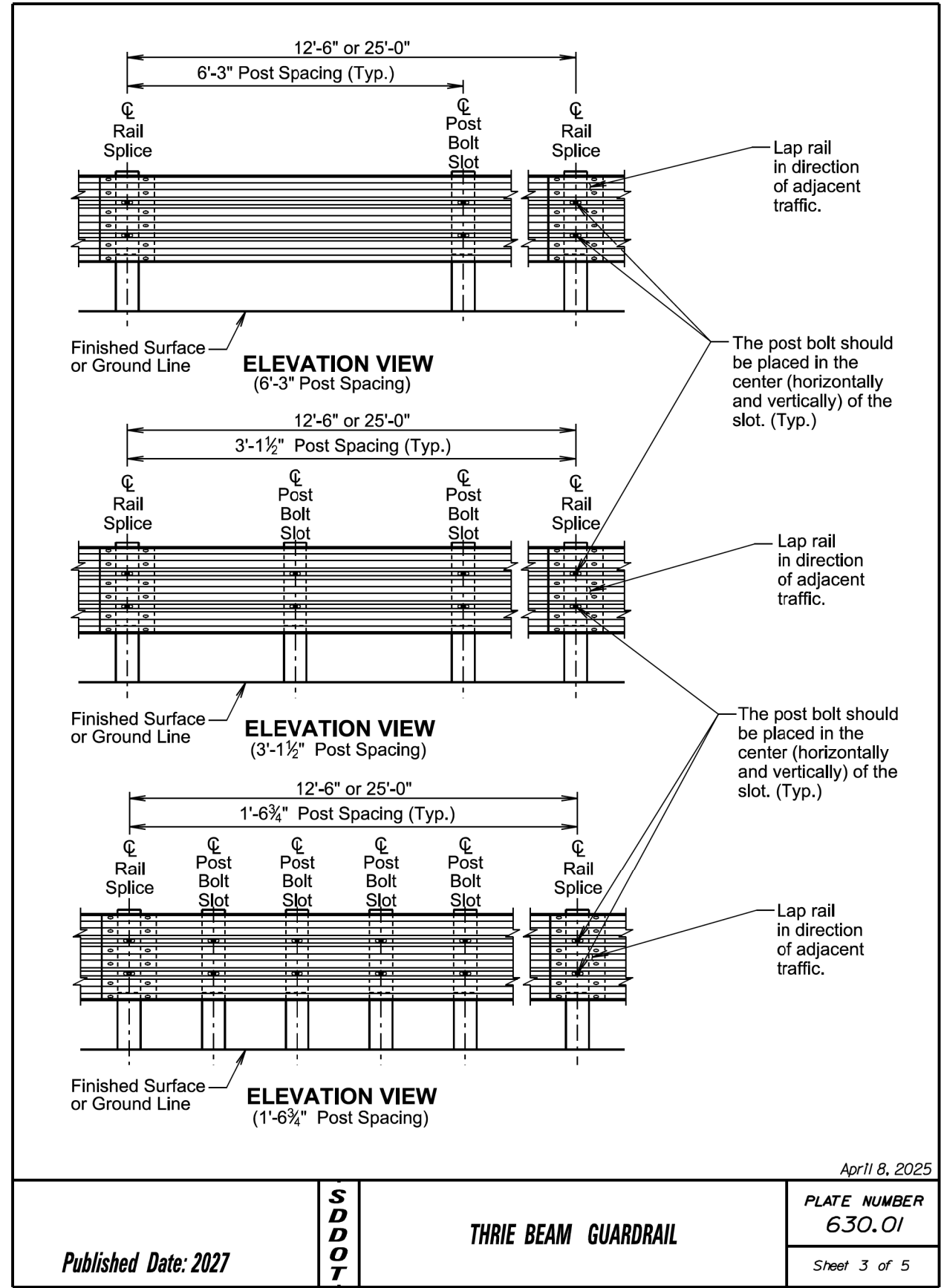
SDDOT

THRIE BEAM GUARDRAIL

PLATE NUMBER
630.01
Sheet 2 of 5

PLOT SCALE - 1:200

PLOTTED FROM - TRM111118

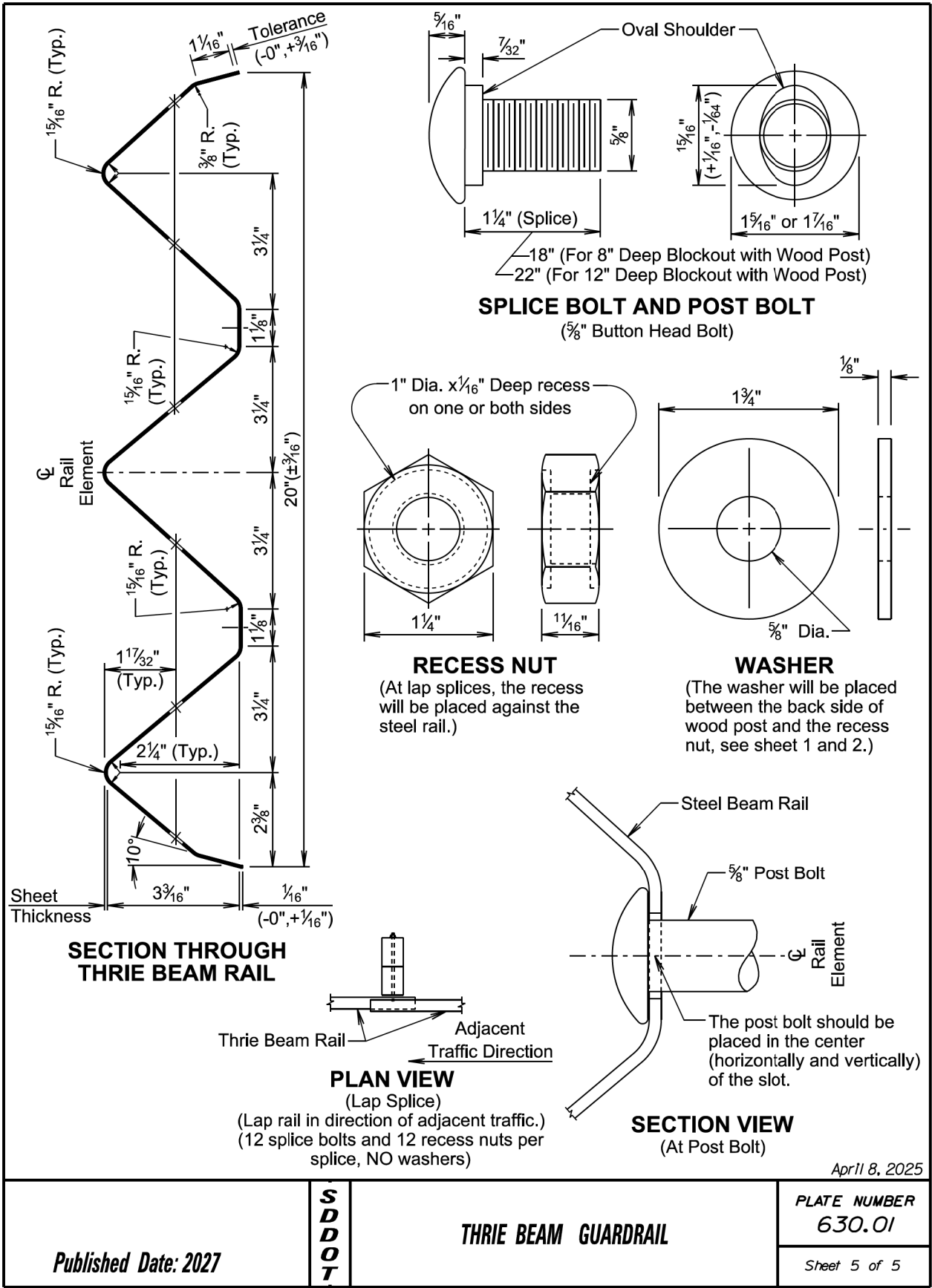


PLOT NAME - 2

FILE - ... \STD PLATES\STD 630 PLATES.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	71	82

Plotting Date: 06/11/2026



Published Date: 2027	S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 5 of 5

TYPE AND DETAILS OF MGS						
Type of MGS	W Beam Rail Single or Double (Nested)	Blockout Size	Blockout Material	Post Size	Post Material	Post Spacing
1	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"
1C	Single	6"x12"x14"	Wood	6"x8"x7'-6"	Wood	6'-3"
2	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	3'-1½"
3	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	1'-6¾"
4	Double	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"

STANDARD PLATE REFERENCE	
Type of MGS	See Standard Plate(s)
1	630.20, 630.22
1C	630.20, 630.25
2	630.20
3	630.20
4	630.20

GENERAL NOTES:

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 on sheet 2 of 6.

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

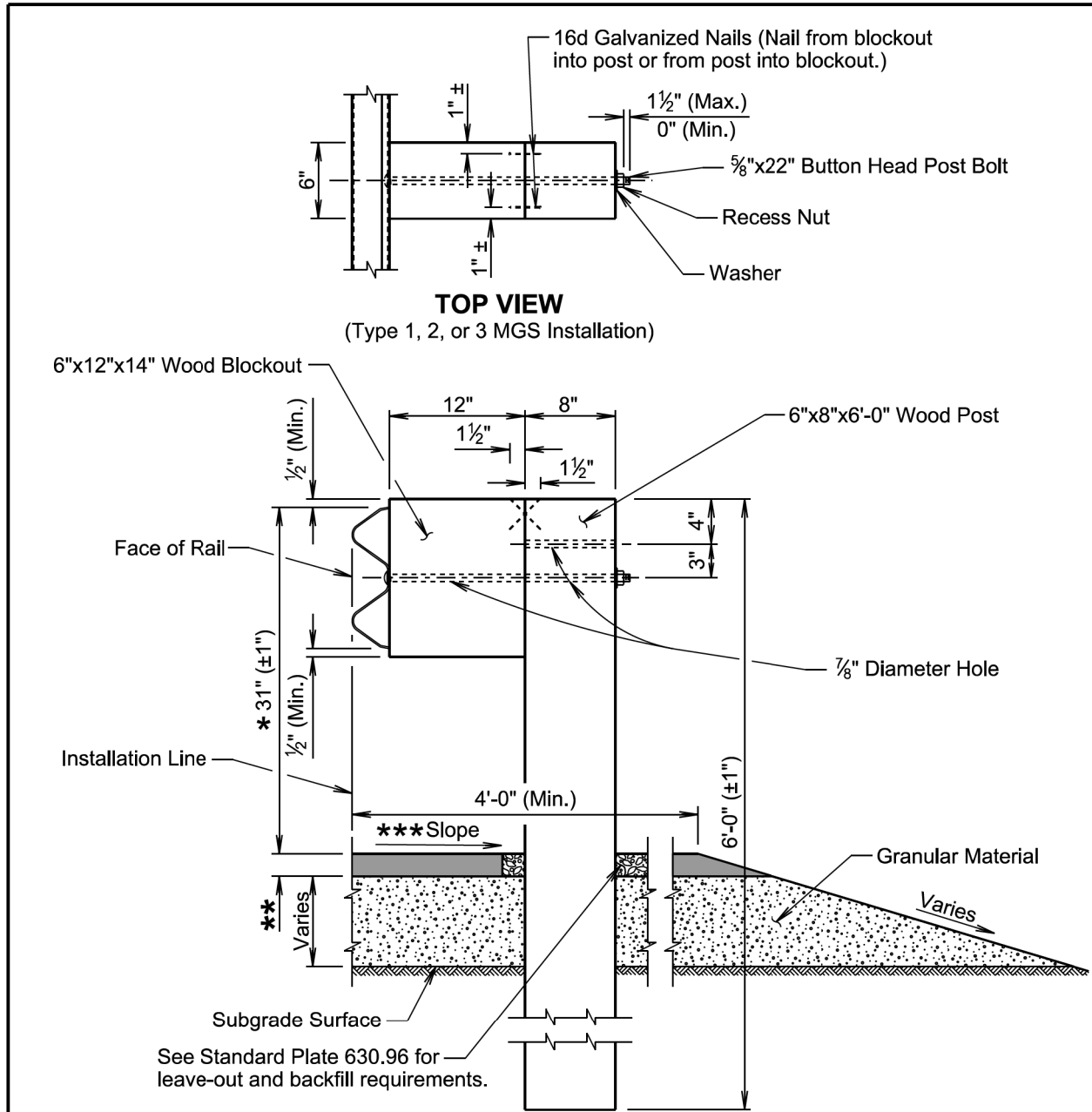
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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.

All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

April 8, 2025

Published Date: 2027	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 1 of 6

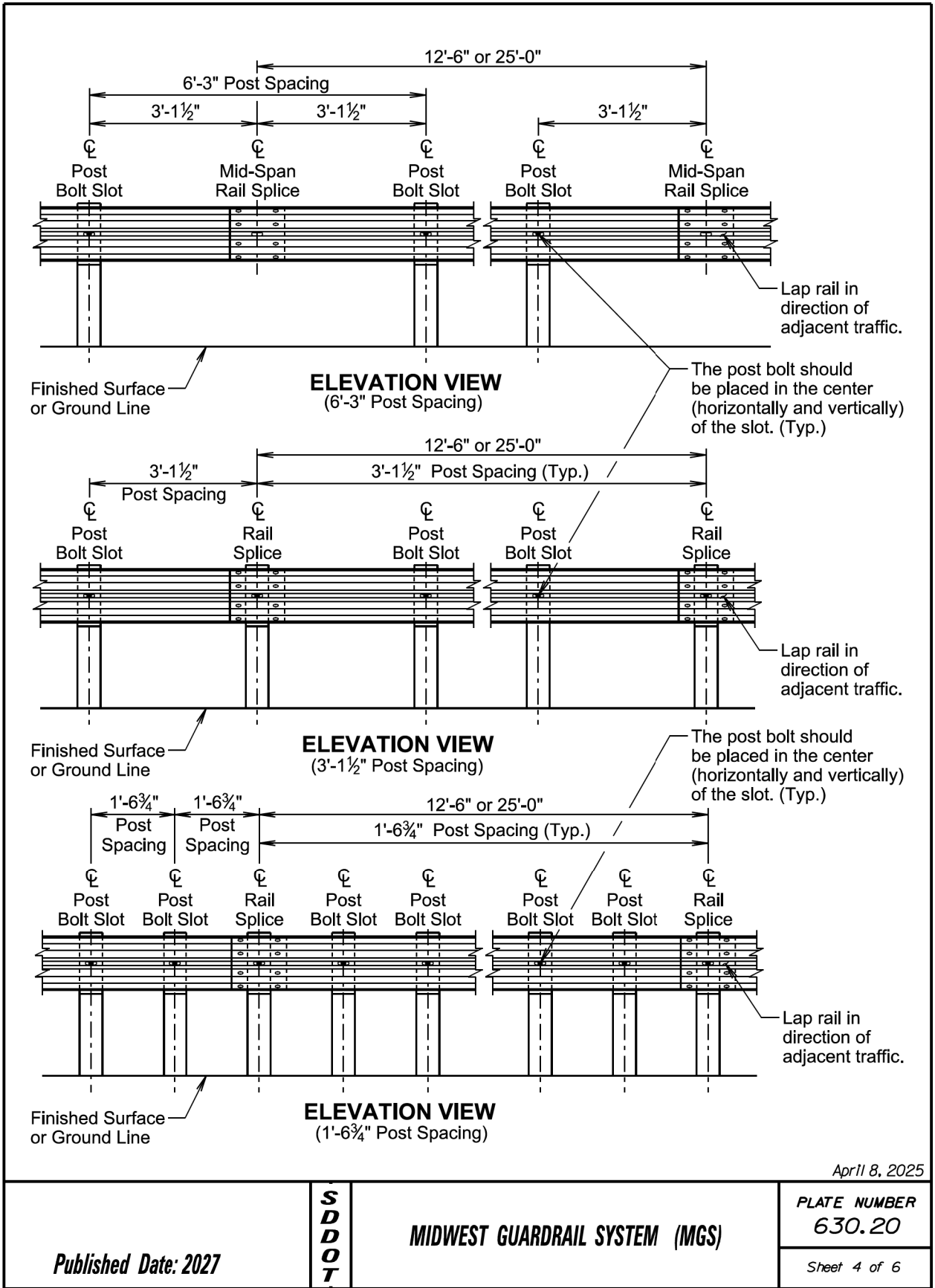
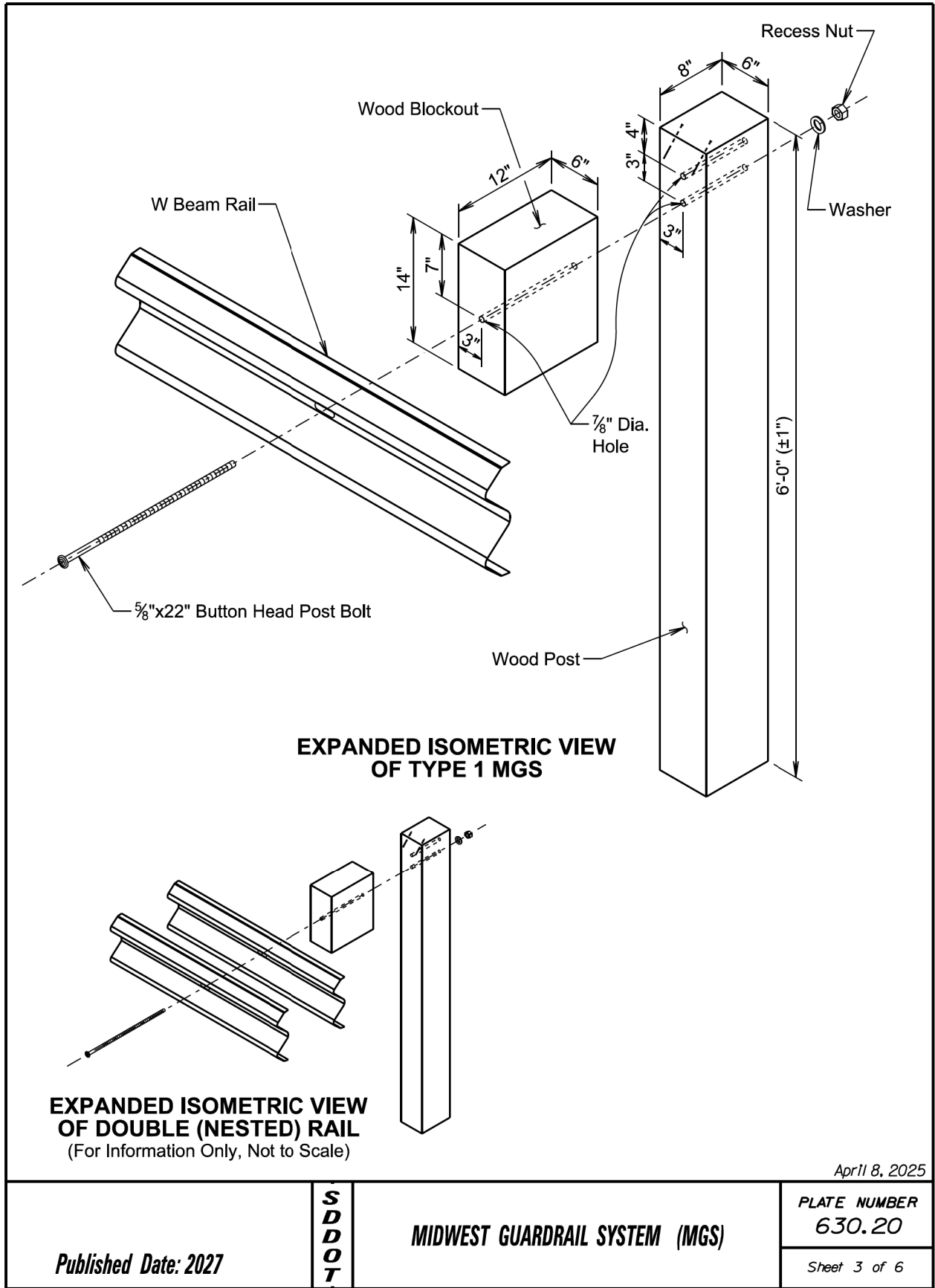


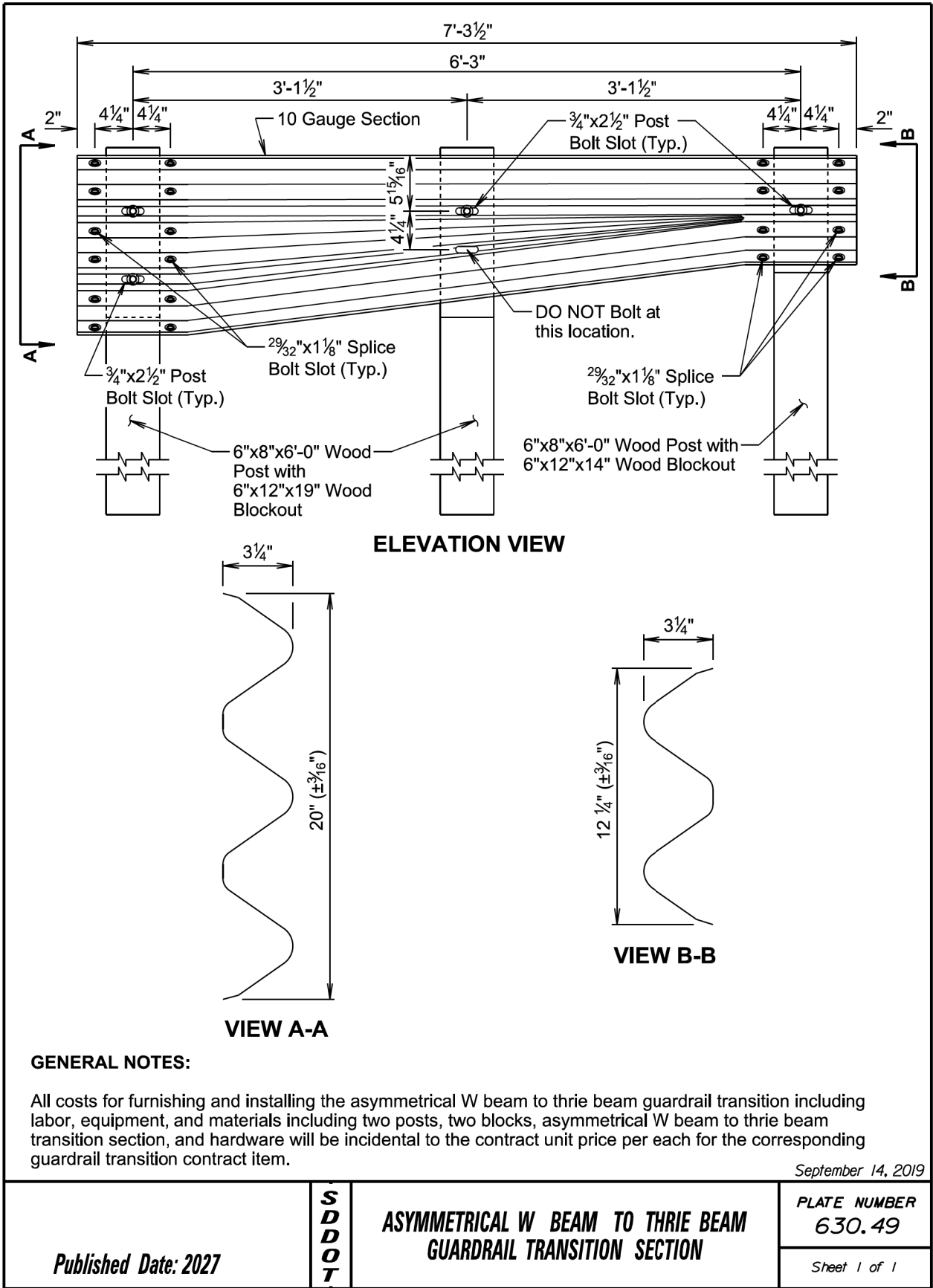
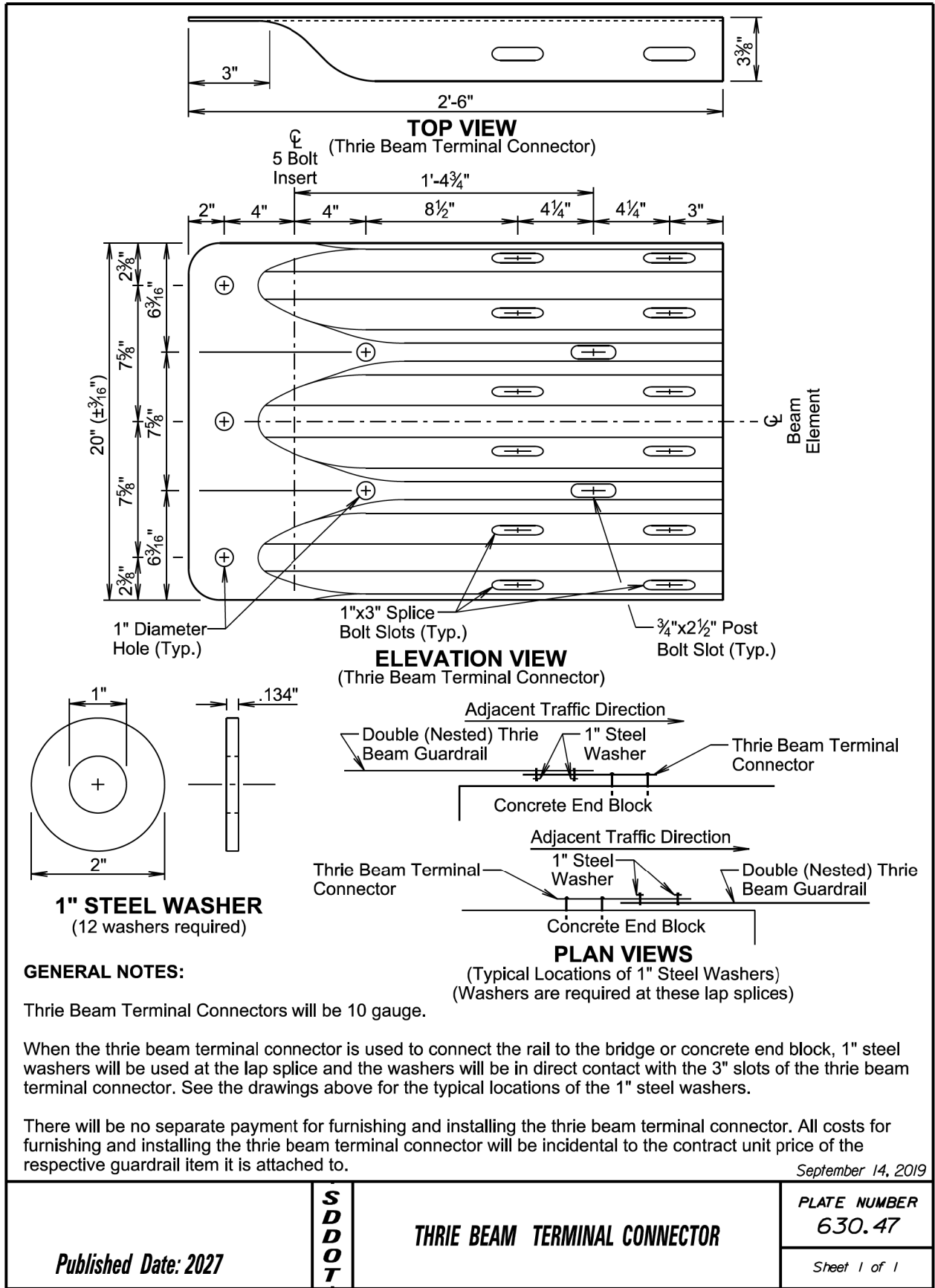
TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

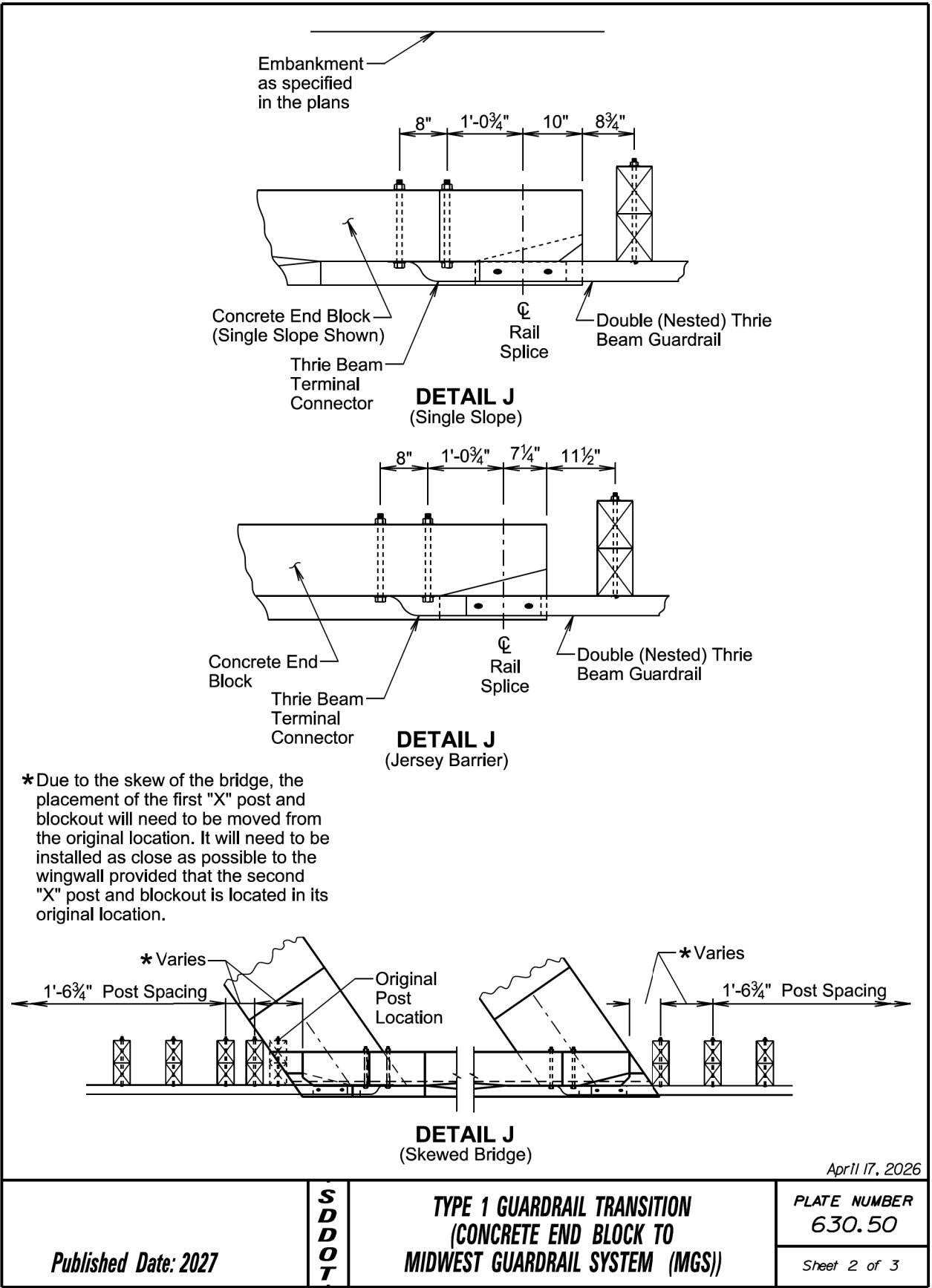
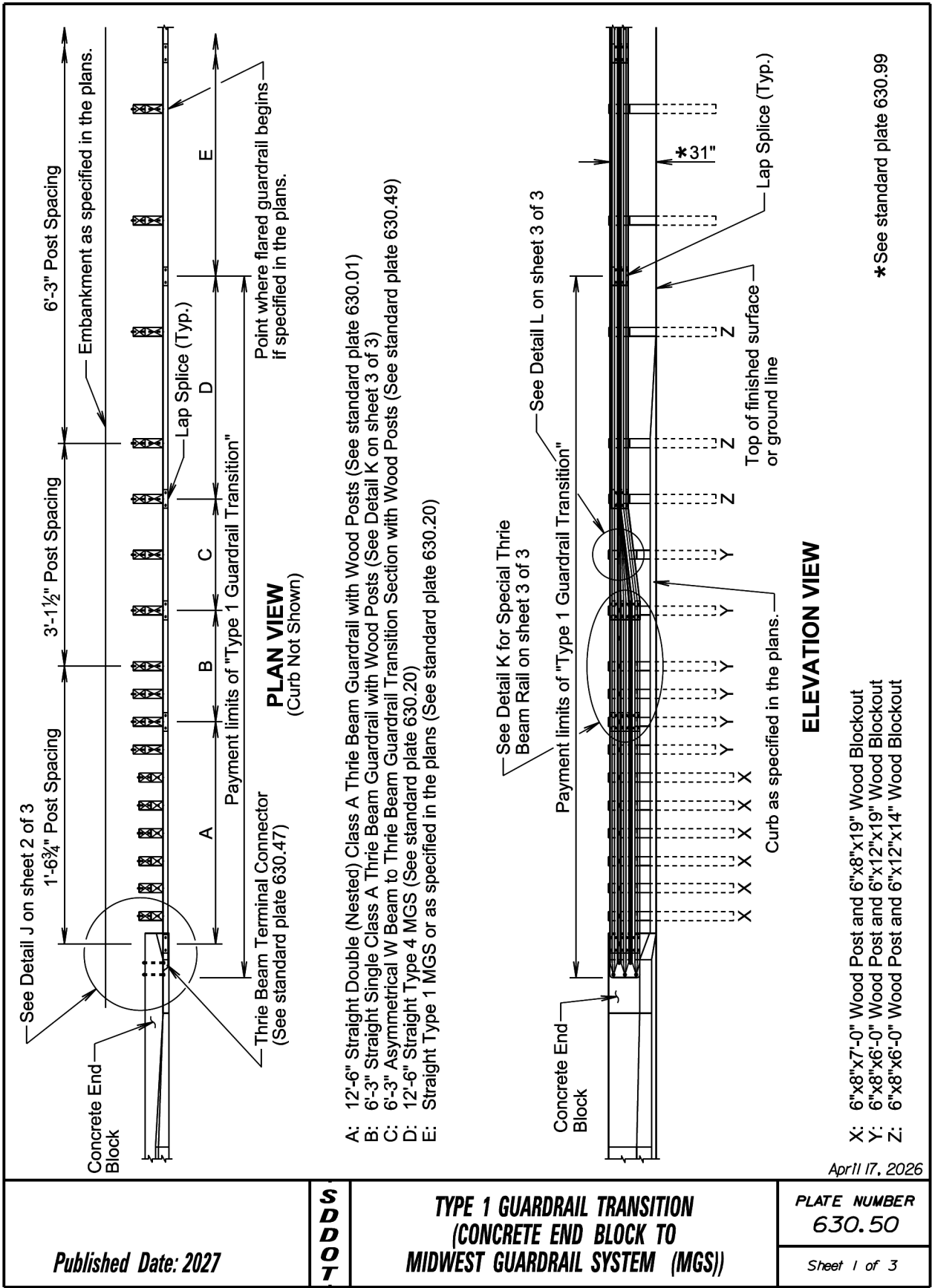
- * See Standard Plate 630.99
- ** 2" asphalt concrete or as specified in the plans.
- *** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

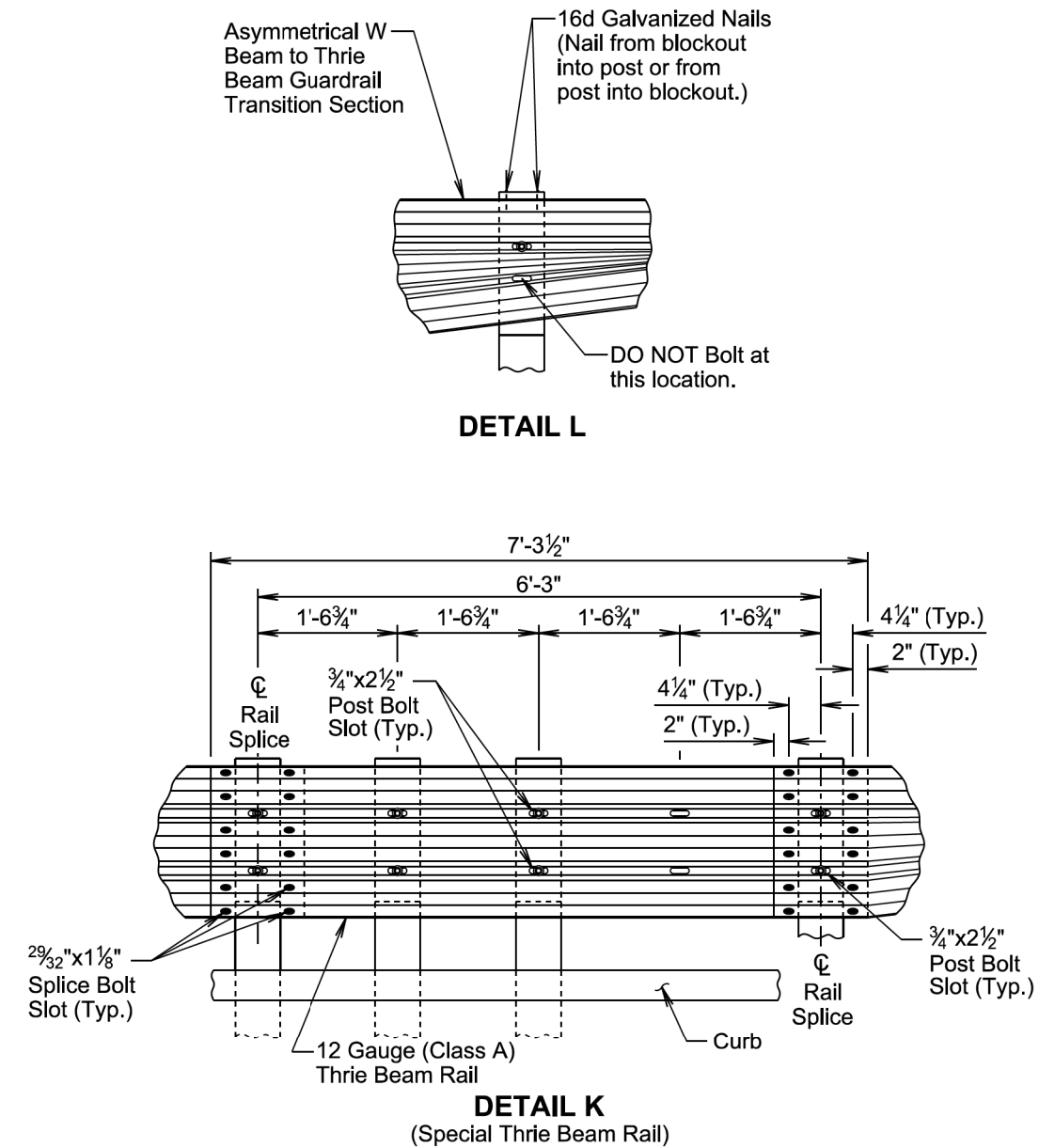
April 8, 2025

Published Date: 2027	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 2 of 6









GENERAL NOTES:

Throughout the type 1 guardrail transition, 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.

All costs for furnishing and installing the type 1 guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Guardrail Transition".

April 17, 2026

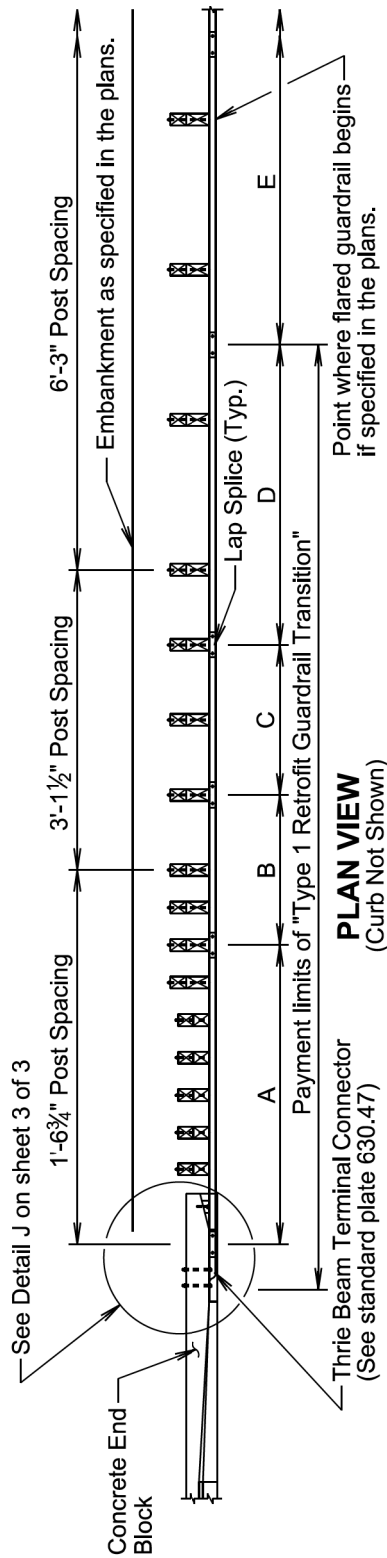
Published Date: 2027

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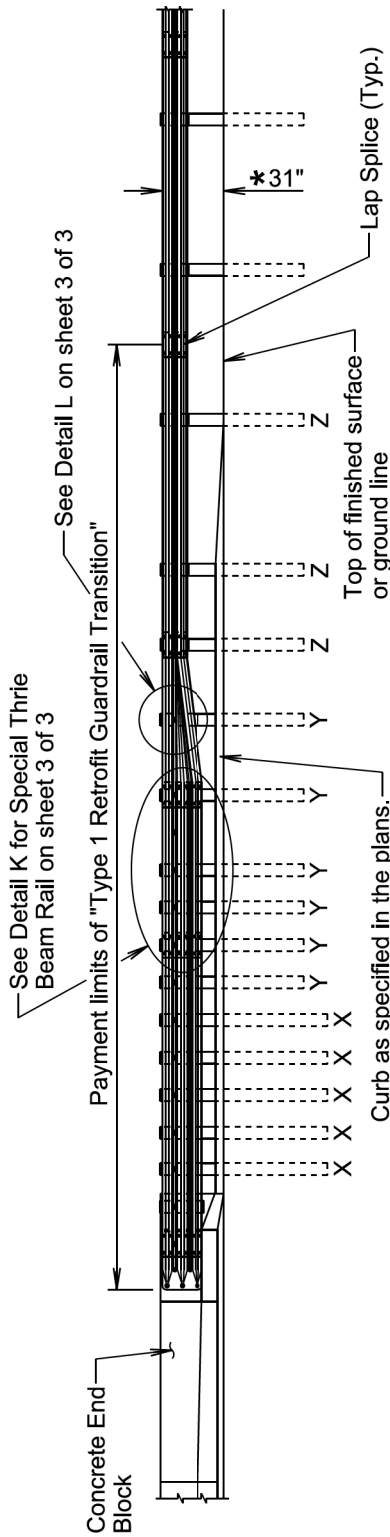
TYPE 1 GUARDRAIL TRANSITION
(CONCRETE END BLOCK TO
MIDWEST GUARDRAIL SYSTEM (MGS))

PLATE NUMBER
630.50

Sheet 3 of 3



- A: 12'-6" Straight Double (Nested) Class A Thrie Beam Guardrail with Wood Posts (See standard plate 630.01)
B: 6'-3" Straight Single Class A Thrie Beam Guardrail with Wood Posts (See Detail K on sheet 3 of 3)
C: 6'-3" Asymmetrical W Beam to Thrie Beam Guardrail Transition Section with Wood Posts (See standard plate 630.49)
D: 12'-6" Straight Type 4 MGS (See standard plate 630.20)
E: Straight Type 1 MGS or as specified in the plans (See standard plate 630.20)



* See standard plate 630.99

- X: 6"x8"x7'-0" Wood Post and 6"x8"x19" Wood Blockout
Y: 6"x8"x6'-0" Wood Post and 6"x12"x19" Wood Blockout
Z: 6"x8"x6'-0" Wood Post and 6"x12"x14" Wood Blockout

September 14, 2019

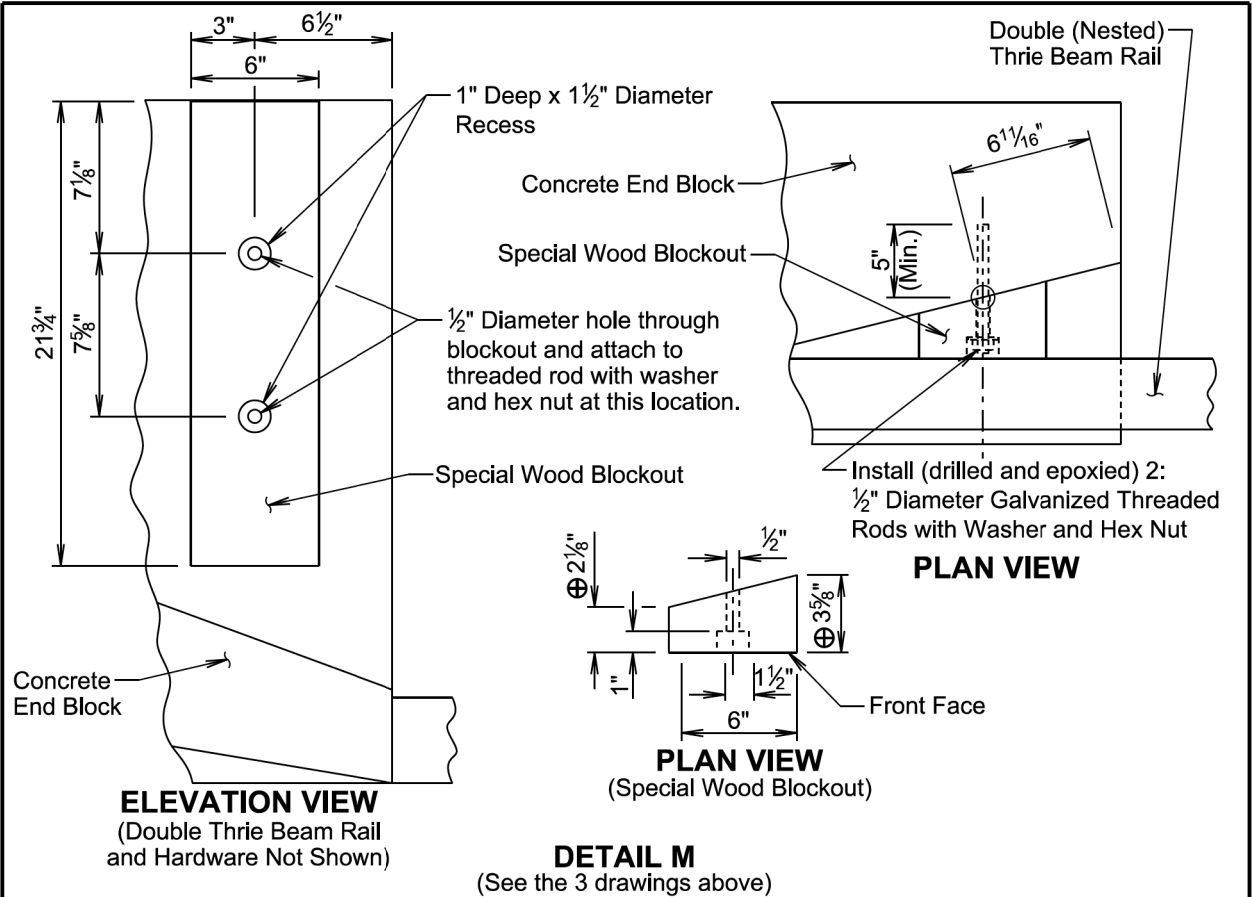
Published Date: 2027

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TYPE 1 RETROFIT GUARDRAIL TRANSITION
(CONCRETE END BLOCK TO
MIDWEST GUARDRAIL SYSTEM (MGS))

PLATE NUMBER
630.51

Sheet 1 of 3

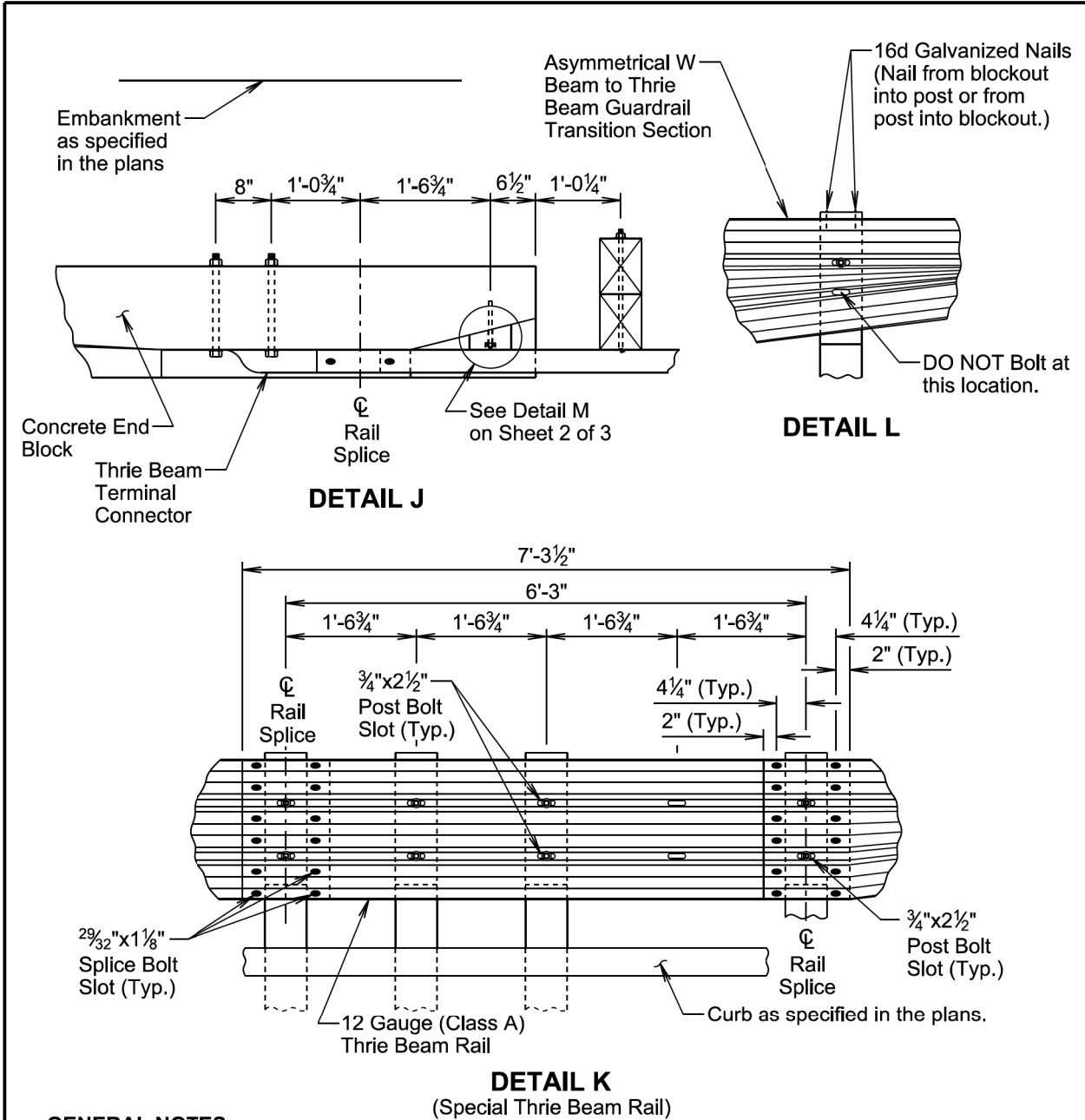


GENERAL NOTES FOR INSTALLING THREADED RODS INTO CONCRETE:

- ⊕ The dimensions shown are estimated based on original construction plans of the concrete end block. The special wood blockout will be cut as necessary such that the front face of the special wood blockout will align with the vertical front face of the concrete end block $\pm 1/2"$.
- The threaded rods will be $1/2"$ diameter and conform to ASTM F1554, Grade 55. The threaded rods will be embedded a minimum of 5" into the concrete.
- The diameter of the drilled holes will not be less than $1/8"$ greater or more than $3/8"$ greater than the diameter of the threaded rods or as per the Manufacturer's recommendations. The holes will not be drilled using core bits. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to the epoxy injection.
- The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).
- Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes $1/3$ to $1/2$ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel rod. Rotate the steel rod during installation to eliminate voids and ensure complete bonding of the rod. Insertion of the rods by the dipping or painting methods will not be allowed.
- Loads will not be applied to the epoxy grouted threaded rods until the epoxy resin has had sufficient time to cure as specified by the epoxy resin Manufacturer.

September 14, 2019

Published Date: 2027	S D D O T	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51
			Sheet 2 of 3

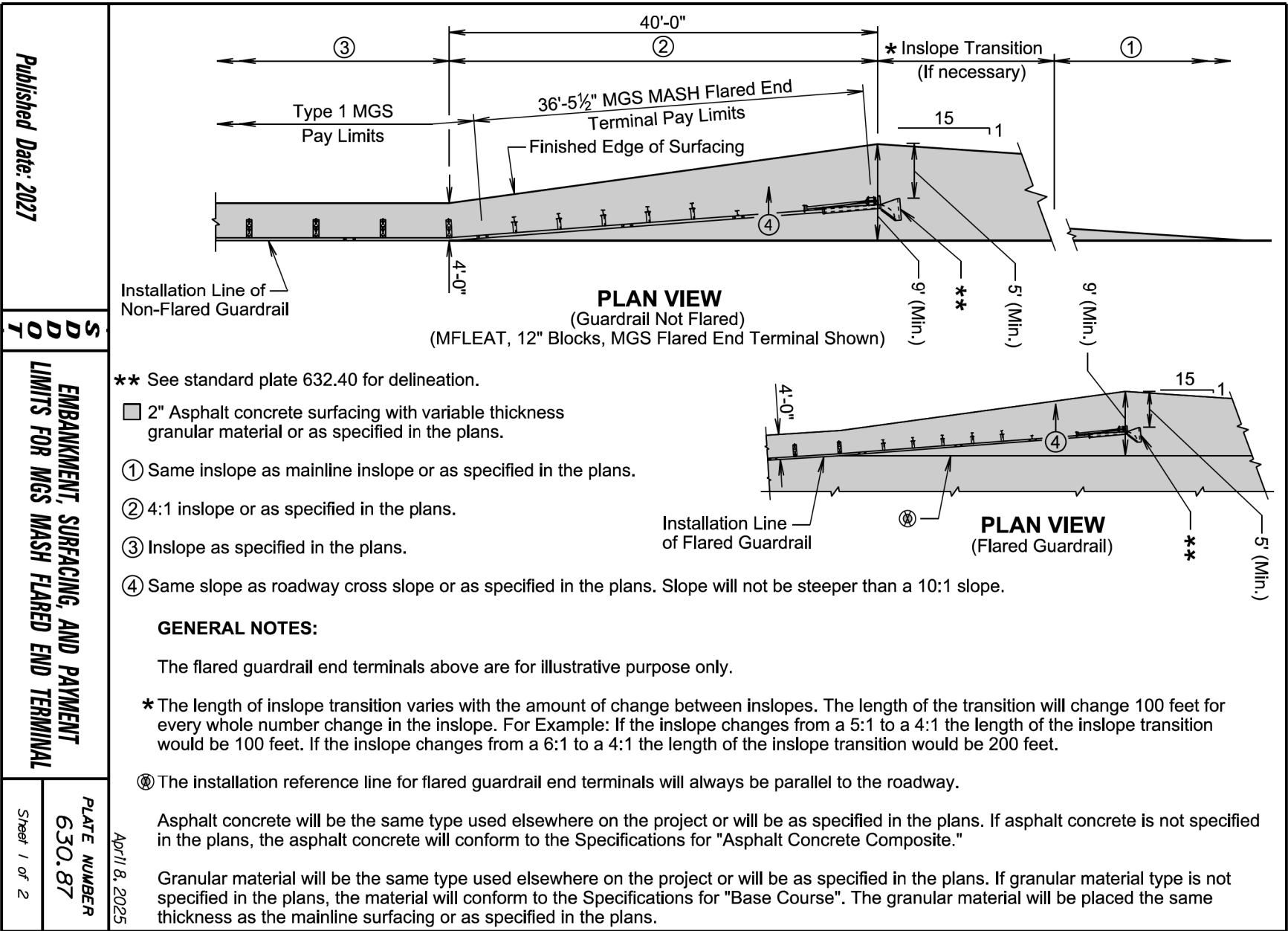


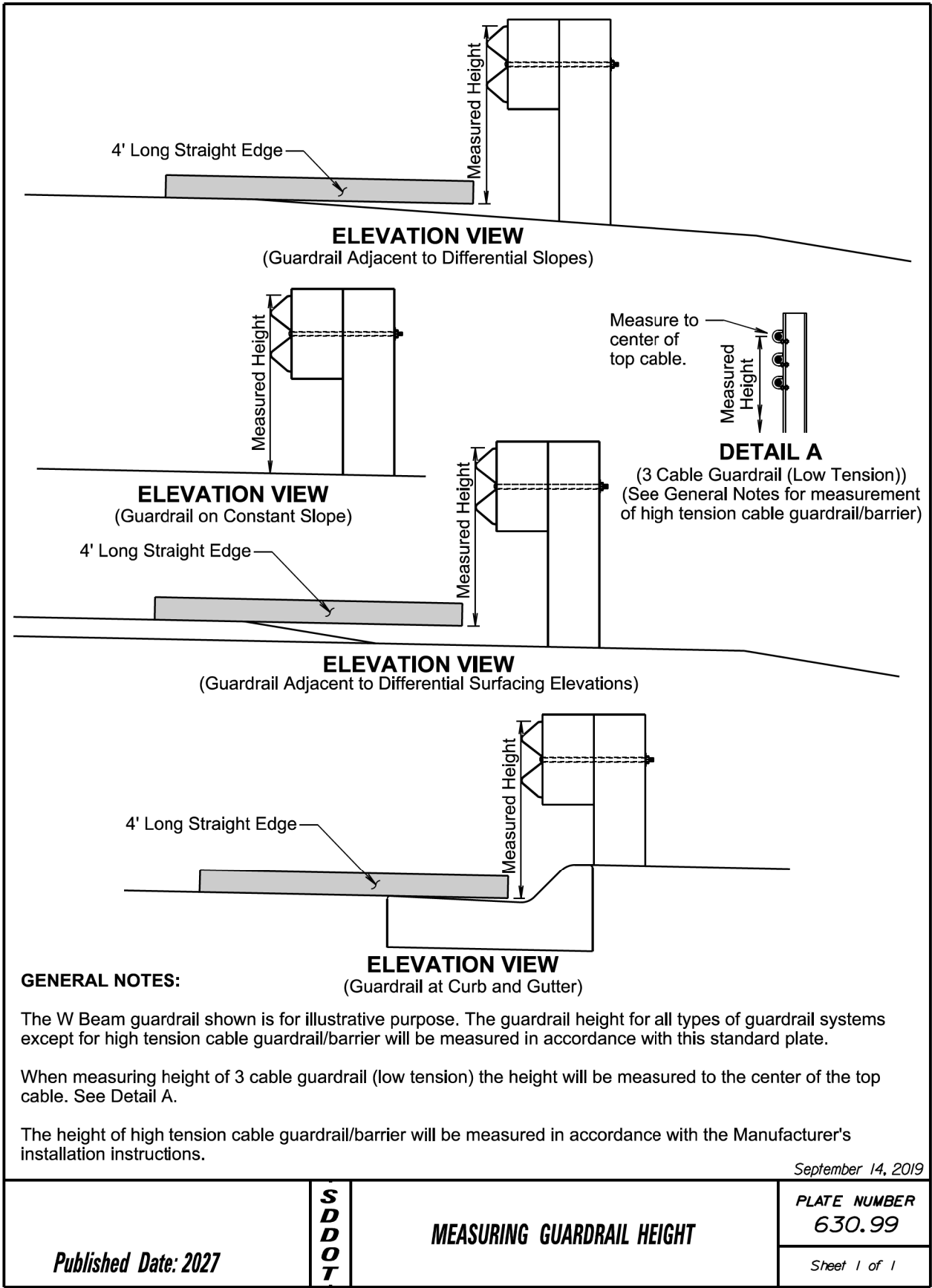
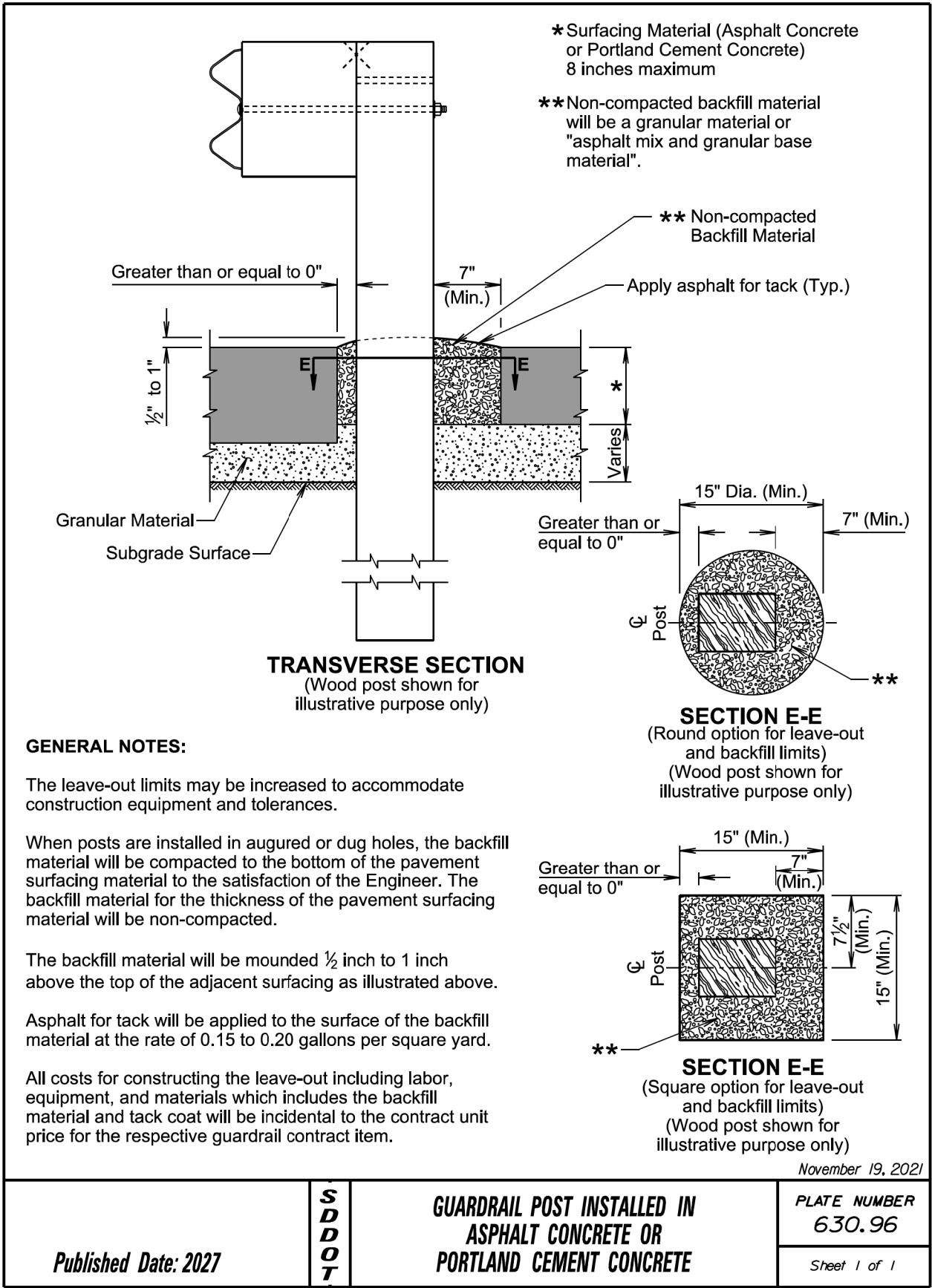
GENERAL NOTES:

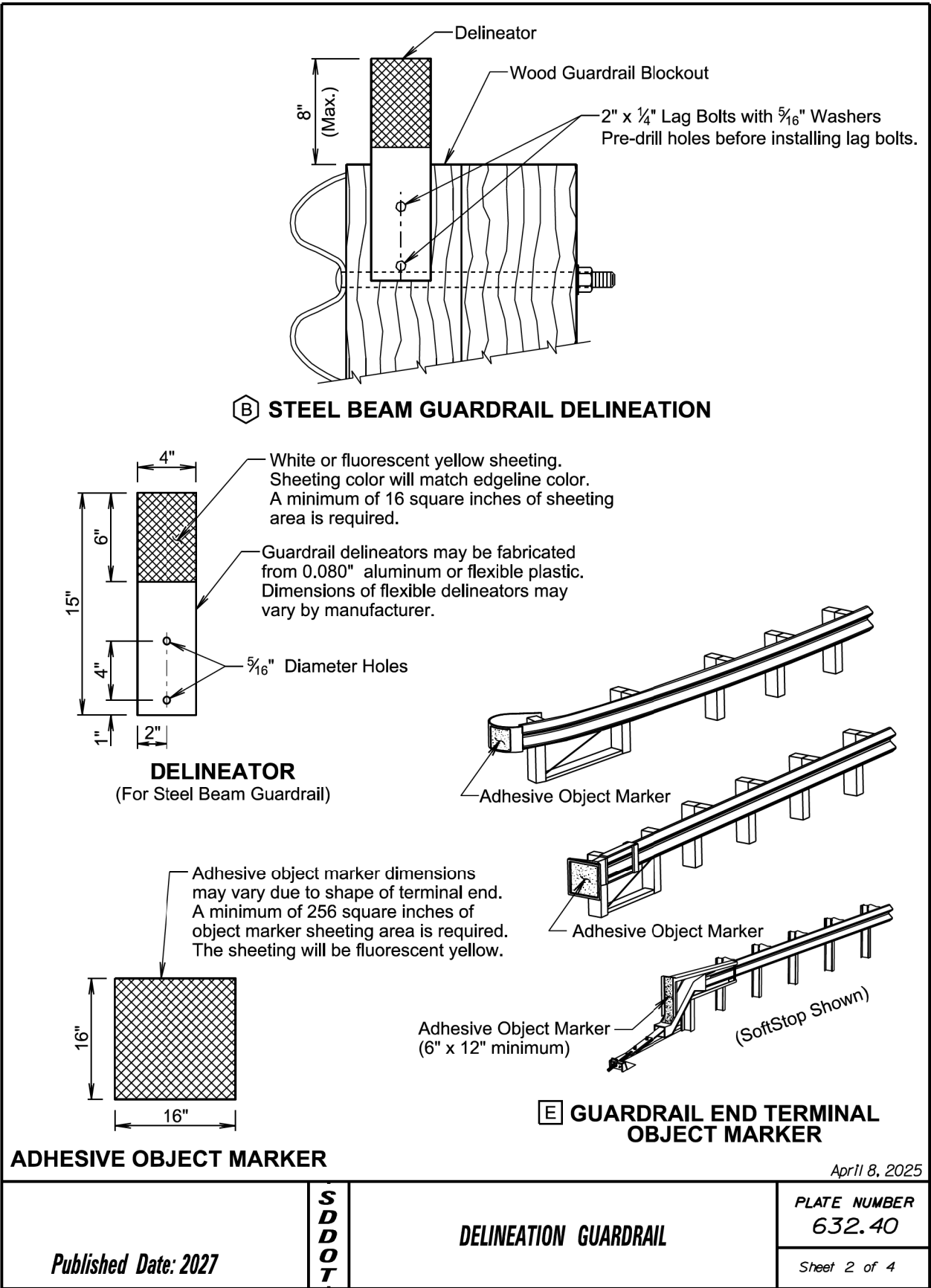
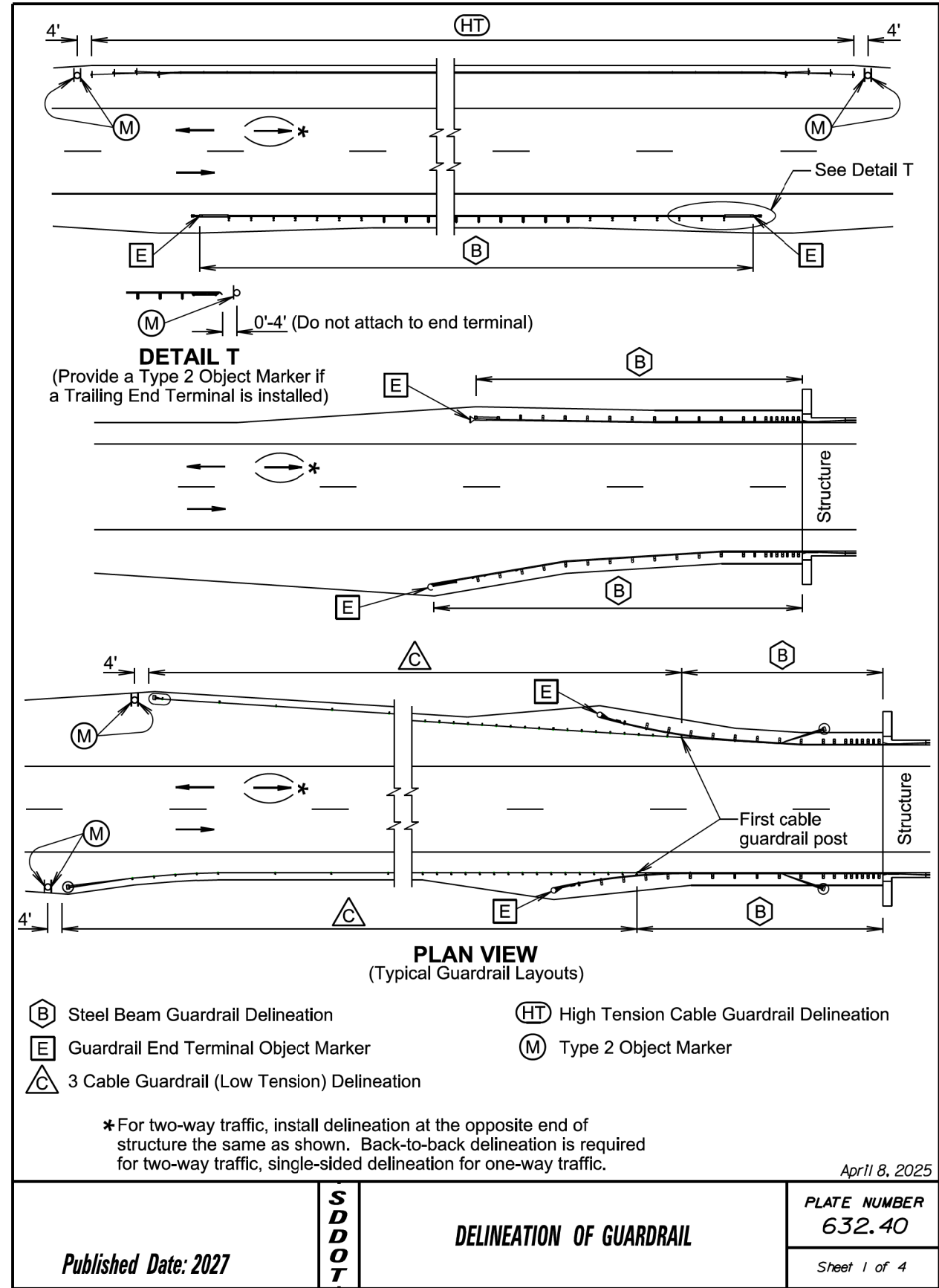
- Throughout the type 1 retrofit guardrail transition, slots in the rails will be provided as specified in the plans and by the Manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.
- All costs for furnishing and installing the type 1 retrofit guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, special blockout, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Retrofit Guardrail Transition".

September 14, 2019

Published Date: 2027	S D D O T	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51
			Sheet 3 of 3







PLOT SCALE - 1:200

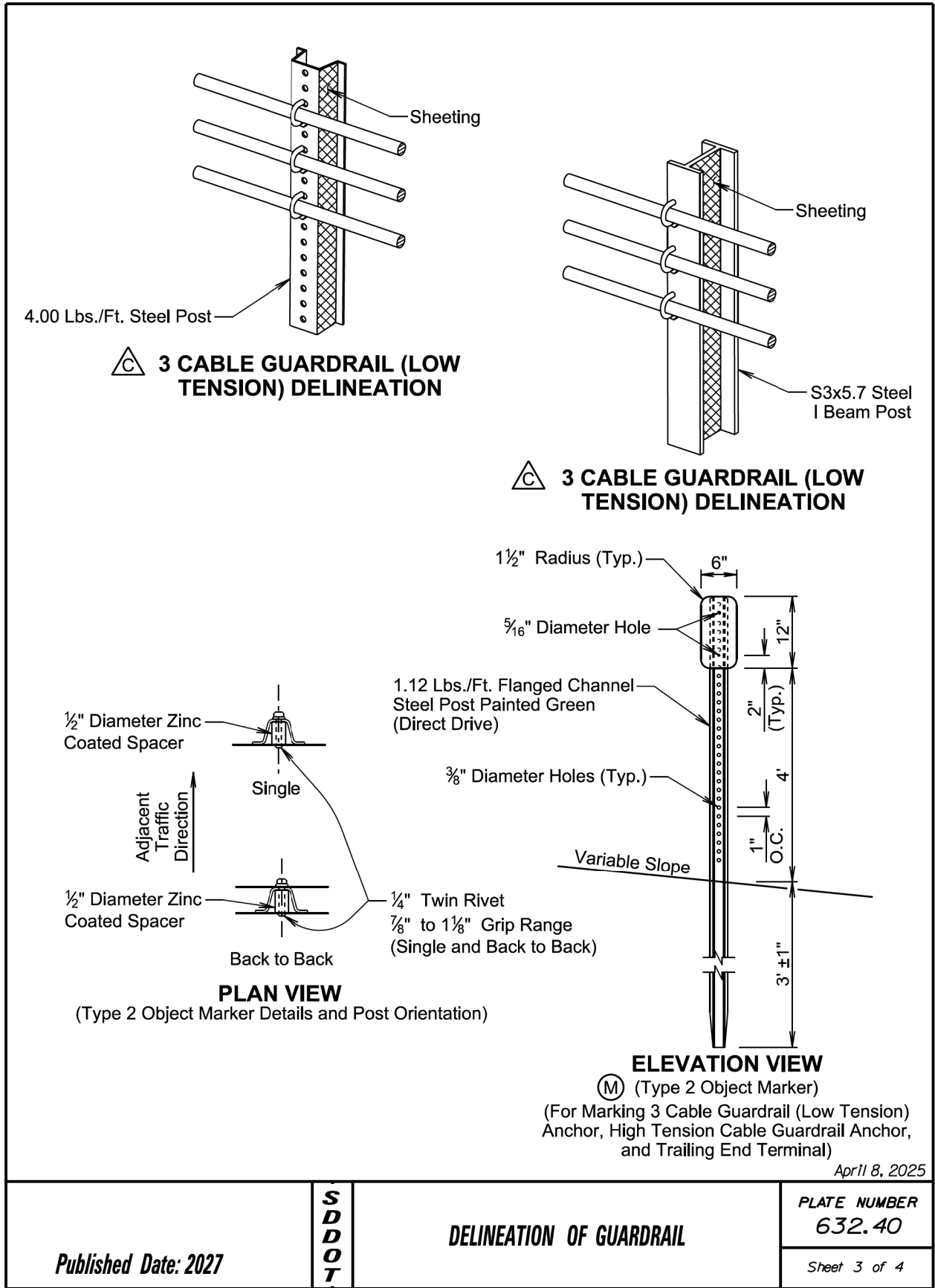
.PLOTTED FROM - TRM111118

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(125)2	82	82

Plotting Date: 06/11/2026

PLOT NAME - 14

FILE - ... \STD PLATES\STD 632 PLATES.DGN



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.

Published Date: 2027	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4

April 8, 2025