

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 0047(122)58 049-392	SHEET 1	TOTAL SHEETS 82
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REV. 10/21/24

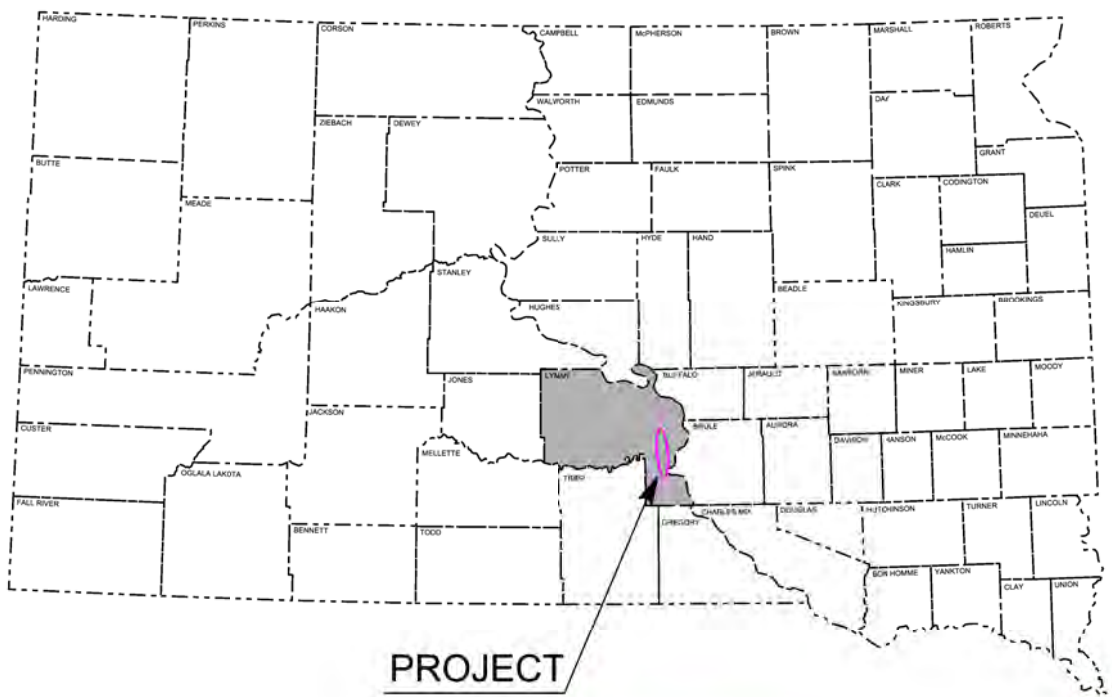
INDEX OF SHEETS

1	General Layout with Index
2	Estimate of Quantities
3-4A	Environmental Commitments
5-15	General Notes
16	Rates of Materials
17-18	Horizontal Alignment Data
19	Control Data
20	Typical Sections
21	Table of Materials
22	Table of Additional Quantities
23	Fence Quantities
24	Table of Approaches
25	Pipe Quantities
26	Fixed Sign
27	Legend
28-40	Plan Sheets
41-47	Details
48-74	Standard Plates
75-82	Pipe Cross Sections

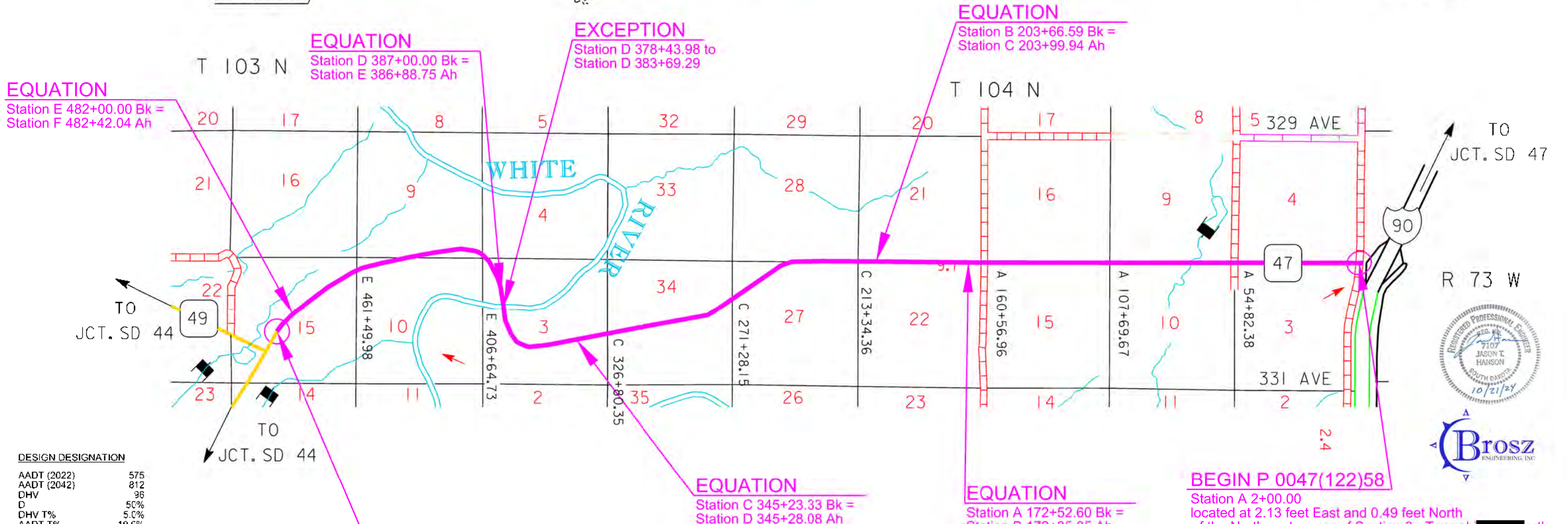
PROJECT P 0047(122)58
SD HIGHWAY 47
LYMAN COUNTY

COLD MILLING ASPHALT CONCRETE,
ASPHALT CONCRETE RESURFACING,
PIPE WORK & ROW

PCN 06Q8, I7AG



PROJECT



DESIGN DESIGNATION

AADT (2022)	575
AADT (2042)	812
DHV	36
D	5.0%
DHV T%	5.0%
AADT T%	10.5%
V	65 mph

STORM WATER PERMIT
Major Receiving
Body of Water: White River
Area Disturbed: 2.1 Acres
Total Project Area: 1.9
Approx. Begin Lat,Long: 43 8489, -99.5646

END P 0047(122)58
Station F 509+79.00
located at 1869.00 feet North and 1807.72 feet West
of the Southeast corner of Section 15 - Township 103 North -
Range 73 West of the 5th PM
MRM 58.00+0.039

Gross Length	50,779.0 Feet	9.617 Miles
Length of Exceptions	532.0 Feet	0.101 Miles
Net Length	50,247.0 Feet	9.516 Miles

BEGIN P 0047(122)58
Station A 2+00.00
located at 2.13 feet East and 0.49 feet North
of the Northwest corner of Section 3 - Township 103 North -
Range 73 West of the 5th PM
MRM 67.00+0.602

7

January 22, 2025

Estimate of Quantities P 0047(122)58 PCN 06Q8

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 0047(122)58 049-392	SHEET 2	TOTAL SHEETS 82
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REV. 11-18-24 JT

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3200	Construction Staking	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E0500	Remove Pipe Culvert	182	Ft
110E0510	Remove Pipe End Section	10	Each
110E0595	Remove Cattle Pass End Section	1	Each
110E0600	Remove Fence	986	Ft
110E1010	Remove Asphalt Concrete Pavement	75.0	SqYd
110E5010	Salvage Delineator	127	Each
110E6200	Remove Double Thrie Beam Guardrail for Reset	50.0	Ft
110E6230	Remove W Beam Guardrail for Reset	100.0	Ft
110E6240	Remove W Beam to Thrie Beam Guardrail Transition for Reset	4	Each
110E6270	Remove W Beam Guardrail Flared End Terminal for Reset	4	Each
110E7500	Remove Pipe for Reset	34	Ft
110E7510	Remove Pipe End Section for Reset	4	Each
110E7540	Remove Cattle Pass End Section for Reset	1	Each
120E0100	Unclassified Excavation, Digouts	476	CuYd
120E0600	Contractor Furnished Borrow Excavation	693	CuYd
120E4100	Reprofiling Ditch	2.0	Sta
120E6200	Water for Granular Material	30.5	MGal
210E0100	Shoulder Clearing	19.0	Mile
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
260E1030	Base Course, Salvaged	1,641.8	Ton
* 260E6000	Granular Material, Furnish	811.1	Ton
260E6000	Granular Material, Furnish	1,641.8	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	3,283.6	Ton
270E0220	Blend and Stockpile Granular Material	1,641.8	Ton
320E1200	Asphalt Concrete Composite	240.4	Ton
320E1800	Asphalt Concrete Blade Laid	2,854.8	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	19.8	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	9.9	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	175.5	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	33.9	Ton
330E2000	Sand for Flush Seal	504.6	Ton
332E0010	Cold Milling Asphalt Concrete	179,933	SqYd
421E0100	Pipe Culvert Undercut	37	CuYd
450E0142	24" RCP Class 2, Furnish	154	Ft
450E0150	24" RCP, Install	154	Ft
450E2008	18" RCP Flared End, Furnish	4	Each
450E2009	18" RCP Flared End, Install	4	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E2016	24" RCP Flared End, Furnish	4	Each
450E2017	24" RCP Flared End, Install	4	Each
450E2028	36" RCP Flared End, Furnish	1	Each
450E2029	36" RCP Flared End, Install	1	Each
450E4758	18" CMP 14 Gauge, Furnish	132	Ft
450E4760	18" CMP, Install	132	Ft
450E5010	18" CMP Elbow, Furnish	2	Each
450E5011	18" CMP Elbow, Install	2	Each
450E5211	18" CMP Flared End, Furnish	1	Each
450E5212	18" CMP Flared End, Install	1	Each
450E8305	Repair Culvert Joint	200.0	Ft
* 450E8900	Cleanout Pipe Culvert	3	Each
450E9000	Reset Pipe	34	Ft
450E9001	Reset Pipe End Section	4	Each
560E5051	4'x6' Reinforced Concrete Cattle Pass End Section, Furnish	1	Each
560E5052	4'x6' Reinforced Concrete Cattle Pass End Section, Install	1	Each
560E5101	Reset Reinforced Concrete Cattle Pass End Section	1	Each
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	986	Ft
620E0520	Type 2 Temporary Fence	1,577	Ft
620E1020	2 Post Panel	20	Each
620E1030	3 Post Panel	1	Each
630E2110	Beam Guardrail Post and Block	80	Each
630E5110	Reset Double Thrie Beam Guardrail with Wood Posts	50.0	Ft
630E5140	Reset W Beam Guardrail with Wood Posts	100.0	Ft
630E5190	Reset W Beam to Thrie Beam Guardrail Transition	4	Each
630E5207	Reset W Beam Guardrail Flared End Terminal	4	Each
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	127	Each
632E2220	Guardrail Delineator	16	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	446	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	383	Gal
634E0010	Flagging	480.0	Hour
634E0020	Pilot Car	200.0	Hour
634E0110	Traffic Control Signs	462.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0560	Remove Pavement Marking, 4" or Equivalent	100	Ft
634E0630	Temporary Pavement Marking	39.5	Mile
720E1010	PVC Coated Bank and Channel Protection Gabion	4.5	CuYd
730E0210	Type F Permanent Seed Mixture	988	Lb
731E0200	Fertilizing	28.50	Ton
732E0100	Mulching	86.0	Ton
734E0154	12" Diameter Erosion Control Wattle	400	Ft
831E0110	Type B Drainage Fabric	15	SqYd

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
900E0010	Refurbish Single Mailbox	3	Each
900E1980	Storage Unit	1	Each

* - Denotes Non-Participating

Non-Section Method - Asphalt Concrete Surfacing 06Q8 - Alternate A - Class Q2R Hot Mixed Asphalt

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	1,169.7	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	19,874.5	Ton
320E4000	Hydrated Lime	234.6	Ton

Non-Section Method - Asphalt Concrete Surfacing 06Q8 - Alternate B - Class Q2R Hot Mixed Asphalt Concrete

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	1,012.3	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	20,389.1	Ton
320E4000	Hydrated Lime	241.4	Ton

Estimate of Quantities 049-392 PCN I7AG

Non-Section Method - Asphalt Concrete Surfacing - Alternate A - Class Q2R Hot Mixed Asphalt Concrete

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 320E0005	PG 58-34 Asphalt Binder	46.0	Ton
* 320E1400	Contractor Furnished Asphalt Concrete	1,000.0	Ton
* 320E4000	Hydrated Lime	10.0	Ton

* - Denotes Non-Participating

Non-Section Method - Asphalt Concrete Surfacing - Alternate B - Class Q2R Hot Mixed Asphalt Concrete

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 320E0005	PG 58-34 Asphalt Binder	37.0	Ton
* 320E1400	Contractor Furnished Asphalt Concrete	1,000.0	Ton
* 320E4000	Hydrated Lime	10.0	Ton

* - Denotes Non-Participating



SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 2.67 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
WL 2	15+68	0.000	0.000	0.021	0.031	0.052
WL 3	107+00	0.000	0.000	0.027	0.027	0.054
WL 4	135+00	0.026	0.026	0.000	0.000	0.052
WL 5	168+00	0.026	0.048	0.000	0.000	0.074
WL 6	372+00	0.000	0.000	0.004	0.000	0.004
WL 7	426+00	0.000	0.000	0.019	0.000	0.019
WL 8	446+22	0.000	0.000	0.012	0.000	0.012

Action Taken/Required:

Mitigation is required in accordance with the "Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)". Replacement of 0.126 acres of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

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

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

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

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

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

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

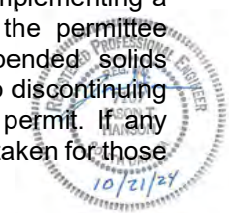
Action Taken/Required:

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

COMMITMENT D2: SURFACE WATER DISCHARGE

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

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



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

Action Taken/Required:

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

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

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

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:

<
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx> >

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

Action Taken/Required:

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

The Contractor must adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State."

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.

The form can be found at:

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

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

Storm Water Pollution Prevention Plan

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

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

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

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

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance

with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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



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

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

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

COMMITMENT M1: SECTION 4(f) PROPERTY

The following Section 4(f) property is located adjacent to this project.

Station	Section 4(f) Property
368+00 to 383+00 L/R	Byrne Bottom Game Production Area

Action Taken/Required:

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

The contractor shall notify the Project Engineer in addition temporary or permanent easement is necessary to construct the project. Temporary occupancy and permanent incorporation of, and restriction of access to, Section 4(f) property must be avoided unless there are no feasible or prudent alternatives. Section 4(f) use must be approved by the Federal Highway Administration.

The Contractor is not permitted to stage equipment or materials within [name of park(s)]. The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

The Contractor will also be responsible for obtaining a Section 404 Permit for any dredge, excavation, or fill activities associated with material sources,

storage areas, waste sites, and Contractor work sites outside the plan work limits that affect wetlands, floodplains, or waters of the United States.

COMMITMENT Q: ARCHAEOLOGICAL COORDINATION

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

The following historic properties have been identified that require avoidance of construction activities:

Table of Historic Properties

Station	Offset (Ft.)	L/R	Environmental Sensitive Site	Action
370+00	40.3	L	Historic Highway Sign	Do Not Disturb

The location of the sites for avoidance are shown in the plans.

Action Taken/Required:

If evidence for cultural resources is uncovered during project construction activities, then such activities within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will consult with the Archaeological Research Center (ARC), and FHWA, to determine the appropriate course of action.

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



STORMWATER POLLUTION PREVENTION PLAN CHECKLIST
 (The numbers left of the title headings are **reference numbers** to the **GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (Stormwater Permit)**)

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION
 To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Other (describe):
- **5.3 (3b): Total Project Area**
- **5.3 (3b): Total Area to be Disturbed** 2.1 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time**
- **5.3 (3d): Existing Vegetative Cover (%)** 100%
- **5.3 (3d): Description of Vegetative Cover** Western Native
- **5.3 (3e): Soil Properties:** AASHTO Soil A-7-6; Clay, Silt Clay
- **5.3 (3f): Name of Receiving Water Body/Bodies** White River
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Stabilize disturbed areas.	
Install utilities, storm sewers.	
Install inlet and culvert protection after completing storm drainage and other utility installations.	
Final grading.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

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

Structural Erosion and Sediment Controls

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

Dust Controls

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

Dewatering BMPs

Description	Estimated Start Date
<input type="checkbox"/> Sediment Basins	
<input type="checkbox"/> Dewatering bags	
<input type="checkbox"/> Weir tanks	
<input type="checkbox"/> Temporary Diversion Channel	

Stabilization Practices (See Detail Plan Sheets)

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

Description	Estimated Start Date
<input type="checkbox"/> Vegetation Buffer Strips	
<input type="checkbox"/> Temporary Seeding (Cover Crop Seeding)	
<input checked="" type="checkbox"/> Permanent Seeding	
<input type="checkbox"/> Sodding	
<input type="checkbox"/> Planting (Woody Vegetation for Soil Stabilization)	
<input type="checkbox"/> Mulching (Grass Hay or Straw)	
<input type="checkbox"/> Fiber Mulching (Wood Fiber Mulch)	
<input type="checkbox"/> Soil Stabilizer	
<input type="checkbox"/> Bonded Fiber Matrix	
<input type="checkbox"/> Fiber Reinforced Matrix	
<input type="checkbox"/> Erosion Control Blankets	
<input type="checkbox"/> Surface Roughening (e.g. tracking)	
<input type="checkbox"/> Other:	

Wetland Avoidance

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

5.3 (6): PROCEDURES FOR INSPECTIONS

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

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES**5.3 (8a): Spill Prevention and Response Procedures**➤ **Material Management**▪ **Housekeeping**

- Only needed products will be stored on-site by the Contractor.
- Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off-site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.

▪ **Hazardous Materials**

- Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.

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

➤ **Spill Control Practices**

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

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

➤ **Spill Response**

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

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

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

5.3 (8b): WASTE MANAGEMENT PROCEDURES➤ **Waste Disposal**

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

➤ **Hazardous Waste**

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

➤ **Sanitary Waste**

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

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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

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

Product Specific Practices

- **Petroleum Products**

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

- **Fertilizers**

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

- **Paints**

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

- **Concrete Trucks**

Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

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

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

STATE OF SOUTH DAKOTA	PROJECT P 0047(122)58 049-392	SHEET 8	TOTAL SHEETS 82
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5.4: SWPPP CERTIFICATIONS

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

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

➤ **South Dakota Department of Transportation**

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



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

➤ **Prime Contractor**

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

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

Authorized Signature

CONTACT INFORMATION

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

➤ **Contractor Information:**

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

➤ **Erosion Control Supervisor**

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

➤ **SDDOT Project Engineer**

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

➤ **SDDANR Contact Spill Reporting**

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

➤ **SDDANR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

➤ **SDDANR Stormwater Contact Information**

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

5.5: REQUIRED SWPPP MODIFICATIONS

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

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

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

➤ **5.5 (2): Deadlines for SWPPP Modification**

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

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

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

➤ **5.5 (4): Certification Requirements**

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

➤ **5.5 (5): Required Notice to Other Operators**

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

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

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown on the plans.

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

SCOPE OF WORK

The work required for this project includes, but is not limited to, the following items, not listed in order of execution.

1. Install Traffic Control Signing
2. Complete Culvert Repairs
3. Complete Cold Milling Operations
4. Complete Unclassified Excavation for Dugouts and Backfill Operations
5. Complete Asphalt Concrete Paving Operations
6. Grind Rumble Strips
7. Complete Flush Seal
8. Install Permanent Pavement Markings
9. Refurbish Mailboxes
10. Remove Traffic Control Signing
11. Complete Any Remaining Project Cleanup

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.

UTILITIES

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

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

COORDINATION BETWEEN CONTRACTORS

The Contractor will coordinate with the Contractor on Project P0047(123)52 PCN 08JC that is occurring with the limits of this project. All work on the 08JC project will be required to be completed prior to any surfacing work commencing on this project.

GENERAL TRAFFIC CONTROL

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

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

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

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

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

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

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

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing. Pavement marking removals will be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or equivalent". Temporary pavement marking will be paid for at the contract unit price per mile/foot for "Temporary Pavement Marking". The additional channelizing devices will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

FLAGGING

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

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



It is required that the flaggers and pilot car operators be able to communicate with one another. 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".

TRAFFIC CONTROL FOR ASPHALT CONCRETE RESURFACING

The Contractor will need to install LOOSE GRAVEL (W8-7) signs with advisory speed plaques (W13-1P) in areas where loose sand is present during the flush seal operation. LOOSE GRAVEL signs have been included in these plans for this.

TEMPORARY PAVEMENT MARKING

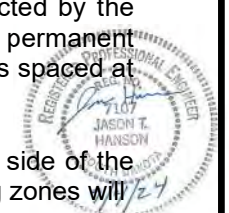
The total length of no passing zone on this project is estimated to be 8.28 miles.

It is estimated that 32 DO NOT PASS (R4-1) and 32 PASS WITH CARE (R4-2) signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary Pavement Marking Paint will be used on milled and leveling surfaces for centerlines, lane lines, skips, and as directed by the Engineer. The Temporary Pavement Marking Paint will be placed at the location of the existing pavement markings except that centerline will be double yellow the entire project length and will be offset 6-inches from centerline of the roadway. It will be the Contractor's responsibility to determine which direction to offset so that the markings do not get covered up when the first half of the roadway is paved. Any markings that get covered by the paving operation will be reestablished as directed by the Engineer at the Contractor's expense. The Contractor will be responsible for marking out those exact locations.

Temporary Flexible Vertical Markers (Tabs) will be used on the top lift of asphalt surfacing for centerline delineation, lane lines, skips, and as directed by the Engineer. Tabs will be offset 6-inches from the location shown for permanent pavement markings. Centerline will be double yellow lines with tabs spaced at 5' the entire project length.

Temporary flexible vertical markers (tabs) will be installed on one side of the centerline rumble for the temporary pavement marking. No passing zones will



TEMPORARY PAVEMENT MARKING, continued

be marked in accordance with Specifications. DO NOT PASS (R4-1) and PASS WITH CARE (R4-2) signs will also be used in addition to the temporary flexible vertical markers (tabs) placed per Specifications to mark no passing zones.

Temporary flexible vertical markers (tabs) will be used to mark dashed centerline, No Passing Zones, and applicable lane lines. Paint will not be allowed for temporary pavement marking on the asphalt concrete wear course or after application of the flush seal.

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.

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.

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.

Quantities of Temporary Pavement Markings consist of:

- One pass on top of the milled surface
- One pass on top of the final lift of asphalt concrete
- One pass prior to the flush seal, length as determined by the Engineer
- One pass after the flush seal

If the Engineer determines that an additional pass prior to the flush seal is not required, this application of the temporary pavement marking will be eliminated. If the flush seal is eliminated for the project, the application of the temporary pavement marking on top of the flush seal as well as the additional pass prior to the flush seal will be eliminated.

No adjustment in the contract unit price for "Temporary Pavement Marking" will be made because of a variation in quantities.

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

REMOVE, FURNISH, AND INSTALL DELINEATORS

Removal of all existing delineators and the installation of new delineators will be the responsibility of the Contractor. The existing delineator posts will be

salvaged and delivered to the DOT Maintenance Yard in Presho. All cost for materials, labor, delivery, and equipment necessary to remove the delineators will be incidental to the contract unit price per each for "Salvage Delineator".

The Contractor will obtain the Engineer's approval of locations prior to installation. Delineators will be placed with the bottom of the reflector unit approximately 4 feet above the near roadway edge. They will be located 8 feet outside the outer edge of the shoulder or 2 feet from the face of the curb or as required by the Engineer. Where a roadside barrier or other obstruction intrudes into the space between the pavement edge and the extension of the line of delineators, the delineators will be in line with the barrier or in line with the innermost edge of the obstruction. All costs for materials, labor and equipment necessary to furnish and install delineators will be incidental to the contract unit price per each for "4x4 White Delineator Back to Back with 1.12 lb/ft Post".

The standard spacing between delineators on the same side of the roadway in tangent sections will be 528 feet (0.1-mile intervals). On tangent sections, installation will be on a staggered basis, resulting in a delineator on one side of the road being placed midway between two delineators on the opposite side. When normal spacing is interrupted by driveways, structures, crossroads, approaches, or ramps, delineators falling within such areas may be moved in either direction a distance not exceeding one quarter of the standard spacing. Delineators not falling within such areas can be eliminated.

Delineator spacing on the inside of horizontal curves will remain consistent with the normal tangent section of the roadway. The spacing for delineators on the outside radius of horizontal curves and for three spaces in advance and for three spaces beyond the curve is given in the following table:

Maximum Spacing for Delineators on Outside Radius of Horizontal Curves (Distance in Feet Rounded to the Nearest 5 Feet)

Radius Of Curve(ft)	Spacing On Curve(ft)	Spacing in Advance & Beyond Curve (ft)		
		1st	2nd	3rd
50	20	40	65	125
150	30	60	90	180
250	40	85	125	250
300	50	95	145	290
400	55	110	170	300
500	65	125	190	300
600	70	140	210	300
700	75	150	230	300
800	80	165	245	300
900	85	175	260	300
1000	90	185	275	300

Spacing for specific radii not shown can be interpolated from the table of computed from the formula $S = 3 \cdot \sqrt{(R-50)}$. The minimum spacing should be 20 feet. The spacing on curves should not exceed 300 feet. The spacing of the first delineator approaching a curve is 2*S, the second is 3*S, and the third is 6*S but not exceeding 300 feet. If a spacing less than 300 feet is used approaching the curve, the distance shown above should be adjusted accordingly.

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to the installation of the fence.

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following are contacts regarding the E-Z Brace:

Roger Papka
E-Z Brace
1160 Karen St.
Watertown, SD 57201

605-881-6142

Dennis Mack
E-Z Brace
108 18th St. NE
Watertown, SD 57201
605-881-4990



TYPE III FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for "Type III Field Laboratory".

STORAGE UNIT

The Contractor will provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6' std
All Gyrotory Controlled QC/QA Projects	2,360	40' x 8' x 8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

STATE OF SOUTH DAKOTA	PROJECT P 0047(122)58 049-392	SHEET 11	TOTAL SHEETS 82
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STORAGE UNIT, continued

The storage unit will be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit will be weather proof and will be set in a level position. The storage unit will be able to be locked with a padlock.

The storage unit will be placed adjacent to the QA lab, as approved by the Engineer.

The following will apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container will be constructed of steel.
2. The portable storage container will be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following will apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings will be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing will be constructed at the exterior door. The minimum dimensions for the landing will be 4 feet by 5 feet. The top of the landing will be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway will be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway will be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction will be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails will be included in the contract unit price per each for "Storage Unit".

SHOULDER CLEARING

Prior to cold milling or asphalt concrete resurfacing, SDDOT personnel will mow the shoulders to kill existing vegetation.

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer, prior to cold milling or placement of the mainline surfacing. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

Each shoulder will be measured for payment. Costs associated with this work will be included in the contract unit price per mile for Shoulder Clearing.

REMOVE AND REPLACE TOPSOIL

Prior to beginning resurfacing operations, a 4" depth of topsoil will be bladed down the respective inslope and left in a windrow 16'+/- from the subgrade shoulder. Following completion of resurfacing operations, topsoil will be bladed back up the inslope to the point indicated on the typical section.

The estimated amount of topsoil to be removed and replaced is 19,851 CuYd.

All costs associated with removing and replacing the topsoil along areas to be resurfaced will be incidental to the contract lump sum price for "Remove and Replace Topsoil".

WATER FOR COMPACTION

The cost of water for compaction of the granular material will be incidental to the various other contract items. Six percent plus or minus moisture will be required at the time of compaction unless otherwise directed by the Engineer.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances will be satisfactorily cleared of vegetation, shaped and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 22. This value was obtained from testing during construction of the in-place asphalt concrete.

Cold milling asphalt will be done according to the typical section. In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for Cold Milling Asphalt Concrete.

Cold milling asphalt is estimated to produce **8741.3** tons of cold milled asphalt concrete material. An estimated **1700.0** tons of cold milled asphalt concrete material will be blended with Granular Material, Furnish and will be used on this project as Base Course, Salvaged at the locations identified in the plans. An estimated **3976.6** tons ALT A & **4077.5** tons ALT B of cold milled asphalt concrete material will be used on this project as RAP in the Class Q2R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q2R Hot Mixed Asphalt Concrete.

The remainder of the salvaged asphalt concrete material will be blended and stockpiled at the Reliance SDDOT Maintenance Shop.

GRANULAR MATERIAL, FURNISH

Granular material will be furnished by the Contractor for use in blending with the salvaged asphalt mix material from this project.

The granular material will be Base Course meeting the requirements of Section 882.

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the stockpile site(s) and may be used without further gradation testing.

The Contractor will ensure the Base Course, Salvaged material contains no more than 50% salvaged asphalt mix material and at least 50% granular material (salvaged or virgin). Blended material will be to the satisfaction of the Engineer.

All other requirements for Base Course, Salvaged will apply.

BLEND, HAUL, AND STOCKPILE GRANULAR MATERIAL

Excess salvaged asphalt concrete material estimated at 2963.8 tons (for informational purposes only) will be blended with 2963.8 tons of Granular Material, Furnish and will be hauled, blended and stockpiled in the south west quarter of Section 35, Township 105 North, Range 73 West of the 5th P.M, Lyman County, South Dakota at the Reliance SDDOT Maintenance Shop. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to blending.

The salvaged asphalt concrete material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Salvaged asphalt concrete material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material.

No further gradation testing of the blended material will be required.

All other costs for crushing, hauling, stockpiling, and blending salvaged asphalt concrete material and Granular Material, Furnish will be incidental to the contract unit price per ton for "Blend, Haul & Stockpile Granular Material".

BLEND AND STOCKPILE GRANULAR MATERIAL

An Estimated 1700 tons (for informational purposes only) of Salvaged Asphalt Mix Material will be blended with 1700 tons of Granular Material, Furnish and stockpiled at the Contractor's furnished stockpile site.

The Contractor will use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material with Contractor furnished granular material.

The salvaged asphalt mix material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Salvaged asphalt mix material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.



BLEND AND STOCKPILE GRANULAR MATERIAL, continued

No further gradation testing of the blended material will be required.

All costs for crushing the salvaged asphalt mix material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for Blend and Stockpile Granular Material.

CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course, Salvaged. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material throughout the project.

Included in the Estimate of Quantities are 100 tons of Base Course, Salvaged and 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts.

The digouts will be extended through the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.1 tons of PG 58-34 Asphalt Binder per mile and will be tight bladed on the existing surface 24 feet wide prior to the overlay.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q2R Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

The Asphalt Concrete Blade Laid Lift will be designed using an N_{design} Gyratory Compactive Effort of 65. The asphalt binder content will be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

Included in the Estimate of Surfacing Quantities are 62.5 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift. (Rate = 0.09 Gal./Sq.Yd.)

CONTRACTOR FURNISHED ASPHALT CONCRETE

Projects:

049-392 PCN I7AG – 1,000 tons ~ SD 49 from US18 to SD44

An estimated 1,000 tons of Asphalt Concrete will be produced by the Contractor for use by Department of Transportation Maintenance forces at locations other than on this project.

The Contractor Furnished Asphalt Concrete will be produced in accordance with the same specifications and job mix requirements as the Class Q2R Hot Mixed Asphalt Concrete used on the project.

The material will be loaded, directly from the plant, into Department of Transportation trucks. The Contractor will not be expected to disrupt the paving operations in order to produce this material, but it is the intent that it be produced intermittently during the course of this project and only during the normal hours of plant operation.

All costs involved in producing the Contractor Furnished Asphalt Concrete and loading into Department of Transportation trucks will be measured and paid for at the contract unit price per ton for "Contractor Furnished Asphalt Concrete", Alternate A or Alternate B.

An estimated 10.0 tons of "Hydrated Lime" to be used in the production of Contractor Furnished Asphalt Concrete will be measured and paid for at the contract unit price per ton for "Hydrated Lime".

Alternate A:

An estimated 46.0 tons of PG 58-34 Asphalt Binder to be used in the production of Contractor Furnished Asphalt Concrete will be measured and paid for at the contract unit price per ton for "PG 58-34 Asphalt Binder".

Alternate B:

An estimated 37.0 tons of PG 58-34 Asphalt Binder to be used in the production of Contractor Furnished Asphalt Concrete will be measured and paid for at the contract unit price per ton for "PG 58-34 Asphalt Binder."

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q2R Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

Plans specified locations for Asphalt Concrete Composite will be paid for at the contract unit price per ton for Asphalt Concrete Composite regardless of the class of asphalt concrete used at such locations.

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

Asphalt concrete aggregates will consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete-Alternate A will conform to the requirements of Class Q2.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete-Alternate B will consist of a minimum of 80 percent crushed limestone ledge rock and will conform to the requirements of Class Q2.

The Class Q2R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture. RAP will be obtained from the material produced by cold milling on this project.

Mix Design Criteria – Alternate B:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q2R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q2 except as modified by the following:

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%):
Class Q2R	13.0

Pay Factor Attributes – Alternate B:

Air Voids:

	Air Voids (%):
Class Q2R	3.5 ± 1.0

All remaining requirements for Class Q2 will apply.

ADDITIONAL QUANTITIES

Provide 100 tons of Class Q2R Hot Mixed Asphalt Concrete, 1.0 tons of Hydrated Lime, and 4.6 tons of PG 58-34 Asphalt Binder per mile for Alt A, and 100 tons of Class Q2R Hot Mixed Asphalt Concrete, 1.0 tons of Hydrated Lime, and 3.7 tons of PG 58-34 Asphalt Binder per mile for Alt. B for spot leveling, strengthening, and repair of the existing surface for the entire project.

Provide 2.4 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack for repair and leveling areas throughout the project.

FLUSH SEAL

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

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.



SAND FOR FLUSH SEAL

The sand application will be placed 11' wide in each lane, leaving 12" on center line and 6" on each edge line free of sand.

MAILBOXES

The Contractor will reset the existing mailboxes on new posts with the necessary support hardware for single or double mailbox assemblies. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

If large mailboxes are located at double mailbox installations, a single post may need to be used for the large mailbox.

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

TABLE OF REFURBISH MAILBOX

Station	Lt/Rt	Single (Each)
A2+27	L	1
D353+94	R	1
E395+49	L	1
Totals:		3

GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Asphalt Concrete Rumble Strips will be constructed on the shoulders. Rumble Strips will be paid for at the contract unit price per mile for GRIND 8" RUMBLE STRIP OR STRIPE IN ASPHALT CONCRETE. It is estimated that 19.8 miles of asphalt concrete rumble strips will be required.

Rumble Strip installation will be completed prior to application of the Flush Seal and Permanent Pavement Markings. In the event the Flush Seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed 8" Rumble Strips at a width of 1.5' and at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Rumble stripes will be constructed on the centerline, as detailed in the plan set. Rumble stripes will be paid for at the contract unit price per mile for Grind Centerline Rumble Stripe in Asphalt Concrete. It is estimated that 9.9 miles of sinusoidal rumble stripes will be required.

Rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed rumble stripes at a width of 24" and a rate of 0.10 gal./SqYd No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

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

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

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

MILEAGE REFERENCE MARKERS

Mileage Reference Markers (MRMs) are not to be disturbed. If an MRM is attached to a sign listed for replacement it will be salvaged and reattached to the new sign in the same location. Payment for this work will be incidental to the various signing contract items.

MAINLINE CROSS PIPE REPLACEMENT

Pipe culverts at stations 135+00 (MRM 64.033) and 168+00 (MRM 64.403) will be installed in accordance with the following notes and as shown on the Pipe Installation Detail.

This work will be completed prior to beginning cold milling on the project.

After the existing pipe has been removed, the new pipe culvert will be undercut to a minimum depth of 1 foot. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. The Engineer will determine how much undercut will be done in accordance with Section 421 of the specifications but will not reduce the undercut to less than 1 foot in depth.

Due to the presence of water at the pipe locations, select fill material for backfilling the undercut area will conform to the gradation requirements of Section 421.2 A. All other requirements of Section 421 will apply.

At the time of the investigation the two pipe culverts were partially/completely submerged. Water levels may vary with seasonal changes but extra dewatering effort is anticipated for these pipe replacements. Temporary barriers consisting of sheet pile, inflatable bladders, or other means of separation may be required to keep standing water out of the excavation for the pipe culverts.

Pipe culverts will be bedded in accordance with Section 450.3 F.2, Class B Bedding with the following exceptions. The excavated area will extend 2 feet from the outermost diameter on both sides of the pipe with the back of the excavated area being sloped 2:1 upward to the top of the roadway surface. Select fill material for Class B Bedding will conform to the gradation requirements of Section 421.2 A.

After the minimum testing requirements of M.S.T.R Section 4.1.F.3.a.1 (SDDOT Materials Manual) have been met, the minimum density testing requirements will be one test per zone. Each zone from the top of the pipe to the top of the subgrade will be 2 feet in depth. Moisture testing will remain as per M.S.T.R.

The remainder of the pipe culvert excavation will be backfilled with soils taken from the pipe removal excavation or other suitable material as approved by the Engineer. The backfill will be benched into 2:1 excavation slope. Compaction of the backfill material will be governed by the Specified Density Method.

After the new pipe has been backfilled to the top of the subgrade, a 12" depth of Base Course and 5" (2-2.5" lifts) depth of asphalt concrete composite will be placed as a patch matching the existing asphalt concrete.

All costs to remove and dispose of asphalt concrete pavement, including full depth saw cutting of the asphalt concrete pavement, will be incidental to the contract unit price per square yard to Remove Asphalt Concrete Pavement. All excavation necessary for Class B Bedding and the pipe installation will be incidental to the contract unit price per foot for the corresponding pipe installation contract items. The excavation of material for pipe culvert undercut will be paid for at the contract unit price per cubic yard for Pipe Culvert Undercut.

The select fill material used for backfilling the pipe culvert undercut and Class B Bedding will be paid for at the contract unit price per ton for Granular Material. The 3" layer of bedding material to form the cradle in the pipe foundation will be incidental to the corresponding pipe installation contract items. The cost for asphalt concrete composite installed over the pipe replacement will be paid for at the contract unit price per ton for Asphalt Concrete Composite.

A copy of the surfacing/subgrade investigation for this project is available from the Pierre Region and Winner Area offices.

CLEANOUT PIPE CULVERTS

Cleanout of pipe culverts will be done in advance of pipe culvert repair operations. At those locations where further evaluation of pipe culvert repairs are required, the pipe culvert cleaning and inspection will be scheduled such that there is adequate time to evaluate what repairs are required and allow for ordering and delivery of pipe culvert repair materials.

It is the responsibility of the Contractor to visit the sites to determine the extent of culvert cleaning work required.



CLEANOUT PIPE CULVERTS, continued

Material in all existing pipe culverts will be cleaned out by water flushing or other approved methods.

Material removed from the pipe culverts will become the property of the Contractor for disposal.

The Contractor will implement appropriate sediment control measures prior to water flushing in order to prevent discharges from the project boundaries to comply with the Storm Water Permit.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 3/8-inch x 1/2-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

Areas within the project have soils that are highly corrosive to steel. Corrugated metal pipe in these areas will be polymer coated 14 gauge steel as specified in the Table of Pipe Quantities. Any required connection bands, elbows, tees, crosses, wyes, reducers, and transitions will also be polymer coated. The connection bands will be 24 inches wide. All polymer coated corrugated metal pipe and components will be in conformance with AASHTO M245. Riveted pipe will not be allowed.

All damage to the polymer coating will be repaired in accordance with the manufacturer's recommendations prior to installation of the pipe.

All costs associated with the polymer coating including repair of polymer coating will be incidental to the corresponding CMP contract items.

Metal pipe end sections connected to polymer coated CMP will be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections will be incidental to the corresponding CMP End Section contract items

PIPE END SECTIONS

Remove and reset Type 2 object markers at the end of the pipe work. All cost for removing and resetting the type 2 object markers will be incidental to the contract unit price per each for "Reset Pipe End Section" and "Install Pipe End Section".

RCP CULVERTS

The Contractor is encouraged to thoroughly investigate the culvert repair sites prior to bidding.

All pipe and end treatments designated for removal will become the property of the Contractor for his disposal.

Prior to culvert repair work the Contractor will remove and stockpile all of the in-place topsoil from the construction's areas. On completion of construction operations this salvaged topsoil will be spread evenly over the newly constructed embankment inslopes. Removal and replacement of topsoil will be incidental to the various culvert contract items.

Culvert barrel and culvert end treatments that are to be removed and reset will be cleaned prior to resetting. There will be no payment of the contract item Cleanout Pipe Culvert to clean sections of culverts that are removed and reset.

TIE BOLTS FOR RCP

All joints for RCP installed both new and reset, will be tied together. This includes connection from existing culvert sections to new or reset sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer. Tie bolts will be installed in accordance with Standard Plate No.450.18. The cost for furnishing and installing the tie bolts for new and reset section will be incidental to the corresponding pipe items.

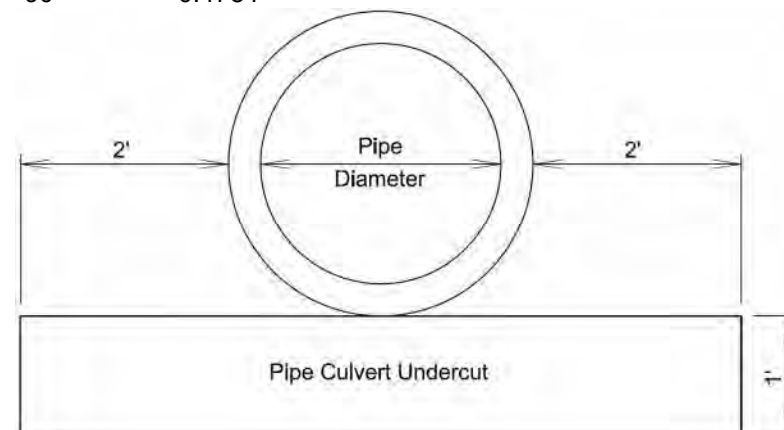
For information purposes: Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends, existing culvert when installing a new/reset end section, and on existing cattle pass culvert sections. All cost for removing/resetting existing tie bolts, drilling tie bolt holes, and furnishing and installing the tie bolts will be incidental to corresponding pipe items.

PIPE CULVERT UNDERCUT

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1' Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1' Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



REPROFILING DITCH

The Contractor will reprofile the ditch at the locations detailed in the plans. The ditches will be excavated from the new/reset pipe ends to obtain proper water flow through the pipe. The excavated material may be used as fill material as approved by the Engineer.

All costs associated with clearing and reshaping of the existing ditch, labor, excavation, placing material, equipment, and incidentals will be paid for at the contract unit price per station for "Reprofiling Ditch".

EROSION CONTROL WATTLE

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

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

Erosion control wattles will remain on the project to decompose.

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

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

TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
A106+99	L	12	Pipe End	20
A134+99	L/R	12	Pipe End	40
A167+97	L/R	12	Pipe End	40
B182+20	L/R	12	Pipe End	40
C295+41	R	12	Pipe End	20
D371+99	L	12	Pipe End	20
E426+20	L	12	Pipe End	20
E446+00	L/R	12	Pipe End	40
E469+27	R	12	Pipe End	20
Additional Quantity:				100
Total:				400



FOR BIDDING PURPOSES ONLY

REV. 9/30/24 JT

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 the following fungal species:

- 25% *Glomus intraradices*
- 25% *Glomus aggregatum or deserticola*
- 25% *Glomus mosseae*
- 25% *Glomus etunicatum*

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

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com

AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com
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FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

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

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

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245

Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com
Nature Safe	Nature Safe Fertilizers Irving, TX Phone: 1-605-759-5622 www.naturesafe.com

MULCHING (GRASS HAY OR STRAW)

An additional 10 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

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

PERMANENT SEEDING

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

Type F Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Asphalt Concrete spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer. All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the CHECKER. No allowances will be made to the contract lump sum price for CHECKER due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

Incidental Work-- Access Grade Raise Sta 390+30 LT (MRM60.11)

The access located at Sta 390+30 LT (MRM 60.11) will be modified as described in the details on the sheet titled "Details for Access Grade Raise Sta 390+30 LT" in these plans.

Estimated Quantities (For Information Only)

Description	QTY	UNIT
Remove Asphalt Concrete Pavement	149.9	SqYd
Contractor Furnish Borrow Excavation	159.8	CuYd
Remove and Replace Topsoil	.11	Acre
Base Course, Salvaged	72.3	Ton
Gravel Surfacing	56	Ton
Asphalt Concrete Composite	25.0	Tons
Erosion Control Seed (F Mix)	2.68	LB
Mulch	0.2	Ton

All borrow and base course, salvaged work will be done to the satisfaction of the Engineer, compaction to a specified density will not be required.

All costs involved with associated with the grade raise of the access will be included in the unit price lump sum for "Incidental Work".



RATES OF MATERIALS

SECTION 1 (per mile) ALT A

**Station A2+00 to Station F509+79
through equations**

General

Cold Milling Asphalt Concrete is computed at 17,013 Square Yards, applied 29 feet wide.

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

The exact proportions of these materials will be determined on construction.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.7 ton applied 33 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 4.6 ton applied 33 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 3.5 ton applied 32 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52 ton applied 22 feet wide (Rate = 8 pounds per square yard).

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	1,456	Ton
Salvaged Asphalt Concrete (20%)	364	Ton
PG 58-34 Asphalt Binder 4.6%	88	Ton
TOTAL MIX	1,908	Ton
Hydrated Lime	19	Ton
TOTAL MIX WITH HYDRATED LIME	1,927	Ton

SECTION 1 (per mile) ALT B

**Station A2+00 to Station F509+79
through equations**

General

Cold Milling Asphalt Concrete is computed at 17,013 Square Yards, applied 29 feet wide.

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

The exact proportions of these materials will be determined on construction.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.7 ton applied 33 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 4.6 ton applied 33 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 3.5 ton applied 32 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52 ton applied 22 feet wide (Rate = 8 pounds per square yard).

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	1,510	Ton
Salvaged Asphalt Concrete (20%)	377	Ton
PG 58-34 Asphalt Binder 3.7%	73	Ton
TOTAL MIX	1,960	Ton
Hydrated Lime	20	Ton
TOTAL MIX WITH HYDRATED LIME	1,980	Ton



HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	18	82

REV. 9/4/24 JT

SPI	F 500+73.23			507466.61	2174686.77
ST	F 502+73.21			507361.03	2174856.65
		TL= 495.70	S 58°08'26" E		
POE	F 507+68.91			507099.38	2175277.68

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/11); epoch 2010.00; Geoid 12B; SF = 0.9999170562



CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 0047(122)58 049-392	SHEET 19	TOTAL SHEETS 82
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REV. 9/4/24 JT

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP 700			5/8" Rebar	554363.967	2171255.888	1802.59
CP 701	A92+65.75	28.76 Rt	5/8" Rebar	543665.704	2171374.945	1802.34
CP 702	B174+08.37	33.43 Rt	5/8" Rebar	535506.857	2171465.323	1802.32
CP 703	C270+79.07	45.21 Lt	5/8" Rebar	526393.815	2173237.580	1723.48
CP 704	F499+81.29	44.56 Rt	5/8" Rebar	507481.158	2174585.737	1646.05
CP 705	E426+07.02	45.72 Rt	5/8" Rebar	513901.000	2171364.301	1617.20
CP 706	D372+25.50	40.15 Lt	5/8" Rebar	516848.299	2174629.726	1416.29

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/11); epoch 2010.00; Geoid 12B; SF = 0.9999170562 The elevations shown on this sheet are based on NAVD 88.



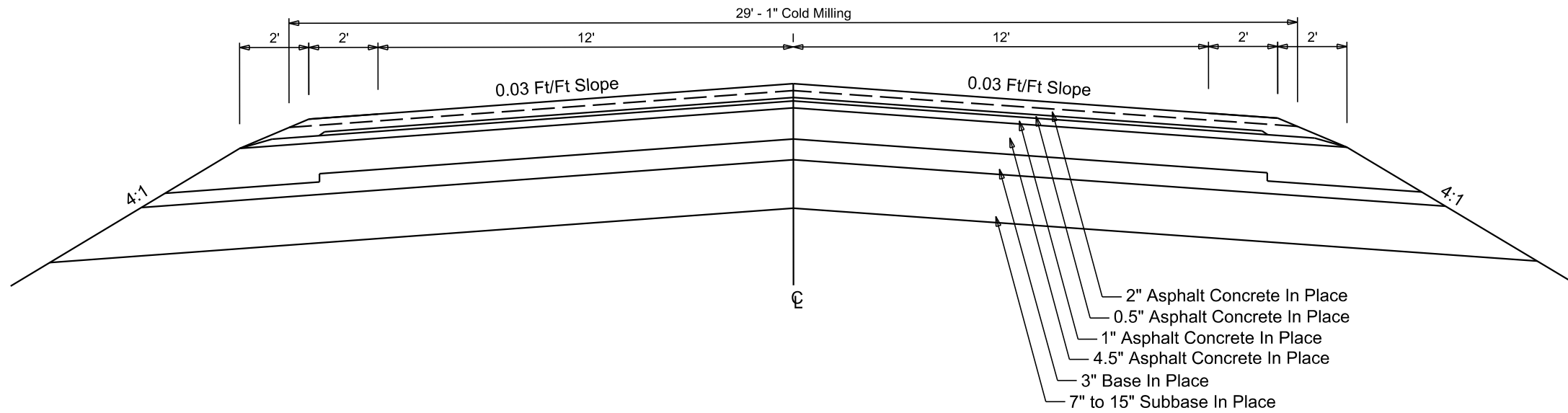
TYPICAL SURFACING SECTION

FOR BIDDING PURPOSES ONLY

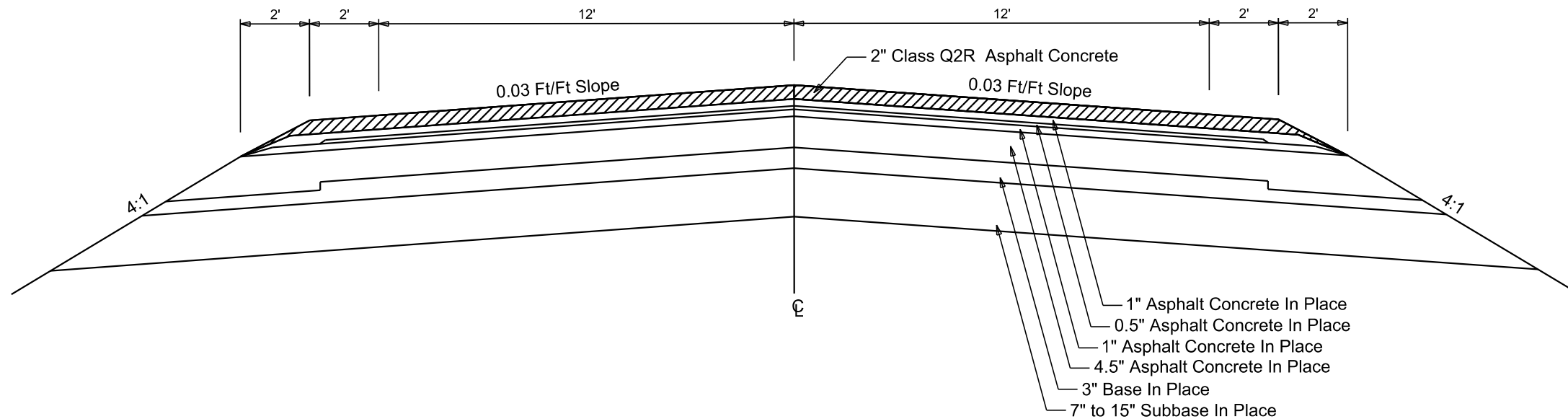
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	20	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

SECTION 1

Station A2+00 to Station F509+79 (Thru Equations)
IN PLACE & 1" COLD MILLING SECTION



Station A2+00 to Station F509+79 (Thru Equations)
RESURFACING TYPICAL SECTION 1



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	21	82

Plotting Date: 10/25/2024 REV. 10/21/24

TABLE OF MATERIAL QUANTITIES

Description	Water for Granular Material **(MGal)	Cold Milling Asphalt Concrete		Remove Asphalt Concrete Pavement (SqYd)	Contractor Furnished Borrow Excavation (CuYd)	Base Course, Salvaged (Ton)	Base Course (Ton)	Granular Material, Furnish (Ton)	*Granular Material, Furnish (Ton)	Blend & Stockpile Granular Material (Ton)	*Blend, Haul & Stockpile Granular Material (Ton)	Asphalt Concrete Blaid Laid (Ton)	Asphalt Concrete Composite (Ton)	ALTERNATE A			ALTERNATE B			SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
		(SqYd)	** (Ton)											Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)			
Section 1	-	174,498	8,499.8	-	-	-	-	-	-	-	-	-	-	18,337.3	837.4	180.8	18,841.7	694.7	190.3	42.8	33.3	494.8
Asphalt Concrete Blade Laid	-	-	-	-	-	-	-	-	-	-	-	2,854.8	-	-	215.0	28.6	-	215.0	28.6	123.8	-	-
Table of Additional Quantities Totals	30.5	5,435	338.9	75.0	693	1,641.8	0.0	811.1	1,641.8	1,641.8	3,283.6	-	240.4	1,537.2	117.3	25.2	1,547.4	102.6	22.5	8.9	0.6	9.8
TOTAL	30.5	179,933	8,838.7	75.0	693	1,641.8	0.0	811.1	1,641.8	1,641.8	3,283.6	2,854.8	240.4	19,874.5	1,169.7	234.6	20,389.1	1,012.3	241.4	175.5	33.9	504.6

* Denotes Non-Participating
 ** Provided for informational purpose only



Plot Scale - 1:200

Plotted From - Justin

File - Shaera Plot - Quantities.dwg

TABLE OF ADDITIONAL QUANTITIES

Description	Water for Granular Material **(MGal)	Cold Milling Asphalt Concrete		Unclassified Excavation, Digouts (CuYd)	Remove Asphalt Concrete Pavement (SqYd)	Contractor Furnished Borrow Excavation (CuYd)	Base Course, Salvaged (Ton)	Base Course (Ton)	Granular Material, Furnish (Ton)	*Granular Material, Furnish (Ton)	Blend & Stockpile Granular Material (Ton)	Asphalt Concrete Composite (Ton)	*Blend, Haul & Stockpile Granular Material (Ton)	Alternate A			Alternate B			SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)		
		(SqYd)	** (Ton)											Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)					
Asphalt to End of ROW																								
g Intersecting Road, Private, and Residential Entrances (Refer to "Table of Approaches" sheet for locations)	-	2,290	120.2	-	-	-	-	-	-	-	-	-	-	145.7	6.7	1.5	151.5	5.6	1.5	0.6	-	-	-	
Farm & Field Entrances																								
37 Intersecting Road, Private, Farm, and Field Entrances (Refer to "Table of Approaches" sheet for locations)	6.3	-	-	-	-	-	652.9	-	326.5	-	652.9	-	-	111.0	5.1	1.1	115.4	4.3	1.2	-	-	-	-	
Structure Approach Pavement Reconstruction																								
Begin Bridge Approach Limits	-	1,252	92.7	-	-	30	11.1	-	-	-	11.1	-	-	137.4	6.4	1.4	137.4	-	-	0.3	0.3	4.9	-	
End Bridge Approach Limits	-	1,249	92.2	-	-	23	8.5	-	-	-	8.5	-	-	137.4	6.4	1.4	137.4	-	-	0.3	0.3	4.9	-	
Blend, Haul & Stockpile Cold Milled Material																								
Cold Milling Transitions:																								
Begin Project	-	322	16.9	-	-	-	-	-	-	-	-	-	-	18.2	0.8	0.2	18.2	0.8	0.2	-	-	-	-	
End Project	-	322	16.9	-	-	-	-	-	-	-	-	-	-	18.2	0.8	0.2	18.2	0.8	0.2	-	-	-	-	
Spot Leveling, Strengthening, & Repair																								
Backfill for Digouts	9.3	-	-	476	-	-	969.3	-	484.7	-	969.3	-	-	-	-	-	-	-	-	-	-	-	-	
Pipe Repair																								
A134+99	7.5	-	-	-	37.5	-	-	-	-	-	-	120.2	-	-	-	-	-	-	-	-	-	-	-	
A167+97	7.5	-	-	-	37.5	-	-	-	-	-	-	120.2	-	-	-	-	-	-	-	-	-	-	-	
E469+27	-	-	-	-	-	640.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOTAL	30.5	5,435	338.9	476	75	693	1,641.8	0.0	811.1	1,641.8	1,641.8	240.4	3,283.6	1,537.2	117.3	25.2	1,547.4	102.6	22.5	8.9	0.6	9.8		

* Denotes Non-Participating
 ** Provided for informational purpose only
 *** Note ~ A portion of Class Q2R Hot Mixed Asphalt Concrete shall be to "Specified Density Compaction".
 Tonnage shown in the tables above for Class Q2R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.
 The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.



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Justin
Plotted From

File - ...Sheets\Plan_Quantities.dgn

FOR BIDDING PURPOSES ONLY

Plotting Date: 9/4/2024 REV. 9/4/24 JT

FENCE QUANTITIES

Station to Station		Side (L/R)	Right-of-Way Fence				Temporary Fence			Post Panels		Remove Fence (Ft)	Gates	
			Type 2 (Ft)				Type 1A (Ft)	Type 1B (Ft)	Type 2 (Ft)	2 Post Panel (Each)	3 Post Panel (Each)			
B180+41	B182+13	R	200					250	2		200			
B182+41	B184+13	L	200					250	2		200			
C293+14	C294+64	R	150					300	2		150			
E401+44	E402+07	R	125					89	4		125			
E401+07	E402+07	L	136					150	6		136			
E425+70	E426+70	L	105					131	2	1	105			
E468+08	E469+58	R	70					407	2		70			
TOTALS:			986					1577	20	1	986			

Post Type and Sequence:
Right-of-way fence shall be constructed using alternate wood and steel posts except as noted.



Plot Scale - 1:200

Plotted From - Justin

File - ...Sheets\Plan_Quantities.dgn

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	24	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

TABLE OF APPROACHES

HIGHWAY 47 APPROACH NUMBER	STATION	LEFT OR RIGHT	COMMENTS	HIGHWAY 47 APPROACH NUMBER	STATION	LEFT OR RIGHT	COMMENTS
29	11+136	Rt	Interstate Ramp	48	C270+82	Lt	Field Entrance
30	11+176	Lt	Interstate Ramp	49	C299+51	Lt	Field Entrance
31	18+95	Rt	Interstate Ramp	50	C326+33	Rt	Field Entrance
32	18+138	Lt	Interstate Ramp	51	C340+42	Lt	Field Entrance
33	A2+01	Lt	Intersecting Road(Mailbox)	52	D353+77	Lt	Private Entrance(paved)
34	A2+01	Rt	Intersecting Road	53	D353+77	Rt	Private Entrance
35	A9+93	Rt	Field Entrance	54	D368+83	Lt	Private Entrance(paved)(mailbox)
36	A9+93	Lt	Field Entrance	55	E395+22	Rt	Private Entrance(paved)
37	A18+39.47	Rt	Field Entrance	56	E395+15	Lt	Private Entrance(mailbox)
38	A28+54	Lt	Field Entrance	57	E425+97	Rt	Field Entrance
39	A28+54	Rt	Field Entrance	58	E433+66	Rt	Field Entrance
40	A54+83	Lt	Intersecting Road	59	E433+66	Lt	Field Entrance
41	A54+83	Rt	Intersecting Road	60	E450+80	Lt	Field Entrance
42	A77+78	Rt	Field Entrance	61	E461+56	Lt	Field Entrance
43	A92+55	Lt	Field Entrance	62	E461+56	Rt	Field Entrance
44	A92+63	Rt	Field Entrance	63	E476+78	Rt	Field Entrance
45	A107+46	Rt	Field Entrance	64	F491+19	Lt	Field Entrance
46	A107+46	Lt	Field Entrance	65	F491+19	Rt	Field Entrance
47	A146+97	Lt	Field Entrance	66	F499+87	Rt	Field Entrance
48	A146+97	Rt	Field Entrance				
49	A160+60	Rt	Intersecting Road				
50	A160+60	Lt	Intersecting Road				
51	B174+01	Rt	Field Entrance				
52	B174+01	Lt	Field Entrance				
53	C207+07	Rt	Field Entrance				
54	C207+07	Lt	Field Entrance				
55	C236+08	Lt	Field Entrance				
56	C236+08	Rt	Field Entrance				



Plot Scale - 1:200

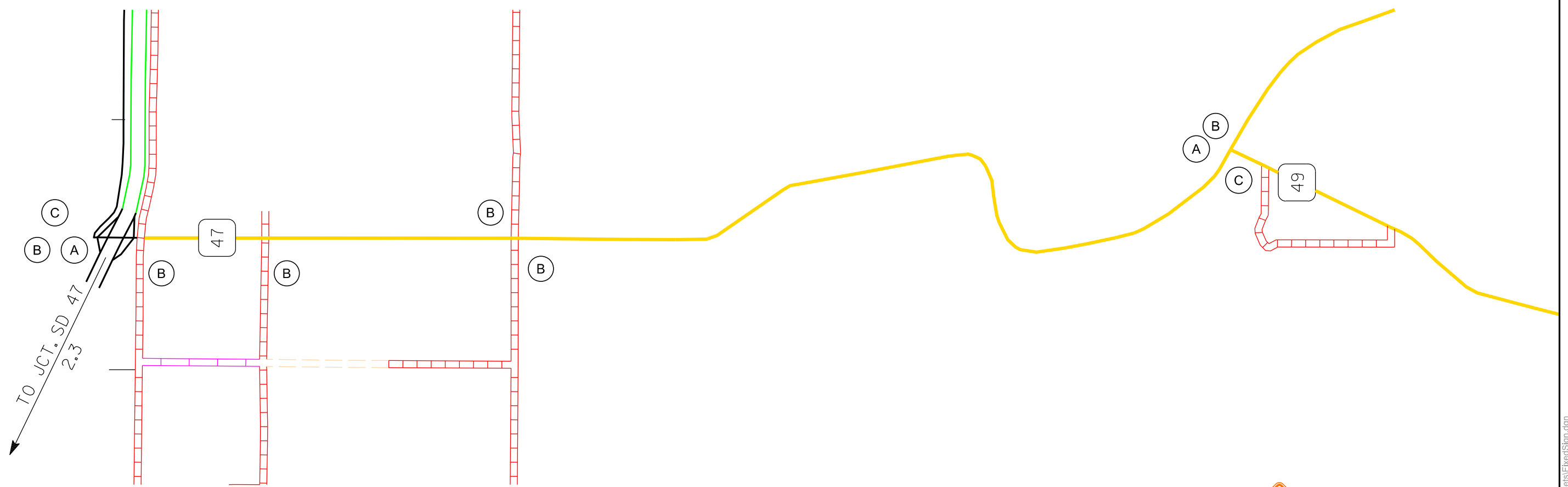
Plotted From - Justin

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FIXED LOCATION SIGNS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	26	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	



ROAD WORK
NEXT 10 MILES

ROAD
WORK
AHEAD

END
ROAD WORK

A

B

C

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W8-1	BUMP	2	48" x 48"	16.0	32.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0	32.0
W8-15	GROOVED PAVEMENT	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W20-1	ROAD WORK AHEAD	5	48" x 48"	16.0	80.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-1	WORKERS (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-1	ROAD WORK NEXT 10 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0

CONVENTIONAL ROAD
TRAFFIC CONTROL SIGNS SQFT **462.6**

NOTES:
Sign locations will be verified in the field by the Engineer prior to installation.
Fixed location signs to remain in place until the completion of permanent pavement markings.



Plot Scale - 1:200

Plotted From - Justin

File - ...I:\design\Sheets\FixedSign.dgn

LEGEND

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	27	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

Plot Scale - 1:200

Plotted From - Justin

Anchor		Mailbox		Subsurface Utility Exploration Test Hole		State and National Line	
Antenna		Manhole Electric		Telephone Fiber Optics		County Line	
Approach		Manhole Gas		Telephone Junction Box		Section Line	
Assumed Corner		Manhole Miscellaneous		Telephone Pole		Quarter Line	
Azimuth Marker		Manhole Sanitary Sewer		Television Cable Jct Box		Sixteenth Line	
BBQ Grill/ Fireplace		Manhole Storm Sewer		Television Tower		Property Line	
Bearing Tree		Manhole Telephone		Test Wells/Bore Holes		Construction Line	
Bench Mark		Manhole Water		Traffic Sign Double Face		ROW Line	
Box Culvert		Merry-Go-Round		Traffic Sign One Post		New ROW Line	
Bridge		Microwave Radio Tower		Traffic Sign Two Post		Cut and Fill Limits	
Brush/Hedge		Miscellaneous Line		Traffic Signal		Control of Access	
Buildings		Miscellaneous Property Corner		Trash Barrel		New Control of Access	
Bulk Tank		Miscellaneous Post		Tree Belt		Proposed ROW	
Cattle Guard		Overhang Or Encroachment		Tree Coniferous		(After Property Disposal)	
Cemetery		Overhead Utility Line		Tree Deciduous			
Centerline		Parking Meter		Tree Stumps			
Cistern		Pedestrian Push Button Pole		Triangulation Station		Drainage Arrow	
Clothes Line		Pipe With End Section		Underground Electric Line			
Concrete Symbol		Pipe With Headwall		Underground Gas Line			
Control Point		Pipe Without End Section		Underground High Pressure Gas Line		Remove Concrete Pavement	
Creek Edge		Playground Slide		Underground Sanitary Sewer		Remove Concrete Driveway Pavement	
Curb/Gutter		Playground Swing		Underground Storm Sewer		Remove Asphalt Concrete Pavement	
Curb		Power And Light Pole		Underground Tank		Remove Concrete Sidewalk	
Dam Grade/Dike/Levee		Power And Telephone Pole		Underground Telephone Line		Remove Concrete Median Pavement	
Deck Edge		Power Meter		Underground Television Cable		Remove Concrete Curb and/or Gutter	
Ditch Block		Power Pole		Underground Water Line			
Doorway Threshold		Power Pole And Transformer		Water Fountain			
Drainage Profile		Power Tower Structure		Water Hydrant		Detectable Warning	
Drop Inlet		Propane Tank		Water Meter		Pedestrian Push Button Pole	
Edge Of Asphalt		Property Pipe		Water Tower		and 30" x 48" Clear Space	
Edge Of Concrete		Property Pipe With Cap		Water Valve		with 1.5% slope	
Edge Of Gravel		Property Stone		Water Well			
Edge Of Other		Public Telephone		Weir Rock			
Edge Of Shoulder		Railroad Crossing Signal		Windmill			
Electric Transformer/Power Junction Box		Railroad Milepost Marker		Wingwall			
Fence Barbwire		Railroad Profile		Witness Corner			
Fence Chainlink		Railroad ROW Marker					
Fence Electric		Railroad Signs					
Fence Miscellaneous		Railroad Switch					
Fence Rock		Railroad Track					
Fence Snow		Railroad Trestle					
Fence Wood		Rebar					
Fence Woven		Rebar With Cap					
Fire Hydrant		Reference Mark					
Flag Pole		Retaining Wall					
Flower Bed		Riprap					
Gas Valve Or Meter		River Edge					
Gas Pump Island		Rock And Wire Baskets					
Grain Bin		Rockpiles					
Guardrail		Satellite Dish					
Gutter		Septic Tank					
Guy Pole		Shrub Tree					
Haystack		Sidewalk					
Highway ROW Marker		Sign Face					
Interstate Close Gate		Sign Post					
Iron Pin		Slough Or Marsh					
Irrigation Ditch		Spring					
Lake Edge		Stream Gauge					
Lawn Sprinkler		Street Marker					

File - ...Design\Sheets\legend.dgn



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	28	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

Plot Scale - 1:200

Plotted From - Justin

15+68
4x6 Cattle Pass - 58'
Repair Culvert Joints



South Dakota Department of Transportation
(INFORMATION ONLY)

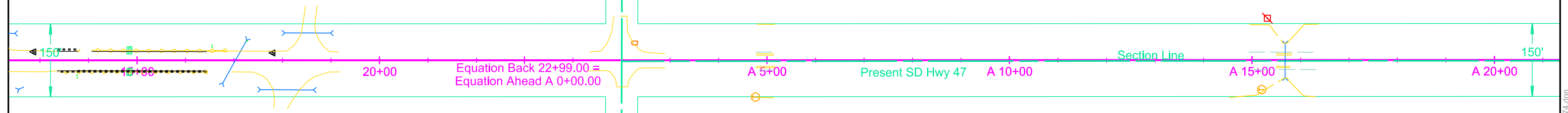
Sec 3 - T104N - R73W

Lenny Wolcott
(INFORMATION ONLY)

Sec 35 - T105N - R73W

SW1/4

NW1/4



South Dakota Department of Transportation
(INFORMATION ONLY)

Section Line

3333'

Section Line

Lenny Wolcott
(INFORMATION ONLY)

NE1/4

Sec 34 - T105N - R73W

Sec 4 - T104N - R73W



File - ...Plan\plan_15+68_-5+74.dgn

FOR BIDDING PURPOSES ONLY

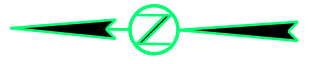
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	29	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

A 107+00 L
Remove (1) 18" RCP End Section
for Reset

A 107+00 L
Reset (1) 18" RCP Flared End

107+00
Retain 18" - 61' RCP
& End Section (R)

107+00 R
Pipe Cleanout



Sec 10 - T104N - R73W

Sec 15 - T104N - R73W

Kathleen Thelen
(INFORMATION ONLY)

S1/2SW1/4

Kathleen Thelen
(INFORMATION ONLY)

NW1/4

Deborah J Nissen
(INFORMATION ONLY)

SE1/4

Deborah J Nissen
(INFORMATION ONLY)

NE1/4

Sec 9 - T104N - R73W

Sec 16 - T104N - R73W

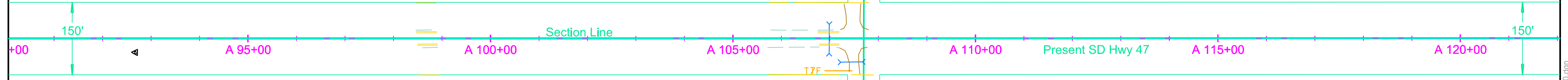
33'33"

A 107+69.67

246th St

Section Line

33'33"



Plot Scale - 1:200

Plotted From - Justin

File - ...DesignPlan\plan_107+00.dgn



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	30	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

A 134+99
Remove 18" - 92' CMP
& (2) 18" CMP End Sections

A 134+99
Install 24" - 86' RCP
& (2) 24" RCP Flared Ends

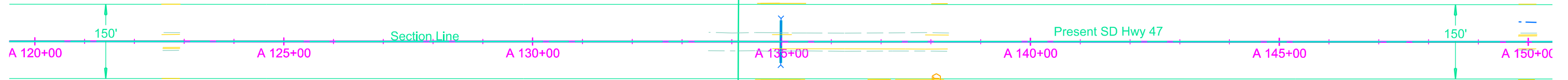


Sec 15 - T104N - R73W

Sec 15 - T104N - R73W

Kathleen Thelen
(INFORMATION ONLY)
NW1/4

Kathleen Thelen
(INFORMATION ONLY)
SW1/4



Deborah J Nissen
(INFORMATION ONLY)
NE1/4

SE1/4

HW Ranch LLC
(INFORMATION ONLY)

Sec 16 - T104N - R73W

Sec 16 - T104N - R73W



Plot Scale - 1:200

Justin

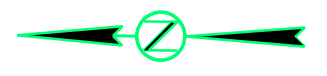
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	31	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

FOR BIDDING PURPOSES ONLY
 A 167+97
 Remove 18" - 72' RCP
 & (2) 18" CMP End Sections

A 167+97
 Install 24" - 68' RCP
 & (2) 24" RCP Flared End



Sec 15 - T104N - R73W

Sec 22 - T104N - R73W

Kathleen Thelen
 (INFORMATION ONLY)
 SW1/4

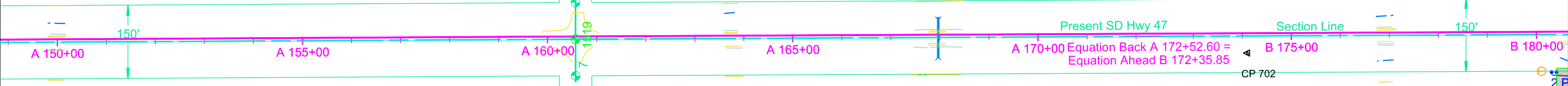
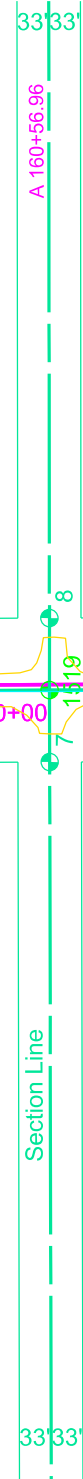
Richard L. Graves
 (INFORMATION ONLY)
 NW1/4

HW Ranch LLC
 (INFORMATION ONLY)
 SE1/4

HW Ranch LLC
 (INFORMATION ONLY)
 NE1/4

Sec 16 - T104N - R73W

Sec 21 - T104N - R73W



Plot Scale - 1/200

Plotted From - Justin

File - ...I:\Design\Plan\plan_168+00.dgn



Plot Scale - 1:200

Plotted From - Justin

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	32	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT

B 182+20 Retain 18"-186' RCP
 B 182+20 L Remove 18" End Section
 B 182+20 R Remove 18" End Section

B 182+20 L Remove 18"-6' RCP for Reset
 B 182+20 R Remove 18"-6' RCP for Reset
 B 182+20 L Reset 18"-6' RCP & Install 18" RCP Flared End
 B 182+20 R Reset 18"-6' RCP & Install 18" RCP Flared End

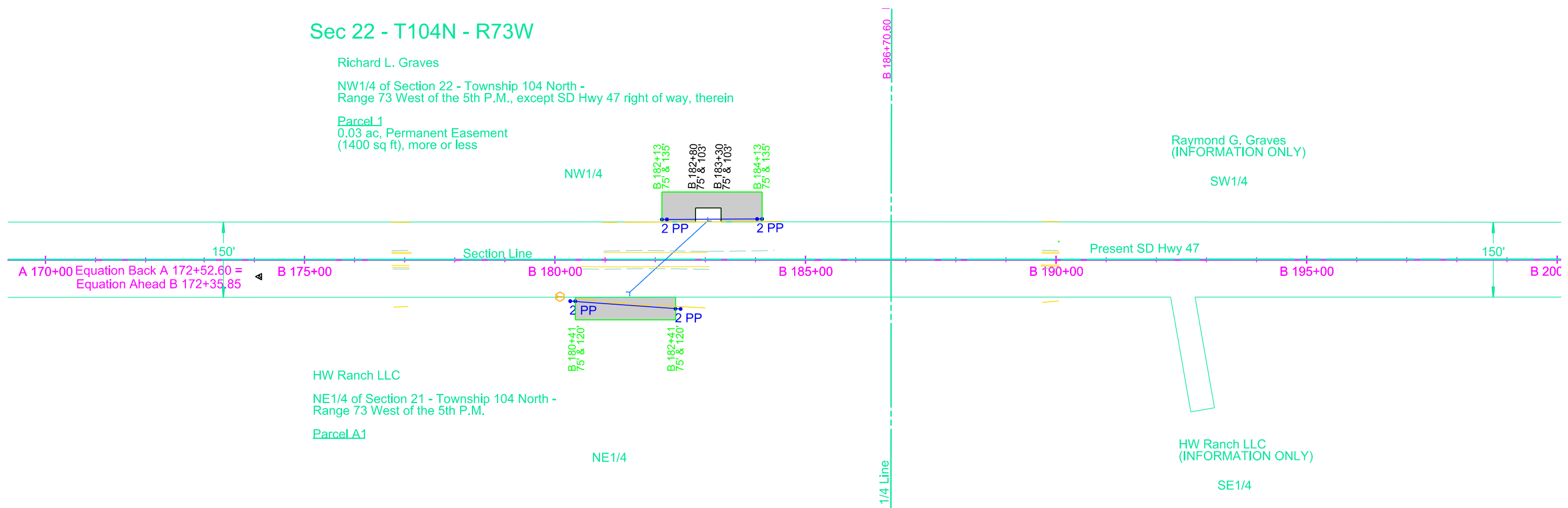
B 180+41 R Begin Type 2 Fence
 B 182+13 L Begin Type 2 Fence
 B 182+41 R End Type 2 Fence
 B 184+13 L End Type 2 Fence



Sec 22 - T104N - R73W

Richard L. Graves
 NW1/4 of Section 22 - Township 104 North - Range 73 West of the 5th P.M., except SD Hwy 47 right of way, therein
 Parcel 1
 0.03 ac, Permanent Easement (1400 sq ft), more or less

Raymond G. Graves (INFORMATION ONLY)



Sec 21 - T104N - R73W

HW Ranch LLC
 NE1/4 of Section 21 - Township 104 North - Range 73 West of the 5th P.M.
 Parcel LA1

HW Ranch LLC (INFORMATION ONLY)

Parcel LA1
 B 180+41 to B 182+41 R
 Temporary Easement containing 0.2 ac, more or less

Parcel 1
 B 182+13 to B 184+13 L
 Temporary Easement containing 0.3 ac, more or less



File - ...DesignPlan\plan_182+20.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	33	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

FOR BIDDING PURPOSES ONLY

C 295+41
Retain 36" - 379' RCP
& End Section (L)

C 295+41 R
Remove 36" End Section

C 295+41 R
Remove 36"-6' RCP
for Reset

C 295+41 R
Reset 36"-6' RCP
& Install 36" RCP Flared End

C 293+14 R
Begin Type 2 Fence

C 294+64 R
End Type 2 Fence

C 307+98
Repair Culvert Joints

Sec 34 - T104N - R73W

Sec 34 - T104N - R73W

Graves Riverview LLC
(INFORMATION ONLY)

Graves Riverview LLC
(INFORMATION ONLY)

W1/2NE1/4

NW1/4SE1/4

Graves Riverview LLC
(INFORMATION ONLY)

1/4 Line

1/4 Line

Present SD Hwy 47

C 280+00

C 285+00

C 290+00

C 295+00

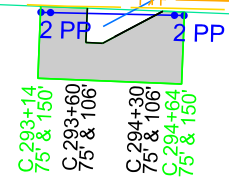
C 300+00

C 305+00

C 310+00

C 302+01.77

NW1/4



Dianne K. Graves Revocable Trust, dated October 20, 2017

NW1/4 of Section 34 - Township 104 North -
Range 73 West of the 5th P.M., lying west of SD Hwy 47

Parcel 2
0.04 ac, Permanent Easement
(1722 sq ft), more or less

Dianne K. Graves Revocable Trust
(INFORMATION ONLY)

N1/2SW1/4

Sec 34 - T104N - R73W

Sec 34 - T104N - R73W

Parcel 2
C 293+14 to C 294+64 R
Temporary Easement containing
0.2 ac, more or less



Plot Scale - 1:200

Plotted From - justin

File - ...I:\Design\Plan\plan_295+40.dgn

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	34	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

C 325+96 L
Pipe Cleanout
& Ditch Reprofilng



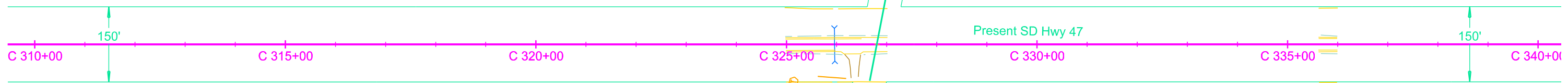
Sec 34 - T104N - R73W

Brad L. Byre
(INFORMATION ONLY)

SW1/4SE1/4

Brad L. Byre
(INFORMATION ONLY)

NE1/4



Sec 3 - T103N - R73W



Plot Scale - 1:200

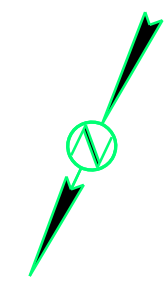
Plotted From - Justin

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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	35	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

D 371+99 Retain 18" - 85' RCP
 D 371+99 L Remove 18" End Section
 D 371+99 R Remove 18" End Section
 D 371+99 L Install 18" RCP Flared End
 D 371+99 R Install 18" RCP Flared End



Sec 3 - T103N - R73W

Sec 3 - T103N - R73W

SD Dept of Game, Fish & Parks (INFORMATION ONLY)

D 371+99 R Ditch Reprofilling

D 371+99 L Do Not Disturb Riprap

Government Lot 7

Government Lot 10

Larson White River Ranch LLC (INFORMATION ONLY)

1/16 Line

D 375+04.46

WHITE RIVER

Present SD Hwy 47

150'

D 370+00

D 375+00

D 380+00

Equation Back D 387+00.00 =
 Equation Ahead E 386+88.75

D 385+00

N1/2SE1/4

Government Lot 7

SD Dept of Game, Fish & Parks (INFORMATION ONLY)

Brad L. Byre (INFORMATION ONLY)

E 390+00

150'

1/4 Line

Government Lot 10

Plot Scale - 1:200

Plotted From - Justin

File - ...DesignPlan\plan_372+00.dgn



Plot Scale - 1:200

Plotted From - Justin

E 401+57
Retain 4'x6' - 104' Cattle Pass

E 401+57 L
Remove (1) 4'x6' Cattle Pass
End Section

E 401+57 R
Remove (1) 4'x6' Cattle Pass
End Section
for Reset

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	36	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT

E 390+30 - L
Install Access Grade Raise
Incidental Work, Grading

E 401+57 - L
Install (1)
4'x6' Cattle Pass End Section

E 401+57 - R
Reset (1)
4'x6' Cattle Pass End Section

E 401+44 R
Begin Type 2 Fence

E 402+07 R
End Type 2 Fence

E 401+07 L
Begin Type 2 Fence

E 402+07 L
End Type 2 Fence

Sec 4 - T103N - R73W

Sec 3 - T103N - R73W

Rosebud Sioux Tribe
(INFORMATION ONLY)

NE1/4NE1/4

Sec 9 - T103N - R73W

Rosebud Sioux Tribe
(INFORMATION ONLY)

SW1/4

Sec 4 - T103N - R73W

Larson White River Ranch LLC
Government Lot 10 in Section 3 -
Township 103 North - Range 73 West of the 5th P.M.
Parcel A2

Parcel A2
E 401+07 to E 402+07 R
Temporary Easement containing
0.1 ac, more or less

Parcel A2
E 401+07 to E 402+07 L
Temporary Easement containing
0.1 ac, more or less



File - ...DesignPlan\plan_408-45.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	37	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT

FOR BIDDING PURPOSES ONLY

E 426+20
Retain 18" - 109' RCP
& End Section (R)

E 426+20 L
Remove 18" Flared End Section
for Reset

E 425+70 L
Begin Type 2 Fence

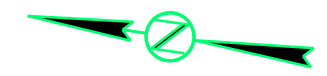
E 426+20 L
Reset 18" Flared End

E 426+70 L
End Type 2 Fence

Sec 10 - T103N - R73W

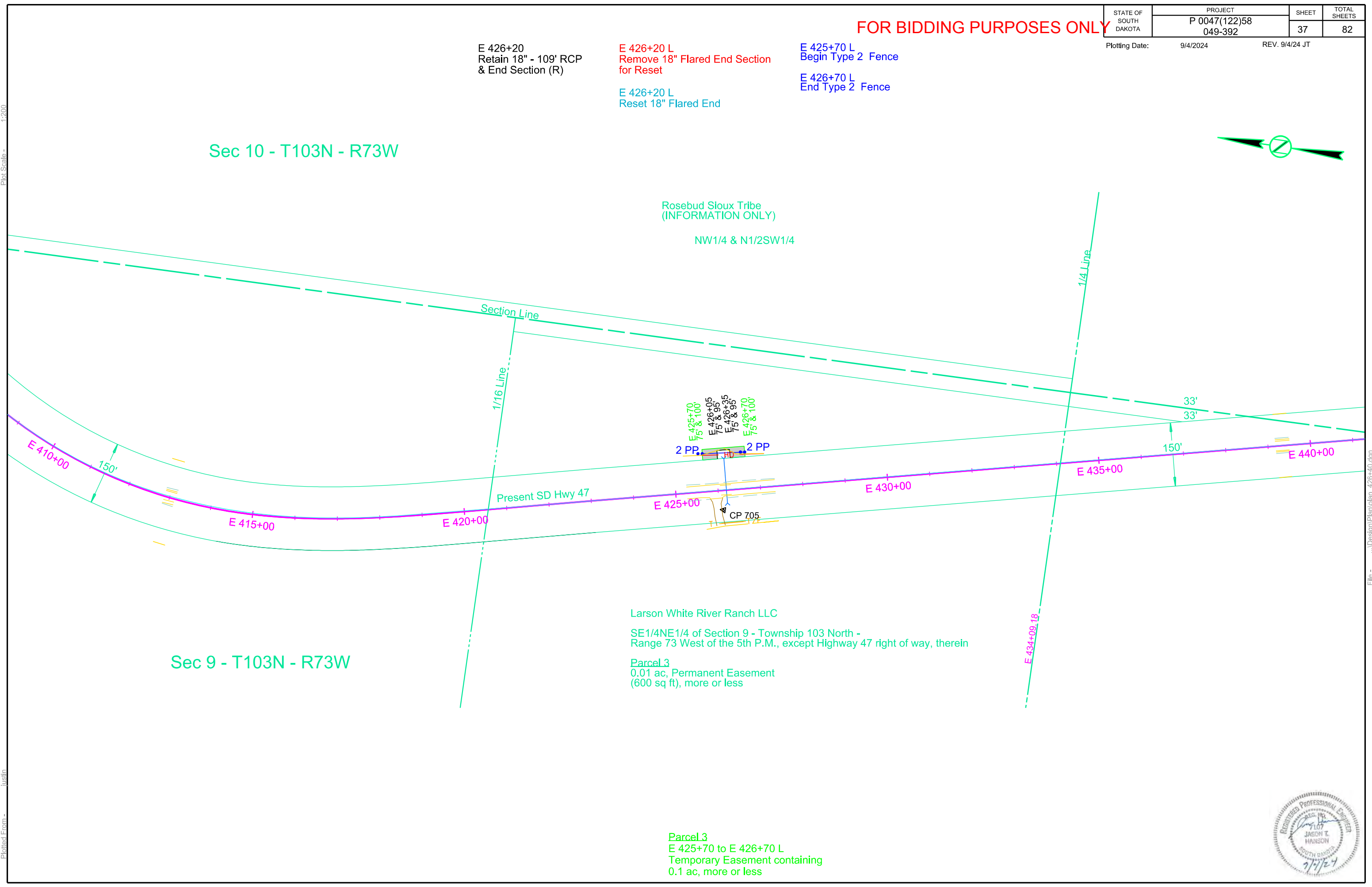
Rosebud Sioux Tribe
(INFORMATION ONLY)

NW1/4 & N1/2SW1/4



Plot Scale - 1:200

Plotted From - Justin



Sec 9 - T103N - R73W

Present SD Hwy 47

Larson White River Ranch LLC

SE1/4NE1/4 of Section 9 - Township 103 North -
Range 73 West of the 5th P.M., except Highway 47 right of way, therein

Parcel 3
0.01 ac, Permanent Easement
(600 sq ft), more or less

Parcel 3
E 425+70 to E 426+70 L
Temporary Easement containing
0.1 ac, more or less

File - ...I:\design\Plan\plan_426+40.dgn



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	38	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT

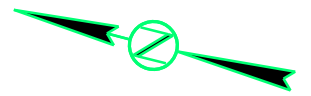
E 446+00
Retain 24" - 67' RCP

E 446+00 L
Remove 24"-8' RCP
& (1) 24" RCP End Section
for Reset

E 446+00 R
Remove 24"-8' RCP
& (1) 24" RCP End Section
for Reset

E 446+00 L
Reset 24"-8' RCP
& (1) 24" RCP End Section

E 446+00 R
Reset 24"-8' RCP
& (1) 24" RCP End Section



Sec 10 - T103N - R73W

Rosebud Sioux Tribe
(INFORMATION ONLY)

SW1/4

Larson White River Ranch LLC
(INFORMATION ONLY)

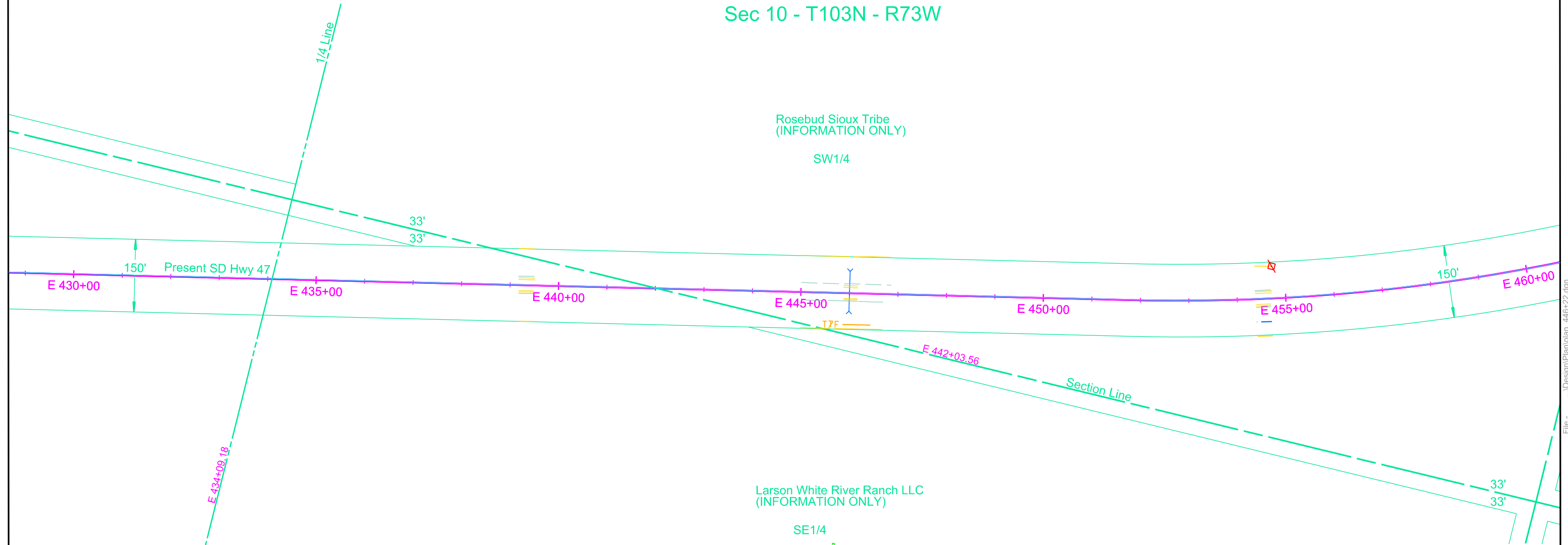
SE1/4

Sec 9 - T103N - R73W

Plot Scale - 1:200

Plotted From - justin

File - ...DesignPlan\plan_446+22.dgn



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	39	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT

FOR BIDDING PURPOSES ONLY

E 469+27
Retain 18" - 125' CMP
& End Section (L)

E 469+27 R
Remove 18" End Section

E 469+27 R
Install 18"-132' CMP (108' & 24')
& (1) - 5.0° CMP Elbow
& (1) - 10.0° CMP Elbow
(1) CMP Flared End

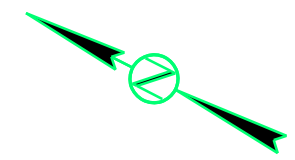
E 468+08 R
Begin Type 2 Fence

E 469+58 R
End Type 2 Fence

E 469+27 R
Install Bank and Channel
Protection Gabions, (4.5 CuYd)
and Type B Drainage Fabric (15 SqYd)

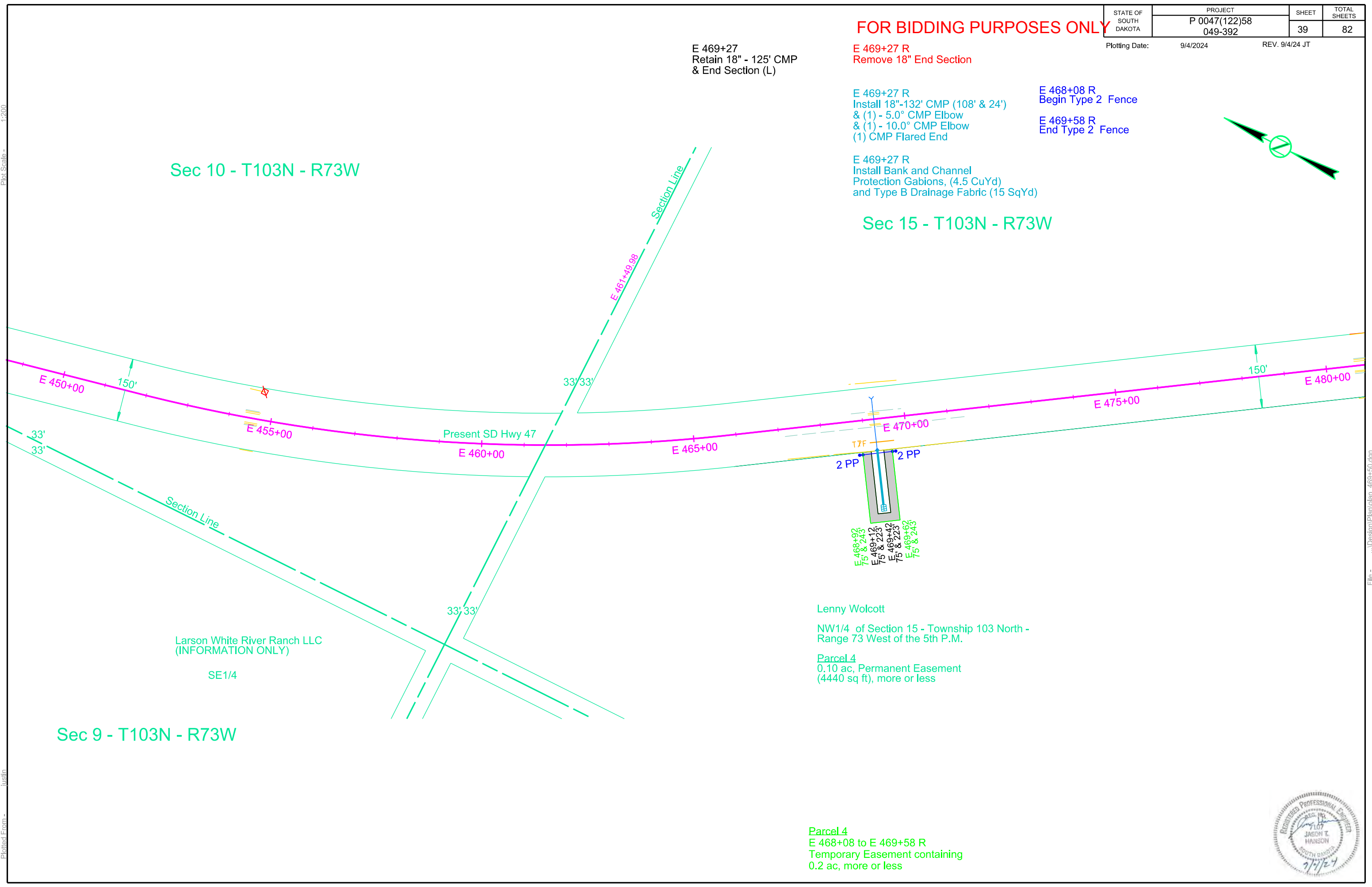
Sec 15 - T103N - R73W

Sec 10 - T103N - R73W



Plot Scale - 1:200

Plotted From - Justin



Larson White River Ranch LLC
(INFORMATION ONLY)

SE1/4

Sec 9 - T103N - R73W

Lenny Wolcott
NW1/4 of Section 15 - Township 103 North -
Range 73 West of the 5th P.M.

Parcel 4
0.10 ac, Permanent Easement
(4440 sq ft), more or less

Parcel 4
E 468+08 to E 469+58 R
Temporary Easement containing
0.2 ac, more or less



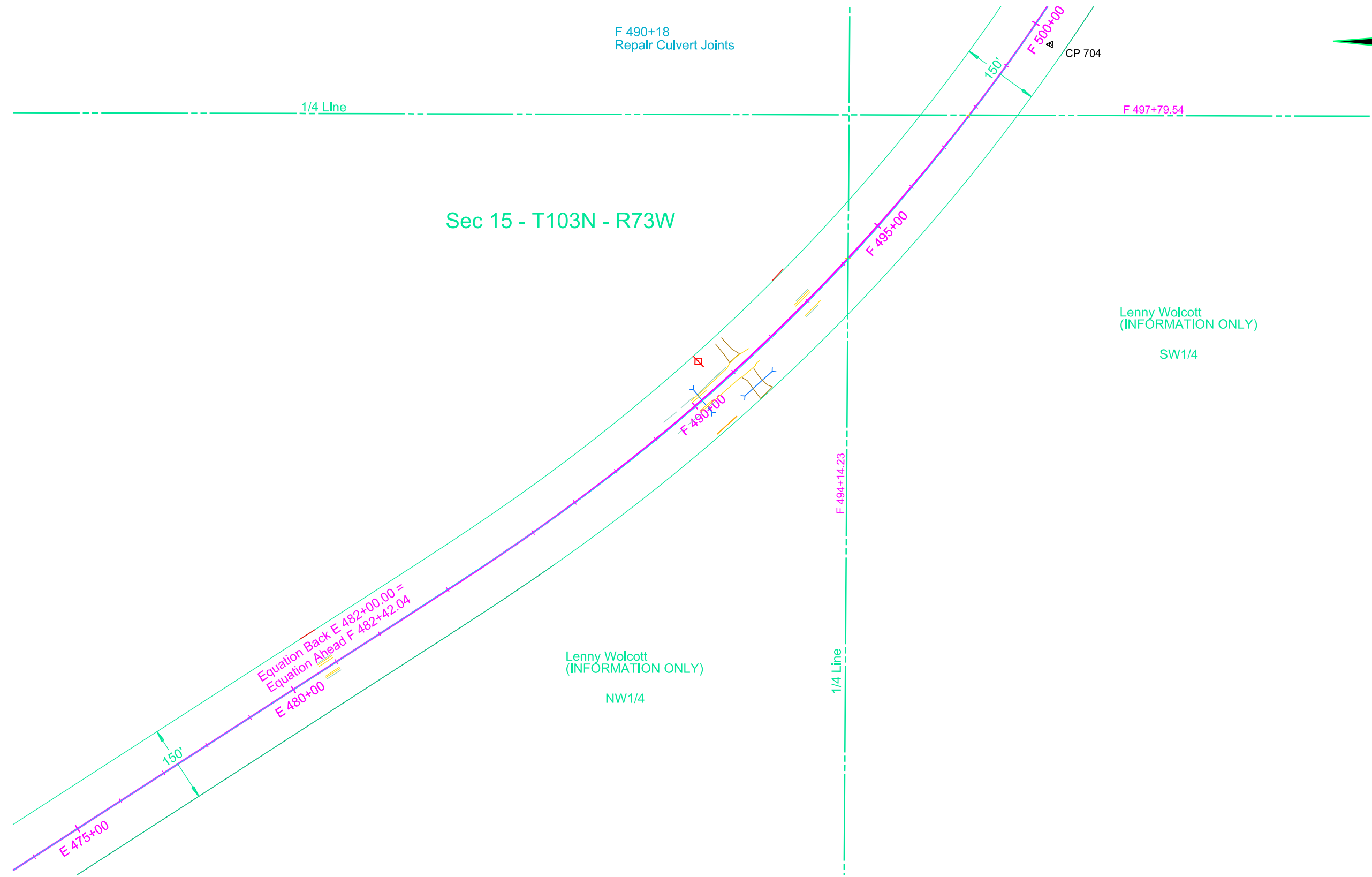
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	40	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

Plot Scale - 1:200

Plotted From - Justin



File - ...DesignPlan\plan_489+00.dgn

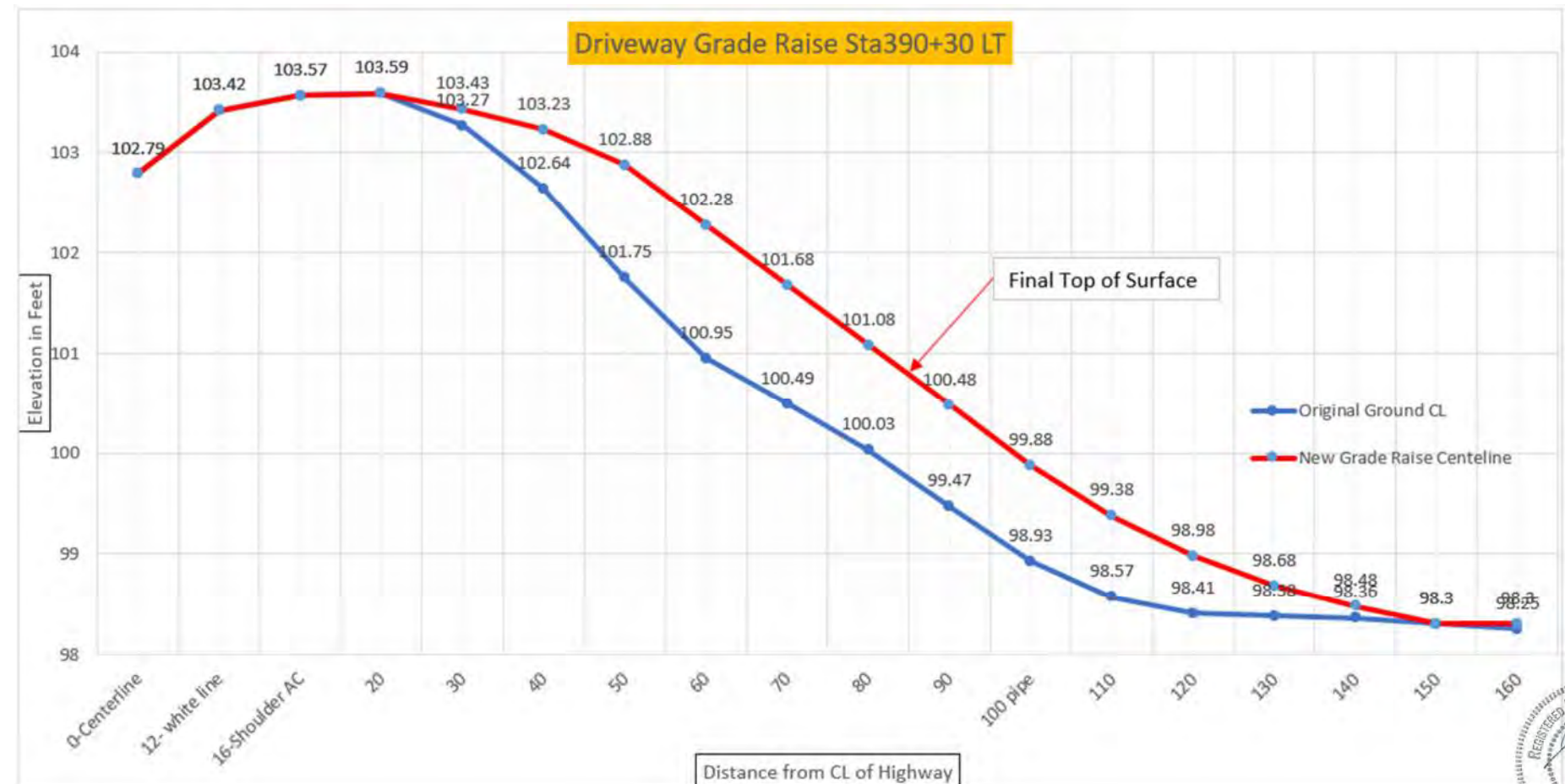
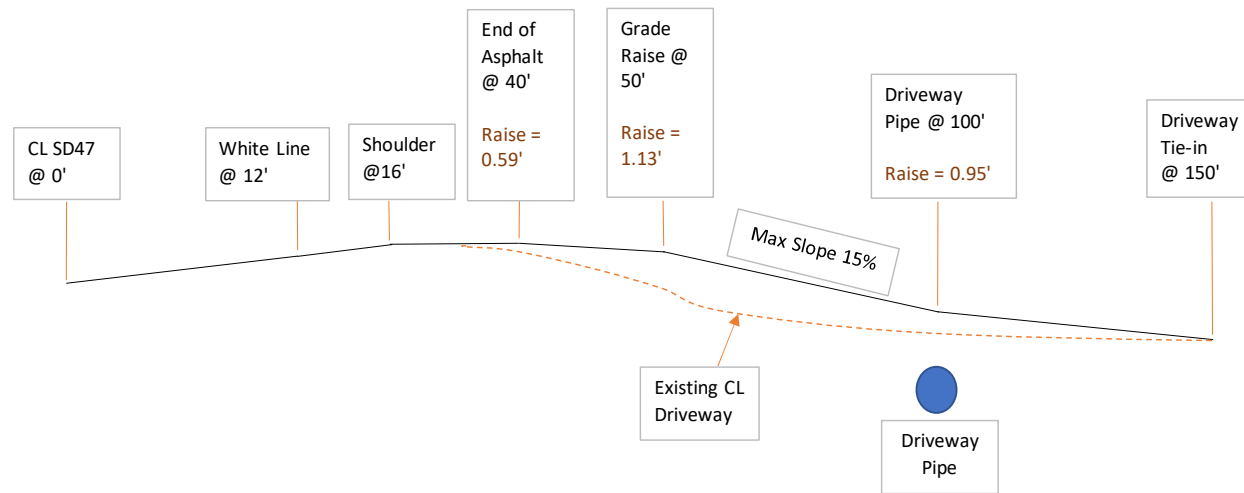
Details for Access Grade Raise Sta 390+30 LT (SD 47 MRM 60.11)

Raising of the access at STA 390+30LT will consist of the following work:

1. The existing top 4" of topsoil will be removed or rolled down from the area that is to be raised and replaced on the finished access grade raise.
2. The existing asphalt access will be removed by the contractor (149.9 SQYDS.)
3. The existing access will be raised approximately as per the top of finished surface profile elevations. Borrow material elevations will need to be calculated to account for final surfacing. The new access will be the same present width and taper to match the 16' wide finished top on the existing driveway. All fill material will be compacted to the satisfaction of the engineer. See attached profile for details.
4. The installation of the borrow material will a match the in place inslopes along the highway and be warped into the existing driveway inslopes as approved by the Engineer.
5. To facilitate drainage from the current driveway ditches to the highway ditch, new flat bottom drainage ways will be installed to ensure drainage of the driveway is maintained. The new ditch bottom will be a minimum of 5' or as approved by the engineer.
6. Upon completion of the borrow material, a minimum of 3" of gravel surfacing will be placed. The new gravel will be blended into the existing driveway and terminate at approximately 150' from the centerline of the highway.
7. A minimum of 6" of base course salvage will be installed under the asphalt area.
8. Asphalt concrete will be placed from the edge of the roadway (White Line) out 40 feet at a depth of 3".
9. All disturbed areas are to have the topsoiled rolled back up the inslope smoothed or raked, seeded, and mulched.

Driveway Grade Raise Sta 390+30 LT

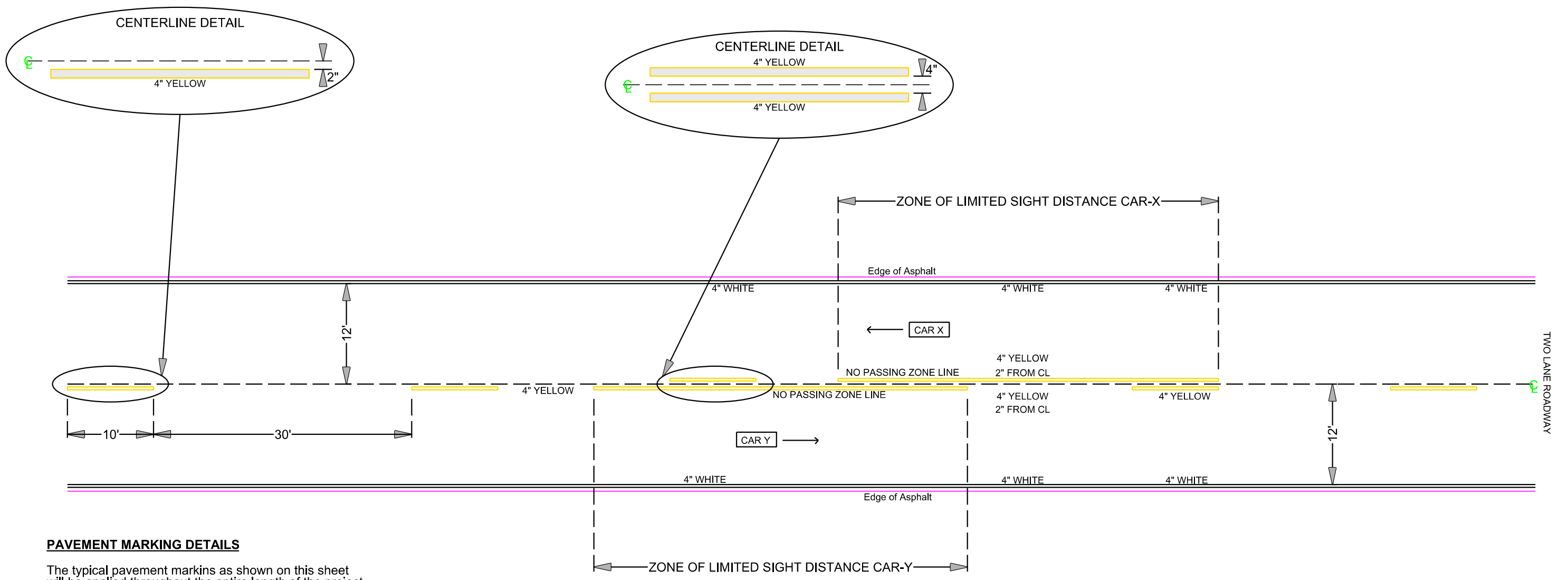
-- Drawing Not to Scale--



TYPICAL PAVEMENT MARKING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	42	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

FOR BIDDING PURPOSES ONLY



PAVEMENT MARKING DETAILS

The typical pavement markings as shown on this sheet will be applied throughout the entire length of the project.

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

Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines. If present, will not be used as the beginning and ending NO PASSING ZONE lines.

ESTIMATED QUANTITIES (BASED ON ONE APPLICATION)		
PAINT	QUANTITY	
WHITE	446	GALLONS
YELLOW	383	GALLONS



Plot Scale - 1:200

Plotted From - Justin

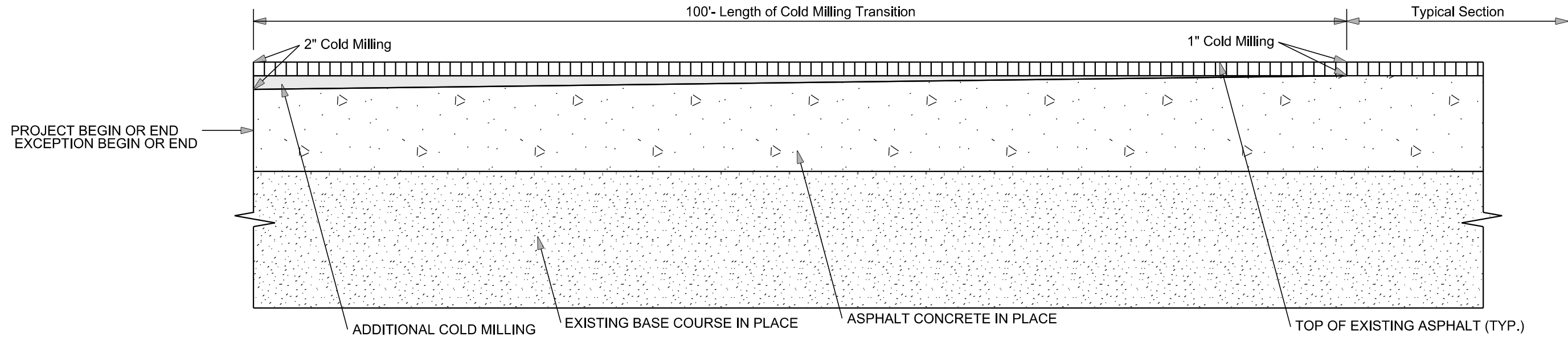
File - ...Sheets\Pavement Marking.dgn

LAYOUT FOR COLD MILLING TAPERS

FOR BIDDING PURPOSES ONLY

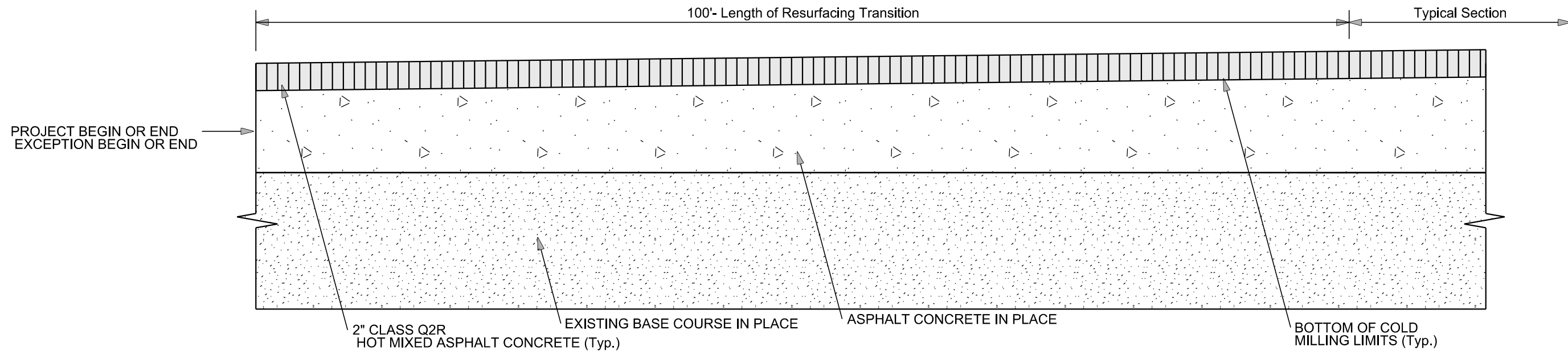
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	43	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

Plot Scale - 1:200



- The shaded area is the approximate limits of additional cold milling asphalt concrete.
- The hatched area is the approximate limits of 1" cold milling of asphalt concrete.
- The shaded/hatched area is the approximate limits of 2" Class Q2R Hot Mixed Asphalt Concrete

THE CONTRACTOR WILL TRANSITION THE COLD MILLING FROM THE EXCEPTION BEGIN/END (OR PROJECT BEGIN/END) TO A POINT 100' FROM THE EXCEPTION BEGIN/END (OR PROJECT BEGIN/END), AS SHOWN IN THE DETAIL



NOTE: Cost of additional milling as shown in the detail will be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".



Plotted From - Justin

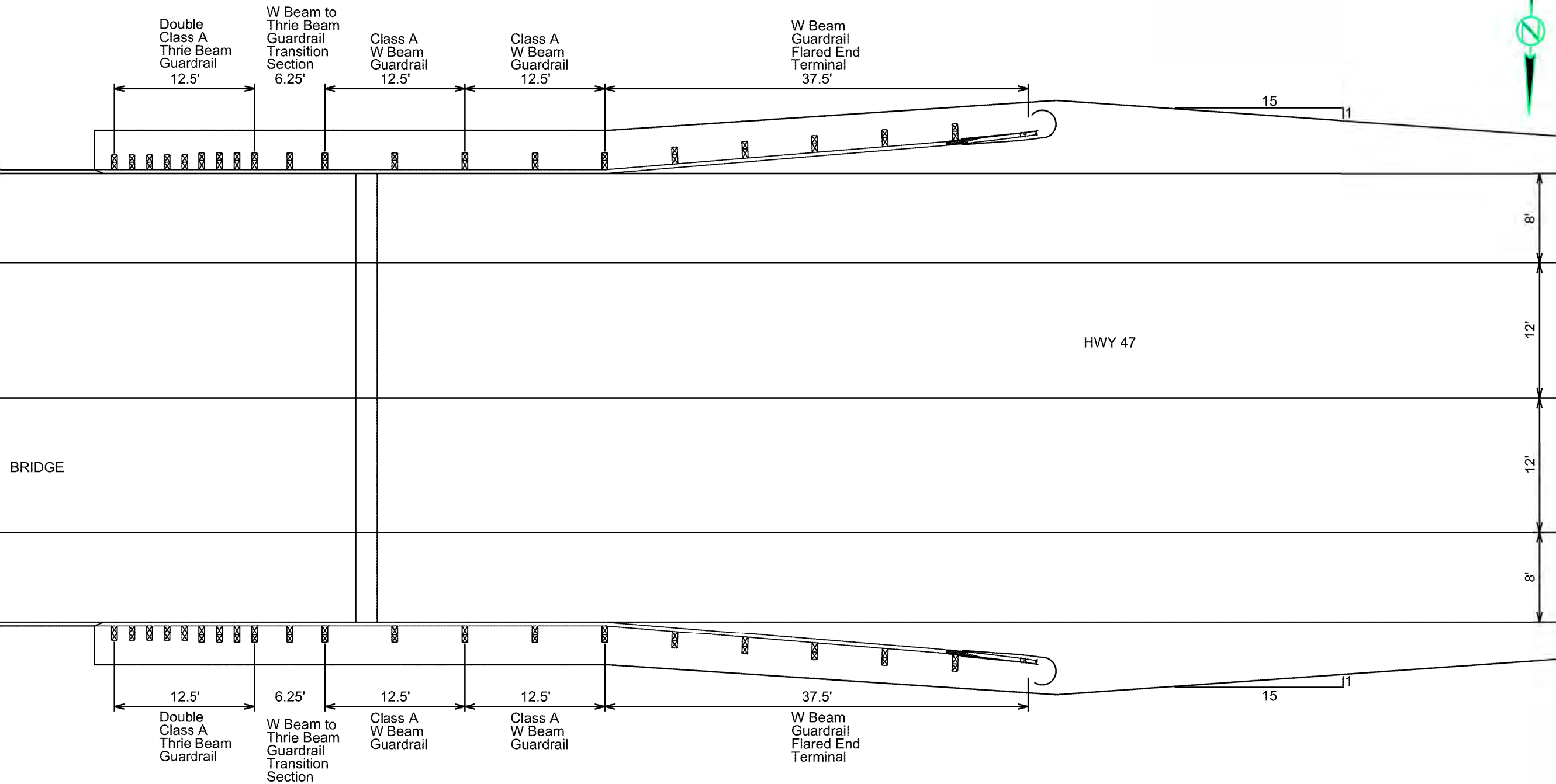
File - ...I:\design\Sheets\ColdMilling.dgn

GUARDRAIL LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	44	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT

Note: See standard plates for installation
Structure No. 43-403-308



Removal Quantities		
Item	Unit	Quantity
Remove Double Thrie Beam Guardrail for reset	FT.	50.0
Remove W Beam Guardrail for Reset	FT.	100.0
Remove W Beam to Thrie Beam Guardrail Transition for Reset	EA.	4
Remove W Beam Guardrail Flared End Terminal for Reset	EA.	4

Estimated Quantities		
Item	Unit	Quantity
Reset Double Thrie Beam Guardrail with Wood Posts	FT.	50.0
Reset W Beam Guardrail with Wood Posts	FT.	100.0
Reset W Beam to Thrie Beam Guardrail Transition	EA.	4
Reset W Beam Guardrail Flared End Terminal	EA.	4
Beam Guardrail Post	EA.	80

GUARDRAIL LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	45	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT

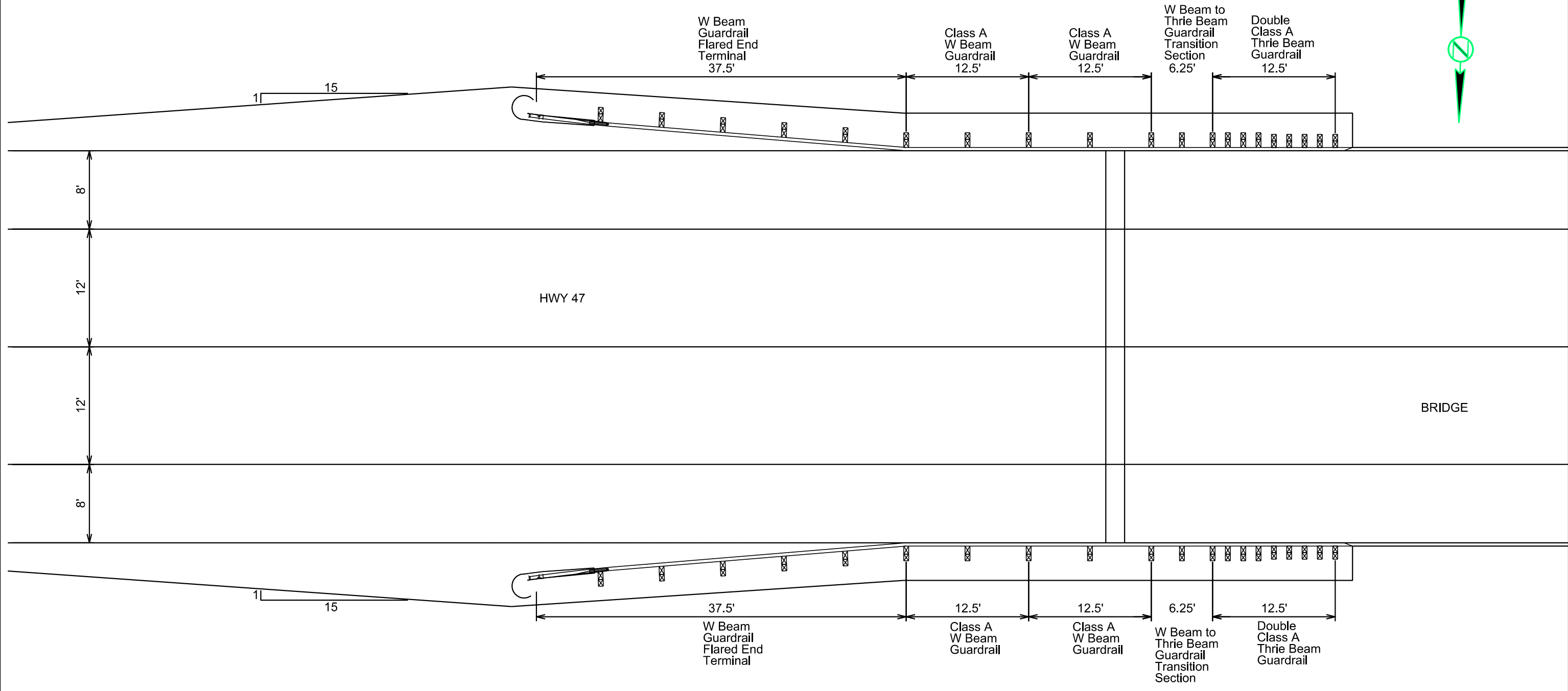
Note: See standard plates for installation
Structure No. 43-403-308



Plot Scale - 1:200

Plotted From - Justin

File - I:\Sheets\Guardrail Detail.dgn




MAINLINE PIPE CULVERT REPLACEMENT DETAIL

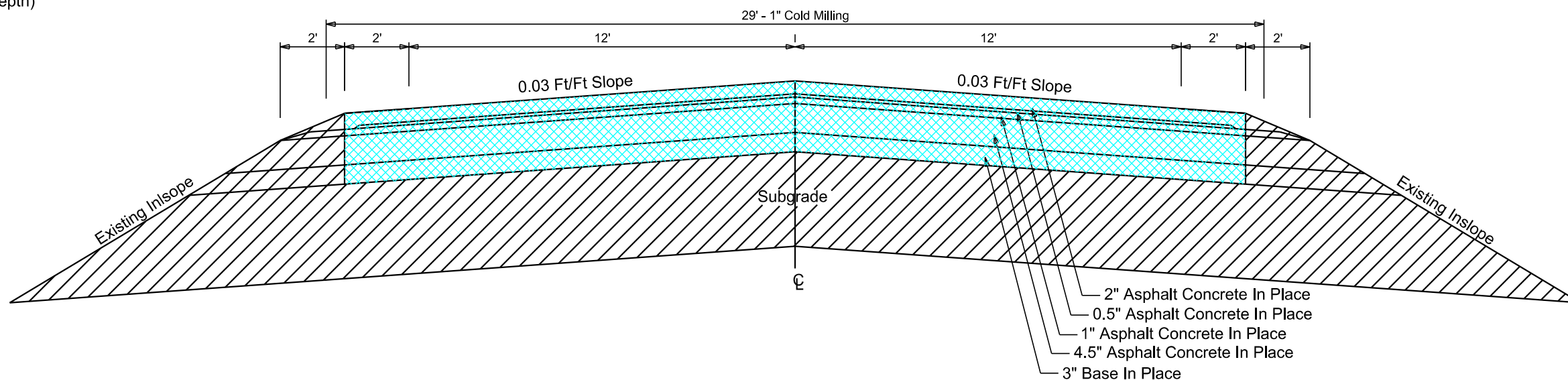
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	46	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

SECTION 1 (Pipe Culvert Replacement Sites)

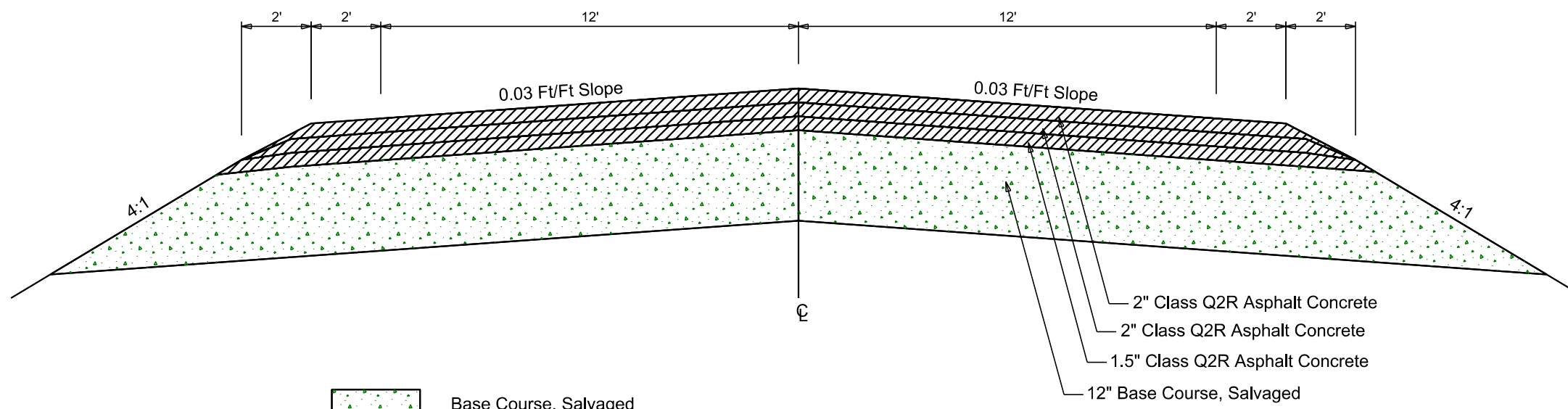
SD 47 PCN 06Q8
135+00
168+00

FOR BIDDING PURPOSES ONLY

 Unclassified Excavation (Salvage and Stockpile Asphalt Mix and Granular Base Material) (10.5" depth)



Station A2+00 to Station F509+79 (Thru Equations) RESURFACING TYPICAL SECTION 1



Plot Scale - 1:200

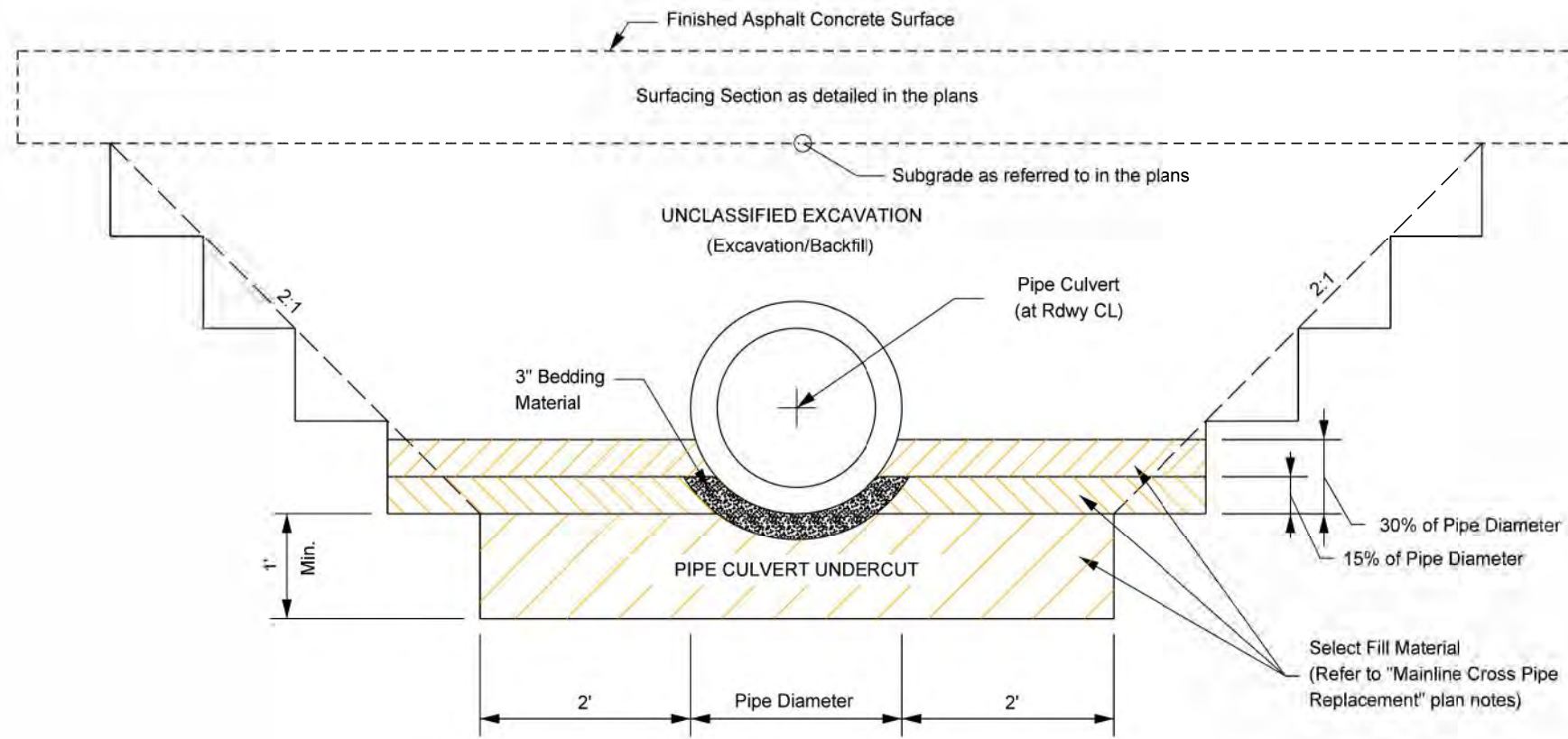
Plotted From - Justin

File - ...Mainline Pipe Replacement.dgn

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	47	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

MAINLINE PIPE CULVERT INSTALLATION TRENCH DETAIL

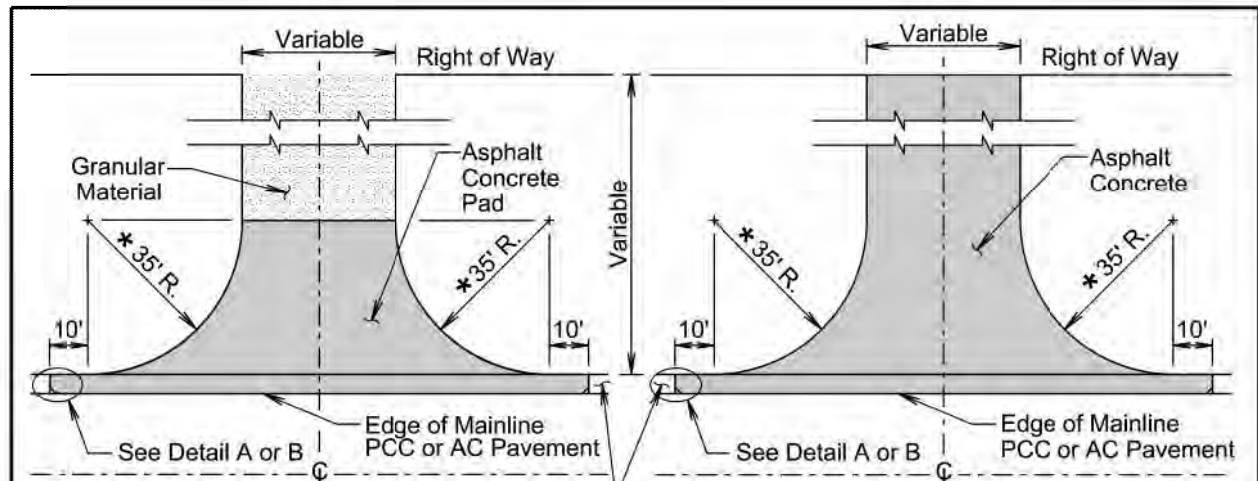


Plot Scale - 1:200

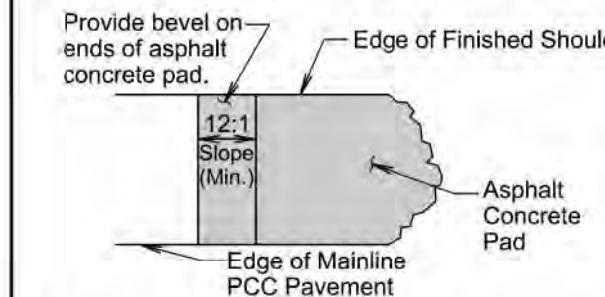
Plotted From - Justin

File - ...Pipe Installation Detail.dgn

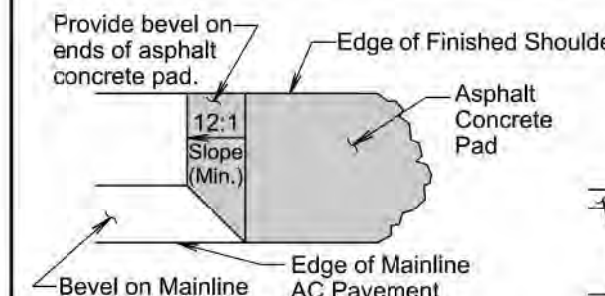




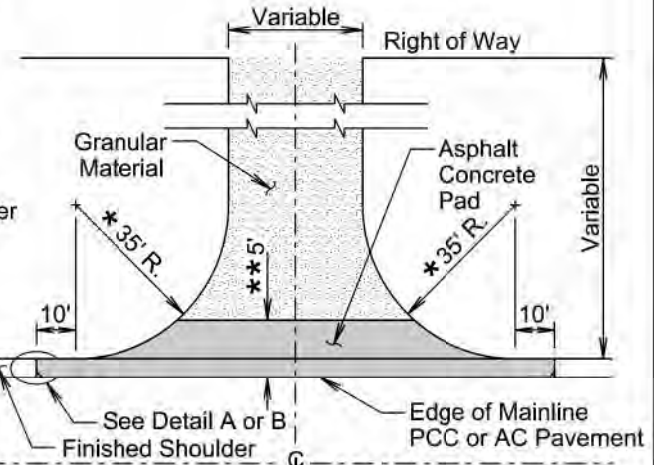
PLAN VIEW (Intersecting Road)
 (No Asphalt Concrete Surfacing Beyond Right of Way) **PLAN VIEW (Intersecting Road)**
 (Asphalt Concrete Surfacing Beyond Right of Way)



DETAIL A
 (Typ. For Projects with Mainline PCC Pavement)



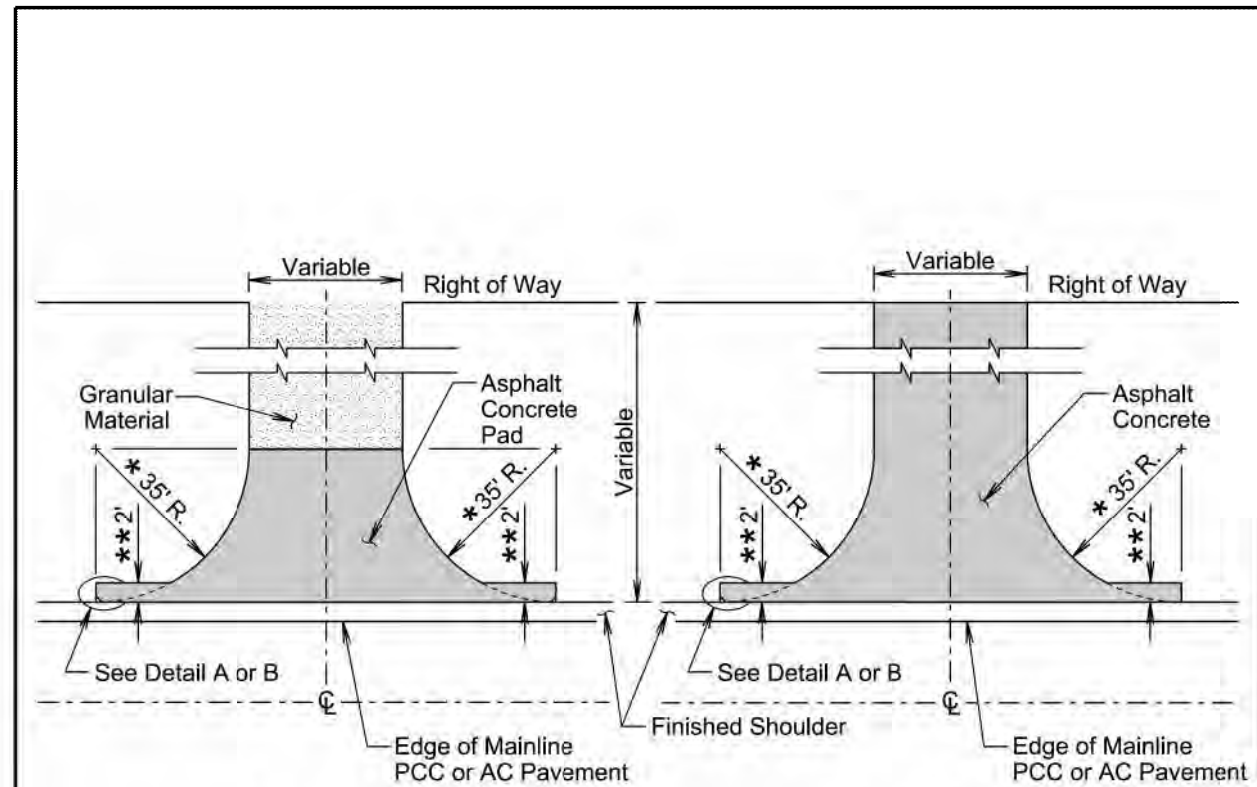
DETAIL B
 (Typ. For Projects with Mainline AC Pavement)



PLAN VIEW (Entrance)

GENERAL NOTES:
 The precise construction limits for situations other than shown above will be determined by the Engineer during construction.
 * For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.
 ** For shoulder widths < 4', the Asphalt Concrete Pad width must be 5'. For shoulders widths of 4' or more, pave the full width of the shoulder only.

Published Date: 2025	S D D O T	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (SHOULDERS: GRANULAR MATERIAL OR COLD RECYCLED MATERIAL)	PLATE NUMBER 320.01
			Sheet 1 of 1



PLAN VIEW (Intersecting Road)
 (No Asphalt Concrete Surfacing Beyond Right of Way) **PLAN VIEW (Intersecting Road)**
 (Asphalt Concrete Surfacing Beyond Right of Way)

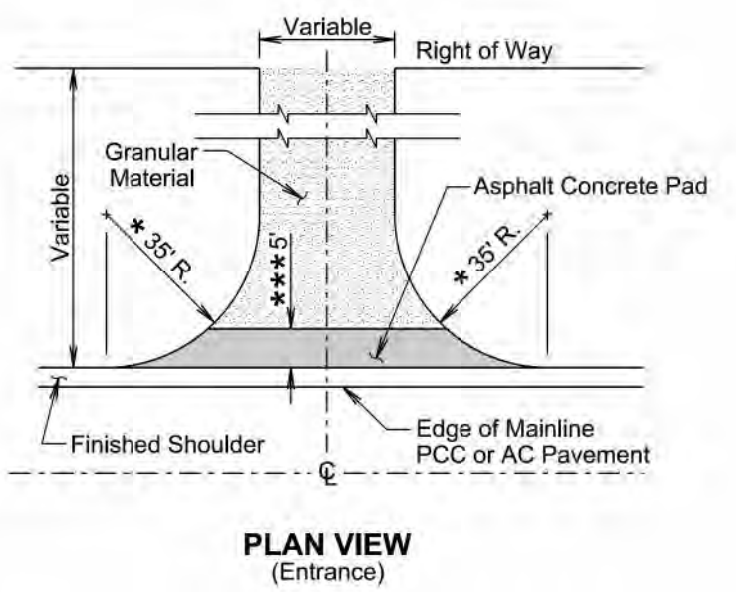
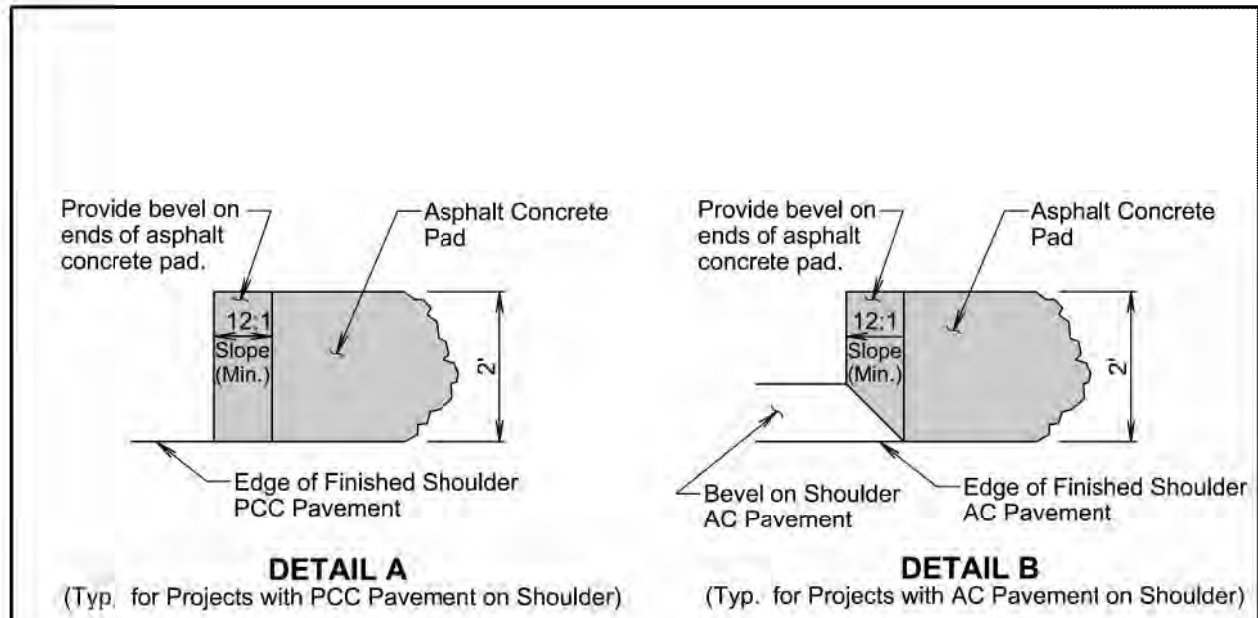
GENERAL NOTES:
 The precise construction limits for situations other than shown above will be determined by the Engineer during construction.
 * For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.
 ** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

Published Date: 2025	S D D O T	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04
			Sheet 1 of 2

Plot Scale - 1:200

Plotted From - Justin

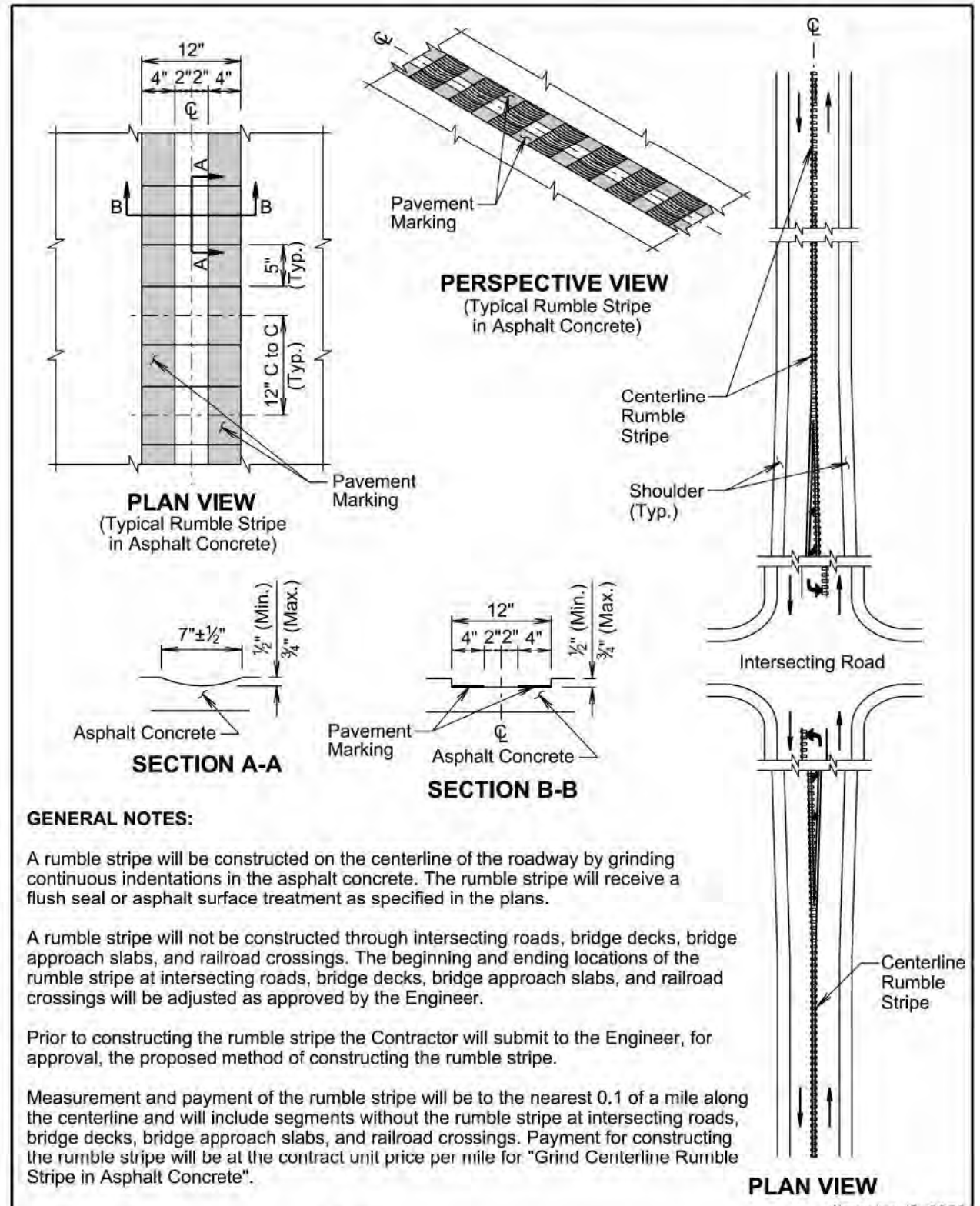
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*** Not required if finished shoulder width is 4' or greater.

August 27, 2020

Published Date: 2025	S D D O T	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04
			Sheet 2 of 2



GENERAL NOTES:

A rumble stripe will be constructed on the centerline of the roadway by grinding continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

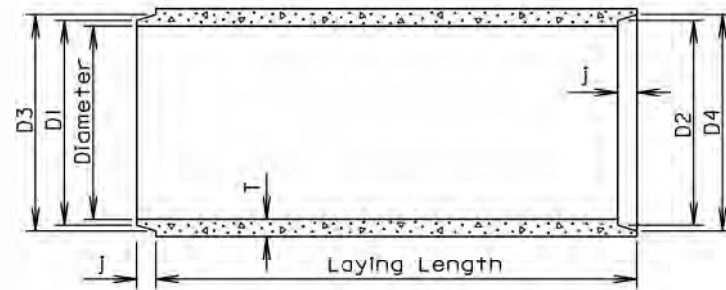
Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind Centerline Rumble Stripe in Asphalt Concrete".

November 19, 2020

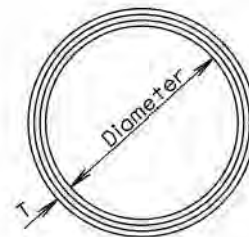
Published Date: 2025	S D D O T	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18
			Sheet 1 of 1

TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

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

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

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

June 26, 2015

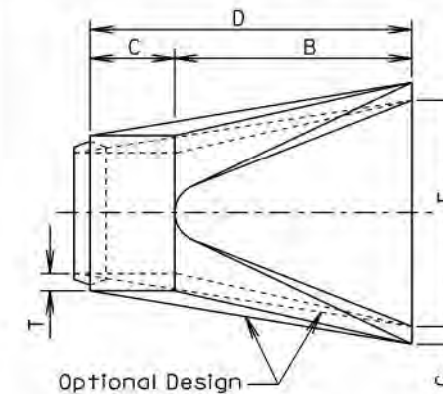
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REINFORCED CONCRETE PIPE

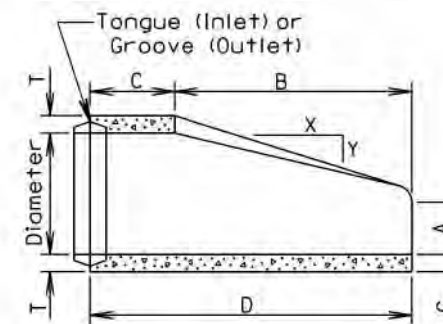
PLATE NUMBER
450.01

Sheet 1 of 1

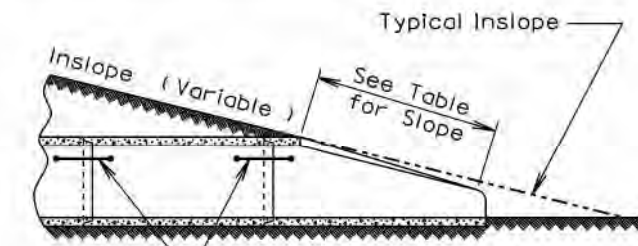
Published Date: 2025



TOP VIEW



LONGITUDINAL SECTION



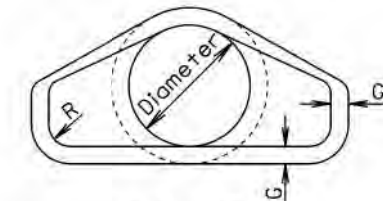
SLOPE DETAIL

See Standard Plate 450.18
(TIE BOLTS FOR R.C.P. AND R.C.P. ARCH)

GENERAL NOTES:

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

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



END VIEW

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

June 26, 2015

S
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T

R. C. P. FLARED ENDS

PLATE NUMBER
450.10

Sheet 1 of 1

Published Date: 2025

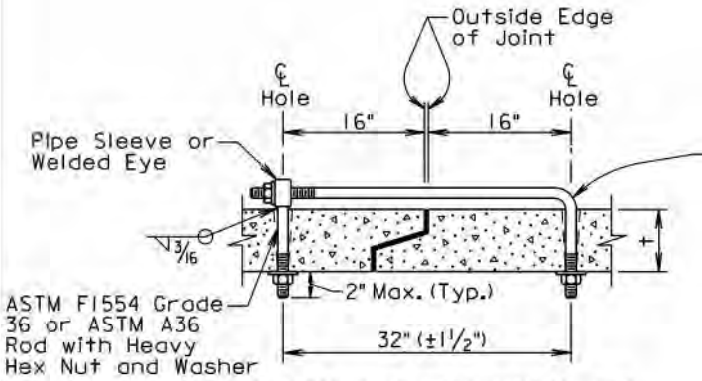
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2 - 6 1/2	3/4	1
≥ 7	1	1 1/4

GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

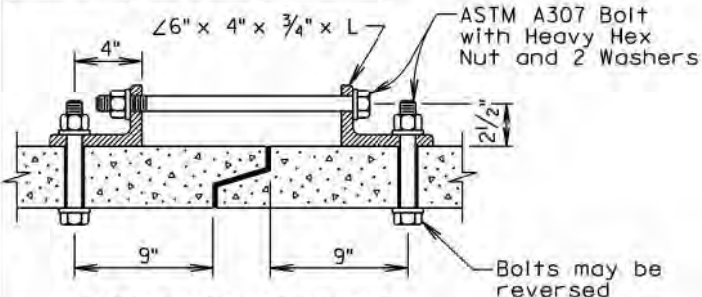
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



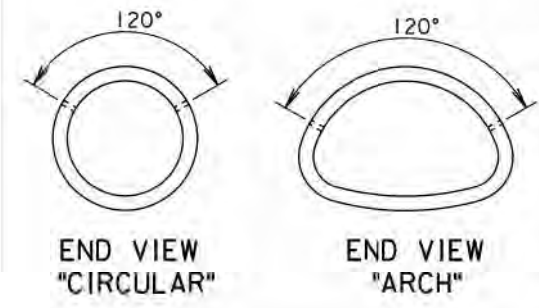
ANGLE AND BOLT TIE

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

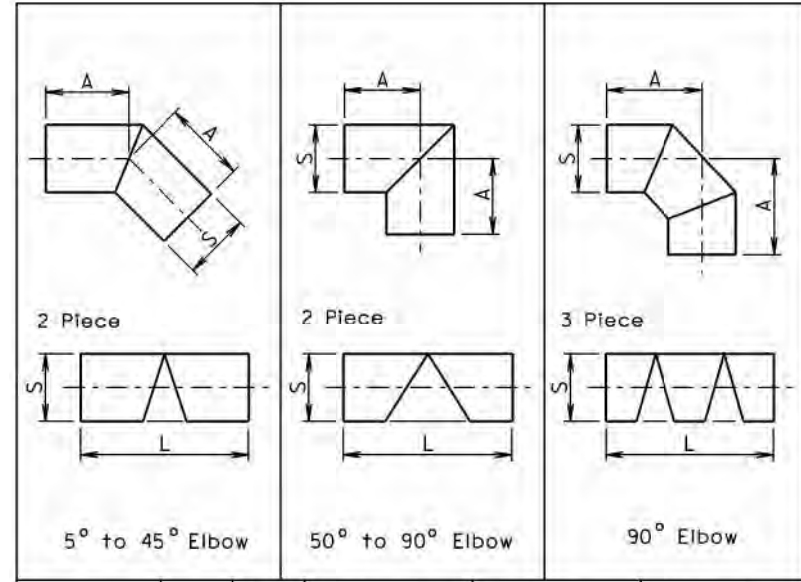
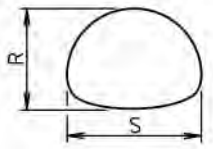


END VIEW "CIRCULAR" END VIEW "ARCH"

February 28, 2013

S D D O T	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
		Sheet 1 of 1

Published Date: 2025



Equivalent Round Diameter	Span S	Rise R	45° Elbow 2 Piece		90° Elbow 2 Piece		90° Elbow 2 Piece	
			A	L	A	L	A	L
Inches	Inches	Inches	Inches	Feet	Inches	Feet	Inches	Feet
15	18	11	20	4	27	6	31	6
18	22	13	20	4	25	6	30	6
21	25	16	19	4	24	6	29	6
24	29	18	18	4	34	8	28	6
30	36	22	16	4	30	8	38	8
36	43	27	27	6	38	10	35	8
42	50	31	25	6	35	10	45	10
48	58	36	24	6	43	12	42	10
54	65	40	34	8	52	14	52	12
60	72	44	33	8	60	16	62	14
66	79	49	43	10	56	16	60	14
72	85	53	42	10	56	18	70	16

FABRICATED ELBOW LENGTHS

GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. Arch required to fabricate fitting.

June 26, 2001

S D D O T	C.M.P. ARCH FABRICATED LENGTHS FOR ELBOWS	PLATE NUMBER 450.34
		Sheet 1 of 1

Published Date: 2025

Alternate Type Connector Sections may be used with approval of the Engineer.

Dia. D (in.)	Ga.	DIMENSIONS (in.)					Approx. Slope	Body
		A	B	H	L	W		
12	16	6	6	6	21	24	2 1/2:1	1 Pc.
15	16	7	8	6	26	30	2 1/2:1	1 Pc.
18	16	8	10	6	31	36	2 1/2:1	1 Pc.
21	16	9	12	6	36	42	2 1/2:1	1 Pc.
24	16	10	13	6	41	48	2 1/2:1	1 Pc.
30	14	12	16	8	46	60	2 1/2:1	1 Pc.
36	14	14	19	9	51	72	2 1/2:1	2 Pc.
42	12	16	22	11	60	84	2 1/2:1	2 Pc.
48	12	18	27	12	69	90	2 1/4:1	2 Pc.
54	12	18	30	12	78	102	2:1	3 Pc.
60	12	18	33	12	84	114	1 3/4:1	3 Pc.
66	12	18	36	12	87	120	1 1/2:1	3 Pc.
72	12	18	39	12	87	126	1 1/3:1	3 Pc.
78	12	18	42	12	87	132	1 1/4:1	3 Pc.
84	12	18	45	12	87	138	1 1/2:1	3 Pc.

STANDARD CONNECTIONS

TUBING ATTACHMENT DETAILS SECTION A-A

TYPICAL CROSS-SECTION

SECTION A-A (alternate)

GENERAL NOTES:

All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by 3/8" Dia. galvanized rivets or bolts.

For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x 1/4" for 60" through 72" diameters and 2 1/2" x 2 1/2" x 1/4" for 78" and 84" diameters. The angles shall be attached by 3/8" diameter galvanized nuts and bolts.

Rivets and Bolts shall be 3/8" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

ALL WOOD POSTS

ALTERNATE WOOD AND STEEL POSTS

TYPE 1 (3 Barbed Wires)
12 1/2 ga. Barbed Wire with 2 Pt. Rd. Barbs

TYPE 2 (4 Barbed Wires)
12 1/2 ga. Barbed Wire with 2 Pt. Rd. Barbs

TYPE 3 (5 Barbed Wires)
12 1/2 ga. Barbed Wire with 2 Pt. Rd. Barbs

TYPE 4 (26" Woven Wire with 2 Barbed Wires)
12 1/2 ga. Barbed Wire with 2 Pt. Rd. Barbs
726-6-12 1/2 Woven Wire

TYPE 5 (26" Woven Wire with 4 Barbed Wires)
12 1/2 ga. Barbed Wire with 4 Pt. Rd. Barbs
726-6-12 1/2 Woven Wire

TYPE 6 (32" Woven Wire with 3 Barbed Wires)
12 1/2 ga. Barbed Wire with 4 Pt. Rd. Barbs
832-6-12 1/2 Woven Wire

TYPE	DESCRIPTION	LINE POST SPACING	WIRE GAGE	BARBED WIRE		WOVEN WIRE
				NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.	
1	3 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	—
2	4 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	—
3	5 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12 1/2	2 Point Round	—	726-6-12 1/2
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	—	726-6-12 1/2
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	—	832-6-12 1/2

GENERAL NOTES:

Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

June 26, 2019

Plot Scale - 1:200

Plotted From - Justin

File - ...Sheets\Standard\Plates.dgn

Published Date: 2025

S D D O T

C.M.P. FLARED ENDS

PLATE NUMBER
450.35

Sheet 1 of 1

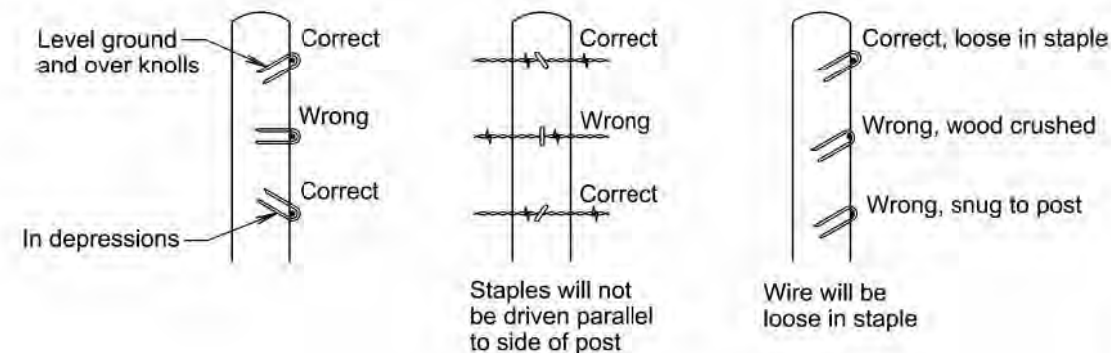
Published Date: 2025

S D D O T

RIGHT-OF-WAY FENCE

PLATE NUMBER
620.01

Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

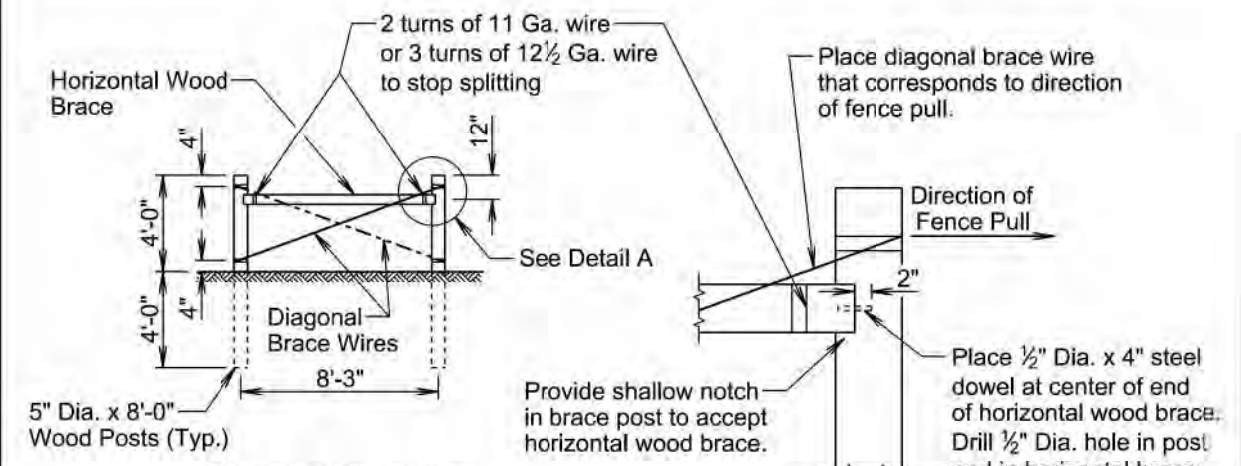
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

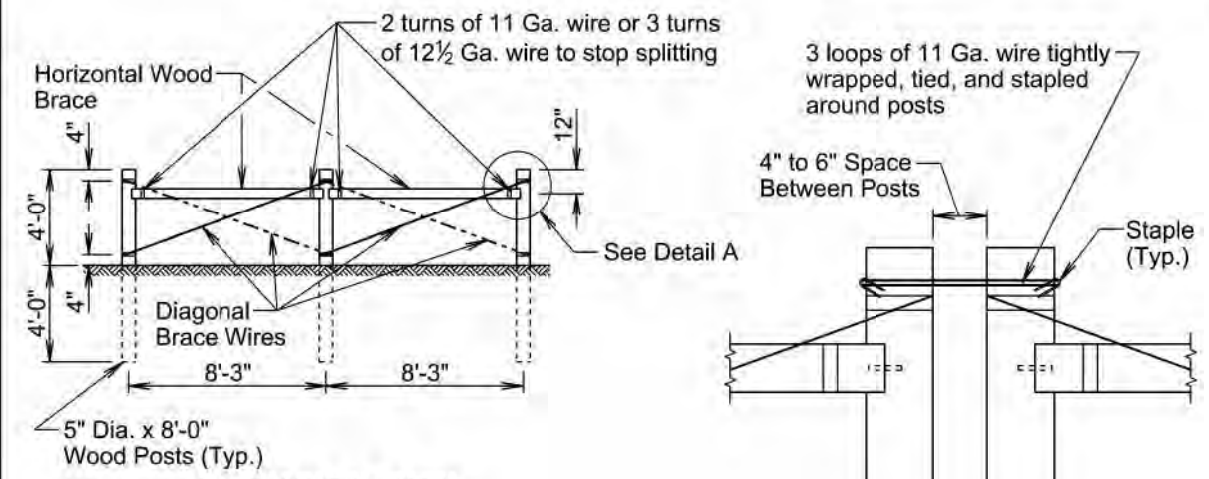
June 26, 2019

Published Date: 2025	S D D O T	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
			Sheet 1 of 1



ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)

DETAIL B

GENERAL NOTES:

Two Post Panels will be installed at least every 1320' between corners.

Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

March 31, 2024

Published Date: 2025	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	** At P.C., P.T., and at every 1320' between P.C. and P.T.

GENERAL NOTE:

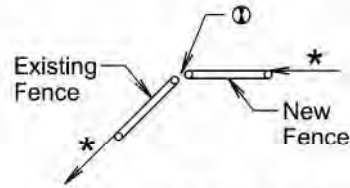
All radius of curvature stated for fence are at centerline of roadway.

If fence length is less than 600' to next corner use a 2 post panel.

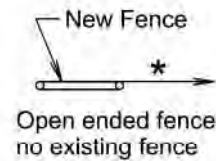
If fence length is greater than 600' to next corner use a 3 post panel.

** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

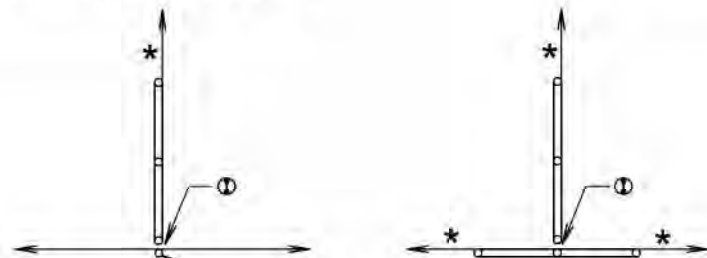
Ⓛ See Detail B on Sheet 1 of 3.



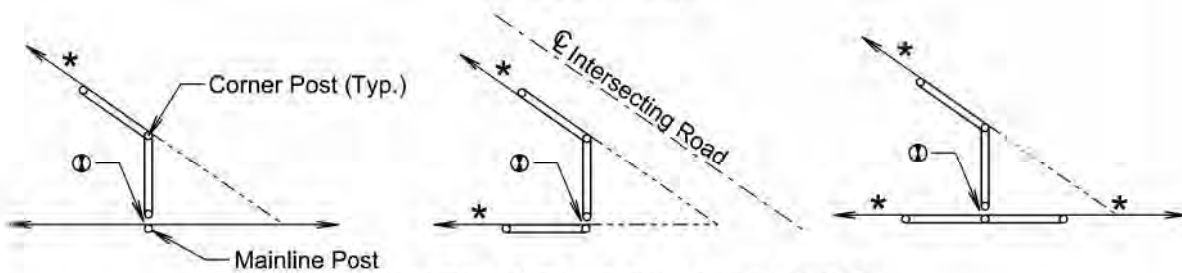
BEGIN OR END FENCE
(Where new fence ties into existing fence)



SHORT JOGS IN FENCE



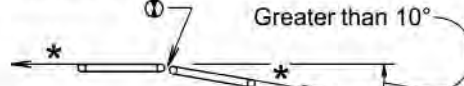
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.



Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

March 31, 2024

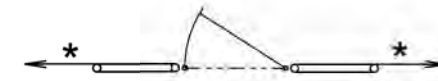
Published Date: 2025

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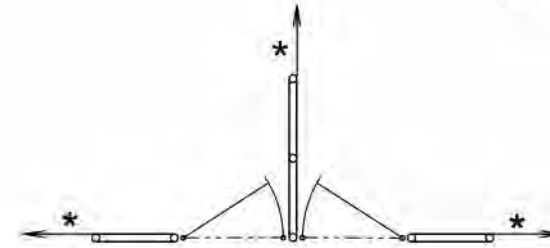
BRACE PANELS AND APPLICATIONS OF BRACE PANELS

PLATE NUMBER
620.03

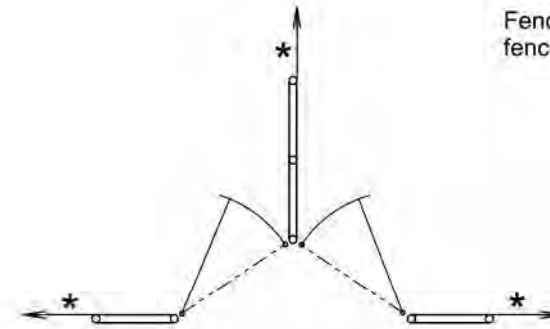
Sheet 2 of 3



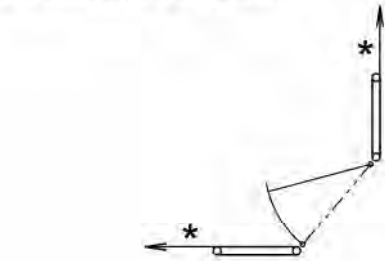
ENTRANCE
(Not on corner)



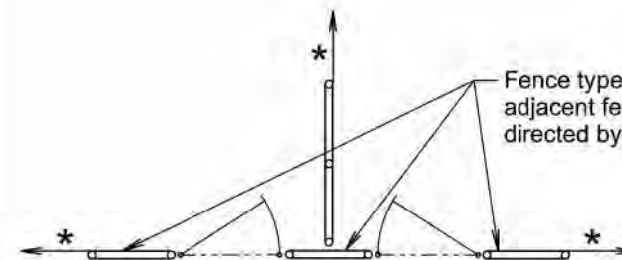
Fence type will be same as adjacent fence type or as directed by the Engineer.



DOUBLE ENTRANCES



ENTRANCES AT CORNERS



Fence type will be same as adjacent fence type or as directed by the Engineer.

GATES

* If fence length is less than 600' to next corner use a 2 post panel.
* If fence length is greater than 600' to next corner use a 3 post panel.

Ⓛ See Detail B on Sheet 1 of 3.

March 31, 2024

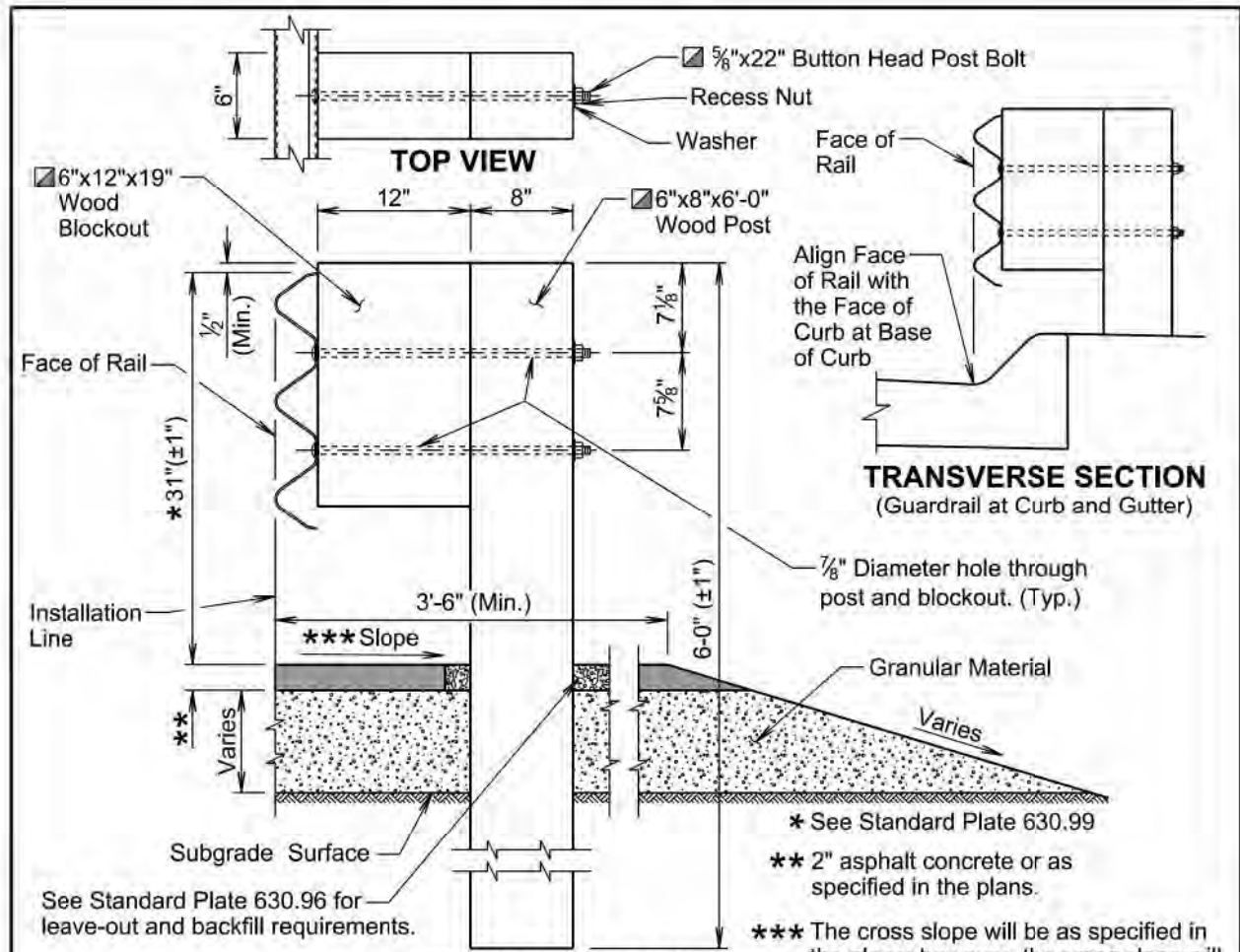
Published Date: 2025

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BRACE PANELS AND APPLICATIONS OF BRACE PANELS

PLATE NUMBER
620.03

Sheet 3 of 3



GENERAL NOTES:

TRANSVERSE SECTION

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

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

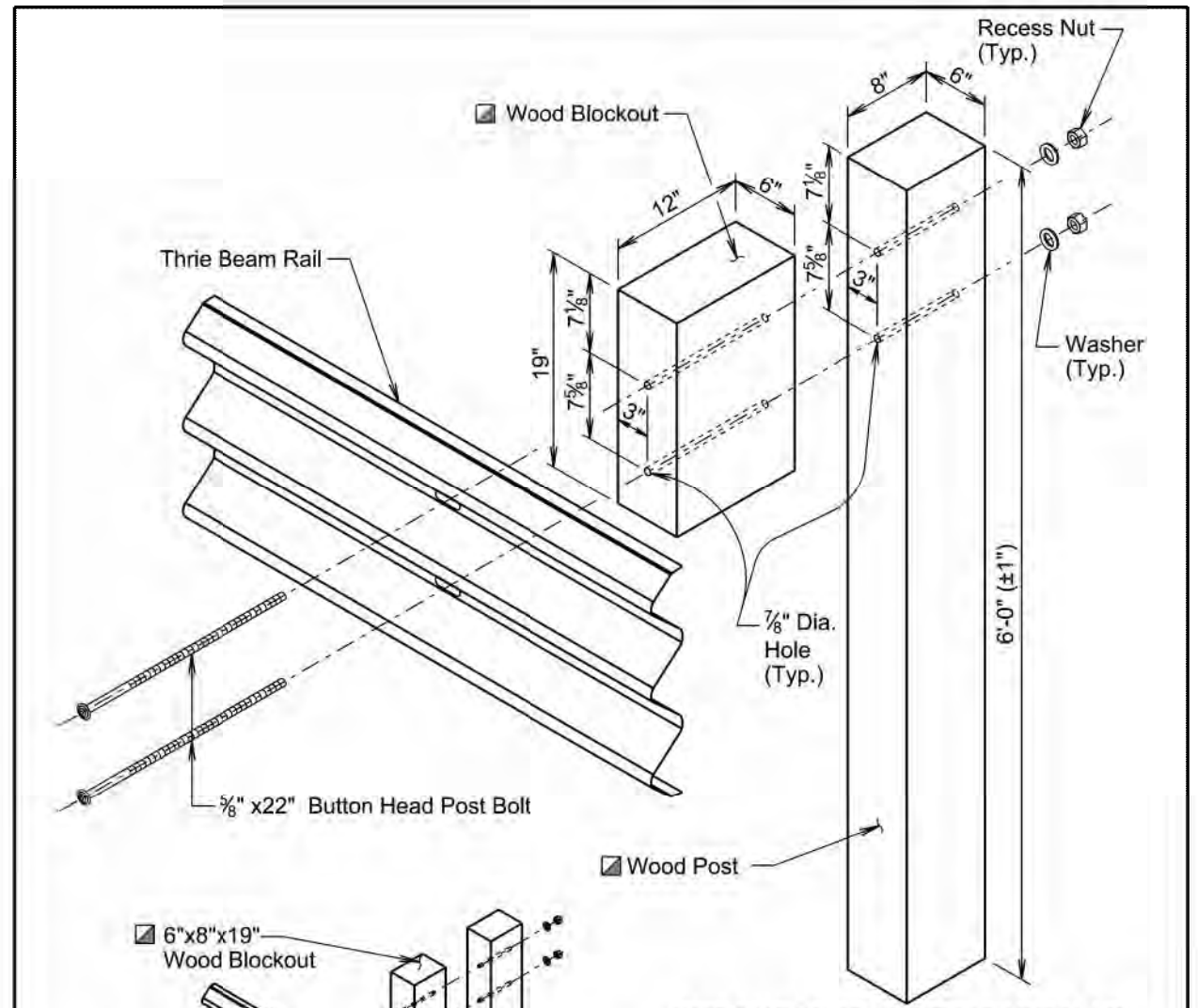
Topsoil is not shown in the transverse section drawing.

☑ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

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

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

Published Date: 2025	S D D O T	THRIE BEAM GUARDRAIL	September 14, 2019
			PLATE NUMBER 630.01
			Sheet 1 of 5



EXPANDED ISOMETRIC VIEW AT MIDSPAN OF THRIE BEAM GUARDRAIL

EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) THRIE BEAM GUARDRAIL AT MIDSPAN
(For Information Only, Not to Scale)

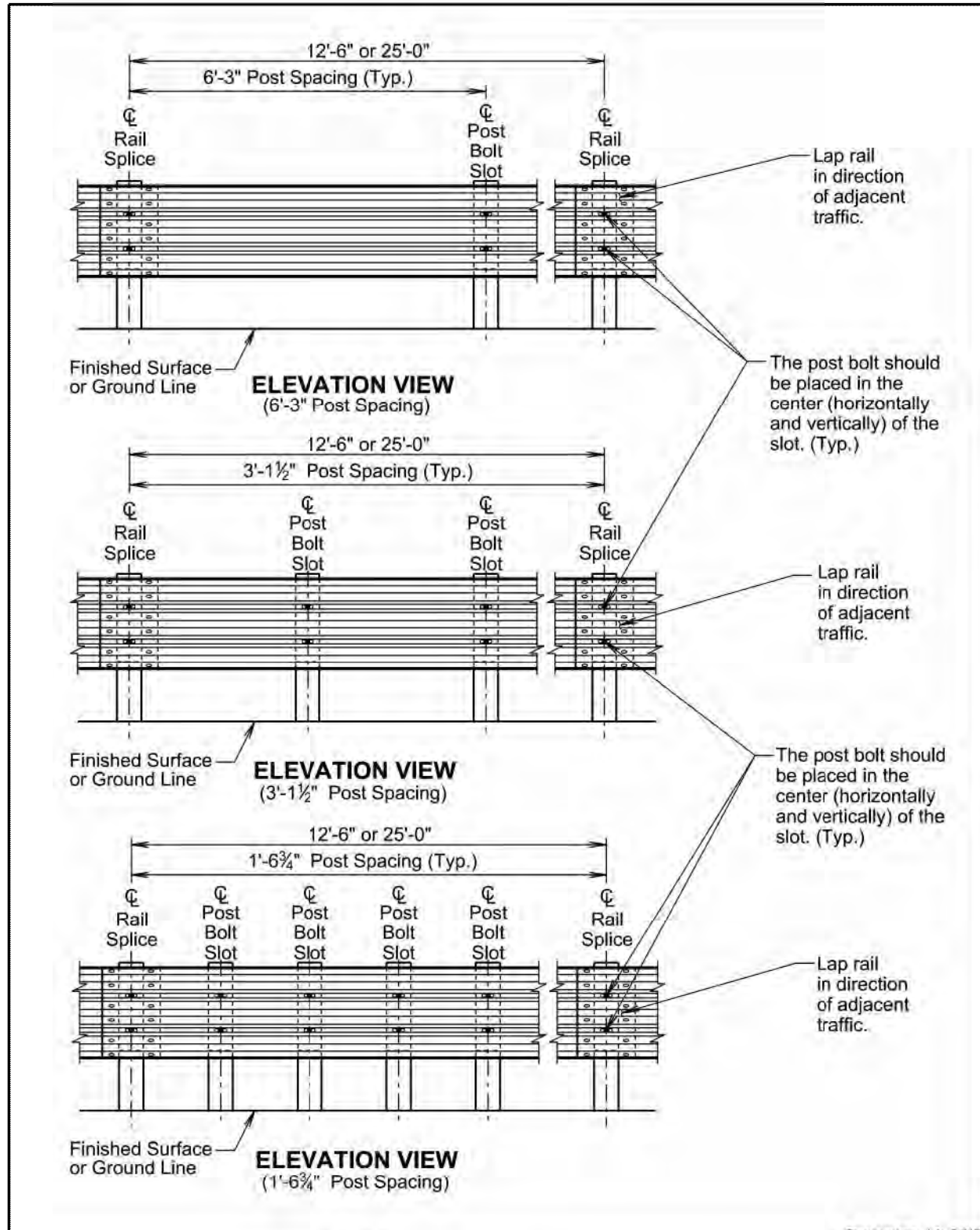
☑ For single thrie beam guardrail use 6"x12"x19" wood blockout, 5/8"x22" button head post bolt, and 6"x8"x6'-0" wood post. For double (nested) thrie beam guardrail use 6"x8"x19" wood blockout, 5/8"x18" button head post bolt, and 6"x8"x7'-0" wood post.

Published Date: 2025	S D D O T	THRIE BEAM GUARDRAIL	September 14, 2019
			PLATE NUMBER 630.01
			Sheet 2 of 5

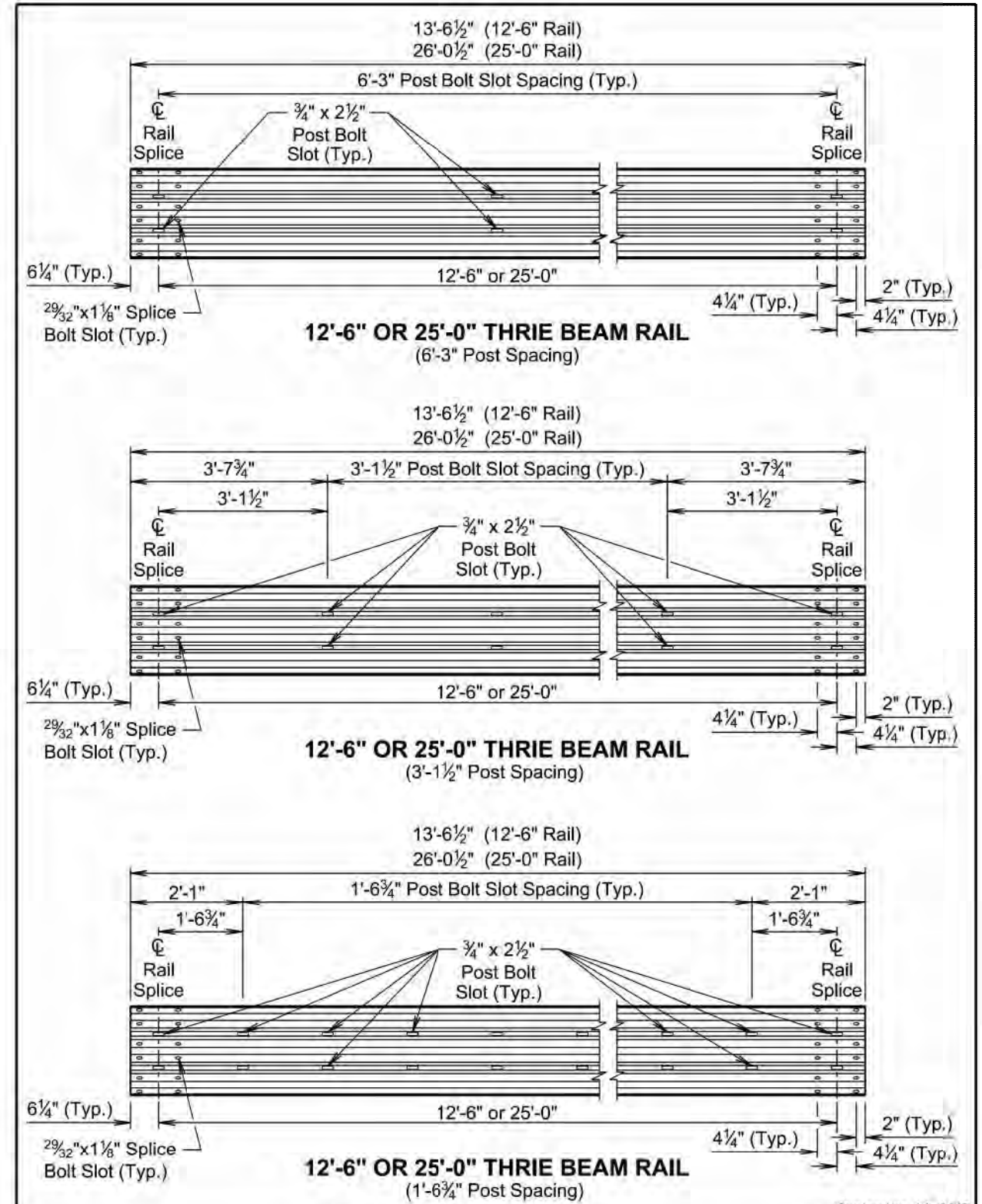
Plot Scale - 1:200

Plotted From - Justin

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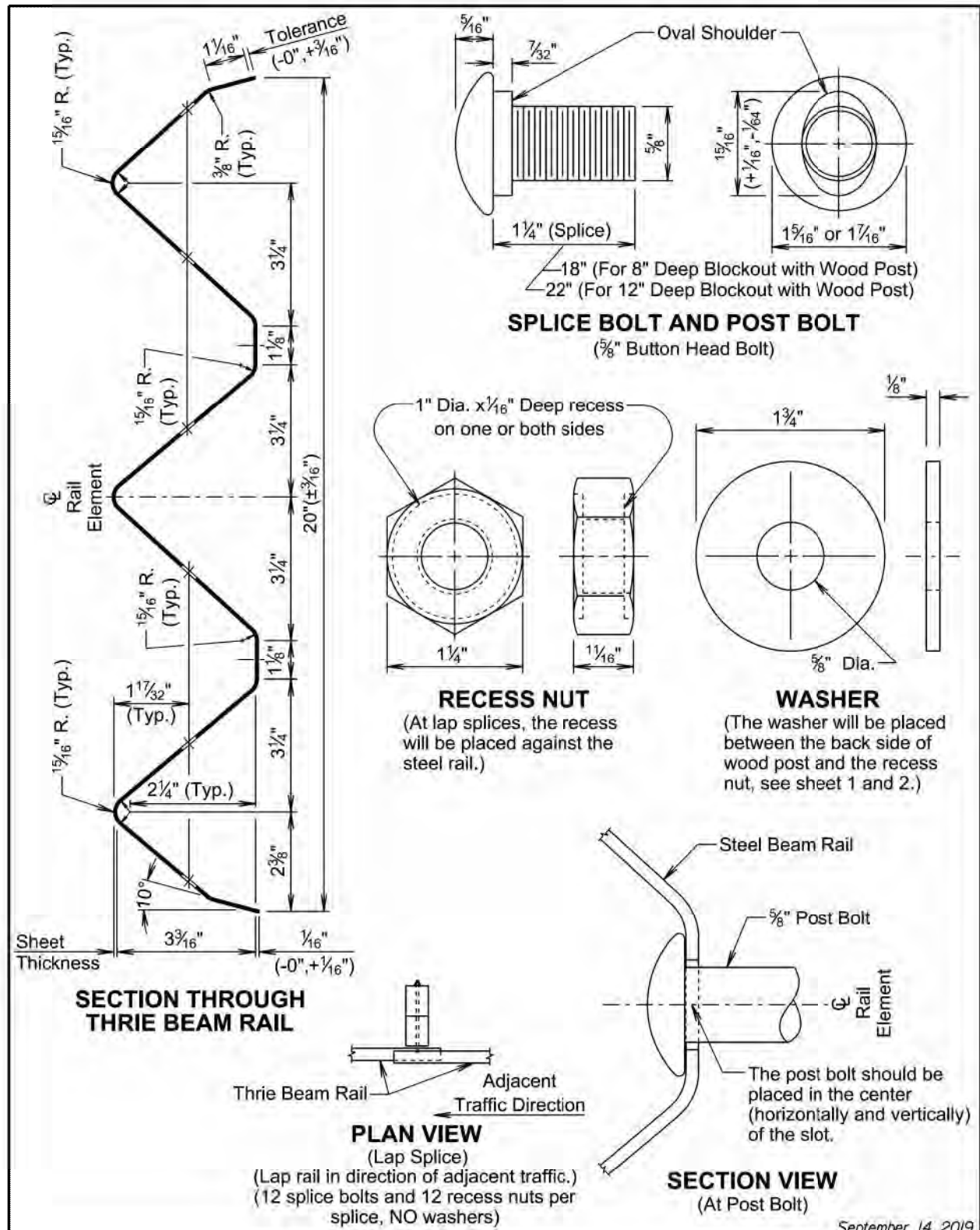
Published Date: 2025	S D D O T	THRIE BEAM GUARDRAIL	September 14, 2019
			PLATE NUMBER 630.01
			Sheet 3 of 5



Published Date: 2025	S D D O T	THRIE BEAM GUARDRAIL	September 14, 2019
			PLATE NUMBER 630.01
			Sheet 4 of 5

Plot Scale - 1:200
Plotted From - Justin

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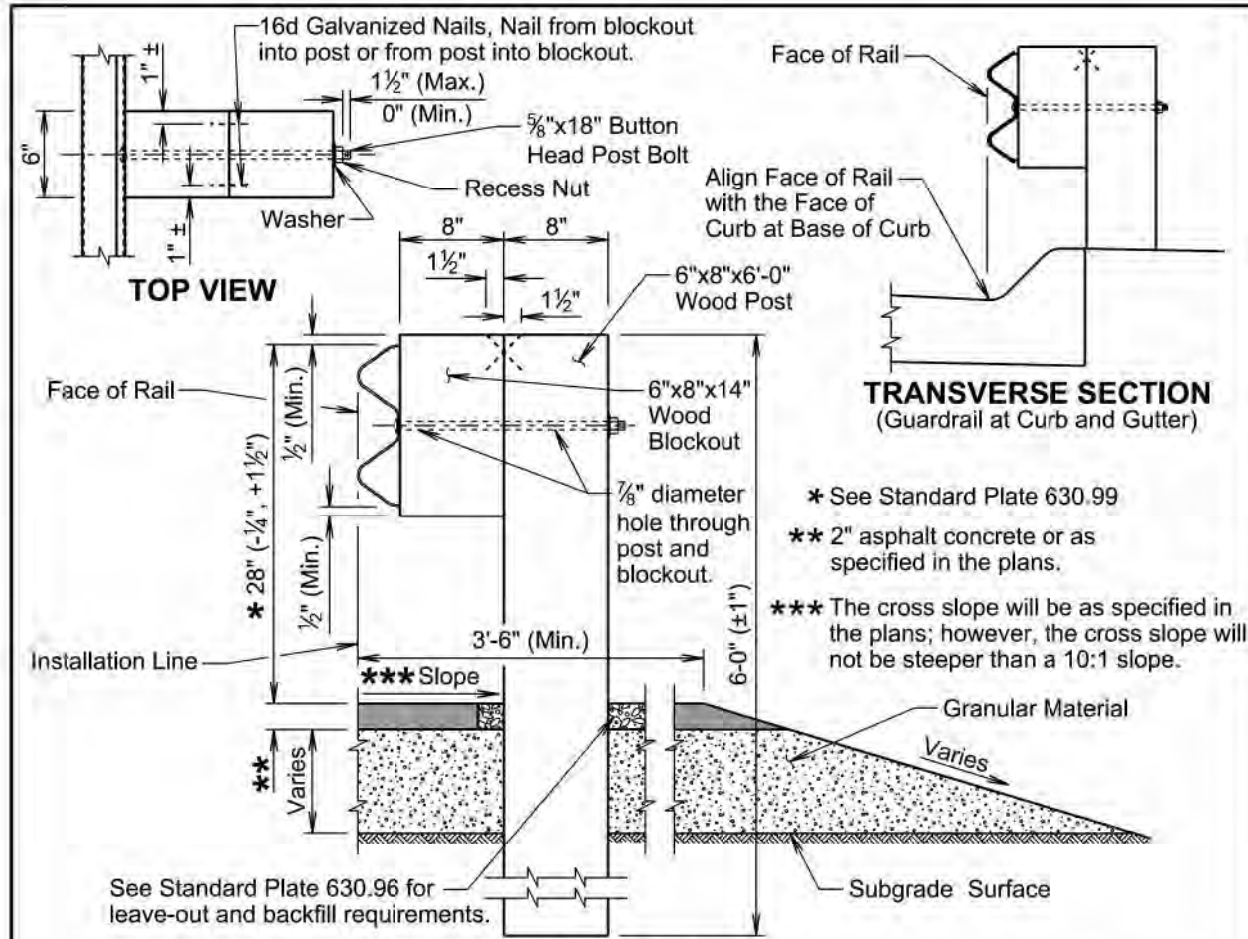
September 14, 2019

Published Date: 2025	S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 5 of 5

Plot Scale - 1:200

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- * 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.

GENERAL NOTES:

TRANSVERSE SECTION

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

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

Topsoil is not shown in the transverse section drawing.

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

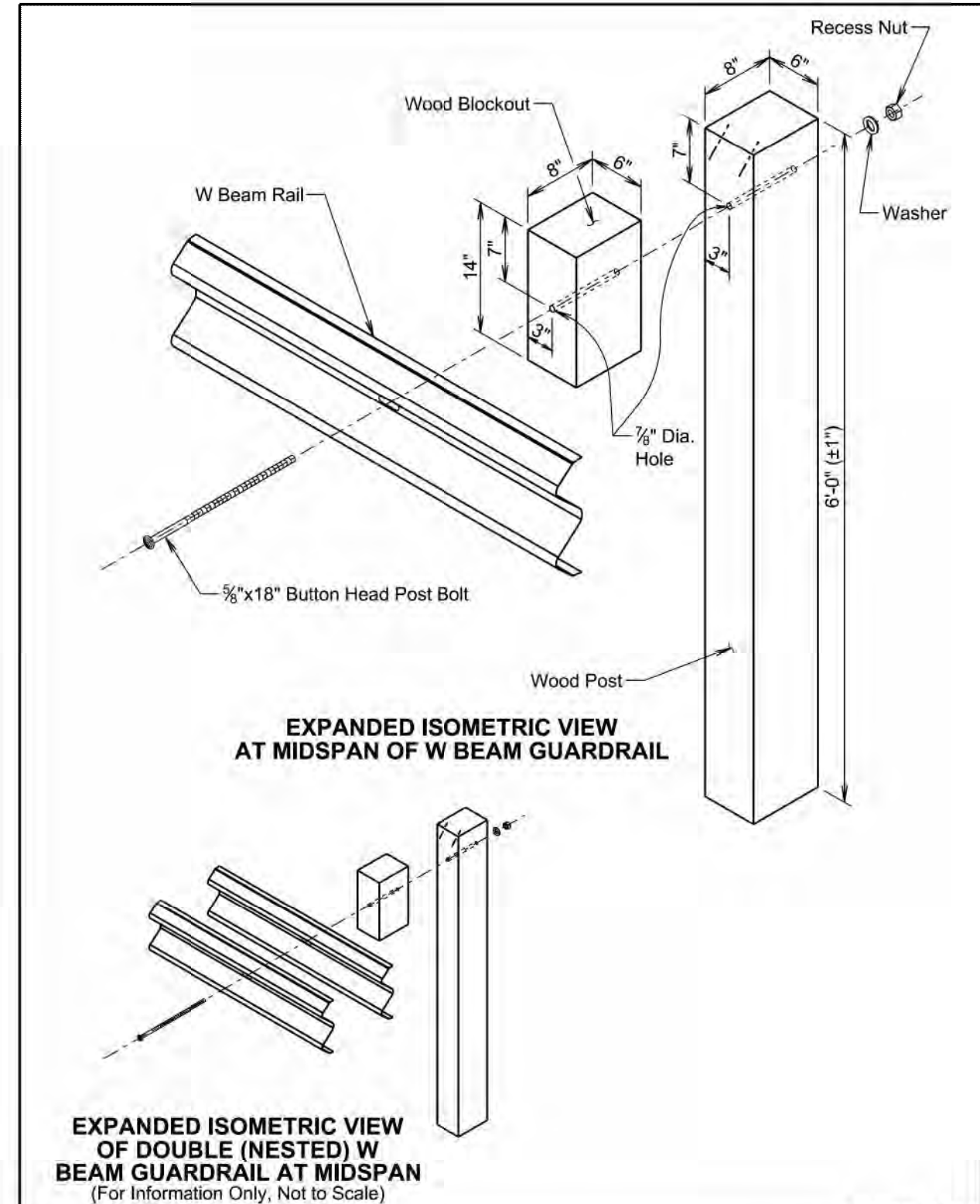
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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

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

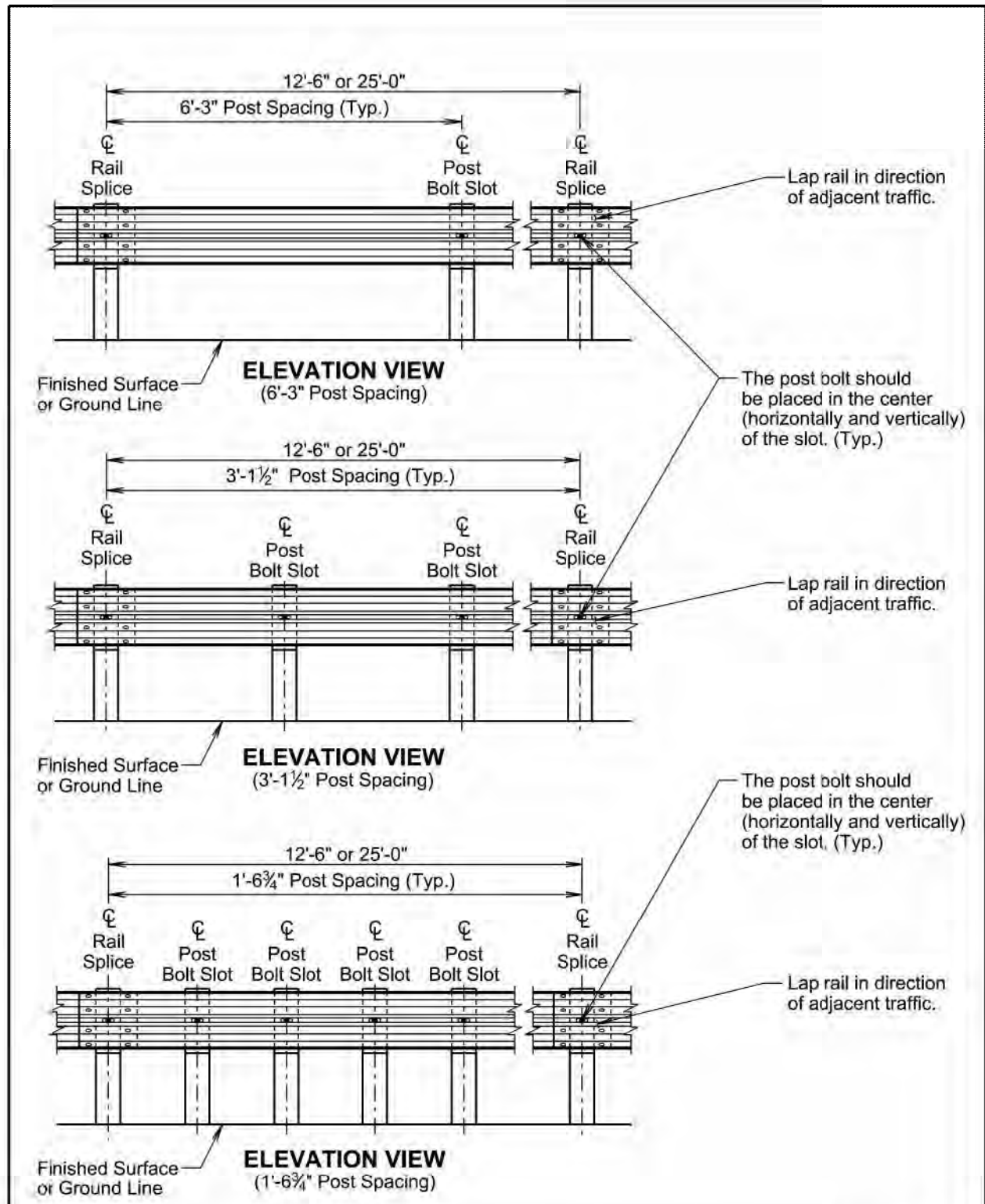
September 14, 2019

S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
		Sheet 1 of 5
Published Date: 2025		

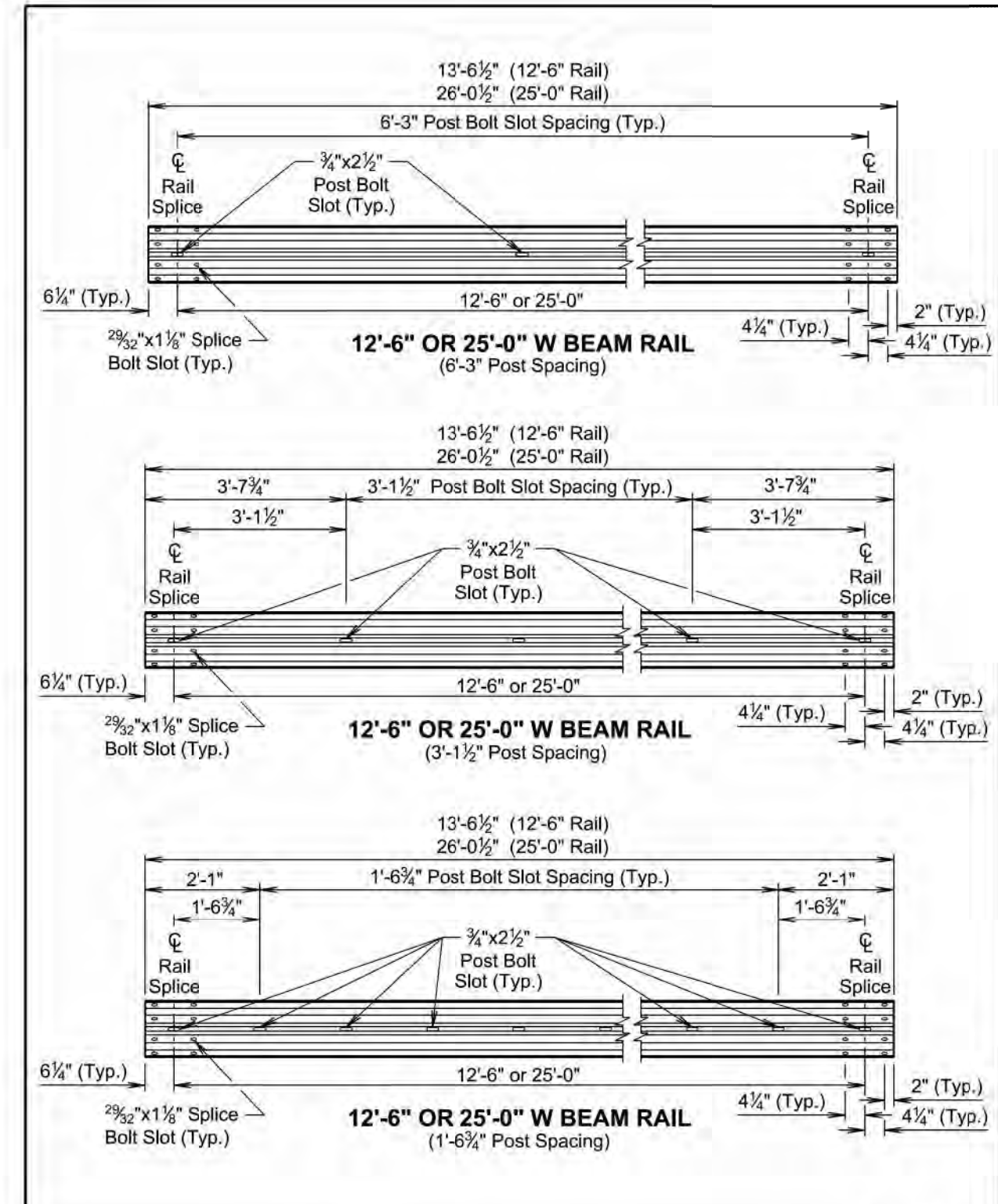


September 14, 2019

S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
		Sheet 2 of 5
Published Date: 2025		



Published Date: 2025	S D D O T	W BEAM GUARDRAIL	September 14, 2019
			PLATE NUMBER 630.10
			Sheet 3 of 5

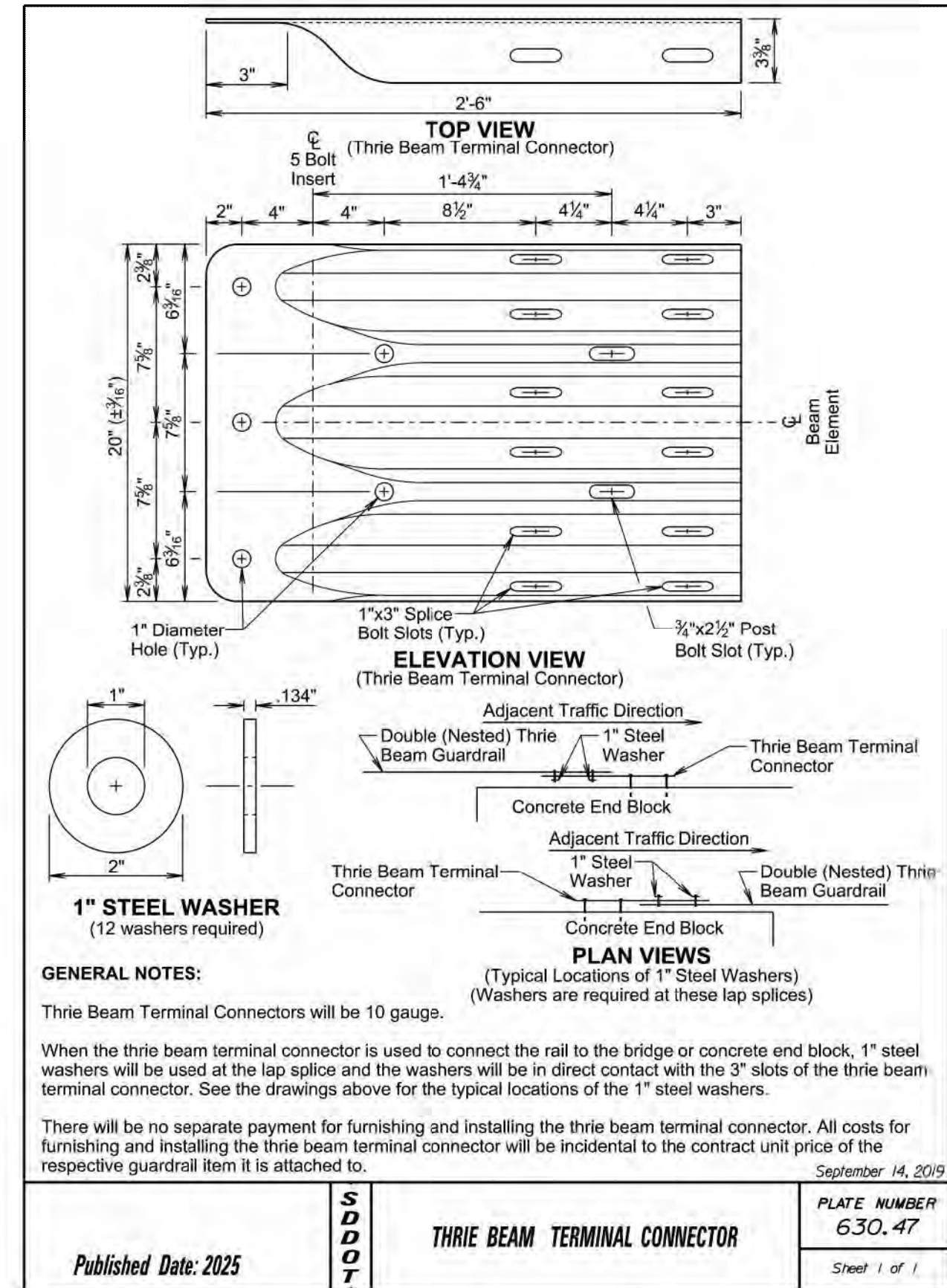
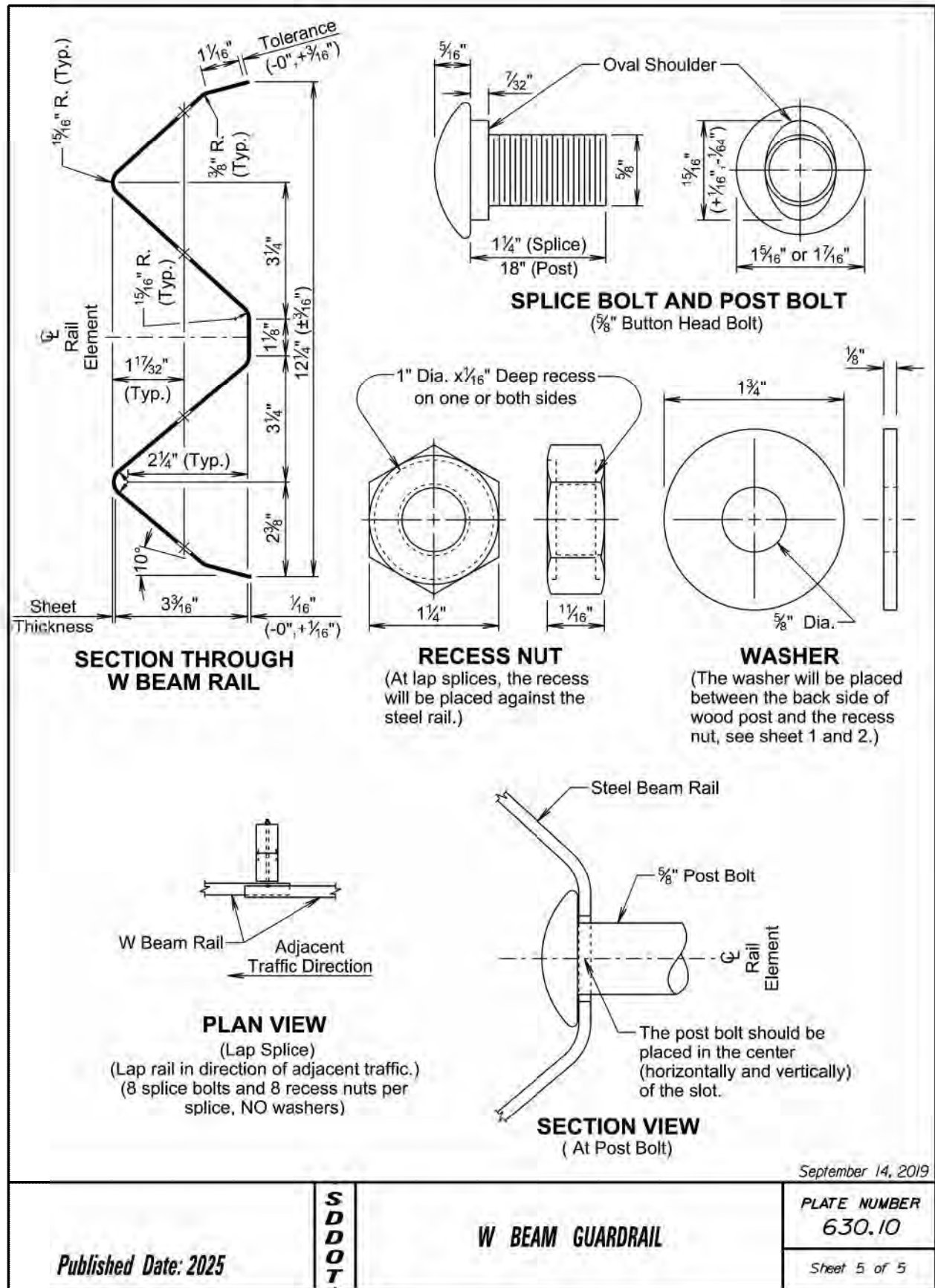


Published Date: 2025	S D D O T	W BEAM GUARDRAIL	September 14, 2019
			PLATE NUMBER 630.10
			Sheet 4 of 5

Plot Scale - 1:200

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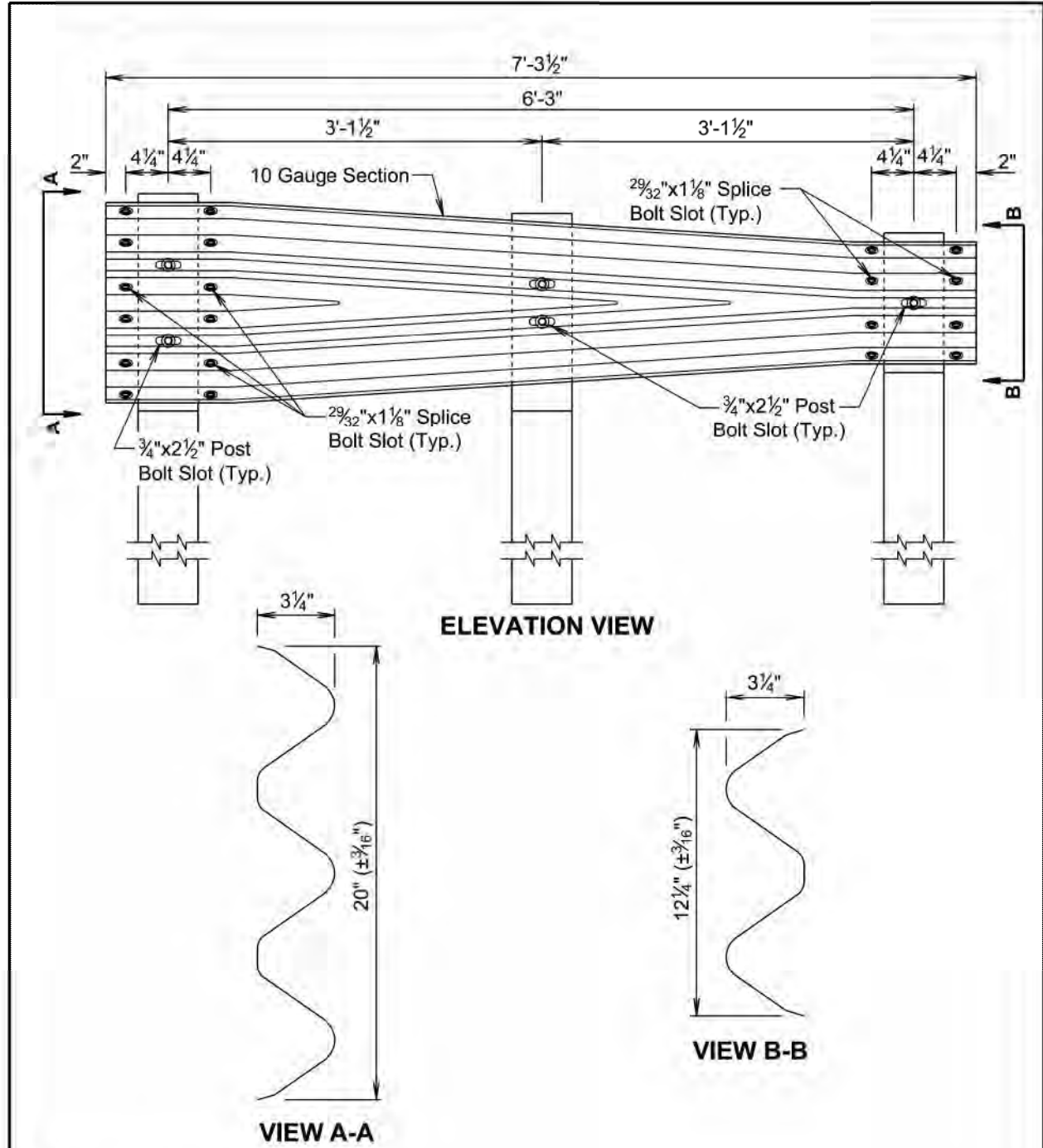
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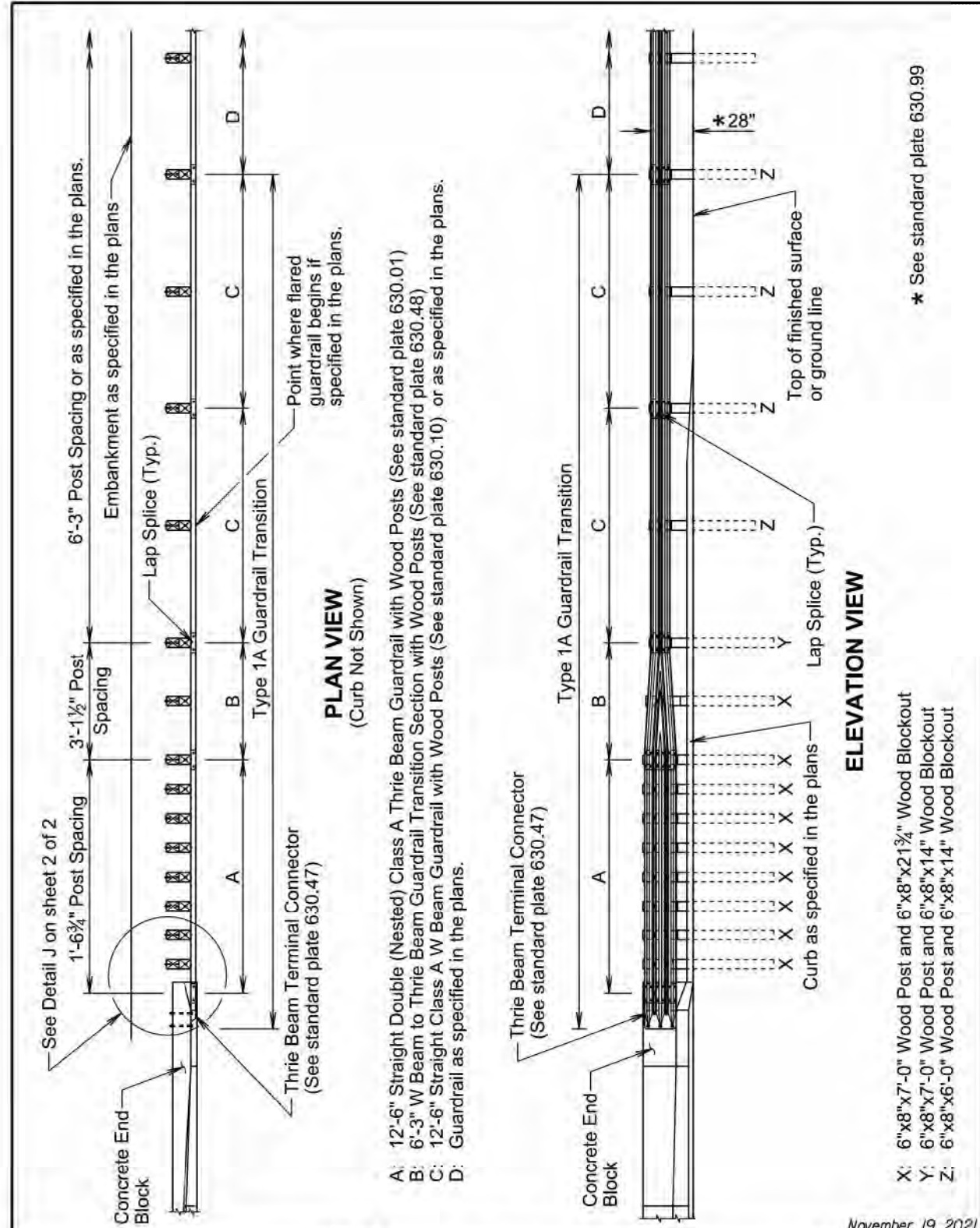


GENERAL NOTES:

All costs for furnishing and installing the W beam to thrie beam guardrail transition including labor, equipment, and materials including two posts, two blocks, W beam to thrie beam transition section, and hardware will be incidental to the contract unit price per each for "W Beam to Thrie Beam Guardrail Transition".

September 14, 2019

Published Date: 2025	S D D O T	W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	PLATE NUMBER 630.48
			Sheet 1 of 1



PLAN VIEW
(Curb Not Shown)

ELEVATION VIEW

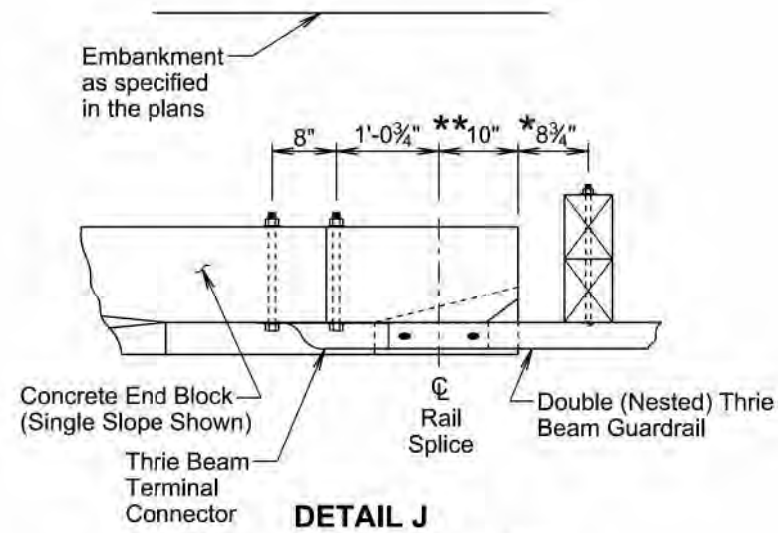
- A: 12'-6" Straight Double (Nested) Class A Thrie Beam Guardrail with Wood Posts (See standard plate 630.01)
- B: 6'-3" W Beam to Thrie Beam Guardrail Transition Section with Wood Posts (See standard plate 630.48)
- C: 12'-6" Straight Class A W Beam Guardrail with Wood Posts (See standard plate 630.10) or as specified in the plans.
- D: Guardrail as specified in the plans.

- X: 6"x8"x7'-0" Wood Post and 6"x8"x21 3/4" Wood Blockout
- Y: 6"x8"x7'-0" Wood Post and 6"x8"x14" Wood Blockout
- Z: 6"x8"x6'-0" Wood Post and 6"x8"x14" Wood Blockout

* See standard plate 630.99

November 19, 2021

Published Date: 2025	S D D O T	TYPE 1A GUARDRAIL TRANSITION (CONCRETE END BLOCK TO W BEAM GUARDRAIL)	PLATE NUMBER 630.52
			Sheet 1 of 2



Jersey Barrier Dimensions are ** 7 1/4" and * 11 1/2"

GENERAL NOTES:

Throughout the type 1A 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 straight double class A thrie beam guardrail including labor, equipment, and materials including the thrie beam rails, posts, blockouts, thrie beam terminal connector, and hardware will be incidental to the contract unit price per foot for "Straight Double Class A Thrie Beam Guardrail with Wood Posts".

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

November 19, 2021

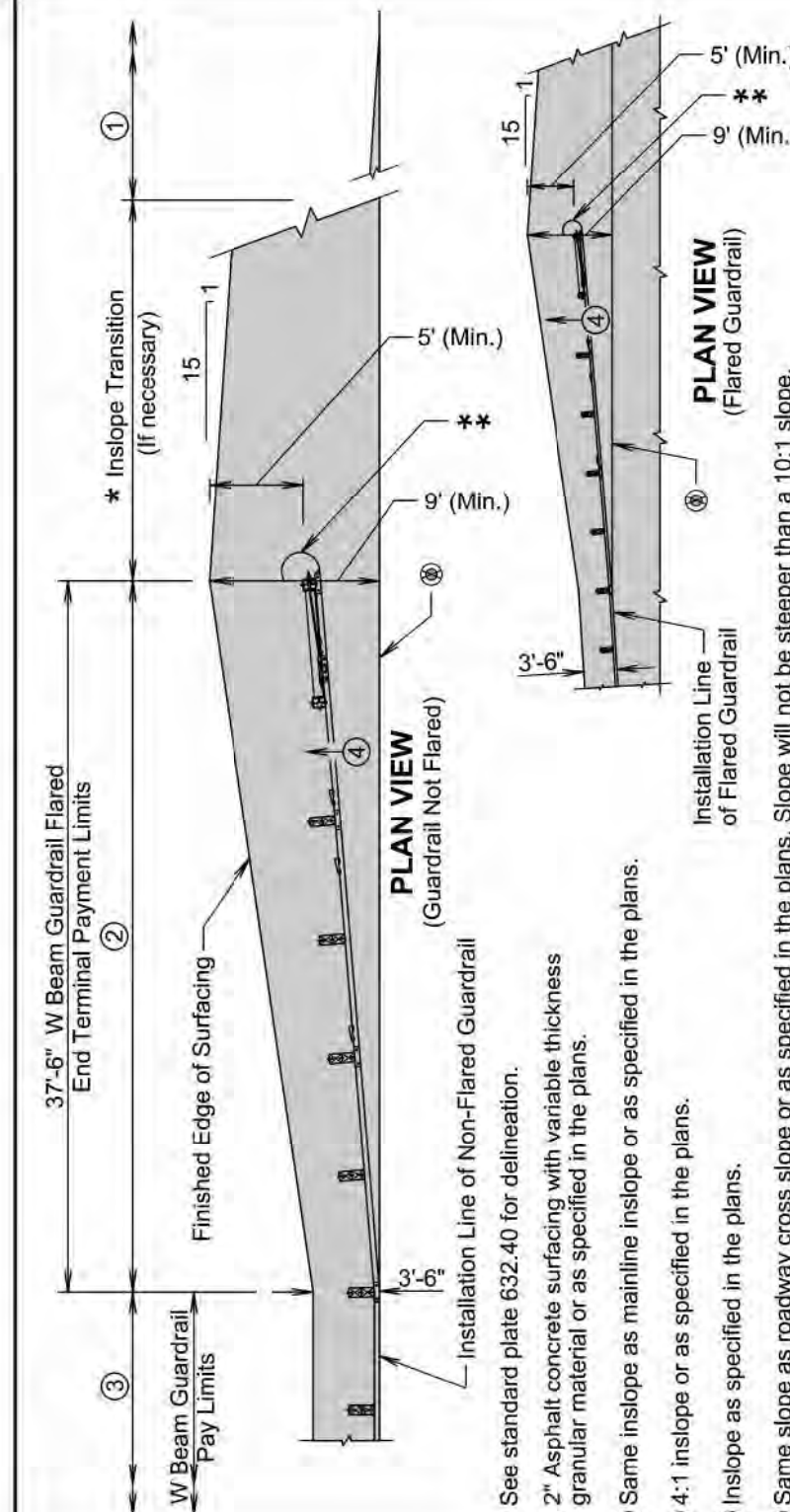
Published Date: 2025

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

PLATE NUMBER
630.52

Sheet 2 of 2



** See standard plate 632.40 for delineation.

2" Asphalt concrete surfacing with variable thickness granular material or as specified in the plans.

- ① Same inslope as mainline inslope or as specified in the plans.
- ② 4:1 inslope or as specified in the plans.
- ③ Inslope as specified in the plans.
- ④ Same slope as roadway cross slope or as specified in the plans. Slope will not be steeper than a 10:1 slope.

GENERAL NOTES:

The flared guardrail end terminals above are for illustrative purpose only.

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100' for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 100'. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200'.

Ⓢ The installation reference line for flared guardrail end terminals will always be parallel to the roadway. 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.

November 14, 2018

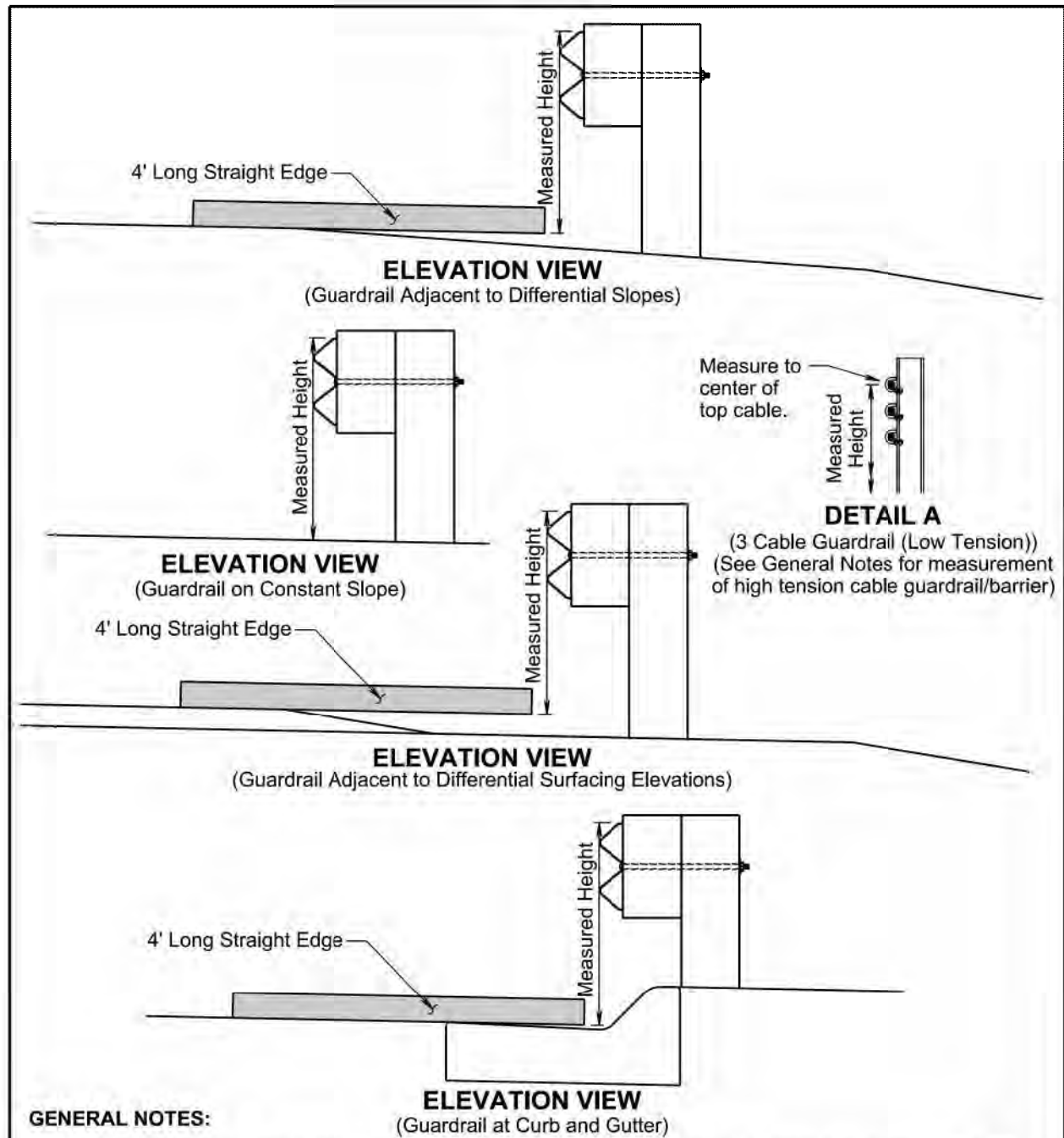
Published Date: 2025

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

PLATE NUMBER
630.86

Sheet 1 of 1



GENERAL NOTES:

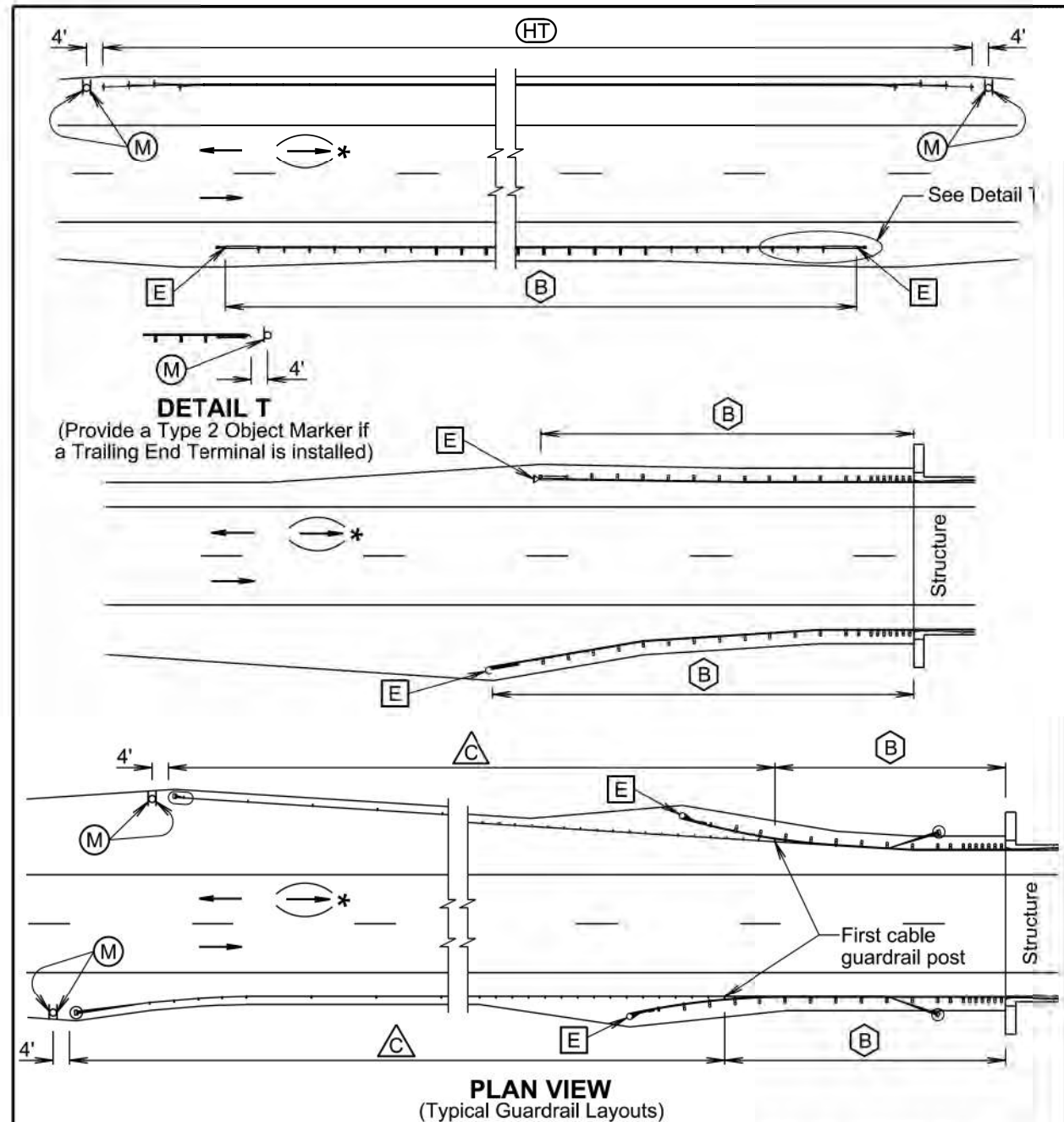
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

When measuring height of 3 cable guardrail (low tension) the height will be measured to the center of the top cable. See Detail A.

The height of high tension cable guardrail/barrier will be measured in accordance with the Manufacturer's installation instructions.

September 14, 2019

Published Date: 2025	S D D O T	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.99
			Sheet 1 of 1



- (B) Steel Beam Guardrail Delineation
- (E) Guardrail End Terminal Object Marker
- (C) 3 Cable Guardrail (Low Tension) Delineation
- (HT) High Tension Cable Guardrail Delineation
- (M) Type 2 Object Marker

*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

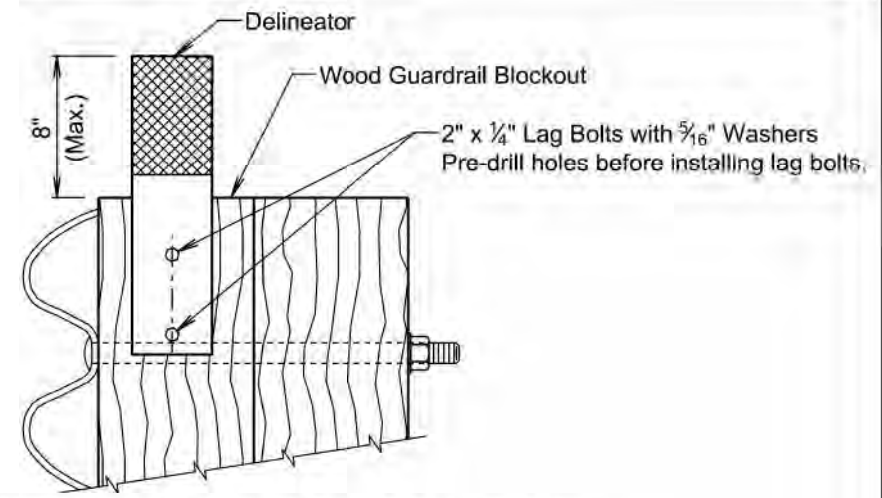
March 31, 2024

Published Date: 2025	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 1 of 4

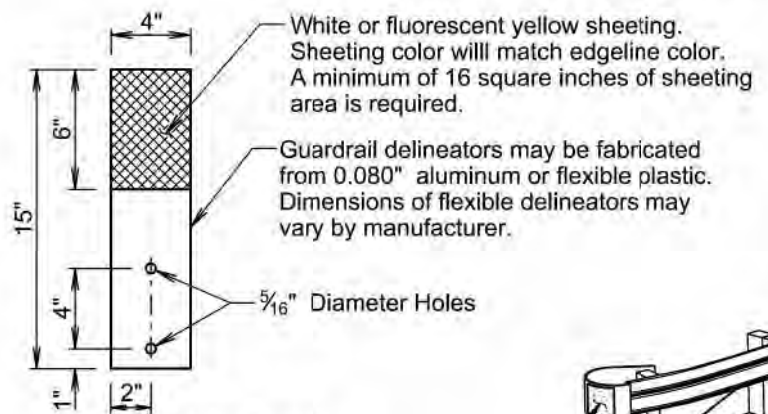
Plot Scale - 1:200

Plotted From - Justin

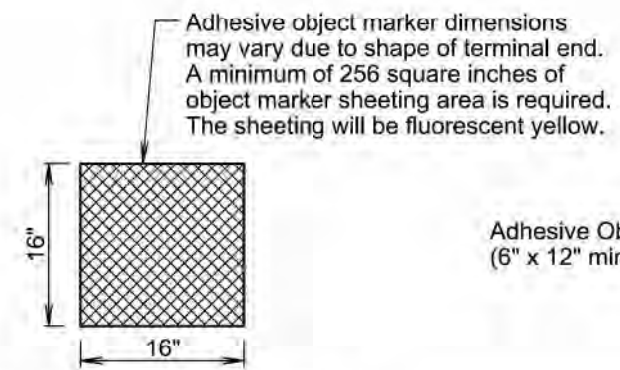
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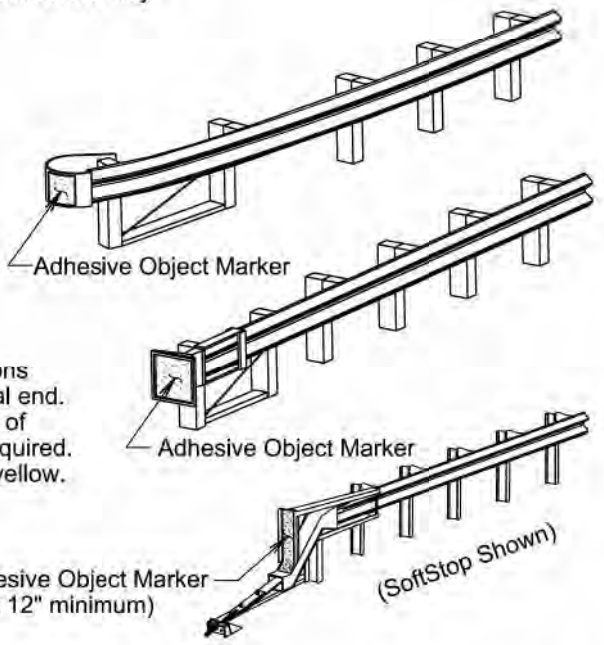
B STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



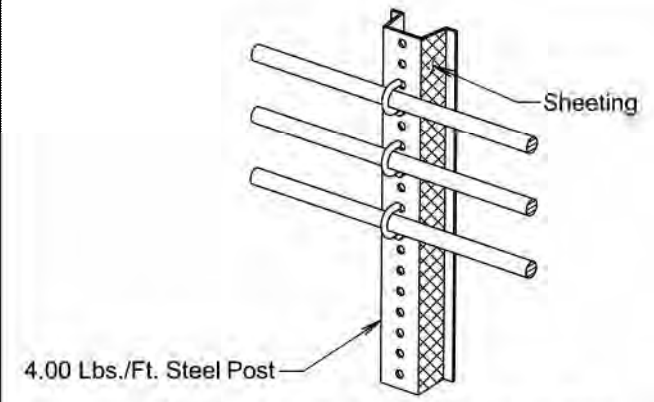
ADHESIVE OBJECT MARKER



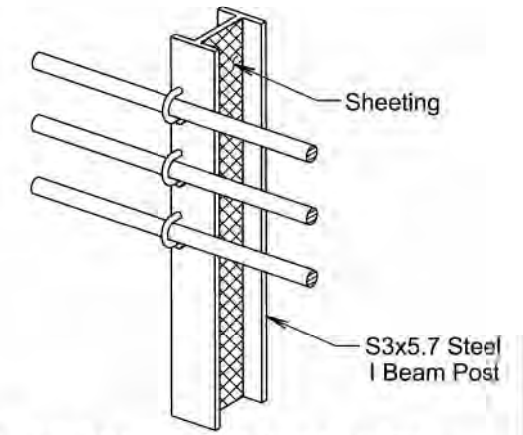
E GUARDRAIL END TERMINAL OBJECT MARKER

March 31, 2024

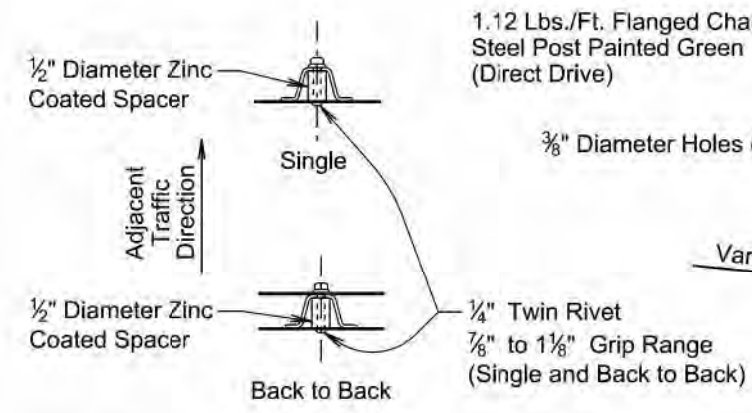
Published Date: 2025	S D D O T	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



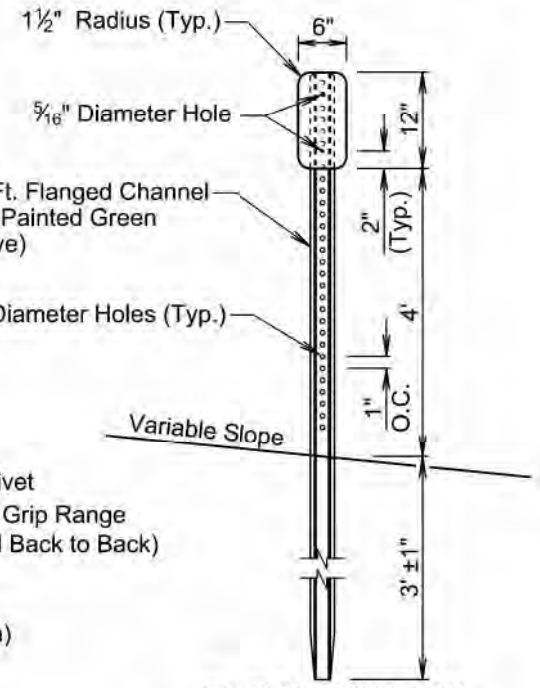
C 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



C 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



PLAN VIEW
(Type 2 Object Marker Details and Post Orientation)



ELEVATION VIEW
M (Type 2 Object Marker)
(For Marking 3 Cable Guardrail (Low Tension) Anchor, High Tension Cable Guardrail Anchor, and Trailing End Terminal)

March 31, 2024

Published Date: 2025	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 3 of 4

Plot Scale - 1:200

Plotted From - Justin

File - ...Sheets\StandardPlates.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 adjacent to the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, and trailing end terminal at the location 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.

March 31, 2024

Published Date: 2025	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4

The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

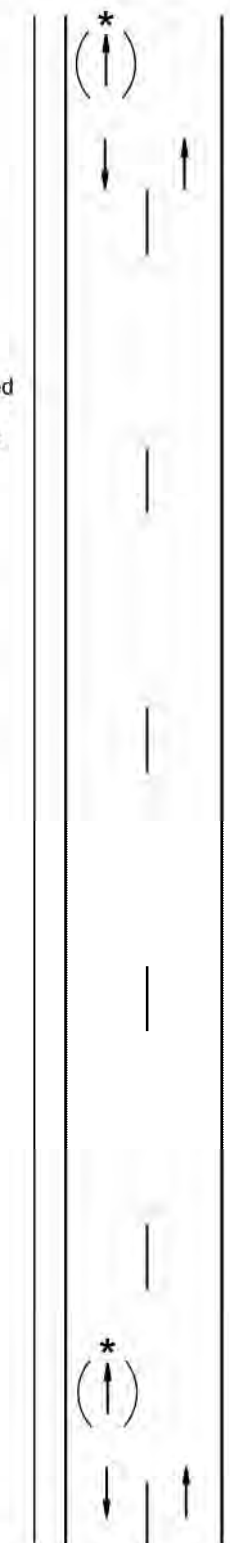
The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

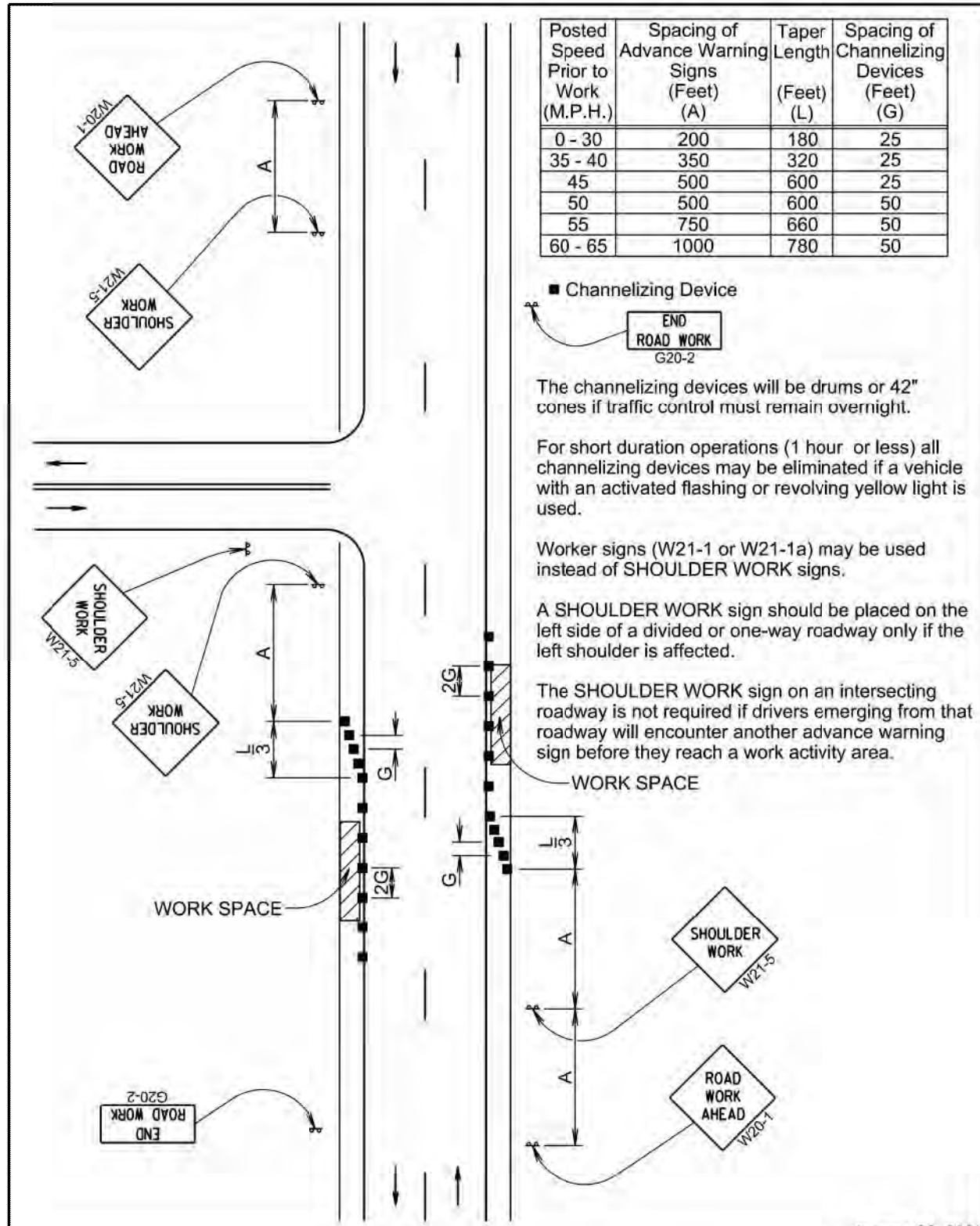
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000



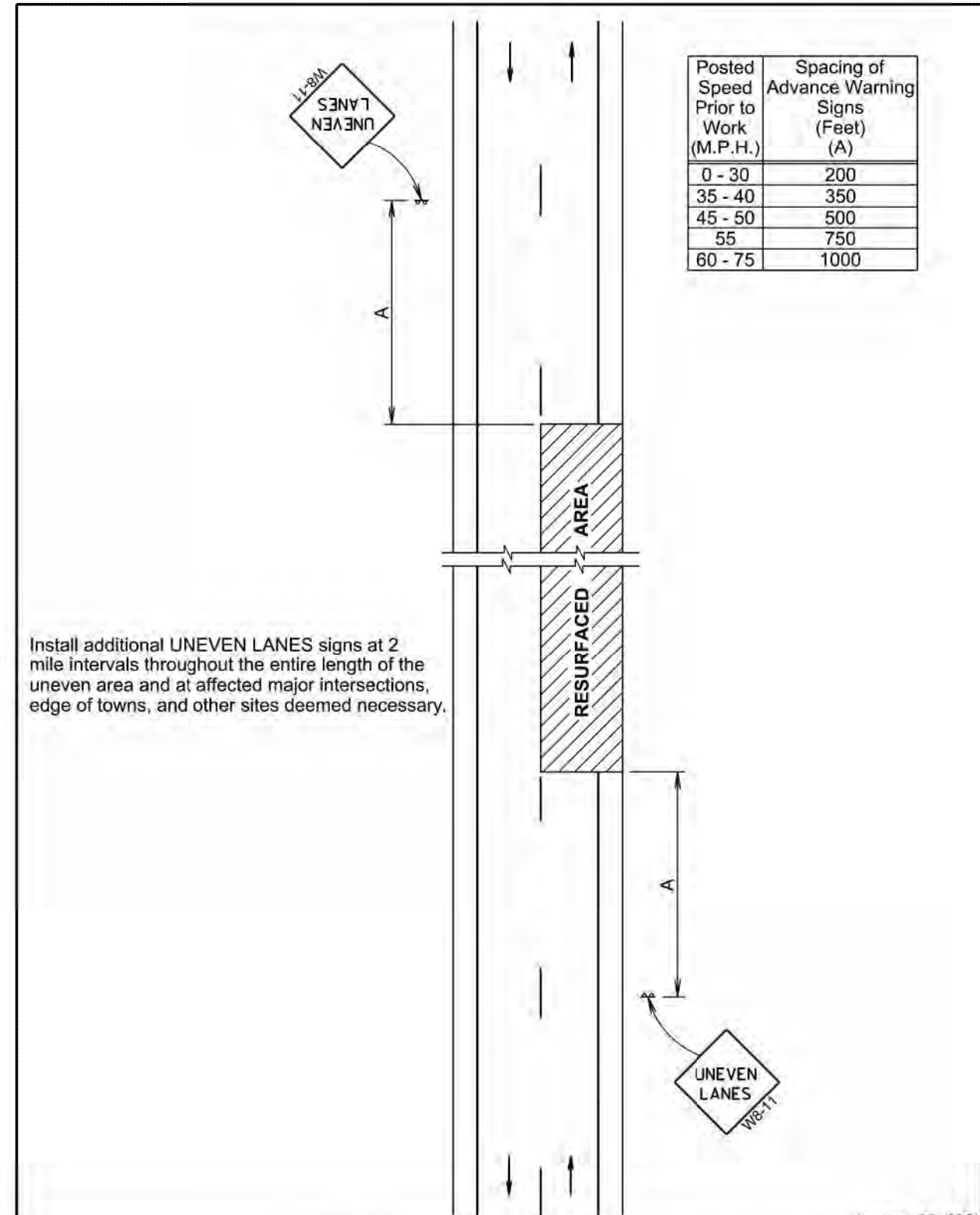
January 22, 2021

Published Date: 2025	S D D O T	WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 of 1



January 22, 2021

Published Date: 2025	S D D O T	WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1



January 22, 2021

Published Date: 2025	S D D O T	UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - Justin

File - ...Sheets\StandardPlates.dgn

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

Flagger
 Channelizing Device

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

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

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

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

The channelizing devices will be drums or 42" cones.

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

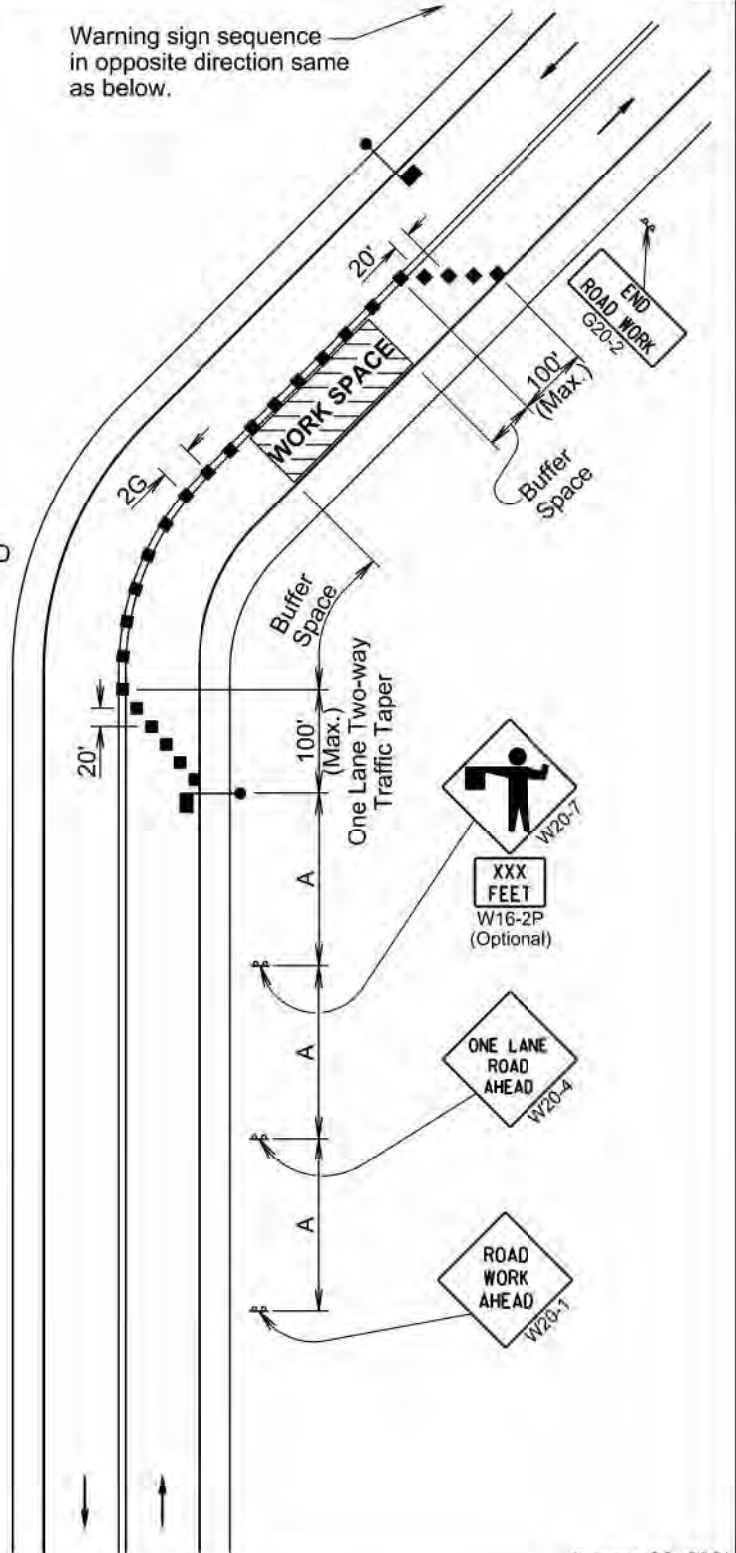
END ROAD WORK G20-2

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

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

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

Warning sign sequence in opposite direction same as below.



January 22, 2021

Published Date: 2025	S D D O T	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

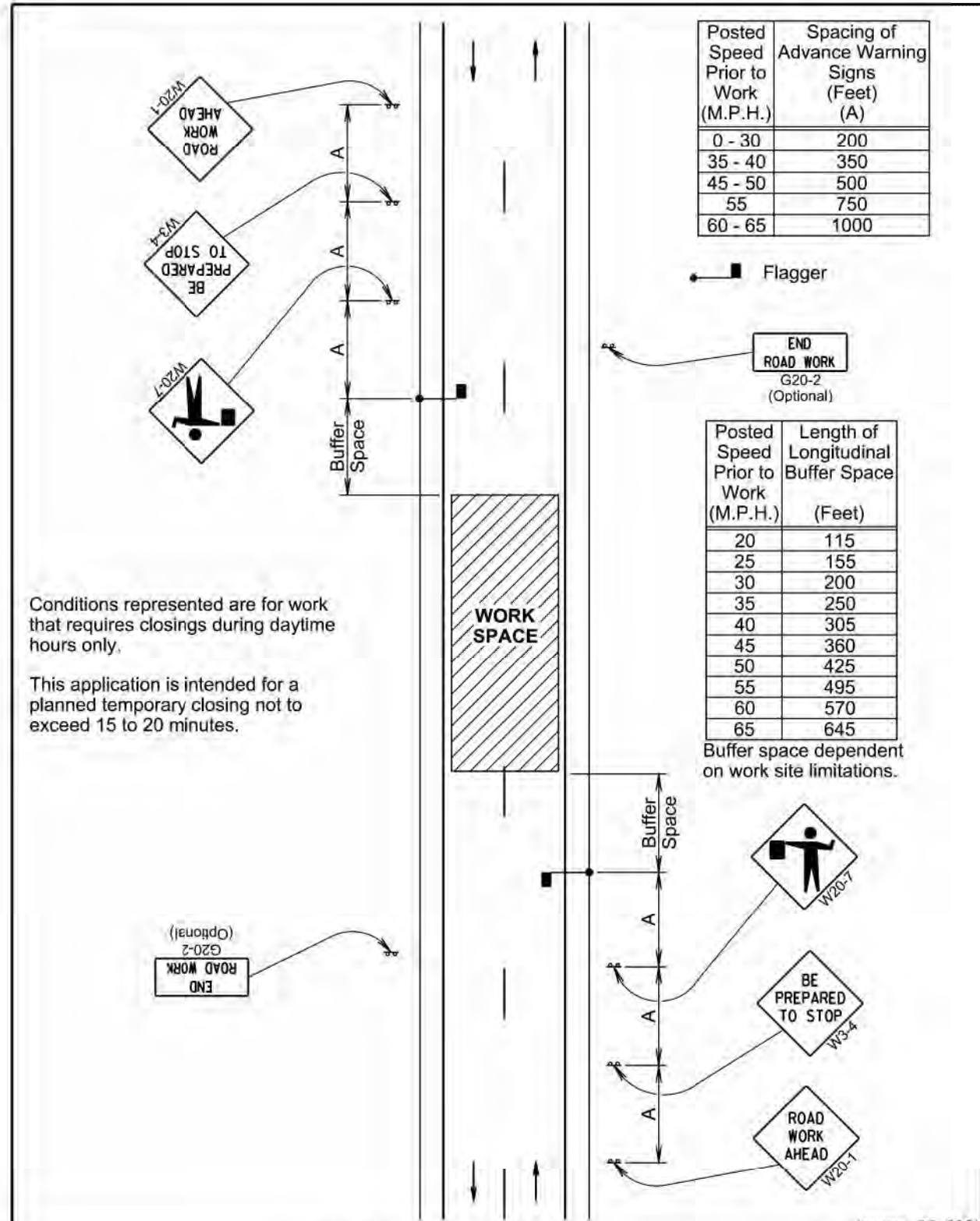
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

Flagger

END ROAD WORK G20-2 (Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

Buffer space dependent on work site limitations.



Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

END ROAD WORK G20-2 (Optional)

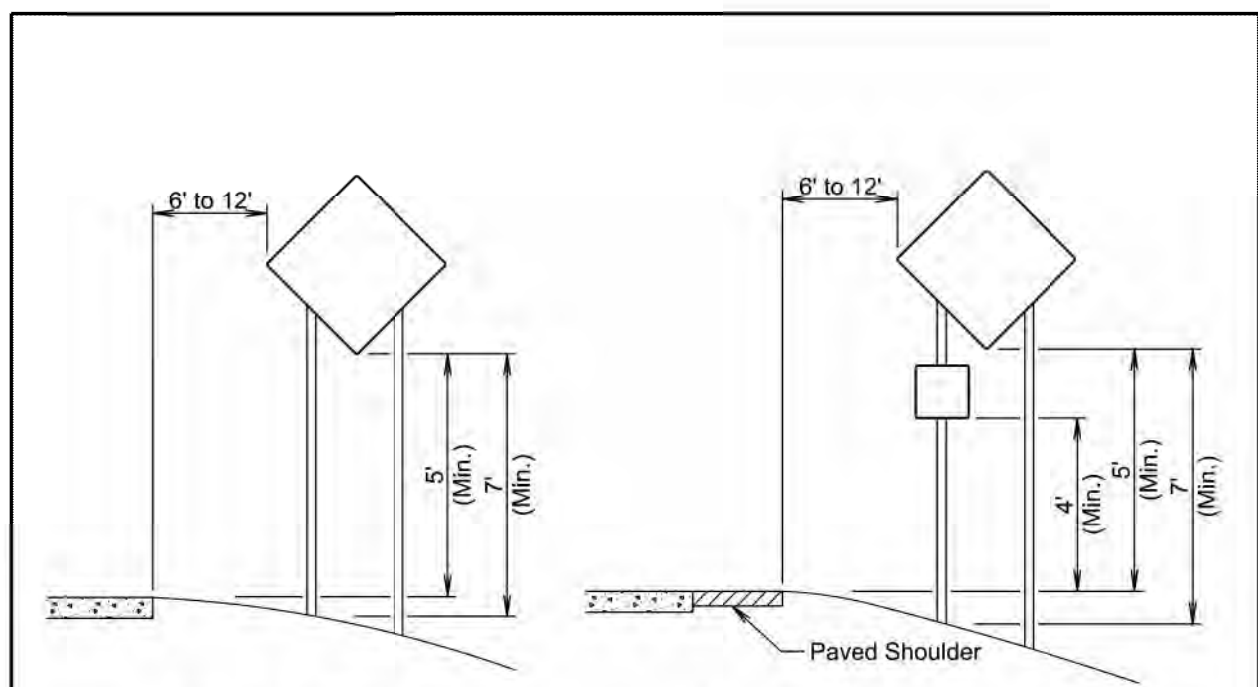
January 22, 2021

Published Date: 2025	S D D O T	TEMPORARY ROAD WORK	PLATE NUMBER 634.30
			Sheet 1 of 1

Plot Scale - 1:200

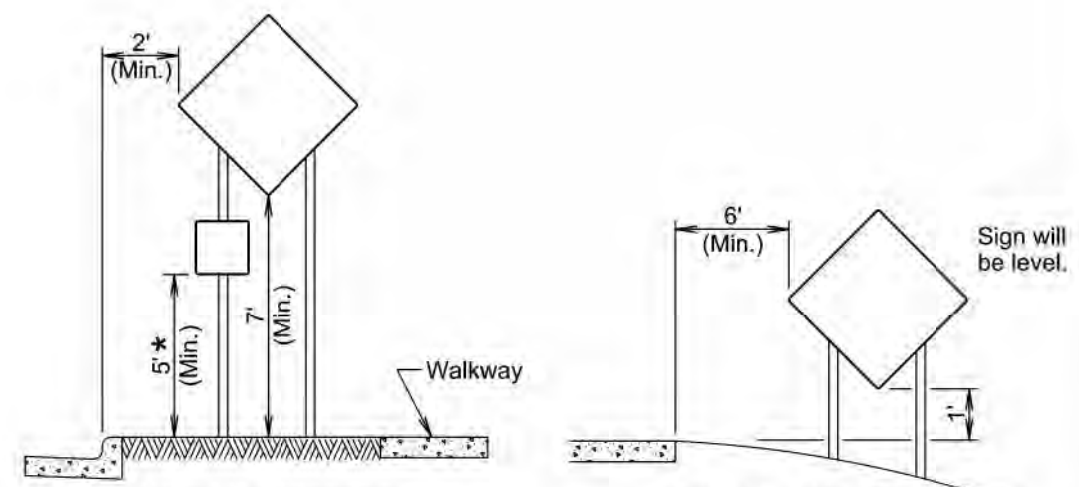
Plotted From - Justin

File - ...Sheets\StandardPlates.dgn



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



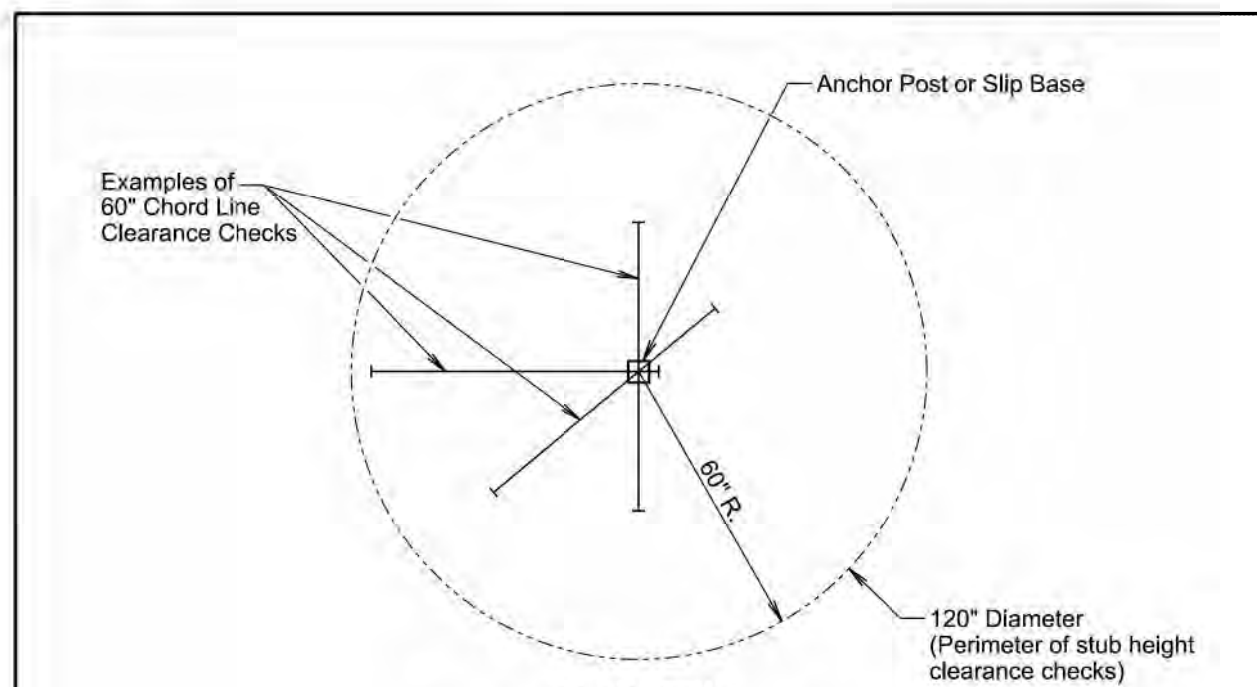
URBAN DISTRICT

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

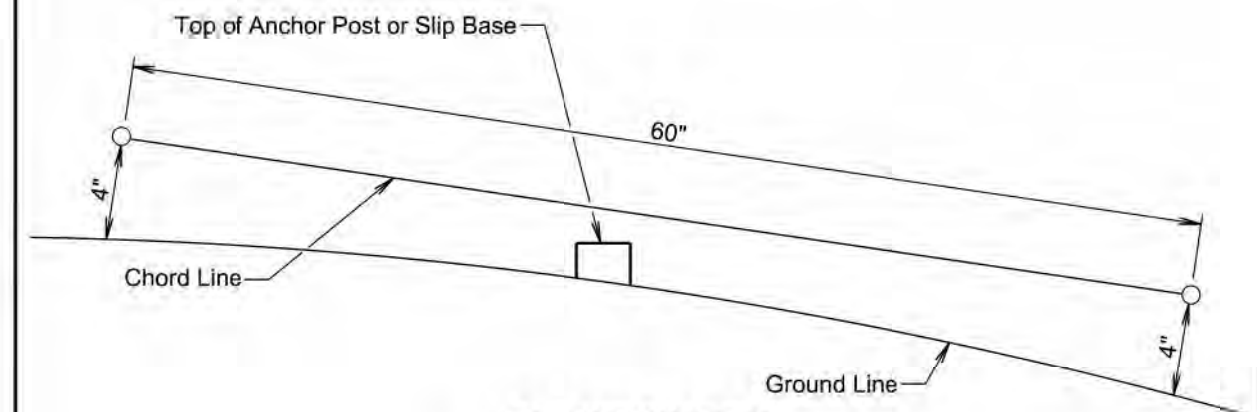
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

- The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.
- At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.
- The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

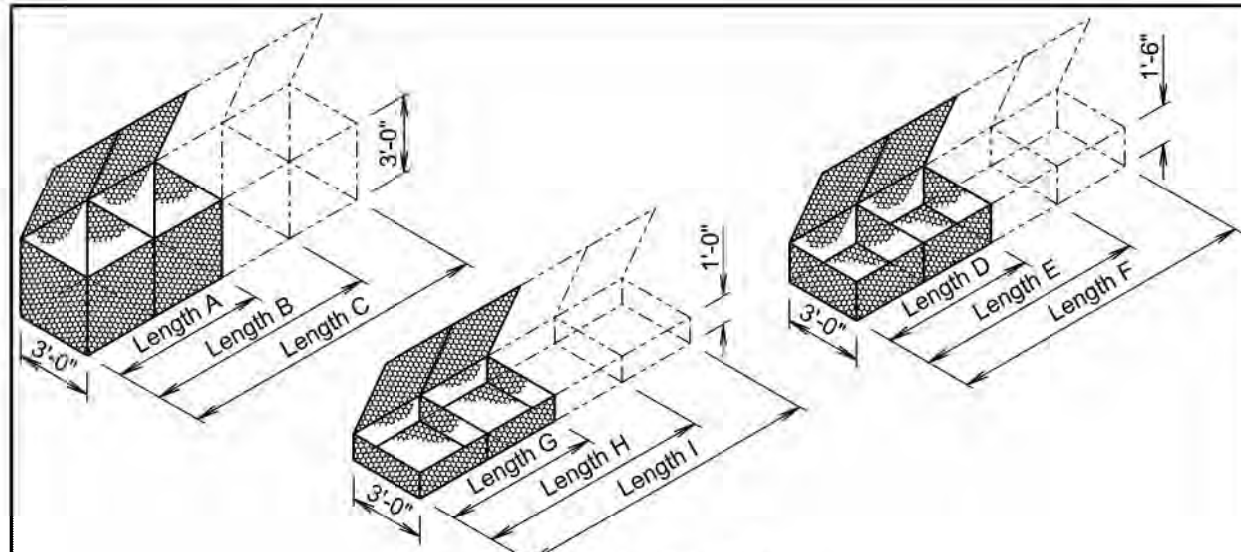
January 22, 2021

Published Date: 2025	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - Justin

File - ...Sheets\StandardPlates.dgn



GABION DETAILS

STANDARD SIZES					
SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY (Cu. Yd.)
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

GENERAL NOTES:

Above dimensions subject to mill tolerances.

Lacing and internal connecting wire will be 0.0866 inch diameter steel wire ASTM A641, Class 3 soft temper measured after galvanizing and for PVC coated gabions will be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

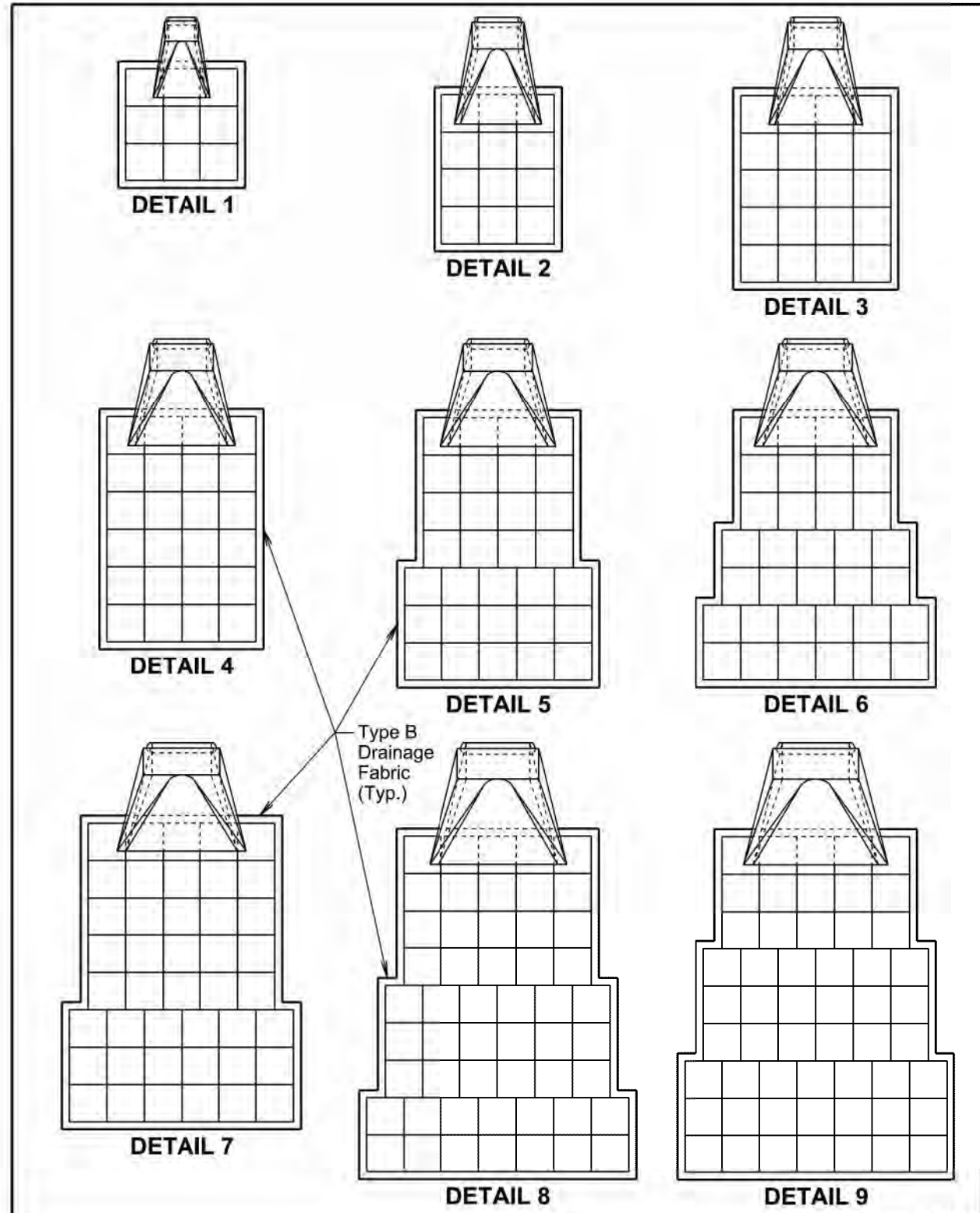
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92, Class 3 coating. Fasteners will also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

All fasteners will be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

February 14, 2020

S D D O T	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
		Sheet 1 of 1
Published Date: 2025		



Type B
Drainage
Fabric
(Typ.)

February 14, 2020

S D D O T	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
		Sheet 1 of 2
Published Date: 2025		

Plot Scale - 1:200

Plotted From - Justin

File - ...Sheets\StandardPlates.dgn

* ESTIMATED QUANTITIES			
Detail	Pipe Diameter (Inches)	Gabion (Cu. Yd.)	Type B Drainage Fabric (Sq. Yd.)
1	12, 18, and 24	4.5	15
2	30 and 36	6.0	19
3	42	10.0	29
4	48 and 54	12.0	34
5	60	15.5	43
6	66	17.0	47
7	72	21.5	57
8	78	26.0	68
9	84	27.0	70

RCP, RCP Arch, CMP, and CMP Arch

GENERAL NOTES:

Gabions at outlets of CMP and RCP will be placed under the end section a distance of 2 feet from the outlet end. For CMP end section installations, the upper fabric of the gabions will be modified to accommodate the metal end section as approved by the Engineer.

* Gabion and type B drainage fabric quantities on this standard plate are based on standard gabion sizes D, E, and F as depicted on standard plate 720.01.

Type B drainage fabric will be placed under the gabions and around the exterior sides (perimeter) of the gabions as approved by the Engineer. The type B drainage fabric will be in conformance with Section 831 of the Specifications. Measurement and payment of the type B drainage fabric will be in conformance with Section 720 of the Specifications.

February 14, 2020

Published Date: 2025

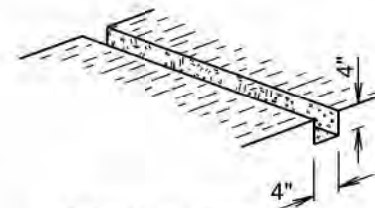
S
D
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T

BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS

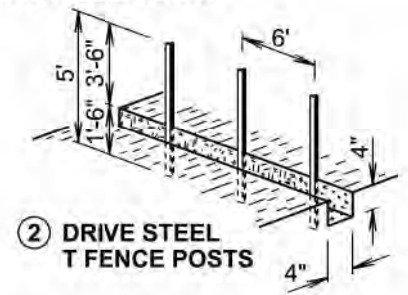
PLATE NUMBER
720.03

Sheet 2 of 2

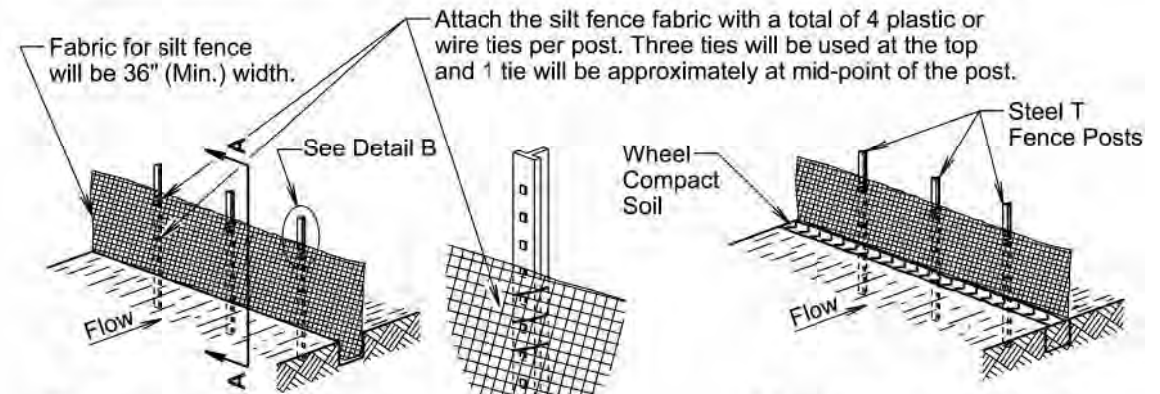
MANUAL HIGH FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH

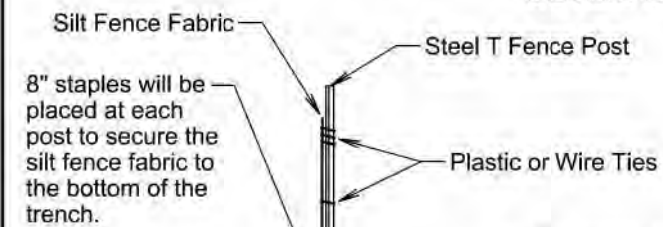


② DRIVE STEEL T FENCE POSTS



③ ATTACH SILT FENCE FABRIC

④ BACKFILL TRENCH AND WHEEL COMPACT SOIL

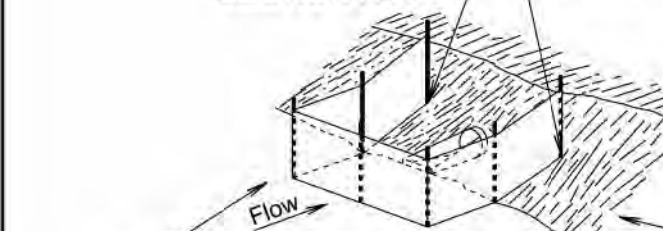


Attach the silt fence fabric with a total of 4 plastic or wire ties per post. Three ties will be used at the top and 1 tie will be approximately at mid-point of the post.

Fabric for silt fence will be 36" (Min.) width.

8" staples will be placed at each post to secure the silt fence fabric to the bottom of the trench.

SECTION A-A



The elevation at these locations will be, at a minimum, higher than the top of the silt fence fabric at its lowest elevation.

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

Post spacing will be 3' for these types of applications of silt fence. All other components of the silt fence will be the same as shown above.

February 14, 2020

Published Date: 2025

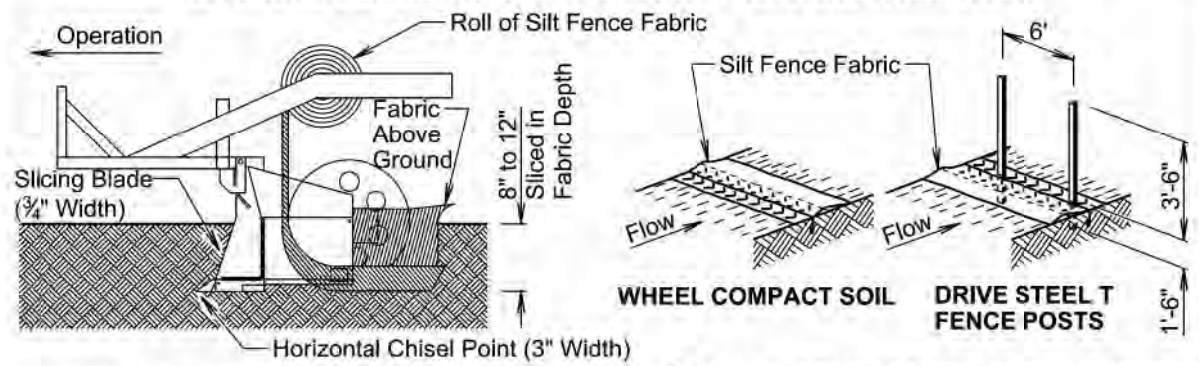
S
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HIGH FLOW SILT FENCE

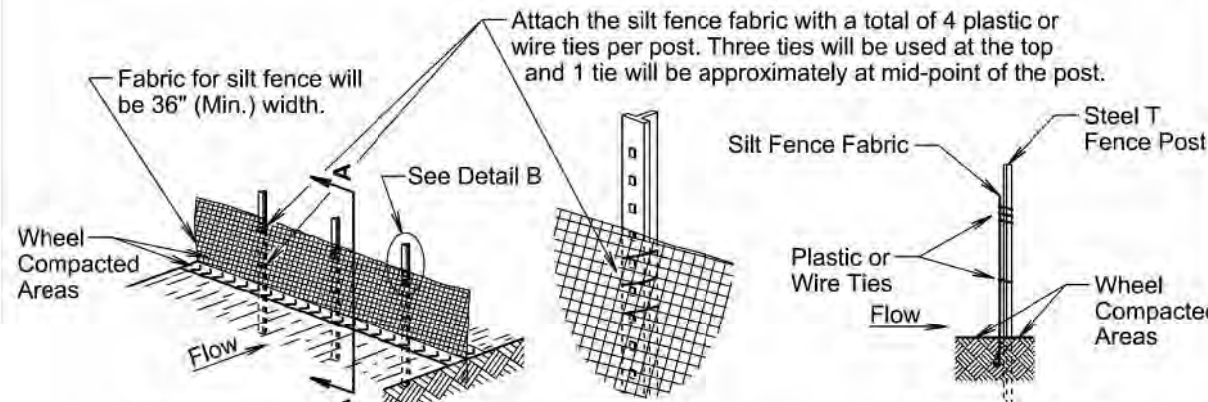
PLATE NUMBER
734.05

Sheet 1 of 2

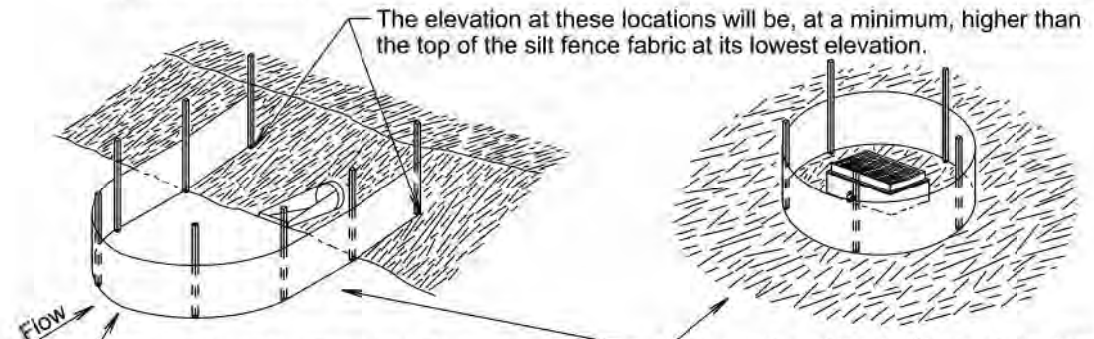
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



- 1 INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.**
- 2 WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.**



- 3 ATTACH SILT FENCE FABRIC**



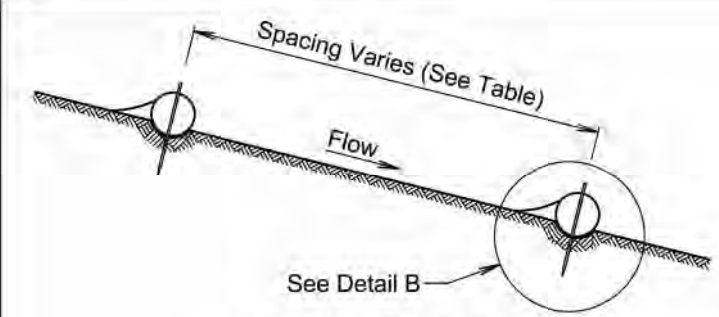
The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

GENERAL NOTE:

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

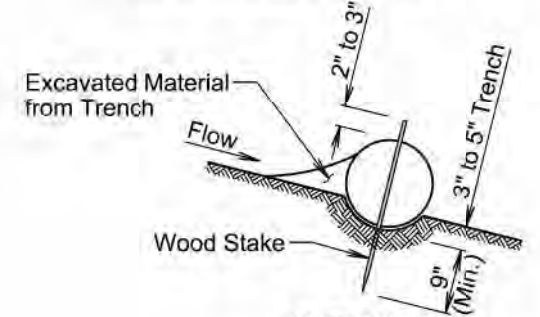
February 14, 2020

Published Date: 2025	S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

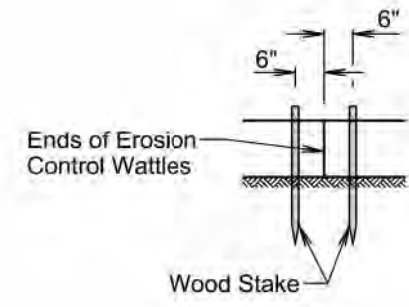


ELEVATION VIEW
(Cut or Fill Slope Installation)

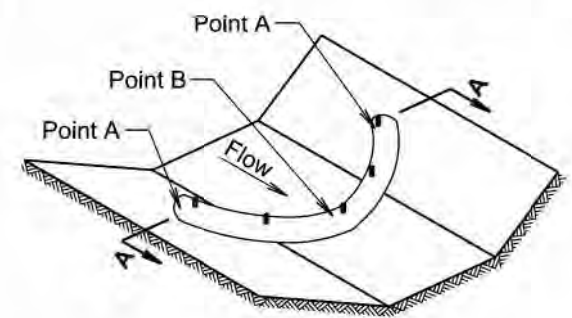
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



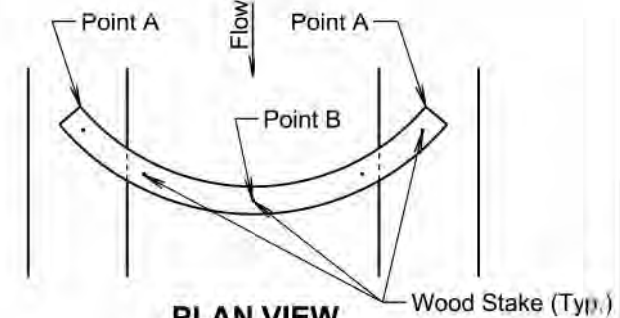
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

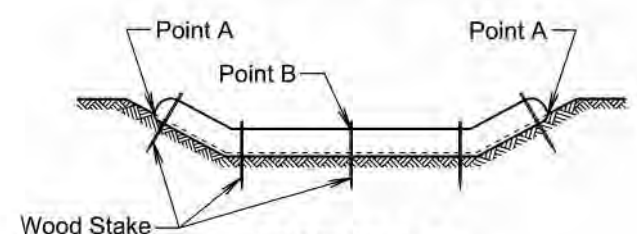


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

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



SECTION A-A

February 14, 2020

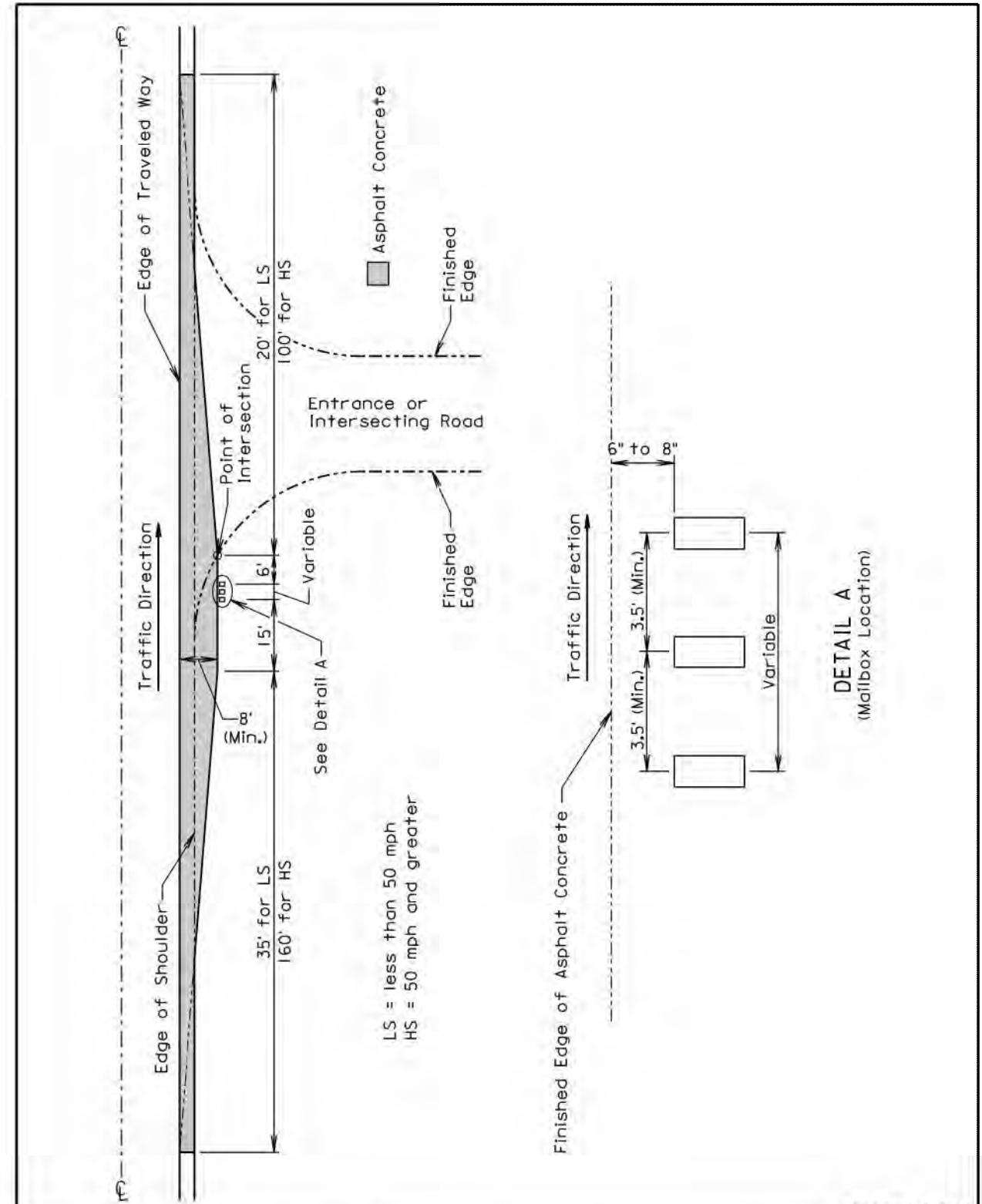
Published Date: 2025	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

- At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.
- At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.
- The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.
- The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.
- Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.
- The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.
- Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".
- All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.
- All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

Published Date: 2025	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2



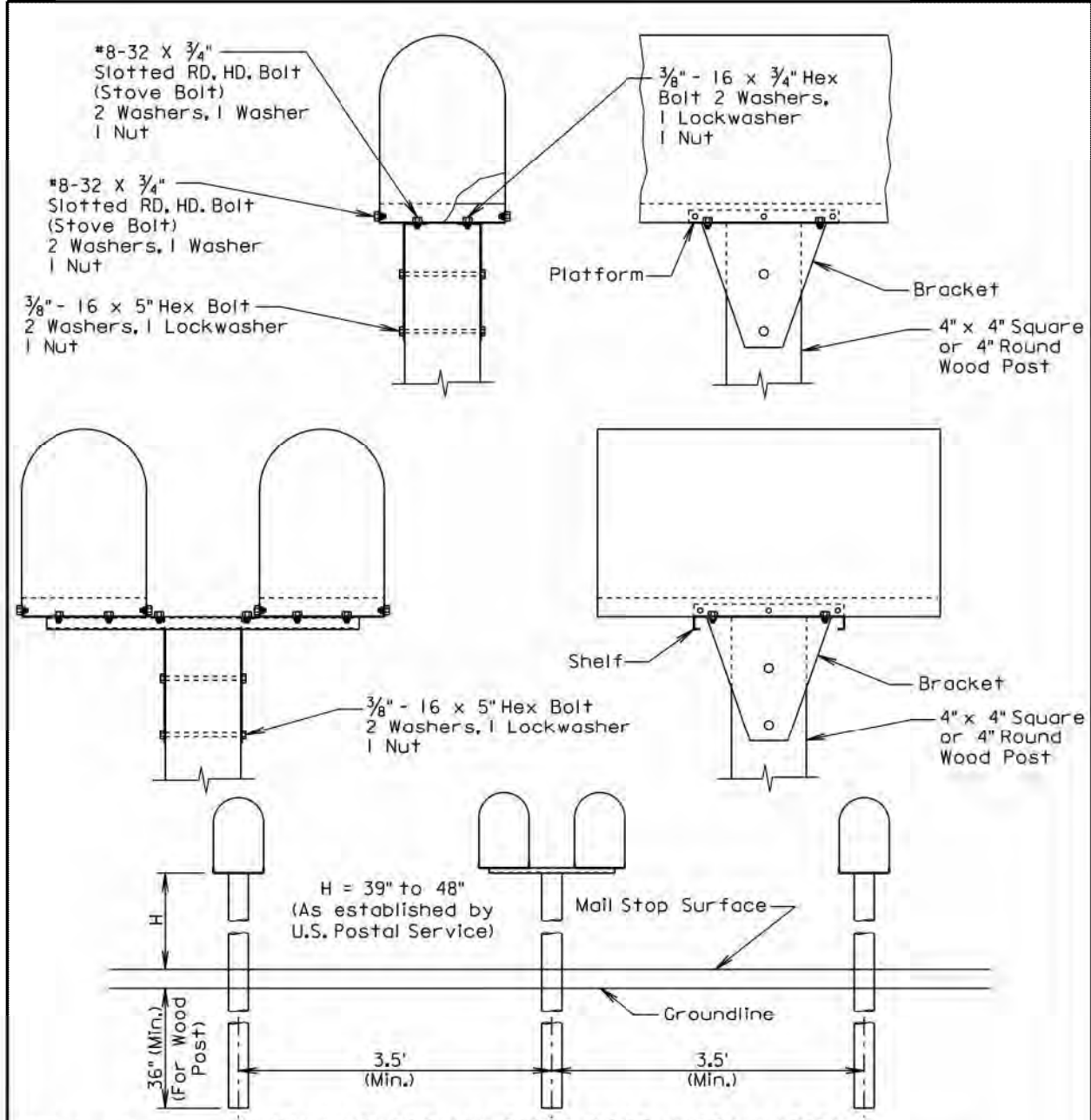
September 6, 2015

Published Date: 2025	S D D O T	MAILBOX TURNOUT	PLATE NUMBER 900.01
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 0047(122)58 049-392	SHEET 73	TOTAL SHEETS 82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

Plot Scale - 1:200



GENERAL NOTES: SPACING FOR MULTIPLE POST INSTALLATION

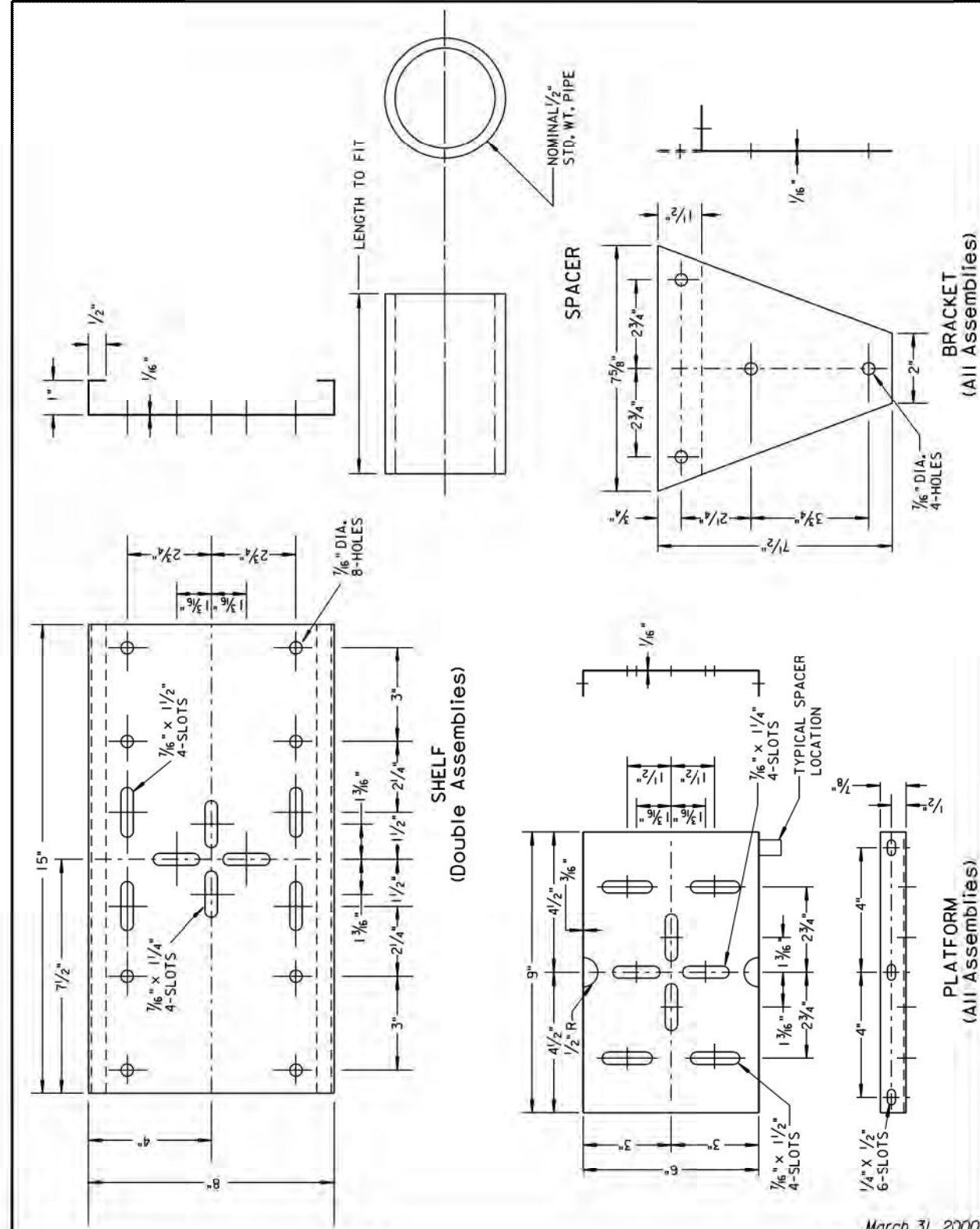
The post support assemblies provided should be consistent throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

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



March 31, 2000

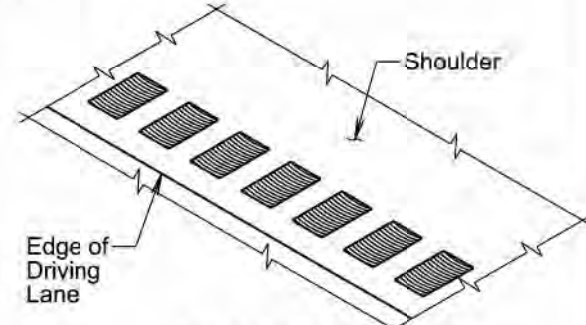
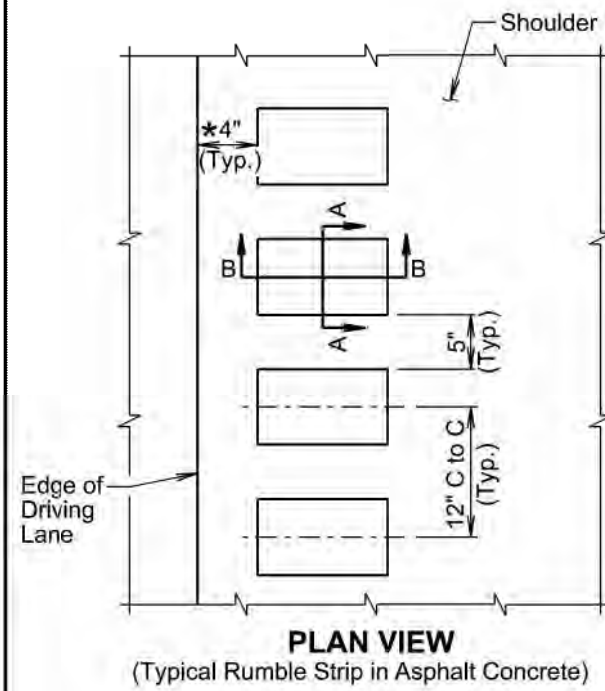
S D D O T	MAILBOX SUPPORT HARDWARE	PLATE NUMBER 900.03
	Published Date: 2025	Sheet 1 of 1

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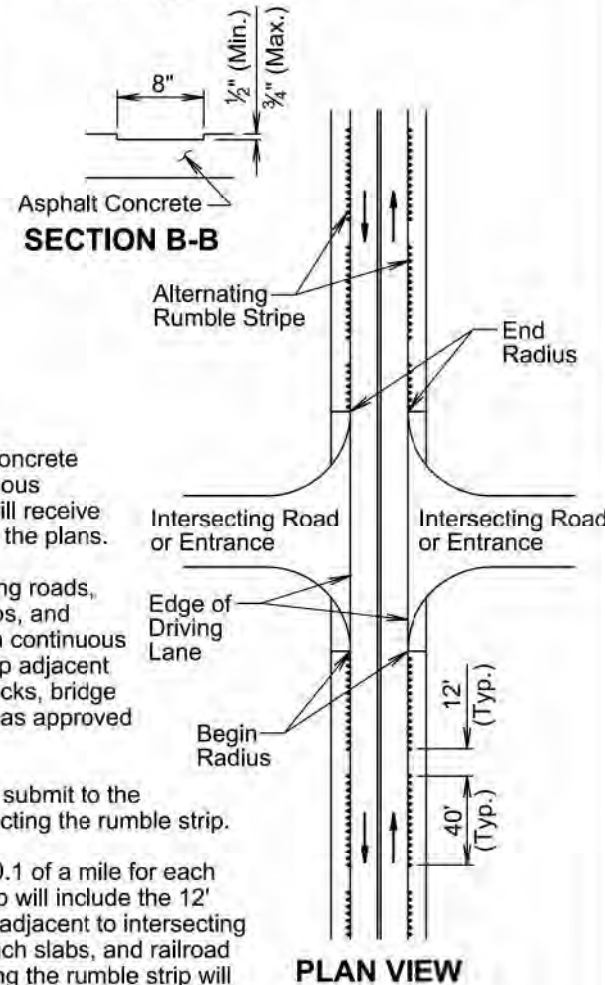
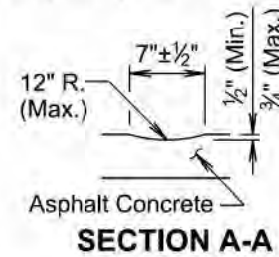
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	74	82
Plotting Date: 9/4/2024		REV. 9/4/24 JT	

**8" RUMBLE STRIP IN ASPHALT CONCRETE
ON NONDIVIDED HIGHWAY SHOULDERS**

Sheet 1 of 1



* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.



GENERAL NOTES:

A rumble strip will be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip will receive a flush seal or asphalt surface treatment as specified in the plans.

A rumble strip will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

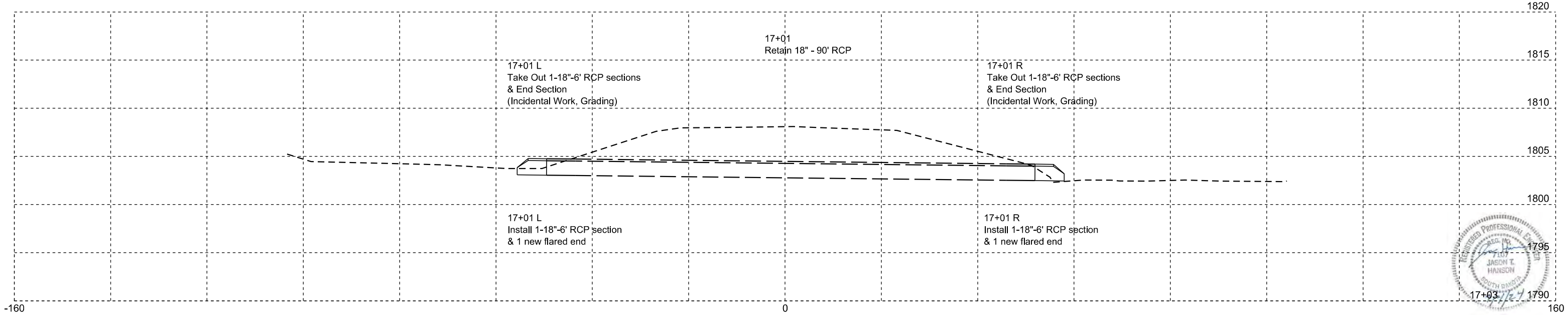
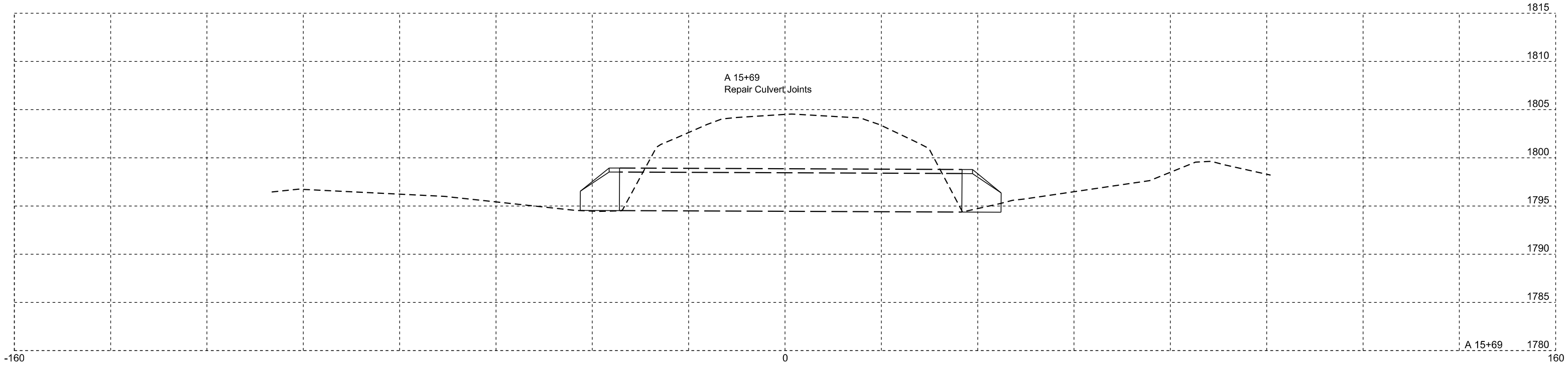
Prior to constructing the rumble strip the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

Measurement of the rumble strip will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip will include the 12' long segments without rumble strips and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble strips. Payment for constructing the rumble strip will be at the contract unit price per mile for "Grind 8" Rumble Strip or Stripe in Asphalt Concrete".

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	75	82

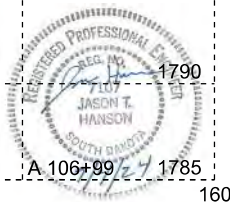
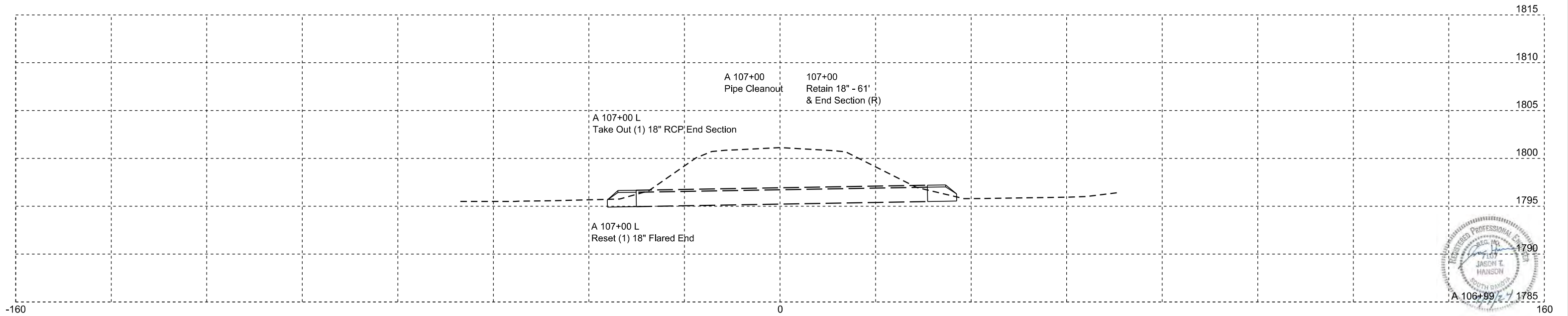
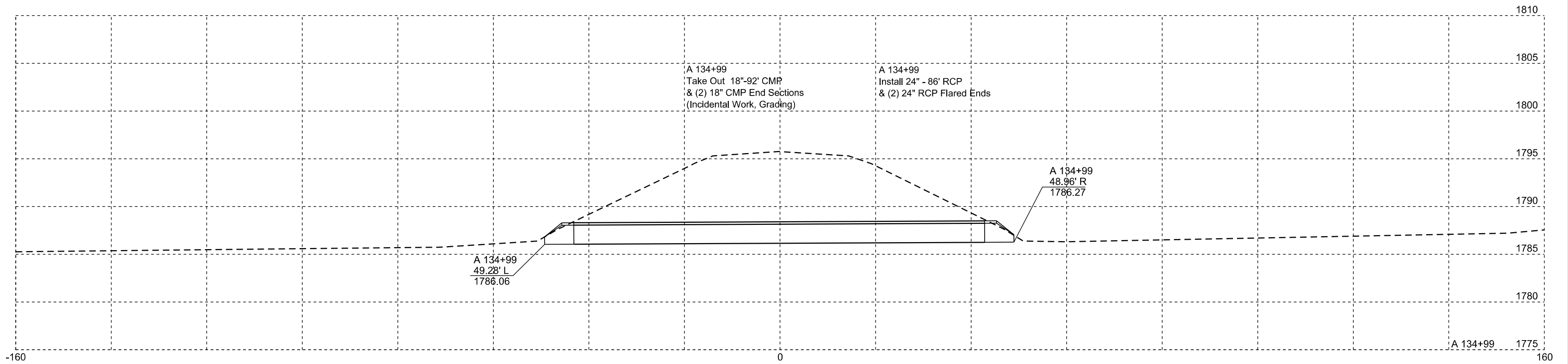
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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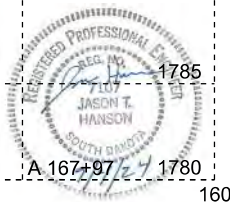
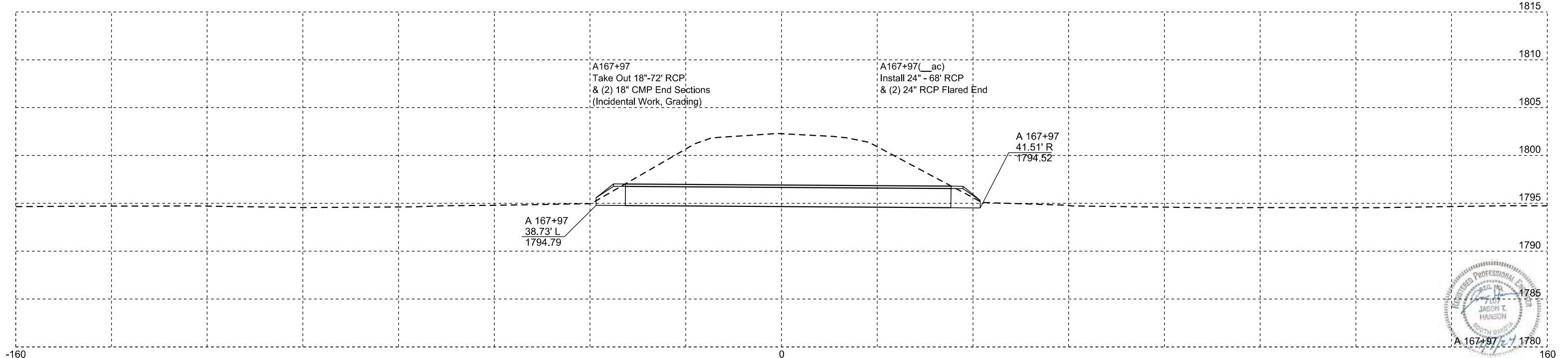
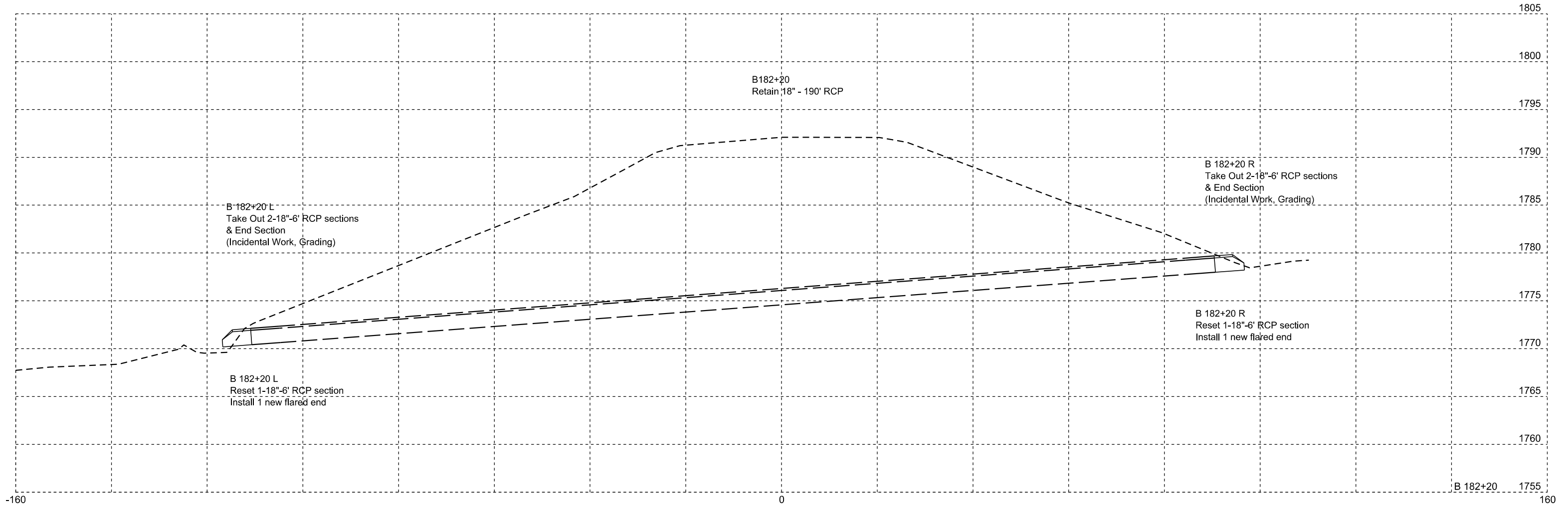
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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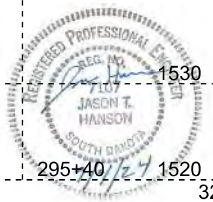
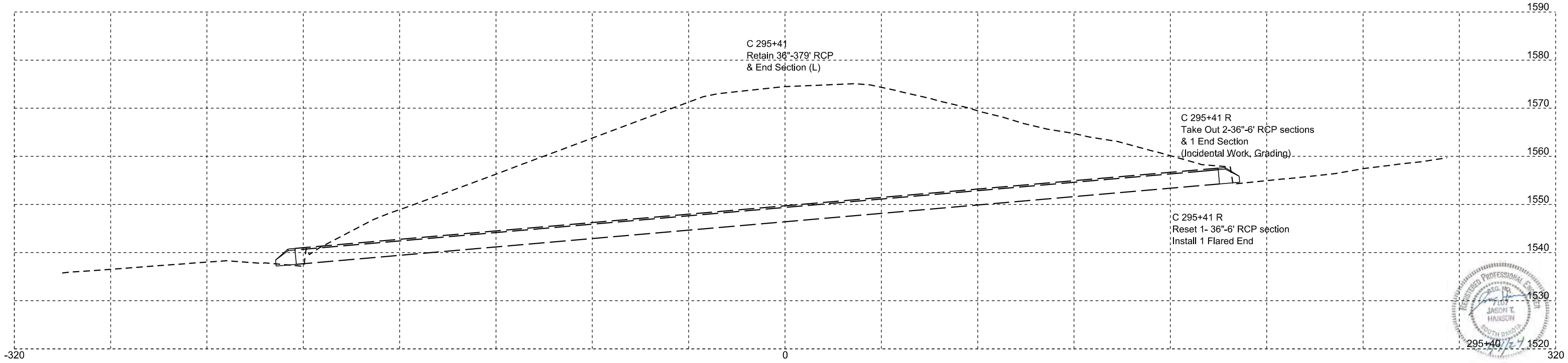
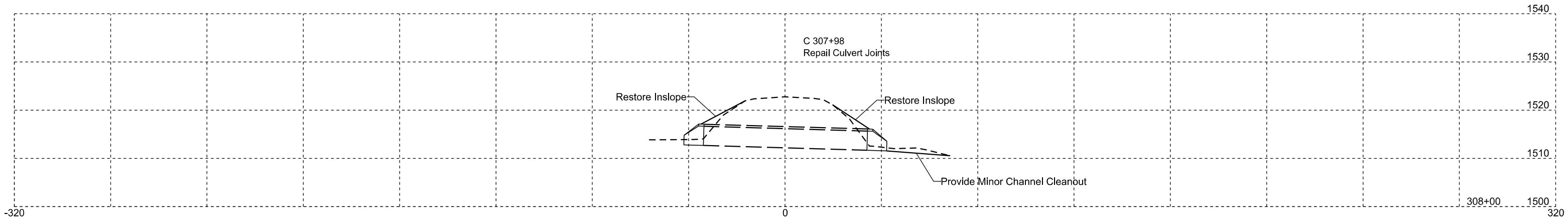
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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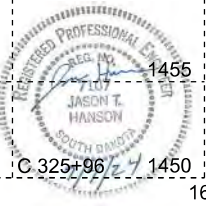
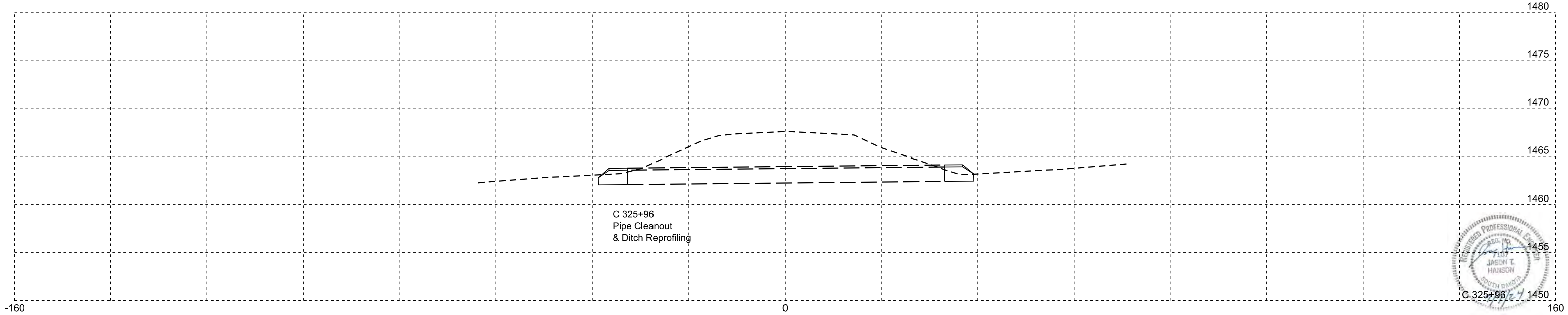
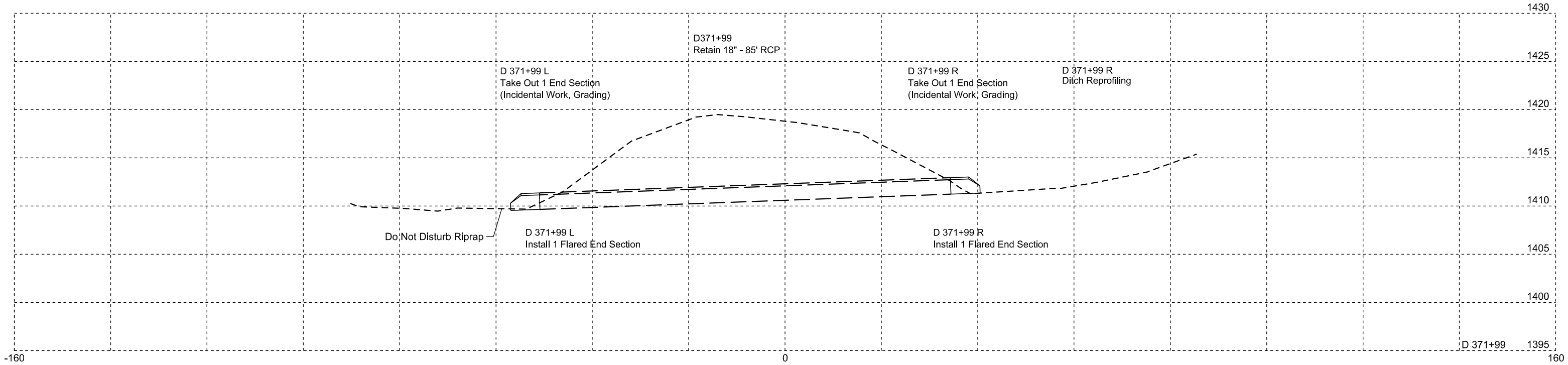
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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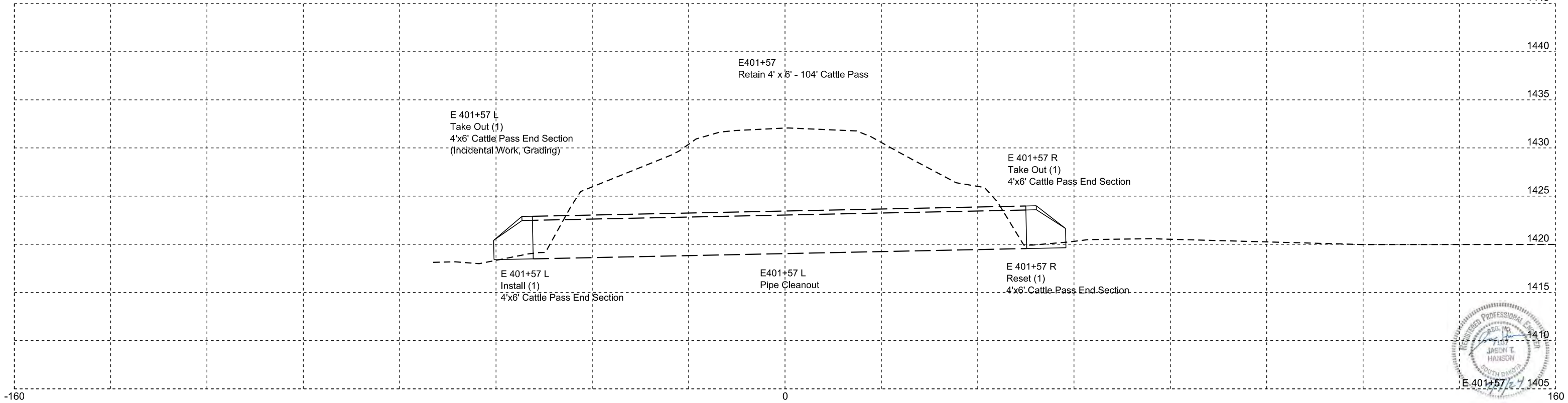
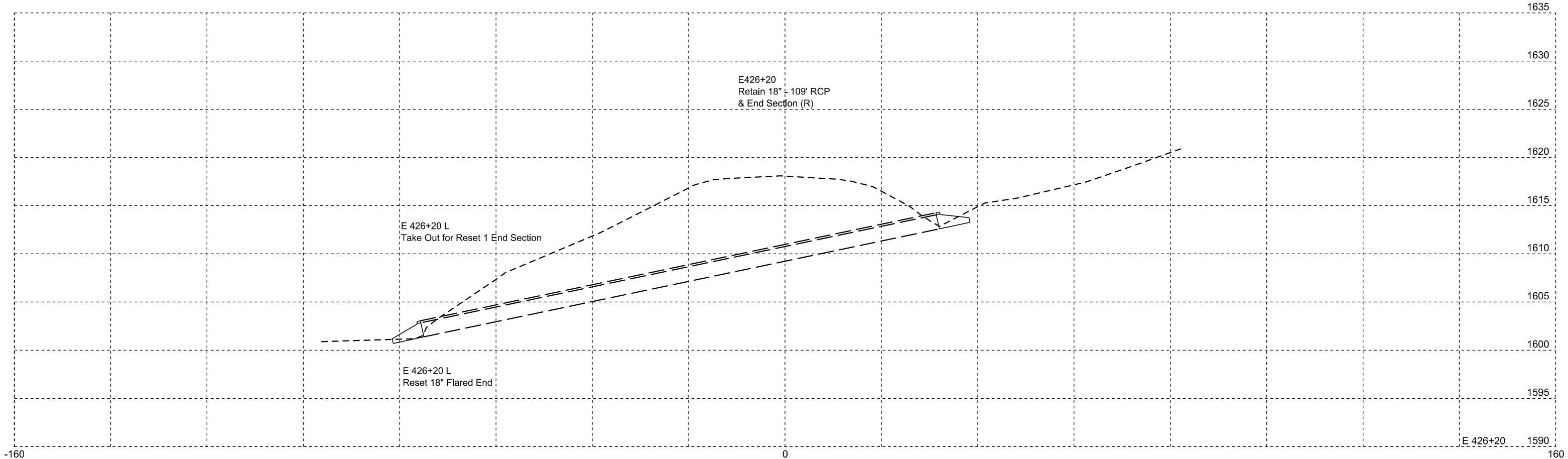
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 9/4/2024 REV. 9/4/24 JT

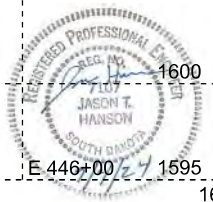
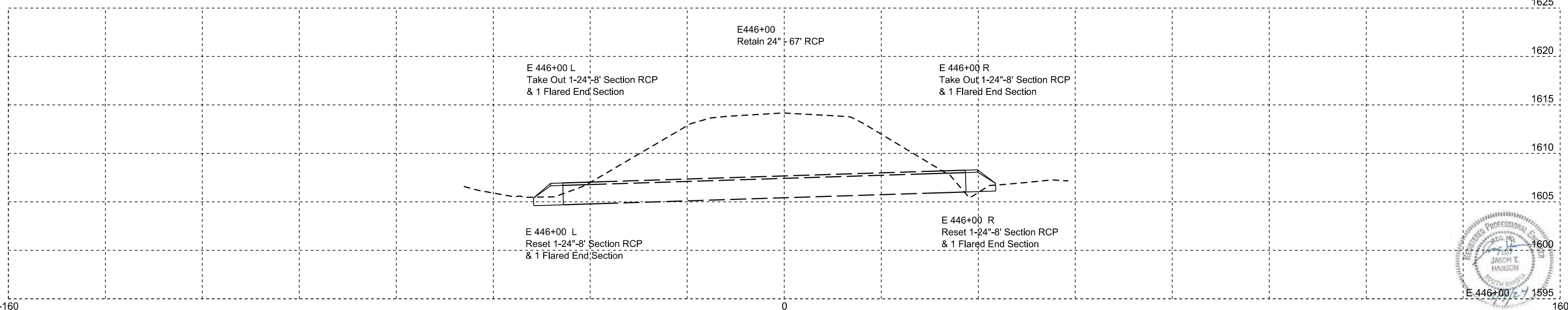
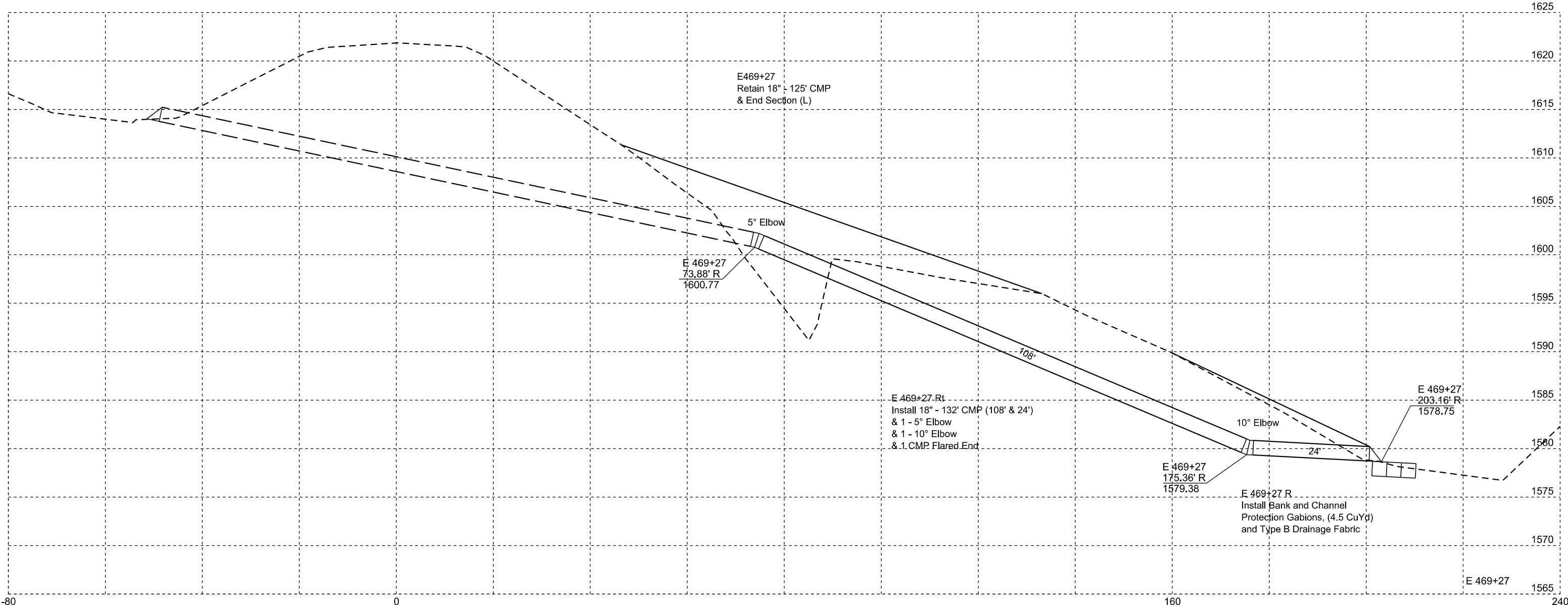


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(122)58 049-392	81	82

Plotting Date: 9/4/2024 REV. 9/4/24 JT



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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