

SECTION F: SURFACING PLANS

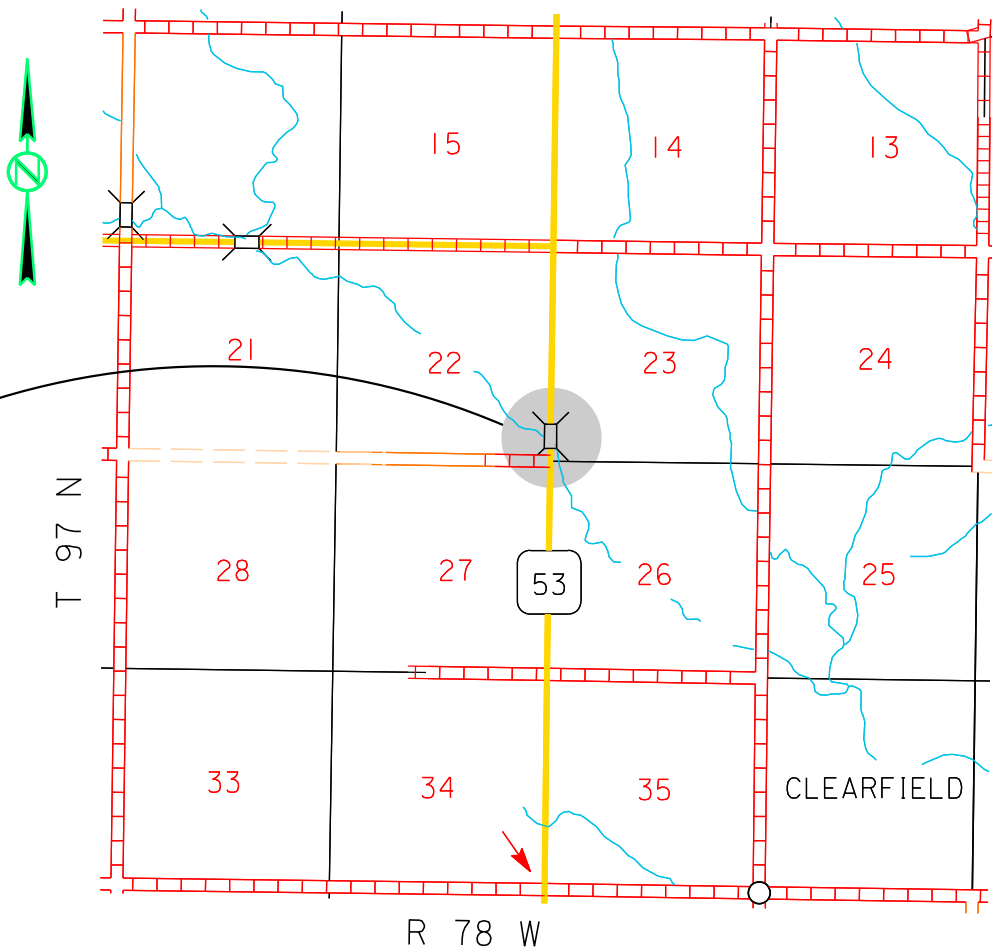
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60	F1	F23

Plotting Date: 09/18/2025

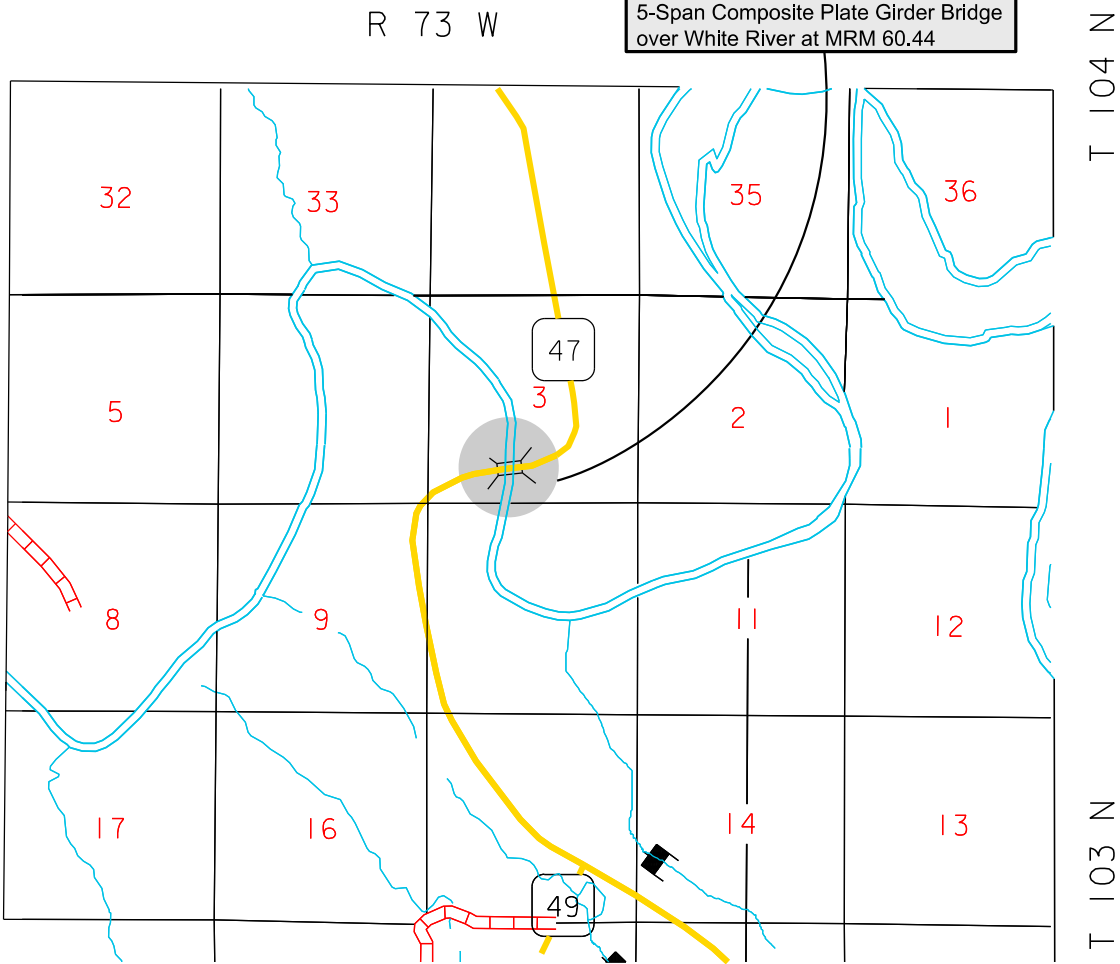
INDEX OF SHEETS

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F4-F5	Control & Horizontal Alignment Data
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PROJECT P 0053(12)14 PCN 090U
Structure No. 62-100-399
5-Span - Continuous Concrete Bridge
over Willow Creek at MRM 14.09



PROJECT P 0047(126)60 PCN 09LF
Structure No. 43-403-308
5-Span Composite Plate Girder Bridge
over White River at MRM 60.44



ESTIMATE OF QUANTITIES

PCN 09LF – SD47

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3200	Construction Staking	Lump Sum	LS
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E0730	Remove Beam Guardrail	325.0	Ft
120E0010	Unclassified Excavation	76	CuYd
120E0600	Contractor Furnished Borrow Excavation	371	CuYd
260E1080	Base Course, Salvaged, State Furnished	162.5	Ton
320E1200	Asphalt Concrete Composite	248.0	Ton
332E0010	Cold Milling Asphalt Concrete	1,442	SqYd
630E0500	Type 1 MGS	100.0	Ft
630E1501	Type 1 Retrofit Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	4	Each
632E2220	Guardrail Delineator	16	Each

PCN 090U – SD53

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E6410	Remove Type 1 MGS for Reset	100.0	Ft
110E6505	Remove Type 2A Guardrail Transition for Reset	4	Each
110E6618	Remove MGS MASH Flared End Terminal for Reset	4	Each
320E1200	Asphalt Concrete Composite	235.2	Ton
332E0010	Cold Milling Asphalt Concrete	1,266	SqYd
630E5010	Reset Type 1 MGS	100.0	Ft
630E5203	Reset MGS MASH Flared End Terminal	4	Each
630E5305	Reset Type 2A Guardrail Transition	4	Each

UTILITIES

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

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

COLD MILLING ASPHALT CONCRETE

Cold milling asphalt concrete will be done according to the details provided in these plans. The milling operation will provide a uniform milled surface from centerline to the edge of the finished shoulder. Milling will be daylighted to the outside edge of the roadway.

The cold milled material obtained from the project will become the property of the Contractor for their disposal. Cold milling asphalt is estimated to produce **75** tons of cold milled asphalt concrete material.

Any additional costs associated cold milling will be incidental to the contract unit price per square yard for “Cold Milling Asphalt Concrete”.

UNCLASSIFIED EXCAVATION

Unclassified Excavation will consist of the removal of earthen embankment material and surfacing material, including asphalt pavement, for the reshaping and reconstruction of the guardrail embankment according to the details provided in these plans.

The removed material may be used as subgrade embankment fill material throughout the guardrail embankment reconstruction limits at the discretion of the Engineer.

Payment will be based on plans quantity. Further measurements will not be made unless there is a change made in the limits of work.

All costs associated with the removal and the placement of the removed material will be incidental to the contract lump sum price “Unclassified Excavation”.

GUARDRAIL EMBANKMENT RECONSTRUCTION

Additional fill material that is necessary for the reshaping and reconstruction of the guardrail embankment will be obtained from Contractor furnished sources.

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

Prior to the removal of placement of fill material, the Contractor will be required to remove topsoil and replace it following the removal or placement of the fill material.

It is anticipated that water for compaction will not be required. However, if the Engineer determines that the fill material is extremely dry, water will be ordered and placed to the satisfaction of the Engineer.

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. No separate measurement will be taken.

Shrinkage Factor: Contractor Furnished Borrow Excavation quantities are computed using the volume of embankment plus fifty (50) percent for shrinkage.

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

BASE COURSE, SALVAGED, STATE FURNISHED

Base Course, Salvaged, State Furnished estimated at **162.5** tons (for informational purposes only) of granular material for the base layer at guardrail embankment reconstruction sites will be obtained from the stockpile site located at

*Stockpile Site #3953G at Reliance Yard
at I-90 Exit 251 along SD47 south
in Lyman County
(SW¼Sec35 T105N R73W)*

No gradation testing will be required for the Base Course, Salvaged, State Furnished material.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60	F3	F23

WATER FOR COMPACTION

Granular Material

The cost of water for compaction of the granular material will be incidental to the various other contract items. A minimum of 4% moisture will be required at the time of compaction unless otherwise directed by the Engineer.

Embankment Material

Water for compaction of earth embankments will be applied at the rate of 10 gallons per cubic yard of embankment material used for fill. The cost of water for compaction of the granular material will be incidental to the various other contract items.

PROTECTION OF BRIDGE JOINTS

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

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

At locations with membrane sealant expansion joints use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.

CONTROL & HORIZONTAL ALIGNMENT DATA

(SD53 - PCN 090U)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60	F4	F23

CONTROL DATA

POINT	NORTHING	EASTING	ELEVATION
CP1	308148.952	2044700.842	2299.895
CP2	318983.327	2044652.230	2336.891
AC7863	301700.215	2044573.43	2355.668

HORIZONTAL ALIGNMENT DATA

The following alignment data for the project can be retrieved electronically from the Bid Letting office upon request:

Centerline Alignment: *090U Centerline.alg*

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone NAD 83(2011); epoch 2010.00
Geoid18; SF = 0.9998255289
The elevations shown on this sheet are based on NAVD 88.

CONTROL & HORIZONTAL ALIGNMENT DATA

(SD47 - PCN 09LF)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60	F5	F23

CONTROL DATA

POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP 3A	On Approach North Side of River Rt	516848.451	2174629.644	1416.504
CP4	North of Project along 47 15400'. East Backslope. Rebar w/Cap	531905.500	2171608.546	1784.172
CP3	South of Project along 47 19100'. Top of West Cutslope. Rebar	499235.100	2181937.402	1681.381
NGS Rebar	South Ditch South of River	516576.869	2172919.192	1400.081
X SE WW	X Scribed in Concrete Top of SE Wing Wall	516744.829	2173991.992	1409.355

HORIZONTAL ALIGNMENT DATA

The following alignment data for the project can be retrieved electronically from the Bid Letting office upon request:

Centerline Alignment: *09LF Centerline.alg*

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone NAD 83(2011); epoch 2010.00
Geoid18; SF = 0.9998462944
The elevations shown on this sheet are based on NAVD 88.

Plot Scale - 1"=32' 3631

Plotted From - TRPR26947

GUARDRAIL EMBANKMENT RECONSTRUCTION, AND APPROACH PAVEMENT & GUARDRAIL REMOVAL AT STRUCTURE ENDS

Structure No. 43-403-308 on SD47 at MRM 60.44 over the White River 7.3 miles south of I-90 Exit 251

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(126)60 & P 0053(12)14	F6	F23

Plotting Date: 10/02/2025 Revised 10/02/25 - VM

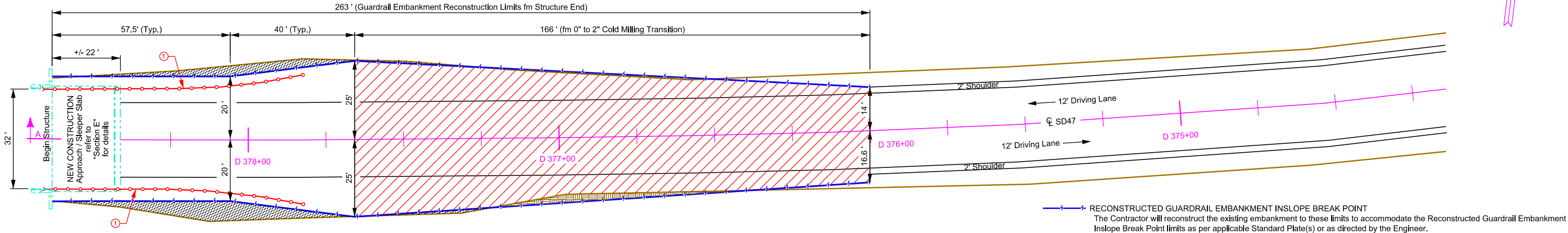
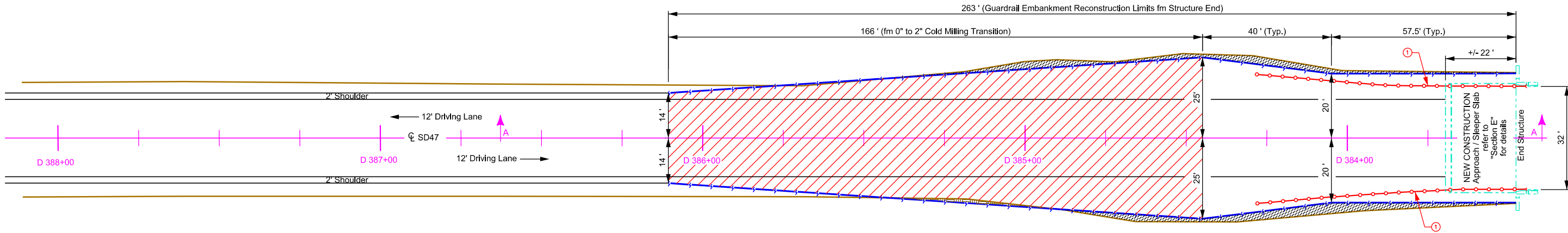
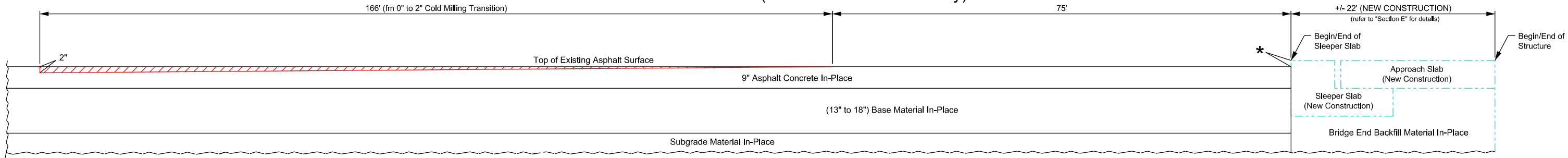


TABLE OF ESTIMATED QUANTITIES										
LOCATION	① REMOVE BEAM GUARDRAIL (Ft)	COLD MILLING ASPHALT CONCRETE (SqYd)	GUARDRAIL EMBANKMENT RECONSTRUCTION							
			REMOVE AND REPLACE TOPSOIL (Refer to Section D)	UNCLASSIFIED EXCAVATION (Surfacing / Earthen Material Removal for Embankment Modification / Reconstruction) (CuYd)	CONTRACTOR FURNISHED BORROW EXCAVATION (CuYd)	BASE COURSE, SALVAGED, STATE FURNISHED (Ton)	Informational Only			
							Removed Unclassified Excavation Material Reused for Embankment Reconstruction (CuYd)	Water For Embankment (MGal)	Water For Granular Material (MGal)	Disturbed Embankment Area (Acre)
Str. No. 43-403-308										
Begin Structure	162.5	728	60	31	27	97.7	31	0.6	0.9	0.222
End Structure	162.5	714	136	45	344	64.8	45	3.9	0.6	0.506
Totals	325.0	1,442	196	76	371	162.5	76	4.5	1.5	0.728

SEC. A-A (At Centerline of Roadway)



APPROACH PAVEMENT RESURFACING AND
GUARDRAIL INSTALLATION AT STRUCTURE ENDS

Structure No. 43-403-308 on SD47 at MRM 60.44 over the White River 7.3 miles south of I-90 Exit 251

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(126)60 & P 0053(12)14	F7	F23

Plotting Date: 09/18/2025

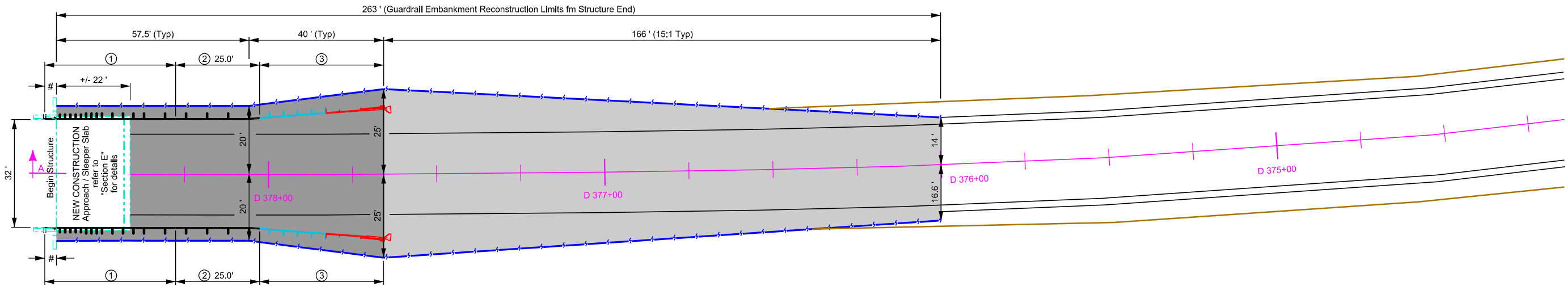


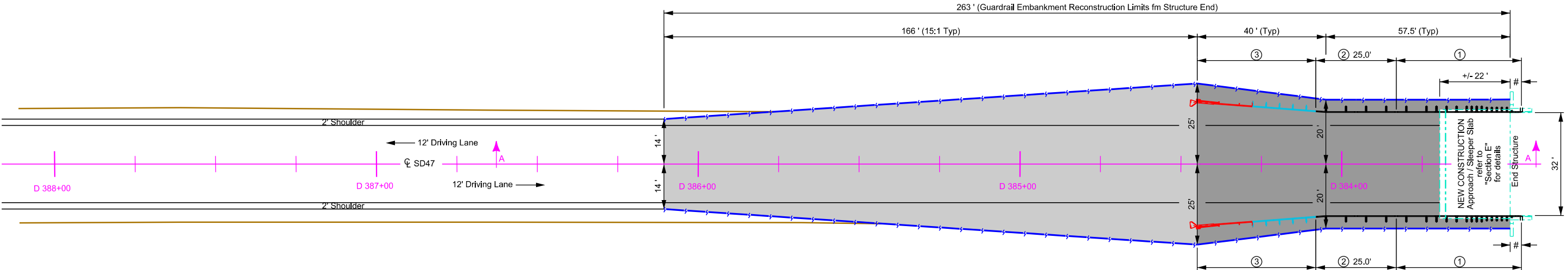
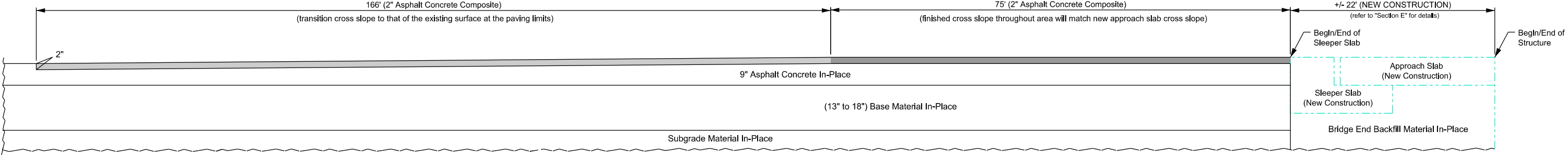
TABLE OF ESTIMATED QUANTITIES					
LOCATION	ASPHALT CONCRETE COMPOSITE	GUARDRAIL INSTALLATION			GUARDRAIL DELINEATOR
		① TYPE 1 RETROFIT GUARDRAIL TRANSITION	② TYPE 1 MGS	③ MGS MASH FLARED END TERMINAL	
Str. No. 43-403-308	(Ton)	(Each)	(Ft)	(Each)	(Each)
Begin Structure	124.0	2	50.0	2	8
End Structure	124.0	2	50.0	2	8
Totals	248.0	4	100.0	4	16

- 2" Asphalt Concrete Composite
- final cross slope throughout the area will match that of the new approach slab
- 2" Asphalt Concrete Composite
- final cross slope throughout the area will transition to that of the existing pavement surface
at the end of the paving limits

- RECONSTRUCTED GUARDRAIL EMBANKMENT INSLOPE BREAK POINT
& ASPHALT PAVING LIMITS
- EXISTING GUARDRAIL EMBANKMENT INSLOPE BREAK POINT

2'-1 1/4" of guardrail overlaps onto structure.

SEC. A-A (At Centerline of Roadway)



Plot Scale - 1:32,363:1

Plotted From - TRPR26947

APPROACH PAVEMENT & GUARDRAIL REMOVAL AT STRUCTURE ENDS

Structure No. 62-100-399 on SD53 at MRM 14.09
over Willow Creek, 12.9 miles south of US18

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(126)60 & P 0053(12)14	F8	F23

Plotting Date: 09/18/2025

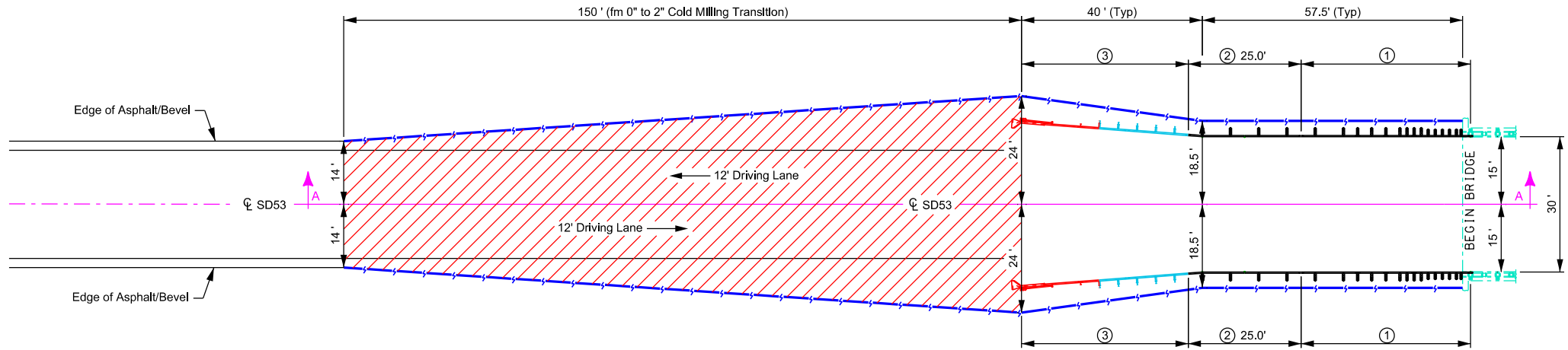
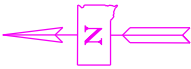


TABLE OF ESTIMATED QUANTITIES

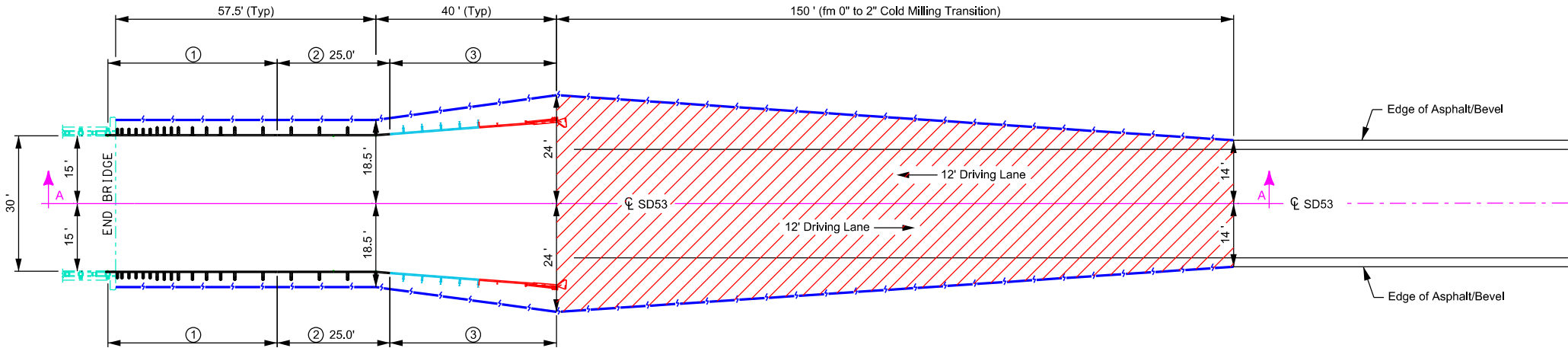
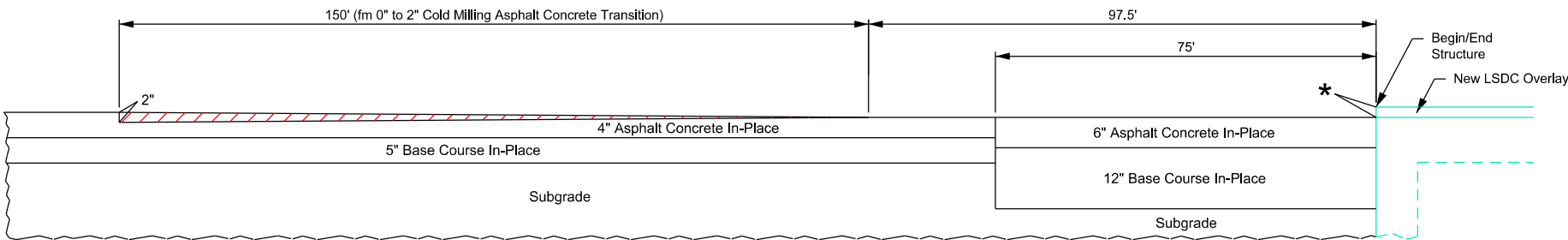
LOCATION	COLD MILLING ASPHALT CONCRETE	REMOVE GUARDRAIL FOR RESET		
		① REMOVE TYPE 2A GUARDRAIL TRANSITION FOR RESET	② REMOVE TYPE 1 MGS FOR RESET	③ REMOVE MGS MASH FLARED END TERMINAL FOR RESET (Each)
Str. No. 62-100-399	(SqYd)	(Each)	(Ft)	(Each)
Begin Structure	633	2	50.0	2
End Structure	633	2	50.0	2
Totals	1,266	4	100.0	4

Cold Milling Asphalt Concrete Transition (fm 0" to 2")
- the milled cross slope throughout the area will match the existing
surface cross slope

EXISTING EMBANKMENT INSLOPE BREAK POINT LIMITS
& EXISTING ASPHALT PAVING LIMITS

* Approximately a 2" difference will exist between the existing asphalt concrete surface and the new surface of the LSDC overlay over the structure, which will require a 2" lift of asphalt concrete throughout the approach pavement designated area.

SEC. A-A (At Centerline of Roadway)



Plot Scale - 1:32,363:1

Plotted From - TRPR26947

APPROACH PAVEMENT RESURFACING AND GUARDRAIL INSTALLATION AT STRUCTURE ENDS

Structure No. 62-100-399 on SD53 at MRM 14.09
over Willow Creek, 12.9 miles south of US18

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(126)60 & P 0053(12)14	F9	F23

Plotting Date: 09/18/2025

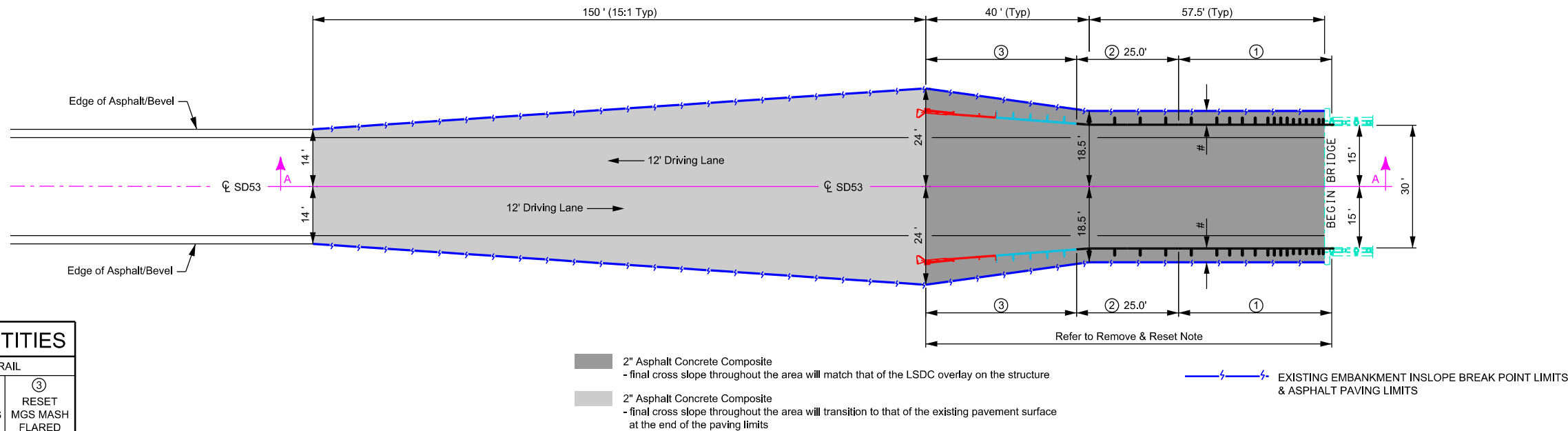
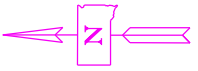
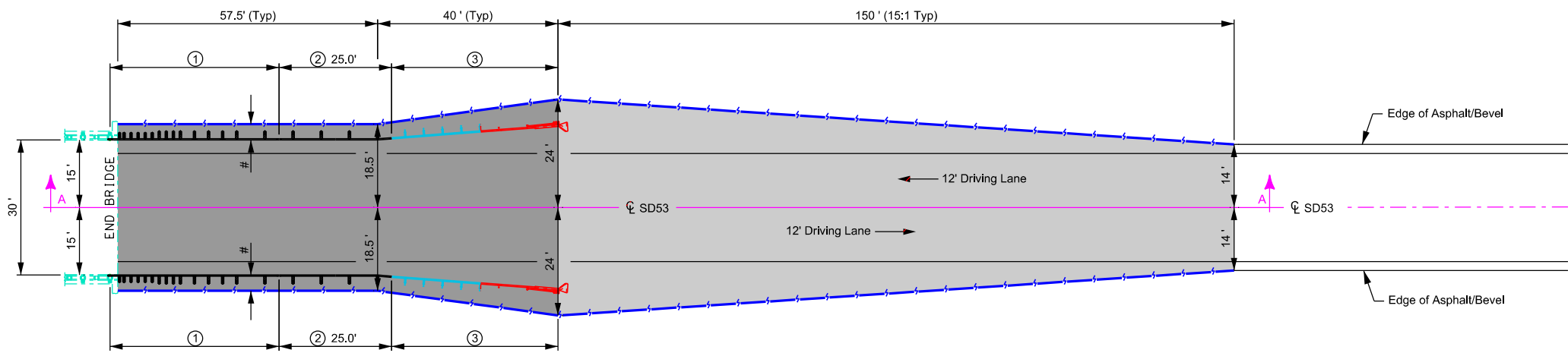
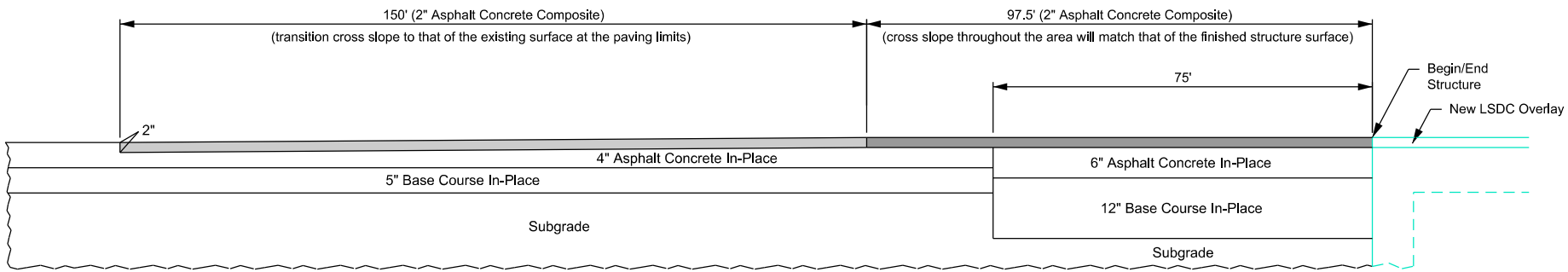
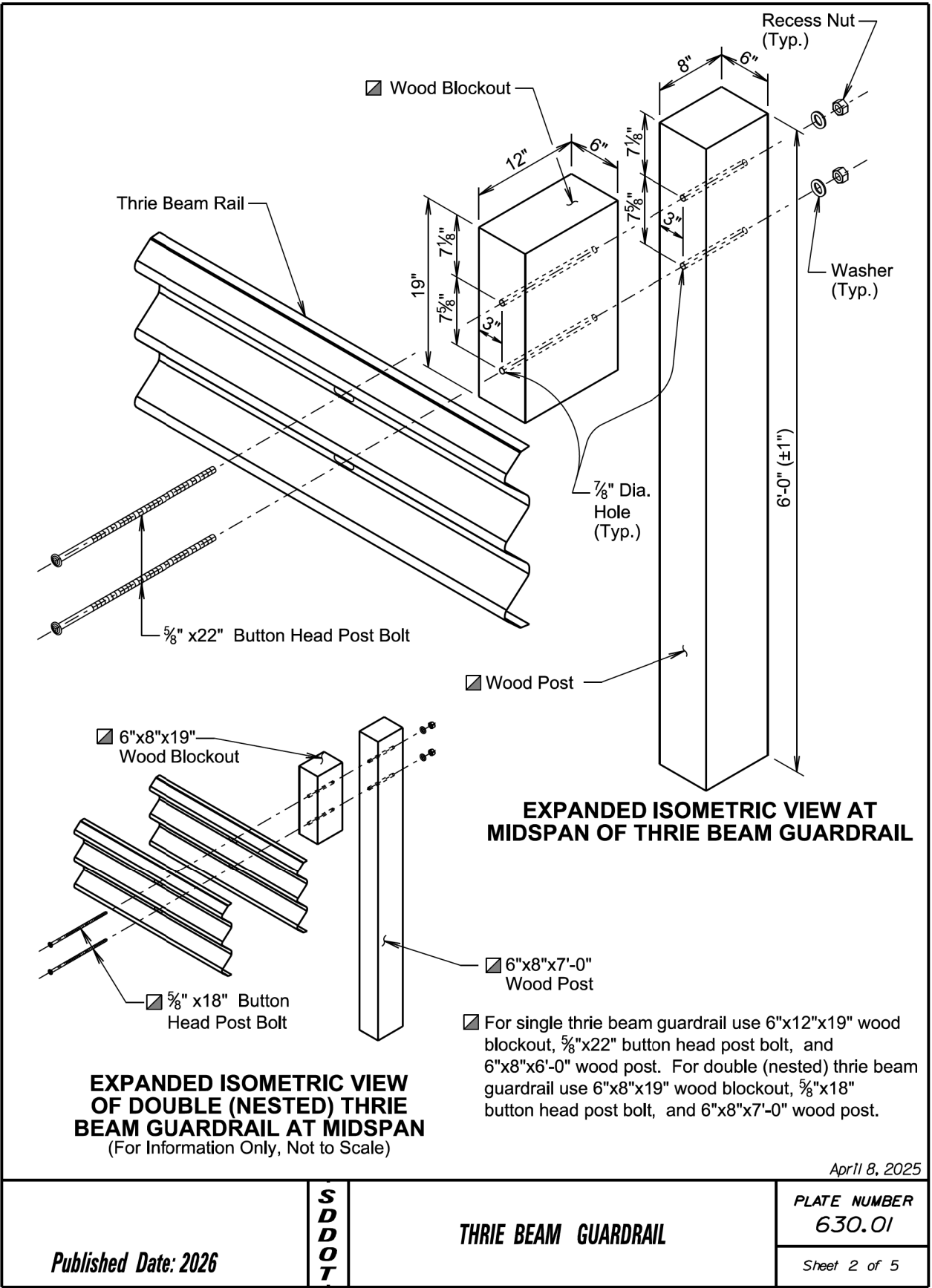
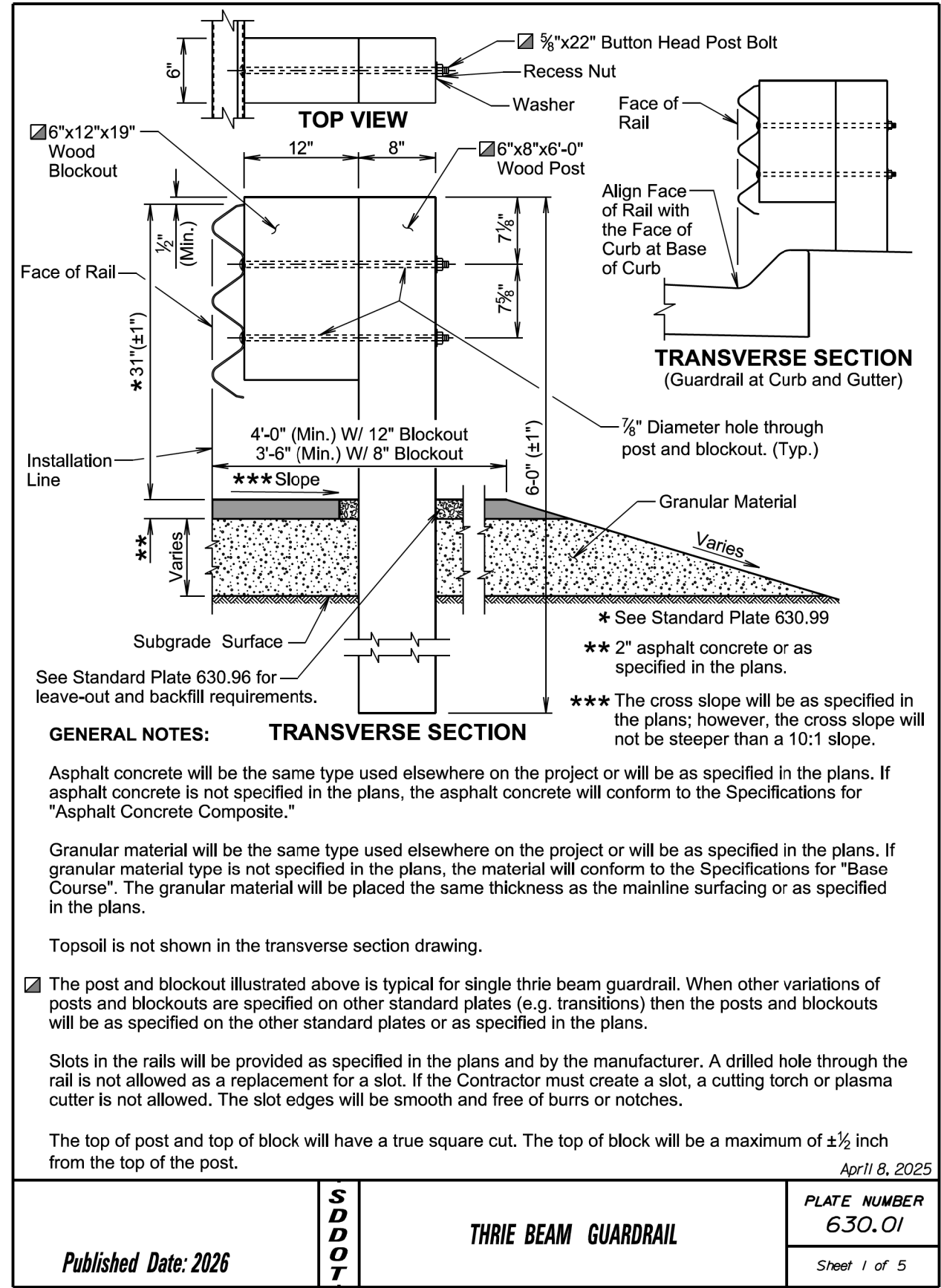


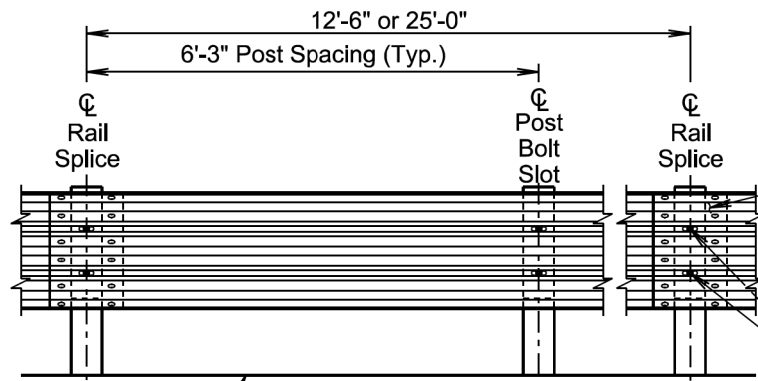
TABLE OF ESTIMATED QUANTITIES				
LOCATION	ASPHALT CONCRETE COMPOSITE	RESET GUARDRAIL		
		① RESET TYPE 2A GUARDRAIL TRANSITION	② RESET TYPE 1 MGS	③ RESET MGS MASH FLARED END TERMINAL
	(Ton)	(Each)	(Ft)	(Each)
Str. No. 62-100-399				
Begin Structure	117.6	2	50.0	2
End Structure	117.6	2	50.0	2
Totals	235.2	4	100.0	4

For applicable Standard Plates that will be used for resetting guardrail the distance behind the guardrail installation line may be at 3.5' (Min) in lieu of the 4.0' (Min) as shown in various details within the Standard Plates if the existing build-out of the embankment cannot accommodate the 4.0' (Min) as determined by the Engineer during construction.

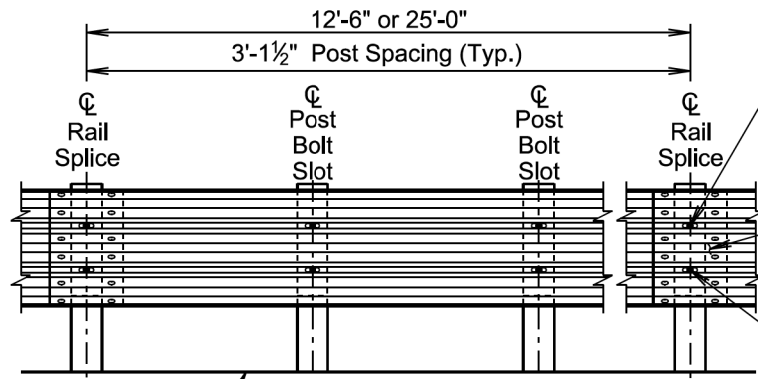
SEC. A-A (At Centerline of Roadway)



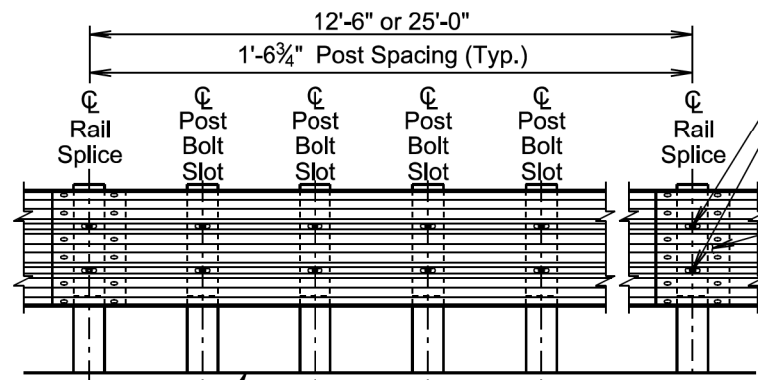




ELEVATION VIEW
(6'-3" Post Spacing)



ELEVATION VIEW
(3'-1 1/2" Post Spacing)



ELEVATION VIEW
(1'-6 3/4" Post Spacing)

Lap rail
in direction
of adjacent
traffic.

The post bolt should
be placed in the
center (horizontally
and vertically) of the
slot. (Typ.)

Lap rail
in direction
of adjacent
traffic.

The post bolt should
be placed in the
center (horizontally
and vertically) of the
slot. (Typ.)

Lap rail
in direction
of adjacent
traffic.

April 8, 2025

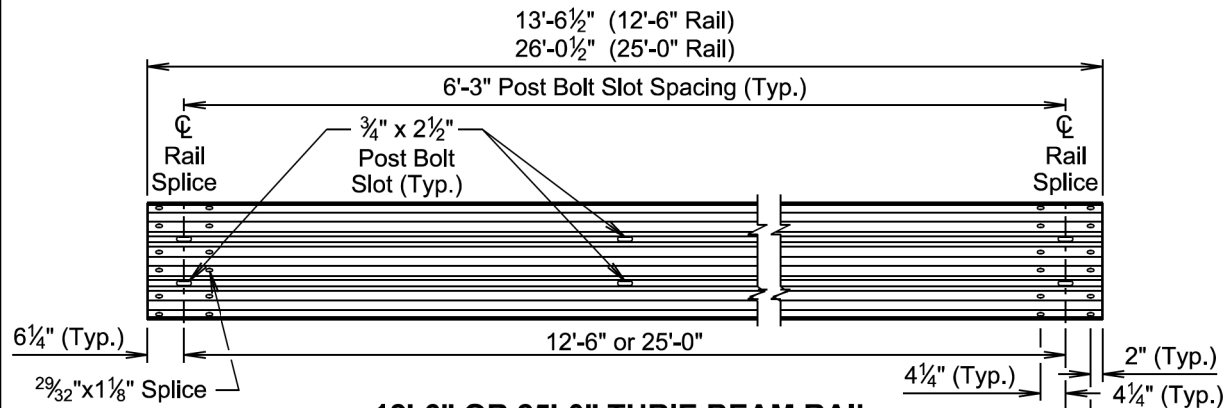
Published Date: 2026

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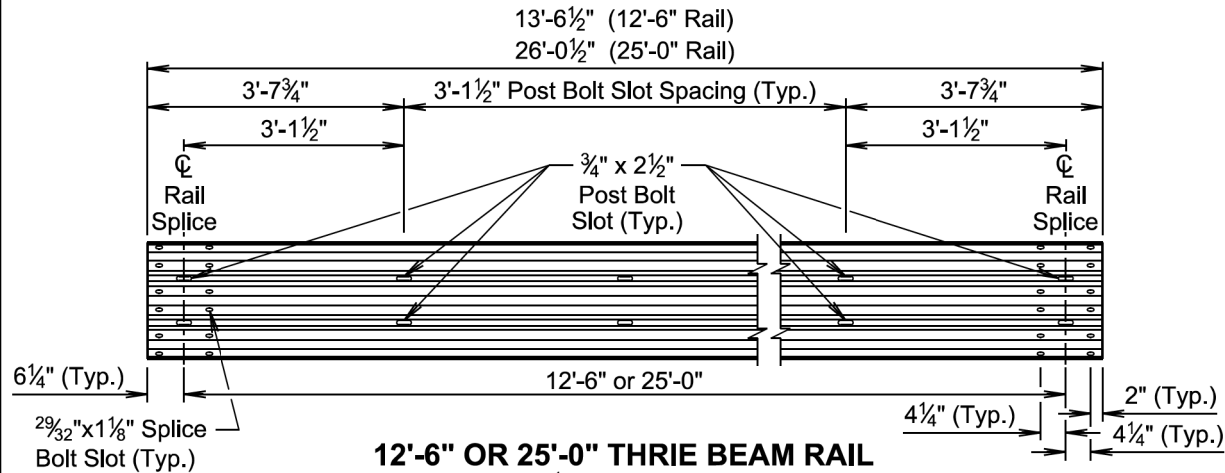
THRIE BEAM GUARDRAIL

PLATE NUMBER
630.01

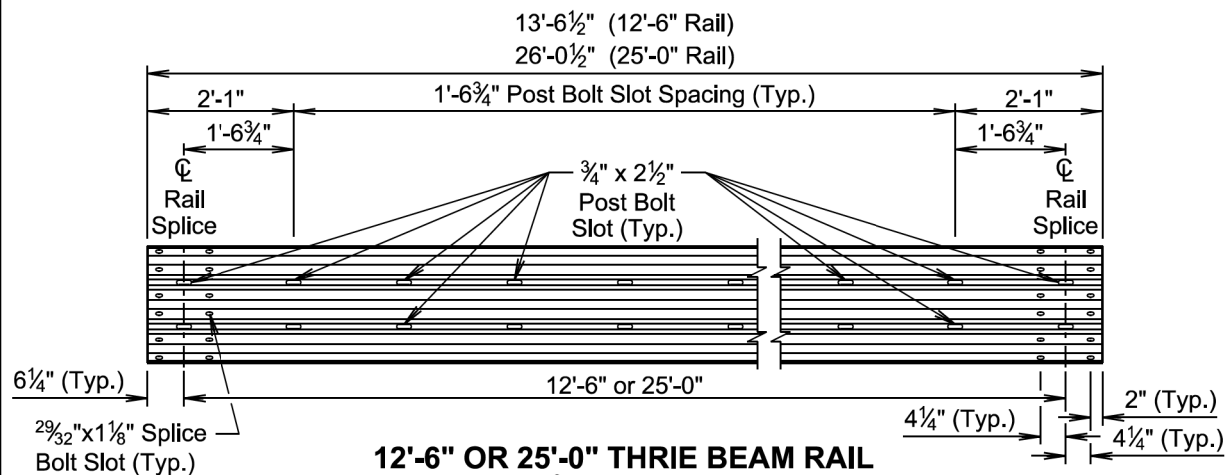
Sheet 3 of 5



12'-6" OR 25'-0" THRIE BEAM RAIL
(6'-3" Post Spacing)



12'-6" OR 25'-0" THRIE BEAM RAIL
(3'-1 1/2" Post Spacing)



12'-6" OR 25'-0" THRIE BEAM RAIL
(1'-6 3/4" Post Spacing)

April 8, 2025

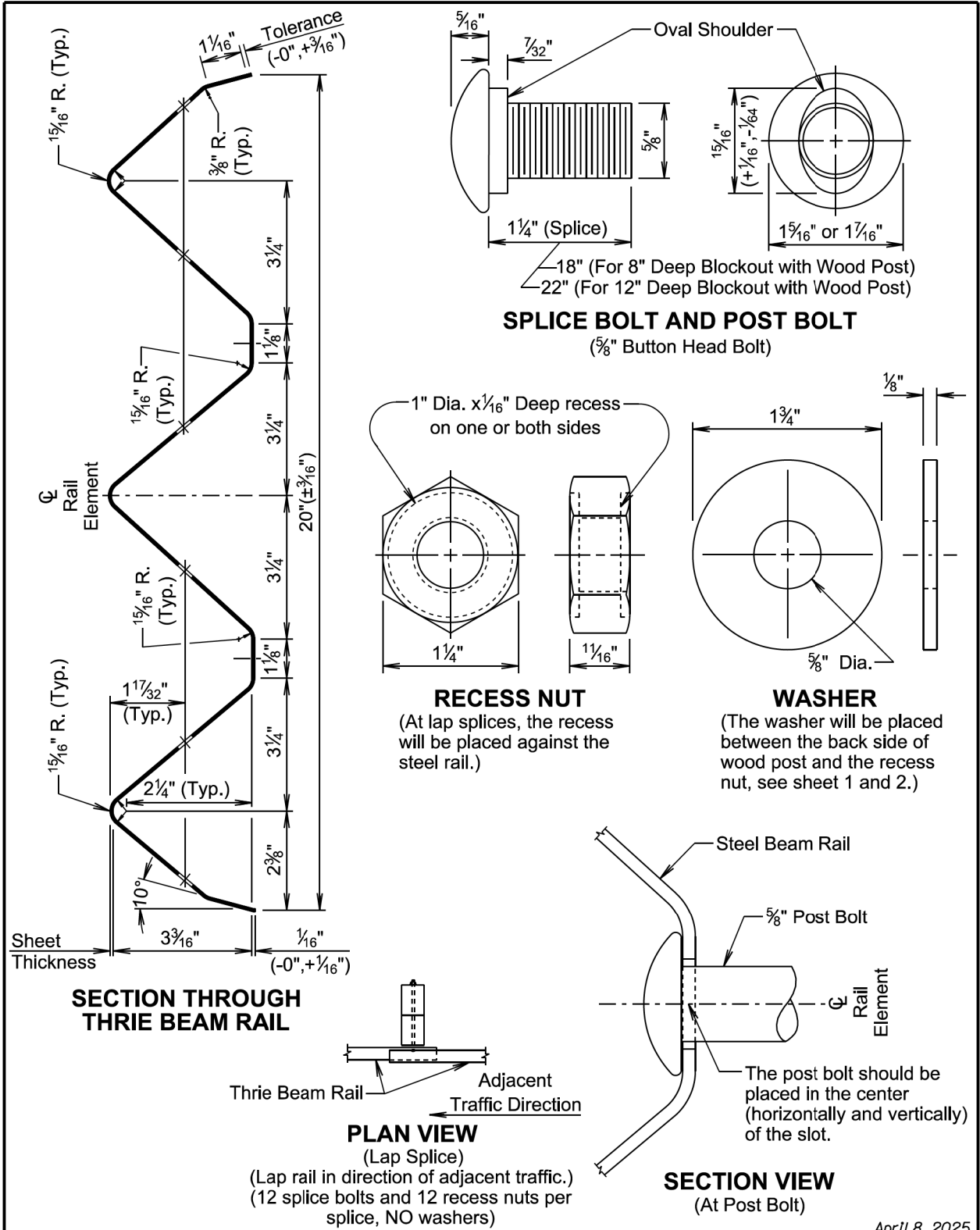
Published Date: 2026

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THRIE BEAM GUARDRAIL

PLATE NUMBER
630.01

Sheet 4 of 5



April 8, 2025

Published Date: 2026	S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 5 of 5

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

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

GENERAL NOTES:

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

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

Topsoil is not shown in the transverse section drawing on sheet 2 of 6.

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

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

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

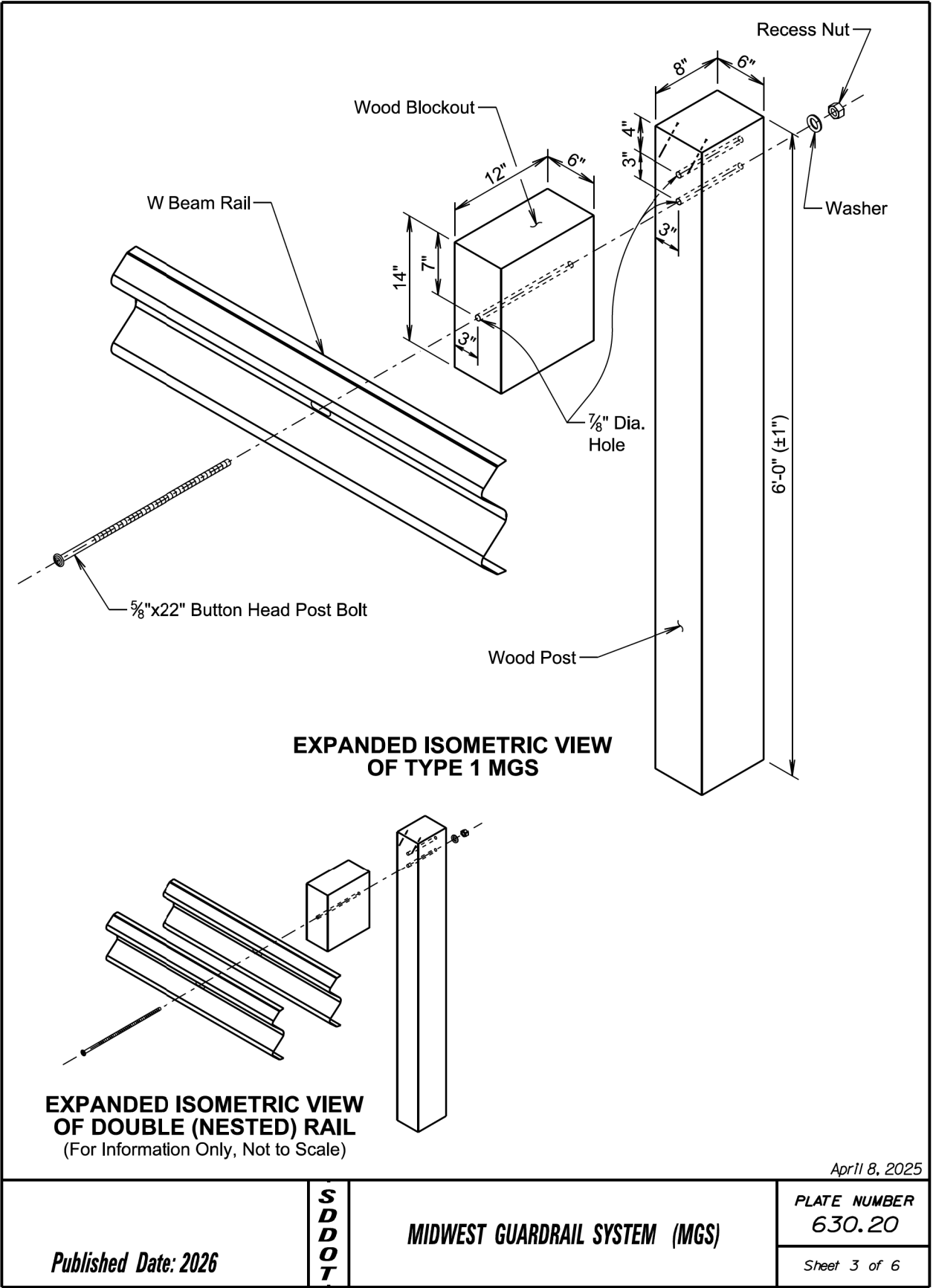
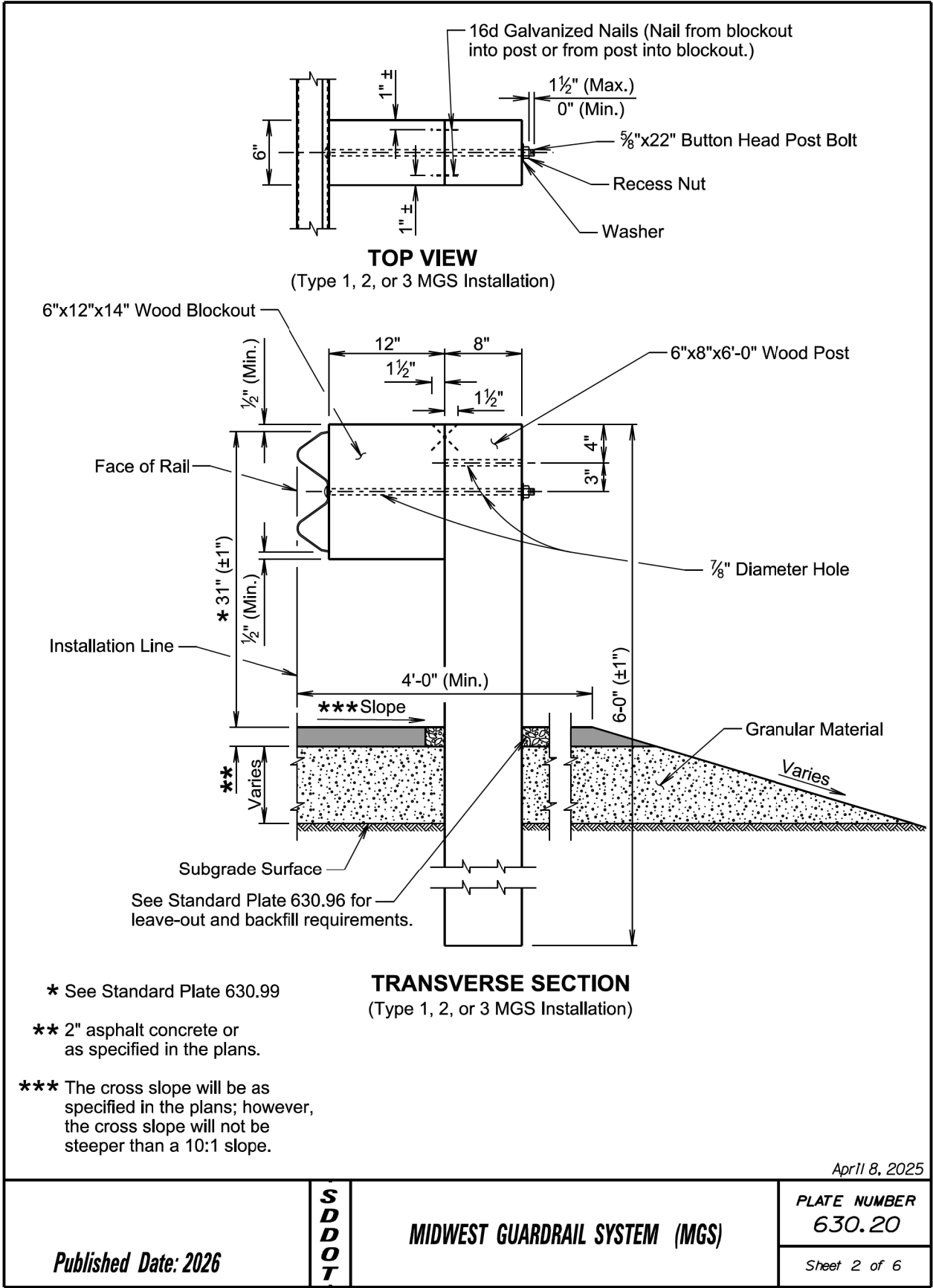
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

April 8, 2025

Published Date: 2026	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 1 of 6

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60	F13	F23

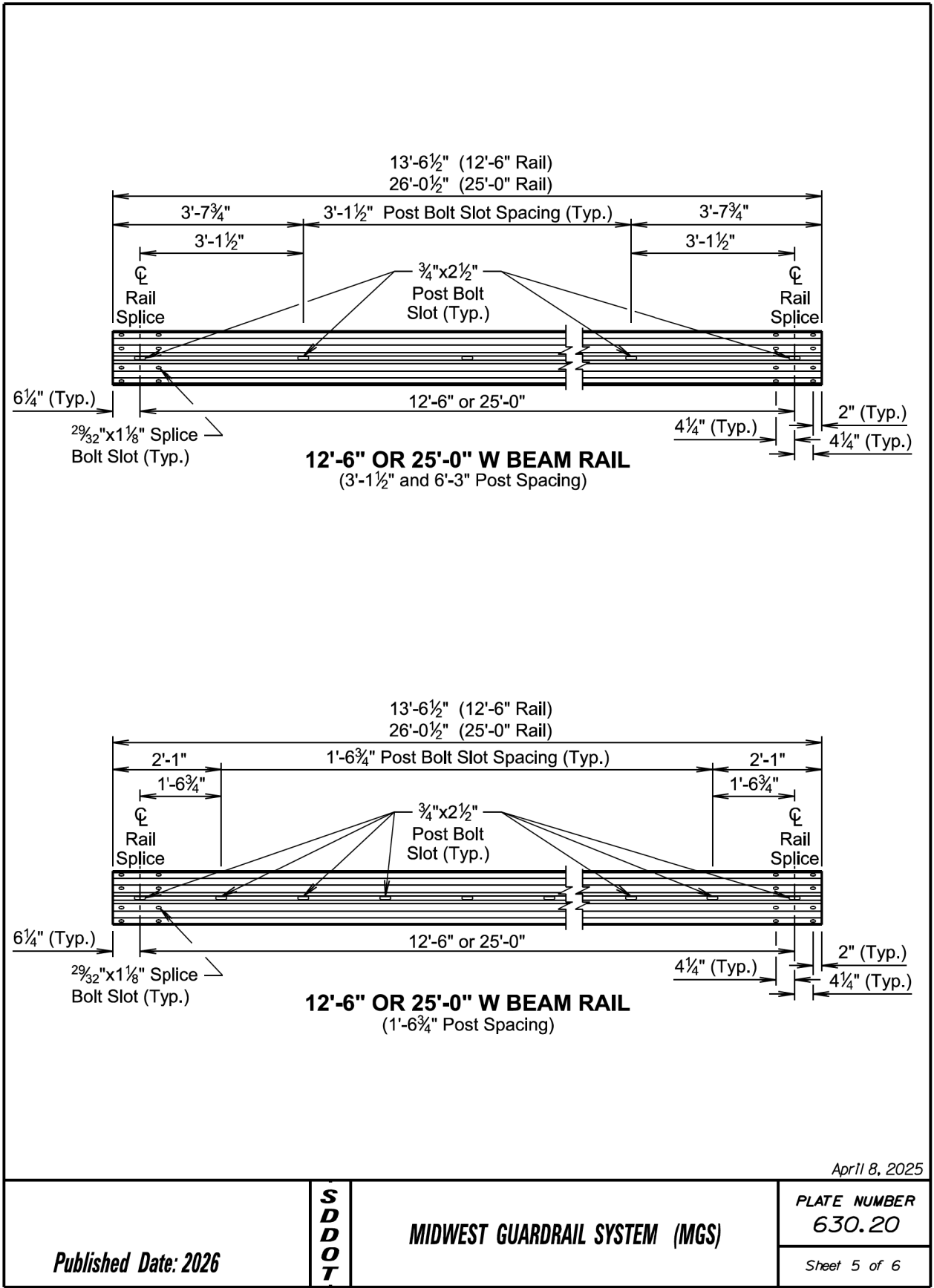
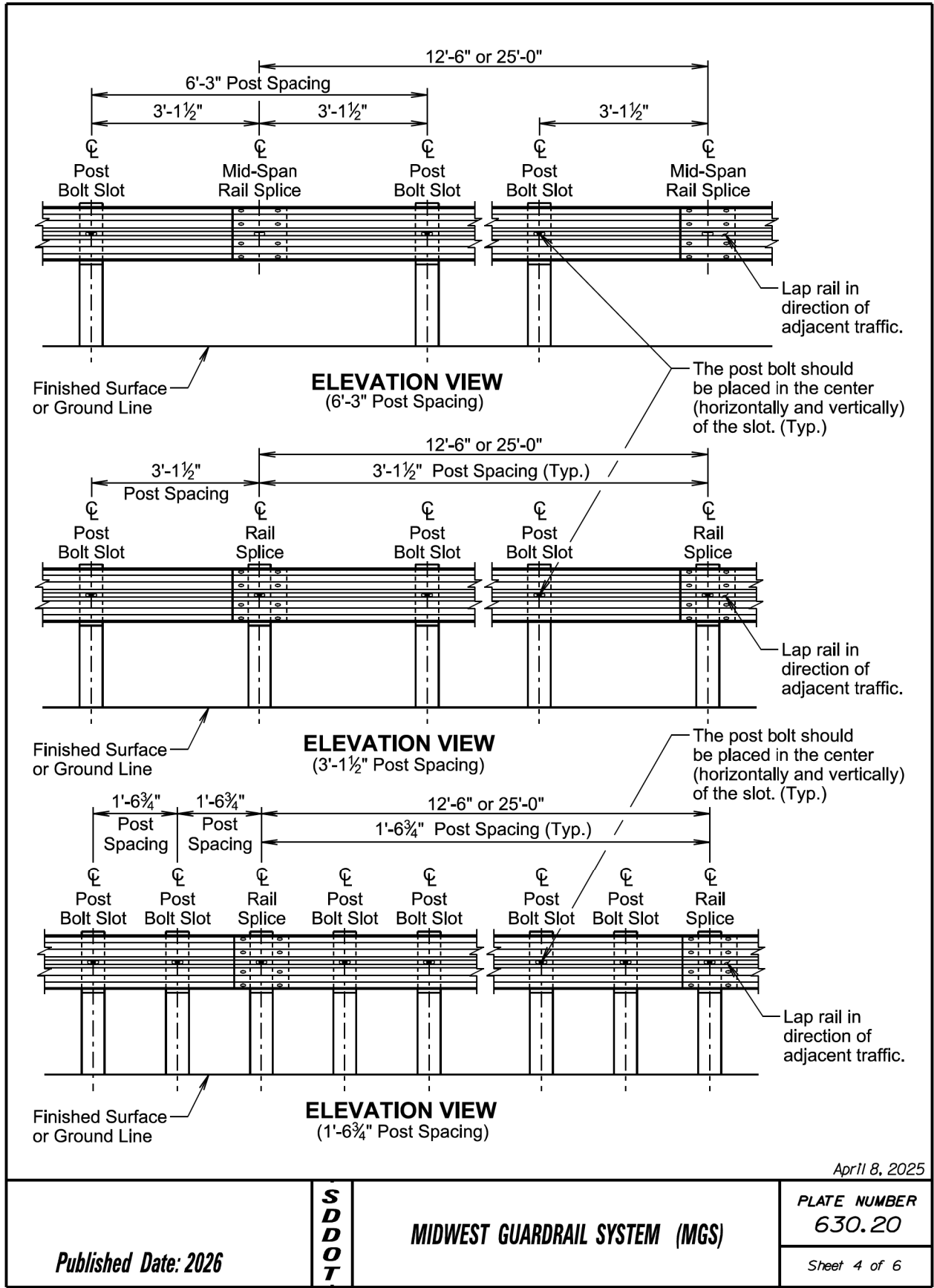
Plotting Date: 08/06/2025



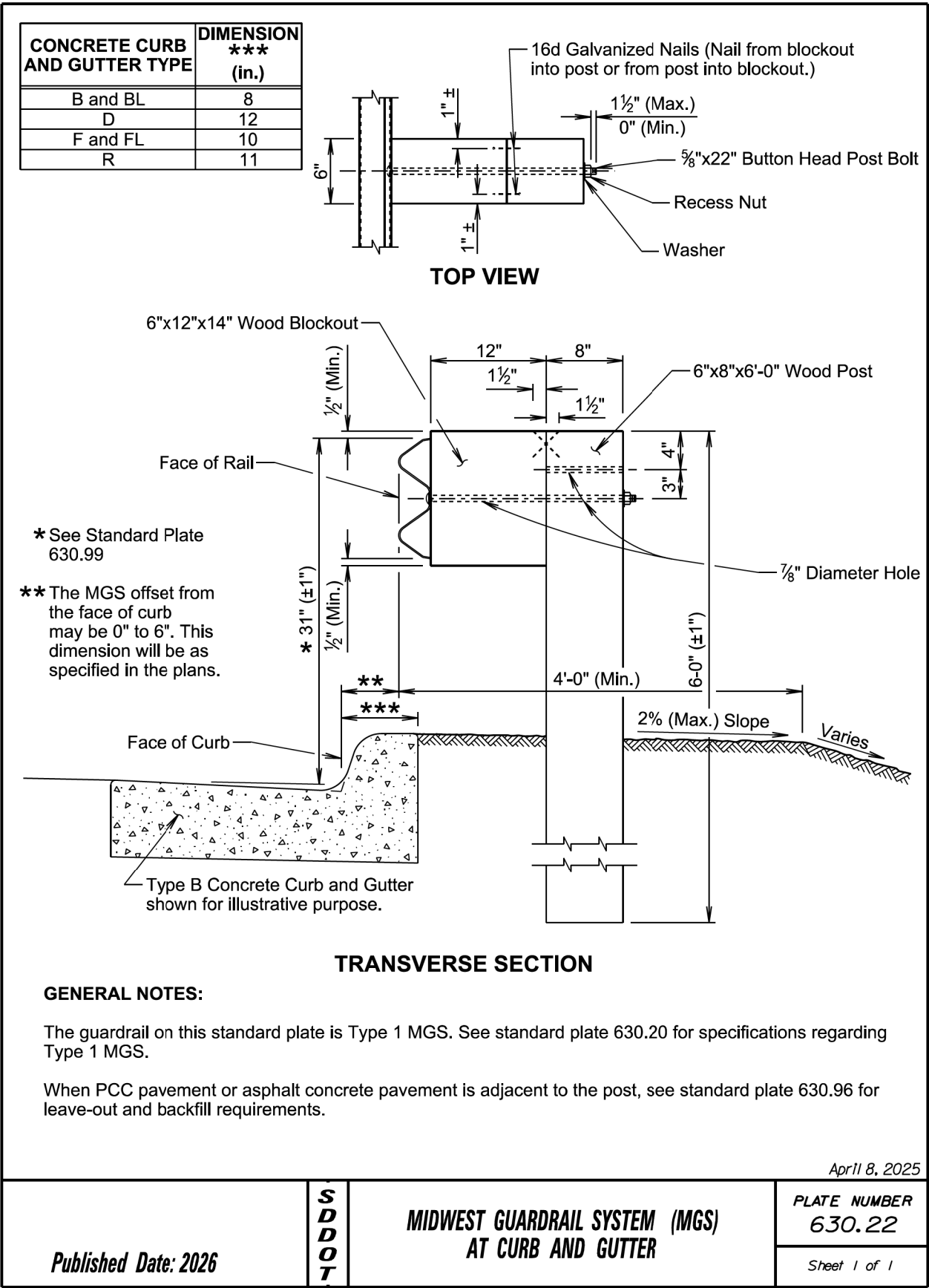
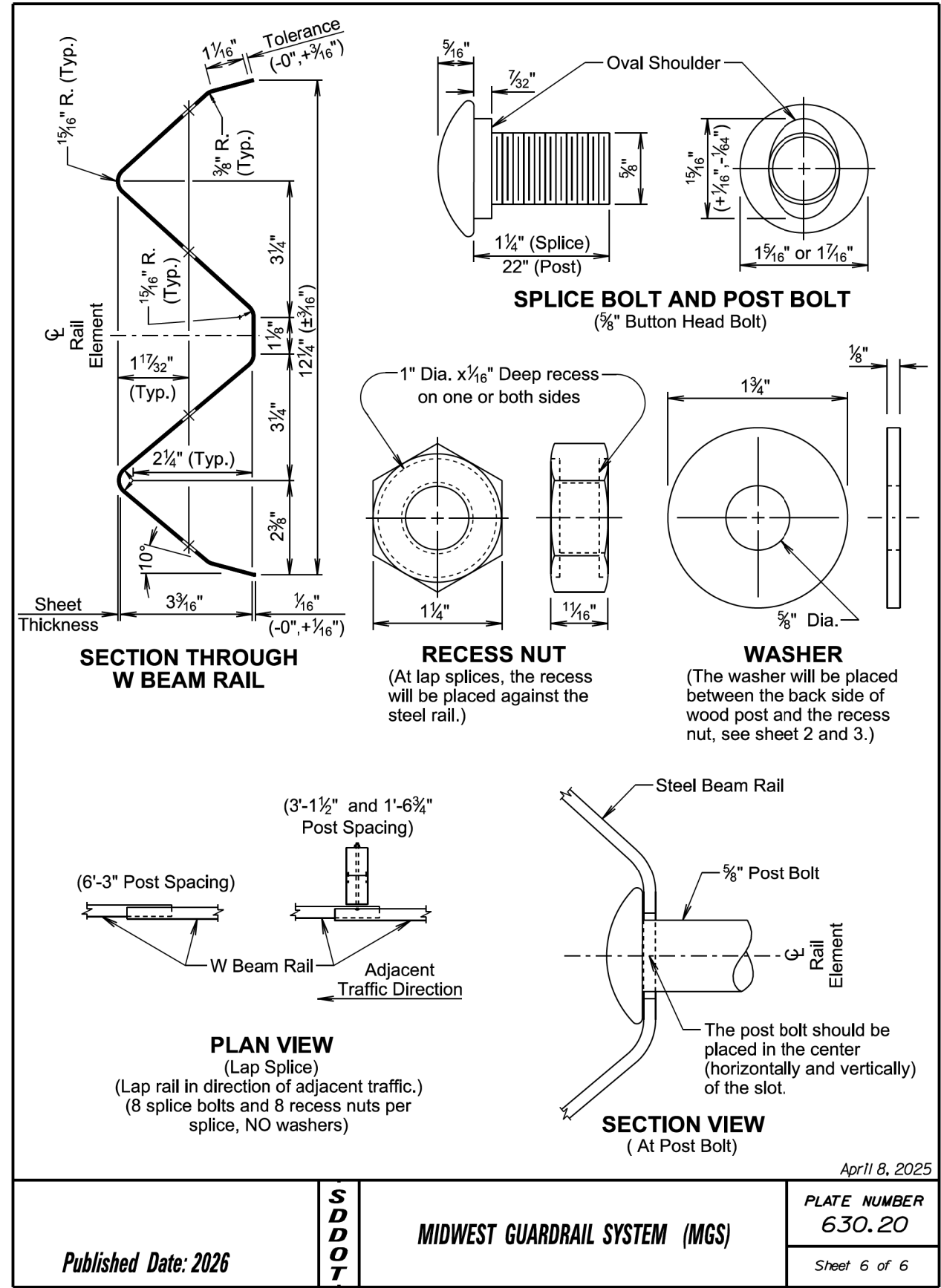
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Plotted From - TRPR26947

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60		
Plotting Date: 08/06/2025		F14	F23



File - ...\\DESIGN\\Section\\Std Plates.dgn





GENERAL NOTES:

Thrie Beam Terminal Connectors will be 10 gauge.

When the thrie beam terminal connector is used to connect the rail to the bridge or concrete end block, 1" steel washers will be used at the lap splice and the washers will be in direct contact with the 3" slots of the thrie beam terminal connector. See the drawings above for the typical locations of the 1" steel washers.

There will be no separate payment for furnishing and installing the three beam terminal connector. All costs for furnishing and installing the three beam terminal connector will be incidental to the contract unit price of the respective guardrail item it is attached to.

September 14, 2019

<i>Published Date: 2026</i>	S D D O T	THRIE BEAM TERMINAL CONNECTOR	September 14, 2016 PLATE NUMBER 630.47
			Sheet 1 of 1



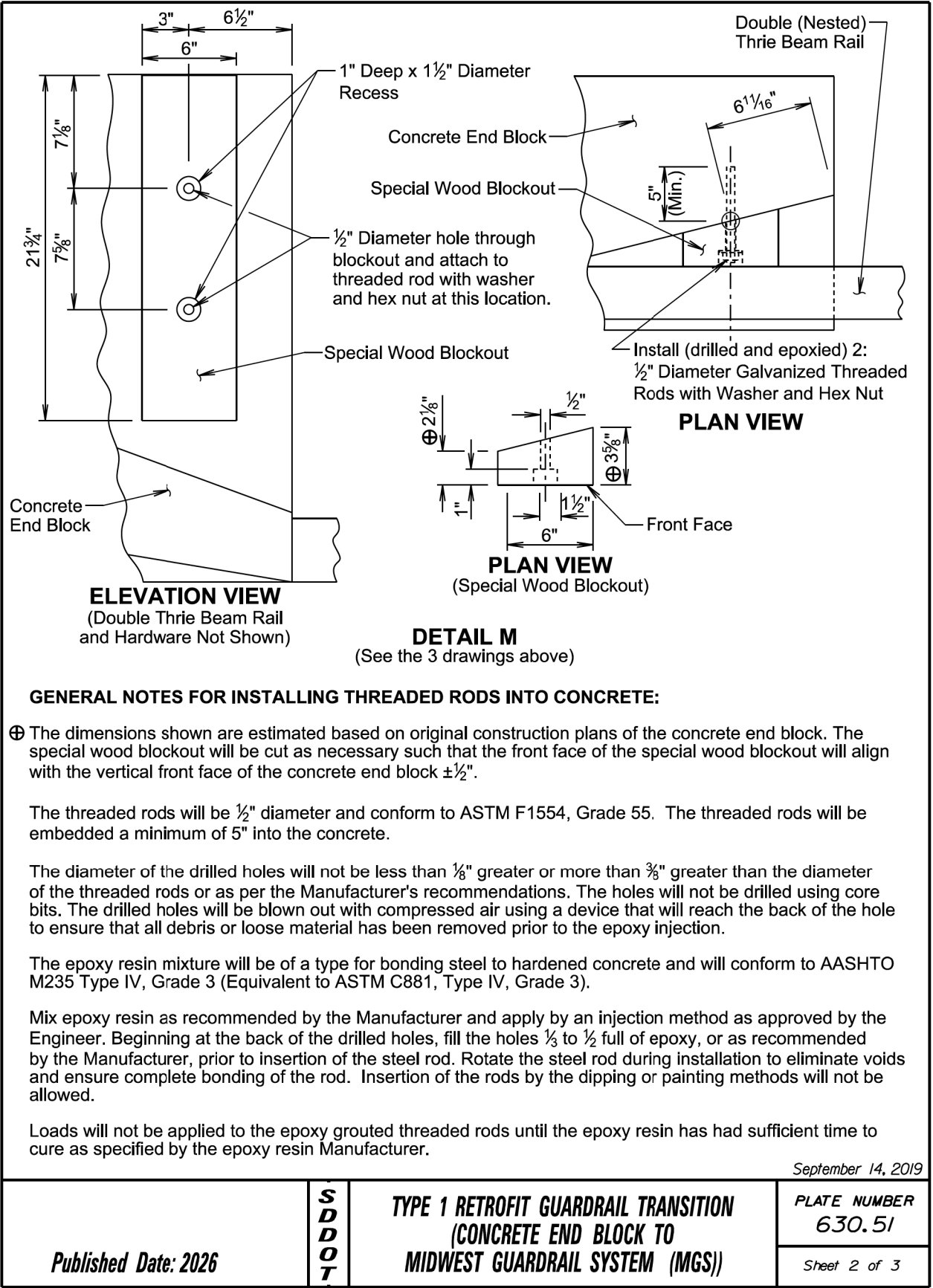
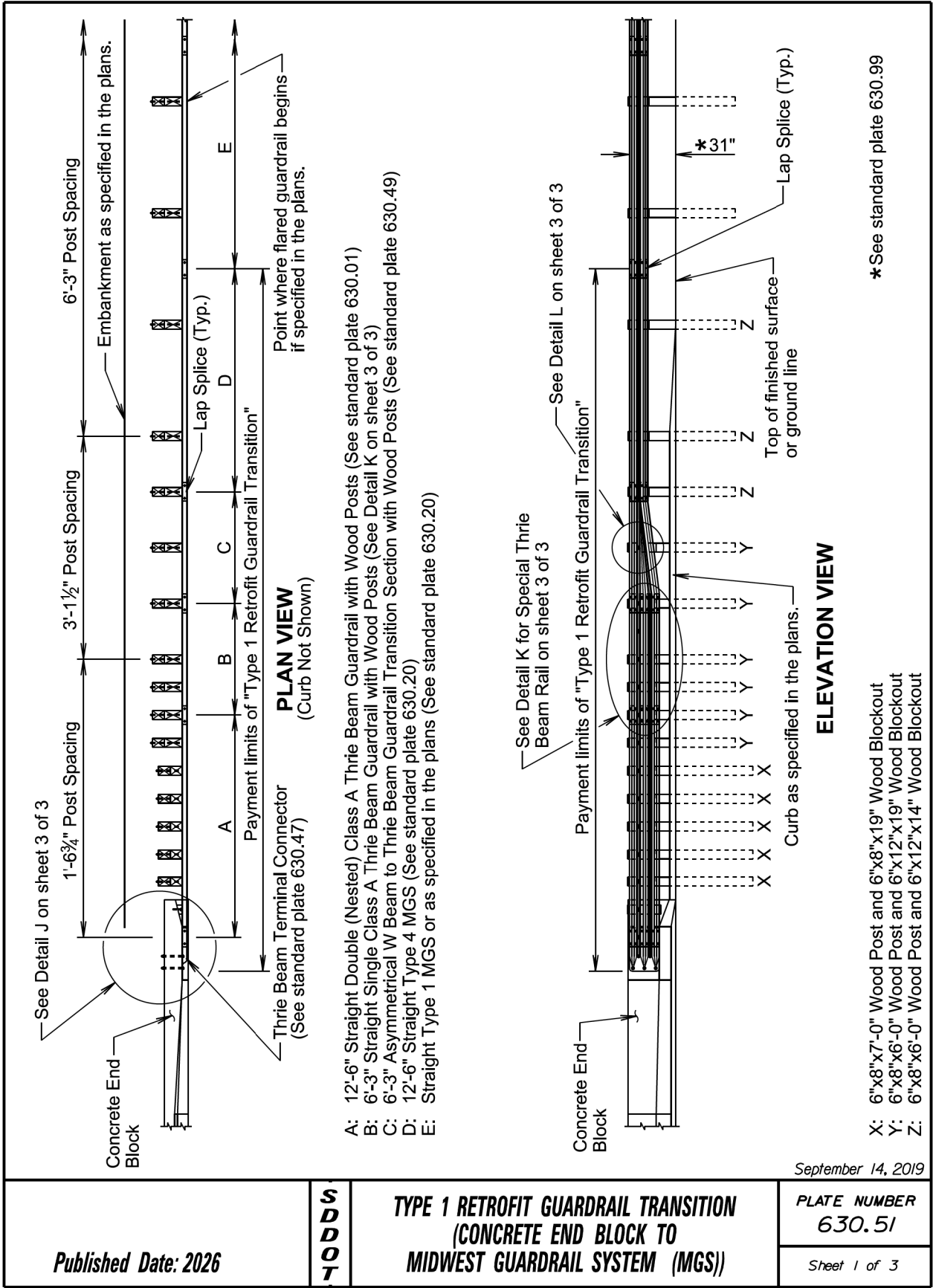
All costs for furnishing and installing the asymmetrical W beam to thrie beam guardrail transition including labor, equipment, and materials including two posts, two blocks, asymmetrical W beam to thrie beam transition section, and hardware will be incidental to the contract unit price per each for the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

September 14, 2019

<i>Published Date: 2026</i>	S D D O T	ASYMMETRICAL W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	September 17, 2026
			PLATE NUMBER 630.49
			Sheet 1 of 1

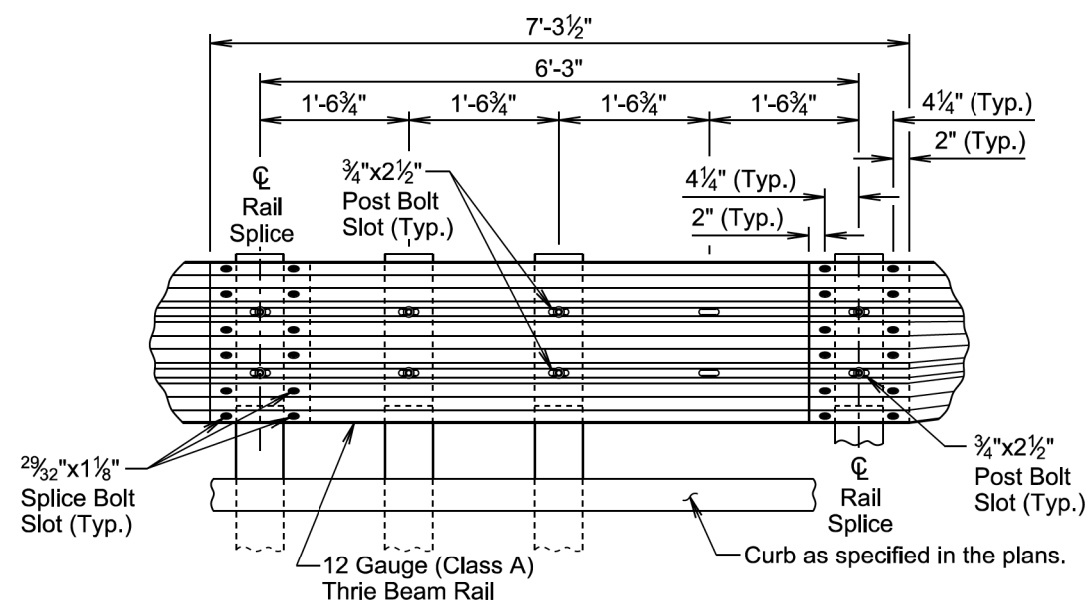
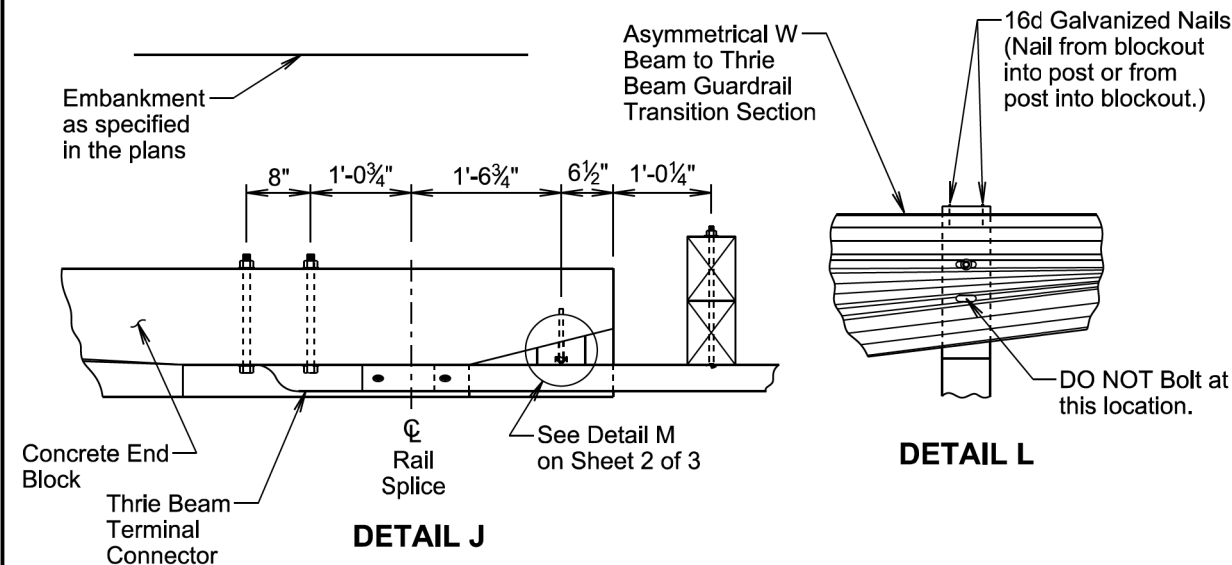
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60		

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0053(12)14 & P 0047(126)60	F18	F23

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DETAIL K

(Special Thrie Beam Rail)

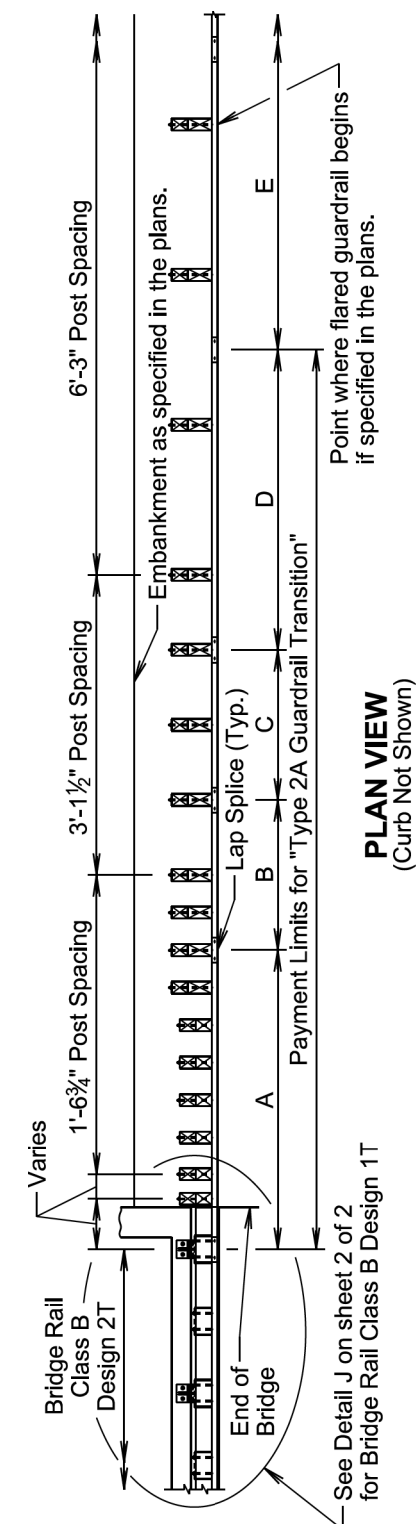
GENERAL NOTES:

Throughout the type 1 retrofit guardrail transition, slots in the rails will be provided as specified in the plans and by the Manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

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

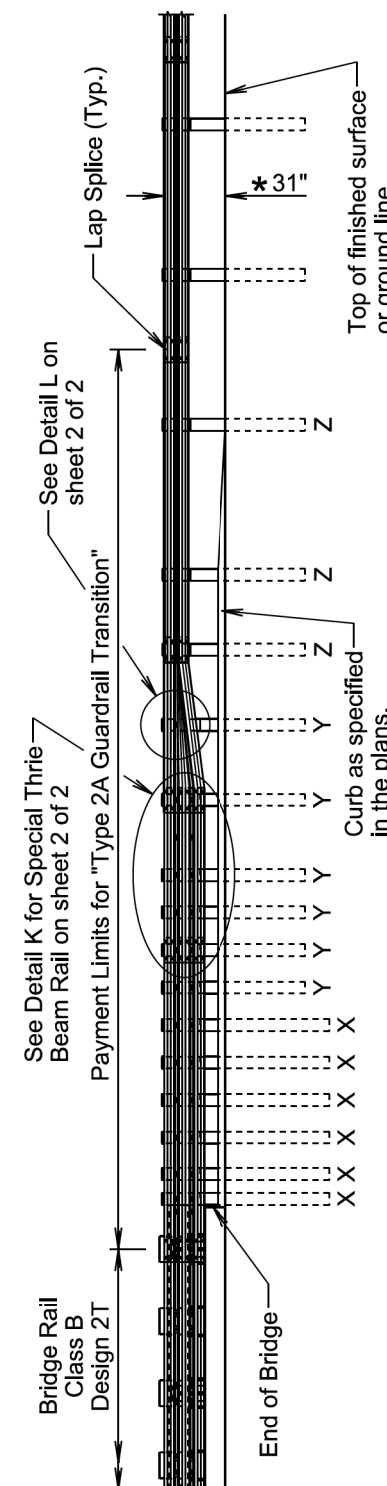
September 14, 2019

<i>Published Date: 2026</i>	S D D O T	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	September 14, 2026
			PLATE NUMBER 630.51
			Sheet 3 of 3



PLAN VIEW
(Curb Not Shown)

- A: 12'-6" Straight Double (Nested) Class A Thrie Beam Guardrail with Wood Posts (See standard plate 630.01)
 B: 6'-3" Straight Single Class A Thrie Beam Guardrail with Wood Posts (See Detail K on sheet 2 of 2)
 C: 6'-3" Asymmetrical W Beam to Thrie Beam Guardrail Transition Section with Wood Posts (See standard plate 630.02)
 D: 12'-6" Straight Type 4 MGS (See standard plate 630.20)
 E: Straight Type 1 MGS or as specified in the plans (See standard plate 630.20)



ELEVATION VIEW

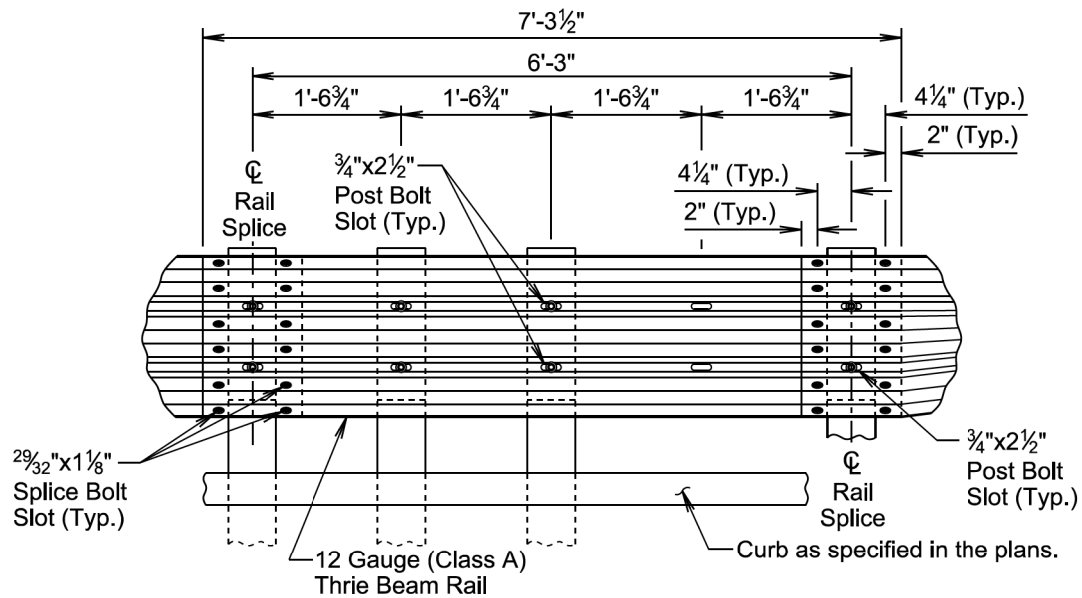
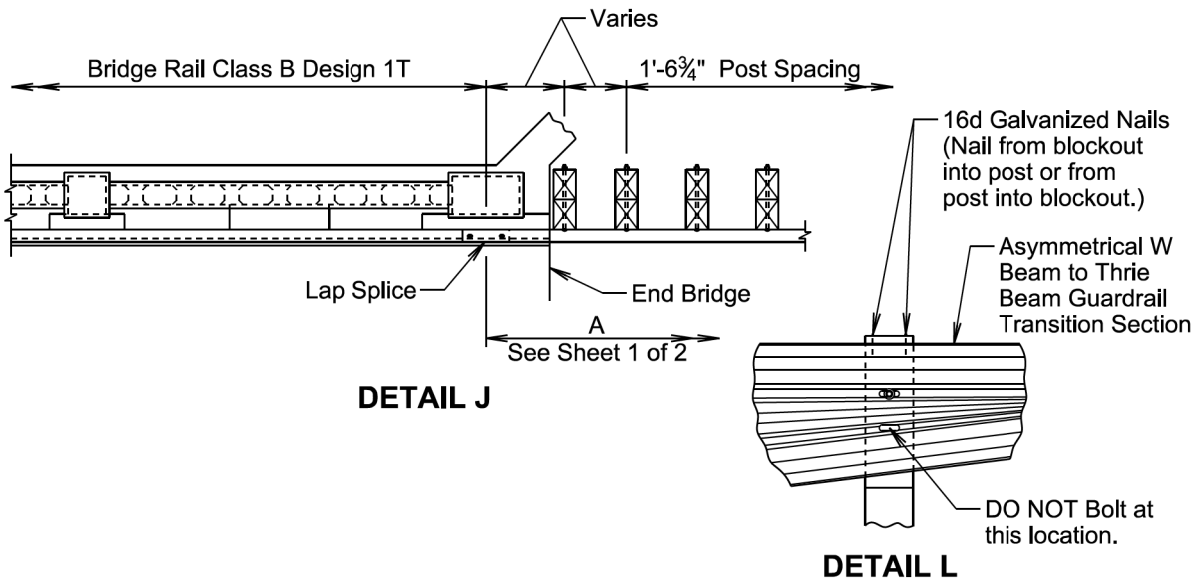
- X: 6"x8"x7'-0" Wood Post and 6"x8"x19" Wood Blockout
Y: 6"x8"x6'-0" Wood Post and 6"x12"x19" Wood Blockout
Z: 6"x8"x6'-0" Wood Post and 6"x12"x14" Wood Blockout

***See standard plate 630.99**

September 14, 2019

<i>Published Date: 2026</i>	S D D O T	TYPE 2A GUARDRAIL TRANSITION (BRIDGE RAIL CLASS B DESIGN 1T OR 2T TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.54
			Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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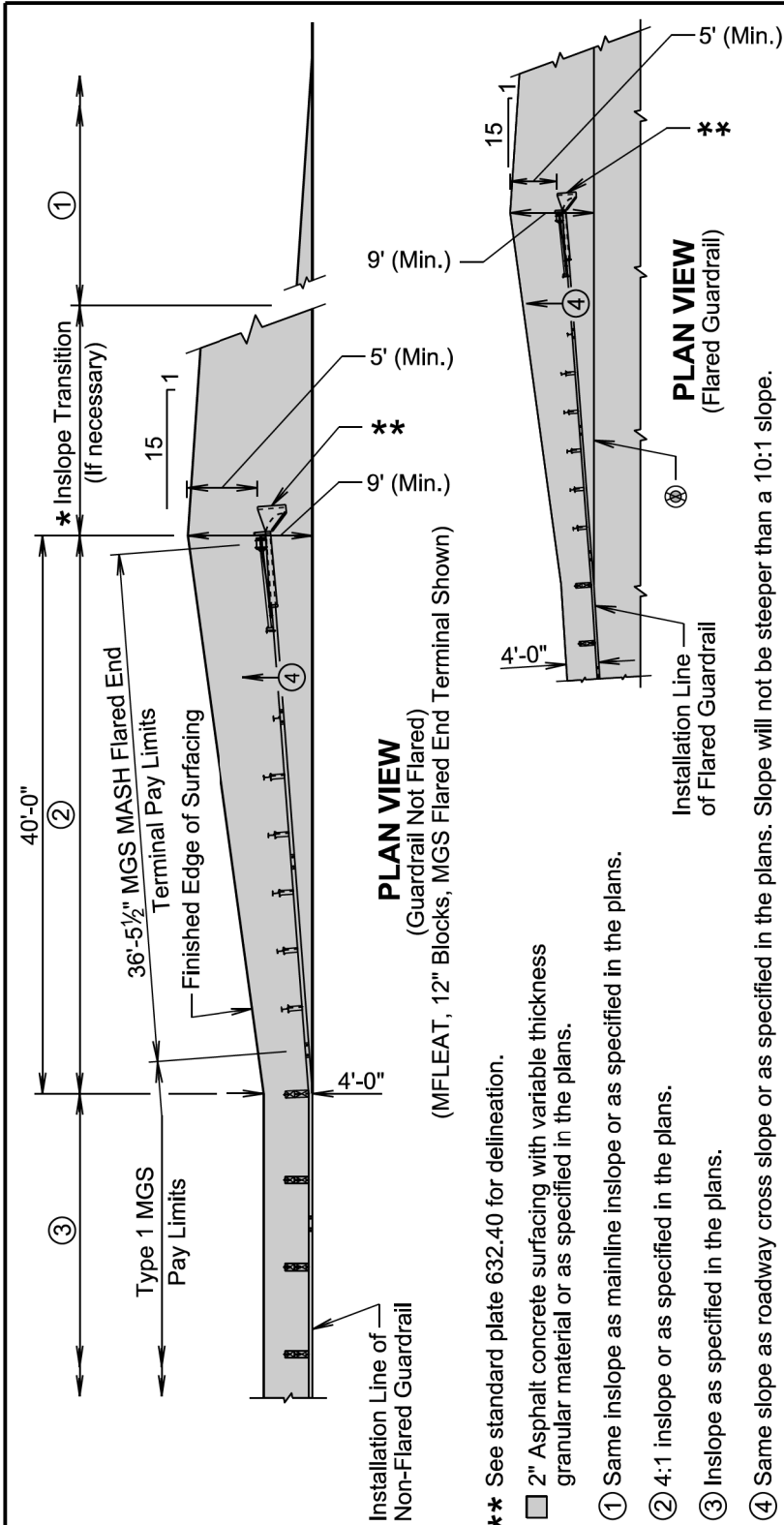
GENERAL NOTES:

Throughout the type 2A guardrail transition, slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for furnishing and installing the type 2A guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, hardware, and incidentals will be included in the contract unit price per each for "Type 2A Guardrail Transition".

September 14, 2019

Published Date: 2026	S D D O T	TYPE 2A GUARDRAIL TRANSITION (BRIDGE RAIL CLASS B DESIGN 1T OR 2T TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.54
			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 feet 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 feet. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200 feet.

Ⓢ 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."

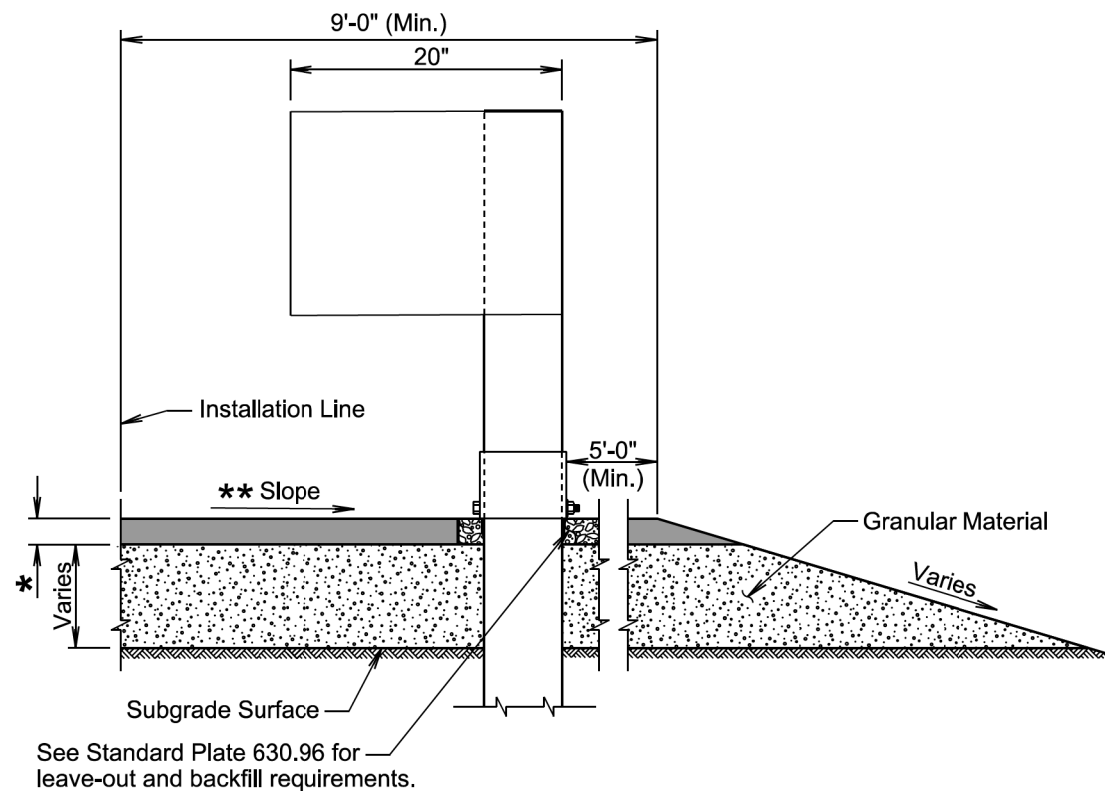
Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline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

April 8, 2025

Published Date: 2026	S D D O T	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL	PLATE NUMBER 630.87
			Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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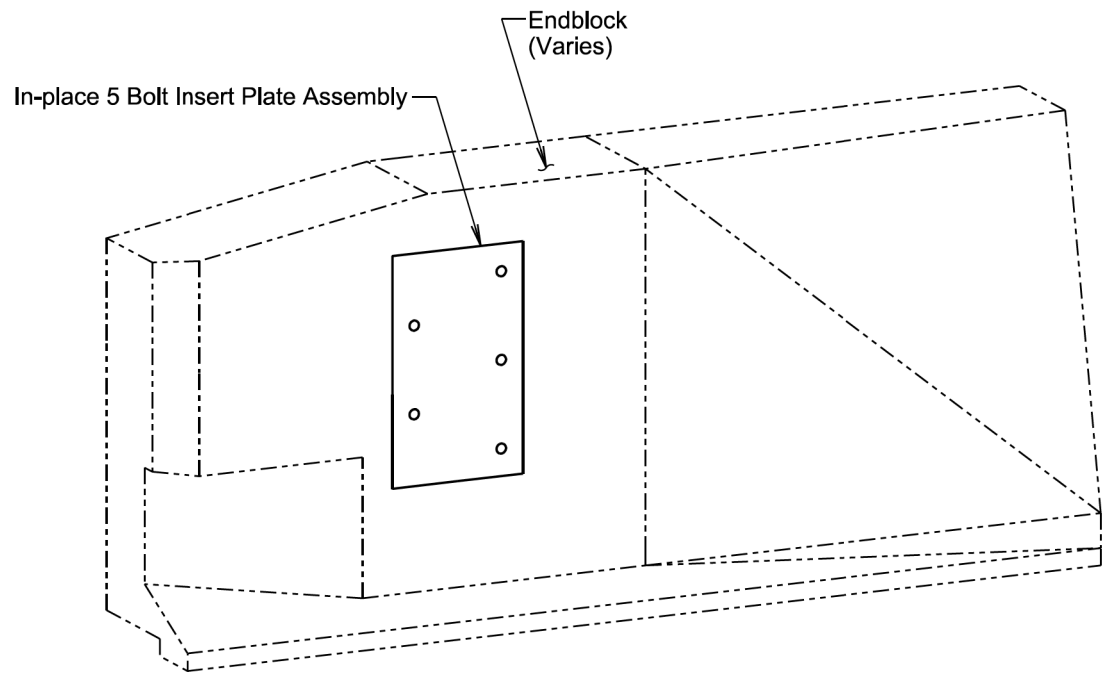
TRANSVERSE SECTION
(MFLEAT MGS Flared End Terminal Shown)

* 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.

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<i>Published Date: 2026</i>	S D D O T	EMBANKMENT, SURFACING AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL	PLATE NUMBER 630.87
			Sheet 2 of 2



ISOMETRIC VIEW

GENERAL NOTES:

Bolts, nuts, and washers are furnished with each new assembly. Where guardrail is to be reset, bolts will be salvaged and reset for guardrail installation. Any hardware damaged or lost from the Contractor's operation will be replaced at no additional cost to the State.

New bolts, if required, will be galvanized and conform to the requirements of ASTM A307, F3125 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

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

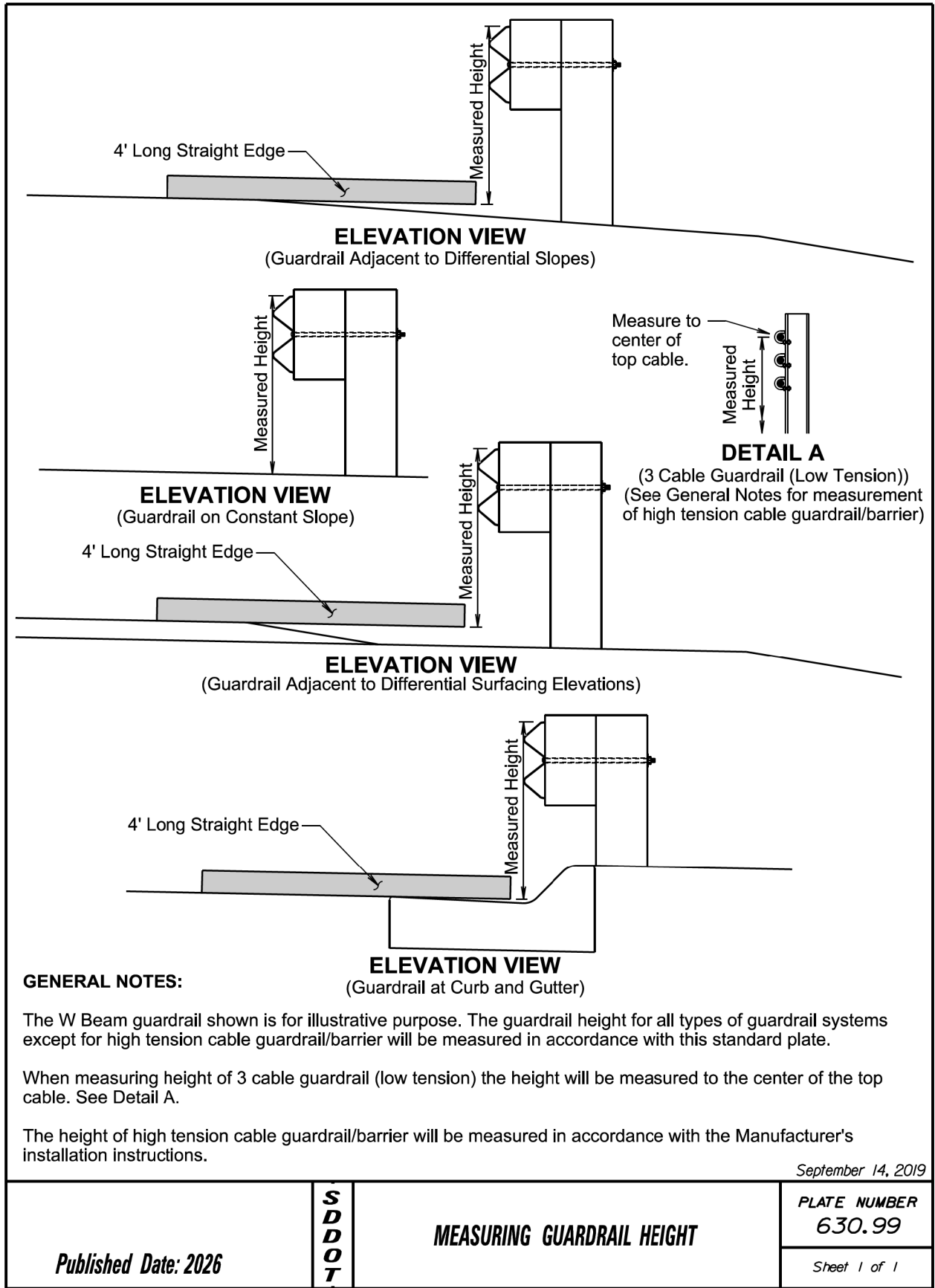
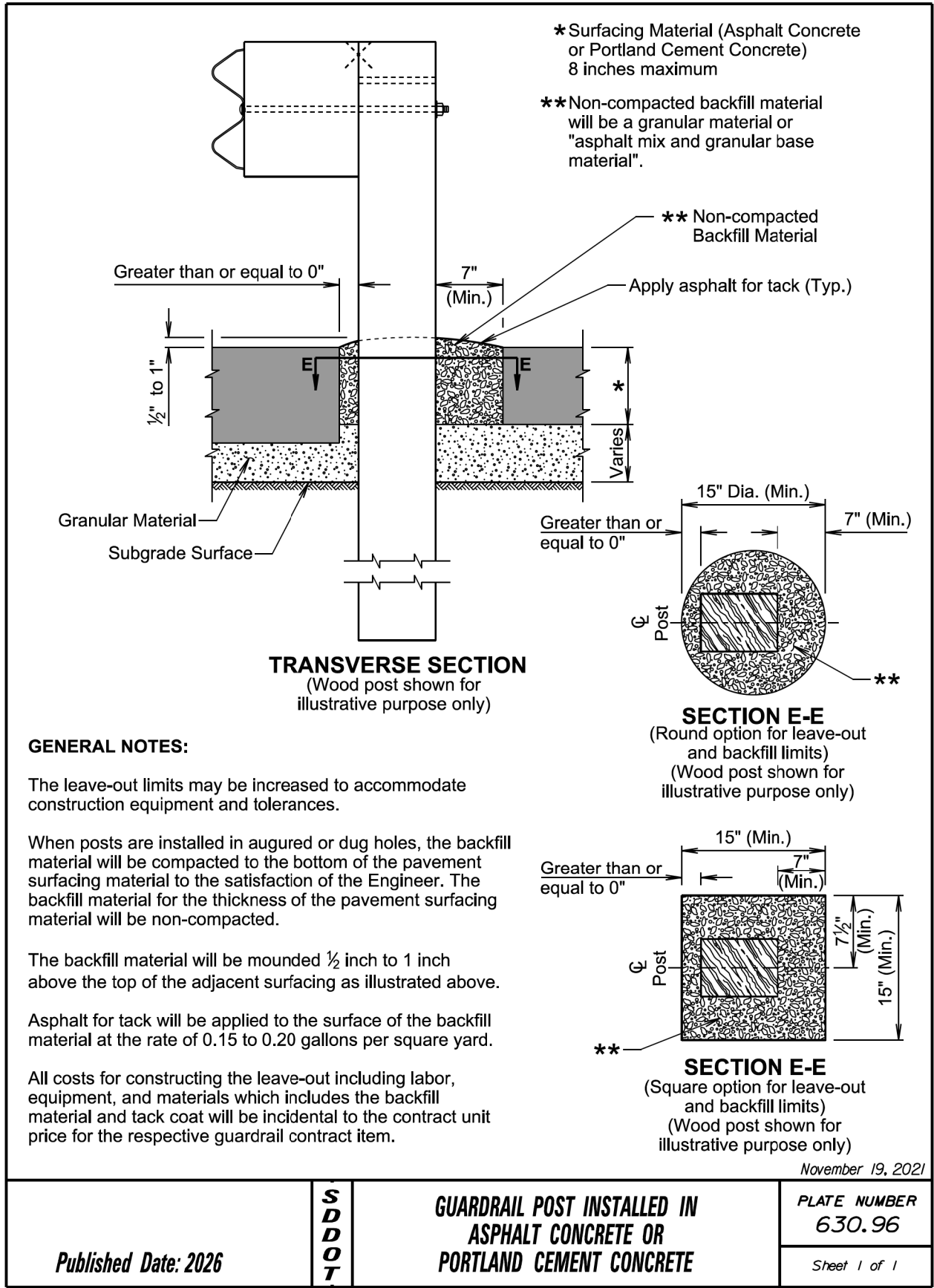
All costs for salvaging, resetting, and refurbishing lost hardware will be incidental to the contract unit price for the respective guardrail contract item.

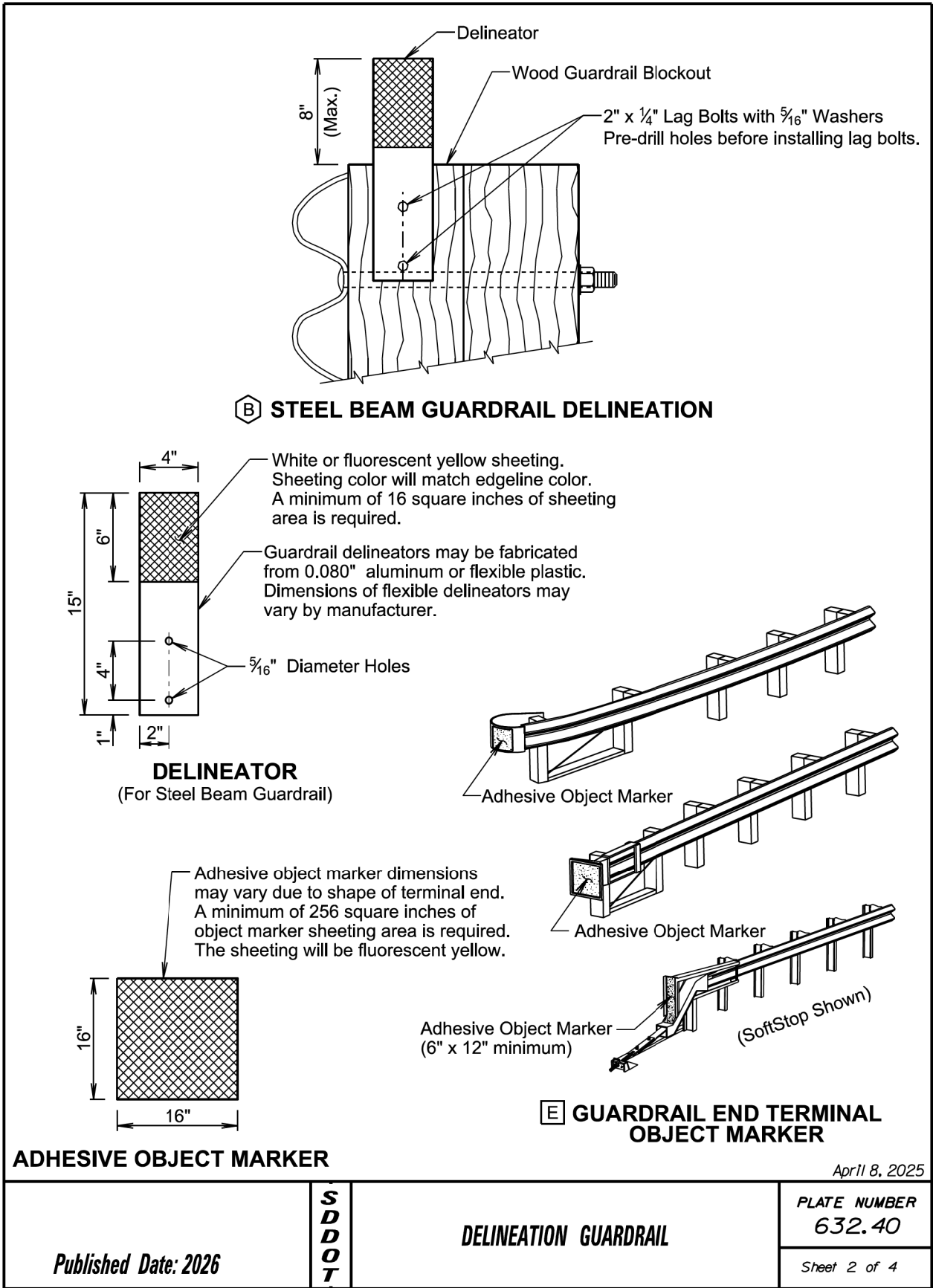
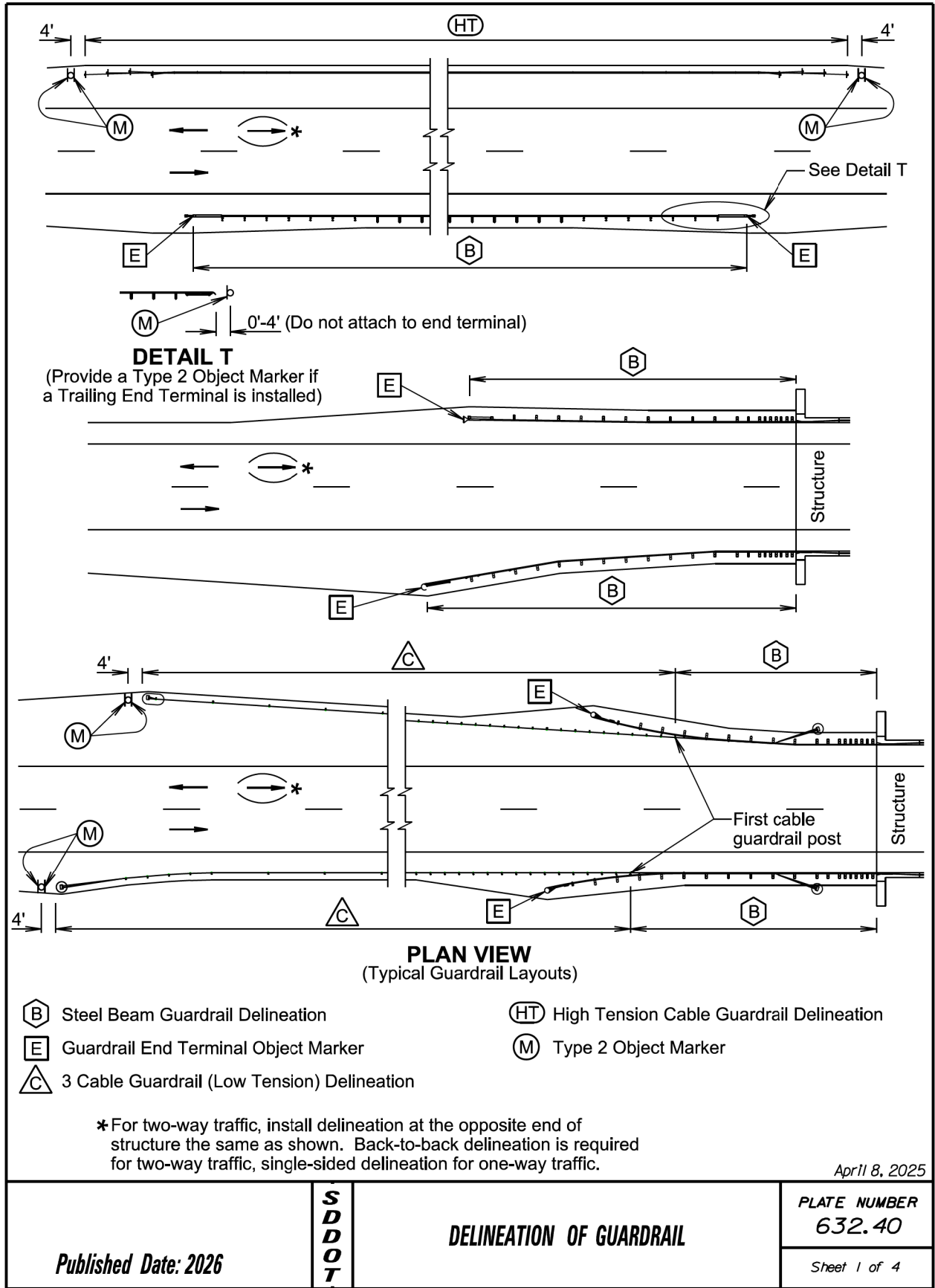
April 8, 2025

<i>Published Date: 2026</i>	S D D O T	GUARDRAIL ATTACHMENT TO BRIDGE ENDBLOCKS	PLATE NUMBER 630.93
			Sheet 1 of 1

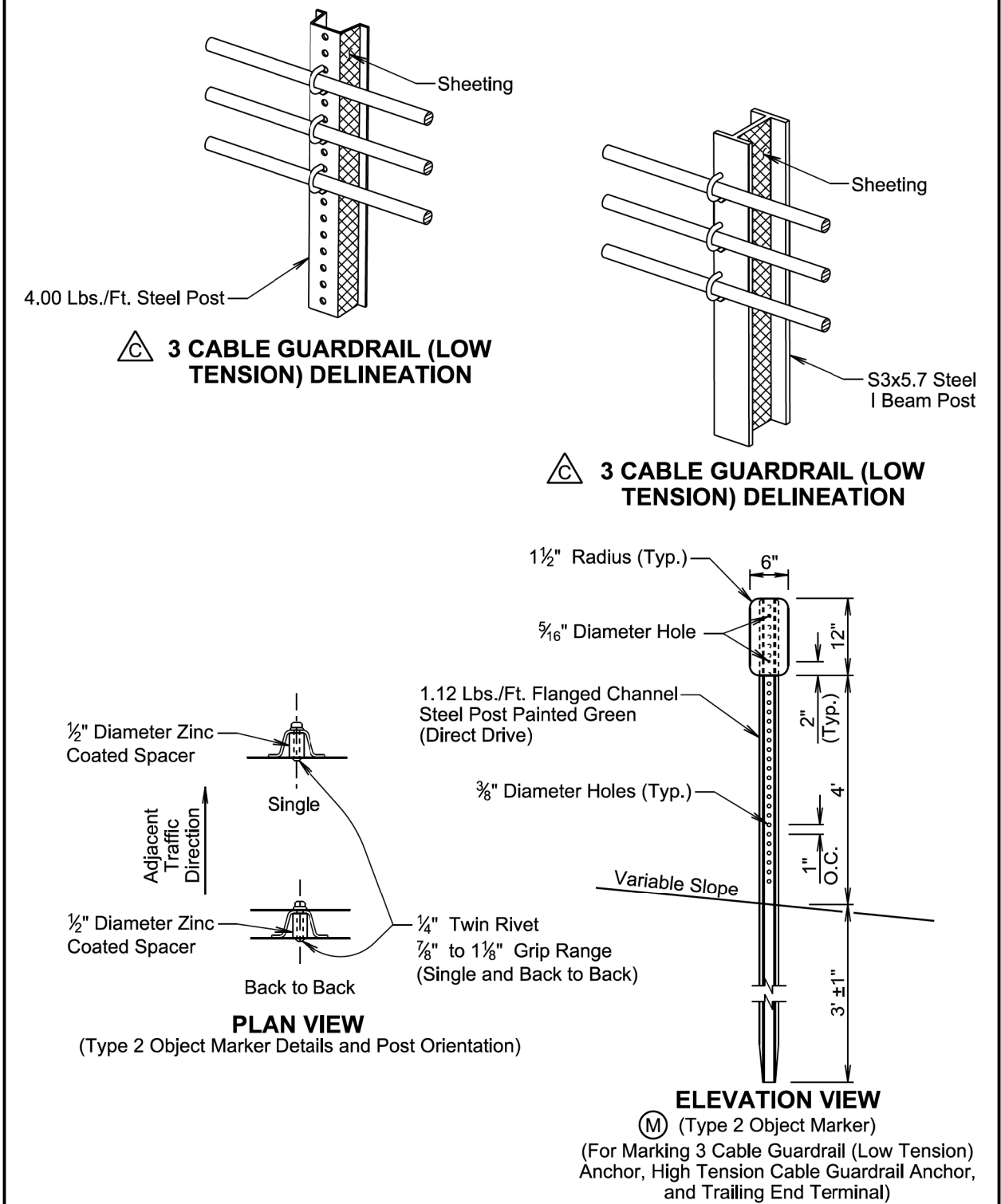
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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	P 0053(12)14 & P 0047(126)60		
Plotting Date: 08/06/2025		F23	F23



April 8, 2025

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

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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