

Transmittal No. 21-02
February 18, 2021

Standard Plans

Distribution: Electronic Distribution Recipients**Subject: Standard Plans 693 and 694**

The following Standard Plans are modified:

5-297.693 - Approach Guardrail Transition (AGT) Type 31 at Vertical End Post

5-297.694 – Approach Guardrail Transition (AGT) Type 31 at Single Slope End Post

See attached Summary of Changes for details.

Instructions:

1. Record this transmittal letter number, date and subject on the transmittal record sheet located in the front of the manual. The last Transmittal Letter was 21-01, dated February 12, 2021.
2. Remove from the manual:
 - Standard Plan Index (Sheets 1-7) dated January 15, 2020
 - 5-297.693 (Sheets 1-3) dated 4-28-2020
 - 5-297.694 (Sheets 1-5) dated 7-1-2020
3. Insert into the manual:
 - Standard Plan Index (Sheets 1-7) dated February 9, 2021
 - 5-297.693 (Sheets 1-3) dated 02-09-2021
 - 5-297.694 (Sheets 1-3) dated 02-09-2021
4. The Standard Plans Manual and associated Transmittal Letters are available online in PDF format at <https://standardplans.dot.state.mn.us/StdPlan.aspx>
5. Any technical questions regarding this transmittal should be directed to Mike Elle, State Design Standards Engineer, at (651) 252-7644, or by email to DesignStandards.DOT@state.mn.us



Michael Elle, P.E.
State Design Standards Engineer
Office of Project Management and Technical Support

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Summary of Changes
Standard Plan 5-297.693
Approach Guardrail Transition (AGT) Type 31 at Vertical End Post
Transmittal Letter No. (21-02)

Sheet 1 of 3

Plan View

1. Curb transition at post 6-8 and beyond (for Curb Option B) updated/modified to show correct location.
2. Note 6 added.

Front View

1. Anchorage Plate hardware label added.

Section A-A/Section B-B

1. Dimensions showing back of curb to post distance removed.
2. Section B-B Gutter Line label/dimension to back of rail modified.

Sheet 2 of 3

Plan View

1. Curb transition at post 6-8 and beyond (for Curb Option B) updated/modified to show correct location.
2. “Effective Edge of Shoulder” label updated to include “(Extended Gutter Line from Bridge)”.
3. Note 3 added.

Expansion Joint detail

1. Updated to identify E8 expansion joint.
2. Note 2 updated.

Sheet 3 of 3

AGT Post Components details

1. Dimensions showing gutter line distance to post removed.
2. Curbs removed.
3. Note 2 removed.

Thrie Beam Rail/Anchorage Plate Splice Connection Detail

1. Thrie Beam Anchorage Plate label added.

Vertical End Post Height Options detail

1. 54” and 48” heights removed, 42” height added.

Notes

1. Note 1 updated, other notes renumbered.

Summary of Changes
Standard Plan 5-297.694
Approach Guardrail Transition (AGT) Type 31 at Single Slope End Post
Transmittal Letter No. (21-02)

General:

1. The name of Plan has changed from Approach Guardrail Transition (AGT) to Approach Guardrail Transition (AGT) Type 31 at Single Slope End Post.
2. This update incorporates the updated single slope end post design
3. This standard plan has been reformatted and is now 3 sheets instead of 5.
4. The Guardrail Posts details on prior version sheet 2 of 5 has been replaced by Standard Plate 8361.
5. The Blockout details on prior version sheet 2 of 5 has been replaced by Standard Plate 8369.
6. The Thrie-Beam Rail details on prior version sheet 3 of 5 has been replaced by Standard Plate 8357.

Sheet 1 of 3:

1. The Plan and Front Views have been updated to incorporate the new end post design and curb requirements.
2. Updates of note:
 - a. The distance from the center of post 1 to the front of the end post changed from 29" to 26-1/4", which is consistent with the vertical end post detail (Standard Plan 693).
 - b. The wedge plate (Thrie Beam Wedge Plate For Single Slope Barrier) is removed, the thrie-beam rail now connects directly to the barrier.
 - c. The dimensions on the taper at the front toe of the single slope barrier have changed from 12"x10.5"x2" to 36"x13"x2.5". As a result of this the distance from the Effective Edge of Shoulder to the Gutter line has changed from 2" to 2.5".
3. Front View : Anchorage Plate hardware label added.
4. The Section A-A and Section B-B details have been updated to show the curb location in reference to the guardrail.
5. A new general note is added: APPROACH GUARDRAIL TRANSITION SHALL BE USED ON THE APPROACH END, AND SHALL BE USED ON THE DEPARTING/TRAILING END IF GUARDRAIL IS NEEDED.
6. New note 5.

Sheet 2 of 3

1. The details on this revamped sheet show the updated/new curb details, including new notes..
2. Updates of note:
 - a. The Curb Transition – Option A and Option B details are consistent with the vertical end post details (Standard Plan 693).

Sheet 3 of 3:

1. This sheet contains the former Guardrail Posts with Blockout and Rail details (formally on sheet 2 of 5), now called AGT Post Components, which have been updated to include posts 11 and 12.
2. The Single Slope Barrier detail shows the updated end post design. (The related details, formally on sheet 5 of 5, have been consolidated to this new detail.)
3. The Thrie Beam Rail/Anchorage Plate Splice Connection detail, and the Single Slope Barrier Height Options detail are new.

<u>SERIES</u>	<u>SUBJECT</u>
5-297.000	BLANK
5-297.100	GRADING
5-297.200	SURFACING
5-297.300	VEGETATION
5-297.400	DRAINAGE, EROSION CONTROL, AND SEDIMENT CONTROL
5-297.500	BLANK
5-297.600	SAFETY FEATURES AND SPECIAL STRUCTURES
5-297.700	SIGNING
5-297.800	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKING, LIGHTING, AND SIGNALS

<u>PLAN NO.</u>	<u>SUBJECT</u>	<u>APPROVAL DATE</u>	<u>REVISION DATE</u>
	5-297.000		
	BLANK		
	5-297.100		
	GRADING		
5-297.105	Escape Lanes at Major Ramp Exits	05-18-01	
5-297.106	Standard Acceleration and Deceleration Lanes (Rural) Bituminous Pavement	05-27-14	
5-297.108	Standard Acceleration and Deceleration Lanes (Urban) Bituminous Pavement	05-27-14	
5-297.111	Right and Left-Turn Lanes	05-27-14	
5-297.115 (1 of 2)	Staking Information Sheet	08-06-14	
5-297.115 (2 of 2)	Staking Information Sheet	08-06-14	
	5-297.200		
	SURFACING		
5-297.209	Acceleration and Deceleration Lane (Rural) Rigid Design Mainline Jointed Pavement 15 Ft. Panel Length	02-16-16	
5-297.210	Acceleration and Deceleration Lane (Urban) Rigid Design Mainline Jointed Pavement 15 Ft. Panel Length	02-16-16	
5-297.217 (1 of 2)	Concrete Mainline Pavement 15 Ft. Panel Length Rural	02-16-16	
5-297.217 (2 of 2)	Concrete Mainline Pavement 15 Ft. Panel Length Urban or Concrete Shoulder	02-16-16	
5-297.219	Concrete Ramp/Loop Pavement 15 Ft. Panel Length	02-16-16	
5-297.221 (1 of 4)	Pavement Joints Contraction (Design C)	08-13-20	
5-297.221 (2 of 4)	Pavement Joints Expansion (Design E)	08-13-20	
5-297.221 (3 of 4)	Pavement Joints Longitudinal (Design L)	08-13-20	
5-297.221 (4 of 4)	Pavement Joints Construction and Terminal Headers	08-13-20	
5-297.222 (1 of 2)	Bridge Approach Panel Layout (Type F Concrete Barrier on Wingwall)	02-16-16	08-22-16
5-297.222 (2 of 2)	Bridge Approach Panel Layout (Type S Concrete Barrier on Wingwall)	08-22-16	
5-297.223 (1 of 2)	Bridge Approach Panel Reinforcement Details (Type F Concrete Barrier on Wingwall)	12-20-11	08-22-16
5-297.223 (2 of 2)	Bridge Approach Panel Reinforcement Details (Type S Concrete Barrier on Wingwall)	08-22-16	
5-297.224 (1 of 2)	Bridge Approach Panel Layout (Type F Concrete Barrier on Approach Panel)	02-16-16	08-22-16
5-297.224 (2 of 2)	Bridge Approach Panel Layout (Type S Concrete Barrier on Approach Panel)	08-22-16	
5-297.225 (1 of 2)	Bridge Approach Panel Reinforcement Details (Type F Concrete Barrier on Approach Panel)	12-20-11	08-22-16
5-297.225 (2 of 2)	Bridge Approach Panel Reinforcement Details (Type S Concrete Barrier on Approach Panel)	08-22-16	

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5-297.227 (1 of 2)	Bridge Approach Panel Miscellaneous Details (Type F Concrete Barrier)	12-20-11	08-22-16
5-297.227 (2 of 2)	Bridge Approach Panel Miscellaneous Details (Type S Concrete Barrier)	08-22-16	
5-297.228 (1 of 2)	Bridge Approach Panel Joint Layout (Type F Concrete Barrier)	03-23-11	08-22-16
5-297.228 (2 of 2)	Bridge Approach Panel Joint Layout (Type S Concrete Barrier)	08-22-16	
5-297.229	Bridge Approach Panel Joint Details	12-20-11	03-22-13
5-297.231 (1 of 2)	Bridge Approach Panel Drainage Details (Type F Concrete Barrier)	03-23-11	08-22-16
5-297.231 (2 of 2)	Bridge Approach Panel Drainage Details (Type S Concrete Barrier)	08-22-16	
5-297.233 (1 of 2)	Bridge Abutment Approach Treatment for Abutment on Footing	08-22-19	
5-297.233 (2 of 2)	Bridge Abutment Approach Treatment for Abutment on Footing	08-22-19	
5-297.234 (1 of 2)	Bridge Abutment Approach Treatment for Integral Abutments	08-22-19	
5-297.234 (2 of 2)	Bridge Abutment Approach Treatment for Integral Abutments	08-22-19	
5-297.235	Pavement End Anchors Under Concrete Pavement (Grades 4% or Greater)	08-06-14	
5-297.250 (1 of 6)	Pedestrian Curb Ramp Details	01-23-17	
5-297.250 (2 of 6)	Pedestrian Curb Ramp Details	01-23-17	
5-297.250 (3 of 6)	Pedestrian Curb Ramp Details	01-23-17	
5-297.250 (4 of 6)	Pedestrian Curb Ramp Details	01-23-17	
5-297.250 (5 of 6)	Pedestrian Curb Ramp Details	01-23-17	
5-297.250 (6 of 6)	Pedestrian Curb Ramp Details	01-23-17	
5-297.254 (1 of 4)	Driveway and Sidewalk Details	01-23-17	
5-297.254 (2 of 4)	Driveway and Sidewalk Details	01-23-17	
5-297.254 (3 of 4)	Driveway and Sidewalk Details	01-23-17	
5-297.254 (4 of 4)	Driveway and Sidewalk Details	01-23-17	
	5-297.300		
	VEGETATION		
5-297.301 (1 of 3)	Standard Planting Details	12-11-15	02-14-19
5-297.301 (2 of 3)	Standard Planting Details	12-11-15	
5-297.301 (3 of 3)	Standard Planting Details	12-11-15	
5-297.302 (1 of 1)	Protection and Restoration of Vegetation	12-11-15	
	5-297.400		
	DRAINAGE AND EROSION CONTROL, AND SEDIMENT CONTROL		
5-297.404 (1 of 3)	Permanent Erosion Control - Along Roadways, Ditches, and Flumes	02-28-17	
5-297.404 (2 of 3)	Permanent Erosion Control - Turf Establishment Detail at Culvert Ends	01-08-20	
5-297.404 (3 of 3)	Permanent Erosion Control - REPP (Blanket) Staple Pattern For Slopes	01-08-20	
5-297.405 (1 of 8)	Temporary Sediment Control - Silt Curtain or Silt Fence Type TB	02-28-17	
5-297.405 (2 of 8)	Temporary Sediment Control - Filter Berms, Sediment Control Logs, and Bale Barriers	01-08-20	
5-297.405 (3 of 8)	Temporary Sediment Control - Ditch Check	01-08-20	
5-297.405 (4 of 8)	Temporary Sediment Control - Storm Drain Inlet Protection	02-28-17	
5-297.405 (5 of 8)	Temporary Sediment Control - Stabilized Construction Exit	02-28-17	
5-297.405 (6 of 8)	Temporary Sediment Control - Silt Fence	02-28-17	
5-297.405 (7 of 8)	Temporary Sediment Control - Super Duty Silt Fence	02-28-17	
5-297.405 (8 of 8)	Temporary Sediment Control - Culvert End Controls	02-28-17	
5-297.407	Permanent Erosion Control - Bioengineering Soil Stabilization	08-06-14	
5-297.409	Temporary Erosion Control - Temporary Poly Coverings	02-28-17	
5-297.430	Subsurface Drains	08-06-14	

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5-297.431	Subsurface Drains	08-06-14	
5-297.432	Subsurface Drains	08-06-14	
5-297.433	Subsurface Drains, Outlet Pipes for Edge and Subcut Drains	08-06-14	
5-297.440	Standard Culvert Bedding for Flexible Pipe (without treatments)	01-18-19	
5-297.441	Standard Culvert Bedding for Rigid Pipe (without treatments)	01-18-19	
5-297.442	Standard Storm Sewer Bedding for Rigid and Flexible Pipe	01-18-19	
5-297.500			
BLANK			
5-297.600			
SAFETY FEATURES AND SPECIAL STRUCTURES			
5-297.601 (1 of 4)	Guardrail / End Treatments Miscellaneous Details	04-23-20	
5-297.601 (2 of 4)	Guardrail / End Treatments Miscellaneous Details	04-23-20	
5-297.601 (3 of 4)	Guardrail / End Treatments Miscellaneous Details	04-23-20	
5-297.601 (4 of 4)	Guardrail / End Treatments Miscellaneous Details	04-23-20	
5-297.603	W-Beam Transition to Concrete F-Shape Safety Rail with Approach Curb (Steel Post)	05-27-14	
5-297.605	W-Beam Transition to Concrete F-Shape Safety Rail with Approach Curb (Wood Post)	05-27-14	
5-297.607	W-Beam Transition to Concrete J-Shape Safety Rail with Approach Curb (Wood Post)	11-17-16	
5-297.609 (1 of 2)	W-Beam Transition to Concrete End Post With or Without Approach Curb (Wood Post)	11-17-16	
5-297.609 (2 of 2)	W-Beam Transition to Concrete End Post With or Without Approach Curb (Wood Post)	11-17-16	
5-297.611 (1 of 3)	Thrie Beam Bullnose Guardrail for Medians (14' 2-1/2" Width)	05-27-14	08-20-19
5-297.611 (2 of 3)	Thrie Beam Bullnose Guardrail for Medians (14' 2-1/2" Width)	05-27-14	
5-297.611 (3 of 3)	Thrie Beam Bullnose Guardrail for Medians (Wider Than 14' 2-1/2")	05-27-14	08-20-19
5-297.612	Proprietary End Terminal – Tangent For Type 31 Guardrail	04-28-20	
5-297.613	Proprietary End Terminal – Flared For Type 31 Guardrail	04-28-20	
5-297.618	W-Beam Transition to Concrete J-Shape Safety Rail With Approach Curb (Steel Post)	11-17-16	
5-297.619 (1 of 2)	W-Beam Transition to Concrete End Post With or Without Approach Curb (Steel Post)	11-17-16	
5-297.619 (2 of 2)	W-Beam Transition to Concrete End Post With or Without Approach Curb (Steel Post)	11-17-16	
5-297.620	Retaining Wall General Notes and Summary of Quantities	08-27-14	09-01-16
5-297.621	Retaining Wall Reinforcement Details (Short Walls)	08-27-14	09-01-16
5-297.622	Retaining Wall Reinforcement Details (Medium Walls)	08-27-14	09-01-16
5-297.623	Retaining Wall Reinforcement Details (Tall Walls)	08-27-14	09-01-16
5-297.624 (1 of 6)	Retaining Wall Miscellaneous Details	02-16-16	09-01-16
5-297.624 (2 of 6)	Retaining Wall Miscellaneous Details	08-27-14	09-01-16
5-297.624 (3 of 6)	Retaining Wall Miscellaneous Details	08-27-14	09-01-16
5-297.624 (4 of 6)	Retaining Wall Miscellaneous Details (Geotechnical Details)	02-16-16	
5-297.624 (5 of 6)	Retaining Wall Miscellaneous Details (Geotechnical Details)	08-27-14	09-01-16
5-297.624 (6 of 6)	Retaining Wall Miscellaneous Details (Geotechnical Details)	08-27-14	09-01-16
5-297.625	Retaining Wall Shear Lug Details	08-27-14	
5-297.626 (1 of 4)	Retaining Wall Panel Tabulations (Level Fill)	08-27-14	09-01-16
5-297.626 (2 of 4)	Retaining Wall Panel Tabulations (Level Fill)	08-27-14	09-01-16
5-297.626 (3 of 4)	Retaining Wall Panel Tabulations (Level Fill)	08-27-14	09-01-16
5-297.626 (4 of 4)	Retaining Wall Panel Tabulations (Level Fill)	08-27-14	09-01-16
5-297.627 (1 of 3)	Retaining Wall Panel Tabulations (1V:2H Sloped Fill)	08-27-14	09-01-16
5-297.627 (2 of 3)	Retaining Wall Panel Tabulations (1V:2H Sloped Fill)	08-27-14	09-01-16
5-297.627 (3 of 3)	Retaining Wall Panel Tabulations (1V:2H Sloped Fill)	08-27-14	09-01-16

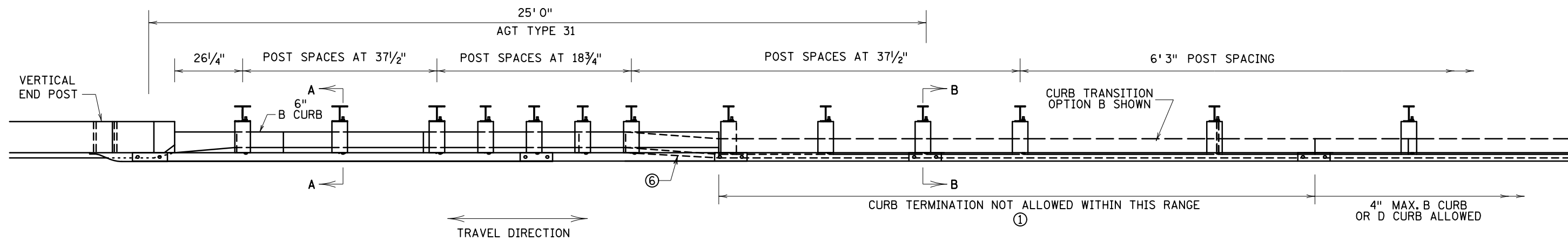
<u>PLAN NO.</u>	<u>SUBJECT</u>	<u>APPROVAL DATE</u>	<u>REVISION DATE</u>
5-297.628 (1 of 3)	Retaining Wall Panel Tabulations (Live Load Surcharge)	09-01-16	
5-297.628 (2 of 3)	Retaining Wall Panel Tabulations (Live Load Surcharge)	09-01-16	
5-297.628 (3 of 3)	Retaining Wall Panel Tabulations (Live Load Surcharge)	09-01-16	
5-297.630 (1 of 2)	Retaining Wall (Level Fill) Spread Footing Geometry and Data	08-27-14	09-01-16
5-297.630 (2 of 2)	Retaining Wall (Level Fill) Pile Foundation Geometry and Data	08-27-14	09-01-16
5-297.631 (1 of 2)	Retaining Wall (1V:2H Sloped Fill) Spread Footing Geometry and Data	08-27-14	09-01-16
5-297.631 (2 of 2)	Retaining Wall (1V:2H Sloped Fill) Pile Foundation Geometry and Data	08-27-14	09-01-16
5-297.632 (1 of 2)	Retaining Wall (Live Load Surcharge) Spread Footing Geometry and Data	08-27-14	09-01-16
5-297.632 (2 of 2)	Retaining Wall (Live Load Surcharge) Pile Foundation Geometry and Data	08-27-14	09-01-16
5-297.633	Retaining Wall Concrete Parapet (Type P-1)	09-01-16	
5-297.634	Retaining Wall Concrete Parapet (Type P-4)	09-01-16	
5-297.635	Retaining Wall Concrete Barrier (Type F, TL-4)	09-01-16	
5-297.635	Retaining Wall Concrete Barrier (Type S, TL-4)	09-01-16	
5-297.638	Concrete Retaining Wall Rustication	08-27-14	
5-297.639	Cast In Place Concrete Retaining Wall Basis of Design	08-27-14	
5-297.640	Modular Block Retaining Wall General Notes	12-01-14	
5-297.641	Modular Block Retaining Wall Soil Reinforcement for Level Fill, Case 1	08-06-14	
5-297.643	Modular Block Retaining Wall Soil Reinforcement for 1:2 Fill Slope, Case 3	08-06-14	
5-297.644	Modular Block Retaining Wall Soil Reinforcement for 1:3 Fill Slope, Case 4	08-06-14	
5-297.645	Modular Block Retaining Wall Details	08-06-14	
5-297.646	Reinforced Soil Slope General Notes	12-01-14	
5-297.647	Reinforced Soil Slope (45° Maximum Slope)	08-06-14	
5-297.648	Reinforced Soil Slope (70° Maximum Slope)	08-06-14	
5-297.649	Reinforced Soil Slope Details	08-06-14	
5-297.661 (1 of 3)	Wood Planking Noise Wall with Concrete Posts	10-22-19	
5-297.661 (2 of 3)	Wood Planking Noise Wall with Concrete Posts	10-22-19	
5-297.661 (3 of 3)	Wood Planking Noise Wall with Concrete Posts	10-22-19	
5-297.678 (1 of 5)	Glue Laminated Rubrail (Concrete Posts) General Layout: Planking on Residential Side	10-22-19	
5-297.678 (2 of 5)	Glue Laminated Rubrail (Concrete Posts) General Layout: Planking on Highway Side	10-22-19	
5-297.678 (3 of 5)	Glue Laminated Rubrail (Concrete Posts) Concrete Post Construction Details	10-22-19	
5-297.678 (4 of 5)	Glue Laminated Rubrail (Concrete Posts) Rubrail Sections and Spacer Block	10-22-19	
5-297.678 (5 of 5)	Glue Laminated Rubrail (Concrete Posts) Anchor Cable, Anchor Plate, and Splice Plate	10-22-19	
5-297.680 (1 of 2)	Temporary Portable Precast Concrete Barrier Anchoring	07-16-19	
5-297.680 (2 of 2)	Temporary Portable Precast Concrete Barrier Anchoring - Transition Systems	07-16-19	
5-297.681 (1 of 7)	Concrete Median Barrier Single Slope - Type 36 A, Type 42 A, and Type 54 A	04-14-20	07-22-20
5-297.681 (2 of 7)	Concrete Median Barrier Single Slope -Type 36 A Step, Type 42 A Step, and Type 54 A Step	04-14-20	07-22-20
5-297.681 (3 of 7)	Concrete Median Barrier Single Slope - Type 36 A-A, Type 42 A-A, and Type 54 A-A	04-14-20	07-22-20
5-297.681 (4 of 7)	Concrete Median Barrier Single Slope – End Anchor and Expansion/Open Joint Anchor	04-14-20	07-22-20

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5-297.681 (5 of 7)	Concrete Median Barrier Single Slope – Light Foundation/Sign Base Transition - Monolithic Barrier Placement	04-14-20	07-22-20
5-297.681 (6 of 7)	Concrete Median Barrier Single Slope – Light Foundation/Sign Base Transition – Barrier on Footing	04-14-20	07-22-20
5-297.681 (7 of 7)	Concrete Median Barrier Single Slope – Type F Barrier Transitions - Single Slope Vertical Transitions	04-14-20	07-22-20
5-297.684 (1 of 2)	W-Beam Transition to Pier Columns Without Approach Curb (Steel Post)	11-17-16	
5-297.684 (2 of 2)	W-Beam Transition to Pier Columns without Approach Curb (Steel Post)	11-17-16	
5-297.686 (1 of 3)	Box Beam Transition to Concrete F-Shape Barrier	05-27-14	
5-297.686 (2 of 3)	Box Beam Transition to Concrete F-Shape Barrier (Details)	05-27-14	
5-297.686 (3 of 3)	Box Beam Transition to Concrete F-Shape Barrier (Curb Transition and Splice Details)	05-27-14	
5-297.688	High Tension Cable Barrier Median Placement and Overlap	10-27-14	
5-297.690	Traffic Barrier Type 31 Assembly Details	03-06-20	
5-297.692	Traffic Barrier Type 31 End Anchorage Assembly Details	03-02-20	
5-297.693 (1 of 3)	Approach Guardrail Transition (AGT) Type 31 at Vertical End Post - Assembly Details	02-09-21	
5-297.693 (2 of 3)	Approach Guardrail Transition (AGT) Type 31 at Vertical End Post - Curb Details	02-09-21	
5-297.693 (3 of 3)	Approach Guardrail Transition (AGT) Type 31 at Vertical End Post - Miscellaneous and Component Details	02-09-21	
5-297.694 (1 of 3)	Approach Guardrail Transition (AGT) Type 31 at Single Slope End Post - Assembly Details	02-09-21	
5-297.694 (2 of 3)	Approach Guardrail Transition (AGT) Type 31 at Single Slope End Post – Curb Details	02-09-21	
5-297.694 (3 of 3)	Approach Guardrail Transition (AGT) Type 31 at Single Slope End Post - Miscellaneous and Component Details	02-09-21	
5-297.696	Traffic Barrier Type 31 Low Fill / Long Span – Omitted Post Details	07-19-16	
	5-297.700		
	SIGNING		
5-297.701	Standard Sign Placement Type C & D	10-16-19	
5-297.702	Delineator and Marker Placement	10-16-19	
5-297.703	Sign, Delineator, and Marker Placement near Interchange Ramp Gores	10-26-19	
5-297.710	Type EA & EO Sign Structural Details	05-01-19	
5-297.711 (1 of 2)	I-Beam Supported Sign Structural Details - Footings and Base Connection	06-04-19	05-26-20
5-297.711 (2 of 2)	I-Beam Supported Sign Structural Details - Post and Panel	06-04-19	
5-297.721	Square-Tube Three-Wall Sign Base	12-09-19	
5-297.730	Sign Mounting Systems for Round Supports	10-16-19	
5-297.731	Sign Mounting Details for Signal Mast Arms	10-16-19	04-17-20
5-297.740 (1 of 4)	Concrete Rail Mounted Sign	06-04-19	
5-297.740 (2 of 4)	Concrete Rail Mounted Sign - Steel Connection Details	06-04-19	
5-297.740 (3 of 4)	Concrete Rail Mounted Sign - Sign Mounting Details	06-04-19	
5-297.740 (4 of 4)	Concrete Rail Mounted Sign - Sign Connection Details	06-04-19	
5-297.741	Structural Details for Bridge Mounted Type D Signs	06-04-19	
5-297.742	Structural Details for Bridge Mounted Type D Signs - Minor Guide Signs	06-04-19	
5-297.745	Monotube Overhead Sign Structures - General Elevations, Sections, and Notes	01-15-21	

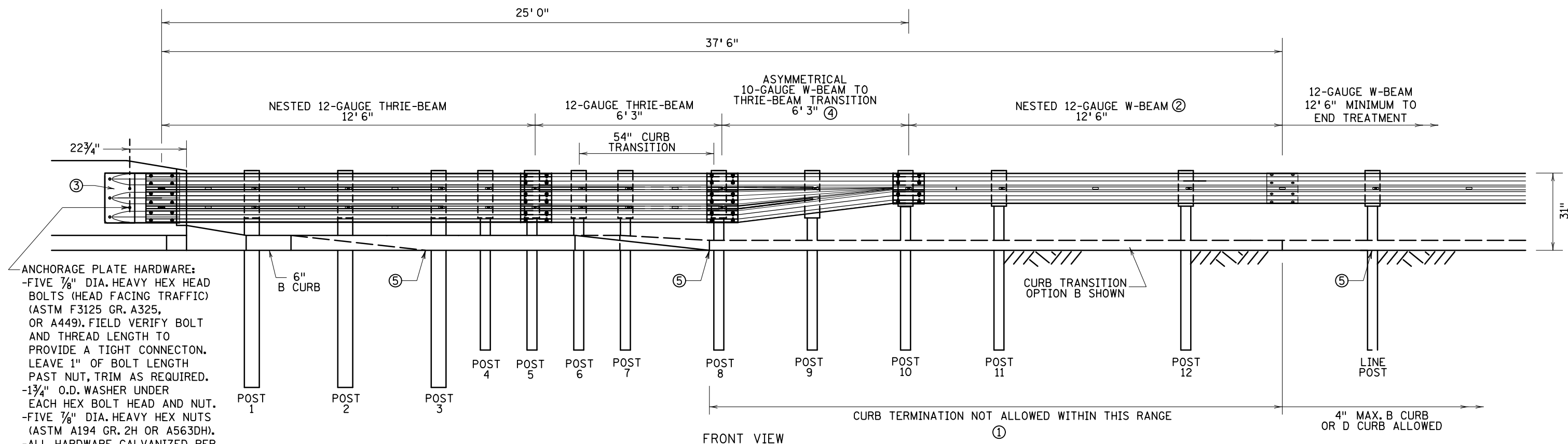
<u>PLAN NO.</u>	<u>SUBJECT</u>	<u>APPROVAL DATE</u>	<u>REVISION DATE</u>
5-297.746 (1 of 2)	Monotube Overhead Sign Structures - Foundation Details	01-15-21	
5-297.746 (2 of 2)	Monotube Overhead Sign Structures - Foundation Details	01-15-21	
5-297.747 (1 of 2)	Monotube Overhead Sign Structures - Simple Span - Post and Baseplate Details	01-15-21	
5-297.747 (2 of 2)	Monotube Overhead Sign Structures - Simple Span - Beam Details	01-15-21	
5-297.748 (1 of 2)	Monotube Overhead Sign Structures - Cantilever - Post and Baseplate Details	01-15-21	
5-297.748 (2 of 2)	Monotube Overhead Sign Structures - Cantilever - Beam Details	01-15-21	
5-297.749 (1 of 2)	Monotube Overhead Sign Structures - Sign Panel and Exit Panel Geometry	01-15-21	
5-297.749 (2 of 2)	Monotube Overhead Sign Structures - Sign Panel and Exit Panel Details	01-15-21	
5-297.750	Panel Mounting Post Modification Details	01-15-21	
5-297.752	Type F Median Barrier Foundation - Spread Footing	05-01-19	05-28-19
5-297.753	Type F Median Barrier Foundation - Drilled Shaft Footing	05-01-19	05-28-19
5-297.754	Single Slope Median Barrier Foundation - Spread Footing	05-01-19	05-28-19
5-297.755	Single Slope Median Barrier Foundation - Drilled Shaft Footing	05-01-19	05-28-19
5-297.760 (1 of 3)	Standard Overhead Sign Structures - Design D - Implementation Instructions and Notes	05-01-19	05-28-19
5-297.760 (2 of 3)	Standard Overhead Sign Structures - Design D - Cantilever Span Post and Truss Selection Table	05-01-19	05-28-19
5-297.760 (3 of 3)	Standard Overhead Sign Structures - Design D - Cantilever Span Post and Truss Selection Table	05-01-19	05-28-19
5-297.761	Standard Overhead Sign Structures - Design D - General Elevations, Sections and Notes	03-05-20	
5-297.762	Standard Overhead Sign Structures - Design D - Camber, Post Type, and Estimated Quantities	03-05-20	
5-297.763 (1 of 2)	Standard Overhead Sign Structures - Design D - Foundation Details	03-05-20	05-26-20
5-297.763 (2 of 2)	Standard Overhead Sign Structures - Design D - Foundation Details	03-05-20	
5-297.764	Standard Overhead Sign Structures - Design D - Base Plate, Handhole, Electrical, and Cover Plate Details	03-05-20	
5-297.765	Standard Overhead Sign Structures - Design D - Truss-to-Post Connection Details	03-05-20	
5-297.766	Standard Overhead Sign Structures - Design D - Sign Truss Details Type A	05-01-19	05-28-19
5-297.767	Standard Overhead Sign Structures - Design D - Sign Truss Details Type B	05-01-19	05-28-19
5-297.768	Standard Overhead Sign Structures - Design D - Sign Truss Details Type C	05-01-19	05-28-19
5-297.769 (1 of 3)	Standard Overhead Sign Structures - Design D - Walkway Details	03-05-20	
5-297.769 (2 of 3)	Standard Overhead Sign Structures - Design D - Walkway Details: Railing	03-05-20	
5-297.769 (3 of 3)	Standard Overhead Sign Structures - Design D - Walkway Details	05-01-19	
5-297.770	Standard Overhead Sign Structures - Design D - Walkway and Railing Retrofit Details	05-01-19	
5-297.771	Standard Overhead Sign Structures - Design D - Sign Panel and Panel Mounting Post Details	05-01-19	05-28-19
5-297.772	Standard Overhead Sign Structures - Design D - DMS Mounting Details	03-05-20	
5-297.773	Standard Overhead Sign Structures - Design D - Rock Socket Foundation Details	01-15-21	
5-297.774	Standard Overhead Sign Structures - Design D - Variable Length Drilled Shaft Details	01-15-21	
5-297.779	Overhead Sign Structures - Foundation Extension - Design D Extension Details - Type 1-4 Posts	01-15-21	

<u>PLAN NO.</u>	<u>SUBJECT</u>	<u>APPROVAL DATE</u>	<u>REVISION DATE</u>
5-297.780 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design D Extension Details - Type 5-6 Posts	01-15-21	
5-297.780 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design D Extension Details - Type 5-6 Posts	01-15-21	
5-297.781	Overhead Sign Structures - Foundation Extension – Interim Design B Extension Details - Type 1-4 Posts	01-15-21	
5-297.782 (1 of 2)	Overhead Sign Structures - Foundation Extension – Interim Design B Extension Details - Type 5-7 Posts	01-15-21	
5-297.782 (2 of 2)	Overhead Sign Structures - Foundation Extension – Interim Design B Extension Details - Type 5-7 Posts	01-15-21	
5-297.783	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 1-3 Posts	01-15-21	
5-297.784 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 4-5 Posts	01-15-21	
5-297.784 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 4-5 Posts	01-15-21	
5-297.785 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 6-7 Posts	01-15-21	
5-297.785 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 6-7 Posts	01-15-21	
5-297.786 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 8-9 Posts	01-15-21	
5-297.786 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 8-9 Posts	01-15-21	
5-297.787 (1 of 3)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 10-13 Posts	01-15-21	
5-297.787 (2 of 3)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 10-13 Posts	01-15-21	
5-297.787 (3 of 3)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 10-13 Posts	01-15-21	
5-297.788	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 14-15 Posts	01-15-21	
5-297.789 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 16-19 Posts	01-15-21	
5-297.789 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 16-19 Posts	01-15-21	
5-297.800			
TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKING, LIGHTING, AND SIGNALS			
5-297.801	Interim Pavement Markings and Signing	10-10-19	
5-297.805 (1 of 5)	Temporary Overhead Sign Structures – General Elevation and Notes	03-06-20	
5-297.805 (2 of 5)	Temporary Overhead Sign Structures – Foundation Details	03-06-20	
5-297.805 (3 of 5)	Temporary Overhead Sign Structures – Post and Baseplate Details	03-06-20	
5-297.805 (4 of 5)	Temporary Overhead Sign Structures – Beam Details	03-06-20	
5-297.805 (5 of 5)	Temporary Overhead Sign Structures – Sign Panel and Panel Mounting Post Details	03-06-20	
5-297.820 (1 of 3)	T-100 Light Tower Pile Foundation Design	11-05-19	
5-297.820 (2 of 3)	T-120 Light Tower Pile Foundation Design	11-05-19	
5-297.820 (3 of 3)	T-140 Light Tower Pile Foundation Design	11-05-19	
5-297.821 (1 of 3)	T-100 Light Tower Mat Foundation Design	11-05-19	
5-297.821 (2 of 3)	T-120 Light Tower Mat Foundation Design	11-05-19	
5-297.821 (3 of 3)	T-140 Light Tower Mat Foundation Design	11-05-19	

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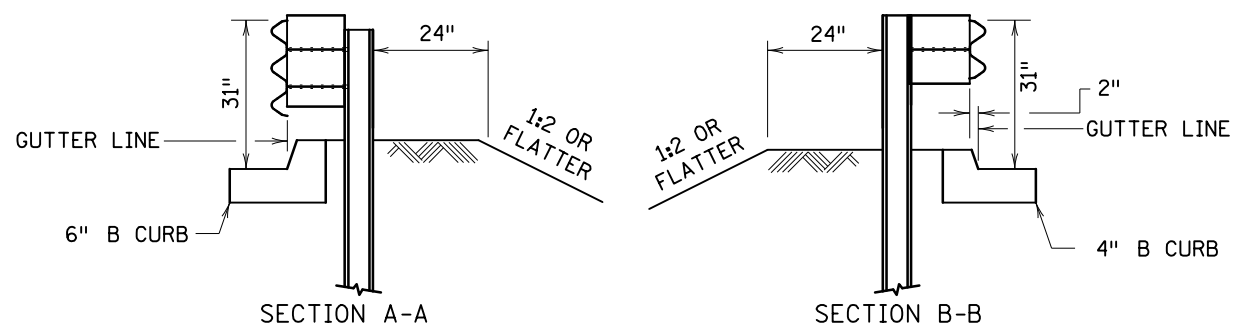


PLAN VIEW



FRONT VIEW

ANCHORAGE PLATE HARDWARE:
 -FIVE 7/8" DIA. HEAVY HEX HEAD BOLTS (HEAD FACING TRAFFIC) (ASTM F3125 GR. A325, OR A449). FIELD VERIFY BOLT AND THREAD LENGTH TO PROVIDE A TIGHT CONNECTION. LEAVE 1" OF BOLT LENGTH PAST NUT, TRIM AS REQUIRED.
 -1 3/4" O.D. WASHER UNDER EACH HEX BOLT HEAD AND NUT.
 -FIVE 7/8" DIA. HEAVY HEX NUTS (ASTM A194 GR. 2H OR A563DH).
 -ALL HARDWARE GALVANIZED PER ASTM A153 AND A780.



TRANSITION POST/BLOCK SIZING		
POST #	STEEL POST SIZE	BLOCKOUT SIZE
1-3	84" - W6 x 15	6" x 12" x 19"
4-9	72" - W6 x 9	6" x 12" x 19"
10	72" - W6 x 9	6" x 12" x 14 1/4"

NOTES:

- APPROACH GUARDRAIL TRANSITION SHALL BE USED ON THE APPROACH END, AND SHALL BE USED ON THE DEPARTING/TRAILING END IF GUARDRAIL IS NEEDED.
- GUARDRAIL BEAM AND HARDWARE PER AASHTO SPEC. M 180.
- REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.
- ① CURB TERMINATION NOT ALLOWED BETWEEN POST 8 AND 37' 6" FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE. SEE CURB DETAILS ON SHEET 2 OF 3.
- ② NESTED RAIL IS INCIDENTAL.
- ③ THRIE BEAM ANCHORAGE PLATE (STANDARD PLATE 8350) IS INCIDENTAL.
- ④ SEE STANDARD PLATE 8356.
- ⑤ CURB MAY BE TERMINATED AT THIS LOCATION. SEE CURB DETAILS ON SHEET 2 OF 3.
- ⑥ GUTTER LINE TAPERS 2" TO MATCH EXTENDED GUTTER LINE FROM BRIDGE.

REVISION:
 APPROVED: 02-09-2021

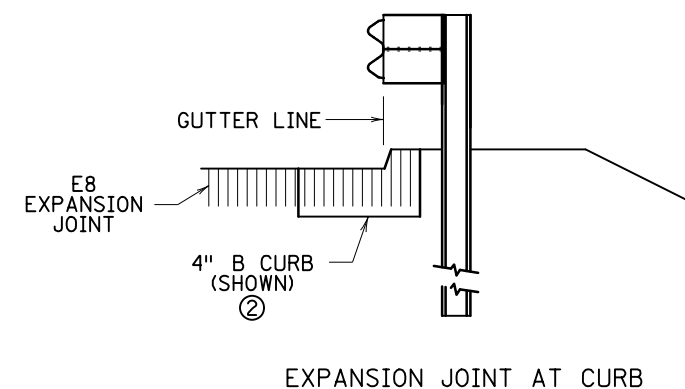
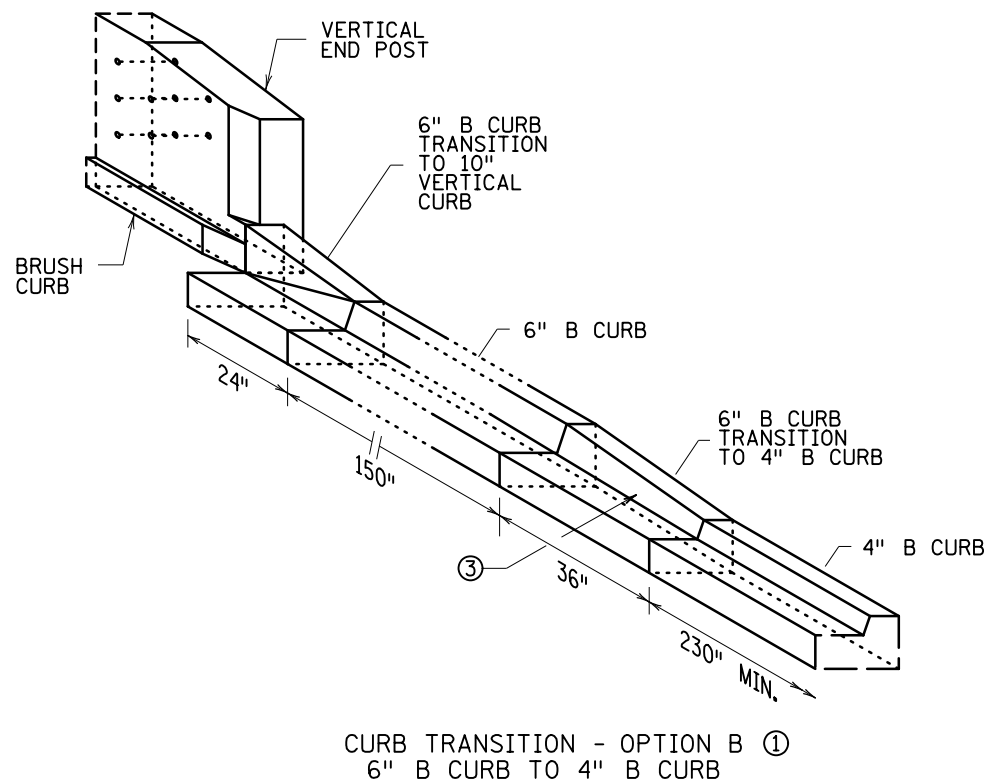
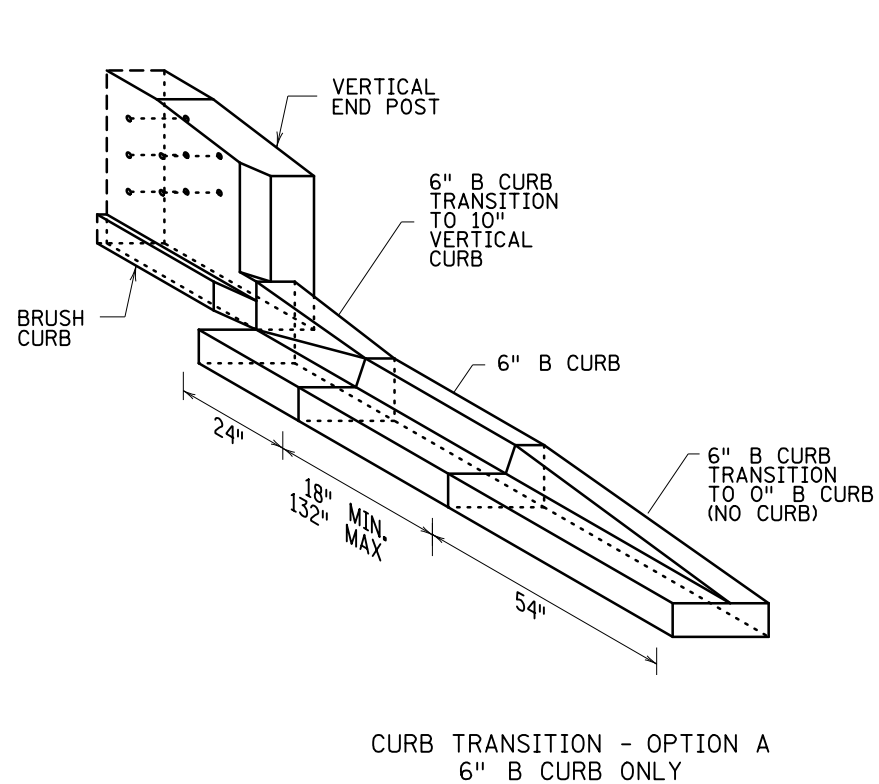
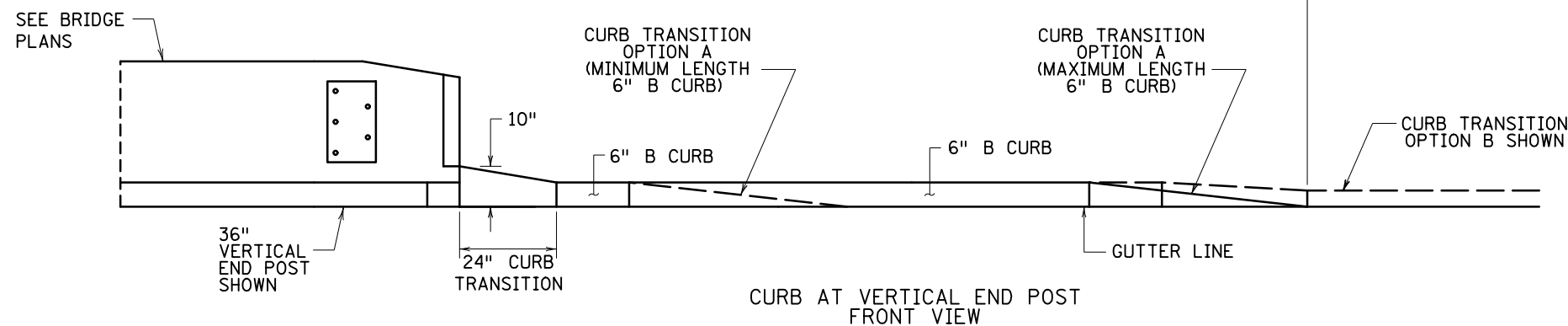
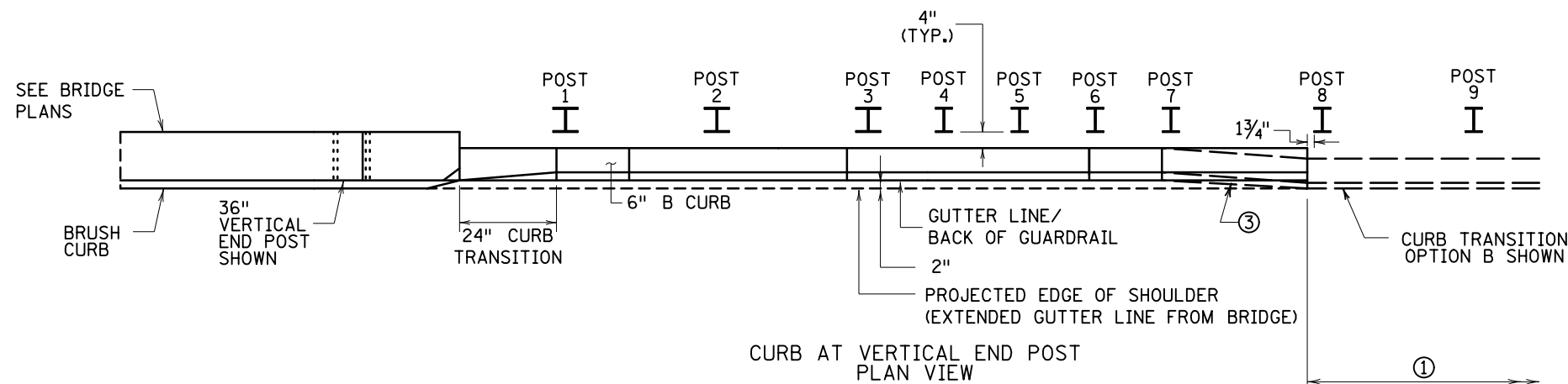
 NANCY YOO
 DESIGN SUPPORT DIRECTOR
 OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

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 TRANSPORTATION

STANDARD PLAN 5-297.693 1 OF 3

 THOMAS STYRBICKI
 STATE DESIGN ENGINEER
 APPROVED: 02-09-2021
 REVISED:
 STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31
 AT VERTICAL END POST
 ASSEMBLY DETAILS



- NOTES:
- DESIGN B CURB REQUIRED WITH THIS SYSTEM.
 - DESIGN D CURB ALLOWED BEYOND THE 37' 6" DISTANCE FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE.
 - REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.
 - ① CURB TERMINATION NOT ALLOWED BETWEEN POST 8 AND 37' 6" FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE. SEE SHEET 1 OF 3.
 - ② AT CURB CONTAINING E8 EXPANSION JOINT, PLACE THE BACK FACE OF GUARDRAIL AT THE GUTTER LINE.
 - ③ GUTTER LINE TAPERS 2" TO MATCH EXTENDED GUTTER LINE FROM BRIDGE.

REVISION:

APPROVED: 02-09-2021

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NANCY YOO
DESIGN SUPPORT DIRECTOR
OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

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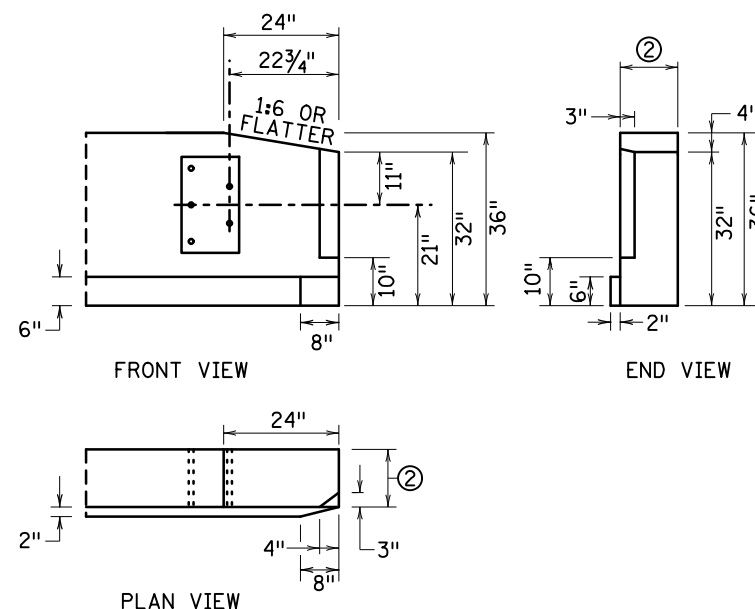
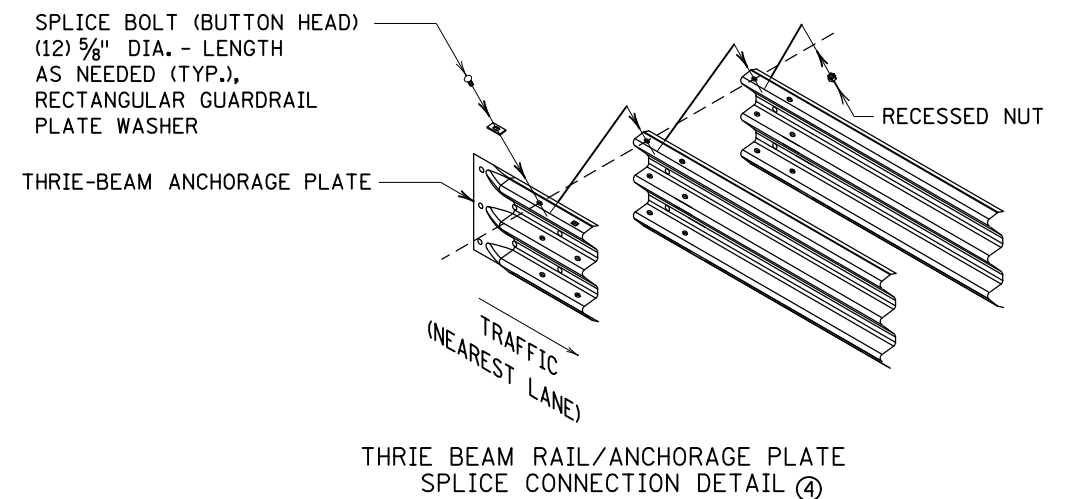
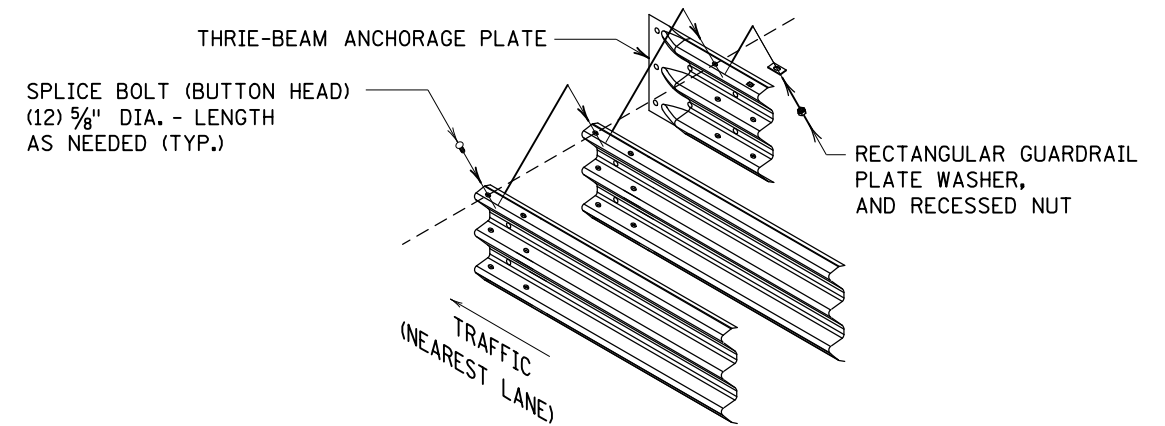
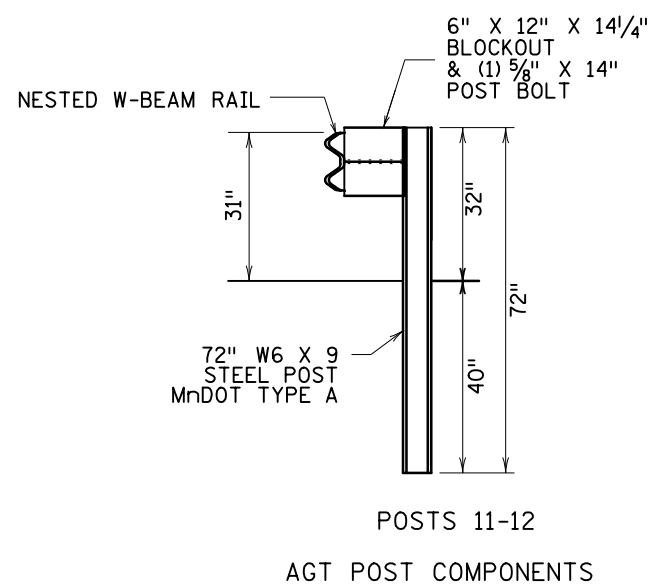
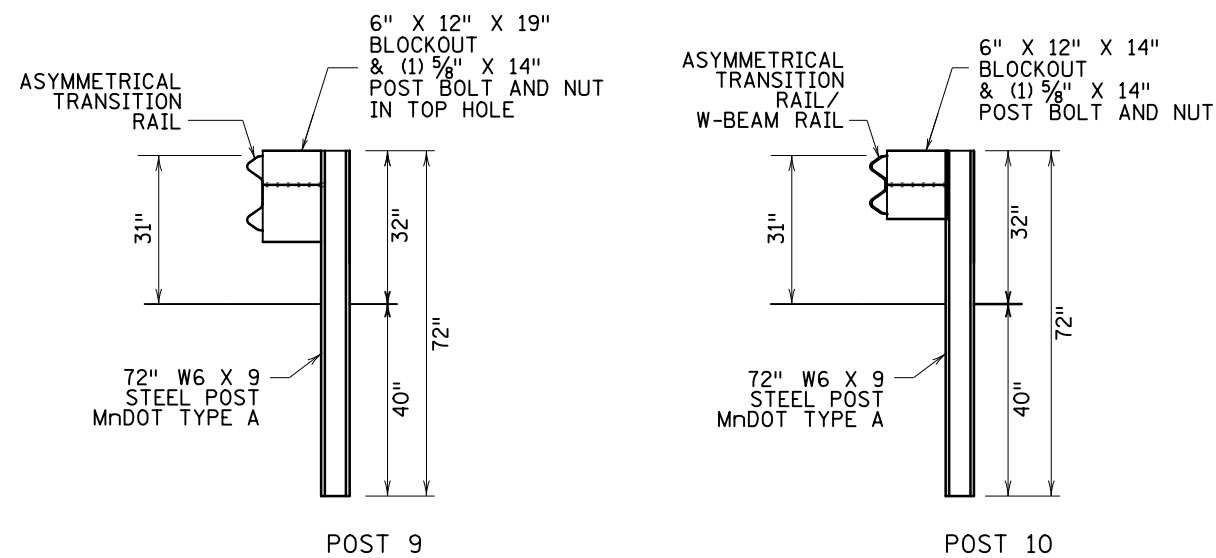
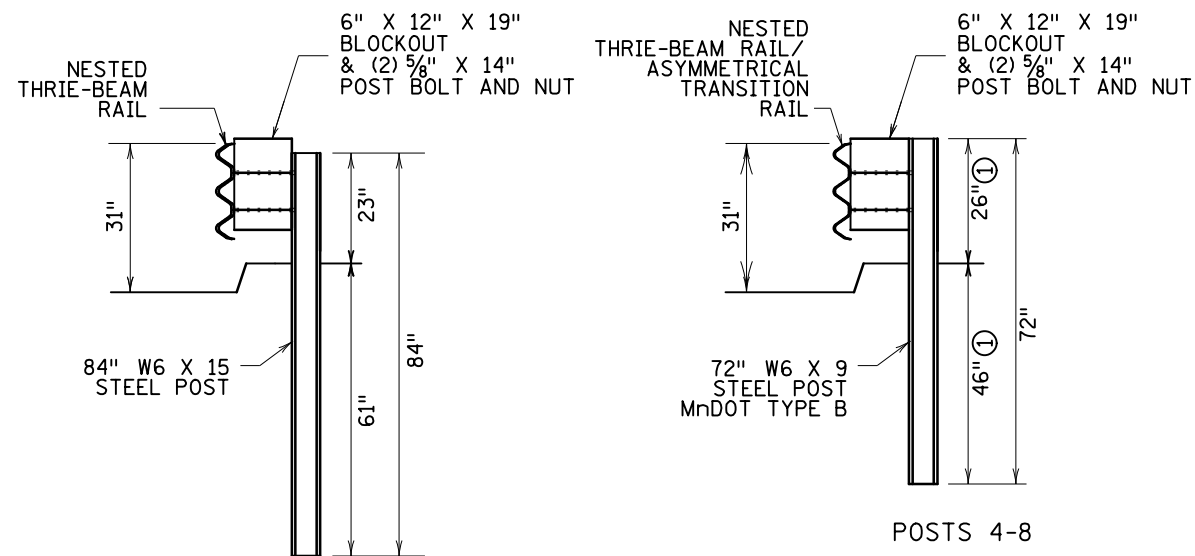
STANDARD PLAN 5-297.693 2 OF 3

Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

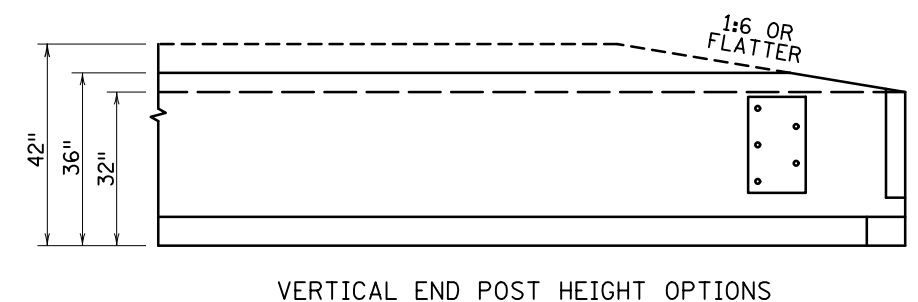
APPROVED: 02-09-2021
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APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31 AT VERTICAL END POST CURB DETAILS



VERTICAL END POST ③ (36" HEIGHT SHOWN)



- NOTES:
 FOR GUARDRAIL STEEL POSTS, SEE STANDARD PLATE 8361.
 FOR GUARDRAIL BLOCKOUTS, SEE STANDARD PLATE 8369.
 GUARDRAIL BEAM AND HARDWARE PER AASHTO SPEC. M 180.
 ① DIMENSIONS APPLICABLE FOR POSTS 4-5. DIMENSIONS VARY AT POSTS 6-8 WHERE CURB HEIGHT TRANSITIONS TO NO HEIGHT.
 ② SEE BRIDGE PLAN.
 ③ 36" HEIGHT SHOWN. 32", 48", AND 54" HEIGHT AVAILABLE.
 ④ DRILL ANCHORAGE PLATE AS NEEDED FOR FIT, REPAIR GALVANIZED COATINGS PER ASTM SPEC. A780 AS NEEDED.

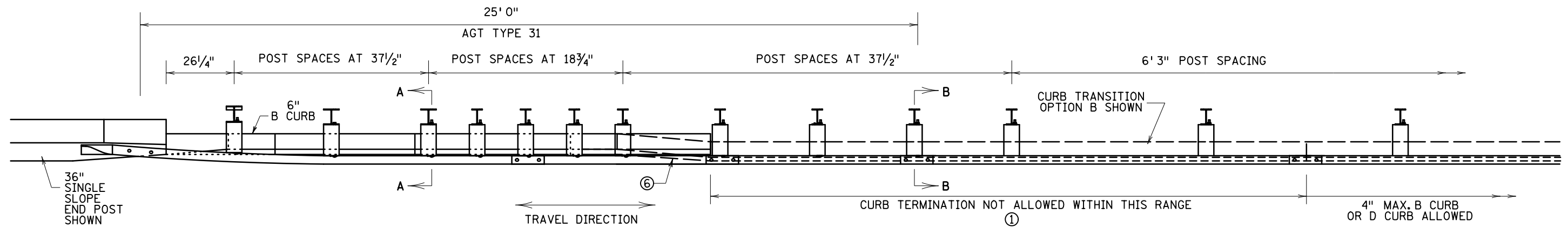
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 Nancy Yoo
 DESIGN SUPPORT DIRECTOR
 OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

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 DEPARTMENT OF TRANSPORTATION

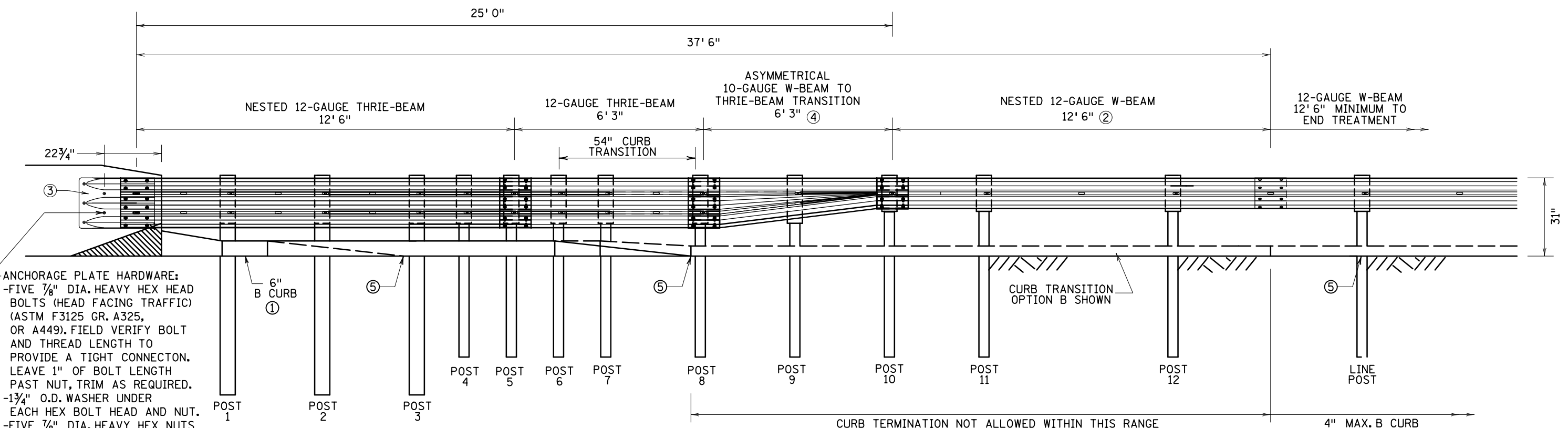
STANDARD PLAN 5-297.693 3 OF 3
 APPROVED: 02-09-2021
 REVISED:
 THOMAS STYRBICKI
 STATE DESIGN ENGINEER

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31 AT VERTICAL END POST
 MISCELLANEOUS AND COMPONENT DETAILS
 STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

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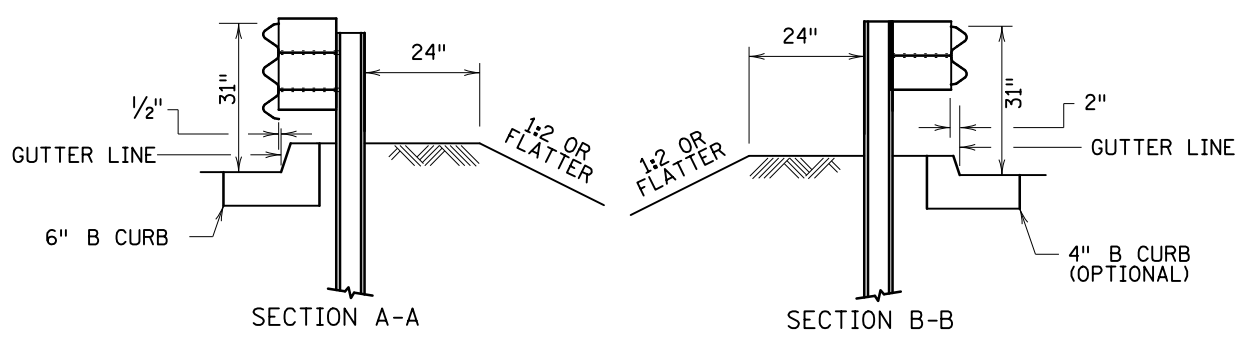


PLAN VIEW



FRONT VIEW

ANCHORAGE PLATE HARDWARE:
 -FIVE 7/8" DIA. HEAVY HEX HEAD BOLTS (HEAD FACING TRAFFIC) (ASTM F3125 GR. A325, OR A449). FIELD VERIFY BOLT AND THREAD LENGTH TO PROVIDE A TIGHT CONNECTION. LEAVE 1" OF BOLT LENGTH PAST NUT, TRIM AS REQUIRED.
 -1 3/4" O.D. WASHER UNDER EACH HEX BOLT HEAD AND NUT.
 -FIVE 7/8" DIA. HEAVY HEX NUTS (ASTM A194 GR. 2H OR A563DH).
 -ALL HARDWARE GALVANIZED PER ASTM A153 AND A780.



TRANSITION POST/BLOCK SIZING		
POST #	STEEL POST SIZE	BLOCKOUT SIZE
1-3	84" - W6 x 15	6 x 12 x 19"
4-9	72" - W6 x 9	6 x 12 x 19"
10	72" - W6 x 9	6 x 12 x 14 1/4"

- NOTES:
- APPROACH GUARDRAIL TRANSITION SHALL BE USED ON THE APPROACH SIDE, AND SHALL BE USED ON THE DEPARTING/TRAILING END IF GUARDRAIL IS NEEDED.
 - GUARDRAIL BEAM AND HARDWARE PER AASHTO SPEC. M 180. REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.
 - (1) CURB TERMINATION NOT ALLOWED BETWEEN POST 8 AND THE 37' 6" DISTANCE FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE. SEE CURB DETAILS ON SHEET 2 OF 3.
 - (2) NESTED RAIL IS INCIDENTAL.
 - (3) THRIE-BEAM ANCHORAGE PLATE (STANDARD PLATE 8350) IS INCIDENTAL.
 - (4) SEE STANDARD PLATE 8356.
 - (5) CURB MAY BE TERMINATED AT THIS LOCATION. SEE CURB DETAILS ON SHEET 2 OF 3.
 - (6) GUTTER LINE TAPERS 2 1/2" TO MATCH EXTENDED GUTTER LINE FROM BRIDGE.

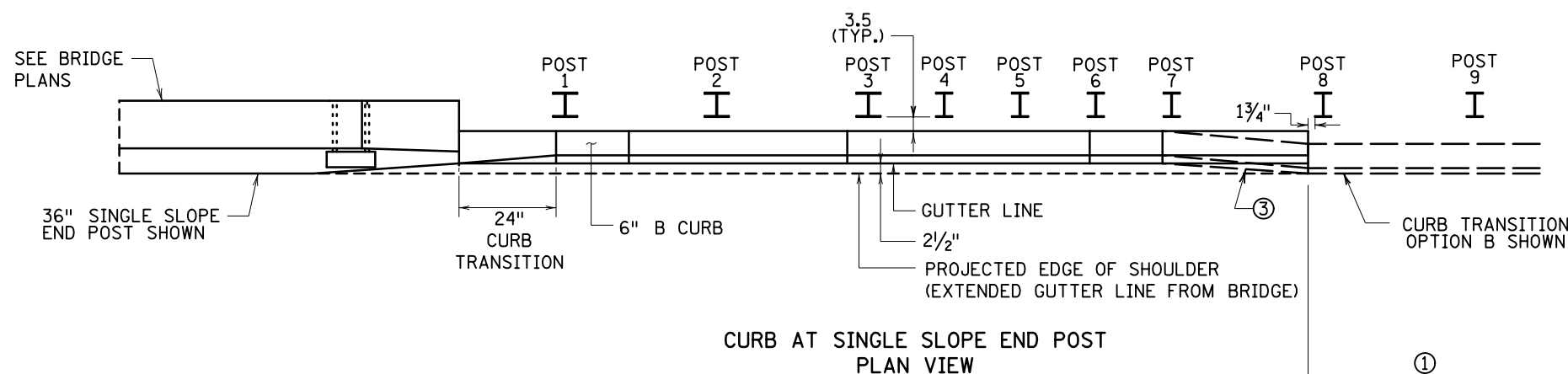
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 NANCY YOO
 DESIGN SUPPORT DIRECTOR
 OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

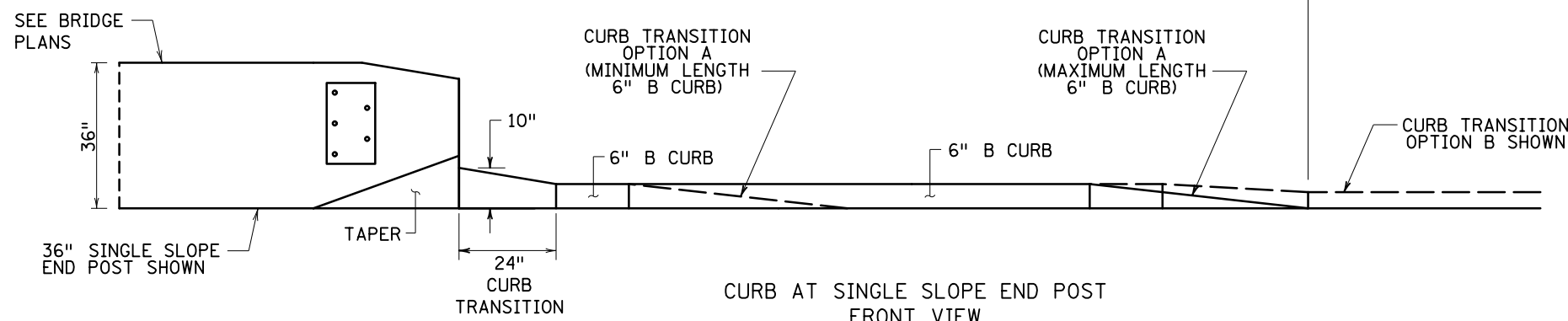
STANDARD PLAN 5-297.694 1 OF 3

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 STATE DESIGN ENGINEER
 APPROVED: 02-09-2021
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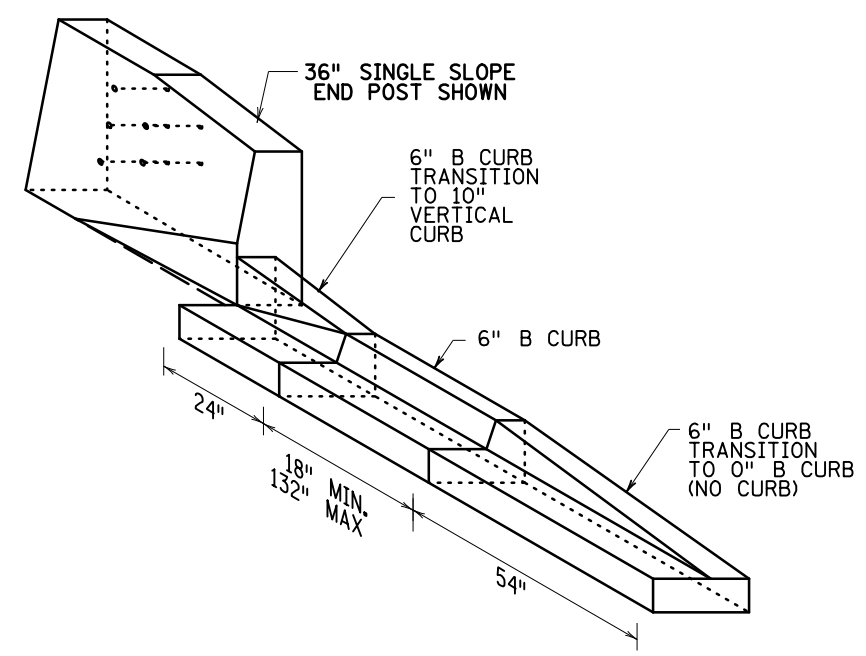
APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31
 AT SINGLE SLOPE END POST
 ASSEMBLY DETAILS



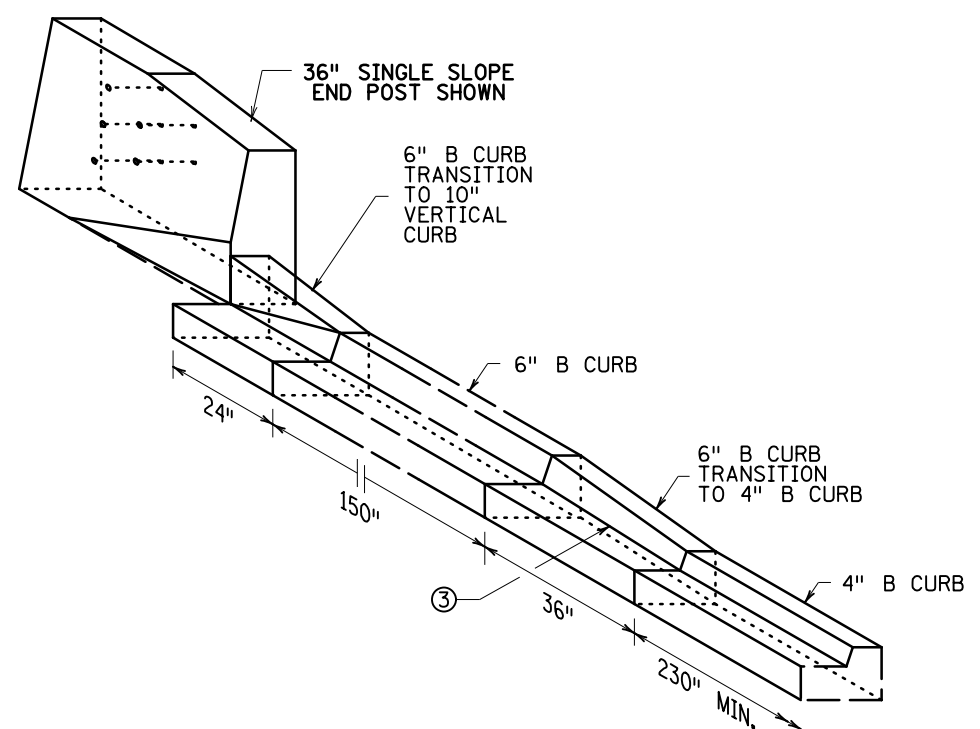
CURB AT SINGLE SLOPE END POST
PLAN VIEW



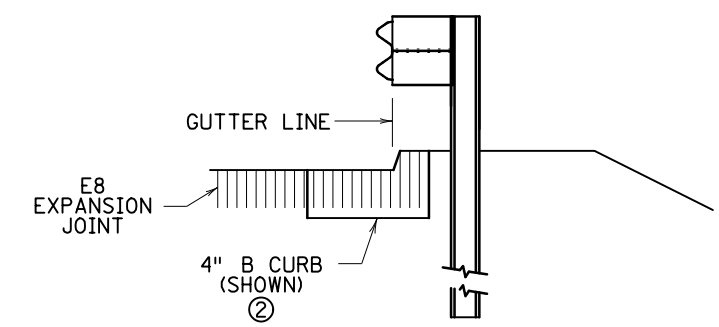
CURB AT SINGLE SLOPE END POST
FRONT VIEW



CURB TRANSITION - OPTION A
6" B CURB ONLY



CURB TRANSITION - OPTION B ①
6" WITH 4" B CURB



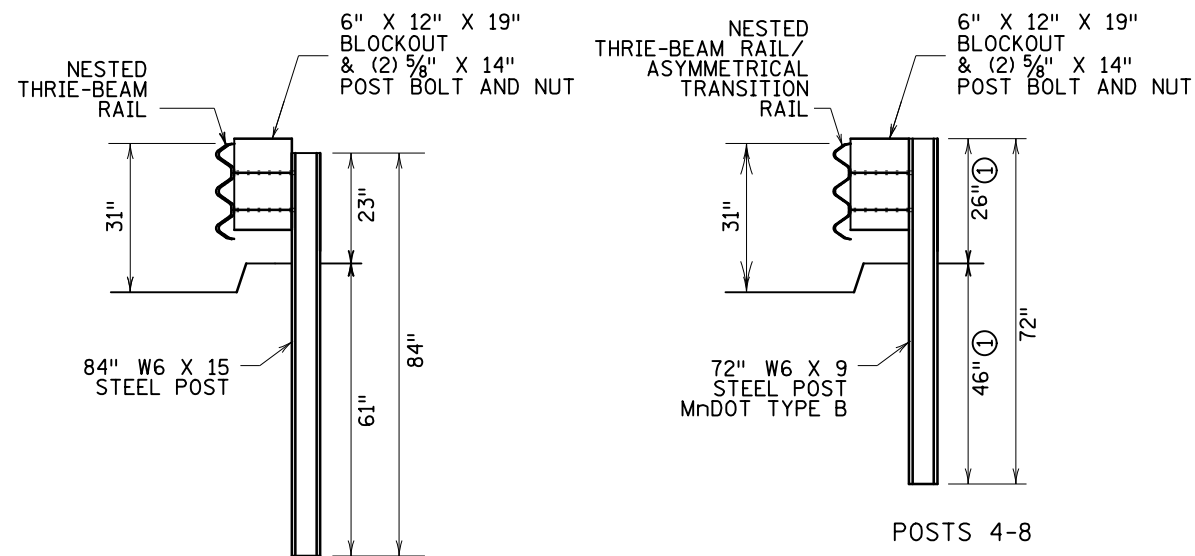
EXPANSION JOINT AT CURB

- NOTES:
- DESIGN B CURB REQUIRED WITH THIS SYSTEM.
 - DESIGN D CURB ALLOWED BEYOND THE 37'6" DISTANCE FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE.
 - REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.
 - ① CURB TERMINATION NOT ALLOWED BETWEEN POST 8 AND THE 37'6" DISTANCE FROM THE RAIL CONNECTION AT THE THRIE-BEAM ANCHORAGE PLATE. SEE SHEET 1 OF 3.
 - ② AT CURB CONTAINING E8 EXPANSION JOINT, PLACE BACK FACE OF GUARDRAIL AT THE GUTTER LINE.
 - ③ GUTTER LINE TAPERS 2 1/2" TO MATCH EXTENDED GUTTER LINE FROM BRIDGE.

REVISION:
APPROVED: 02-09-2021
Nancy Yoo
NANCY YOO
DESIGN SUPPORT DIRECTOR
OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

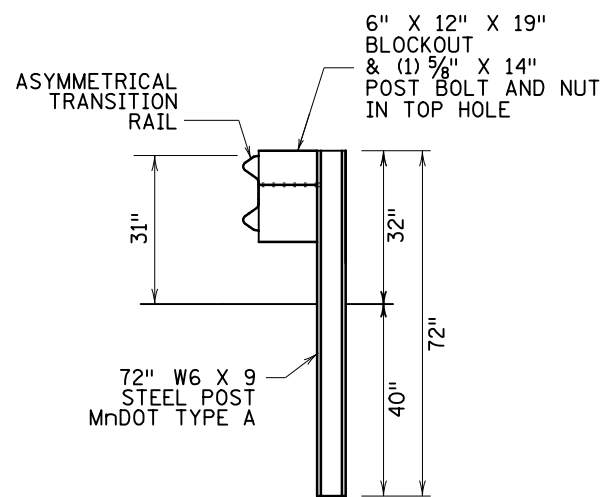
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DEPARTMENT OF TRANSPORTATION
STANDARD PLAN 5-297.694 2 OF 3
Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER
APPROVED: 02-09-2021
REVISED:
STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

**APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31
AT SINGLE SLOPE END POST
CURB DETAILS**

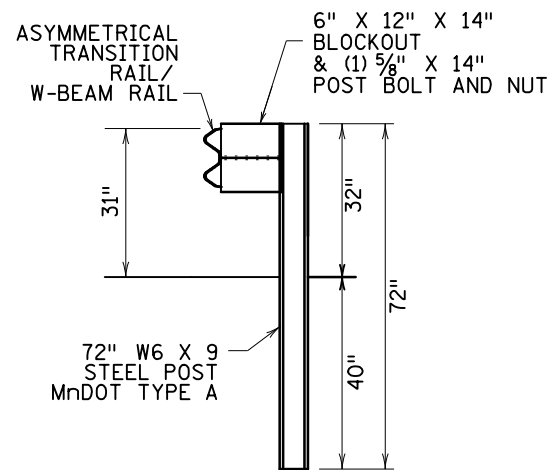


POSTS 1-3 ⑤

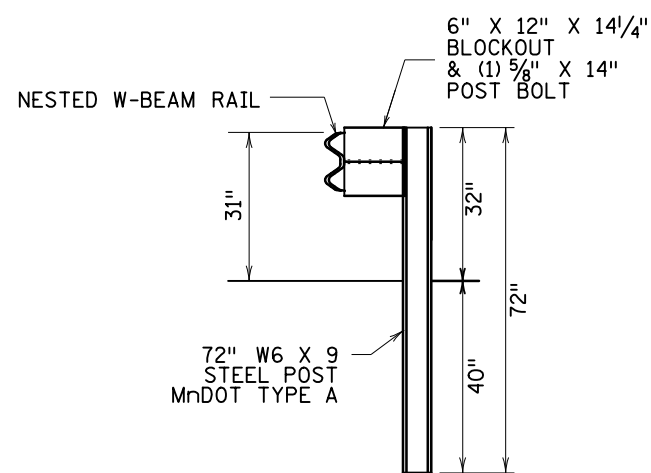
POSTS 4-8



POST 9

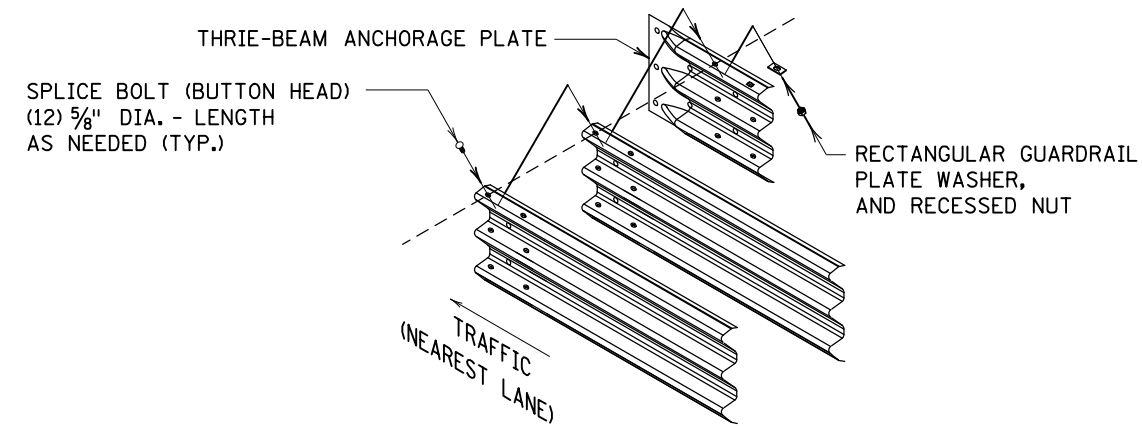


POST 10

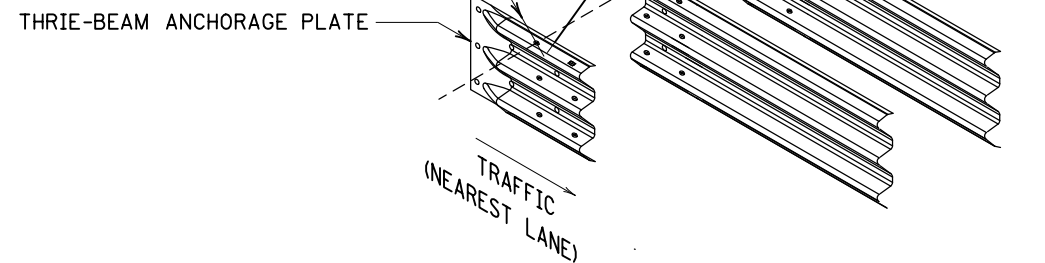


POSTS 11-12

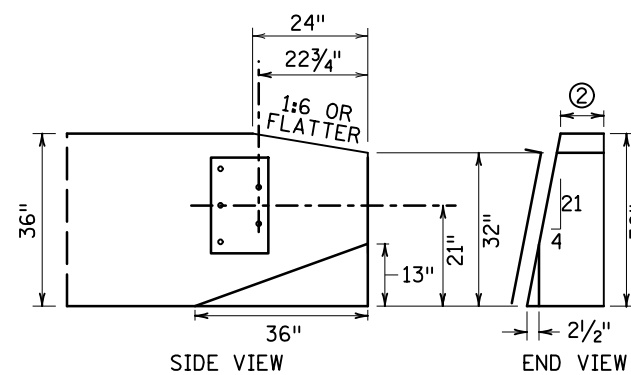
AGT POST COMPONENTS



SPLICE BOLT (BUTTON HEAD)
(12) 5/8" DIA. - LENGTH
AS NEEDED (TYP.),
RECTANGULAR GUARDRAIL
PLATE WASHER

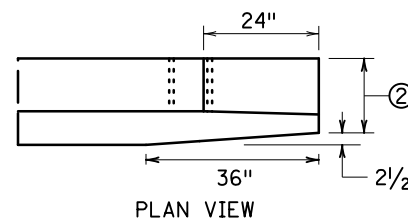


THRIE BEAM RAIL/ANCHORAGE PLATE
SPlice CONNECTION DETAIL ④



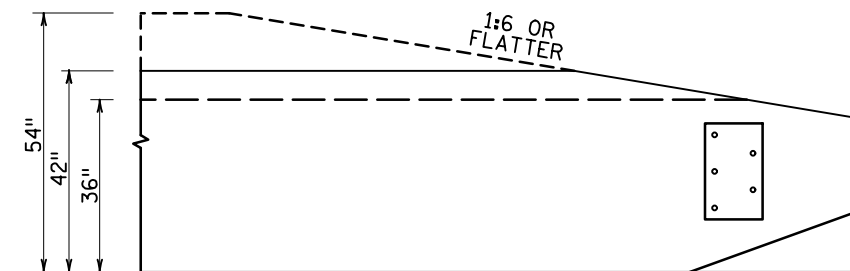
SIDE VIEW

END VIEW



PLAN VIEW

SINGLE SLOPE BARRIER ③
(36" HEIGHT SHOWN)



SINGLE SLOPE BARRIER HEIGHT OPTIONS

- NOTES:
FOR GUARDRAIL STEEL POSTS, SEE STANDARD PLATE 8361.
FOR GUARDRAIL BLOCKOUTS, SEE STANDARD PLATE 8369.
GUARDRAIL BEAM AND HARDWARE PER AASHTO SPEC. M 180.
- ① DIMENSIONS APPLICABLE FOR POSTS 4-5. DIMENSIONS VARY AT POSTS 4-6 WHERE CURB HEIGHT TRANSITIONS TO NO HEIGHT.
 - ② SEE BRIDGE PLAN.
 - ③ 36" HEIGHT SHOWN.
 - ④ DRILL THRIE-BEAM ANCHORAGE PLATE AS NEEDED FOR FIT, REPAIR GALVANIZED COATINGS PER ASTM SPEC. A780 AS NEEDED.
 - ⑤ IF NECESSARY POSTS 1 AND 2 MAY BE PLACED NON-VERTICAL IF REQUIRED IN FIELD.

REVISION:
APPROVED: 02-09-2021
Nancy Yoo
NANCY YOO
DESIGN SUPPORT DIRECTOR
OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

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MINNESOTA
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STANDARD PLAN 5-297.694

3 OF 3

Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 02-09-2021
REVISED:

STATE PROJ. NO.

**APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31
AT SINGLE SLOPE END POST
MISCELLANEOUS AND COMPONENT DETAILS**

(TH) SHEET NO. OF SHEETS

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