

<p><b>MINNESOTA DEPARTMENT OF TRANSPORTATION</b></p> <p><b>DEVELOPED BY:</b> Design Standards</p> <p><b>ISSUED BY:</b> Office of Project Management and Technical Support, Design Support Section</p>	<p><b>TRANSMITTAL LETTER NO. (19-04)</b></p> <p><b>MANUAL:</b> Standard Plans</p> <p><b>DATED:</b> July 11, 2019</p>
<p><b>SUBJECT: Standard Plans 693 and 694</b></p>	

The following Standard Plans are New:

- 5-297.693 - Approach Guardrail Transition (AGT) Type 31 at Vertical End Post – Assembly Details – Sht 1 of 3
- 5-297.693 - Approach Guardrail Transition (AGT) Type 31 at Vertical End Post – Curb Details – Sht 2 of 3
- 5-297.693 - Approach Guardrail Transition (AGT) Type 31 at Vertical End Post – Misc and Component Details – Sht 3 of 3

The following Standard Plans are Modified:

- 5-297.694 - Approach Guardrail Transition (AGT) Type 31 – Assembly Details – Sheet 1 of 5
- 5-297.694 - Approach Guardrail Transition (AGT) Type 31 – Component Details – Sheet 2 of 5
- 5-297.694 - Approach Guardrail Transition (AGT) Type 31 – Thrie-Beam Rail Details – Sheet 3 of 5
- 5-297.694 - Approach Guardrail Transition (AGT) Type 31 – Curb Details at Single Slope Barrier – Sheet 4 of 5
- 5-297.694 - Approach Guardrail Transition (AGT) Type 31 – Connection to Single Slope Barrier – Sheet 5 of 5

**INSTRUCTIONS:**

1. Record the transmittal letter number, date and subject on the transmittal record sheet located in the front of the manual. The previous Transmittal Letter No. issued for this manual was 19-03, dated June 19, 2019.
2. Remove from the manual:
  - Standard Plan Index (Sheets 1-6 of 6) (June 4, 2019)
  - 5-297.694 (Sheets 1-5 of 5) (7-19-2016)
3. Insert in the manual:
  - Standard Plan Index (Sheets 1-6 of 6) (July 1, 2019)
  - 5-297.693 (Sheets 1-3 of 3) (7-1-2019)
  - 5-297.694 (Sheets 1-5 of 5) (7-1-2019)
4. Current Standard Plans including Transmittal Letters are available on the web at: <http://standardplans.dot.state.mn.us/StdPlan.aspx>
5. Any questions regarding this transmittal should be directed to Bruce Johnson, Design Standards Unit at (651) 366-4674.

*Michael Elle*

Michael Elle, P.E.  
Design Standards Engineer

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**Summary of Changes**  
**Standard Plan 5-297.693**  
**Approach Guardrail Transition (AGT) Type 31 at Type V**  
**Barrier Transmittal Letter No. (19-04)**

General:

1. This new Standard Plan details the Type 31 AGT connection at the new Vertical End Post.

**Summary of Changes**  
**Standard Plan 5-297.694**  
**Approach Guardrail Transition (AGT) Type 31 at Single Slope Barrier**  
**Transmittal Letter No. (19-04)**

General:

1. Design Support Director Approval title block (lower left) added to all sheets.

Sheet 1 of 5:

1. General notes deleted/modified/added.
2. Sections A-A and B-B details modified to include the following:
  - a. Proper ground line location behind curb.
  - b. Section B-B detail modified to show correct blackout and post.
3. The expansion joint and cover plate is removed. 4<sup>th</sup> general note added to refer to Approach Panel Plans for location.
4. The first 12' 6" length of w-beam beyond post 10 is nested in all situations, regardless of curb situation.
5. Note 1 modified for clarification.
6. Note 3 removed. "12' 6' Minimum" label added to detail at w-beam rail beyond nested section of w-beam.
7. Old note 6 modified to reference Standard Plate 8356 instead of Standard Plate 695.
8. Notes 4-7 renumbered to 3-6.

Sheet 2 of 5

1. General notes deleted/modified/added.
2. Blockout details updated with corrected dimensions and expanded titles.
3. Post details updated with modified titles, and post types identified where applicable.
4. Assorted minor drafting modifications.

Sheet 3 of 5:

1. General note updated to reference Standard Plate 8357 instead of AASHTO Spec.

Sheet 4 of 5:

1. The expansion joint and cover plate is removed. 4<sup>th</sup> general note added to refer to Approach Panel Plans for location.
2. Minor drafting changes showing connection plate on barrier.
3. Note 2 and 3 removed.

Sheet 5 of 5:

1. Isometric View updated to show updated wedge plate dimension.

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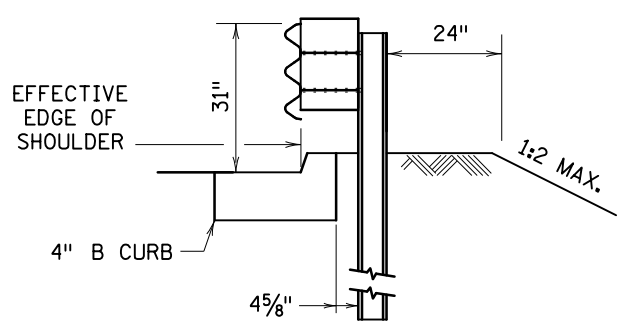
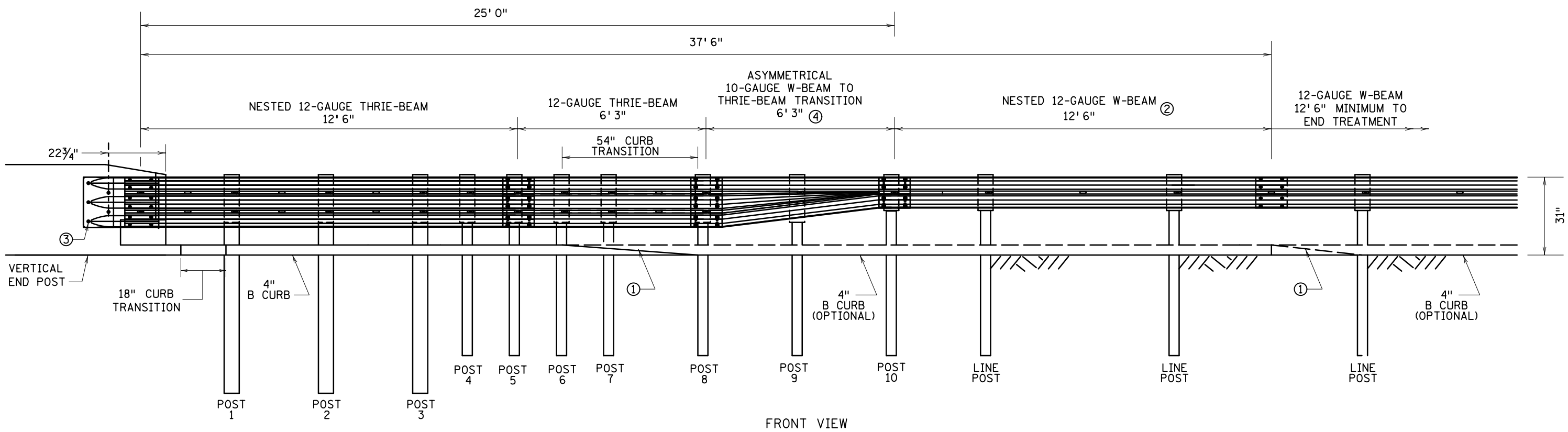
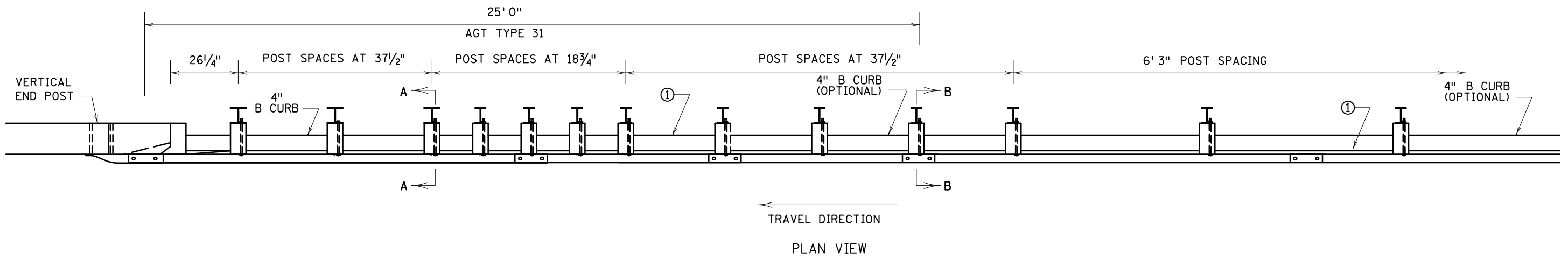
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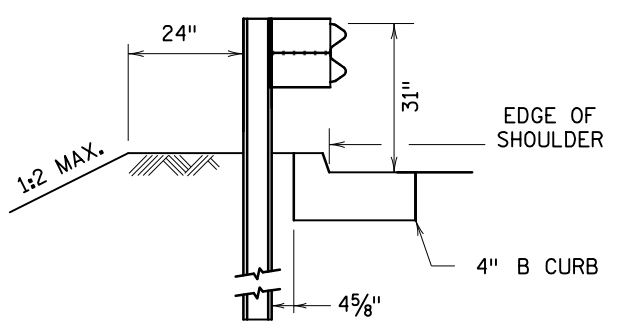


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5-297.763 (1 of 2)	Standard Overhead Sign Structures - Design D - Foundation Details	05/01/19	05/28/19
5-297.763 (2 of 2)	Standard Overhead Sign Structures - Design D - Foundation Details	05/01/19	05/28/19
5-297.764	Standard Overhead Sign Structures - Design D - Base Plate, Handhole, and Cover Plate Details	05/01/19	05/28/19
5-297.765	Standard Overhead Sign Structures - Design D - Truss to Post Connection Details	05/01/19	05/28/19
5-297.766	Standard Overhead Sign Structures - Design D - Sign Truss Details Type A	05/01/19	05/28/19

<u>INDEX NO.</u>	<u>SUBJECT</u>	<u>APPROVAL DATE</u>	<u>REVISION DATE</u>
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	05/01/19	05/28/19
5-297.769 (2 of 3)	Standard Overhead Sign Structures - Design D - Walkway Details	05/01/19	
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	05/01/19	



SECTION A-A  
(THRIE BEAM/AGT)



SECTION B-B  
(THRIE BEAM/AGT)

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:

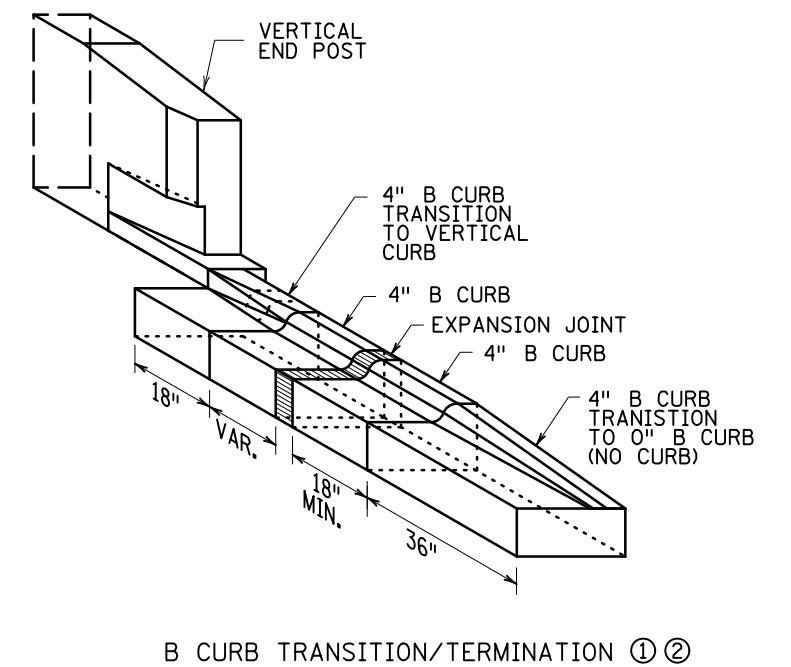
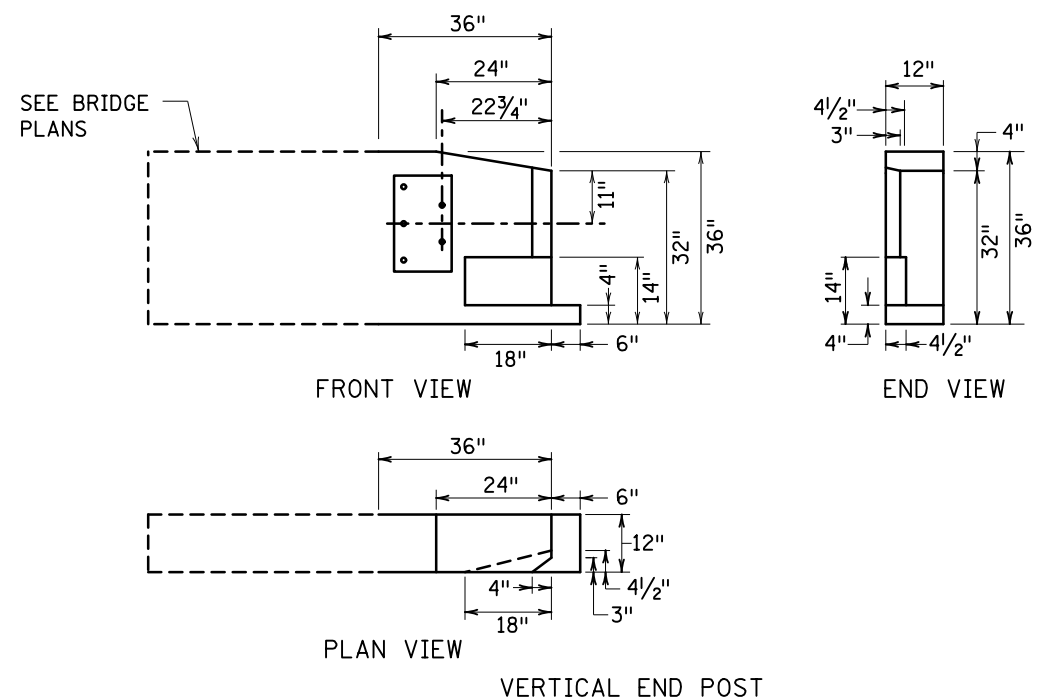
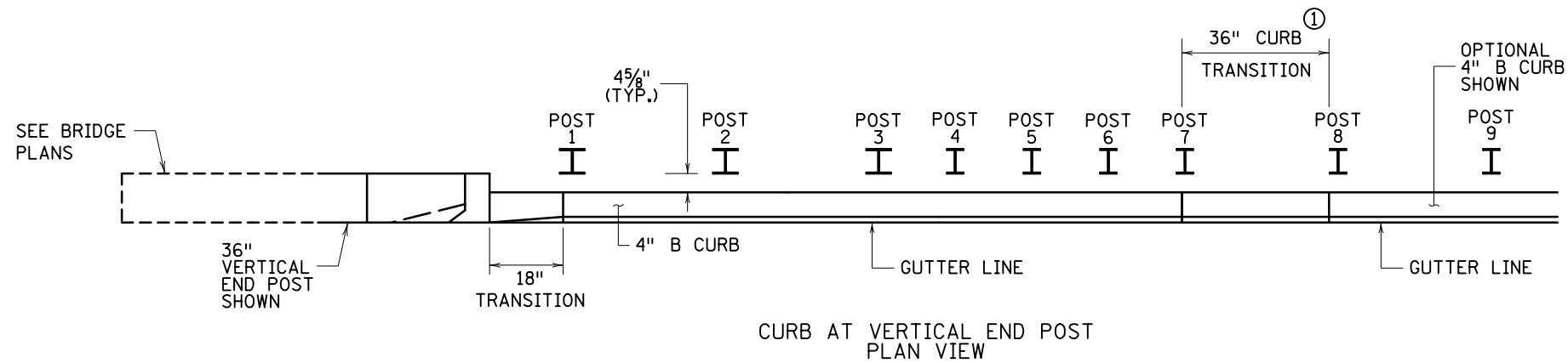
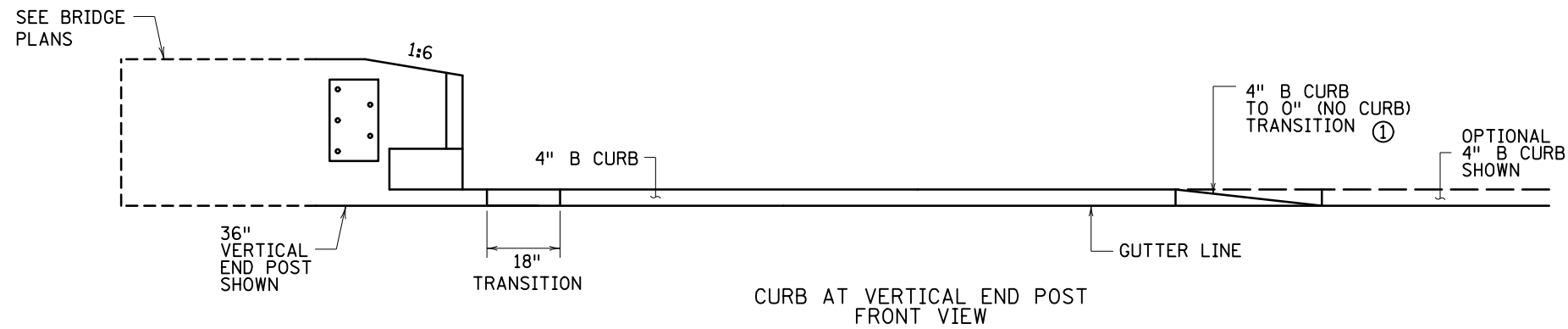
- FOR POSTS 1-3 LENGTH MARKINGS, SEE STANDARD PLATE 8360.
- FOR THRIE-BEAM GUARDRAIL, SEE STANDARD PLATE 8357.
- RAIL SPLICE BOLTS AND NUTS AS SPECIFIED BY AASHTO SPEC. M 180.
- REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.
- ① CURB TERMINATION NOT ALLOWED BETWEEN POST 8 AND 37' 6" UPSTREAM FROM THE THRIE-BEAM ANCHORAGE PLATE. SEE CURB DETAILS ON SHEET 2 OF 4.
- ② THIS ADDED COMPONENT IS INCIDENTAL.
- ③ THRIE BEAM ANCHORAGE PLATE (STANDARD PLATE 8350), INCIDENTAL.
- ④ SEE STANDARD PLATE 8356.

REVISION:  
 APPROVED: JULY 1, 2019  
*Nancy Yoo*  
 NANCY YOO  
 DESIGN SUPPORT DIRECTOR  
 OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT



STANDARD PLAN 5-297.693  
 1 OF 3  
 APPROVED: 7-1-2019  
 REVISED:  
*Thomas Styrbicki*  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
 AT VERTICAL END POST  
 ASSEMBLY DETAILS  
 STATE PROJ. NO. (T.H. ) SHEET NO. OF SHEETS



NOTES:

- ① IF TRANSITIONING B CURB HEIGHT FROM 4" TO 0" (NO CURB), COMPLETE TRANSITION PRIOR TO POST 8 OR BEYOND 37' 6" UPSTREAM FROM THE THREE BEAM ANCHORAGE PLATE.
- ② REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.

REVISION:

APPROVED: JULY 1, 2019

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NANCY YOO

DESIGN SUPPORT DIRECTOR

OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

**m**

MINNESOTA

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.693

2 OF 3

APPROVED: 7-1-2019

REVISED:

*Tom Styrbicki*

THOMAS STYRBICKI

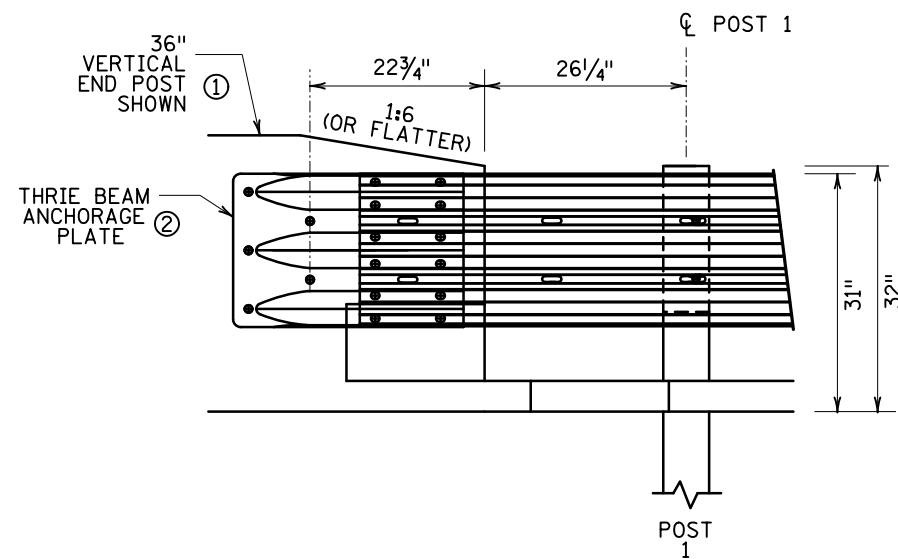
STATE DESIGN ENGINEER

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31

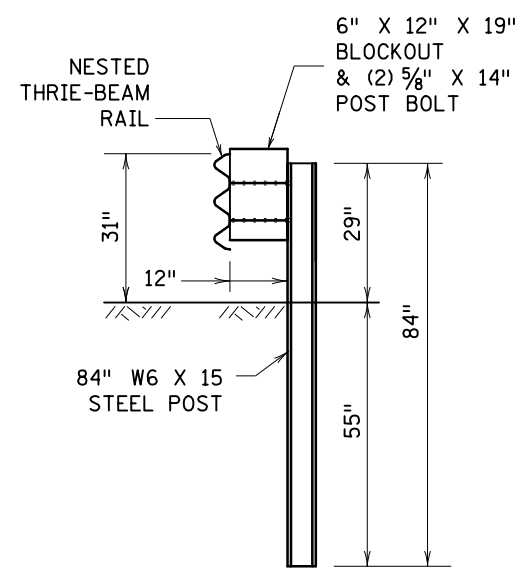
AT VERTICAL END POST

CURB DETAILS

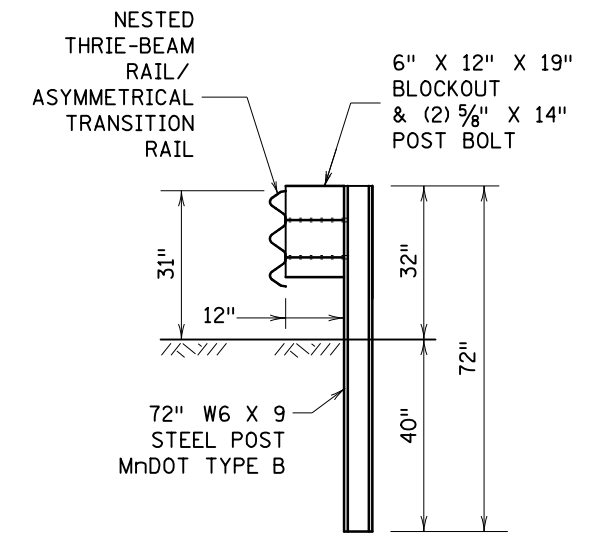
STATE PROJ. NO. (T.H. ) SHEET NO. OF SHEETS



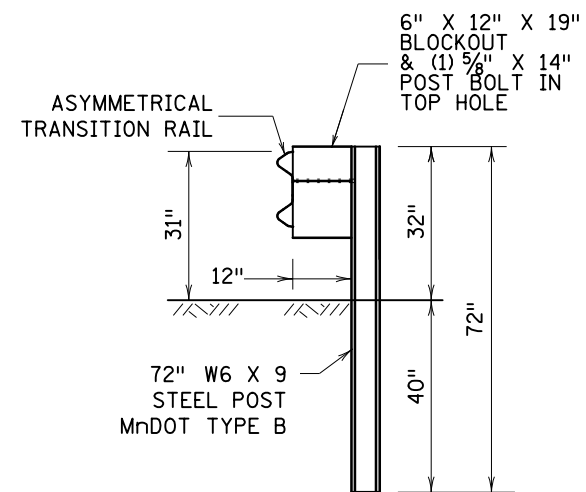
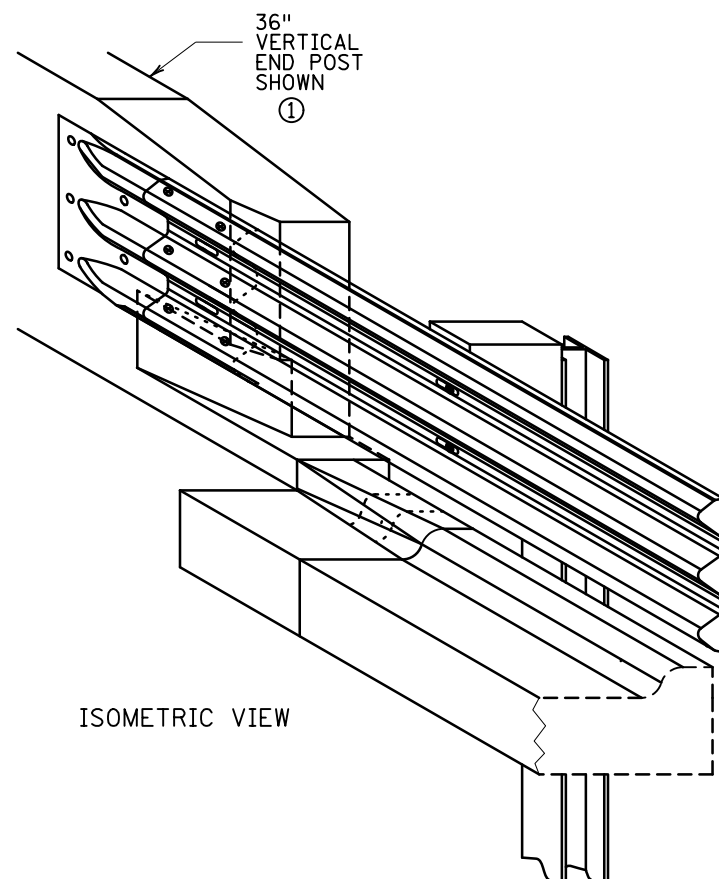
FRONT VIEW



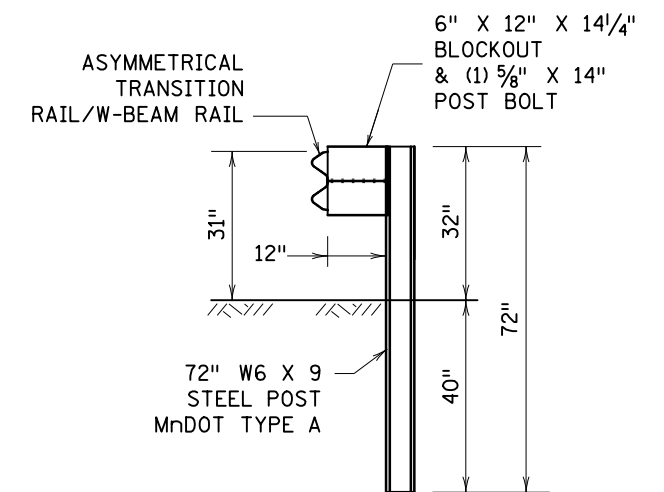
POSTS 1-3



POSTS 4-8



POST 9



POST 10

AGT POST COMPONENTS

NOTES:

- GUARDRAIL POSTS, SEE STANDARD PLATE 8361.
- BLOCKOUTS, SEE STANDARD PLATE 8369.
- GUARDRAIL BEAM AND HARDWARE PER AASHTO SPEC. M 180.
- ① SEE BRIDGE PLAN FOR ADDITIONAL INFORMATION.
- ② SEE STANDARD PLATE 8350.

REVISION:

APPROVED: JULY 1, 2019

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**m**

MINNESOTA

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.693

3 OF 3

APPROVED: 7-1-2019

REVISED:

*Tom Styrbicki*

THOMAS STYRBICKI

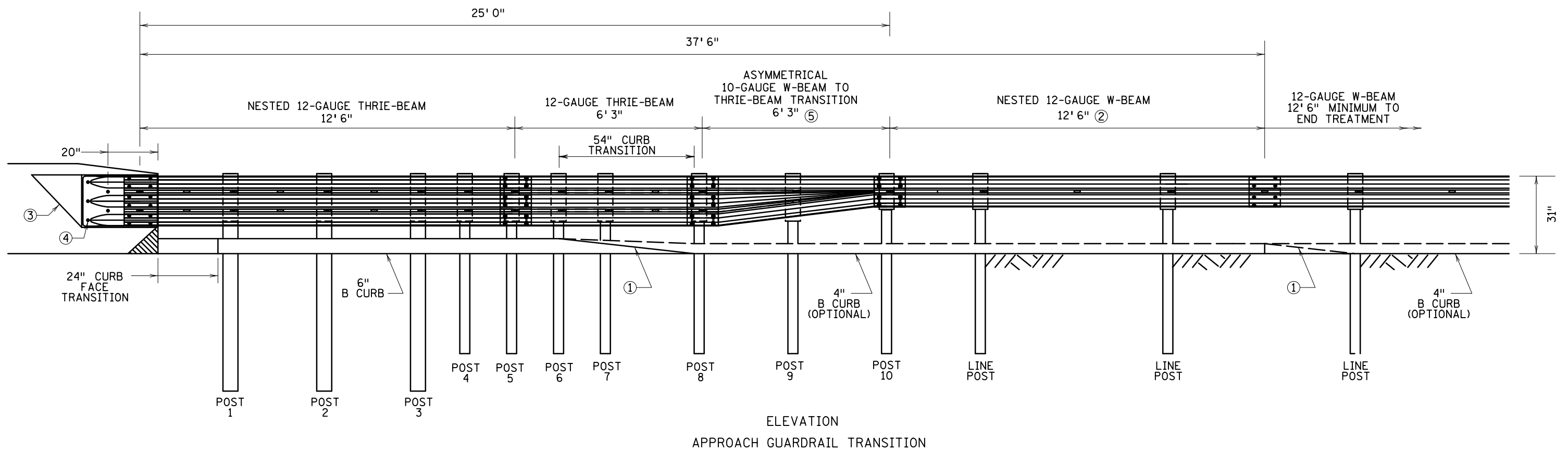
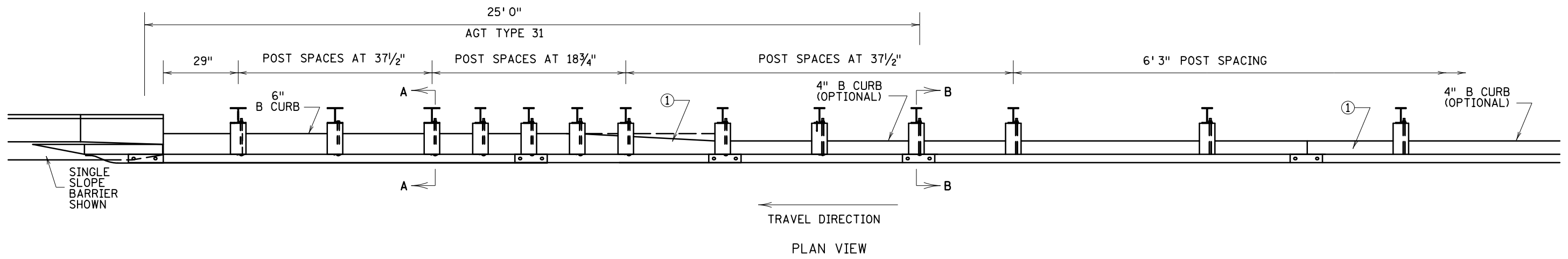
STATE DESIGN ENGINEER

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

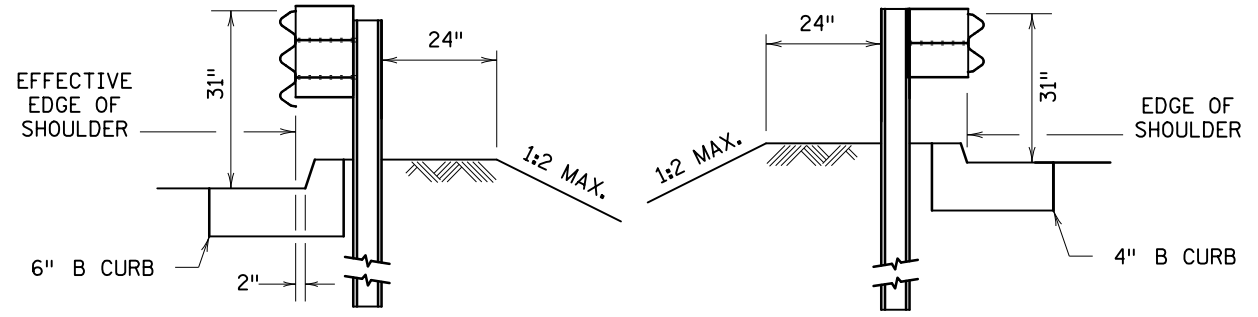
MISCELLANEOUS AND COMPONENT DETAILS

STATE PROJ. NO. (T.H. ) SHEET NO. OF SHEETS

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ELEVATION  
APPROACH GUARDRAIL TRANSITION



SECTION A-A  
(THRIE-BEAM/AGT) ⑥

SECTION B-B  
(THRIE-BEAM/AGT)

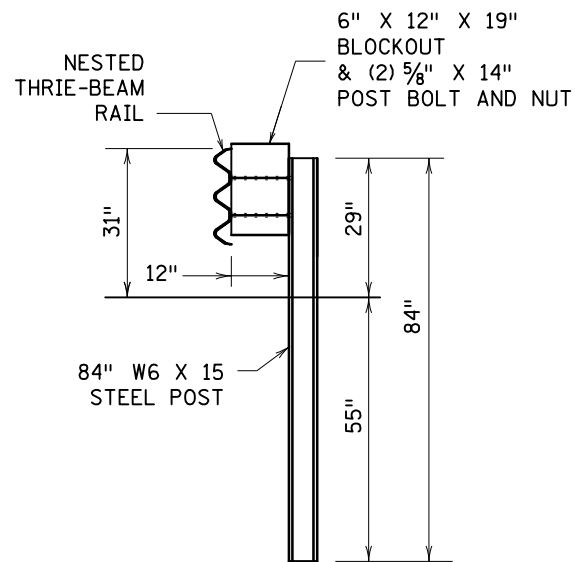
TRANSITION POST/BLOCK SIZING		
POST #	STEEL POST SIZE	BLOCKOUT SIZE
1-3	84" - W6 x 15	6 x 12 x 19"
4-9	72" - W6 x 9	6 x 12 x 19"
10	72" - W6 x 9	6 x 12 x 14 1/4"

- NOTES:
- GUARDRAIL BEAM AND HARDWARE PER AASHTO SPEC. M 180. REFER TO APPROACH PANEL PLANS FOR LOCATION OF E8 JOINT.
  - ① CURB TRANSITION, NO CHANGE IN CURB DESIGN CAN OCCUR BETWEEN POST 8 AND 37'-6" UPSTREAM FROM THE BARRIER ANCHORAGE PLATE.
  - ② THIS ADDED COMPONENT IS INCIDENTAL.
  - ③ SINGLE SLOPE CONNECTION WEDGE PLATE (STANDARD PLATE 8352), INCIDENTAL.
  - ④ THRIE-BEAM ANCHORAGE PLATE (STANDARD PLATE 8350), INCIDENTAL.
  - ⑤ SEE STANDARD PLATE 8356.
  - ⑥ SEE CURB DETAILS ON SHEET 4 OF 5.

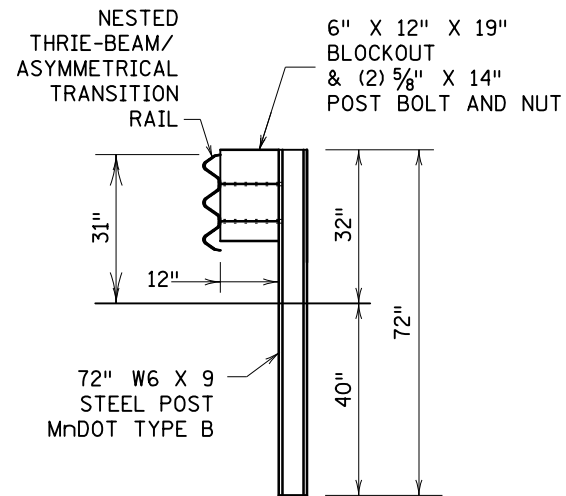
REVISION:  
APPROVED: JULY 1, 2019  
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DEPARTMENT OF TRANSPORTATION  
STANDARD PLAN 5-297.694  
1 OF 5  
APPROVED: 7-1-2019  
REVISOR:  
*Tom Styrbicki*  
THOMAS STYRBICKI  
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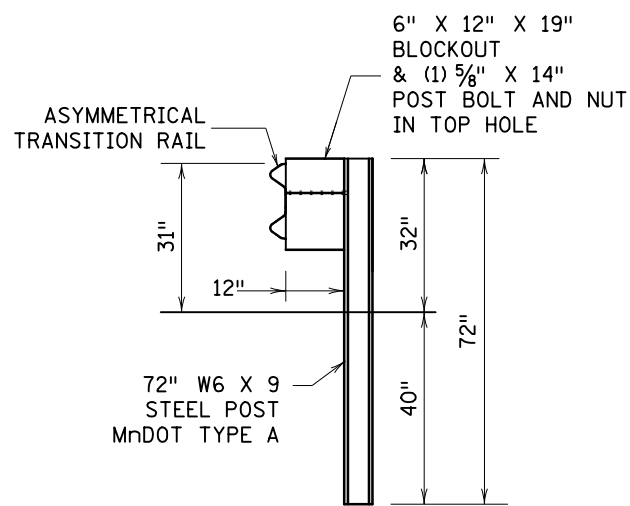
APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
ASSEMBLY DETAILS  
STATE PROJ. NO. (T.H. ) SHEET NO. OF SHEETS



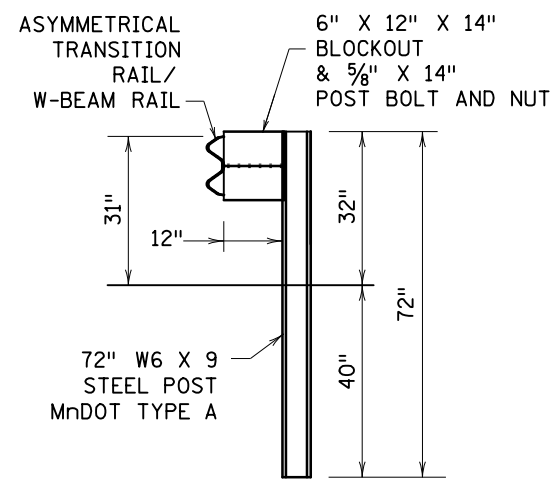
POSTS 1-3



POSTS 4-8

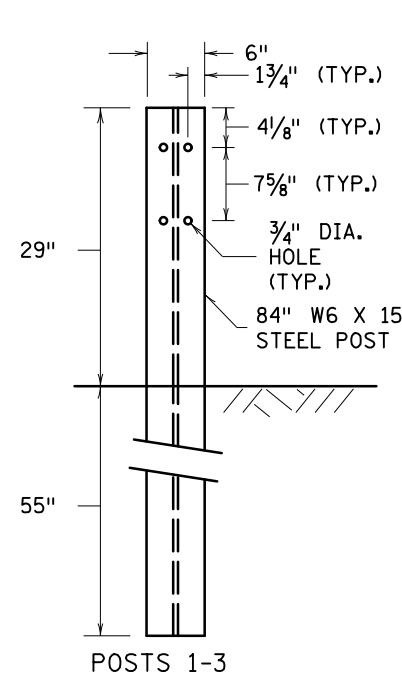


POST 9

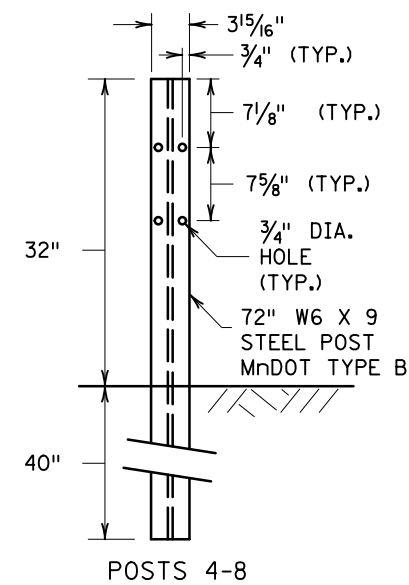


POST 10

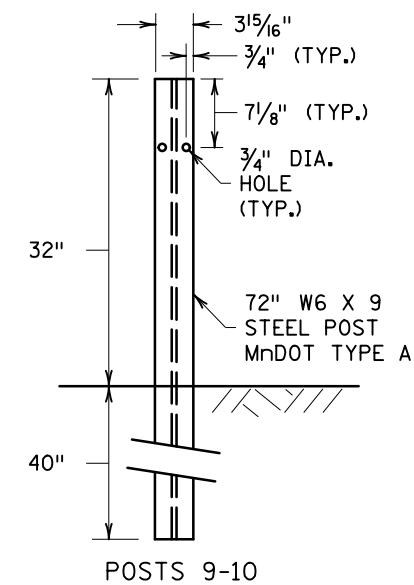
GUARDRAIL POSTS WITH BLOCKOUT AND RAIL



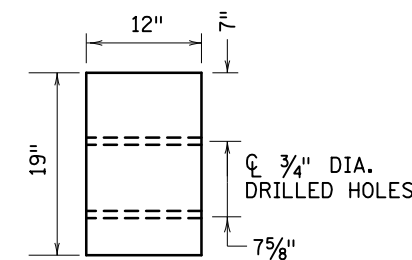
POSTS 1-3



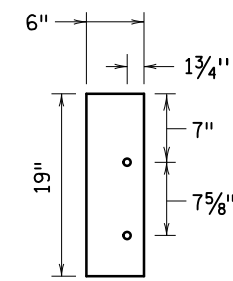
GUARDRAIL POSTS FRONT VIEW



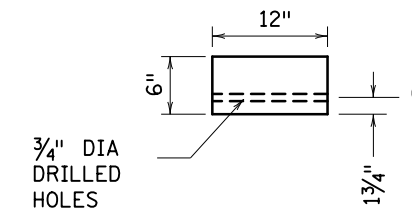
POSTS 9-10



SIDE VIEW

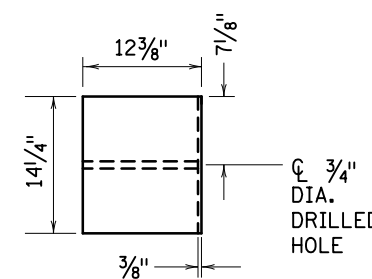


FRONT VIEW

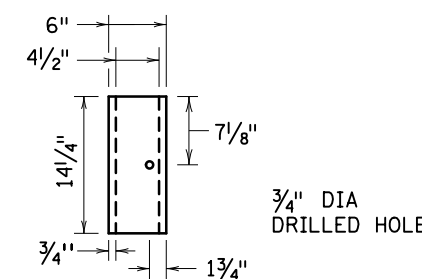


PLAN VIEW

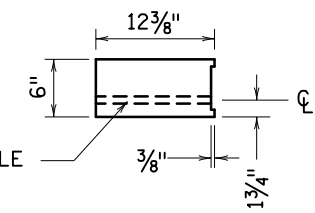
BLOCKOUT POSTS 1-9 (6" x 12" x 19" WITH DOUBLE OFFSET POST BOLT HOLES)



SIDE VIEW



FRONT VIEW



PLAN VIEW

BLOCKOUT POST 10 (6" x 12" x 14 1/4" WITH SINGLE OFFSET POST BOLT HOLE)

NOTES:  
ALL GUARDRAIL HARDWARE PER AASHTO SPEC. M 180.  
GUARDRAIL STEEL POSTS, SEE STANDARD PLATE 8361.  
GUARDRAIL BLOCKOUTS, SEE STANDARD PLATE 8369.

REVISION:  
APPROVED: JULY 1, 2019  
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DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.694

2 OF 5

*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

APPROVED: 7-1-2019  
REVISED:

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31

COMPONENT DETAILS

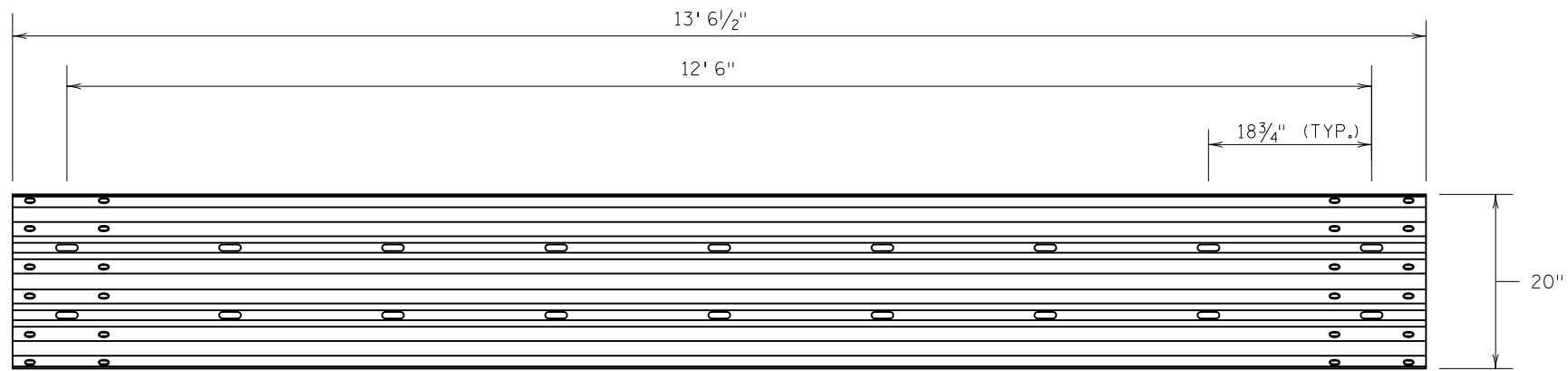
STATE PROJ. NO.

(T.H. )

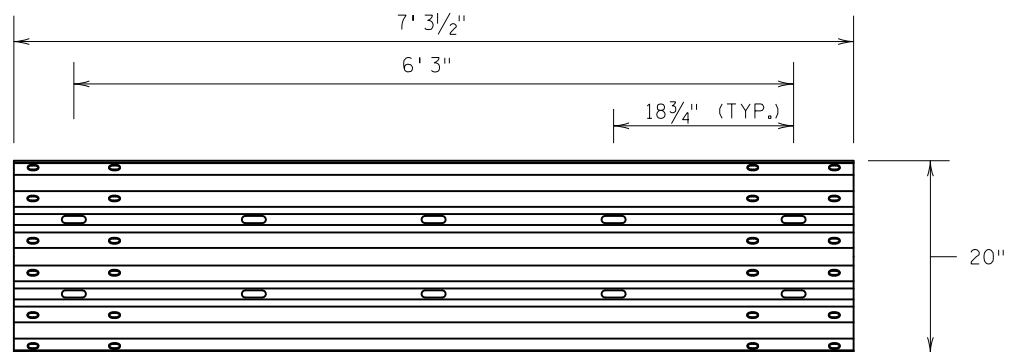
SHEET NO. OF

SHEETS

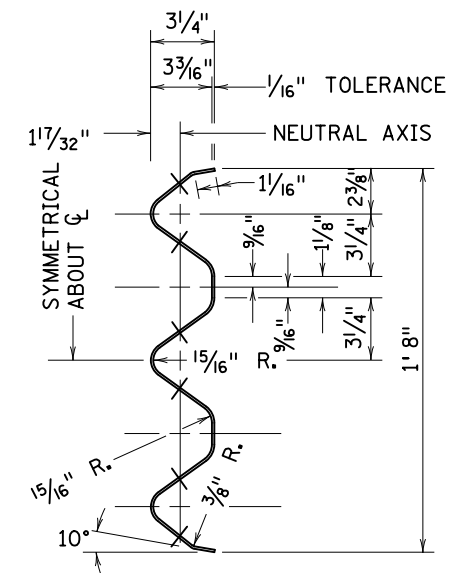




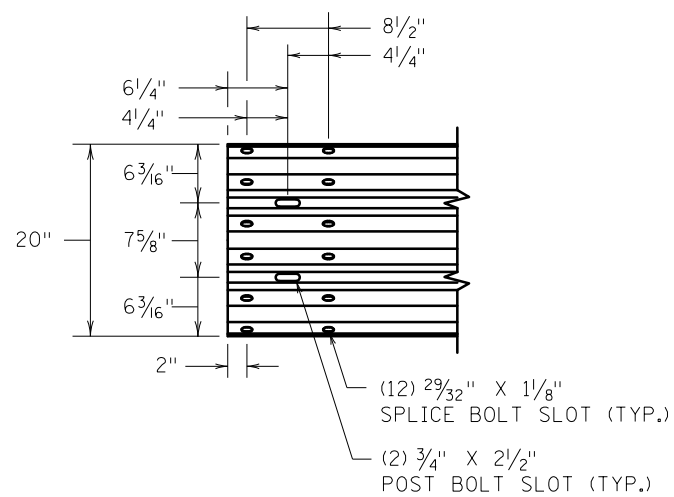
12' 6" THRIE-BEAM RAIL



6' 3" THRIE-BEAM RAIL



THRU SECTION



THRIE-BEAM RAIL  
SPLICE BOLT/POST BOLT DETAIL

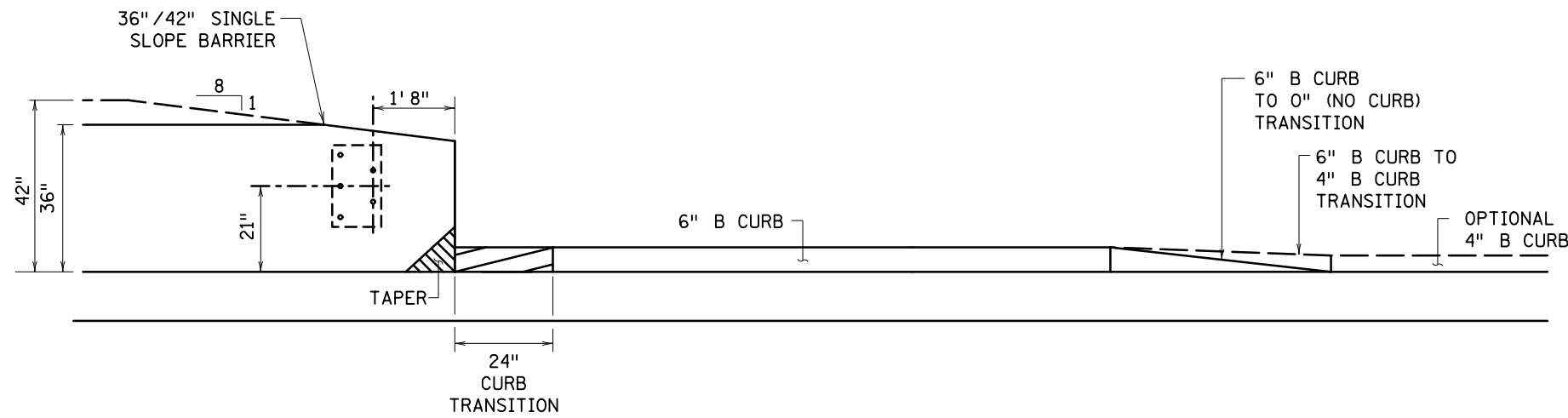
NOTE:  
SEE STANDARD PLATE 8357.

REVISION:  
APPROVED: JULY 1, 2019  
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OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

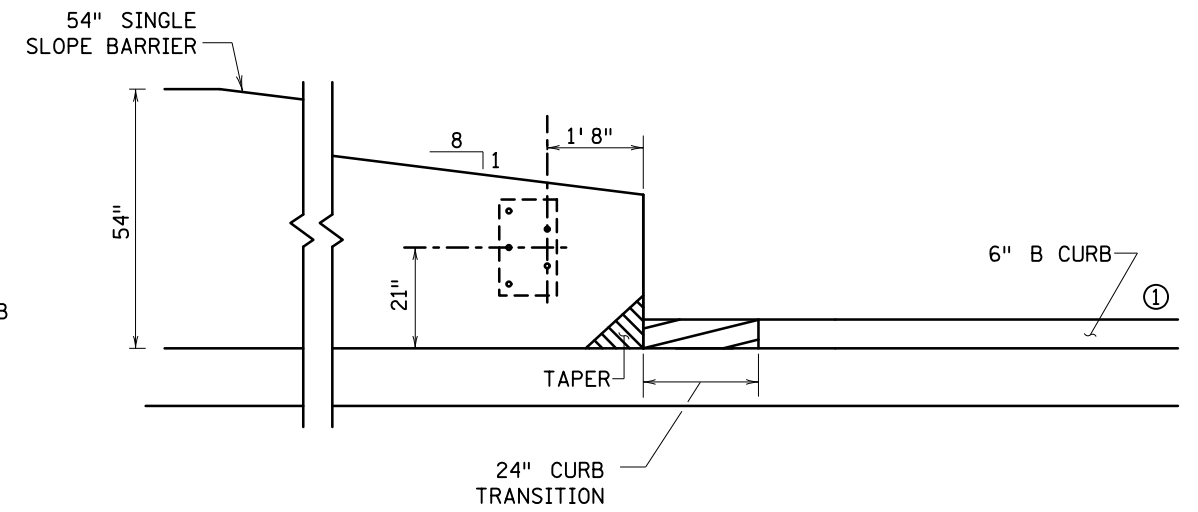


STANDARD PLAN 5-297.694 3 OF 5  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER  
APPROVED: 7-1-2019  
REVISED:

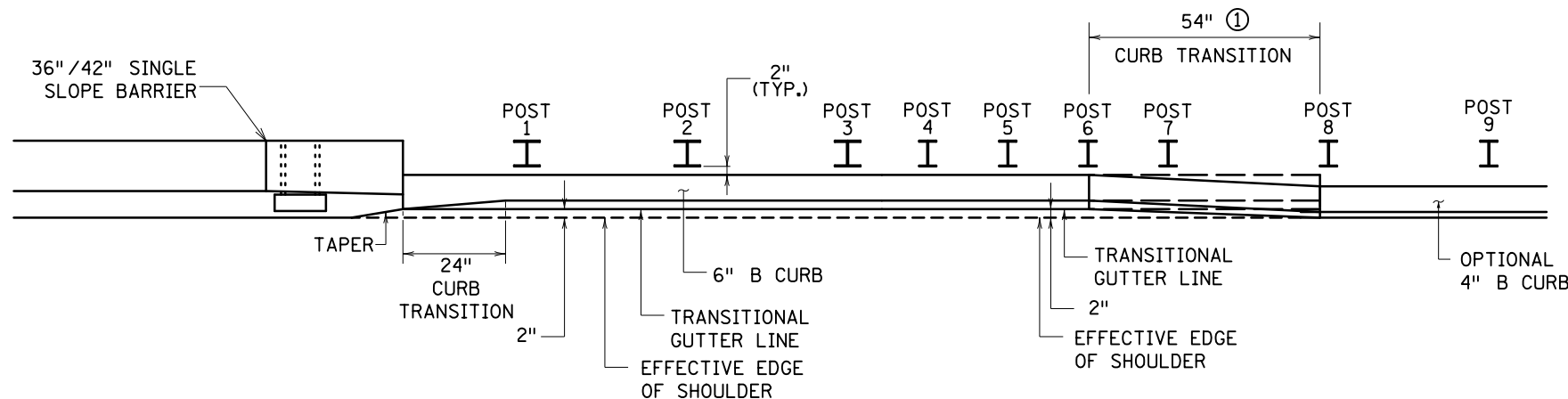
APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
THRIE-BEAM RAIL DETAILS  
STATE PROJ. NO. (T.H. ) SHEET NO. OF SHEETS



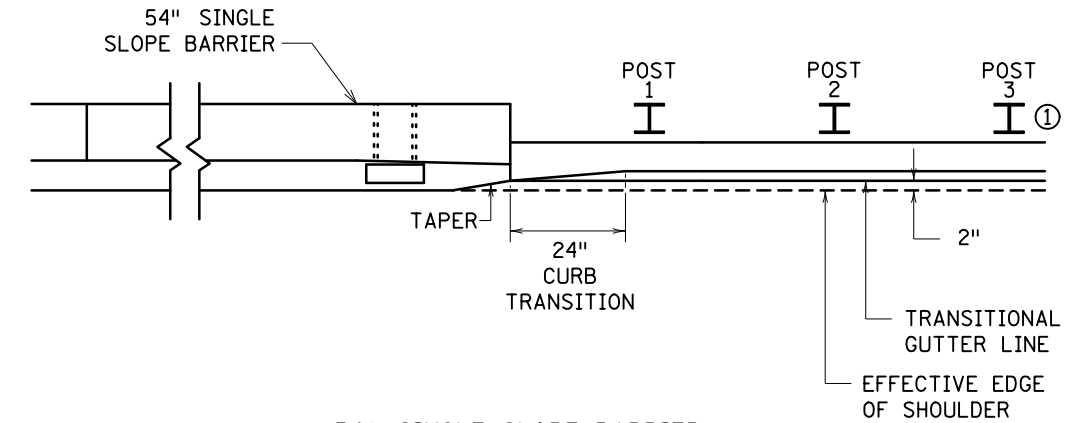
36" / 42" SINGLE SLOPE BARRIER  
FRONT VIEW



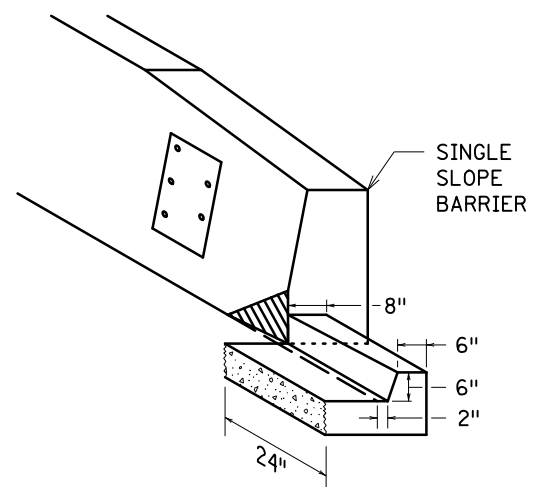
54" SINGLE SLOPE BARRIER  
FRONT VIEW



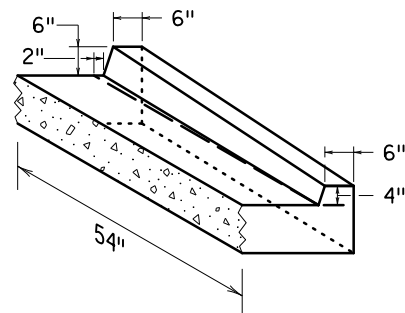
36" / 42" SINGLE SLOPE BARRIER  
PLAN VIEW



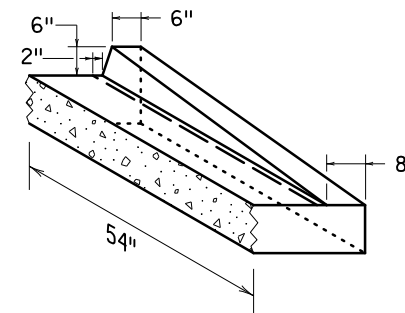
54" SINGLE SLOPE BARRIER  
PLAN VIEW



24" CURB TRANSITION FROM  
VERTICAL FACE TO 6" B CURB  
(SINGLE SLOPE BARRIER)



54" CURB TRANSITION FROM ①  
6" B CURB TO 4" B CURB



54" CURB TRANSITION FROM ①  
6" B CURB TO 0"-NO CURB

NOTES:

36", 42", AND 54" SINGLE SLOPE BARRIERS AVAILABLE.  
REFER TO BRIDGE PLAN FOR END OF BRIDGE LOCATION.

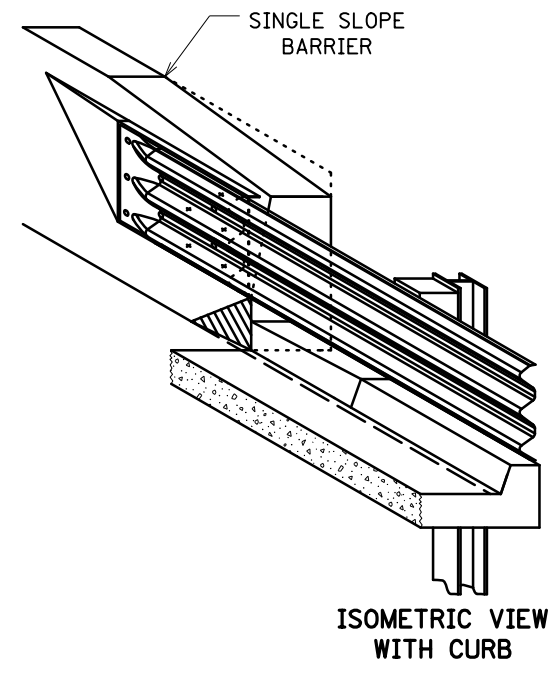
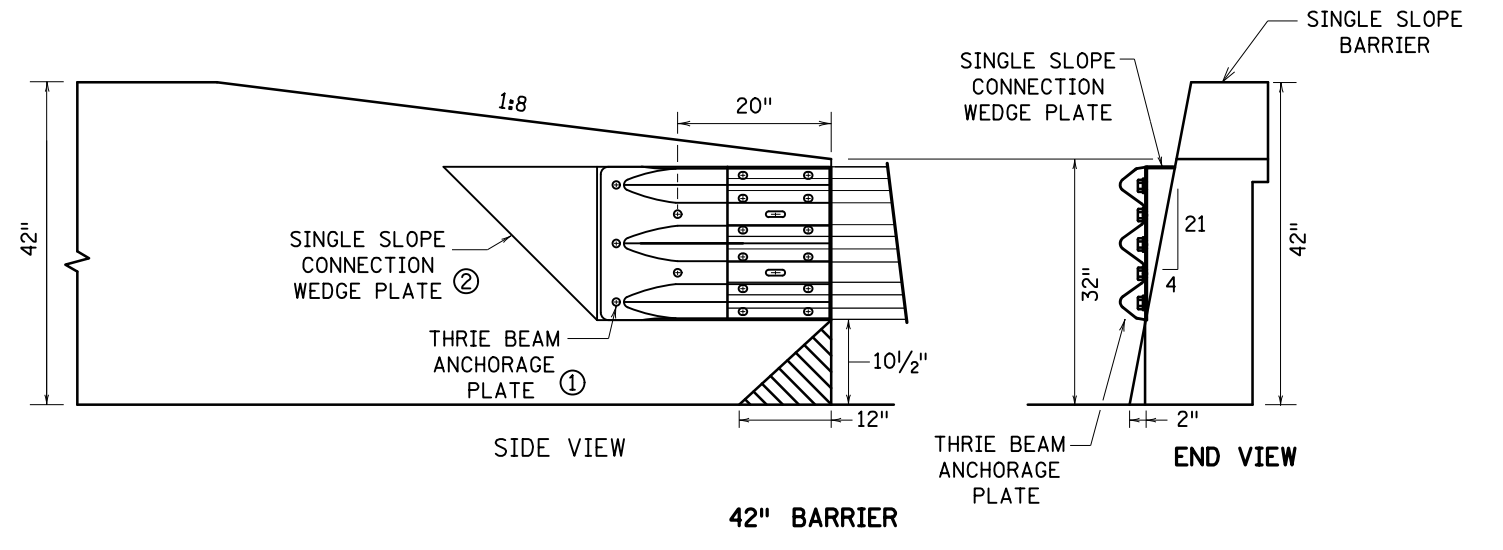
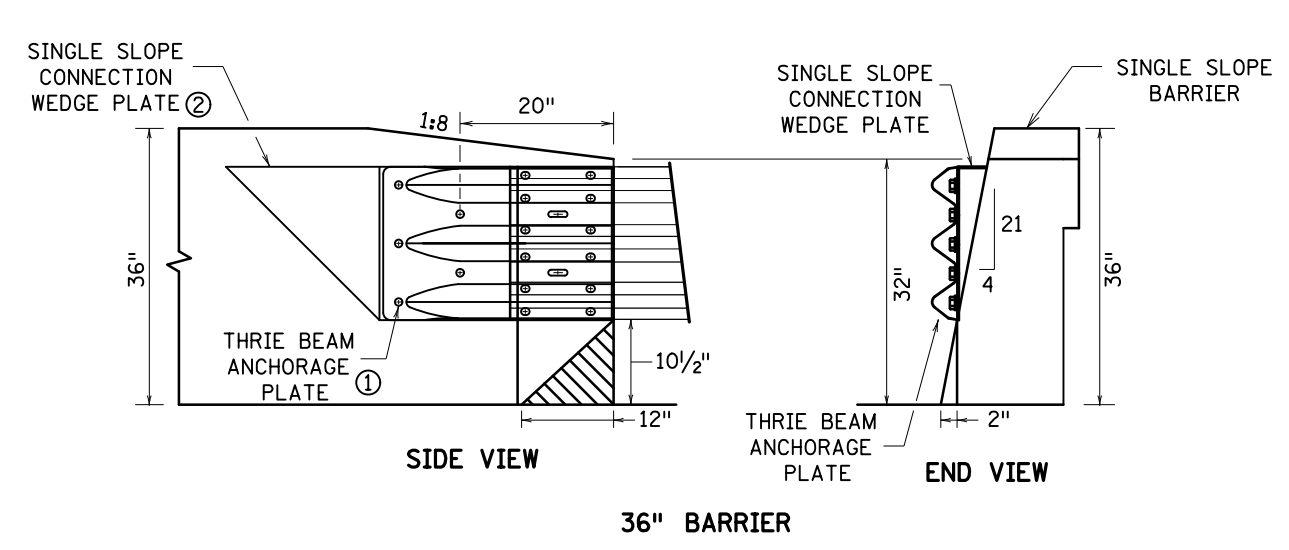
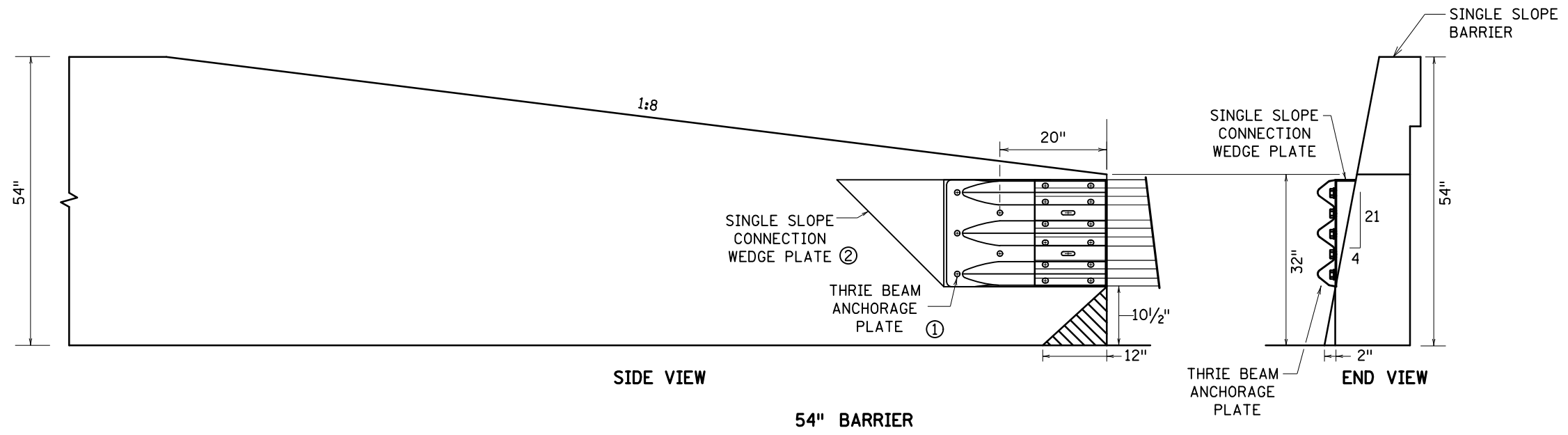
① FOR ALL SINGLE SLOPE BARRIER HEIGHTS, 54" CURB  
TRANSITION LOCATION IS BETWEEN POSTS 6 AND  
POST 8.

REVISION:  
APPROVED: JULY 1, 2019  
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STANDARD PLAN 5-297.694 4 OF 5  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER  
APPROVED: 7-1-2019  
REVISED:  
STATE PROJ. NO. (T.H. ) SHEET NO. OF SHEETS

APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31  
CURB DETAILS AT SINGLE SLOPE BARRIER



NOTES:  
 REFER TO BRIDGE APPROACH PANEL PLAN FOR ADDITIONAL INFORMATION.  
 ① SEE STANDARD PLATE 8350.  
 ② SEE STANDARD PLATE 8352.

REVISION:  
 APPROVED: JULY 1, 2019  
*Nancy Yoo*  
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 DESIGN SUPPORT DIRECTOR  
 OFFICE OF PROJECT MANAGEMENT & TECHNICAL SUPPORT

	STANDARD PLAN 5-297.694	5 OF 5	<b>APPROACH GUARDRAIL TRANSITION (AGT) TYPE 31</b>		
	 THOMAS STYRBICKI STATE DESIGN ENGINEER	APPROVED: 7-1-2019 REVISED:	CONNECTION TO SINGLE SLOPE BARRIER		
DEPARTMENT OF TRANSPORTATION	STATE PROJ. NO.	(T.H. )	SHEET NO.	OF	SHEETS

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