

DETAILS FOR CONNECTING GUARDRAIL TYPE MGS-8 TO  
2-TUBE, 4-TUBE, AESTHETIC PARAPET TUBE, 3 TUBE WITH PICKETS,  
CONCRETE BLOCK RETROFIT, PIER BASE WALL,  
TYPE 6\*, TYPE 7\*, OR SINGLE FACE CONCRETE BARRIER\*  
(WITHOUT EXPANSION AT BACKWALL)

\* TRANSITION BARRIER ENDING FROM SINGLE-SLOPE TO VERTICAL FACE IN ADVANCE OF END SHOE. THEN ATTACH ANCHORAGE TO VERTICAL FACE.

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF DEVELOPMENT



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

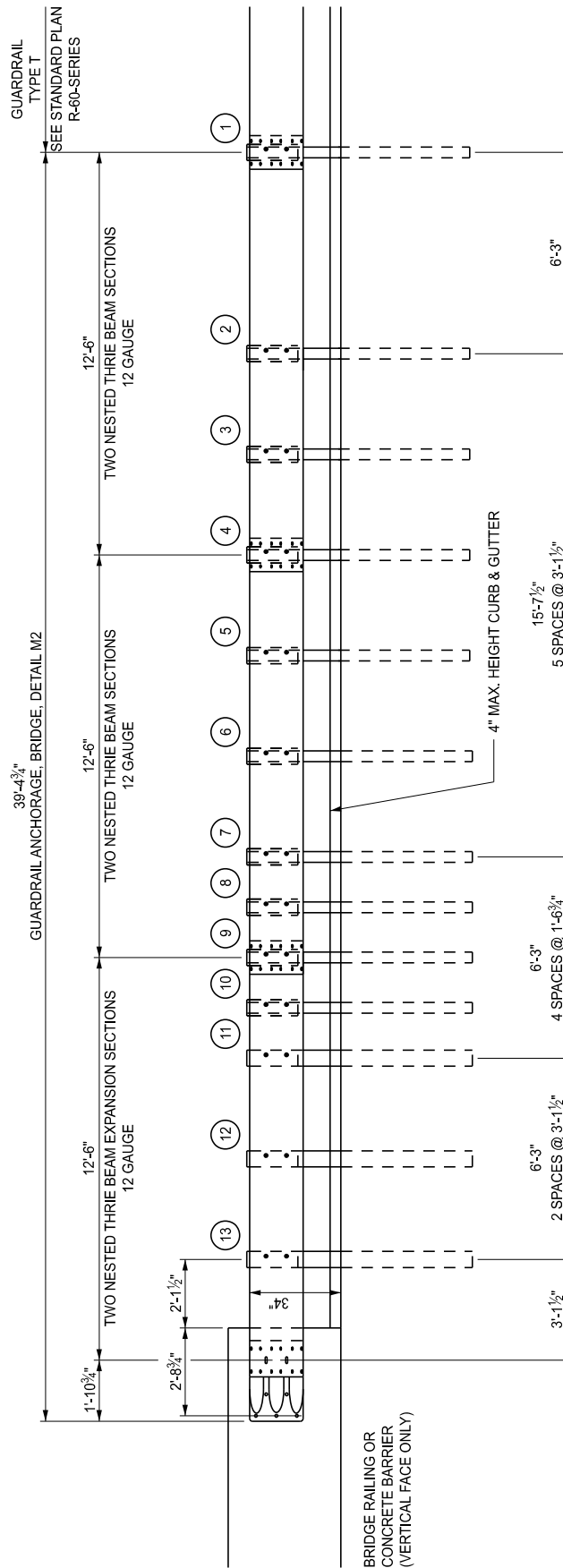
STANDARD PLAN FOR  
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

(SPECIAL DETAIL)  
FHWA APPROVAL

01/06/2026  
PLAN DATE

R-67-G

SHEET  
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POST 1 THROUGH 10 - W6 x 9 OR W6 x 8.5 POST (7'-0\"/>

DETAILS FOR CONNECTING GUARDRAIL TYPE T TO  
 2-TUBE, 4-TUBE, AESTHETIC PARAPET TUBE, 3 TUBE WITH PICKETS,  
 CONCRETE BLOCK RETROFIT, PIER BASE WALL,  
 TYPE 6\*, TYPE 7\*, OR SINGLE FACE CONCRETE BARRIER\*  
 (WITHOUT EXPANSION AT BACKWALL)

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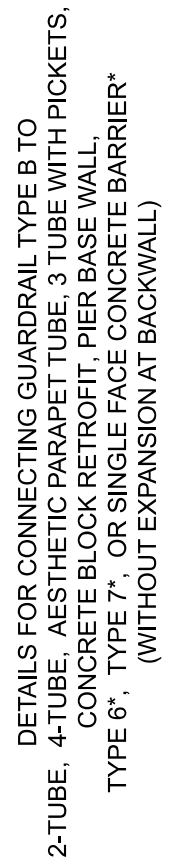
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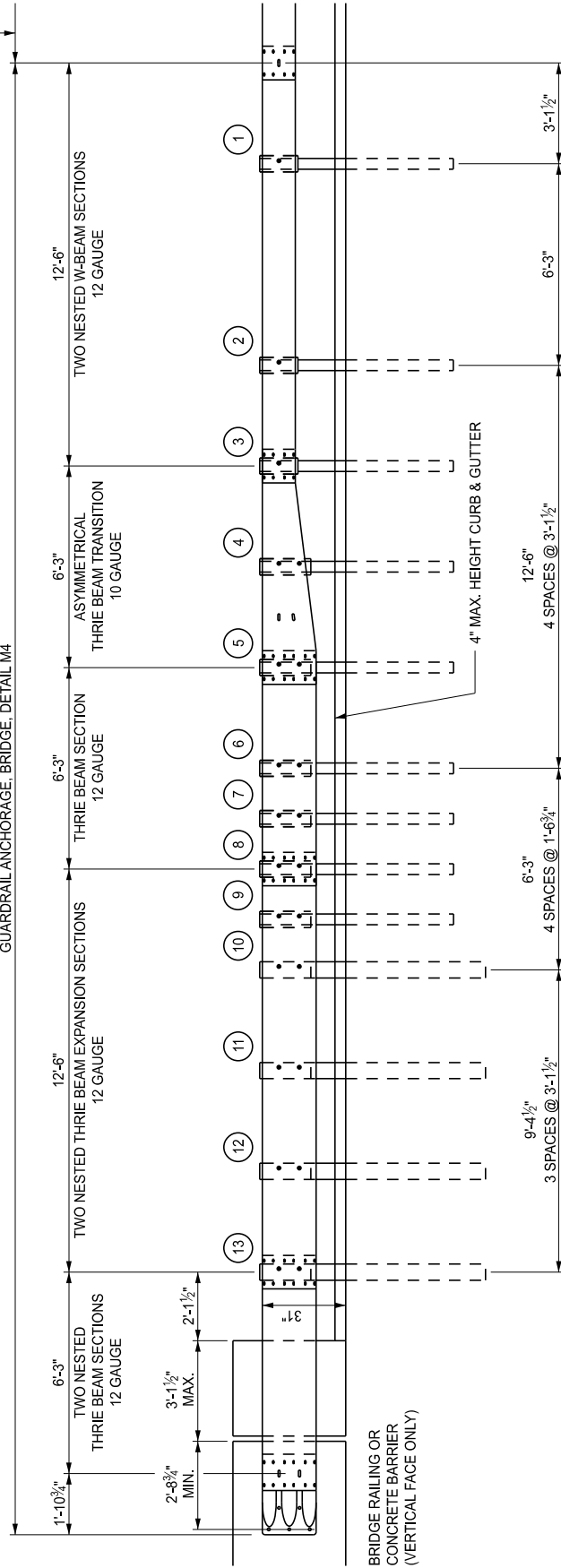
SHEET  
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\* TRANSITION BARRIER ENDING FROM SINGLE-SLOPE TO VERTICAL FACE IN ADVANCE OF END SHOE. THEN ATTACH ANCHORAGE TO VERTICAL FACE.

GUARDRAIL TYPE MGS-8  
SEE STANDARD PLAN  
R-60-SERIES

45'-7<sup>3</sup>/<sub>4</sub>"  
GUARDRAIL ANCHORAGE, BRIDGE, DETAIL M4



POST 1 THROUGH 9 - W6 x 9 OR W6 x 8.5 POST (6'-0" LONG) WITH 12" OFFSET BLOCK  
POST 10 THROUGH 13 - W6 x 15 POST (7'-0" LONG) WITH 12" OFFSET BLOCK

DETAILS FOR CONNECTING GUARDRAIL TYPE MGS-8 TO  
2-TUBE, 4-TUBE, AESTHETIC PARAPET TUBE,  
3 TUBE WITH PICKETS, CONCRETE BLOCK RETROFIT,  
TYPE 6\*, TYPE 7\*, OR SINGLE FACE CONCRETE BARRIER\*  
(WITH EXPANSION AT BACKWALL/END WALL OR SLEEPER SLAB)

\* TRANSITION BARRIER ENDING FROM SINGLE-SLOPE TO VERTICAL FACE IN ADVANCE OF END SHOE. THEN ATTACH ANCHORAGE TO VERTICAL FACE.



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STANDARD PLAN FOR  
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

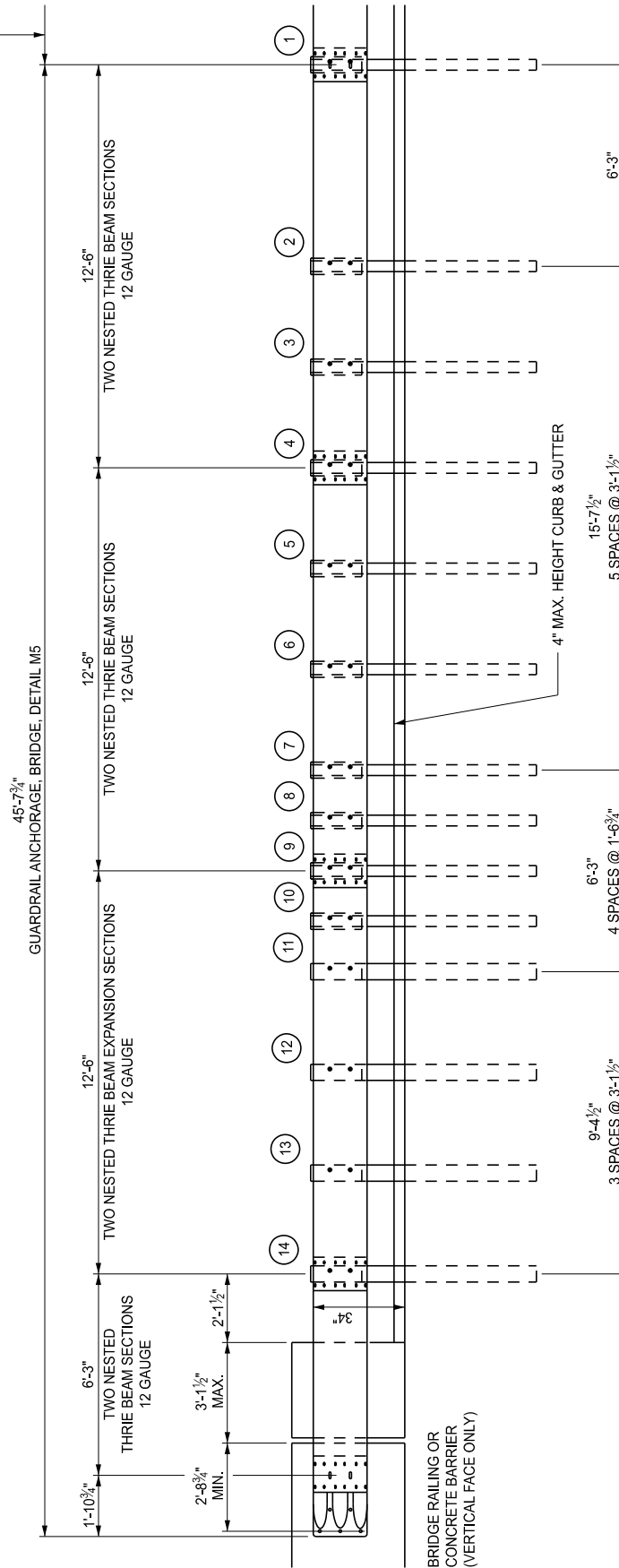
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GUARDRAIL TYPE T  
SEE STANDARD PLAN  
R-60-SERIES



POST 1 THROUGH 10 - W6 x 9 OR W6 x 8.5 POST (7'-0\" LONG) WITH 12\" OFFSET BLOCK  
POST 11 THROUGH 14 - W6 x 15 POST (7'-0\" LONG) WITH 12\" OFFSET BLOCK

DETAILS FOR CONNECTING GUARDRAIL TYPE T TO  
2-TUBE, 4-TUBE, AESTHETIC PARAPET TUBE,  
3 TUBE WITH PICKETS, CONCRETE BLOCK RETROFIT,  
TYPE 6\*, TYPE 7\*, OR SINGLE FACE CONCRETE BARRIER\*  
(WITH EXPANSION AT BACKWALL/END WALL OR SLEEPER SLAB)

\* TRANSITION BARRIER ENDING FROM SINGLE-SLOPE TO VERTICAL FACE IN ADVANCE OF END SHOE. THEN ATTACH ANCHORAGE TO VERTICAL FACE.



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STANDARD PLAN FOR  
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

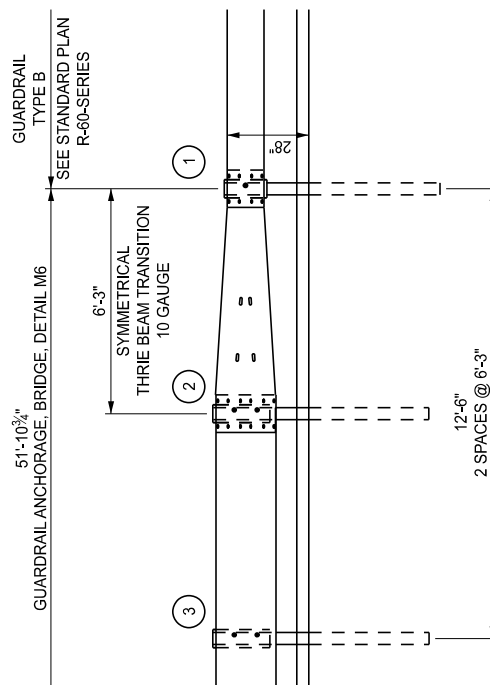
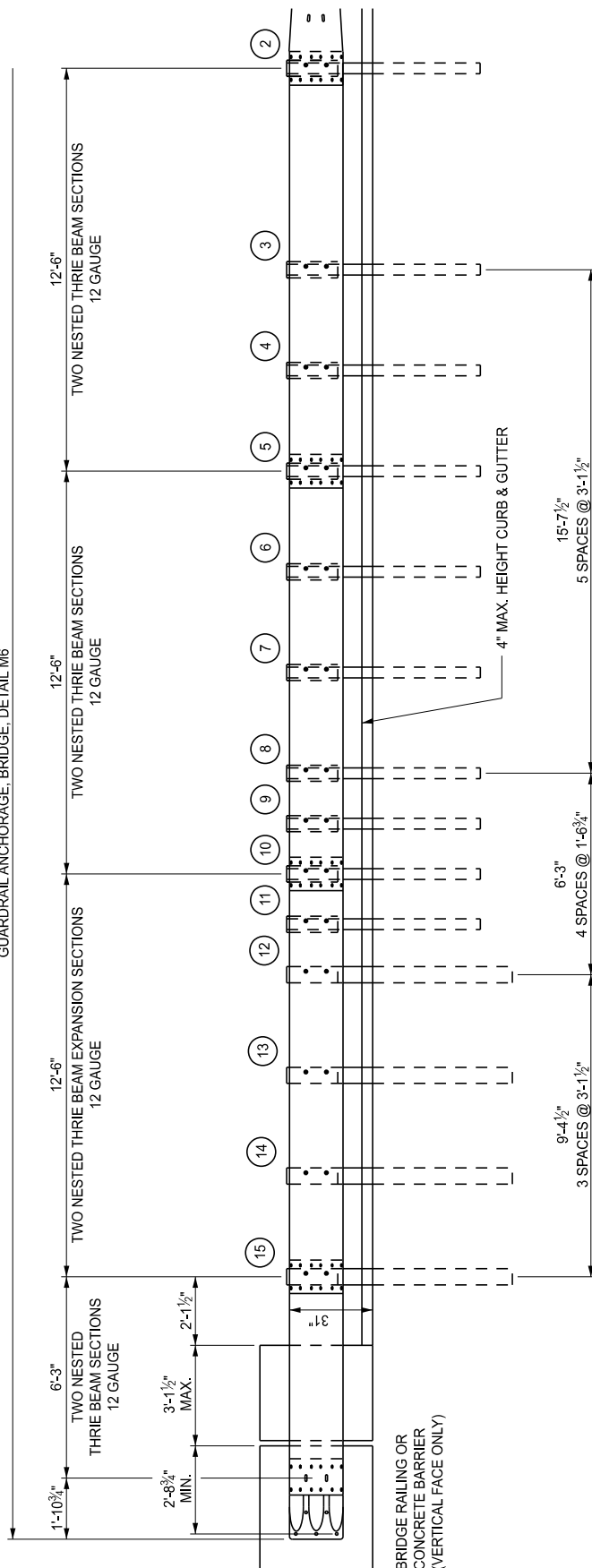
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51'-10<sup>3</sup>/<sub>4</sub>"  
GUARDRAIL ANCHORAGE, BRIDGE, DETAIL M6



POST 1 THROUGH 11 - W6 x 9 OR W6 x 8.5 POST (6'-0" LONG) WITH 12" OFFSET BLOCK  
POST 12 THROUGH 15 - W6 x 15 POST (7'-0" LONG) WITH 12" OFFSET BLOCK

DETAILS FOR CONNECTING GUARDRAIL TYPE B TO  
2-TUBE, 4-TUBE, AESTHETIC PARAPET TUBE,  
3 TUBE WITH PICKETS, CONCRETE BLOCK RETROFIT,  
TYPE 6\*, TYPE 7\*, OR SINGLE FACE CONCRETE BARRIER\*  
(WITH EXPANSION AT BACKWALL/END WALL OR SLEEPER SLAB)

\* TRANSITION BARRIER ENDING FROM SINGLE-SLOPE TO VERTICAL FACE IN ADVANCE OF END SHOE. THEN ATTACH ANCHORAGE TO VERTICAL FACE.



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STANDARD PLAN FOR  
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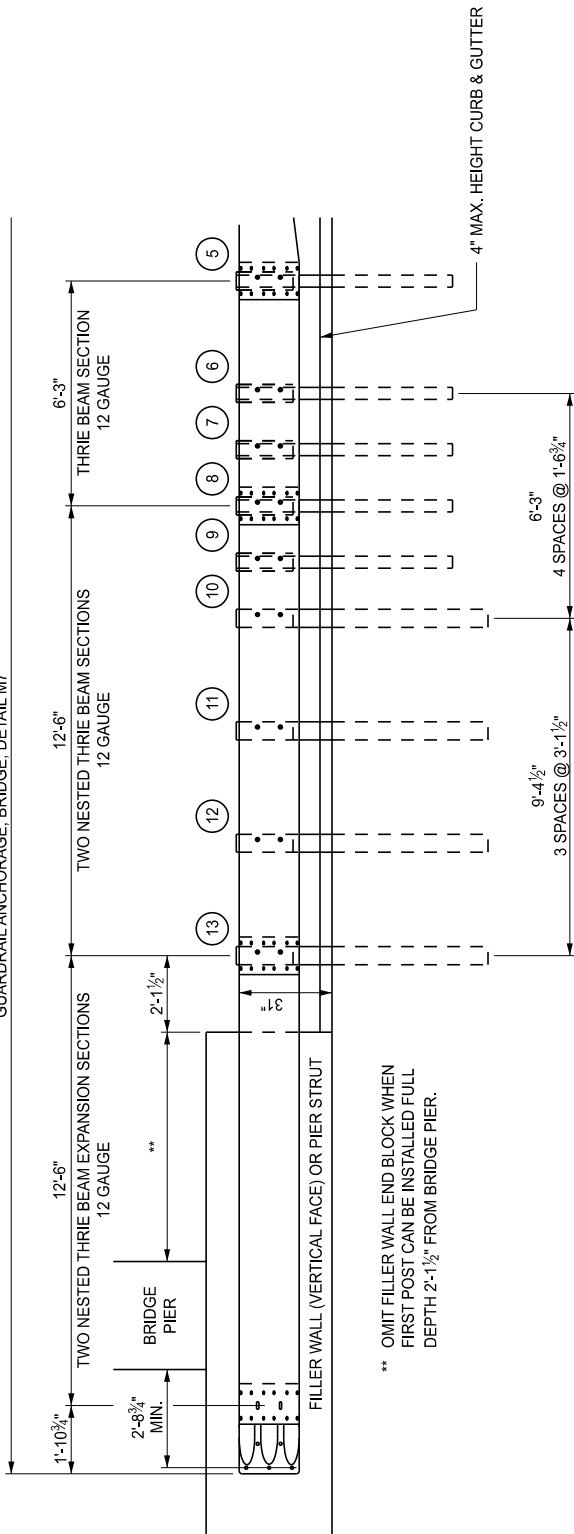
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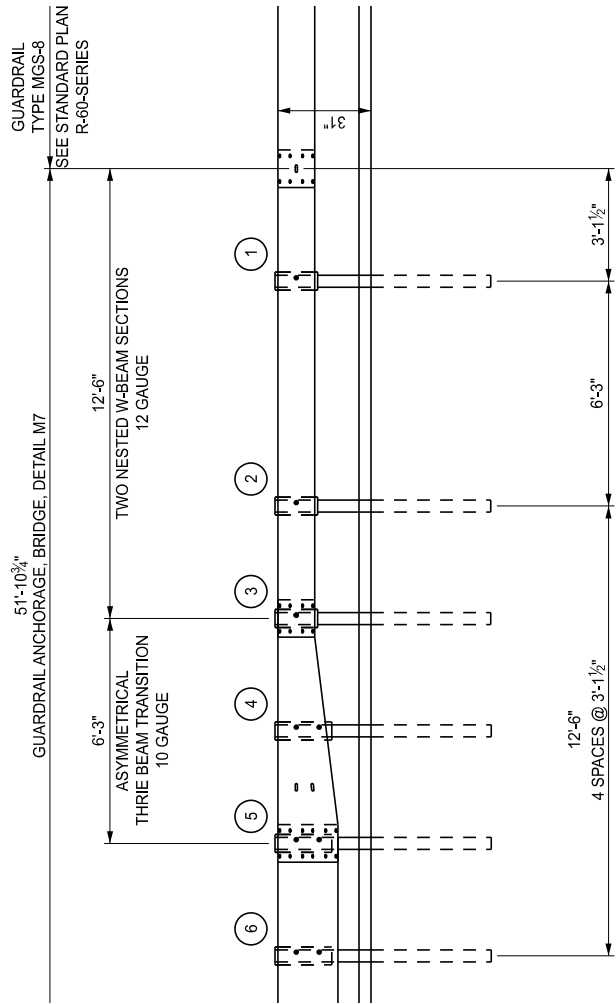
51'-10<sup>3</sup>/<sub>4</sub>"  
GUARDRAIL ANCHORAGE, BRIDGE, DETAIL M7



\*\* OMIT FILLER WALL END BLOCK WHEN  
FIRST POST CAN BE INSTALLED FULL  
DEPTH 2'-1<sup>1</sup>/<sub>2</sub>" FROM BRIDGE PIER.

51'-10<sup>3</sup>/<sub>4</sub>"  
GUARDRAIL ANCHORAGE, BRIDGE, DETAIL M7

POST 1 THROUGH 9 - W6 x 9 OR W6 x 8.5 POST (6'-0" LONG) WITH 12" OFFSET BLOCK  
POST 10 THROUGH 13 - W6 x 15 POST (7'-0" LONG) WITH 12" OFFSET BLOCK



DETAILS FOR CONNECTING GUARDRAIL TYPE MGS-8 TO FILLER WALL OR PIER STRUT



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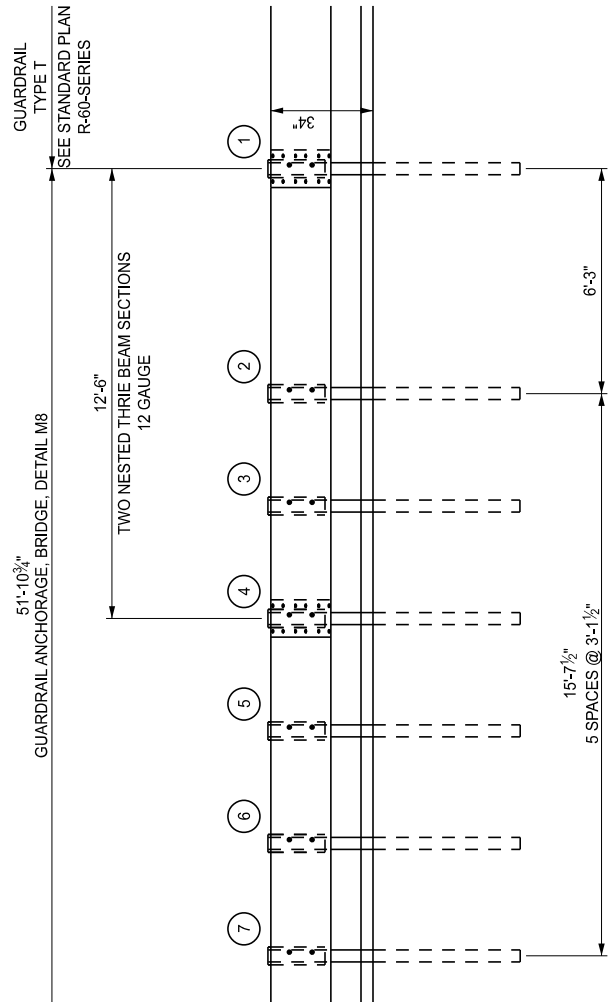
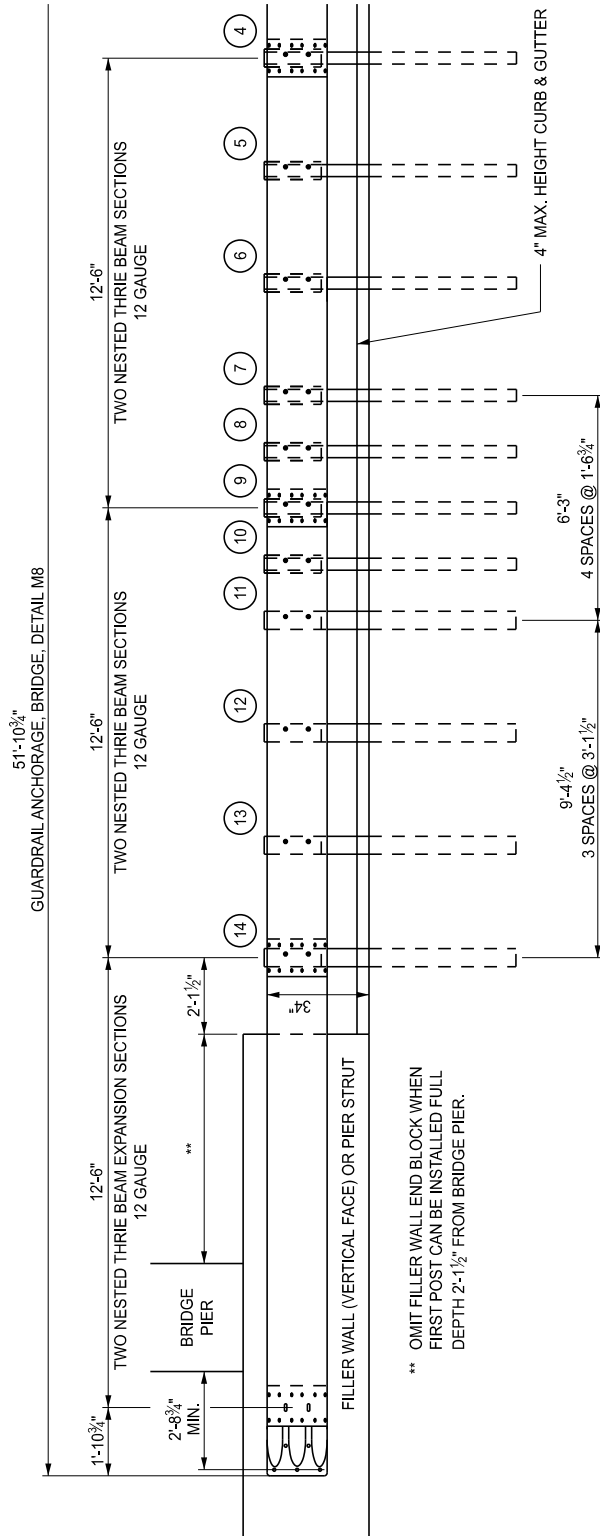
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GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

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POST 0 THROUGH 10 - W6 x 9 OR W6 x 8.5 POST (7'-0" LONG) WITH 12" OFFSET BLOCK  
 POST 11 THROUGH 14 - W6 x 15 POST (7'-0" LONG) WITH 12" OFFSET BLOCK

DETAILS FOR CONNECTING GUARDRAIL TYPE T TO FILLER WALL OR PIER STRUT



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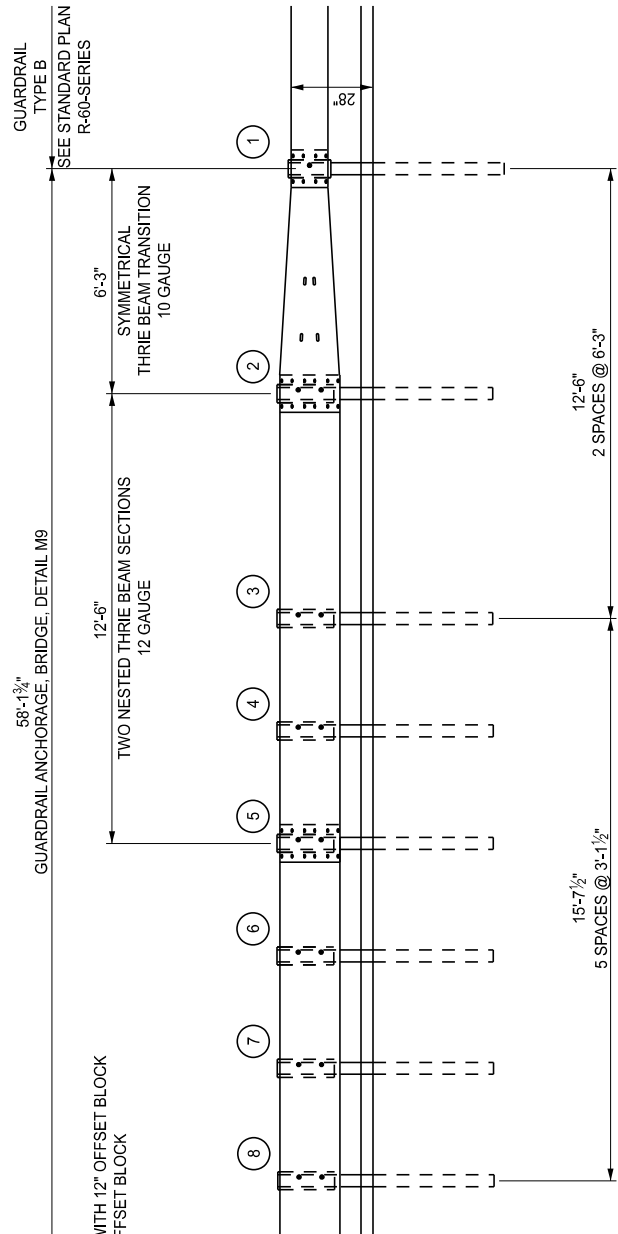
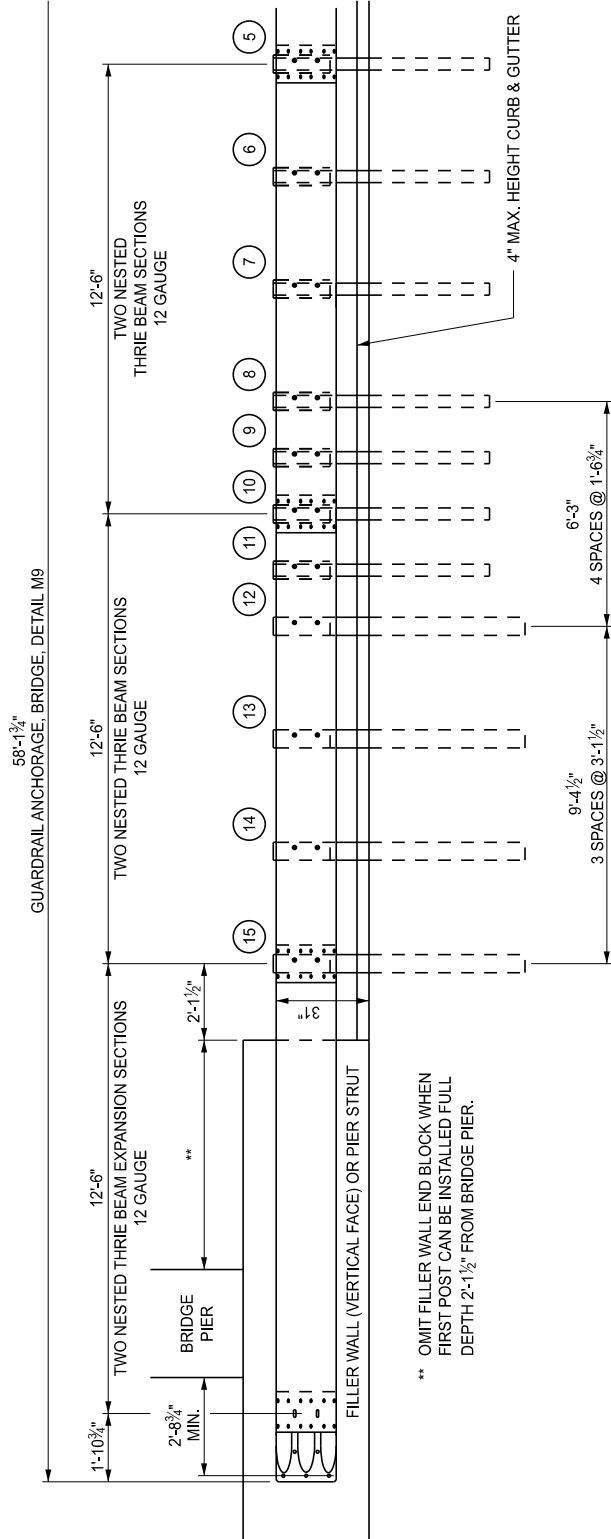
STANDARD PLAN FOR  
 GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

(SPECIAL DETAIL)  
 FHWA APPROVAL

01/06/2026  
 PLAN DATE

R-67-G

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POST 1 THROUGH 11 - W6 x 9 OR W6 x 8.5 POST (6'-0" LONG) WITH 12" OFFSET BLOCK  
 POST 12 THROUGH 15 - W6 x 15 POST (7'-0" LONG) WITH 12" OFFSET BLOCK

DETAILS FOR CONNECTING GUARDRAIL TYPE B TO FILLER WALL OR PIER STRUT



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STANDARD PLAN FOR  
 GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

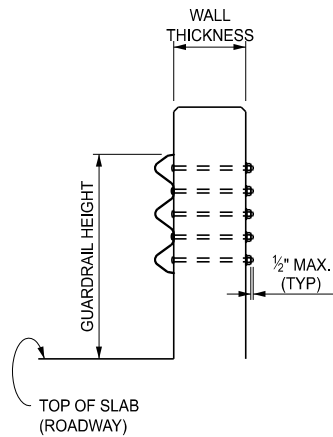
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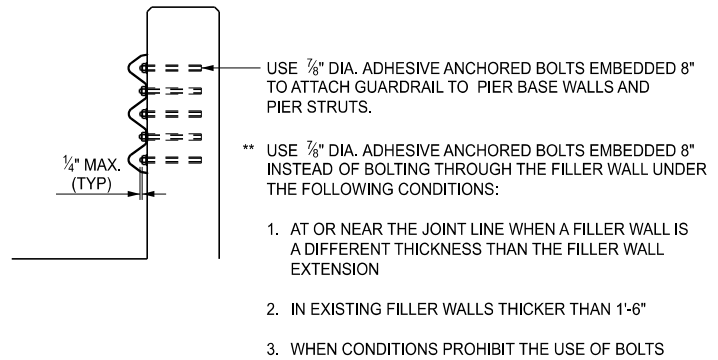
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REFER TO GUARDRAIL ANCHORAGE BRIDGE, DETAIL M1 THROUGH M9 FOR GUARDRAIL HEIGHT.



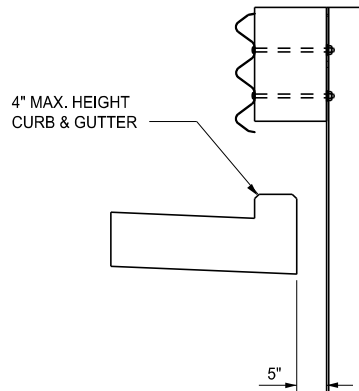
BRIDGE RAILING & FILLER WALL

USE HIGH STRENGTH 7/8" DIA. HEX HEAD BOLT AND NUTS TO CONNECT GUARDRAIL TO BRIDGE RAILINGS WITH ROUND WASHERS ON FRONT AND SQUARE WASHERS ON BACK. (SEE CHART BELOW FOR BOLT LENGTH REQUIRED.) WASHER DETAILS ARE SHOWN ON SHEET 11.



ALTERNATE CONSTRUCTION METHOD

APPLIES TO PIER BASE WALLS, PIER STRUTS AND FILLER WALLS MEETING CERTAIN CONDITIONS



POST DETAIL

BOLT REQUIREMENTS FOR CONNECTING GUARDRAIL TO BRIDGE RAILINGS

BRIDGE RAILING	WALL THICKNESS	BOLT LENGTH	MINIMUM THREAD LENGTH
2 TUBE	1'-5 1/2"	1'-7 1/2"	4"
4 TUBE	1'-7"	1'-9"	4"
AESTHETIC PARAPET TUBE	1'-0"	1'-2"	4"
3 TUBE WITH PICKETS	1'-4 1/2"	1'-6 1/2"	4"
TYPE 6	1'-5 3/4" / 1'-6 3/4" ***	1'-7 3/4" / 1'-8 3/4" ***	4"
TYPE 7	1'-2 1/2" / 1'-3 1/2" ***	1'-4 1/2" / 1'-5 1/2" ***	4"
CONCRETE BLOCK RETROFIT	1'-3 3/4"	1'-5 3/4"	4"
FILLER WALL (WITH THROUGH BOLTS) **	VARIES	WALL THK + 2"	4"
PIER BASE WALL, PIER STRUT, FILLER WALL (WITH ADHESIVE ANCHORED BOLTS) **	VARIES	****	4"

SHORTER BOLT LENGTHS MAY BE USED PROVIDED THE BOLT EXTENDS 1/4" BEYOND THE NUT WHEN TIGHTENED.

\*\* REFER TO APPLICABLE NOTES UNDER ALTERNATE CONSTRUCTION METHOD TO DETERMINE APPLICABLE BOLTING METHOD FOR FILLER WALL

\*\*\* THICKNESS/LENGTH DEPENDENT UPON AESTHETIC TREATMENT ON RAILING

\*\*\*\* ENSURE LENGTH PROVIDES 8" EMBEDMENT AND BOLT EXTENDING 1/4" MAXIMUM BEYOND NUT WHEN FULLY ENGAGED

GUARDRAIL POST SECTIONS FOR GUARDRAIL ANCHORAGE, BRIDGE, DETAIL M1 THROUGH M9



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STANDARD PLAN FOR  
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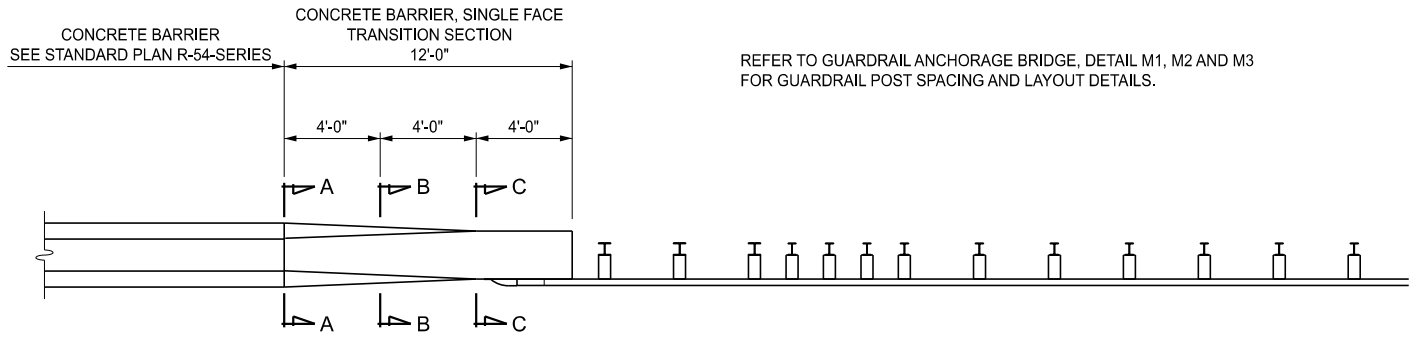
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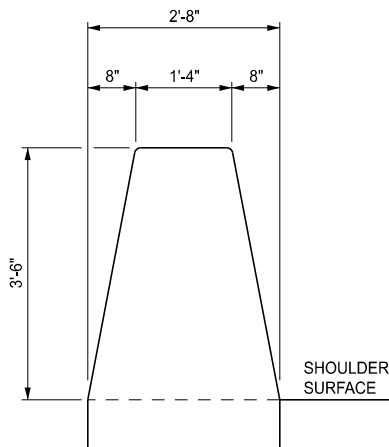
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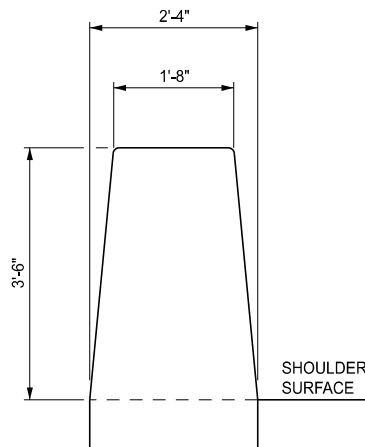




PLAN VIEW

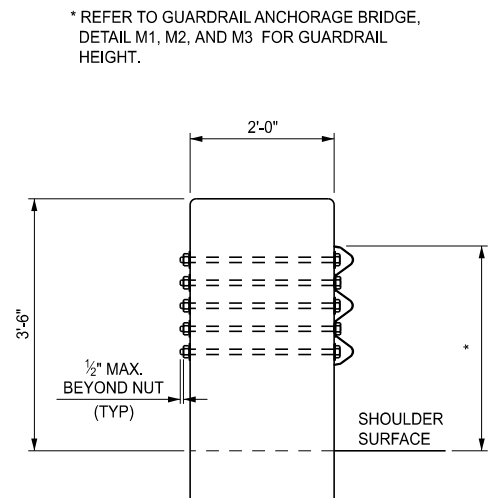


SECTION A-A



SECTION B-B

UNIFORMLY TRANSITION THE BARRIER FACES  
FROM SINGLE SLOPE SHAPE TO VERTICAL WALL



SECTION C-C

USE HIGH STRENGTH  $\frac{7}{8}$ " DIAMETER x 26" LONG HEX HEAD BOLTS WITH 2" MINIMUM THREAD LENGTH AND NUTS WITH ROUND WASHERS FRONT AND BACK TO CONNECT GUARDRAIL TO CONCRETE BARRIER, SINGLE FACE TRANSITION SECTION.

# DETAILS FOR CONNECTING GUARDRAIL TO CONCRETE BARRIER, SINGLE FACE



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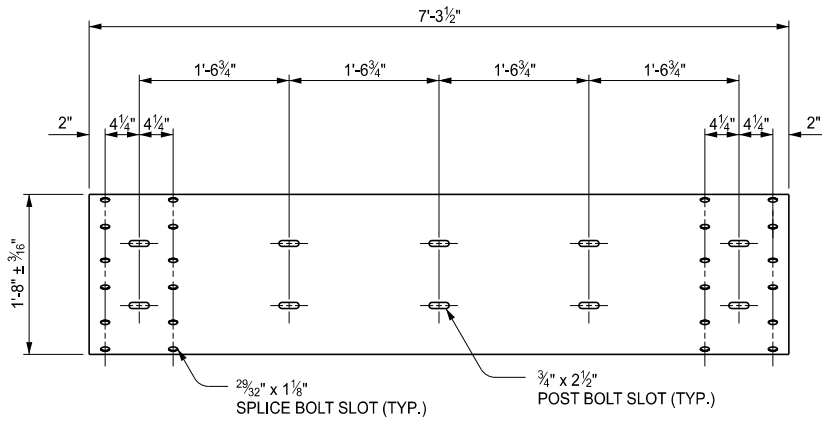
## STANDARD PLAN FOR GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

(SPECIAL DETAIL)  
FHWA APPROVAL

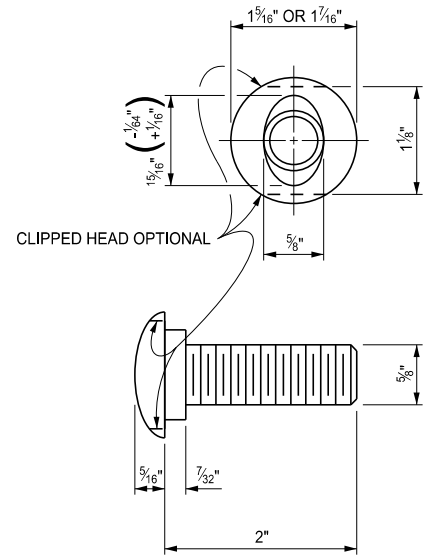
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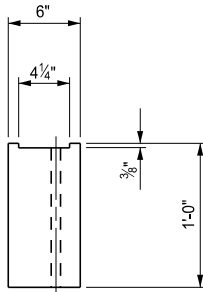
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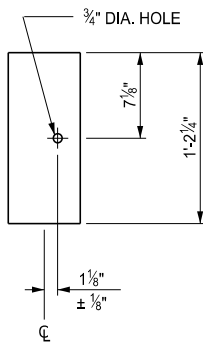
6'-3" THRIE BEAM SECTION



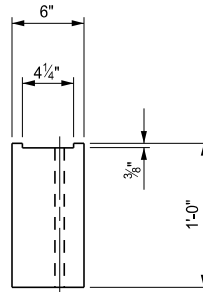
SPlice Bolt  
FOR USE WITH NESTED  
GUARDRAIL BEAM ELEMENTS



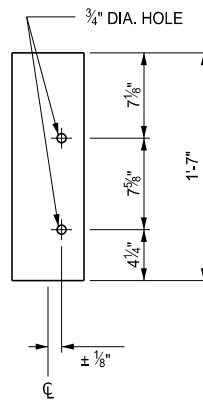
TOP



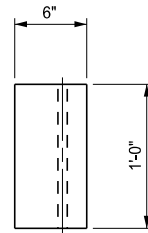
FRONT  
OFFSET BLOCK FOR  
W BEAM GUARDRAIL



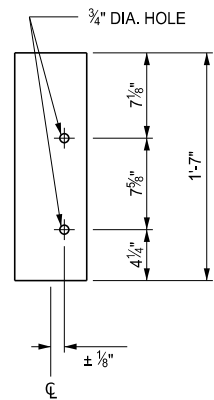
TOP



FRONT  
OFFSET BLOCK FOR  
THRIE BEAM GUARDRAIL  
USE WITH W6 x 8.5 OR W6 x 9 POSTS



TOP



FRONT  
OFFSET BLOCK FOR  
THRIE BEAM GUARDRAIL  
USE WITH W6 x 15 POSTS



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STANDARD PLAN FOR  
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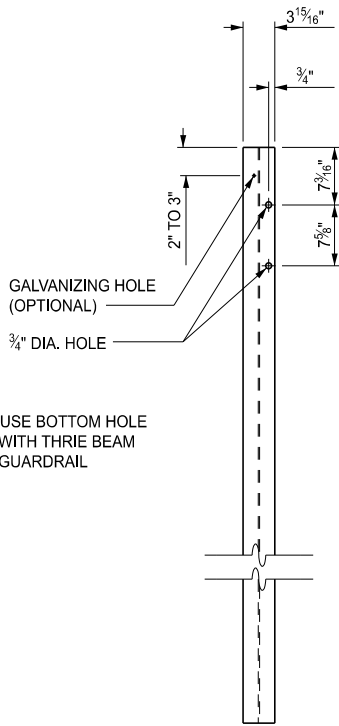
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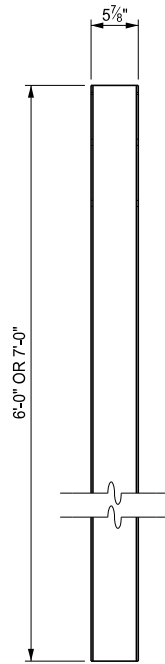
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TOP



FRONT

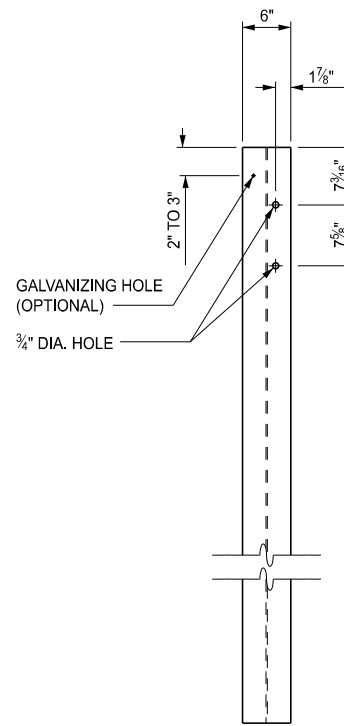


SIDE

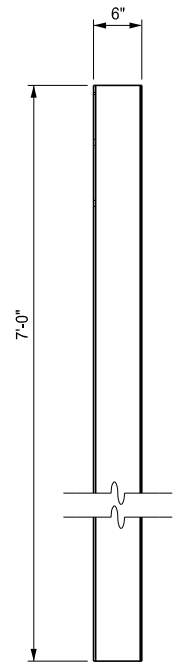
W6 x 9 OR  
W6 x 8.5 POST



TOP



FRONT



SIDE

W6 x 15 POST



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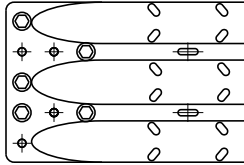
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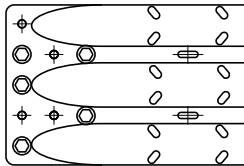
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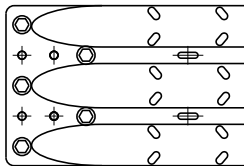
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THRIE BEAM TERMINAL CONNECTOR  
BOLT LOCATION FOR  
GUARDRAIL ANCHORAGE TYPE M1, M3, M4, M6  
⊙ = REQUIRED BOLT LOCATION TO ANCHOR INTO CONCRETE



THRIE BEAM TERMINAL CONNECTOR  
BOLT LOCATION FOR  
GUARDRAIL ANCHORAGE TYPE M2, M5  
⊙ = REQUIRED BOLT LOCATION TO ANCHOR INTO CONCRETE



THRIE BEAM TERMINAL CONNECTOR  
BOLT LOCATION FOR  
GUARDRAIL ANCHORAGE TYPE M7, M8, M9  
⊙ = REQUIRED BOLT LOCATION TO ANCHOR INTO CONCRETE



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NOTES:

ENSURE ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, REFLECTORS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND TO STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

ENSURE BEAM ELEMENTS IDENTIFIED AS 12 GAUGE MEET CLASS A REQUIREMENTS PER AASHTO M 180. ENSURE BEAM ELEMENTS IDENTIFIED AS 10 GAUGE MEET CLASS B REQUIREMENTS PER AASHTO M 180.

ENSURE THE THRIE BEAM TERMINAL CONNECTOR AND SPECIAL END SHOE ARE THE SAME MATERIAL AS THE ADJACENT RUN OF GUARDRAIL AND ARE NOT LIGHTER THAN 10 GAUGE (0.138").

FIELD BEND SECTIONS OF THE THRIE BEAM ELEMENT REQUIRED TO BE TWISTED FOR USE IN ANCHORAGE.

LAP GUARDRAIL BEAM ELEMENTS IN THE DIRECTION OF TRAFFIC EXCEPT FOR THE THRIE BEAM TERMINAL CONNECTOR WHICH MAY BE LAPPED IN EITHER DIRECTION.

USE SPLICE BOLTS WHEN SPLICING THE THRIE BEAM TERMINAL CONNECTOR TO THE THRIE BEAM EXPANSION SECTION AND WHEN SPLICING THE SPECIAL END SHOE TO THE TRANSITION SECTION. INSTALL THE SPLICE BOLT NUT FINGER-TIGHT AND FULLY ENGAGE THE SPLICE BOLT A MINIMUM OF ONE THREAD EXTENDING BEYOND THE NUT. THEN UPSET THE FIRST THREAD ON THE OUTSIDE OF THE NUT WITH A CENTER PUNCH OR COLD CHISEL SO THAT IT WILL NOT LOOSEN.

SEE STANDARD PLAN R-32-SERIES FOR APPROACH CURB AND GUTTER AND DOWNSPOUT HEADER.


SEE APPROPRIATE PLANS TO DETERMINE WHETHER GUARDRAIL ANCHORAGE, BRIDGE SPANS A BRIDGE EXPANSION JOINT.

SEE APPROPRIATE PLANS FOR PIER BASE WALL OR PIER STRUT.

SEE STANDARD PLAN R-55-SERIES FOR FILLER WALLS AND FILLER WALL END BLOCK.

SEE STANDARD PLAN R-54-SERIES FOR CONCRETE BARRIER, SINGLE FACE, TYPE \_\_\_\_.

INCLUDE CONCRETE BARRIER, SINGLE FACE TRANSITION SECTION IN THE PAY ITEM "CONC BARRIER, SINGLE FACE, TYPE \_\_\_\_".

 Michigan Department of Transportation	STANDARD PLAN FOR GUARDRAIL ANCHORAGE, BRIDGE, DETAILS		
	(SPECIAL DETAIL) FHWA APPROVAL	01/06/2026 PLAN DATE	R-67-G SHEET 16 OF 16