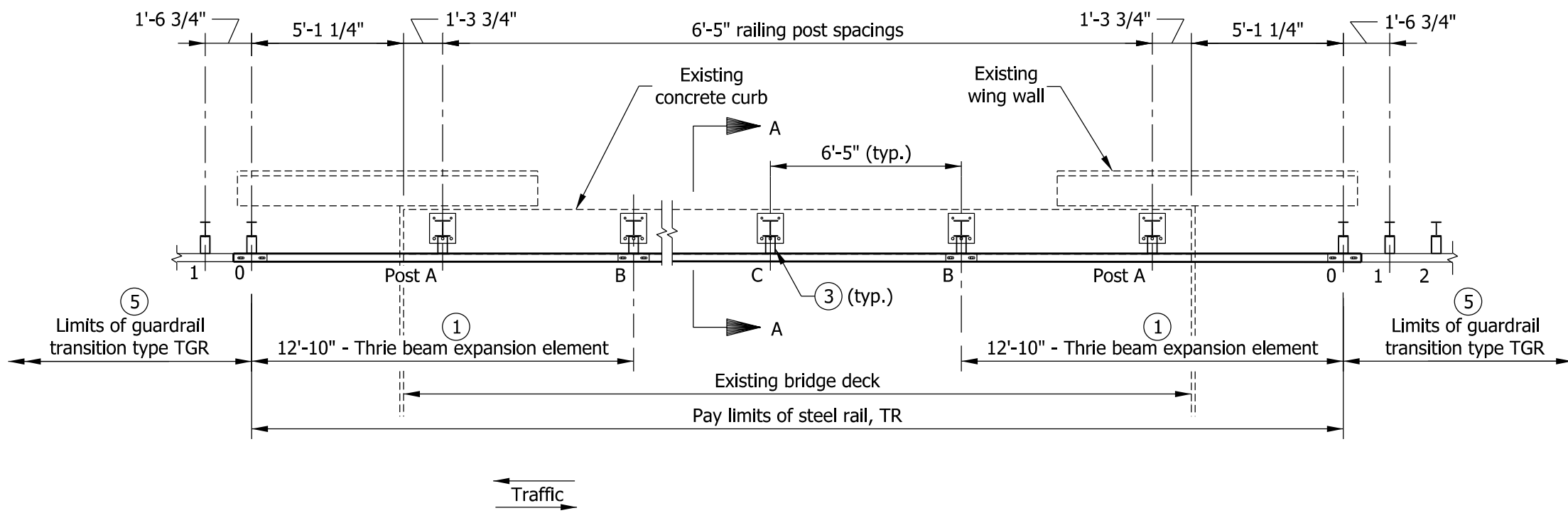


ELEVATION VIEW



PLAN VIEW

NOTES

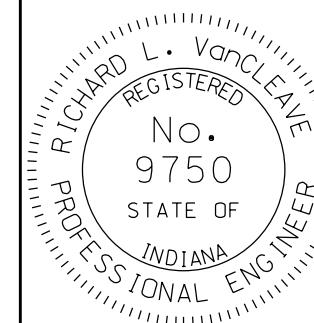
- ① See Standard Drawing E 706-BRTR-04 for thrie beam expansion element.
2. See Standard Drawing E 706-BRTR-02 for Section A-A.
- ③ Bridge railing post/blockout assembly. See Standard Drawing E 706-BRTR-03 for post and blockout details. Attach rail using two 5/8" Ø x 2" std. button head bolts with rectangular plate washers, round washers, and recess nuts.
- ④ Twelve 5/8" Ø std. button head bolts with round washers and recess nuts.
- ⑤ See Standard Drawing E 706-BRTR-05 for thrie beam guardrail transition type TGR.
- ⑥ Hand tighten post bolts on thrie beam expansion element and burr bolt threads.

INDIANA DEPARTMENT OF TRANSPORTATION

RETROFIT THRIE BEAM
BRIDGE RAILING TR

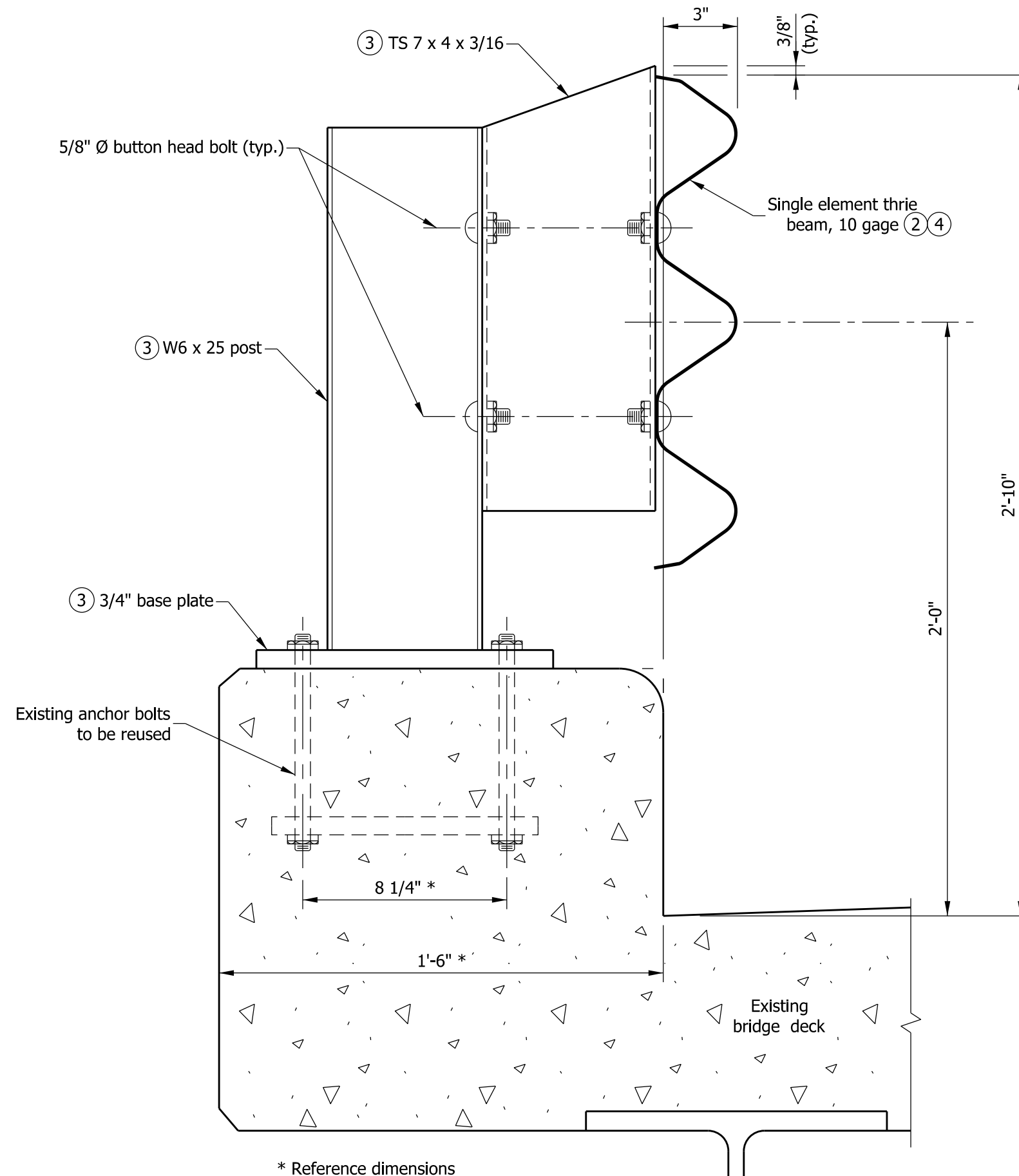
SEPTEMBER 2012

STANDARD DRAWING NO. E 706-BRTR-01



/s/ Richard L. VanCleave 09/04/12
SUPERVISOR, ROADWAY STANDARDS DATE

/s/ Mark A. Miller 09/04/12
CHIEF ENGINEER DATE



SECTION A-A

NOTES

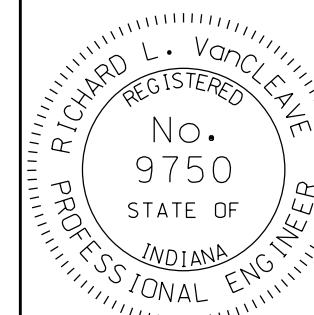
1. See Standard Drawing E 706-BRTR-01 for plan view.
- 2 See Standard Drawing E 601-TBGC-01 for thrie beam section.
- 3 See Standard Drawing E 706-BRTR-03 for post, blockout, and base plate details.
- 4 See Standard Drawing E 706-BRTR-04 for thrie beam bridge railing elements.

INDIANA DEPARTMENT OF TRANSPORTATION

RETROFIT THRIE BEAM
BRIDGE RAILING TR

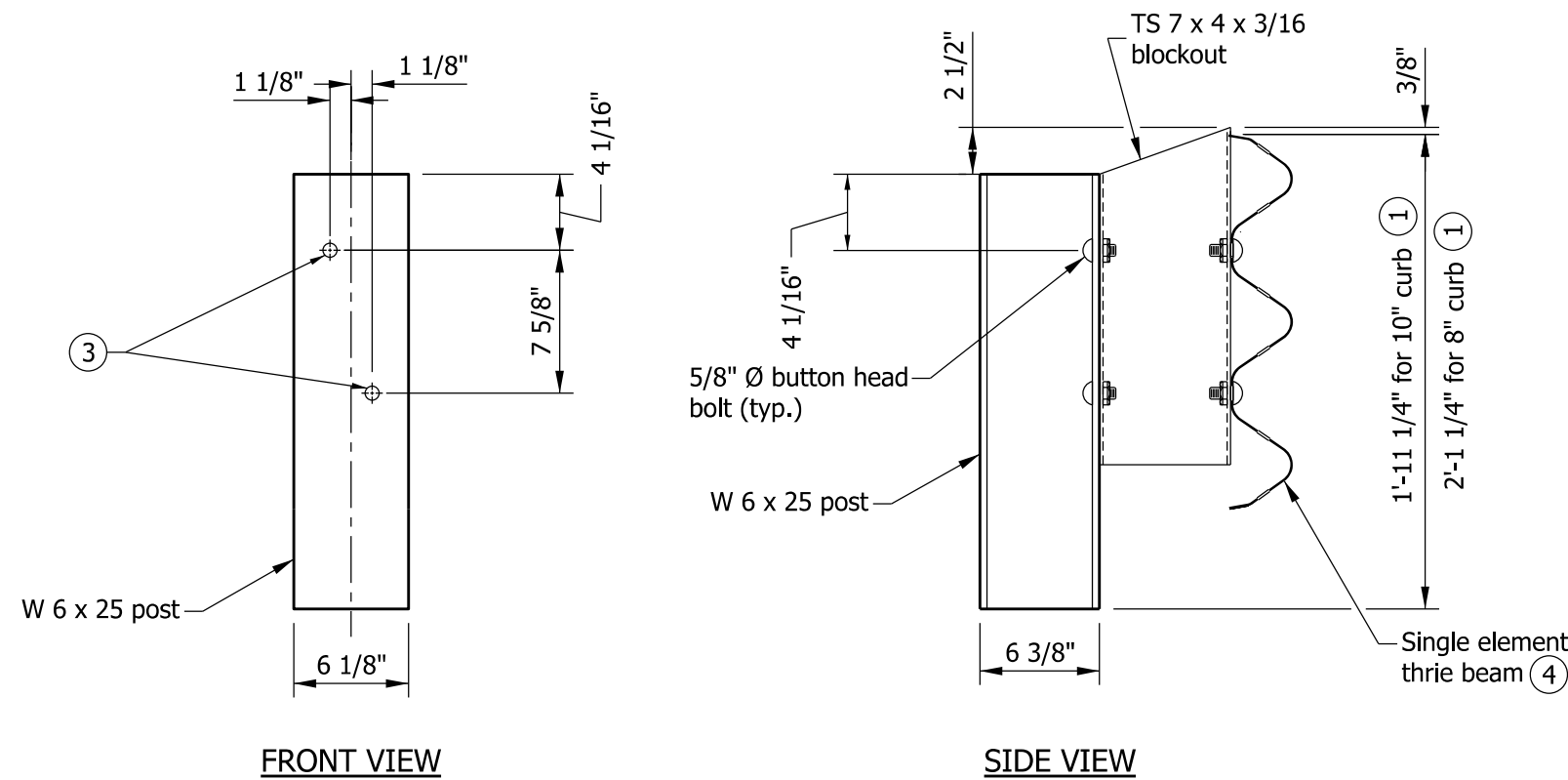
SEPTEMBER 2012

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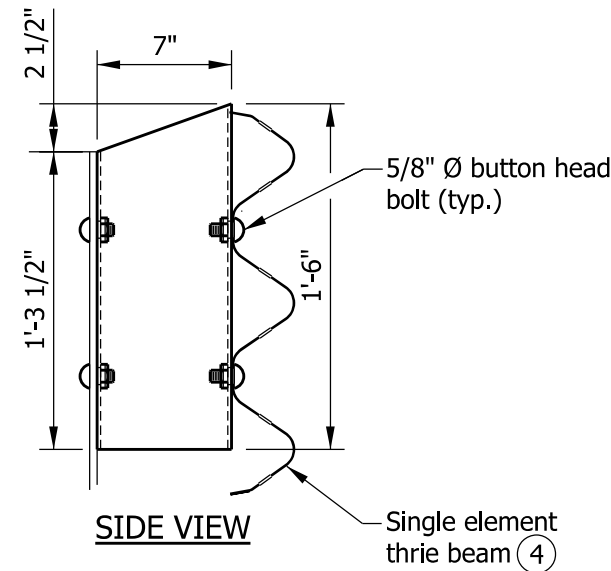
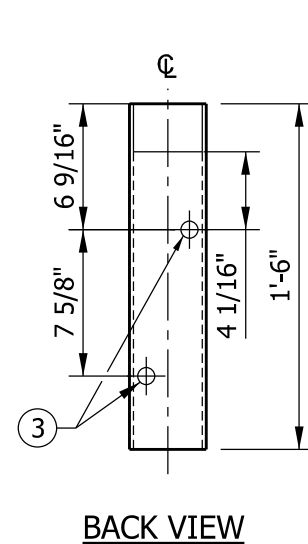
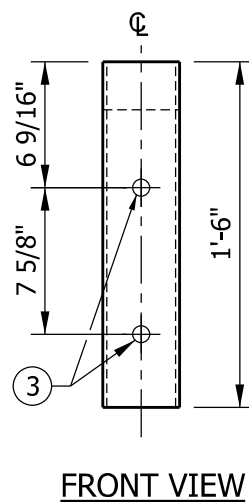
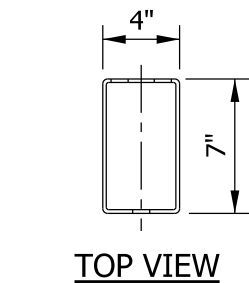


/s/ *Richard L. VanCleave* 09/04/12
SUPERVISOR, ROADWAY STANDARDS DATE

/s/ *Mark A. Miller* 09/04/12
CHIEF ENGINEER DATE



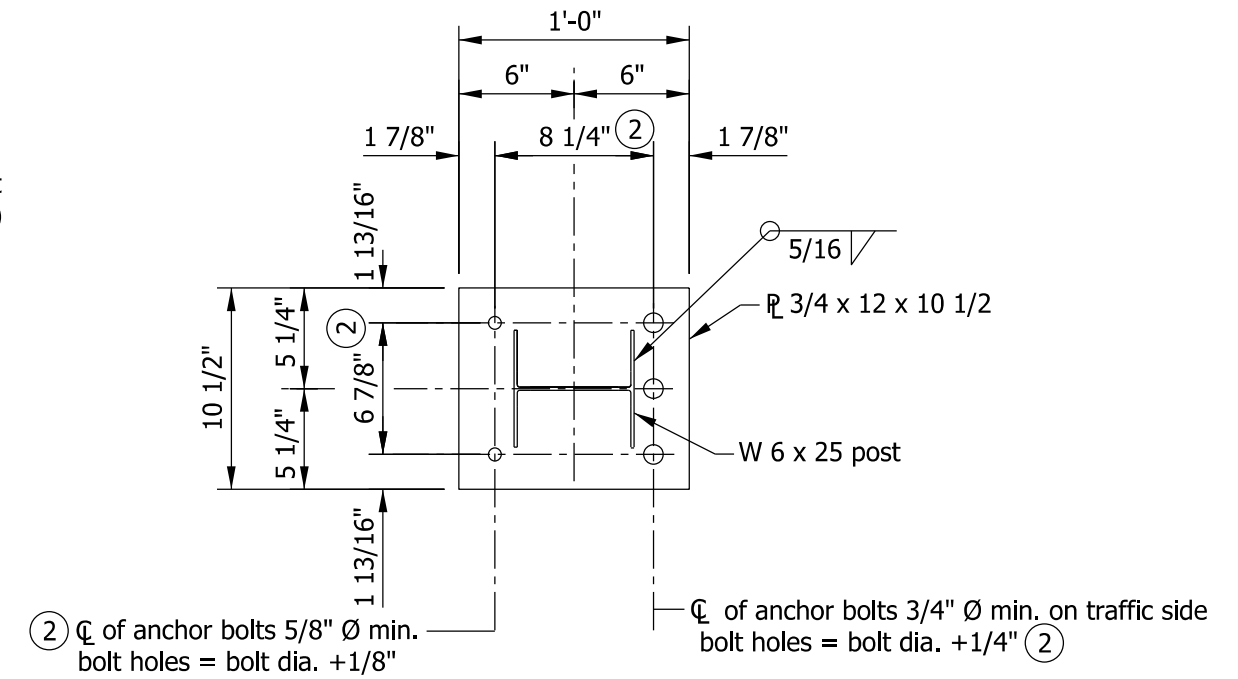
W 6 x 25 POST DETAILS FOR CURB MOUNTED POSTS



TS 7 x 4 x 3/16 BLOCKOUT DETAILS FOR CURB MOUNTED POSTS

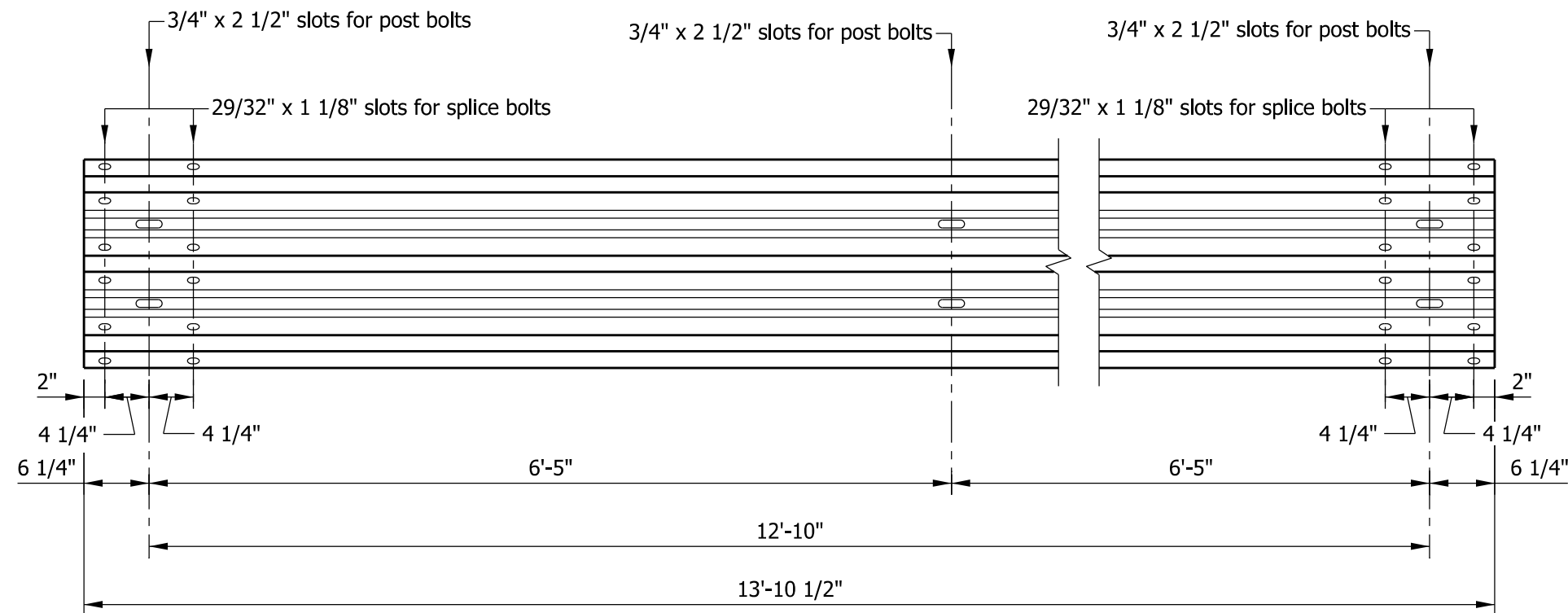
NOTES

- ① Adjust the post length for thrie beam height above the deck.
- ② Locations of bolt holes on base plate shall match locations of existing anchor bolts.
- ③ All holes drilled or punched to 3/4" Ø.
- ④ See Standard Drawing E 706-BRTR-04 for thrie beam elements. See Standard Drawing E 601-TBGC-01 for thrie beam rail section.

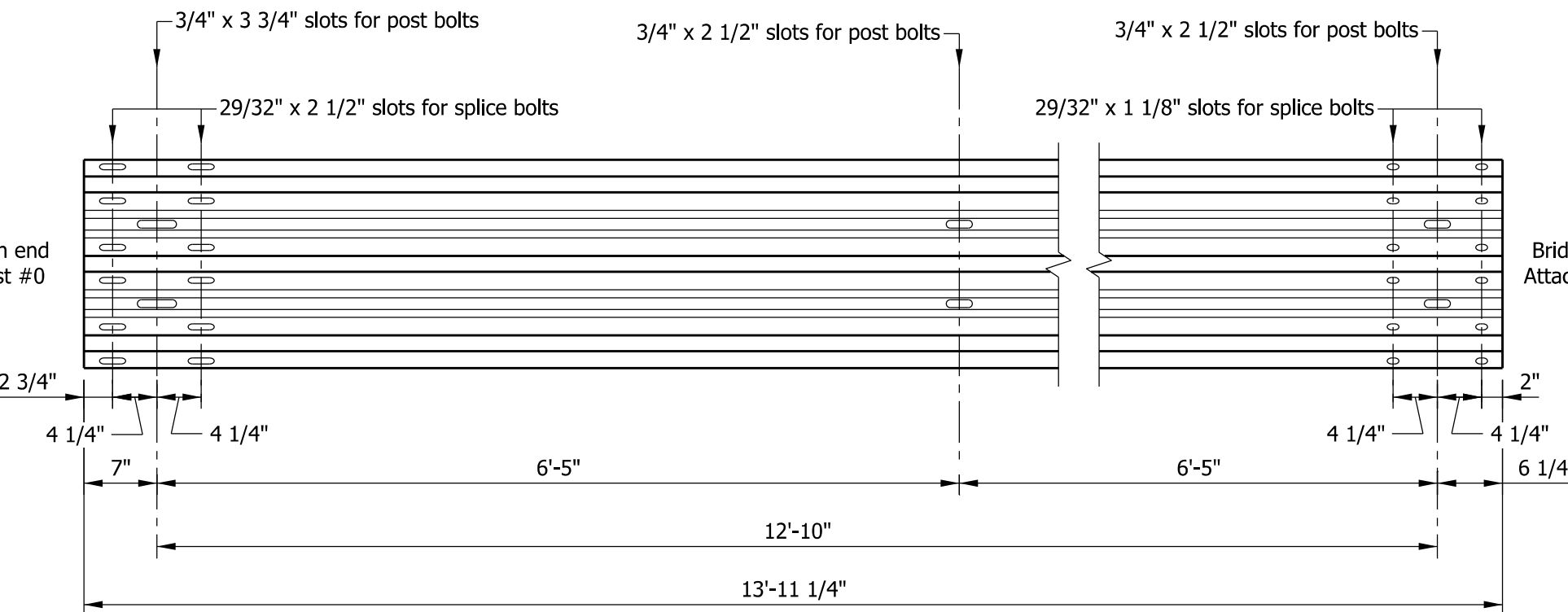


BASE PLATE DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION	
RETROFIT THRIE BEAM BRIDGE RAILING TR COMPONENTS SEPTEMBER 2012	
STANDARD DRAWING NO.	E 706-BRTR-03
	/s/ <i>Richard L. VanCleave</i> 09/04/12 SUPERVISOR, ROADWAY STANDARDS DATE
	/s/ <i>Mark A. Miller</i> 09/04/12 CHIEF ENGINEER DATE



THRIE BEAM ELEVATION



THRIE BEAM EXPANSION ELEMENT ELEVATION

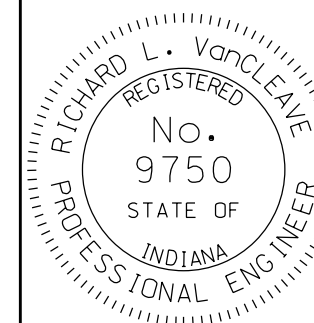
NOTES

- 1 See Standard Drawing E 706-BRTR-01 for post locations.

INDIANA DEPARTMENT OF TRANSPORTATION

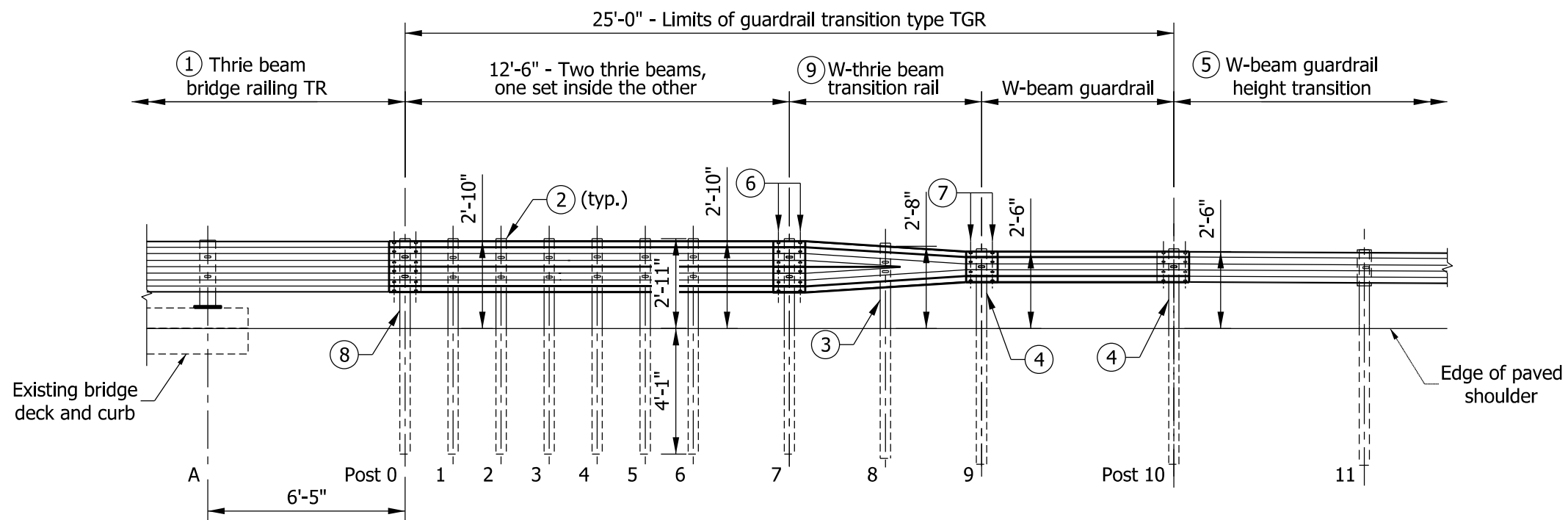
RETROFIT THRIE BEAM
BRIDGE RAILING TR
COMPONENTS
SEPTEMBER 2012

STANDARD DRAWING NO. E 706-BRTR-04

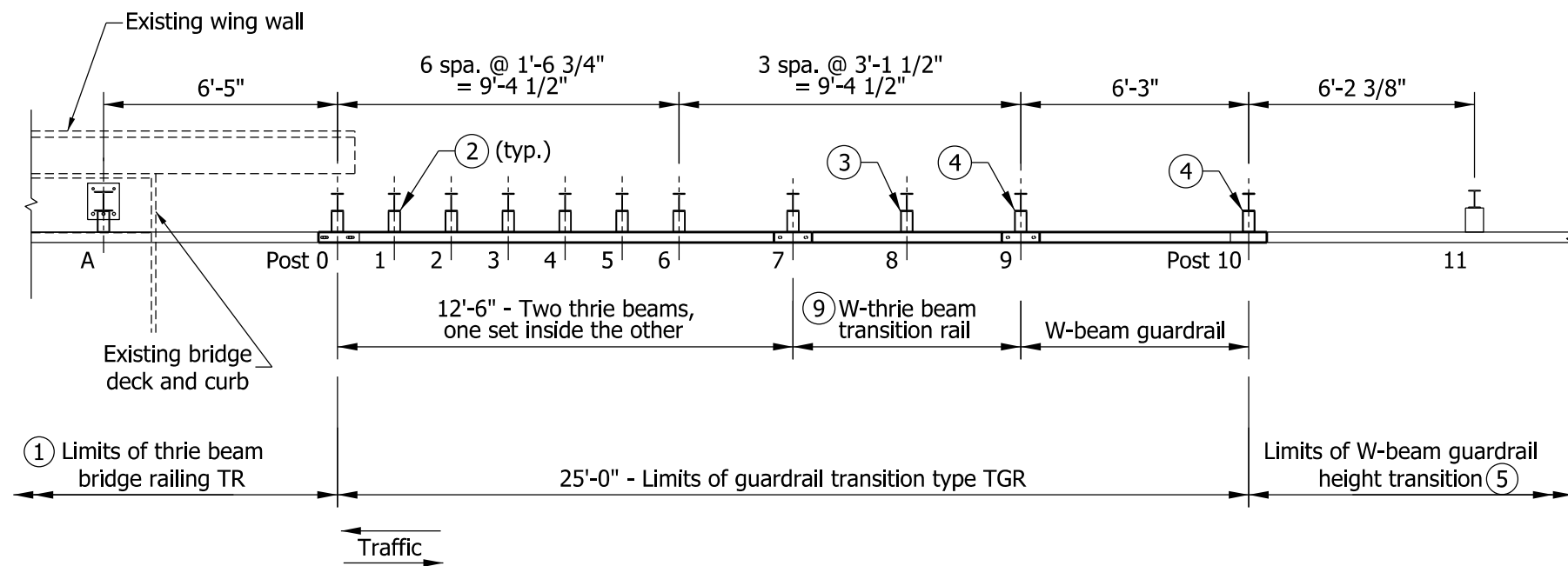


/s/ Richard L. VanCleave 09/04/12
SUPERVISOR, ROADWAY STANDARDS DATE

/s/ Mark A. Miller 09/04/12
CHIEF ENGINEER DATE



ELEVATION



PLAN VIEW

NOTES

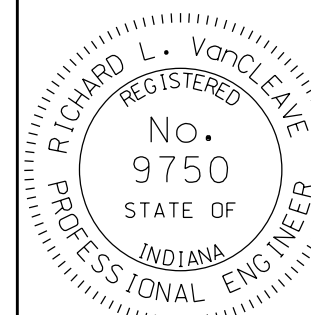
- ① See Standard Drawing E 706-BRTR-01 for thrie beam bridge railing TR.
- ② TGB transition post/blockout assembly. See Standard Drawing E 601-TTGB-03 for post and blockout details. Adjust post height to accommodate guardrail heights indicated on this sheet. Attach rail using two 5/8" Ø x 2" std. button head bolts with rectangular plate washers, round washers, and recess nuts.
- ③ W-thrie beam transition post/blockout assembly. See Standard Drawing E 601-TTGB-04 for post and blockout details. Adjust post height to accommodate guardrail heights indicated on this sheet. Attach rail using two 5/8" Ø x 2" std. button head bolts with rectangular plate washers, round washers, and recess nuts.
- ④ W-beam post/blockout assembly. See Standard Drawing E 601-TTGB-05 for post and blockout details. Adjust post height to accommodate guardrail heights indicated on this sheet. Attach rail using one 5/8" Ø x 1 1/4" std. button head bolt with rectangular plate washer, round washer, and recess nut.
- ⑤ See Standard Drawing E 706-BRTR-06 for W-beam guardrail height transition.
- ⑥ Twelve 5/8" Ø x 2" std. button head bolts with round washers and recess nuts, through rail sections.
- ⑦ Eight 5/8" Ø x 1 1/4" std. button head bolts with round washers and recess nuts.
- ⑧ Hand tighten post bolts on thrie beam expansion element and burr bolt threads.
- ⑨ See Standard Drawing E 601-TBGC-01 for W-thrie beam transition rail.

INDIANA DEPARTMENT OF TRANSPORTATION

RETROFIT THRIE BEAM
GUARDRAIL TRANSITION
TYPE TGR

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-BRTR-05



/s/ *Richard L. VanCleave* 09/04/12

SUPERVISOR, ROADWAY STANDARDS DATE

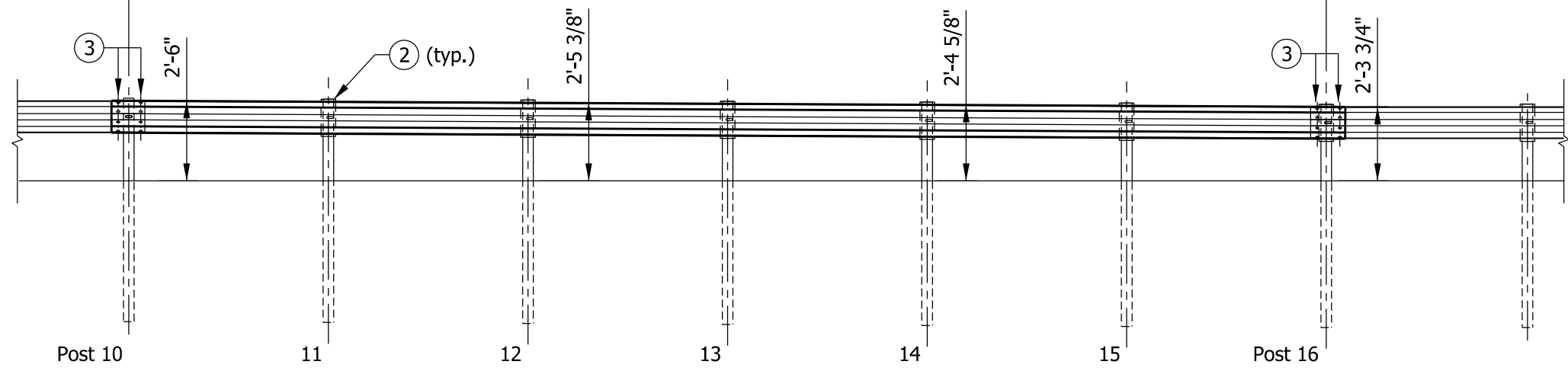
/s/ *Mark A. Miller* 09/04/12

CHIEF ENGINEER DATE

① Limits of guardrail transition type TGR

Top of W-beam guardrail varies in height uniformly from 2'-6" @ post #10 to 2'-3 3/4" @ post 16

W-beam guardrail or guardrail end treatment

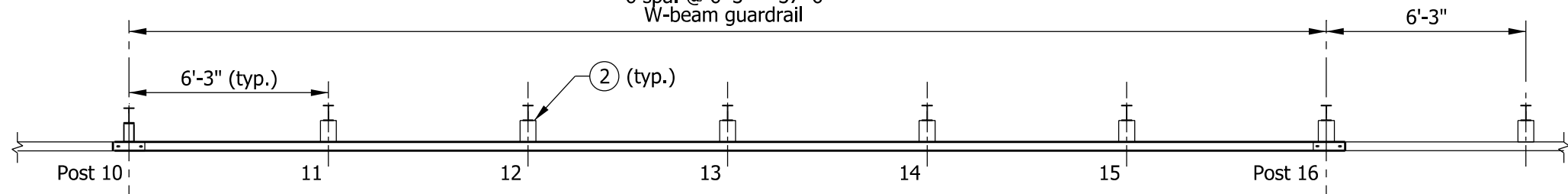


ELEVATION

NOTES

- ① See Standard Drawing E 706-BRTR-05 for thrie beam guardrail transition type TGR.
- ② W-beam post/blockout assembly. See Standard Drawing E 601-WGBA-01 for post and blockout details. Adjust post height to accommodate guardrail heights indicated on this sheet. Attach rail using one 5/8" Ø x 1 1/4" std. button head bolt with rectangular plate washer, round washer, and recess nut.
- ③ Eight 5/8" Ø x 1 1/4" std. button head bolts with round washers and recess nuts.

6 spa. @ 6'-3" = 37'-6"
W-beam guardrail



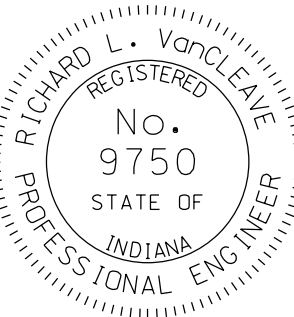
PLAN VIEW

① Limits of guardrail transition type TGR

Limits of W-beam guardrail height transition

Limits of W-beam guardrail or guardrail end treatment



INDIANA DEPARTMENT OF TRANSPORTATION									
RETROFIT THRIE BEAM GUARDRAIL HEIGHT TRANSITION									
SEPTEMBER 2012									
STANDARD DRAWING NO.	E 706-BRTR-06								
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black; padding: 2px;">/s/ <i>Richard L. VanCleave</i></td> <td style="border-bottom: 1px solid black; padding: 2px;">09/04/12</td> </tr> <tr> <td style="padding: 2px;">SUPERVISOR, ROADWAY STANDARDS</td> <td style="padding: 2px;">DATE</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding: 2px;">/s/ <i>Mark A. Miller</i></td> <td style="border-bottom: 1px solid black; padding: 2px;">09/04/12</td> </tr> <tr> <td style="padding: 2px;">CHIEF ENGINEER</td> <td style="padding: 2px;">DATE</td> </tr> </table>	/s/ <i>Richard L. VanCleave</i>	09/04/12	SUPERVISOR, ROADWAY STANDARDS	DATE	/s/ <i>Mark A. Miller</i>	09/04/12	CHIEF ENGINEER	DATE
/s/ <i>Richard L. VanCleave</i>	09/04/12								
SUPERVISOR, ROADWAY STANDARDS	DATE								
/s/ <i>Mark A. Miller</i>	09/04/12								
CHIEF ENGINEER	DATE								