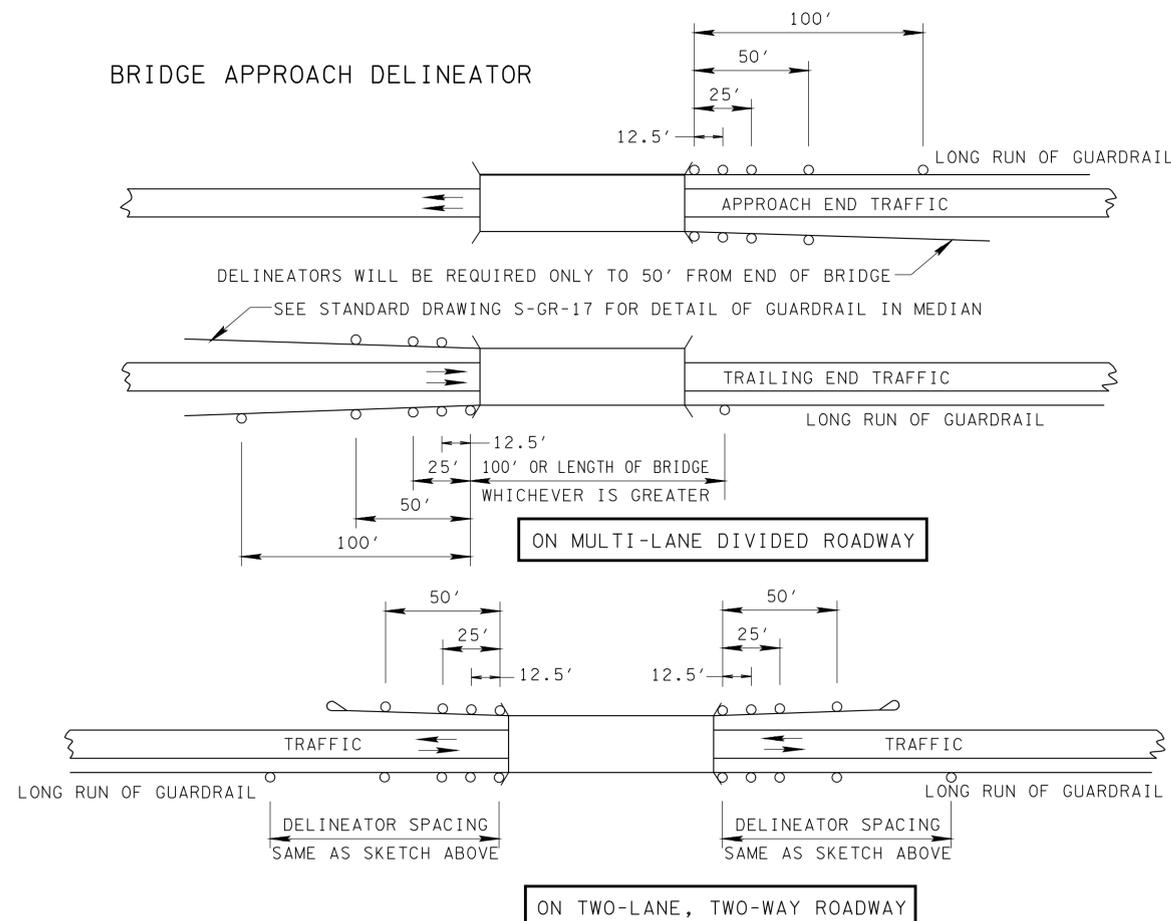
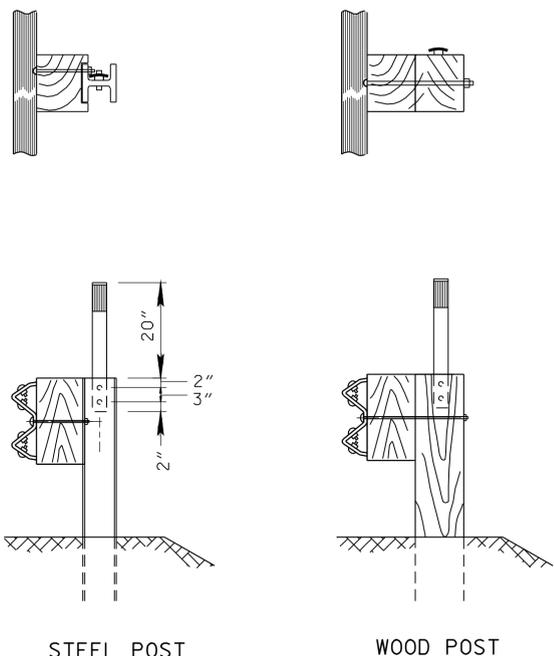


**BRIDGE APPROACH DELINEATOR**



**LOCATION OF BRIDGE APPROACH GUARDRAIL DELINEATORS**

NOTE: "o" DENOTES GUARDRAIL DELINEATORS. (SHOULDER LINES AND GUARDRAIL POSTS NOT INDICATED.)



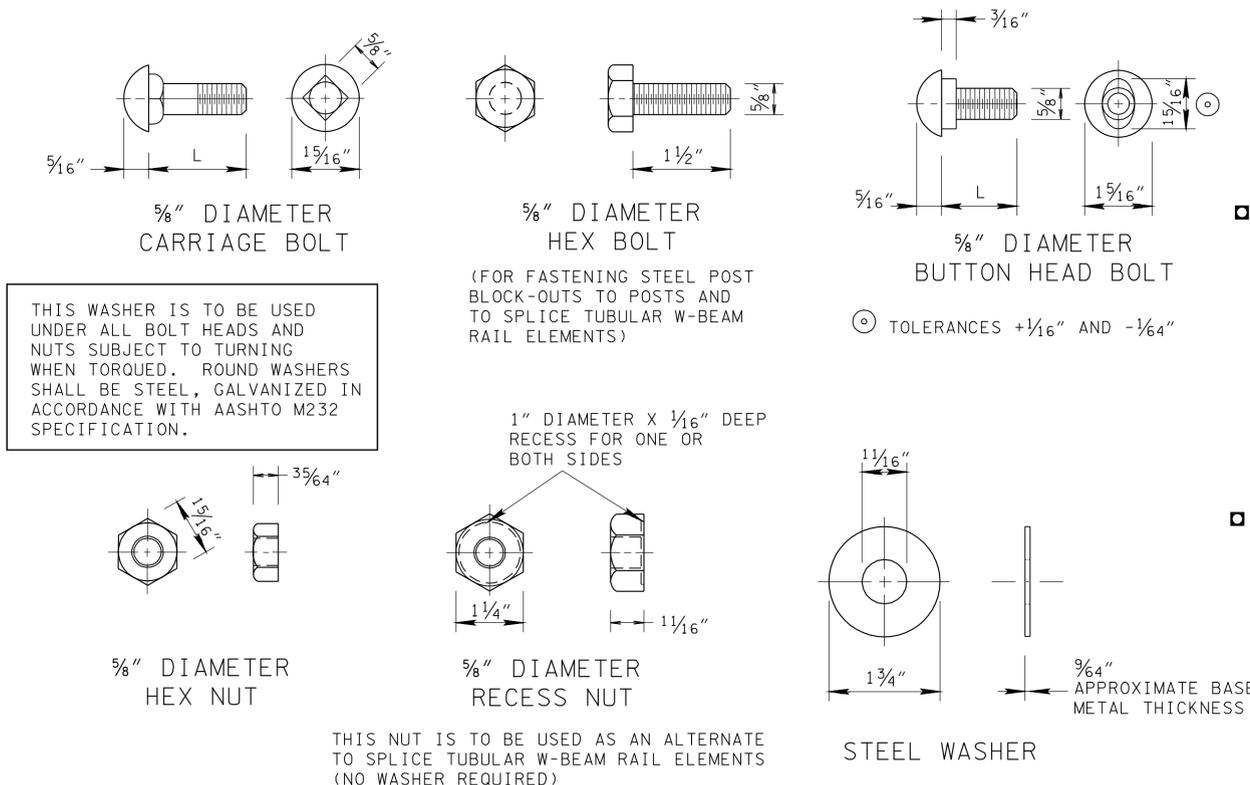
**TYPICAL GUARDRAIL FLEXIBLE DELINEATOR INSTALLATION**

NOTE: SEE STANDARD DRAWING T-S-11 FOR OTHER DETAILS. DELINEATOR MAY BE FULL LENGTH BEHIND POST AS AN ALTERNATE.

**FLEXIBLE DELINEATOR GENERAL NOTES**

- (A) DELINEATORS SHALL CONFORM TO NOTES AND DETAILS SPECIFIED ON STANDARD DRAWING T-S-11,
- (B) DELINEATORS SHALL BE INSTALLED ACROSS BRIDGES ONLY WHEN GUARDRAIL IS CONTINUOUS ACROSS BRIDGES. SPACING ON BRIDGES SHALL BE AT 12'-6" INTERVALS.
- (C) THE COLOR OF DELINEATORS SHALL CONFORM TO THE COLOR OF EDGELINES STIPULATED IN SECTION 3B-6 OF THE MUTCD (CURRENT EDITION).
- (D) DELINEATORS SHALL BE FACED TOWARD THE APPROACHING TRAFFIC IN LANE ADJACENT TO THE GUARDRAIL AT ALL LOCATIONS.
- (E) THE GUARDRAIL DELINEATORS WILL BE SECURED TO THE WOOD POST BY TWO (2) 16 PENNY NAILS AND TO THE STEEL POST BY TWO (2) 2-PIECE CHERRY MATE RIVETS (MODEL: BALM-8-BP12) OR EQUIVALENT. A 3/8" GALVANIZED FLANGED NUT WILL BE PLACED BETWEEN THE DELINEATOR AND THE POST ON EACH OR RIVET.
- (F) THE TWO HOLES IN THE STEEL GUARDRAIL POSTS USED TO ATTACH THE DELINEATOR SHALL BE 1/4" IN DIAMETER AND SHALL BE SHOP DRILLED OR BE DRILLED IN THE FIELD. IF THE HOLES ARE SHOP DRILLED IT SHALL BE DONE PRIOR TO GALVANIZING THE POST. IF THE HOLES ARE FIELD DRILLED THEY SHALL BE THOROUGHLY PAINTED WITH A TOUCH-UP GALVANIZING SPRAY PAINT PRIOR TO ATTACHING THE DELINEATOR POST.
- (G) THE COST OF FURNISHING AND INSTALLING THESE BRIDGE APPROACH GUARDRAIL DELINEATORS SHALL BE INCLUDED IN THE PRICE BID FOR THE ITEMS OF GUARDRAIL TO WHICH THE DELINEATORS ARE ATTACHED.
- (H) ONLY DELINEATORS LISTED ON THE QPL, LIST 1. SECTION G.2 GUARDRAIL POST DELINEATION, MAY BE USED.

**W-BEAM BARRIER FASTENING HARDWARE**



**SPECIFICATIONS**

- (S1) BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS TO THE REQUIREMENTS OF ASTM A563M, GRADE "A" OR BETTER, AND BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
- (S2) DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE, AND ACCEPTED MANUFACTURING PRACTICES.

**CARRIAGE BOLTS**

L	THREAD LENGTH	INTENDED USE
1 1/2"	FULL LENGTH THREAD	THIS BOLT IS A SPLICE BOLT FOR THE CHANNEL RUB RAIL ELEMENTS.
3"	1 1/2" MINIMUM THREAD LENGTH	THIS BOLT IS FOR FASTENING CHANNEL RUB RAIL ELEMENTS TO STEEL POST.
11"	1 3/4" MINIMUM THREAD LENGTH	THIS BOLT IS FOR FASTENING CHANNEL RUB RAIL ELEMENTS TO WOOD POST.
14"	1 3/4" MINIMUM THREAD LENGTH	THIS BOLT IS FOR FASTENING RUB RAIL ELEMENTS TO WOOD POST WHEN USED FOR MEDIAN DIVIDERS.

**BUTTON HEAD BOLTS**

L	THREAD LENGTH	INTENDED USE
1 1/4"	FULL LENGTH THREAD	THIS BOLT IS FOR FASTENING "W" BEAM RAIL ELEMENTS AT JOINTS.
9 1/2"	1 3/4" MINIMUM THREAD LENGTH	THIS BOLT IS FOR FASTENING "W" BEAM RAIL ELEMENTS TO METAL POST WITH WOOD BLOCK-OUTS.
18"	2 1/2" MINIMUM THREAD LENGTH	THIS BOLT IS FOR FASTENING "W" BEAM RAIL ELEMENTS TO WOOD POST WITH WOOD BLOCK-OUTS.
25"	2" MINIMUM THREAD LENGTH	THIS BOLT IS FOR FASTENING "W" BEAM RAIL ELEMENTS TO WOOD POST WITH WOOD BLOCK-OUTS WHEN USED FOR MEDIAN DIVIDERS.

- REV. 5-1-85: REDREW SHEET AND CHANGED GUARDRAIL MOUNTED DELINEATOR TO FLEXIBLE DELINEATOR.
- REV. 11-14-85: CHANGED 5/8" BOLT AND NUT DETAILS.
- REV. 9-1-86: ADDED TO DELINEATOR NOTE.
- REV. 11-4-87: ADDED 5/8" RECESS NUT TO DRAWING.
- REV. 10-26-91: REDREW AND REORGANIZED SHEET. UPDATED DRAWING TO 1991 STANDARDS.
- REV. 1-19-92: MODIFIED CODING SYSTEM ON GENERAL NOTES AND SPECIFICATIONS.
- REV. 7-29-98: CHANGED FLEXIBLE DELINEATOR INSTALLATION DETAIL.
- REV. 9-5-98: CHANGED CARRIAGE AND BUTTON HEAD BOLT NOTES. DELETED DETAIL FOR SQUARE WASHER FOR BUTTON HEAD BOLTS.
- REV. 6-6-11: REORGANIZED SHEET AND ADDED GENERAL NOTE H.
- REV. 4-17-12: CORRECTED ERROR IN NOTE (E).

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION

W-BEAM BARRIER FASTENING HARDWARE AND BRIDGE APPROACH DELINEATORS