

September 5, 2002

HSA-10/B106

**Mr. Rich Peter, Chief
Roadside Safety Technology Branch
Materials Engineering and Testing Services
5600 Folsom Boulevard
Sacramento, CA 95819-4612**

Dear Mr. Peter:

In your July 9 letter to Mr. Frederick G. Wright, former Program Manager for FHWA's Office of Highway Safety, you requested formal acceptance of a Thrie-beam bridge rail transition design that you developed and tested to NCHRP Report 350 test level 4 (TL-4). You noted in your letter that local FHWA acceptance had been granted and included copies of your May 2002 test report "Vehicular Crash Tests of a Nested Thrie-Beam Transition Barrier and crash test videotapes.

The final design consisted of a standard 4130-mm long section of nested Thrie-beam on the traffic side and a single section of Thrie-beam on the field side of the transition. One of the traffic side nested rails was 10-gauge. The other nested rail and the backside rail were both 12-gauge material. A 10-gauge transition piece was used between the Thrie-beam and the approach W-beam guardrail, and the next 2211-mm long section of W-beam was also 10-gauge material. Six 250 mm x 250 mm wood posts on 953-mm centers were used to support the transition. The five posts nearest the vertical concrete parapet (with a 125-mm chamfer on its leading edge) were 2440-mm long. The sixth large post, at the W-beam to transition piece location, was 1830-mm long. These details are shown in the enclosure.

Three tests were successfully conducted on this design: the 2000-kg pickup truck impacting at a nominal speed of 100 km/h and at 25 degrees with the vehicle centered on the concrete parapet and again with it impacting just upstream from the W-beam to Thrie-beam transition piece, and the 8000-kg single unit truck impacting at 75.5 km/h and 16 degrees approximately 2 m from the concrete parapet.

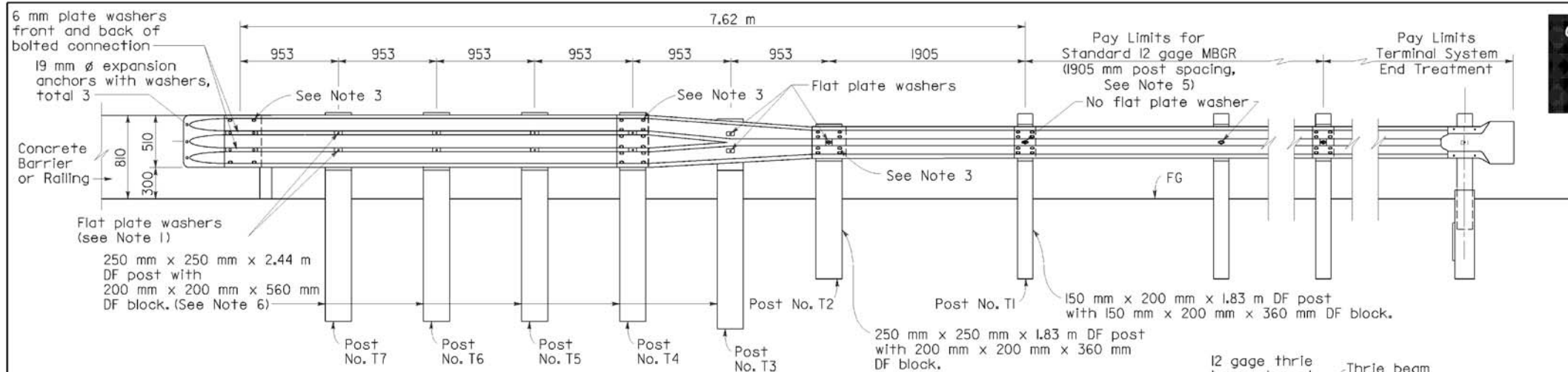
Based on staff review of the information you provided, I agree that the transition described above meets all evaluation criteria for an NCHRP Report 350 bridge rail transition at test level 4 (TL-4) and it may be used on the National Highway System. Since it is a non-patented design, I assume that any agency interested in detailed drawings or test results may contact you directly at rich_peter@dot.ca.gov or by telephone at (916) 227-7257.

Sincerely yours,

(original signed by Carol H. Jacoby)

**Carol H. Jacoby, P.E.
Director, Office of Safety Design**

Enclosure

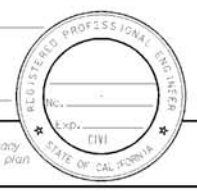


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
X	X	X	X	X	X	X

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

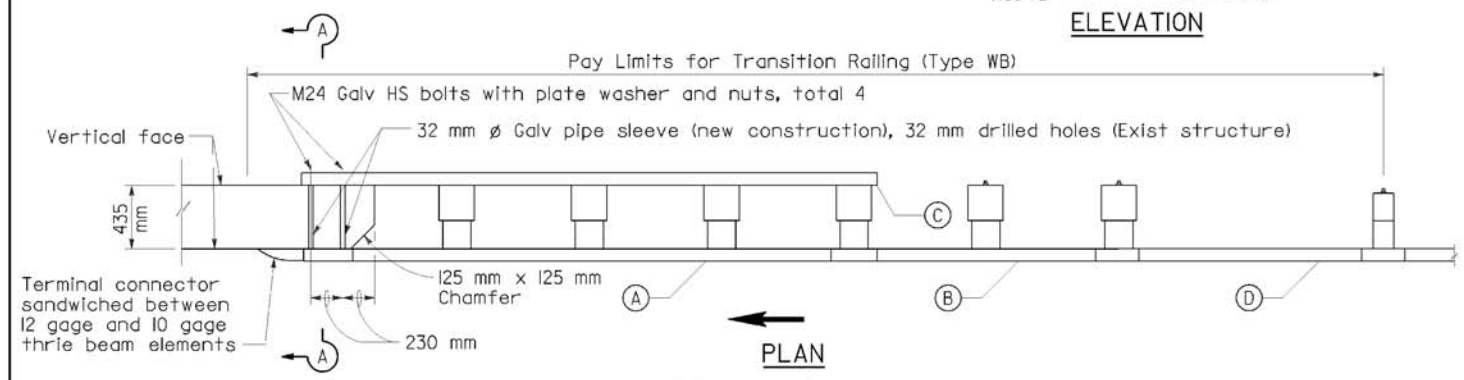
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



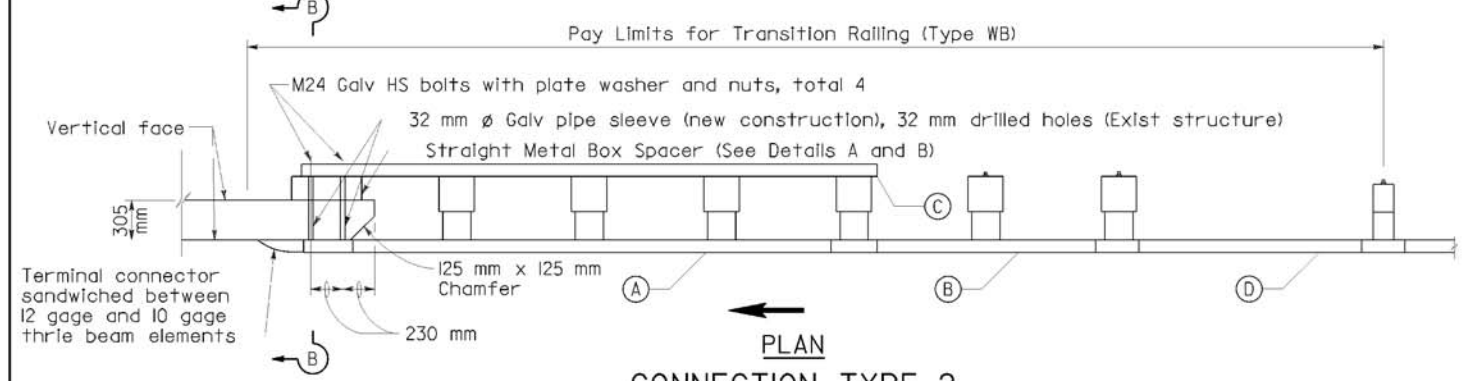
To accompany plans dated X

NOTES:

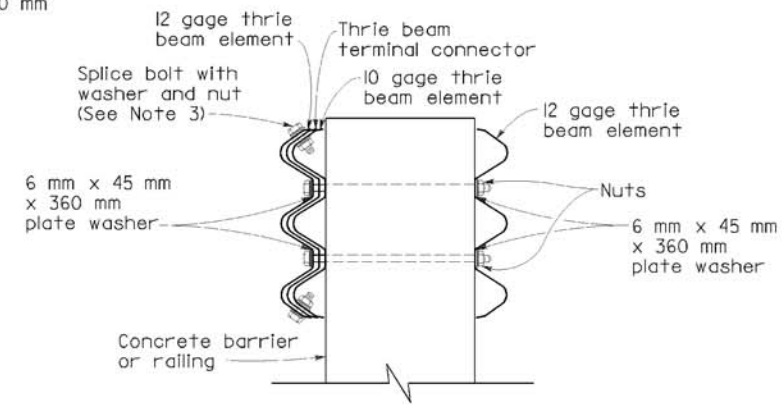
- Flat plate washers to be installed on front and back of bolted connections of Post Nos. T4, T5, T6 and T7. Flat plate washers also to be installed on front of bolted connections of Post Nos. T2 and T3.
- The nested rail elements, terminal connector, and "W" beam to thrie beam element, may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
- Exterior splice bolt holes shall be the standard 23 mm x 29 mm slot size for rail splices at Post No. T4 and the connection to the concrete barrier or railing. Interior splice bolt holes may be increased up to 29 mm Ø. Washers shall be used with splice bolts on back side of rail element at Post No. T4 and connection to the concrete barrier or railing. The 8 splice bolts adjacent the 6 mm plate bolted connection are not required. The 2 top and 2 bottom splice bolts with washers and nuts shall be used.
- Direction of traffic indicated by →
- The length of metal beam guard railing between the transition railing and terminal system end treatment is based on site conditions. In some instances the metal beam guard railing between the transition railing and terminal system may not be required and the Terminal System End Treatment will be connected directly to post No. T1.
- The top elevation of Post Nos. T2 through T7 shall not project more than 25 mm above the top elevation of the rail element.



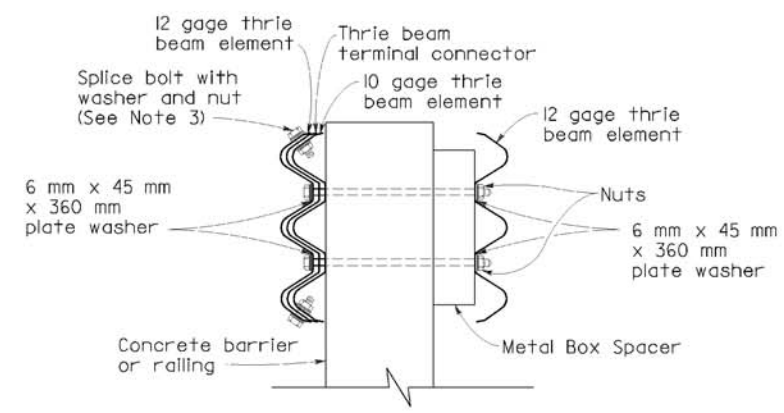
CONNECTION TYPE 1



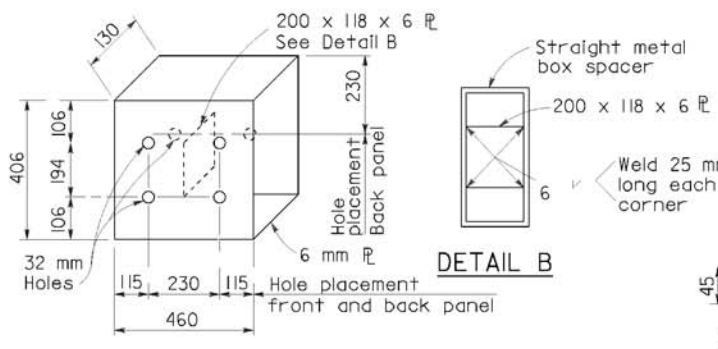
CONNECTION TYPE 2



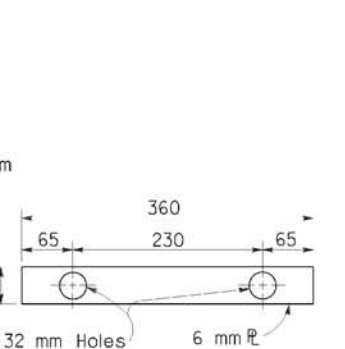
SECTION A-A



SECTION B-B



**DETAIL A
STRAIGHT METAL BOX SPACER**



**DETAIL B
6 mm PLATE WASHER**

LEGEND

- (A) Nested thrie beam elements (one 12 gage element nested over one 10 gage element).
- (B) One 10 gage "W" beam to thrie beam element.
- (C) One 12 gage thrie beam element.
- (D) One 10 gage "W" beam rail element (2221 mm length)

DRAFT

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TRANSITION RAILING
(TYPE WB)**

NO SCALE
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN
NSP A77JA DATED * SUPPLEMENTS
THE STANDARD PLANS BOOK DATED JULY 1, 1999

NEW STANDARD PLAN NSP A77JA

Last Revision Date, 12-12-01

1999 NEW STD. PLAN NSP A77JA