



U.S. Department  
of Transportation

**Federal Highway  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

February 19, 1997

Refer to: HNG-14

Dr. Dean L. Sicking  
Director, Midwest Roadside  
Safety Facility  
University of Nebraska Lincoln  
W348 Nebraska Hall  
Lincoln, Nebraska 68588-0531

Dear Dr. Sicking:

Your December 20, 1996, letter to Mr. Gerald L. Eller requested the Federal Highway Administration's (FHWA) acceptance of the use of 1830-mm long CRT posts as an alternative to the 1780-mm CRT posts in the National Cooperative Highway Research Program (NCHRP) Report 350 BEST guardrail terminal which was deemed acceptable for use on the National Highway System in Mr. Seppo I. Sillan's November 20, 1996, letter to you. Based on a verbal request from my staff for more information regarding this change, you sent a second letter to Mr. Eller on January 20.

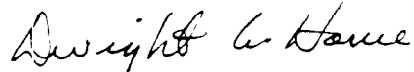
In this second letter, you stated that you had run a passing strength test (a 2000-kg pickup truck at 100 km/h and 20 degrees) at post number three into a system very similar to the BEST that used 1830-mm long CRT posts at posts 3-7. Our review of the original NCHRP Report 350 certification tests revealed that, in addition to using shorter posts, rough-sawn posts (150 mm x 200 mm) were used in the final design in lieu of the 1830-mm long, surfaced (S4S) posts with 140 mm x 190 mm dimensions used in an earlier failing version.

We concur with your conclusion that the increased cross section (section modulus increase of approximately 28 percent) was far more influential in successful performance of the acceptable design than was the 50 mm (4.6 percent, assuming a 550-mm center of rail mounting height) reduction in embedment depth that resulted from using 1780-mm posts. Therefore, we agree that the BEST may be installed with 1780-mm or 1830-mm CRT posts at posts 3-7, provided that in either case, full dimensioned posts, i.e., 150 mm x 200 mm in cross section, are used. (This same condition will be applied to the CRT posts in the ET-2000 guardrail terminal.)

An unrelated concern that we want to address pertains to the layout designs for the ET-2000 and the BEST observed throughout the country in recent months. Since both the ET-2000 and the BEST extruder/cutter heads are wider than the w-beam rail, the leading edge of these units is significantly closer to the roadway than the barrier itself. Such placement can lead to an increase in accidents, particularly if the head encroaches onto a shoulder area or is within the recommended shy-line distance for a particular roadway. To minimize accidents and maintenance costs, both of these terminals should be installed with a 50:1 flare over the first 15 m (50 feet).

Copies of this letter will be sent to the FHWA field offices.

Sincerely yours,



Dwight A. Horne, Chief  
Federal-Aid and Design Division

Federal Highway Administration  
HNG-14:RPowers:366-1320:2/18/97:Sicking  
copies to:  
HNG-1 HNG-10 HNG-14 Reader, 3128 File 3128  
Ras HFL-1 HHS-10 HRS-20 HNG-20

Geometric and Safety Design Group Supplement A to Acceptance Letter CC-37, dated November 20, 1996, and erroneously identified as CC-36. (Please make pen and ink correction).