

November 21, 2001

Mr. Daniel J. MacDonald  
Standards Engineer  
Oregon Department of Transportation  
222 Transportation Building  
Salem, Oregon 97310

Refer to: HSA-10/B-86A

Dear Mr. MacDonald:

In his August 17 letter to you, Mr. Frederick Wright accepted both an 810-mm and a 1065-mm tall F-shape precast barrier at NCHRP Report 350 test level 3 (TL-3). On November 6, you sent Mr. Wright two copies of a test report prepared by KARCO Engineering in Adelanto, California, entitled "Crash Test Report for Oregon Tall F-Shape Median Barrier 15 Degree Impact Tested to NCHRP 350 Recommendations for Test Level 4 Redirective Longitudinal Barriers" (Test Report No. KAR21007-03), and two copies of the test videotapes.

The test installation was identical to the tall F-shape barrier tested previously to TL-3 with a pickup truck. It consisted of a series of 20 precast concrete F-shape segments, 1065-mm high, 3.02-m long, 660-mm wide at the base, and 230-mm wide at the top. The connection between segments consisted of two sets of two perforated C-shape steel channels with the open sides alternately positioned such that one leg of each channel fits between the legs of the mating channel on the adjacent barrier segment. A 25-mm diameter ASTM A449 end bolt, 760-mm long, was inserted through holes in each C-channel leg and into a nut welded to the bottom of the lower C-channel, effectively forming eight points of connection. This system was impacted at the eighth segment with a 7917-kg single unit truck at 76 km/h and a 15-degree angle. Occupant impact velocity was reported to be 2.7 m/sec and maximum 10-millisecond ridedown acceleration was 6.8 g's. Maximum vehicle roll was approximately 9.5 degrees and the barrier dynamic deflection was 825 mm.

Based on the reported results of the test, the 1065-mm tall design satisfies the evaluation criteria of the National Cooperative Highway Research Program (NCHRP) Report 350 for a test level 4 (TL-4) longitudinal barrier and may be used on the National Highway System when such use is acceptable to the contracting authority. The drawing for the tall barrier can be obtained by contacting you at (503) 986-3779 or from your web site at <ftp://ftp.odot.state.or.us/techserv/roadway/standards> under drawing no. odot\_apwa545.pdf.

Sincerely yours,

(original signed by Michael Halladay)

Michael Halladay  
Acting Program Manager, Safety