

February 13, 2001

Refer to: HSA-10/CC36B

Mr. Michael Kempen
IMPACT Absorption
46-04 245th Street
Douglaston, NY 11362

Dear Mr. Kempen:

In your November 24, 2000 letter addressed to the Director of the Federal Highway Administration's (FHWA) Office of Engineering, you described proposed modifications to the Vanderbilt Truck Mounted Attenuator (VTMA) and requested FHWA concurrence that these changes would not effect its acceptability. The original VTMA was accepted as a National Cooperative Highway Research Program (NCHRP) Report 350 test level 3 (TL-3) device by Mr. Dwight A. Horne in his June 17, 1997 letter to Dr. John F. Carney at Worcester Polytechnic Institute. You provided Mr. Richard Powers of my staff additional information in your December 18th letter to him and your request was discussed in person during the annual Transportation Research Board Meeting held in Washington, D.C. this past January.

The proposed modifications consist primarily of eliminating the boom and cable assembly that suspended the impact face of the attenuator over the roadway and using support wheels ("dragger wheels") attached to a new impact plate to maintain the proper elevation of the VTMA and to improve both its stability and transportability. Thus, the original cantilevered design has been changed to a trailer-type attenuator. The energy-absorbing elements of the VTMA remain unchanged. The original impact plate was a 890 mm x 890 mm x 9.5 mm steel plate whereas the modified plate, made from aluminum, is 1800-mm wide and 560-mm high. Two steel wheels, mounted forward of the impact plate, maintain a constant 200-mm clearance between the attenuator and the road surface. The weight of the aluminum impact plate and the "dragger wheels" remains at approximately 90 kg., the same as the tested steel plate. Although the detailed drawings submitted for review were in Swedish, the dimensions were readily apparent, but it would be useful to have for our files a fully-translated set of drawings of the impact plate/wheel assembly showing all material specifications and connection details.

After reviewing the original crash tests conducted on the VTMA and the proposed modifications to that design, it is the opinion of my staff that the modified VTMA will perform similar to the tested design and thus may be considered an NCHRP Report 350 TL-3 crash cushion. It was noted in our original acceptance letter that the ridedown acceleration was at the upper limit in the certification test with the 2000-kg pickup truck with the VTMA mounted on a 9,000 kg support vehicle and that the use of a significantly heavier support vehicle should be avoided. The same caveat applies to the trailer design. Since this acceptance was not based on actual crash tests and it is my understanding that several of these new units will be used in Sweden, I suggest that the in-service performance of the trailer VTMA be monitored by the Swedish authorities and that the impact conditions (i.e., vehicle type, speed and angle) and the net results of any vehicular impacts be reported and analyzed for at least a one-year period.

Sincerely yours,

(original signed by Rudolph M. Umbs)

for Frederick G. Wright, Jr.
Program Manager, Safety