



U.S. Department
of Transportation
**Federal Highway
Administration**

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

March 22, 2005

In Reply Refer To: HSA-10/WZ-197

Mr. Jeffery M. Siadik
Vice President of Operations
Traffic Safety Service Corporation
601 Hadley Road
P.O. Box 615
South Plainfield, New Jersey 07080

Dear Mr. Siadik:

Thank you for your letter of December 2, 2004, requesting Federal Highway Administration (FHWA) acceptance of your company's 48-inch wide Type III plastic barricades as crashworthy traffic control devices for use in work zones on the National Highway System (NHS). You requested that we find these devices acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features." Downriver Plastics is the manufacturer of the framing elements that were used in the Type III Barricade that was crash tested and found acceptable in the FHWA acceptance letter WZ-104 on January 11, 2002. The vendor who sponsored that test, PMG Lobo Limited, is no longer in business manufacturing this barricade.

Introduction

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices are those lightweight devices which are to be self-certified by the vendor, Category II devices are other lightweight devices which need individual crash testing but with reduced instrumentation, Category III devices are barriers and other fixed or heavy devices also needing crash testing with normal instrumentation, and Category IV devices are trailer mounted lighted signs, arrow panels, etc. for which crash testing requirements have not yet been established. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III.



The type III barricade tested by the original vendor was a compact lightweight device featuring blow molded high density polyethylene upper and lower supports and hollow extruded plastic panels. The upper and lower supports are joined together with a simple slip-fit connection. The 210 mm high by 1219 mm long barricade panels are made from a specially formulated polyolefin plastic and surfaced with reflective sheeting. Each of the three panels is secured to the uprights with four 9.5 mm diameter by 76.2 mm long ASTM A307 hex bolts and nuts with plain washers front and back. The mass of each test article was 13.4 kg. Each was placed on a flat, clean, and dry asphalt surface with three 15.9 kg sandbags placed on the lower support legs of each barricade for ballast. No flags, lights, or signs were mounted on the test articles.

As you are now obtaining the “blow molded high density polyethylene upper and lower supports” directly from the manufacturer, you have requested acceptance of this barricade using flat polyethylene panels, 3/16 inch thick, in lieu of the hollow core panels crash tested by the original vendor. The weight of the original barricades tested by the previous vendor was 13.4 kg (29.5 pounds.) With the substitution of the 3/16 poly panels, which weigh 0.9 kg (2 pounds) each, the barricade will weigh 9 kg (20 pounds). As we have allowed the substitution of such panels with some other Type III barricades, we agree with your assertion that the revised barricade will perform in an acceptable manner.

Testing

Full-scale automobile testing was conducted. Two stand-alone examples of the device were tested in tandem, one head-on and the next placed six meters downstream turned at 90 degrees, as called for in our guidance memoranda. When struck the upper portions of the barricades came out of the base sections and were knocked ahead of the vehicle. Damage was limited to dents and scrapes in the hood. There did not appear to be any potential for passenger compartment intrusion. The results of the testing met the FHWA requirements.

Findings

Your modification to the successfully tested barricade only affects the horizontal rails. Provided the rails are connected to the barricade frame in substantially the same manner as the tested barricade was fabricated, your Type III Barricade described above and shown in the enclosed drawing for reference will be acceptable for use on the NHS under the range of conditions the original barricade was tested, when proposed by a State.

Please note the following standard provisions that apply to the FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.

- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-197 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

/Original Signed by/

John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

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