



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

JUL 23 1998

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

Refer to: HNG-14

Mr. George Giotis
Flasher Handling Corp
125 Taylor Drive
Depew, New York 14043

Dear Mr Giotis:

This is in response to your recent letters and telephone conversations to Mr. Nicholas Artimovich of my office regarding your company's traffic control devices for use in work zones. You have requested that we review the information you transmitted and inform you if the devices are acceptable for use when crashworthy devices are required on the National Highway System. You supplied information for the following devices:

"Air Spill Barricade" vertical panel
"Opposing Traffic Lane Divider" [TWS 36RB or TWS 36RBP]
"Direction Indicator" vertical panel with attached sign
"Featherweight" portable sign frame system
"Bantam 2" portable sign frame system
"Swiveller" sign frame system
"The Stopper" portable stop sign system
"Breakaway" perforated square steel tube frame barricade

I would like to address the items in order:

"Air Spill Barricade" vertical panel and "Opposing Traffic Lane Divider."

These two devices are similar except for the signs attached. The Air Spill Barricade was tested by New York State and found to be crashworthy [NYS work zone crash tests "NY-99 through NY-104"]. Based on our examination of this device and comparison to other crash tested devices it is evident that it is also safe when struck by a vehicle. It will be included as an acceptable device in our acceptance letter WZ-3 which is pending. The Opposing Traffic Lane Divider will also be considered acceptable because the base and support hardware is identical to the "Air Spill Barricade," but has two 12" x 18" panels, one on each side of the fiberglass support.

"Direction Indicator" vertical panel with attached sign

Although this device is basically an "Air Spill Barricade" vertical panel with an arrow sign mounted on top, the performance of the device with the sign cannot readily be predicted. Therefore, crash tests are necessary to determine if the "Direction Indicator" complies with the test and evaluation criteria in NCHRP Report 350. The attached July 25, 1997, memorandum, Action: Identifying Acceptable Highway Safety Features, provides information on the process for having safety hardware crash tested.

"Featherweight" portable sign frame system and "Bantam 2" portable sign frame system.

These sign support systems appear similar to the support that was successfully crash tested with "roll-up" type signs at the Texas Transportation Institute, and included in our acceptance letter WZ-3 referenced above. We would be willing to consider accepting this device without crash testing if you provided us with a side-by-side comparison of your device to that which was crash tested. This comparison should include details of construction, component dimensions/thicknesses, materials specifications, hardware (fastener) details, support mounting brackets/springs details, size, and weight of your product and of the tested product. Your assessment that these devices are essentially identical and will perform similarly to the tested device should be included.

"Swiveller" sign frame system.

This is a ground-mounted sign which appears to be a substantial structure. Therefore we believe that it needs to be crash tested according to NCHRP Report 350 as discussed above.

"The Stopper" portable stop sign system

This temporary sign system should be crash tested as discussed above. If the mass of the system is relatively low, our primary concern is that the base may snag on the undercarriage of the impacting vehicle once the sign post has been struck. Full-scale crash tests with reduced instrumentation would be necessary to show if this was a problem or not. If the mass of the system is large enough to cause significant vehicle deceleration, then full instrumentation of the test vehicle is required by NCHRP Report 350.

"Breakaway" perforated square steel tube frame barricade

This Type III perforated square steel tube frame barricade is similar to the barricade that was crash tested at the Texas Transportation Institute with acceptable results, and to be included in our acceptance letter WZ-3 referenced above [Texas tests 453790-3, 453880-1, and 453880-2]. The tested barricade used square tubing roll formed from 2.7-mm thick steel conforming to ASTM Specification A-446. The tubing has 11.1-mm diameter holes spaced at 25.4 mm on center along the centerline of each of the four sides and is galvanized. The frame of the tubular steel barricade is erected using 38.1-mm and 44.5-mm perforated square tubing and splice plates fabricated from 6.4-mm steel plate as shown in the enclosed drawing. The base for each vertical support consists of a single 44.5-mm perforated steel tube 1524 mm long. A 254-mm sleeve, also fabricated from 44.5-mm tubing, is connected vertically to the center of the base support using two splice plates. Two 9.5-mm bolts, one through the base support and one through the sleeve, are used to provide the connection. Moment resistance against wind loads is provided by two 6.4-mm bolts that run between the splice plates and along the outside faces of the vertical sleeve. These small bolts are designed to fail in shear upon impact, thus permitting the vertical supports to rotate downward about the 9.5-mm connection bolt.

A horizontal brace fabricated from 44.5-mm tubing extended between the vertical sleeves to provide stability to the steel frame. The vertical supports are fabricated from 38.1-mm perforated tubing. The vertical members insert into the 44.5-mm sleeves and are secured using a 9.5-mm pin or bolt. Two different types of horizontal rail elements can be used in conjunction with the perforated tube frame, the plastic rail element and attachment bracket, or standard dimension wooden rail elements - both of which can be seen in the enclosed drawings.

Drawings of the crash tested barricade, and specifications of your 3-Rail Breakaway Barricade are enclosed. Your company's barricades which conform to the tested barricades are acceptable for use on the NHS where crashworthy devices are required.

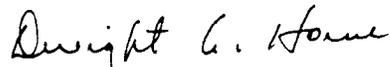
Conclusion

The "Air Spill Barricade" vertical panel [models DSTA MRQB or DSTA MRB], the "Opposing Traffic Lane Divider" [models TWS 36RB or TWS 36RBP], and the 3-Rail Breakaway Barricade [model 15 BAB-4S] described above and shown in the enclosed drawings, met the crashworthiness requirements of NCHRP Report 350 (as modified

by FHWA), or are so similar to crash tested devices as to be considered crashworthy. Therefore, they are acceptable for use on the National Highway System (NHS) within the range of conditions tested, when requested by a State. Our acceptance is limited to the breakaway characteristics of the devices and does not cover the structural features nor the devices' conformity with the Manual on Uniform Traffic Control Devices Presumably, you will provide users with sufficient information on structural design and installation requirements to ensure proper performance of your hardware and provide certification to transportation agencies that the hardware furnished will have essentially the same chemistry, mechanical properties, and geometry as those used in the tests and that it will meet FHWA change in velocity requirements.

Your company's work zone traffic control devices are proprietary products, but their use in Federal-aid projects is generally of a temporary nature. They are selected by the contractor for use as needed and removed upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are specified for use on Federal-aid projects, except exempt, non-NHS projects, they: a) must be supplied through competitive bidding with equally suitable unpatented items; b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternative exists or; c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.

Sincerely yours,



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

Enclosures

FHWA:HNG-14:NArtimovich:366-1331:7-13-98:cad:GIOTIS

copies to:

HNG-1 HNG-10 HNG-14 Reader, 3128 Reader, 3128

RAS HFL-1 HHS-10 HSR-20 HNG-20

Geometric and Safety Design Acceptance Letter WZ-5