



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

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

December 2, 2004

In Reply Refer To: HSA-10/WZ-177

Mr. Randy L. Warner  
Protection Services, Incorporated  
635 Lucknow Road  
Harrisburg, Pennsylvania 17110

Dear Mr. Warner:

Thank you for your letter of August 23, 2004, requesting Federal Highway Administration (FHWA) acceptance of your company's vertical panel framed with 14-ga perforated square steel tubes as crashworthy traffic control devices for use in work zones on the National Highway System (NHS). Accompanying your letter was a drawing of the device. 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."

### **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.

A brief description of the device follows:

The vertical panel frame is fabricated from 1-1/2" x 1-1/2" x 14 gauge, perforated Telspar tubing. The marker panel is 12" x 24" x .080" aluminum sheeted with 3M Diamond Grade prestriped sheeting. The base of the stand is made with 3 pieces of tubing, each piece being 16" long welded together in the configuration illustrated in the enclosed drawing with two splice plates attached to hold the 36"- 44" long upright and these two plates would function as a point of breakaway. These stands are to be placed in an 8 inch cut-out and the top of the panel must be 36" above the roadway.



## Findings

No crash testing was conducted on this vertical panel design. However, the PSST framing materials and base connection details have been used in numerous Type III barricades and portable sign stands. Some lightweight dual-post PSST frames supporting rigid substrates have failed, but because of its size (36 inches from the pavement to the top of the panel) and the fact that the base will be sitting at the bottom of an 8 inch deep excavation adjacent to pavement, we concur that this device would likely meet the FHWA's evaluation criteria for work zone devices. Therefore, the device described above and detailed in the enclosed drawings are acceptable for use on the NHS under the conditions discussed in this letter, when proposed by a State.

Please note the following standard provisions that apply to 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-177 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 Hari Kalla/*

*~for~*

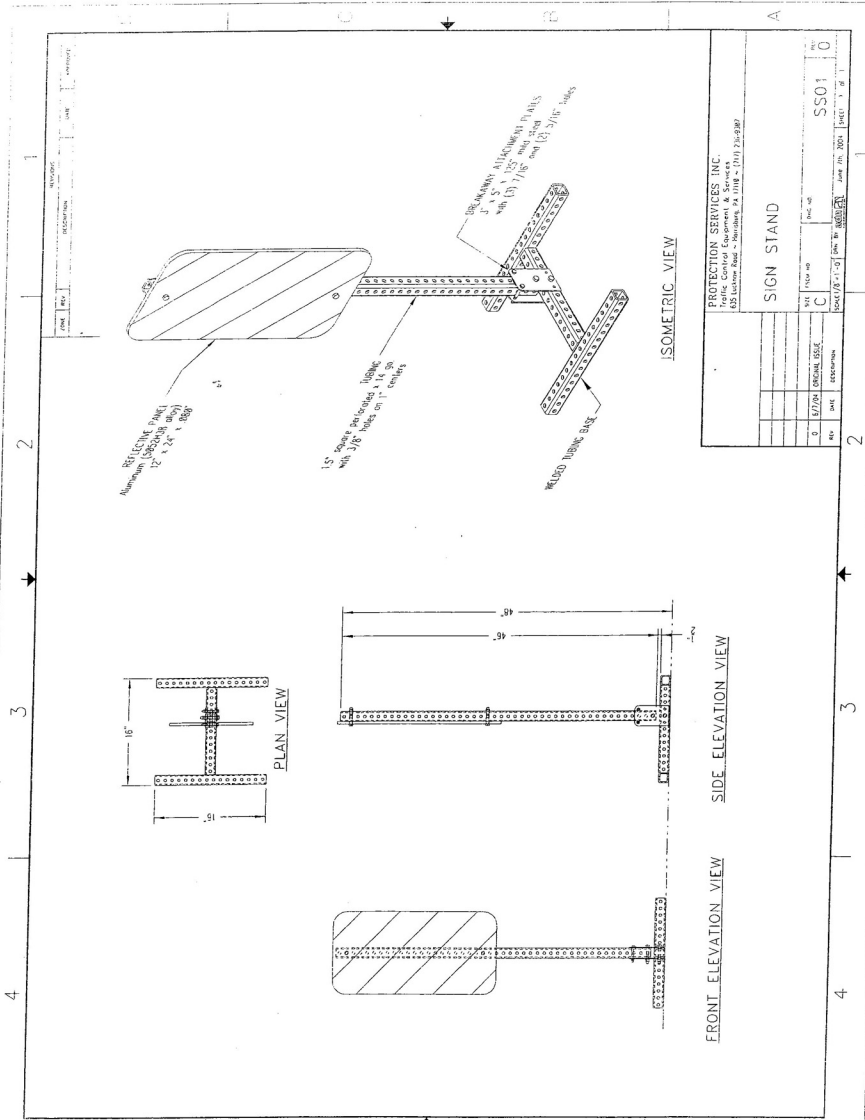
John R. Baxter, P.E.  
Director, Office of Safety Design  
Office of Safety

Enclosures

FHWA:HSA-10:NArtimovich:tb:x61331:11/29/04

File: h://directory folder/artimovich/WZ177-ProtServFIN

cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;  
N.Artimovich, HSA-10)



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|---|---------|----------------|-------------------|
| PROTECTION SERVICES INC<br>Traffic Control Equipment & Services<br>120 Sutter Blvd - Novato, CA 94945<br>(707) 734-9999 |         | DATE: 06/17/24 | SCALE: 1" = 1'-0" |
| REV   | DATE    | DESCRIPTION    | BY                |
| 0   | 6/17/24 | ORIGINAL ISSUE | C                 |
| DRAWN BY: C   |         | CHECKED BY: C  | DATE: 06/17/24    |
| PROJECT: SIGN STAND   |         | SHEET: 01      | TOTAL SHEETS: 01  |