Mr. John Sarkisian  
National Sales Manager  
Market Displays International  
38271 W. Twelve Mile Road  
Farmington Hills, Michigan 48331-3041

Dear Mr. Sarkisian:

Thank you for your letter of June 15 requesting Federal Highway Administration (FHWA) acceptance of certain of your company’s portable sign stands as crashworthy traffic control devices for use in work zones on the National Highway System. The letter was a follow-on to your December 10, 1998, letter which included a comparison of your company’s stands to other portable sign stands that had been tested by the Texas Transportation Institute. You requested that we find Model 4814SSCK 30CAM, 40CAM, and 4814CS portable sign stands acceptable for use on the National Highway System based on their similarity to the-crash tested stands. On September 9, 1999, you provided additional information and also requested acceptance of two additional stands, the 4814NSCK and the 3612DLK.

Unifying features of these six “X-footprint” stands is that they consist of steel or aluminum telescoping legs, a vertical upright to support the roll-up sign, and a diamond shaped sign panel supported by horizontal and vertical fiberglass ribs (1220-mm (48-inch) square or 914-mm (36-inch square signs.) A significant deviation, however, is the mid-height mast of the 4814CS stand. Whereas the other three stands support the roll-up sign frame near the base, the 4814CS attaches to the middle of the sign bracing. We are not aware of any examples of a sign stands like that tested in the public domain. This stand will require crash testing prior to our review for acceptance.

The five remaining stands have little or no metal structure above the point at which the vertical fiberglass cross-bracing is enclosed. We have observed crash tests where roll-up signs mounted in this manner pass over the vehicle generally only doing minor damage to the windshield. No impacts have been observed where the windshield was penetrated. Of course, vehicle speed and trajectory are not affected to any great degree in tests of “compact” sign stands of this sort. These five signs are summarized in the following table and illustrated in the enclosed drawings:
<table>
<thead>
<tr>
<th>Model #</th>
<th>Leg construction</th>
<th>Base</th>
<th>Sign Ht.</th>
<th>Upright</th>
<th>Mast</th>
<th>Ht to Top</th>
</tr>
</thead>
<tbody>
<tr>
<td>3ocAM</td>
<td>STEEL 1830 mm TELESCOPE (72&quot;)</td>
<td>WELD</td>
<td>324 mm (12.75&quot;)</td>
<td>STEEL 667 mm</td>
<td>FIBERGLASS</td>
<td>2050 mm (80.75&quot;)</td>
</tr>
<tr>
<td>4ocAM</td>
<td>STEEL 1830 mm TELESCOPE (72&quot;)</td>
<td>1 SPRING</td>
<td>324 mm (12.75&quot;)</td>
<td>STEEL 667 mm</td>
<td>FIBERGLASS</td>
<td>2050 mm (80.75&quot;)</td>
</tr>
<tr>
<td>4814SSCK</td>
<td>ALUMINUM 1830 mm TELESCOPING (72&quot;)</td>
<td>1 SPRING</td>
<td>324 mm (12.75&quot;)</td>
<td>ALUM 667 mm</td>
<td>FIBERGLASS</td>
<td>2050 mm (80.75&quot;)</td>
</tr>
<tr>
<td>4814NSCK</td>
<td>ALUMINUM 1830 mm TELESCOPING (72&quot;)</td>
<td>WELD</td>
<td>1324 mm (2.75&quot;)</td>
<td>ALUM 667 mm</td>
<td>FIBERGLASS</td>
<td>2050 mm (80.75&quot;)</td>
</tr>
<tr>
<td>3612DLK*</td>
<td>ALUMINUM 1625 mm TELESCOPING (64&quot;)</td>
<td>2 Spring</td>
<td>305 mm A L (12&quot;)</td>
<td>U M 585 mm</td>
<td>FIBERGLASS</td>
<td>1855 mm (73&quot;)</td>
</tr>
</tbody>
</table>

* The 3612DLK holds a 914-mm square roll-up sign. The other stands hold 1220-mm square roll-up signs.

On July 16, 1998, we wrote to you and accepted the 4814 DLK /4814 HDK portable sign stands as being similar to stands that were successfully tested for the Texas Department of Transportation. These sign stands also have no metal structure above the low base-mast holding the bottom of the fiberglass cross brace. The signs listed above can expected to perform in the same manner.

Therefore, your company's portable sign stands 4814SSCK, 3OCAM, 4OCAM, 4814NSCK, and 3612DLK are acceptable for use on the National Highway System when requested by a State, subject to the conditions noted below. Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity of the devices with the Manual on Uniform Traffic Control Devices. Presumably, you will supply potential users with sufficient information on design and installation requirements to ensure proper performance. We anticipate that the States will require certification from MDI that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance. To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-20, shall not be reproduced except in full.

You asked that we find these signs acceptable with a 9.52-mm (3/8-inch) thick vertical fiberglass rib. The “compact” type signs tested for Texas Department of Transportation used the 6.35-mm (1/4-inch) thick vertical rib. Until the thicker rib is verified by crash testing of your sign stands we recommend that the 6.35-mm thick vertical rib be used.
The following conditions apply to the five portable sign stands described above:

- Sign panel must be plastic/fabric “roll-up” type material
- Vertical support above base is 6.35-mm thick x 31.75-mm wide (3/8-inch thick x 1 1/4-inch wide) fiberglass
- Horizontal brace is 4.76-mm thick x 31.75-mm wide (3/16-inch thick x 1 1/4-inch wide) fiberglass
- No metal mast may be used to support the sign (above the low base mass assembly)
- Stands using thicker fiberglass ribs, lights, or flag assemblies should be tested to assess crashworthiness

If any of these devices is a patented product, it will be considered “proprietary.” The use of proprietary work zone traffic control devices 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
Director, Office of Highway Safety
Infrastructure

3 Enclosures
VYL FLAGS
1x1/8x52" FIBERGLASS
1-1/4x3/16x68" FIBERGLASS CROSSBRACE
DURALATCH
SIGN ATTACHMENT TO CROSS BRACE
48x48"
VINYL ROLLUP
SIGN
1-1/4x3/8x68"
FIBERGLASS CROSSBRACE

UTILITY WORK AHEAD

LEGS CONNECTED WITH BOLTS
3/8-18x1-3/4

1.25x1.25"
STEEL LEG

1x1"
STEEL TELESCOPING LEG

STEEL BASE -
MOLDED RUBBER
LEG CAPS.
RIVETED WITH
(2) 3/16x1/2
ALUM. POP RIVETS

30 CAM WEIGHT:
SIGN, CROSSBRACES & FLAGS - - - - - - - 7.4 LB
SIGN STAND - - - - - - - - 26 LB
TOTAL - - - - - - - - - - 33.4 LB

SCHEMATIC DRAWING

DATE:06/16/98
NAME: MODEL 30 CAM
VINYL FLAGS
1x1/8x52"
FIBERGLASS
1-1/4x3/16x68"
FIBERGLASS CROSSBRACE

DURALATCH
SIGN ATTACMENT
TO CROSS BRACE

48x48"
VINYL ROLLUP
SIGN
1-1/4x3/8x68"
FIBERGLASS CROSSBRACE

SINGLE COIL SPRING

LEG'S CONNECTED
WITH BOLTS
3/8-18x1-3/4

1.25x1.5"
STEEL LEG

1x1" STEEL TELESPOPIN LEG

STEEL BSE

MOLDED RUBBER
LEG CAPS.
RIVETED WITH
(2) 3/16x1/2
ALUM. POP RIVETS

53"

72"

40 CAM WEIGHT:

SIGN, CROSSBRACES & FLAGS ———- 7.4 LB
SIGN STAND ———- 27 LB
TOTAL ———- 34.4 LB

SCHEMATIC DRAWING

MDI
DATE: 06/16/98
NAME: MODEL 40 CAM
UTILITY WORK AHEAD

DURALATCH SIGN ATTACHMENT TO CROSS BRACE

1-1/4x3/8x68" FIBERGLASS CROSSBRACE

48x48" VINYL ROLLUP SIGN

1-1/4x3/8x68" FIBERGLASS CROSSBRACE

LEGs CONNECTED WITH BOLTS 3/8-18x1-3/4

1.25x1.25" ALUMINUM LEG

1x1" ALUMINUM TELESCOPING LEG

STEEL UPRIGHT

MOLDED RUBBER LEG CAPS. RIVETED WITH (2) 3/16x1/2 ALUM. POP RIVETS

30 CAM. WEIGHT:

SIGN, CROSSBRACES & FLAGS --- 7.4 LB
SIGN STAND --- 20 LB
TOTAL --- 27.4 LB

SCHEMATIC DRAWING

DATE: 09/10/99

NAME: MODEL 4814 NSCK
DURALATCH SIGN ATTACHMENT TO CROSS BRACE

1-1/4x3/16x68" FIBERGLASS CROSSBRACE

48x48" VINYL ROLLUP SIGN

1-1/4x3/8x68" FIBERGLASS CROSSBRACE

SINGLE COIL SPRING

EGS CONNECTED WITH BOLTS
1/8-18x1-3/4

1.25x1.25" ALUMINUM LEG

x1" ALUMINUM SCISSORING LEG

STEEL WELDED UPRIGHT

MOLDED RUBBER LEG CAPS, RIVETED WITH (2) 3/16x1/2 ALUM. POP RIVETS

4814 SSCK WEIGHT:

SIGN, CROSSBRACES & FLAGS ——— 7.4 LB
SIGN STAND ——— 21 LB
TOTAL ——— 28.4 LB

SCHEMATIC DRAWING

DATE: 06/16/98
NAME: MODEL 4814 SSCK

MDI
ROAD WORK AHEAD

VINYL FLAGS
1x1/8 x 52" FIBERGLASS
1-1/4 x 3/16 x 51" FIBERGLASS CROSSBRACE
DURALATCH SIGN ATTACHMENT TO CROSS BRACE
36" x 36" VINYL ROLLUP SIGN
1-1/4 x 3/8 x 51" FIBERGLASS CROSSBRACE
(2) COIL SPRINGS

HHCS BOLTS 3/8-18 x 2-1/2

LEGS CONNECTED WITH BOLTS 3/8-18 x 1-3/4
1.25" x 1.25" ALUMINUM LEG
1" x 1" ALUMINUM TELESCOPING LEG
STEEL BASE
MOLDED RUBBER LEG CAPS, RIVETED WITH (2) 3/16 x 1/2 ALUM. POP RIVETS
DROP & LOCK SIGN ATTACHMENT
EXTRUDED ALUMINUM UPRIGHT

WEIGHT: 3612 DLK
SIGN, CROSSBRACES & FLAGS -- 5.6 LB;
SIGN STAND -- 16 LB;
TOTAL -- 21.6 LB;

SCHEMATIC DRAWING

MDI
DATE: 06/16/98
NAME: MODEL 3612 DLK
§ 635.411  

Material or product selection.

(a) Federal funds shall not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

(1) Such patented or proprietary item is purchased or obtained through competitive bidding with equally suitable unpatented items; or

(2) The State highway agency certifies that such patented or proprietary item is essential for synchronization with existing highway facilities, that no equally suitable alternative exists; or

(3) Such patented or proprietary item is used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes.

(b) When there is available for purchase more than one nonpatented, nonproprietary material, semifinished article or product that will fulfill the requirements for an item of work on a project and these available materials or products are judged to be of satisfactory quality and equally acceptable on the basis of engineering analysis and the anticipated prices for the related item(s) of work are estimated to be approximately the same, the FS&E Division shall either:

(1) Request by a nonpatentable waiver and FHWAs action on such a request may be published in the Federal Register for public comment.

(7) In determining whether the waivers described in paragraph (c)(2) of this section shall be granted, the FHWA will consider all appropriate factors including, but not limited to, cost, administrative burden, and delay that would be imposed if the provision were not waived.

(d) Standard State and Federal-aid contract procedures may be used to assure compliance with the requirements of this section.

[49 FR 60299, Nov. 26, 1984, as amended at 50 FR 36975, July 21, 1985]

EDITORIAL NOTE: For waiver document abiding § 635.411, see 60 FR 15012, Mar. 24, 1995.

§ 635.413  Warranty clauses.

The SHA may include warranty provisions in National Highway System (NHS) construction contracts in accordance with the following:

(a) Warranty provisions shall be for a specific construction product or feature. Items of maintenance not eligible for Federal participation shall not be covered.

(b) All warranty requirements and subsequent revisions shall be submitted to the Division Administrator for advance approval.

(c) No warranty requirement shall be approved which, in the judgment of the Division Administrator, may place an undue obligation on the contractor for items over which the contractor has no control.

(d) A SHA may follow its own procedures regarding the inclusion of warranty provisions in non-NHS Federal-aid contracts.

§ 635.417  Convict produced materials.

(a) Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if such materials have been:

(1) Produced by convicts who are on parole, supervised release, or probation from a prison or

(2) Produced in a qualified prison facility and the cumulative annual production and amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1997.

(b) Qualified prison facility means any prison facility in which convicts, during the 12-month period ending July 1, 1997, produced materials for use in Federal-aid highway construction projects.

[53 FR 39875, July 21, 1990]

Appendix A to Subpart D—Summary of Acceptable Criteria for Specifying Types of Culvert Pipes

<table>
<thead>
<tr>
<th>Type of drainage installation</th>
<th>Alternatives required</th>
<th>AASHTO designations to be included with alternatives</th>
<th>Application</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross drains under highway</td>
<td>Yes</td>
<td>M-170 and M-190.</td>
<td>Statewide</td>
<td>Any AASHTO approved material.</td>
</tr>
<tr>
<td>pavement</td>
<td></td>
<td></td>
<td></td>
<td>Do not.</td>
</tr>
<tr>
<td>Other cross-drain installations</td>
<td>X</td>
<td>X</td>
<td>Do not.</td>
<td>Specified to meet special conditions.</td>
</tr>
<tr>
<td>Sidewalk installations</td>
<td>X</td>
<td>X</td>
<td>Individual installation</td>
<td>Specified to meet site requirements.</td>
</tr>
<tr>
<td>Special installation conditions</td>
<td>X</td>
<td>X</td>
<td>Individual installation</td>
<td>Specified to meet site requirements.</td>
</tr>
<tr>
<td>Special drainage systems</td>
<td>X</td>
<td>X</td>
<td>Individual installation</td>
<td>Specified to meet site requirements.</td>
</tr>
</tbody>
</table>

Notes:
1. High-pressure pavement is generally described as FHWA Code Specification Order 1, 1K1, and other materials and products, when such specific choices are approved by the Division Administrator as being in the public interest. When the Division Administrator approves such choices, the item will be nonparticipating unless bidding procedures are used that establish the unit price of each acceptable alternative. In this case Federal-aid participation will be based on the lowest price established.

2. Special drainage systems are designated in the drainage specifications of the State and are subject to FHWA approval.

Subpart E—Interstate Maintenance Guidelines

SOURCE: 45 FR 20793, Mar. 31, 1980, unless otherwise noted.

§ 635.501  Purpose.

To prescribe Interstate maintenance guidelines and establish the policy and procedures to ensure that the condition of Interstate routes is maintained at the level required by the purposes for which they were designed.