



U.S. Department
of Transportation

**Federal Highway
Administration**

June 4, 1999

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

Refer to: HMHS

Ms. Christine Cash
Bent Manufacturing Company
17311 Nichols Street
Huntington Beach, CA 92647-5721

Dear Ms. Cash:

Thank you for your letter of December 21, 1998, requesting Federal Highway Administration (FHWA) acceptance of your company's "Ultra Panel" with warning light as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). Accompanying your letter was a copy of the crash test report by E-Tech Testing Services, Inc., color photographs, and video documentation of the crash tests. You requested that we find the tested devices, as well as lighter or smaller devices of the same family of product, acceptable for use on the NHS. On March 30, 1999 you provided additional details on the attachment of the warning light, in response to our request.

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 were those lightweight devices which could be self-certified by the vendor, Category II devices were other lightweight devices which needed individual crash testing, Category III devices were barriers and other fixed or massive devices also needing crash testing, and Category IV devices were trailer mounted lighted signs, arrow panels, etc., which were put off until the year 2002. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This recent memorandum lists devices that are acceptable under Categories I, II, and III. The Ultra panel, with or without the warning light, is a Category II device.

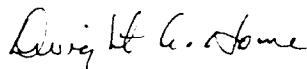
The ULTRA panel is a stackable vertical panel made of a hollow low density polyethylene plastic panel which is held in an upright position by a molded recycled rubber base. The height of the ULTRA Panel is 1096 mm without the warning light. The mass of the ULTRA Panel including the warning light is 2.8 kg. The mass of the molded rubber base is 13.6 kg. The thickness of the handle at the bolt hole recessed depression is 11 mm. The normal thickness of the material at the bolt hole recess depression area is two-opposing wall thicknesses, semi-solid compression molded. A small gap between the two walls gives the area an average wall thickness of 3.8 mm. Drawings and specifications for the Ultra Panel are enclosed for reference.

Full-scale automobile testing was conducted on your company's ULTRA Panel. Two examples, each with a warning light affixed, were tested in tandem, one head-on and the next at 90 degrees, as called for in our guidance memoranda. There was only minor cosmetic damage to the automobile and no contact with the windshield. There was no occupant compartment intrusion or deformation observed, nor did any test article debris show potential for penetrating the occupant compartment. The results of this testing met the FHWA requirements and, therefore, the ULTRA Panel, with or without warning light, and other vertical panels in the same family of hardware, are acceptable for use on the National Highway System under the range of conditions tested, when proposed by a State.

Our acceptance is limited to the crashworthiness characteristics of the device and does not cover its structural features, nor conformity 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 Bent Manufacturing 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-16, shall not be reproduced except in full.

The ULTRA Panel is a proprietary product. 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,



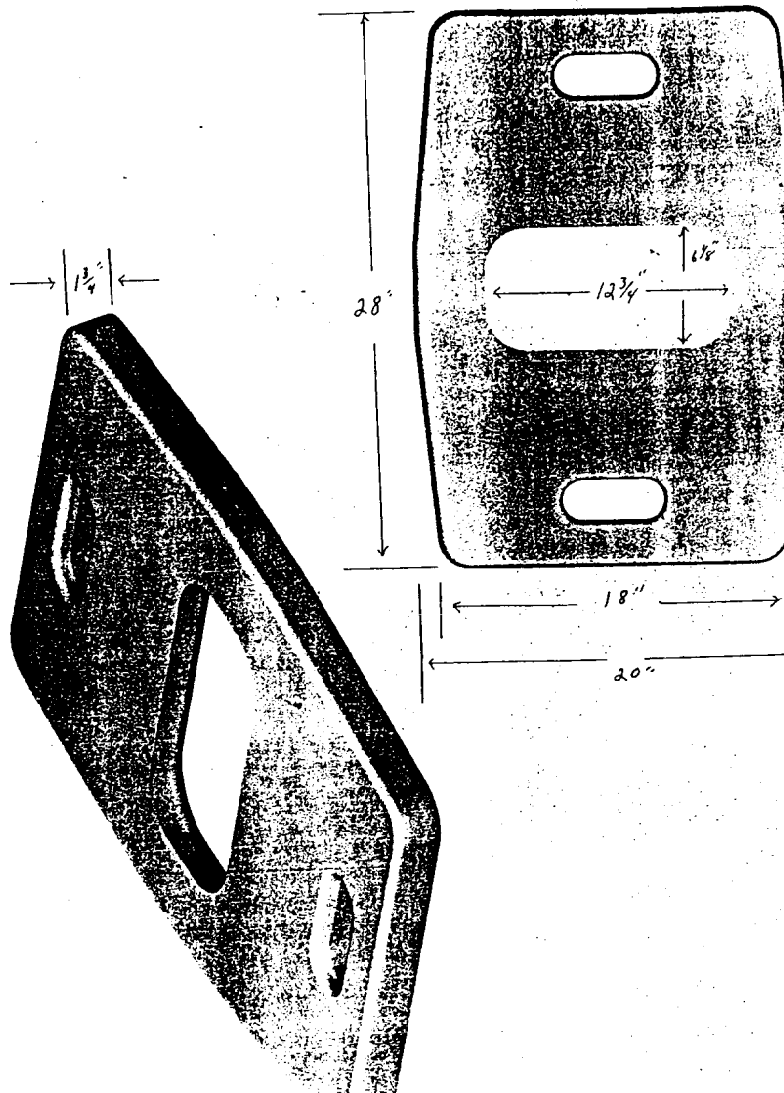
Dwight A. Horne
Director, Office of Highway Safety Infrastructure

Enclosure



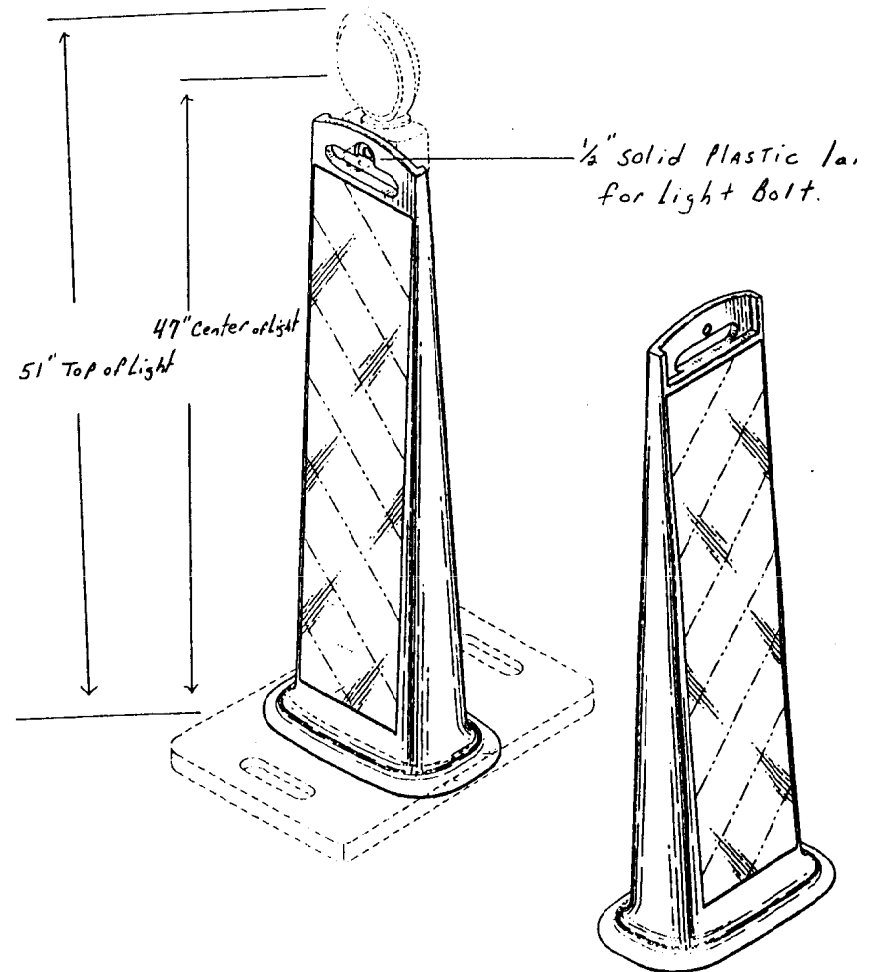
E-TECH Testing Services, Inc.

Appendix C



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Appendix C



Administrator. A request must be submitted sufficiently in advance of the need for the waiver in order to allow time for proper review and action on the request. The RFHWA will have approval authority on the request.

(3) Requests for waivers may be made for specific projects, or for certain materials or products in specific geographic areas, or for combinations of both, depending on the circumstances.

(4) The denial of the request by the RFHWA may be appealed by the State to the Federal Highway Administrator (Administrator), whose action on the request shall be considered administratively final.

(5) A request for a waiver which involves nationwide public interest or availability issues or more than one FHWA region may be submitted by the RFHWA to the Administrator for action.

(6) A request for waiver and an appeal from a denial of a request must include facts and justification to support the granting of the waiver. The FHWA response to a request or appeal will be in writing and made available to the public upon request. Any request for a nationwide waiver and FHWA's 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)(1) of this section will 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.

[48 FR 53104, Nov. 25, 1983, as amended at 49 FR 18821, May 3, 1984; 58 FR 38975, July 21, 1993]

EDITORIAL NOTE: For a waiver document affecting § 635.410, see 60 FR 15478, Mar. 24, 1995.

§ 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 either that such patented or proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate 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, non-proprietary material, semifinished or finished article or product that will fulfill the requirements for an item of work of 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 PS&E for the project shall either contain or include by reference the specifications for each such material or product that is considered acceptable for incorporation in the work. If the State highway agency wishes to substitute some other acceptable material or product for the material or product designated by the successful bidder or bid as the lowest alternate, and such substitution results in an increase in costs, there will not be Federal-aid participation in any increase in costs.

(c) A State highway agency may require a specific material or product when there are other acceptable materials and products, when such specific choice is approved by the Division Administrator as being in the public interest. When the Division Administrator's approval is not obtained, 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 so established.

(d) Appendix A sets forth the FHWA requirements regarding (1) the specification of alternative types of culvert

pipes, and (2) the number and types of such alternatives which must be set forth in the specifications for various types of drainage installations.

(e) Reference in specifications and on plans to single trade name materials will not be approved on Federal-aid contracts.

§ 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 war-

ranty provisions in non-NHS Federal aid contracts.

[60 FR 44274, Aug. 25, 1995]

§ 635.417 Convict produced material

(a) Materials produced after July 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if such material 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 amount of such material used in Federal-aid highway construction does not exceed the amount such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

(b) *Qualified prison facility* means a prison facility in which convicts, during the 12-month period ending July 1987, produced materials for use in Federal-aid highway construction projects.

[53 FR 1923, Jan. 25, 1988, as amended FR 38975, July 21, 1993]

APPENDIX A TO SUBPART D—SUMMARY OF ACCEPTABLE CRITERIA FOR SPECIFYING TYPES OF CULVERT PIPES

Type of drainage installation	Alternatives required			AASHTO designations to be included with alternatives	Application	Remarks
	Yes	No	Number			
Cross drains under high-type pavement. ¹	.....	X .....	.....	.....	Statewide	Any AASHTO-proved material Do. ²
Other cross-drain installations.	X .....	.....	3 minimum	M-170 and M-190.	.....do .....	.....
Side-drain installations	X .....	.....	.....do	M-36 .....	.....do	Do. ²
Special installation conditions.	.....	X .....	.....	.....	Individual installation.	Specified to meet special conditions.
Special drainage systems (storm sewers, inverted siphons, etc.).	.....	X .....	.....	.....	.....do	Specified to meet site requirements.

¹ High-type pavement is generally described as FHWA construction type codes I, J, K, L, and plant mix and penetration admix segments, respectively shown in the right-hand columns of type codes G and H having a combined thickness of six and base of 7 in. or more (or equivalent) or that are constructed on rigid bases.

² Types not included in currently approved AASHTO specifications may be specified if recommended by the State with adequate justification and approved by FHWA.

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 procedures to insure that the condition of Interstate routes is maintained