

July 1, 2002

HSA-10/B100

Mr. Carey J. Boote
President
Eco-Composites, LLC
17169 Hayes Road
Grand Haven, MI 49417

Dear Mr. Boote:

In your May 6 letter to Mr. Richard Powers of my staff, you requested the Federal Highway Administration's acceptance of a compression-molded, recycled plastic block for use with steel post w-beam guardrail. Included with your request was a March 19, 2002 report prepared by E-TECH Testing Services, Inc. that summarized pendulum testing conducted on an earlier version of your block that had non-symmetrical ribs. Because this testing resulted in some damage to the sidewalls of the non-symmetrical block and because pendulum testing may not be a reliable surrogate test for a non-solid block, Mr. Powers recommended that your block be redesigned to be fully symmetrical or be crash-tested. On June 28, you submitted the revised final design that is shown as Enclosure 1.

Your 6 inch by 8 inch by 14 inch rectangular block has a sidewall thickness of 3/8 inch, a top and bottom wall thickness of 1/2 inch, and internal web thicknesses of 7/16 inch. The face thickness is 1/4 inch and the field side of the block is open, with a 4-inch wide by 1/4-inch deep routing on the open side. Please note that the recommended minimum width of the routing is 4.3 inches (to accommodate tolerances in the width of the post flange widths). The block is made from 100 percent recycled plastic and filler materials and is 48-52 per cent polyethylene, 40-42 per cent polypropylene, and 10-12 per cent rubber filler.

Based on the results of the original pendulum testing and your subsequent design modifications, the Eco-Composites Blockout, as described above and shown in Enclosure 1, is acceptable for use with steel-post w-beam guardrail on the National Highway System when such use is acceptable to the contracting agency. As with all synthetic guardrail offset blocks, this acceptance is based only the expected crash performance of the Eco-Composite Blockout and is not intended to address its long-term durability. Since it is a proprietary product, the conditions listed in Title 23, Code of Federal Regulations, Section 635.411 apply if the block is used on a Federal-

aid highway project. A copy of this regulation is enclosed for your ready reference (Enclosure 2).

Sincerely yours,

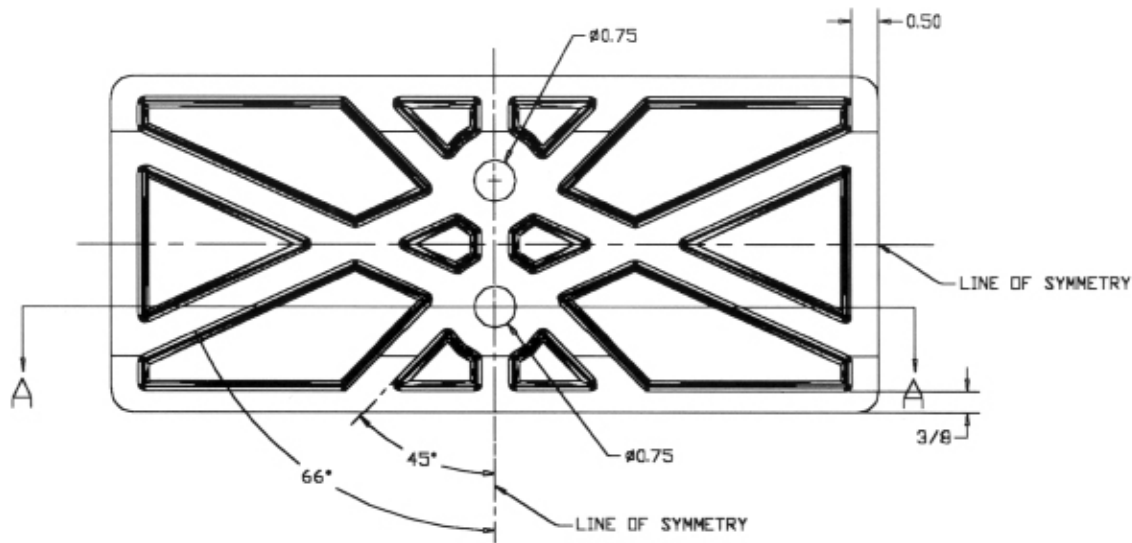
(original signed by Harry W. Taylor)

for

Carol H. Jacoby, P.E.

Director, Office of Safety Design

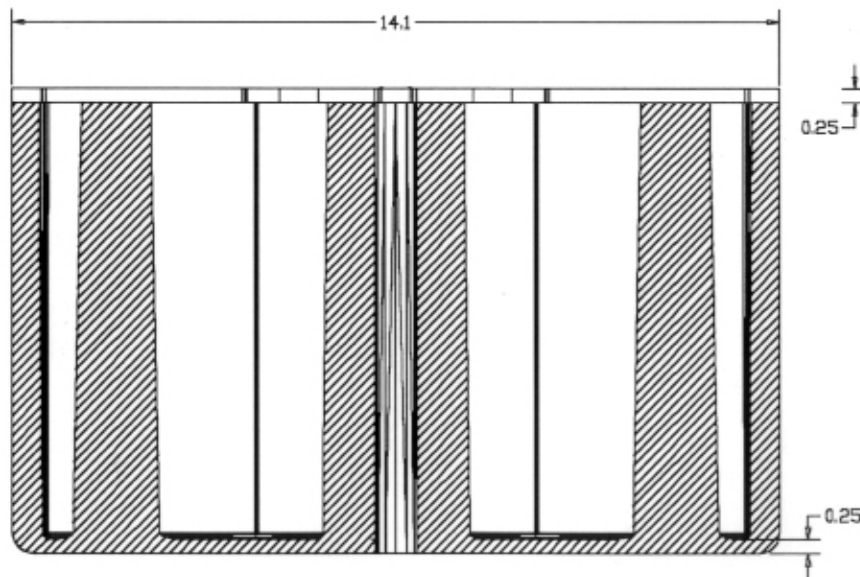
2 Enclosures



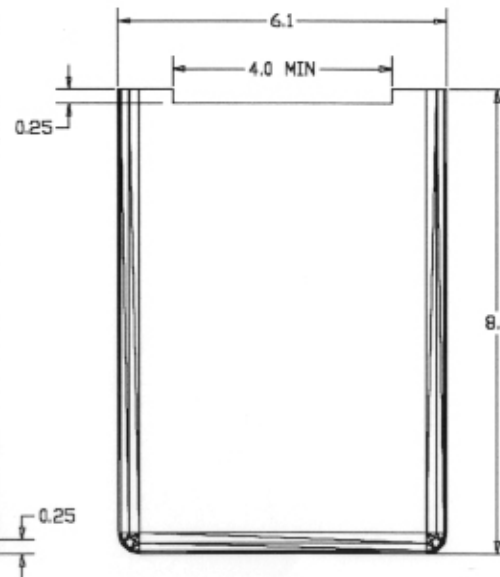
1) DRAFT ANGLE OF 0.5° APPLIED TO ALL INTERNAL SURFACES. NO DRAFT ANGLE ON EXTERNAL SURFACES

2) FILLET RADIUS IS 0.187 ON INTERNAL CORNERS U.D.S. FILLET RADIUS OF 0.25 APPLIED TO EXTERNAL EDGES.

3) RIB THICKNESS $\frac{7}{16}$ O.U.S.



SECT. A-A



D	REDESIGNED INT. STRUCTURE	6-7-02
C	Add 2 ribs	5-27-02
B	Added 2 diagonal ribs	1-22-02
A	Added 4 diagonal ribs	12-9-01
	Released for test samples	9-28-01
REV.	Description	DATE

Eco-Composites, LLC

17189 Hayes Road
Grand Haven, MI 49417
(616)844-2001 fax 844-2201

TITLE: GUARDRAIL BLOCKOUT

DR # BLOCK-6-B-14 REV: D DATE: 12-09-01

TOLERANCES (U.S.):
1:1000=±0.010
1:500=±0.005
1:250=±0.003
FRACTIONS=±1/16
ANGLES=±1°

DRAWN BY: Doug Gordon SCALE: NONE

Sec. 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, nonproprietary 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.