Mr. John C. Durkos  
Vice President Technical Support and Marketing  
Road Systems, Inc.  
3616 Howard County Airport  
Big Spring, TX  79720

Dear Mr. Durkos:

This letter is in response to your request for the Federal Highway Administration’s (FHWA) acceptance of two modified roadside safety devices for use on the National Highway System (NHS).

Name of devices: TL-2 SKT and TL-2 FLEAT W-Beam Guardrail Terminals for the Midwest Guardrail System (MGS)
Type of device: Midwest W-Beam Guardrail Terminals
Test Level: NCHRP Report 350 Test Level 2
Testing conducted by: N/A
Date of request: May 29, 2009
Date acknowledged: June 29, 2009

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.”

**Requirements**

Roadside safety devices should meet the guidelines contained in the NCHRP Report 350 or the American Association of State Highway and Transportation Officials’ “Manual for Assessing Safety Hardware.” The FHWA Memorandum “Identifying Acceptable Highway Safety Features” of July 25, 1997, provides further guidance on crash testing requirements of longitudinal barriers.
Description
The Sequential Kinking Terminal (SKT) and Flared Energy Absorbing Terminal (FLEAT) have been successfully crash tested and accepted by the FHWA:

Test Level 3 (TL-3) SKT and FLEAT terminals for the MGS are covered by the FHWA Acceptance Letters CC-88 dated March 8, 2005, and CC-88A dated June 1, 2008.

Test Level 2 (TL-2) SKT and FLEAT terminals for the standard metric height guardrail system are covered by the FHWA Acceptance Letters CC-46B dated May 21, 1999, for the TL-2 FLEAT terminal and CC-40A dated February 4, 2000, for the SKT terminal.

Enclosed for reference are drawings of your proposed TL-2 MGS SKT and TL-2 FLEAT steel post and wood post terminals. The designs of these TL-2 MGS terminals are essentially the same as the Accepted TL-3 MGS terminals except for the terminal length and number of breakaway posts. For the TL-2 SKT-MGS terminal, the length is reduced from 50 feet, 0 inches to 25 feet, 0 inches with fewer breakaway posts, i.e., for the TL-2 system, post #6 and beyond are now a standard line post. For the TL-2 FLEAT-MGS terminal the length of the straight flare is reduced from 37 feet, 6 inches to 25 feet, zero inches. The corresponding range of end-offset is reduced from 2 feet, 6 inches and 4 feet, 0 inches to 1 foot, 8 inches and 2 feet, 8 inches respectively. The TL-2 FLEAT-MGS terminal also has one fewer breakaway post, i.e., for the TL-2 system, post #6 is now a standard line post. Also, note that the layouts of the TL-2 MGS terminals are identical to those used for the approved TL-2 metric height terminals.

Analysis
NCHRP Report 350 guidelines recommend a total of up to seven full-scale crash tests for gating guardrail terminals. It was your opinion that no additional full-scale crash tests are required to evaluate the safety performance of these proposed TL-2 MGS terminal designs. First, the layouts of the TL-2 MGS terminals are the same as those for the FHWA-accepted TL-2 metric height terminals. This tells us that the proposed TL-2 MGS terminals will also be able to manage the energy of the impacting vehicle as did the crash-tested systems. Second, the TL-2 MGS terminal designs are essentially the same as those of the approved TL-3 MGS terminal designs except for the shorter terminal length and fewer breakaway posts.

Findings
The modified TL-2 FLEAT-MGS and TL-2 SKT-MGS terminals described above and detailed in the enclosed drawings are acceptable for use on the NHS under the range of conditions tested, when acceptable to a highway agency.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- This 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, we reserve the right to modify or revoke our 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 it will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.

• To prevent misunderstanding by others, this letter of acceptance is designated as number CC-88D and shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed at our office upon request.

• The FLEAT and SKT end terminals are patented products and considered proprietary. If proprietary devices are specified by a highway agency for use on Federal-aid projects, except exempt, non-NHS projects, (a) they must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with the 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.

• 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,

David A. Nicol, P.E
Director, Office of Safety Design
Office of Safety

Enclosures
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