



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

1200 New Jersey Ave., SE  
Washington, D.C. 20590

December 7, 2010

In Reply Refer To:  
HSSI/B-205

Mr. David Whitesel  
Office of Roadside Safety and Cooperative Research  
California Department of Transportation  
5900 Folsom Boulevard, MS-5  
Sacramento, California 95819

Dear Mr. Whitesel:

This letter is in response to your request for the Federal Highway Administration (FHWA) acceptance of a roadside safety system for use on the National Highway System (NHS).

Name of system:	CRMcrete Weed Barrier
Type of system:	W-Beam Guardrail with rubberized concrete weed barrier
Test Level:	NCHRP Report 350 TL-3
Testing conducted by:	CALTRANS
Date of request:	February 25, 2010
Date initially acknowledged:	April 1, 2010
Date of completed package:	October 19, 2010

You requested that we find this system acceptable for use on the NHS under the provisions of the National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

### **Decision**

The following device was found acceptable, with details provided below:

- CRMcrete Weed Barrier under strong steel or wood post W-beam guardrail.

### **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.

FHWA:HSSI:NArtimovichr:ms:x61331:11/23/10  
File: s://directory folder/HSSI/Artimovich/B-205\_ Caltrans\_Weed\_Final.dotx  
cc: HSSI (NArtimovich; JDewar)



**Description**

The CRMcrete weed barrier was composed of a 6-sack concrete mix with 5 lb per cubic yard of concrete reinforcing fibers and 3 percent by weight crumb rubber material. The weed barrier was 4 feet, 8 inches wide by 2 inches thick and the leave-out holes were 16 x 16 inches, but the post was not centered in the hole (see enclosed file Test 659 Test Article). The 28-day compressive strength was 1863 psi. The percentage of crumb rubber in the mix may be varied as long as the 28-day compressive strength is less than 1863 psi. The width of the weed barrier may be adjusted to suit conditions without affecting performance.

The weed barrier was tested under a "Modified G4(1S)" guardrail installed in native soil. The design height was 27-3/4 inches with a tolerance of plus or minus one-half inch. The actual height (measured at posts) downstream of the impact point ranged from 27-3/4 inches to 28-1/4 inches. A drawing of the California Department of Transportation standard guardrail is enclosed for reference.

**Crash Testing**

A single crash test was conducted, the NCHRP Report 350 Test 3-31 using a 1972-kg pickup truck at 99.5 km/hr at an impact angle of 24.3 degrees. The test details and results may be found in the Test Data Summary Sheet and the Test Assessment Summary which are enclosed for reference.

**Findings**

The vehicle was redirected upright, and all occupant impact forces were within acceptable limits. The maximum permanent deflection was 1.9 feet and the dynamic deflection was estimated to be 40 inches. Because the NCHRP Report 350 Test 3-10 using the 820 kg small car would not deflect the posts enough to engage the weed barrier the test was not conducted. Therefore, the system described in the request above and detailed in the enclosed drawings is acceptable for use on the NHS under the range of conditions tested, when such use is acceptable to a highway agency.

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

- This acceptance is limited to the crashworthiness characteristics of the systems 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 system 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 system 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 B-205 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.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented system for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate system, 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,

Michael S. Griffith  
Director, Office of Safety Technologies  
Office of Safety

Enclosures



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Sincerely yours,



Michael S. Griffith  
Director, Office of Safety Technologies  
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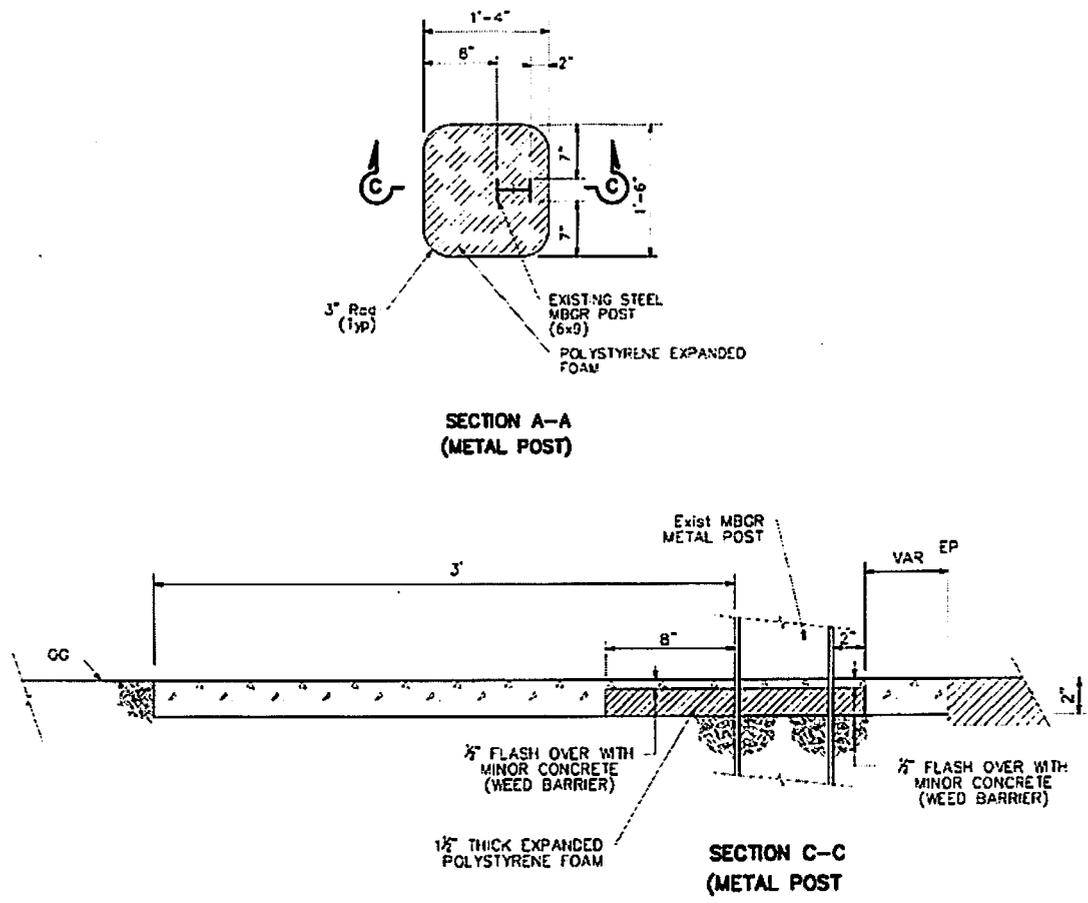


Figure #-## CRMcrite Weed Barrier Plan and Cross Section

