



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

August 3, 2020

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

In Reply Refer To:
HSST-1/WZ-417

Mr. Darrell Heald
Shur-Tite Products
P.O. Box 2283
Round Rock, TX 78680
USA

Dear Mr. Heald:

This letter is in response to your May 14, 2020 request for the Federal Highway Administration (FHWA) to review a roadside safety device, hardware, or system for eligibility for reimbursement under the Federal-aid highway program. This FHWA letter of eligibility is assigned FHWA control number WZ-417 and is valid until a subsequent letter is issued by FHWA that expressly references this device.

Decision

The following device is eligible within the length-of-need, with details provided in the form which is attached as an integral part of this letter:

- Shur-Curb Traffic Separator

Scope of this Letter

To be found eligible for Federal-aid funding, new roadside safety devices should meet the crash test and evaluation criteria contained in the American Association of State Highway and Transportation Officials' (AASHTO) Manual for Assessing Safety Hardware (MASH).

However, the FHWA, the Department of Transportation, and the United States Government do not regulate the manufacture of roadside safety devices. Eligibility for reimbursement under the Federal-aid highway program does not establish approval, certification or endorsement of the device for any particular purpose or use.

This letter is not a determination by the FHWA, the Department of Transportation, or the United States Government that a vehicle crash involving the device will result in any particular outcome, nor is it a guarantee of the in-service performance of this device. Proper manufacturing, installation, and maintenance are required in order for this device to function as tested.

This finding of eligibility is limited to the crashworthiness of the system and does not cover other structural features, nor conformity with the Manual on Uniform Traffic Control Devices.

Eligibility for Reimbursement

Based solely on a review of crash test results and certifications submitted by the manufacturer, and the crash test laboratory, FHWA agrees that the device described herein meets the crash test and evaluation criteria of the AASHTO's MASH. Therefore, the device is eligible for reimbursement under the Federal-aid highway program if installed under the range of tested conditions.

Name of system: Shur-Curb Traffic Separator
Type of system: Work Zone Longitudinal Channelizer
Test Level: MASH Test Level 3 (TL3)
Testing conducted by: Texas A&M Transportation Institute.
Date of request: May 14, 2020

FHWA concurs with the recommendation of the accredited crash testing laboratory on the attached form.

Full Description of the Eligible Device

The device and supporting documentation, including reports of the crash tests or other testing done, videos of any crash testing, and/or drawings of the device, are described in the attached form.

Notice

This eligibility letter is issued for the subject device as tested. Modifications made to the device are not covered by this letter. Any modifications to this device should be submitted to the user (i.e., state DOT) as per their requirements.

You are expected to supply potential users with sufficient information on design, installation and maintenance requirements to ensure proper performance.

You are expected to certify to potential users that the hardware furnished has the same chemistry, mechanical properties, and geometry as that submitted for review, and that it will meet the test and evaluation criteria of AASHTO's MASH.

Issuance of this letter does not convey property rights of any sort or any exclusive privilege. This letter is based on the premise that information and reports submitted by you are accurate and correct. We reserve the right to modify or revoke this letter if: (1) there are any inaccuracies in the information submitted in support of your request for this letter, (2) the qualification testing was flawed, (3) in-service performance or other information reveals safety problems, (4) the system is significantly different from the version that was crash tested, or (5) any other information indicates that the letter was issued in error or otherwise does not reflect full and complete information about the crashworthiness of the system.

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	May 14, 2020	☒ New ☐ Resubmission
	Name:	Darrell Heald	
	Company:	Shur-Tite Products	
	Address:	P.O. Box 2283, Round Rock, TX 78680	
	Country:	U.S.	
	To:	Micheal S. Griffith, Director FHWA, Office of Safety Technologies	

I request the following devices be considered eligible for reimbursement under the Federal-aid highway program.

Device Testing Criterion- Enter from right to left starting with Test Level

System Type	Submission Type	Device Name/ Variant	Testing Criterion	Test Level
WZ': Crash Worthy Work Zone Traffic Control Devices	☒ Physical Crash Testing ☐ Engineering Analysis	Shur-Curb Traffic Separator	AASHTO MASH	TL3

By submitting this request for review and evaluation by the Federal Highway Administration, I certify that the product(s) was (were) tested in conformity with the AASHTO manual for Assessing Safety Hardware and the evaluation results meet the appropriate evaluation criteria in the MASH.

Individual or Organization responsible for the product:

Contact Name:	Darrell Head	Same as submitter	☒
Company Name:	Shur-Tite Products	Same as submitter	☒
Address:	P.O. Box 2283, Round Rock, TX 78680	Same as submitter	☒
Country:	U.S.	Same as submitter	☒
Enter below all the disclosures of financial interests as required by the FHWA 'Federal-Aid Reimbursement Eligibility Process for Safety Hardware Devices' document			
Texas A&M Transportation Institute (TTI) was contracted by Shur-Tite Products to perform full-scale crash testing of the Shur-Curb Traffic Separator. There was no financial shared interests in the Shur-Curb Traffic Separator by TTI, or between Shur-Tite Products and TTI, other than the costs involved in the actual crash tests and reports for this submission to FHWA.			

PRODUCT DESCRIPTION

	New Hardware or Significant Modification		Modification to Existing Hardware
The installation consisted of 36 sections of Shur-Curb® traffic separator each 40 inches long, for a total 120 ft, and 10 sections of Shur-Curb® beginning at the left end field side of the 36 sections and running at 30° angle to the left, for a total length of 33 ft 4 inches. Each section of the Shur-Curb® consisted of longitudinal channelizer, a 36-inch tall centered delineator, and two reflectors on either side of the delineator. Each longitudinal channelizer was anchored to the concrete apron with six lag bolts per section			
CRASH TESTING			
Engineer Name:		Nathan D. Schulz	
Engineer Signature:		Nathan D. Schulz	Digitally signed by Nathan D. Schulz
			Date: 2020.05.12 08:44:44-05'00'
Address:		TTI, TAMU 3135, College Station, TX 77843-3135	Same as Submitter ☐
Country:		U.S.	Same as Submitter ☐

A brief description of each crash test result:

Required Test Number	Narrative Description	Evaluation Results
3-90 (1100C)	Test 3-90 involved an 1100C vehicle impacting the Shur-Tite Shur-Curb Traffic Separator at a target speed of 36 mi/h and target impact angles between 0° and 25°. The target CIAs for the tests were selected to maximize the risk of vehicle rollover and/or excessive vehicle deceleration. The tests were performed at target CIAs of 25°, 15° (cross V), and 0° (tire on curb). In addition, the 1100C vehicle in all four test configurations, allowed controlled penetration of the vehicle. No detached elements, fragments, or other debris was present to penetrate or show potential for penetrating the occupant compartment or to present undue hazard to others in the area. No occupant compartment deformation or intrusion was observed. The 1100C test vehicle was directed into the installations by a live driver, and were performed without the instrumentation necessary for determining occupant risk. The vehicle remained stable as it traversed through the channelizer installations and did not demonstrate excessive decelerations. The fact that a live driver was used during testing and no injuries were reported indicated the occupant risk is within MASH limits. The Shur-Curb Traffic Separator performed acceptably during all test configurations for MASH Test 3-90 for longitudinal channelizers.	PASS

3-91 (2270P)	Test 3-91 involved an 2270P vehicle impacting the Shur-Tite Shur-Curb Traffic Separator at a target impact speed of 32 mi/h and target impact angles between 0° and 25°. The target CIAs for the tests were selected to maximized the risk of vehicle rollover and/or excessive vehicle deceleration. The tests were performed at target CIAs of 25°, 15° (cross V), and 0° (tire on curb). In addition, the 2270P vehicle was tested performing a lane change maneuver. The results of the tests conducted on March 17, 2020 are found in TTI Test Report No. 690900-STP1-8 dated April 2020. The Shur-Curb Traffic Separator yielded to the 2270P vehicle in all four test configurations, allowing controlled penetration of the vehicle. No detached elements, fragments, or other debris was present to penetrate or show potential for penetrating the occupant compartment, or to present undue hazard to others in the area. No occupant compartment deformation or intrusion was observed. The 2270P vehicle remained upright during and after the collision event in all the test configurations. The 2270P test vehicle was directed into the installations by a live driver, and were performed without instrumentation necessary for determining occupant risk . The vehicle remained stable as it traversed through the channelizer installations and did not demonstrated excessive decelerations. The fact that a live driver was used during testing and no injuries were reported indicate the occupant risk is within MASH limits. The Shur-Curb Traffic Separator performed acceptably during all test configurations for MASH Test 3-91 for longitudinal channelizers.	PASS
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Full Scale Crash Testing was done in compliance with MASH by the following accredited crash test laboratory (cite the laboratory's accreditation status as noted in the crash test reports.):

Labaotry Name:	Texas A&M Transportation Institute	
Labatory Signature:	Digitally signed by Darrell L. Kuhn	
	Date: 2020.05.13 18:29:28-05'00	
Address:	TTI, TAMU 3135, College Station, TX 77843-3135	Same as Submitter ☐
Country:	U.S.	Same as Submitter ☐
Accrediation Certificate	ISO 17025-2017 Laboratory	
Number and Dates of current Accrediation period:	A2LA Certificate Number 2821.01 Valid to: April 30, 2021	

Submitter Signature*:



Submit Form

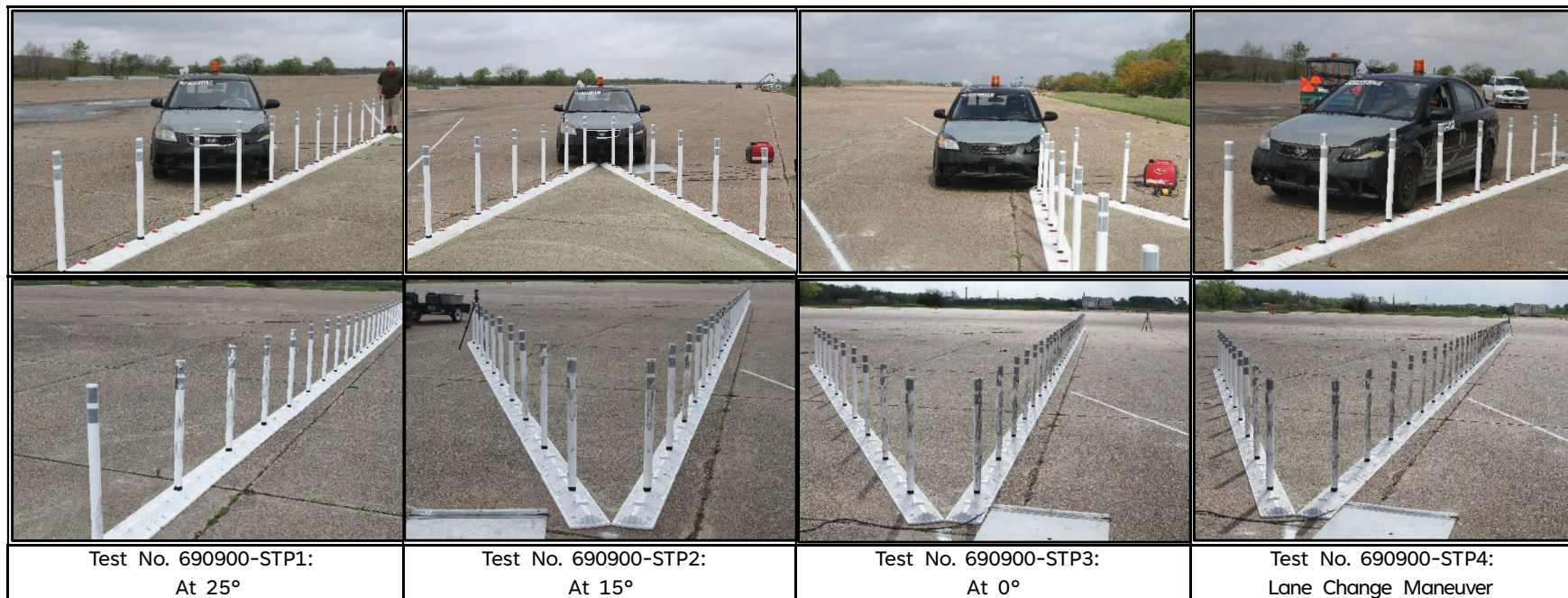
Attachments

Attach to this form:

- 1) Additional disclosures of related financial interest as indicated above.
- 2) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
- 3) A drawing or drawings of the device(s) that conform to the Tact Force-13 Drawing Specifications [[Hardware Guide Drawing Standards](#)]. For proprietary products, a single isometric line drawing is usually acceptable to illustrate the product, with detailed specifications, intended use, and contact information provided on the reverse. Additional drawings (not in TF-13 format) showing details that are relevant to understanding the dimensions and performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

Eligibility Letter		
Number	Date	Keywords

**General Information**

Test Agency	Texas A&M Transportation Institute (TTI)
Test Standard Test No	MASH Test 3-90
TTI Test No.	690900-STP1-4
Test Date	2020-03-17

Test Article

Type	Channelizer
Name	SHUR-CURB® Traffic Separator
Installation Length	120 ft and 33 ft 4 inches
Material or Key Elements ...	Longitudinal channelizer, a centered delineator, and two reflectors attached to a plastic curb that is anchored to concrete using 6 lag bolts per section

Soil Type and Condition

Concrete Surface, Dry

Test Vehicle

Type/Designation	1100C
Make and Model	2011 Kia Rio
Curb	2343 lb
Test Inertial	2453 lb
Driver	165 lb
Gross Static	2618 lb

Impact Conditions

Speed	62.1 - 63.3 mi/h
Angle	25°, 15°, 0° Plus lane change

**Occupant Risk Values
Post-Impact Trajectory**

Occupant Risk Values	Data not recorded
Post-Impact Trajectory	NA

Vehicle Stability

Vehicle Snagging	No
Vehicle Pocketing	No
Vehicle Roll	No

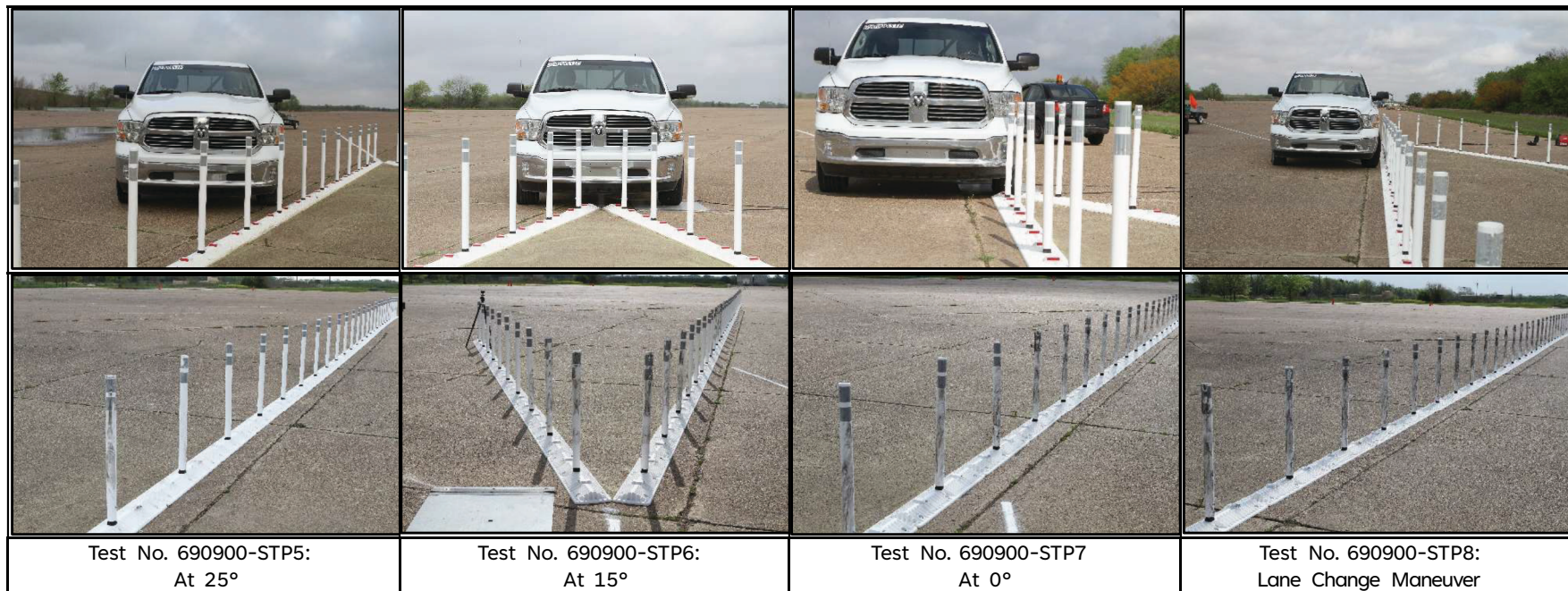
Vehicle Damage

VDS	12FD0
CDC	12FDEW0
Max. Exterior Deformation	None
OCDI	LF0000000
Maximum Occupant Compartment Deformation..	None



Damage to vehicle after
Test Nos. 690900-STP1-4

Figure 5.8. Summary of Results for MASH Test 3-90 on SHUR-CURB® Traffic Separator.



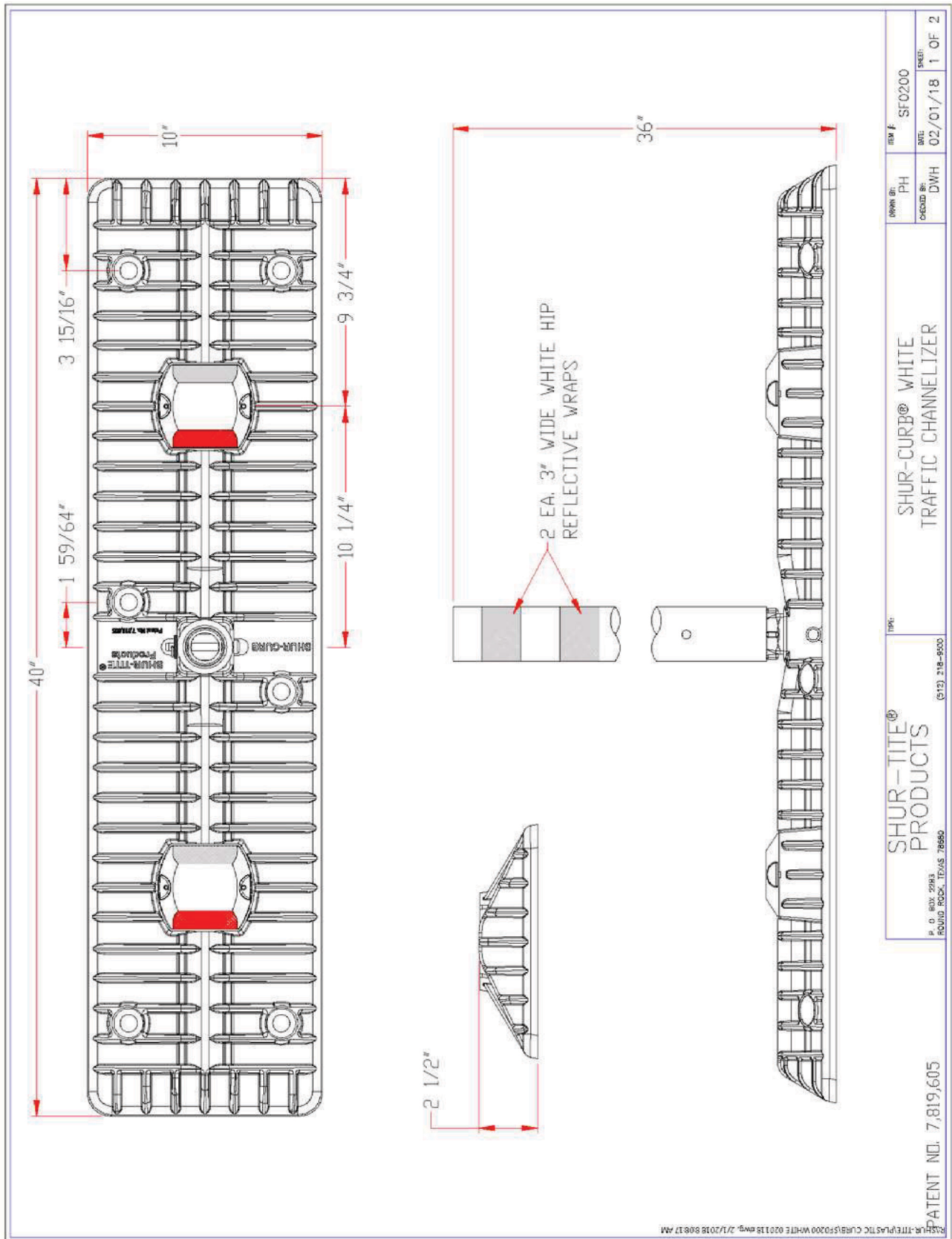
General Information		Impact Conditions	
Test Agency	Texas A&M Transportation Institute (TTI)	Speed	60.4 – 64.1 mi/h
Test Standard Test No	MASH Test 3-91	Angle	25°, 15°, 0°
TTI Test No.	690900-STP5-8		Plus lane change
Test Date	2020-03-17		
Test Article		Occupant Risk Values	Data not recorded
Type	Channelizer	Post-Impact Trajectory	NA
Name	SHUR-CURB® Traffic Separator		
Installation Length	120 ft and 33 ft 4 inches	Vehicle Stability	
Material or Key Elements ...	Longitudinal channelizer, a centered delineator, and two reflectors attached to a plastic curb that is anchored to concrete using 6 lag bolts per section	Vehicle Snagging	No
		Vehicle Pocketing	No
		Vehicle Roll	No
Soil Type and Condition	Concrete Surface, Dry	Vehicle Damage	
Test Vehicle		VDS	12FD0
Type/Designation	2270P	CDC	12FDEW0
Make and Model	2014 RAM 1500 Pickup	Max. Exterior Deformation	None
Curb	4920 lb	OCDI	LF0000000
Test Inertial	5103 lb	Maximum Occupant	
Driver	165 lb	Compartment Deformation..	None
Gross Static	5268 lb		

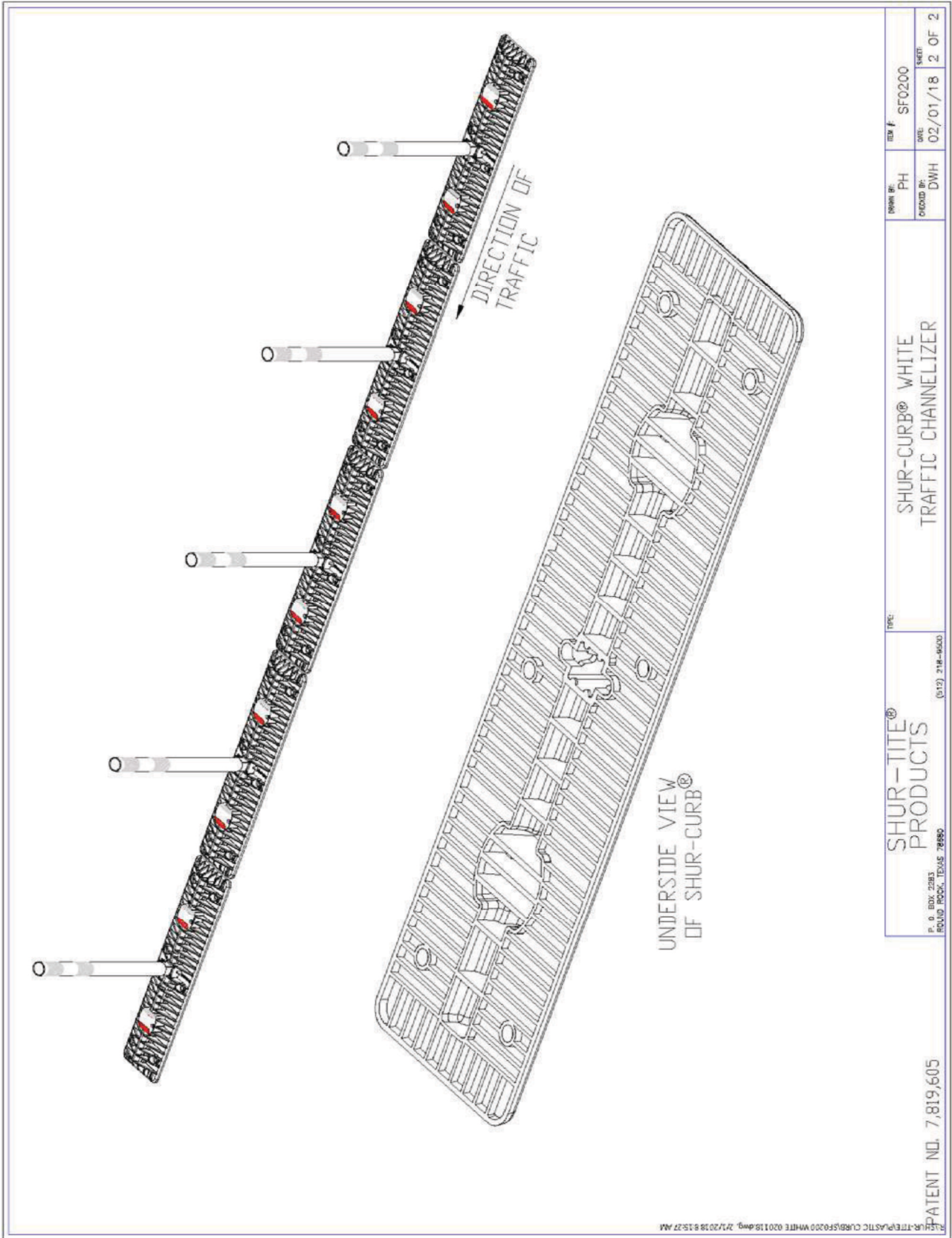


Damage to vehicle after
Test Nos. 690900-STP5-8

Figure 6.8. Summary of Results for MASH Test 3-90 on SHUR-CURB® Traffic Separator.

APPENDIX A. DETAILSOF SHUR-CURB TRAFFIC SEPARATOR





SHUR-TITE® PRODUCTS		TYPE:	SHUR-CURB® WHITE		ITEM #	SF0200
P. O. BOX 2983, ROUND ROCK, TEXAS 78680		(012) 218-6500	TRAFFIC CHANNELIZER		DATE:	02/01/18
					BY:	DWH
					SHEET	2 OF 2