U.S. Department of Transportation
Federal Highway Administration

January 22, 2024

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

In Reply Refer To:
HSST-1/B-376

Darren Copeland
Head of Product Development
Varley and Gulliver (now Hill and Smith)
Springvale Business and Industrial Park
Bilston Wolverhampton
United Kingdom WV140QL

Dear Mr. Copeland:

We received your correspondence of December 12, 2022 requesting issuance of a reimbursement eligibility letter under the Federal-aid highway program for the roadside safety system, device, design, product, or hardware (collectively "device") described below. This letter is assigned Federal Highway Administration (FHWA) control number B-376.

ELIGIBILITY LETTERS

The FHWA issues Federal-aid reimbursement eligibility letters for new roadside safety devices that are crash tested in accordance with the industry standard of the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH).

FHWA, the Department of Transportation, and the United States (government) do not regulate roadside safety devices, crash test facilities, or the manufacturing industry. Issuance of eligibility letters is discretionary and provided only as a service to the states. FHWA may, at its discretion, decline to issue, revise, or rescind an eligibility letter. Eligibility letters are only issued by the FHWA headquarters Office of Safety.

Eligibility letters are issued only as notice to the states that a device is eligible for reimbursement under the Federal-aid highway program. They do not establish approval or certification for any other purpose. Issuance of an eligibility letter is not a prerequisite or requirement for state transportation agencies seeking to use Federal-aid funds for roadside safety devices. State agencies may use a device for which an eligibility letter has not been issued and seek Federal-aid reimbursement.

FEDERAL-AID REIMBURSEMENT

The request for issuance of this letter certified the device was crash tested in accordance with the industry standard of AASHTO's MASH. This eligibility letter is based on that certification and the material offered in support of its issuance. The device described below is eligible for reimbursement under the Federal-aid highway program.

Name of system: VGAN 400 Bridge Rail
Type of system: Bridge Barrier
Test Level: Test Level 4
Testing conducted by: Texas A&M Transportation Institute
Date of request: December 12, 2022

Information about the device, including material such as the eligibility request, crash test reports, drawings, or images are included in one or more attachment(s) to this letter.

Eligibility letter B-376 is inapplicable to devices, optional equipment, alternate materials, or other features that were not crash tested in accordance with AASHTO's MASH.

This letter is issued only for the subject device as crash tested under AASHTO's MASH. Later modification(s) of the device are not eligible for Federal-aid reimbursement under this letter. Notice of later modification(s) should be given to transportation agencies, facility owners, and operators (collectively "agencies").

Agencies should be provided appropriate information about the device's design, installation, maintenance, materials, and mechanical properties.

Issuance of this letter is discretionary, and it may be revised or rescinded at FHWA's discretion. This letter is not a determination of compliance with the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) or ownership of any intellectual property rights.

This eligibility letter is not a determination by the government that a crash involving the subject device will result in any particular outcome. It is limited to only the device's eligibility for Federal-aid reimbursement.

INTELLECTUAL PROPERTY

Issuance of this eligibility letter does not convey property rights of any sort nor any exclusive privilege. This letter is not authorization or consent by the government for the use, manufacture, or sale of any patented or proprietary system, device, design, product, or hardware for which the requester is not the patent owner. Eligibility letters are not an expression of any view, position, or determination by the government as to the validity, scope, or ownership of any intellectual property rights to a specific device. These letters do not grant, impute, suggest, or otherwise establish any ownership, distribution, or licensing rights to the requester. The government expresses no opinion about the intellectual property rights relating to any device for which this or any other eligibility letter is issued.

PUBLIC DISCLOSURE

To prevent any misunderstanding, and as discussed above, this eligibility letter is assigned FHWA control number B-376. It should only be reproduced in full with its attachment(s). This letter and the material offered by the requester supporting its issuance is public information. All

eligibility letters and supporting material are subject to public disclosure under the Freedom of Information Act (FOIA). Eligibility letters are available to the public at https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/.

If you have any questions please contact Aimee Zhang at Aimee.Zhang@dot.gov.

Sincerely,

Robert Ritter
Director, Office of Safety Technologies
Office of Safety

Enclosures

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	December 12, 2022	◉ New ○ Resubmission
	Name:	Darren Copeland, Head of Product Development	
	Company:	Varley & Gulliver (Parapets) Limited (now Hill & Smith Infrastructure Limited)	
	Address:	Springvale Business and Industrial Park Bilston Wolverhampton	
	Country:	United Kingdom WV14 0QL	
	To:	Michael 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
'B': Rigid/Semi-Rigid Barriers (Roadside, Median, Bridge Railings)	◉ Physical Crash Testing ○ Engineering Analysis	VGAN 400 Bridge Rail	AASHTO MASH	TL4

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 that the evaluation results meet the appropriate evaluation criteria in the MASH.

Individual or Organization responsible for the product:

Contact Name:	Darren Copeland, Head of Product Development	Same as Submitter ☒
Company Name:	Varley & Gulliver Parapets (now Hill & Smith Infrastructure Limited	Same as Submitter ☒
Address:	Springvale Business and Industrial Park Bilston Wolverhampton	Same as Submitter ☒
Country:	United Kingdom WV14 0QL	Same as Submitter ☒

Enter below all 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 Varley & Gulliver Limited (Varley & Gulliver Parapets trading as Hill & Smith Limited, now Hill & Smith Infrastructure Limited) to perform full-scale crash testing of the VGAN 400 Bridge Rail. There are no shared financial interests in the VGAN 400 Bridge Rail by TTI, or between Varley & Gulliver Limited (Varley & Gulliver Parapets trading as Hill & Smith Limited, now Hill & Smith Infrastructure Limited) and TTI, other than costs involved in the actual crash tests and reports for this submission to FHWA.

690902 VGL 1, 2, 3, 4

PRODUCT DESCRIPTION

(●) New Hardware or Significant Modification ( ) Modification to Existing Hardware

The installation was comprised of a traffic rail system, with three rails attached to posts evenly spaced at 1829 mm (72 inches) center to center, which were mounted to a concrete curb for a total length of 46.9 m (154 ft). The 229 mm high × 438 mm wide (9 inches × 17¼ inches) curb was integral with a concrete deck. The irregular shaped, cast aluminum posts curved slightly towards the traffic side and measured approximately 965 mm (38 inches) tall. The three rails were bolted into shape-matched pockets on the traffic side of each post. . The bottom, middle, and top rails were located 610 mm, 914 mm, and 1200 mm (24 inches, 36 inches, and 47¼ inches), respectively, from the surface of the deck to the top of each rail. The rail splice internal sleeves were 750 mm (29½ inches) long on the traffic side, tapering on each end to a total length on the field side of 1500 mm (59 inches).

CRASH TESTING

By signature below, the Engineer affiliated with the testing laboratory, agrees in support of this submission that all of the critical and relevant crash tests for this device listed above were conducted to meet the MASH test criteria. The Engineer has determined that no other crash tests are necessary to determine the device meets the MASH criteria.

Engineer Name:	Willaim F. Williams	
Engineer Signature:	William Williams Digitally signed by William Williams Date: 2022.12.12 16:39:26 -06'00'	
Address:	1254 Avenue A, Bldg 7091, Bryan, Texas 77807	Same as Submitter ☐
Country:	USA	Same as Submitter ☐

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
4-10 (1100C)	Test 4-10 involves an 1100C vehicle weighing 1100 kg ± 25 kg (2420 lb ±55 lb) impacting the test article at a target impact speed of 100 km/h ±4 km/h (62 mi/h ±2.5 mi/h) and a target impact angle of 25° ±1.5°. The target CIP was for the left corner of the front bumper to impact at 1.1 m (3.6 ft) upstream of the centerline of post 20. The results of TTI Test 690902-VGL3, conducted on November 16, 2020, are found in TTI Report TR No. 690902-VGL 1-4. The test vehicle was traveling at an impact speed of 99.9 km/h (61.2 mi/h) as it made contact with the VGAN 400 Bridge Rail 0.9 m (3.1 ft) upstream of the centerline of post 20 at an angle of 24.9°. After loss of contact with the test installation, the vehicle came to rest 41.8 m (137 ft) downstream of the impact point and 3 m (10 ft) towards the field side. The bridge rail contained and redirected the 1100C vehicle. The vehicle did not penetrate, underride, or override the installation. The 1100C vehicle exited within the exit box criteria. Working width was 438 mm (17.25 inches). Maximum dynamic deflection was 61 mm (2.4 inches) during the test. Permanent deformation was 32 mm (1.25 inches). No detached elements, fragments, or other debris were present to penetrate or show potential for penetrating the occupant compartment, or present hazard to others in the area. Maximum exterior crush to the vehicle was 254 mm (10.0 inches) in the front and side plane at the left front corner at bumper height. Maximum occupant compartment deformation was 76 mm (3.0 inches) in the left front firewall area. The 1100C vehicle remained upright during and after the collision event. Maximum roll and pitch angles were 19° and 18°, respectively. Longitudinal OIV was 9.3 m/s (30.5 ft/s), and lateral OIV was 8.7 m/s (28.5 ft/s). Longitudinal occupant ridedown acceleration was 2.3 g, and lateral occupant ridedown acceleration was 5.3 g. The occupant risk factors were within the MASH allowable limits. The VGAN 400 Bridge Rail performed acceptably for MASH Test 4-10.	PASS

Required Test Number	Narrative Description	Evaluation Results
4-11 (2270P)	Test 4-11 involves a 2270P vehicle weighing 2270 kg ±50 kg (5000 lb ±110 lb) impacting the test article at a target impact speed of 100 km/h ±4 km/h (62 mi/h ±2.5 mi/h) and a target impact angle of 25° ±1.5°. The target CIP was for the left corner of the front bumper to impact at 1.3 m (4.3 ft) upstream of the centerline of post 20. The results of TTI Test 690902-VGL4, conducted on August 12, 2021, are found in TTI Report TR No. 690902-VGL 1-4. The test vehicle was traveling at an impact speed of 102.2 m/s (63.5 mi/h) as it made contact with the VGAN 400 Bridge Rail 1.3 m (4.3 ft) upstream of the centerline of post 20 at an angle of 24.3°. After loss of contact with the test installation, the vehicle came to rest 45.7 m (150 ft) downstream of the impact point and 5.5 m (18 ft) towards the field side. The bridge rail contained and redirected the 2270P vehicle. The vehicle did not penetrate, underride, or override the installation. The 2270P vehicle exited within the exit box criteria. Working width was 483 mm (19.0-inches). Maximum dynamic deflection during the test was 132 mm (5.2 inches). Permanent deformation was 70 mm (2.75 inches). No detached elements, fragments, or other debris were present to penetrate or show potential for penetrating the occupant compartment, or present hazard to others in the area. Maximum exterior crush to the vehicle was 356 mm (14.0 inches) in the front plane at the left front corner at bumper height. Maximum occupant compartment deformation 140 mm (5.5 inches) in the left front kick panel area. The 2270P vehicle remained upright during and after the collision event. Maximum roll and pitch angles were 25° and 14°, respectively. Longitudinal OIV was 6.4 m/s (21.1 ft/s), and lateral OIV was 7.2 m/s (23.6) ft/s. Longitudinal occupant ridedown acceleration was 8.3 g, and lateral occupant ridedown acceleration was 6.8 g. The occupant risk factors were within the MASH preferred limits. The VGAN 400 Bridge Rail performed acceptably for MASH Test 4-11.	PASS

4-12 (10000S)	Test 4-12 involves a 10000S vehicle weighing 10,000 kg ±300 kg (22,000 lb ±660 lb) impacting the test article at a target impact speed of 90 km/h ±4.0 km/h (56 mi/h ±2.5 mi/h) and a target impact angle of 15° ±1.5°. The target CIP was for the left corner of the front bumper to impact at 1.5 m (5.0 ft) upstream of the centerline of post 8. The results of TTI Test 690902-VGL1, conducted on June 9, 2022, are found in TTI Report TR No. 690902-VGL 1-4. The test vehicle was traveling at an impact speed of 90.3 km/h (56.1 mi/h) as it made contact with the VGAN 400 Bridge Rail 1.7 m (5.4 ft) upstream of the centerline of post 8 at an angle of 14.8°. After loss of contact with the test installation, the vehicle came to rest 62.8 m (206 ft) downstream of the impact point and 5.5 m (18 ft) towards the field side. The bridge rail contained and redirected the 10000S vehicle. The vehicle did not penetrate, underride, or override the installation. The 10000S vehicle exited within the exit box criteria. Working width was 1161 mm (45.7 inches). Maximum dynamic deflection of the rail during the test was 502 mm (19.8 inches). Permanent deformation was 318 mm (12.5 inches). Some detached elements, fragments, or other debris were present; however, none penetrated or show potential for penetrating the occupant compartment, or present hazard to others in the area. Maximum exterior crush to the vehicle was 508 mm (20.0 inches) in the side plane at the left front corner at bumper height. Maximum occupant compartment deformation was 152 mm (6.0 inches) in the left front floor pan area. The 10000S vehicle remained upright during and after the collision event. Maximum roll and pitch angles were 36° and 7°, respectively. Longitudinal OIV was 2.8 m/s (9.2 ft/s), and lateral OIV was 4.0 m/s (13.0 ft/s). Longitudinal occupant ridedown acceleration was 4.7 g, and lateral occupant ridedown acceleration was 5.3 g. The VGAN 400 Bridge Rail performed acceptably for MASH Test 4-12.	PASS
4-20 (1100C)	This bridge rail is not a transition system.	Non-Relevant Test, not conducted
4-21 (2270P)	This bridge rail is not a transition system.	Non-Relevant Test, not conducted

4-22 (10000S)	This bridge rail is not a transition system.	Non-Relevant Test, not conducted

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.):

Laboratory Name:	Texas A&M Transportation Institute	
Laboratory Signature:	Digitally signed by Darrell L. Kuhn 'Date: 2022.12.09 09:25:31 -06'00	
Address:	1254 Avenue A, Bldg 7091, Bryan, Texas 77807	Same as Submitter ☐
Country:	USA	Same as Submitter ☐
Accreditation Certificate Number and Dates of current Accreditation period :	ISO 17025-2017 Laboratory A2LA Certificate Number: 2821.01 Valid To: April 30, 2023	

Submitter Signature*:

Submit Form

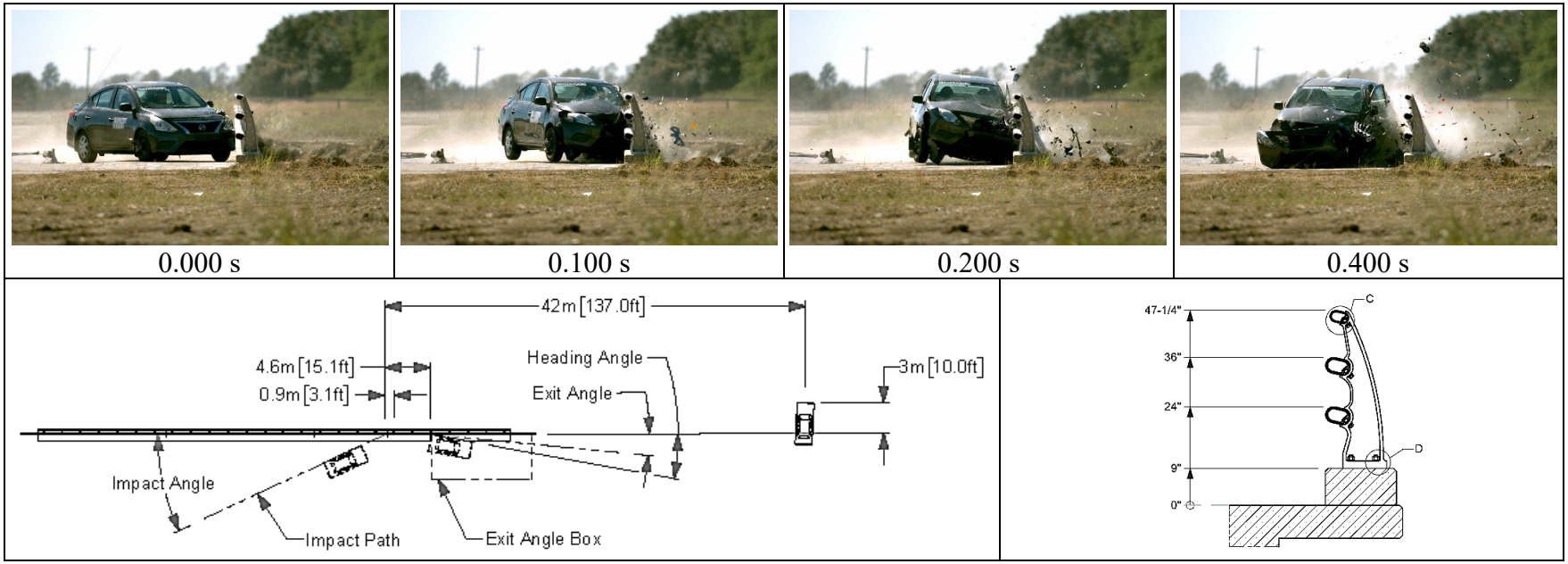
ATTACHMENTS

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 Task 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	Key Words



General Information
- Test Agency ..... Texas A&M Transportation Institute (TTI)
- Test Standard Test No. ..... *MASH* Test 4-10
- TTI Test No. 690902-VGL3
- Test Date 2020-11-16

Test Article
- Type ..... Longitudinal Barrier—Bridge Rail
- Name ..... VGAN400 Bridge Rail
- Installation Length ..... 46.9 m (154 ft)
- Material or Key Elements .... Pedestrian rail system, with three rails attached to posts mounted onto a concrete curb

Soil Type and Condition ..... Concrete deck, dry

Test Vehicle
- Type/Designation 1100C
- Make and Model ..... 2015 Nissan Versa
- Curb ..... 1090 kg (2402 lb)
- Test Inertial ..... 1104 kg (2433 lb)
- Dummy ..... 75 kg (165 lb)
- Gross Static ..... 1178 kg (2598 lb)

Impact Conditions
- Speed ..... 99.9 km/h (62.1 mi/h)
- Angle ..... 24.9°
- Location/Orientation ..... 0.9 m (3.1 ft) upstream of post 20

Impact Severity ..... 75.4 kJ (56 kip ft)

Exit Conditions
- Speed ..... 69.0 km/h (42.9 mi/h)
- Trajectory/Heading Angle ... 5.6°/10.0°

Occupant Risk Values
- Longitudinal OIV ..... 9.3 m/s (30.5 ft/s)
- Lateral OIV ..... 8.7 m/s (28.5 ft/s)
- Longitudinal Ridedown ..... 2.3 g
- Lateral Ridedown ..... 5.3 g
- THIV ..... 12.7 m/s
- ASI 2.6

Max. 0.050-s Average
- Longitudinal ..... −17.4 g
- Lateral ..... 17.5 g
- Vertical ..... 4.4 g

Post-Impact Trajectory
- Stopping Distance ..... 41.8 m (137 ft) ds 3 m (10 ft) twd fs

Vehicle Stability
- Maximum Roll Angle ..... 19°
- Maximum Pitch Angle ..... 18°
- Maximum Yaw Angle ..... 37°
- Vehicle Snagging ..... No
- Vehicle Pocketing ..... No

Test Article Deflections
- Dynamic ..... 61 mm (2.4 inches)
- Permanent ..... 32 mm (1.25 inches)
- Working Width ..... 438 mm (17.25 inches)
- Height of Working Width ..... 229 mm (9.0 inches)

Vehicle Damage
- VDS 11LFQ6
- CDC 11FLEW5
- Max. Exterior Deformation ..... 254 mm (10.0 inches)
- OCDI LF0031100
- Max. Occupant Compartment Deformation ..... 76 mm (3.0 inches) in the firewall

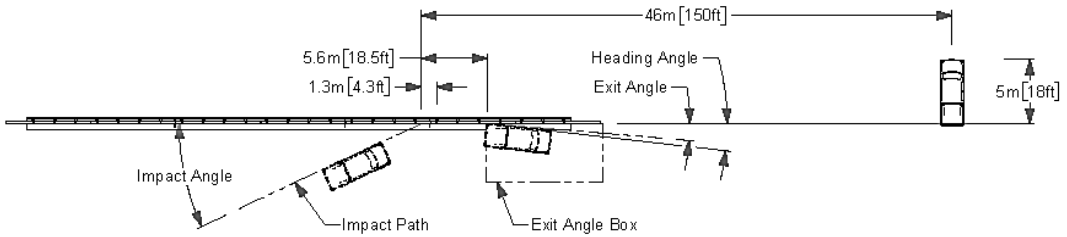
Figure 5.6. Summary of Results for *MASH* Test 4-10 on VGAN400 Bridge Rail.

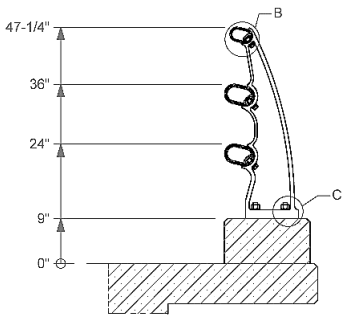

0.000 s


0.100 s


0.200 s


0.400 s





General Information
- Test Agency ..... Texas A&M Transportation Institute (TTI)
- Test Standard Test No. ..... *MASH* Test 4-11
- TTI Test No. 690902-VGL4
- Test Date 2021-08-12

Test Article
- Type ..... Longitudinal Barrier—Bridge Rail
- Name ..... Modified VGAN400 Bridge Rail
- Installation Length ..... 46.9 m (154 ft)
- Material or Key Elements .... Pedestrian rail system, with three rails attached to posts mounted onto a concrete curb

Soil Type and Condition ..... Bridge deck, dry

Test Vehicle
- Type/Designation 2270P
- Make and Model ..... 2015 RAM 1500 Pickup
- Curb ..... 2258 kg (4979 lb)
- Test Inertial ..... 2273 kg (5012 lb)
- Dummy ..... 75 kg (165 lb)
- Gross Static ..... 2348 kg (5177 lb)

Impact Conditions
- Speed ..... 102.2 km/h (63.5 mi/h)
- Angle ..... 24.3°
- Location/Orientation ..... 1.3 m (4.3 ft) upstream of post 20

Impact Severity ..... 155 kJ (114 kip ft)

Exit Conditions
- Speed ..... 73.4 km/h (45.6 mi/h)
- Trajectory/Heading Angle ... 4.8°/6.5°

Occupant Risk Values
- Longitudinal OIV ..... 6.4 m/s (21.1 ft/s)
- Lateral OIV ..... 7.2 m/s (23.6 ft/s)
- Longitudinal Ridedown ..... 8.3 g
- Lateral Ridedown ..... 6.8 g
- THIV ..... 9.8 m/s
- ASI 1.8

Max. 0.050-s Average
- Longitudinal ..... −12.2 g
- Lateral ..... 12.8 g
- Vertical ..... 3.7 g

Post-Impact Trajectory
- Stopping Distance ..... 45.7 m (150 ft) ds
  5.5 m (18 ft) twd fs

Vehicle Stability
- Maximum Roll Angle ..... 25°
- Maximum Pitch Angle ..... 14°
- Maximum Yaw Angle ..... 36°
- Vehicle Snagging ..... Yes
- Vehicle Pocketing ..... NoI

Test Article Deflections
- Dynamic ..... 132 mm (5.2 inches)
- Permanent ..... 70 mm (2.75 inches)
- Working Width ..... 483 mm (19.0 inches)
- Height of Working Width ..... 1242 mm (48.9 inches)

Vehicle Damage
- VDS 11LFQ5
- CDC 11FLEW5
- Max. Exterior Deformation ..... 356 mm (14.0 inches)
- OCDI LF0130200
- Max. Occupant Compartment Deformation ..... 140 mm (5.5 inches) in the firewall

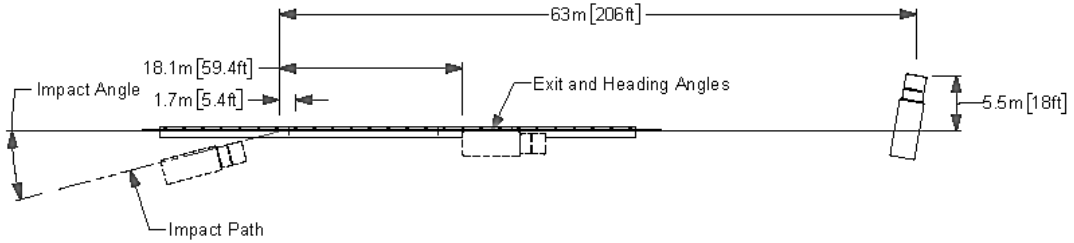
Figure 7.6. Summary of Results for *MASH* Test 4-11 on Modified VGAN400 Bridge Rail.

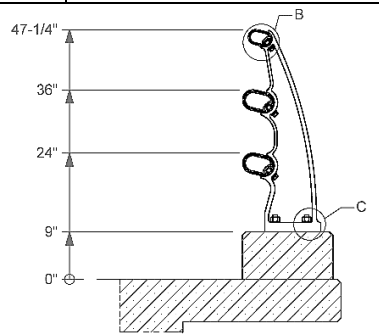

0.000 s


0.200 s


0.400 s


0.600 s





General Information
- Test Agency ..... Texas A&M Transportation Institute (TTI)
- Test Standard Test No. ..... *MASH* Test 4-12
- TTI Test No. 690902-VGL1
- Test Date 2022-06-09

Test Article
- Type ..... Longitudinal Barrier—Bridge Rail
- Name ..... Modified VGAN400 Bridge Rail
- Installation Length ..... 46.9 m (154 ft)
- Material or Key Elements .... Pedestrian rail system, with three rails attached to posts mounted onto a concrete curb

Soil Type and Condition ..... Bridge deck, dry

Test Vehicle
- Type/Designation 10000S
- Make and Model ..... 2008 International 4300 SUT
- Curb ..... 6455 kg (14,230 lb)
- Test Inertial ..... 10 268 kg (22,638 lb)
- Dummy ..... No dummy
- Gross Static ..... 10 268 kg (22,638 lb)

Impact Conditions
- Speed ..... 90.3 km/h (56.1 mi/h)
- Angle ..... 14.8°
- Location/Orientation ..... 1651 mm (65 inches) upstream of post 8

Impact Severity ..... 210 kJ (155 kip ft)

Exit Conditions
- Speed ..... Out of view
- Trajectory/Heading Angle ... Along Rail

Occupant Risk Values
- Longitudinal OIV ..... 2.8 m/s (9.2 ft/s)
- Lateral OIV ..... 4.0 m/s (13.0 ft/s)
- Longitudinal Ridedown ..... 4.7 g
- Lateral Ridedown ..... 5.3 g
- THIV ..... 4.7 m/s
- ASI 0.4

Max. 0.050-s Average
- Longitudinal ..... -2.3 g
- Lateral ..... 3.9 g
- Vertical ..... -1.9 g

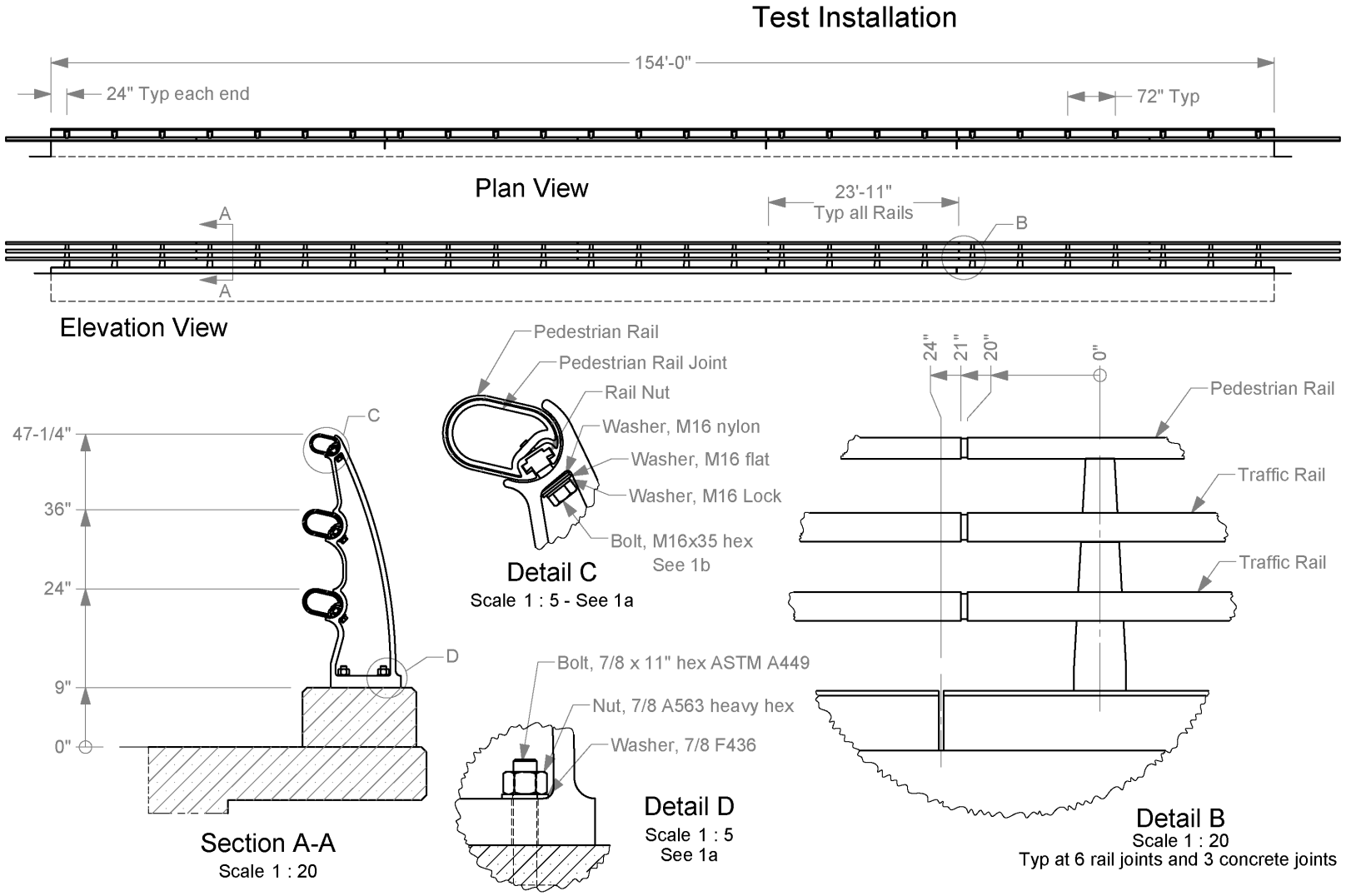
Post-Impact Trajectory
- Stopping Distance ..... 62.8 m (206 ft) dwnstrm 5.5 m (18 ft) twd field side

Vehicle Stability
- Maximum Roll Angle ..... 36°
- Maximum Pitch Angle ..... 7°
- Maximum Yaw Angle ..... 18°
- Vehicle Snagging ..... Yes
- Vehicle Pocketing ..... No

Test Article Deflections
- Dynamic ..... 502 mm 19.8 inches)
- Permanent ..... 318 mm (12.5 inches)
- Working Width ..... 1161 mm (45.7 inches)
- Height of Working Width ..... 3168 mm (124.7 inches)

Vehicle Damage
- VDS 11LFQ6
- CDC 11FLEW6
- Max. Exterior Deformation ..... 508 mm (20 inches)
- OCDI LF0010000
- Max. Occupant Compartment Deformation ..... 152 mm (6.0 inches) in the floor pan

Figure 8.7. Summary of Results for *MASH* Test 4-12 on Modified VGAN400 Bridge Rail.



1a. M16 hardware is stainless steel, and typical x 6 at each Post. 7/8" hardware is galvanized, and typical x 4 at each post.

1b. M16x35 for Pedestrian Rails, tightened until the Lock Washer is flat. M16x45 for Traffic Rails, torqued to 30 ft lbs (40Nm). Other hardware is typical for all Rails.

Texas A&M Transportation Institute	Roadside Safety and Physical Security Division - Proving Ground	
Project #690902-VGL Varley and Gulliver Bridge Rail		2020-09-25
Drawn by GES	Scale 1:200	Sheet 1 of 4 Test Installation

Q:\Accreditation-17025-2017\EIR-000 Project Files\690902\VGL- Varley & Gulliver Ltd. - England - Williams\1-3 VGAN300 - TL-4\Drafting, VGL\690902-VGL Drawing