**PROPRIETARY-MATERIAL-USE**
**PUBLIC-INTEREST FINDING**

*PROGRAMMATIC APPROVAL*

PROGRAMMATIC APPROVAL PERIOD: May 1, 2019 – April 30, 2022

FHWA OVERSIGHT: YES ☒ NO ☐

PROPRIETARY MATERIAL:
Lindsay Transportation Solutions Sales & Service, LLC
Lindsay Road Zipper System®

Product Selection

The Indiana Department of Transportation is seeking approval to use the Lindsay Road Zipper System® as a means of maintaining traffic in two scenarios: [1] on high AADT roadways with unbalanced peak period vehicular traffic, and [2] on freeway pavement patching projects. The product may also be used to provide an additional lane for unbalanced traffic flow on a permanent basis.

Designers will have to submit a completed Moveable Barrier Justification Form, when specifying moveable barrier walls on a particular project. A copy of this Form is attached as Appendix A.

Product Components

The Lindsay Road Zipper System® includes all of the components necessary for a complete installation, including:

- QuickChange® Moveable Barrier Concrete Reactive Tension System, QMB-CRTS or QMB-CRTS-F (Fiber Series)
- QuickChange® Moveable Barrier Concrete Reactive Tension System, QMB-CRTS Transition
- Lindsay Road Zipper Machine
- RTS Guard (optional)

Product History

The Lindsay Road Zipper System® is a moveable barrier wall that provides positive protection and mitigates congesting during road or bridge work. The product was developed in the 1980's and INDOT's interest in this product has increased significantly in recent years.

Project Compatibility

The desired product would be suitable for maintaining traffic on freeway and high AADT roadway projects in urban and suburban areas where there is unbalanced flow during the AM and PM peak periods and in rural areas to protect workers during pavement patching while they work adjacent to the open lane of travel. The moveable barrier significantly increases worker safety when compared to the use of channelizing devices. Potential project applications include added travel lanes, concrete pavement restoration, and bridge replacement. The product may also be used to provide an additional lane for unbalanced traffic flow on a permanent basis.

Product Availability

The desired product is the only unanchored moveable barrier wall compliant with MASH TL-3 crash testing standards. An FHWA approval letter is attached as Appendix B.

Product Cost

The most recent unit price summaries show an average unit price of $65 per foot for a type 4 temporary traffic barrier (pay item 801-08403) and a total quantity statewide of 21,570 lft. The Lindsay Road Zipper System® may be more or less than this depending on the quantity and the timeframe the moveable barrier wall will be needed.

Maintenance

As a temporary traffic control device, maintenance for the Road Zipper Machine is the responsibility of the contractor and is included in the cost of the pay item.

Product Alternatives – Summary Table

| | Road Zipper System® | Steel Barrier Wall | Tubular Markers | Drums |
|---|---|---|---|---|
| Moveable | Yes | No | Yes | Yes |
| Positive Protection | Yes | Yes | No | No |
| MASH TL-3 Compliant | Yes | Yes | Yes | Yes |
| Proprietary Item | Yes | Yes, Zoneguard® by Hill & Smith Highway Products | No | No |

PREPARED BY:

Date: 3/27/2019

David H. Boruff
Manager, Office of Traffic Administration
(317) 234-7975

Based upon the above finding, the use of the proprietary material listed is in the public interest and is hereby approved.

APPROVED: Jeremy C Hunter — Thomas L Duncan

Managing Director of Engineering, INDOT

Pavement & Materials Engineer, FHWA

Date: 4/2/19

Date: 4/05/2019

## APPENDIX A

*MOVABLE BARRIER – JUSTIFICATION FORM*

Location: _____

Des No: _____ Contract No: _____

A movable barrier is needed at the location(s) listed above for the following reason(s):

*Check all that apply*

☐ High AADT roadway with unbalanced peak periods where a temporary reversible lane would address or mitigate queuing in advance of the work zone (*attach hourly AADT data and IHCP summary*).

☐ For traffic control on freeway patching projects where a temporary reversible lane would protect workers during night-time or weekend pavement patching but also allow use of the lane during peak periods (*attach hourly AADT data and IHCP summary*).

☐ Other reason: _____
*(please describe and attach supporting documentation)*

☐ High AADT roadway with unbalanced peak periods where a permanent reversible lane would address or mitigate delay and queuing (*attach hourly AADT data and operational analysis, e.g. from the Highway Capacity Manual).*

RECOMMENDED: APPROVED:

_____ _____ _____
Name: Name: Date
Title: District Traffic Engineer

*Copies To:*
Area Engineer
Highway Design & Tech Support Office

Appendix B

U.S.Department
of Transportation
Federal Highway
Administration

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

February 2, 2017

In Reply Refer To:
HSST-1/B-277

Mr. Gerrit Dyke, P.E.
Lindsay Transportation Solutions
180 River Road
Rio Vista, CA 94571

Dear Mr. Dyke:

This letter is in response to your December 20, 2016 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 B-277 and is valid until a subsequent letter is issued by FHWA that expressly references this device.

**Decision**

The following devices are eligible, with details provided in the form which is attached as an integral part of this letter:

- QuickChange Moveable Barrier Concrete Reactive Tension System (QMB- CRTS)

**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 American Association of State Highway and Transportation Officials' (AASHTO) Manual for Assessing Safety Hardware (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: QuickChange Moveable Barrier Concrete Reactive Tension System (QMB- CRTS)
Type of system: Longitudinal Barrier (unanchored)
Test Level: MASH Test Level 3 (TL3)
Testing conducted by: Texas A&M Transportation Institute (TamTI)
Date of request: December 20, 2016
Date initially acknowledged: December 21, 2016
Date of completed package: January 11, 2016

FHWA concurs with the recommendation of the accredited crash testing laboratory as stated within 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**

If a manufacturer makes any modification to any of their roadside safety hardware that has an existing eligibility letter from FHWA, the manufacturer must notify FHWA of such modification with a request for continued eligibility for reimbursement. The notice of all modifications to a device must be accompanied by:

- Significant modifications – For these modifications, crash test results must be submitted with accompanying documentation and videos.
- Non-signification modifications – For these modifications, a statement from the crash test laboratory on the potential effect of the modification on the ability of the device to meet the relevant crash test criteria.

FHWA's determination of continued eligibility for the modified hardware will be based on whether the modified hardware will continue to meet the relevant crash test criteria.

Any user or agency relying on this eligibility letter is expected to use the same designs, specifications, drawings, installation and maintenance instructions as those submitted for review.

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 the AASHTO 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.

**Standard Provisions**

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA control number B-277 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 upon request.

- This 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.

- If the subject device is a patented product it may be considered to be proprietary. If proprietary systems are specified by a highway agency for use on Federal-aid 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.

Sincerely,

Scott T. Johnson
Acting Director, Office of Safety
Technologies
Office of Safety

Enclosures

Appendix B

U.S. Department
of Transportation
Federal Highway
Administration

March 18, 2019

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

In Reply Refer To:
HSST-1/B-315

Mr. Gerrit Dyke, P.E.
Lindsay Transportation Solutions
180 River Road
Rio Vista, CA 94571

Dear Mr. Dyke:

This letter is in response to your November 16, 2018 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 B-315 and is valid until a subsequent letter is issued by FHWA that expressly references this device.

**Decision**

The following devices are eligible, with details provided in the form which is attached as an integral part of this letter:

- QuickChange Moveable Barrier Concrete Reactive Tension System - Fiber Series (QMB-CRTS-F)

**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' 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 American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (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: QuickChange Moveable Barrier Concrete Reactive Tension System - Fiber Series (QMB- CRTS-F)
Type of system: Longitudinal Barrier
Test Level: MASH Test Level 3 (TL3)
Testing conducted by: TamTI
Date of request: December 10, 2018

FHWA concurs with the recommendation of the accredited crash testing laboratory as stated within the attached form for systems mounted on concrete only.

**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**

FHWA's determination of continued eligibility for the modified hardware will be based on whether the modified hardware will continue to meet the relevant crash test criteria.

Any user or agency relying on this eligibility letter is expected to use the same designs, specifications, drawings, installation and maintenance instructions as those submitted for review.

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 the 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.

**Standard Provisions**

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA control number B-315 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 upon request.

- This 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.

- If the subject device is a patented product it may be considered to be proprietary. If proprietary systems are specified by a highway agency for use on Federal-aid 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.

Sincerely yours,

Michael S. Griffith

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

Enclosures

Appendix B

U.S. Department of Transportation
Federal Highway Administration

SEP 17 2018

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

In Reply Refer To:
HSST-1/B-309

Mr. Gerrit Dyke, P.E.
Lindsay Transportation Solutions
180 River Road
Rio Vista, CA 94571

Dear Mr. Dyke:

This letter is in response to your August 3, 2018 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 B-309 and is valid until a subsequent letter is issued by FHWA that expressly references this device.

**Decision**

The following devices are eligible, with details provided in the form which is attached as an integral part of this letter:

- QuickChange Moveable Barrier Concrete Reactive Tension System (QMB-CRTS) Transition

**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' 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 American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (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: QuickChange Moveable Barrier Concrete Reactive Tension System (QMB-CRTS) Transition
Type of system: Longitudinal Barrier Transition
Test Level: MASH Test Level 3 (TL3)
Testing conducted by: Safe Technologies, Inc.
Date of request: August 3, 2018

FHWA concurs with the recommendation of the accredited crash testing laboratory as stated within 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**

FHWA's determination of continued eligibility for the modified hardware will be based on whether the modified hardware will continue to meet the relevant crash test criteria.

Any user or agency relying on this eligibility letter is expected to use the same designs, specifications, drawings, installation and maintenance instructions as those submitted for review.

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 the 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.

**Standard Provisions**

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA control number B-309 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 upon request.

- This 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.

- If the subject device is a patented product it may be considered to be proprietary. If proprietary systems are specified by a highway agency for use on Federal-aid 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.

Sincerely yours,

Michael S. Griffith

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

Enclosures

U.S. Department
of Transportation
Federal Highway
Administration

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

February 9, 2018

In Reply Refer To:
HSST-1/B-299

Mr. Gerrit A. Dyke, P.E.
Lindsay Transportation Solutions, Inc.
180 River Road
Rio Vista, CA 95471

Dear Mr. Dyke:

This letter is in response to your December 6, 2017 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 B-299 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:

- RTS Guard

**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: RTS Guard
Type of system: Longitudinal Barrier
Test Level: MASH Test Level 3 (TL3)
Testing conducted by: Safe Technologies, Inc.
Date of request: December 6, 2017
Date initially acknowledged: December 6, 2017

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.

**Standard Provisions**

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA control number B-299 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 upon request.

- This 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.

- If the subject device is a patented product it may be considered to be proprietary. If proprietary systems are specified by a highway agency for use on Federal-aid 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.

Sincerely,

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

Enclosures