



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

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

February 6, 2013

In Reply Refer To:
HSST/SS-177

Mr. Nirmal Bajoria
MDSolutions, Inc.
8225 Estates Parkway
Plain City, Ohio 43064

Dear Mr. Bajoria,

This letter is in response to your request for the Federal Highway Administration (FHWA) to review a roadside safety system for eligibility for reimbursement under the Federal-aid highway program.

Name of system:	Perforated square steel tube sign supports
Type of system:	Breakaway small sign supports
Test Level:	NCHRP Report 350 Test Level 3
Testing conducted by:	N/A
Task Force 13 Designator:	SSF02a-c
Date of request:	September 17, 2012
Date initially acknowledged:	September 19, 2012
Date of completed package:	September 26, 2012

Decision

The following device is eligible, with details provided in the form, drawings, and letter dated September 17, 2012, which are attached as integral parts of this letter:

Generic perforated square steel tube sign supports, 12 and 14 ga, 1.75-inch and 2.0 inch for supports, and 2.25 inch for anchors.

Based on a comparison of your products to previously crash tested generic breakaway sign supports you submitted certifying the device described herein meets the crash test and evaluation criteria of the National Cooperative Highway Research Program (NCHRP) Report 350, the device is eligible for reimbursement under the Federal-aid highway program. Eligibility for reimbursement under the Federal-aid highway program does not establish approval or endorsement by the FHWA for any particular purpose or use.

The FHWA, the Department of Transportation, and the United States Government do not endorse products or services and the issuance of a reimbursement eligibility letter is not an endorsement of any product or service.

FHWA:HSST:NArtimovich:sf:x61331:2/1/13

File: s://directory folder/HSST/ SS177_MDSolutions_PSST.docx

cc: HSST (NArtimovich; BFouch)

Requirements

To be found eligible for Federal-aid funding, roadside safety devices should meet the crash test and evaluation criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350 or the American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH).

Description

The device and supporting documentation are described in the attached form, letter, and drawings.

Summary and Standard Provisions

Therefore, the system described and detailed in the attached form is eligible for reimbursement and may be installed under the range of conditions tested. These test conditions are summarized in the Task Force 13 drawing SSF02a-c which is enclosed for reference.

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

- This letter provides a AASHTO/ARTBA/AGC Task Force 13 designator that should be used for the purpose of the creation of a new and/or the update of existing Task Force 13 drawing for posting on the on-line 'Guide to Standardized Highway Barrier Hardware' currently referenced in AASHTO Roadside Design Guide.
- This finding of eligibility does not cover other structural features of the systems, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may influence system conformance with NCHRP Report 350 criteria will require a new reimbursement eligibility letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals safety problems, or that the system is significantly different from the version that was crash tested, we reserve the right to modify or revoke this letter.
- You are expected to supply potential users with sufficient information on design and installation 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 crash test and evaluation criteria of the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of eligibility is designated as number SS-177 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 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 FHWA does not 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,

A handwritten signature in blue ink, reading "Michael S. Griffith". The signature is fluid and cursive, with the first name "Michael" being the most prominent.

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

Enclosures

Request for Federal Aid Reimbursement Eligibility Of Highway Safety Hardware

Submitter	Date of Request:	9/26/2012	<input checked="" type="radio"/> New <input type="radio"/> Resubmission
	Name:	NIRMAL BAJORIA	
	Company:	MDSOLUTIONS INC.	
	Address:	8225 ESTATES PARKWAY, PLAIN CITY, OH 43064	
	Country:	USA	
	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.

[Help](#)

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'SS': Breakaway Sign Support	<input checked="" type="radio"/> Physical Crash Testing <input type="radio"/> FEA & V&V Analysis	2" Square Sign Posts 1 3/4" Square Sign Posts	NCHRP Report 350	

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 NCHRP Report 350 (Report 350) and that the evaluation results meet the appropriate evaluation criteria in the Report 350.

Identification of the individual or organization responsible for the product:

Contact Name:	NIRMAL BAJORIA	Same as Submitter <input checked="" type="checkbox"/>
Company Name:	MDSOLUTIONS INC.	Same as Submitter <input checked="" type="checkbox"/>
Address:	8225 ESTATES PARKWAY, PLAIN CITY, OH 43064	Same as Submitter <input checked="" type="checkbox"/>
Country:	USA	Same as Submitter <input checked="" type="checkbox"/>

PRODUCT DESCRIPTION

New Hardware
1 3/4" and 2" Square Sign Posts

CRASH TESTING

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
	Same as existing Square Sign Posts already approved	WAIVER REQUES

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:			
Laboratory Contact:		Same as Submitter	<input type="checkbox"/>
Address:		Same as Submitter	<input type="checkbox"/>
Country:		Same as Submitter	<input type="checkbox"/>
Accreditation Certificate Number and Date:			

ATTACHMENTS

Attach to this form:

- 1) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
- 2) 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 key to understanding the performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

Eligibility Letter		AASHTO TF13	
Number	Date	Designator	Key Words



9/17/2012

Mr. Nicholas Artimovich, II
Highway Engineer,
Office of Safety Technologies
Federal Highway Administration HSST
1200 New Jersey Avenue SE, Room E71-322
Washington, DC 20590

Dear Mr. Artimovich:

We would like to request approval from the Federal Highway Administration (FHA) for our company's square steel posts as breakaway sign supports on the National Highway System (NHS). As you will see from the attached chemical and physical properties they are in close conformity with perforated square steel tube sign supports that have been previously found acceptable by virtue of full-scale crash testing, and/or by comparison with posts found acceptable by engineering analysis.

The steel used to fabricate the sign posts conform to ASTM A570, Grade 50 steel. The perforated holes are 7/16-inch (11.1-mm) and are punched 1 inch (2.54-mm) on center on all four sides. We have included certifications for the information on the geometric, chemical, and physical properties for our posts. Below is a chart that summarizes the sizes and materials we intend to use.

Wall Thickness	14 Gauge	12 Gauge
Steel (ASTM)	A570, Grade 50	A570, Grade 40
Sizes (inches)	1.75, 2.00, 2.25	1.75, 2.00, 2.25

If any further information or samples are required, please let us know.

Sincerely,

NIRMAL BAJORIA



CERTIFICATION OF TESTS

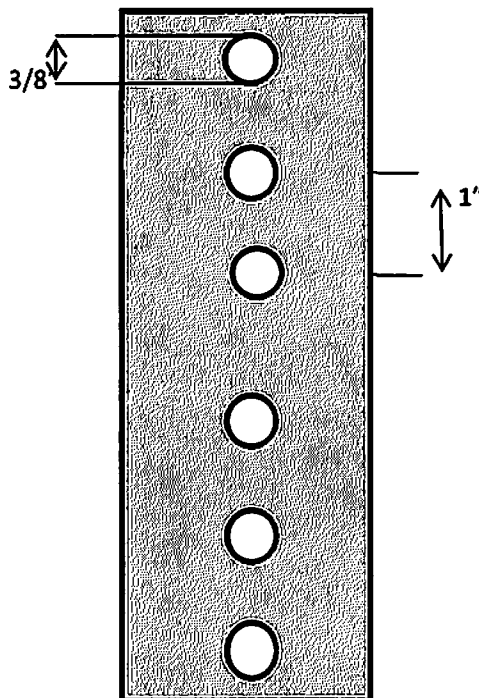
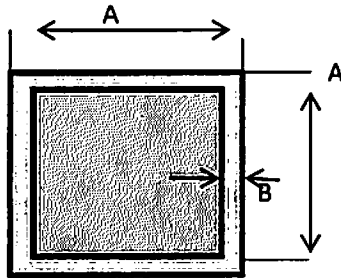
COMPANY	MDSolutions Inc.	PRODUCT	PERFORATED SQUARE STEEL SIGN POST
SPECIFICATION	ASTM A570 GRADE50	DATE OF ISSUE	2012/7/7

ITEM	CHEMICAL COMPOSITION HEAT ANALYSIS							TENSILE TEST		
	C	MN	P	S	VA	SI	AL	YLD,psi	TSN,psi	ELN %
2.25"X2.25"	0.23	1.05	0.04	0.05	/	0.28	/	62000	81000	17.5
2.00"X2.00"	0.23	0.95	0.04	0.05	/	0.27	/	61000	80500	17.8

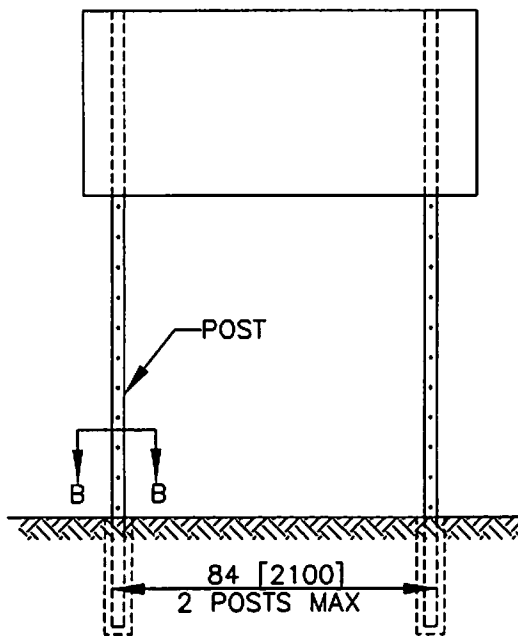
WE HEREBY CERTIFY THAT THE PRODUCTS DESCRIBED ABOVE HAVE BEEN MANUFACTURED AND TESTED WITH THE STATED SPECIFICATION.



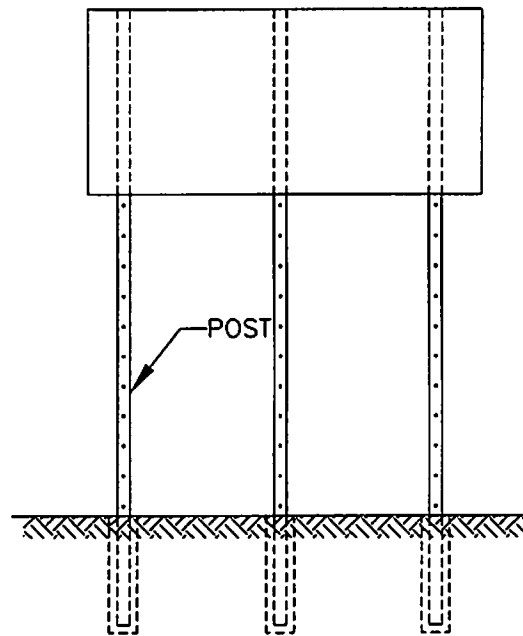
MDSolutions, Inc



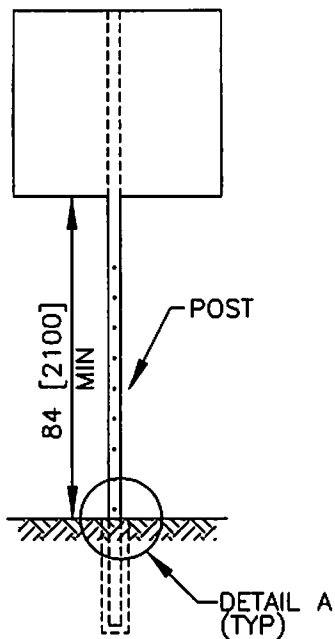
Tube Size	Gauge	Inches	#/Per Foot
A x A	B	B	
1.75x1.75	14	0.083	1.71
2.00x2.00	14	0.083	1.99
2.25x2.25	14	0.083	2.28
1.50x1.50	12	0.105	1.74
1.75x1.75	12	0.105	2.09
2.00x2.00	12	0.105	2.44
2.25x2.25	12	0.105	2.79
2.50x2.50	12	0.105	3.14



SSF02b



SSF02c



SSF02a

SYSTEM	LARGEST POST	LARGEST BASE	LRGST OPTIONAL REINFORCING SLEEVE	CORNER BOLT
SSF02a	PTP23b	PTP24b	--	FBH06
	PTP43b	PTP44b	--	FBH06
SSF02b	PTP22b	PTP23b	PTP24b	FBH06
	PTP42b	PTP43b	PTP44b	FBH06
SSF02c	PTP21b	PTP22b	PTP23b	FBH05
	PTP41b	PTP42b	PTP43b	FBH05

NOTE: POSTS SHALL BE EMBEDDED AT LEAST
36 [860] INTO STRONG SOIL OR 60 [1400] INTO WEAK SOIL

PERFORATED STEEL TUBE IN ANCHOR BASE

SSF02a-c

SHEET NO.

DATE:

1 OF 4

2006

INTENDED USE

The perforated steel tube in a steel tube anchor base small sign support system can be used as a single-post (SSF02a), double-post (SSF02b), or triple-post (SSF02c) sign support system where all the posts are within a 2100 mm span. The system is considered to meet the requirements of the 1985 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals* and may be used in either strong or weak soil. The largest mass post available for the three systems are: 4.1 kg/m (PTP23b or PTP43b) for the single-post system (SSF02a), 3.6 kg/m (PTP22b or PTP42b) for the two-post system (SSF02b) and 3.1 kg/m (PTP21b or PTP41b) for the three-post system (SSF02c).

COMPONENTS

The perforated steel tube in a perforated steel tube anchor base small sign support system is a yielding breakaway system consisting of a tubular post (PTP12a, PTP20a-PTP23b or PTP40a-43b), an anchor base (PTP21b-PTP24b or PTP41b-44b), fasteners and an optional reinforcing sleeve (PTP22b-PTP24b or PTP42b-44b). The tubular post shall have either knock-outs or holes on all four tube faces. The post telescopes inside a base post which is the next higher tube size (e.g., a PTP20b post telescopes into a PTP21b anchor base). The anchor base can also be telescoped into a reinforcing sleeve made of a 450 mm long section of the next higher tube (e.g., a PTP20b post, a PTP21b anchor base and a PTP22b reinforcing sleeve). When used in a strong soil the base post shall be embedded at least 860 mm and when used in a weak soil the base post shall be embedded at least 1400 mm in the soil. The anchor base is driven into the soil until approximately 25 mm of the anchor base protrudes above the ground surface. The anchor base may also be set in soilcrete or concrete if desired. The square tube sign post is then placed inside the anchor sleeve such that the bottom of the post is approximately 200 mm below the ground and the bottom of the sign panel is at least 2100 mm above the ground. The post is fastened to the anchor sleeve using the appropriate corner bolt and nut (FBH05-07).

REFERENCES

L. A. Staron, "Breakaway Sign Supports," Geometric and Roadside Design Acceptance Letter SS-03, Federal Highway Administration, October 3, 1986.

L. A. Staron, "Breakaway Sign Supports," Geometric and Roadside Design Acceptance Letter SS-11, Federal Highway Administration, May 18, 1989.

L. A. Staron, "Breakaway Sign Supports," Geometric and Roadside Design Acceptance Letter SS-19, Federal Highway Administration, July 31, 1990.

L. A. Staron, "Breakaway Sign Supports," Geometric and Roadside Design Acceptance Letter SS-26, Federal Highway Administration, February 11, 1992.

L. A. Staron, "Breakaway Sign Supports," Geometric and Roadside Design Acceptance Letter

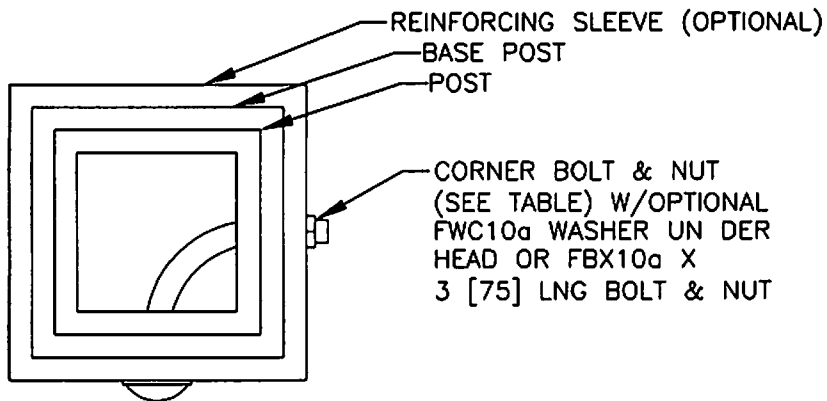
PERFORATED STEEL TUBE IN ANCHOR BASE

SSF02a-c

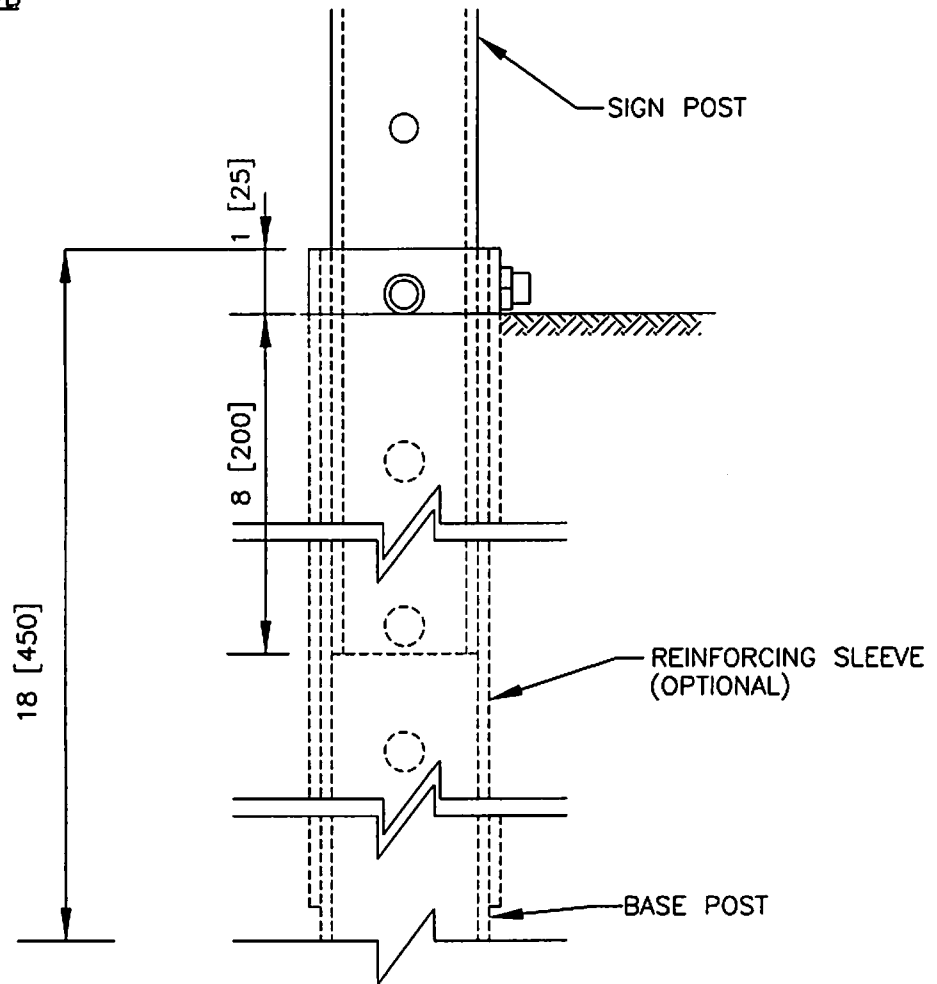
SHEET NO.

DATE

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SECTION B-B



DETAIL A: ANCHOR BASE

PERFORATED STEEL TUBE IN ANCHOR BASE

SSF02a-c

SHEET NO.

DATE:

3 OF 4

2006

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PERFORATED STEEL TUBE IN ANCHOR BASE

SSF02a-c

SHEET NO.

DATE

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