U.S. Department of Transportation
Federal Highway Administration

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

February 6, 2025

In Reply Refer To:
HSST-1/SS-191

Mr. Brian Nelson
Southern Plains Fabrication
1505 State Highway 207
Ralls, TX 79357

Dear Mr. Nelson:

We received your initial correspondence on December 20, 2024 requesting issuance of a Federal-aid reimbursement eligibility letter under the Federal-aid highway program for the roadside safety system, device, design, product, or hardware (collectively "device") described below. On August 5, 2025, we received a complete set of files needed to complete our review. We write to inform you that the device Triangular Slip base Support with Slip Joint is eligible for Federal-aid reimbursement. This letter is assigned Federal Highway Administration (FHWA) control number SS-191.

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 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: Triangular Slip base Support with Slip Joint
Type of system: Support Structure
Test Level: TL3
Testing conducted by: Texas A&M Transportation Institute
Date of request: December 20, 2024

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 SS-191 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

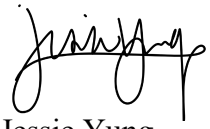
Issuance of this eligibility letter does not convey property rights of any sort nor any exclusive privilege. This letter is not authorization or consent by the government for the use, manufacture, or sale of any patented or proprietary system, device, design, product, or hardware for which the requester 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 Federal-aid eligibility letter is assigned FHWA control number SS-191. It should only be reproduced in full with its attachment(s). This Federal-aid eligibility 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 Paul LaFleur at Paul.LaFleur@dot.gov.

Sincerely,



Jessie Yung
Director, Office of Safety Technologies
Office of Safety

Enclosures

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	11/5/2024	◉ New ○ Resubmission
	Name:	Brian Nelson	
	Company:	Southern Plains Fabrication	
	Address:	1505 State Highway 207	
	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.

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

! - ! - !

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'SS': Breakaway Sign Supports, Mailboxes, & other small sign supports	◉ Physical Crash Testing ○ Engineering Analysis	Triangular Slip Base Sign Support System with Slip Joint and Bolt Retainer Plates	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 that the evaluation results meet the appropriate evaluation criteria in the MASH.

Individual or Organization responsible for the product:

Contact Name:	Brian Nelson	Same as Submitter ☒
Company Name:	Southern Plains Fabrication	Same as Submitter ☒
Address:	1505 State Highway 207	Same as Submitter ☒
Country:	USA	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 Southern Plains Fabrication to perform full-scale crash testing of the sign support system. There are no shared financial interests between Southern Plains Fabrication and TTI other than 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 triangular slip base sign support system consisted of a 24-inch square, 0.080-inch thick aluminum sign panel attached to a two-piece pipe support at a mounting height of 84 inches above grade. An inner HSS square tube was welded inside the lower end of the upper portion of the pipe support. The HSS tube extended beyond the end of the upper portion of the pipe support and inserted into the upper end of the lower portion of the support at a height corresponding to the lower edge of the sign panel. A tab on the HSS support indexed into a slot on the lower portion of the support to prevent rotation. The lower end of the lower portion of the support inserted into a triangular slip base assembly that was connected to a matching triangular slip plate attached to a ground stub embedded in a concrete footer. The height of the lower slip plate was 4 inches above grade. The slip bolts inserted into proprietary bolt retainer plates that were sandwiched between the two triangular slip plates.

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:	Roger Bligh	
Engineer Signature:	Roger Bligh — Digitally signed by Roger Bligh Date: 2024.11.07 10:32:11 -06'00'	
Address:	3100 SH 47, Bldg 7091, Byran, 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
3-60 (1100C)	Test #690900-SPF16 was performed on 7-19-2024. The test consisted of an 1100C (small passenger car) vehicle impacting the sign support system at 19.5 mph and 0 degrees. The centerline of the support post impacted 13 inches off the vehicle centerline toward the driver side. Brakes were activated 4.5 seconds after impact and the vehicle came to rest 150ft downstream from the point of impact. The slip base activated and released the sign support system from its foundation. The upper section of the support post with the attached sign panel detached from the lower section of the 2-piece support post and came to rest on top of the windshield. The windshield had 1.3 inches of deformation. There were no holes in the windshield, and no other occupant compartment deformation. OIV was 2.6 ft/s in the longitudinal direction and 0.1 ft/s in the lateral direction. Ridedown was 0.2g in the longitudinal direction and 0.2g in the lateral direction. The vehicle remained stable through the test and did not exceed MASH roll or pitch limits. There was no penetration of any test component into the occupant compartment. The triangular slip base sign support system passed all evaluation criteria.	

Required Test Number	Narrative Description	Evaluation Results
3-61 (1100C)	Test #690900-SPF4 was performed on 7-19-2024. The test consisted of an 1100C (small passenger car) vehicle impacting the sign support system at 60.4 mph and 0 degrees. The centerline of the support post impacted 13 inches off the vehicle centerline toward the passenger side. Brakes were activated 1.5 seconds after impact and the vehicle came to rest 245ft downstream from the point of impact. The slip base activated and released the sign support system from its foundation. The upper section of the support post with the attached sign panel detached from the lower section of the 2-piece support post and traveled over the vehicle. The upper end of the lower section of the support post impacted the windshield. The maximum windshield deformation was 1.8 inches. There were no holes in the windshield, and no other occupant compartment deformation. OIV was 1.2 ft/s in the longitudinal direction and 3.3 ft/s in the lateral direction. Ridedown was 0.4g in the longitudinal direction and 0.5g in the lateral direction. The vehicle remained stable through the test and did not exceed MASH roll or pitch limits. There was no penetration of any test component into the occupant compartment. The triangular slip base sign support system passed all evaluation criteria.	

3-62 (2270P)	Test #690900-SPF15 was performed on 7-19-2024. The test consisted of an 2270P (pickup truck) vehicle impacting the sign support system at 62.0 mph and 0 degrees. The centerline of the support post impacted 13 inches off the vehicle centerline toward the driver side. Brakes were activated 2.5 seconds after impact and the vehicle came to rest 313ft downstream from the point of impact. The slip base activated and released the sign support system from its foundation. The upper section of the support post with the attached sign panel detached from the lower section of the 2-piece support post and impact the roof of the vehicle. The maximum roof deformation was 0.5 inches. No other occupant compartment deformation. There was no occupant contact within the interior of the vehicle. The vehicle remained stable through the test and did not exceed MASH roll or pitch limits. There was no penetration of any test component into the occupant compartment. The triangular slip base sign support system passed all evaluation criteria.	

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:	Bill Griffith Digitally signed by Bill Griffith Date: 2024.11.07 07:31:02 -06'00'	
Address:	3100 SH 47, 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 2025	

Submitter Signature*: brian nelson Digitally signed by brian nelson Date: 2024.11.26 13:37:32 -06'00'

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

0.0000 s

0.1000 s

0.2000 s

0.3000 s

GENERAL INFORMATION	
Test Agency:	Texas A&M Transportation Institute (TTI)
Test Standard/Test No.:	*MASH* 2016, Test 3-60
Project No.:	690900-SPF-16
Test Date:	2024-07-19
TEST ARTICLE	
Type:	Support Structures
Name:	Triangular Slip Base Support
Length:	84 inches to bottom of sign panel
Key Materials:	Aluminum sign panel, 2-piece steel support, slip base
Soil Type and Condition:	Soil, dry
TEST VEHICLE	
Type/Designation	1100C
Year, Make and Model	2018 Nissan Versa
Inertial Mass	2448 lb
Dummy Mass	165 lb
Gross Static Mass	2613 lb
IMPACT CONDITIONS	
Impact Speed:	19.5 mi/h
Impact Angle:	0
Impact Location:	Centerline of sign post aligned 13 inches off centerline of vehicle toward driver's side.
Kinetic Energy:	31.1 kip-ft

EXIT CONDITIONS	
Exit Speed	18.3 mi/h
Stopping Distance	150 ft downstream In-line
VEHICLE DAMAGE	
VDS:	12FC1
CDC:	12FCHN1
Max Exterior Deformation:	1.3 inches in the windshield.
Max Occupant Compartment Deformation:	1.3 inches in the windshield.
OCCUPANT RISK VALUES	
Long. OIV	2.6 ft/s
Lat. OIV	0.1 ft/s
Long. Ridedown	0.2 g
Lat. Ridedown	0.2 g
THIV	0.8 m/s
ASI	0.1
Max 50-ms Long.	-0.8 g
Max 50-ms Lat.	-0.2 g
Max 50-ms Vert.	-0.6 g
Max Roll	6.8°
Max Pitch	5.3°
Max Yaw	0.4°

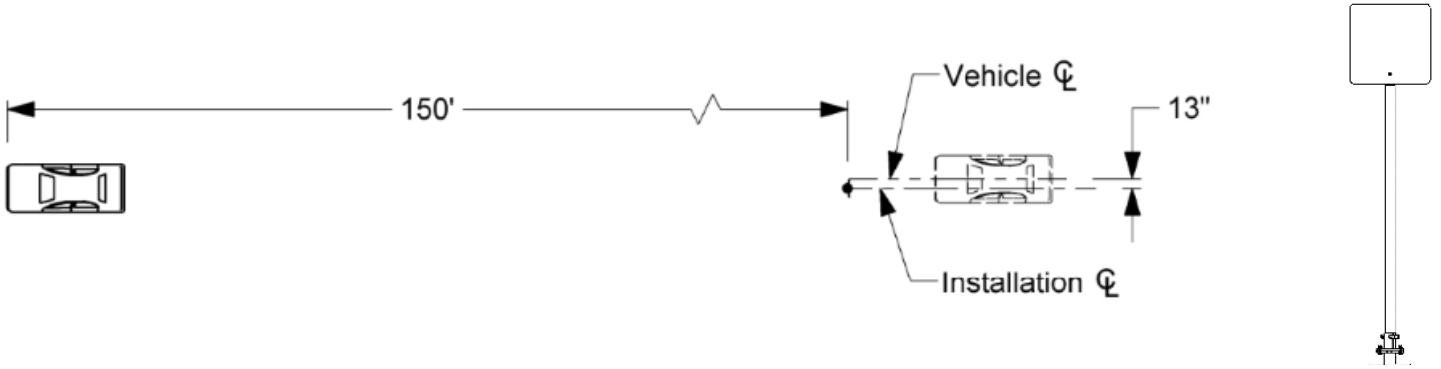


Figure 5.11. Summary of Results for *MASH* Test 3-60 on Triangular Slip Base Support.

0.0000 s

0.1000 s

0.2000 s

0.3000 s

GENERAL INFORMATION	
Test Agency:	Texas A&M Transportation Institute (TTI)
Test Standard/Test No.:	*MASH* 2016, Test 3-61
Project No.:	690900-SPF-4
Test Date:	2024 -07-19
TEST ARTICLE	
Type:	Support Structures
Name:	Triangular Slip Base Support
Length:	84 inches to bottom of sign panel
Key Materials:	Aluminum sign panel, 2-piece steel support, slip base
Soil Type and Condition:	Soil, dry
TEST VEHICLE	
Type/Designation	1100C
Year, Make and Model	2018 Nissan Versa
Inertial Mass	2433 lb
Dummy Mass	165 lb
Gross Static Mass	2598 lb
IMPACT CONDITIONS	
Impact Speed:	60.4 mi/h
Impact Angle:	0°
Impact Location:	Centerline of sign post aligned 13 inches off centerline of vehicle toward driver's side.
Kinetic Energy:	296.7 kip-ft

EXIT CONDITIONS	
Exit Speed	58.8 mi/h
Stopping Distance	245 ft downstream 9 ft to the right side
VEHICLE DAMAGE	
VDS:	12FC1
CDC:	12FCHN1
Max Exterior Deformation:	1.8 inches in the windshield
Max Occupant Compartment Deformation:	1.8 inches in the windshield
OCCUPANT RISK VALUES	
Long. OIV	1.2 ft/s
Lat. OIV	3.3 ft/s
Long. Ridedown	0.4 g
Lat. Ridedown	0.5 g
THIV	1.1 m/s
ASI	0.1
Max 50-ms Long.	-1.0 g
Max 50-ms Lat.	1.0 g
Max 50-ms Vert.	2.1 g
Max Roll	1.1°
Max Pitch	3.6°
Max Yaw	1.2°

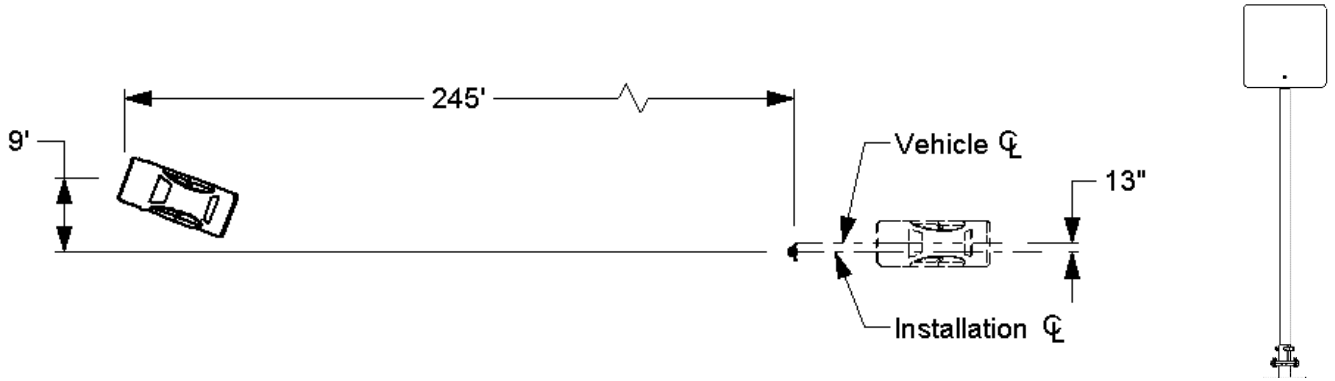


Figure 6.11. Summary of Results for *MASH* Test 3-61 on Triangular Slip Base Support.

0.0000 s

0.1000 s

0.2000 s

0.3000 s

GENERAL INFORMATION	
Test Agency:	Texas A&M Transportation Institute (TTI)
Test Standard/Test No.:	*MASH* 2016, Test 3-62
Project No.:	690900-SPF-15
Test Date:	2024-07-19

TEST ARTICLE	
Type:	Support Structures
Name:	Triangular Slip Base Support
Length:	84 inches to bottom of sign panel
Key Materials:	Aluminum sign panel, 2-piece steel support, slip base
Soil Type and Condition:	Soil, dry

TEST VEHICLE	
Type/Designation	2270P
Year, Make and Model	2018 RAM 1500
Inertial Mass	5018 lb
Dummy Mass	N/A lb
Gross Static Mass	5018 lb

IMPACT CONDITIONS	
Impact Speed:	62.0 mi/h
Impact Angle:	0°
Impact Location:	Centerline of sign post aligned 13 inches off centerline of vehicle toward driver's side.
Kinetic Energy:	644.8 kip-ft

EXIT CONDITIONS	
Exit Speed	60.3 mi/h
Stopping Distance	313 ft downstream 4 ft to the left side

VEHICLE DAMAGE	
VDS:	12FC1
CDC:	12FCHN1
Max Exterior Deformation:	0.8 inches in the hood
Max Occupant Compartment Deformation:	0.5 inches in the roof

OCCUPANT RISK VALUES	
Long. OIV	N/A
Lat. OIV	N/A
Long. Ridedown	N/A
Lat. Ridedown	N/A
THIV	N/A
ASI	0.1
Max 50-ms Long.	-0.5 g
Max 50-ms Lat.	0.3 g
Max 50-ms Vert.	0.6 g
Max Roll	-1.2°
Max Pitch	-0.3°
Max Yaw	0.8°

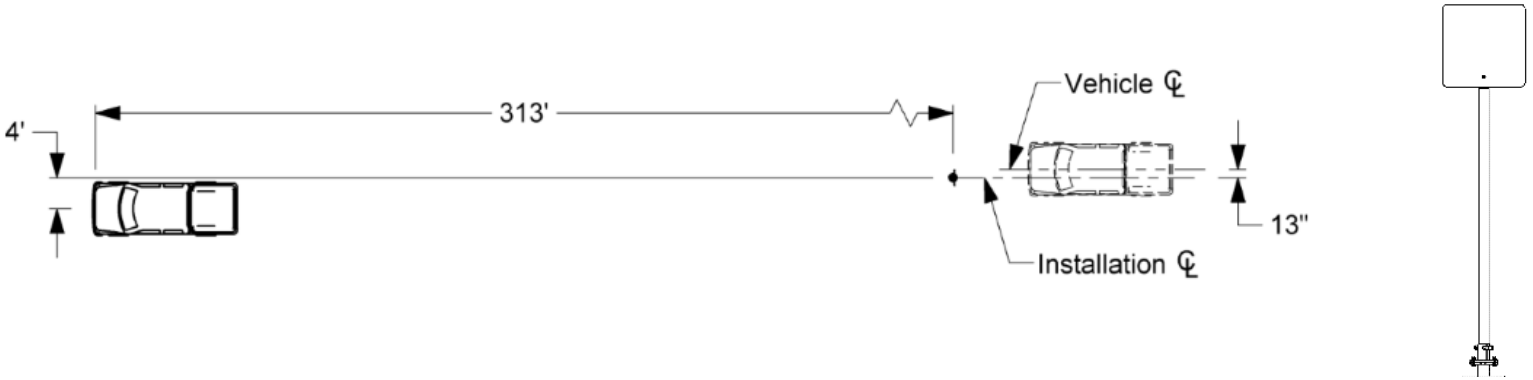
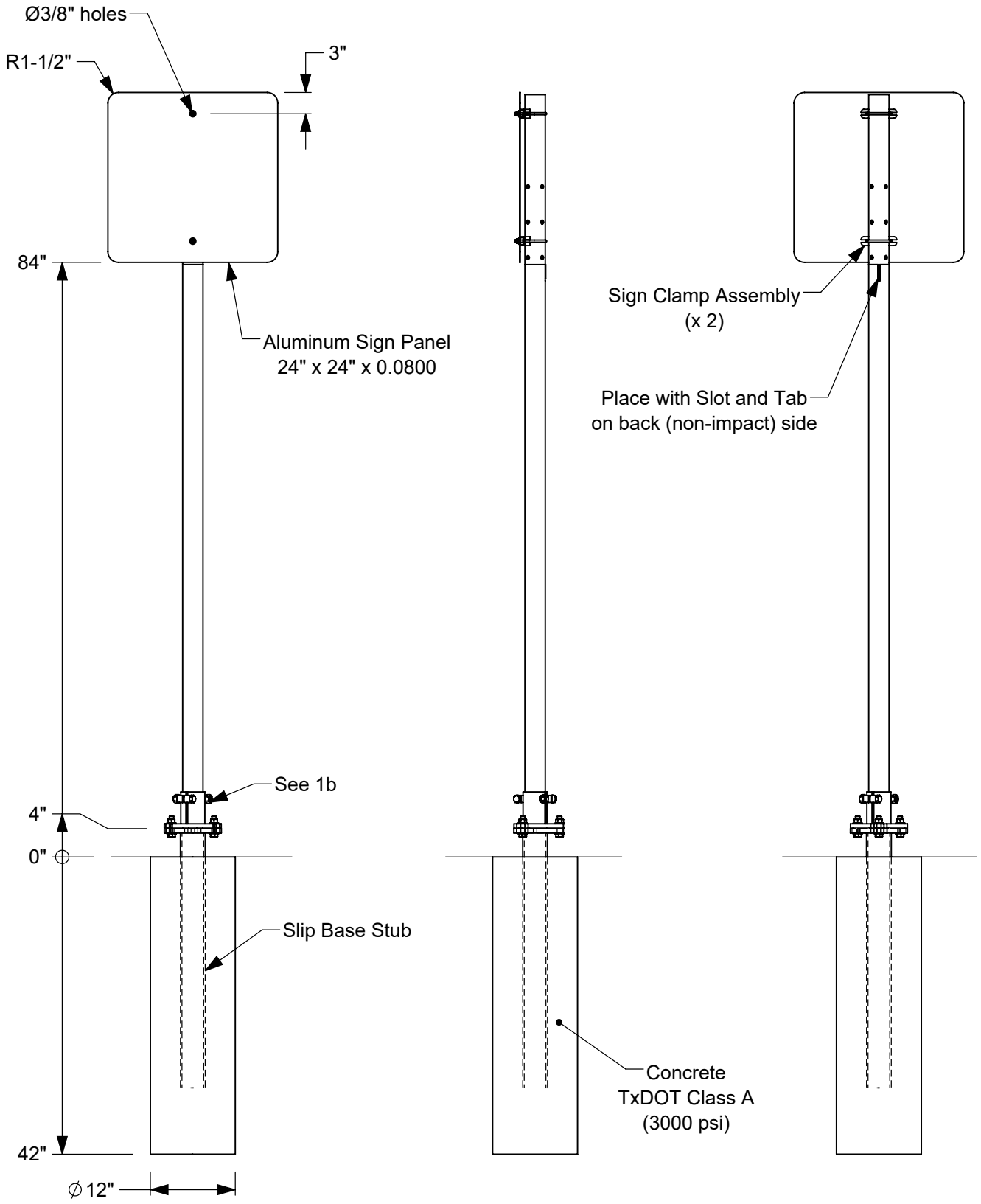


Figure 7.11. Summary of Results for *MASH* Test 3-62 on Triangular Slip Base Support.

Test Installation

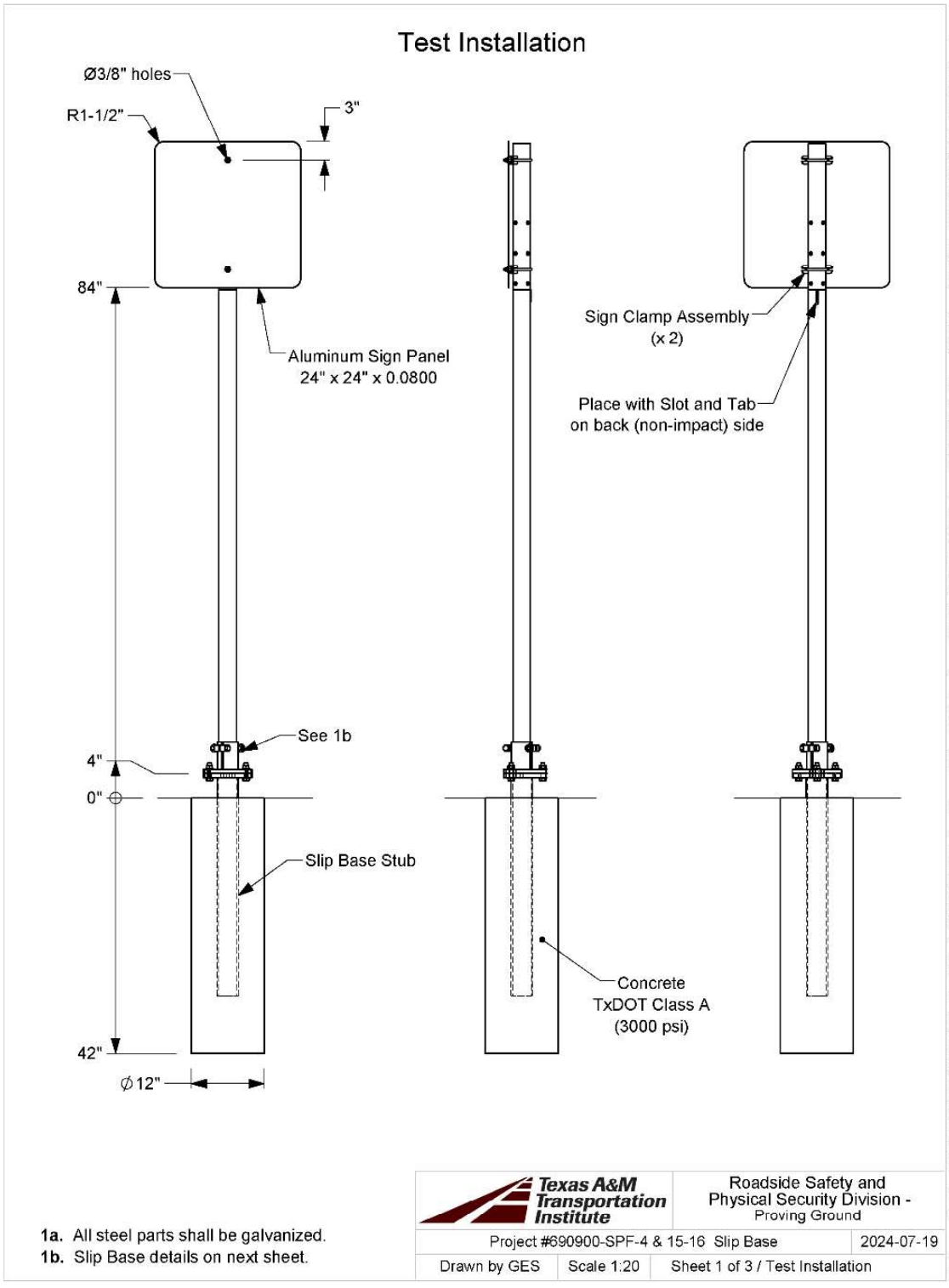


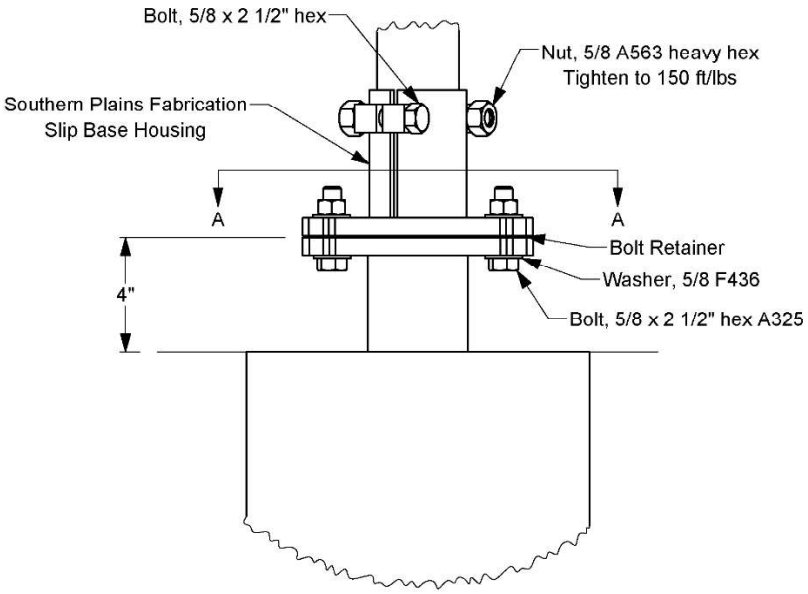
1a. All steel parts shall be galvanized.
1b. Slip Base details on next sheet.

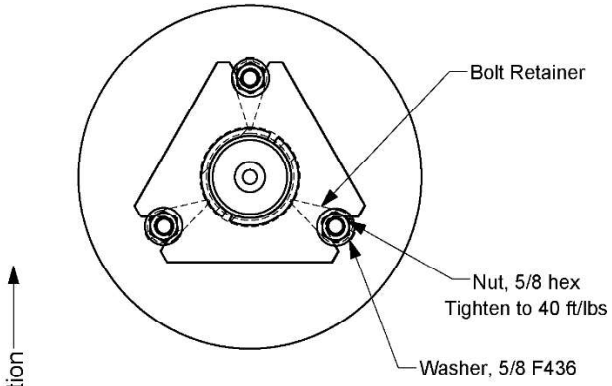
Texas A&M Transportation Institute	Roadside Safety and Physical Security Division - Proving Ground		
Project #690900-SPF-4 & 15-16 Slip Base			2024-07-19
Drawn by GES	Scale 1:20	Sheet 1 of 3 / Test Installation	

S:\Accreditation-17025-2017\EIR-000 Project Files\690900\SPF - Southern Plains Fabrication - Bligh\690900-SPF 1-4 and 12-15\Drafting, SPF-4 and 15-16\690900-SPF-4 & 15-16 Drawing

APPENDIX A. DETAILS OF TRIANGULAR SLIP BASE SUPPORT


Test Installation
Ø3/8" holes
R1-1/2"
3"
84"
Aluminum Sign Panel
24" x 24" x 0.0800
Sign Clamp Assembly
(x 2)
Place with Slot and Tab
on back (non-impact) side
See 1b
4"
0"
Slip Base Stub
Concrete
TxDOT Class A
(3000 psi)
42"
Ø 12"
Texas A&M Transportation Institute
Roadside Safety and Physical Security Division - Proving Ground
Project #690900-SPF-4 & 15-16 Slip Base
2024-07-19
Drawn by GES
Scale 1:20
Sheet 1 of 3 / Test Installation
1a. All steel parts shall be galvanized.
1b. Slip Base details on next sheet.
S:\Accreditation-17025-2017\EIR-000 Project Files\690900\SPF - Southern Plains Fabrication - Bligh\690900-SPF 1-4 and 12-15\Drafting, SPF-4 and 15-16\690900-SPF-4 & 15-16 Drawing



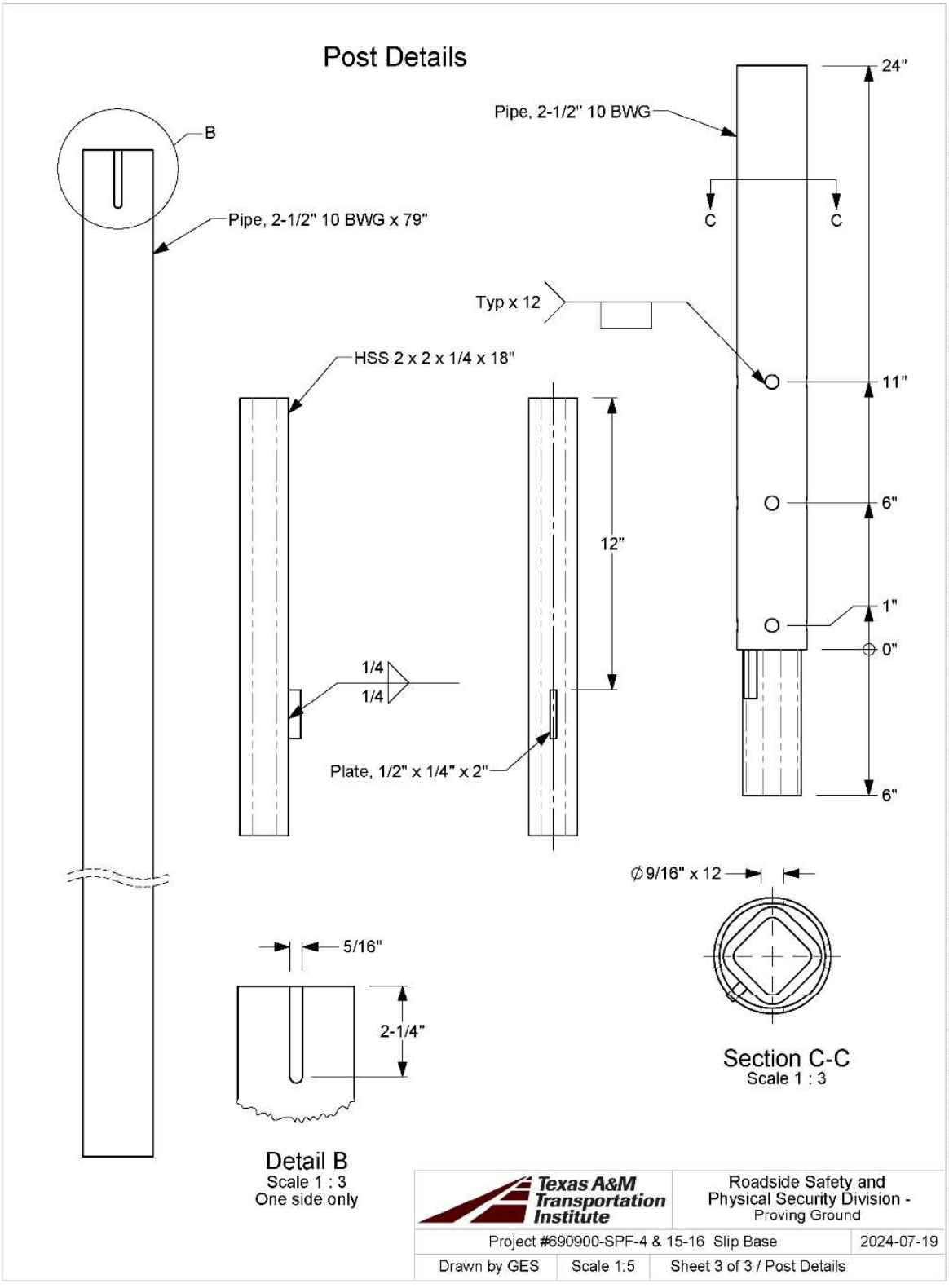


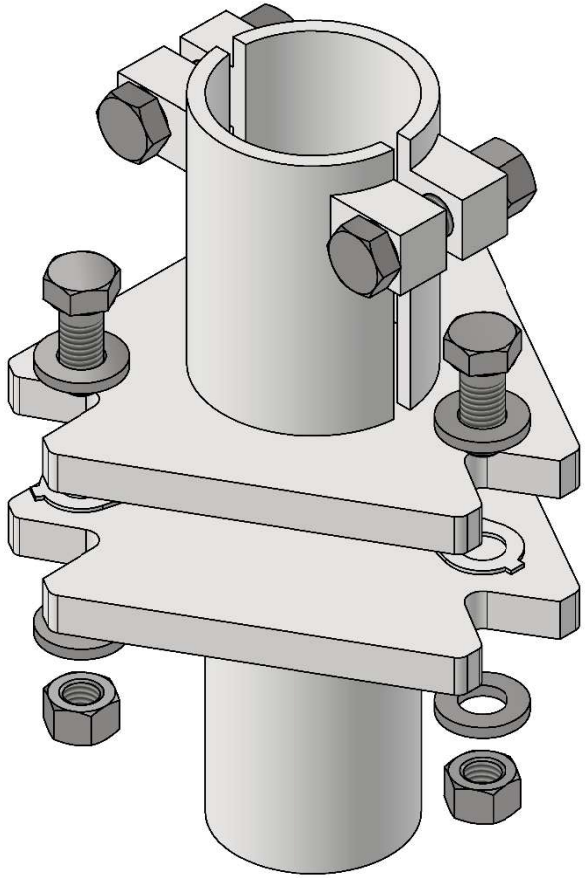
Section A-A

Impact Direction

Texas A&M Transportation Institute	Roadside Safety and Physical Security Division - Proving Ground	
Project #690900-SPF-4 & 15-16 Slip Base		2024-07-19
Drawn by GES	Scale 1:5	Sheet 2 of 3 / Slip Base Details

S:\Accreditation-17025-2017\EIR-000 Project Files\690900\SPF - Southern Plains Fabrication - Bligh\690900-SPF 1-4 and 12-15\Drafting, SPF-4 and 15-16\690900-SPF-4 & 15-16 Drawing

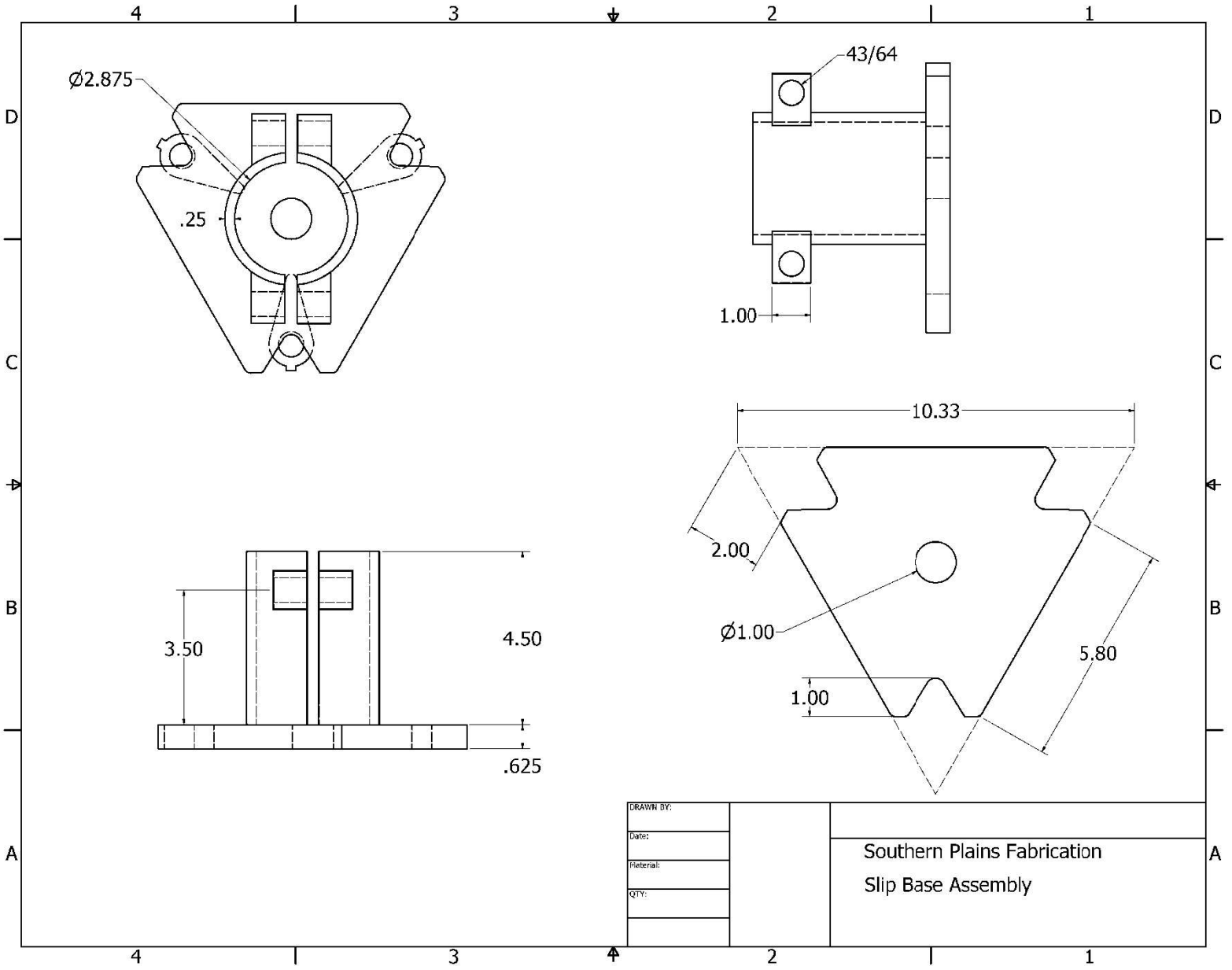

Post Details
B
Pipe, 2-1/2" 10 BWG x 79"
Pipe, 2-1/2" 10 BWG
24"
C
C
Typ x 12
HSS 2 x 2 x 1/4 x 18"
11"
6"
12"
1"
0"
1/4
1/4
Plate, 1/2" x 1/4" x 2"
6"
Ø9/16" x 12
5/16"
2-1/4"
Section C-C
Scale 1 : 3
Detail B
Scale 1 : 3
One side only
Texas A&M Transportation Institute
Roadside Safety and Physical Security Division -
Proving Ground
Project #690900-SPF-4 & 15-16 Slip Base
2024-07-19
Drawn by GES
Scale 1:5
Sheet 3 of 3 / Post Details
S:\Accreditation-17025-2017\EIR-000 Project Files\690900\SPF - Southern Plains Fabrication - High\690900-SPF 1-4 and 12-15\Drafting, SPF-4 and 15-16\690900-SPF-4 & 15-16 Drawing

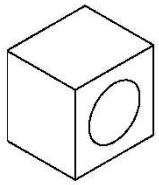


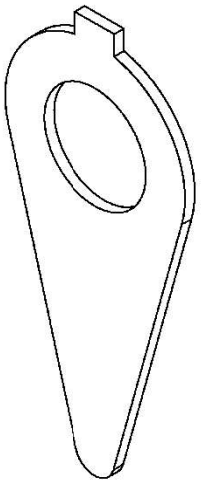
DRAWN BY:	MA
Date:	2-21-24
Material:	Assorted
QTY:	1

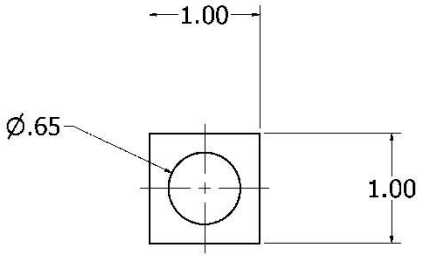
South Plains Fabrication

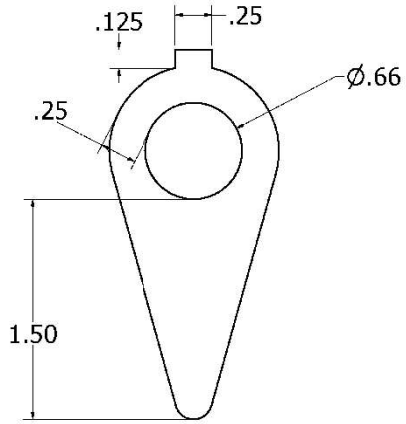
Break Away Assembly

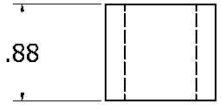

Ø2.875
.25
43/64
1.00
10.33
2.00
Ø1.00
5.80
1.00
3.50
4.50
.625
DRAWN BY:
Date:
Material:
QTY:
Southern Plains Fabrication
Slip Base Assembly











DRAWN BY:		
Date:		
Material:		
QTY:		