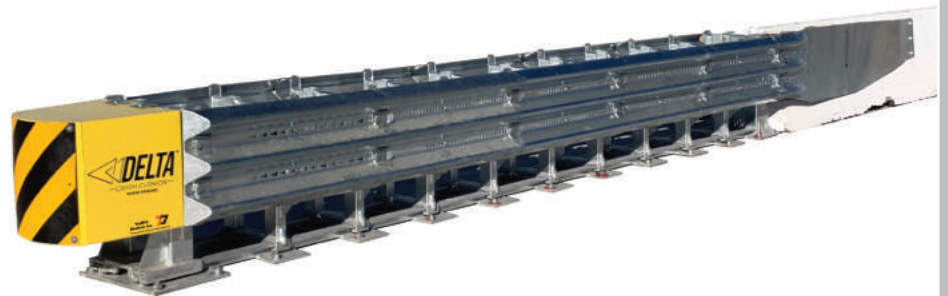


Delta™ Crash Cushion Installation Guide



-Introduction to Guide-



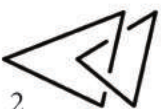
Important: These instructions pertain only to the assembly and installation of the Delta. Any deviation from the Delta shown would require consultation with the appropriate highway authority Engineer and/or certified TrafFix Devices, Inc. representatives. Contact information for TrafFix Devices representatives can be found on the last page of this manual.

















Correct Installation of the Delta is essential for proper performance of the system. For this reason, contacting a TrafFix Devices, Inc. Engineering Department manager for assistance in installing the system is recommended. Please read this manual in its entirety before assembling or installing the Delta. The information in this Manual supersedes all previous versions and manuals, with updated illustrations and other information available at time of printing; however; TrafFix Devices, Inc. reserves the right to make changes at any time. For any questions on proper Installation and Operation of the Delta, please contact us at (949) 361-5663 or email info@traffixdevices.com.

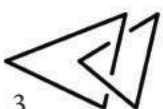


Important: This manual applies to the Delta Crash Cushion by TrafFix Devices, Inc. It pertains only to the model referenced herein. It requires that all installation, service and repair parts be genuine Original Equipment Manufacturer (OEM) Delta parts that have not been modified or repaired from the original factory design.



-Safety Symbols-

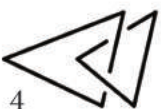
	Attention! Read and Understand.
	Proceed with Caution.
	Hard Hat Protection Required.
	Hearing Protection Required.
	Safety Glasses or Safety Goggles Required.
	Dust Mask Required. Dust Hazard, wear appropriate dust mask in this area.
	Safety Gloves Required.
	Safety Shoes Required.
	Tip Over Hazard. Do not move this equipment without mechanical assistance.
	Pinch point. Keep hands clear during operation.
	Crush Hazard. Keep feet clear.
	Forklift Required. Caution Forklift Operating.
	Warning Overhead Crane. Stay out from under suspended loads.
	Danger! Toxic Hazard. Do not get on skin, eyes or clothing.



NOTE: The safety symbols list provided is a general recommendation and should not be considered an all-inclusive list. Always follow best practice.

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- Warning and Limitations -

TraFFix Devices Inc. (TDI), in compliance with the Manual for Assessing Safety Hardware (MASH) recommended procedures for the Safety Performance of Highway Features. TDI contracts with ISO accredited testing facilities to conduct crash tests, evaluation of tests, and submittal of results to the Federal Highway Administration for Eligibility for Federal-Aid Reimbursement. The Delta Crash Cushion was tested to meet the safety evaluation guidelines of MASH. The Delta Crash Cushion has been tested at TL-3 (62.1 mph/ 100 km/hr) impact speed conditions. These tests are intended to evaluate product performance by simulating those impacts outlined by MASH involving a range of vehicles on the roadways, from cars with an approx. weight of 2425 lbs [1100 kg] to trucks with an approx. weight of 5004 lbs [2270 kg]. The Delta Crash Cushion is a TL-3 tested device capable of decelerating and stopping the light and heavy weight vehicles 2425 lbs [1100 kg] and 5004 lbs [2270 kg] in accordance with the criteria of Tests 3-30, 3-31, 3-32, 3-33, 3-34, 3-35, 3-36, 3-37 and 3-38 for TL-3 (62.1 mph/ 100 km/ hr). These specified tests are not intended to represent the systems performance when impacted by every vehicle type or every impact condition existing on the roadway. This system is tested only to the test matrix criteria of MASH. TraFFix Devices does not represent nor warrant that the results of these controlled tests show that vehicle impacts with the products in other conditions would necessarily avoid injury to person(s) or property. Impacts that exceed the system's specifications may not result in acceptable crash performance as outlined in MASH; relative to structural adequacy, occupant risk, and vehicle trajectory. TDI expressly disclaims any warrant or liability for injury or damage to person(s) or property resulting from any impact, collision, or harmful contact with products, other vehicles, or nearby hazards or objects by any vehicle, object or person, whether or not the products were installed by third parties. The Crash Cushion system is intended to be assembled, installed and maintained in accordance with specific State and Federal guidelines. TDI offers a directional object marker for the Delta Crash Cushion. However, the material is only intended to supplement delineation required by the Department of Transportation's "Manual on Uniform Traffic Control Devices" (MUTCD). The appropriate highway authority approved engineer should be careful to properly select, assemble, and maintain the product. Careful evaluation of the speed, traffic direction, and visibility are some of the elements that require evaluation for the proper selection of a safety appurtenance by the appropriate specifying highway authority.

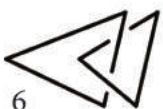


-Warranty-

TrafFix Devices warrants to the purchaser that the Delta Crash Cushion is free from any defects in materials and workmanship. If this product proves to be defective in material or workmanship during the period of this warranty, TrafFix Devices will repair or replace, at its discretion, the defective product free of charge. The period of this warranty is one-year beginning from the date the purchaser puts the unit into service or one-year from the date of purchase.

To obtain warranty service, the purchaser or distributor must first photograph the unit in question, fill out a warranty authorization form (Pg.7) and email TrafFix Devices to have our Engineering Department evaluate the problem and recommend repair procedures. TrafFix Devices will then issue a signed warranty work approval form to authorize the distributor or customer to repair or replace any items, which TrafFix Devices deems to have been defective. All replacement parts claimed to be defective will be invoiced at the time of shipment, and upon returned and evaluation of defective parts a credit memo will be issued.

This warranty does not extend to any failure of the Delta Crash Cushion caused by misuse, abuse, material alteration, non-OEM components, or any negligence in connection with the installation, service, or use of this product. For the correct installation, service, or use of this product refer to the installation manual, and the operator's checklist.



Warranty Authorization Form

Company Name: _____

Address: _____

Phone: _____ Fax Number: _____

Email: _____

Name of Customer: _____

Date: _____

Serial Number: _____

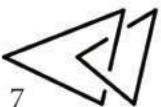
Replacement and Repair Parts Listed Below? _____

List Part Numbers of Replacement or Repair Items:

— CRASH CUSHION —

Describe the Problem and Reason for Failure:

Email this Form along with Pictures to TraFFix Devices Engineering Department. Email: info@traffixdevices.com Phone: (949) 361-5663

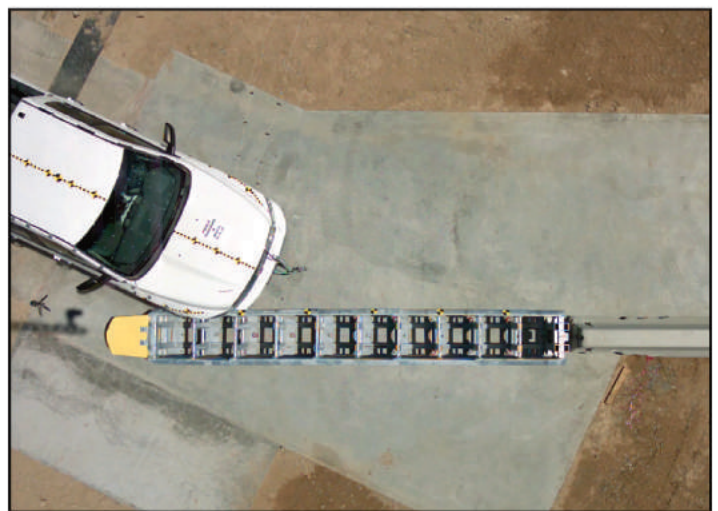


– Overview –

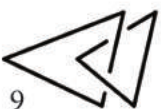
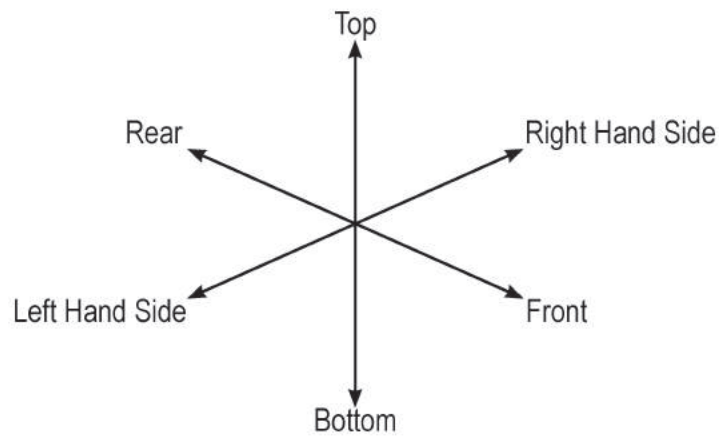
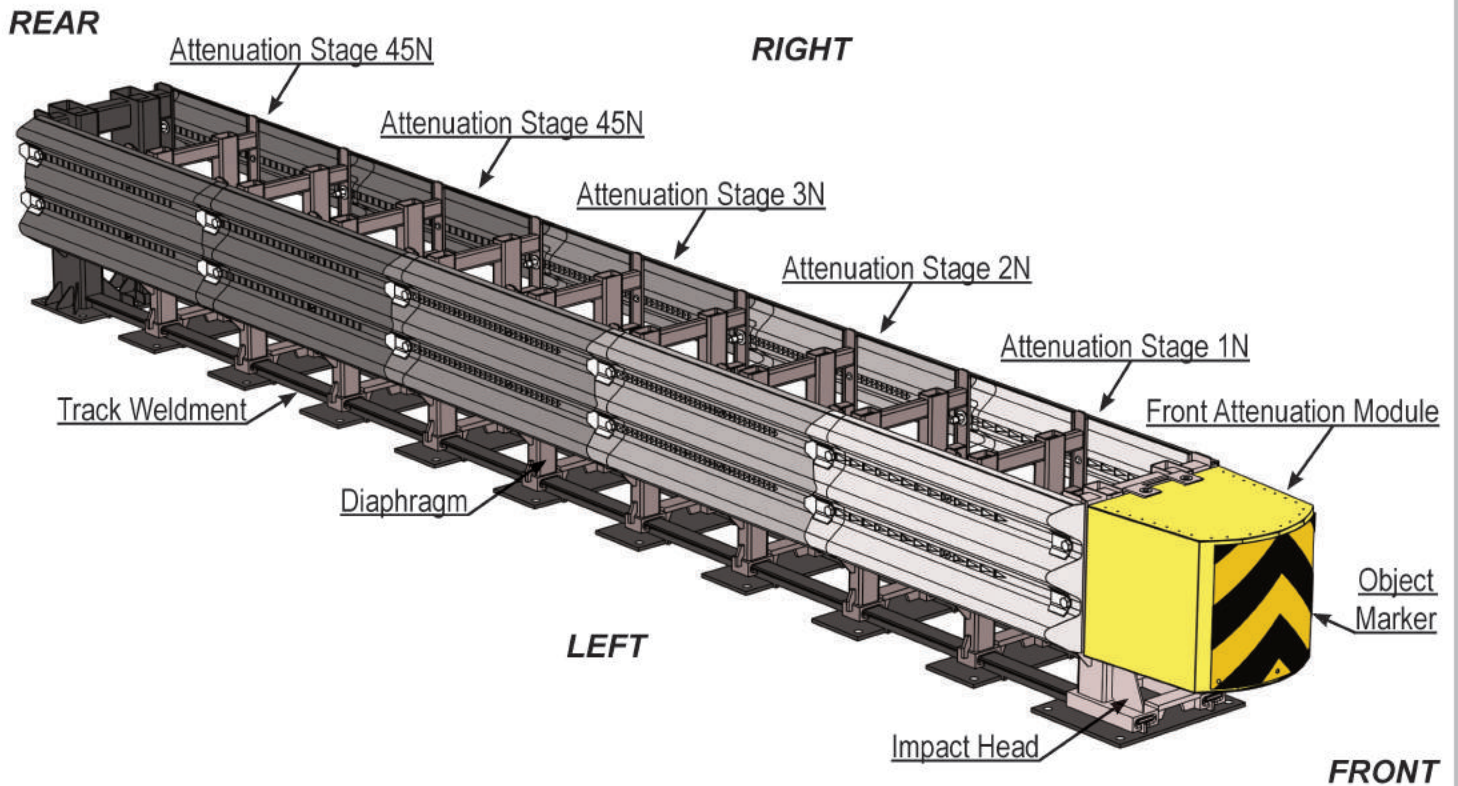
The Delta Crash Cushion is a Non-Gating Redirective crash cushion manufactured by Traffix Devices, Inc. The Delta has passed all required AASHTO MASH crash tests and can be used in Uni-Directional or Bi-Directional applications. The Delta was designed to be simple and effective in protecting errant vehicles from striking a wide variety of roadside hazards. The fender panels use the standard AASHTO M-180 Thrie beam profile. Utilizing this profile allows the Delta to be easily attached to standard roadside safety hardware. The Delta was Co-Developed with Midwest Roadside Safety Facility (MwRSF) at the University of Nebraska-Lincoln (UNL).

– Product Description –

The Delta redirects errant vehicles when struck along the side and when impacted at the nose, it attenuates the impacting vehicles kinetic energy. When struck on the nose of the device, the vehicle's kinetic energy is absorbed by the fender panels telescoping rearward and simultaneously shearing/tearing material in the valley's of the Thrie Beam. The cutout patterns in the valleys of the Thrie beam progressively change from the front to the rear to allow the errant vehicle to be safely brought to a controlled stop.

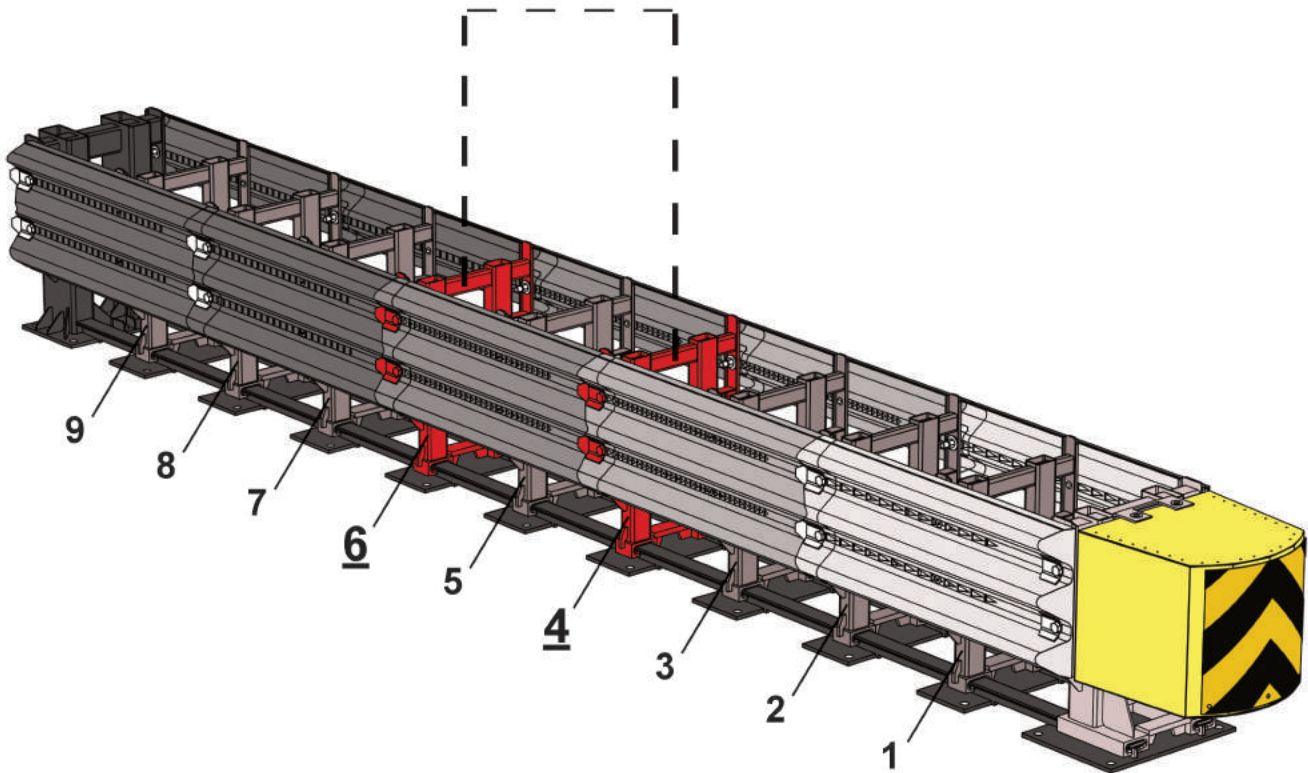


-Delta Orientation-

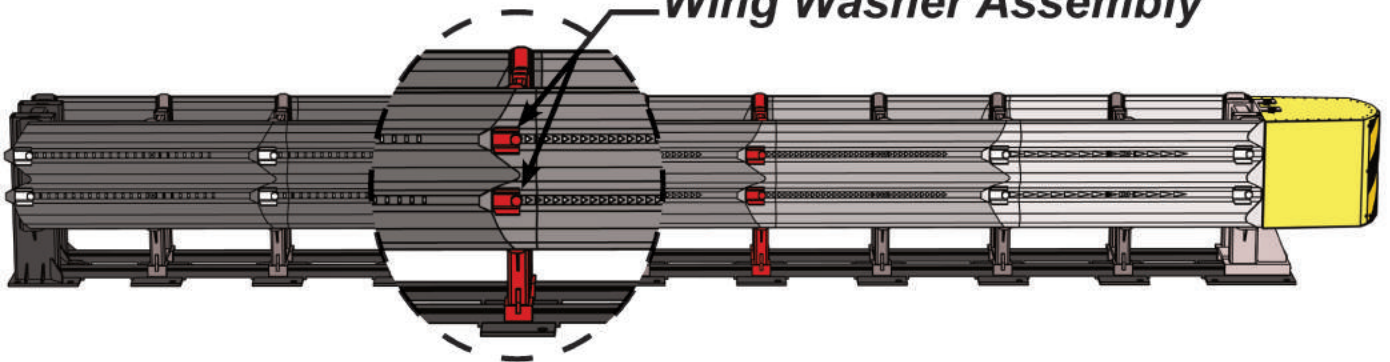


-Delta Lifting Points-

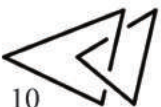
Acceptable Lifting Diaphragms



**Only Lift From Diaphragms That Have A
Wing Washer Assembly**



**Do Not Lift From The Thrie Beam Fender Panels
or Pattern Cutout**

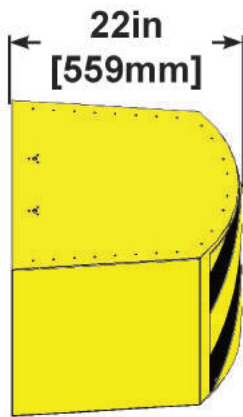
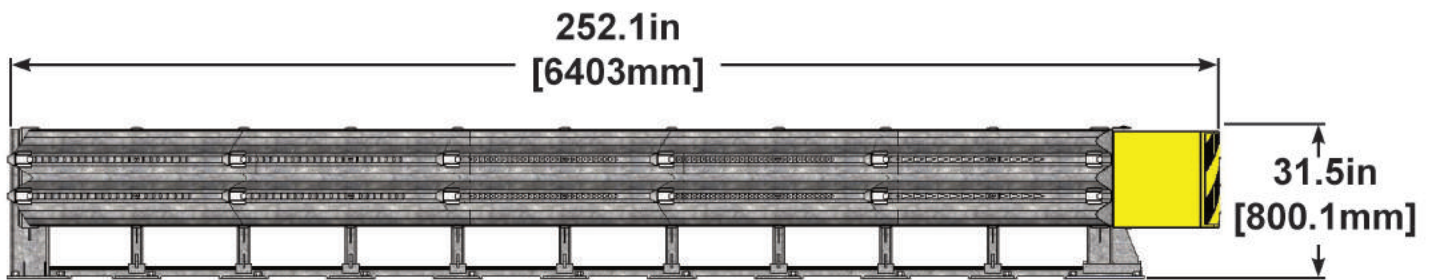
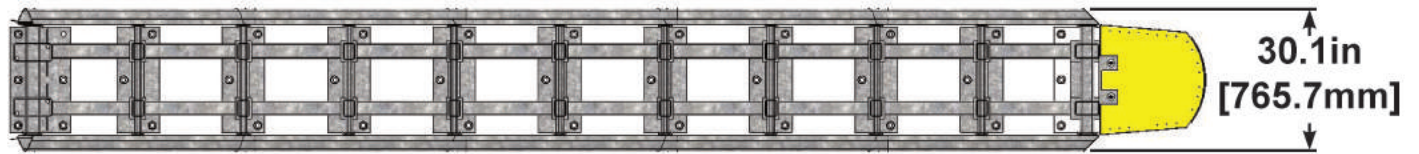


BE CAREFUL

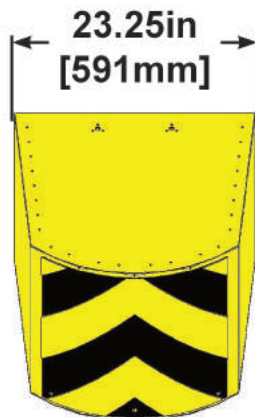


SAFETY FIRST

- System Dimensions -



Length

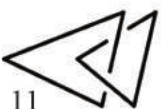


Width



Height

Narrow TL-3 System	Overall Dimension
Length	252.1 in [6403 mm]
Width	30.1 in [765.7 mm]
Height	31.5 in [800.1 mm]
Approximate Weight	2270 lbs [1030 kg]



-Delta Pre-Installation Questionnaire Form-

Instructions: Please fill out this document for the Delta installation site. This will help to assist with the purchase of the correct items, installation preparation, and product documentation. Installation shall meet the local and federal installation standard plans. If you have any questions, contact the local road authority or TDI Engineering at ***engineering@traffixdevices.com***

1. Project Contact: First Name: _____ Last Name: _____

Phone Number: _____ Email: _____

Company: _____ Position: _____

2. Location of Proposed Delta Installation: City: _____

State: _____ Highway: _____ Direction (Circle One): NB SB EB WB

Closest Exit (Exit Number and Name): _____

3. Object to be protected (Circle One): Jersey Shape K-Rail Light/Sign Post

Type 60 Guardrail/Thrie Abutment Other (Specify): _____

4. Record the GPS coordinates or nearest mile marker: _____

5. Anchoring Foundation (Circle One): Asphalt Concrete Hybrid

6. Traffic Flow Type ^(See Pg 13)(Circle One): Uni- Directional Bi-Directional Gore Point

7. Take several photos of the installation site showing foundation, any obstacles, object(s) being protected (including measurements), exit/highway signs, coordinates and any other images to include with this form. If any site plans or other documentation regarding this site are available, please send along with this form.

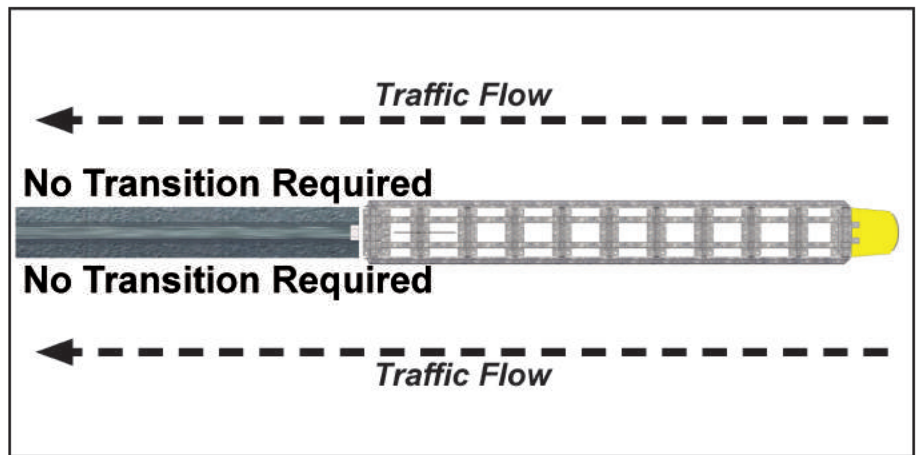


-Product Placement-

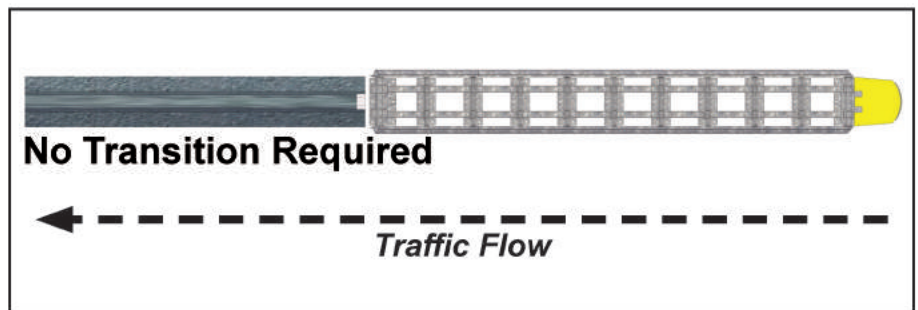
The Delta can be used in both Bi-Directional and Uni-Directional installations. (Note, it is important to know when a transition is necessary). If there is Bi-Directional traffic flow, it is critical to protect the rear of the Delta in the reverse direction with a transition.

NOTE: It is the user's responsibility to provide an adequate transition. The transition should conform to local and state government standards.

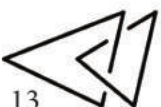
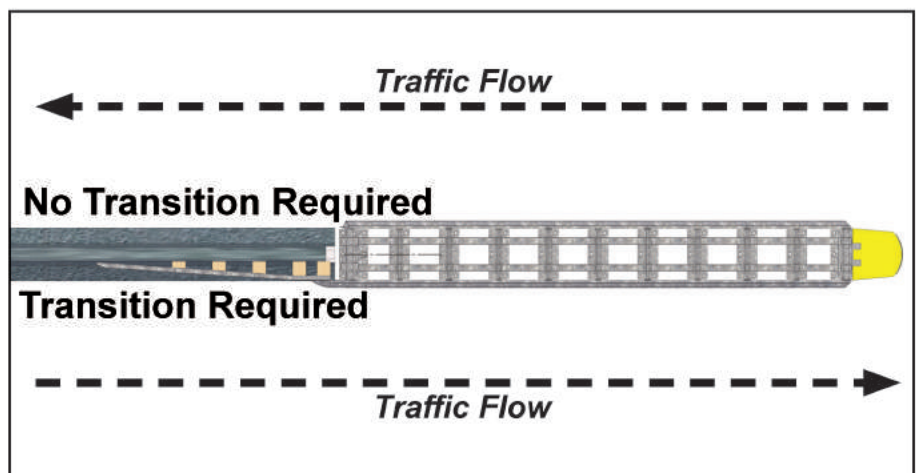
Gore Point Narrow Hazard



Uni-Directional Narrow Hazard



Bi-Directional Narrow Hazard



-Installation Site-

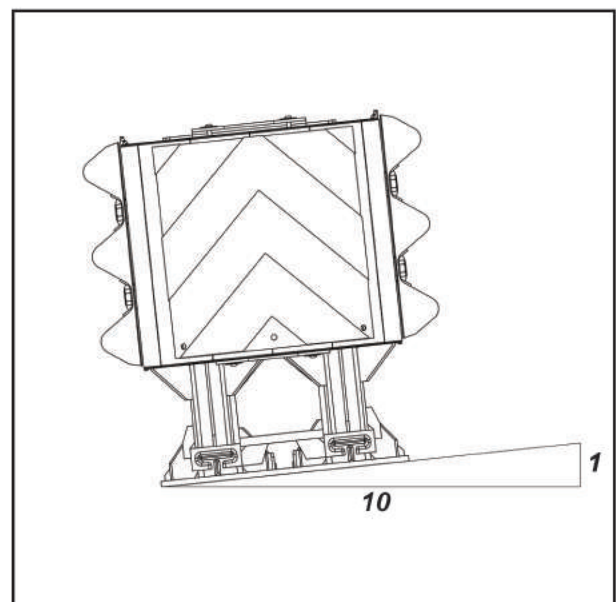
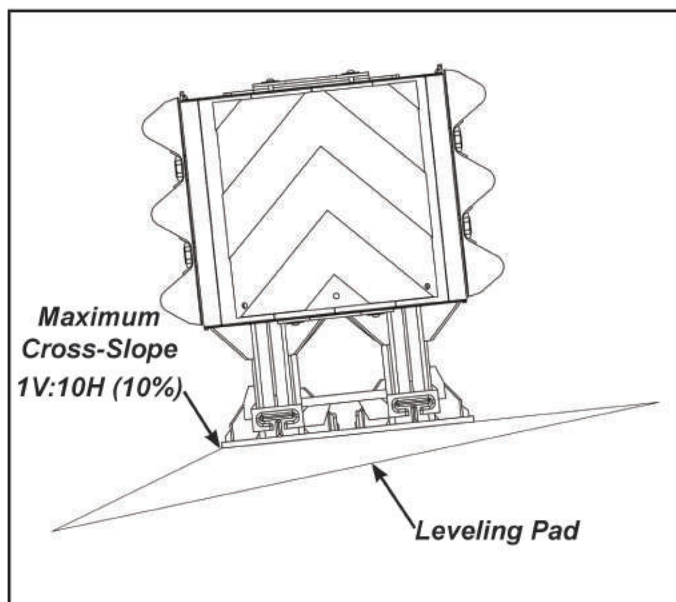
The Delta can be installed on various foundation types including concrete, asphalt, or a hybrid of the two. The foundation and surrounding grading should comply with the recommendations in the latest version of the AASHTO Roadside Design Guide as well as local and state government specifications. Concrete foundations shall be minimum 4000 psi (28 MPa) and asphalt foundation shall have a minimum compaction of 95%. Asphalt pads may expand and contract when experiencing heat cycles. Because of this, it is important to check anchor bolt torque every 6 months to ensure they have not loosened.

Acceptable Foundations for the Delta:

- 6 in. (150 mm) Reinforced Concrete
- 8 in. (203 mm) Non-Reinforced Concrete
- 6 in. (150 mm) Asphalt Over Compacted Subbase
- 3 in. (75 mm) Asphalt Over Concrete
- 8 in. (203 mm) Asphalt
- See *Appendix* (Pg 39 & 40)

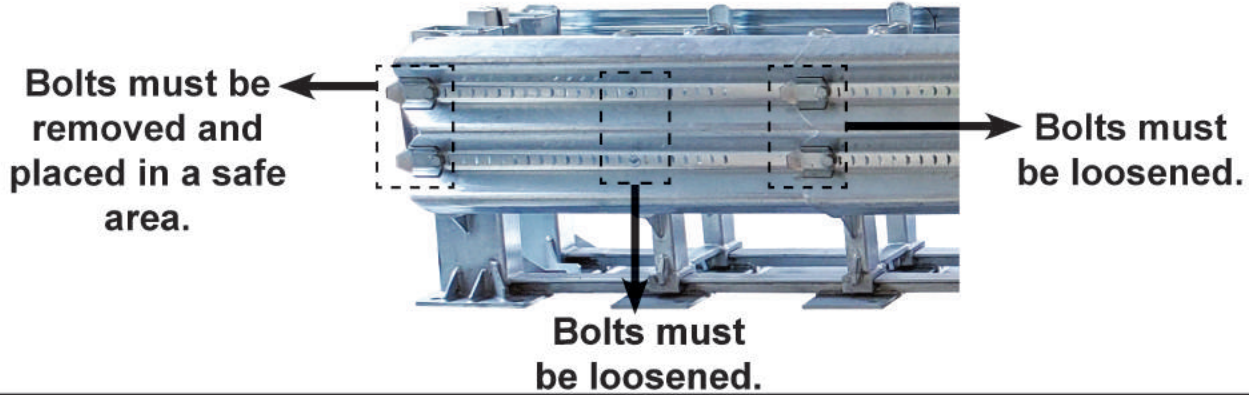
-Cross-Slope-

The foundation must be flat with longitudinal and lateral slopes of 1V:10H or less. If the cross-slope exceeds 1V:10H, a leveling pad may be used to achieve an acceptable cross-slope.

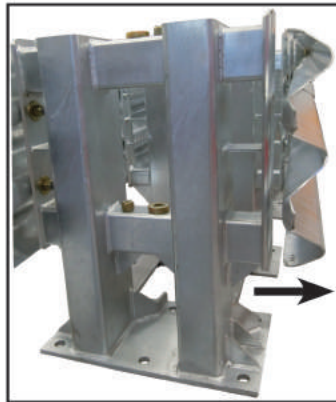


- Transition Installation -

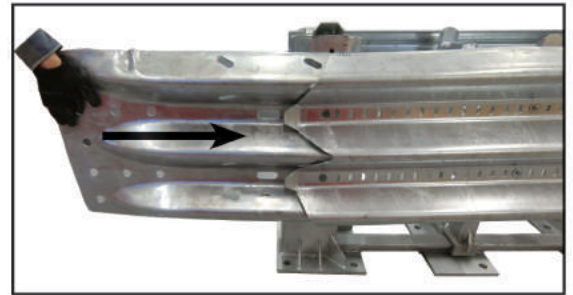
To install a transition, loosen the last fender panel (Attenuation Stage 45N) towards the rear of the Delta (*If a larger transition is installed it may be necessary to loosen Attenuation Stage 3N*).



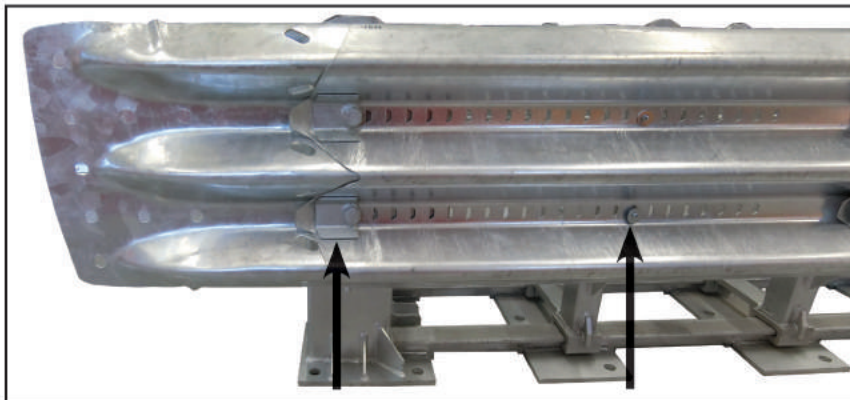
Ratchet Wrench
1-1/16"



Pull fender panel
outward



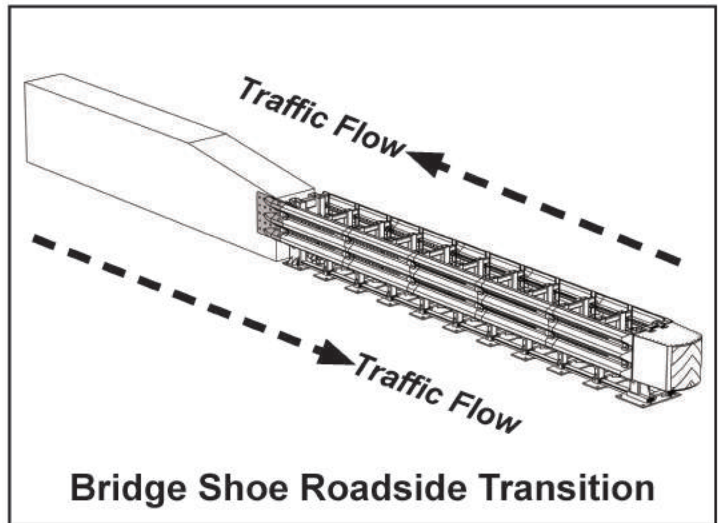
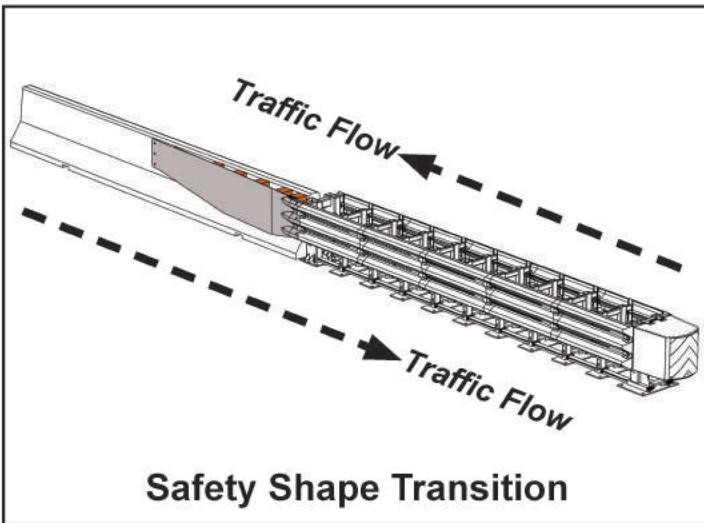
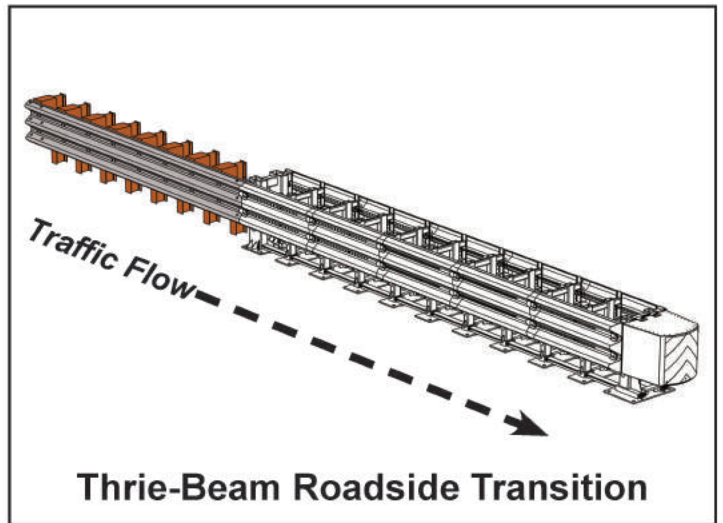
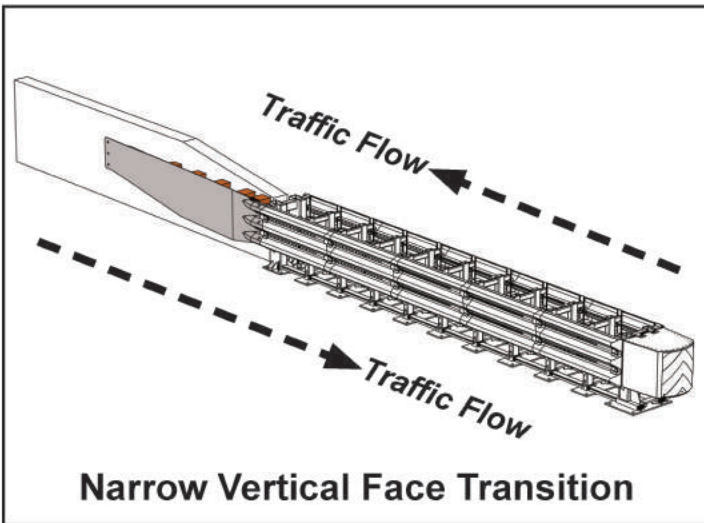
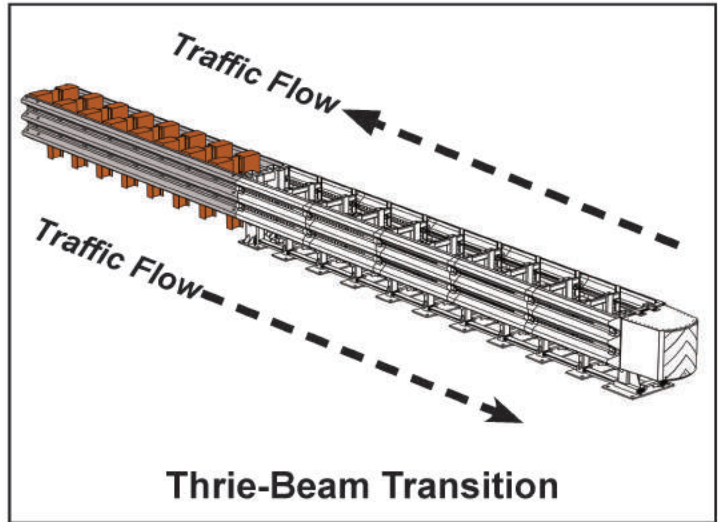
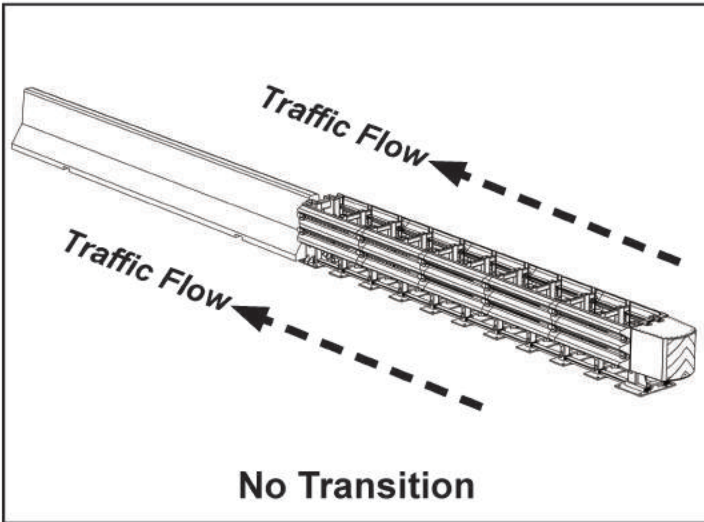
The transition must be lapped
UNDER the last fender panel
on the Delta.



Tighten all loosened bolts. Wing washer bolt removed should be tightened to have 3-4 threads visible and one washer.

NOTE: Installing incorrectly may effect the performance of the Delta.

- Transition -



- Tools Required -



Lifting and moving equipment to safely lift 5000 lbs, either a fork lift, tractor or crane. Industrial Lifting Slings to safely lift 5000 lbs.



**Air Compressor
Trailer**

Air Compressor

Air Nozzle

Bottle Brush



Anti-Static Wet/Dry Vacuum

Dust Collection System

! It is the responsibility of the installer to consult OSHA silica respiratory standard 29CFR 1910.134 for debris removal from borehole(s) and use Traffix Devices approved adhesive to achieve optimum tensile strength.



NOTE: The tool list provided is a general recommendation and should not be considered an all-inclusive list. Depending on specific site conditions and complexity of the installation specified by the road authority or engineer other tools may be required. Decision as to what tools are necessary to perform the job are entirely the responsibility of the individuals or contractor conducting the installation specified by the road authority.



- Tools Required -



Epoxy Dispenser
Approved Epoxy:
- Hilti Hit RE 500
- Simpson SET (AT or XP)
- Red Head A7



Rotary Drill:
Bosch RH125VC or Equivalent
1" Diameter Drill Bit,
12" Long for Rotary Drill Bit for Concrete
20" Long for Rotary Drill Bit for Asphalt



Torque Wrench
with 1-7/16"
Socket



Pry Bar



Tape Measure



Chalk Reel and
Chalk



Ratchet



Allen Socket
5/32"



Allen Socket
7/32"



Ratchet Wrench
1-1/16"

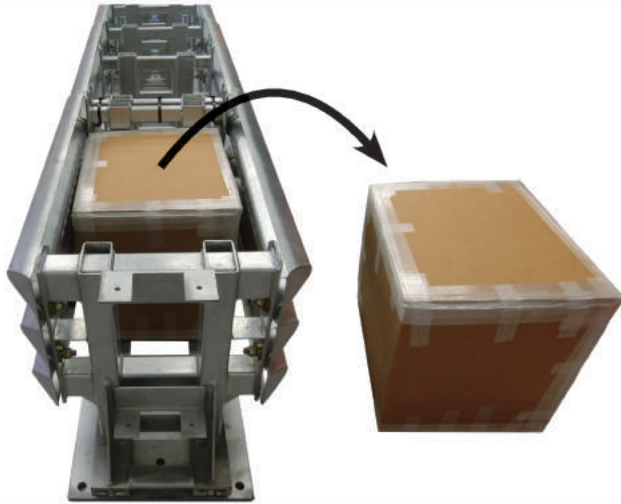
Additional Tools: Hand tools. Tape (to mark the drill bit).
Grinder, Hacksaw or Torch.



NOTE: The tool list provided is a general recommendation and should not be considered an all-inclusive list. Depending on specific site conditions and complexity of the installation specified by the road authority or engineer other tools may be required. Decision as to what tools are necessary to perform the job are entirely the responsibility of the individuals or contractor conducting the installation specified by the road authority.



-Installation-

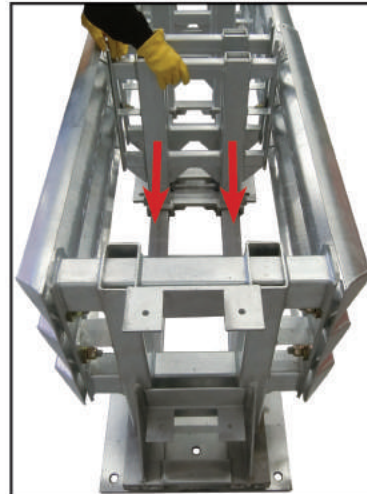
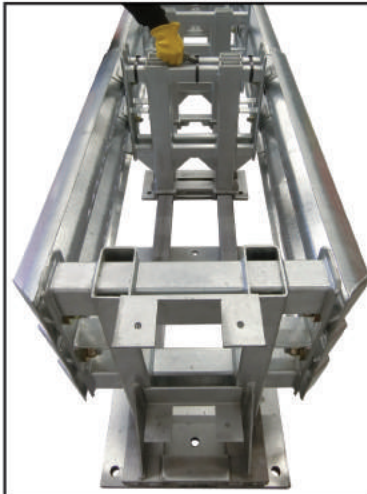


Step 1:

- Remove Box with Front Attenuation Module inside, place in safe area.

Step 2:

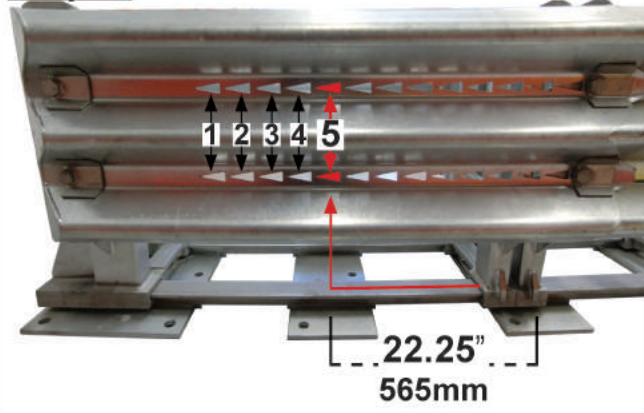
- Cut and Remove all Steel Bands and Zip Ties.



Step 3:

- Slide Floating Diaphragm forward.

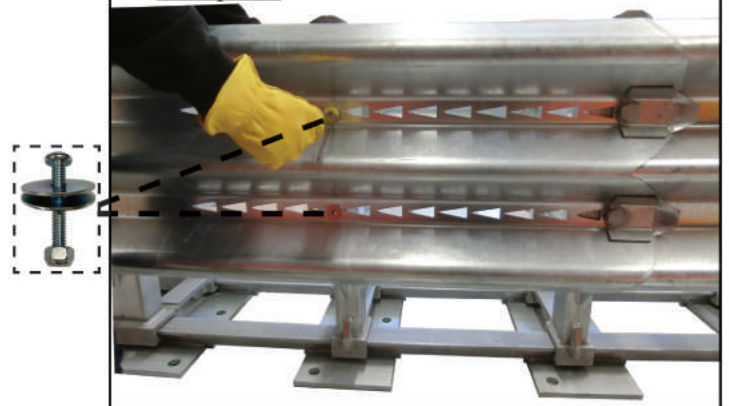
Step 4:



- Align Floating Diaphragm to the 5th arrow cutout from Front of the Delta.

NOTE: Diaphragm should be spaced 22.25" (565 mm) on centers.

Step 5:



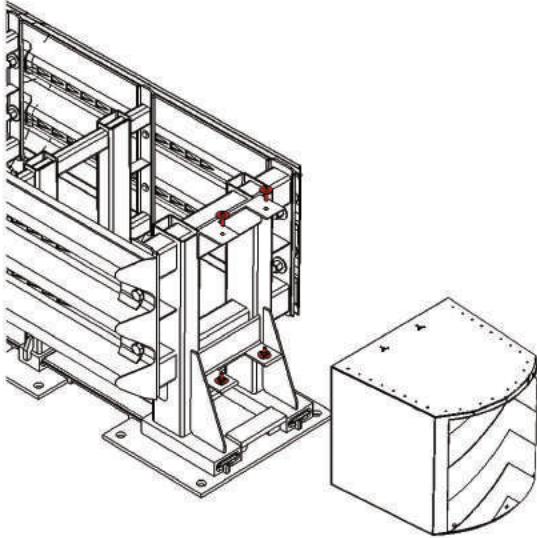
- Once the Floating Diaphragm is in its proper position, secure the Diaphragm on both side with Sacrificial bolts, washers and locknuts provided.



-Installation-

■ Place Delta in the proper location according to the product placement section page 16. Product placement must comply with the project plans or as otherwise determined by the resident project engineer or appropriate highway authority. It is the user's responsibility to provide an adequate transition when necessary.

Step 6:



■ **Do Not Install** Front Attenuation Module, until anchor bolts have been installed. Place and keep in safe area.

Step 7:

■ The Track Assembly of the Delta is used as a drilling template. Mark Drill Bit to the proper depth using a tape marker to the length of the anchor.



<u>Pad Thickness and Material</u>	<u>Anchor Embedment</u>
6 in. (150 mm) Reinforced Concrete	5.5 in. (140 mm)
8 in. (203 mm) Non-Reinforce Concrete	5.5 in. (140 mm)
6 in. (150 mm) Asphalt Over Compacted Subbase	17 in. (430 mm)
3 in. (75 mm) Asphalt Over Concrete	17 in. (430 mm)
8 in. (200 mm) Asphalt	17 in. (430 mm)



-Installation-

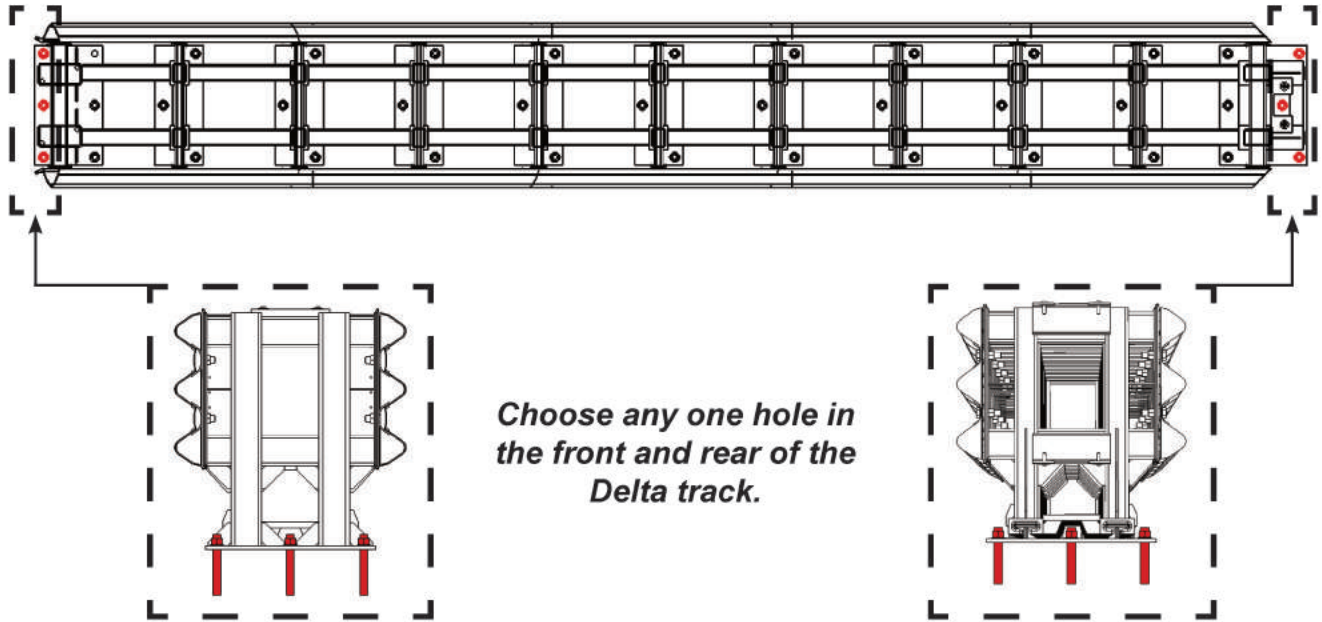
Step 8:

- Drill one hole at the front and rear of the device. Place an anchor bolt in both of the bore holes.

Tip: This will prevent the Delta from shifting during the drilling process. This will also ensure there is sufficient room to access the rear anchor points during installation.

Back

Front



- Continue to drill the holes to the proper depth and clean during the drilling process. This can be achieved by a static free vacuum or a built in drill/dust collection system.
- To ensure holes are drilled to the proper depth check the depth once the holes have been cleared of dust.

Tip: Clean the holes as you go, this reduces cleaning time and exposure to harmful dust particles.



-Installation-

Step 9:

- Clean all holes with bottle brush and compressed air.

NOTE: Always follow manufacturers recommendation for cleaning and preparing bore holes for epoxy.

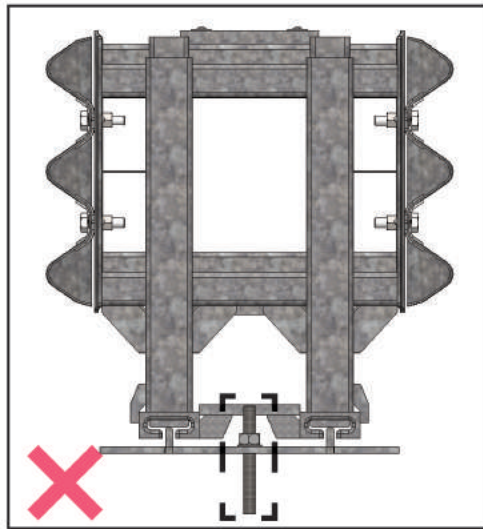
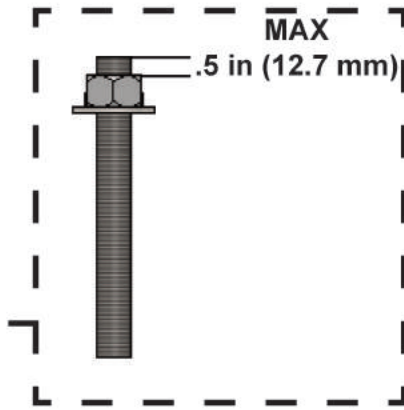
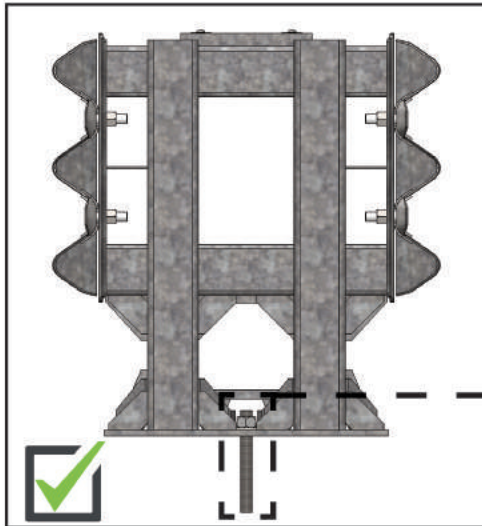


- Prepare anchor bolt assembly, 39 total.

NOTE: Must only use Traffix Devices approved anchor bolt.

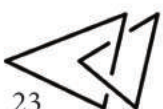
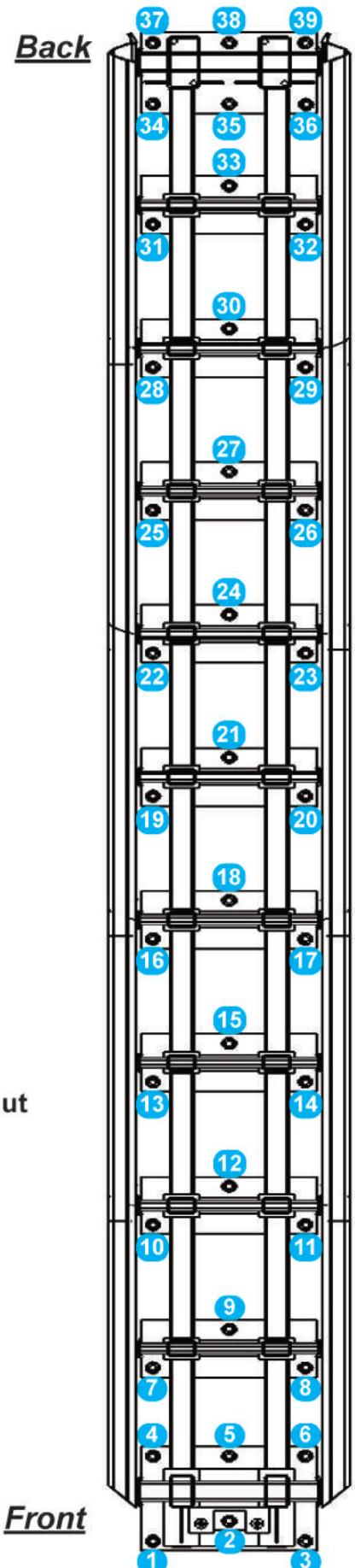


-Installation-



■ Anchor bolt shall not exceed .5 in (12.7 mm) past the anchor nut on all 39 anchor bolt assemblies.

NOTE: *Incorrect installation of anchor bolts may result in unsatisfactory performance and can result in serious injury.*



- Installation -

Step 10:

- Once holes are cleaned the installation is ready for epoxy. Place the epoxy nozzle close to the bottom of the hole and at an angle. Slowly pull the epoxy dispenser upward as the hole is being filled. This will ensure there is no air trapped in the hole during installation.
- Fill holes approximately 1" from the top with approved epoxy.

NOTE: Check cure time and temperature and plan anchor rod installation accordingly.



- Insert anchor rod in a twisting motion to ensure proper epoxy coverage of anchor bolt.
- Let cure according to manufactures specs.
- Torque to: Concrete anchors 100 ft-lbs (135 Nm), Asphalt anchors 10 ft-lbs (14 Nm).

NOTE: Always follow the epoxy manufactures recommendations for cleaning, inserting, and tightening anchor rods.

NOTE: Be sure to check epoxy cure time based on ambient temperature before the installation. This will ensure anchor bolts are installed properly and the epoxy doesn't cure before the anchor rods are installed.

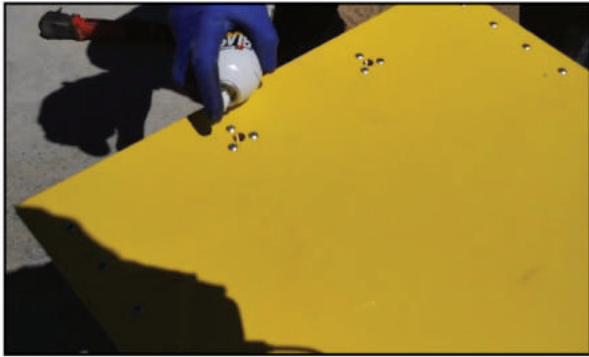
<u>Epoxy Manufacture</u>	<u>Model</u>	<u>Approximate Needed</u>
Hilti	Hit RE 500	220 fl.Oz / 6.5 L
Simpson	SET (AT or XP)	220 fl.Oz / 6.5 L
Red Head	A7	220 fl.Oz / 6.5 L

 **NOTE:** Concrete Installation.

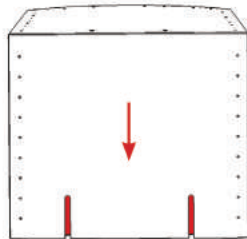
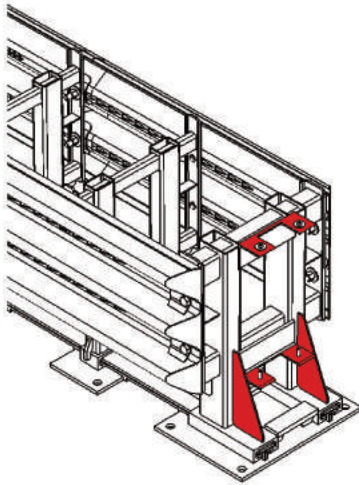


-Installation-

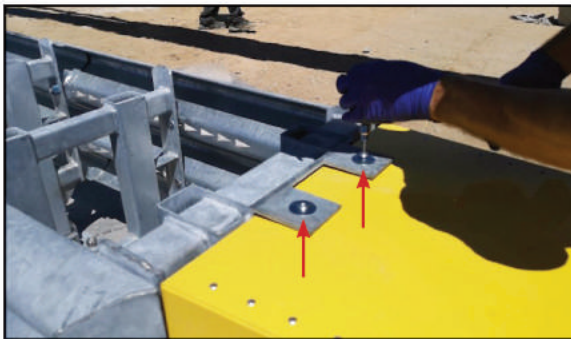
Step 11:



- Use a Lubricant or Grease to Prep the top and bottom holes.



- Lift the Front Attenuation Module into position, back openings shall align with Impact Head Diaphragm.



- Once the Front Attenuation Module is in its proper position, secure the module both top and bottom with bolts and washers. Tighten to a minimum of 20 ft-lbs (27 Nm).



-Installing Nose Sheeting-

Step 12:



**Left Hand
Nose Sheeting**



**Turn Sheeting 90°
Left Hand Sheeting
Becomes Right Hand Sheeting**



**Right Hand
Nose Sheeting**



**Gore Point
Nose Sheeting**

The nose sheeting has been provided as a way to easily customize field use. The diagonal stripes used on the Left Hand Traffic Flow can be rotated 90 degrees for Right Hand Traffic Flow. Turn the sheeting over and it is used for Gore Point Traffic Flow. To determine the correct nose sheeting side follow state regulations and installation location. Once the direction is determined, secure the sheeting to the front attenuation module with supplied screws using a 5/32" Allen wrench.

– Inspection Checklist –

Items to Inspect	✓
All 39 Anchor Bolts are Installed	
All Anchor Bolts Do Not Exceed .5 in (12.7 mm) Past Anchor Nut	
All Anchor Bolts are Properly Torqued. Concrete Installations 100 ft- lbs (135 Nm). Asphalt Installations 10 ft-lbs (14 Nm)	
All Diaphragms are Spaced 22.25" ± 1" If Spacing Falls out of Spec the Diaphragms with the Sacrificial Hardware shall be Adjusted.	
Rear Fender Panels can Telescope Rearward 35" without Obstruction	
Front Attenuation Module is Installed with 4 Fasteners	
Front Attenuation Module has Proper Sheeting for the Site	
All Tools and Debris are Cleared from Delta	
Serial Numbers on Page 29 have been Documented	

Inspected By: _____

Contact Information: _____

Date: _____



-Maintenance-

The Delta is a low-maintenance unit. Regular inspections depend on site conditions, traffic volume and weather conditions. Regular inspections of the Delta is recommended and shall be made by local highway authority, always follow local guidelines for frequency of inspections to ensure adequate repairs are made to the unit.

Maintenance includes but not limited to the following:

- Clear and dispose of on site debris (remove excessive dirt, vegetation, snow, etc)
- Check for damage to the front attenuation module
- Check bolts are tight and rust free
- Check for loosened, damaged or rusted anchor bolts
- If installed on asphalt the anchor bolts should be checked on a routine basis
- Check for missing components and vandalism
- Check to see if there is evidence of an impact. Damage to the cutout patterns in the fender panels should be documented and replaced.

To determine if a Delta needs replacement or is potentially reusable, an engineer experienced in highway products/safety directed by local highway authority must be consulted.

Notes: _____

Inspected By: _____

Date: _____



- Serial Number -

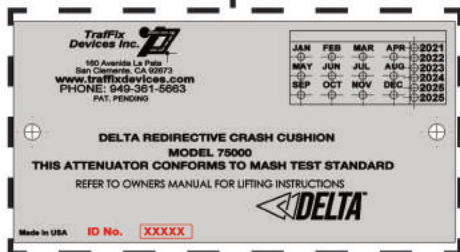
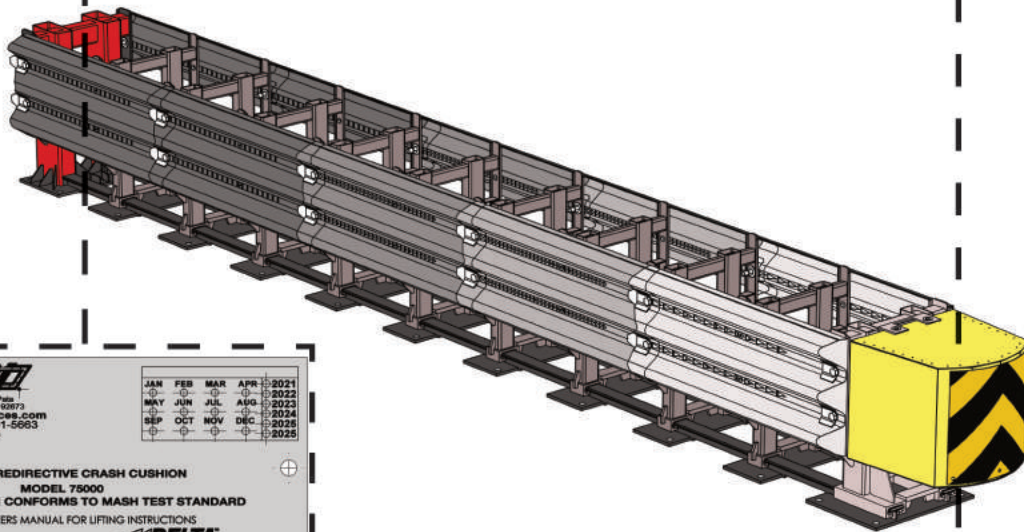
Date of Installation: _____

Location: _____

Condition of Delta: _____

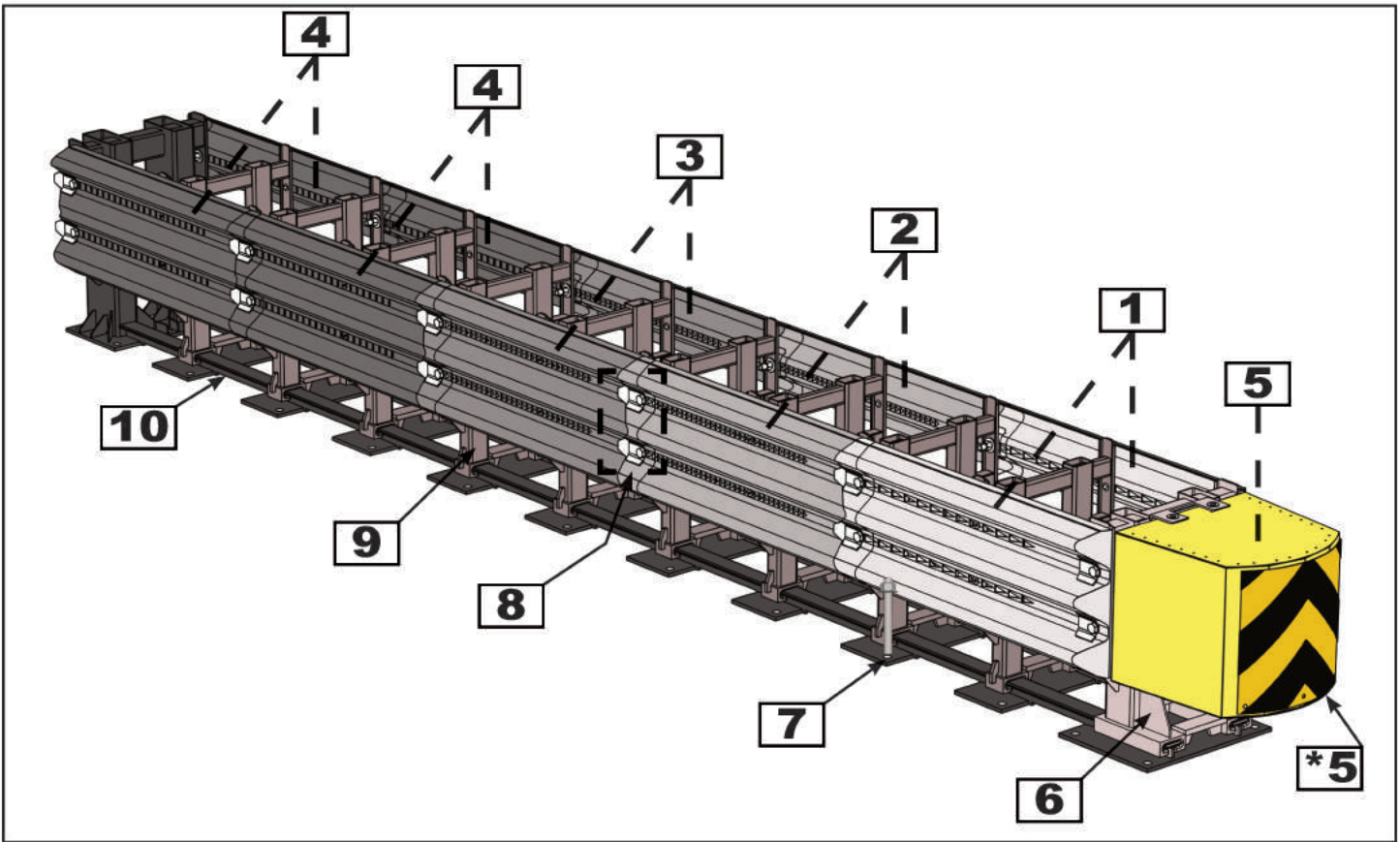
Serial Number From Delta
Diaphragm:

Serial Number From Front
Attenuation Module:



-Delta Part Identification-

TL-3



1

Fender Panel 1N Kit
75260-TL3-1N-KIT
2 Per System

2

Fender Panel 2N Kit
75260-TL3-2N-KIT
2 Per System

3

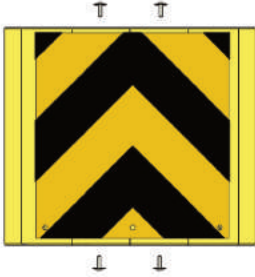
Fender Panel 3N Kit
75260-TL3-3N-KIT
2 Per System

4

Fender Panel 45N Kit
75260-TL3-45N-KIT
4 Per System



5



**Front Attenuation
Module Kit
75220-N-4Y**
1 Per System

***5 Object Marker Kit
75221-MO-4Y**
1 Per System

6



**Front Impact
Diaphragm Kit
75230-N**
1 Per System



7

**Concrete Anchor Kit
75208-CA-KIT**

*39 Anchor Rods 7/8"-9x8", 39 Nuts 7/8"-9,
39 Washers 7/8" (1 Per System)*

**Concrete Anchor Rod
75208-CA**

1 Anchor Rod 7/8"-9x8", 1 Nut 7/8"-9, 1 Washer 7/8"

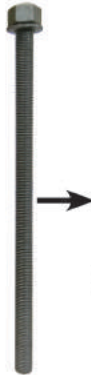


**Asphalt Anchor Kit
75218-AA-KIT**

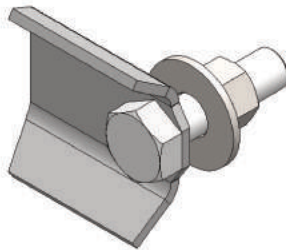
*39 Anchor Rods 7/8"-9x18", 39 Nuts 7/8"-9,
39 Washers 7/8" (1 Per System)*

**Asphalt Anchor Rod
75218-AA**

1 Anchor Rod 7/8"-9x18", 1 Nut 7/8"-9, 1 Washer 7/8"

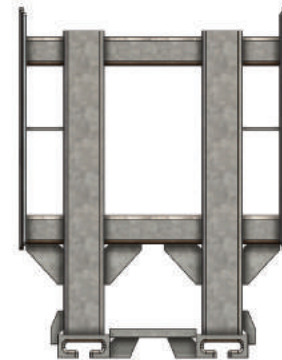


8



**Wing Washer Kit
75207-KIT**
24 Per System

9



**Steel Diaphragm
75240-N**
9 Per System

10

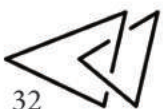


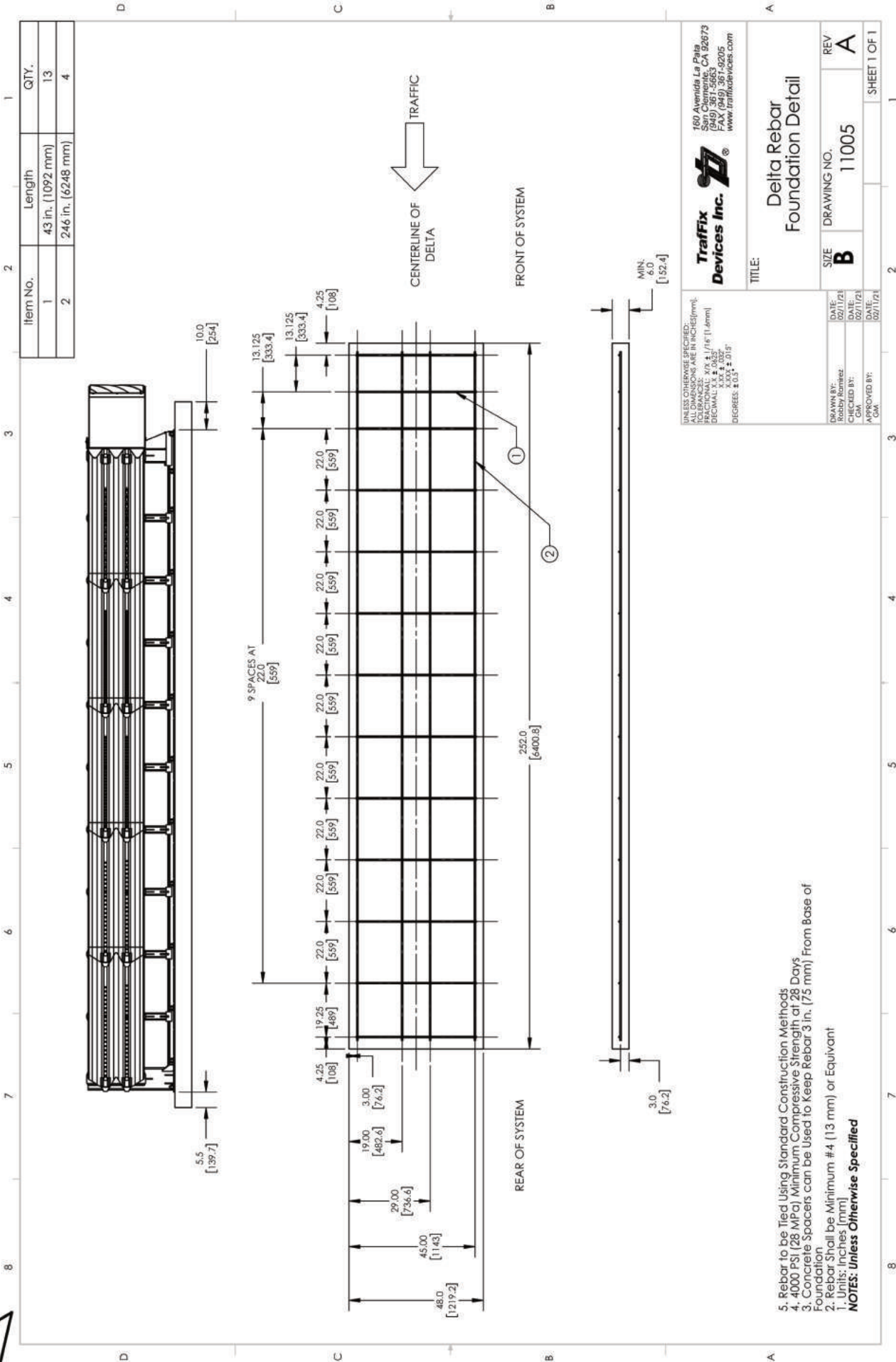
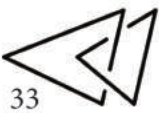
**Track Weldment Complete
75250-TL3-N**

1 Per System



-Notes-





Item No.	Length	QTY.
1	43 in. (1092 mm)	13
2	246 in. (6248 mm)	4

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Delta Rebar Foundation Detail

TITLE: **Delta Rebar Foundation Detail**

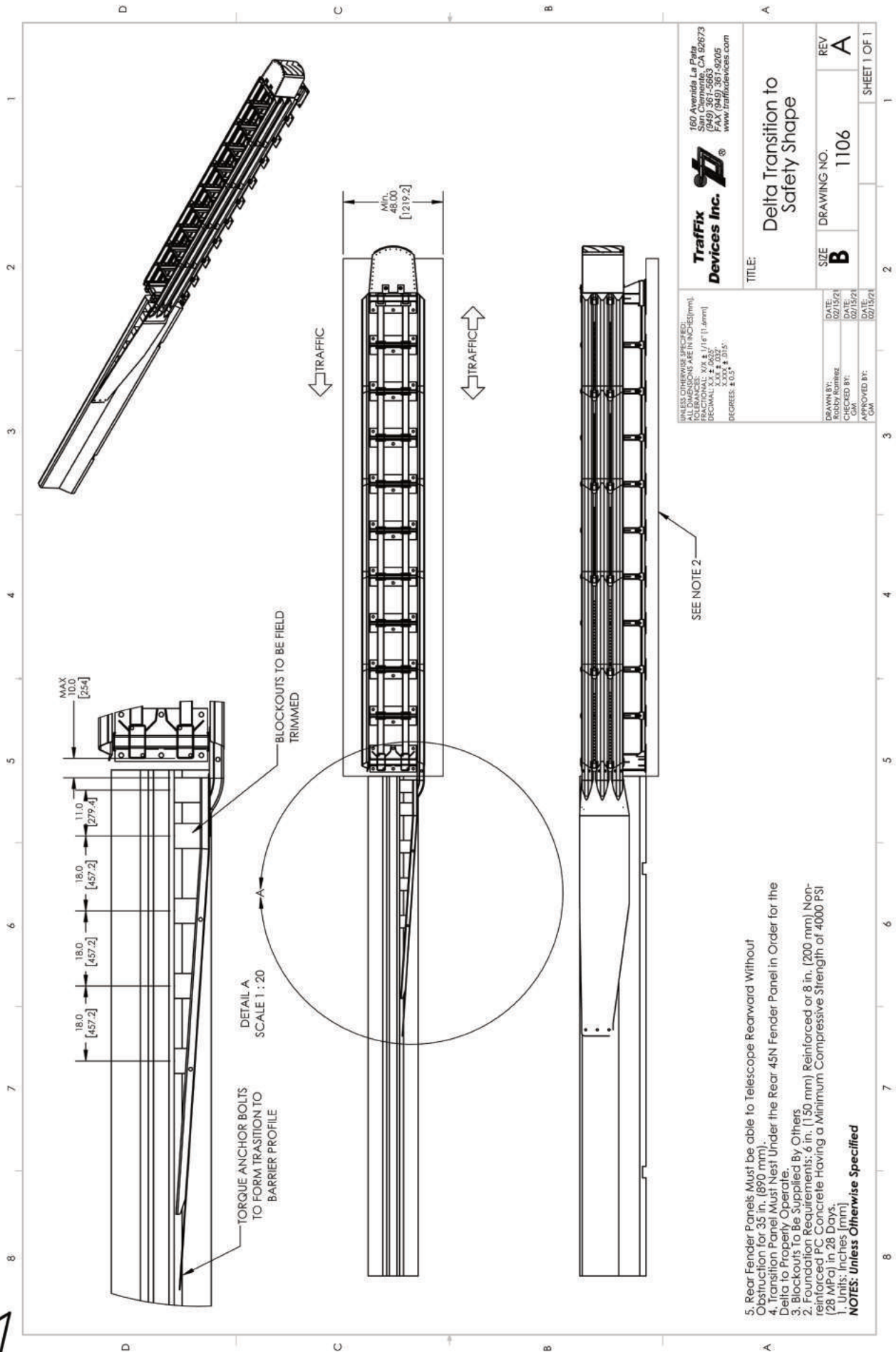
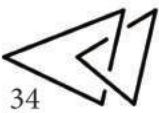
SIZE: **B** DRAWING NO.: **11005** REV: **A**

DRAWN BY: Robby Romasz	DATE: 02/11/21
CHECKED BY: JAW	DATE: 02/11/21
APPROVED BY: GAW	DATE: 02/11/21

SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS ARE IN INCHES (mm).
FRACTIONAL: X/Y ± 1/16" (1.4mm)
DECIMAL: X.X ± 0.032"
ANGLES: X° ± 0.1°
DEGREES: ± 0.5°

5. Rebar to be Tied Using Standard Construction Methods
 4. 4000 PSI (28 MPa) Minimum Compressive Strength at 28 Days
 3. Concrete Spacers can be Used to Keep Rebar 3 in. (75 mm) From Base of Foundation
 2. Rebar Shall be Minimum # 4 (13 mm) or Equivalent
1. Units: inches [mm]
NOTES: Unless Otherwise Specified



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UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN INCHES (mm).
 FRACTIONAL: 1/8" & 1/16" (1.6mm)
 DECIMAL: 0.001" & 0.01"
 DEGREES: 1/2° & 1°

DATE: 02/15/21
 DRAWN BY: CM
 CHECKED BY: CM
 APPROVED BY: CM

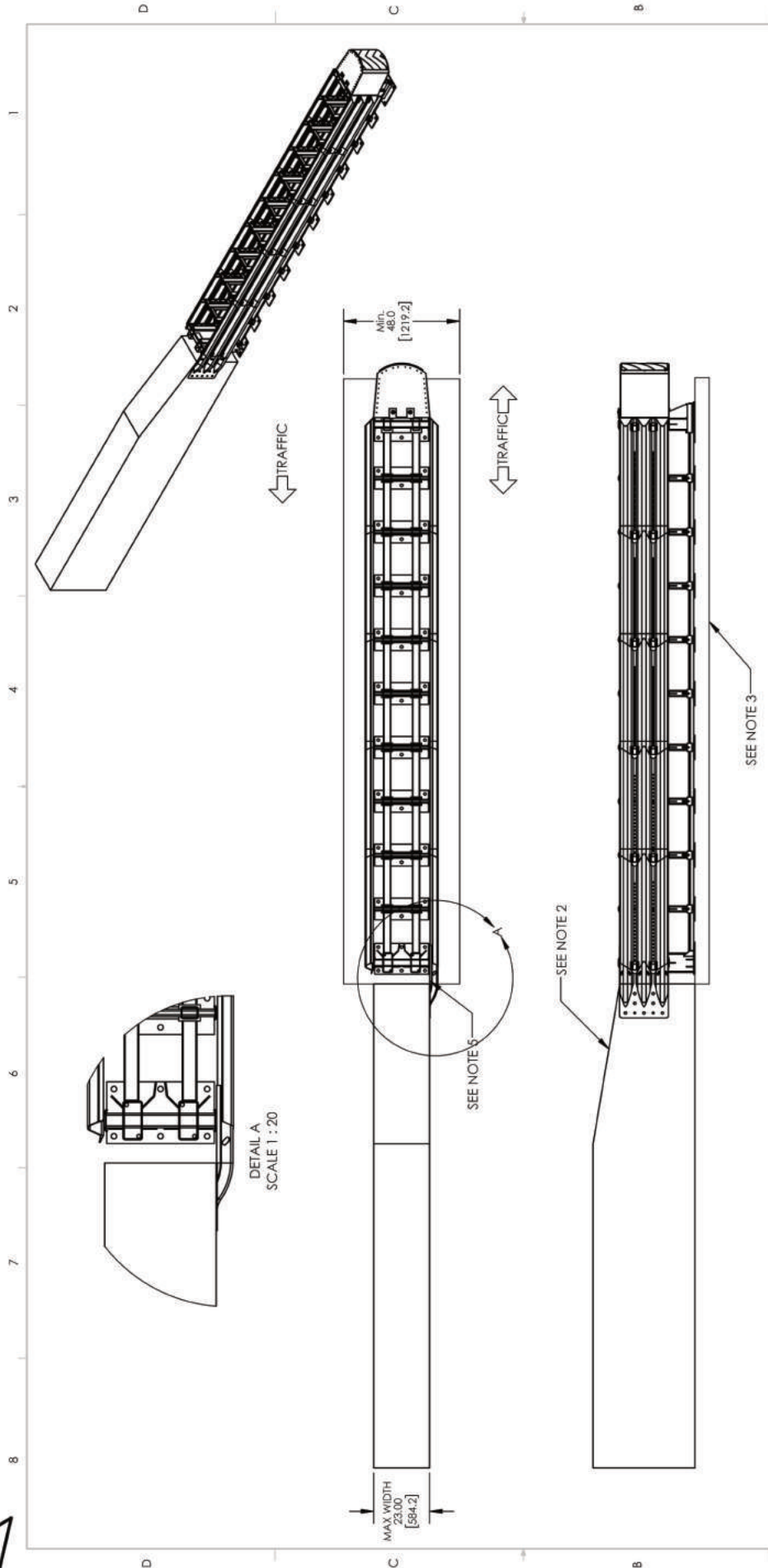
DATE: 02/15/21
 DATE: 02/15/21
 DATE: 02/15/21

SIZE: **B** DRAWING NO.: 1106 REV: **A**

TITLE: Delta Transition to Safety Shape

SHEET 1 OF 1

- 5. Rear Fender Panels Must be able to Telescope Rearward Without Obstruction for 35 in. (890 mm).
 - 4. Transition Panel Must Nest Under the Rear 45N Fender Panel in Order for the Delta to Properly Operate.
 - 3. Blockouts To Be Supplied By Others
 - 2. Foundation Requirements: 6 in. (150 mm) Reinforced or 8 in. (200 mm) Non-reinforced PC Concrete Having a Minimum Compressive Strength of 4000 PSI (28 MPa) in 28 Days.
 - 1. Units: Inches (mm)
- NOTES: Unless Otherwise Specified**



6. Maximum Width of Object Being Shielded is 23 in. (584 mm) with no Minimum Width. If Obstructions is Narrower than 23 in. (584 mm) the Delta should be Offset Towards the Bi-Directional Traffic Flow Side if Bridge Shoe is Used.
 7. Barrier Edge to be Tangent to the Inner edge of The Delta Diaphragms/ Backup Structure.
 8. Transition Panel Must Nest Under the Rear 45N Fender Panel in Order for the Delta to Properly Operate. Rear Fender Panels Must be able to Telescope Rearward Without Obstruction for 35 in. (890 mm).
 9. Foundation Requirements: 6 in. (150 mm) Reinforced or 8 in. (200 mm) Non-reinforced PC Concrete Having a Minimum Compressive Strength of 4000 PSI (28 MPa) in 28 Days.
 10. It is Recommended That The Barrier Be Trimmed at a 6:1 Ratio If The Barrier Height Exceeds 32 in. (812 mm)
1. Units: inches [mm]
NOTES: Unless Otherwise Specified

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 www.trafixdevices.com

UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN INCHES (mm).
 TOLERANCES: FRACTIONAL: X/8 & 1/16" (1.4mm)
 DECIMAL: X.X & .0625"
 ANGLES: 0.005° & 0.015°
 DEGREES: ±0.1°

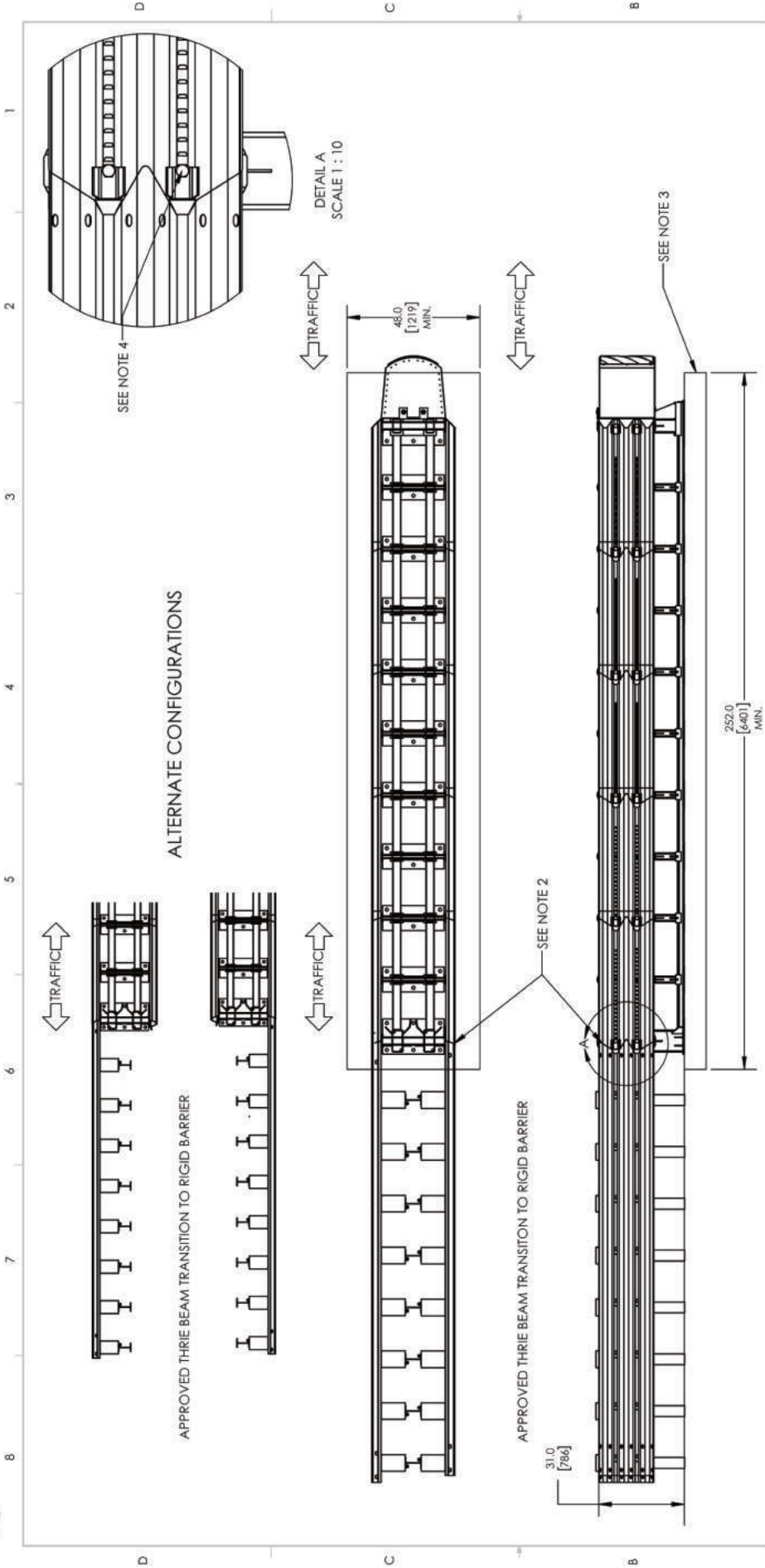
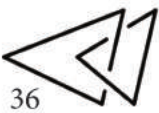
DATE: 02/15/21
 DRAWN BY: Robby Ramirez
 CHECKED BY: [Blank]
 APPROVED BY: [Blank]
 P. GM.

DATE: 02/15/21
 DATE: 02/15/21
 DATE: 02/15/21

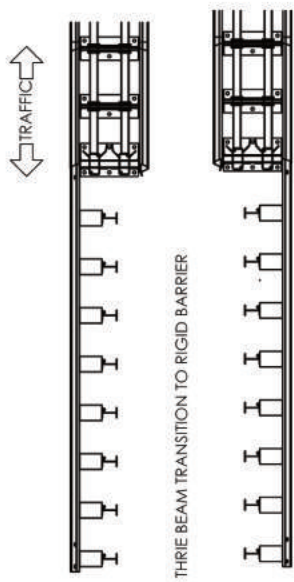
SIZE: **B** DRAWING NO.: 1107 REV: **A**

TITLE: Delta Bridge Shoe Transition

SHEET 1 OF 1



ALTERNATE CONFIGURATIONS



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UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS: INCHES (mm)
 TOLERANCES: ± 0.031" (± 0.8 mm)
 FINISHES: GALVANNEAL (GALV) / 16 (1.6mm)
 SURFACE: 3.2 X ± 0.032"
 DEGREES: ± 0.5°

DATE: 02/10/21
 CHECKED BY: PA
 APPROVED BY: PA

DATE: 02/10/21
 CHECKED BY: PA
 APPROVED BY: PA

REV: A

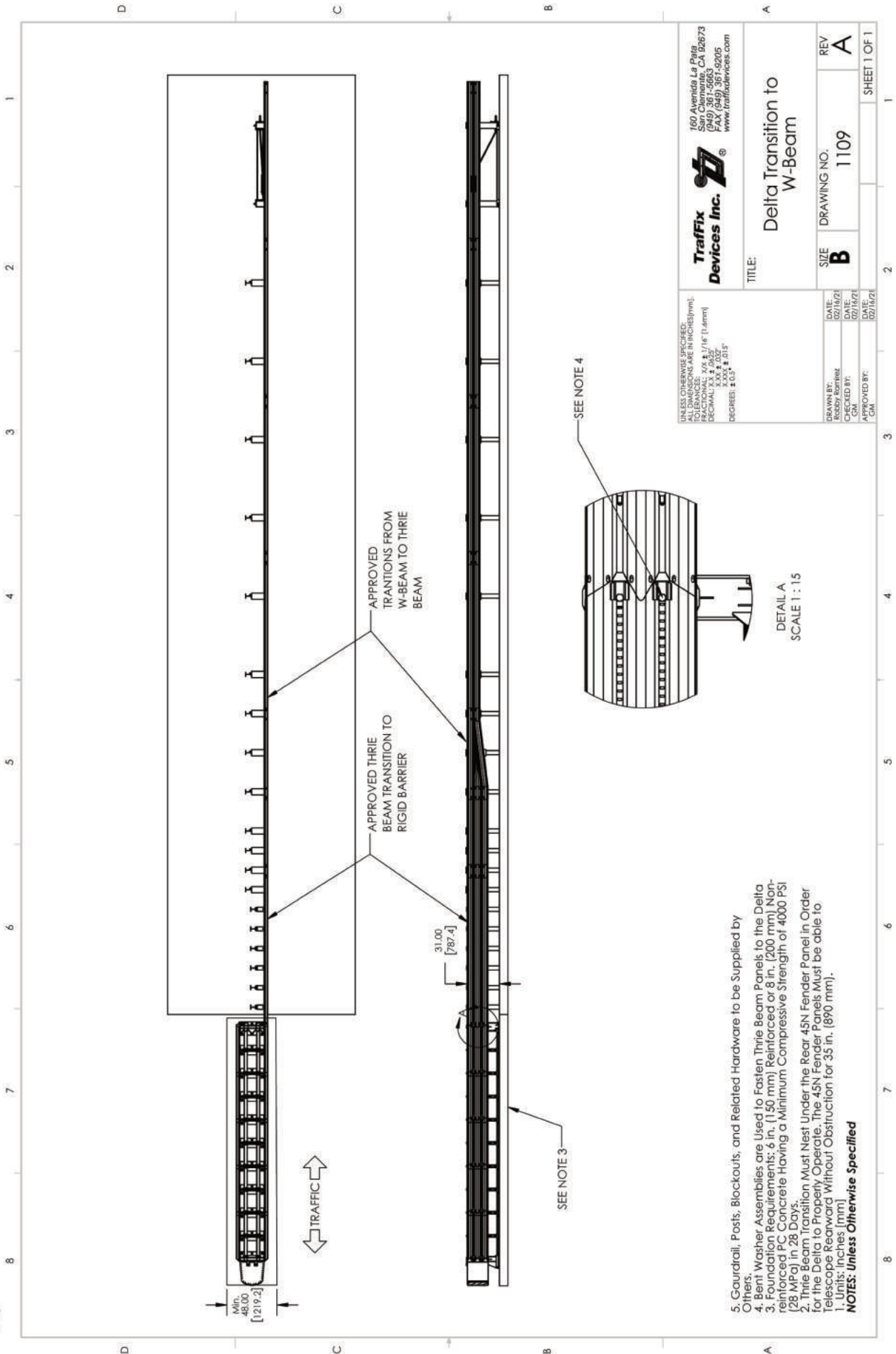
SIZE: B

DRAWING NO.: 1108

TITLE: Delta Thrie Beam Transition

SHEET 1 OF 1

- 5. Gaurdrail, Posts, Blockouts, and Related Hardware to be Supplied by Others;
 - 4. Bent Washer Assemblies are Used to Fasten Thrie Beam Panels to the Delta
 - 3. Foundation Requirements: 6 in. (150 mm) Reinforced or 8 in. (200 mm) Non-Reinforced PC Concrete Having a Minimum Compressive Strength of 4000 PSI (28 MPa) in 28 Days;
 - 2. Thrie Beam Transition Must Nest Under the Rear 45N Fender Panel in Order for the Delta to Properly Operate. The Rear 45N Fender Panels Must be able to telescope Rearward Without Obstruction for 35 in. (890 mm).
- NOTES: Unless Otherwise Specified



UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN INCHES (mm).
 FRACTIONAL: X/A ± 1/16" (1.4mm)
 DECIMAL: X.XX ± .002"
 ANGLES: X.X ± .015°
 DEGREES: X.0 ± .015°

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TITLE: **Delta Transition to W-Beam**

DATE: 02/16/21	REV
DRAWN BY: [Redacted]	A
CHECKED BY: [Redacted]	
APPROVED BY: [Redacted]	
DATE: 02/16/21	

SIZE: **B** DRAWING NO.: **1109**

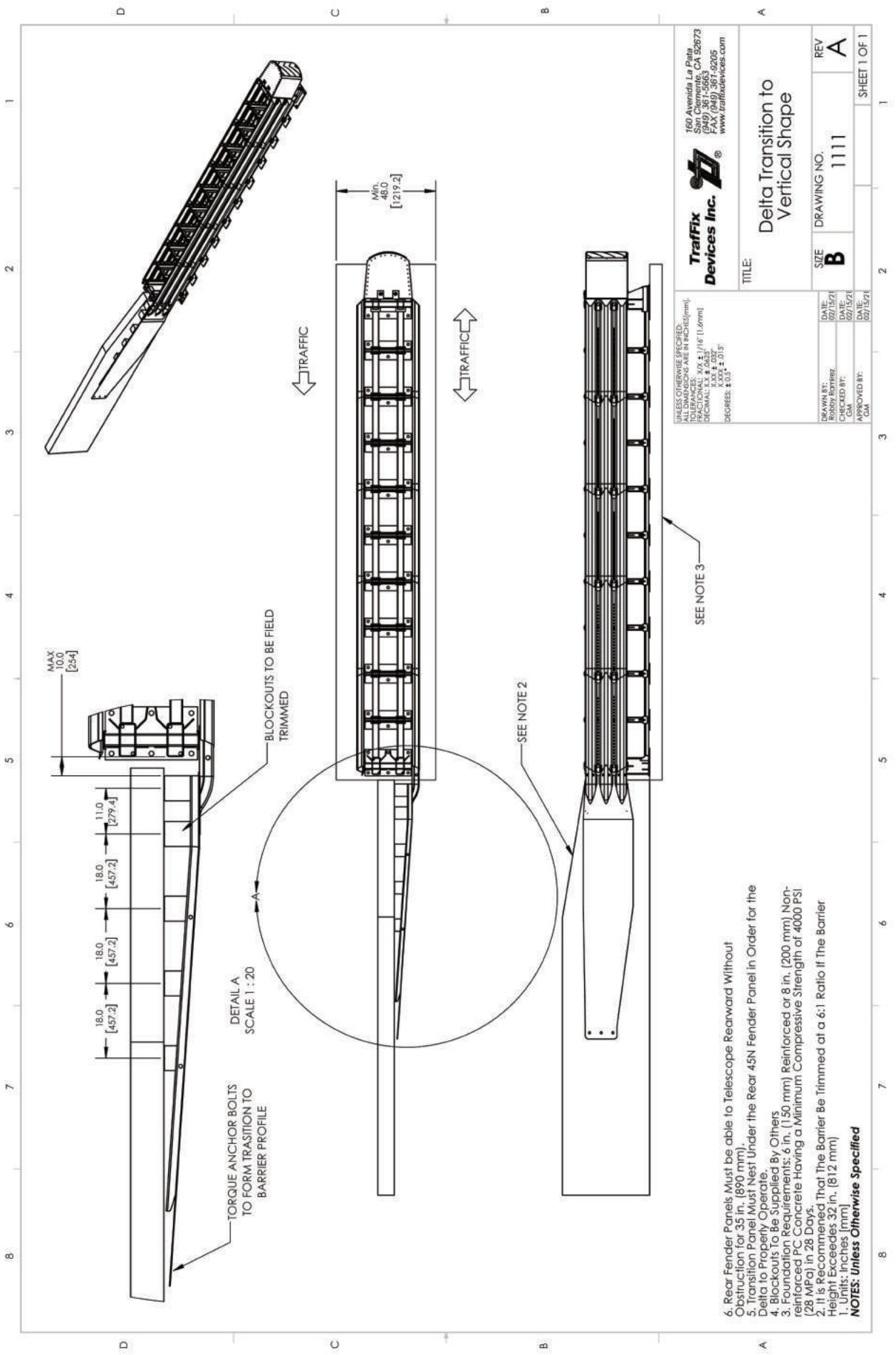
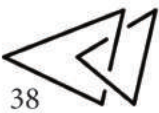
SHEET 1 OF 1


5. Gaurdtrail, Posts, Blockouts, and Related Hardware to be Supplied by Others.
 4. Bent Washer Assemblies are Used to Fasten Thrie Beam Panels to the Delta Foundation Requirements; 6 in. (150 mm) Reinforced or 8 in. (200 mm) Non-reinforced PC Concrete Having a Minimum Compressive Strength of 4000 PSI (28 MPa) in 28 Days.
 2. Thrie Beam Transition Must Nest Under the Rear 45N Fender Panel in Order for the Delta to Properly Operate. The 45N Fender Panels Must be able to Telescope Rearward Without Obstruction for 35 in. (890 mm).
1. Units: inches [mm]
NOTES: Unless Otherwise Specified

SEE NOTE 4

SEE NOTE 3

DETAIL A
 SCALE 1 : 15



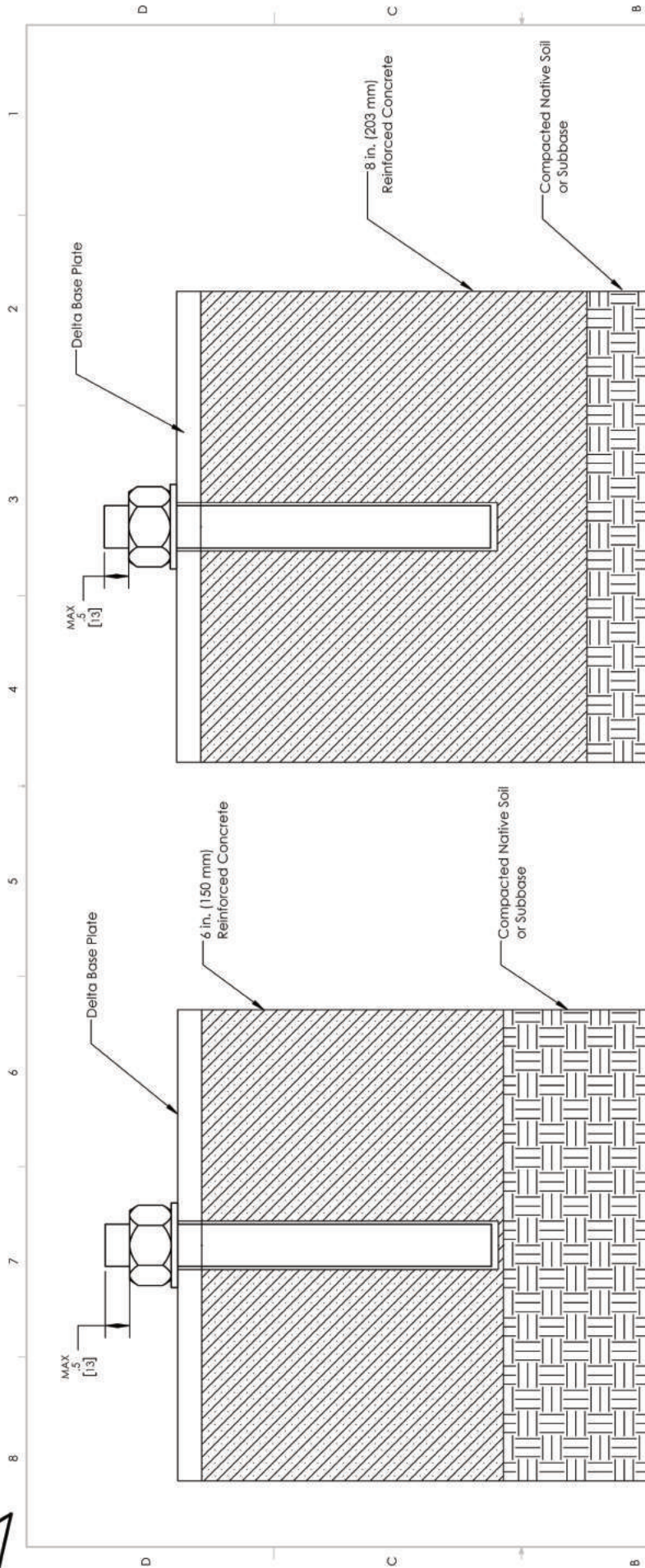

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 (949) 390-9205
 www.trafficdevices.com

TITLE: Delta Transition to Vertical Shape
 SIZE: B
 DRAWING NO.: 1111
 REV: A
 SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN INCHES (mm).
 FRACTIONAL: XX ± 1/16" (1.50mm)
 DECIMAL: X.X ± .003"
 X.XXX ± .015"
 DEGREES: ± 0.3°

DRAWN BY: Robby Ramirez
 DATE: 07/15/21
 CHECKED BY: CM
 DATE: 07/15/21
 APPROVED BY: CM
 DATE: 07/15/21

6. Rear Fender Panels must be able to Telescope Rearward Without Obstruction for 35 in. (890 mm).
 5. Transition Panel Must Nest Under the Rear 45N Fender Panel in Order for the Delta to Properly Operate.
 4. Blockouts to Be Supplied By Others
 3. Foundation Requirements: 6 in. (150 mm) Reinforced or 8 in. (200 mm) Non-reinforced PC Concrete Having a Minimum Compressive Strength of 4000 PSI (28 MPa) in 28 Days.
 2. It is Recommended That The Barrier Be Trimmed at a 6:1 Ratio If The Barrier Height Exceeds 32 in. (812 mm)
1. Units: Inches (mm)
NOTES: Unless Otherwise Specified



8 in. (203 mm) MIN REINFORCED CONCRETE PAD

6 in. (150 mm) MIN REINFORCED CONCRETE PAD

UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN INCHES (mm).
 DIMENSIONS: XX ± 1/4" (1.4mm)
 DIMENSIONS: XX ± .002"
 DECIMAL: XX ± .002"
 ANGLES: XX ± 0.1°
 DEGREES: ± 0.1°

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TITLE: Delta Foundation Examples

SIZE: B DRAWING NO.: 1110 REV: A

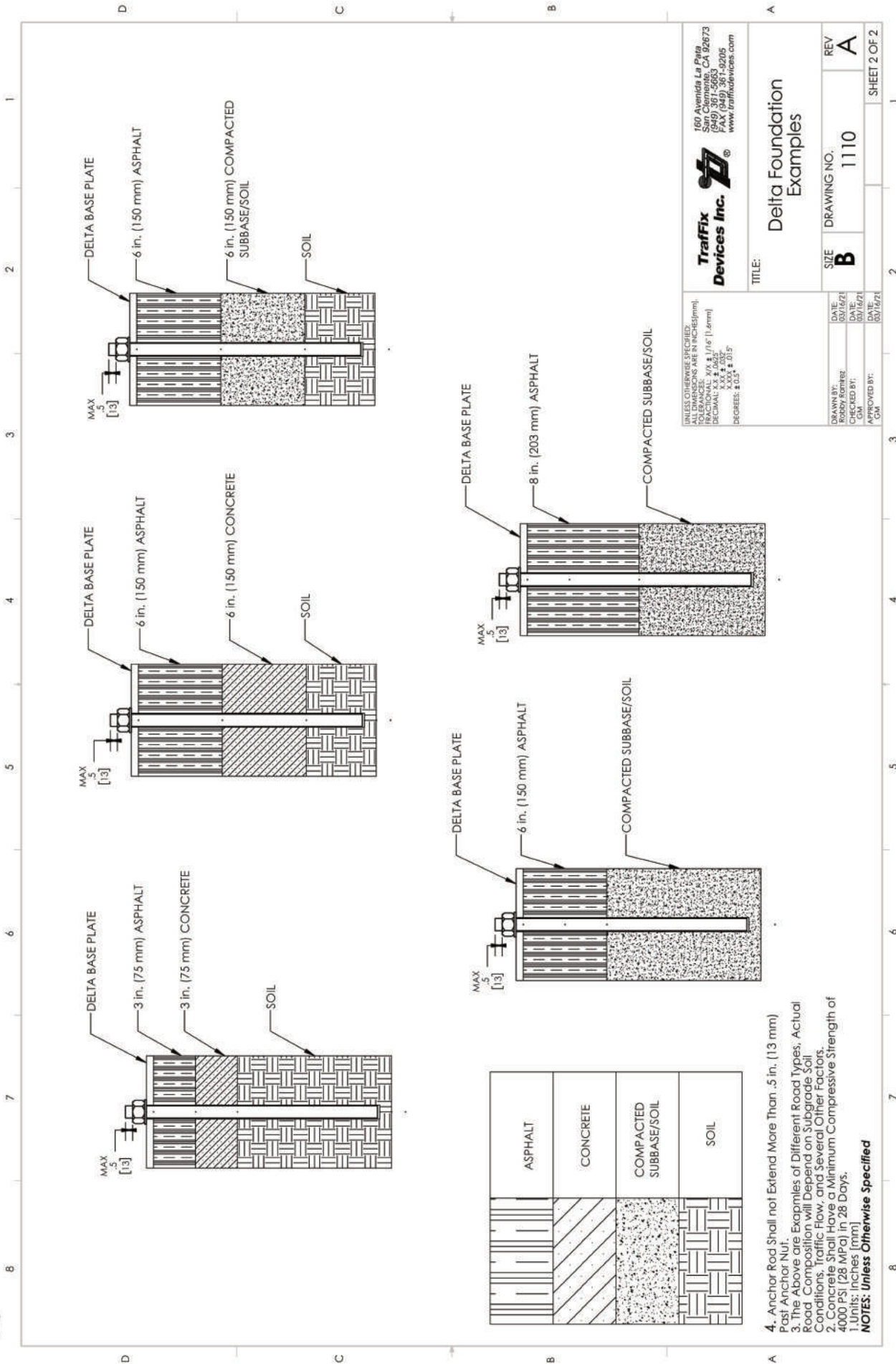
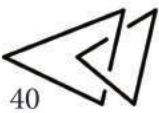
DATE: 03/16/21
 DRAWN BY: Rocky Ramirez
 CHECKED BY: GR
 DATE: 03/16/21
 APPROVED BY: ACH DATE: 03/16/21

SHEET 1 OF 2

LEGEND

	STEEL
	CONCRETE
	SOIL/ SUBBASE

- Anchor Rod Shall not Extend More Than .5 in. (13 mm) Past Anchor Nut.
 - Concrete Shall Have a Minimum Compressive Strength of 4000 PSI (28 MPa) in 28 Days.
1. Units: Inches (mm)
NOTES: Unless Otherwise Specified



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UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN INCHES (mm).
 FRACTIONAL: 1/8" & 1/16" (1.6mm)
 DECIMAL: .125, .250, .375, .500
 X.XXX ± .015"
 DEGREES: ± 0.5°

TITLE: Delta Foundation Examples

SIZE: B DRAWING NO. 1110 REV A

DATE: 05/16/21
 DRAWN BY: Robby Karike
 CHECKED BY: CM
 APPROVED BY: CM DATE: 05/16/21

SHEET 2 OF 2

4. Anchor Rod Shall not Extend More Than .5 in. (13 mm) Past Anchor Nut.
 3. The Above are Examples of Different Road Types, Actual Road Composition will Depend on Subgrade Soil Conditions, Traffic Flow, and Several Other Factors.
 2. Concrete Shall Have a Minimum Compressive Strength of 4000 PSI (28 MPa) in 28 Days.
1. Units: inches (mm)
NOTES: Unless Otherwise Specified

-Regional Sales Manager-

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<p>Northwest Territory Office MT, UT, ID, WA, OR, NV, CO, WY Cary LeMonds St. George, UT (801) 979-7099 Office (949) 573-9290 Fax clemonds@traffixdevices.com</p>	<p>Midwest Territory Office OH, MI, IN, KY, IL, WI, MN, ND, SD, IA, MO Dave H. Lindquist Chicago, IL (630) 605-1273 Office (949) 573-9240 Fax dlindquist@traffixdevices.com</p>
<p>Western Territory Office CA, HI, AK, AZ Lawrence Berg San Diego, CA (949) 350-7048 Office (949) 573-9267 Fax lberg@traffixdevices.com</p>	<p>Southwest Territory Office TX, OK, KS, NE, NM, AR, LA John Gense Dallas, TX (214) 704-1476 Office (949) 573-9291 Fax jgense@traffixdevices.com</p>
<p>International Sales & Business Development Chris Giordano Jacksonville, FL (216) 233-3273 Office (949) 573-9264 Fax cgiordano@traffixdevices.com</p>	<p>To Place Orders Email: orders@traffixdevices.com Office: (949) 361-5663 Fax: (949) 573-9250</p>



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Yvette Cervantes	Int'l Sales Coordinator	ycervantes@traffixdevices.com	(949) 361-5663

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