

# SRT M10™

## Guardrail End Treatment

### Product Description Assembly Manual



**TRINITY**  
**HIGHWAY**

*Ahead of the Curve™*

# SRT-M10™ Guardrail End Treatment

## Product Description Assembly Manual



2525 Stemmons Freeway  
Dallas, Texas 75207



**Important:** These instructions are to be used only in conjunction with the assembly, maintenance, and repair of the SRT-M10™ Guardrail End Treatment system. These instructions are for standard assemblies specified by the appropriate highway authority only. In the event the specified system assembly, maintenance, or repair would require a deviation from standard assembly parameters, contact the appropriate highway authority engineer. This system has been accepted by the Federal Highway Administration for use on the national highway system under strict criteria utilized by that agency. Trinity Highway representatives are available for consultation if required.

**This Manual must be available to the worker overseeing and/or assembling the product at all times. For additional copies, contact Trinity Highway at (888) 323-6374 or download copies from the website below.**

The instructions contained in this Manual supersede all previous information and Manuals. All information, illustrations, and specifications in this Manual are based on the latest SRT-M10™ Guardrail End Treatment system information available to Trinity Highway at the time of printing. We reserve the right to make changes at any time. Please contact Trinity Highway to confirm that you are referring to the most current instructions.

# **Table of Contents**

Customer Service Contacts .....	3
Important Introductory Notes .....	3
Safety Rules for Assembly .....	4
Safety Symbols .....	5
Warnings and Cautions .....	5
Limitations and Warnings .....	8
Bill of Materials .....	9
Know your SRT-M10™ Guardrail End Terminal .....	10
Recommended Tools .....	14
Recommended Tools for Repair .....	14
Assembly .....	15
Materials .....	15
Site Preparation .....	15
Post Placed in Rigid Material .....	15
Placing the Posts .....	16
SYTP™ Placement .....	18
Placing Lower Anchor CRP™ .....	19
Post Placement in Rigid Material .....	21
Placing Lower Anchor CRP™ and SYTP™ When Encountering Rock .....	21
Placing the Upper CRP™ .....	22
Attaching the Ground Angle Strut .....	23
Attaching Rail Panels To SRT-M10™ .....	24
Attaching Slot Guards .....	29
Attaching Cable Anchor Assembly .....	30
Attaching End Section .....	32
SRT-M10™ Assembly Checklist .....	33
Maintenance and Repair .....	34
Maintenance .....	34
Repair .....	34

## Customer Service Contacts

Trinity Highway is committed to the highest level of customer service. Feedback regarding the SRT-M10™ Guardrail End Treatment, its assembly procedures, supporting documentation, and performance is always welcome. Additional information can be obtained from the contact information below.

### **Trinity Highway Products, LLC dba Trinity Highway**

Telephone:	(888) 323-6374 (USA) (214) 589-8140 (International)
Fax:	(214) 589-8423
E-mail:	product.info@trin.net
Website:	www.trinityhighway.com

### **Regional Telephone Contacts:**

Dallas, Texas	(800) 527-6050
Centerville, Utah	(800) 772-7976
Elizabethtown, Kentucky	(800) 282-7668
Girard, Ohio	(800) 321-2755
Orangeburg, South Carolina	(800) 835-9307

## Important Introductory Notes

Proper assembly of the SRT-M10™ Guardrail End Treatment is critical to achieve performance that has been evaluated and accepted by the Federal Highway Administration (FHWA) per MASH. These instructions should be read in their entirety and understood before assembling SRT-M10™ Guardrail End Treatment. These instructions are to be used only in conjunction with the assembly of SRT-M10™ Guardrail End Treatment and are for standard assemblies only as specified by the applicable highway authority. If you need additional information, or have questions about SRT-M10™ Guardrail End Treatment, please contact the highway authority that has planned and specified this assembly and, if needed, contact Trinity Highway's Customer Service Department (see p. 3). This product must be assembled in the location specified by the appropriate highway authority. If there are deviations, alterations, or departures from the assembly protocol specified in this Manual, the device may not perform as it was tested and accepted.

This system, like other Trinity Highway systems, has been crash tested pursuant to MASH mandated criteria



**Important: DO NOT** use any component part that has not been specifically crash tested and/or approved for this system during the assembly or repair of this system.

This product has been specified for use by the appropriate highway authority and has been provided to that user who has unique knowledge of how this system is to be assembled. No person should be permitted to assist in the assembly, maintenance, or repair of this system that does not possess the unique knowledge described above. These instructions are intended for an individual qualified to both read and accurately interpret them as written. These instructions are intended only for an individual experienced and skilled in the assembly of highway products that are specified and selected by the highway authority.

A manufacturer's drawing package will be supplied by Trinity Highway upon request. Each system will be supplied with a specific drawing package unique to that system. Such drawings take precedence over information in this Manual and shall be studied thoroughly by a qualified individual who is skilled in interpreting them before the start of any product assembly.



**Important:** Read safety instructions thoroughly and follow the assembly directions and suggested safe practices before assembling, maintaining, or repairing the SRT-M10™ Guardrail End Treatment. Failure to follow this warning can result in serious injury or death to workers and/or bystanders. Such failure also compromises the acceptance of this system by the FHWA. Please keep up-to-date instructions for later use and reference by anyone involved in the assembly of the product.



**Warning:** Ensure that all of the SRT-M10™ Guardrail End Treatment Danger, Warning, Caution, and Important statements within the SRT-M10™ Guardrail End Treatment Manual are followed completely. Failure to comply with this warning could result in increased risk of serious injury or death in the event of a collision.

## **Safety Rules for Assembly**

### **\* Important Safety Instructions \***

This Manual must be kept in a location where it is readily available to persons who assemble, maintain, or repair of the SRT-M10™ Guardrail End Treatment. Additional copies of this Manual are immediately available from Trinity Highway by calling (888) 323-6374 or by email at [product.info@trin.net](mailto:product.info@trin.net). Please contact Trinity Highway if you have any questions concerning the information in this Manual or about SRT-M10™ Guardrail End Treatment. This Manual may also be downloaded directly from the website listed below.

Always use appropriate safety precautions when operating power equipment and when moving heavy equipment or SRT-M10™ Guardrail End Treatment components. Work gloves, safety goggles, safety-toe shoes, and back protection should be used.

Safety measures incorporating traffic control devices specified by the highway authority must be used to provide safety for personnel while at the assembly, maintenance, or repair site.

## Safety Symbols

This section describes the safety symbols that appear in this SRT-M10™ Guardrail End Treatment Manual for complete safety and assembly information.

### Symbol

### Meaning



**Safety Alert Symbol:** Indicates Danger, Warning, Caution, or Important. Failure to read and follow Danger, Warning, Caution, or Important indicators could result in serious injury or death to workers and/or bystanders.

## Warnings and Cautions

Read all instructions before assembling, maintaining, or repairing the SRT-M10™ Guardrail End Treatment.



**Danger:** Failure to comply with these warnings could result in increased risk of serious injury or death in the event of a vehicle impact with a system that has not been accepted by the Federal Highway Administration (FHWA).



**Warning:** Do not assemble, maintain, or repair the SRT-M10™ Guardrail End Treatment until you have read this Manual thoroughly and completely understand it. Ensure that all Danger, Warning, Caution, and Important statements within the Manual are completely followed. Please call Trinity Highway at (888) 323-6374 if you do not understand these instructions.



**Warning:** Safety measures incorporating appropriate traffic control devices specified by the highway authority must be used to protect all personnel while at the assembly, maintenance, or repair site.



**Warning:** Use only Trinity Highway parts that are specified herein for the SRT-M10™ Guardrail End Treatment for assembling, maintaining, or repairing the SRT-M10™ Guardrail End Treatment. **Do not utilize or otherwise commingle parts from other systems even if those systems are other Trinity Highway systems.** Such configurations have not been tested, nor have they been accepted for use. Assembly, maintenance, or repairs using unspecified parts or accessories is strictly prohibited. Failure to follow this warning could result in serious injury or death in the event of a vehicle impact with an UNACCEPTED system.



**Warning:** Do NOT modify the SRT-M10™ Guardrail End Treatment in any way.



**Warning:** Ensure that the SRT-M10™ Guardrail End Treatment and delineation used meet all federal, state, specifying agency, and local specifications.



**Warning:** Ensure that SRT-M10™ Guardrail End Treatment system and delineation used meet all federal, state, specifying agency, and local specifications.



**Warning:** Ensure that your assembly meets all appropriate Manual on Uniform Traffic Control Devices (MUTCD) and local standards.



**Warning:** Be aware of hazards of using compressed air (small objects may become projectiles).



**Warning:** DO NOT perform assembly, maintenance, or repair if the SRT-M10™ Guardrail End Treatment site, shoulder, or traveled area is covered or encroached by road debris.



**Warning:** Ensure that the entire work zone site is well lighted at all times.



**Warning:** Safety measures incorporating traffic control devices must be used to protect all personnel while at the assembly, maintenance, or repair site. Failure to follow this warning could result in serious injury or death to the workers and/or bystanders. Trinity Highway offers a variety of effective truck mounted attenuators (TMA's) for the protection of workers in work zones. For more information on TMA's, call (888) 323-6374 or visit the Trinity Highway website listed below.



**Warning:** Use caution when working near public roads. Be mindful of vehicles in motion nearby.



**Warning:** Ensure that the proper leaveout (the specified area of open space in the pavement) around the posts is reserved and filled with state or specifying agency approved backfill material that will not prevent movement for any posts. Surrounding posts with rigid pavement, such as any thickness of concrete or asphalt, will prevent post movement in the soil and is NOT allowed. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Ensure that all guardrail products and delineation meet all federal, state or specifying agency, and local specifications.



**Warning:** Always use safety precautions when performing assembly, maintenance or repair, mixing chemicals, and/or moving heavy equipment. Wear safety-toe shoes, gloves, safety goggles, and back protection.



**Warning:** Ensure that there is proper site grading for Post placement, as dictated by the state or specifying agency, pursuant to FHWA acceptance.



**Warning:** Ensure that this assembly conforms with the guidance provided by the AASHTO Roadside Design Guide, including, but not limited to, those regarding placement on or adjacent to curbs.



**Warning:** Use only Trinity Highway parts on the SRT-M10™ Guardrail End Treatment system for assembly, maintenance, or repair. **The assembly or comingling of unauthorized parts is strictly PROHIBITED.** The SRT-M10™ Guardrail End Treatment and its component parts have been accepted for state use by the FHWA. However, a comingled system has not been accepted within the applicable criteria.



**Danger:** DO NOT place a SYTP™ at location No. 1. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Any grout, backfill, or other materials (such as concrete, asphalt, or soil) must be low enough so as not to obstruct, constrain, or otherwise engage the Cable Bracket. Failure to eliminate the interaction of soil or materials with the Cable Bracket will hinder the performance of the SRT-M10™ Guardrail End Treatment and could result in serious injury or death in the event of a collision.



**Danger:** DO NOT place a Wood 6' 0" long Controlled Release Terminal (CRT) post at location No. 1.



**Important:** Trinity Highway makes no recommendation whether use or reuse of any part of the system is appropriate or acceptable following an impact. It is the sole responsibility of the local highway authority and its engineers to make that determination. It is critical that you inspect this product after assembly is complete to make certain that the instructions provided in this manual have been strictly followed.



**Warning:** DO NOT bolt the Rail Panel in any fashion to Posts 2 through 7 in any of the SRT-M10™ Guardrail End Treatments.



**Important:** Cable Release Posts will be represented as CRP™.



**Warning:** Ensure all Wood Blocks or Composite Blocks used with steel posts are routed to establish a fixed vertical orientation relative to the Posts.



**Caution:** Ensure before assembling, maintaining, or repairing the SRT-M10™ Guardrail End Treatment that no parts are frayed, damaged, or broken.



**Warning:** Do not place anything under the rail-to-post bolt head at posts 2 through 7 that would prevent the bolt from sliding behind the Rail Panel.



**Important:** Steel Yielding Terminal Posts will be represented as SYTP™.

## **Limitations and Warnings**

Trinity Highway, in compliance with Manual for Assessing Safety Hardware (MASH) "Recommended Procedures for the Safety Performance of Highway Safety Features," contracts with FHWA approved testing facilities to perform crash tests, evaluation of tests, and submittal of results to the Federal Highway Administration for review.

The SRT-M10™ Guardrail End Treatment has been approved as meeting the requirements and guidelines of MASH, Test Level 3 (TL-3). These tests evaluate product performance by closely simulating actual impacts involving a range of vehicles from lightweight cars (approx. 820 kg [1800 lb.]) to full size pickup trucks (approx. 2000 kg [4400 lb.]). The SRT-M10™ Guardrail End Treatment is certified to the Test Level indicated below:

Test Level 3: 100 km/h [62 mph]

These tests are not intended to represent the performance of products when impacted by every vehicle type, nor every impact condition existing on the roadway. The tests are performed to measure impacts involving vehicles specified by MASH, under those specific impact conditions.

Trinity Highway neither represents nor warrants that the impact results of these federally established test criteria prevent or reduce the severity of any injury to person(s) or damage to property. These tests only demonstrate the occurrence of certain results following an impact within MASH. Every departure from the roadway is a unique event.

The SRT-M10™ Guardrail End Treatment is intended to be assembled, delineated, and maintained in accordance with specific state and federal guidelines. It is important for the highway authority to select the most appropriate product configuration for its site specifications. Careful evaluation of the site lay out, vehicle population type; speed, traffic direction, and visibility are some of the elements that require evaluation in the proper selection of a highway product. For example, curbs could cause an untested effect on an impacting vehicle.

After an impact occurs, the debris from the impact should be removed from the area immediately and the specified highway product should be evaluated and restored to its original specified condition or replaced as the highway authority determines as soon as possible.

## Bill of Materials



**Warning:** Use only Trinity Highway parts that are specified herein for the SRT-M10™ Guardrail End Treatment for assembling, maintaining, or repairing the SRT-M10™ Guardrail End Treatment. **Do not utilize or otherwise comingle parts from other systems even if those systems are other Trinity Highway systems.** Such configurations have not been tested, nor have they been accepted for use. Assembly, maintenance, or repairs using unspecified parts or accessories is strictly prohibited. Failure to follow this warning could result in serious injury or death in the event of a vehicle impact with an UNACCEPTED system. In repairing or maintaining this end treatment, only use parts that are herein specified in the following parts list.

### SRT-M10™ Guardrail End Treatment

For specific materials and quantities, see state or specifying agency's options and Trinity Highway standard layout drawings.

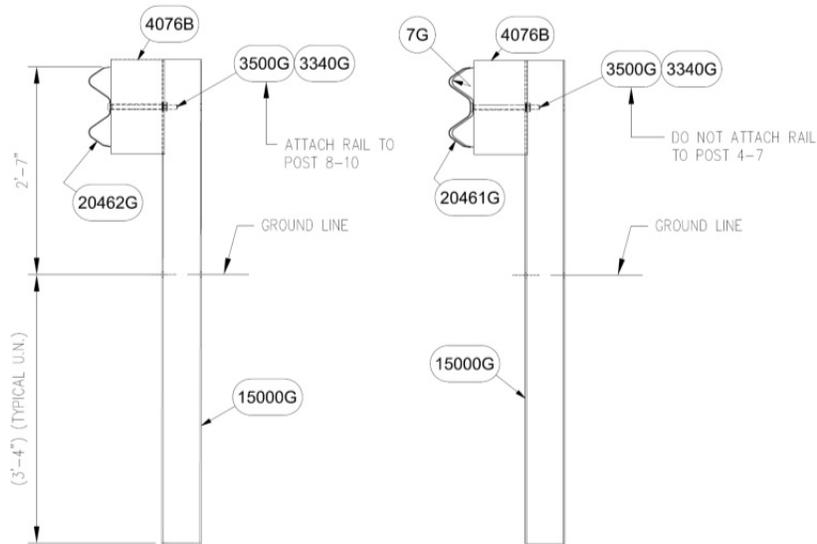
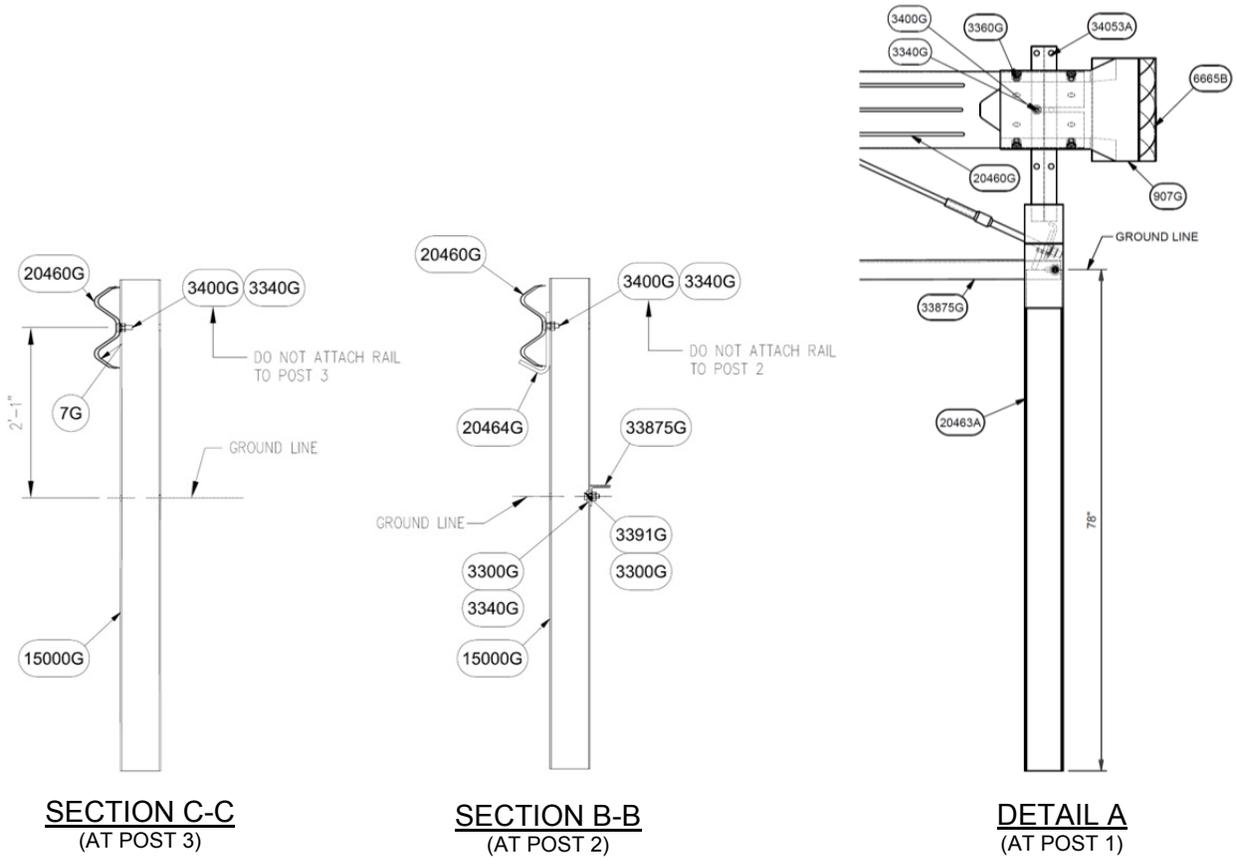
PARTS LIST			MASS
PN	QTY	DESCRIPTION	LBS (kg)
7G	6	12 GA FLANGE PROTECTOR	3.26 (1.48)
700A	1	CABLE ANCHOR BRACKET	11.39 (5.17)
907G	1	TERMINAL BUFFER ROLLED	20.48 (9.3)
3240G	2	5/16" ROUND WASHER WIDE [F844]	0.02 (.01)
3245G	2	5/16" HEX NUT [A563 Gr. A]	.01 (.005)
3300G	12	5/8" PLAIN WASHER TYPE A WIDE [F844]	.08 (.04)
3340G	73	5/8" HGR RECESSED NUT [A563 Gr. A]	.2 (.1)
3360G	52	5/8" HGR BOLT X 1 1/4" [A307]	.22 (.099)
3380G	8	Ø 5/8" HEX BOLT X 1 1/2" [A307]	.22 (.099)
3391G	2	5/8" HIGH STRENGTH HEX BOLT X 1 3/4" [A325]	.27 (.12)
3400G	4	5/8" HGR BOLT X 2" [A307]	.29 (.13)
3500G	7	5/8" GUARDRAIL BOLT X 10" [A307]	.98 (.44)
3900G	2	1" PLAIN WASHER – REGULAR [F844]	.18 (.08)
3910G	2	Ø 1" HEX NUT [A563]	.33 (.15)
4076B	7	ROUTED WOOD BLOCK - W-BEAM RECESSED	21.35 (9.68)
4211G	2	5/16" HEX BOLT X 1 3/4" – 1 1/8" RHT [A307]	.05 (.02)
6665B	1	SRT REFLECTOR YELLOW - BLACK	.95 (.43)
9215G	1	SRT-M10™ PIPE SLEEVE	1.75 (.79)
9960G	4	SRT SLOT GUARD BRACKET	3.76 (1.7)
15000G	9	SYTP™ W6X8.5#X6'	53.74 (24.38)
20460G	1	12 GA SRT-M10™ W-BEAM #1	86.73 (39.34)
20461G	1	12 GA SRT-M10™ W-BEAM #2	88.38 (40.09)
20462G	1	12 GA SRT-M10™ W-BEAM #3	110.65 (50.21)
20463A	1	LOWER ANCHOR CRP™	119.11 (54.02)
20464G	1	SHELF ANGLE	10.70 (4.85)
33875G	1	GROUND ANGLE STRUT – 6'-6"	31.89 (14.47)
33909G	1	CABLE BRACKET	1.92 (.87)
34053A	1	UPPER CRP™	33.62 (15.25)
105310G	1	3/4" SRT-M10™ CABLE ASSEMBLY	16.12 (7.31)
6777B	*7	COMPOSITE BLOCK – W-BEAM RECESSED	5.32 (2.14)

\* OPTIONAL TO WOOD BLOCKS (PN 4076B)

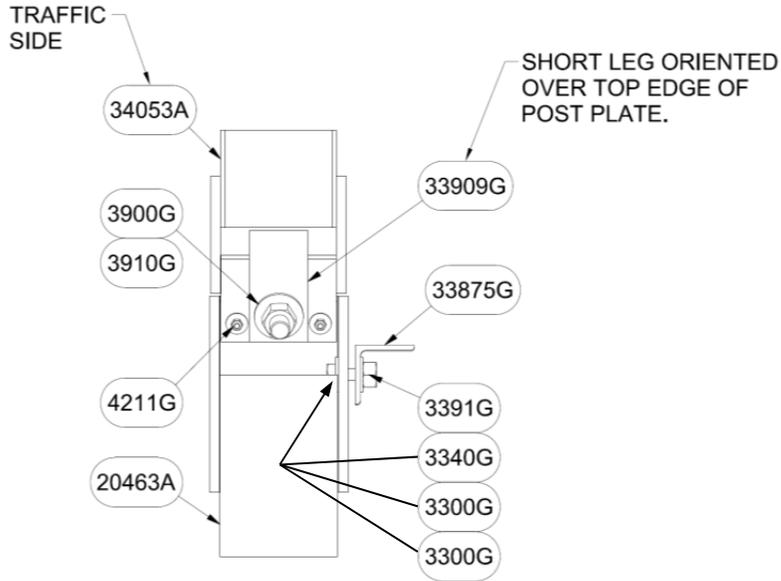




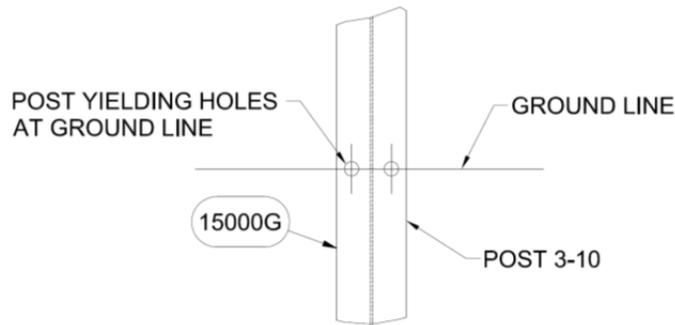
**Important:** DO NOT ATTACH RAIL TO POST 2 OR 3.



**Figure 2**



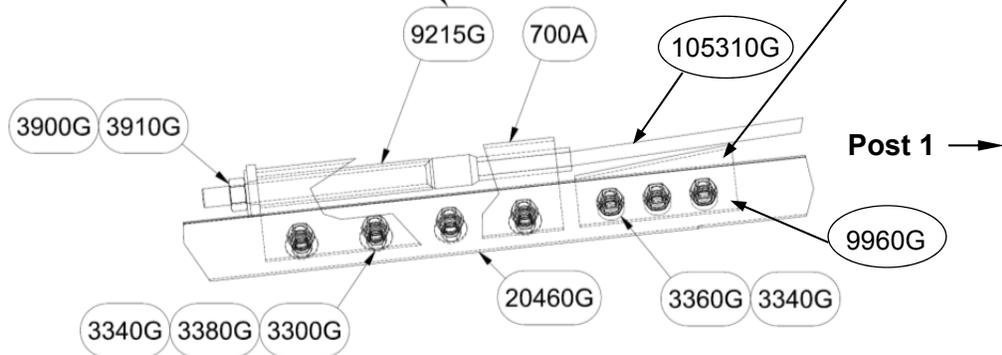
**Section F-F**



**Detail G**

SLIDE 9215G OVER THREADED END OF 105310G PRIOR TO CONNECTING TO 700A.

The Slot Guard is positioned with the narrow end toward front of system.



**Detail H  
(At Cable Anchor Bracket)  
Figure 3**



## **Recommended Tools**

### **Documentation**

- Manufacturer's Assembly Manual
- Manufacturer's Drawing Package

### **Personal protective equipment**

- Safety Glasses
- Work Gloves
- Safety-Toe Shoes
- Back Protection
- Reflective Vest (MUTCD compliant)

### **Wrenches**

- 9/16" Socket or wrench
- 15/16" Socket or wrench
- 1 1/4" Socket or wrench
- 1 1/2" Socket or wrench

### **Miscellaneous**

- Traffic Control Equipment
- Chalk Line
- Tape Measure
- Marking Paint
- Straight Edge
- Level
- Plumb Line
- Augers
- Soil Tamper
- Post Pounder (commonly used for driving posts)
- 5/8" Alignment Tool (Drift Pin)
- Locking Pliers

## **Recommended Tools for Repair**

- Locking Pliers & Sledge Hammer
- Post removal tool and other normal guardrail tools

**Note:** The above list of tools is a general recommendation. Depending on specific site conditions and the complexity of the assembly specified by the appropriate highway authority, additional or fewer tools may be required. Decisions as to what tools are required to perform the job are entirely within the discretion of the specifying highway authority and the authority's selected contractor performing the assembly of the system at the authority's specified site.

## Assembly

### Materials

As packaged, the SRT-M10™ Guardrail End Treatment includes all materials needed for a complete assembly. Review the local authority's standard drawing(s) for this system. Details will be specific to the project or site locations.



**Important:** Steel Yielding Terminal Posts will be represented as SYTP™.



**Important:** Cable Release Posts will be represented as CRP™.

**Note:** Concrete footings or foundations are not required.

### Site Preparation

Site grading is usually necessary for proper placement of CRP™ and SYTP™. Consult the local authority for specifications and standard drawings regarding site grading. Trinity Highway does not direct grading. Complete all grading before assembling the SRT-M10™ Guardrail End Treatment.



**Warning:** Ensure proper site grading for post placement as dictated by the local authority pursuant to FHWA acceptance. Failure to follow this warning could result in serious injury or death in the event of a collision.

### Post Placed in Rigid Material

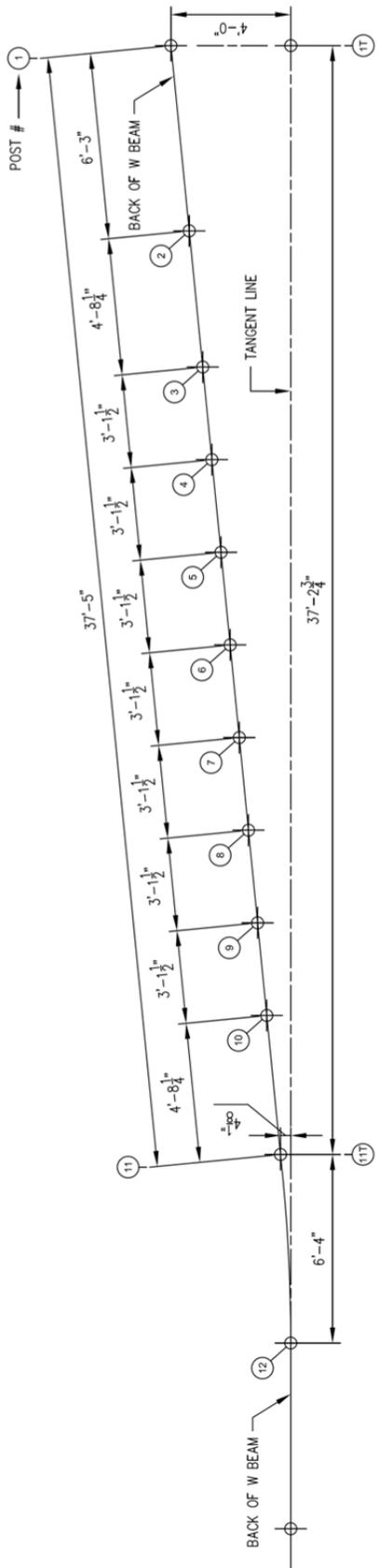
Provide the proper leaveout (the specified area of open space in the pavement) around a Post when assembling the Post in any thickness of concrete or asphalt. The top surfaces of any grout or other backfill placed in the rigid material leaveout **MUST be low enough** so that it does not restrict smooth release of the Cable Bracket (PN 33909G) at Post 1. The assembly shall not impede in any fashion the release mechanism of the No. 1 CRP™ by burying it in rigid material (asphalt, concrete, rigid soil, etc.).

For leaveout information, please consult the applicable state or specifying agency. Additional source of leaveout information or details can be found in the U.S. Department of Transportation, Federal Highway Administration, Memorandum B 64-B, dated 3/10/04. Trinity Highway can provide this FHWA memo upon request.

## **Placing the Posts**

Complete the following steps to position the CRP™ and SYTP™. If there are special field conditions encountered when assembling the SRT-M10™ Guardrail End Terminal system, contact the local controlling authority. For placing posts in rigid pavement, also see the Post Placed in Rigid Material section (see p. 20).

1.	Start at line Post 12 of the guardrail run.
2.	Extend the guardrail tangent line from Point 11T to establish Point 1T (see Figure 5).
3.	Measure from Point 1T an offset of 4'0" (1.21 m) perpendicular to the road to establish the back side of the Guardrail for Post #1.
4.	Verify the offset of Post #11 is 4 1/8" (105 mm).
5.	Establish a straight line between Post #11 and Post #1. This line represents the back side of the Guardrail for both guardrail and end terminal systems.
6.	Between Post #11 and Post #1 establish Post #2 through #10 at the spacing shown in Figure 5.



**Figure 5**

## SYTP™ Placement

Post Locations identified in Step 6 (see Figure 5 on p. 16).

1.	Starting with post location closest to the existing guardrail (i.e., Post 10), <b>drive</b> (1) SYTP™ (PN 15000G). See Figure 6 for proper post placement height.
2.	Place all 6' 0" (1830 mm) SYTP™ (PN 15000G) <b>so the centers of the Ø 13/16" holes are approximately</b> at ground level (see Figure 6).
3.	Repeat step 1 for the remaining eight (8) SYTP™ as illustrated on page 16.

### Alternative SYTP™ Placement Option

1.	Drill 12" (300 mm) maximum diameter holes at 3' 4" (1016 mm).
2.	Place all 6' 0" (1830 mm) SYTP™ (PN 15000G) <b>so the centers of the Ø 13/16" holes are approximately</b> at ground level (see Figure 6).
3.	Backfill the hole with compactable materials in 6" (150 mm) lifts and compact with pneumatic equipment to optimum compaction.
	<b>Note:</b> If compactable, the material removed from the hole may be used for backfill.

**Note:** Post spacing between post(s) 10 – 3 is 3' 1 1/2" (see Figure 5 on p. 16).



**Danger:** DO NOT place SYTP™ at location 1. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Ensure that the proper leaveout (the specified area of open space in the pavement) around the posts is reserved and filled with state or specifying agency approved backfill material that will allow movement, for any posts assembled in rigid pavement such as any thickness of concrete or asphalt. Failure to follow this warning could result in serious injury or death in the event of a collision.

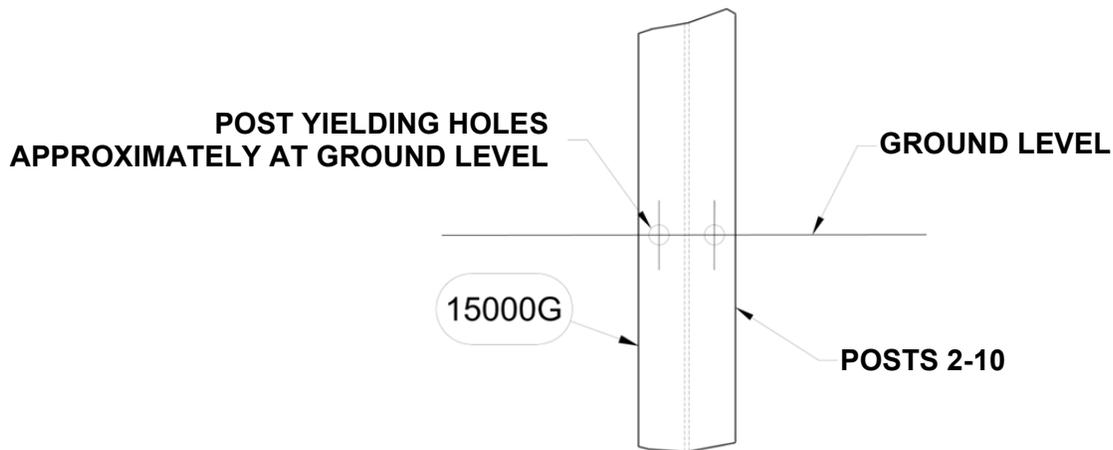


Figure 6



**Important:** See page 20 if rigid materials are encountered during post placement.

**Note:** In either option within the previous step, the center of the yielding holes in the post must be at ground level (see Figure 6).

## Placing Lower Anchor CRP™

Complete the following steps to place Lower Anchor CRP™ (PN 20463A) at location 1:

1.	Orient the embedded Lower Anchor CRP™ so the Ground Angle Strut (PN 33875G) attachment hole will be closer to the front of the system (see Figure 7 on p. 19).
2.	Select Option A or Option B for this section.
Option A	1. Drive the Lower Anchor CRP™ (PN 20463A) approximately 78" (1981 mm) to the correct height, where the strut hole is at ground level (see Figure 7 on p. 19).
Option B	1. Drill a 12" (300 mm) pilot hole approximately 72" (1830 mm) deep. 2. Place the Lower Anchor CRP™ to the correct height, where the strut hole is at ground level. 3. Backfill the hole with compactable materials in 6" (150 mm) lifts and compact with pneumatic equipment to optimum compaction. <b>Note:</b> If compactable, the material removed from the hole may be used for backfill.



**Warning:** Ensure that the proper leaveout (the specified area of open space in the pavement) around the posts is reserved and filled with state or specifying agency approved backfill material that will allow movement of any posts assembled in rigid pavement such as any thickness of concrete or asphalt.



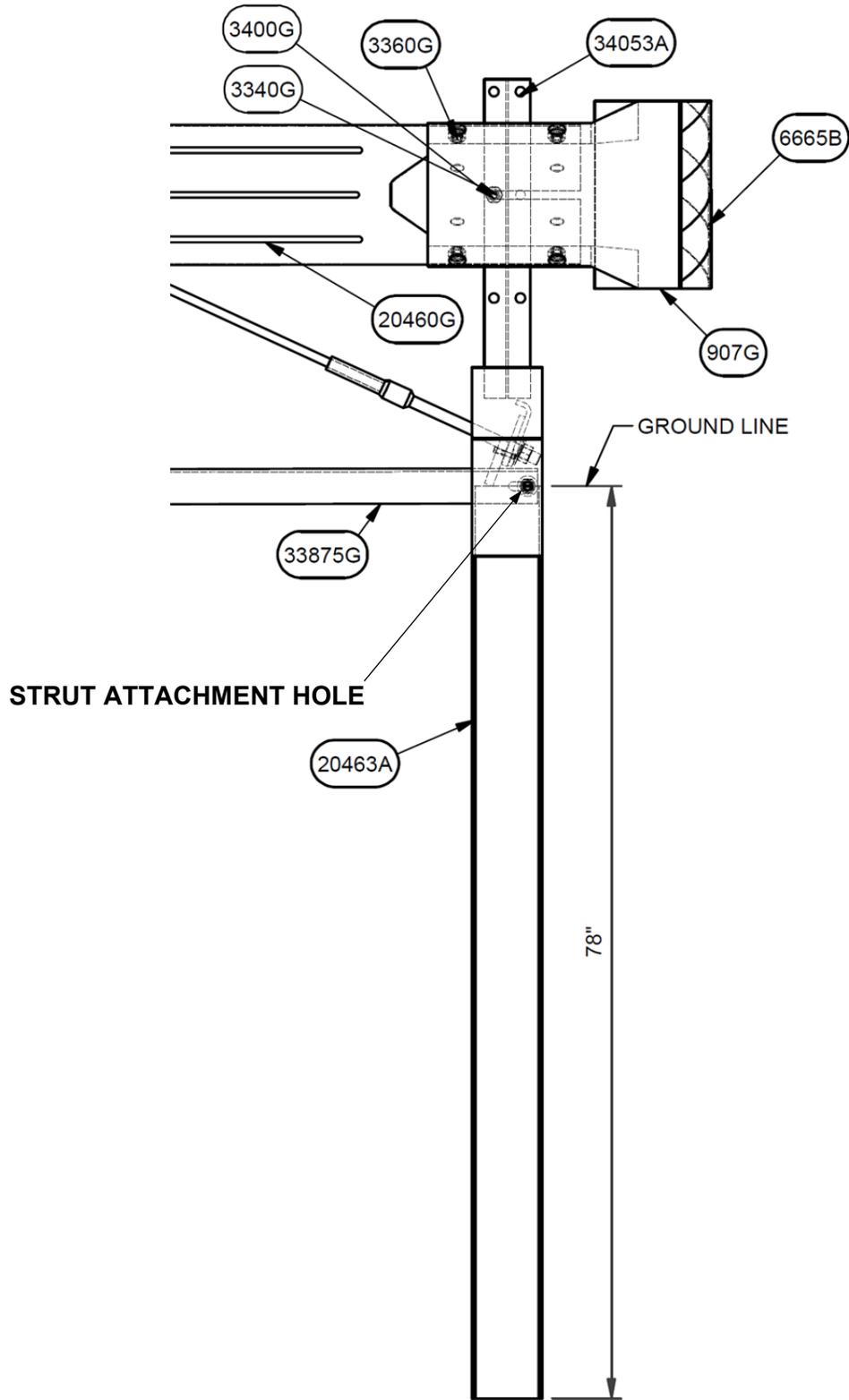
**Danger:** DO NOT place an SYTP™ at location 1. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Danger:** DO NOT place a Wood 6' 0" long Controlled Release Terminal (CRT) post at location No. 1. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Important:** See page 20 if rigid materials are encountered during post placement.



Detail at Post 1

Figure 7

## Post Placement in Rigid Material

Provide the proper leaveout around SYTP™ when placing in any thickness of concrete or asphalt. SYTP™ requires the leaveout shown in Figure 8.

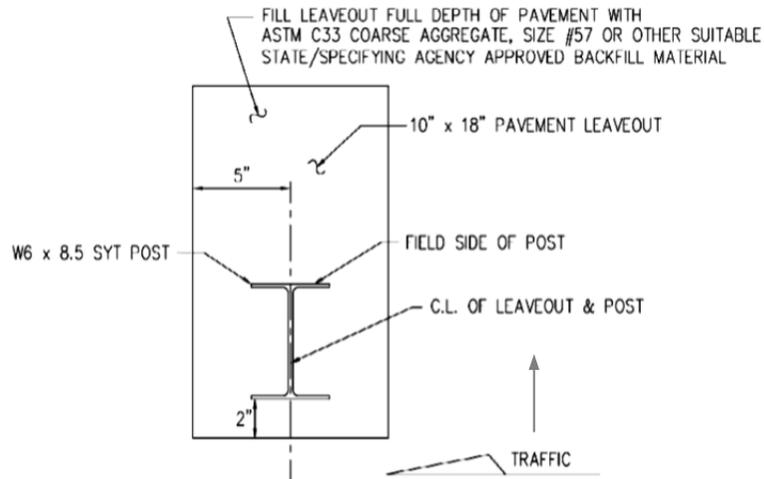


Figure 8



**Warning:** Ensure that the proper leaveout (the specified area of open space in the pavement) around the posts is reserved and filled with state or specifying agency approved backfill material that will allow movement of any posts assembled in rigid pavement such as any thickness of concrete or asphalt. Failure to follow this warning could result in serious injury or death in the event of a collision.

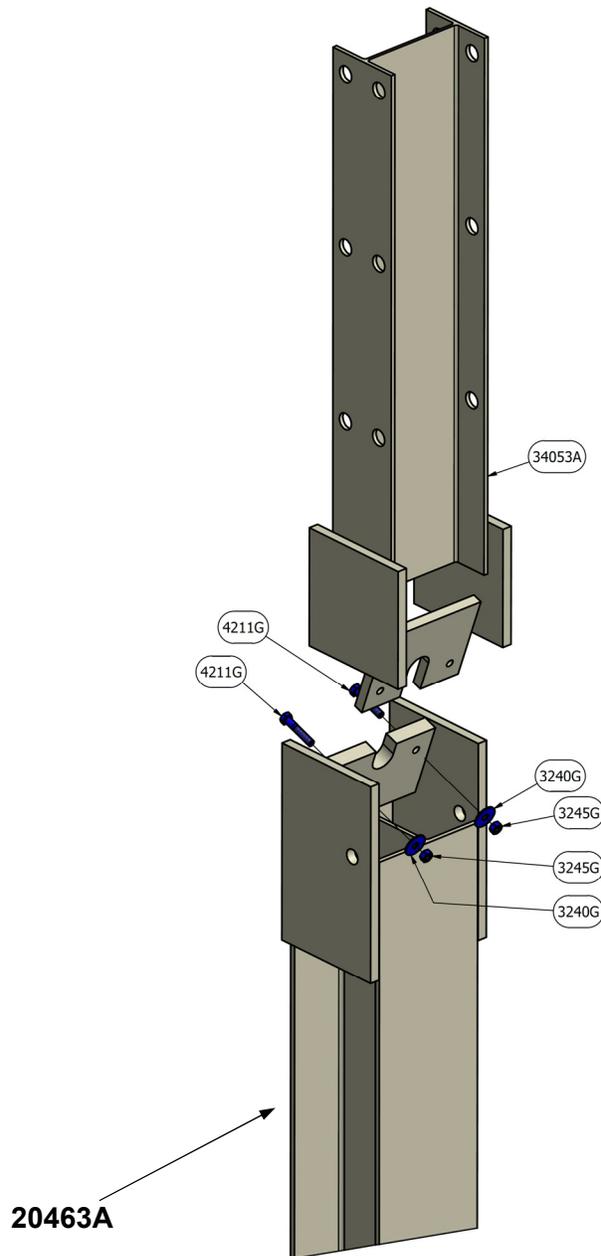
## Placing Lower Anchor CRP™ and SYTP™ When Encountering Rock

For placement of posts in rigid geologic rock formations the contractor must follow the details provided by **AASHTO Roadside Design Guide 2011** in chapter 5, section 5.6.7 **Guardrail Posts in Rigid Foundations**.

## Placing the Upper CRP™

Complete the following steps to place the Upper CRP™ (PN 34053A) after the Lower Anchor CRP™ (PN 20463A) has been positioned:

1.	Place the Upper CRP™ (PN 34053A) by aligning the ears of the upper and lower posts.
2.	Insert $\varnothing$ 5/16" x 1 3/4" Hex Head Bolt (PN 4211G) in each of the 3/8" (10 mm) holes in the bottom and to Post plates. For inserted bolts, place a 5/16" washer (PN 3240G) under the 5/16" Hex Nut (PN 3245G) and tighten the nut to a snug position (see Figure 9). There is no torque requirement.



**Figure 9**  
**Upper CRP™ and Lower Anchor CRP™**

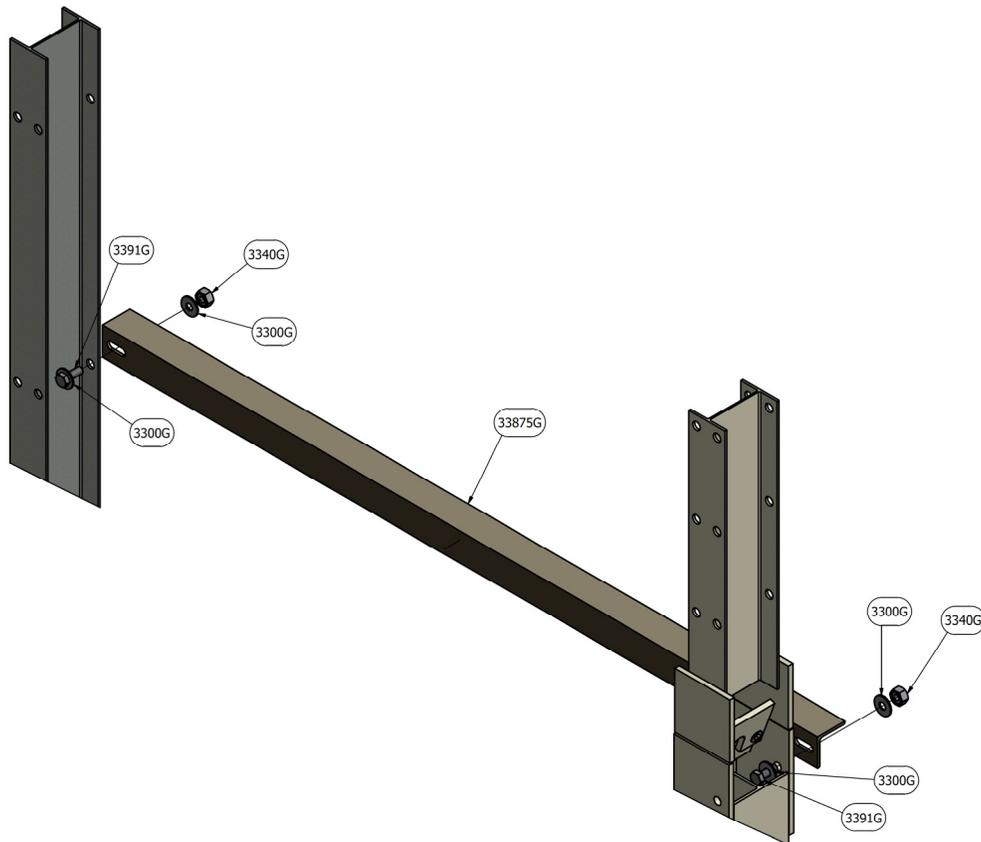
## Attaching the Ground Angle Strut

Complete the following steps when attaching the Ground Angle Strut:

**Note:** For all Strut assemblies, the assembler must provide a shallow valley or trough for attachment of the Strut, since a portion of the Ground Angle Strut will be below grade.

Complete the following steps to attach the Strut.

1.	Place the Ground Angle Strut (PN 33875G) outside the post plate (ear of Post 1 and the backside of the SYTP™ at Post 2 (see Figure 10). <b>Note:</b> The Strut can be placed with one of the legs flat on the ground or with the leg edge on the ground.
2.	Insert $\varnothing$ 5/8" x 1 3/4" High Strength Hex Head Bolt (PN 3391G) with a 5/8" washer (PN 3300G) through the 3/4" hole in the Post Plate at the Lower Anchor CRP™ and through the slot in the Strut at Post 1 (see Figure 10).
3.	Place a 5/8" washer (PN 3300G) on the end of the bolt. Place a 5/8" Hex Nut (PN 3340G) on the end of the bolt (see Figure 10).
4.	At Post 2, insert $\varnothing$ 5/8" x 1 3/4" High Strength Hex Head Bolt (PN 3391G) with a 5/8" washer (PN 3300G) on the bolt through the 13/16" ground hole of the SYTP™ and through the slot of the Ground Angle Strut. Place a 5/8" washer (PN 3300G) on the end of the bolt. Place a 5/8" Hex Nut (PN 3340G) on the end of the bolt.
5.	Tighten the nuts to a snug position. There is no torque requirement.

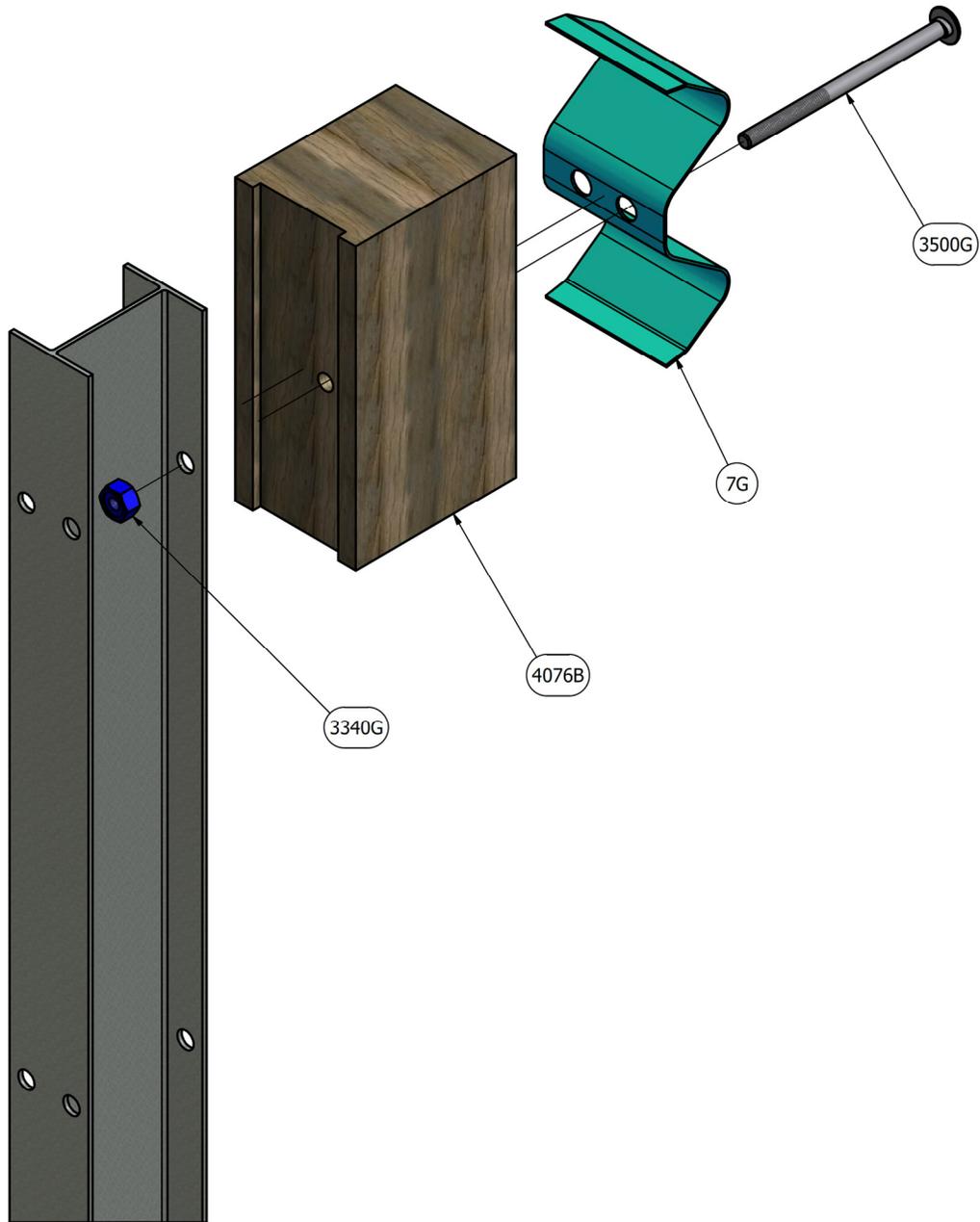


**Figure 10**

## Attaching Rail Panels To SRT-M10™

Complete the following steps to attach the Rail Panels for SRT-M10™ system:

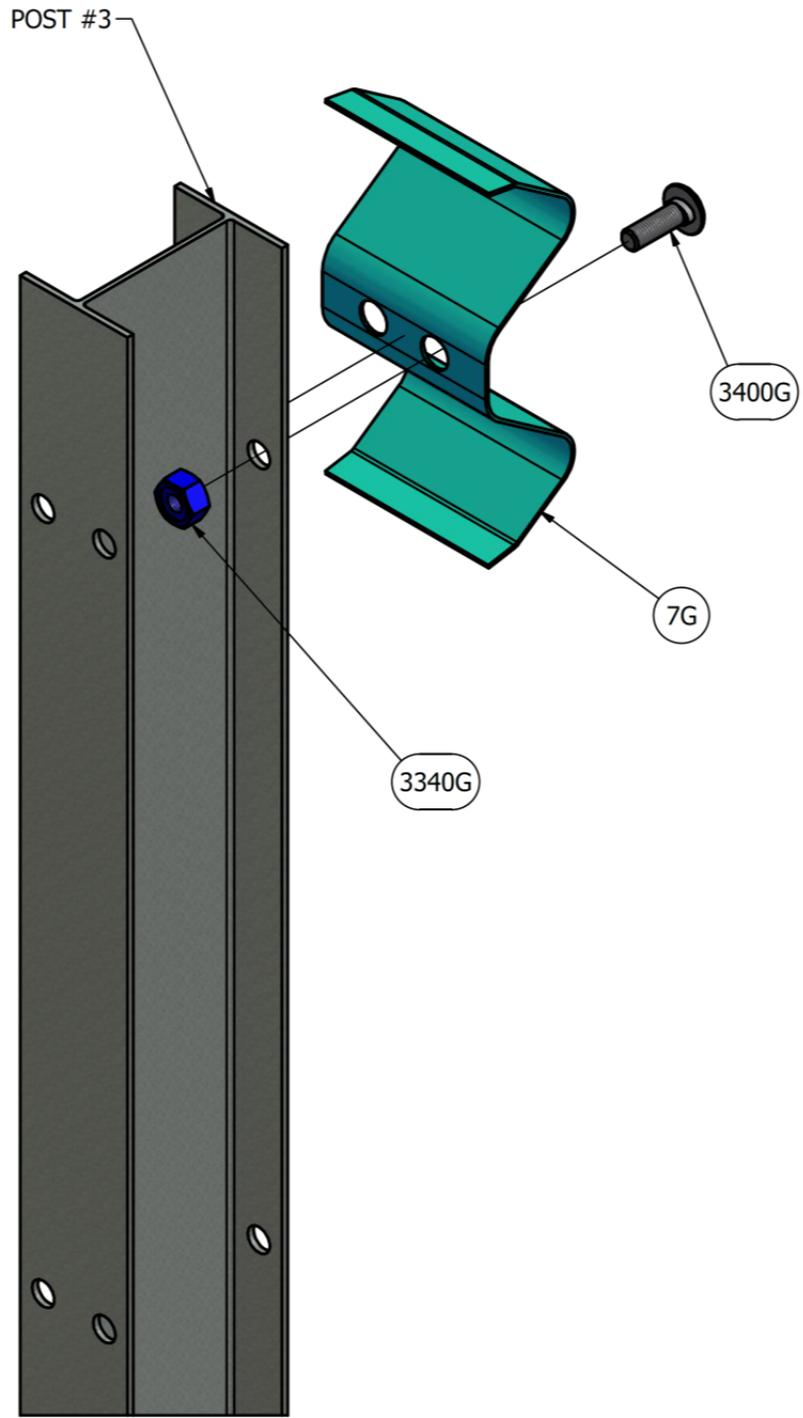
1.	Splice a 12' 6" (3.81 m) SRT-M10™ W-BEAM #3 (PN 20462G) between Post 11 and the first post of the existing guardrail. Secure guardrail to post 11 using hardware provided by the standard guardrail supplier. <b>Note:</b> Lap the terminal rail in the direction of traffic unless the state/agency's policy dictates otherwise.
2.	Insert a 5/8" x 10" HGR Post Bolt (PN 3500G) through the rail panel, Routed Wood (PN 4076B) or Composite Blockout (PN 6777B), and post flange at <b>posts 8, 9, and 10</b> . Place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolt to secure. Tighten the nuts to a snug position. There is no torque requirement.
3.	Insert a 5/8" x 10" Post Bolt (PN 3500G) through the Flange Protector (PN 7G), Routed Wood (PN 4076B) or Composite Blockout (PN 6777B), and post flange at <b>Posts 4 through 7</b> . Place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolt to secure. Tighten the nuts to a snug position. There is no torque requirement.
4.	At post 3 insert a 5/8" x 2" HGR Post Bolt (PN 3400G) through one of the holes into the flange protector (PN 7G) and place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolt to secure. Tighten the nut to snug position. There is no torque requirement.
5.	Insert a 5/8" x 2" HGR Post Bolt (PN 3400G) through the two holes in the Flange Protector (PN 7G), the Post Shelf Angle (PN 20464G), and post flange at <b>Post 2</b> . Place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolts to secure (see Figure 13 on p. 27). Tighten the nuts to a snug position. There is no torque requirement.
6.	Position Rail Panels SRT-M10™ W-BEAM #2 (PN 20461G) and SRT-M10™ W-BEAM #1 (PN 20460G) so the slot guard attachment holes are at the end of the slots away from Post 1 (see Figure 14 on p. 27).
7.	Splice the 12'6" (3.81 m) SRT-M10™ W-BEAM #3 (PN 20462G) to the second 12' 6" (3.81 m) SRT-M10™ W-BEAM #2 (PN 20461G) between Posts 7 and 8, with eight (8) 5/8" x 1 1/4" HGR Splice Bolts (PN 3360G). Place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolts to secure. Tighten the nuts to a snug position. There is no torque requirement.
8.	Splice the 12'6" (3.81 m) SRT-M10™ W-BEAM #2 (PN 20461G) to the first 12' 6" (3.81 m) SRT-M10™ W-BEAM #1 (PN 20460G) between Posts 3 and 4 with eight (8) 5/8" x 1 1/4" HGR Splice Bolts (PN 3360G). Place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolts to secure. Tighten the nuts to a snug position. There is no torque requirement.
9.	Insert a 5/8" x 2" HGR Post Bolt (PN 3400G) through the SRT-M10™ W-BEAM #1 and post flange at <b>Post 1</b> . Place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolt to secure (see Figure 15 on p. 28).
10.	Tighten the nuts to a snug position. There is no torque requirement.



**Figure 11**  
**Posts 4 through 7**



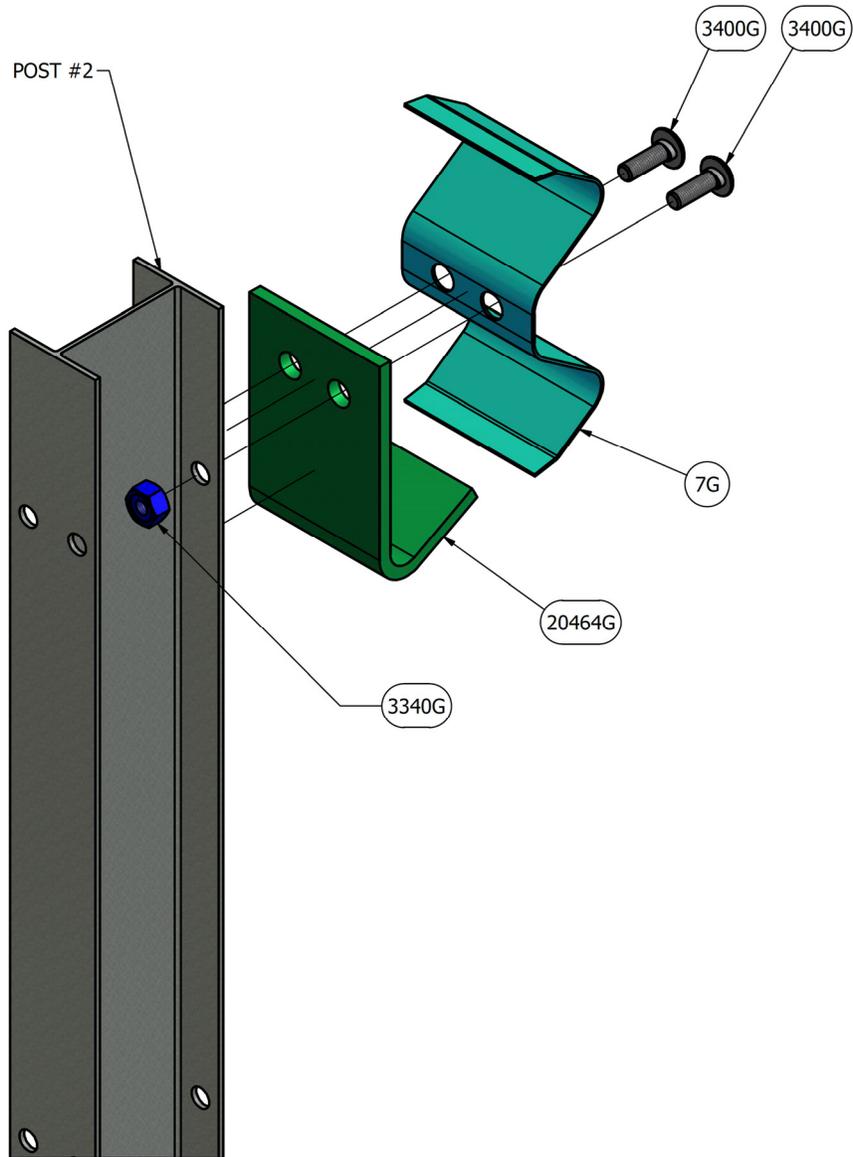
**Important:** DO NOT ATTACH RAIL TO POSTS 2 - 7.



**Figure 12**  
**Post 3**



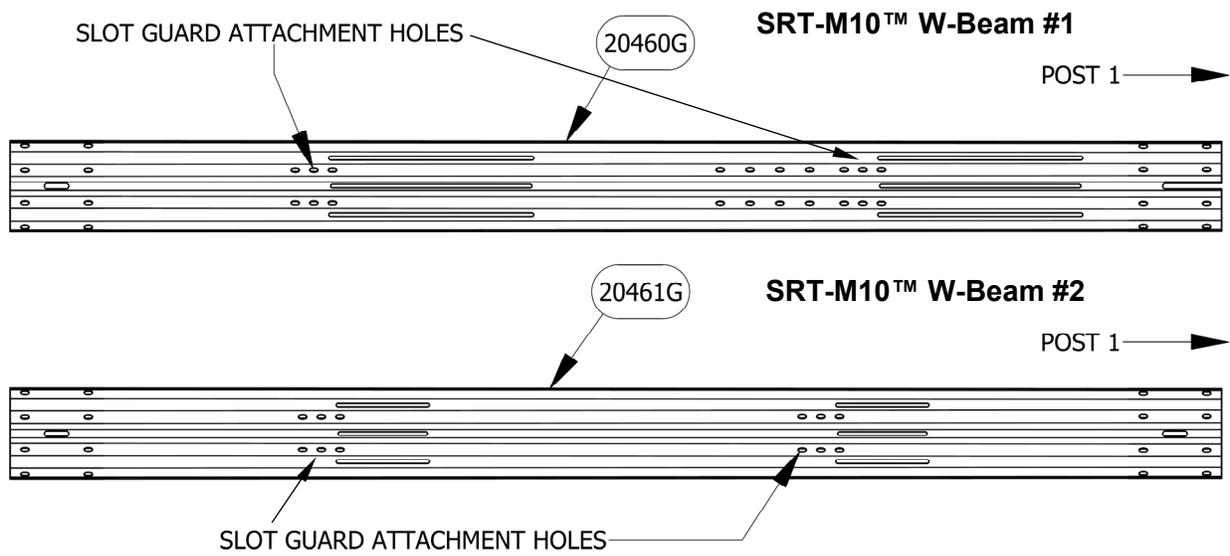
**Important:** DO NOT ATTACH RAIL TO POSTS 2 - 7.



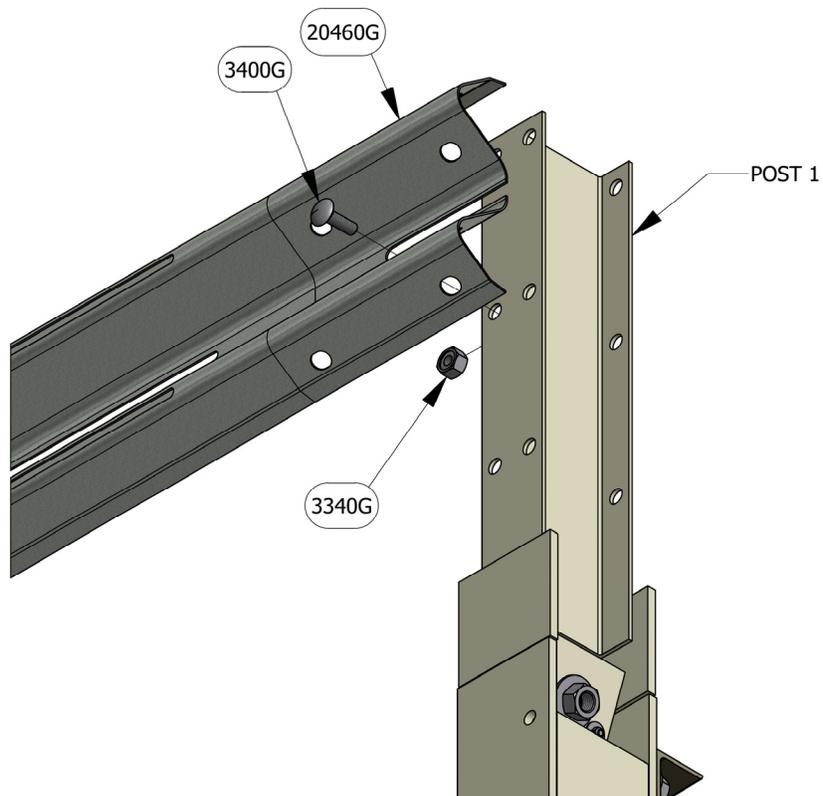
**Figure 13**  
**Post 2**



**Important:** DO NOT ATTACH RAIL TO POSTS 2 - 7.



**Figure 14**



**Figure 15**  
Post 1

## Attaching Slot Guards

Complete the following steps to attach Slot Guards:

1.	Place the Slot Guards (PN 9960G) against the backside of the Guardrail Panels with the narrow end toward the front to the system (see Figures 16a and 17). Align the six holes in the Slot guard with the six holes in the Guardrail Panel near the elongated slots.
2.	Bolt each Slot Guard ( <b>4 total</b> ) to the backside of the Guardrail Panels #1 and #2 with six (6) 5/8" x 1 1/4" Splice Bolts (PN 3360G) and Hex Nuts (PN 3340G) (see Figure 16).
3.	Tighten the nuts to a snug position. There is no torque requirement.

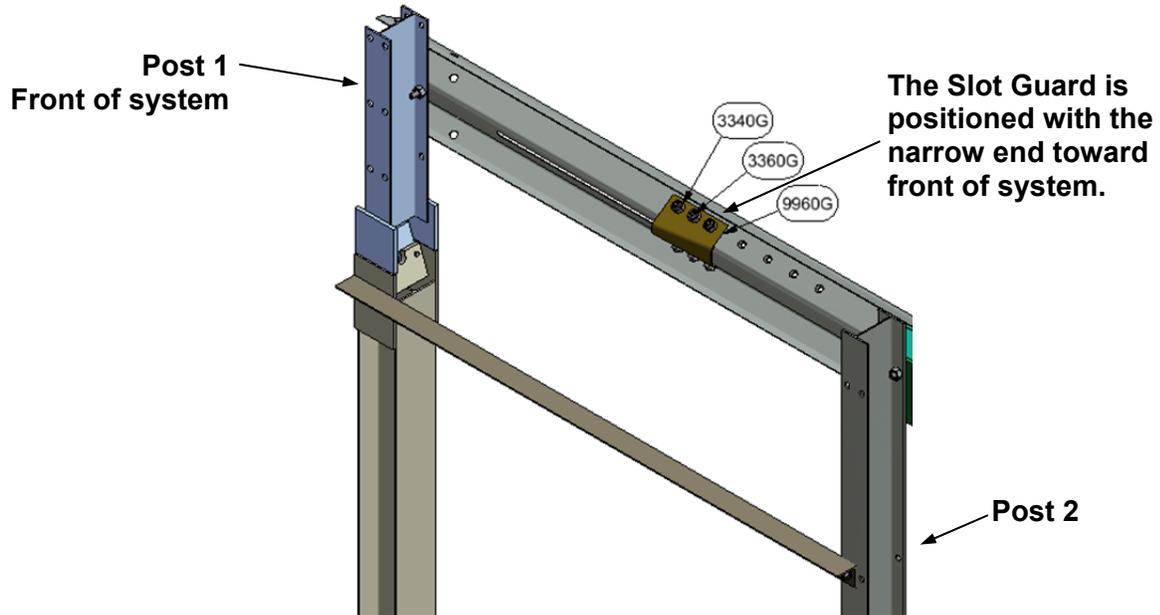


Figure 16a



Figure 16b

## Attaching Cable Anchor Assembly

Complete the following steps to attach the Cable Anchor assembly:

1.	Place a 5/8" round washer (PN 3300G) on each of the eight (8) 5/8" x 1 1/2" Hex Head Bolts (PN 3380G).
2.	Insert the bolts through the traffic side of the rail panel and the Cable Anchor Bracket (PN 700A) on the backside of the guardrail panel. Secure the Hex Head Bolts with a Hex HGR Nut (PN 3380G) on each bolt. Tighten nuts to a snug position. There is no torque requirement (see Figure 17).
3.	Slide the end of Cable Assembly (PN 105310G) through sleeve (PN 9215G) and then through the Cable Anchor Bracket (PN 700A). Attach the Cable Assembly by placing a 1" washer (PN 3900G) and a 1" Hex Nut (PN 3910G) on the end of cable assembly (see Figure 18 on p. 30).
4.	Place the Cable Anchor Bracket (PN 33909G) on the cable end placed between the Upper and Lower Anchor CRP™. Refer to Figure 19 on page 30 for correct positioning and orientation.
5.	Place a 1" washer (PN 3900G) and 1" Hex Nut (PN 3910G) on the end of the cable (see Figure 19 on p. 30).
6.	Restrain the cable with locking pliers at the end being tightened to avoid twisting the cable.
7.	Tighten the Hex Nuts on the cable ends until the cable is taut. The cable is considered taut when it does not deflect more than one 1" when pressure is applied by hand in an up or down direction.

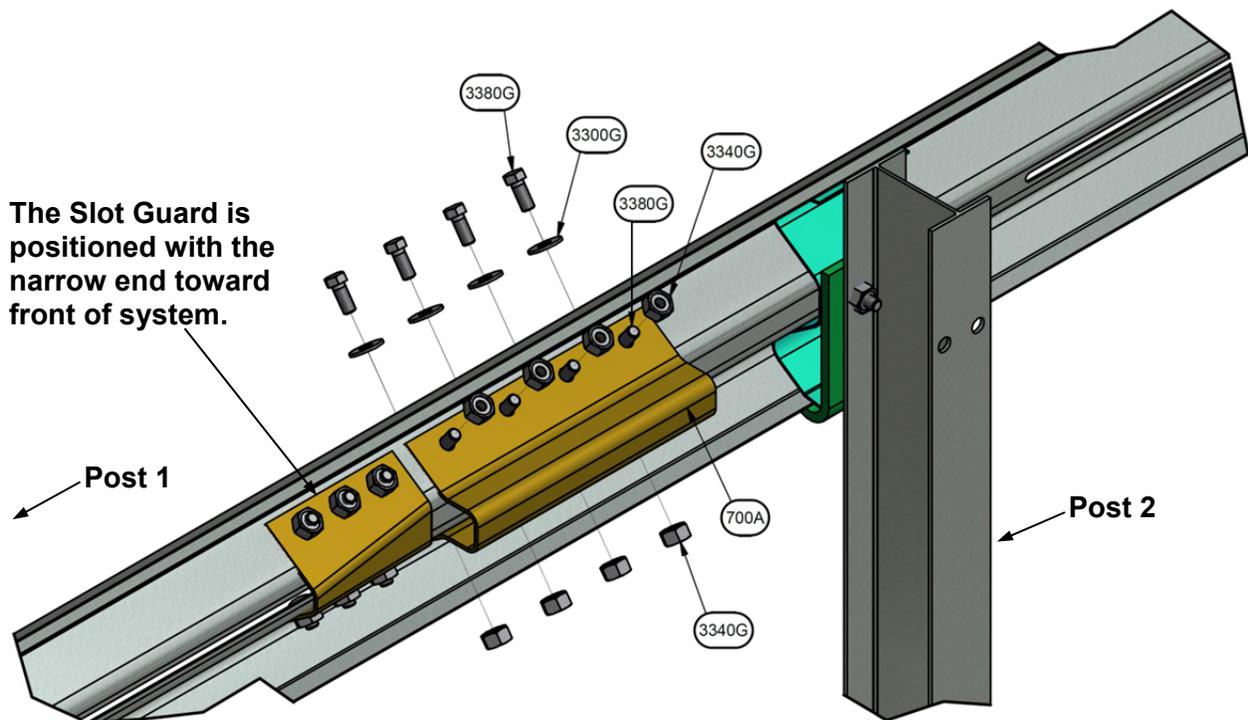


Figure 17

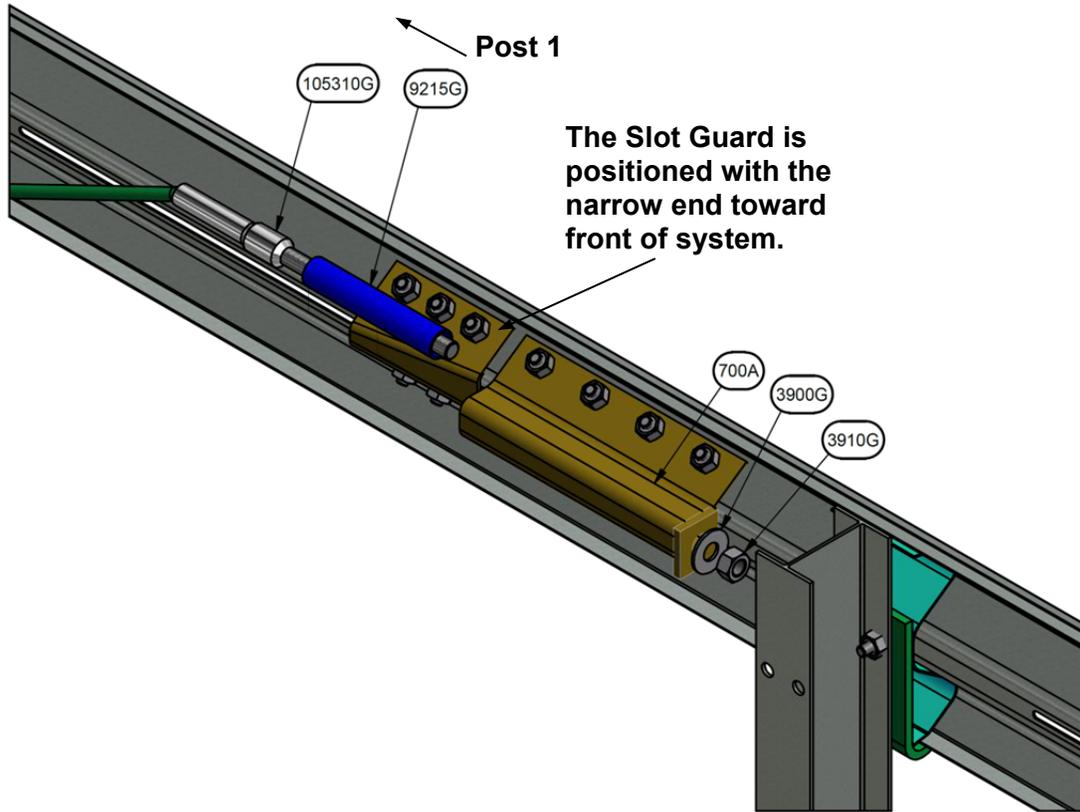


Figure 18

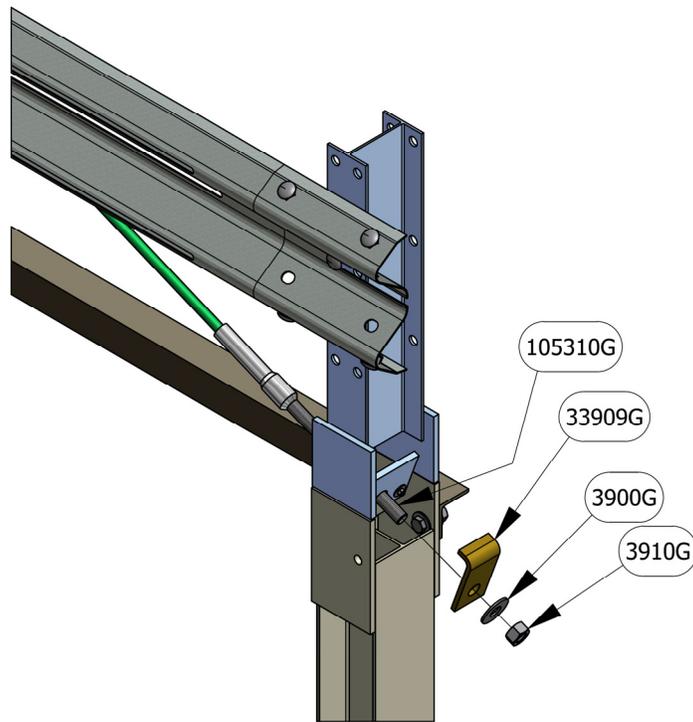


Figure 19

## Attaching End Section

Complete the following steps to attach the End Section:

1.	Connect the End Section (PN 907G) to the end of the guardrail panel with four (4) 5/8" x 1 1/4" HGR Splice Bolts (PN 3360G). Place a 5/8" Hex HGR Nut (PN 3340G) on inserted bolts to secure. Tighten each nut to a snug position. There is no torque requirement.
2.	Attach high intensity Reflective Sheeting (PN 6665B) on the front face of the End Section, per the local authority's MUTCD proper delineation.

**Note:** The Reflective Sheeting (PN 6665B) is an option and needs to be ordered separately.



**Warning:** Ensure all highway products and delineation used meet all federal, state, and local specifications. Failure to follow this warning could result in serious injury or death in the event of a collision.

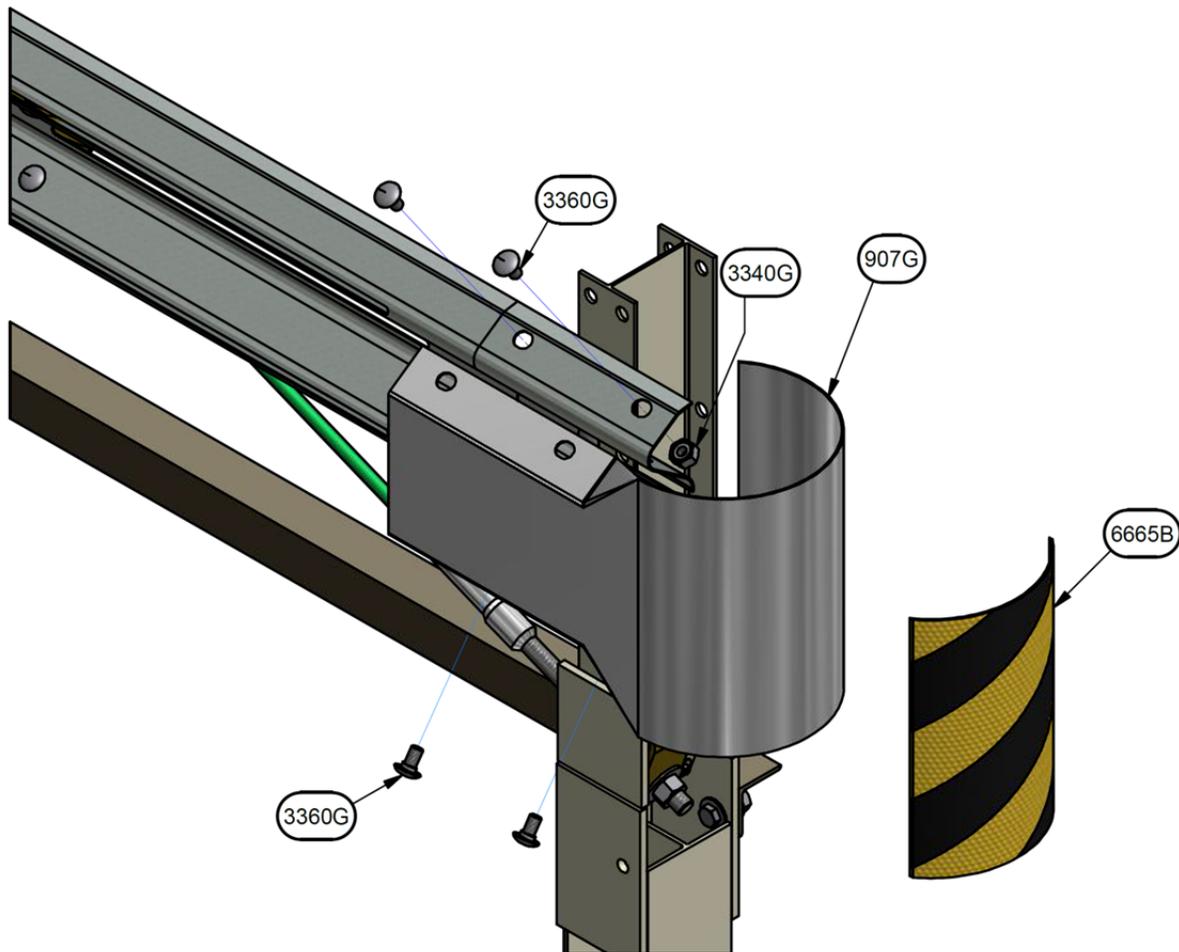


Figure 20

# SRT-M10™ Assembly Checklist

State: \_\_\_\_\_ Project: \_\_\_\_\_

Date: \_\_\_\_\_ Location: \_\_\_\_\_

- The leaveout (the specified area of open space in the pavement) around the Posts is reserved and filled with state or specifying agency approved backfill material that will allow movement of any posts placed in rigid pavement such as any thickness of concrete or asphalt.
- Site grading requirement was completed before the start of the assembly of the SRT-M10™ Guardrail End Treatment.
- The finished guardrail height is 31" (787 mm) above ground level, or as the state or specifying agency plans indicate.
- The ears of the Bottom CRP™ do not protrude more than 4" (100 mm) above ground level.
- The Anchor Cable is taut and correctly attached (the Cable should be rechecked after placement to be sure it hasn't relaxed). The taut Cable will not deflect more than 1" when pressure is applied by hand in an up or down direction.
- The Rail Panel is not attached to the post at locations 2 - 7.
- No rectangular washers are used on the face of the rail.
- Slot Guards (**4 total**) are in place against the backside of the guardrail panels **with the deflector angle gap opening toward (closest to) the elongated slots**. For Slot Guard orientation, see page 29.
- Rail Panels are oriented correctly and lapped in the direction of traffic unless the agency's policy dictates otherwise.
- If backfilled, the backfill material around the posts is properly compacted.
- The SYTP™ (Posts 2 – 10) has four yielding holes. They are located parallel to the roadway with the center of the holes approximately at ground level.
- The recesses or leaveout(s) are to be filled with state/specifying agency approved backfill material that **will allow** movement. This applies to any posts placed in rigid material, concrete, or asphalt.
- Each Rail Panel used in the SRT-M10™ pay length is straight, with no visible distortions or blemishes such as curves, dents, cuts, tears, extra holes, cut-outs, corrosion, or signs of past repairs.
- Ensure that this assembly conforms with the guidance provided by the *AASHTO Roadside Design Guide*, including, but not limited to, those regarding placement on curbs.
- Attachment of SRT-M10™ W-BEAM #1 (PN 20460G), #2 (PN 20461G), and #3 (PN 20462G) are in correct locations.

## Maintenance and Repair

Always keep the Manual in a location where it is easily accessed by persons who assemble, maintain, or repair the SRT-M10™ Guardrail End Treatment. If you have any questions concerning the information in this Manual or about the SRT-M10™ Guardrail End Treatment, contact Trinity Highway at 888-323-6374. This Manual may also be accessed at the website listed below.

### Maintenance

Complete the following steps, periodically, to check the safety of the system:

1.	Ensure all hardware is present.
2.	Ensure the nuts have not been removed from the Cable. Replace nuts, if needed.
3.	Ensure the Cable is taut. The Cable is considered taut when it does not deflect more than 1" when pressure is applied by hand in an up or down direction. Tighten Cable if needed.
4.	Ensure Routed Wood Blocks (PN 4076B) or composite blocks are in place and in good condition as defined by the state/specifying agency.



**Warning:** Ensure that the necessary traffic control is set up and any debris that has encroached onto the traveled way or shoulder has been removed before assembly or repairs. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Ensure all highway products and delineation used meet all federal, state, and local specifications. Failure to follow this warning could result in serious injury or death in the event of a collision.

### Repair

Complete the following steps to repair the SRT-M10™ Guardrail End Treatment:

1.	Set up necessary traffic control at the accident site and then remove any debris that has encroached onto the traveled way or shoulder.
2.	Take inventory of the damaged system to determine what parts are reusable, as defined by the state or specifying agency, and what parts need replacement (see p. 12 for parts list).
3.	Obtain the all replacement parts from Trinity Highway. <b>NEVER USE OTHER PARTS.</b> (See <i>Recommended Tools</i> section on p. 13 for a list of tools for the repair of the SRT-M10™ Guardrail End Treatment.)
4.	Disconnect and remove the damaged rail from the posts.
5.	Remove damaged CRP™.
6.	Remove any damaged SYTP™.
7.	Reconstruct the system following the Assembly instructions, after the site has been cleared of damaged debris.
9.	Attach proper delineation necessary for the repaired SRT-M10™ in accordance with the state/specifying agency's MUTCD.



# TRINITY

## HIGHWAY

*Ahead of the Curve™*

For more complete information on Trinity Highway products and services, visit us on the web at [www.trinityhighway.com](http://www.trinityhighway.com). Materials and specifications are subject to change without notice. Please contact Trinity Highway to confirm that you are referring to the most current instructions.

[www.trinityhighway.com](http://www.trinityhighway.com)

888.323.6374 (USA)

+1 214.589.8140 (International)