

Project Addendum 1

(1 page, 6 attachments)

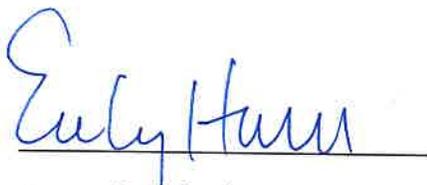
Project: FY23 Guardrail Installation

Date: January 25, 2023

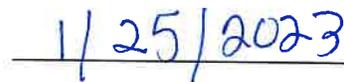
The listed corrections should be incorporated into the plans/specifications. All bidders are required to indicate on the outside of their proposal envelope the receipt of this information by giving the date and addenda number. The revised Bid Schedule included in Addendum 1 shall replace Bid Schedule in Bid Packet.

Description:

1. Bid Schedule, Item #1 Change Steel Backed Timber Guardrail, Type A Quantity from 190 LF to 165 LF
2. Bid Schedule, Add Item #2 W- Beam Guardrail, Type A Quantity 37.5 LF
3. Bid Schedule, Item #3 Change Terminal Anchor Type SBT, FAT - 30 Approach End Quantity from 2 EA to 1 EA
4. Bid Schedule, Item #4 Change Terminal Anchor Type SBT, FAT - 30 Departure End Quantity from 2 EA to 1 EA
5. Bid Schedule, Add Item #5 Type 21 Guardrail End Terminals Quantity 2 EA
6. Section 01010 Summary of Work, Section B, Part 2, Replace "steel backed timber guardrail" with "W-Beam guardrail".
7. Section 01010 Summary of Work, Section B, Part 2, Replace "FAT - 30 Terminal Anchor Type SBT on the approach end" with "Type 21 Guardrail End Terminals".
8. Section 01650 Measurement and Payment Procedures, Part 2 Execution, 2.01 Item B, Add "W-Beam Guardrail, Type A"
9. Section 01650 Measurement and Payment Procedures, Part 2 Execution, 2.01 Item E, Add "Type 21 Guardrail End Terminals"
10. Standard Detail Add SGR311, SGR311C, and SGRT3



City of Lakeland
Emily Harrell, P.E.
City Engineer



Date

**BID SCHEDULE
FY2023 GUARDRAIL INSTALLATION**

BID DATE: _____

COMPANY NAME: _____

ADDRESS: _____

Contractor shall furnish and install items as shown on the Drawings or called for in the Specifications. All costs not included in the schedule that are necessary to provide a complete, functional project as depicted in the Drawings and Specifications are to be considered incidental and merged with costs of other related bid items.

LS = Lump Sum R&R = Remove and Replace LF = Linear Feet F&I = Furnish and Install
SY = Square Yard CY = Cubic Yard EA = Each Ton = Ton LB = Pounds

Schedule A

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Steel Backed Timber Guardrail, Type A	LF	490 165		
2	W-Beam Guardrail, Type A	LF	37.5		
3	Terminal Anchor Type SBT, FAT - 30 Approach End	EA	2 1		
4	Terminal Anchor Type SBT, FAT - 30 Departure End	EA	2 1		
5	Type 21 Guardrail End Terminals	EA	2		
7	F&I Temporary Traffic Control	LS	1		
8	Mobilization	LS	1		
				Total Bid Schedule A	

Total Base Bid : _____

_____ Dollars (\$ _____).

SECTION 01010

SUMMARY OF WORK

A. Project Identification:

Fiscal Year 2023 Seedtick and Stewart Road Guardrails

B. Project Summary:

This project consists of constructing a 225 linear foot guardrail on Seed Tick Road and an 85 linear foot guardrail on Stewart Road. Work includes the installation of steel-backed timber guardrails and 2 FAT – 30 end terminals for each guardrail.

A general description of the work includes the following; however, this is not an exhaustive list.

1. Guardrail at Seedtick Road

- A. Furnish and install type A steel backed timber guardrail.
- B. Furnish and install FAT – 30 Terminal Anchor Type SBT on the approach end.
- C. Furnish and install FAT - 30 Terminal Anchor Type SBT on the departure end.

2. Guardrail at Stewart Road

- A. Furnish and install type A **W-Beam guardrail**.
- B. Furnish and install **Type 21 Guardrail End Terminals**

Temporary traffic control measures shall be used during all phases of construction. All attempts shall be made to keep at least one lane of roadway open. In the event of a road closure, the Owner shall be notified within 48 hours of the impending work. A traffic control plan for each location shall be submitted to the City Engineer for approval prior to construction.

The contractor is responsible for all utility locates in the area of work and for those that may be affected by the construction. Coordination with utility company may be required.

All construction material shall be removed and properly disposed of in accordance with State and local regulations within the time limits of the project. Removal and hauling away of all construction debris including unsuitable soils shall be the responsibility of the Contractor.

C. Particular project requirements.

1. Apply for, obtain, and pay for permits when required to perform the work.
2. Field-verify dimensions indicated on drawings (when applicable) before fabricating or ordering materials. Do not scale drawings.
3. Notify Owner of existing conditions differing from those indicated on the drawings. Verify the existence and location of underground utilities along the route of proposed work. Omission from, or inclusion of, locations on the drawings, is not to be considered as the nonexistence of, or the definite location of, existing underground utilities. Do not remove or alter existing utilities without prior written approval.
6. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the project shall be included.
7. The Provisions are written in the imperative mode. Except where specifically intended otherwise, the subject of all imperative statements is the Contractor. For example, "furnish..." means "Contractor shall furnish..."

END OF SECTION

SECTION 01650

MEASUREMENT AND PAYMENT PROCEDURES

PART 1 – Description.

All work completed under this Contract will be measured by the Engineering according to the bid items and to the construction drawings. Units of measurement and dimensions will be shown in these specifications.

1.01 Payment

A. Progress payments will be processed in accordance with the following schedule.

<u>Cut-Off Date</u>	<u>Date of Submittal</u>
March 17, 2023	March 24, 2023
April 21, 2023	April 28, 2023
May 19, 2023	May 26, 2023

Submit pay requests to the City by the dates of submittal listed above.

- B. Owner will make progress payments as defined in Article 5 of the Agreement, on the forms provided by the Engineer.
- C. If the Contractor elects to enter into a joint account agreement, two (2) pay requests and vouchers must be submitted. One pay request and voucher for the appropriate progress payment amount, the other for the retained amount.

1.02 Measurement of Quantities

Quantities shown on the bid schedule are estimated and are to be considered approximate. Actual constructed quantities will vary. The Contractor will be compensated only for those items and materials actually installed and approved as part of the project. No additional pay will be granted for items or materials not installed.

- A. Payment will be made for the work completed and stored materials less retained amounts in accordance with provisions of the contract documents.
- B. Payment amounts will be based on the scheduled values and mutually agreed upon percentage of completion for each item.

1.03 Bid Item Descriptions

The cost of all material and labor required to complete this project as specified and shown on the drawings, but not specifically included as a pay item, shall be included in the bid price of its related bid item. No extra pay shall be granted for items that are reasonably foreseen as necessary for the proper installation of an item.

PART 3 Execution

3.01 Measurement and Payment of Bid Items

A. Steel Backed Timber Guardrail, Type A

1. Measurement of this item shall be paid by linear feet (LF) of Steel Backed Timber Guardrail, Type A in place and approved. Measurements shall be made on the surface of the new guardrail from approach end to departure end. This item shall include excavation, forming, and all other materials needed to perform work. Payment shall be made by the contract unit price per Linear Feet (LF) in place and approved.

B. W-Beam Guardrail, Type A

1. Measurement of this item shall be paid by linear feet (LF) of W-Beam Guardrail, Type A in place and approved. Measurements shall be made on the surface of the new guardrail from approach end to departure end. This item shall include all posts, blocks, rail elements, terminal sections, fittings, hardware, labor and equipment, and all incidentals necessary perform work. Payment shall be made by the contract unit price per Linear Feet (LF) in place and approved.

C. Terminal Anchor Type SBT, FAT – 30 Approach End

1. Measurement of this item shall be paid by each (EA) Terminal Anchor Type SBT, FAT – 30 Approach End in place and approved. This item shall include excavation, forming, and all other materials needed to perform work. Payment shall be made by the contract unit price each (EA) in place and approved.

D. Terminal Anchor Type SBT, FAT – 30 Departure End

1. Measurement of this item shall be paid by each (EA) Terminal Anchor Type SBT, FAT – 30 Departure End in place and approved. This item shall include excavation, forming, and all other materials needed to perform work. Payment shall be made by the contract unit price each (EA) in place and approved.

E. Type 21 Guardrail End Terminals

1. Measurement of this item shall be paid by each (EA) Type 21 Guardrail End Terminals in place and approved. This item shall include all posts, blocks, rail elements, terminal sections, fittings, hardware, labor and equipment, and all incidentals necessary to perform work. Payment shall be made by the contract unit price each (EA) in place and approved.

F. Furnish and Install Temporary Traffic Control

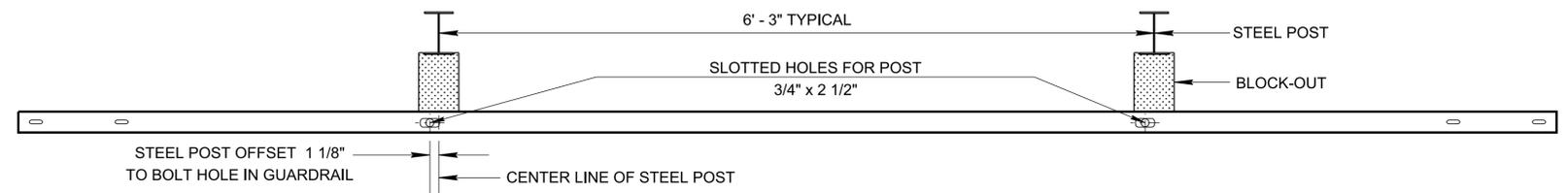
1. Measurement of this item shall be paid by lump sum (LS) for temporary traffic control furnished and installed. Payment shall be consistent with the percentage of work completed at the time of the request for payment. The lump sum payment shall cover all of the Contractor's activities in meeting traffic control requirements for the project. Flagging, replacement of traffic control devices damaged or destroyed from any cause whatsoever, furnishing and installing cones, wands, portable flashers, any barricades and channelizing devices will be incidental to Traffic Control and no separate payment will be made for any item or activity necessary to comply with this specification. Payment shall be made by the contract unit price per Lump Sum (LS) of work completed.

G. Mobilization

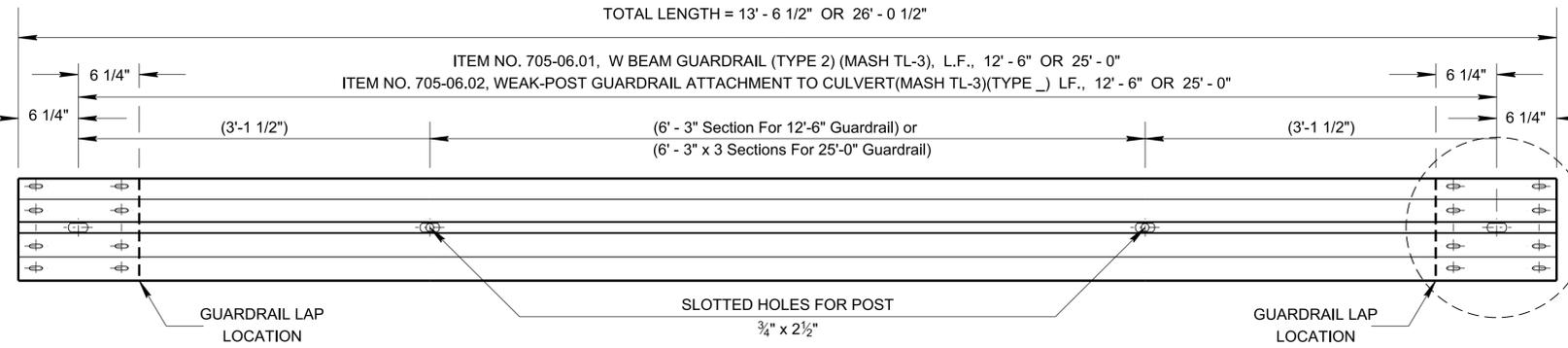
1. Measurement of this item shall be paid by lump sum (LS) for mobilization. This item shall include all costs for mobilization, including mobilization of equipment to the project site and property owner notifications in accordance with these specifications. Payment shall be by the contract unit price per Lump Sum (LS).

END OF SECTION

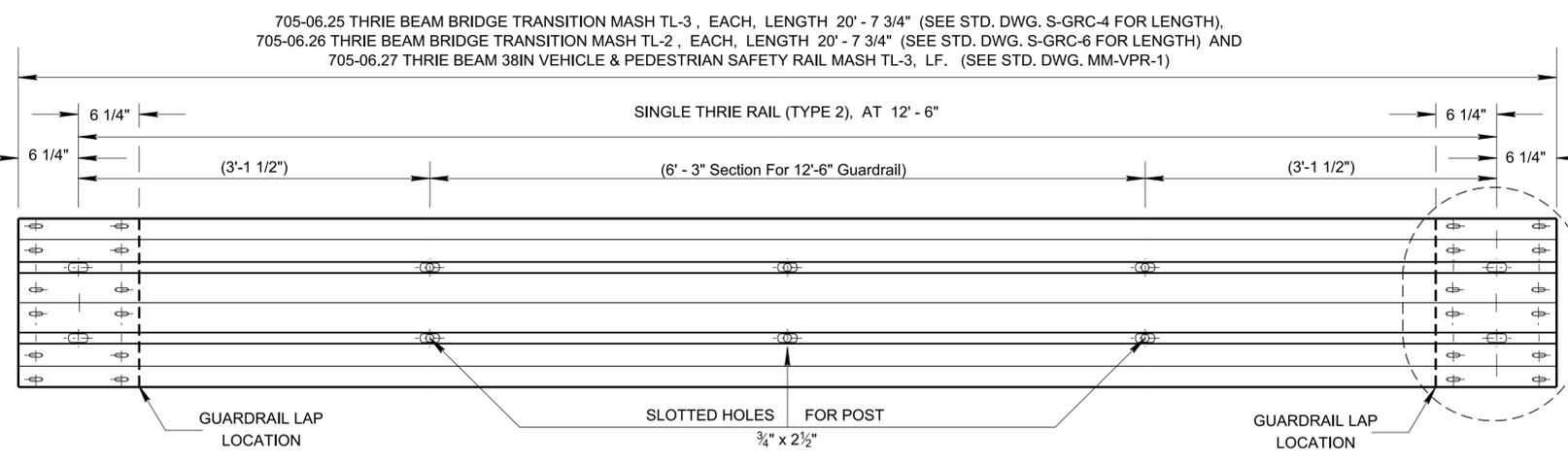
7/16/2021 1:43:01 PM P:\StandDraw\DESIGN STANDARDS\Standards Drawings Library\Standard Roadway Drawings - CURRENT\In Progress\10-106.00 Safety Design and Guardrails IPY106.04 Guardrail Details IPISGR311-20210615.dwg



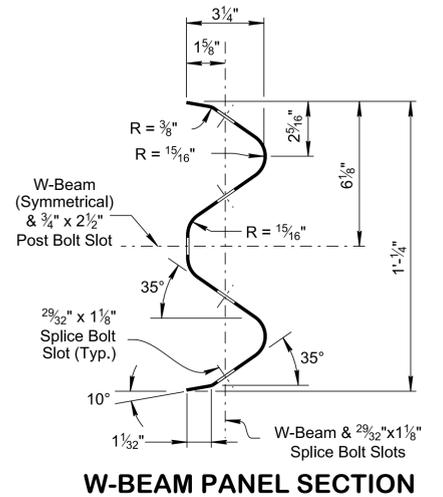
PLAN VIEW



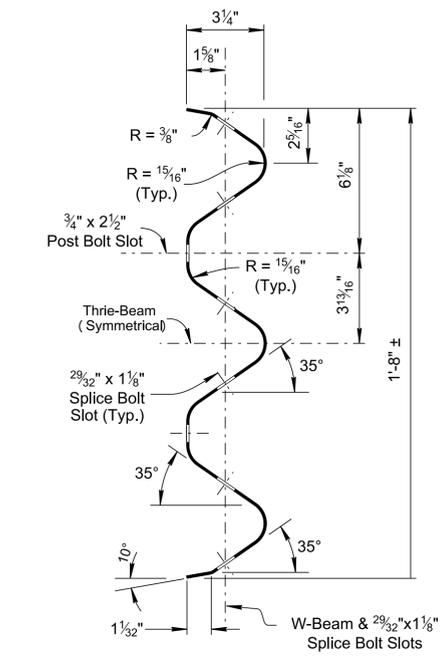
W-BEAM 12 GAUGE FRONT ELEVATION



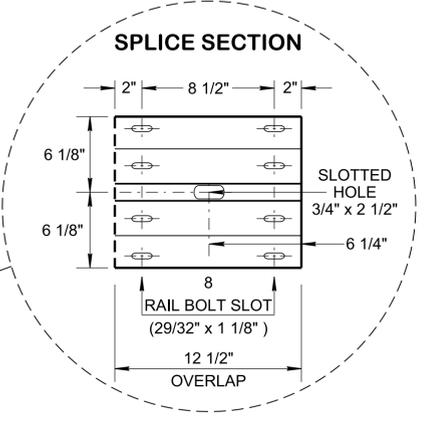
THRIE-BEAM RAIL 12 GAUGE FRONT ELEVATION



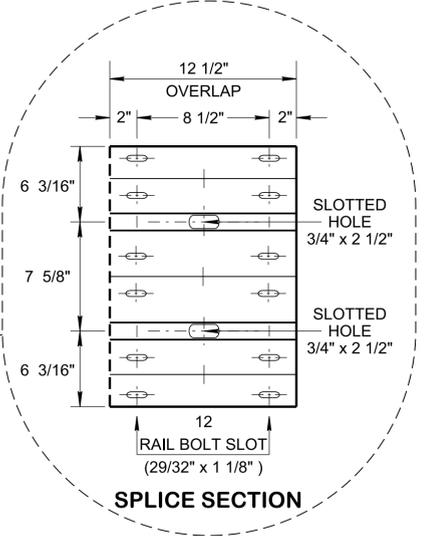
W-BEAM PANEL SECTION



THRIE-BEAM PANEL SECTION



SPlice SECTION



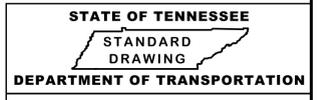
SPlice SECTION

- REV. 12-01-14: REVISED NOTE (L)
- REV.04-04-16: REVISED NOTES.
- REV. 10-20-16: ADDED NOTE TO ADDRESS ADDITIONAL HOLES.
- REV. 03-28-17: REMOVED NOTE (T) CHANGED PAY ITEM NUMBER. IMPROVED POST SIDE VIEWS AND FRONT ELEVATION VIEWS.
- REV. 06-28-19: MOVED GENERAL NOTES FOR POST, BLOCK-OUTS, FUTURE ADJUSTMENTS, END TREATMENTS, DESIGN AND PAYMENT ALONG WITH GUARDRAIL POST TO STD. DWG. NO. S-GR31-1C. ADDED NEW GUARDRAIL DETAILS. RENAMED AND REDREW SHEET.
- REV. 06-15-21: REVISED NOTE (A) ADDED ITEM NUMBERS ON THRIE BEAM RAIL AND ON W BEAM. REMOVED PANEL SUMMARY TABLE.

GENERAL NOTES

- (A) METAL BEAMS SHALL CONFORM TO AASHTO M180 CLASS "A": TYPE II, OR TYPE VI.
- (B) WHERE GUARDRAIL IS PLACED ON A CURVE WITH A RADIUS LESS THAN 150 FEET, THE RAIL IS TO BE SHOP-FORMED TO THE REQUIRED RADIUS.
- (C) AT THE OPTION OF THE CONTRACTOR THE RAIL ELEMENTS FOR THE GUARDRAIL MAY BE FURNISHED IN EITHER 12'-6" OR 25' NOMINAL LENGTHS WITH POST BOLT SLOTS FOR CONNECTION TO POSTS.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

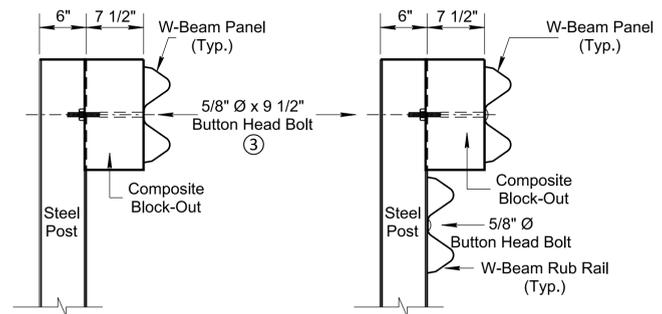


GUARDRAIL DETAILS

NOT TO SCALE

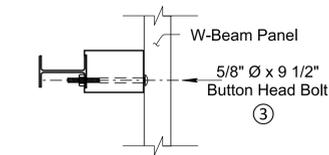
7/22/2021 11:27:29 AM P:\StandDraw\DESIGN STANDARDS\Standards Drawings Library\Standard Roadway Drawings - CURRENT\In Progress\10-106.00 Safety Design and Guardrails IPY106.04 Guardrail Details IPYISGR311C-20210615

STEEL POST GUARDRAIL DETAILS

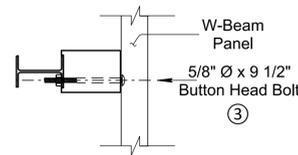


Side View

Side View



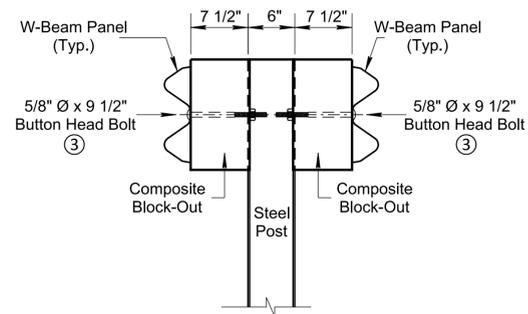
PLAN VIEW



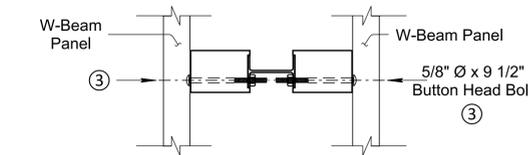
PLAN VIEW

SINGLE FACE W-BEAM WITH STEEL POST (Timber Post Similar)

SINGLE FACE W-BEAM WITH RUB RAIL AND STEEL POST (Timber Post Similar)

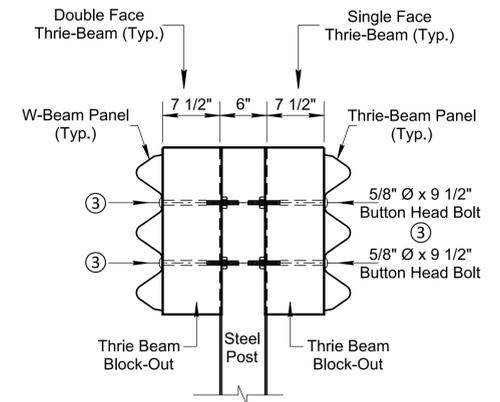


Side View

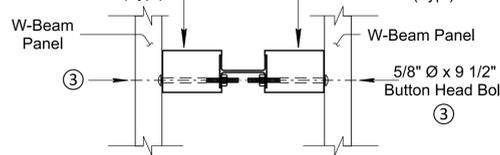


PLAN VIEW

DOUBLE FACE W-BEAM WITH STEEL POST (Timber Post Similar)

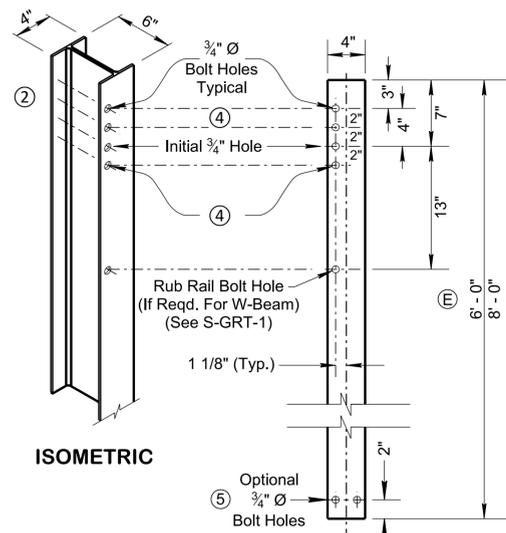


Side View



PLAN VIEW

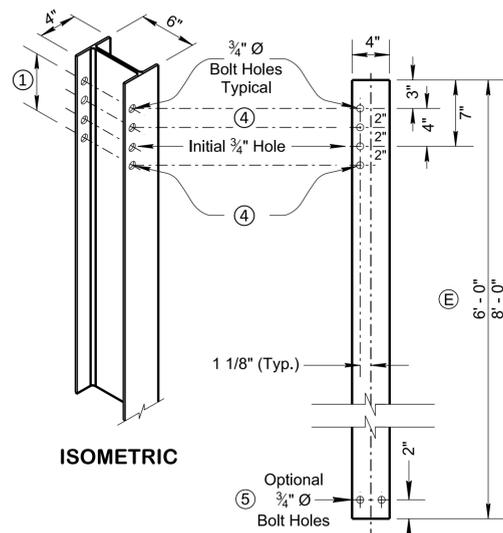
SINGLE/DOUBLE FACE THRIE-BEAM WITH STEEL POST (Timber Post Similar)



ISOMETRIC

FRONT VIEW

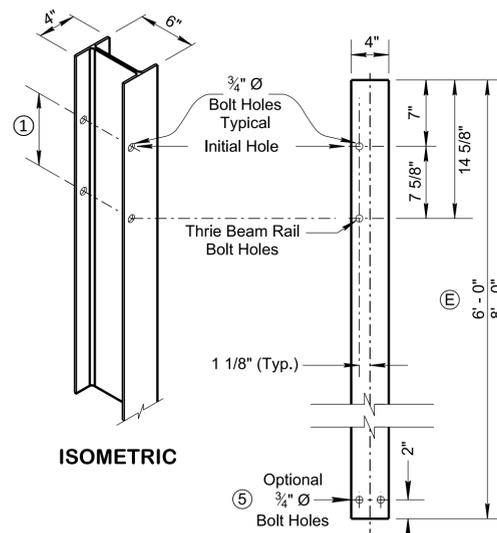
STEEL POST FOR SINGLE FACE W-BEAM RAIL WITH OPTIONAL RUB RAIL (If Required)



ISOMETRIC

FRONT VIEW

STEEL POST FOR DOUBLE FACE W-BEAM RAIL



ISOMETRIC

FRONT VIEW

STEEL POST FOR SINGLE AND DOUBLE FACE THRIE-BEAM

GENERAL NOTES

POST

- (A) THE CONTRACTOR MAY HAVE THE CHOICE OF EITHER HOT ROLLED OR WELDED STEEL W6 X 8.5 OR W6 X 9 OR 8" X 6" WOOD POST. EXCEPT AS NOTED:
 1. THE MIXING OF ANY POST TYPES ON A GIVEN PROJECT WILL BE AVOIDED IF AT ALL POSSIBLE.
 2. SHOULD IT BECOME NECESSARY TO MIX POST TYPES ON A GIVEN PROJECT POSTS SHALL NOT BE MIXED ON A SINGLE RUN OF GUARDRAIL EXCEPT AS NECESSARY AT END TERMINALS.
 3. W6 X 15 IS USED WITH GUARDRAIL CONNECTION TO STRUCTURES FOR MAINTENANCE ACTIVITIES ONLY.

- (B) STEEL POSTS SHALL CONFORM TO ASTM A36 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A123. BOLT HOLES SHALL BE APPROXIMATELY CENTERED BETWEEN WEB AND EDGE OF FLANGE OF SPACERS AND POSTS.

- (C) WOOD POSTS SHALL CONFORM WITH TDOT CONSTRUCTION STANDARD SPECIFICATIONS.

- (D) WELDED STEEL POSTS SHALL CONFORM TO ASTM A769 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A123, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

- (E) SEE STANDARD DRAWING S-PL-6 FOR POST LENGTH REQUIREMENTS AND PAY ITEMS.

BLOCK-OUTS

- (F) BLOCK OUTS SHALL BE WOOD CONFORMING TO THE REQUIREMENTS OF TDOT CONSTRUCTION STANDARD SPECIFICATIONS OR PLASTIC GUARDRAIL BLOCK-OUTS LISTED ON THE TDOT QUALIFIED PRODUCT LIST.

- (G) ONLY WOODEN BLOCK-OUTS MAY BE USED WITH WOODEN POSTS, PLASTIC OR WOODEN BLOCK-OUTS MAY BE USED WITH STEEL POSTS.

- (H) ALL BLOCK-OUTS SHALL MEET MASH GUIDELINES AND NCHRP-350 GUIDELINES.

- (I) FOR BLOCK-OUT DETAILS SEE STANDARD DRAWING S-GR31-1A.

- (J) RECYCLED PLASTIC GUARDRAIL BLOCK-OUTS LISTED ON THE TENNESSEE DEPARTMENT OF TRANSPORTATION'S QUALIFIED PRODUCTS LIST MAY BE SUBSTITUTED FOR WOOD BLOCK-OUTS. THE USE OF RECYCLED PLASTIC GUARDRAIL BLOCK-OUTS ARE SUBJECT TO THE FOLLOWING STIPULATIONS:

1. THE MIXING OF BLOCK-OUTS ON A GIVEN PROJECT WILL BE AVOIDED IF POSSIBLE.
2. SHOULD IT BECOME NECESSARY TO CHANGE THE BLOCK-OUT TYPE ON A GIVEN PROJECT, THE BLOCK-OUTS SHOULD NOT BE MIXED ON A GIVEN RUN OF GUARDRAIL.

FUTURE ADJUSTMENTS

- (K) WOOD BLOCK OUTS SHALL HAVE ONE ADDITIONAL 3/4" HOLE, FOUR INCHES BELOW THE INITIAL HOLE FOR FUTURE ADJUSTMENT.

- (L) INITIAL INSTALLATION REQUIRES ONE BOLT CONNECTION, EACH ADJUSTMENT THEREAFTER REQUIRES TWO BOLT CONNECTIONS.

END TREATMENTS

- (M) ALL RUNS OF GUARDRAIL WILL BEGIN AND END WITH AN ANCHOR SYSTEM (SEE S-GRA-SERIES).

- (N) GUARDRAIL ENDS THAT ARE INSIDE THE CLEAR ZONE AND EXPOSED TO ONCOMING TRAFFIC SHALL HAVE A CRASH WORTHY END TERMINAL AS NOTED:

1. ANY ROAD WITH SUITABLE BACK SLOPES SHALL USE END TERMINALS BURIED IN BACK SLOPE (SEE S-GRT-1).
2. ALL HIGHWAY SYSTEM ROADS WITHOUT SUITABLE BACK SLOPES SHALL USE MASH TL-3 TANGENTIAL END TERMINALS (SEE S-GRT-2).
3. ALL OTHER ROADS WITH POSTED SPEED < 45 MPH SHALL USE MASH TL-2 END TERMINALS UNLESS OTHERWISE NOTED (SEE S-GRT-3).

DESIGN

- (O) 42 INCHES BEHIND GUARDRAIL SHALL BE CLEAR OF OBSTRUCTIONS FOR DEFLECTION.

- (P) REFER TO SAFETY PLAN STANDARDS FOR HOW TO DETERMINE THE LENGTH OF NEED.

- (Q) SEE STANDARD DRAWING S-GR31-1B FOR FASTENING HARDWARE DETAILS.

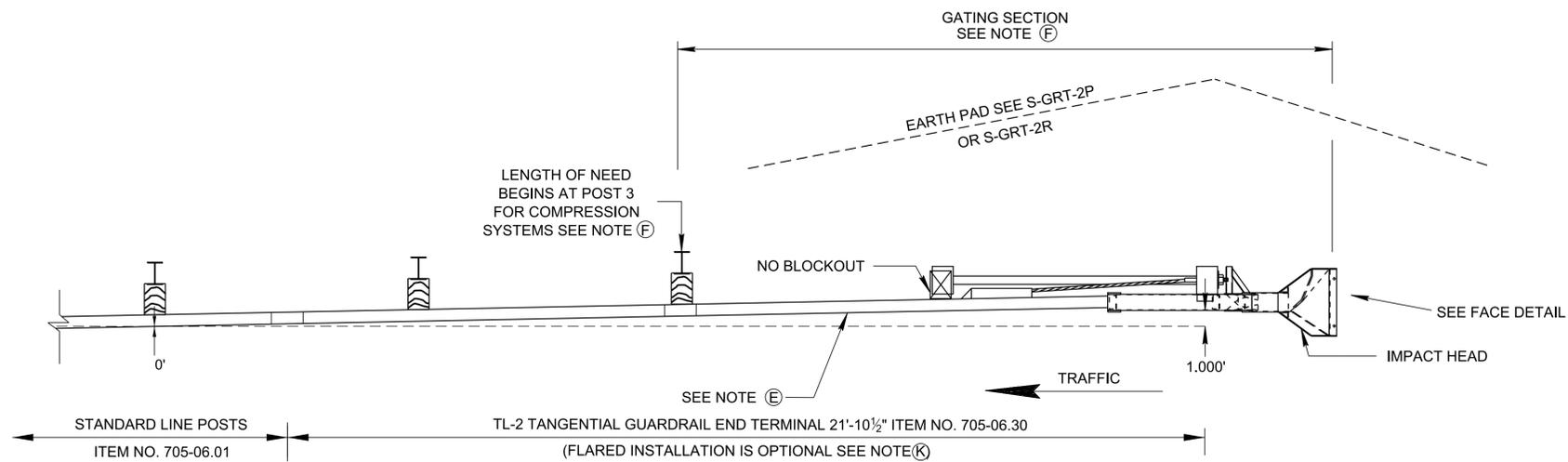
FOOTNOTES

- (1) BOLT HOLES ON THE BACKSIDE ARE FOR DOUBLE FACE GUARDRAIL (IF REQUIRED).
- (2) AN ADDITIONAL 3/4" HOLES ON OTHER SIDE OF THE FLANGE OR BACK FLANGE WILL BE ACCEPTABLE IF THEY ARE LOCATED WITHIN TOP 9" OF THE POST (FOR SINGLE FACE).
- (3) 5/8" DIA. x 9 1/2" LENGTH, BUTTON HEAD BOLT WITH RECESSED NUT OR HEX NUT AND 1 WASHER PER BOLT.
- (4) 2 EXTRA 3/4" HOLES IN POST ABOVE INITIAL HOLE AND 1 EXTRA 3/4" HOLE BELOW FOR VERTICAL ADJUSTMENT.
- (5) ADDITIONAL BOLT HOLES ON THE POST BOTTOM MAY BE ACCEPTABLE FOR MANUFACTURING PURPOSES.

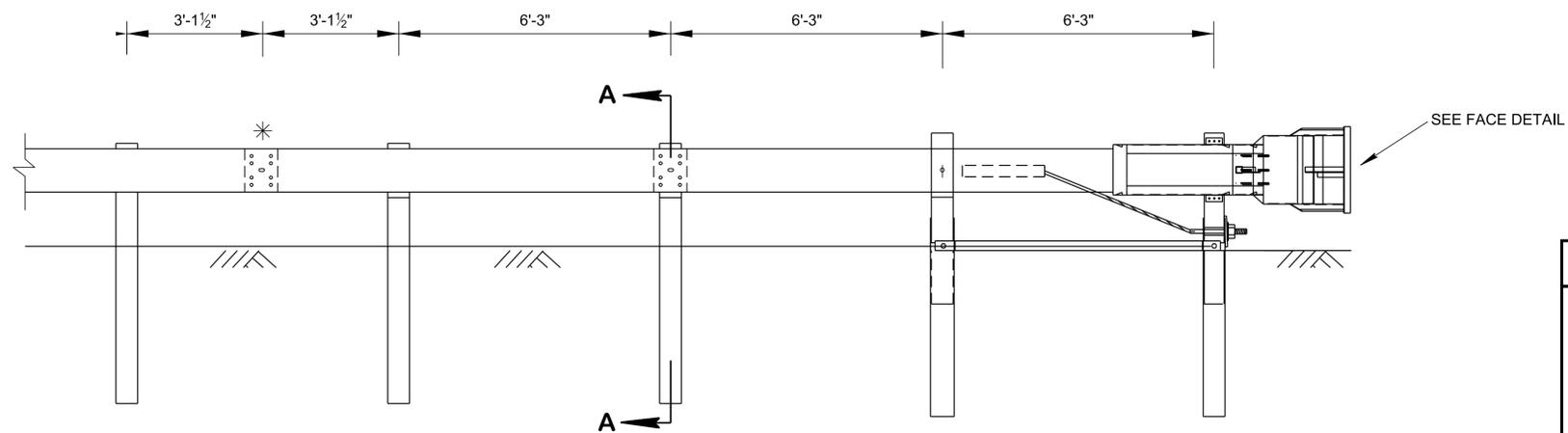
REV. 06-15-2021: REVISED GENERAL NOTES (A) AND (O). REVISED PLASTIC BLOCK-OUT TO COMPOSITE BLOCK-OUT ON SIDE VIEWS.

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

GUARDRAIL
GENERAL NOTES
AND
POST DETAILS

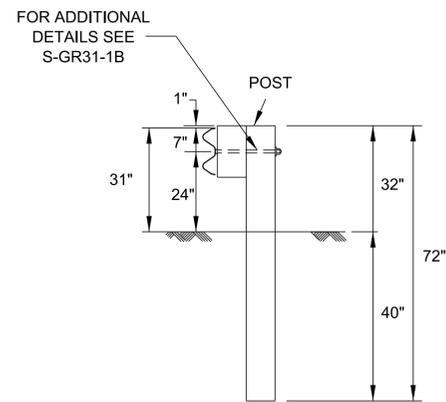


PLAN

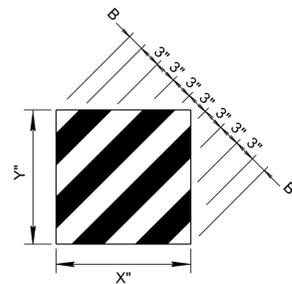


ELEVATION

* FOR MAINTENANCE AND REPAIR PROJECTS:
IF ONLY THE TERMINAL IS TO BE REPLACED,
USE S-GRS-4 TO TRANSITION BACK TO 27" HEIGHT.



SECTION A-A
(NOMINAL DIMENSIONS)



STRIPES AT 45 DEGREE TOWARD TRAVEL WAY.

BACKGROUND: YELLOW
(STANDARD SPECIFICATION 916.06)
COPY: BLACK

X AND Y SHALL BE WITHIN 3" OF FACE WIDTH AND HEIGHT, RESPECTIVELY, AND FACE SHALL HAVE A MINIMUM 300 SQUARE INCHES COPY AREA.

FACE DETAIL

GENERAL NOTES

- (A) ONLY MASH COMPLIANT TL-2 END TERMINALS ON THE TDOT QUALIFIED PRODUCTS LIST MAY BE INSTALLED. MANUFACTURER'S SHOP DRAWINGS SHALL BE REQUIRED BEFORE ANY TANGENTIAL END TERMINAL INSTALLATIONS CAN BEGIN. THE CONTRACTOR SHALL HAVE ONE COMPLETE SET OF SHOP DRAWINGS ON SITE DURING INSTALLATION OR REPAIR OF ANY TANGENTIAL GUARDRAIL TERMINAL ANCHOR. THE CONTRACTOR SHALL ALSO PROVIDE THE CONSTRUCTION OR MAINTENANCE SUPERVISOR WITH ONE COMPLETE SET OF SHOP DRAWINGS INCLUDING TDOT QUALIFIED PRODUCTS LIST EVALUATION NUMBER.
 - (B) FOR THE TYPE 21 GUARDRAIL TERMINAL TO FUNCTION AS IT WAS CRASH TESTED UNDER MASH TL-2, THE EARTH PAD MUST BE CONSTRUCTED PER STANDARD DRAWING S-GRT-2P OR S-GRT-2R.
 - (C) THE END TERMINAL (INCLUDING ANCHOR) IS TO BE INSTALLED UNDER ITEM NUMBER 705-06.30 GR TERMINAL (ENERGY ABSORBING) MASH TL2, PER EACH
 - (D) TERMINAL SYSTEM MUST BE CONSTRUCTED SO THAT THE FULL LENGTH OF THE TERMINAL SYSTEM GUARD RAILING IS IN STRAIGHT ALIGNMENT.
 - (E) DIFFERENT TERMINAL SYSTEMS OR PARTS SHALL NOT BE COMBINED ON A RUN OF GUARDRAIL.
 - (F) THE FIRST 12'-6" FROM IMPACT HEAD IS GATING FOR SKT-SP-MGS, DO NOT USE THIS SECTION IN LENGTH OF NEED. TENSION SYSTEMS PROVIDE REDIRECTIVE CAPACITY AT THE FIRST POST.
 - (G) IF GUARDRAIL NEEDS TO BE EXTENDED, EXTEND GUARDRAIL IN INCREMENTS OF 12' - 6".
 - (H) IF WOOD POSTS ARE USED, ALL HOLES IN WOOD POSTS ARE TO BE DRILLED BEFORE PRESERVATIVE TREATMENT.
 - (I) ALL CUTTING, DRILLING, AND WELDING OF STEEL COMPONENTS SHALL BE DONE BEFORE GALVANIZING.
 - (J) THE FINISHED CABLE ASSEMBLY WILL NOT BE ACCEPTABLE UNLESS IT IS IN TENSION WITH NO SAG.
 - (K) IF THE SHOULDER WIDTH IS LESS THAN 2'-0", END TERMINAL MUST BE FLARED. IF THE SHOULDER WIDTH IS GREATER THAN 2'-0", END TERMINAL MAY BE TANGENTIAL. IF FLARED IMPLEMENTATION IS IMPLEMENTED, USE 25:1 MAXIMUM FLARE RATE OR INSTALL END TERMINAL AS DIRECTED BY THE FIELD ENGINEER.
 - (L) FOR RETROFIT PROJECTS, SEE S-GRT-2R.
 - (M) FOR NEW CONSTRUCTION, INSTALL TERMINALS AT 31" HEIGHT. FOR RETROFIT PROJECTS, USE GUARDRAIL HEIGHT TRANSITION DETAIL, SEE S-GRS-4.
- NOTES TO DESIGNER**
- (N) THIS TERMINAL SHALL ONLY BE USED ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR LESS.
 - (O) DO NOT USE WITHOUT REFERENCING S-GRT-2P OR S-GRT-2R.
- NOTE TO INSTALLER**
- (P) SKT-SP-MGS WITH 21'- 10 1/2" INSTALLATION IS SHOWN, POST MATERIAL, SIZE, GUARDRAIL SPLICING LOCATION, TAPER RATE, OFFSET, GUARDRAIL HEIGHT, IMPACT HEAD DIMENSION, AND ALL OTHER MISCELLANEOUS HARDWARE MAY BE DIFFERENT. INSTALLATION SHALL FOLLOW THE MANUFACTURER'S SHOP DRAWINGS.

- REV. 11-03-14: MODIFIED PAY LENGTH FOR TYPE 38 END TERMINAL.
- REV. 04-04-16: THE PREVIOUSLY SHOWN SKT75 (SLOTTED FLARED GUARDRAIL TERMINAL) IS NO LONGER AVAILABLE FOR 31" INSTALLATION. REVISED TO SHOW TL-2 T-350 TERMINAL.
- REV. 10-10-16: UPDATED LIMIT OF PAYMENT.
- REV. 03-28-17: UPDATED NOTES TO INSTALLER, ADDED W-BEAM OVERLAPPING DETAIL. REORGANIZED SHEET. CHANGED PAY ITEM NUMBER. REPLACED "SKT 350" WITH "SKT-SP-M65" IN NOTE TO INSTALLER.
- REV. 06-28-19: REDREW SHEET. REMOVED W-BEAM OVERLAPPING DETAIL. MOVED NOTES TO DESIGNER AND INSTALLER TO GENERAL NOTES (N), (O) AND (P).

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

TYPE 21
GUARDRAIL
END TERMINAL

10/23/2019 10:15:27 AM C:\Users\jj005471\Desktop\SGRT3-20190628.dgn