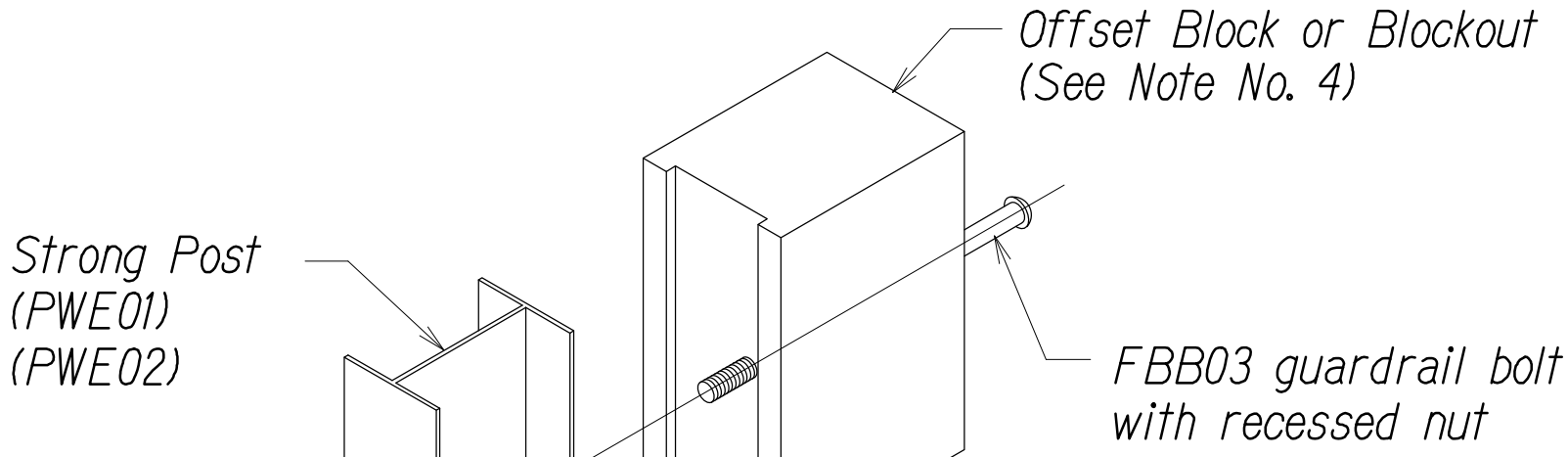


DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	BR-030-1(37)	2024	19	42

GUARDRAIL TYPE	DIMENSION	
	H	A
MGS w/ Standard 8" Offset Block	2'-1"	1'-6"

GENERAL NOTES

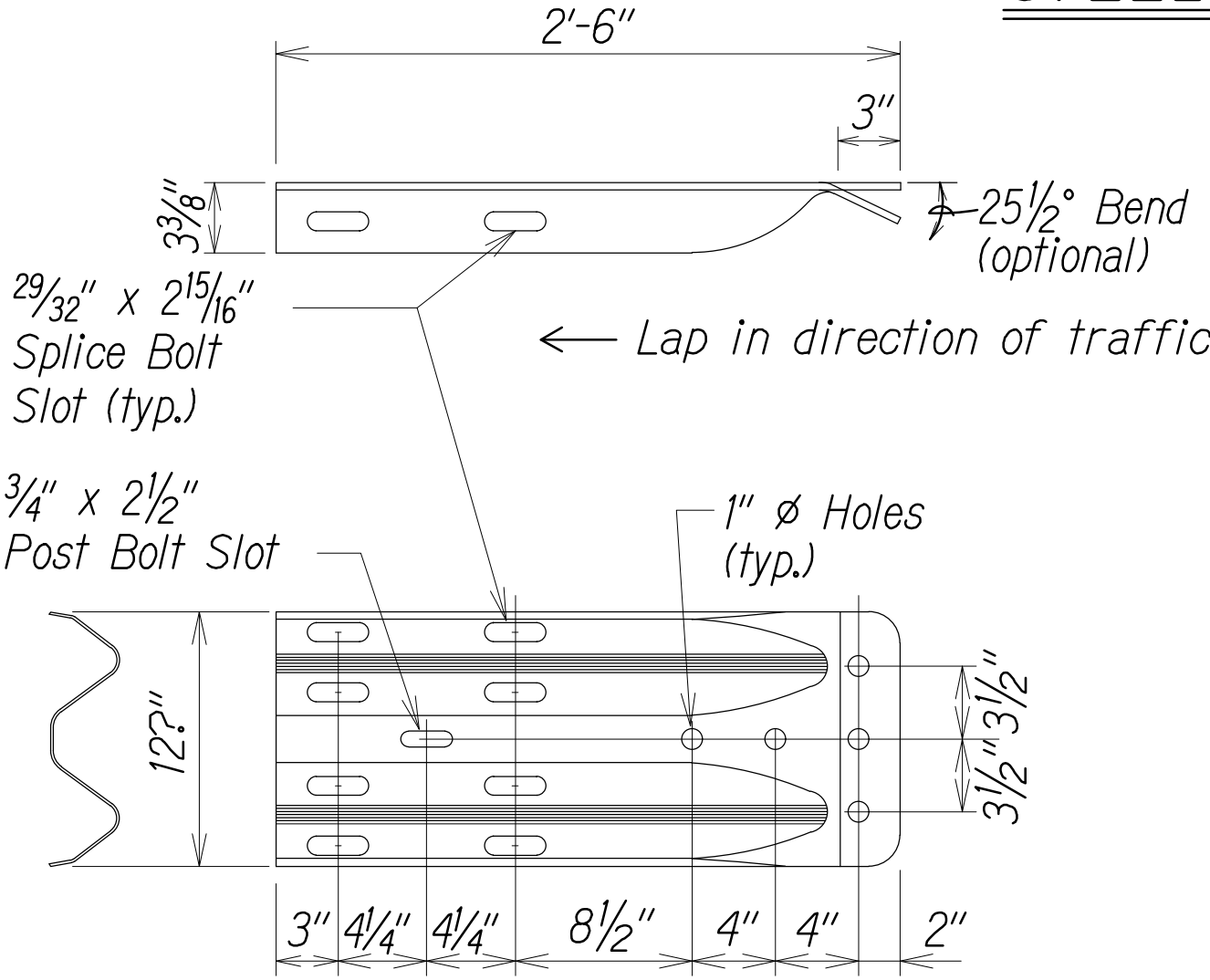
1. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
2. Where conditions require, special post lengths in increments of 6 inches may be specified by the Engineer.
3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM04b, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware", a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
4. The Blockout or Offset Block shall be approved by the State.
5. All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
6. After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around each guardrail post and all cracks in the paved area caused during the guardrail post installation. If required by the inspector/engineer, the Contractor shall tamper the paved area around the guardrail post prior to filling/sealing. All costs associated with this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
7. When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.
8. Minimum working width (clear distance) between back of MGS post to any fixed object is 4'-1" (49").
9. New Hot Mix Asphalt (HMA) pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
10. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. RM-5's shall not be installed on Terminal Sections. Furnishing and installing of each RM-5 shall be considered incidental to the guardrail system.



Exploded View

(Rail and washer not shown)

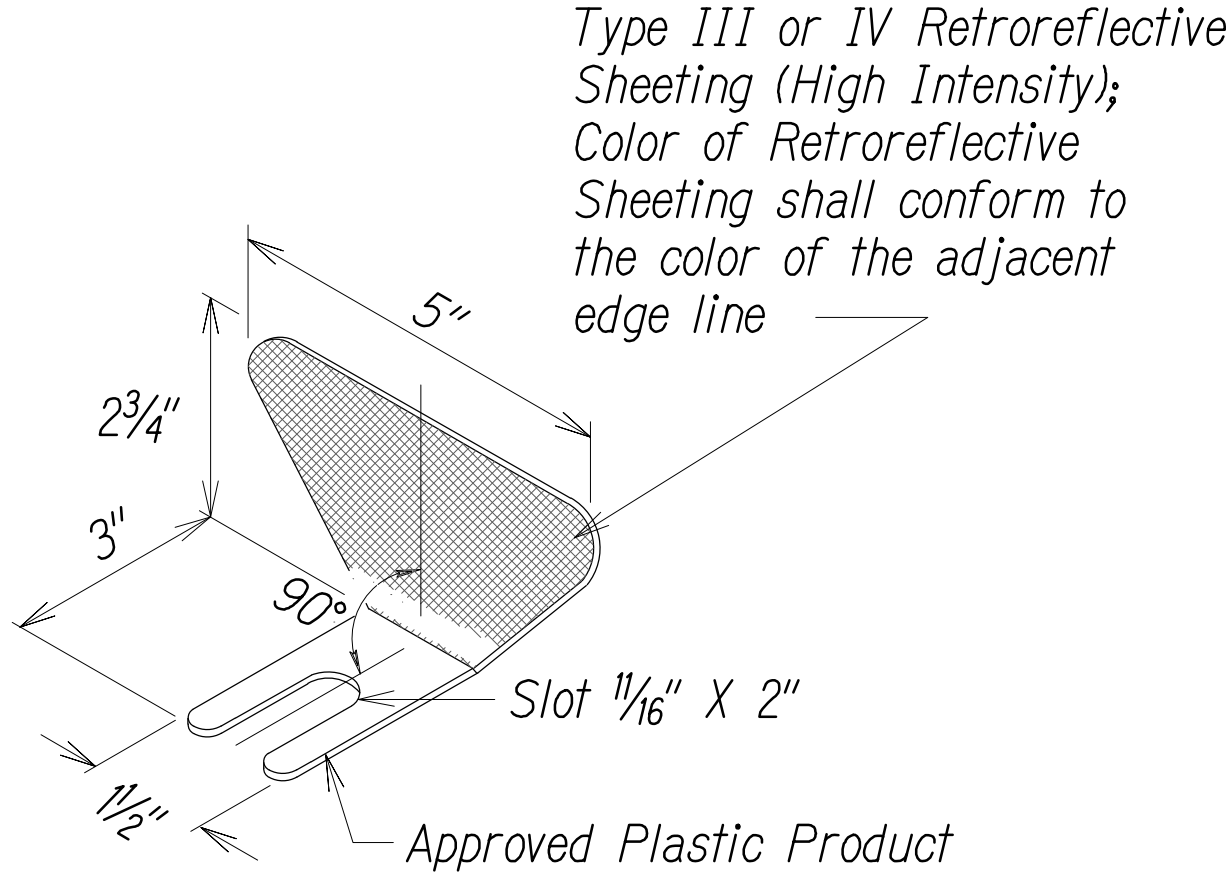
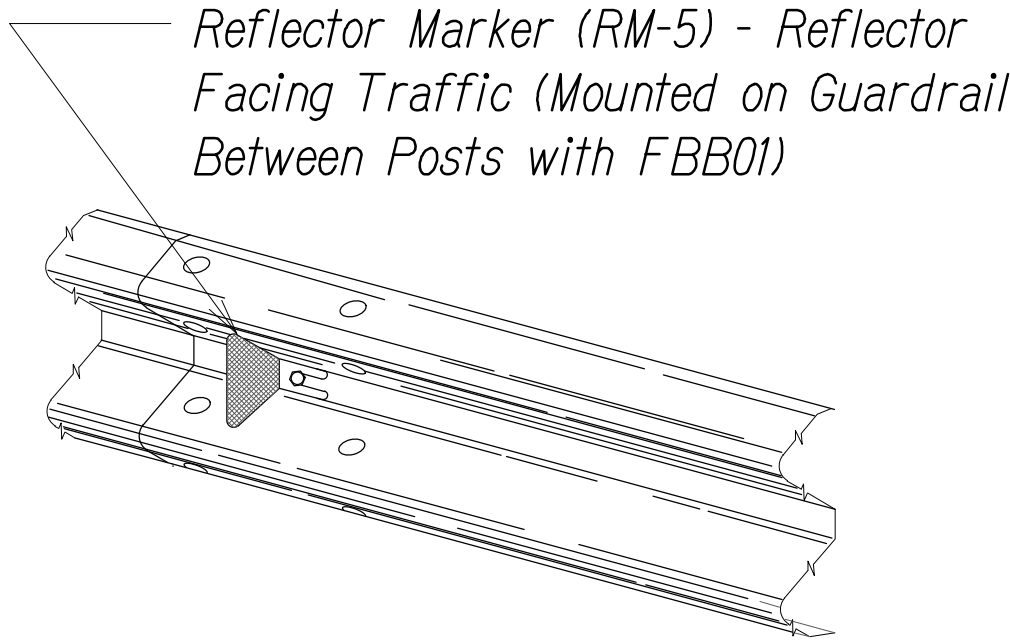
STEEL POST AND BLOCK DETAIL



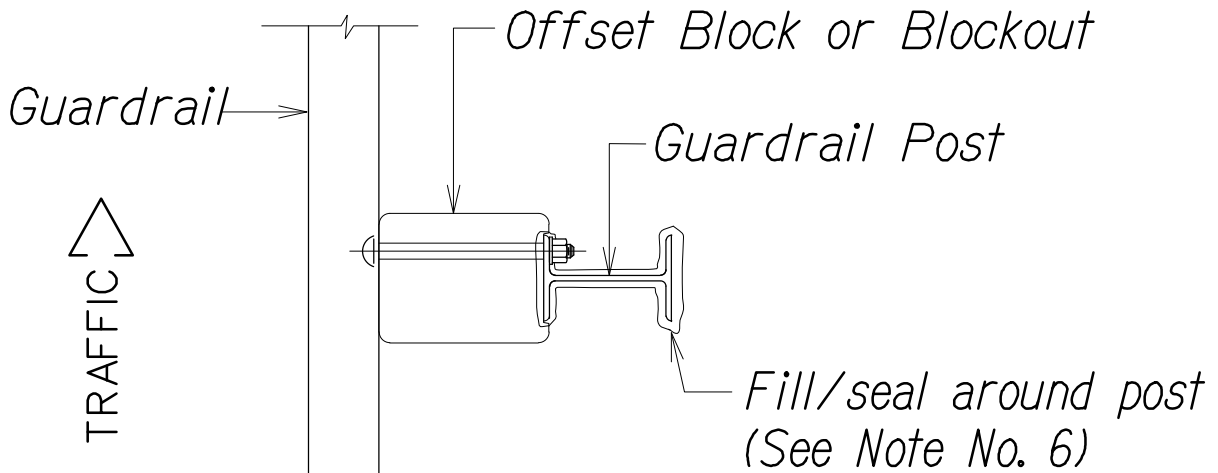
The cross-sectional dimensions for this part are to fit over part RWM02a on the approach end and under part RWM02a on the trailing end.

DESIGNATOR	BASE METAL THICKNESS
RWE02b	10 Gauge

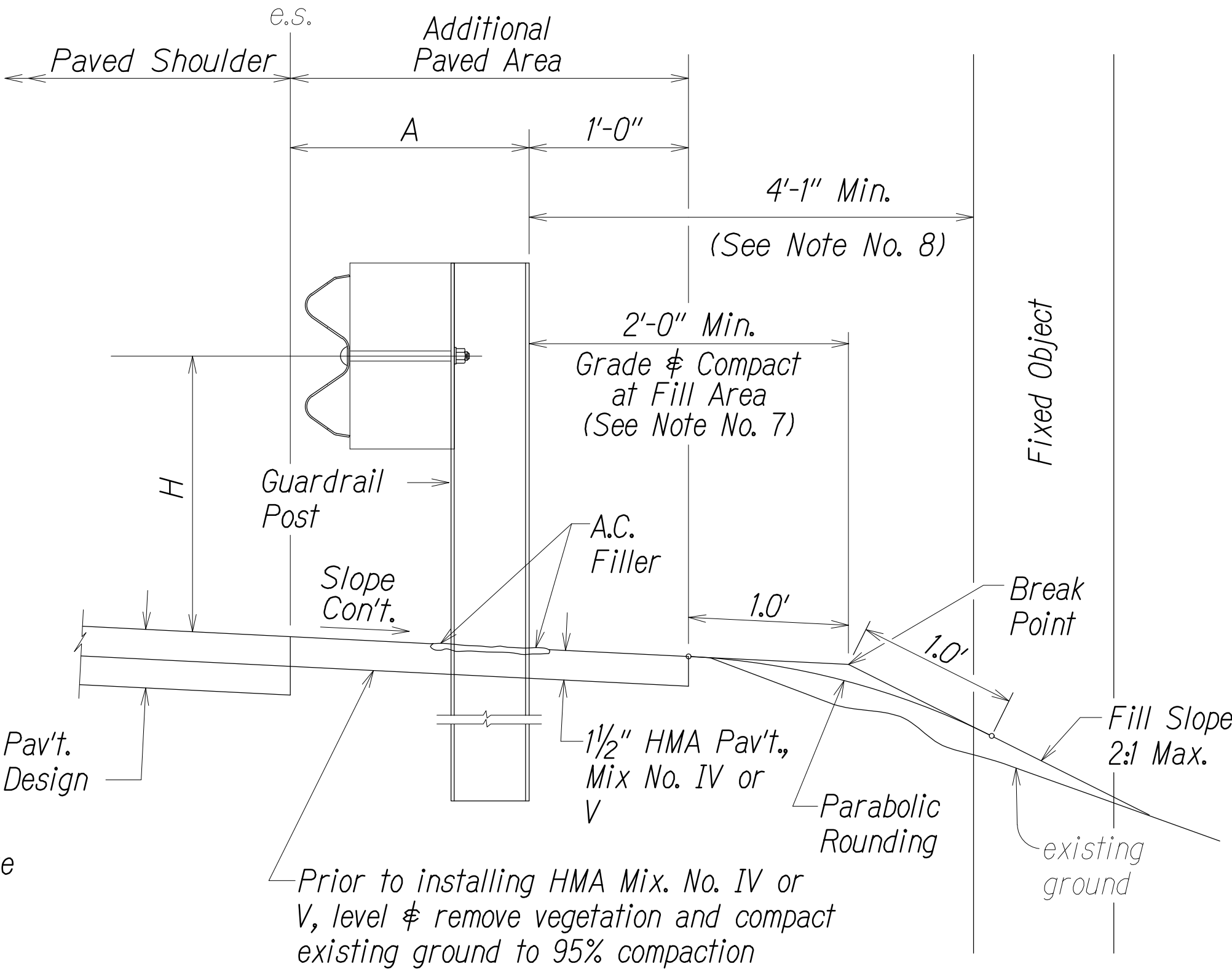
W-BEAM TERMINAL CONNECTOR (RWE02b)



REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION



PLAN



ELEVATION

TYPICAL GUARDRAIL INSTALLATION



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KYLE SHINYAMA  
APRIL 30, 2026  
LIC. EXP. DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

GUARDRAIL DETAILS AND NOTES

Honoapi'ilani Highway  
Rehabilitation of Honolulu Bridge  
F.A.P. No. BR-030-1(37)

Scale: As Shown Date: August 2024

SHEET No. C5.01 OF 42 SHEETS

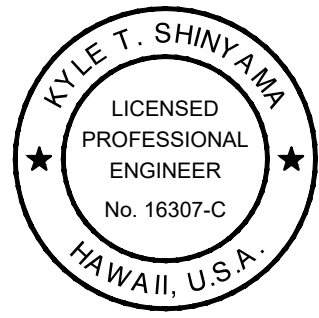
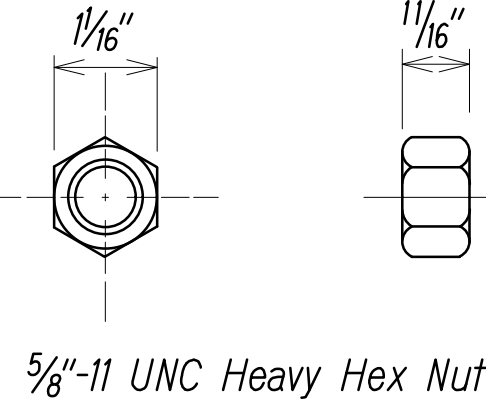
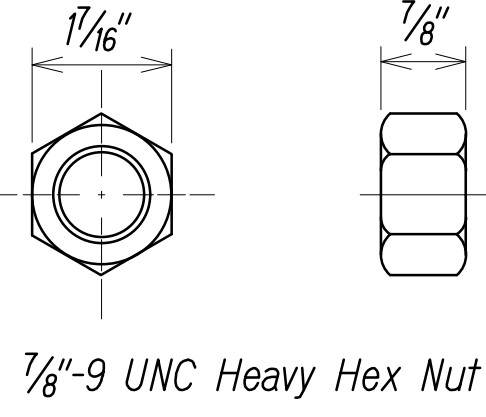
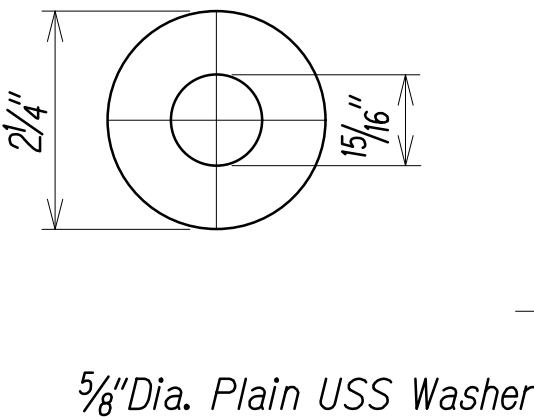
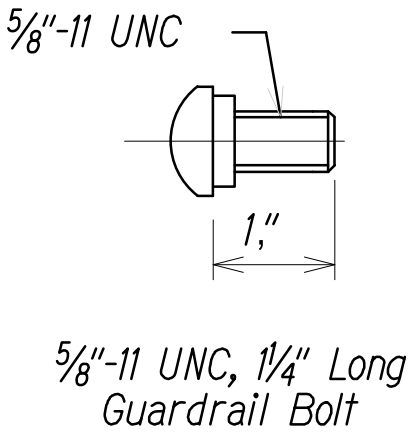
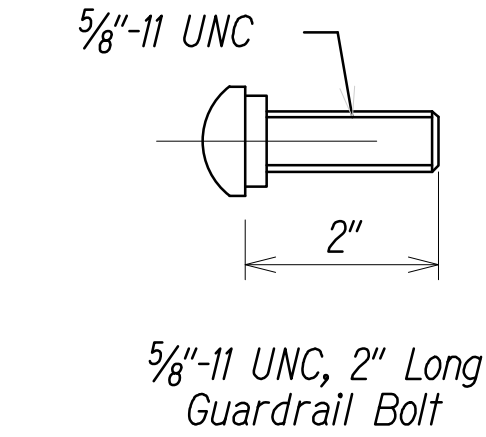
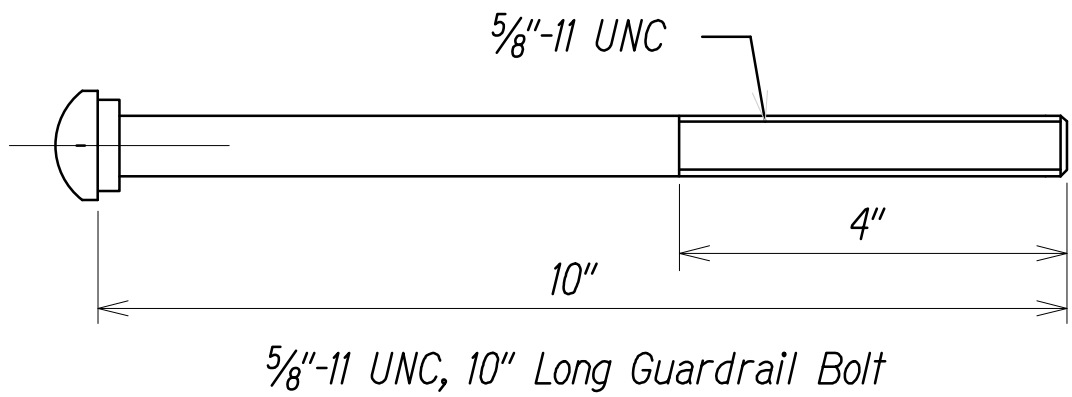
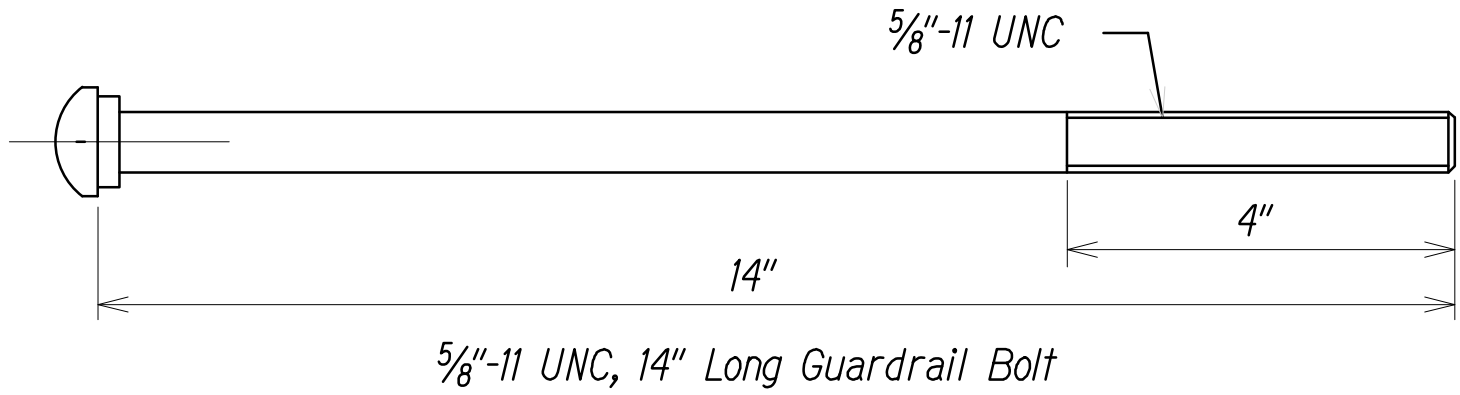
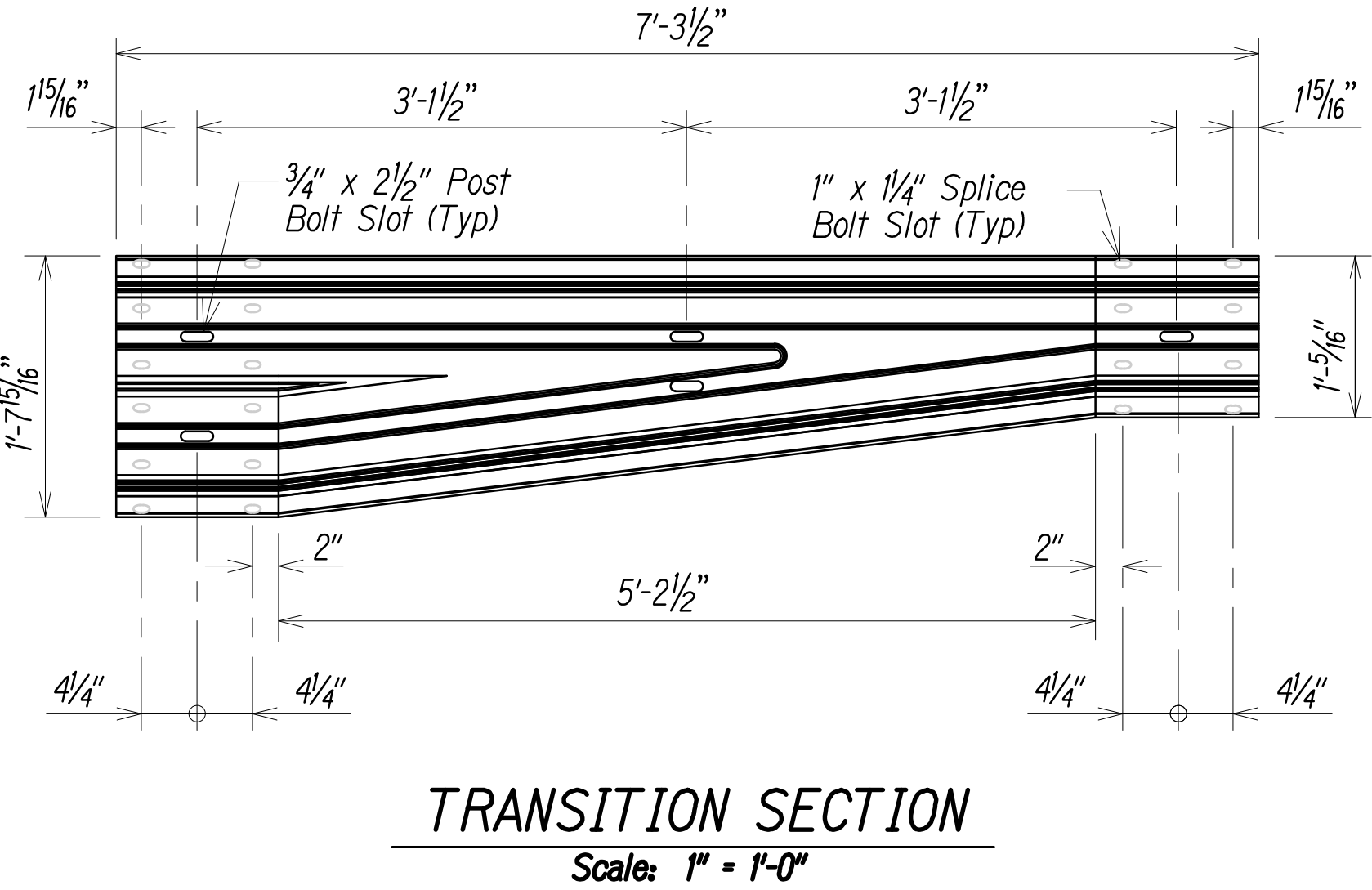
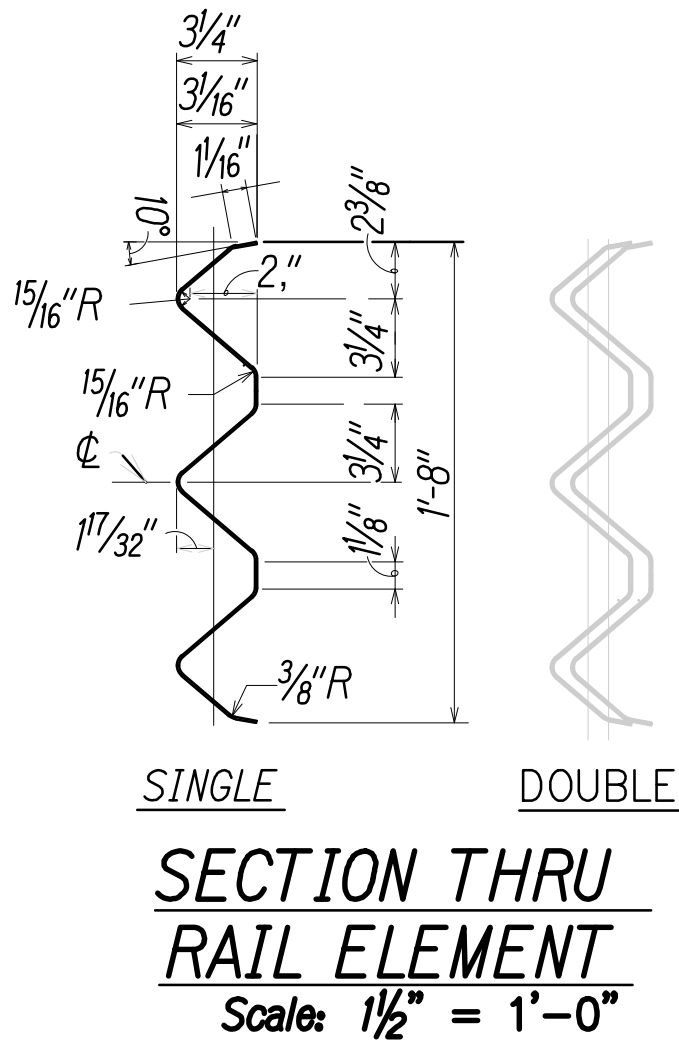
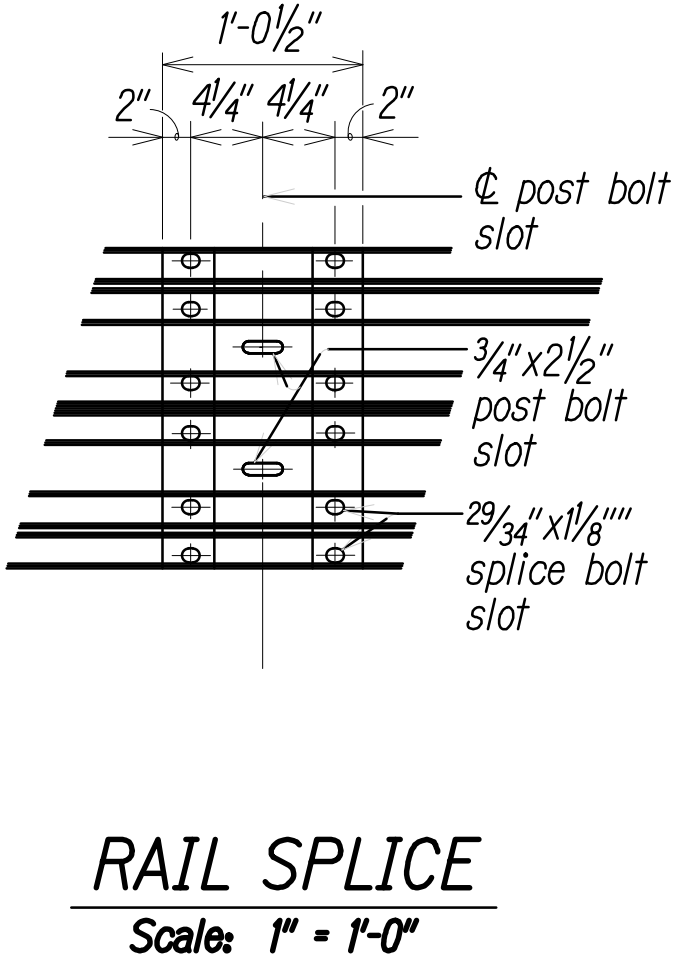
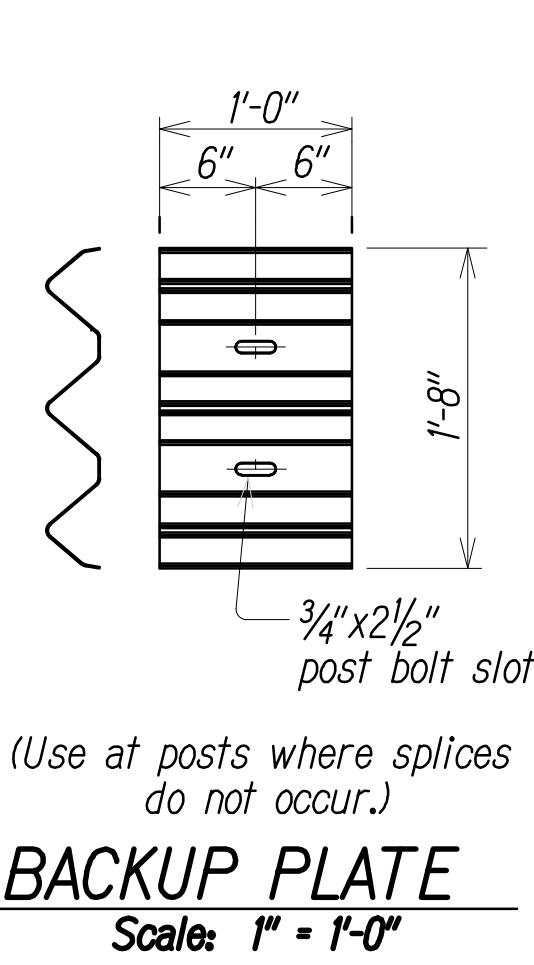
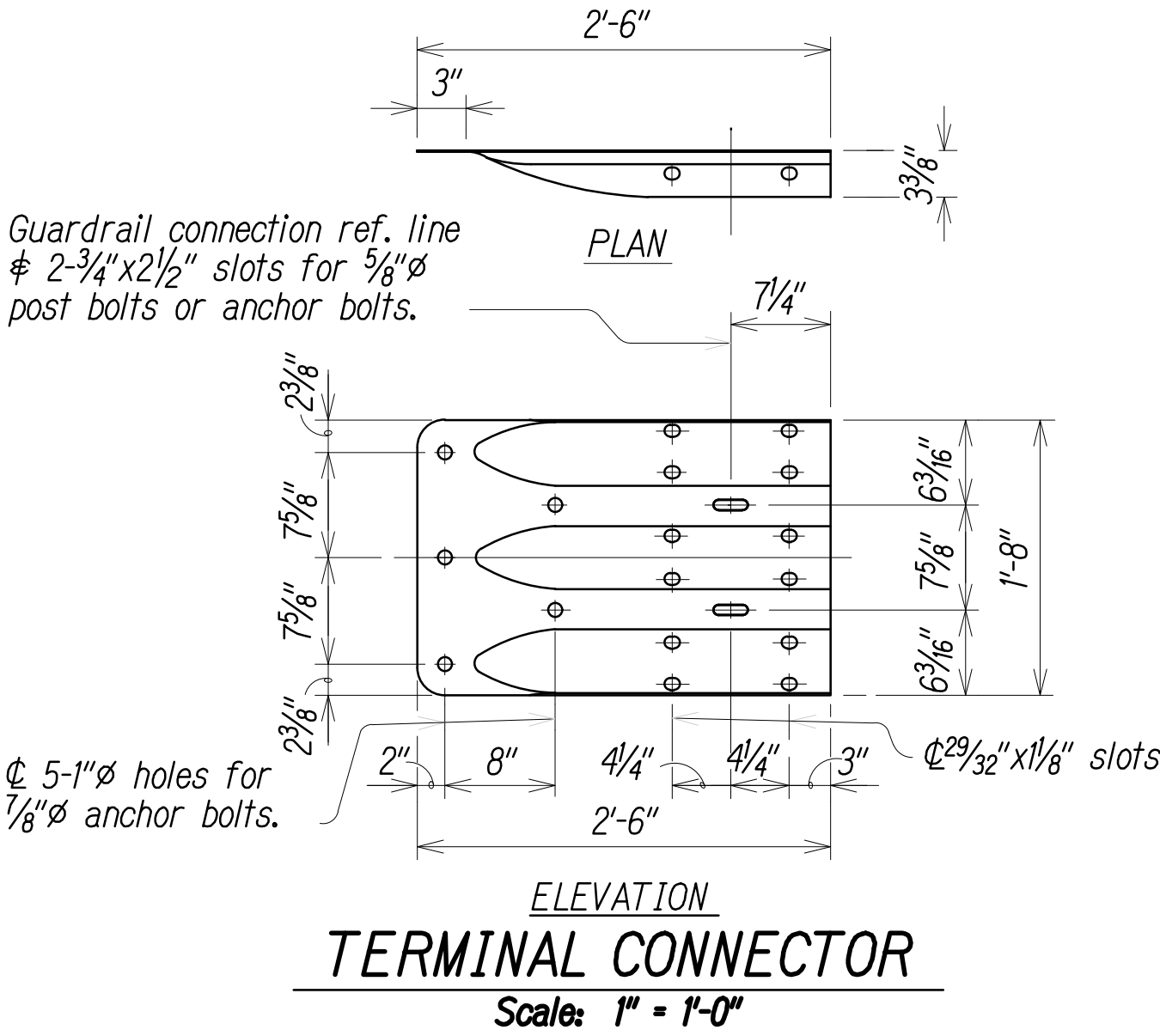
SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	BR-030-1(37)	2024	21	42

NOTES:

- A. The work necessary to connect guardrail to the concrete end post shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and will not be paid for separately.
- B. Lap terminal connector and rail elements in the direction of traffic to prevent snagging.
- C. Bolts shall have sufficient length when installed to ensure that the nut is at least flush but should not project more than 1/4". The Contractor will not be allowed to cut, grind or otherwise alter the bolt to meet this requirement unless it is done during the fabrication of the bolt prior to galvanizing.
- D. The first 25'-0" of guardrail adjoining the "Terminal Connector" shall be placed tangent to the concrete transition front face or parallel to the roadway, unless conditions at the site renders it impossible to do so. Flare point to be determined in field.
- E. Head of all bolts shall be placed on the traffic side of the rail.
- F. All W6x8.5, W6x9 and W6x15 guardrail posts shall be clearly stamped during fabrication "W6x8.5", "W6x9", or "W6x15", respectively, on each post.



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APRIL 30, 2026  
LIC. EXP. DATE

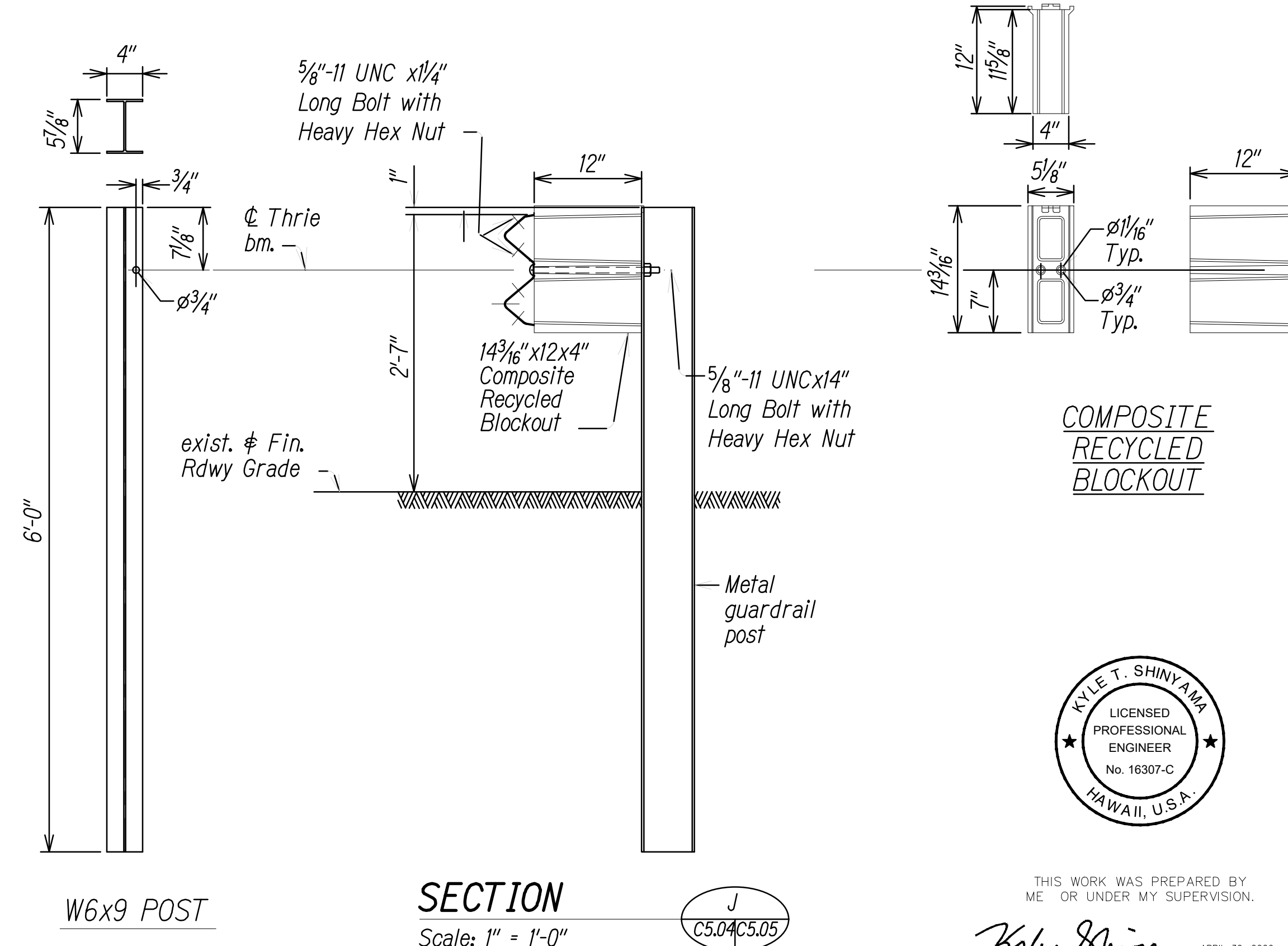
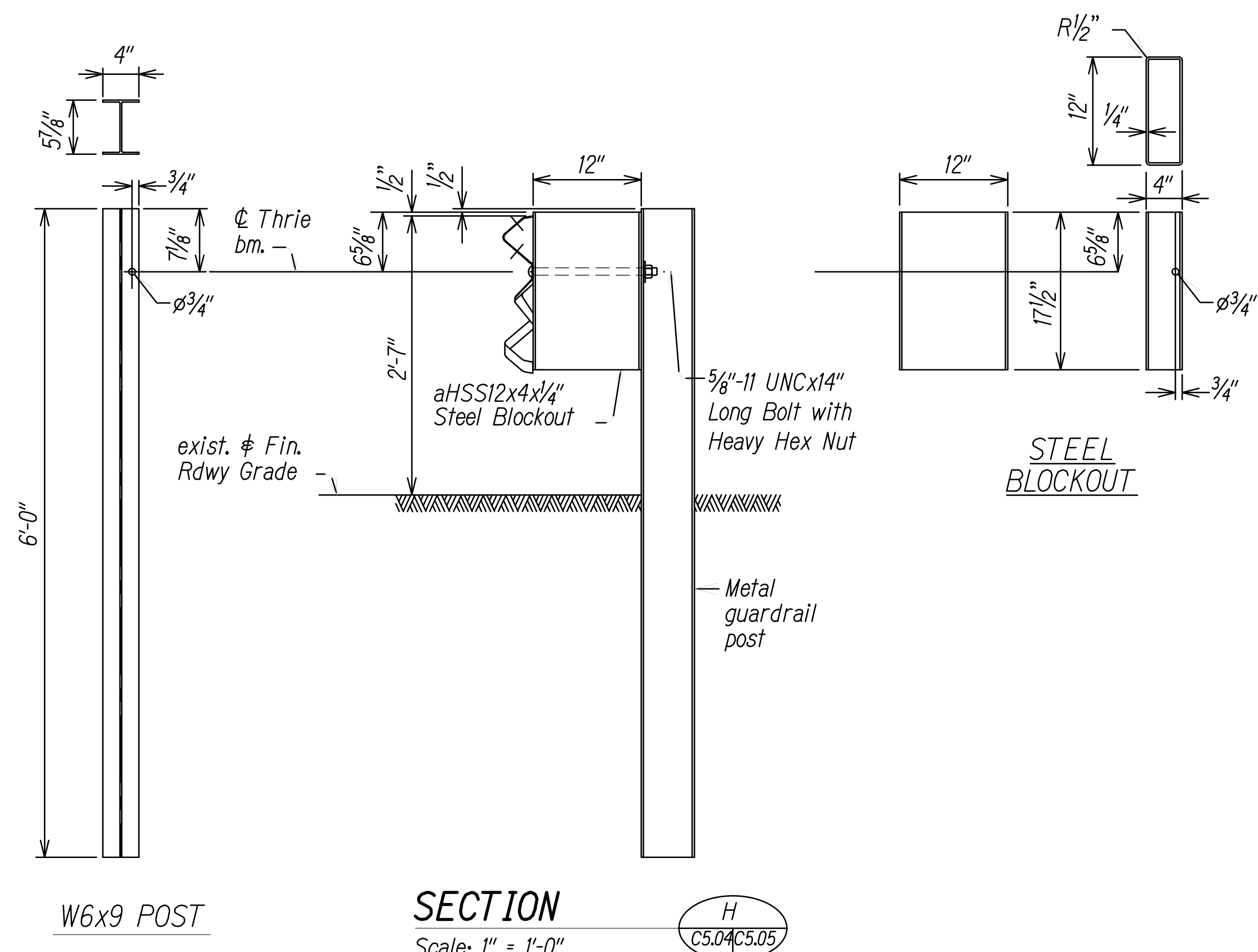
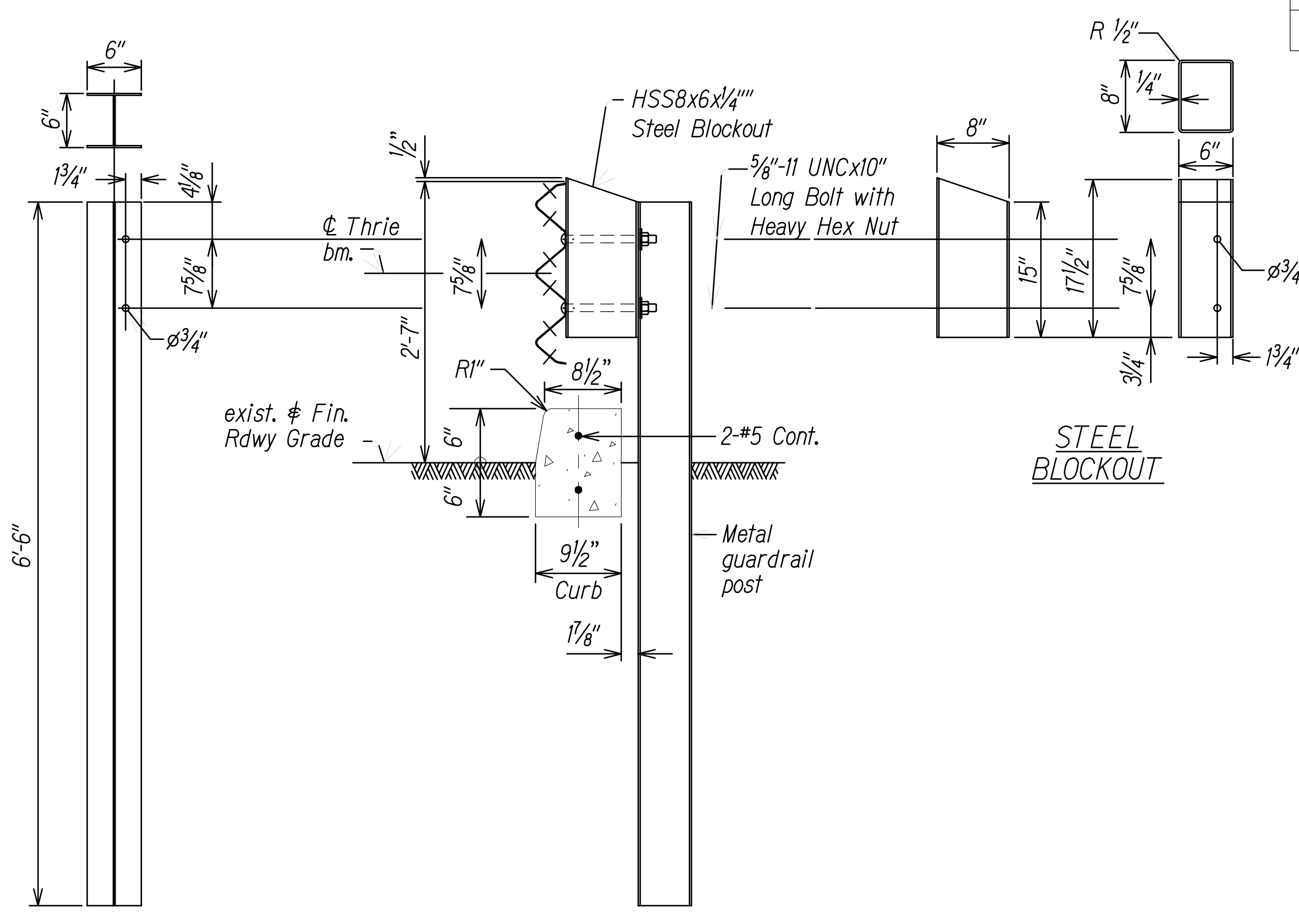
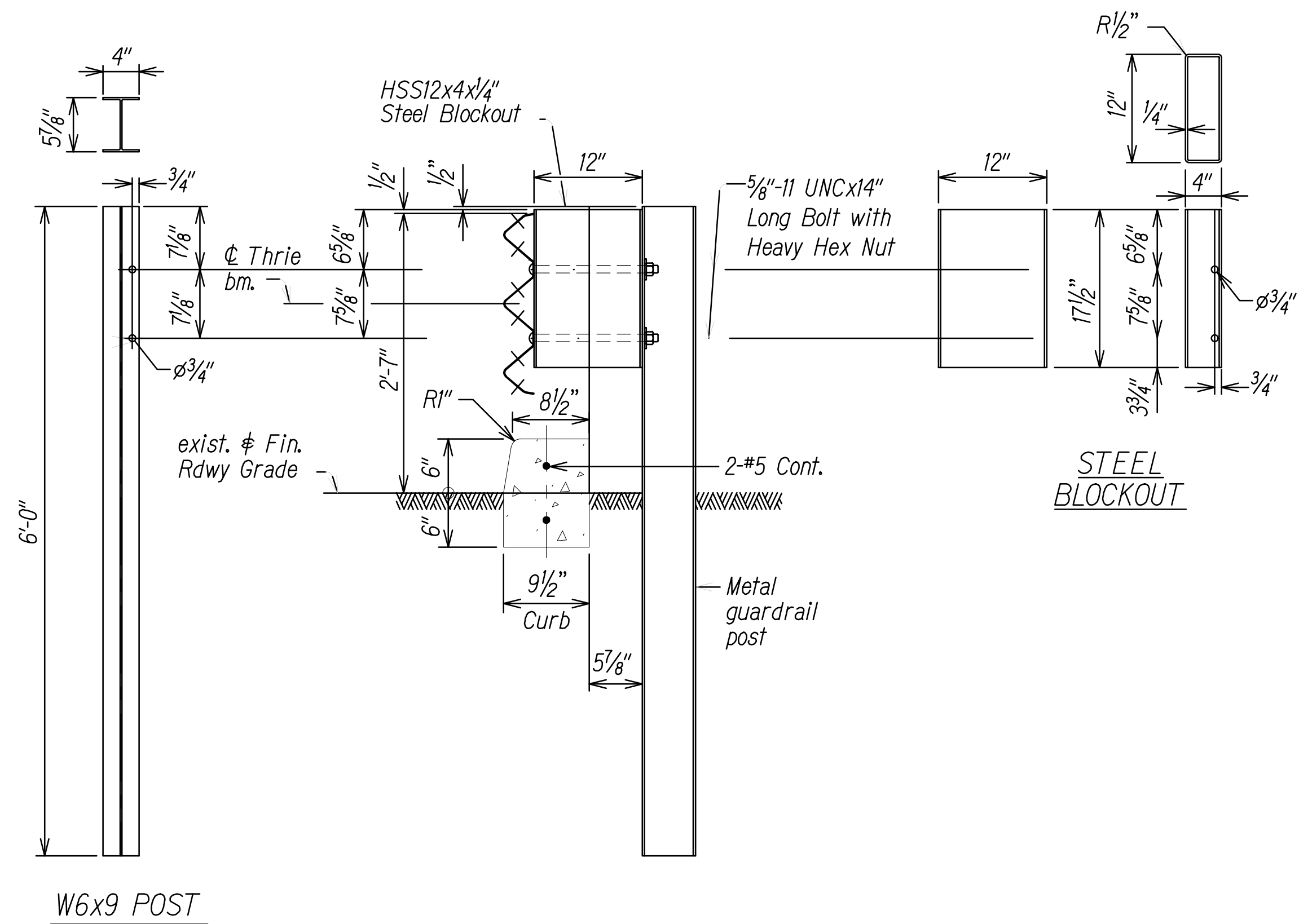
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**METAL GUARD RAIL TYPE 3  
THRIE BEAM AND  
APPURTENANCES DETAILS - 1**  
Honouliuli Highway  
Rehabilitation of Honolua Bridge  
F.A.P. No. BR-030-1(37)

Scale: As Shown Date: August 2024  
SHEET No. C5.03 OF 42 SHEETS

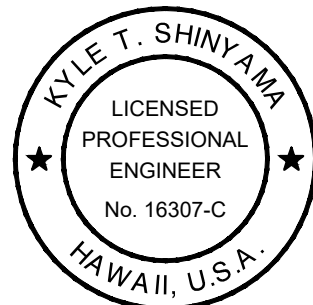
METAL GUARDRAIL TYPE 3 THRIE BEAM AND APPURTENANCES DETAILS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
NOTE BOOK	QUANTITIES BY	
	CHECKED BY	
	No.	

DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	BR-030-1 (37)	2024	22	42



ORIGINAL PLAN	DATE
NOTE BOOK	DESIGNED BY
	QUANTITIES BY
	CHECKED BY



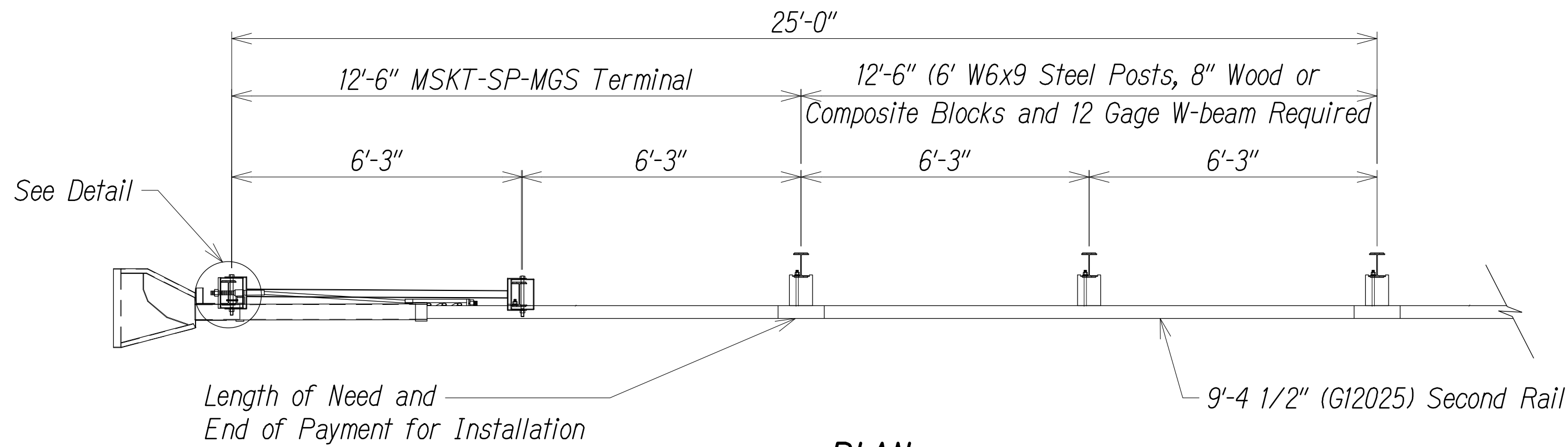
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KYLE SHINYAMA  
APRIL 30, 2026  
LIC. EXP. DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**METAL GUARD RAIL TYPE 3  
THRIE BEAM AND  
APPURTENANCES DETAILS - 2**  
*Honoapi'ilani Highway  
Rehabilitation of Honolua Bridge  
F.A.P. No. BR-030-1(37)*  
Scale: As Shown Date: August 2024  
SHEET No. C5.04 of 42 SHEETS

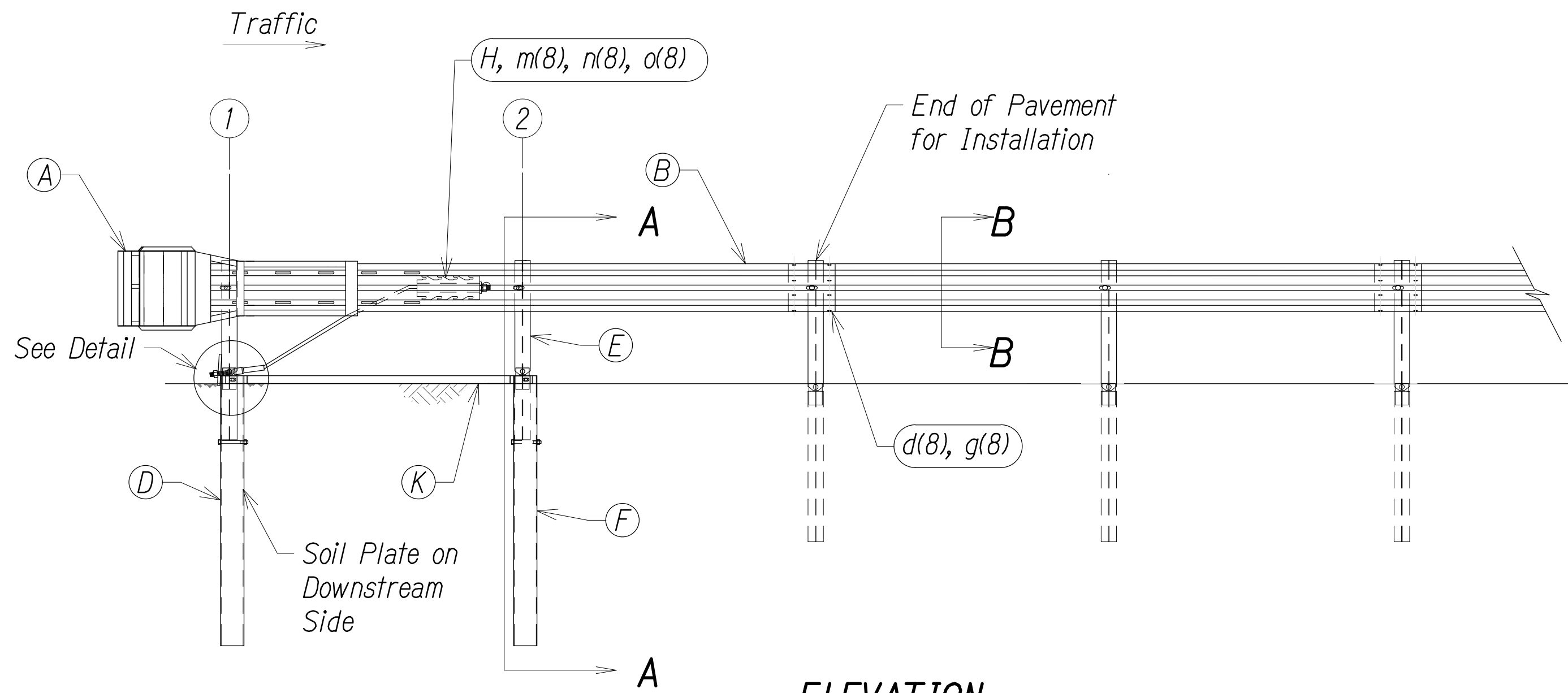




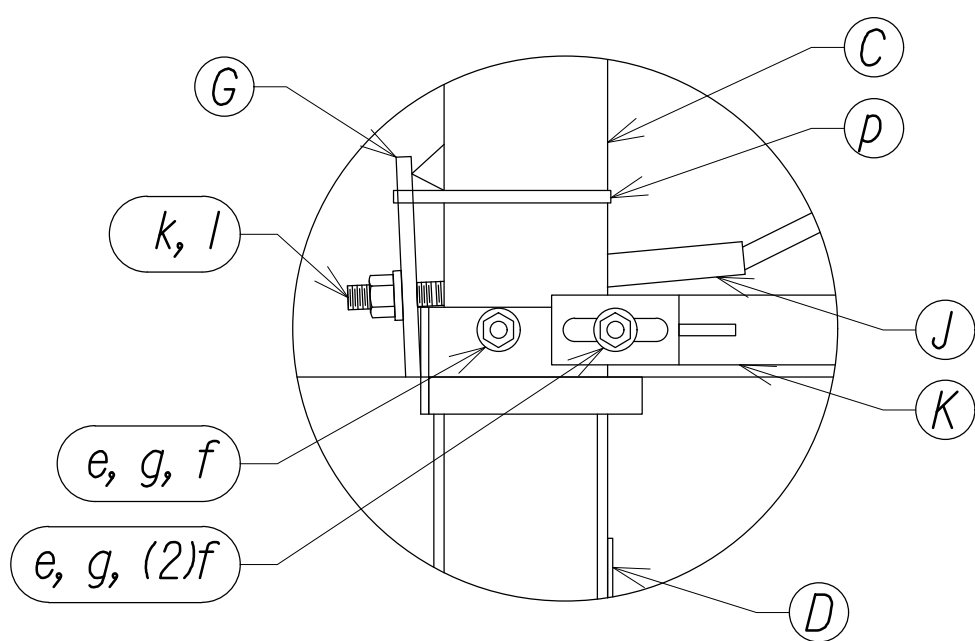
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MAUI	HAW.	BR-030-1(37)	2024	24	42



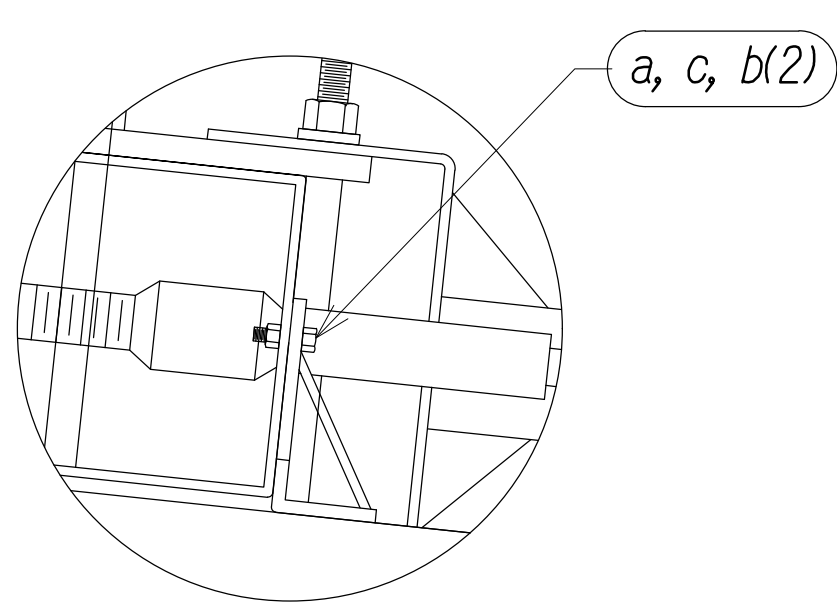
PLAN



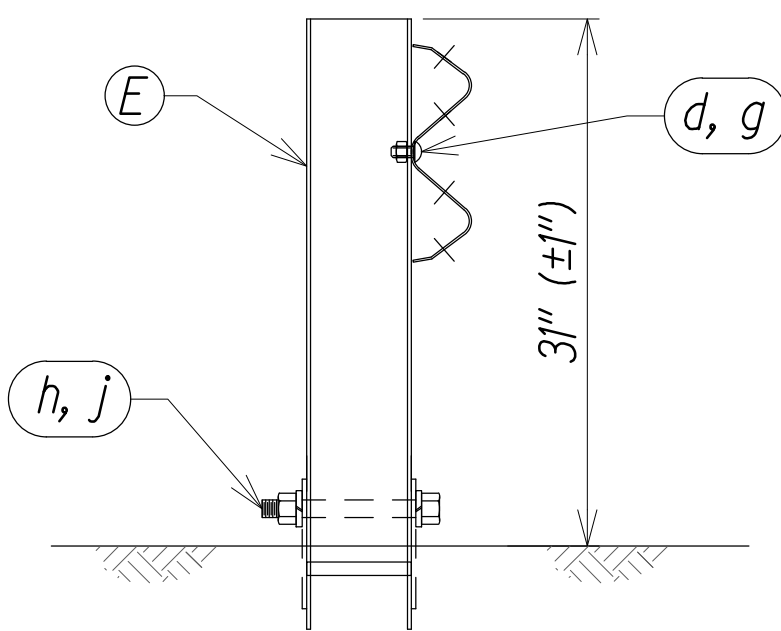
ELEVATION



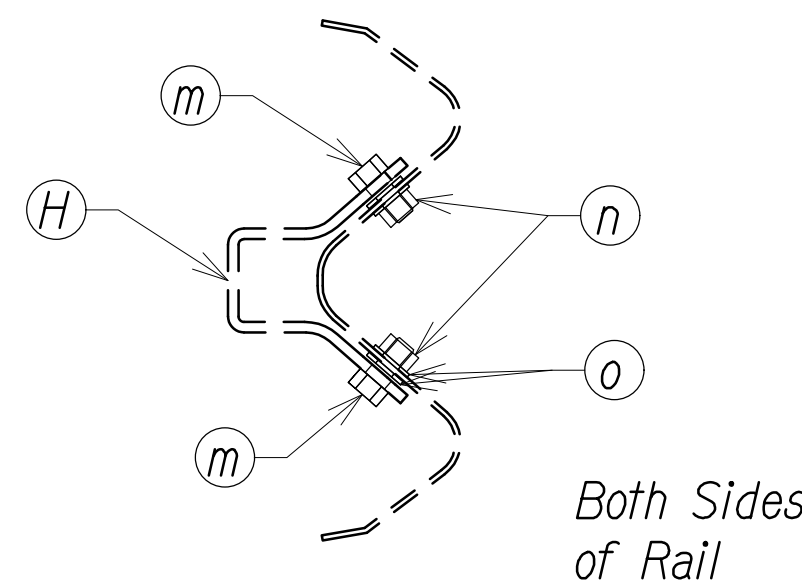
Post #1 Connection Detail



Impact Head Connection Detail



Section "A" - "A"  
Post #2

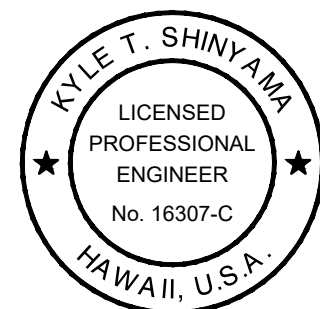


Section "B" - "B"  
Anchor Bracket

GENERAL NOTES:

- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The lower sections of the Posts 1 #2 shall not protrude more than 4 in [100] above the ground (measured along a 5' [1.5m] cord). Site grading may be necessary to meet this requirement.
- The lower section of the hinged post should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
- When competent rock is encountered, a 12Ø [300] Ø post hole, 20 in. [500] deep cored into the rock surface may be used if approved by the engineer for Posts 1 and/or 2. Granular material will be placed in the bottom of the hole, approximately 2.5" [60] deep to provide drainage. The first and/or second post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
- The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

Item No.	Qty.	Bill Of Materials
A	1	Impact Head
B	1	W-beam Guardrail End Section, 12 Ga.
C	1	First Post Top (6x6x1/8" Tube)
D	1	First Post Bottom (6' W6 x 15)
E	1	Second Post Assembly Top
F	1	Second Post Assembly Bottom
G	1	Bearing Plate
H	1	Cable Anchor Assembly
J	1	BCT Cable Anchor Assembly
K	1	Strut
		Hardware (All Dimensions in Inches)
a	2	5/16" x 1 Hex Bolt Grd 5
b	4	5/16" Washer
c	2	5/16" Hex Nut
d	9	5/8" Dia. x 1-1/4" Splice Bolt (Post #2)
e	2	5/8" x 9 Hex Bolt Grd 5
f	3	5/8" Washer
g	11	5/8" Dia. H.G.R. Nut
h	1	3/4" Dia. x 8-1/2" Hex bolt Grd A449
j	1	3/4" Dia. Hex Nut
k	2	1" Anchor Cable Hex Nut
l	2	1" Anchor Cable Washer
m	8	1/2" Rsi Shoulder Bolt w/ Washer
n	8	1/2" Structural Nut
o	8	1/2" Structural Washer
p	1	Bearing Plate Retainer Tie



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Kyle Shinyama APRIL 30, 2026 LIC. EXP. DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

MKST SP-MGS (TL-2) END  
TERMINAL DETAILS

Honoapi'ilani Highway  
Rehabilitation of Honolulu Bridge  
F.A.P. No. BR-030-1(37)

Scale: As Shown Date: August 2024

SHEET No. C5.06 OF 42 SHEETS