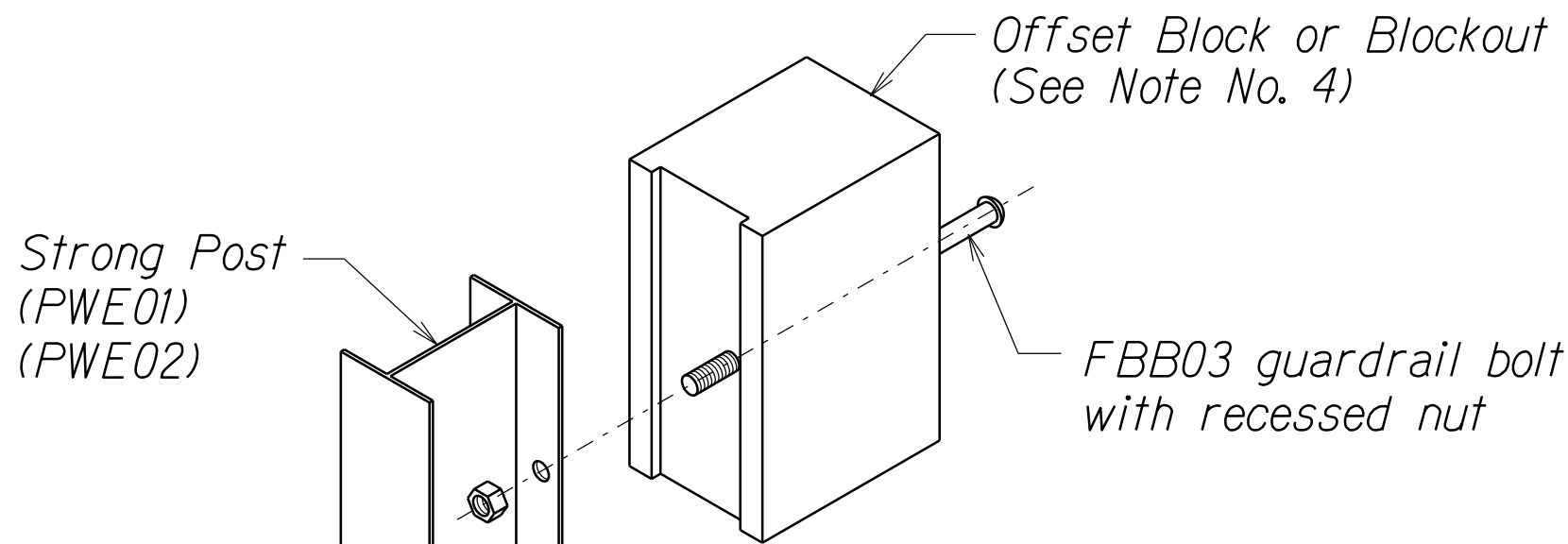


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-HI-1(275)	2021	22	65

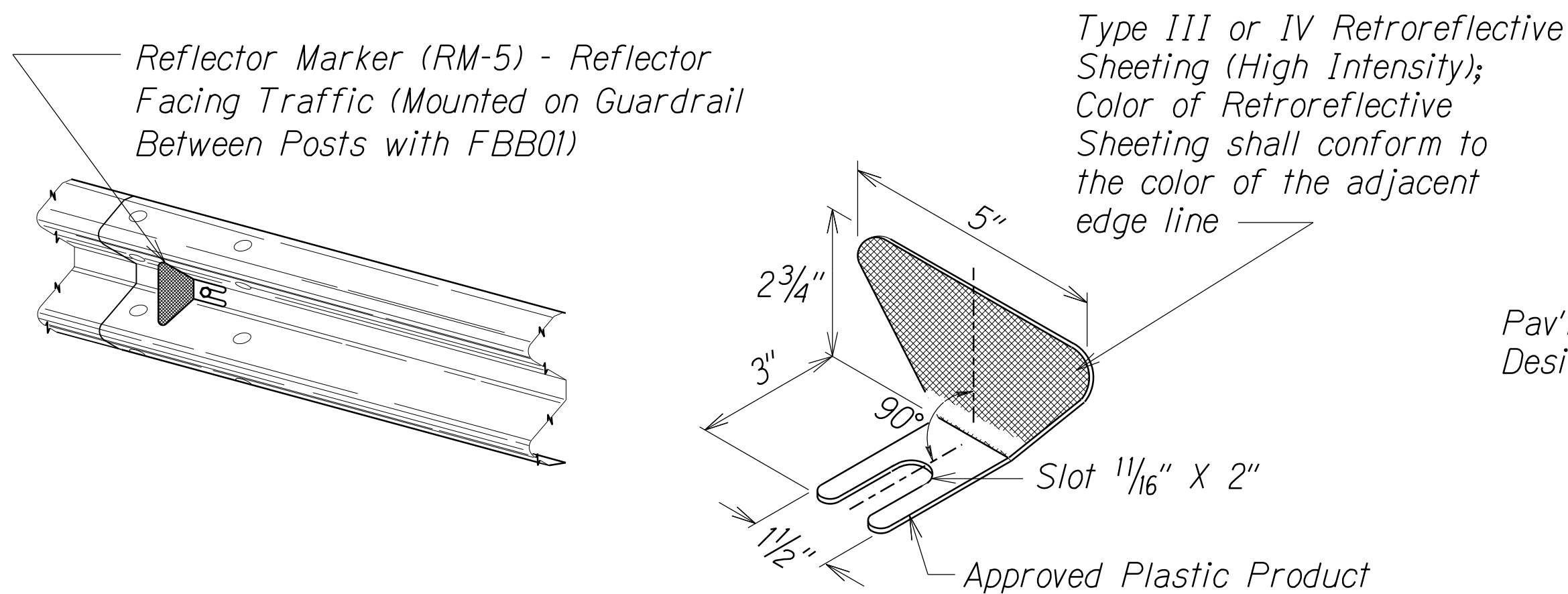
GENERAL NOTES

- All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
- Where conditions require, special post lengths in increments of 6 inches may be specified by the Engineer.
- 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.
- The Blockout or Offset Block shall be approved by the State.
- All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
- 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.
- When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.
- Minimum working width (clear distance) between back of MGS post to any fixed object is 4'-1" (49").
- New Hot Mix Asphalt (HMA) pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends. Work shall be paid under Item 401.2000 - HMA Pavement, Mix No. IV (Under Guardrail).
- 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.
- Where A.C. pavement exists under and behind existing guardrail, sawcut and remove existing A.C. pavement up to 1'-0" behind new guardrail. Apply tack coat to sawcut face prior to placing new HMA pavement. Work shall be considered incidental to guardrail installation (see Note 13).
- HMA Pavement for Additional Paved Area shall be paid under Item 401.2000 - HMA Pavement, Mix No. IV (Under Guardrail)
- All work related to guardrail installation except for HMA Pavement will be considered incidental to Item 606.1000 - MGS Guardrail (Type 3) or Item 606.1100 - MGS Guardrail (Type 3) with 8' posts at 6'-3" o.c.

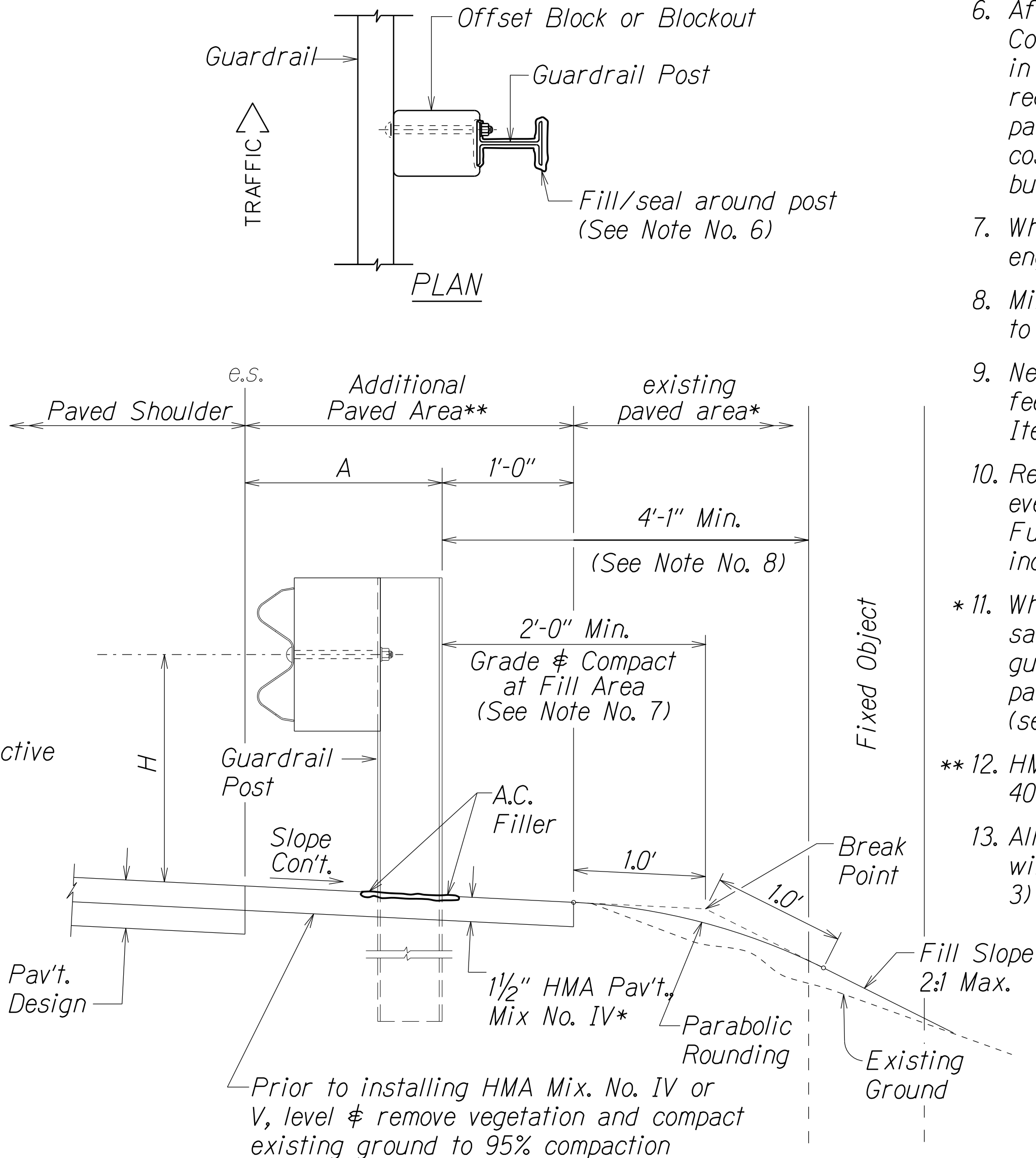
GUARDRAIL TYPE	DIMENSION	
	H	A
MGS w/ Standard 8" Offset Block	2'-1"	1'-6"
MGS w/ No Blockout	2'- $\frac{7}{8}$ "	9 $\frac{1}{4}$ "



Exploded View  
(Rail and washer not shown)  
STEEL POST AND BLOCK DETAIL



REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION



ELEVATION

TYPICAL GUARDRAIL INSTALLATION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

GUARDRAIL DETAILS & NOTES

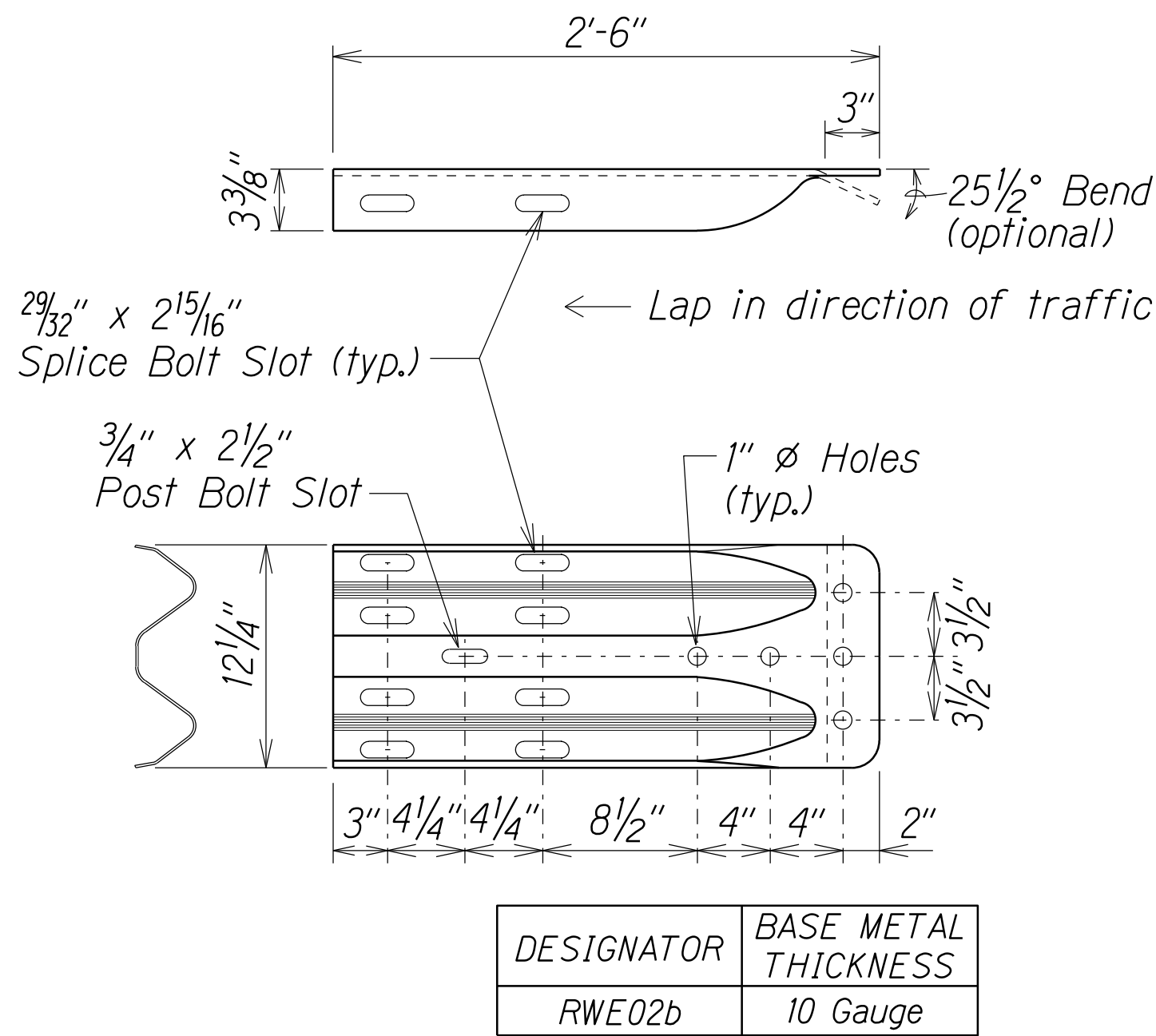
INTERSTATE ROUTE H-1 REHABILITATION  
SALT LAKE BOULEVARD TO AIRPORT VIADUCT  
FEDERAL-AID PROJECT NO. NH-HI-1(275)

Scale: NTS Date: October, 2021

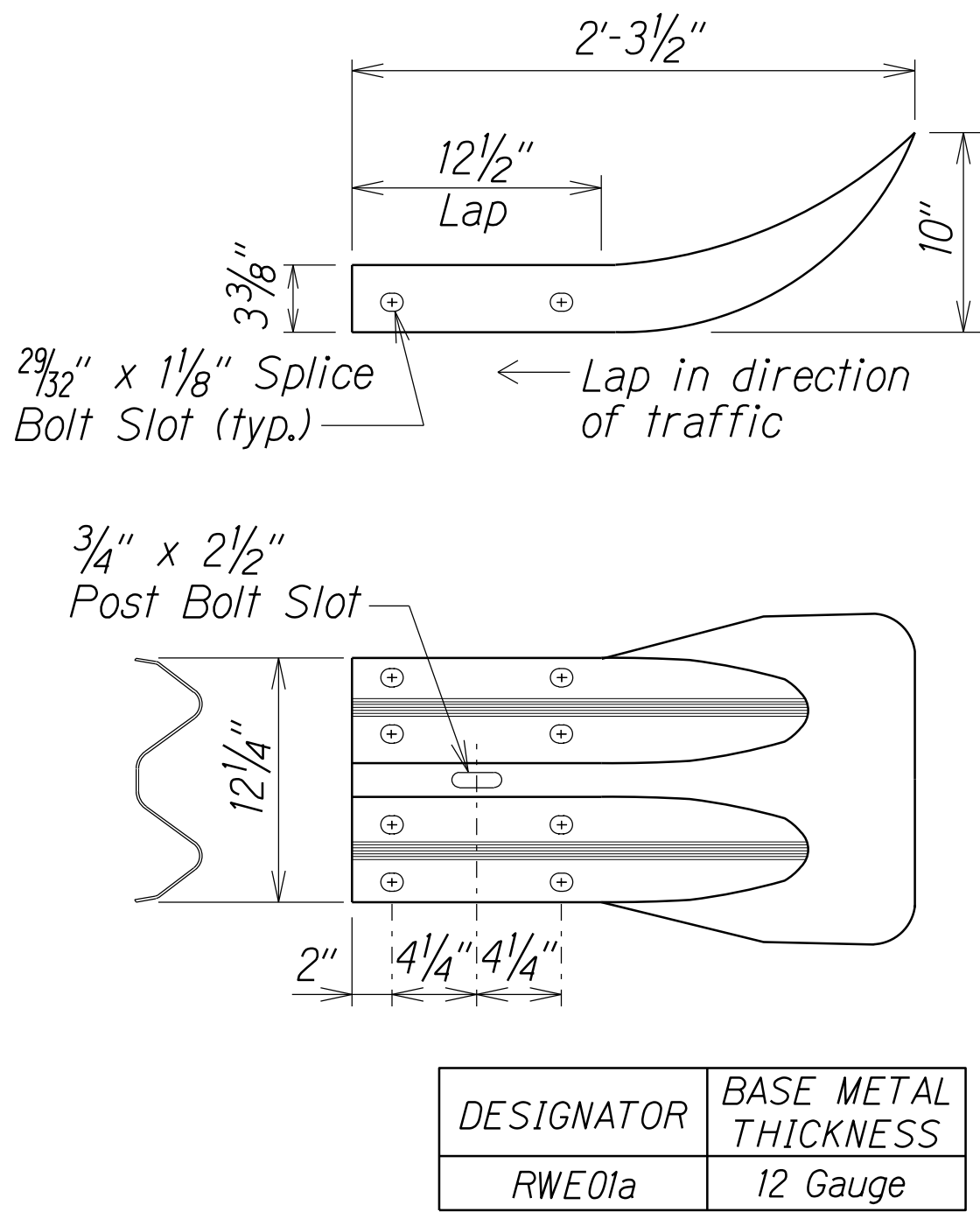
SHEET No. 1 OF 7 SHEETS



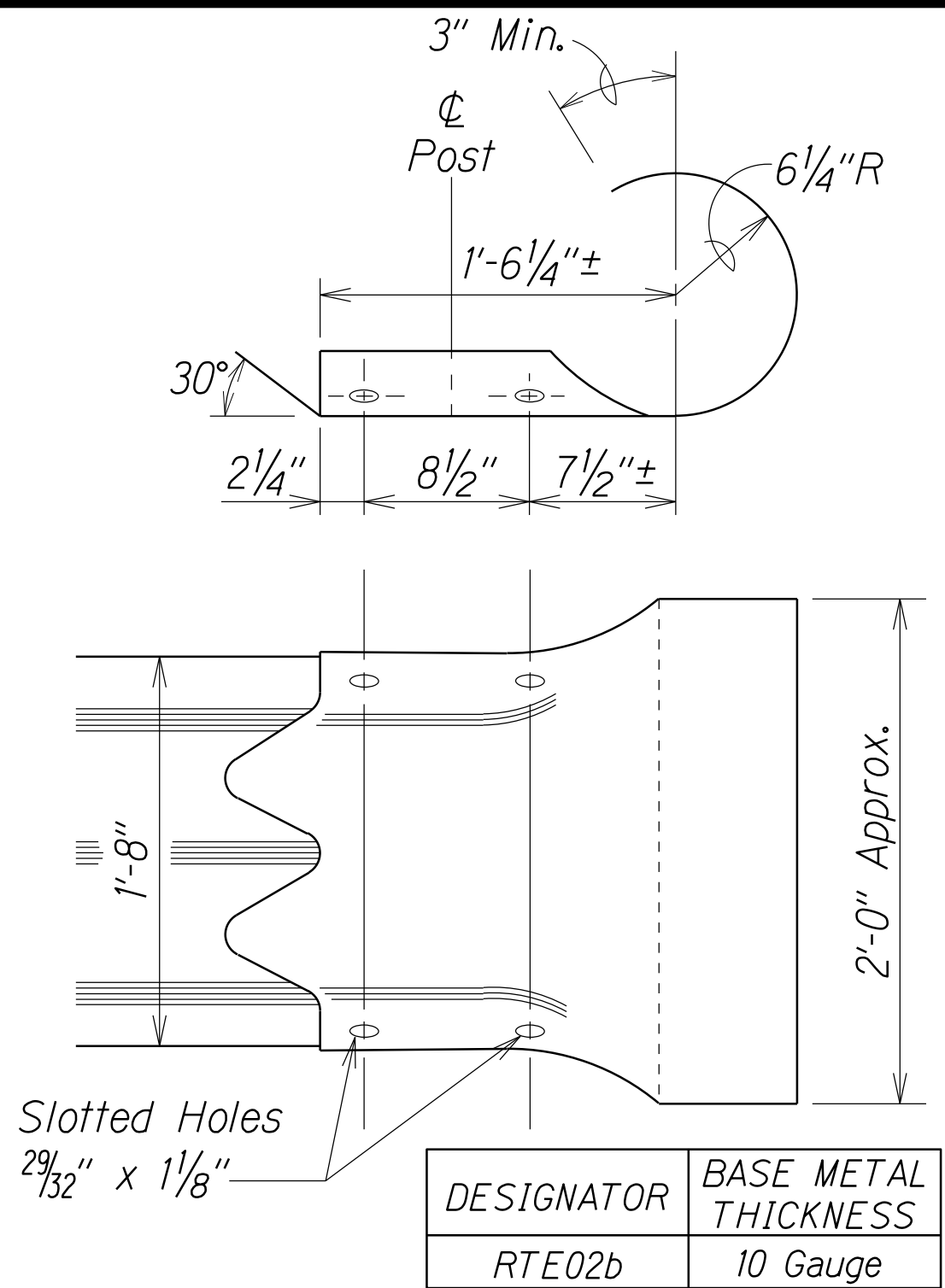
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-HI-1(K275)	2021	24	65



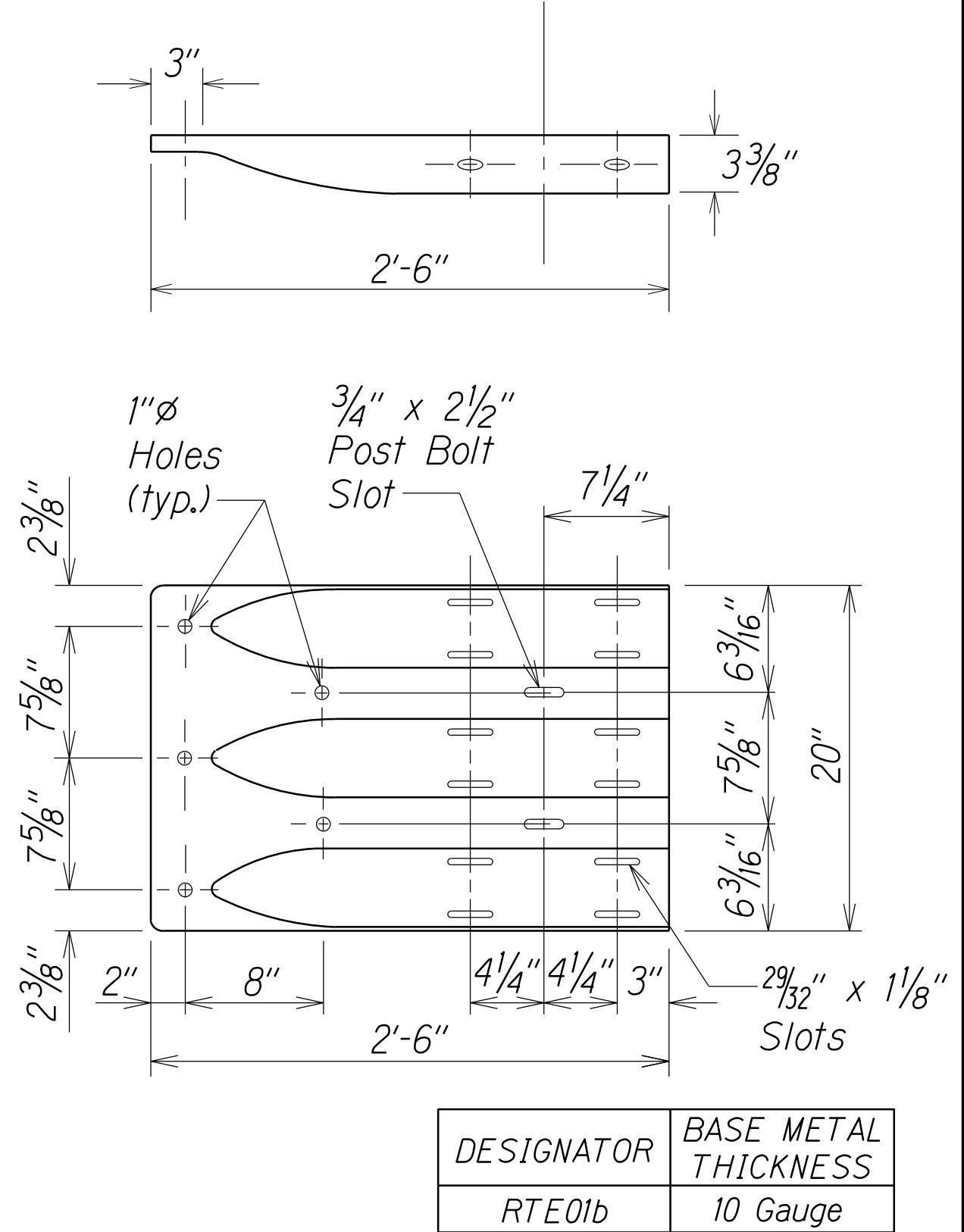
W-BEAM TERMINAL CONNECTOR (RWE02b)



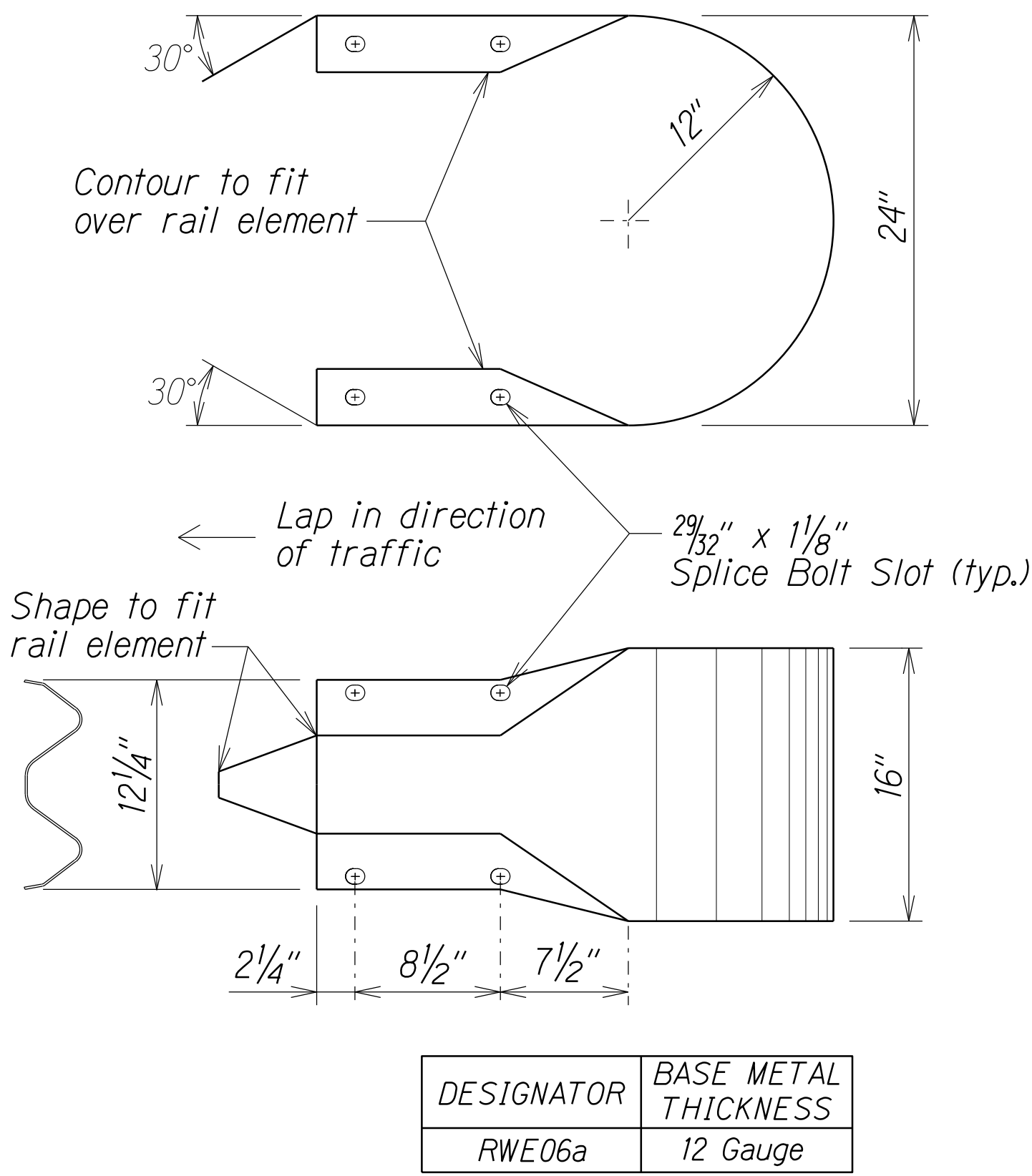
W-BEAM END SECTION (FLARED RWE01a)



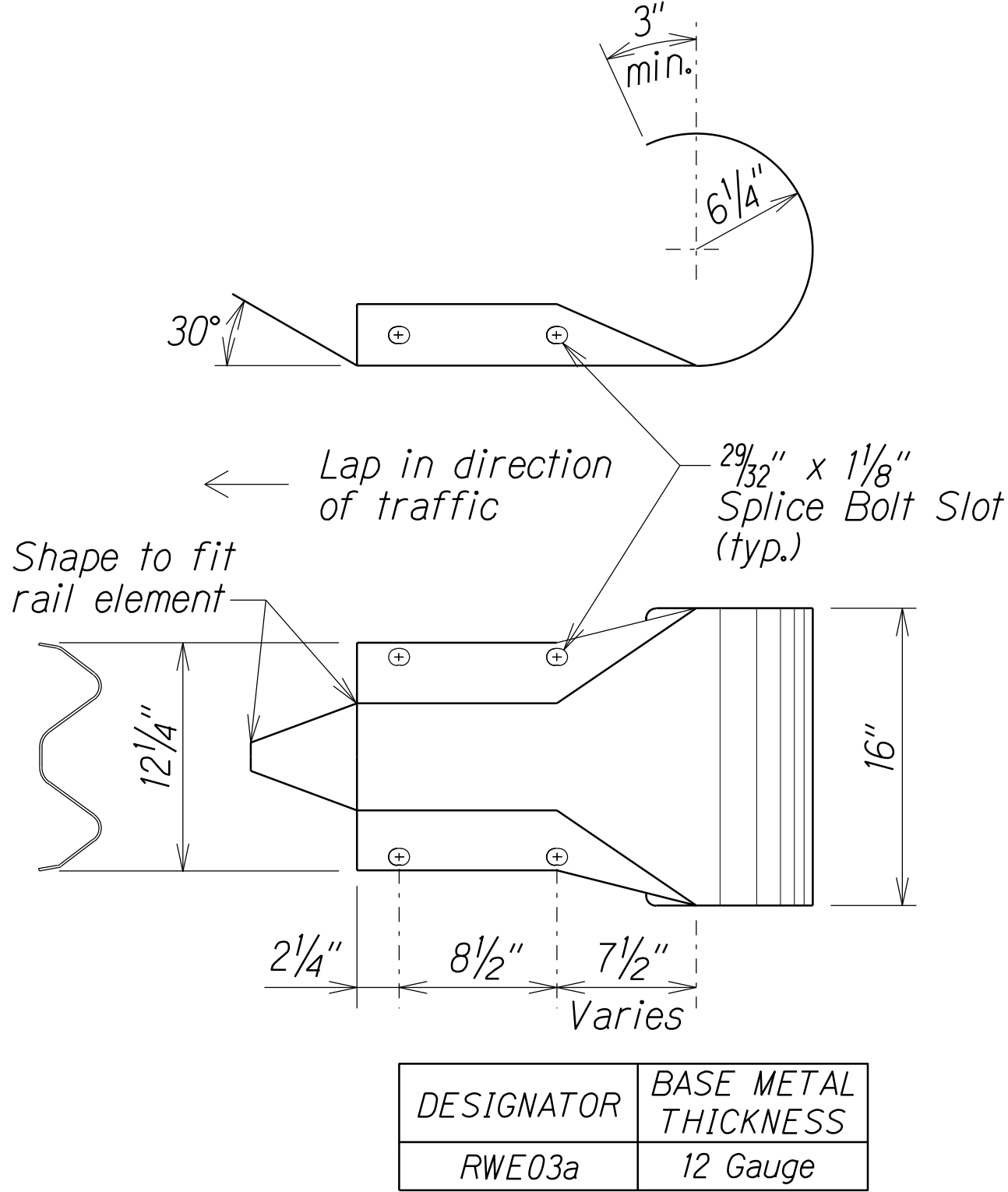
THRIE-BEAM SECTION (ROUNDED) (RTE02b)



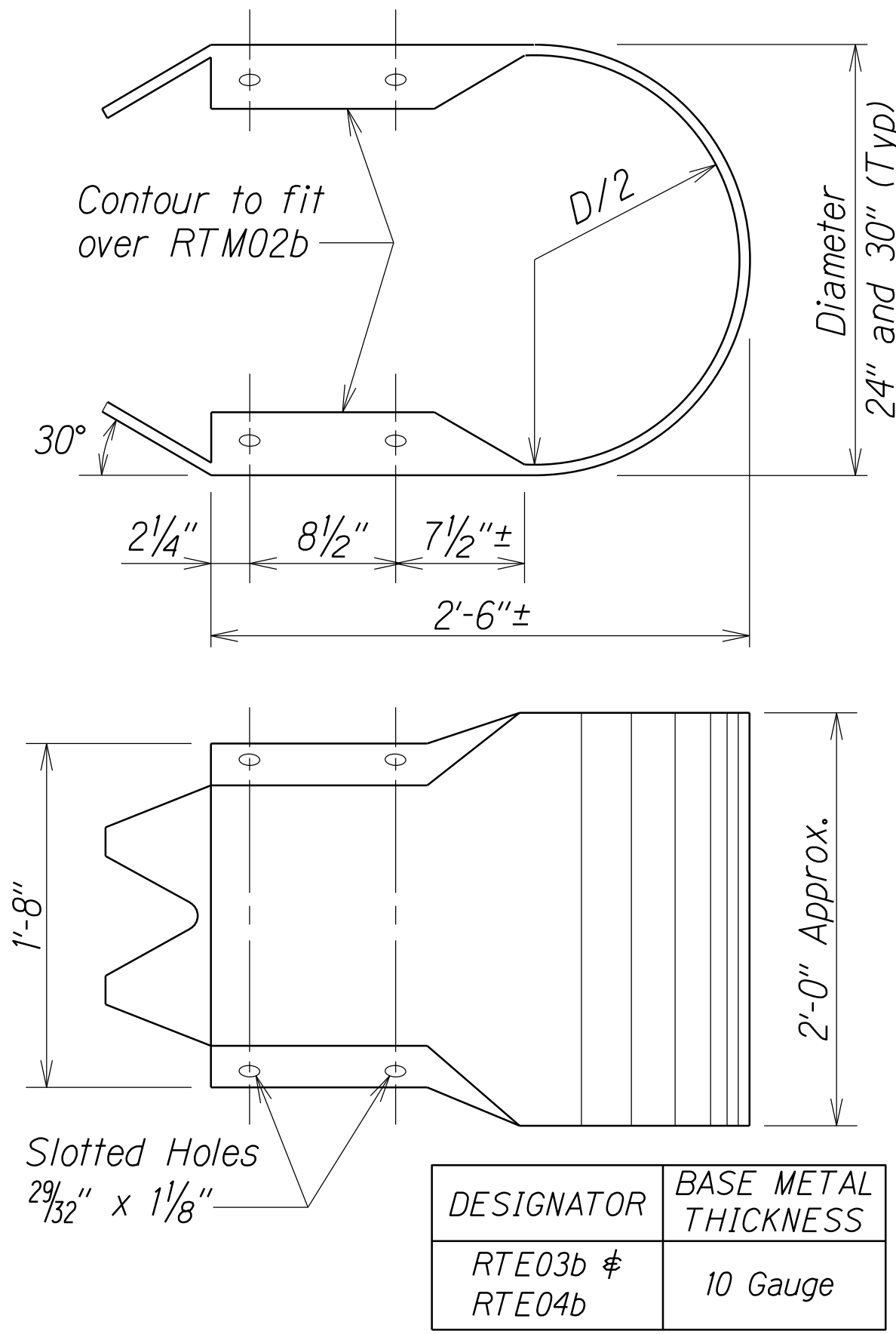
THRIE-BEAM TERMINAL CONNECTOR (RTE01b)



W-BEAM END SECTION (BUFFER RWE06a)



W-BEAM END SECTION (ROUNDED RWE03a)



THRIE-BEAM END SECTION (BUFFER RTE03b or RTE04b)

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

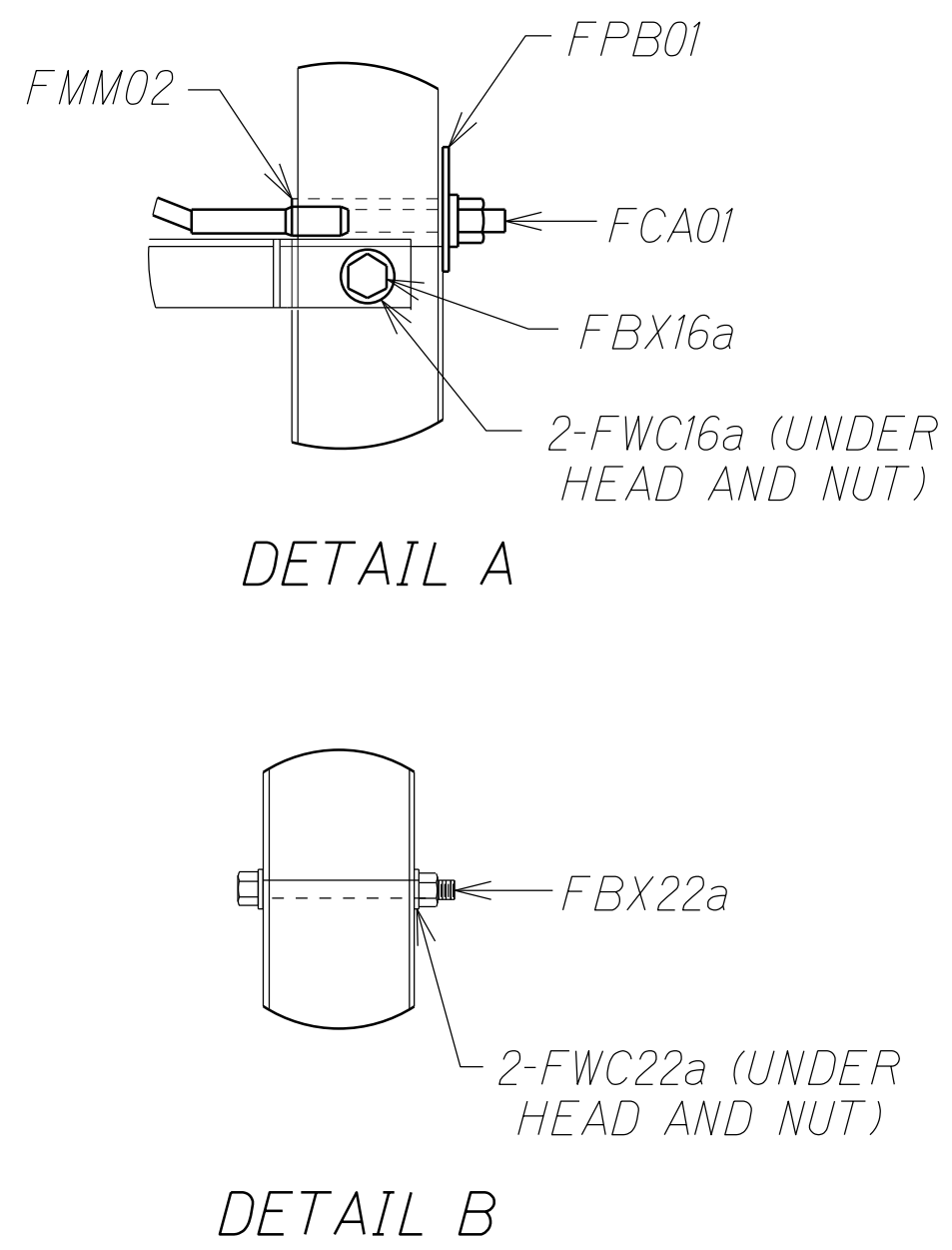
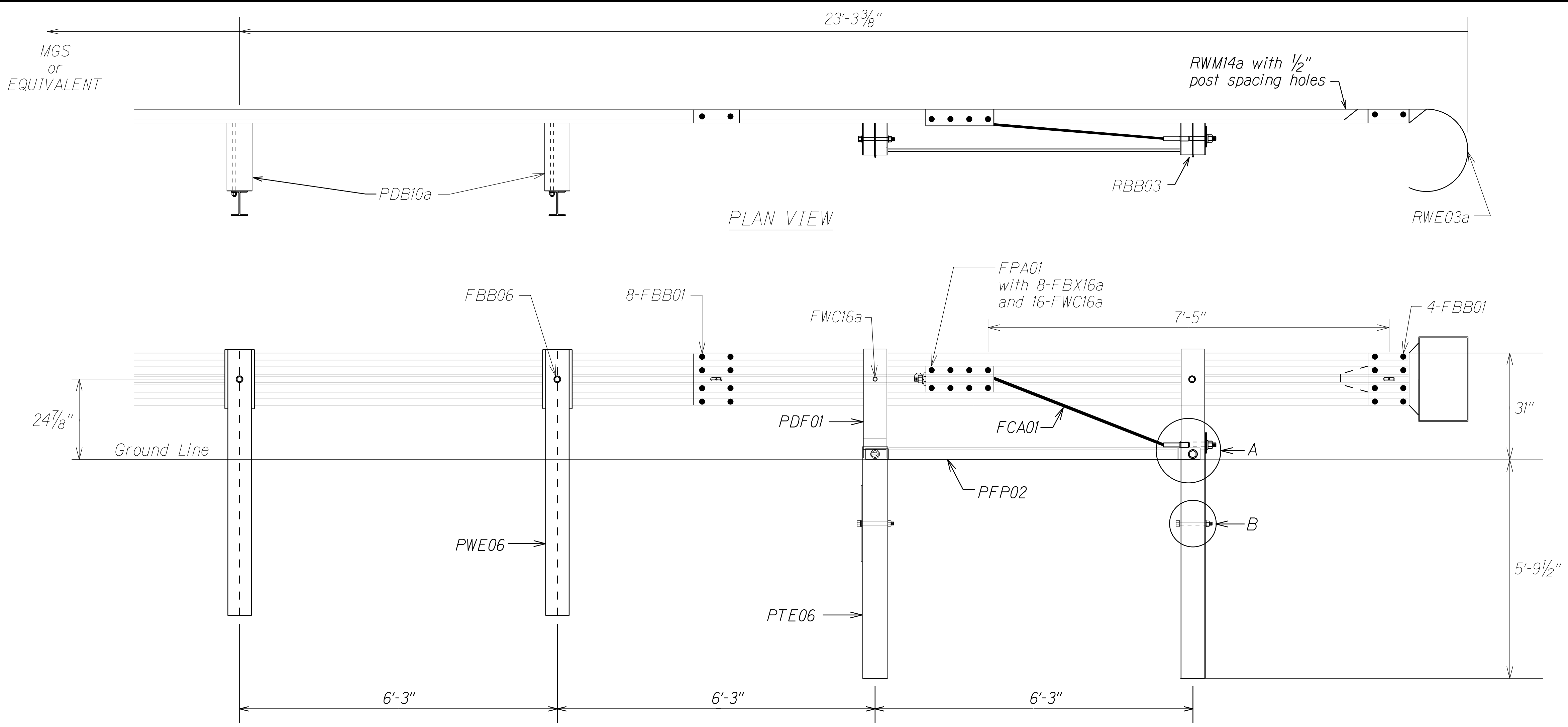
**GUARDRAIL TERMINAL CONNECTORS  
AND END SECTIONS**

INTERSTATE ROUTE H-1 REHABILITATION  
SALT LAKE BOULEVARD TO AIRPORT VIADUCT  
FEDERAL-AID PROJECT NO. NH-HI-1(K275)

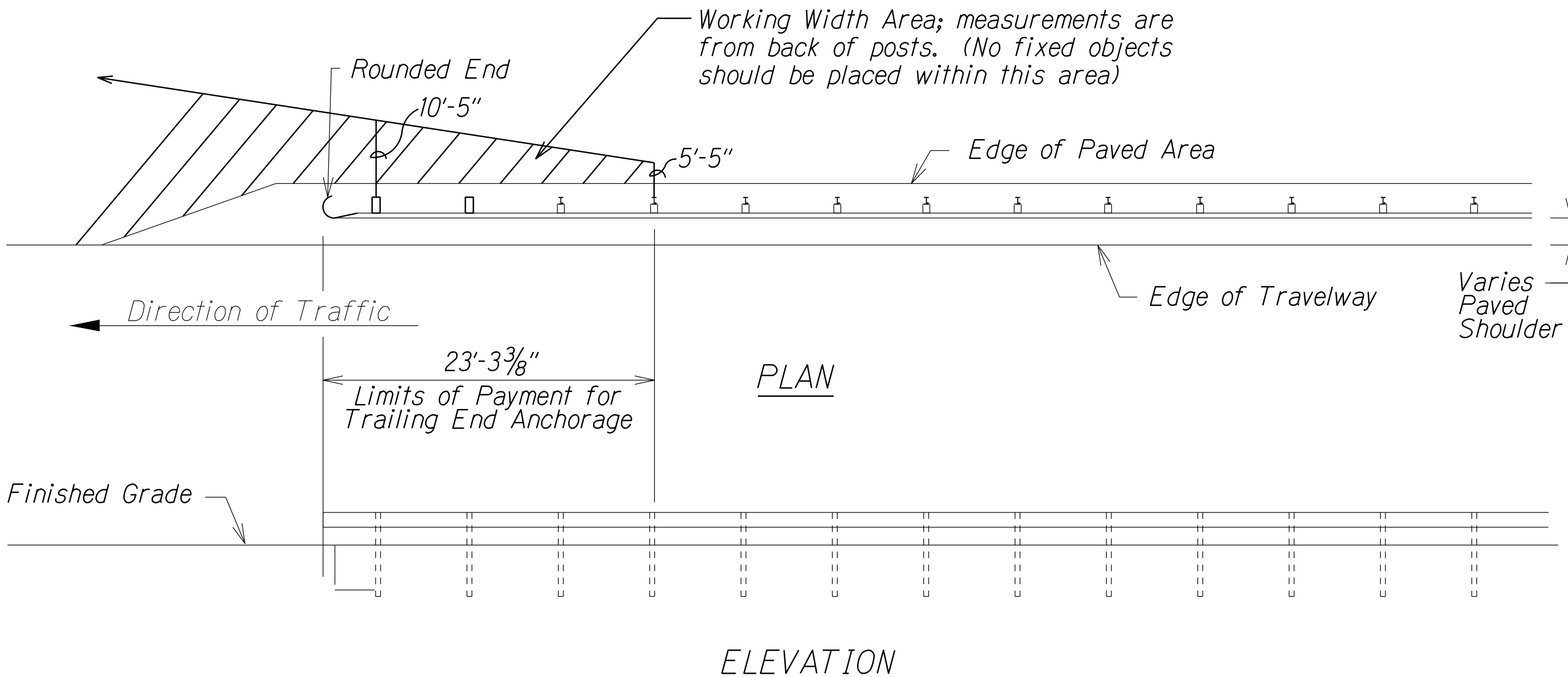
Scale: NTS Date: October, 2021

SHEET No. 3 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-HI-1(275)	2021	25	65



ITEM NO.	QTY	COMPONENTS
FBB01	12	Guardrail Bolt and Nut
FBB03	2	Guardrail Bolt and Nut
FBB06	1	Guardrail Bolt and Nut
FBX16a	2	Hex Head Bolt (10") and Nut
FBX16a	8	Hex Head Bolt (1 1/2") and Nut
FBX22a	2	Hex Head Bolt (7 1/2") and Nut
FCA01	1	BCT Anchor Cable Assembly
PDB10a	2	MGS Timber Blockout
PFP02	1	Strut and Yoke Assembly
PWE06	1	Wide-Flange Guardrail Post
FMM02	1	BCT Post Sleeve
FPA01	1	Anchor Bracket Assembly
FPB01	1	BCT Bearing Plate
FWC16a	22	Circular Washer
FWC22a	4	Circular Washer
PDF01	2	BCT Timber Post
PTE06	2	Foundation Tube
RWE03a	1	W-Beam Rounded End Section
RWM14a	1	W-Beam MGS End Section



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	

11/16/17 1d2m/guardrail/M-8

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAILING-END ANCHORAGE  
SYSTEM**

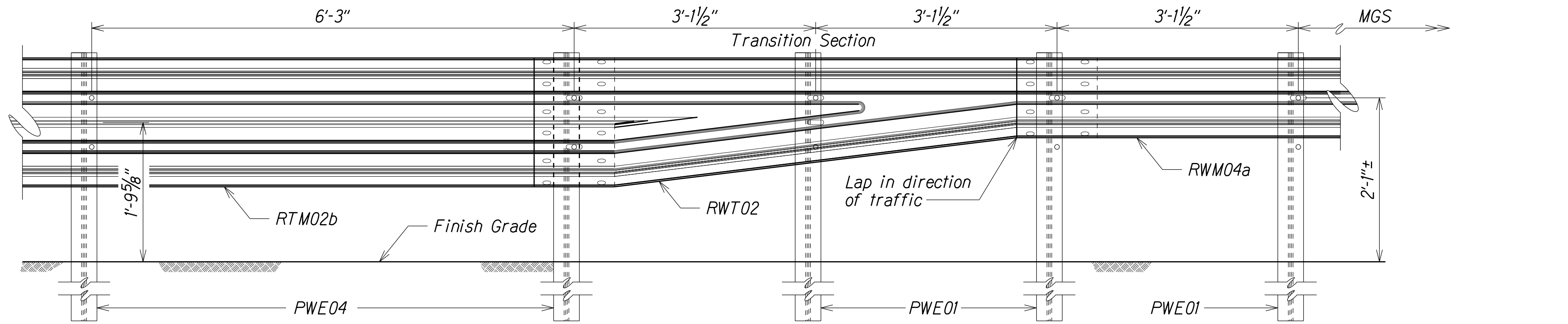
INTERSTATE ROUTE H-1 REHABILITATION  
SALT LAKE BOULEVARD TO AIRPORT VIADUCT  
FEDERAL-AID PROJECT NO. NH-HI-1(275)

Scale: NTS Date: October, 2021

SHEET No. 4 OF 7 SHEETS

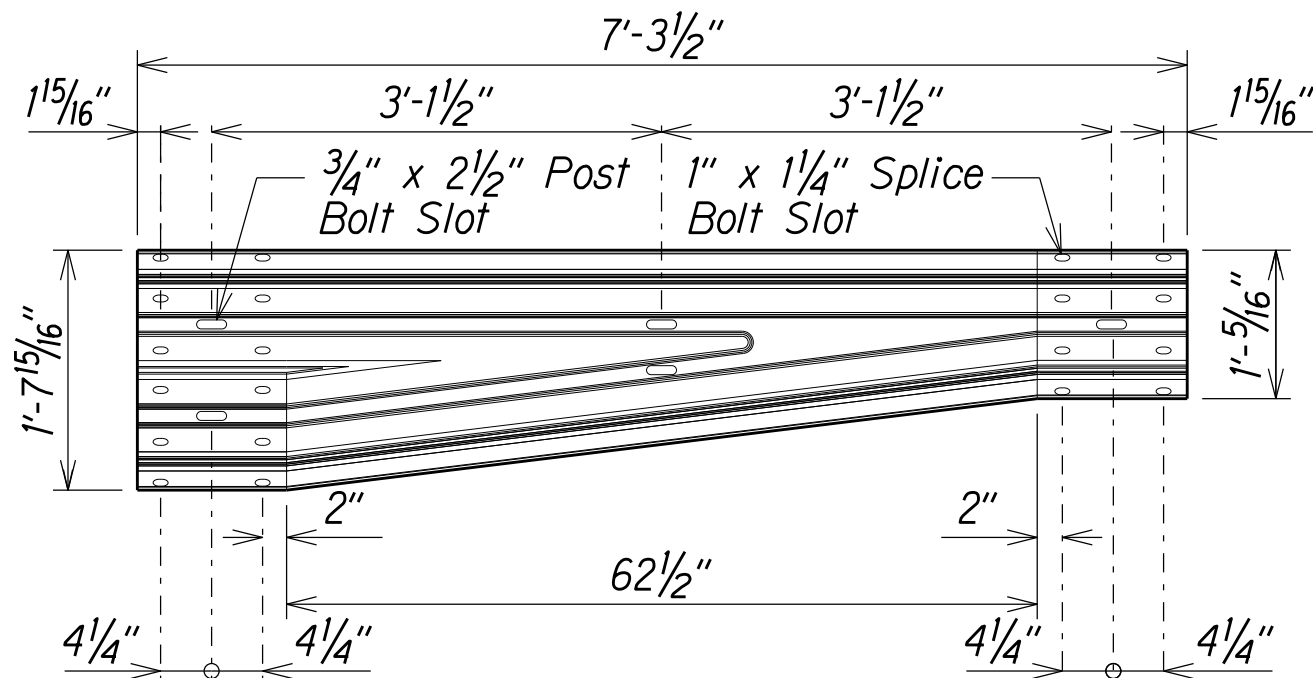


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-HI-1(275)	2021	26	65

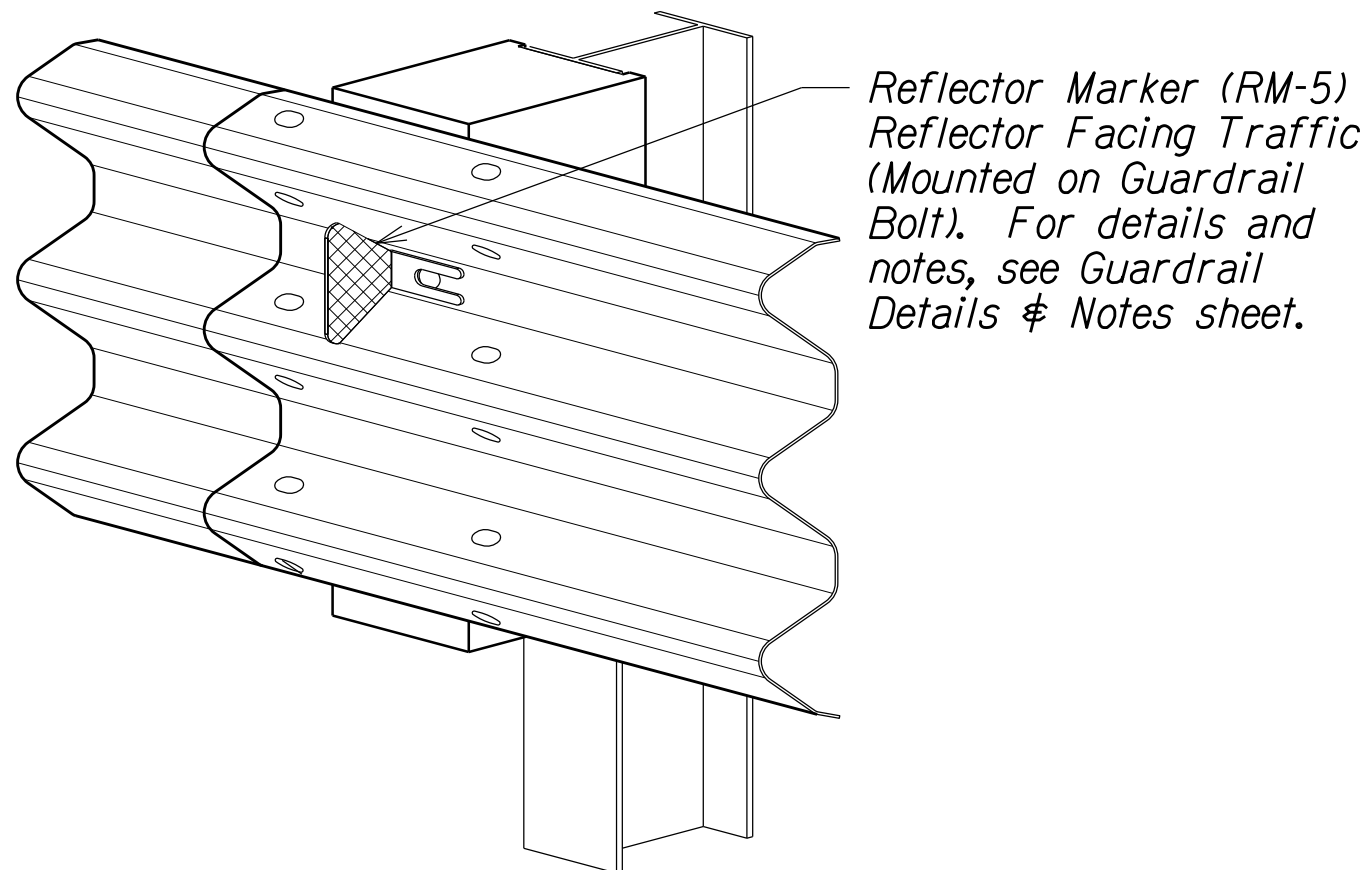


\* Not to be used for Thrie Beam connection to structures.

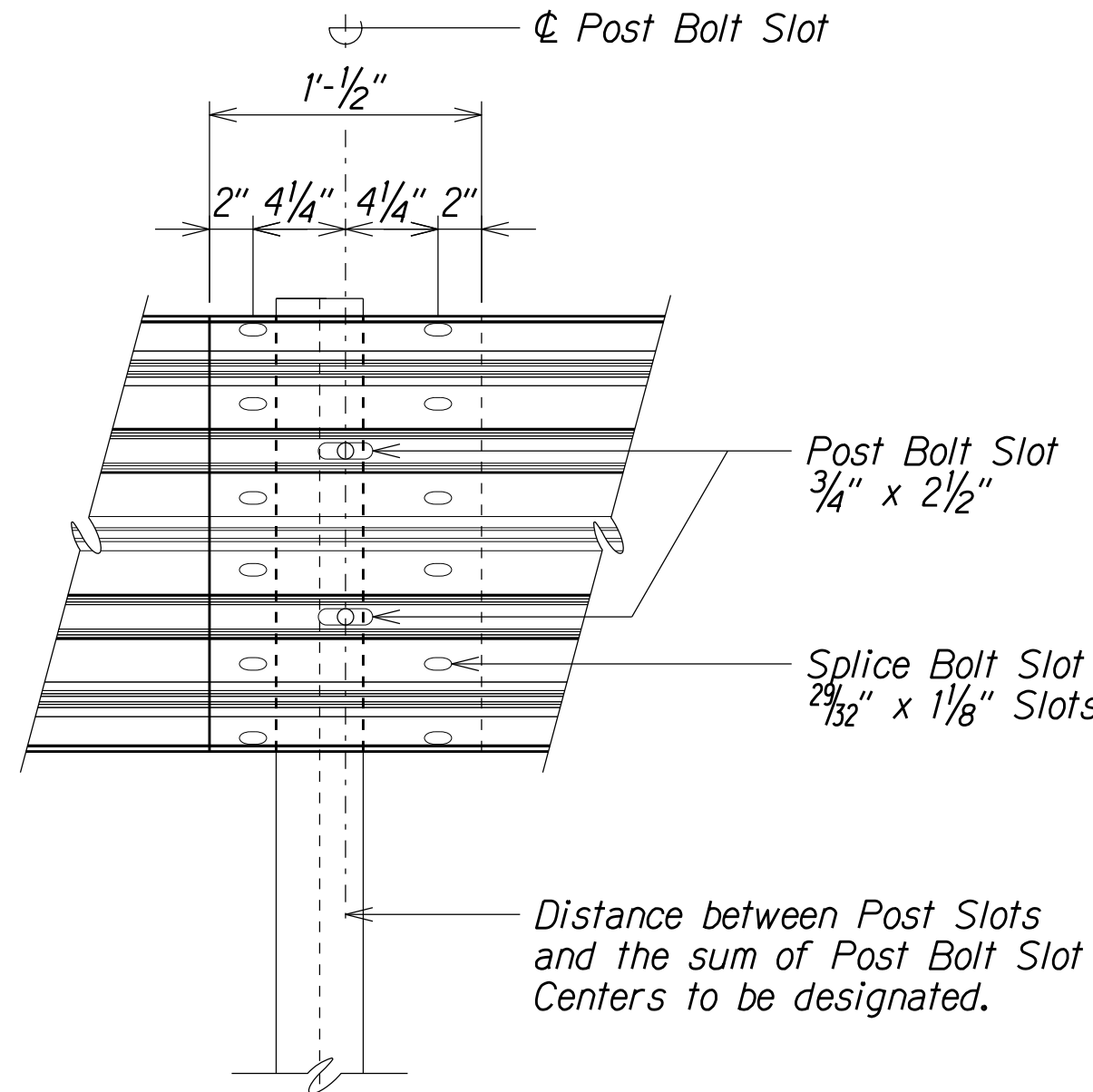
### TRANSITION SECTION\*



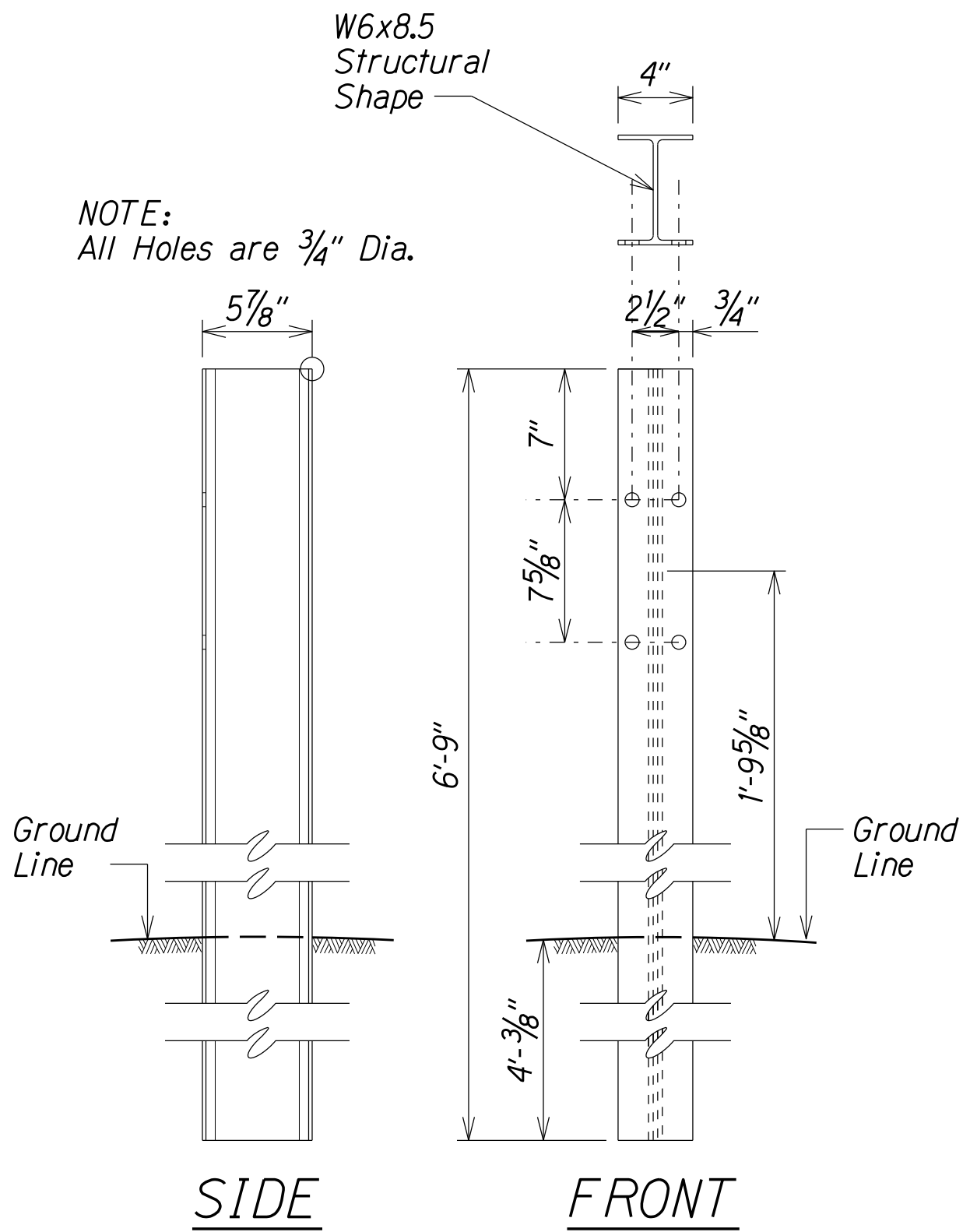
### TRANSITION SECTION (RWT02)



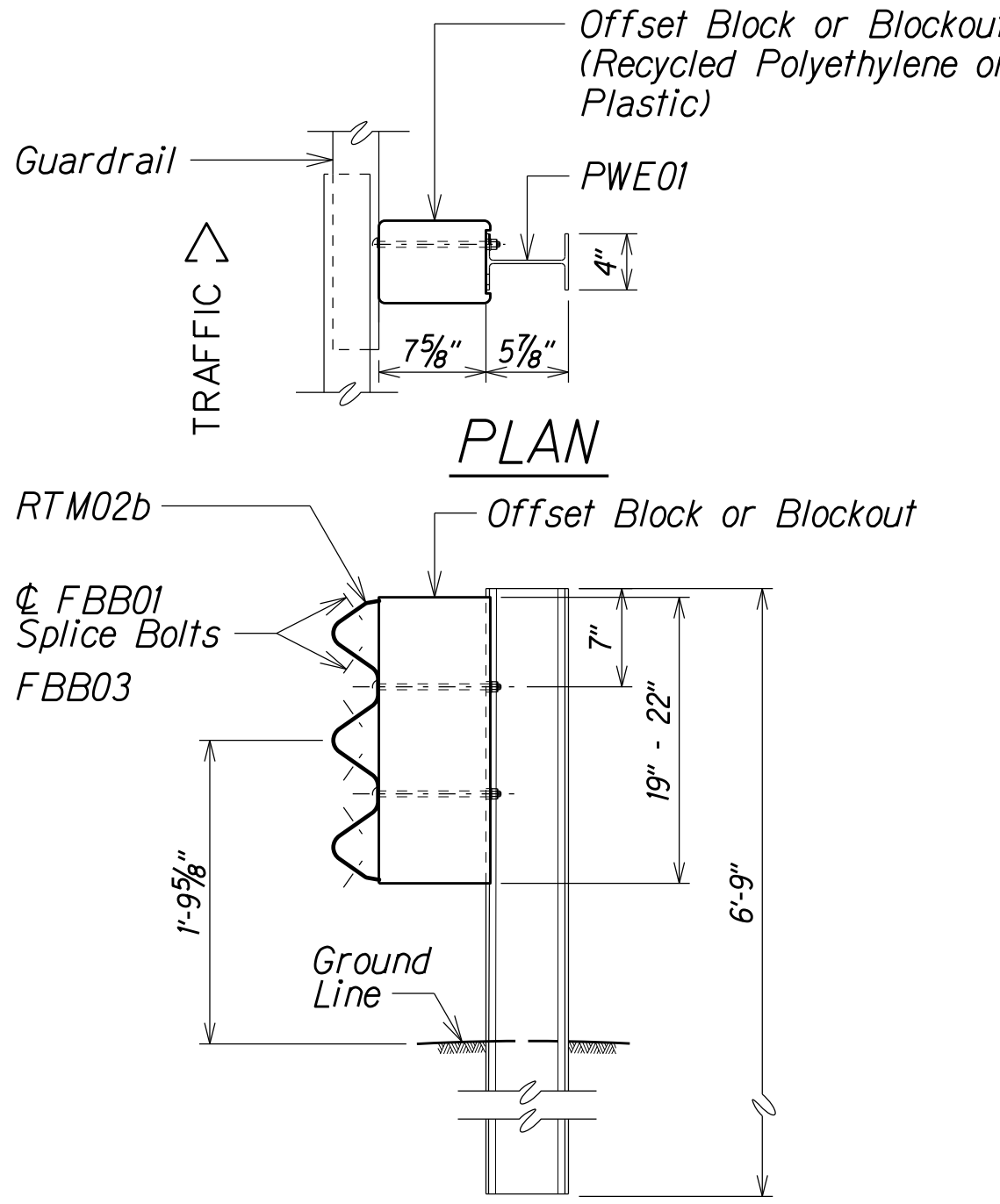
### TYPICAL INSTALLATION OF REFLECTOR MARKER (RM-5)



### RAIL SPLICE



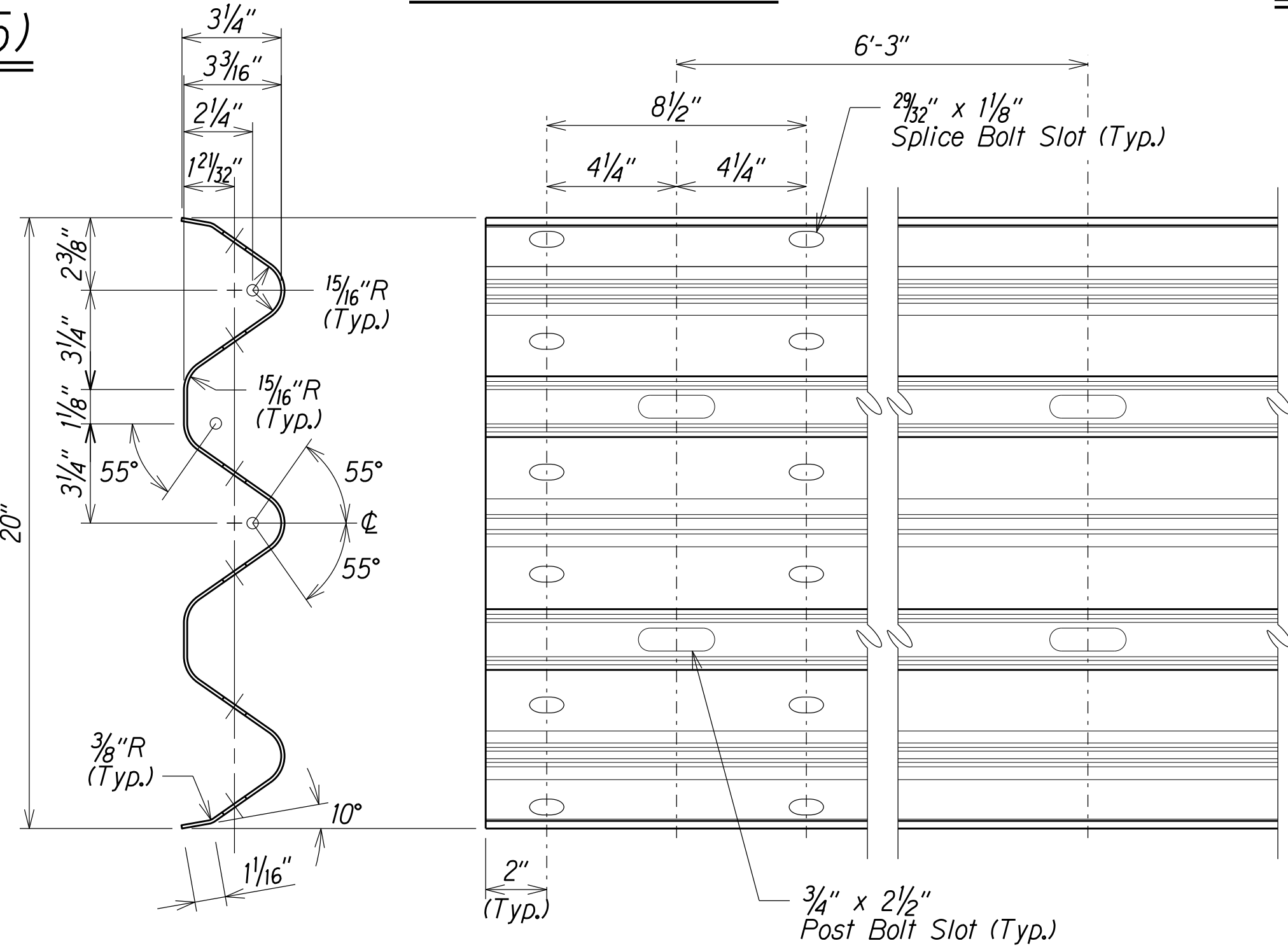
### THRIE-BEAM STRONG POST FOR PLASTIC SPACER BLOCKS PWE04



### STRONG POST THRIE-BEAM GUARDRAIL (SGR09a)

### GUARDRAIL BOLTS AND RECESSED NUT

DESIGNATOR	L
FBB01	1 3/8"
FBB02	2"
FBB03	10"



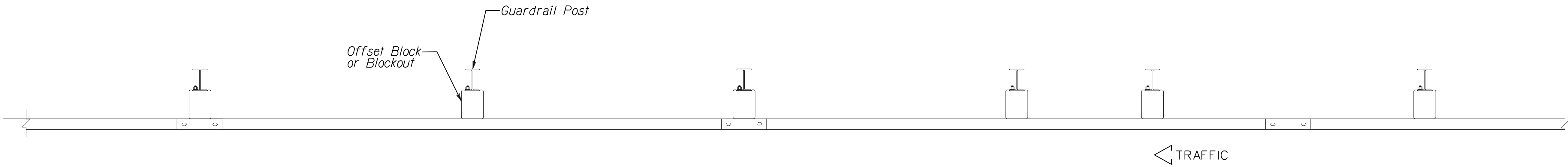
### 1 & 2 SPACE THRIE-BEAM GUARDRAIL (RTM02b)

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

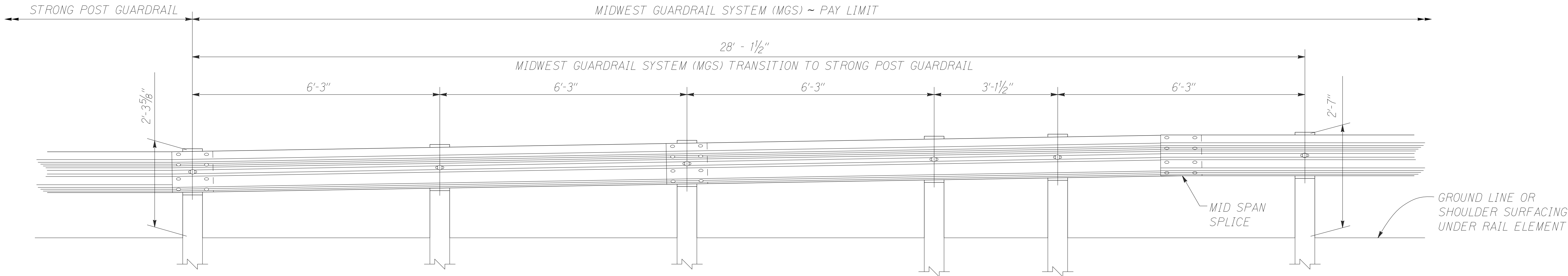
STRONG POST  
THRIE-BEAM GUARDRAIL  
INTERSTATE ROUTE H-1 REHABILITATION  
SALT LAKE BOULEVARD TO AIRPORT VIADUCT  
FEDERAL-AID PROJECT NO. NH-HI-1(275)  
Scale: NTS Date: October, 2021

SHEET No. 5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-HI-1(275)	2021	27	65



PLAN



ELEVATION

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

R09/06/16

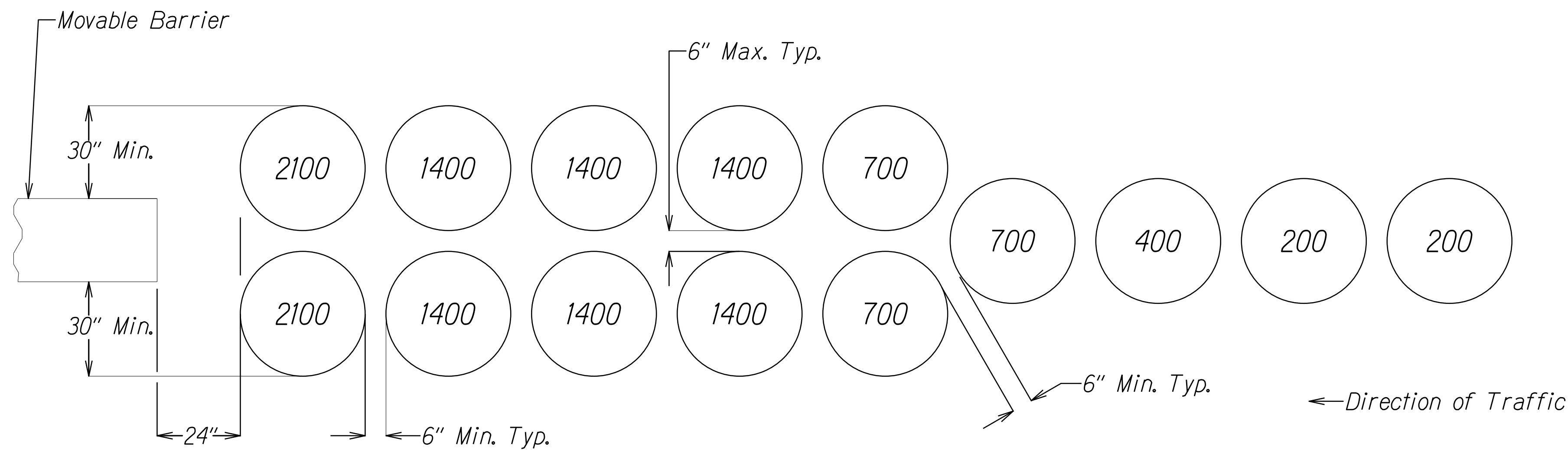
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**MGS TRANSITION TO  
STRONG POST GUARDRAIL**

INTERSTATE ROUTE H-1 REHABILITATION  
SALT LAKE BOULEVARD TO AIRPORT VIADUCT  
FEDERAL-AID PROJECT NO. NH-HI-1(275)  
Scale: NTS Date: October, 2021

SHEET No. 6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-HI-1(275)	2021	28	65



INERTIAL BARRIER SYSTEM (MASH TEST LEVEL 3)  
Scale: N.T.S.

Notes:

1. Inertial Barrier Systems used in this project shall meet the requirements specified in Section 621 and shall be installed per manufacturer's recommendations.

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

INERTIAL BARRIER SYSTEM (TYPE 3)

INTERSTATE ROUTE H-1 REHABILITATION  
SALT LAKE BOULEVARD TO AIRPORT VIADUCT  
FEDERAL-AID PROJECT NO. NH-HI-1(275)  
Scale: NTS  
Date: October, 2021

SHEET No. 7 OF 7 SHEETS