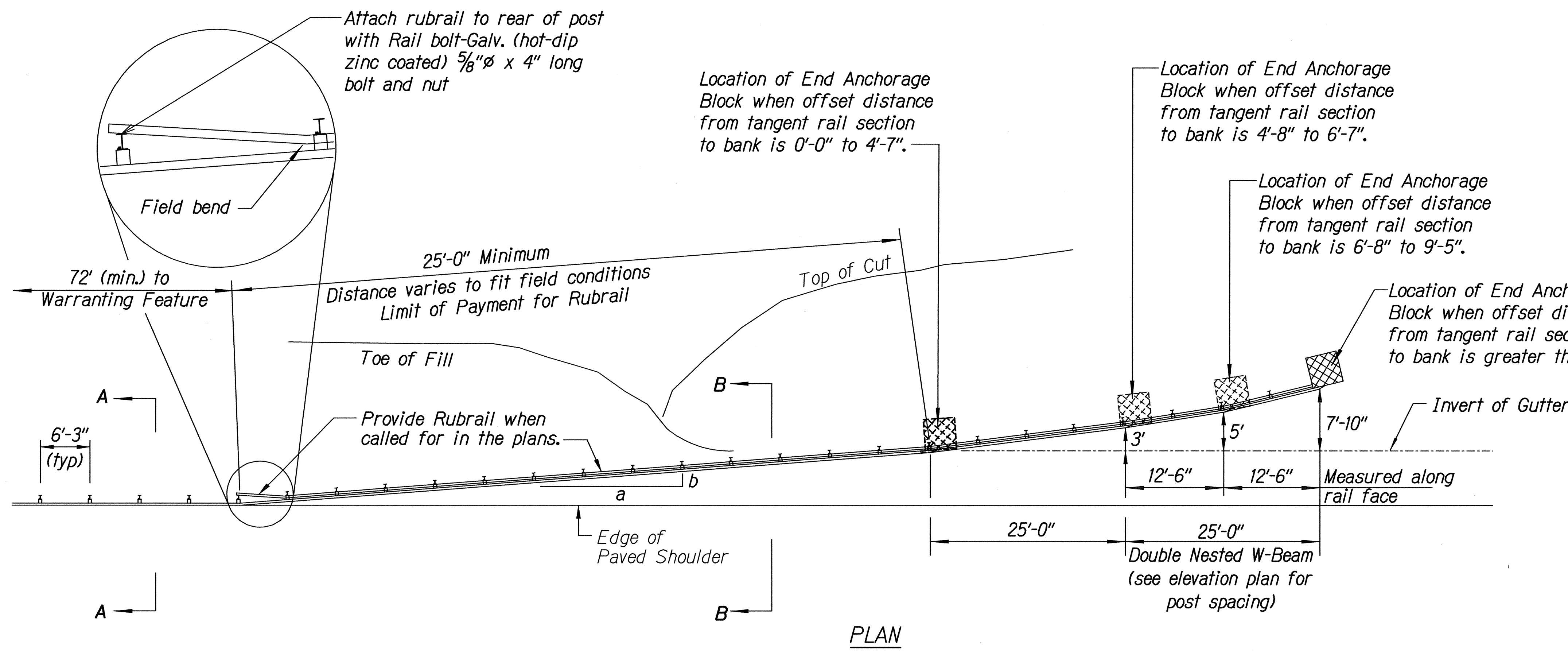
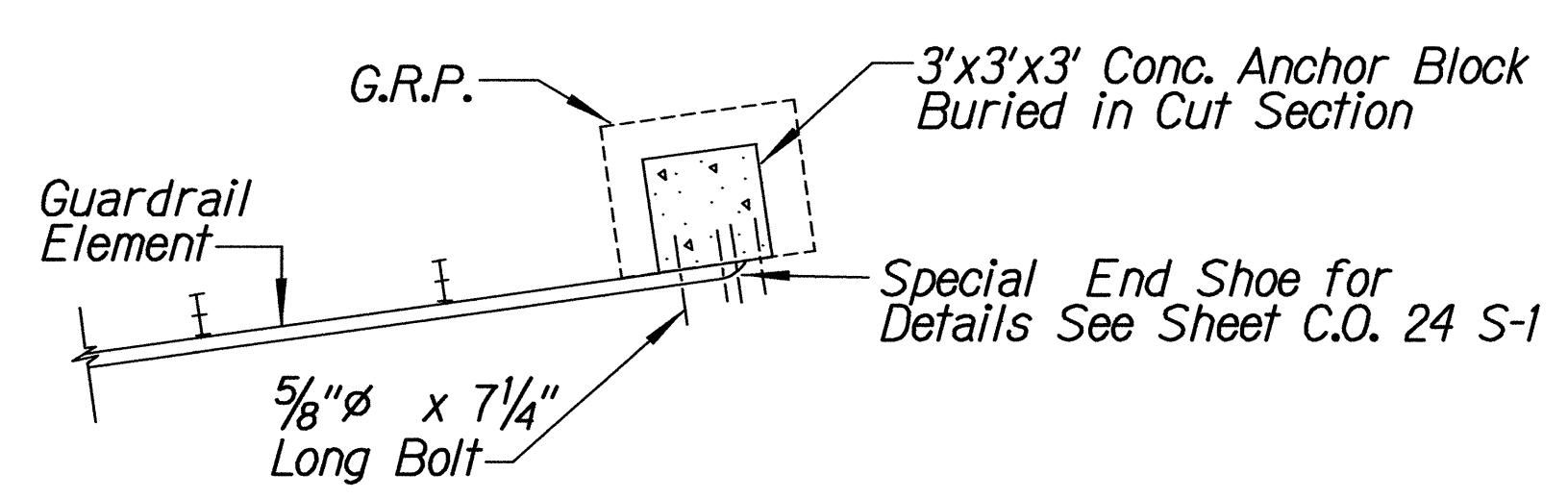
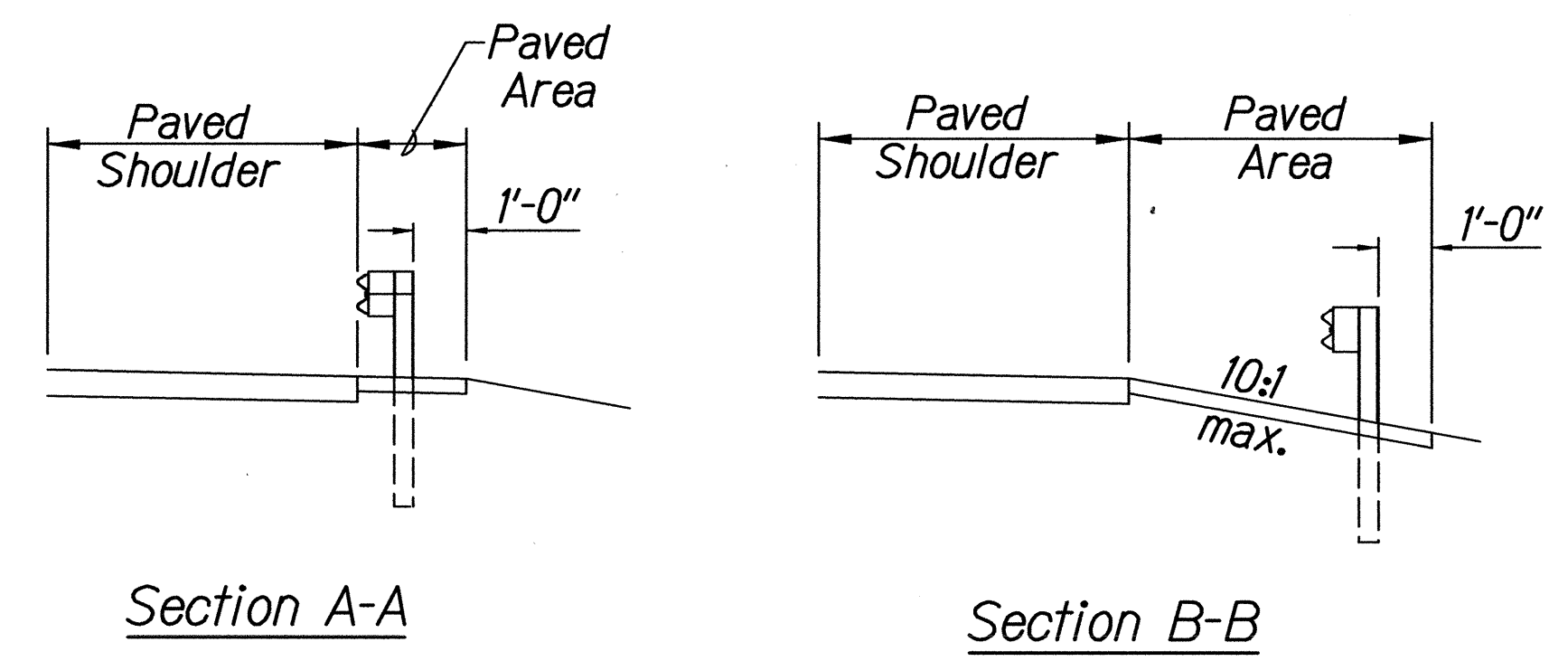
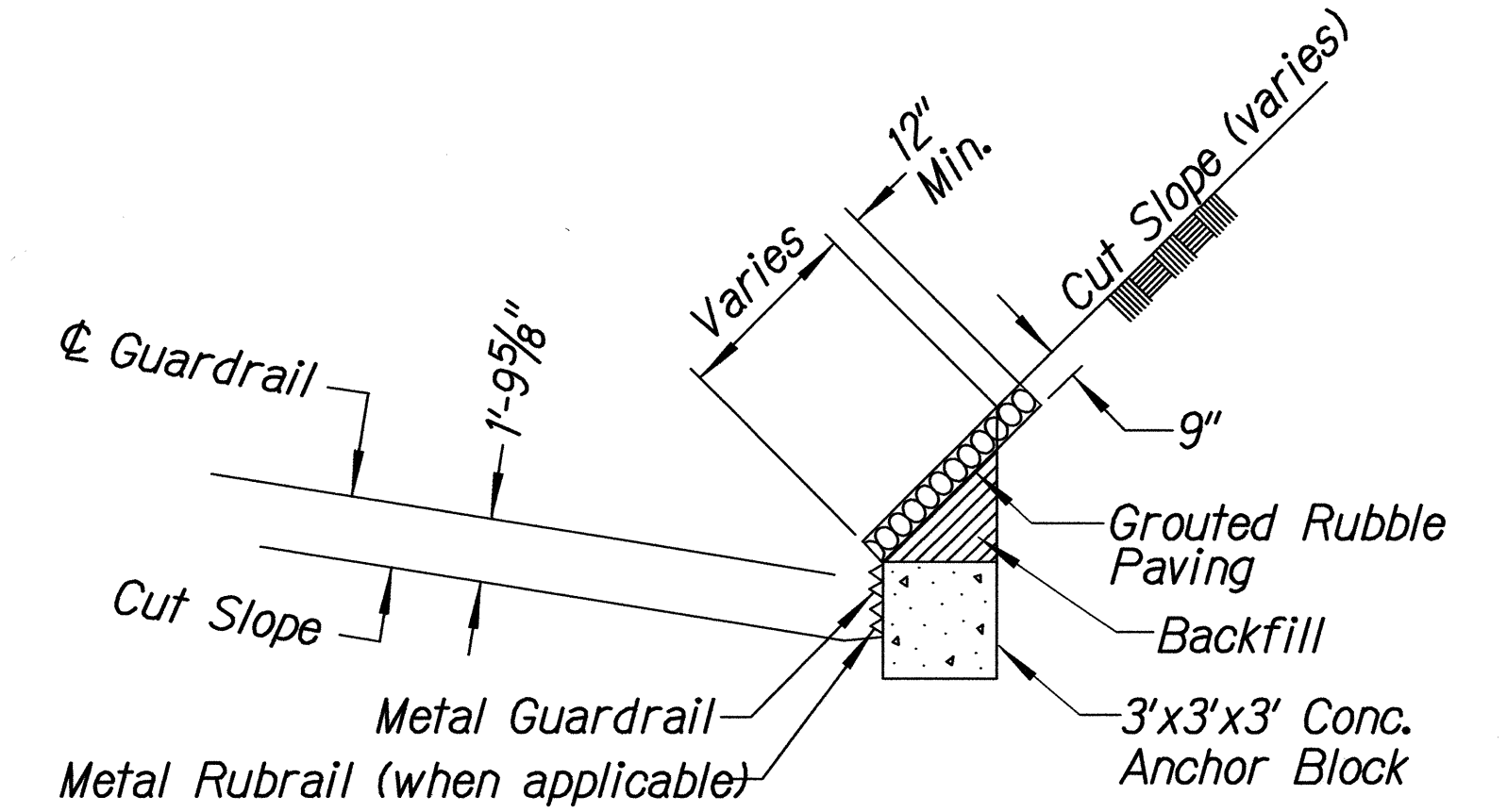
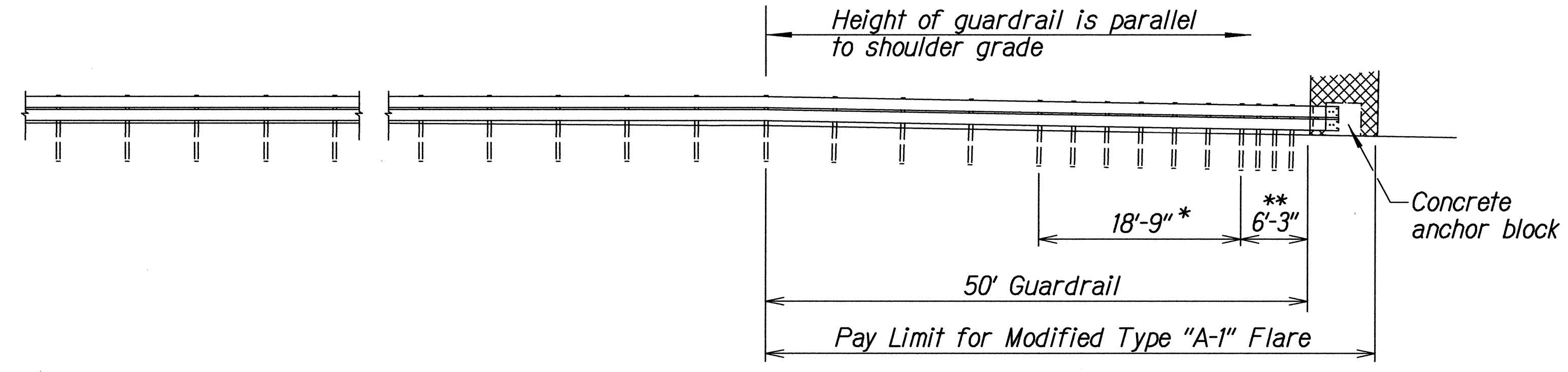


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(38)	2002	C.O. 22	73

- General Notes**
1. All posts are 6'-0" in length within the 50'-0" pay limit for the Modified Type "A-1" Flare without rubrail.
 2. Whenever swales or a change in grade is encountered within the 50'-0" pay limit for the Modified Type "A-1" Flare, a rubrail shall be installed and all posts shall have a minimum embedment of 4'-0". Post lengths shall be adjusted to provide the minimum embedment.
 3. All fasteners, posts, blocks and rail elements 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-AGCARTBA Joint Cooperative Committee and HDOT's Statewide Guideline for Permanent Highway Safety Hardware.
 4. Limit of payment for Modified Type "A-1" Flare shall be 50'-0" from End Shoe including Rubrail (when applicable), Anchor Block and GRP work.
 5. Excavation, Anchor Block, Backfill and GRP work shall be considered incidental to the Modified Type "A-1" Flare.



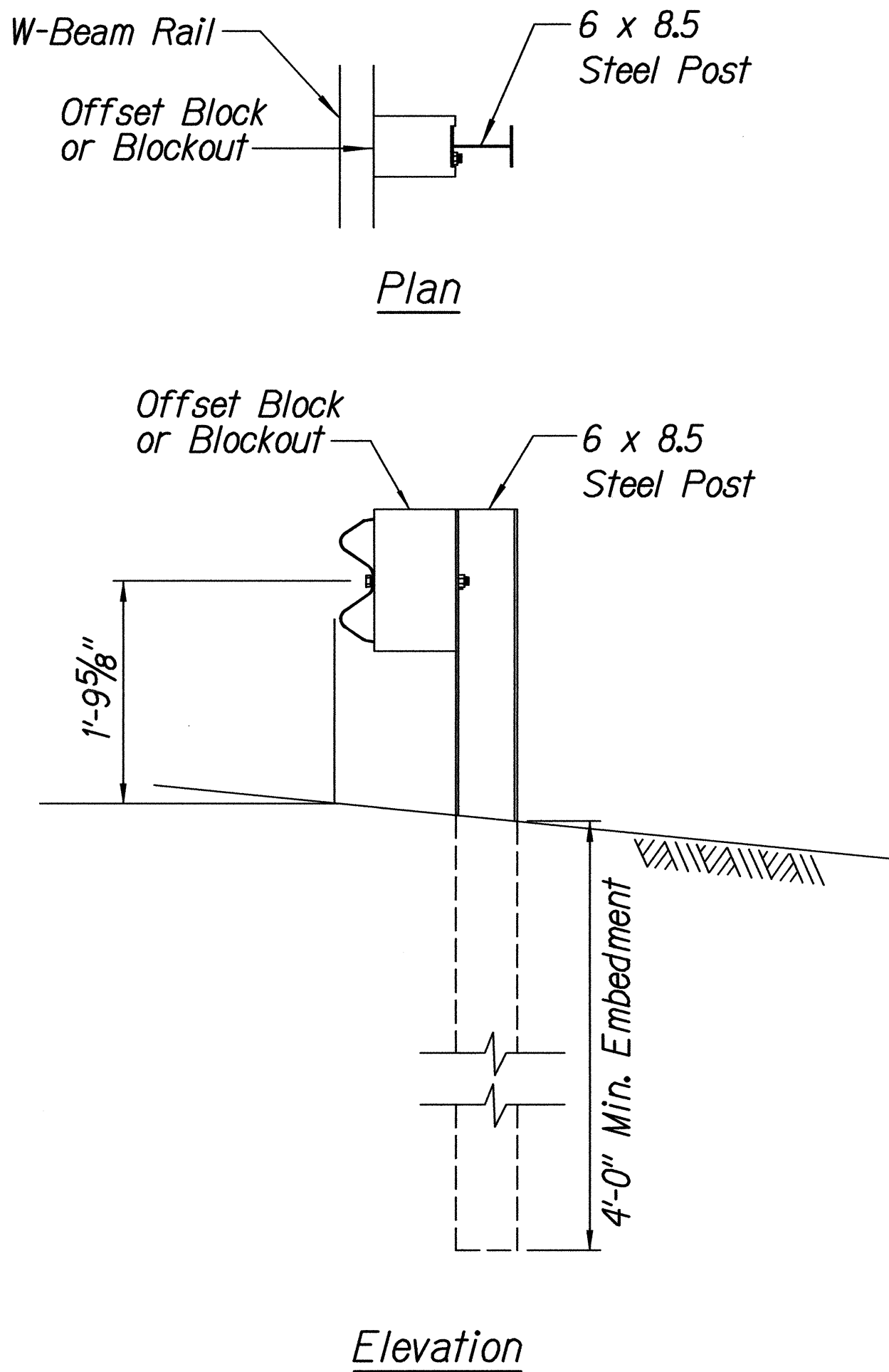
Design speed mph	a:b
68	15:1
62	13:1
56	12:1
50	11:1
43	10:1
37	9:1
31	7:1



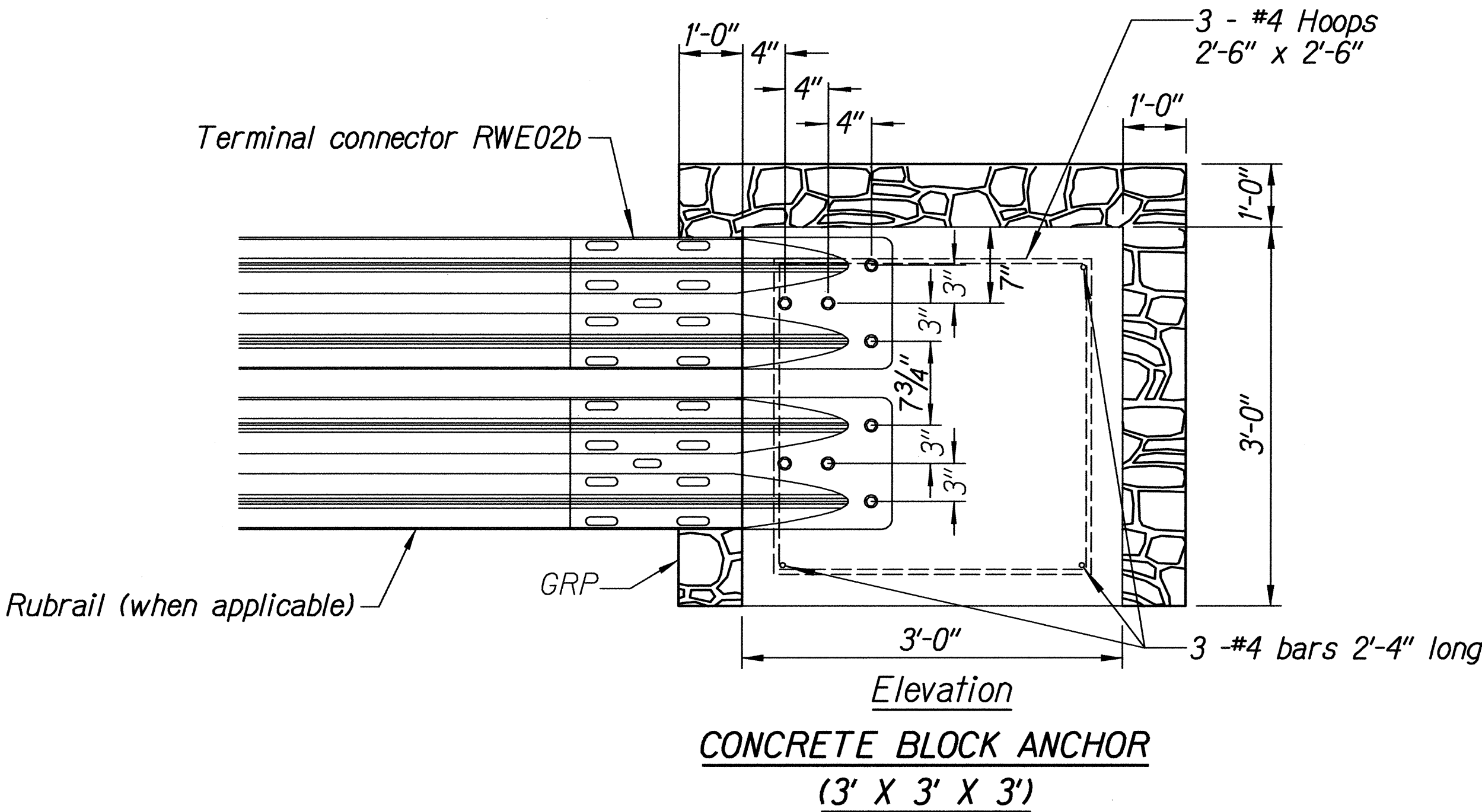
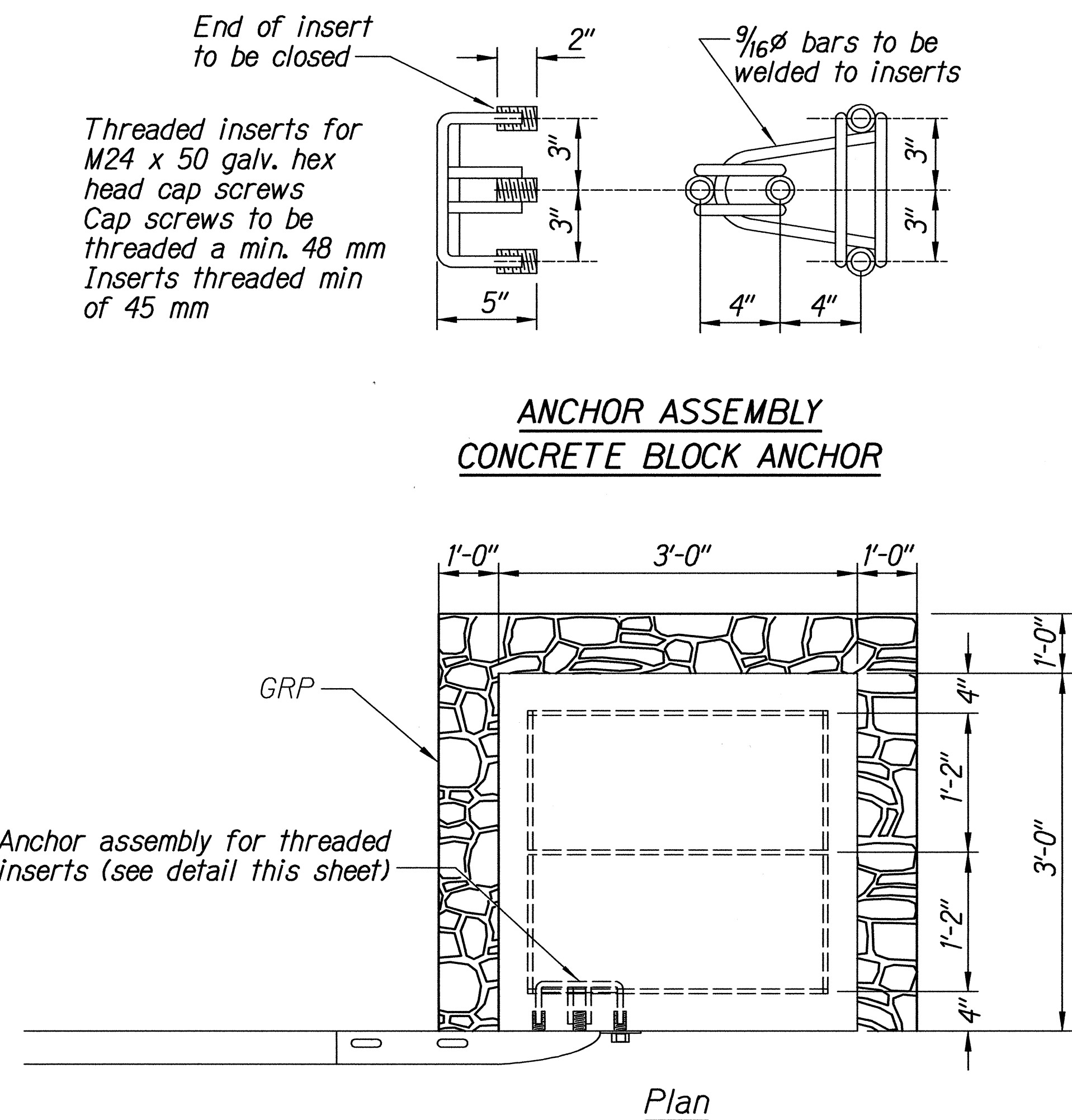
02/05/03	REPLACED SHEET 22
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
MODIFIED TYPE "A-1" FLARE
HAWAII BELT ROAD KUPAPAUHUA BRIDGE WIDENING HAMAKUA DISTRICT
FEDERAL AID PROJECT NO. BR-019-2(38)
Scale: Not To Scale Date: Feb. 2003
SHEET No. C-20 OF 41 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(38)	2002	C.O. 23	73



STRONG POST W-BEAM GUARDRAIL



**BACKSLOPE ANCHOR TERMINAL END ANCHORAGE DETAILS
MODIFIED TYPE "A-1" FLARE**

Note:
All fasteners, posts, blocks and rail elements 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-AGCARTBA Joint Cooperative Committee and HDOT's Statewide Guideline for Permanent Highway Safety Hardware.

02/05/03	REPLACED SHEET 23
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MODIFIED TYPE "A-1" FLARE

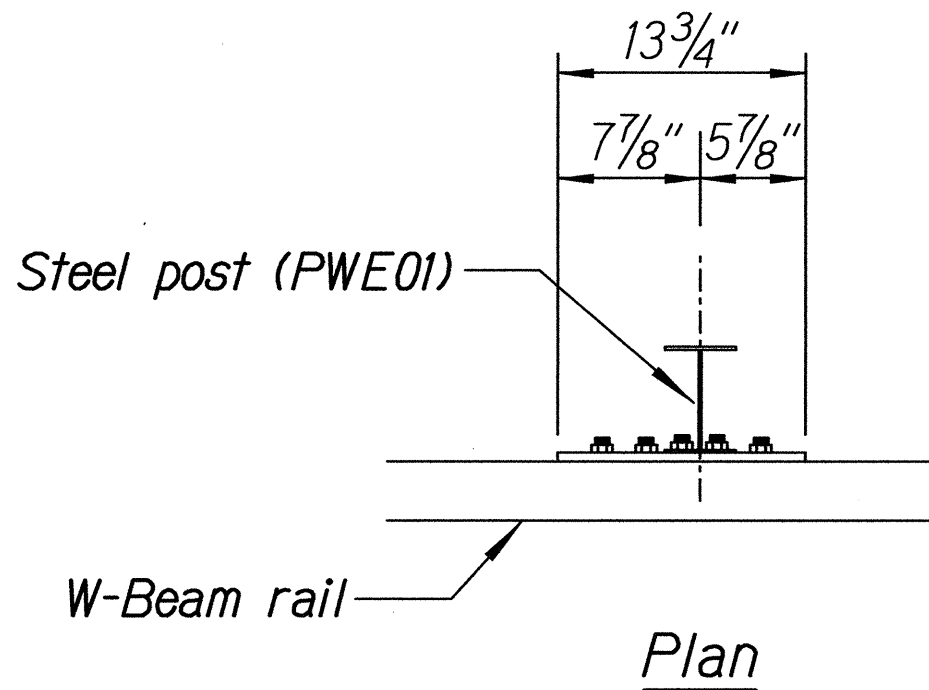
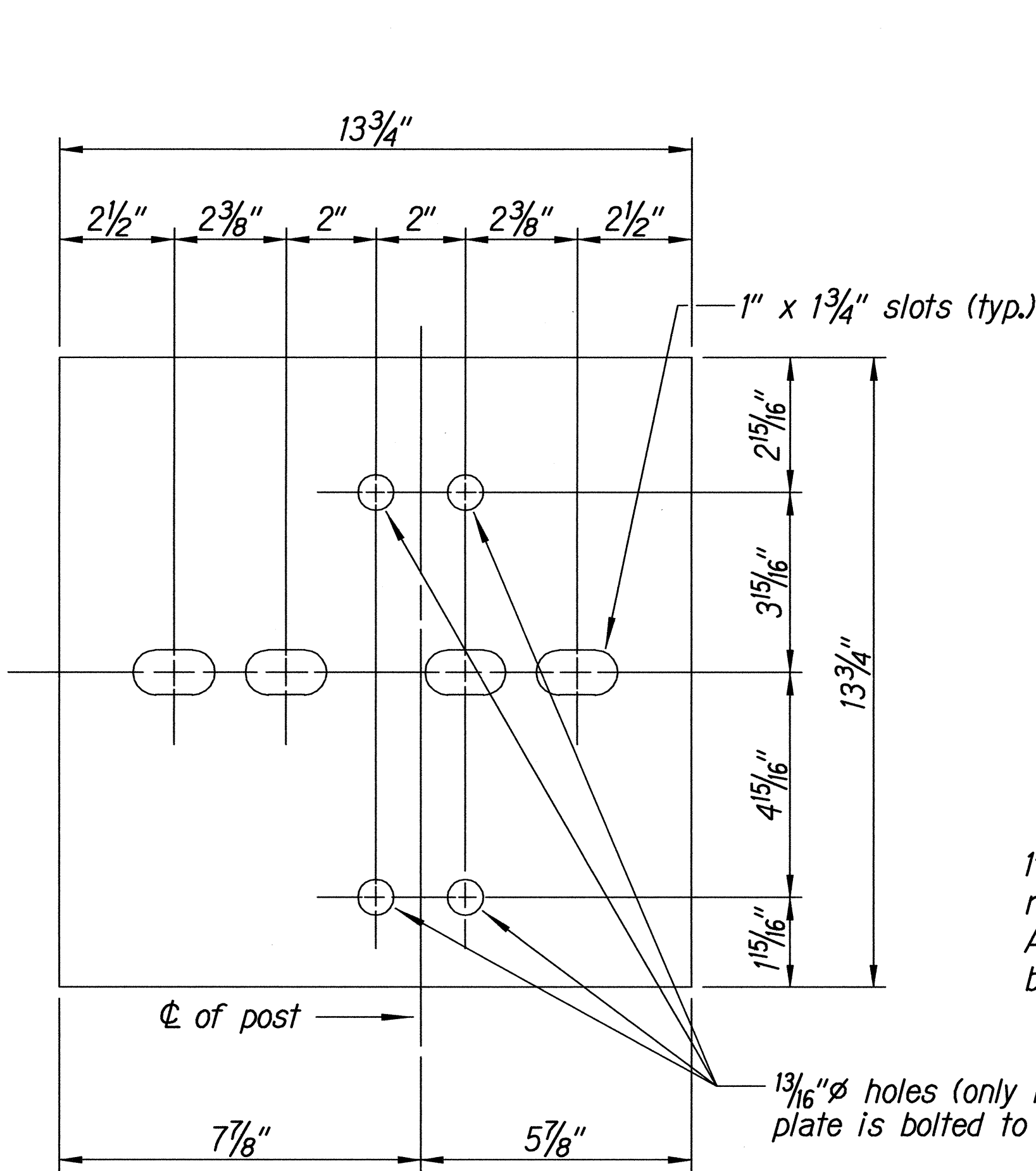
HAWAII BELT ROAD
KUPAPAUHUA BRIDGE WIDENING
HAMAKUA DISTRICT
FEDERAL AID PROJECT NO. BR-019-2(38)

Scale: Not To Scale
Date: Feb. 2003

SHEET No. C-21 OF 41 SHEETS

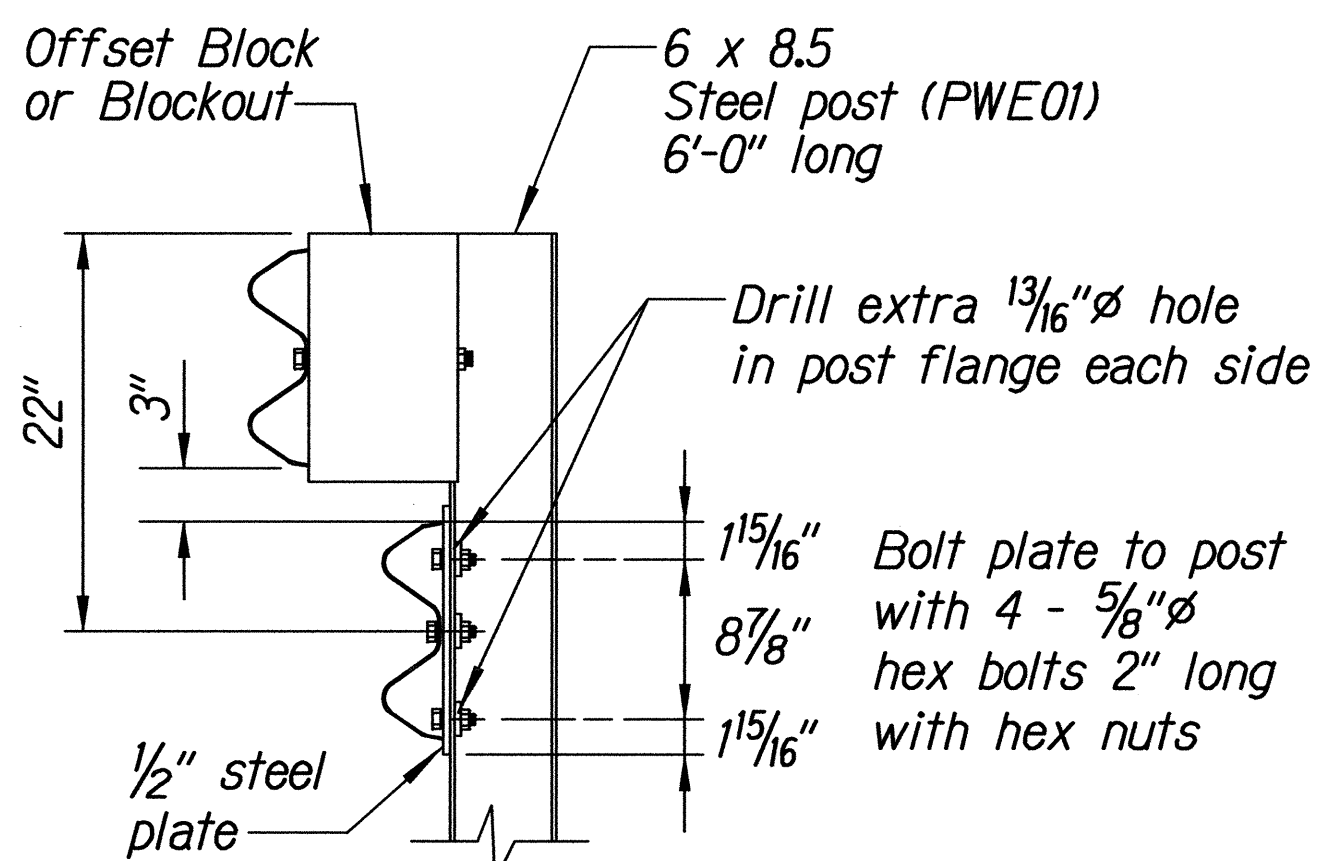
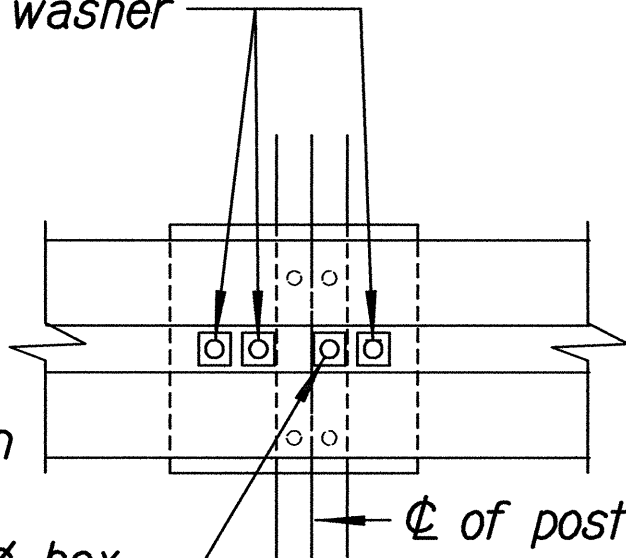
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
TRACED BY	DESIGNED BY	
NOTE WORK	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(38)	2002	C.O. 24	73

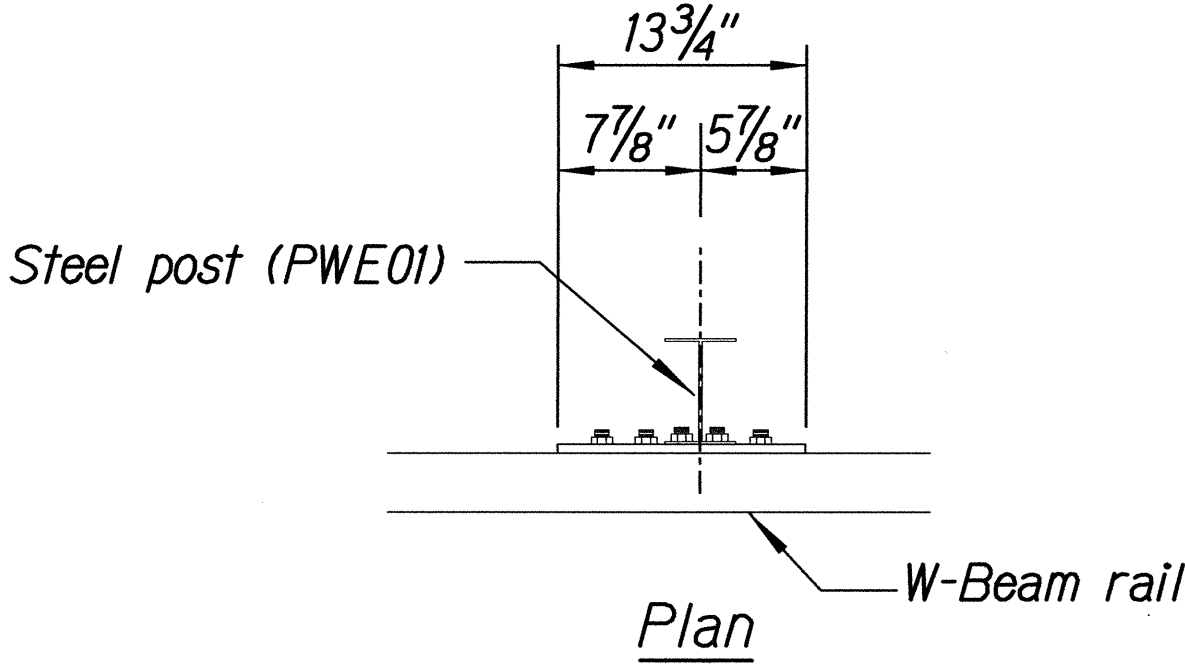


3 - 7/8" ϕ holes to be field drilled in rail and attached to steel plate with 7/8" ϕ hex bolts 1 5/16" long with square washer

1" ϕ holes to be field drilled in rail and through post flange. Attach to steel plate with 7/8" ϕ hex bolts 2" long with square washer

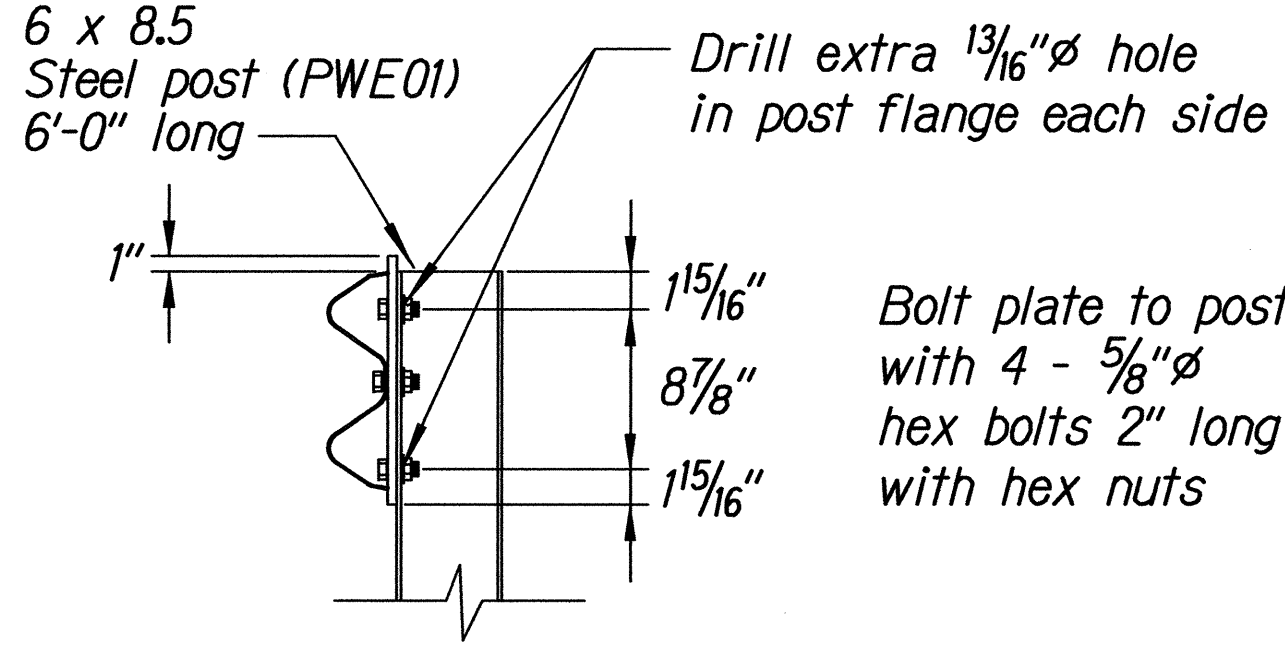
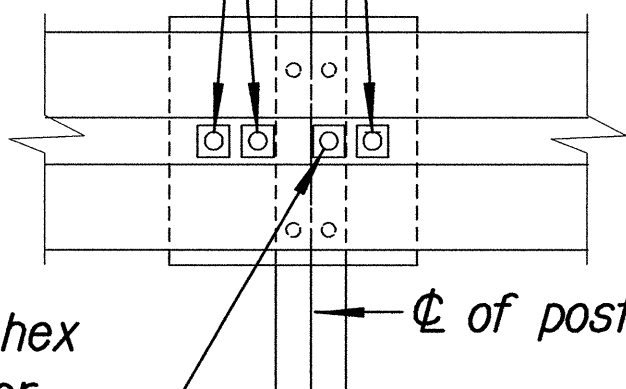


RUBRAIL ANCHOR DETAILS



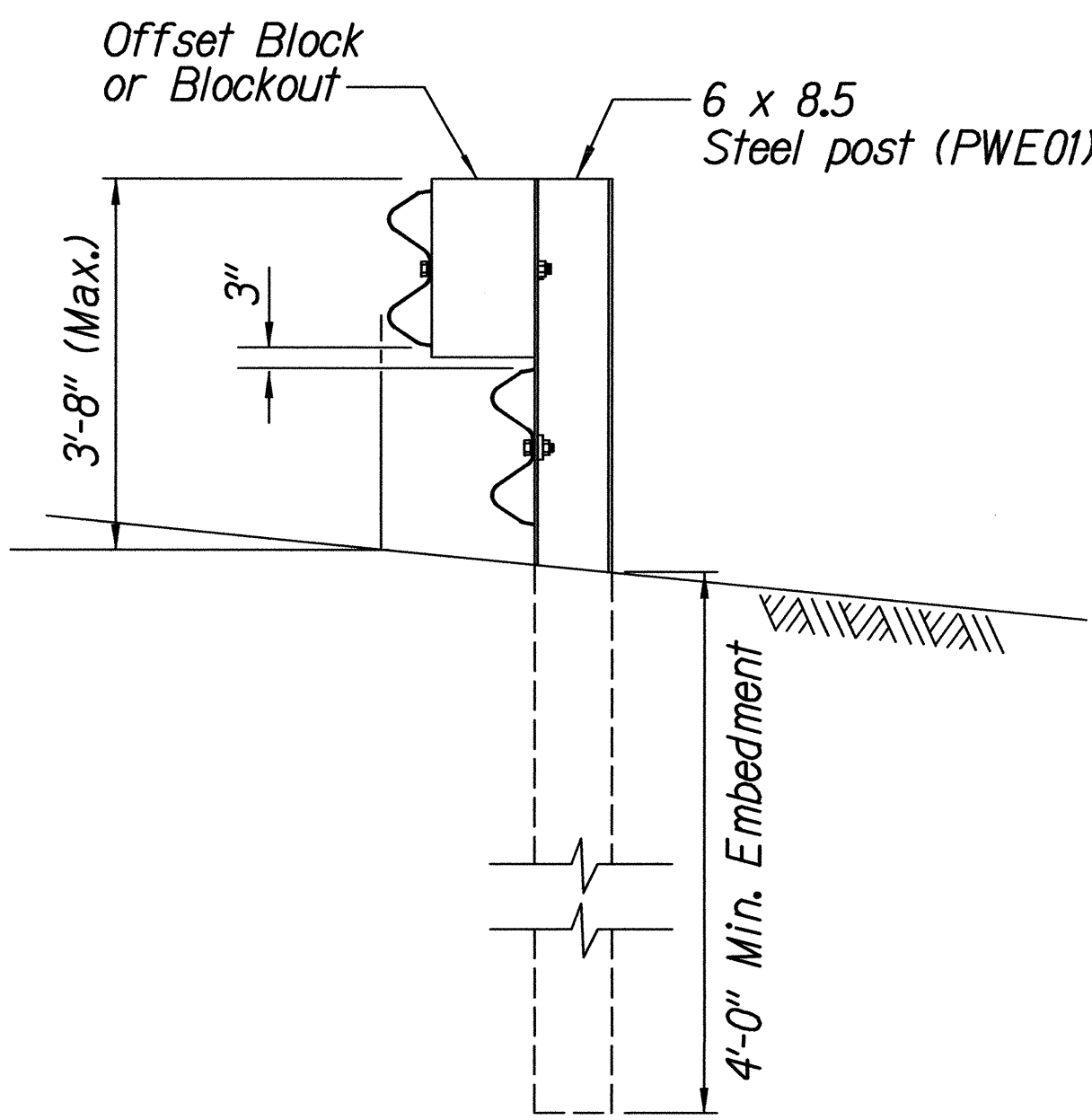
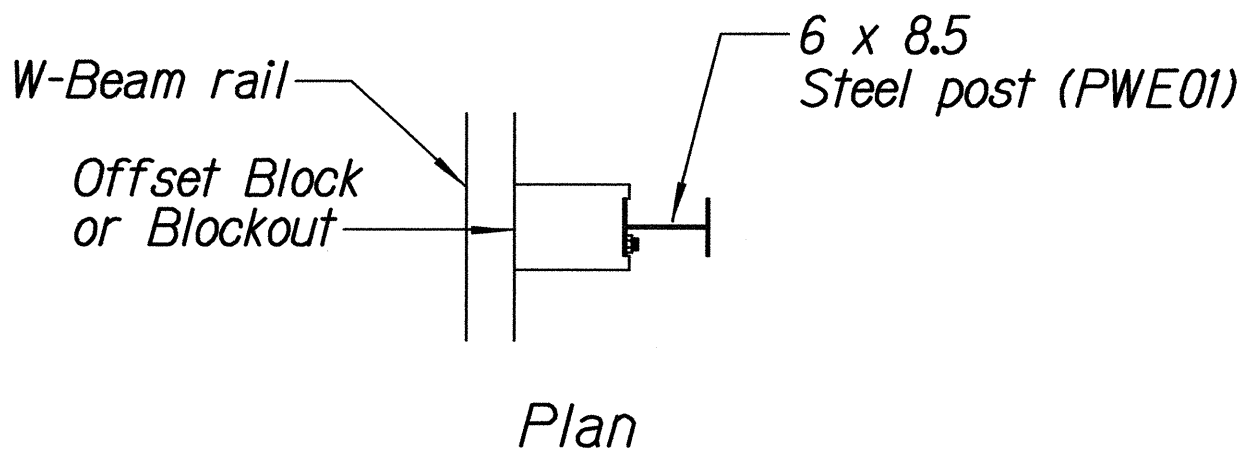
3 - 7/8" ϕ holes to be field drilled in rail and attached to steel plate with 7/8" ϕ hex bolts 1 5/16" long with square washer

1" ϕ holes to be field drilled in rail and through post flange. Attach to steel plate with 7/8" ϕ hex bolts 2" long with square washer



POST ANCHOR DETAILS

RUBRAIL DETAIL FOR MODIFIED TYPE "A-1" FLARE (WHEN CALLED FOR IN PLANS)



STEEL POST GUARDRAIL WITH RUBRAIL

Note:
All fasteners, posts, blocks and rail elements 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-AGCARTBA Joint Cooperative Committee.

02/05/03	REPLACED SHEET 24
DATE	REVISION

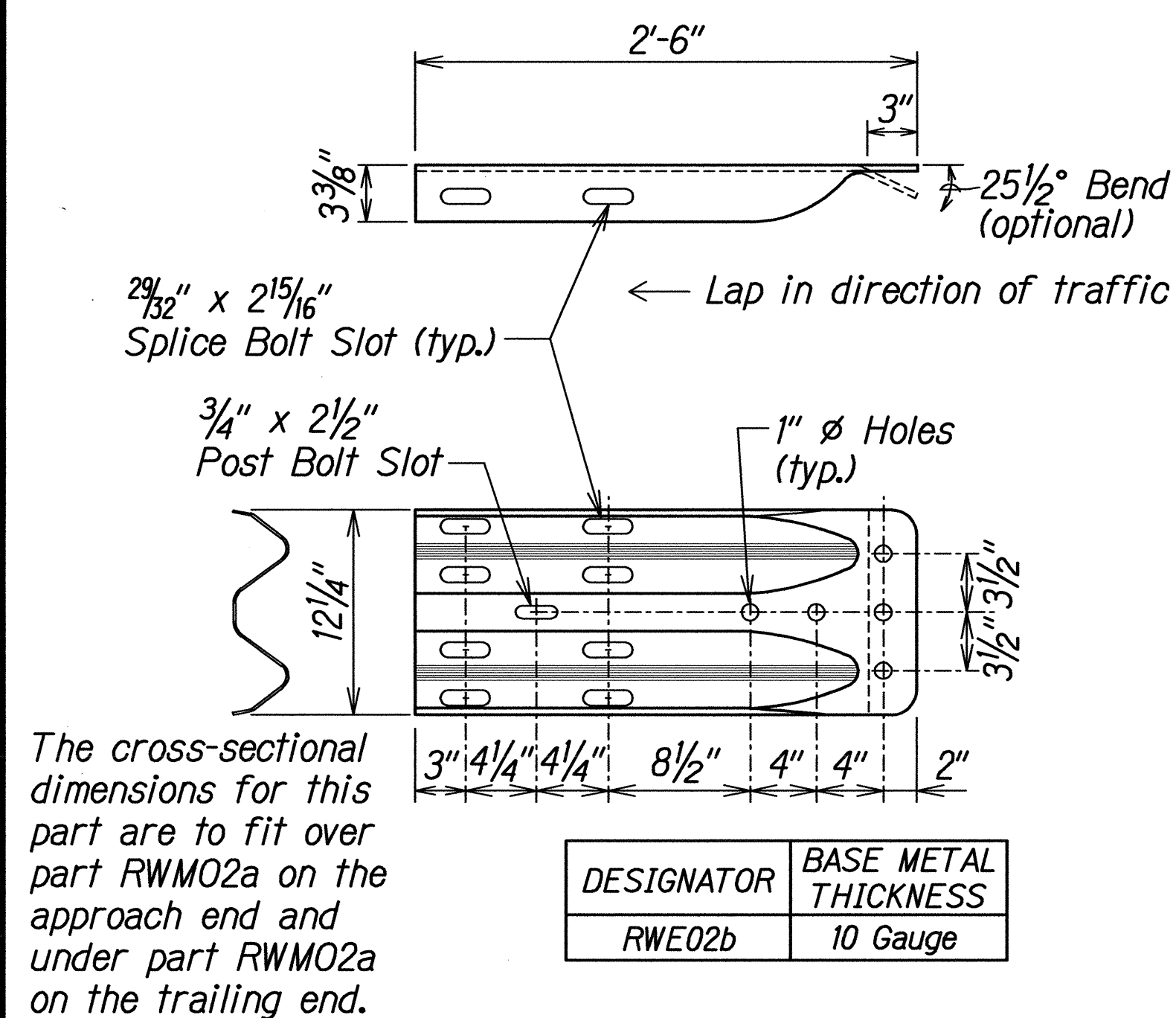
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**MODIFIED TYPE "A-1" FLARE
RUBRAIL DETAILS**
HAWAII BELT ROAD
KUPAPAUHUA BRIDGE WIDENING
HAMAKUA DISTRICT
FEDERAL AID PROJECT NO. BR-019-2(38)

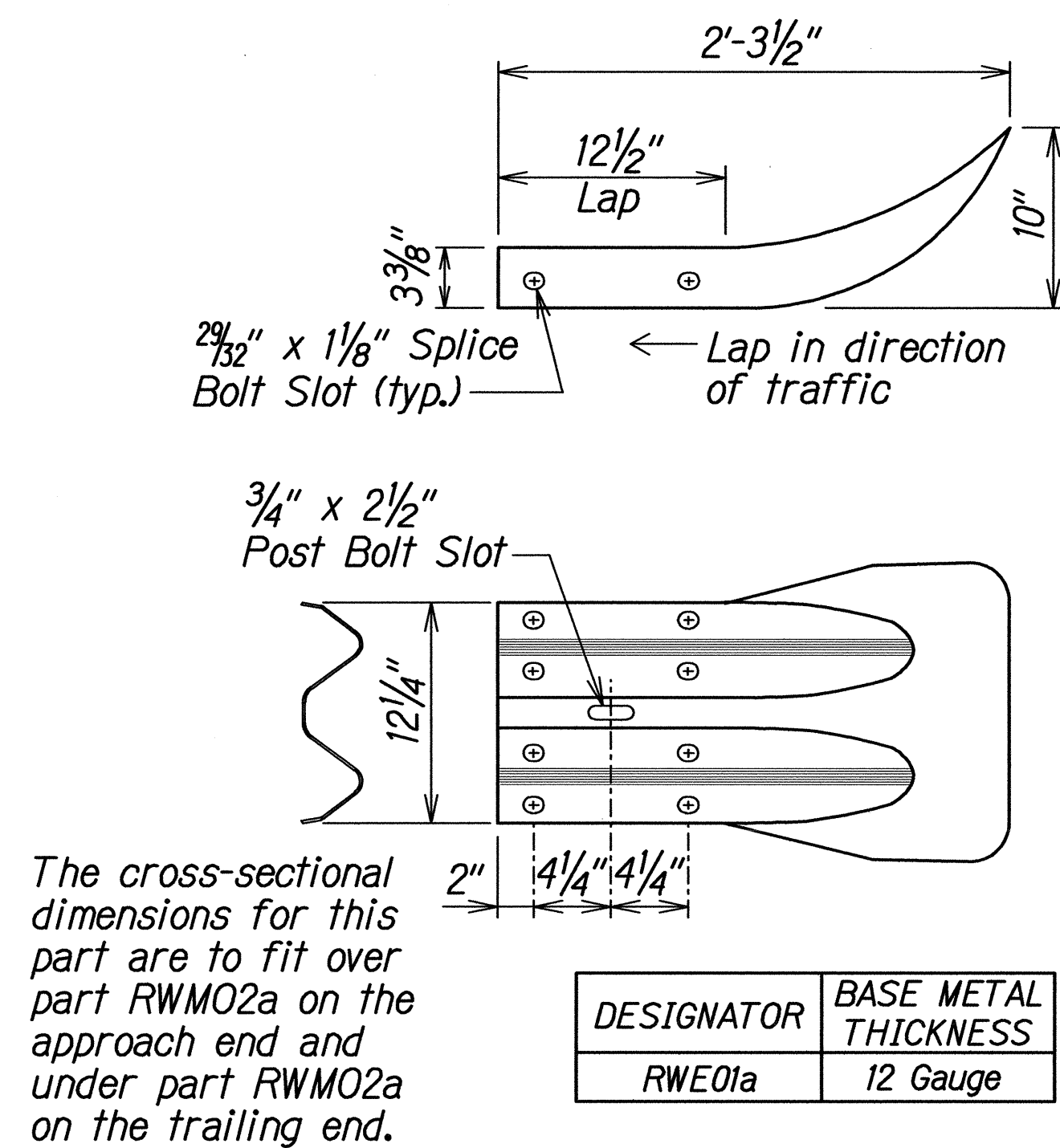
Scale: As Noted
Date: Feb. 2003

SHEET No.C-22 OF 41 SHEETS

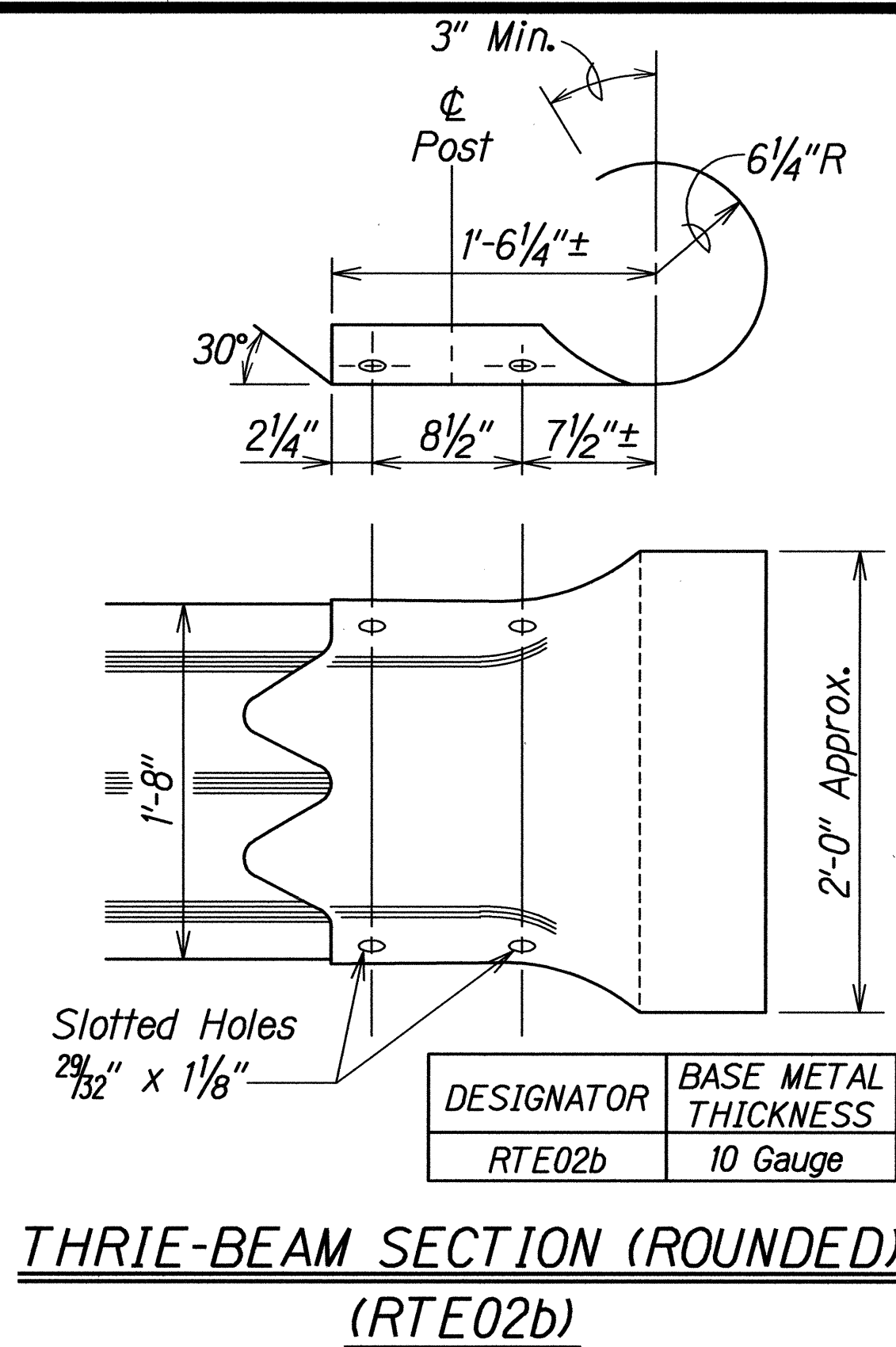
ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	



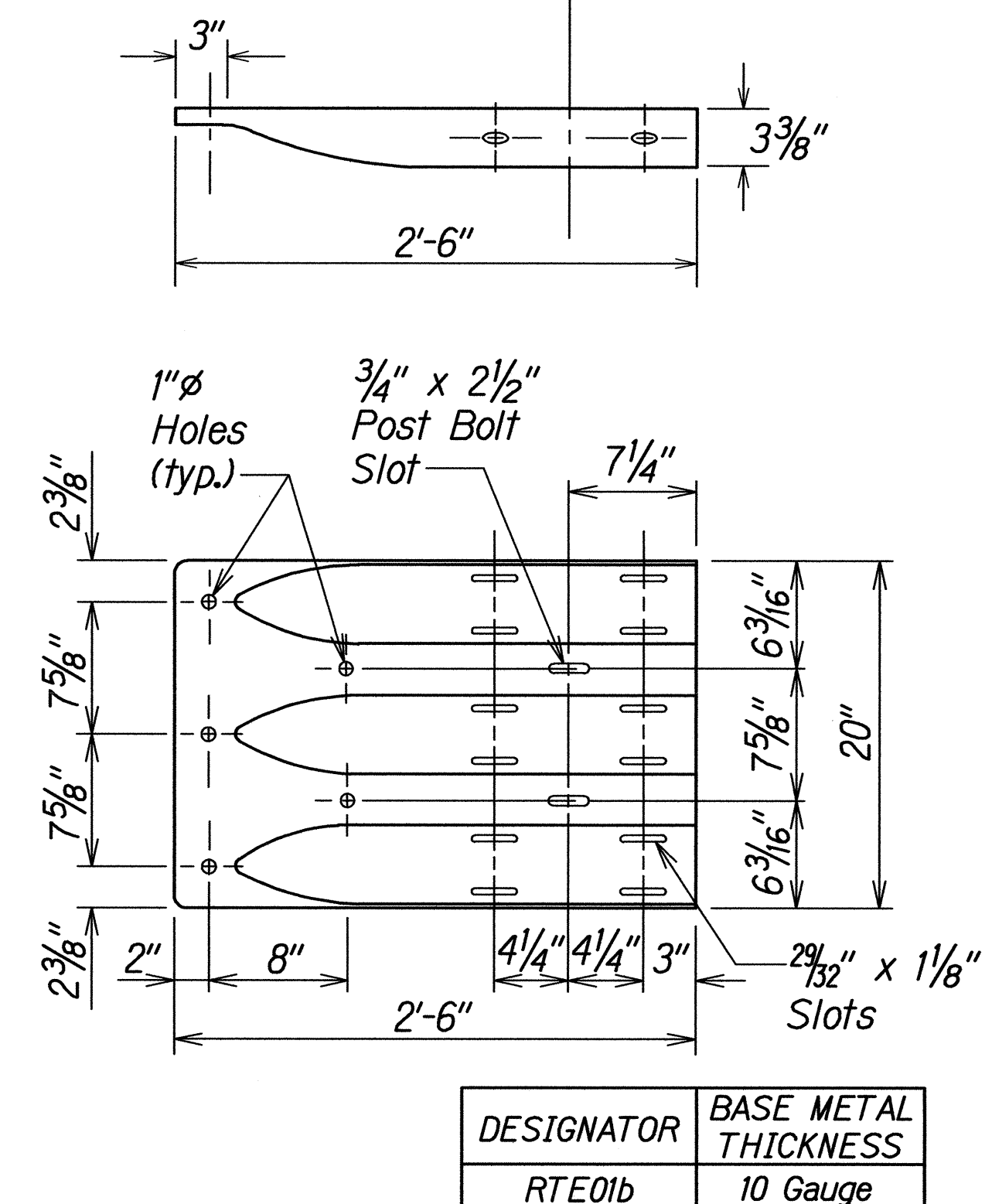
W-BEAM TERMINAL CONNECTOR (RWE02b)



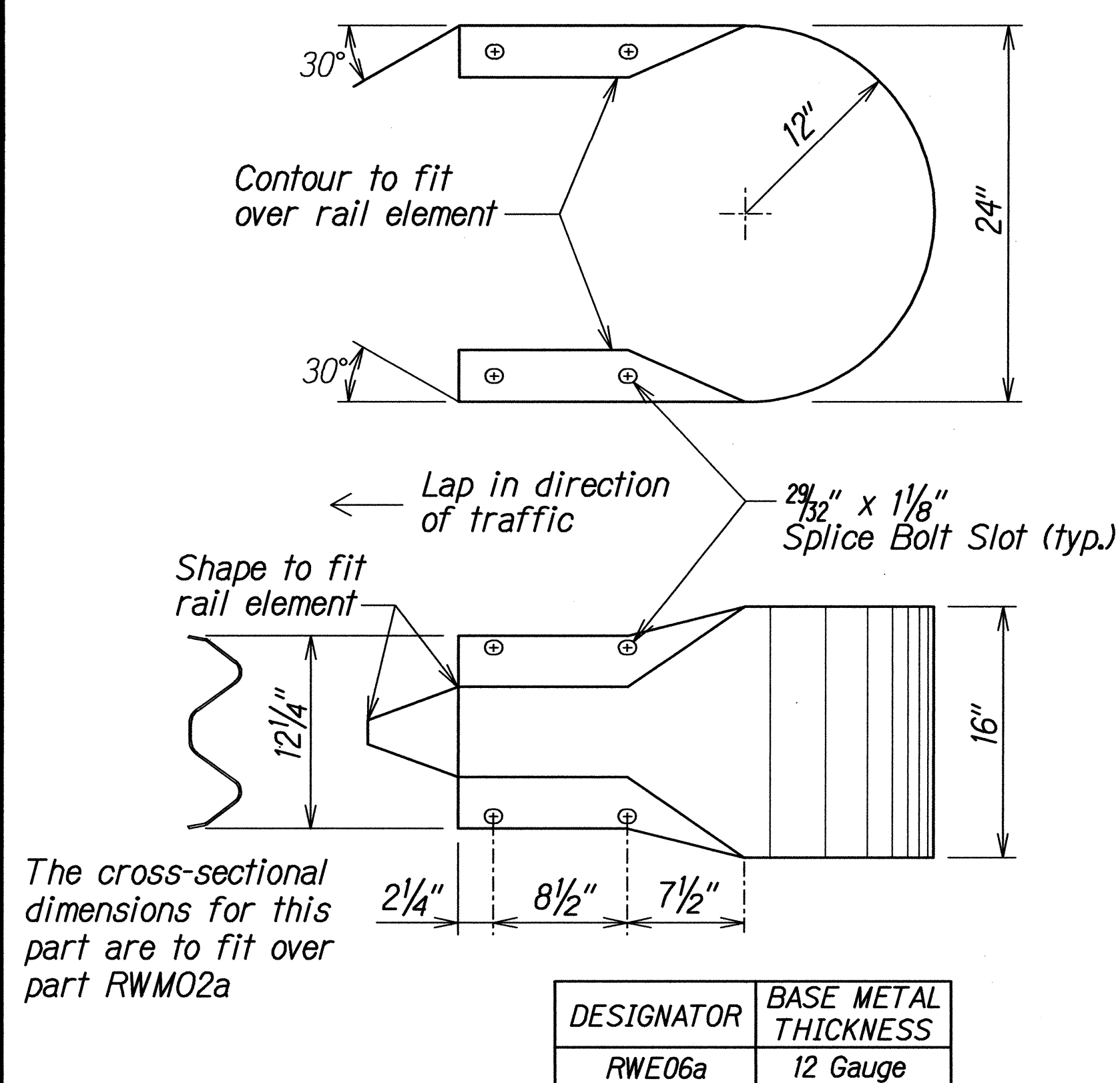
W-BEAM END SECTION (FLARED RWE01a)



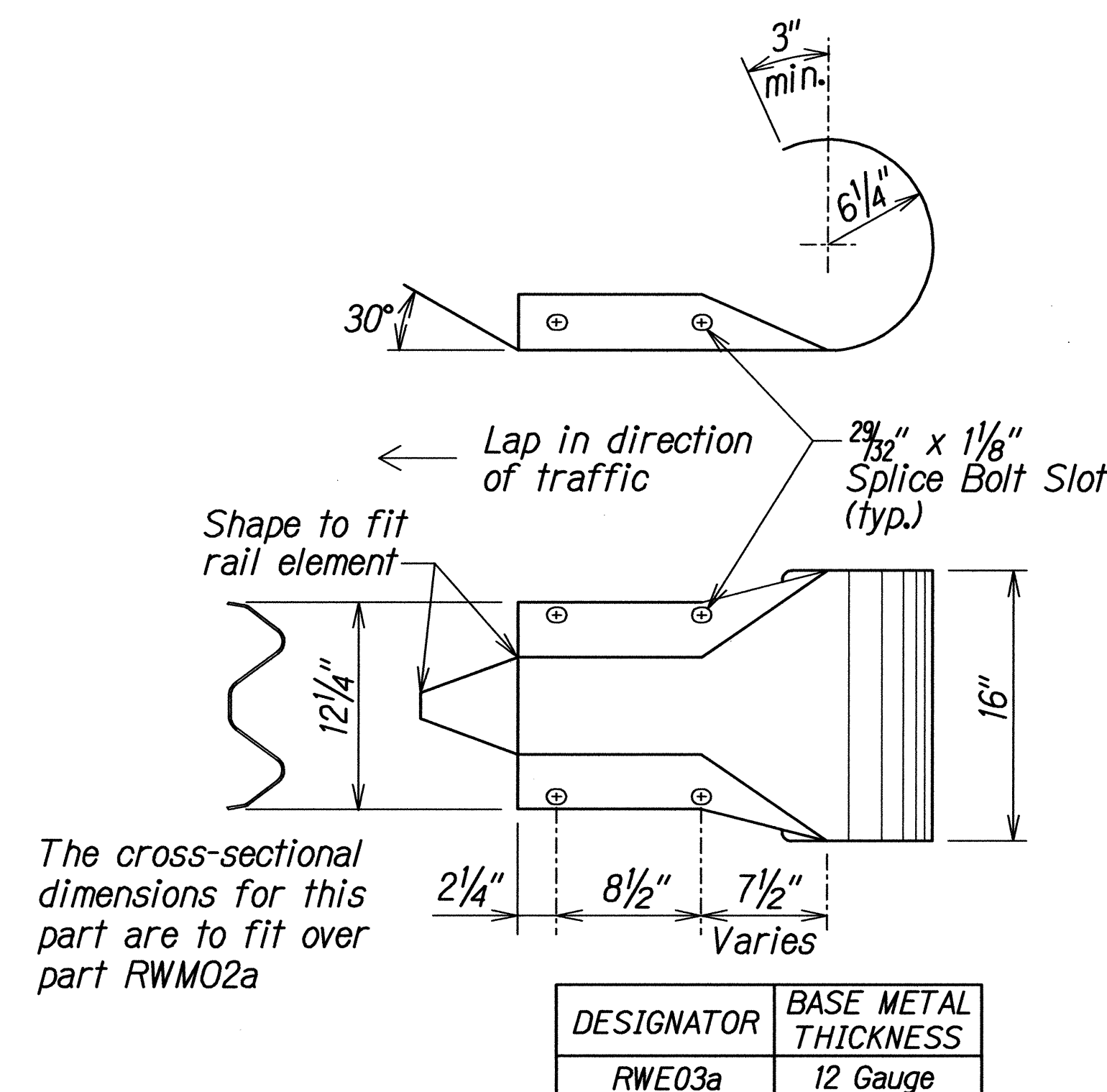
THREE-BEAM SECTION (ROUNDED)
(RTE02b)



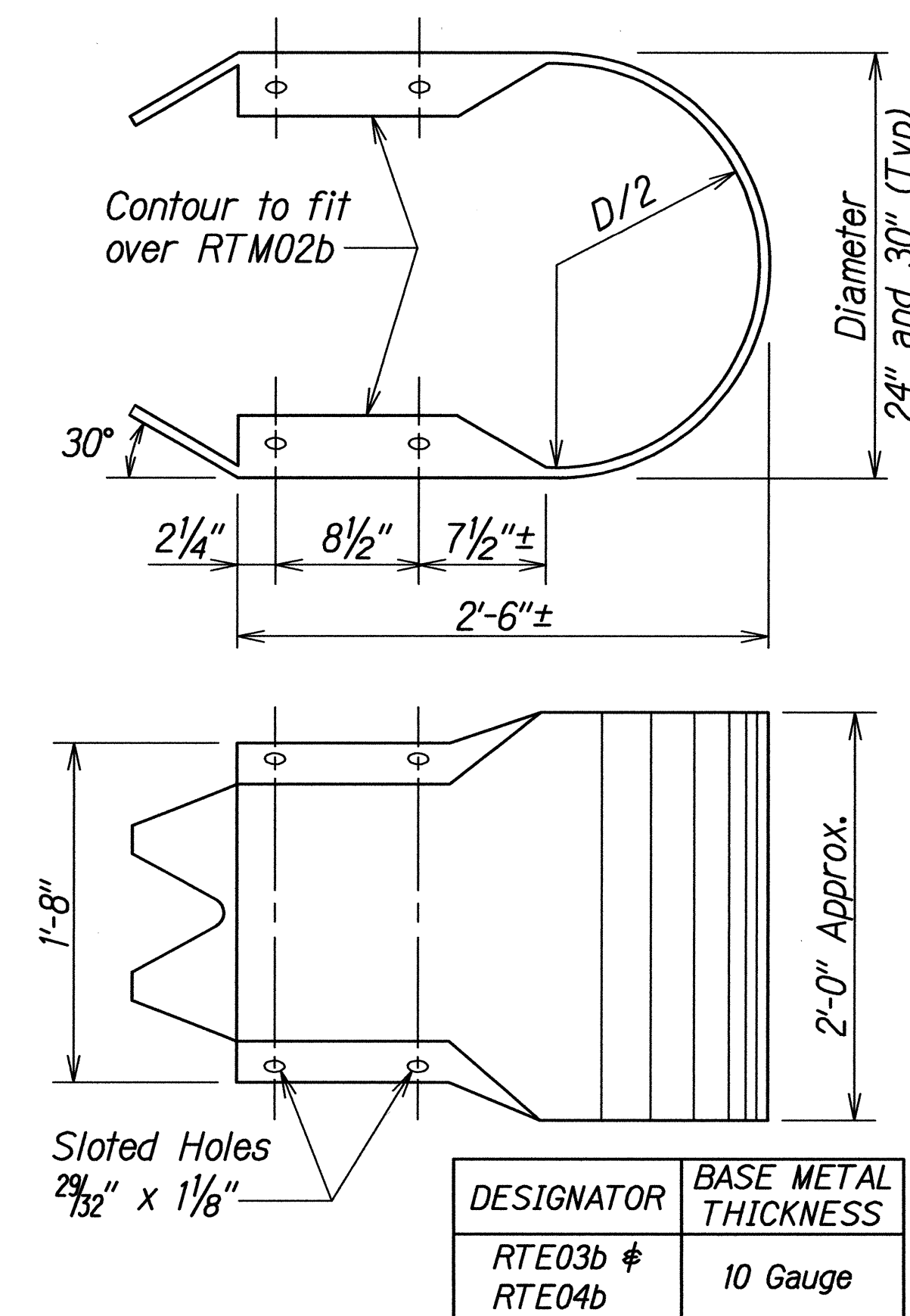
THRIE-BEAM
TERMINAL CONNECTOR
(RTE01b)



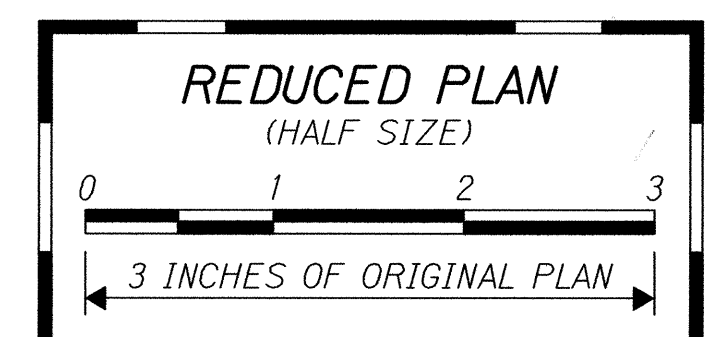
W-BEAM END SECTION (BUFFER RWE06a)



W-BEAM END SECTION (ROUNDED RWE03a)



THRIE-BEAM
END SECTION (BUFFER RTE03b
or RTE04b)



02/05/03	ADDED SHEET
<i>DATE</i>	<i>REVISION</i>

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL TERMINAL CONNECTORS
AND END SECTIONS

*HAWAII BELT ROAD
KUPAPAU'UA BRIDGE WIDENING
HAMAKUA DISTRICT*

FEDERAL AID PROJECT NO. BR-019-2(38)

Scale: NTS Date: Feb. 2003

SHEET No. **C-22** OF **41** SHEETS