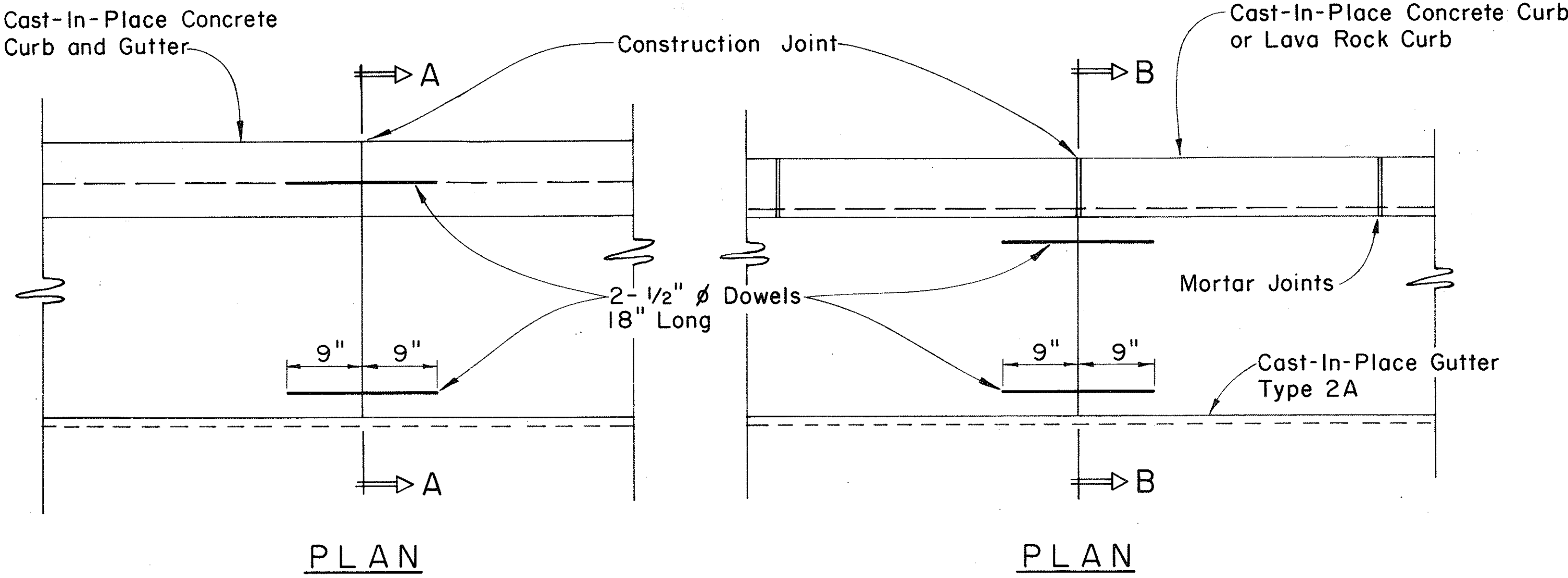
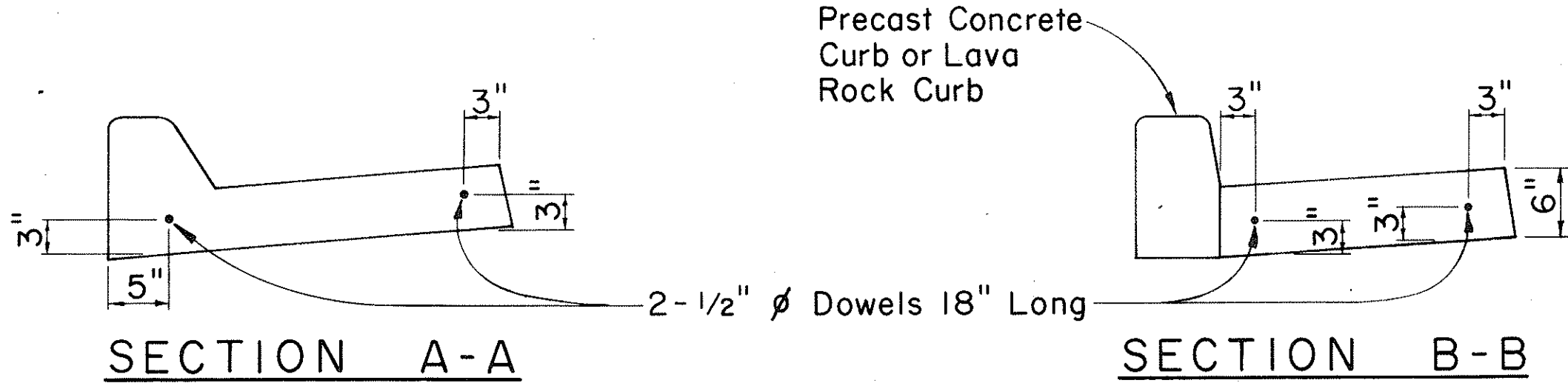
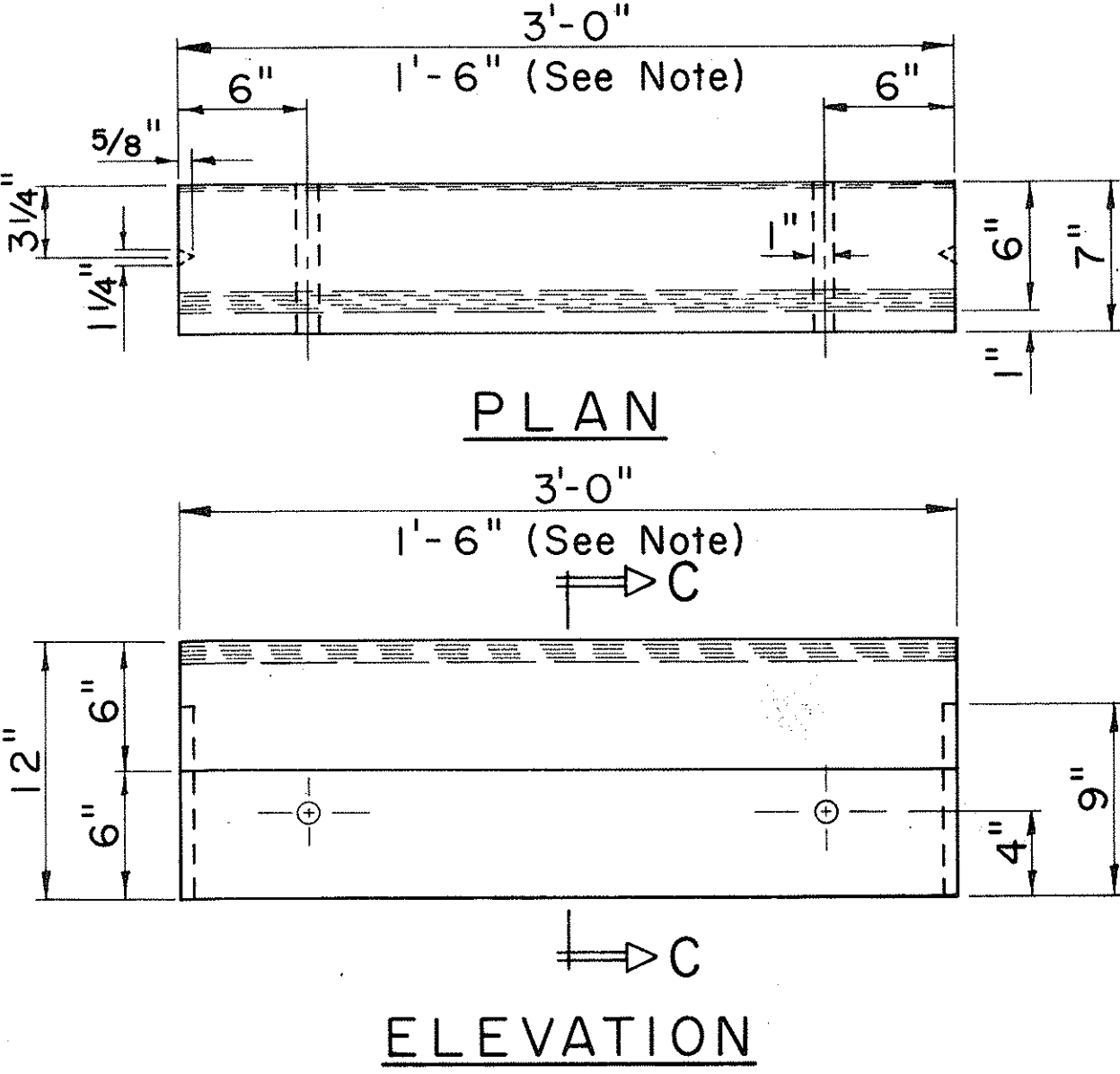


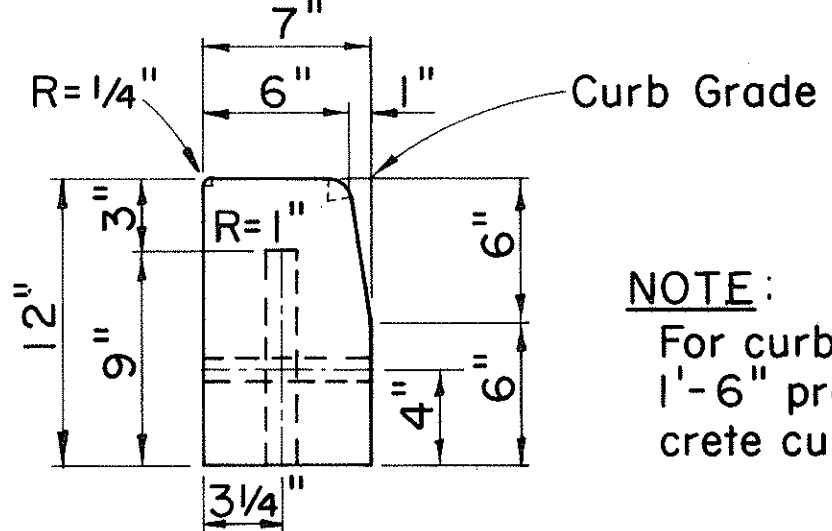
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-7001(28)	1978	6	39



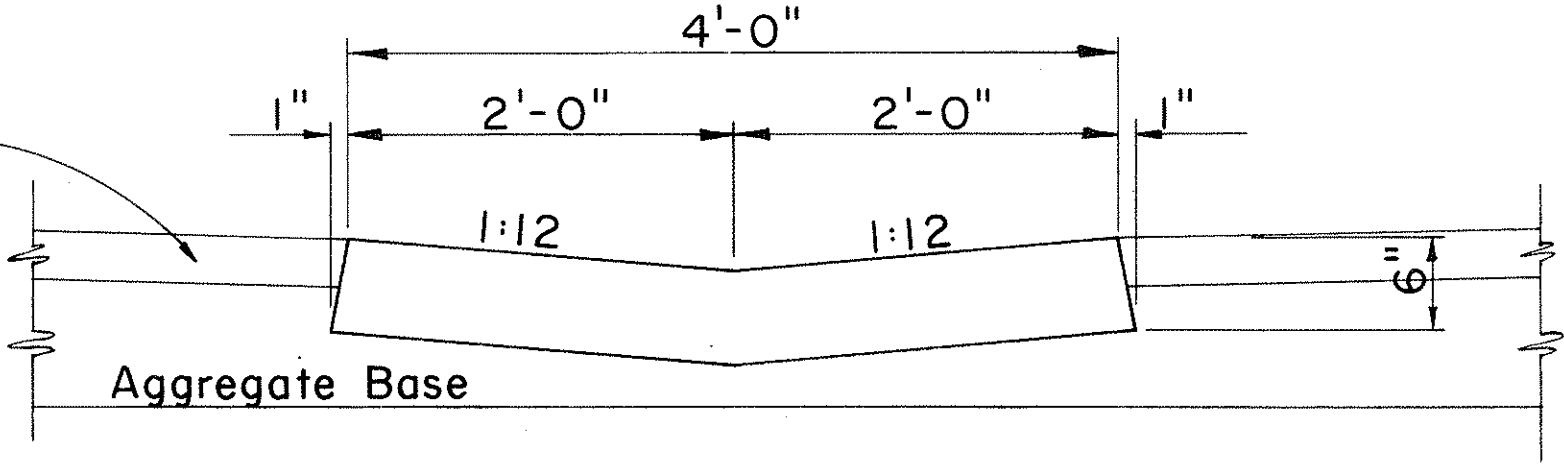
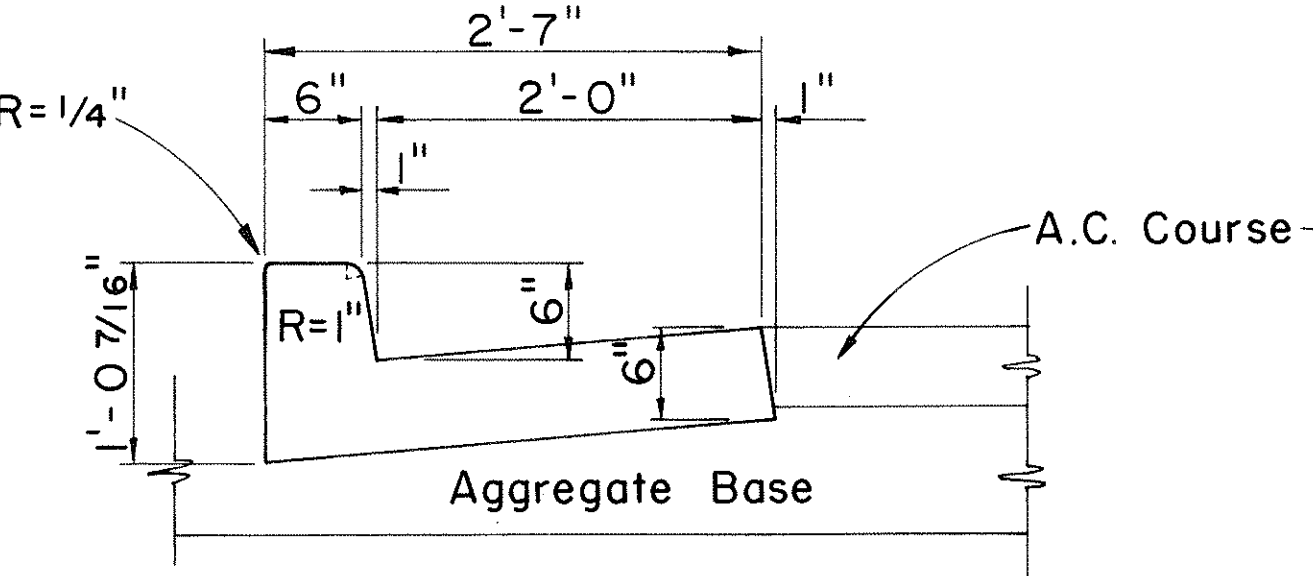
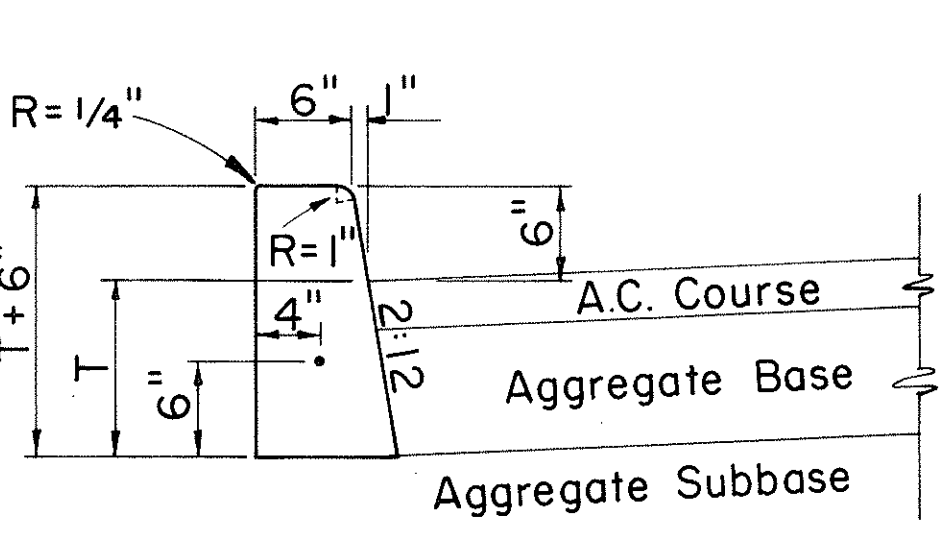
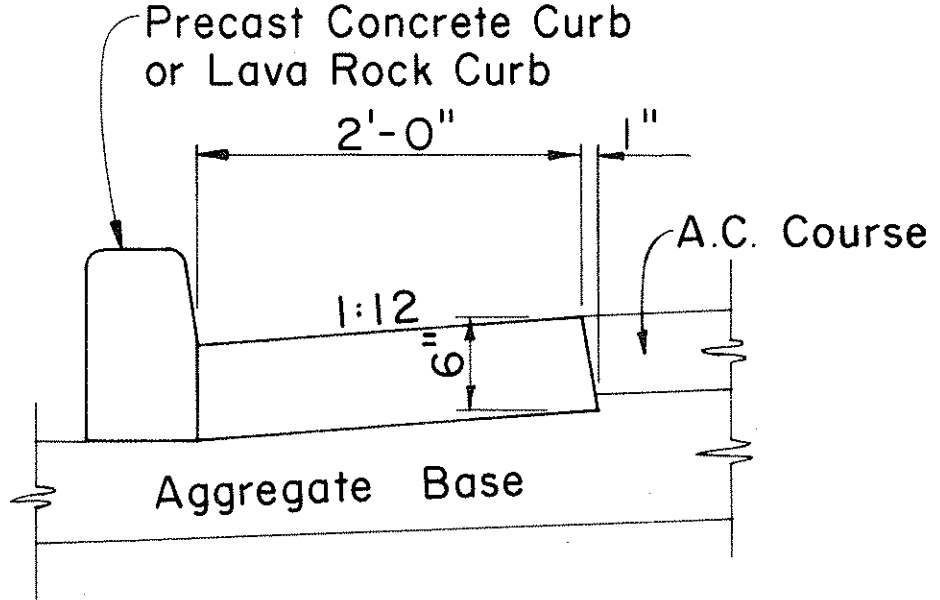
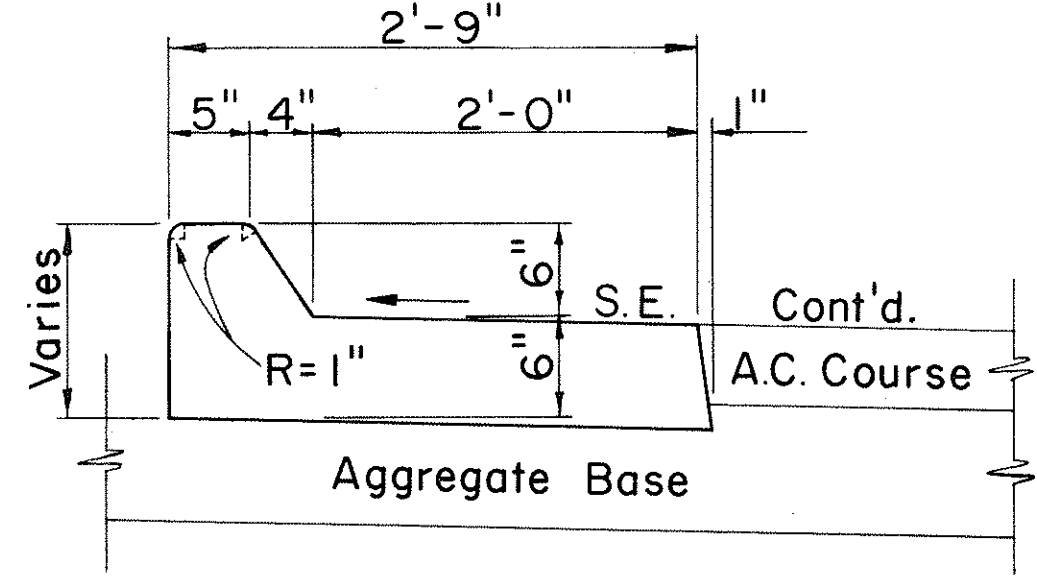
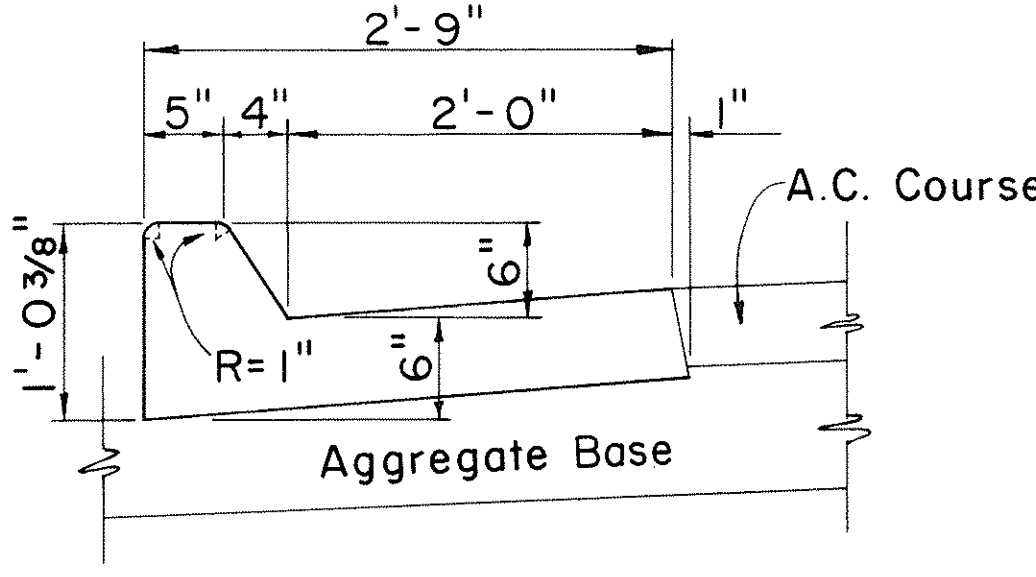
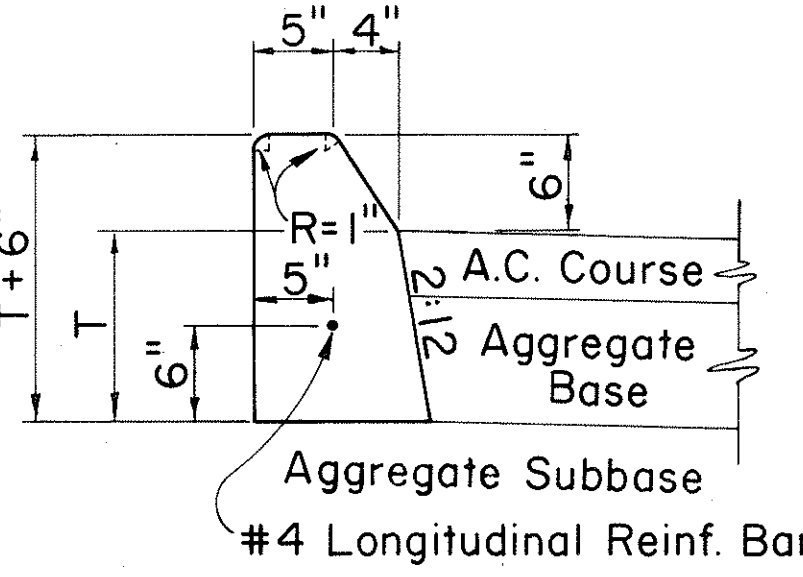
CURB, TYPE 6
BITUMINOUS CURB
 Scale: 1 1/2" = 1'-0"



CAST-IN-PLACE CURB & GUTTER
CAST-IN-PLACE GUTTER
CONSTRUCTION JOINT DETAIL
 Scale: 1" = 1'-0"



NOTE:
 For curb returns use 1'-6" pre-cast concrete curbs.



CAST-IN-PLACE CONCRETE CURBS AND/OR GUTTERS
 Scale: 1" = 1'-0"

APPROVAL RECOMMENDED:
 HIGHWAY DESIGN ENGINEER 12-4-69 DATE

APPROVED:
 ASSISTANT CHIEF, ENGINEERING 12-10-59 DATE

NO.	REVISION	APPROVED BY	DATE

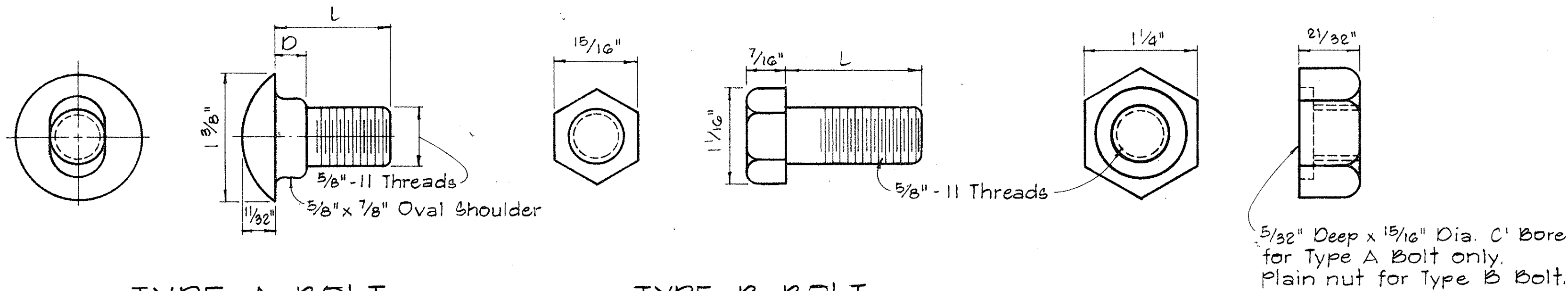
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
TYPICAL DETAILS OF CURB
AND/OR GUTTERS

DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 NOTE BOOK NO. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-9001(28)	1978	8	39

BOLT DIMENSIONS		
TYPE A BOLT		
Splice Bolt	5/16"	1 1/4"
Post Bolt for Conc. Post w/ Double Wood Blocks	3/32"	24"
Post Bolt for Conc. Post w/ Single Wood Block	3/32"	18"
Rail Bolt for Metal Block	3/32"	2"

BOLT DIMENSIONS		
TYPE B BOLT		
Post Bolt for Conc. Post w/ Metal Blocks		9 1/2"
Post Bolt for Metal Post w/ Metal Block		1 3/4"



TYPE A BOLT

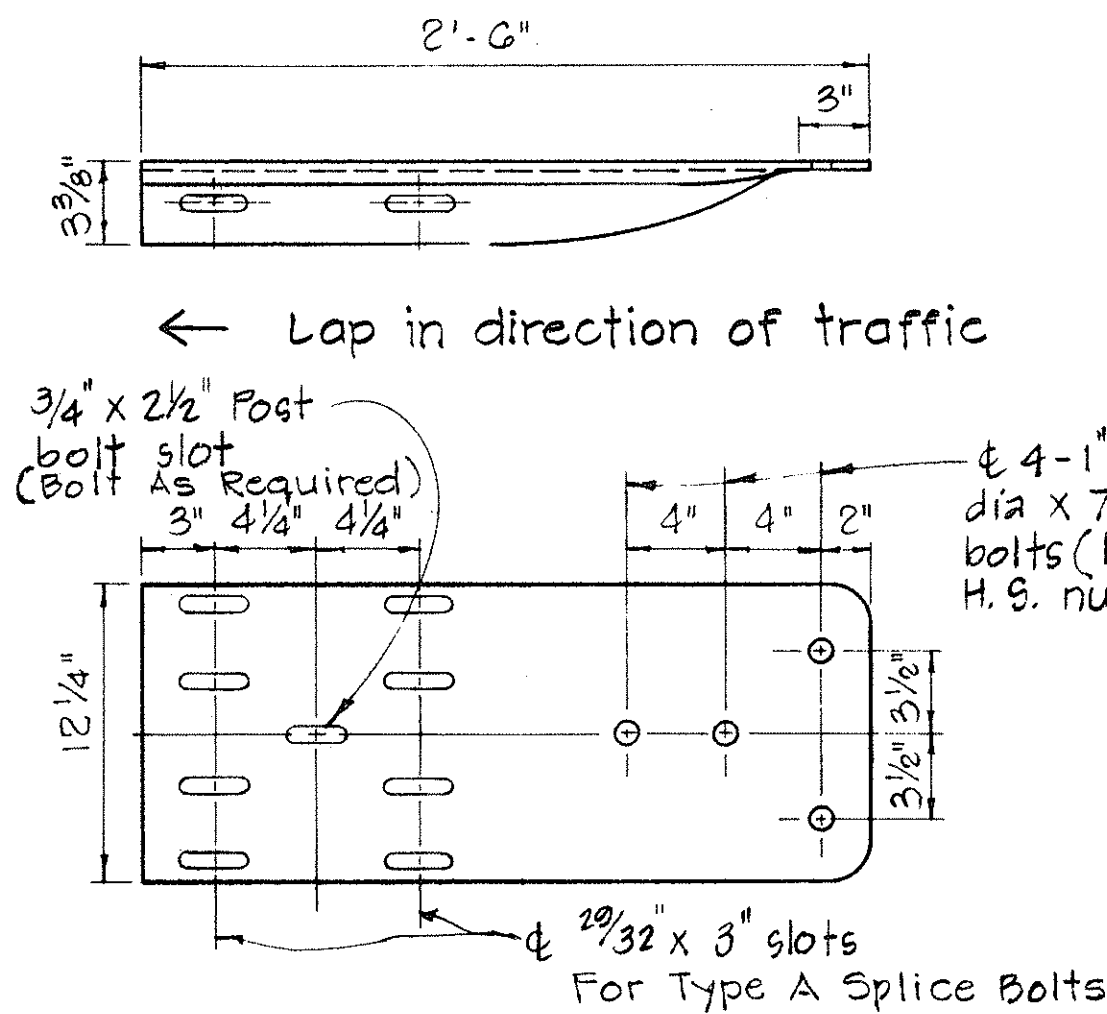
TYPE B BOLT

SPlice RAIL AND POST BOLTS

Scale: Full Size

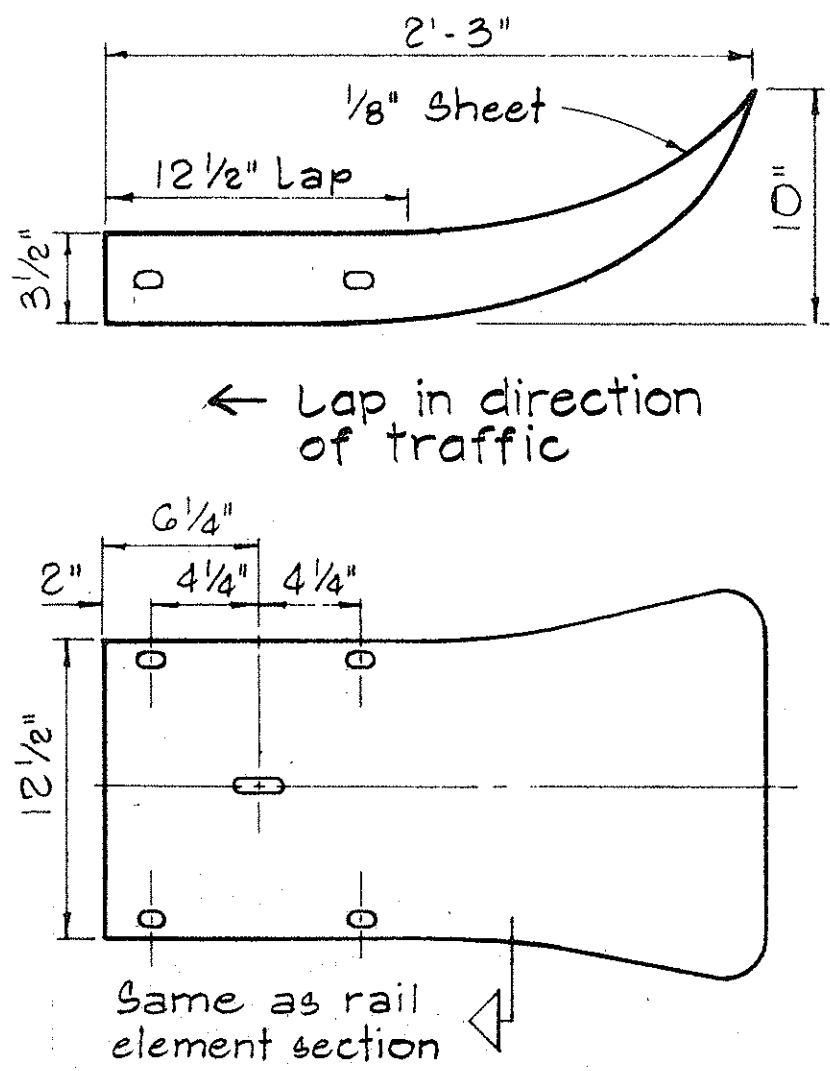
HEXAGON NUT

Scale: Full Size



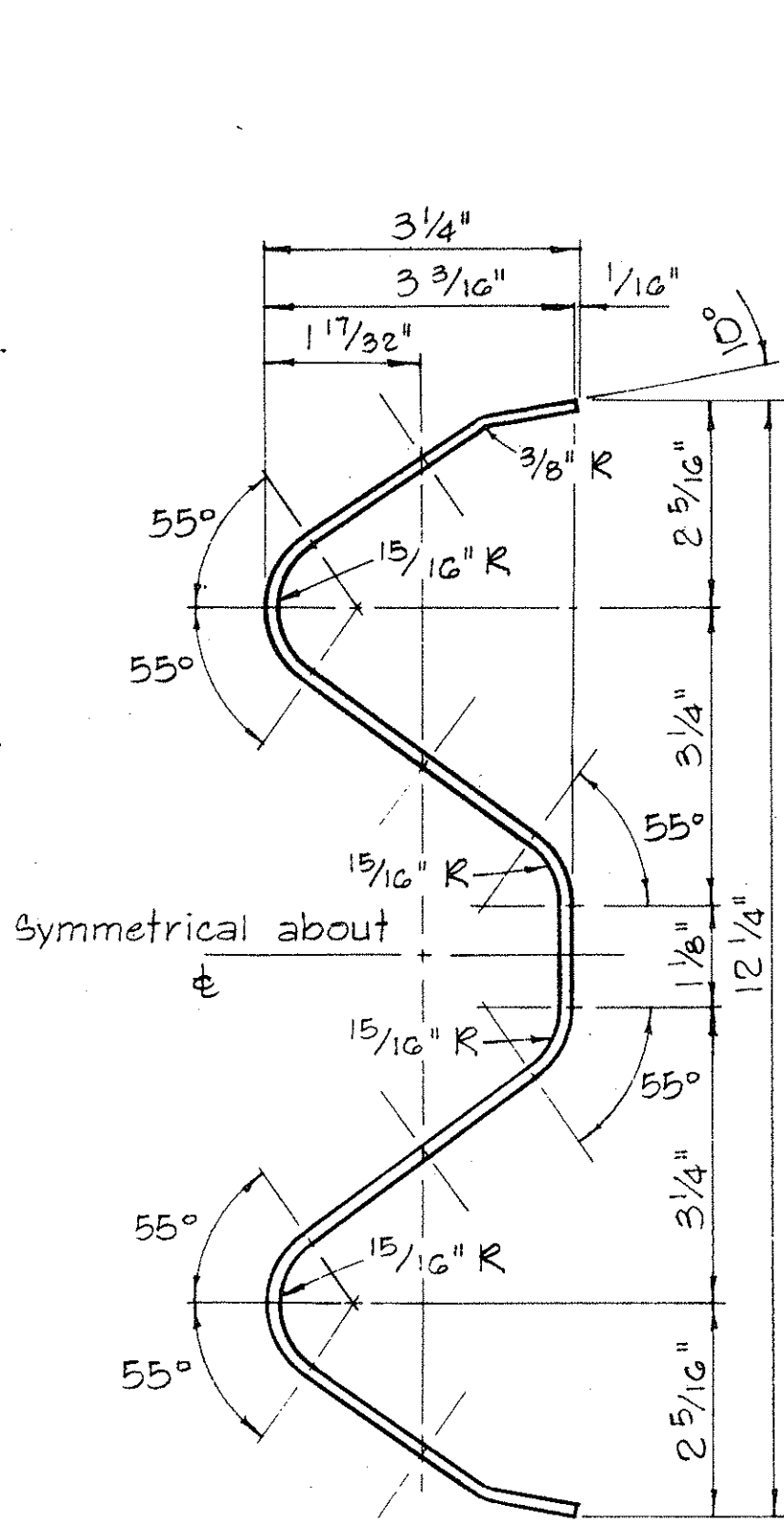
SPECIAL END SHOE

Scale: 1 1/2\"/>



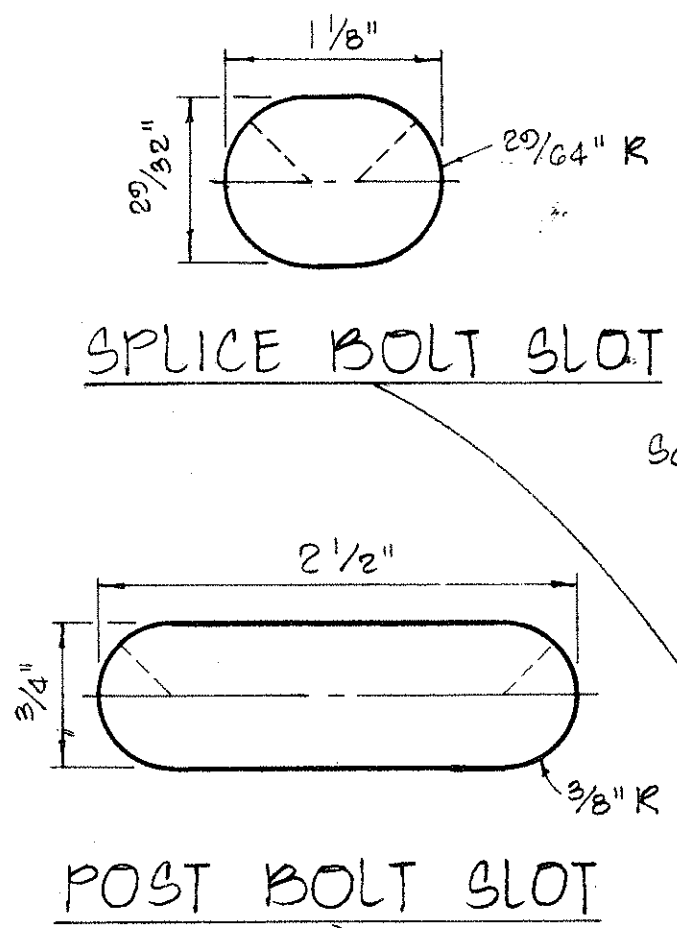
FLARED END

Scale: 1 1/2\"/>



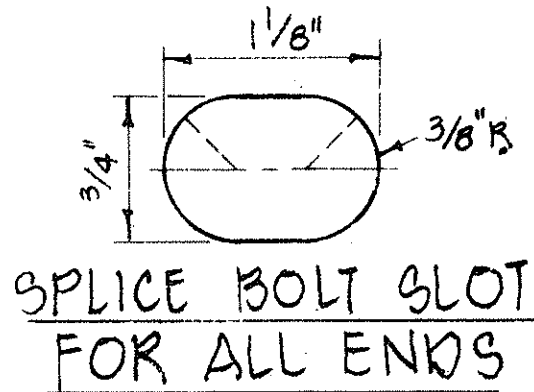
RAIL ELEMENT SECTION

Scale: 6\"/>

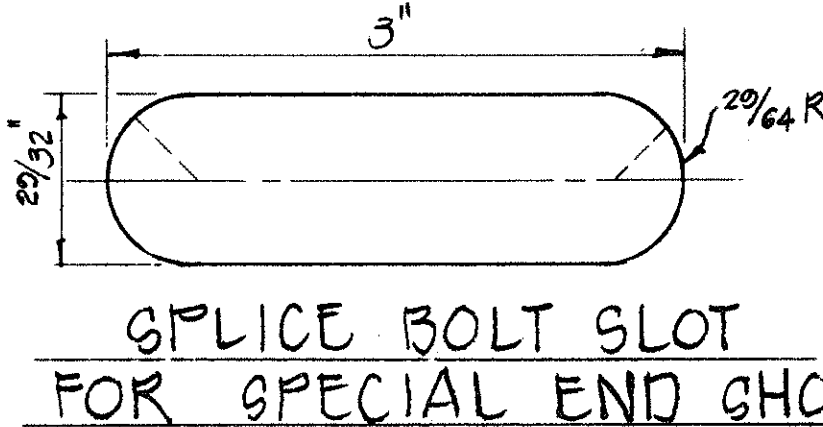


SPlice BOLT SLOT

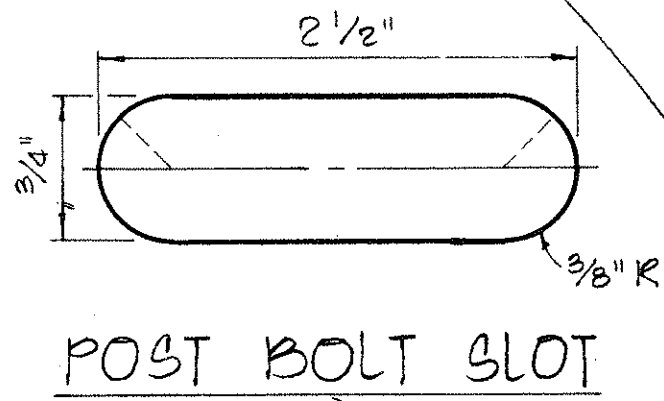
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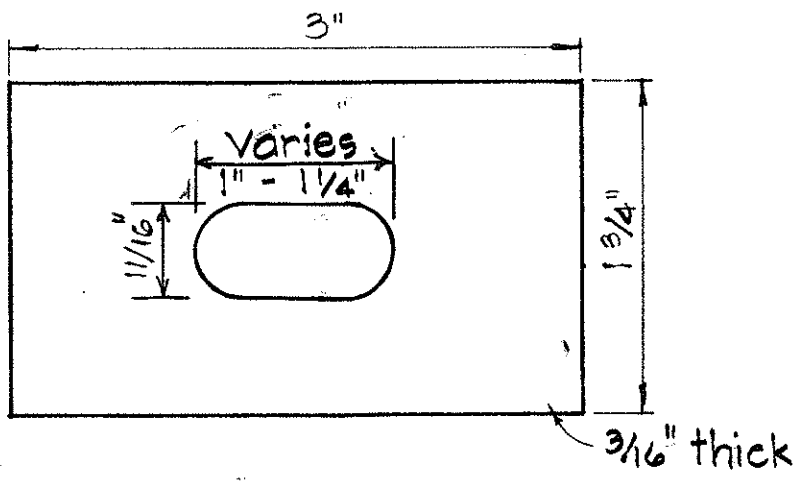
SPlice BOLT SLOT FOR ALL ENDS



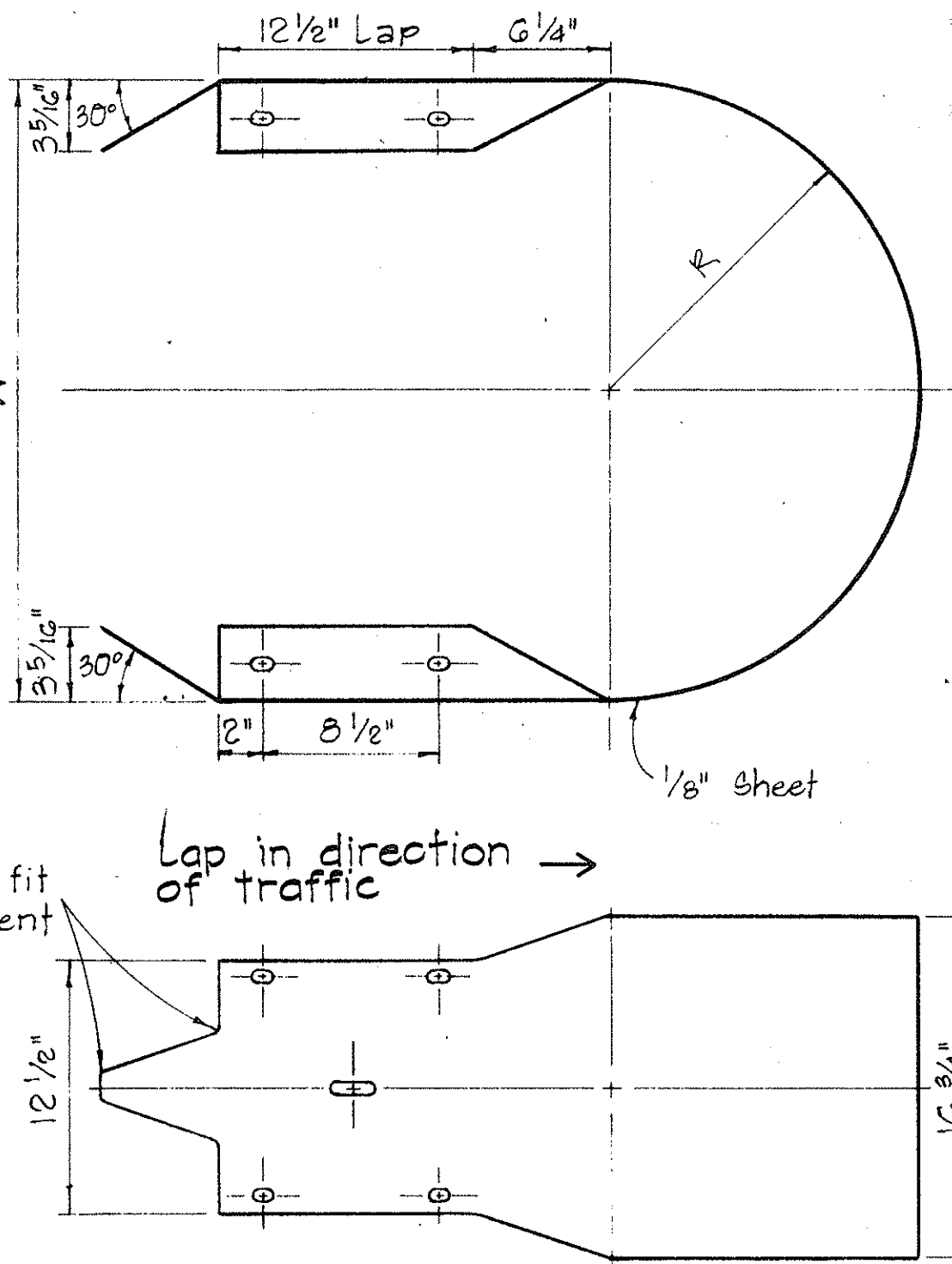
SPlice BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT



RAIL WASHER



MEDIAN END

Scale: 1 1/2\"/>

- NOTES:
- H.S. Bolts shall conform to the requirements of ASTM A 325.
 - Special End Shoe shall be fabricated from 10 Gage steel conforming to the requirements of AASHTO 180.

MEDIAN END DIMENSIONS			
TYPE OF POST AND BLOCK	W	R	
Double Metal Guard Rail on Concrete Post with Wood Blocks	29 3/4"	14 7/8"	
Double Metal Guard Rail on Concrete Post with Metal Blocks (BJG)	26 1/2"	13 1/4"	
Double Metal Guard Rail on Metal Post with Metal Blocks (BJG)	24 3/8"	12 3/16"	

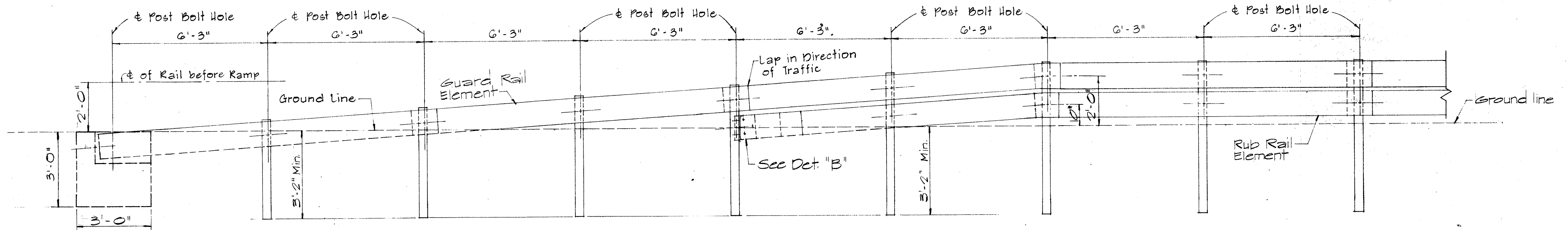
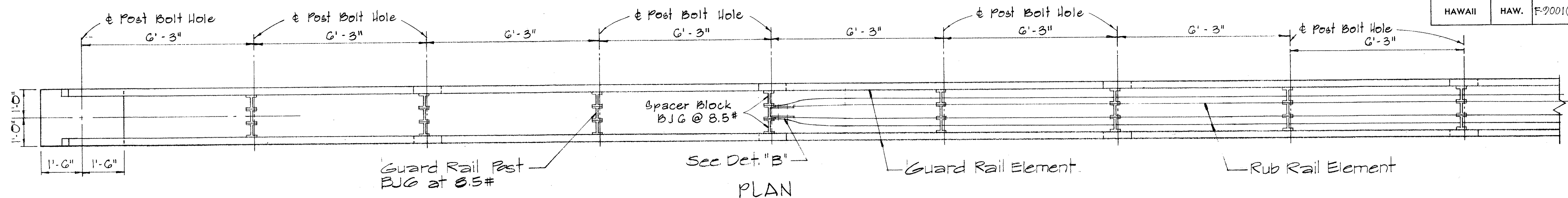
NO.	REVISION	APPROVED BY	DATE
1	Revised Hole Size for Rectangular Rail Washer	H.T.	8/10/77

APPROVAL RECOMMENDED:
Erich Tanaka 12/29/69
 TRAFFIC ENGINEER DATE
 APPROVED:
John J. J. J. 12-30-69
 ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
 STANDARD DETAILS
 METAL GUARD RAIL
 Scale: As Noted August, 1968
 SHEET No. 3 OF 4 SHEETS DT 501

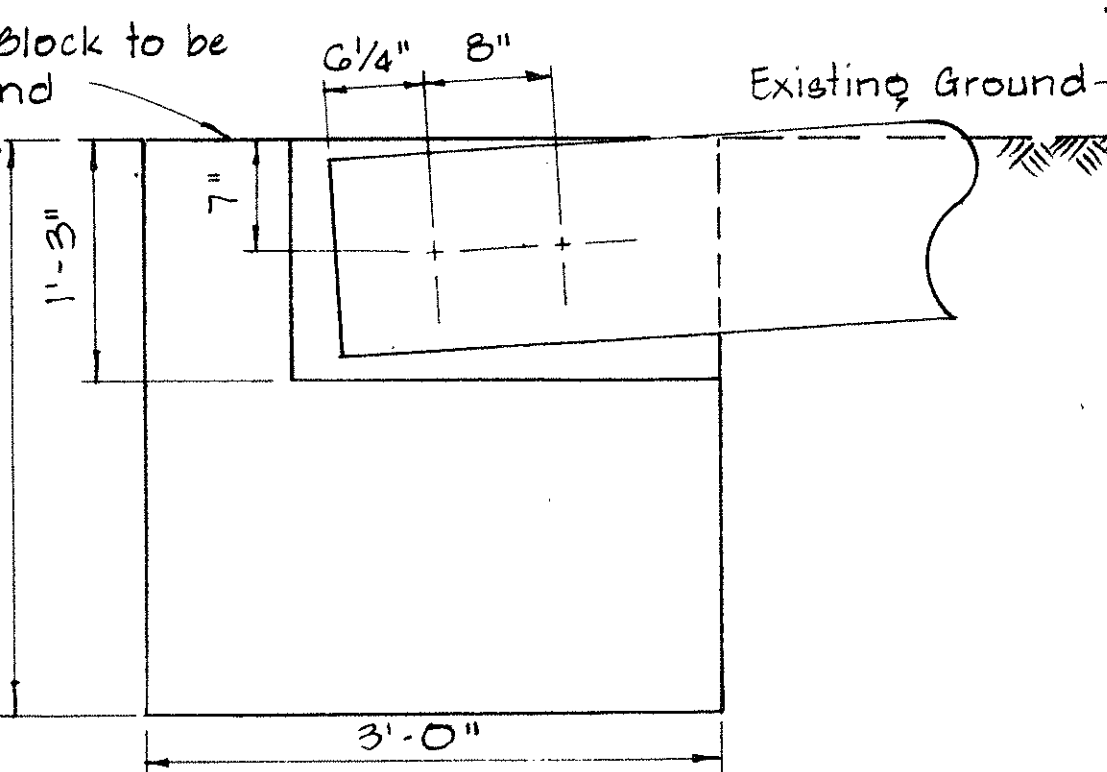
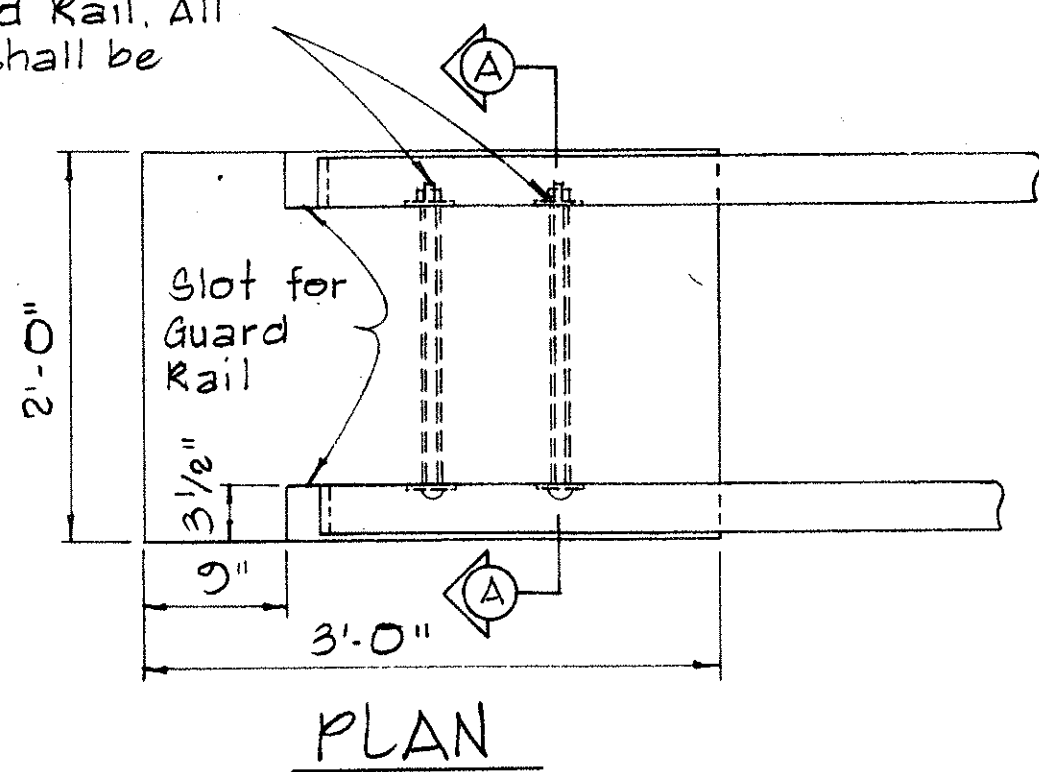
DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-2001(28)	1978	2	39

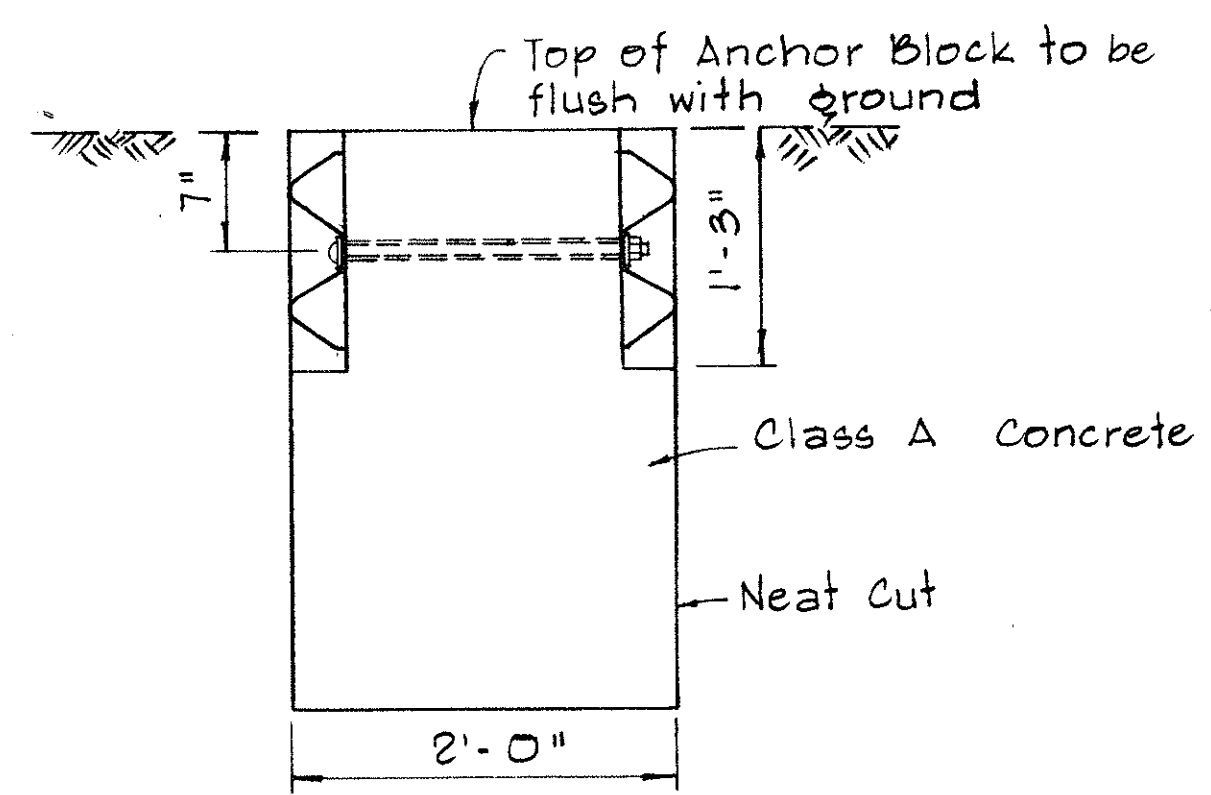


STRAIGHT APPROACH - RAMP END ANCHORAGE (MEDIAN)
Scale: 1/2" = 1'-0"

5/8" Bolts with 3/4" G.I. Pipe Sleeve in each hole. Incidental to Metal Guard Rail. All Metal Pieces shall be Galvanized.

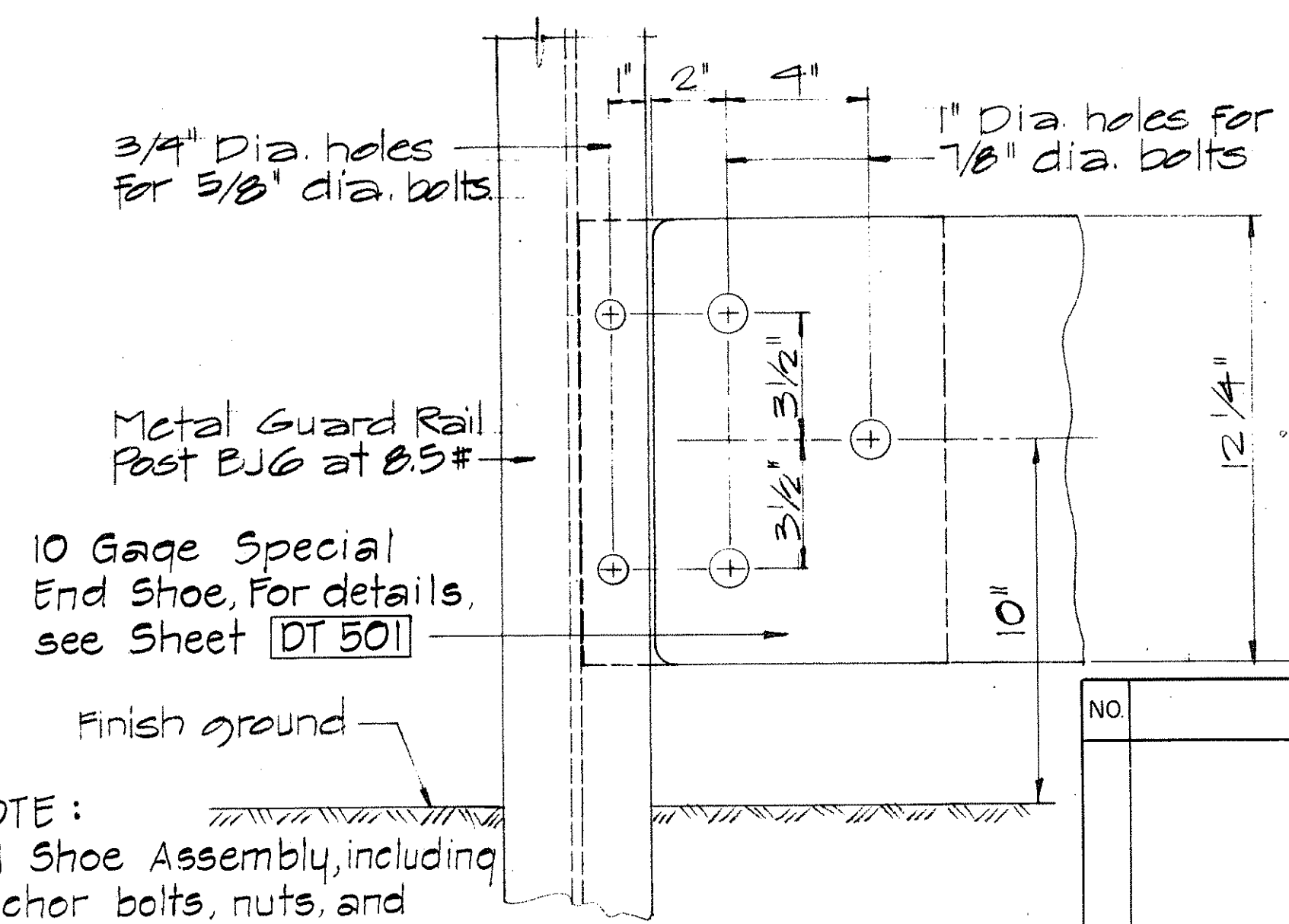


CONCRETE ANCHOR BLOCK FOR RAMP END
Scale: 1" = 1'-0"



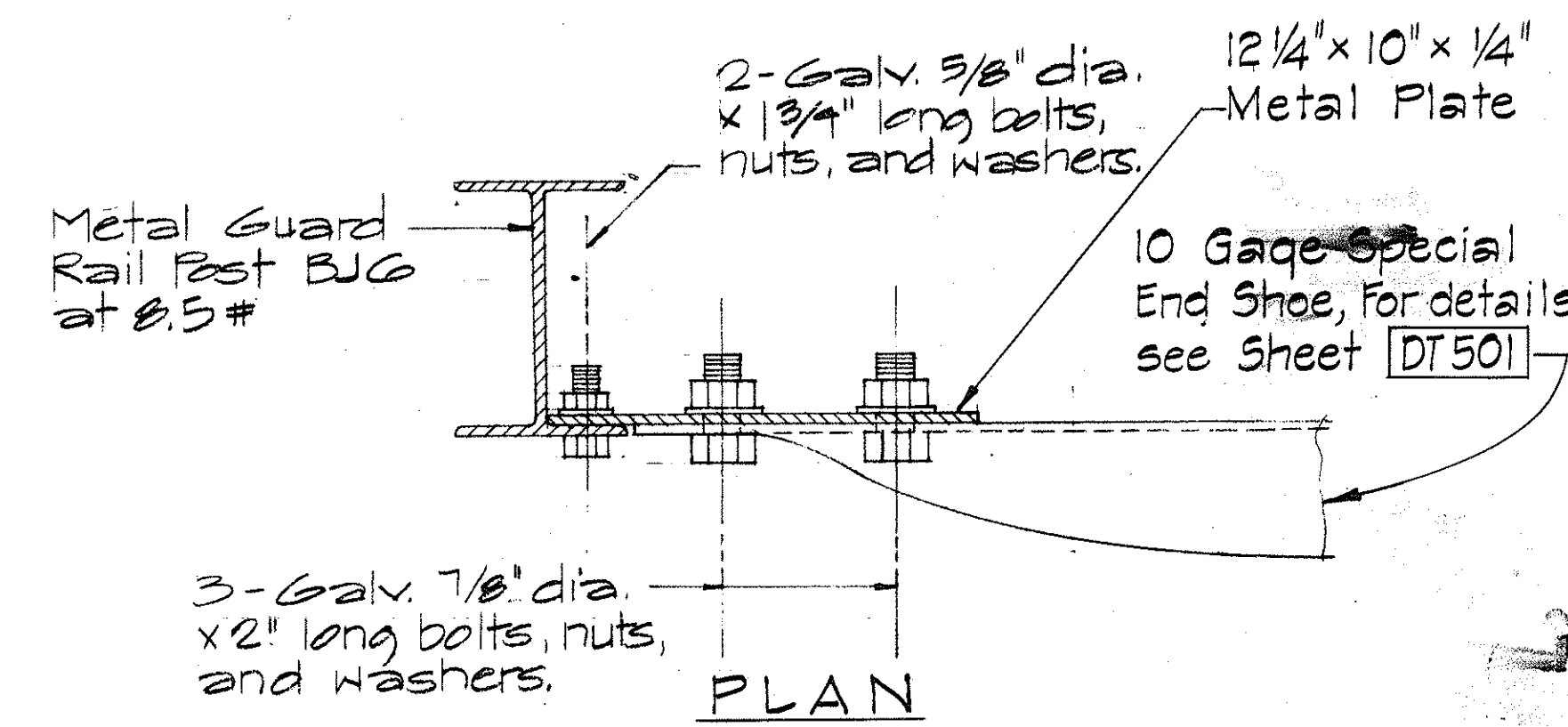
SECTION A-A

NOTE: Concrete, Excavation, and Miscellaneous Appurtenances necessary to anchor the Guard Rail Ends, shall be incidental to the Metal Guard Rail.



DETAIL "B"
Scale: 3/4" = 1'-0"

NOTE: All Shoe Assembly, including anchor bolts, nuts, and washers, shall be galvanized.



APPROVAL RECOMMENDED:
E. Tanaka
TRAFFIC ENGINEER

APPROVED:
Richard S. Dela
ASSISTANT CHIEF, ENGINEERING

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAIL
GUARD RAIL
RAMP END ANCHORAGE

Scale: as Noted

August, 1968

SHEET No. 4 OF 4 SHEETS DT 502

DATE	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	