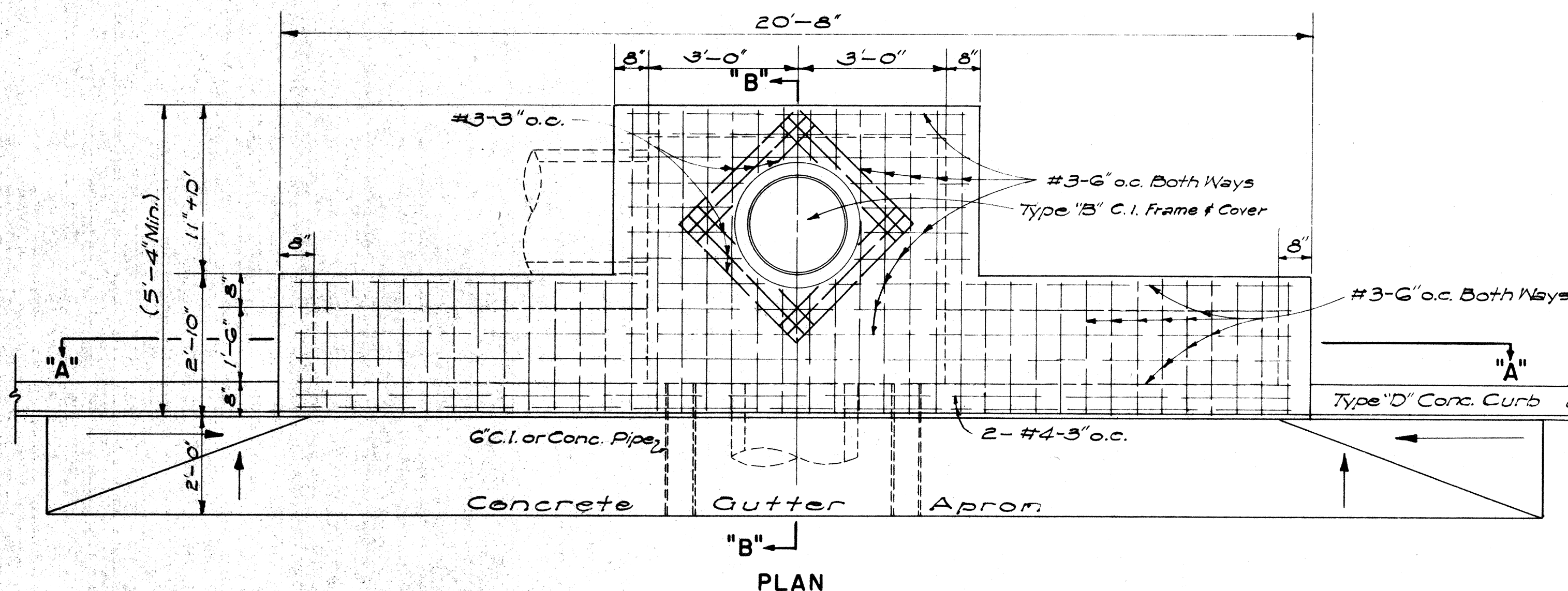
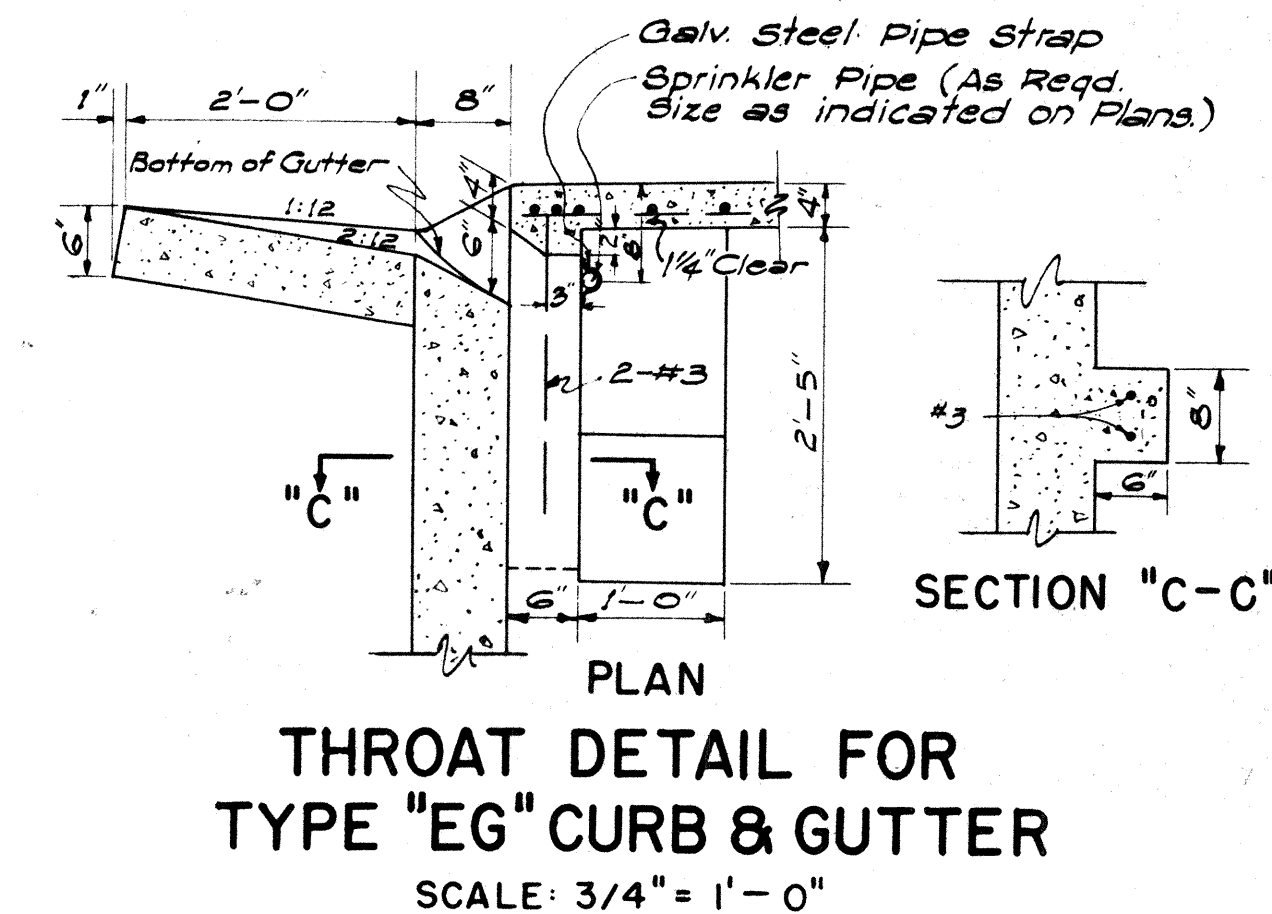
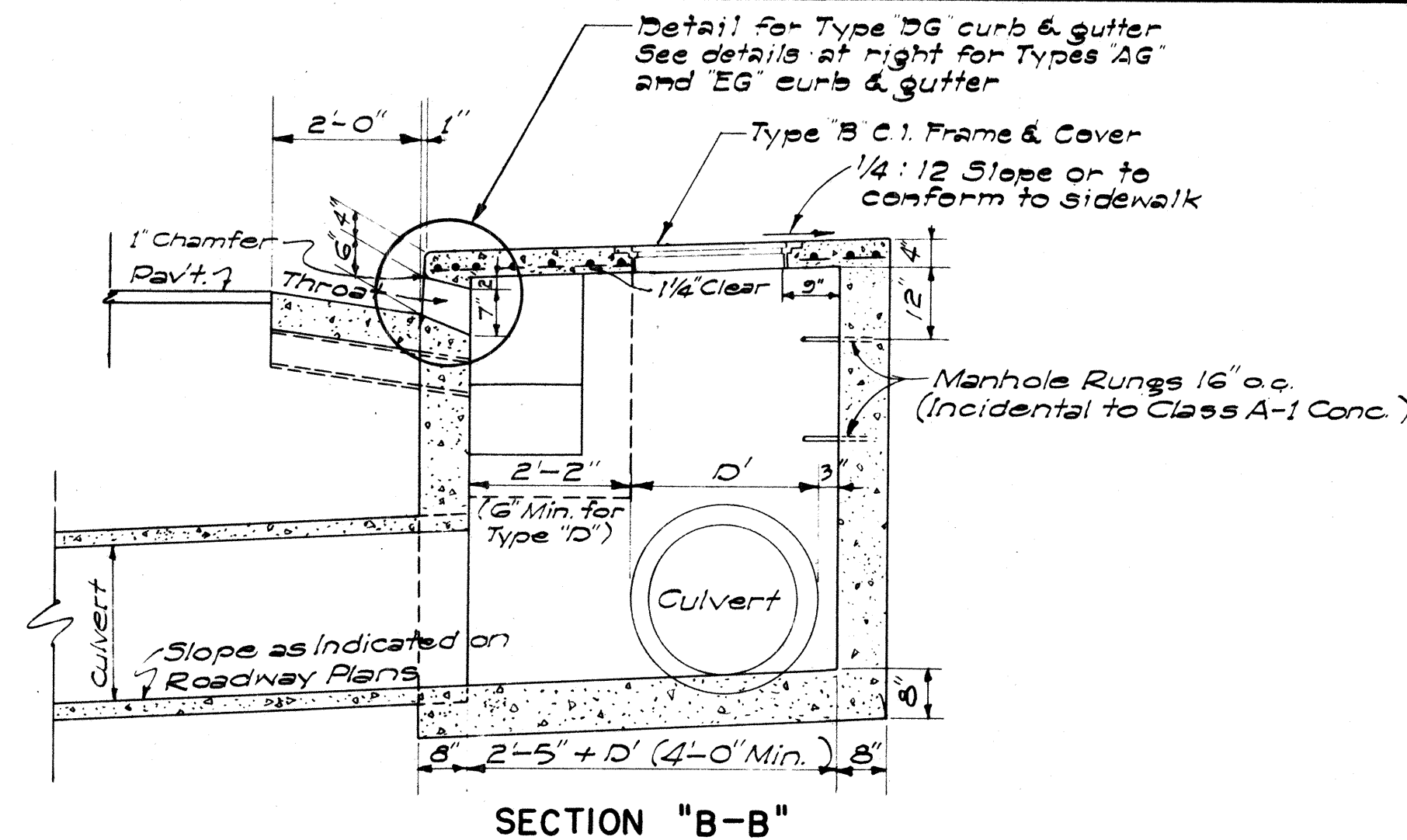
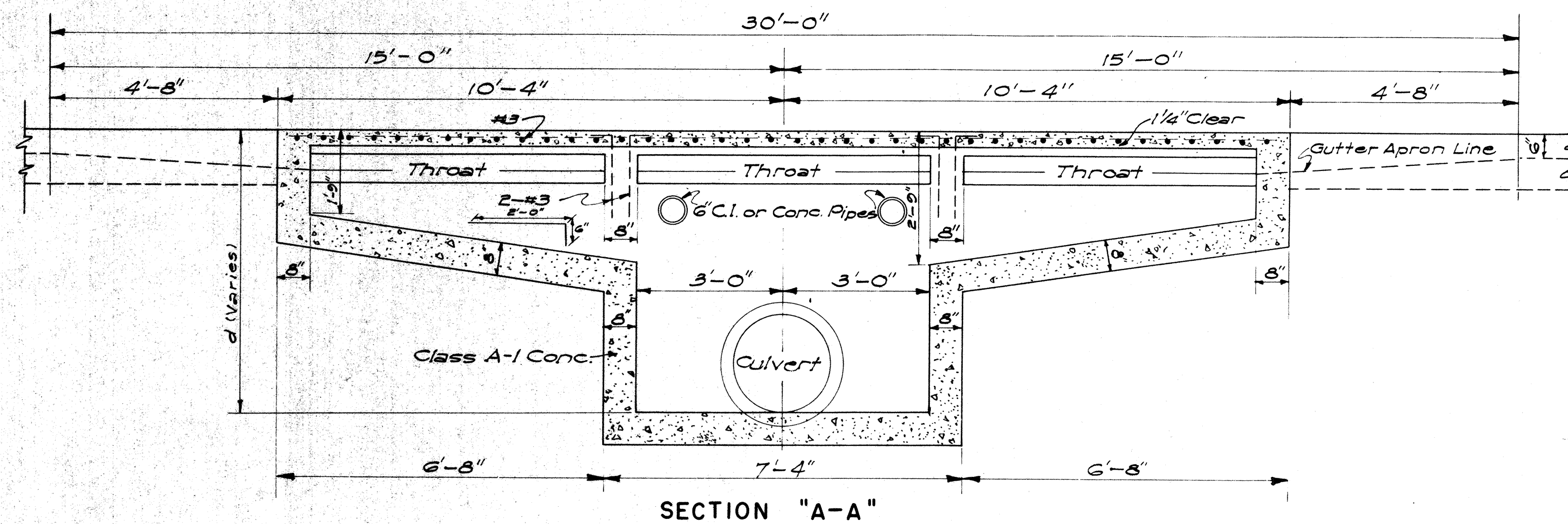
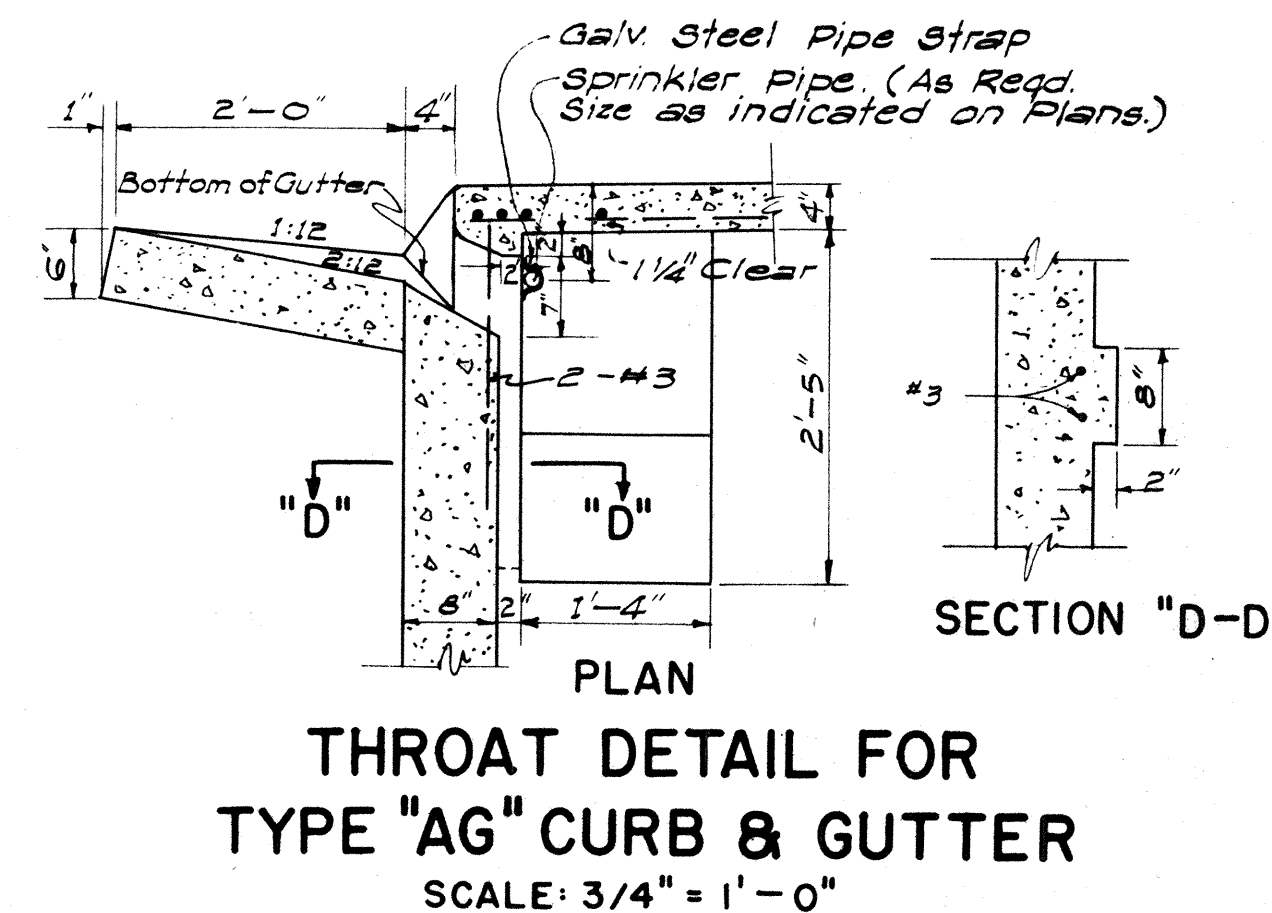
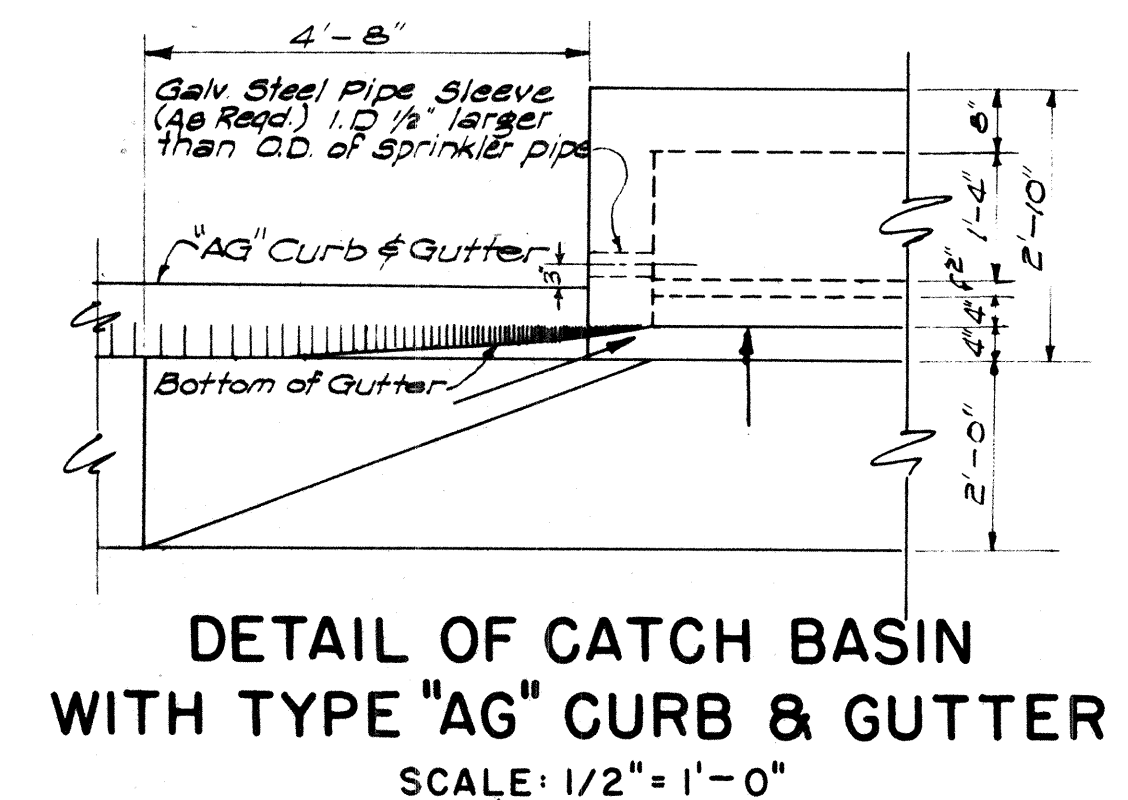


2/17/59

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	F-090-1(1)	1967	7	16



DETAIL OF CATCH BASIN WITH TYPE "EG" CURB & GUTTER



DETAIL OF TYPE "A" CATCH BASIN
SCALE: 1/2" = 1'-0"

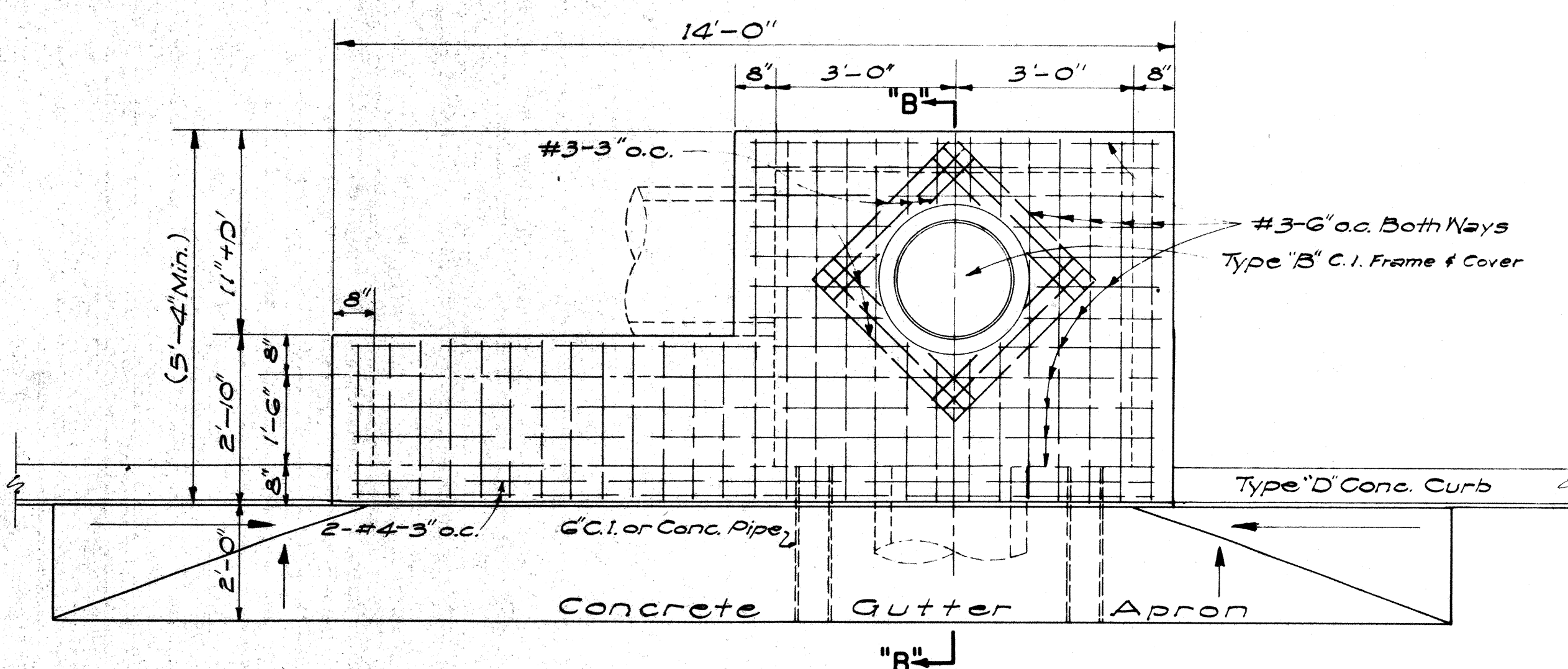
DETAIL OF CATCH BASIN WITH TYPE "AG" CURB & GUTTER
SCALE: 1/2" = 1'-0"

ESTIMATED QUANTITIES

Type	Class A-1 Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 cy	24.7 cy	145 lb.	30'-0"
"B"	6.0 cy	21.5 cy	108 lb.	23'-4"
"C"	6.0 cy	21.5 cy	108 lb.	23'-4"
"D"	4.9 cy	16.5 cy	77 lb.	16'-8"

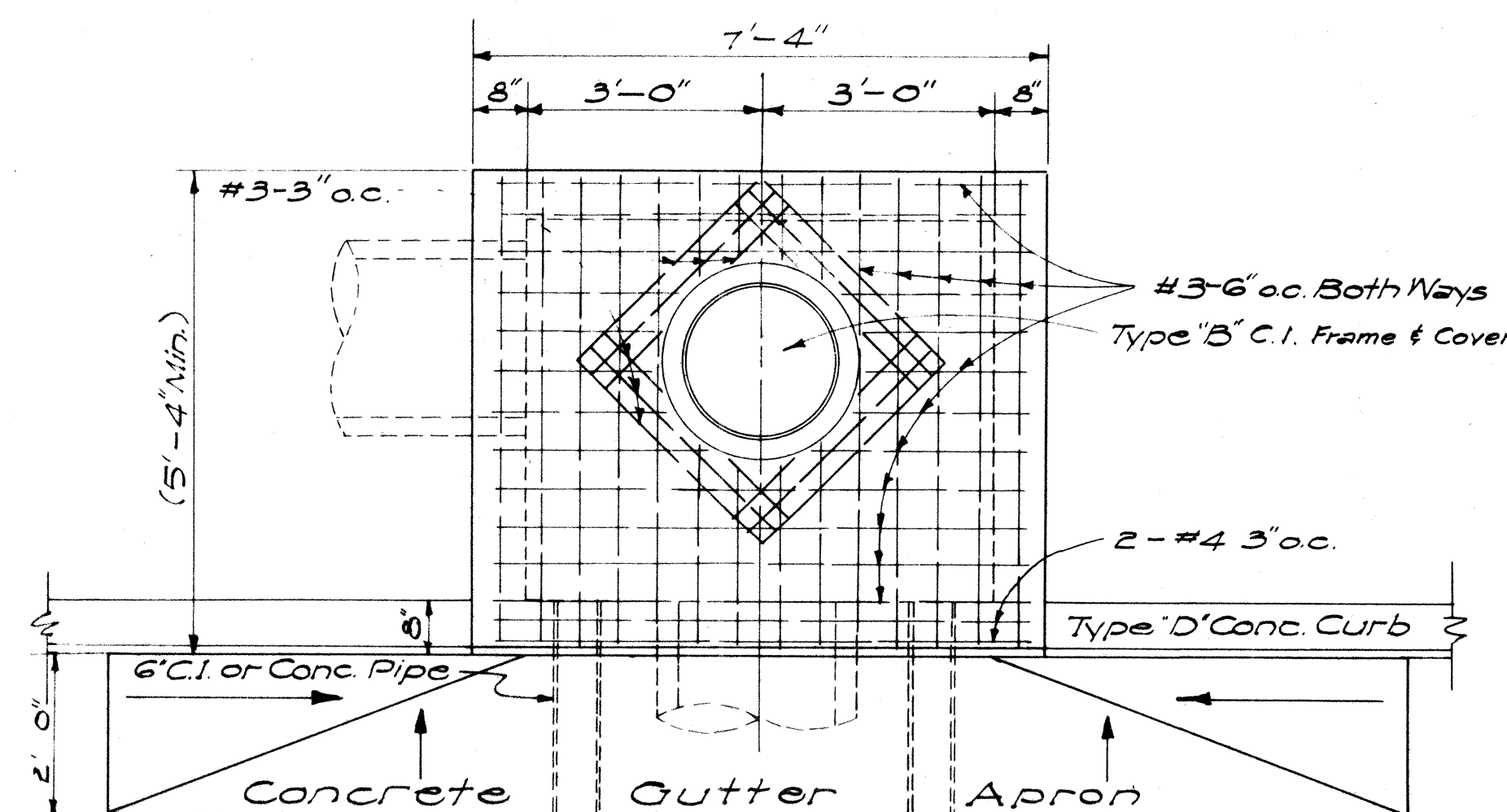
NOTES:

- Quantities based on d = 5.75' and D' = 30'
- Quantities do not include concrete for Gutter Apron.
- The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A-1 Concrete for Construction Drainage.
- Culvert shall leave C.B. from any position and any direction indicated by plans or ordered by the Engineer. Culvert may both enter and leave C.B. so that C.B. will also act as Manhole.
- The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.

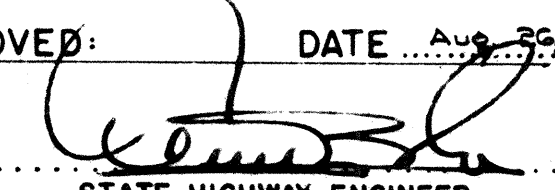


DETAIL OF TYPE "B" CATCH BASIN
SCALE: 1/2" = 1'-0"

NOTE: TYPE "C" C.B. SIMILAR BUT OPPOSITE HAND



DETAIL OF TYPE "D" CATCH BASIN
SCALE: 1/2" = 1'-0"

APPROVED:  DATE: AUG 26, 1959
STATE HIGHWAY ENGINEER

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
CATCH BASINS

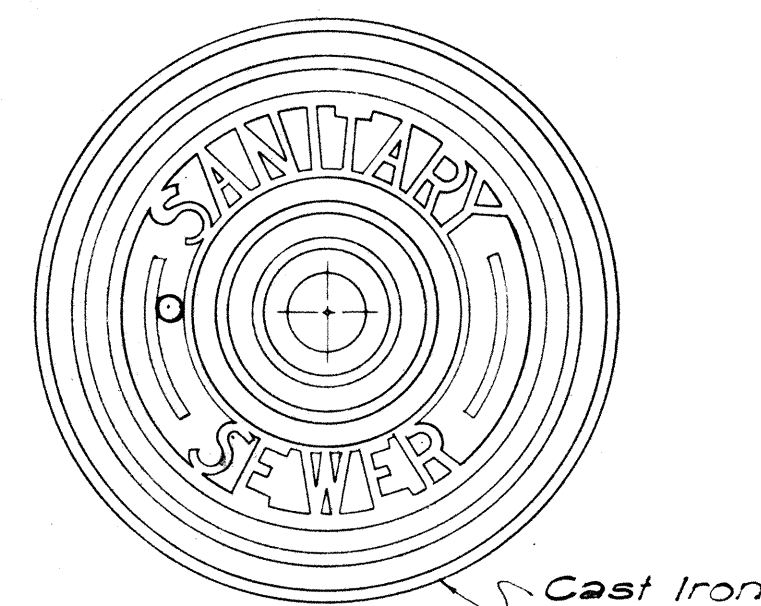
SCALES AS NOTED
SHEET NO. 1 OF 6 SHEETS

DATE: 2/17/59
SURVEY PLOTTED BY: J. J. J.
DRAWN BY: J. J. J.
NOTE BOOK: J. J. J.
QUANTITIES BY: J. J. J.
CHECKED BY: J. J. J.

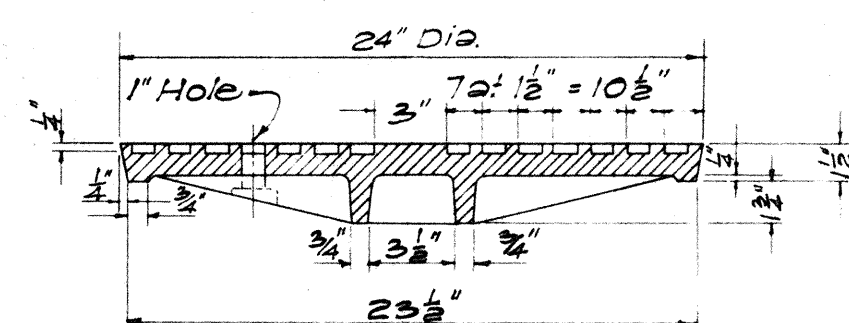
2/17/50
8/14/50

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F-070-1(1)	1967	9	16
August 1957					

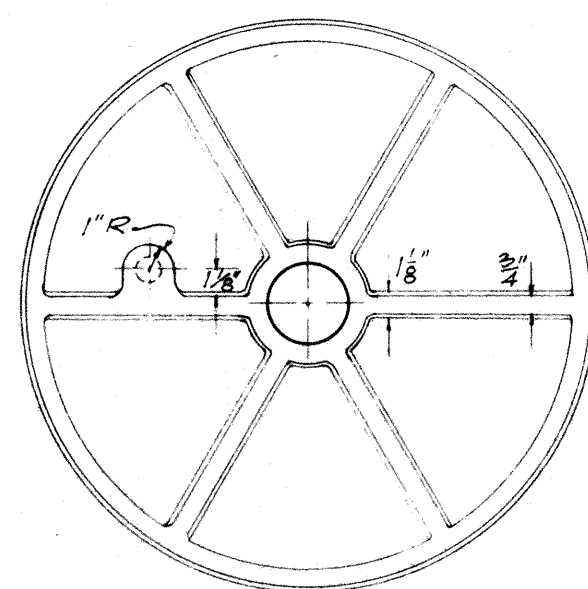
NOTE: Stock Pattern From Novelty Foundry ~ Honolulu



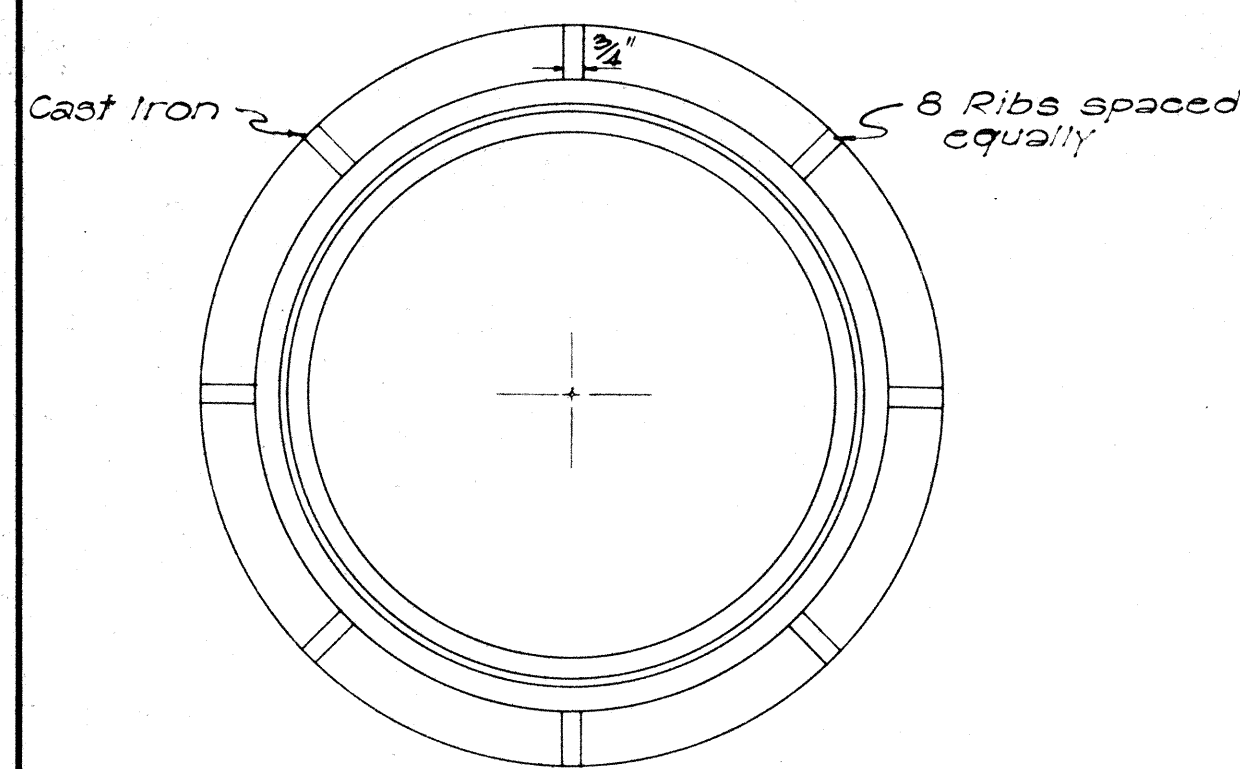
TOP VIEW OF COVER



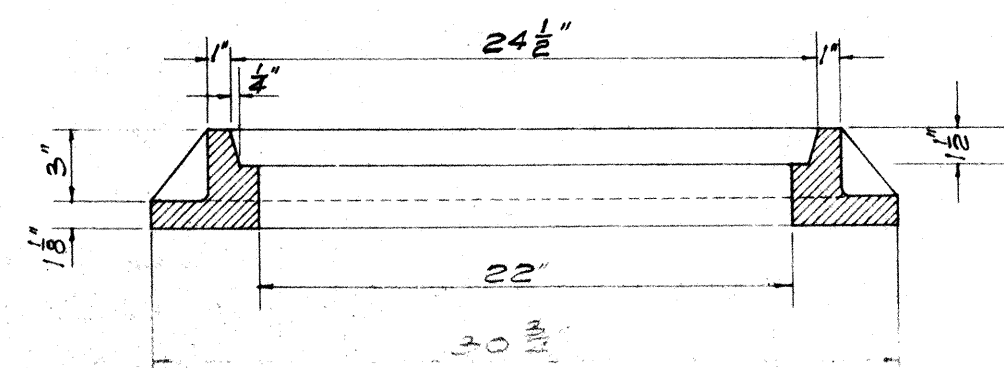
SECTION



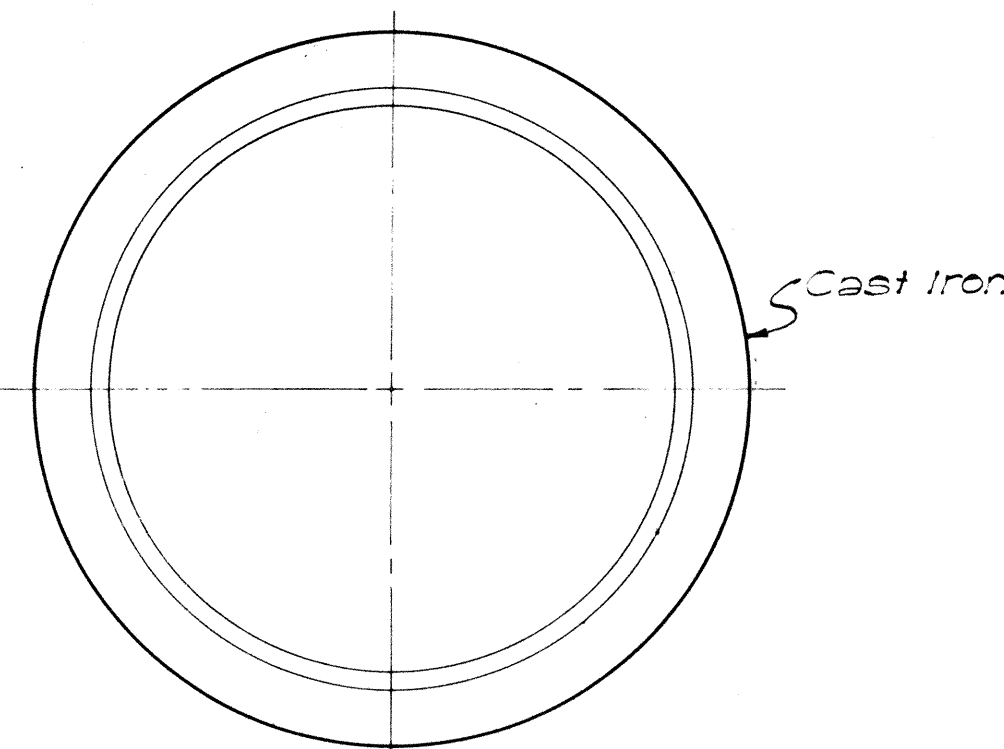
BOTTOM VIEW OF COVER



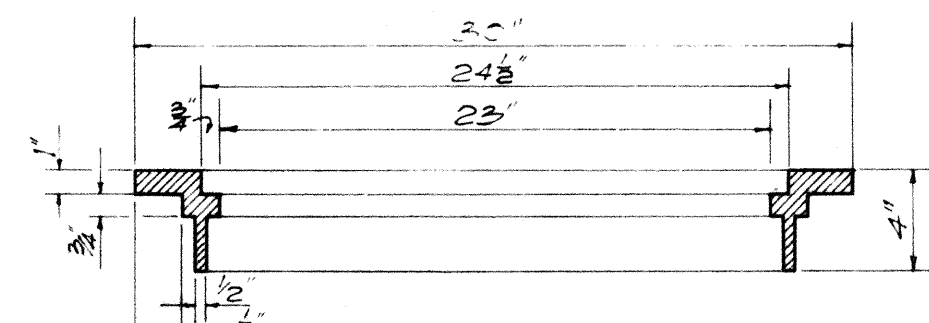
PLAN OF RIM



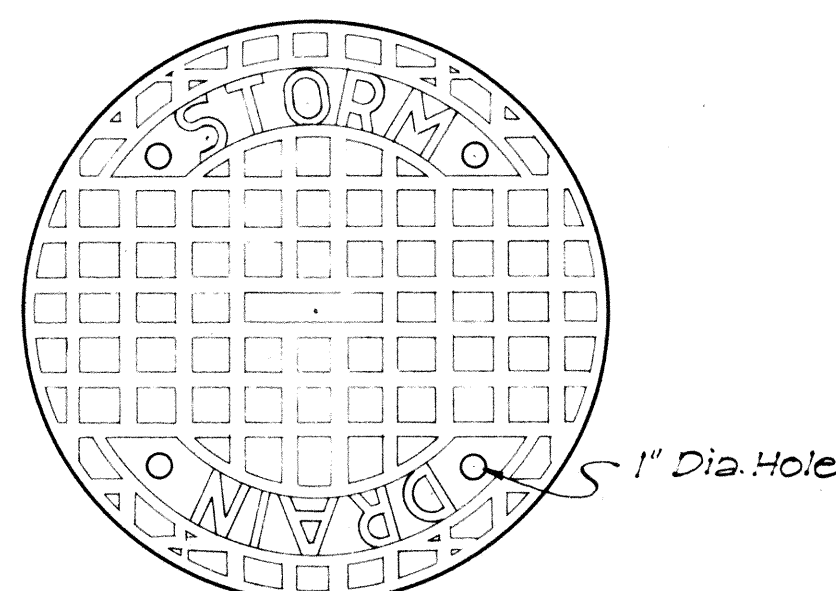
SECTION OF RIM
DETAILS OF TYPE "S"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



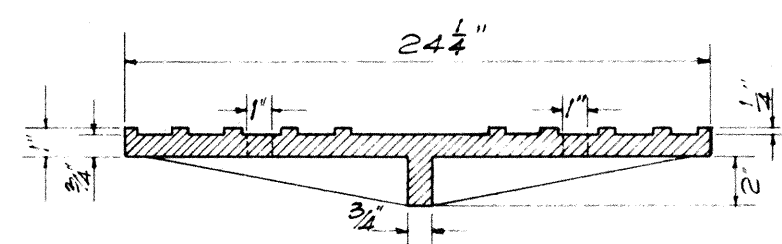
PLAN OF RIM



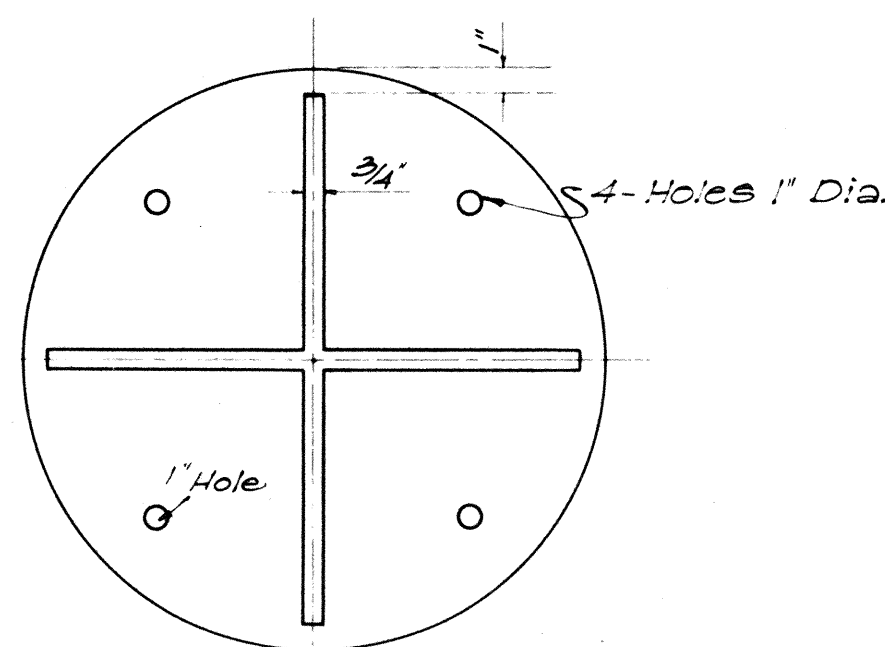
SECTION OF RIM



TOP VIEW OF COVER

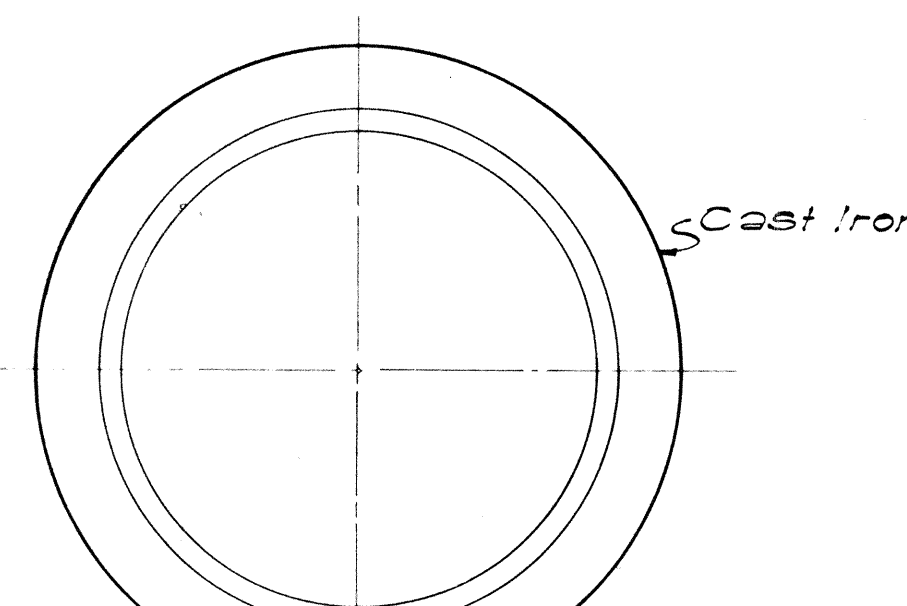


SECTION

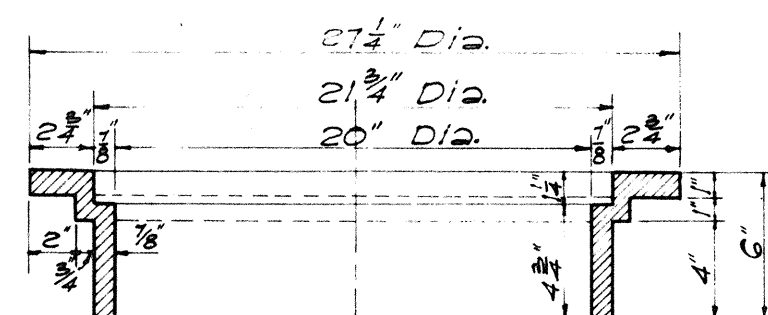


BOTTOM VIEW OF COVER

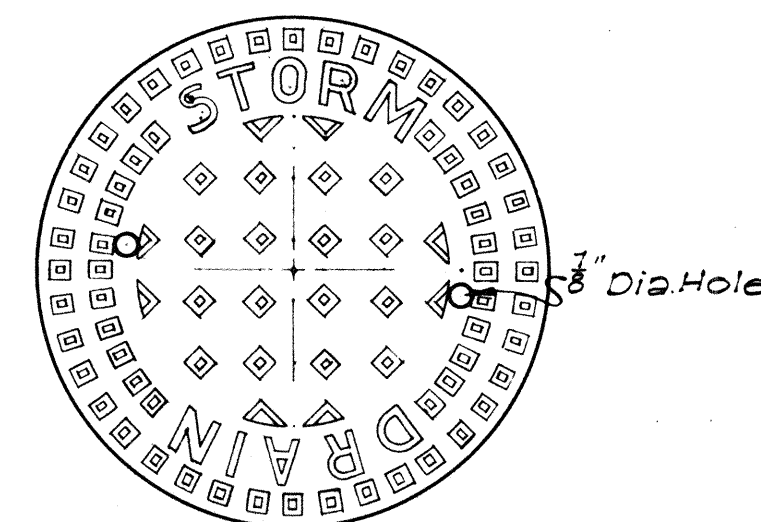
DETAILS OF TYPE "B"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



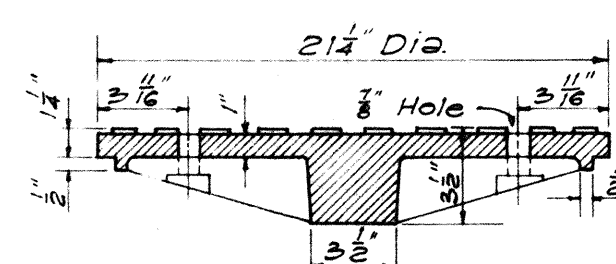
PLAN OF RIM



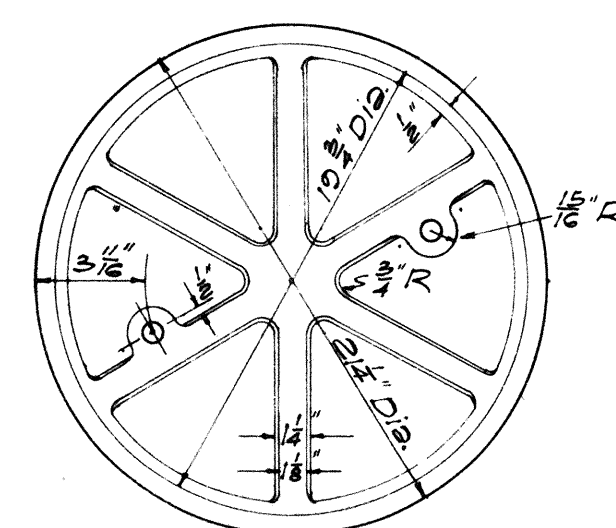
SECTION OF RIM



TOP VIEW OF COVER

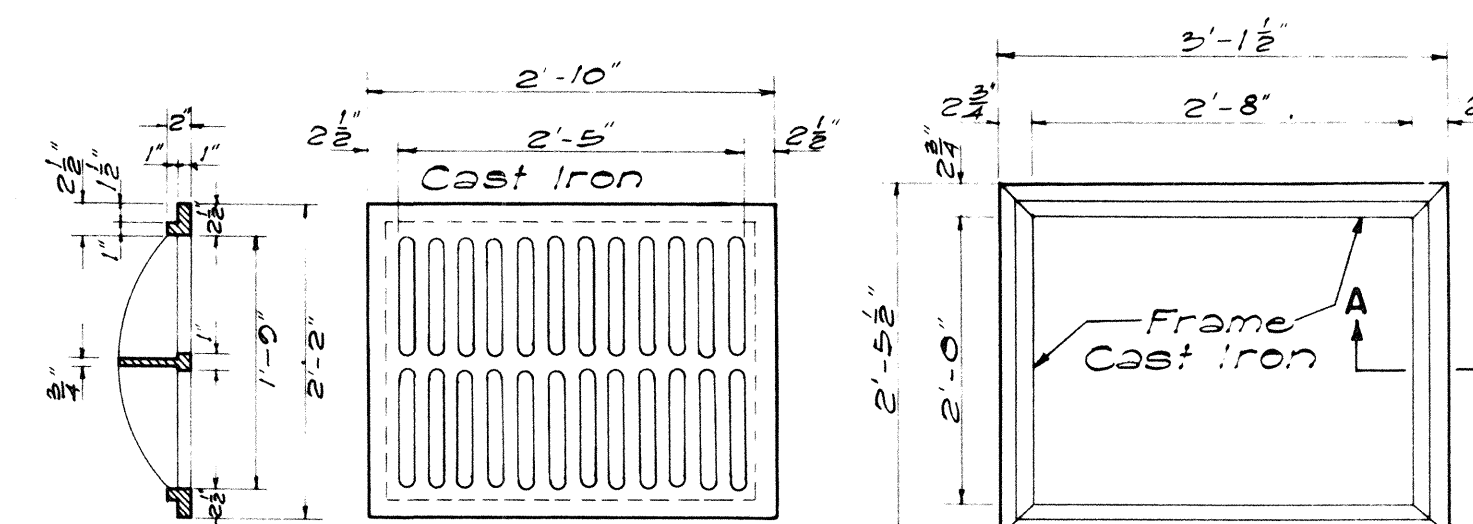


SECTION



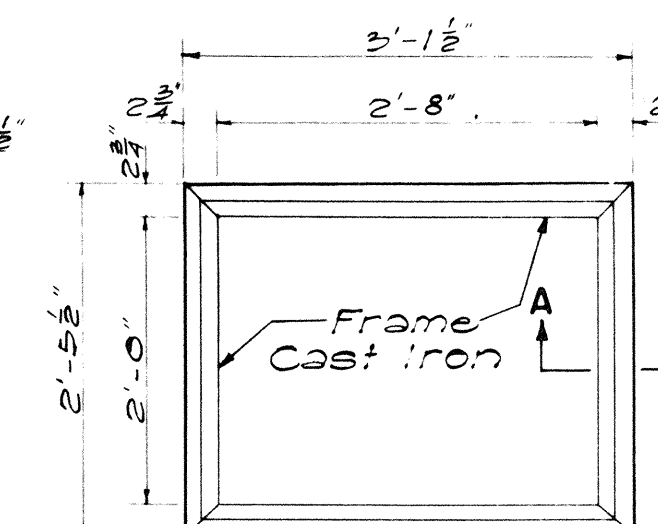
BOTTOM VIEW OF COVER

DETAILS OF TYPE "A"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



SECTION

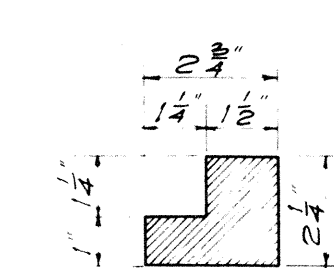
TOP VIEW



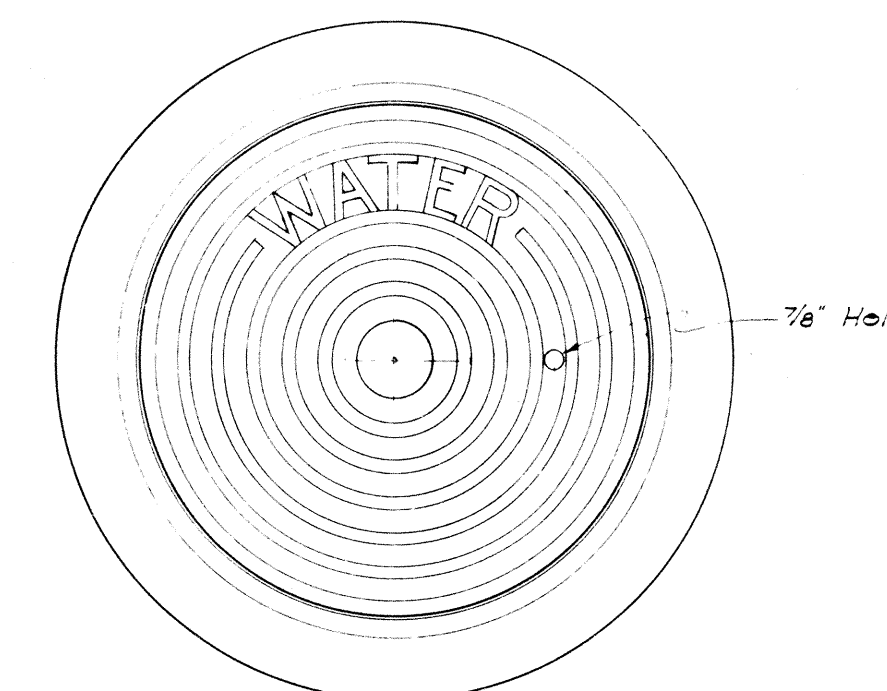
TOP VIEW

TYPE C C.I. FRAME AND GRATING

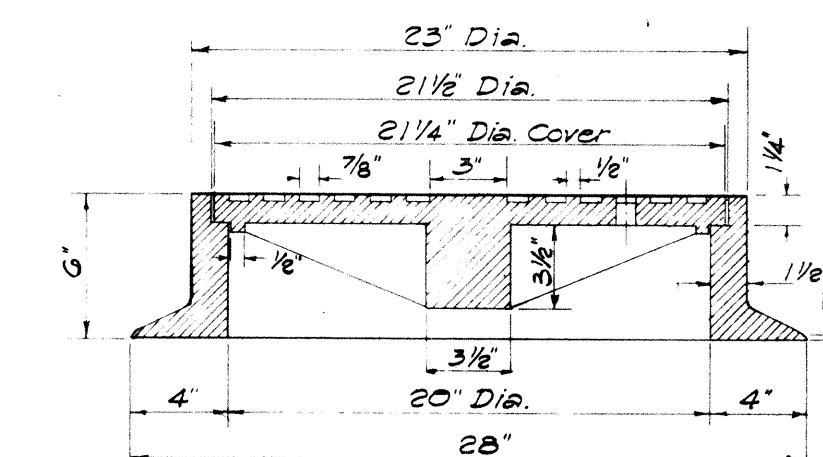
SCALE: 3/4" = 1'-0"



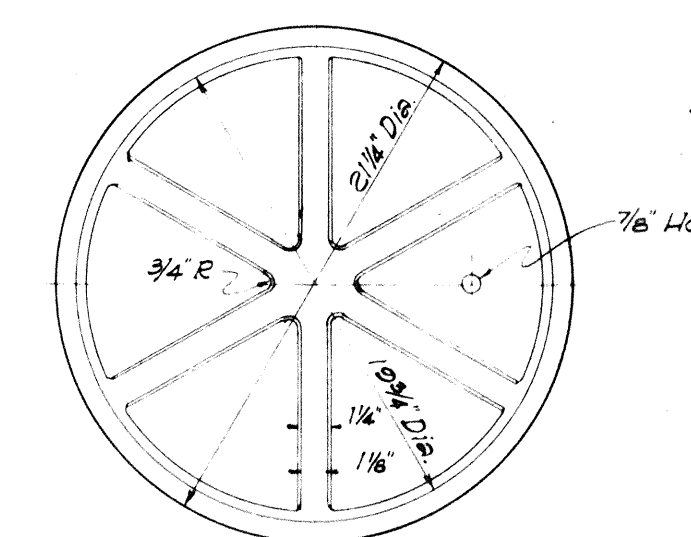
SECTION "A-A"
SCALE 3" = 1'-0"



PLAN OF FRAME AND COVER



SECTION OF FRAME AND COVER



BOTTOM VIEW OF COVER

DETAILS OF TYPE "W"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"

NOTE:

THE TYPE "S" CAST IRON FRAME AND COVER SHOWN ON THIS SHEET IS EQUIVALENT TO THE CITY AND COUNTY OF HONOLULU, DIVISION OF SEWERS' TYPE "A" CAST IRON MANHOLE FRAME AND COVER.

THE TYPE "W" CAST IRON FRAME AND COVER SHOWN ON THIS SHEET IS EQUIVALENT TO THE CITY AND COUNTY OF HONOLULU, BOARD OF WATER SUPPLY'S CAST IRON MANHOLE FRAME AND COVER, 20" SIZE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CATCH BASIN AND
MANHOLE CASTINGS

SCALES AS NOTED

SHEET NO. 9 OF 16 SHEETS

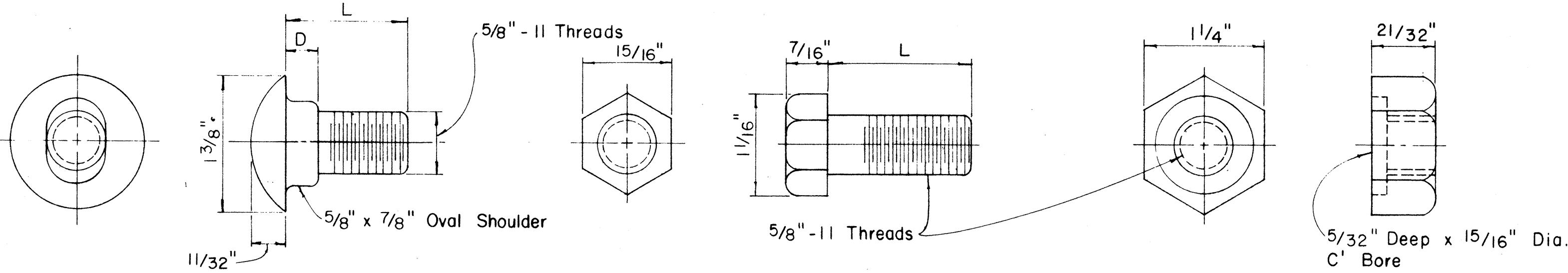
9

BOLT DIMENSIONS

TYPE A BOLT		
	D	L
Splice Bolt	5/16"	1 1/4"
Post Bolt for Conc. Post w/ Double Wood Blocks	3/32"	2 5/8"
Post Bolt for Conc. Post w/ Single Wood Block	3/32"	1 8/8"
Rail Bolt for Metal Block	3/32"	2"

BOLT DIMENSIONS

TYPE B BOLT		L
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

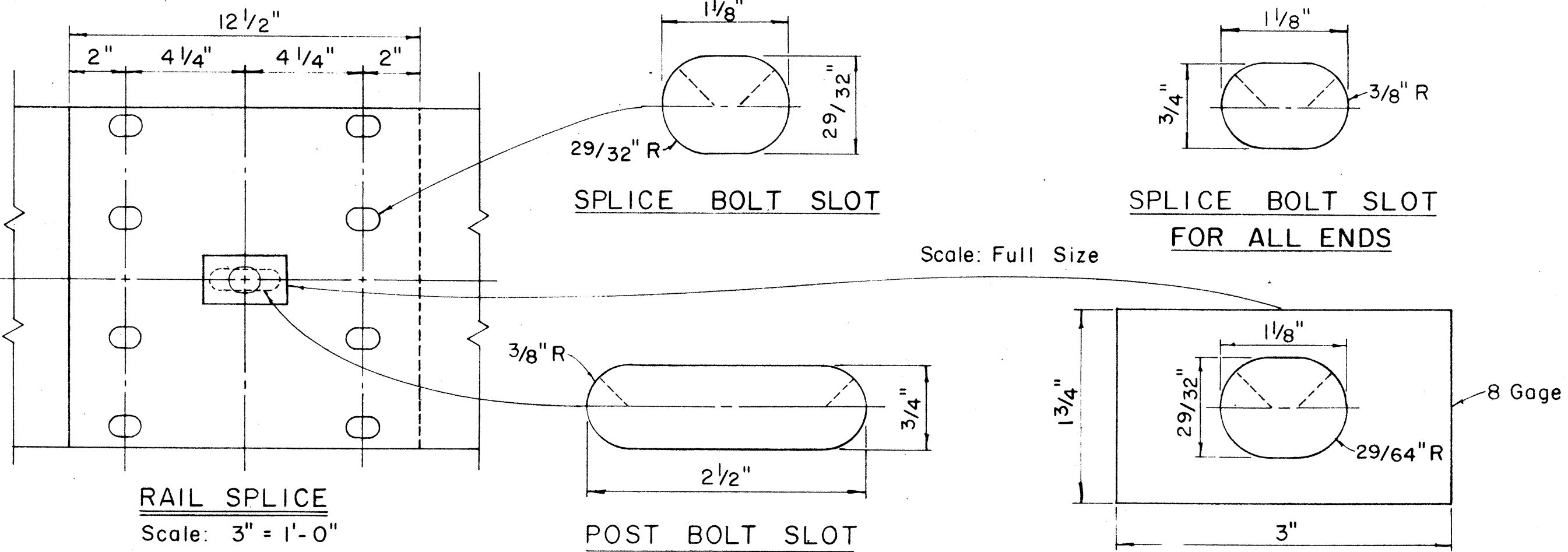
TYPE B BOLT

HEXAGON NUT

SPLICE RAIL AND POST BOLTS

Scale: Full Size

Scale: Full Size



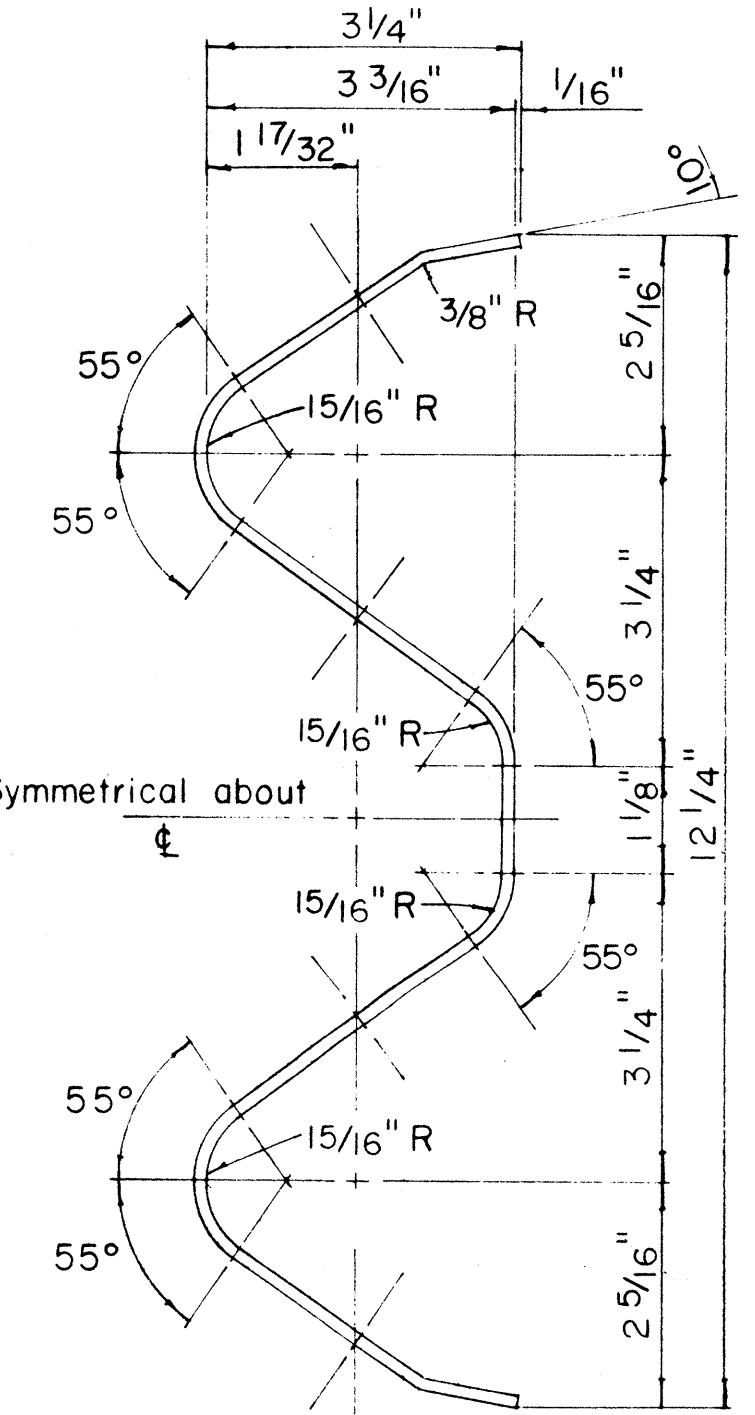
RAIL SPLICE

Scale: 3" = 1'-0"

POST BOLT SLOT

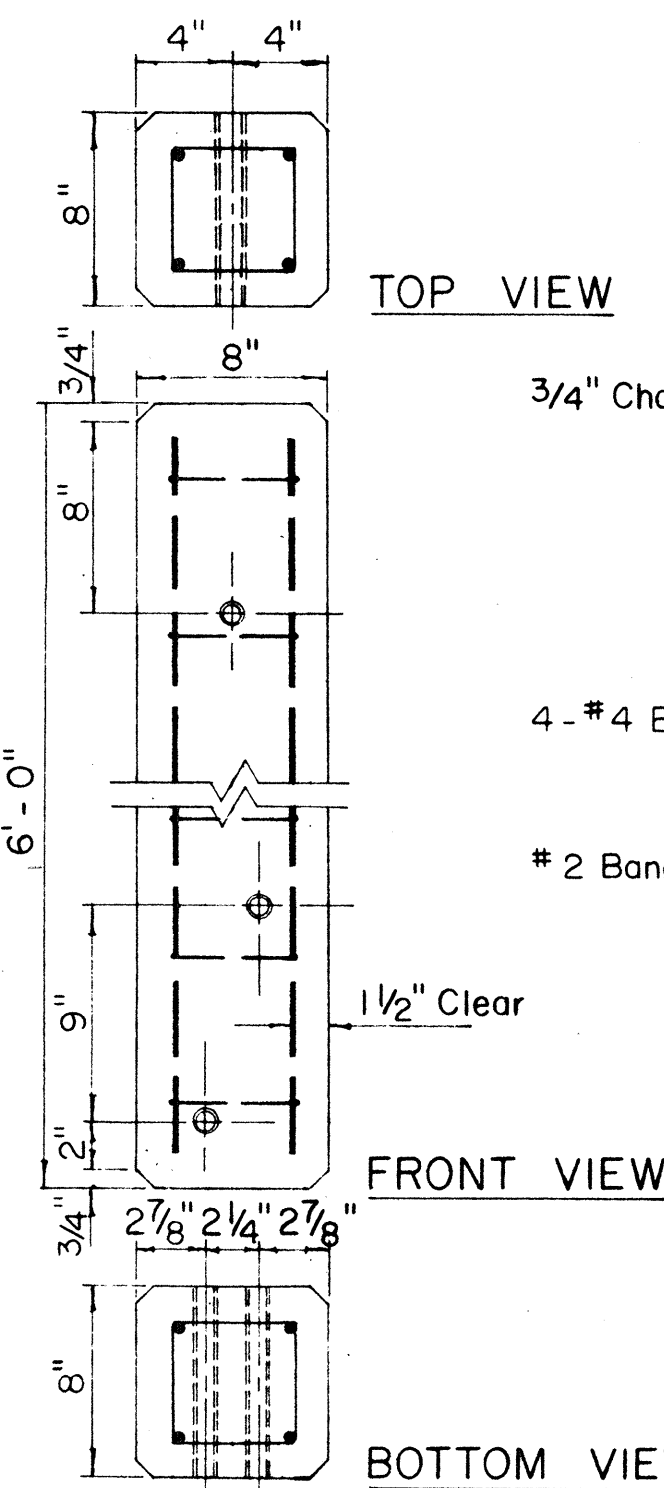
RAIL WASHER

NOTE:
Concrete post shall be precast



RAIL ELEMENT SECTION

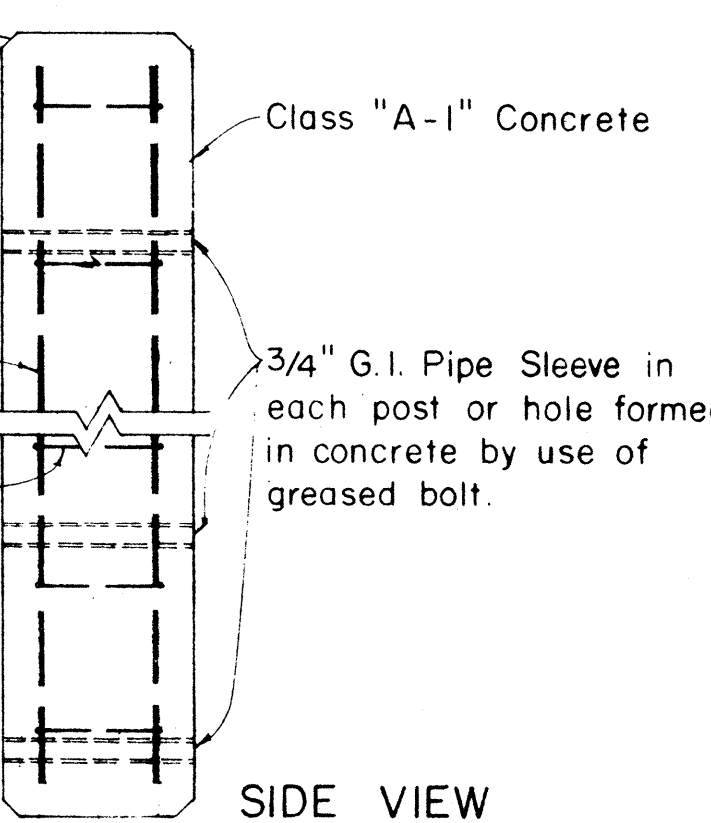
Scale: 6" = 1'-0"



TOP VIEW

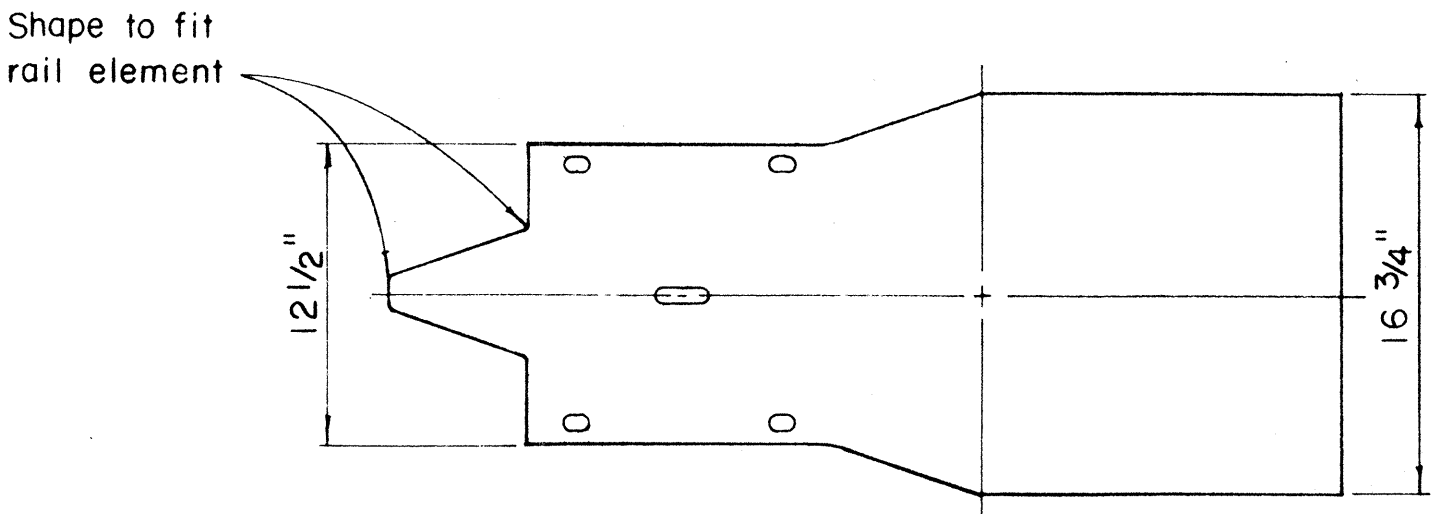
FRONT VIEW

BOTTOM VIEW



DETAIL OF CONCRETE POST

Scale: 1 1/2" = 1'-0"

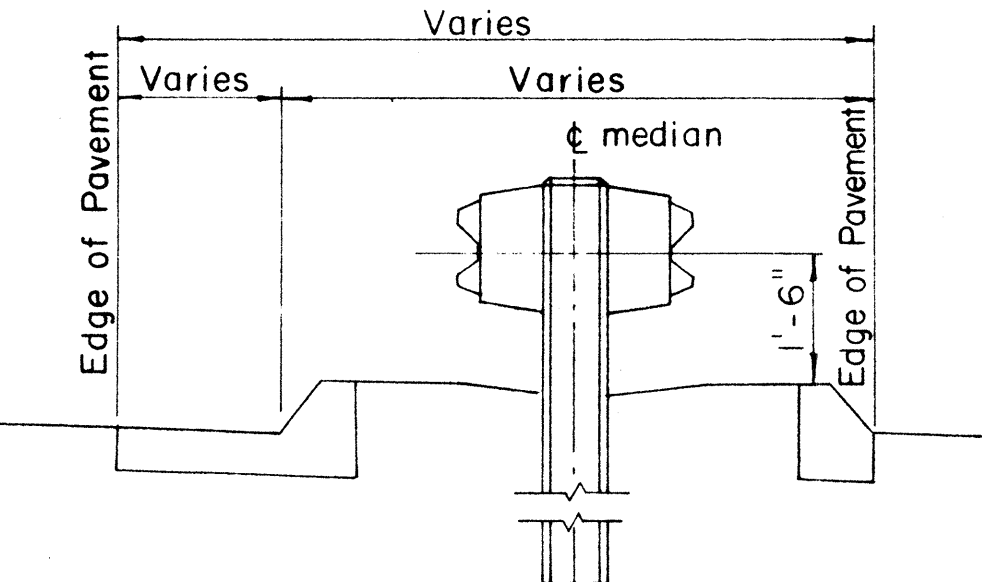


MEDIAN END

Scale: 1 1/2" = 1'-0"

MEDIAN END DIMENSIONS

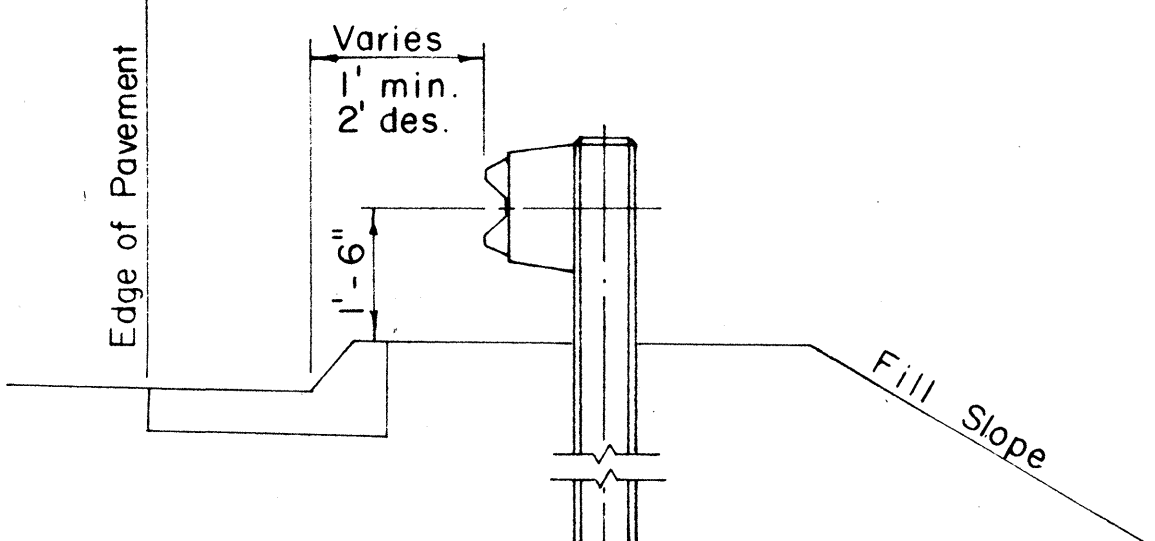
TYPE OF POST AND BLOCK	W	R
Double Metal Guard Rail on Concrete Post with Wood Blocks	29 3/4"	14 7/8"
Double Metal Guard Rail on Concrete Post with Metal Blocks (BJ 6)	26 1/2"	13 1/4"
Double Metal Guard Rail on Metal Post with Metal Blocks (BJ 6)	24 3/8"	12 3/16"



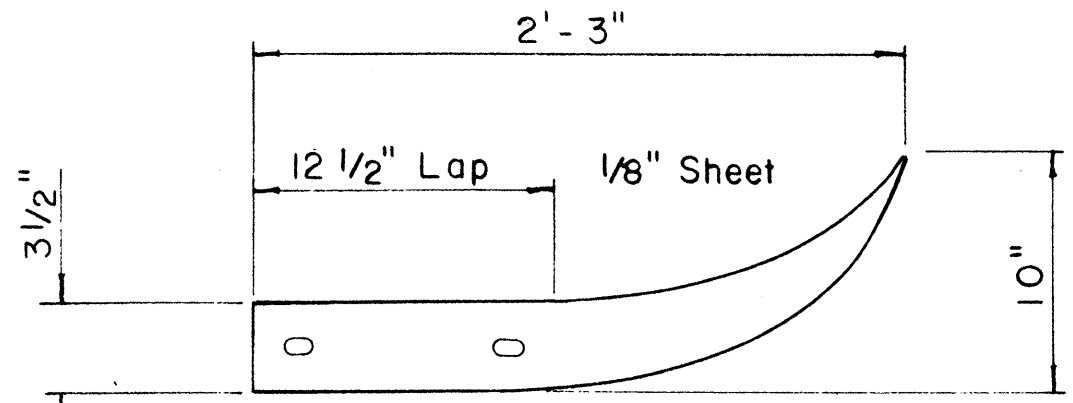
MEDIAL

TYPICAL GUARD RAIL DETAIL

Scale: 1/2" = 1'-0"

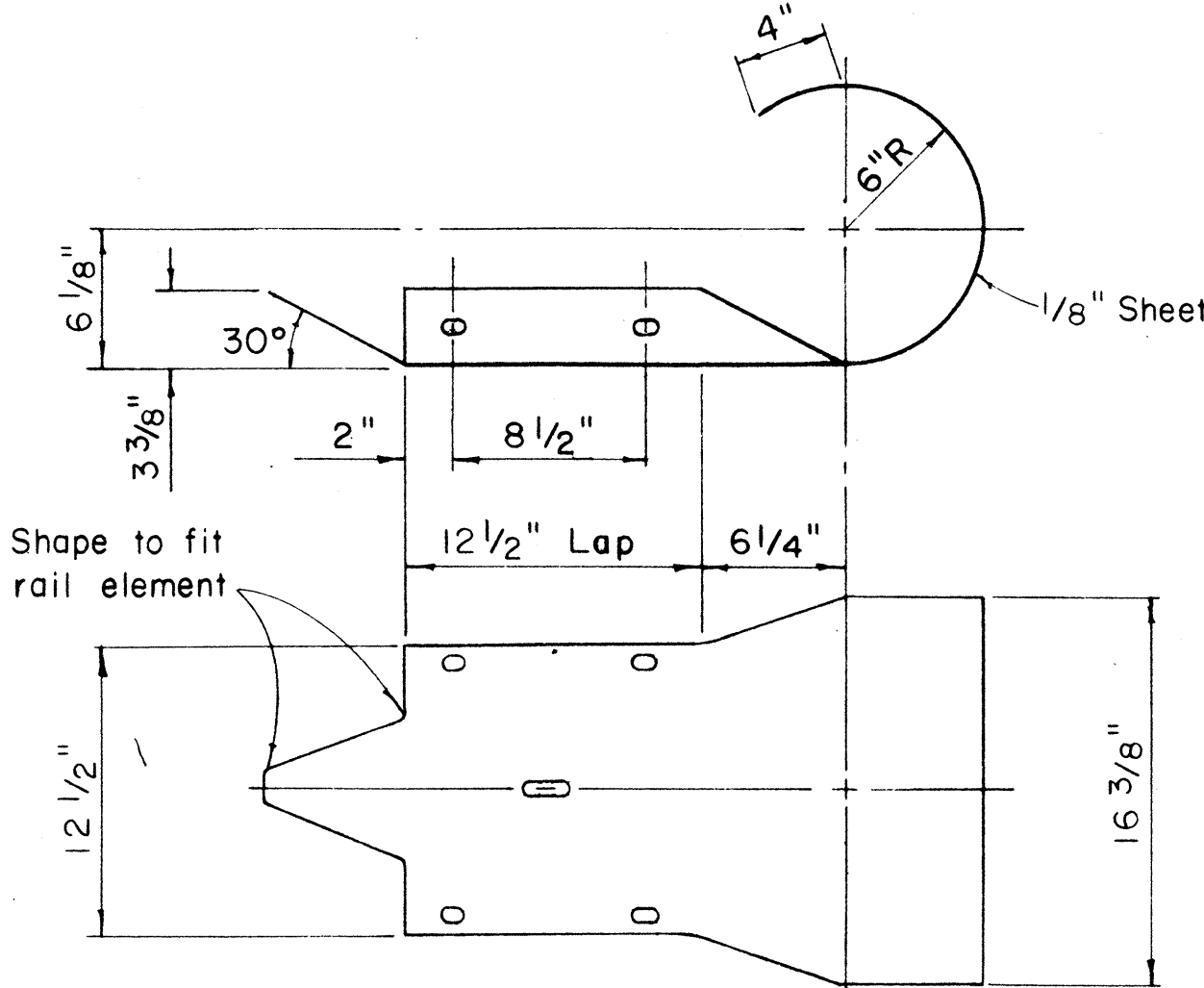


SHOULDER



FLARED END

Scale: 1 1/2" = 1'-0"



CURVED END

Scale: 1 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

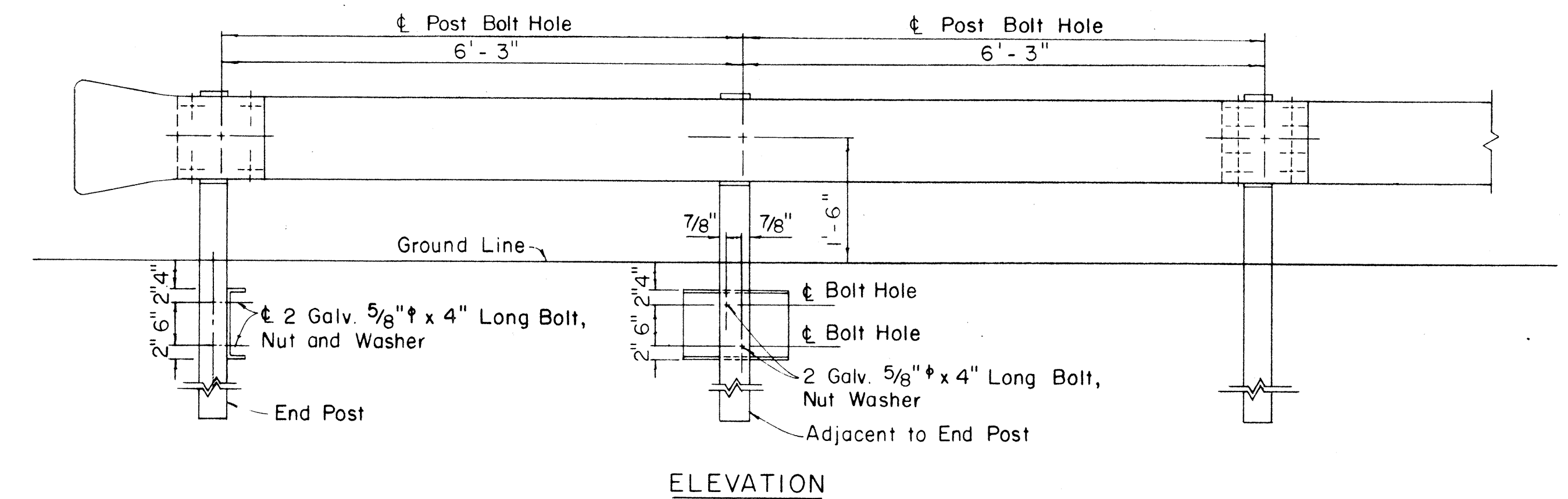
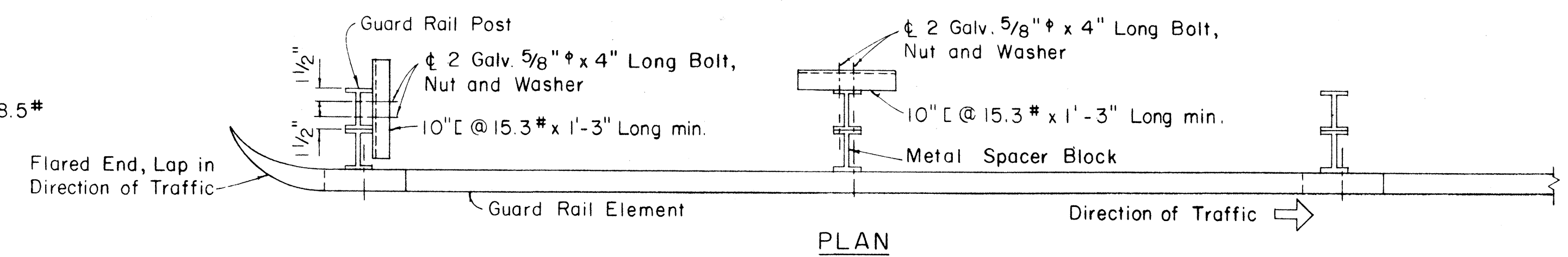
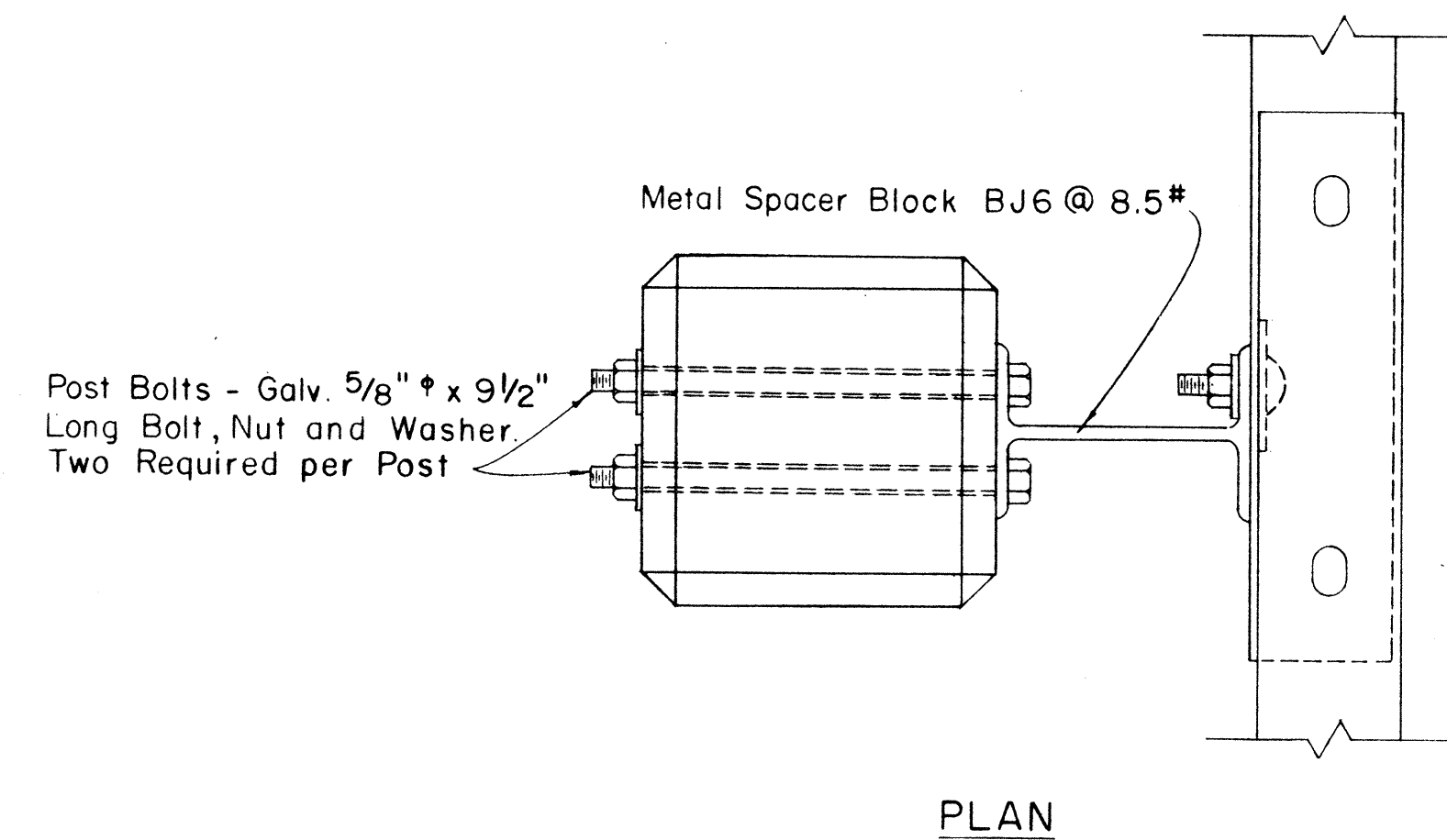
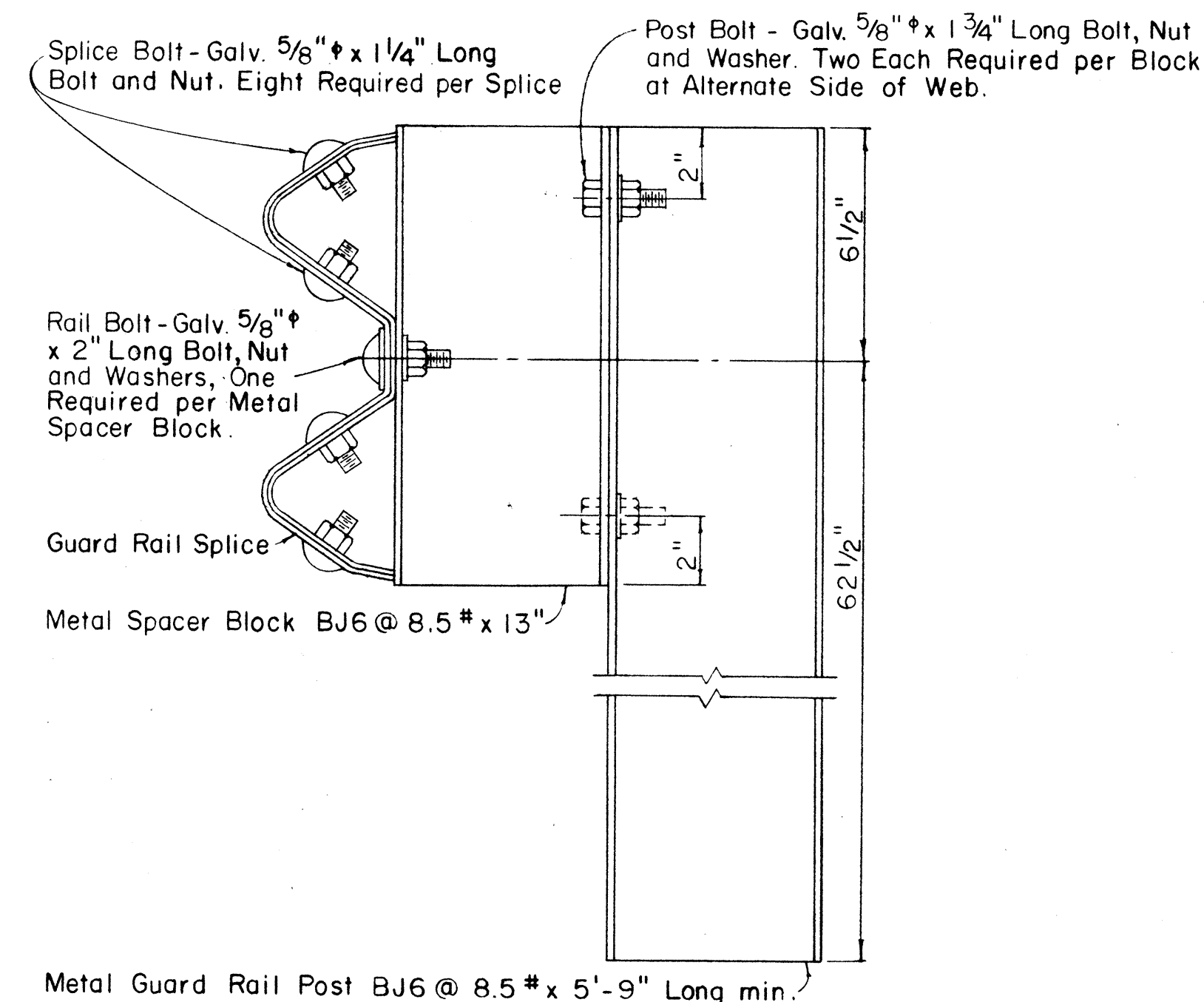
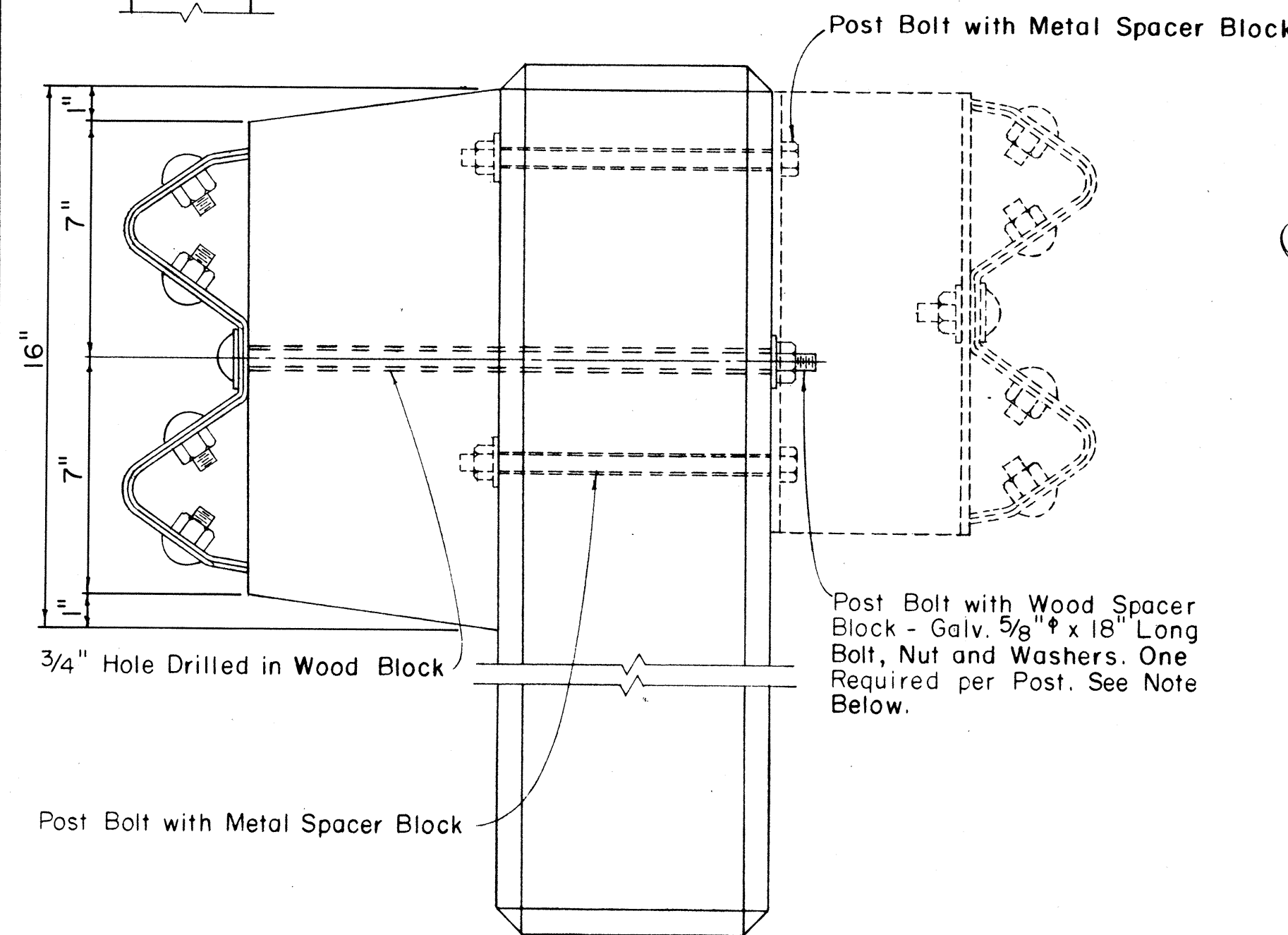
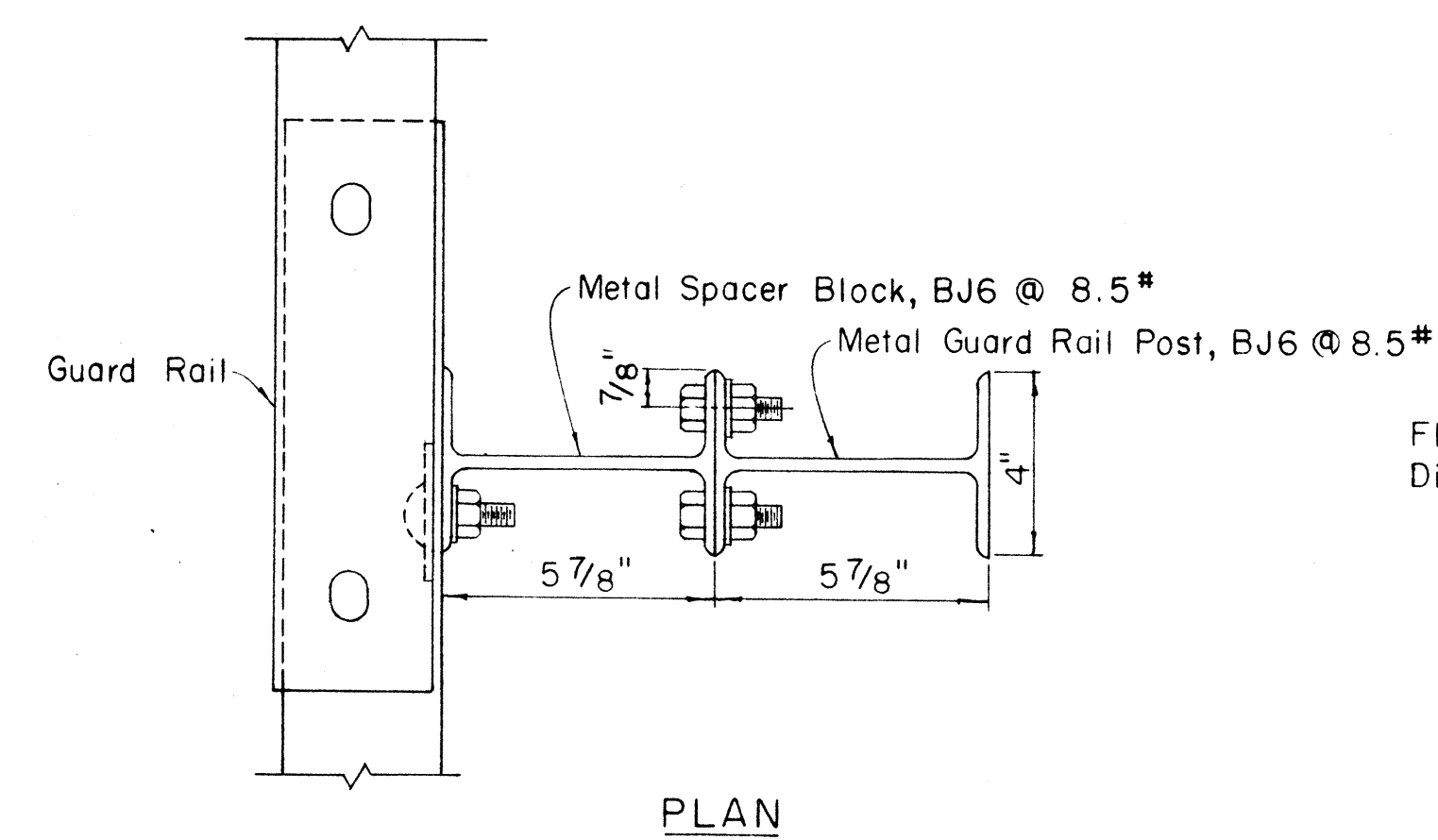
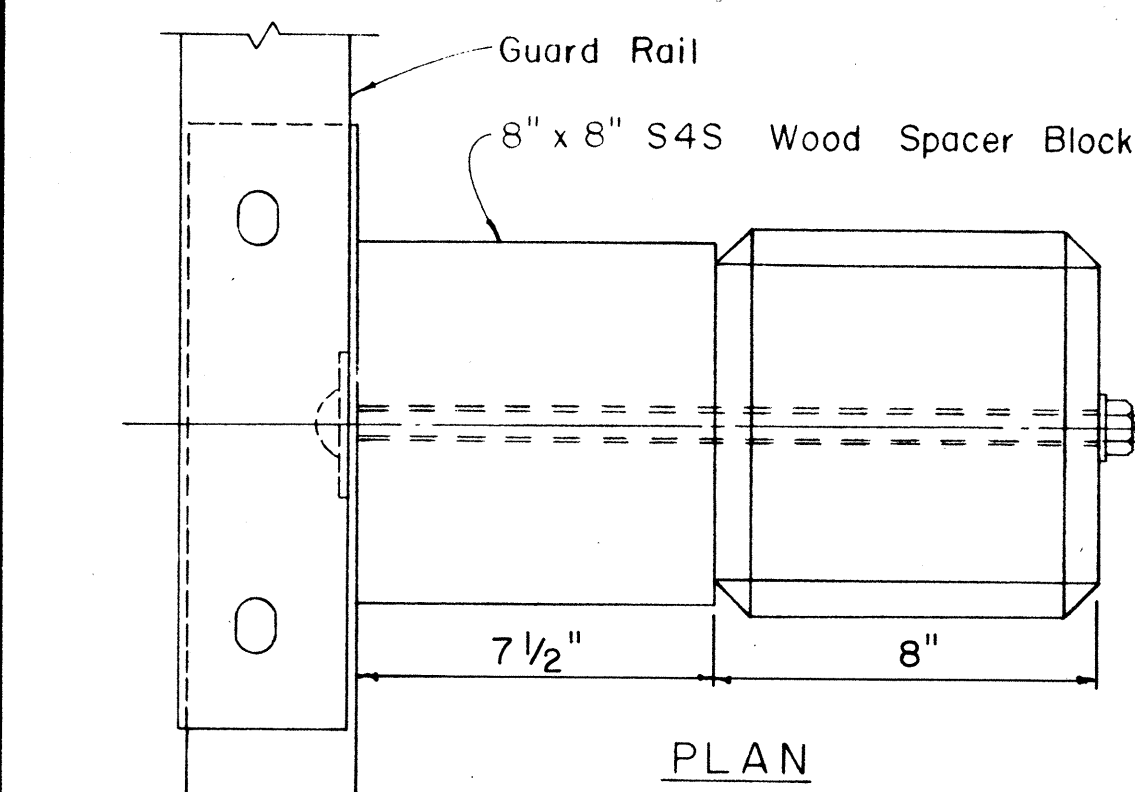
STANDARD DETAILS

METAL GUARD RAIL

Scale: as noted

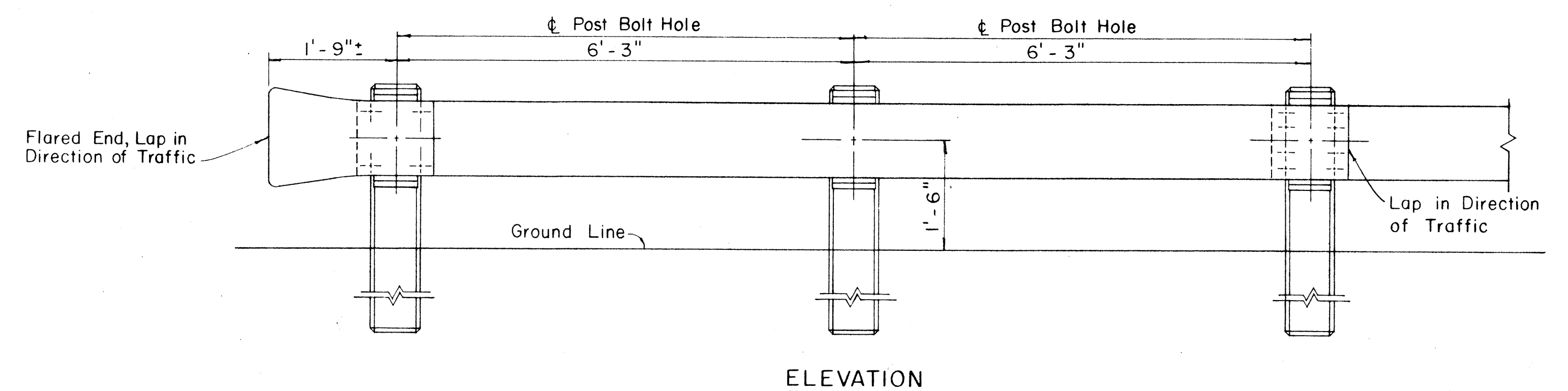
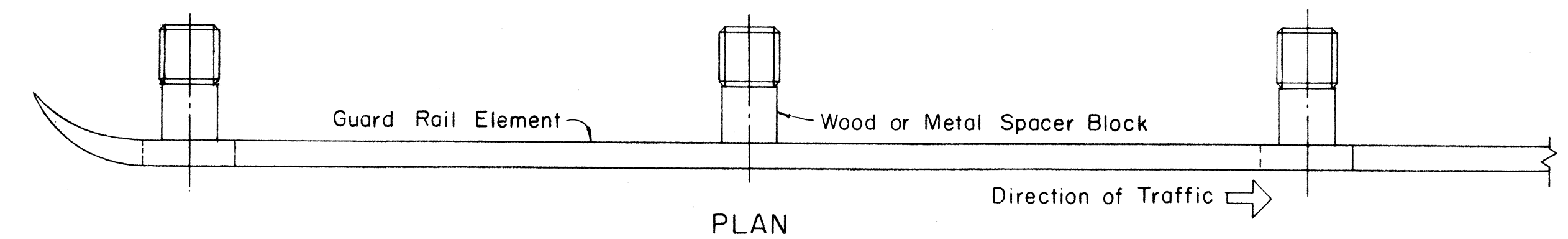
SHEET No. 4 OF 6 SHEETS

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



METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK

Scale: $\frac{3}{4}" = 1' - 0"$



METAL GUARD RAIL ON CONCRETE POST WITH WOOD OR METAL SPACER BLOCK

Scale: $\frac{3}{4}" = 1' - 0"$

SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK

Scale: 3" = 1' - 0"

NOTE :

Single Guard Rails Shown. For Double Guard Rails Additional Spacer Blocks and Rail Elements Required on Opposite Side of Posts. See Bolt Schedule for Required Bolt Lengths.

DETAILS FOR SINGLE GUARD RAIL

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS

METAL GUARD RAIL

Scale: as noted

SHEET No. 5 OF 6 SHEETS

