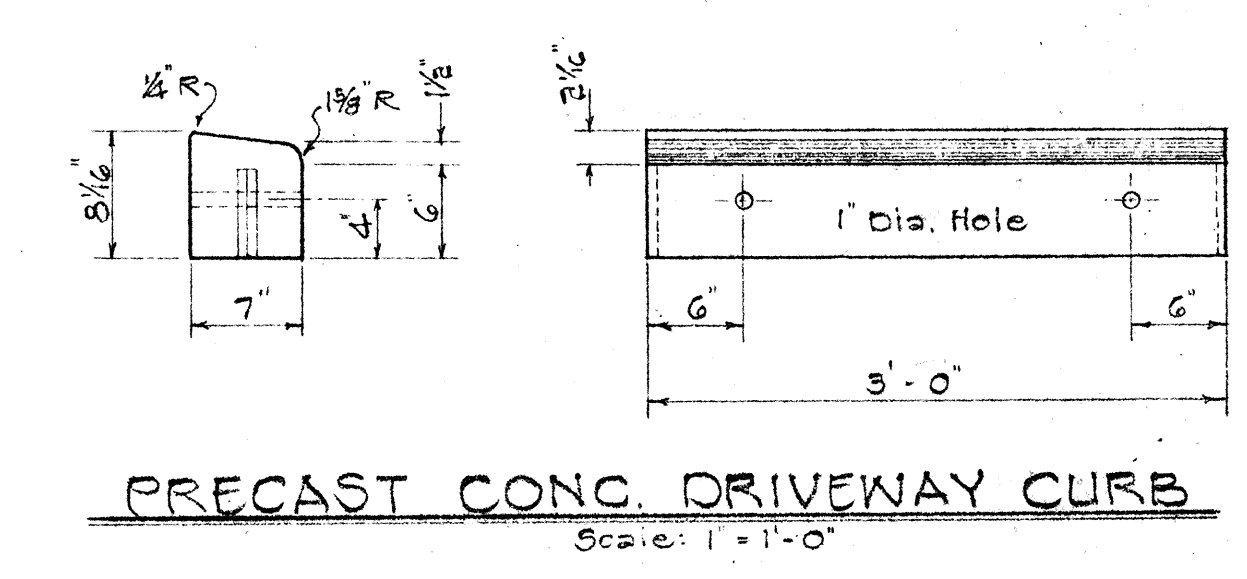
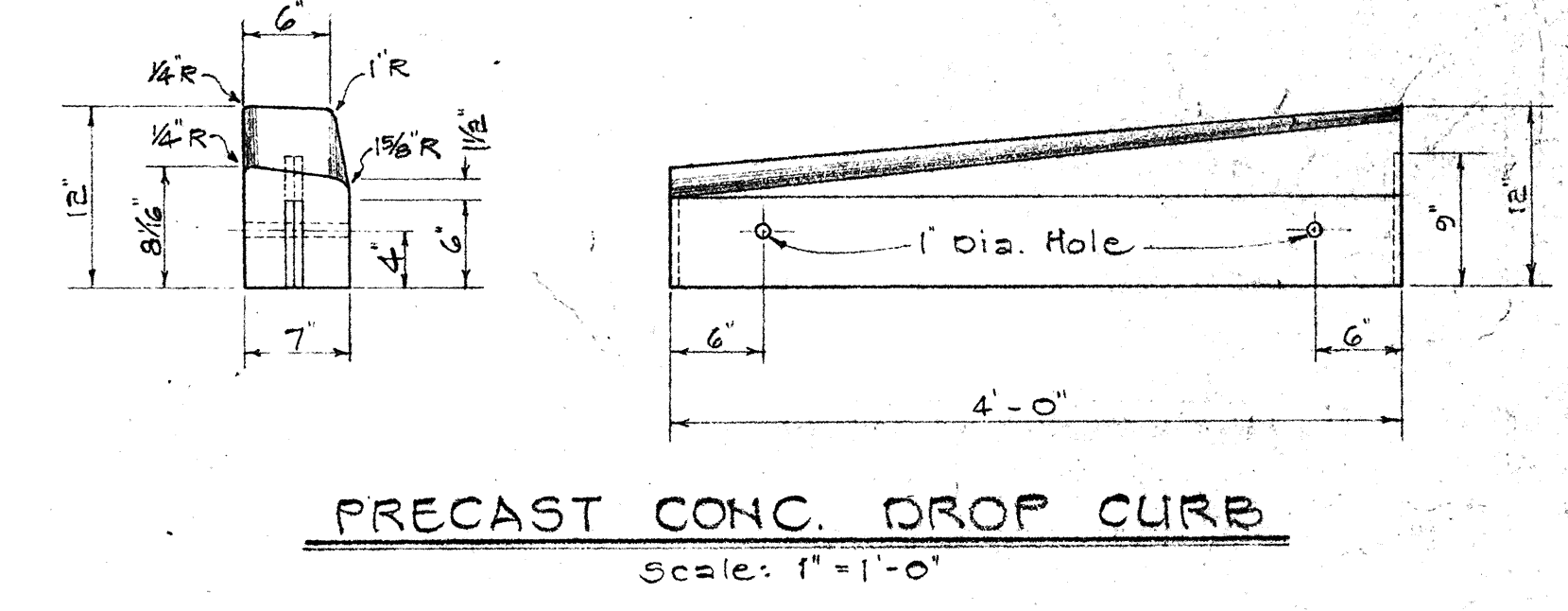
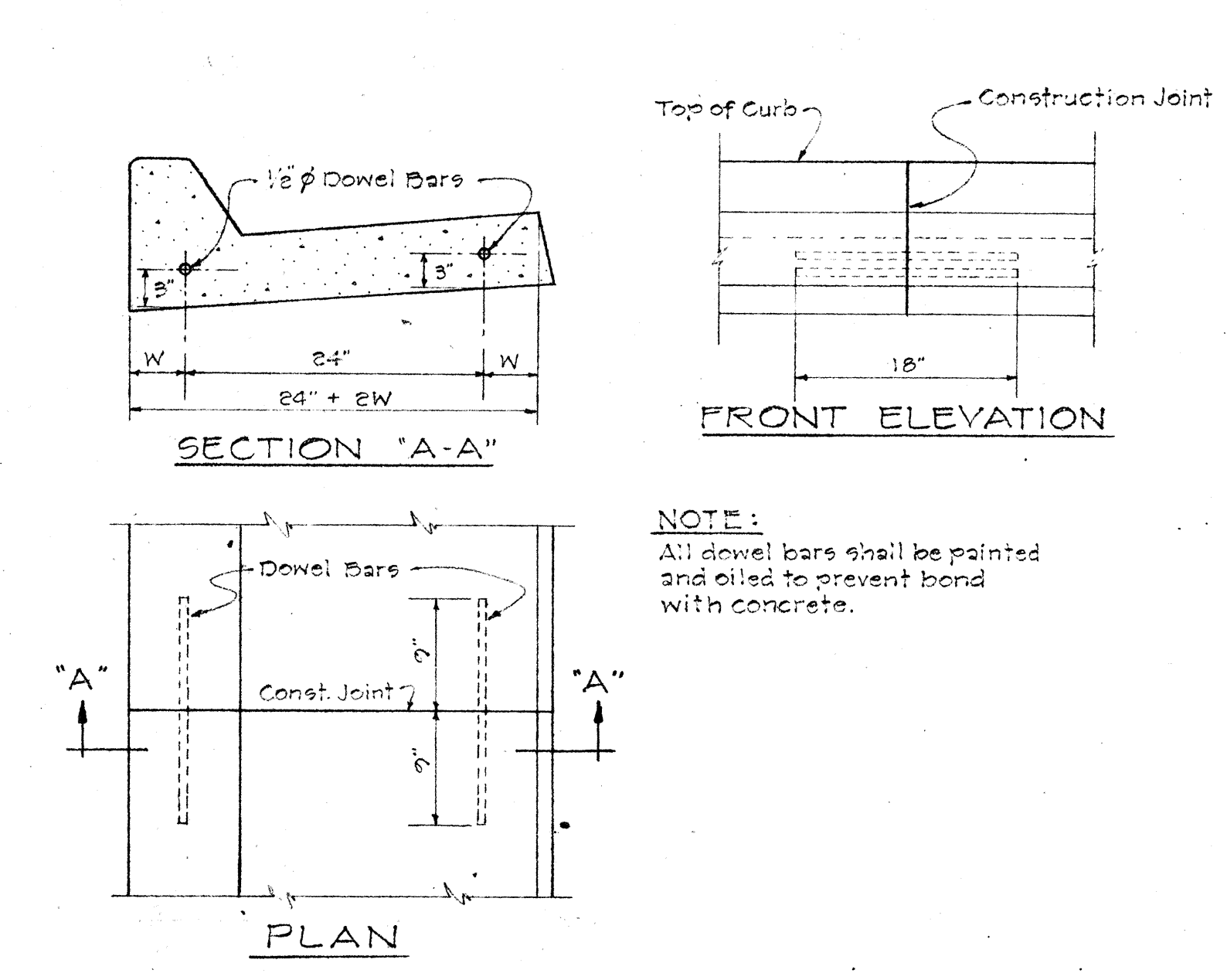
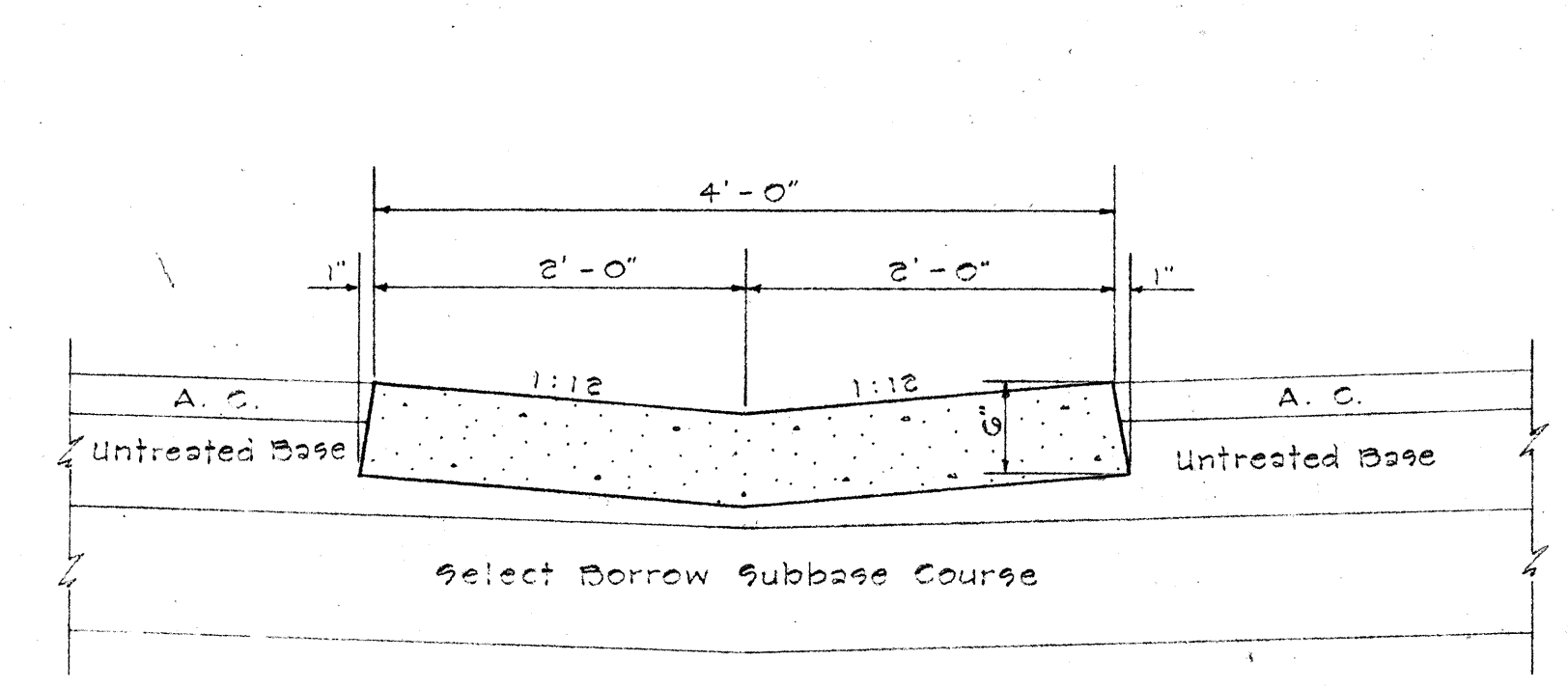
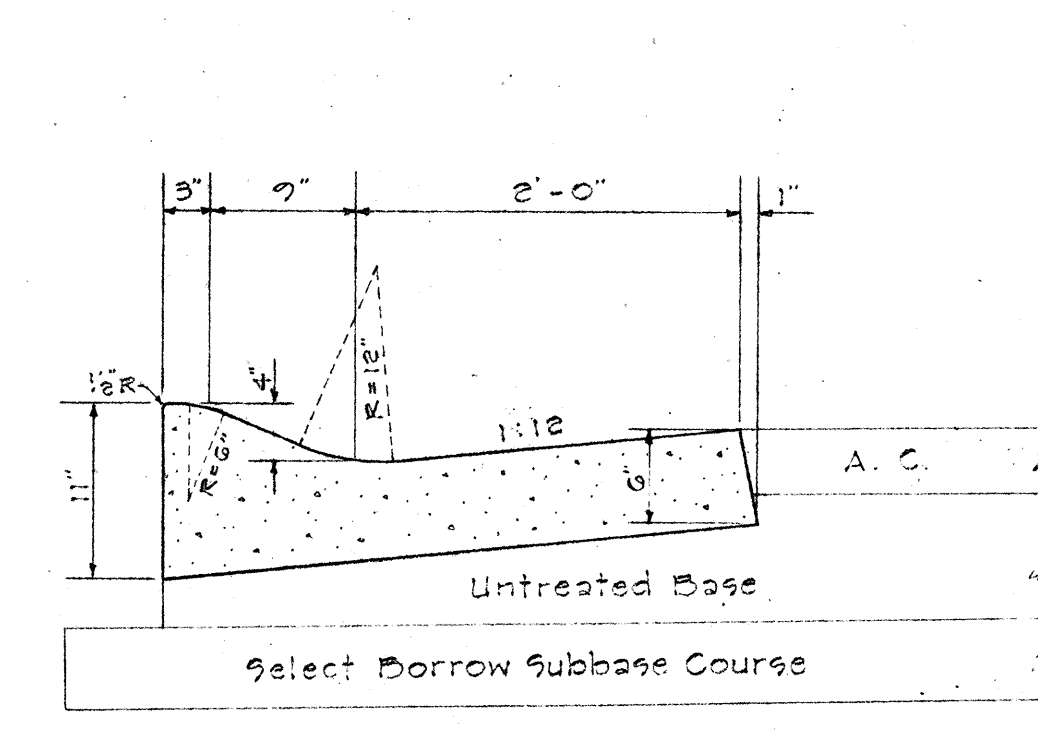
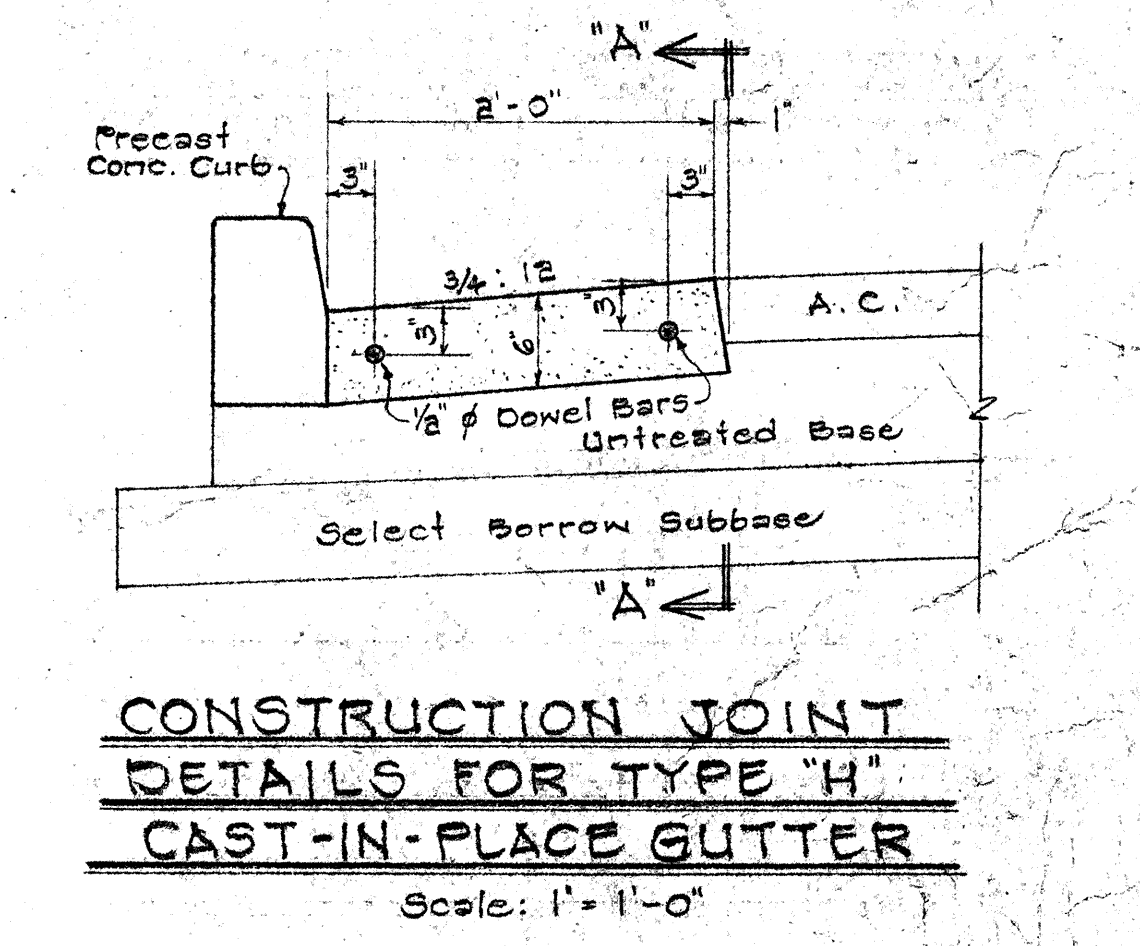
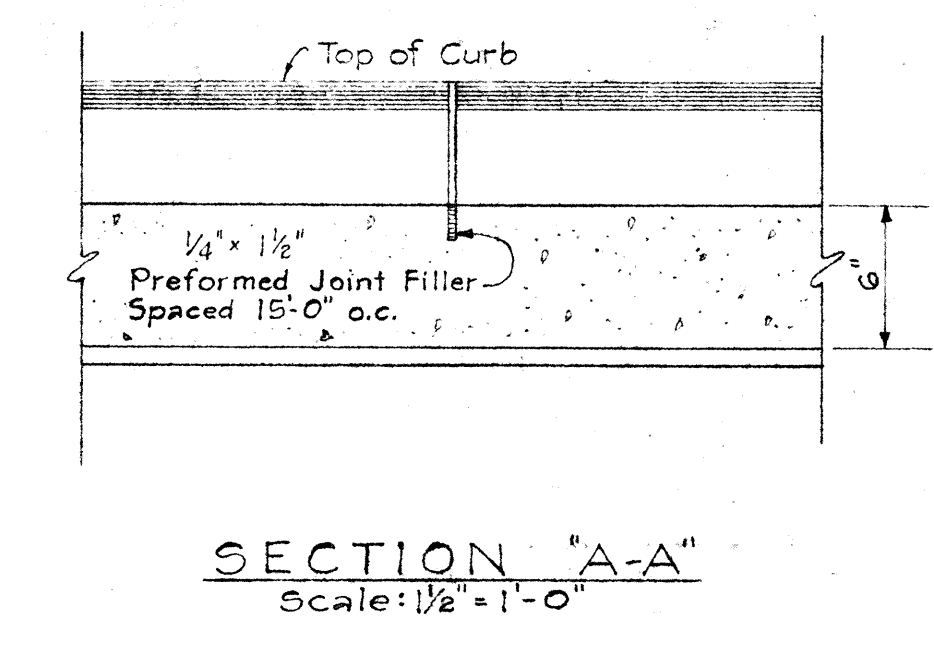
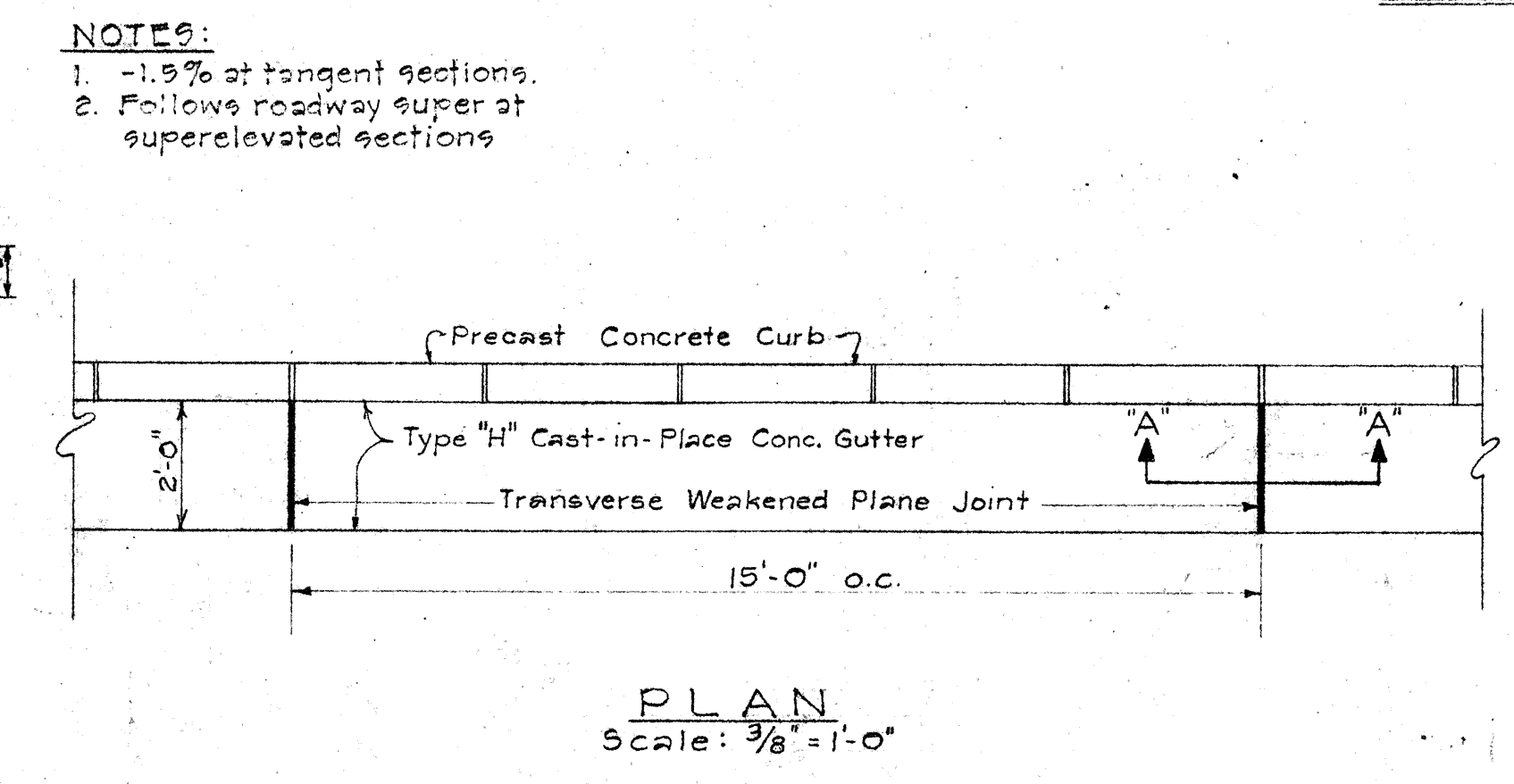
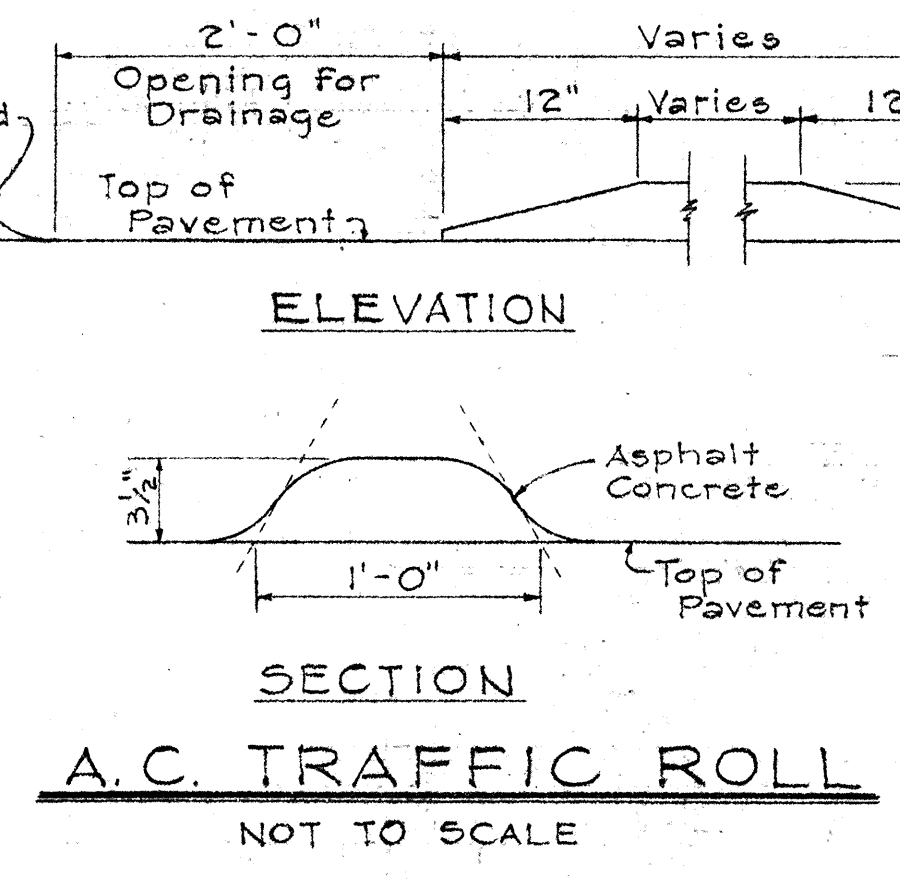
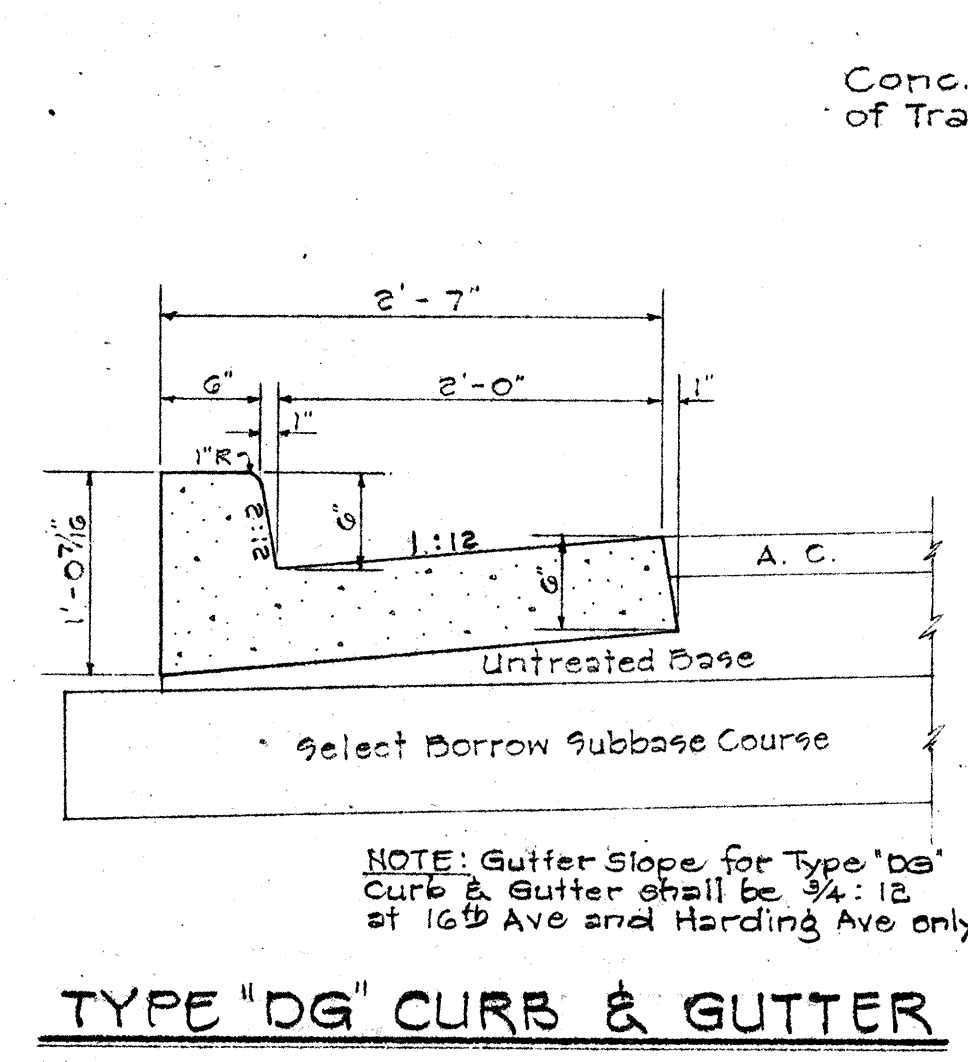
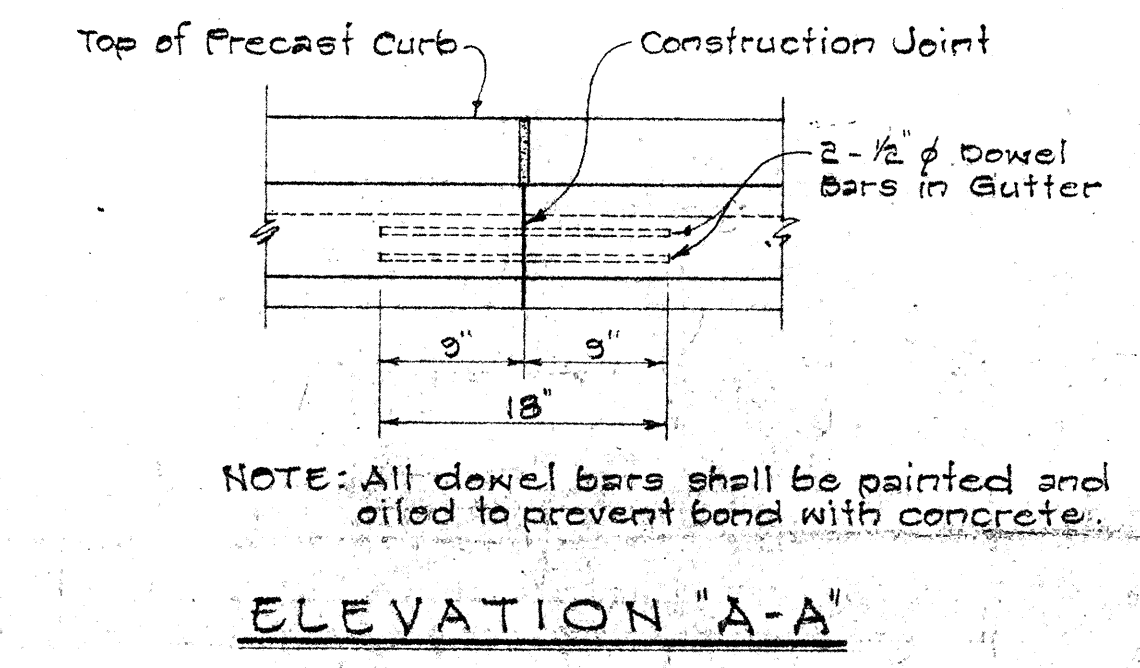
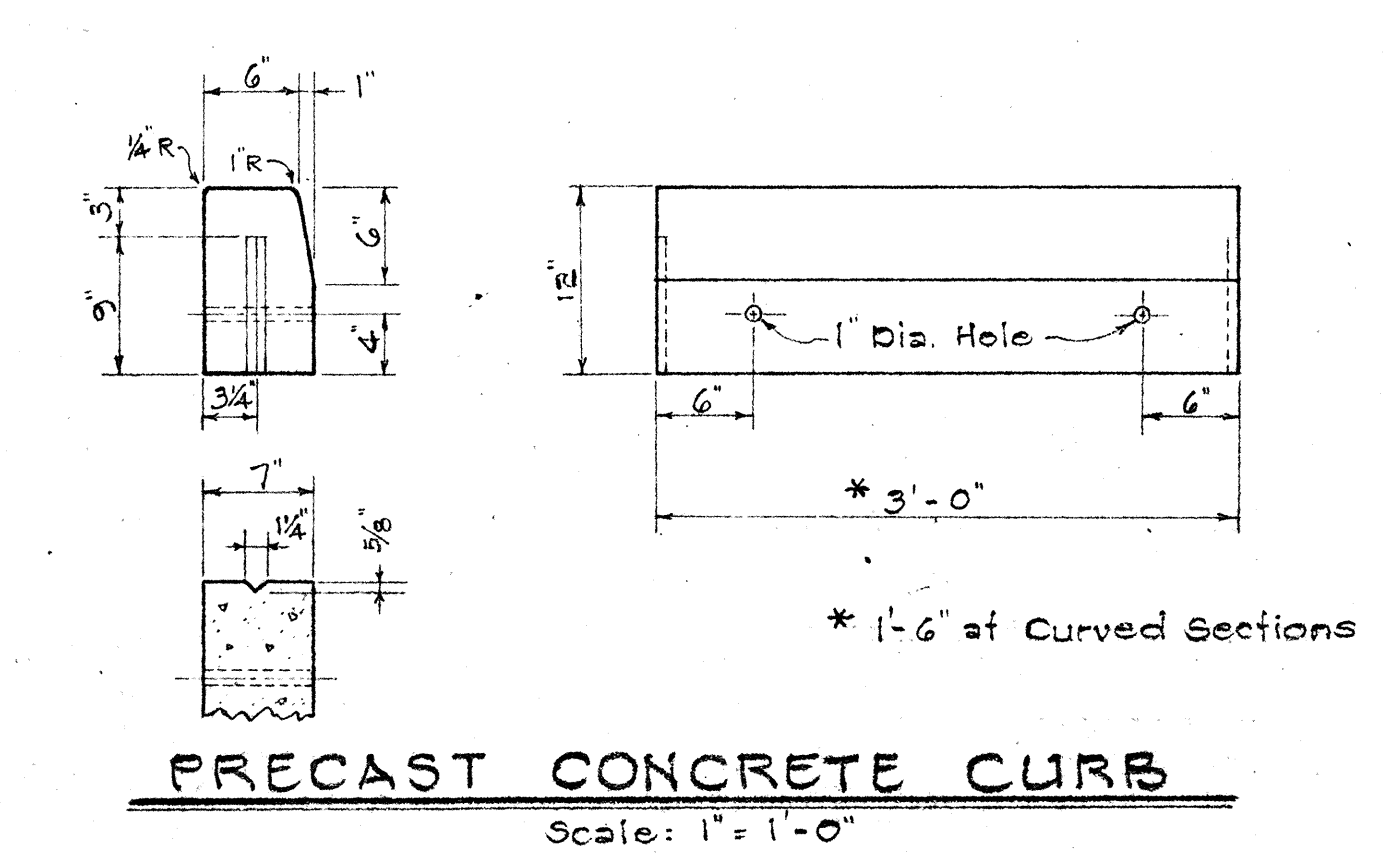
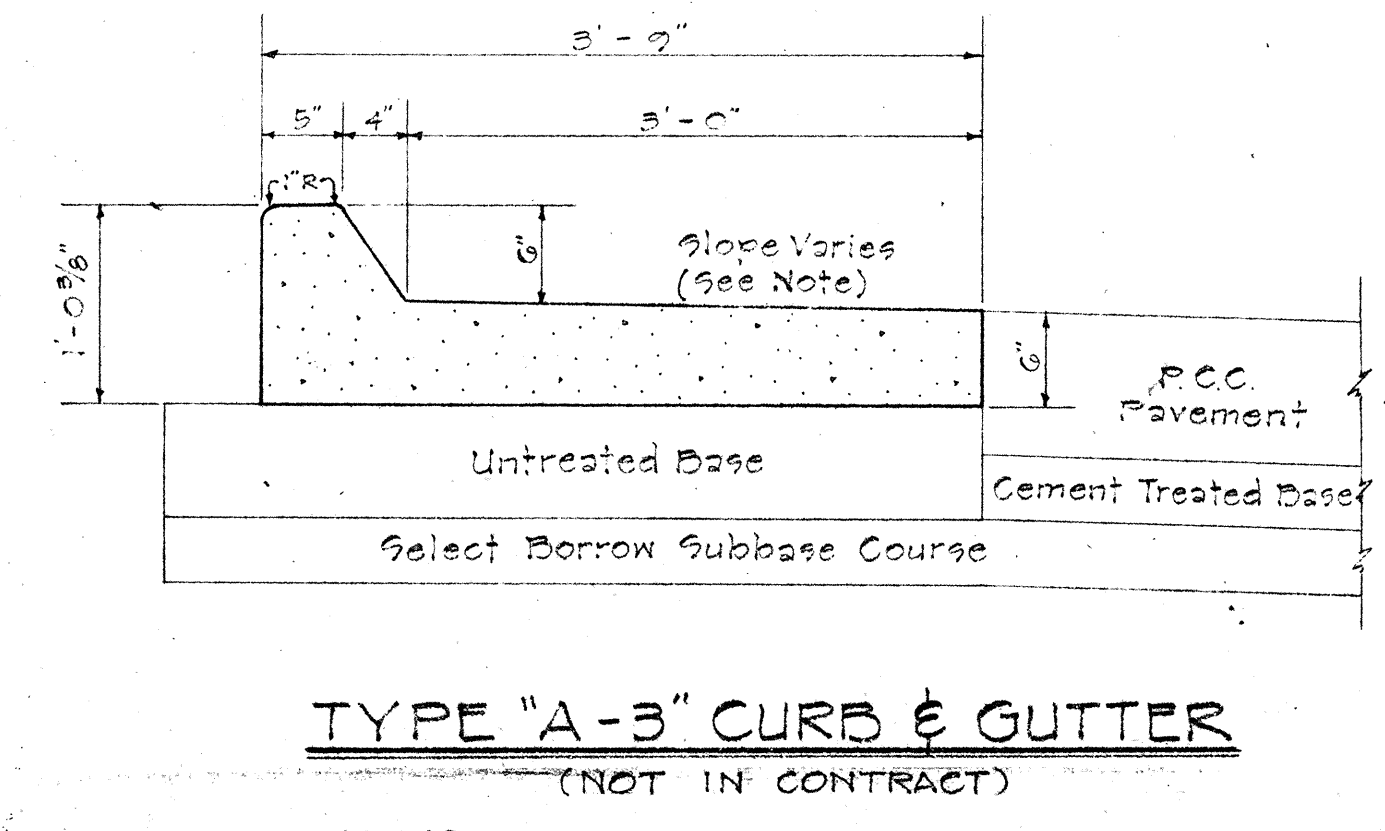
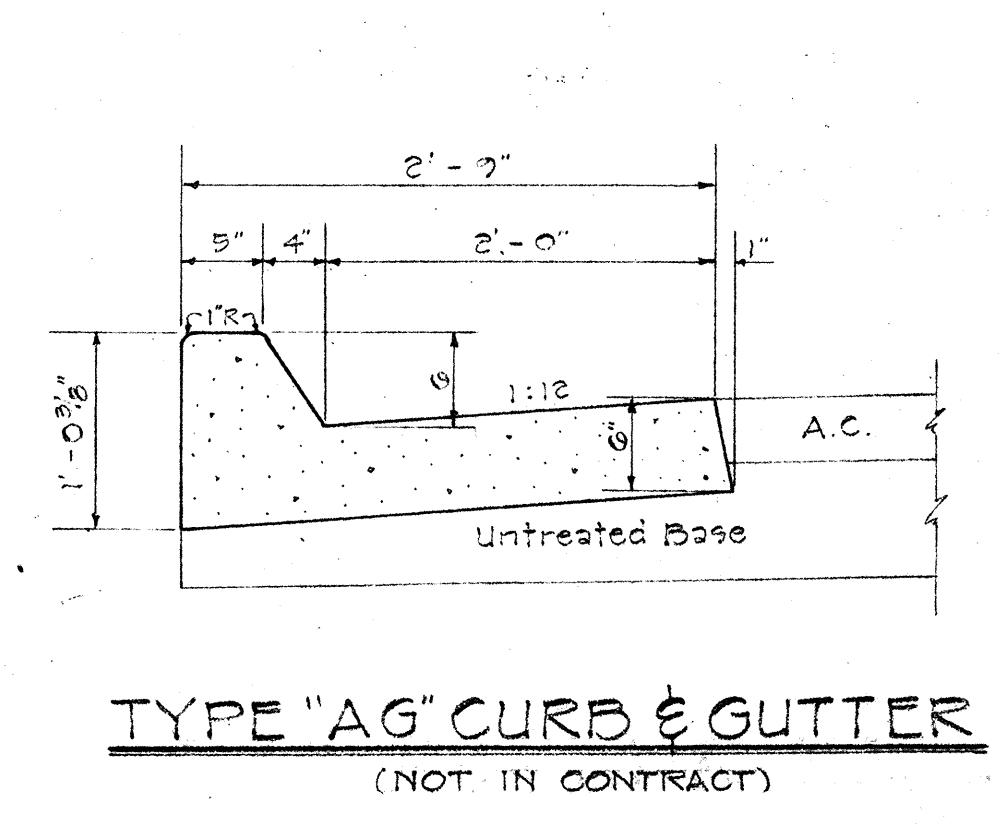
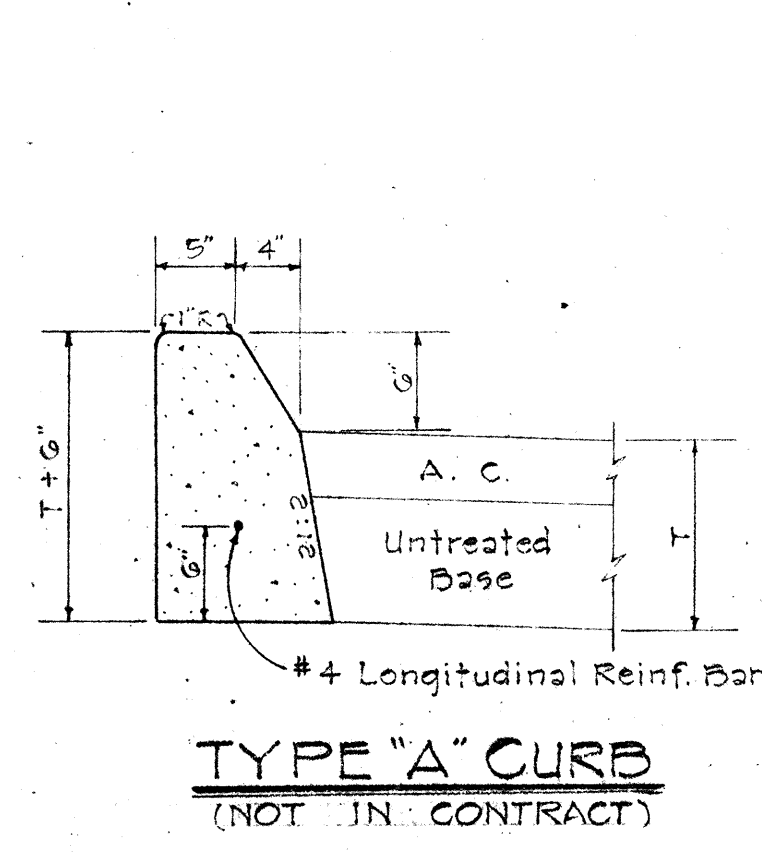
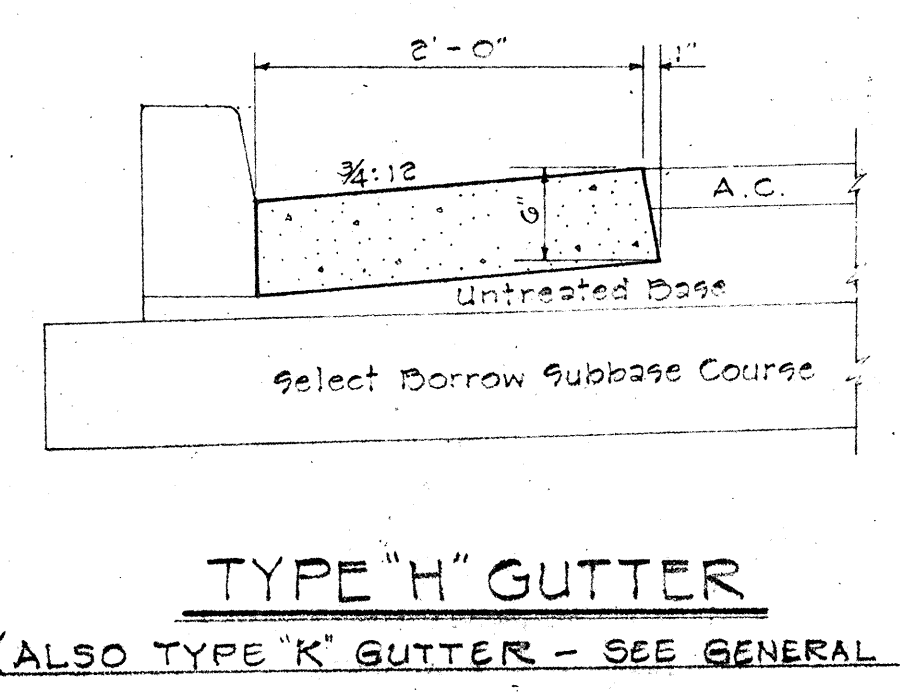


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(6)	1965	23	129



- GENERAL NOTES**
1. "Special Type AG, DG, or EG Curb and Gutters" shall be similar in all respects to Type AG, DG, and EG Curb and Gutters except that the gutter slopes shall follow roadway super at super-elevated sections.
 2. Curb and/or Gutters marked "Not in Contract" are for reference only, and shall be constructed in future project.
 3. Type "K" Cast-in-Place Conc. Gutter shall be similar in all respects to Type "H" Cast-in-Place Conc. Gutter except that the gutter slope shall be 1:12 (Type "K" C.I.P. Conc. Gutter not part of this Contract).
 4. Concrete for all Curb and/or Gutters shall be Class A-1.
 5. Except for Precast Concrete Curbs, all Curbs and Gutters shall be Cast-in-Place.



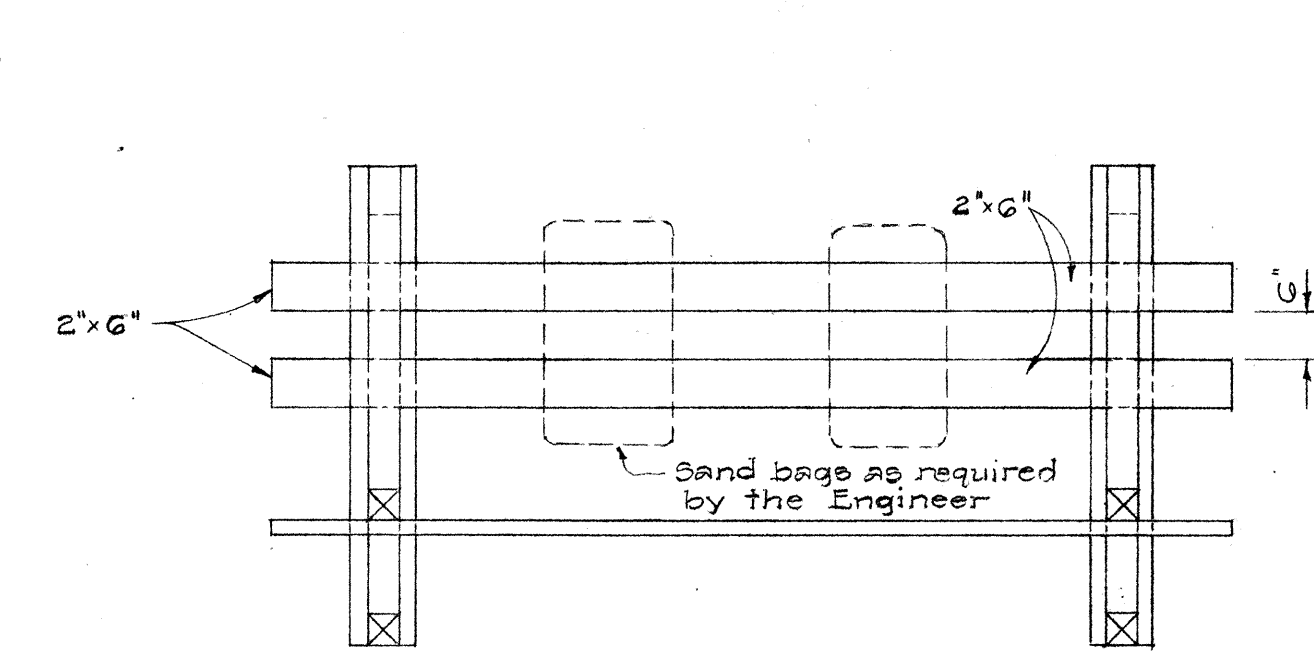
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**CURB AND GUTTER
DETAILS**

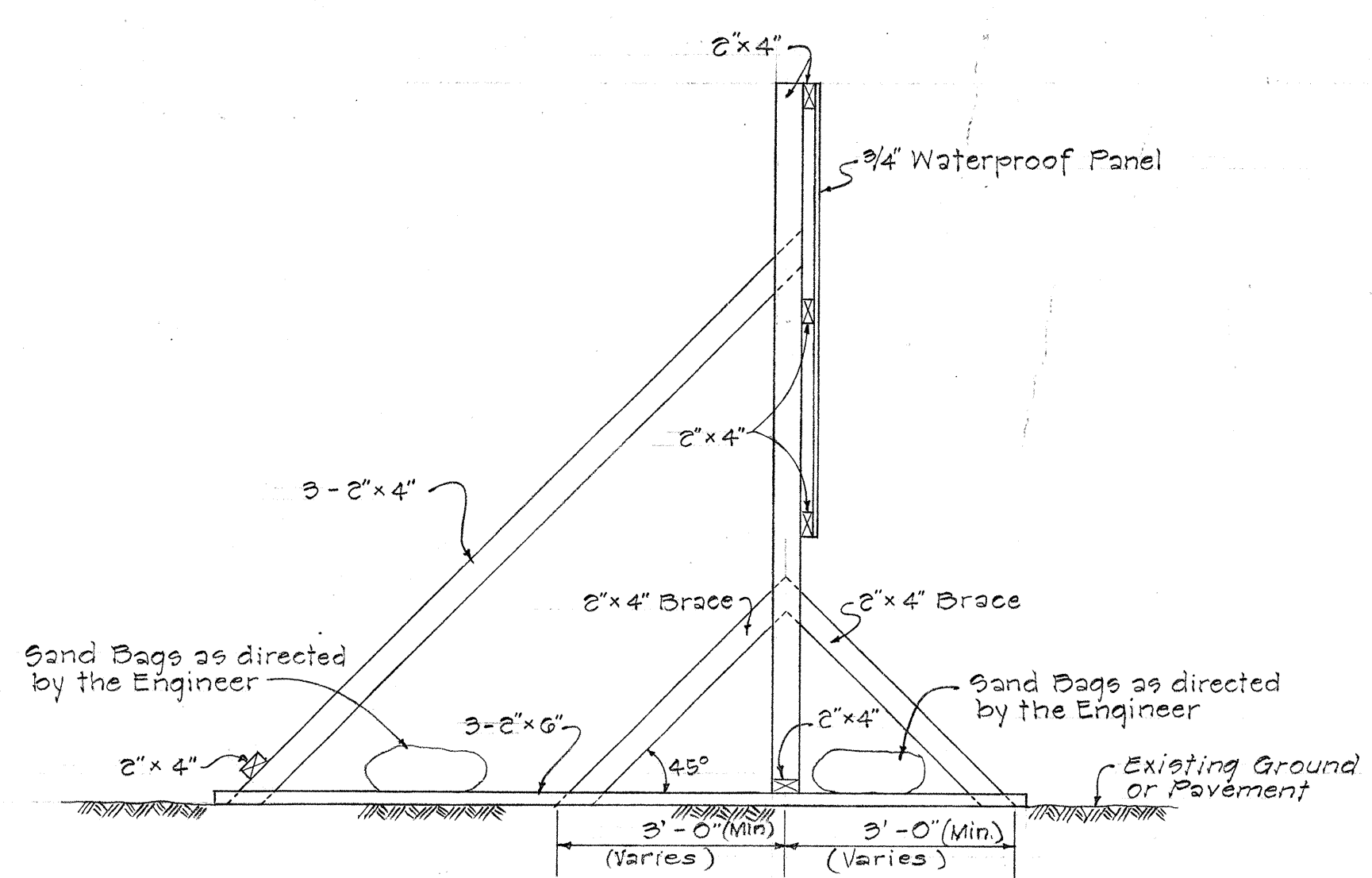
INTERSTATE HIGHWAY (LUNALILO FWY)
F.A.I. PROJ. NO. I-HI-1(6)UNIT 1

SHEET No. 1 OF 4 SHEETS

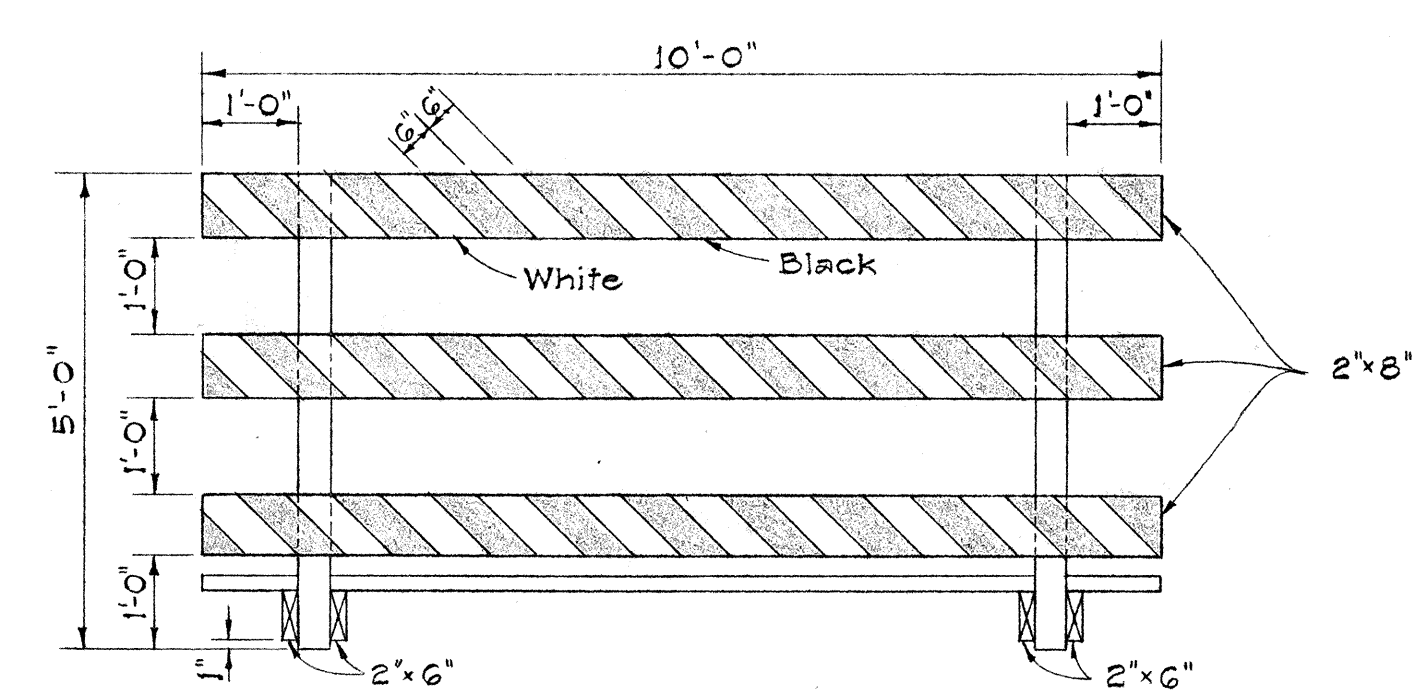
SURVEY PLATTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



PLAN VIEW

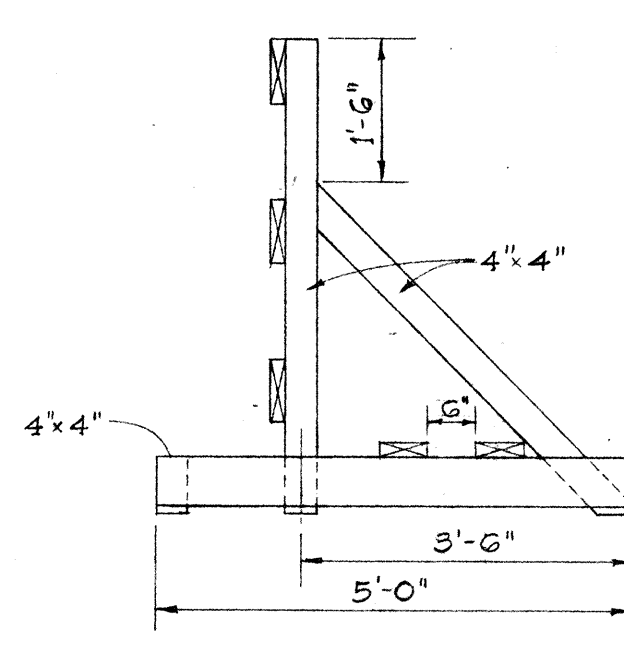


SIDE ELEVATION
SIGN FRAME WEIGHTED DOWN
Scale: 1/2" = 1'-0"

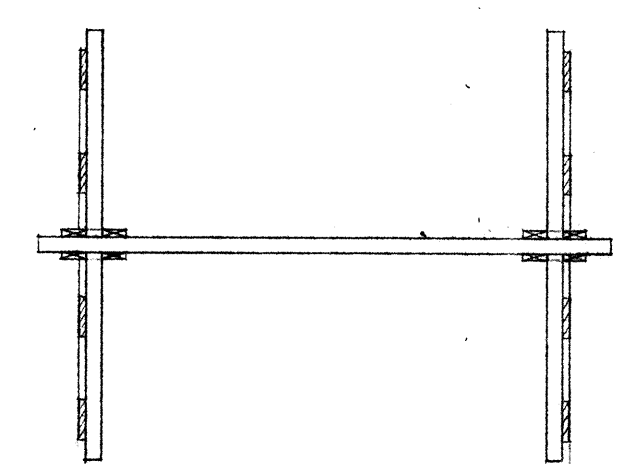


FRONT VIEW

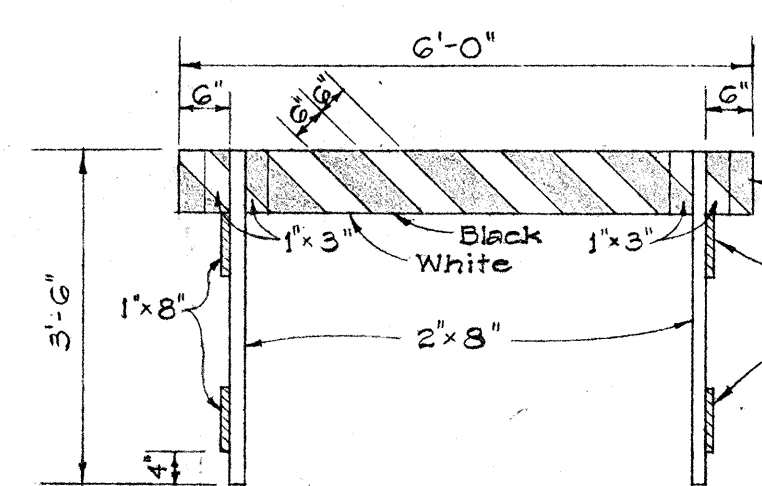
CLASS I BARRICADE
Scale: 1/2" = 1'-0"



END VIEW

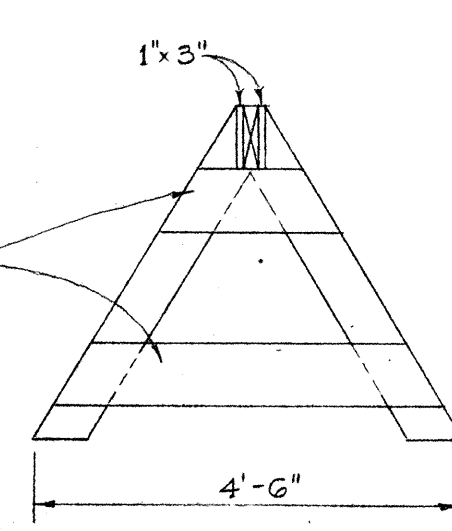


PLAN VIEW



FRONT VIEW

CLASS II BARRICADE
Scale: 1/2" = 1'-0"

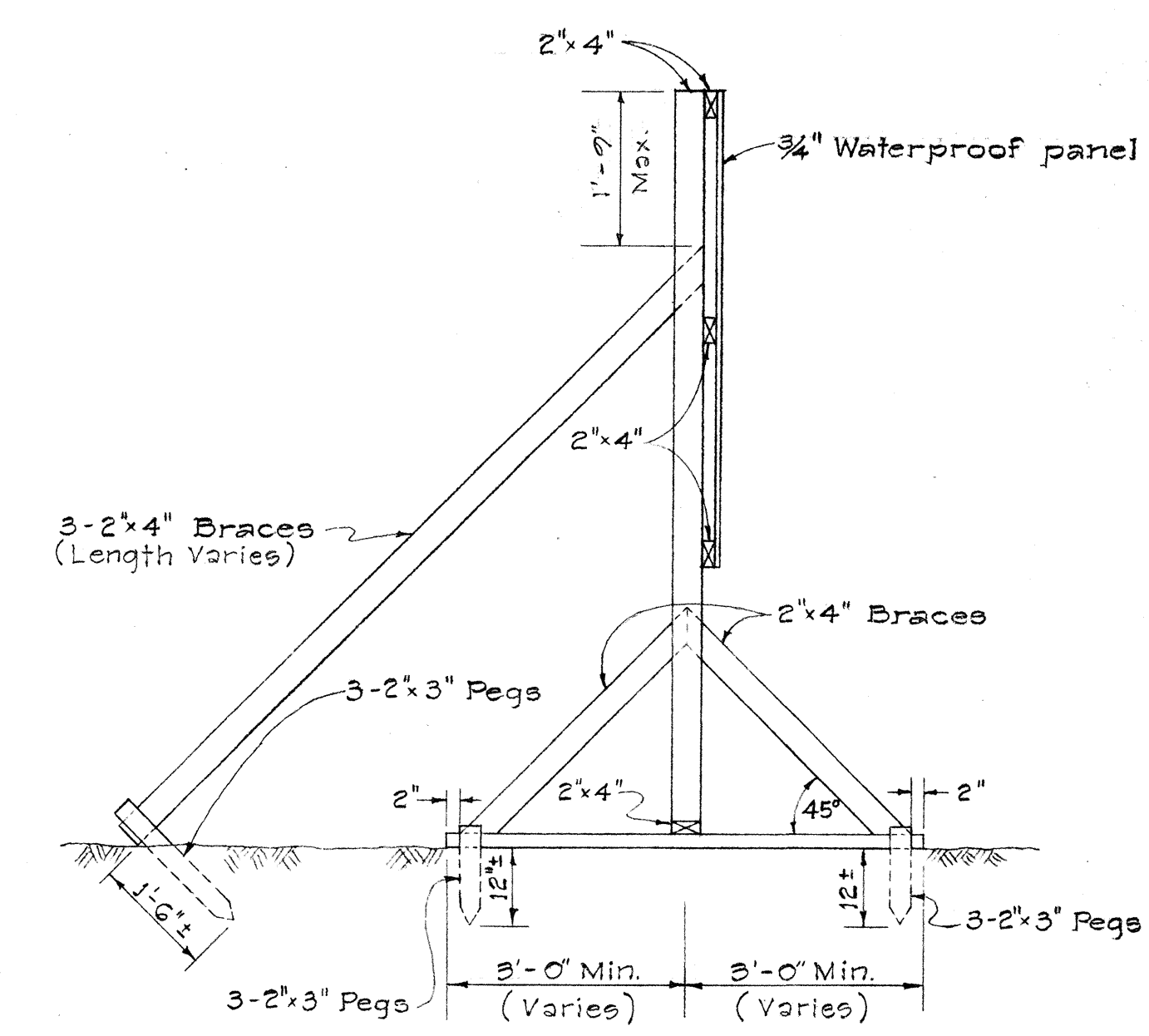


END VIEW

NOTE: Class I and Class II barricades shall be painted completely white except for the black diagonal stripes as shown.

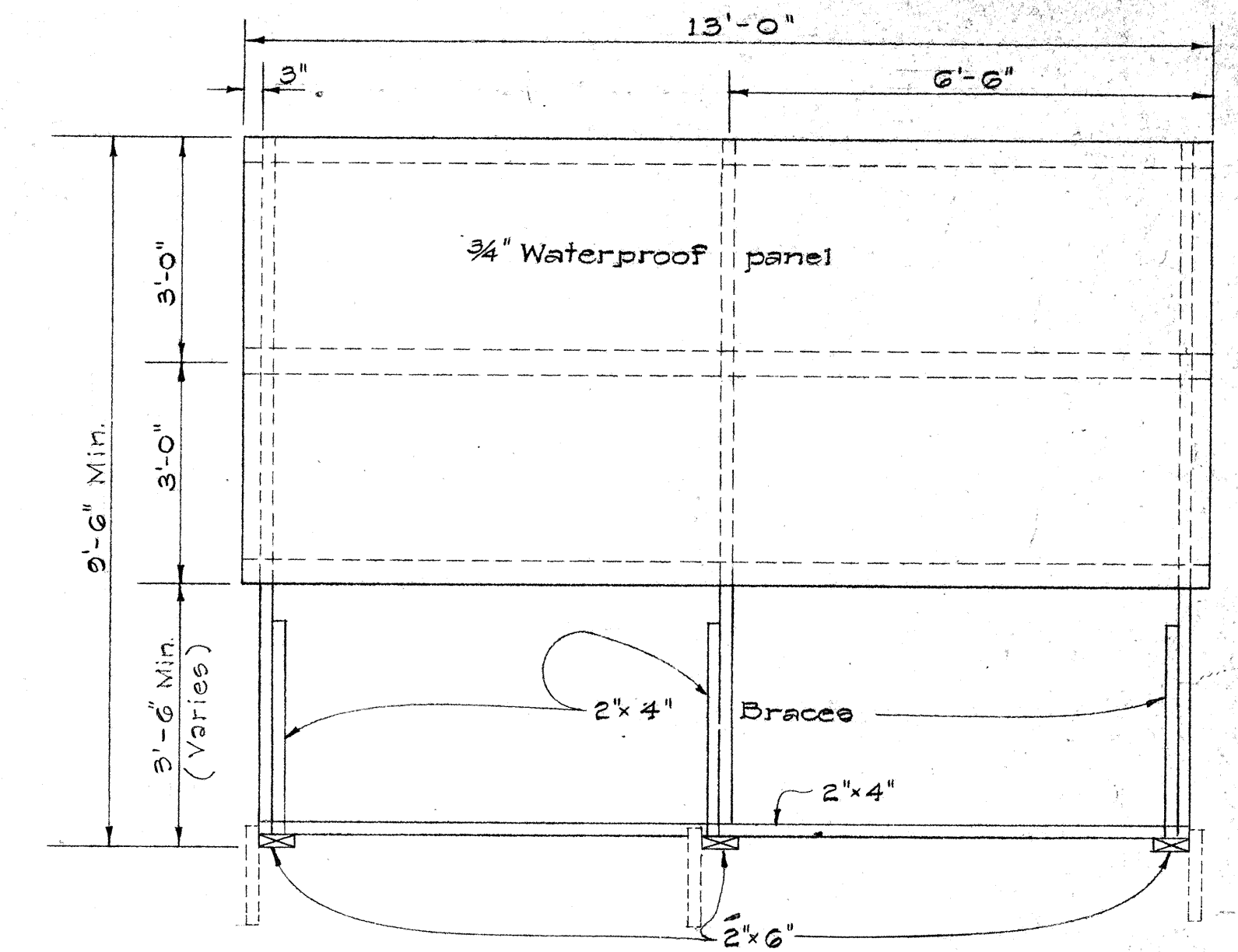
WOOD BARRICADES

1. The Contractor shall construct, install and maintain the wood barricades at the locations shown on the Plans and as ordered by the Engineer.
2. The permanent wood barricades shall be left in place or relocated upon completion of the project as ordered by the Engineer and are to become State property.

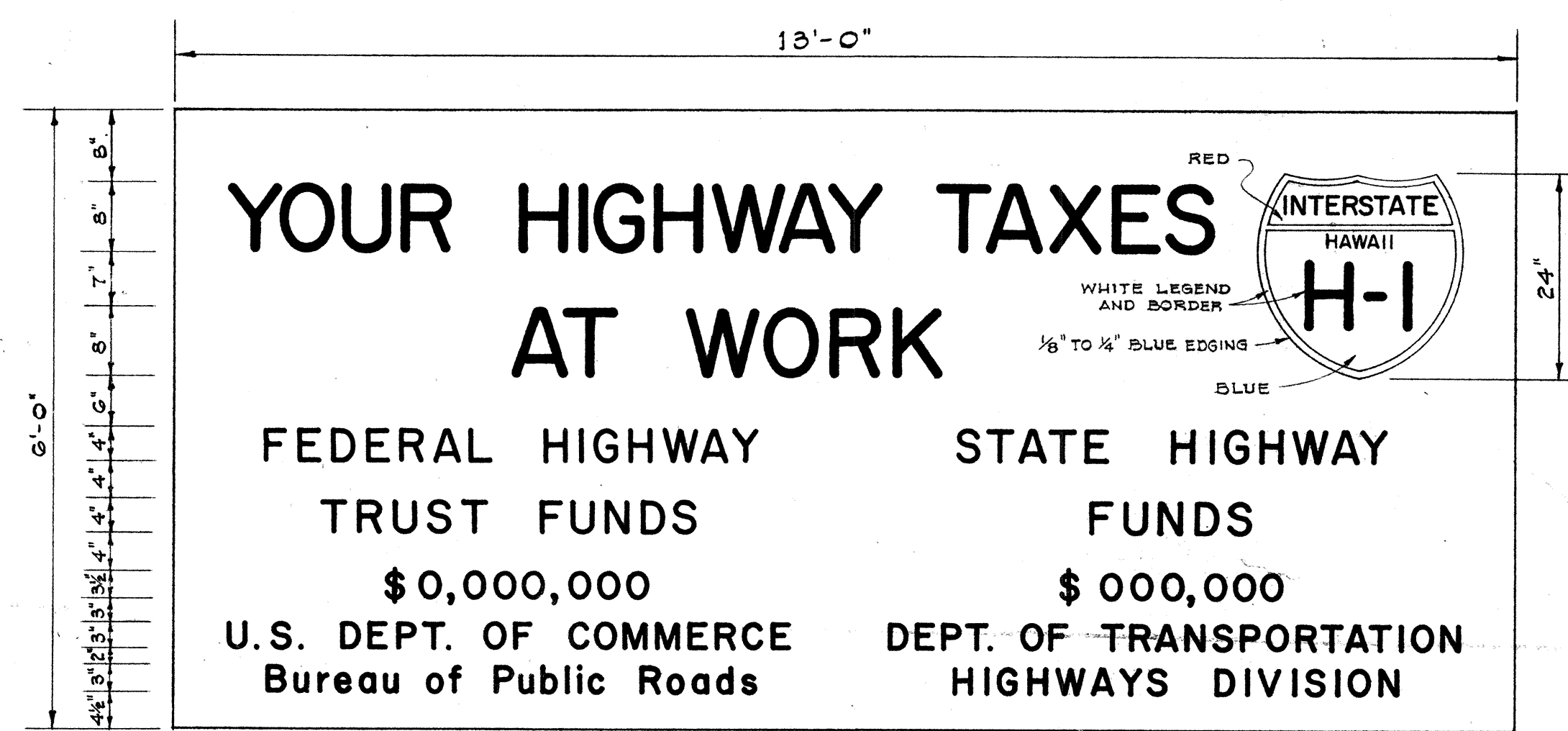


SIDE ELEVATION

SIGN FRAME ANCHORED IN GROUND
Scale: 1/2" = 1'-0"



FRONT ELEVATION



PROJECT SIGN PANEL
Scale: 3/4" = 1'-0"

INTERSTATE SYSTEM PROJECT SIGN
Scale: As Shown

PROJECT SIGN NOTES

1. The Contractor shall construct, install and maintain the Project Signs, at the locations shown on the plans and as ordered by the Engineer.
2. All costs incurred in the construction, installation, and maintenance of the Signs, will not be paid for separately, but shall be considered as included in the unit price paid for the various items in the proposal.
3. The signs shall be removed and stockpiled at the completion of the Project as ordered by the Engineer and are to become State Property.
4. The exact figures for the various funds involved will be furnished the Contractor for incorporation in the sign.
5. The legend shall be black on white background except for the interstate route marker which shall be as shown on the plan.
6. Refer to Plan Sheet No. 83 for details on the exact shape and size of the interstate route marker to be shown on this sign.
7. All letters shall be of size and design shown and shall conform with "Standard Alphabets for Highway Signs" Bureau of Public Roads, 1952. Use Series "C" letters unless otherwise noted.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

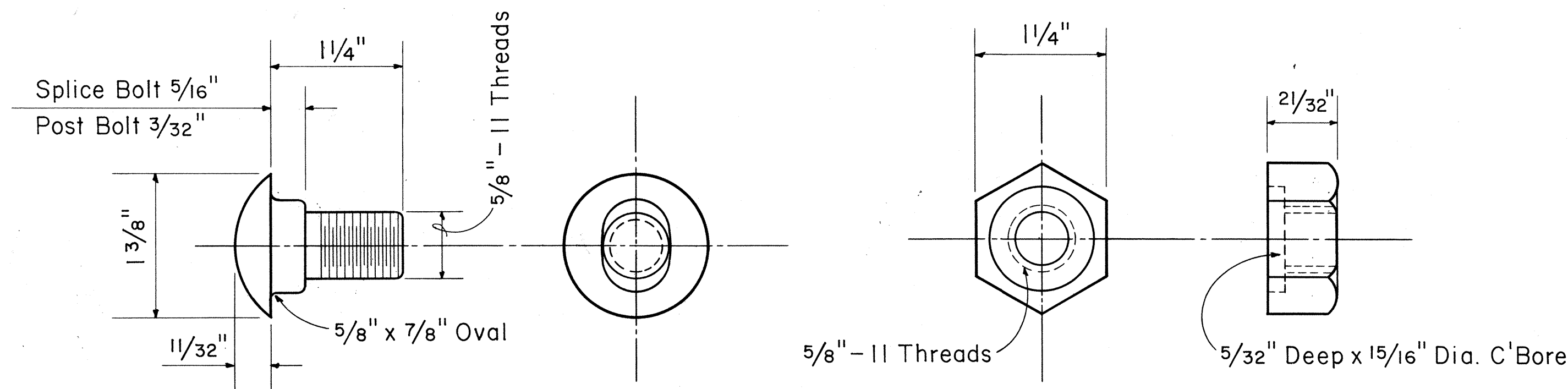
PROJECT IDENTIFICATION SIGNS
AND
BARRICADE DETAILS

INTERSTATE HIGHWAY (LUNALILO FWY)
F.A.I. PROJ. No. I-HI-1(6) UNIT 1
Scale: As Shown Date: March 1965

SHEET No. 2 OF 4 SHEETS

SURVEY PLOTTED BY: _____
DATE: _____
DRAWN BY: _____
DESIGNED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____
ORIGINAL PLAN No. _____

FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	I-HI-1(6) UNIT 1	1965	25	129



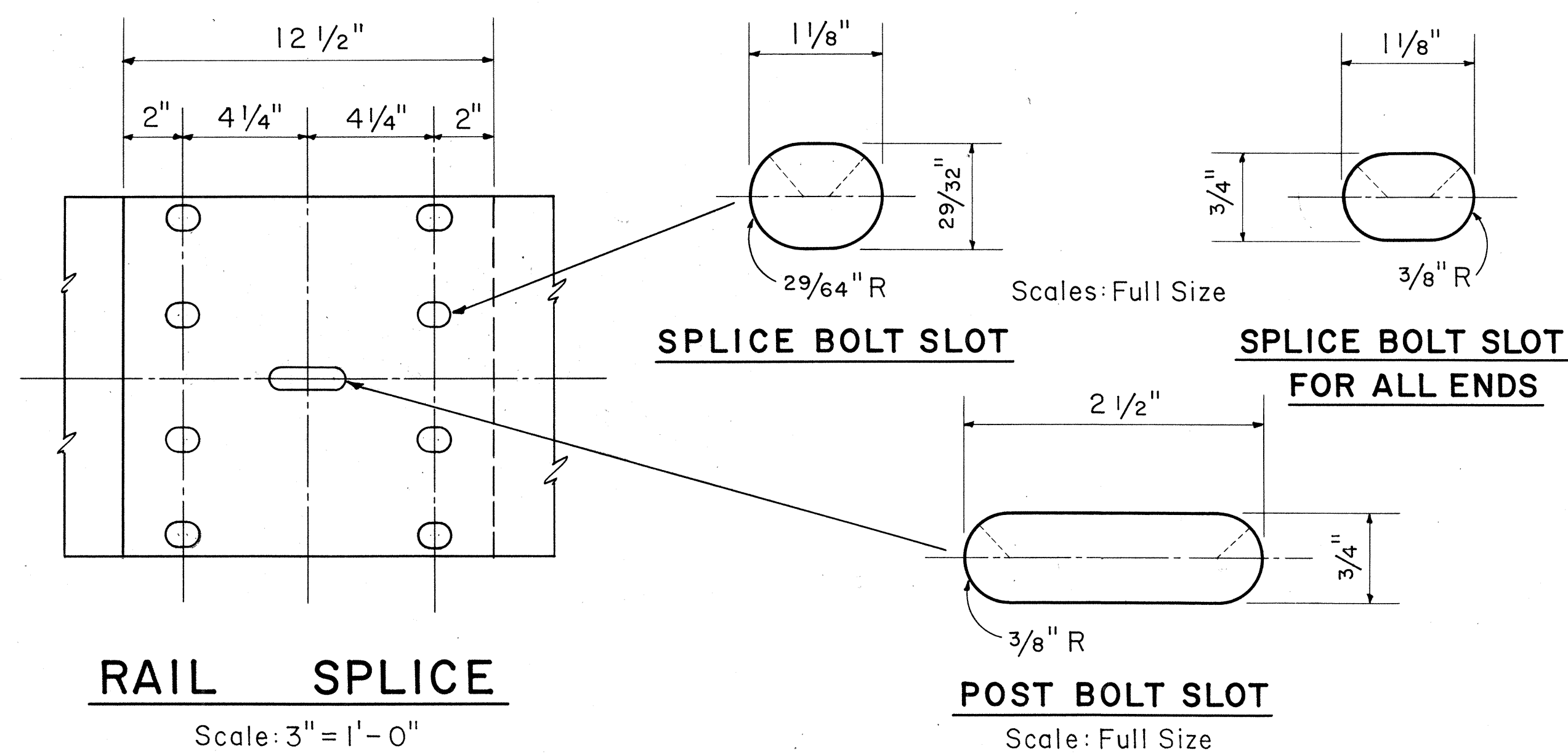
SPLICE BOLT

POST BOLT (Same except for length)

Scale: Full Size

HEXAGON NUT

Scale: Full Size



RAIL SPLICE

Scale: 3" = 1'-0"

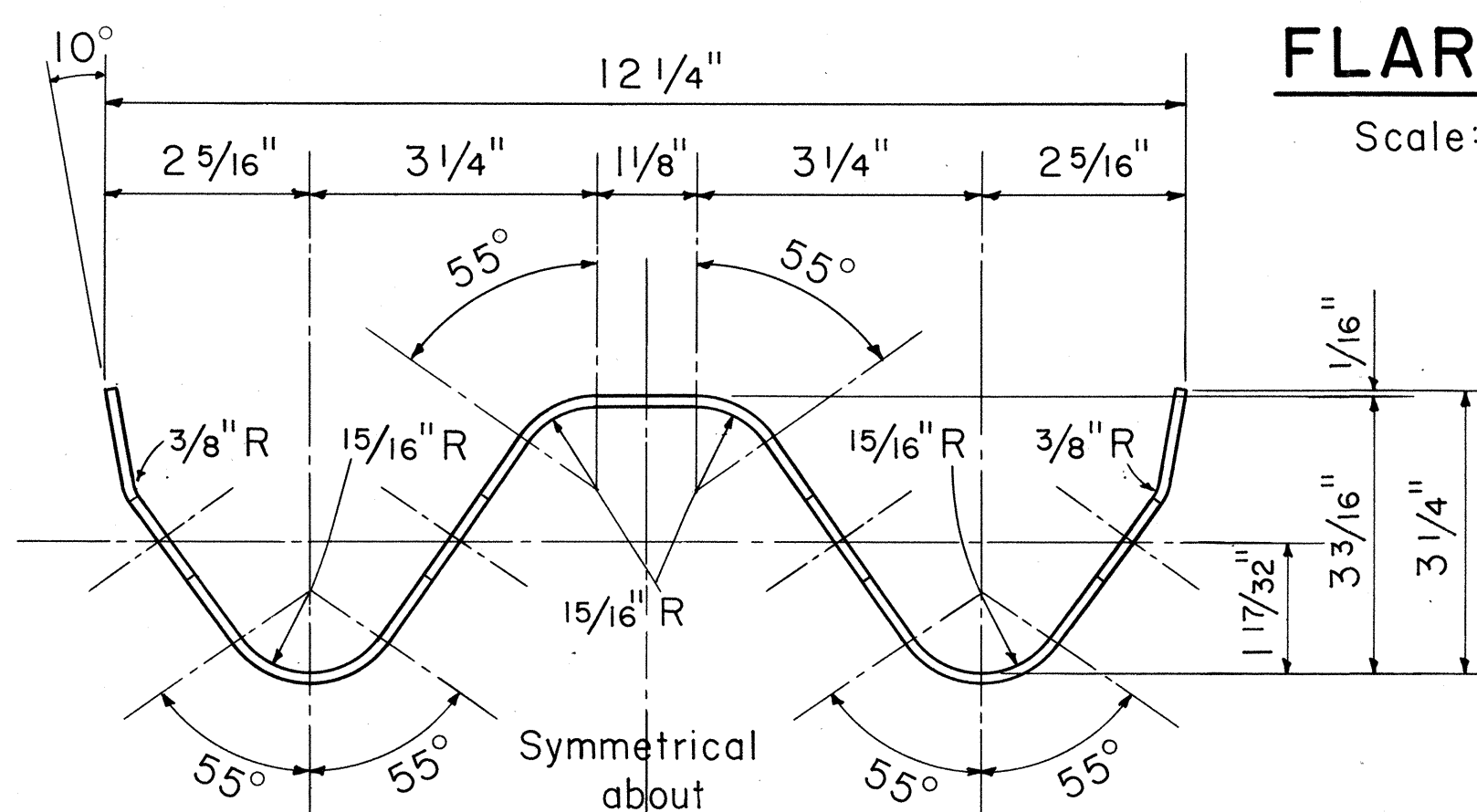
SPLICE BOLT SLOT

Scales: Full Size

SPLICE BOLT SLOT FOR ALL ENDS

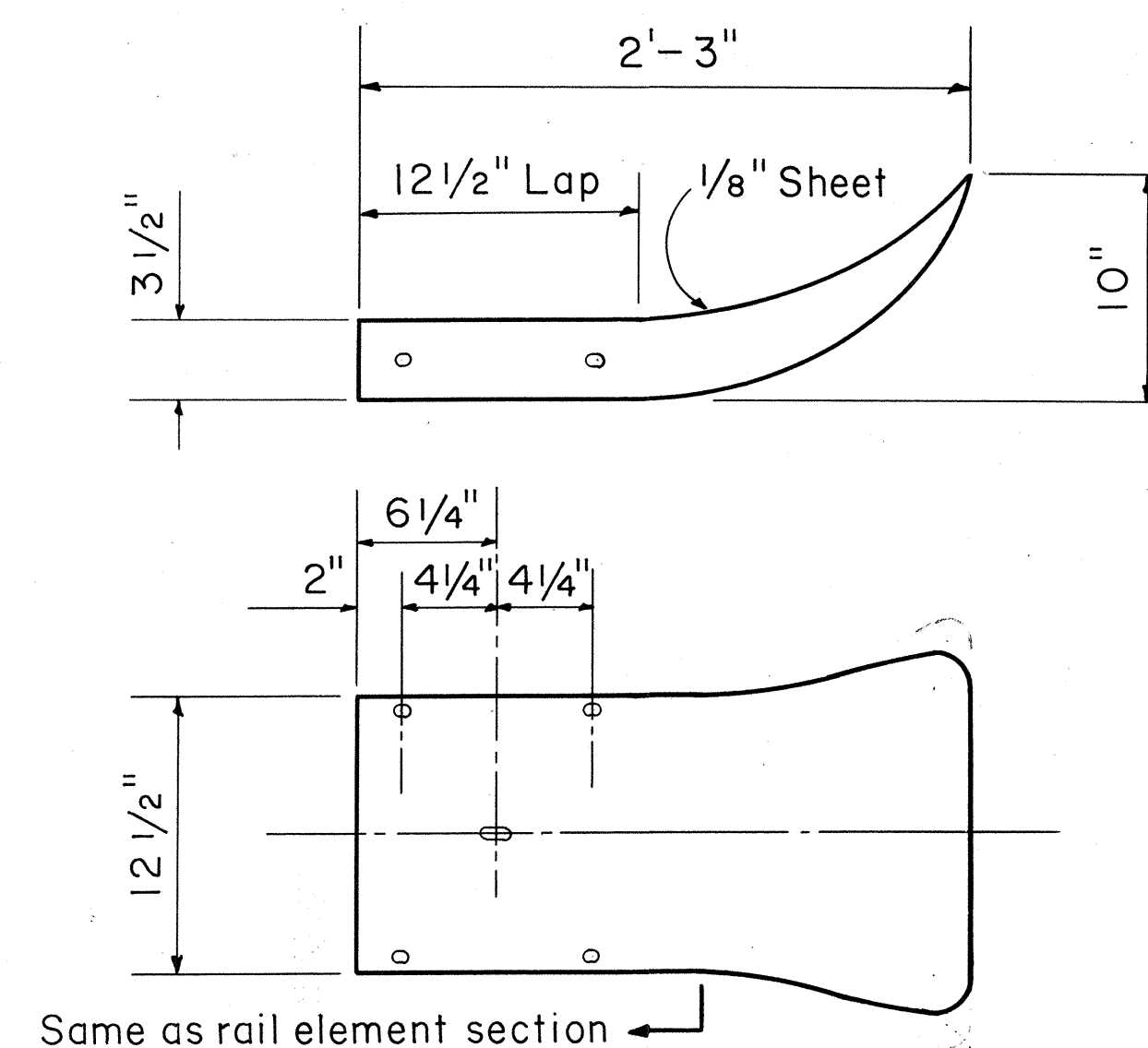
POST BOLT SLOT

Scale: Full Size



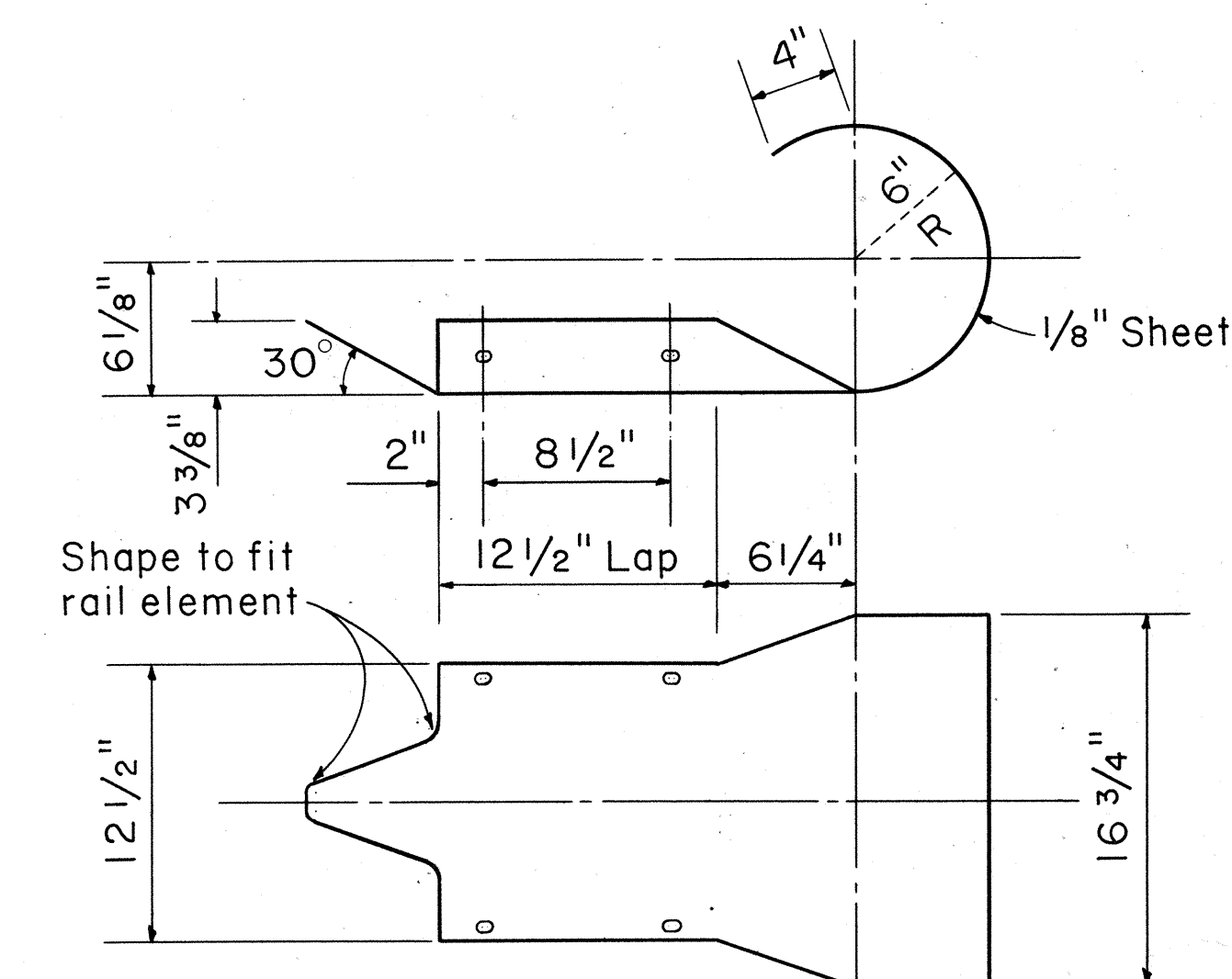
RAIL ELEMENT SECTION

Scale: Half Full Size



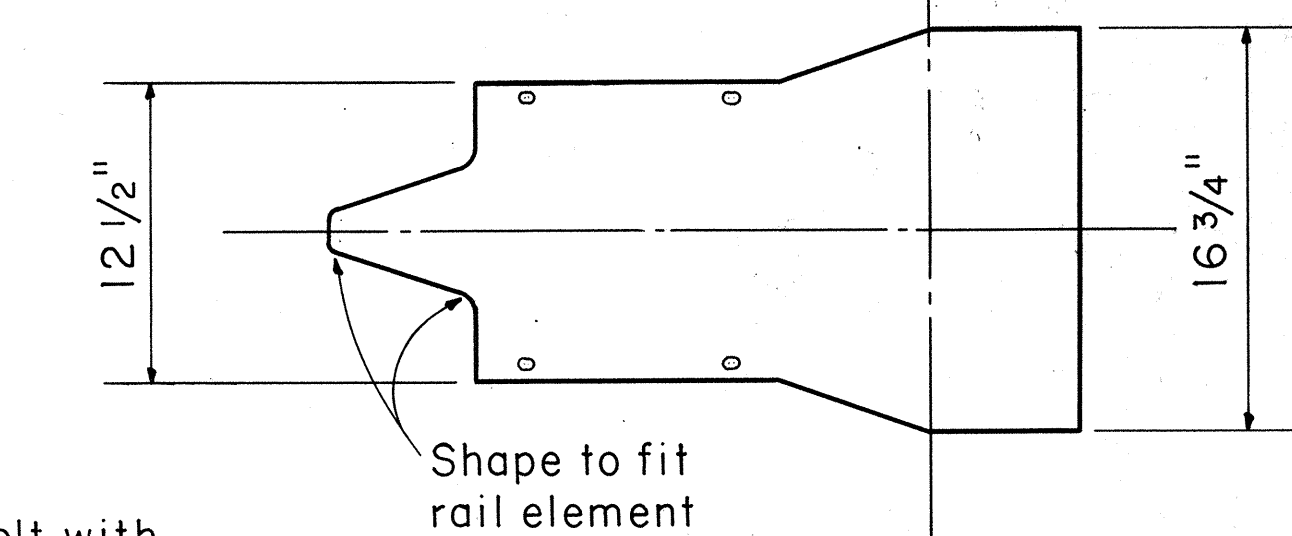
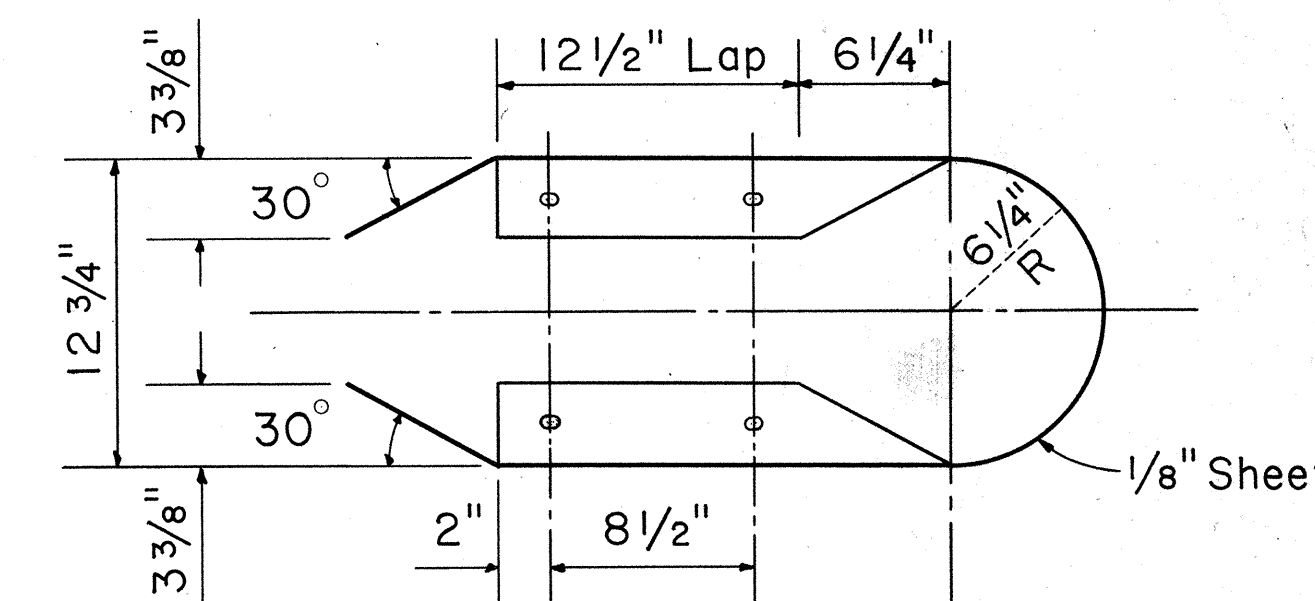
FLARED END

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



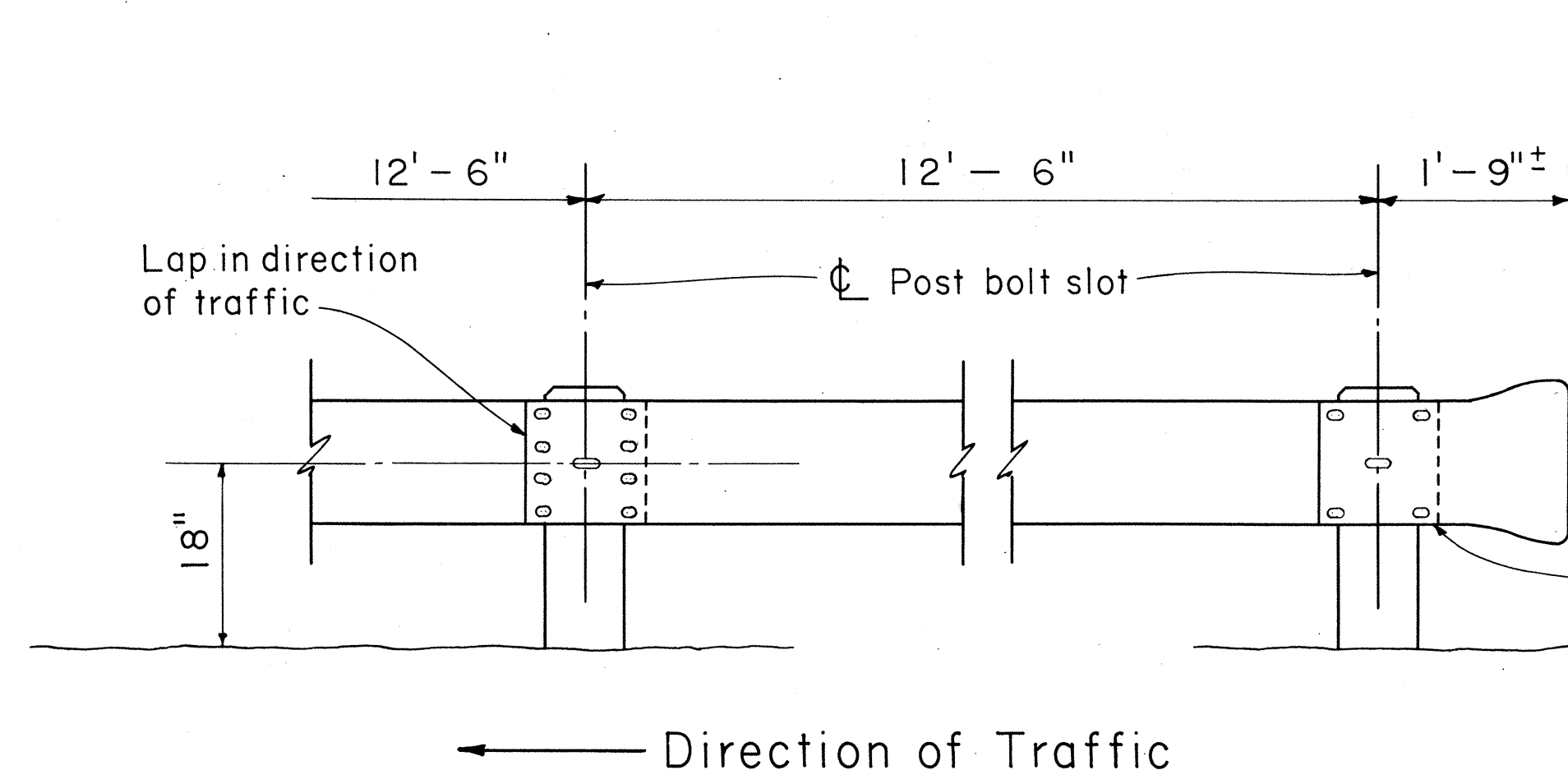
CURVED END

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



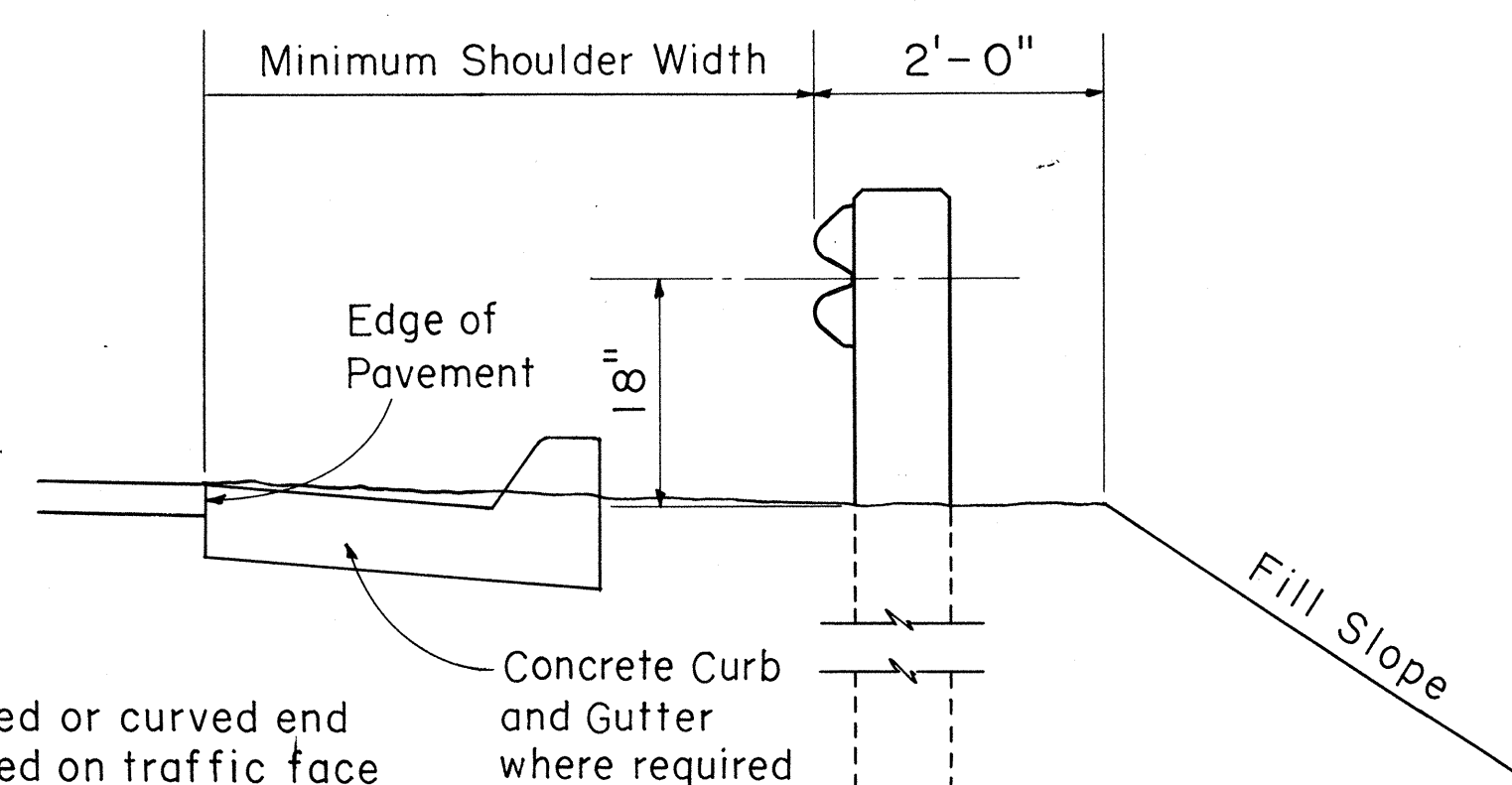
MEDIAN END

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



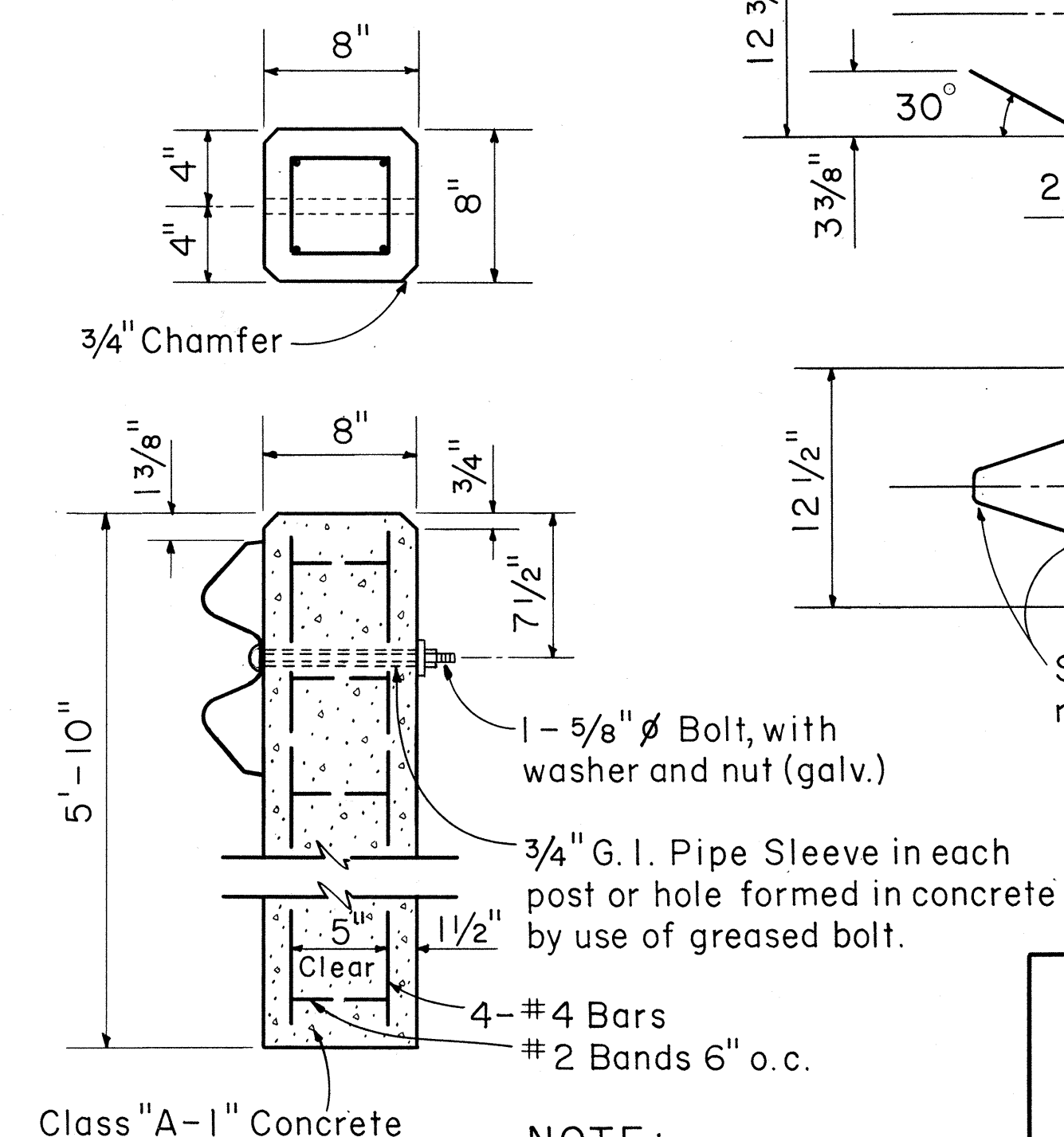
METAL GUARD RAIL

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



ELEVATION

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



DETAIL OF CONCRETE POST

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

NOTE:
All concrete posts shall be precast.

NOTE: Guard Rail Element for posts spaced other than 12'-6" o.c. shall be cut and fabricated by the Contractor at no extra cost.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS
METAL GUARD RAIL
INTERSTATE HIGHWAY (LUNALILO FWY) F.A.I. PROJ. No. I-HI-1(6)UNIT 1
Scales: As Noted. Date

SHEET NO. 3 OF 4 SHEETS

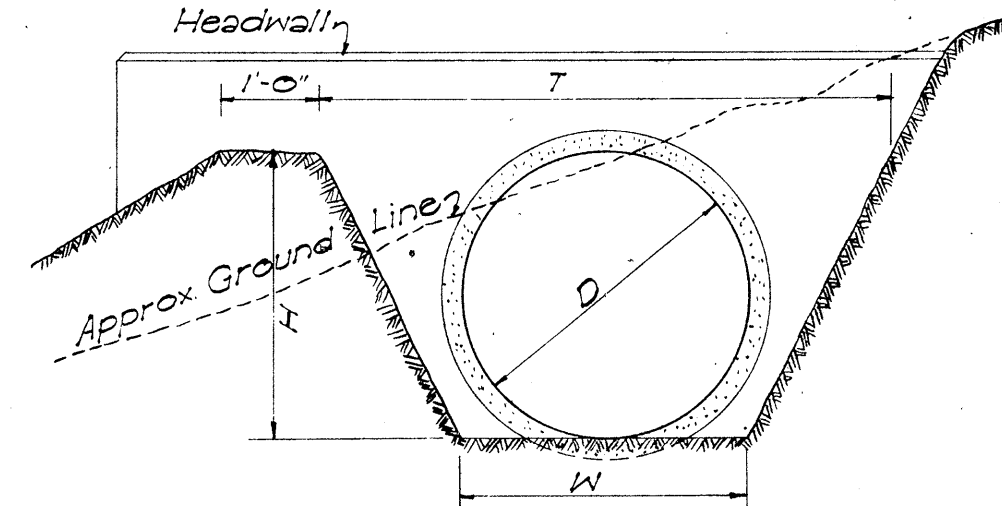
ORIGINAL PLAN	DATE
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

2/17/57

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
101	HAWAII	1-11-10	1955	26	129

AUG. 1957

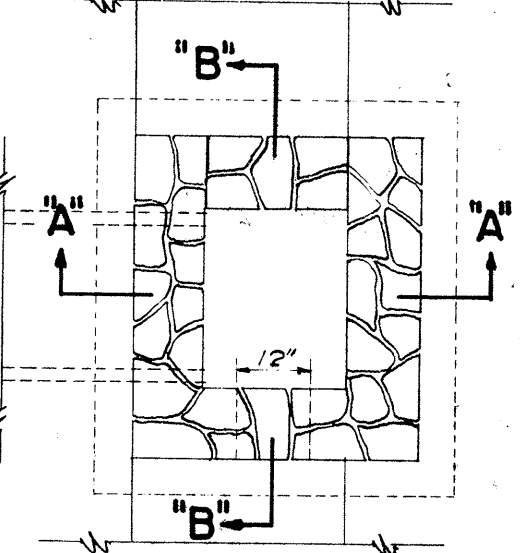
DATA FOR OUTLET DITCH				
D	W	H	T=H+H	
18"	24"	2'-0"	4'-0"	
24"	30"	2'-0"	4'-6"	
30"	30"	2'-6"	5'-0"	
36"	36"	3'-0"	6'-0"	



DETAIL OF OUTLET DITCH
Scale: 1/2" = 1'-0"

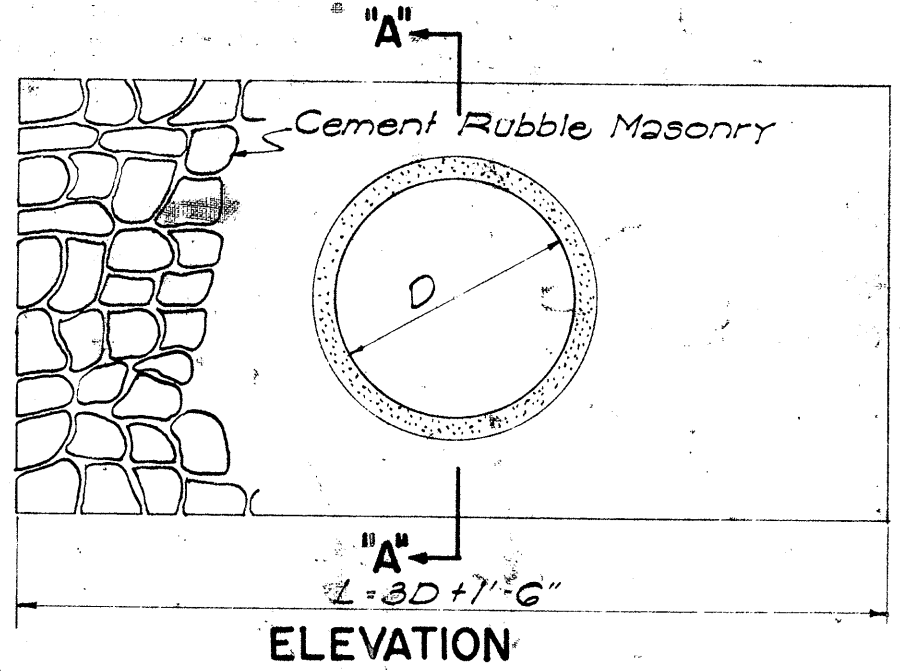
DATA FOR MASONRY DROP INTAKE					Where Variables Equal
D	D	L=D+G	Cu. Yds.		
23"	18"	2'-5"	3.02	4'-6"	
30"	24"	3'-0"	3.61	5'-0"	
37"	30"	3'-7"	4.21	5'-6"	
44"	36"	4'-2"	4.85	6'-0"	

NOTE:
Dimension "X" is assumed as 2'-4" in figuring the above quantities.

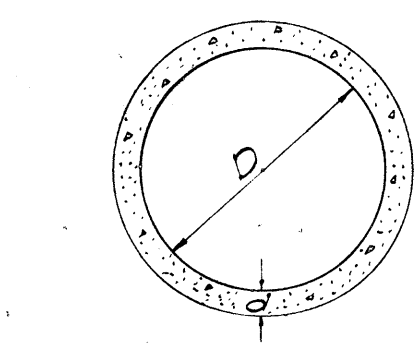


DETAIL OF MASONRY DROP INTAKE
Scale: 3/8" = 1'-0"

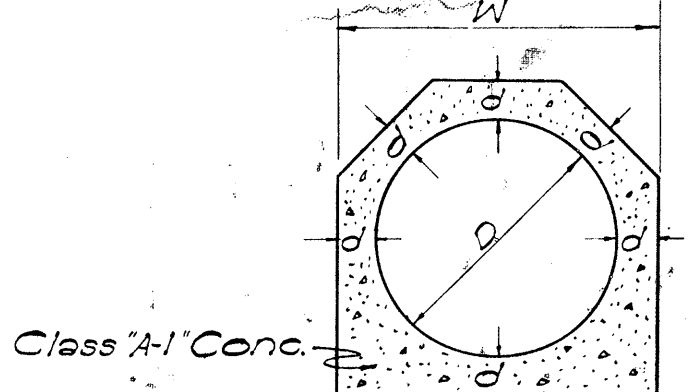
DATA - MASONRY HEADWALL					Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Corrugated Pipe Culvert
D	H	B	L		Cu. Yds.	Cu. Yds.	Cu. Yds.
18"	3'-6"	1'-0"	6'-0"		0.85	0.05	0.03
24"	4'-0"	2'-0"	7'-6"		1.28	1.42	1.41
30"	4'-6"	2'-6"	9'-0"		1.83	2.00	2.00
36"	5'-0"	2'-6"	10'-6"		2.40	2.84	2.72



DETAIL OF MASONRY HEADWALL
Scale: 1/2" = 1'-0"



SECTION
CONC. PIPE CULVERT



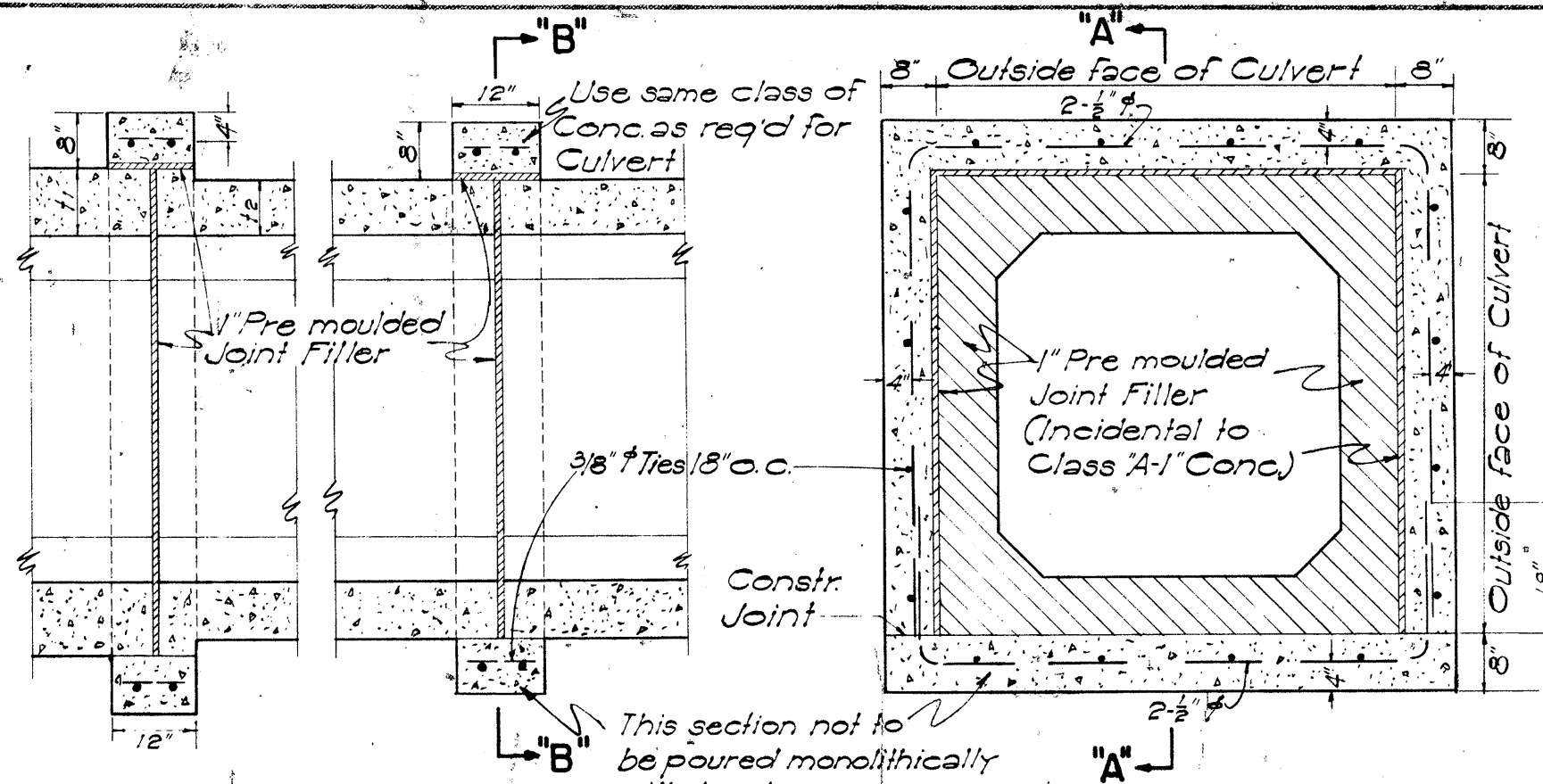
SECTION
CAST-IN-PLACE CONC. CULVERT

DATA - CAST-IN-PLACE CONC. CULVERT				
D	d	W	Cu. Yds. per ft.	
18"	4"	2'-2"	0.11	
24"	4 1/2"	2'-0"	0.14	
30"	5"	3'-4"	0.19	
36"	5 1/2"	3'-11"	0.26	

NOTE:
Thickness "d", reinforcing, and concrete used, are to conform with the approved design as provided by the Specifications.

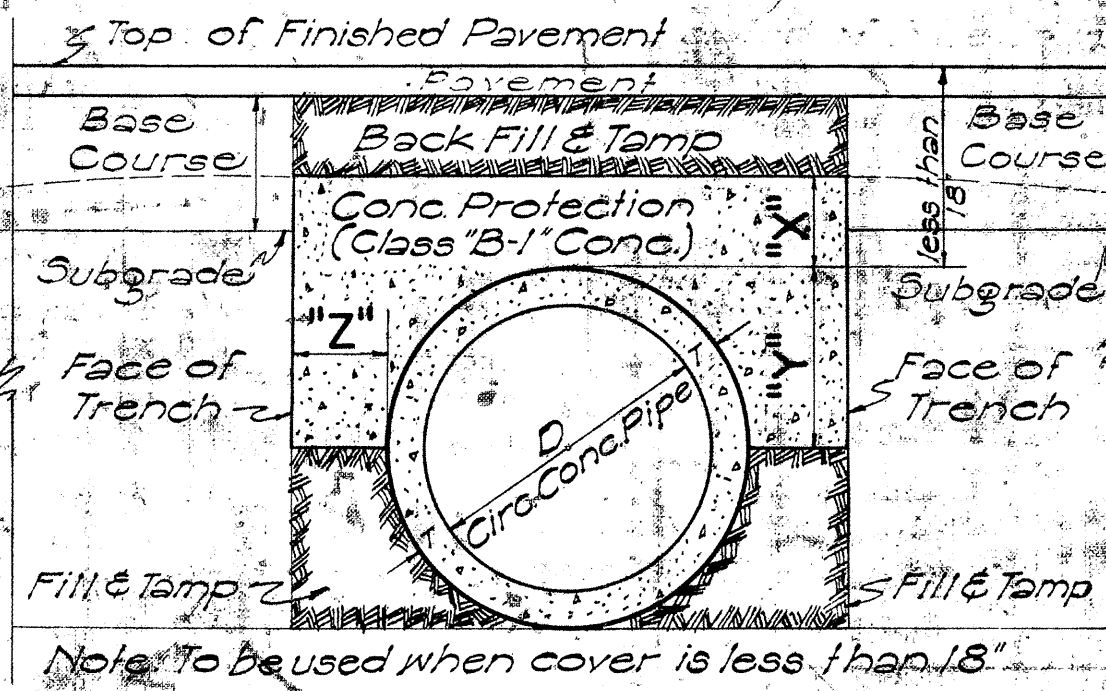
DATA FOR CONC. HEADWALL					Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Steel For One Headwall
D	B	L	H		Cu. Yds.	Cu. Yds.	No. of Bars Size Length Lbs.
18"	1'-6"	6'-0"	4'-0"		0.92	1.00	4 #4 2'-6" 33
24"	1'-6"	7'-6"	4'-6"		1.25	1.38	4 #4 2'-6" 42
30"	2'-0"	9'-0"	5'-0"		1.85	2.17	4 #4 2'-6" 51
36"	2'-0"	10'-6"	5'-6"		2.43	2.74	4 #4 2'-6" 60
42"	2'-6"	12'-0"	6'-0"		3.87	4.66	4 #4 2'-6" 69
48"	2'-6"	13'-6"	6'-6"		4.66	5.66	4 #4 2'-6" 78

DETAIL OF CONCRETE HEADWALL
Scale: 1/2" = 1'-0"



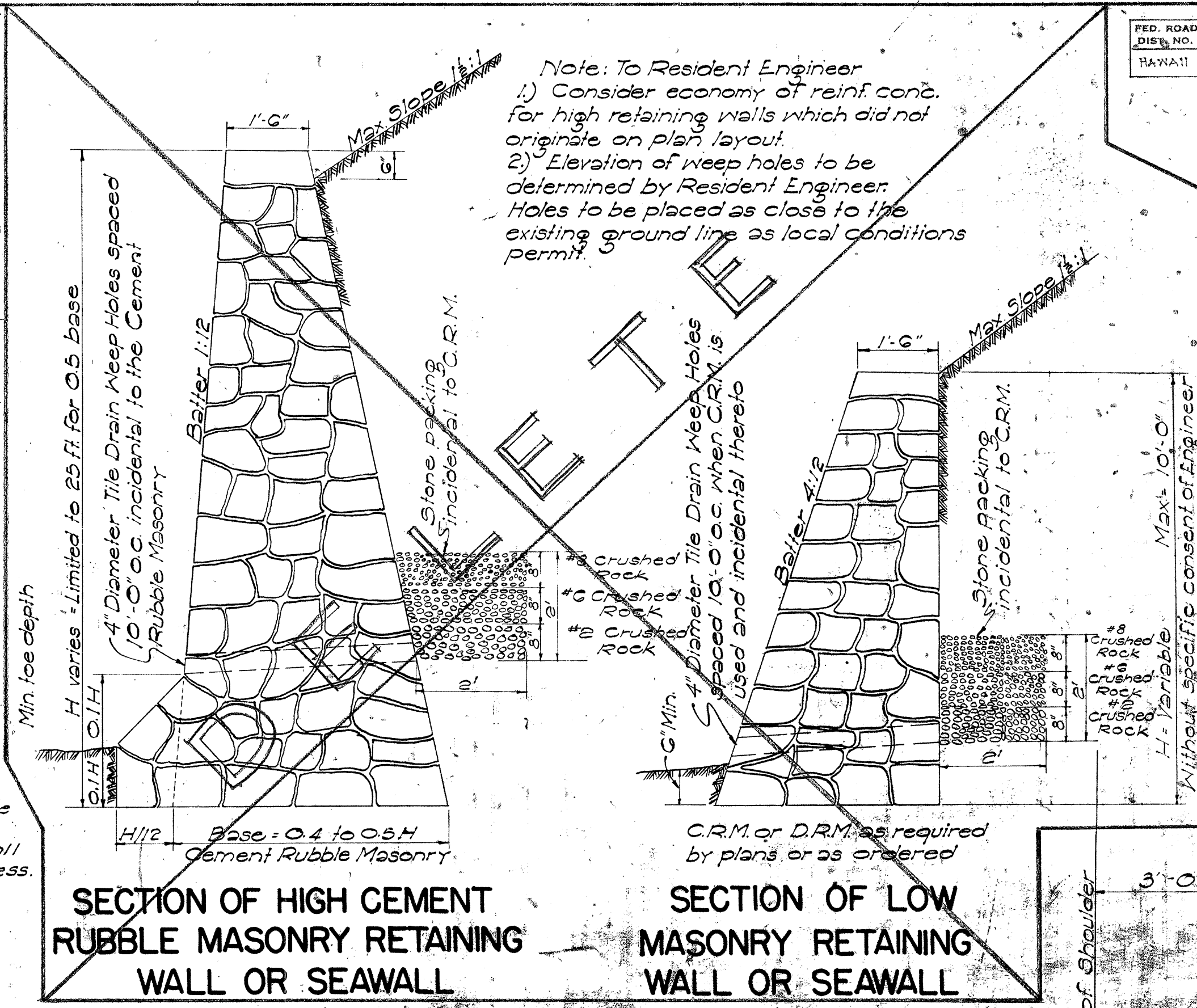
SECTION "A-A" SECTION "B-B"
CONC. COLLAR FOR CONC. BOX CULVERT
Scale: 1/2" = 1'-0"

REINFORCING BARS
All reinforcing bars for concrete shall be Billet Steel bars, ASTM A15, intermediate grade. Steel shall be made by the open-hearth process. All bars shall be deformed type conforming to ASTM A-305.



DATA FOR CONCRETE PROTECTION OVER CULVERTS		
X	Y	Z
6" for 18" D		Z must be from pipe to face of trench
7" " 24" D		
8" " 30" D		
9" " 36" D		
10" " 42" D		
11" " 48" D		
12" " 54" D		

SECT. OF CULVERT WITH CONC. PROTECTION
Scale: 1" = 1'-0"



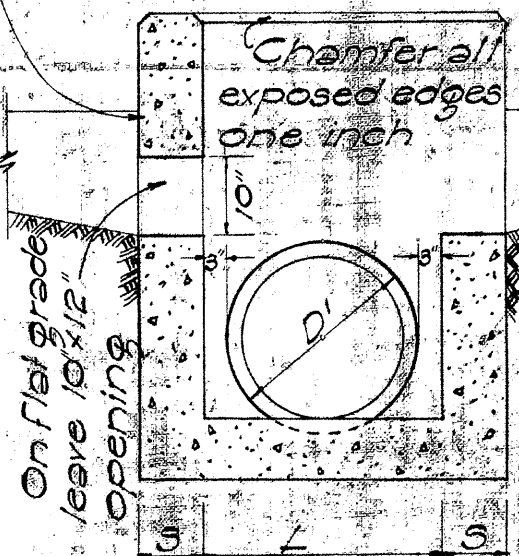
SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

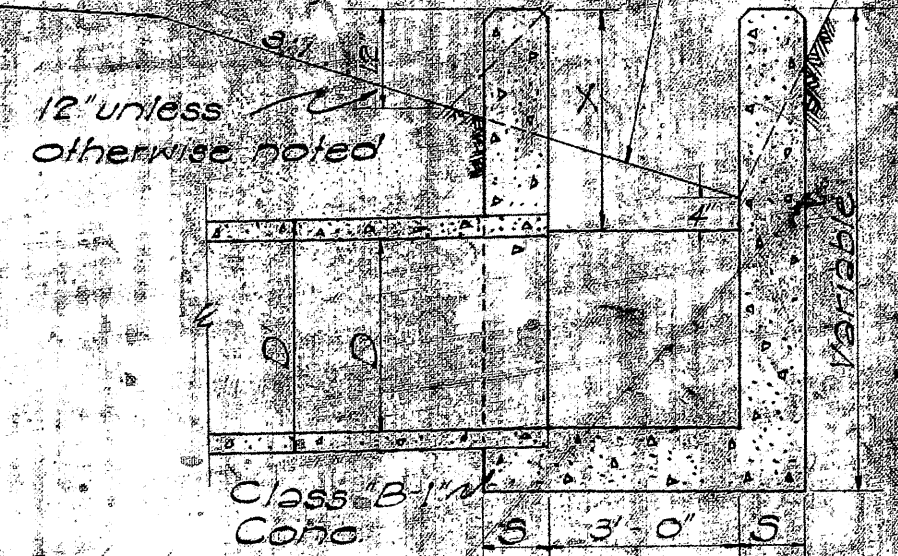
DATA - CONC. DROP INTAKE					Where Variables Equal
D	D	L=D+G	S	Cu. Yds.	
23"	18"	2'-5"	8	1.41	4'-6"
30"	24"	3'-0"	8	1.72	5'-0"
37"	30"	3'-7"	8	2.32	5'-6"
44"	36"	4'-2"	8	2.73	6'-0"
51"	42"	4'-9"	10	3.54	6'-6"
58"	48"	5'-4"	10	4.01	7'-0"

Note: Dimension "X" is assumed as 2'-4" in figuring the above quantities.

Note: This type of structure shall also be used for the Drop Intakes of Siphons connected with Irrigation Ditches or Flumes with appropriate changes to dimensions. In this case all joints must be made water tight.



SECTION "B-B"



SECTION "A-A"

DETAIL OF CONCRETE DROP INTAKE
Scale: 1/2" = 1'-0"

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STATE OF HAWAII
STANDARD DETAILS
DROP INTAKES, RETAINING WALLS,
HEADWALLS, CONSTRUCTION JOINTS
SCALES AS NOTED

SHEET NO. 4 OF 4 SHEETS

26