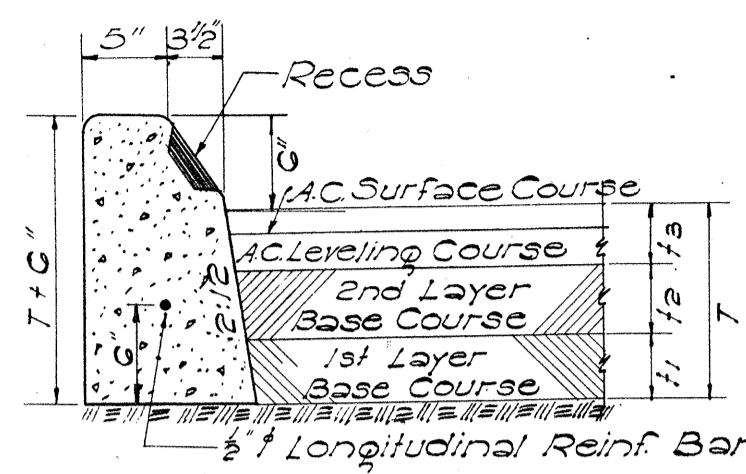
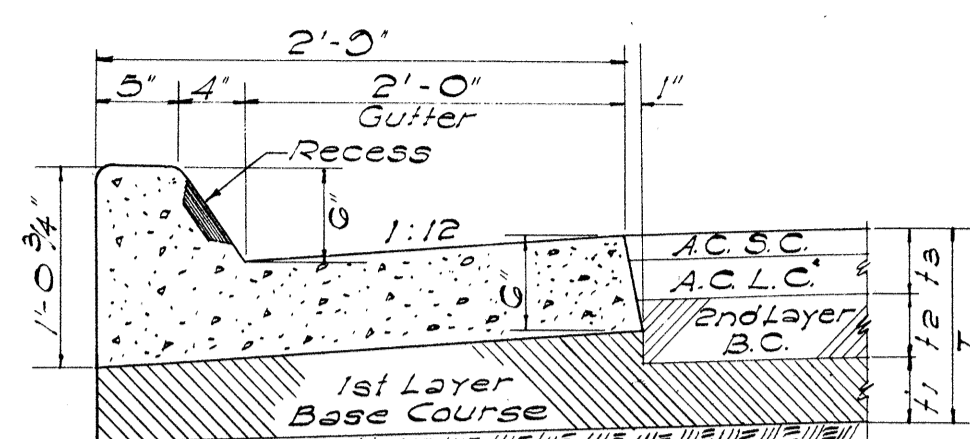


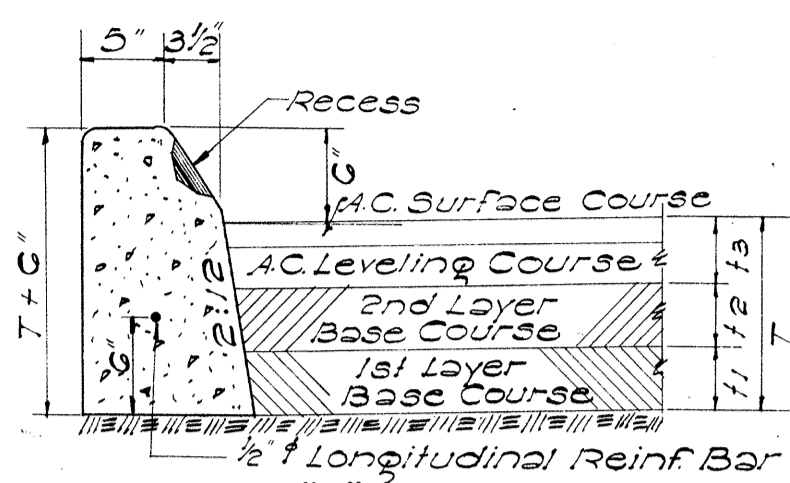
AUG. 1957



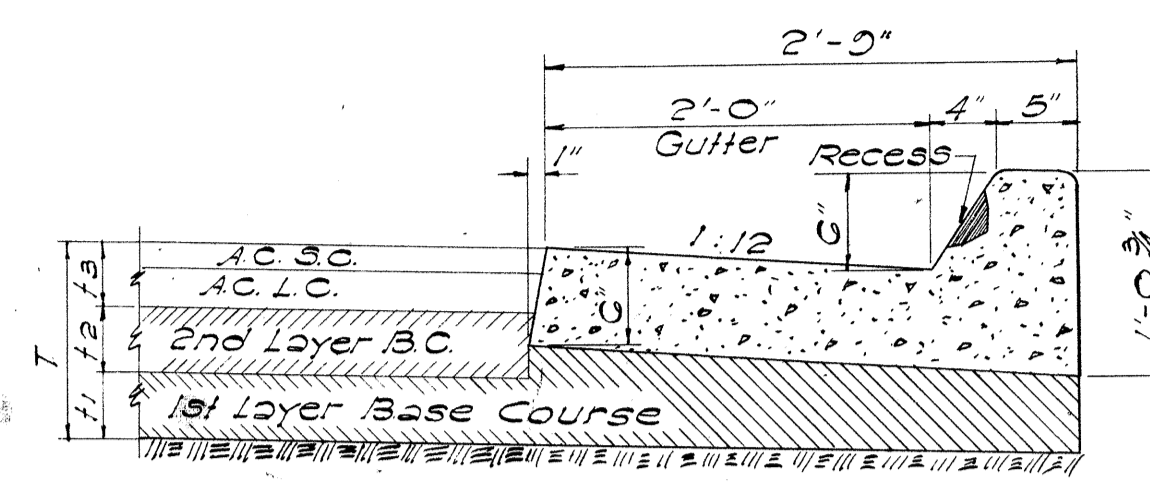
TYPE "A" & "B" CURB
SCALE: 1" = 1'-0"



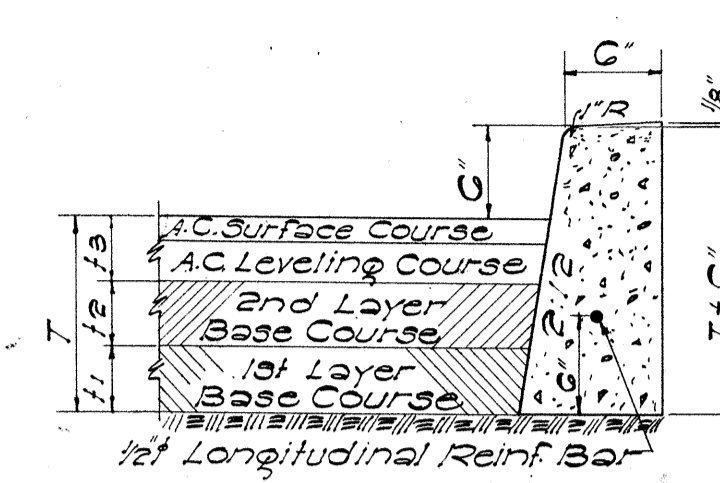
TYPE "AG" & "BG" CURB & GUTTER
SCALE: 1" = 1'-0"



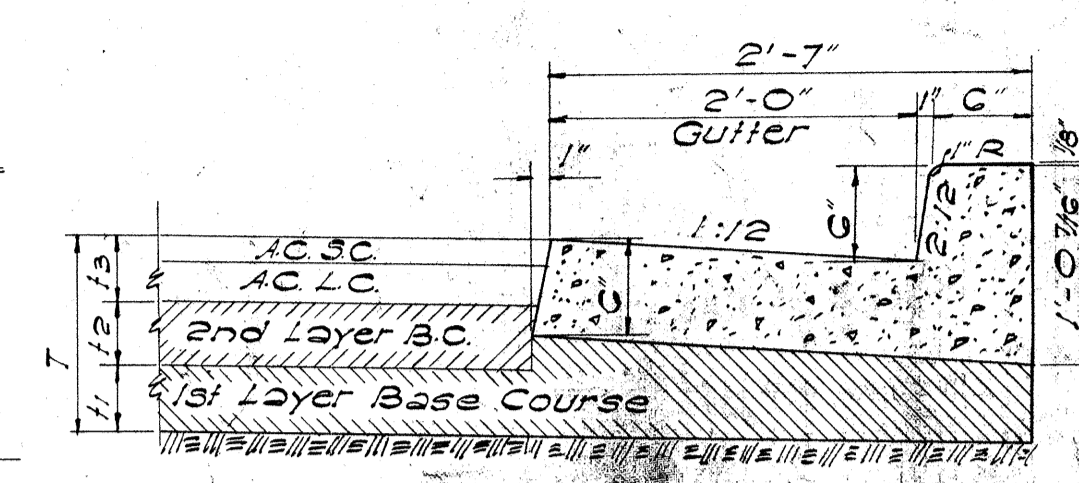
TYPE "C" CURB
SCALE: 1" = 1'-0"



TYPE "CG" CURB & GUTTER
SCALE: 1" = 1'-0"

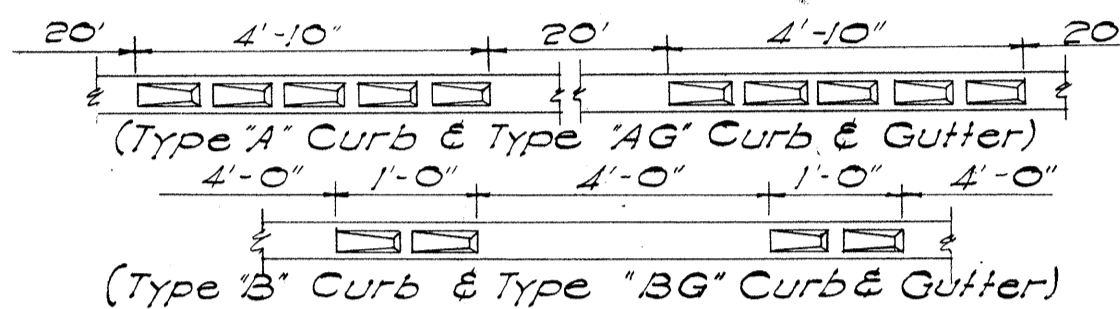


TYPE "D" CURB
SCALE: 1" = 1'-0"

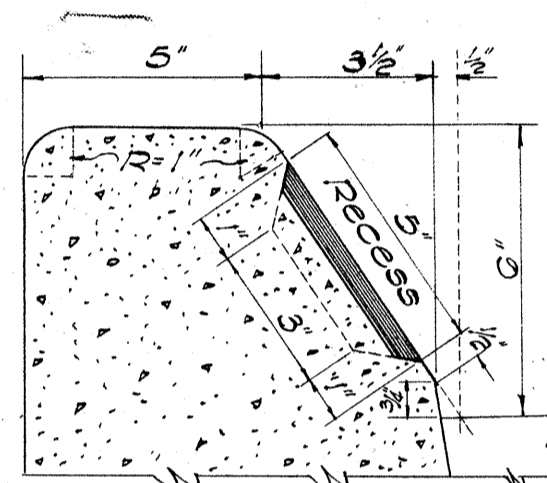


TYPE "DG" CURB & GUTTER
SCALE: 1" = 1'-0"

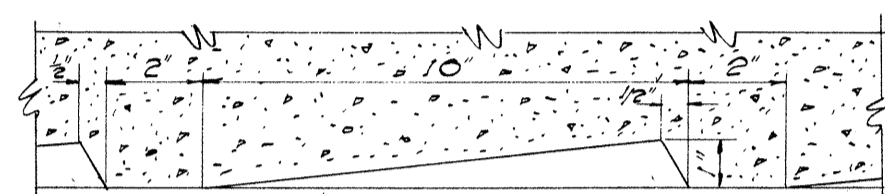
General Note Covering All Types of Curbs:
Occasionally curb rests on first layer of base course. See typical sections.



TYPE AND SPACING OF RECESSES

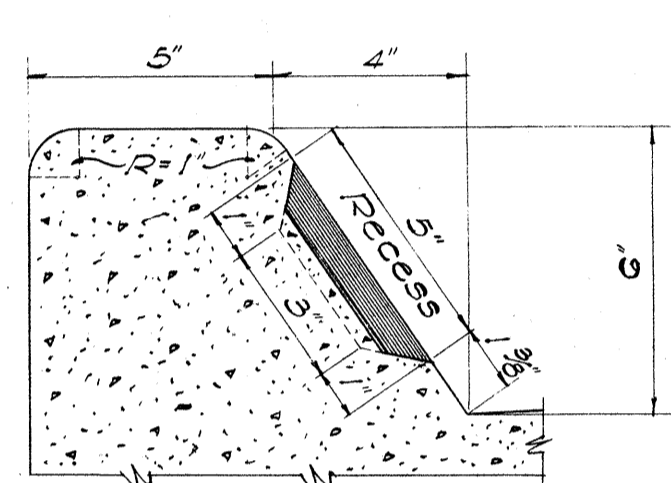


SECTION "B-B"
TYPE "A" & "B" CURB

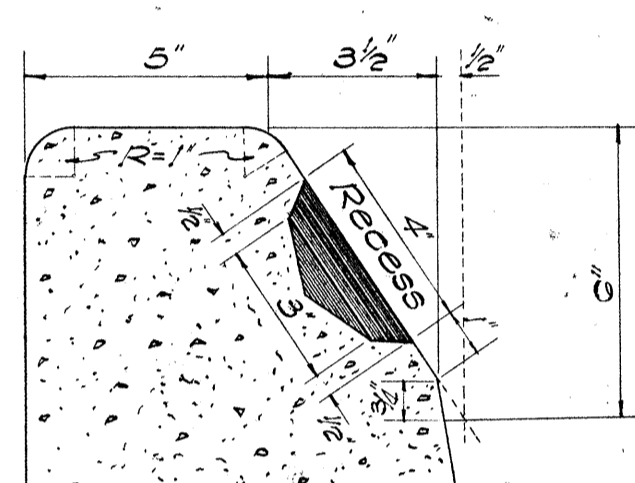


SECTION "A-A"

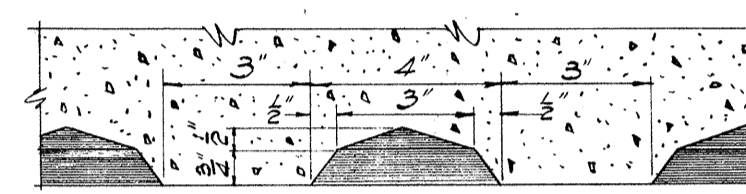
ELEVATION
SCALE: 3" = 1'-0"



SECTION "C-C"
TYPE "AG" & "BG" CURB

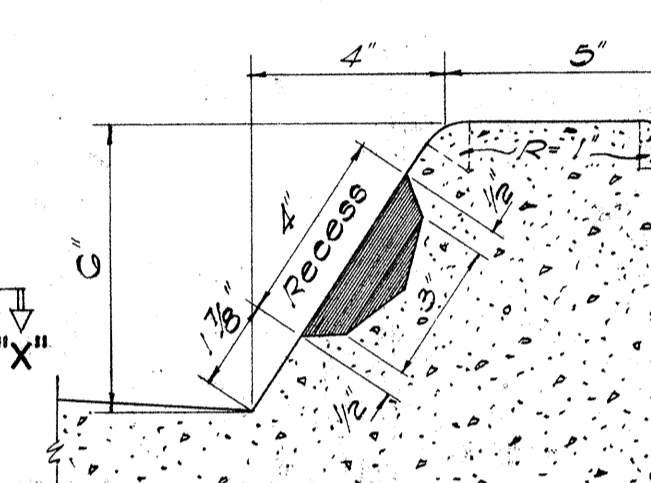


SECTION "Y-Y"
TYPE "C" CURB



SECTION "X-X"

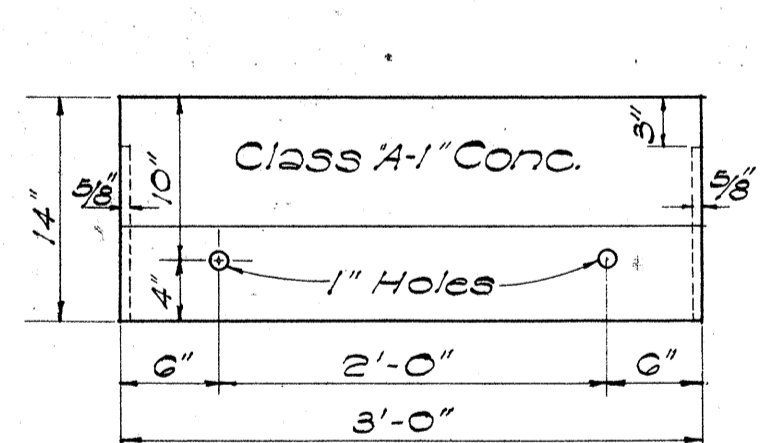
ELEVATION
SCALE: 3" = 1'-0"



SECTION "Z-Z"
TYPE "CG" CURB

- NOTES:
- Types "AG", "BG", "CG", "DG" and "EG" Concrete Curbs and Gutters are to be poured monolithically.
 - Types "A", "B", and "C" Curbs and Types "AG", "BG" and "CG" Curbs and Gutters occur at Median Strips and Traffic Islands.
 - Shaded area in Curbs are to be painted with an approved white lacquer. (One Coat)
 - All Conc. Curbs and Gutters shown herein are to be of Class "A-1" Conc. and Cast in Place.

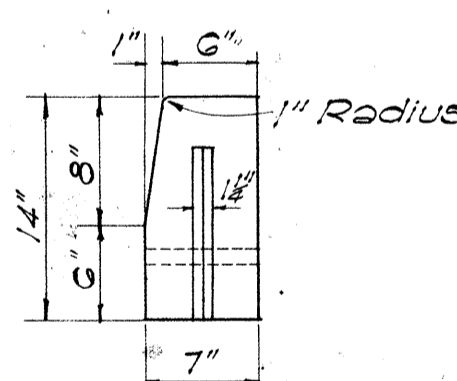
DETAILS OF CAST-IN-PLACE CONC. CURBS AND GUTTERS



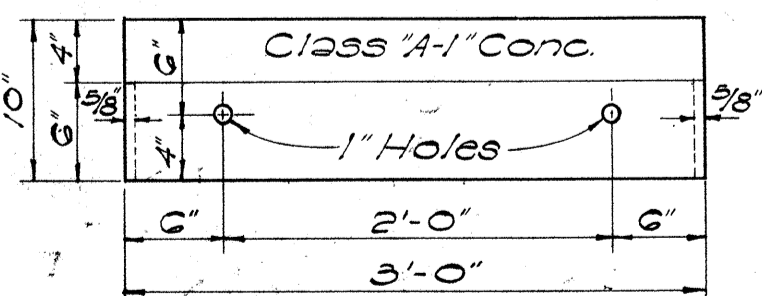
FRONT ELEV.

PRECAST CONC. CURB

SCALE: 1" = 1'-0"



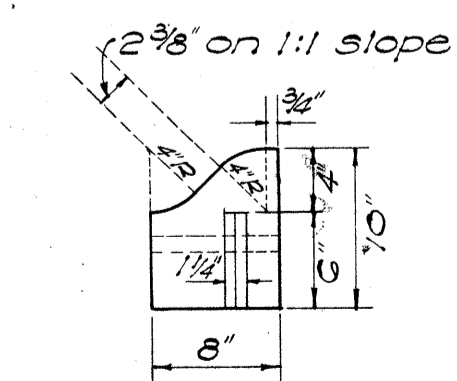
END ELEV.



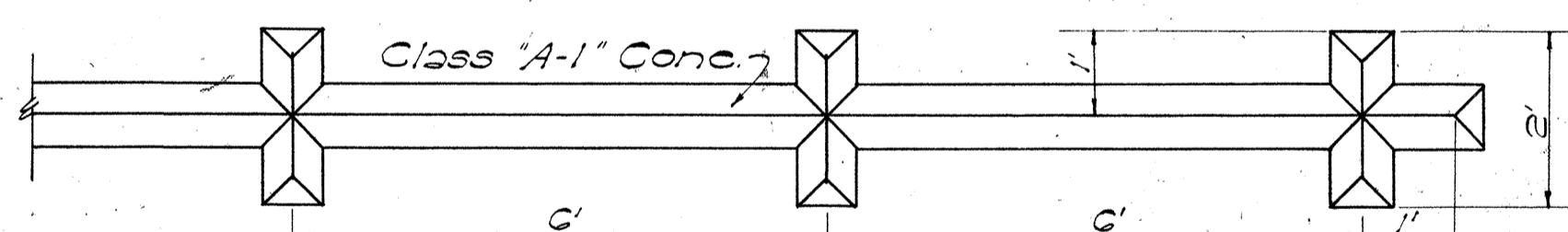
FRONT ELEV.

PRECAST CONC. ROLL CURB

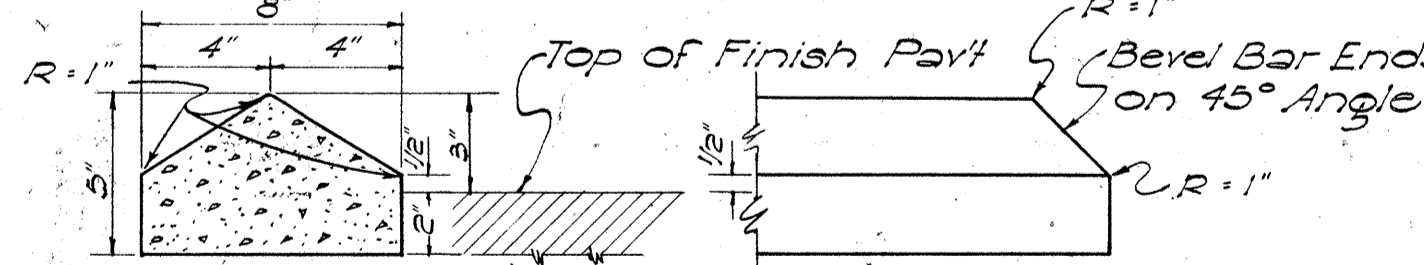
SCALE: 1" = 1'-0"



END ELEV.



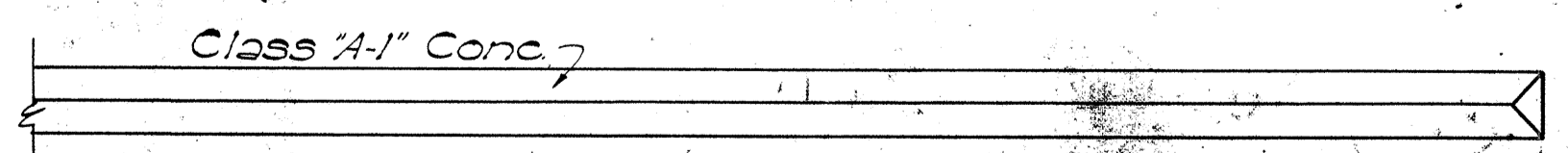
PLAN
SCALE: 1" = 2'-0"



SECTION ELEVATION

RAISED TRAFFIC BARS

SCALE: 1" = 6"



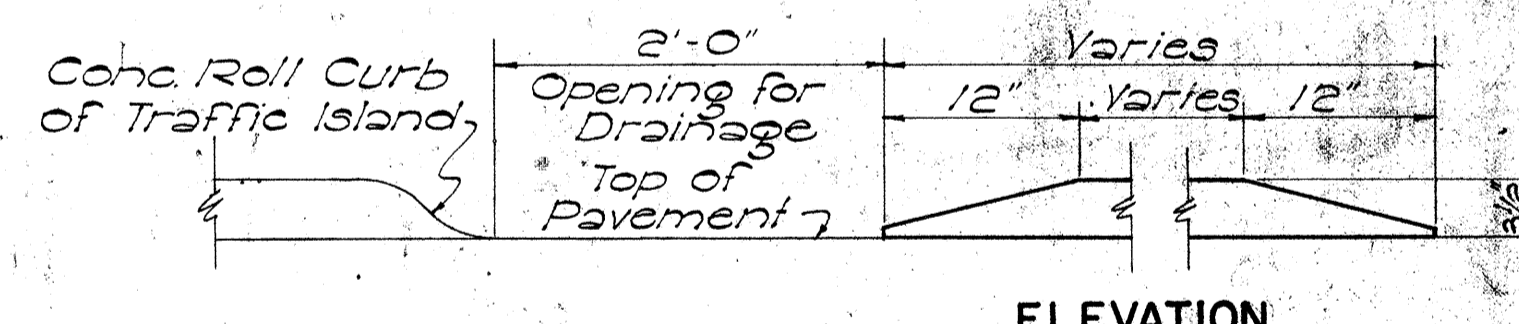
PLAN

RAISED JIGGLE BARS

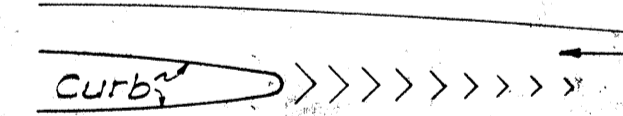
SCALE: 1" = 2'-0"

NOTE:
Section and Elevation for Joggle Bars are same as the Traffic Bars.

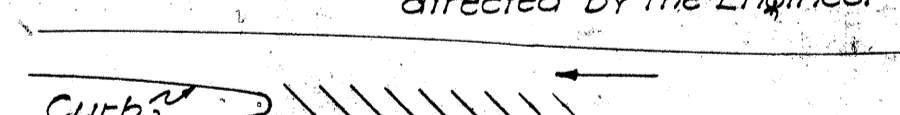
NOTE:
Paint all exposed surfaces of bars with beaded white traffic lacquer.



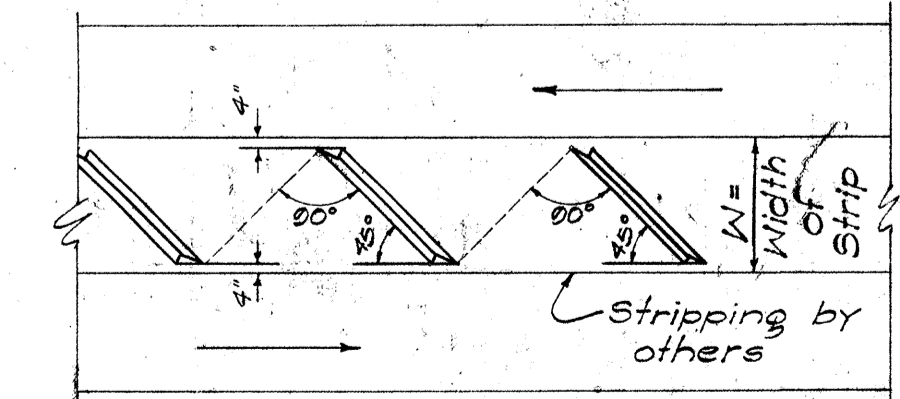
ELEVATION



Spaced 5' to 10' as directed by the Engineer



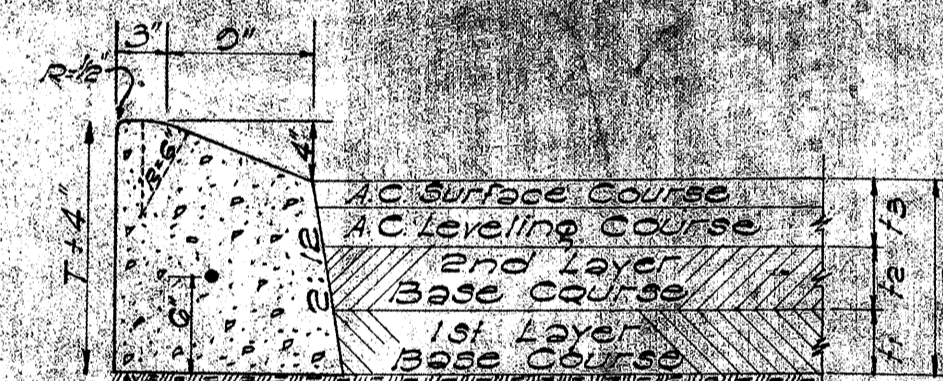
At Curbed Island



MEDIAN STRIP

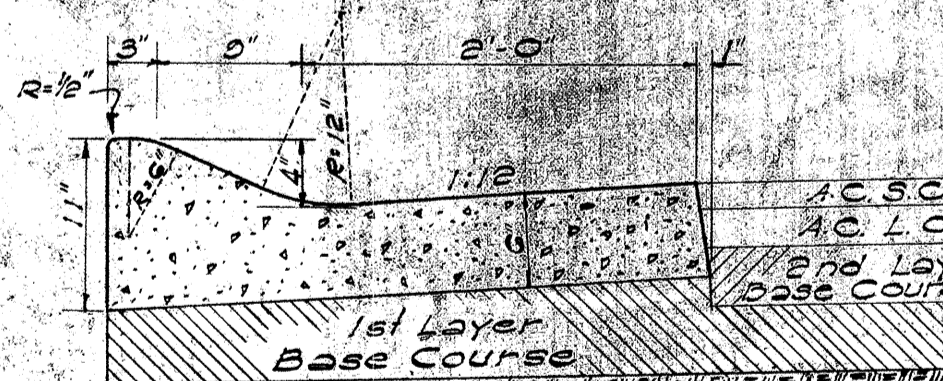
LAYOUT OF JIGGLE BARS

NOT TO SCALE



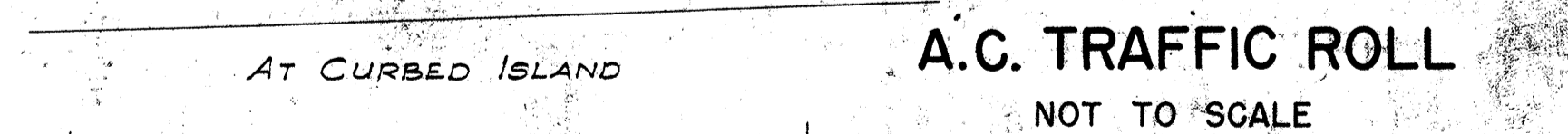
TYPE "E" CAST-IN-PLACE CONCRETE CURB

SCALE: 1" = 1'-0"



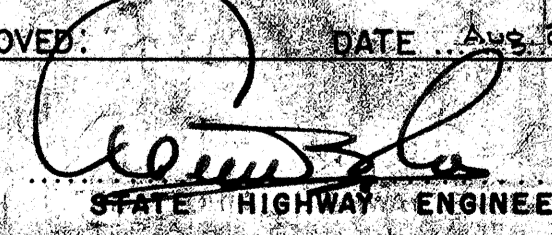
TYPE "EG" CAST-IN-PLACE CONC. CURB & GUTTER

SCALE: 1" = 1'-0"



A.C. TRAFFIC ROLL

NOT TO SCALE

APPROVED:  DATE: Aug 26, 1957
STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
CONCRETE CURBS,
CONCRETE CURBS & GUTTERS
SCALES AS NOTED

SHEET NO. 1 OF 7 SHEETS

8148.13

"E" and "EG" Curbs have been revised 7-26-57

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

2/17/59
4/6/59
4/28/59

Note: All Regulatory and Warning Signs Shall Have 3/8" Bolt Holes.

NOTE: Signs noted with an (R) designation indicate reflectorization with either buttons or reflective sheeting.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	8061-(6)	1960	14	21

JULY 3, 1957

White Letters and Border on Red Background (Background may be of red reflective sheeting). Letters to be Reflectorized with Buttons or Reflective Sheeting.

R-1
30" x 30"

Black Letters on White Background

R-6
18" x 24"

Black Letters on White Background

R-8
18" x 24"

Black Letters on White Background

R-10
12" x 18"

Black Letters on White Background

R-11
18" x 24"

Black Letters on White Background

R-12
18" x 24"

Black Letters on White Background

R-13
24" x 30"

Black Letters on White Background

R-14 (R)
18" x 24"

Black Letters on White Background

R-15
24" x 24"

Black letters, White Arrows on Black background, White Border and White Reflectors.

4" Series 'D' Letters

R-16-R (R)
R-16-L (R)
36" x 12"

Red Letters & Border on White Background

R-18
12" x 18"

Red Letters & Border on White Background

R-26
12" x 18"

Red Letters & Border on White Background

R-29
24" x 30"

Black Letters on Highway Yellow Background

R-41-S
24" x 24"

Red Letters & Border on White Background

R-42-S
12" x 18"

Black Letters on White Background

R-43-S
12" x 18"

Black Letters on White Background

R-44-S
12" x 18"

White numerals on black background

R-102-A
24" x 30"

White numerals on black background

R-102-B
24" x 30"

White numerals on black background

R-102-C (R)
24" x 30"

White numerals on black background

R-104
24" x 30"

White numerals on black background

R-105-A (R)
24" x 30"

White numerals on black background

R-105-B
24" x 30"

White numerals on black background

R-105-C
24" x 30"

Note: R-102-A, B, C signs with (R) designation: Lower half with white numerals, reflectorized with buttons or reflective sheeting, on black background.

White numerals on a black background

R-104-A
24" x 30"

White numerals on a black background

R-7
18" x 24"

White numerals on a black background

R-66
18" x 24"

White numerals on a black background

R-106
24" x 30"

White numerals on a black background

R-107-A
24" x 30"

White numerals on a black background

R-14-A
24" x 24"

White numerals on a black background

W-2-R
***W-2-L**
24" x 24"

White numerals on a black background

W-4-R
***W-4-L**
24" x 24"

White numerals on a black background

W-5-R
***W-5-L**
24" x 24"

White numerals on a black background

W-6
24" x 24"

White numerals on a black background

W-7
24" x 24"

White numerals on a black background

W-8-R
***W-8-L**
24" x 24"

White numerals on a black background

W-9
24" x 24"

White numerals on a black background

W-10
24" x 24"

White numerals on a black background

W-13
24" x 24"

White numerals on a black background

W-14
24" x 24"

White numerals on a black background

W-40
24" x 24"

White numerals on a black background

W-19
30" x 30"

White numerals on a black background

W-20
30" x 30"

White numerals on a black background

W-21
30" x 30"

White numerals on a black background

W-22
24" x 24"

White numerals on a black background

W-24
30" x 24"

White numerals on a black background

W-25
24" x 24"

White numerals on a black background

W-29
24" x 24"

White numerals on a black background

W-59
24" x 24"

White numerals on a black background

W-39
24" x 24"

White numerals on a black background

W-1-R
***W-1-L**
24" x 24"

Background may be made of Yellow Reflective sheeting.

Unless otherwise specified, all signs shall conform with requirements of "Manual on Uniform Traffic Control Devices for Streets and Highways."

All letters and figures shall be of size and design shown and shall conform with Standard Alphabets for Highway signs as set forth by the Public Roads Administration, Federal Works Agency. Series 'C' letters and Series 'D' numerals shall be used except where noted.

Note: All Regulatory signs shall have black letters on a white background except where noted. All Warning (W) signs shall have black letters or figures on a Highway Yellow background. Signs shall be similar but opposite in direction. See Specifications for Materials and Finish.

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

REGULATORY & WARNING SIGNS

Scale: 1" = 1' DATE: APR 29, 1957

APPROVED: [Signature] STATE HIGHWAY ENGINEER

2/17/50
4/6/59
4/28/59
7/30/59

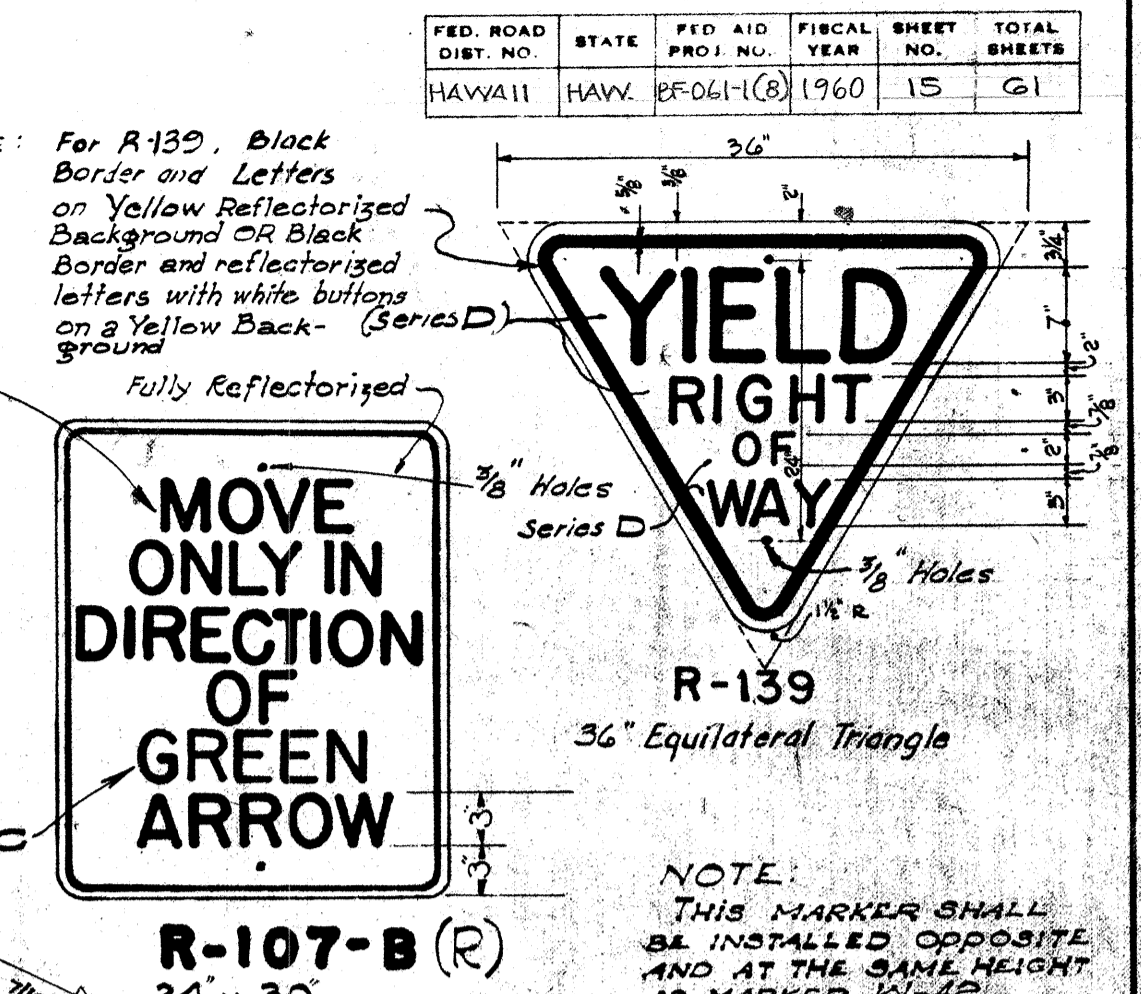
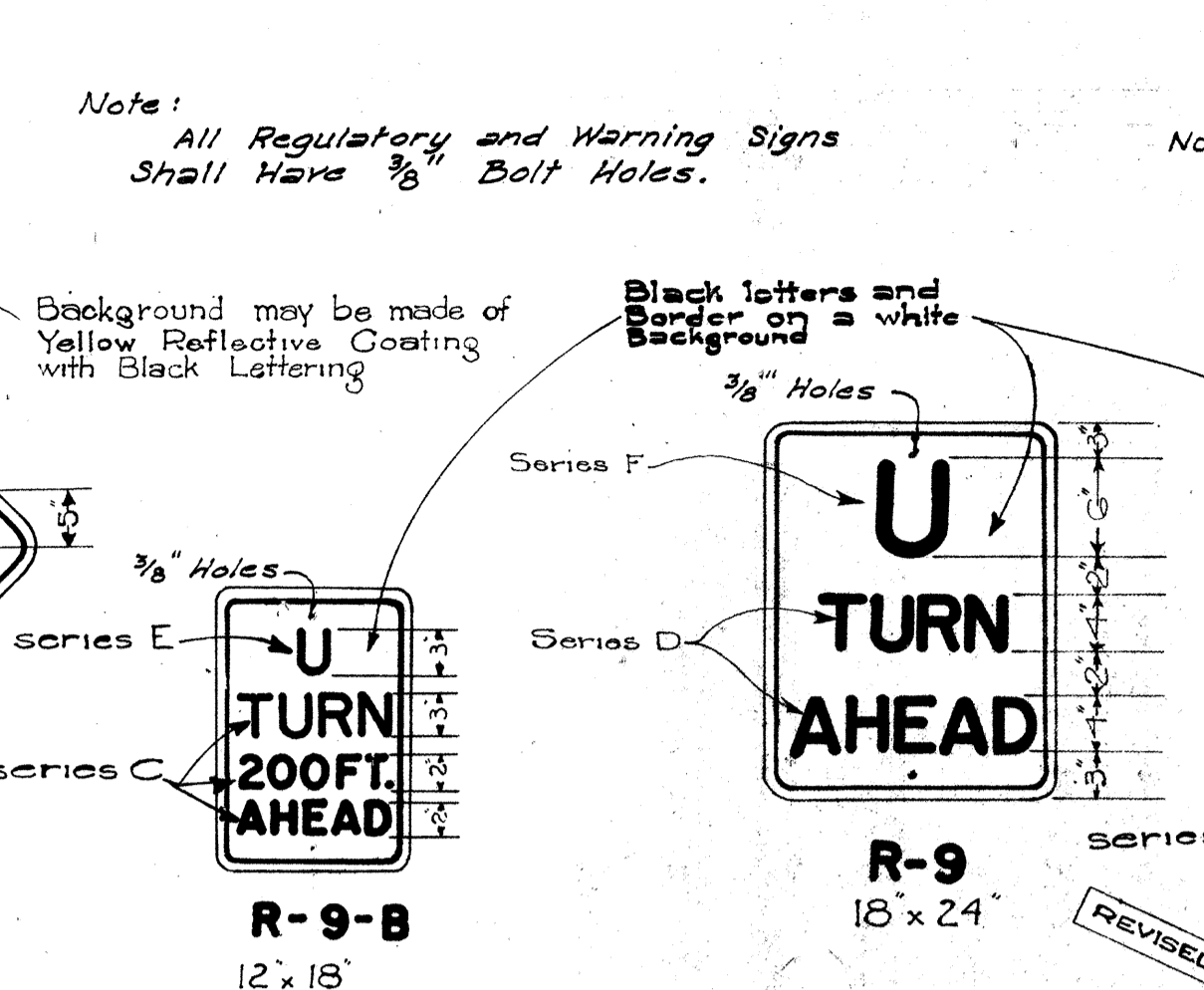
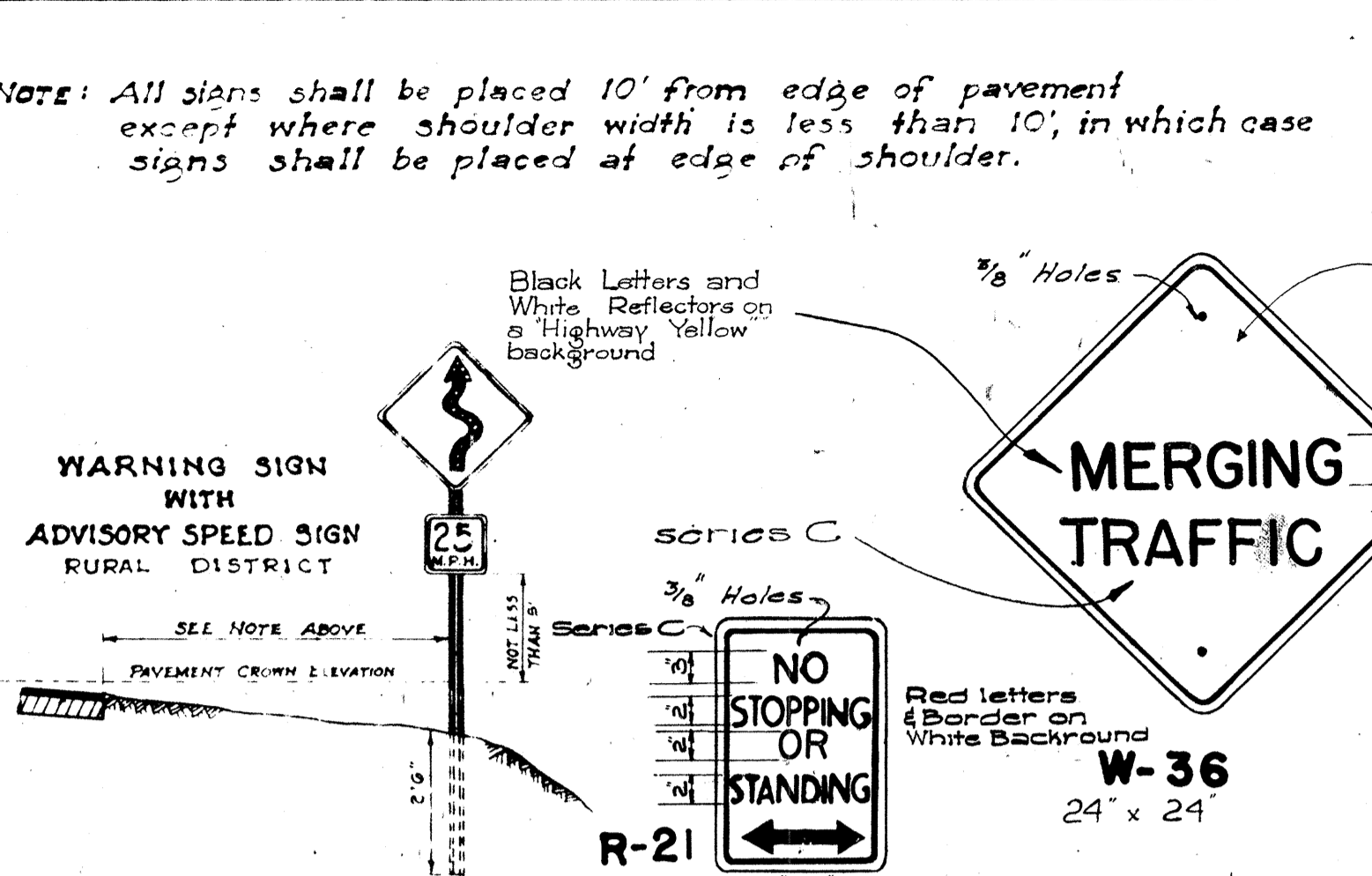
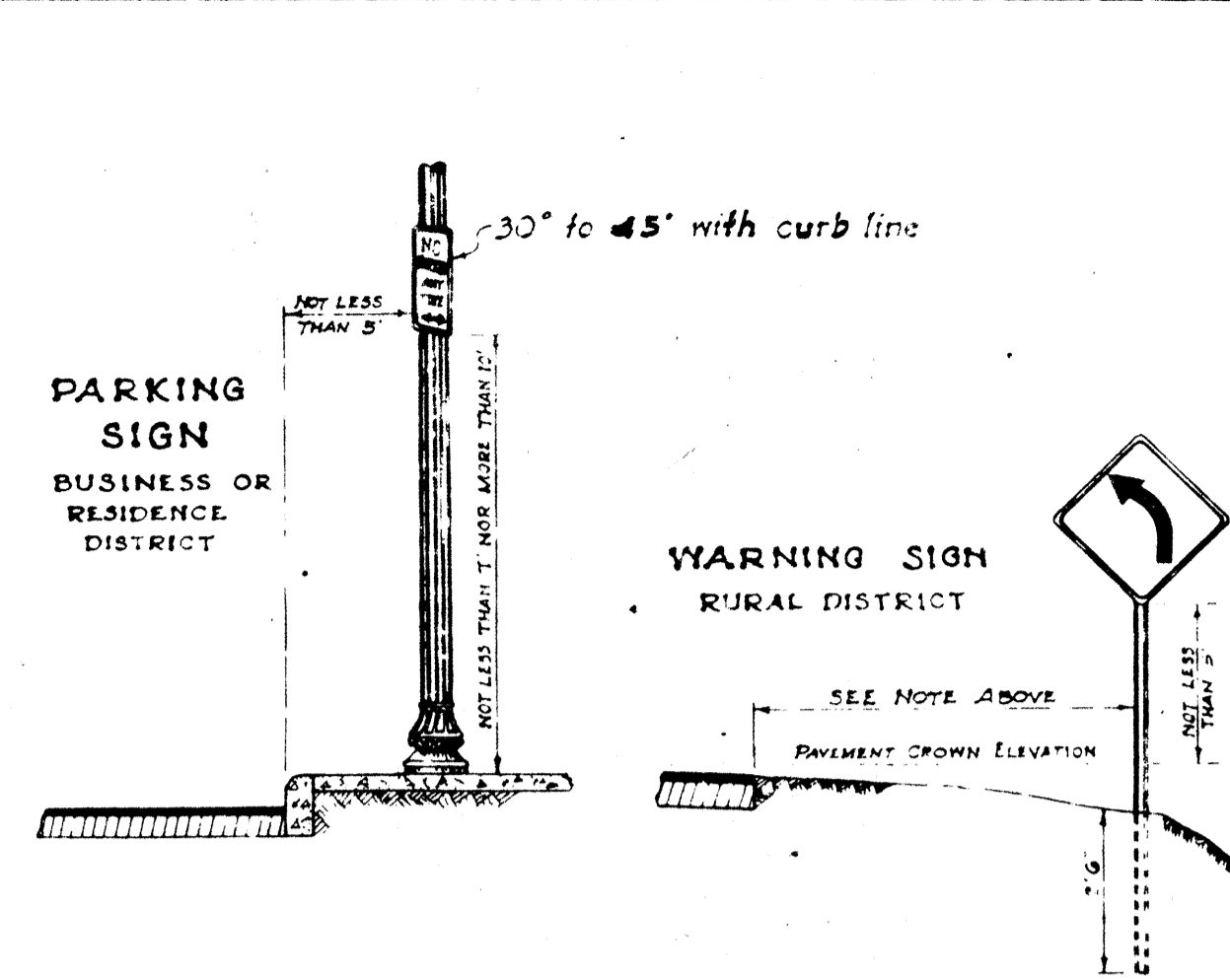
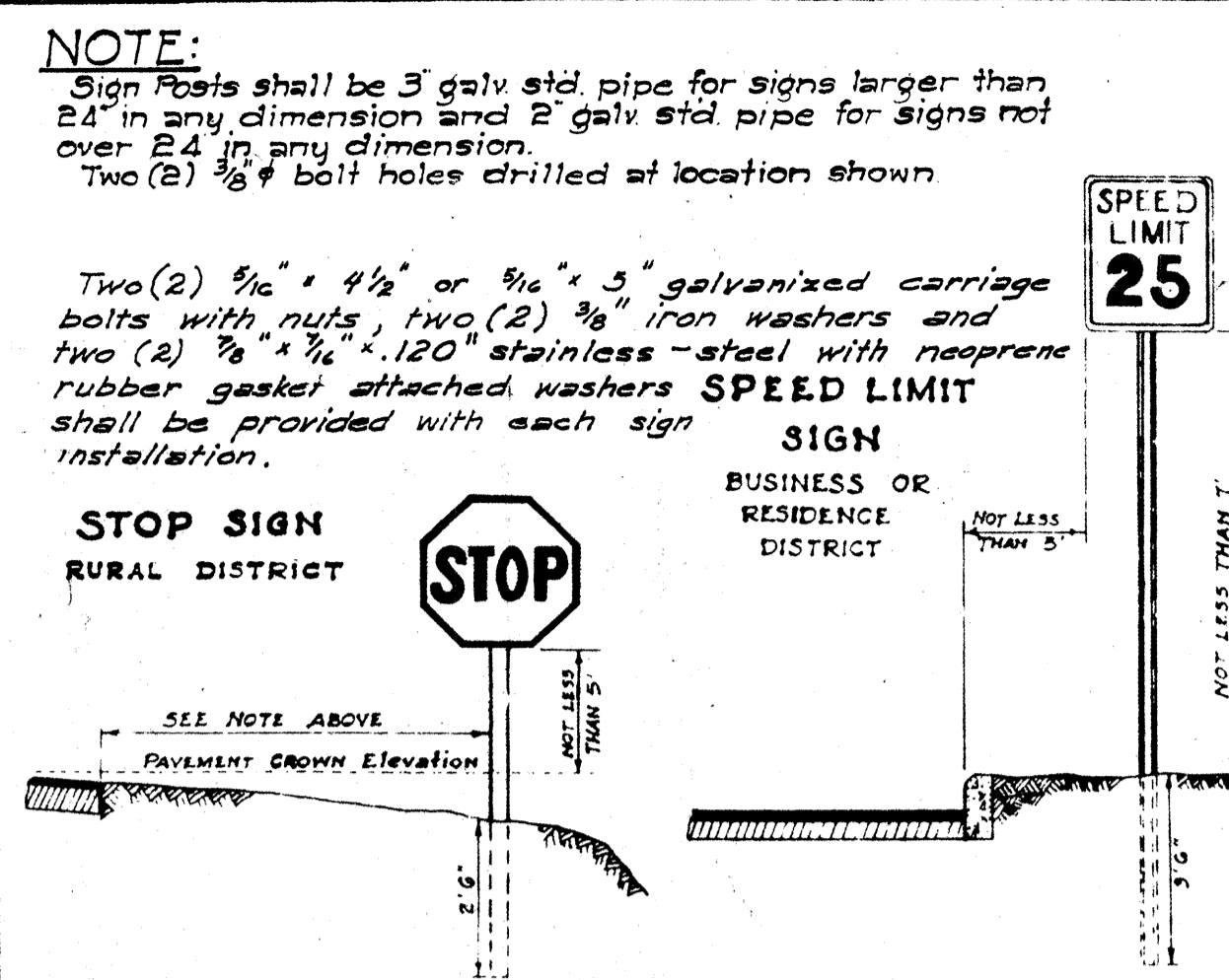
NOTE: Sign Post size has been revised 5/13/58

NOTE: Yield sign has been revised 1/11/57

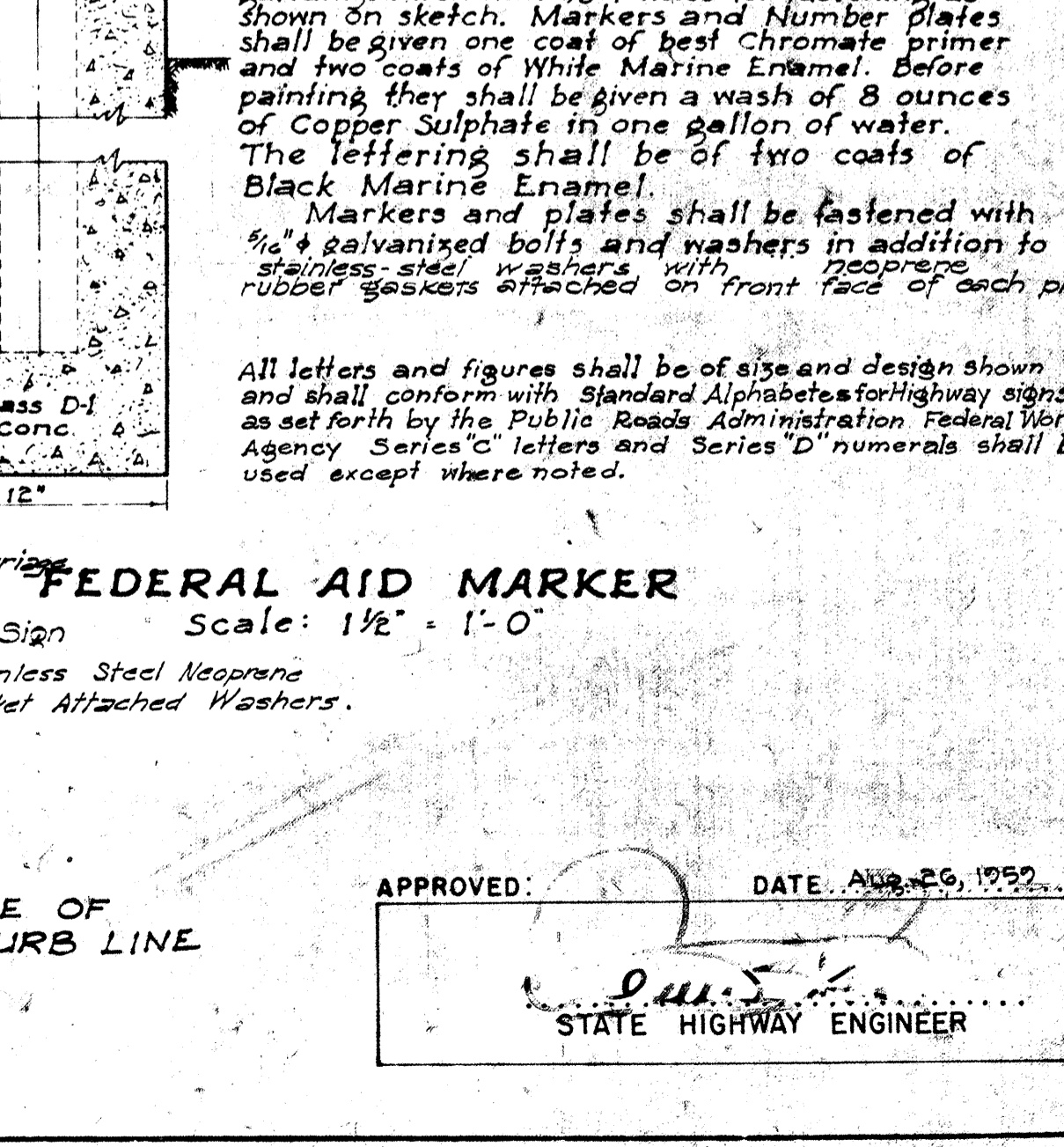
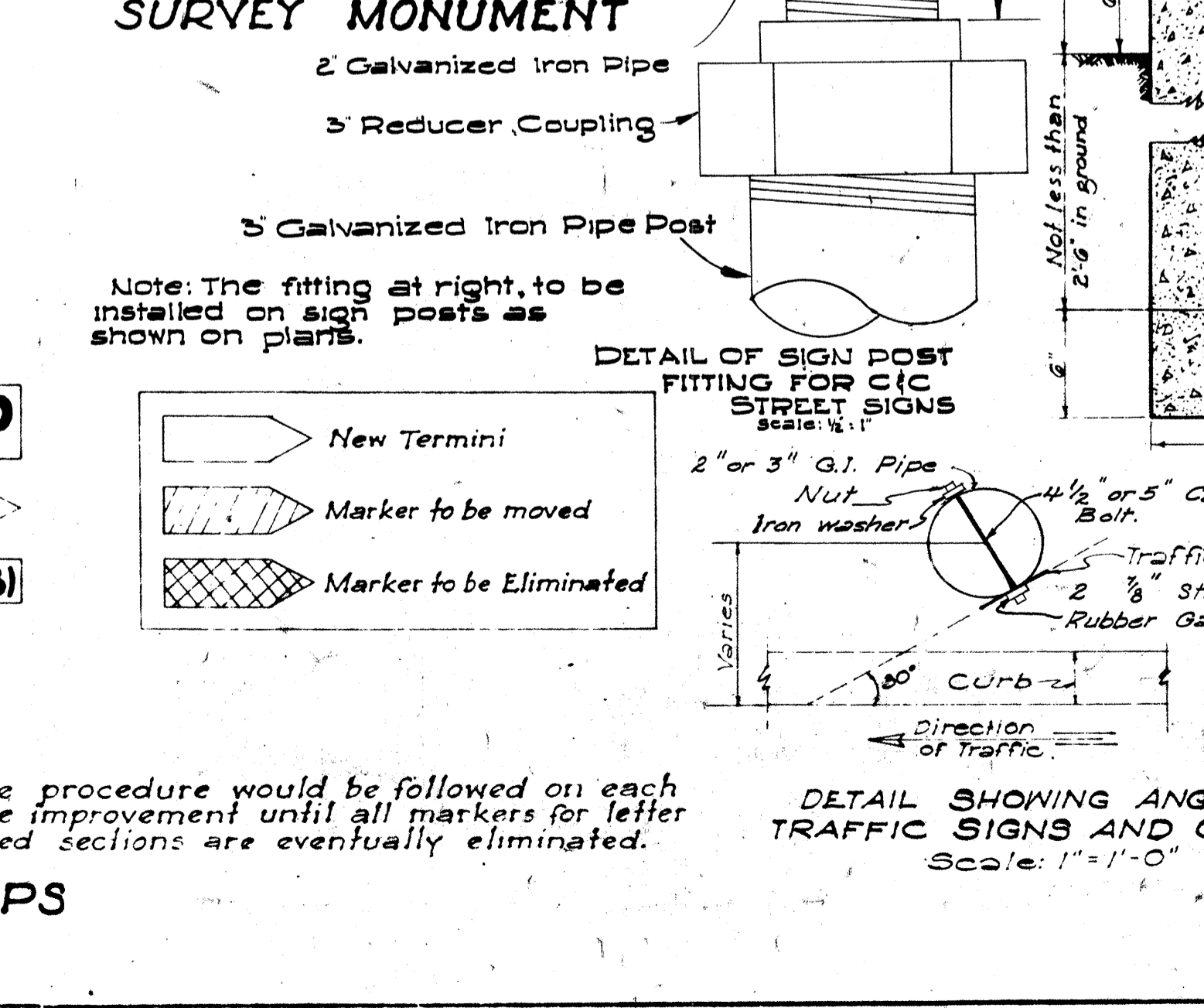
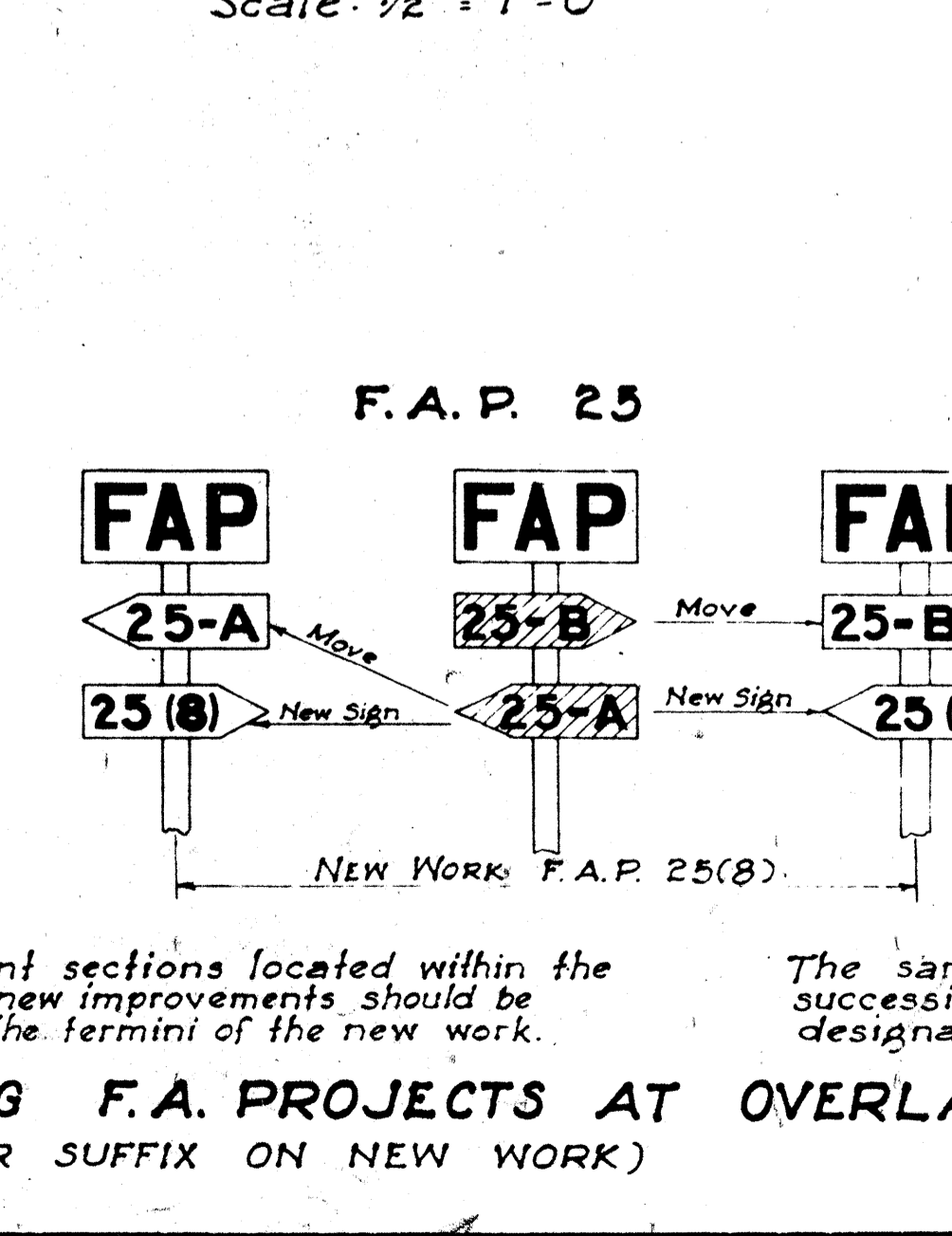
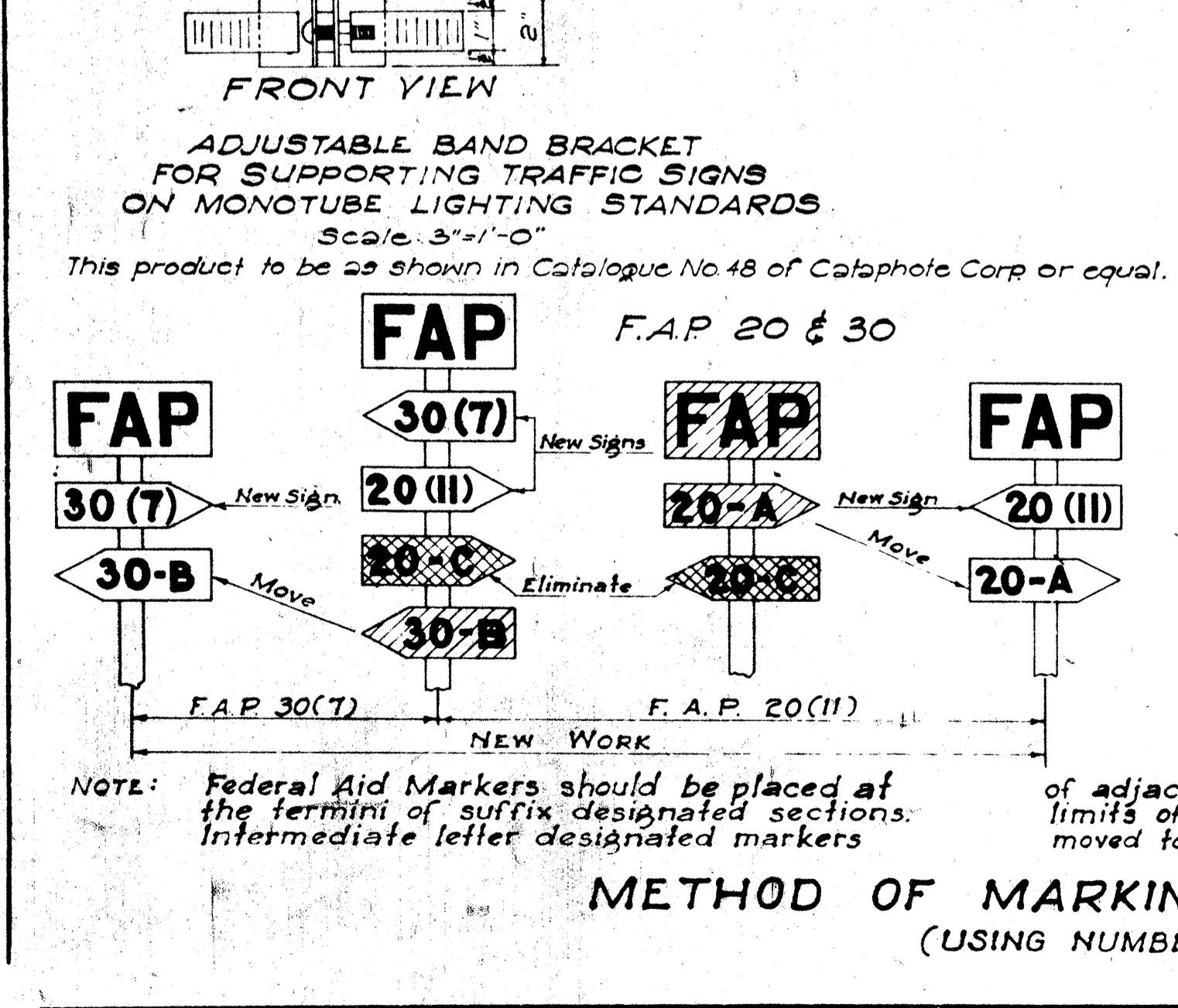
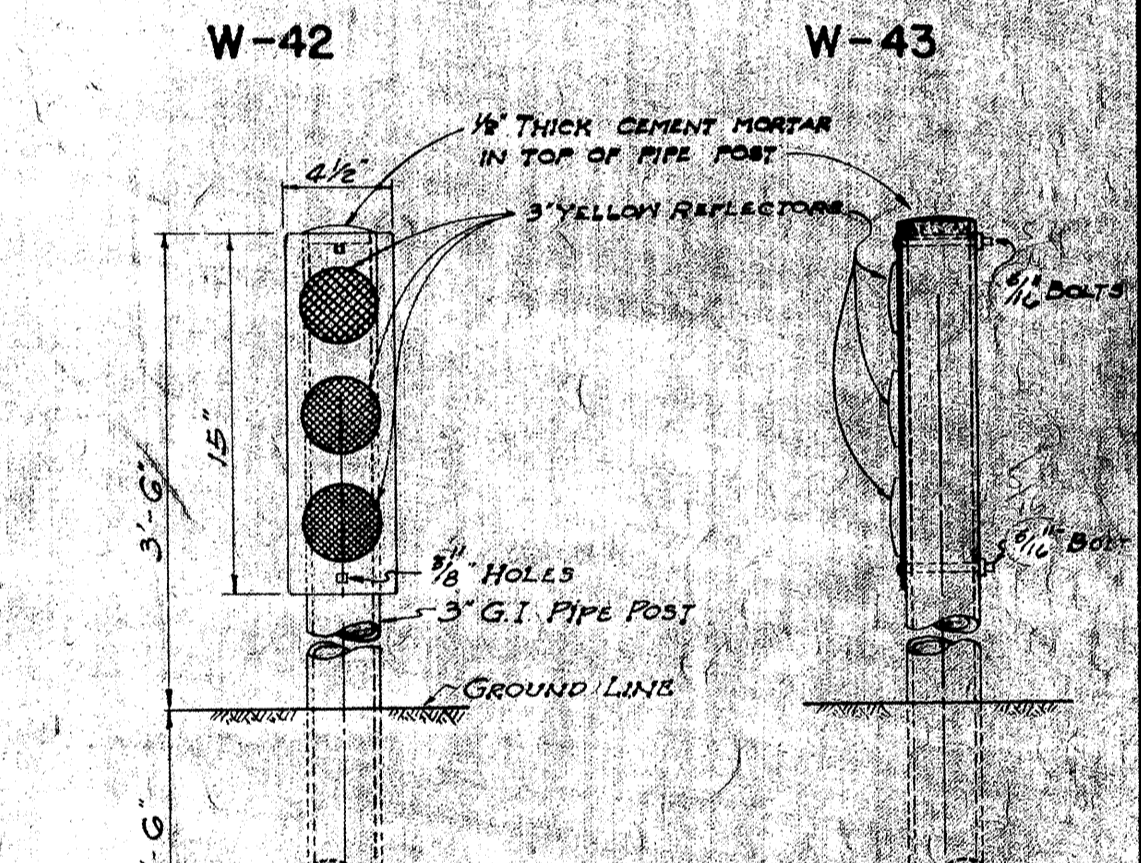
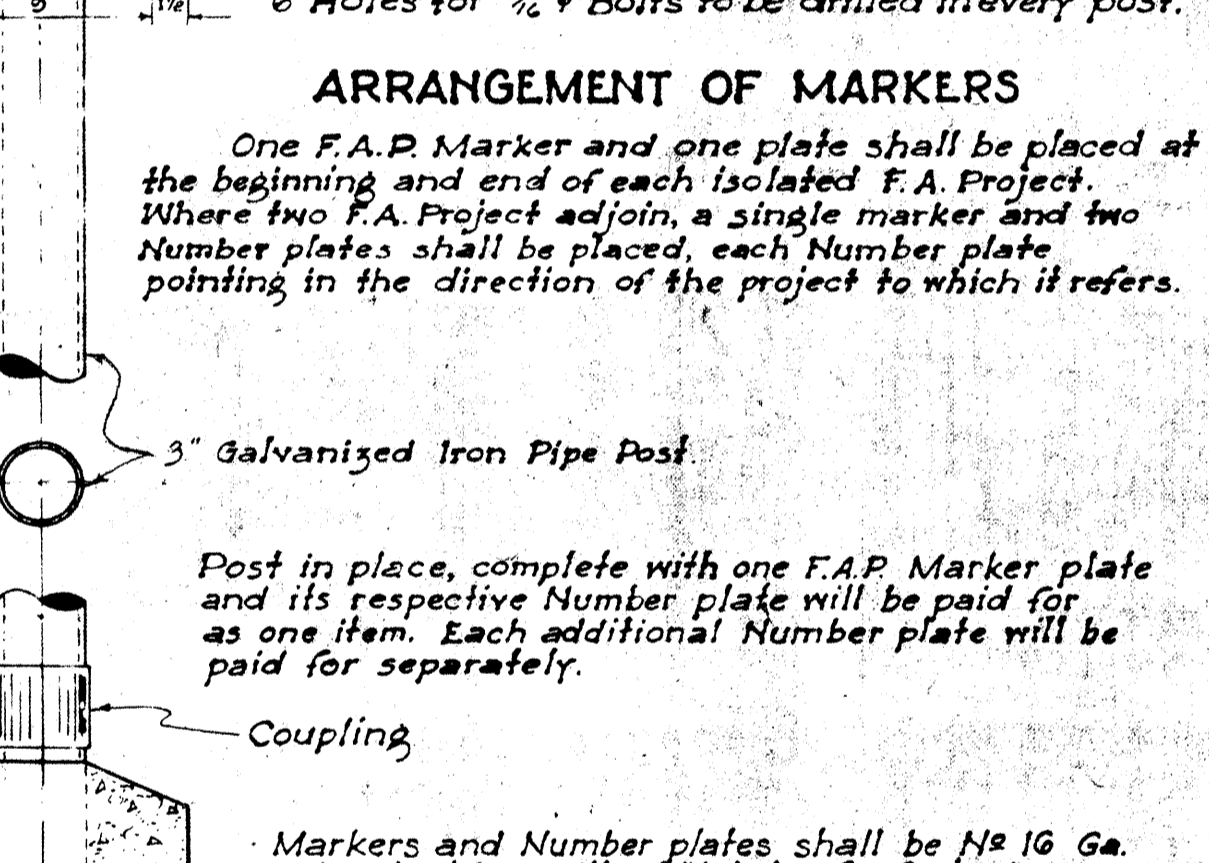
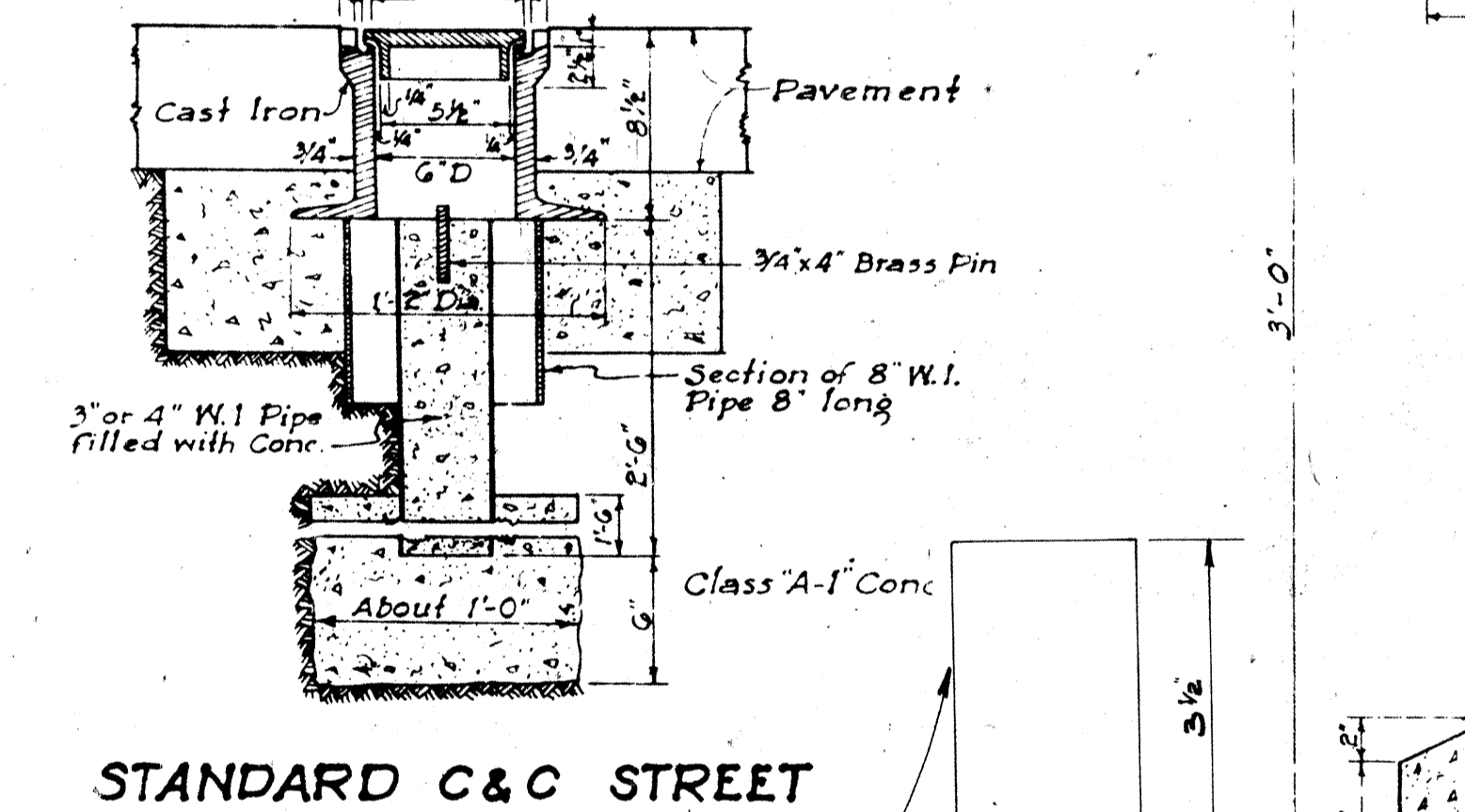
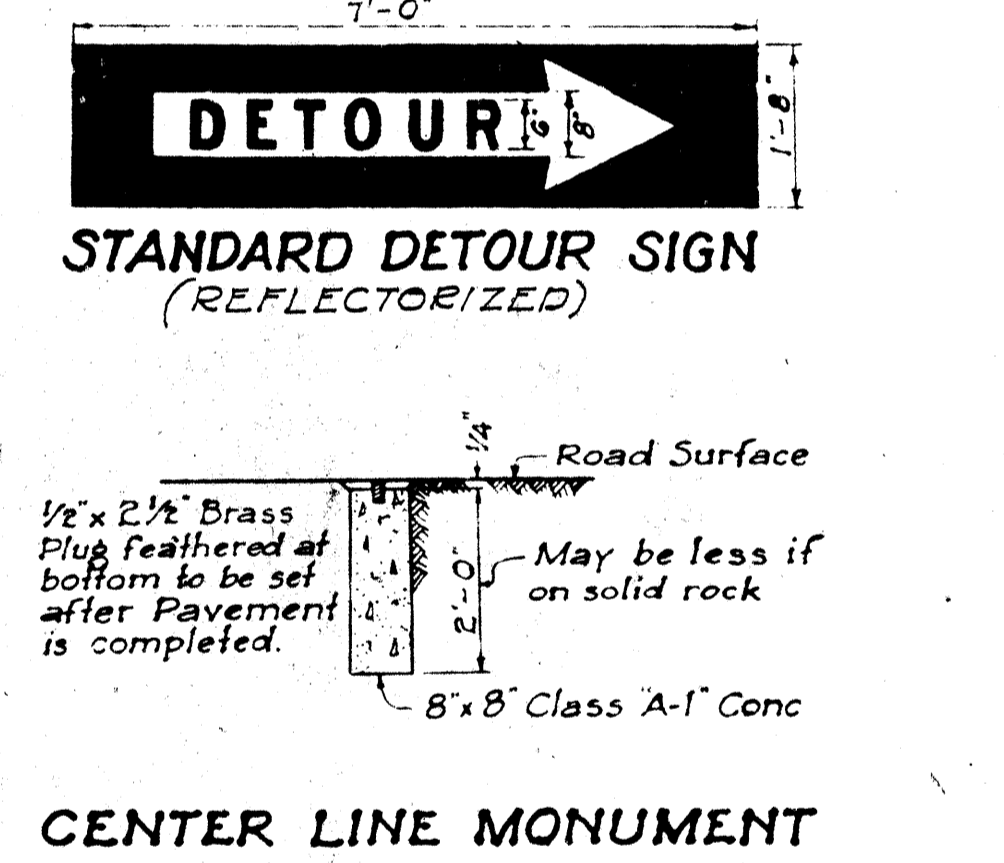
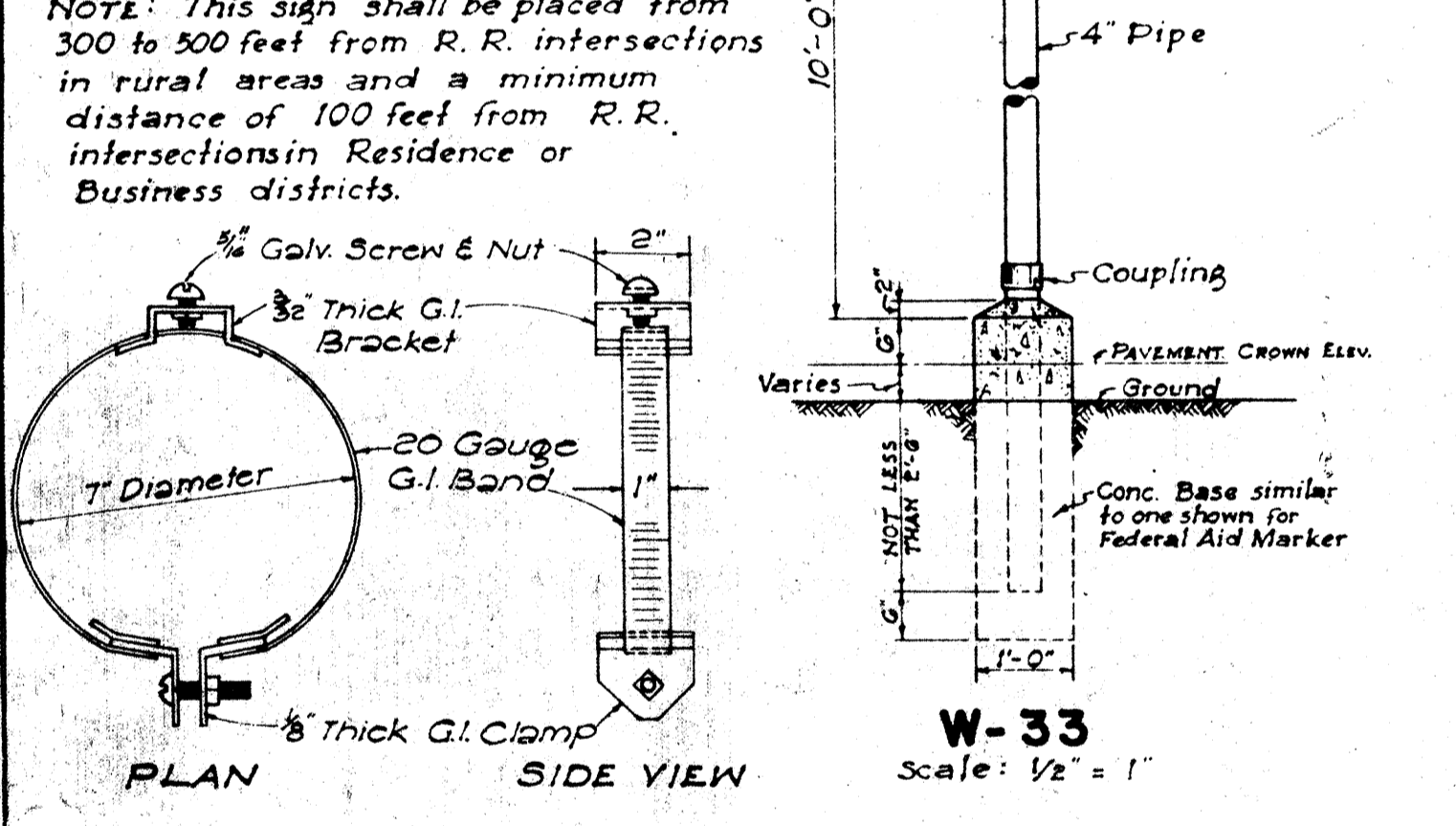
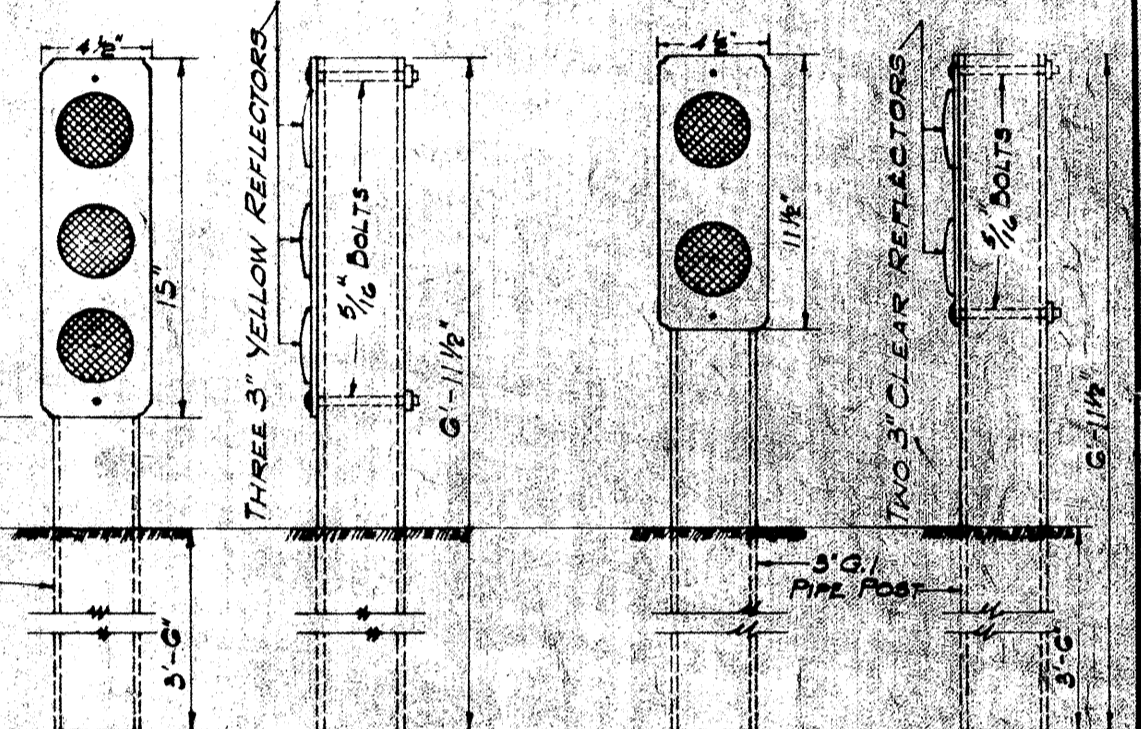
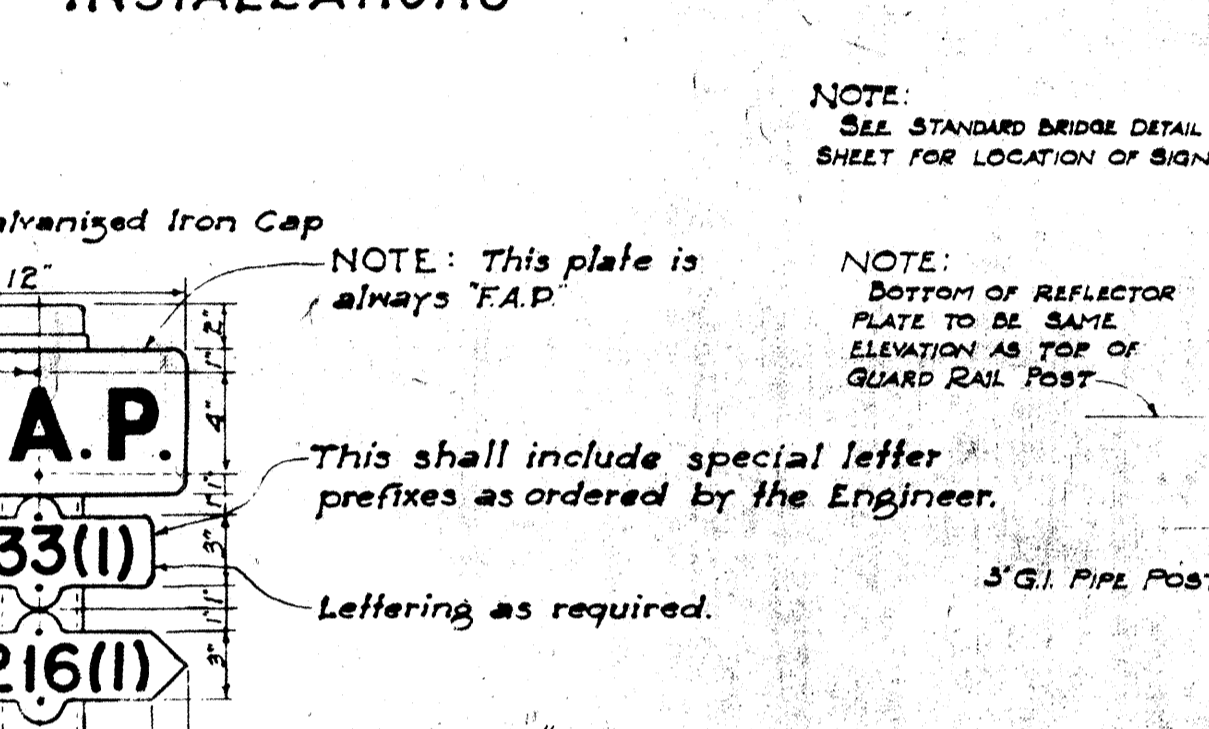
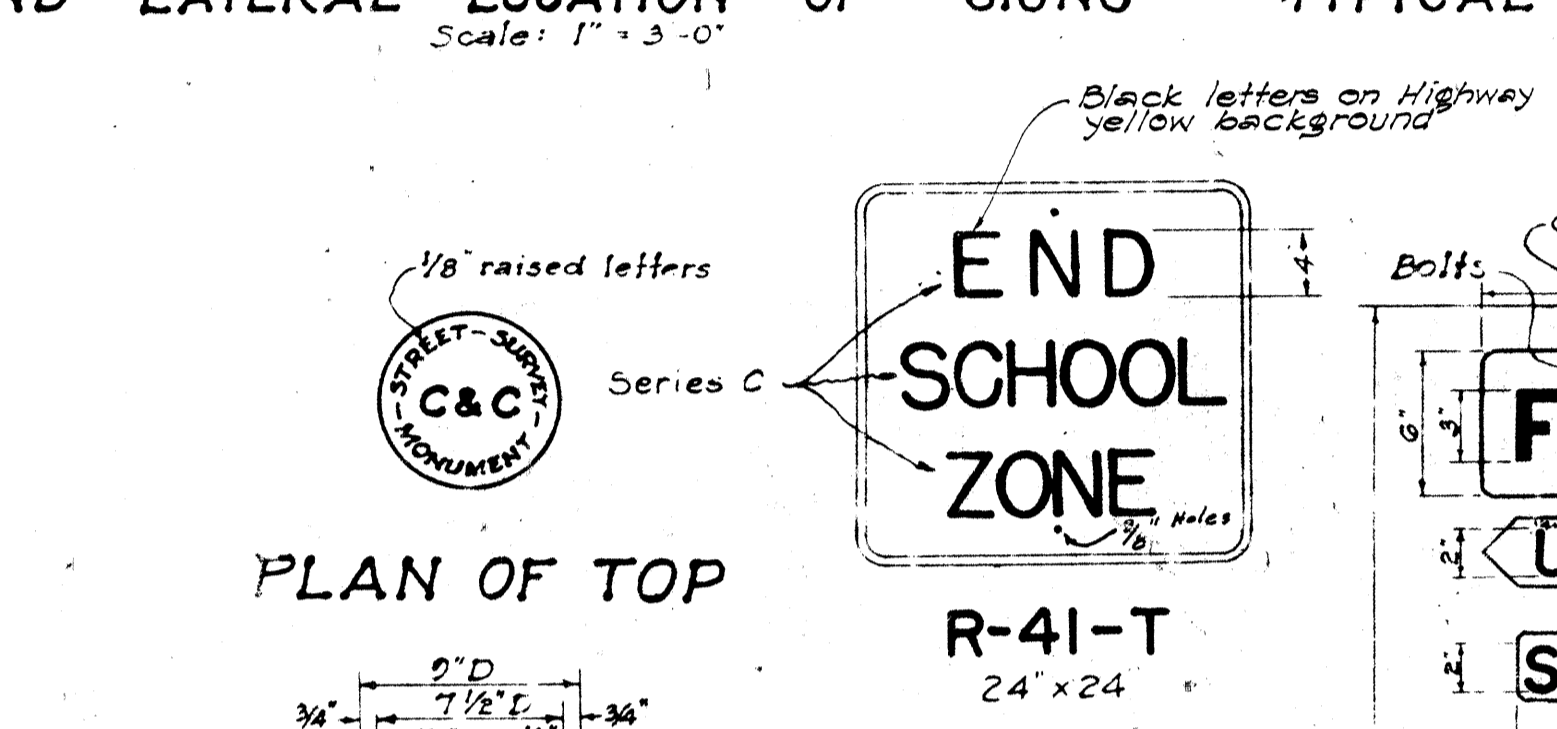
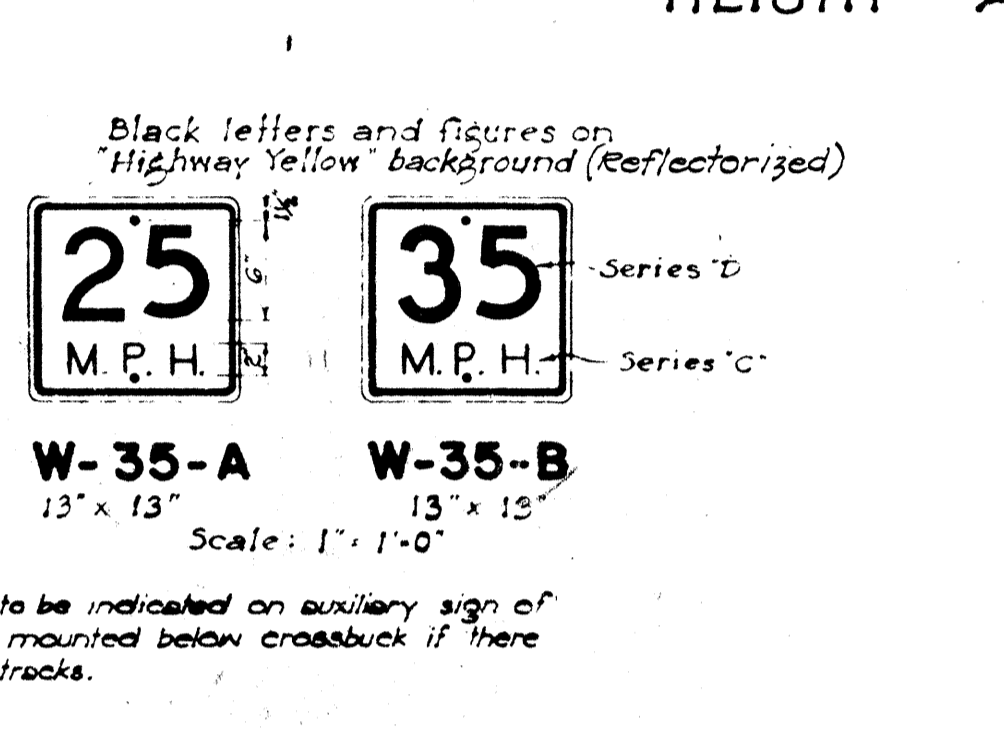
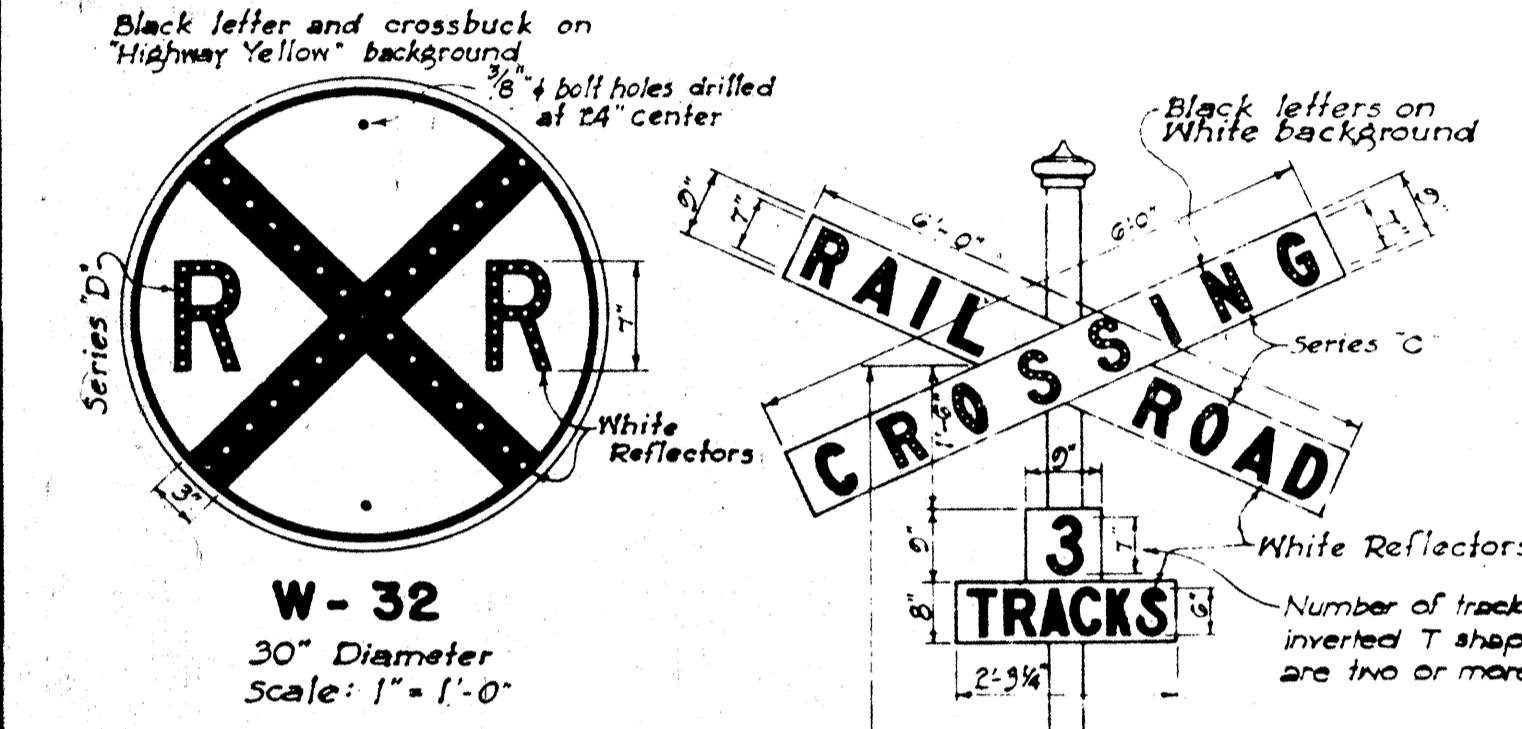
NOTE: Stop Sign has been revised 12/10/54

1/29/54

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BF-011-(C)	1960	15	61



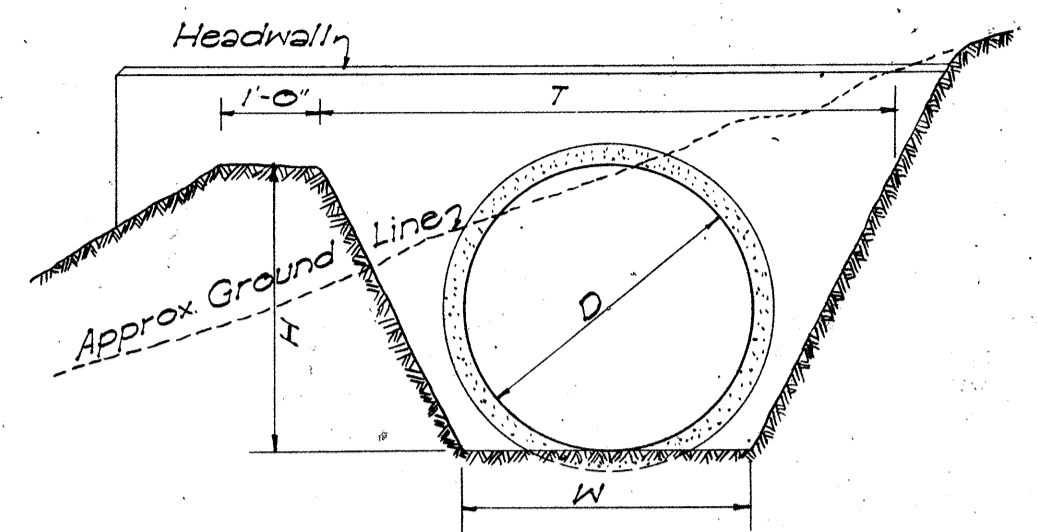
HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATIONS
Scale: 1" = 3'-0"



2/17/57

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"

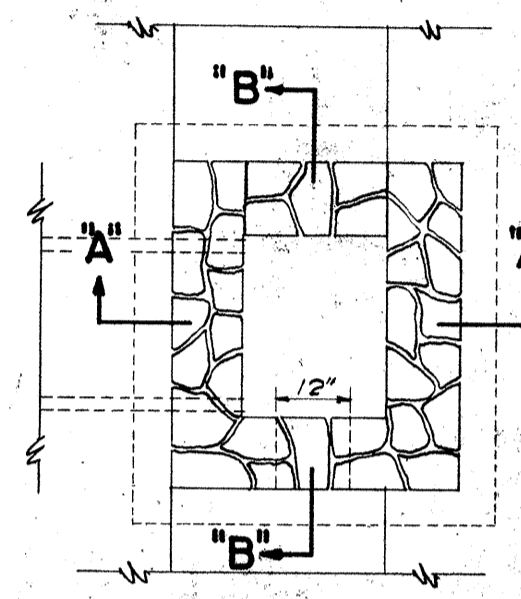


DETAIL OF OUTLET DITCH
Scale: 1/2" = 1'-0"

DATA FOR MASONRY DROP INTAKE

D'	D	L'D+G'	Cu Yds.	Where Variables Equal
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"

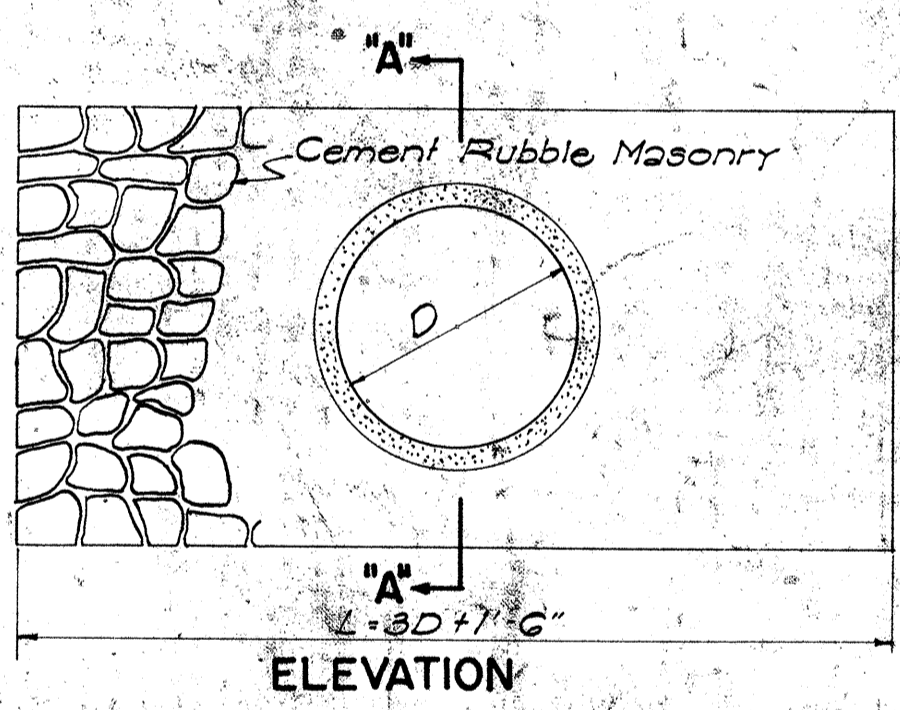
NOTE:
Dimension 'X' is assumed as 2'-4" in figuring the above quantities.



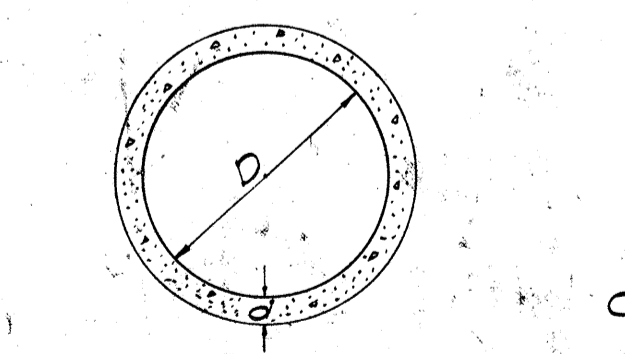
DETAIL OF MASONRY DROP INTAKE
Scale: 3/8" = 1'-0"

DATA - MASONRY HEADWALL

D	H	B	L	Cast-in-Place Conc. Culvert Cu Yds.	Conc. Pipe Culvert Cu Yds.	Corrugated Pipe Culvert Cu Yds.
18"	3'-6"	1'-0"	6'-0"	0.85	0.05	0.03
24"	4'-0"	2'-0"	7'-6"	1.45	1.41	1.41
30"	4'-6"	2'-3"	9'-0"	1.83	2.06	2.00
36"	5'-0"	2'-6"	10'-6"	2.40	2.84	2.72

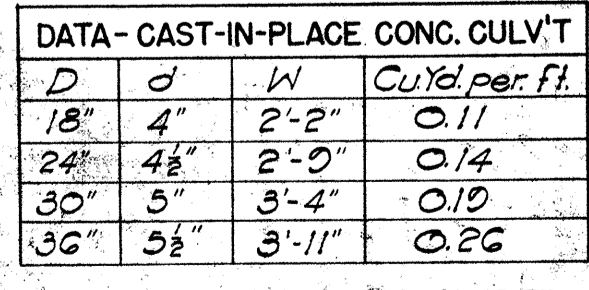


DETAIL OF MASONRY HEADWALL
Scale: 1/2" = 1'-0"



CONC. PIPE CULVERT

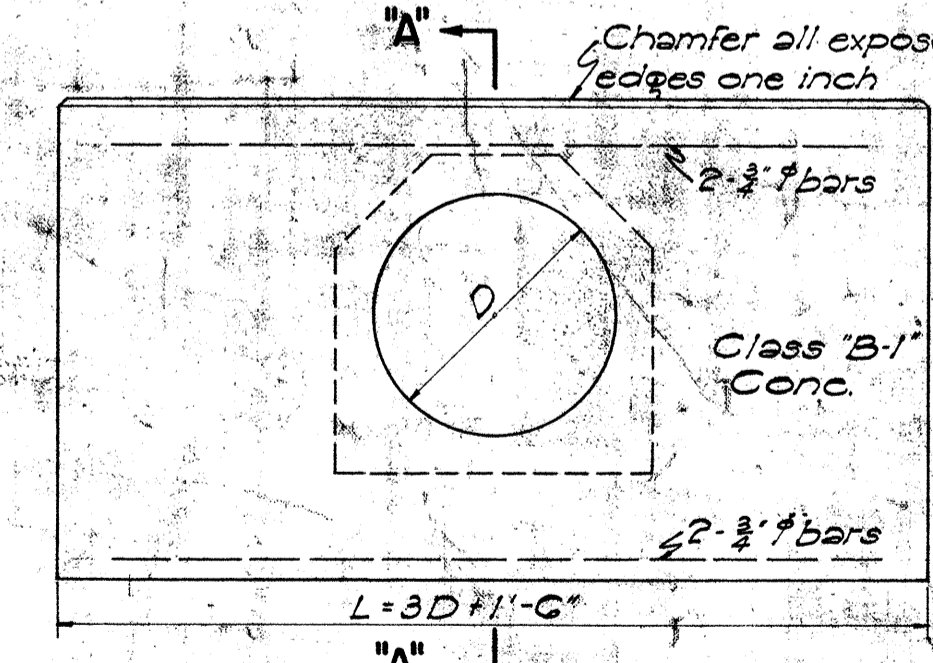
NOTE:
Thickness 'd', reinforcing, and concrete used, are to conform with the approved design as provided by the Specifications.



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"	0.10
36"	5 1/2"	3'-11"	0.06

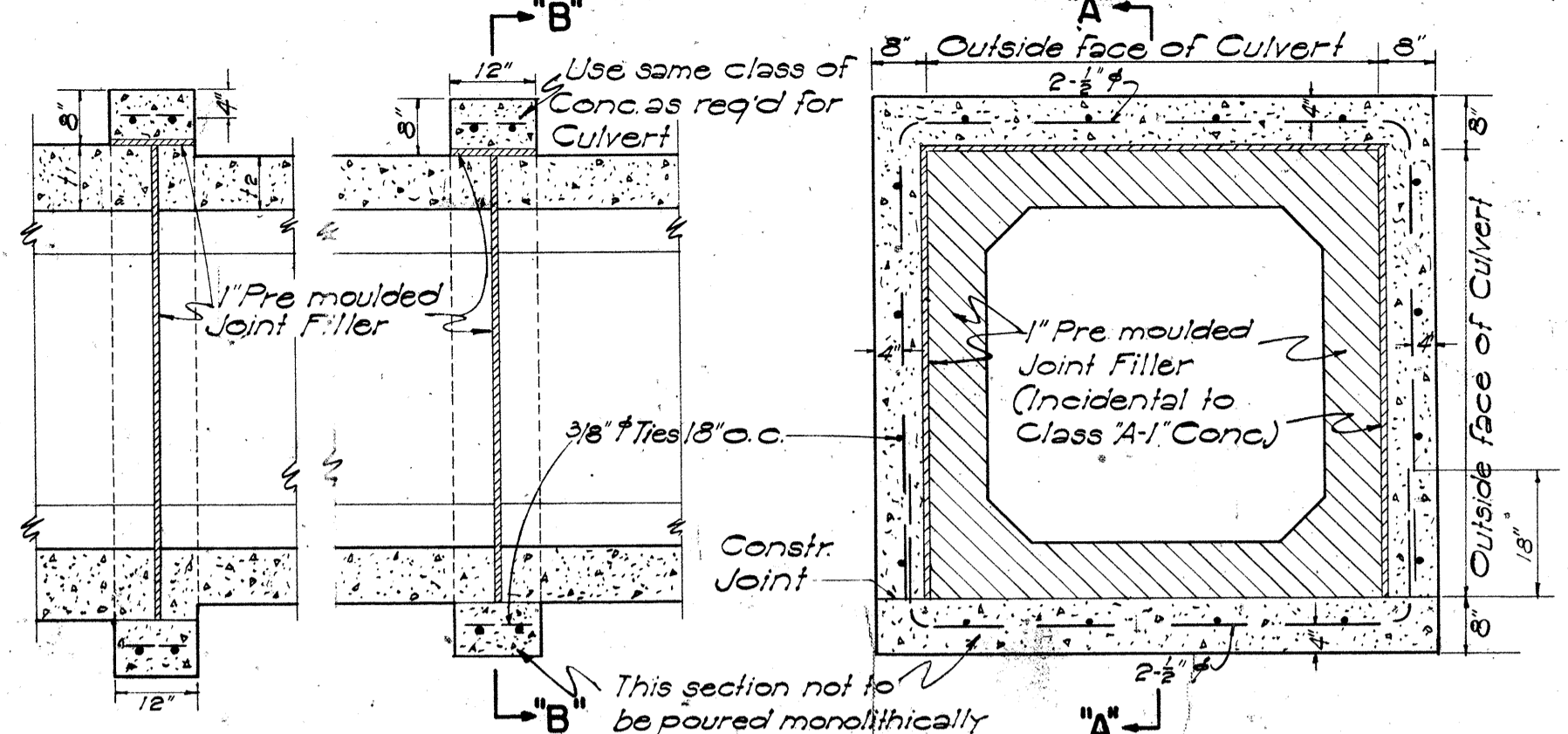


DETAIL OF CONCRETE HEADWALL
Scale: 1/2" = 1'-0"

DATA FOR CONCRETE HEADWALL

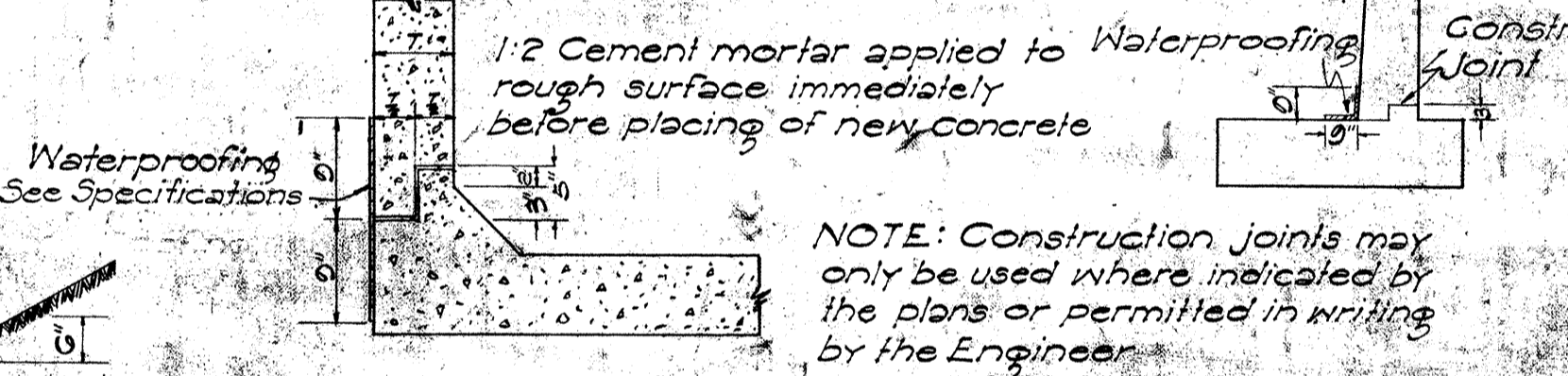
D	B	L	H	Cast-in-Place Conc. Culvert Cu Yds.	Conc. Pipe Culvert Cu Yds.	Steel For One Headwall
18"	1'-6"	6'-0"	4'-0"	0.02	1.00	No. of Bars Size Length Lbs.
24"	1'-6"	7'-6"	4'-6"	1.25	11.38	4 3/4" 7'-0" 22
30"	2'-0"	9'-0"	5'-0"	1.05	2.17	4 1/2" 8'-6" 21
36"	2'-0"	10'-6"	5'-6"	2.45	2.74	4 1/2" 10'-0" 60
42"	2'-6"	12'-0"	6'-0"	3.87	4.44	4 1/2" 11'-6" 60
48"	2'-6"	13'-6"	6'-6"	4.66	4.66	4 1/2" 13'-0" 78

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



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

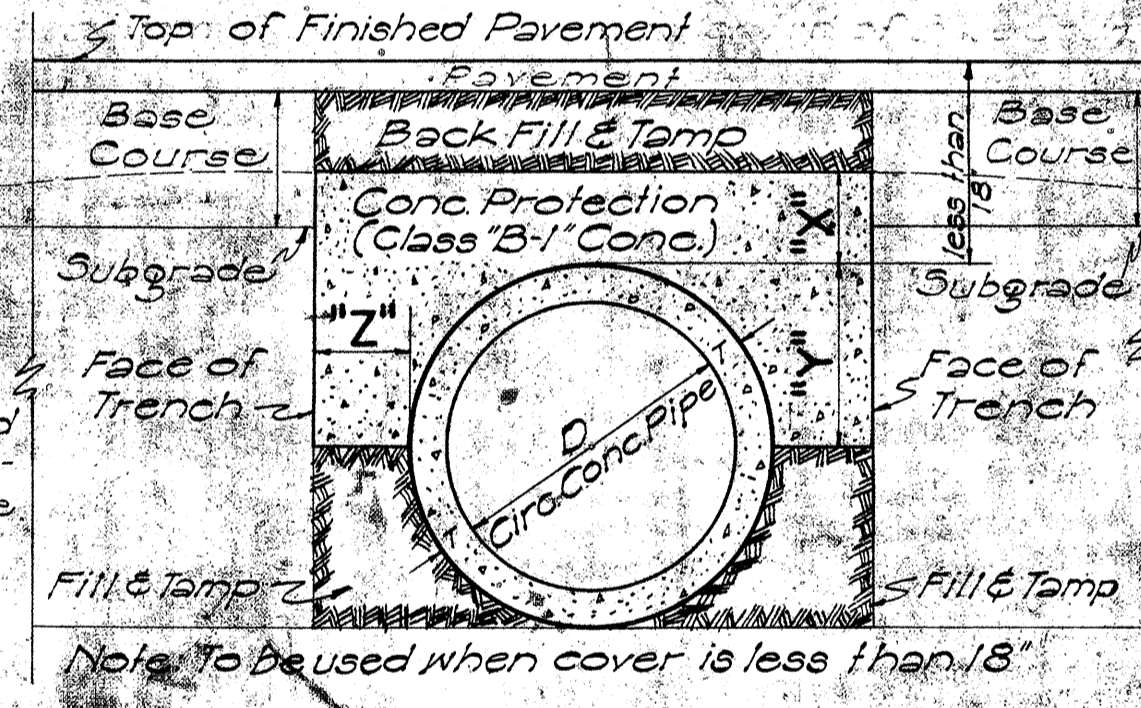
REINFORCING BARS
All reinforcing bars for concrete shall be Billet Steel bars, ASTM A15, intermediate grade. Steel shall be made by the open-hearth process. All bars shall be deformed type conforming to ASTM A-305.



CONSTR. JOINT DETAILS

NOTE: Construction joints may only be used where indicated by the plans or permitted in writing by the Engineer.

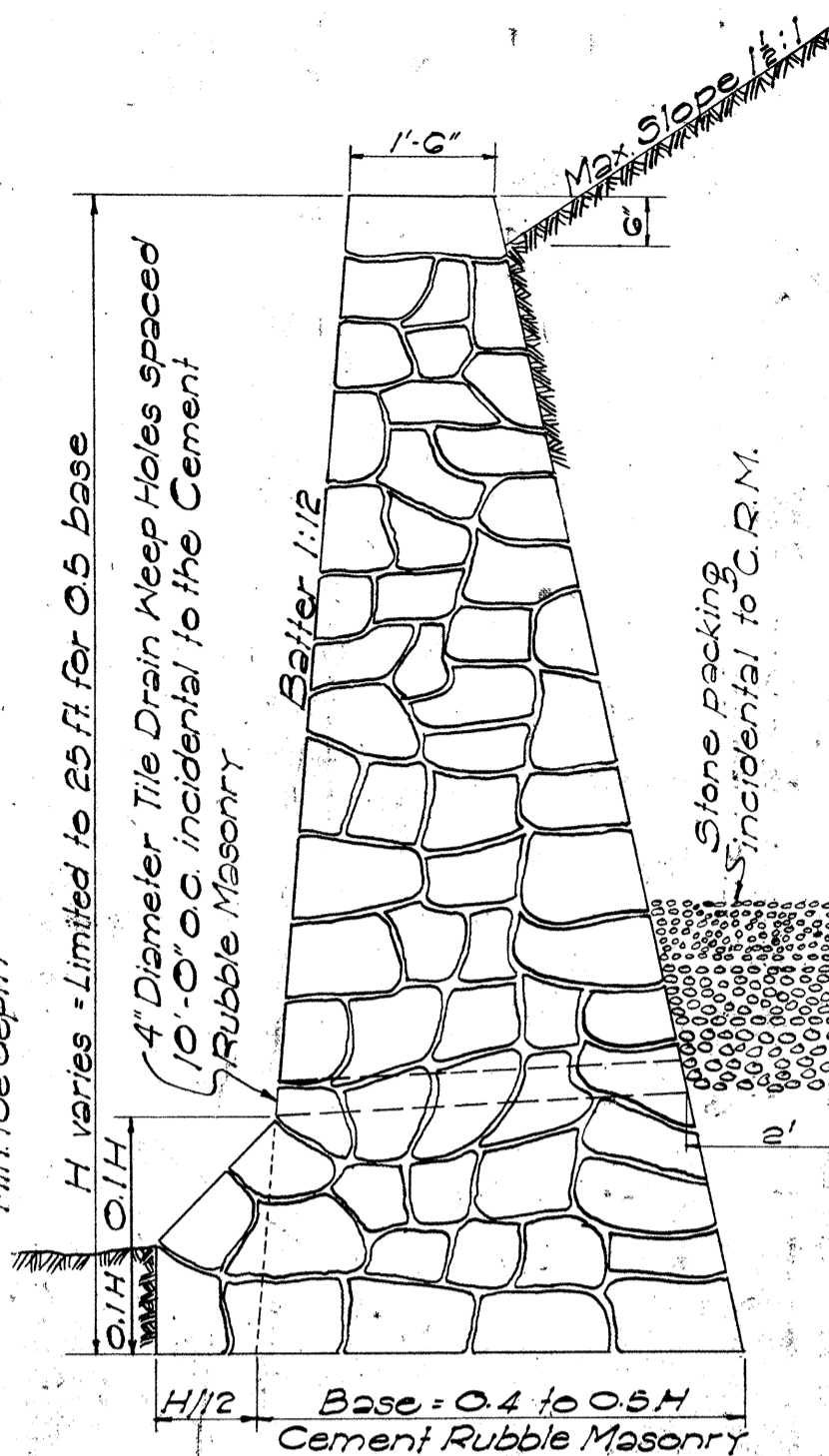
Note:
When subgrade is below top of jacket, it shall be fully compacted to this line and then re-excavated (struc. exc.) to proper subgrade. This surface shall be rolled again.



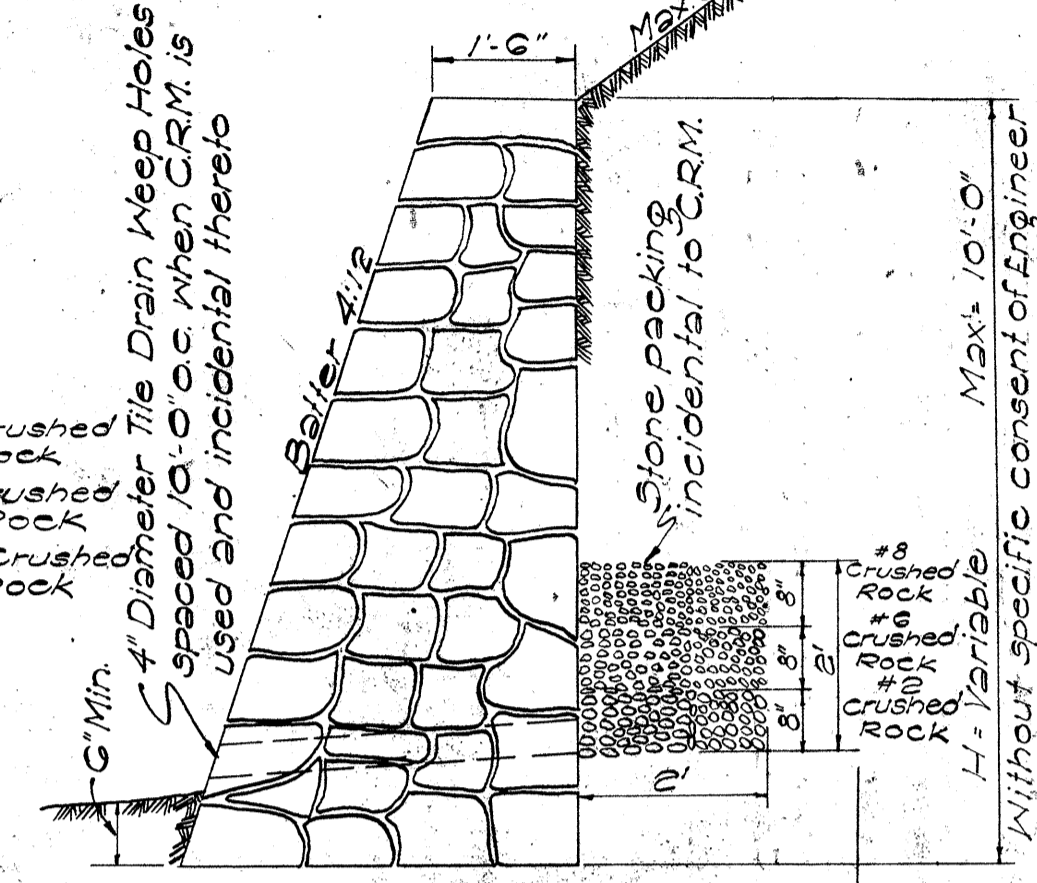
DATA FOR CONCRETE PROTECTION OVER CULVERTS

X	Y	Z
6" for 18" D		Z must be from pipe to face of trench
7" 24" D	D/2 + T	Minimum = X
8" 30" D		Maximum pay quantity will be Z=12"
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



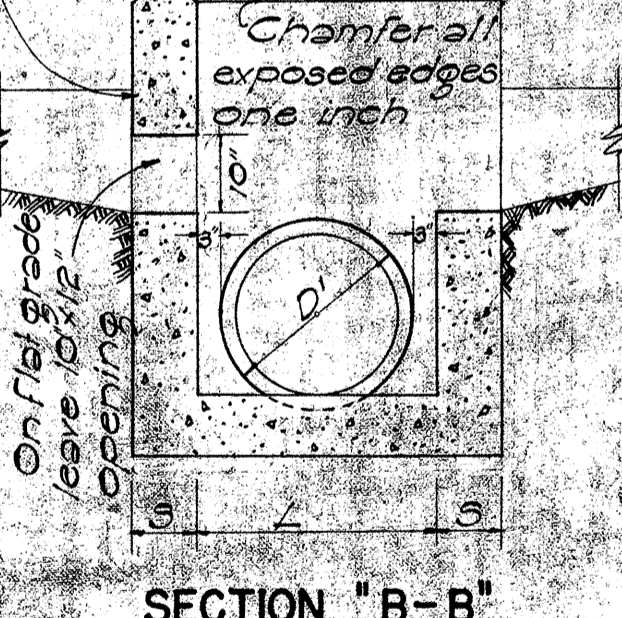
SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

DATA - CONC. DROP INTAKE

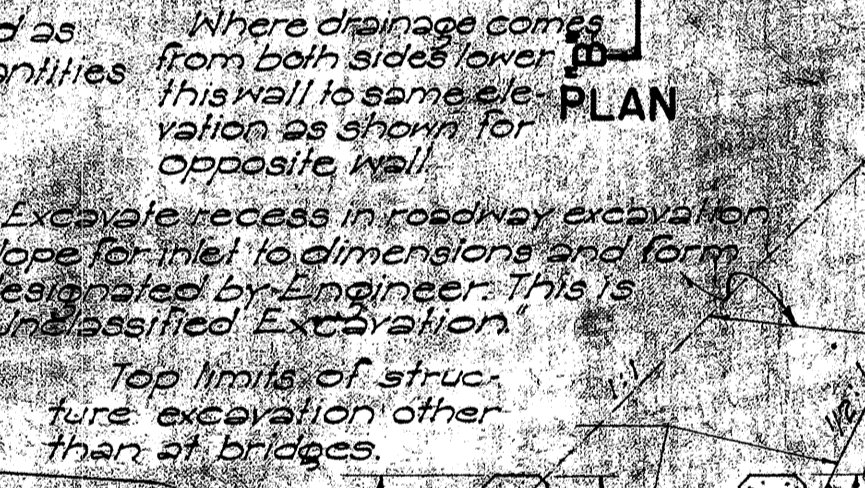
D'	D	L'D+G'	Cu Yds.	Where Variables Equal
23"	18"	2'-5"	1.41	4'-6"
30"	24"	3'-0"	1.72	5'-0"
37"	30"	3'-7"	2.32	5'-6"
44"	36"	4'-2"	2.73	6'-0"
51"	42"	4'-9"	3.54	6'-6"
58"	48"	5'-4"	4.01	7'-0"

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'

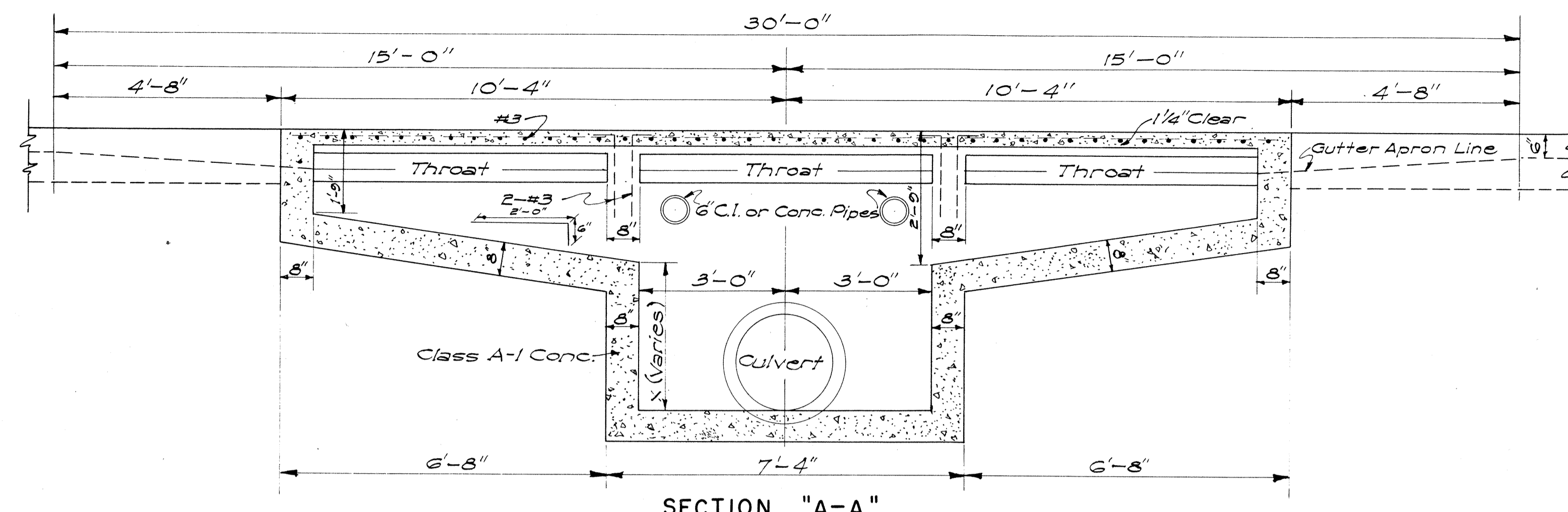
DETAIL OF CONCRETE DROP INTAKE
Scale: 1/2" = 1'-0"

APPROVED: DATE: AUG. 25, 1957
STATE HIGHWAY ENGINEER

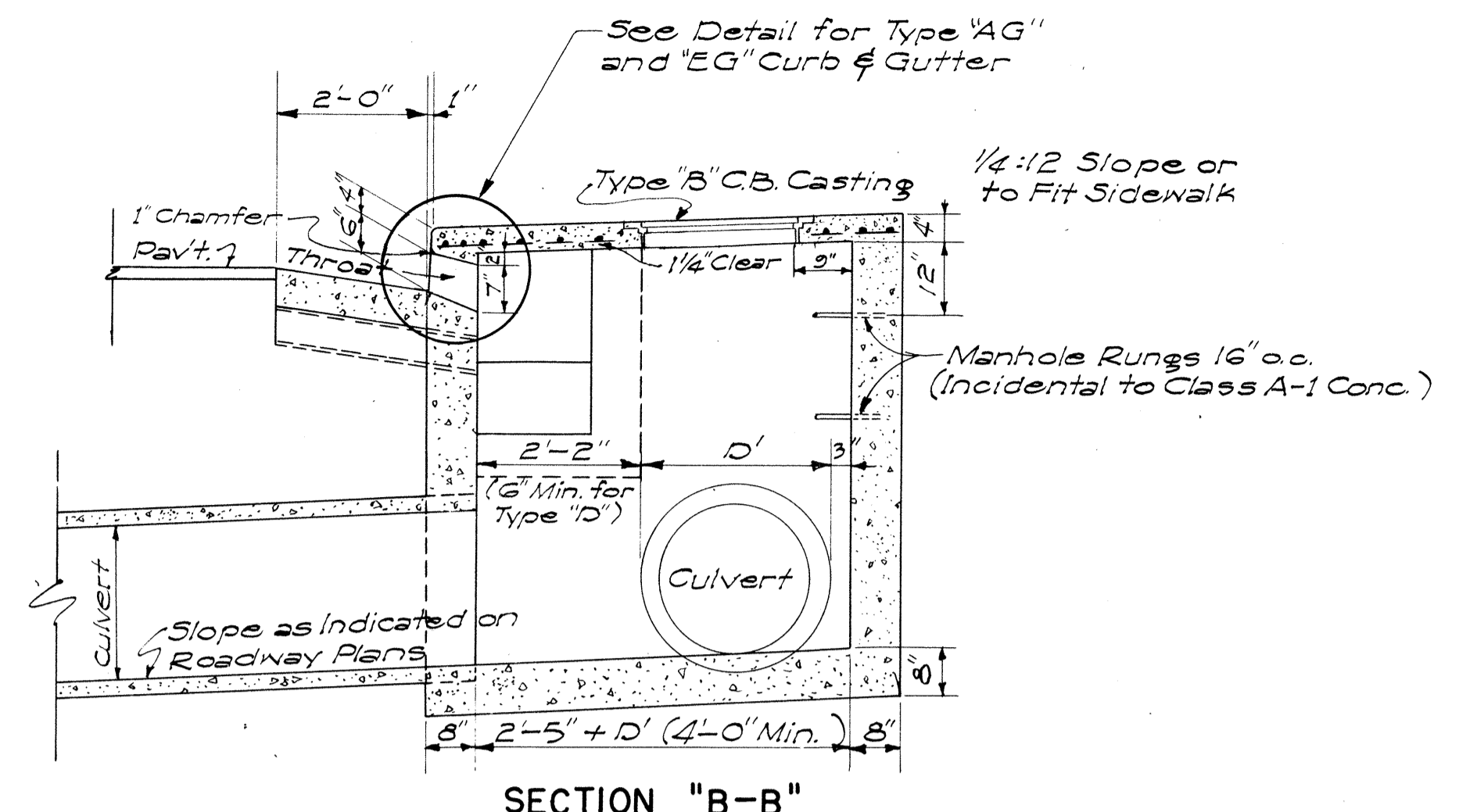
HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
DROP INTAKES, RETAINING WALLS,
HEADWALLS, CONSTRUCTION JOINTS
SCALES AS NOTED

2/17/59

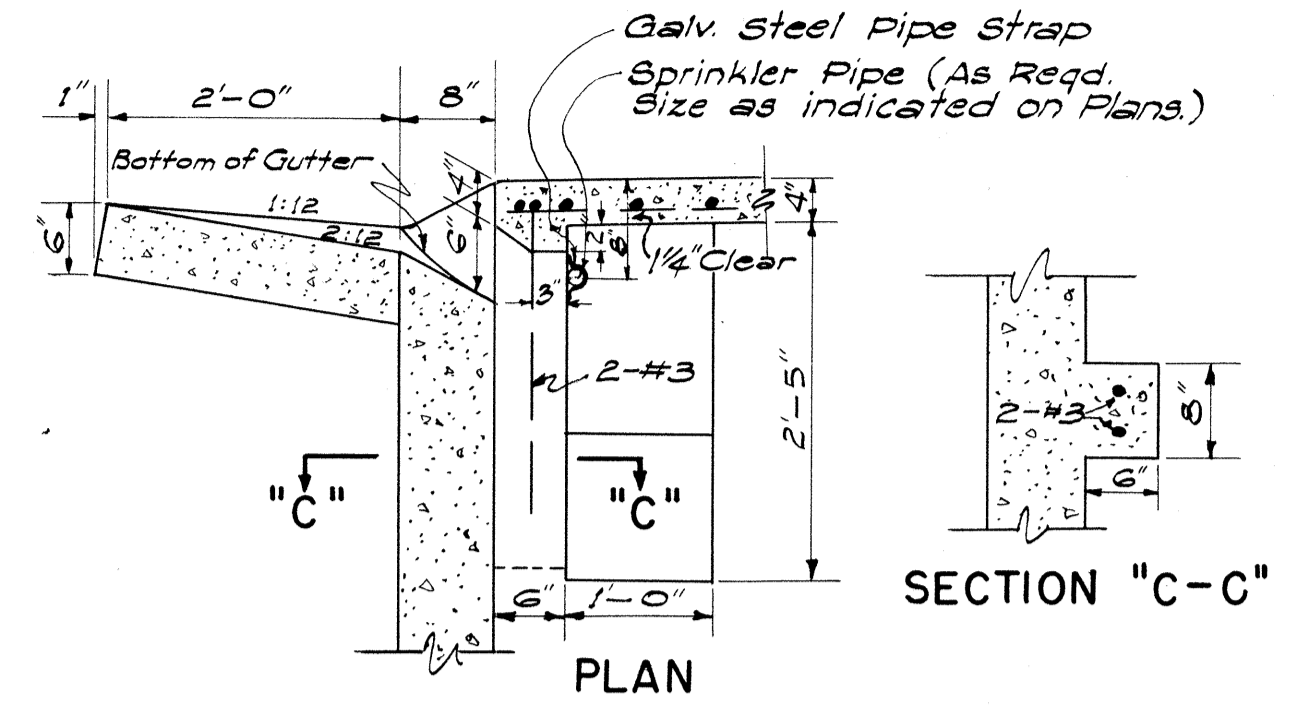
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2F061-1(B)	1960	17	61



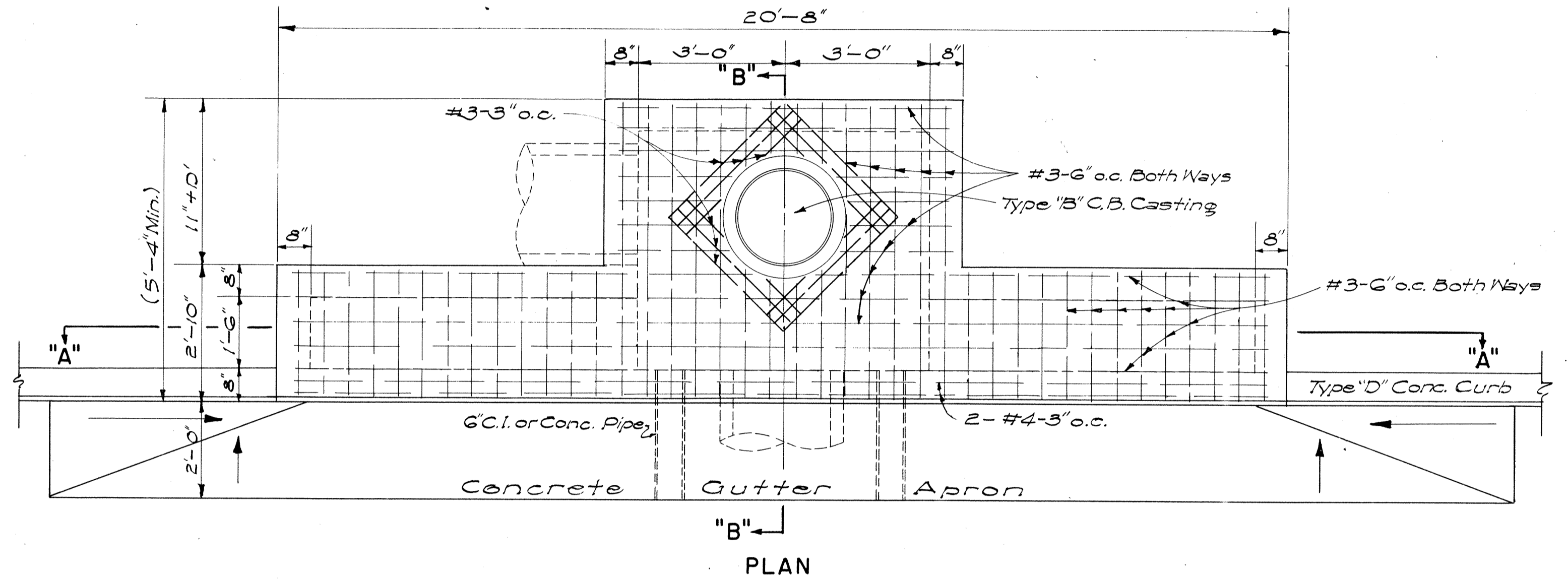
SECTION "A-A"



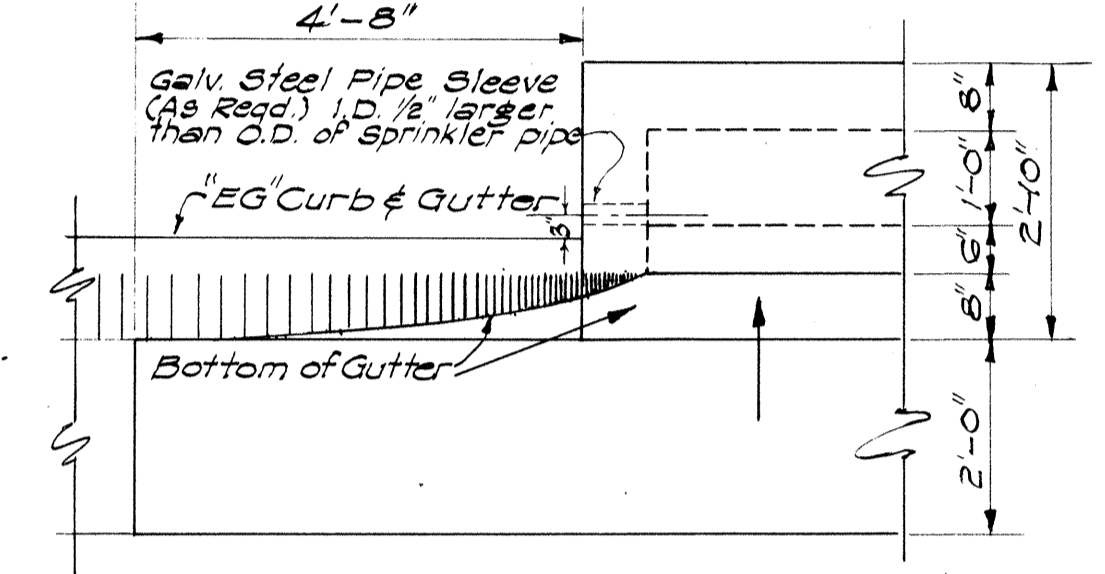
SECTION "B-B"



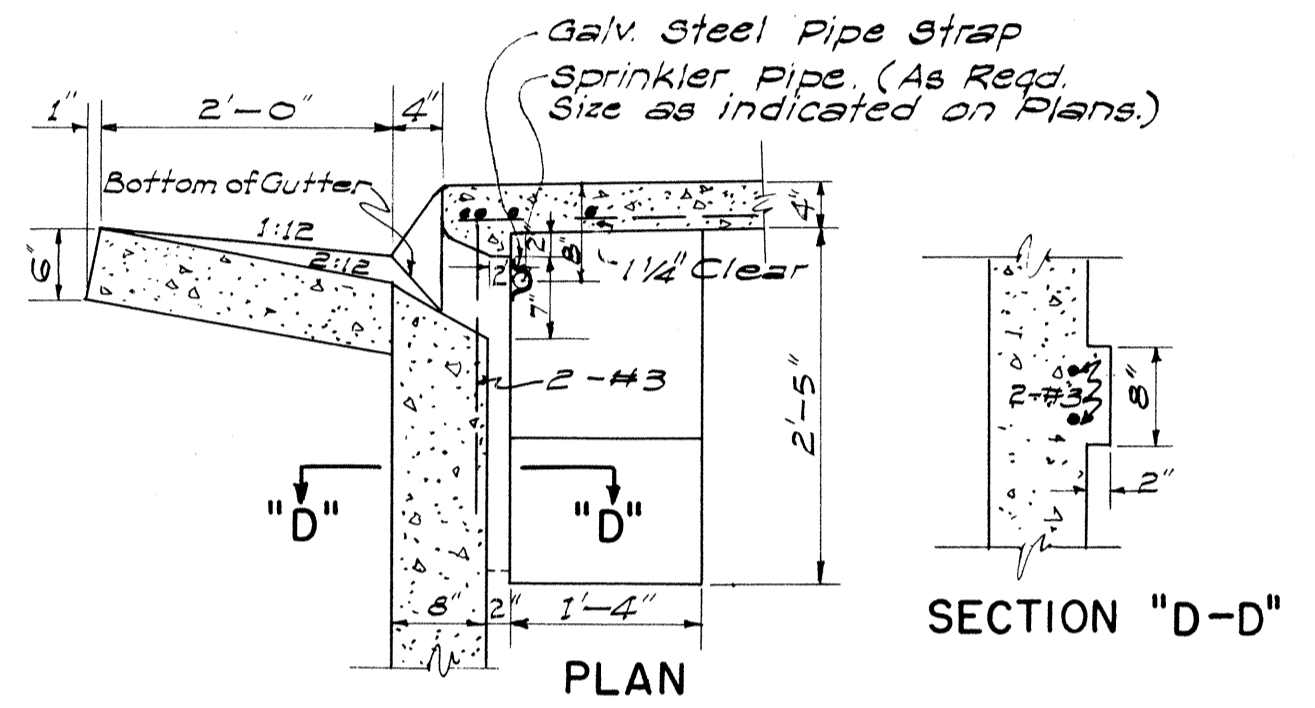
SECTION "C-C"
THROAT DETAIL FOR TYPE "EG" CURB & GUTTER
SCALE: 3/4" = 1'-0"



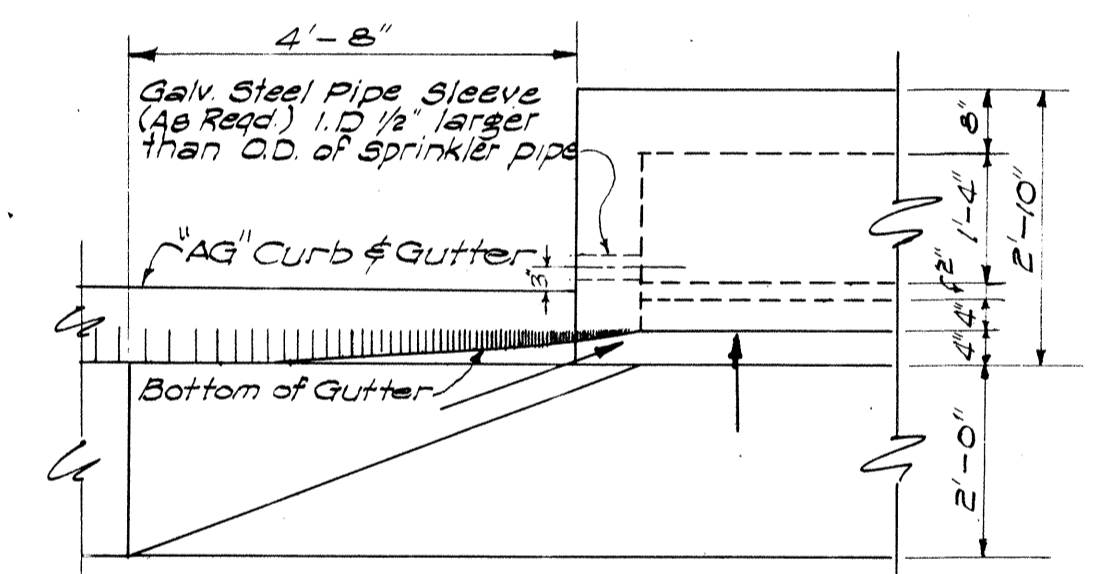
DETAIL OF TYPE "A" CATCH BASIN
SCALE: 1/2" = 1'-0"



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



SECTION "D-D"
THROAT DETAIL FOR TYPE "AG" CURB & GUTTER
SCALE: 3/4" = 1'-0"



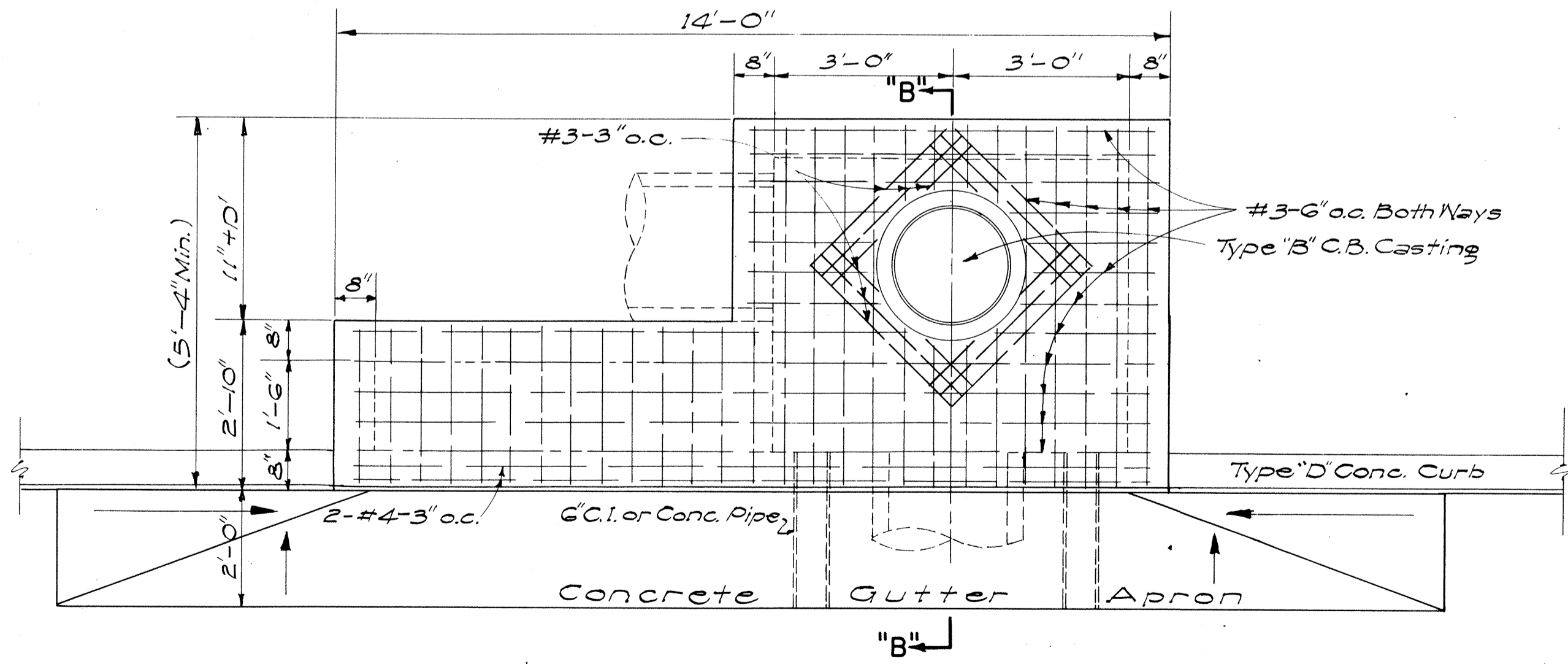
DETAIL OF CATCH BASIN WITH TYPE "AG" CURB & GUTTER
SCALE: 1/2" = 1'-0"

ESTIMATED QUANTITIES

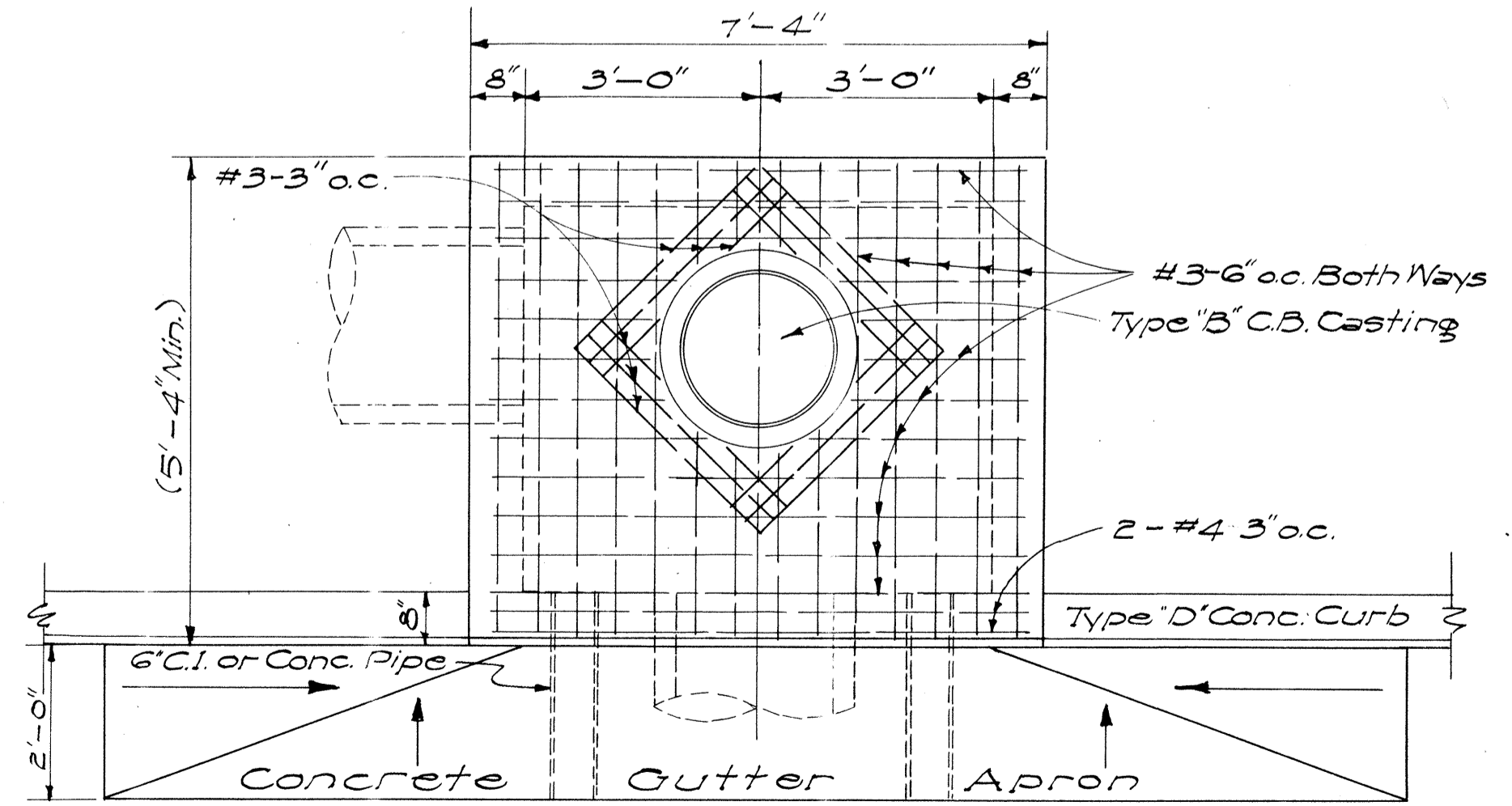
Type	Class A-1 Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 c.y.	24.7 c.y.	145 lb.	30'-0"
"B"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"C"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"D"	4.9 c.y.	16.5 c.y.	77 lb.	16'-8"

NOTES:

- Quantities based on X=3'-0" and D'=30"
- Quantities do not include concrete for Gutter Apron.
- The Contractor shall install 2'-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. 25, 1959
STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
CONCRETE CATCH BASINS
SCALES AS NOTED
SHEET No 5 OF 7 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
CHECKED BY: _____
NOTE BOOK QUANTITIES BY: _____
ORIGINAL PLAN TRACED BY: _____

8148.17

2/17/59
8/14/50

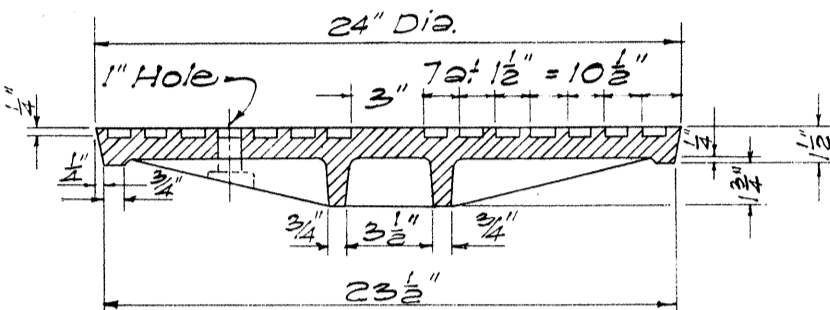
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BF-04-1(6)	1960	18	61

August 1957

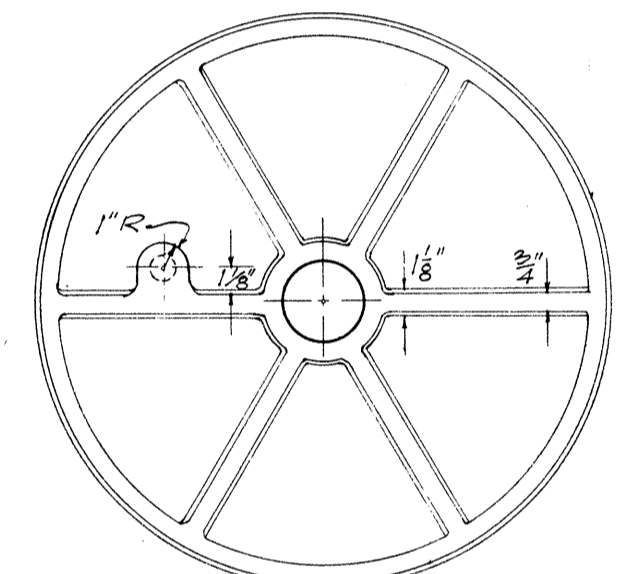
NOTE: Stock Pattern From Novelty Foundry ~ Honolulu



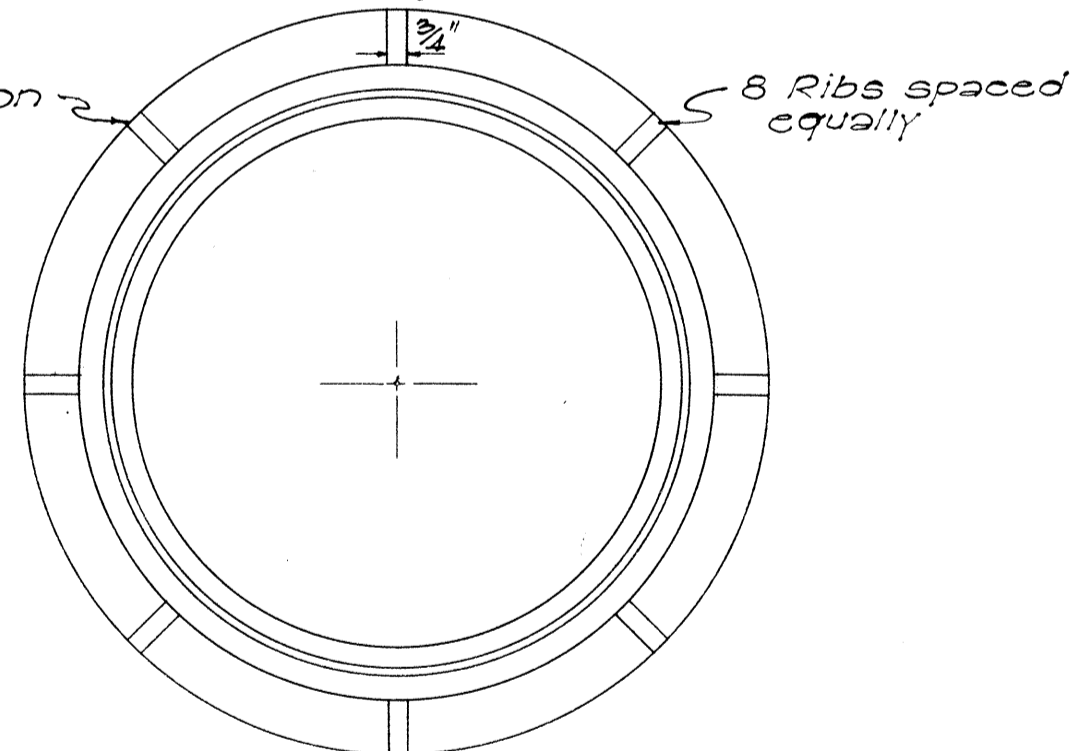
TOP VIEW OF COVER



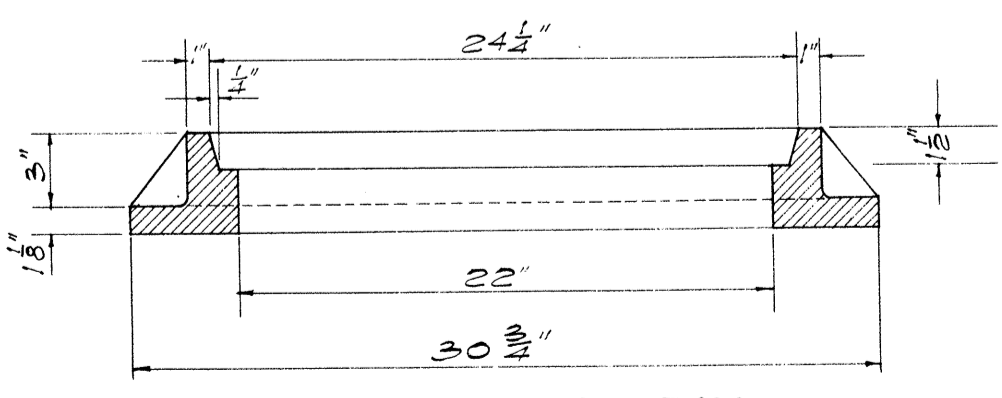
SECTION



BOTTOM VIEW OF COVER

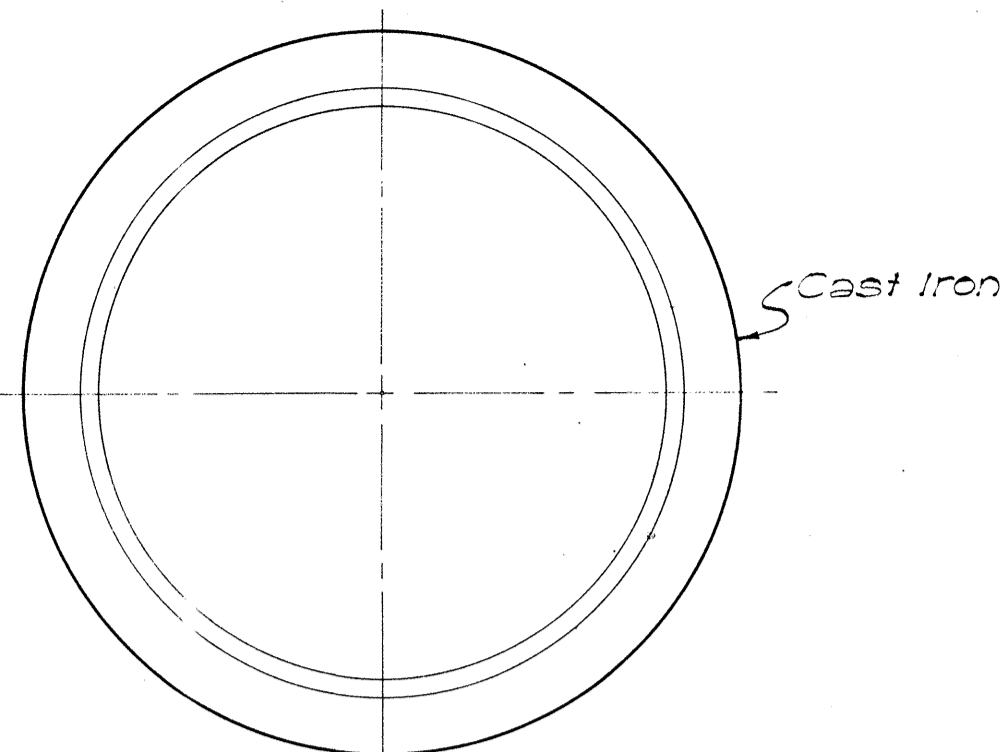


PLAN OF RIM

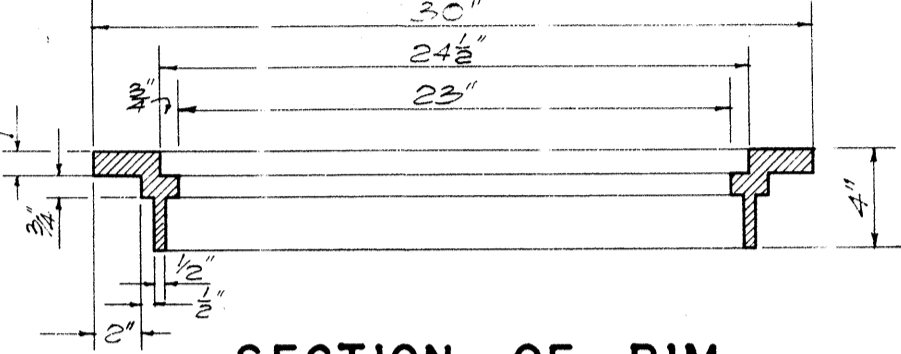


SECTION OF RIM
DETAILS OF TYPE "C"
MANHOLE CASTINGS

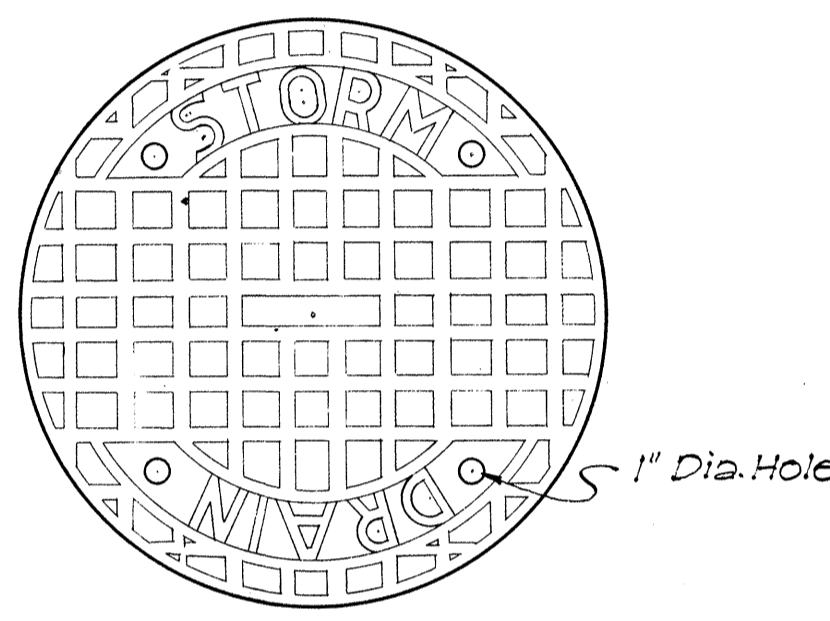
SCALE: 1-1/2" = 1'-0"



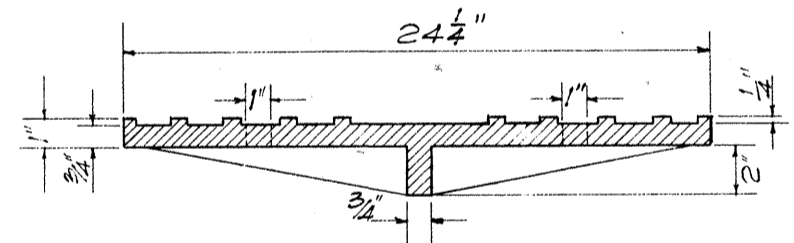
PLAN OF RIM



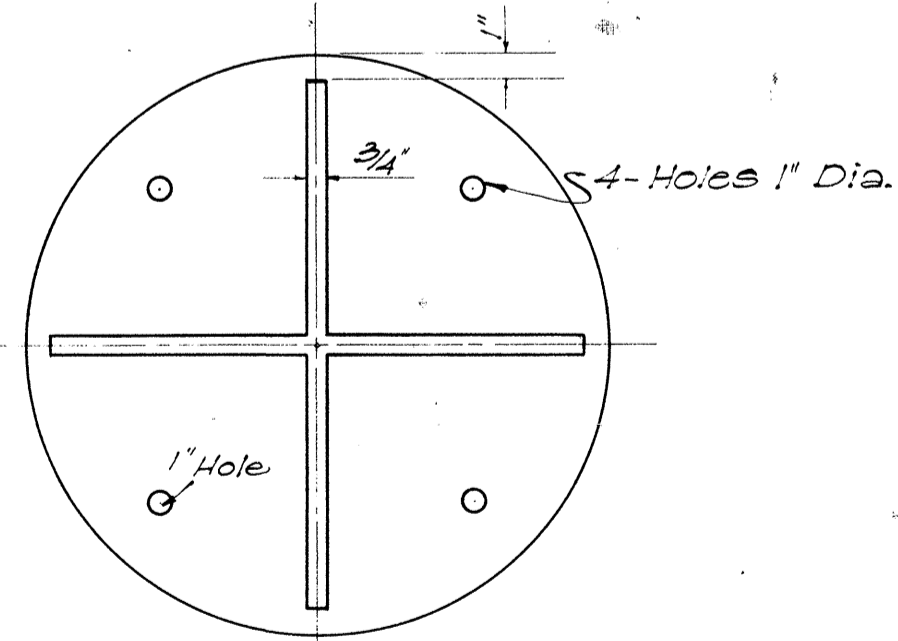
SECTION OF RIM



TOP VIEW OF COVER



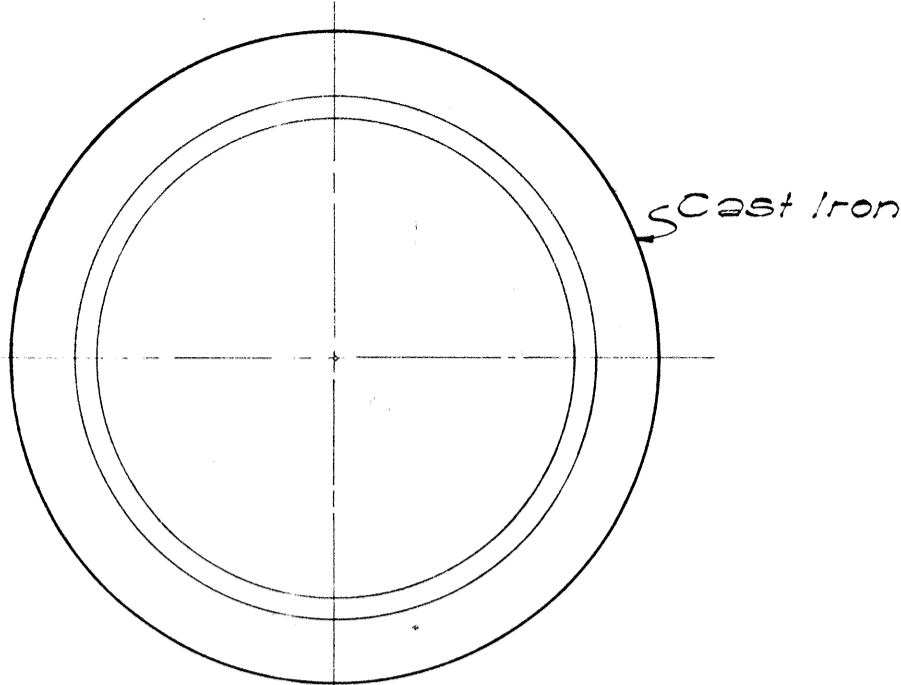
SECTION



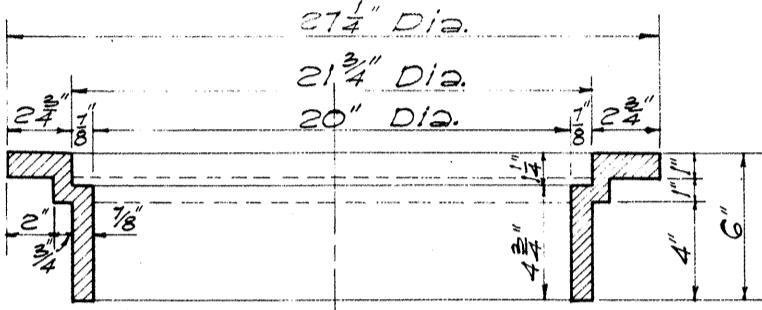
BOTTOM VIEW OF COVER

DETAILS OF TYPE "B"
CATCH BASIN CASTINGS

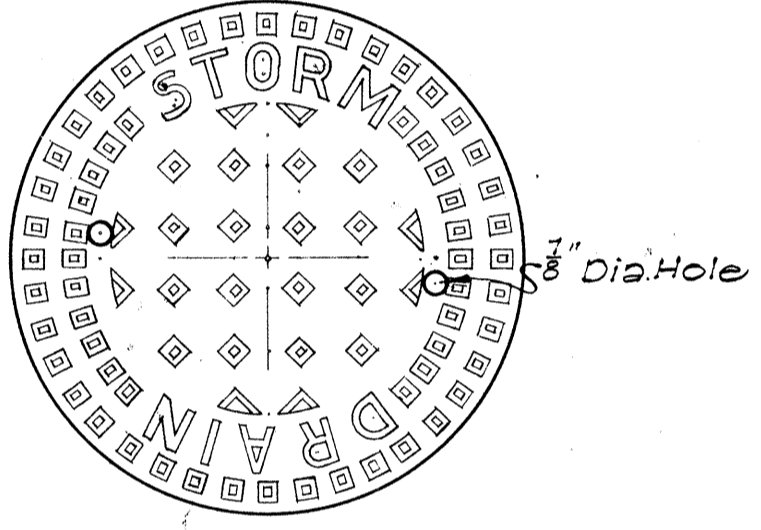
SCALE: 1-1/2" = 1'-0"



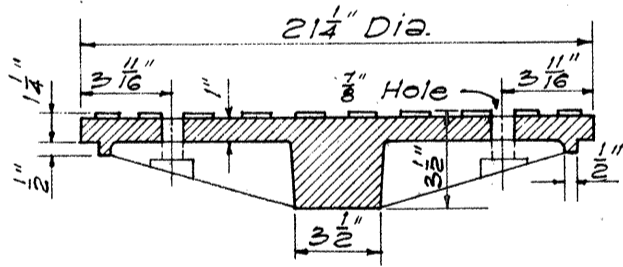
PLAN OF RIM



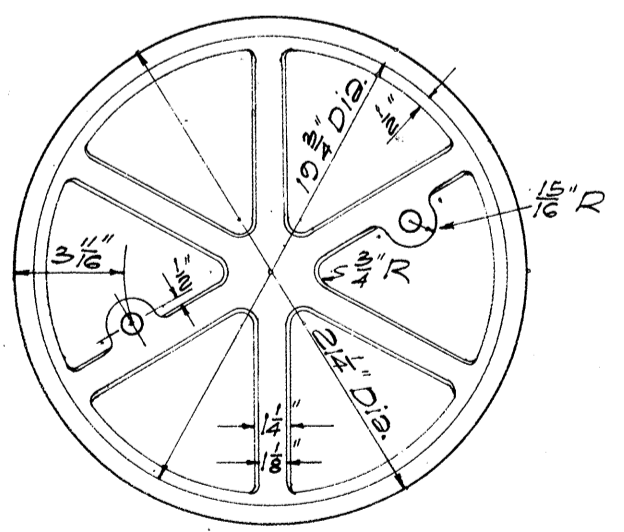
SECTION OF RIM



TOP VIEW OF COVER



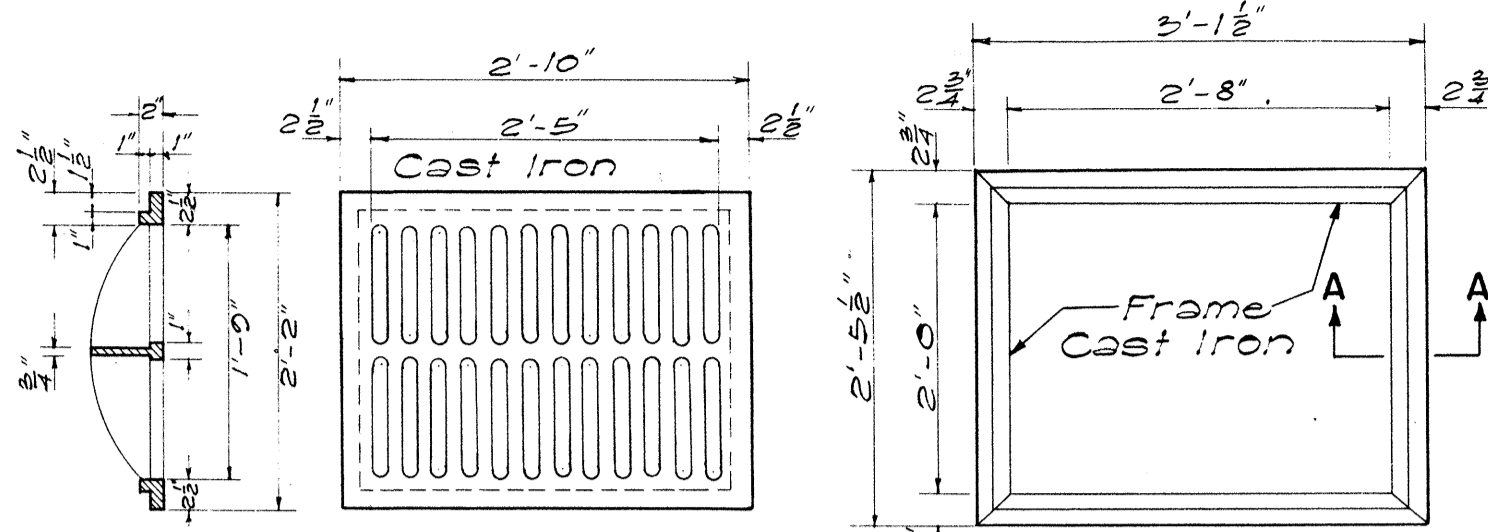
SECTION



BOTTOM VIEW OF COVER

DETAILS OF TYPE "A"
MANHOLE CASTINGS

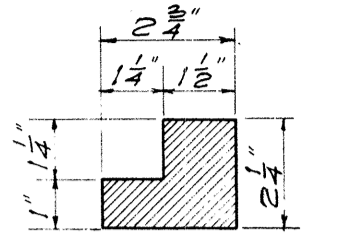
SCALE: 1-1/2" = 1'-0"



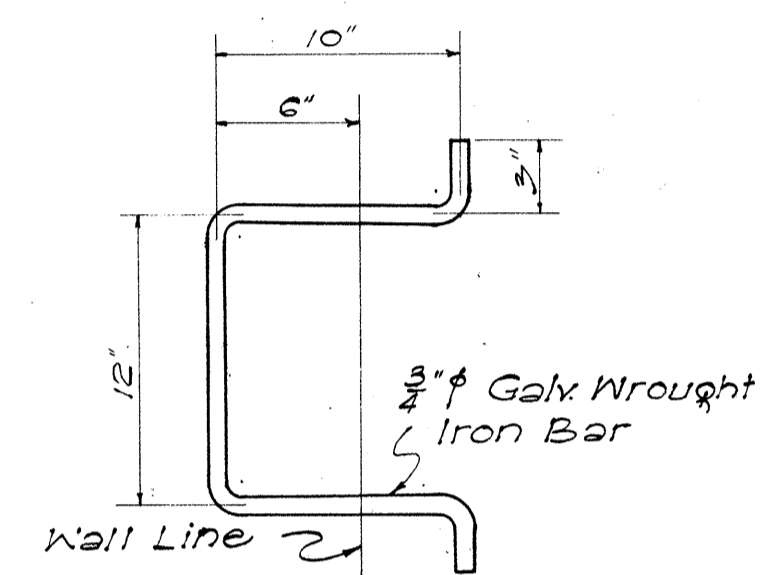
SECTION TOP VIEW TOP VIEW

TYPE C C.I. FRAME AND GRATING

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

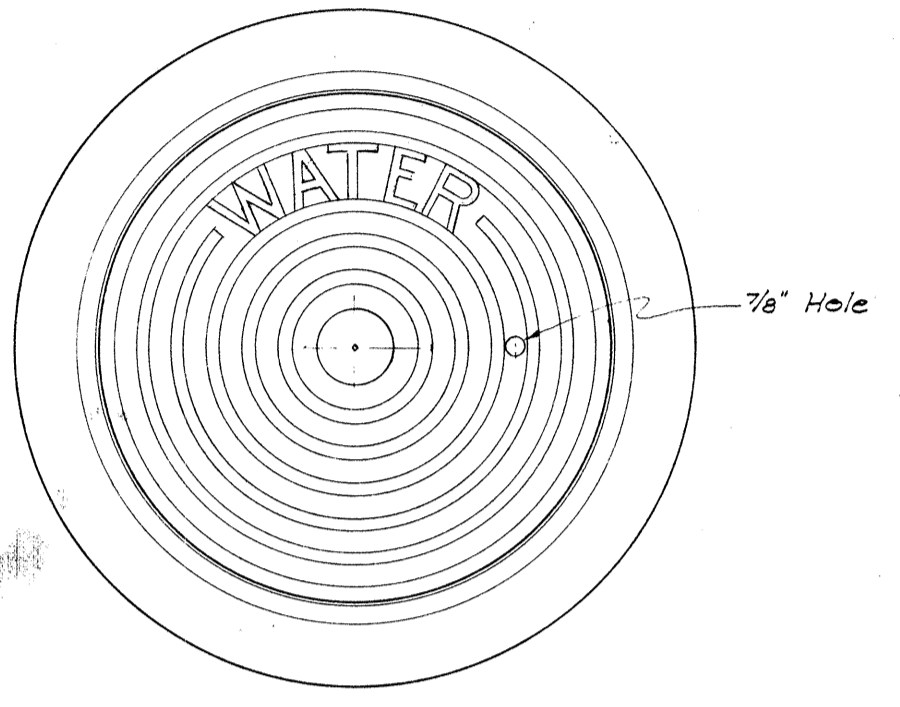


SECTION "A-A"
SCALE 3" = 1'-0"

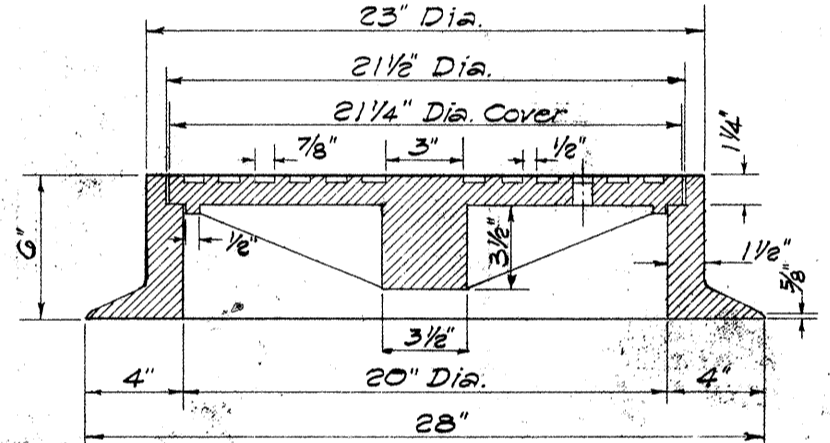


MANHOLE RUNG

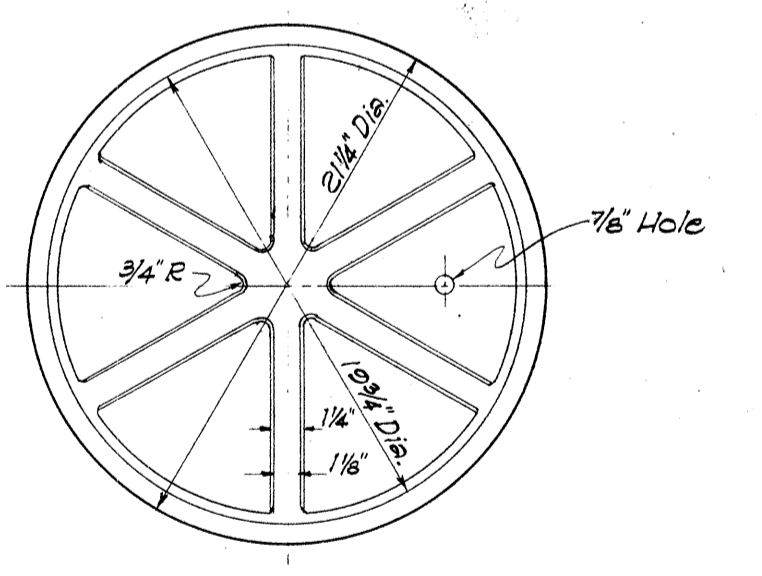
SCALE: 1-1/2" = 1'-0"



PLAN OF FRAME AND COVER



SECTION OF FRAME AND COVER



BOTTOM VIEW OF COVER

DETAILS OF 20" CAST IRON
FRAME AND COVER FOR
WATER MANHOLE

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

APPROVED: _____ DATE: AUG. 29, 1957
STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
CATCH BASIN AND
MANHOLE CASTINGS
SCALES AS NOTED
SHEET NO. 6 OF 7 SHEETS

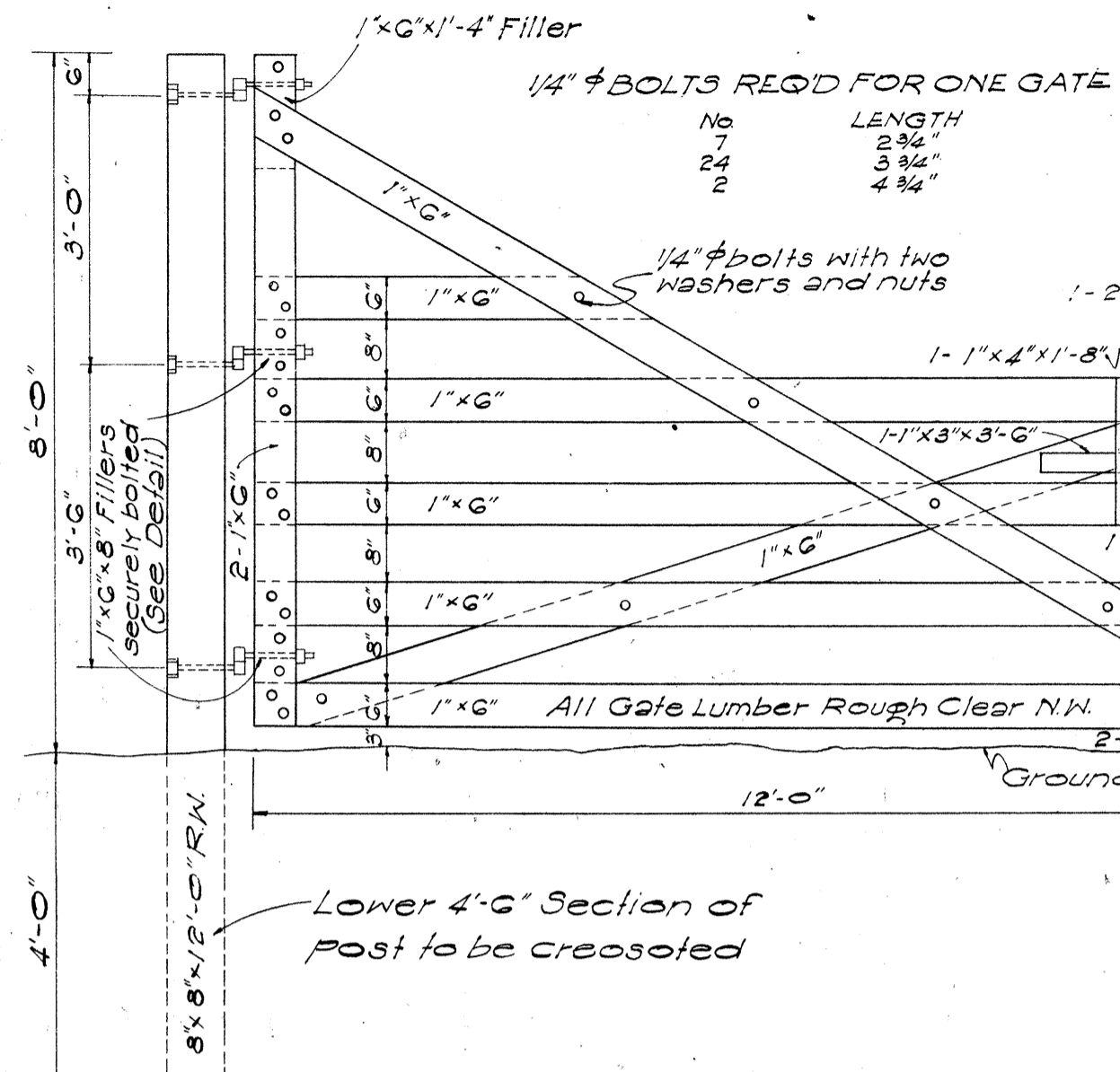
ORIGINAL PLAN
NOTE BOOK
QUANTITIES BY
CHECKED BY

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
QUANTITIES BY
CHECKED BY

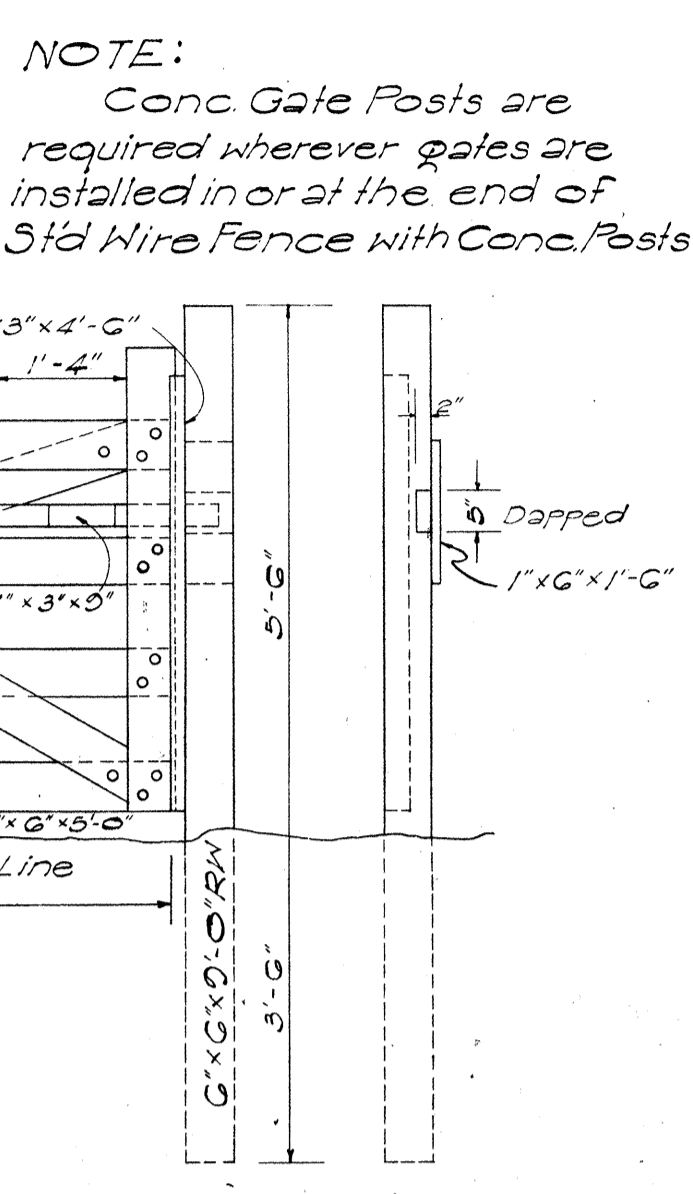
DATE
DRAWN BY
TRACED BY
QUANTITIES BY
CHECKED BY

8148.18

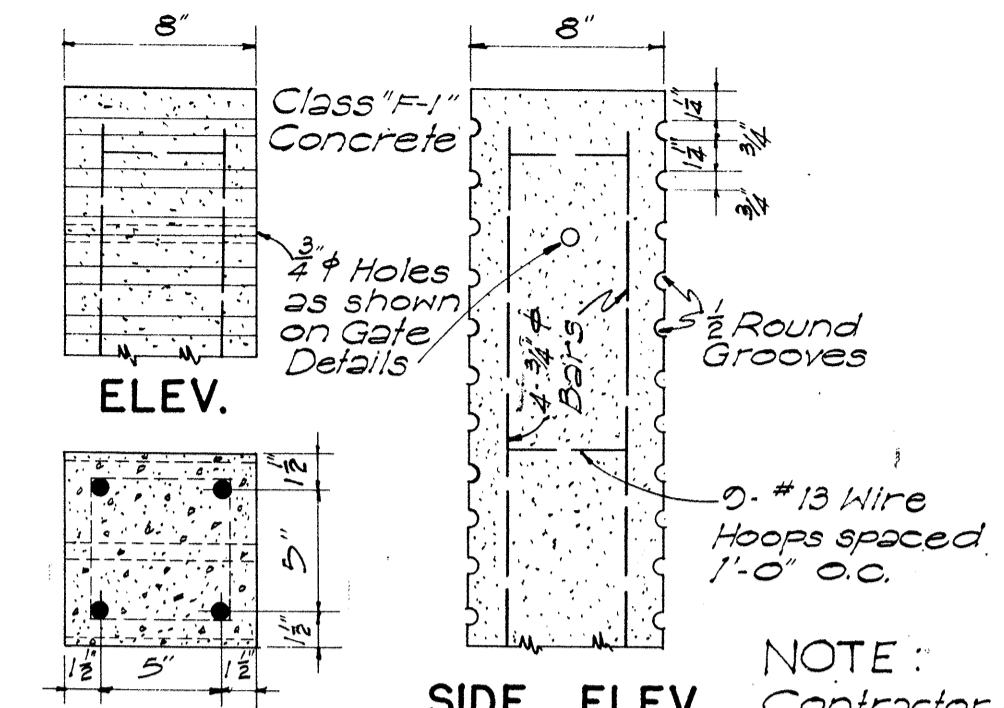
AUG. 1957



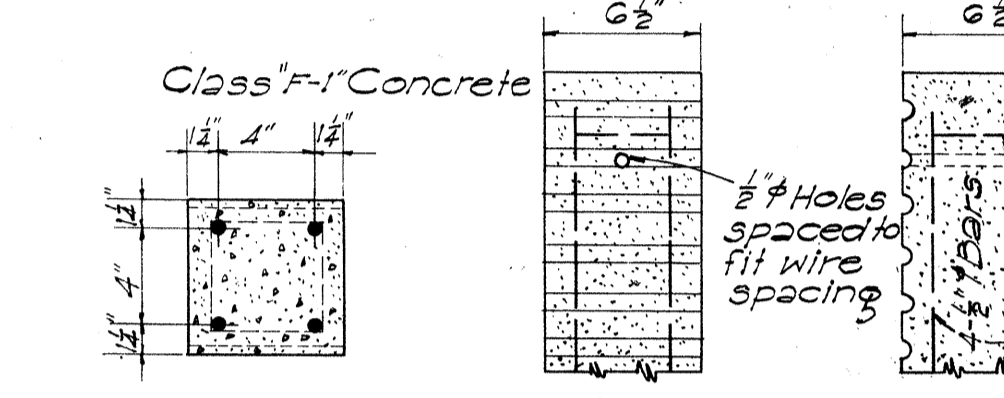
DETAIL OF CATTLE GATE Scale: 1/2" = 1'-0"



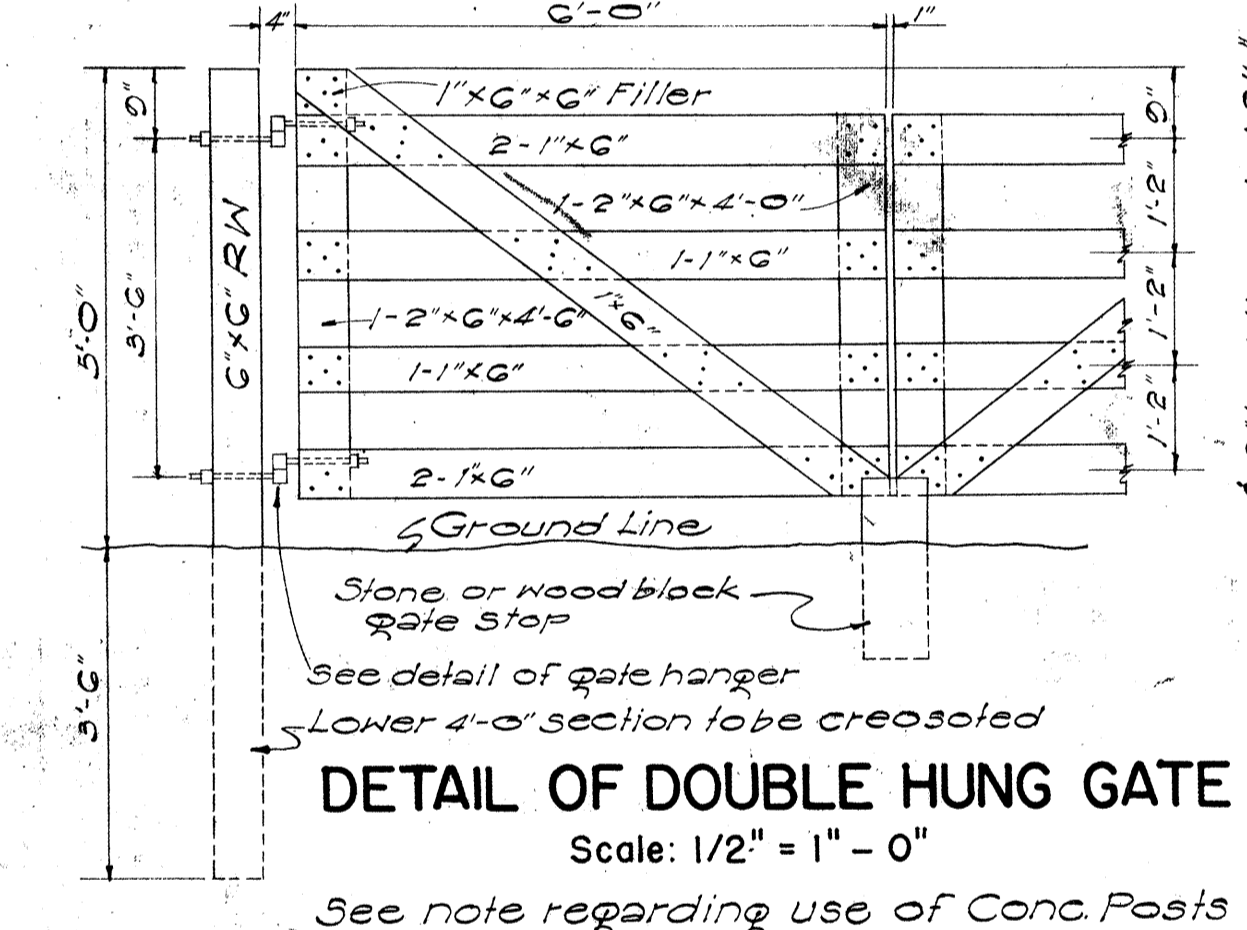
SIDE ELEV. CONC. GATE POST Scale: 1-1/2" = 1'-0"



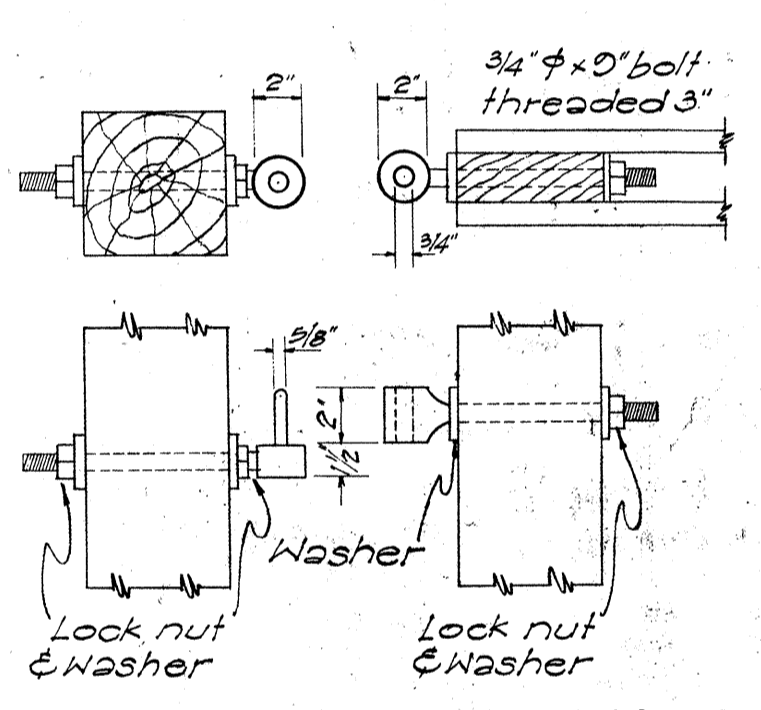
PLAN SECT. CONC. GATE POST Scale: 1-1/2" = 1'-0"



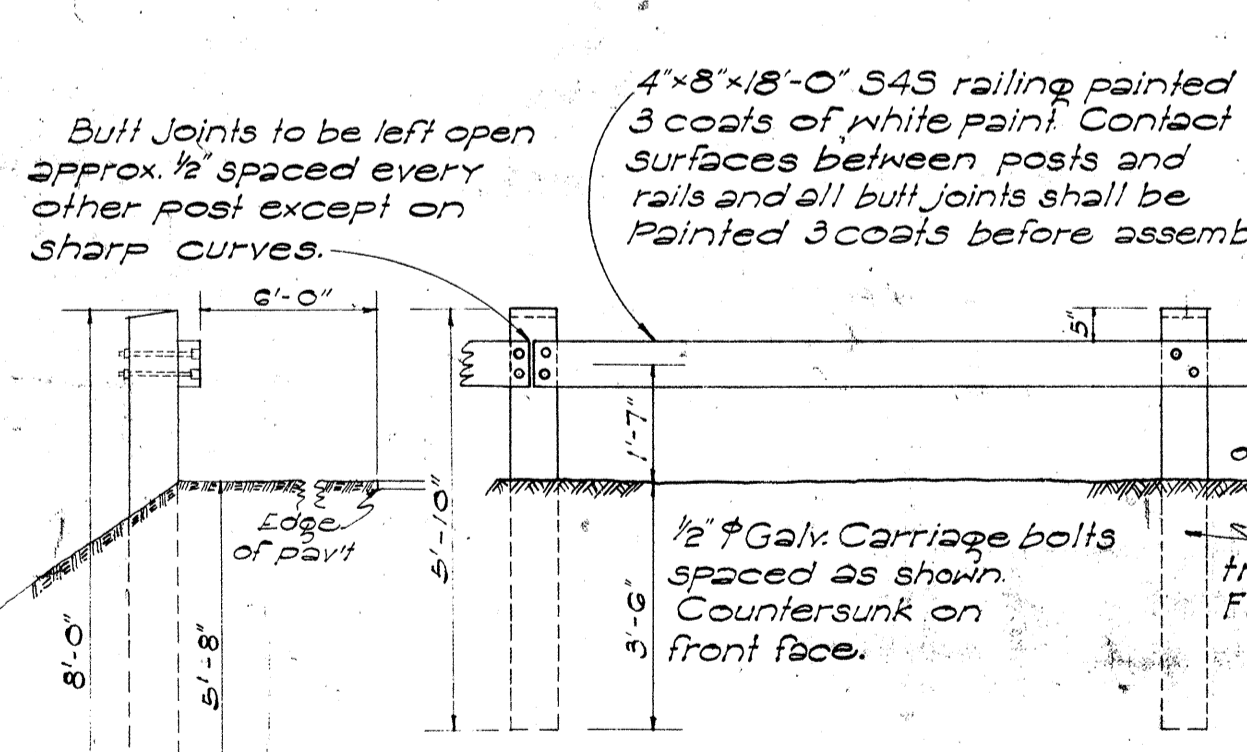
SIDE ELEV. CONC. FENCE POST Scale: 1-1/2" = 1'-0"



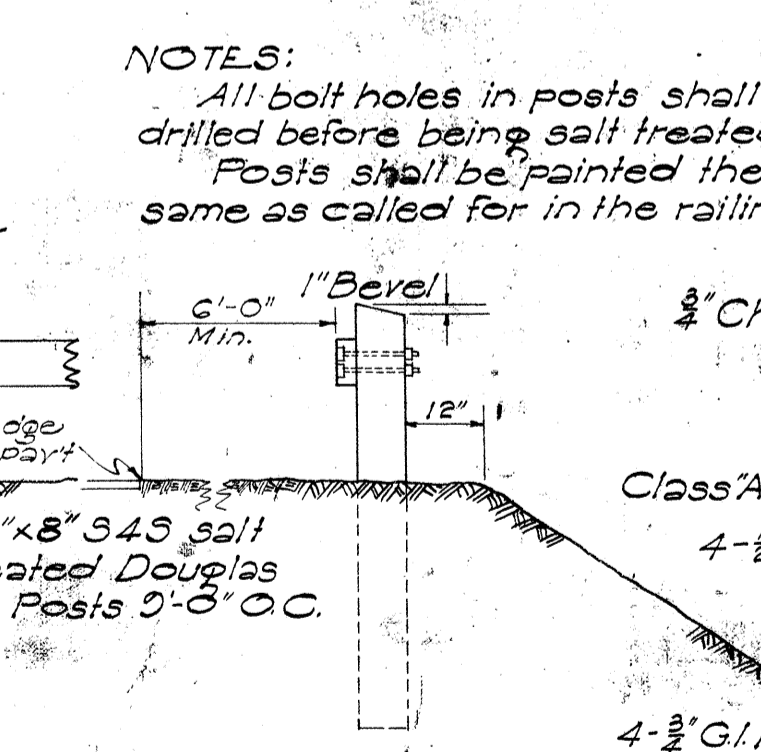
DETAIL OF DOUBLE HUNG GATE Scale: 1/2" = 1'-0"



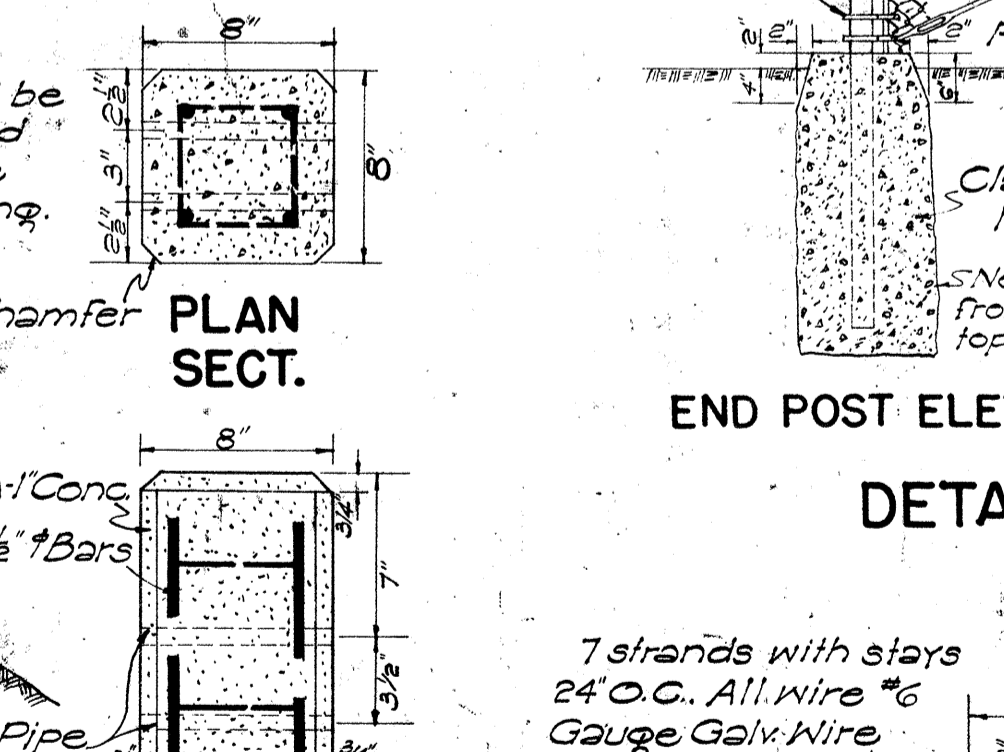
DETAIL OF GATE HANGER Scale: 1-1/2" = 1'-0"



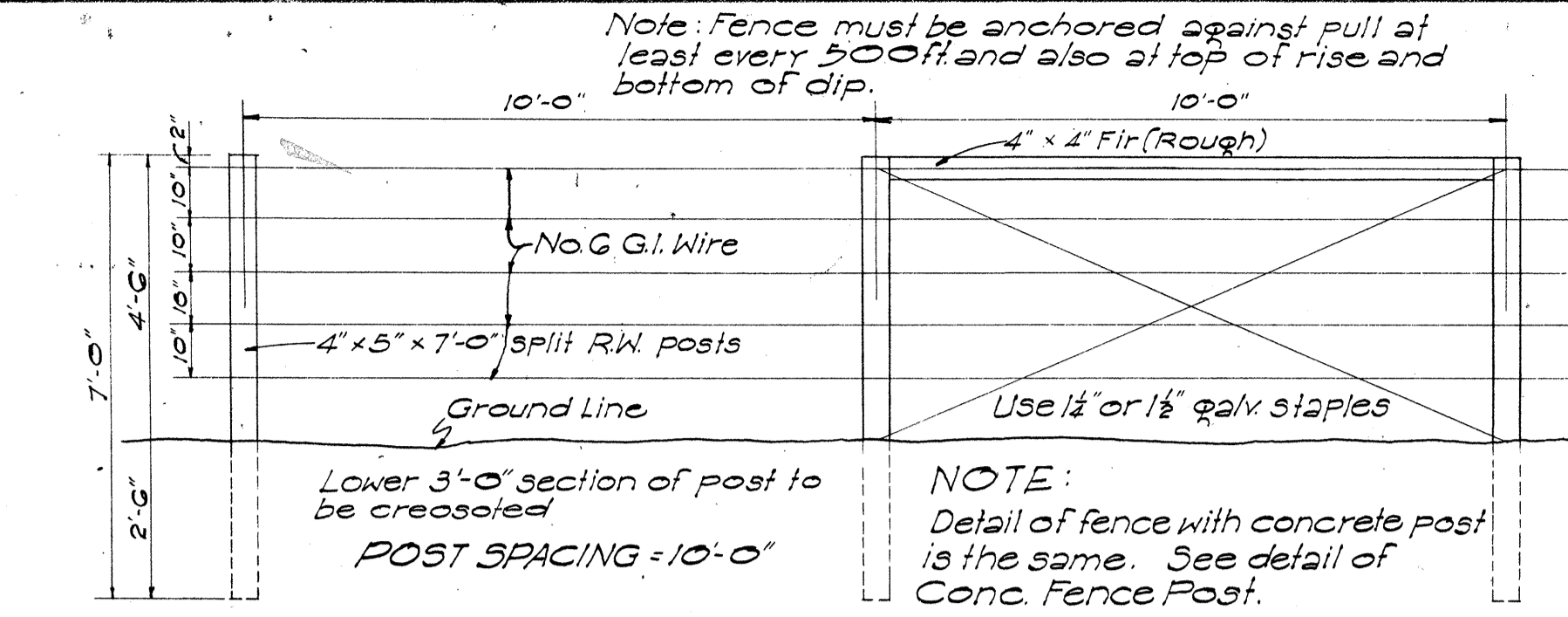
WOOD GUARD RAIL WITH WOOD POSTS Scale: 3/8" = 1'-0"



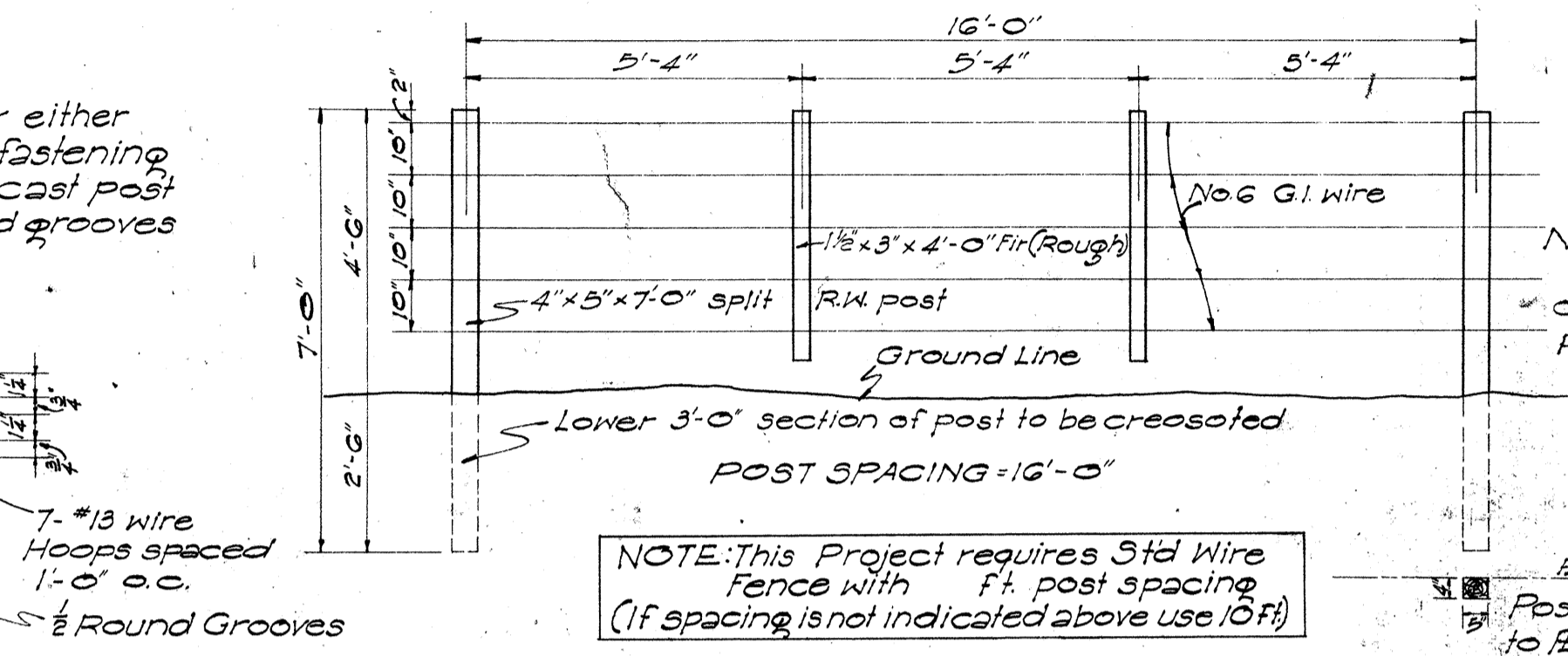
DETAIL OF CHAIN LINK FENCE Scale: 1/2" = 1'-0"



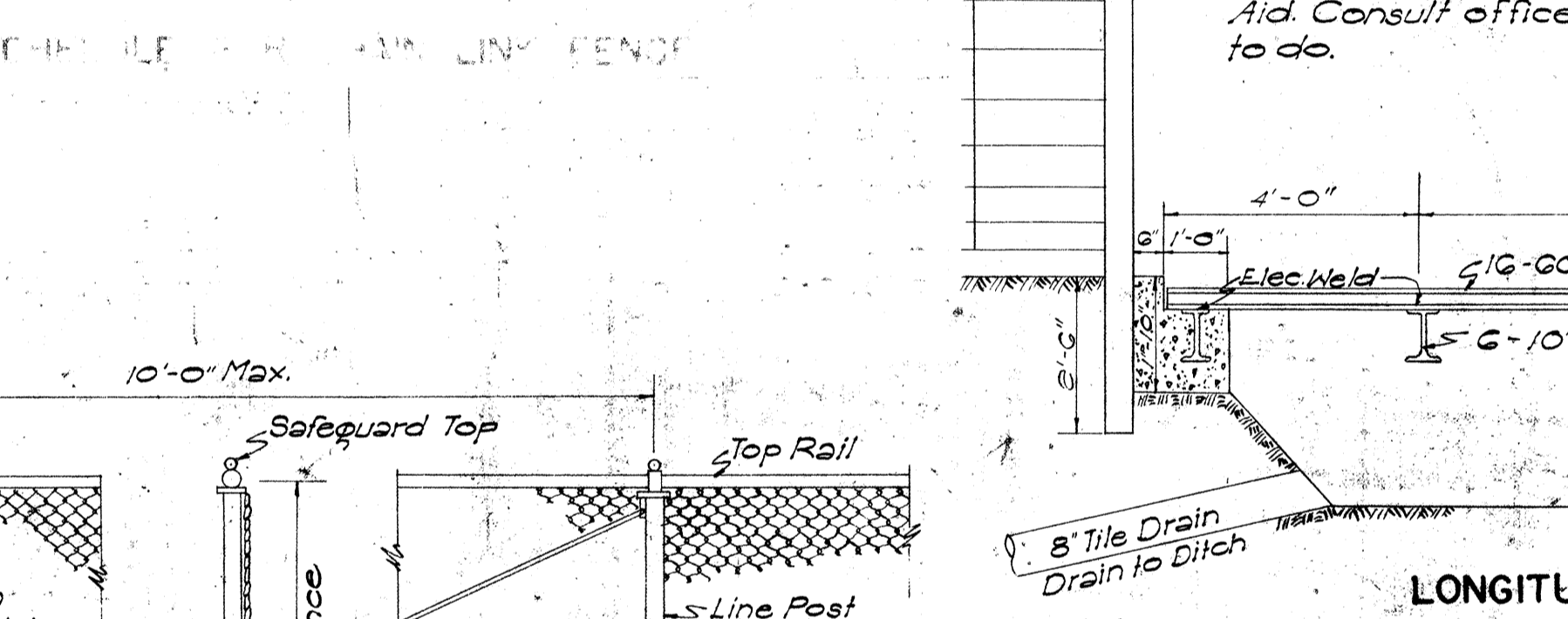
DETAIL OF WOVEN WIRE FENCE Scale: 1/4" = 1'-0"



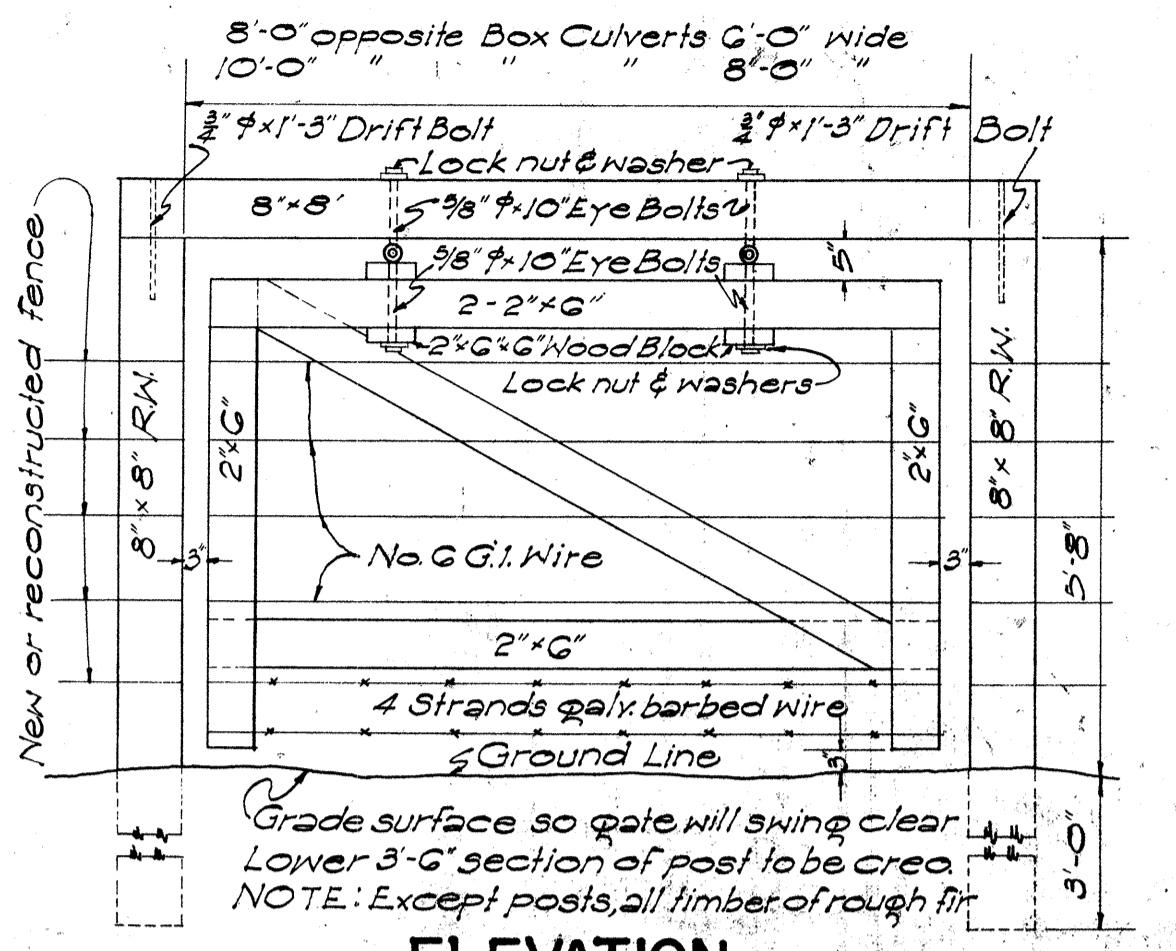
DETAILS OF STANDARD WIRE FENCE WITH WOOD POSTS Scale: 3/8" = 1'-0"



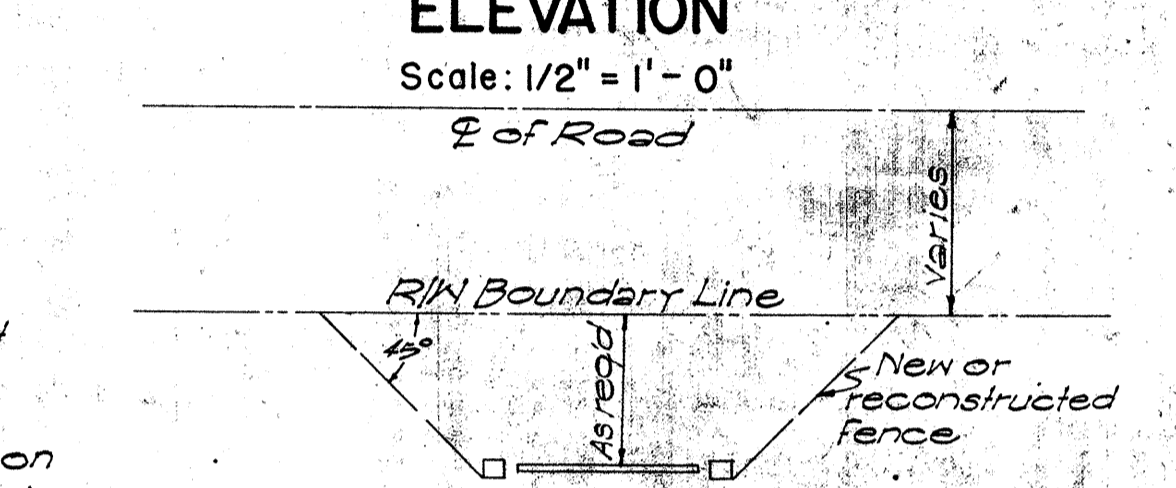
LONGITUDINAL SECTION



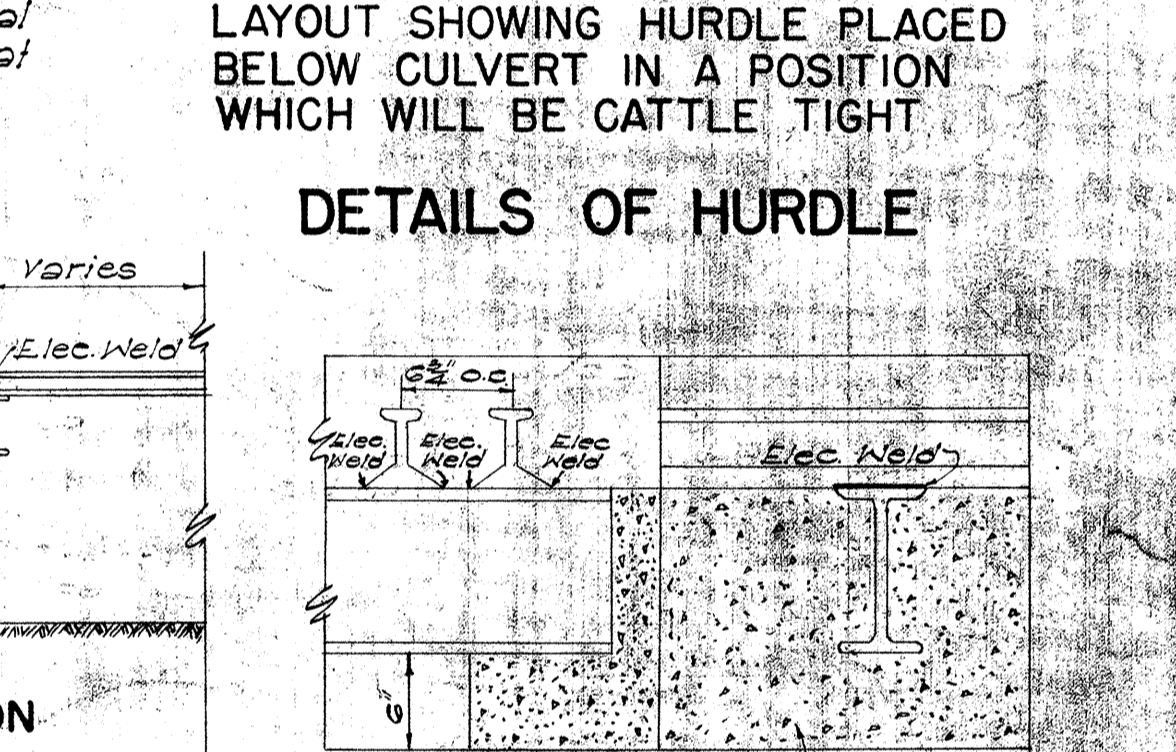
DETAIL OF CATTLE GUARD Scale: 3/8" = 1'-0"



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



DETAILS OF HURDLE



SECTION

APPROVED: _____ DATE: _____ 1959

STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

STANDARD DETAILS
FENCES, GATES, GUARD RAILS,
GUIDE POSTS, CATTLE GUARD

SCALES AS NOTED

SHEET No 7 OF 7 SHEETS

8148.19

DATE: _____

DESIGNED BY: _____

DRAWN BY: _____

CHECKED BY: _____

QUANTITIES CHECKED BY: _____

NOTE BOOK No. _____

GUIDE POSTS: Wood or Conc. Guide Posts are the same as those used for Wood Guard Rail spaced as shown on plans.

NOTE: All concrete Posts shall be precast

DETAIL OF CONC. POST Scale: 1-1/2" = 1'-0"

PLAN SECT.

PLAN SECT.

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

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

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

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

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