

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

DETAIL OF OUTLET DITCH

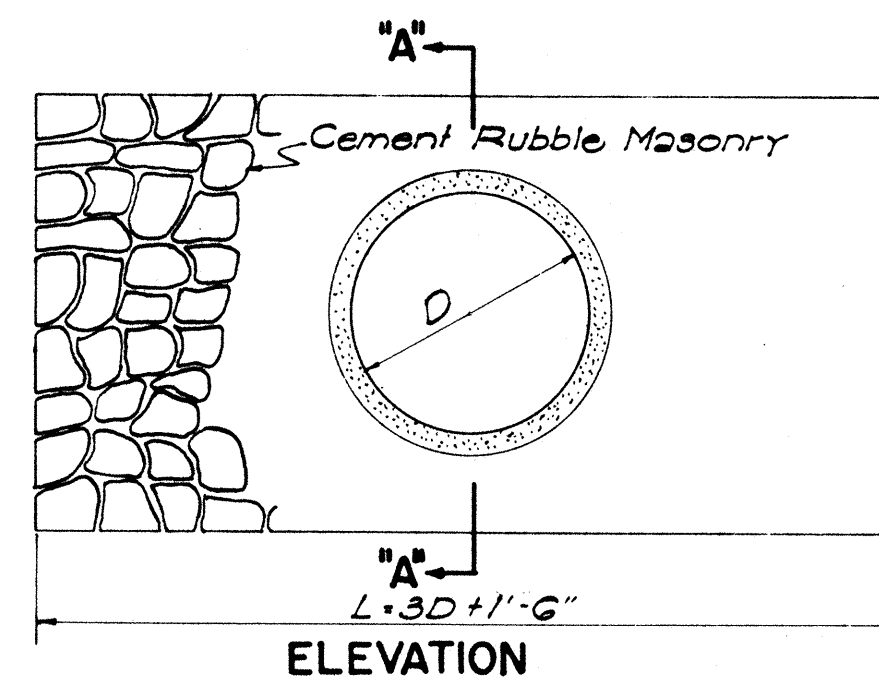
Scale: 1/2" = 1'-0"

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.

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



DETAIL OF MASONRY HEADWALL

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

SECTION CONG. PIPE CULVERT

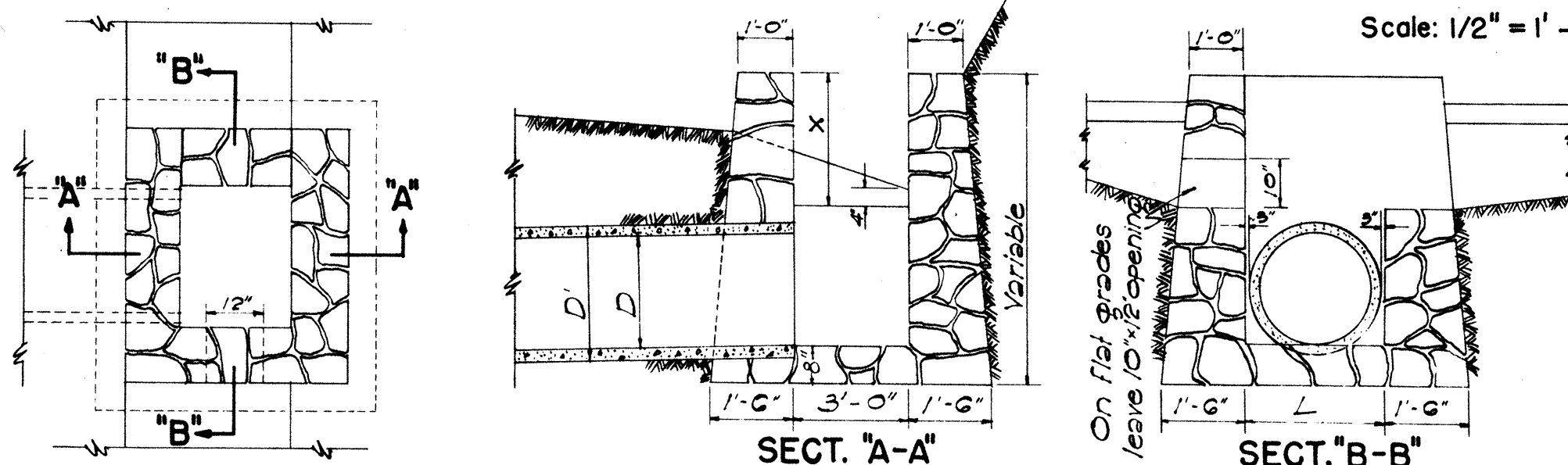
NOTE: Thickness 'd', reinforcing, and concrete used, are to conform with the approved design as provided by the Specifications.

DATA-CAST-IN-PLACE CONG. CULVERT					
D	d	W	L	Cu. Yd. 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		

CAST-IN-PLACE CONG. CULVERT

DETAIL OF MASONRY DROP INTAKE

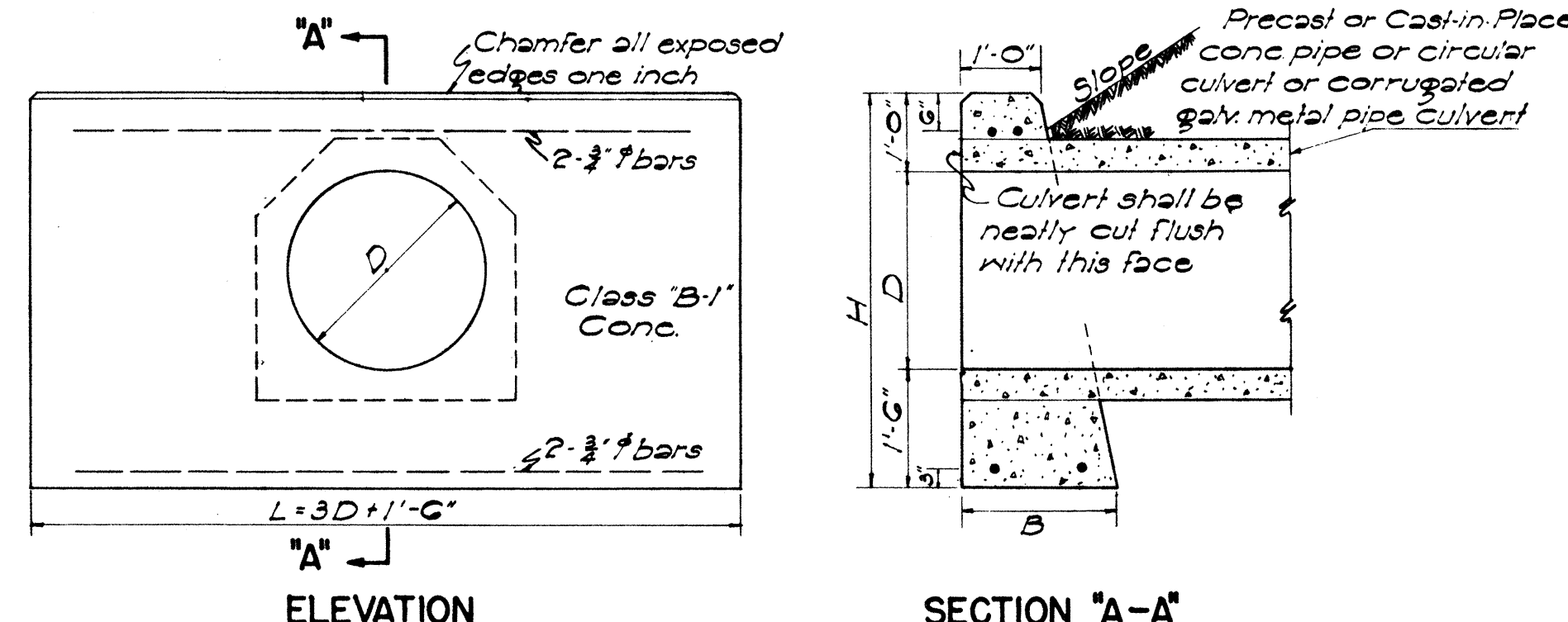
Scale: 3/8" = 1'-0"



CONSTR. JOINT DETAILS

METHOD OF APPLYING CONSTR. JOINT WATERPROOFING
 (1) Map surface either side of joint as required with asphalt 50-100 penetration (A.S.T.M. Desig. D 5-25) applied at 200°F.
 (2) Apply one layer of 35-15 composition roofing to hot asphalt.
 (3) Map surface of composition roofing and 3" beyond all around with thick coat of asphalt 35 specified under (1).
 The above work is incidental to concrete and will not be paid for separately.

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



DETAIL OF CONCRETE HEADWALL

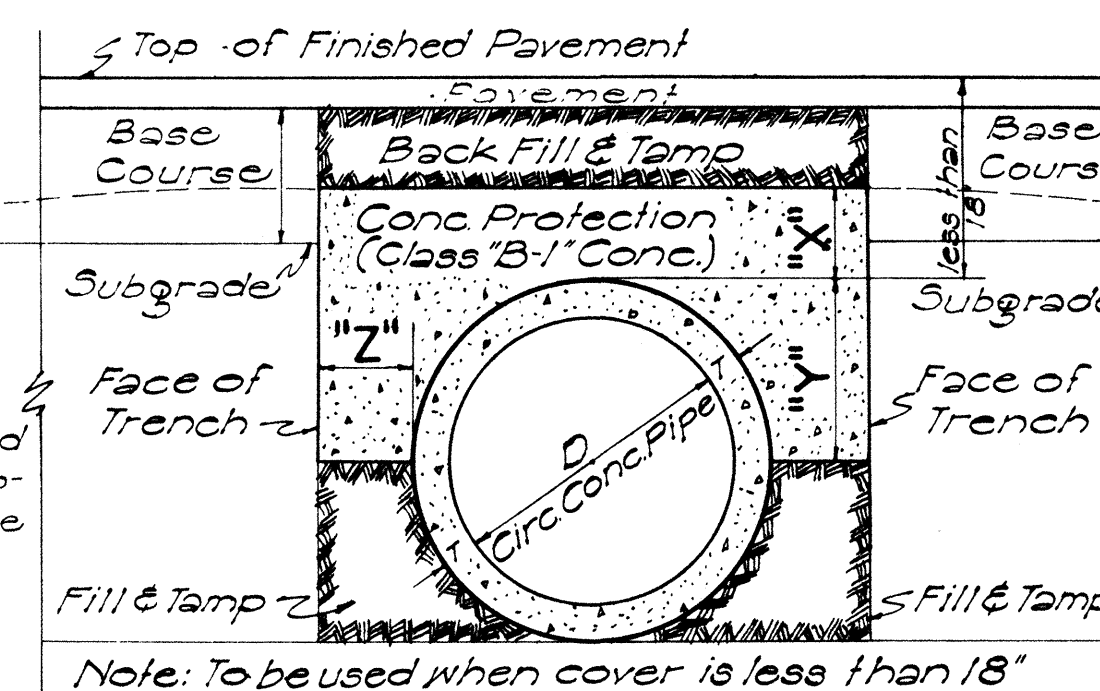
Scale: 1/2" = 1'-0"

DATA FOR CONG. HEADWALL					
D	B	L	H	Cast-in-Place Conc. Culvert Cu. Yds.	Steel For One Headwall
18"	1'-6"	6'-0"	4'-0"	0.02	No. of Bars Size Length Lbs.
24"	1'-6"	7'-6"	4'-6"	1.25	4 3/4" 2'-6" 33
30"	2'-0"	9'-0"	5'-0"	1.05	4 3/4" 7'-0" 42
36"	2'-0"	10'-6"	5'-6"	2.45	4 3/4" 8'-0" 51
42"	2'-6"	12'-0"	6'-0"	3.87	4 3/4" 10'-0" 60
48"	2'-6"	13'-6"	6'-6"	4.66	4 3/4" 11'-6" 60

SECT. OF CULVERT WITH CONG. PROTECTION

Scale: 1" = 1'-0"

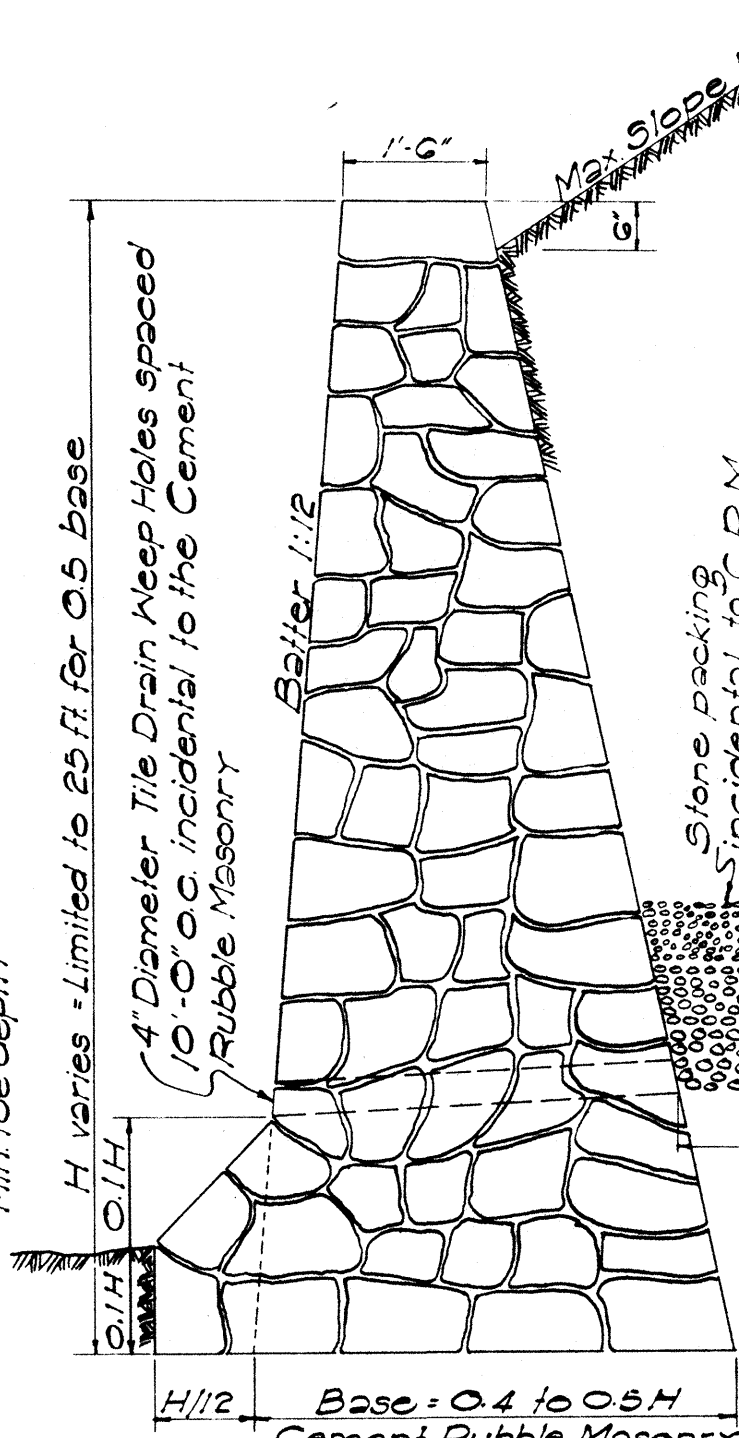
DATA FOR CONCRETE PROTECTION OVER CULVERTS		
X	Y	Z
6" for 18"D		Z must be from pipe to face of trench
7" " 24"D		
8" " 30"D	D/2 + T	Minimum = X
9" " 36"D		Maximum pay quantity will be Z=12"
10" " 42"D		
11" " 48"D		
12" " 54"D		



Note: To be used when cover is less than 18"

Min. ice depth

SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

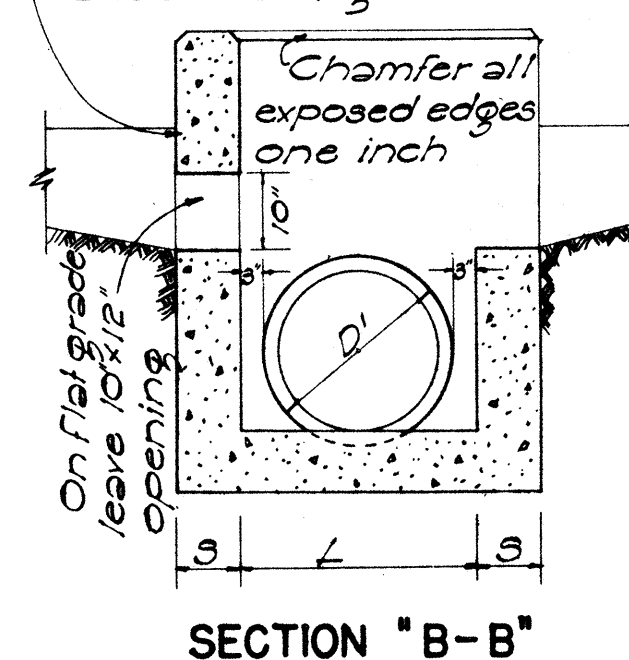


SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

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.



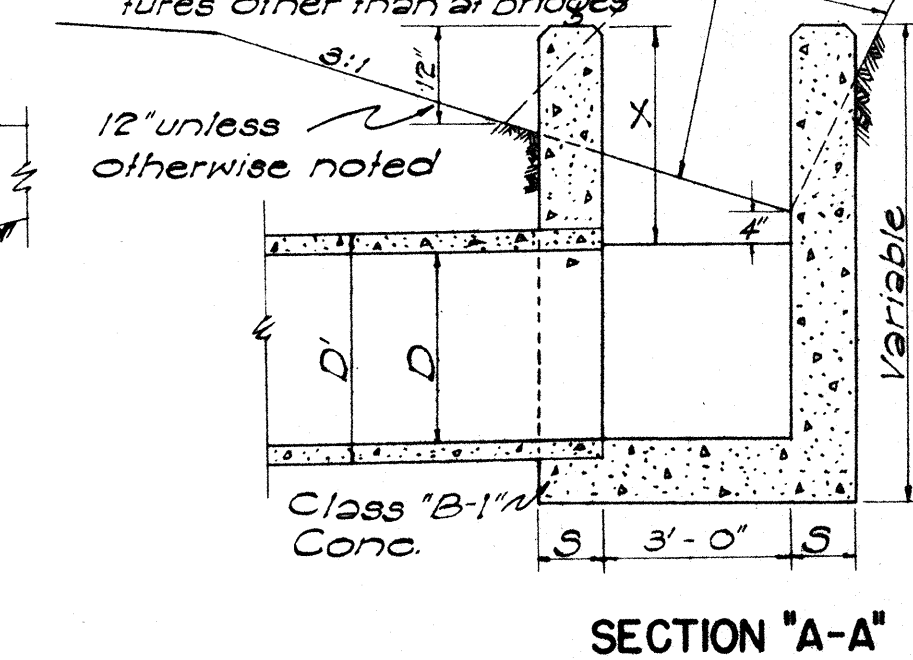
SECTION "B-B"

DETAIL OF CONCRETE DROP INTAKE

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

Where drainage comes from both sides lower this wall to same elevation as shown for opposite wall.

Excavate recess in roadway excavation slope for inlet to dimensions and form designated by Engineer. This is 'Unclassified' Excavation.



SECTION "A-A"

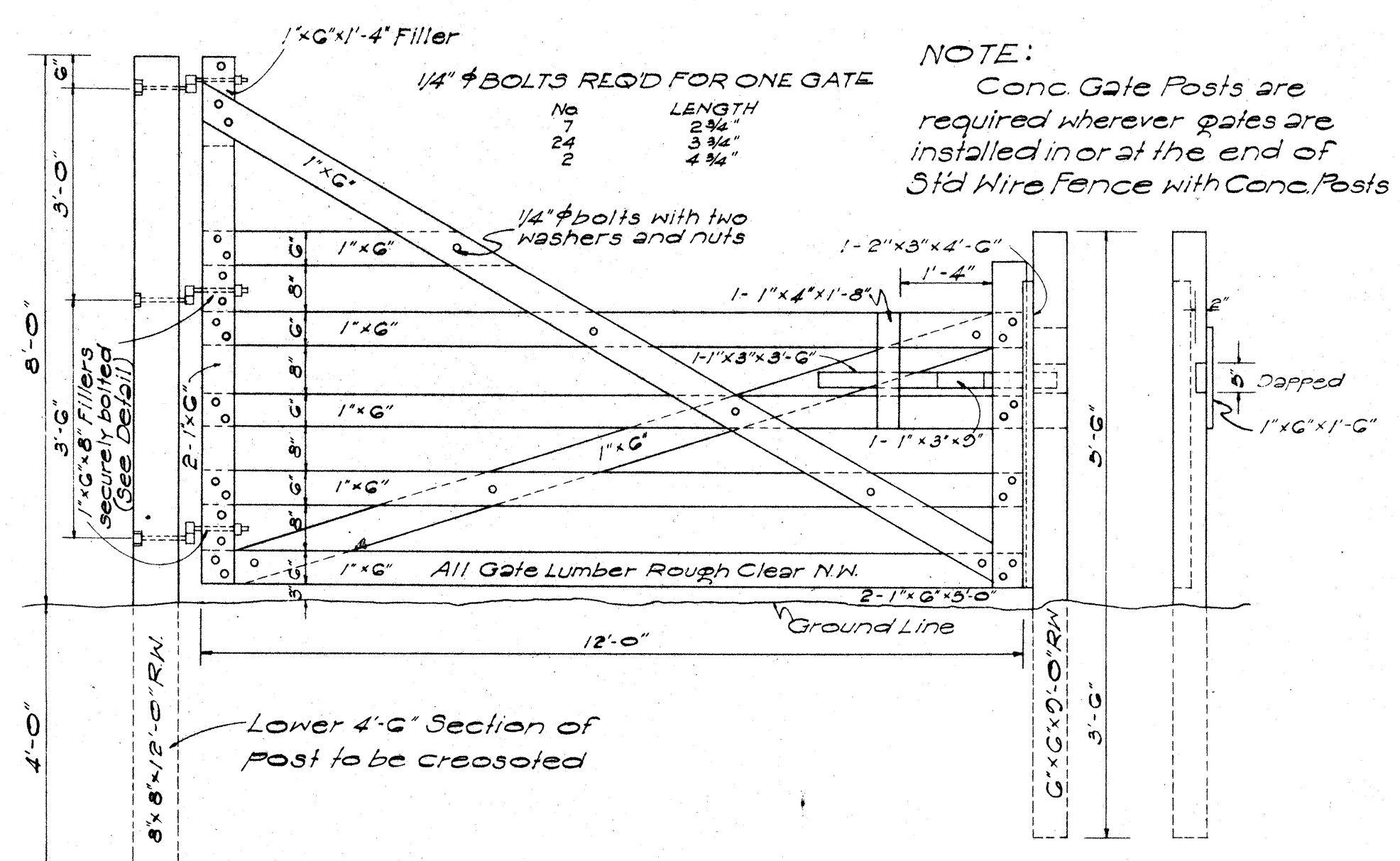
TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
 STANDARD DETAILS
 DROP INTAKES, RETAINING WALLS,
 HEADWALLS, CONSTRUCTION JOINTS
 SCALES AS NOTED

SHEET No 3 OF 4 SHEETS

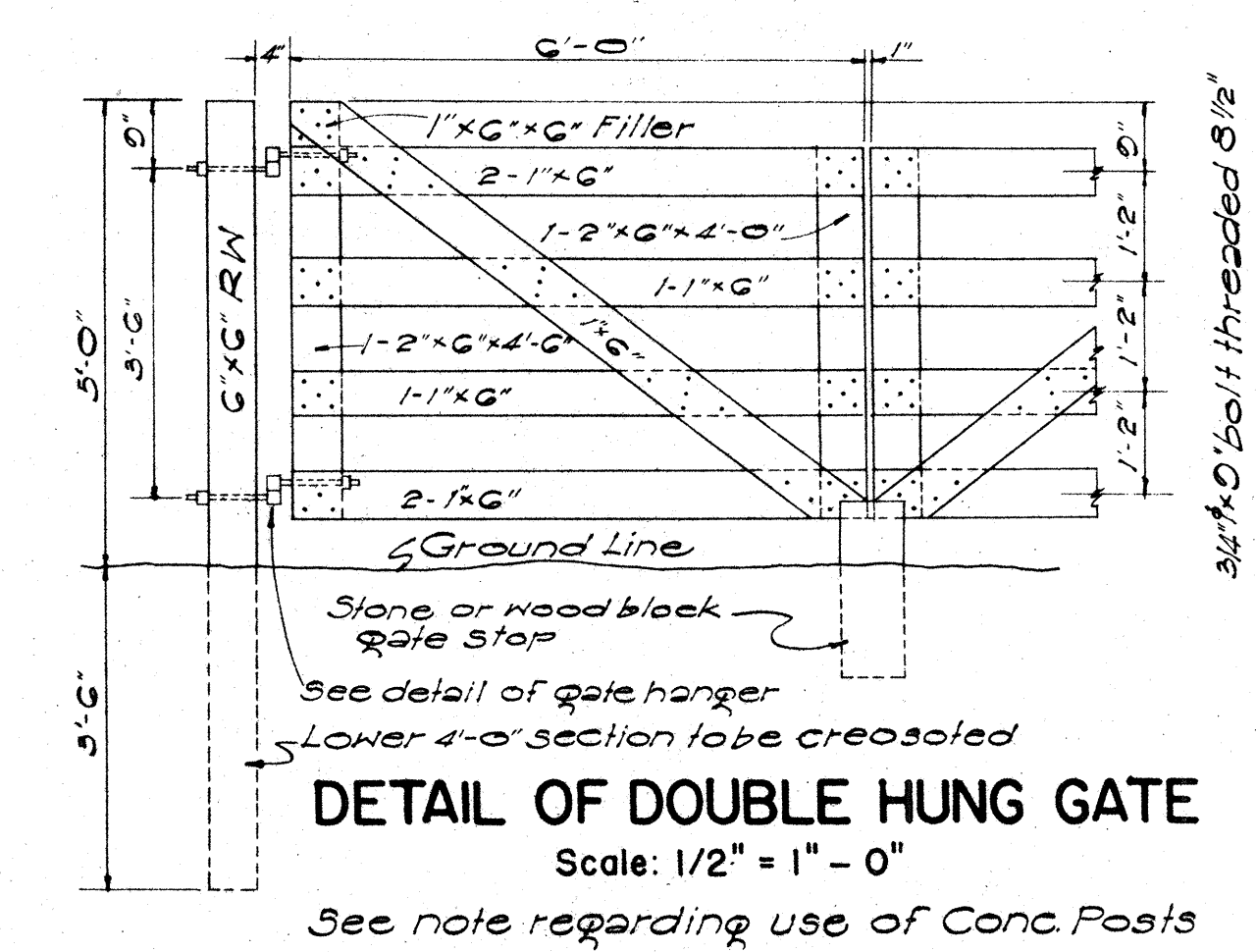
5624.15

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

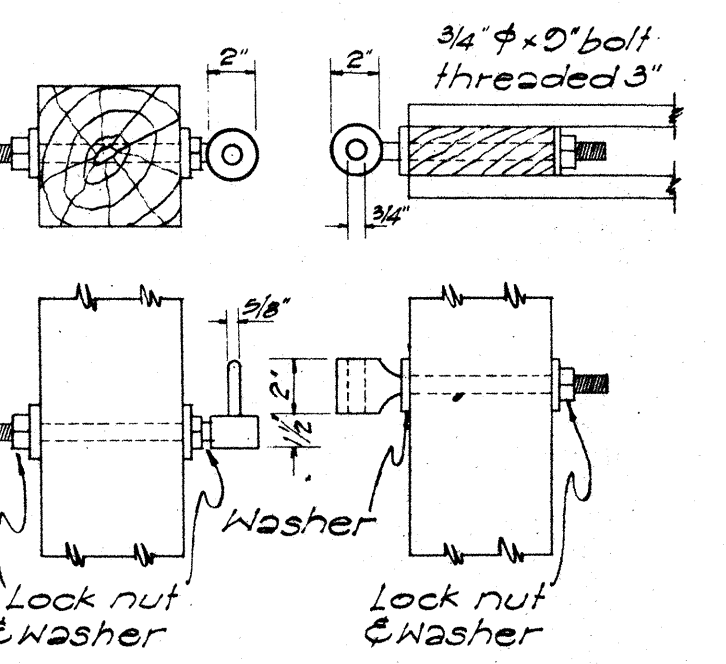
APPROVED: _____
 TERRITORIAL HIGHWAY ENGINEER



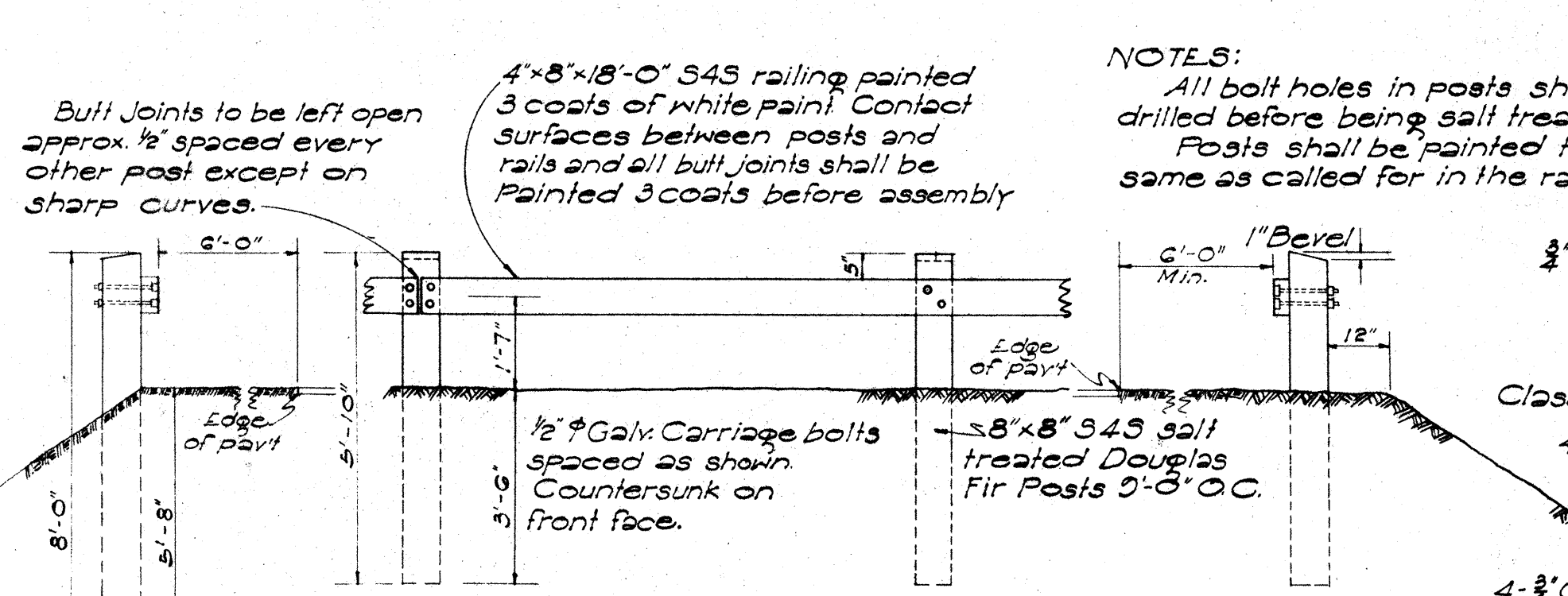
DETAIL OF CATTLE GATE
Scale: 1/2" = 1' - 0"



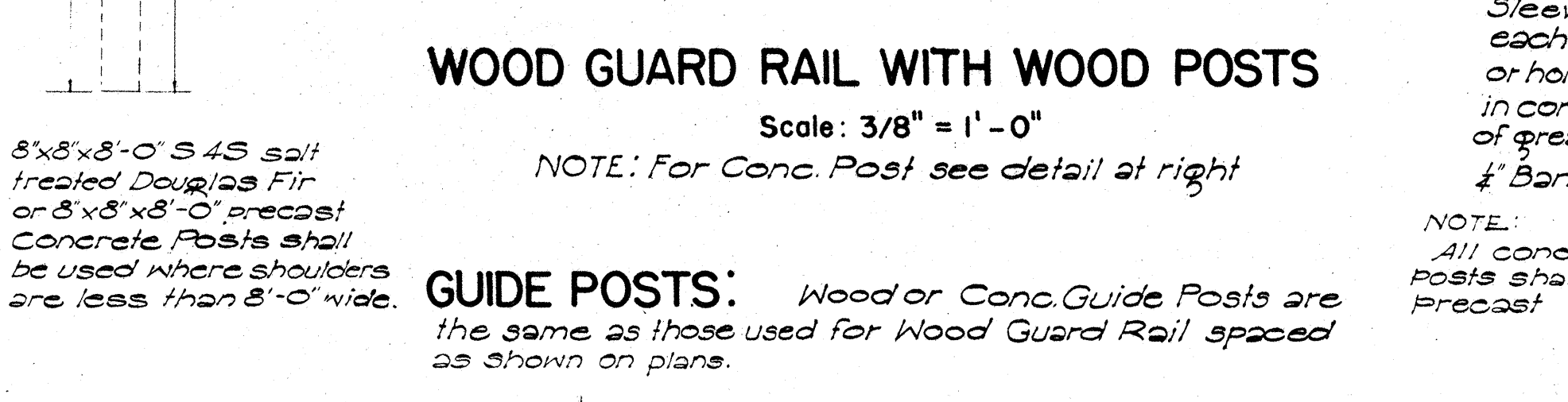
DETAIL OF DOUBLE HUNG GATE
Scale: 1/2" = 1' - 0"
See note regarding use of Conc. Posts



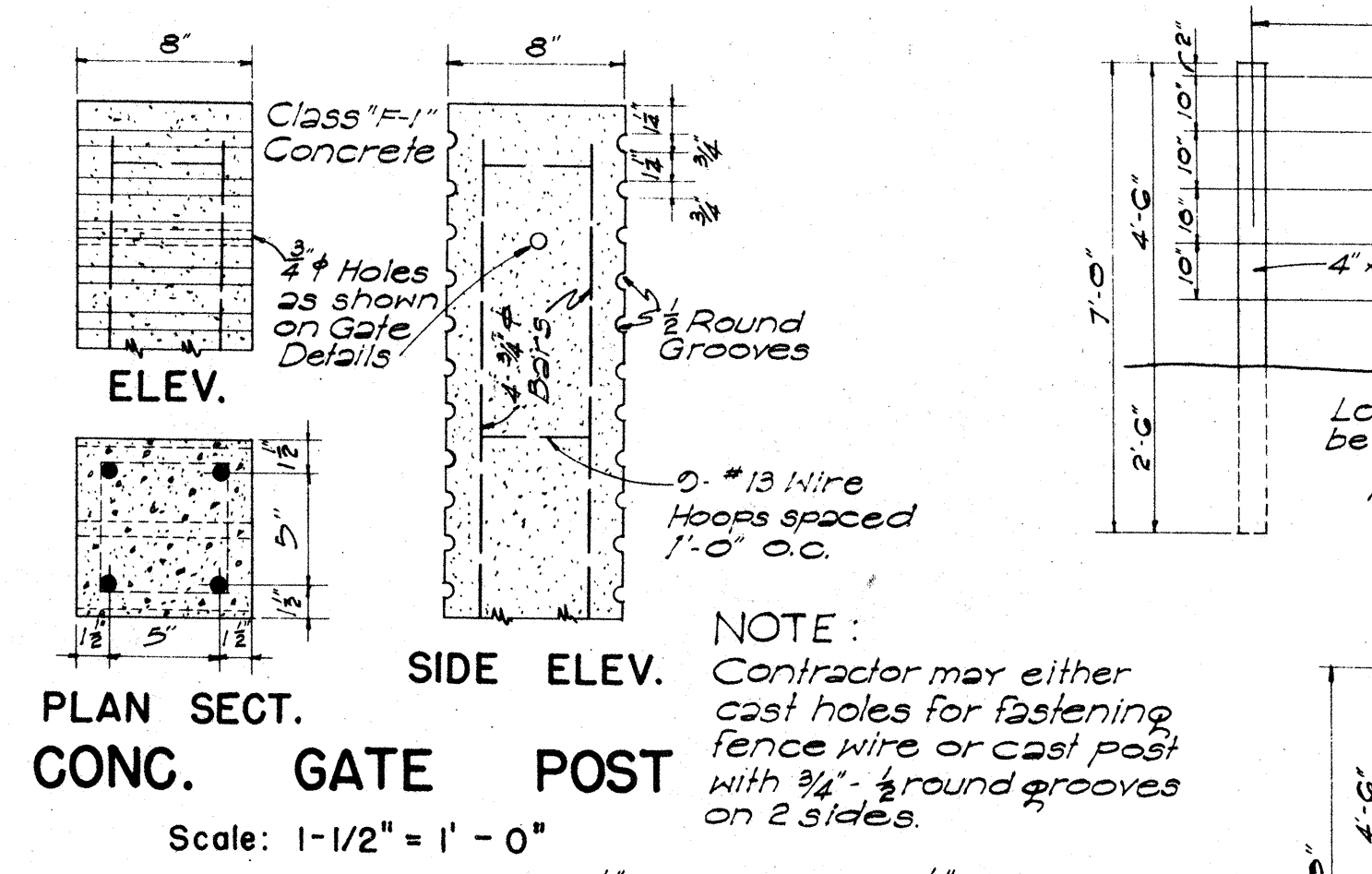
DETAIL OF GATE HANGER
Scale: 1-1/2" = 1' - 0"
Note: Use 3/4" x 11" bolts for Cattle Gate



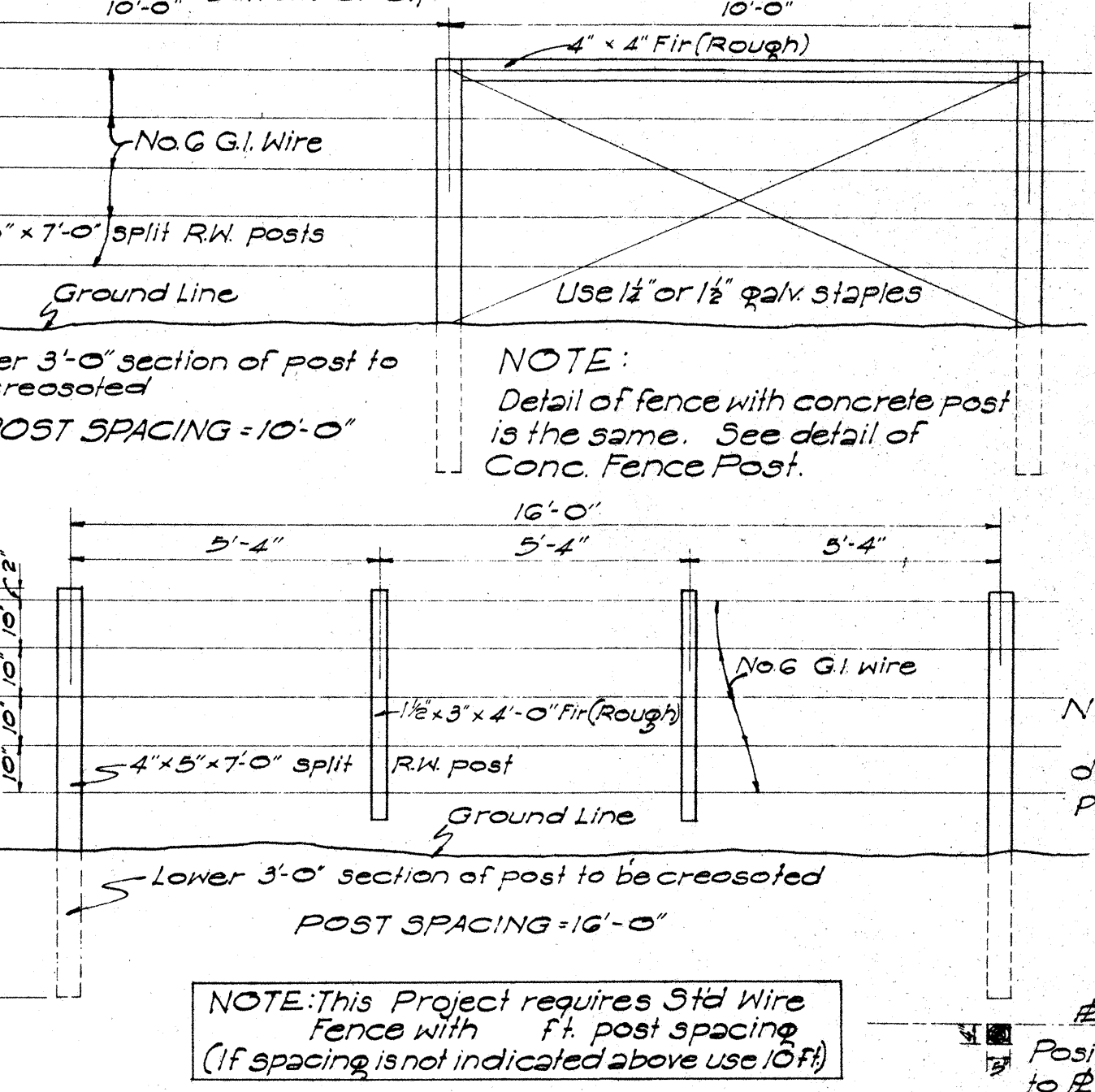
WOOD GUARD RAIL WITH WOOD POSTS
Scale: 3/8" = 1' - 0"
NOTE: For Conc. Post see detail at right



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

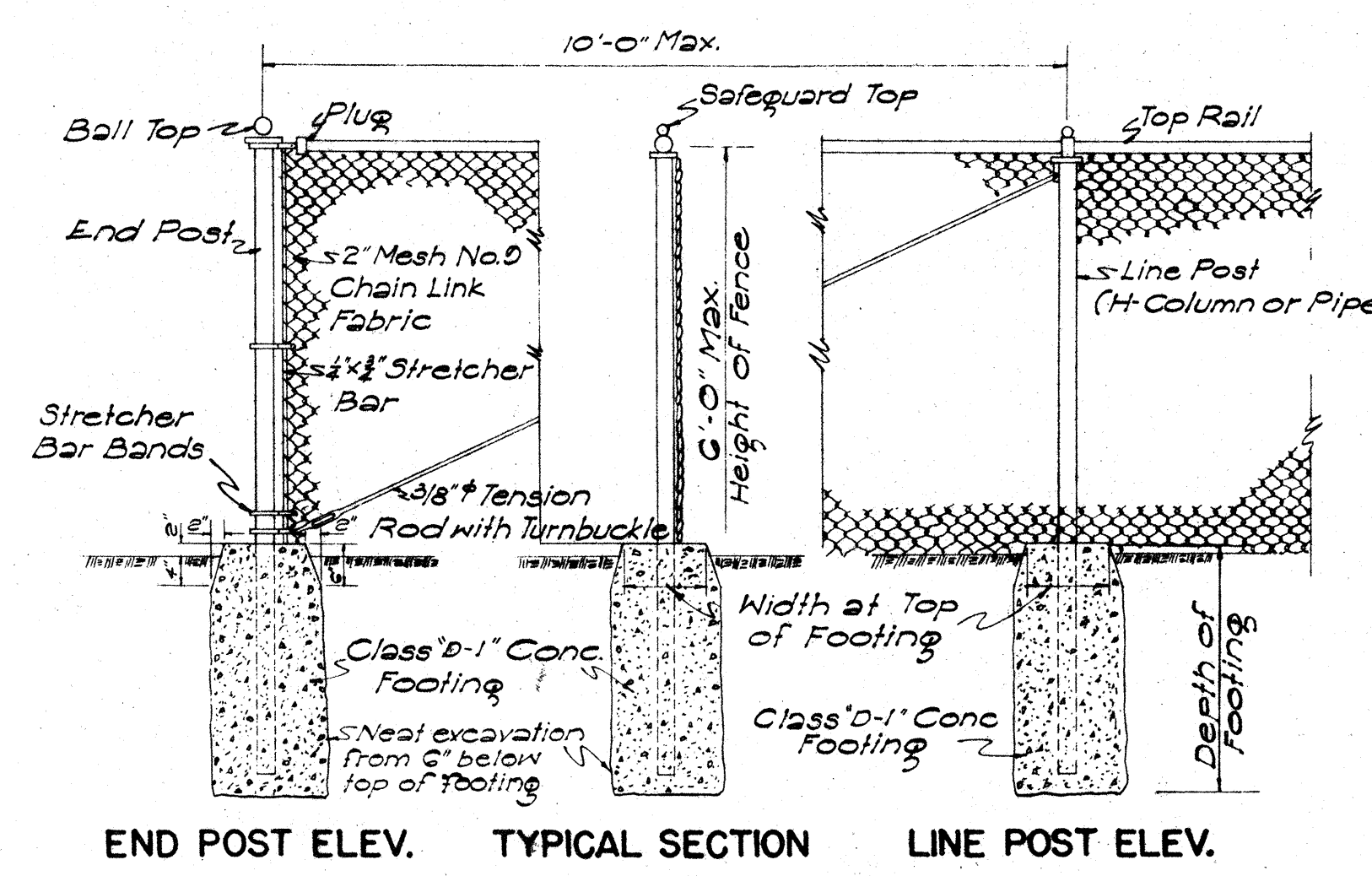


CONC. GATE POST
Scale: 1-1/2" = 1' - 0"

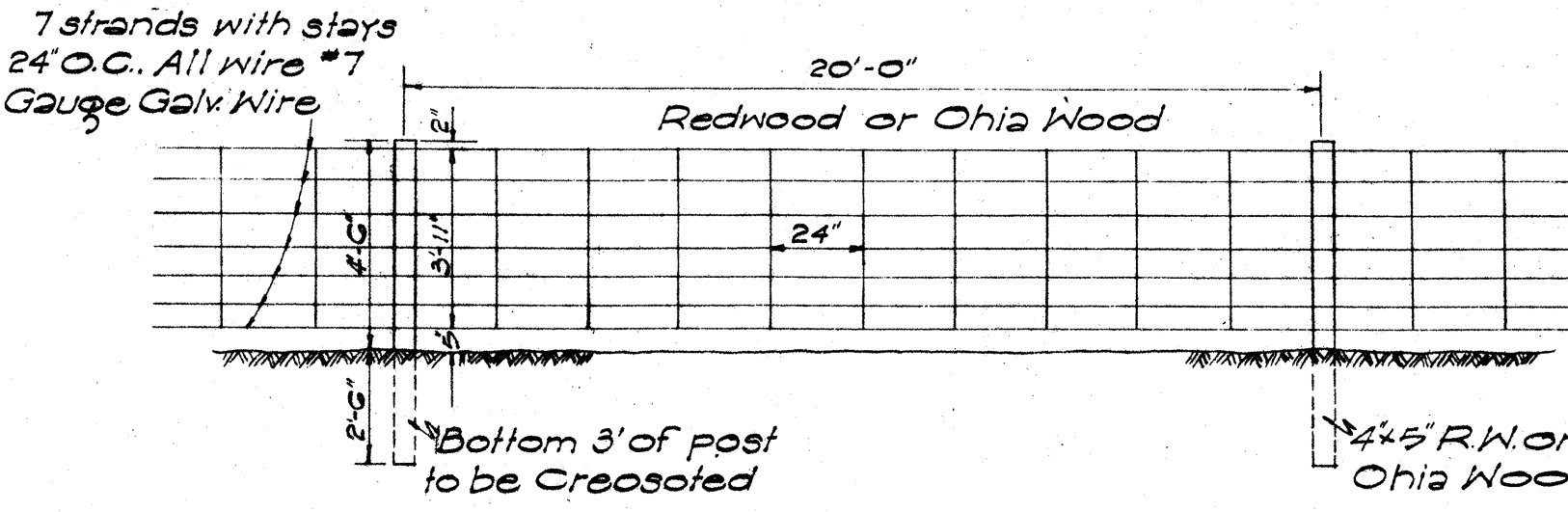


DETAILS OF STANDARD WIRE FENCE WITH WOOD POSTS
Scale: 3/8" = 1' - 0"

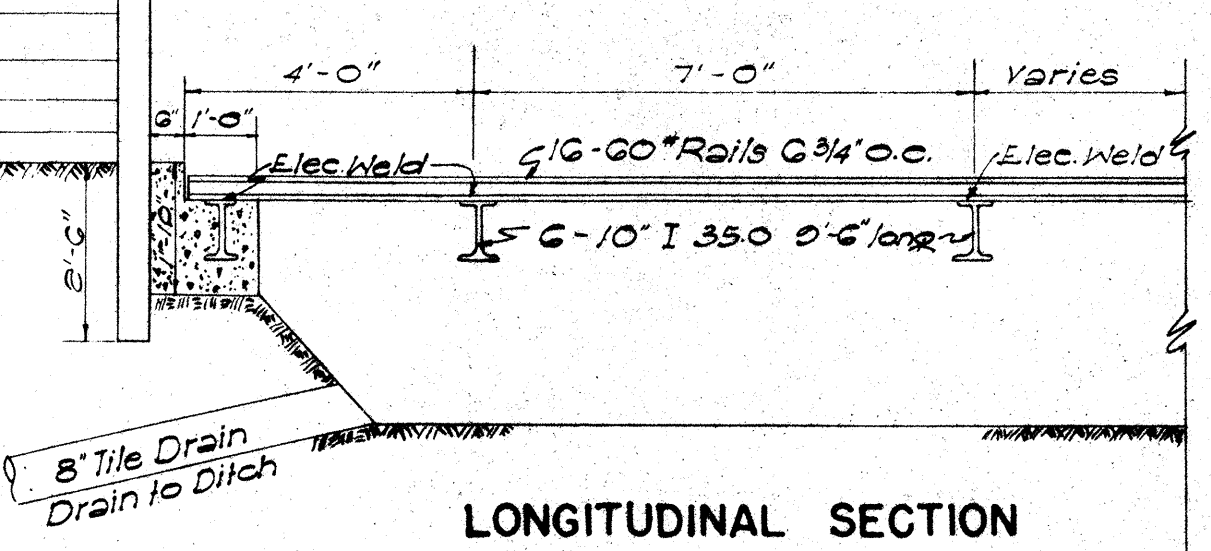
Height of Fence	Line Post		End Post		Top Rail		Depth of Footing		Length of Posts	
	Column	Pipe	Pipe	Pipe	End Line	Top of Footing	End Line	End Line	End Line	End Line
3'	1.875	1.875	2.00	2.00	1.00	30"	24"	8" sq	5'-6"	5'-0"
4'	1.875	1.875	2.00	2.00	1.00	30"	24"	10" sq	6'-6"	6'-0"
5'	1.875	1.875	2.00	2.00	1.00	36"	36"	12" sq	8'-0"	8'-0"
6'	2.25	2.25	2.00	2.00	1.00	36"	36"	12" sq	9'-0"	9'-0"



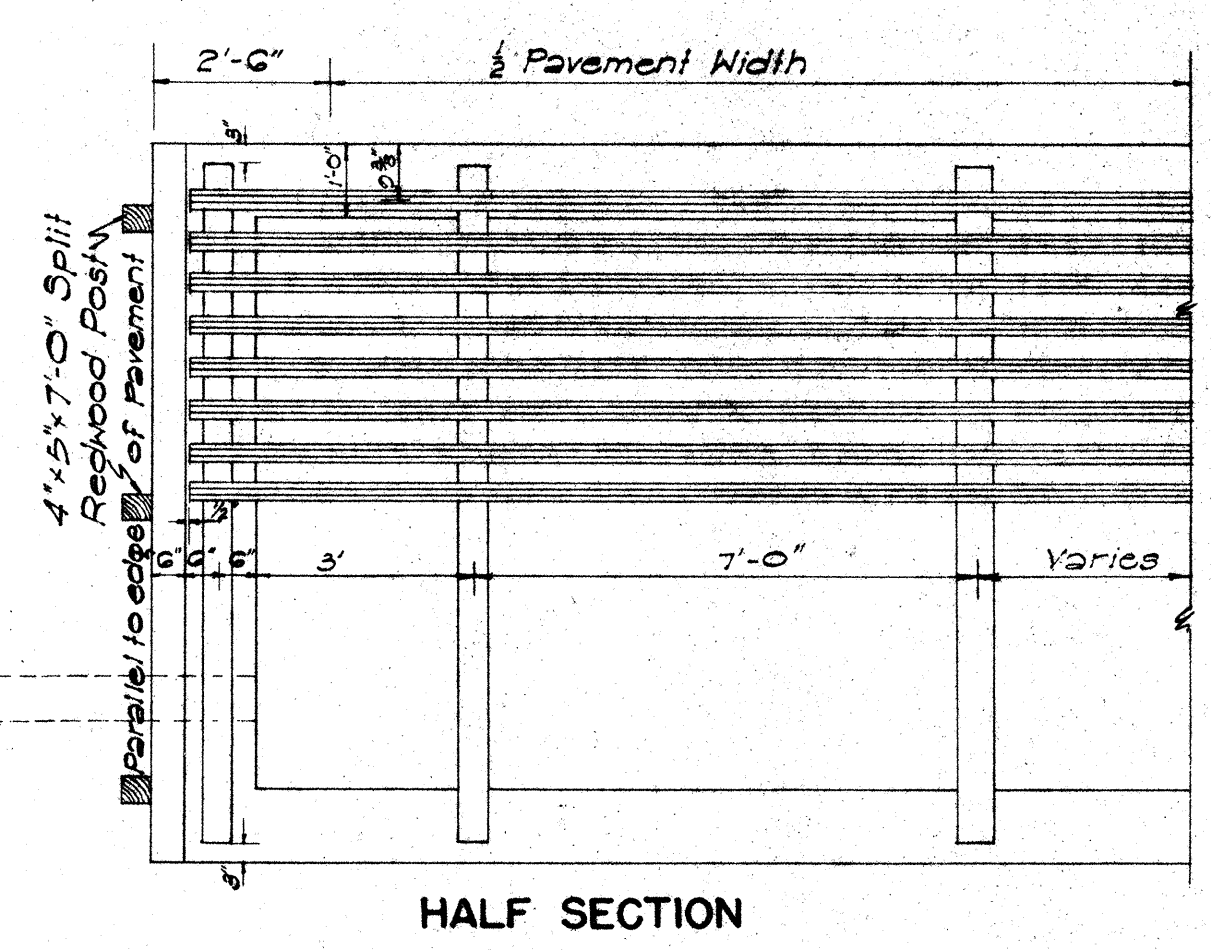
DETAIL OF CHAIN LINK FENCE
Scale: 1/2" = 1' - 0"



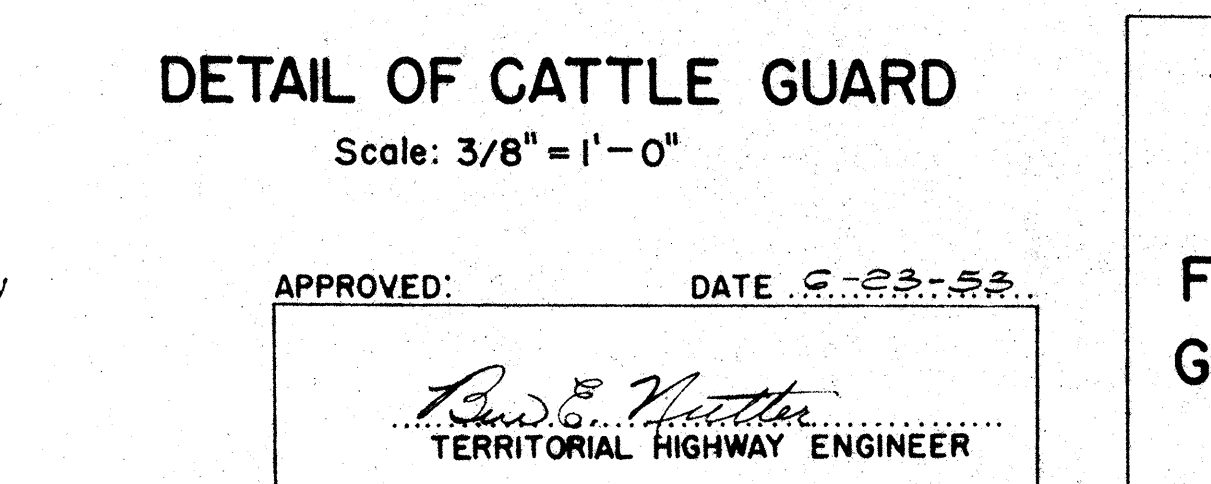
DETAIL OF WOVEN WIRE FENCE
Scale: 1/4" = 1' - 0"



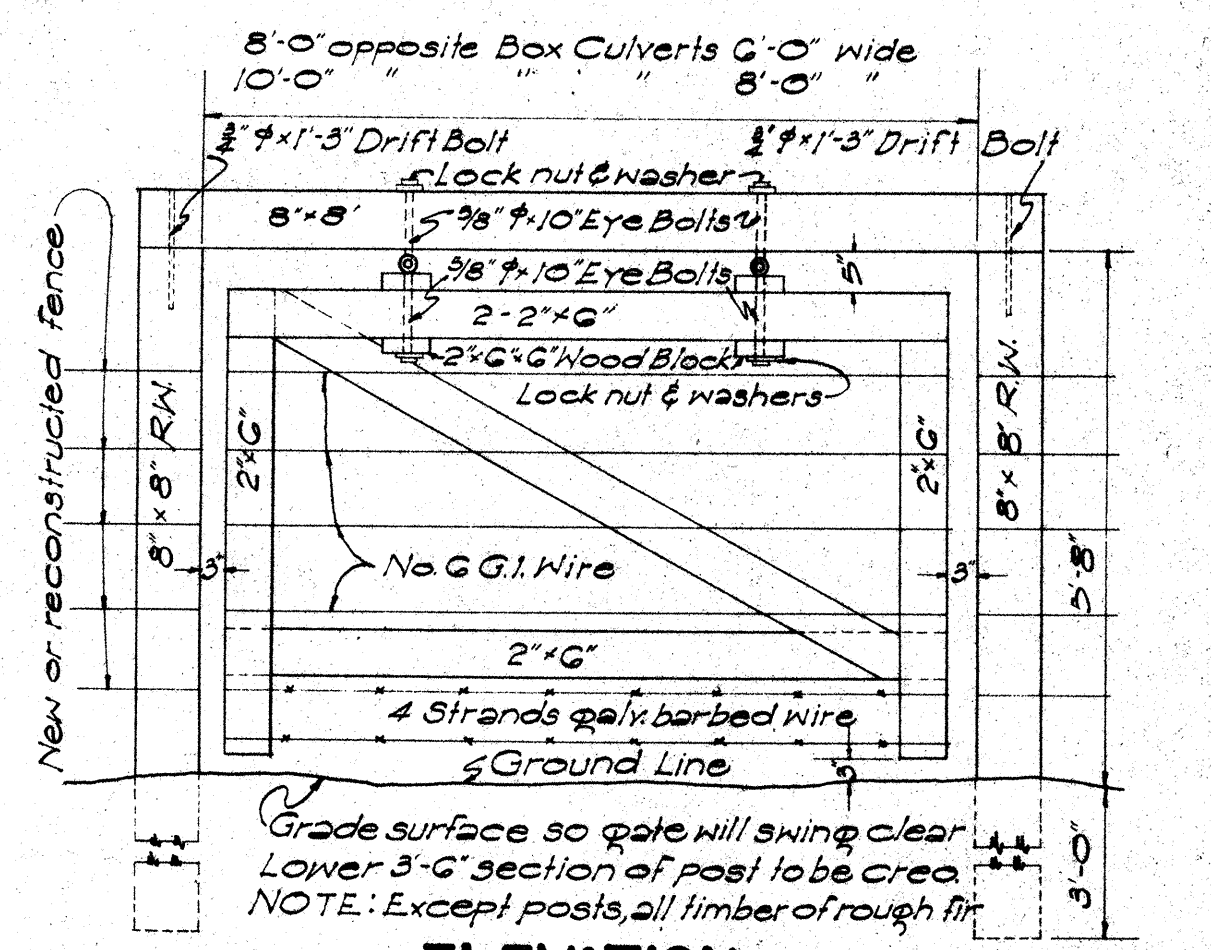
LONGITUDINAL SECTION



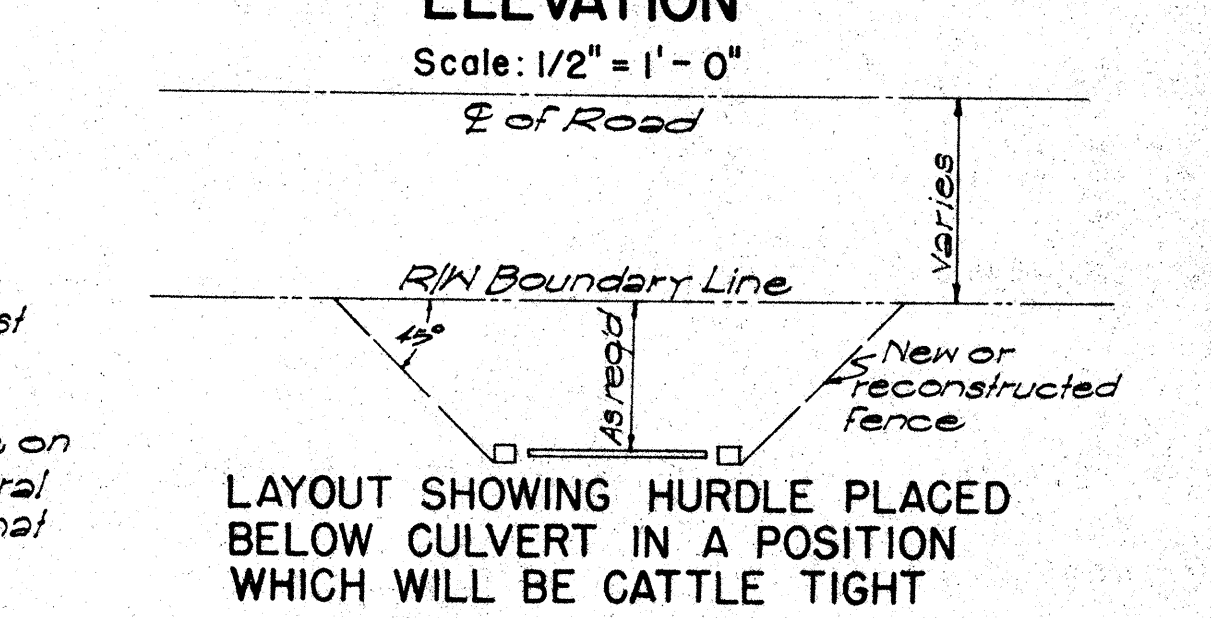
HALF SECTION



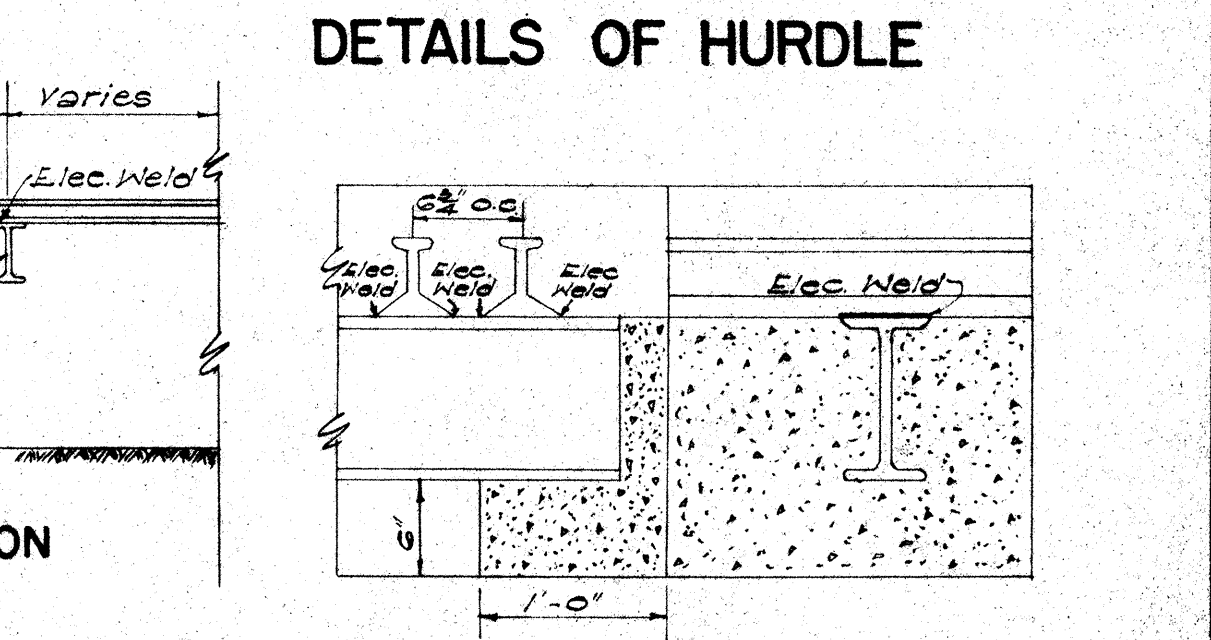
DETAIL OF CATTLE GUARD
Scale: 3/8" = 1' - 0"



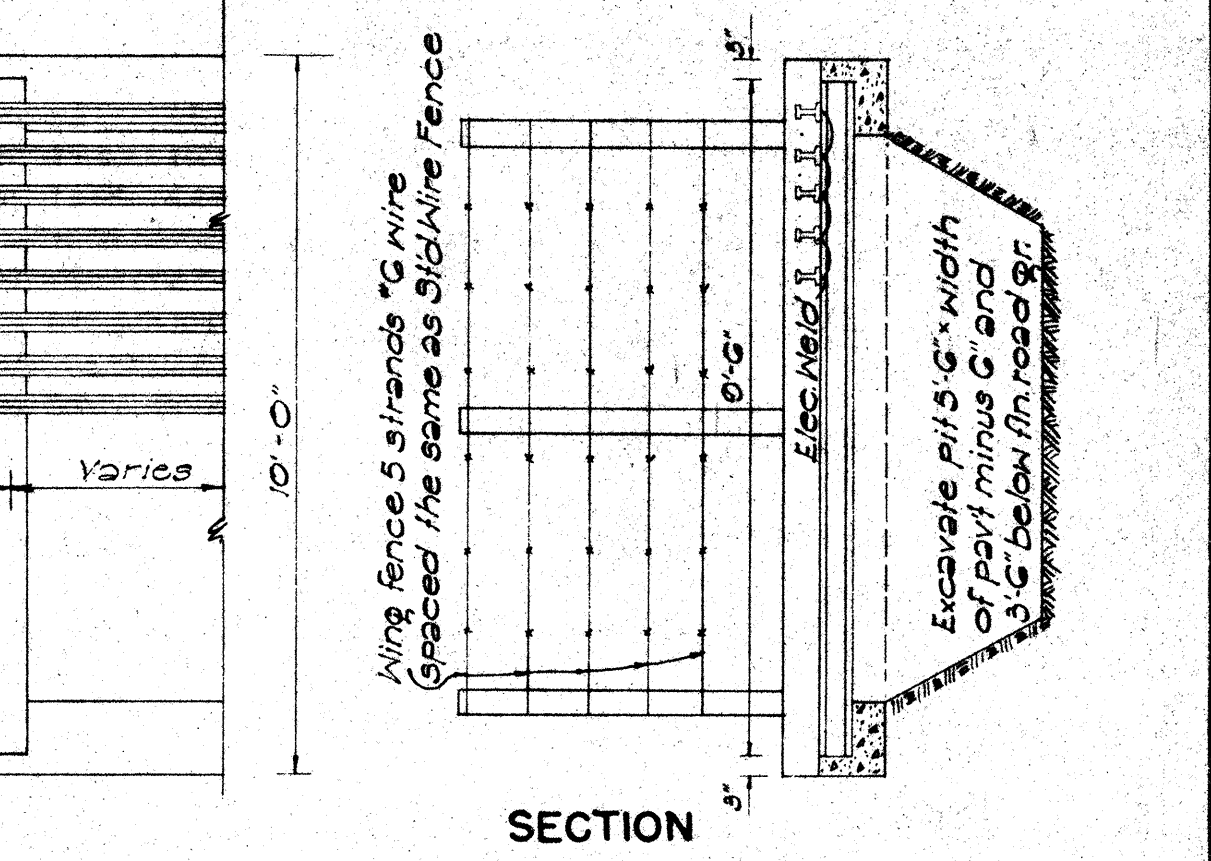
ELEVATION
Scale: 1/2" = 1' - 0"



LAYOUT SHOWING HURDLE PLACED BELOW CULVERT IN A POSITION WHICH WILL BE CATTLE TIGHT



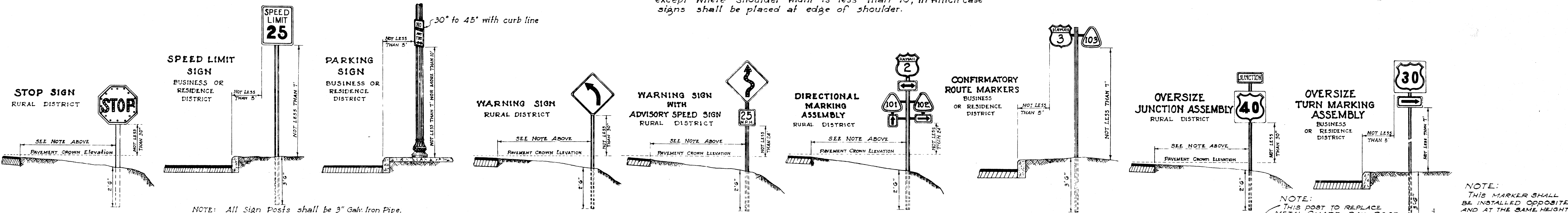
DETAILS OF HURDLE



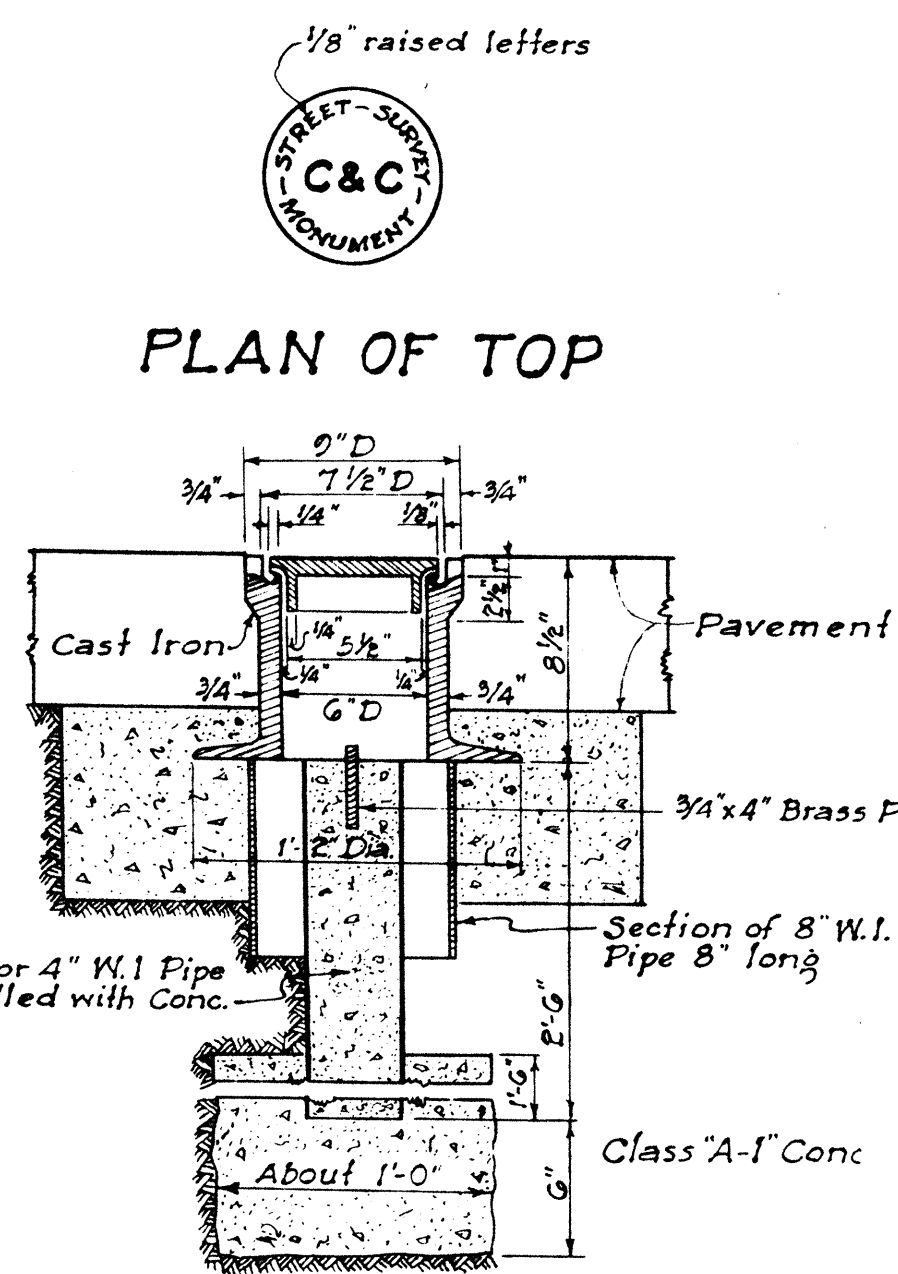
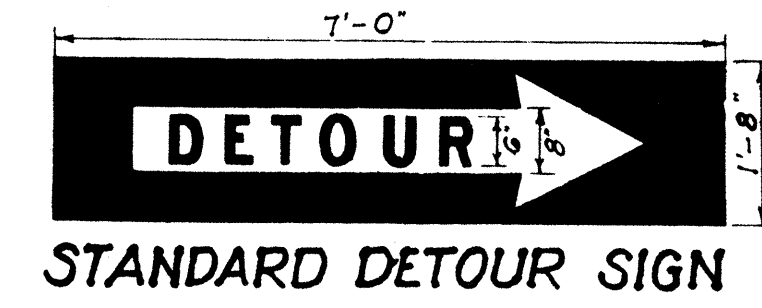
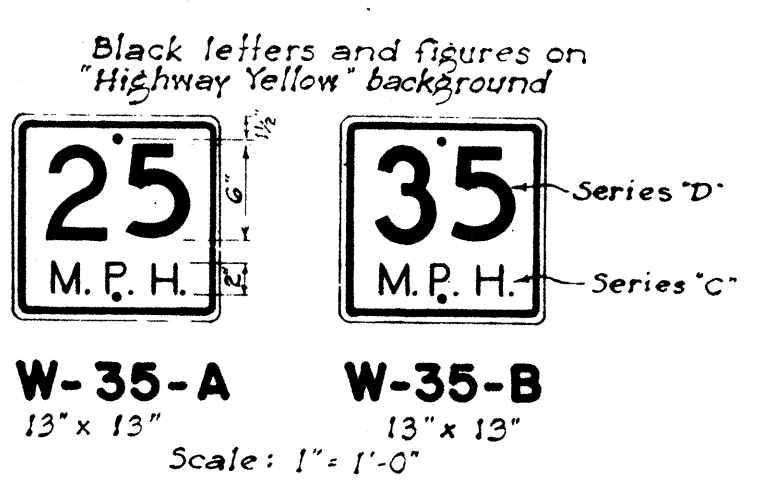
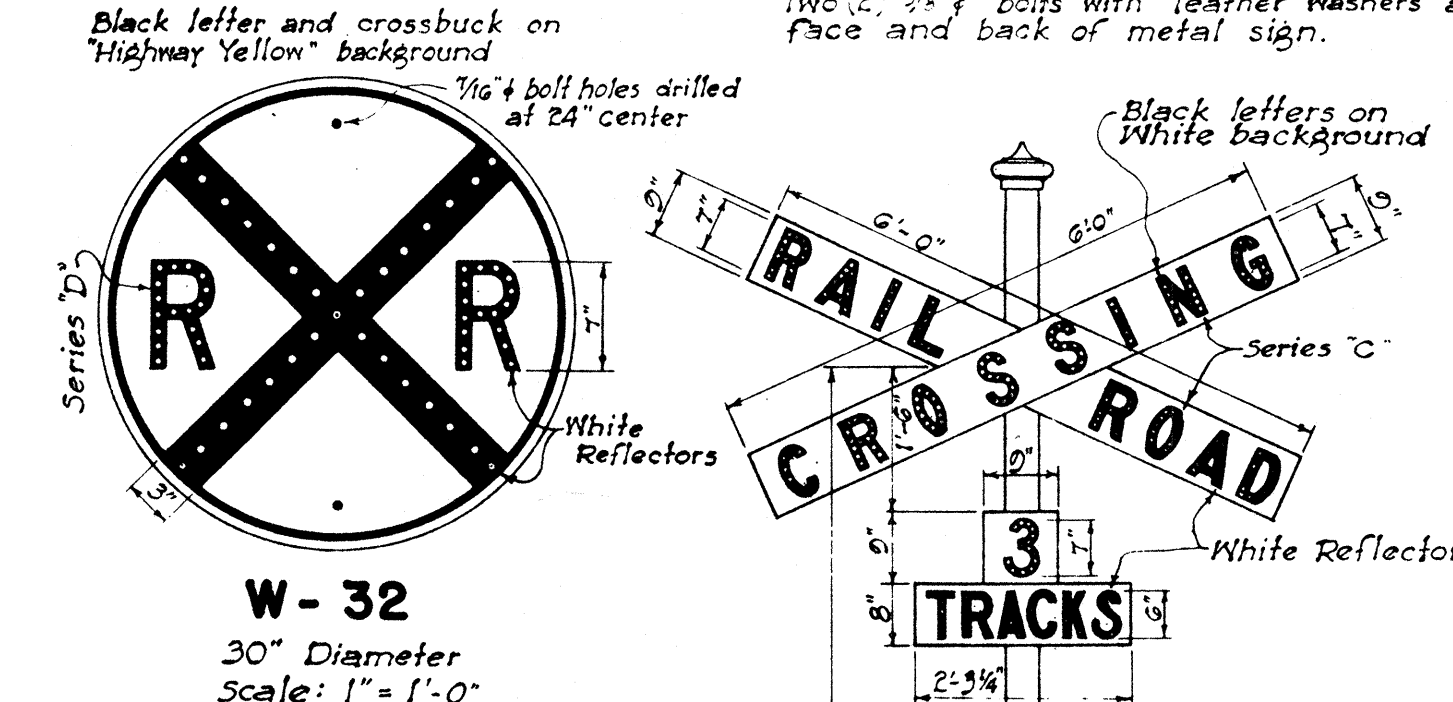
SECTION

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD DETAILS
FENCES, GATES, GUARD RAILS,
GUIDE POSTS, CATTLE GUARD
SCALES AS NOTED

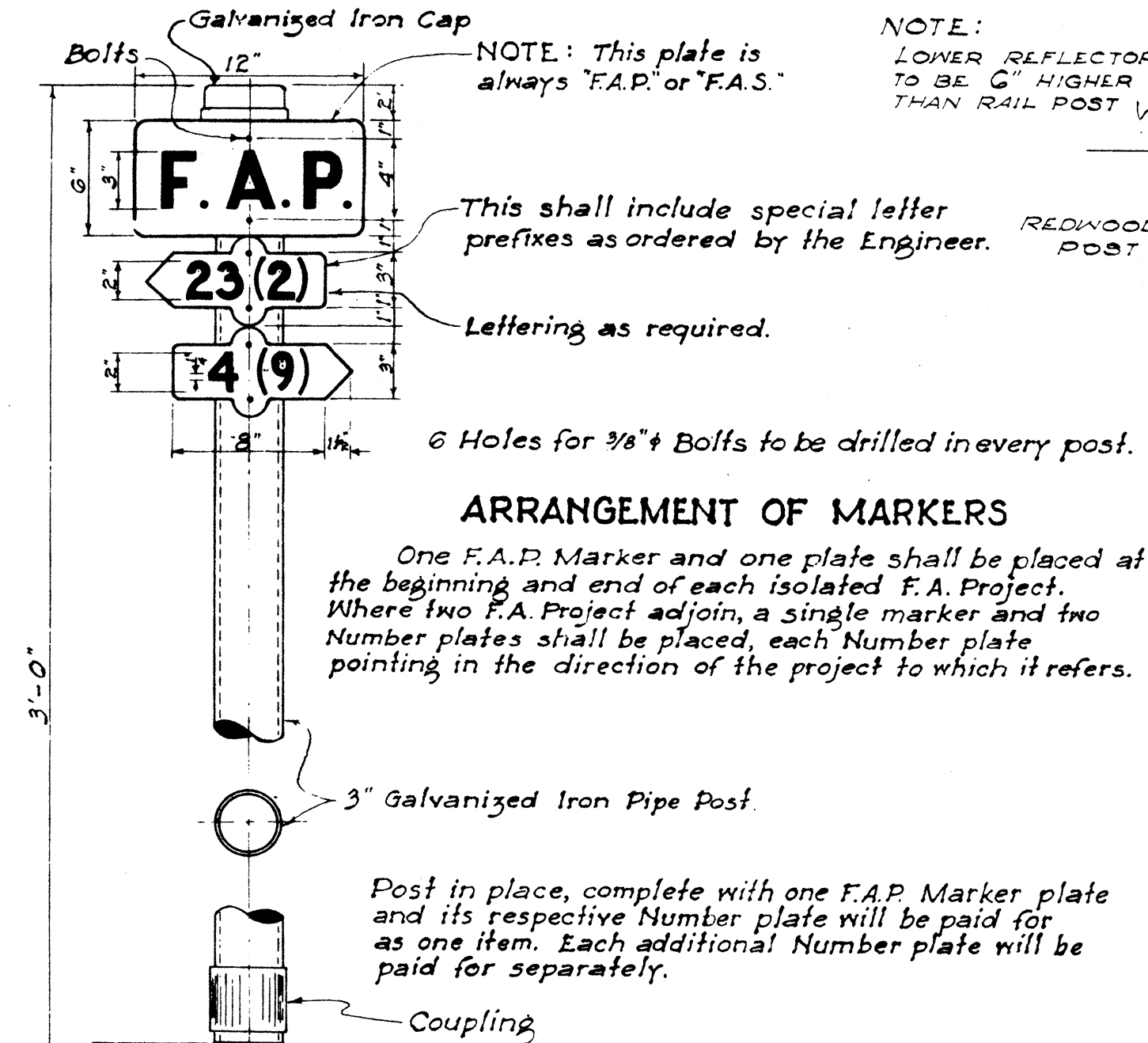
NOTE: All signs shall be placed 10' from edge of pavement except where shoulder width is less than 10', in which case signs shall be placed at edge of shoulder.



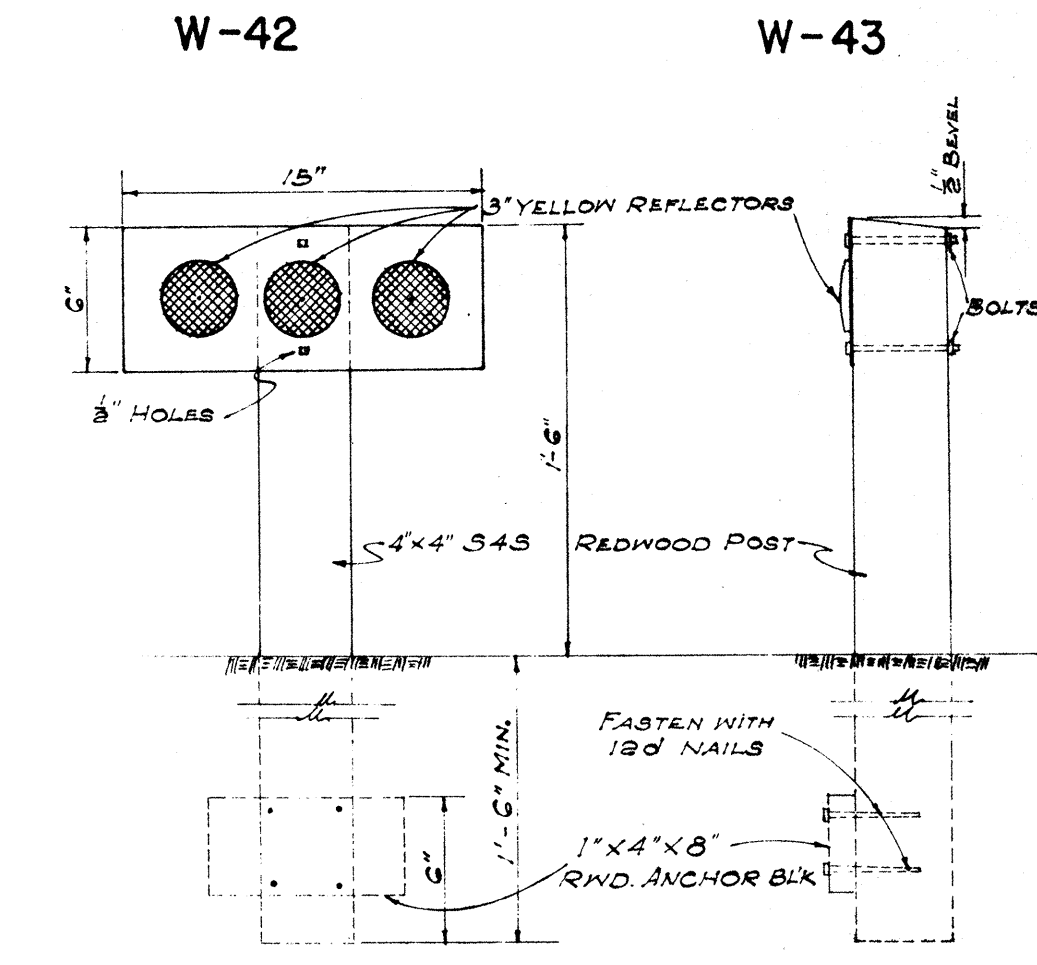
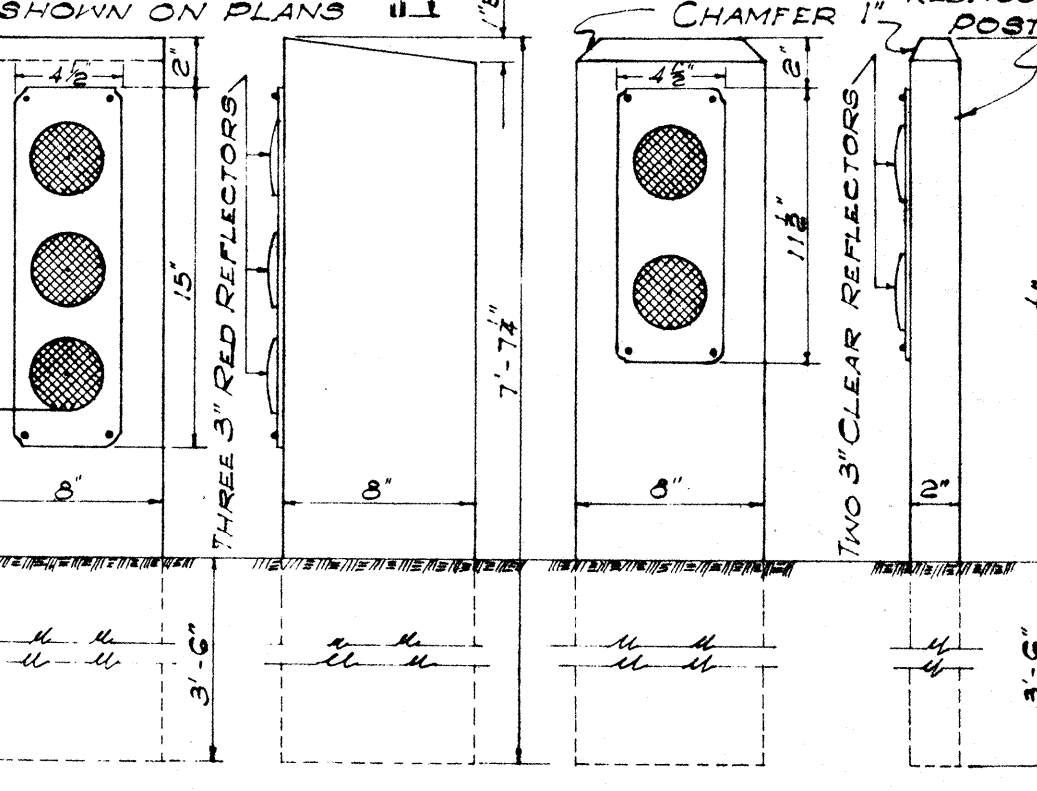
HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATIONS



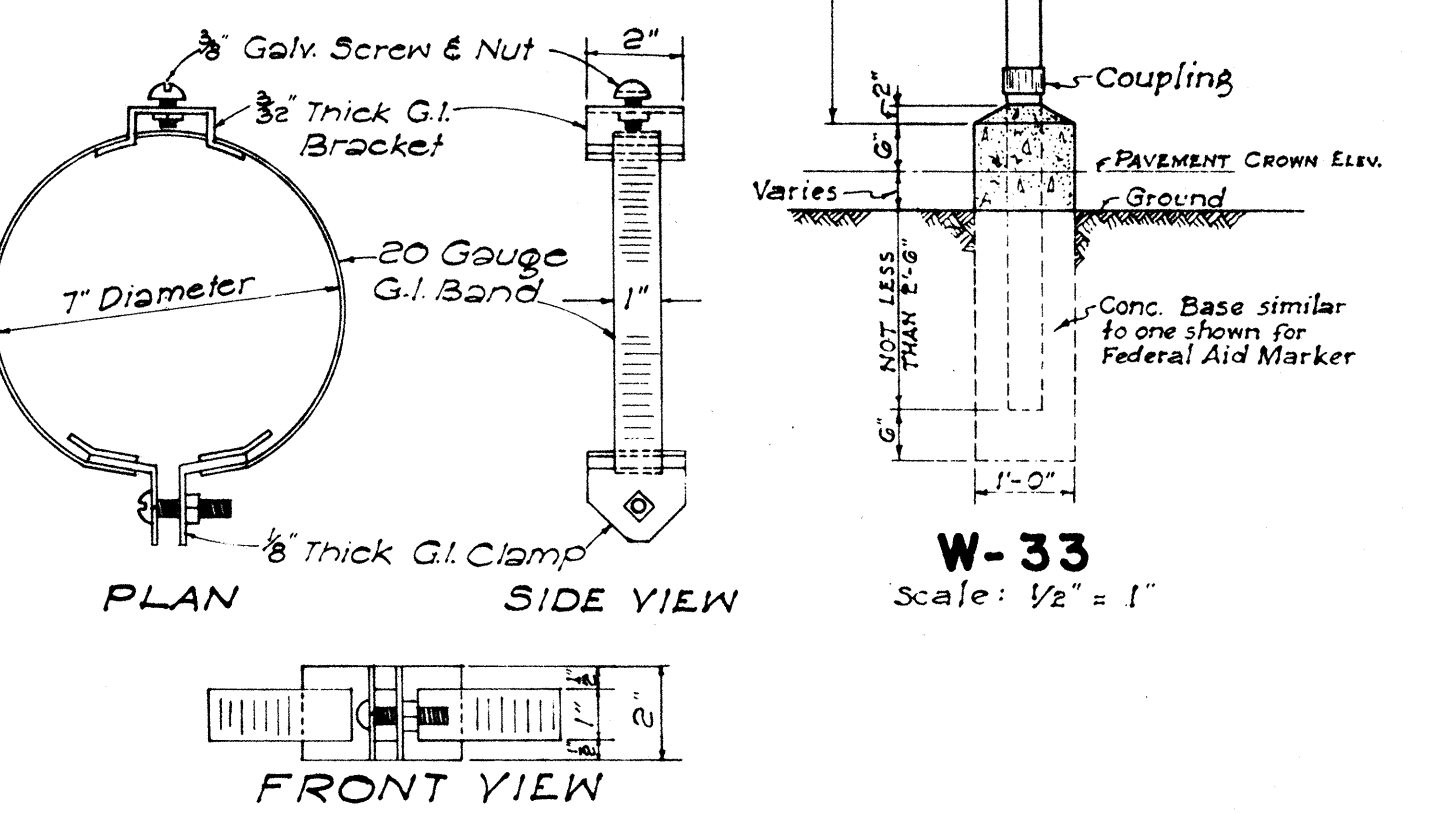
PLAN OF TOP
STANDARD C&C STREET SURVEY MONUMENT



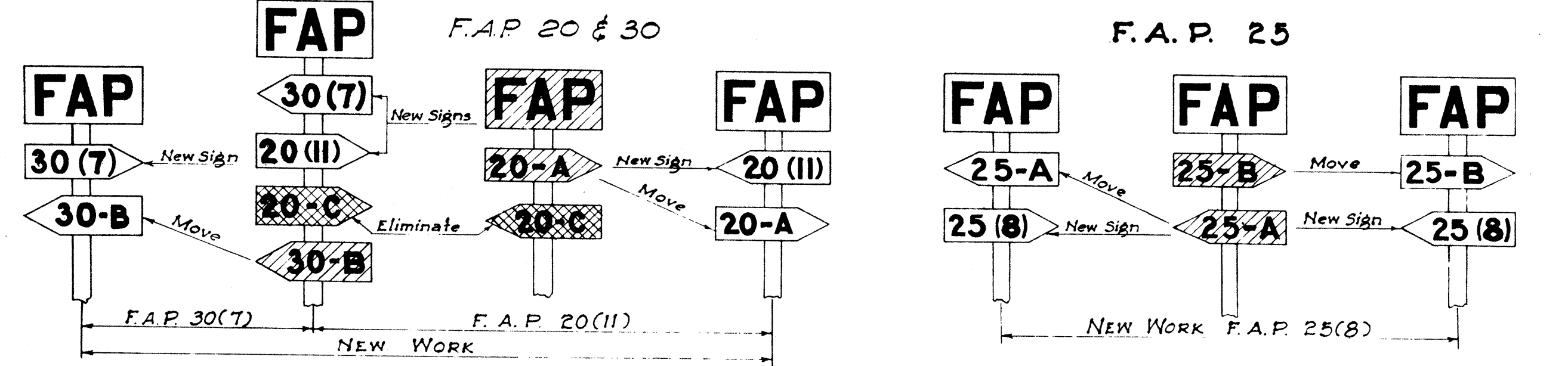
ARRANGEMENT OF MARKERS
One F.A.P. Marker and one plate shall be placed at the beginning and end of each isolated F.A. Project. Where two F.A. Projects adjoin, a single marker and two Number plates shall be placed, each Number plate pointing in the direction of the project to which it refers.



DETAIL OF SIGNS
SCALE: 1 1/2" = 1'-0"

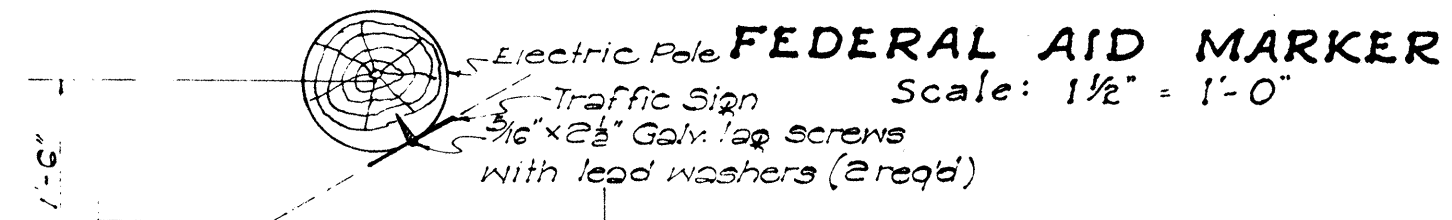


ADJUSTABLE BAND BRACKET FOR SUPPORTING TRAFFIC SIGNS ON MONOTUBE LIGHTING STANDARDS
Scale: 3/4" = 1'-0"
This product to be as shown in Catalogue No. 48 of Cataphote Corp. or equal.



NOTE: Federal Aid Markers should be placed at the termini of suffix designated sections. Intermediate letter designated markers of adjacent sections located within the limits of new improvements should be moved to the termini of the new work. The same procedure would be followed on each successive improvement until all markers for letter designated sections are eventually eliminated.

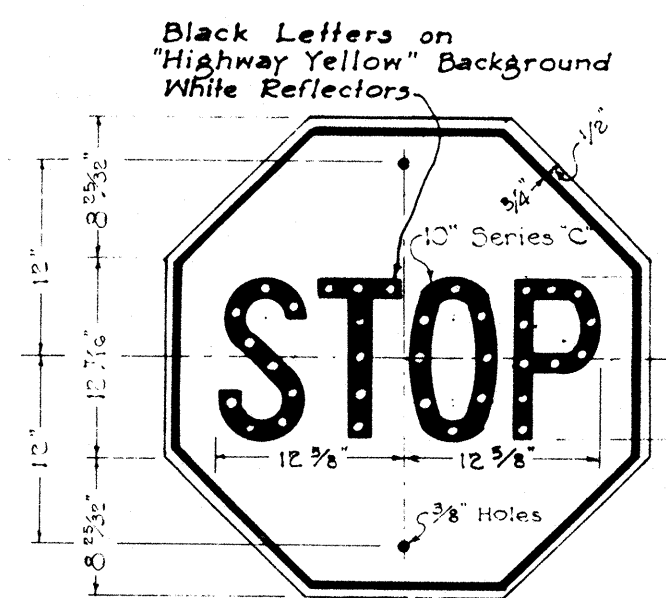
METHOD OF MARKING F.A. PROJECTS AT OVERLAPS
(USING NUMBER SUFFIX ON NEW WORK)



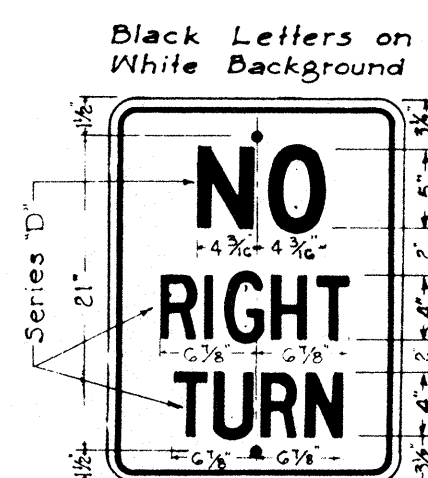
DETAIL SHOWING ANGLE OF TRAFFIC SIGNS AND CURB LINE
Scale: 1" = 1'-0"
Above detail applies to 'R-18' and 'R-18A' only.

APPROVED: _____ DATE: 6-23-53
TERRITORIAL HIGHWAY ENGINEER

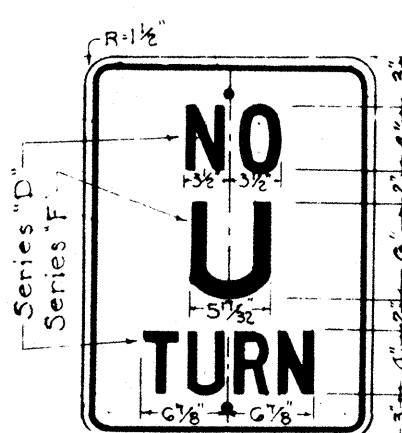
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD DETAILS
F.A. MARKERS, MONUMENTS
SIGNS & LOCATION OF SIGNS
SCALES AS NOTED



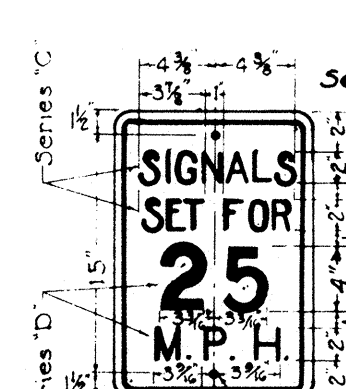
R-1



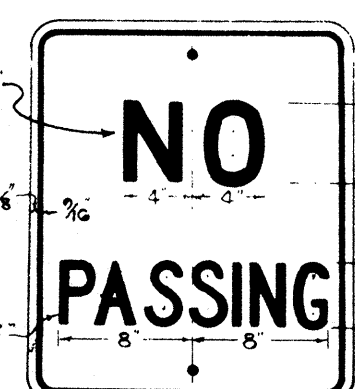
R-6
18" x 24"



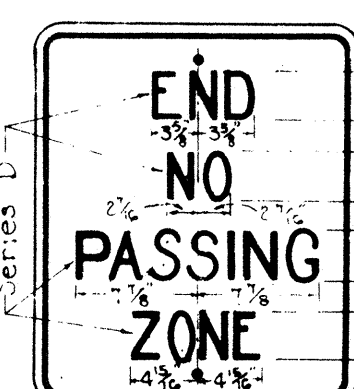
R-8
18" x 24"



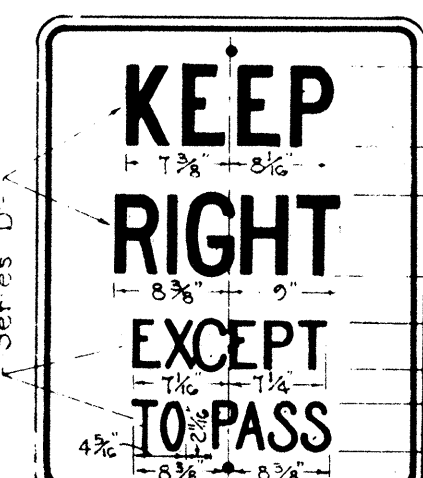
R-10
12" x 18"



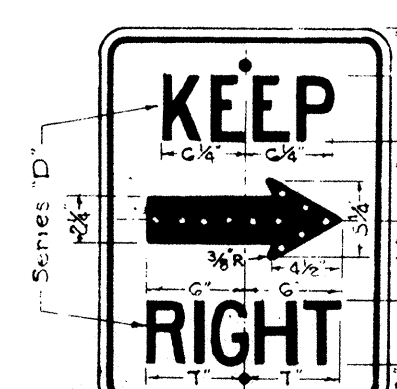
R-11
20" x 24"



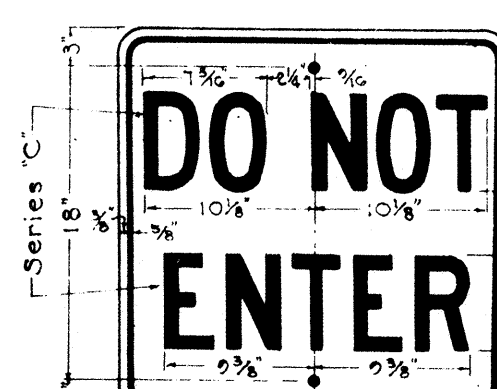
R-12
20" x 24"



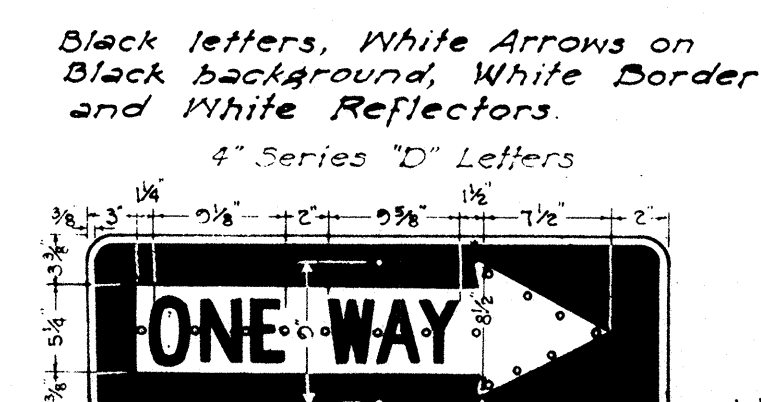
R-13
24" x 30"



R-14
18" x 24"



R-15
24" x 24"



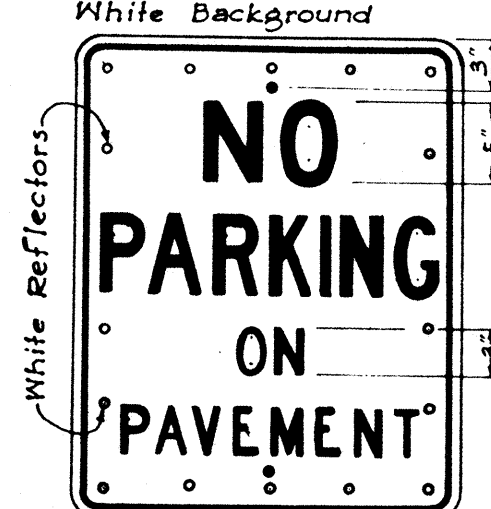
R-16-R
R-16-L
36" x 12"



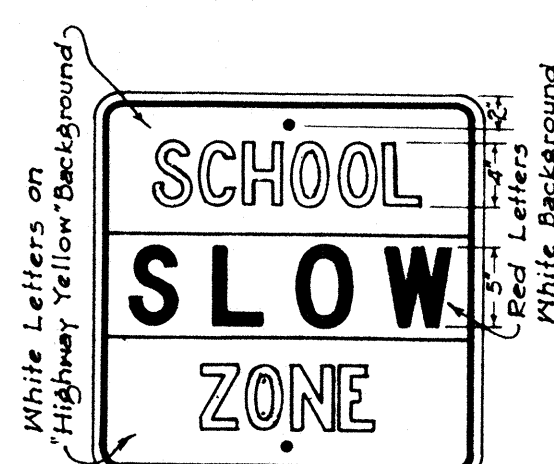
R-18
12" x 18"



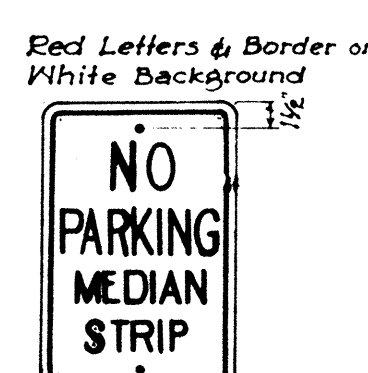
R-26
12" x 18"



R-29
24" x 30"



R-41-S
24" x 24"



R-42-S
12" x 18"



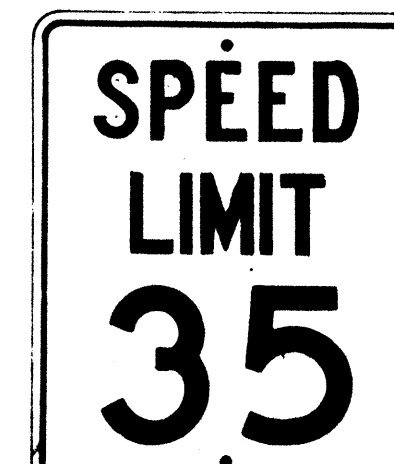
R-43-S
12" x 18"



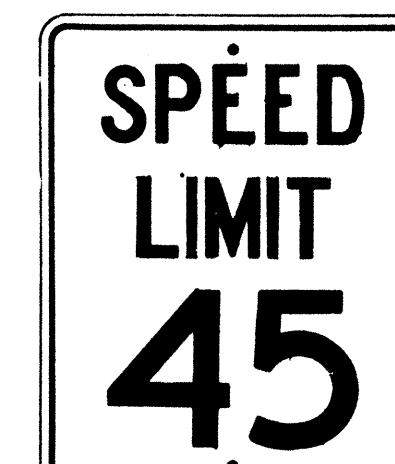
R-44-S
12" x 18"



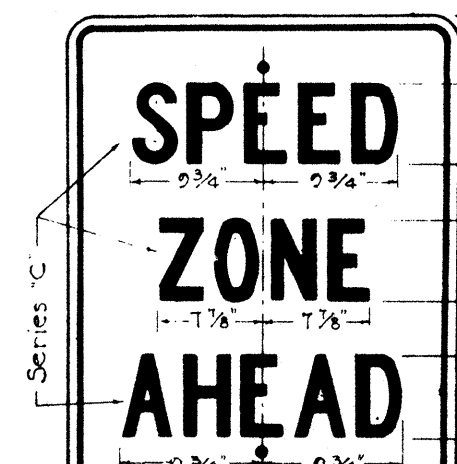
R-102-A
24" x 30"



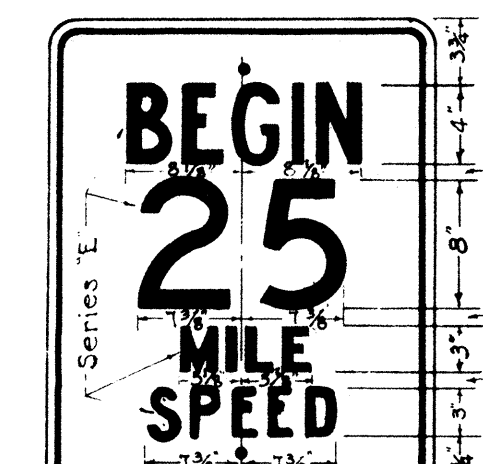
R-102-B
24" x 30"



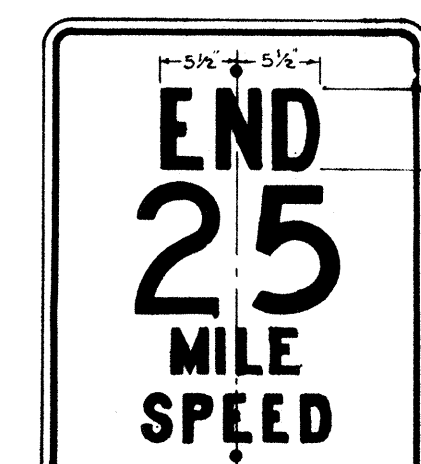
R-102-C
24" x 30"



R-104
24" x 30"



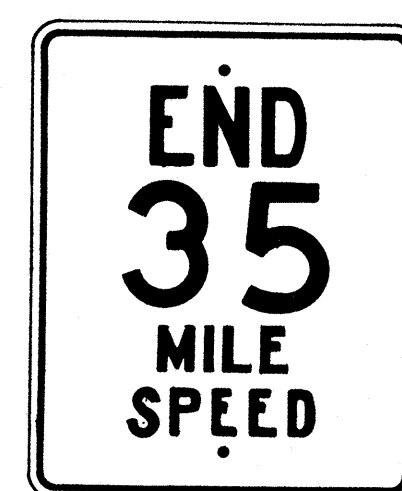
R-105-A
24" x 30"



R-105-B
24" x 30"



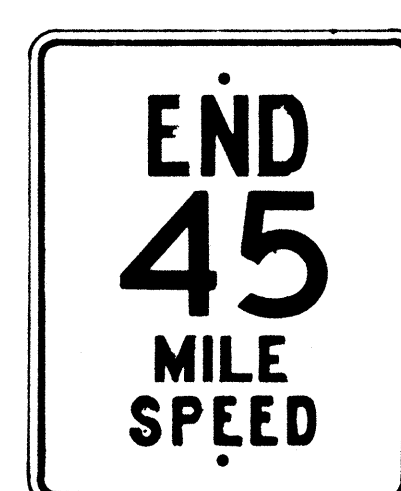
R-105-C
24" x 30"



R-105-D
24" x 30"



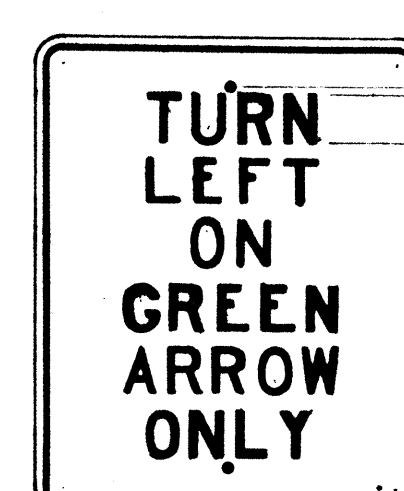
R-105-E
24" x 30"



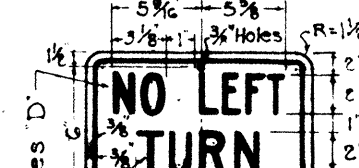
R-105-F
24" x 30"



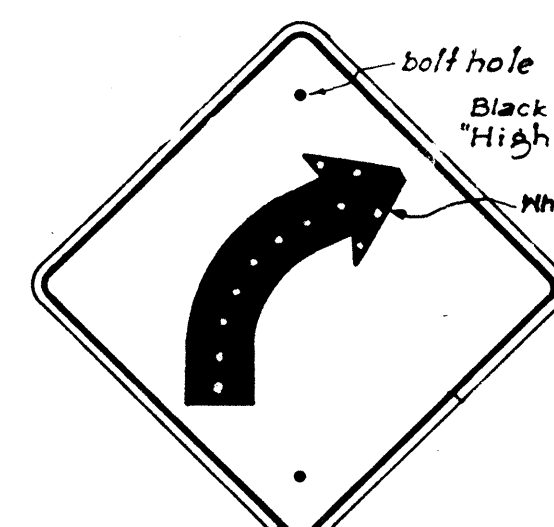
R-106
24" x 30"



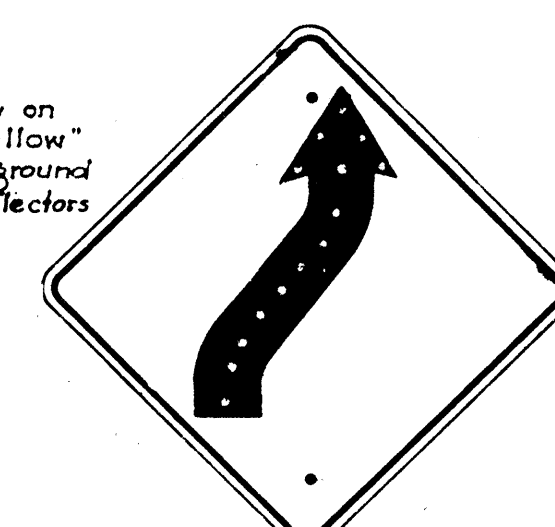
R-107-A
24" x 30"



R-107
14" x 9"



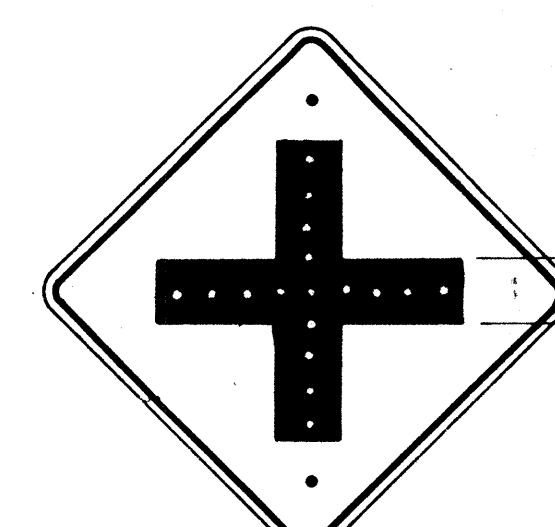
W-2-R
*W-2-L
24" x 24"



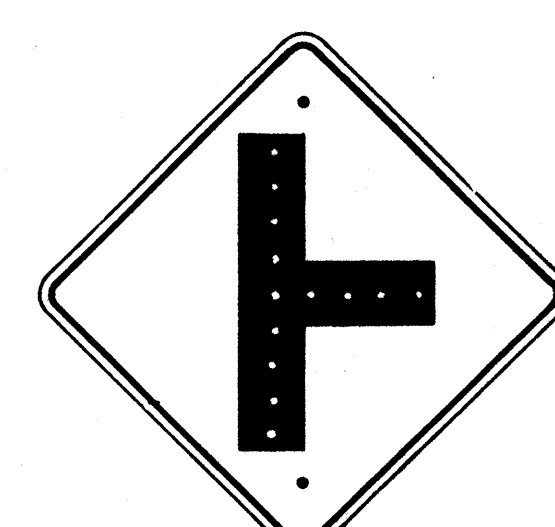
W-4-R
*W-4-L
24" x 24"



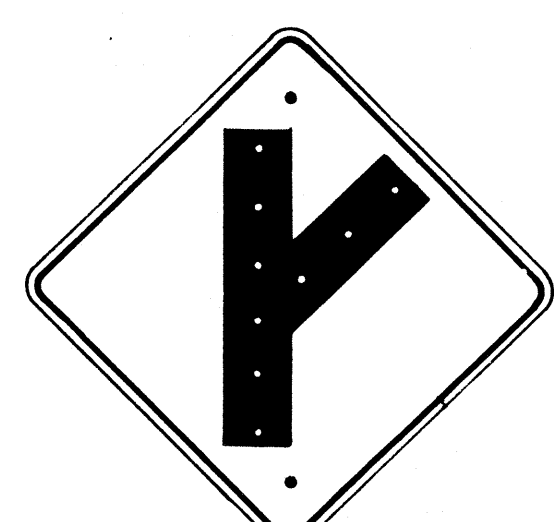
W-5-R
*W-5-L
24" x 24"



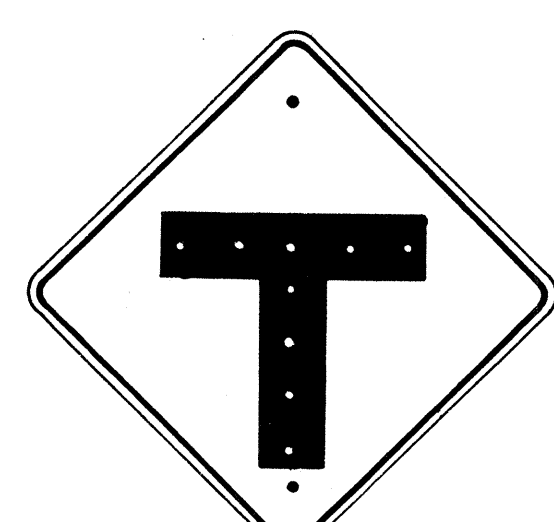
W-6
24" x 24"



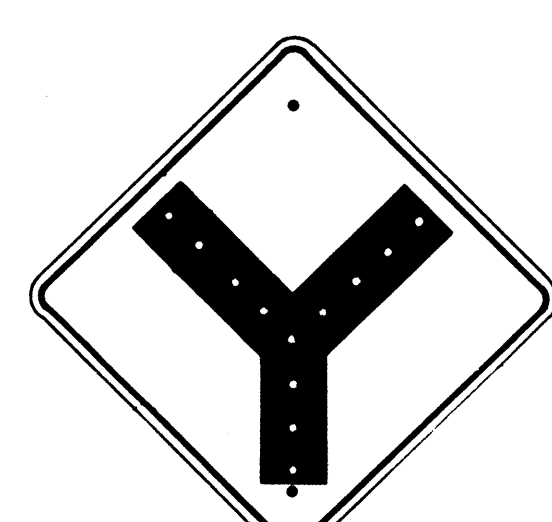
W-7
24" x 24"



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



W-9
24" x 24"



W-10
24" x 24"



W-13
24" x 24"



W-14
24" x 24"



W-14-A
24" x 24"



W-19
30" x 30"



W-20
30" x 30"



W-21
30" x 30"



W-22
24" x 24"



W-24
30" x 30"



W-25
24" x 24"



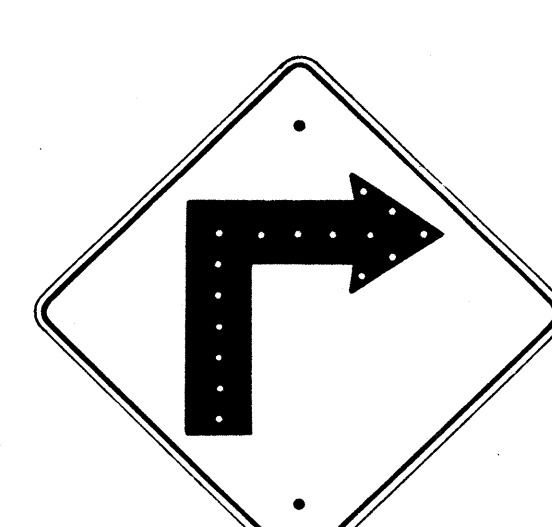
W-29
24" x 24"



W-38
24" x 24"



W-39
24" x 24"



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

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 (R) 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.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
REGULATORY & WARNING SIGNS
Scale: 1" = 1'
JUNE 23, 1953
APPROVED: *Ben E. Rutter*
TERRITORIAL HIGHWAY ENGINEER