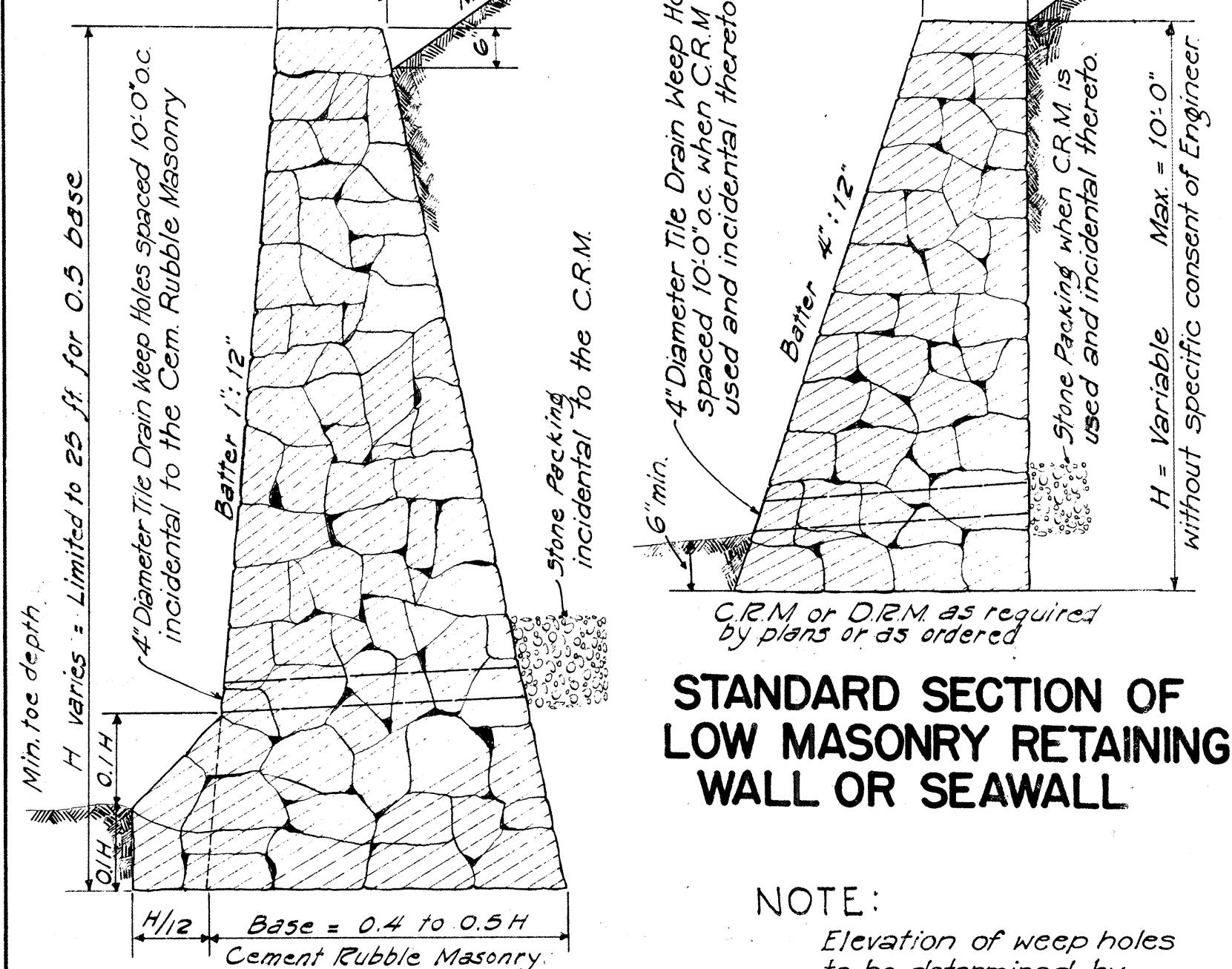
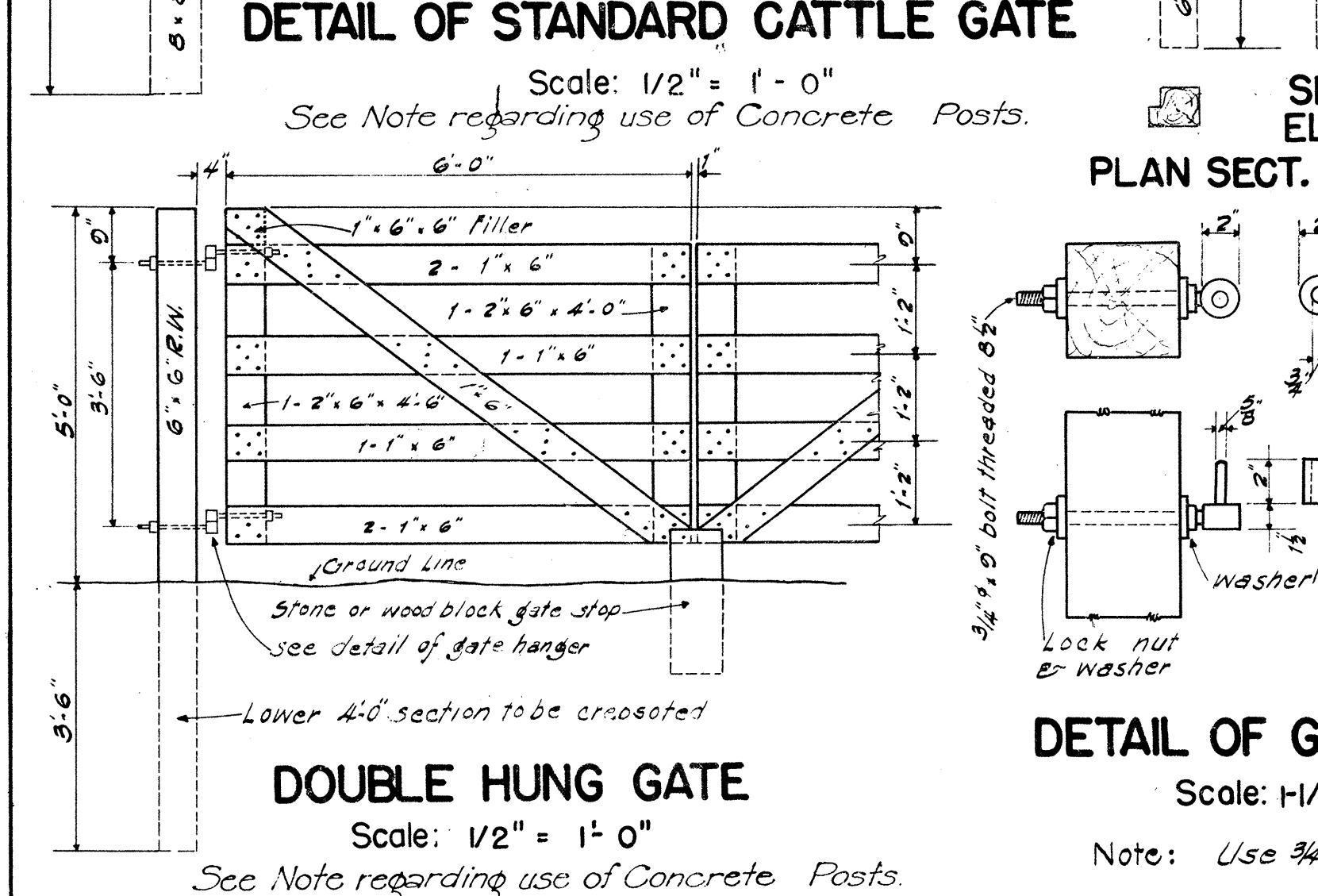
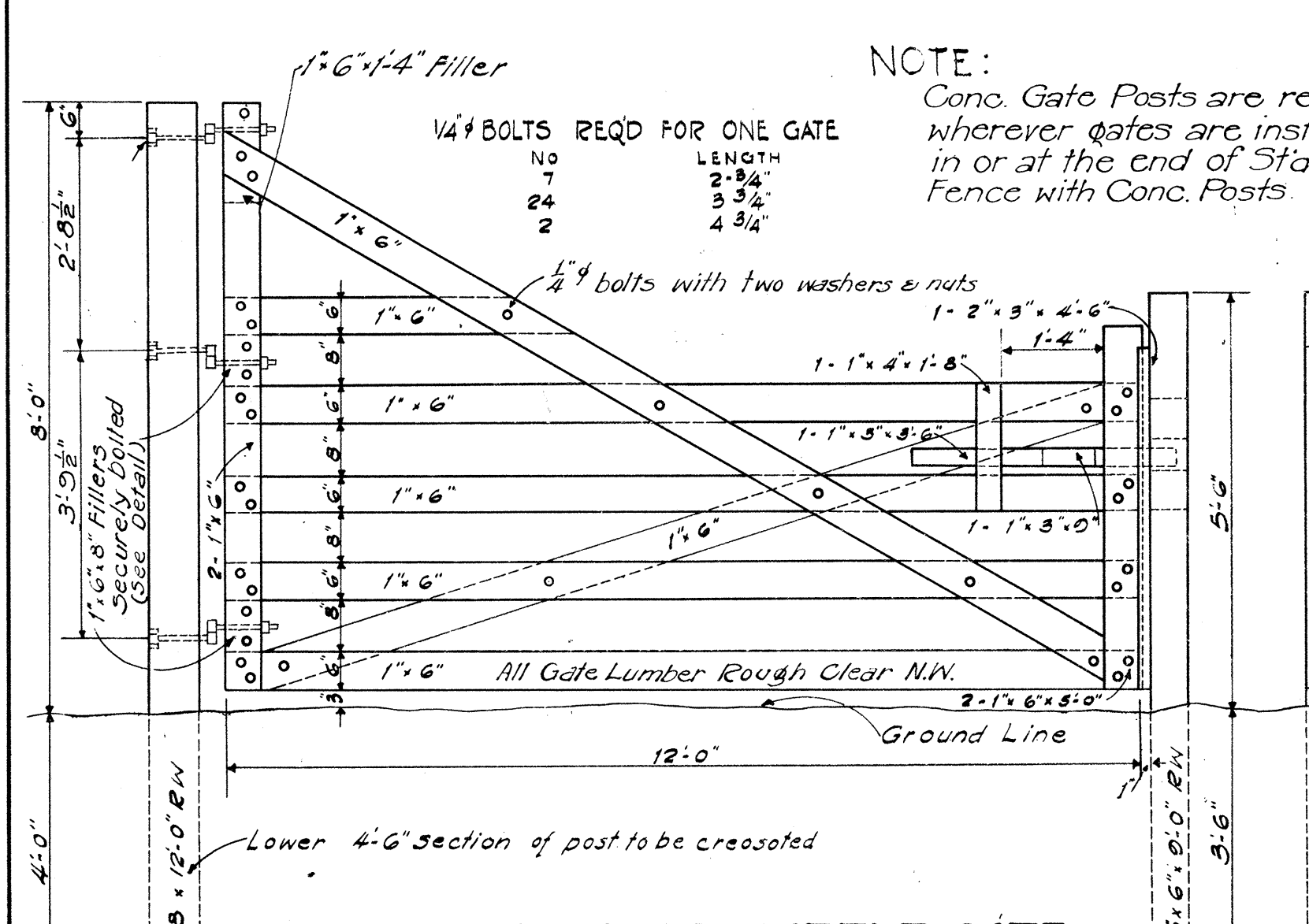


Note: TO RESIDENT ENGINEER
Consider economy of reinf. conc. for high retaining walls which did not originate on plan layout.



STANDARD SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

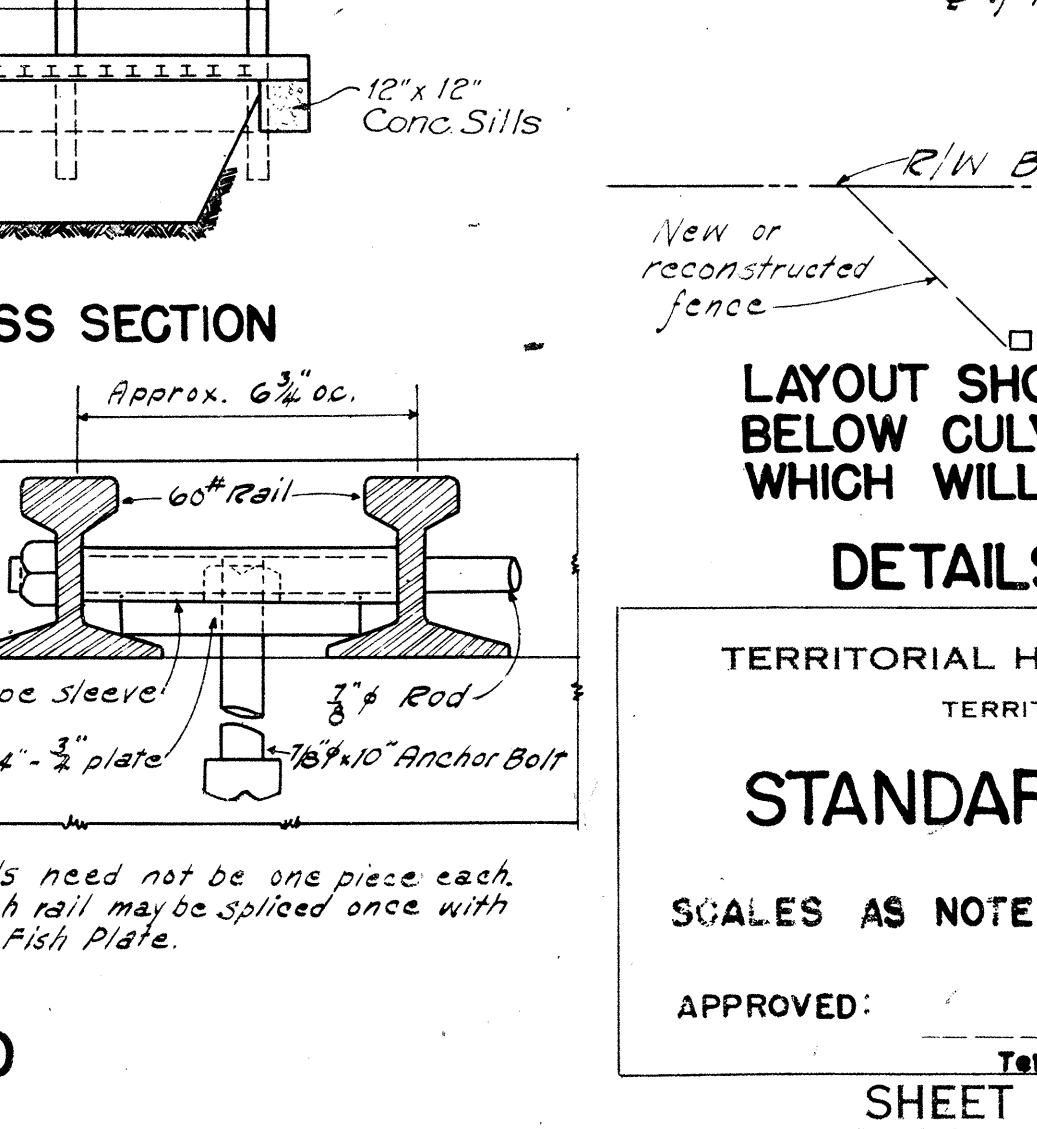
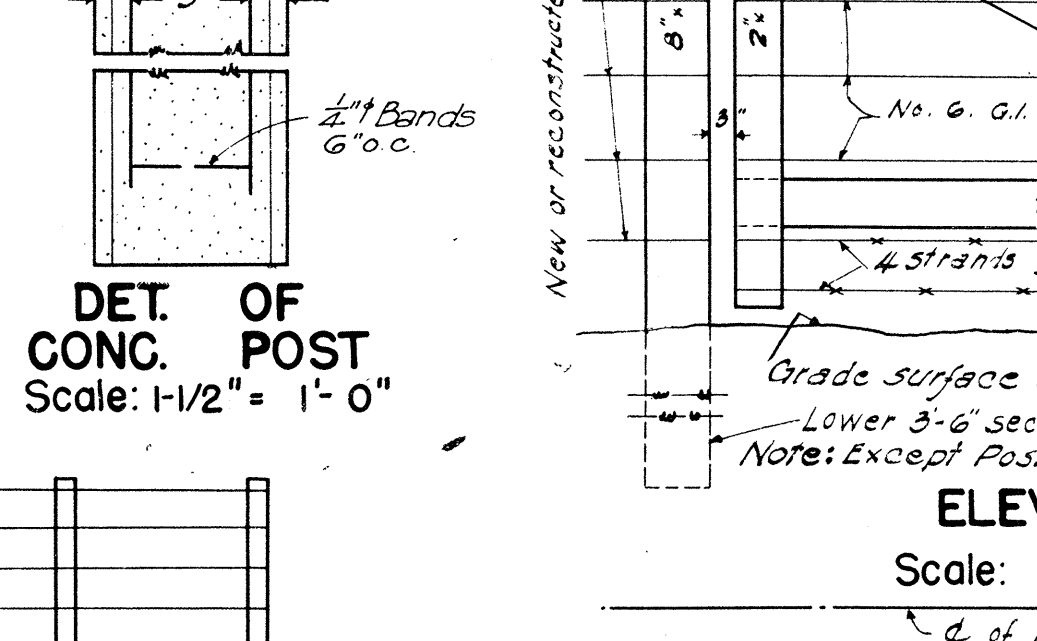
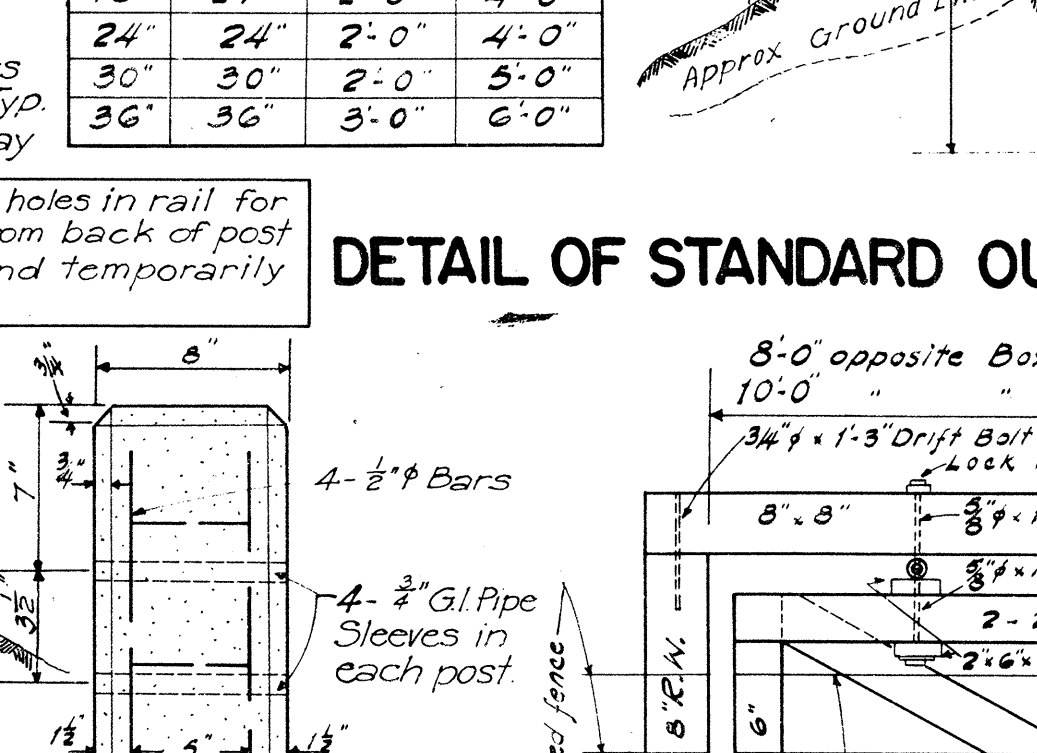
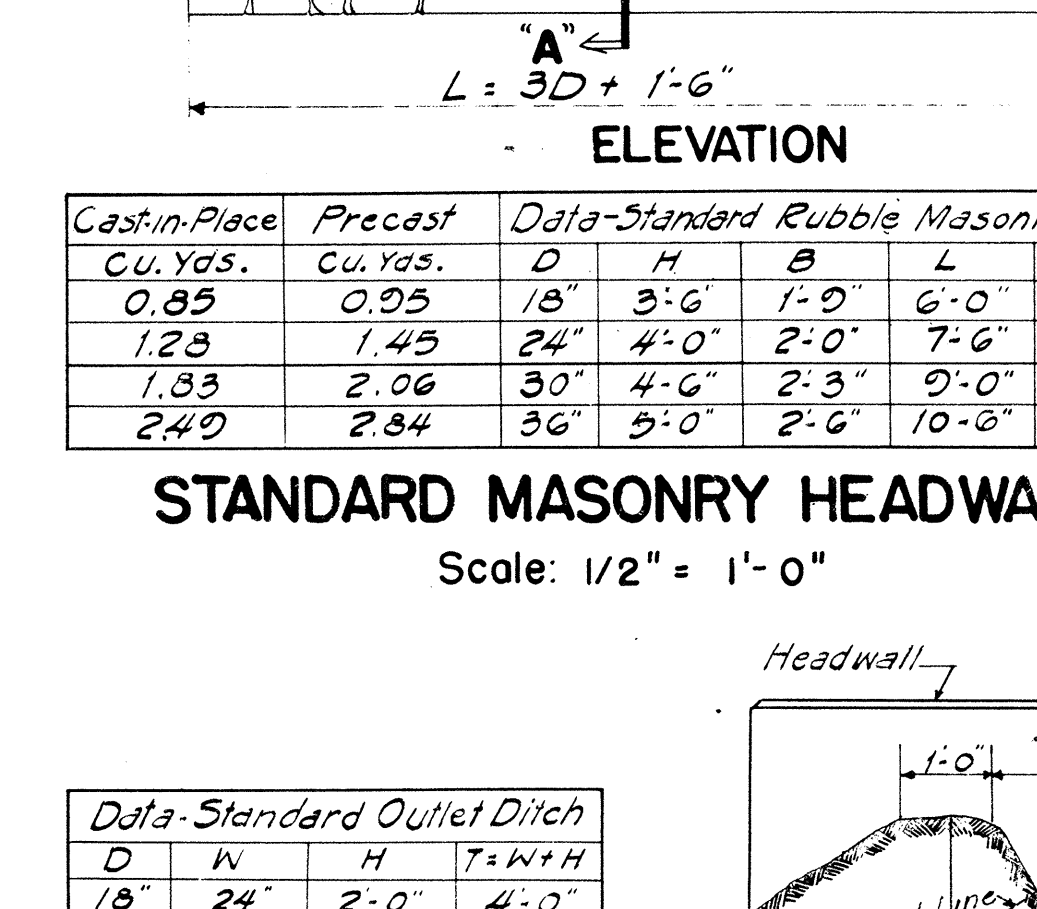
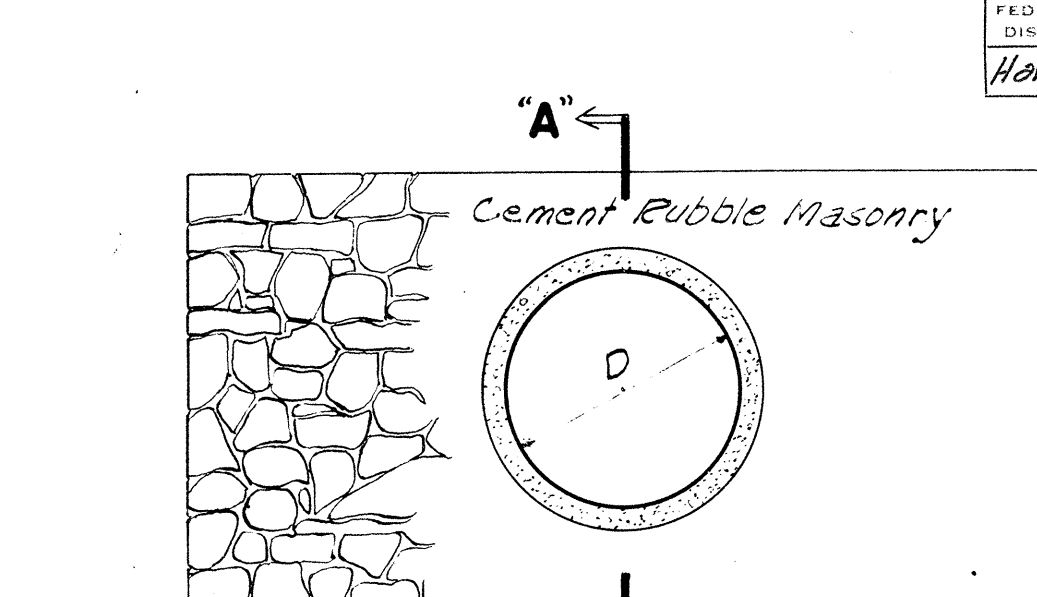
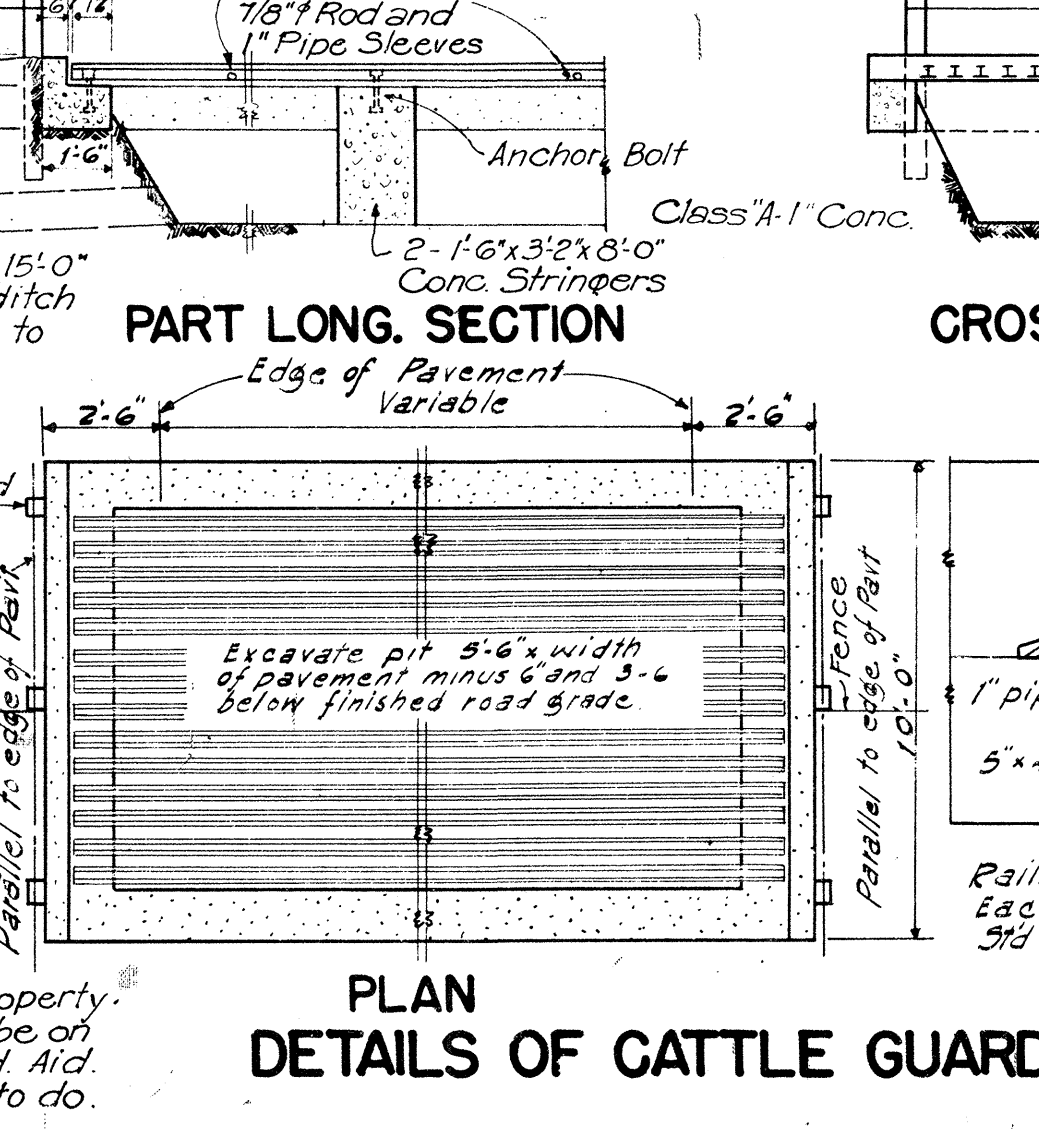
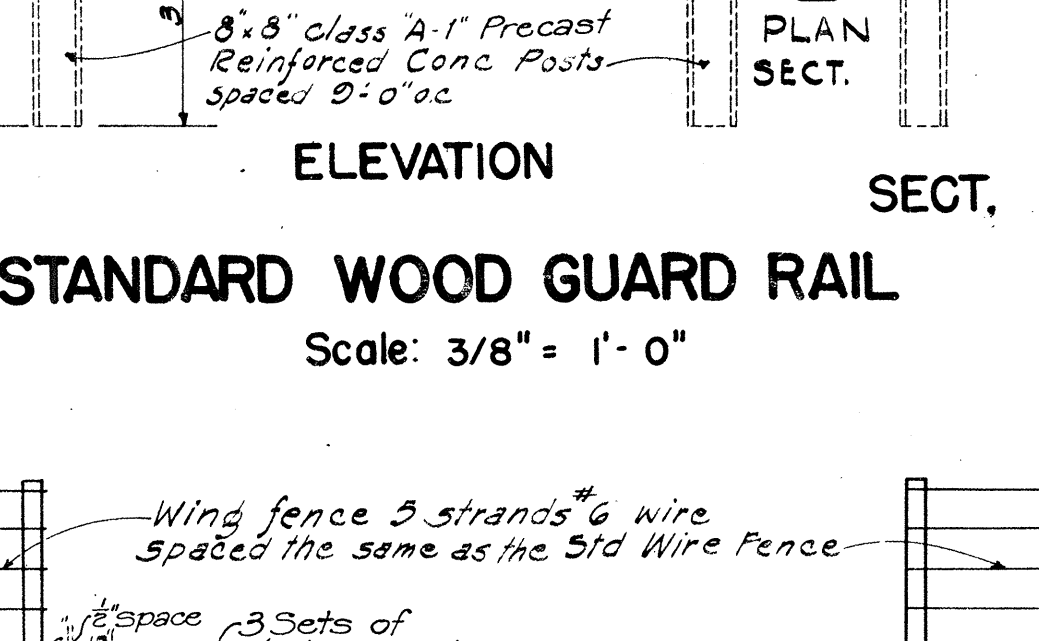
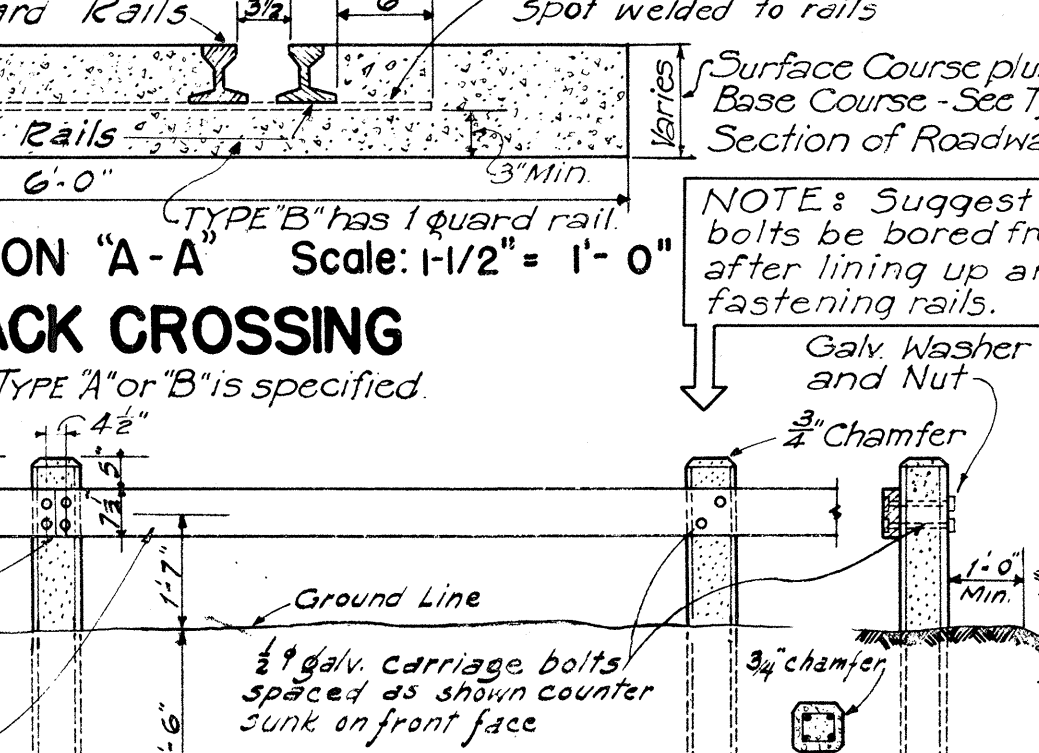
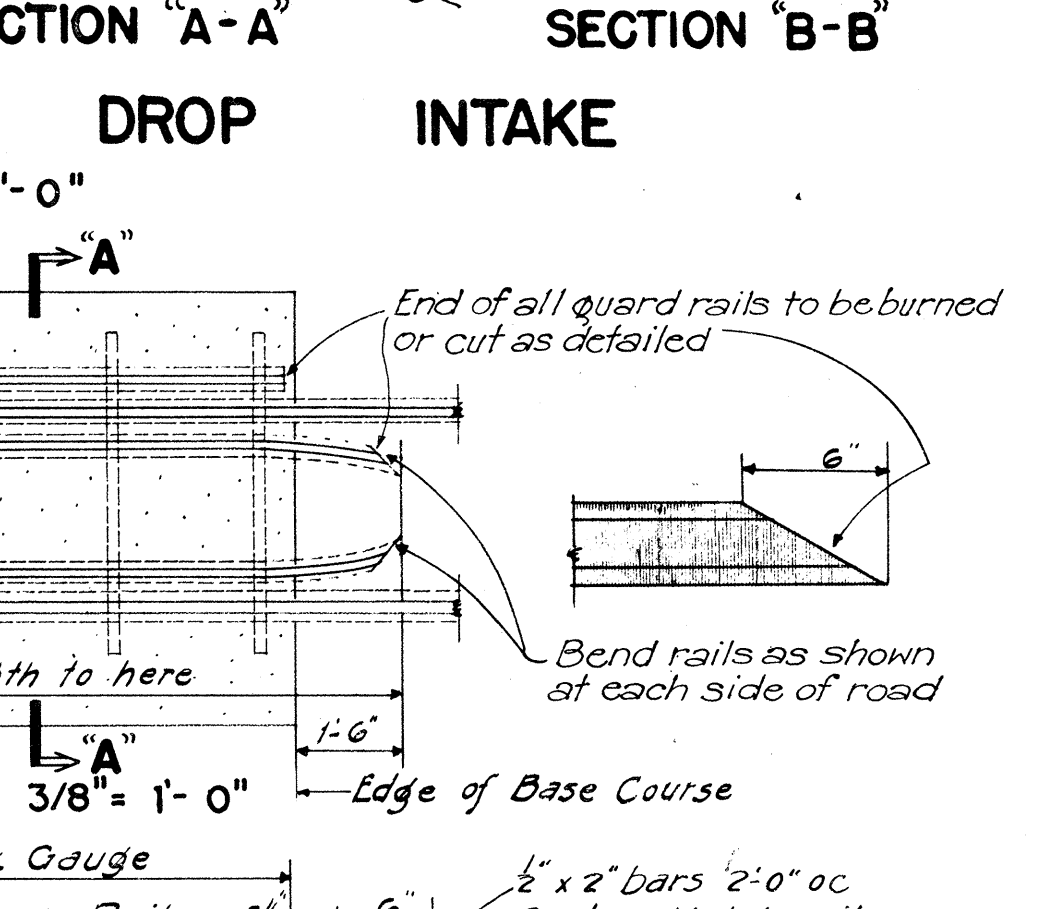
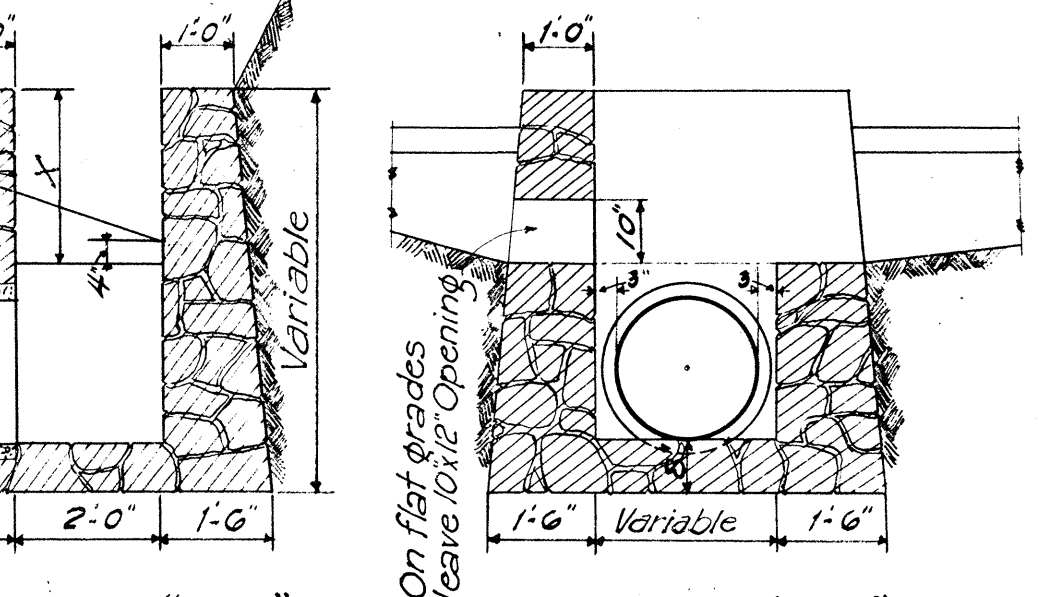
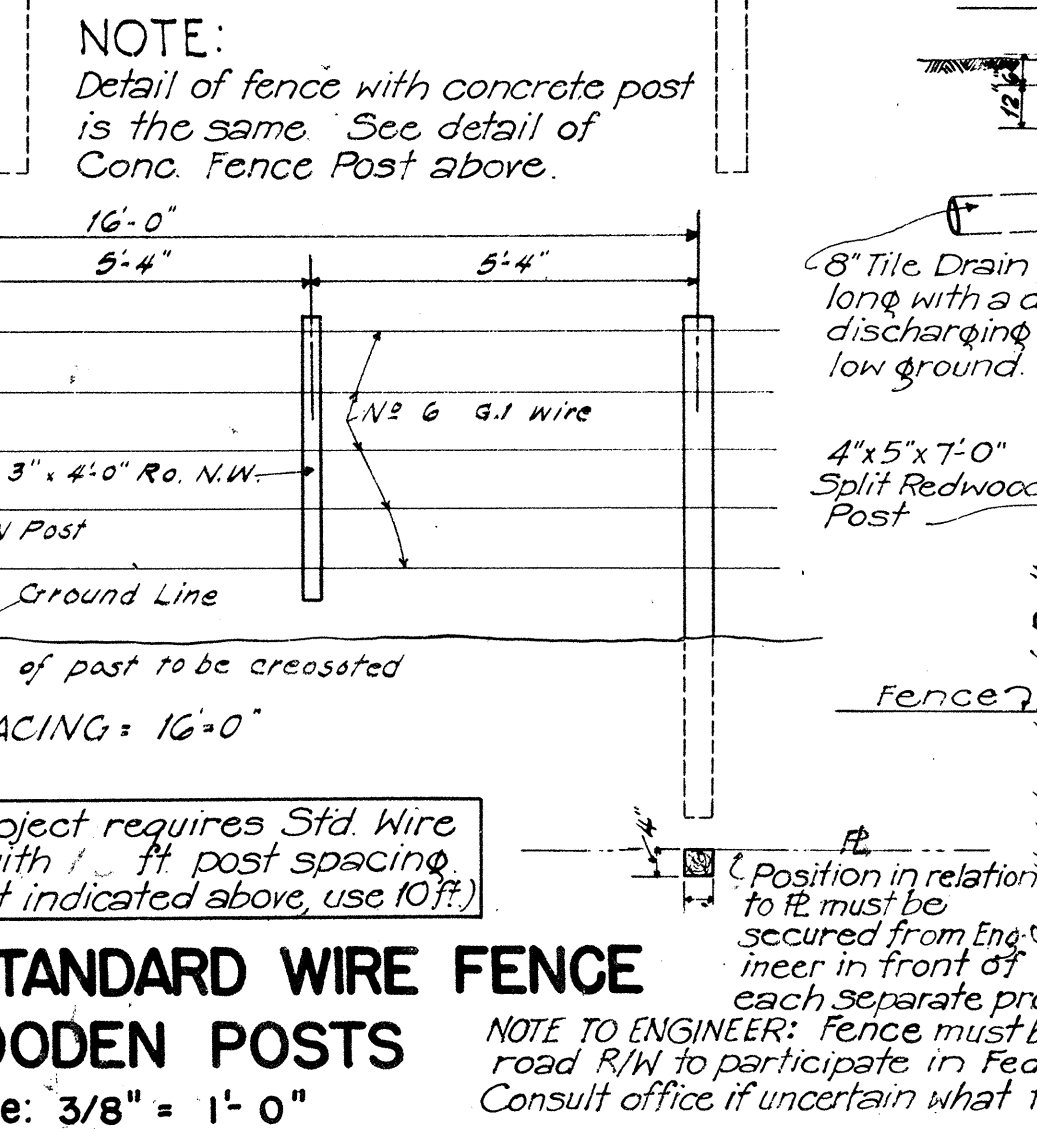
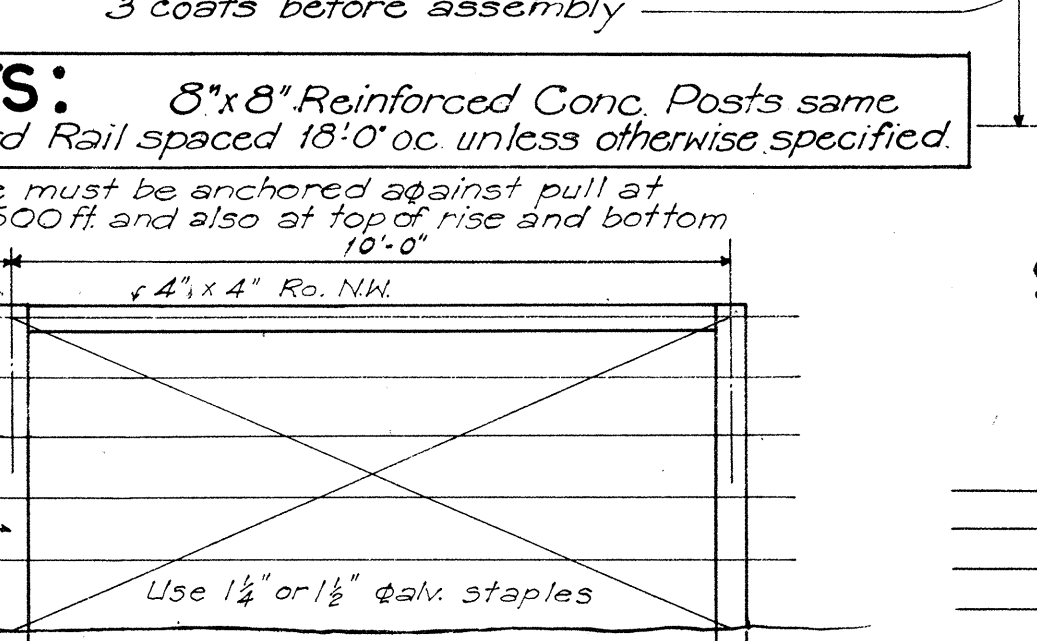
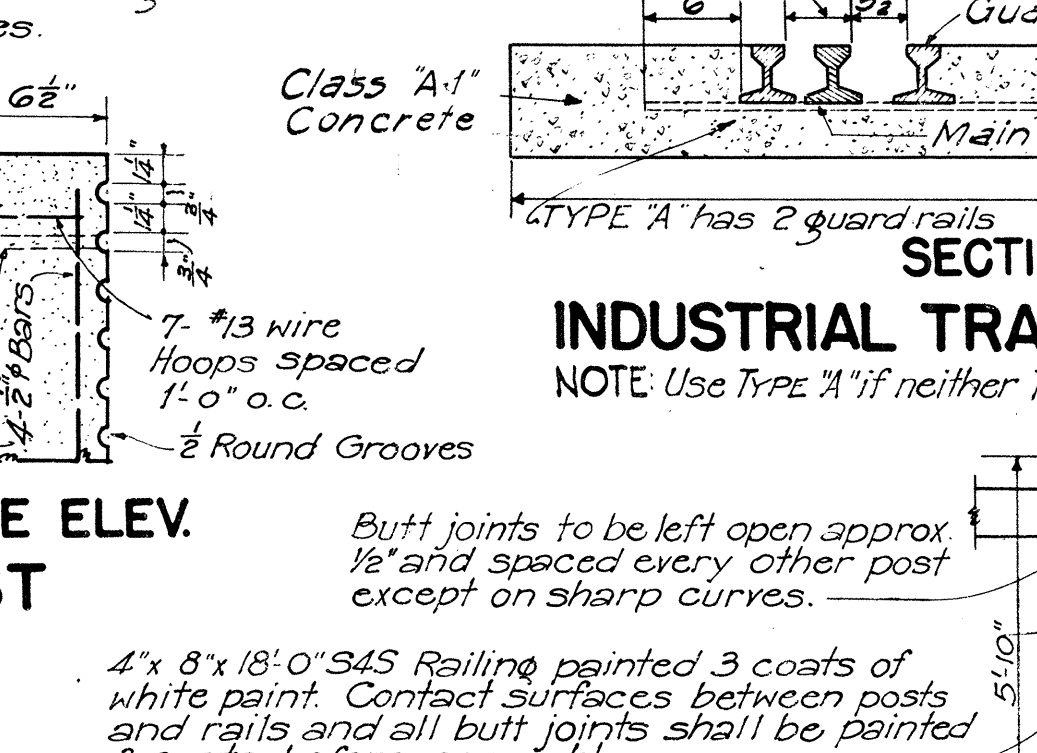
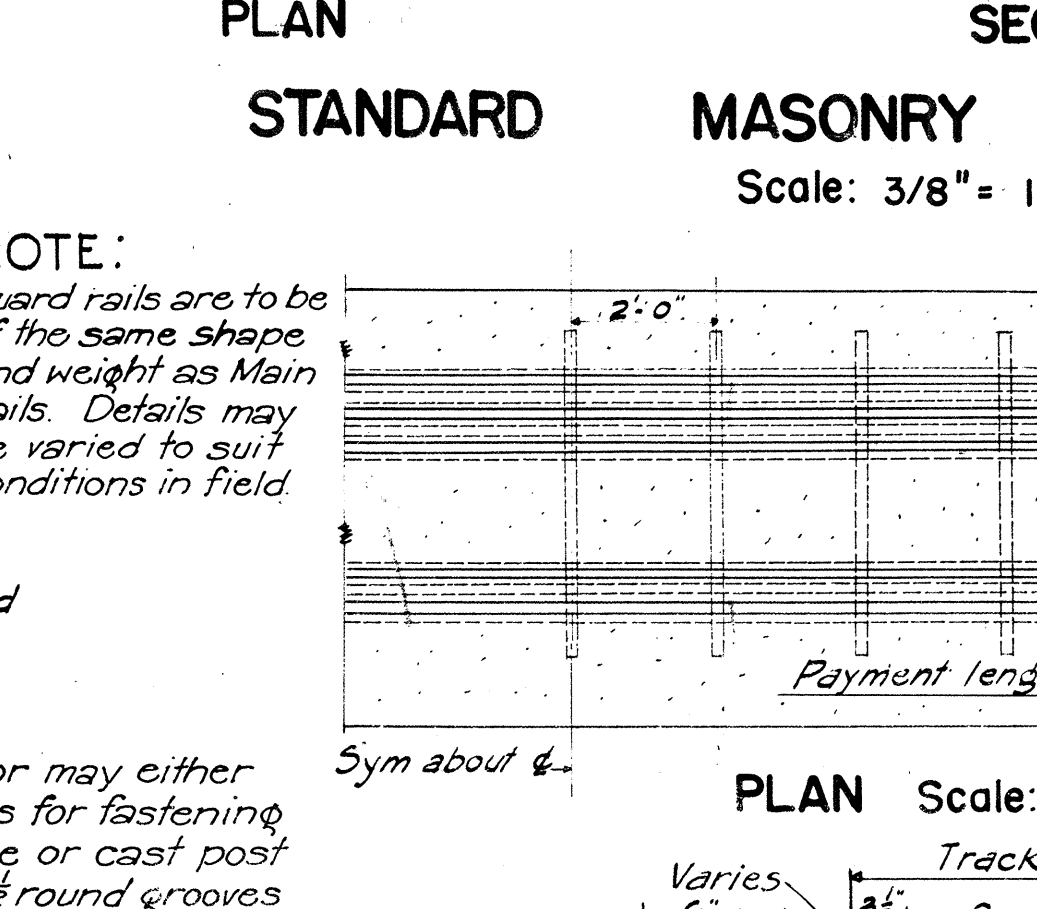
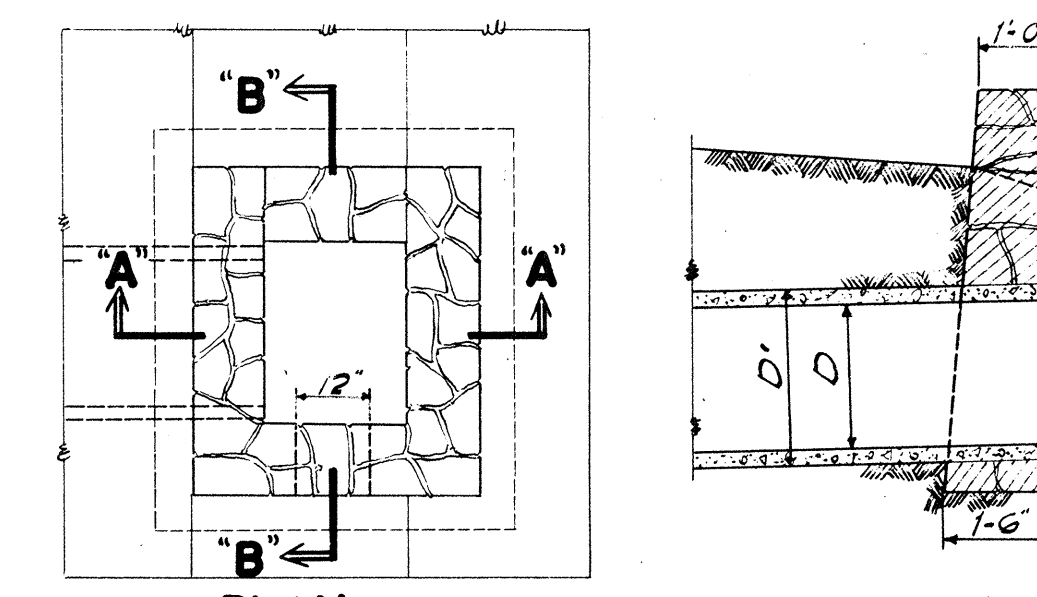
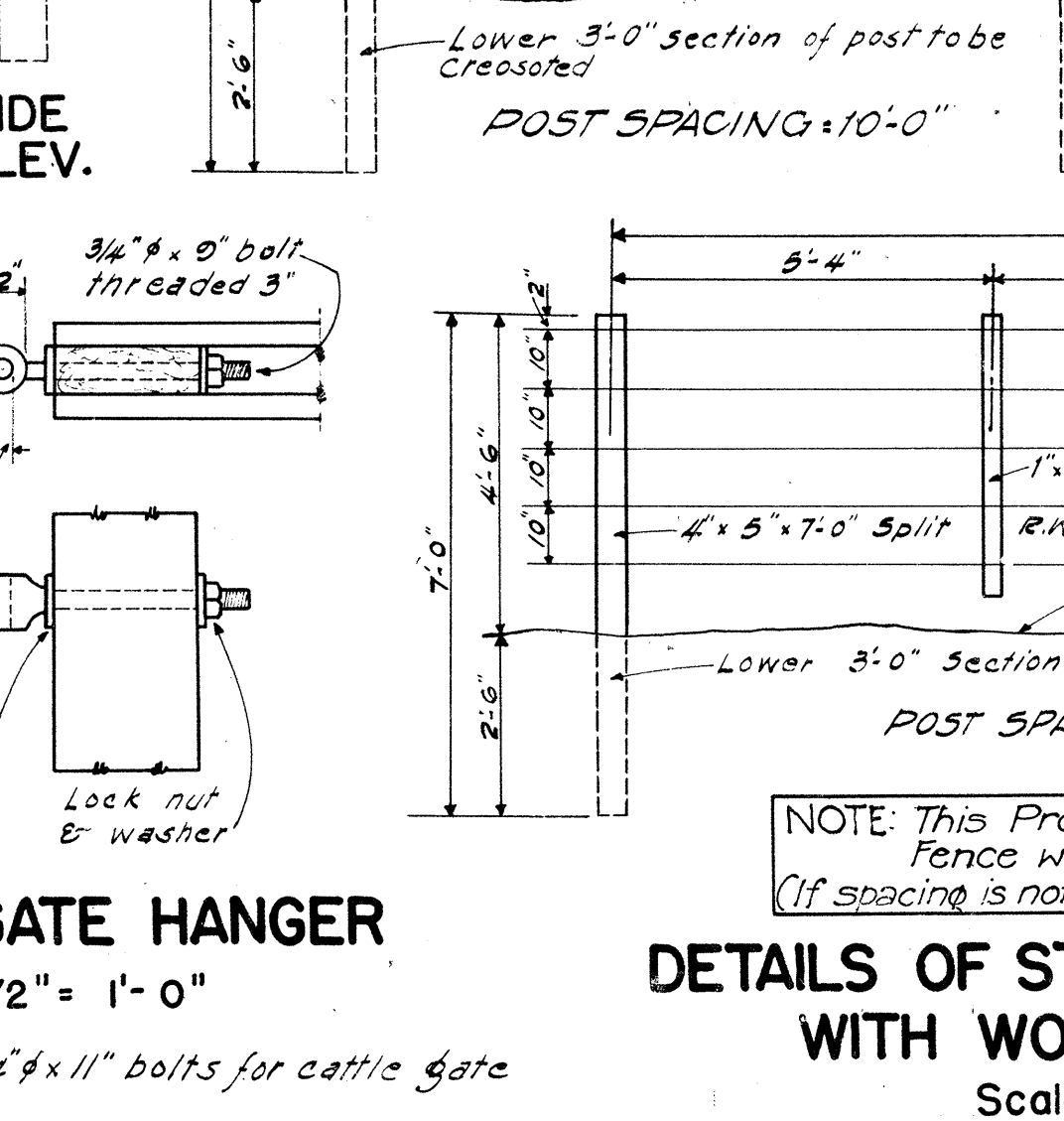
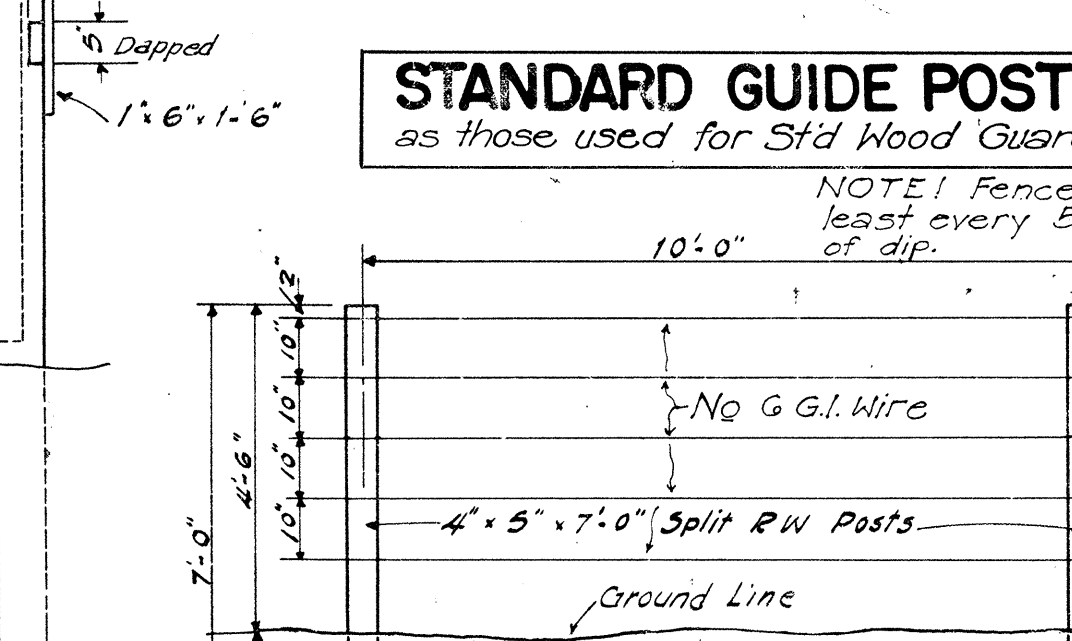
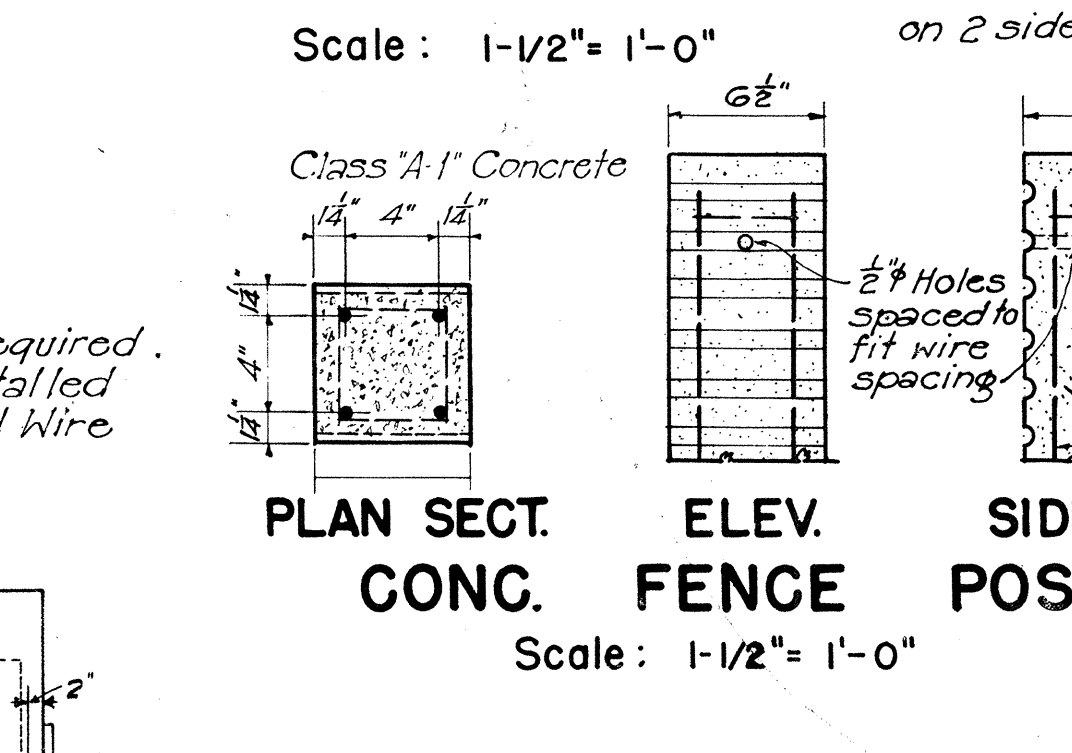
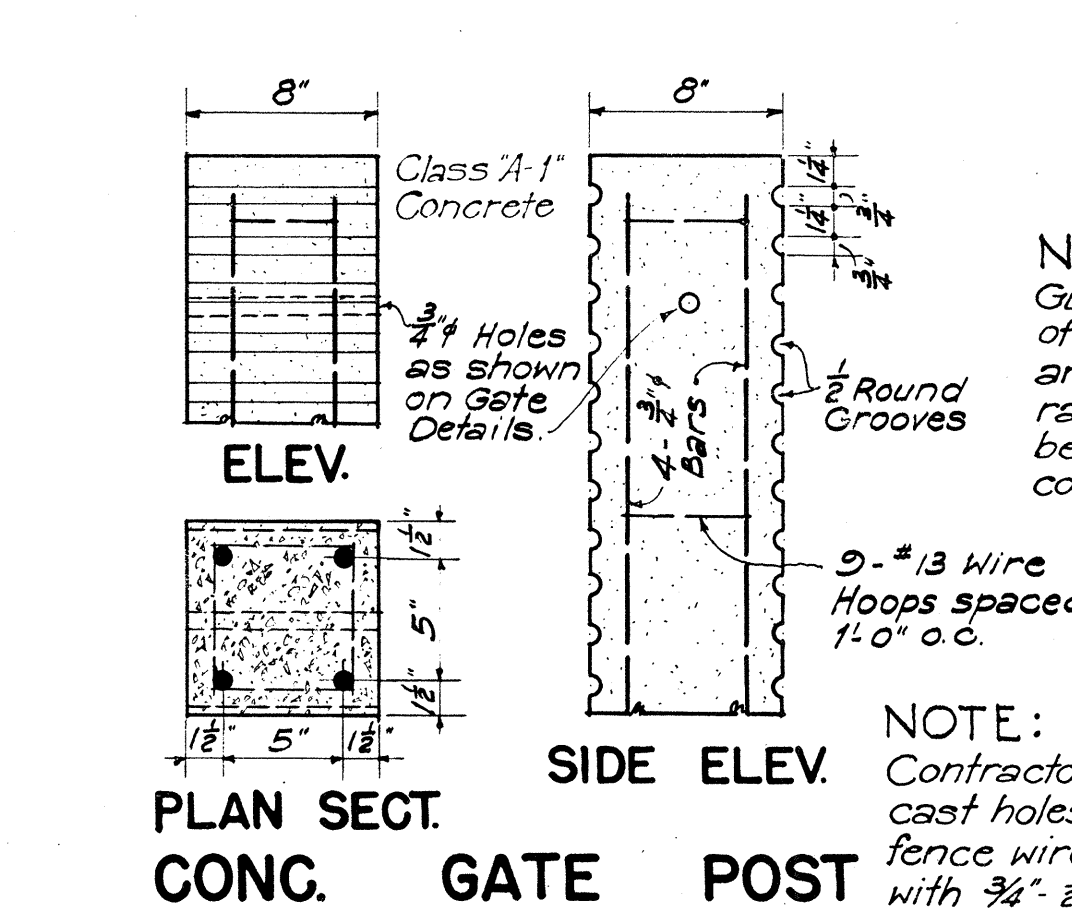
Scale: 1/2" = 1'-0"



Data Standard Masonry Drop Intake

D	H	L = D + 6"	Where Variable Equals
22 1/2"	18"	2'-0"	2.41
25"	24"	2'-6"	2.89
35 1/2"	30"	3'-0"	3.38
42"	36"	3'-6"	3.92

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



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

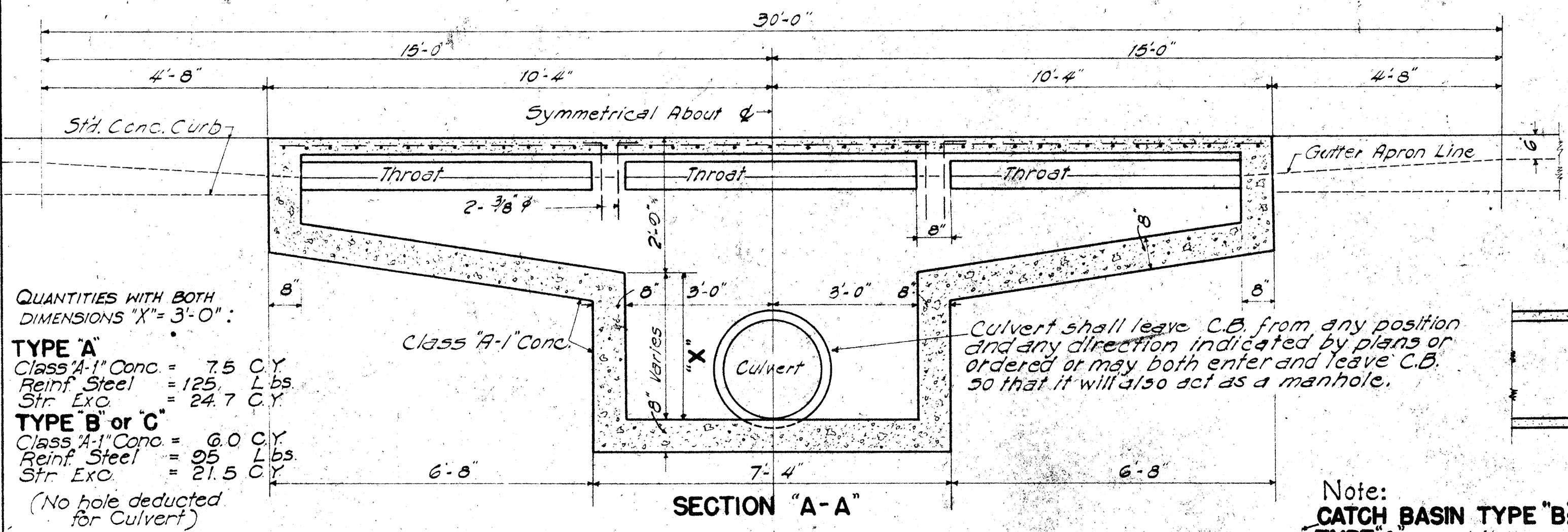
DETAILS OF HURDLE

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

STANDARD DETAILS

SCALES AS NOTED
APPROVED: *[Signature]*
SHEET NO. 10 OF 42 SHEETS

Apr. 15, 1948



QUANTITIES WITH BOTH DIMENSIONS "X" = 3'-0":

TYPE "A"
 Class A-1 Conc. = 7.5 CY
 Reinf. Steel = 125 Lbs
 Str. Exc. = 24.7 CY

TYPE "B" or "C"
 Class A-1 Conc. = 6.0 CY
 Reinf. Steel = 95 Lbs
 Str. Exc. = 21.5 CY

(No hole deducted for Culvert)

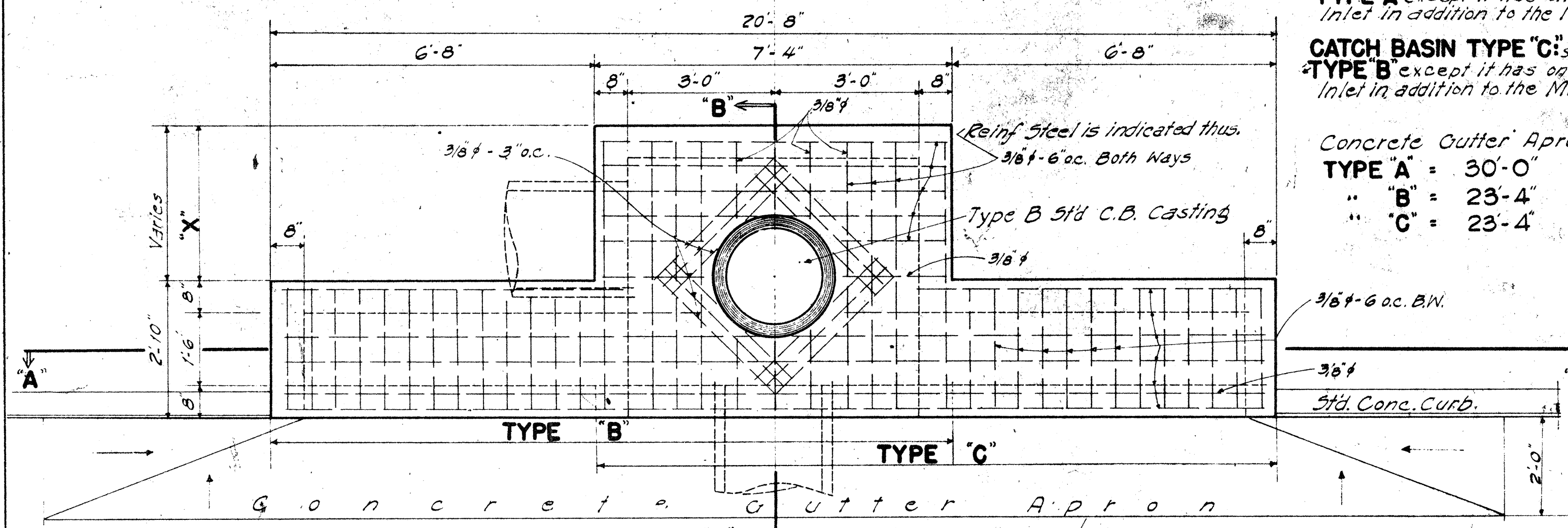
Culvert shall leave C.B. from any position and any direction indicated by plans or ordered or may both enter and leave C.B. so that it will also act as a manhole.

Note: **CATCH BASIN TYPE "B"** similar to **TYPE "A"** except it has only Left Side Inlet in addition to the Main Box.

CATCH BASIN TYPE "C" similar to **TYPE "B"** except it has only Right Side Inlet in addition to the Main Box.

Concrete Gutter Apron Length:

TYPE "A" = 30'-0"
 " " "B" = 23'-4"
 " " "C" = 23'-4"

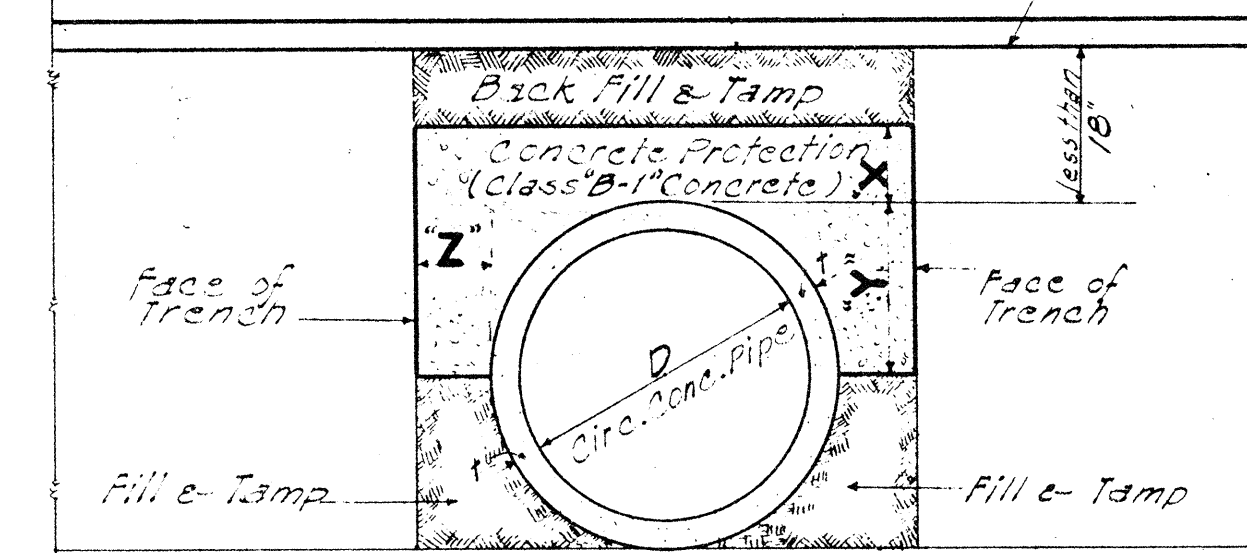


STANDARD CONCRETE CATCH BASIN

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

12" unless otherwise ordered.

Bottom of Finished Pavement or Base Course



TYP. SECT. OF CULVERT WITH CONG. PROTECTION

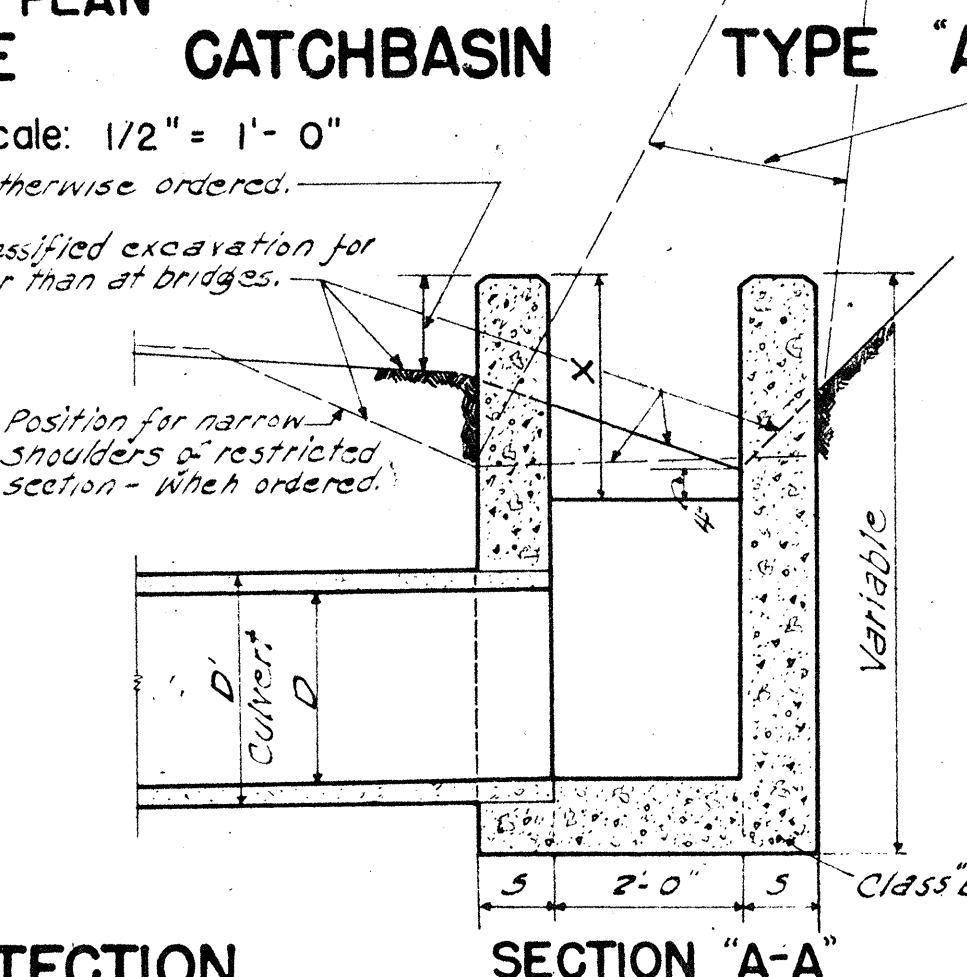
(To be used when cover is less than 18")

DATA: CONCRETE PROTECTION OVER CULVERTS		
X	Y	Z
6" for 18" D		
7" - 24" D		
8" - 30" D		
9" - 36" D		
10" - 42" D		
11" - 48" D		
12" - 54" D		

Z must be from pipe to top of trench.

Minimum = X

Maximum pay quantity will be Z = 12"



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.

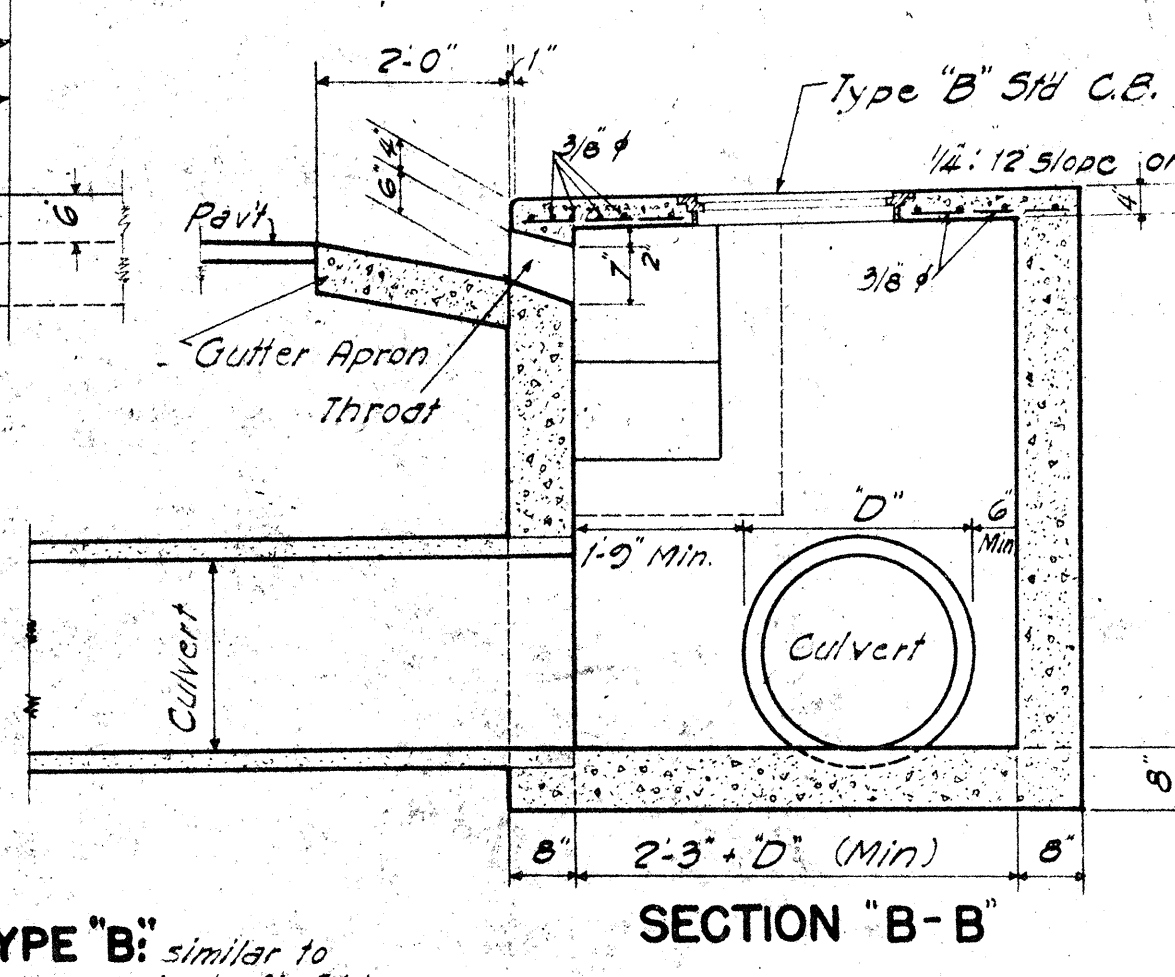
Data: Standard Drop Intake				
D	L	W	H	Cu. Yds.
22"	18"	2'-0"	8"	1.10
24"	24"	2'-6"	8"	1.33
30"	30"	3'-0"	9"	1.70
36"	36"	3'-6"	9"	2.07
42"	42"	4'-0"	10"	2.90
48"	48"	4'-6"	10"	3.27

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

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

ST'D. CONG. DROP INTAKE

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

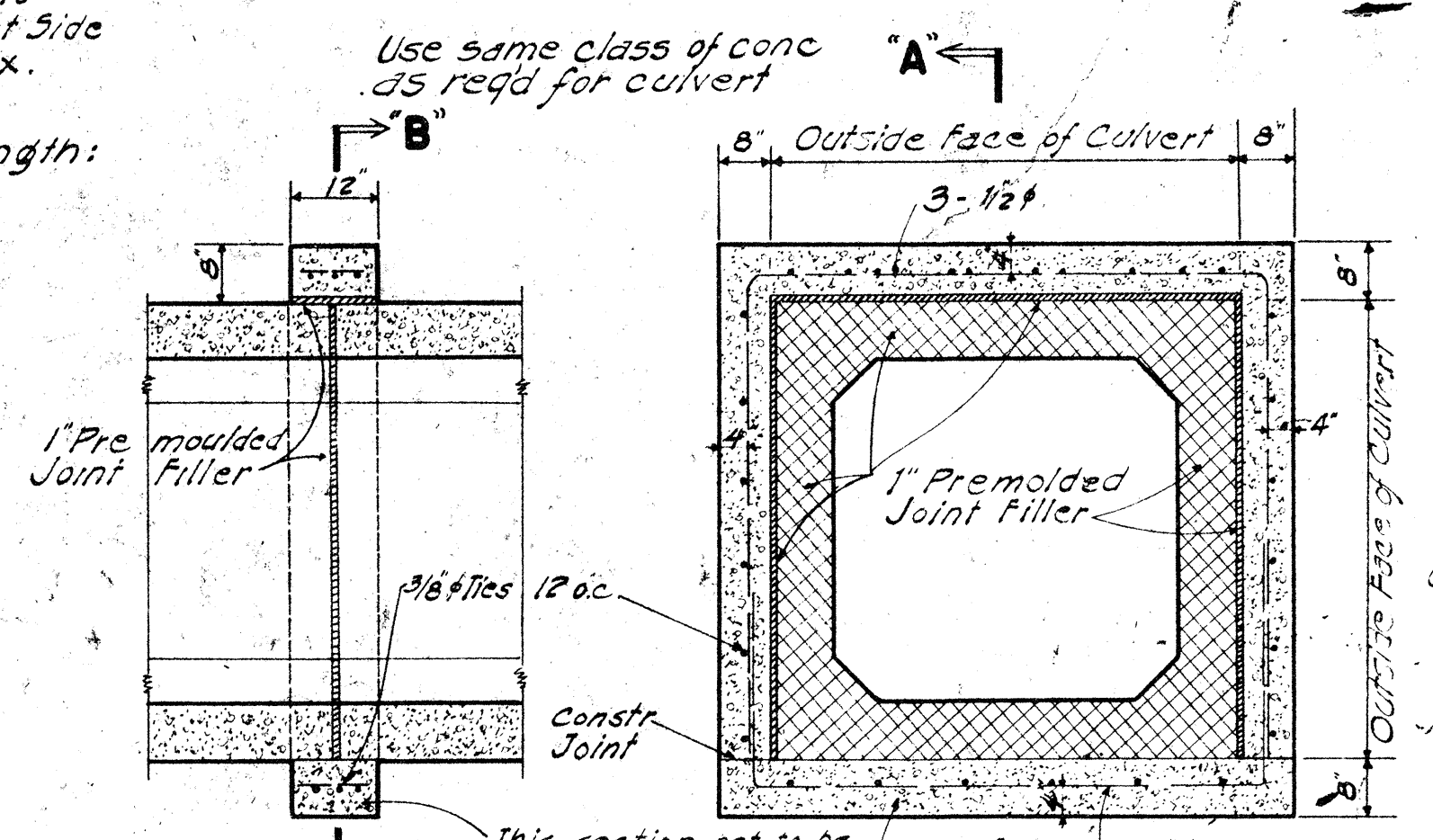


Culvert shall leave or both enter and leave this box from any position or direction indicated by the plans or ordered.

CONC. DROP INTAKE IN MEDIAL STRIPS

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

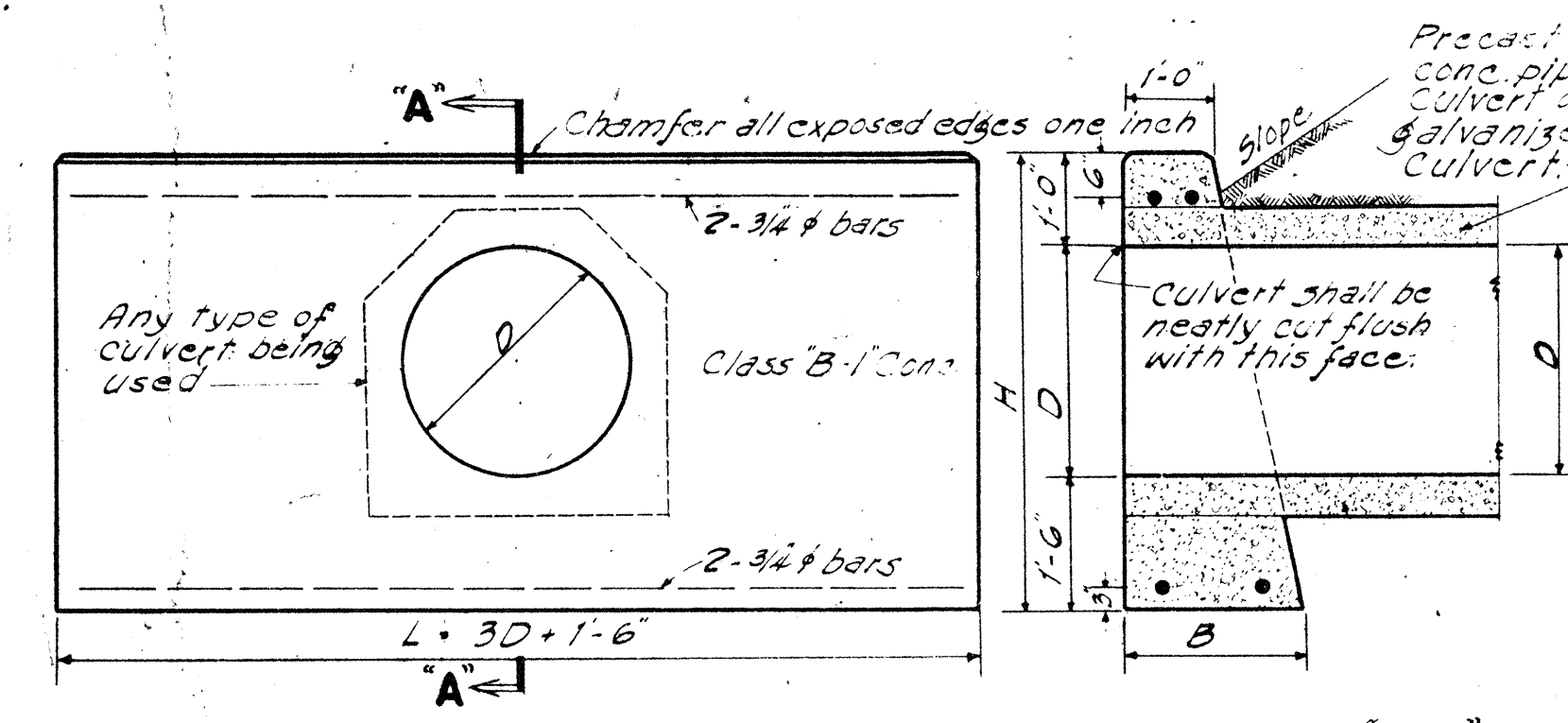
Note: May also be used in pavement and at other places.



CONC. COLLAR FOR CONG. BOX CULVERT

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

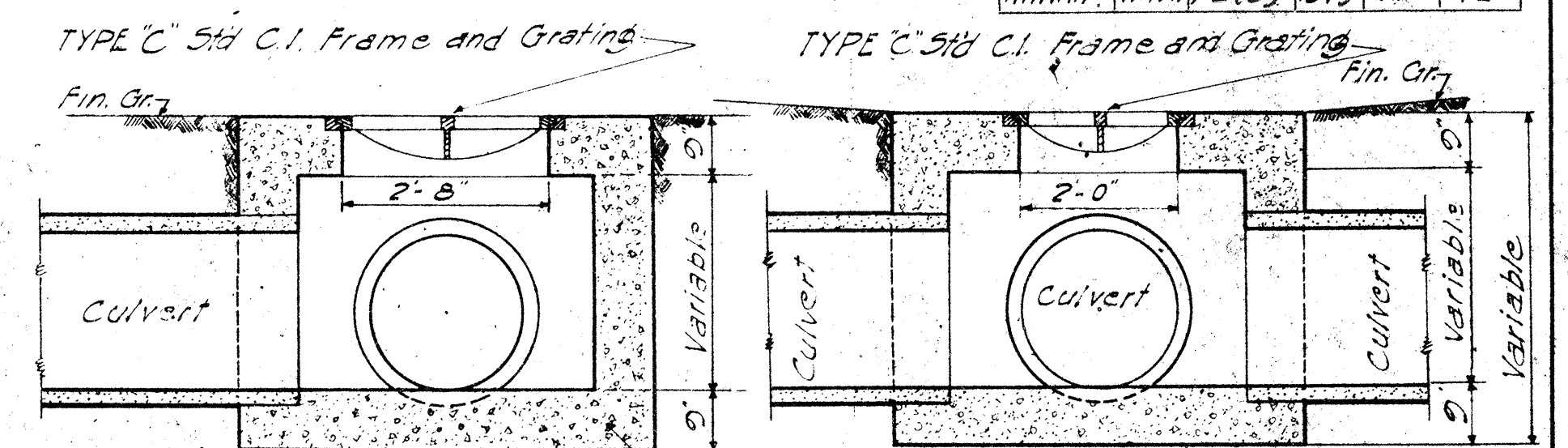
Note: Collars of this type shall be used to divide culverts into approximately 30ft lengths.



Cast-in-Place		Data: Standard Concrete Headwall		Steel One Headwall	
Cu. Yds.	D	B	H	Conc. one H.W.	No. of Bars Size Length Wt. Lbs.
0.02	18"	1'-6"	6'-0"	4'-0"	1.00 Cu. Yds. 4 3/4 5'-0" 33
1.23	24"	1'-6"	7'-6"	4'-6"	1.38 " 4 " 7'-0" 42
1.95	30"	2'-0"	9'-0"	5'-0"	2.17 " 4 " 8'-6" 51
2.45	36"	2'-0"	10'-6"	5'-6"	2.74 " 4 " 10'-0" 60

STANDARD CONCRETE HEADWALL

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



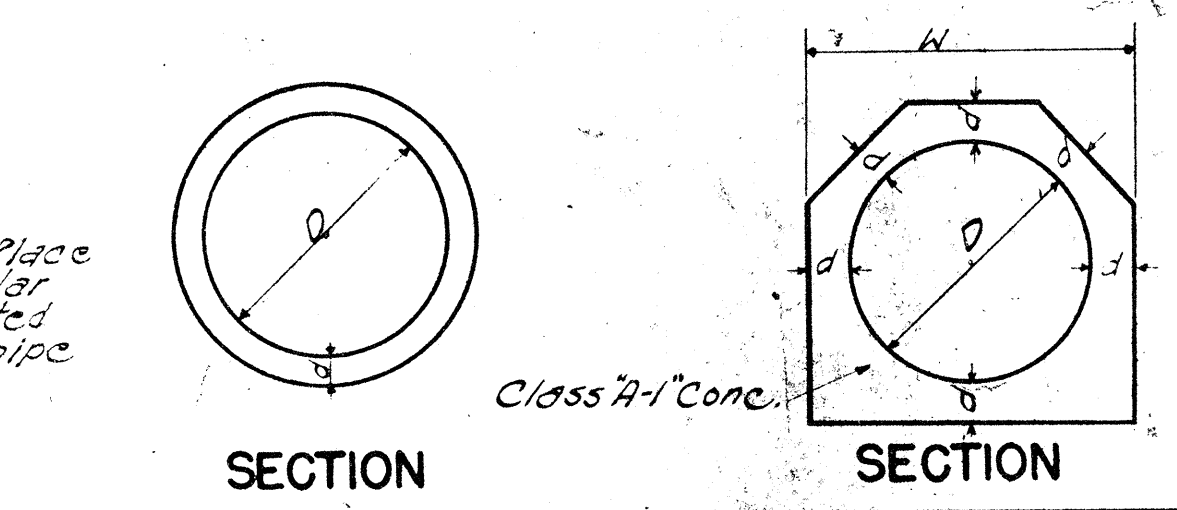
1:2 Cement mortar applied to rough surface immediately before placing of New Concrete

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

CONSTR. JOINT DETAILS

METHOD OF APPLYING CONSTR. JOINT WATERPROOFING

- Map surface either side of joint as required with asphalt 85-100 penetration applied at 200°F.
- Apply one layer of 55-lb composition roofing to hot asphalt.
- Map surface of composition roofing and 3" beyond all around with thick coat of asphalt as specified under (1)



CONC. PIPE CULVERT

Note: Thickness of reinforcing and concrete used are to conform with the approved design as provided by the Specifications.

Data: Cast-in-Place Conc. Culvert			
D	W	Culvert	per ft.
18"	4"	2'-2"	0.11
24"	4 1/2"	2'-0"	0.14
30"	5"	3'-4"	0.10
36"	6 1/2"	3'-11"	0.26

CAST-IN-PLACE CONG. CULVERT

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

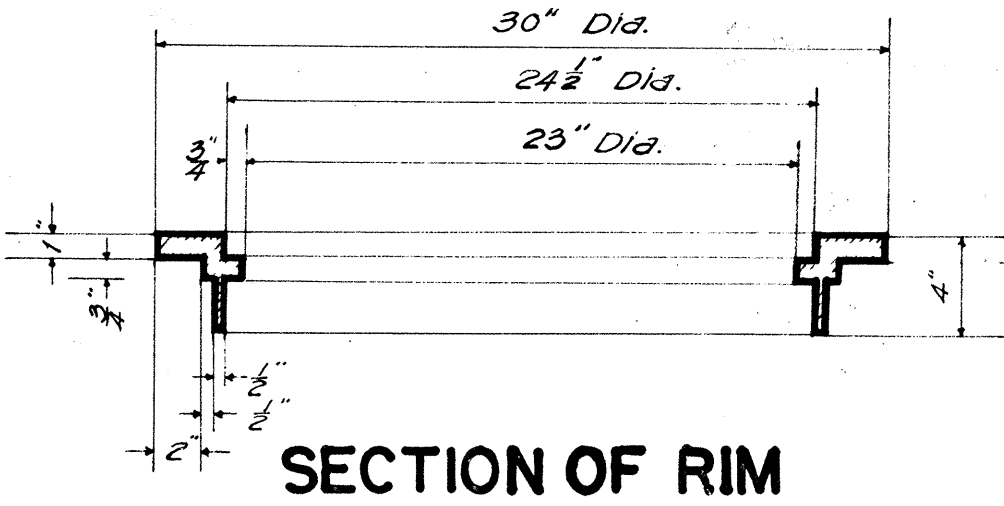
STANDARD DETAILS

SCALES AS NOTED Sept. 5, 1946

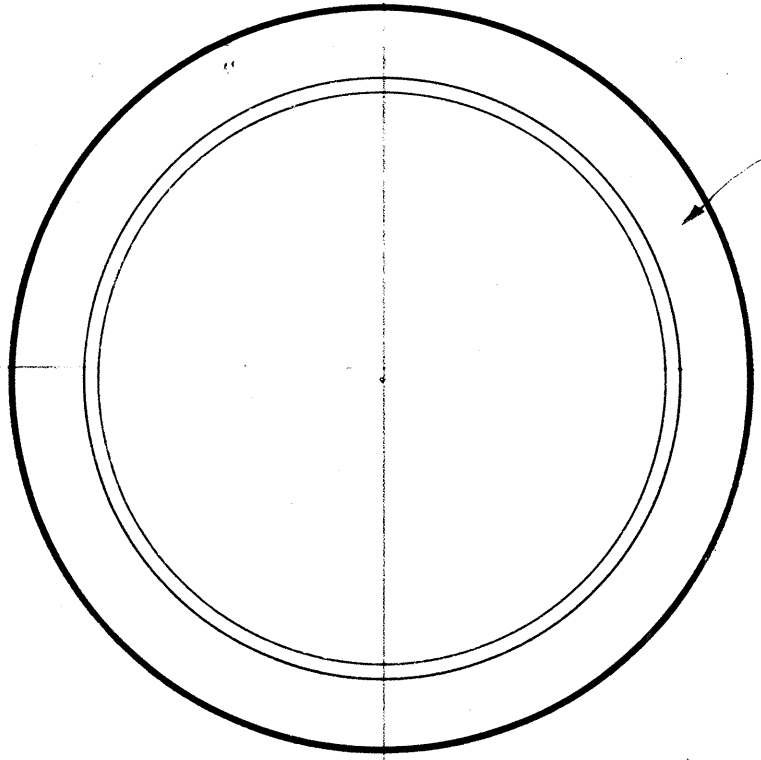
APPROVED: *B. F. Rush*
Territorial Highway Engineer

SHEET NO. 11 OF 42 SHEETS

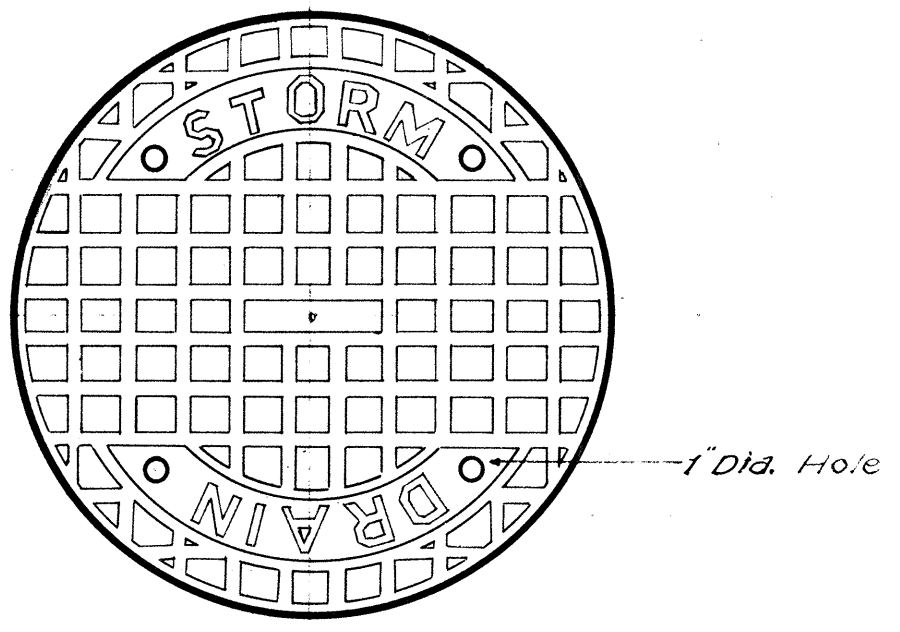
NOTE: The pattern for water manhole covers shall be the same as for sanitary sewer except that the word "water" shall be substituted for "sanitary sewer."



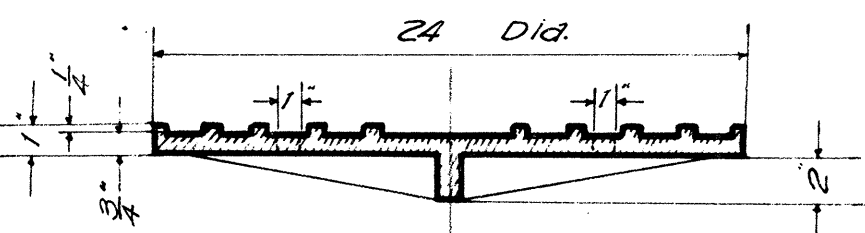
SECTION OF RIM



PLAN OF RIM

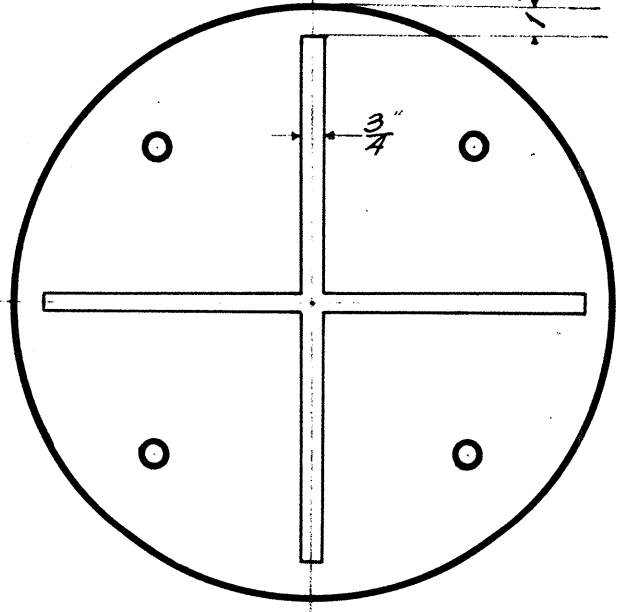


PLAN OF COVER TOP



SECTION OF COVER

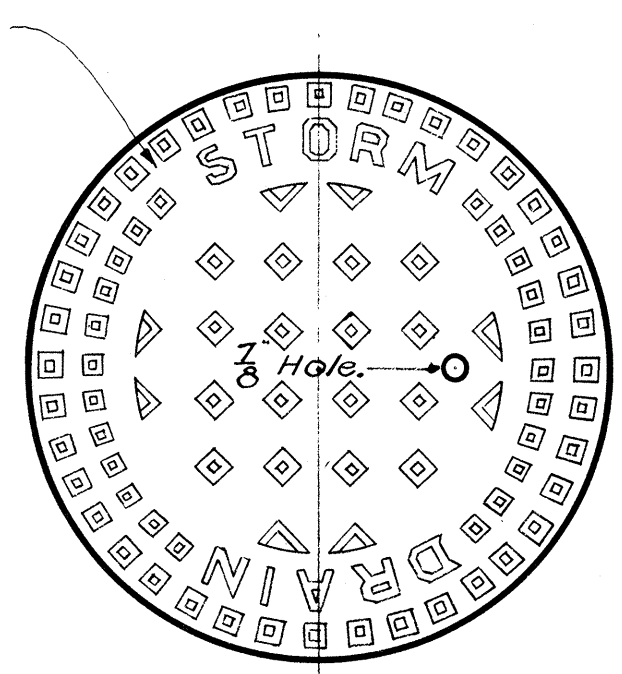
NOTE: A unit includes both Rim and Cover



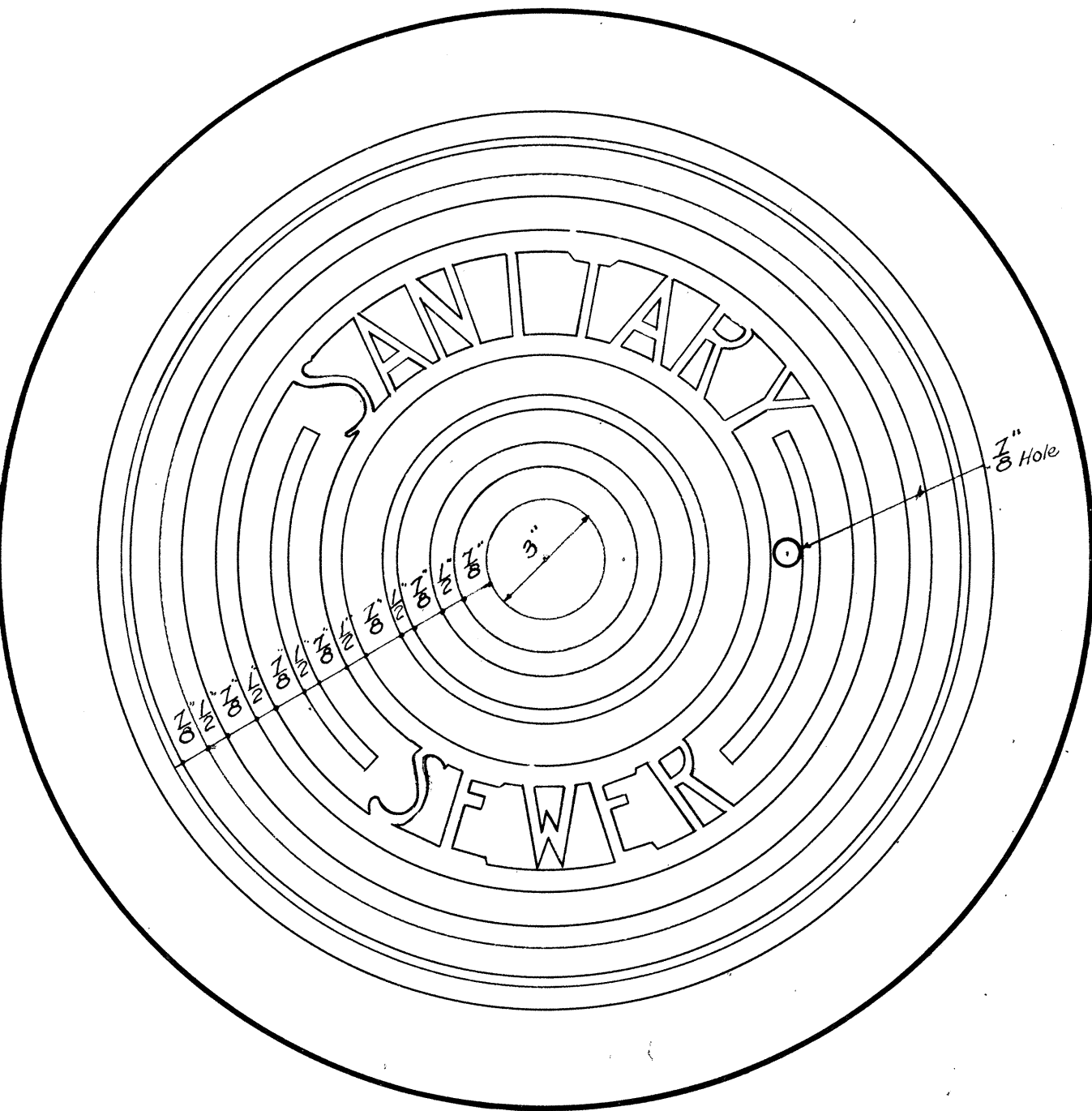
BOTTOM VIEW OF COVER TYPE "B"

STANDARD CATCH BASIN CASTINGS

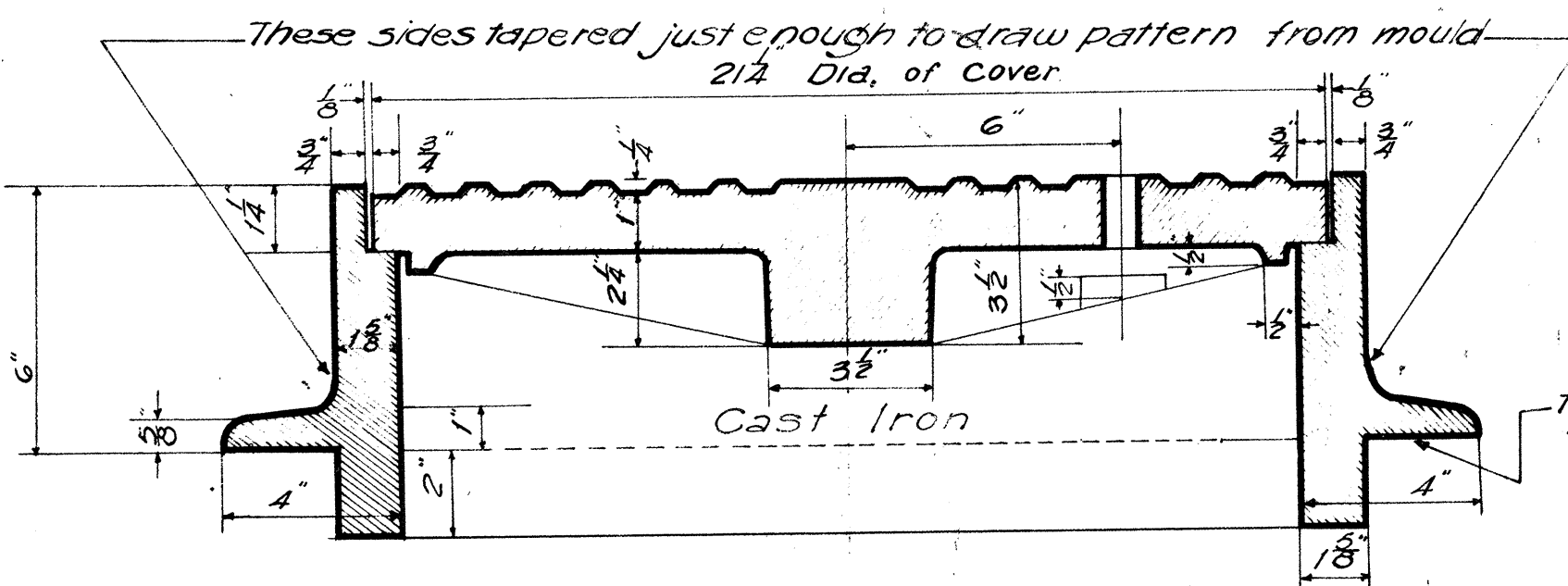
Scale: 1-1/2" = 1'-0"



PATTERN FOR STORM DRAIN MANHOLE COVER

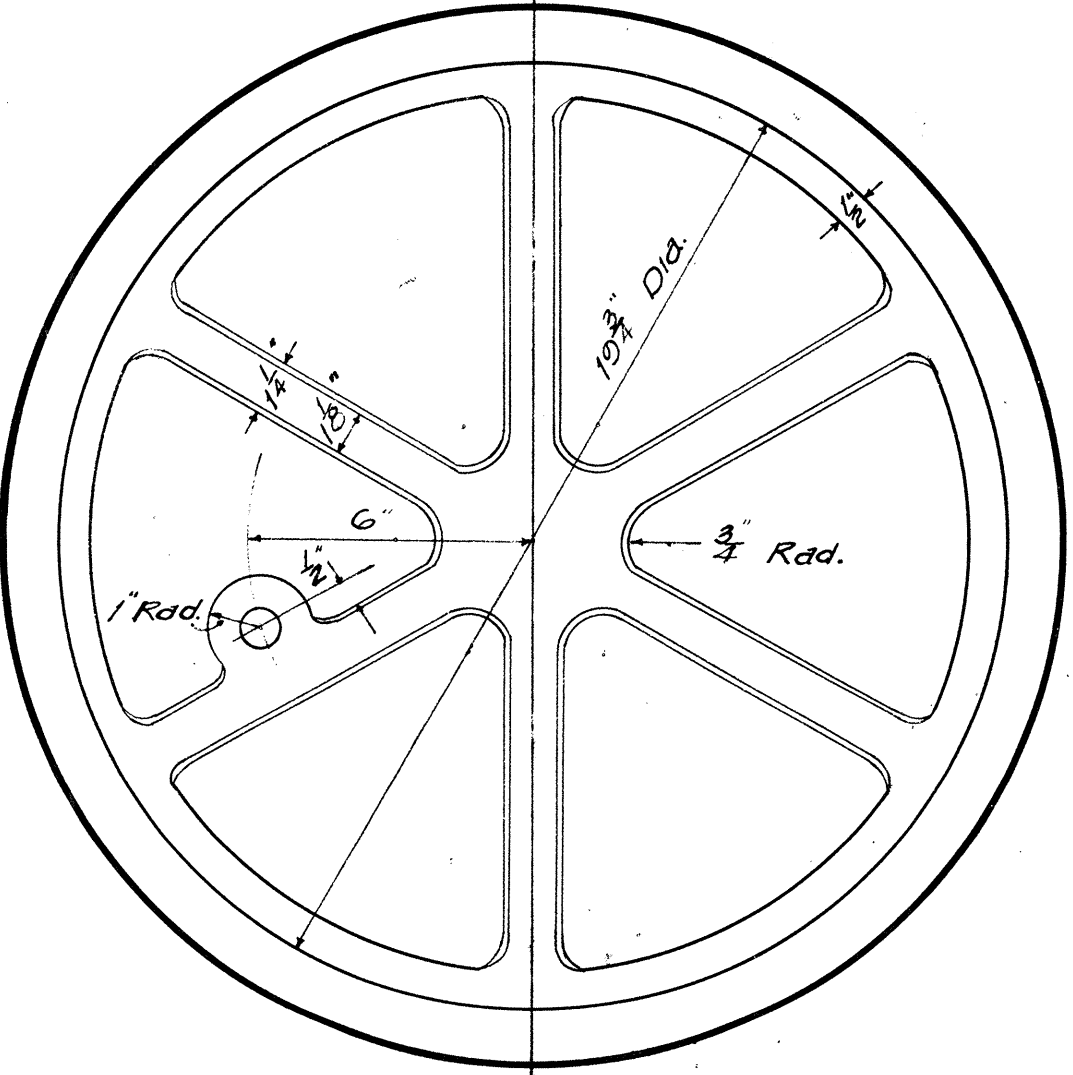


PATTERN FOR SEWER MANHOLE COVER



SECTION

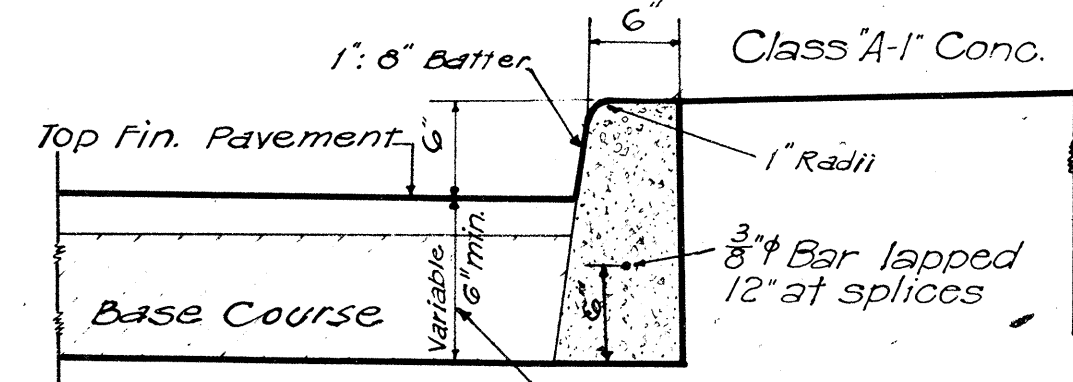
NOTE: A unit includes both Frame and Cover



BOTTOM VIEW OF COVER TYPE "A"

STANDARD MANHOLE CASTINGS

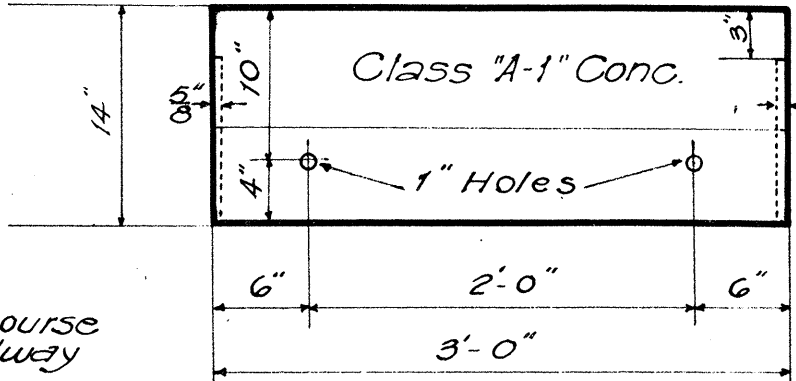
Scale: 3" = 1'-0"



SECTION

ST'D. CAST IN PLACE CONC. CURB

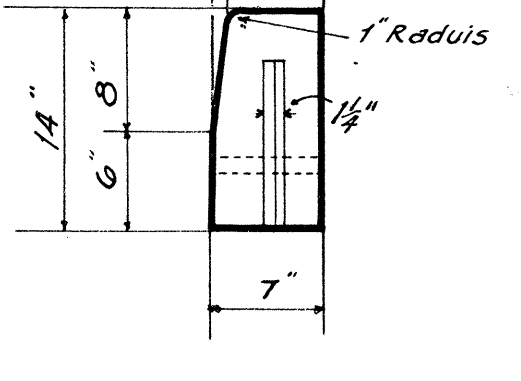
Scale: 1" = 1'-0"



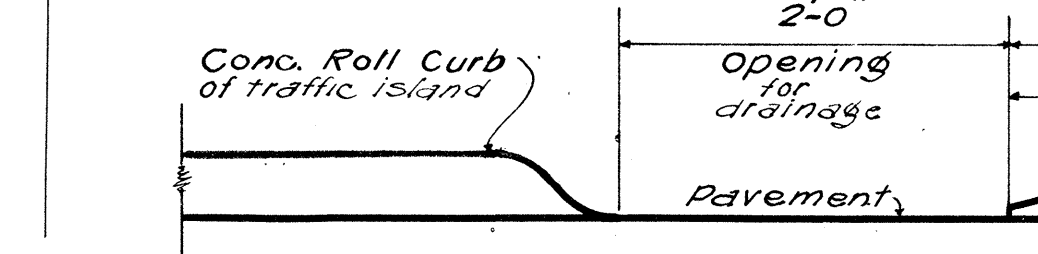
FRONT ELEV

ST'D. PRECAST CONC. CURB

Scale: 1" = 1'-0"



END ELEV

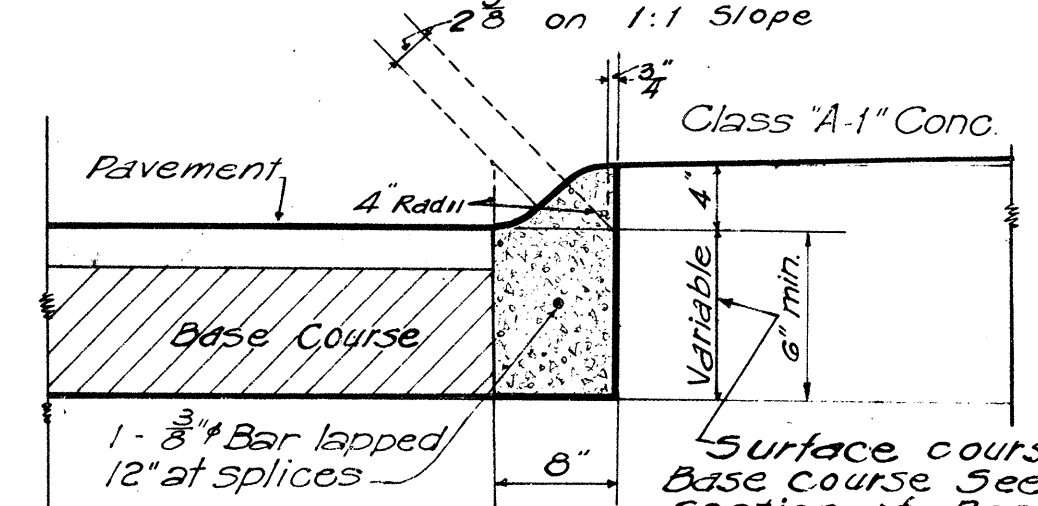


ELEVATION

NOTE: There may be more than one over-all curb height used on an individual project depending upon Base Courses used, but this shall make no difference in items under which payment is made.

DETAIL OF A. C. ROLL

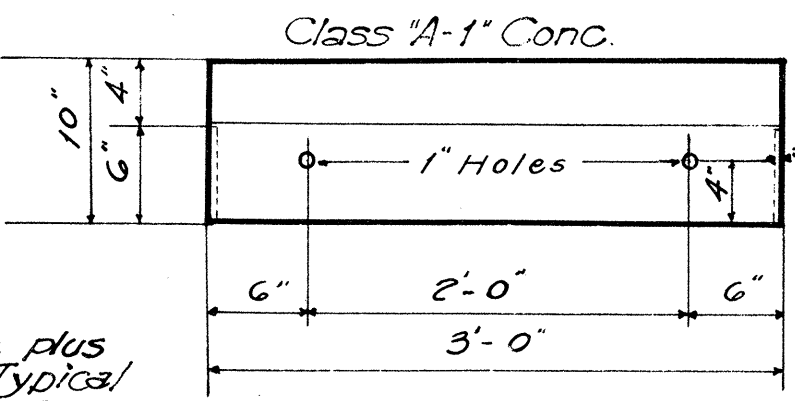
Scale: 1" = 1'-0"



SECTION

ST'D. CAST IN PLACE CONC. ROLL CURB

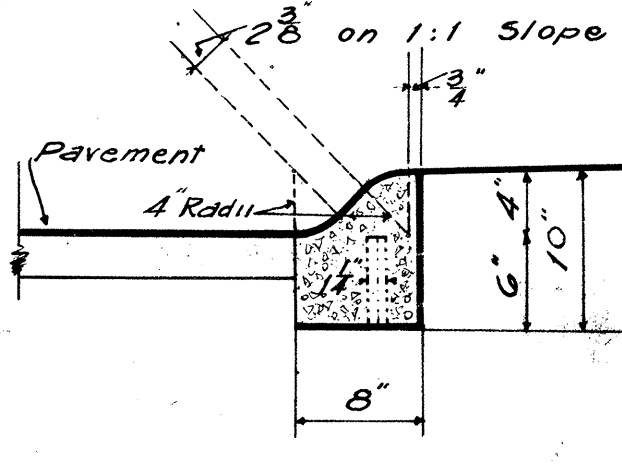
Scale: 1" = 1'-0"



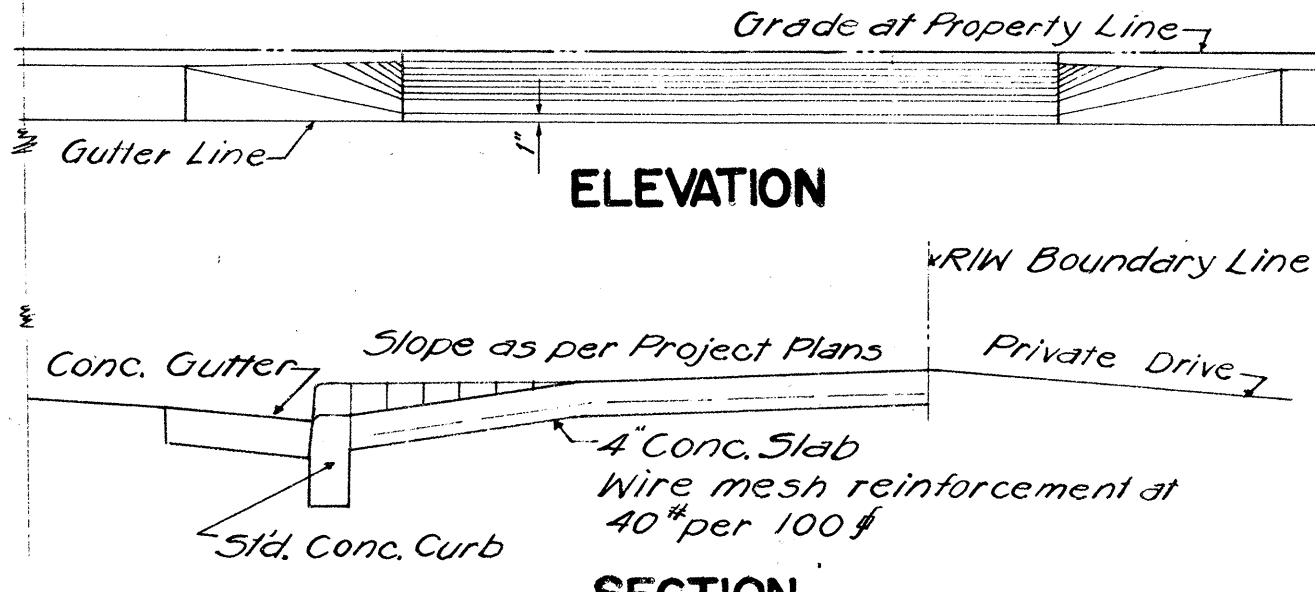
FRONT ELEV

ST'D. PRECAST CONC. ROLL CURB

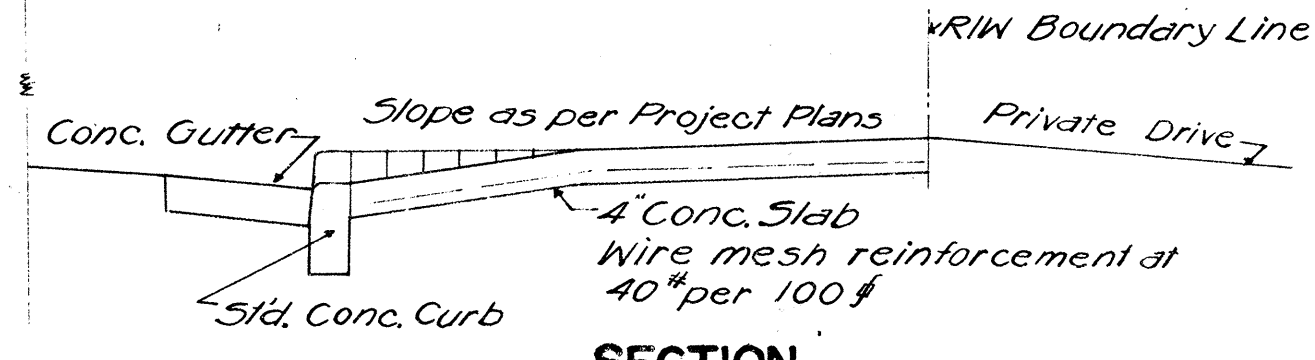
Scale: 1" = 1'-0"



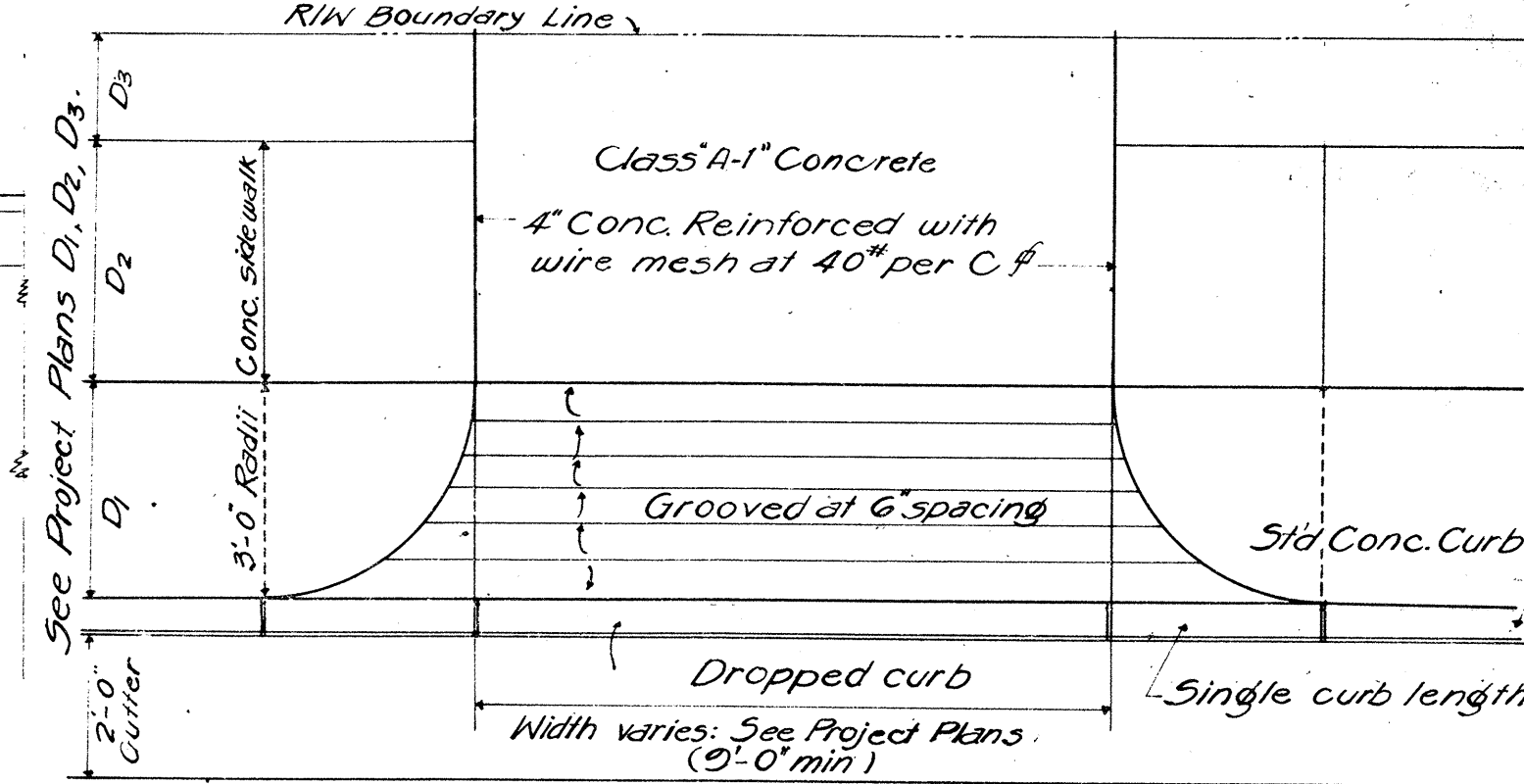
SECTION



ELEVATION

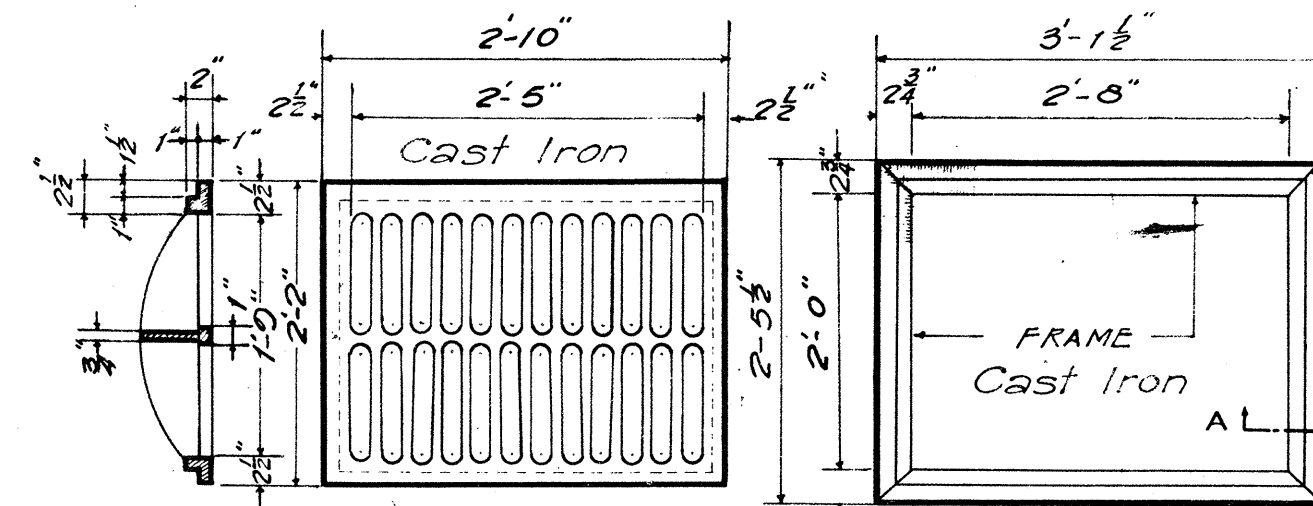


SECTION



PLAN

DETAILS OF DROPPED DRIVEWAY



TOP VIEW

STANDARD C. I. FRAME AND GRATE TYPE "C"

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

NOTE: Stock Pattern from Novelty Foundry-Honolulu

SECTION A-A

Scale: 3" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

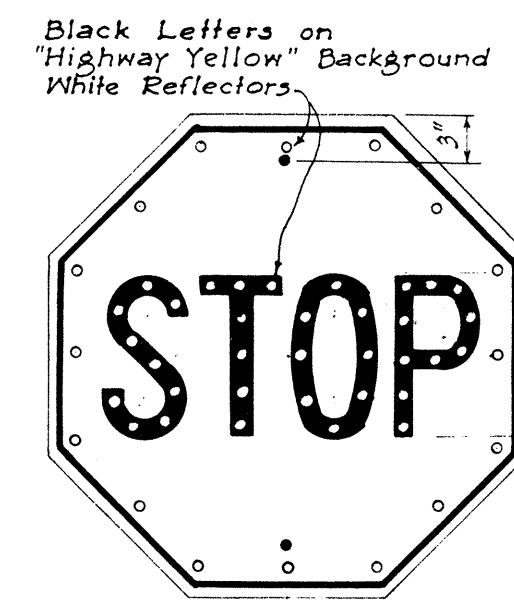
STANDARD DETAILS

SCALES AS NOTED Apr. 15, 1948

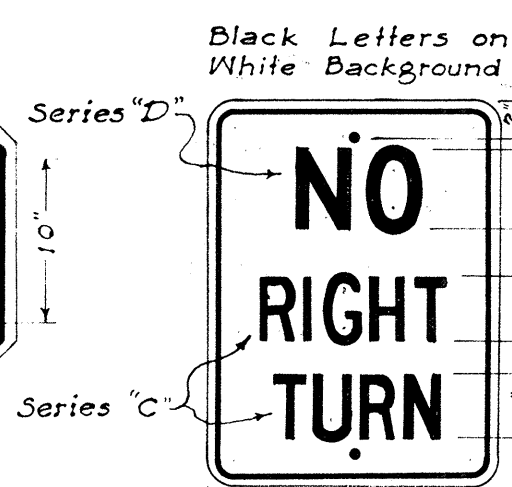
APPROVED: *[Signature]*
Territorial Highway Engineer

SHEET NO. 12 OF 4 SHEETS

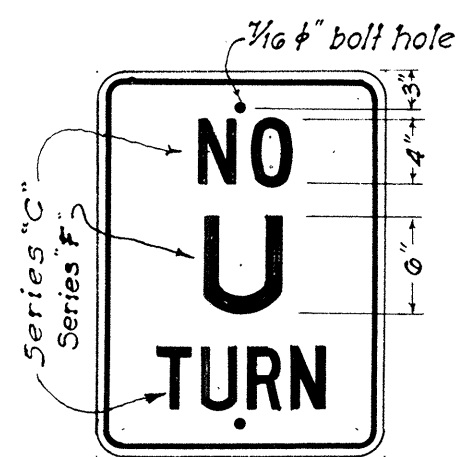
DATE: _____
DESIGNED BY: _____
DRAWN BY: S. Nambu
CHECKED BY: _____
NOTED BY: _____



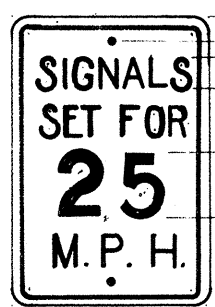
R-1
30" x 30"



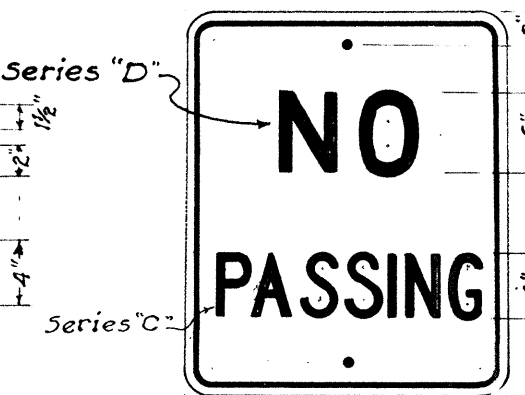
R-6
18" x 24"



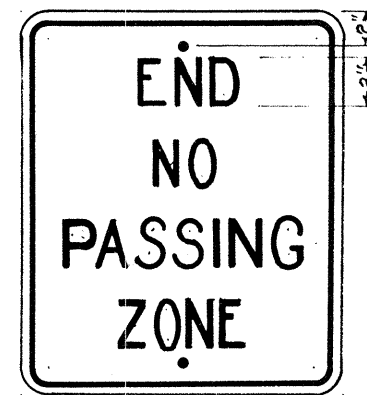
R-8
18" x 24"



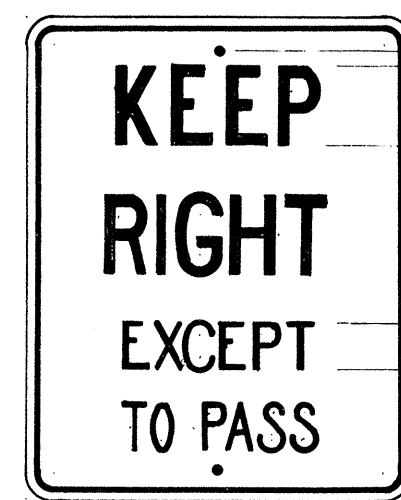
R-10
12" x 18"



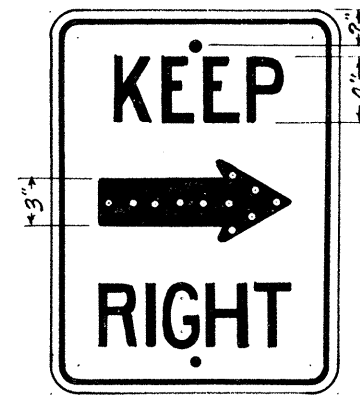
R-11
20" x 24"



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"



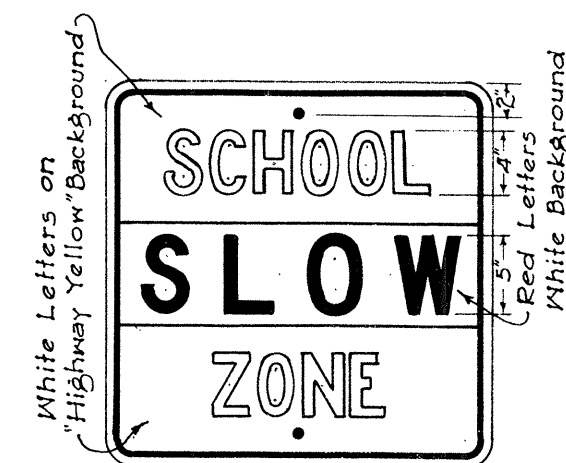
R-18
12" x 18"



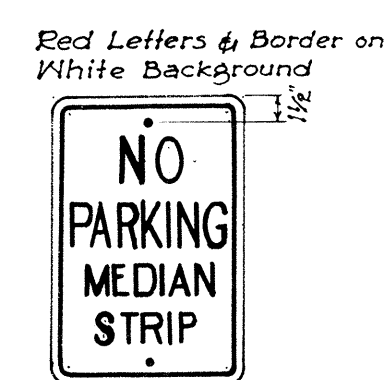
R-26
12" x 18"



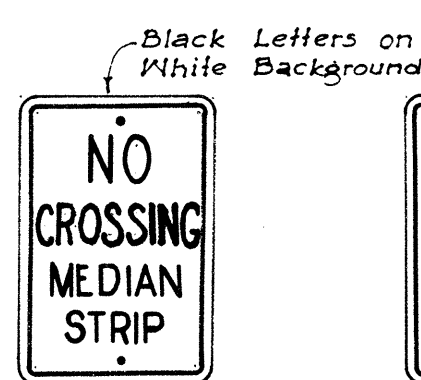
R-29
24" x 30"



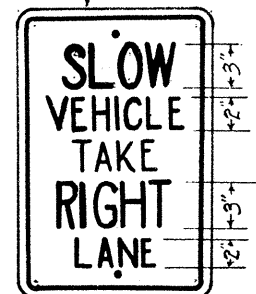
R-41-S
24" x 24"



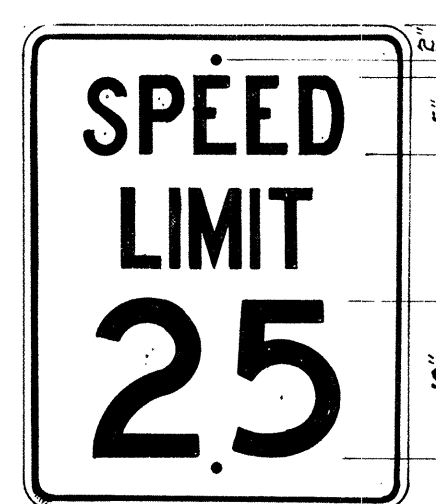
R-42-S
12" x 18"



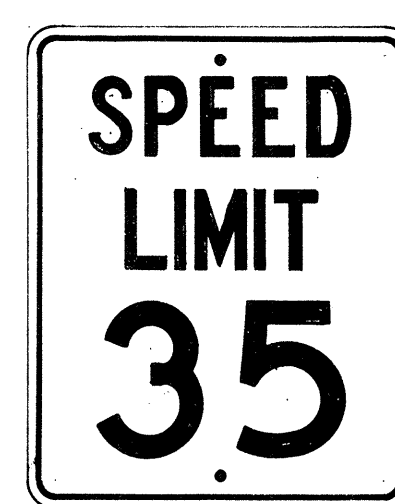
R-43-S
12" x 18"



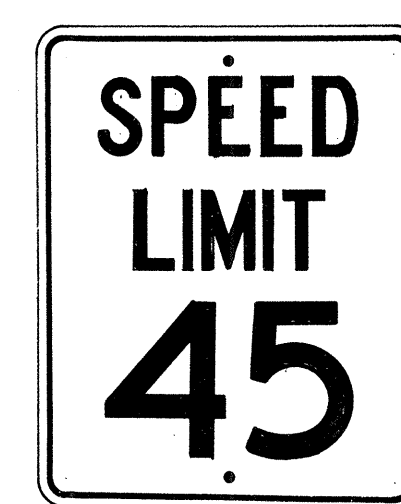
R-44-S
12" x 18"



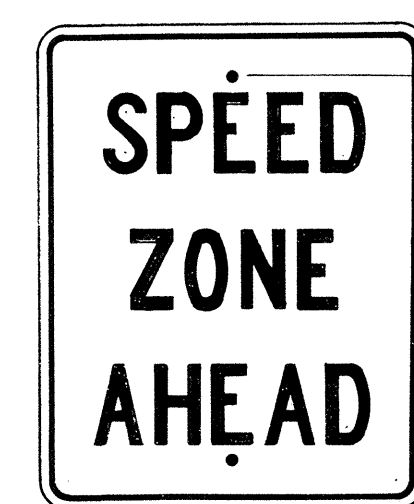
R-102-A
24" x 30"



R-102-B
24" x 30"



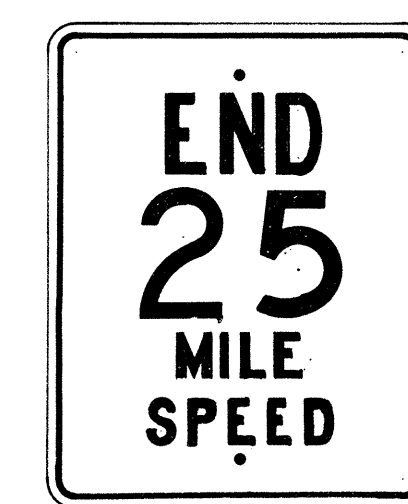
R-102-C
24" x 30"



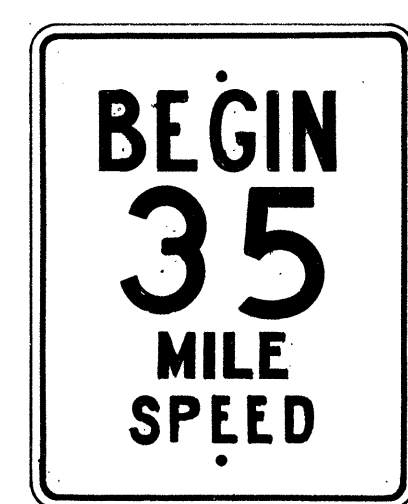
R-104
24" x 30"



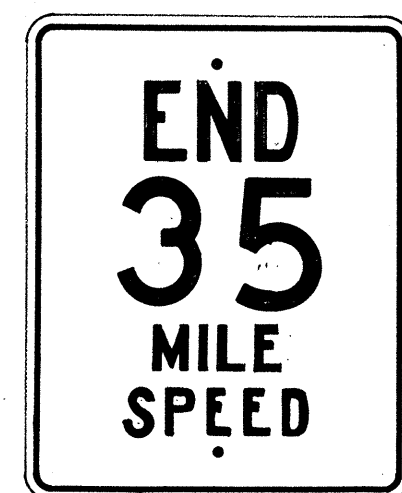
R-105-A
24" x 30"



R-105-B
24" x 30"



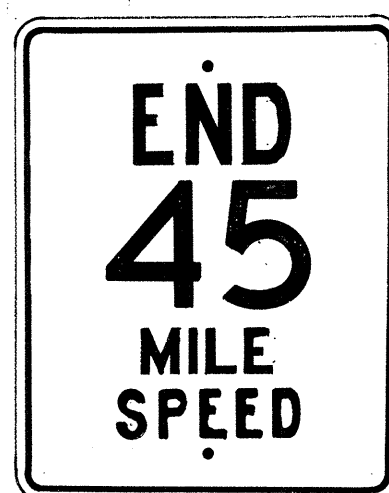
R-105-C
24" x 30"



R-105-D
24" x 30"



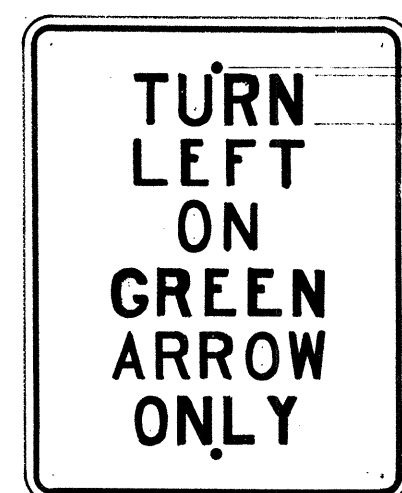
R-105-E
24" x 30"



R-105-F
24" x 30"



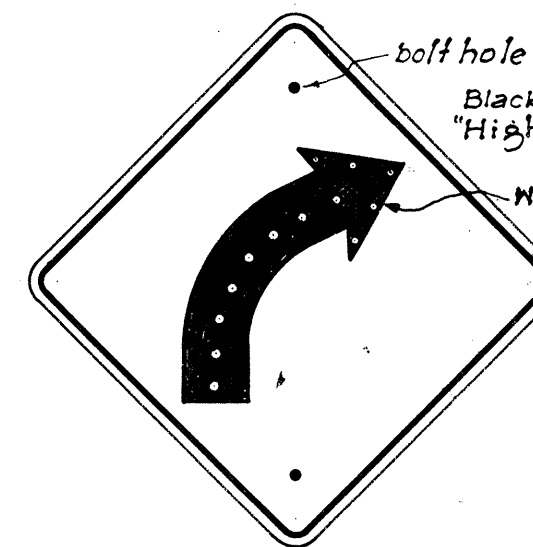
R-106
24" x 30"



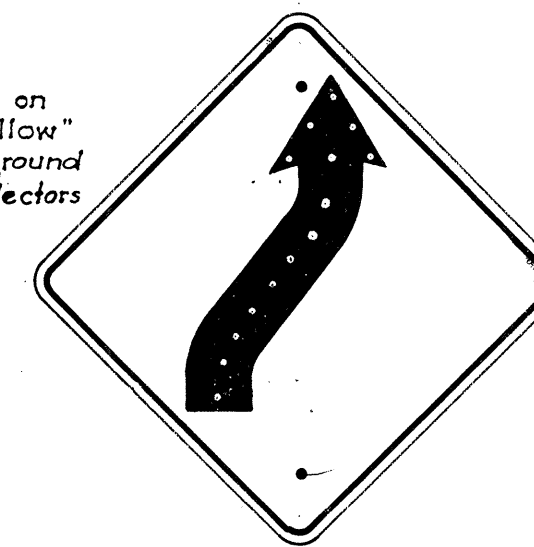
R-107-A
24" x 30"



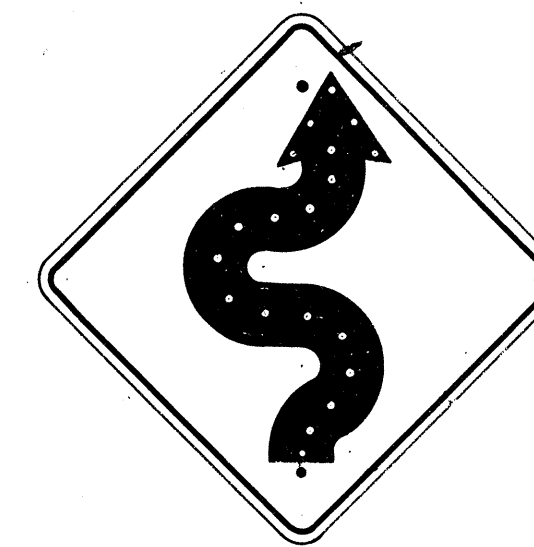
R-107
14" x 9"



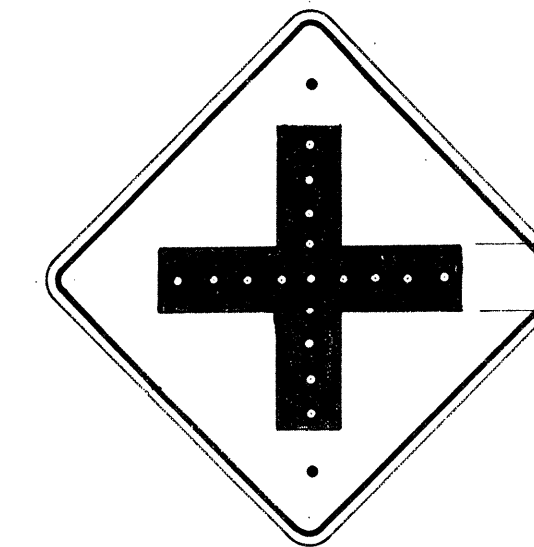
W-2-R
*W-2-L
24" x 24"



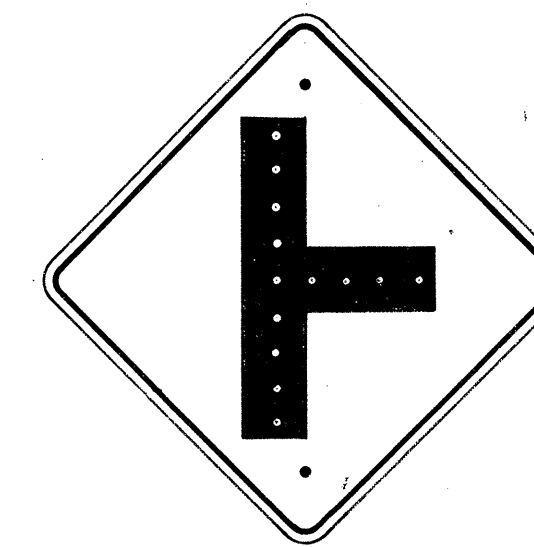
W-4-R
*W-4-L
24" x 24"



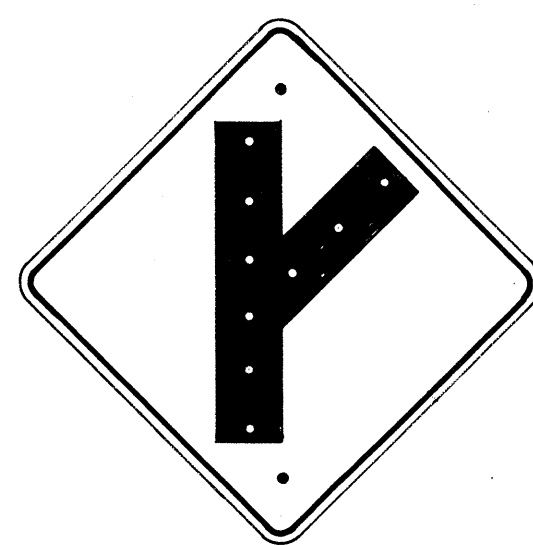
W-5-R
*W-5-L
24" x 24"



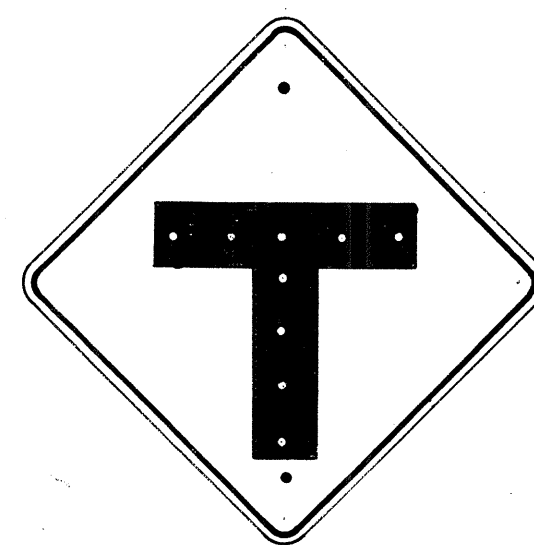
W-6
24" x 24"



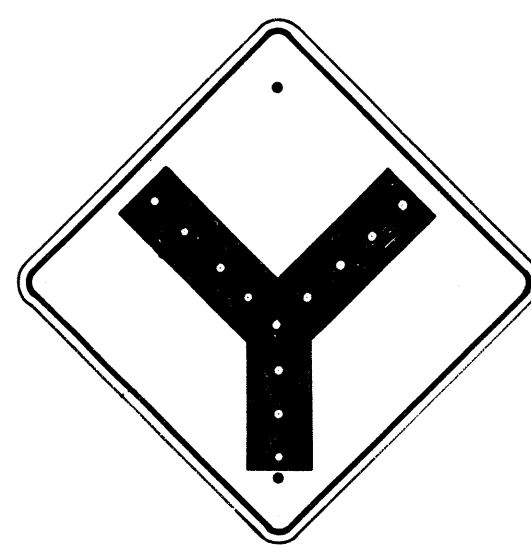
W-7
24" x 24"



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"



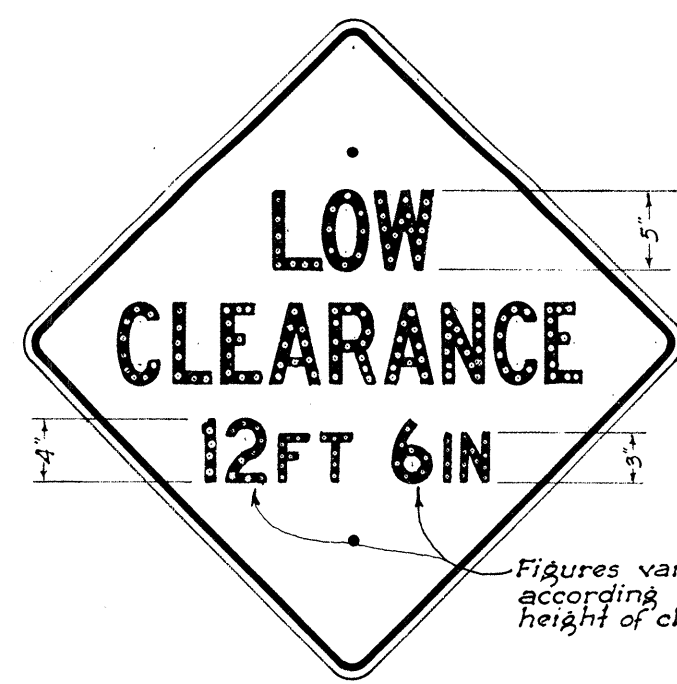
W-20
30" x 30"



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"

NOTE: All Warning Signs shall have two (2) 1/8" bolt holes drilled at 24" center unless otherwise noted.

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.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
REGULATORY & WARNING SIGNS

Scale: 1" = 1'

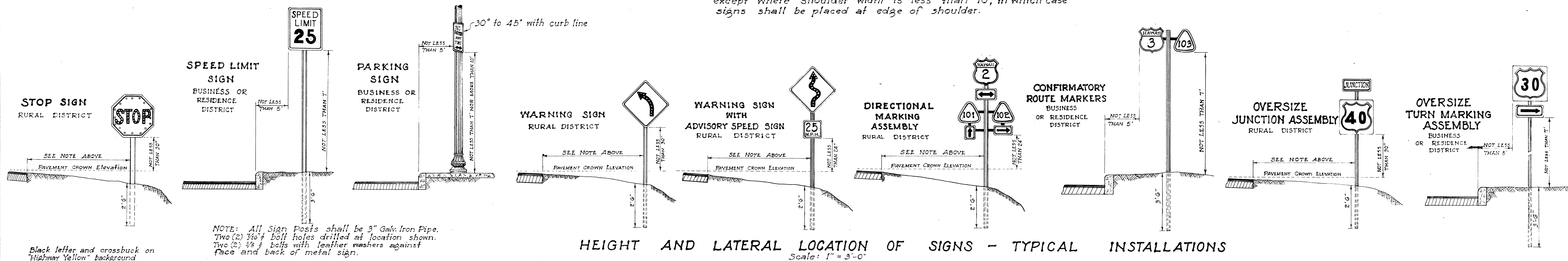
May 31, 1949

APPROVED: TERRITORIAL HIGHWAY ENGINEER

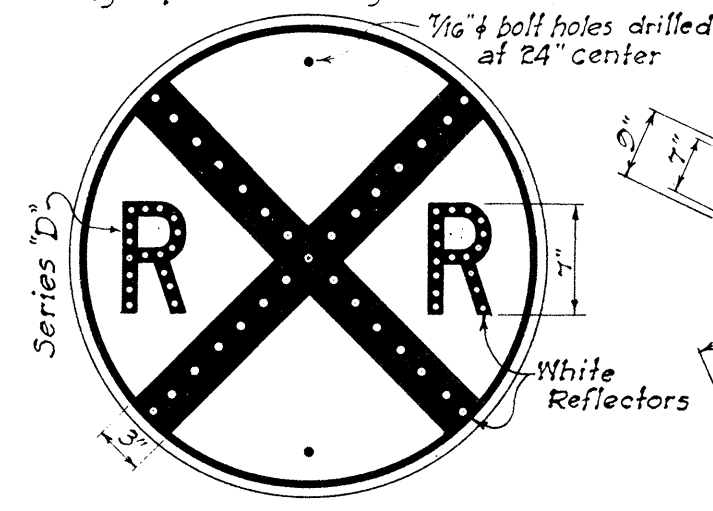
SHEET NO. 13 OF 42 SHEETS

See Specifications for Materials & Finish.

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.

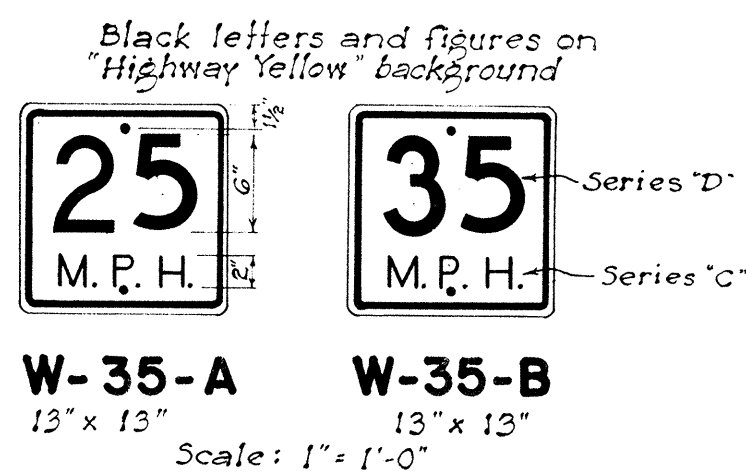
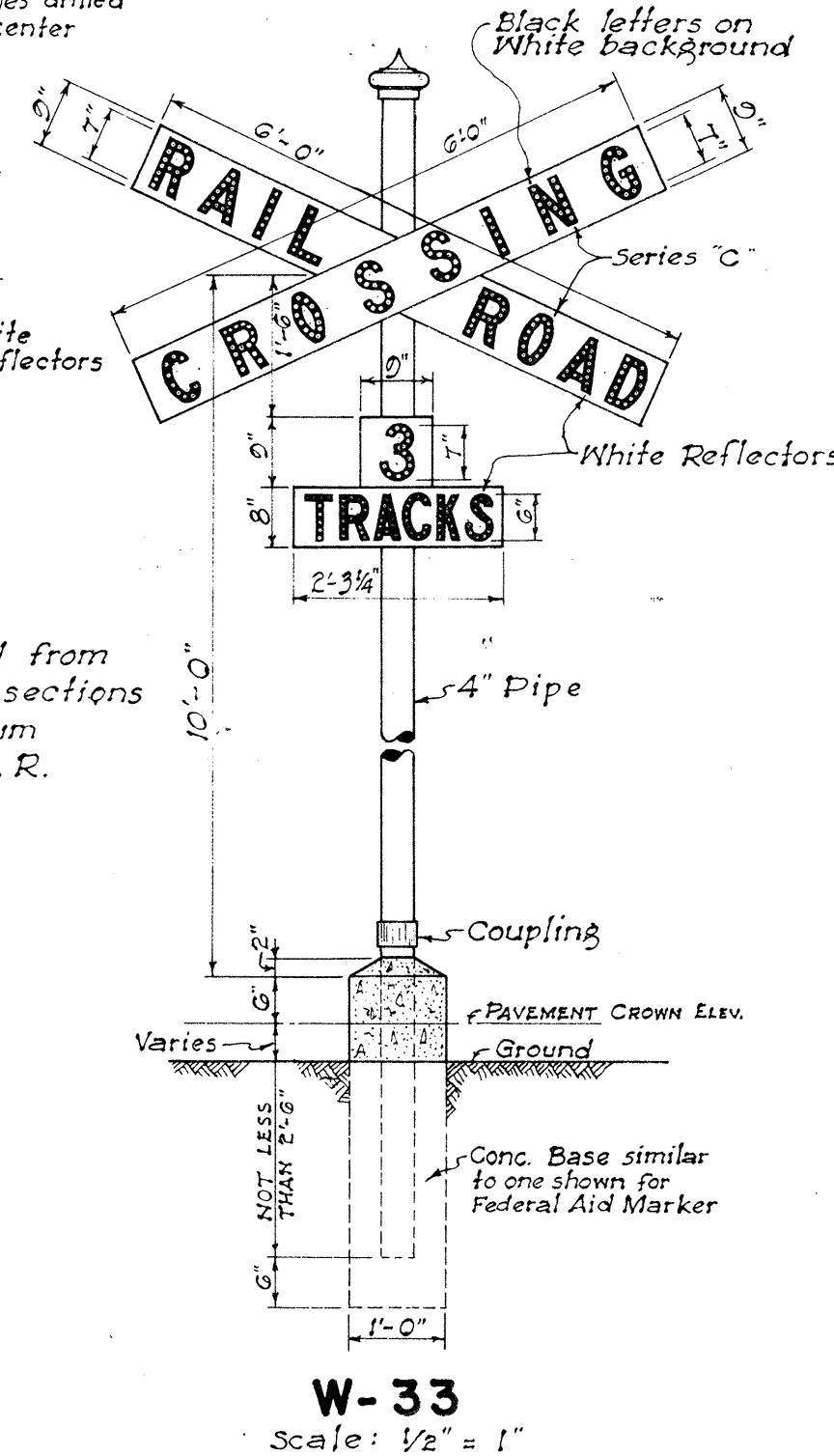


HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATIONS
Scale: 1" = 3'-0"



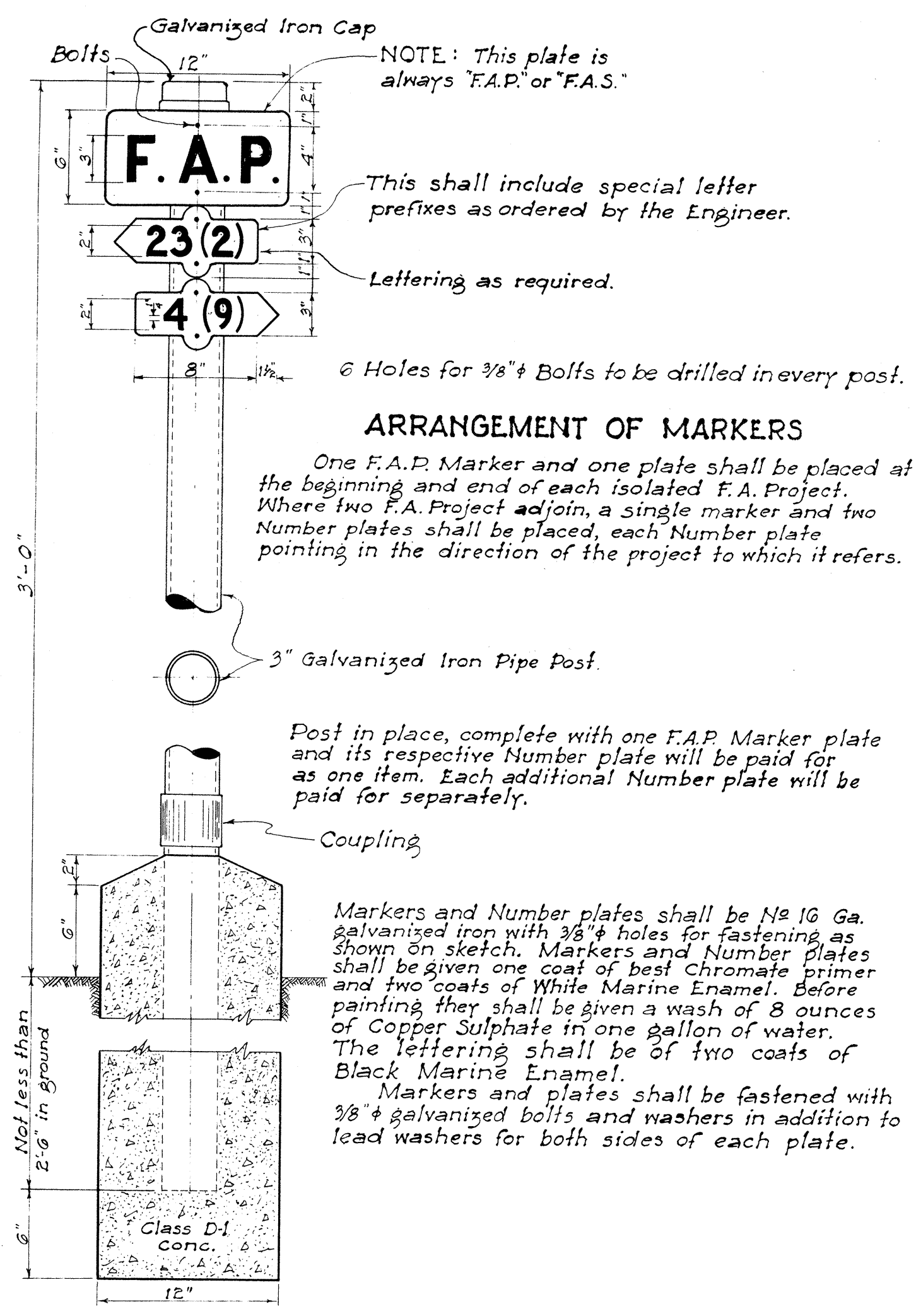
W-32
30" Diameter
Scale: 1" = 1'-0"

NOTE: This sign shall be placed from 300 to 500 feet from R.R. intersections in rural areas and a minimum distance of 100 feet from R.R. intersections in Residence or Business districts.

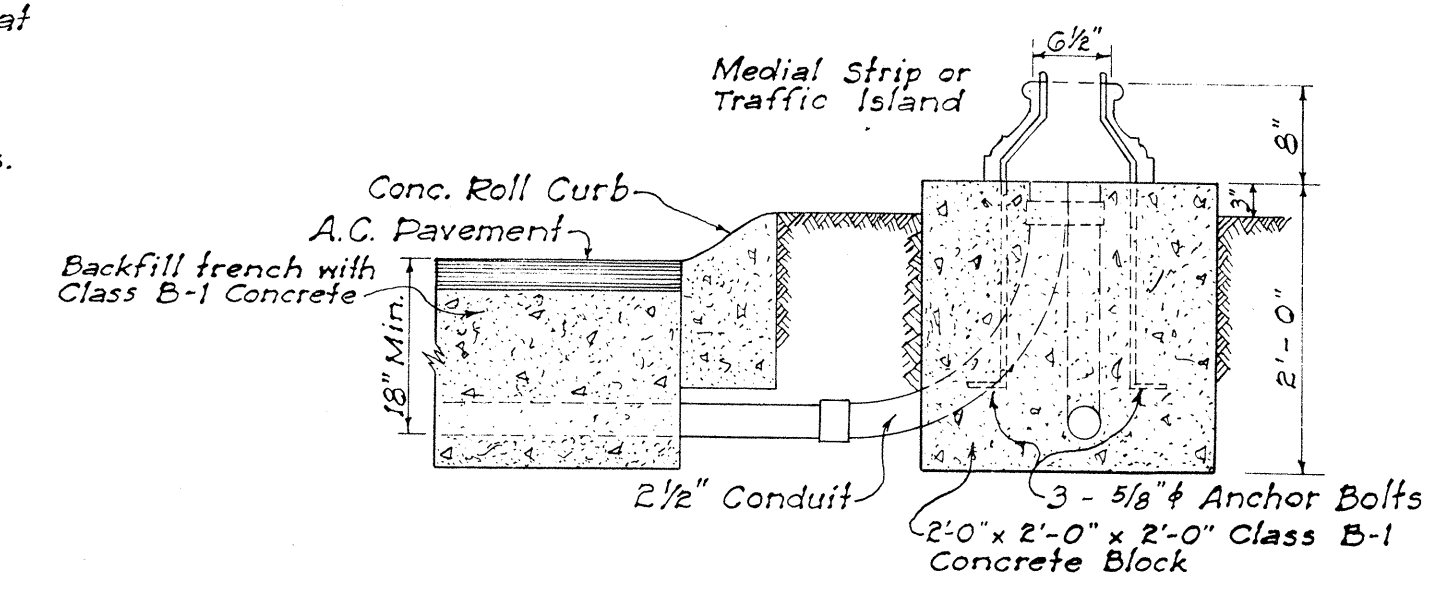
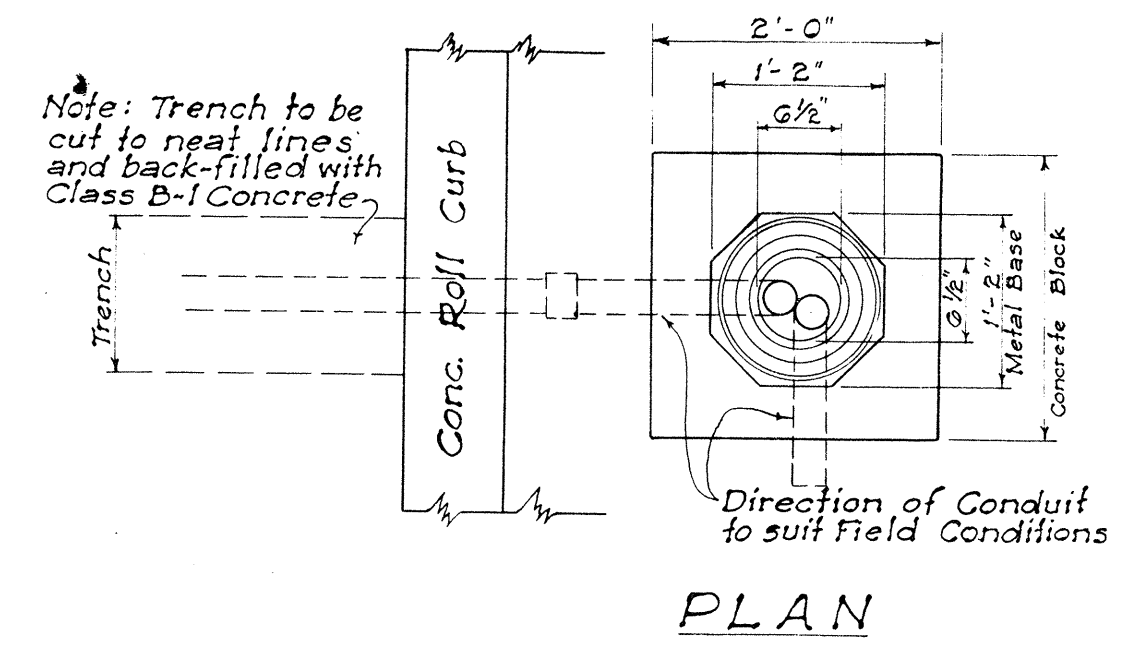


SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY T. Tokunaga	
QUANTITIES BY	CHECKED BY
NOTE BOOK	
No.	

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
REGULATORY & WARNING SIGNS
SCALE AS NOTED
APPROVED: *Amber*
Territorial Highway Engineer

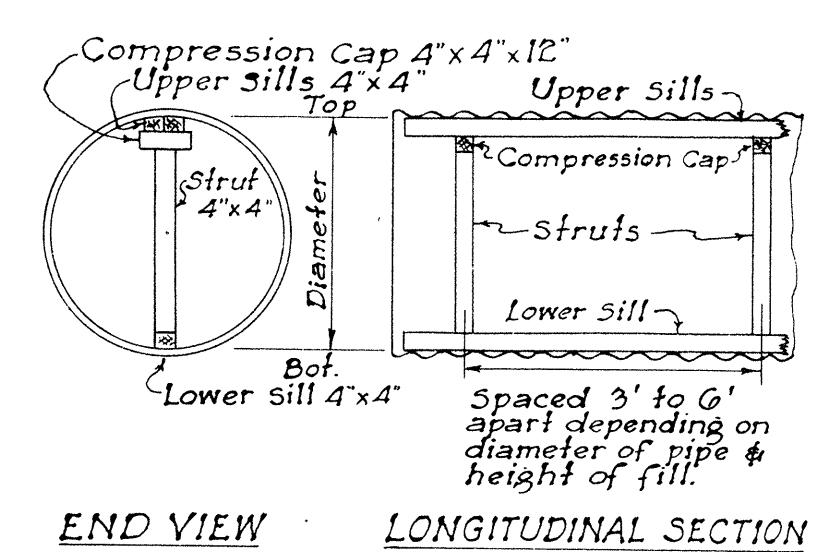


FEDERAL AID MARKER
Scale: 1 1/2" = 1'-0"



NOTE: Unless otherwise specified, all concrete for base for Traffic Standards, Pull Boxes, Concrete Jackets for Transite Ducts shall be Class B-1 Concrete.

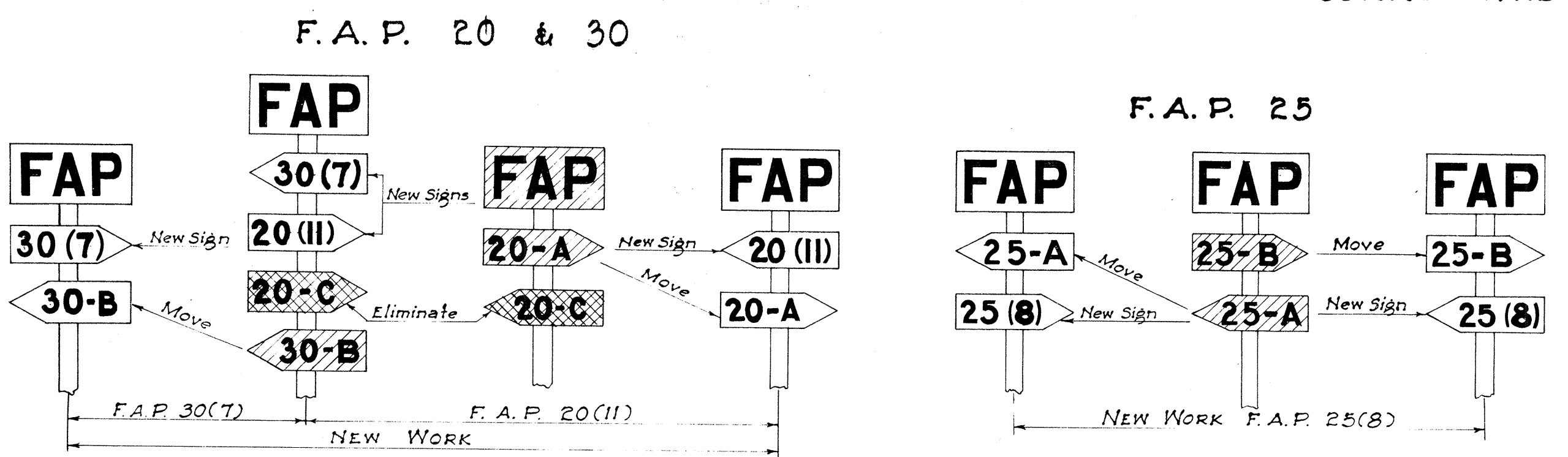
DETAIL OF BASE FOR TRAFFIC STANDARD AND DISPATCHER PEDESTAL



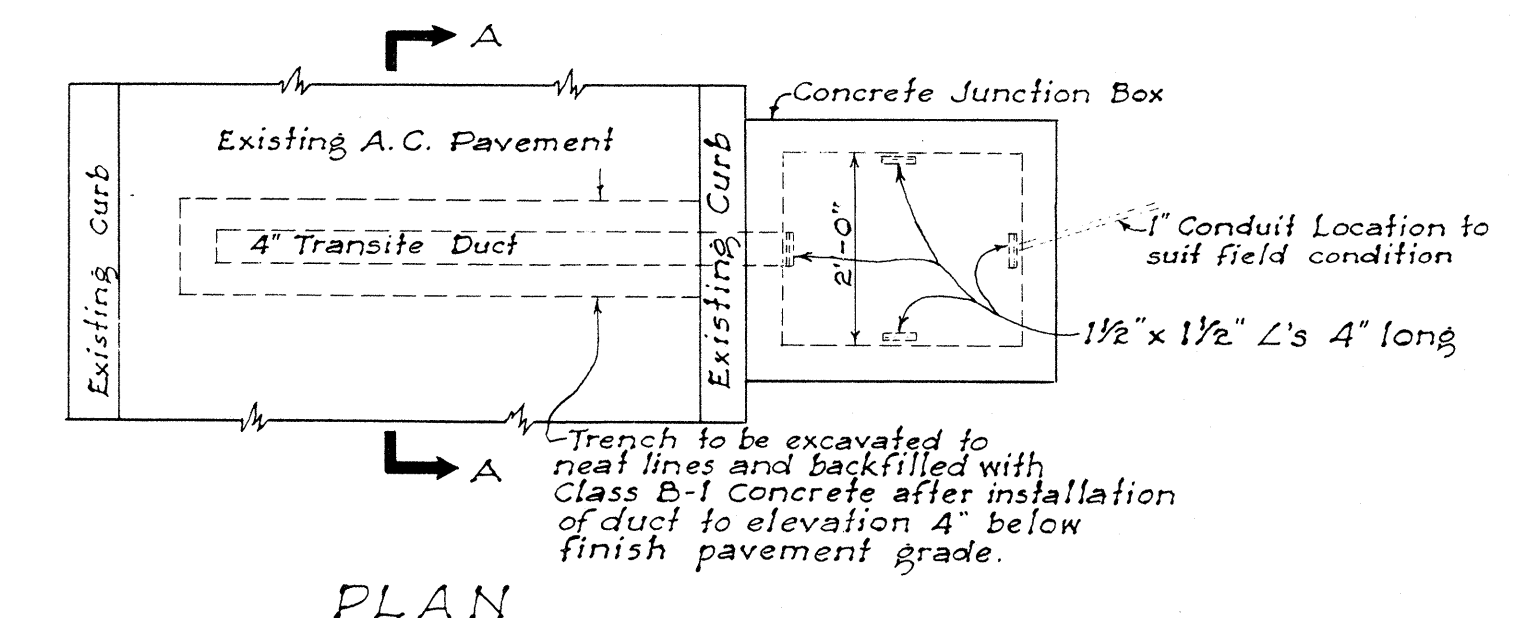
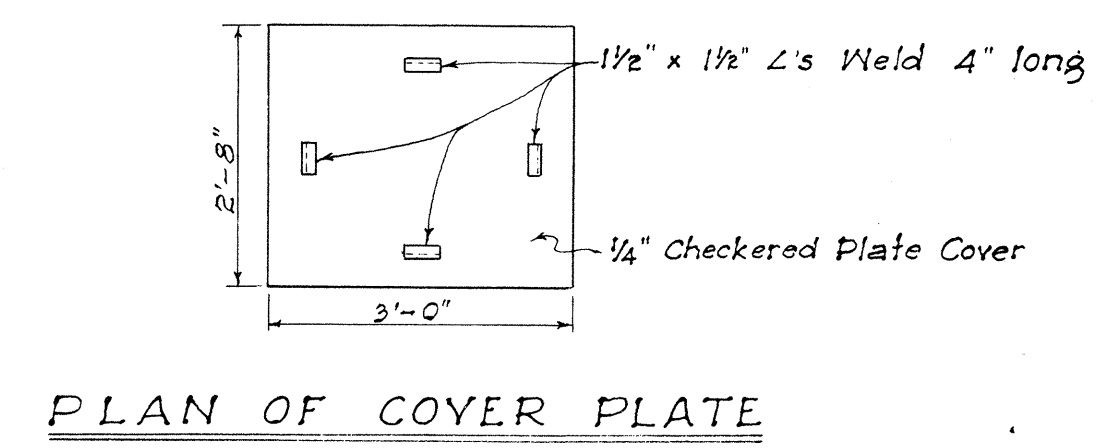
Diameter of Pipe in inches	Length of Struts in inches	Spacing of Struts in ft. for Various Heights				
		FILL 1' to 5'	FILL 5' to 10'	FILL 10' to 20'	FILL 20' to 30'	FILL Over 30'
48	38 3/8	-	-	-	6	4
54	44 3/4	6	6	6	6	4
60	51	6	6	6	6	4
66	57 1/4	6	6	6	6	4
72	63 3/8	6	6	6	5	3.5
78	69 7/8	6	6	6	4.5	3.5
84	76 1/4	6	6	6	4	3

NOTE: Length of Struts are based on 4" x 4" timbers which is the minimum size recommended. If larger sills or compression caps are used, length of struts should be changed accordingly.

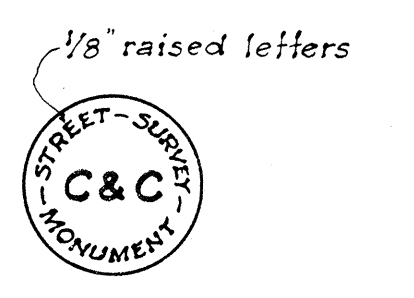
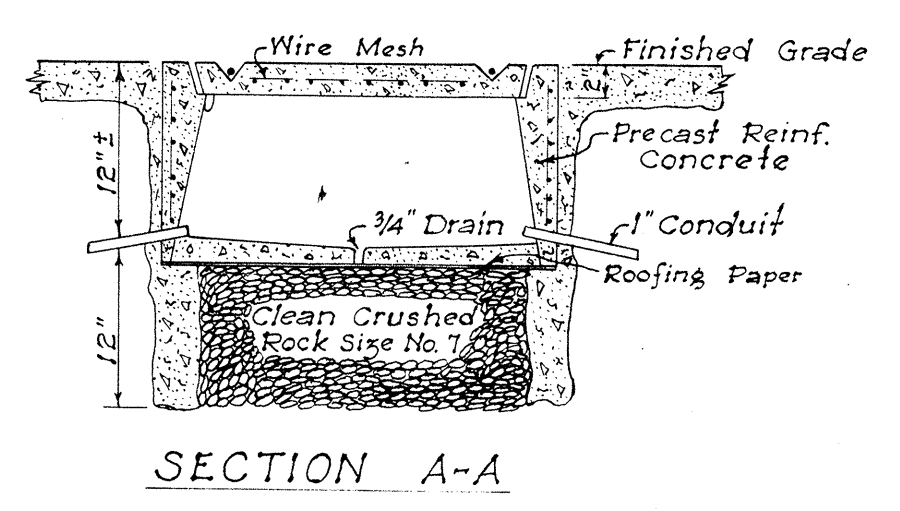
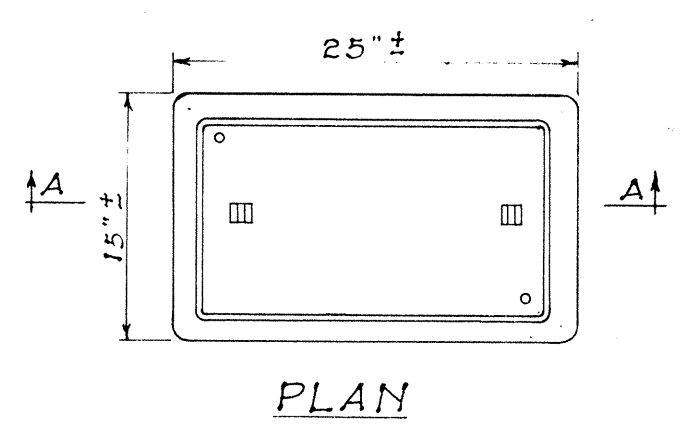
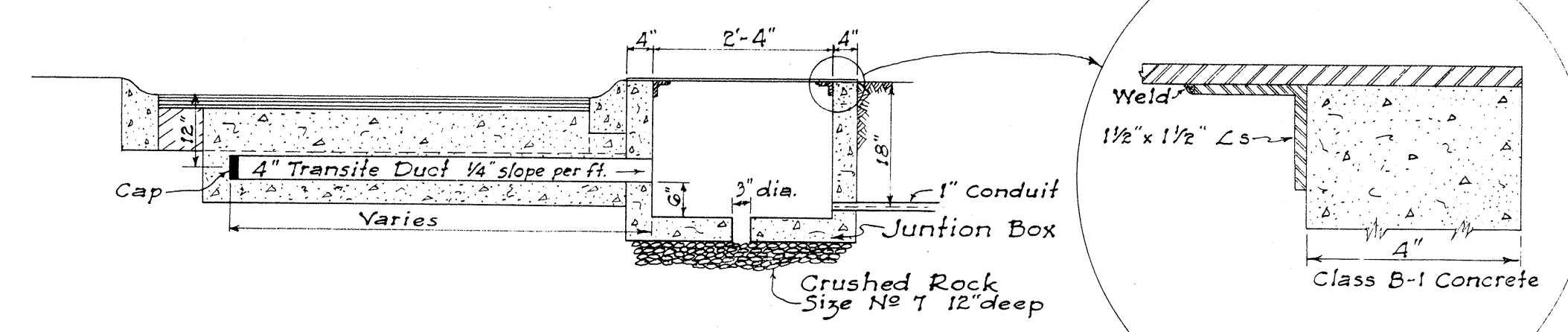
STRUTTING DIAGRAM & TABLE FOR CORRUGATED METAL PIPE CULVERT



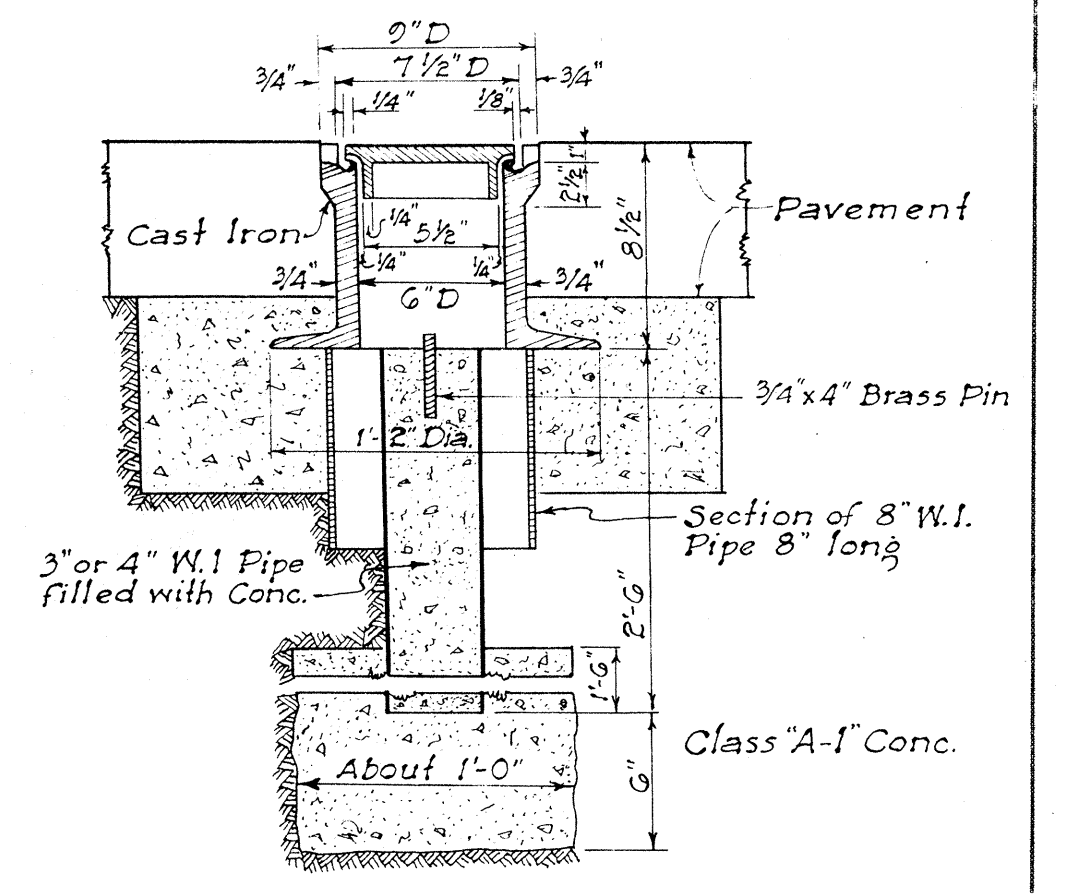
METHOD OF MARKING F.A. PROJECTS AT OVERLAPS (USING NUMBER SUFFIX ON NEW WORK)



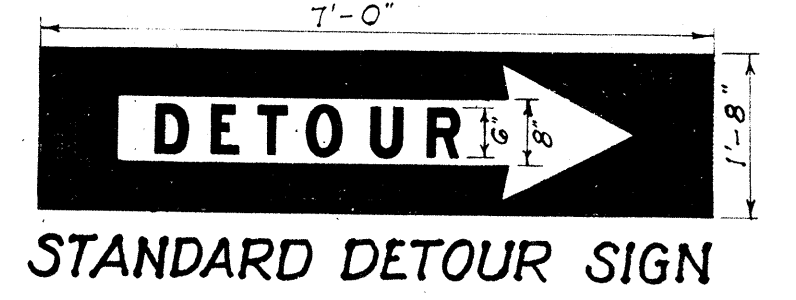
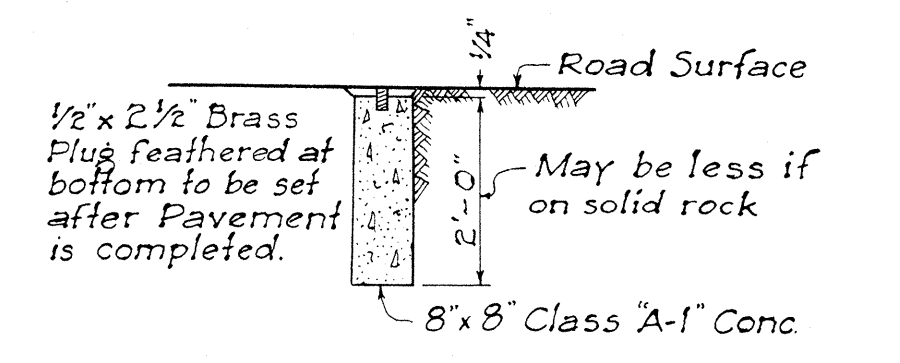
SECTION 'A-A'

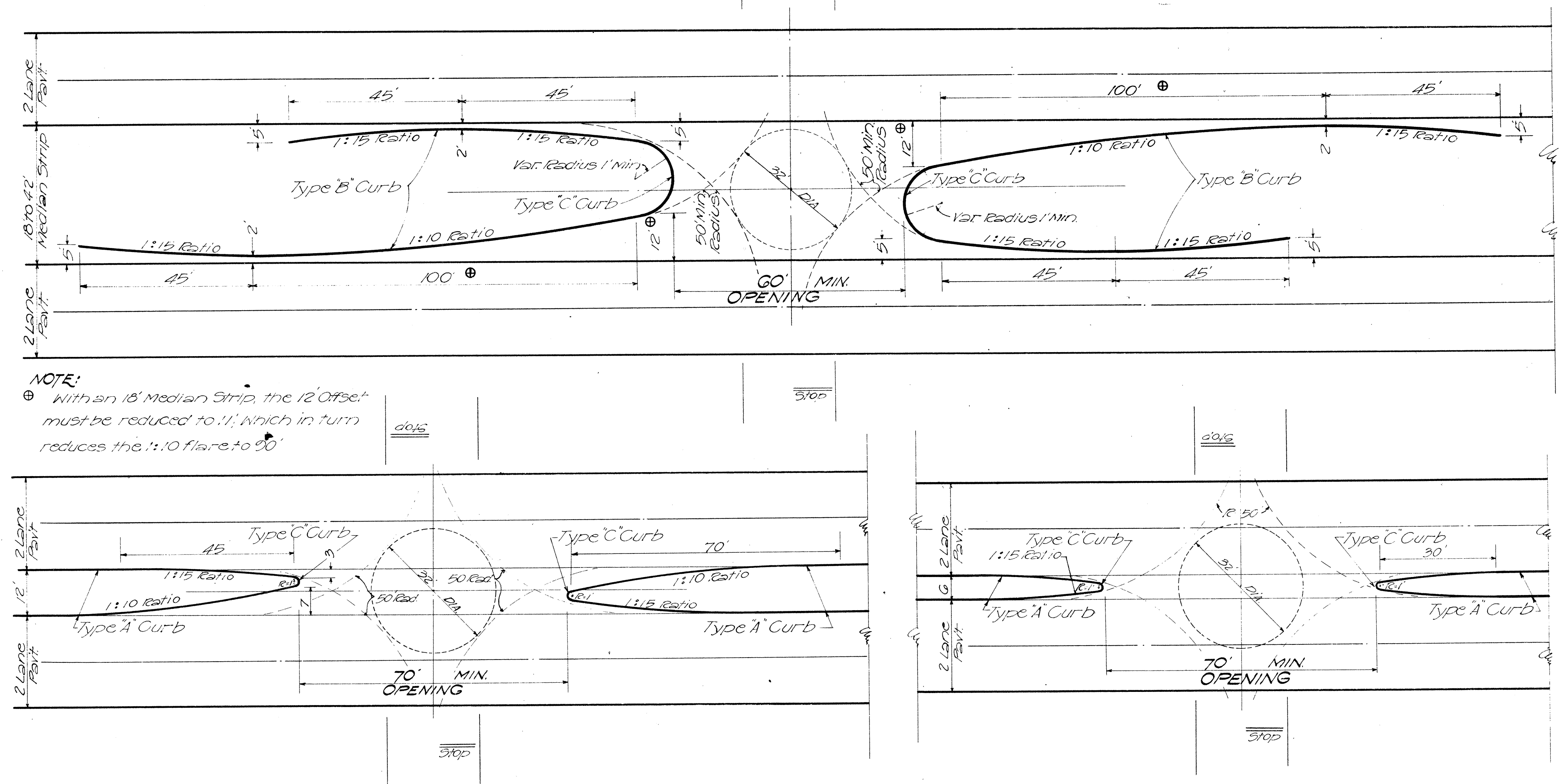
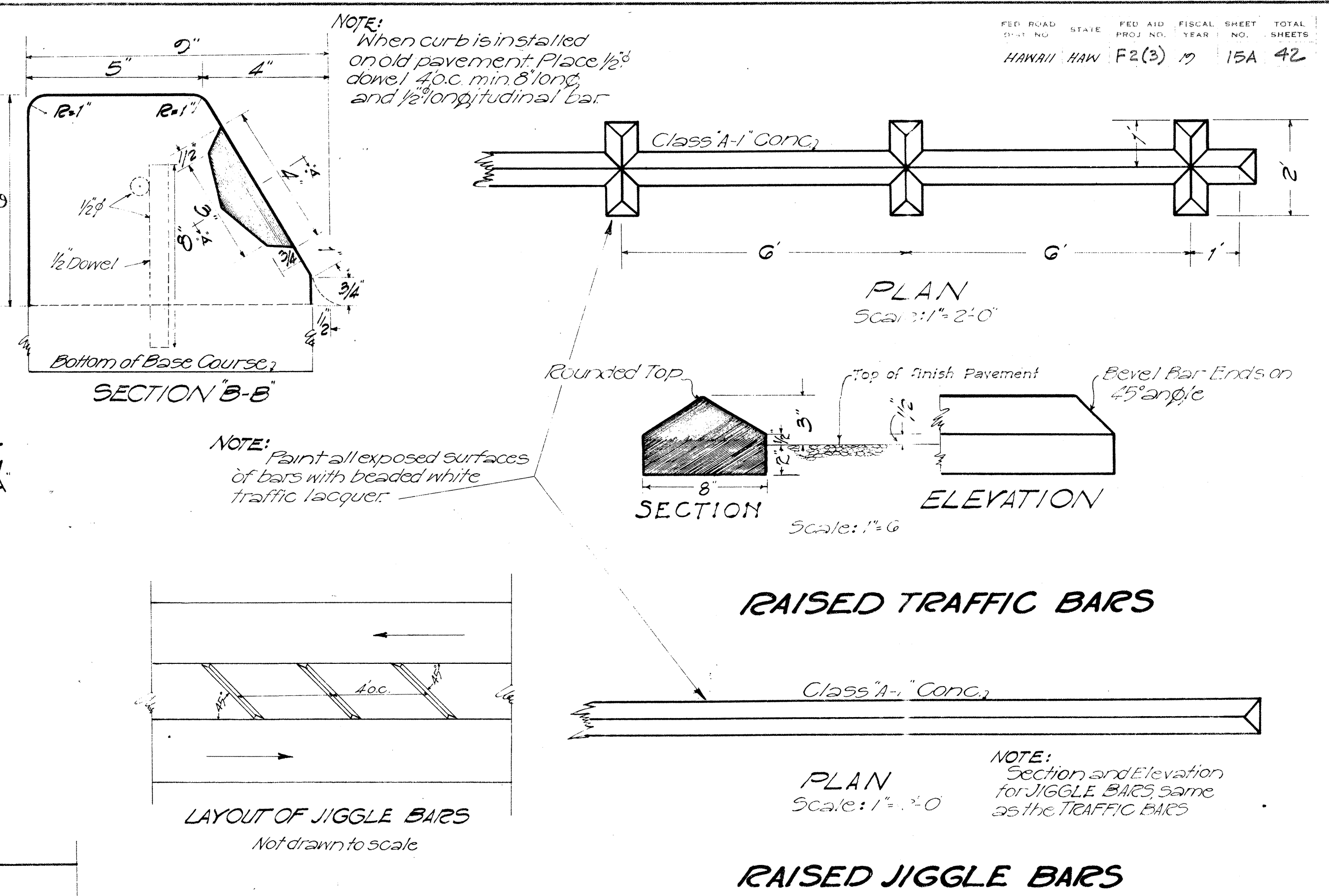
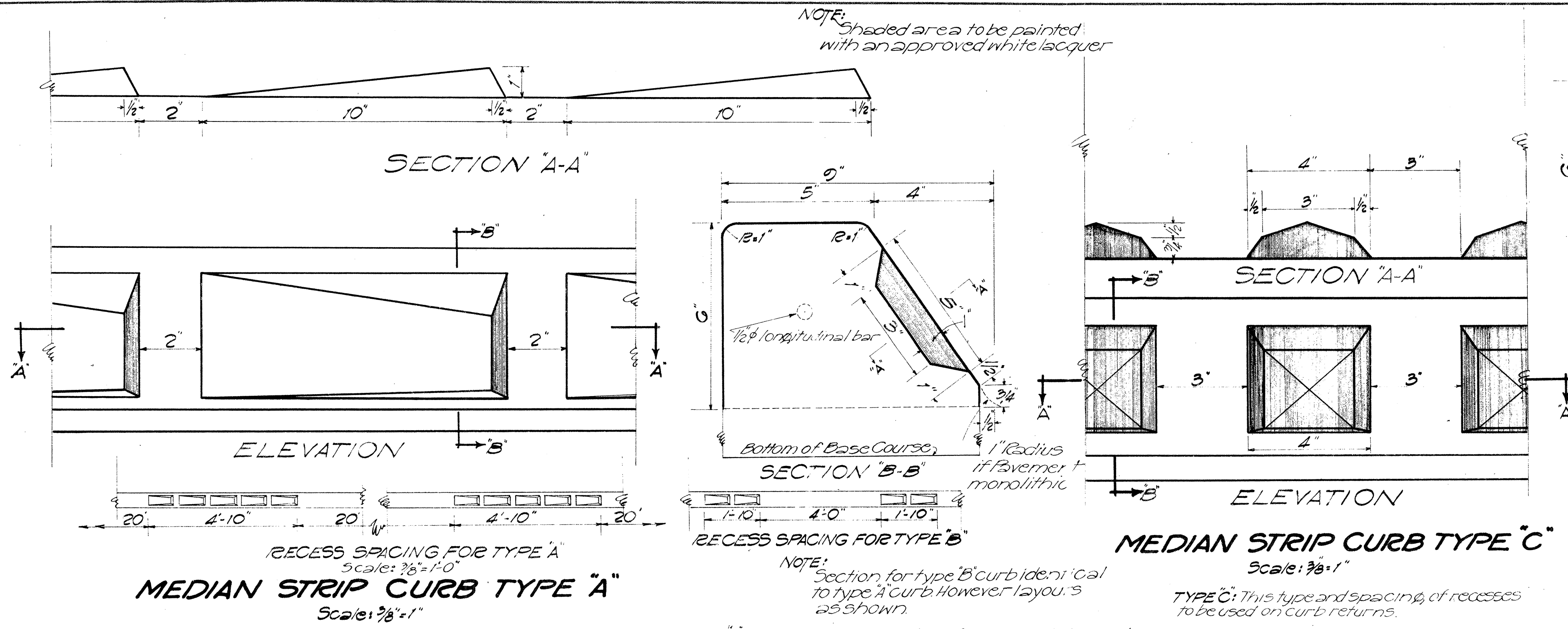


PLAN OF TOP



STANDARD C&C STREET SURVEY MONUMENT





Angle of Inters.	WIDTH OF MEDIAN STRIP											
	42'	36'	30'	24'	18'	12'	6'	42'	36'	30'	24'	18'
60°	54	58	62	66	70	74	78	82	86	90	94	98
65°	48	52	56	60	64	68	72	76	80	84	88	92
70°	42	46	50	54	58	62	66	70	74	78	82	86
75°	36	40	44	48	52	56	60	64	68	72	76	80
80°	32	36	40	44	48	52	56	60	64	68	72	76
85°	30	34	38	42	46	50	54	58	62	66	70	74
90°	30	34	38	42	46	50	54	58	62	66	70	74
95°	30	34	38	42	46	50	54	58	62	66	70	74
100°	30	34	38	42	46	50	54	58	62	66	70	74
105°	30	34	38	42	46	50	54	58	62	66	70	74
110°	30	34	38	42	46	50	54	58	62	66	70	74
115°	30	34	38	42	46	50	54	58	62	66	70	74
120°	30	34	38	42	46	50	54	58	62	66	70	74

