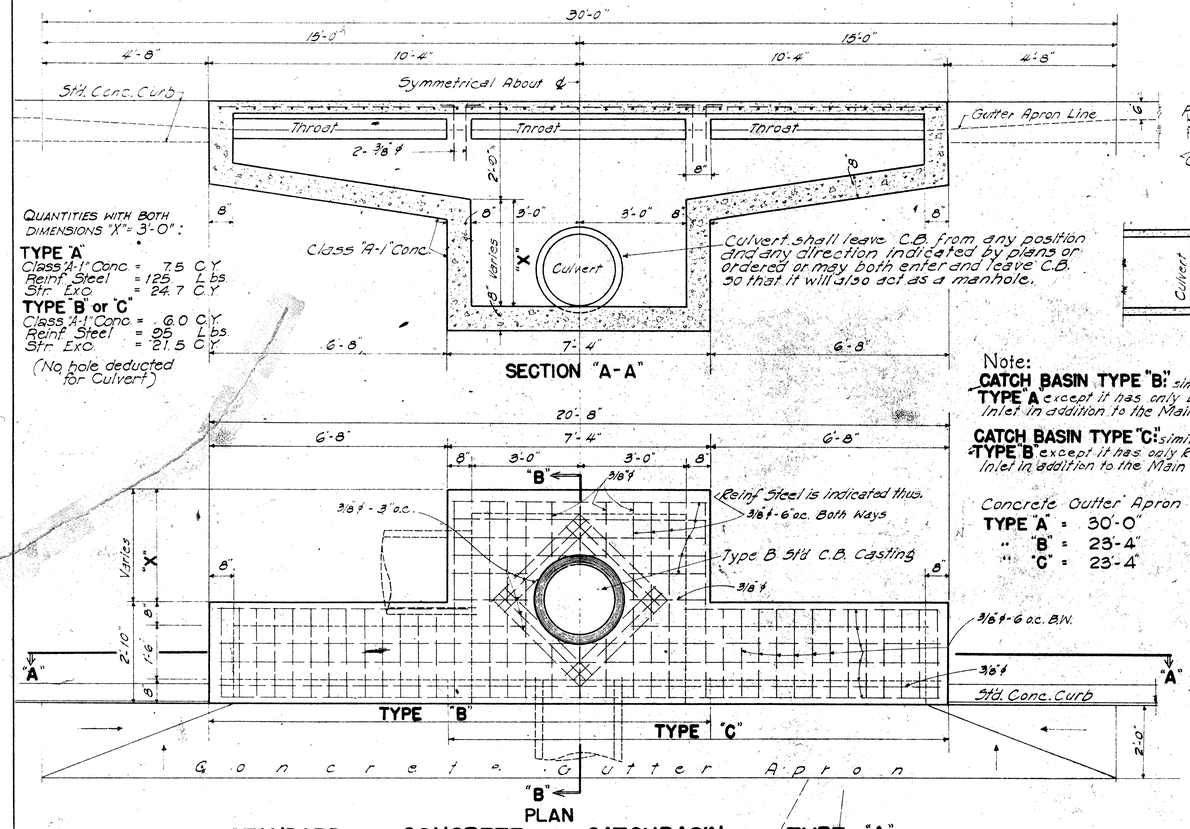
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		19		



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

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

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

(No hole deducted for Culvert)

SECTION "A-A"

PLAN

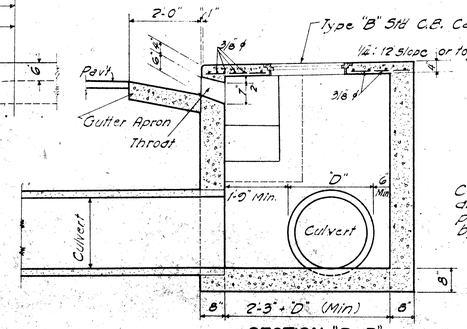
Note:
CATCH BASIN TYPE "B": similar to **TYPE "A"** except it has only Left Side Inlet in addition to the Main Box.

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

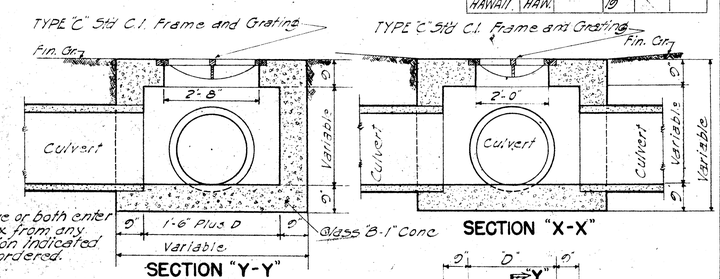
Concrete Gutter Apron Length:
TYPE "A" = 30'-0"
" "B" = 23'-4"
" "C" = 23'-4"

STANDARD CONCRETE CATCHBASIN TYPE "A"

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



SECTION "B-B"



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

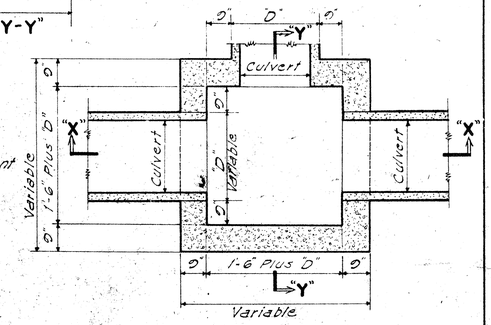
SECTION "Y-Y"

SECTION "X-X"

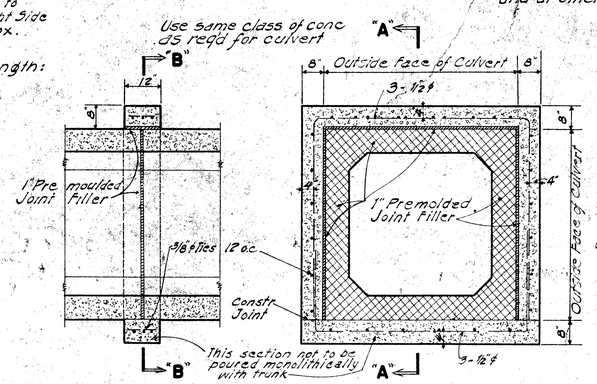
CONC. DROP INTAKE IN MEDIAL STRIPS

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

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



PLAN



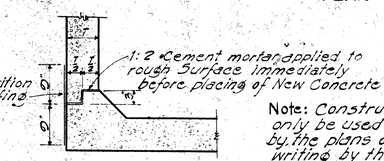
SECTION "A-A"

SECTION "B-B"

CONC. COLLAR FOR CONC. BOX CULVERT

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

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



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

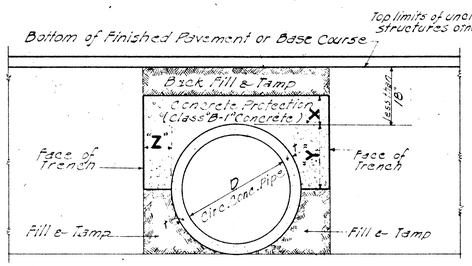
CONSTR. JOINT DETAILS

METHOD OF APPLYING CONSTR. JOINT WATERPROOFING

(1.) Mop surface either side of joint as required with asphalt 85-100 penetration applied at 200° F.

(2.) Apply one layer of 55-lb composition roofing to hot asphalt.

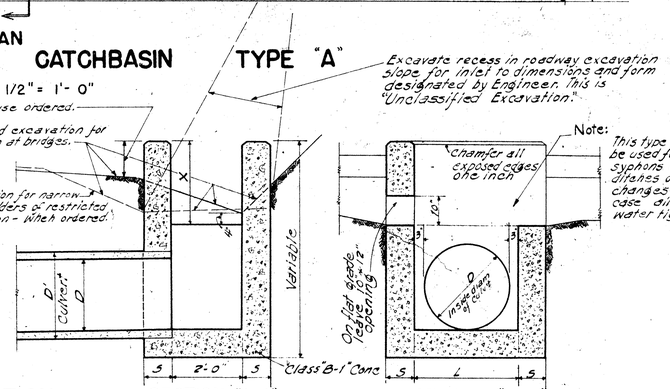
(3.) Mop surface of composition roofing and 3" beyond all around with thick coat of asphalt as specified under (1)



TYP. SECT. OF CULVERT WITH CONC PROTECTION

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

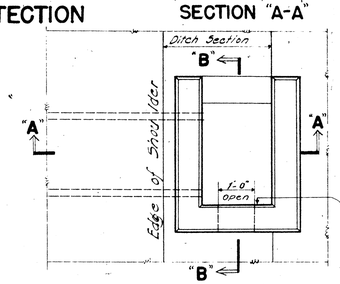
DATA: CONCRETE PROTECTION OVER CULVERTS		
X	Y	Z
6" for 18" D	$\frac{D}{2}$ + T	Z must be from pipe to face of trench.
7" " 24" D		
8" " 30" D		Minimum = X
9" " 36" D		
10" " 42" D		Maximum pay quantity will be be Z = 12"
11" " 48" D		
12" " 54" D		



SECTION "A-A"

SECTION "B-B"

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.



PLAN

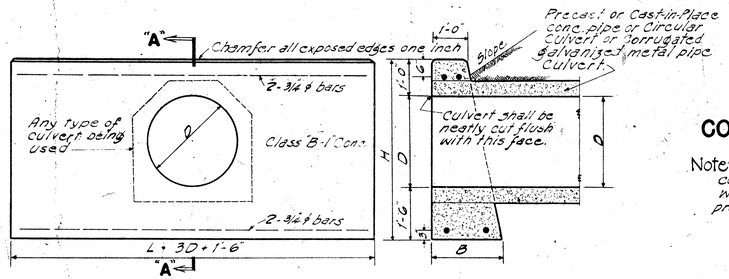
Data: Standard Drop Intake					Where Variable Equals
D'	D	L = D + 6"	S	Cu. Yds.	
22½	18"	2'-0"	8"	1.10	4'-6"
27	24"	2'-6"	8"	1.33	5'-0"
33½	30"	3'-0"	9"	1.79	5'-6"
42	36"	3'-6"	9"	2.07	6'-0"
48½	42"	4'-0"	10"	2.90	6'-6"
55½	48"	4'-6"	10"	3.27	7'-0"

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. CONC. DROP INTAKE

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



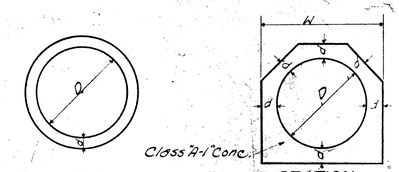
FRONT ELEVATION

SECTION "A-A"

Cast-in-Place	Data: Standard Concrete Headwall					Steel One Headwall			
Cu. Yds.	D	B	L	H	Conc. one H.W.	No. of Bars	Size	Length	Wt. Lbs.
0.82 Cu. Yds.	18"	1'-6"	6'-0"	4'-0"	1.00 Cu. Yds.	4	3/4"ϕ	5'-6"	33
1.25 " "	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"



SECTION

SECTION

CONC. 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 Conc. Culvt.			
D	d	W	Cu. Yd. per ft.
18"	4"	2'-2"	0.11
24"	4½"	2'-9"	0.14
30"	5"	3'-4"	0.19
36"	5½"	3'-11"	0.26

CAST-IN-PLACE CONC. CULVERT

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

STANDARD DETAILS

SCALES AS NOTED — Sept. 5, 1946

APPROVED: B. F. Rush
Territorial Highway Engineer

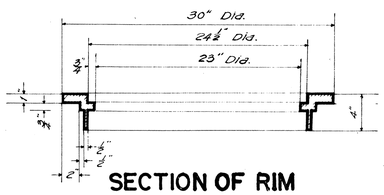
SHEET No. 3 OF 4 SHEETS

3434.3

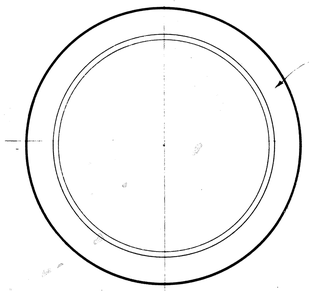
ORIGINAL PLAN	SURVEY PLOTTED BY	DESIGNED BY	DRAWN BY	TRACED BY	QUANTITIES CHECKED BY	STRUCTURES CHECKED BY	SHEET LOCK	DATE
			S. Uyeda					

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		19		

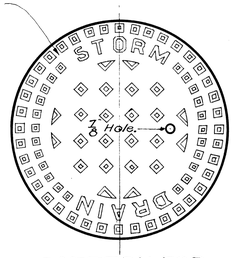
NOTE: The pattern for water manhole cover shall be the same as for sanitary sewer except that the word "Water" shall be substituted for Sanitary Sewer.



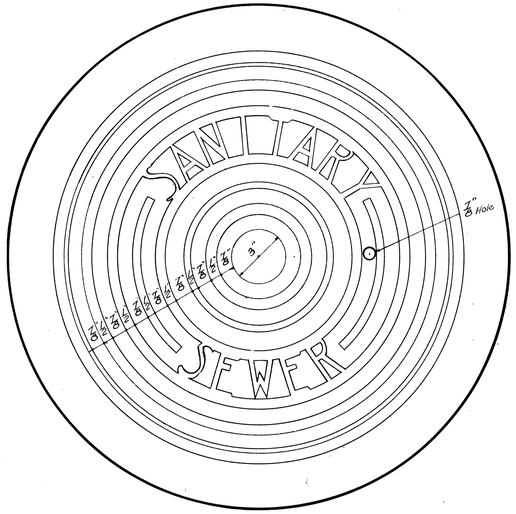
SECTION OF RIM



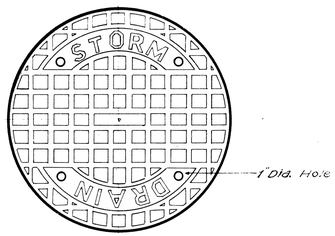
PLAN OF RIM



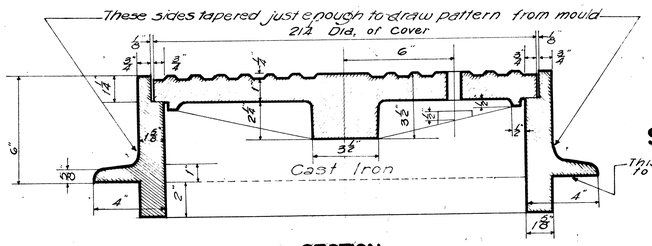
PATTERN FOR STORM DRAIN MANHOLE COVER



PATTERN FOR SEWER MANHOLE COVER

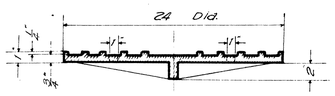


PLAN OF COVER TOP



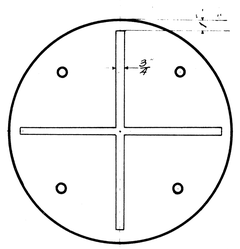
SECTION

NOTE: A unit includes both Frame and Cover

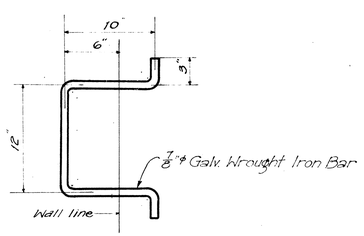


SECTION OF COVER

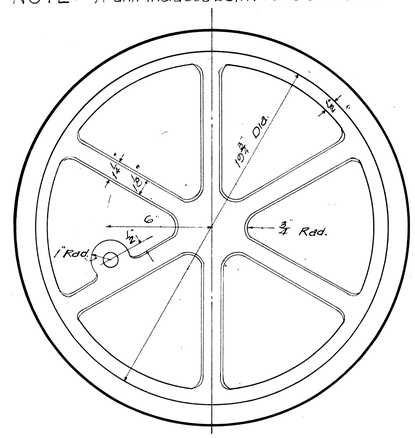
NOTE: A unit includes both Rim and Cover



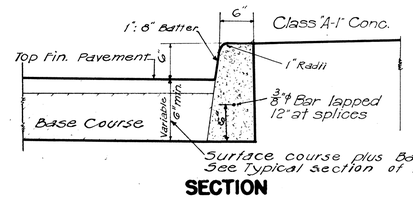
BOTTOM VIEW OF COVER
TYPE "B"
STANDARD CATCH BASIN CASTINGS
Scale: 1-1/2" = 1'- 0"



DETAIL OF MANHOLE RUNG
Scale: 1-1/2" = 1'- 0"

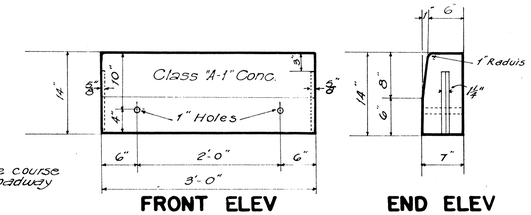


BOTTOM VIEW OF COVER
TYPE "A"
STANDARD MANHOLE CASTINGS
Scale: 3" = 1'- 0"



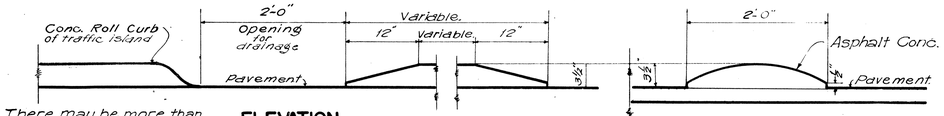
SECTION

ST'D. CAST IN PLACE CONC. CURB
Scale: 1" = 1'- 0"



FRONT ELEV END ELEV

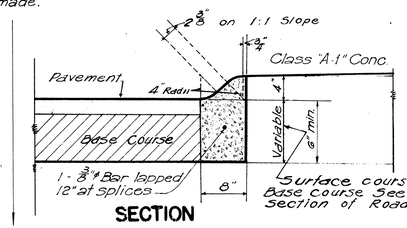
ST'D. PRECAST CONC. CURB
Scale: 1" = 1'- 0"



ELEVATION SECTION

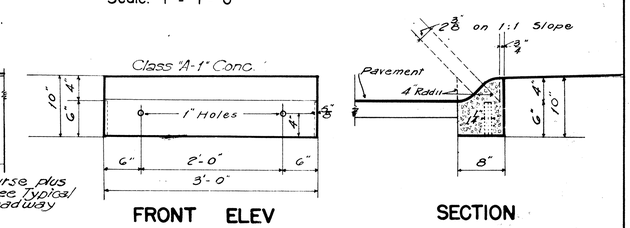
DETAIL OF A. C. ROLL
Scale: 1" = 1'- 0"

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.



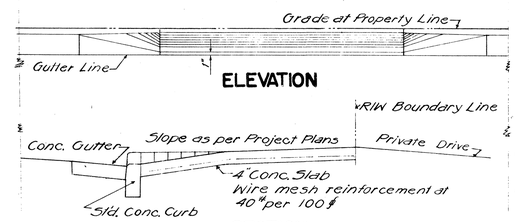
SECTION

ST'D. CAST IN PLACE CONC. ROLL CURB
Scale: 1" = 1'- 0"

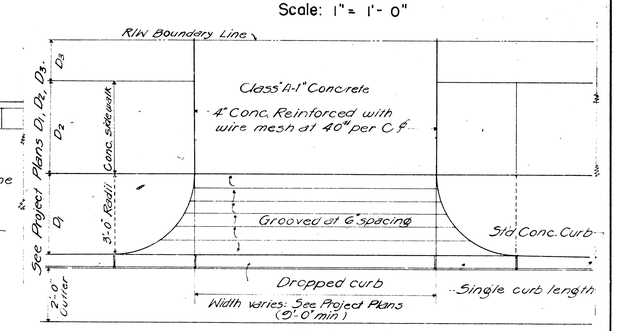


FRONT ELEV SECTION

ST'D. PRECAST CONC. ROLL CURB
Scale: 1" = 1'- 0"

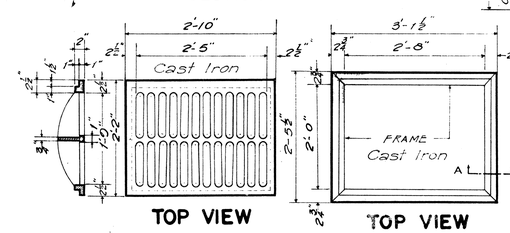


ELEVATION SECTION

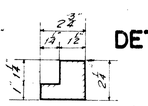


PLAN

DETAILS OF DROPPED DRIVEWAY



TOP VIEW TOP VIEW



SECTION A-A
Scale: 3" = 1'- 0"

STANDARD C. I. FRAME AND GRATE TYPE "C"
Scale: 3/4" = 1'- 0"

NOTE: Stock Pattern from Novelty Foundry - Honolulu

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

STANDARD DETAILS

SCALES AS NOTED Apr. 15, 1948

APPROVED: _____
Territorial Highway Engineer

SHEET Nº 4 OF 4 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DESIGNED BY	
	DRAWN BY S. Nambu	
NOT BOOK	TRACED BY	
	QUANTITIES CHECKED BY	
No.	CHECKED BY	

5434.4