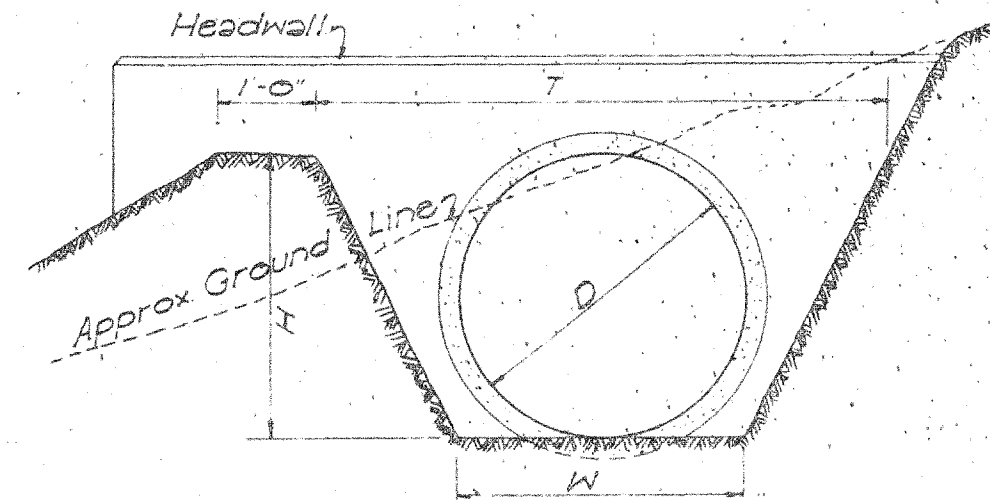


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW		1969	55	104

Revised: June 1965
Revised: August 1967
PROJ. NO 900B-02-68 UNIT 2

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"



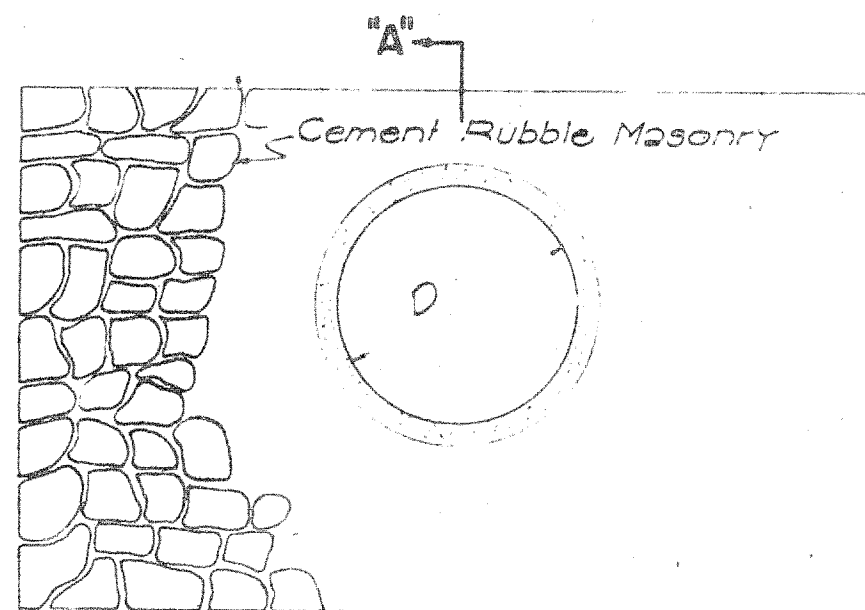
DETAIL OF OUTLET DITCH

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

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.

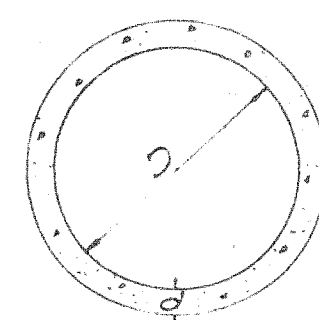
D	H	B	L	CRM for RCCP	CRM for CGMP
18"	4'-6"	1'-0"	6'-0"	1.24	1.29
24"	5'-0"	2'-0"	7'-0"	1.83	1.98
30"	5'-6"	2'-3"	8'-0"	2.50	2.70
36"	6'-0"	2'-6"	10'-0"	3.45	3.66



ELEVATION

DETAIL OF MASONRY HEADWALL

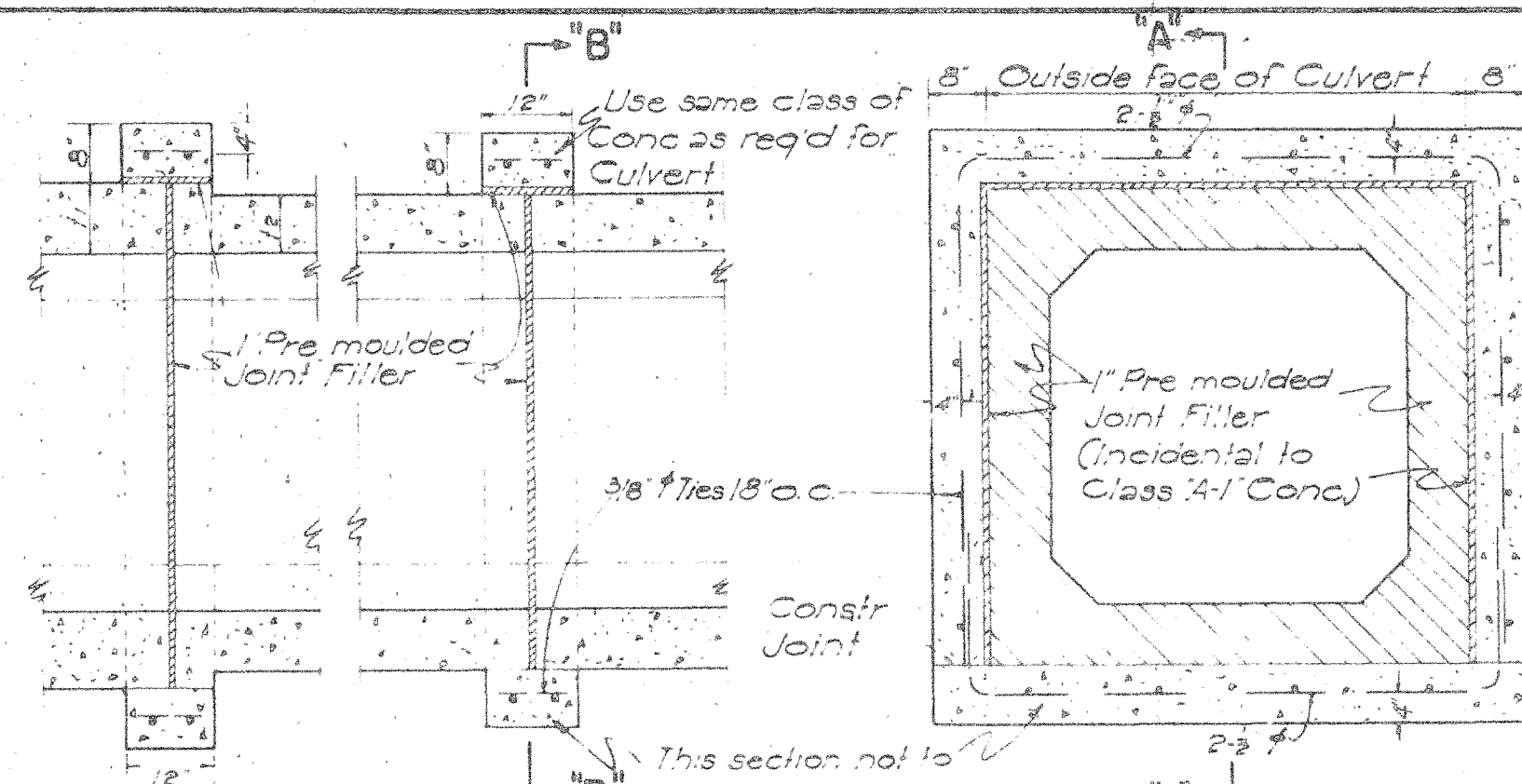
Scale: 1/2" = 1'-0"



SECTION

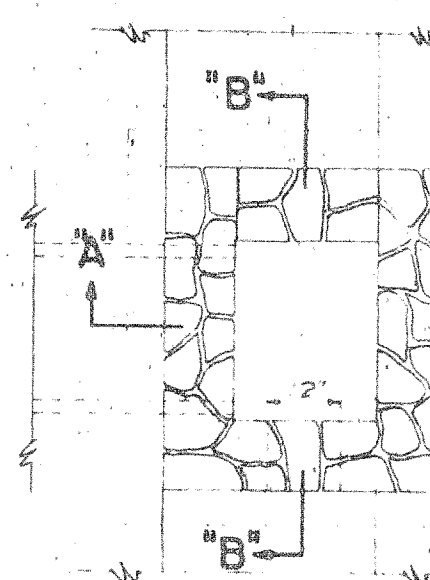
CONC. PIPE CULVERT

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



SECTION "A-A"
CONC. COLLAR FOR CONC. BOX CULVERT

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



SECTION "A-A"

DETAIL OF MASONRY DROP INTAKE

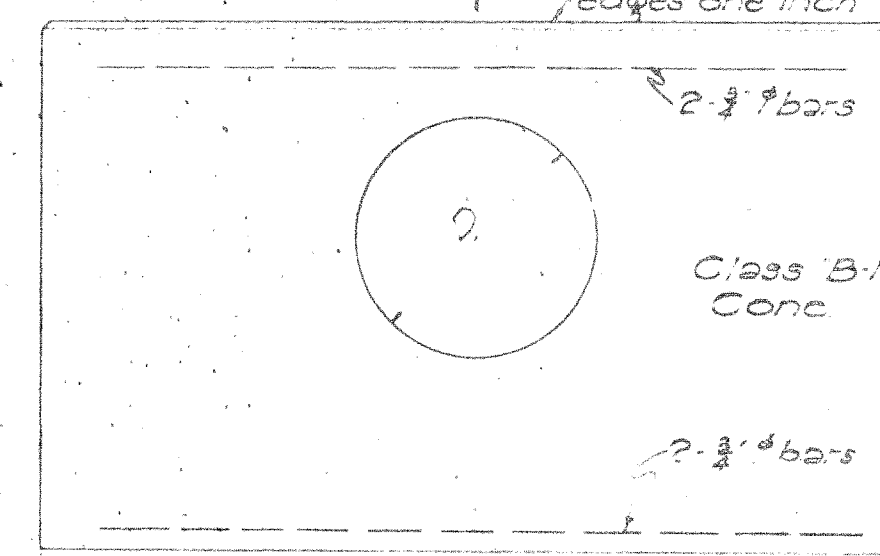
Scale: 3/8" = 1'-0"



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 (stripped) to proper subgrade. This surface shall be rolled again.



ELEVATION

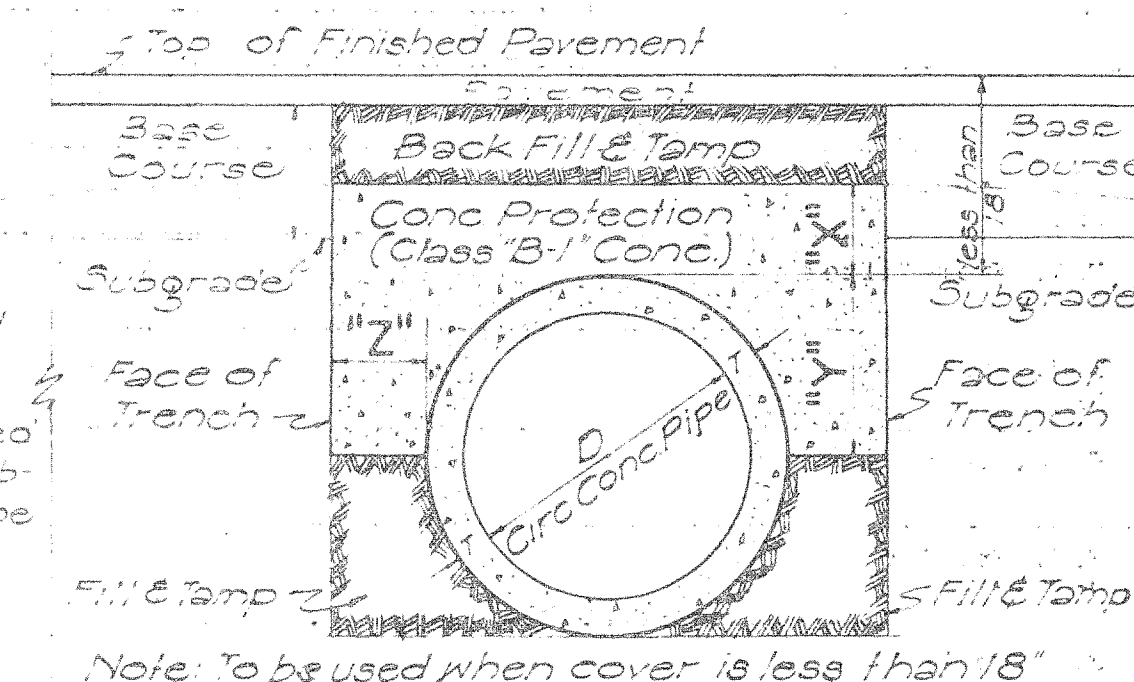
DETAIL OF CONCRETE HEADWALL

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

D	B	L	H	Cu Yds	Cu Yds	Steel For One Headwall
18"	1'-0"	6'-0"	4'-6"	1.12	1.17	4 #3 @ 5'-0"
24"	1'-6"	7'-0"	5'-0"	1.52	1.60	4 #3 @ 7'-0"
30"	2'-0"	8'-0"	5'-6"	2.36	2.49	4 #3 @ 8'-0"
36"	2'-6"	10'-0"	6'-0"	3.04	3.13	4 #3 @ 10'-0"
42"	3'-0"	12'-0"	6'-6"	4.19	4.41	4 #3 @ 12'-0"
48"	3'-6"	13'-0"	7'-0"	5.01	5.36	4 #3 @ 13'-0"

REINFORCING BARS

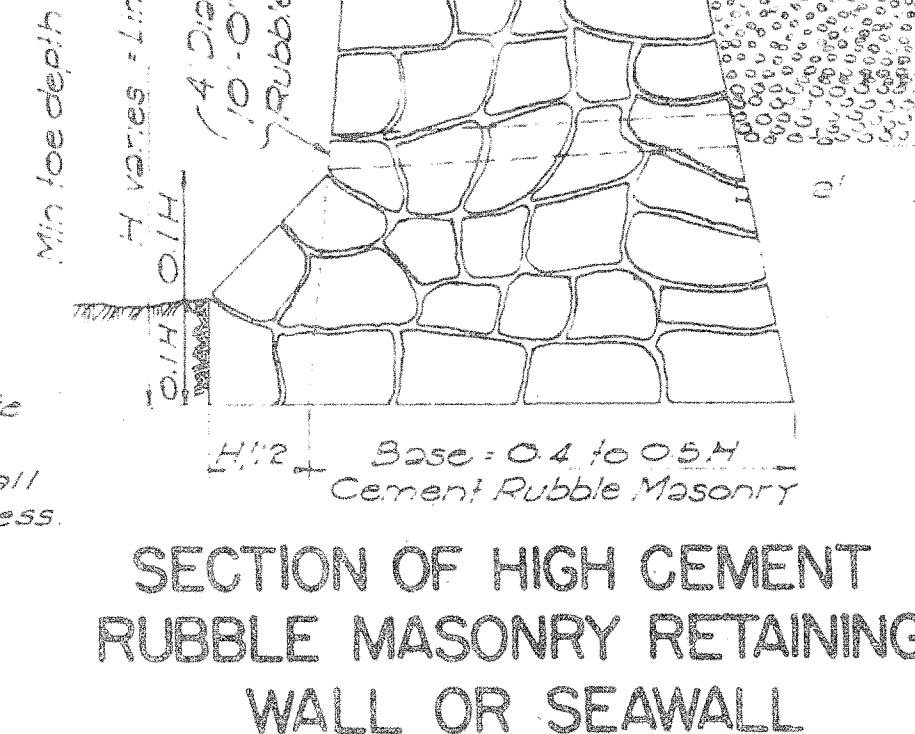
All reinforcing bars for concrete shall be Billet Steel bars ASTM A15 intermediate grade. Steel shall be made by the open-hearth process. All bars shall be deformed type conforming to ASTM A-305.



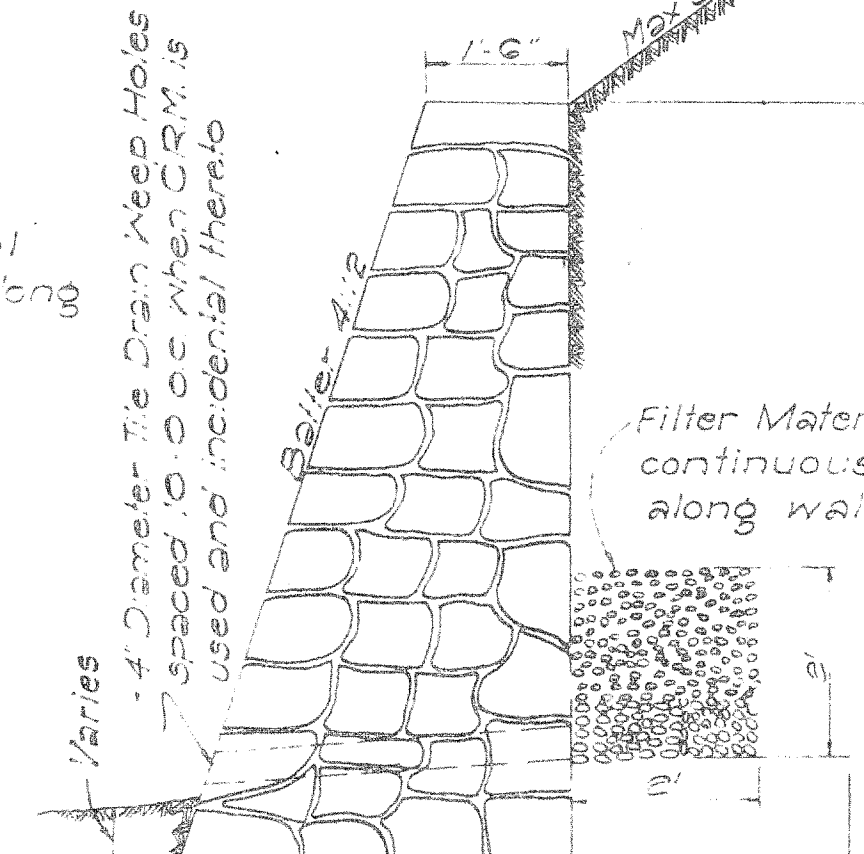
X	Y	Z
6" for 18" D		Z must be from pipe to face of trench
7" 24" D		
8" 30" D	D+T	Minimum = X
9" 36" D		Maximum pay quantity will be Z=12"
10" 42" D		
11" 48" D		
12" 54" D		

SECT. OF CULVERT WITH CONC. PROTECTION

Scale: 1" = 1'-0"



SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

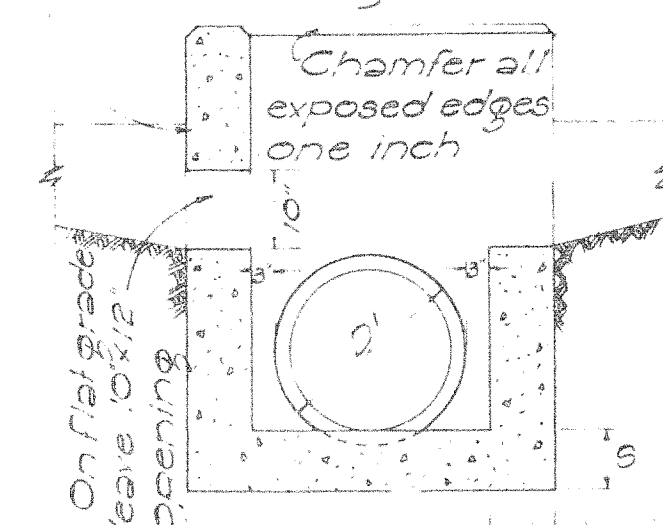


SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

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"
51"	42"	4'-9"	5.50	6'-6"
58"	48"	5'-4"	6.15	7'-0"

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

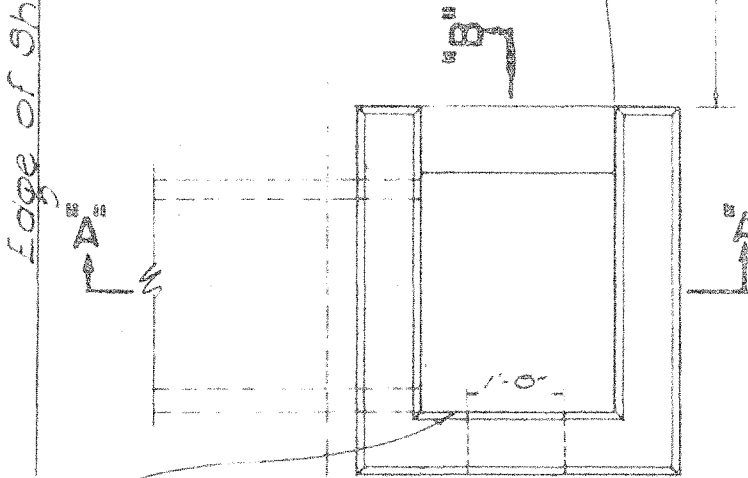
NOTE: This type of structure shall also be used for the Drop Intakes of Syphons connected with Irrigation Ditches or Flumes with appropriate changes to dimensions. In this case all joints must be made water tight.



SECTION "B-B"

DETAIL OF CONCRETE DROP INTAKE

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



SECTION "A-A"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
DROP INTAKES, RETAINING WALLS,
HEADWALLS, CONSTRUCTION JOINTS
SCALES AS NOTED

SHEET NO. 1 OF 3 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY.....	DATE.....
NOTE BOOK	DESIGNED BY.....	"
	DRAWN BY.....	"
No.	TRACED BY.....	"
	QUANTITIES BY.....	"
	CHECKED BY.....	"

August 1957
PROJECT NO. 900B-02-68
UNIT 2

SECTION

TOP VIEW

TOP VIEW

[illegible]

SHEET N° 2 OF 3 SHEETS

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

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

THE TYPE "W" CAST IRON FRAME AND COVER SHOWN ON THIS SHEET IS EQUIVALENT TO THE CITY AND COUNTY OF HONOLULU, BOARD OF WATER SUPPLY'S CAST IRON MANHOLE FRAME AND COVER, 20" SIZE.

Hand-drawn cross-section diagram of a roof structure. The diagram shows a gabled roof with a central ridge. The total width at the base is 24' 0". The ridge height is 10' 0". The roof slope is indicated as 12:12. The roof is supported by a central wall and two side walls. The roof thickness is 1' 0". The roof is labeled "1' Hole".

A technical drawing of a circular cast iron flange. The drawing shows a cross-section of the flange with a central circular hole. The outer rim is labeled "Cast Iron". The inner surface of the flange is labeled "8 Ribs spaced equally". A small detail of a rib is shown at the top, labeled "2".

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

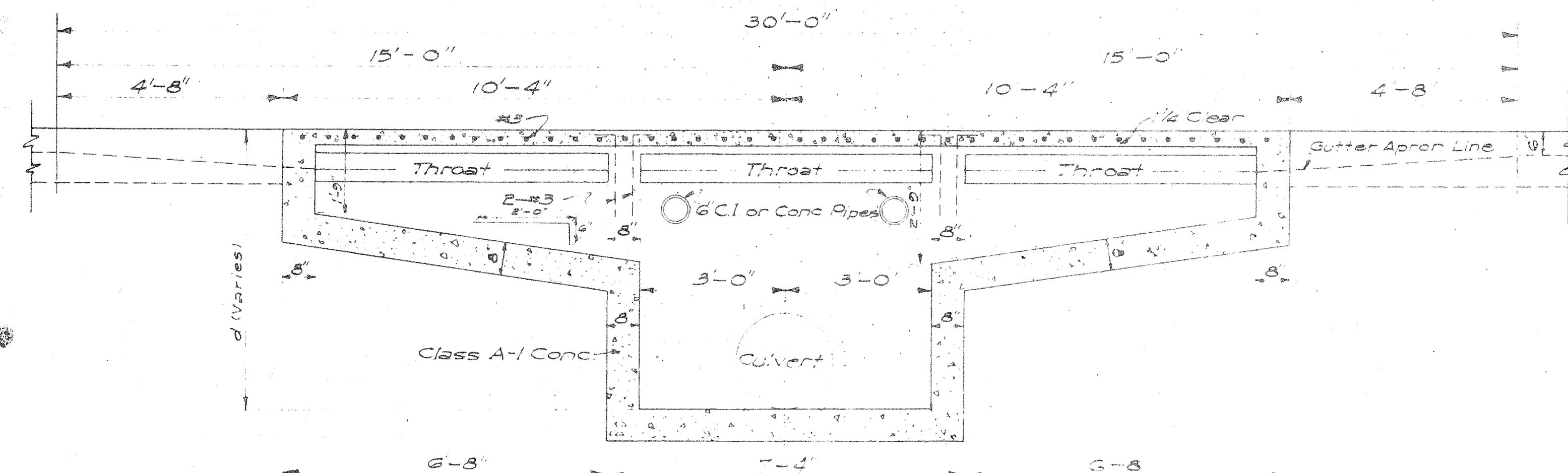
A circular diagram of a coin. The top half of the coin features a grid of small squares. The word "STOP" is written in a stylized font across the top. The word "CRASH" is written in a stylized font across the bottom. A line points to a hole on the right edge of the coin, labeled "5/8" Dia. Hole".

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

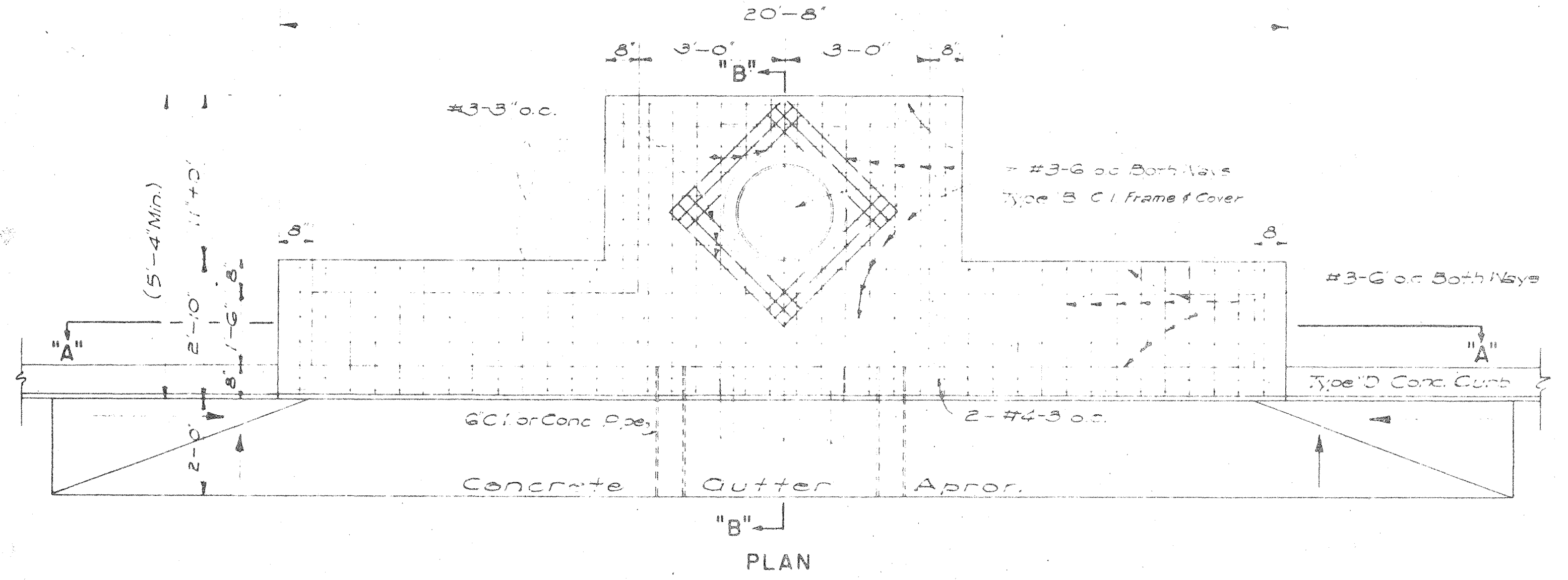
A circular diagram of a 26-letter alphabet arranged in a spiral. The letters are grouped into four quadrants: Top (A-M), Right (N-Z), Bottom (A-M), and Left (N-Z). The word "TORM" is written across the top. A hand is shown pointing to the letter "O" in the right quadrant, with the label "Dis Hole" written next to it.

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

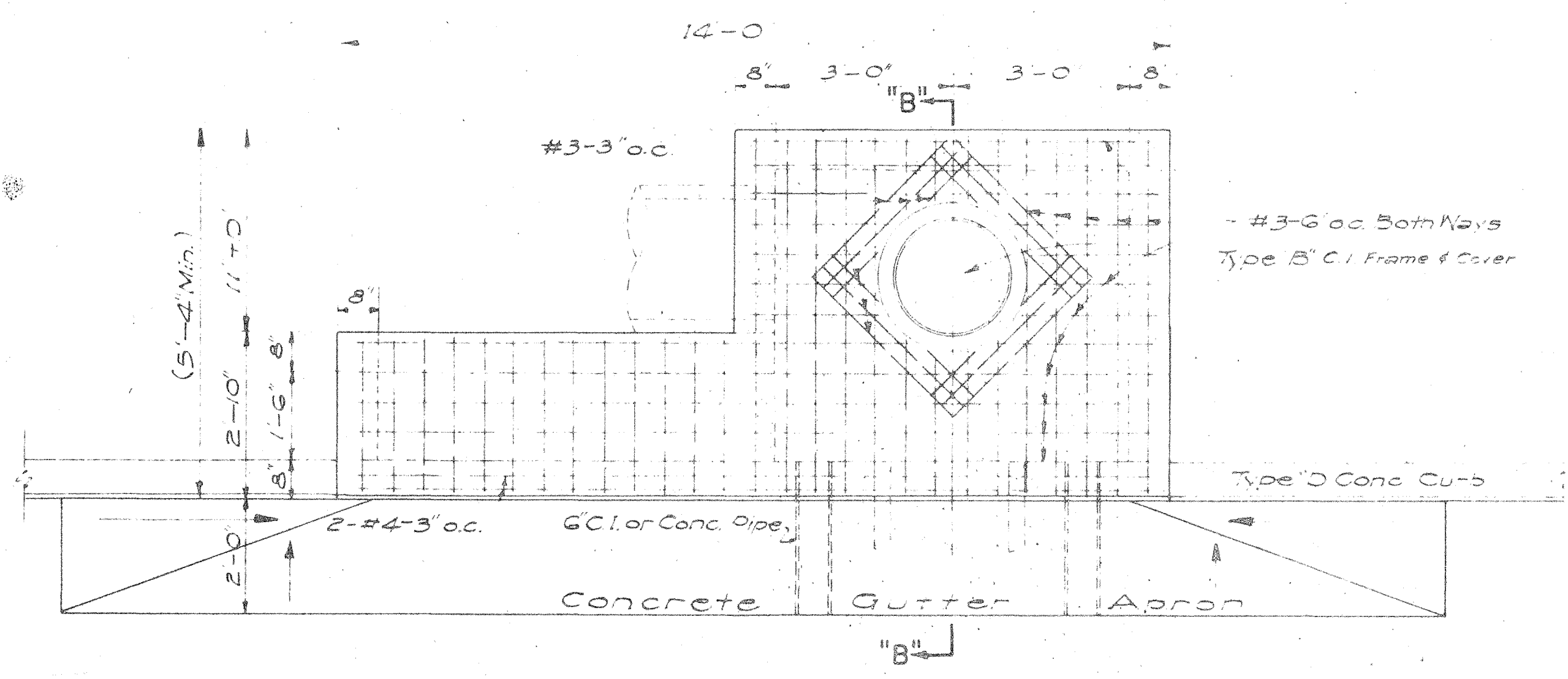
56



SECTION "A-A"

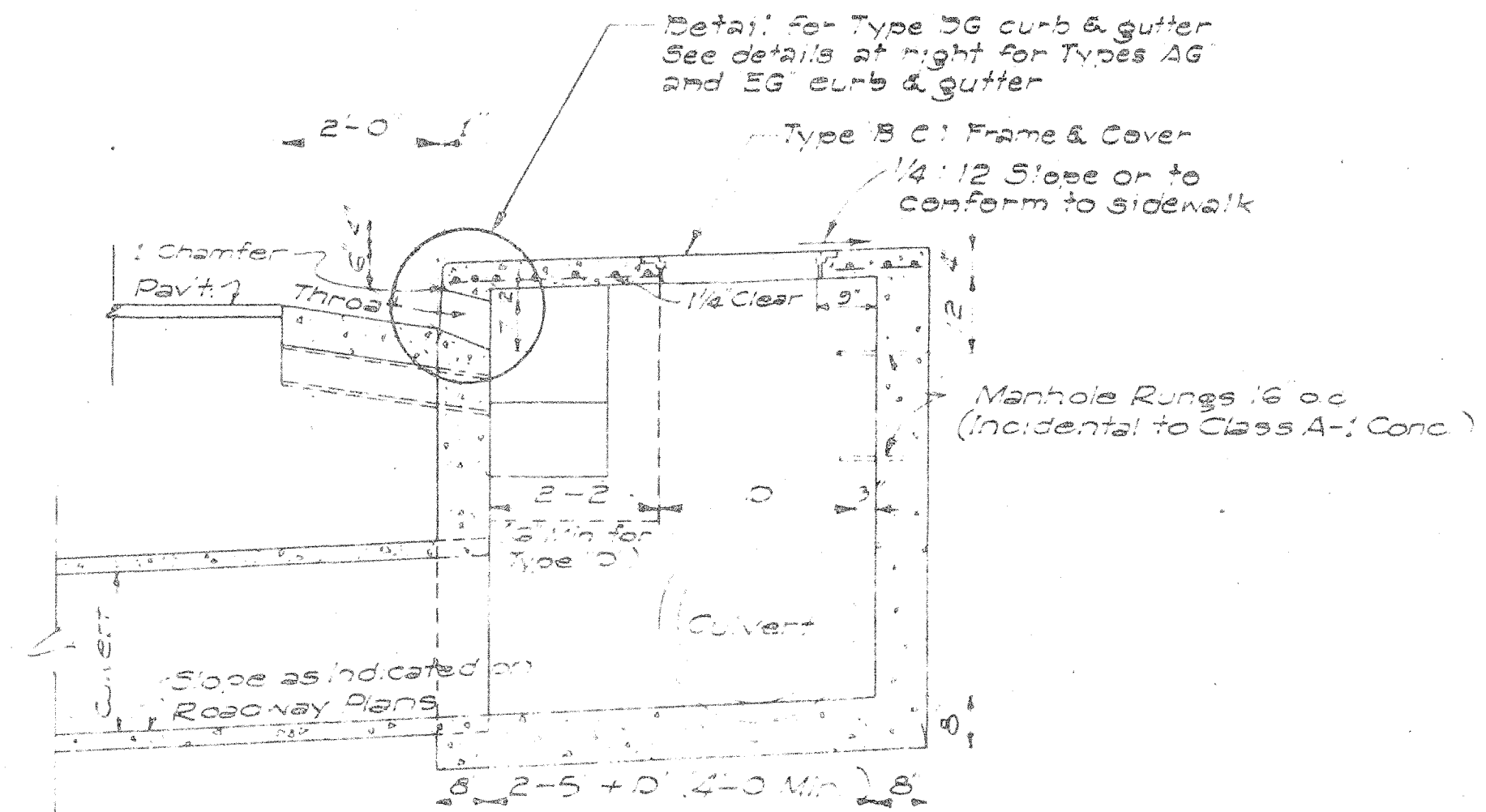


DETAIL OF TYPE "A" CATCH BASIN
SCALE: 1/2" = 1'-0"

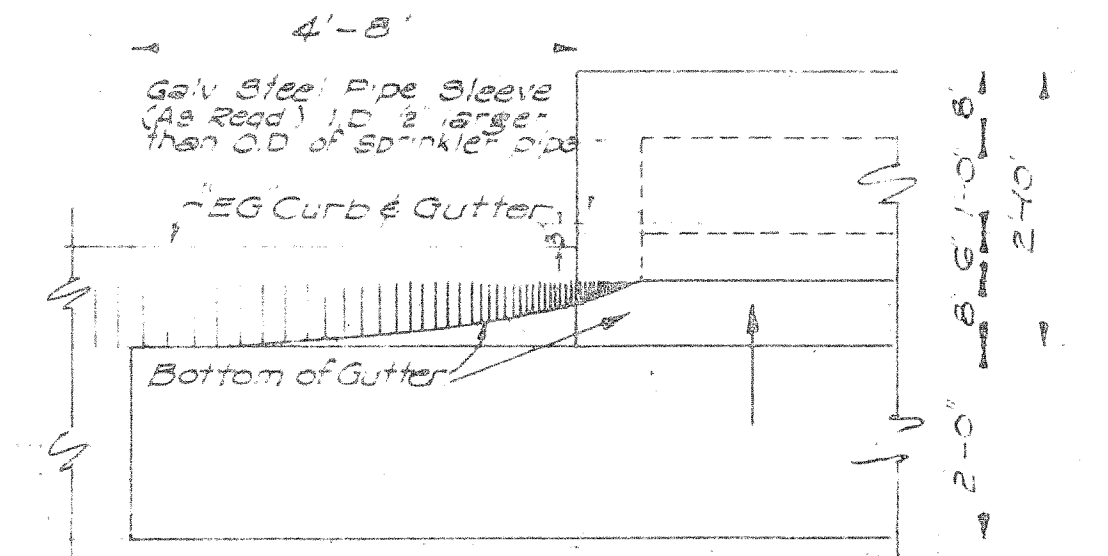


DETAIL OF TYPE "B" CATCH BASIN
SCALE: 1/2" = 1'-0"

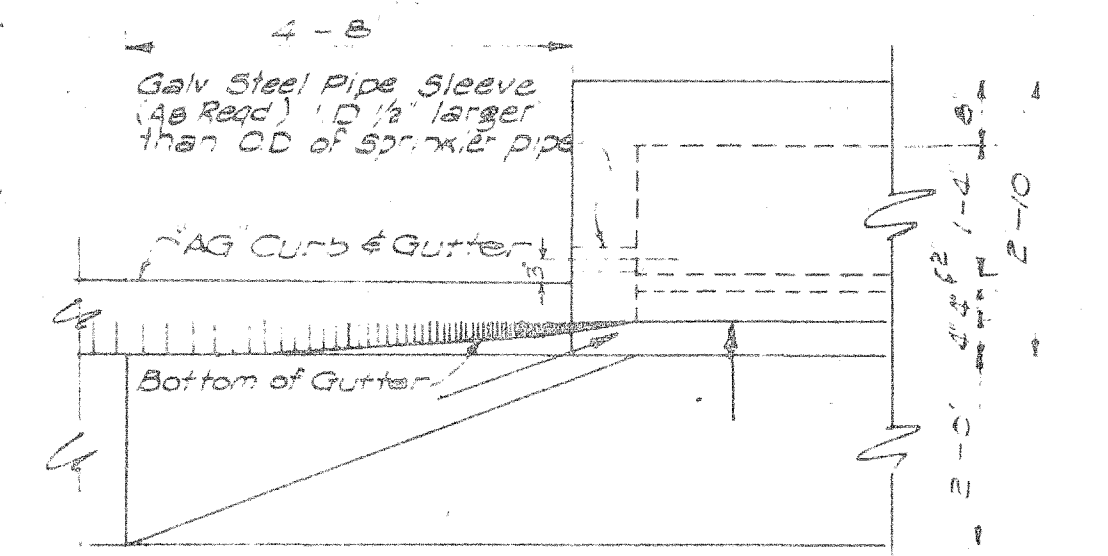
NOTE: TYPE "C" C.B. SIMILAR BUT OPPOSITE HAND



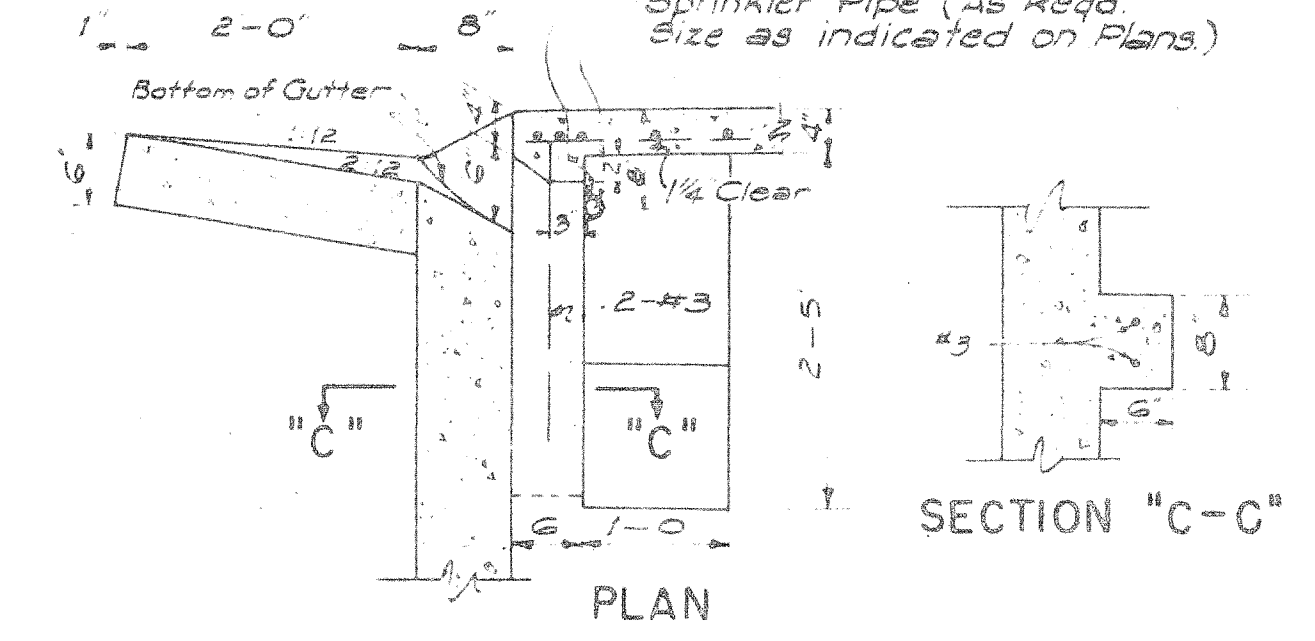
SECTION "B-B"



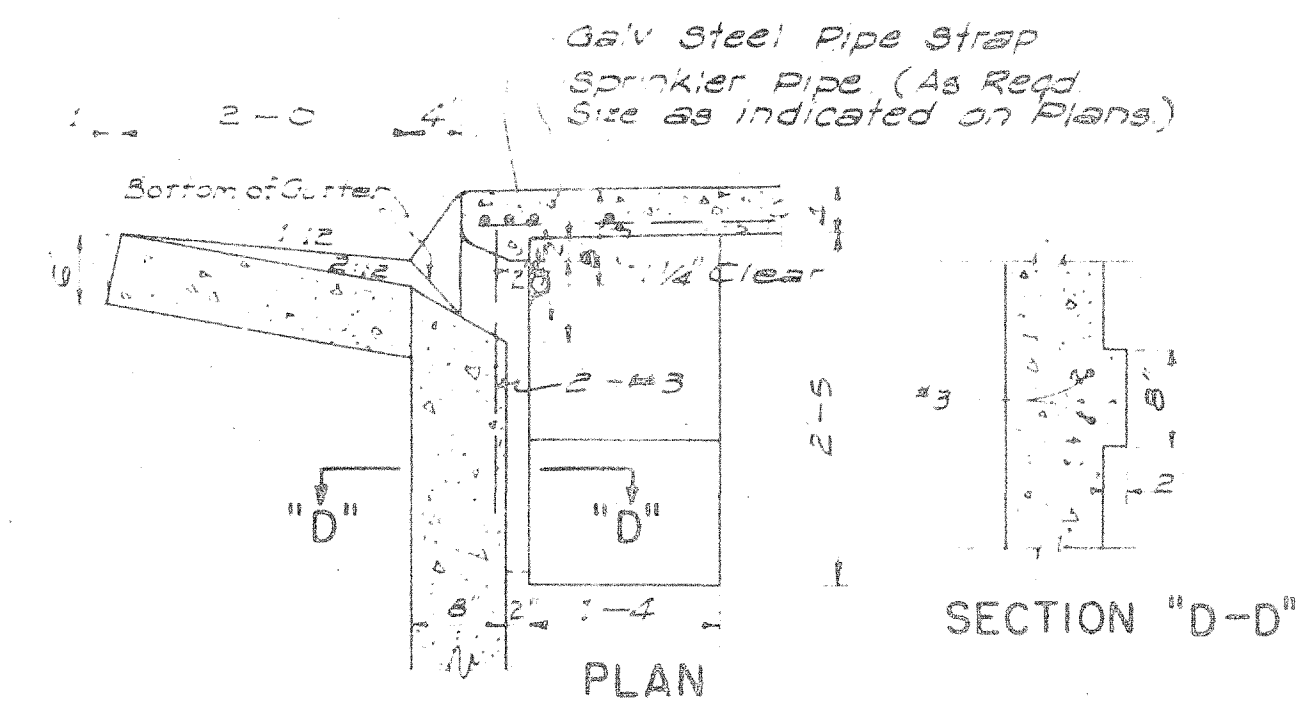
DETAIL OF CATCH BASIN
WITH TYPE "EG" CURB & GUTTER



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



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



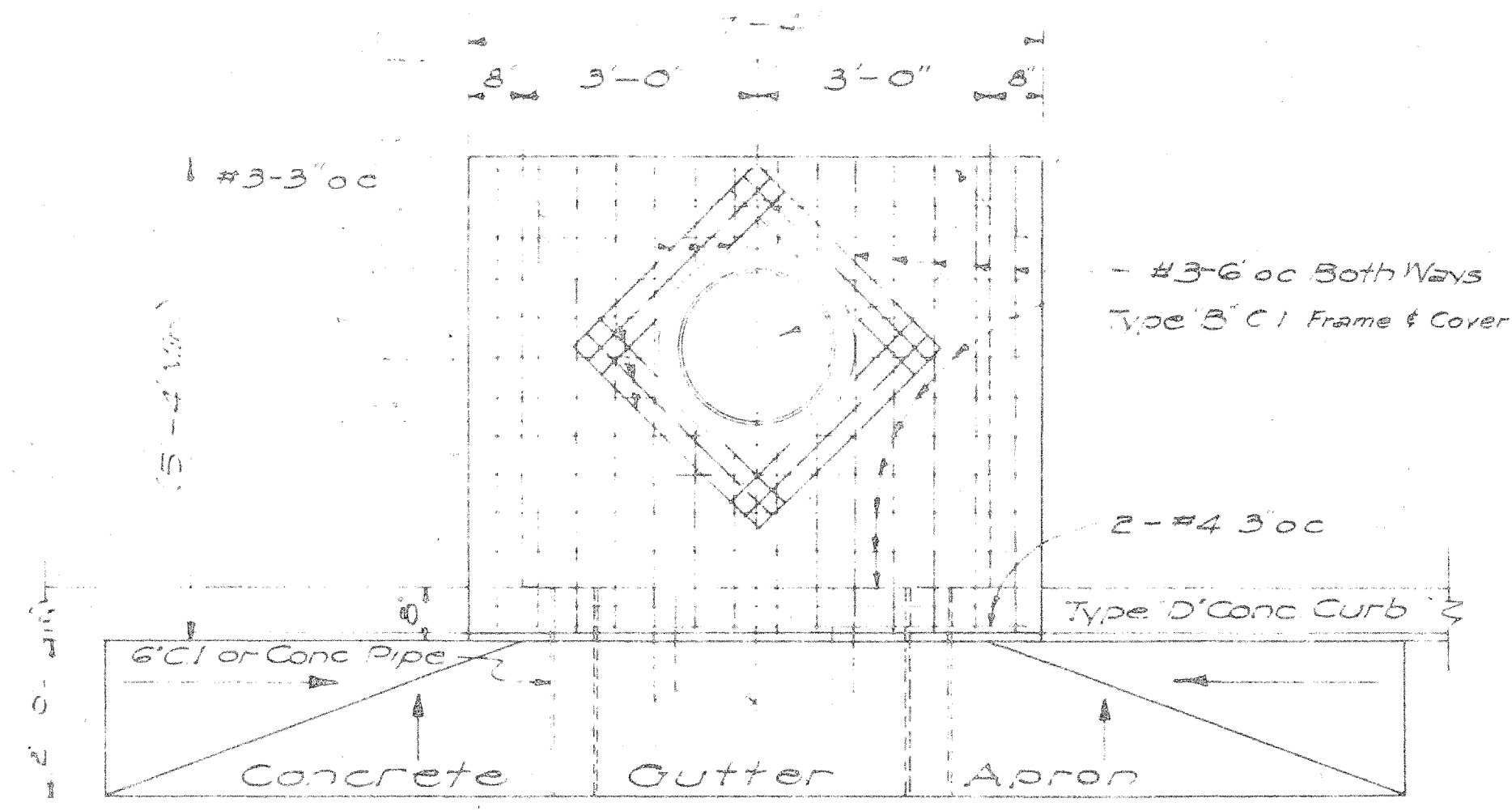
THROAT DETAIL FOR
TYPE "AG" CURB & GUTTER
SCALE: 3/4" = 1'-0"

ESTIMATED QUANTITIES

Type	Class A-1 Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 cy	24.7 cy	145 lb.	30'-0"
"B"	6.0 cy	21.5 cy	108 lb.	23'-4"
"C"	6.0 cy	21.5 cy	108 lb.	23'-4"
"D"	4.0 cy	16.5 cy	77 lb.	16'-8"

NOTES:

1. Quantities based on d = 57.5' and D = 30'
2. Quantities do not include concrete for Gutter Apron.
3. The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A-1 Concrete for Construction Drainage.
4. 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.
5. The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.



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

APPROVED:  DATE: AUG 26, 1980
STATE HIGHWAY ENGINEER

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
CATCH BASINS

SCALES AS NOTED
SHEET NO 3 OF 3 SHEETS

DATE: 2/17/80
SURVEY PLOTTED BY: [Signature]
DESIGNED BY: [Signature]
DRAWN BY: [Signature]
CHECKED BY: [Signature]
ORIGINAL PLAN: [Signature]
NOTE BOOK: [Signature]
No.: