

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	03C-04-08	1968	4	6

Revised: June 1965
Revised: August 1967

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

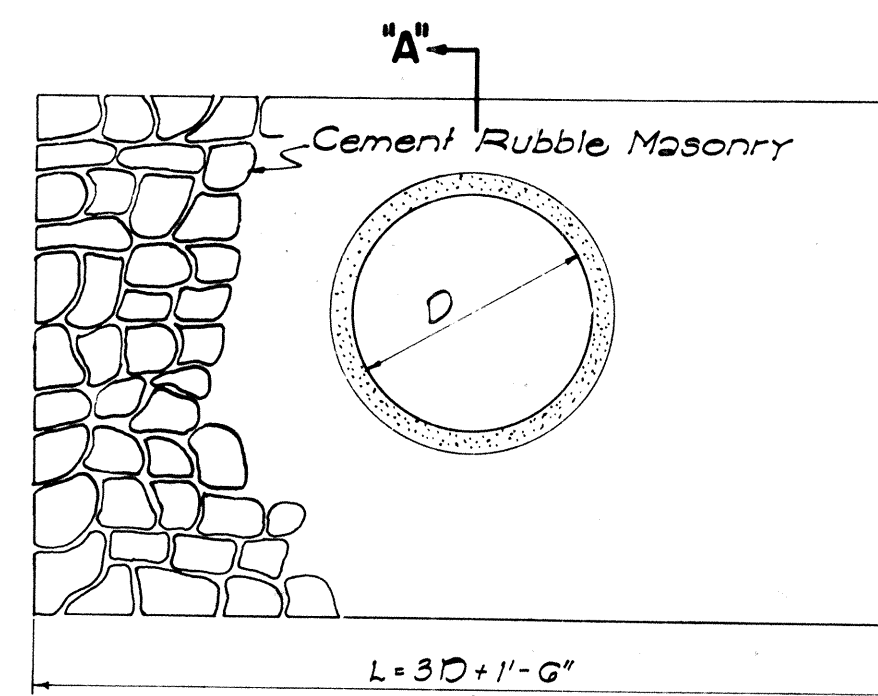
DETAIL OF OUTLET DITCH

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.

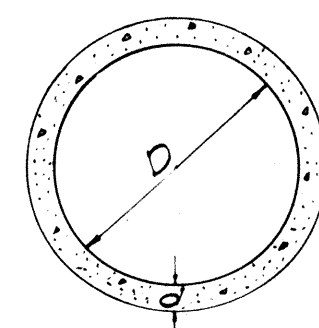
D	H	B	L	CRMP For RCCP	CRMP For CGMP
18"	4'-6"	1'-0"	6'-0"	1.24	1.20
24"	5'-0"	2'-0"	7'-6"	1.83	1.98
30"	5'-6"	2'-3"	9'-0"	2.56	2.70
36"	6'-0"	2'-6"	10'-6"	3.45	3.66



ELEVATION

DETAIL OF MASONRY HEADWALL

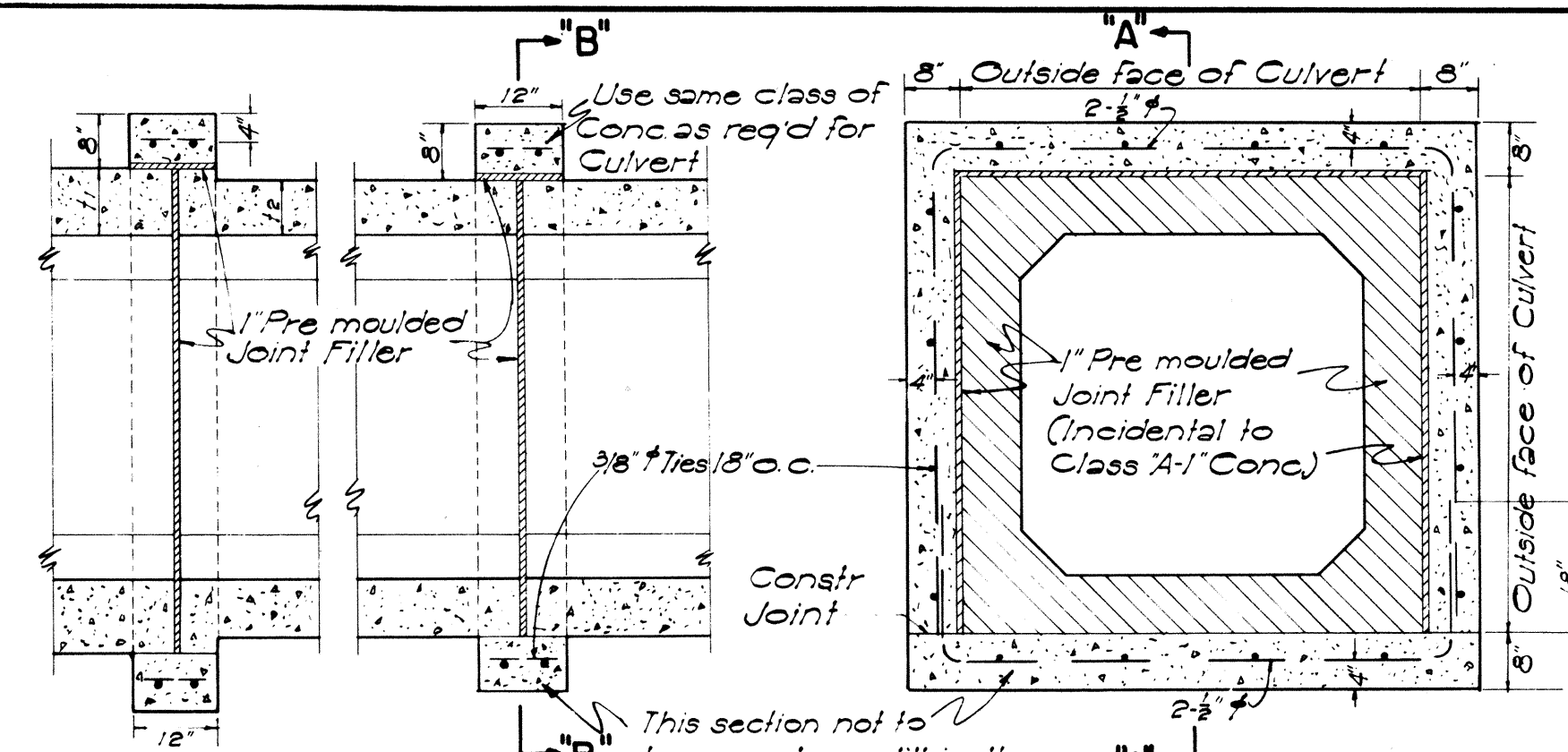
Scale: 1/2" = 1'-0"



SECTION

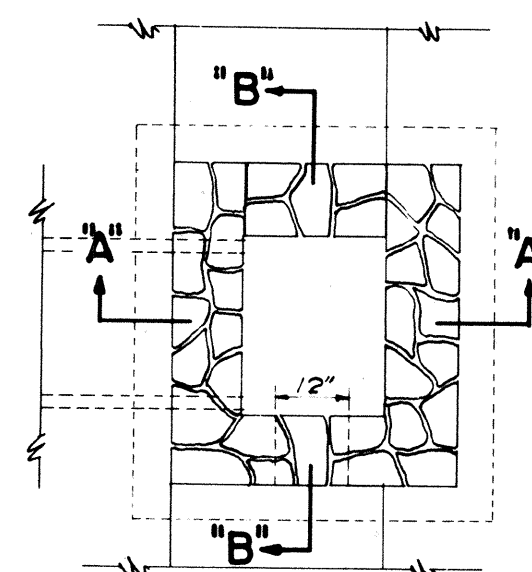
CONC. PIPE CULVERT

NOTE:
Thickness 't', reinforcing, and concrete used, are to conform with the approved design as provided by the Specifications.



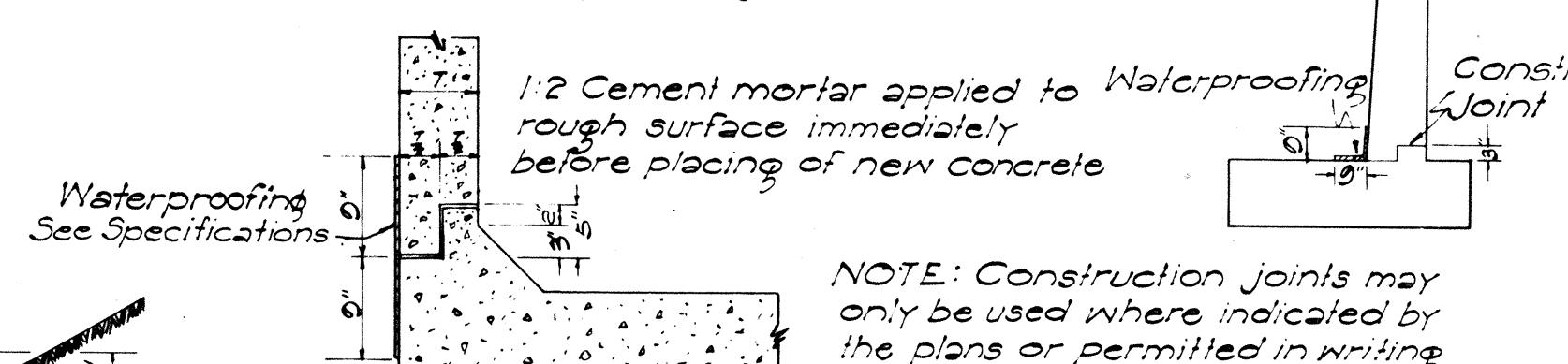
SECTION "A-A" SECTION "B-B" CONC. COLLAR FOR CONC. BOX CULVERT

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

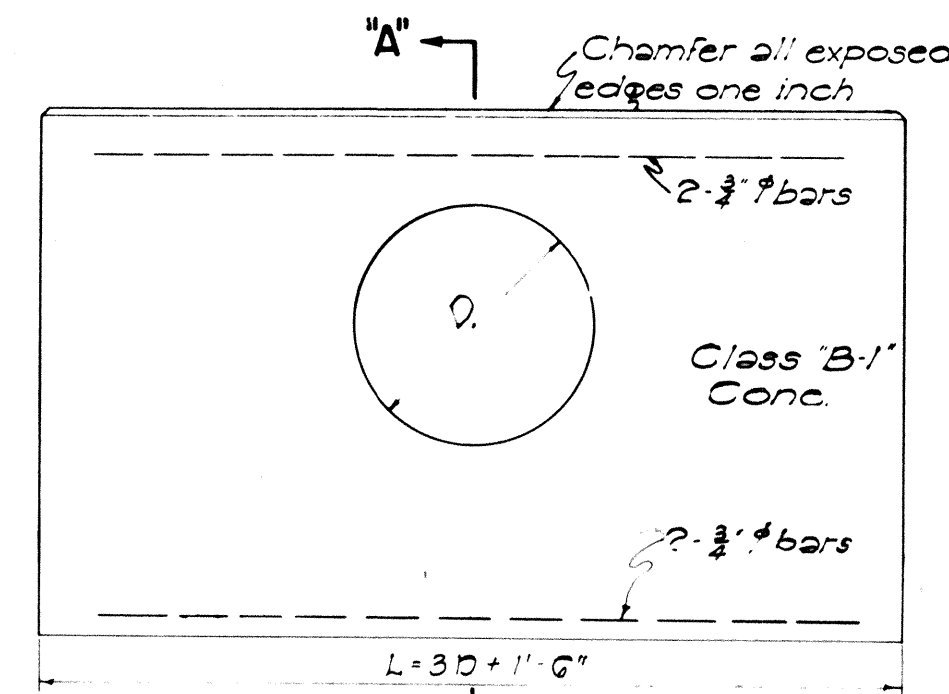


DETAIL OF MASONRY DROP INTAKE

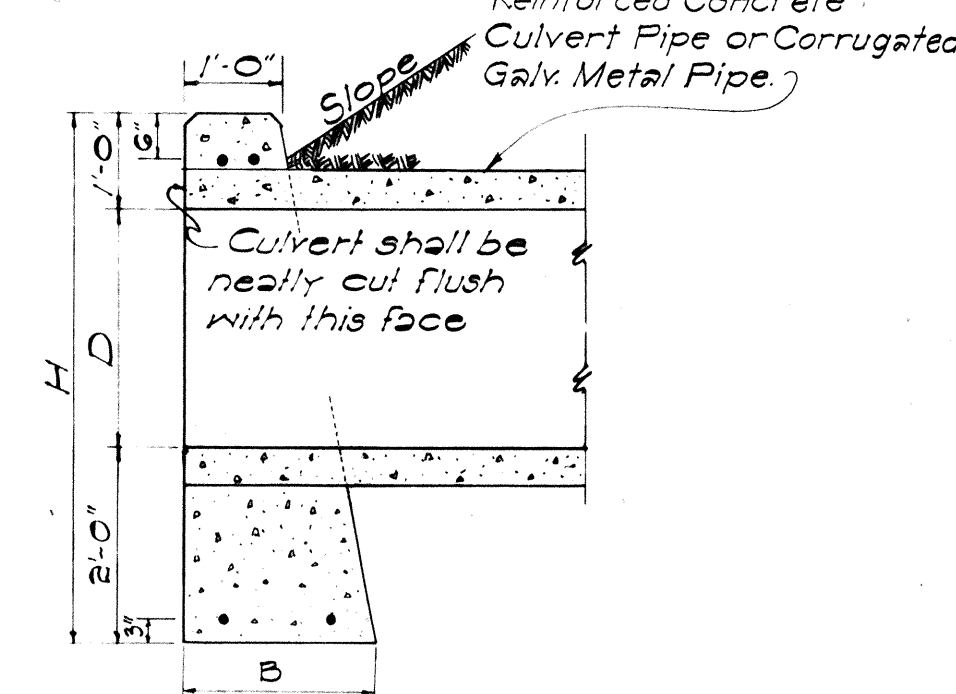
Scale: 3/8" = 1'-0"



CONSTR. JOINT DETAILS



ELEVATION

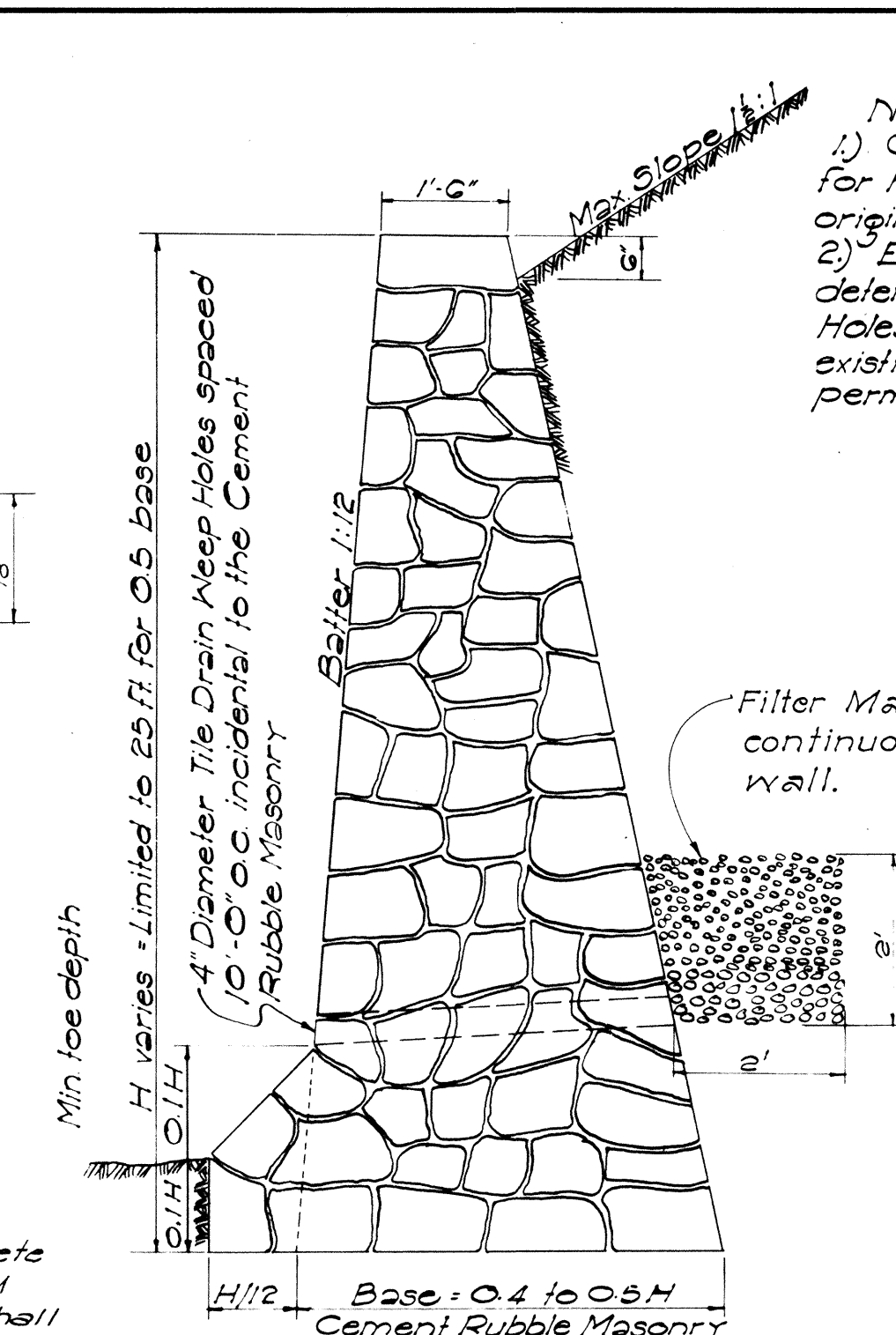


SECTION "A-A"

D	B	L	H	CRMP For RCCP	CRMP For CGMP	Steel For One Headwall
18"	1'-6"	6'-0"	4'-6"	1.12	1.17	4 #4 @ 2'-0"
24"	1'-6"	7'-6"	5'-0"	1.52	1.60	4 #4 @ 2'-0"
30"	2'-0"	9'-0"	5'-6"	2.36	2.49	4 #4 @ 2'-0"
36"	2'-0"	10'-6"	6'-0"	3.04	3.13	4 #4 @ 2'-0"
42"	2'-6"	12'-0"	6'-6"	4.10	4.47	4 #4 @ 2'-0"
48"	2'-6"	13'-6"	7'-0"	5.01	5.56	4 #4 @ 2'-0"

DETAIL OF CONCRETE HEADWALL

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



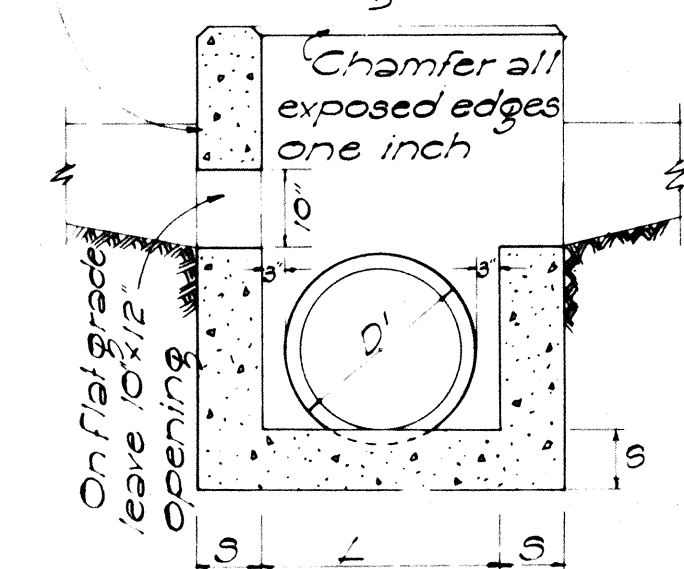
SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

D'	D	L=D+G'	S	Cu Yds.	Where Variables Equal
23"	18"	2'-5"	8"	1.41	4'-6"
30"	24"	3'-0"	8"	1.72	5'-0"
37"	30"	3'-7"	9"	2.32	5'-6"
44"	36"	4'-2"	9"	2.73	6'-0"
51"	42"	4'-9"	10"	3.54	6'-6"
58"	48"	5'-4"	10"	4.01	7'-0"

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

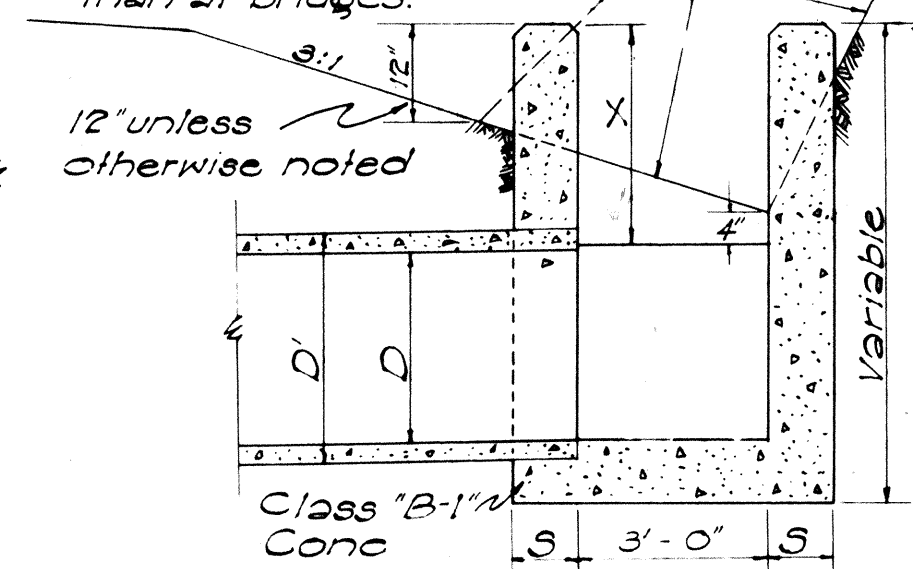
Note: This type of structure shall also be used for the Drop Intakes of Siphons connected with Irrigation Ditches or Flumes with appropriate changes to dimensions. In this case all joints must be made water tight.



SECTION "B-B"

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"

DETAIL OF CONCRETE DROP INTAKE

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

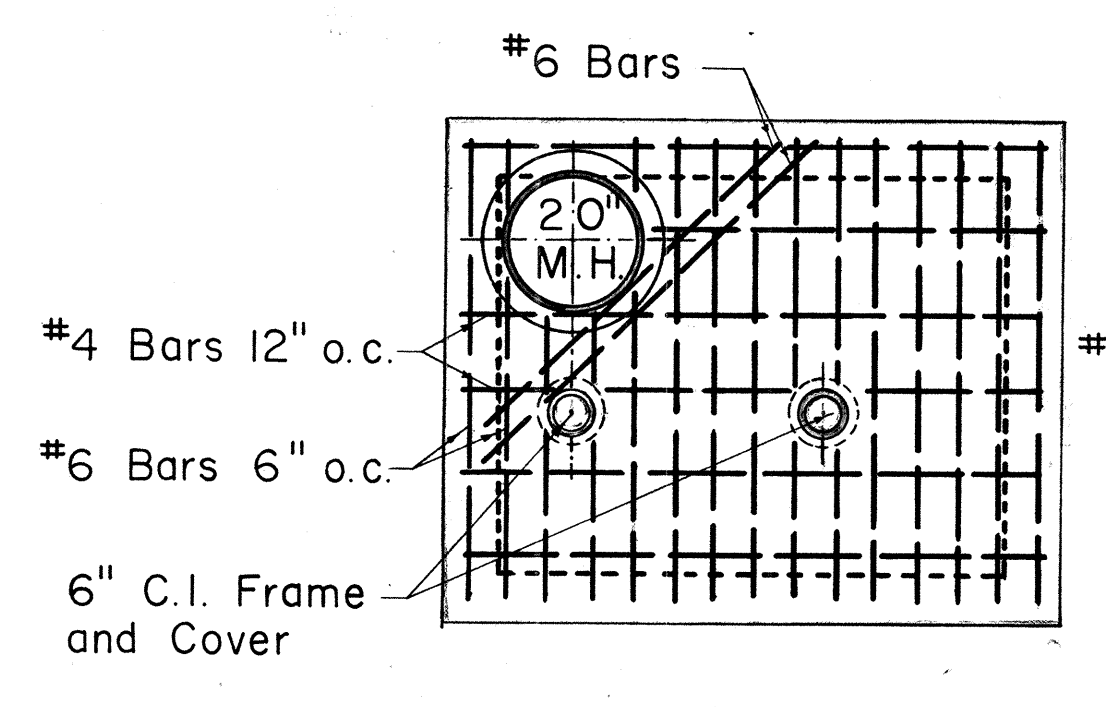
SECT. OF CULVERT WITH CONC. PROTECTION

Scale: 1" = 1'-0"

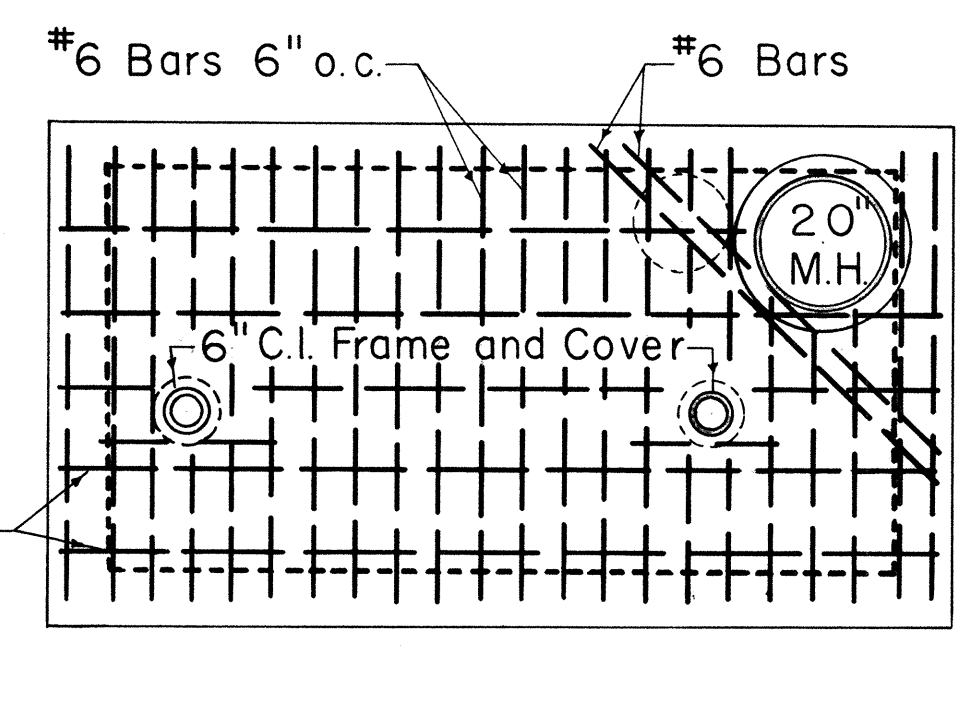
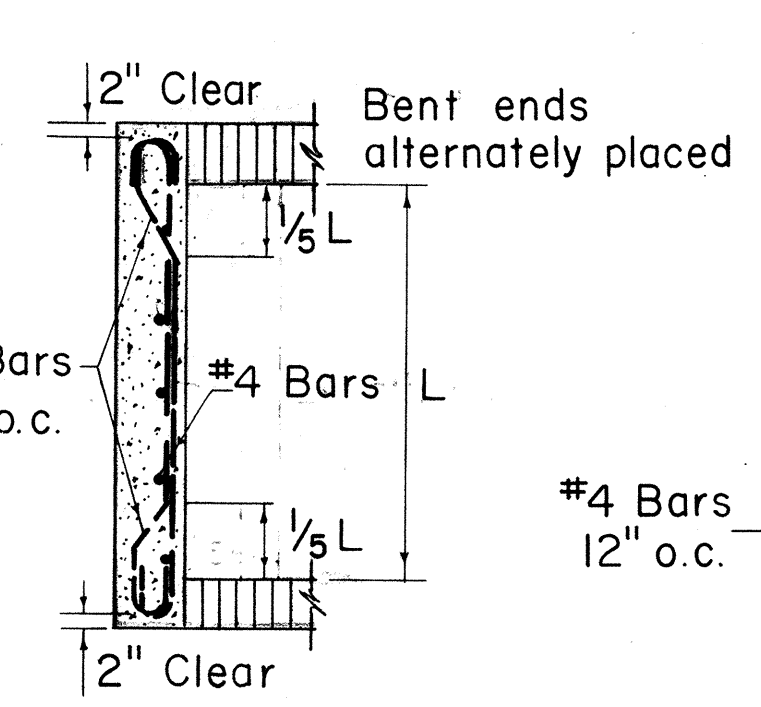
X	Y	Z
6" for 18"D		Z must be from pipe to face of trench
7" " 24"D		
8" " 30"D		
9" " 36"D		Minimum = X
10" " 42"D		Maximum pay quantity will be Z=12"
11" " 48"D		
12" " 54"D		

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

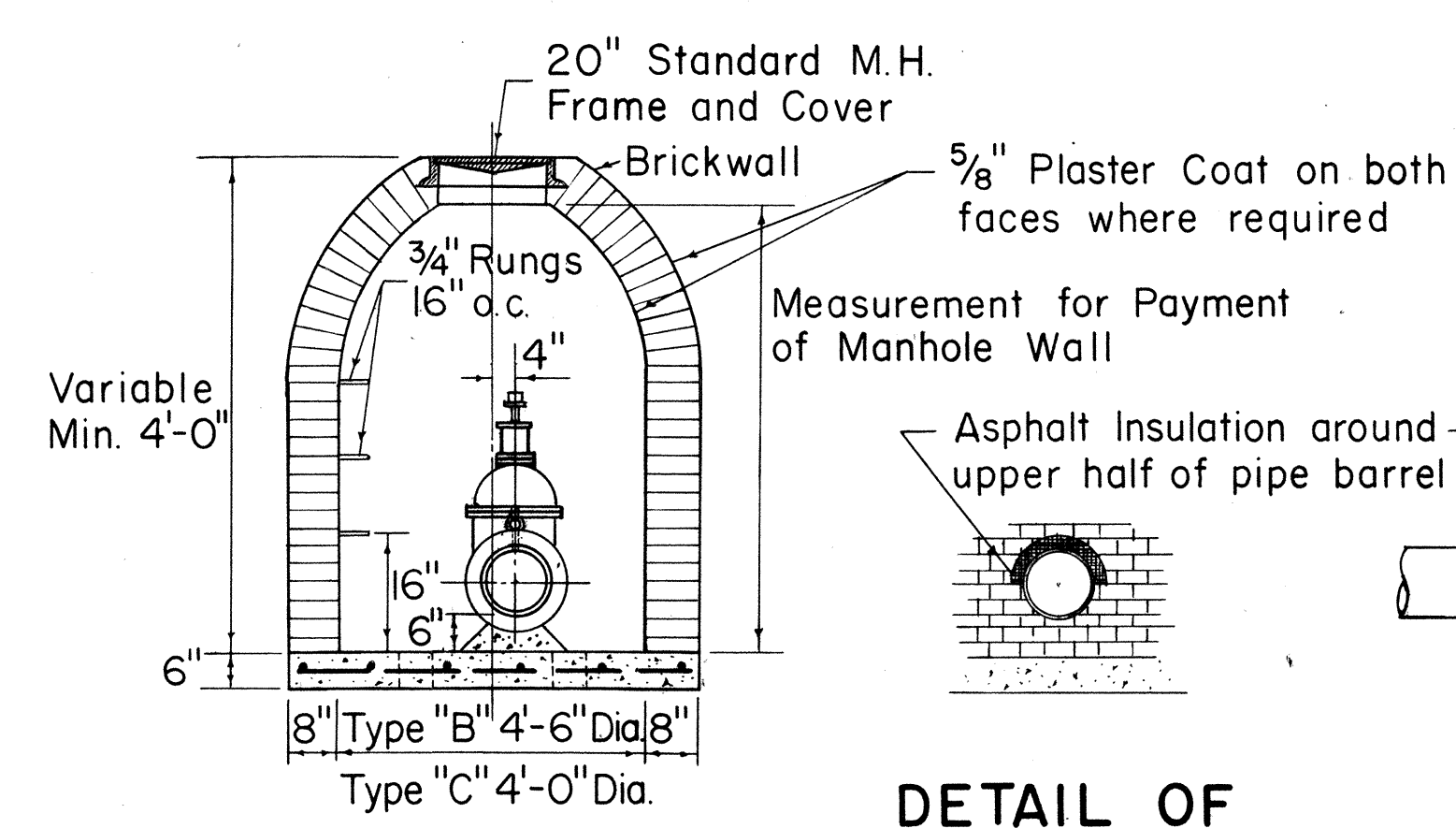
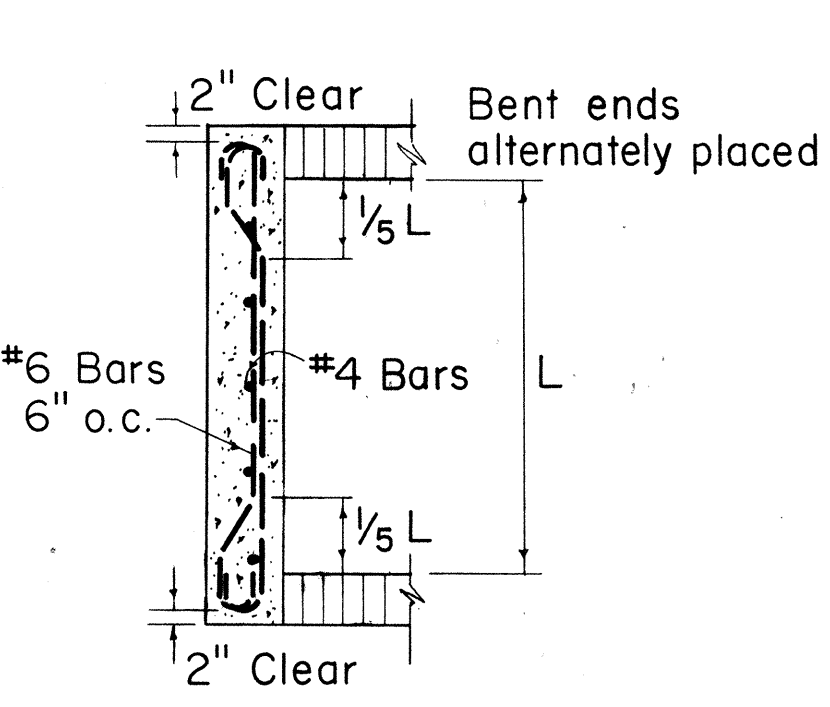
SHEET NO. 1 OF 3 SHEETS



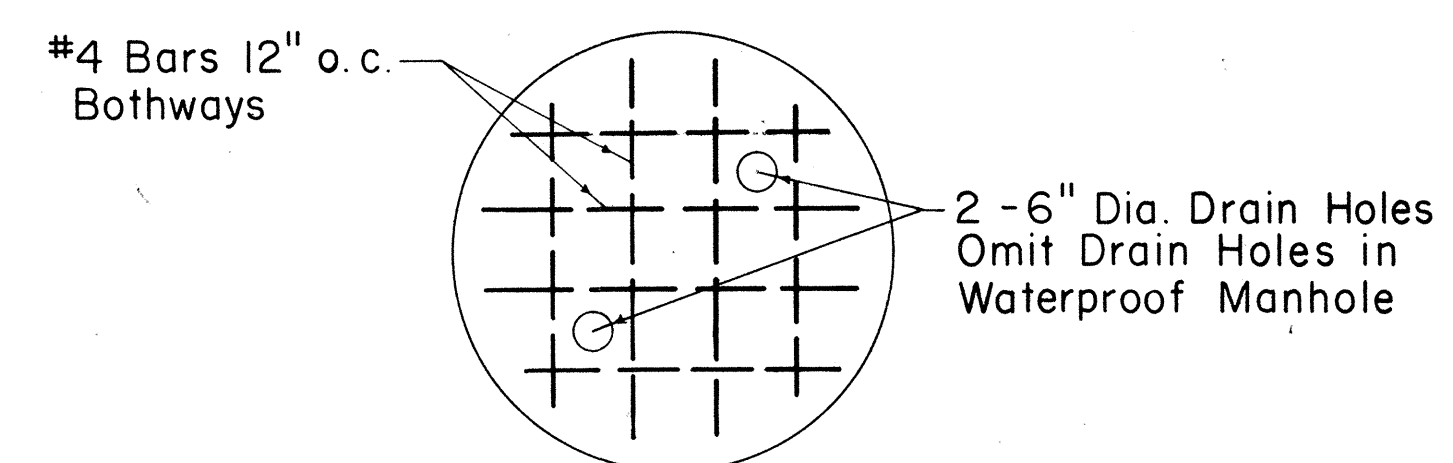
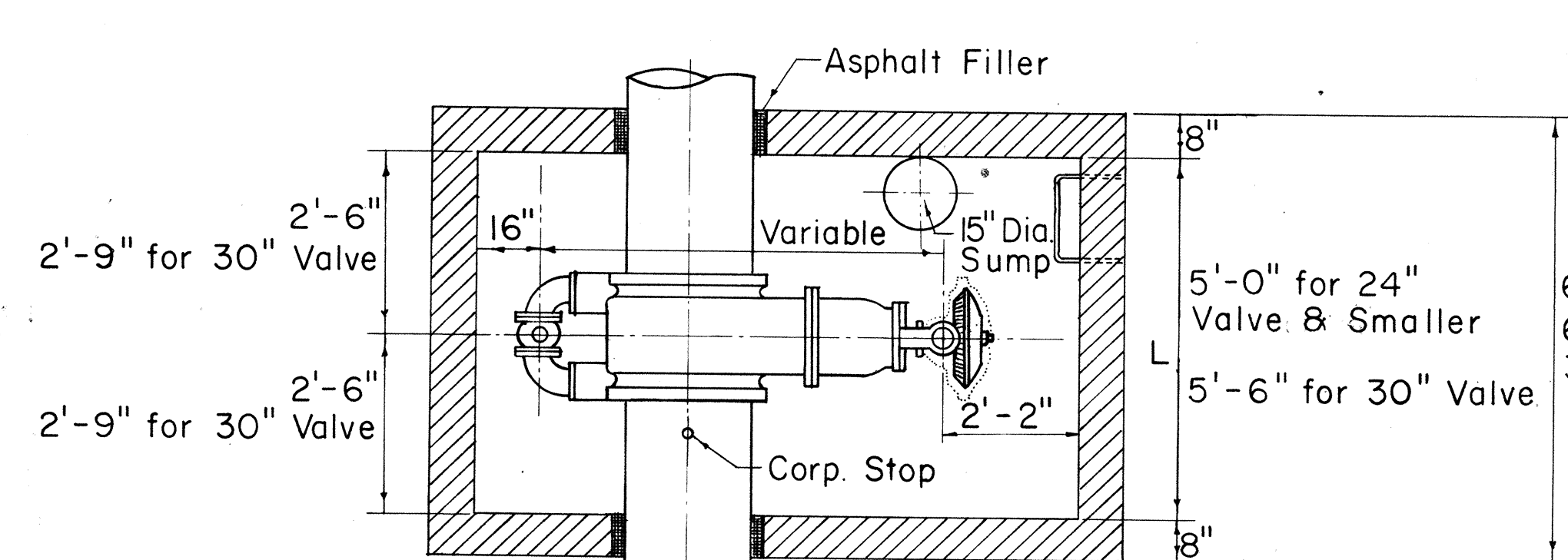
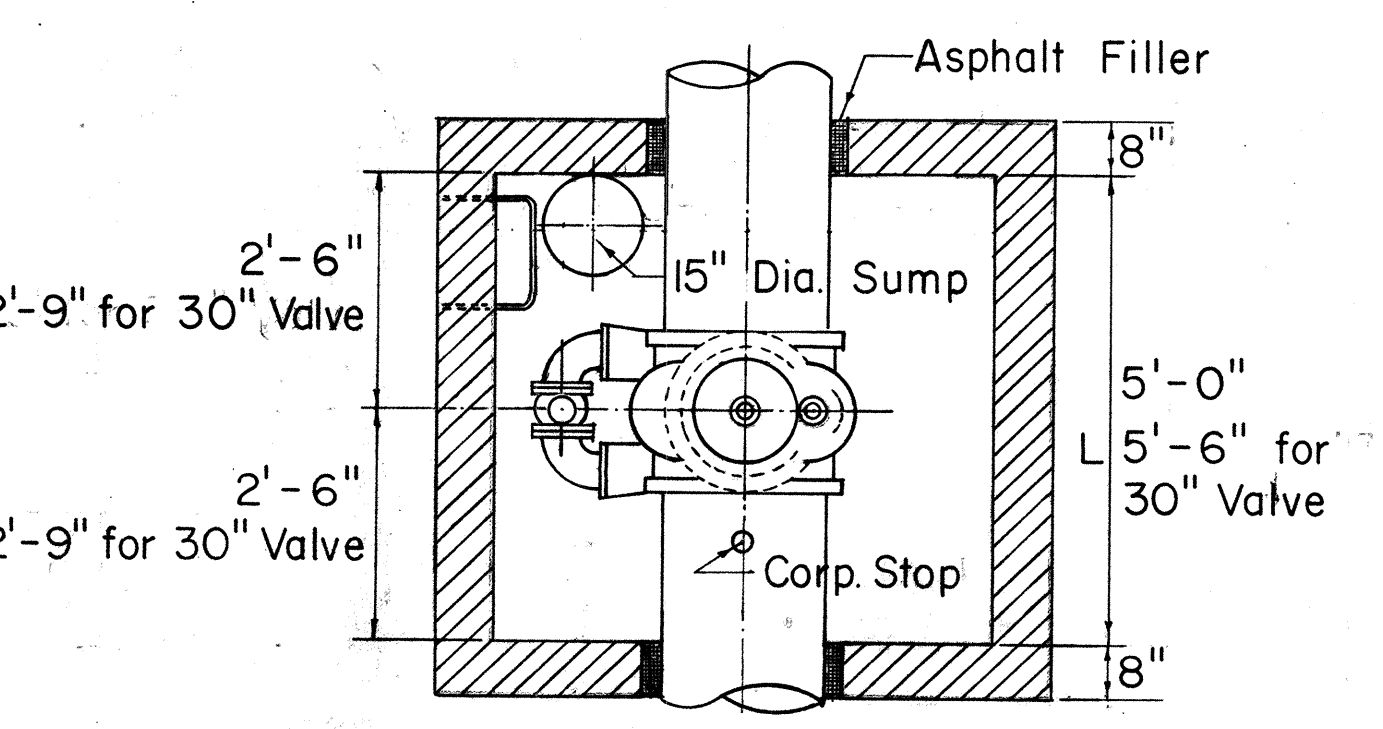
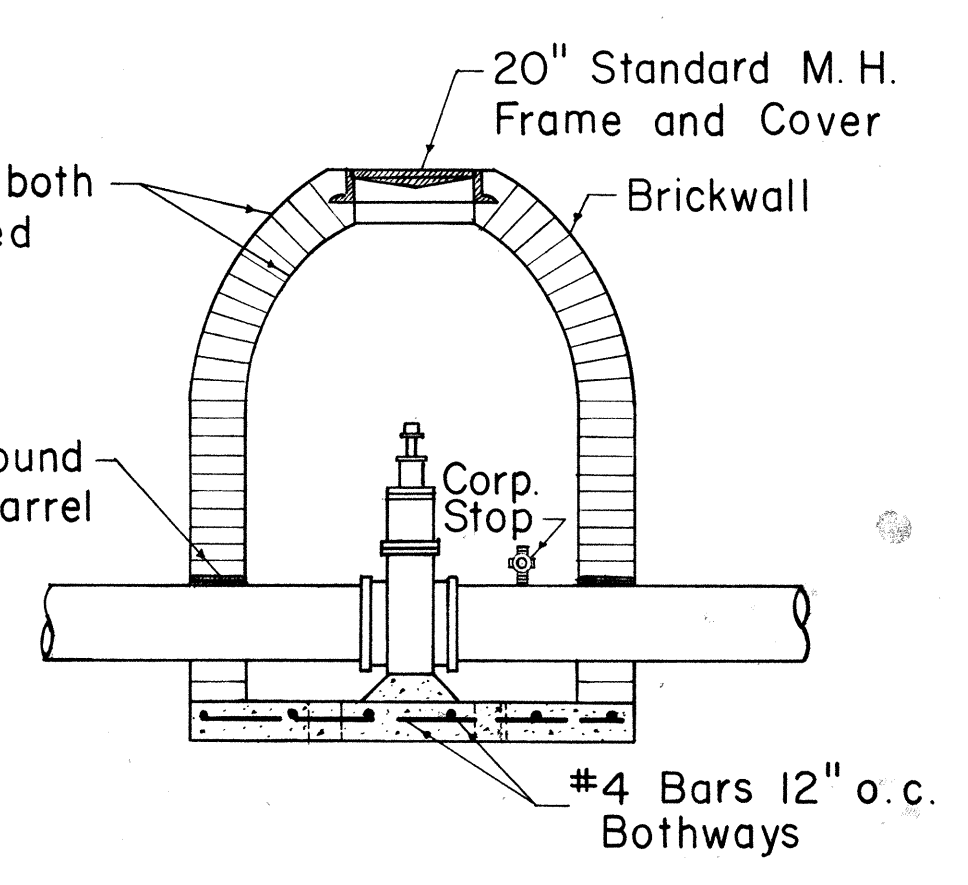
PLAN OF TOP SLAB



PLAN OF TOP SLAB



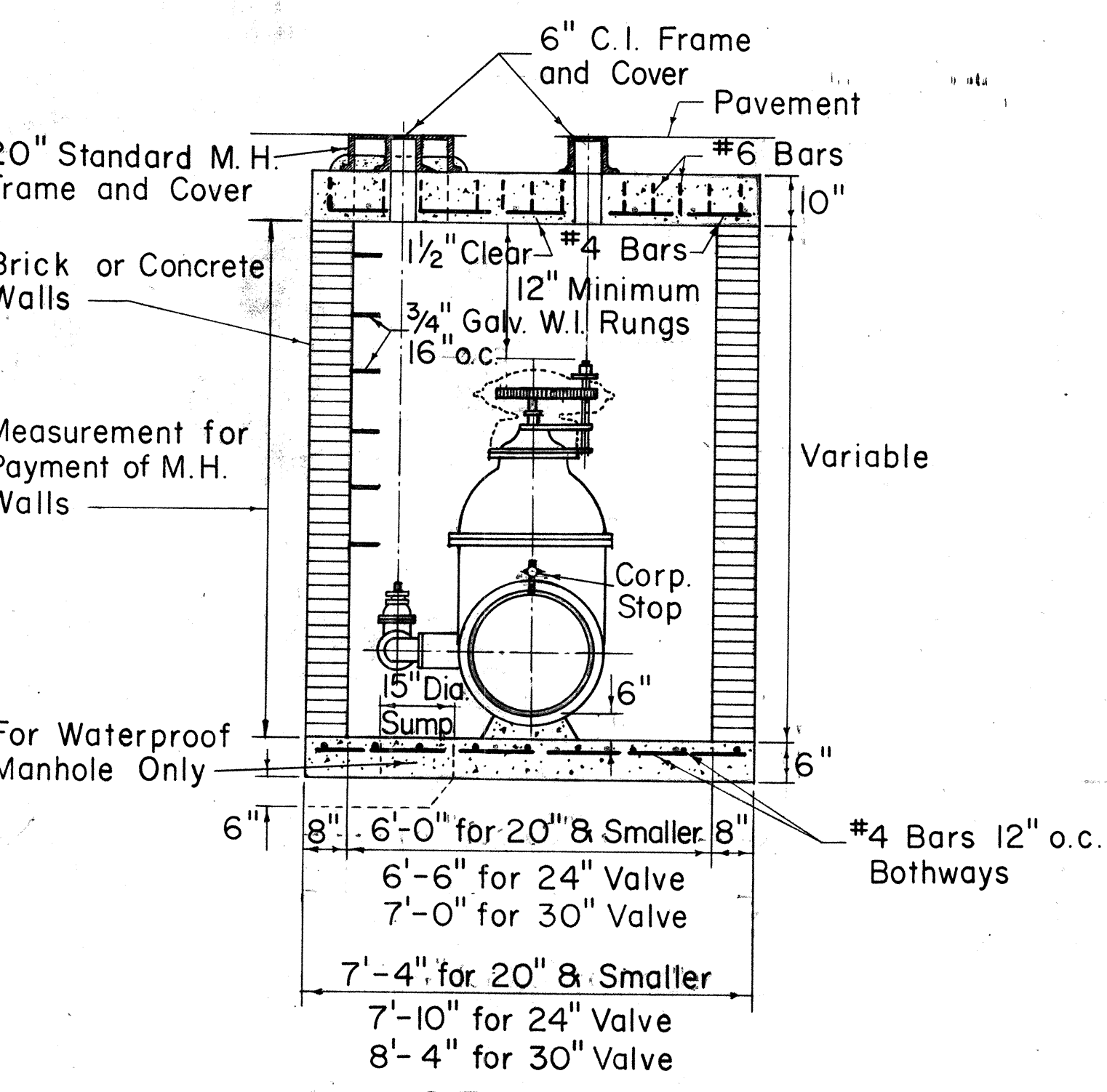
DETAIL OF ASPHALT FILLER



STEEL DETAIL IN BOTTOM SLAB

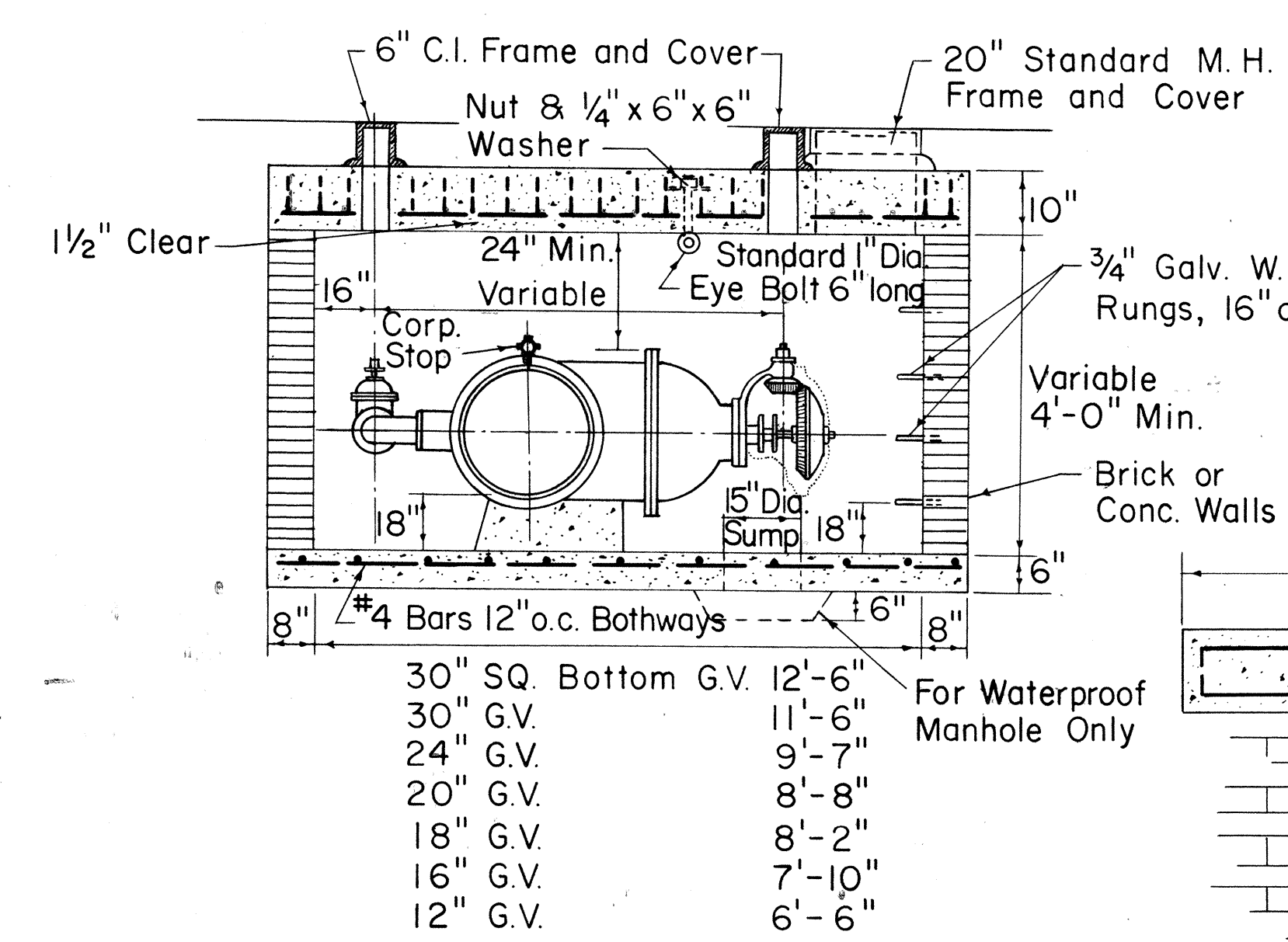
TABLE "A"
REQUIRED CORPORATION STOP SIZES
AT GATE VALVE

DIA. OF MAIN INCHES	SIZE OF CORP. STOP
4	1" x 1 1/4"
6	1" x 1 1/4"
8	1" x 1 1/4"
12	1" x 1 1/4"
16	1" x 1 1/4"
20	1" x 1 1/4"
24	1 1/2" x 2"
36	1 1/2" x 2"
42	1 1/2" x 2"



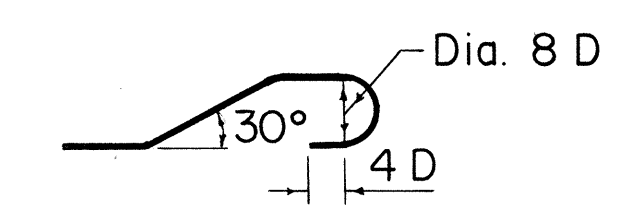
SECTION

TYPE "A" MANHOLE
FOR SPUR GEARED GATE VALVES



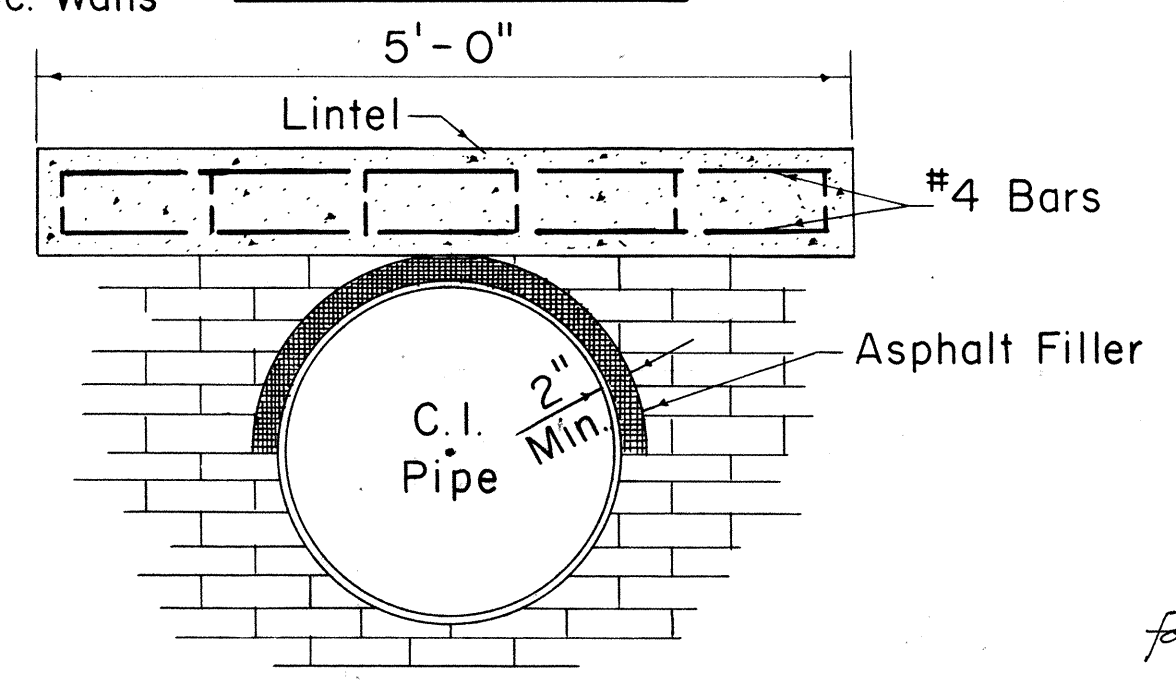
SECTION

TYPE "A" MANHOLE
FOR BEVEL GEARED GATE VALVES

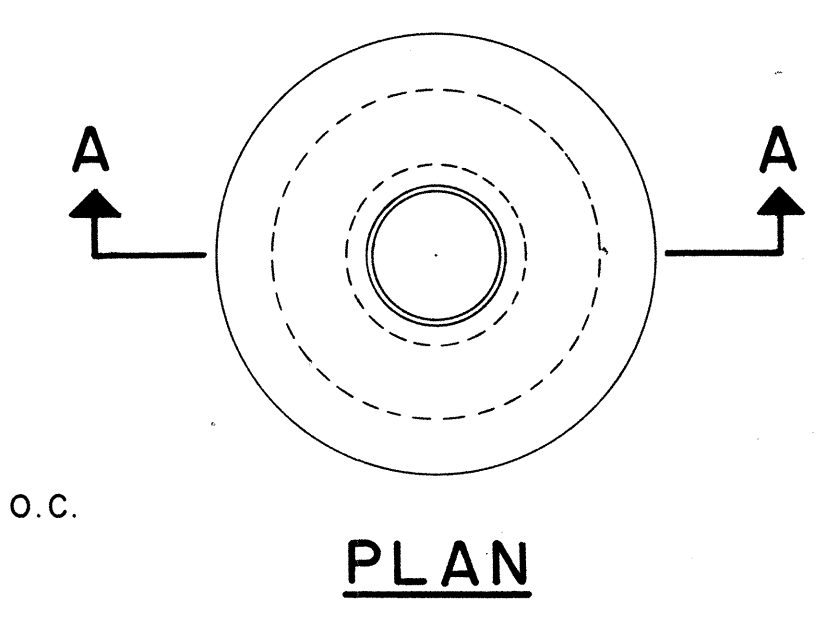


BAR BENDING
DETAIL

SECTION
THRU LINTEL



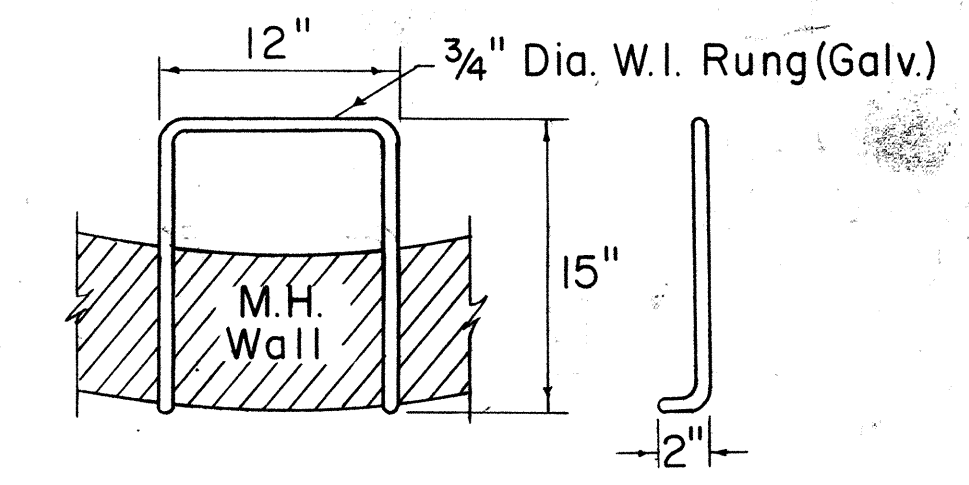
DETAIL OF LINTEL
AND ASPHALT FILLER



PLAN

TYPE "B" AND "C", MANHOLES

TYPE "B" 4'-6" DIA. (FOR 12" G.V.)
TYPE "C" 4'-0" DIA. (FOR 6" & 8" G.V.)



DETAIL OF RUNG

APPROVED:

R. K. Nagato
for CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

5/10/68
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU

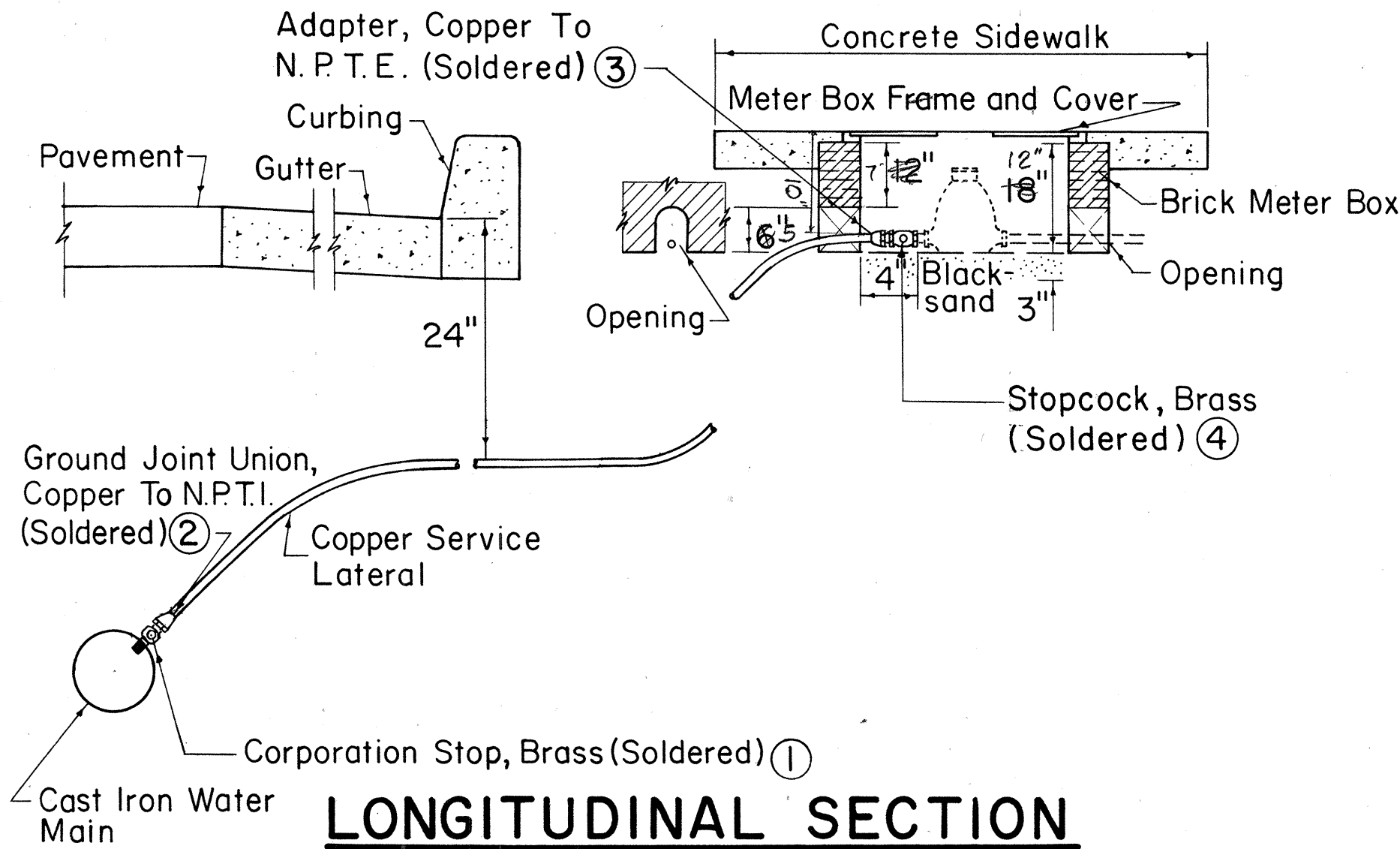
STANDARD DETAILS
Proj. No. 83C-04-68

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	83C-04-68	1968	6	6

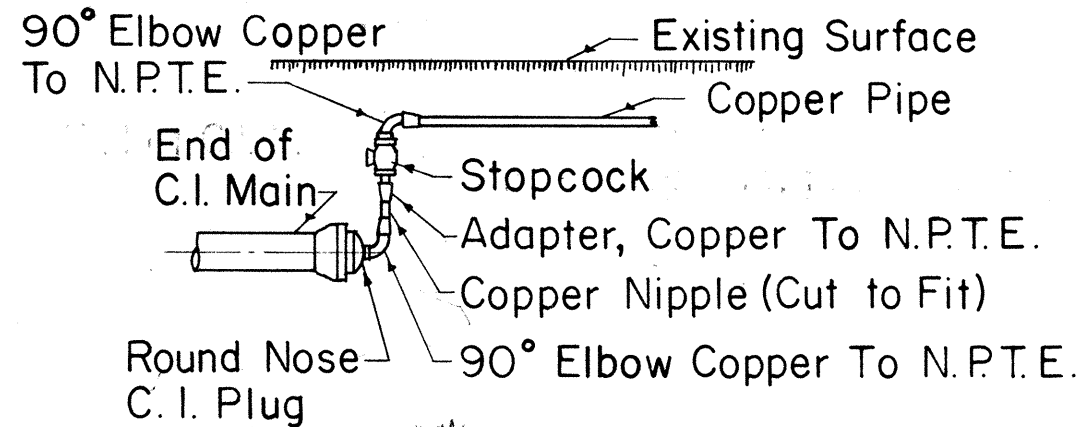
SCHEDULE OF COPPER FITTINGS
(SOLDERED JOINT)

ITEM NO.	DESCRIPTION	SINGLE SERVICE CONN.	MULTIPLE SERV.CONN.	
			TWO SERVICES	THREE SERVICES
1	Corporation Stop Brass (H-10003)	1	1	1
2	Ground Joint Union (Style Copper To N.P.T.E. No. C-109)	1	1	1
3	Adapter, Copper To N.P.T.E. (Style No. C-101)	2	1	1
4	Stopcock Brass (BWS Standard)	1	1	1
5	Fitting Adapter, (Style Fitting To N.P.T.E. No. C-104)	—	1	1
6	Tee, Copper To Copper To Copper (Style No. T-300)	—	1	1
7	Bushings, Fitting To Copper (Style No. C-103)	—	2	2
8	90° Elbow, Copper To Copper (Style No. C-200)	—	2	2
9	Adapter, Copper To N.P.T.E. (Style No. C-101)	1	2	3
10	Stopcock Brass (BWS Standard)	1	2	3
11	Reducing Tee, Copper To Copper To Copper (Substitute For Items Number 6 and 7). (Style No. T-300)	—	1	1
12	Tee, Copper To Copper To Copper (Style No. T-300)	—	—	1
13	Bushing, Fitting To Copper (Style No. C-103)	—	—	1
14	Reducing Tee, Copper To Copper To Copper (Substitute For Items Number 12 and 13) (Style No. T-300)	—	—	1

NOTE:
Reference Numbers shown thus (H-10003) are from Mueller Co. Catalog "H" and (Style No. T-300) are from Mueller Brass Co. "Streamline" Catalog S-354. Approved Equal may be used.

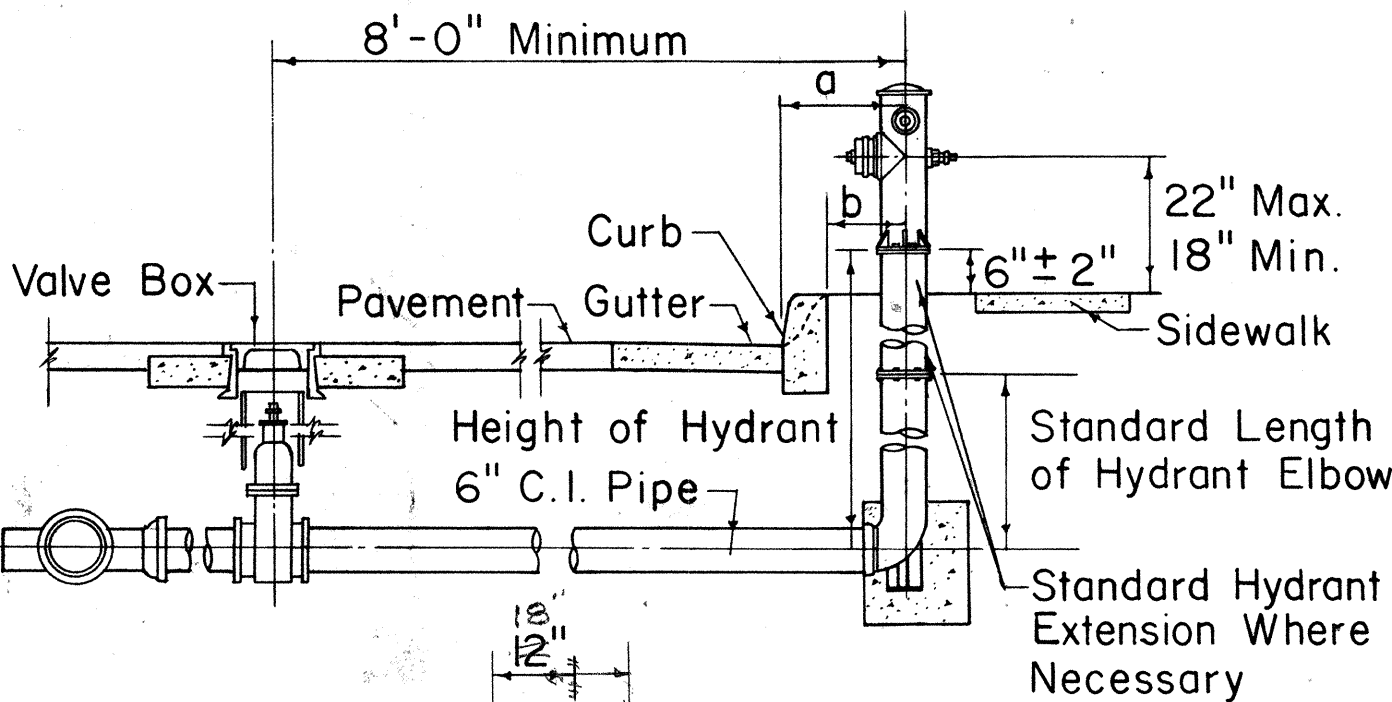


LONGITUDINAL SECTION



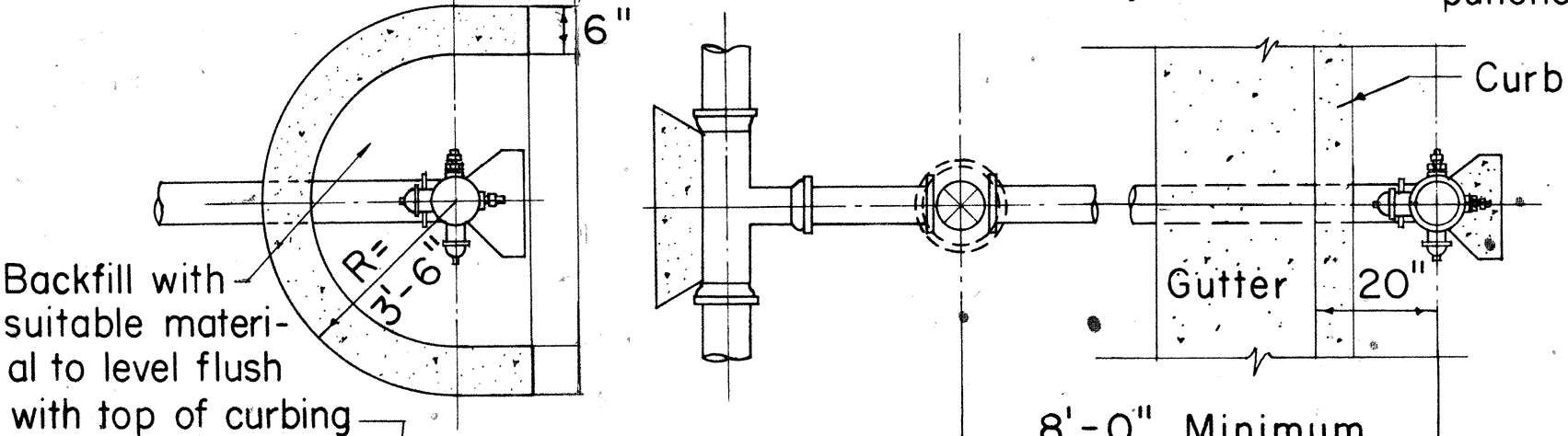
SOLDERED JOINT

SERVICE LATERAL CONNECTION AT END OF LINE

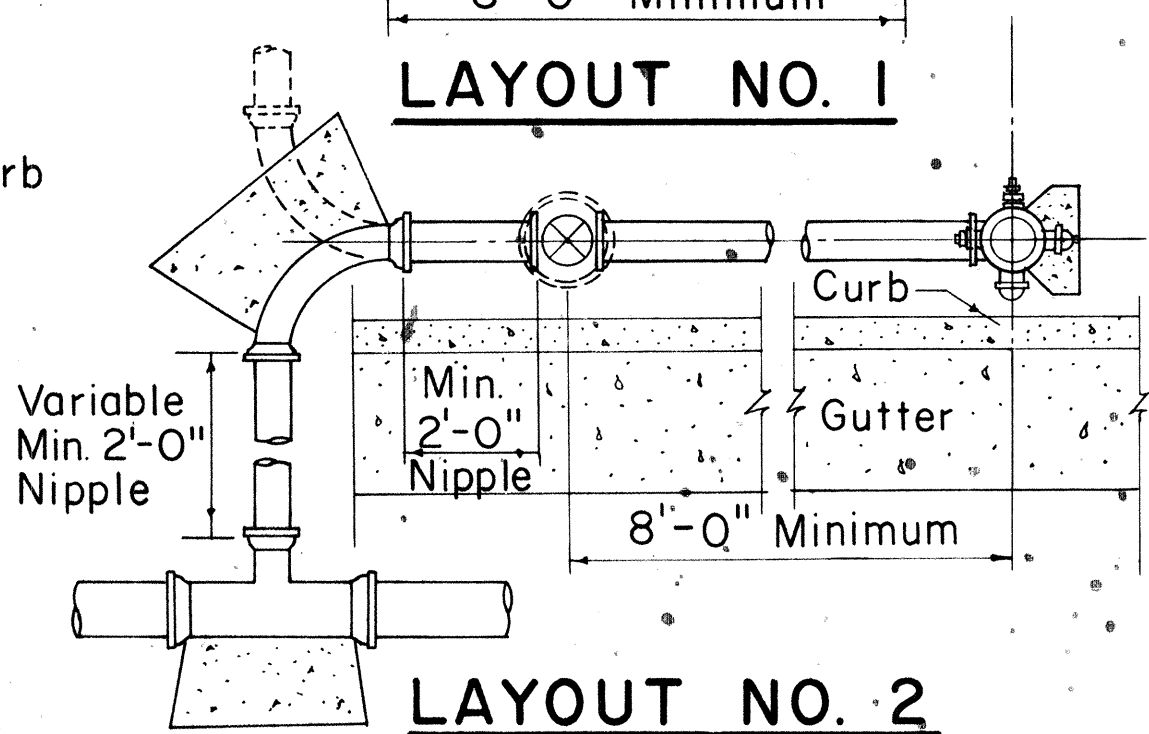


a	20" Min. (Standard Curb)
b	20" Min. (Roll Curb)

NOTE:
Gaskets for flanged joints shall be 1/16 inch duck-inserted rubber packing Garlock No. 19. Bolts shall be 5/8" diameter x 2 3/4" long steel machine bolts with cut threads, American Standard heavy hexagon heads, galvanized. Nuts shall be American Standard heavy cold punched hexagon nuts, galvanized.



DETAIL OF CURBING
AT HYDRANT
WHERE REQUIRED

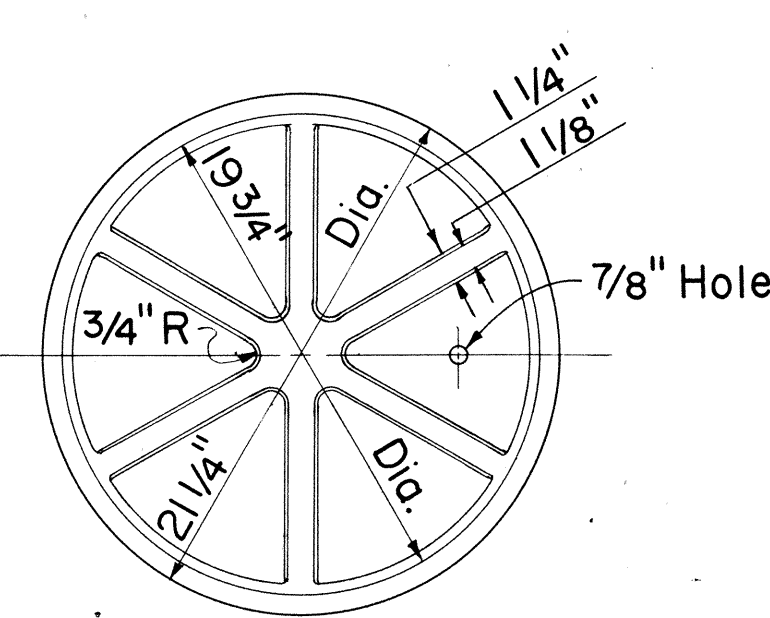


LAYOUT NO. 2

STANDARD FIRE HYDRANT LAYOUT

NOTE:

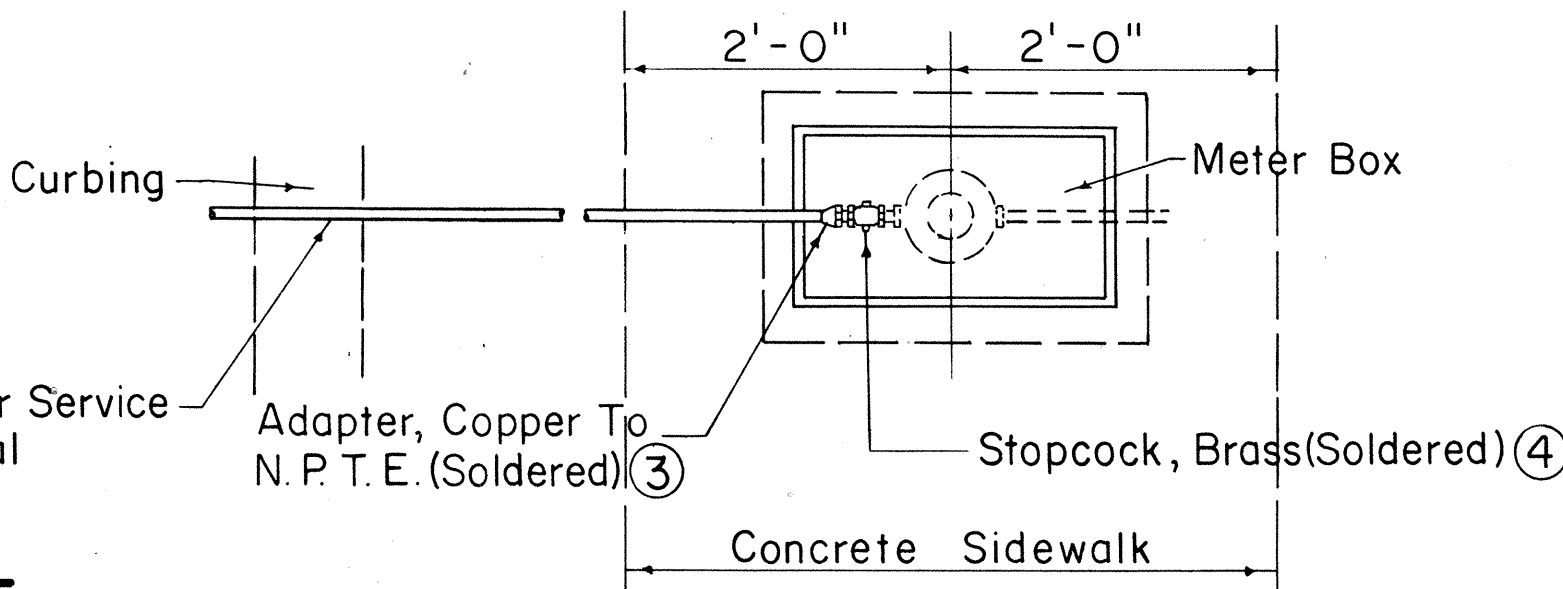
All castings shall be made accurately to the dimensions shown. Seat and cover shall be machined or ground where necessary to secure flat and true surfaces. The cover shall not rattle in any position.



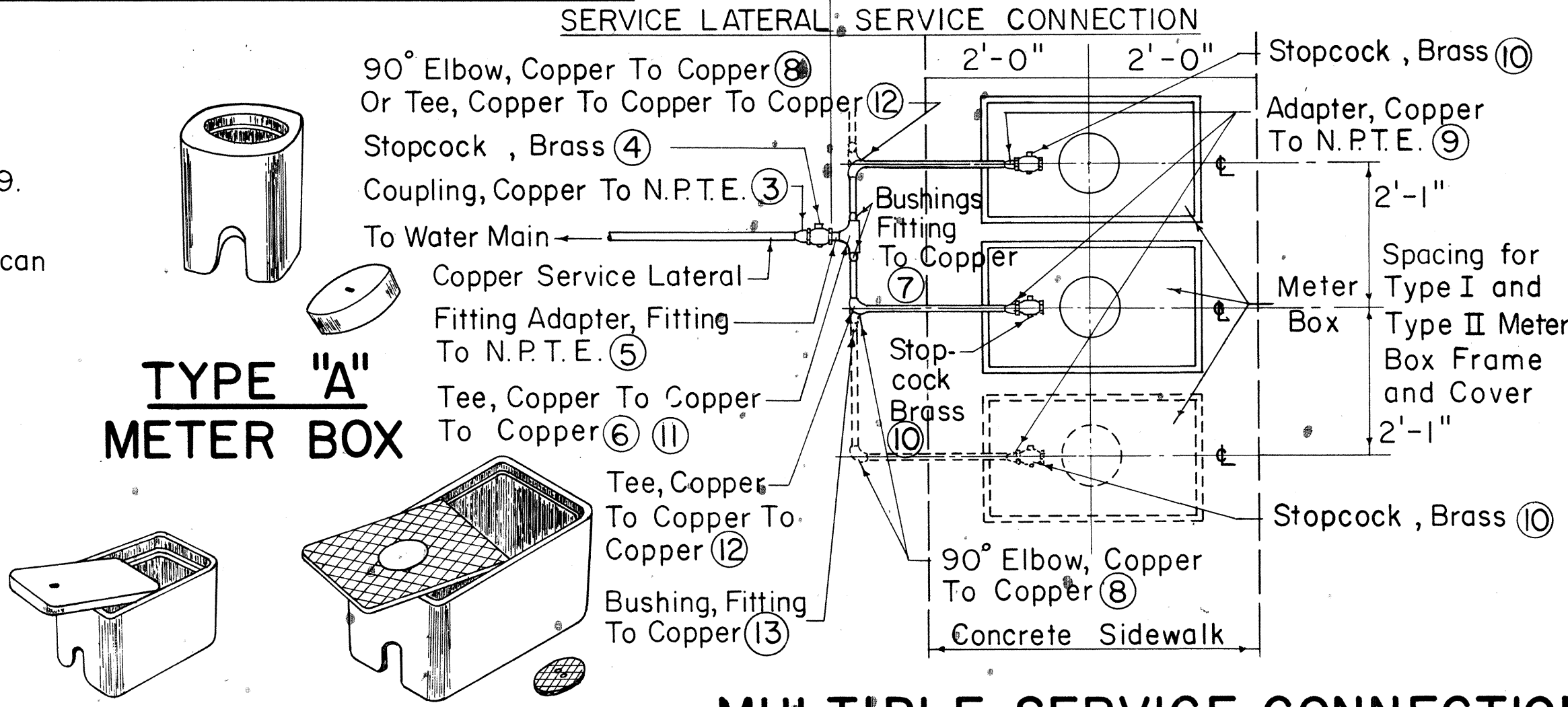
BOTTOM VIEW OF COVER

MANHOLE FRAME & COVER
CAST IRON, 20" SIZE

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



SINGLE SERVICE CONNECTION



TYPE "A"
METER BOX

TYPE "B"
METER BOX

TYPE "X"
METER BOX

MULTIPLE SERVICE CONNECTION
SOLDERED JOINTS

METER BOX DATA					
TYPE METER BOX	METER SIZES	OVERALL DIMENSIONS AT BOTTOM	OVERALL DIMENSIONS AT TOP	COMPLETE WEIGHT	OVERALL DIMENSIONS OF LID
A	5/8" or 3/4" Without Valve	7 1/4" x 7 1/4"	10" x 10"	45 lbs.	7 3/8" Dia.
B	5/8" or 3/4"	9 1/2" x 16"	12 1/4" x 18 3/8"	82 lbs.	8 3/4" x 14 1/2"
X		14 1/2" x 23 1/2"	16" x 25"	143 lbs.	13 1/8" x 22 1/8"

APPROVED:

R.K. Nagata
for CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

5/10/68
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU

STANDARD DETAILS
Proj. No. 83C-04-68

Not to Scale Date July 1968

SHEET NO. 3 OF 3 SHEETS