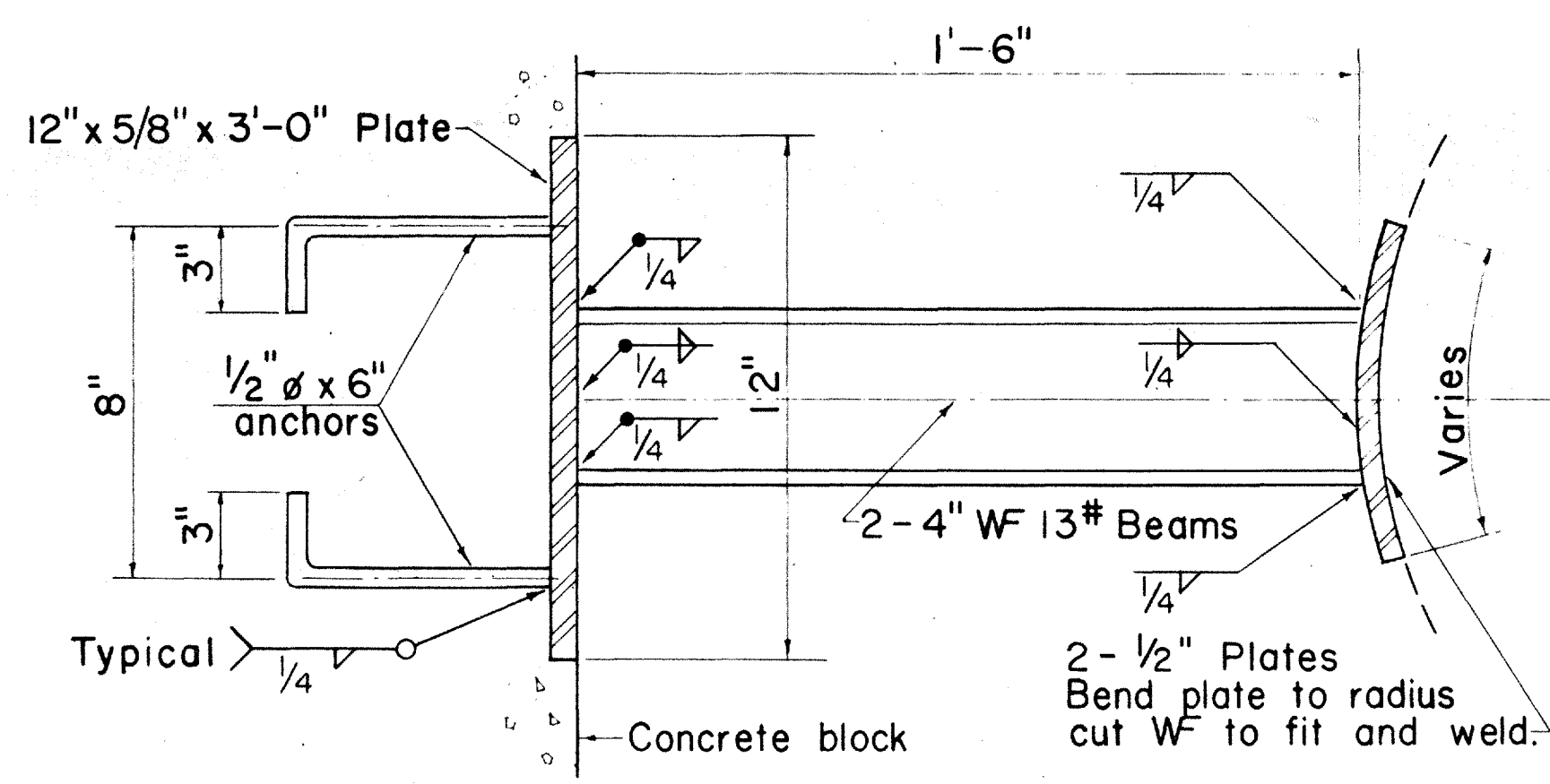
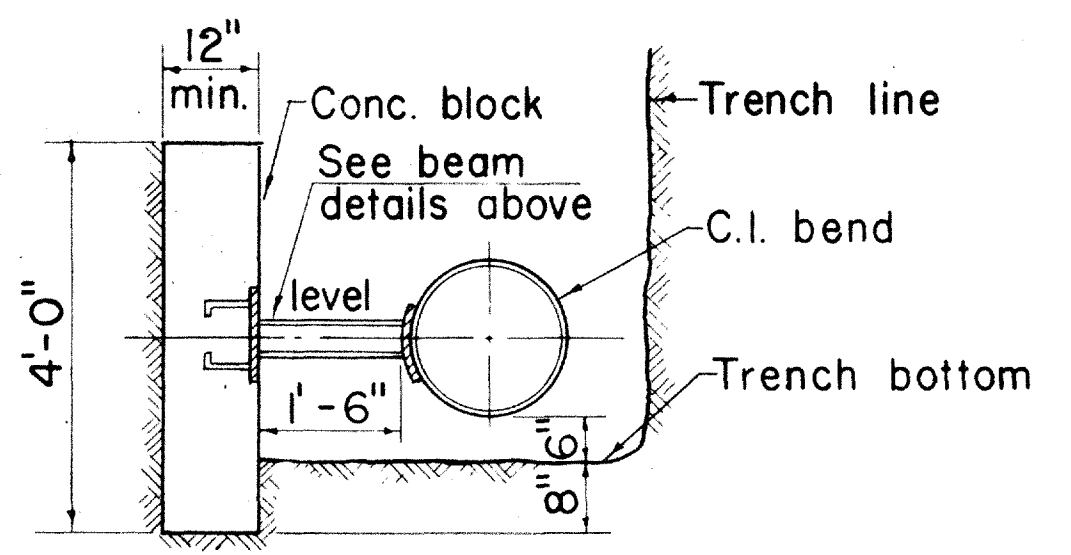
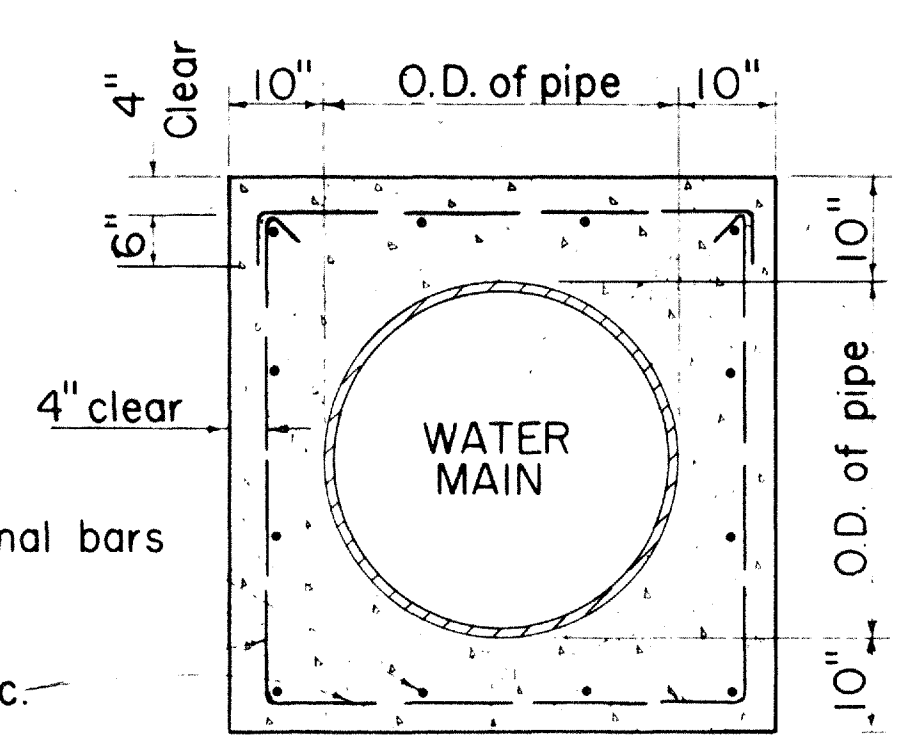




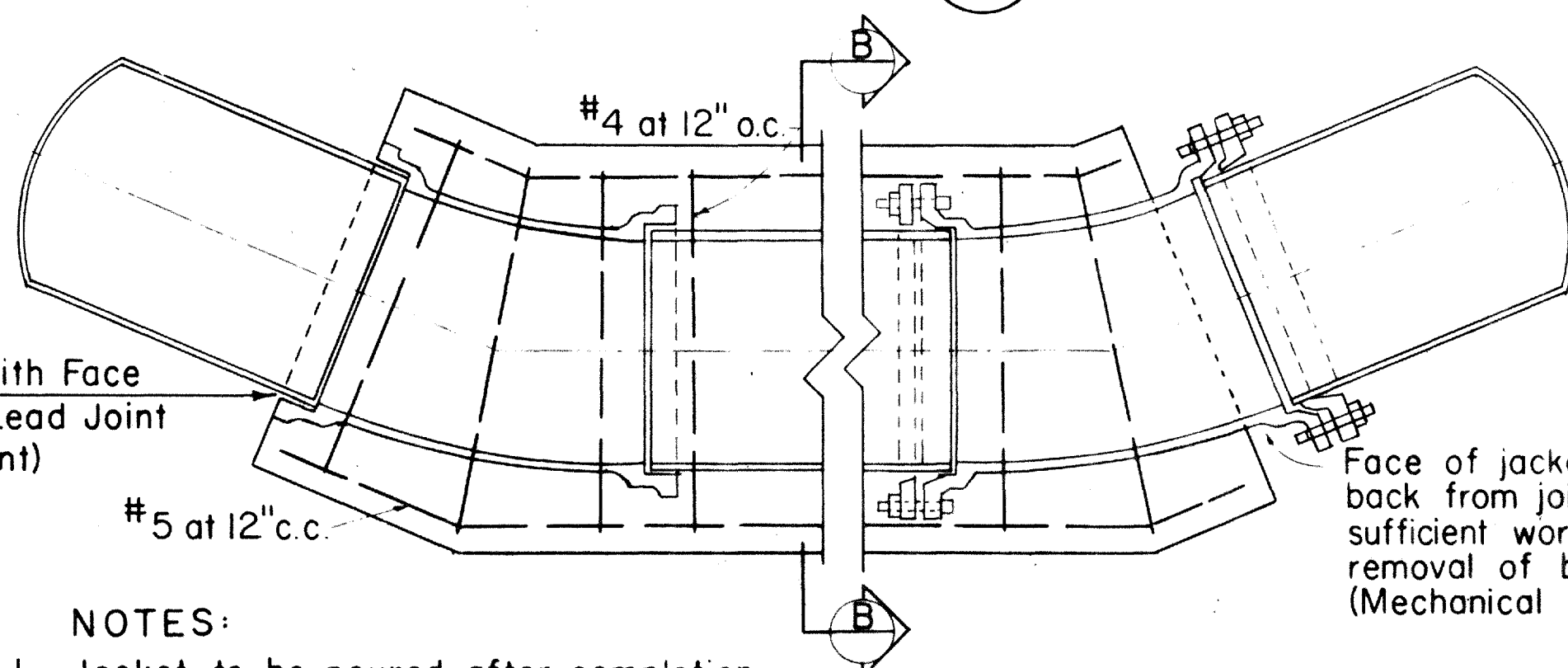
BEAM DETAIL
Scale: 3" = 1'-0"



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



SECTION B

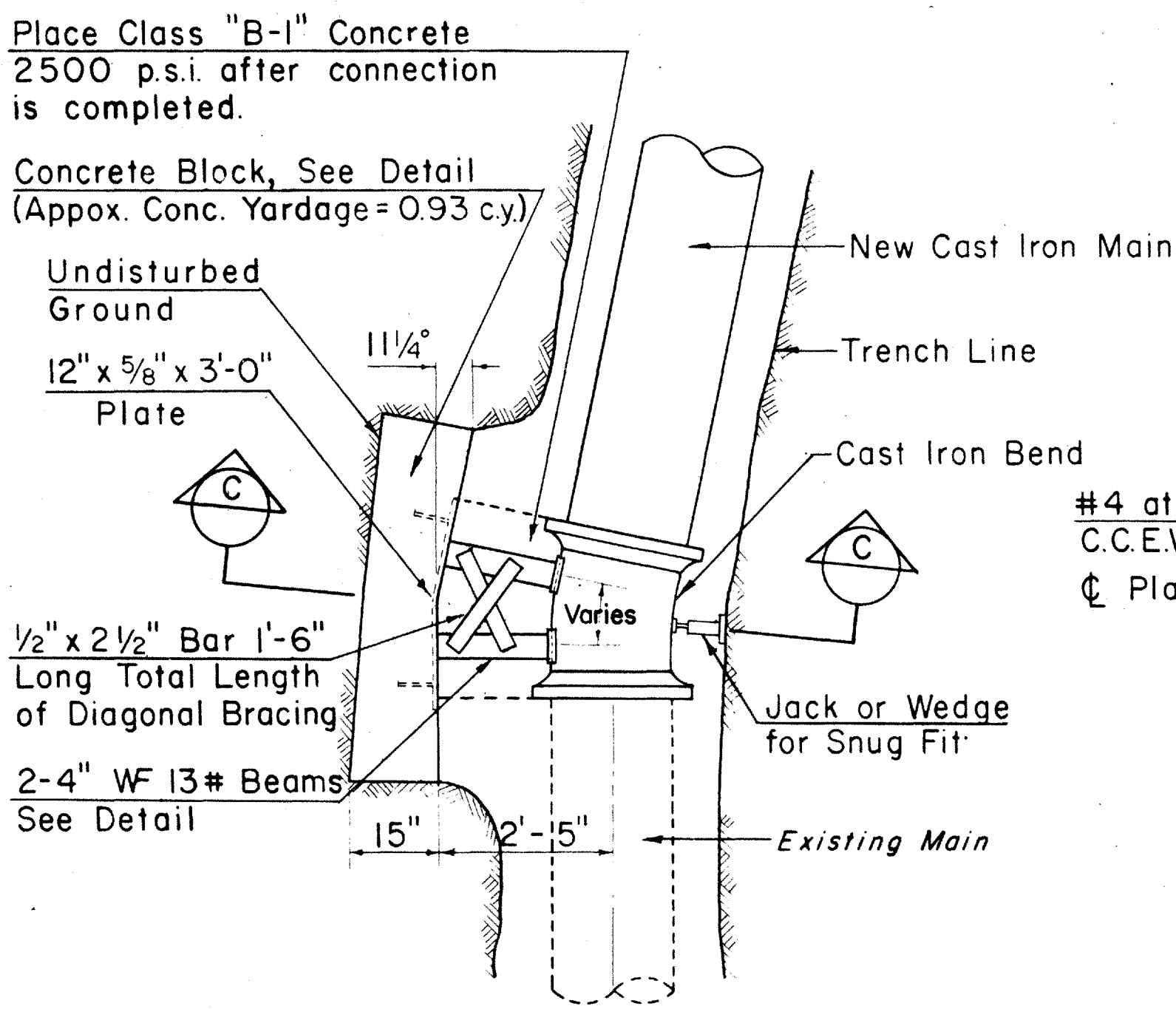


NOTES:

- Jacket to be poured after completion of test unless otherwise approved by the Engineer.
- 2 1/2" depth of lead for lead joint pipe required at all embedded joints.
- Wherever construction joints are required, 6" rubber or neoprene waterstops shall be installed. Waterstops shall be of the type specified and manufactured by the Servicized Products Corporation, Gate Rubber Company or approved equal.

REINFORCED CONCRETE JACKET

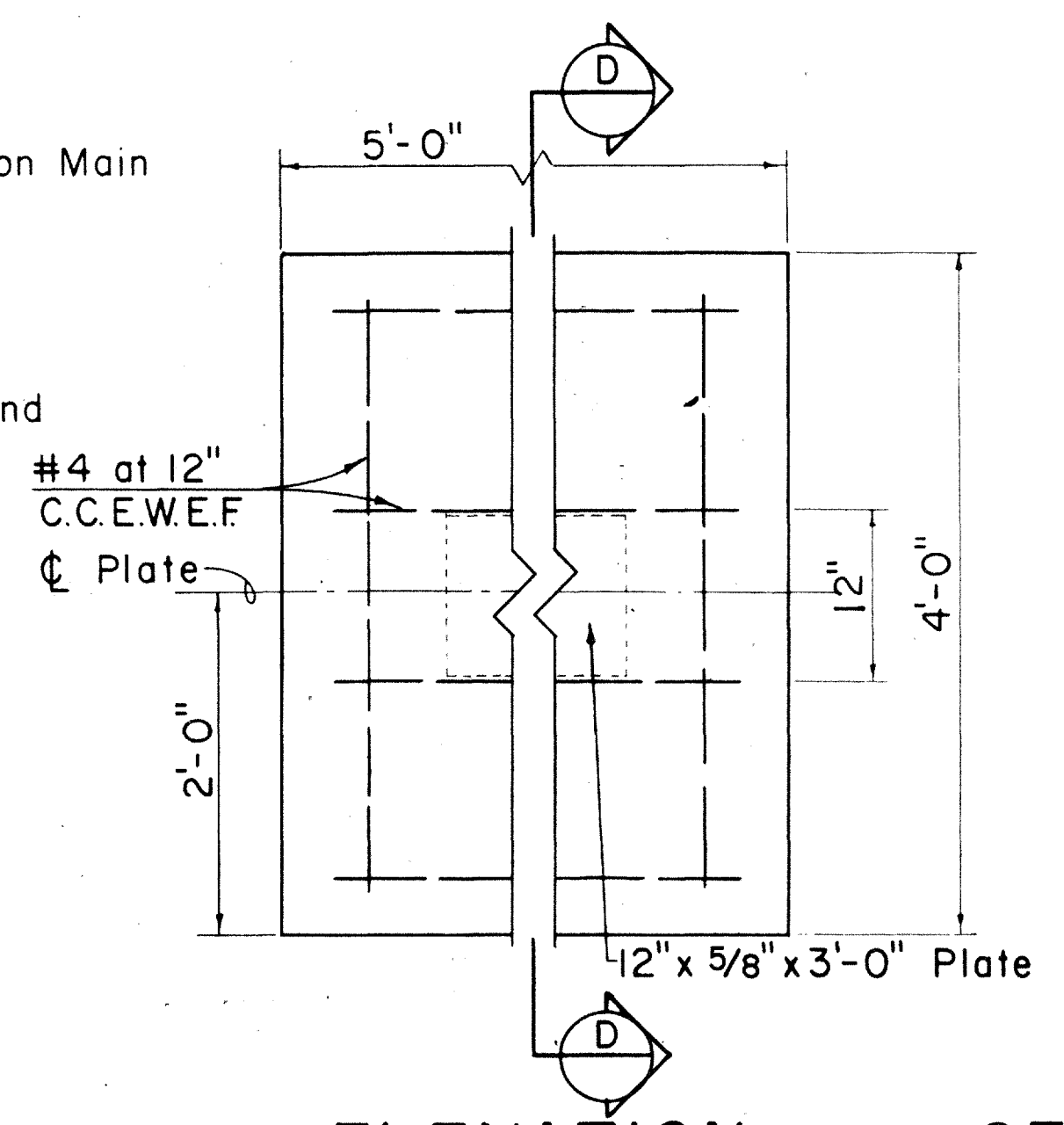
Scale: Not to Scale



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

NOTE:

Concrete Block with structural strut shall be used for Concrete Cylinder or C.I. bends at connections or for tee connections. Detail drawings of actual conc. blocks to be used, will be furnished during construction by B.W.S. and or State.

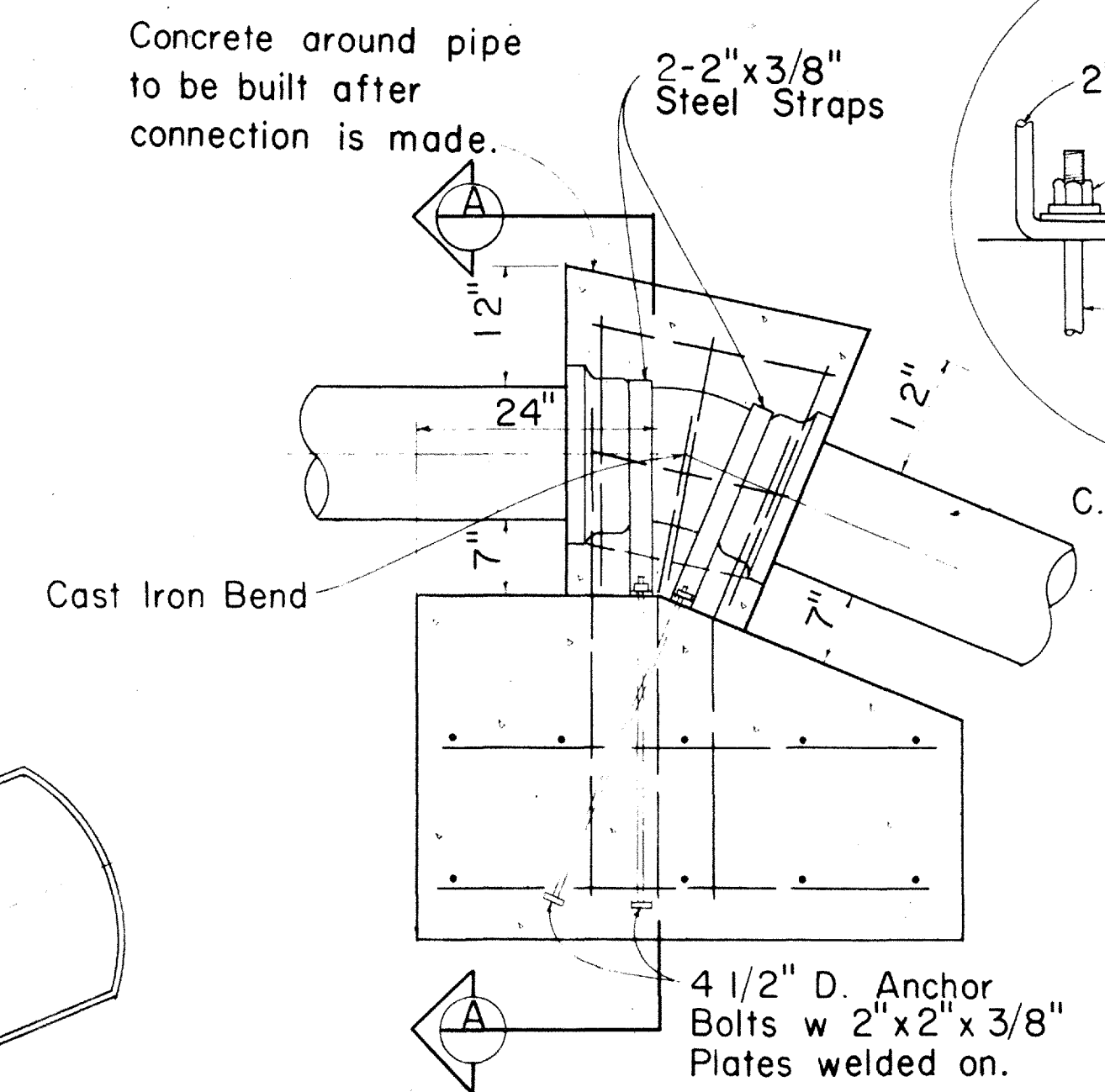


ELEVATION

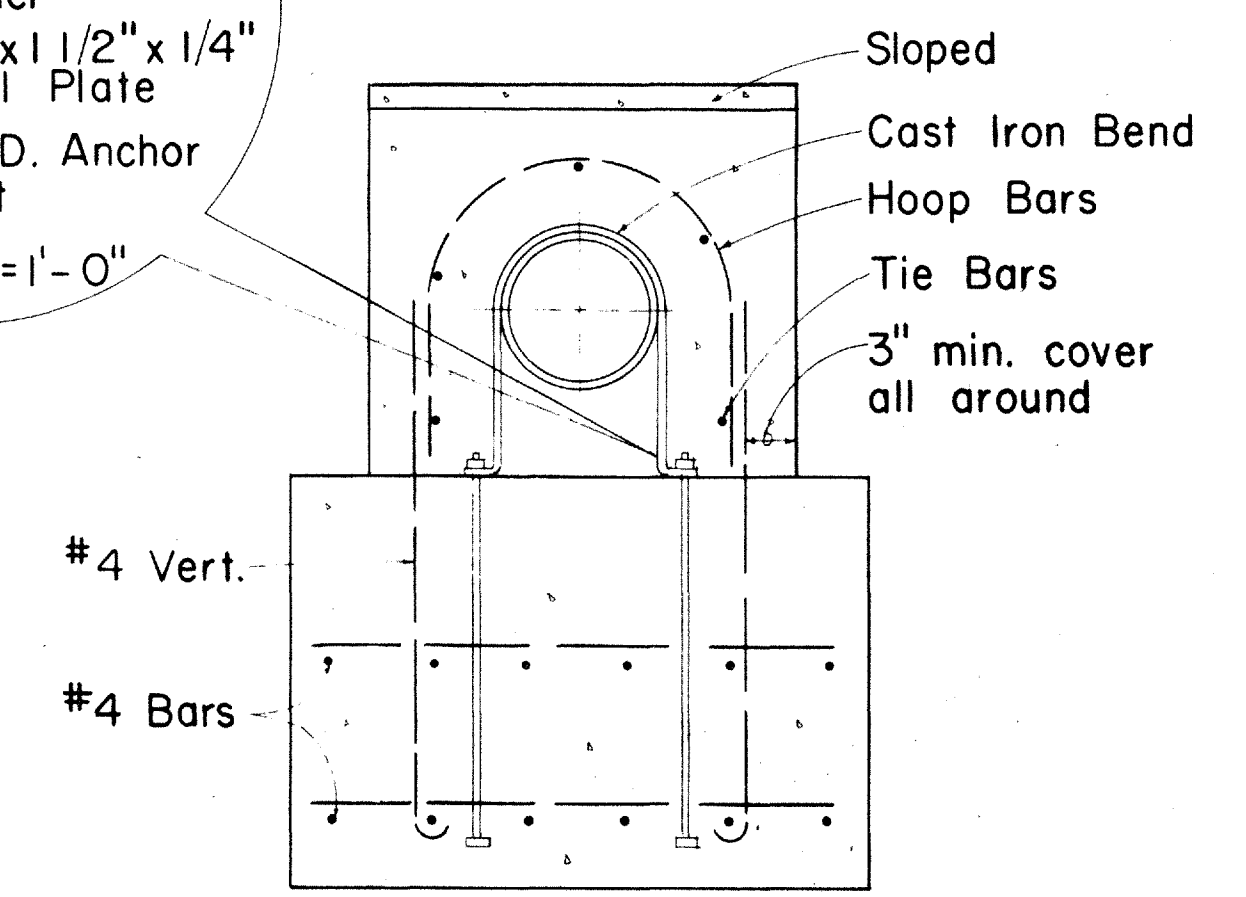
SECTION D

DETAILS OF CONCRETE BLOCK

Scale: 1" = 1'-0"



ELEVATION



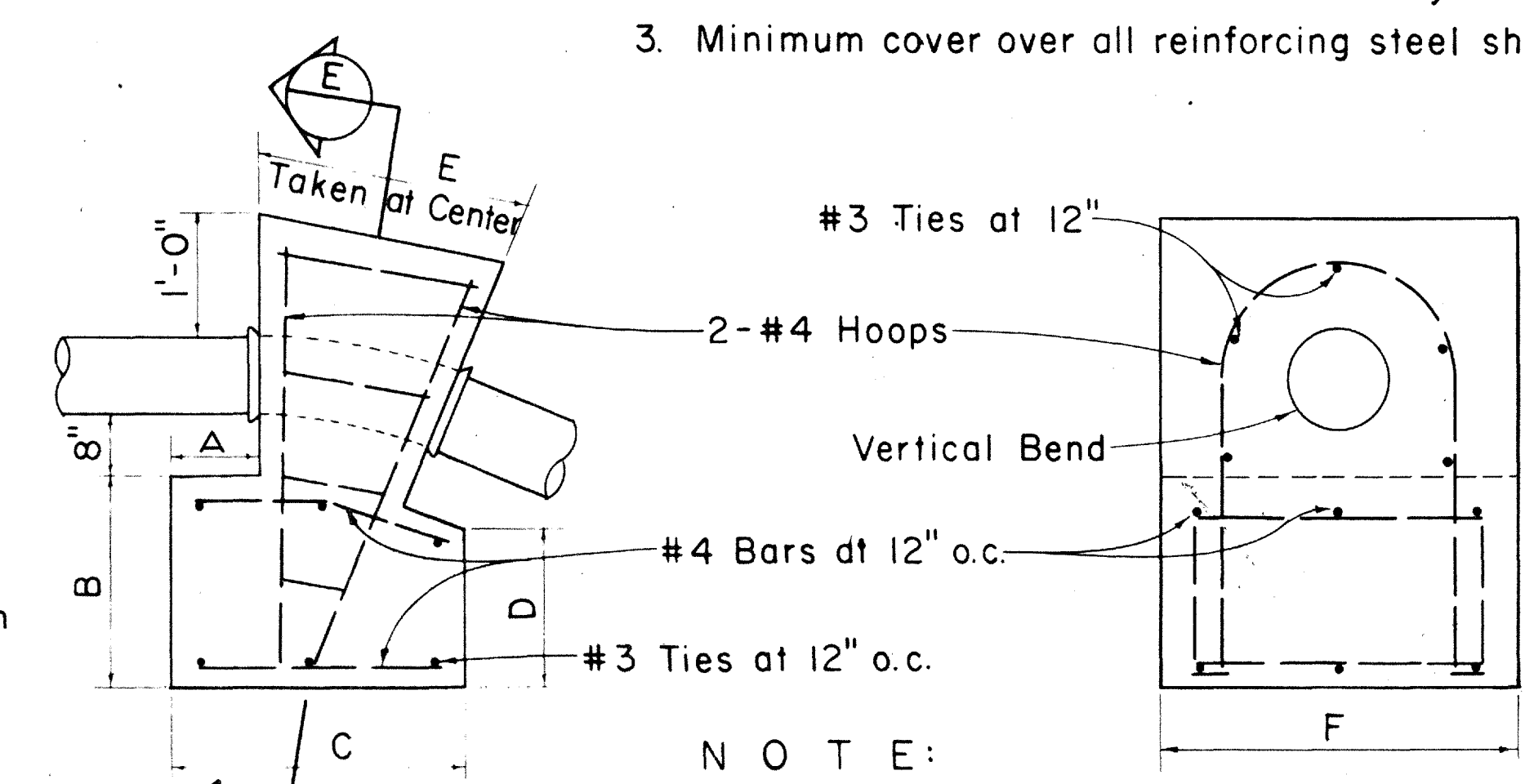
SECTION A

TYPICAL DETAIL OF CONCRETE REACTION BLOCK WITH STRAPS

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

GENERAL NOTES:

- Detail drawings of actual precast blocks and other reaction blocks (not precast) to be used, shall be furnished during construction by B.W.S. and or State.
- Steel straps, anchor bolts, nuts, washers, etc., furnished and installed by the Contractor will not be paid for directly, but shall be considered incidental to the various contract items for the water system.
- Minimum cover over all reinforcing steel shall be 3 inches.



ELEVATION

SECTION E

TYPICAL DETAIL OF REINFORCED CONCRETE REACTION BLOCK FOR TOP VERTICAL BENDS

Scale: Not to Scale

PIPE SIZE	DIMENSIONS						CU. YDS.
	A	B	C	D	E	F	
8	1'-0"	2'-0"	3'-0"	1'-6"	1'-6"	4'-0"	1 1/4
6	0'-9"	1'-9"	2'-6"	1'-4"	1'-6"	3'-0"	3/4

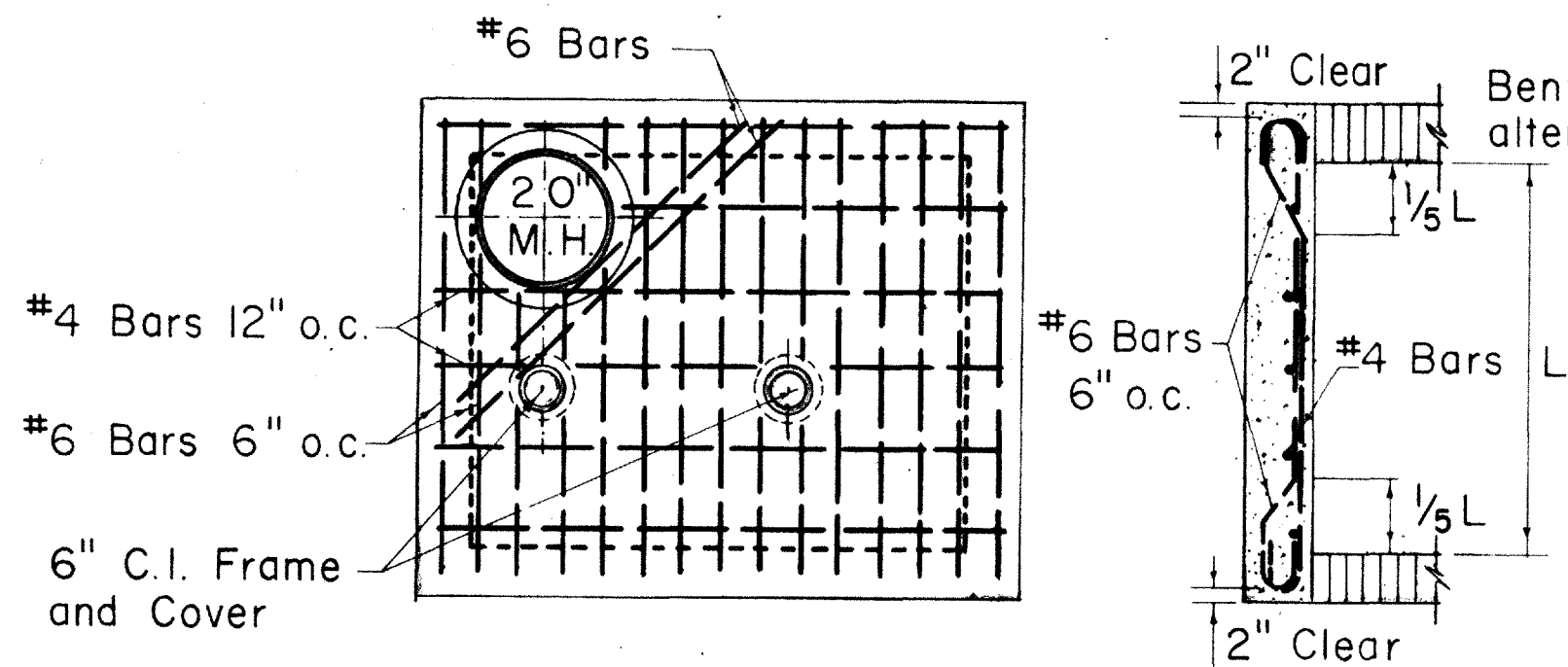
APPROVED:

[Signature]
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY
DATE 5/1/69

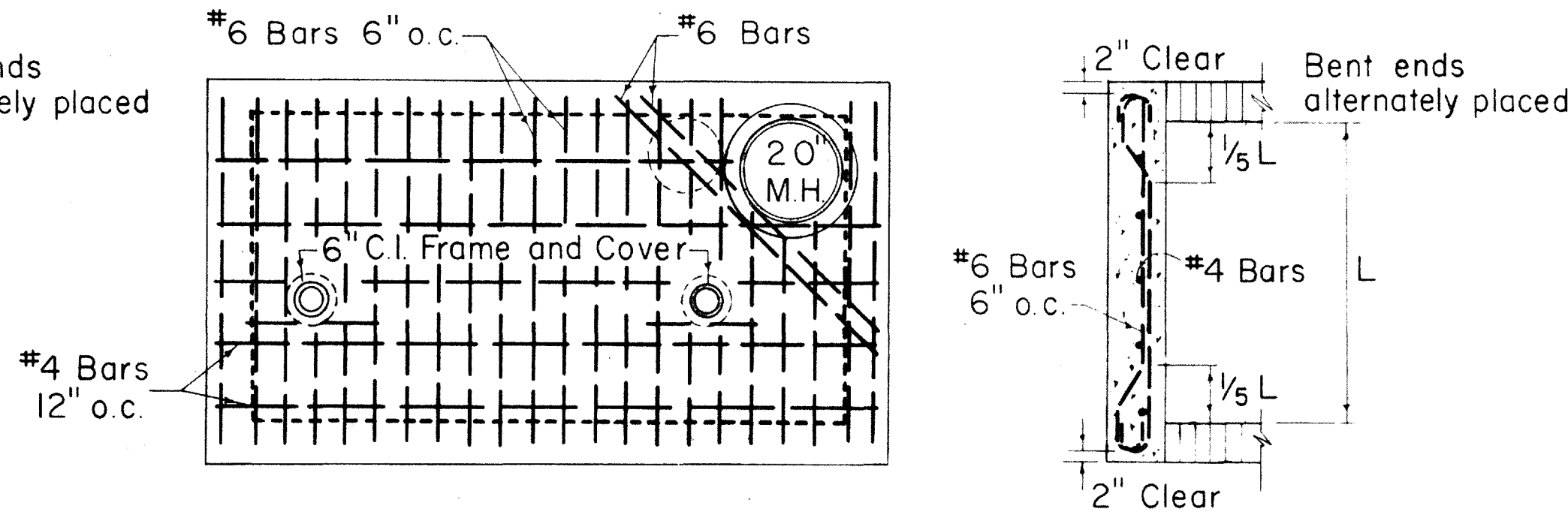
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
STANDARD DETAILS

Scale: As Shown

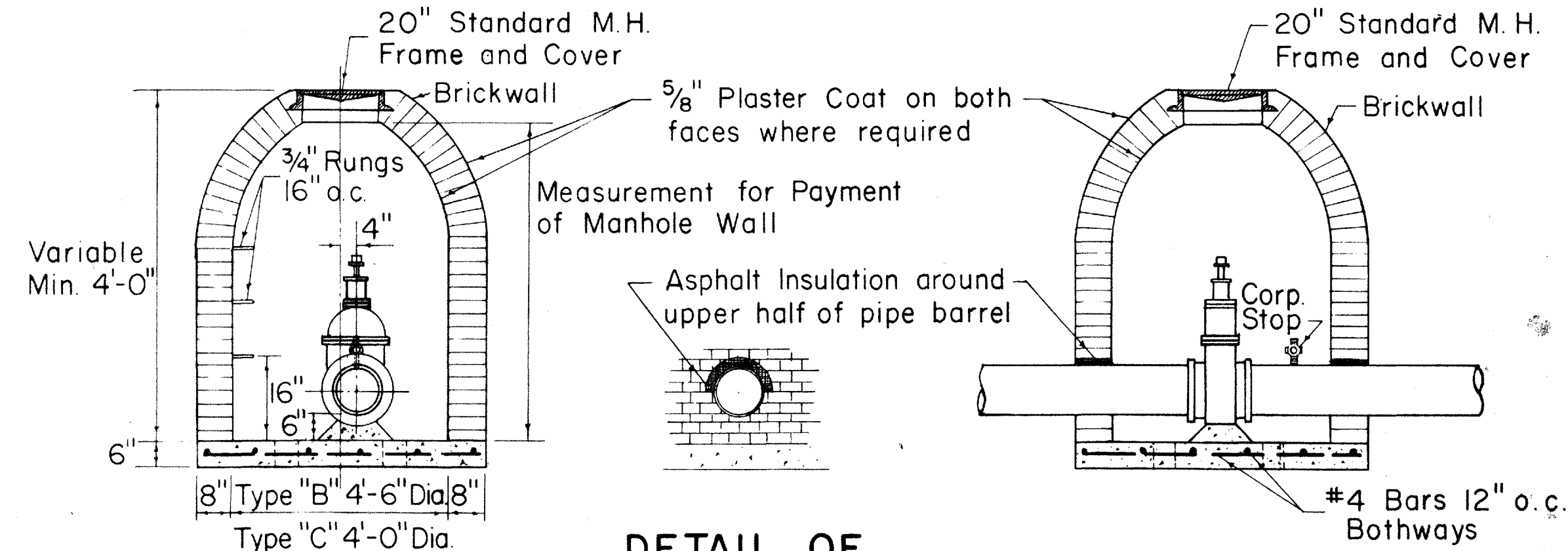
SHEET No. 1 OF 4 SHEETS



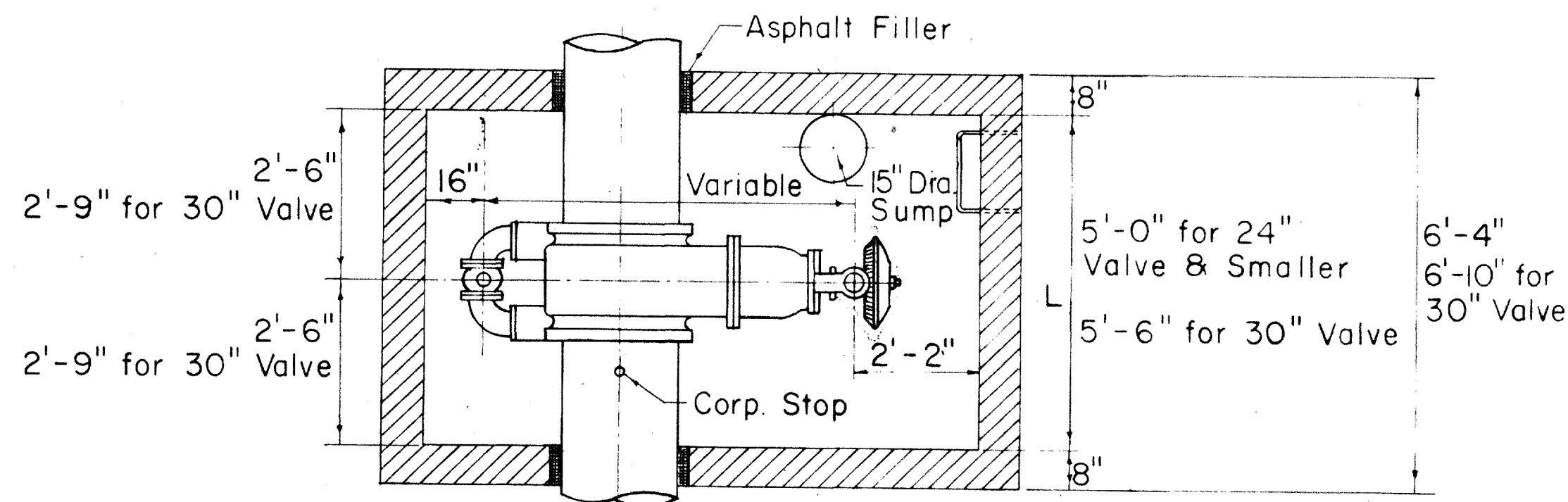
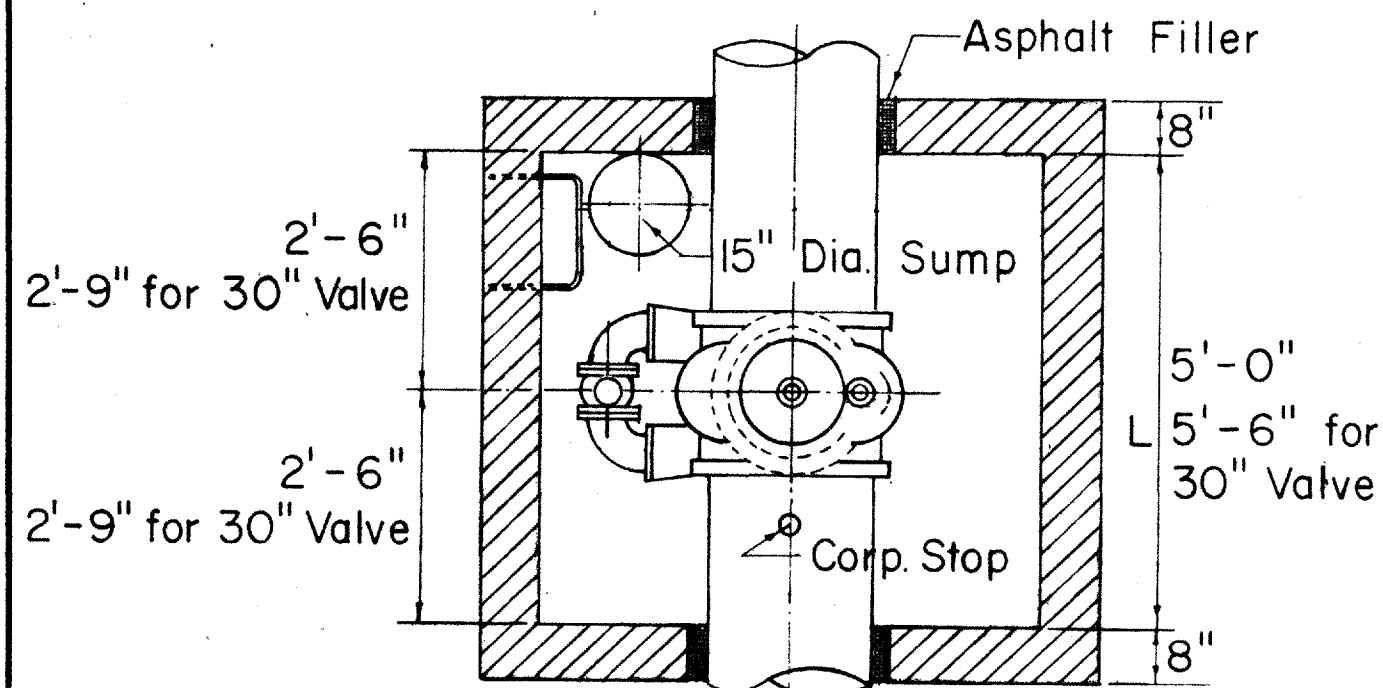
PLAN OF TOP SLAB



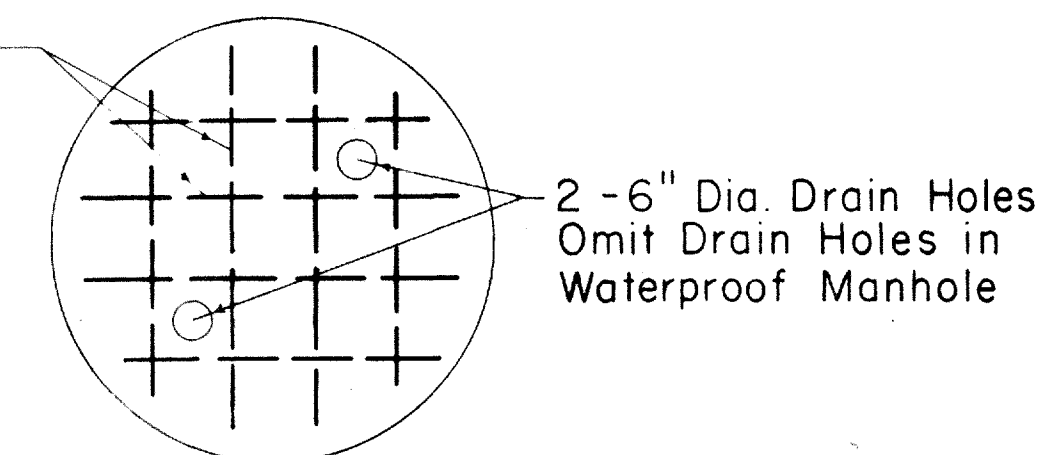
PLAN OF TOP SLAB



DETAIL OF ASPHALT FILLER



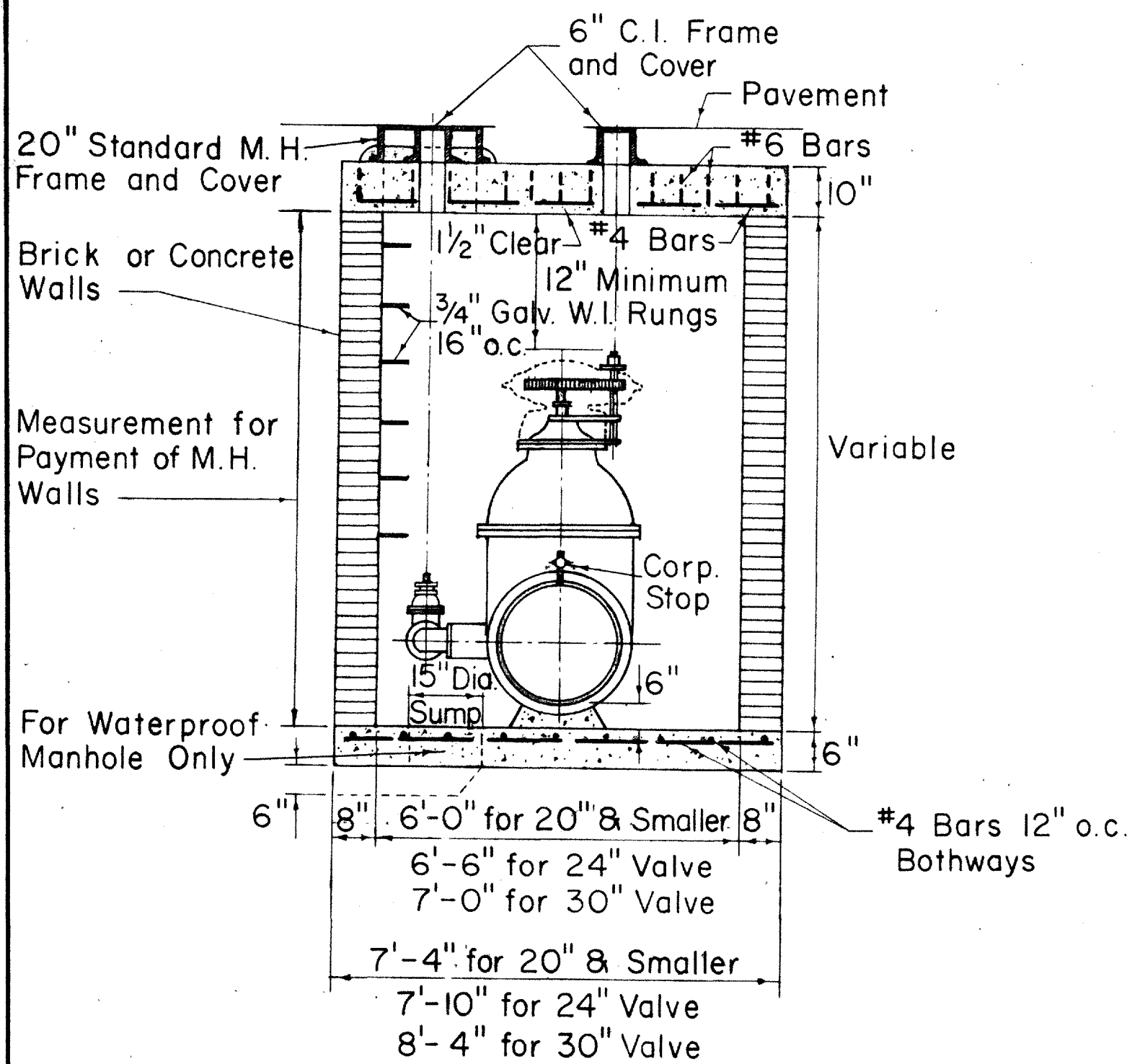
#4 Bars 12" o.c. Bothways



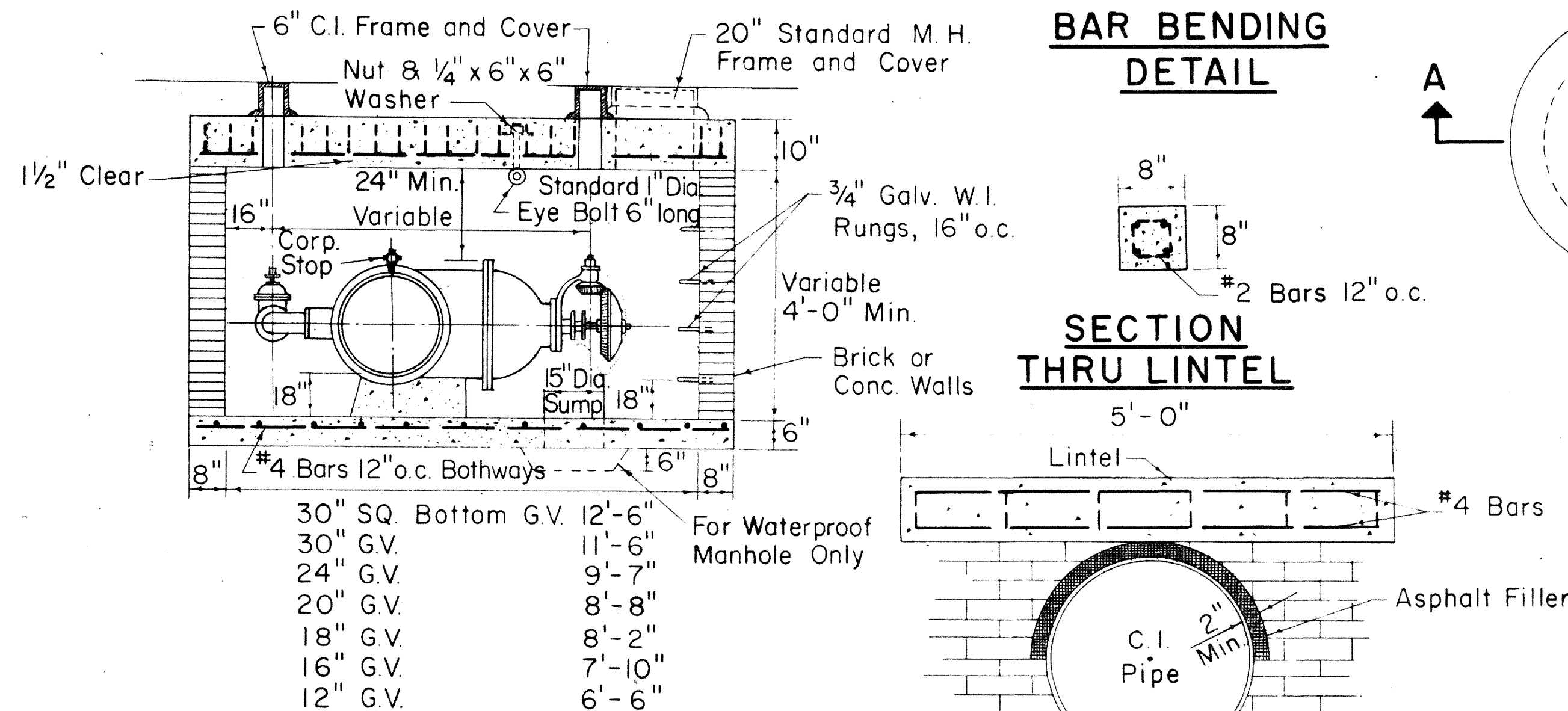
STEEL DETAIL IN BOTTOM SLAB

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"



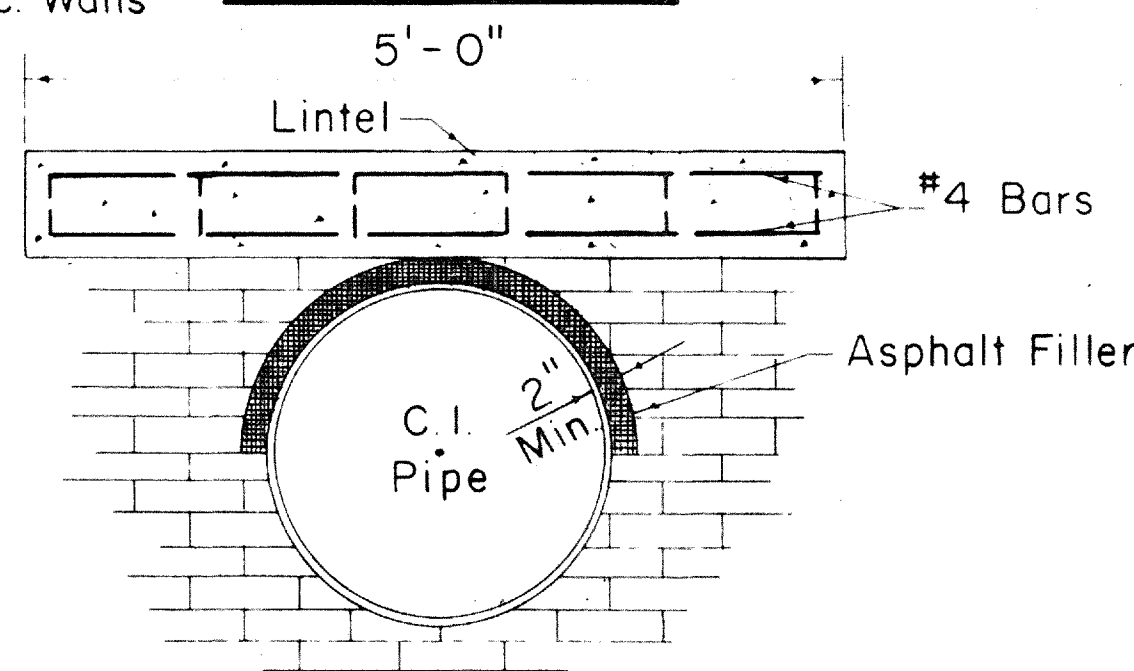
SECTION
TYPE "A" MANHOLE
FOR SPUR GEARED GATE VALVES



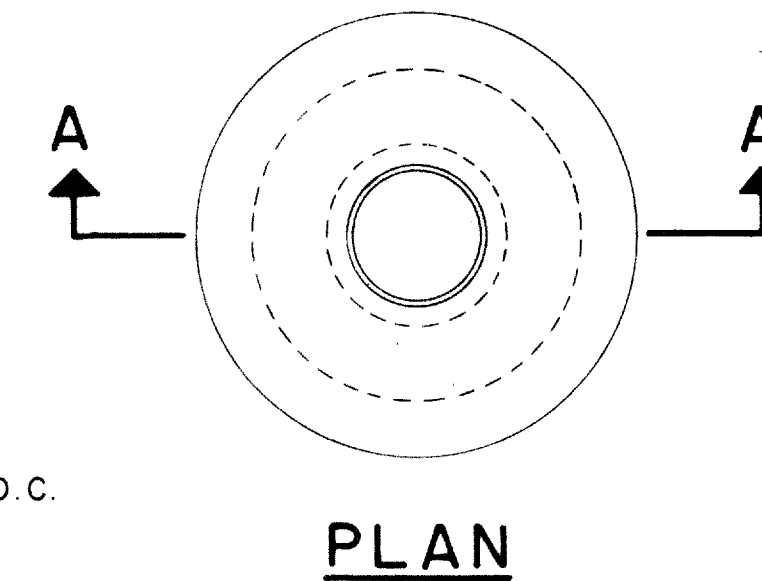
SECTION
TYPE "A" MANHOLE
FOR BEVEL GEARED GATE VALVES

BAR BENDING
DETAIL

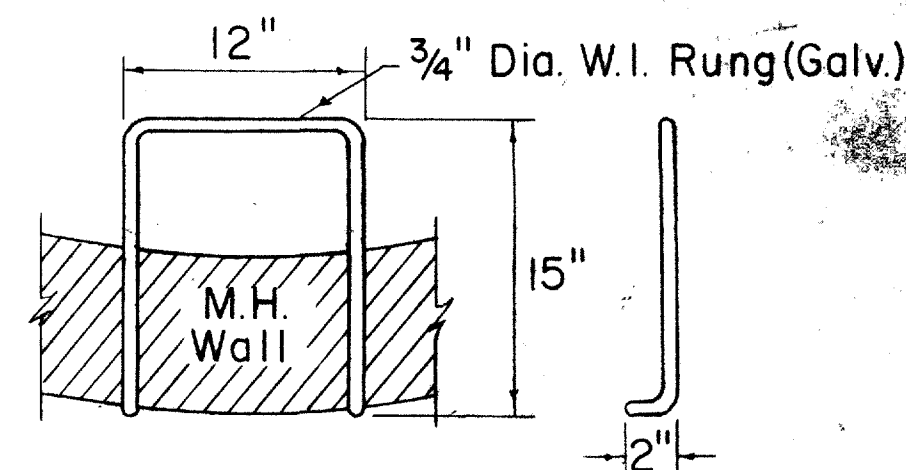
SECTION
THRU LINTEL



DETAIL OF LINTEL
AND ASPHALT FILLER



PLAN



DETAIL OF RUNG

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

APPROVED:

[Signature]
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

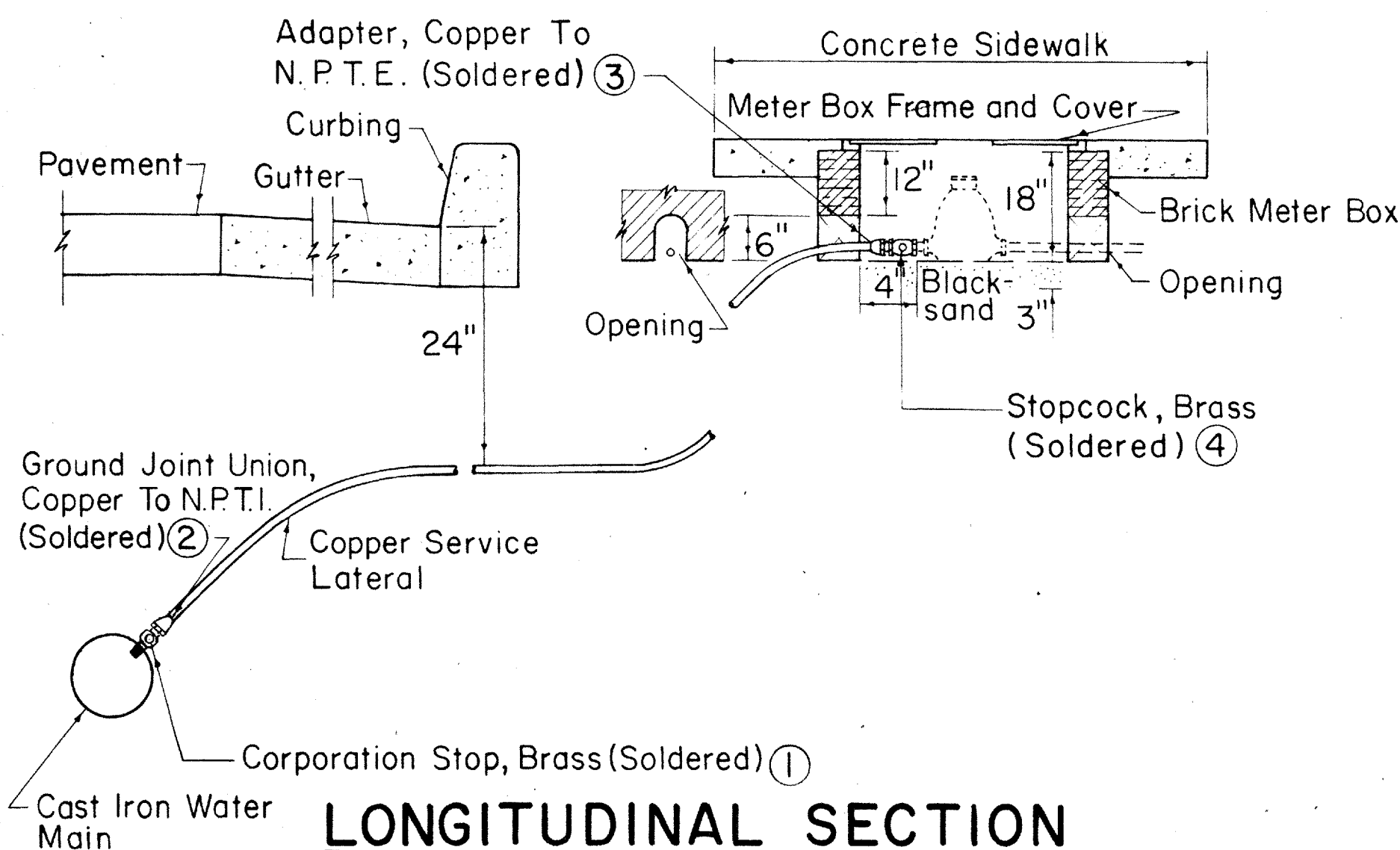
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU

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:

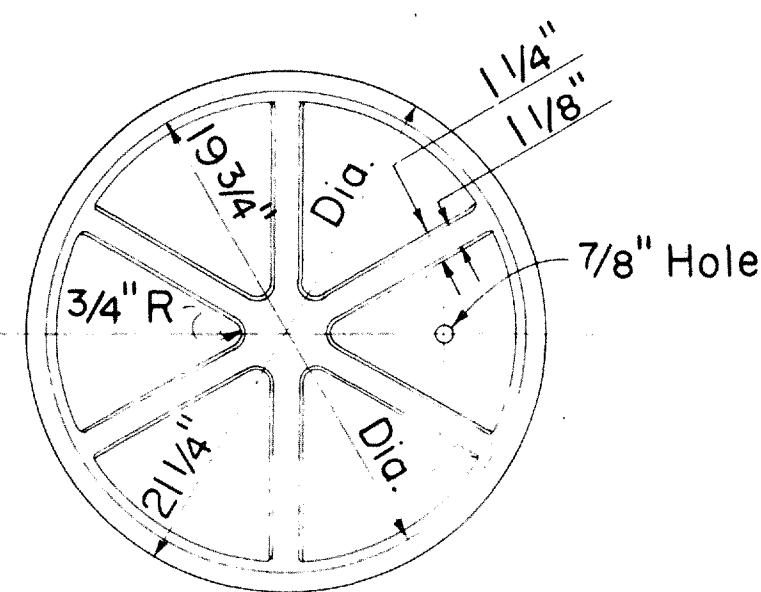
Reference Numbers shown thus (H-10003) are from Mueller Co. Catalog "H" and (Style No. T-300) are from Mueller Brass Co. "Streamline" Catalog S-354. Approved Equal may be used.



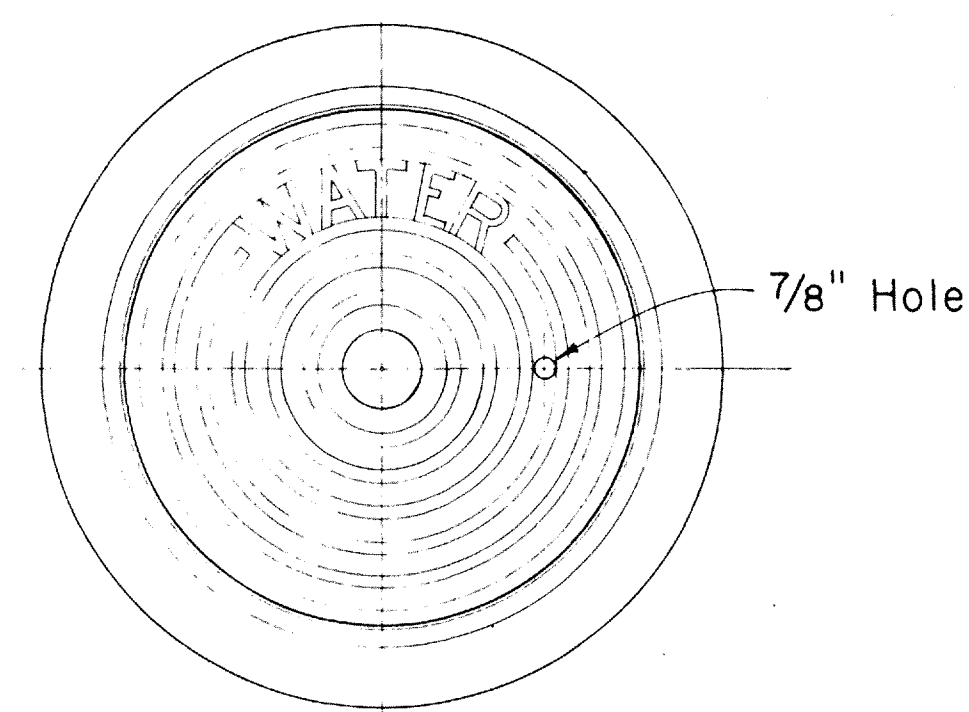
LONGITUDINAL SECTION

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.



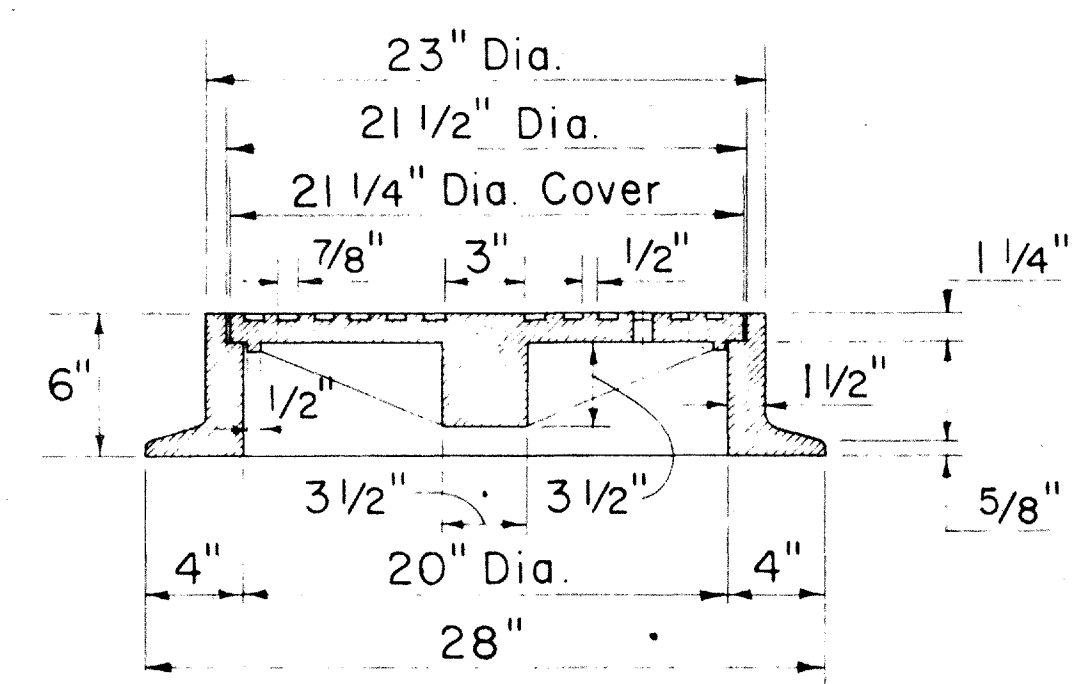
BOTTOM VIEW OF COVER



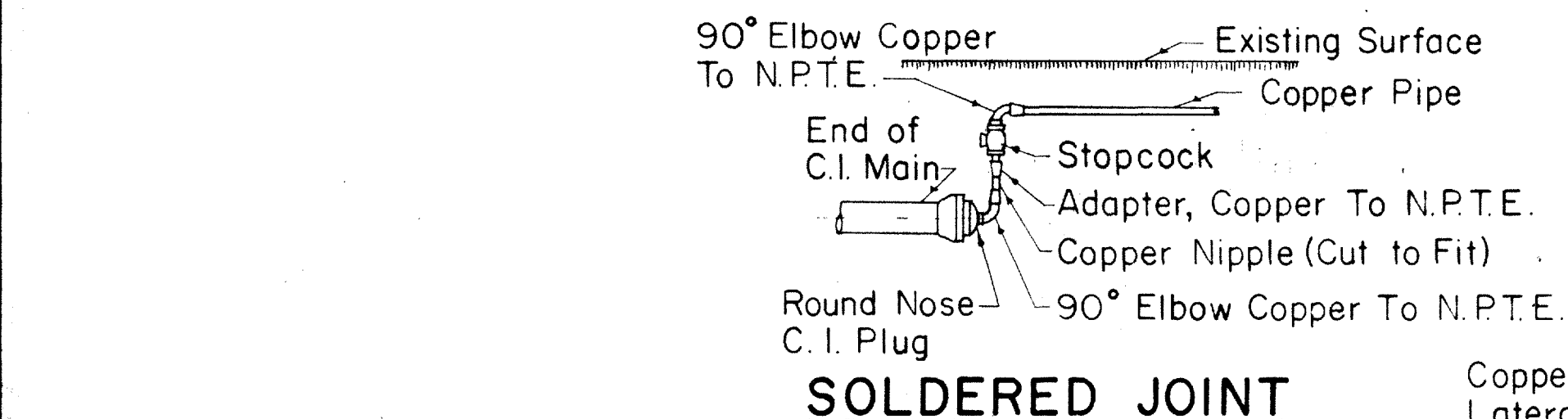
PLAN OF FRAME AND COVER

MANHOLE FRAME & COVER CAST IRON, 20" SIZE

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

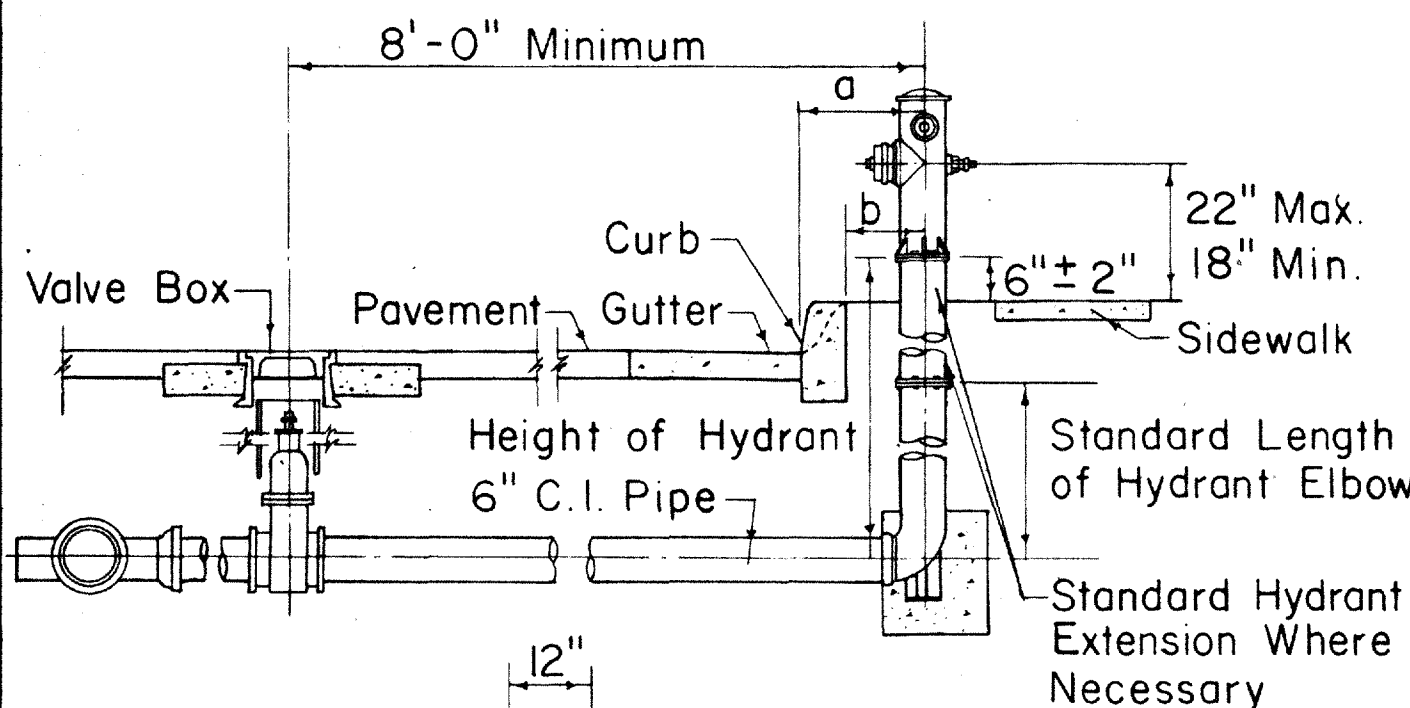


SECTION OF FRAME AND COVER



SOLDERED JOINT

SERVICE LATERAL CONNECTION AT END OF LINE



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

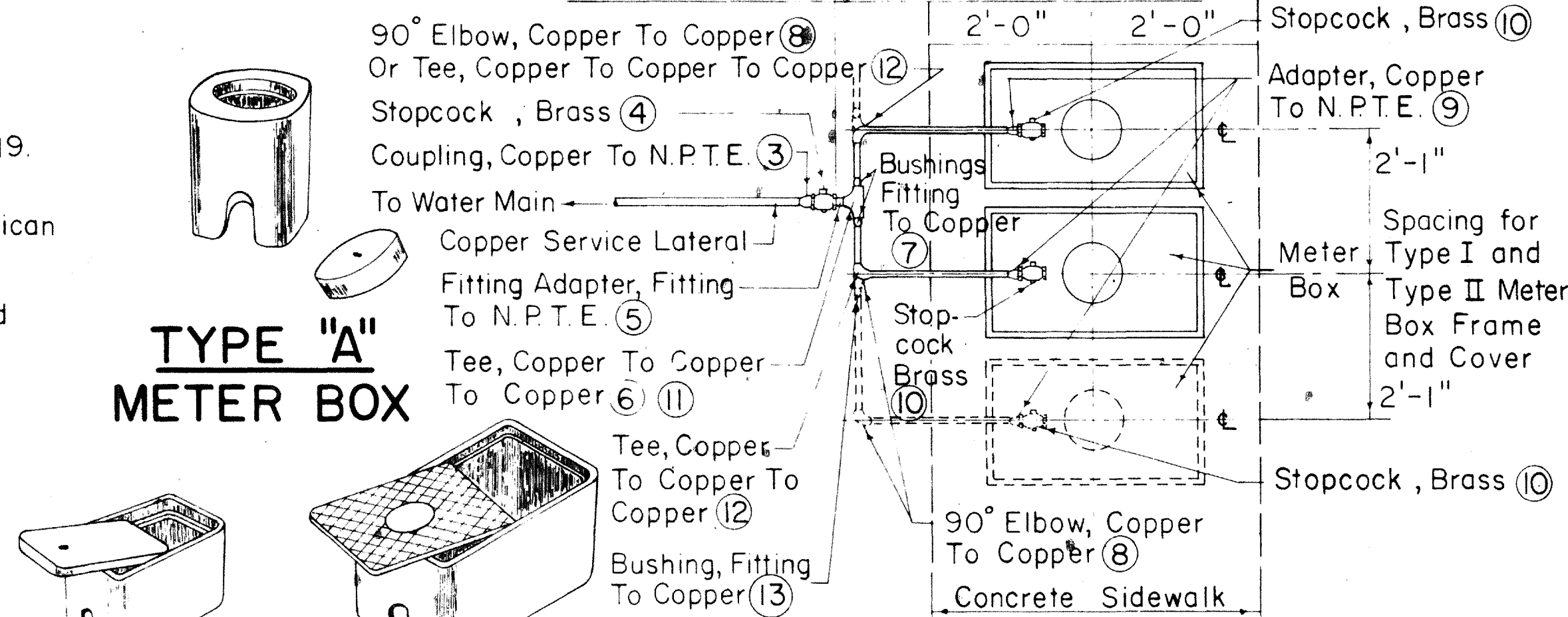
NOTE:

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

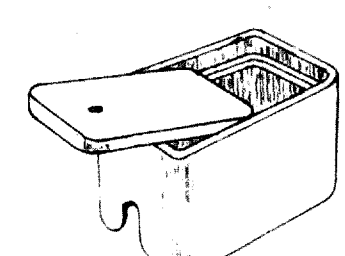
Nuts shall be American Standard heavy cold punched hexagon nuts, galvanized.

SINGLE SERVICE CONNECTION

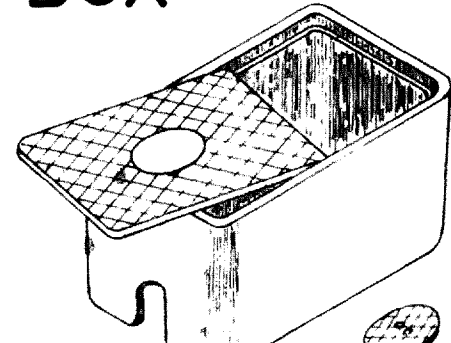
SERVICE LATERAL SERVICE CONNECTION



TYPE "A" METER BOX

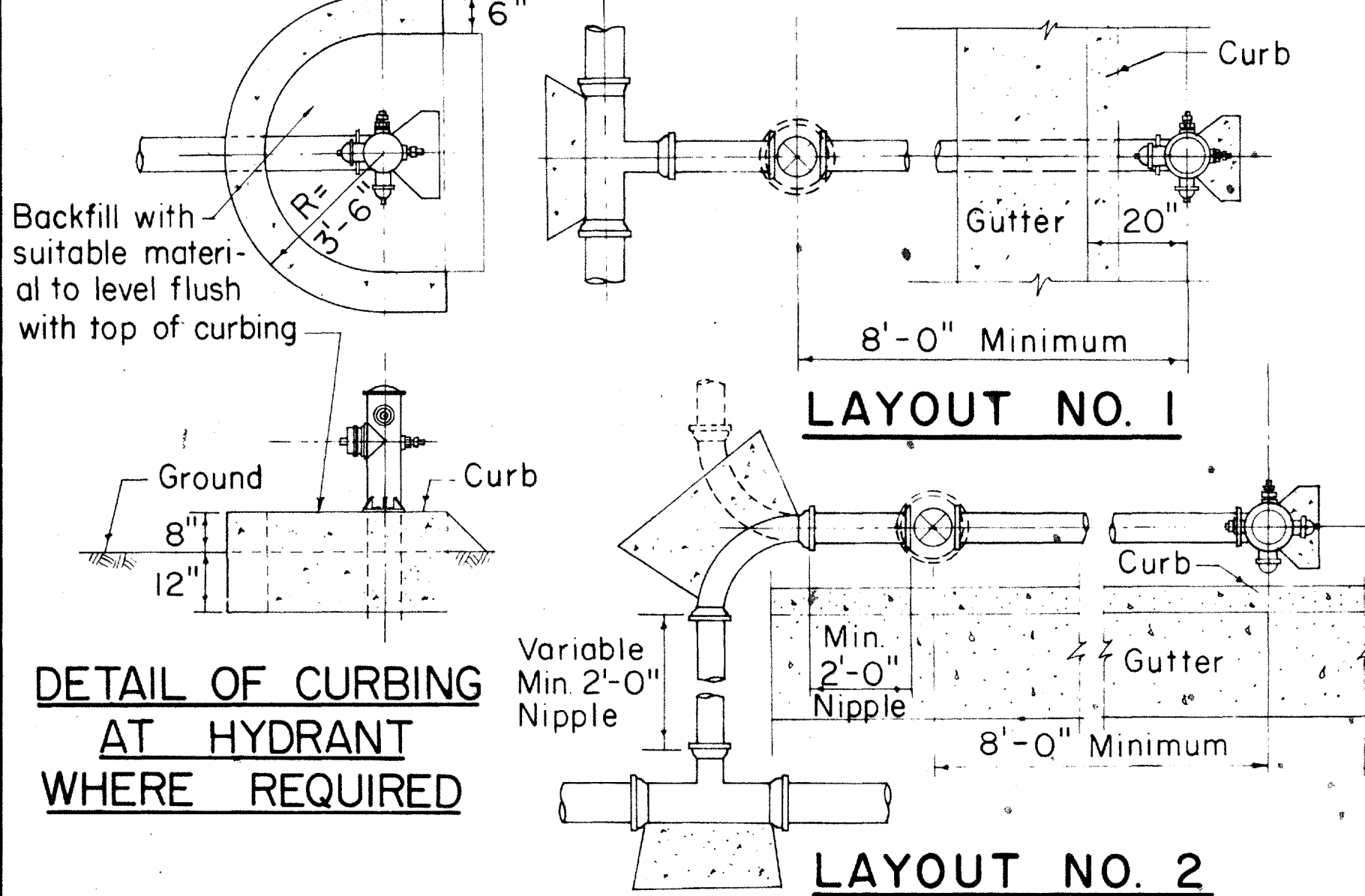


TYPE "B" METER BOX



TYPE "X" METER BOX

MULTIPLE SERVICE CONNECTION SOLDERED JOINTS



LAYOUT NO. 1

LAYOUT NO. 2

**DETAIL OF CURBING
AT HYDRANT
WHERE REQUIRED**

STANDARD LENGTHS FOR HYDRANT ELBOWS	
	30"
	36"
	42"
	48"

Standard Hydrant Extensions are available in the following Lengths:
6 to 30 inches long in increments of 6 inches

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:

[Signature] 5/1/69
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

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

Not to Scale

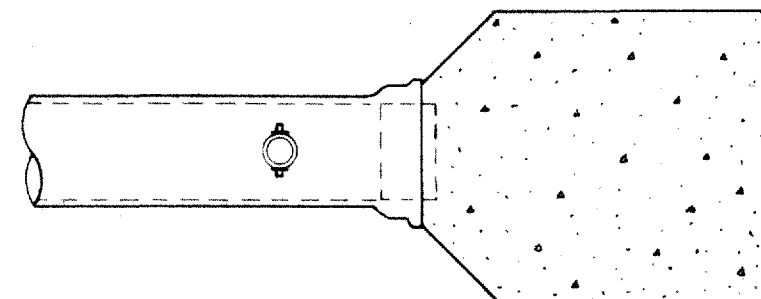
Date

SHEET NO. 3 OF 4 SHEETS

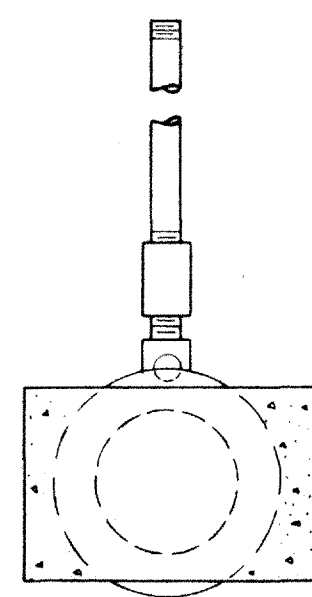
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII		1969	73	104

PROJECT NO. 900B-02-68 UNIT 2

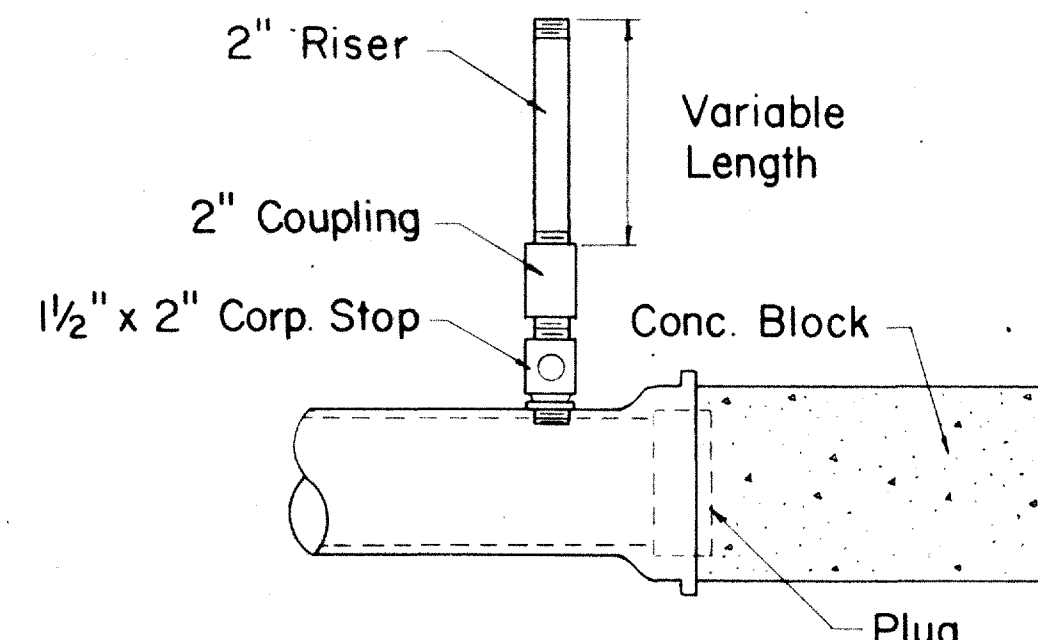
NOTE:
Contractor to furnish 1 1/2" brass plug (Tapered thread) to replace corporation stop upon completion of chlorination.



TOP VIEW

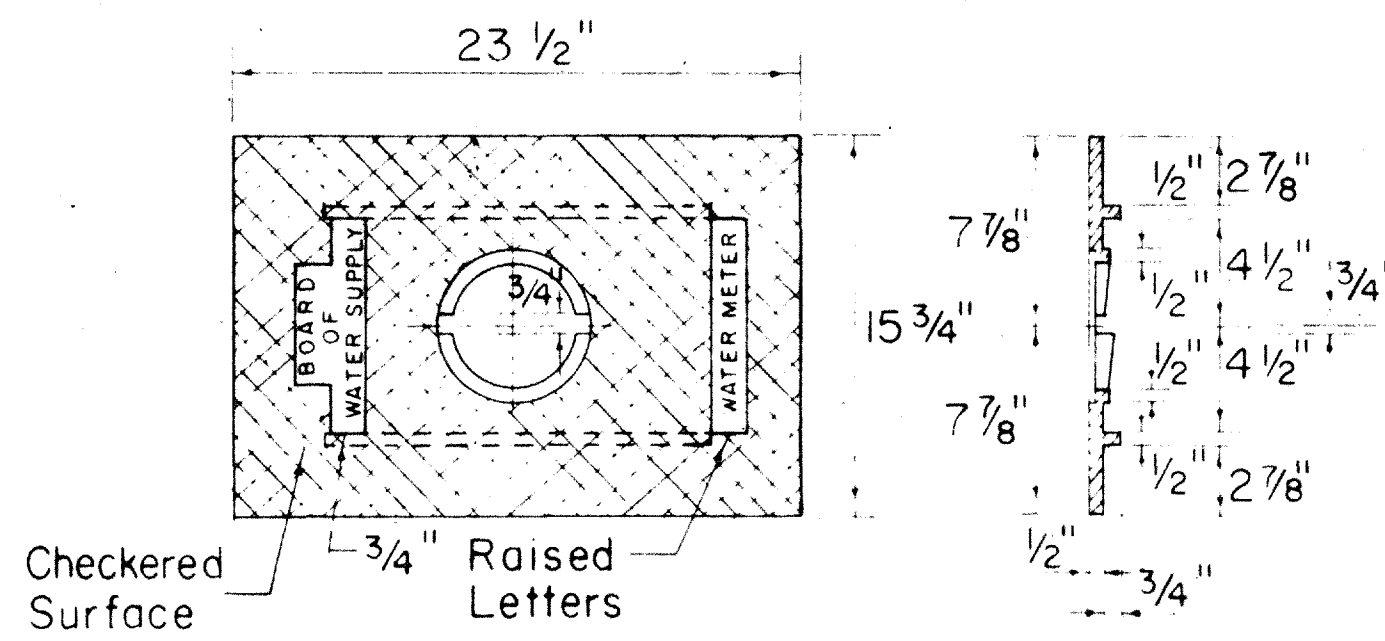


END VIEW

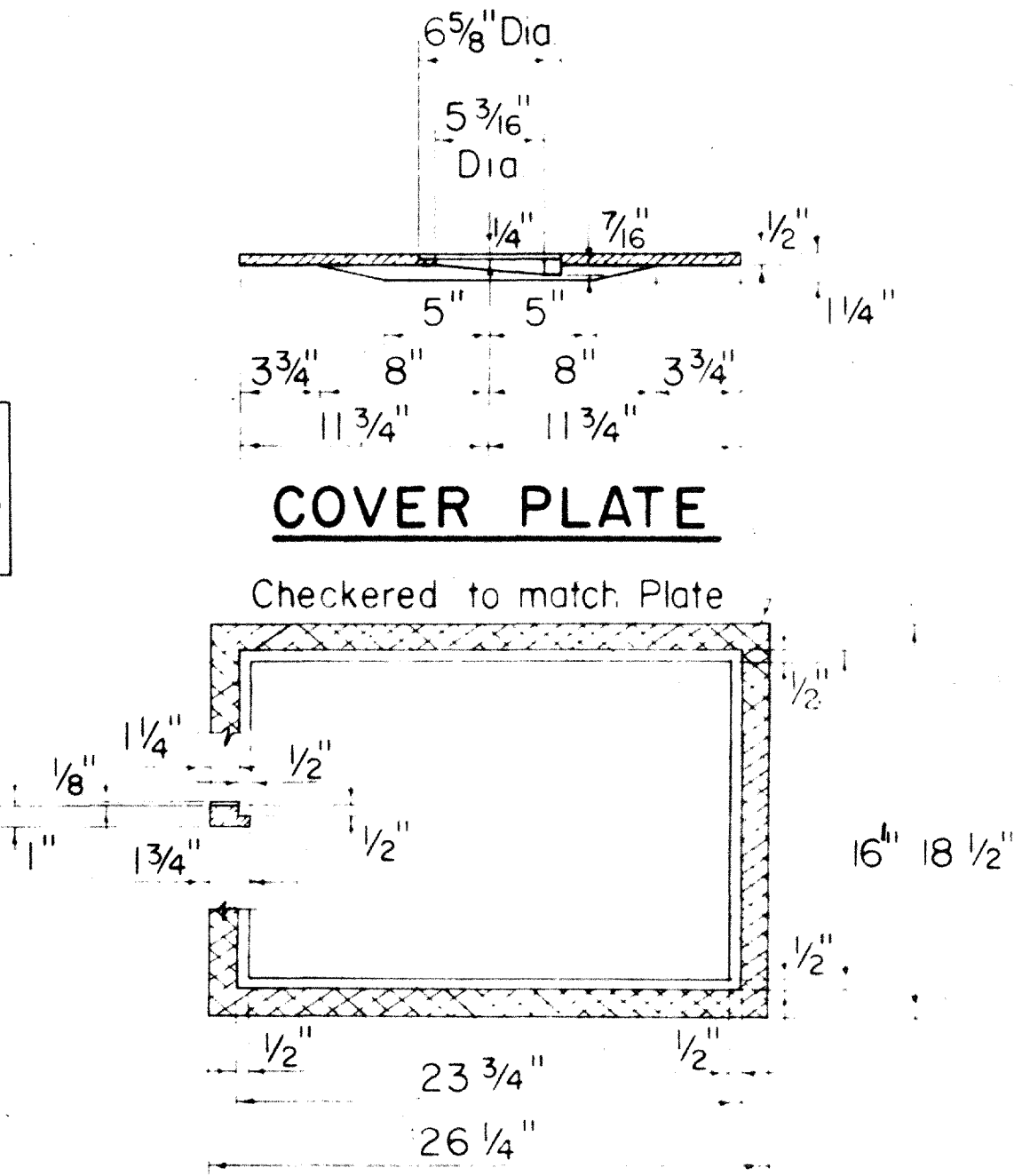


SIDE VIEW

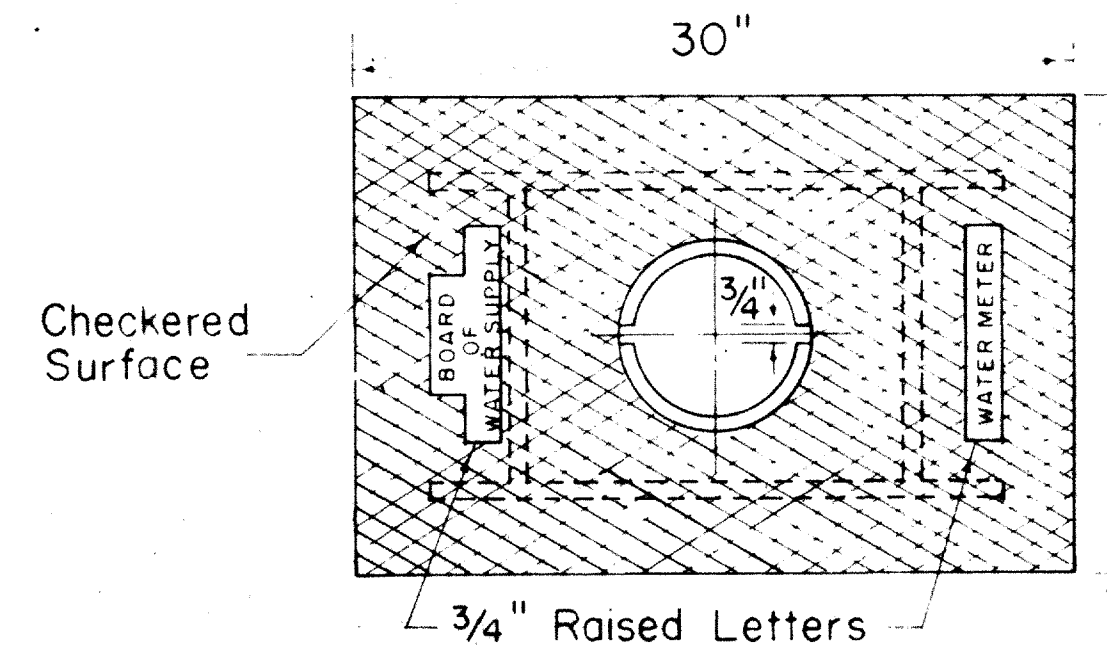
DETAIL OF
TEMPORARY 2" CLEANOUT
Not to Scale



COVER PLATE



FRAME
CAST IRON FRAME AND PLATE
TYPE II
Scale: 1 1/2" = 1'-0"

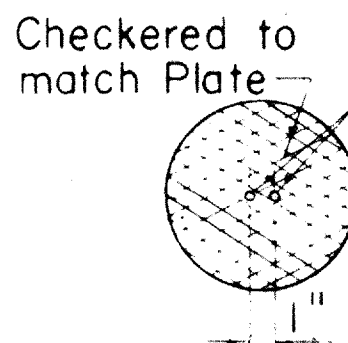


COVER PLATE

CAST IRON FRAME, PLATE AND COVER

TYPE III

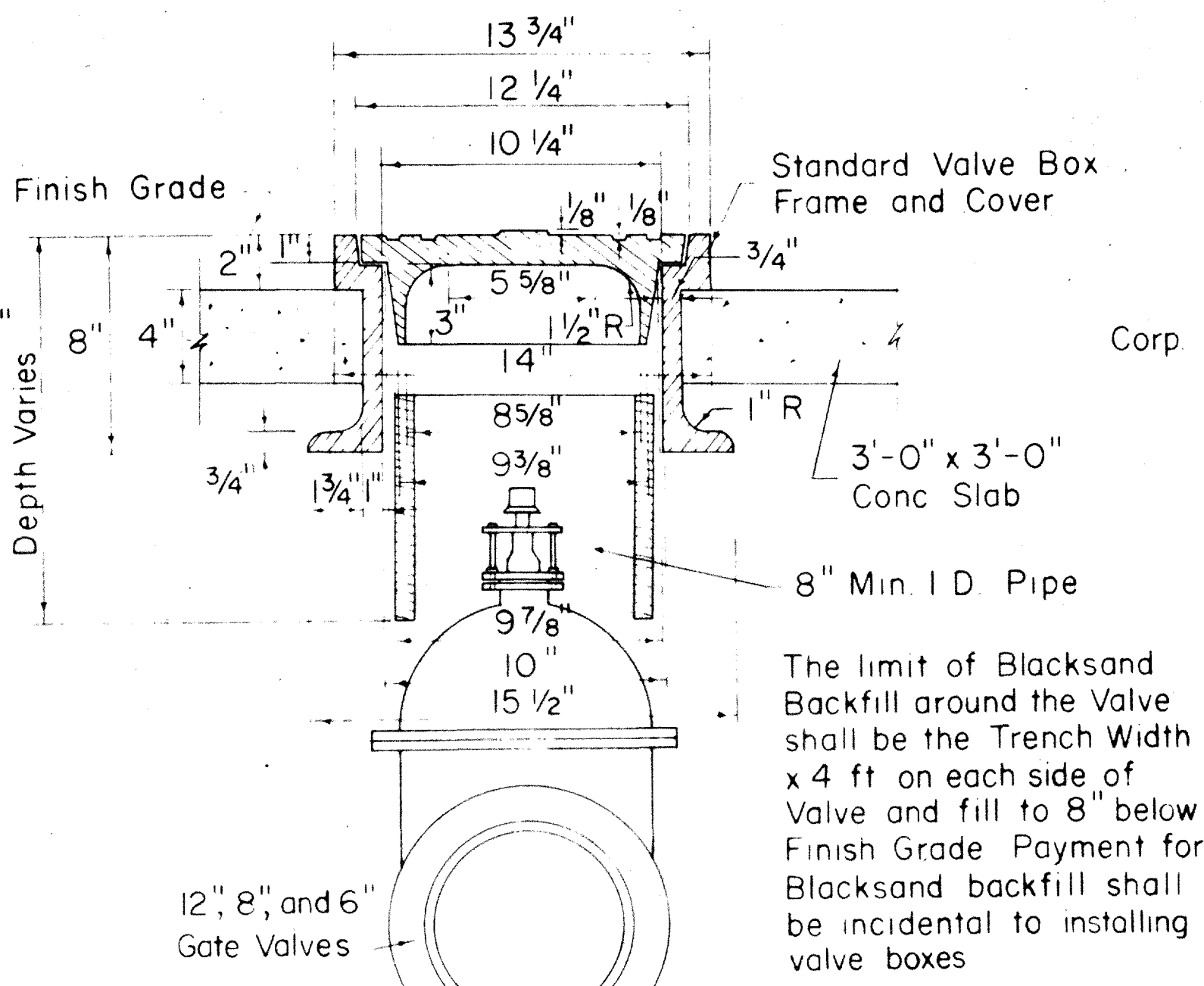
Scale: 1 1/2" = 1'-0"



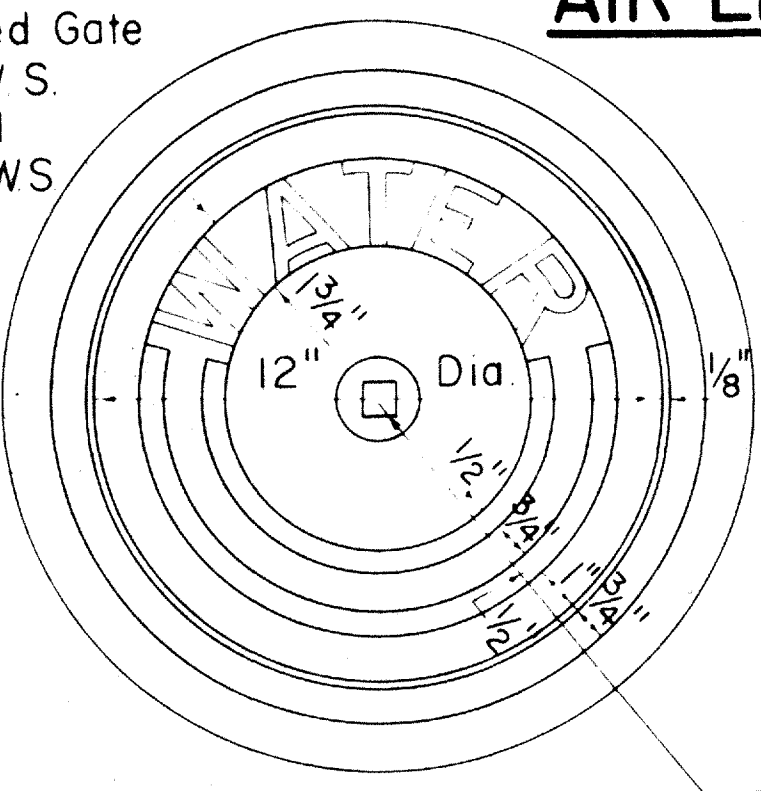
READING COVER

READING COVER

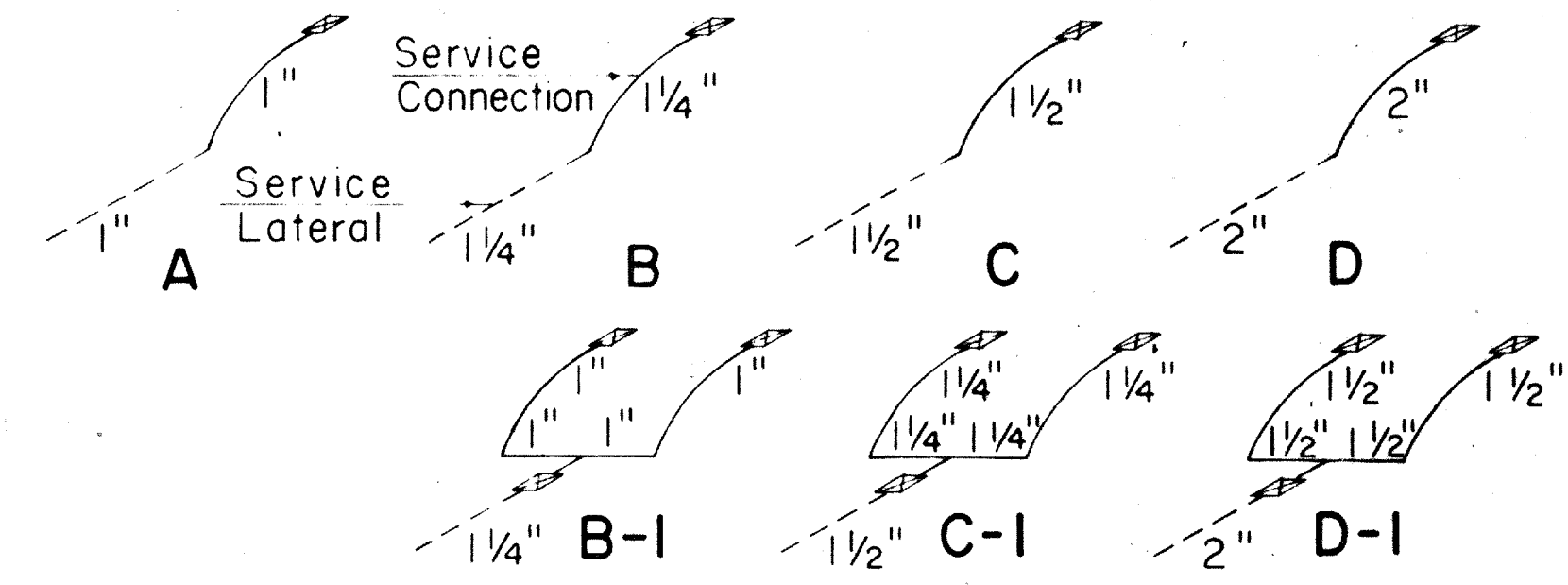
CHECKERED PATTERN
CAST IRON COVER FOR
TYPE II FRAME
Not to Scale



INSTALLATION OF VALVE
BOX FOR GATE VALVES
Not to Scale



CAST IRON FRAME AND COVER
Scale: 3" = 1'-0"



TYPICAL LAYOUT OF SERVICE
LATERALS AND CONNECTIONS
Not to Scale

APPROVED:
A. Kawakani
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
Scale As Noted
Date