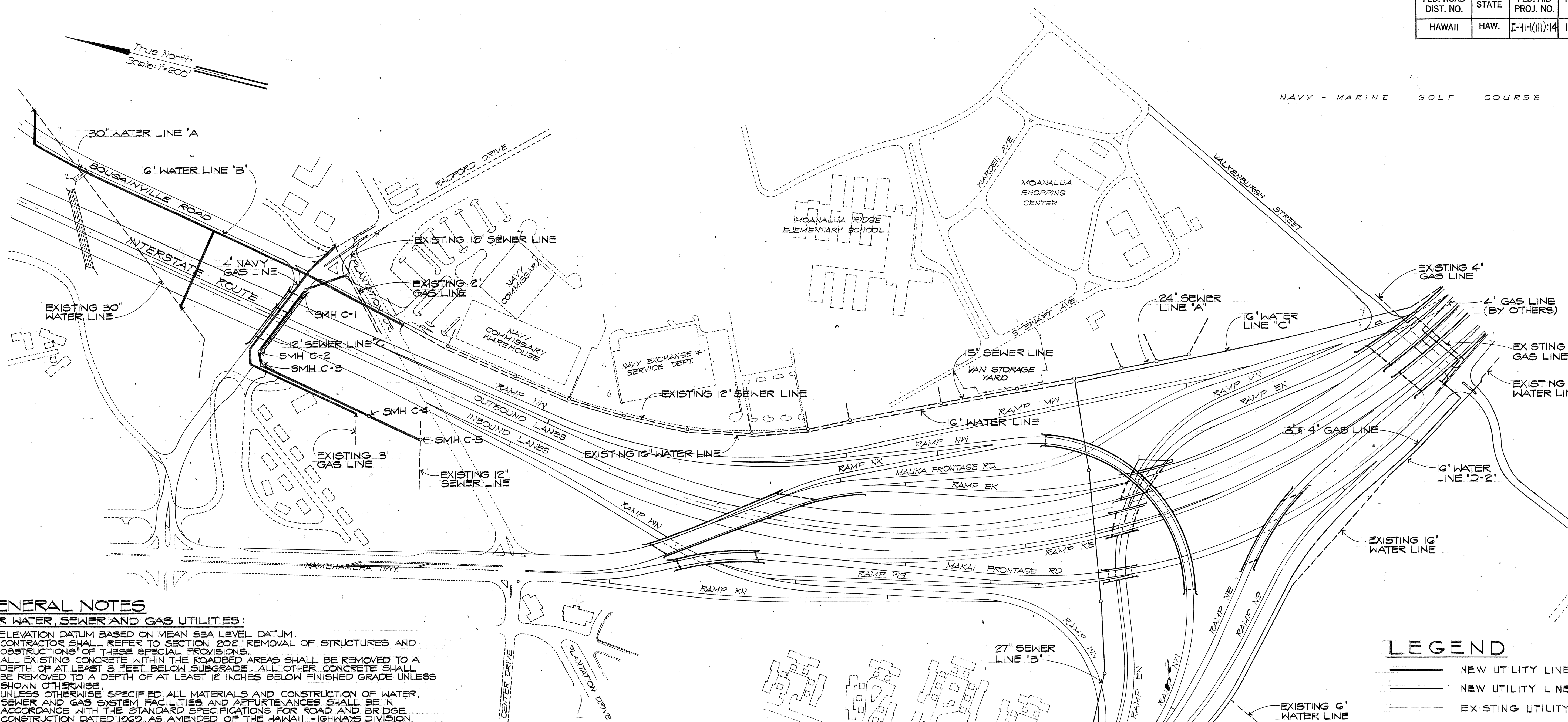


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-(III):14	1974	67	234

NAVY - MARINE GOLF COURSE



GENERAL NOTES

FOR WATER, SEWER AND GAS UTILITIES:

- ELEVATION DATUM BASED ON MEAN SEA LEVEL DATUM.
- CONTRACTOR SHALL REFER TO SECTION 202 REMOVAL OF STRUCTURES AND OBSTRUCTIONS FOR SPECIAL PROVISIONS.
- ALL EXISTING CONCRETE WITHIN THE ROADBED AREAS SHALL BE REMOVED TO A DEPTH OF AT LEAST 3 FEET BELOW SUBGRADE. ALL OTHER CONCRETE SHALL BE REMOVED TO A DEPTH OF AT LEAST 12 INCHES BELOW FINISHED GRADE UNLESS SHOWN OTHERWISE.
- UNLESS OTHERWISE SPECIFIED ALL MATERIALS AND CONSTRUCTION OF WATER, SEWER AND GAS SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 1962 AS AMENDED, OF THE HAWAII HIGHWAYS DIVISION, DEPARTMENT OF TRANSPORTATION.
- CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ALL DAMAGES TO EXISTING UTILITIES.
- SERVICES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. ALTERATIONS TO SERVICE LINES SHALL BE DONE WITH THE LEAST AMOUNT OF DISTURBANCE TO THE EXISTING SERVICES.
- WATER LINE SHALL BE DUCTILE IRON, CAST IRON OR CONCRETE CYLINDER PIPE, CLASS AS INDICATED IN THE PROPOSAL.
- SEWERS SHALL BE EXTRA STRENGTH VITRIFIED CLAY, CLASS 2400 ASBESTOS CEMENT OR CLASS IV REINFORCED CONCRETE, UNLESS OTHERWISE NOTED.
- THE RELOCATION OF THE GAS SYSTEM SHALL BE DONE BY THE STATE'S CONTRACTOR AND GASCO INC. AS STATED IN THE SPECIFICATIONS. THE STATE'S CONTRACTOR AND GASCO INC. SHALL MUTUALLY COORDINATE THE WORK TO MINIMIZE CONFLICTS AND DELAYS TO EITHER PARTY.
- ALL SERVICE CONNECTED TO EXISTING SEWER MAINS WHICH ARE TO BE ABANDONED OR REMOVED SHALL BE RECONNECTED TO NEW SEWER MAINS IF SERVICES ARE REQUIRED.
- THE CONTRACTOR SHALL NOTIFY THE NAVY IN WRITING TWO WEEKS PRIOR TO COMMENCING WORK ON UTILITIES.
- THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES, APPURTENANCES AND STRUCTURES SHOWN ARE BASED ON AVAILABLE RECORDS VERIFIED WHENEVER POSSIBLE BY FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY LOCATIONS AND INVERTS OF EXISTING LINES AND SHALL BE REQUIRED TO MAKE ADJUSTMENTS TO ANY NEW OR EXISTING SYSTEMS AS NECESSARY WITH THE APPROVAL OF THE ENGINEER. OR WHENEVER DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO EXISTING UTILITIES ARE SHOWN, THAT NONE EXIST.
- THE MINIMUM CLEARANCE BETWEEN FIRE HYDRANTS AND UTILITY POLES OR LIGHT STANDARDS SHALL BE 3 FEET.
- WHERE PUMPING IS REQUIRED CONTRACTOR SHALL POST A CUSTODIAN DURING ENTIRE PUMPING OPERATION. CUSTODIAN MUST BE KNOWLEDGEABLE IN THE OPERATION OF THE TYPE OF PUMP BEING USED IN ORDER TO PREVENT PROLONGED DELAY DURING ANY BREAKDOWN THAT MIGHT OCCUR.
- THERE SHALL BE AT LEAST 12' CLEARANCE BETWEEN ANY GAS LINE AND ANY UNDERGROUND STRUCTURE NOT USED IN CONJUNCTION WITH THE GAS LINE. IF THIS CLEARANCE CANNOT BE ATTAINED, THE GAS LINE SHALL BE PROTECTED WITH A GASCO, INC. APPROVED INSULATED MATERIAL.

- ITEMS INDICATED AS "RELOCATED" ON THE PLANS SHALL BE REMOVED, CLEANED, PAINTED AND REINSTALLED AT THE NEW LOCATION BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.
- THE P.W.C. PEARL WILL PERFORM ALL NAVY FRESH WATER DISCONNECTIONS AND CONNECTIONS INCLUDING CHLORINATION OF NEW WATER LINES; COST TO BE REIMBURSED BY THE STATE. HOWEVER, THE CONTRACTOR SHALL PERFORM ALL EXCAVATION AND BACKFILL AND SHALL PROVIDE ALL REQUIRED EQUIPMENT TO HANDLE FITTINGS AND APPURTENANCES IN RELATION TO FRESH WATER CONNECTIONS AND DISCONNECTIONS. ALL MATERIALS SHALL BE FURNISHED BY THE CONTRACTOR.
- UNLESS OTHERWISE INDICATED ON THE PLANS, ALL UTILITY LINES TO REMAIN, SEE SHEETS 115 TO 118 FOR REMOVAL OF ELECTRIC, TELEPHONE, ACC AND NCC FACILITIES.
- THE 4" NAVY GAS LINE SHALL BE COATED STEEL PIPE, 0.188" MINIMUM STEEL THICKNESS WITH 0.035" PLASTIC THICKNESS AND 0.010" ADHESIVE THICKNESS, AS APPROVED BY GASCO, INC. MINIMUM THICKNESS FOR 8" STEEL PIPE CASING SHALL BE SAME AS 4" GAS LINE, EXCEPT WITH 0.04" MINIMUM PLASTIC THICKNESS.
- REMOVAL AND RELOCATION OF EXISTING WATER FAUCETS AND STANDPIPE SHALL BE INCIDENTAL TO WATER LINE RELOCATION.
- ASTERISK (*) INDICATED FITTINGS SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE NAVY. COST FOR FURNISHING SAID FITTINGS SHALL BE INCIDENTAL TO WATER LINE RELOCATION.

LEGEND

- NEW UTILITY LINE
- NEW UTILITY LINE, BY OTHERS
- EXISTING UTILITY LINE

CONSTRUCTION PACKAGE 2

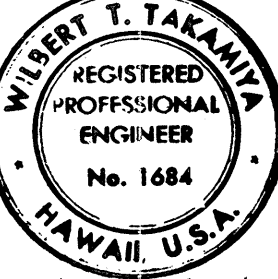
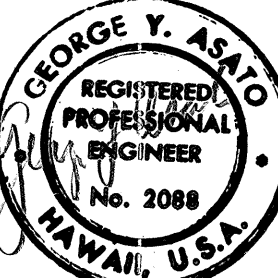
APPROVED BY: (FOR GAS LINE RELOCATION ONLY):
[Signature] 1/14/73
 GASCO, INC. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

UTILITY RELOCATION GENERAL PLAN

WATER, SEWER & GAS
 PEARL HARBOR INTERCHANGE
 E.A.I. PROJ. NO. I-HI-(III):14

SCALE: AS SHOWN DATE: DEC. 14, 1973
 SHEET NO. 1 OF 8 SHEETS



THIS WORK WAS PREPARED BY ME
 OR UNDER MY SUPERVISION

PLAN SCALE: 1" = 200'

4/19/74	ADD CONCRETE CYLINDER PIPE AS ALTERNATE, NOTE 7
DATE	REVISION

ORIGINAL PLAN	DATE
PLAN	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(III)-14	1974	68	234

FIELD DIRECTIVE 5-14-75
CONCRETE BLOCK FOR 30" WL
STA. 0+04.71
SEE SHT. 60749-2 FOR DETAILS

TYPE "SA" SMH
MANHOLE FRAME & COVER
TRUE NORTH
SCALE: 1"=50'

STA. 0+00 - OLD CONN. PT.
BEGIN 4" GAS LINE
CONNECT TO EXISTING
2" GAS LINE
PLANTATION DR. REALIGN.
STA. 13+47±
9/8 27' (LT.)
4"x2" REDUCER
4" GASCO APPROVED INSULATOR
ANODE INSTALLATION, TYPE "A", 32"

STA. 0+00±
BEGIN WATER LINE "A"
BOUGAINVILLE RD. # STA. 0+28.
9/8 43' (LT.)
CONNECT TO EXISTING
30" WATER LINE
30" 1/8 BEND (ROTATE
AS NECESSARY)
TOP VERTICAL REACTION BLK.
PRE-CAST CONC. BLK.
STRUCTURAL STRUT
1-30" SLEEVE (15" LONG)

W.L. "A" STA. 8+50 =
W.L. "B" STA. 0+00 =
H.I. # STA. 62+25
9/8 = 200' (LT.)
30" TEE
30"x18" ECCENTRIC REDUCER
18"x16" ECCENTRIC REDUCER
CONC. BLK.
16" BUTTERFLY VALVE
VALVE BOX
16" ADAPTOR M.U., F.E.
16" ADAPTOR F.E., P.E.
TYPE "A" MANHOLE
30" BUTTERFLY VALVE
30" ADAPTOR M.U., F.E.
30" ADAPTOR F.E., P.E.
2" AIR RELIEF VALVE & VALVE BOX

C.C.O. #1
SEE PIPE PROFILE DRAWING
ON PLAN SHT. 72

STA. 1+27
PLANTATION DR. REALIGN.
STA. 12+25
9/8 15' (LT.)

STA. 0+26± 4" GAS LINE
BEGIN 4" GAS LINE - NEW
REVISED CONNECTION PT.
TO EXISTING 2" GAS LINE.
4"x2" REDUCER
4" GASCO APPROVED
INSULATOR
ANODE INSTALLATION,
TYPE "A", 32" (SEE SHT. 71)
EXIST. SMH
BEGIN SEWER LINE "C" STA. 0+00±
BOUGAINVILLE RD. # STA. 13+73
9/8 = 44' (LT.)
BREAK EXIST. SMH, MAKE
CONNECTION, LOWER
TOP OF MH TO MATCH
PROPOSED ELEVATION.
INV. = 57.2±
TOP = 66.5±
W.L. "B" STA. 6+90±
BOUGAINVILLE RD.
STA. 15+12.01
9/8 27' (RT.)

STA. 0+05
BOUGAINVILLE RD. # STA. 0+84
9/8 35' (RT.)
30" 1/8 BEND
CONC. BLK.

BOUGAINVILLE ROAD

WATER LINE "A"

WATER LINE "B"

C.C.O. #8 3-13-75
TO LOWER THE 30" WATER LINE "A"
BELOW THE EXISTING 16" GAS LINE
AND 10" OIL LINE. SEE PIPE
DRAWINGS ON PLAN SHT. 72

W.L. "B" STA. 2+12±
BOUGAINVILLE RD.
STA. 10+32.85
9/8 35' (RT.)
W.L. "B" STA. 4+40± =
BOUGAINVILLE RD.
STA. 12+61.60
9/8 27' (RT.)
1" VENT PIPE (SEE
PIPE SCHEMATIC, SHT. 71)

STA. 5+00

SEWER LINE "C" STA. 1+87±
PLANTATION DR. REALIGN.
STA. 11+40
9/8 28.7' (RT.)
INV. = 56.04
TOP = 61.5

SEWER LINE "C" STA. 4+52±
PLANTATION DR. REALIGN.
STA. 8+75
9/8 28.2' (RT.)
INV. = 48.60
TOP = 53.2

SEWER LINE "C" STA. 5+20±
PLANTATION DR. REALIGN.
STA. 6+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

SEWER LINE "C" STA. 8+26±
PLANTATION DR. REALIGN.
STA. 10+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

SEWER LINE "C" STA. 10+26±
PLANTATION DR. REALIGN.
STA. 12+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

SEWER LINE "C" STA. 12+26±
PLANTATION DR. REALIGN.
STA. 14+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

SEWER LINE "C" STA. 14+26±
PLANTATION DR. REALIGN.
STA. 16+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

SEWER LINE "C" STA. 16+26±
PLANTATION DR. REALIGN.
STA. 18+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

SEWER LINE "C" STA. 18+26±
PLANTATION DR. REALIGN.
STA. 20+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

SEWER LINE "C" STA. 20+26±
PLANTATION DR. REALIGN.
STA. 22+26
9/8 74' (RT.)
INV. = 48.36
TOP = 54.4

LEGEND:

- S_c SEWER
- W_c WATER LINE
- D_c DRAIN LINE
- G_c GAS LINE
- - - EXISTING UTILITY LINE TO BE REMOVED
- - - EXISTING UTILITY LINE TO BE PLUGGED AND ABANDONED
- - - WATER VALVE "V" VALVE BOX, EXISTING
- - - NEW UTILITY LINE
- EP ELECTRIC POLE, EXISTING
- EP ELECTRIC POLE W/ GUY AND ANCHOR, EXISTING
- ACC ARMY COMMUNICATION CABLE, UNDERGROUND
- NU NAVY UNDERGROUND DUCT SYSTEM, EXISTING
- TU TELEPHONE UNDERGROUND DUCT SYSTEM, EXISTING
- [B] EXISTING BUILDING "B" BUILDING NUMBER
- - - RIGHT OF WAY
- - - CONTROL OF ACCESS
- ⊗ BUTTERFLY VALVE W/ TYPE "A" MANHOLE
- ⊗ VALVE AND VALVE BOX
- AIR RELIEF VALVE AND VALVE BOX

PLAN
SCALE: 1"=50'

STA. 5+67
PLANTATION DR. REALIGN.
STA. 8+00
9/8 25' (RT.)

STA. 6+00
ANODE INSTALLATION, TYPE "A", 32"

APPROVED BY (FOR GAS LINE RELOCATION ONLY):

GASCO, INC.

DATE

GEORGE Y. ASKE
REGISTERED
PROFESSIONAL
ENGINEER
No. 2088
HAWAII, U.S.A.

WILBERT T. TAKAMIA
REGISTERED
PROFESSIONAL
ENGINEER
No. 1684
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

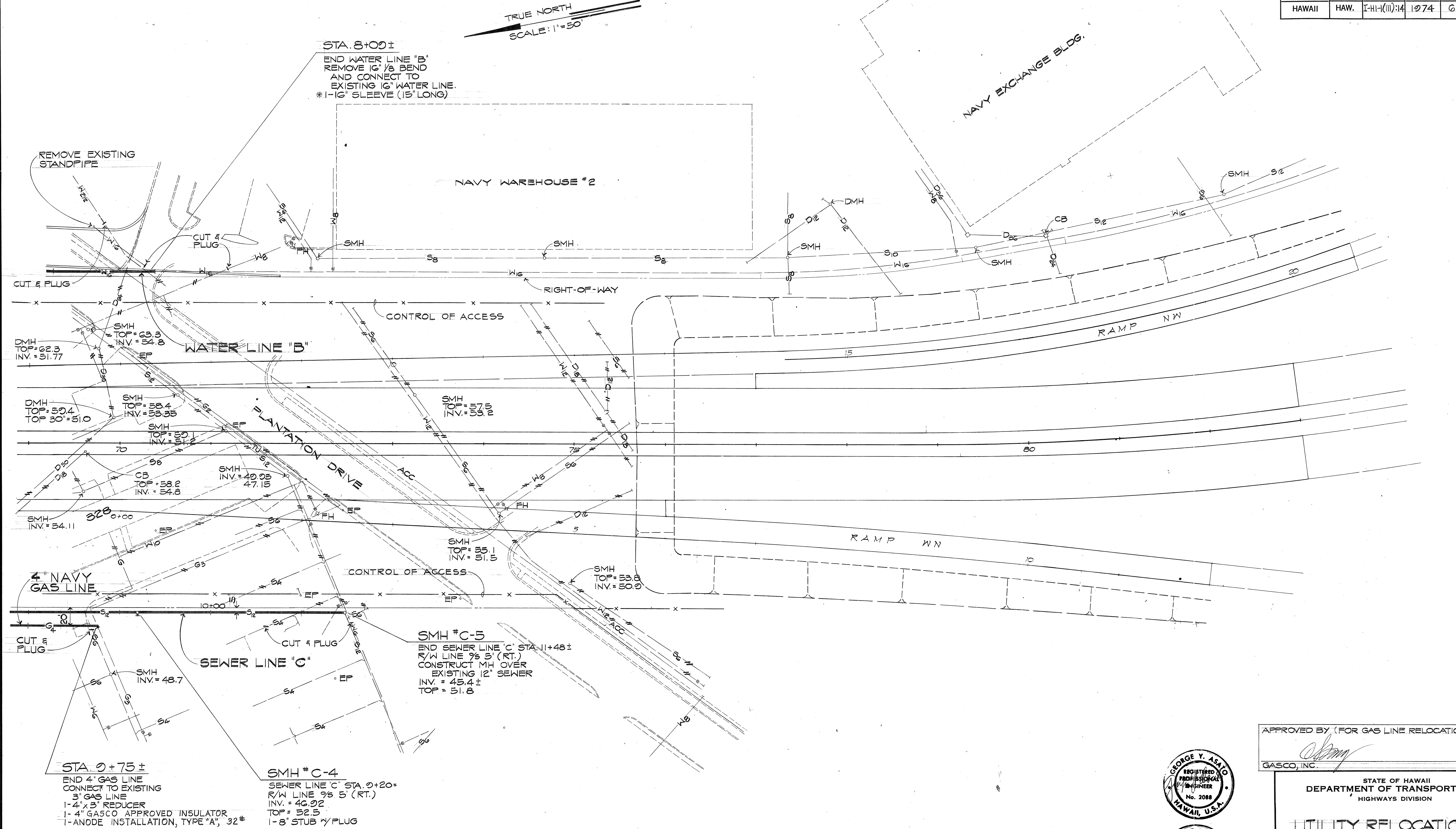
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY RELOCATION & EXISTING CONDITION PLAN

WATER, SEWER & GAS
PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. 1 - HI - 1(III) - 14

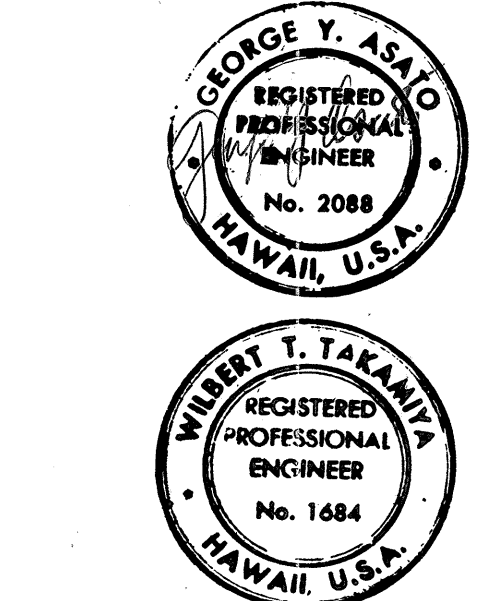
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SHEET No. 2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III)-14	1974	69	234



ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

PLAN
SCALE: 1"=50'



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

APPROVED BY: (FOR GAS LINE RELOCATION ONLY):
GASCO, INC. 12/11/73 DATE

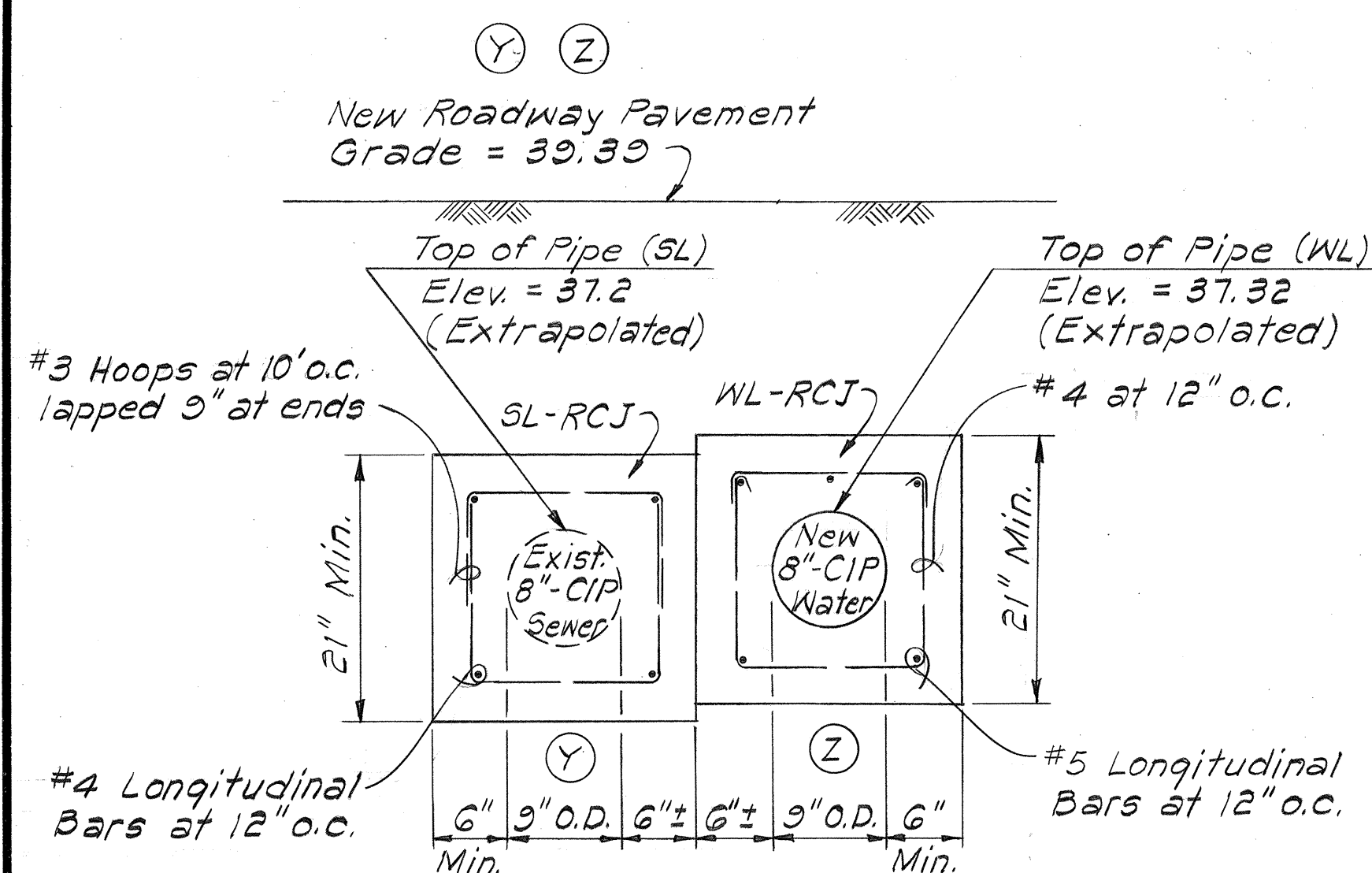
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY RELOCATION &
EXISTING CONDITION PLAN

WATER, SEWER & GAS
PEARL HARBOR INTERCHANGE
P.A.I. PROJ. NO. I-HI-1(III)-14

SCALE: AS SHOWN DATE: DEC. 14, 1973
SHEET NO. 3 OF 8 SHEETS

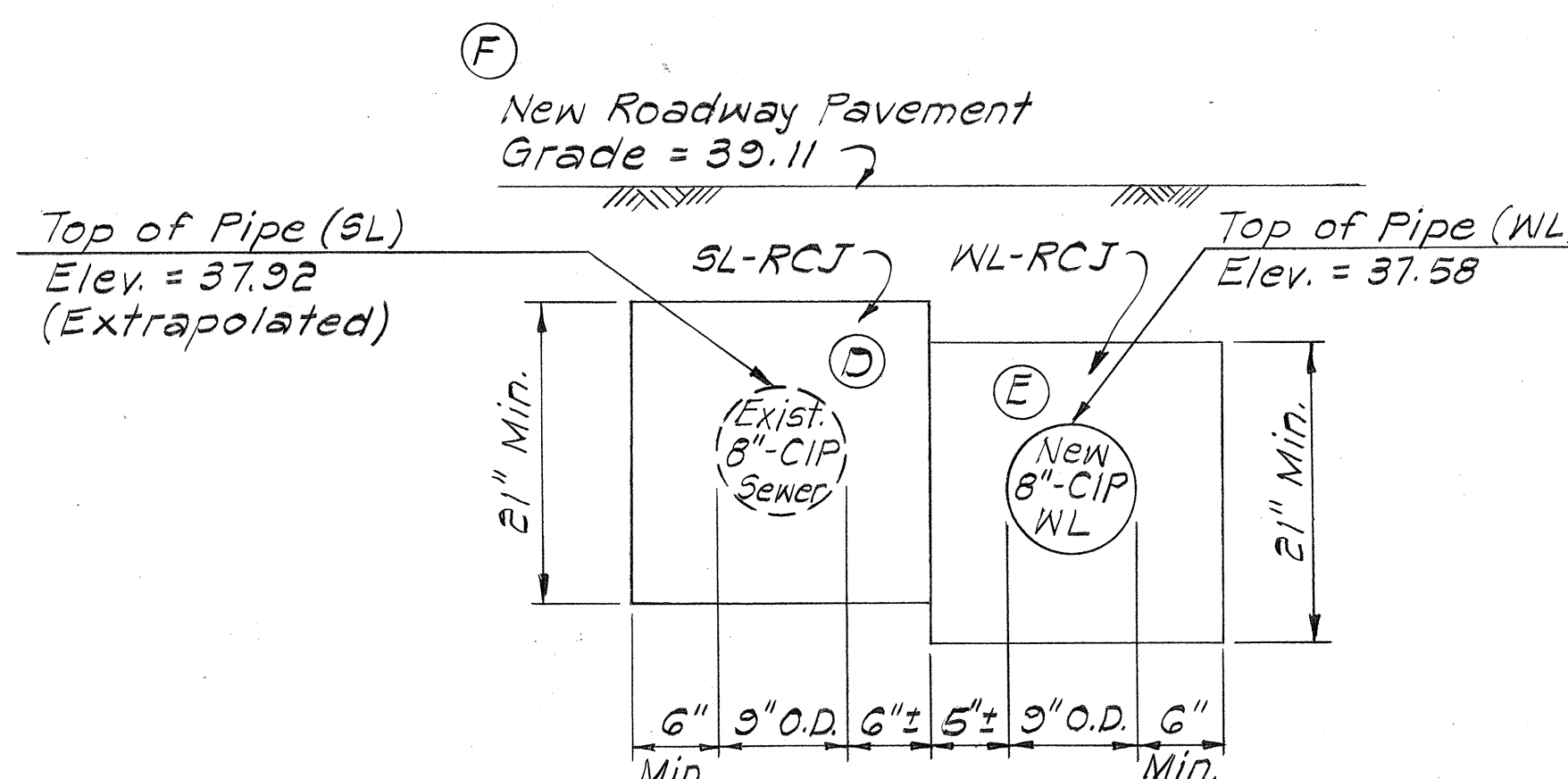
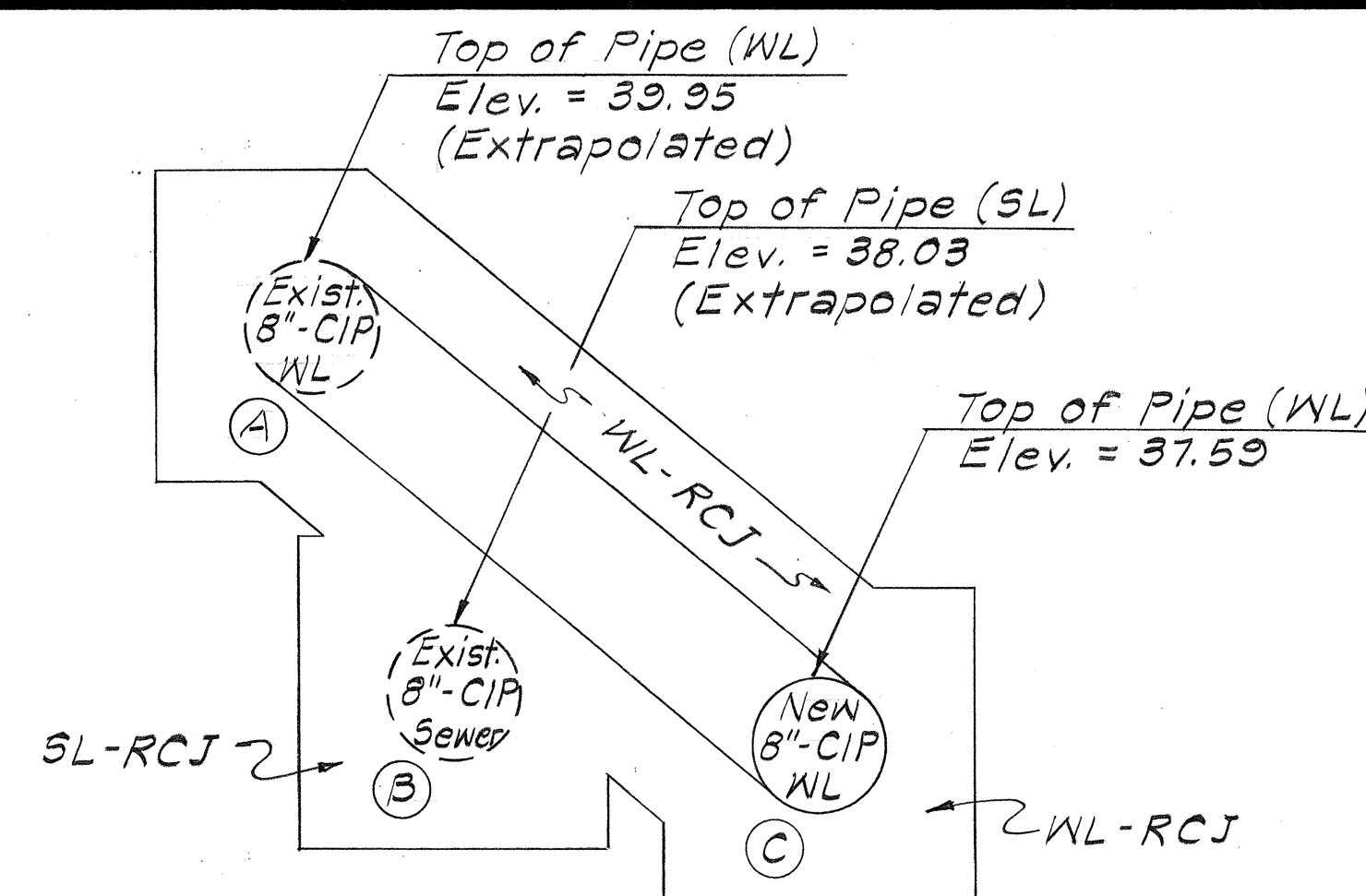
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):14	1974	70R5-1	234



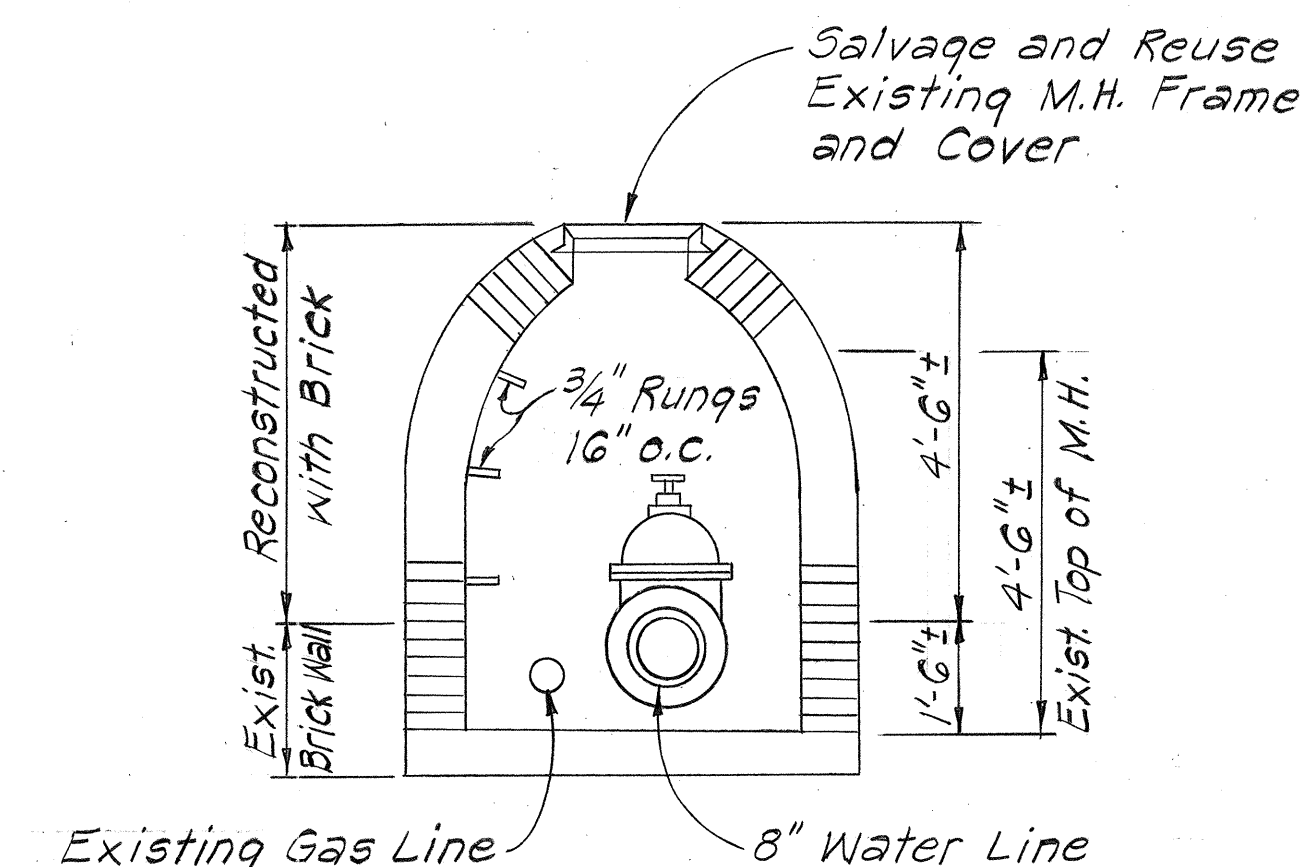
SECTION N-N
OF REINFORCED CONCRETE JACKET
Scale: 1" = 1'-0"

ABBREVIATION:

CIP - Cast Iron Pipe
WL - Water Line
SL - Sewer Line
MJ - Mechanical Joint
RCJ - Reinforced Concrete Jacket



SECTION M-M
Scale: 1" = 1'-0"



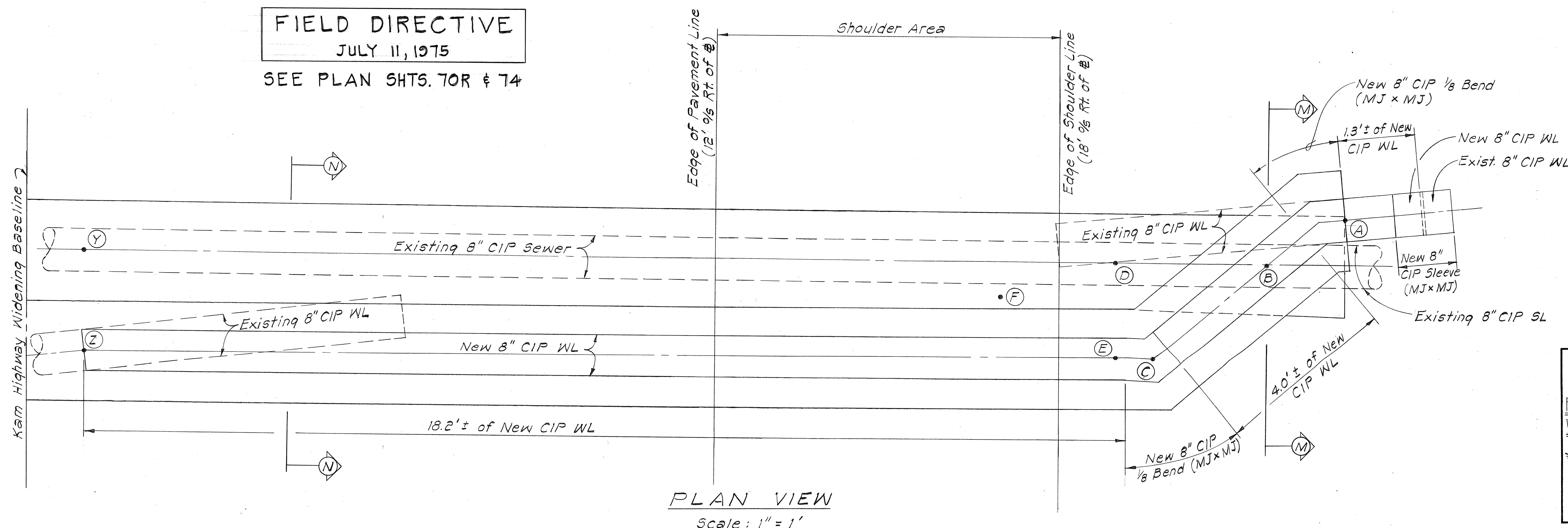
WATER MANHOLE
Not to Scale

C.C.O. # 25
11-4-75

SEE PLAN SHT. 70R

FIELD DIRECTIVE
JULY 11, 1975

SEE PLAN SHTS. 70R & 74



PLAN VIEW
Scale: 1" = 1'

THIS TRACING PREPARED
DURING "AS-BUILT" POSTING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
RELOCATED NEW 8-INCH CIP
WATERLINE WITH REINF. CONC.
JACKET & RECONSTRUCTED W.M.H.
PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(III):14
Scale: As Shown Dec., 1977
SHEET NO. OF SHEETS

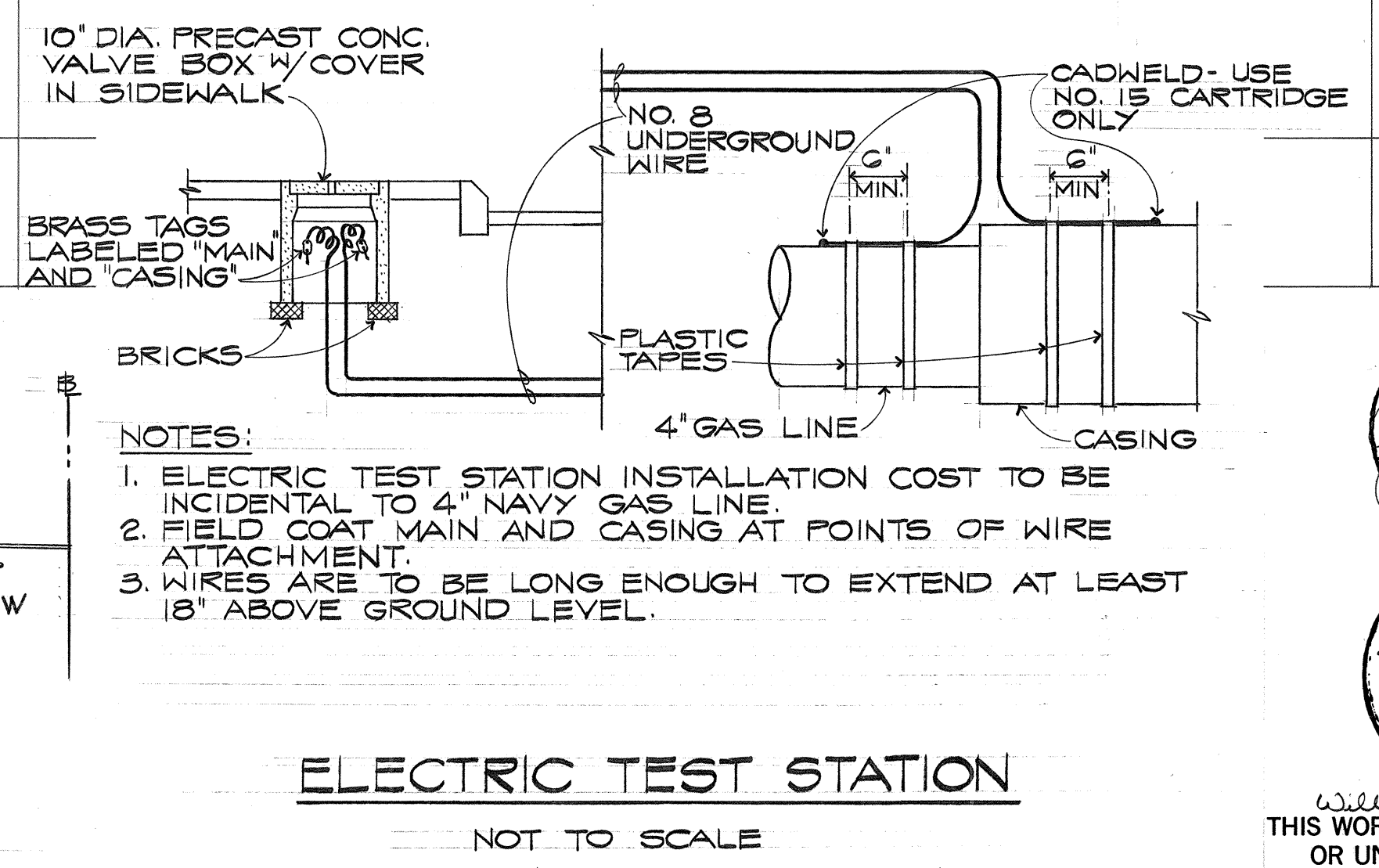
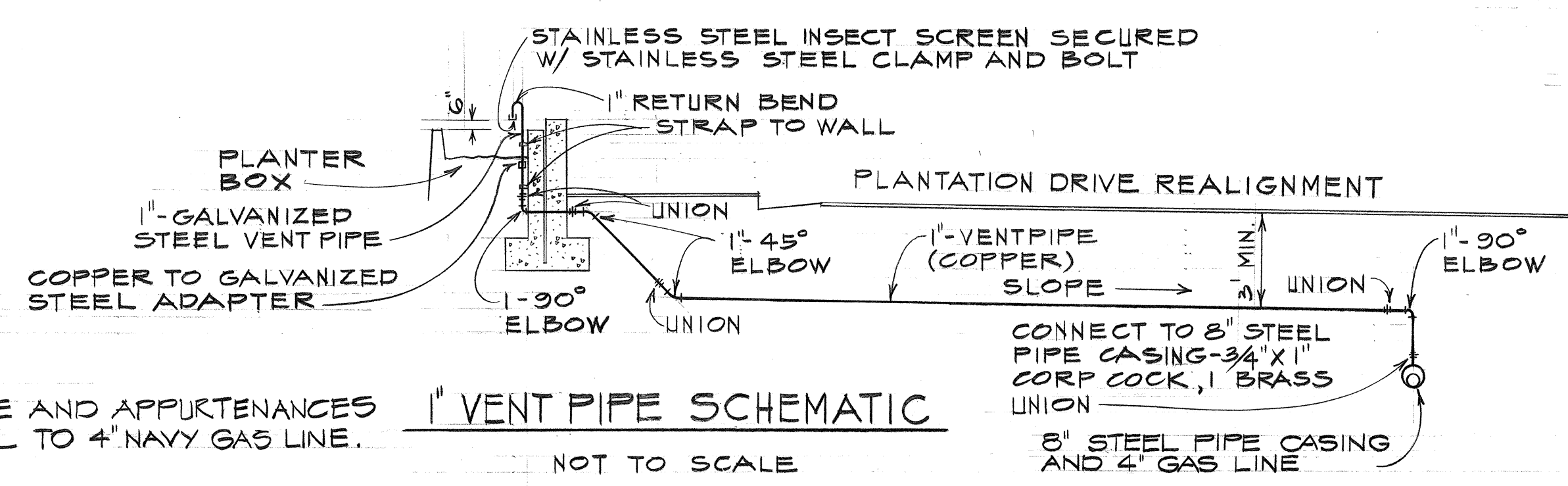
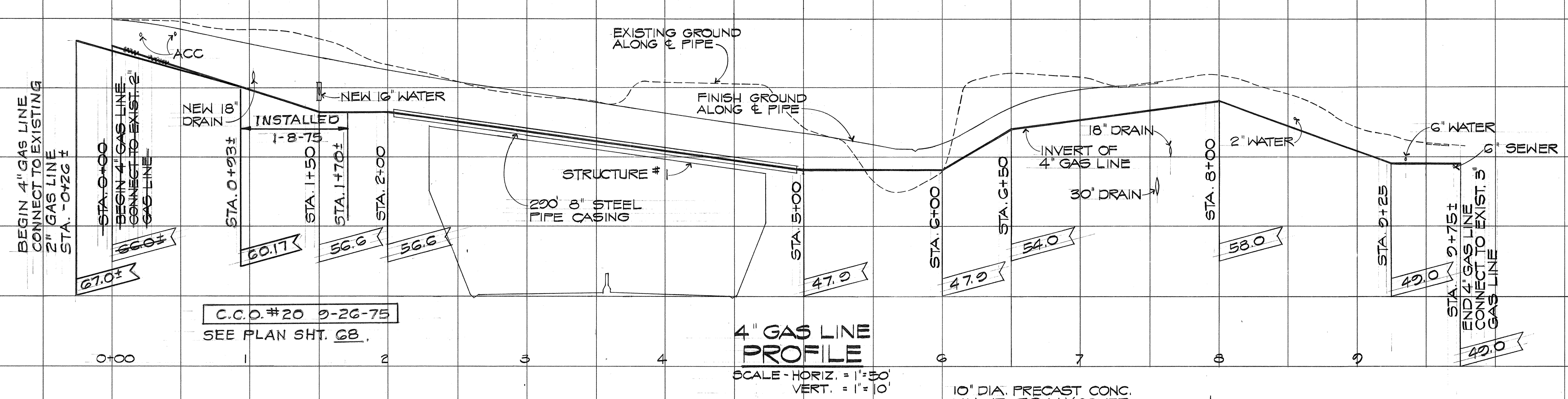
70R5-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III)-14	1974	71	234



HYDRAULIC DATA

d	=	12"
s	=	0.0036
n	=	0.013
QA	=	1.36 MGD
VA	=	2.72 FPS



APPROVED BY (FOR GAS LINE RELOCATION ONLY):

[Signature] 12/11/73
GASCO, INC. DATE

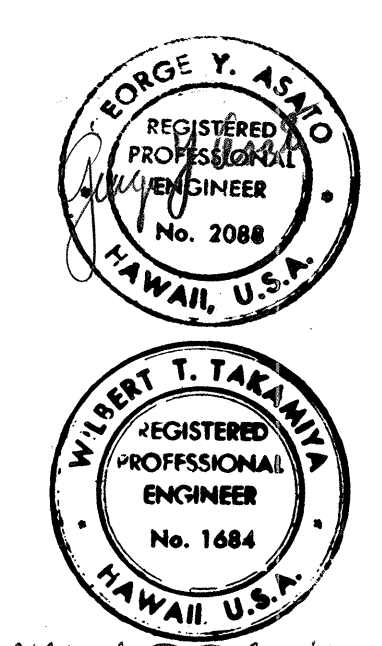
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY RELOCATION

PROFILES
SEWER AND GAS

PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I - HI - 1(III) - 14

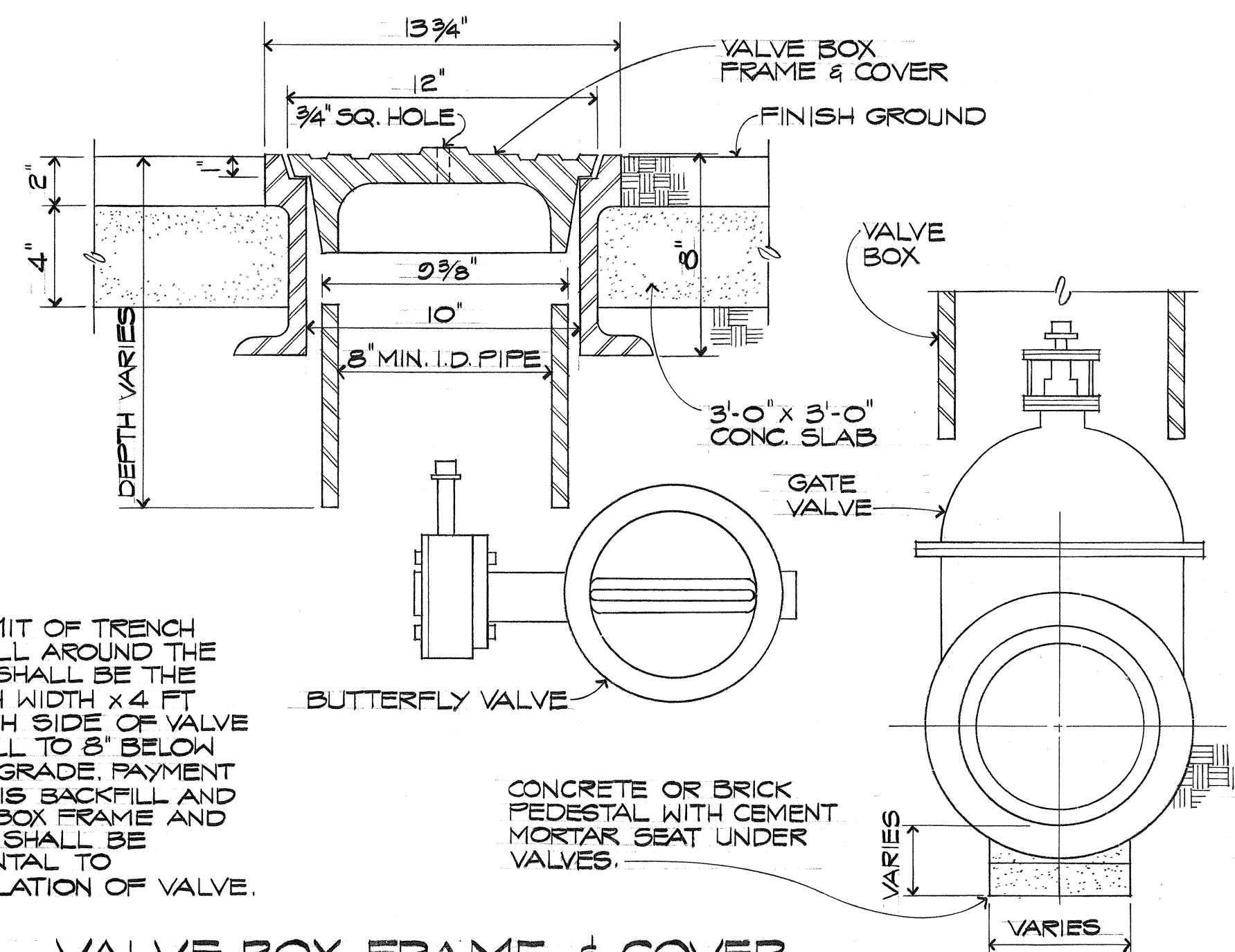
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SHEET NO. 5 OF 8 SHEETS



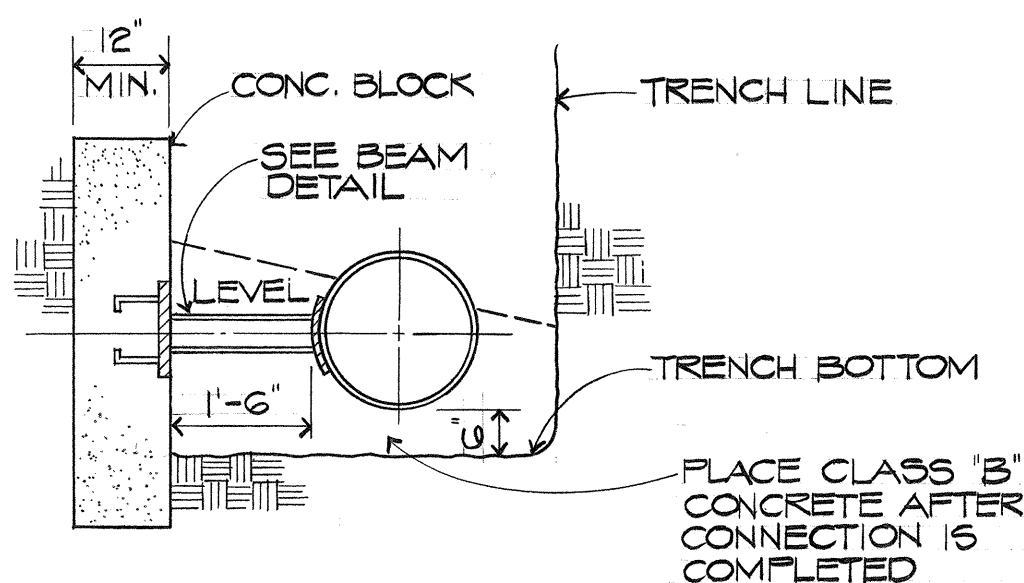
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

NOTE:
 1/8" RAISED LETTERS FOR IDENTIFICATION TO BE CAST ON COVER.
 ALL CASTINGS SHALL BE MADE ACCURATELY TO THE DIMENSIONS SHOWN. SEAT AND COVER SHALL BE MACHINED NOT GROUND, TO SECURE FLAT AND TRUE SURFACES. THE COVER SHALL NOT RATTLE IN ANY POSITION.

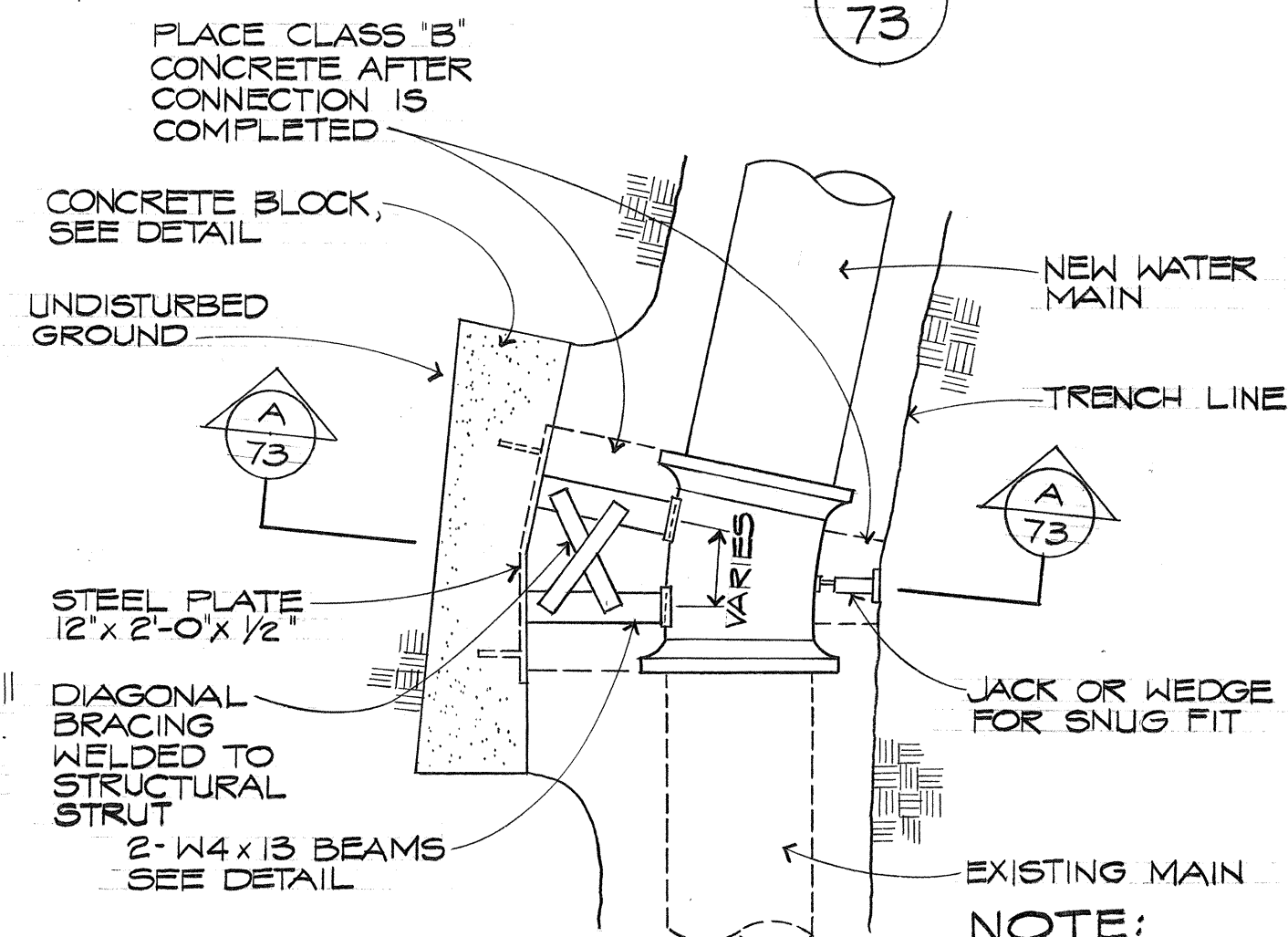
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-11114	1974	73	234



**VALVE BOX FRAME & COVER
FOR BUTTERFLY AND GATE VALVES**
 NOT TO SCALE

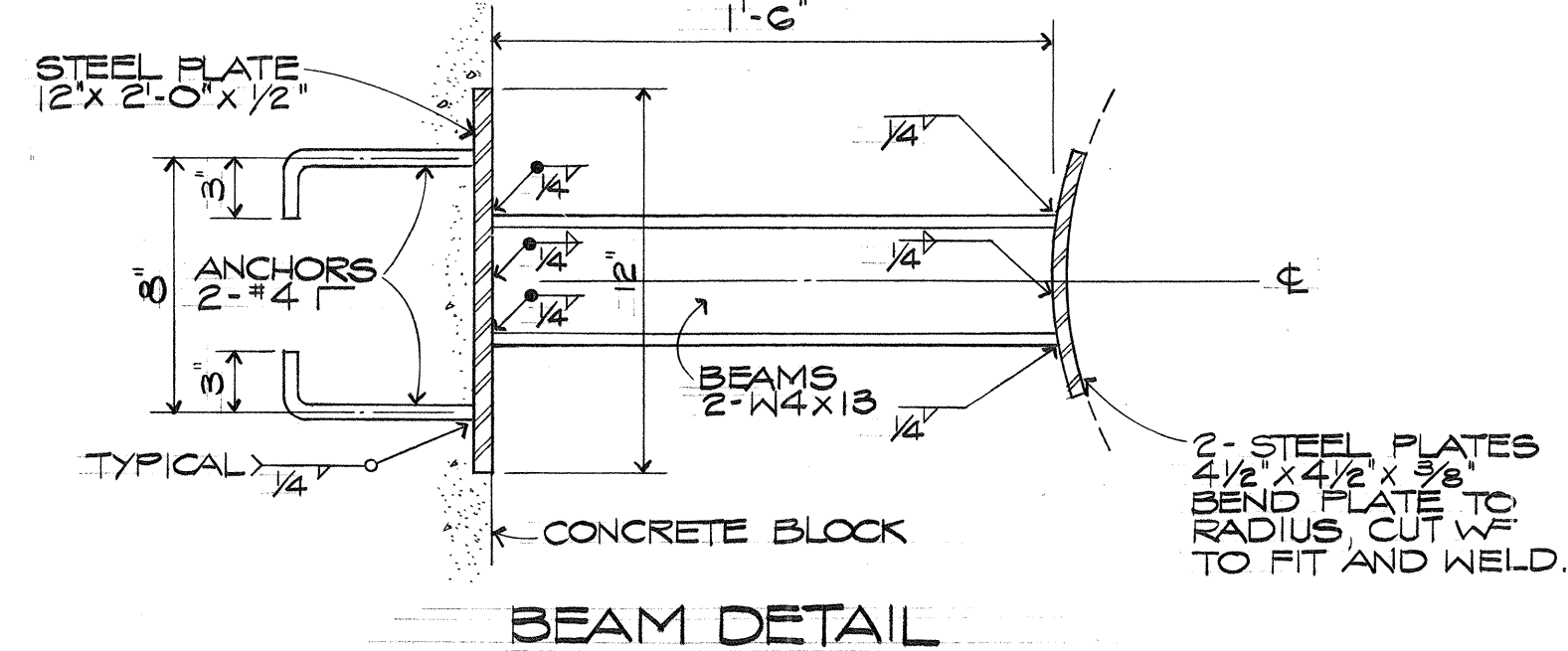


SECTION A
 73

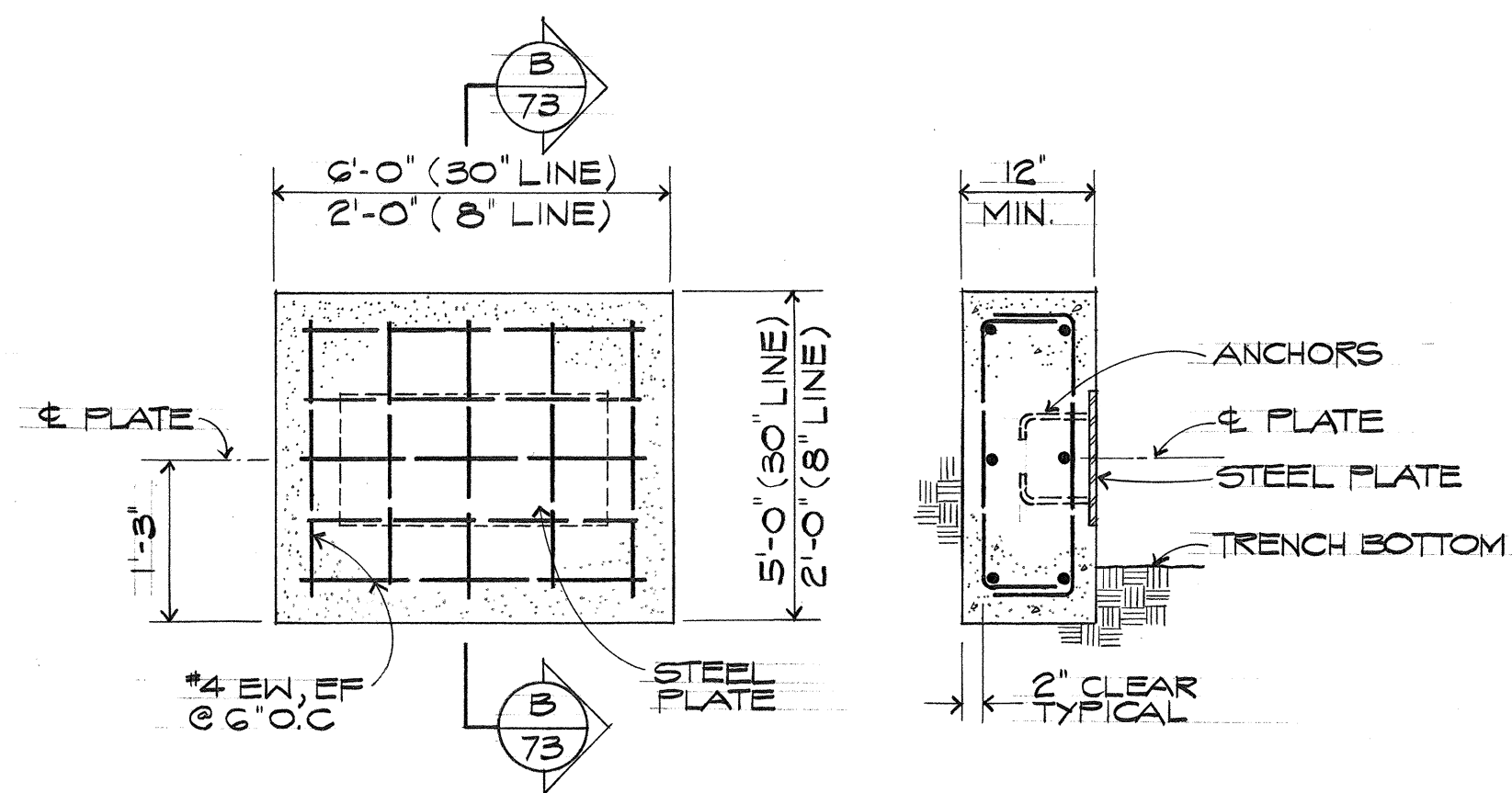


PLAN

PRE-CAST CONCRETE BLOCK WITH STRUCTURAL STRUT
 NOT TO SCALE



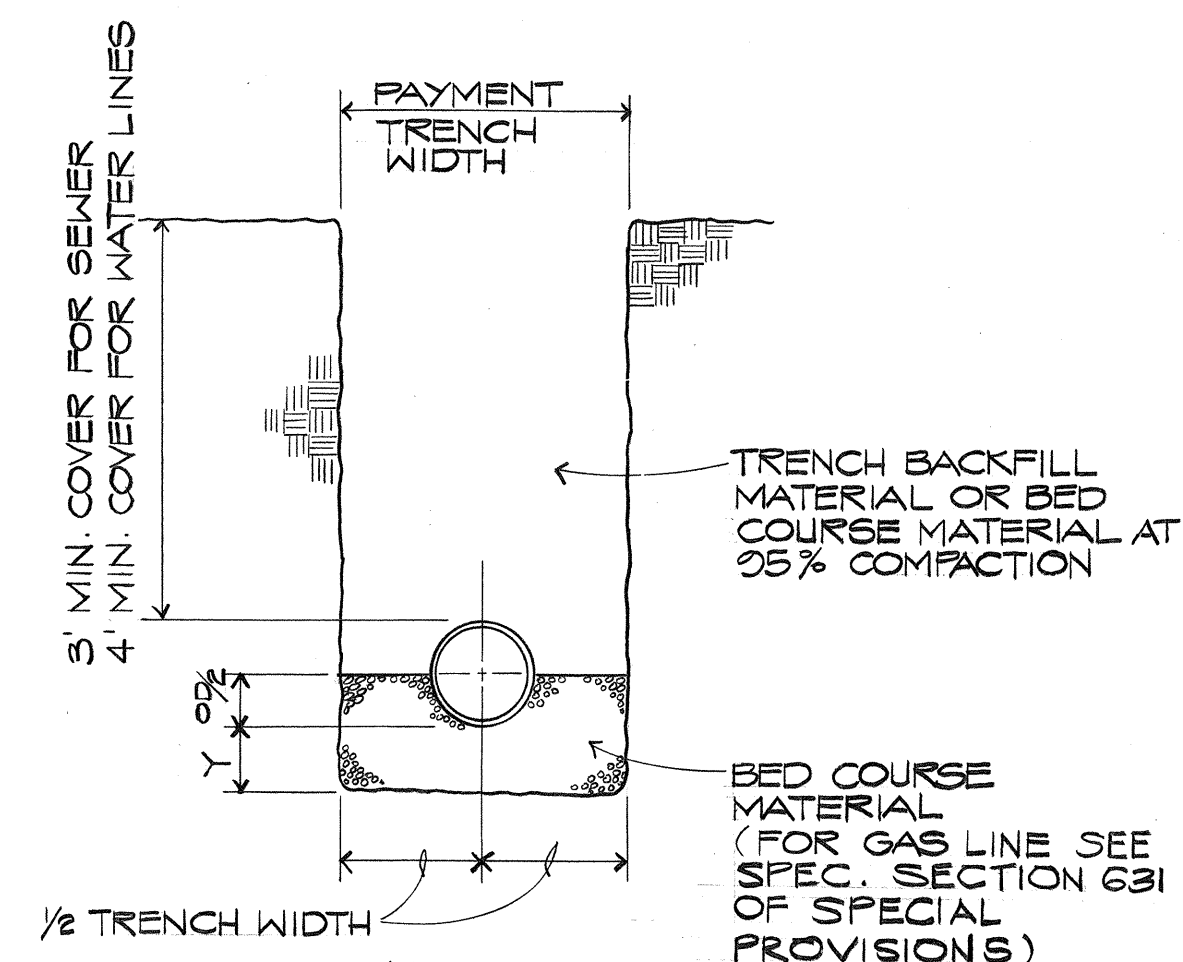
BEAM DETAIL



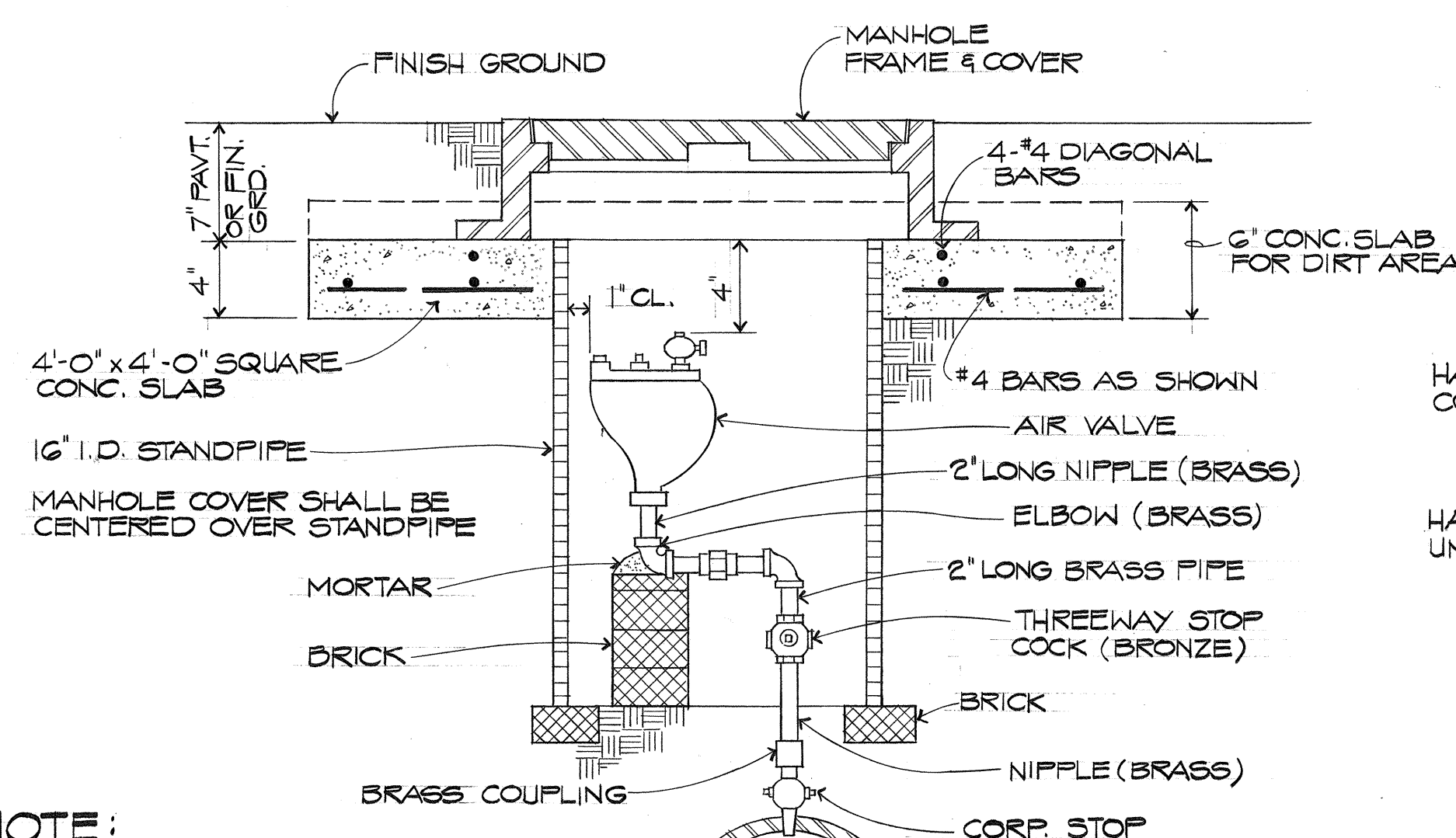
ELEVATION

SECTION B
 73

DETAILS OF CONCRETE BLOCK

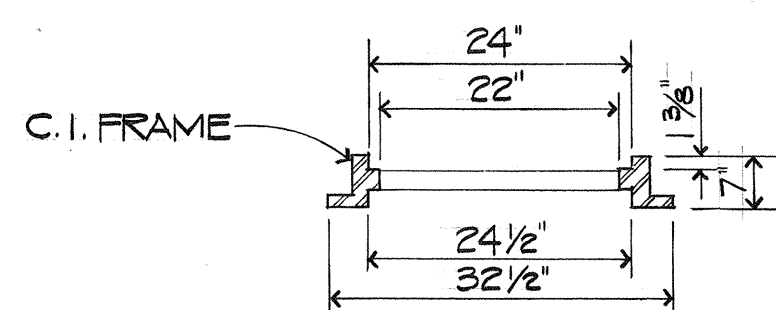


TYPICAL TRENCH DETAIL
 NOT TO SCALE

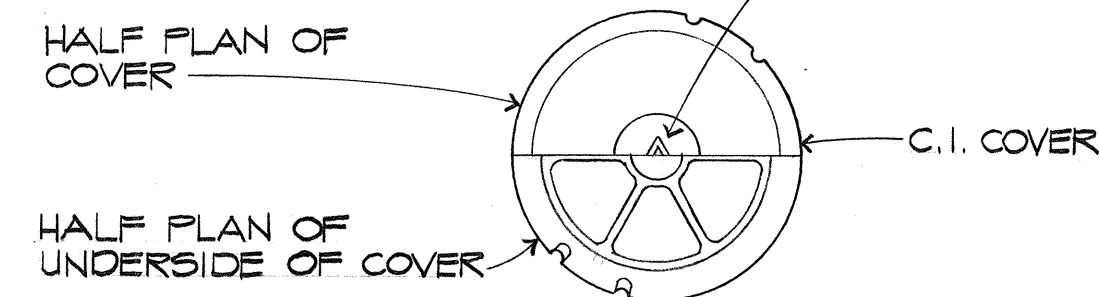


NOTE:
 FITTING SIZES FOR 3/4" AND 2" AIR RELIEF VALVES TO BE 3/4" AND 2" RESPECTIVELY. CORPORATION STOP TO BE AS FOLLOWS:
 3/4" AIR RELIEF VALVE - 1/2" x 3/4" CORP STOP
 2" AIR RELIEF VALVE - 1/2" x 2" CORP STOP

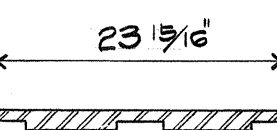
**AIR RELIEF VALVE AND
VALVE BOX FOR WATER MAIN**
 NOT TO SCALE



FRAME SECTION

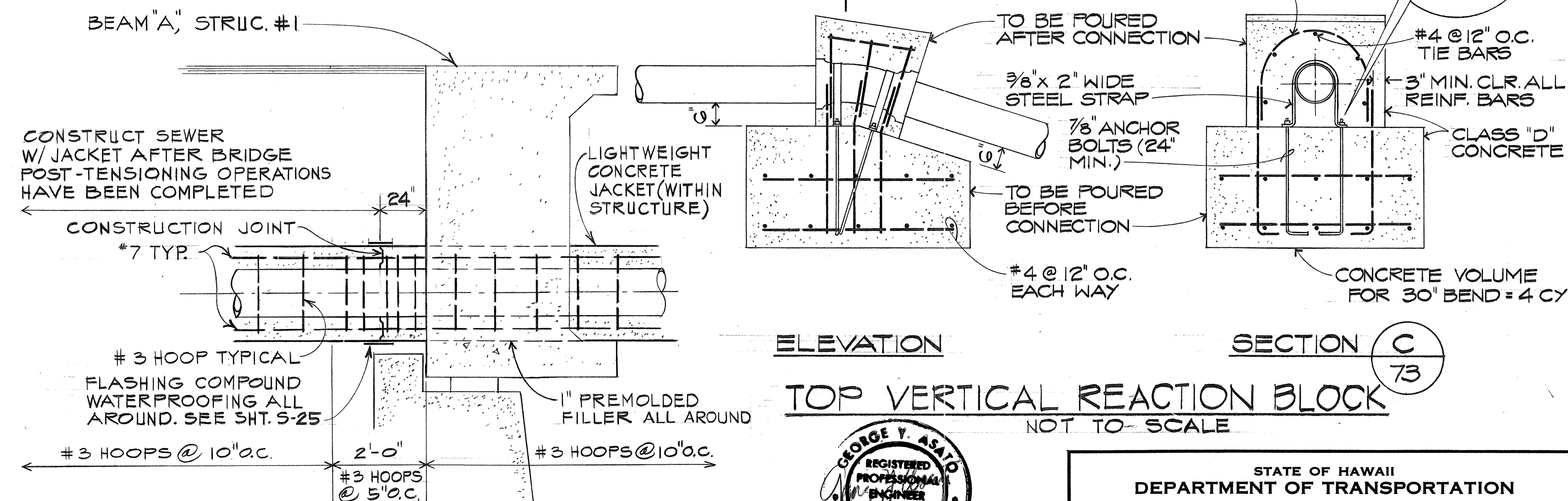


PLAN



SECTION

**TYPICAL MANHOLE
FRAME AND COVER**
 NOT TO SCALE



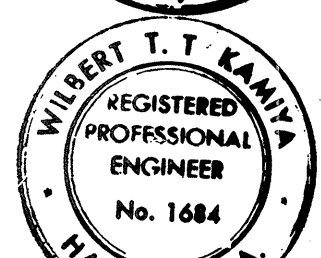
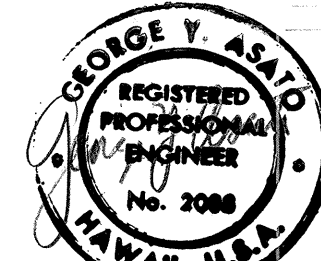
NOTE: REINFORCING IN BEAM "A" NOT SHOWN

ELEVATION

TYPICAL SEWER REINFORCED JACKET @ ABUTMENTS
 NOT TO SCALE

ELEVATION

TOP VERTICAL REACTION BLOCK
 NOT TO SCALE



THIS WORK WAS PREPARED BY ME
 OR UNDER MY SUPERVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

UTILITY RELOCATION
 WATER, SEWER & GAS DETAILS

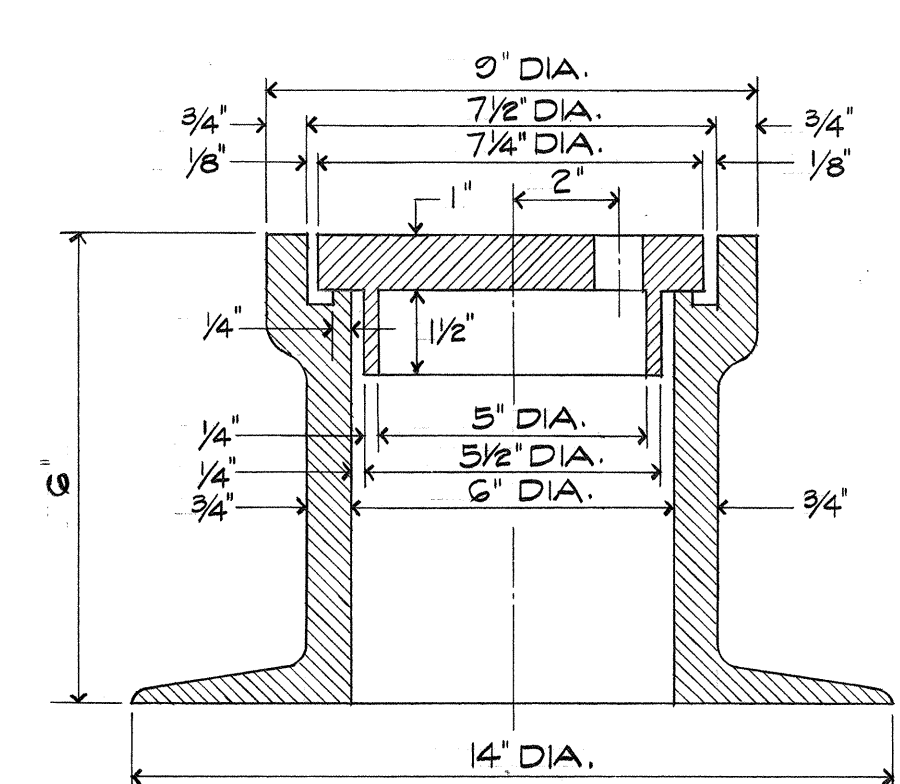
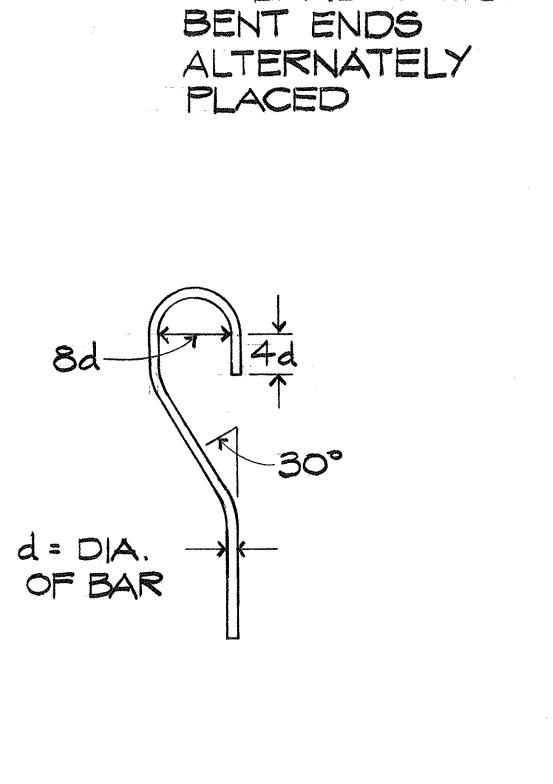
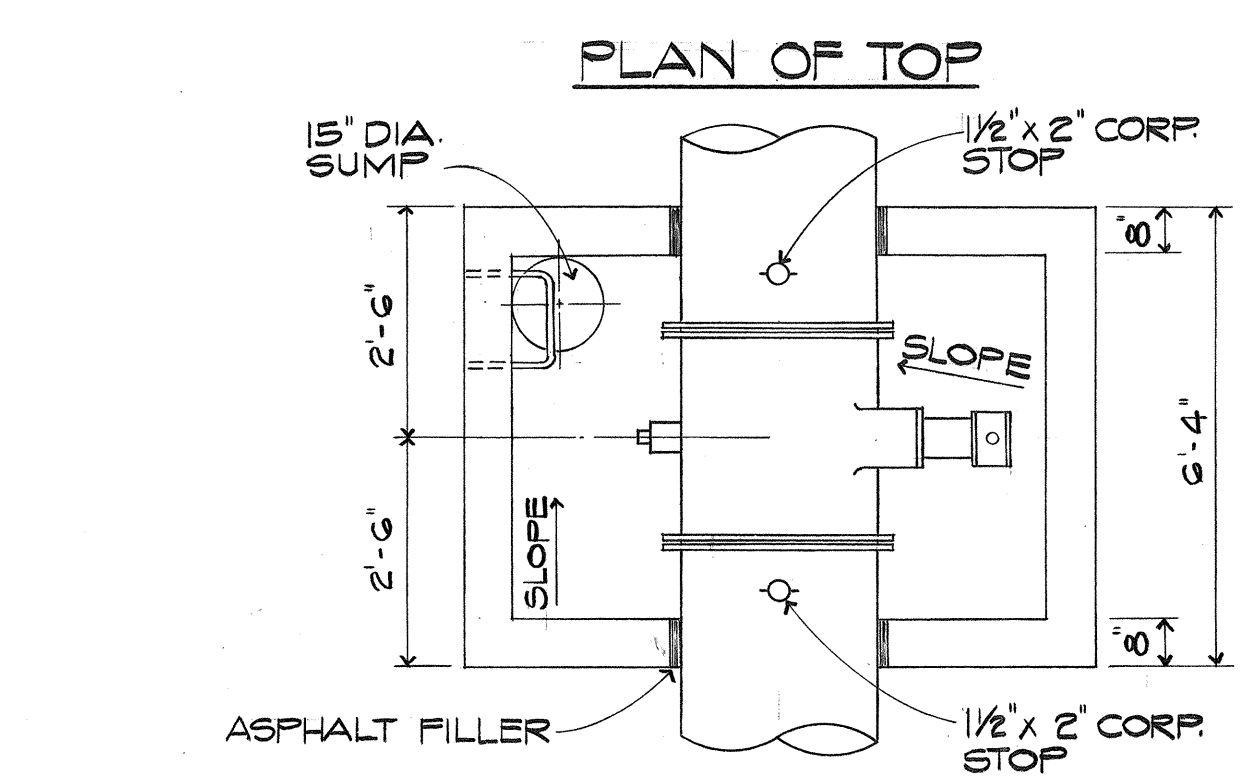
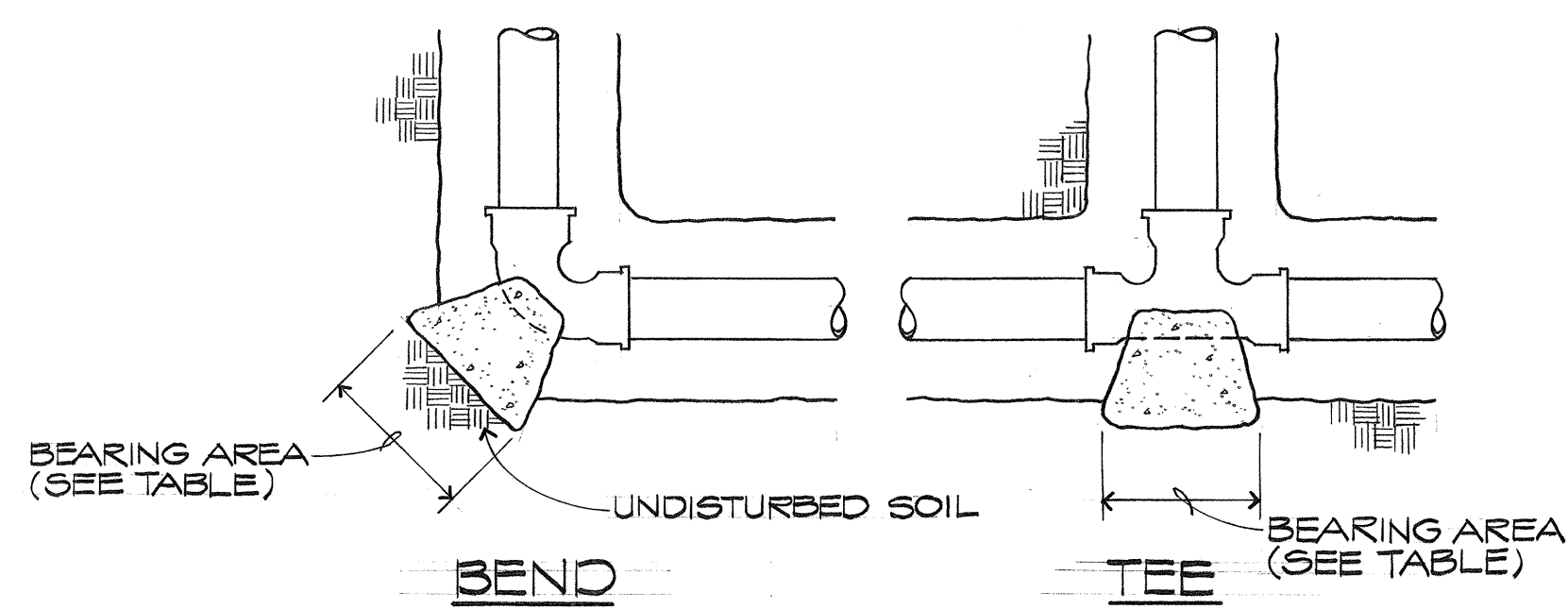
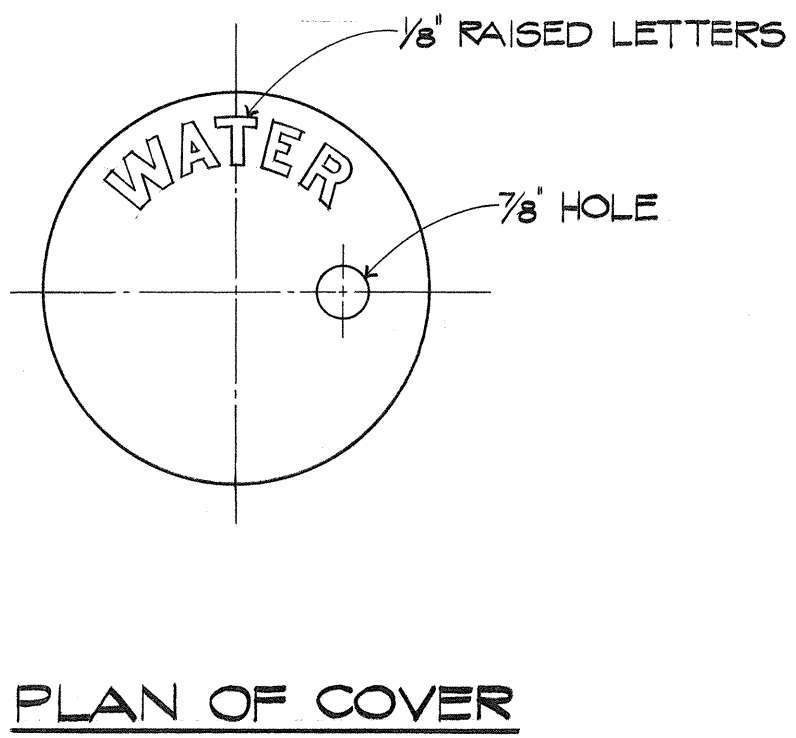
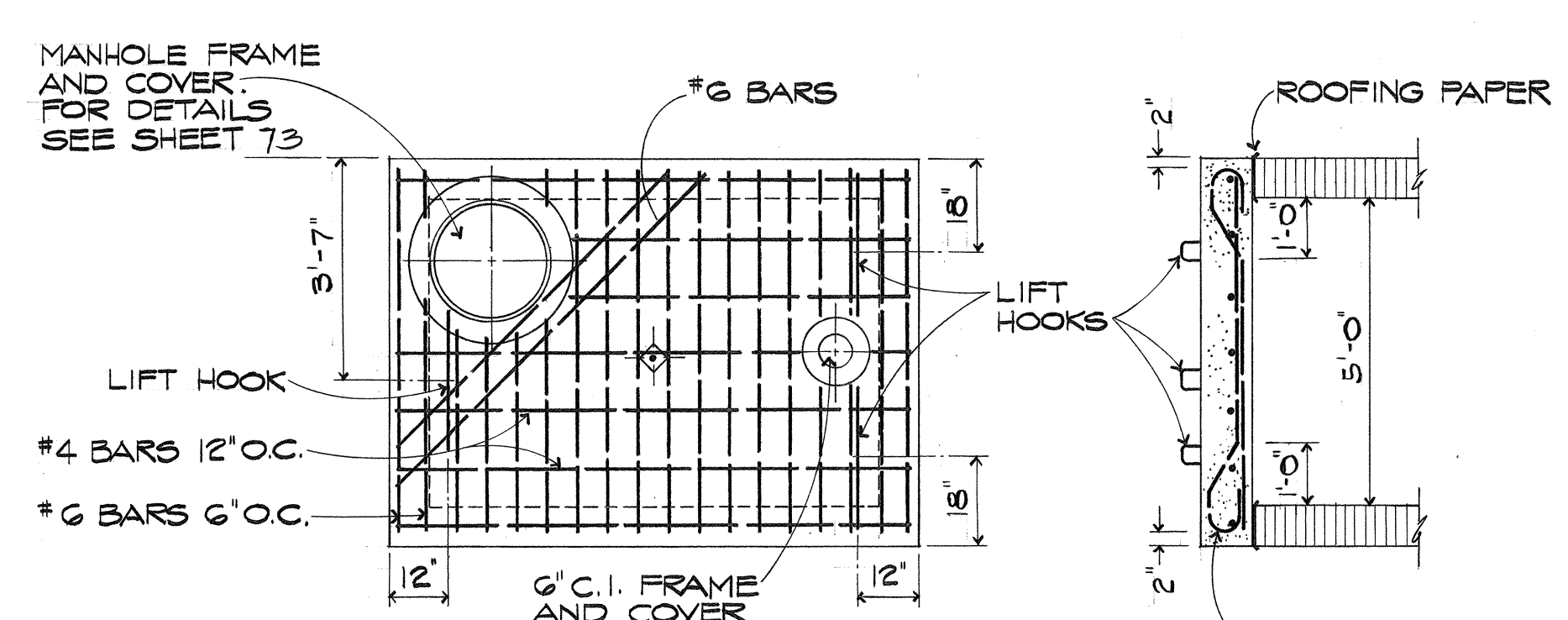
PEARL HARBOR INTERCHANGE
 P.A.I. PROJ. NO. I - HI - 1(111) 14

SCALE: AS SHOWN DATE: DEC. 14, 1973

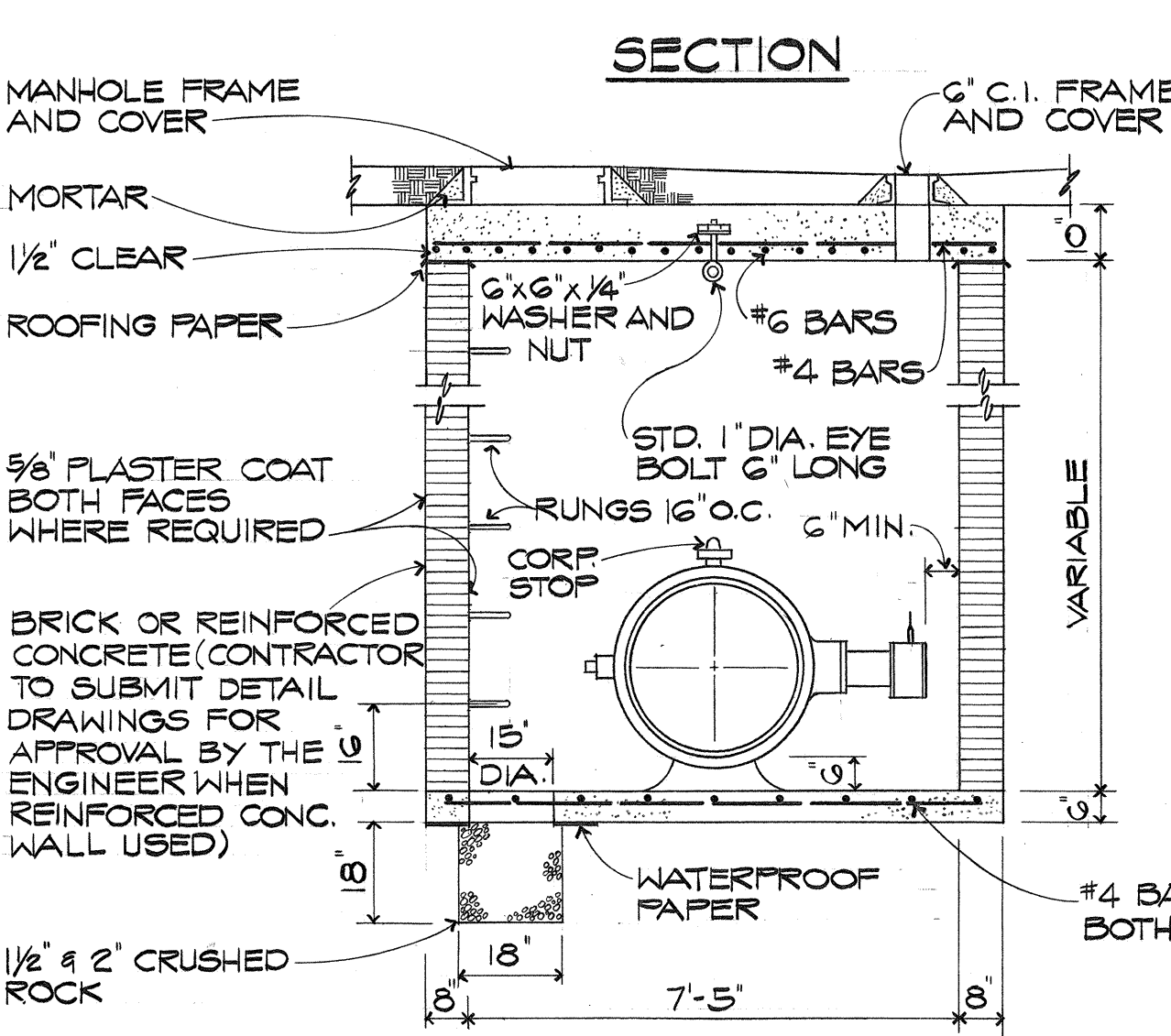
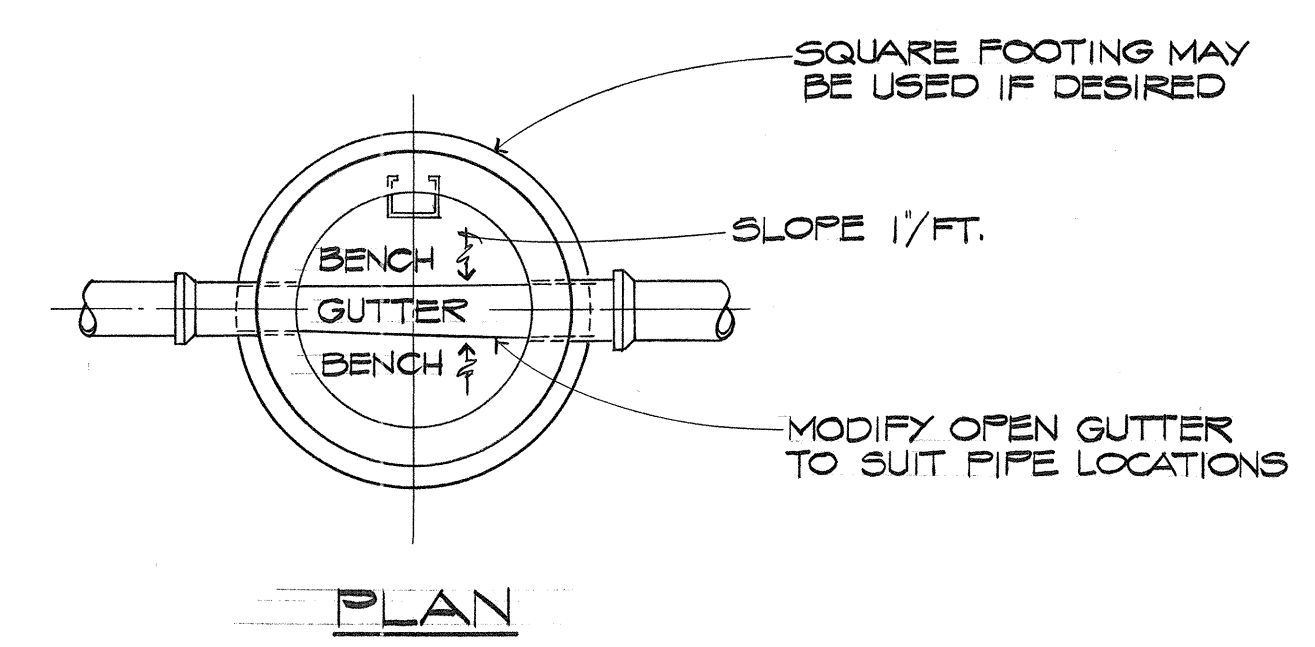
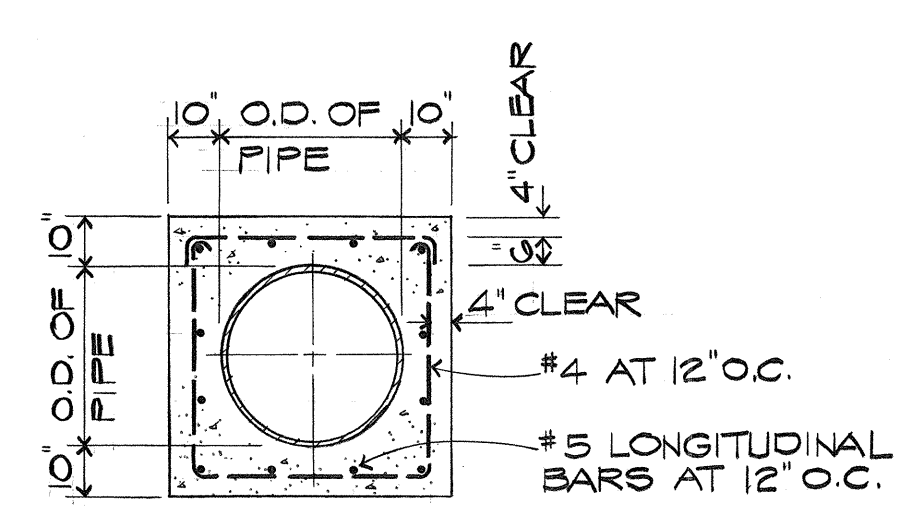
SHEET NO. 7 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III)-14	1974	74	234

FITTING	BEARING AREA SQ. FT.
30" 1/8 BEND	30.0
30" TEE	36.0
8" 1/4 BEND	3.6



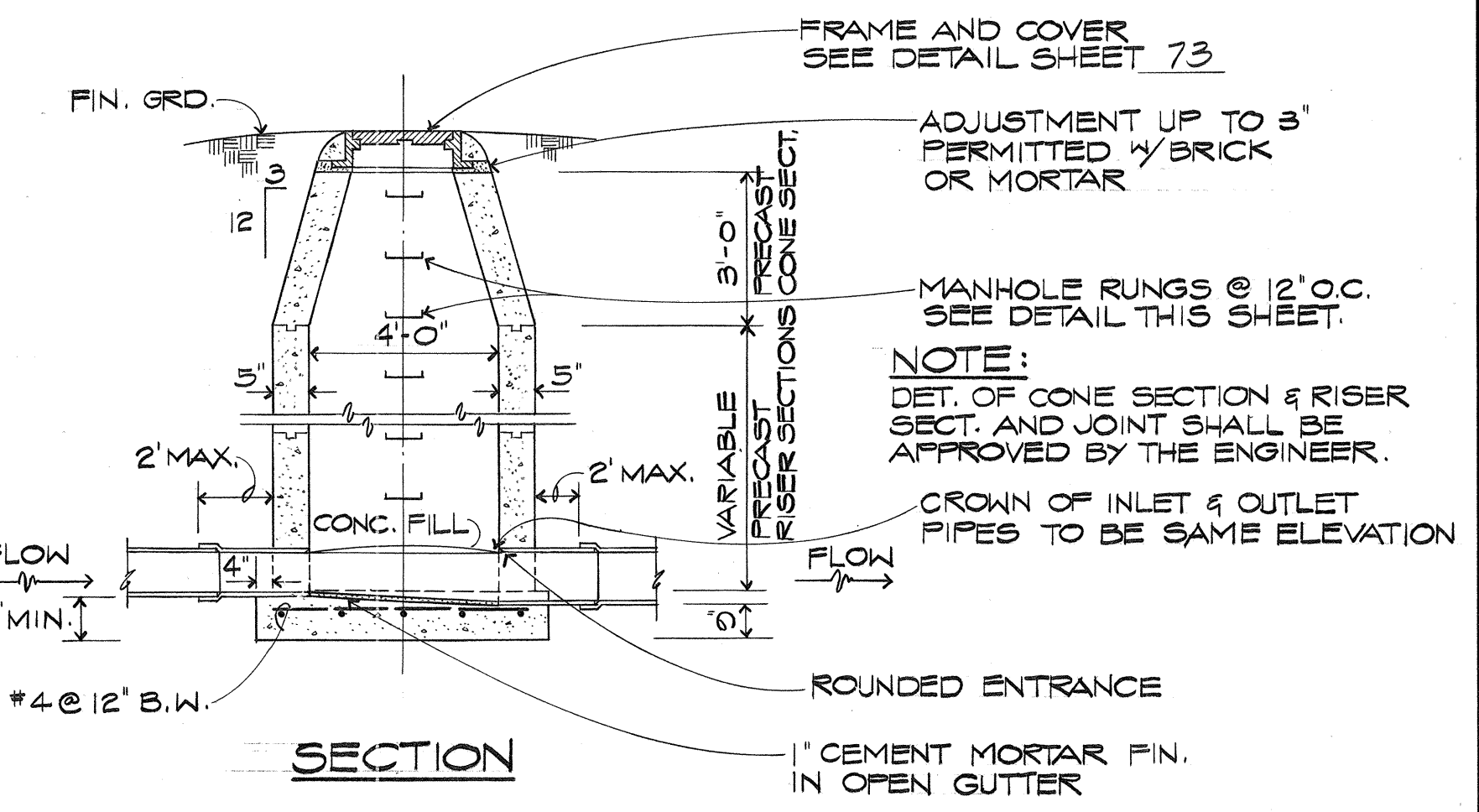
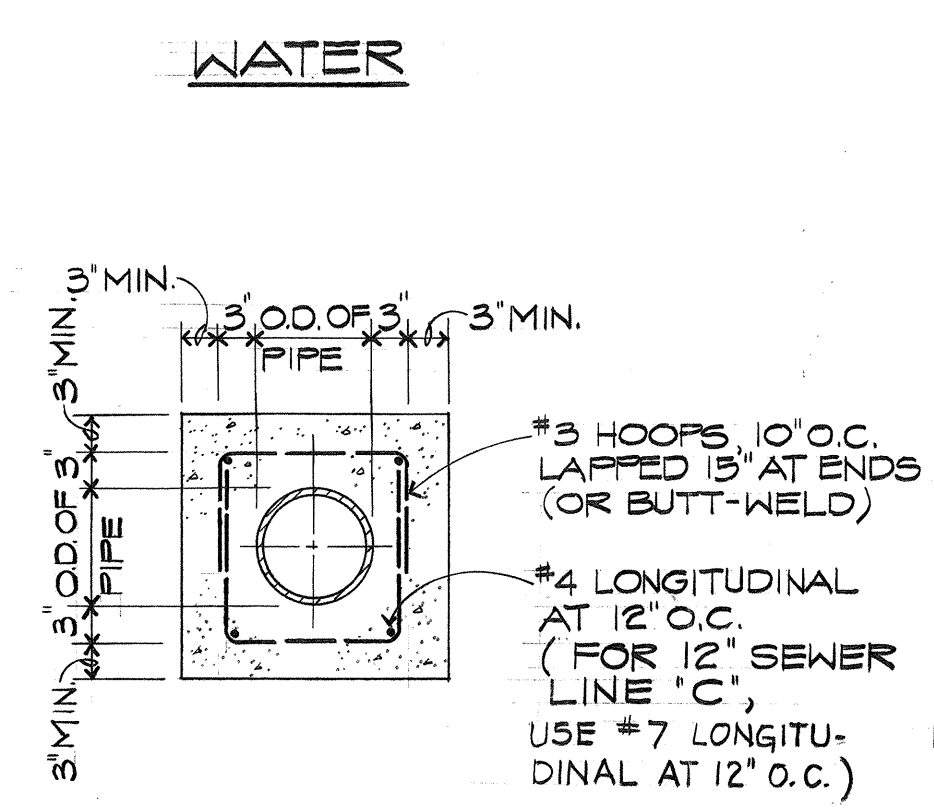
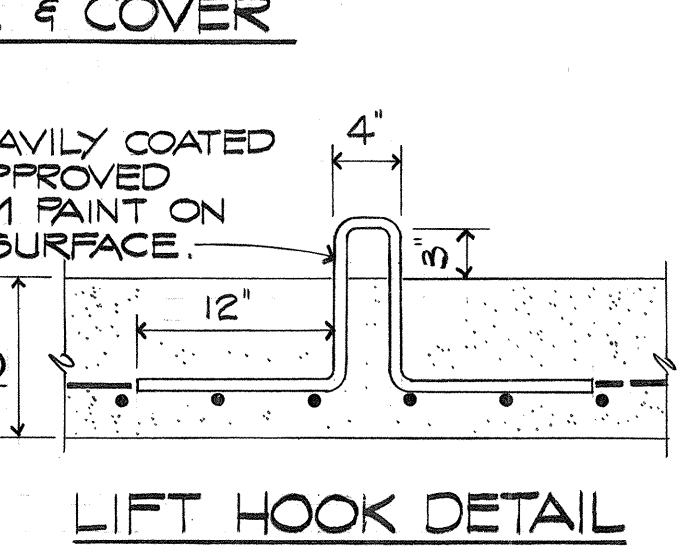
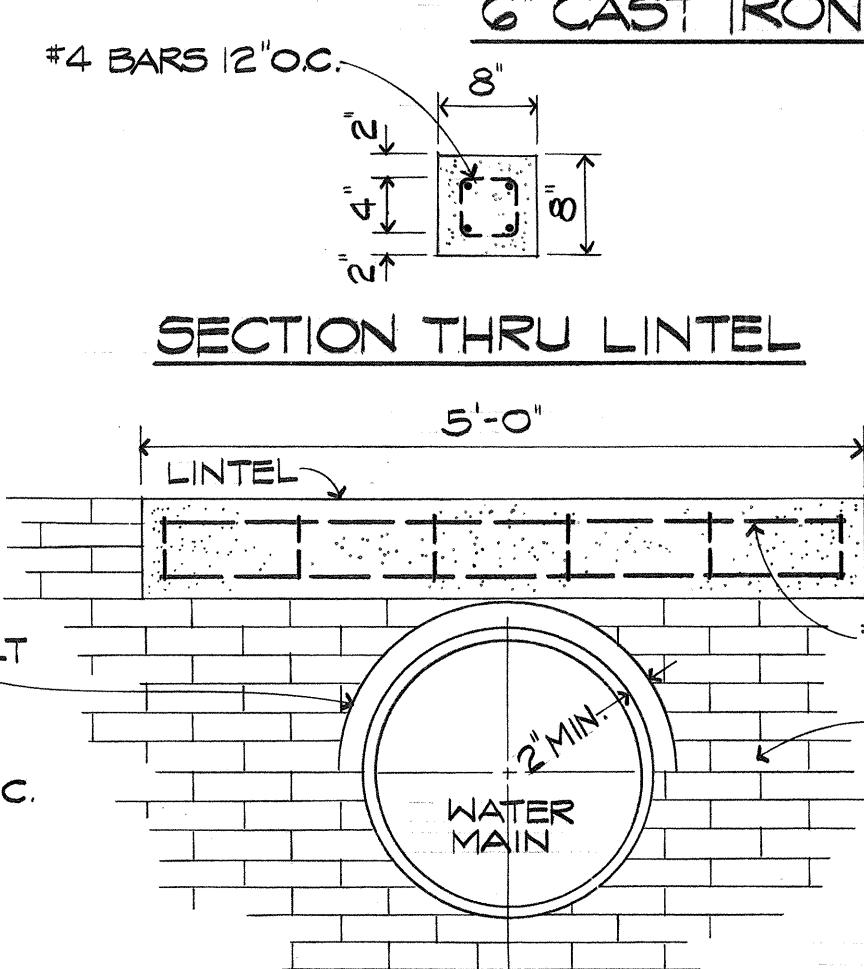
CONCRETE BLOCK DETAILS
(FOR HORIZONTAL BENDS)
NOT TO SCALE



BAR BENDING DETAIL

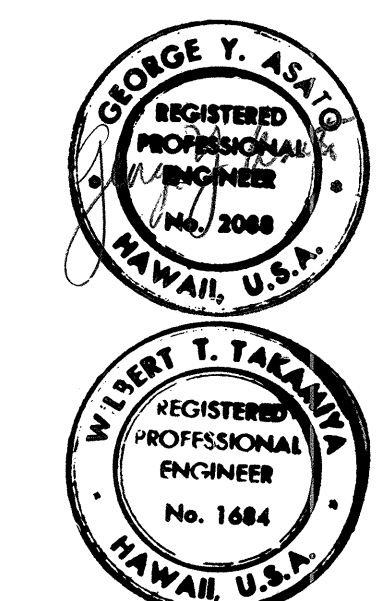
SECTION

6" CAST IRON FRAME & COVER

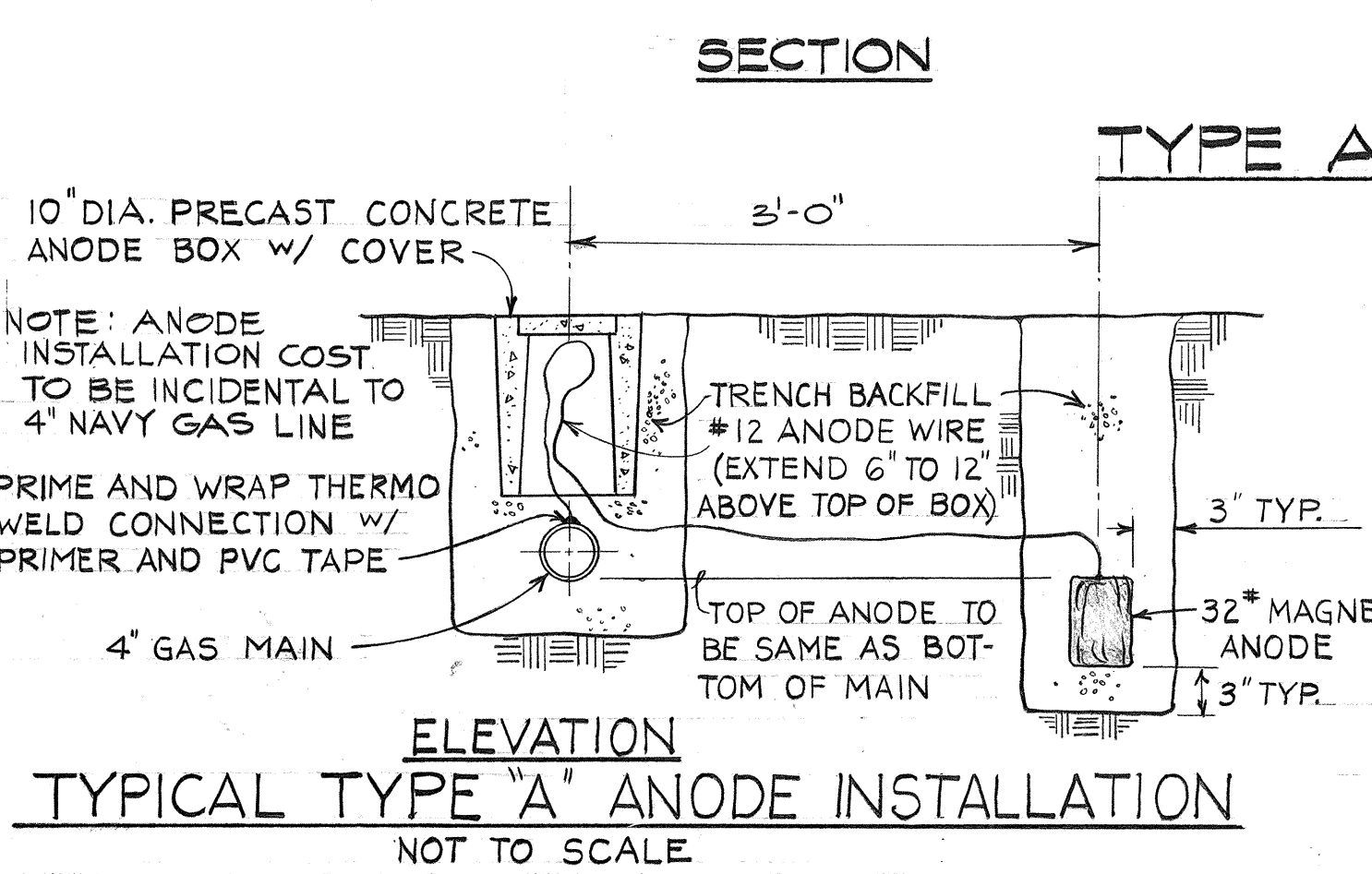


STANDARD MANHOLE
NOT TO SCALE

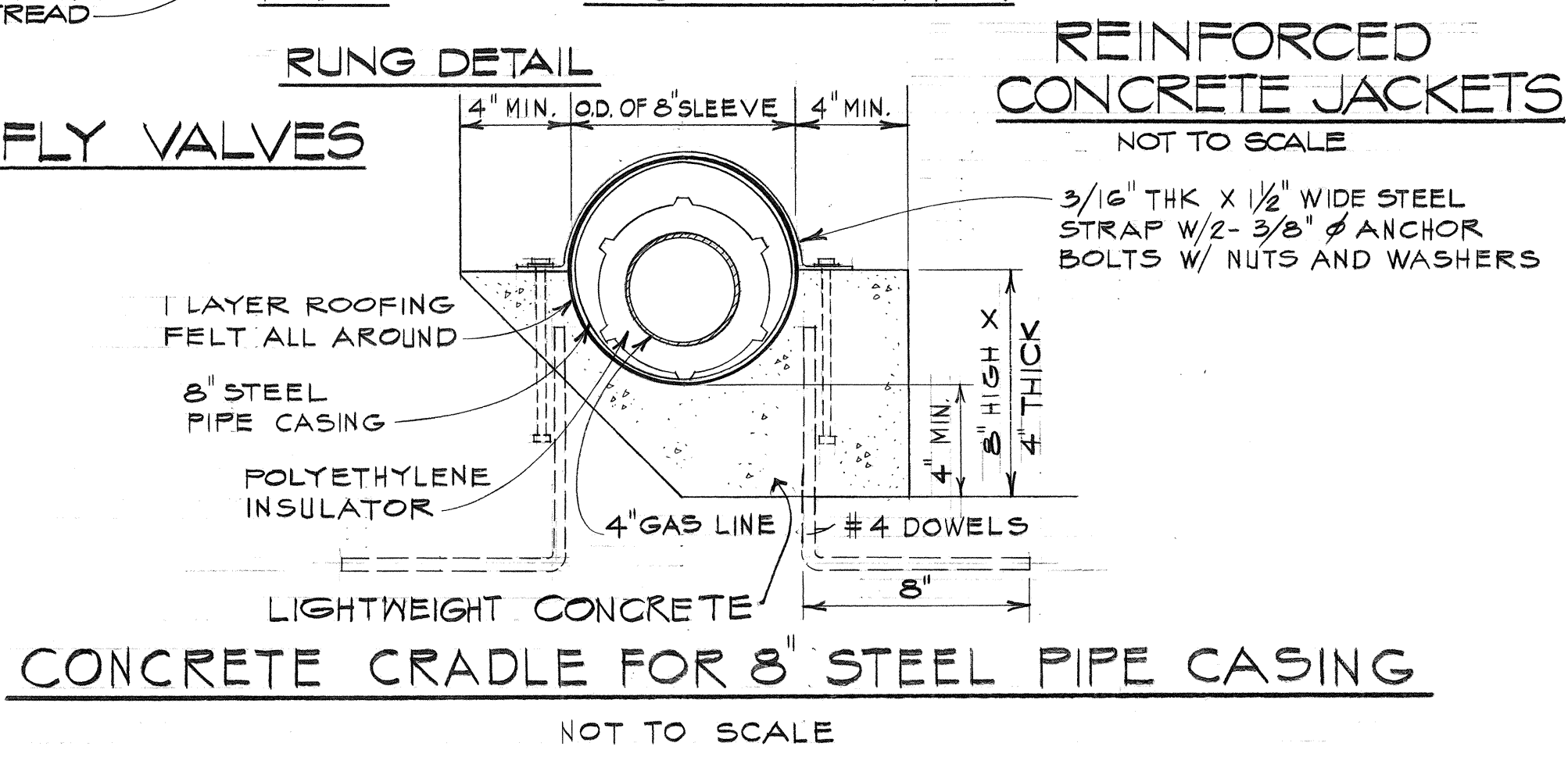
APPROVED BY (FOR GAS LINE RELOCATION ONLY):
GASCO, INC. 1/11/73 DATE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
UTILITY RELOCATION
WATER, SEWER & GAS DETAILS
PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(III)-14
SCALE: AS SHOWN DATE: DEC. 14, 1973
SHEET NO. 8 OF 8 SHEETS



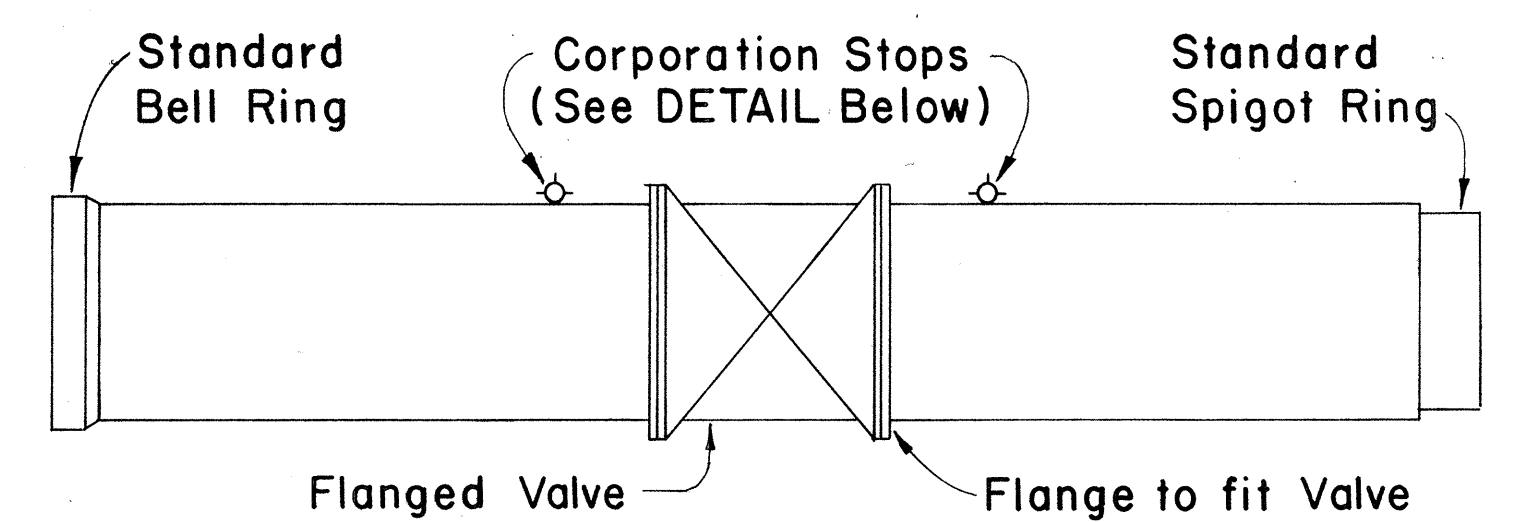
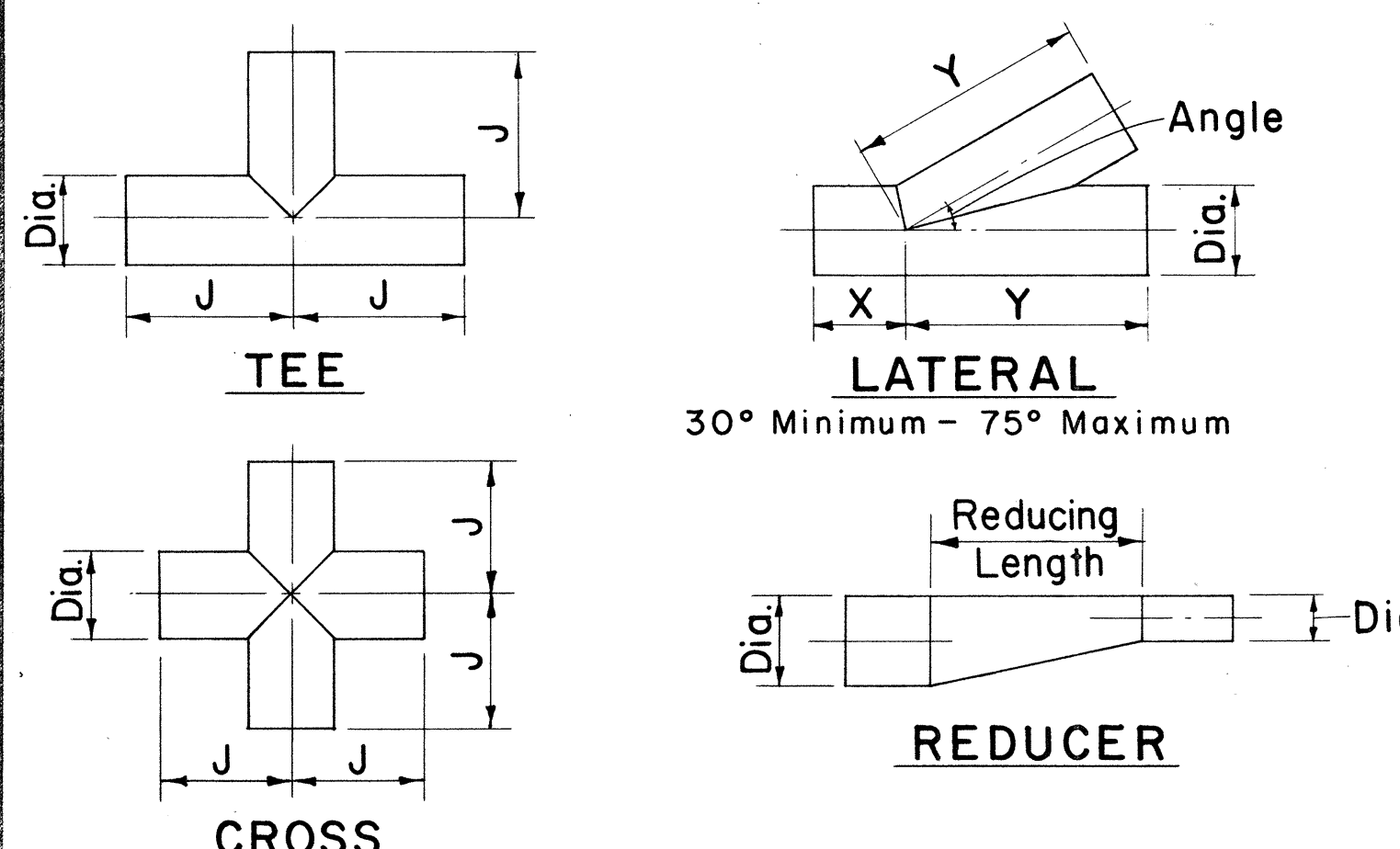
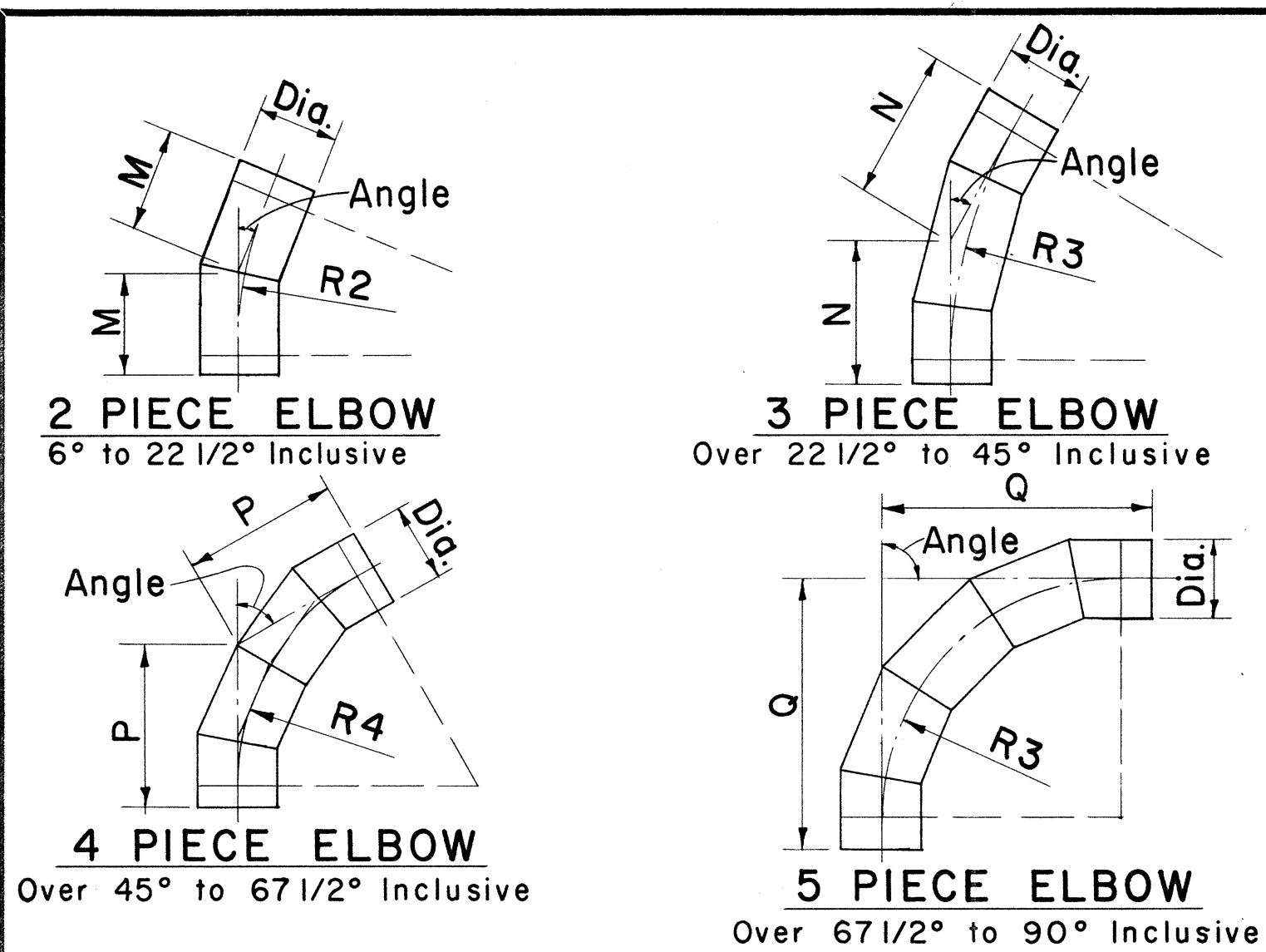
TYPICAL TYPE "A" ANODE INSTALLATION
NOT TO SCALE



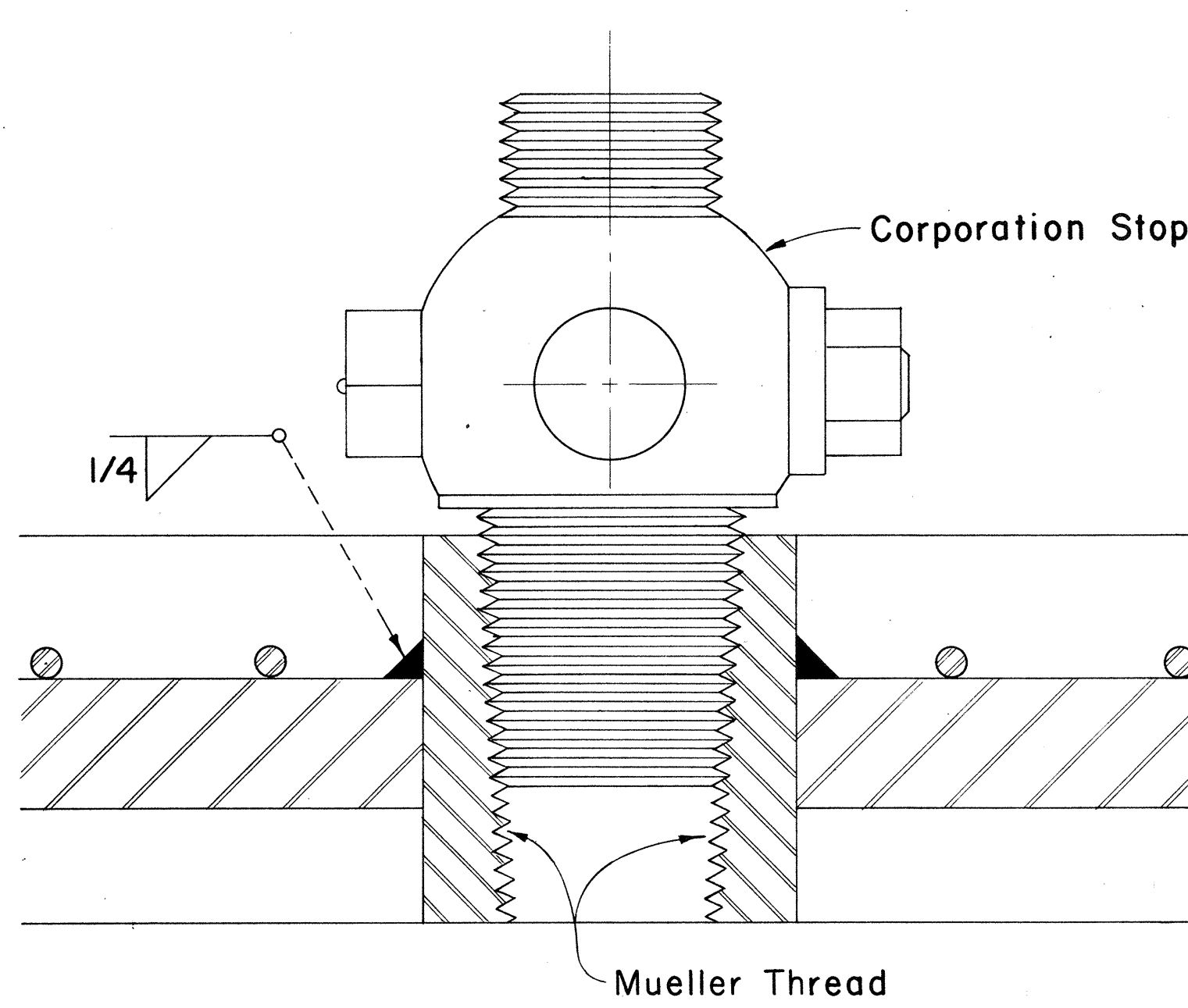
CONCRETE CRADLE FOR 8" STEEL PIPE CASING
NOT TO SCALE

SURVEY PLOTTED BY	DATE
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	

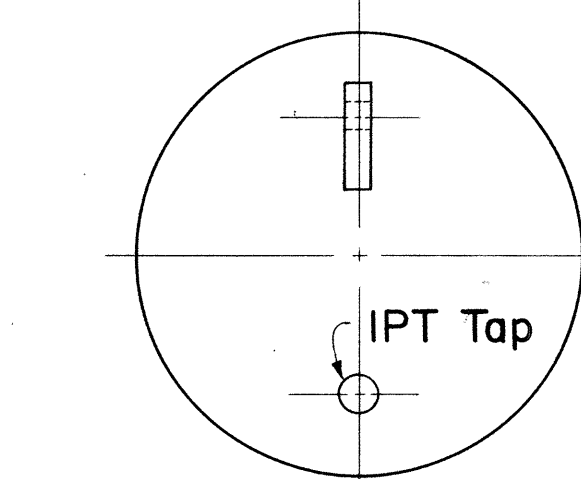
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(111):14	1975	C0745-1	234



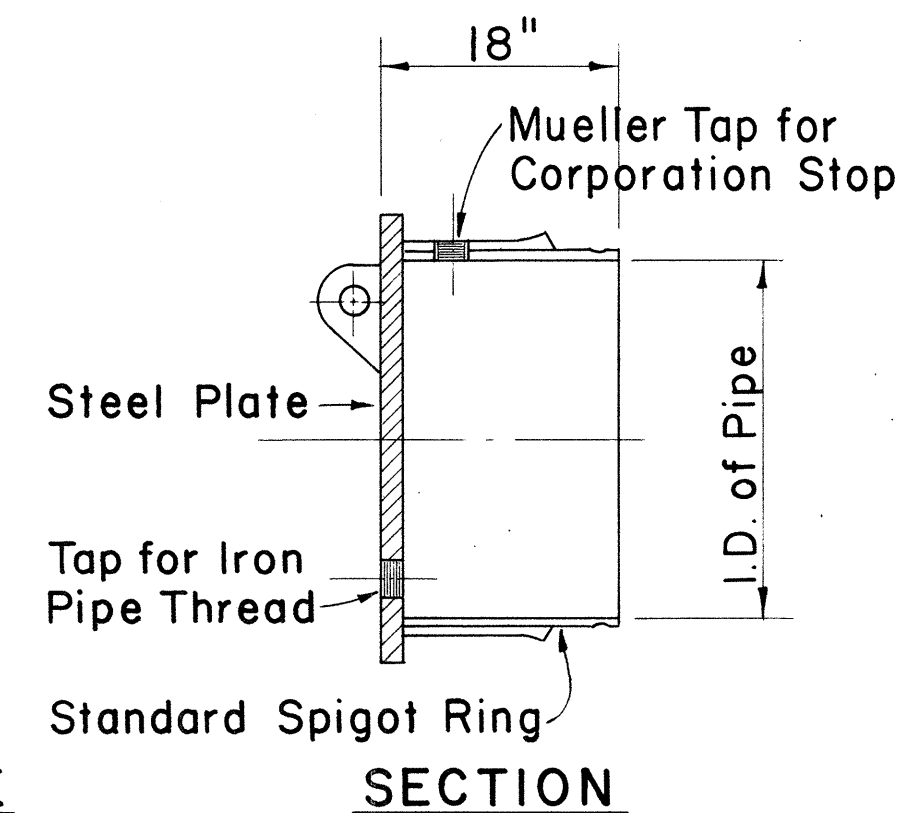
ELEVATION



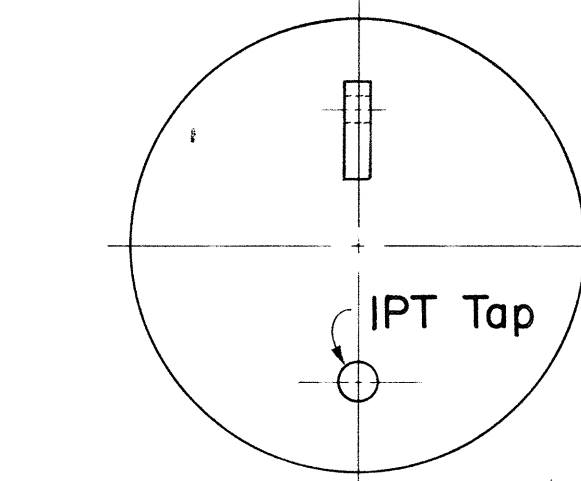
TYPICAL SECTION THRU CONCRETE PIPE AT CORPORATION STOP



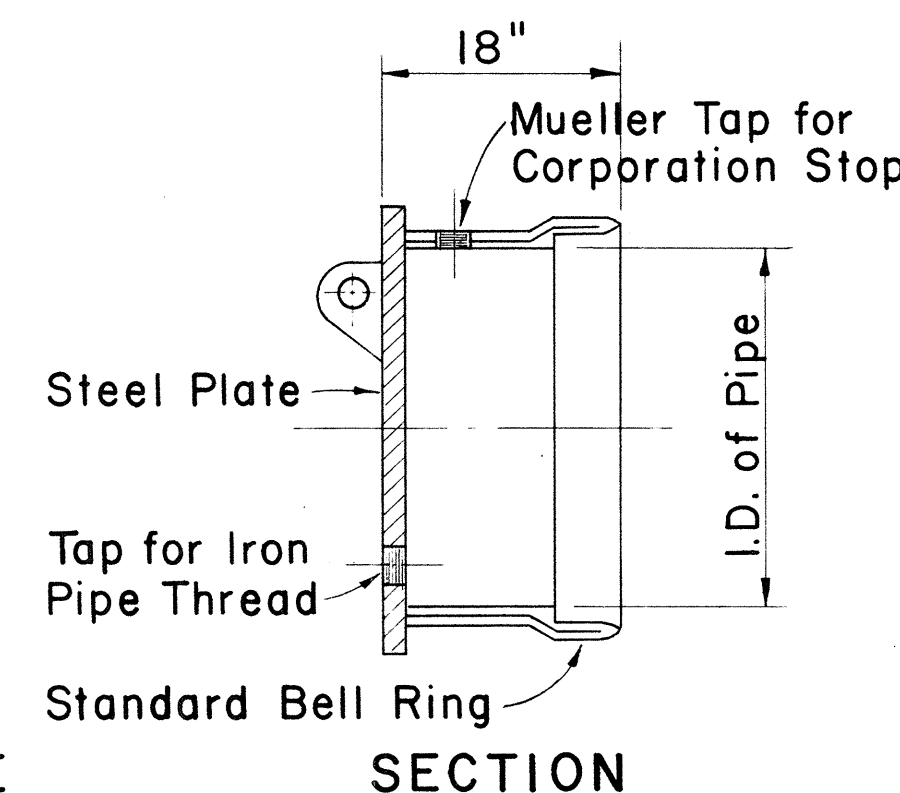
ELEV. OF STEEL PLATE



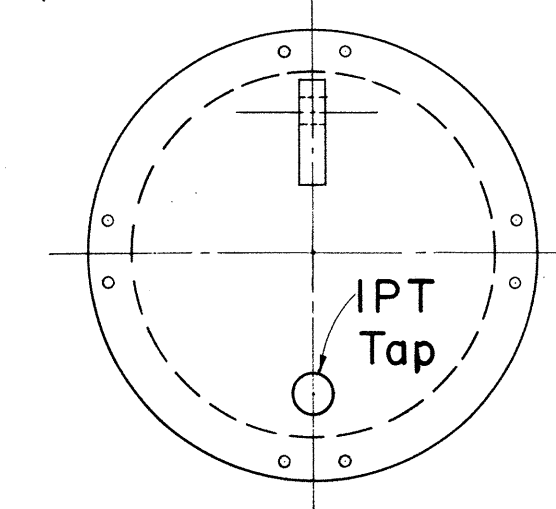
DETAIL OF PLUG



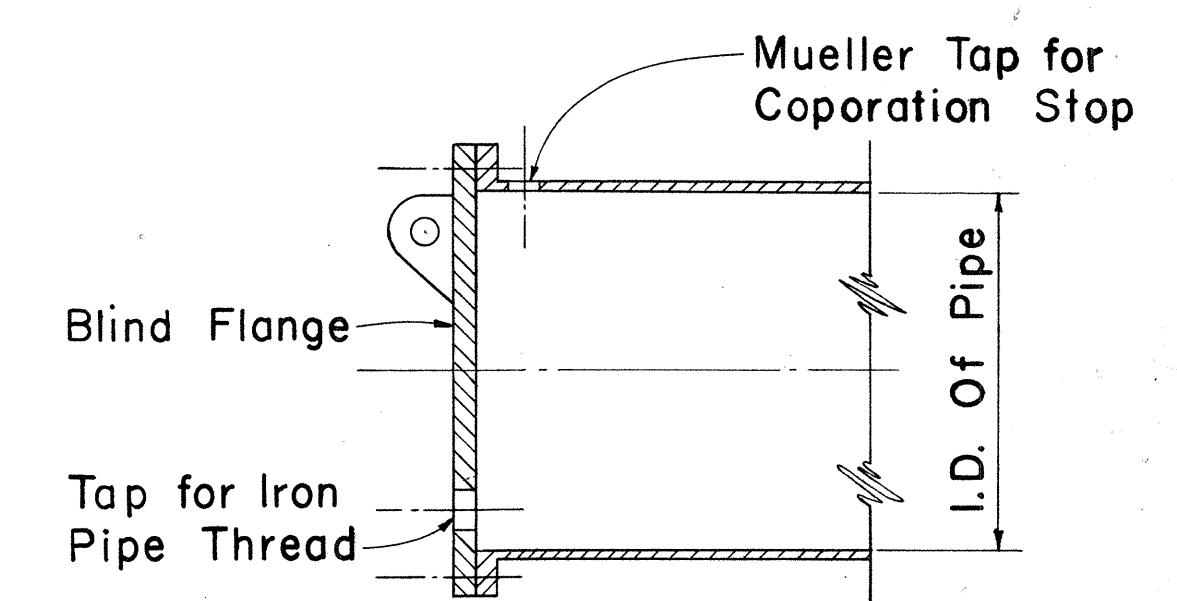
ELEV. OF STEEL PLATE



DETAIL OF CAP

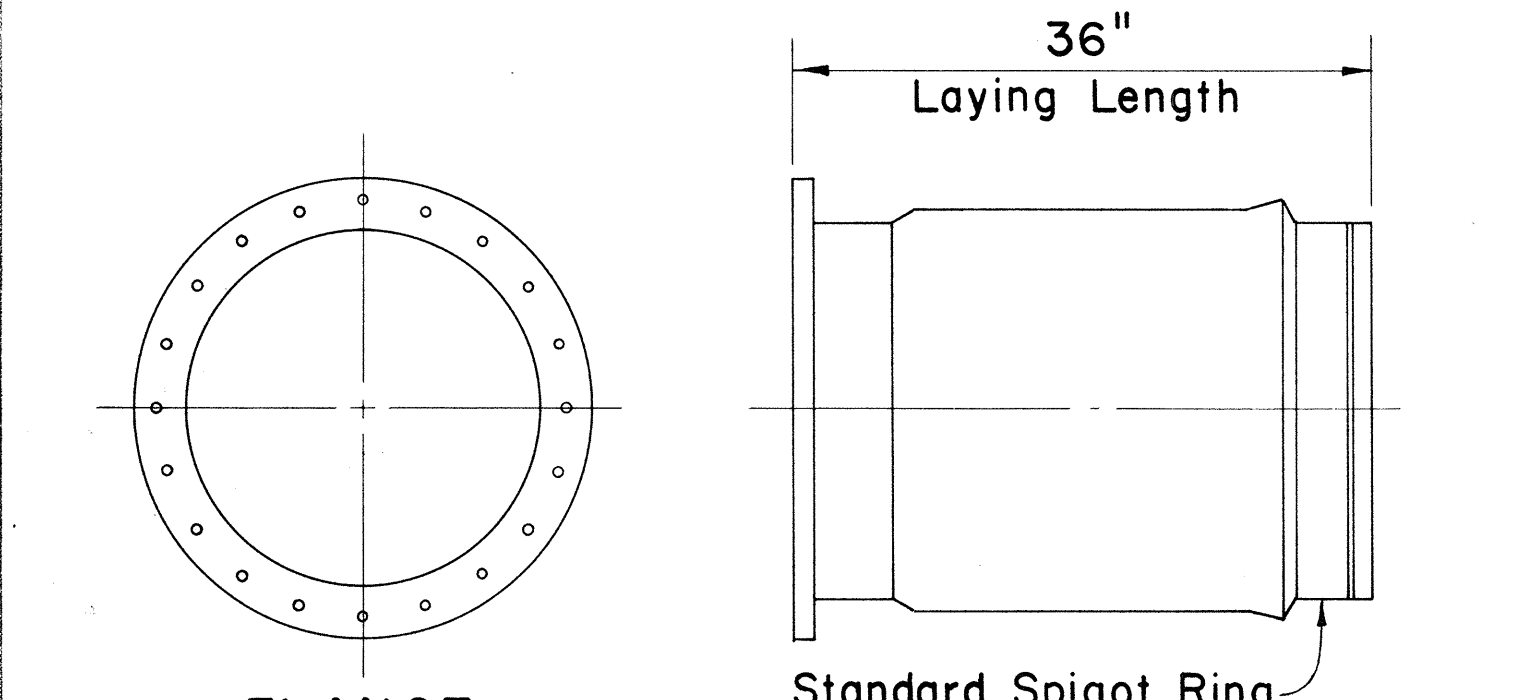


ELEV. OF BLIND FLANGE

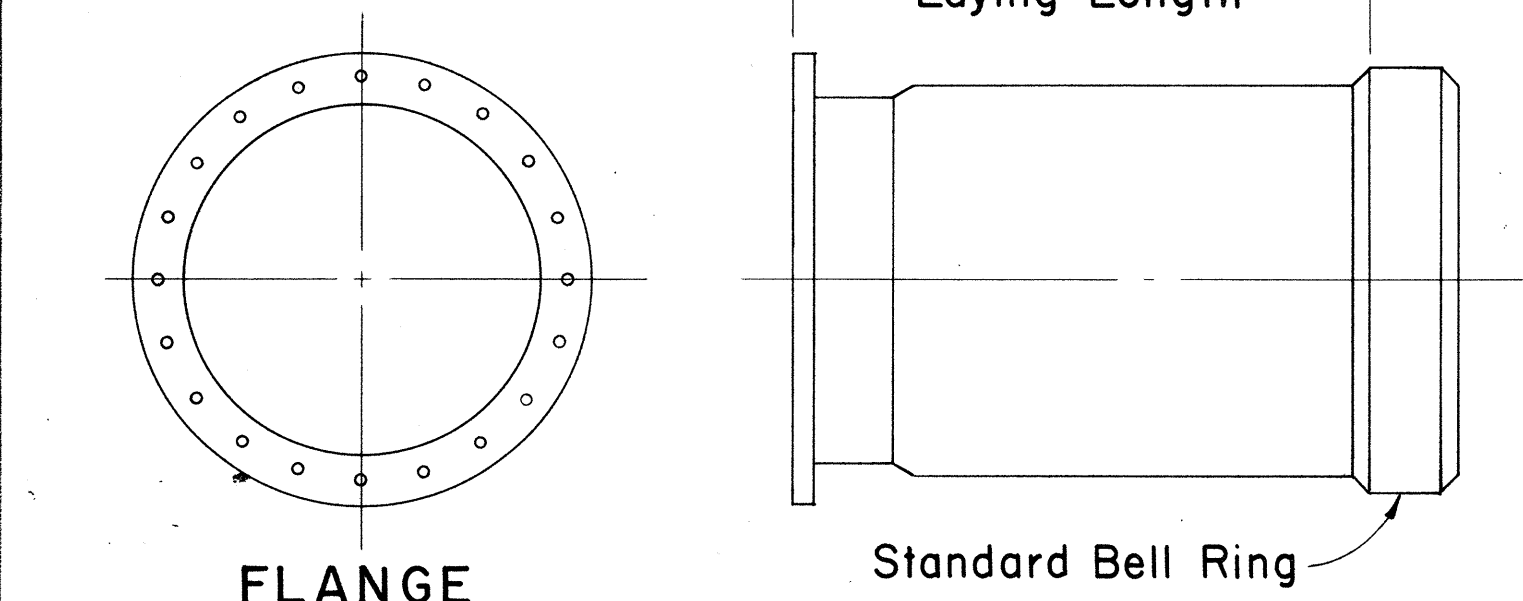


SECTION

DETAIL OF BLIND FLANGE

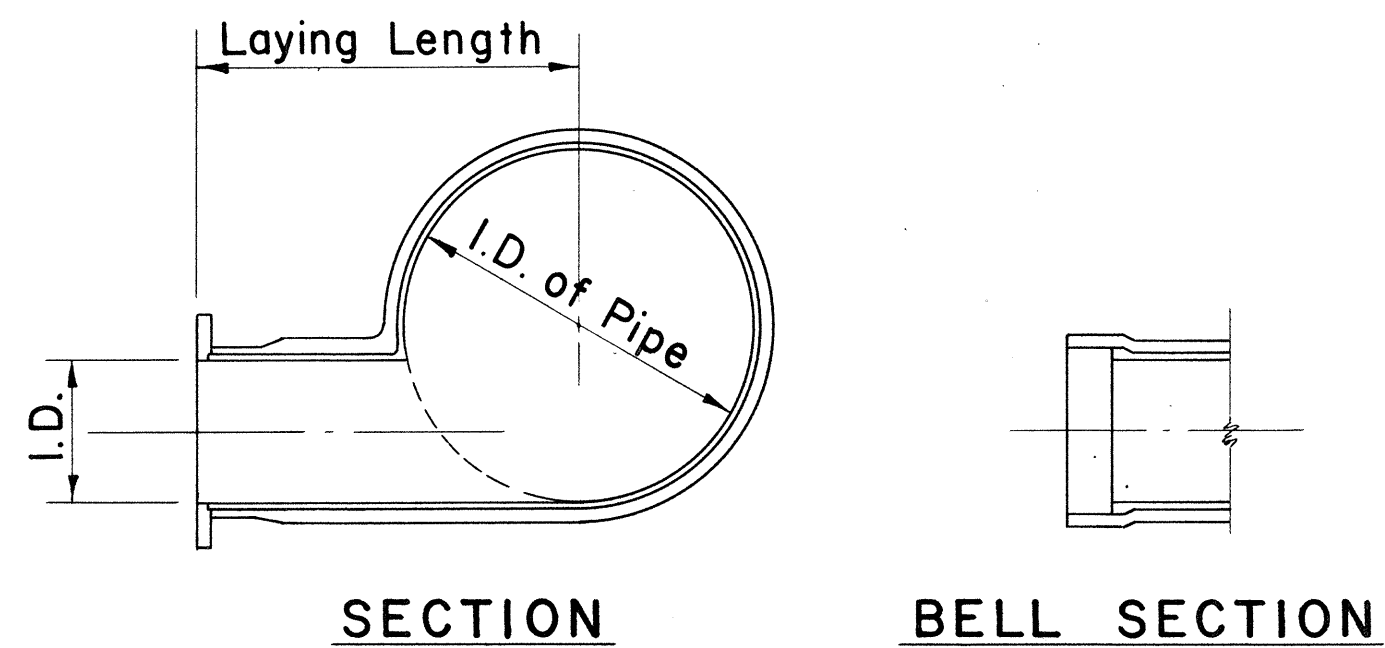


FLANGE
See Specs. for Flange Class



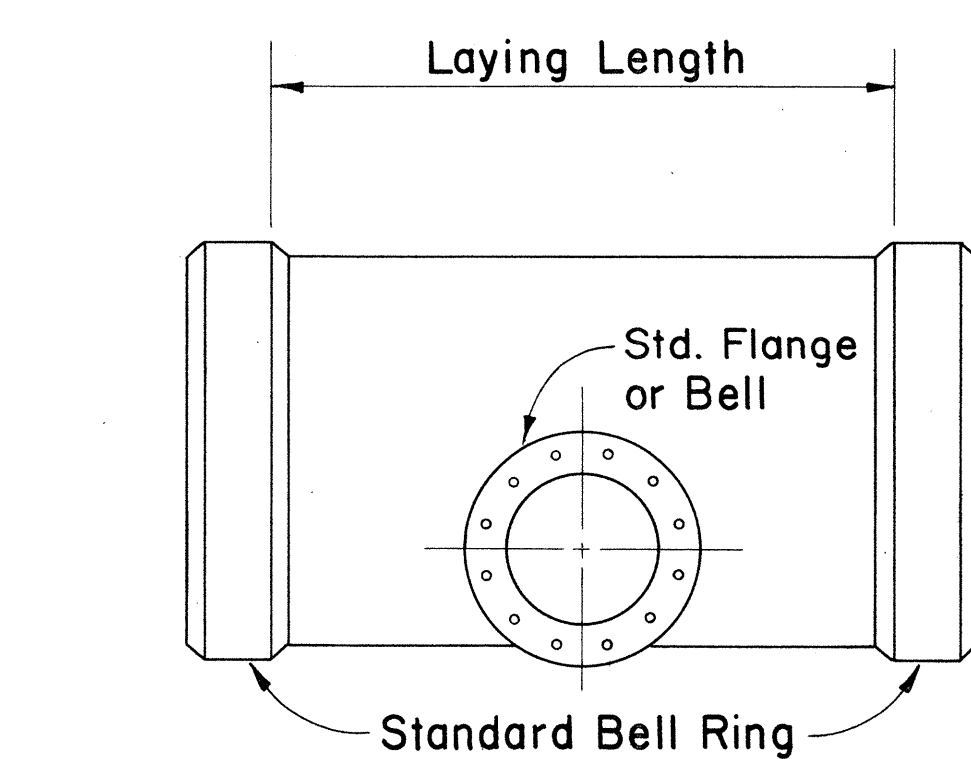
FLANGE
See Specs. for Flange Class

TYPICAL DETAIL OF ADAPTER



SECTION

BELL SECTION



TYPICAL DETAIL OF BLOW-OFF TEE

STANDARD FITTING DIMENSIONS

DIAMETER	TEE		CROSS (Both Ways) J + J	LATERAL (30° to 75°)		ELBOWS (Center to End)							
						2 Piece (up to 22 1/2°)		3 Piece (22 1/2° to 45°)		4 Piece (45° to 67 1/2°)		5 Piece (67 1/2° to 90°)	
	Run J + J	Outlet J		Run X + Y	Outlet Y	M	R2	N	R3	P	R4	Q	R5
16"	34"	17"	34"	62"	52"	12"	60"	18"	44"	26"	39"	44"	40"
18"	36"	18"	36"	66"	56"	12"	60"	19"	47"	27"	41"	36"	32"
20"	38"	19"	38"	72"	60"	13"	65"	20"	49"	28"	42"	54"	50"
22"	40"	20"	40"	78"	66"	13"	65"	21"	51"	30"	45"	41"	37"
24"	42"	21"	42"	84"	72"	14"	70"	22"	54"	32"	48"	64"	60"
30"	60"	30"	60"	96"	84"	15"	75"	25"	61"	37"	51"	79"	75"
36"	66"	33"	66"	110"	96"	16"	80"	27"	66"	40"	60"	94"	90"
42"	72"	36"	72"	124"	108"	17"	85"	30"	71"	49"	69"	109"	105"

DIMENSIONS FOR ECCENTRIC REDUCER REDUCING SECTION

- 36" x 30" Eccentric Reducer - Length 66"
- 30" x 24" Eccentric Reducer - Length 66"
- 24" x 20" Eccentric Reducer - Length 26"
- 20" x 16" Eccentric Reducer - Length 26"
- 42" x 36" Eccentric Reducer - Length 66"
- 42" x 30" Eccentric Reducer - Length 66"

NOTE:

All dimensions shown are laying lengths.
All fittings and specials shall be fabricated independent from pipe sections and in accordance with the dimensions shown.
All fittings and specials shall be all bell unless otherwise noted.
All tees, wyes, crosses and reducers 16-inch in diameter and larger shall be reinforced with steel ribs or steel crotch plates welded continuously to the cylinder or by other methods to withstand the longitudinal crushing effect caused by the test pressure as called for in the plans.

APPROVED:

ASSISTANT CHIEF ENGINEER DATE
BOARD OF WATER SUPPLY
SHEET NO. 1 OF 2 SHEETS

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

CONCRETE CYLINDER PIPE
MISCELLANEOUS DETAILS

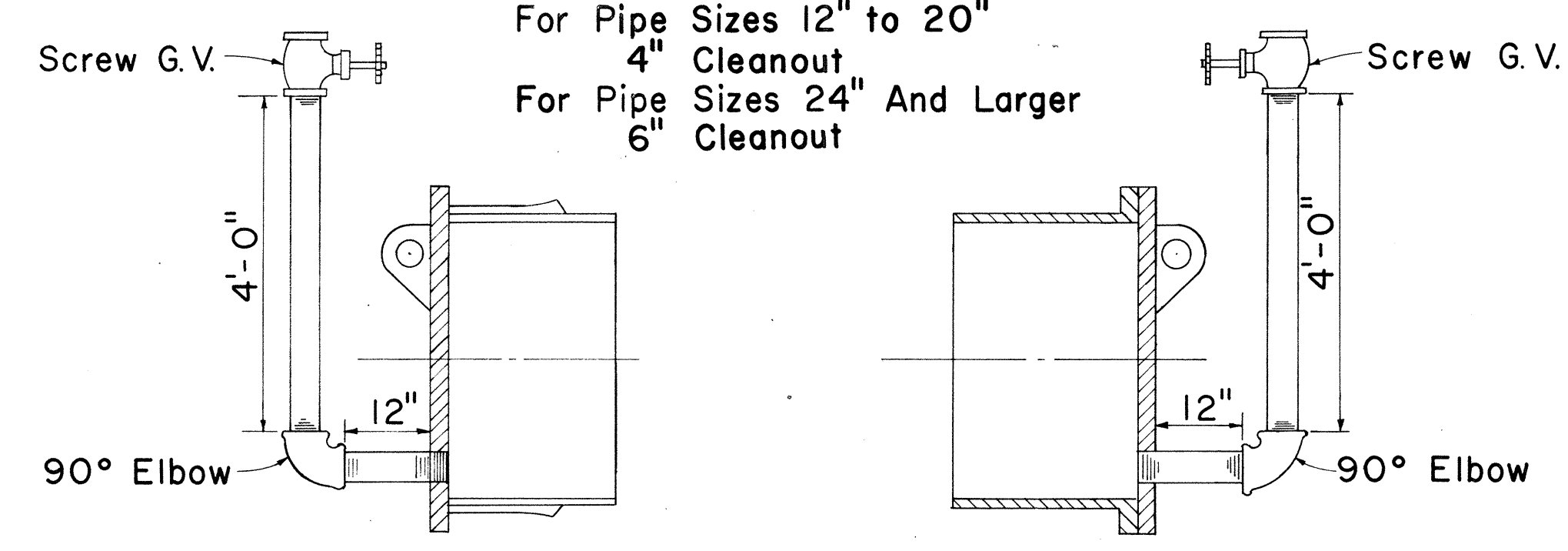
Scale: No Scale Date:
SHEET No. 8A OF 8 SHEETS

C0745-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(111)-14	1975	C074S-2	234

NOTE:

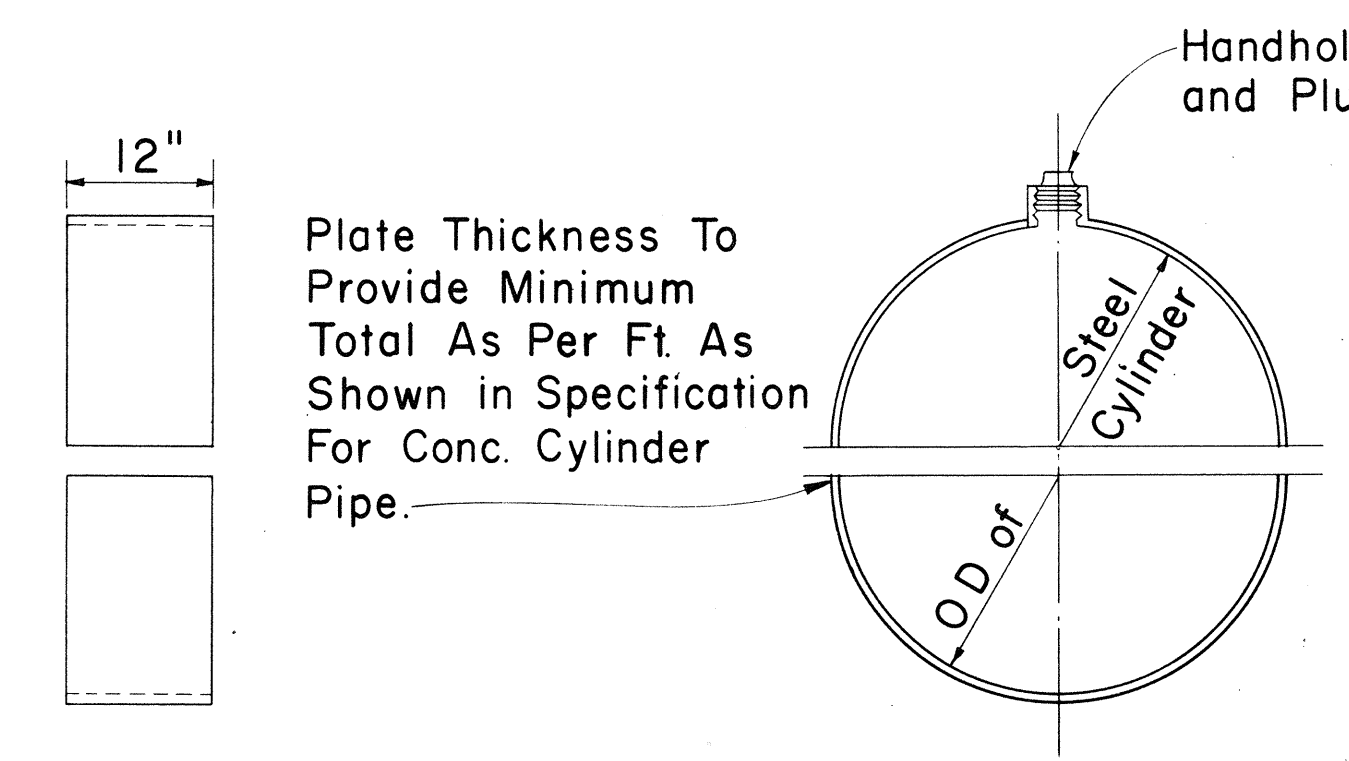
For Pipe Sizes 8" And Smaller
2 1/2" Cleanout
For Pipe Sizes 12" to 20"
4" Cleanout
For Pipe Sizes 24" And Larger
6" Cleanout



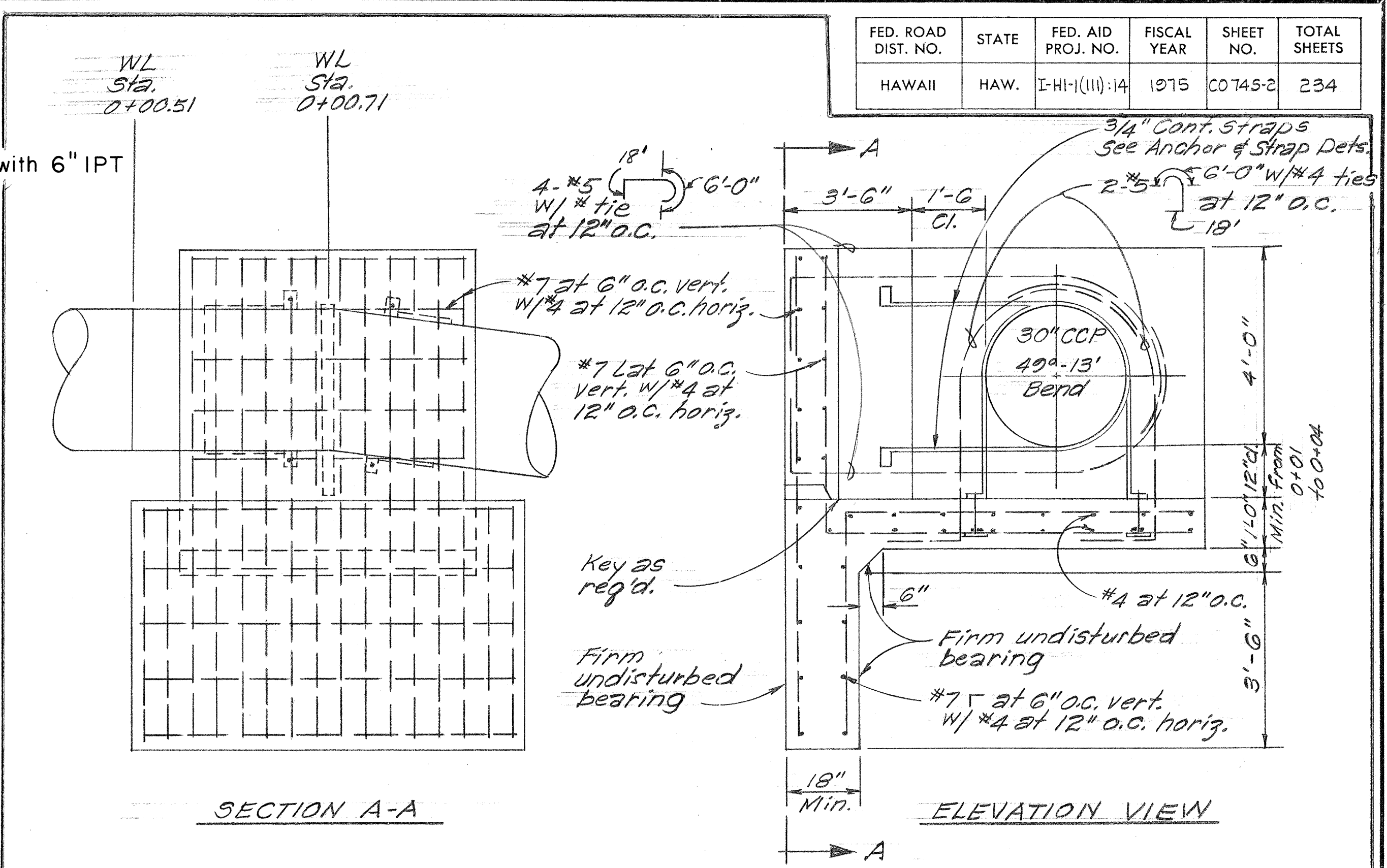
TYPICAL SECTION OF TEMPORARY CLEANOUT

NOTE:

For Pipe Sizes 24" And Larger 2 Handholes Required.



DETAIL OF SPLIT BUTT STRAP



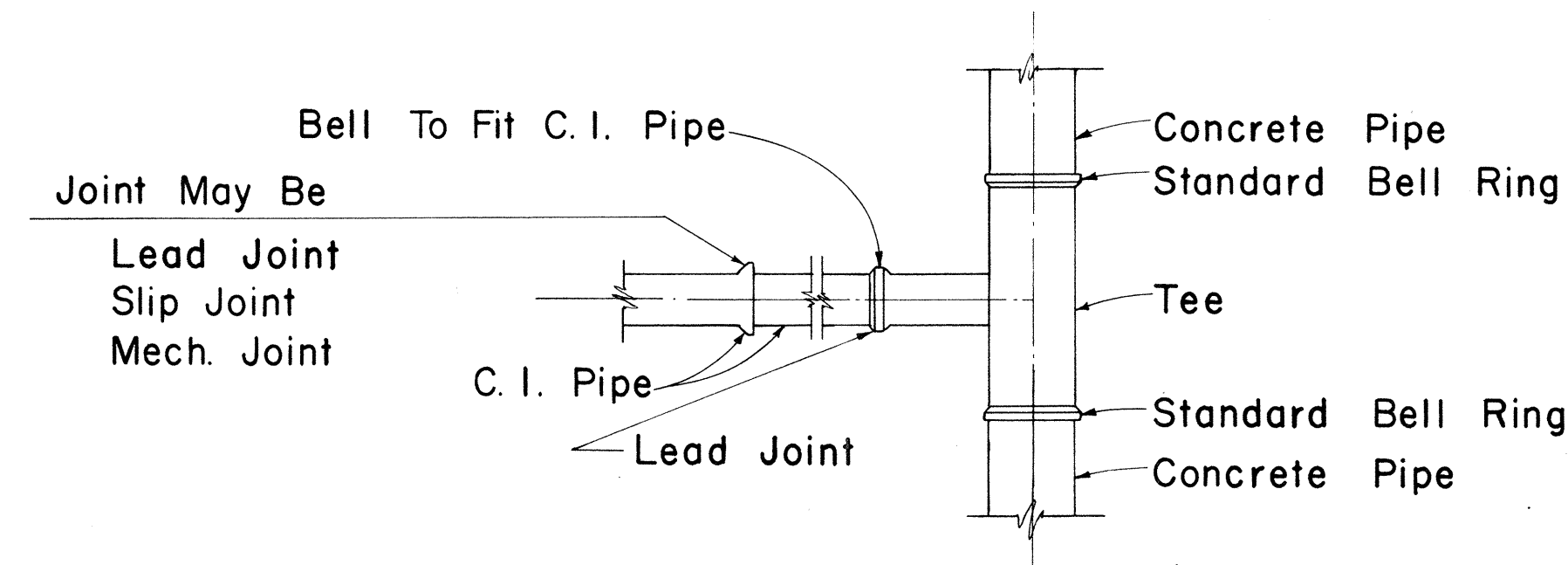
SECTION A-A

ELEVATION VIEW

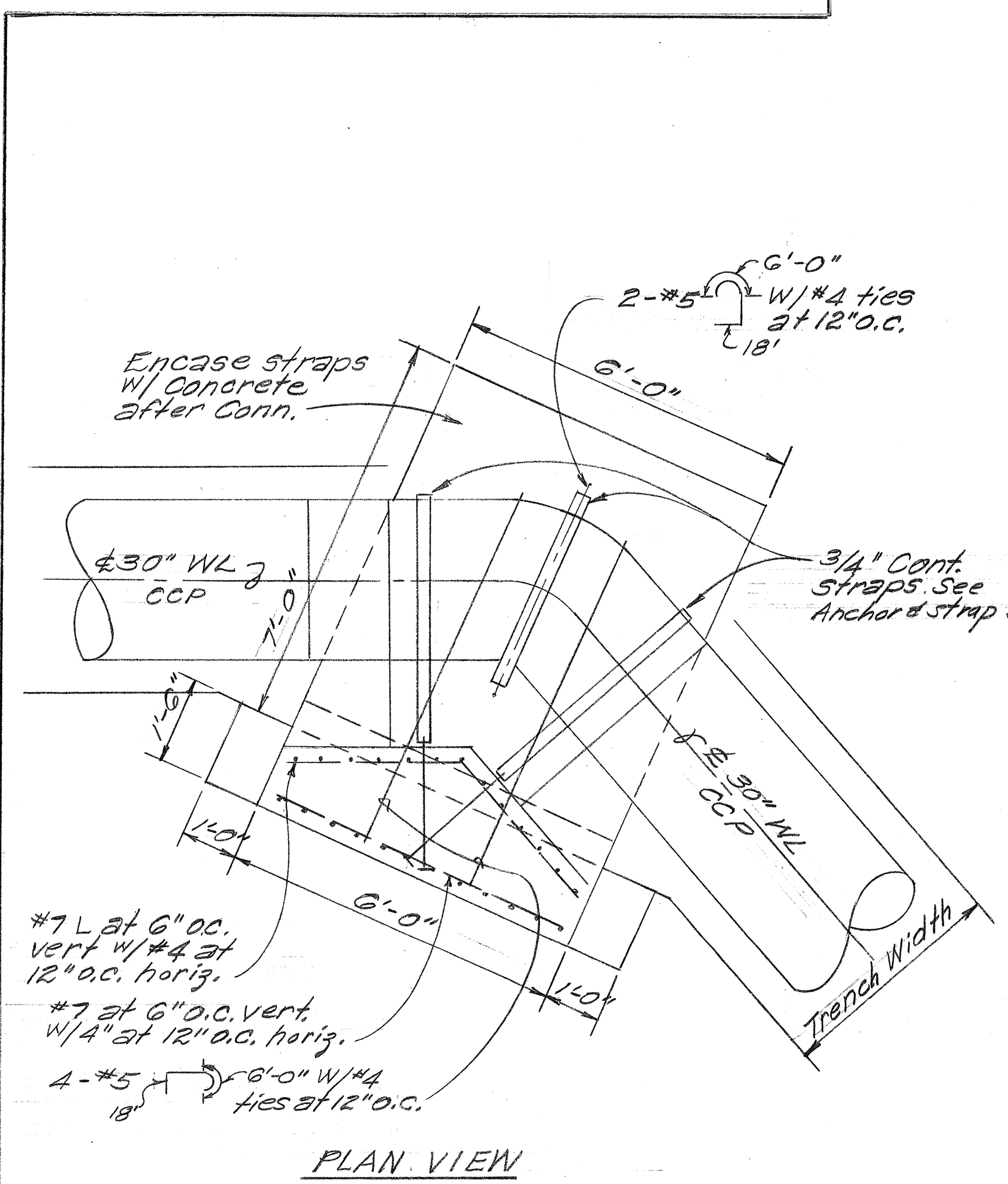
FIELD DIRECTIVE 5-14-74

Concrete Block for 30" WL Sta 0+04.71 See Sht. 68.

DRAWINGS WITHIN RED BORDER PREPARED DURING 'AS BUILT' POSTING.



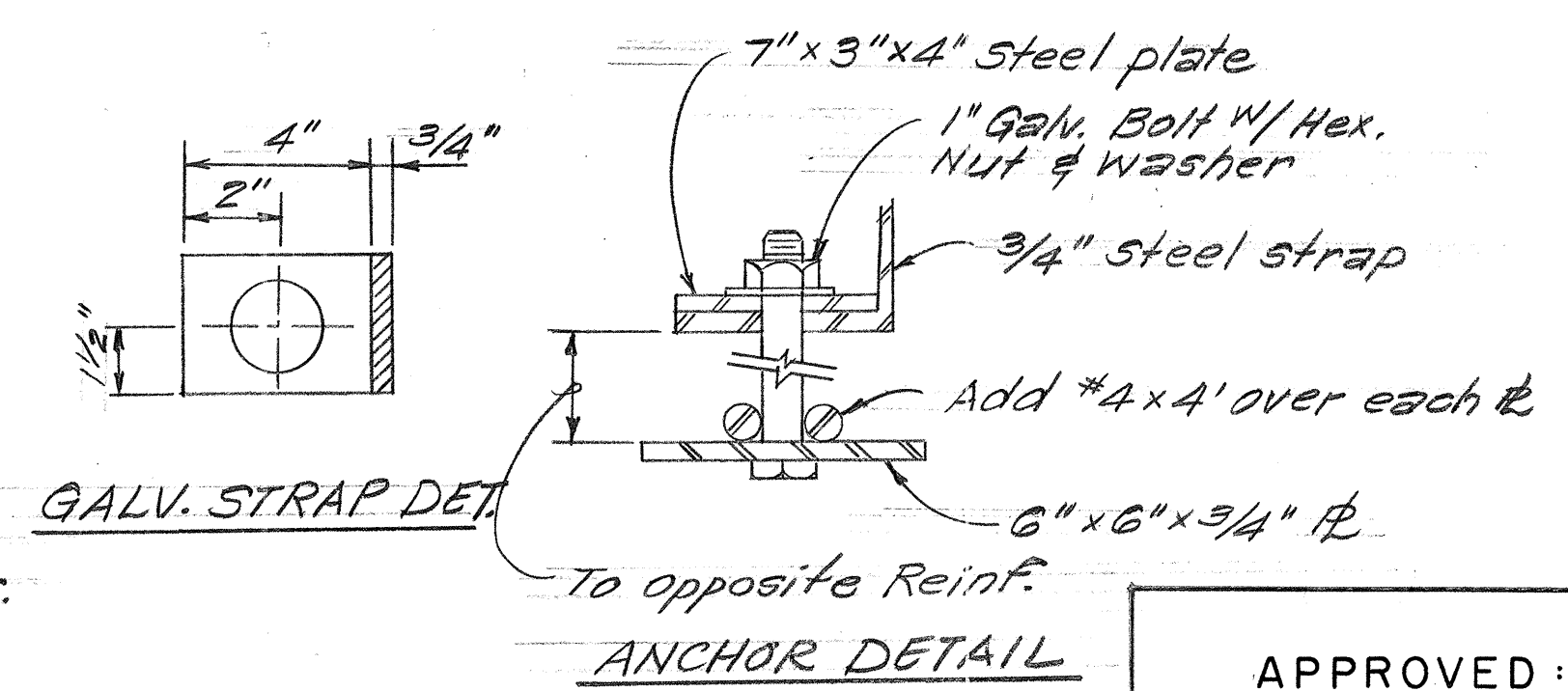
TYPICAL CAST IRON PIPE CONNECTION TO CONCRETE CYLINDER PIPE



PLAN VIEW

CONCRETE BLOCK FOR 30" WATER LINE - STA. 0+04.71

NOT TO SCALE

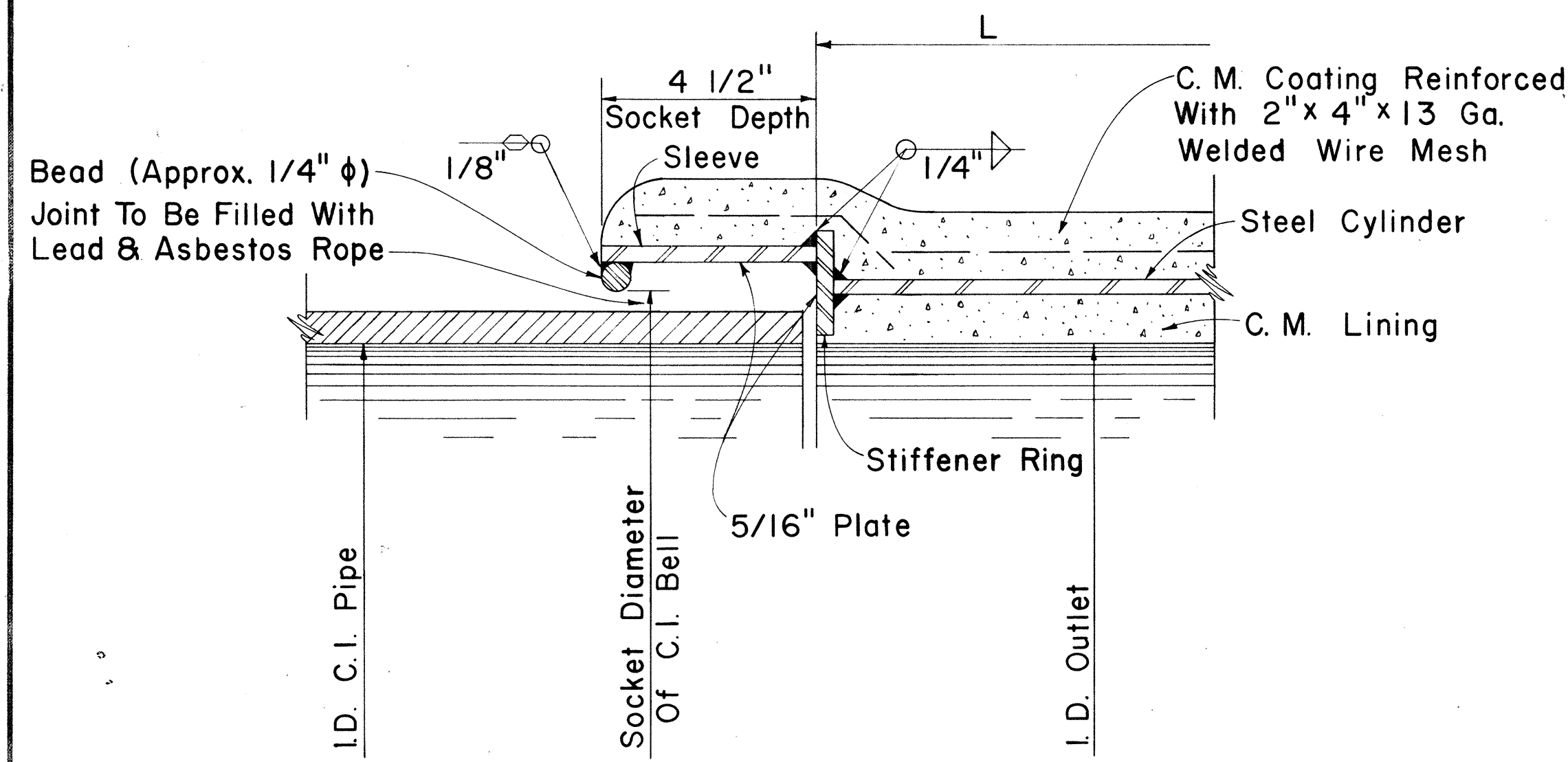


GALV. STRAP DET.

ANCHOR DETAIL

NOTES:

1. BWS Class "B" concrete.
2. Design press. 100 psi.
3. 3" cover over all reinf.
4. Field verify all dimensions before fabrication.
5. Dewatering shall be continuous.
6. All steel shall be A-36.
7. All weld shall conform to AWS standards.
8. Contact Engineer if soil condition prohibits construction as shown.



DETAIL OF C.I. ADAPTER

APPROVED:

ASSISTANT CHIEF ENGINEER DATE
BOARD OF WATER SUPPLY

SHEET NO. 2 OF 2 SHEETS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
CONCRETE CYLINDER PIPE
MISCELLANEOUS DETAILS

Scale: No Scale Date:

SHEET No. 83 OF 8 SHEETS

C074S-2

DATE	
SURVEY PLOTTED BY	
ORIGINAL	
PLAN	
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
No.	