

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-H2-1(15)0        | 1974        | 15        | 54           |

Sta. 32+30  
Install 24" CCP-Class 250  
encased in reinforced  
concrete jacket within  
R/W. Extend pipe 5'  
beyond R/W at both ends.  
For Profile see this sheet.

NOTE:  
For work to be done  
on Flood Lights (F.L.)  
see note on sheet  
no. 5.

Sta. 31+82±  
Install One 4-inch  
GS Conduit for  
Transpac (128 L.F.)  
For Detail-See this sht

PLAN  
Scale: 1" = 50'

Existing Aviation Gas  
Line to remain.  
For approximate Profile,  
see this sheet.

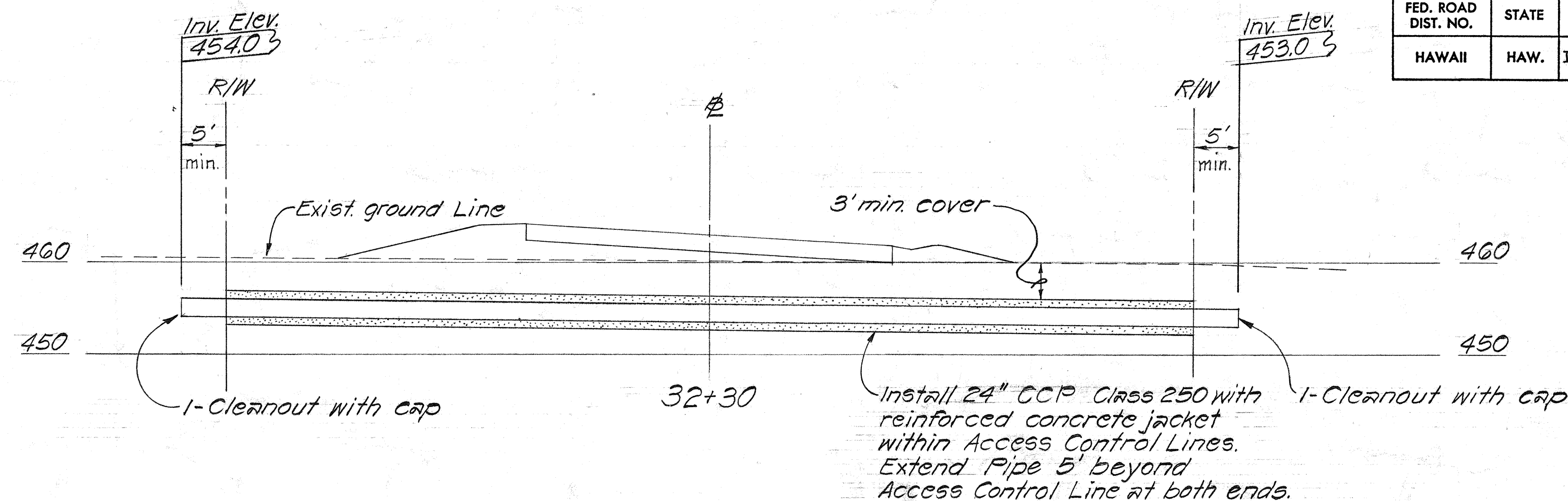
### WATER NOTES

- Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the "Standard Specifications for Road and Bridge Construction" dated 1969, as amended of the Hawaii Highways Division, Department of Transportation.
- Approval of the plans by the B.W.S. is based only on the construction of the water main meeting the B.W.S. standards. The Board of Water Supply does not assure that the main size is adequate or an adequate supply of water is available. All other features of the water system such as lines, grades, fittings, etc., shall be the responsibility of the Engineer who prepared the plans.
- The Contractor shall notify the Board of Water Supply in writing one week prior to commencing work on the main.
- The water line shall remain private and kept filled with water until such time it becomes in use. At that time the water line shall be retested and chlorinated before being turned over to the Board of Water Supply. Acceptance of the water main by the Board of Water Supply will be withheld until a master plan is developed and that the water main has become an integral part of the Board of Water Supply System.
- Reinforced concrete jacket shall be poured after completion of test unless otherwise approved by the Engineer.

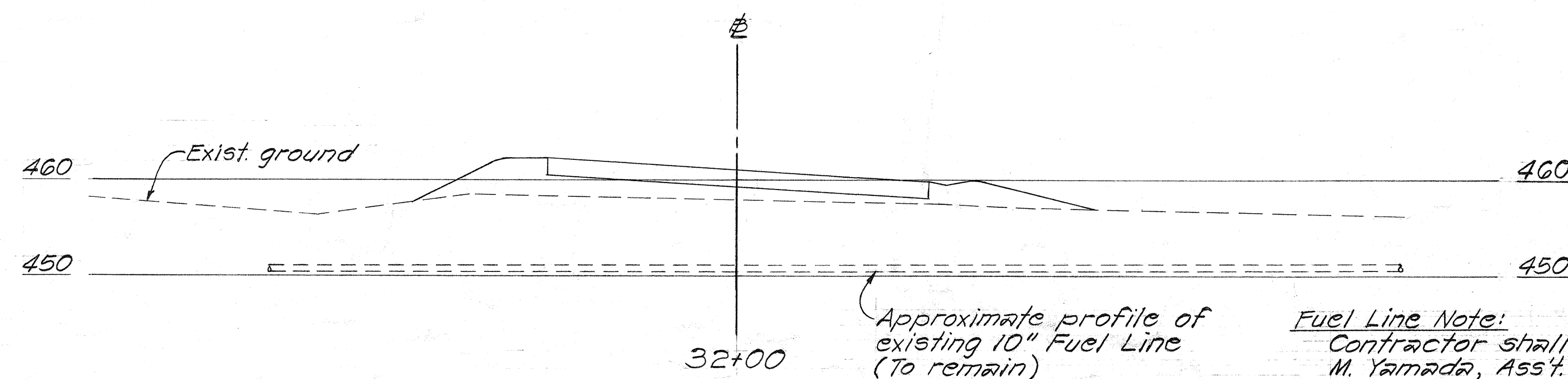
|        |                        |
|--------|------------------------|
| 8/7/74 | Notes 2 and 4 revised. |
| DATE   | REVISION               |

APPROVED:

*R. Nagata* 8-9-74  
for Assistant Chief Engineer Date  
Board of Water Supply (water)

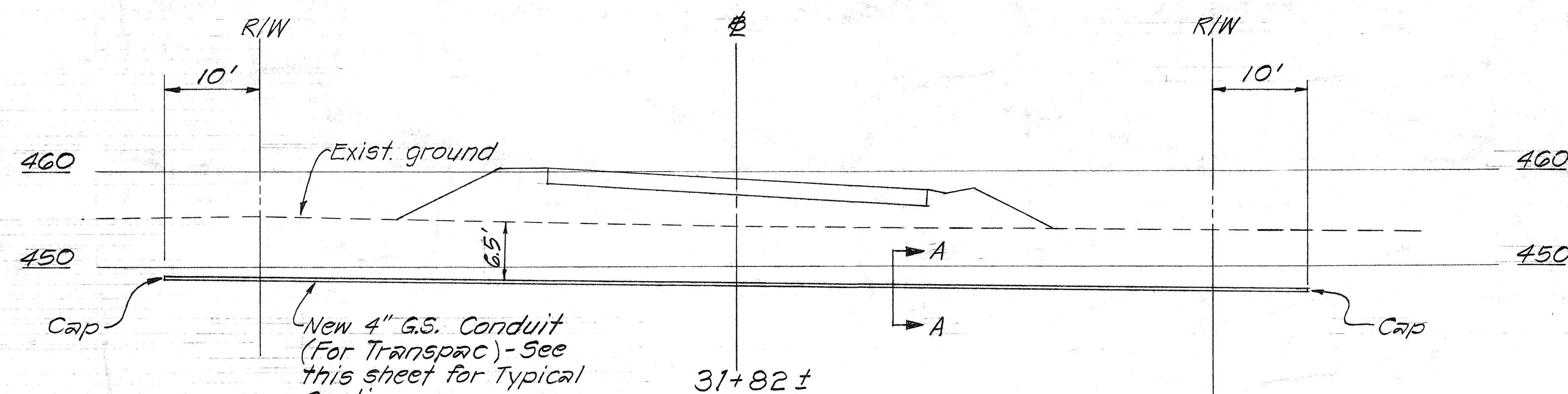


PROFILE OF NEW 24-INCH CONC. CYLINDER PIPE WITH  
REINFORCED CONCRETE JACKET  
Scale: 1" = 10'

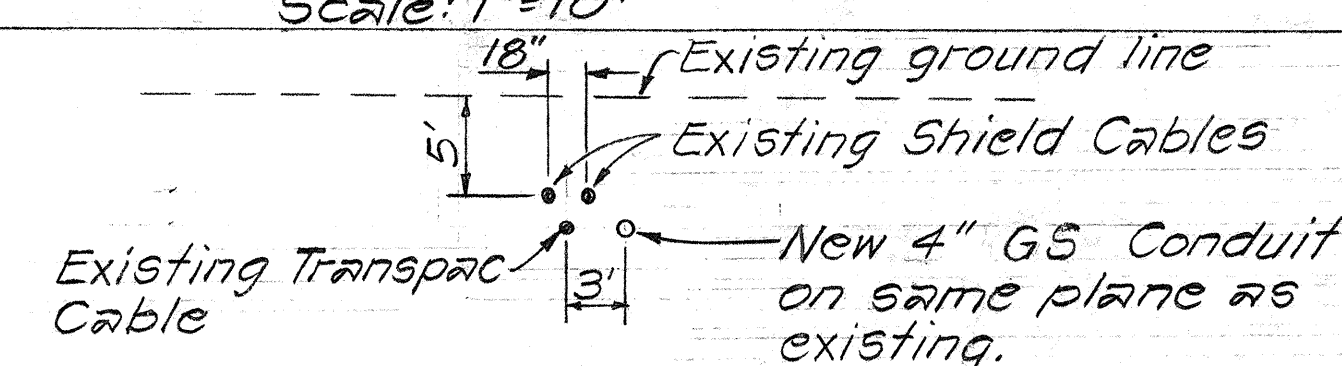


TYPICAL SECTION OF ROADWAY  
OVER EXISTING FUEL LINE  
Scale: 1" = 10'

Fuel Line Note:  
Contractor shall notify Mr. Allan  
M. Yamada, Ass't. Dep. Cmdr. for  
Civil Engr. Hickam AFB, phone  
no. 449-6063 10 days prior to  
doing work over the existing  
Fuel Line.



PROFILE OF NEW 4" GS CONDUIT FOR  
TRANSPAC (EMERGENCY LINE)  
Scale: 1" = 10'



SECTION A-A FOR  
4" GS CONDUIT (TRANSPAC)  
Scale: Not to Scale

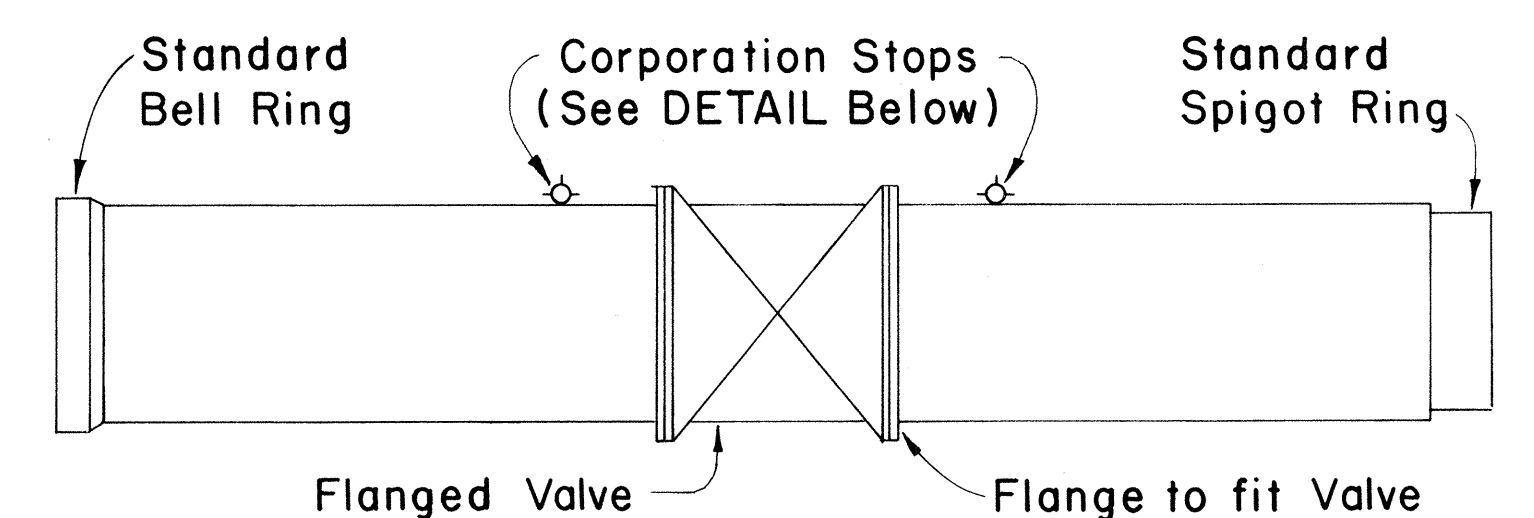
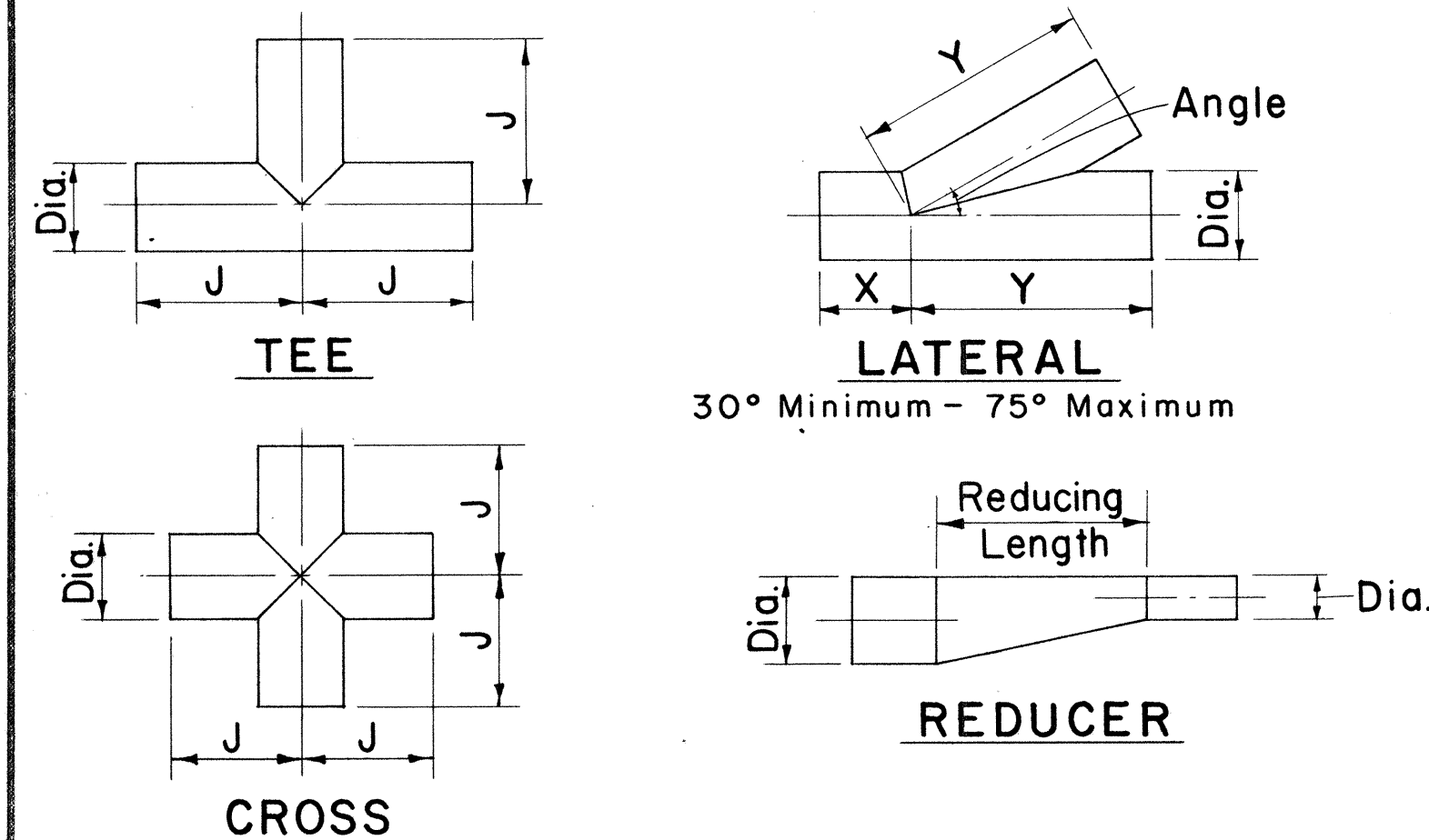
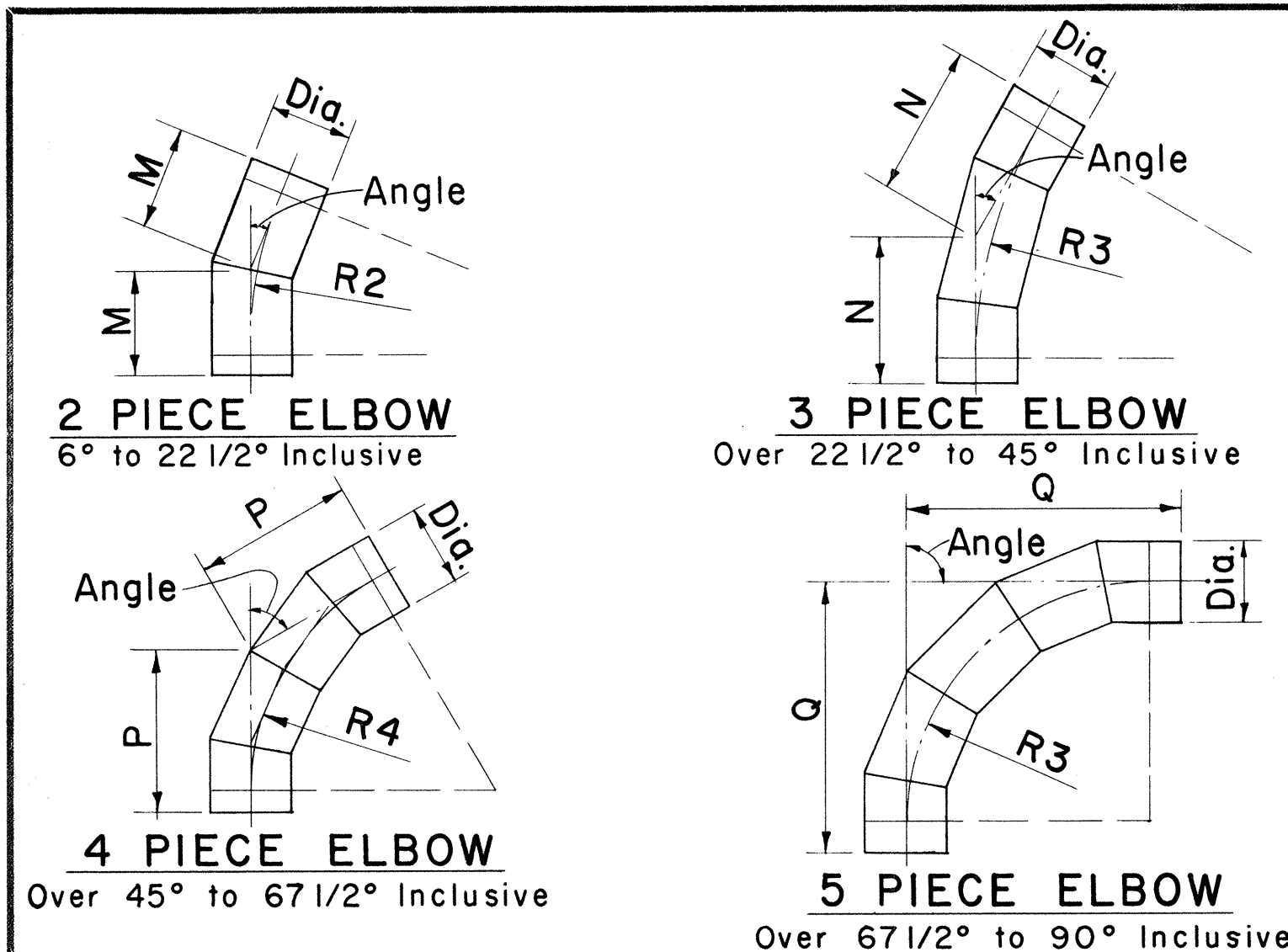
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### R/W AND UTILITY ADJUSTMENTS

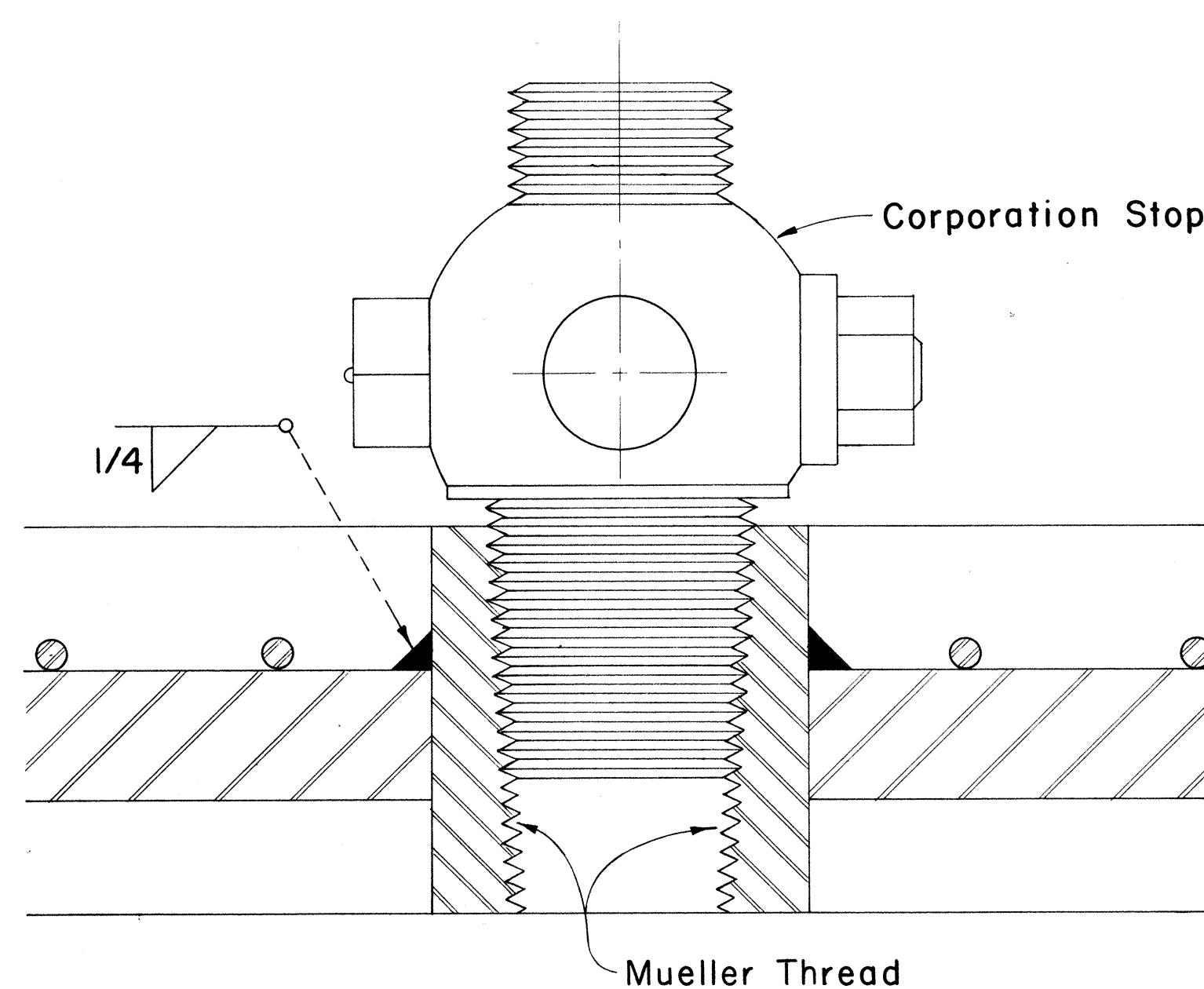
INTERSTATE ROUTE H-2  
TEMPORARY CONNECTOR  
F.A.I. Proj. No. I-H2-1(15)0

Scale: As Shown Date: April, 1974  
SHEET No. 1 OF 4 SHEETS

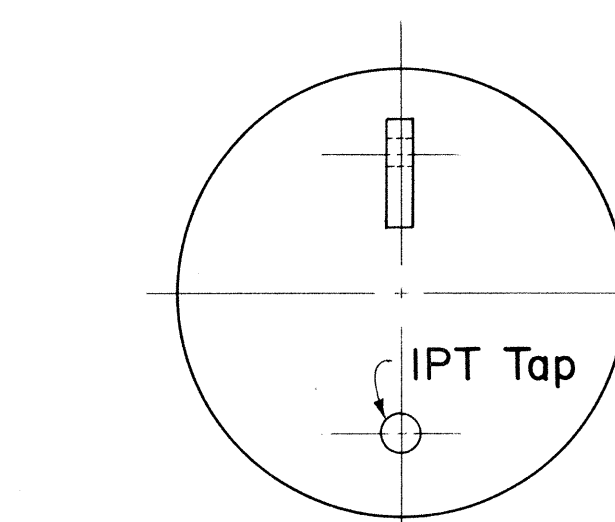
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII              | HAW.  | HA2-1(19):0        | 1974        | 16        | 54           |



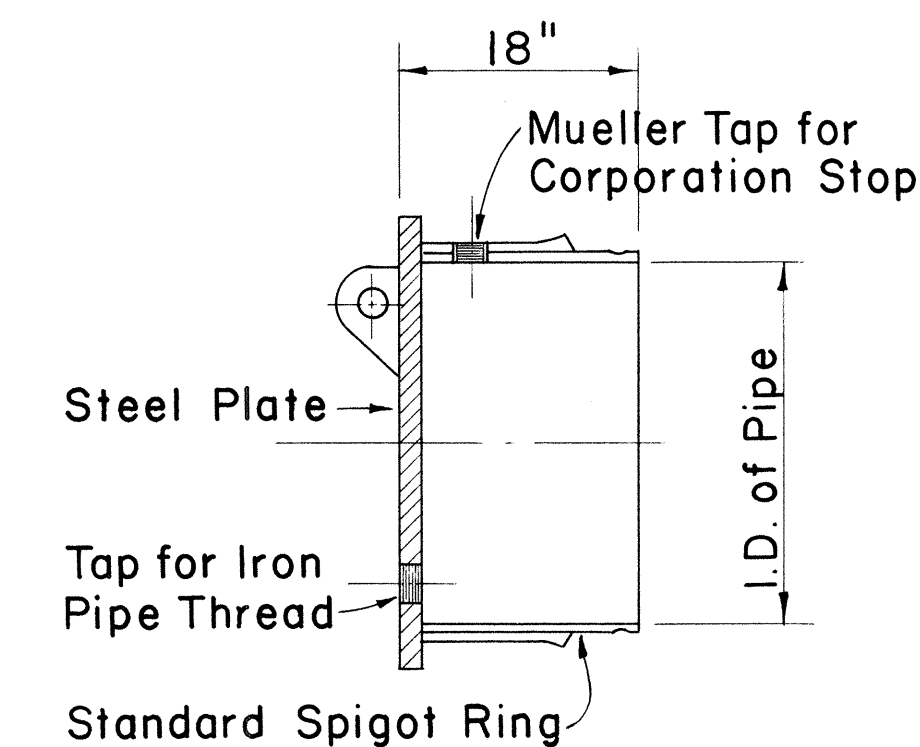
ELEVATION



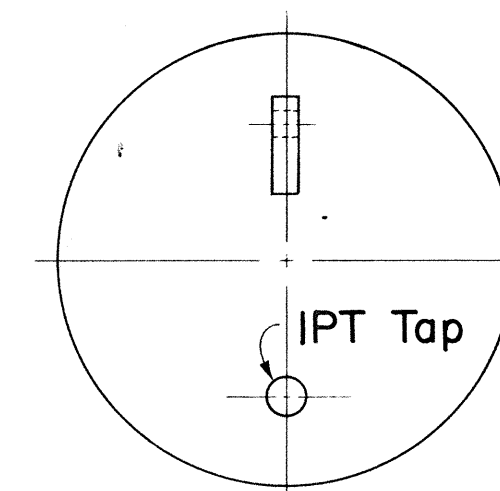
TYPICAL SECTION THRU CONCRETE PIPE AT CORPORATION STOP



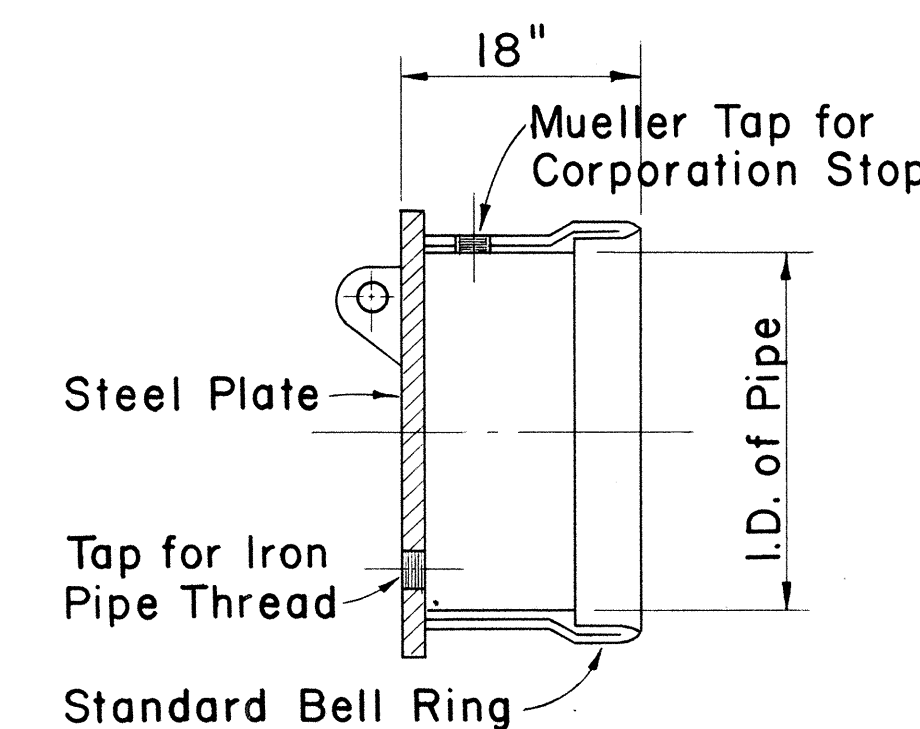
ELEV. OF STEEL PLATE



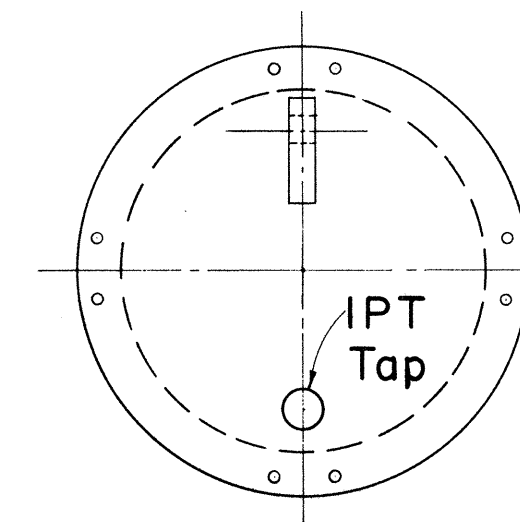
DETAIL OF PLUG



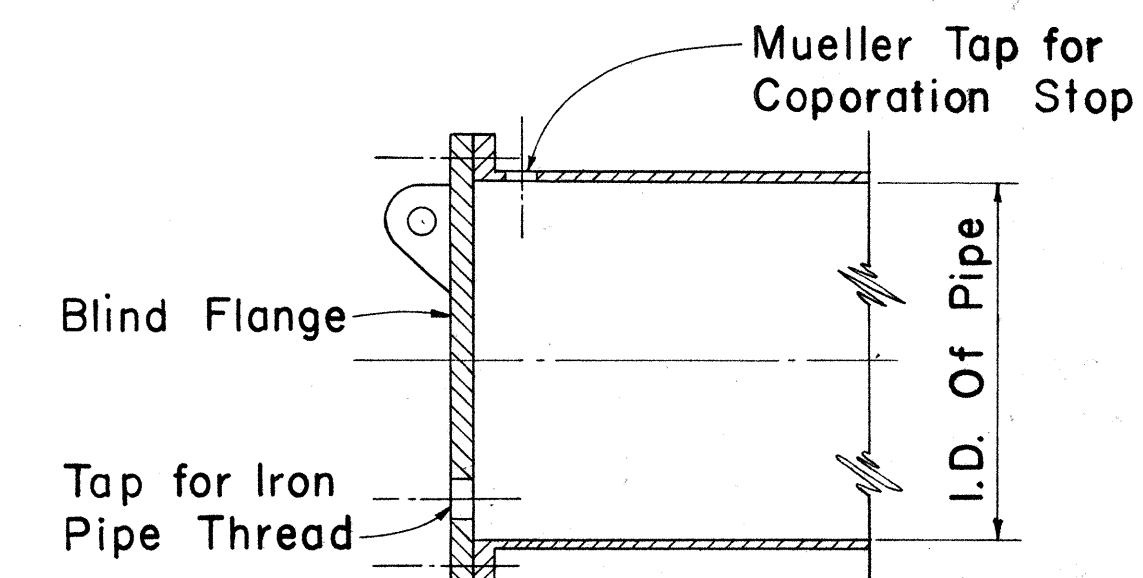
ELEV. OF STEEL PLATE



DETAIL OF CAP



ELEV. OF BLIND FLANGE



SECTION

DETAIL OF BLIND FLANGE

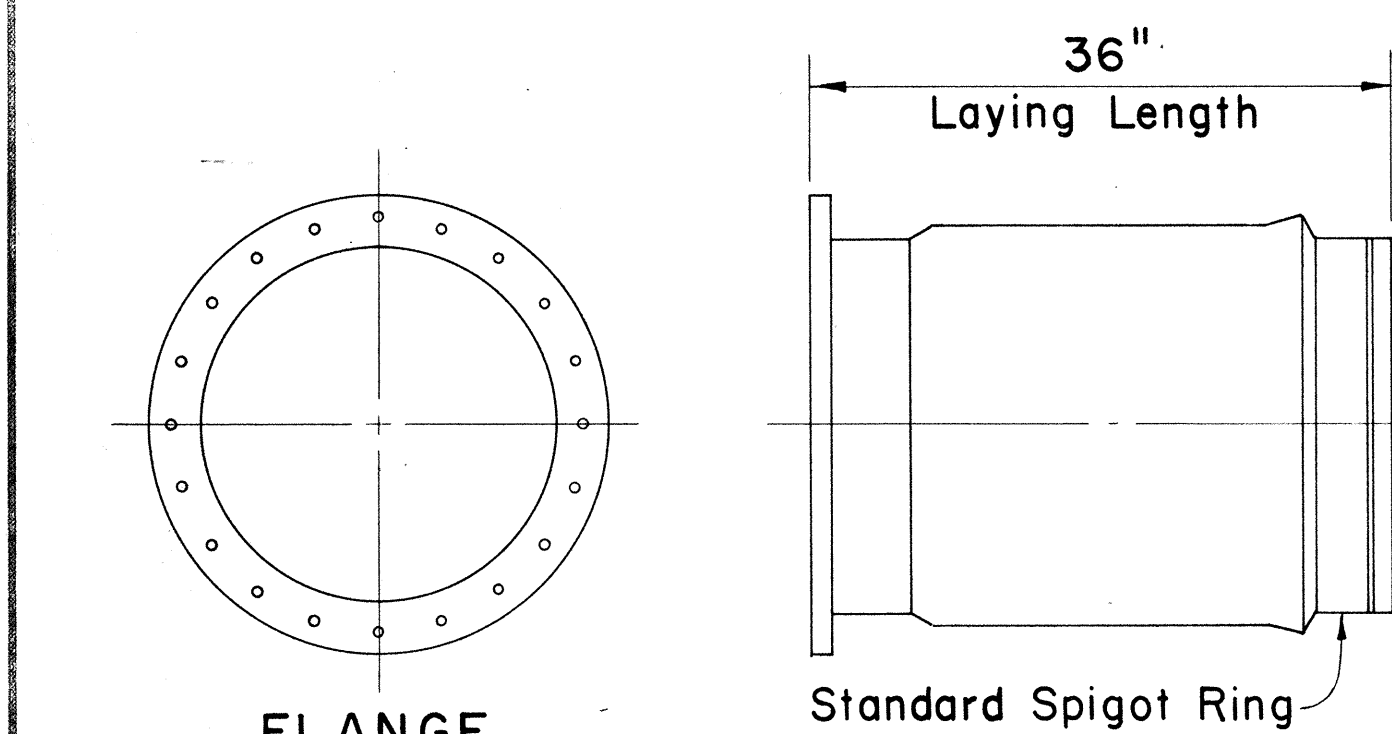
| STANDARD FITTING DIMENSIONS |     |        |                             |                                    |        |                            |     |                             |     |                             |     |                             |      |
|-----------------------------|-----|--------|-----------------------------|------------------------------------|--------|----------------------------|-----|-----------------------------|-----|-----------------------------|-----|-----------------------------|------|
| DIAMETER                    | TEE |        | CROSS<br>(Both Ways)<br>J+J | LATERAL<br>(30° to 75°)<br>Run X+Y |        | ELBOWS (Center to End)     |     |                             |     |                             |     |                             |      |
|                             | Run | Outlet |                             | Run                                | Outlet | 2 Piece<br>(up to 22 1/2°) |     | 3 Piece<br>(22 1/2° to 45°) |     | 4 Piece<br>(45° to 67 1/2°) |     | 5 Piece<br>(67 1/2° to 90°) |      |
|                             | J+J | J      |                             | X+Y                                | 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

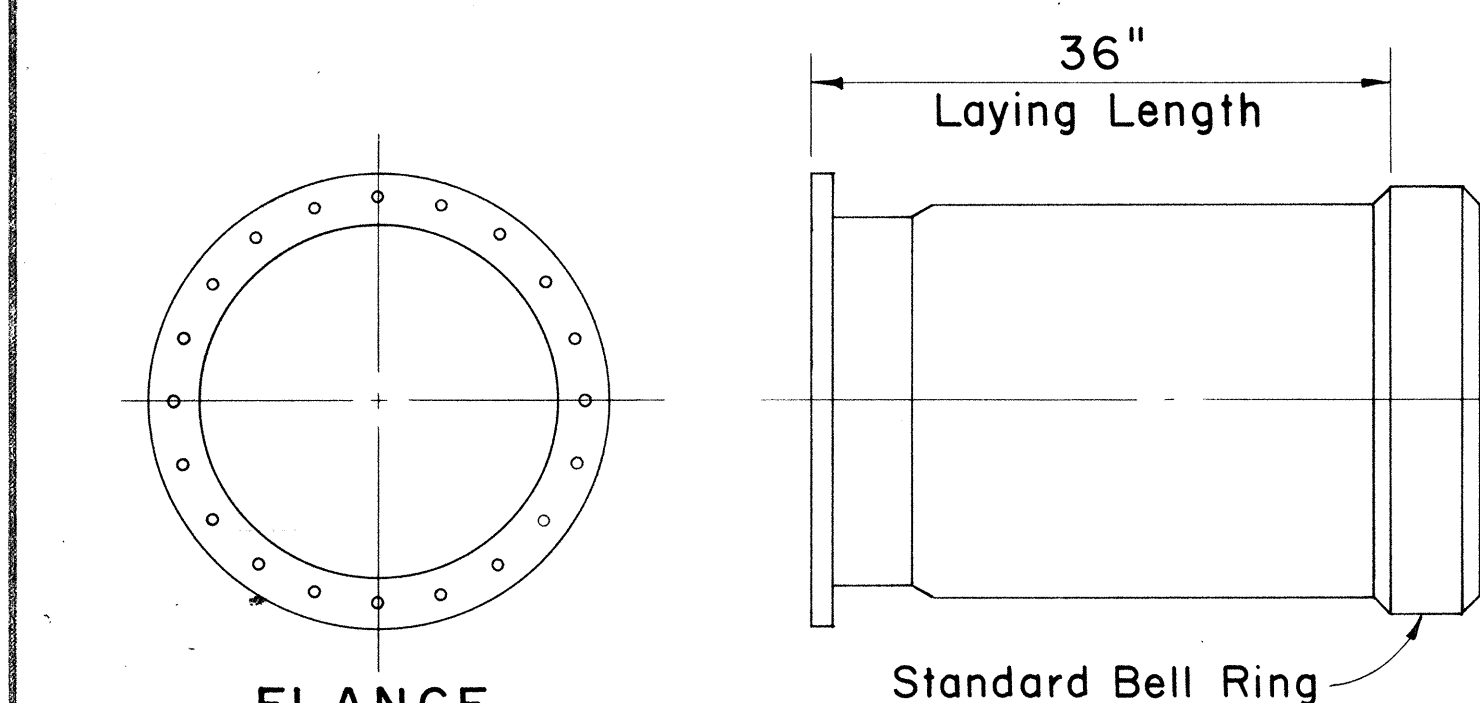
- 36" x 30" Eccentric Reducer - Length 66"
- 30" x 24" Eccentric Reducer - Length 66"
- 24" x 20" Eccentric Reducer - Length 26"
- 20" x 16" Eccentric Reducer - Length 26"
- 42" x 36" Eccentric Reducer - Length 66"
- 42" x 30" Eccentric Reducer - Length 66"

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.

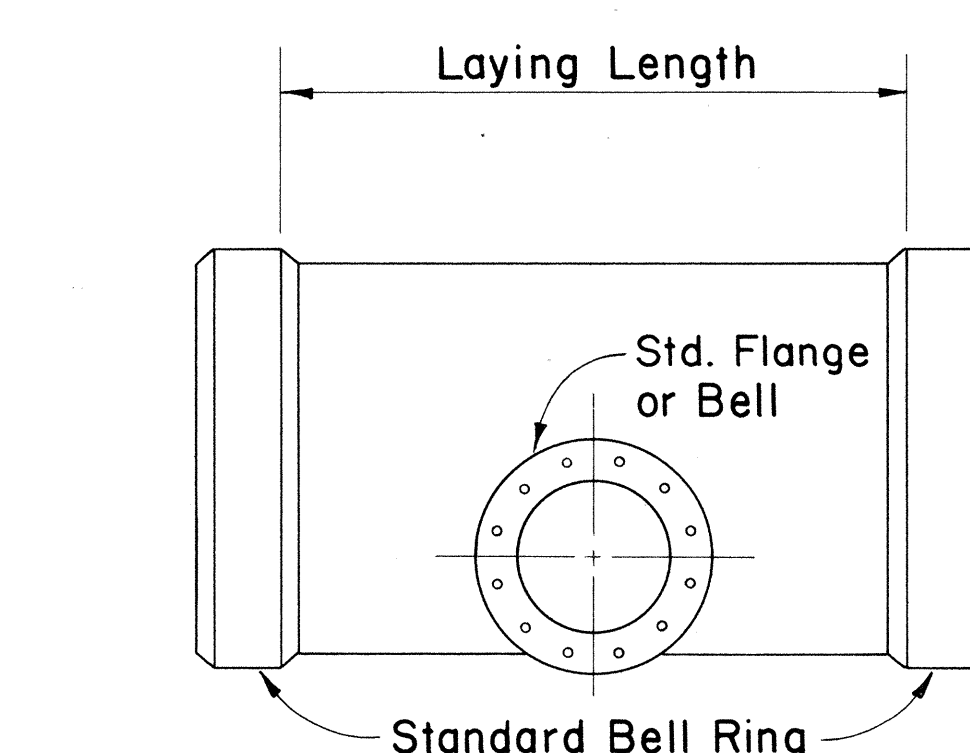
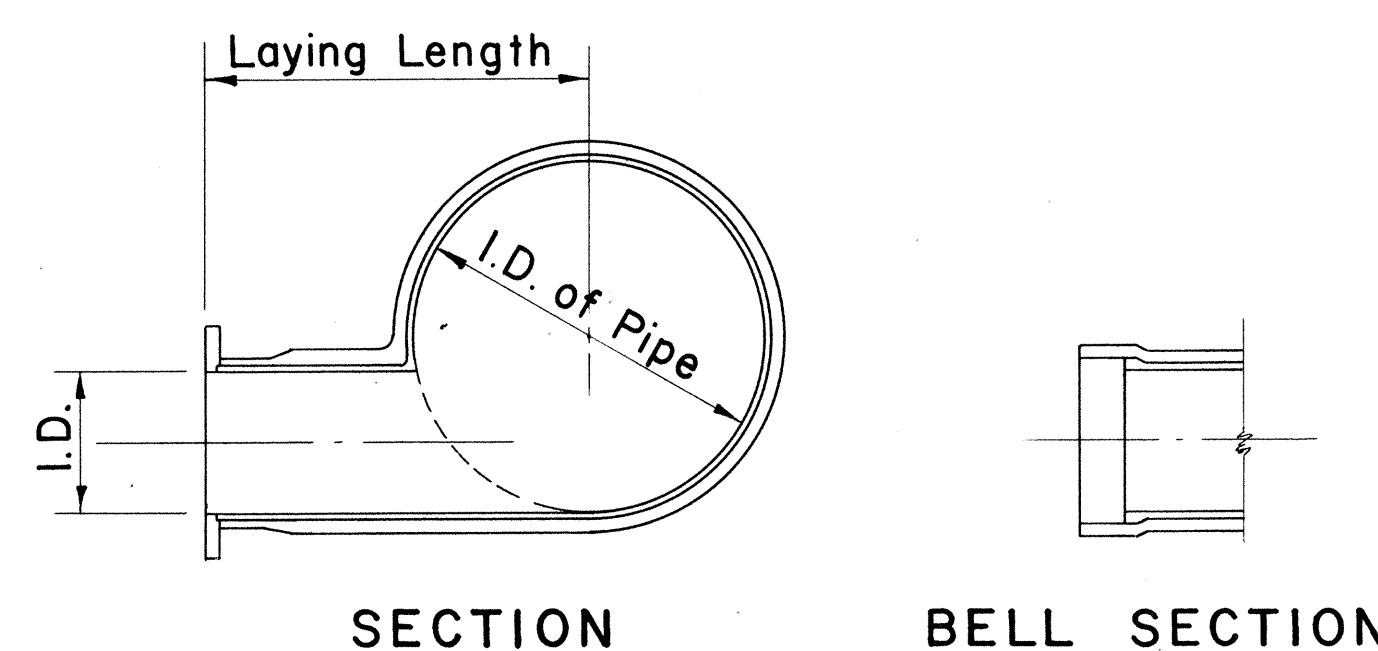


See Specs. for Flange Class



See Specs. for Flange Class

TYPICAL DETAIL OF ADAPTER



TYPICAL DETAIL OF BLOW-OFF TEE

APPROVED:

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

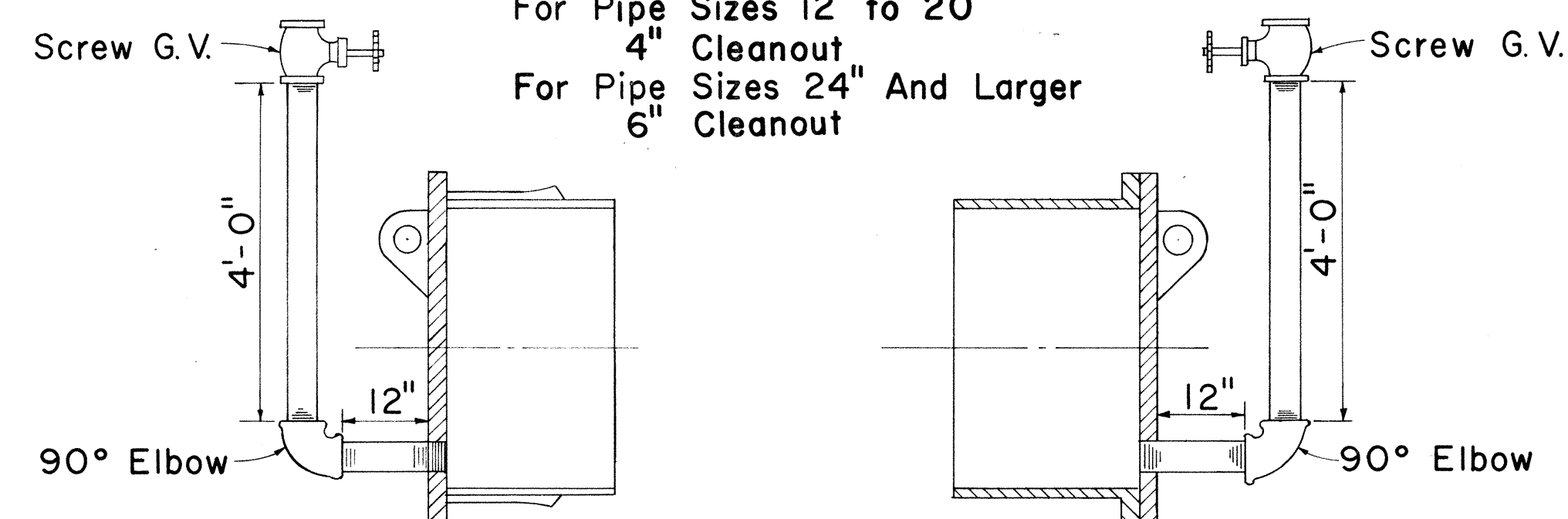
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
BOARD OF WATER SUPPLY  
CITY & COUNTY OF HONOLULU  
CONCRETE CYLINDER PIPE  
MISCELLANEOUS DETAILS

Scale: No Scale Date:  
SHEET No. 2 OF 4 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 1-42-1(18)-0       | 1974        | 17        | 54           |

NOTE:

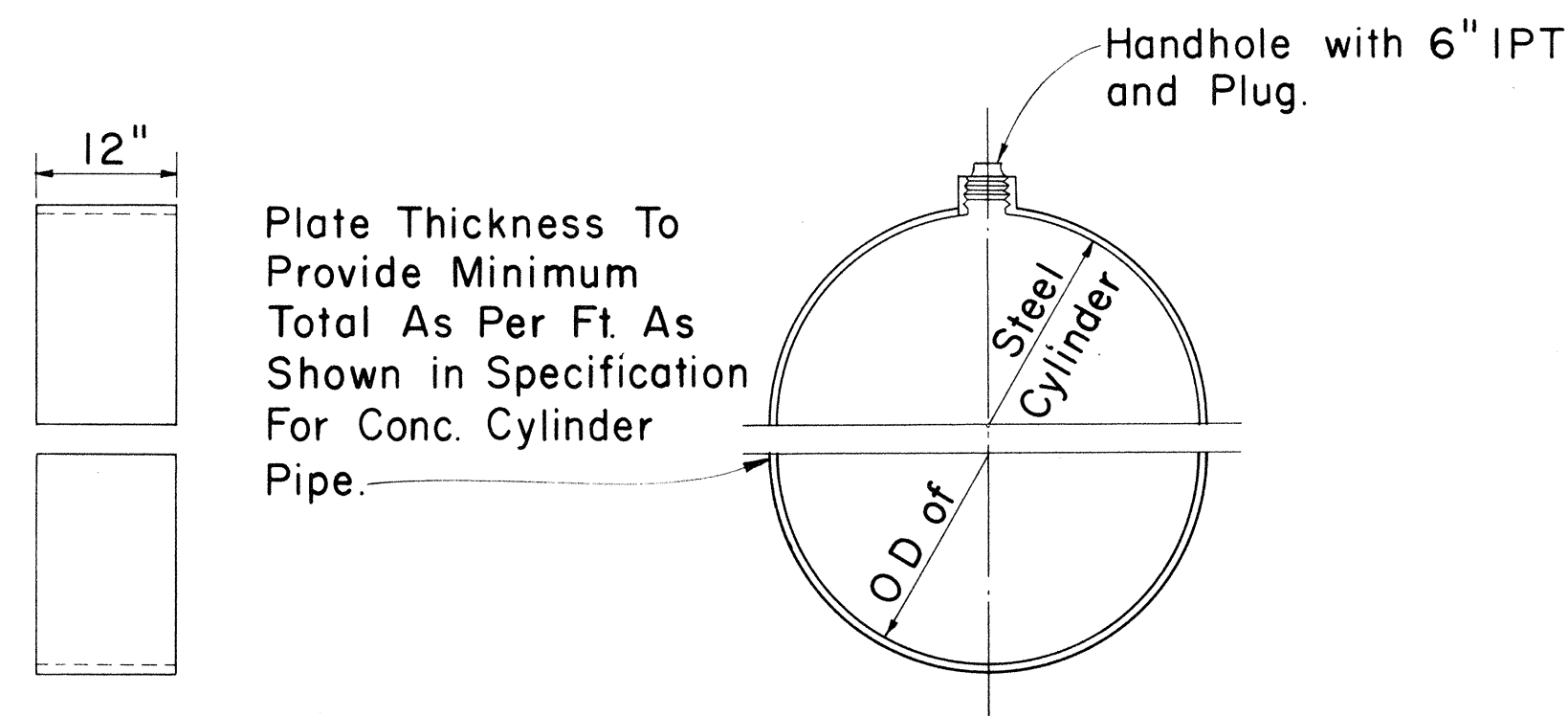
For Pipe Sizes 8" And Smaller  
2 1/2" Cleanout  
For Pipe Sizes 12" to 20"  
4" Cleanout  
For Pipe Sizes 24" And Larger  
6" Cleanout



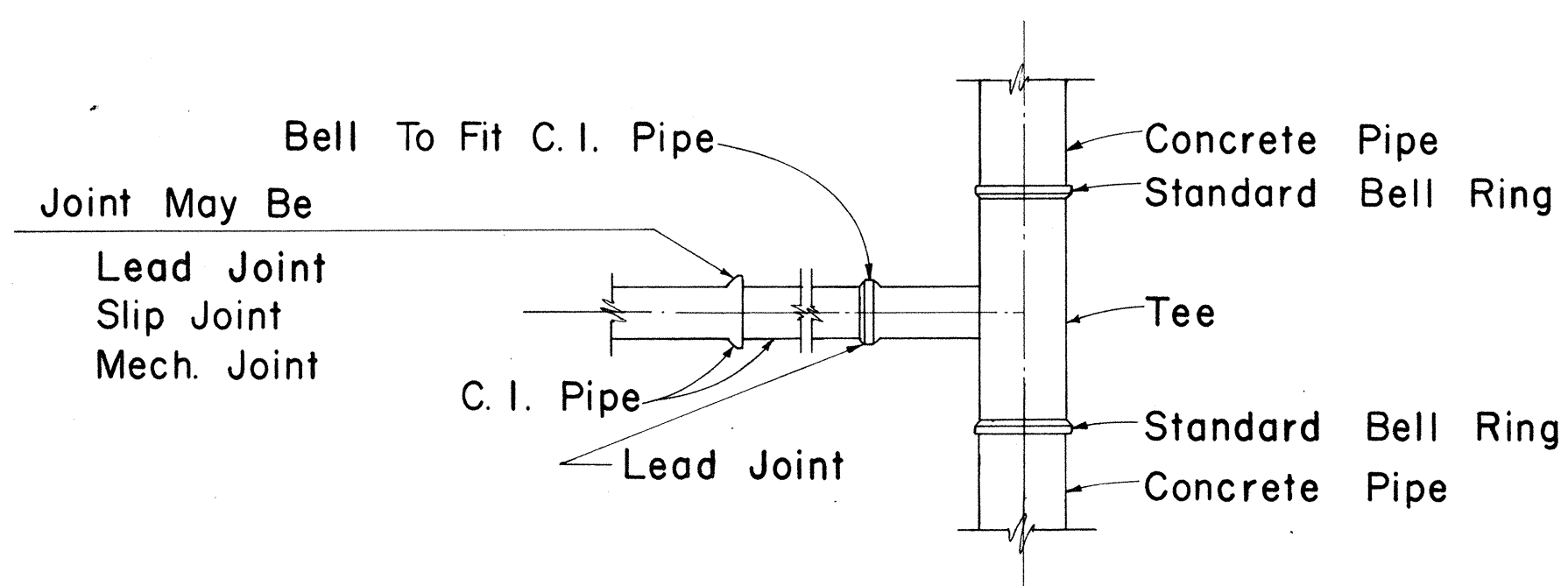
TYPICAL SECTION OF TEMPORARY CLEANOUT

NOTE:

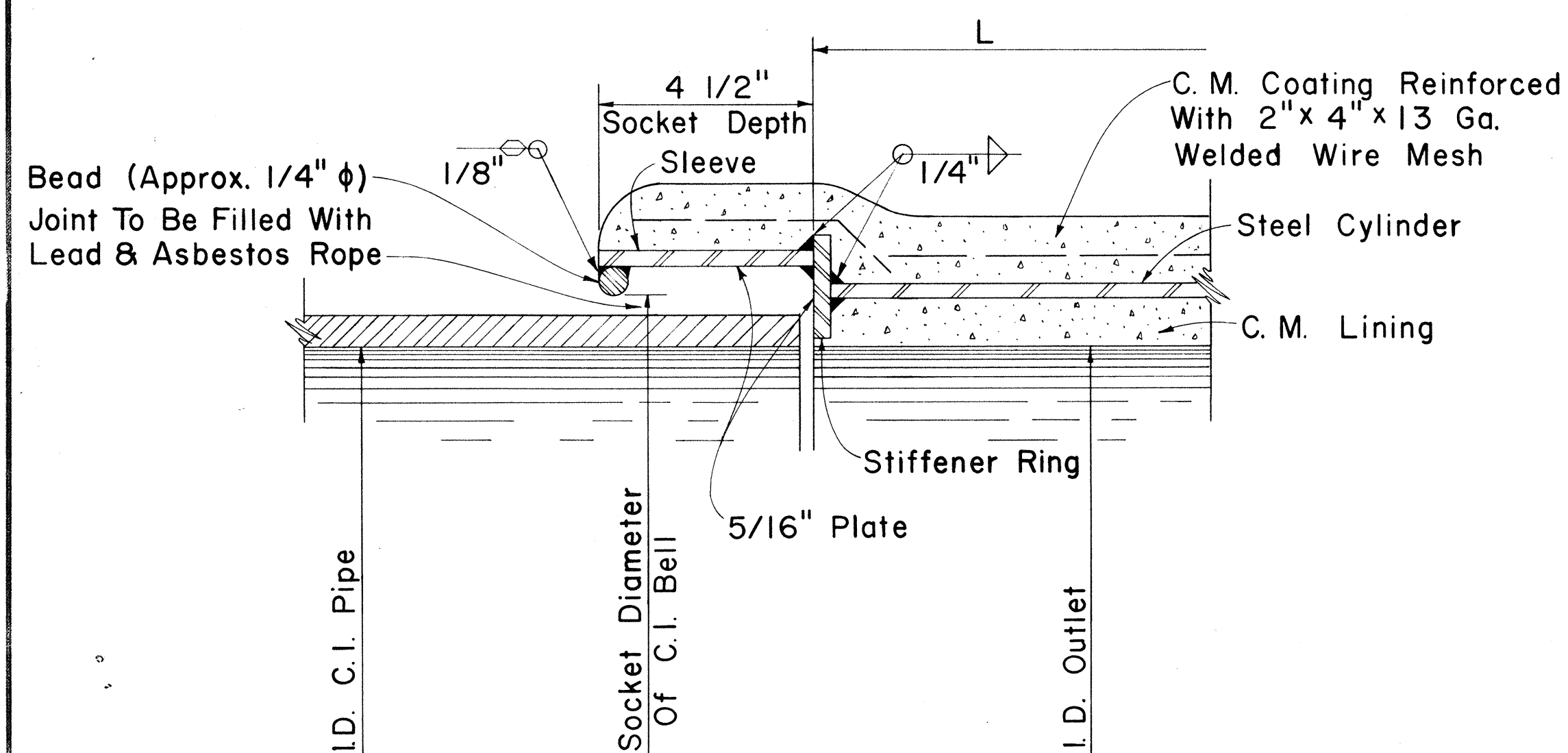
For Pipe Sizes 24" And  
Larger 2 Handholes Required.



DETAIL OF SPLIT BUTT STRAP



TYPICAL CAST IRON PIPE CONNECTION  
TO CONCRETE CYLINDER PIPE



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

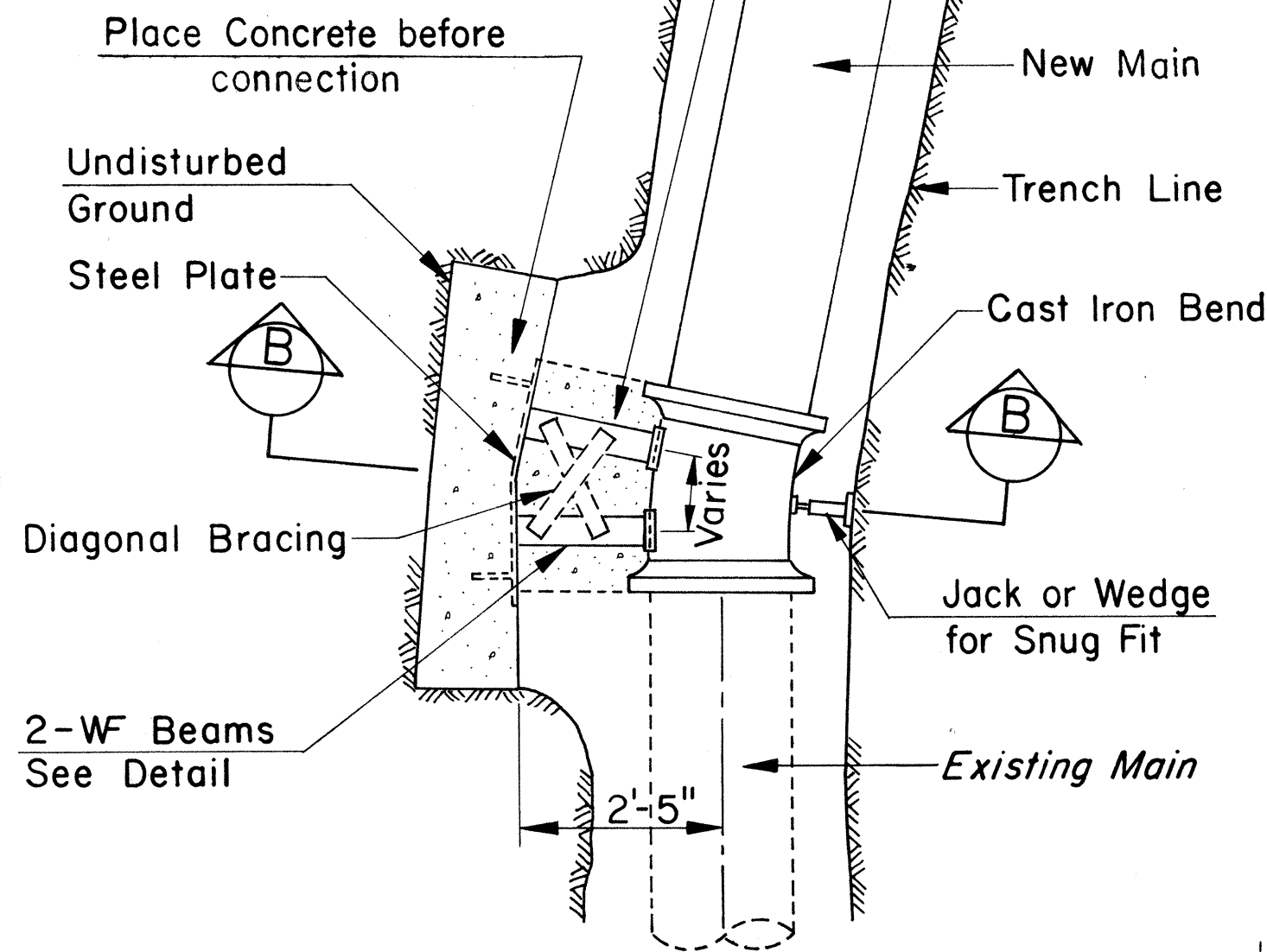
Scale: No Scale Date:

SHEET No. 3 OF 4 SHEETS

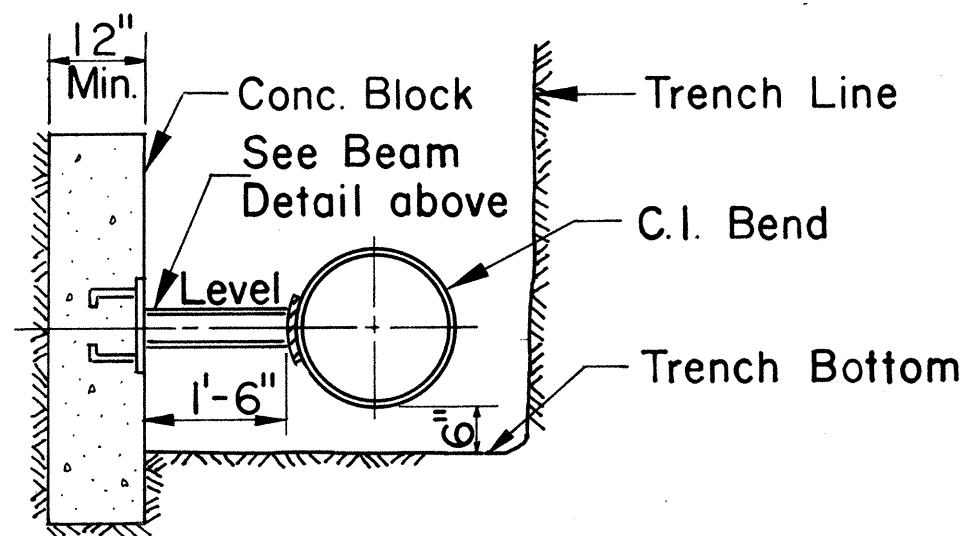
|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
|               | REVIEWED BY       |      |
|               | CHECKED BY        |      |
|               |                   |      |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 1-H2-1(15)0        | 1974        | 18        | 54           |

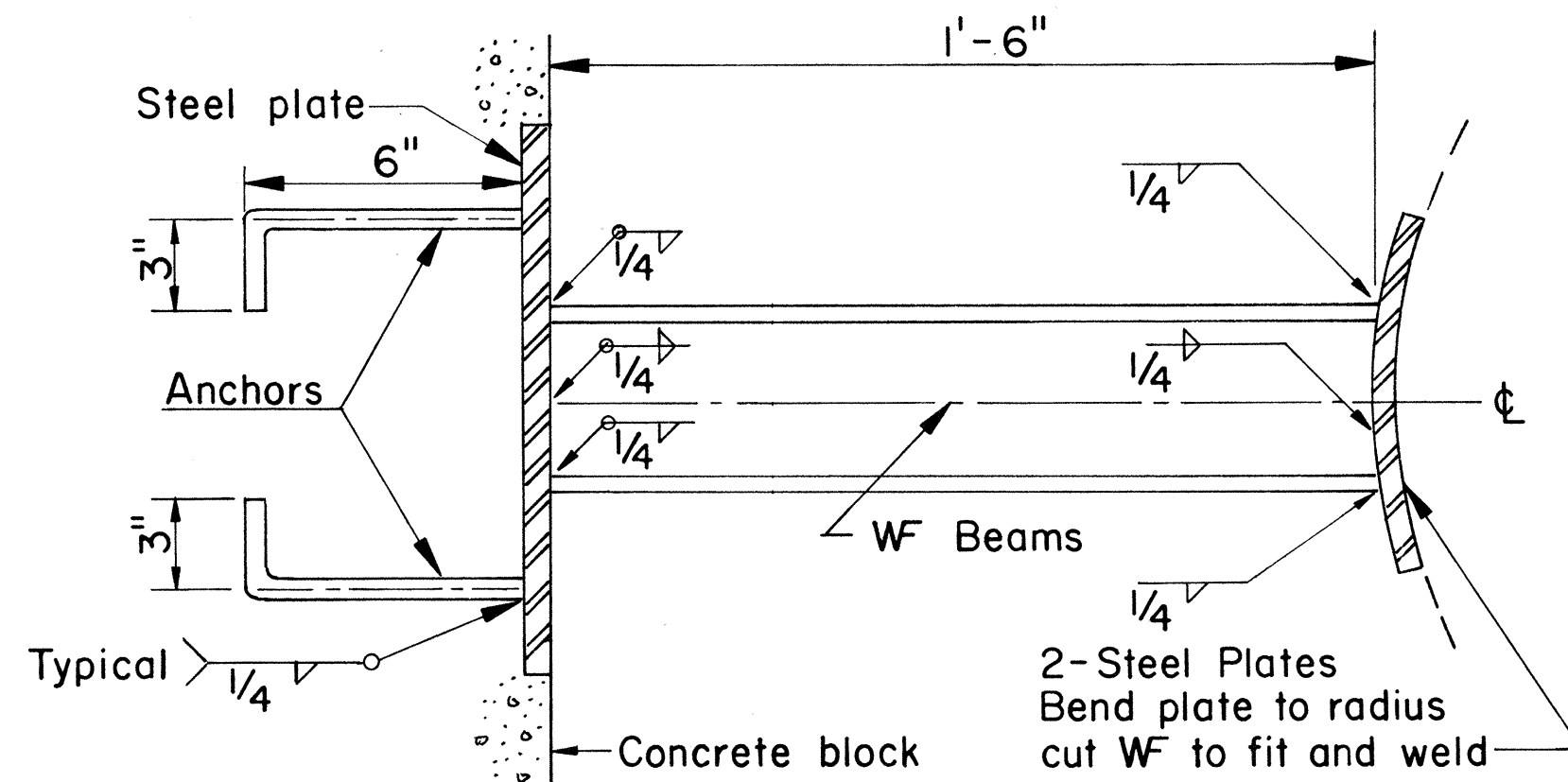
Place Class "B" Concrete  
2500 psi. after connection  
is completed.



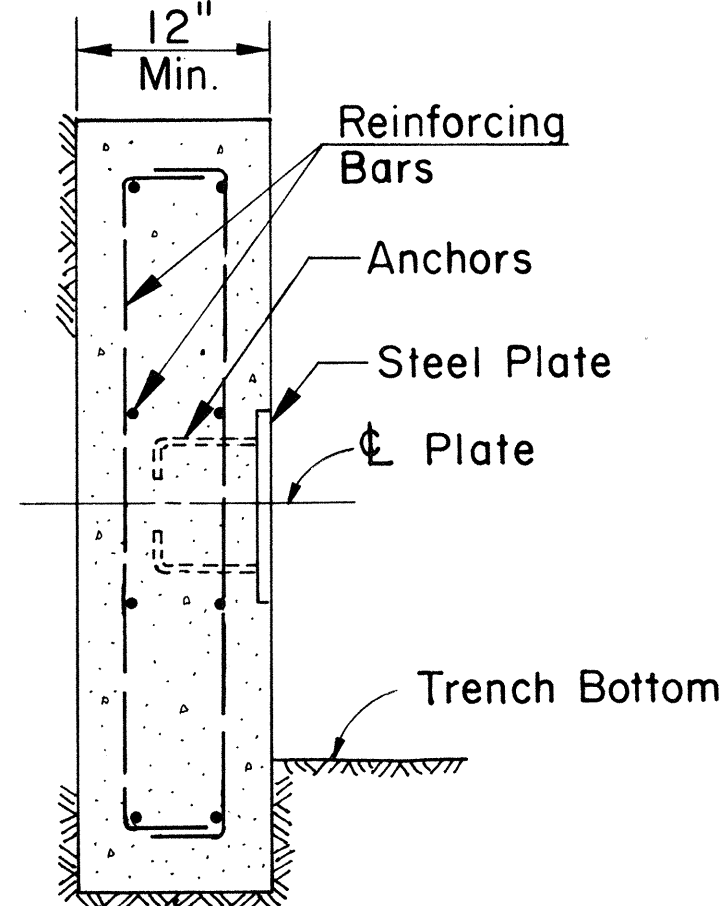
**PLAN**  
Scale: 1/2" = 1'-0"



**SECTION B**  
Scale: 1/2" = 1'-0"



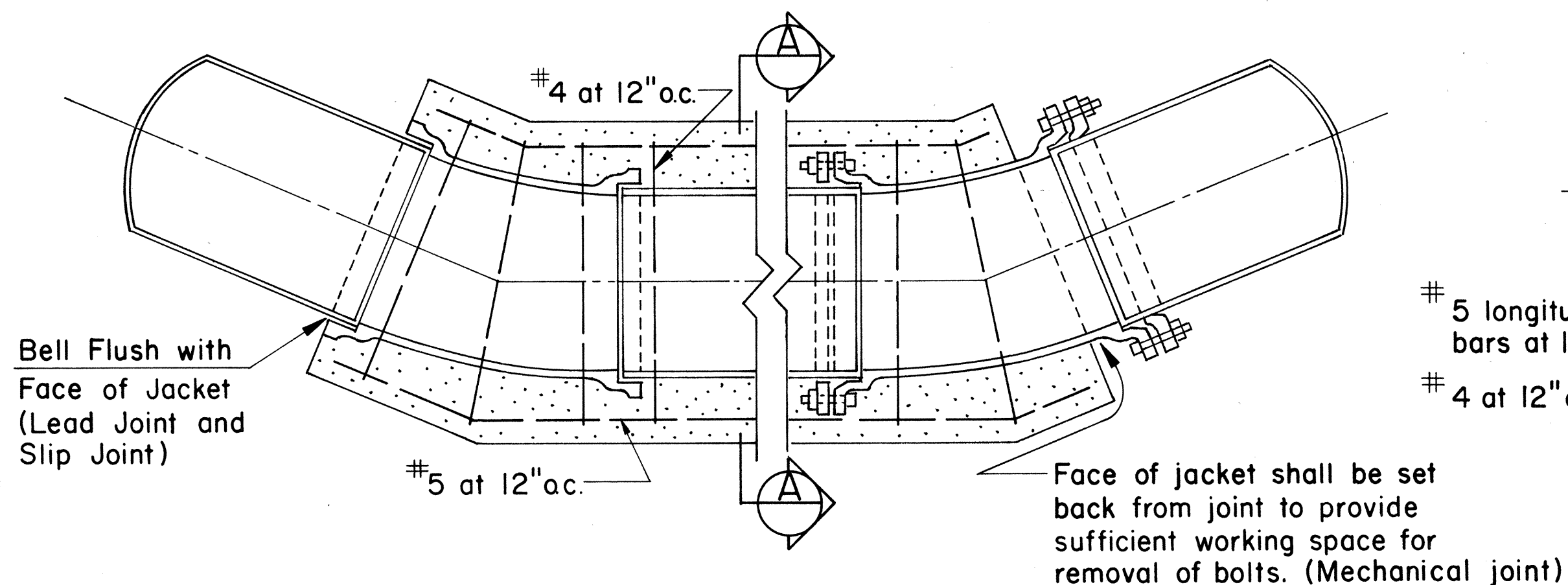
**BEAM DETAIL**  
Scale: 3" = 1'-0"



**CONCRETE BLOCK DETAIL**  
Scale: 1" = 1'-0"

## TYPICAL DETAIL OF CONCRETE BLOCK WITH STRUCTURAL STRUT

FIGURE 20



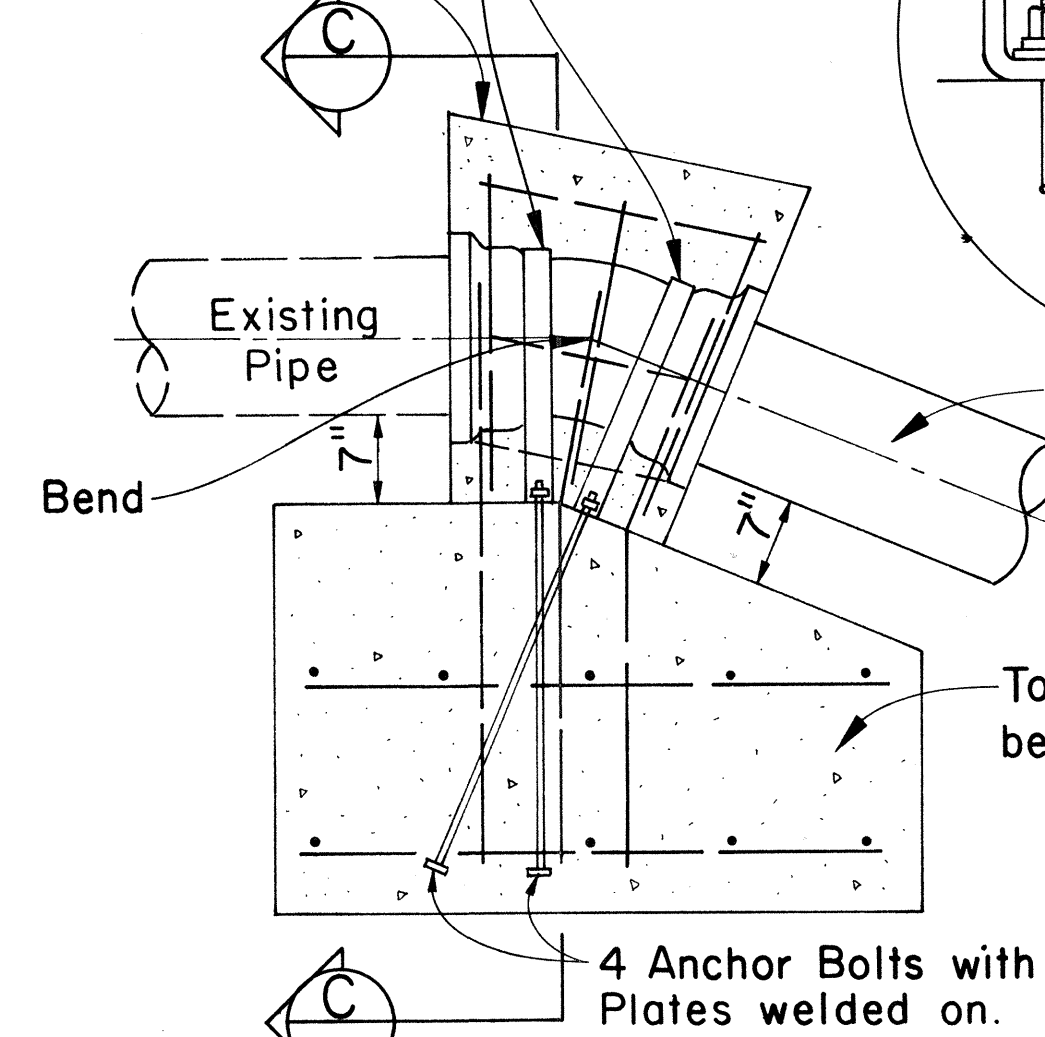
- NOTES:**
1. Jacket to be poured after completion of test unless otherwise approved by the Engineer.
  2. 2 1/2" depth of lead for lead joint pipe required at all embedded joints.
  3. Wherever construction joints are required, 6" rubber or neoprene waterstops shall be installed. Waterstops shall be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

## REINFORCED CONCRETE JACKET

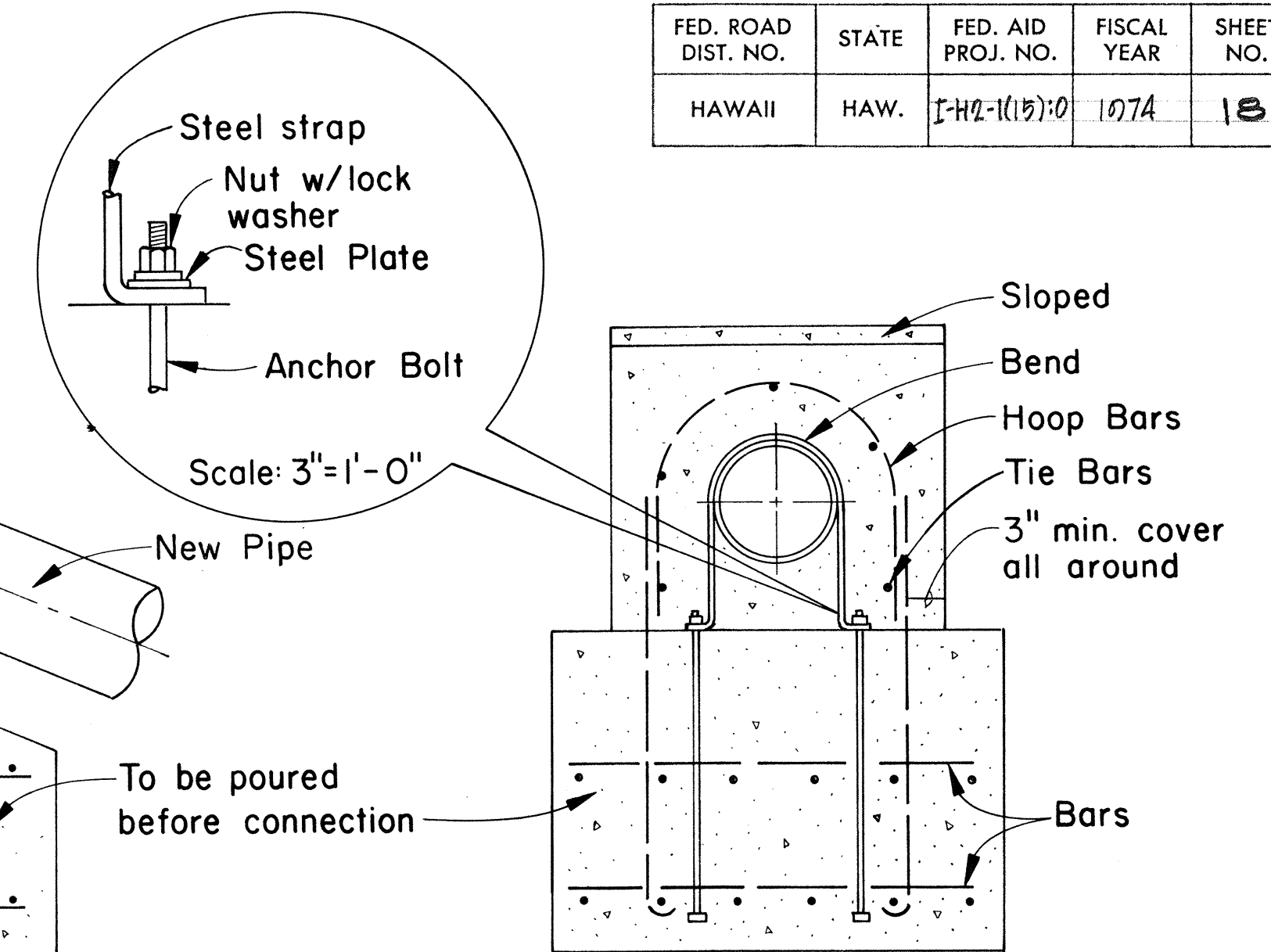
Scale: Not to Scale

FIGURE 17

Concrete around pipe  
to be poured after  
connection is made



**ELEVATION**



**SECTION C**

## TYPICAL DETAIL OF CONCRETE REACTION BLOCK WITH STRAPS

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

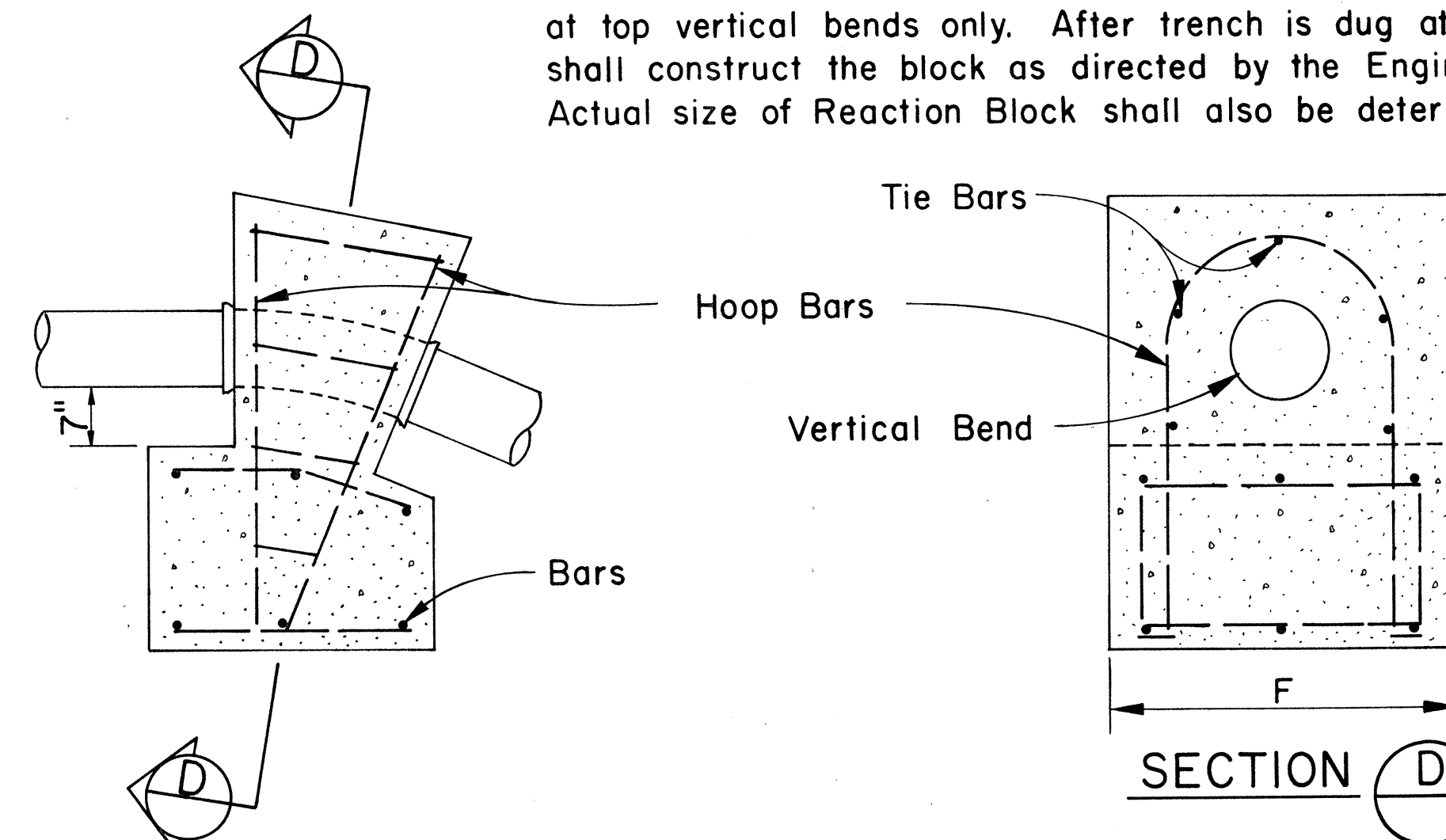
### GENERAL NOTES (FOR FIGURES 20 & 21)

1. Detail drawings of actual blocks to be used, shall be furnished during construction by B.W.S. and or state.
2. 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.
3. Minimum cover over all reinforcing steel shall be 3 inches.

FIGURE 21

### NOTE:

The reinf. conc. reaction block as shown in this typical detail shall be constructed at top vertical bends only. After trench is dug at block location, the Contractor shall construct the block as directed by the Engineer to meet ground conditions. Actual size of Reaction Block shall also be determined by the Engineer.



**ELEVATION**

**SECTION D**

## TYPICAL DETAIL OF REINFORCED CONCRETE REACTION BLOCK FOR TOP VERTICAL BENDS

Scale: Not to Scale

FIG

**APPROVED:**  
*[Signature]*  
ASSISTANT CHIEF ENGINEER  
BOARD OF WATER SUPPLY

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
BOARD OF WATER SUPPLY

SHEET No. 4 OF 4 SHEETS