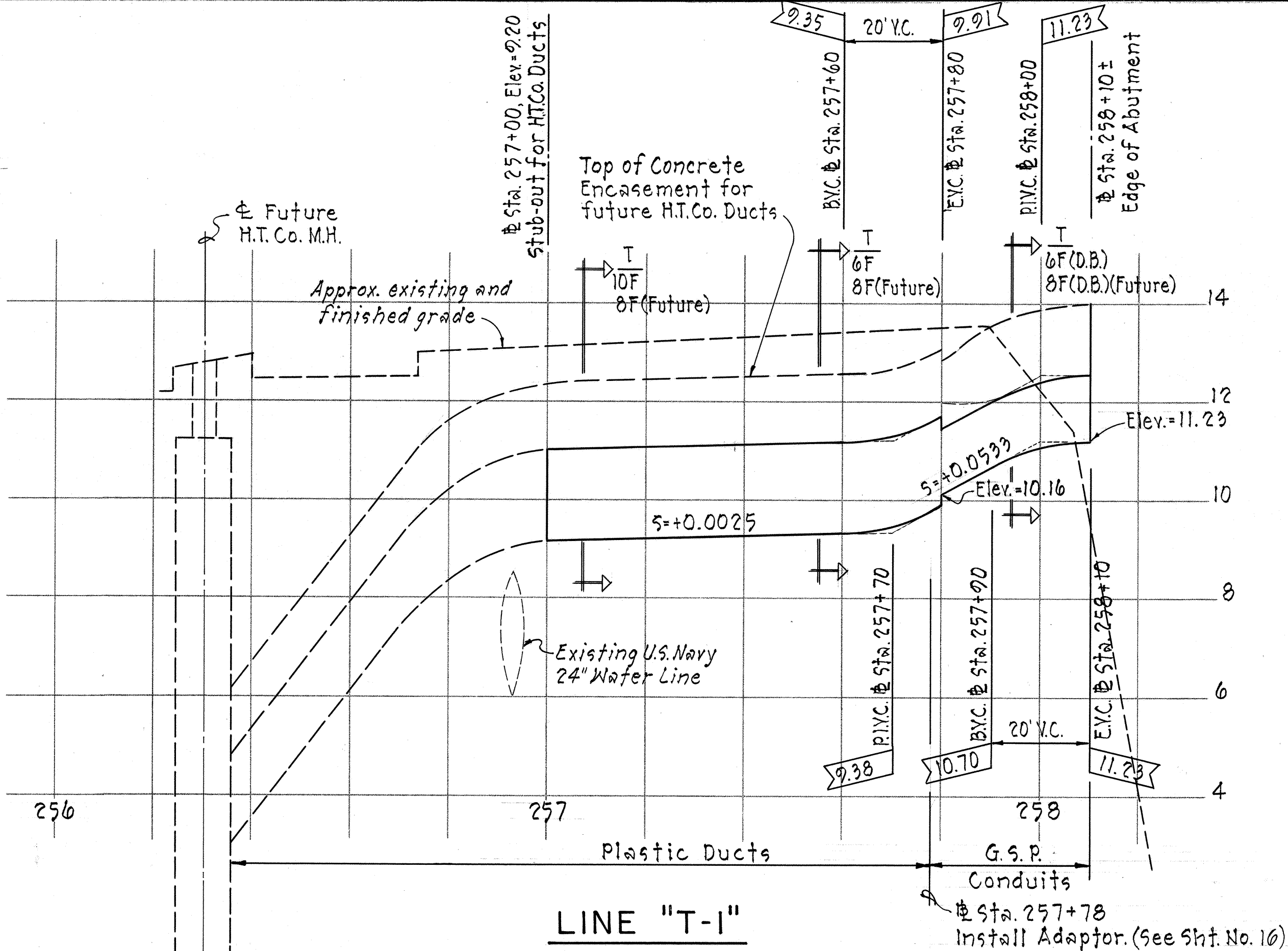


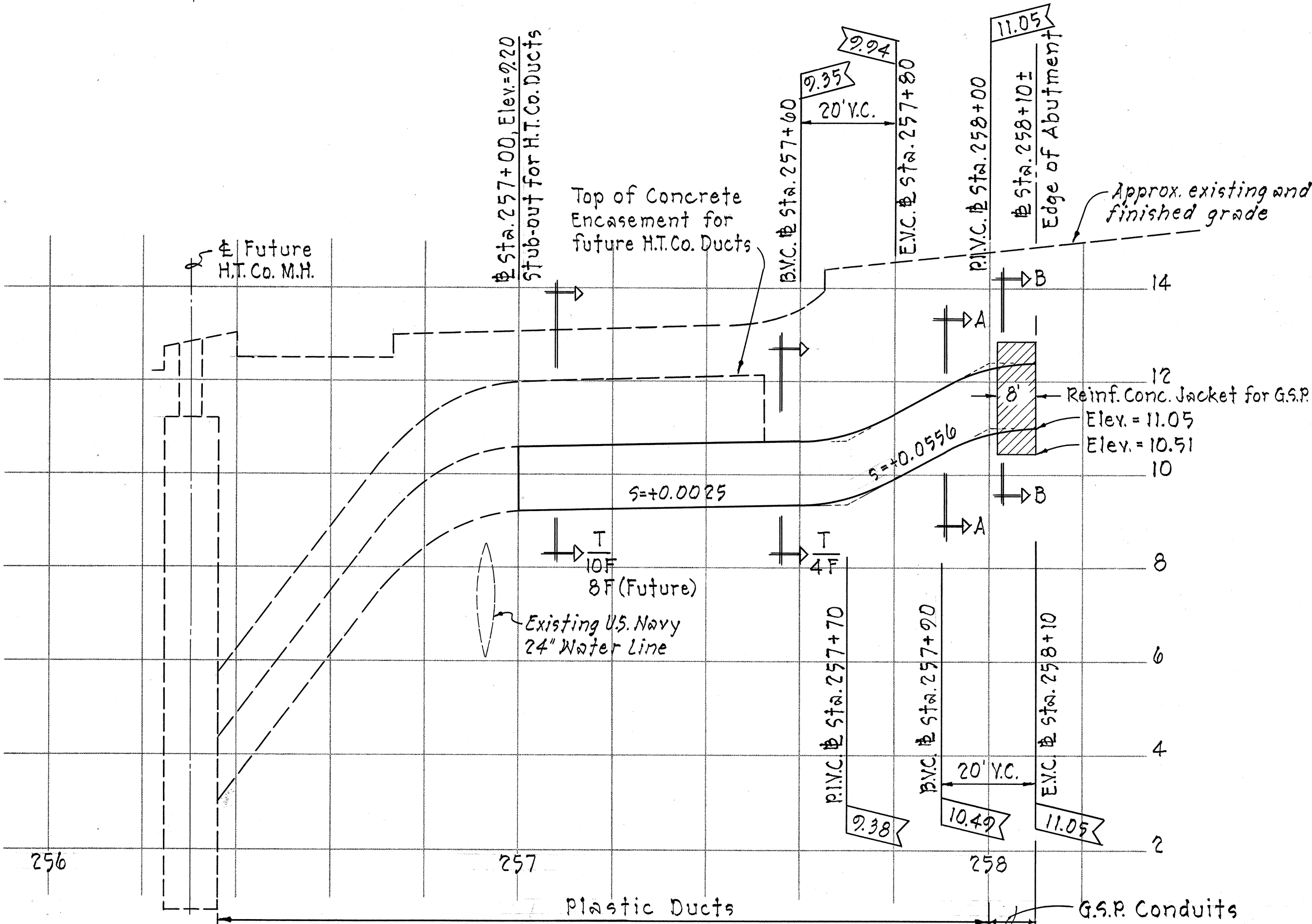
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-090-1(15)	1969	14	40

GENERAL NOTES FOR PROFILES

- All elevations shown, unless otherwise indicated, refer to bottom of concrete encasement.
- All existing utility lines and existing ground shown are approximate only. The Contractor shall verify their actual location and make any necessary adjustments as directed by the Engineer.



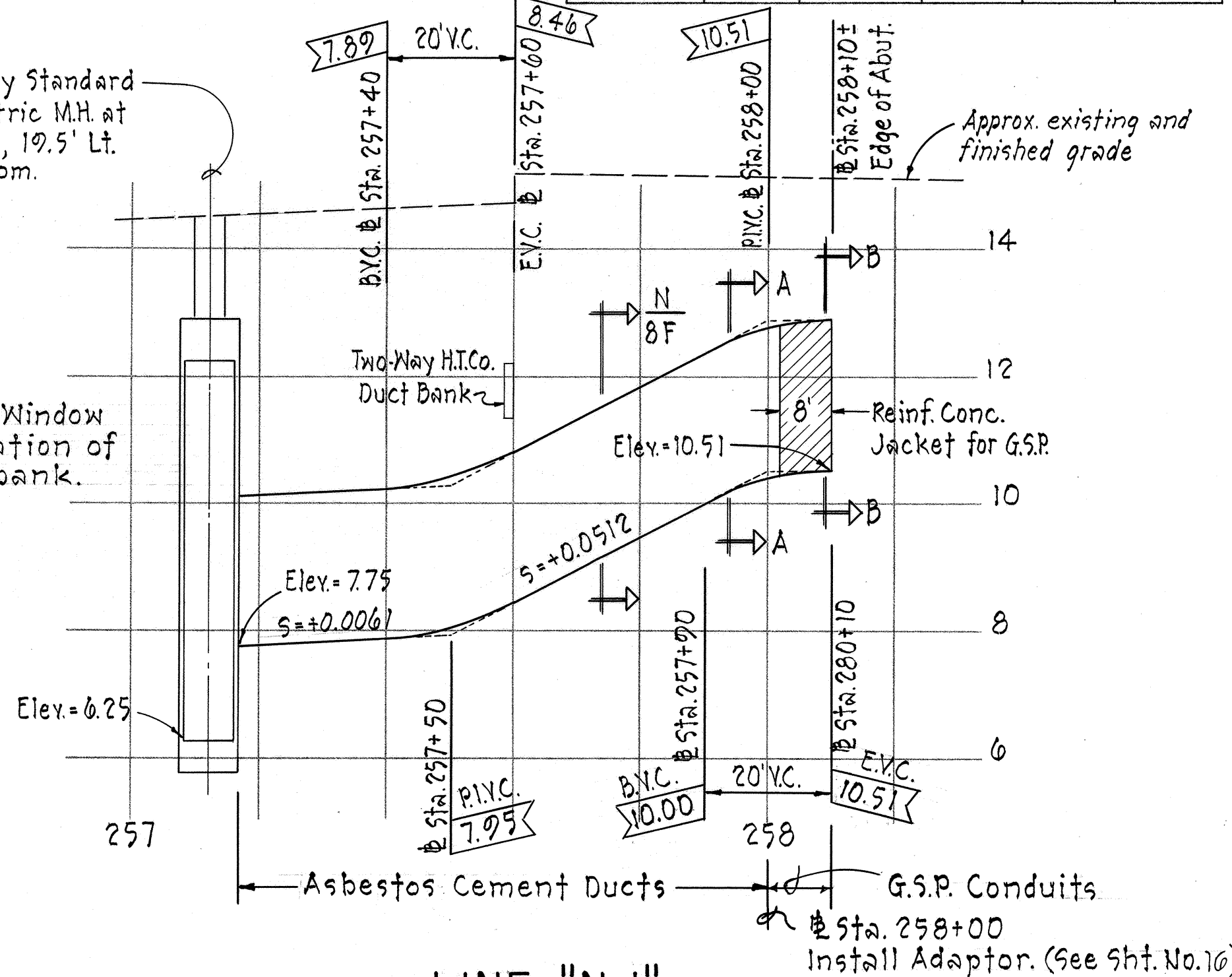
LINE "T-1"



LINE "T-2"

± New U.S. Navy Standard Two-Way Electric M.H. at Sta. 257+12, 19.5' Lt. 6 Ft. Headroom.

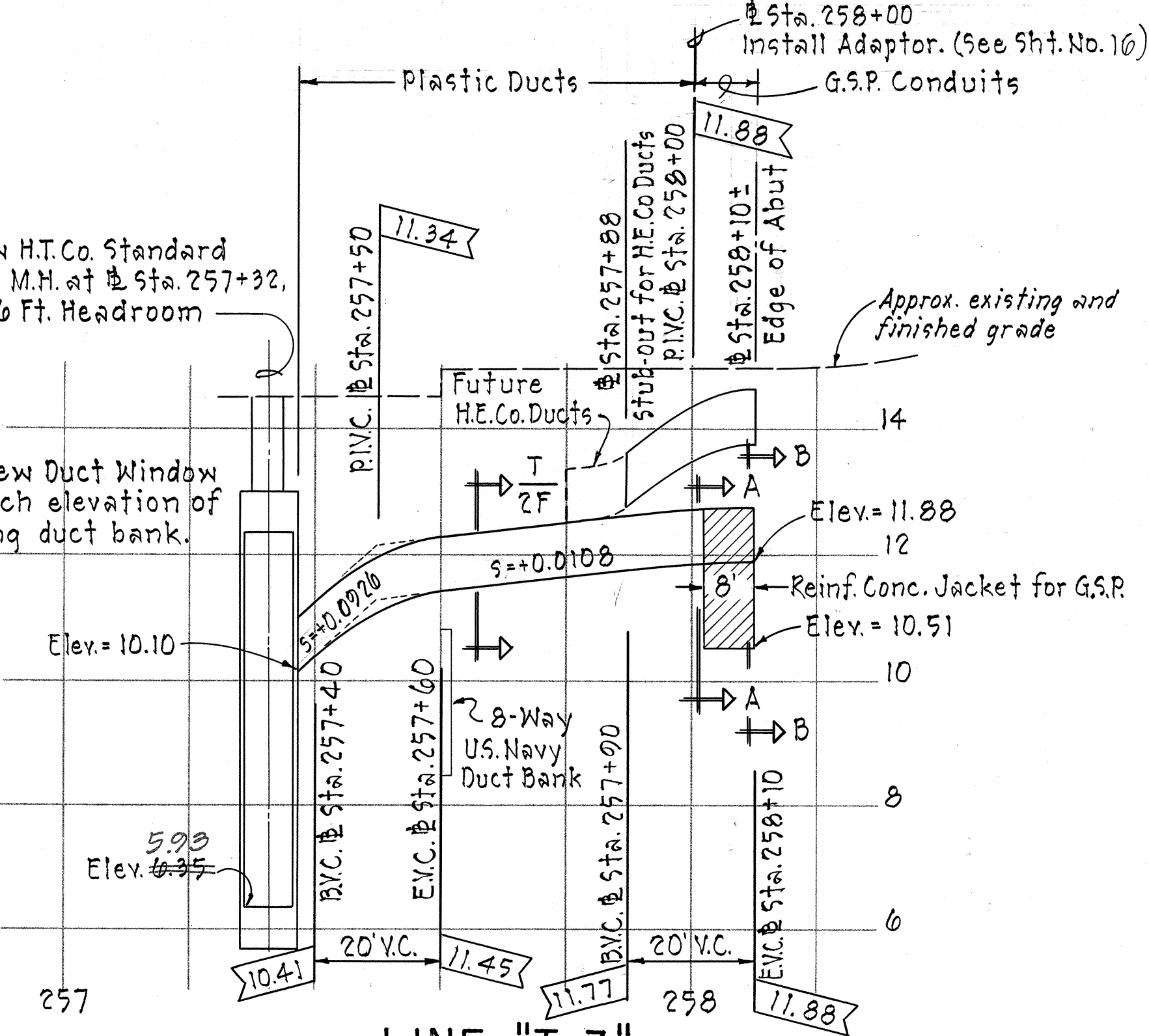
Note: New Duct Window to match elevation of existing duct bank.



LINE "N-1"

± New H.T.Co. Standard "A-1-6" M.H. at Sta. 257+32, 14' Lt. 6 Ft. Headroom.

Note: New Duct Window to match elevation of existing duct bank.



LINE "T-3"

APPROVED:

W. J. ...
HAWAIIAN ELECTRIC CO., INC.

W. J. ...
HAWAIIAN TELEPHONE CO.

DATE 8/29/69

DATE 8-18-69

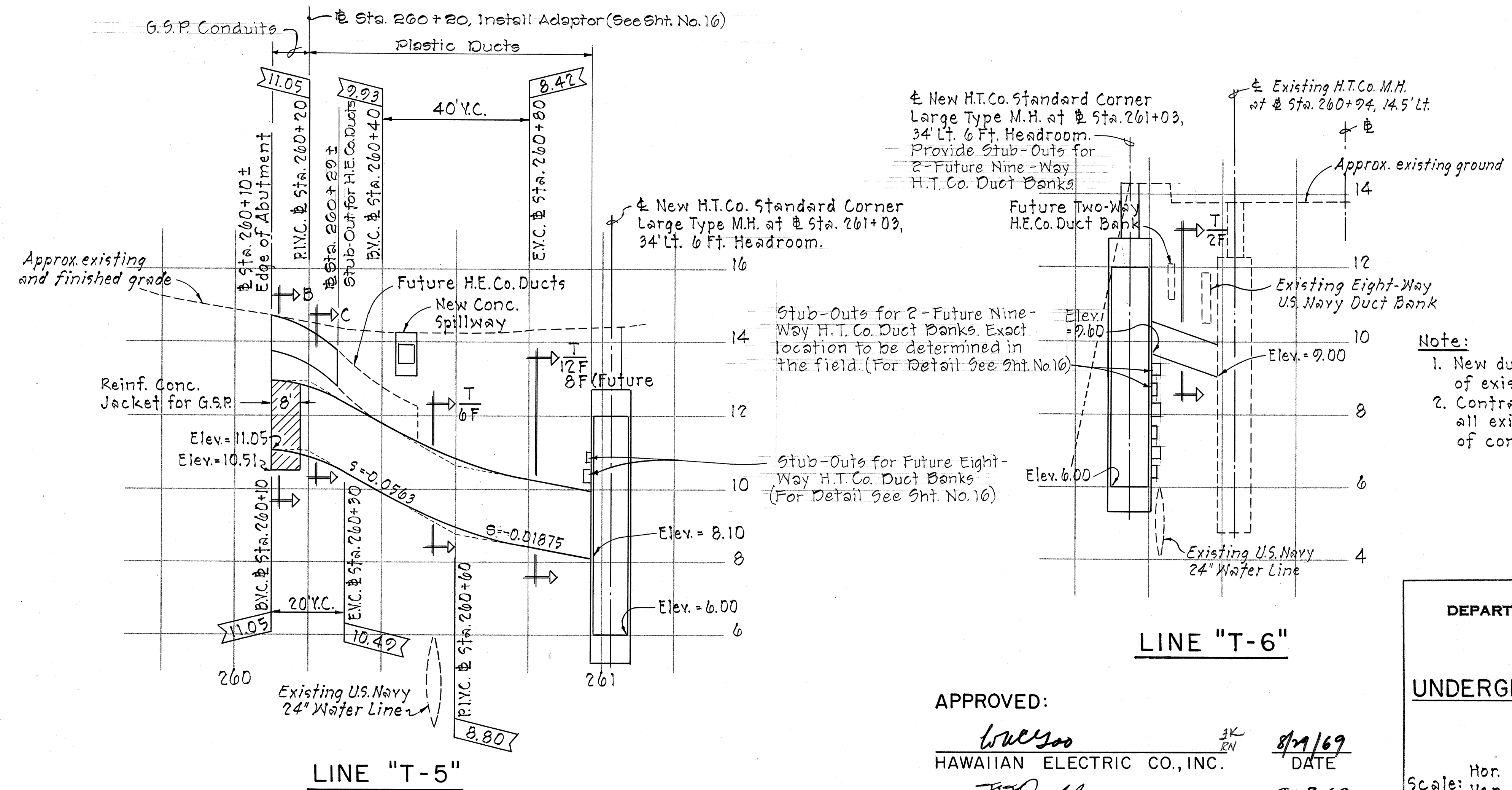
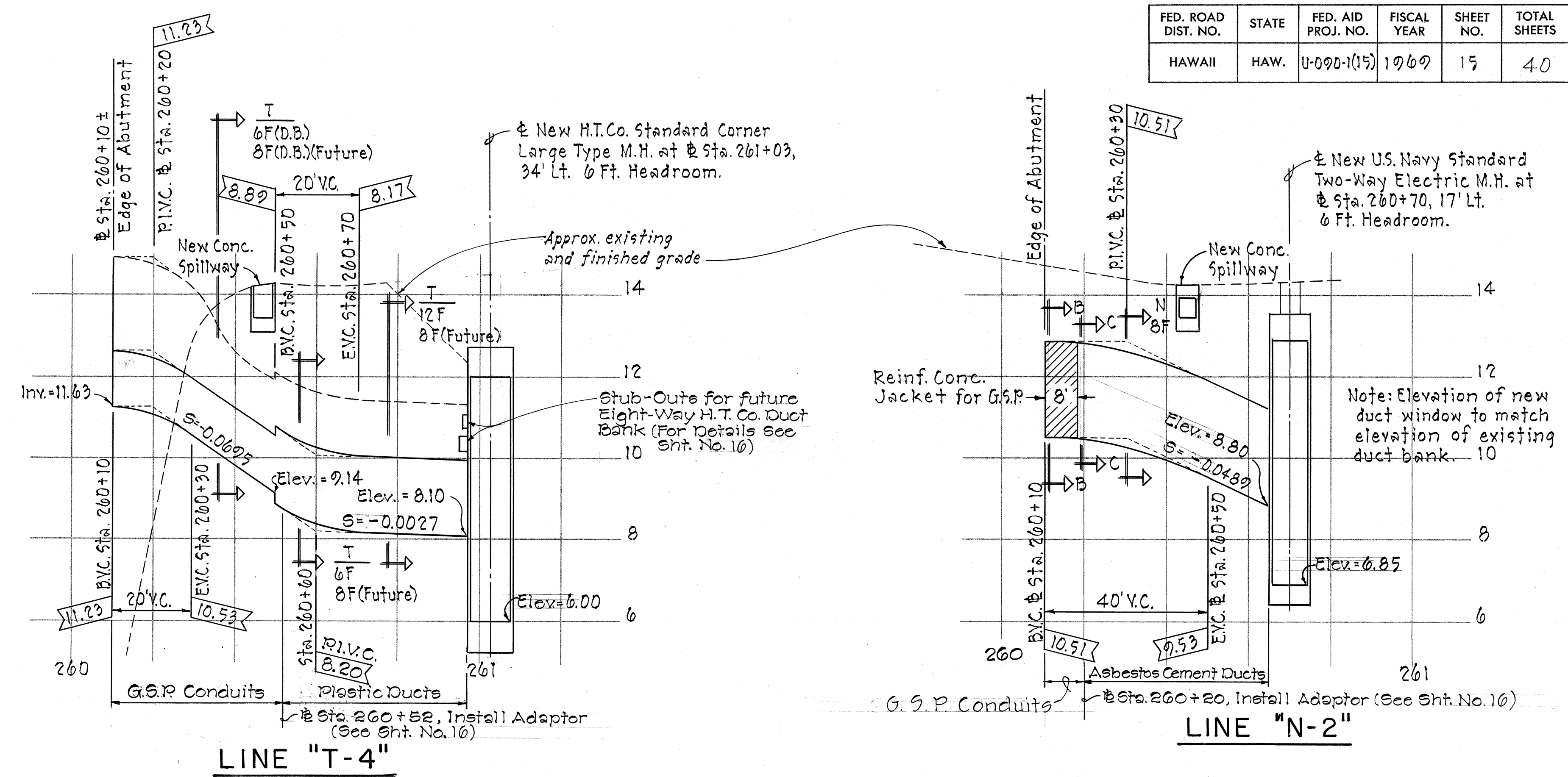
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROFILE UNDERGROUND DUCT LINES

Scale: Hor. 1" = 20'
Ver. 1" = 2'

SHEET NO. 2 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-090-1(15)	1969	15	40



- Note:**
1. New duct window to match elevation of existing duct window.
 2. Contractor will verify location of all existing utilities before start of construction.

APPROVED:

[Signature] *[Signature]*

HAWAIIAN ELECTRIC CO., INC. *[Signature]*

HAWAIIAN TELEPHONE CO. *[Signature]*

DATE 8/1/69

DATE 8-28-69

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROFILE
UNDERGROUND DUCT LINES

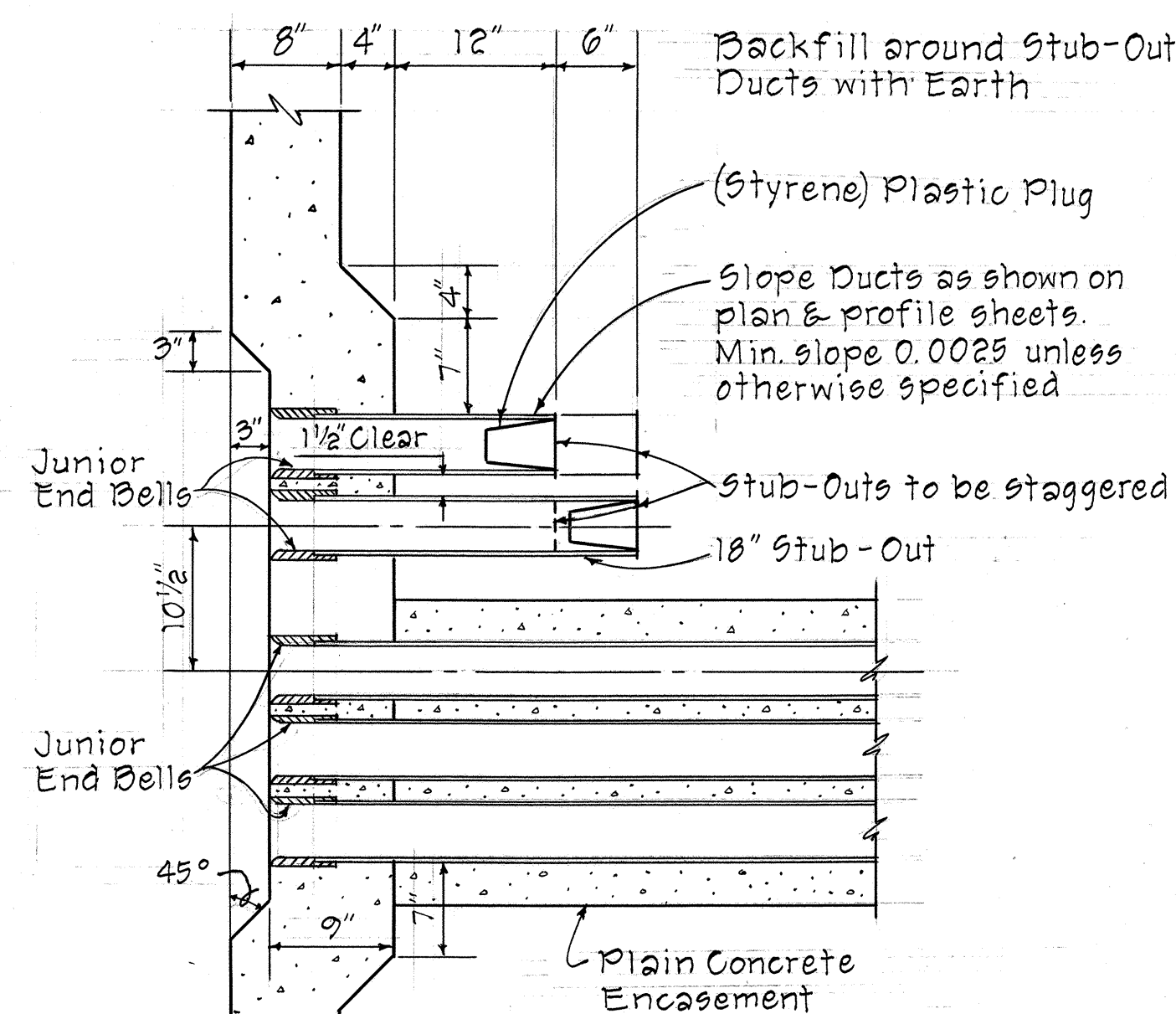
Hor. 1" = 20'

Scale: Ver. 1" = 2'

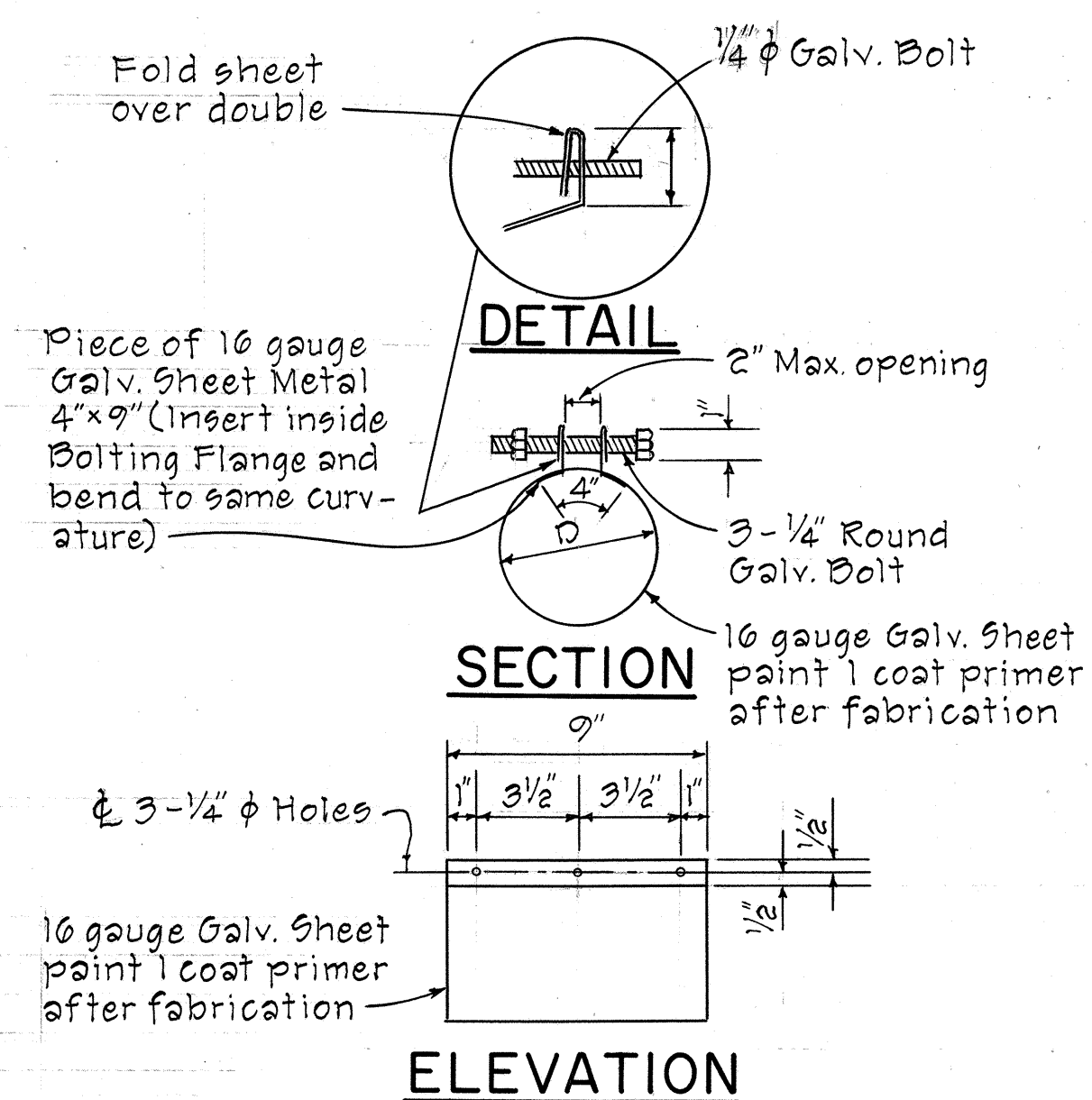
SHEET No. 3 OF 9 SHEETS

ORIGINAL PLAN	DATE
NOTED BY	
DESIGNED BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-090-1(15)	1967	16	40



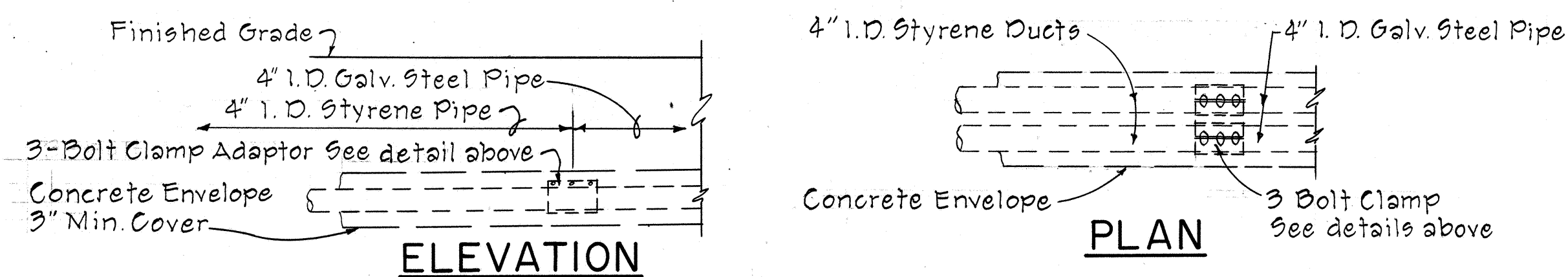
TYPICAL STUB-OUT DETAIL



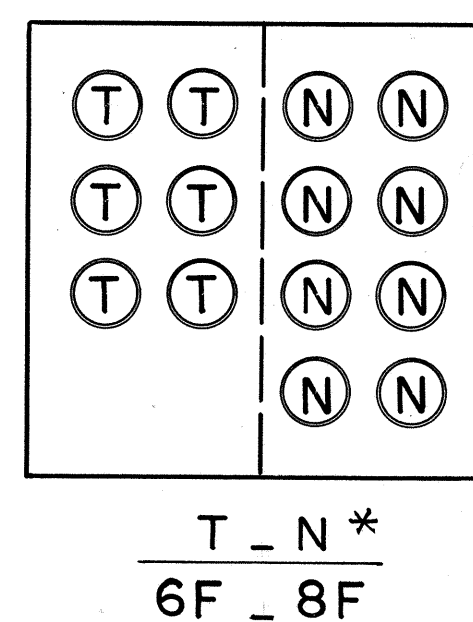
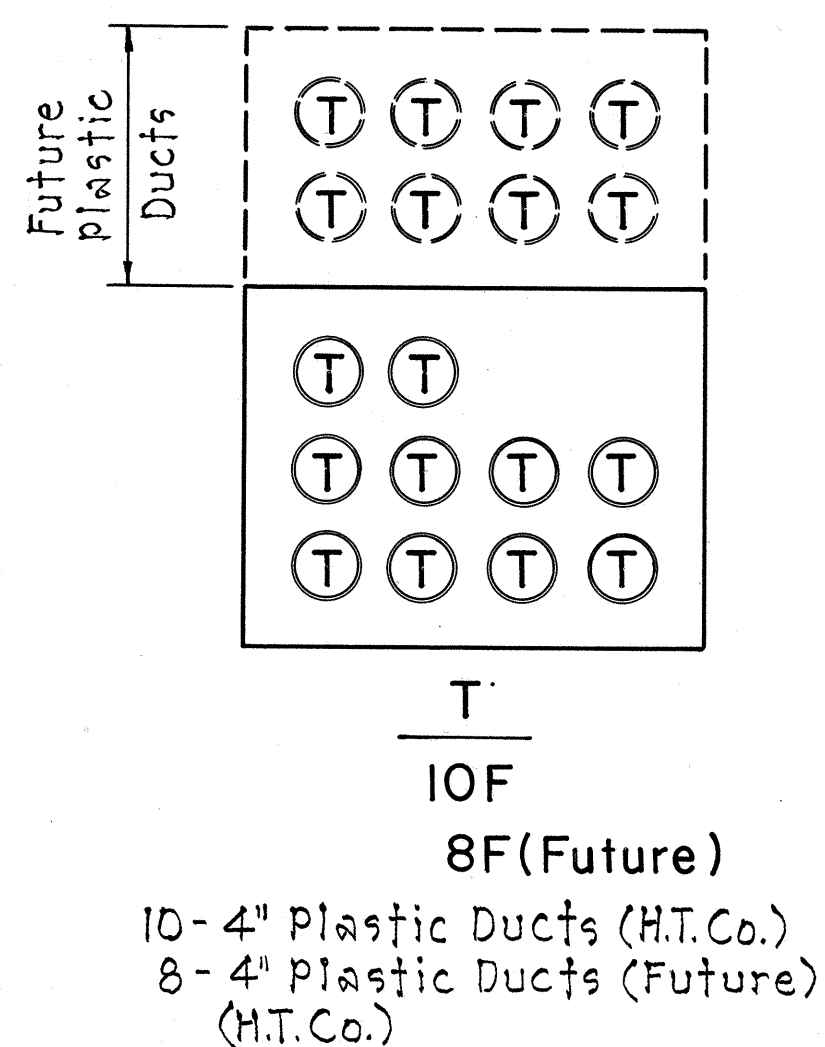
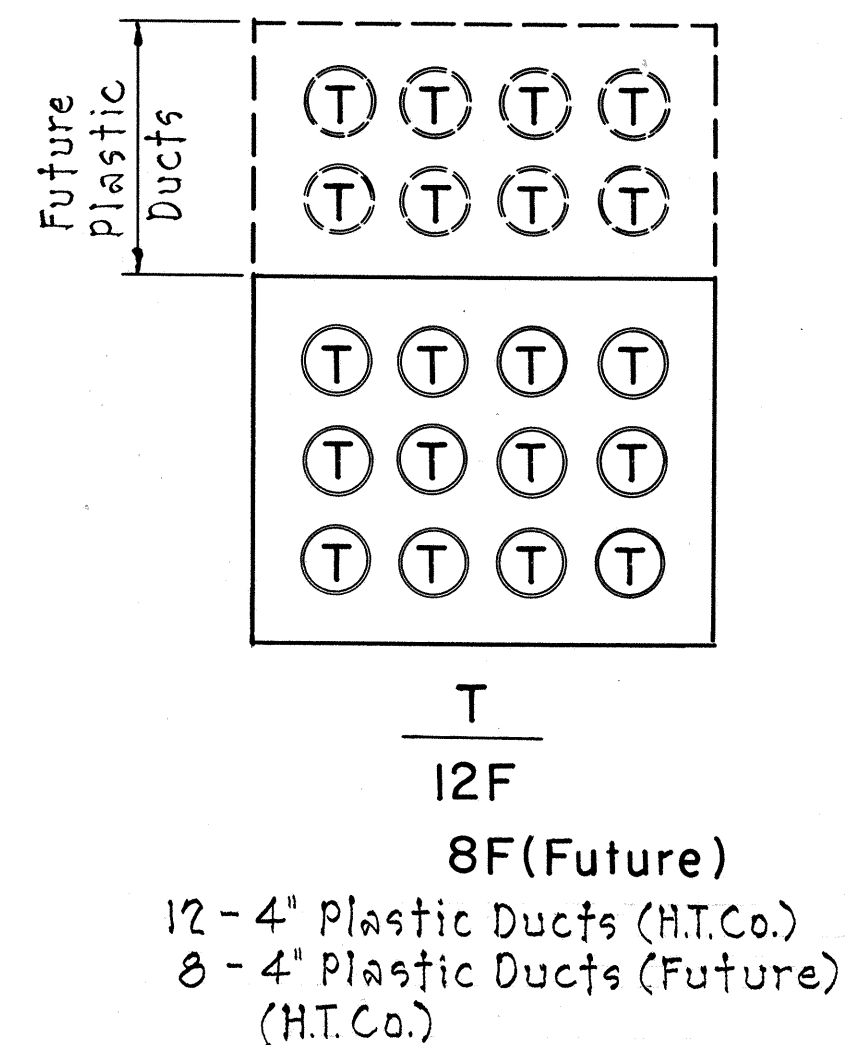
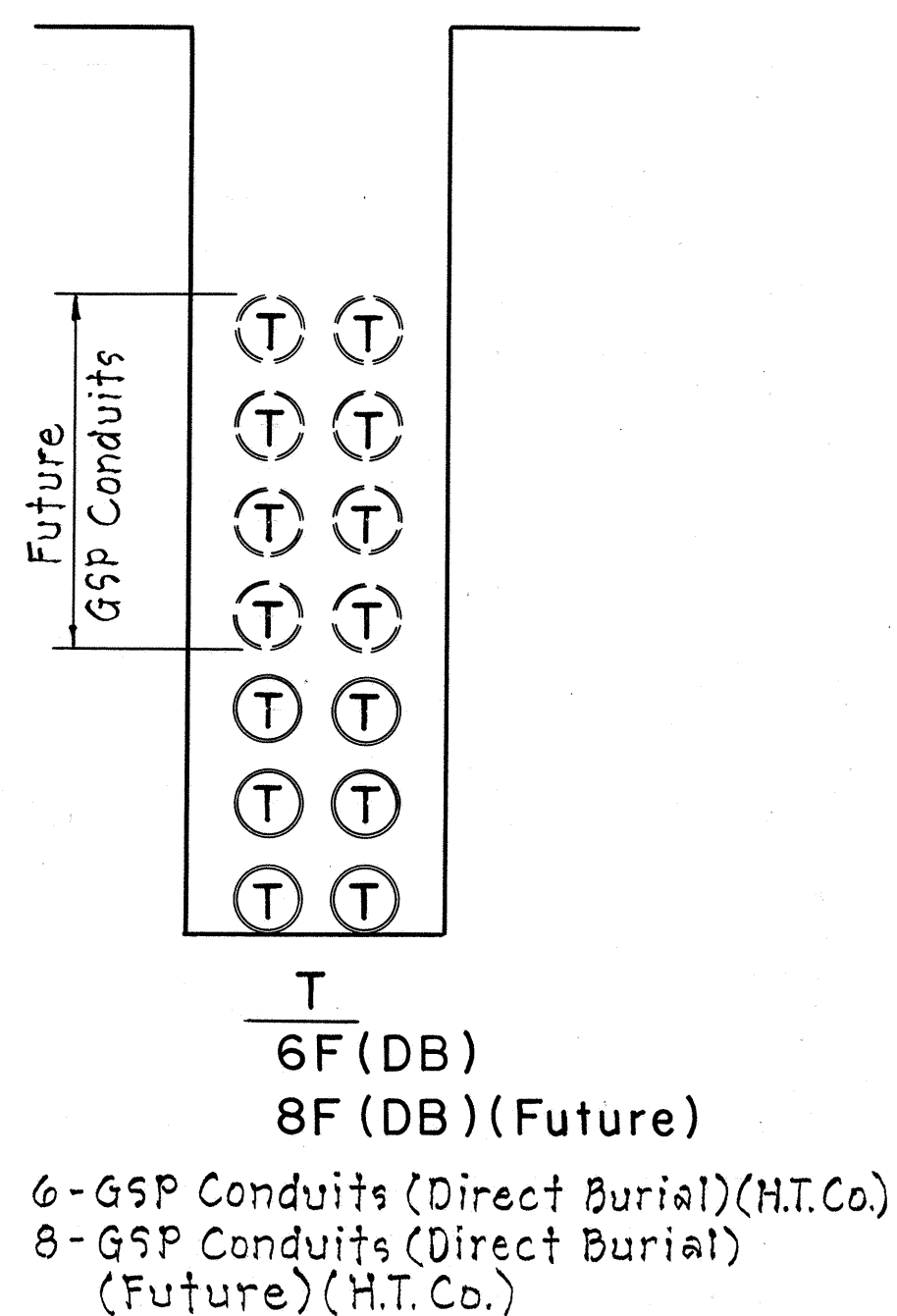
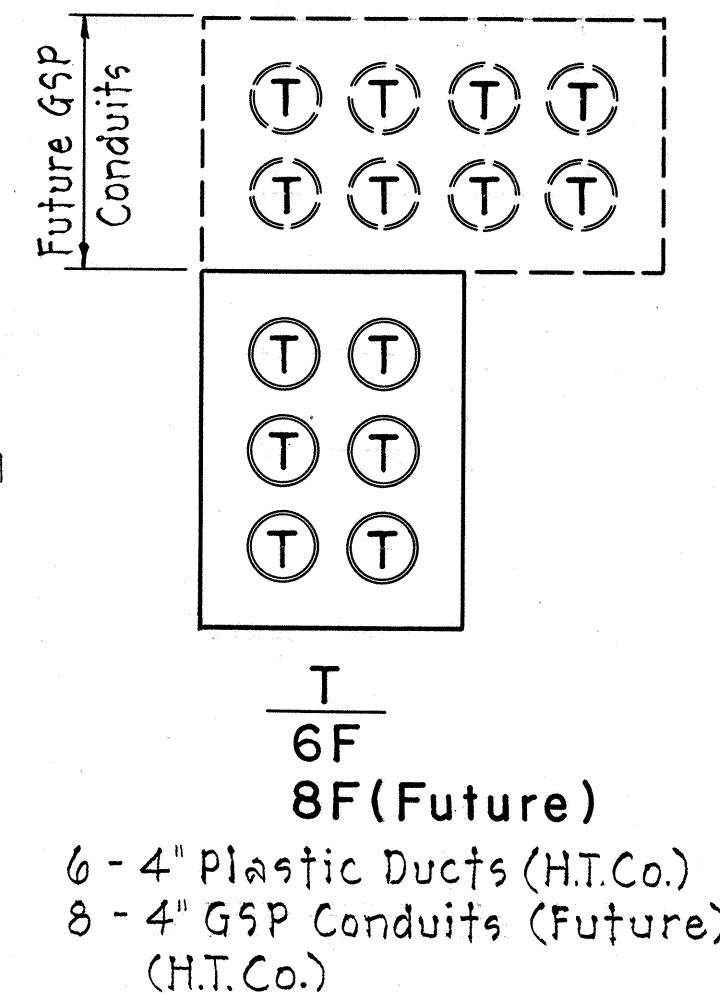
ELEVATION

NOTE:

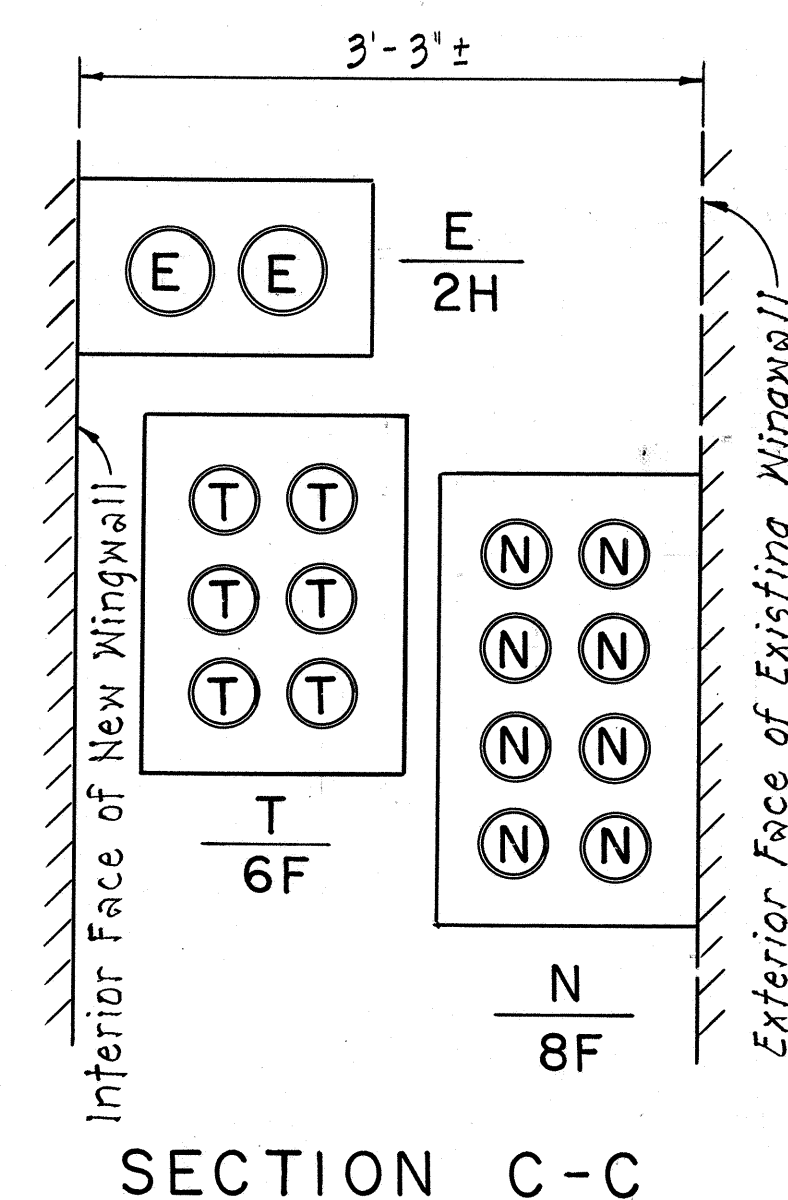
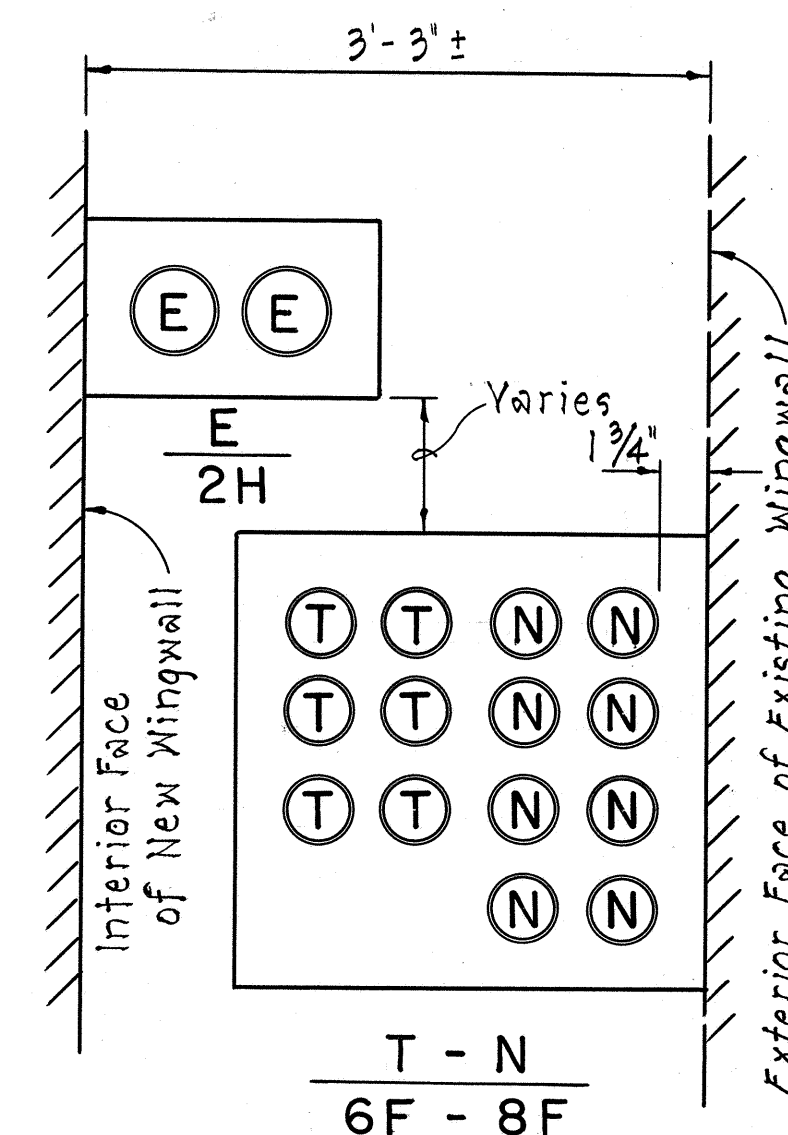
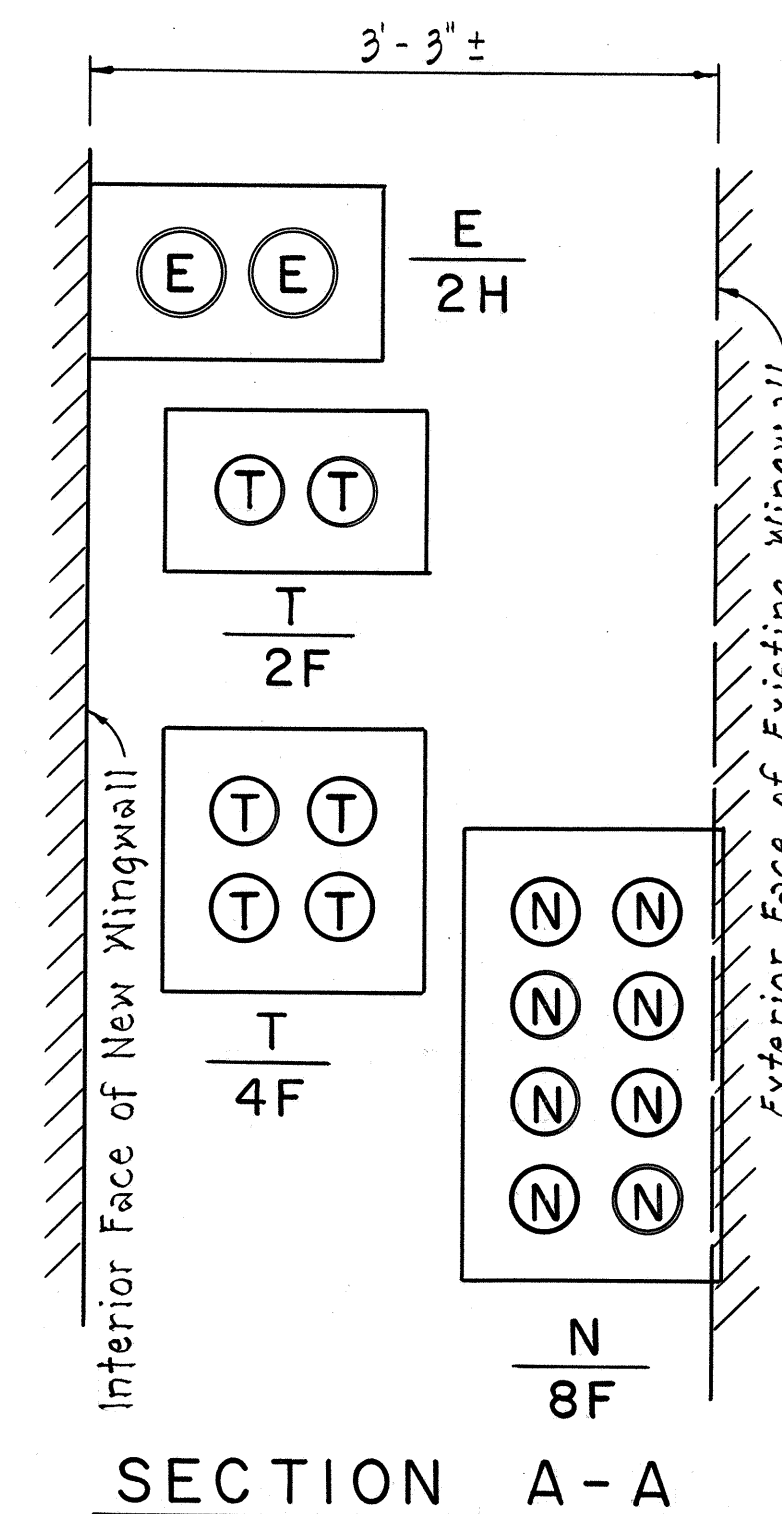
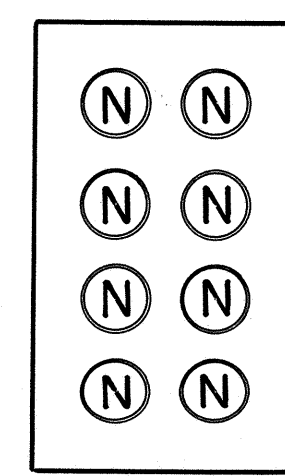
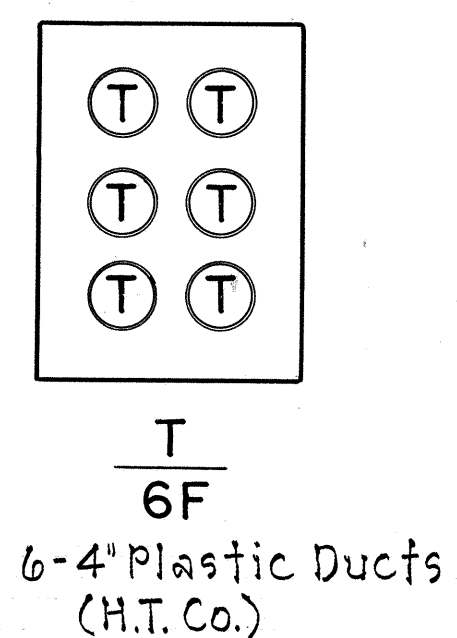
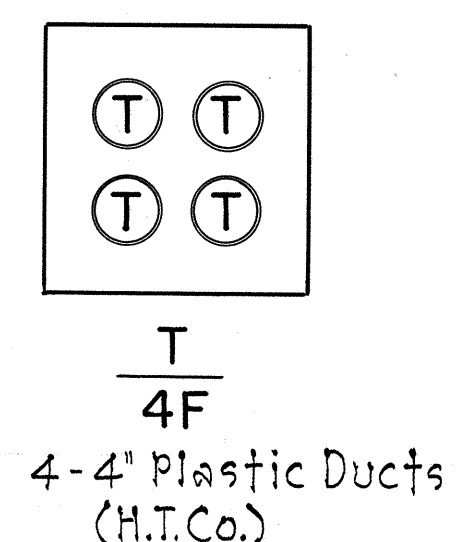
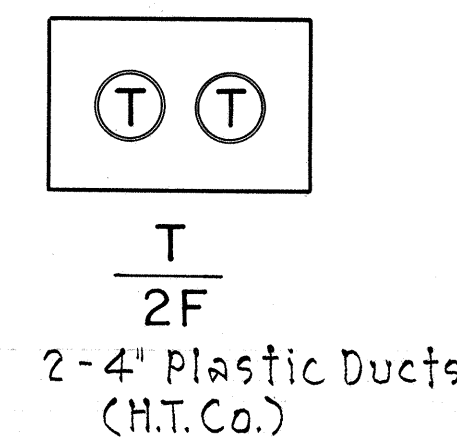
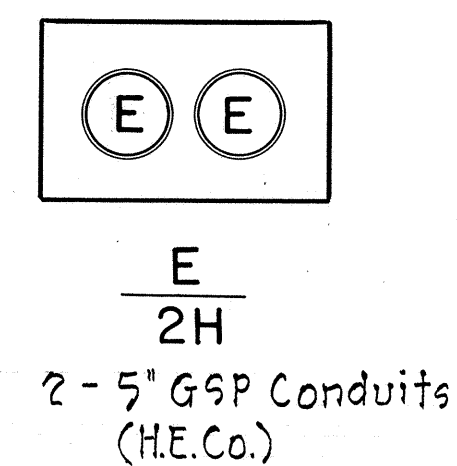
Furnishing and installing the 3-Bolt Clamp Adaptor will not be paid for separately but will be made incidental to the various contract items.



3 BOLT CLAMP ADAPTOR DETAIL



6-4" GSP Conduits (H.T.Co.)
8-4" GSP Conduits (Navy)
* For reinforced concrete Jacket, see Sht. No. 25.



LEGEND FOR CONDUITS			
SYMBOL	CONDUIT SIZE	SYMBOL	CONDUIT SIZE
A	3/4"	E	3 1/2"
B	1"	F	4"
C	2"	G	4 1/2"
D	3"	H	5"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UNDERGROUND DUCT LINES

PROJ. NO. U-090-1(15)
Not to Scale

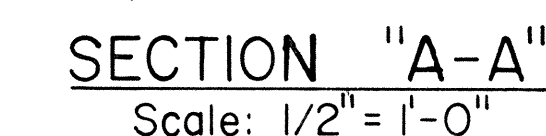
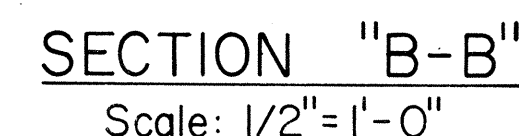
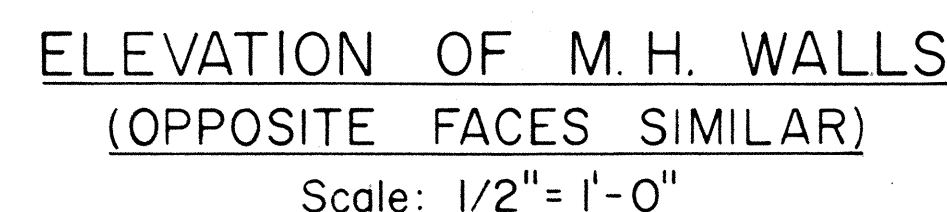
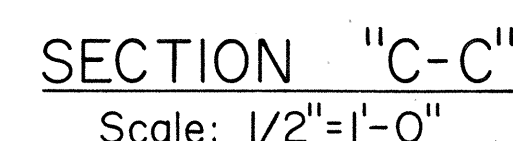
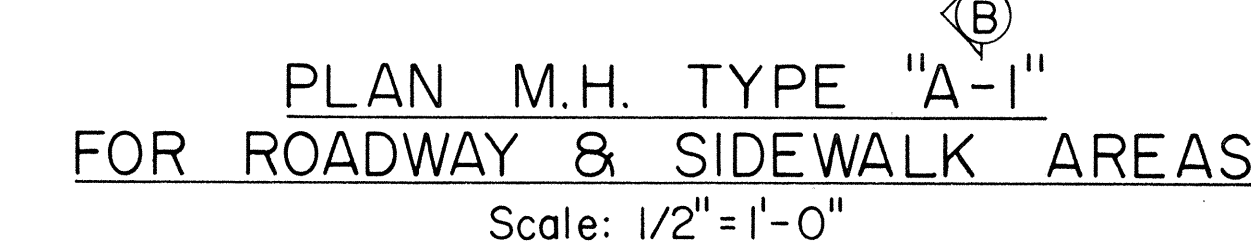
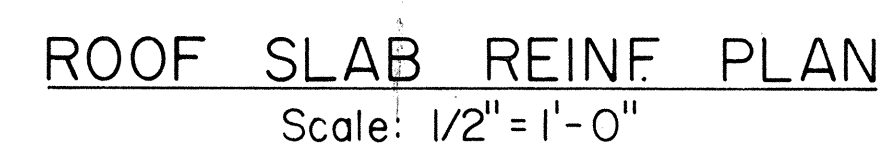
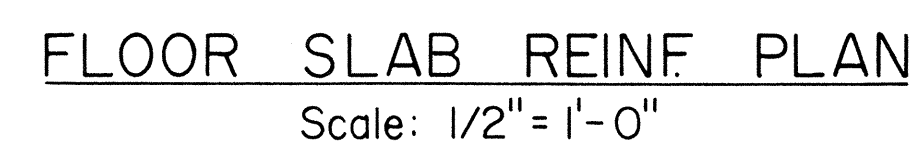
SHEET No. 4 OF 7 SHEETS

APPROVED:

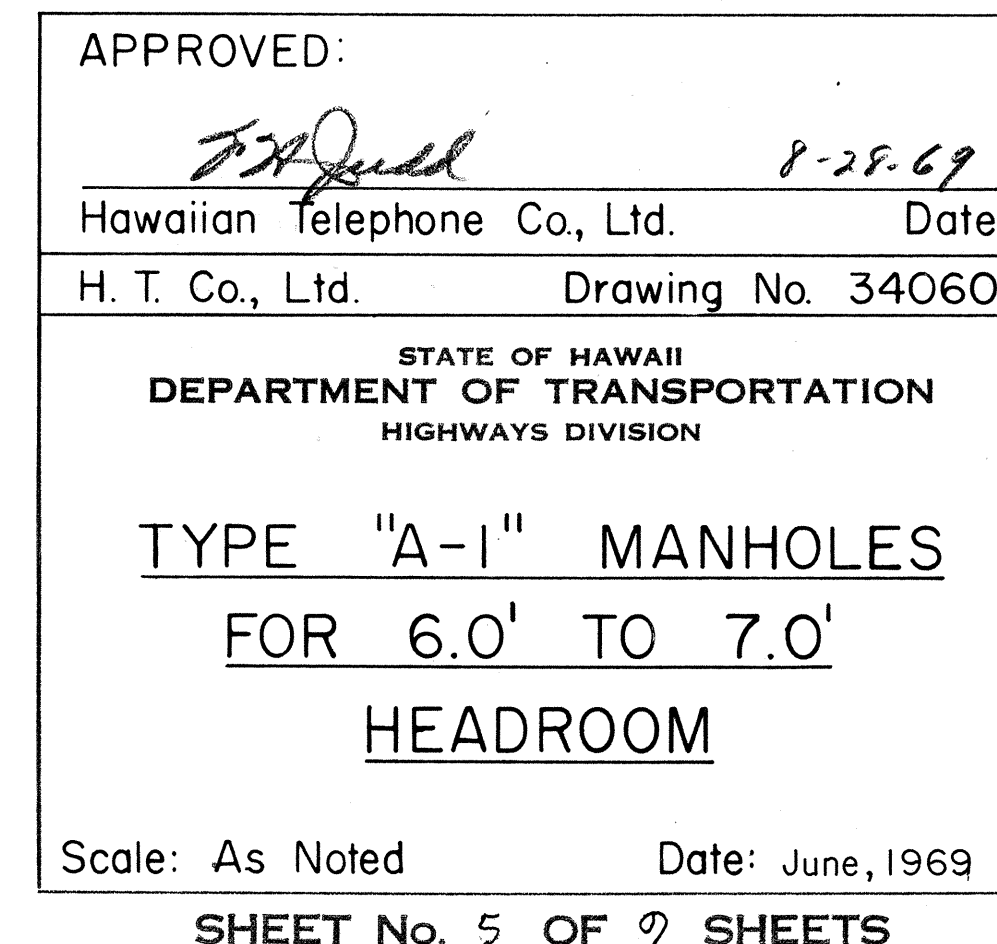
HAWAIIAN ELECTRIC CO., INC.
HAWAIIAN TELEPHONE CO.

DATE
8-28-69

NOTE: See Standard Duct
Formation Sheet for
Section "F-E"

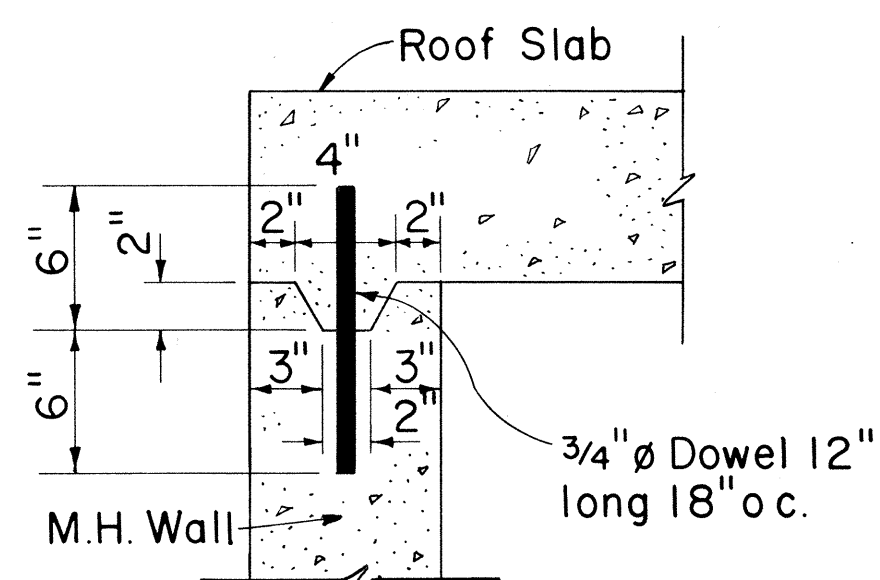


1. Design Data:
 $f_s = 20,000 \text{ psi}$, $f_c' = 3,000 \text{ psi}$, $f_c = 1,350 \text{ psi}$; $n = 10$
 $w = \text{Equivalent Fluid Pressure: } 30 \text{ * / FT}^2$
2. All Construction Joints shall be waterproofed with two applications of Thoro Seal or equal.
3. For Duct Window location see Plan Profile Sheets for Elevations.
4. Duct Window to suit-See Plan & Profile & Standard Detail Sheets for Location & Details.
5. For Details "A", "B", "C", Sections "D-D", "E-E", "F-F", and other miscellaneous Manhole Construction Details see Supplement Sheet to Type A-1, A-2, and A-3 Telephone Manholes.

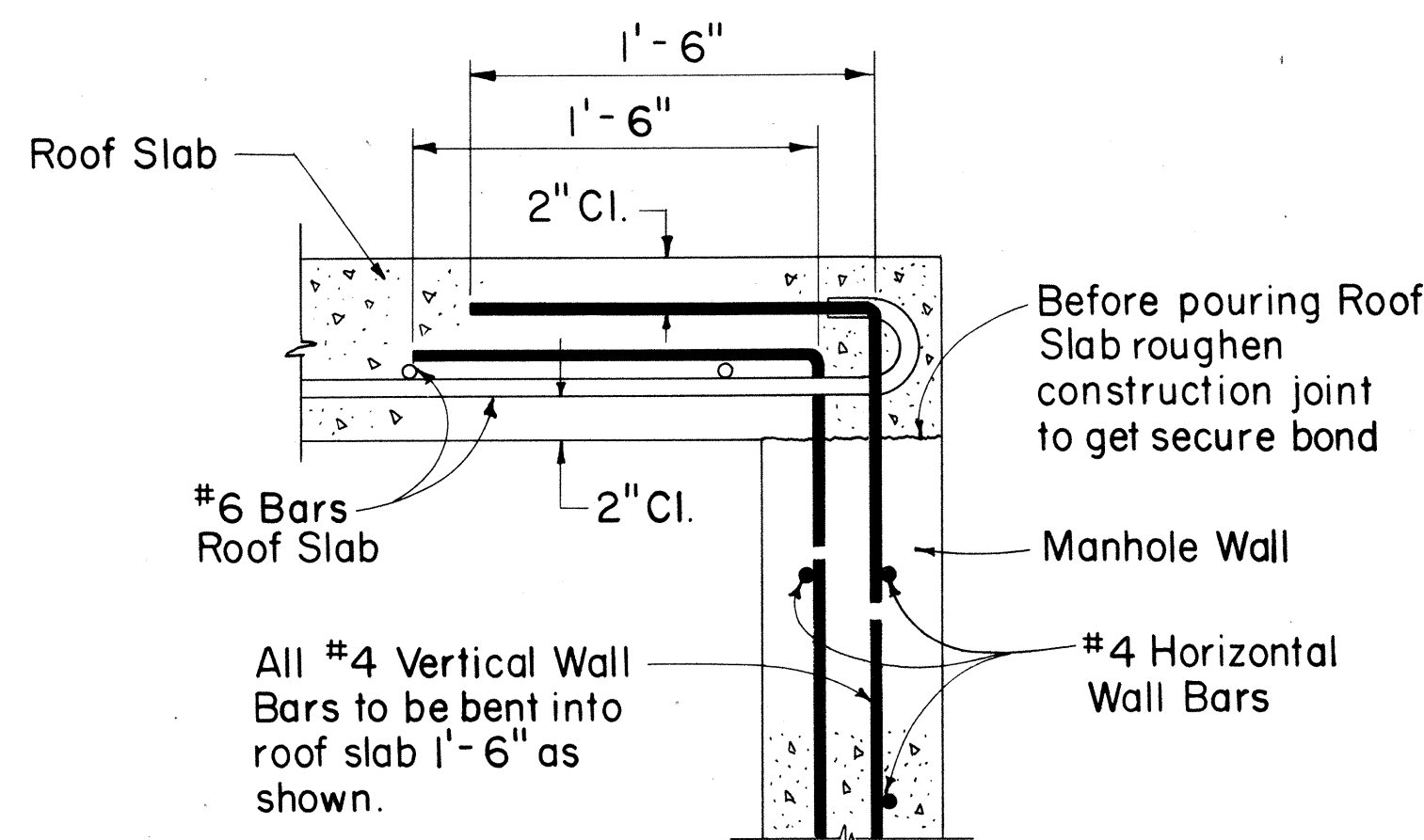


ORIGINAL PLAN	DATE
DESIGNED BY	DATE
QUANTITIES BY	DATE
CHECKED BY	DATE

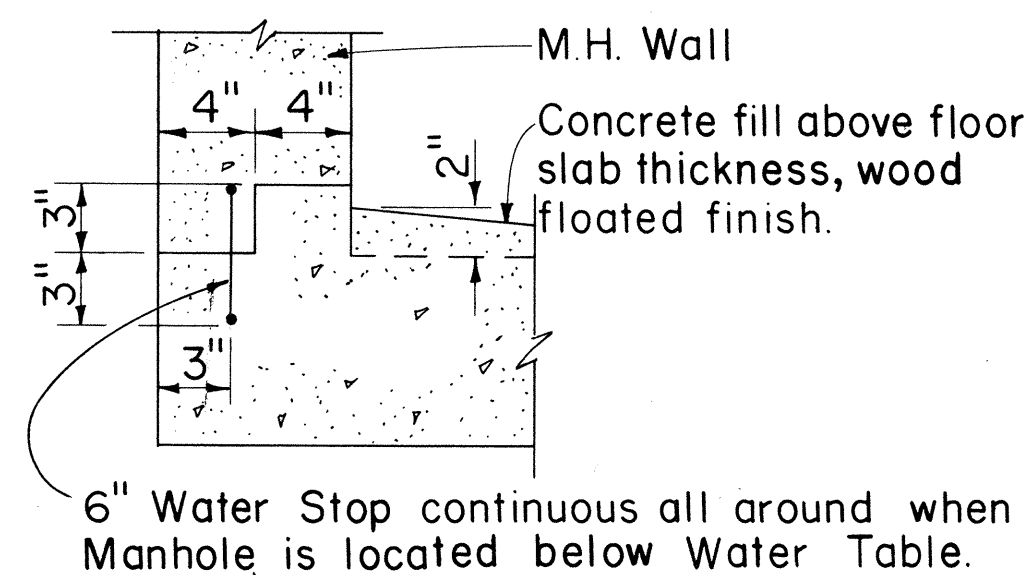
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-090-1(15)	1969	18	40



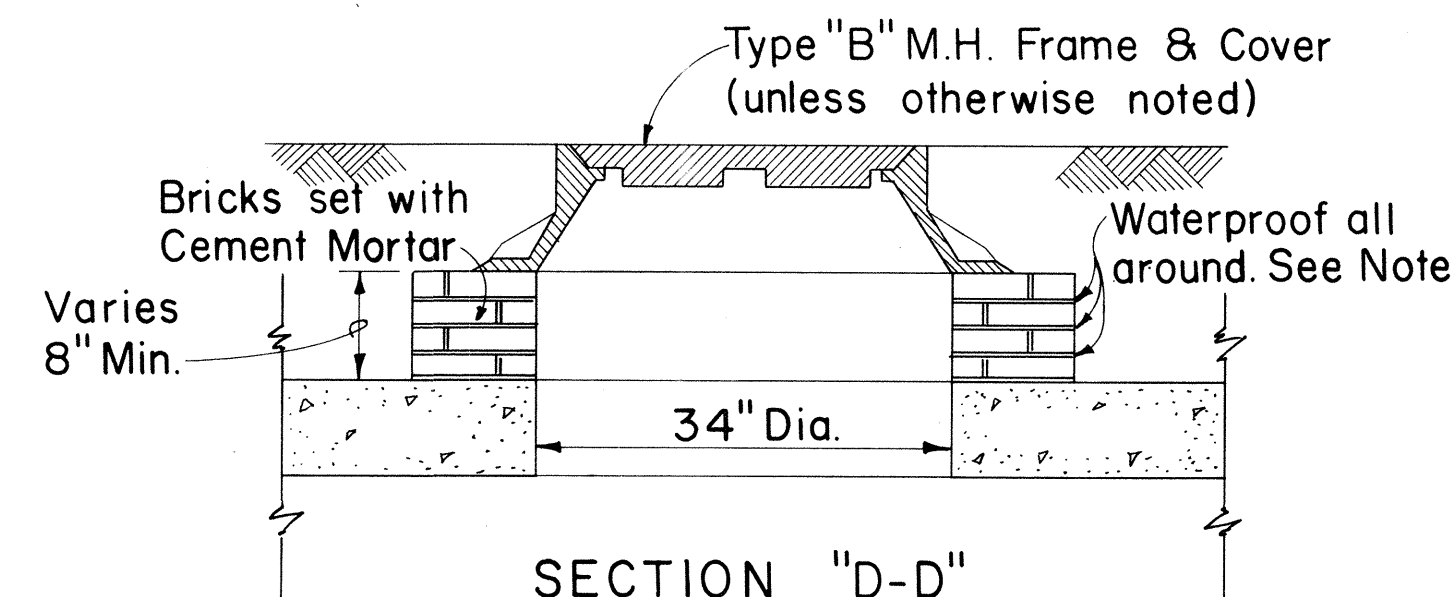
DETAIL "A"
TOP CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"
(Optional for cast-in-place construction)
Required for precast construction



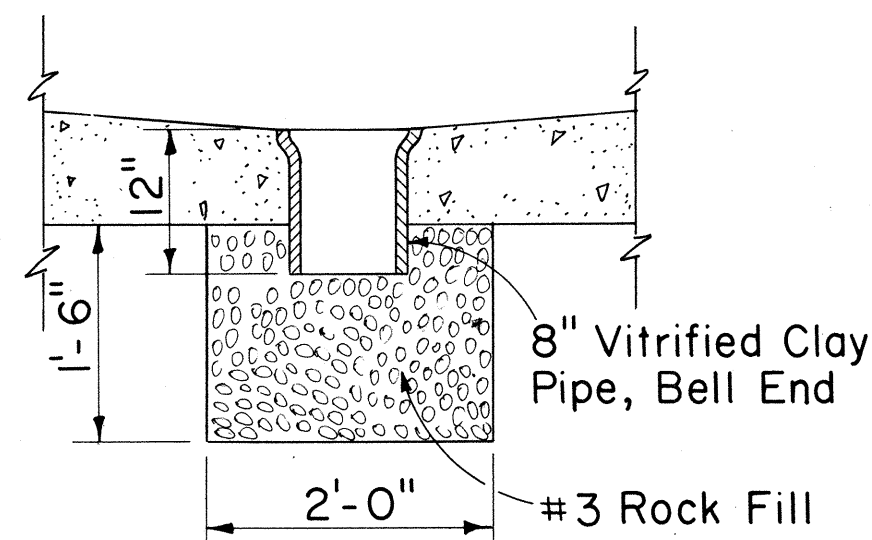
DETAIL "B"
(USED FOR CAST-IN-PLACE CONSTRUCTION)
Scale: 1 1/2" = 1'-0"



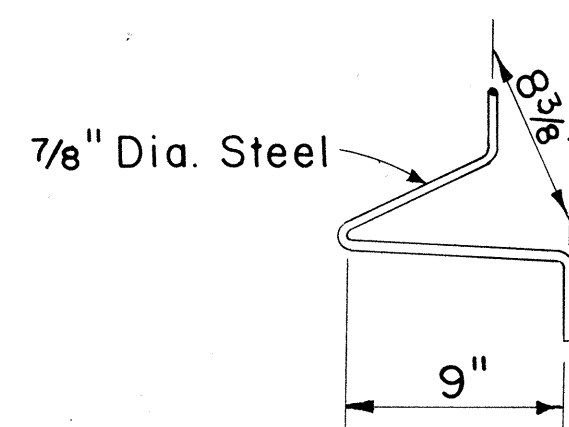
DETAIL "C"
BOTTOM CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"



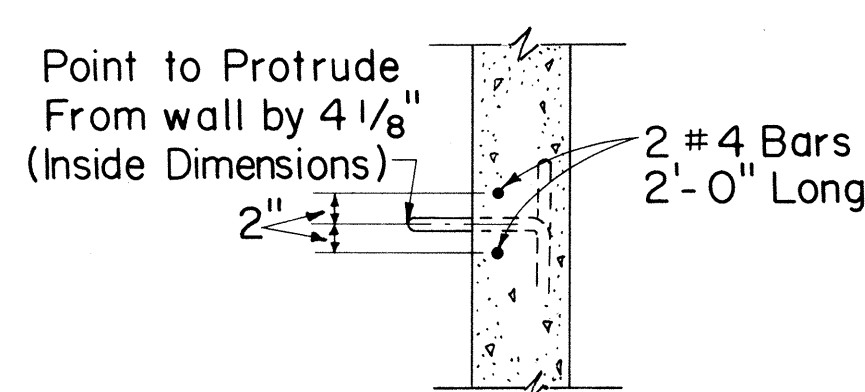
SECTION "D-D"
M.H. COVER DETAIL
Scale: 3/4" = 1'-0"



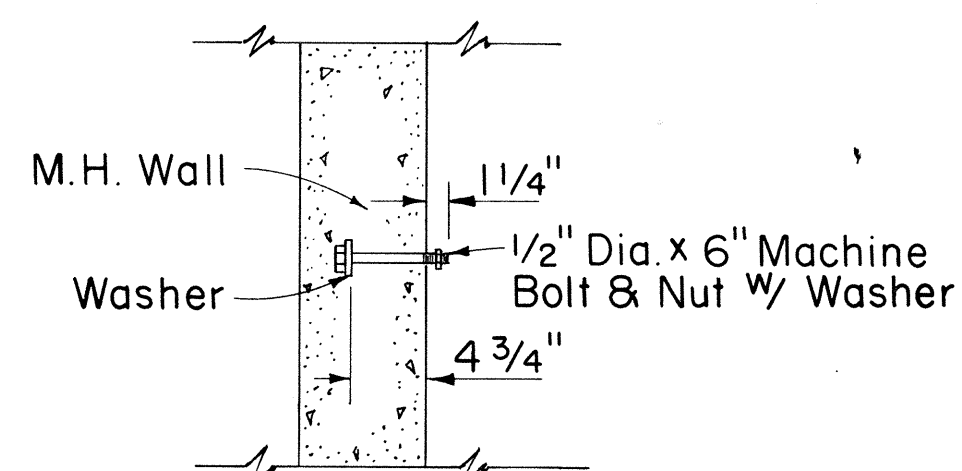
SECTION "E-E"
M.H. SUMP DETAIL
Scale: 3/4" = 1'-0"
Note:
See Section "E₁-E₁" Below



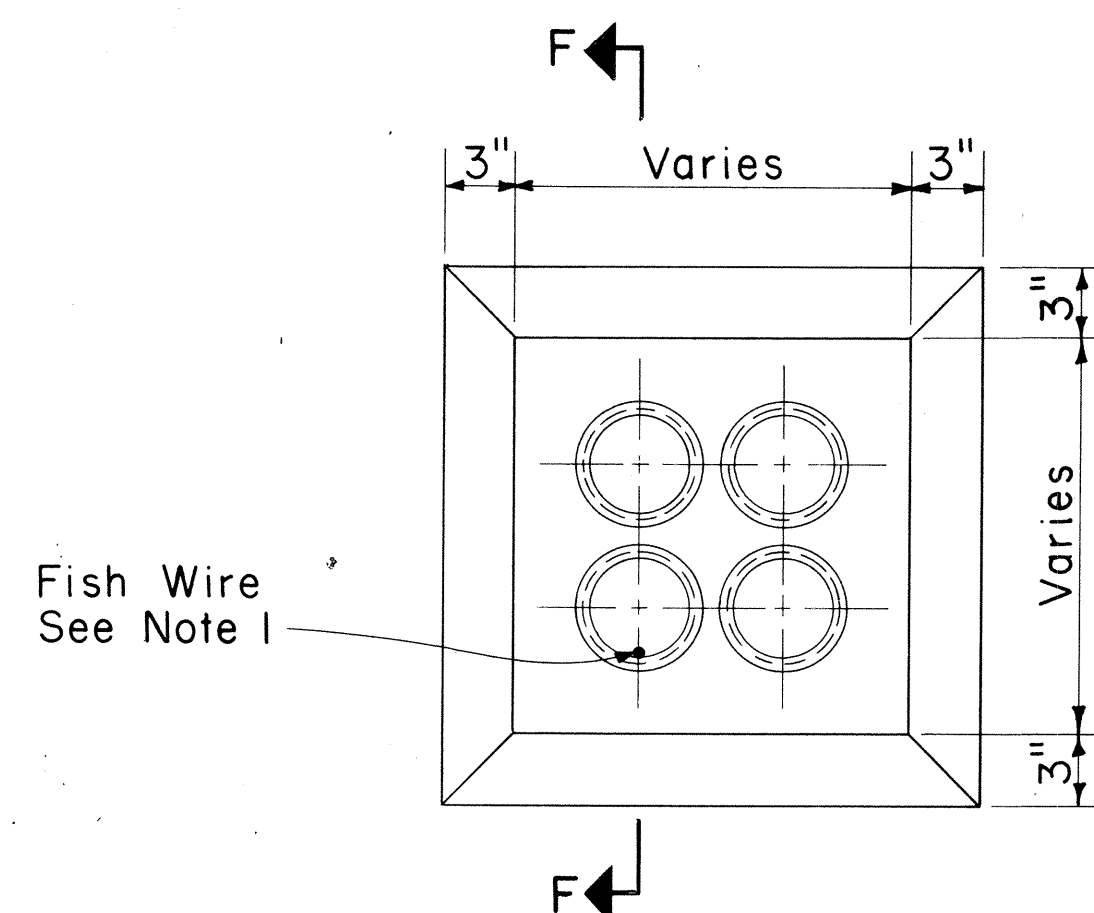
PULLING-IN IRON



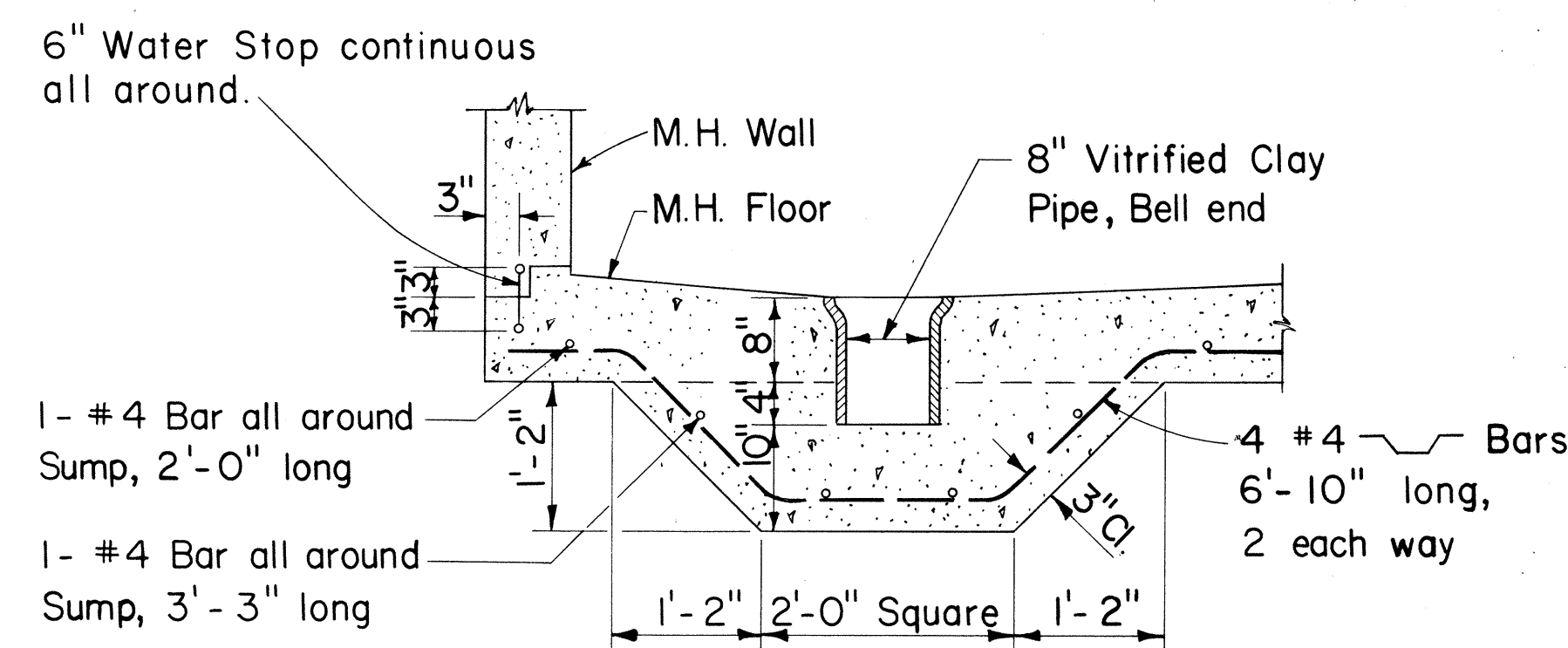
SECTIONAL VIEW OF PULLING-IN IRON
Scale: 3/4" = 1'-0"



CABLE RACK STUD BOLT DETAIL
Scale: 1" = 1'-0"

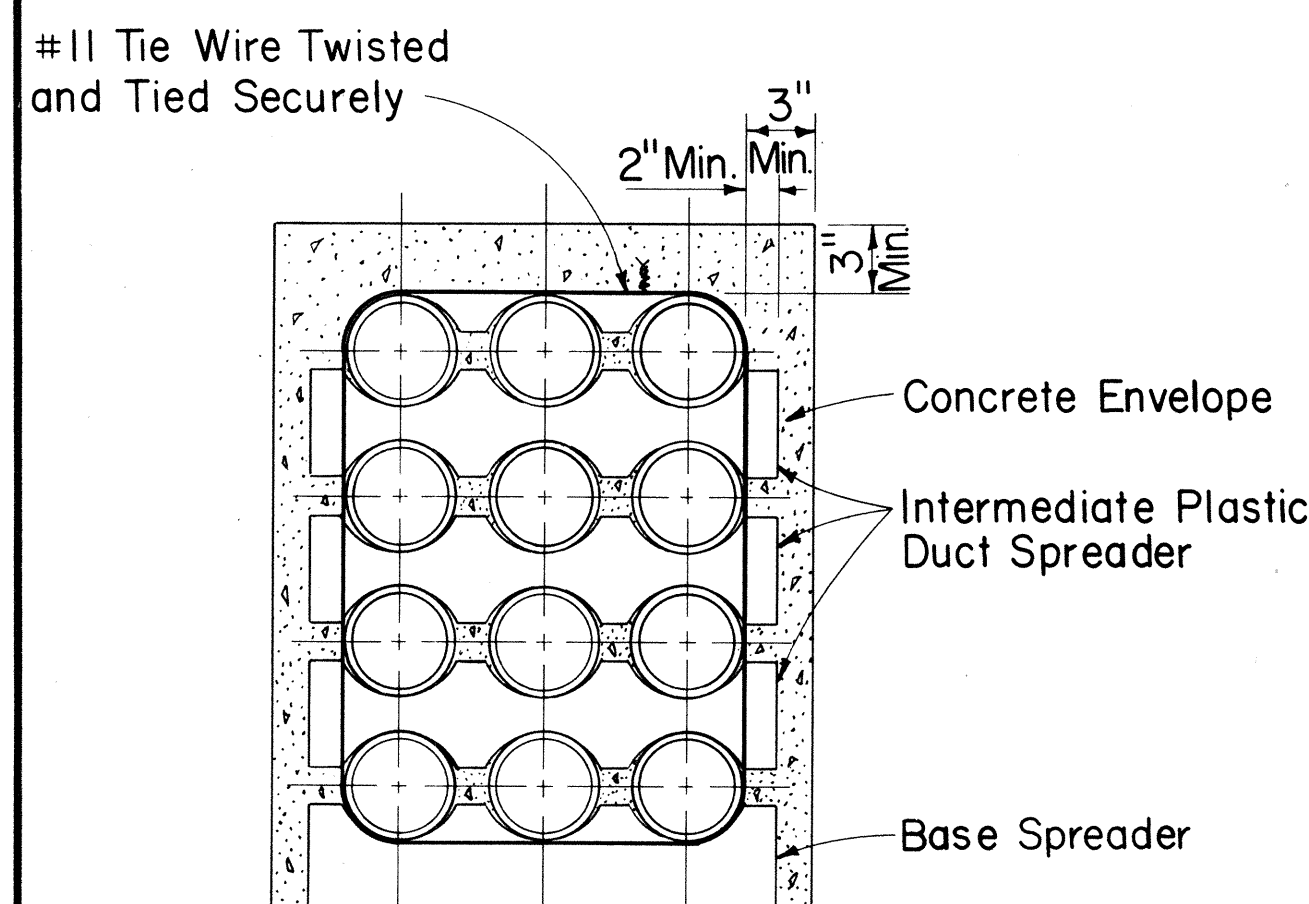


TYPICAL MANHOLE DUCT WINDOW
Scale: 1 1/2" = 1'-0"

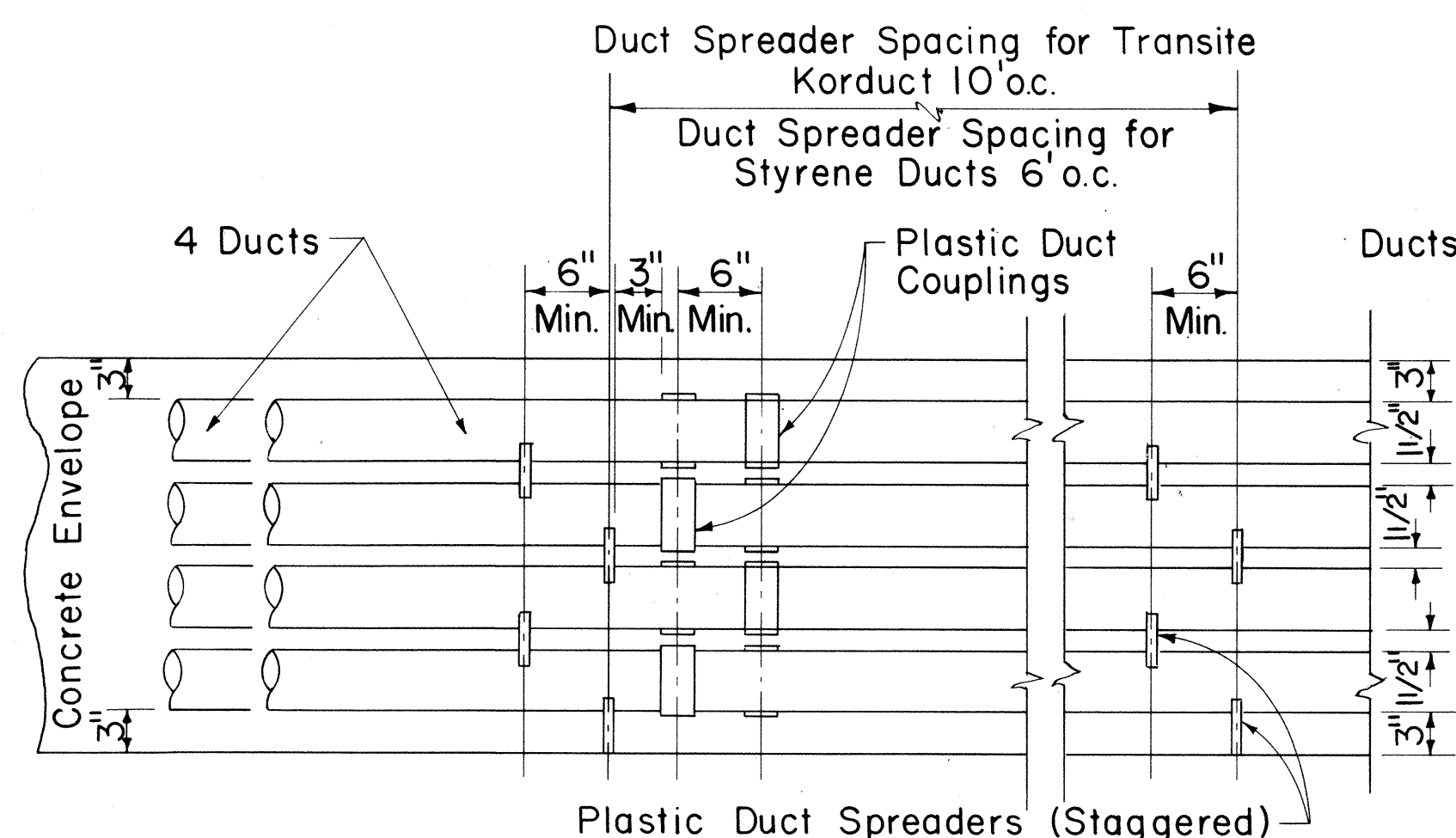


Note: Only for manholes located below water table

SECTION "E₁-E₁"
MANHOLE SUMP DETAIL
Scale: 3/4" = 1'-0"

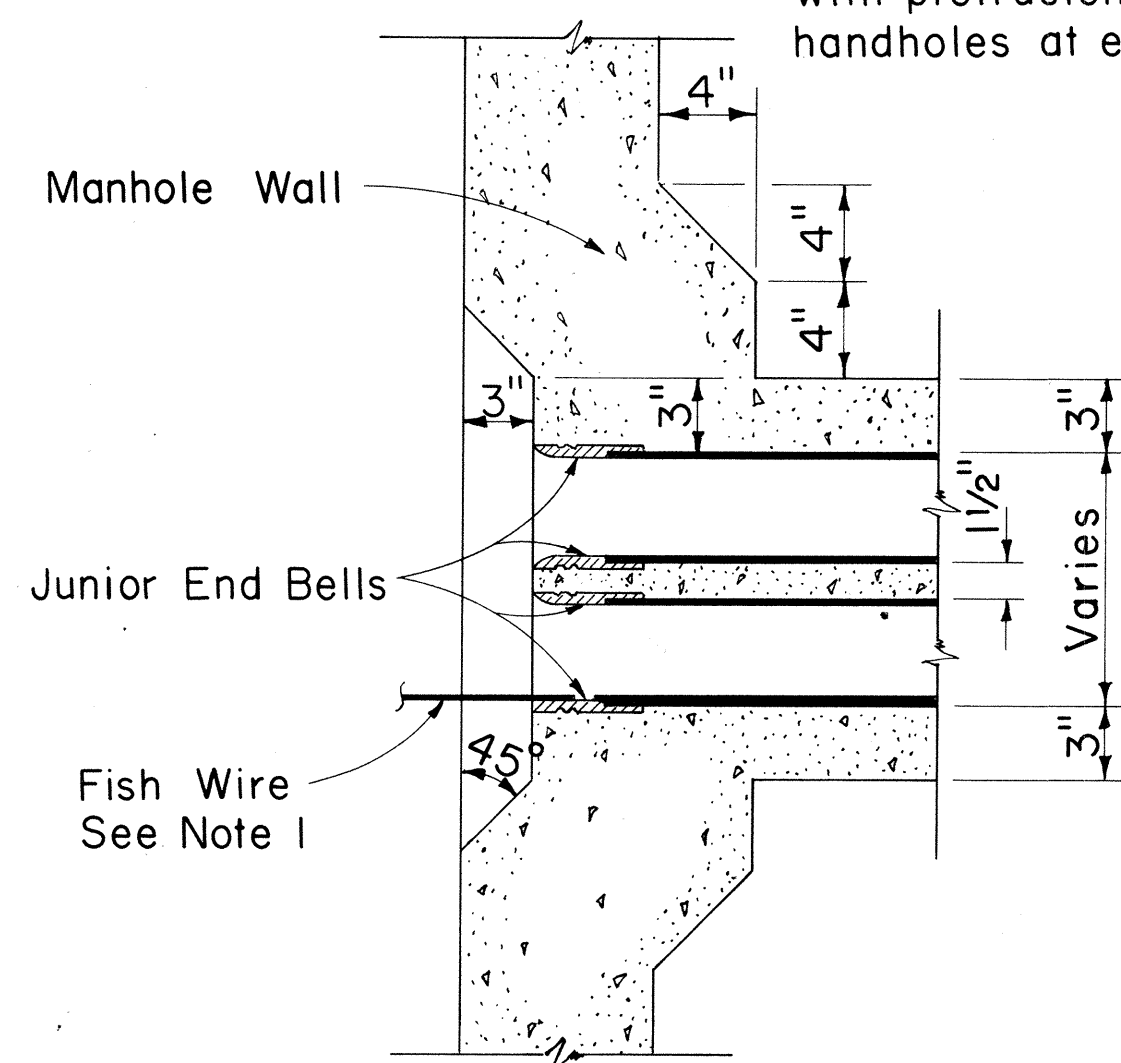


SECTION SHOWING SPACERS



TYPICAL DUCT ENVELOPE ELEVATION
ARRANGEMENT OF COUPLING & PLASTIC SPACERS
Scale: 1" = 1'-0"

- NOTE**
- The Contractor shall place #12 Fish Wire in designated duct throughout its entire length with protrusions of 2 feet in manholes & handholes at each end and 1 foot in pullboxes.



SECTION "F-F"
TYPICAL WINDOW DETAIL & JUNIOR END BELL
Scale: 1 1/2" = 1'-0"

NOTES: PULLING-IN IRON

- Pulling-In Iron to be supplied by Hawaiian Telephone Co. and installed by Contractor.
- Install one Pulling-in Iron opposite each duct entrance. Location to be determined in field.

Supplement Sheet to Type "A-1" (Drawing Nos. 34060 & 34061), Type "A-2" (Drwg. Nos. 34062 & 34063) and Type "A-3" (Drwg. Nos. 34064 & 34065) Telephone M.H.

APPROVED:
[Signature] 8-28-69
Hawaiian Telephone Co., Ltd. Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

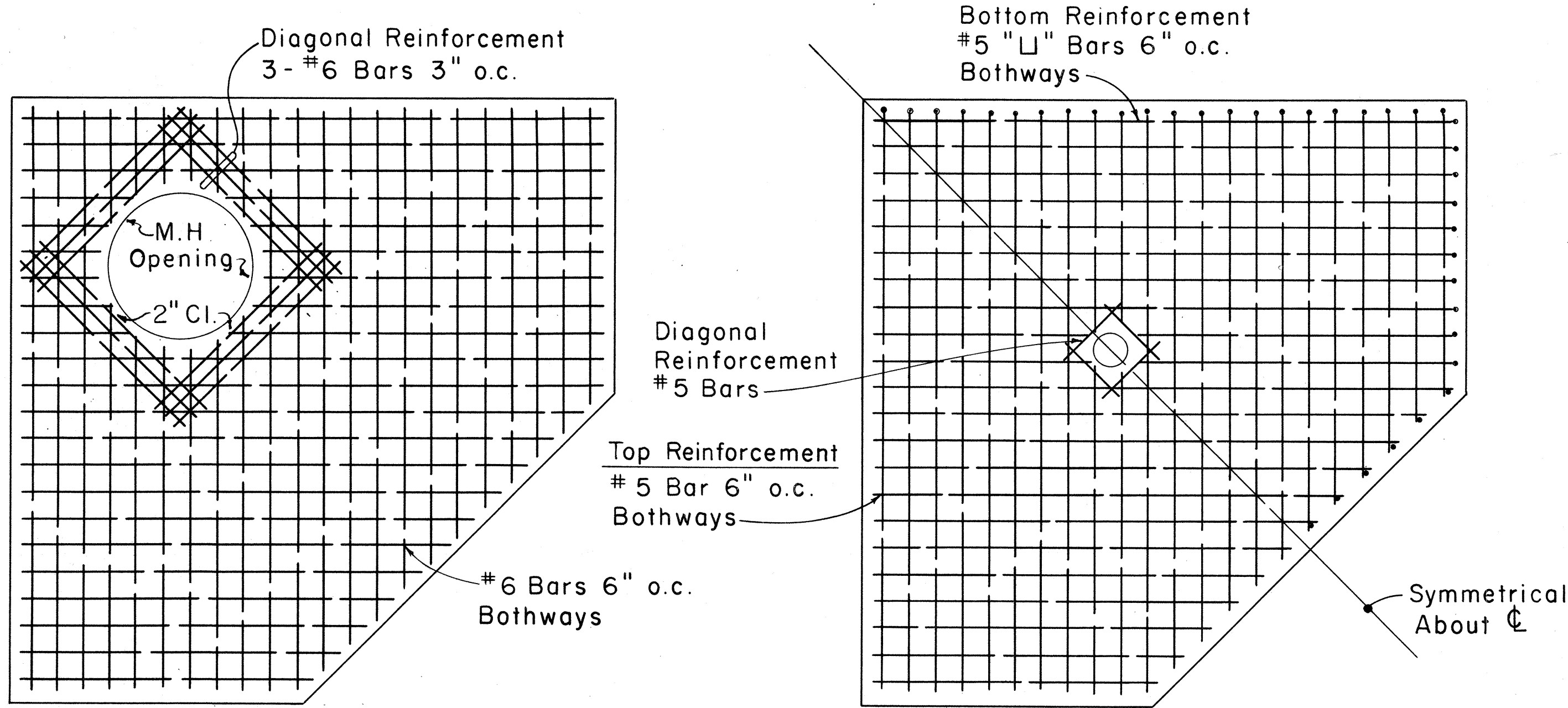
STANDARD DETAILS
TYPE "A" MANHOLE
AND MISCELLANEOUS
TELEPHONE DETAILS

Scale: As Noted Date: June, 1969

SHEET No. 6 OF 7 SHEETS

GENERAL NOTES:

- Design Data
fs = 20,000 psi
flc = 3,000 psi
fc = 12,000 psi
n = 10
w = Equiv. Fluid Pressure 30#/Ft²
- Minimum overlap for a Lapped Splice shall be 24 Bar Dia. but not less than 12". Lap of Adjacent Bars shall not be in same location.
- Unless otherwise indicated, for Vertical Location of Duct Windows see Profile Sheet.
- Manhole Walls shall be Doubled Formed.
- All Concrete shall be cured by an Impervious Liquid Membrane Compound.
- Concrete shall not be loaded, except by its own weight, until 28 Days have passed since placement
- All Construction Joints shall be Waterproofed with Two Applications of Thoro-Seal or equal.
- Cap all Ducts and Stubouts.
- Concrete shall be Class A and shall have a Compressive Strength of 3000 psi in 28 Days with a Slump of 3".
- Concrete Admixture shall be 2 1/2 Lbs. "Tricosol Normal" per Cubic Yard.
- For Details "A", "B", "C", Sections "D-D", "E-E", "F-F" and other Miscellaneous Manhole Construction Details see Supplement Sheet to A-1, A-2, and A-3 Telephone Manholes.

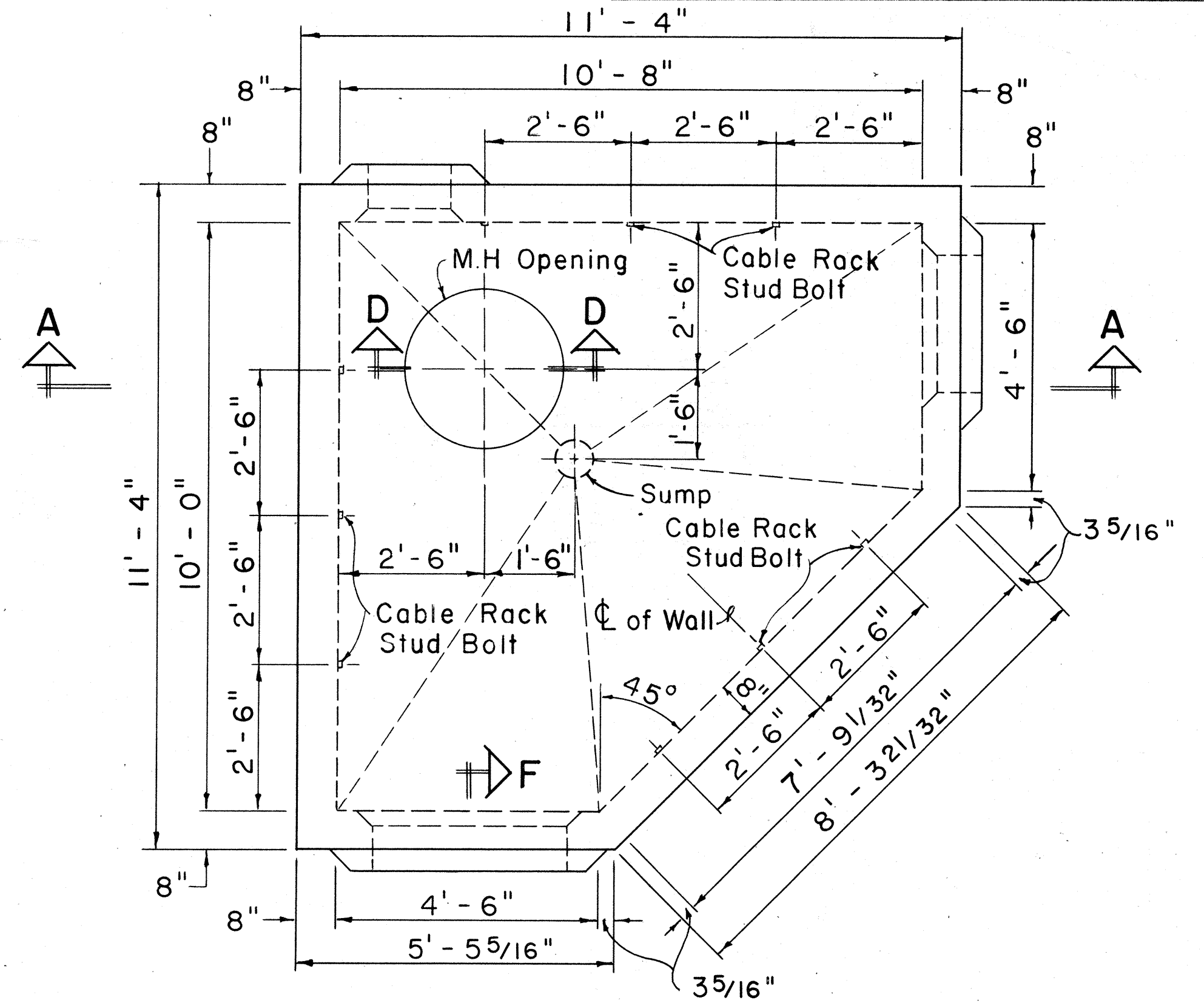


ROOF SLAB REINF. PLAN

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

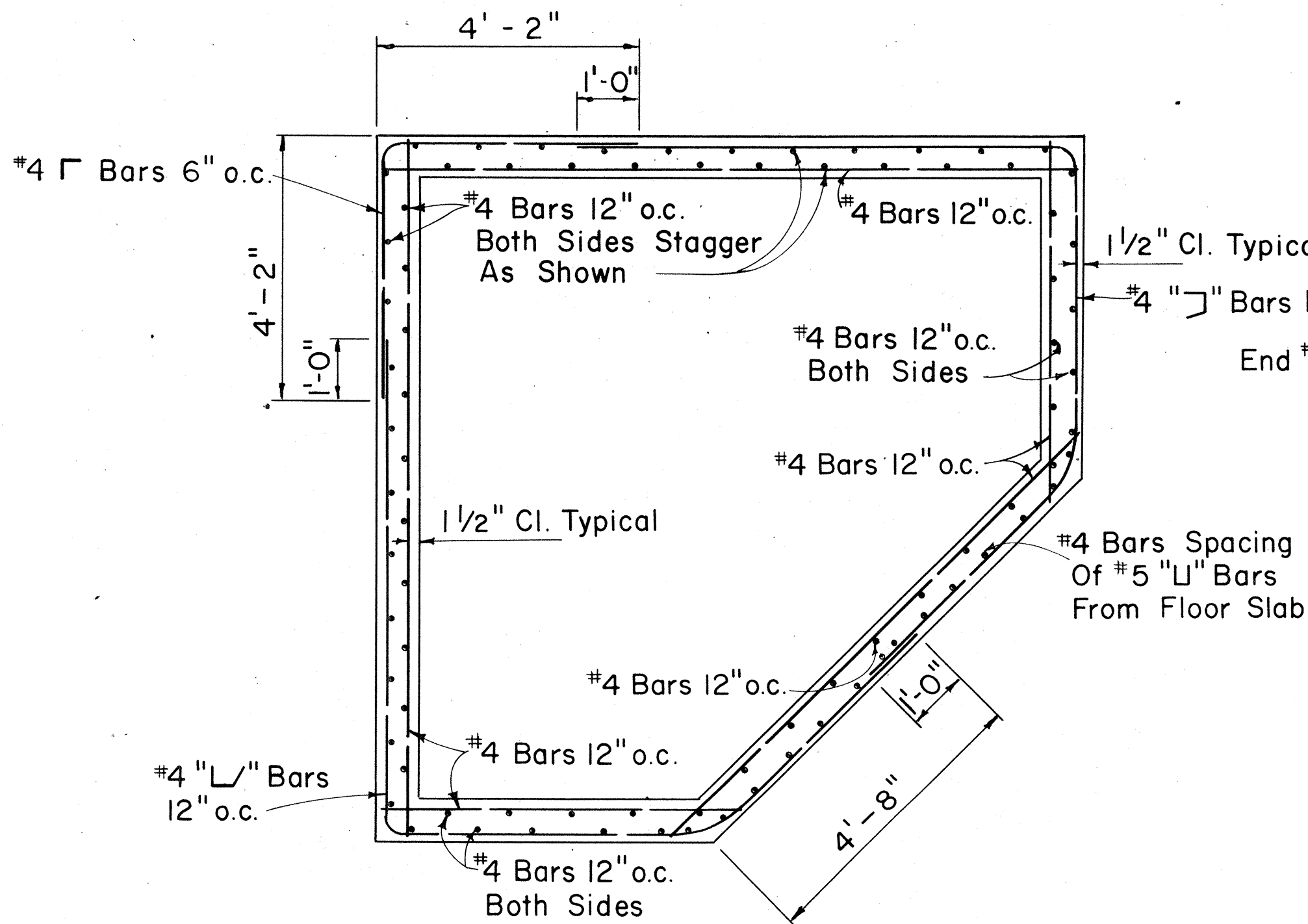
FLOOR SLAB REINF. PLAN

(Showing Top & Bottom Reinf.)
Scale: 1/2" = 1'-0"



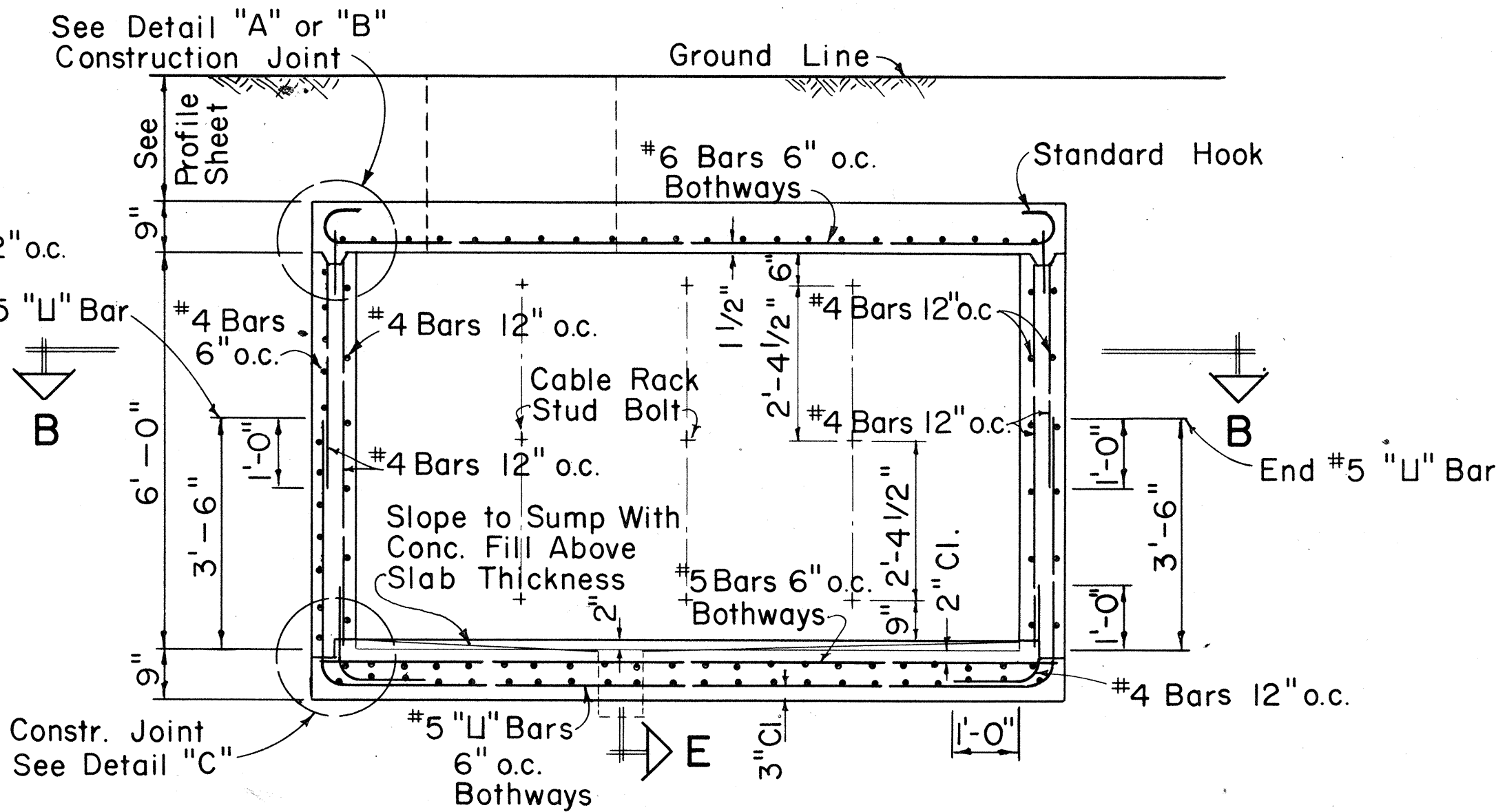
PLAN

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



SECTION "B-B"

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



SECTION "A-A"

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

APPROVED:

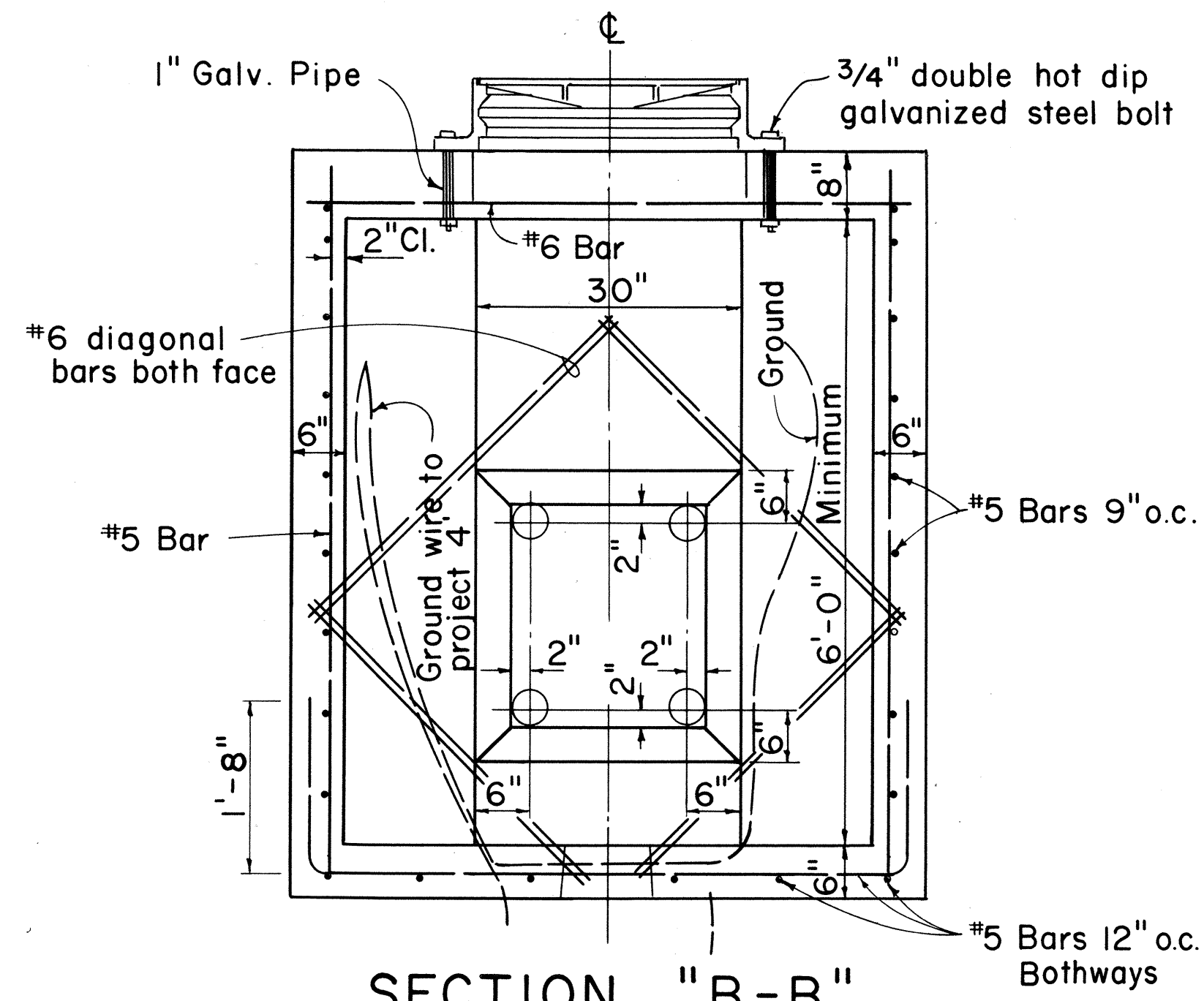
[Signature] 8-28-69
Hawaiian Telephone Co., Ltd. Date
H. T. Co., Ltd. Drawing No. 34034

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

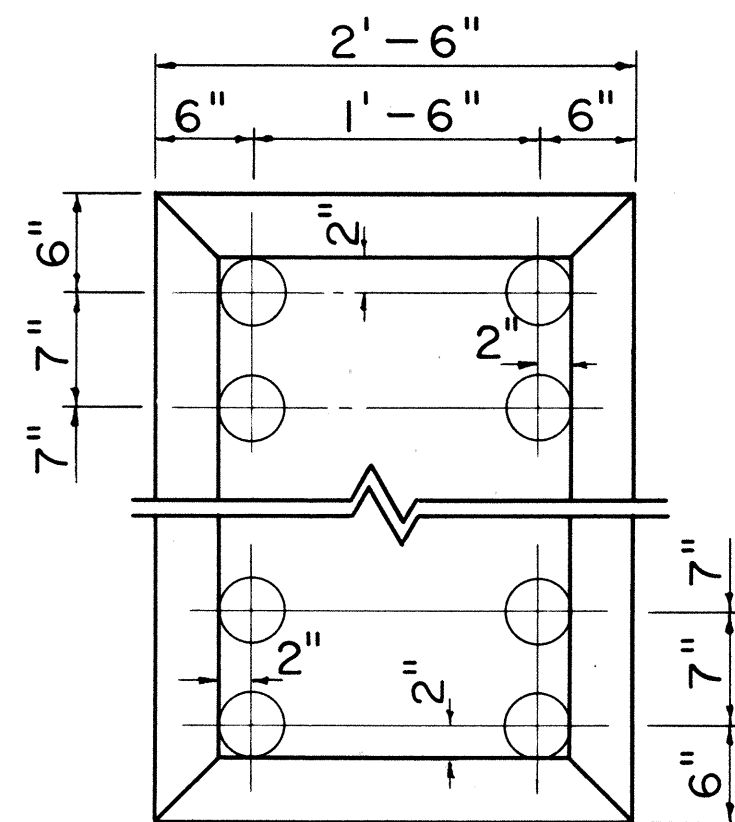
STANDARD CORNER
LARGE TYPE MANHOLE

Scale: As Noted Date: July 1969

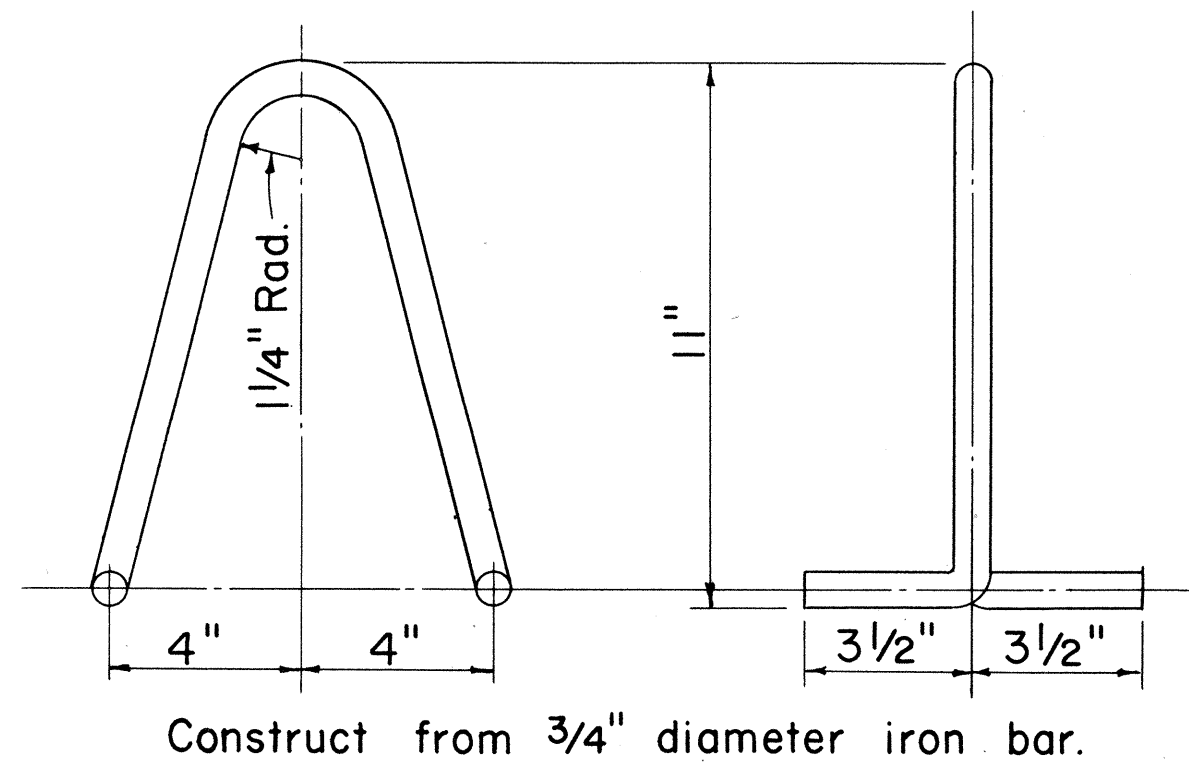
SHEET No. 7 OF 9 SHEETS



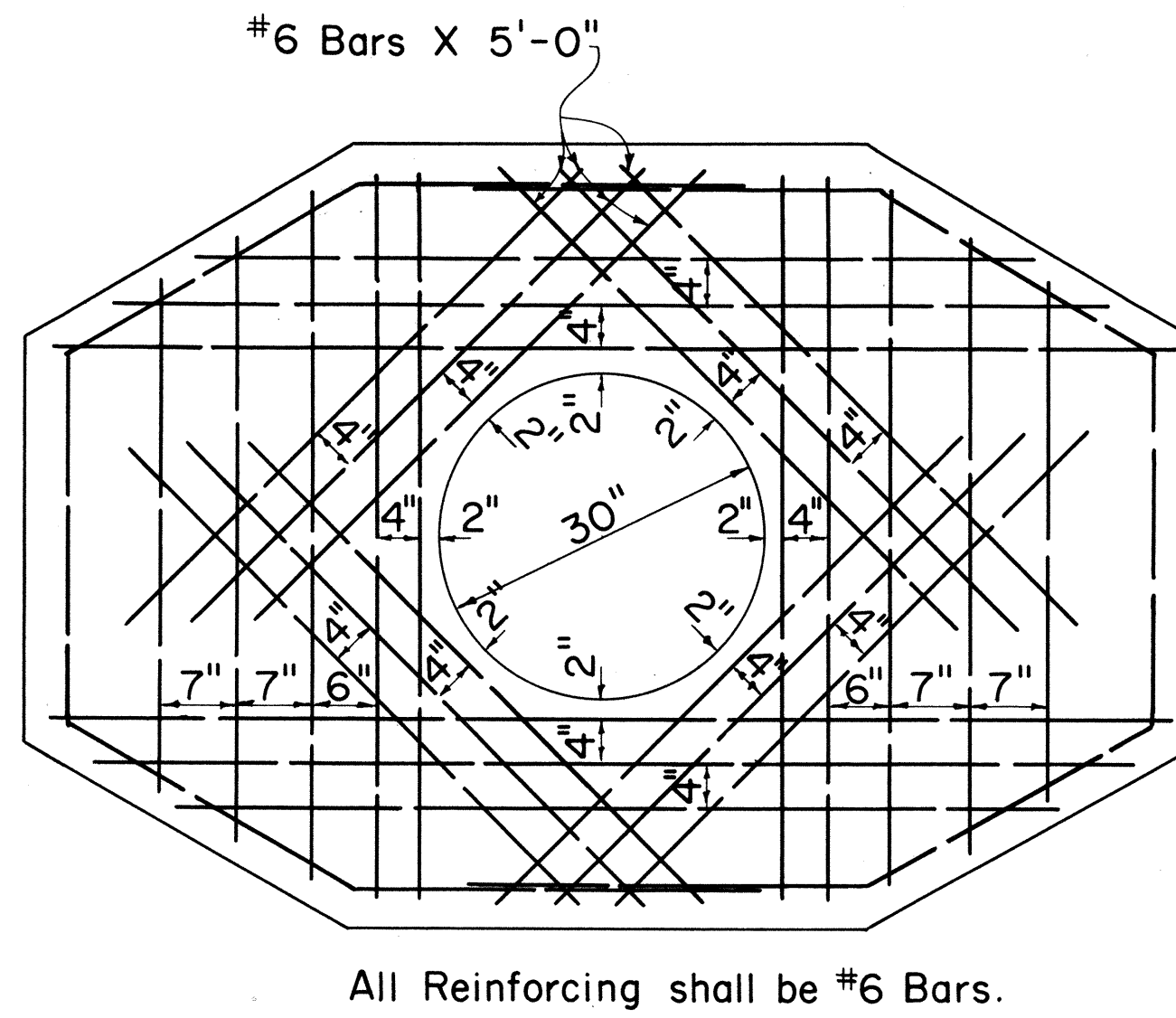
SECTION "B-B"
Scale: $\frac{3}{4}" = 1'-0"$



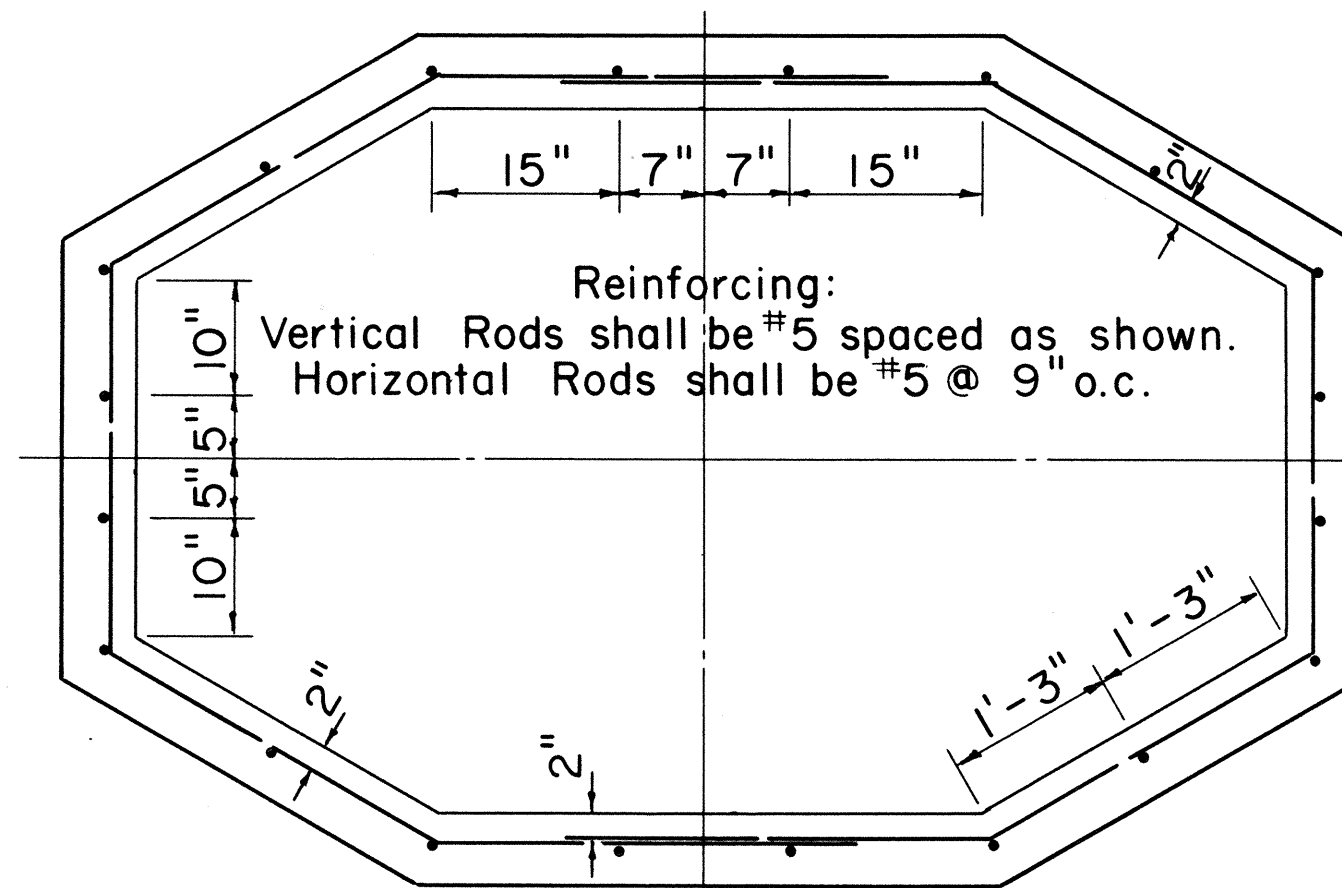
2-WIDE DUCT FACE
Scale: $1" = 1'-0"$



PULL-IN IRON
Quarter Scale



REINFORCING - TOP SLAB
Scale: $\frac{3}{4}" = 1'-0"$

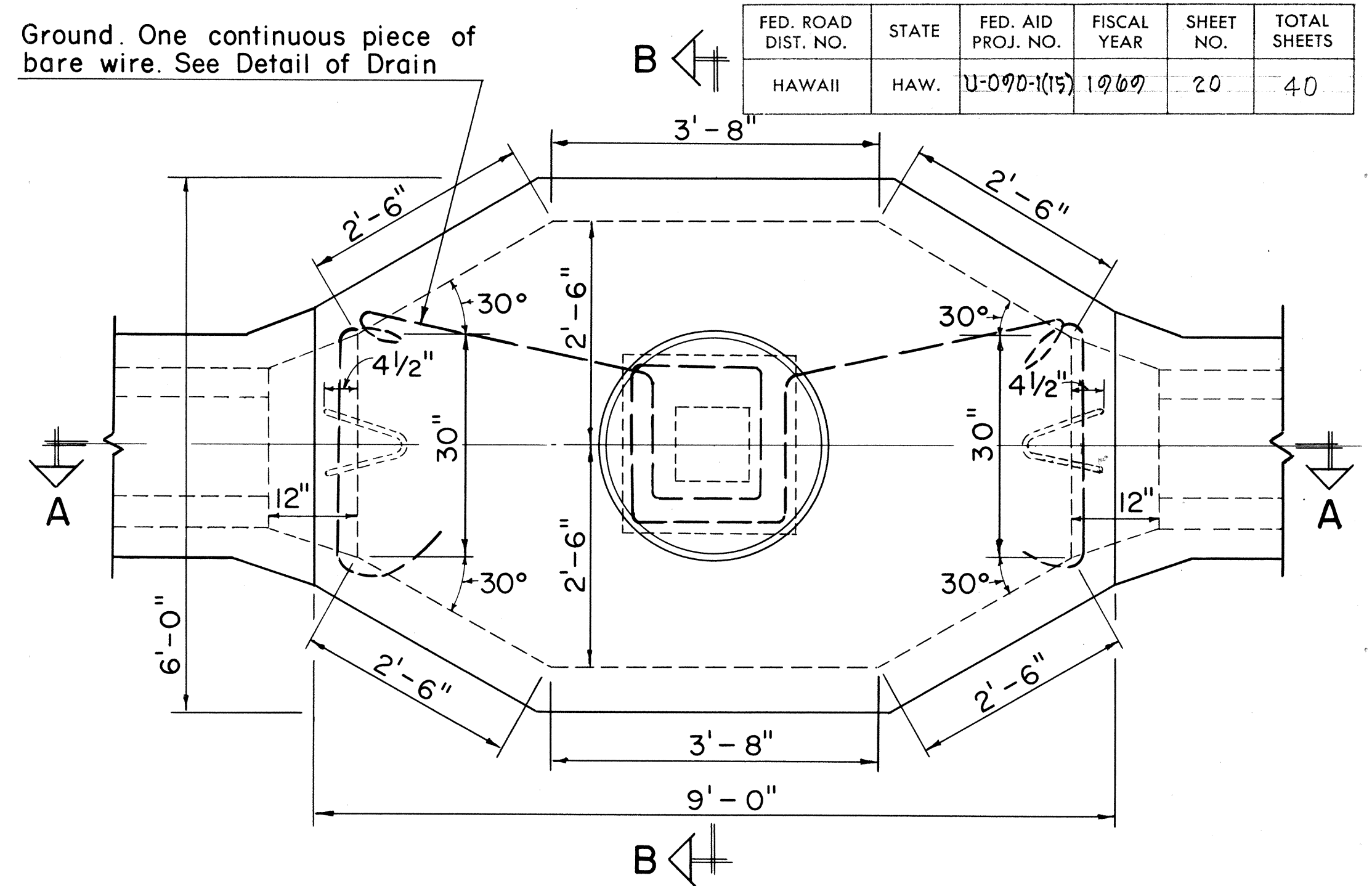


REINFORCING - SECTION UNDER TOP
Scale: $\frac{3}{4}" = 1'-0"$

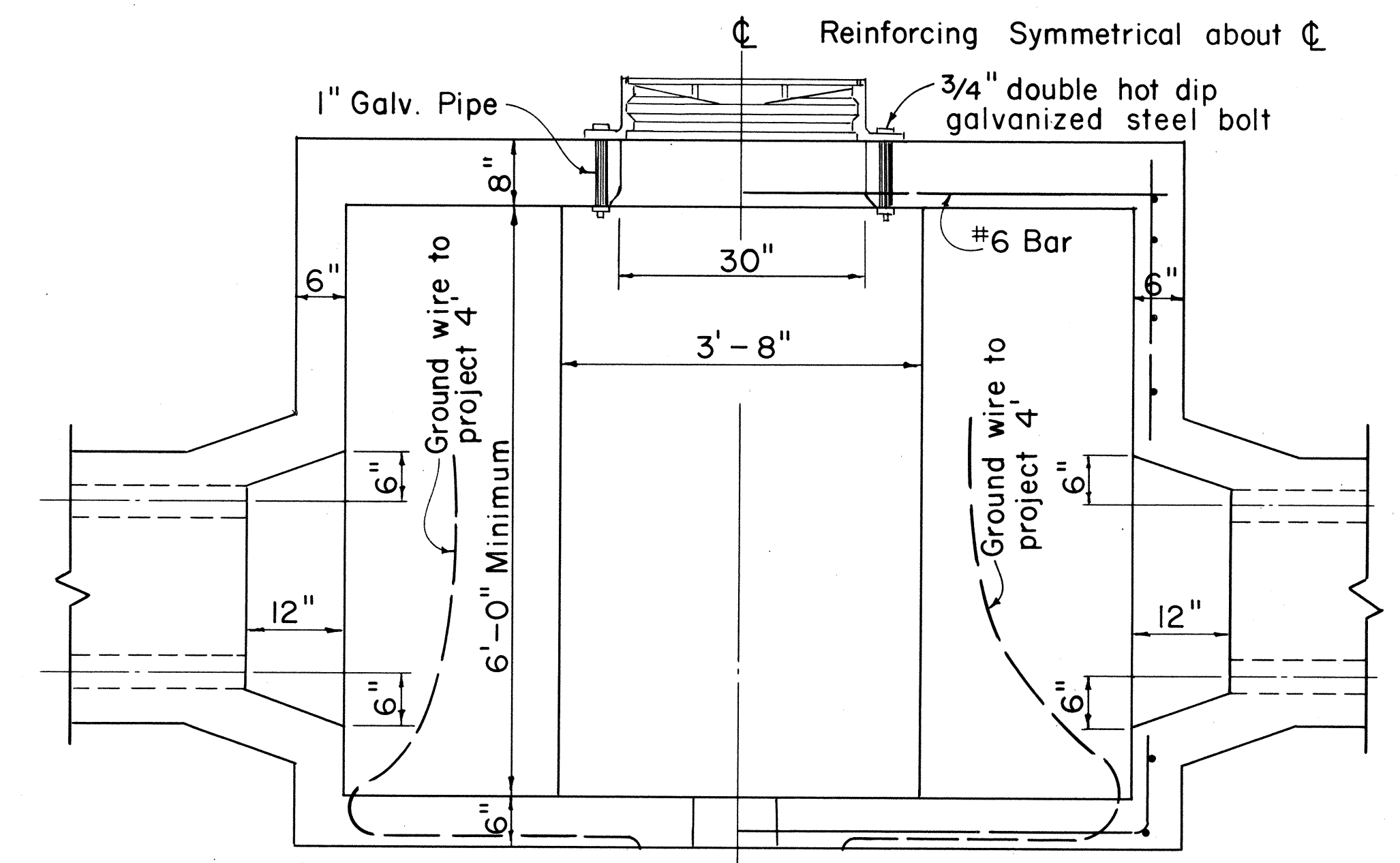
NOTES

1. The concrete for manholes shall be Class A concrete.
2. If necessary, the manhole casting may be raised by using a concrete or brick collar.
3. The ground wire shall be #1 minimum, 4' to project at each point.
4. The thickness of the top slab shall be increased to 10" for construction in roads.
5. Pull-in irons shall be located as detailed on individual profile of duct line.

Ground. One continuous piece of bare wire. See Detail of Drain



PLAN
Scale: $\frac{3}{4}" = 1'-0"$



SECTION "A-A"
Scale: $\frac{3}{4}" = 1'-0"$

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-070-1(15)	1967	20	40

Re: Y & D Drawing No. 150077 & 977675
Sheet No. 1 of 2 Sheets

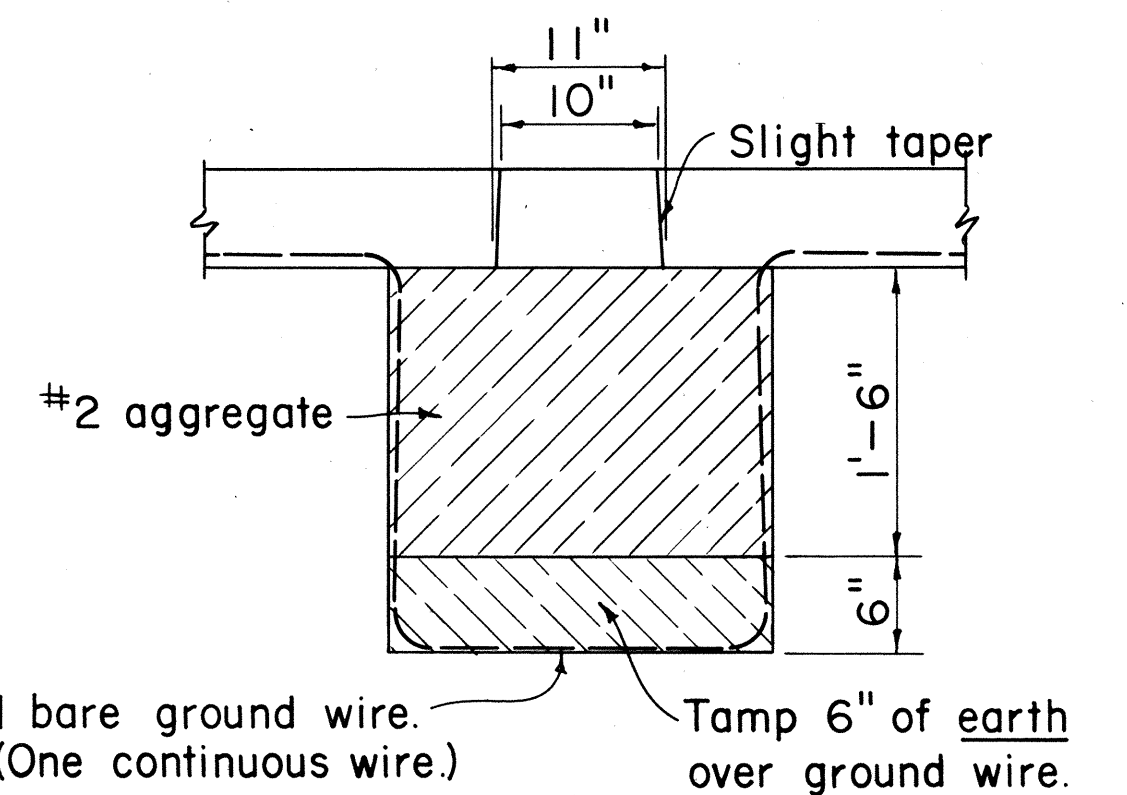
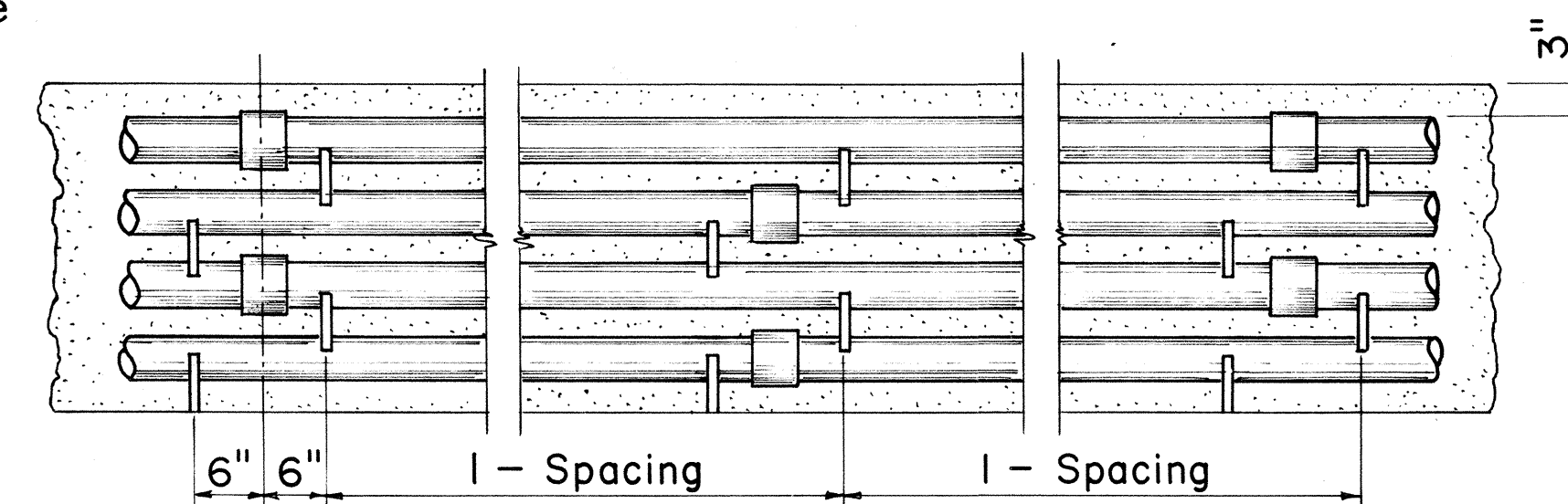
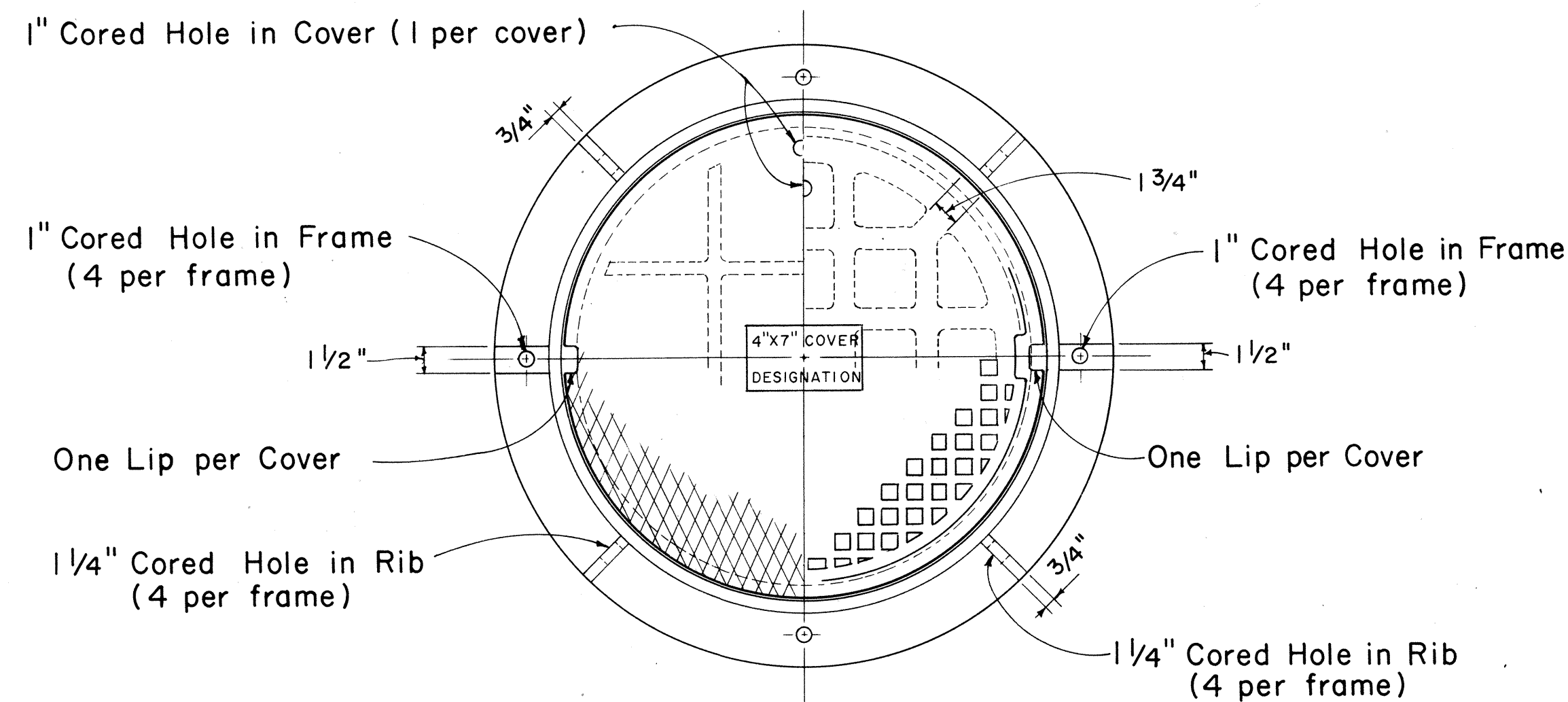
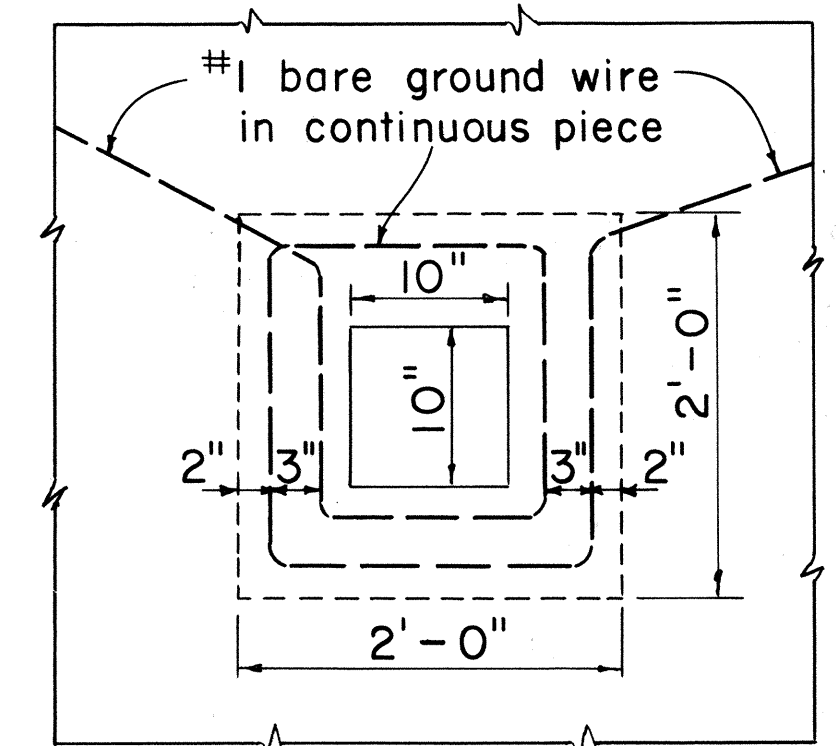
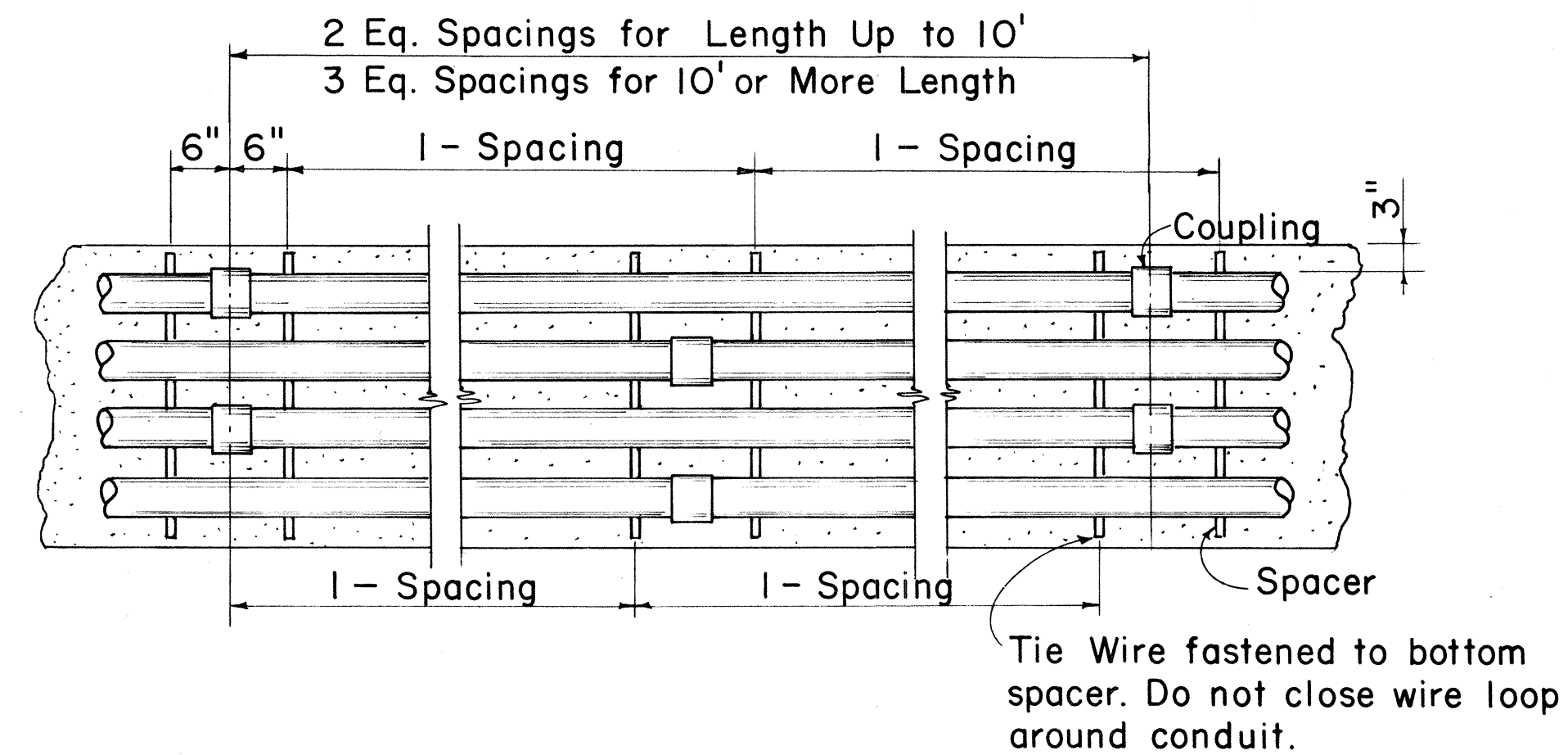
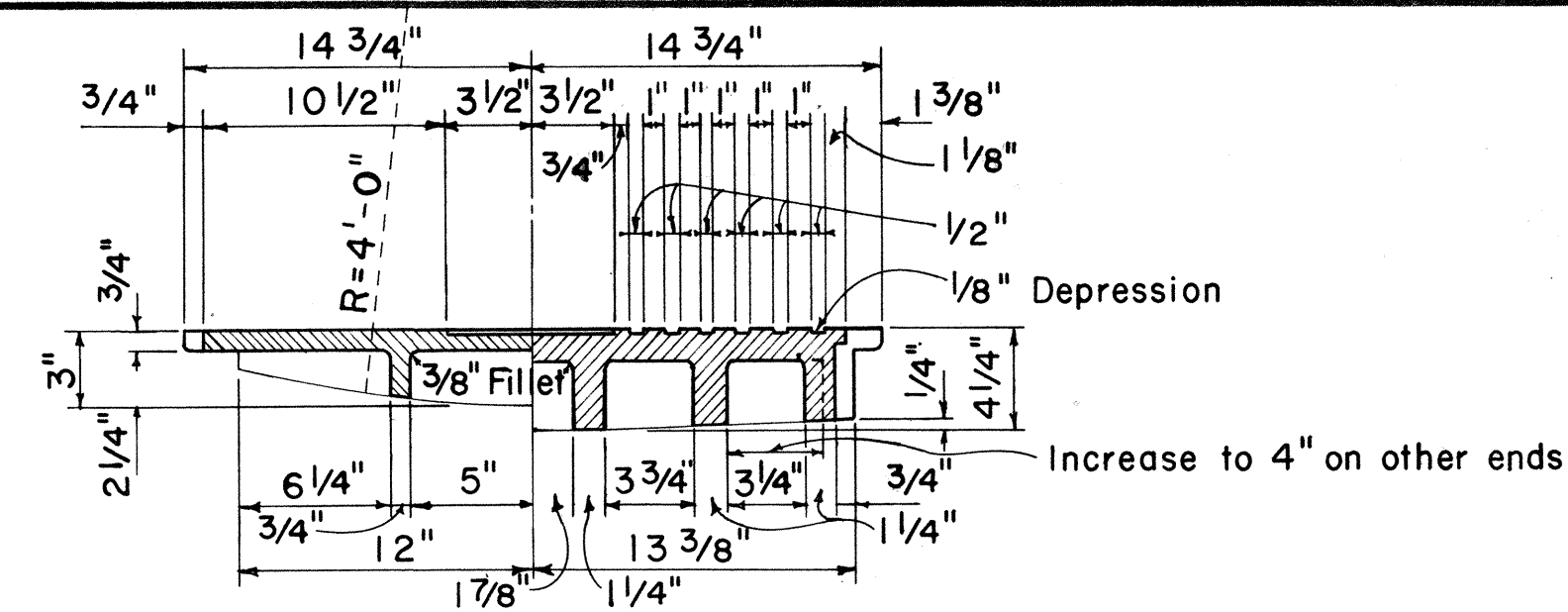
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**NAVY ELECTRIC MANHOLE
TWO WAY**

Scale: As Shown Date: July, 1969
SHEET No. 8 OF 9 SHEETS

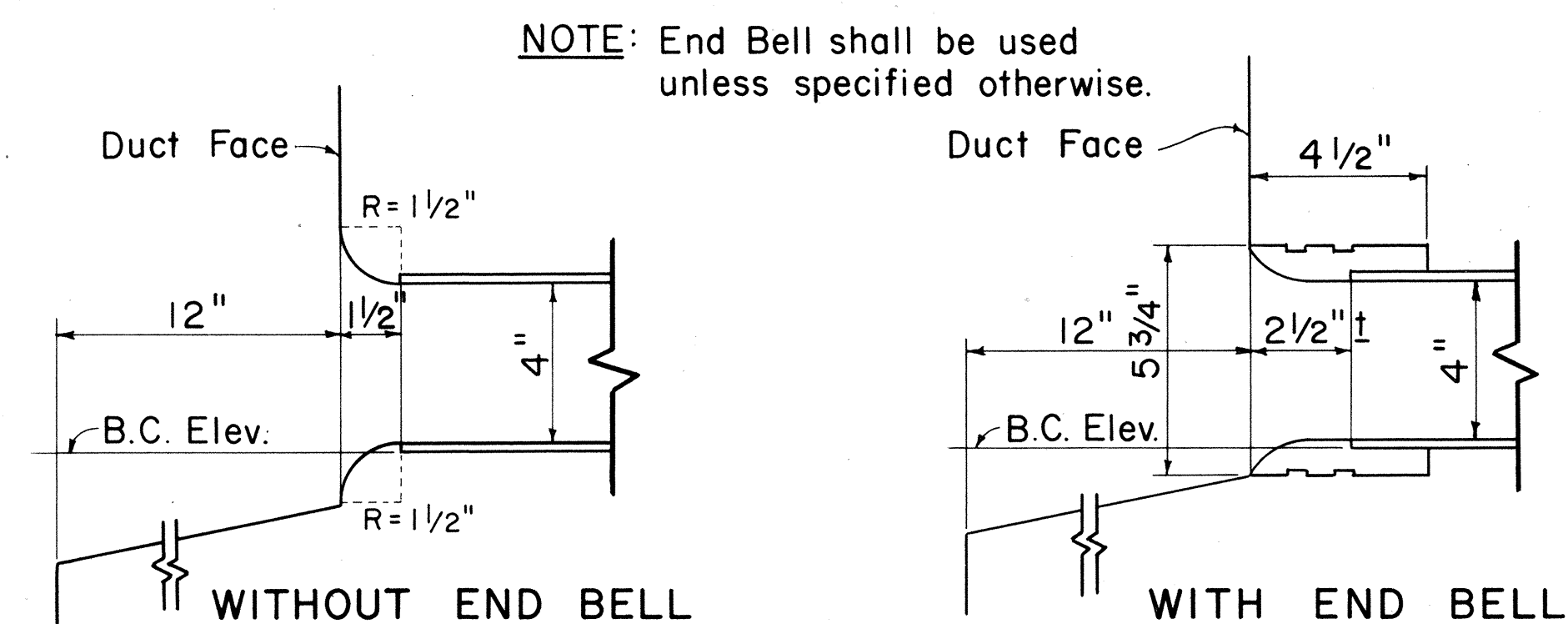
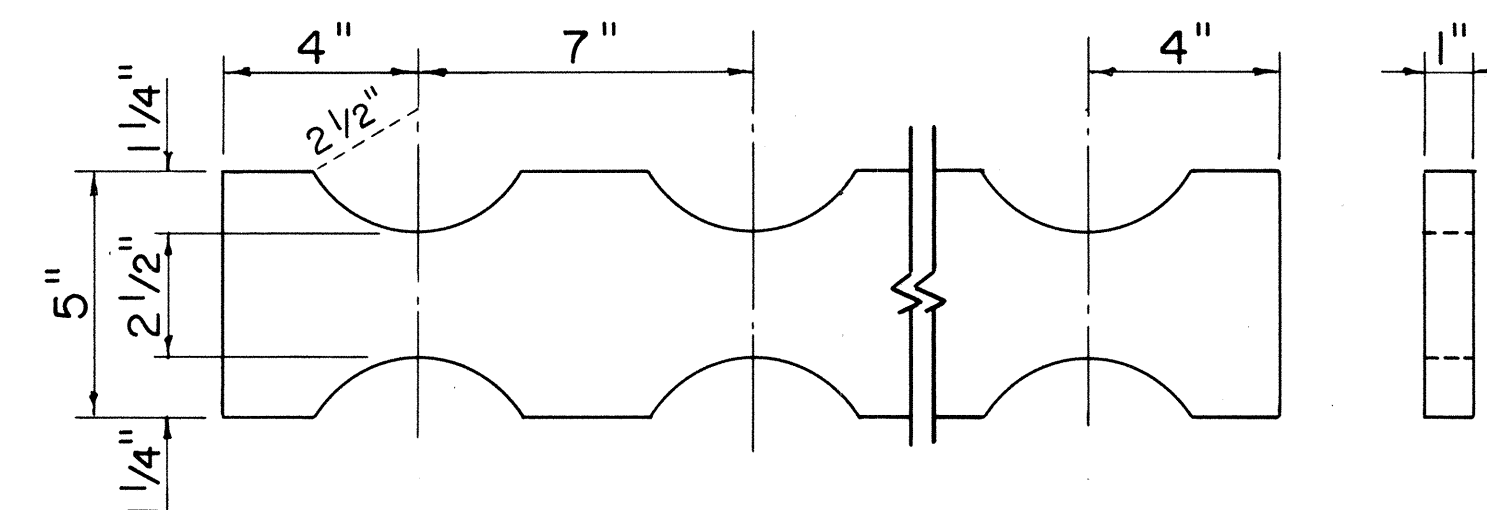
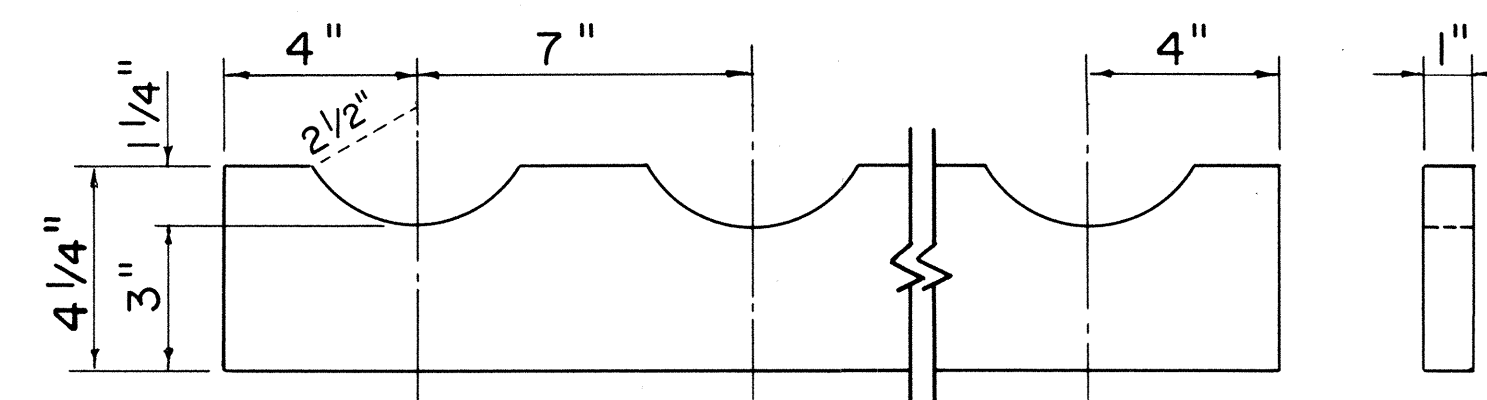
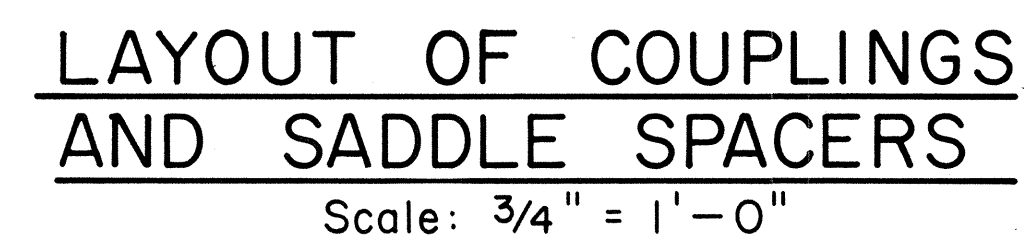
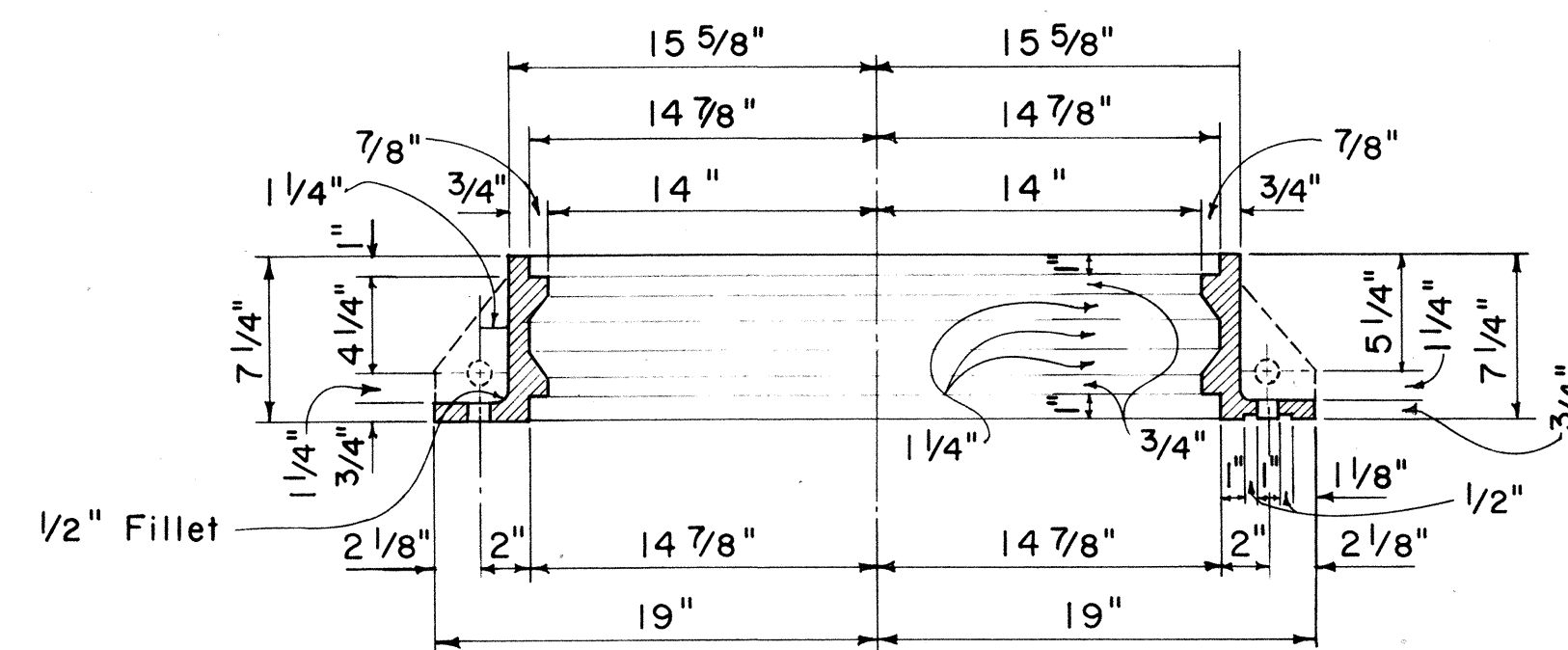
SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-090-1(15)	1969	21	40



NOTE:

Pattern for 1/8" Depression to be similar throughout entire Frame and Cover.



Re: Y & D Drawing No. 150077 & 977675
Sheet No. 2 of 2 Sheets

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NAVY ELECTRIC MANHOLE
TWO WAY

Scale: As Shown Date: July, 1969

SHEET No. 7 OF 7 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	14
	TRACED BY	
	DESIGNED BY	08
	QUANTITIES BY	
	CHECKED BY	08
No.		