

UTILITY LEGEND

- E.P. Existing Electric or Telephone Pole
- ✕ E.P. Existing Electric or Telephone Pole to be removed
- E.P. New Electric or Telephone Pole
- E.P. Existing Electric or Telephone Pole with existing Anchor
- E.P. Existing Electric or Telephone Pole with New Anchor
- E.P. New Electric or Telephone Pole with New Anchor
- E.P. New Pullbox or Service Box
- E.P. New Handhole or Manhole
- E.P. Reinforced or non-reinforced concrete encased ducts
- E.P. Existing Signal Corps Cable
- E.P. Existing Water Line
- E.P. New Water Line
- E.P. Cut existing Sewer, Water or Gas Line
- E.P. Cut and Abandon in Place existing
- E.P. Existing (Water, Sewer, Gas) Manhole
- E.P. Existing Water Meter
- E.P. New Water Meter

GENERAL NOTES ELECTRIC AND TELEPHONE

- Existing electric and telephone systems shown on these plans are located from the best sources available. The Contractor shall check and verify the exact location and depth of same.
- Contractor to stake out proposed ductlines, pole and anchor locations; H.E. Co. to check locations before Contractor undertakes excavation.
- Minimum depth of duct lines from finish grade to top of concrete jacket where ducts are concrete encased = 2'-0" unless otherwise shown.
- Ducts encased in concrete jackets:
 - Normal distance from face of jacket to all ducts to be 3" minimum.
 - Clear distance of 1 1/2" minimum between ducts of same utility company.
 - Clear distances of 3" minimum between H.E. Co. ducts and H.T. Co. ducts.
- All ducts and conduits called for installation in concrete jacket shall be inspected and approved by the respective Engineer of H.E. Co. or H.T. Co. before concrete placing. 24 hr. (min.) notice shall be given before placing concrete.
- Depth of all pullboxes, service boxes and H.E. Co. handholes and manholes to be determined in the field.
- Poles and anchors for H.E. Co. unless otherwise noted.
- Depth of poles and anchor holes are taken from finish grade.
- For pole setting depth data, see sht. no. 27.
- Installation of, and backfill for poles by H.E. Co. or H.T. Co.
- Backfill of anchor holes by the Contractor.

DATE	DESIGNED BY	CHECKED BY
PLAN	DESIGNED BY	CHECKED BY
NOTE BOOK	DESIGNED BY	CHECKED BY
NO.	DESIGNED BY	CHECKED BY

60' Pole
KUNIA Sta. 115+70 (118%)
Install
1-3/4" Anchor L=5' (H.T.)

60' Pole
KUNIA Sta. 118+60 (113%)
Install
1-1" Anchor L=5'

60' Pole
KUNIA Sta. 120+60 (90% Rt)
Install
1-1 1/4" Anchor L=50'

Existing Pole #167
Install
1-1 1/4" Anchor L=50'

35' Stub Pole
KUNIA Sta. 120+60 (28% Lt)
Install
1-1" Anchor L=5'
1-24" Deadman Under Pole

65' Pole
KUNIA Sta. 112+37 (125%)

75' Pole
KUNIA Sta. 108+22 (148%)
Install
1-1 1/4" Anchor L=40'

KUNIA Sta. 105+40 to 108+22
Construct
2- Handholes #57 V
2- 5" Ducts Concrete
Encased - 312 Lin. Ft.
See sht. no. 24 for Profile
of Duct line

B.W.S. M.H. Raised

75' Pole
KUNIA Sta. 105+40 (112%)
Install
1-1 1/4" Anchor L=40'

65' Pole
KUNIA Sta. 102+04 (95%)
Install
1-1" Anchor L=20'

65' Pole
KUNIA Sta. 98+43 (22%)
Install
1-1 1/4" Anchor L=50'

2-5" Pipe Conduit
Haw'n. Tel. Co.

30' Pole (H.T.)
KUNIA Sta. 105+60 (30%)
Install
1-1" Anchor L=15' (H.T.)

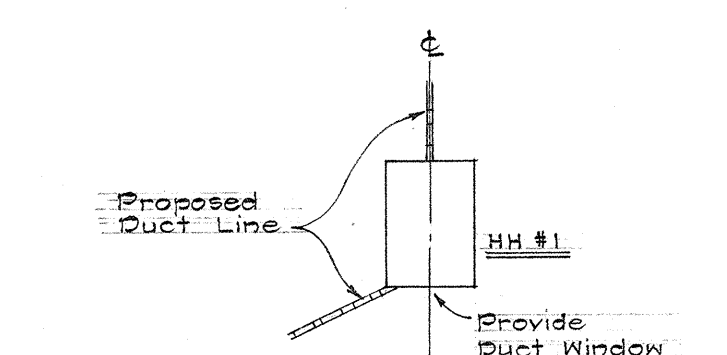
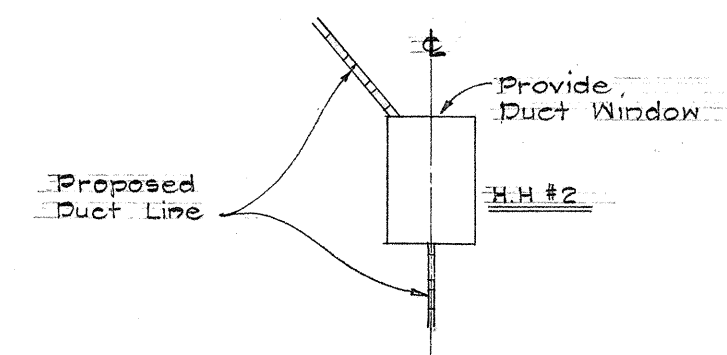
KUNIA Sta. 105+60 to 108+22
Install
2- Pullboxes (H.T.)
2- 4" Ducts - Concrete
Encased - 264' (H.T.)
See sht. no. 24 for Profile
of Duct line

30' Pole (H.T.)
KUNIA Sta. 108+22 (38%)
Install
1-1" Anchor L=15' (H.T.)

30' Pole (H.T.)
KUNIA Sta. 110+75 (35%)
Install
1-3/4" Anchor L=15' (H.T.)

30' Pole (H.T.)
KUNIA Sta. 113+22 (58%)

2-5" Pipe Conduit
Haw'n. Tel. Co.



SCHEMATIC HANDHOLE DIAGRAM Not to Scale

APPROVED:
PRINCP. ELECTRICAL ENG'R H.E. CO., INC.
OUTSIDE PLANN. ENGINEER, H.T. CO. LTD.

8-3-65
DATE

8-3-65
DATE

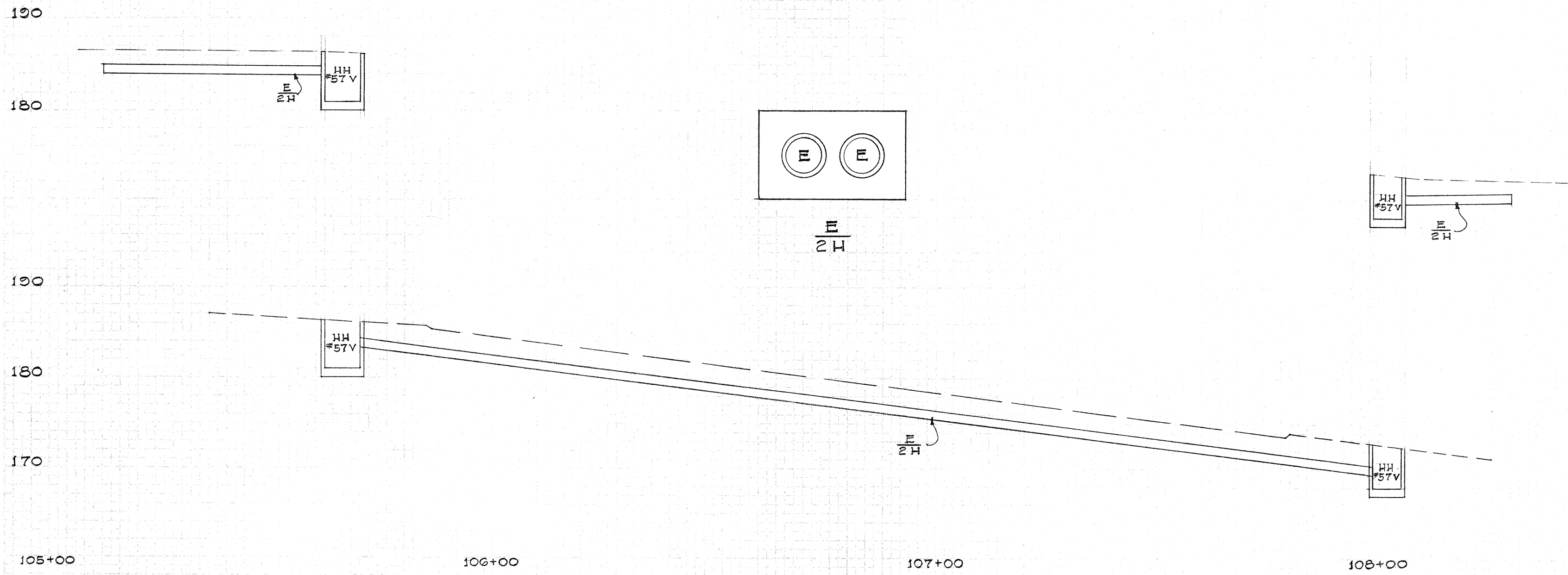
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITIES
ELECTRIC-TELEPHONE
KUNIA INTERCHANGE
INTERSTATE ROUTE 4-1
F.A.I. Proj. No. I-HI-1(18) Unit 2

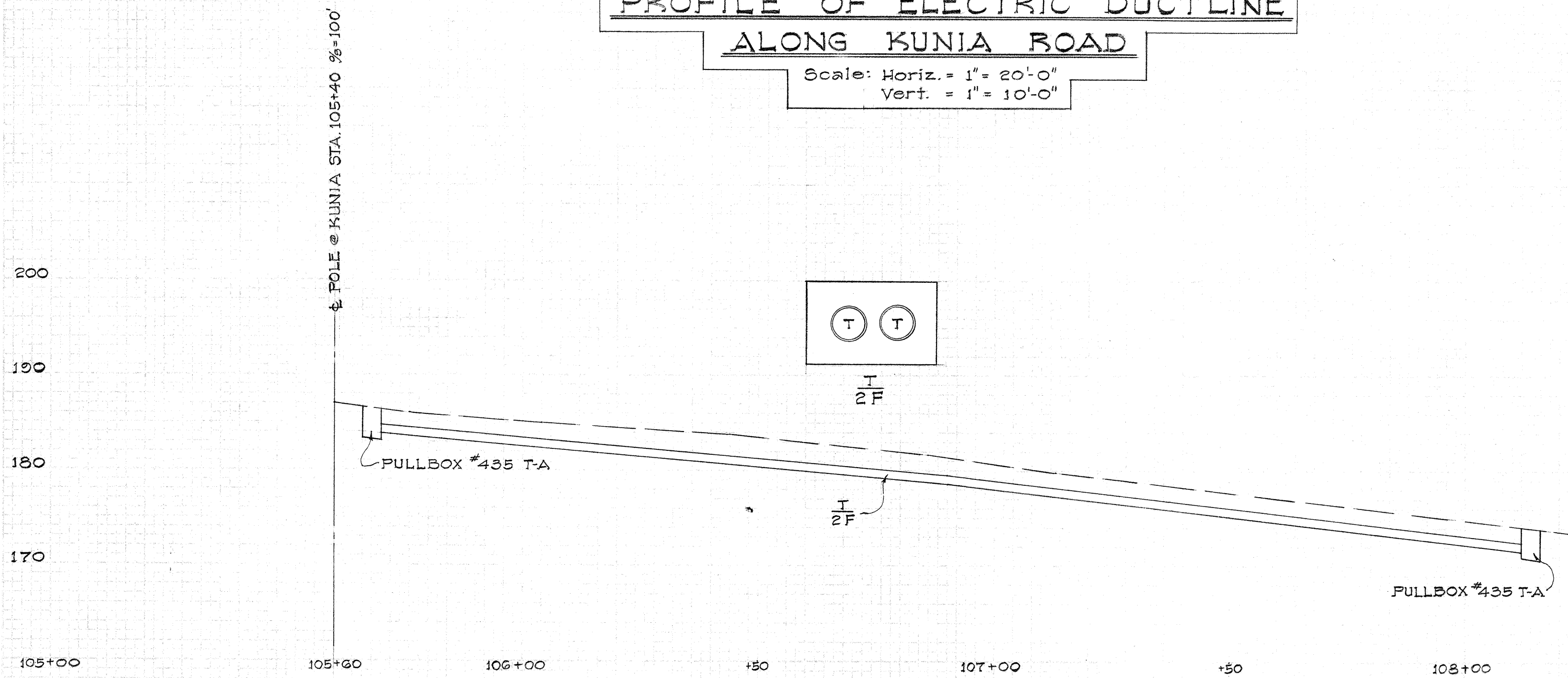
Scale: 1"=100'
Date: July 1965
SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	I-HI-1(18) UNIT 2	1965	24	75

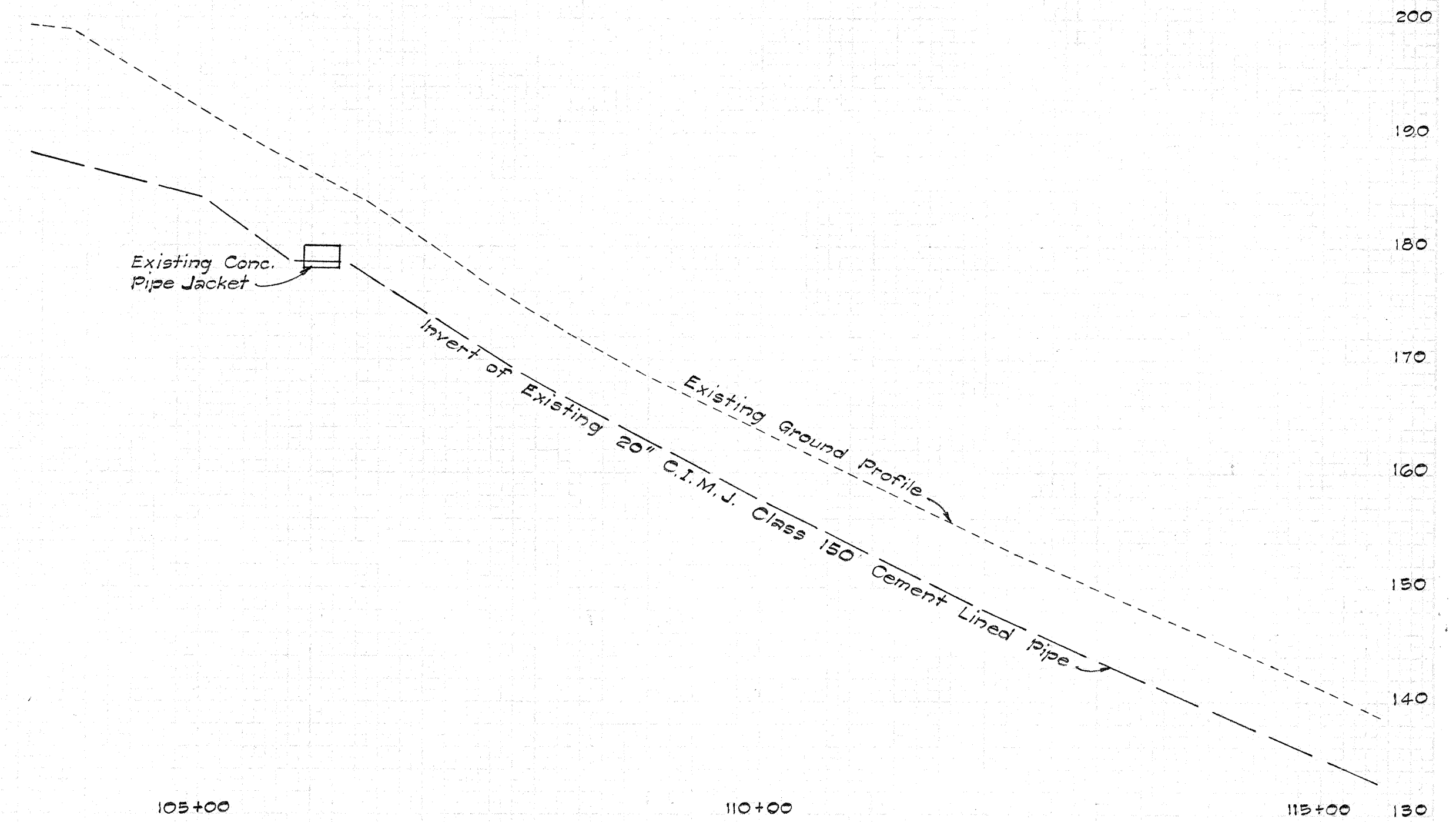
CONDUIT SIZE	SYMBOL
2"	A
1"	B
2"	C
3"	D
3½"	E
4"	F
4½"	G
5"	H



**PROFILE OF ELECTRIC DUCTLINE
ALONG KUNIA ROAD**
Scale: Horiz. = 1" = 20'-0"
Vert. = 1" = 10'-0"



**PROFILE OF TELEPHONE DUCTLINE
ALONG KUNIA ROAD**
Scale: Horiz. = 1" = 20'-0"
Vert. = 1" = 10'-0"

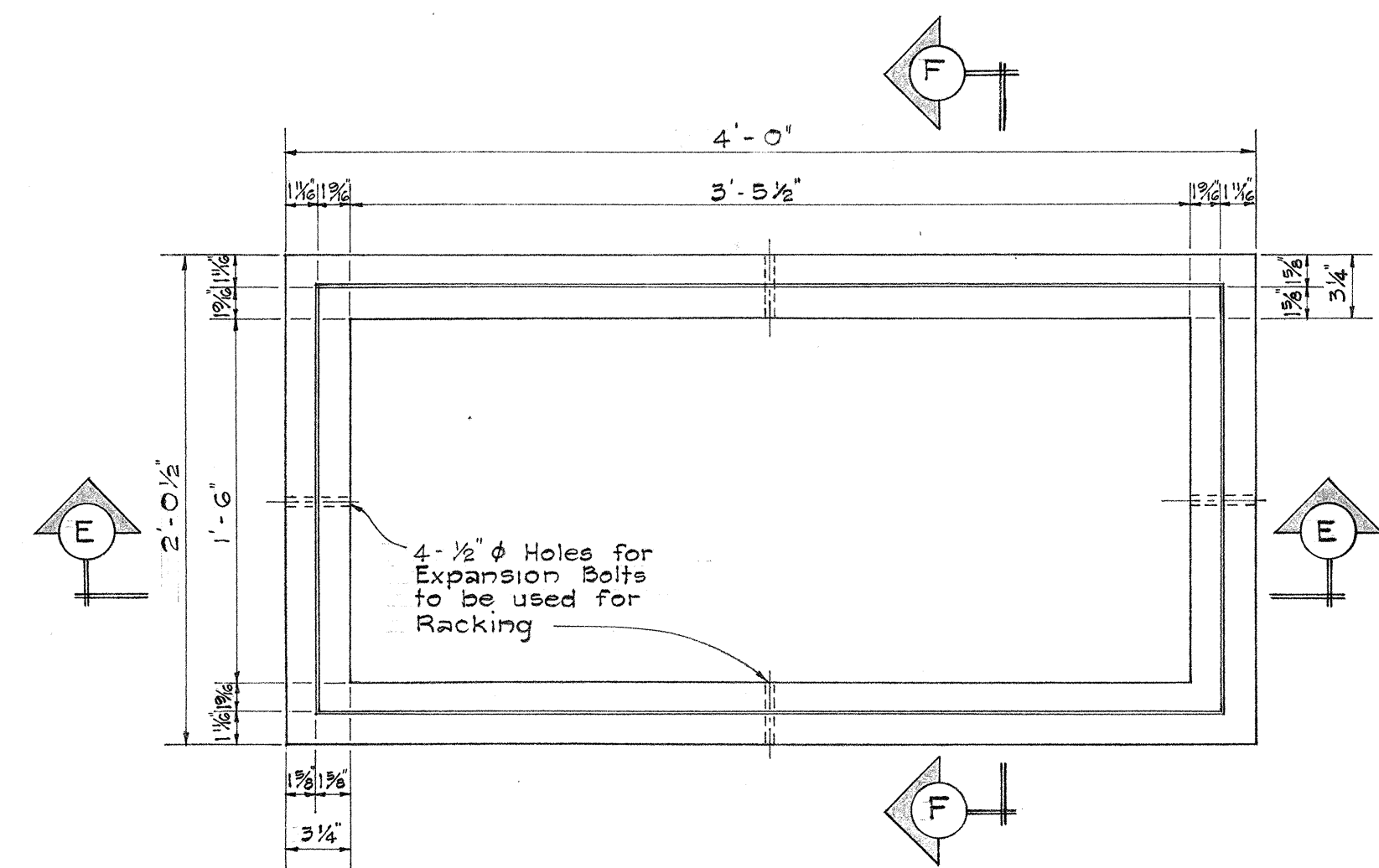


**PROFILE OF EXISTING 20" WATERLINE
ALONG KUNIA ROAD**
Scale: Horiz. = 1" = 100'
Vert. = 1" = 10'

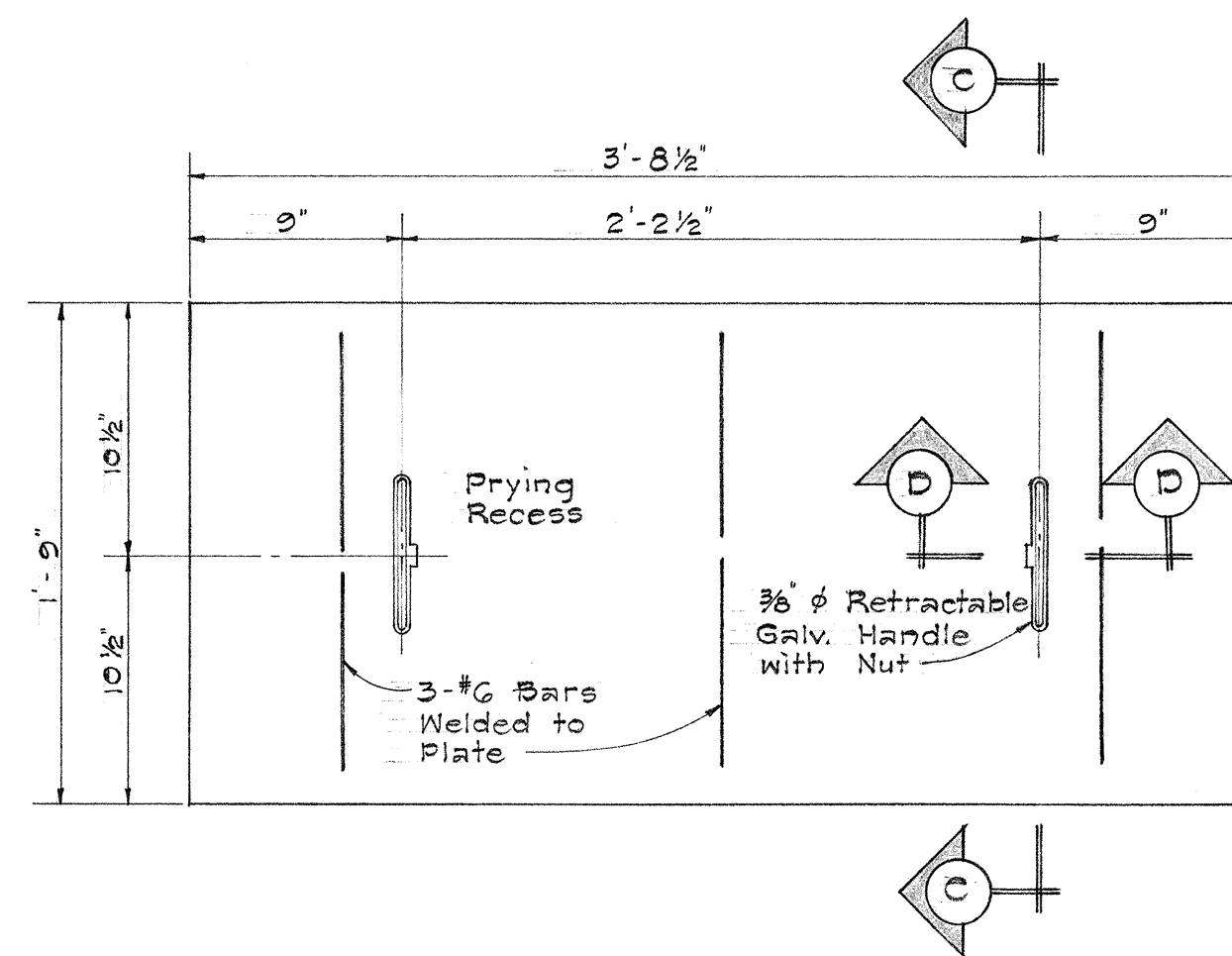
APPROVED:
[Signature] 8-3-65
PRINCL. ELECTRICAL ENGR. H.E. CO., INC. DATE
[Signature] 8-3-65
OUTSIDE PLANT ENGINEER, H.T. CO. LTD. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
UTILITY PROFILES
ELECTRIC, TELEPHONE & WATER
KUNIA INTERCHANGE
INTERSTATE ROUTE H-1
F.A.I. PROJ. No. I-HI-1(18), UNIT 2
Scale: As shown Date: July, 1965

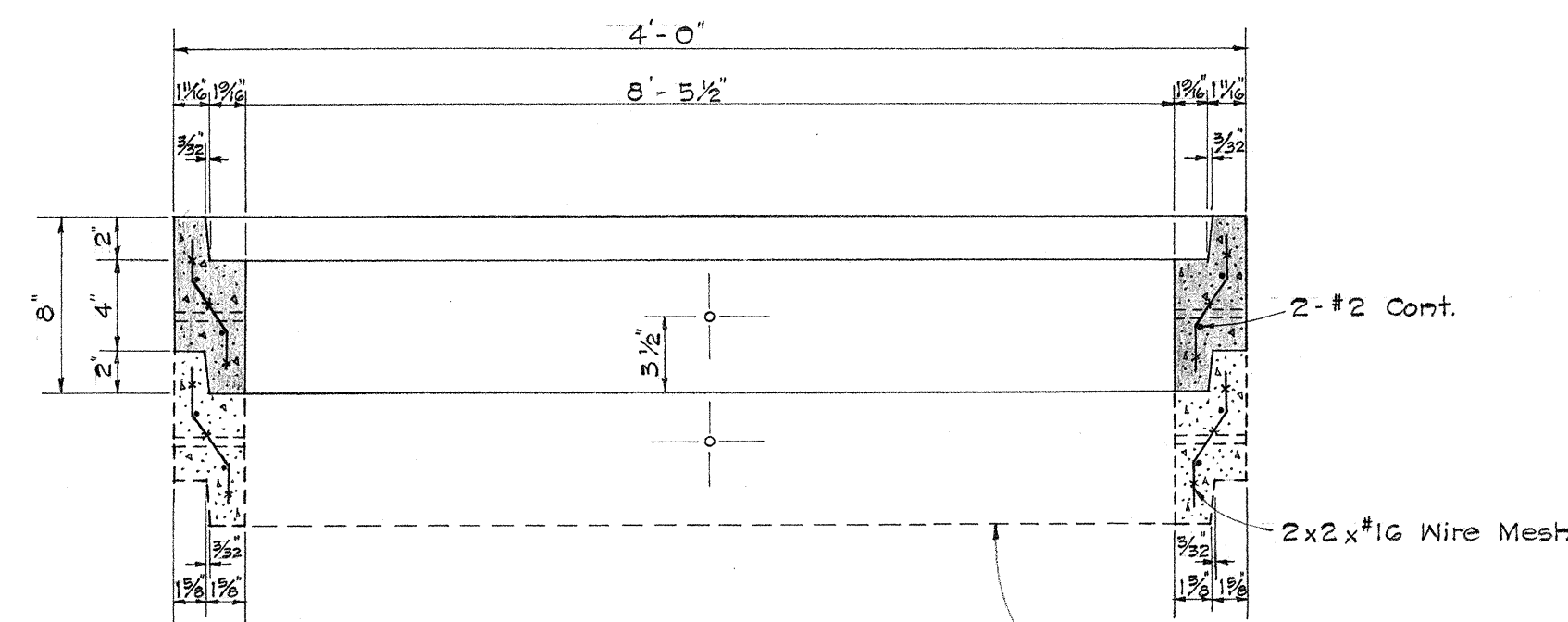
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18) UNIT 2	1965	25	75



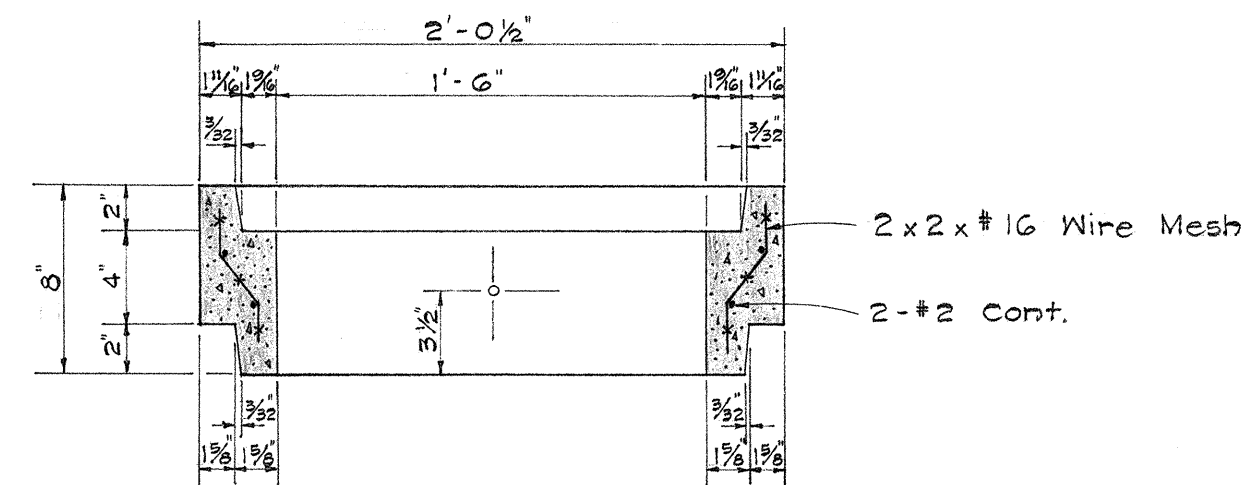
PLAN



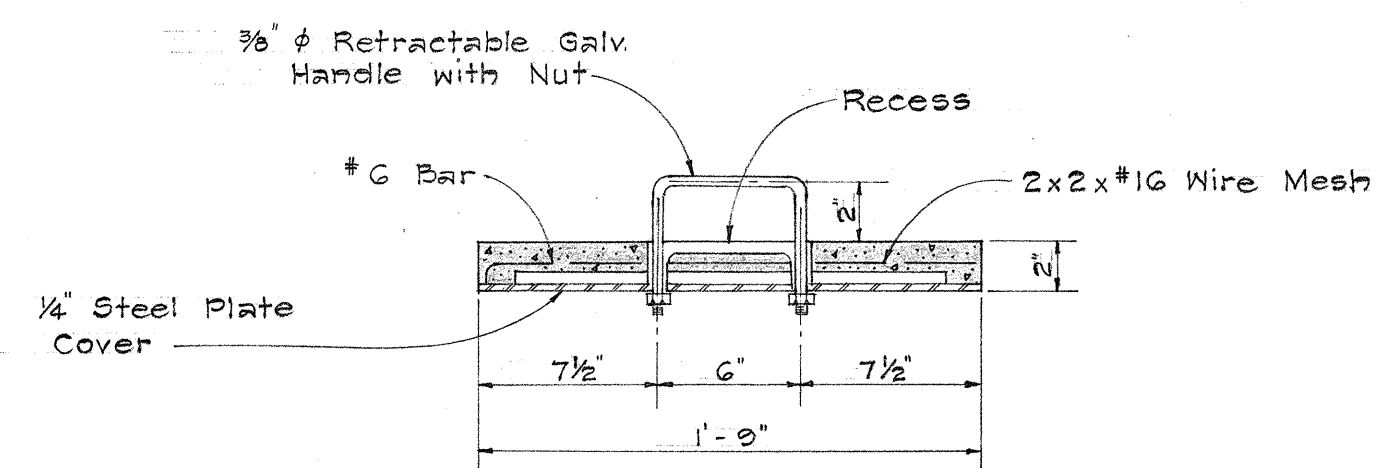
PLAN OF COVER



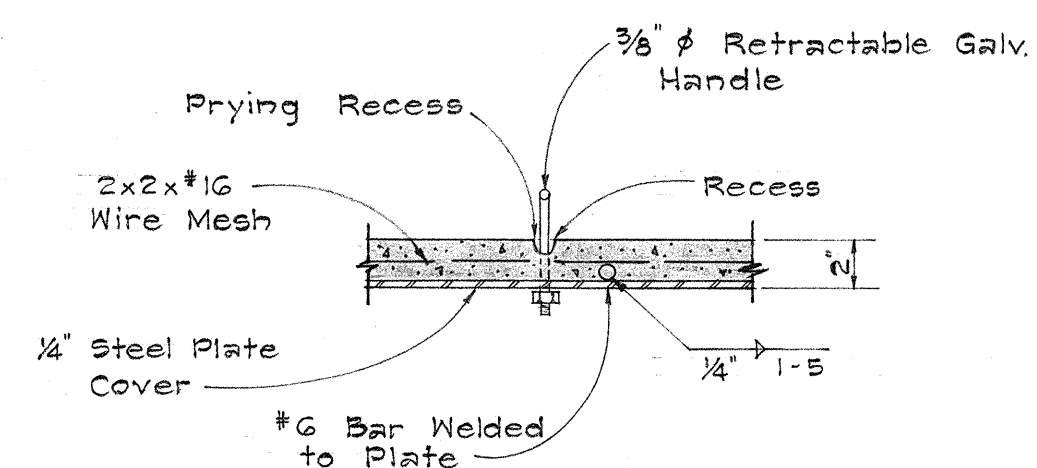
SECTION "E-E"



SECTION "F-F"



SECTION "C-C"



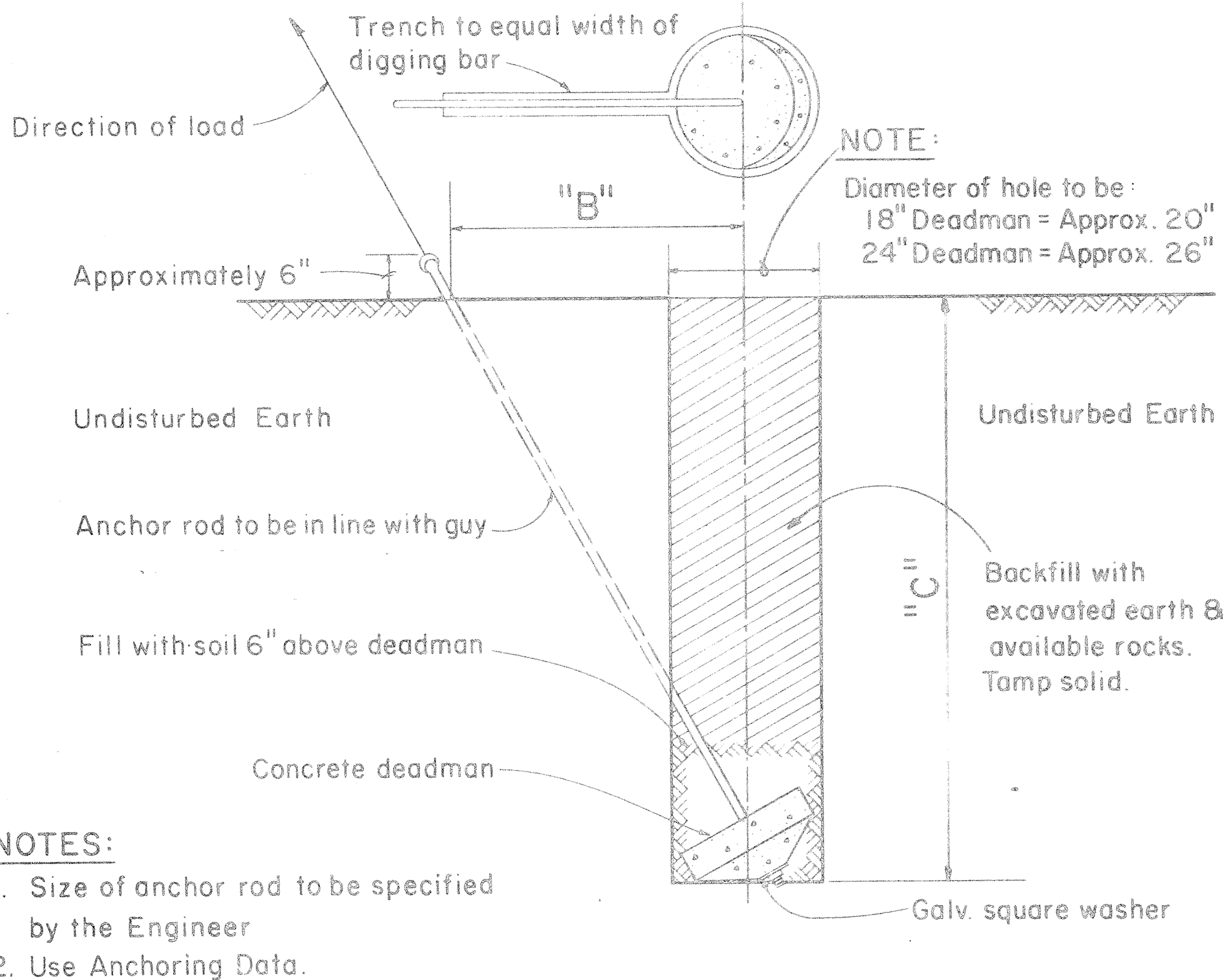
SECTION "D-D"

DETAIL OF TELEPHONE PULL BOX No. 435 T-A

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

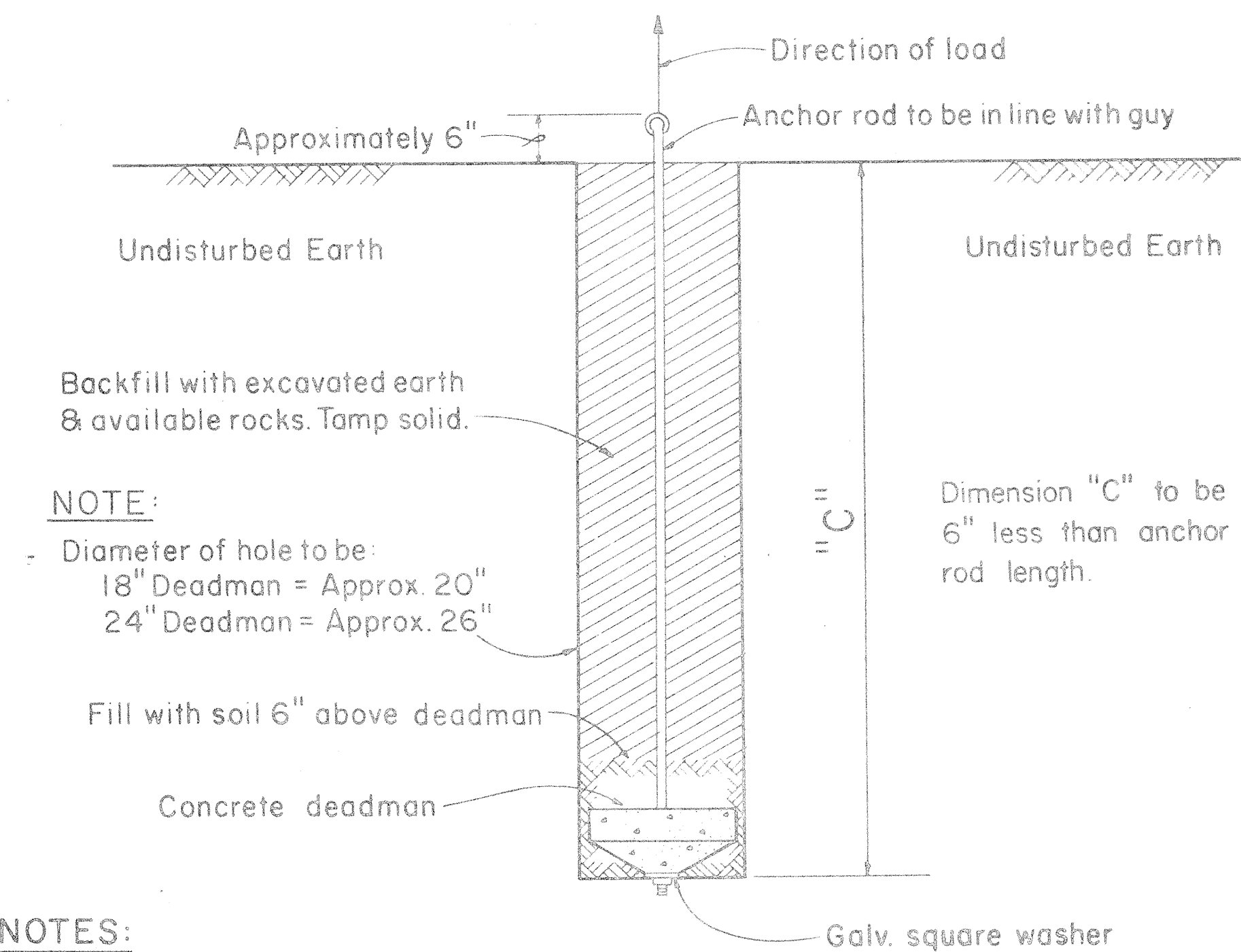
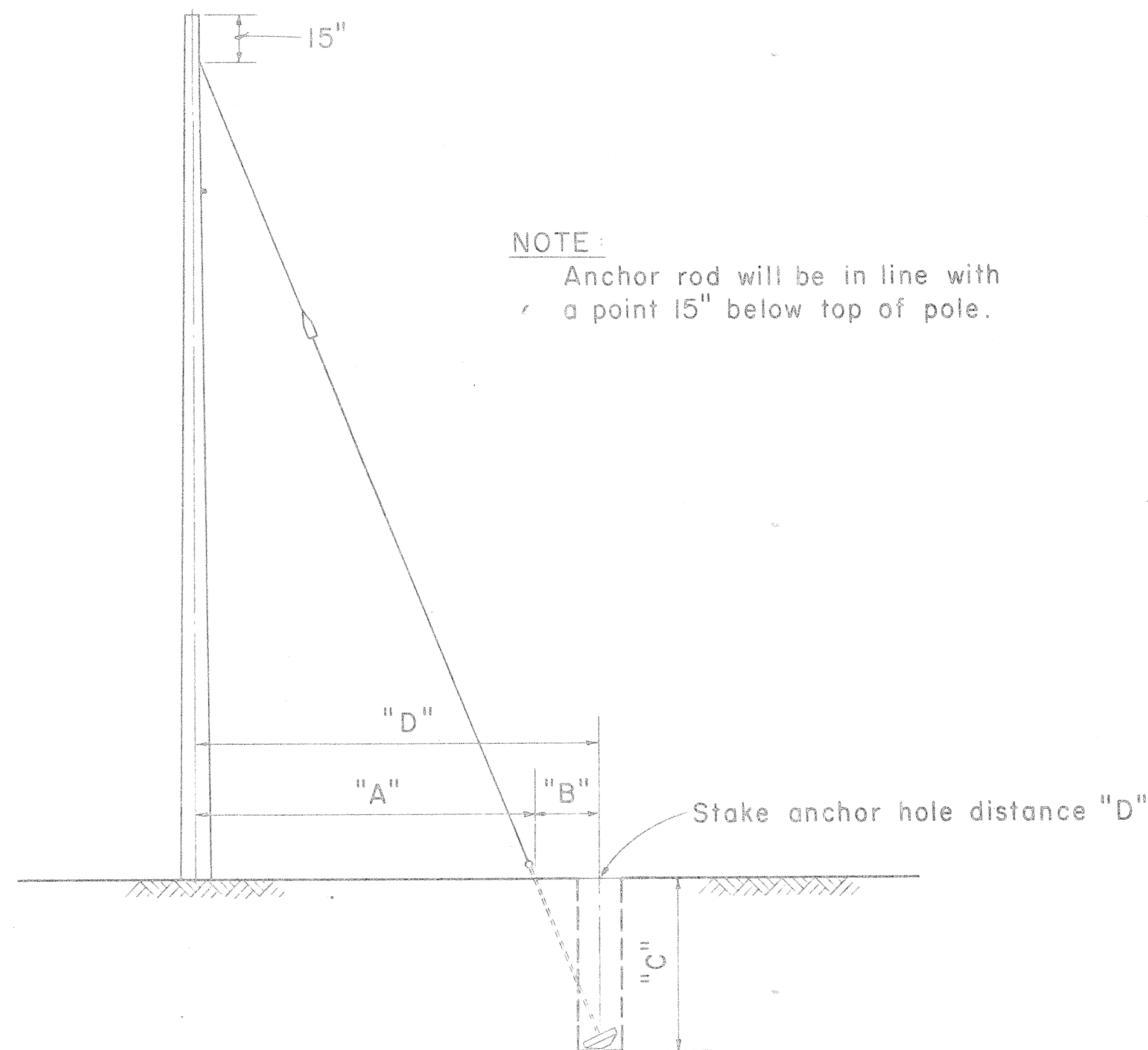
APPROVED: *[Signature]* 8-3-65
OUTSIDE PLANT ENGINEER, H.T. CO. LTD. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
UTILITY DETAILS
TELEPHONE
PULL BOX No. 435 T-A
KUNIA INTERCHANGE
INTERSTATE ROUTE H-1
F.A.I. PROJ. No. I-HI-1(18), UNIT 2
Scale: As shown Date: July 1965
SHEET No. 3 OF 9 SHEETS



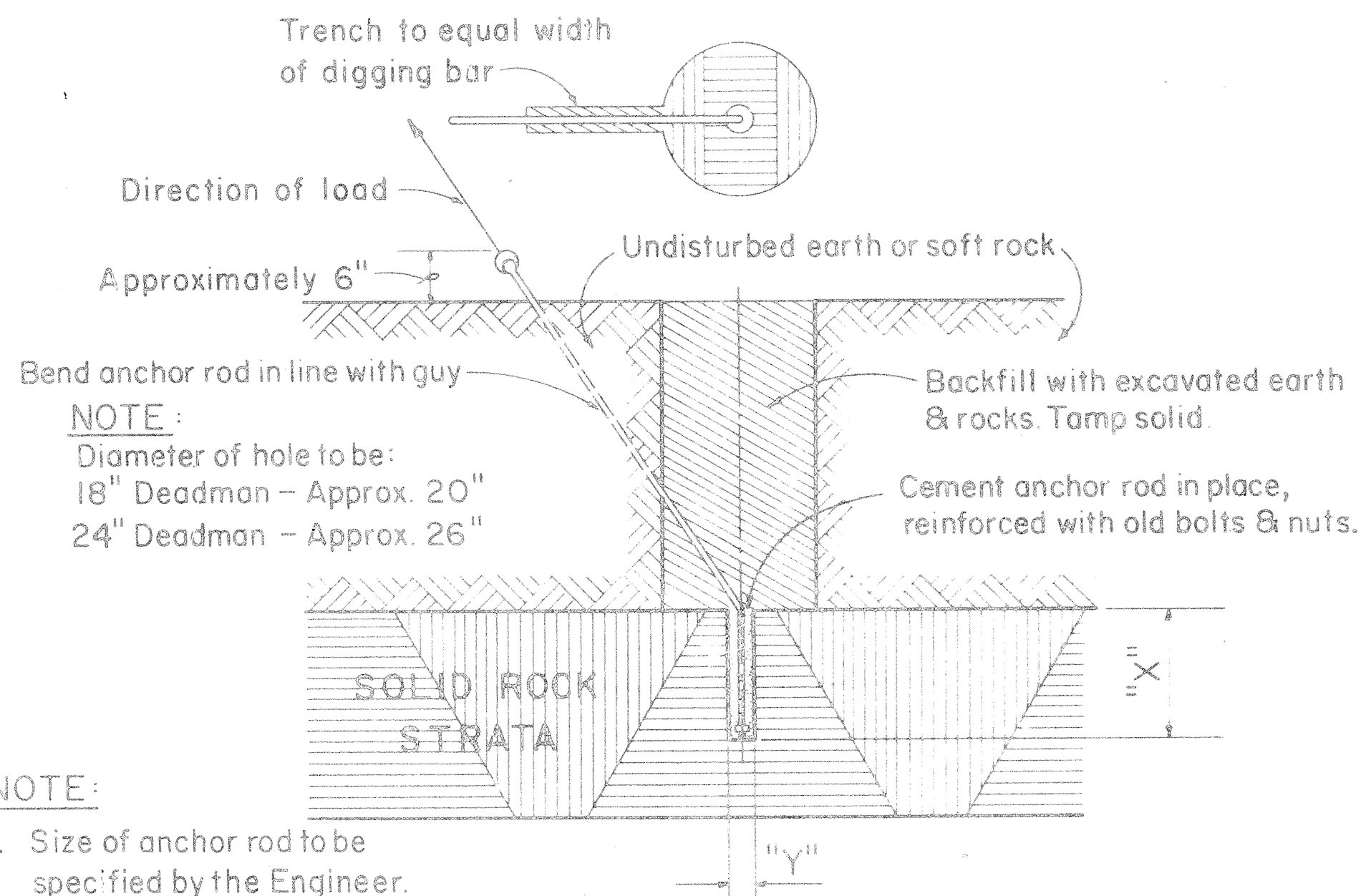
GUY ANCHOR DEADMAN

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



SIDE - WALK ANCHOR

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



ROCK ANCHOR

Not to Scale

FOR 25', & 30' POLES WITH 8'-0" ANCHOR RODS				
"A"	"B"	"C"		"D" = ("A" + "B")
LEAD-ANCHOR ROD TO C.O.F. OF POLE	ANCHOR ROD TO C.O.F. OF HOLE	VERTICAL DEPTH 18" D.M.	24" D.M.	TOTAL DISTANCE POLE TO HOLE
5'-0"	1'-8"	7'-1"	7'-4"	6'-8"
10'-0"	3'-0"	6'-7"	7'-0"	13'-0"
15'-0"	4'-0"	6'-1"	6'-6"	19'-0"
20'-0"	4'-8"	5'-6"	5'-10"	24'-8"
25'-0"	5'-2"	4'-11"	5'-4"	30'-2"
FOR 35' THRU 70' POLES WITH 8'-0" ANCHOR RODS				
5'-0"	1'-0"	7'-3"	7'-4"	6'-0"
10'-0"	1'-11"	7'-1"	7'-3"	11'-11"
15'-0"	2'-8"	6'-9"	7'-1"	17'-8"
20'-0"	3'-3"	6'-6"	6'-10"	23'-3"
25'-0"	3'-10"	6'-2"	6'-7"	28'-10"
FOR 40' THRU 70' POLES WITH 1 1/4" x 10'-0" ANCHOR RODS				
5'-0"	1'-7"		9'-4"	6'-7"
10'-0"	3'-0"		9'-0"	13'-0"
15'-0"	4'-2"		8'-6"	19'-2"
20'-0"	5'-3"		7'-11"	25'-3"
25'-0"	6'-2"		7'-3"	31'-2"

D. M. = Deadman

TABLE 2 ANCHOR ROD - ANCHOR SLUG - SQUARE WASHER COMBINATION							
H.E. CODE NO.	ANCHOR ROD	WORKING TENSION 1/2 ULT (LBS.)	H.E. CODE NO.	CONC. ANC. (IN.)	H.E. CODE NO.	WASHER SIZE	QTY.
617	5/8" x 8'-0" Steel	8,000	518	18	2320	4" x 4" x 3/16"	2
615	5/8" x 8'-0" Cu Cov Stl	9,250	518	18	★ ★	3" x 3" x 1/8"	2
618	3/4" x 8'-0" Steel	11,500	518	18	2330	6" x 6" x 3/8"	1
619	1" x 8'-0" Steel	18,000	524	24	2331	6" x 6" x 1/2"	1
616	1" x 8'-0" Cu Cov Stl	22,500	524	24	★ ★	4" x 4" x 3/16"	2
613	1 1/4" x 10'-0" Steel	29,000	524	24	2330	6" x 6" x 3/8"	2

★ ★ Use bronze square washers included in anchor rod assembly on copper covered steel (Cu Cov Stl) anchor rods.

ANCHORING DATA

APPROVED:

F. A. Quill 8-3-65
OUTSIDE PLANT ENGR. H.T.CO., LTD. DATE

PRINCPL. ELEC. ENGR. H.E.CO., INC. DATE

A. G. Henderson for FAK 8-3-65
PRINCPL. DISTR. ENGR. H.E.CO., INC. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
H.E.Co. AND H.T.Co.
ANCHOR DETAILS AND
ANCHORING DATA

Scales: As Noted

Date July, 1965

SHEET No. 4 OF 9 SHEETS

CREOSOTED DOUGLAS FIR & YELLOW PINE POLE DATA									
LENGTH IN FEET	CLASS	APPROX. MINIMUM DIMENSIONS (INCHES)				AVERAGE WEIGHT (LBS.)	POLE SETTING DEPTH (FT.)		BREAKING LOAD 2'-0" BELOW TOP OF POLE (LBS.)
		AT TOP		6' FROM BUTT		DOUGLAS FIR	IN SOIL	IN ROCK	
		DIA.	CIR.	DIA.	CIR.				
25	5	6.04	19	8.26	26	525	4.5	3	1900
30	3	7.32	23	10.32	32.5	810	5	3.5	3000
	5	6.04	19	8.90	28	600	5	3.5	1900
35	2	7.96	25	12.23	37.5	1260	5	3.5	3700
	5	6.04	19	9.55	30	770	5	3.5	1900
40	3	7.32	23	11.77	37	1320	5.5	3.5	3000
45	2	7.96	25	13.20	41.5	1845	6	4	3700
	3	7.32	23	12.25	38.5	1575	6	4	3000
50	2	7.96	25	13.70	43	2150	6.5	4	3700
	3	7.32	23	12.70	40	1850	6.5	4	3000
55	1	8.59	27	15.11	47.5	2860	7	4.5	4500
	2	7.96	25	14.15	44.5	2475	7	4.5	3700
	3	7.32	23	13.20	41.5	2145	7	4.5	3000
60	1	8.59	27	15.75	49.5	3360	7	4.5	4500
	2	7.96	25	14.62	46	2820	7	4.5	3700
65	1	8.59	27	16.20	51	3835	7.5	5	4500
	2	7.96	25	15.11	47.5	3250	7.5	5	3700
70	1	8.59	27	16.70	52.5	4340	7.5	5	4500
	2	7.96	25	15.60	49	3640	7.5	5	3700
75	1	8.59	27	17.20	54	4800	8	5.5	4500
	2	7.96	25	16.05	50.5	4050	8	5.5	3700
80	1	8.59	27	17.50	55	5240	8	6	4500
	2	7.96	25	16.40	51.5	4400	8	6	3700
85	1	8.59	27	18.00	56.5	5780	8.5	6.5	4500
	2	7.96	25	16.88	53	4930	8.5	6.5	3700
90	1	8.59	27	18.30	57.5	6300	8.5	6.5	4500
	2	7.96	25	17.20	54	5400	8.5	6.5	3700

NOTE:
The ultimate fiber stress for creosoted Southern Yellow Pine & Douglas Fir is 7,400 Lbs. per square inch.
Weights are for untreated poles. Add 5% as estimate of added weight of creosote treatment.

REFERENCES:
American Standards Association O5.4-1941, O5.6-1945.
Standard Handbook for Electrical Engineers, Eighth Edition
H. E. Co. Specification for Poles.

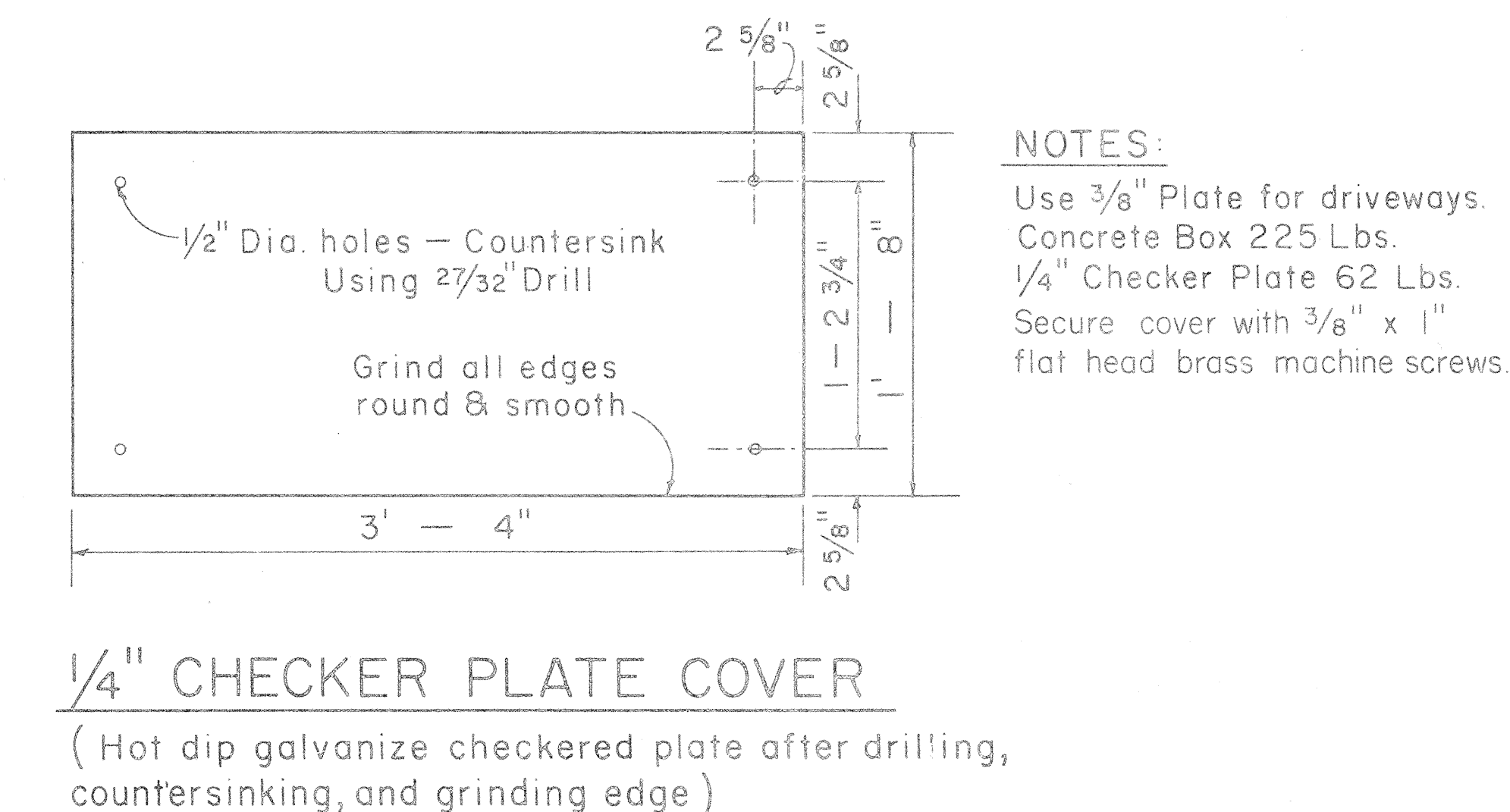
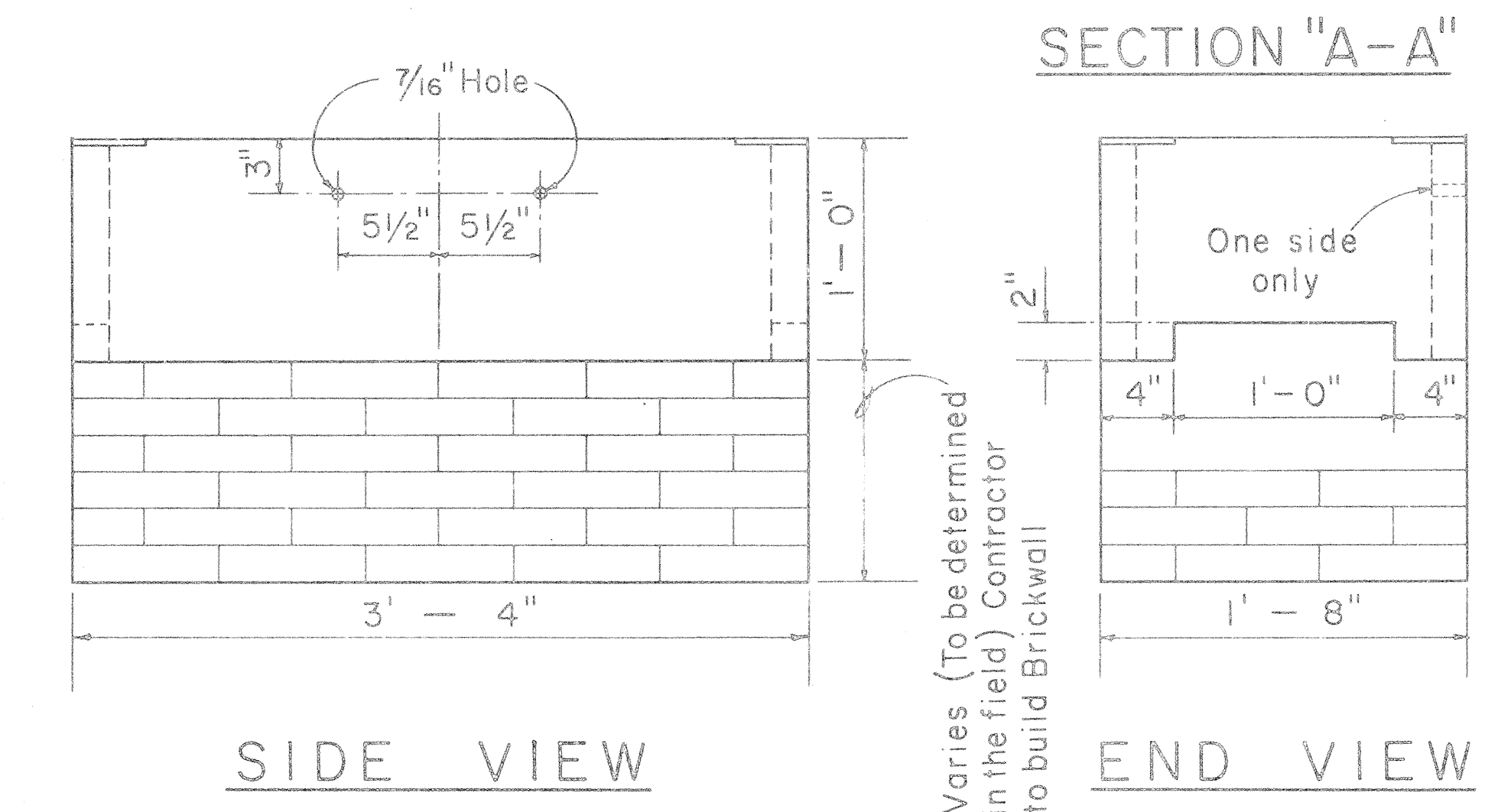
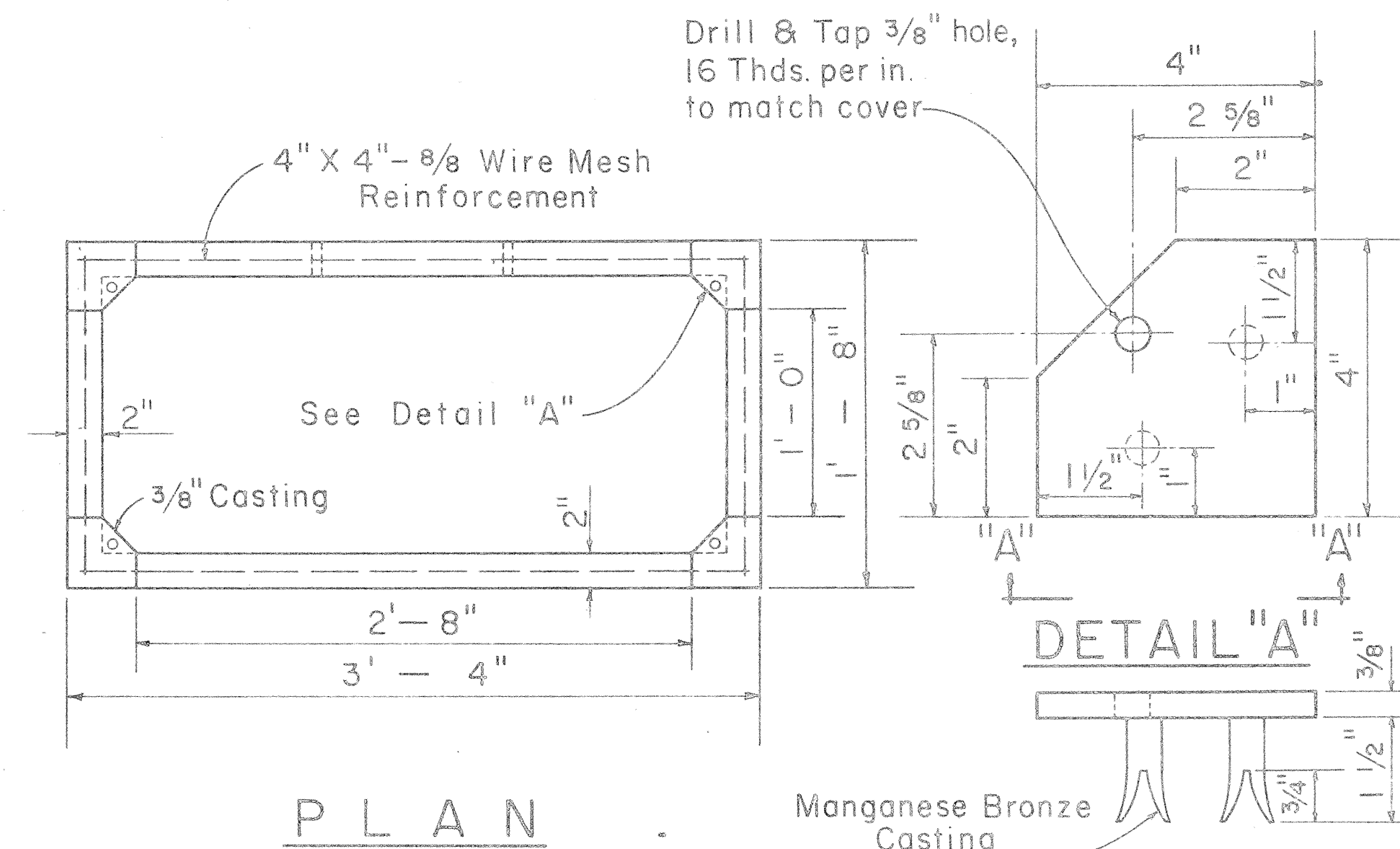
WOOD POLE DATA

APPROVED:
[Signature] 8-3-65
OUTSIDE PLANT ENGR. H.T. CO., LTD. DATE
PRINCP. ELEC. ENGR. H. E. CO., INC. DATE
[Signature] P-3-65
PRINCP. DISTR. ENGR. H. E. CO., INC. DATE

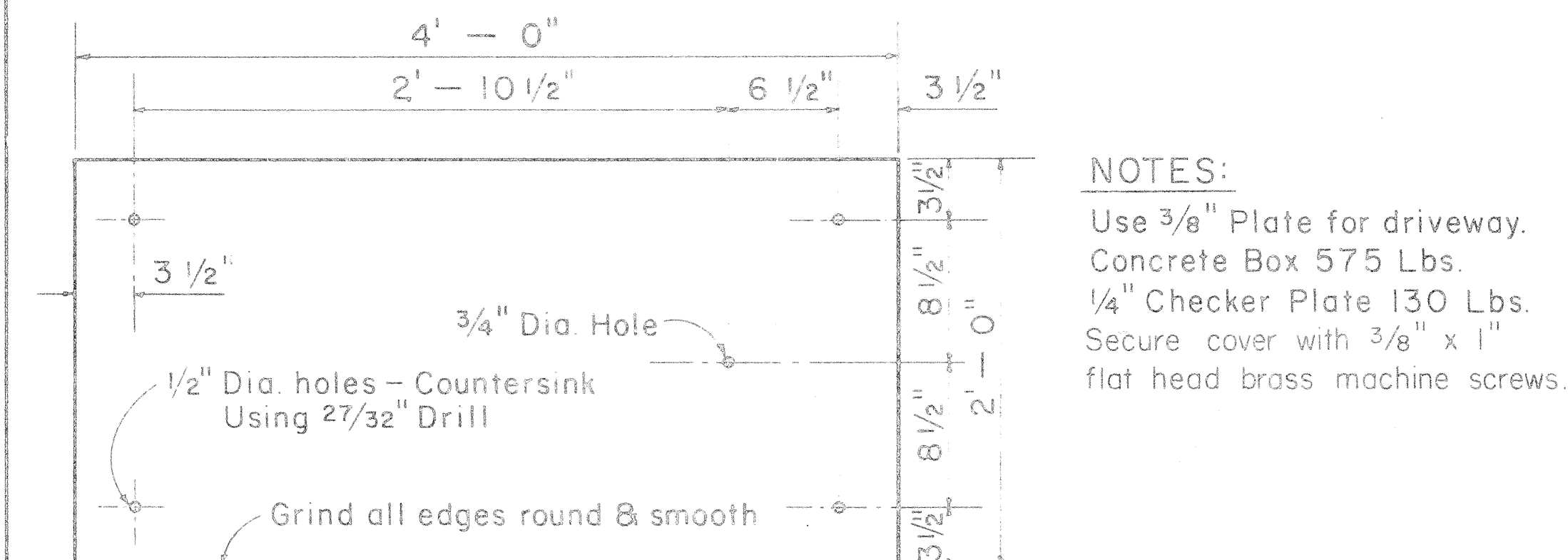
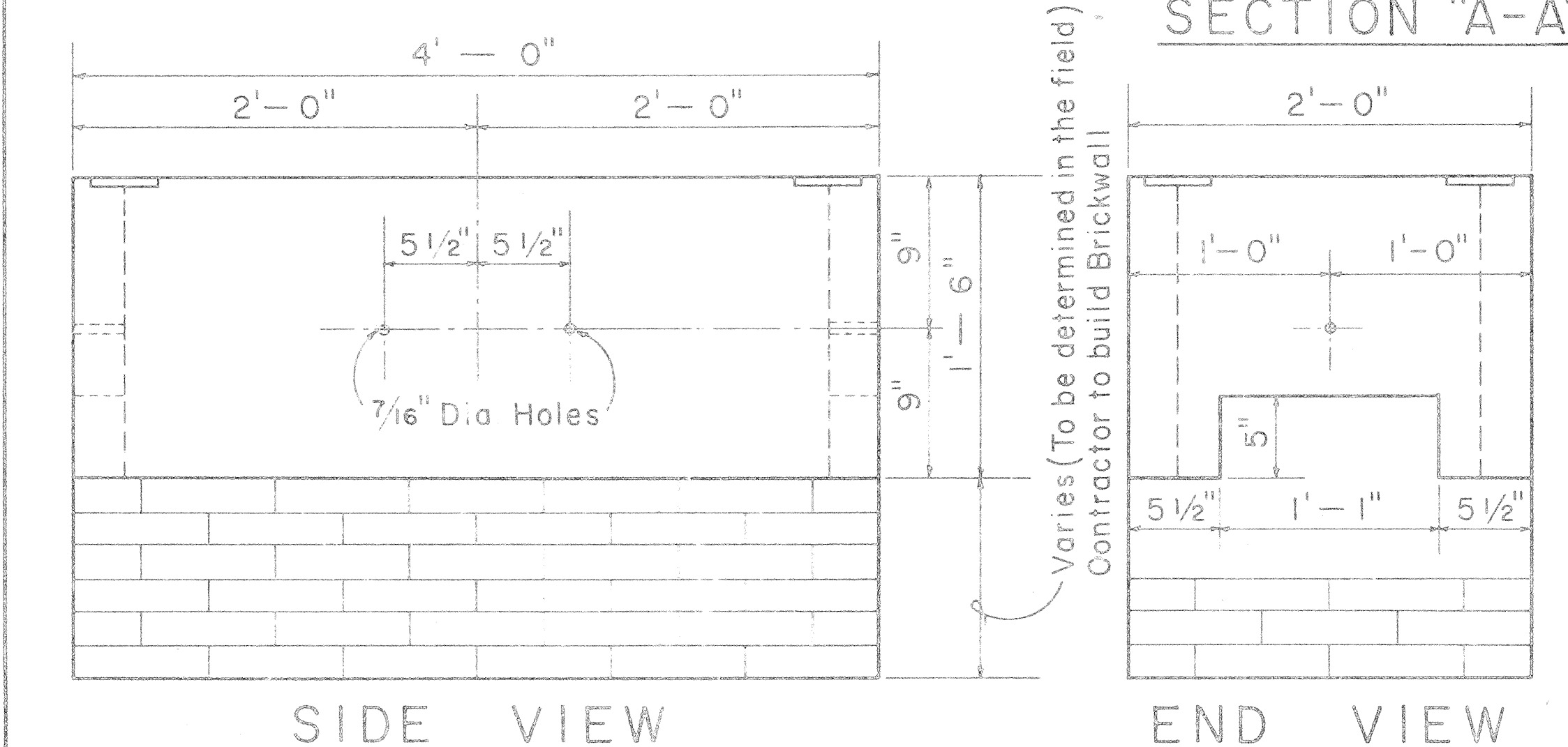
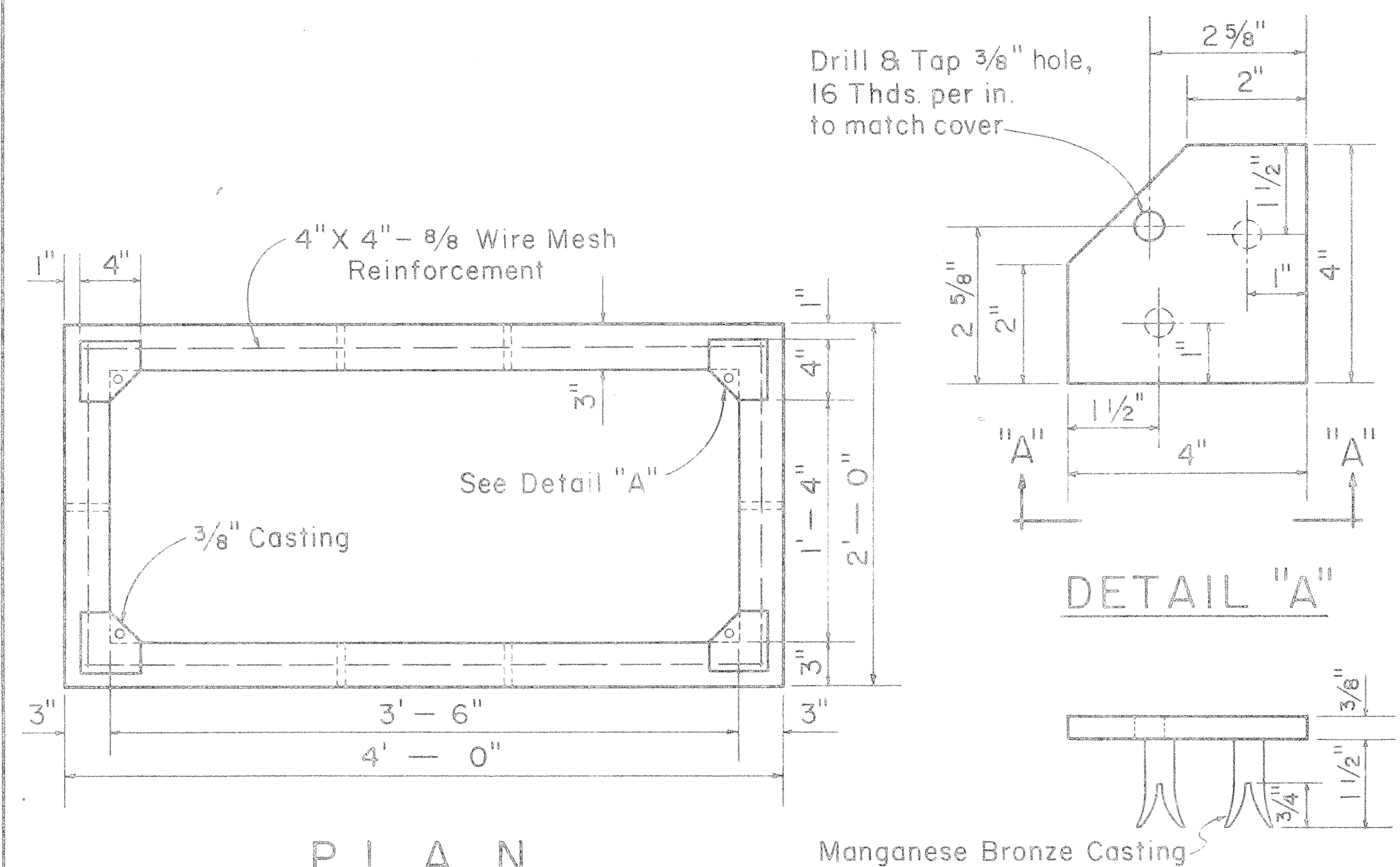
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
H.E. Co. AND H.T. Co.
SERVICE BOX DETAILS
AND WOOD POLE DATA

Scales: As Noted Date July, 1965

SHEET NO. 15 OF 19 SHEETS



NOTES:
Use $\frac{3}{8}$ " Plate for driveways. Concrete Box 225 Lbs.
 $\frac{1}{4}$ " Checker Plate 62 Lbs.
Secure cover with $\frac{3}{8}$ " x 1" flat head brass machine screws.



NOTES:
Use $\frac{3}{8}$ " Plate for driveway. Concrete Box 575 Lbs.
 $\frac{1}{4}$ " Checker Plate 130 Lbs.
Secure cover with $\frac{3}{8}$ " x 1" flat head brass machine screws.

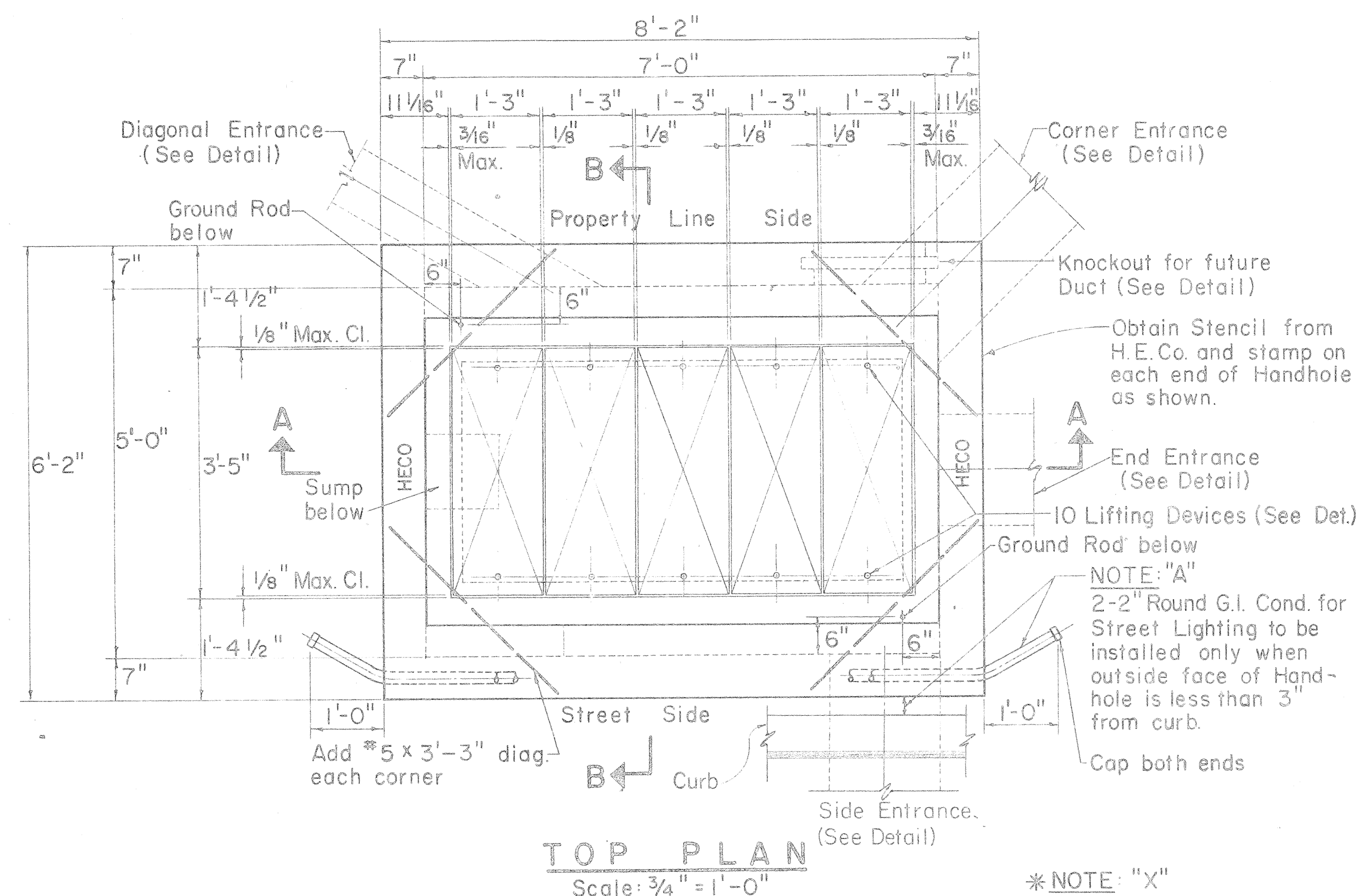
1'-6" X 3'-6" CONCRETE SERVICE BOX

Scale: $\frac{1}{2}$ " = 1' - 0"

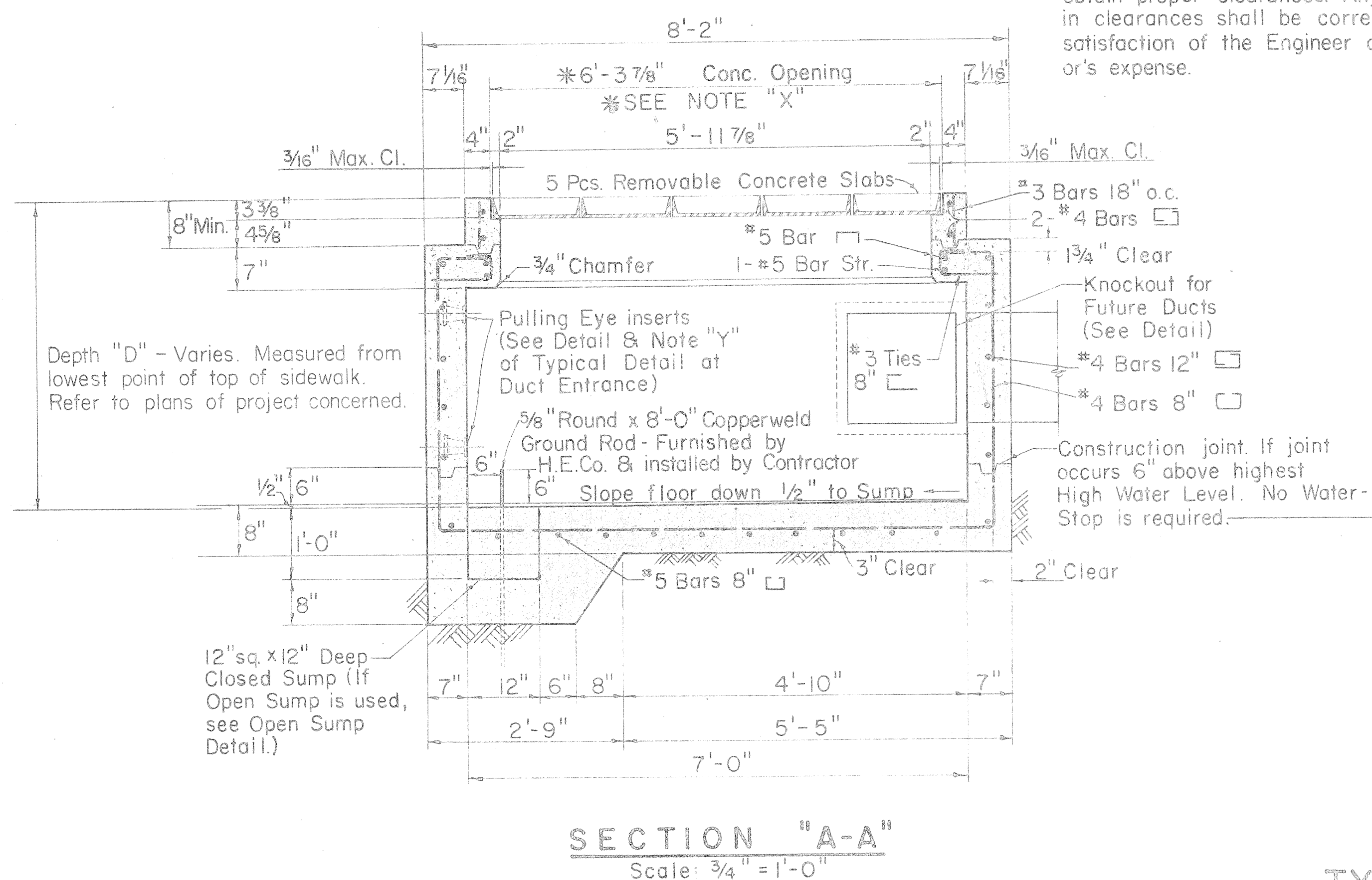
011255

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

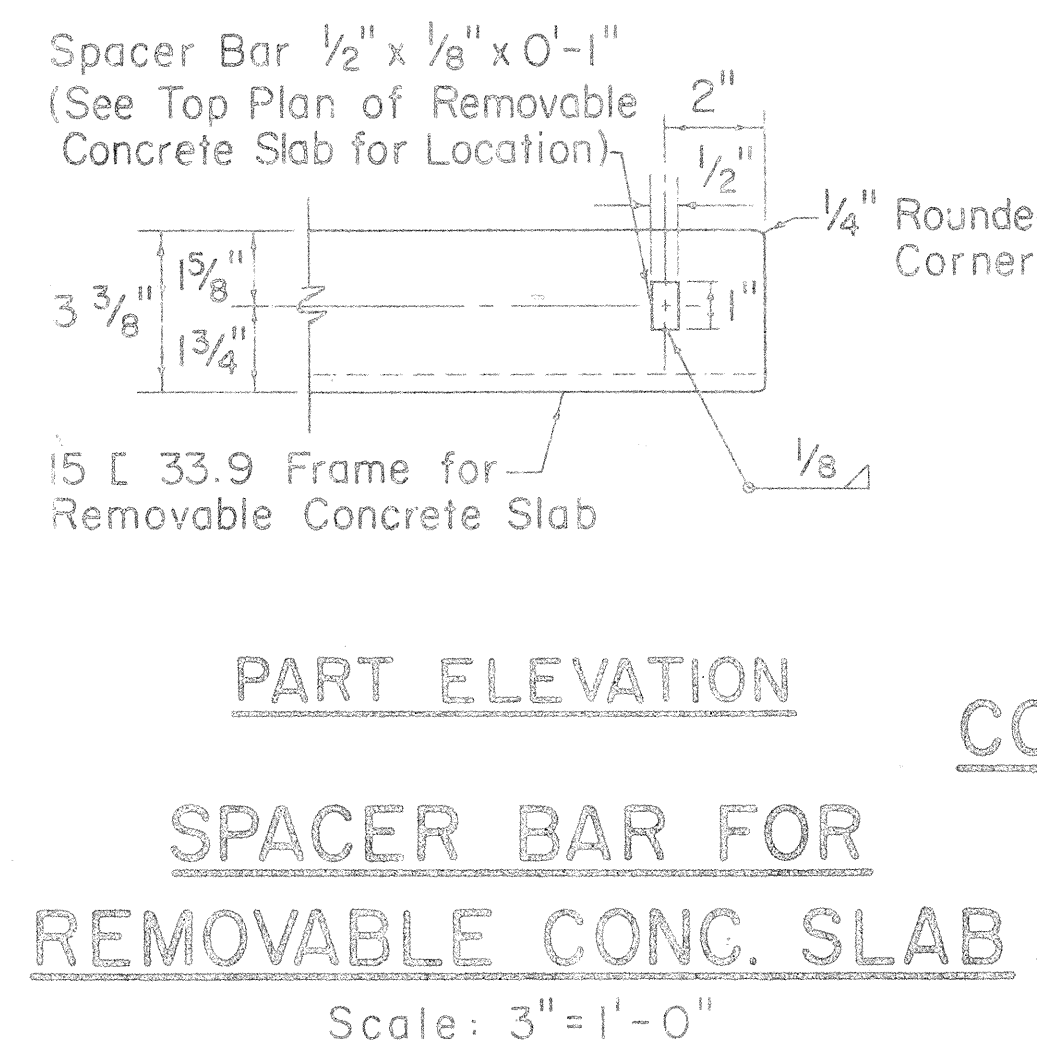
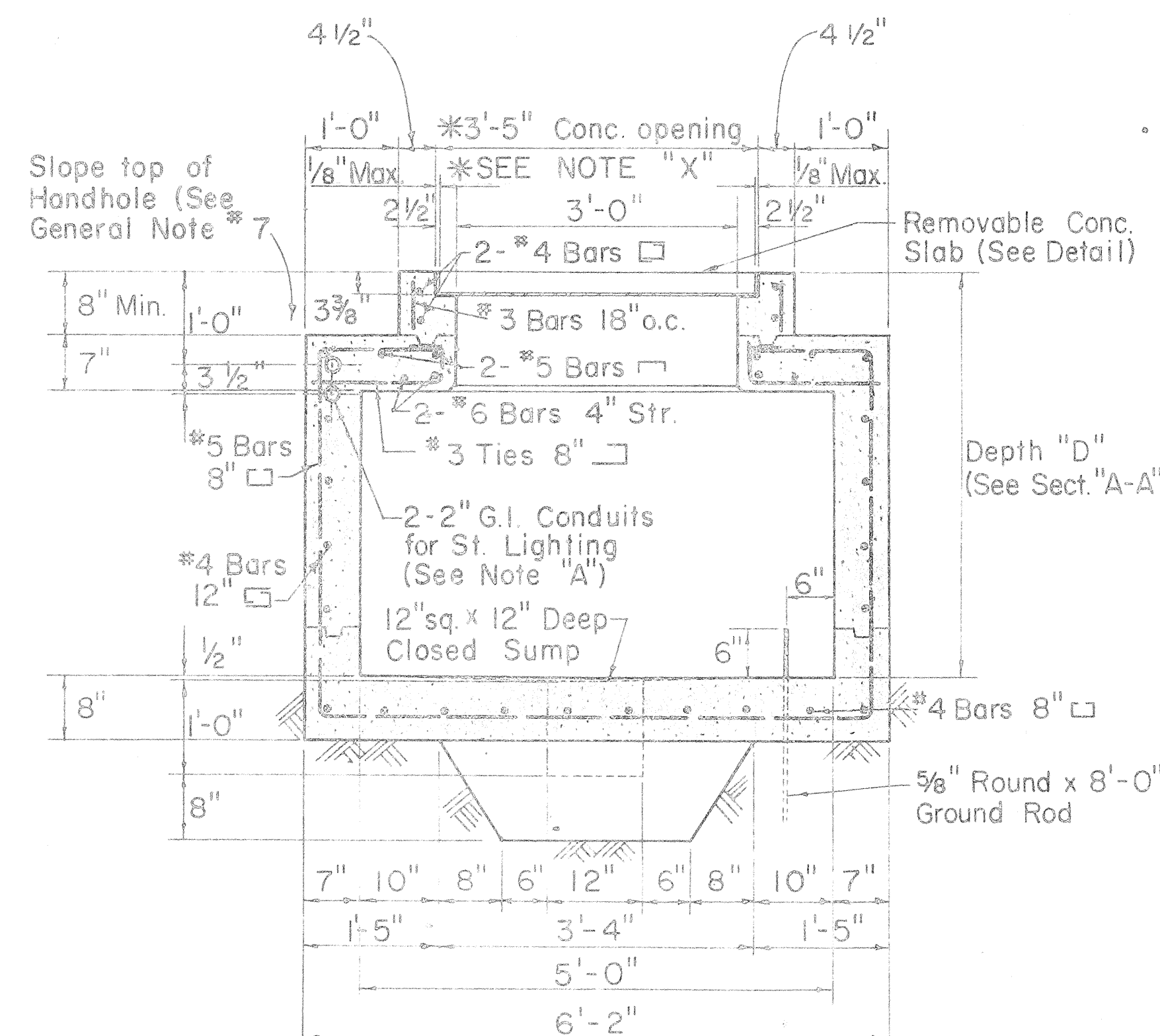
FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	1-HI-1(10) UNIT 2	1965	28	75



*** NOTE "X"**
Maximum clearances between removable concrete cover slabs and concrete opening at the supports must be kept. Concrete Contractor shall measure cover slab steel frame after fabrication to obtain proper clearances. Any variation in clearances shall be corrected to the satisfaction of the Engineer at Contractor's expense.



TYPICAL DETAIL OF CONSTRUCTION JOINT AND KEYWAY
Scale: 1/2" = 1'-0"

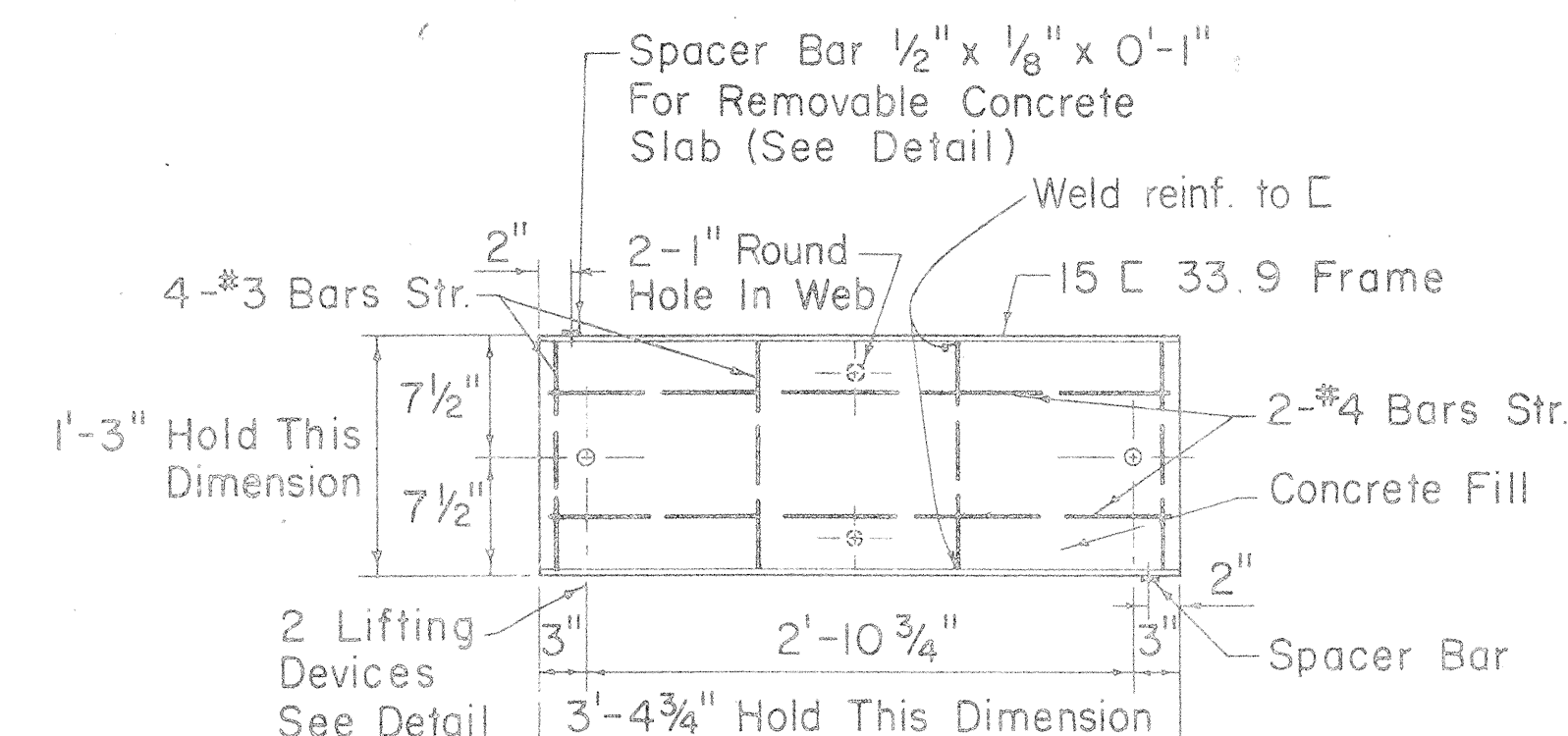


REMOVABLE CONCRETE COVER SLAB LIFTING DEVICE
Scale: 3" = 1'-0"

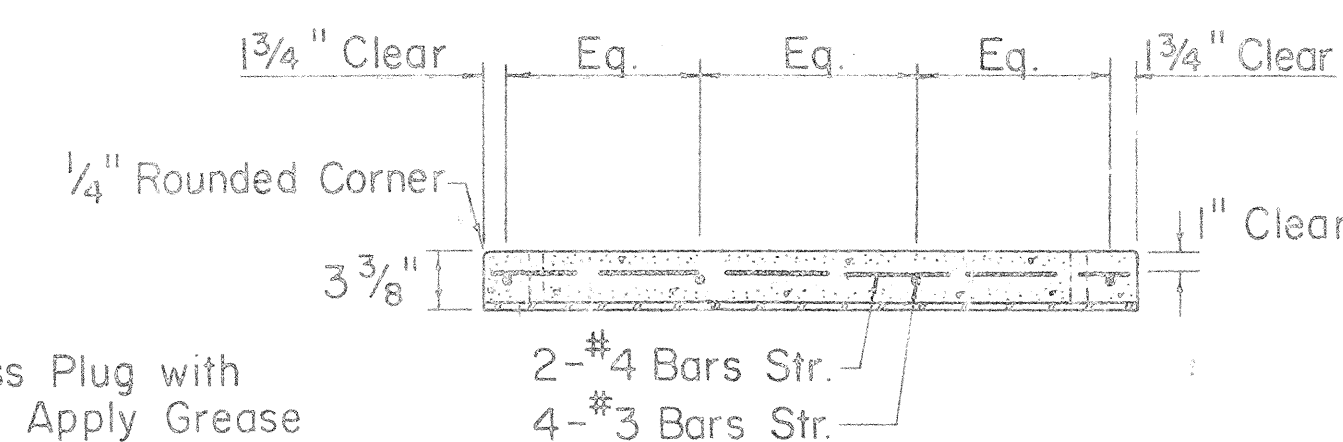
REINFORCED CONCRETE QUANTITIES

QUANTITY OF MATERIALS FOR DEPTH "D" = 5'-0"
Concrete = 5.1 Cu. Yds.
Reinf. Steel = 794 Lbs.
WEIGHT PER REMOVABLE CONCRETE SLAB
Concrete = 137 Lbs.
15 L 33.9 = 115 Lbs.
Reinf. and Misc. Steel = 10 Lbs.
TOTAL = 262 Lbs.
MATERIALS FOR 6" DEPTH OF 7" THICK WALL
Concrete = 0.3 Cu. Yds.
Reinf. Steel = 29 Lbs.

APPROVED: *[Signature]* 8-3-65
HAWAIIAN ELECTRIC Co., Inc. Date



PLAN



SECTION

REMOVABLE CONCRETE SLAB
Scale: 1" = 1'-0"

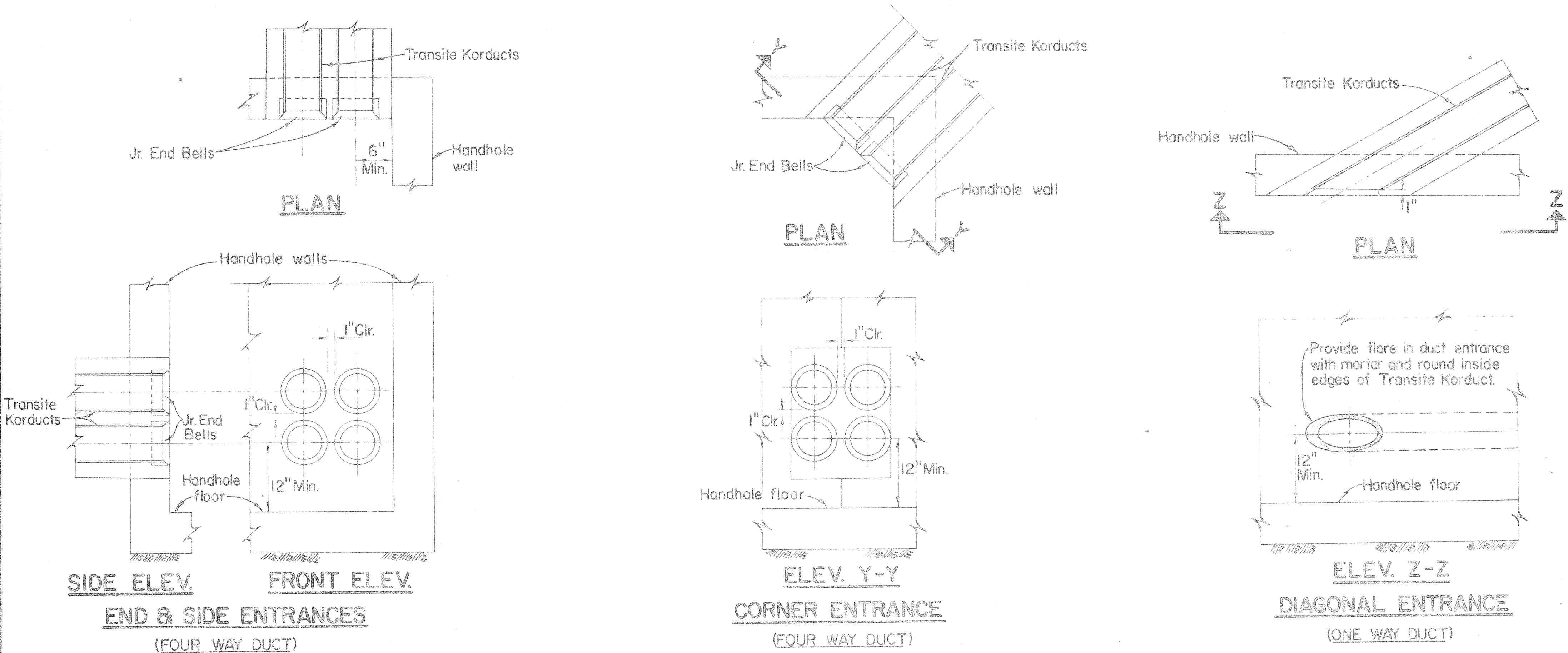
FOR USE IN AREAS SUBJECT TO PRESENT AND FUTURE VEHICULAR TRAFFIC

HECo., Inc. Drawing Number	SHEET No. 1 OF 2 SHEETS
18848	
STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
STANDARD DETAILS	
HANDHOLE TYPE 57V	
(5'-0" x 7'-0")	
UNDERGROUND STANDARDS	
Scales: As Noted	Date: July, 1965
SHEET NO. 6 OF 9 SHEETS	

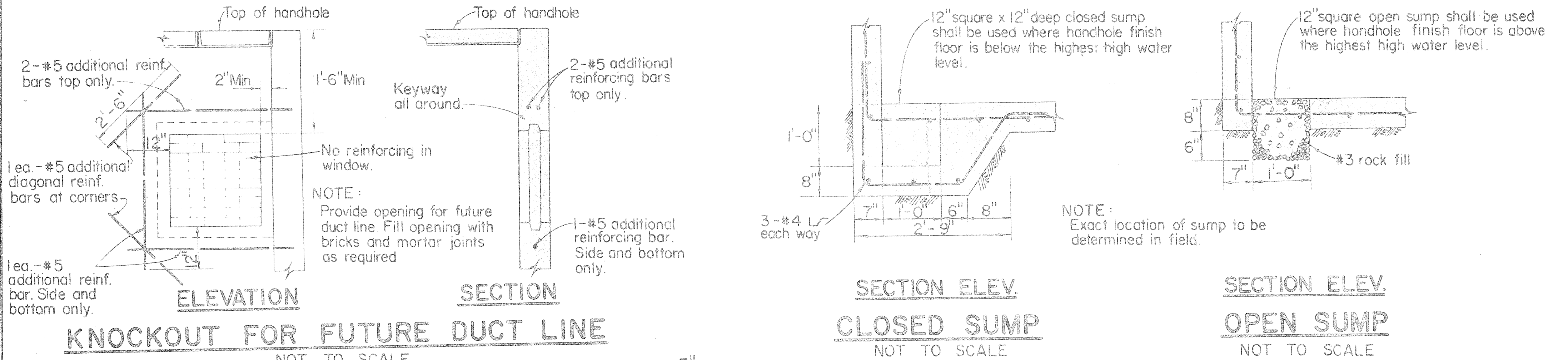
FED. AID DIST. NO.	STATE	FED. AID PROJECT UNIT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	1-HI-1(18) 2	1965	29	79

GENERAL NOTES

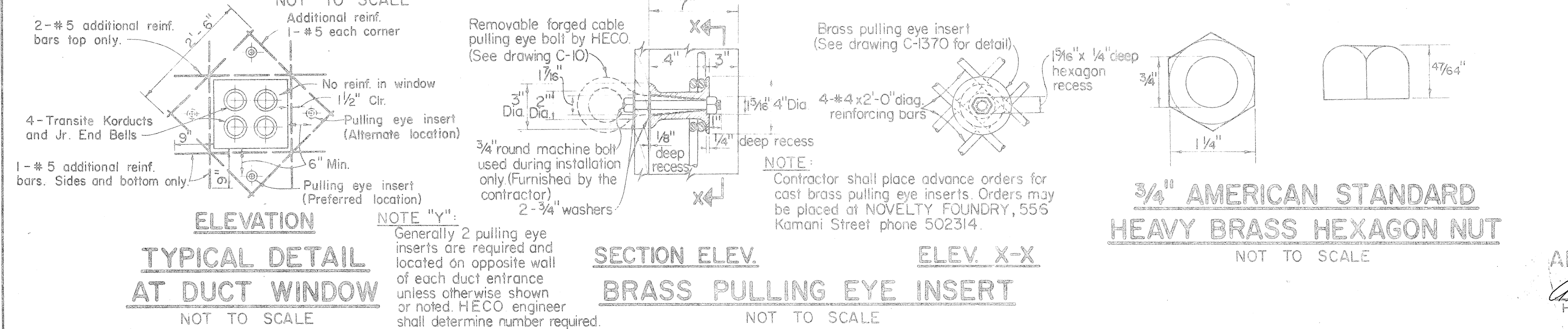
- Concrete to develop compressive cylinder strength of 3000 PSI in 28 days.
- CONCRETE FINISH:
Top of Handhole - Woodfloated (sidewalk finish) according to State Highway or City and County of Honolulu specifications whichever the case maybe unless otherwise directed by the Engineer.
Floor - Smooth metal trowelled.
Exposed Wall Surfaces, and Edges - Smooth and free from defects.
CONCRETE POURING:
Notify the Hawaiian Electric Co. Ltd. Engineering Department 24 hours before pouring any concrete. All concrete shall be poured in the presence of H.E.CO. Engineer or his representative.
- REINFORCING, round deformed bars, new billet stock intermediate grade ASTM A15.
- FORMS, form handhole to size and shape as shown. Exterior face of handhole wall shall be formed except,
A) Excavation in solid material such as coral or rock-neat cut, no forms required.
B) Excavation in solid material other than coral or rock-lining such as salvaged corrugated iron, canec etc. may be used.
- PULLING EYE INSERTS:
For location and number required, see duct entrance plan of project concerned.
- DRAINAGE: Slope floor down 1/2" to sump.
- Slope top of handhole to match existing grade.
- FINISH STEEL WORK:
Channel frames, lifting devices for removable concrete slabs shall be HOT DIP GALVANIZED AFTER FABRICATION.
- EXCAVATION:
Excavate for handhole to accurate alignment grades and dimensions as shown on drawing. All excavation must be approved by the Engineering Department, the Hawaiian Electric Co.,Ltd., before any concrete is poured. All excess cut shall be backfilled with concrete or rock.
- BACKFILL:
Remove all debris before backfilling. Backfill in accordance with latest specifications of and subject to approval of State Highway or City and County of Honolulu whichever the case maybe unless otherwise directed.
- For duct line construction standards see H.E.CO. Dwg I8585, and specs sheet I8585A.
- DUCTS: For size, location and number required see duct entrance plan of project concerned.
- ALL MATERIALS SHALL BE NEW AND SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
- This handhole is designed for light vehicular loading -maximum load 5000 lbs. concentrated.



TYPICAL DUCT LINE ENTRANCE DETAIL
NOT TO SCALE



KNOCKOUT FOR FUTURE DUCT LINE
NOT TO SCALE



TYPICAL DETAIL
AT DUCT WINDOW
NOT TO SCALE

SECTION ELEV.
BRASS PULLING EYE INSERT
NOT TO SCALE

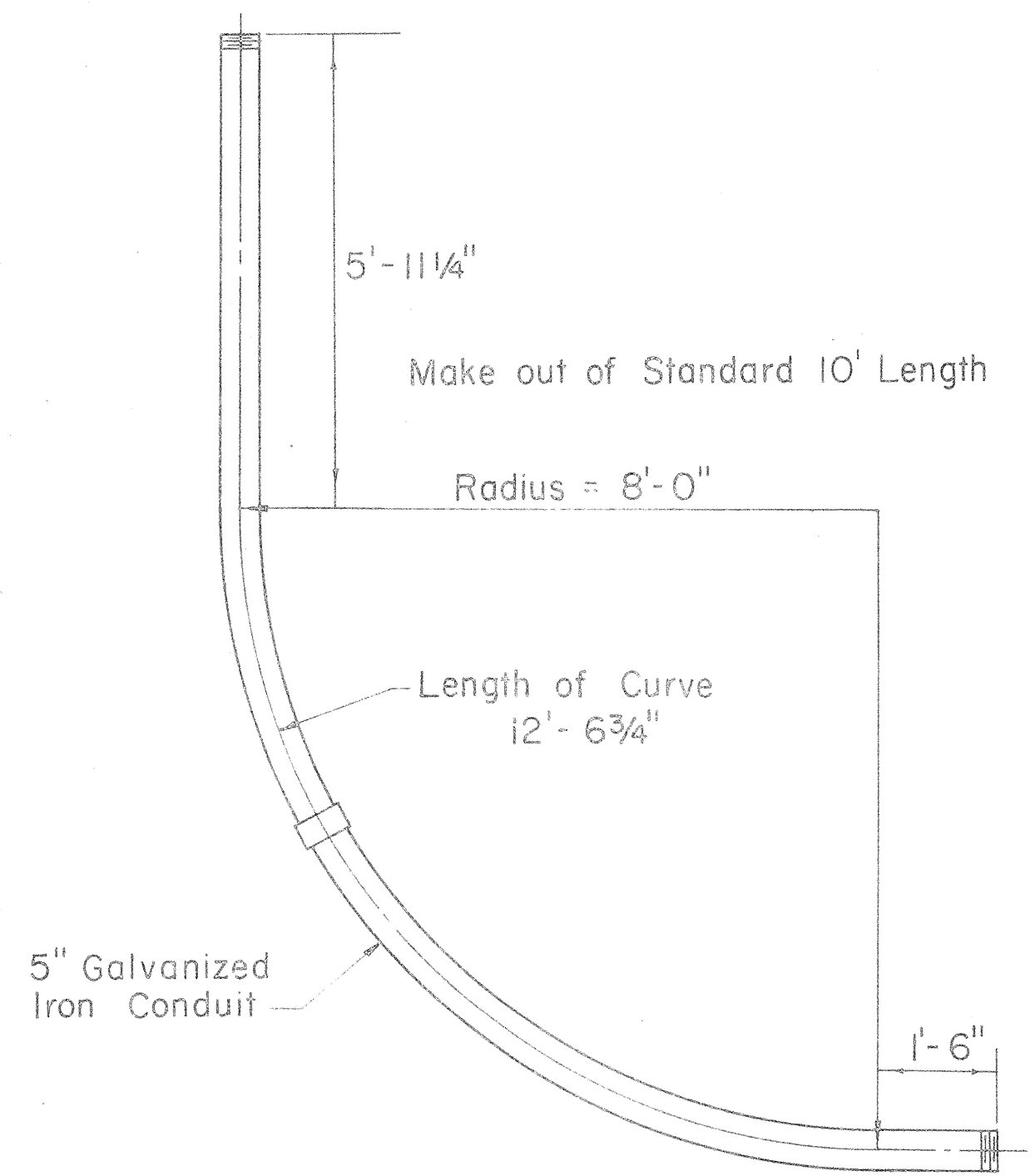
3/4" AMERICAN STANDARD
HEAVY BRASS HEXAGON NUT
NOT TO SCALE

FOR USE IN AREAS SUBJECT
TO PRESENT AND FUTURE
VEHICULAR TRAFFIC

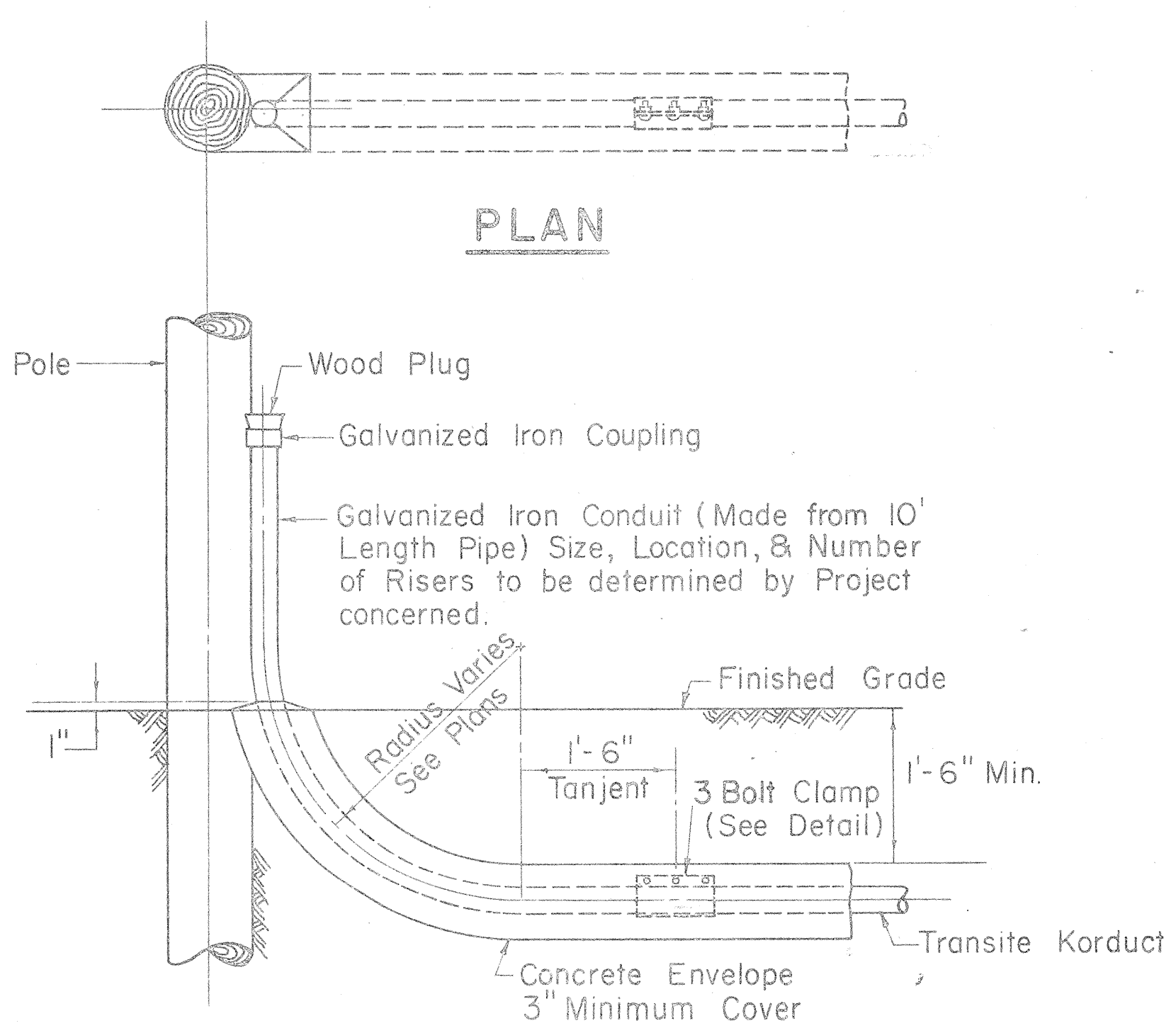
APPROVED: *[Signature]*
HAWAIIAN ELECTRIC Co., Inc. 8-3-65
DATE

HECO., Inc. Drawing Number
18848 SHEET No. 2
OF 2 SHEETS
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
HANDHOLE TYPE 57V
(5'-0" x 7'-0")
UNDERGROUND STANDARDS
Scales: As Noted Date July, 1965
SHEET NO. 7 OF 9 SHEETS

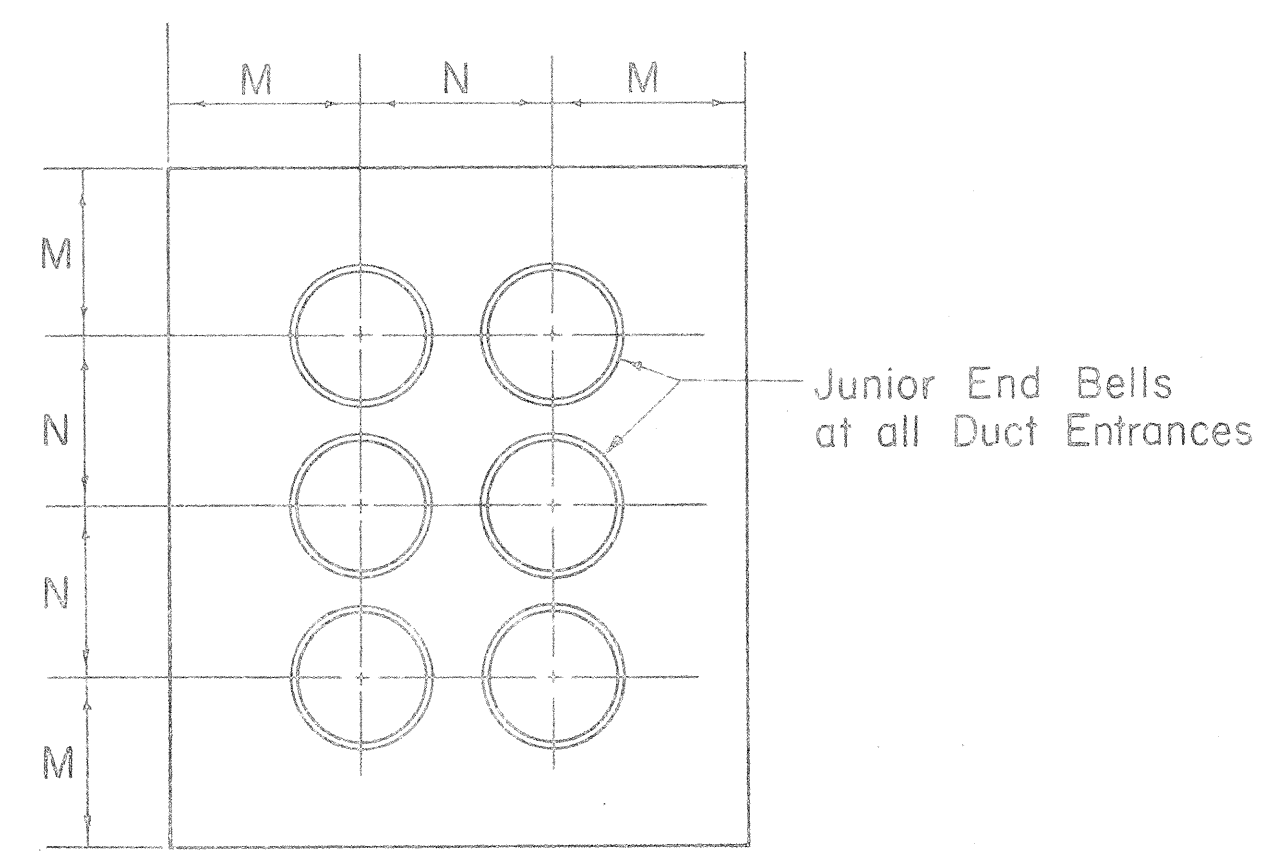
FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	I-HI-1(10)	1965	30	75
UNIT 2					



46 KV RISER CONDUIT BEND
(8'-0" RADIUS)
Not to Scale

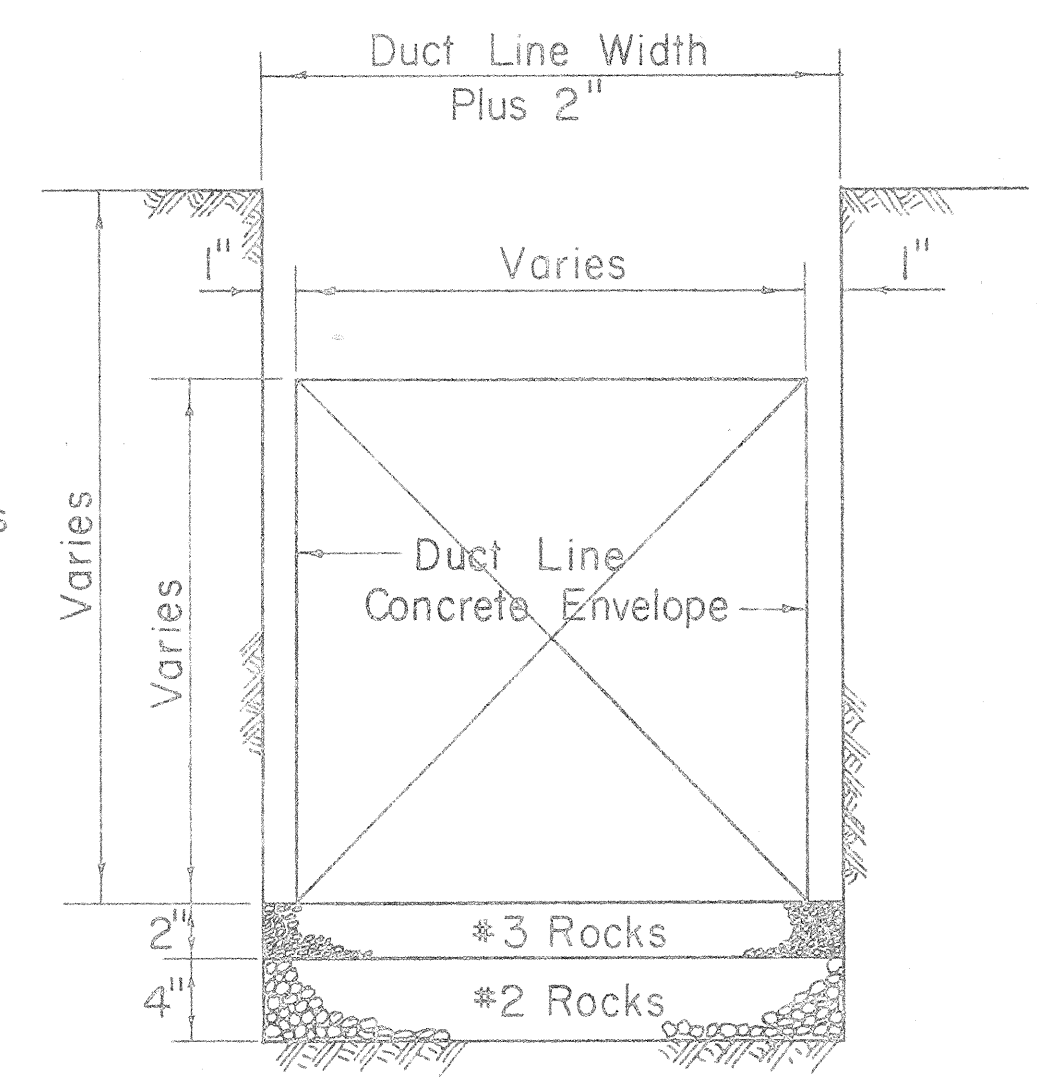


TYPICAL POLE RISER DETAIL
Scale: 3/4" = 1'-0"



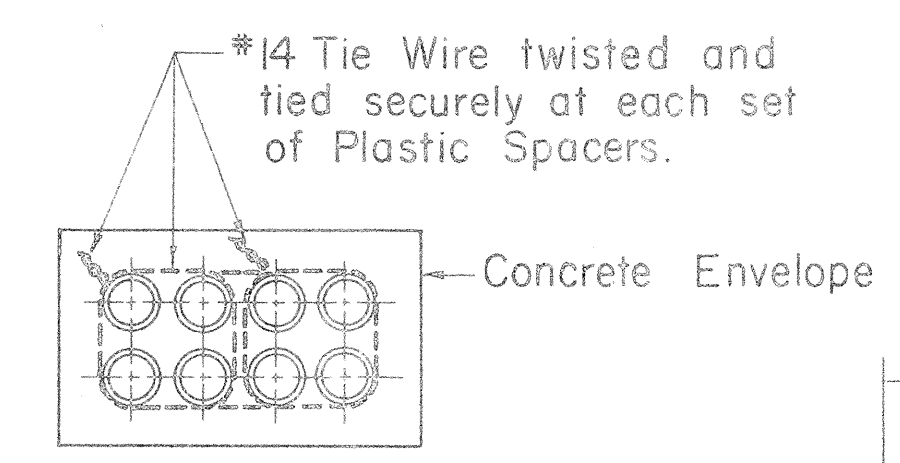
TYPICAL DUCT DETAIL AT MANHOLE WALL
Not to Scale

SIZE	M	N
3"	5"	6"
4"	5 1/2"	7"
4 1/2"	5 1/2"	7 1/2"
5"	6"	8"

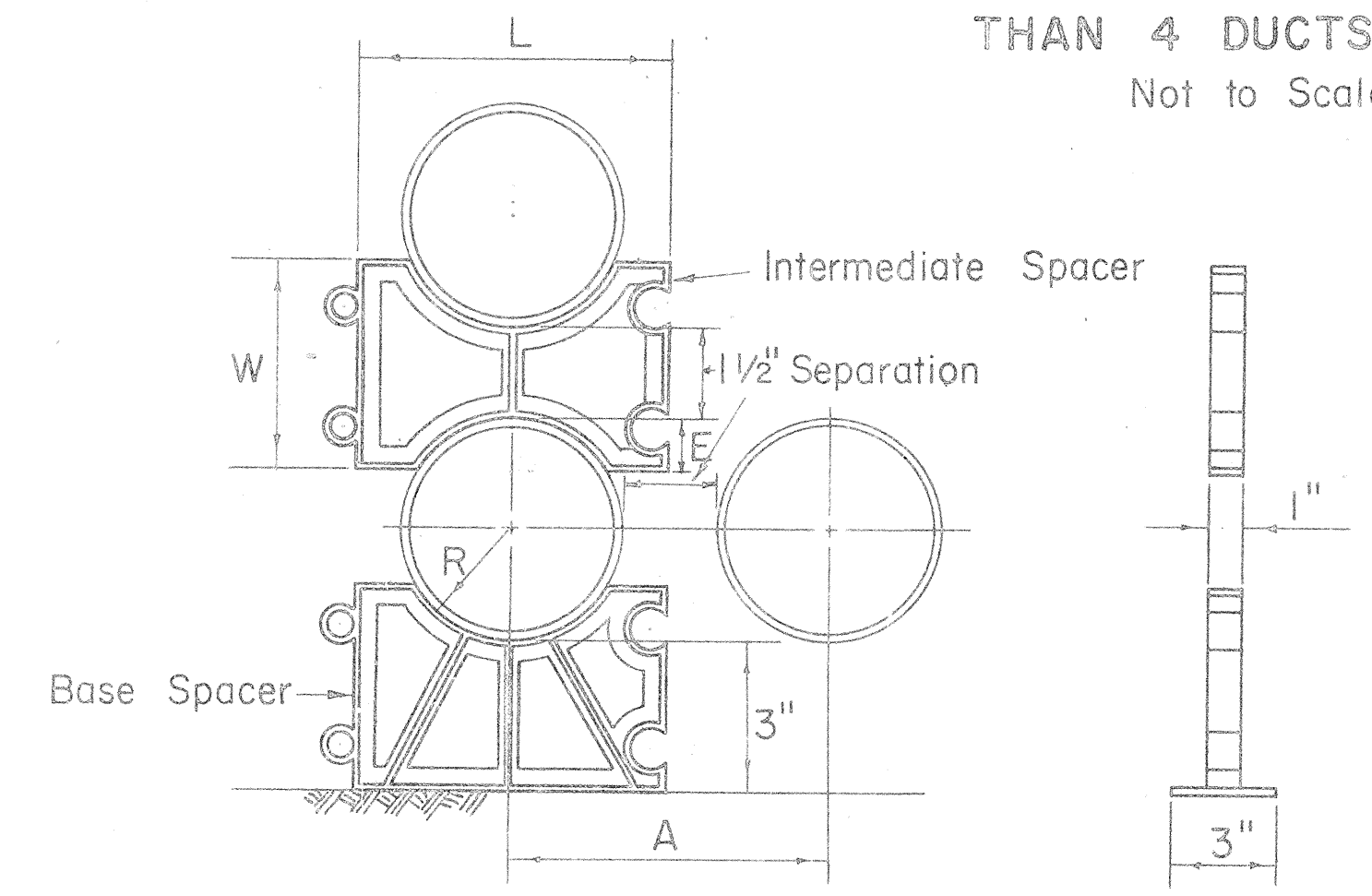


TYPICAL EXCAVATION DETAIL
Not to Scale

- NOTES**
1. Size of Concrete Envelope and Depth of Excavation to be determined by Project concerned.
 2. Widen Trench Excavation when Forms are used.
 3. Rock Foundation required only when Water is encountered.



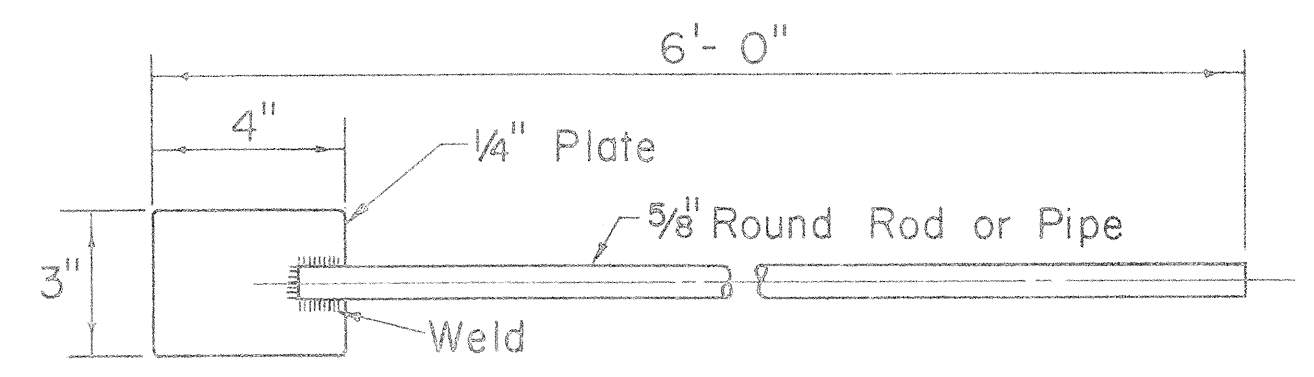
TIE WIRE DETAIL FOR DUCT LINE MORE THAN 4 DUCTS WIDE
Not to Scale



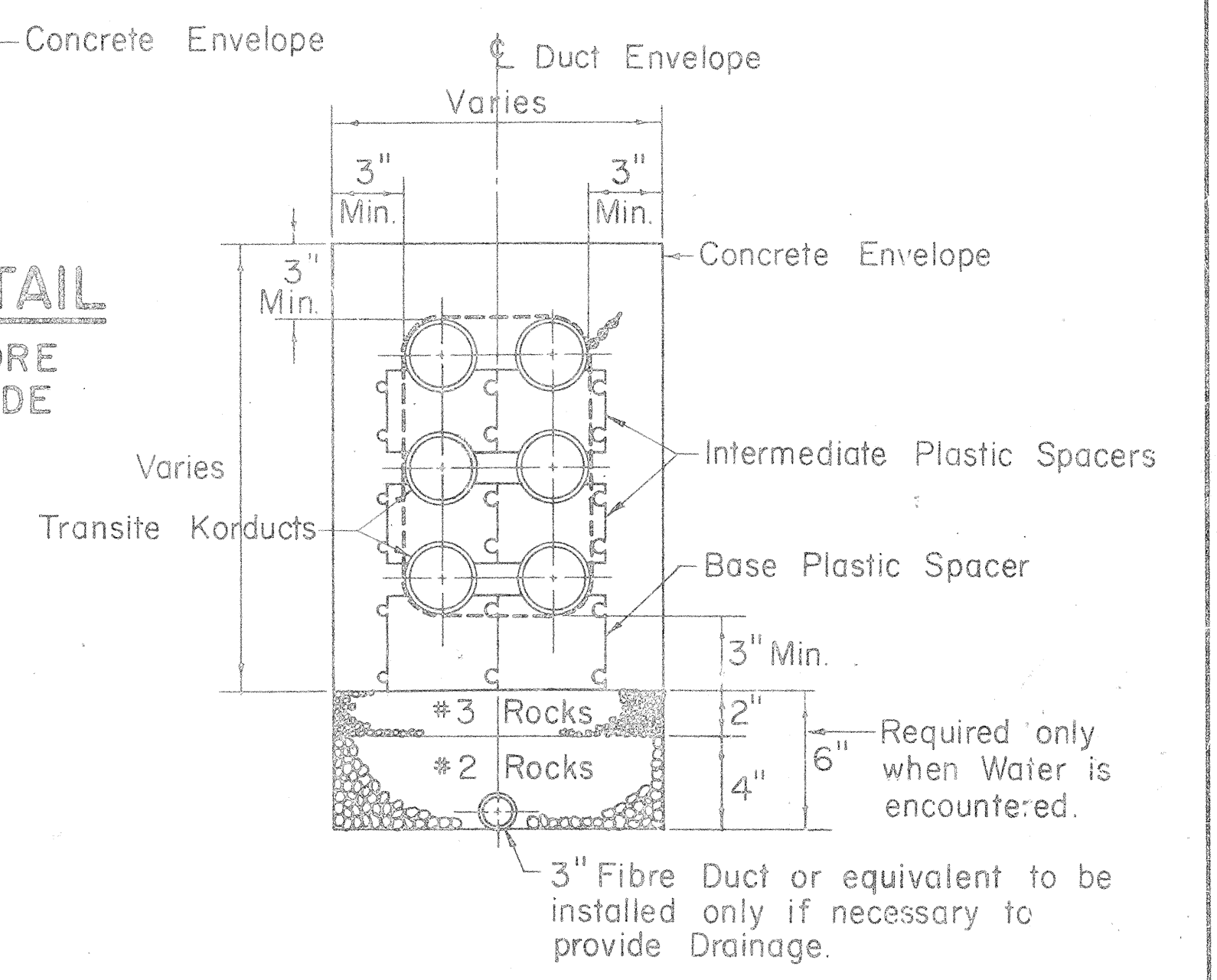
TYPICAL PLASTIC SPACERS
Not to Scale

SIZE	R	E	W	A	L
3"	1 27/32"	7/8"	3 1/4"	5 1/8"	5"
4"	2 13/32"	1 1/8"	3 3/4"	6 1/4"	6 1/8"
4 1/2"	2 23/32"	1 1/4"	4"	6 7/8"	6 3/4"
5"	3 1/16"	1 3/8"	4 1/4"	7 5/8"	7 1/2"

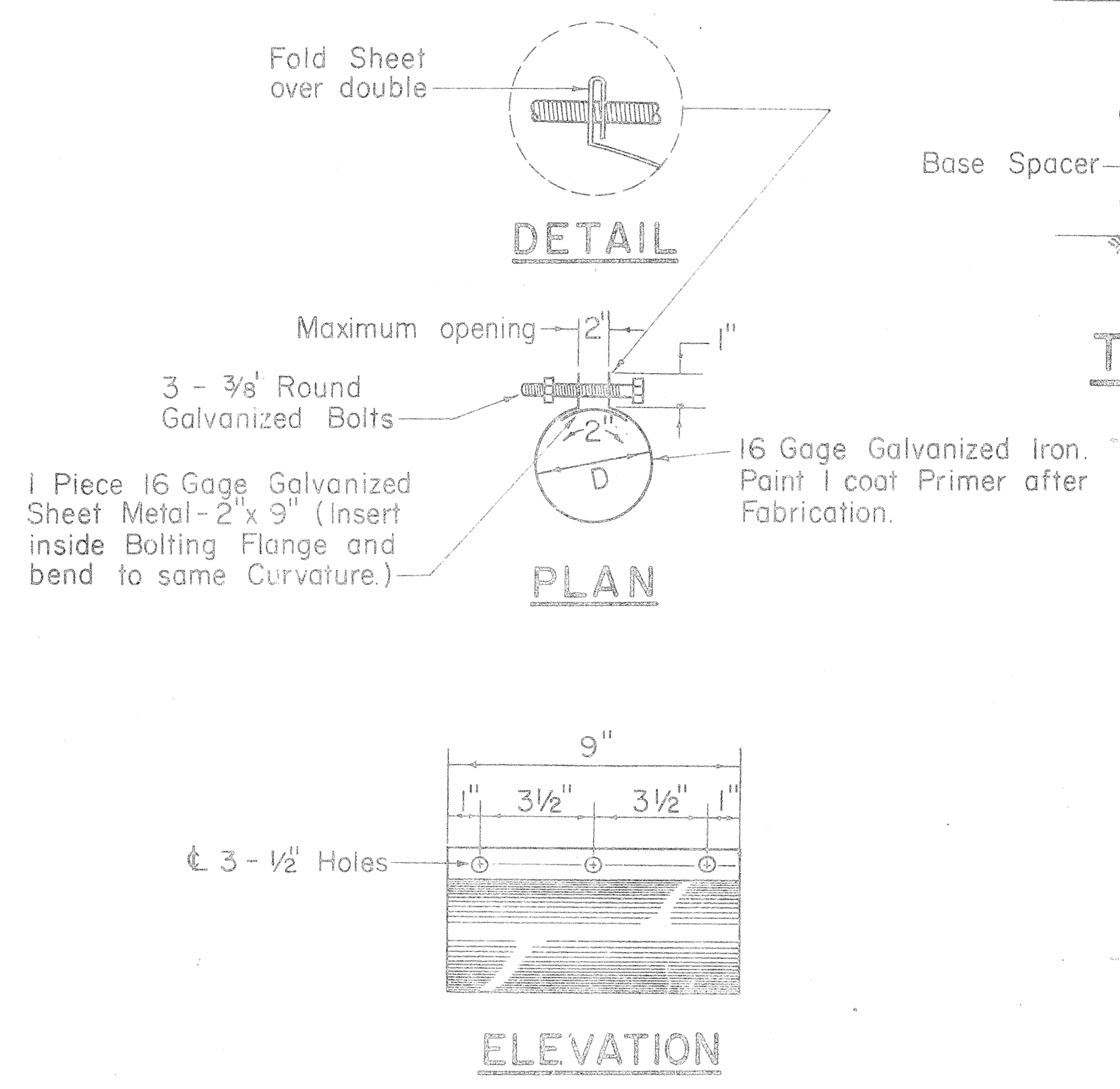
For 1 1/2" Separation



CONCRETE DUCT ENVELOPE TAMPING ROD
Scale: 3" = 1'-0"



TYPICAL DUCT PLASTIC SPACERS & DRAINAGE SECTION
(6 WAY DUCT SHOWN - 3 HIGH - 2 WIDE)
Not to Scale



3 BOLT CLAMP DETAIL
Scale: 3" = 1'-0"

APPROVED:

[Signature]

HAWAIIAN ELECTRIC CO., INC.

DATE 8-3-65

HECo., Inc. Drawing Number
18585

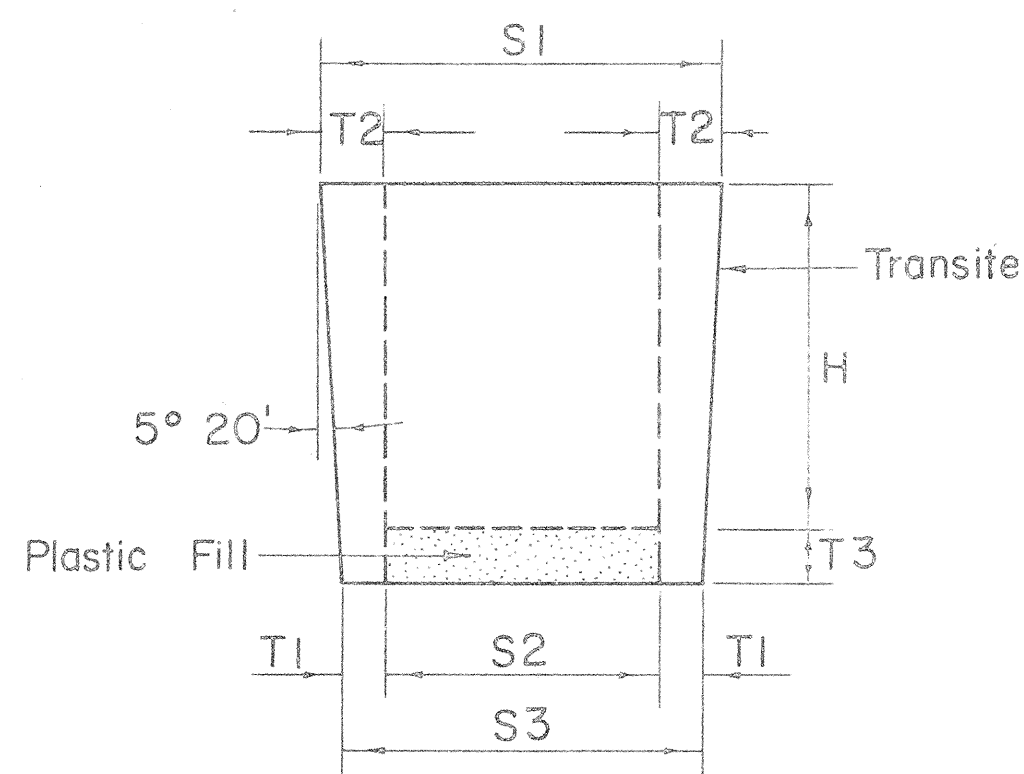
SHEET No. 1
OF 2 SHEETS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
CONSTRUCTION STANDARDS
TRANSITE KORDUCTS
UNDERGROUND DUCT LINES

Scales: As Noted
Date: July, 1965

SHEET NO. 8 OF 2 SHEETS

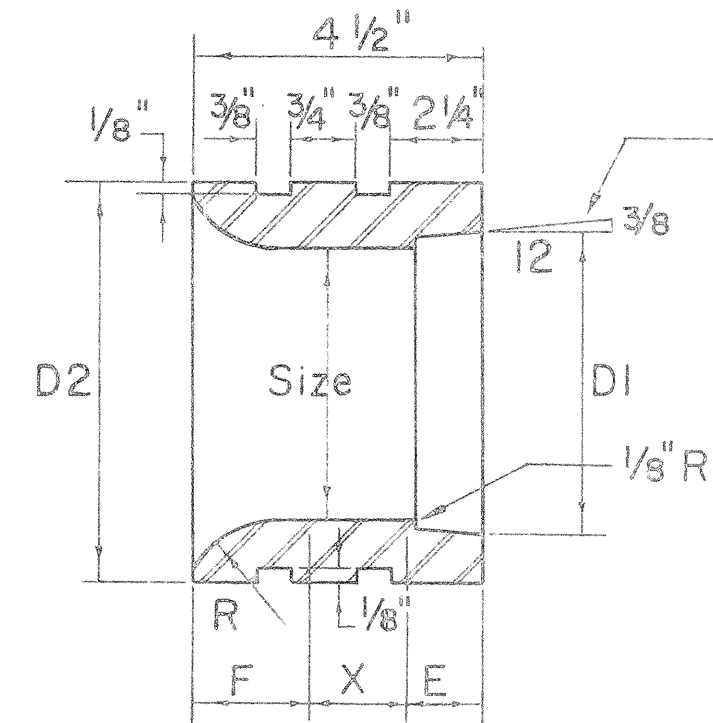
FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	1-HI-1(118)	1965	31	75



PLUGS FOR TRANSITE KORDUCTS

Not to Scale

SIZE	H	S1	S2	S3	T1	T2	T3
3"	4"	3 3/8"	2"	2 5/8"	5 1/16"	11 1/16"	3 3/4"
4"	4 1/2"	4 27/64"	2 3/4"	3 37/64"	13 3/32"	27 3/32"	3 3/4"
4 1/2"	4 1/2"	4 59/64"	3"	4 5/64"	35 3/64"	31 3/32"	3 3/4"
5"	4 1/2"	5 27/64"	3 1/2"	4 37/64"	35 3/64"	31 3/32"	3 3/4"



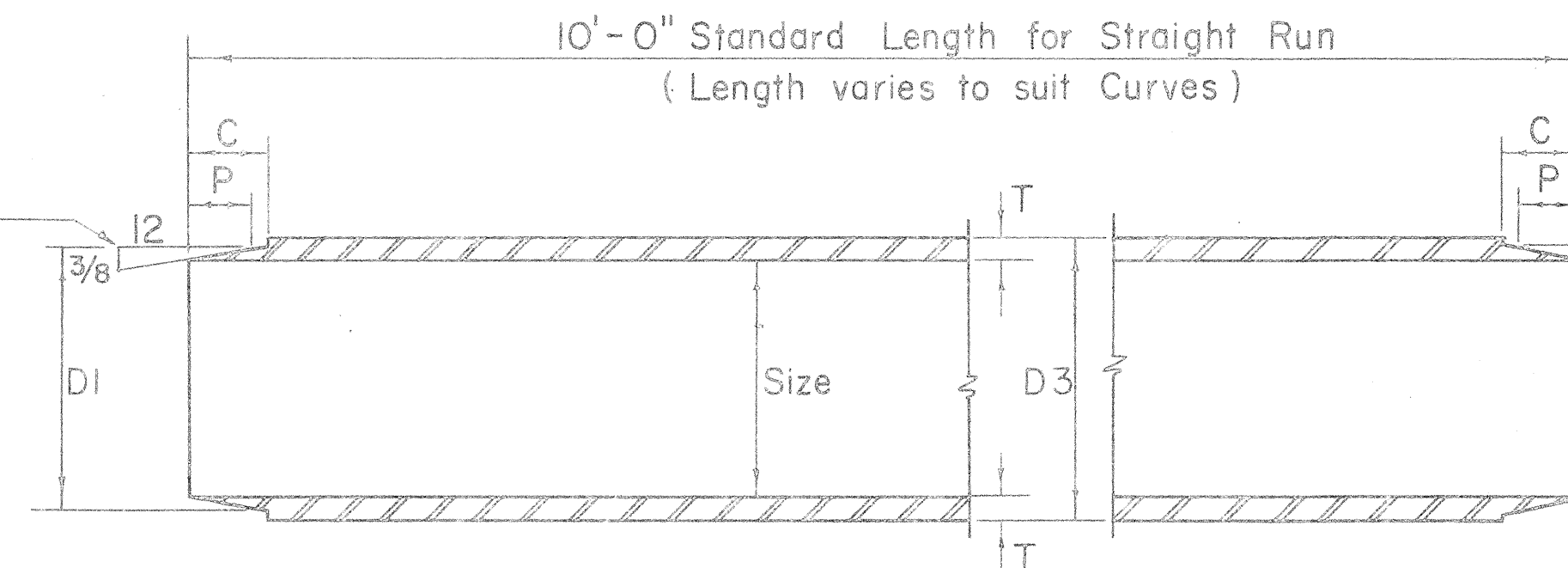
JUNIOR END BELLS

Not to Scale

SIZE	DI	D2	F	X	E	R
3"	3 25/64"	4 1/2"	1 11/32"	29 3/32"	1 1/4"	1 3/4"
4"	4 25/64"	5 3/4"	1 9/16"	19 9/16"	3 3/8"	2"
4 1/2"	4 57/64"	6 1/4"	1 9/16"	19 9/16"	3 3/8"	2"
5"	5 29/64"	7"	1 9/16"	19 9/16"	1 1/2"	2"

Note "X"

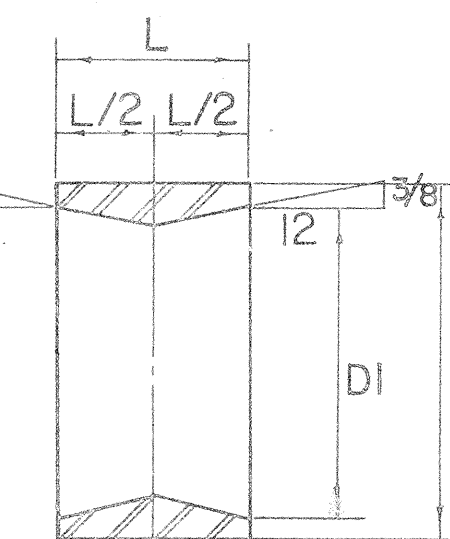
- Provide one set of Spacers
(a) 10 Ft. straight run for 4 Ducts high or less.
(b) 5 Ft. straight run for 5 Ducts high or more.



TRANSITE KORDUCTS

Not to Scale

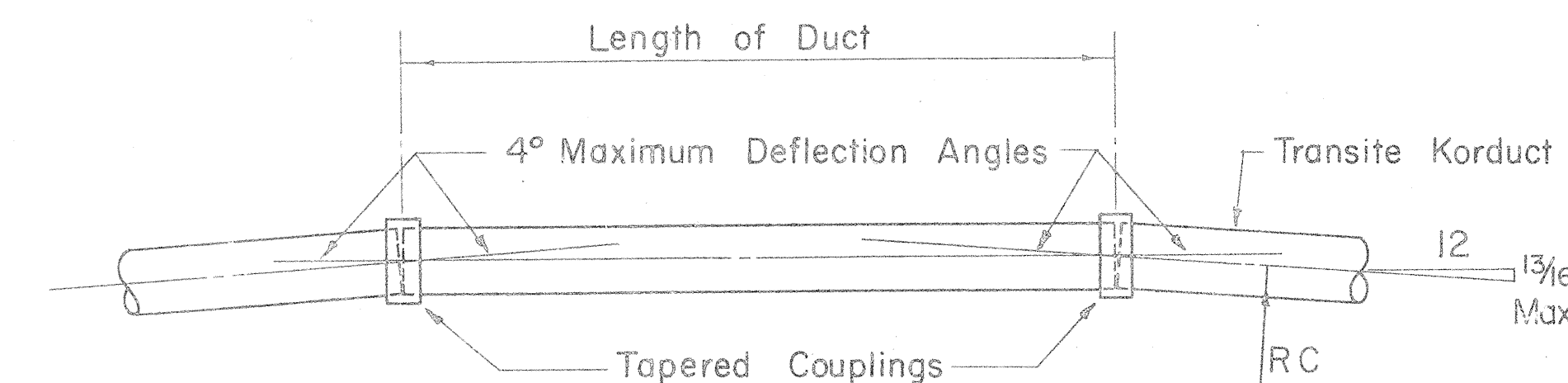
SIZE	DI	D3	C	P	T
3"	3 25/64"	3 35/64"	1 1/8"	7 7/8"	17 1/64"
4"	4 25/64"	4 35/64"	1 1/4"	1"	17 1/64"
4 1/2"	4 57/64"	5 3/64"	1 1/4"	1"	17 1/64"
5"	5 29/64"	5 39/64"	1 25/64"	1 1/8"	19 1/64"



TAPERED COUPLINGS

Not to Scale

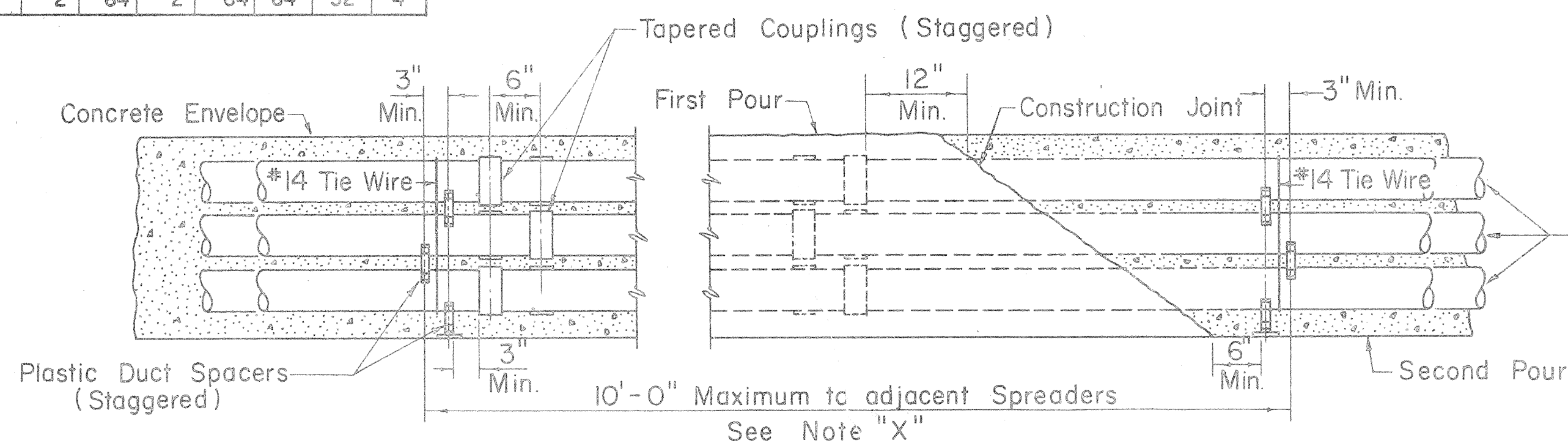
SIZE	DI	D2	L
3"	3 25/64"	4 11/64"	2 1/4"
4"	4 25/64"	5 3/16"	2 1/2"
4 1/2"	4 57/64"	5 49/64"	2 1/2"
5"	5 29/64"	6 21/64"	2 3/4"



METHOD OF FORMING CURVES

Not to Scale

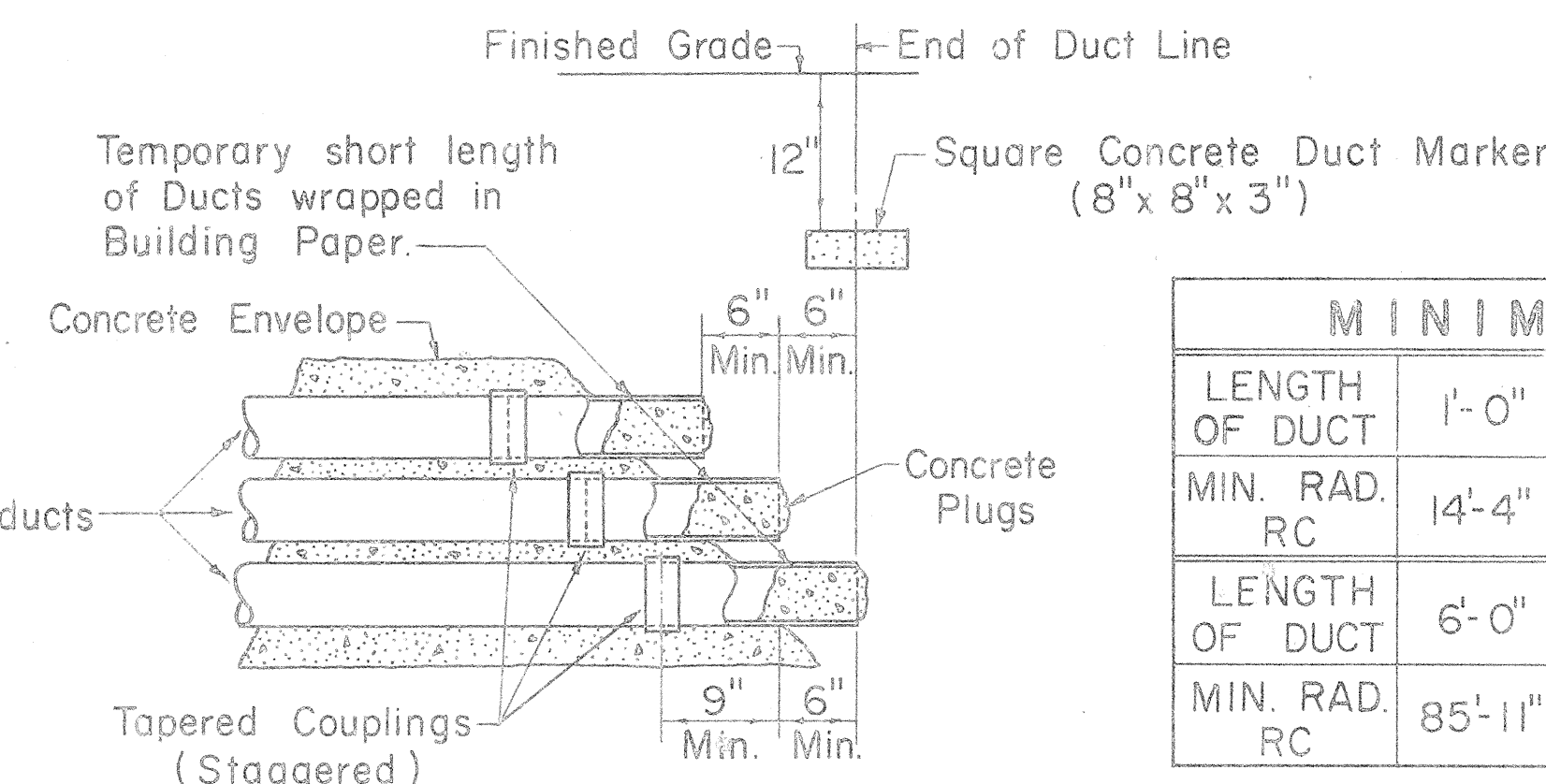
	MINIMUM RADIUS TO FORM CURVES									
LENGTH OF DUCT	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
MIN. RAD. RC	14'-4"	21'-6"	28'-8"	35'-10"	42'-11"	50'-1"	57'-3"	64'-5"	71'-7"	78'-9"
LENGTH OF DUCT	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	
MIN. RAD. RC	85'-11"	93'-1"	100'-3"	107'-5"	114'-7"	121'-8"	128'-10"	136'-0"	143'-2"	



TYPICAL DUCT ENVELOPE ELEVATION

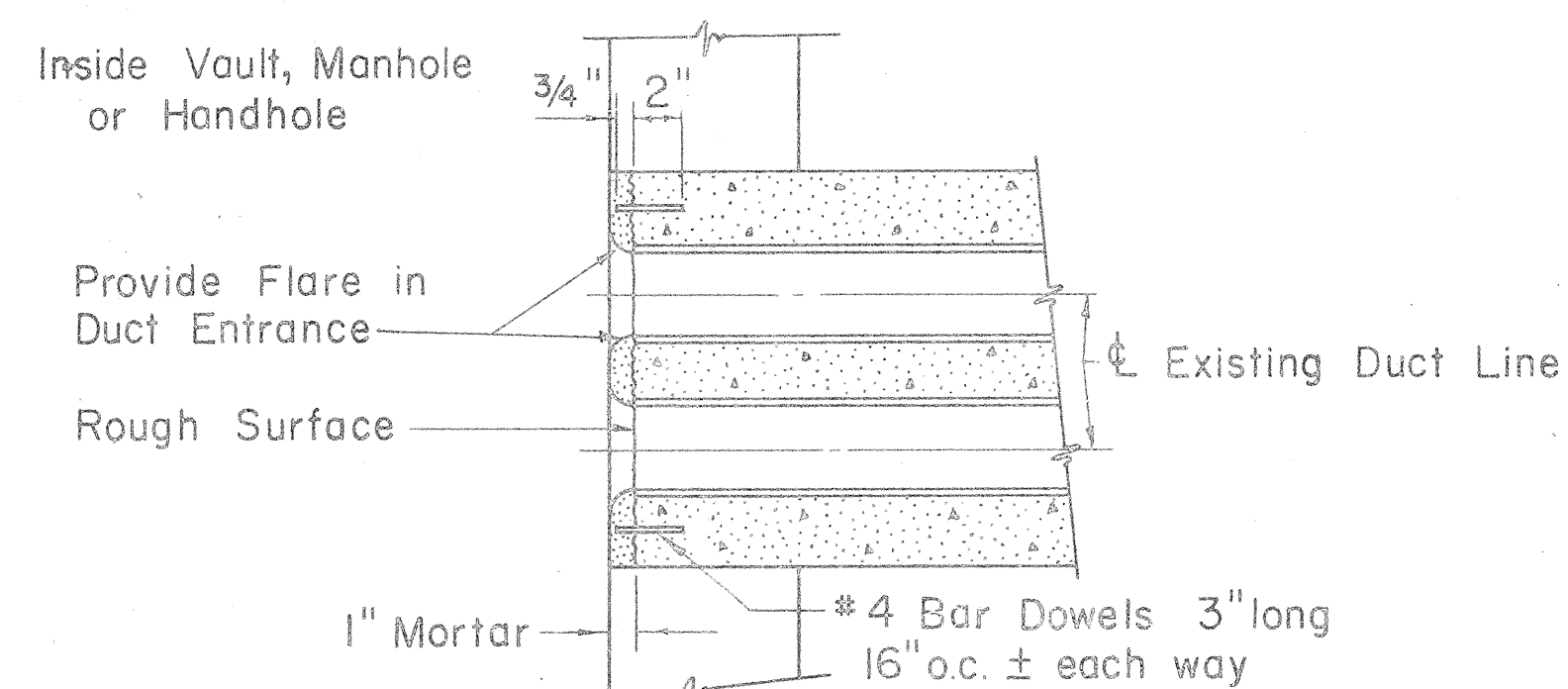
(6 WAY DUCT LINE SHOWN)

Not to Scale



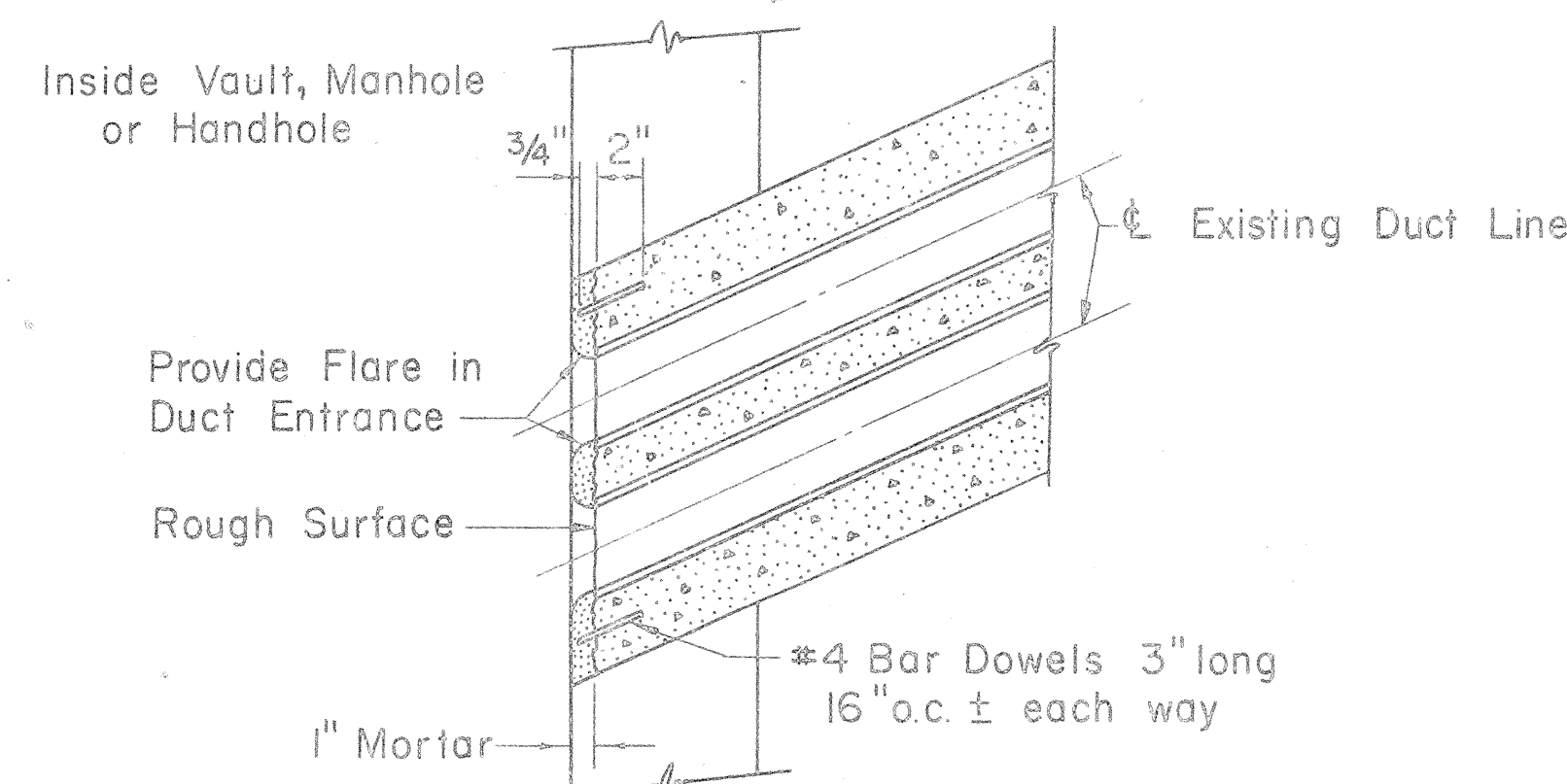
TYPICAL STUB OUT DETAIL

Not to Scale



DUCT LINE ENTRANCE AT EXISTING DUCT LINE

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



DUCT LINE DIAGONAL ENTRANCE

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

APPROVED:

R. H. Anderson, Jr. E.A.C.
HAWAIIAN ELECTRIC CO., INC.

8-3-65
DATE

HECo., Inc. Drawing Number
18585 SHEET No. 2
OF 2 SHEETS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

CONSTRUCTION, STANDARDS
TRANSITE KORDUCTS
UNDERGROUND DUCT LINES

Scales: As Noted

Date July, 1965

SHEET NO. 2 OF 2 SHEETS