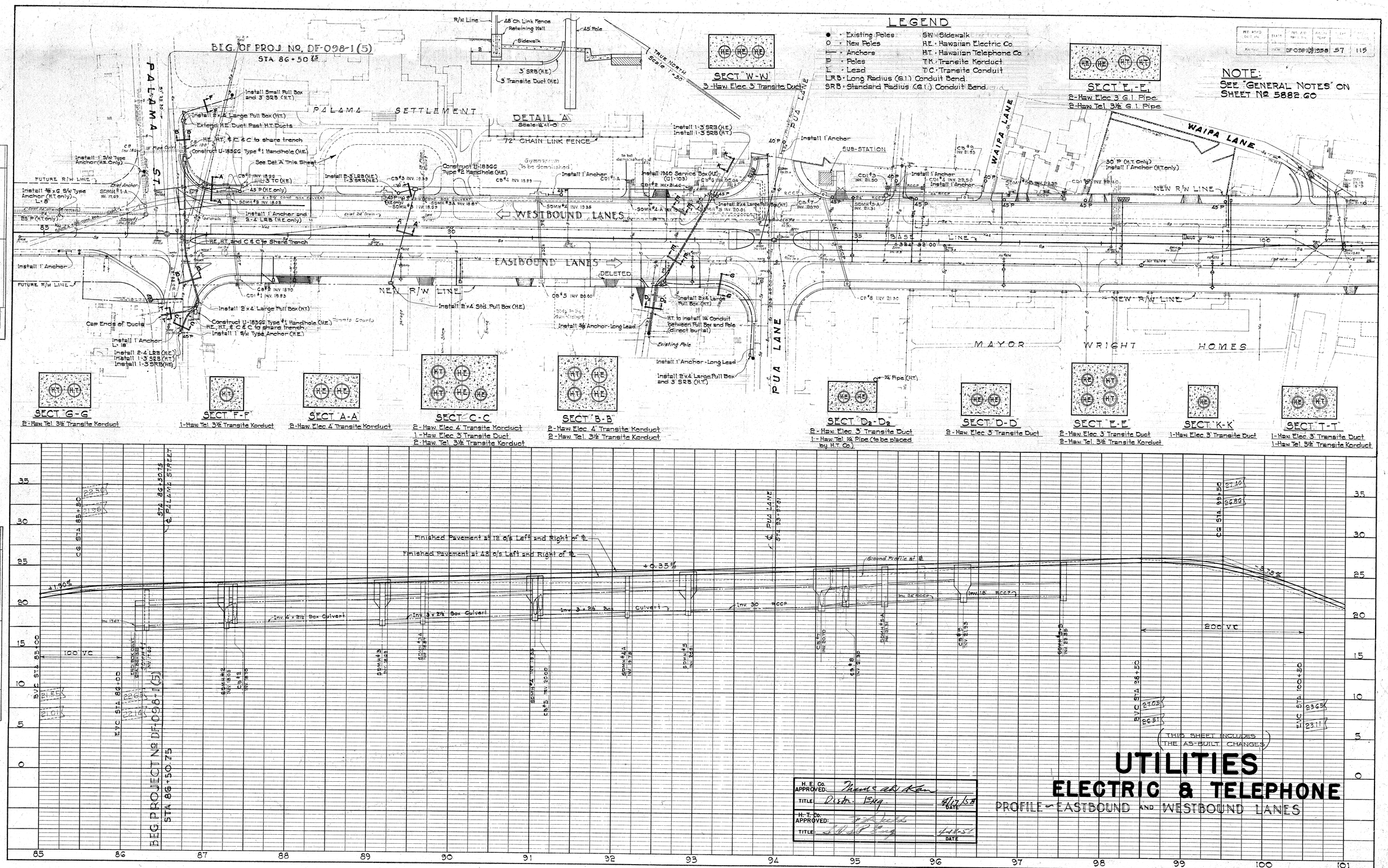
NO. BOND DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHT. NO.	TOT. SHTS.
	HAWAII	DF-028(3)	1958	57	115

LEGEND

- ● - Existing Poles
- ○ - New Poles
- — - Anchors
- P - Poles
- L - Lead
- LRB - Long Radius (G.I.) Conduit Bend.
- SRB - Standard Radius (G.I.) Conduit Bend.
- SW - Sidewalk
- H.E. - Hawaiian Electric Co.
- H.T. - Hawaiian Telephone Co.
- T.K. - Transite Korduct
- T.C. - Transite Conduit

NOTE:
SEE "GENERAL NOTES" ON SHEET No 5882.60



UTILITIES
ELECTRIC & TELEPHONE
PROFILE - EASTBOUND AND WESTBOUND LANES

PLAN	BY	DATE
SURVEYED.		
PLOTTED.		
NOTE BOOK. ALIGNMENT CHECKED.		
NO. RT. OF WAY CHECKED.		

PROFILE	BY	DATE
SURVEYED.		
PLOTTED.		
NOTE BOOK. GRADES CHECKED.		
NO. B. M.'S NOTED.		
STRUCTURE NOTATIONS CH. NO.		

PLATE 1 — PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.
K & E Co. No. 346-ICA
11626

American Photoprint

5882.58

DEC 17 1957

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	DF-0199-(9)	1958	58A	115

REVISED 12-10-58

NOTE:
SEE "GENERAL NOTES" ON SHEET No. 5882.60

H. T. Co. M. H. 234
Demolish existing H.T. Co. manhole and salvage frame and cover (incidental to item of "Excavation for Utility Structures.")
Construct new Manhole 234 as detailed on Sheet No. 5882.62
(Salvaged frame and cover shall be hauled away by H. T. Co.)

H. T. Co. M. H. 233
Demolish existing H.T. Co. Manhole and salvage frame and cover (incidental to item of "Excavation for Utility Structures.")
Construct new Manhole 233 as detailed on Sheet No. 5882.61
(Salvaged frame and cover shall be hauled away by H. T. Co.)

DETAIL "B"
Not to Scale
Note: Portion of Duct U-U to rest on Conc. Retaining Wall footing.

SECT. "H-H" — 8-Haw. Tel. 3½" Transite Korduct
SECT. "I-I" — 6-Haw. Tel. 3½" Transite Korduct
SECT. "J-J" — 4-Haw. Tel. 3½" Transite Korduct
SECT. "L-L" — 2-Haw. Elec. 3" Transite Duct; 1-Haw. Tel. 3½" Transite Korduct
SECT. "V-V" — 2-Haw. Elec. 4" Transite Duct; 4-Haw. Tel. 3½" Transite Korduct
SECT. "U-U" — 2-Haw. Elec. 4" Transite Korduct

NOTE:
FOR LAYOUT OF ELEC. & TEL. WORK IN THIS AREA, SEE SHT. NO. 5882.59A

NOTE: FOR REVISED STORM DRAINAGE SYSTEM ℄ STA. 111+40 TO ℄ STA. 115+21, SEE SHT. No. 5882.13A

(REVISED) 12-10-58

UTILITIES
ELECTRIC & TELEPHONE
PROFILE — EASTBOUND AND WESTBOUND LANES
(THIS SHEET WAS REVISED AND INCLUDES THE AS-BUILT CHANGES)

H. E. Co. APPROVED: Thomas A. Kan — TITLE: Distr. Eng. — 12/17/58 DATE
H. T. Co. APPROVED: [illegible] — TITLE: [illegible] — 12/17/58 DATE

PLATE 1 — PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.
K & E Co. No. 348-10A

5882.5SA

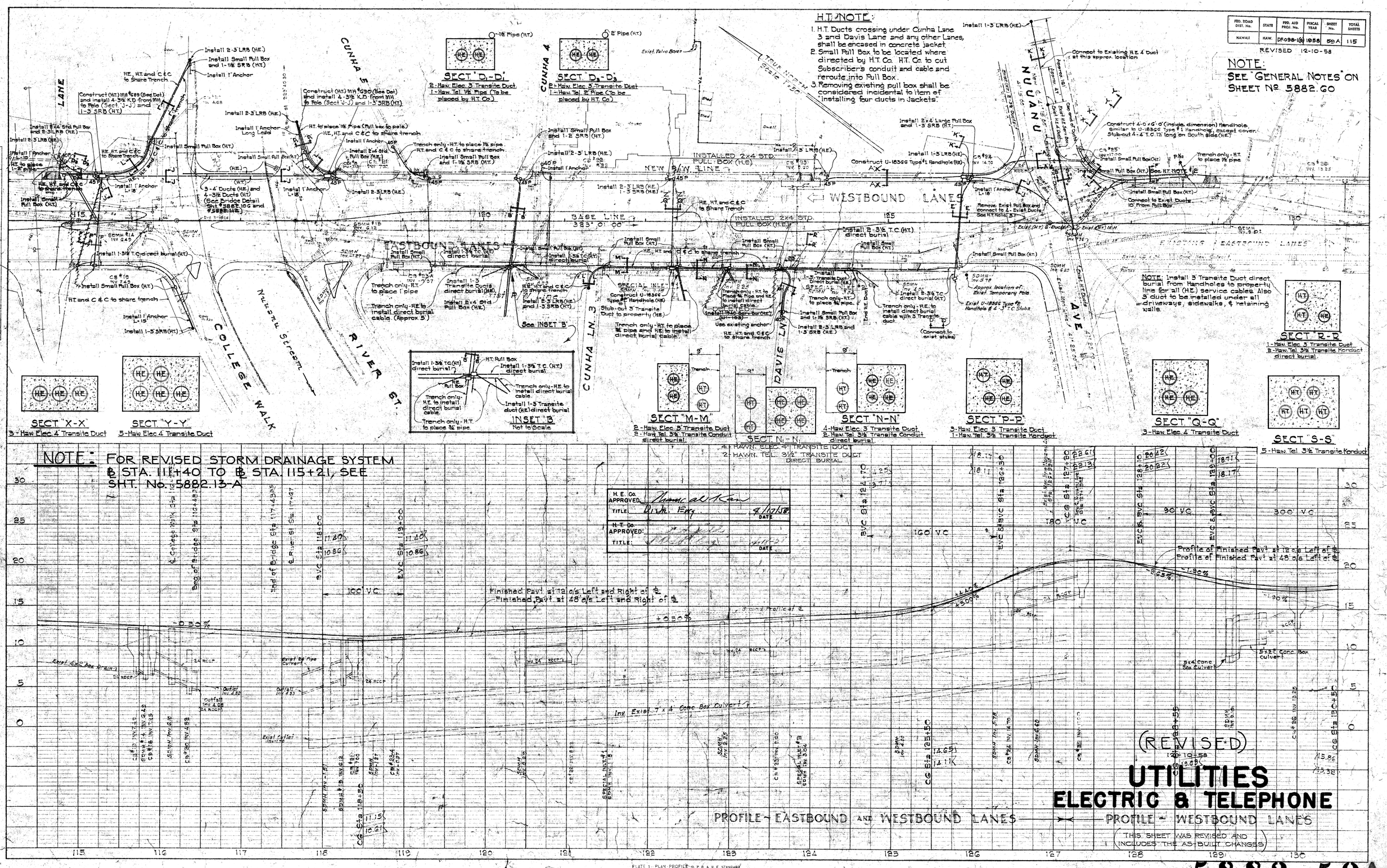
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	DF-098-1(5)	1958	59A	115

REVISED 12-10-58

NOTE: SEE "GENERAL NOTES" ON SHEET No 5882.60

H.T. NOTE:

1. H.T. Ducts crossing under Cunha Lane 3 and Davis Lane and any other Lanes, shall be encased in concrete jacket.
2. Small Pull Box to be located where directed by H.T. Co. H.T. Co. to cut Subscriber's conduit and cable and reroute into Pull Box.
3. Removing existing pull box shall be considered incidental to item of "Installing four ducts in Jackets".



NOTE: Install 3" Transite Duct direct burial from Handholes to property line for all (H.E.) service cables. Also 3" duct to be installed under all driveways, sidewalks, & retaining walls.

NOTE: FOR REVISED STORM DRAINAGE SYSTEM ℄ STA. 111+40 TO ℄ STA. 115+21, SEE SHT. No. 5882.13-A

H. E. Co. APPROVED:	Numc al Kam	
TITLE:	Dist. Eng.	4/17/58 DATE
H. T. Co. APPROVED:		
TITLE:		4-11-58 DATE

(REVISED)
12-10-58

UTILITIES
ELECTRIC & TELEPHONE

PROFILE - WESTBOUND LANES

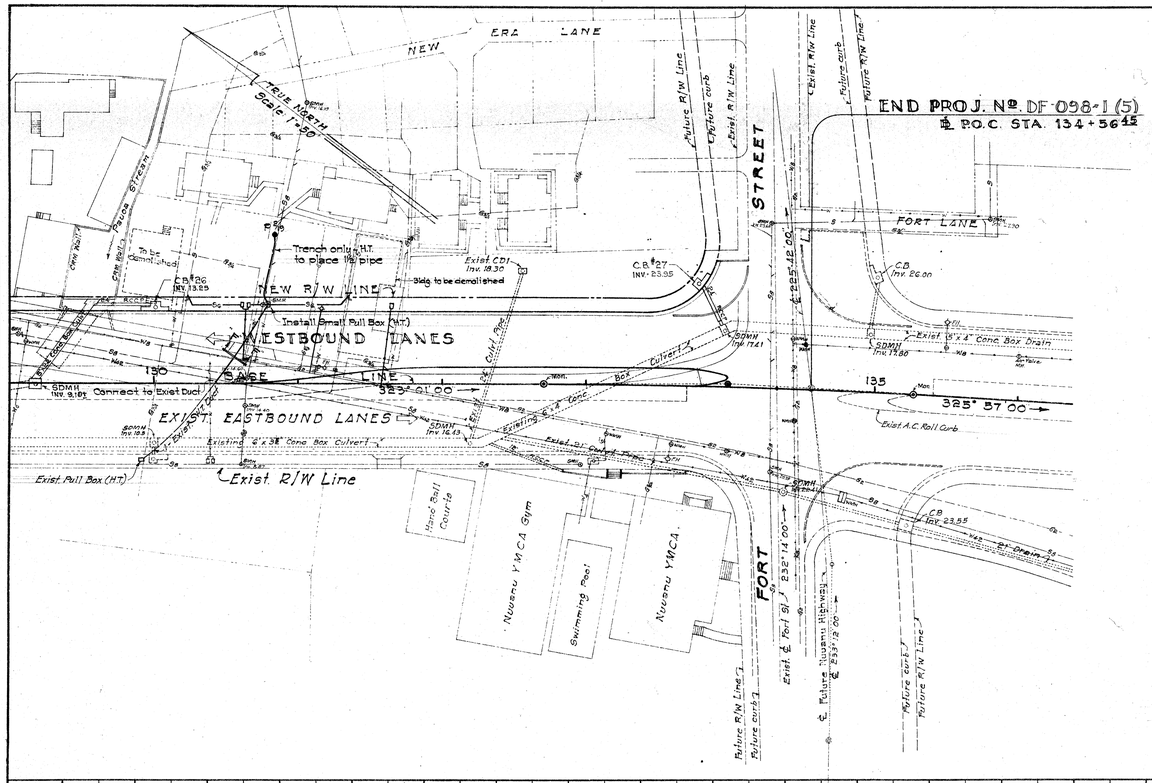
(THIS SHEET WAS REVISED AND INCLUDES THE AS-BUILT CHANGES)

5882.59A

PLATE 1 - PLAN PROFILE - KEUFFEL & ESSER CO., NEW YORK
K & E Co. No. 348-CA

(39) DD-P-15 9

FED. AID PROJ. NO.	STATE	FED. AID SEC. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	HAWAII	H.W.	DF-098-1(5)	1958	60	115



POLE SETTING DEPTH DATA

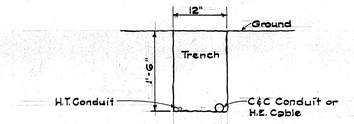
POLE LENGTH	DEPTH FROM FINISHED GRADE IN SOIL	IN ROCK	APPROX. HOLE DIA.
25'	4' - 6"	3' - 0"	1' - 4"
30'	5' - 0"	3' - 0"	1' - 4"
35'	5' - 0"	3' - 6"	1' - 4"
40'	5' - 6"	3' - 6"	1' - 6"
45'	6' - 0"	4' - 0"	1' - 8"
50'	6' - 6"	4' - 0"	1' - 8"
55'	7' - 0"	4' - 6"	1' - 10"
60'	7' - 0"	4' - 6"	1' - 10"

ANCHOR SETTING DATA
REFER TO THE FOLLOWING STANDARDS

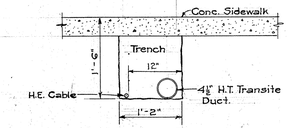
ANCHORING DATA 05-101
GUY ANCHOR 18' DEADMAN 05-102
GUY ANCHOR 24' DEADMAN 05-103
SIDEWALK ANCHOR 05-104
ROCK ANCHOR 05-105

GENERAL NOTES

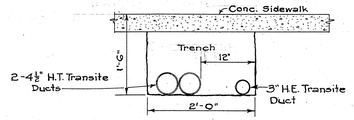
1. MINIMUM DEPTH OF DUCT LINES 18" FROM FINISHED GRADE TO:
   (a) TOP OF CONCRETE JACKET WHERE DUCTS ARE CONCRETE ENCASED.
   (b) TOP OF DUCTS NOT ENCASED IN CONCRETE (DIRECT BURIAL)
2. DEPTH OF ALL PULL BOXES, SERVICE BOXES, AND H. E. HANDHOLES TO BE DETERMINED IN THE FIELD.
3. DEPTH OF POLES AND ANCHOR HOLES ARE TAKEN FROM FINISHED GRADE.
4. INSTALLATION OF AND BACKFILL FOR POLES BY H.E. CO. AND H.T. CO.
5. BACKFILL OF ANCHOR HOLES BY THE CONTRACTOR.
6. POLES AND ANCHORS NOT NOTED H.E. OR H.T. ARE FOR BOTH UTILITIES.
7. FOR POLE SETTING DEPTH DATA, SEE THIS SHEET.
8. CITY AND COUNTY CONDUITS AND PULL BOXES (NOT SHOWN ON PLANS) SHARING TRENCHES WITH H.E. CO. AND/OR H.T. CO. WILL BE INSTALLED BY CITY AND COUNTY STREET LIGHTING DIVISION.
9. DUCTS ENCASED IN CONCRETE JACKETS:
   (a) NORMAL DISTANCE FROM FACE OF CONCRETE JACKET TO ALL DUCTS TO BE 3" MINIMUM.
   (b) CLEAR DISTANCE OF ½" MINIMUM BETWEEN DUCTS OF SAME UTILITY CO.
   (c) CLEAR DISTANCE OF 3" MINIMUM BETWEEN H.E. DUCTS AND H.T. DUCTS.



CASE I



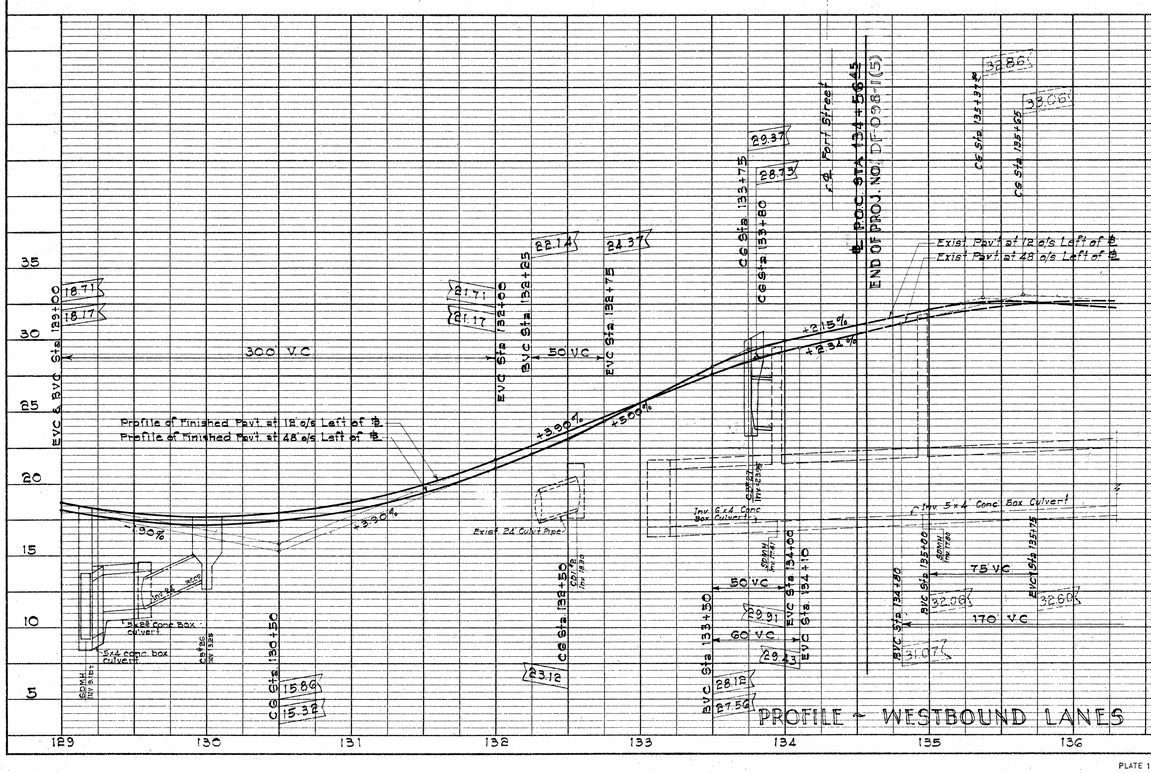
CASE II



CASE III

TYPICAL DETAIL OF TRENCHES FOR TRANSITE DUCTS, CONDUITS AND CABLES (DIRECT BURIAL)
Scale: 3/4" = 1'-0"

PLAN	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK	ALIGNMENT CHECKED	
NO.	RT. OF WAY CHECKED	



PROFILE ~ WESTBOUND LANES

PROFILE	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK	GRADES CHECKED	
	R. M.'S NOTED	
NO.	STRUCTURE NOTATIONS CH'KD.	

H. E. Co. APPROVED: [signature] TITLE: Distr. Eng. 4/17/58 DATE

H. T. Co. APPROVED: [signature] TITLE: [illegible] 4-18-58 DATE

(NO AS-BUILT CHANGES ON THIS SHEET)

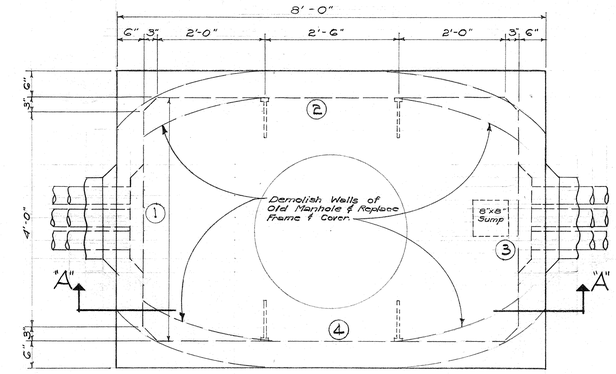
UTILITIES
ELECTRIC & TELEPHONE

PLATE 1 — PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.
K & E Co. No. 346-10A

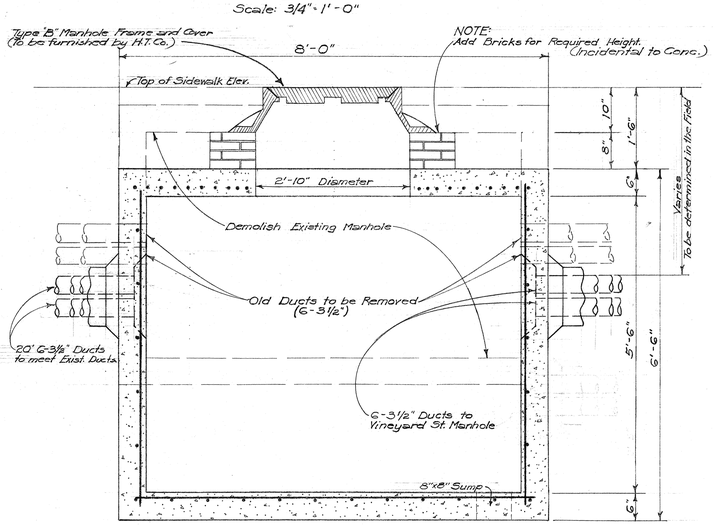
5882.(6)

(6) DEC 17 1957

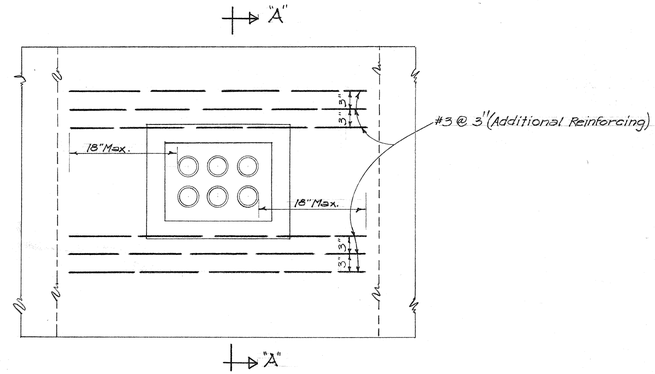
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	DF098-1(5)	1958	61	115



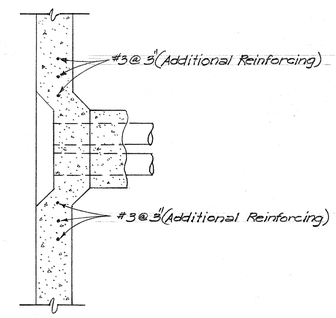
PLAN
Scale: 3/4" = 1'-0"



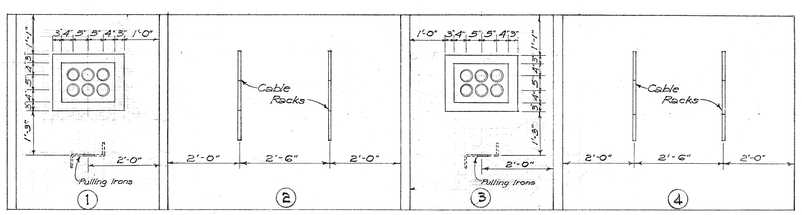
SECTION "A-A"
Scale: 3/4" = 1'-0"



TYPICAL ELEVATION SHOWING DUCT OPENING REINFORCING
Scale: 1" = 1'-0"



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



DEVELOPED VIEW OF WALLS
Scale: 1/2" = 1'-0"

MANHOLE No 233
(FOR HAWAIIAN TELEPHONE CO. ONLY)

NOTE:
1. For Roof Slab Details, Sheet No. 5882.63
2. All Wall Reinforcement is #3 Bars. Vertical: 8" O.C. Horizontal: 12" O.C.
3. Floor Reinforcement is #5 Bars @ 8" O.C. both ways.
4. Concrete shall be Class "B-1"
5. Contractor to furnish bricks and construct collars. (Incidental to Conc.)

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

H.T. CO. APPROVED: T.H. Judd
TITLE: S.D.&P. Eng. 4-23-58 DATE

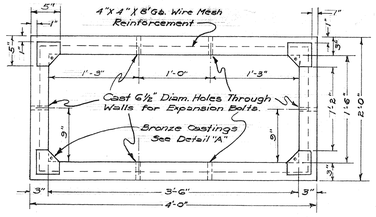
(NO AS-BUILT CHANGES ON THIS SHEET)

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
DETAILS OF HAWAIIAN TELEPHONE COMPANY MANHOLE NO. 233
VINEYARD THOROUGHFARE
PALAMA ST. TO FORT ST.
PROJECT NO. DF-098-1 (5)
Scale: As Noted Feb. 3, 1958

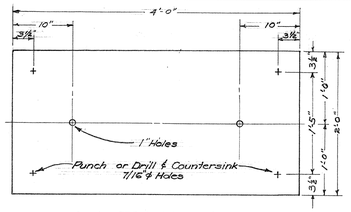
SHEET No. 1 OF 3 SHEETS

5882.61

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
Hawaii	HAW	DF 098-(5)	1958	62	115

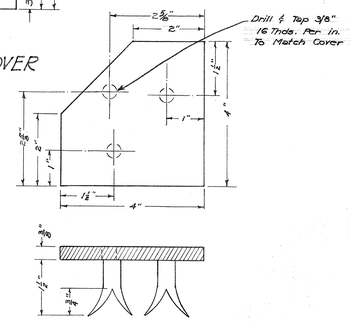


TOP VIEW

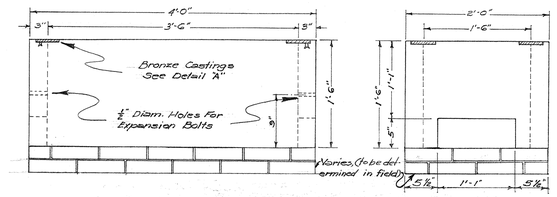


DETAIL A
CHECKERED PLATE COVER

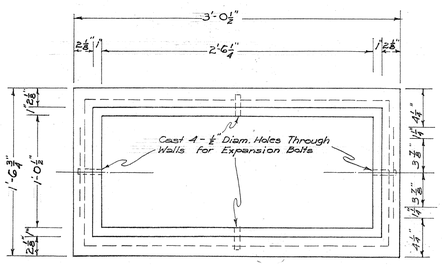
NOTE:
Checkered Plate Cover shall be ¼" thick at Sidewalk areas and ⅜" thick at Driveways.



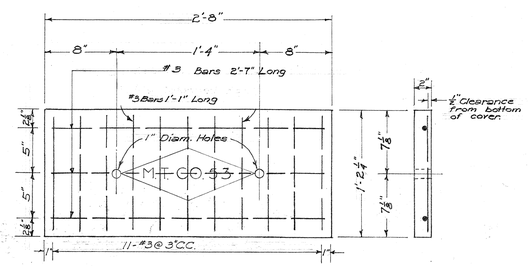
DETAIL "A"
MANGANESE BRONZE CASTING CORNER PLATES
SCALE: 6" = 1'-0"



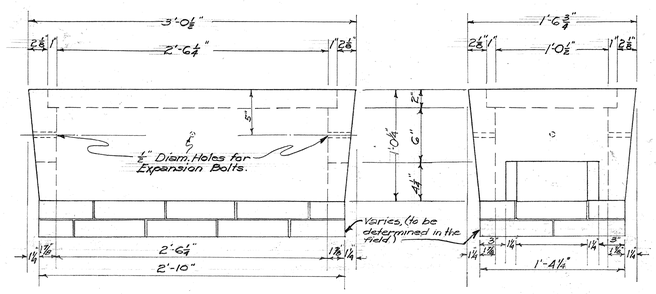
2'x4' LARGE PRECAST CONC. PULL BOX WITH STEEL COVER
SCALE: 1" = 1'-0"



PLAN
SCALE: ⅛" = 1"



PLAN OF COVER
SCALE: ⅛" = 1"



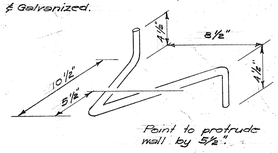
SIDE ELEVATION
SCALE: ⅛" = 1"

END ELEVATION
SCALE: ⅛" = 1"

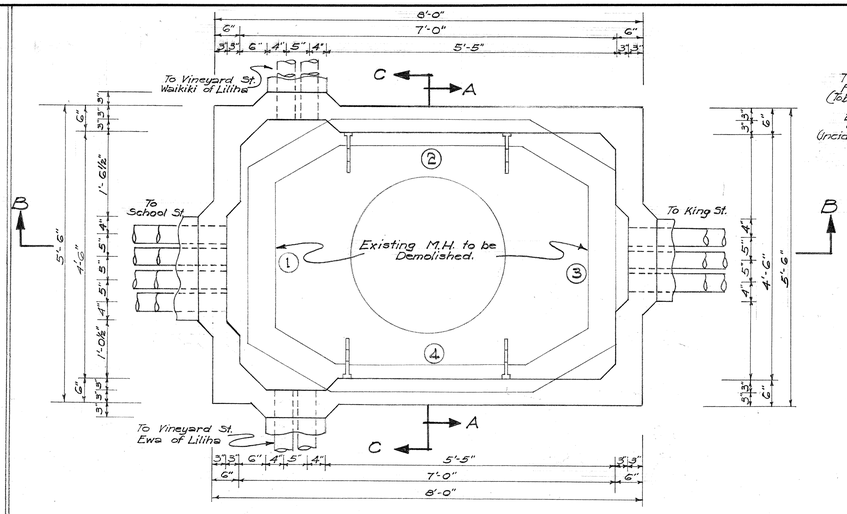
SMALL STD. PRECAST CONC. PULL BOX WITH CONC. COVER

NOTE:
1. The Pull Boxes shown above are to be used by both the Hawaiian Telephone Company and the Hawaiian Electric Company.
2. Pull Boxes to be furnished by the Utility Companies.
3. Contractor to furnish bricks and construct walls. (Incidental to item of "Installing Precast Concrete Pull Boxes.")

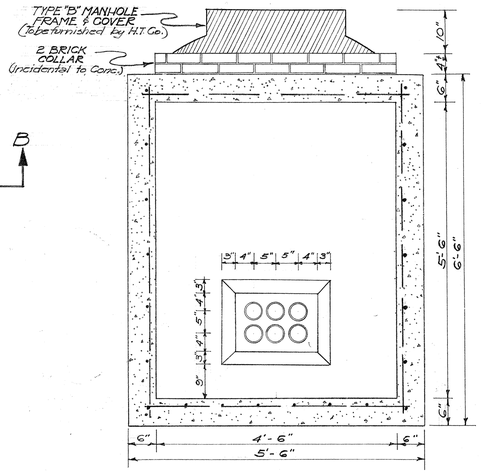
NOTE:
Pulling Iron to be of ⅞" ϕ Diam. Mild Steel Rod bent to shape & Galvanized.



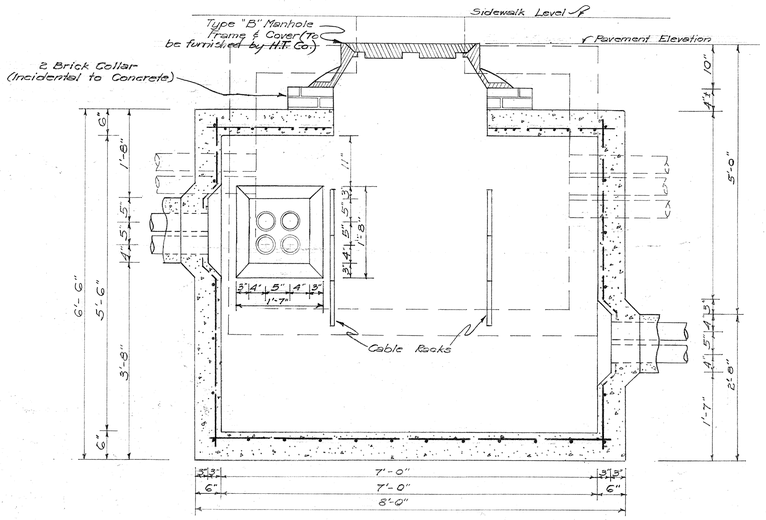
PULLING IRON DETAIL
SCALE: 1½" = 1'-0"



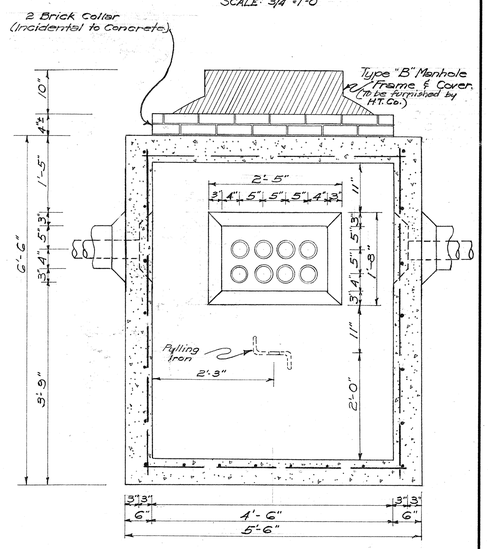
PLAN VIEW
SCALE: 3/4" = 1'-0"



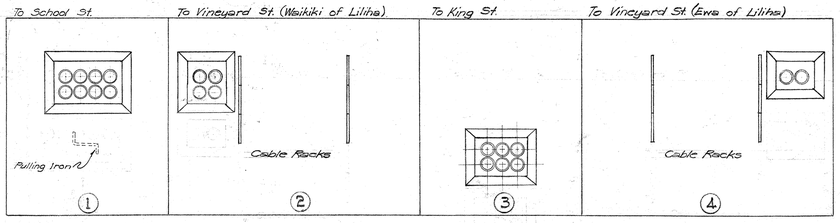
SECTION "A-A"
SCALE: 3/4" = 1'-0"



SECTION "B-B"
SCALE: 3/4" = 1'-0"



SECTION "C-C"
SCALE: 3/4" = 1'-0"



DEVELOPED VIEW OF WALLS
SCALE: 1½" = 1'-0"

NOTE:
1. For Roof Slab Details, see Sht. No. 5882.63
2. All Wall Reinforcement is #3 bars. Vertical: 8" o.c., Horizontal: 12" o.c.
3. Floor reinforcement is #5 bars @ 8" o.c. both ways.
4. Concrete shall be Class B-1.
5. Contractor to furnish bricks and construct collars. (Incidental to Conc.)
6. For additional reinforcing at Duct opening, see Sht. 5882.61.

MANHOLE No. 234
(FOR HAWAIIAN TELEPHONE CO. ONLY)

(NO AS-BUILT CHANGES ON THIS SHEET)

H.T. CO. APPROVED: [signature]
TITLE: SOPP Eng. 4-23-58 DATE

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
DETAILS OF HAWAIIAN TELEPHONE CO.
PRECAST CONCRETE PULL BOXES
AND MANHOLE NO. 234
VINEYARD THOROUGHFARE
PALAMA ST. TO FORT ST.
PROJECT NO. DF-098-1(5)
Scale: As Noted — Feb. 3, 1958

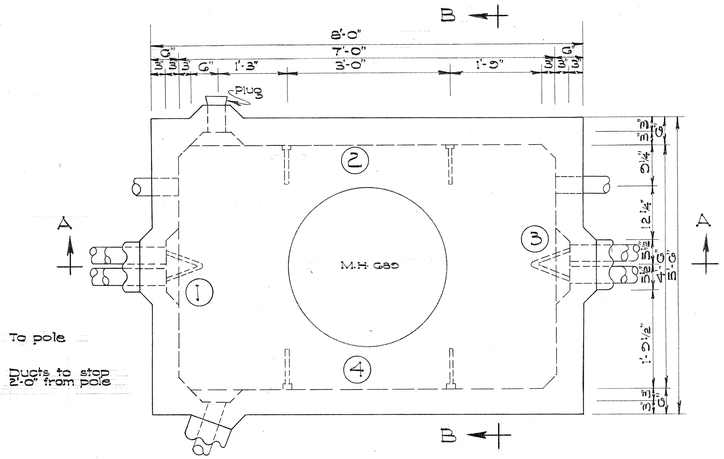
SHEET No. 2 OF 3 SHEETS

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DESIGNED BY	
	DRAWN BY	
	TRACED BY	Feb. 3, 1958
	QUANTITIES BY	
	QUANTITIES CHECKED BY	
NOTE BOOK No.	CHECKED BY	

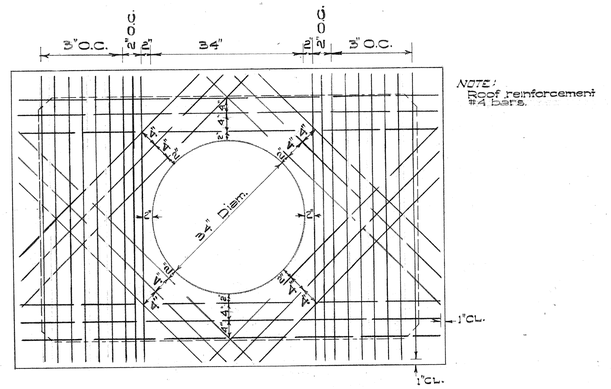
5882.62

PRINTED ON DIEPO 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAWAII	DF098(1)	1958	63	113

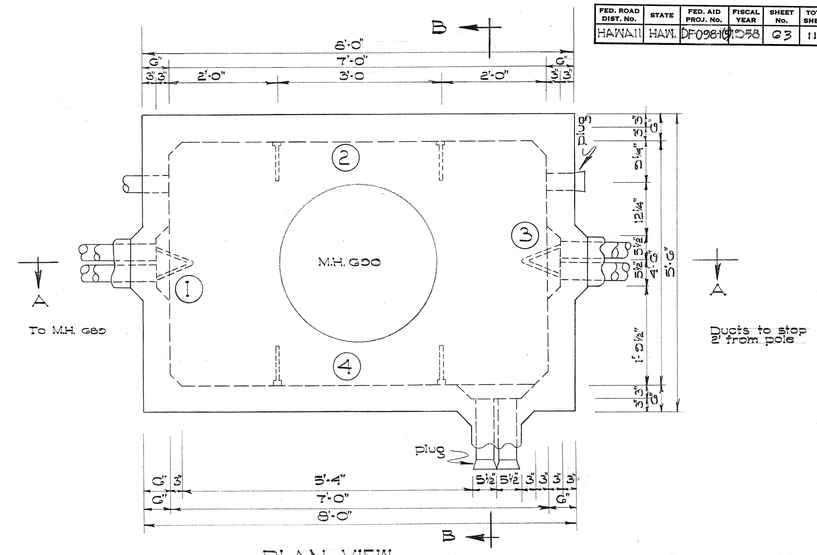


PLAN VIEW
Scale: 3/4"=1'-0"

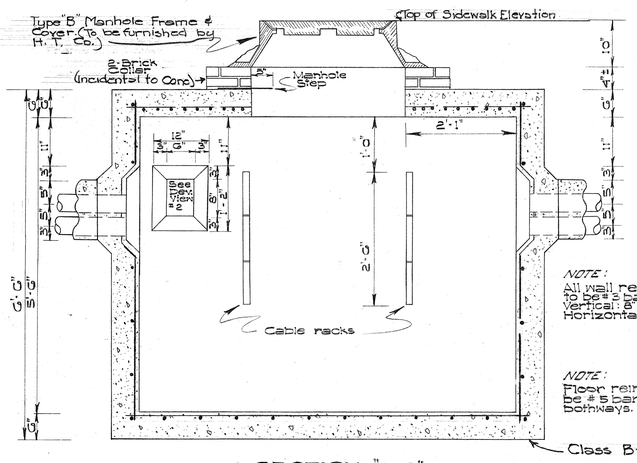


NOTE: Roof reinforcement #4 bars.

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



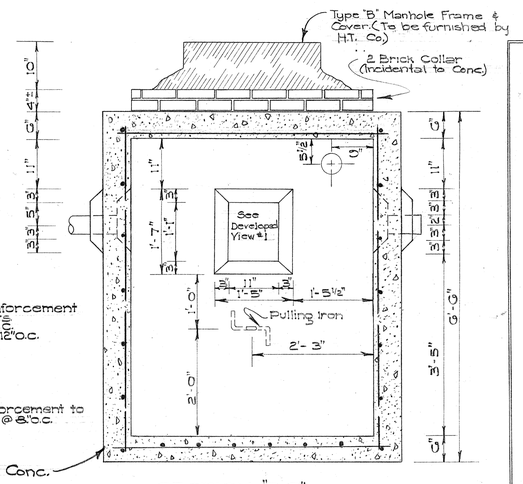
PLAN VIEW
Scale 3/4"=1'-0"



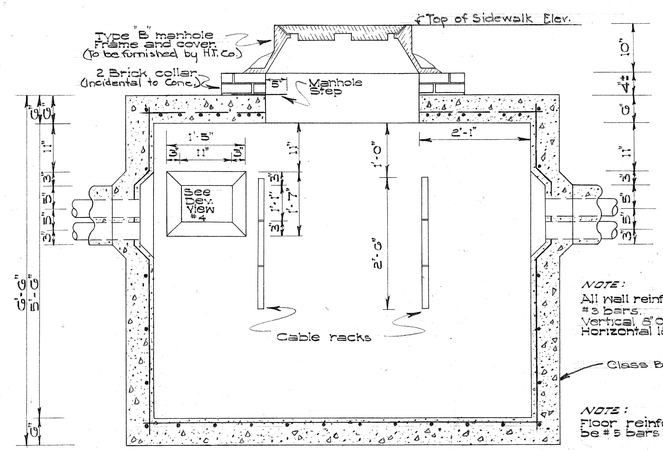
NOTE: All wall reinforcement to be #5 bars. Vertical: 8" o.c. Horizontal: 12" o.c.

NOTE: Floor reinforcement to be #5 bars @ 8" o.c. bothways.

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



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

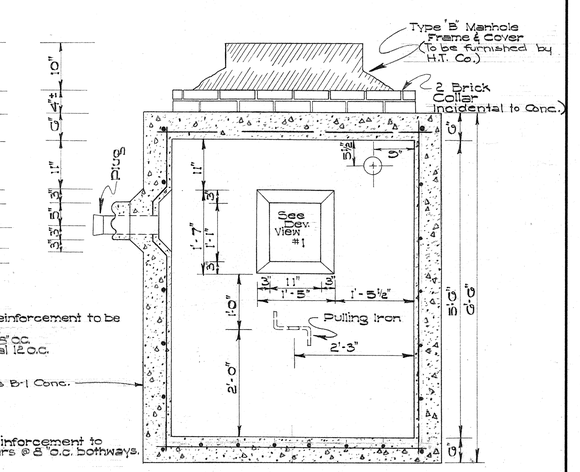


NOTE: All wall reinforcement to be #5 bars. Vertical: 8" o.c. Horizontal 12" o.c.

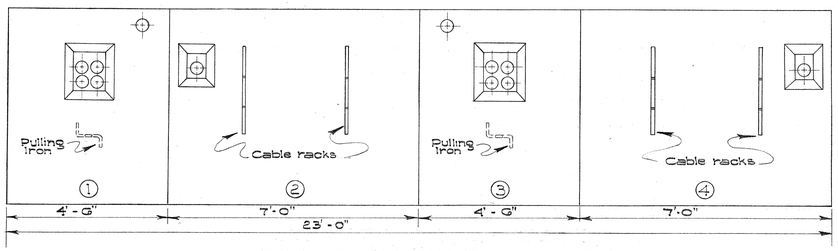
Class B-1 Conc.

NOTE: Floor reinforcement to be #5 bars @ 8" o.c. bothways.

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



SECTION "B-B"
Scale 3/4"=1'-0"

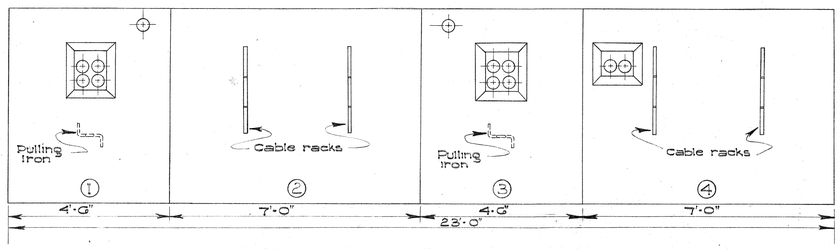


DEVELOPED VIEW OF WALLS
Scale: 1/2"=1'-0"

NOTE: Contractor to furnish bricks and construct collars. (Incidental to Concrete)

DETAIL OF MANHOLE NO. 680

NOTE: For additional reinforcing at Duct openings, see Sht. 5882.61.



DEVELOPED VIEW OF WALLS
Scale: 1/2"=1'-0"

NOTE: Contractor to furnish bricks and construct collars. (Incidental to Conc.)

DETAIL OF MANHOLE NO. 690

NOTE: For additional reinforcing at Duct openings, see Sheet 5882.61.

H.T. CO. APPROVED: F. H. Judd
TITLE: SDP Eng. DATE 4-23-59

(NO AS-BUILT CHANGES ON THIS SHEET)

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

DETAILS OF HAWAIIAN TELEPHONE COMPANY MANHOLES NO. 680 AND MANHOLE NO. 690
VINEYARD THOROUGHFARE
PALAMA ST. TO FORT ST.
PROJECT NO. DF-098-1(5)

Scales: As Noted — Feb. 3, 1958

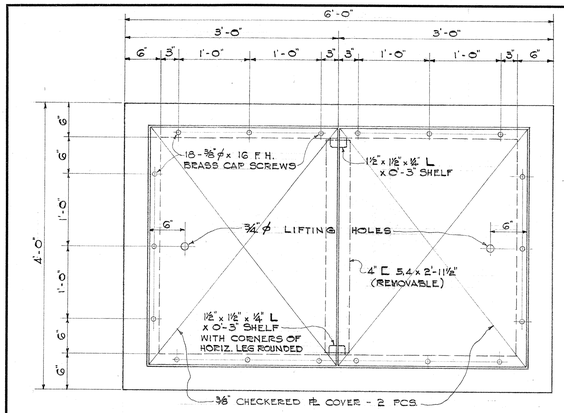
SHEET No. 3 OF 3 SHEETS

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

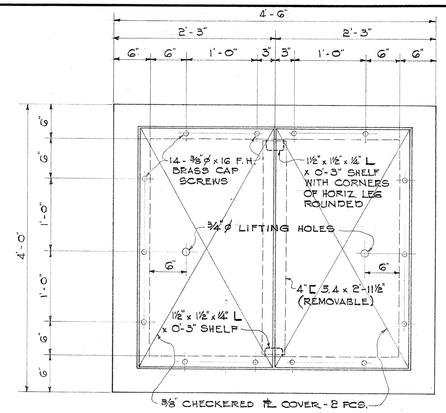
5882.63

(63)

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
Hawaii	HAW.	DF098-1(5)	1958	G4	115

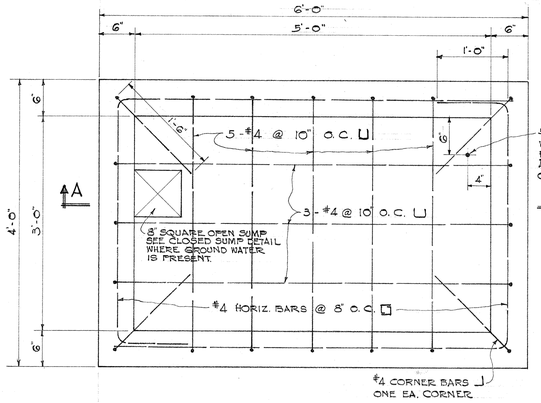


TOP PLAN
Scale: 1" = 1'-0"

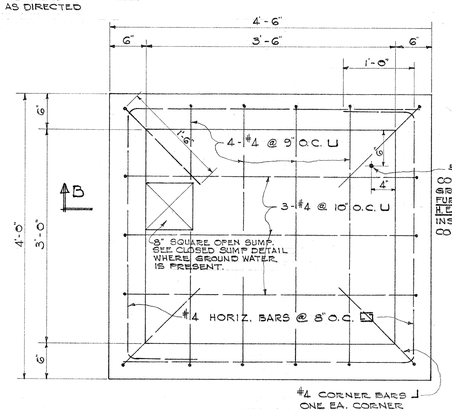


TOP PLAN
Scale: 1" = 1'-0"

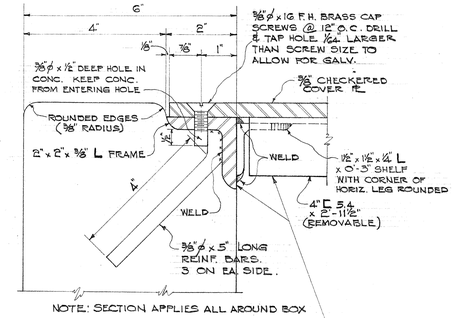
NOTE:
SIZE & LOCATION OF DUCTS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.



SECTIONAL PLAN
Scale: 1" = 1'-0"



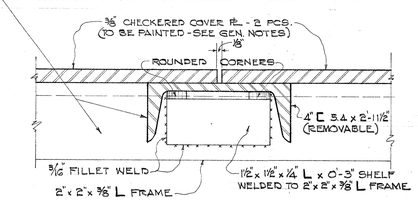
SECTIONAL PLAN
Scale: 1" = 1'-0"



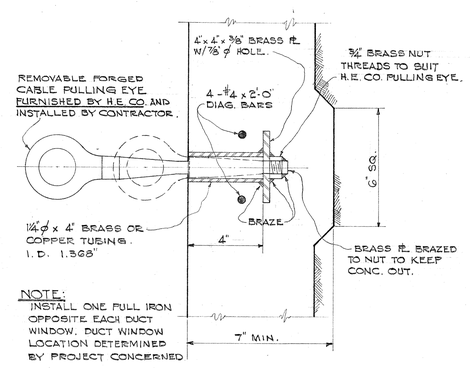
NOTE: SECTION APPLIES ALL AROUND BOX

DETAIL C
½ SIZE

HOT DIP GALVANIZED AFTER FABRICATION

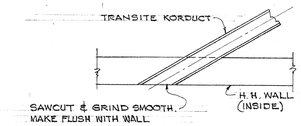


DETAIL D
½ SIZE

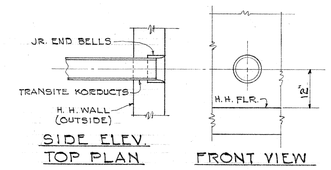


NOTE:
INSTALL ONE PULL IRON OPPOSITE EACH DUCT WINDOW. DUCT WINDOW LOCATION DETERMINED BY PROJECT CONCERNED

PULL IRON DETAIL
Scale: 3" = 1'-0"

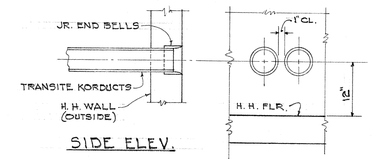


DIAGONAL ENTRANCE



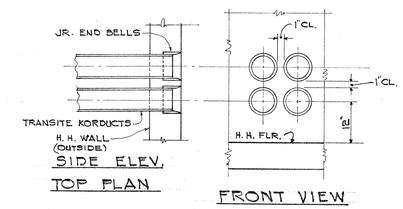
SIDE ELEV. TOP PLAN — FRONT VIEW

1 - DUCT



SIDE ELEV. — FRONT VIEW

2 - DUCTS

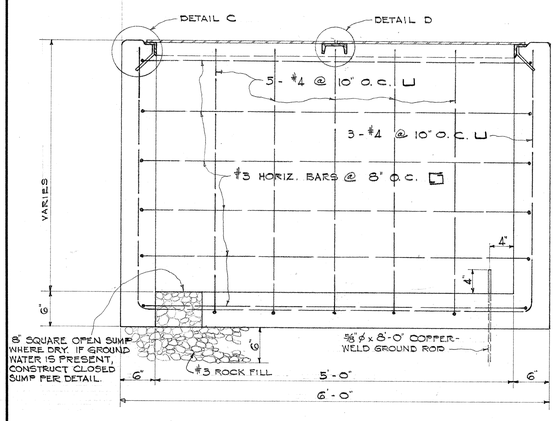


SIDE ELEV. TOP PLAN — FRONT VIEW

4 - DUCTS

DUCT ENTRANCE DETAILS
NOT TO SCALE

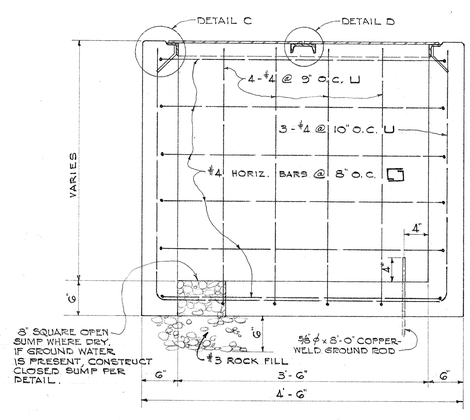
NOTE:
SIZE & LOCATION OF DUCTS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.



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

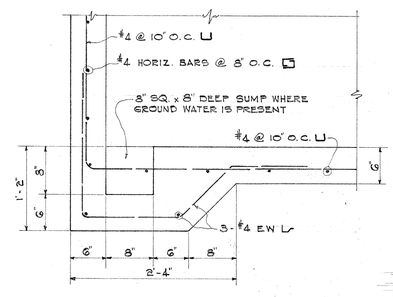
U-18366
HANDHOLE TYPE #1
(3'-0" x 5'-0" INSIDE)

NOTE:
The steel plate cover for 4'x6' Handhole at East corner of Nuuanu intersection shall be in three sections of equal size. Provide two 4" [5.4 x 3'-11½" frame. (Removable)



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

U-18366
HANDHOLE TYPE #2
(3'-0" x 3'-6" INSIDE)



DETAIL OF CLOSED SUMP
Scale: 1" = 1'-0"

GENERAL NOTES:

1 - CONCRETE FINISH:
FLOORS - SMOOTH METAL TROWELLED.
EXPOSED WALL SURFACES & EDGES - SMOOTH AND FREE FROM DEFECTS.
2 - CONCRETE TO DEVELOP COMPRESSIVE STRENGTH OF 3000 P.S.I. IN 28 DAYS.
3 - FINISH STEEL WORK AS FOLLOWS:
A. 2" ANGLE FRAME & 4" CHANNEL TO BE HOT DIP GALVANIZED AFTER FABRICATION.
B. 3/8" CHECKERED PL COVERS TO BE THOROUGHLY CLEANED AND GIVEN ONE BASE COAT OF 'QUIGLEY'S TRIPLE A No. 10 AND ONE FINISH COAT OF 'QUIGLEY'S TRIPLE A No. 20'.
4 - FOR DUCT LINE CONSTRUCTION STANDARDS, SEE H.E. CO. DWG. U-18244
5 - THESE HANDHOLES ARE DESIGNED FOR INSTALLATION IN AREAS OTHER THAN ROADWAYS.
6 - CONTRACTOR TO FURNISH & INSTALL ALL MATERIALS FOR HANDHOLE EXCEPT ITEMS AS SHOWN ON DRAWING.

(NO AS-BUILT CHANGES ON THIS SHEET)

H.E. CO. APPROVED: Frank ah Ken
TITLE: Distr. Eng. DATE 4/17/58

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
DETAILS OF HAWAIIAN ELECTRIC CO. HANDHOLES
UNDERGROUND STANDARD U-18366
VINEYARD THOROUGHFARE
PALAMA ST. TO FORT ST
PROJECT No. DF-098-1(5)

SCALE: AS NOTED — JAN. 27, 1958

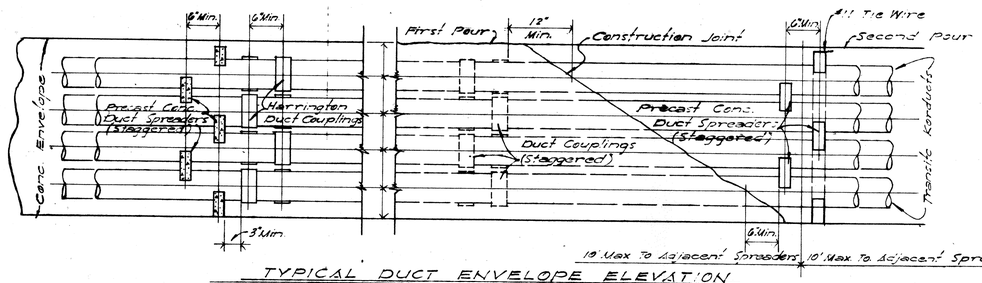
SHEET No. 1 OF 2 SHEETS

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

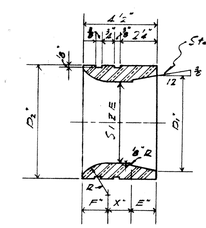
5882.64

PRINTED ON DIEPO 1000H CLEARPRINT

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
15 (Hawaii)	HAW.	DF-098-1(5)	1958	95	115

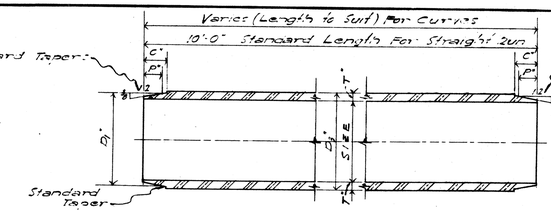


TYPICAL DUCT ENVELOPE ELEVATION
(8 WAY DUCT SHOWN)
1" = 1'-0"



JUNIOR END BELLS
3"-1'-0"

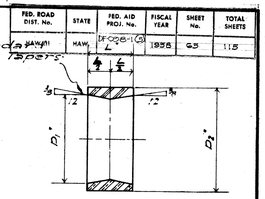
SIZE	D_1"	D_2"	F"	X"	E"	R"
3"	3 25/64	4½	1 11/32	1 29/32	1¼	1¾
4"	4 25/64	5¾	1 7/16	1 7/16	1⅜	2
4½"	4 27/64	6½	1 9/16	1 9/16	1⅜	2
5"	5 27/64	7	1 9/16	1 9/16	1½	2



TRANSITE KORDUCT
3"-1'-0"

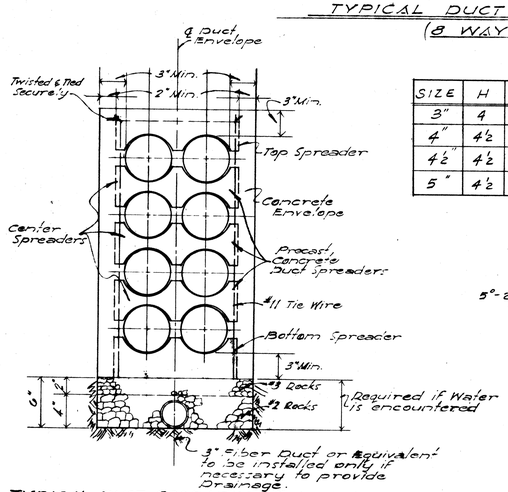
STANDARD TAPERS

SIZE	D_1"	D_2"	C"	P"	T"
3"	3 25/64	3 25/64	1⅛	⅞	17/64
4"	4 25/64	4 25/64	1½	1	17/64
4½"	4 27/64	5 27/64	1½	1	17/64
5"	5 27/64	5 27/64	1⅝	1⅛	17/64



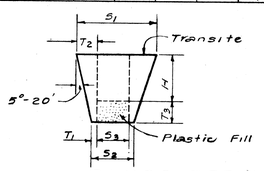
HARRINGTON COUPLINGS
3"-1'-0"

SIZE	D_1"	D_2"	L"
3"	3 25/32	4 11/64	2¼
4	4 25/64	5 3/16	2½
4½"	4 27/64	5 43/64	2½
5"	5 27/64	6 21/64	2¾



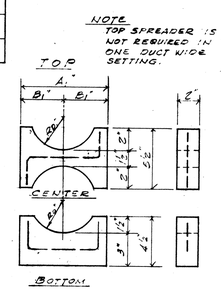
TYPICAL DUCT SPREADERS & DRAINAGE SECTION
(8 WAY DUCT SHOWN)
½" = 1'-0"

SIZE	H	S_1	S_2	S_3	T_1	T_2	T_3
3"	4	3⅜	2⅝	2	5/16	11/16	¾
4"	4½	4 27/64	3 27/64	2¾	19/32	27/32	¾
4½"	4½	4 29/64	4 5/64	3	35/64	31/32	¾
5"	4½	5 27/64	4 37/64	3½	35/64	31/32	¾

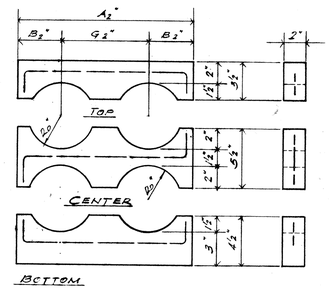


PLUGS FOR TRANSITE KORDUCTS
No Scale

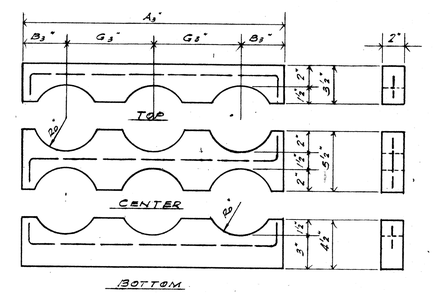
NOTE
TOP SPREADER IS NOT REQUIRED IN ONE DUCT WIDE SETTING.



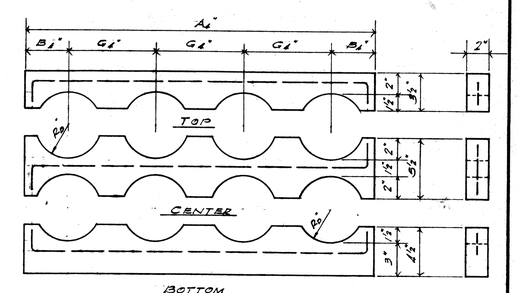
1 DUCT WIDE



2 DUCTS WIDE



3 DUCTS WIDE

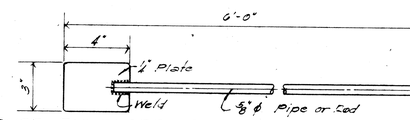


4 DUCTS WIDE

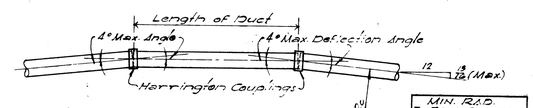
PRECAST CONCRETE DUCT SPREADER DETAILS
2"=1'-0"

SIZE	R_0"	1 DUCT WIDE A_1"	1 DUCT WIDE B_1"	2 DUCTS WIDE A_2"	2 DUCTS WIDE B_2"	2 DUCTS WIDE G_2"	3 DUCTS WIDE A_3"	3 DUCTS WIDE B_3"	3 DUCTS WIDE G_3"	4 DUCTS WIDE A_4"	4 DUCTS WIDE B_4"	4 DUCTS WIDE G_4"				
3"	2	6	3	12	3¼	5½	17½	3¼	5½	23	3¼	5½				
4"	2½	7	3½	14	3¾	6½	20½	3¾	6½	27	3¾	6½				
4½"	2½	8	4	15	4	7	22	4	7	29	4	7				
5"	3	9½	4½	16	4¼	7½	23½	4¼	7½	31	4¼	7½				

NOTES: DUCT SPREADERS
Reinforcing
1-¼" ϕ Bar each Spreader
Concrete Mix
One Part Cement
Two Parts Beach Sand
Two Parts Gravel #4 (Fine)
Measurements by Weight.

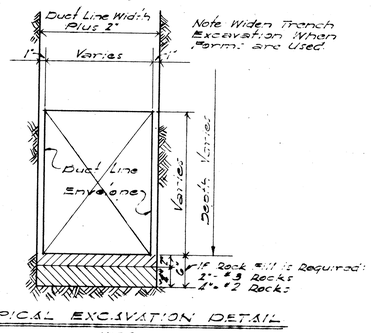


DUCT ENVELOPE CONC. TAMPING ROD
3"-1'-0"



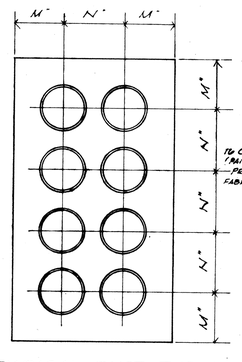
NETHOD OF FORMING CURVES
2"=1'-0"

MIN. RAD. TO FORM CURVES Lg. of Duct	MIN. RAD. R_0
1'-0"	14'-4"
1'-6"	21'-0"
2'-0"	28'-8"
2'-6"	35'-10"
3'-0"	42'-11"
3'-6"	50'-1"
4'-0"	57'-3"
4'-6"	64'-5"
5'-0"	71'-7"
5'-6"	78'-9"
6'-0"	85'-11"
6'-6"	93'-1"
7'-0"	100'-3"
7'-6"	107'-5"
8'-0"	114'-7"
8'-6"	121'-8"
9'-0"	128'-10"
9'-6"	136'-0"
10'-0"	142'-2"

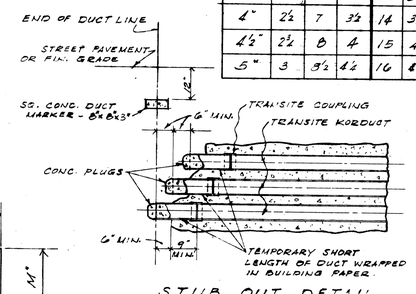


TYPICAL EXCAVATION DETAIL
N.T.S.

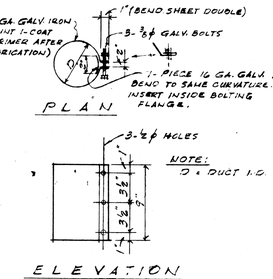
SIZE	M"	N"
3"	5	6
4"	5½	7
4½"	5½	7½
5"	6	8



TYPICAL DUCT DETAIL AT MANHOLE WALL
(8 WAY DUCT SHOWN)
½" = 1'-0"



STUB OUT DETAIL
½" = 1'-0"



3-BOLT CLAMP-DETAIL
½" = 1'-0"

REDUCED PLANS
SCALES REDUCED
ACCORDINGLY

No	Date	Revision	Init.
1	5-2-56	ADDED 3" DUCT CENTER SPREADER FOR 1 DUCT WIDE 3"-1'-0" SLAB	R.Y.
2	1-9-57	REVISED DEFLECTION INSIDE 2" TO 4°	R.Y.

Scale: As Shown | Date: 2-23-56
Drawn: JP | Checked: L.M.H.
Approved: M. M. Fox, Jr. / Stewart
Fina. Approval: C. J. Mill

(NO AS-BUILT CHANGES ON THIS SHEET)

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
HAWAIIAN ELECTRIC CO.
STANDARD DETAILS
VINEYARD THOROUGHFARE
PALAMA ST. TO FORT ST.
PROJECT NO. DF-098-1(5)
Scale: As Noted — Feb. 28, 1958

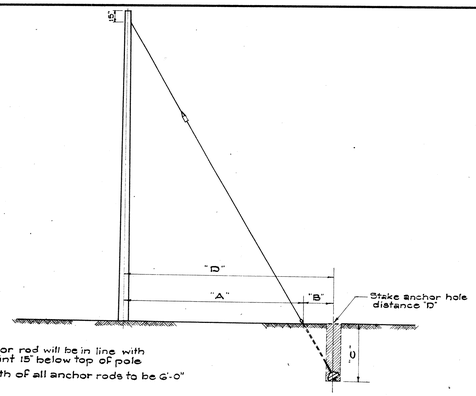
SHEET No. 2 OF 2 SHEETS

CONSTRUCTION STANDARD
TRANSITE KORDUCTS
UNDERGROUND DUCTLINES

Engineering Department
The Hawaiian Electric Company, Ltd.
Honolulu, T.H.

U-18244

5882.65



NOTES:
1. Anchor rod will be in line with a point 15' below top of pole
2. Length of all anchor rods to be 6'-0"

FOR 35', 40', 45', 50' & 55' POLES				
LEAD ANCHOR ROD TO ℄ OF POLE "A"	ANCHOR ROD TO ℄ OF HOLE "B"	VERTICAL DEPTH "C" 18" D.M.	VERTICAL DEPTH "C" 24" D.M.	TOTAL DISTANCE POLE TO HOLE "D" (A+B)
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'-0"	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 25' & 30' POLES				
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"

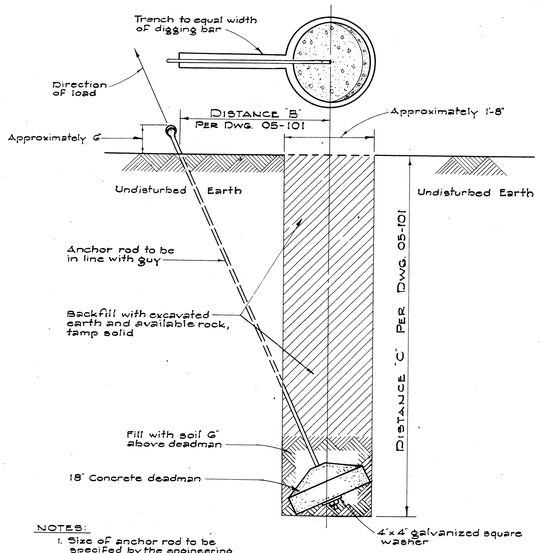
D.M. = DEADMAN

Lead (Dimension "A") for H.T.Co. anchors (H.T.Co. ONLY) shown on plan.

ANCHORING DATA

Not to Scale

05-101



NOTES:
1. Size of anchor rod to be specified by the engineering department of H.E. Co.
2. Standard 05-101 anchoring data

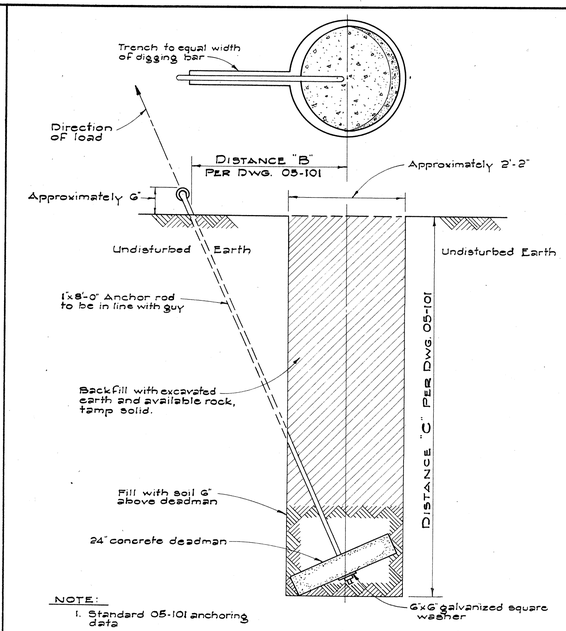
ALLOWABLE LOAD
(½ OF ULTIMATE)

⅝" Anchor rod	8,000 lbs.
¾" Anchor rod	12,500 lbs.
⅝" Copperweld anchor rod	5,200 lbs.

GUY ANCHOR, 18" DEADMAN

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

05-102



NOTE:
1. Standard 05-101 anchoring data

ALLOWABLE LOAD
(½ OF ULTIMATE)

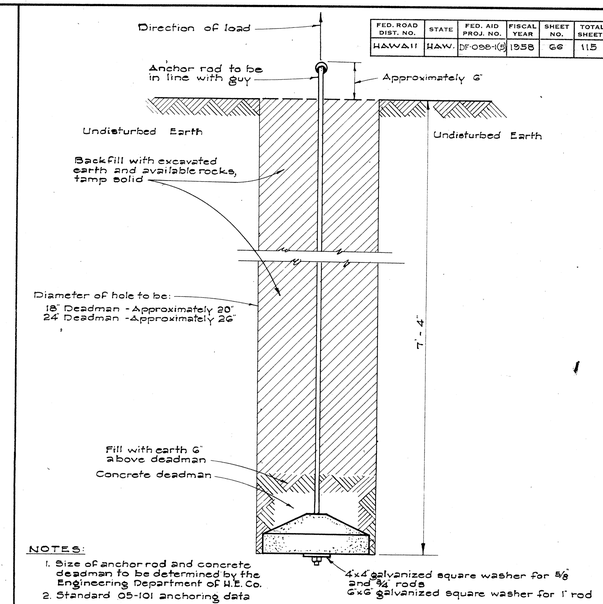
1" Anchor rod	20,000 lbs.
⅝" Copperweld anchor rod	5,250 lbs.

GUY ANCHOR, 24" DEADMAN

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

05-103

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	DF-098-1(5)	1958	66	115



NOTES:
1. Size of anchor rod and concrete deadman to be determined by the Engineering Department of H.E. Co.
2. Standard 05-101 anchoring data

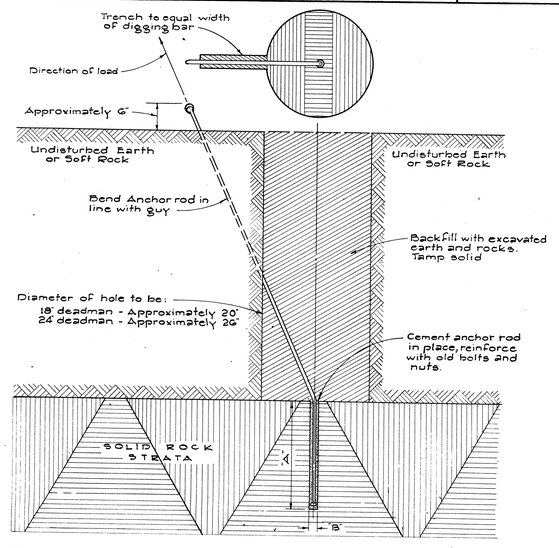
ALLOWABLE LOAD
(½ OF ULTIMATE)

⅝" Anchor rod	8,000 lbs.
¾" Anchor rod	12,500 lbs.
1" Anchor rod	20,000 lbs.
⅝" Copperweld anchor rod	5,250 lbs.

SIDE-WALK ANCHOR

Scale: 1" = 1'-0"

05-104



NOTES:
1. Size of anchor rod to be specified by the Engineering Department of H.E. Co.
2. "A" should not be less than 24". If "A" is less than 24", complete hole and install anchor per O.H. Standard 05-102, 103, or 104.
3. "B" ⅝" anchor rod drill 2" hole. ¾" anchor rod drill 2" hole. 1" anchor rod drill 2½" hole.
4. Standard 05-101 anchoring data.

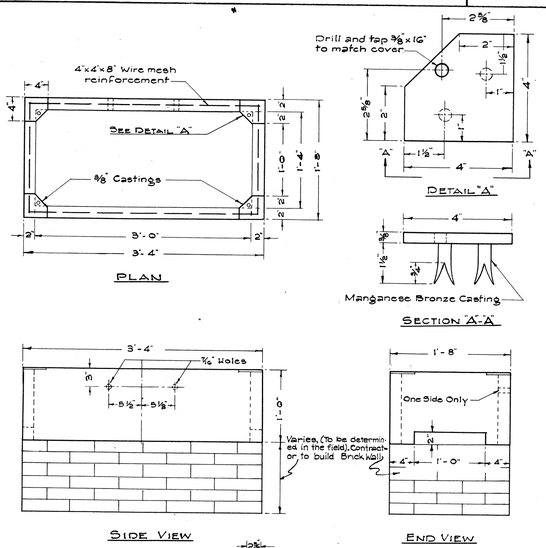
ALLOWABLE LOAD
(½ OF ULTIMATE)

⅝" anchor rod	8,000 lbs.
¾" anchor rod	12,500 lbs.
1" anchor rod	20,000 lbs.

ROCK ANCHOR

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

05-105



NOTES:
Use ⅝" plate for driveways
Concrete box 225 lbs.
¼" checker plate 62 lbs.

NOTE:
Contractor to furnish bricks and construct walls. (Incidental to item of "Installing Precast Concrete Pull Boxes")

CONCRETE SERVICE BOX

Scale: 1" = 1'-0"

U1-103

SOUTHERN PINE & DOUGLAS FIR 8lb. CREOSOTED TREATMENT

LENGTH IN FEET	CLASS	APPROXIMATE MINIMUM DIMENSIONS — INCHES: AT TOP DIA.	AT TOP CIR.	6'0" FROM BUTT DIA.	6'0" FROM BUTT CIR.	AVERAGE WEIGHT IN POUNDS: S.P.	D.F.	POLE SETTING DEPTH: DEPTH IN SOIL	DEPTH IN ROCK	BREAKING LOAD 2'-0" BELOW TOP OF POLE (LBS.)
JOINT POLES (J.P. POLES)										
25	5	6.05	19	8.28	26.0	491	525	4'-6"	3'-0"	1,900
30	5	6.05	19	8.92	28.0	660	600	5'-0"	3'-0"	1,900
35	5	6.05	19	9.55	30.0	862	770	5'-0"	3'-6"	1,900
40	3	7.32	23	11.79	37.0	1403	1320	5'-6"	3'-6"	3,000
45	3	7.32	23	12.26	38.5	1664	1575	6'-0"	4'-0"	3,000
50	3	7.32	23	12.73	40.0	1925	1850	6'-6"	4'-0"	3,000
55	3	7.32	23	13.23	41.5	2200	2145	7'-0"	4'-6"	3,000
TRANSMISSION POLES (T POLES)										
45	2	7.96	25	13.23	41.5	1911	1845	6'-0"	4'-0"	3,700
50	2	7.96	25	13.69	43.0	2214	2150	6'-6"	4'-0"	3,700
60	1	8.59	27	15.77	49.5	3451	3360	7'-0"	4'-6"	4,500

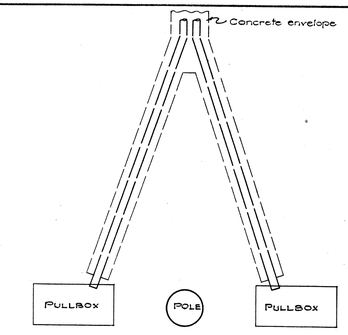
S. P. — SOUTHERN YELLOW PINE
D. F. — DOUGLAS FIR

NOTE:
THE ULTIMATE FIBER STRESS FOR CREOSOTED SOUTHERN YELLOW PINE & DOUGLAS FIR IS 7,400 lbs. PER SQUARE INCH.

REFERENCES:
AMERICAN STANDARDS ASSOCIATION 05.4-1941, 05.6-1945
STANDARD HANDBOOK FOR ELECTRICAL ENGINEERS, EIGHTH EDITION
H. E. CO. SPECIFICATIONS FOR POLES.

WOOD POLE DATA

05-501



TYPICAL BOX AND DUCT DETAIL

Scale: ⅜" = 1'-0"

NOTE:
Exact location of pullboxes to be determined in the field

Transcribed 1 Cop. H.E. Co. 11/1/57

NO AS-BUILT CHANGES ON THIS SHEET

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

HAWAIIAN ELECTRIC & HAWAIIAN TELEPHONE

STANDARD DETAILS

VINEYARD THOROUGHFARE
PALAMA ST. TO FORT ST.
PROJECT NO. DF-098-1(5)

Scale: As Noted — Oct. 17, 1957

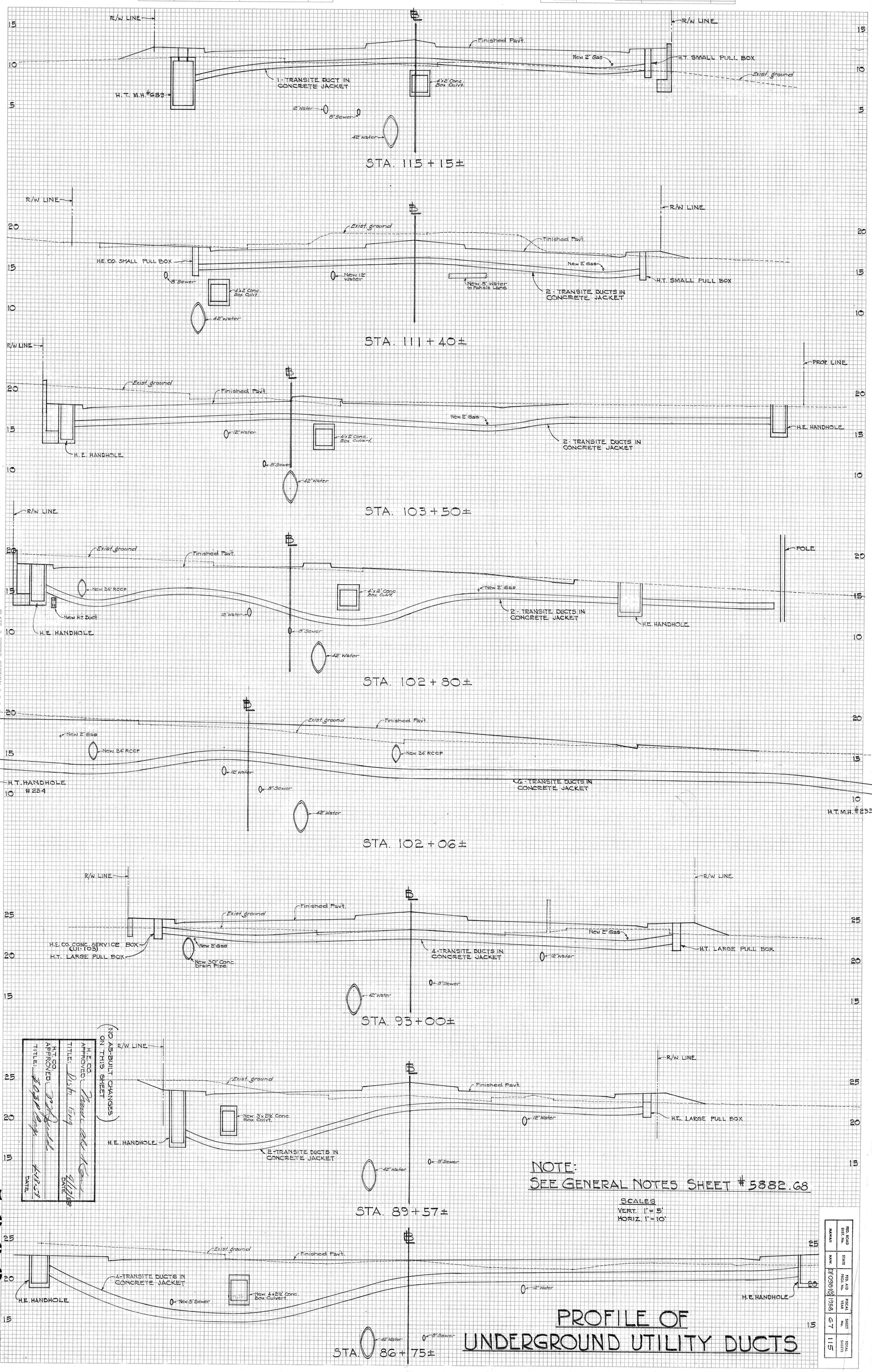
SHEET Nº | OF | SHEETS

5882.66

ORIGINAL PLAN — SURVEY PLOTTED BY / DESIGNED BY / DRAWN BY / TRACED BY / QUANTITIES BY / CHECKED BY — DATE — NOTE BOOK No.

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		

FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		



NOTE:
SEE GENERAL NOTES SHEET #5882.68

SCALES
VERT. 1" = 5'
HORIZ. 1" = 10'

PROFILE OF UNDERGROUND UTILITY DUCTS

PRE-CAST DIST. No.		FED. AID PROJ. No.	
REMARKS	STATE		
	ILL.	DC 098(6)	
		FEDERAL YEAR	1958
		SHEET No.	G7
		SHEETS	115

PLATE 3 CROSS SECTION D.P.R. & H.E. STANDARD
DIST. NO. 1 DIVISION OF HIGHWAYS
EUGENE DATSERA 1-01

5882.68

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		

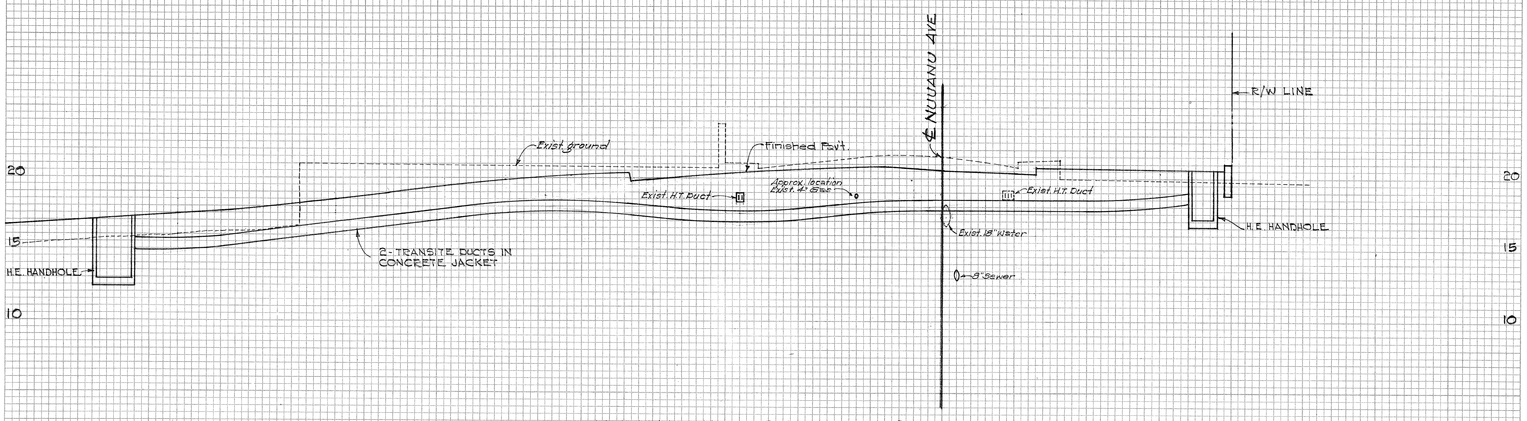
FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		

GENERAL NOTES:

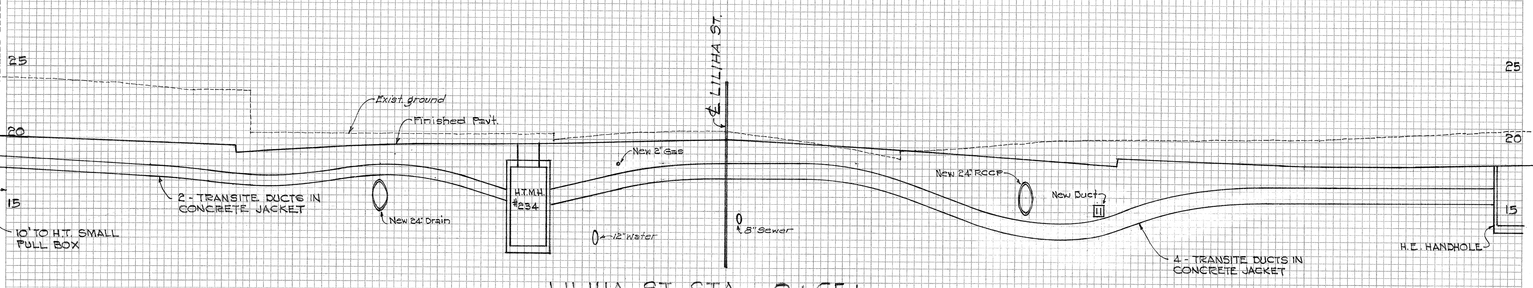
The profiles of Electric and Telephone Ducts shown on Sheets #5882.67 and #5882.68 were prepared for the Contractors convenience and guide only.

Underground utilities and structures indicated are shown from the best available sources; however, accuracy as to type, size and location of these utilities and structures is not guaranteed.

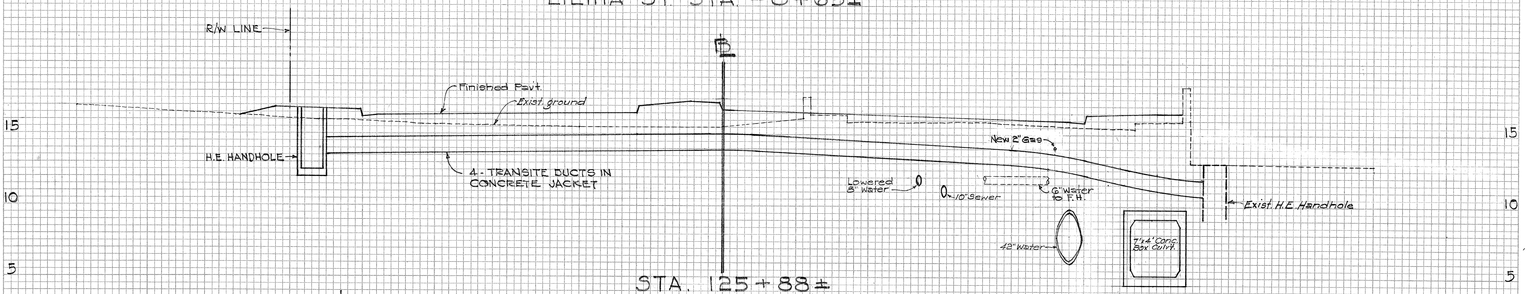
The Contractor shall check and verify actual underground conditions.



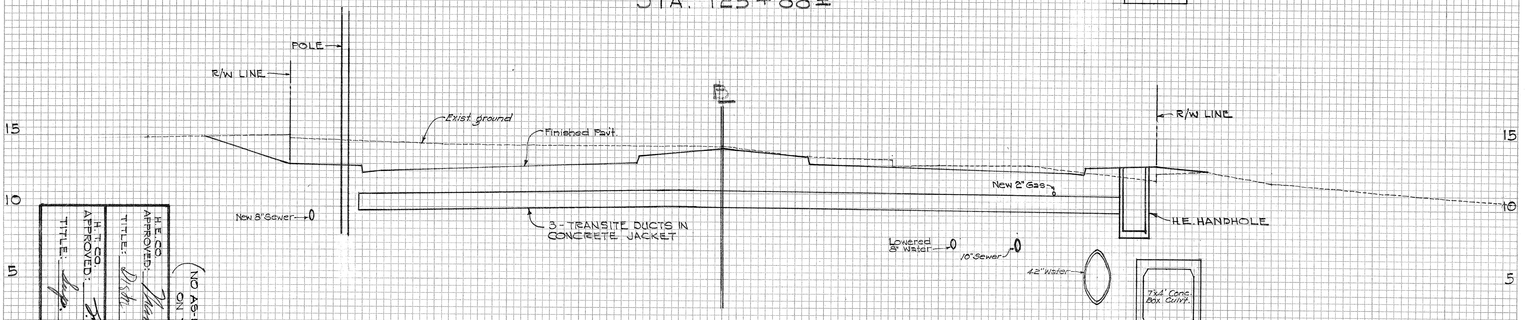
NUUANU AVE. STA. -0+80±



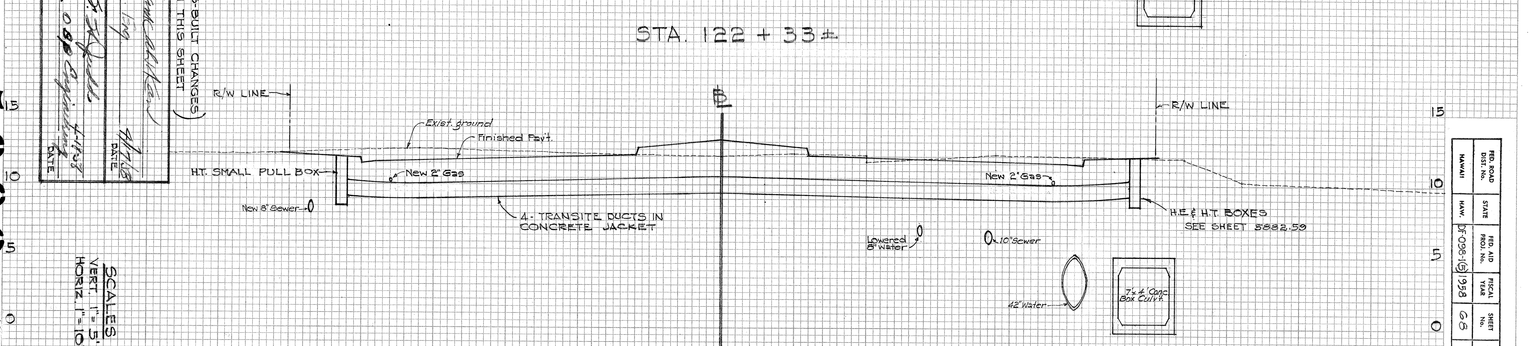
LILIHA ST. STA. -0+65±



STA. 125+88±



STA. 122+33±



STA. 120+40±

(NO AS-BUILT CHANGES ON THIS SHEET)

H.E. CO. APPROVED: [signature] TITLE: Dir. Eng. DATE 4/17/68

H.T. CO. APPROVED: [signature] TITLE: Asst. Dir. of Engineering DATE 4/17/68

SCALES
VERT. 1" = 5'
HORIZ. 1" = 10'

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NAVAH	HAW.	BF-056-(6)	1968	65	115

5882.69

PLATE 3 CROSS SECTIONS 10 x 10 SQ. PER INCH PARK-HERSEY PRINTED IN U.S.A. EUGENE DIETZGEN CO.