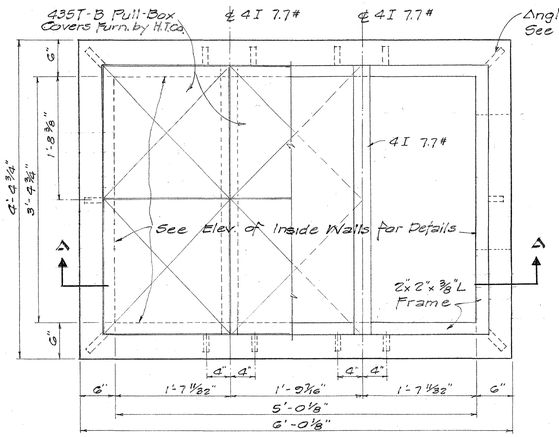
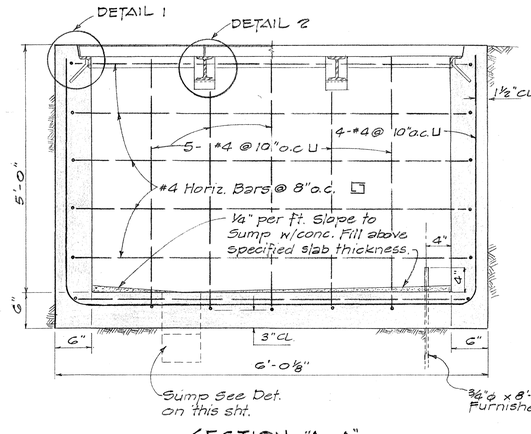
STATE	FISCAL YEAR	SHEET NO.	TOTAL SHTS.
HAWAII	1968	86	95

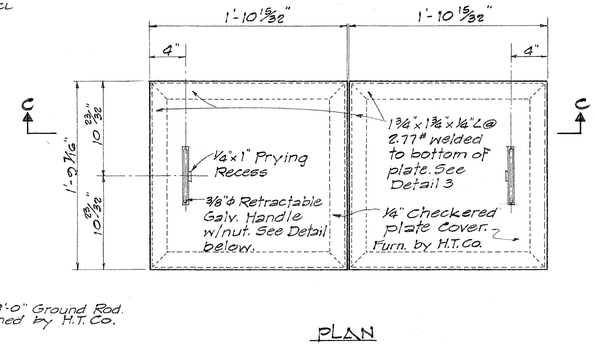
PROJECT NO. B-900-01-64 UNIT II



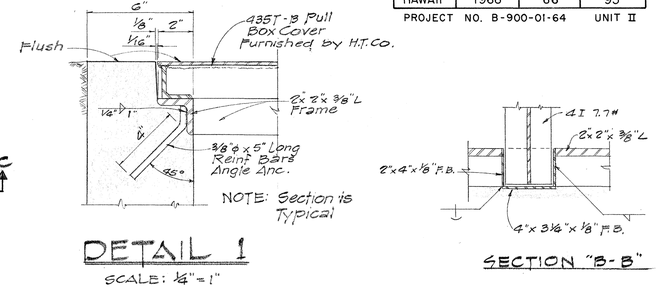
PLAN



SECTION "A-A"



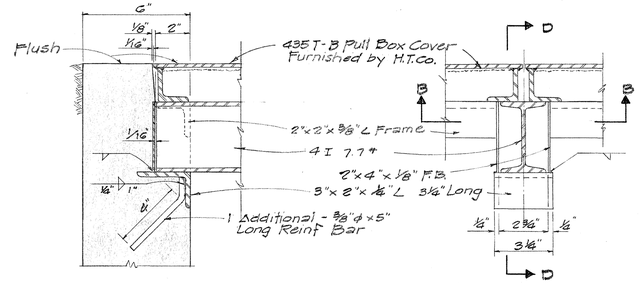
PLAN



DETAIL 1

SCALE: ¼" = 1"

SECTION "B-B"



SECTION "D-D"

ELEVATION

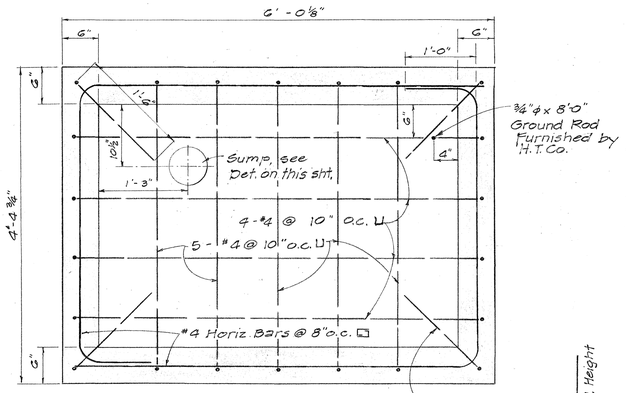
DETAIL 2

SCALE: ¼" = 1"

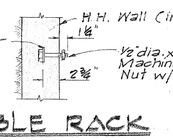
HANDHOLE TYPE #1

(3'-4¾"x 5'-0⅛" INSIDE)

SCALE: 1" = 1'-0"

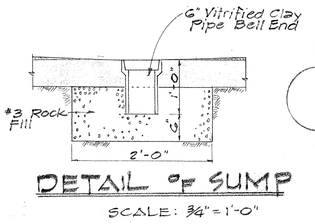


SECTIONAL PLAN



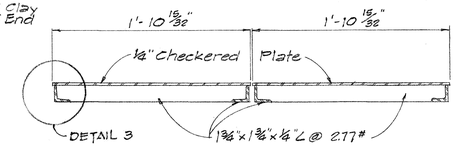
CABLE RACK STUD DETAIL

SCALE: 1"=1'-0"

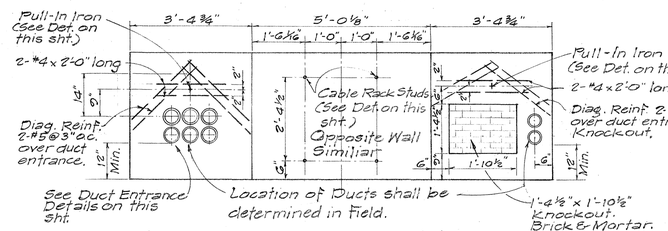


DETAIL OF SUMP

SCALE: ¾" = 1'-0"

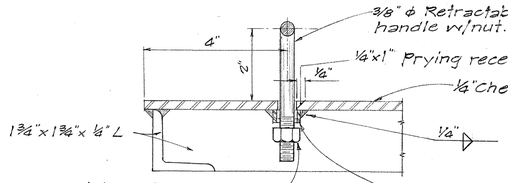


SECTION "C-C"

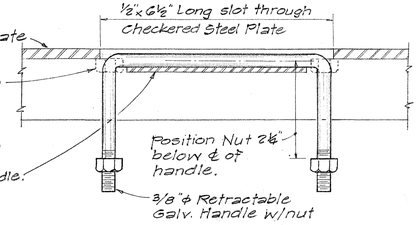


ELEV. OF INSIDE WALLS

SCALE: ½" = 1'-0"



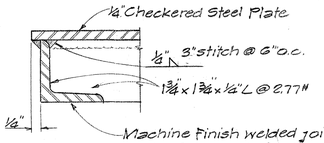
SECTION - RETRIEVE POSITION



ELEVATION - AT REST POSITION

RETRACTABLE HANDLE

SCALE: 6" = 1'-0"



DETAIL 3

SCALE: 6"=1'-0"

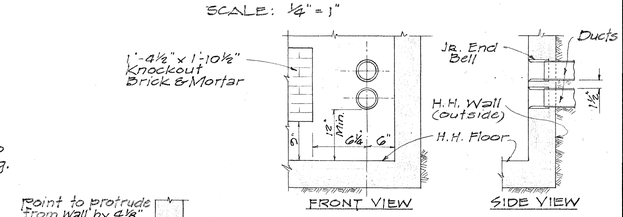
FOR LIGHT LOADING AREAS

APPROX. WEIGHT 55 LBS.

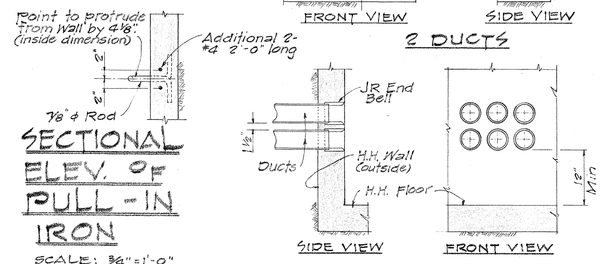
435T-B PULL BOX COVER

SCALE: ½"=1'-0" (EXCEPT AS NOTED)

(FURNISHED BY H.T.Co.)



2 DUCTS



SECTIONAL ELEV. OF PULL-IN IRON

SCALE: ¾"=1'-0"

6-DUCTS

DUCT ENTRANCE DETAILS

SCALE: ¾" = 1'-0"

GENERAL NOTES

1. CONC. FINISH: Floors - wood floated finish - Exposed Wall surfaces and edges - smooth and free from defects.
2. Conc. to develop compressive strength 3000 P.S.I. in 28 days. (Class A-1)
3. Steel work, verify dimension of Fabricated Handhole steel frames and covers before forming for Handhole.
4. For Duct Line construction standards, see sheet 87
5. Handhole designed for installation in areas other than Roadways.
6. Handhole Covers (without Steel Frames) and Ground Rod to be furnished by H.T.Co. and installed by the Contractor.

APPROVED BY:

A.D. Henderson 3-30-68
Hawaiian Electric Company, Inc. Date

F.T. Judd 5-1-68
Hawaiian Telephone Co. Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

H.T.CO. HANDHOLE TYPE 1

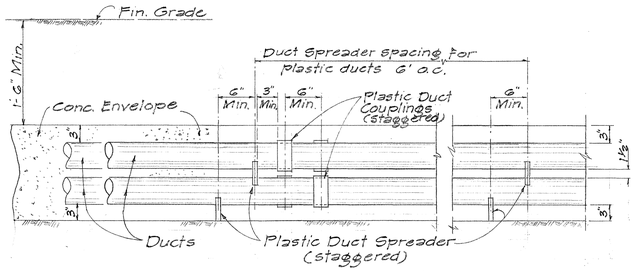
FARRINGTON HIGHWAY WIDENING
PROJECT B-000-01-64
UNIT II

SCALE: AS NOTED

SHEET No. 4 OF 6 SHEETS

STATE	FISCAL YEAR	SHEET NO.	TOTAL SHTS.
HAWAII	1968	87	95

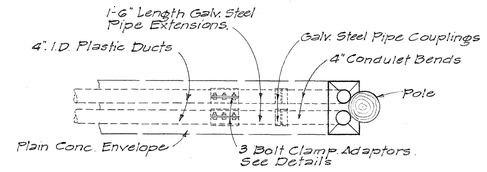
PROJECT NO. B-900-01-64 UNIT II



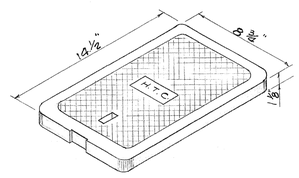
TYPICAL DUCT ENVELOPE ELEVATION (H.T.Co.)

ARRANGEMENT OF COUPLING & PLASTIC SPACERS

SCALE: 1" = 1'-0"

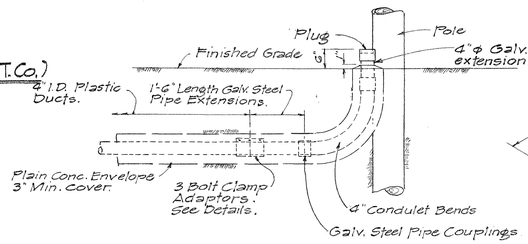


PLAN



CAST IRON COVER

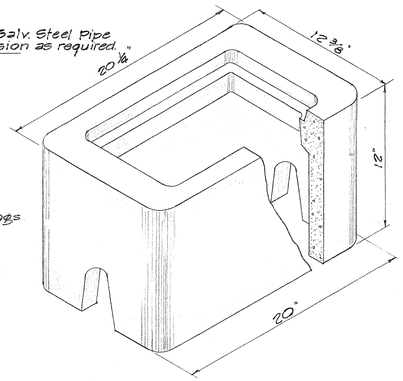
(See H.T.Co. Drawing # 34027 for Details)



ELEVATION

TYPICAL RISER DETAILS (H.T.Co.)

SCALE: ½" = 1'-0"

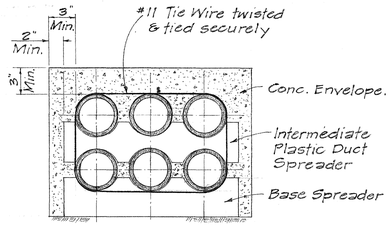


TYPE "B" CONC. METER BOX

(See H.T.Co. Drawing # 34026 for Details)

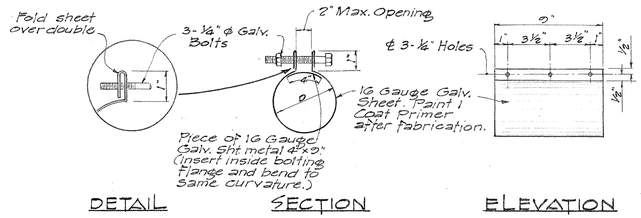
STANDARD H.T.Co. TYPE 436T METER BOX

SCALE: 2" = 1'-0"



SECTION SHOWING SPACERS (H.T.Co.)

SCALE: 1½" = 1'-0"



DETAIL SECTION ELEVATION

3 BOLT CLAMP ADAPTER DETAIL (H.T.Co.)

N.T.S.

CREOSOTED DOUGLAS FIR & YELLOW PINE POLE DATA

LENGTH IN FEET	CLASS	APPROX. MINIMUM DIMENSIONS (INCHES) 6' From Butt Dia.	Cir.	POLE SETTING DEPTH (FEET) In Soil	In Rock
25	5	8.26	26	4.5	3
30	3	10.32	32.5	5	3.5
	5	8.90	28	5	3.5
35	2	12.23	37.5	5	3.5
	5	9.55	30	5	3.5
40	3	11.77	37	5.5	3.5
45	2	13.20	41.5	6	4
	3	12.25	38.5	6	4
50	2	13.70	43	6.5	4
	3	12.70	40	6.5	4
55	1	15.11	47.5	7	4.5
	2	14.15	44.5	7	4.5
	3	13.20	41.5	7	4.5
60	1	15.75	49.5	7	4.5
	2	14.62	46	7	4.5
65	1	16.20	51	7.5	5
	2	15.11	47.5	7.5	5

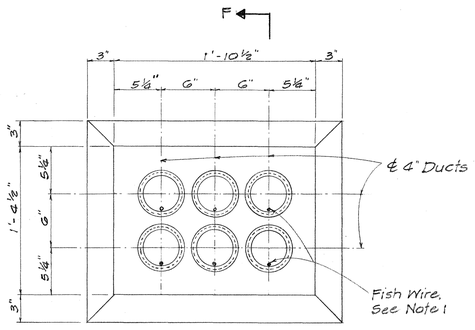
WOOD POLE DATA

REFERENCES:

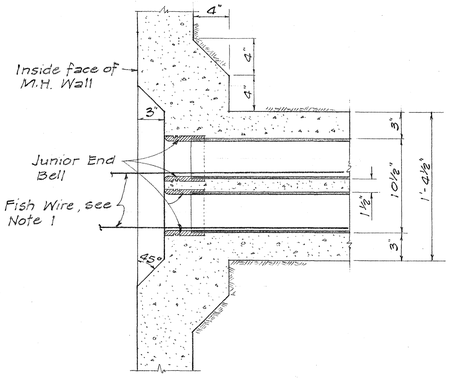
American Standards Association 05.4-1941, 05.6-1945. Standard Handbook for Electrical Engineers, Eighth Edition, H.E.Co. Specification for Poles.

NOTES:

1. The Contractor shall place #12 Fish Wire in all ducts throughout its entire length with protrusions of 2 feet in Manhole & Handhole at each end.
2. Prior to the excavation of the ductline, the contractor shall request the U.S. Army Signal Corps & the Hawaiian Telephone Co. to locate their existing cables wherever required.
3. The Contractor shall brace all poles or light standards near the new ductline during his operations.



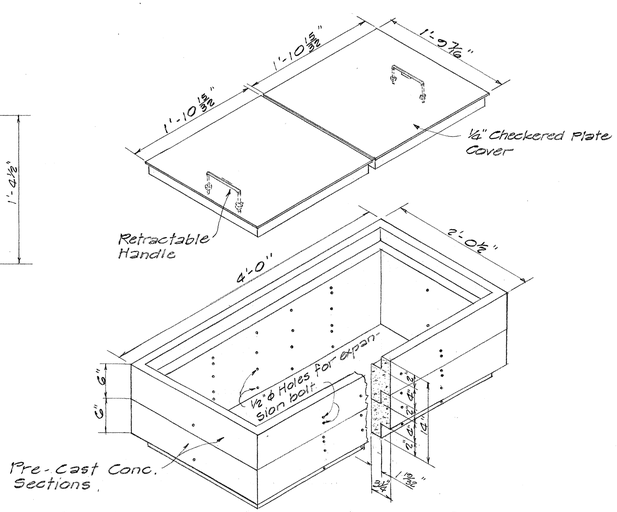
ELEVATION



SECTION "F-F"

TYPICAL MANHOLE DUCT WINDOW (H.T.Co)

SCALE: 1½" = 1'-0"



(See H.T.Co. Drawing # 34056 for Details)

STANDARD H.T.Co. TYPE 435T-B PULL BOX

SCALE: 1" = 1'-0"

APPROVED:

A.D. Henderson — 3-30-68
Hawaiian Electric Co., Inc. — Date

F.M. Judd — 5-1-68
Hawaiian Telephone Co. — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

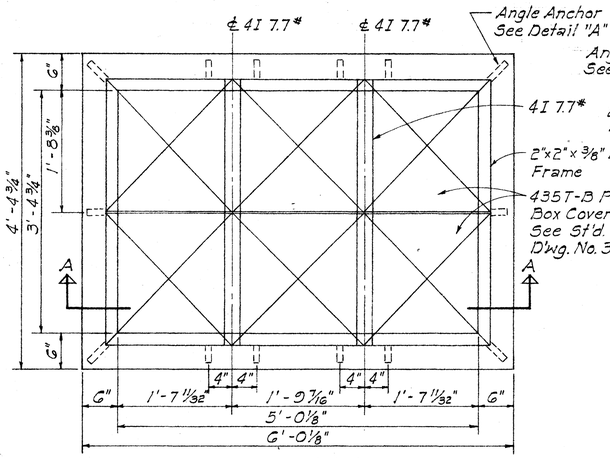
ELECTRIC - TELEPONE MISCELLANEOUS UTILITY DETAILS

FARRINGTON HIGHWAY WIDENING
PROJECT B-900-01-64
UNIT II

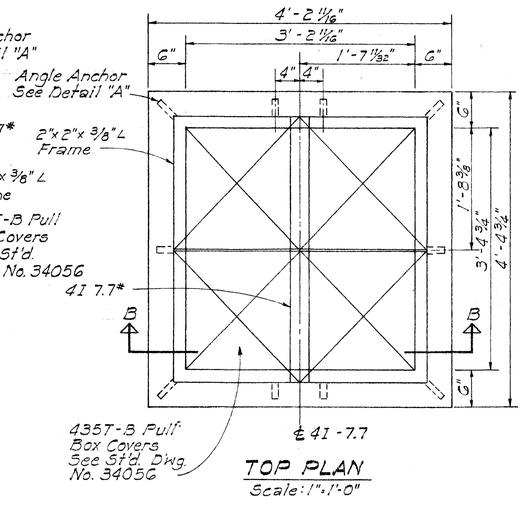
SCALE: AS NOTED

SHEET No. 5 OF 6 SHEETS

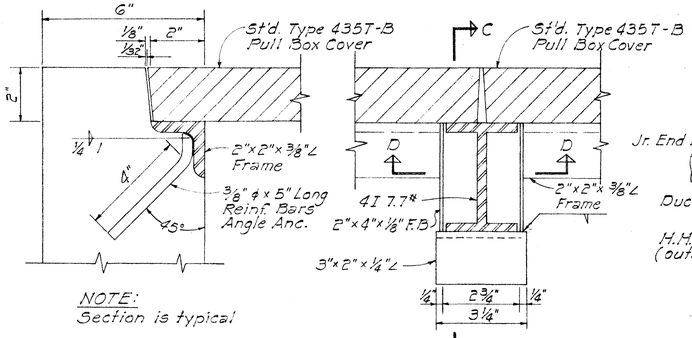
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	B-900-01-66 UNIT II	1968	C0875	95

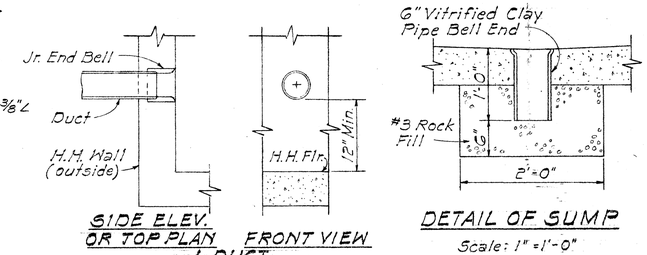


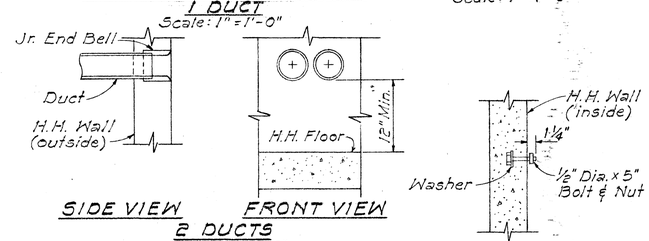
TOP PLAN
Scale: 1"=1'-0"

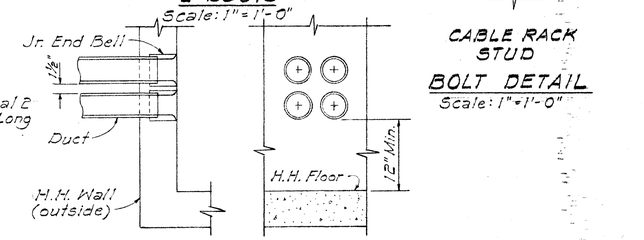


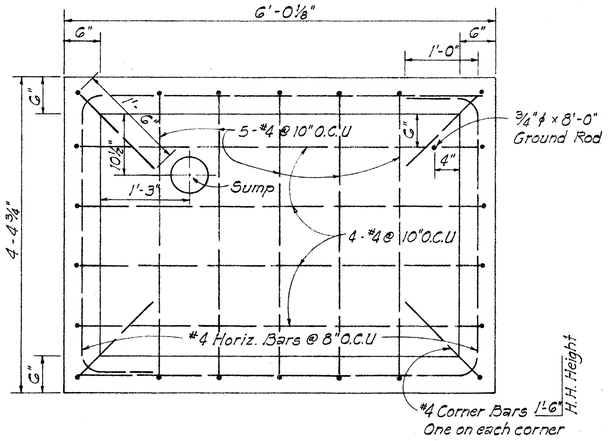
TOP PLAN
Scale: 1"=1'-0"



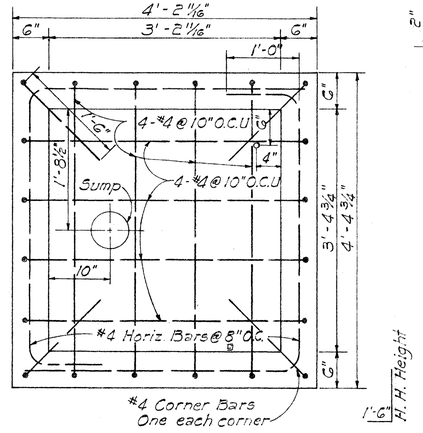




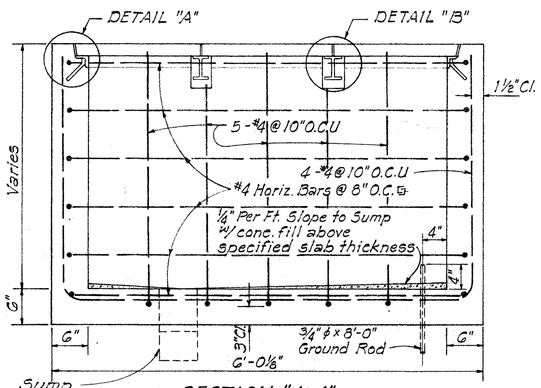




FLOOR PLAN
Scale: 1"=1'-0"

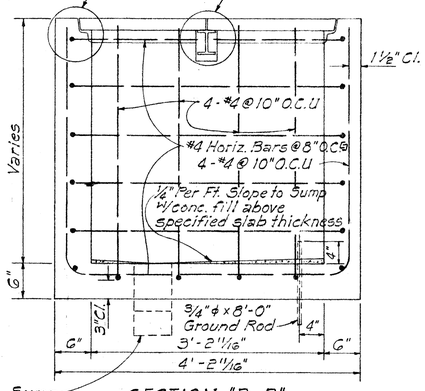


FLOOR PLAN
Scale: 1"=1'-0"



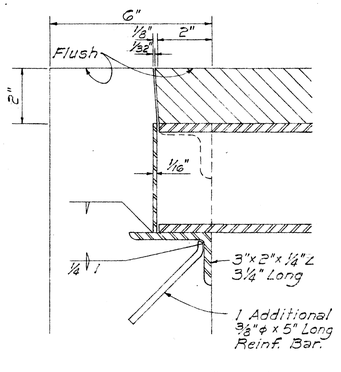
SECTION "A-A"
Scale: 1"=1'-0"

HANDHOLE TYPE #1
(3'-4 3/4" x 5'-0 1/8" inside)

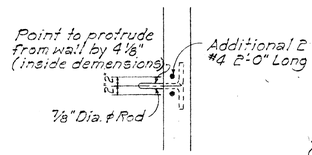


SECTION "B-B"
Scale: 1"=1'-0"

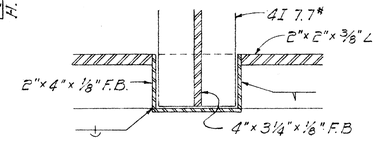
HANDHOLE TYPE #2
(3'-4 3/4" x 3'-2 11/16" inside)



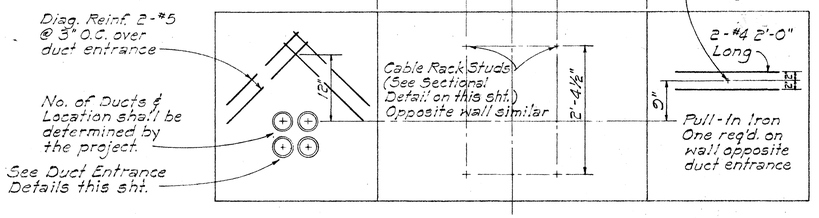
SECTION "C-C"
Scale: 3/8"=1"



SECTIONAL ELEV. OF PULL-IN IRON
Scale: 3/4"=1'-0"



SECTION "D-D"
Scale: 3/8" = 1"



DUCT ENTRANCE DETAILS

ELEV. OF INSIDE WALLS - H.H. TYPE 1 & 2
Scale: 3/4"=1'-0"

GENERAL NOTES:

1. Concrete finish: floors - wood floated finish - exposed wall surfaces and edges - smooth and free from defects.
2. Concrete to develop compressive strength - 3000 p.s.i in 28 days.
3. Steel work all structural steel shall be hot dip galvanized after fabrication.
4. For duct line construction standards, see st'd. dwg. No. 34028.
5. These handholes are designed for installation in areas other than roadways.

THIS SHEET IS A SUPPLEMENT TO THE CONTRACT PLANS

APPROVED:

HAWAIIAN TELEPHONE CO, LTD. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD HANDHOLE TYPE #1 & 2 USING TYPE 435T-B PULLBOX COVERS

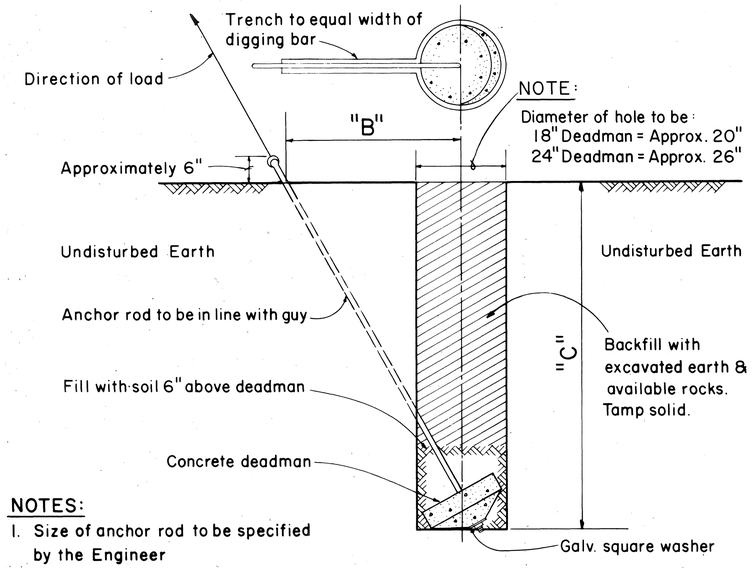
Scale: As Shown Date: Oct, 1968

SHEET No. OF SHEETS

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

PRINTED ON NO. 1000H CLEARPRINT

COSTS

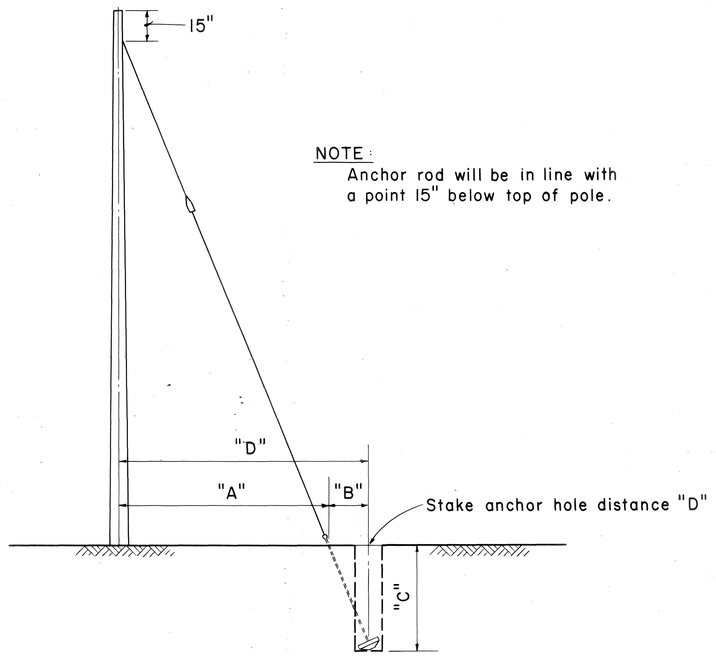


NOTES:

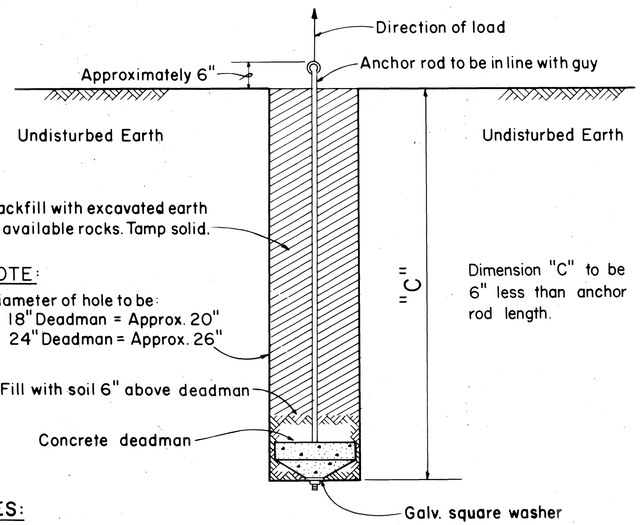
1. Size of anchor rod to be specified by the Engineer
2. Use Anchoring Data.

GUY ANCHOR DEADMAN

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



Not to Scale

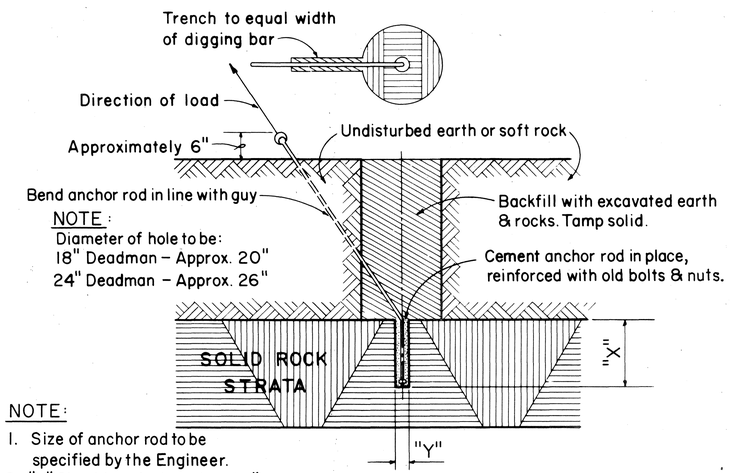


NOTES:

1. Size of anchor rod to be specified by the Engineer.
2. Use Anchoring Data.

SIDE - WALK ANCHOR

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



NOTE:

1. Size of anchor rod to be specified by the Engineer.
2. "X" Should not be less than 24". If "X" is less than 24" complete hole & install anchor.
3. "Y" 5/8" Anchor rod drill 2" hole
   3/4" Anchor rod drill 2" hole
   1 " Anchor rod drill 2 1/2" hole
   1 1/4" Anchor rod drill 3" hole
4. Use Anchoring Data.

ROCK ANCHOR

Not to Scale

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII		1968	88	95

PROJECT NO. B-900-01-64 UNIT II

FOR 25', & 30' POLES WITH 8'-0" ANCHOR RODS				
"A"	"B"	"C"		"D" = ("A" + "B")
LEAD-ANCHOR ROD TO ℄ OF POLE	ANCHOR ROD TO ℄ OF HOLE	VERTICAL DEPTH 18" D.M.	VERTICAL DEPTH 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"x4"x3/16"	2
615	5/8" x 8'-0" Cu Cov Stl	9,250	518	18	**	3"x3"x1/8"	2
618	3/4" x 8'-0" Steel	11,500	518	18	2330	6"x6"x3/8"	1
619	1" x 8'-0" Steel	18,000	524	24	2331	6"x6"x1/2"	1
616	1" x 8'-0" Cu Cov Stl	22,500	524	24	**	4"x4"x3/16"	2
613	1 1/4" x 10'-0" Steel	29,000	524	24	2330	6"x6"x3/8"	2

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

ANCHORING DATA

APPROVED:

A J Henderson 4-16-68
HAWAIIAN ELECTRIC Co., Inc. DATE

F F Rudd 5-1-68
HAWAIIAN TELEPHONE Co. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
H.E. Co. AND H.T. Co.
ANCHOR DETAILS AND ANCHORING DATA

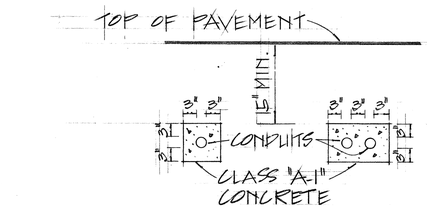
Scales: As Noted Date

SHEET No. 6 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BQ00-01-64 UNIT II	1969	88 S-1	95

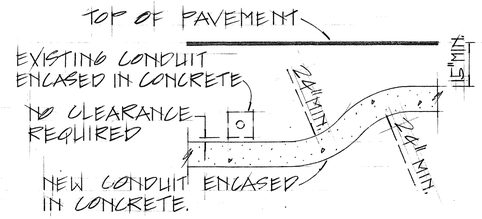
LEGEND

- NEW 12" LENS ASSEMBLY OR "DW-W" PEDESTRIAN SIGNAL.
- NEW 15' MAST ARM STANDARD W/12" LENS ASSEMBLY.
- NEW TYPE "A" PULLBOX.
- NEW TYPE "B" PULLBOX.
- NEW CONTROLLER MOUNTED ON MAST ARM STANDARD.
- 1-1¼"STEEL — NEW RIGID STEEL CONDUIT.
- 1-2" — NEW RIGID STEEL OR POLYVINYL CHLORIDE CONDUIT (No & SIZE AS INDICATED). CONDUITS UNDER ROADWAYS SHALL BE ENCASED IN CONCRETE.
- EXISTING POWER POLE.
- W24 — EXISTING WATER LINE.
- SC — EXISTING SIGNAL CORPS CABLE.



TYPICAL DETAIL
CONDUITS ENCASED IN CONCRETE

NOT TO SCALE

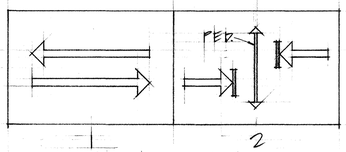


TYPICAL DETAIL
EXISTING CONDUIT BY-PASS

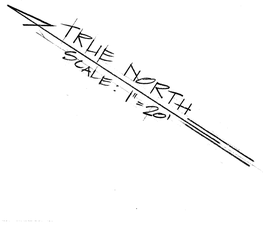
NOT TO SCALE

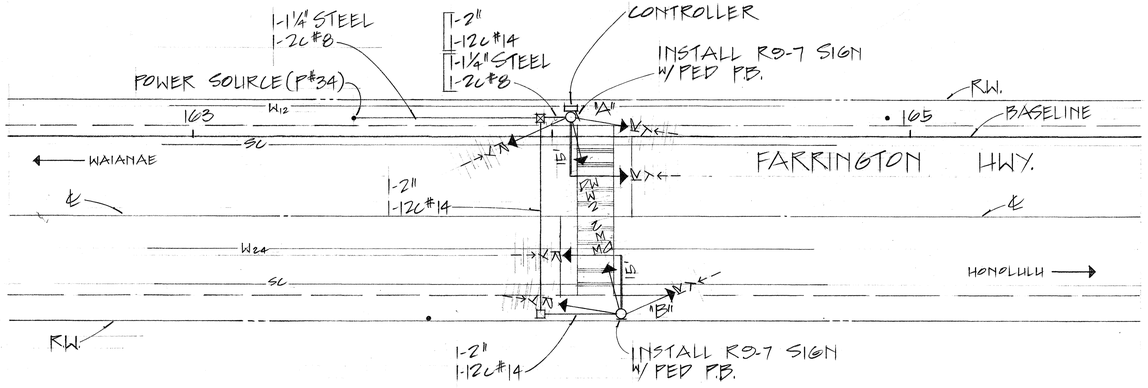
GENERAL NOTES

1. LOCATION OF EXISTING UNDERGROUND STRUCTURES SUCH AS CULVERTS, PIPELINES, CONDUITS, CABLES, ETC, AS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. OTHER EXISTING UTILITIES MAY NOT BE SHOWN. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATION OF SAME.
2. THE EXACT LOCATION OF MAST ARM STANDARDS, PULLBOXES AND CONDUITS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. ONLY CONDUITS UNDER ROADWAYS SHALL BE ENCASED IN CONCRETE.
4. PAVEMENT MARKINGS BY OTHERS.



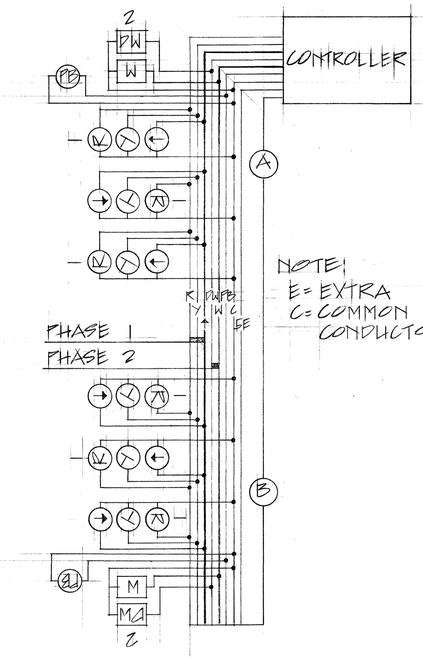
PHASE DIAGRAMS





PLAN

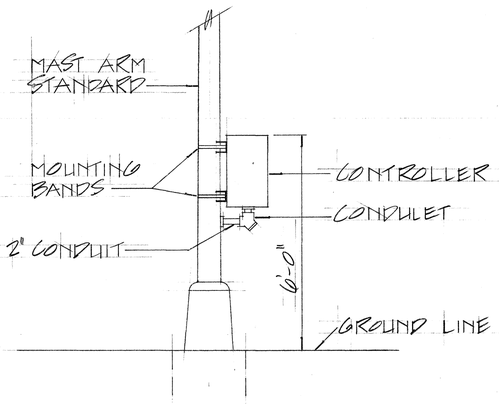
SCALE: 1"=20'



NOTE:
E = EXTRA
C = COMMON CONDUCTOR

WIRING DIAGRAM

NOT TO SCALE



TYPICAL DETAIL
CONTROLLER MOUNTED ON MAST ARM STANDARD

NOT TO SCALE

NOTE:
THIS SHEET IS A SUPPLEMENT TO THE CONTRACT PLANS.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PEDESTRIAN SIGNALS

FARRINGTON HIGHWAY WIDENING
PROJECT B-900-01-64
UNIT II

SCALE: AS SHOWN

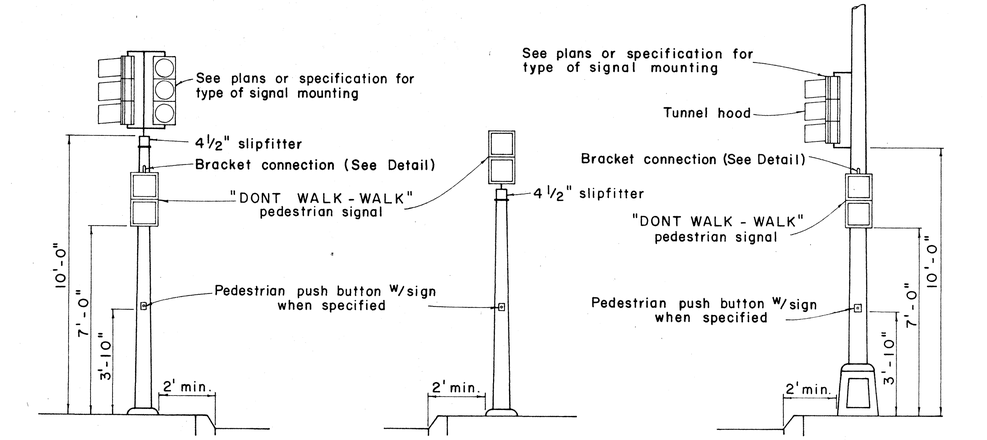
SHEET No. | OF 3 SHEETS

C.O. 88 S1

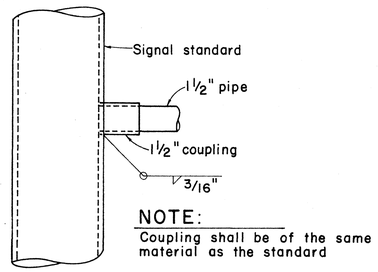
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

PRINTED ON NO. 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-200-01-68 UNIT II	1968	885-2	915

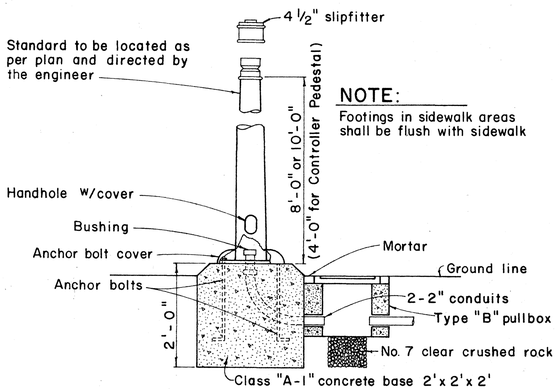


TYPICAL EQUIPMENT MOUNTINGS



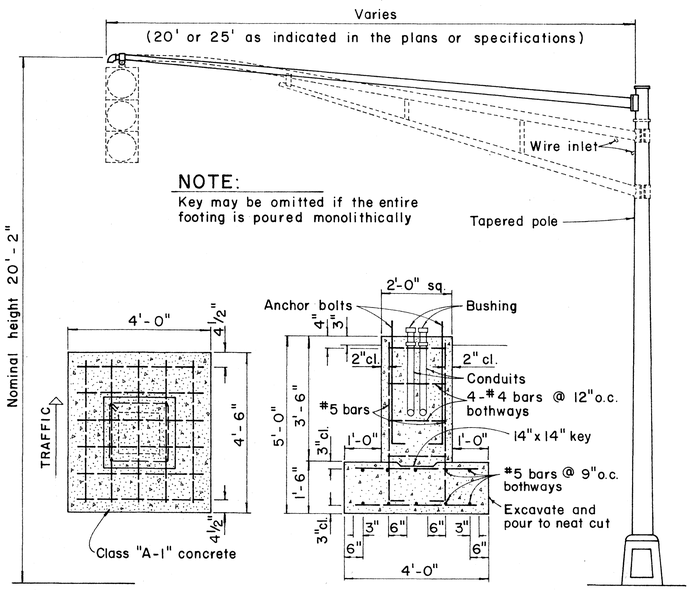
NOTE:
Coupling shall be of the same material as the standard

DETAIL OF BRACKET CONNECTION



NOTE:
Footings in sidewalk areas shall be flush with sidewalk

FOOTING FOR SIGNAL STANDARD OR CONTROLLER PEDESTAL



NOTE:
Key may be omitted if the entire footing is poured monolithically

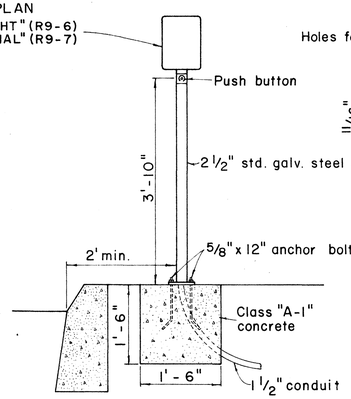
MAST ARM FOOTING AND STANDARD

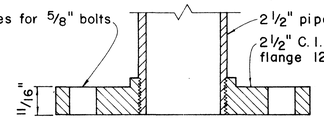
TRAFFIC SIGN AS SPECIFIED IN PLAN
1. "PUSH BUTTON FOR GREEN LIGHT" (R9-6)
2. "PUSH BUTTON FOR WALK SIGNAL" (R9-7)

R9-6
9" x 12"

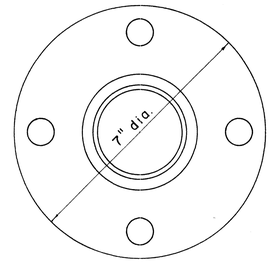
R9-7
9" x 12"

NOTE:
1. Conduits shall protrude 2" max. above finished surface of foundation.
2. Conduits shall slope away from pole foundation.
3. Post and base shall be painted with one coat of approved weather proof dark green enamel.



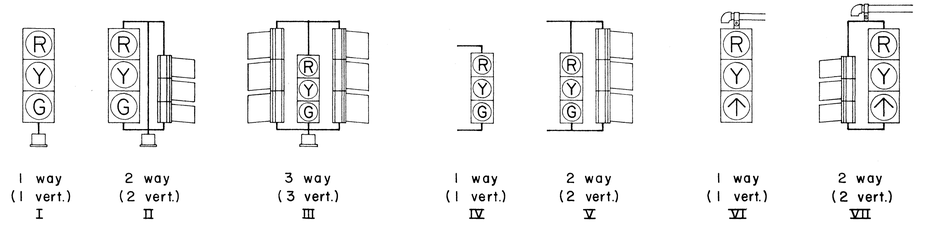


SECTION



BASE DETAIL

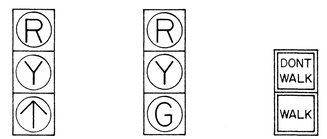
PEDESTRIAN PUSH BUTTON POST AND FOOTING



I way (I vert.) I
2 way (2 vert.) II
3 way (3 vert.) III
I way (I vert.) IV
2 way (2 vert.) V
I way (I vert.) VI
2 way (2 vert.) VII

SLIPFITTER MOUNTINGS
BRACKET MOUNTINGS
MASTARM MOUNTINGS

TYPICAL VEHICULAR AND PEDESTRIAN SIGNAL MOUNTINGS



1 - Vertical 3 - Section
1 - Vertical 3 - Section
1 - Dont Walk Walk

TYPICAL SIGNAL ARRANGEMENTS

NOTE:
THIS SHEET IS A SUPPLEMENT TO THE CONTRACT PLANS.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

MISCELLANEOUS DETAILS

Not to Scale — January, 1968

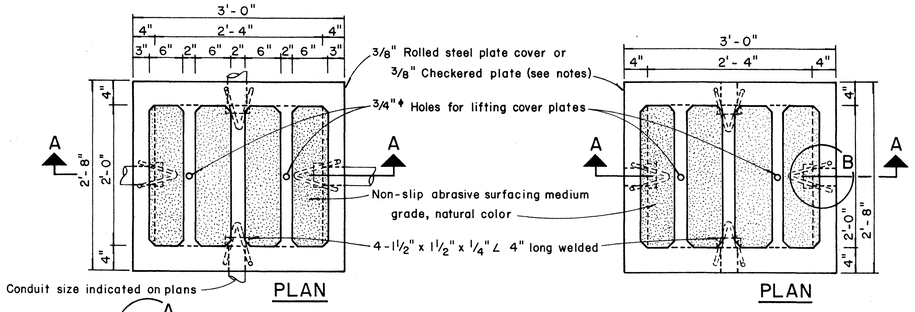
SHEET No. 2 OF 3 SHEETS DT-400

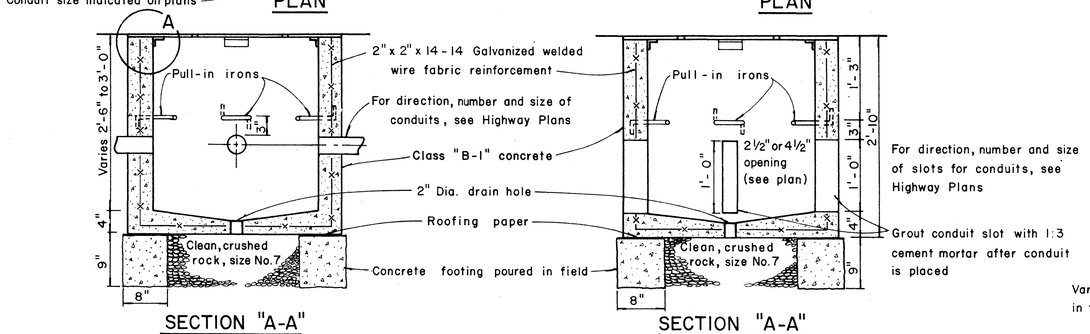
C.O. 88 S2

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1965	8853	95

E-800-01-64
UNIT II





SECTION "A-A"

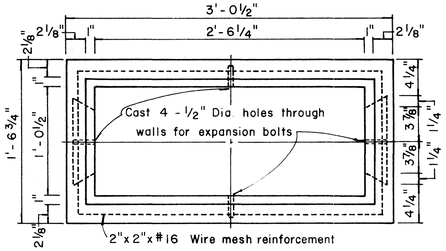
SECTION "A-A"

TYPE "A" PULLBOX CAST-IN-PLACE

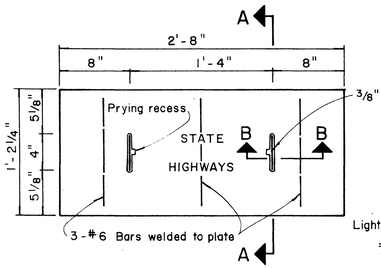
Scale: 1" = 1'-0"

TYPE "A" PULLBOX PRECAST

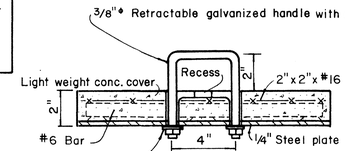
Scale: 1" = 1'-0"



PLAN

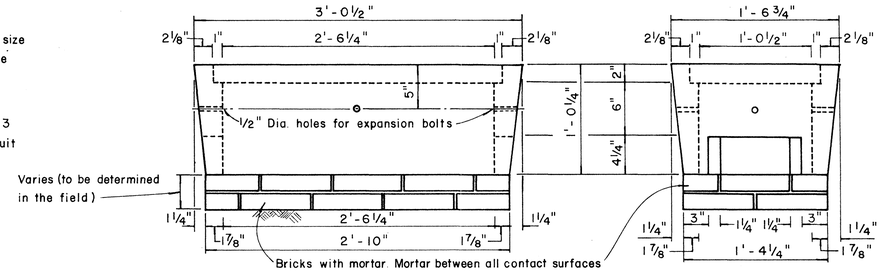


PLAN OF COVER



SECTION "A-A"

Scale: 3" = 1'-0"

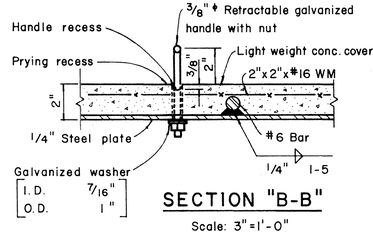


SIDE ELEVATION

END ELEVATION

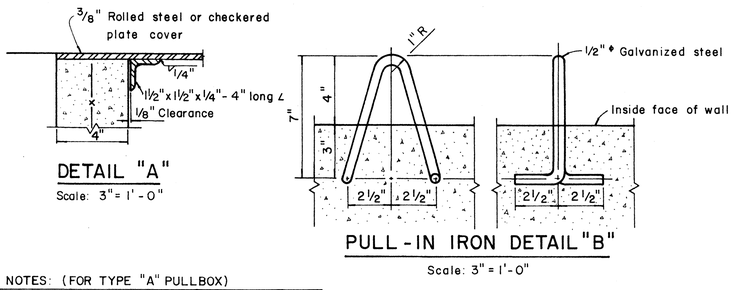
TYPE "C" PULLBOX

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



SECTION "B-B"

Scale: 3" = 1'-0"



DETAIL "A"

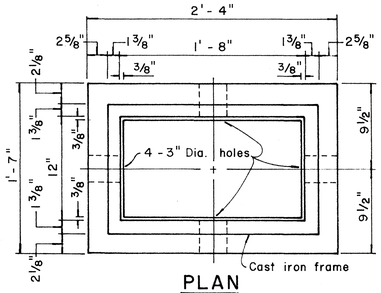
Scale: 3" = 1'-0"

PULL-IN IRON DETAIL "B"

Scale: 3" = 1'-0"

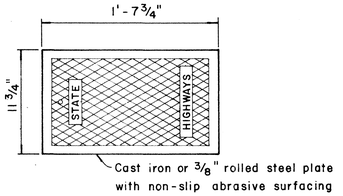
NOTES: (FOR TYPE "A" PULLBOX)

1. 3/8" Rolled steel plate cover with non-slip abrasive surfacing medium grade, natural color shall be used on all pullboxes located on sidewalk areas where pedestrians are walking.
2. 3/8" Checkered plate cover shall be used on all pullboxes located in median areas and other locations where there are no pedestrians walking.
3. Pull irons shall be placed opposite each conduit slot.
4. Covers on all pullboxes located in sidewalk areas shall be set flush with the concrete sidewalk.
5. Each pullbox shall have a pair of pull irons opposite each other for lifting purposes.

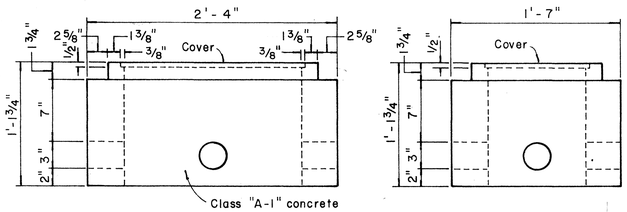


PLAN

NOTE:
Steel rim shall be welded to bottom of steel cover if necessary so that top of cover and frame are flush



PLAN OF COVER

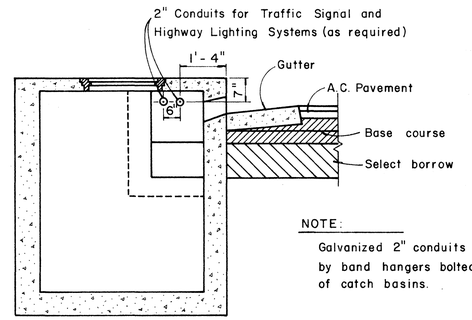


SIDE ELEVATION

END ELEVATION

TYPE "B" PULLBOX

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



NOTE:
Galvanized 2" conduits shall be supported by band hangers bolted to the top slab of catch basins.

TYPICAL SECTION SHOWING CONDUITS PASSING THROUGH CATCH BASINS

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

NOTE:
THIS SHEET IS A SUPPLEMENT TO THE CONTRACT PLANS.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PULLBOXES

Scale as noted Date

SHEET No. 3 OF 3 SHEETS DT 401

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

PRINTED ON NO. 1000H CLEARPRINT

C.O. 55 53