

GENERAL NOTES:

1. THE LOCATION OF OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LINES.
2. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S MAPPING AND RECORDS DIVISION LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION.
3. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGES TO HAWAIIAN ELECTRIC Co.'S FACILITIES AND SHALL IMMEDIATELY REPORT SUCH DAMAGES TO HAWAIIAN ELECTRIC Co.'S TROUBLE DISPATCHER AT 548-7961.
4. THE CONTRACTOR SHALL COMPLY WITH THE DIRECTIVES OF THE STATE OF HAWAII OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
5. FOR VERIFYING THE LOCATION OF UNDERGROUND DUCT LINES AND FOR ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF THE UNDERGROUND DUCT LINES, THE CONTRACTOR IS TO CONTACT HAWAIIAN ELECTRIC Co. UNDERGROUND DIVISION AT 548-7395 A MINIMUM OF 72 HOURS IN ADVANCE.
6. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN THE EXCAVATION AND CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND TELEPHONE AND SIGNAL CABLE FACILITIES AND SHALL MAINTAIN ADEQUATE CLEARANCE FOR HIS EQUIPMENT WHILE WORKING CLOSE TO AND/OR UNDER OVERHEAD FACILITIES. ANY DAMAGES TO THE EXISTING UNDERGROUND FACILITIES SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.
7. FOR FIELD LOCATION OF HAWAIIAN TELEPHONE Co. FACILITIES, CONTACT HAWAIIAN TELEPHONE OUTSIDE PLANT ENGINEERING SECTION, A MINIMUM OF 72 HOURS IN ADVANCE, PRIOR TO START OF EXCAVATION.
8. SHOULD FIELD CONDITIONS AND CONSTRUCTION PROCEDURES REQUIRE THAT UTILITY POLES BE BRACED, THE CONTRACTOR SHALL CONTACT THE FOLLOWING PERSON FOR POLE BRACING INSTRUCTIONS A MINIMUM OF 72 HOURS IN ADVANCE OF ACTUAL REQUIRED BRACING - HAWAIIAN TELEPHONE Co. - CALVIN CHOY - AREA CONSTRUCTION SUPERVISOR AT 546-3381.
9. WHEN TRENCH EXCAVATION IS ADJACENT TO EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENT, AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS, OR UNDERPINNING TO FULLY PROTECT IT FROM DAMAGE.
10. SHOULD IT BECOME NECESSARY, ANY WORK REQUIRED TO RELOCATE HAWAIIAN ELECTRIC Co. FACILITIES SHALL BE DONE BY HAWAIIAN ELECTRIC Co. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION.

ABBREVIATIONS

A	AMPERE	GRS	GALVANIZED RIGID STEEL
B.C.	BARE COPPER	H	HEIGHT
BGR	BEHIND GUARDRAIL	HH	HANDHOLE
B	BASE LINE	HECO	HAWAIIAN ELECTRIC COMPANY
C	CENTER LINE	HPS	HIGH PRESSURE SODIUM
CMP	CORRUGATED METAL PIPE	H.S.	HARDENED STEEL
C	CONDUIT	HW	HEADWALL
CAB	CABINET	HWY	HIGHWAY
C.B.	CIRCUIT BREAKER	I.C.	INTERCHANGE
CDI	CONCRETE DRAIN INLET	I.D.	IDENTIFICATION
CKT	CIRCUIT	J.B.	JUNCTION BOX
CO	CONDUIT ONLY	KV	KILOVOLT
CONC	CONCRETE	KVA	KILOVOLT AMPERE
D	DEPTH	KW	KILOWATT
DI	DRAIN INLET	KWH	KILOWATT-HOUR
DIA	DIAMETER	MANUF.	MANUFACTURER
DET	DETAIL	MAX	MAXIMUM
D.O.T.	DEPARTMENT OF TRANSPORTATION	MIN	MINIMUM
DUCT	DUCTLINE, DUCTBANK	MTD.	MOUNTED
DWG	DRAWING	MTG.	MOUNTING
ENCL	ENCLOSURE	MH	MANHOLE, METAL HALIDE
EQUIP.	EQUIPMENT	N.T.S.	NOT TO SCALE
EXIST	EXISTING	O.C.	ON CENTER
EXP	EXPANSION	P.B.	PULLBOX
GCM	GALVANIZED CORRUGATED METAL	PH	PHASE
GALV.	GALVANIZED		
GND	GROUND		

SYMBOL LIST:

	EXISTING STREET LIGHT STANDARD, TO REMAIN. U.O.N.														
	NEW STREET LIGHT STANDARD ON CONCRETE BASE. 250 WATT, HIGH PRESSURE SODIUM, 480 VOLT. TYPE "A" OR TYPE "B" POLE MOUNTING AS INDICATED. LUMINAIRE SHALL BE: A. DIE-CAST ALUMINUM HOUSING WITH ELECTROCOAT GRAY PAINT FINISH. B. POWER/MODULE BALLAST ASSEMBLY C. 1-1/4 TO 2-INCH UNIVERSAL FOUR-BOLT SLIPFITTER D. ADJUSTABLE MOGUL BASE SOCKET E. ALUMINUM REFLECTOR WITH ALGLAS FINISH F. PLUG-IN IGNITOR G. EXTERNAL STAILESS STEEL BAIL LATCH. H. MANUFACTURED BY GENERAL ELEC. CO., M-400A2 POWR/DOOR # M4AR-25-S-5-A-1-G-MS3-2-F														
	EXISTING GUIDE SIGN LUMINAIRE, TO REMAIN.														
	NEW GUIDE SIGN LUMINAIRE: 175 WATT, METAL HALIDE, 480 VOLT. LUMINAIRE SHALL BE: A. LOW PROFILE EXTERIOR WALL WASH TYPE B. 2-PIECE CAST ALUMINUM C. FIXED ASYMMETRIC LIGHT PATTERN CONFINED TO A VERTICAL AND HORIZONTAL BASED QUARTER SPHERE ZONE WITH MAX INTENSITY AT 58° ABOVE HORIZONTAL. D. HYDROFORMED ALZAK ALUMINUM REFLECTOR. E. REMOTE WEATHERPROOF BALLAST AND ENCLOSURE MANUFACTURED BY GUTH, SIGNALIGHTER #B17633/480, OR APPROVED EQUAL, U.O.N.														
	EXISTING HIGHWAY GUIDE SIGN, AS INDICATED.														
	NEW JUNCTION BOX, MTD. ON SIGN POST.														
	STREET LIGHTING PULLBOX														
	NEW UNDERGROUND DUCT/CONDUIT														
	EXISTING UNDERGROUND TELEPHONE/ELECTRICAL SERVICE, TO REMAIN.														
	EXISTING UNDERGROUND UTILITY (DRAIN)														
	EXISTING CONCRETE DRAIN INLET.														
	JUNCTION BOX, SURFACE MOUNTED, TYPE AS INDICATED														
	DUCT SECTION INDICATOR														
<table><tr><td>1</td><td>350+00</td></tr><tr><td>2</td><td>18'</td></tr><tr><td>3</td><td>1</td></tr><tr><td>4</td><td>15'</td></tr><tr><td>5</td><td>35'</td></tr><tr><td>6</td><td>A</td></tr><tr><td>7</td><td>1 AB</td></tr></table>	1	350+00	2	18'	3	1	4	15'	5	35'	6	A	7	1 AB	STATION NUMBER POLE CENTERLINE LOCATION FROM EDGE OF TRAVELWAY, NOTE 2 BELOW HIGHWAY LIGHT & POLE NUMBER (AS OBTAINED FROM STATE D.O.T.) BRACKET ARM SPAN IN FEET LUMINAIRE HEIGHT ABOVE PAVEMENT POLE BASE MOUNTING TYPE, NOTE 1 BELOW. LIGHTING CIRCUIT NUMBER AND (PHASE TO PHASE) CONNECTION.
1	350+00														
2	18'														
3	1														
4	15'														
5	35'														
6	A														
7	1 AB														

NOTES:

1. POLE MTG. TYPE "A" = ANCHOR BASE  
POLE MTG. TYPE "B" = SLIP BASE
2. "BGR" MEANS "BEHIND GUARDRAIL"

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	IR-H1-1 (213)	1994	3	38

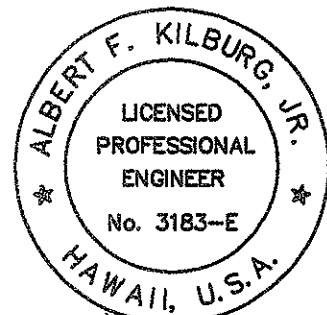
HAWAIIAN ELECTRIC COMPANY NOTES:

1. HECO IS TO COORDINATE ITS WORK WITH THE STATE'S CONTRACTOR IN A MANNER WHICH DOES NOT IMPEDE CONSTRUCTION.
2. THE EXISTING FACILITIES SHOWN THROUGHOUT THESE DRAWINGS ARE APPROXIMATE ONLY. THE STATE'S CONTRACTOR SHALL VERIFY THEIR ACTUAL LOCATIONS.
3. ADJUSTMENTS TO ANY NEW OR EXISTING HECO FACILITIES SHALL BE MADE AS DIRECTED BY HECO ENGINEERS AND APPROVED BY THE STATE'S RESIDENT ENGINEER.
4. ALL EXISTING HECO FACILITIES SHALL REMAIN IN PLACE UNTIL PROPOSED PERMANENT FACILITIES ARE PROVIDED. ANY COST FOR TEMPORARY RELOCATIONS ARISING DURING CONSTRUCTION FOR THE STATE'S CONTRACTOR'S BENEFIT, SHALL BE BORNE BY STATE'S CONTRACTOR.
5. THE STATE'S CONTRACTOR SHALL BE LIABLE FOR ANY AND ALL DAMAGES TO HECO FACILITIES WHITH IS CAUSED BY HIS OPERATIONS. DAMAGES WILL BE CORRECTED BY HECO AT STATE'S CONTRACTOR'S EXPENSE.
6. HECO SHALL FURNISH AND INSTALL KWH METER FOR THE NEW XFMR AND IT'S DISTRIBUTION PANEL.
7. THE EXCAVATION OF LIGHTING POLES HOLES, LIGHTING POLE ANCHOR HOLES, TRENCHES AND INSTALLATION ARE TO BE DONE BY THE STATE'S CONTRACTOR.
8. THE STATE'S CONTRACTOR SHALL PROVIDE EXISTING AND FINISHED GRADE INFORMATION AT EACH POLE AND ANCHOR LOCATION. DEPTH OF POLES AND ANCHORS WILL BE TAKEN FROM FINISHED GRADES.
9. THE STAKEOUT AND INSTALLATION OF DUCTS AND HANDHOLES ARE TO BE DONE BY THE STATE'S CONTRACTOR.
10. THE LOCATION AND DEPTH OF HANDHOLES, SERVICE AND SPLICE BOXES AND DUCTLINES ARE TO BE VERIFIED AND APPROVED IN THE FIELD BY THE STATE'S RESIDENT ENGINEER PRIOR TO CONSTRUCTION OR INSTALLATION.
11. ALL DUCTS AND CONDUITS TO BE INSTALLED IN CONCRETE JACKET SHALL BE INSPECTED AND APPROVED BY HECO'S INSPECTION DIVISION BEFORE PLACING CONCRETE. NOTIFY HECO'S INSPECTION DIVISION 72 HOURS MINIMUM BEFORE PLACING CONCRETE. AT PHONE 543-5668.

NOTES:

1. WOODEN STAKES HAVE BEEN PLACED IN THE FIELD AT STATION LOCATIONS OF LIGHT STANDARDS. PLACEMENT OF STAKES ARE APPROXIMATE AND ARE FOR ENGINEERING DESIGN PURPOSES ONLY. THE CONTRACTORS SHALL PERFORM A DETAILED SURVEY TO PROVIDE THE EXACT LOCATION AS SPECIFIED AND SHOWN. LOCATION SHOWN ARE REFERENCED TO THE DEPT. OF TRANSPORTATION HIGHWAYS CENTER LINE STATIONING.
2. AFTER THE EXACT LOCATION IS DETERMINED, PLACE 2" x 2" x 18" HUBS AT THESE LOCATIONS. INFORM THE CONTRACTING OFFICER FOR FINAL LOCATION APPROVAL PRIOR TO CONSTRUCTION OF LIGHT BASES. ACTUAL, FIELD CONDITIONS MAY DIFFER FROM THAT SHOWN ON THESE DRAWINGS. USE EXTREME CAUTION WHEN EXCAVATING FOR NEW DUCTLINES.
3. PROVIDE CONDUIT EXPANSION FITTING TO ACCOMMODATE EXPANSION AND DEFLECTION WHERE CONDITS CROSS SEISMIC, CONTROL AND EXPANSION JOINTS OF BRIDGE STRUCTURES. EXPANSION FITTING SHALL BE:  
A. WEATHERTIGHT CONSTRUCTION.  
B. INSULATOR BUSHING ON END OF MOVEABLE CONDUIT.  
C. FACTORY-FORMED COPPER BRAID RING ALLOWING CONDUIT EXPANSION AND CONTRACTION.  
D. END FITTINGS OF FERALOY.  
E. STEEL CONDUIT BODY.  
F. ZINC ELECTROPLATE AND ALUMINUM CELLULOSE LACQUER FINISH.  
G. 8" MAXIMUM CONDUIT MOVEMENT.  
H. CROUSE-HINDS XJ SERIES OR APPROVED EQUAL.

DRAWING REVIEW:  
Reviewed for HECO's  
Facilities Only  
Date 3/11/94 By   
Distribution Engineering Department  
Hawaiian Electric Company, Inc.  
HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on Customer's behalf from the responsibility for engineering, design, materials and any liability associated with this project.



DVM JOB No.: 89104.01  
CAD FILE No.: E-1/1

E-1

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**GENERAL NOTES**  
**SYMBOL LIST**  
INTERSTATE ROUTE H-1  
PALALAI I.C. TO KUNIA I.C.  
PROJECT No. IR-H1-1(213)  
SCALE: AS NOTED

DATE	REVISION	SHEET No. 2 OF 2 SHEETS
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