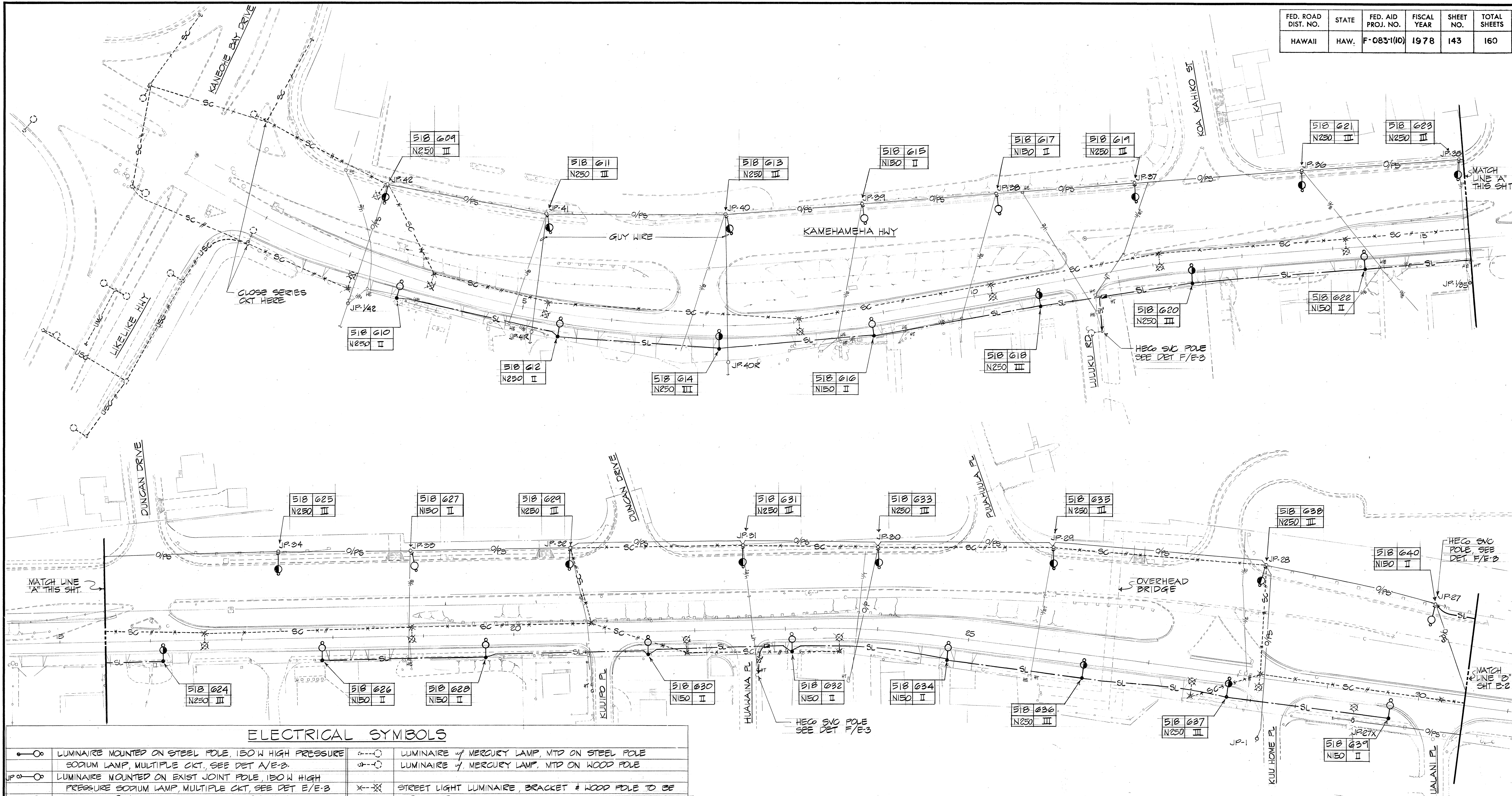


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(10)	1978	143	160



ELECTRICAL SYMBOLS

—○—	LUMINAIRE MOUNTED ON STEEL POLE, 150 W HIGH PRESSURE SODIUM LAMP, MULTIPLE CKT, SEE DET A/E-3.	—○—	LUMINAIRE w/ MERCURY LAMP, MTD ON STEEL POLE
JP ○—	LUMINAIRE MOUNTED ON EXIST JOINT POLE, 150 W HIGH PRESSURE SODIUM LAMP, MULTIPLE CKT, SEE DET E/E-3.	—○—	LUMINAIRE w/ MERCURY LAMP, MTD ON WOOD POLE
—○—	LUMINAIRE MOUNTED ON STEEL POLE, 250 W HIGH PRESSURE SODIUM LAMP, MULTIPLE CKT, SEE DET A/E-3.	—X—X—	STREET LIGHT LUMINAIRE, BRACKET & WOOD POLE TO BE REMOVED
JP ○—	LUMINAIRE MOUNTED ON EXIST JOINT POLE, 250 W HIGH PRESSURE SODIUM, MULTIPLE CKT, SEE DET E/E-3.	JP ○—X—	STREET LIGHT LUMINAIRE MTD ON JOINT POLE TO BE REMOVED
—○—	LUMINAIRE MOUNTED ON STEEL POLE w/ SLIP BASE, 150 W H.P.S., MULTIPLE CKT, SEE DET A/E-5 TO E/E-5.	—#—SC—	OVERHEAD SERIES CIRCUIT LINE (2 WIRES)
—○—	LUMINAIRE MOUNTED ON STEEL POLE w/ SLIP BASE, 250 W H.P.S., MULTIPLE CKT, SEE DET A/E-5 TO E/E-5.	—**SC—X—	OVERHEAD SERIES CIRCUIT LINE TO BE REMOVED
—○—	LUMINAIRE MOUNTED ON STEEL POLE w/ SLIP BASE, 250 W H.P.S., MULTIPLE CKT, SEE DET A/E-5 TO E/E-5.	—USC—	UNDERGROUND SERIES CIRCUIT LINE (2 WIRES)
—○—	LUMINAIRE MOUNTED ON STEEL POLE w/ SLIP BASE, 250 W H.P.S., MULTIPLE CKT, SEE DET A/E-5 TO E/E-5.	□ HE	EXIST HECO PULLBOX
—○—	LUMINAIRE MOUNTED ON STEEL POLE w/ SLIP BASE, 250 W H.P.S., MULTIPLE CKT, SEE DET A/E-5 TO E/E-5.	□ HT	EXIST HTGO PULLBOX
—○—	LUMINAIRE MOUNTED ON STEEL POLE w/ SLIP BASE, 250 W H.P.S., MULTIPLE CKT, SEE DET A/E-5 TO E/E-5.	—O/Ps—	EXIST. HECO OVERHEAD PRIMARY & SECONDARY LINES
—SL—	STREET LIGHT CONDUIT, 1 1/2" W 3" X 3/8" XHHW-TYPE USE WIRES & #12 GRD, UNLESS OTHERWISE NOTED, SEE DET. SECTION.	—U/E—	EXIST HECO DUCTLINE
—	STREET LIGHT PULLBOX, SEE DET. A/E-4.	—U/T—	EXIST HTGO DUCTLINE
			NOTE: BROKEN LINES DENOTE EXISTING

APPROVED:

 HAWAIIAN ELEC. CO.
 DATE 5/2/78

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
 Taketo Kawabata

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

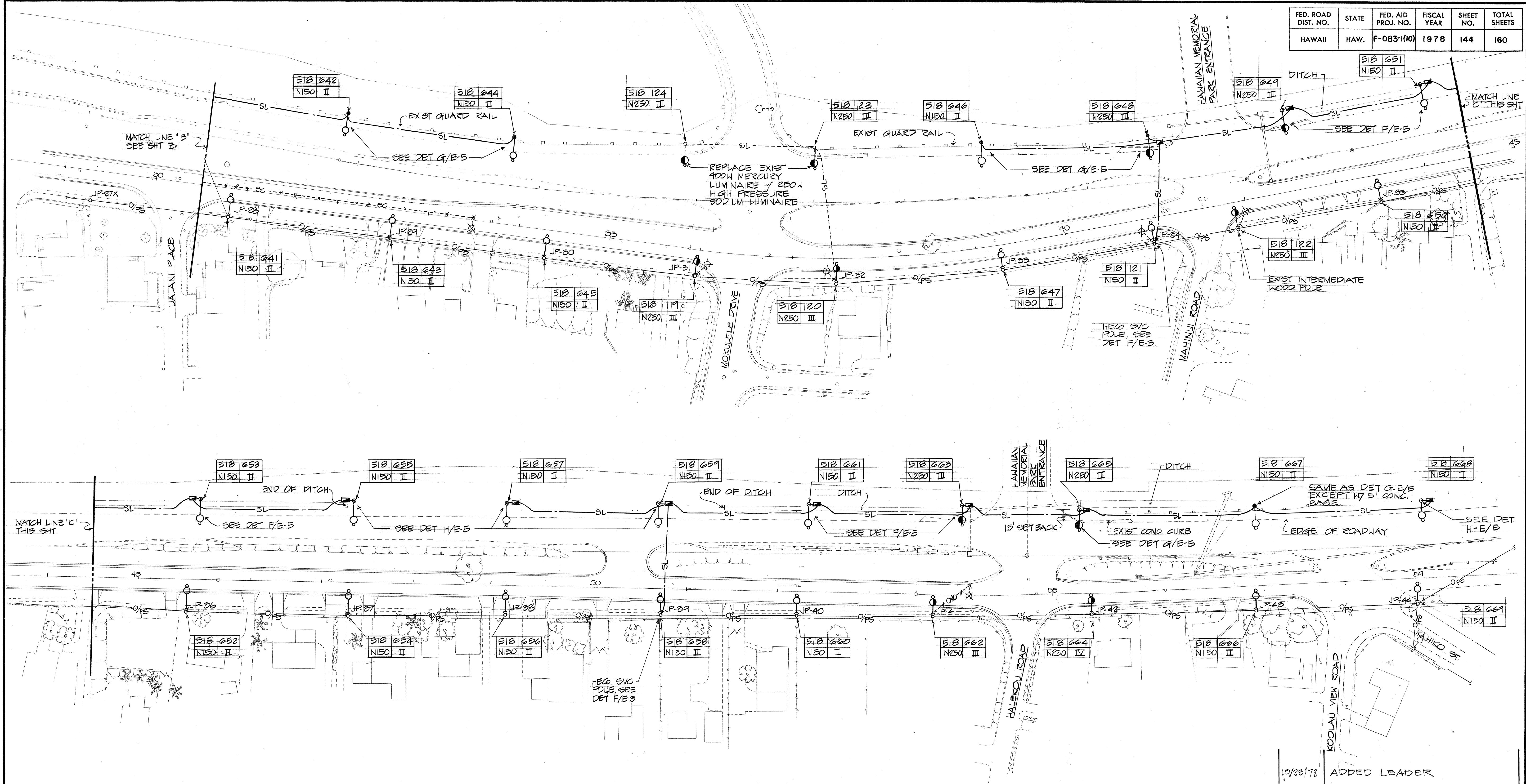
**ELECTRICAL PLAN
 AND SYMBOLS**

**KAMEHAMEHA HIGHWAY
 IMPROVEMENT**
 (LIKELIKE HIGHWAY TO KOOLAU VIEW DRIVE)
 PROJECT NO. F-083-1(10)

SCALE: 1" = 50' DATE AUG 1978

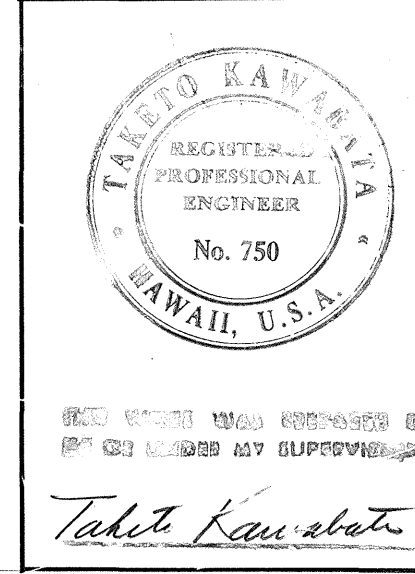
SHEET No. 1 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(10)	1978	144	160



DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
ORIGINAL PLAN	_____

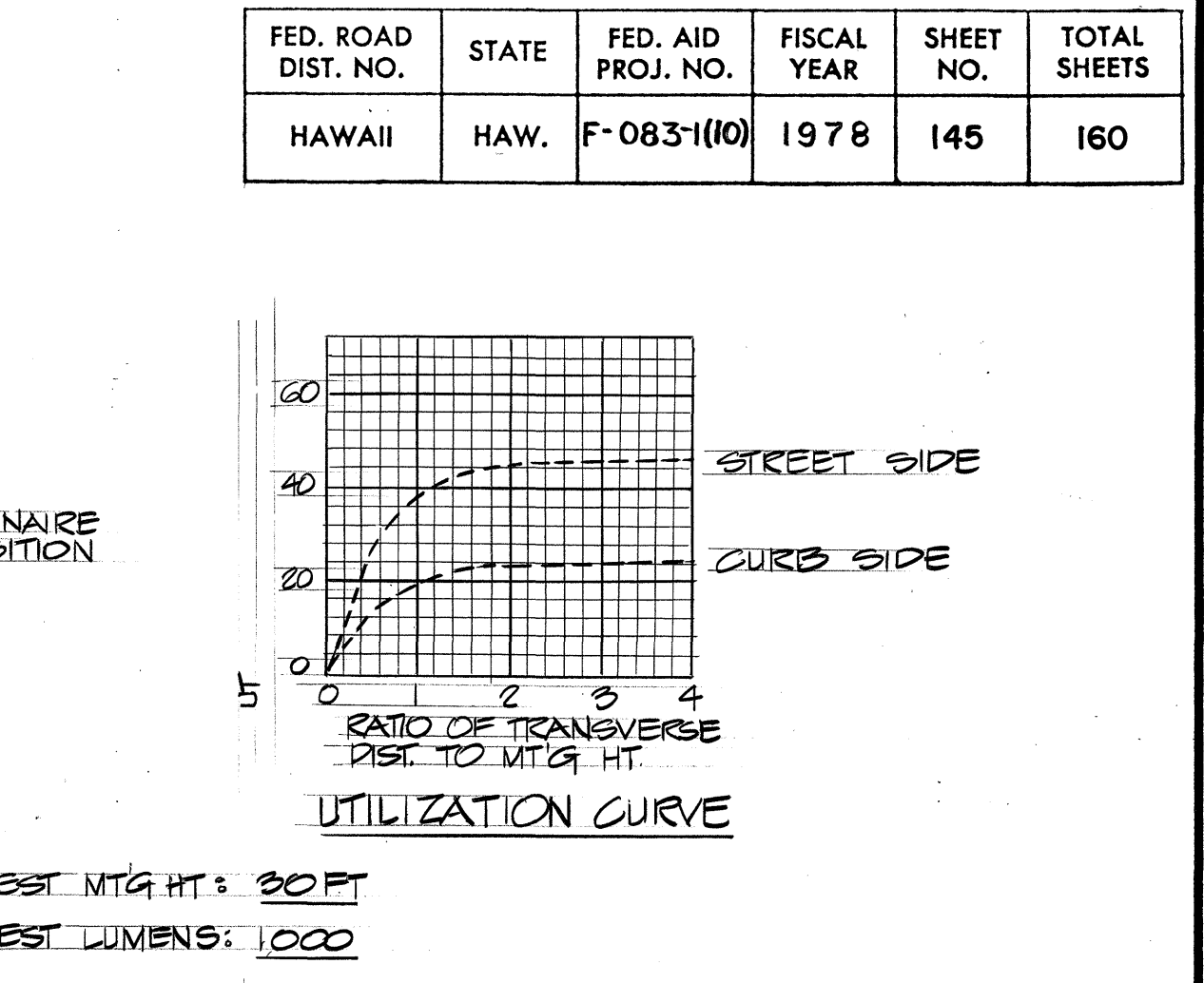
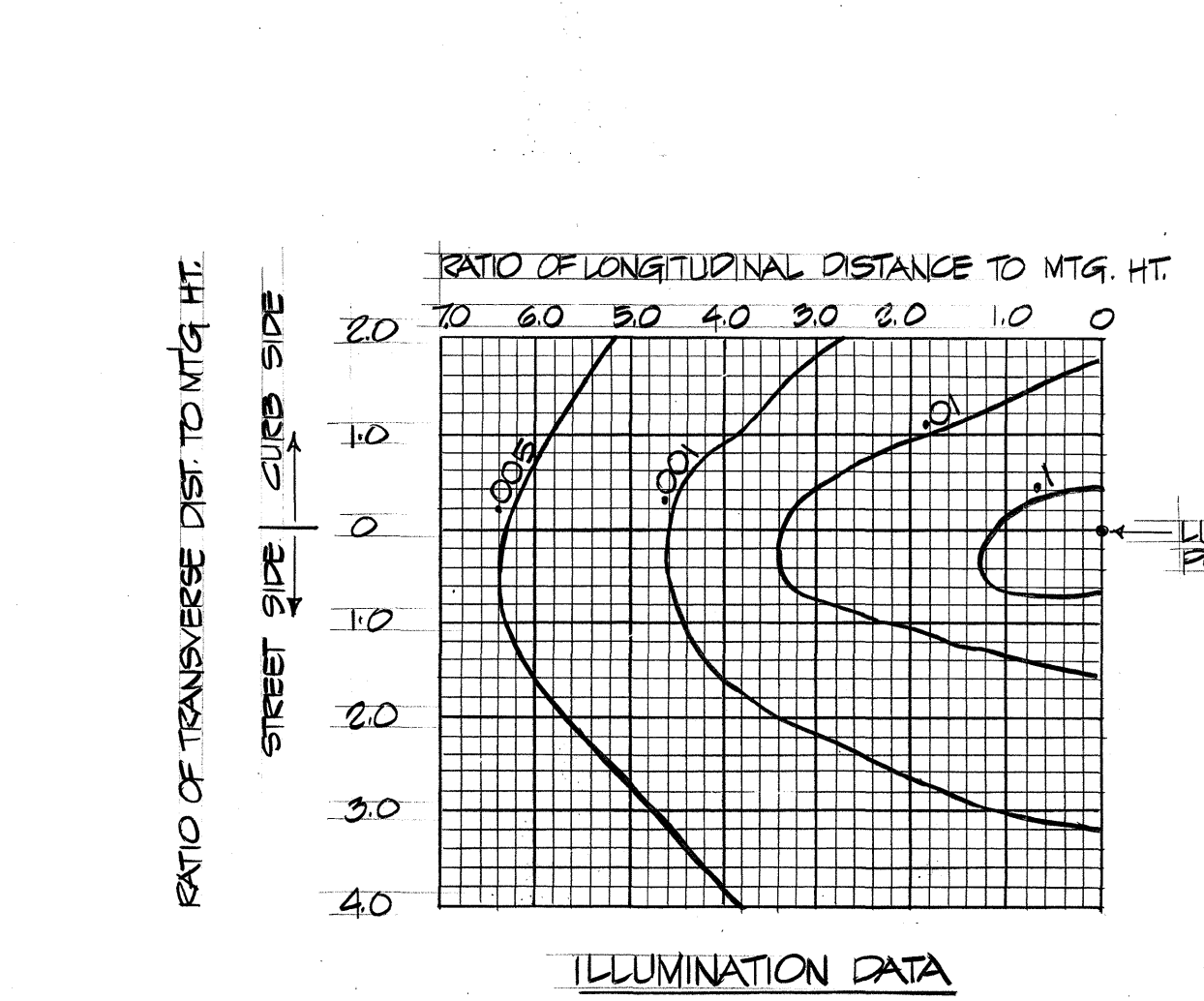
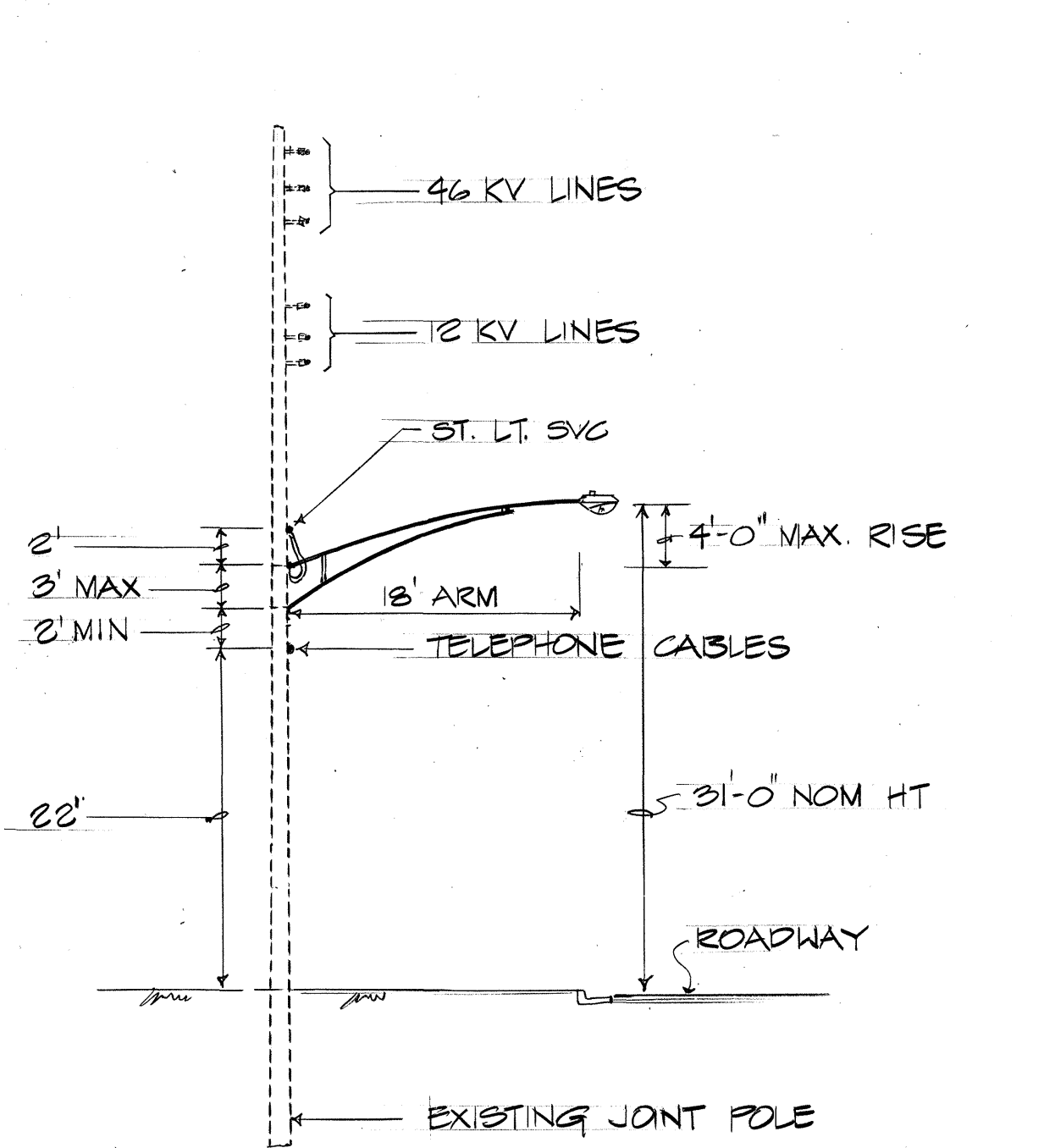
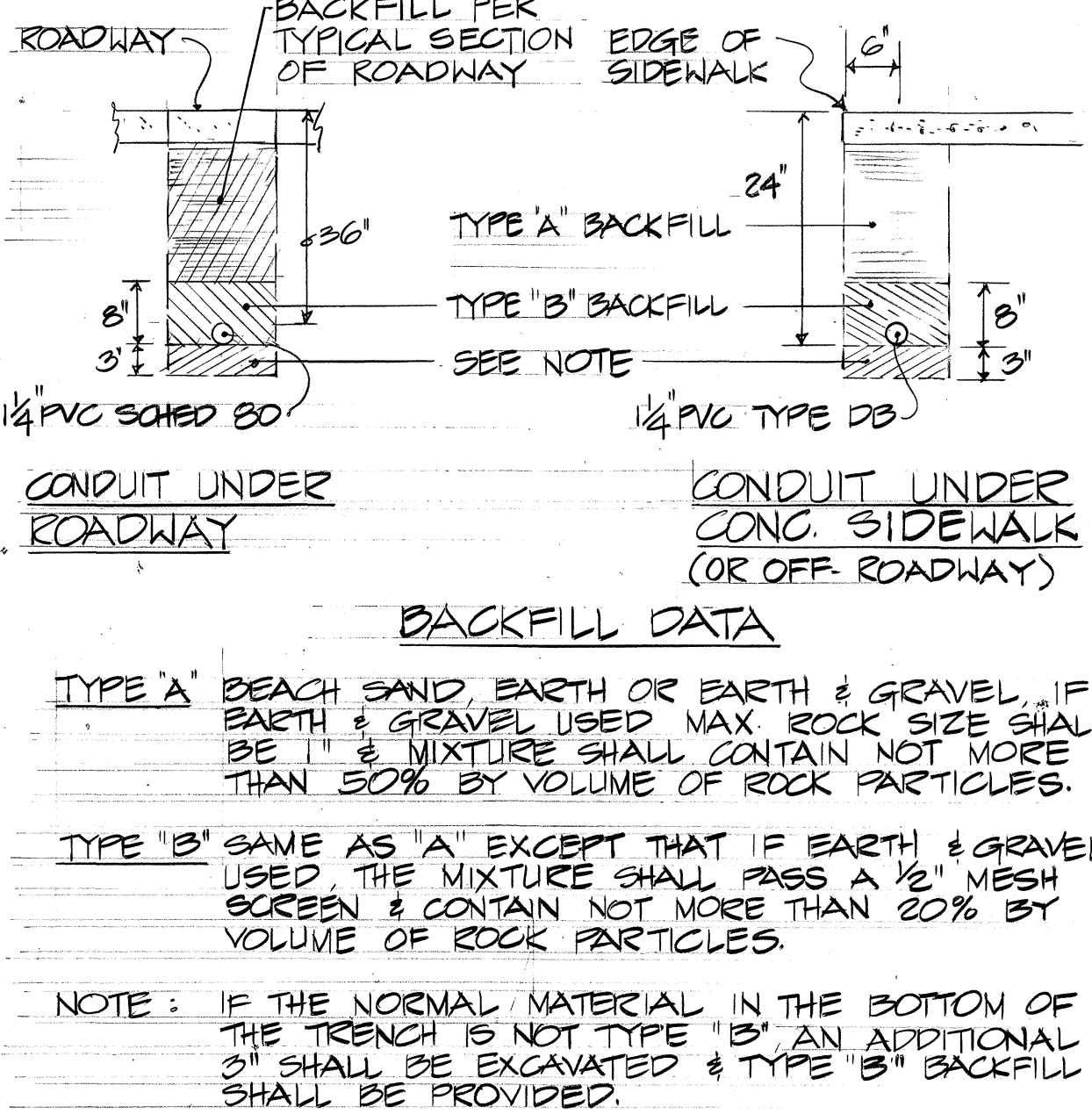
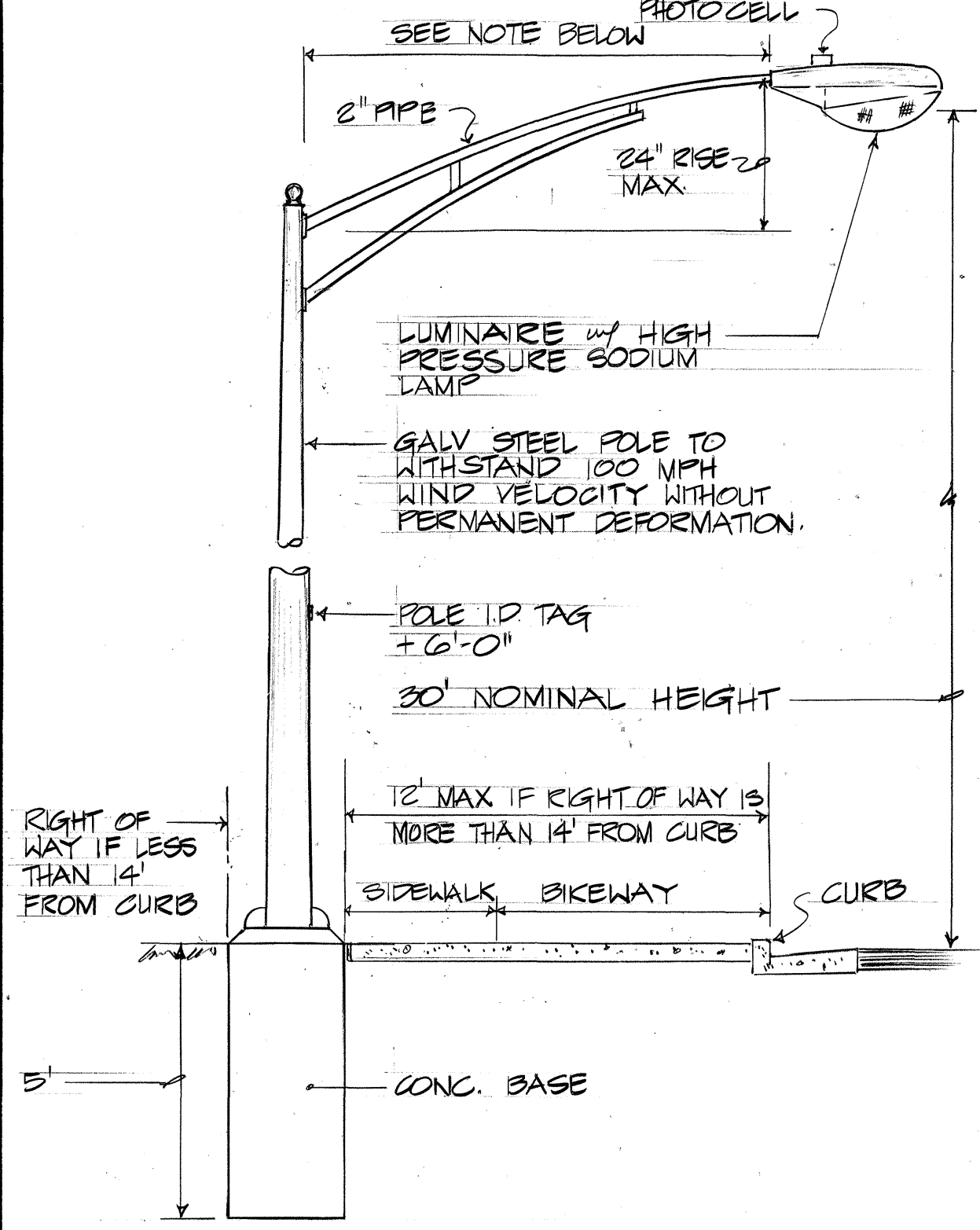
APPROVED:
John R. Elbert
 HAWAIIAN ELEC. CO. 5/2/77
 DATE



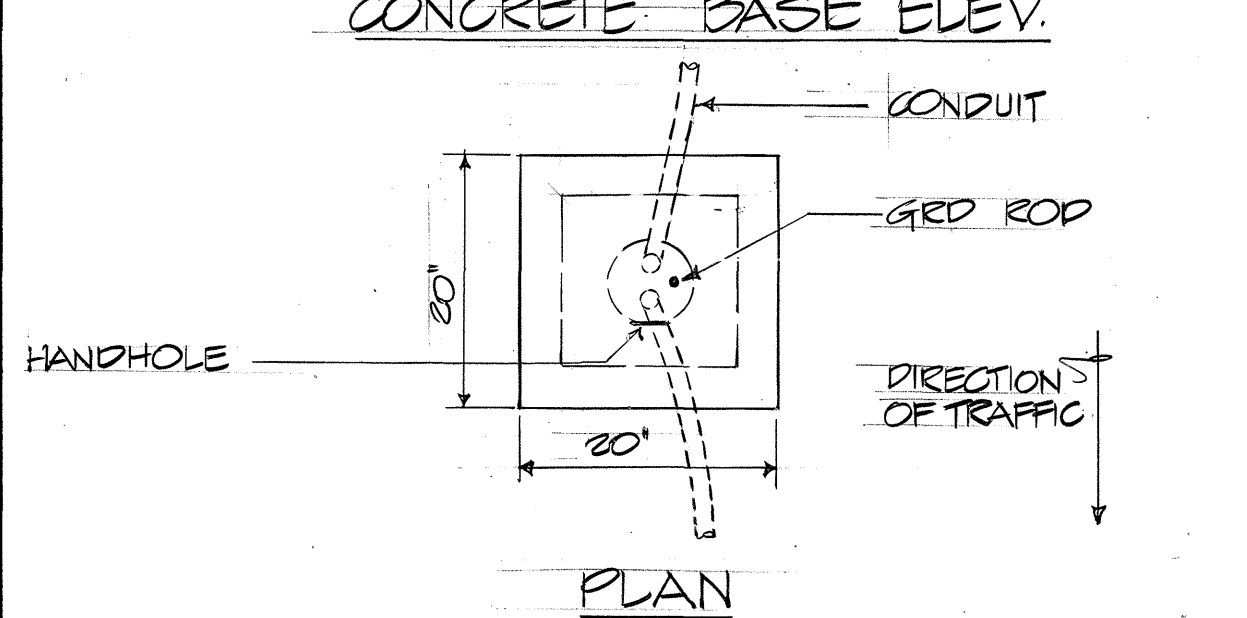
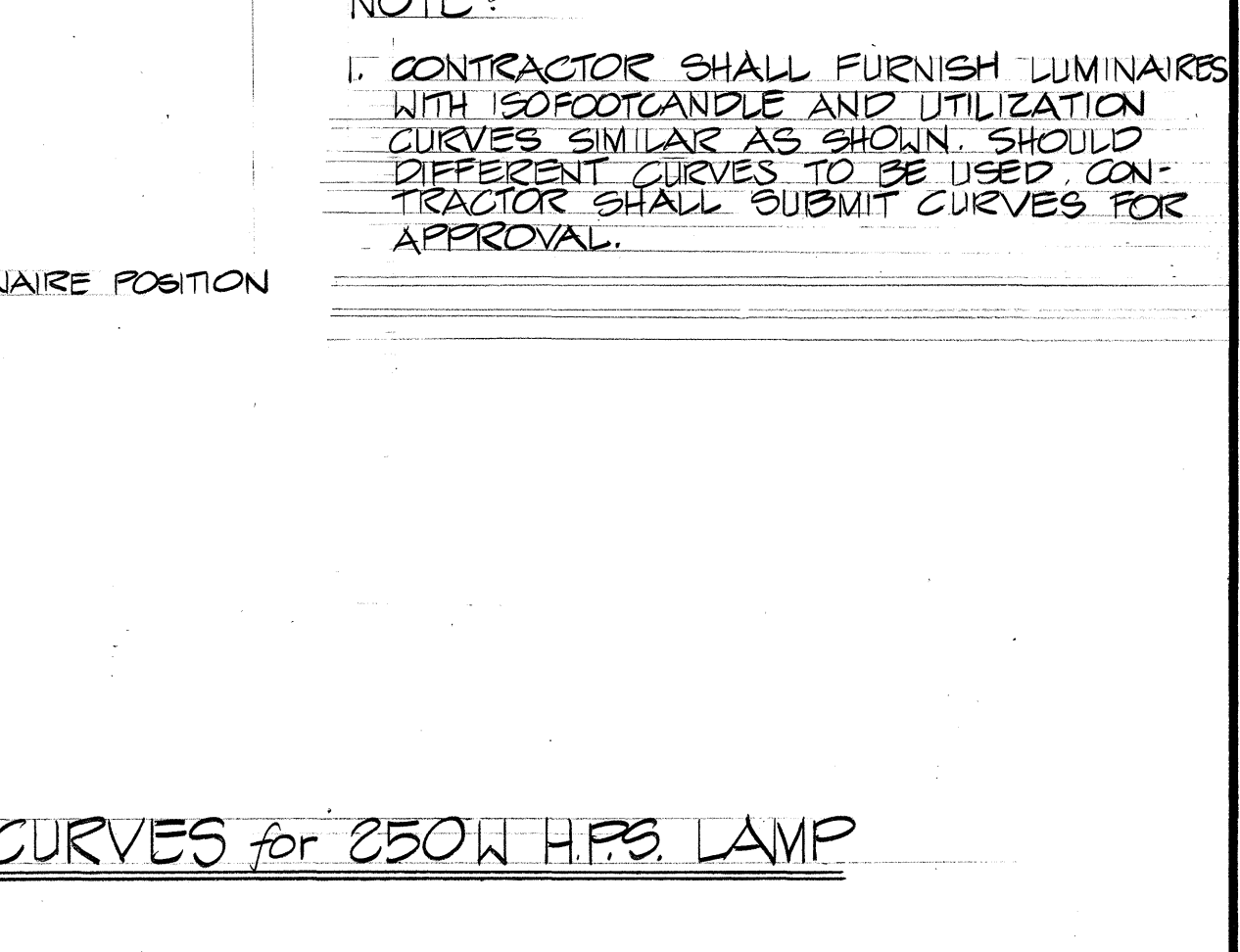
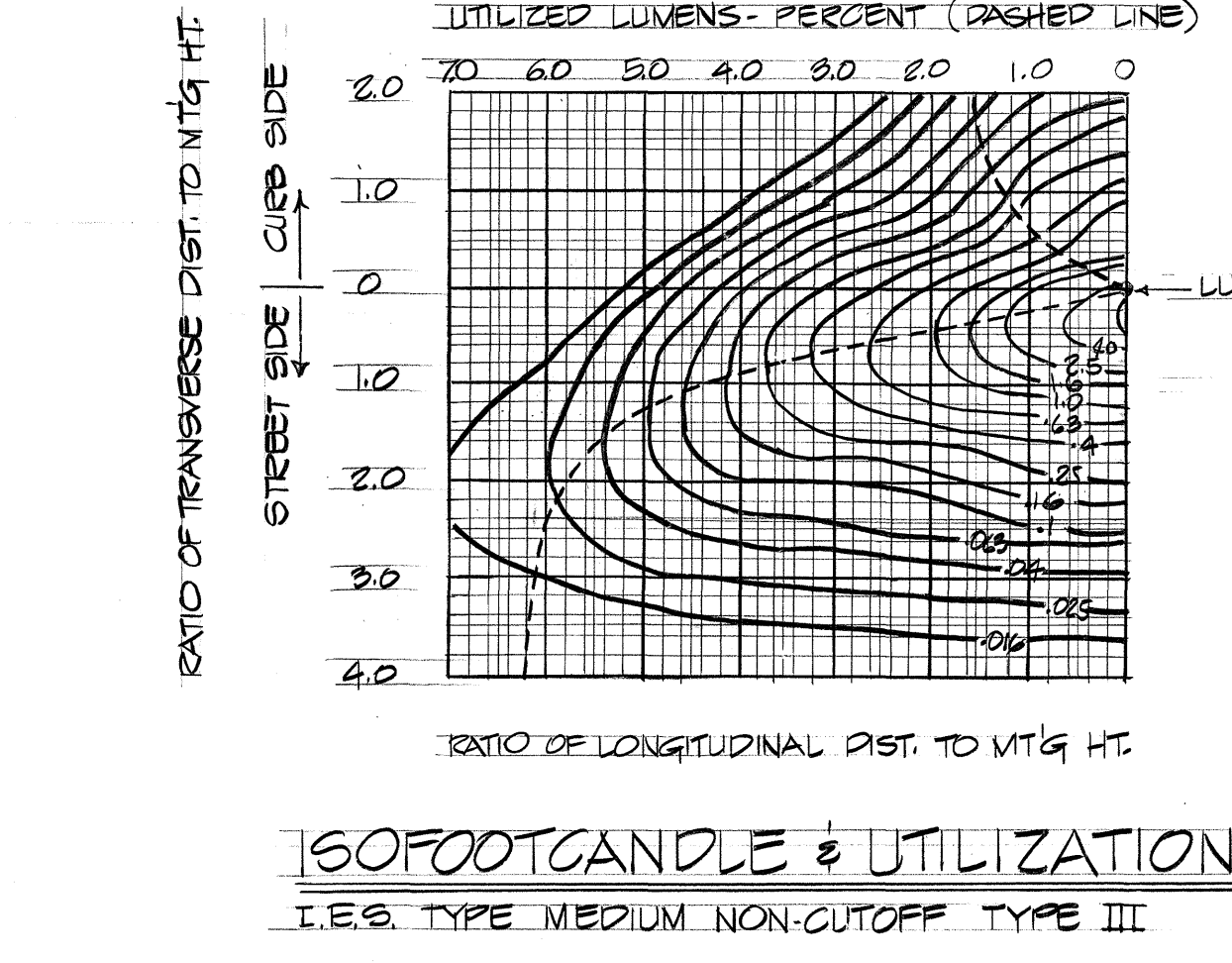
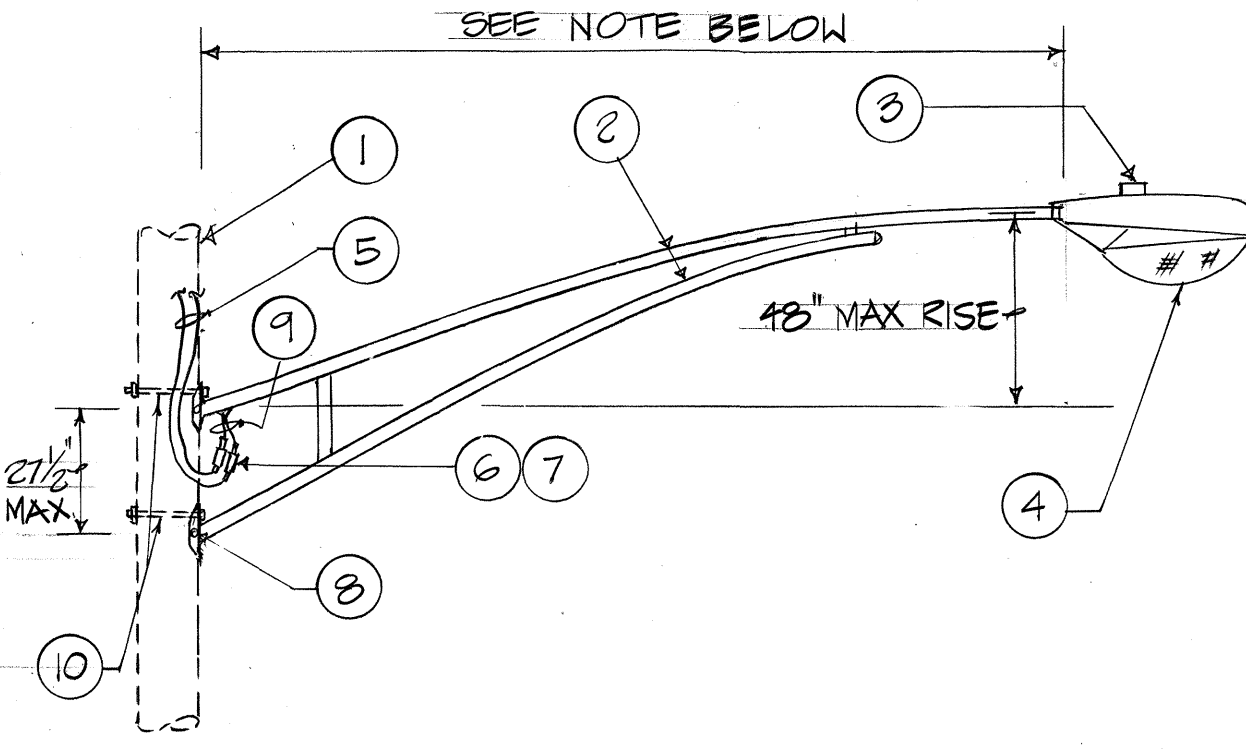
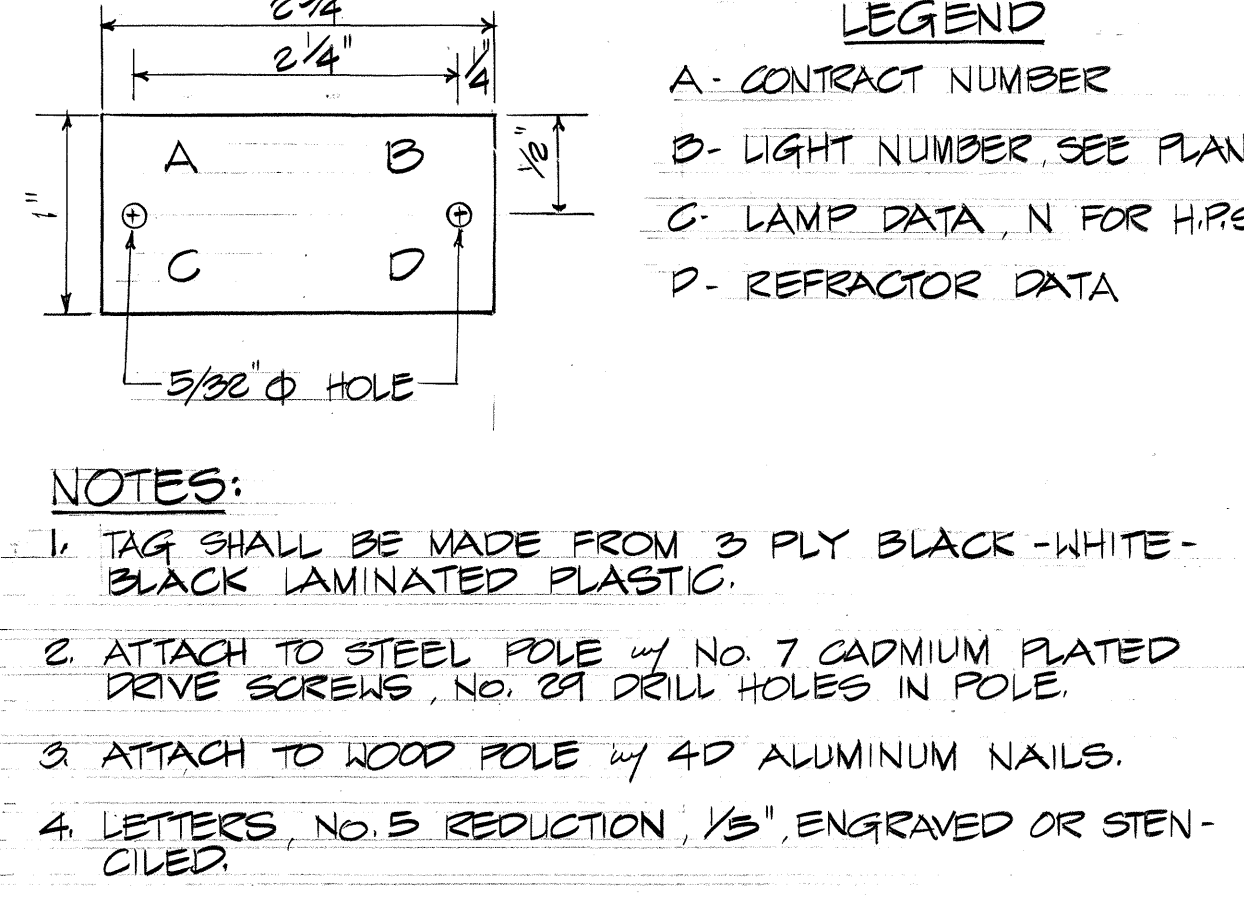
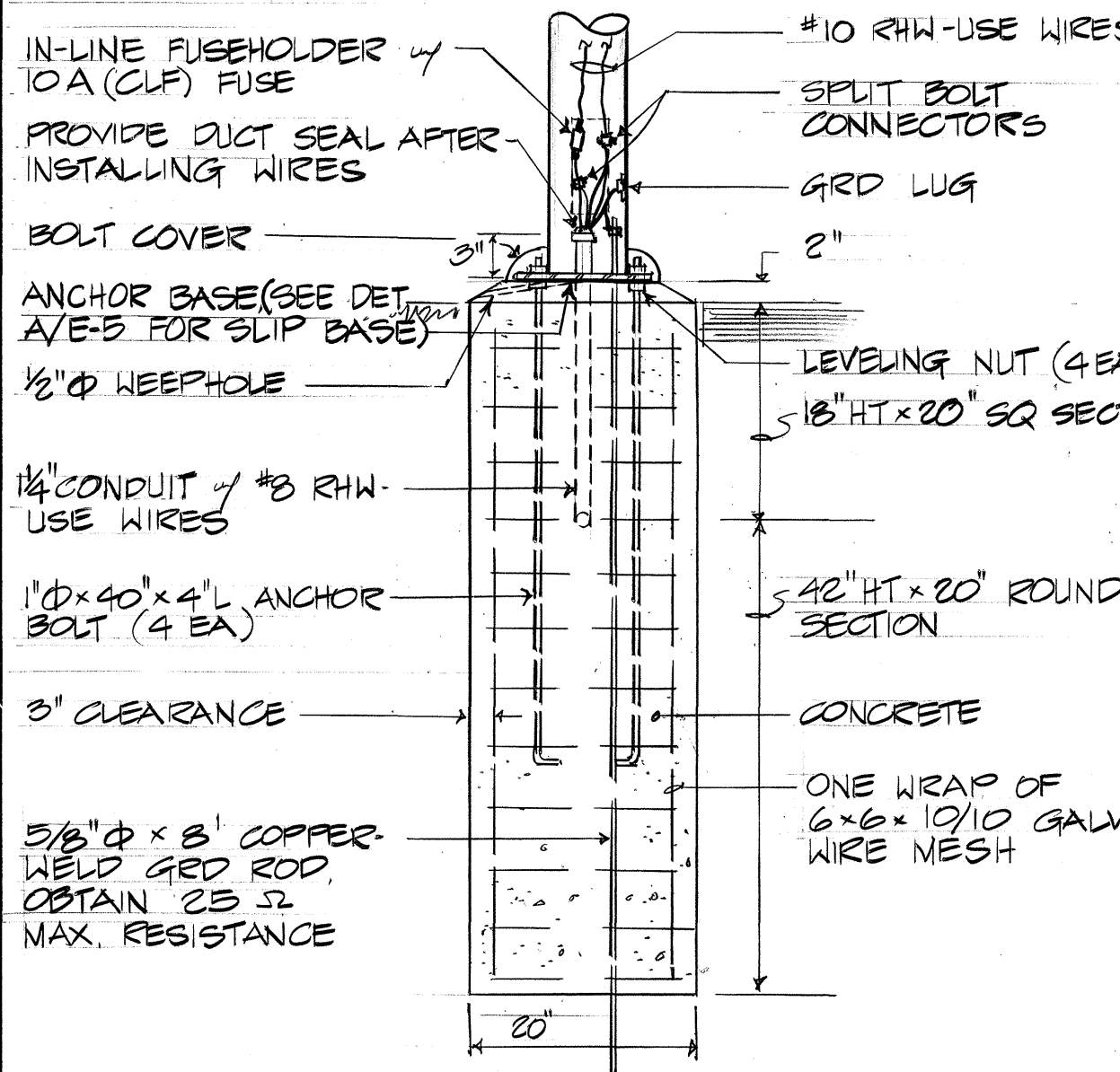
10/23/78	ADDED LEADER
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION	
ELECTRICAL PLAN	
KAMEHAMEHA HIGHWAY IMPROVEMENT (LIKELIKE HIGHWAY TO KOOLAU VIEW DRIVE) PROJECT NO. F-083-1(10)	
SCALE: 1" = 50'	DATE AUG 1978
SHEET No. 2 OF 5 SHEETS	

ADDD. 144 P

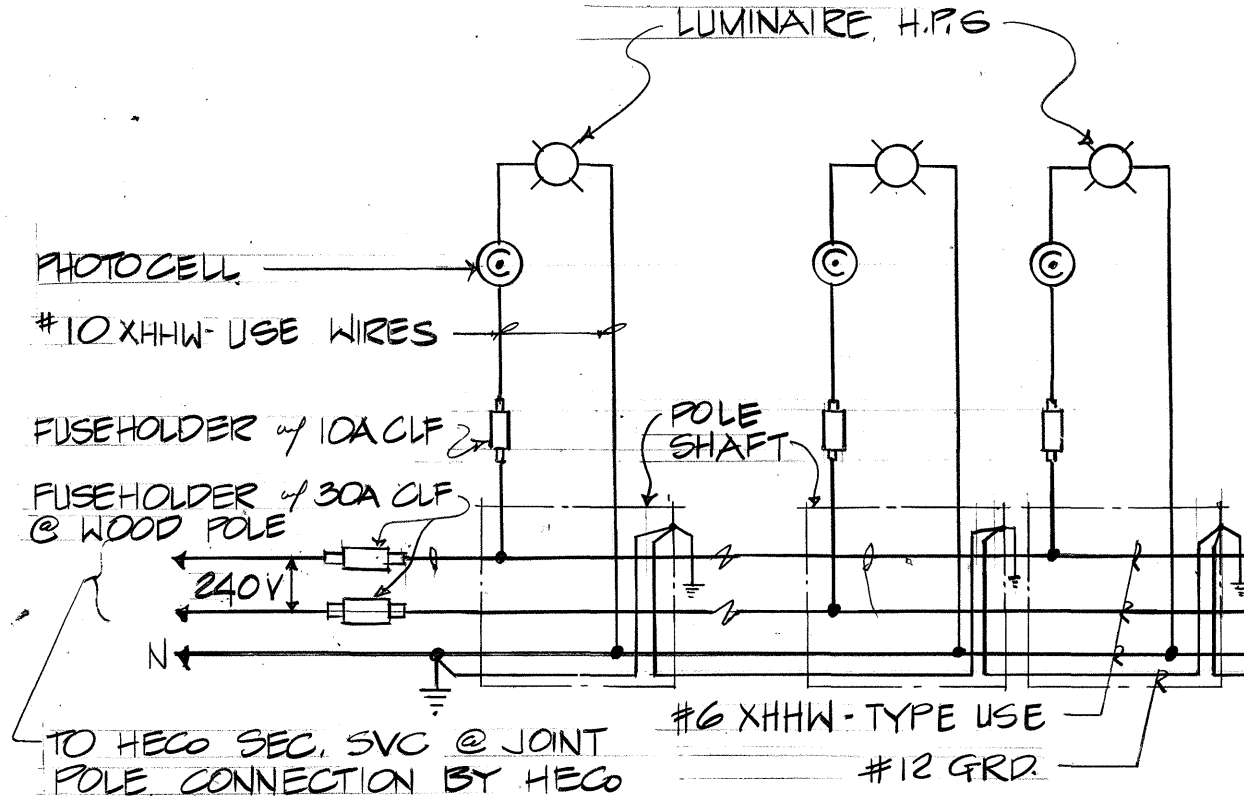
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(10)	1978	145	160



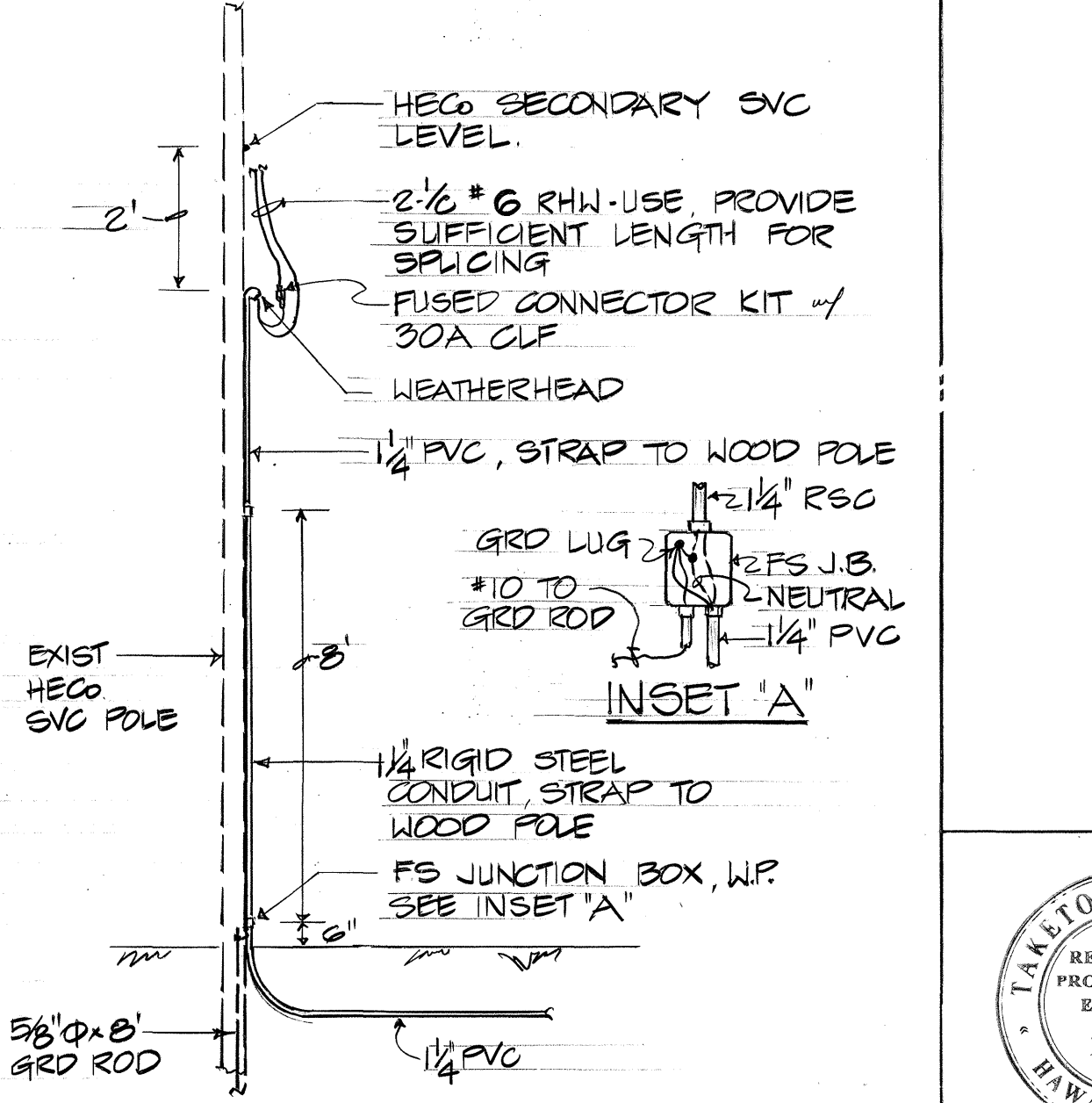
POLE ELEV.
(POLE LOCATION @ MAUKA LANES ONLY)



HIGHWAY LIGHT ID TAG DETAIL
E-3 N.T.S.



- MATERIAL LIST
- EXISTING JOINT POLE
 - 2" SCHED 40 PIPE ARM, GALV.
 - PHOTO CELL RATED FOR 105-285 V OPERATION
 - LUMINAIRE WITH HIGH PRESSURE SODIUM LAMP SEE PLAN FOR LAMP WATTAGE
 - 2-1/2" x 8" XHHW-USE, PROVIDE SUFFICIENT LENGTH TO SPLICE TO HECO SECONDARY LINES. CONNECTION TO SECONDARY LINES BY HECO.
 - 10 AMP FUSE CONNECTOR KIT, WATERPROOF, TRON FUSEHOLDER OR APPROVED EQUAL
 - UNFUSED CONNECTOR KIT
 - 1/4" GALV. WOOD POLE ARM MOUNTING PLATE WITH 2-9/16" DIA HOLES, ATTACHED TO POLE WITH 1/2" DIA LAG SCREW (2 EA.)
 - 2-1/2" x 10" XHHW-USE, COPPER, STRANDED, 600V, 5/8" DIA x REQUIRED LENGTH, MACHINE BOLT, WASHER, NUT, GALV. STEEL



APPROVED
John R. Ellert
HAWAIIAN ELEC. CO.
5/2/78
DATE

HIGHWAY LIGHT STANDARD DET.
E-3 NOT TO SCALE

ONE-LINE DIAGRAM
(UNDERGROUND SYSTEM)

TYP. HIGHWAY LIGHT MT'G DET.
E-3 N.T.S.

HECO SVC. POLE DETAIL
E-3 N.T.S.

TAKITO KAWABATA
REGISTERED PROFESSIONAL ENGINEER
No. 750
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Takito Kawabata

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

MISCELLANEOUS DETAILS

KAMEHAMEHA HIGHWAY IMPROVEMENT
(LIKELIKE HIGHWAY TO KOOLAU VIEW DRIVE)
PROJECT NO. F-083-1(10)

AUG 1978

HIGHWAY LIGHTING NOTES

- HIGHWAY LIGHTING SYSTEM FOR THIS IMPROVEMENT SHALL BE UNDER HAWAIIAN ELEC. CO. INC. CONTRACT NO. 518.
- HIGHWAY LIGHT NUMBERS FOR THIS IMPROVEMENT SHALL BE NO. 112 TO 124 INCLUSIVE & 609 TO 629 INCLUSIVE.
- ALL SECONDARY CIRCUIT EXTENSION ON HECO SECONDARY CABLES SHALL BE PROVIDED BY THE CONTRACTOR. CONNECTION TO HECO SOURCE SHALL BE BY HECO.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INFORMING H.E.CO. OF HIGHWAY LIGHT LOCATIONS ON SITE PRIOR TO INSTALLATION OF THEIR SECONDARY CABLES.
- CONTRACTOR SHALL NOTIFY STATE HIGHWAY DEPT. OF TRANSPORTATION, MAINTENANCE OFF. 72 HOURS BEFORE COMMENCING INSTALLATION OF HIGHWAY LIGHTING SYSTEM, PH 548-2576.
- ALL LUMINAIRES SHALL BE HIGH PRESSURE SODIUM TYPE WITH WATTAGES & I.E.S. LIGHT DISTRIBUTION TYPE AS SHOWN ON PLAN.
- CONTRACTOR SHALL STENCIL DATE OF INSTALLATION AT THE BOTTOM OF PHOTO-CELL.
- NEW LUMINAIRE & POLE COUNT:
 - STEEL POLE:
 - ANCHOR BASE w/ 150 W.H.P.S. - 14
 - ANCHOR BASE w/ 250 W.H.P.S. - 7
 - SLIP BASE w/ 150 W.H.P.S. - 7
 - SLIP BASE w/ 250 W.H.P.S. - 3
 - EXIST WOOD POLE:
 - 150 W.H.P.S. LUMINAIRE - 17
 - 250 W.H.P.S. LUMINAIRE - 17
 - 250 W.H.P.S. REPLACEMENT LUMINAIRE - 2
- CONTRACTOR SHALL HAVE ONE SET OF APPROVED PLANS AT THE JOB SITE AT ALL TIMES DURING THE CONSTRUCTION WORK AND RECORD ALL CHANGES ON CONSTRUCTION WORK.
- START INSTALLATION OF NEW HIGHWAY LIGHTING SYSTEM AT THE TERMINAL END OF THE SERIES CIRCUIT SO AS TO MINIMIZE DISRUPTION OF THE EXISTING HIGHWAY LIGHTS.
- CONTRACTOR SHALL ARRANGE WITH HECO TO ENERGIZE STREET LIGHTS A MINIMUM OF SIX HOURS FOR FINAL INSPECTION AND ACCEPTANCE. CONTRACTOR TO ASSUME COST.
- CONTRACTOR SHALL MEASURE GROUND RESISTANCE OF EACH HIGHWAY LIGHT STANDARD & SUBMIT SAME TO THE ENGINEER.

CONSTRUCTION NOTES

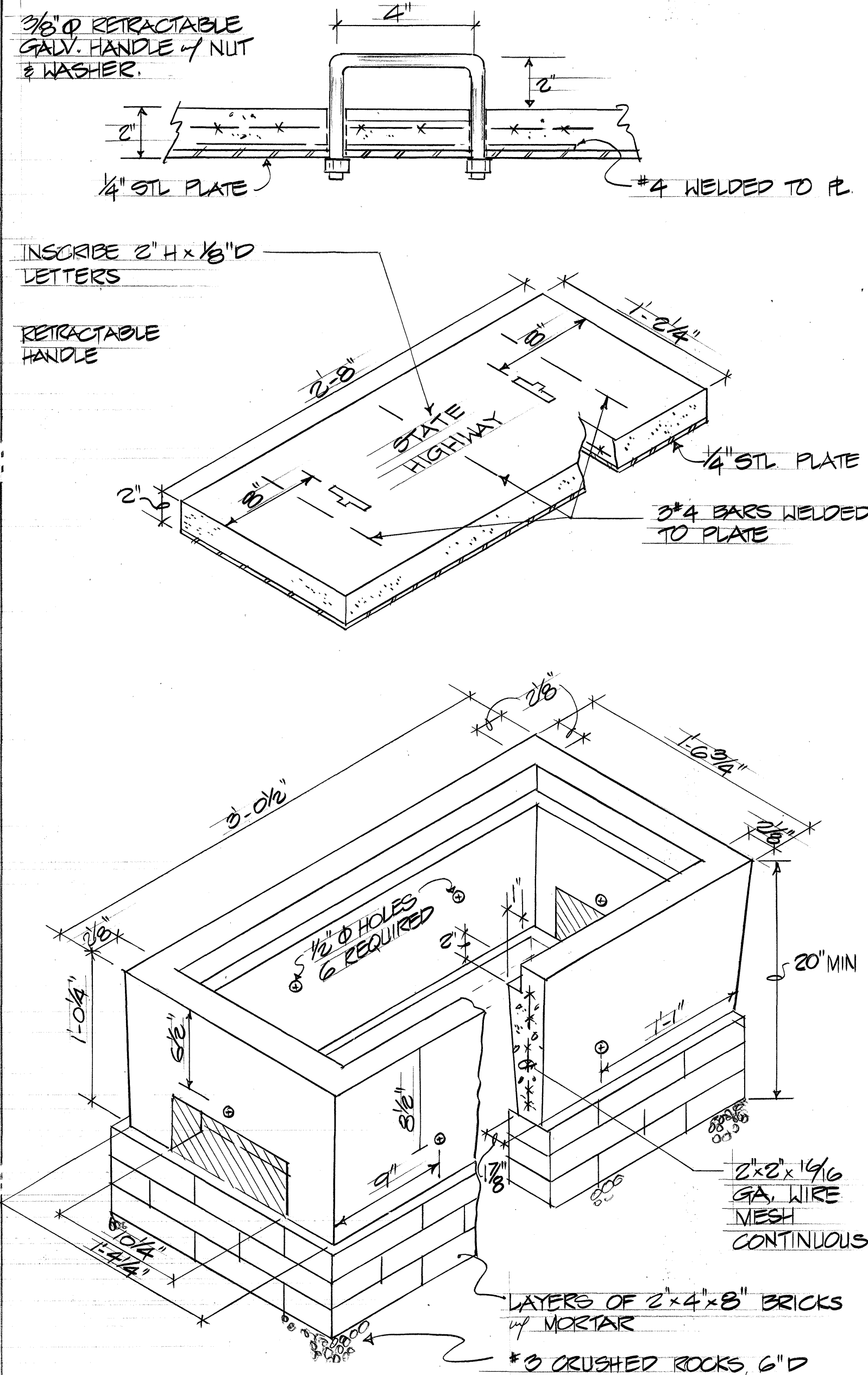
- CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND REMOVAL OF ALL SILT AND DEBRIS GENERATED BY THE EXCAVATION WORK AND DEPOSITED AND ACCUMULATED WITHIN DOWNSTREAM WATERWAYS, DRAIN PIPES, DITCHES AND ON PUBLIC ROADWAYS. THE CONTRACTOR AGREES TO REIMBURSE THE STATE OF HAWAII FOR ALL COST EXPENDED IN THE PERFORMANCE OF THE ABOVE WORK IF REQUIRED FOR PUBLIC HEALTH AND SAFETY OR MADE NECESSARY BY NON-PERFORMANCE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL AT HIS EXPENSE KEEP THE PROJECT AND SURROUNDING AREA FROM DUST NUISANCE. THE STATE SHALL REQUIRE SUPPLEMENTARY MEASURE AS NECESSARY.
- ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON PLANS SHALL BE PROTECTED AT ALL TIMES DURING CONSTRUCTION AND ANY DAMAGES TO THEM SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.
- CONTRACTOR SHALL REPAIR ALL EXISTING LINES AND/OR HEADS DAMAGED BY CONSTRUCTION; AND SHALL AVOID TRENCHING NEAR TREES ROUTE UNDERGROUND CONDUITS AROUND TO PREVENT DAMAGES OR INJURY TO TREES ROOTS.
- ALL WORK RELATING TO THE REPAIR OF CITY OWNED STREETS, CURBS, SIDEWALKS AND DRIVEWAYS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD DETAILS, AUGUST 1970 AND STANDARD SPECIFICATIONS MAY 1975 OF THE DEPT. OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU.
- FOR ADDITIONAL INFORMATION ON LOCATION OF EXISTING UNDERGROUND UTILITY LINES, METER BOXES & HANDHOLES SEE CIVIL PLANS EC-1"=20'.

HAWAIIAN ELECTRIC & TELEPHONE NOTES

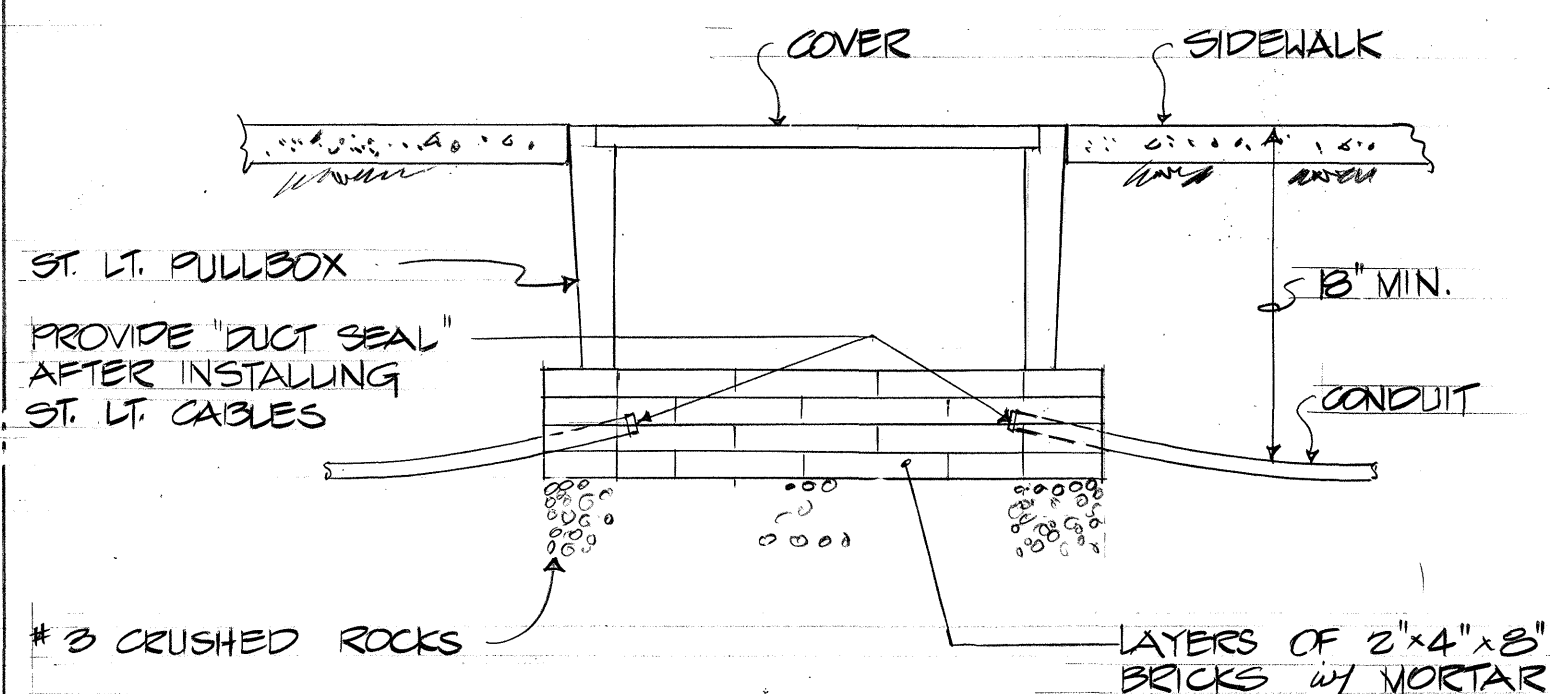
- THE EXISTING HAWAIIAN ELECTRIC CO. & HAWAIIAN TELEPHONE CO. FACILITIES SHOWN ON THESE PLANS ARE TO THE BEST INFORMATION THAT ARE AVAILABLE ON OUR RECORDS.
- PRIOR TO EXCAVATION IN THOSE AREAS WHERE THE HECO & HTCO FACILITIES WILL BE CLOSED BY THE CONTRACTOR SHALL REQUEST THE SERVICES OF A HECO STAND-BY MAN BY CALLING THE UNDERGROUND DIVISION, DISTRIBUTION DEPT. PH 548-3544 & THE SERVICES TO TONE CABLES BY CALLING HTCO OUTSIDE PLANT PH. 842-9122. 48 HOURS BEFORE THE SCHEDULED EXCAVATION IS TO TAKE PLACE.
- ANY DIGGING THAT IS TO BE PERFORMED IN THE PROXIMITY OF SAID HECO & HTCO FACILITIES SHALL BE DONE BY HAND TO PREVENT ANY UNDUE DAMAGES TO THE HECO & HTCO FACILITIES.
- THE CONTRACTOR IS TO EXERCISE EXTREME CARE SO AS NOT TO DISTURB THE EXISTING ELECTRIC & TELEPHONE CABLES & DUCT LINES & SHALL WORK CAUTIOUSLY TO AVOID ACCIDENTS.

BOARD OF WATER SUPPLY NOTES

- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS & CONSTRUCTION OF WATER SYSTEM FACILITIES & APPURTENANCES SHALL BE IN ACCORDANCE w/ THE HONOLULU BOARD OF WATER SUPPLY WATER SYSTEM STANDARDS DATED MARCH 1977 & ALL SUBSEQUENT AMENDMENTS & ADDITIONS.
- PRIOR TO EXCAVATION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING WATER MAINS & APPURTENANCES IN THE FIELD.
- THE CONTRACTOR SHALL RE-ADJUST WATER SERVICES AND/OR METERS TO FACILITATE THE DUCTLINE CONSTRUCTION w/ THE B.W.S. INSPECTOR COORDINATING THE WORK.
- THE EXISTENCE & LOCATION OF UNDERGROUND FACILITIES & STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA BUT ARE NOT GUARANTEED AS TO THE ACCURACY OR THAT OTHER OBSTACLES MAY NOT BE ENCOUNTERED DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE & SHALL PAY FOR ALL DAMAGES TO THE EXISTING FACILITIES.
- WHERE THE CONSTRUCTION OF THE NEW DUCTLINE IS TO CROSS OVER OR UNDER EXISTING WATER MAINS THE CONTRACTOR SHALL EXPOSE THE EXISTING WATER MAINS PRIOR TO TRENCHING. EXCAVATION AROUND WATER MAINS SHALL BE DONE BY HAND.



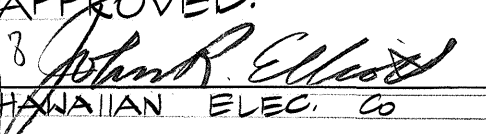
(A) TYP. LIGHTING PULLBOX DETAIL
(E-4) N.T.S.

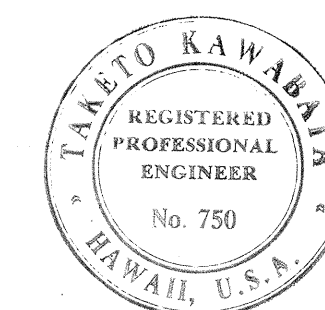


(B) TYP. LIGHTING PULLBOX INSTALLATION
(E-4) N.T.S.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(10)	1978	146	160

10/23/78	CLARIFIED HIGHWAY LIGHTING NOTE
DATE	REVISION

APPROVED:

 HAWAIIAN ELEC. CO. 5/2/78
 DATE



THIS WORK WAS PREPARED BY
 ME OR UNDER MY SUPERVISION
 Taro K. Kawahara

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
 NOTES AND DETAILS
 KAMEHAMEHA HIGHWAY
 IMPROVEMENT
 (LIKELIKE HIGHWAY TO KOOLAU VIEW DRIVE)
 PROJECT NO. F-083-1(10)

SHEET No. 4 OF 5 SHEETS

ADD. 146P

