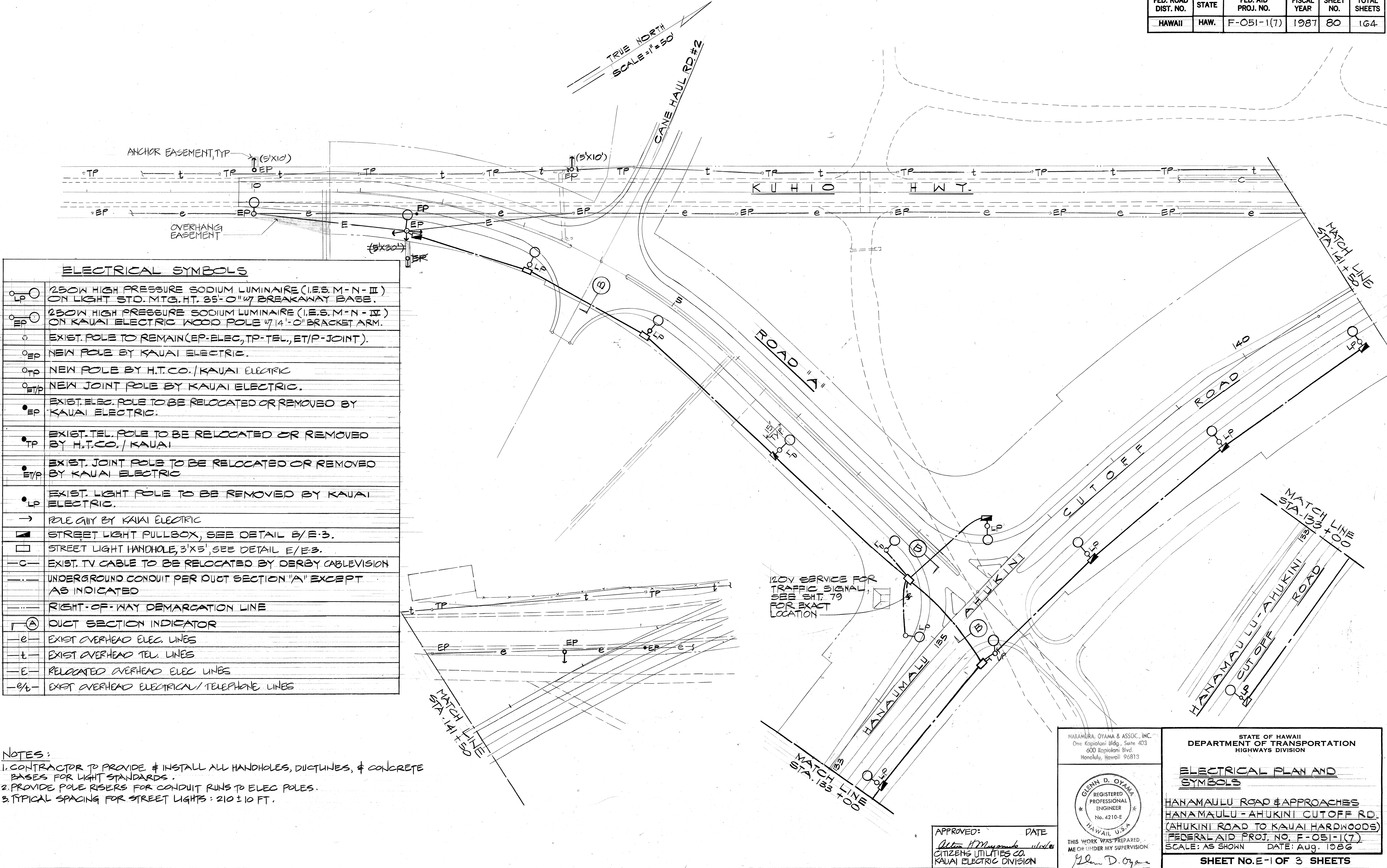


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | F-051-1(7)         | 1987        | 80        | 164          |

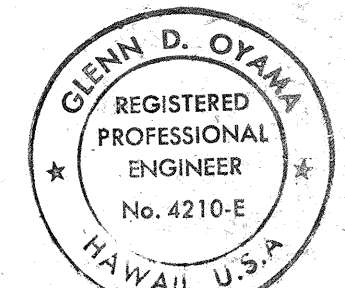
| ELECTRICAL SYMBOLS |                                                                                                        |
|--------------------|--------------------------------------------------------------------------------------------------------|
|                    | 250W HIGH PRESSURE SODIUM LUMINAIRE (I.E.S. M-N-III) ON LIGHT STD. MTG. HT. 25'-0" w/ BREAKAWAY BASE.  |
|                    | 250W HIGH PRESSURE SODIUM LUMINAIRE (I.E.S. M-N-IV) ON KAUAI ELECTRIC WOOD POLE w/ 14'-0" BRACKET ARM. |
|                    | EXIST. POLE TO REMAIN (EP-ELEC, TP-TEL, ET/P-JOINT).                                                   |
|                    | NEW POLE BY KAUAI ELECTRIC.                                                                            |
|                    | NEW POLE BY H.T. CO. / KAUAI ELECTRIC.                                                                 |
|                    | NEW JOINT POLE BY KAUAI ELECTRIC.                                                                      |
|                    | EXIST. ELEC. POLE TO BE RELOCATED OR REMOVED BY KAUAI ELECTRIC.                                        |
|                    | EXIST. TEL. POLE TO BE RELOCATED OR REMOVED BY H.T. CO. / KAUAI.                                       |
|                    | EXIST. JOINT POLE TO BE RELOCATED OR REMOVED BY KAUAI ELECTRIC.                                        |
|                    | EXIST. LIGHT POLE TO BE REMOVED BY KAUAI ELECTRIC.                                                     |
|                    | POLE GUY BY KAUAI ELECTRIC.                                                                            |
|                    | STREET LIGHT PULLBOX, SEE DETAIL B/E-3.                                                                |
|                    | STREET LIGHT HANDHOLE, 3'x5', SEE DETAIL E/E-3.                                                        |
|                    | EXIST. TV CABLE TO BE RELOCATED BY DERBY CABLEVISION.                                                  |
|                    | UNDERGROUND CONDUIT PER DUCT SECTION "A" EXCEPT AS INDICATED.                                          |
|                    | RIGHT-OF-WAY DEMARCATION LINE.                                                                         |
|                    | DUCT SECTION INDICATOR.                                                                                |
|                    | EXIST. OVERHEAD ELEC. LINES.                                                                           |
|                    | EXIST. OVERHEAD TEL. LINES.                                                                            |
|                    | RELOCATED OVERHEAD ELEC. LINES.                                                                        |
|                    | EXIST. OVERHEAD ELECTRICAL/TELEPHONE LINES.                                                            |

- NOTES:
- CONTRACTOR TO PROVIDE & INSTALL ALL HANDHOLES, DUCTINES, & CONCRETE BASES FOR LIGHT STANDARDS.
  - PROVIDE POLE RISERS FOR CONDUIT RUNS TO ELEC. POLES.
  - TYPICAL SPACING FOR STREET LIGHTS: 210 ± 10 FT.

|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
|               | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY        |      |



NARAHURA, OYAMA & ASSOC., INC.  
One Kapiolani Bldg., Suite 403  
600 Kapiolani Blvd.  
Honolulu, Hawaii 96813



THIS WORK WAS PREPARED  
ME OR UNDER MY SUPERVISION  
Glenn D. Oyama

APPROVED: DATE  
Glenn D. Oyama  
CITIZENS UTILITIES CO.  
KAUAI ELECTRIC DIVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

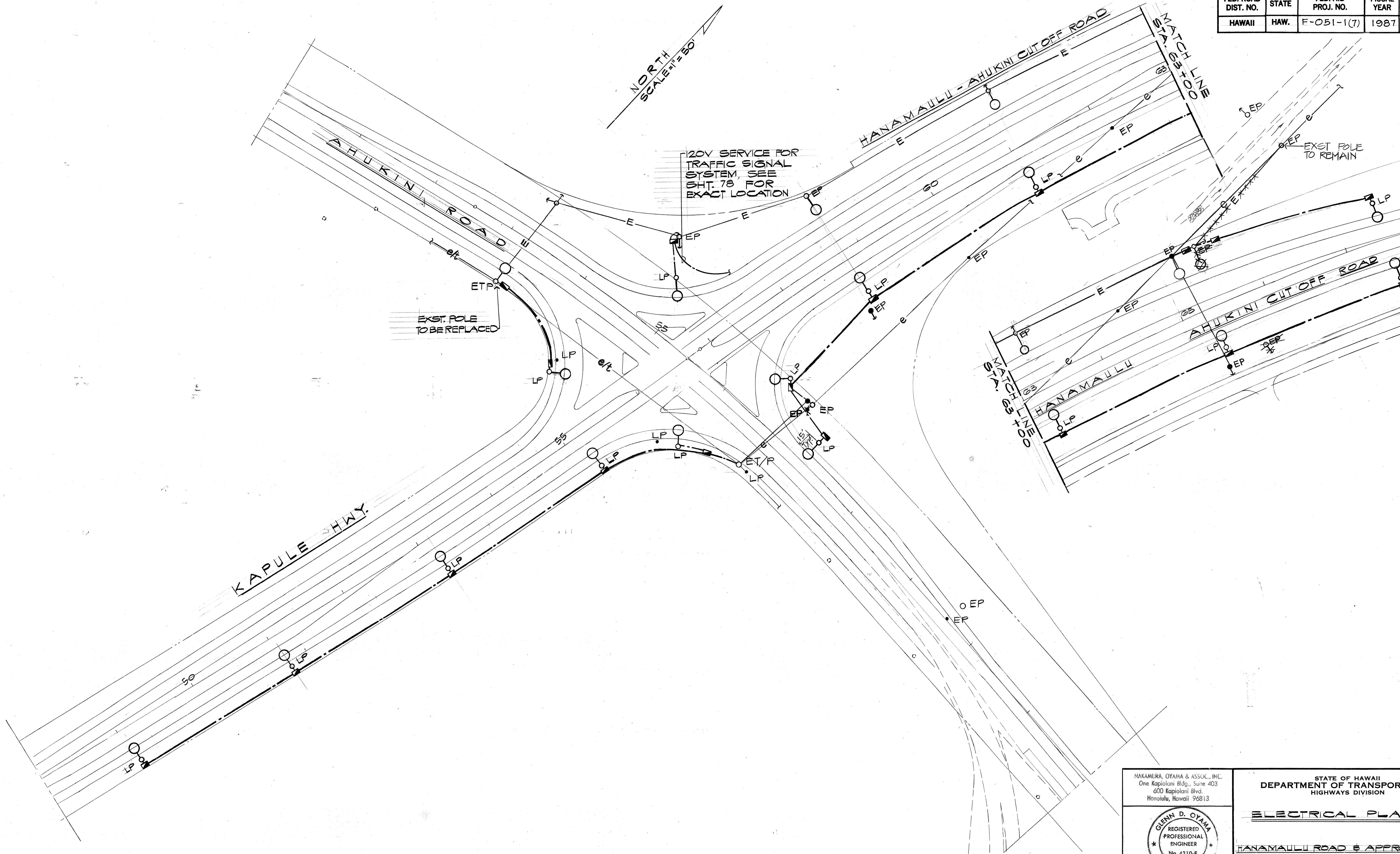
**ELECTRICAL PLAN AND SYMBOLS**

HANAMAULU ROAD & APPROACHES  
HANAMAULU - AHUKINI CUTOFF RD.  
(AHUKINI ROAD TO KAUAI HARDWOODS)  
FEDERAL AID PROJ. NO. F-051-1(7)  
SCALE: AS SHOWN DATE: Aug. 1986

SHEET NO. E-1 OF 3 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | F-051-1(7)         | 1987        | 81        | 164          |



|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | CHECKED BY        |      |

NAKAMURA, OYAMA & ASSOC., INC.  
One Kapiolani Bldg., Suite 403  
600 Kapiolani Blvd.  
Honolulu, Hawaii 96813

**GLENN D. OYAMA**  
REGISTERED PROFESSIONAL ENGINEER  
No. 4210-E  
HAWAII, U.S.A.

APPROVED: \_\_\_\_\_ DATE \_\_\_\_\_  
FOR WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
*Glenn D. Oyama*  
CITIZENS UTILITIES CO.  
KAWAI ELECTRIC DIVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ELECTRICAL PLAN**

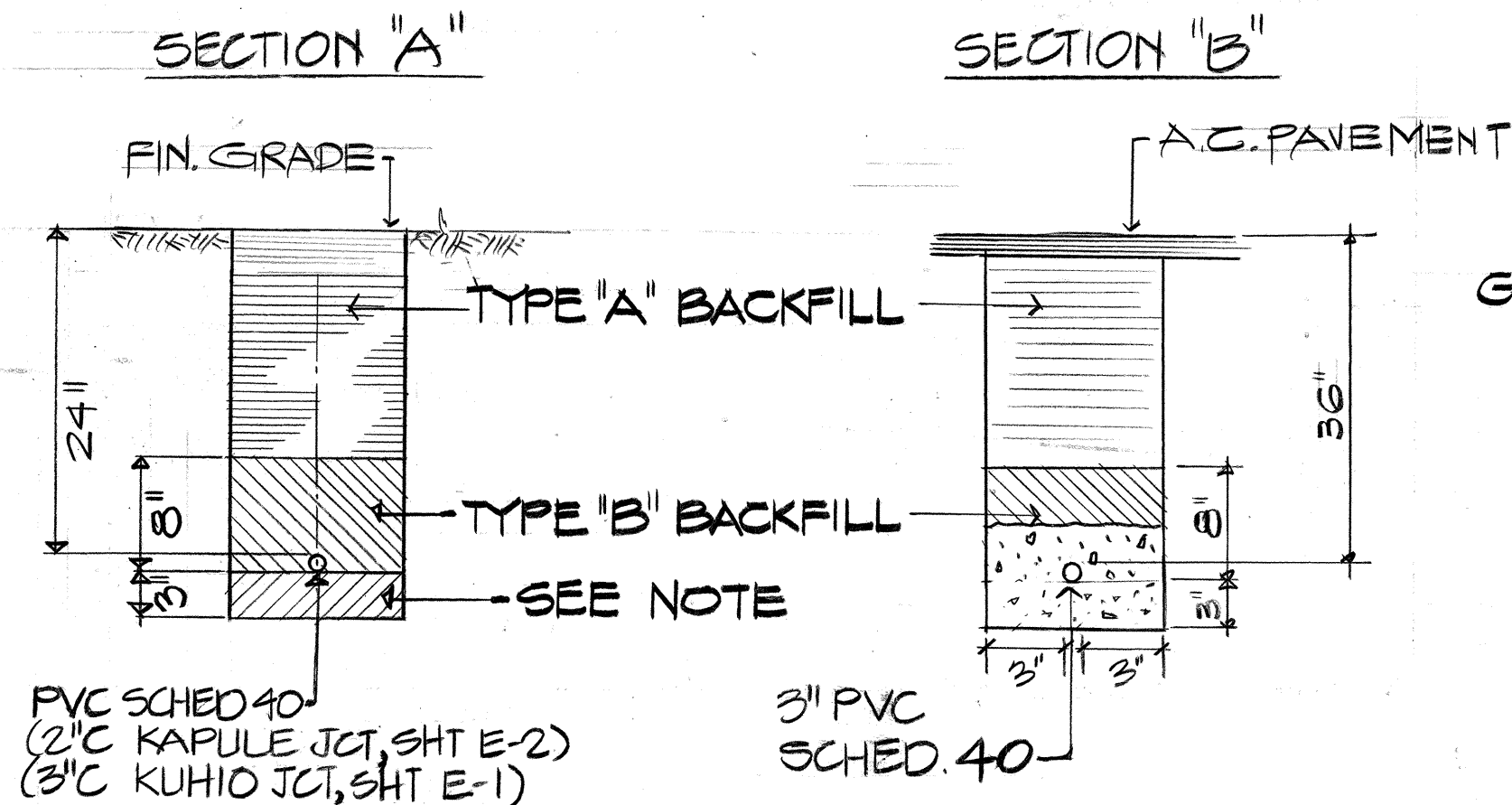
HANAMAULU ROAD & APPROACHES  
HANAMAULU - AHUKINI CUTOFF RD.  
(AHUKINI ROAD TO KAWAI HARDWOODS)  
FEDERAL AID PROJ. NO. F-051-1(7)  
SCALE: AS SHOWN DATE: AUG., 1986

**SHEET No. 81 OF 3 SHEETS**



# CONSTRUCTION NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND REMOVAL OF ALL SILT AND DEBRIS GENERATED BY THE EXCAVATION WORK AND DEPOSITED AND ACCUMULATED WITHIN DOWN-STREAM 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.
2. THE CONTRACTOR SHALL AT HIS EXPENSE KEEP THE PROJECT AND SURROUNDING AREA FROM DUST NUISANCE. THE STATE SHALL REQUIRE SUPPLEMENTARY MEASURE AS NECESSARY.
3. 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.
4. CONTRACTOR SHALL REPAIR ALL EXISTING LINES AND/OR HEADS DAMAGED BY CONSTRUCTION, AND SHALL AVOID TRENCHING NEAR TREES. ROUTE UNDERGROUND CONDUITS AROUND TO PREVENT DAMAGE OR INJURY TO TREES' ROOTS.
5. FOR ADDITIONAL INFORMATION ON LOCATION OF EXISTING UNDERGROUND UTILITY LINES, METER BOXES & HANDHOLES, SEE CIVIL PLANS EC: 1"=50'.



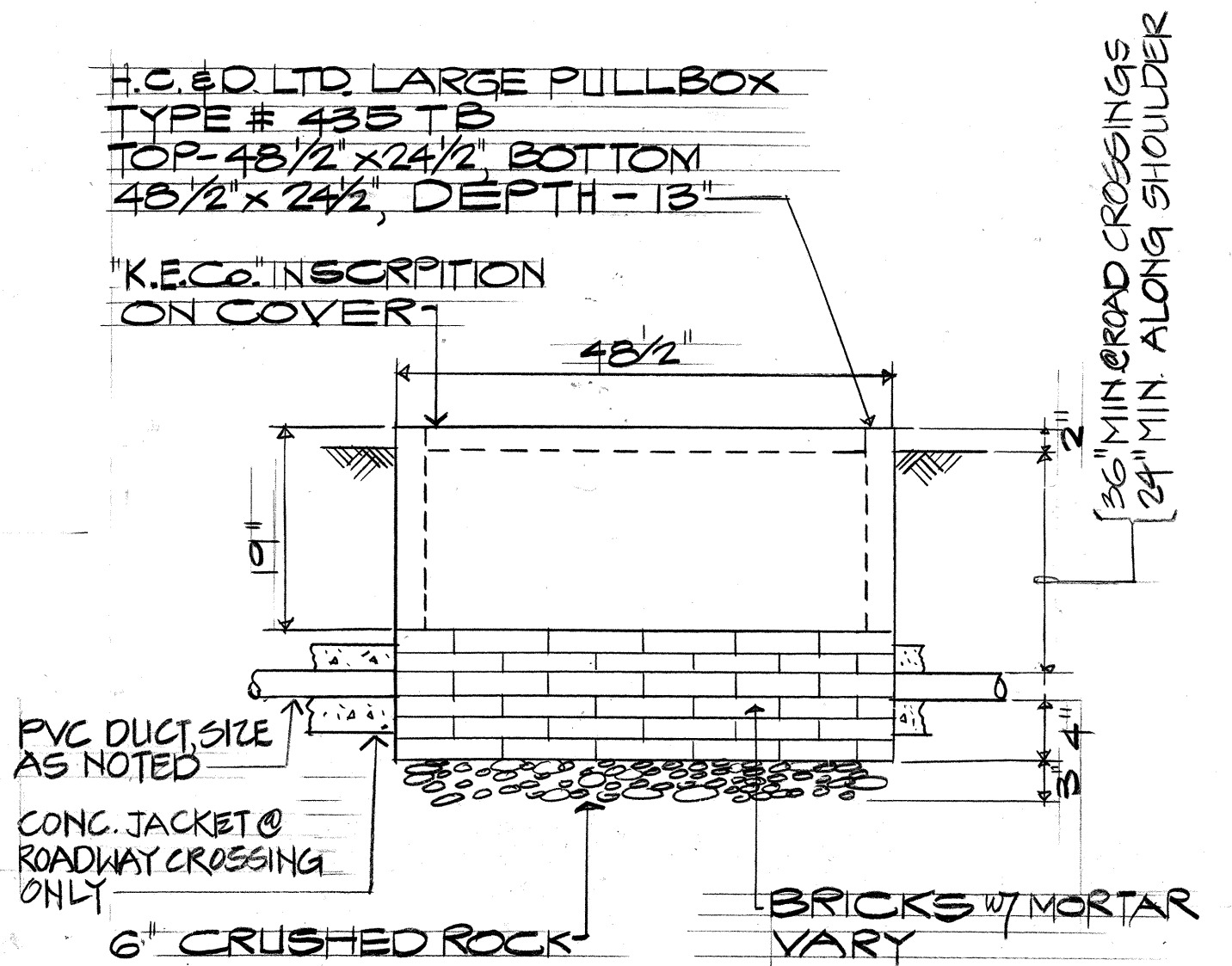
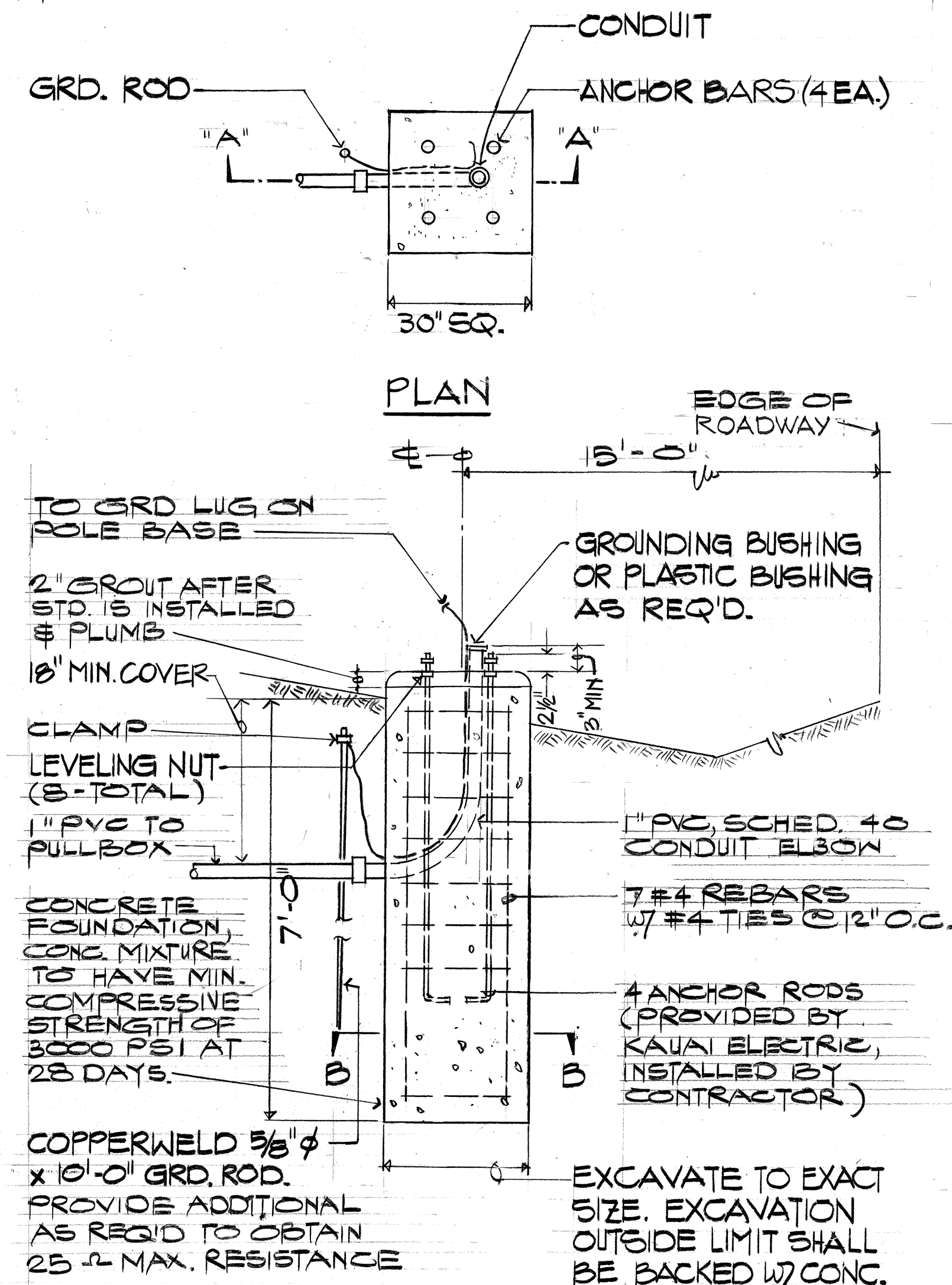
**CONDUIT UNDER FINISHED GRADE OR OFF ROADWAY**

**DUCT SECTIONS BACKFILL DATA:**

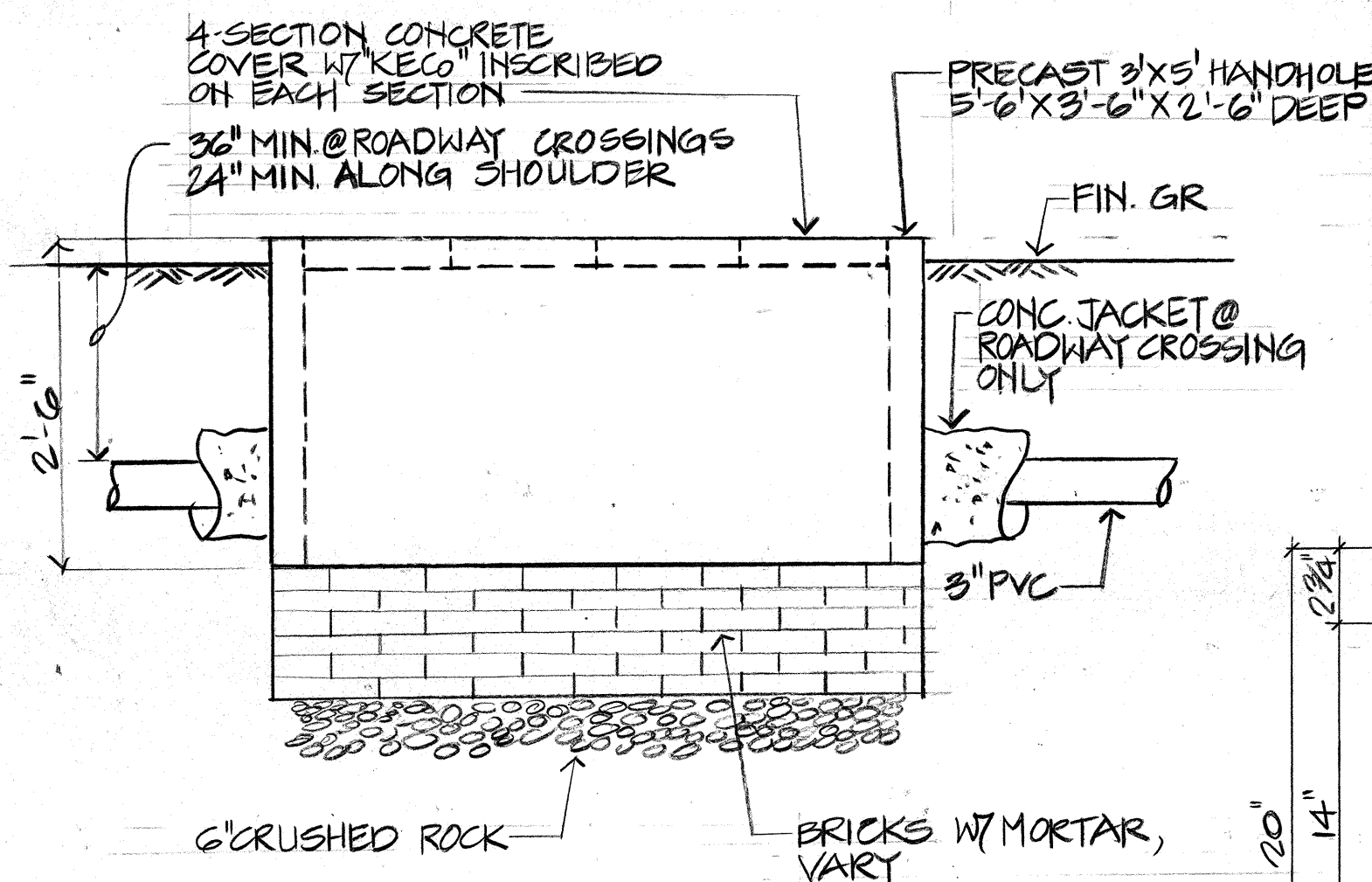
**TYPE "A" :** BEACH SAND, EARTH, OR EARTH & GRAVEL; IF EARTH & GRAVEL USED, MAX. ROCK SIZE SHALL BE 1" & MIXTURE SHALL CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES.

**TYPE "B" :** SAME AS "A" EXCEPT THAT IF EARTH & GRAVEL USED, THE MIXTURE SHALL PASS A 1/2" MESH SCREEN & CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES.

**NOTE :** IF THE NORMAL MATERIAL IN THE BOTTOM OF THE TRENCH IS NOT TYPE "B", AN ADDITIONAL 3' SHALL BE EXCAVATED & TYPE "B" BACKFILL SHALL BE PROVIDED.

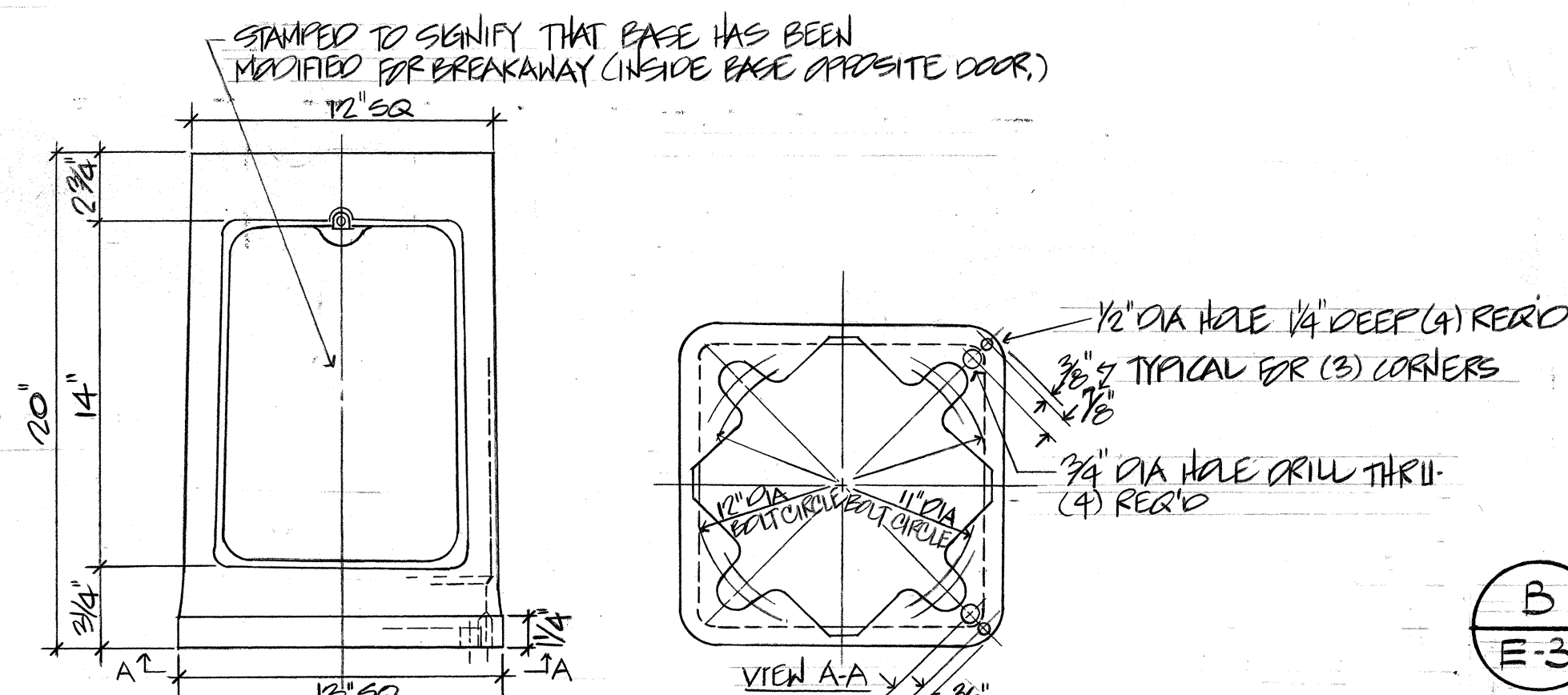


**PULLBOX DETAIL**  
E-3 N.T.S.



**HANDHOLE DETAIL**  
E-3

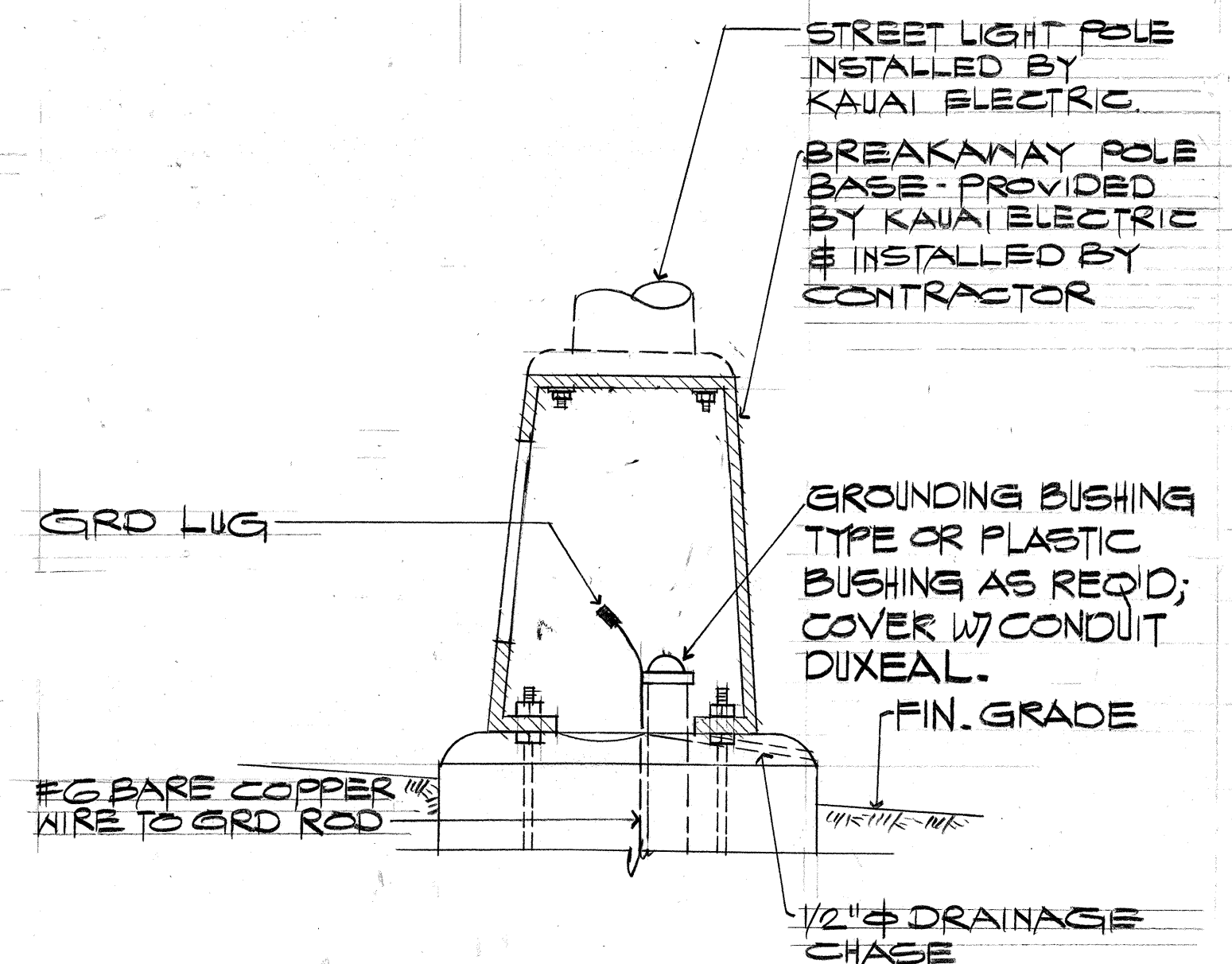
**TYP. HIGHWAY LIGHT CONDUIT SECTION**  
N.T.S.



**BREAKAWAY TRANSFORMER BASE**  
E-3 N.T.S.

- NOTES:**
1. TRANSFORMER BASE PROVIDED BY KAUAI ELEC & INSTALLED BY CONTRACTOR
  2. BREAKAWAY BASE IS AS DETAILED ON HAWAIIAN PWA 16-803457 DATED 4/17/80 AND ACCEPTED BY FHWA.

**STREET LIGHT DETAIL**  
E-3 N.T.S.



**BASE DETAIL**

|                   |  |
|-------------------|--|
| DATE              |  |
| SURVEY PLOTTED BY |  |
| DRAWN BY          |  |
| DESIGNED BY       |  |
| NOTED BY          |  |
| CHECKED BY        |  |
| ORIGINAL PLAN     |  |
| NOTE BOOK         |  |
| NO.               |  |

APPROVED: *[Signature]* DATE *[Date]*  
CITIZENS UTILITIES CO.  
KAUAI ELECTRIC DIVISION

MAXAMURA, OYAMA & ASSOC., INC.  
One Kapiolani Bldg., Suite 403  
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Honolulu, Hawaii 96813

**GLINN D. OYAMA**  
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No. 4210-E  
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
*[Signature]*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**CONSTRUCTION NOTES AND MISC. DETAILS**

HANAMAULI ROAD & APPROACHES  
HANAMAULI - AHUKINI CUTOFF RD.  
(AHUKINI ROAD TO KAUAI HARDWOODS)  
FEDERAL PROJ. NO. FOSI-1 (7)  
SCALE: AS SHOWN DATE: AUG, 1986

**SHEET NO. E-3 OF 3 SHEETS**