

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-058-1(1)	1990	24	29

NOTES

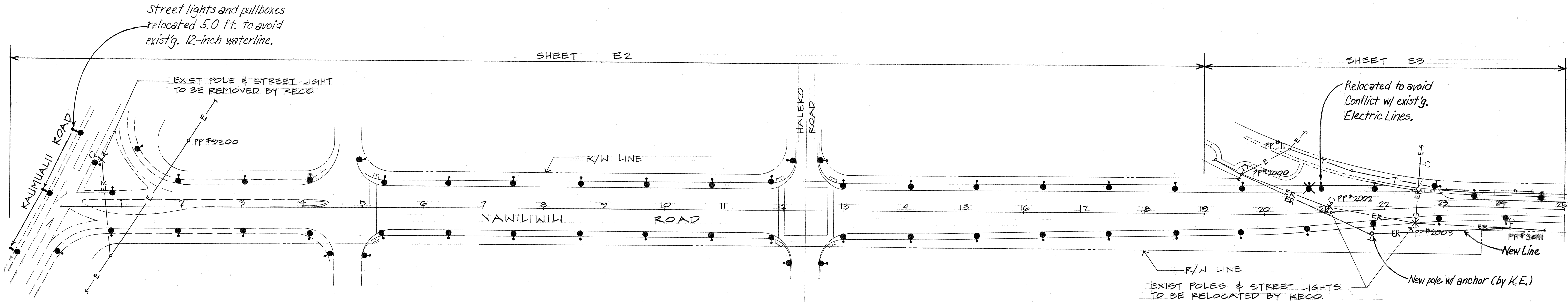
- ALL STREETLIGHT LUMINAIRES ARE MOUNTED AT 28'-0".
- SEE SINGLE LINE FOR ALL WIRE SIZES.
- STREET LIGHT POLE SHALL HAVE SLIP BASE.

LIGHTING DATA

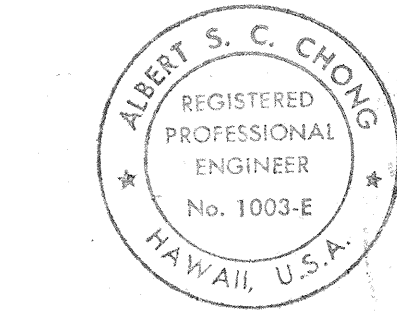
ILLUMINATION LEVEL - 1.1 FC
UNIFORMITY RATIO (AVG/MIN) - 3:1

ELECTRICAL SYMBOLS

- NEW STREETLIGHT AND PULLBOX NEAR BASE. ALL 150W HPS IES TYPE II MED SEMI-CUTOFF LUMINAIRE, 28 FT MTG HT.
- TRANSFORMER, POLE MTD, SIZE AS NOTED ON PLAN (BY KECO)
- TRAFFIC CONTROLLER
- EXIST UTILITY POLE
- WIRING IN RACEWAY BELOW GRADE
- PULLBOX TYPE INDICATOR
- DUCT BANK INDICATOR
- EXIST UTILITY POLE W/ANCHOR & STREET LIGHT TO BE REMOVED OR RELOCATED BY KECO
- EXIST OVERHEAD ELEC LINE
- EXIST OVERHEAD TEL LINE
- EXIST OVERHEAD ELEC LINE TO BE RELOCATED BY KECO
- EXIST OVERHEAD TEL LINE TO BE RELOCATED BY HTCO.



GENERAL LIGHTING PLAN
SCALE: 1" = 80'



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Albert S. C. Chong

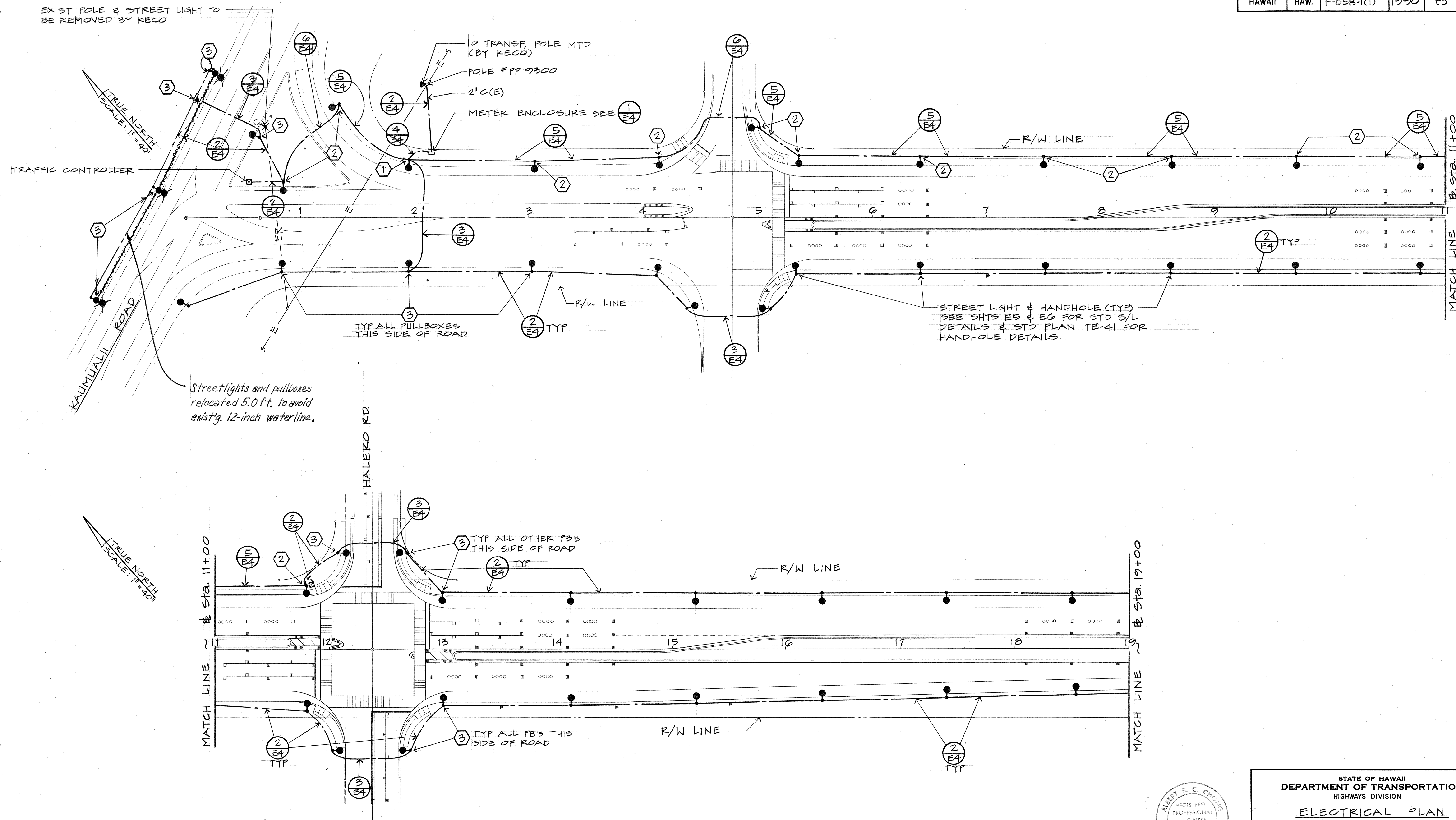
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL LIGHTING PLAN
SYMBOLS & NOTES

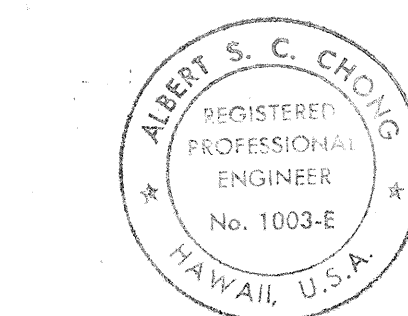
NAWILIWILI ROAD REALIGNMENT
HALEHAKA ROAD TO KAUMUALII HIGHWAY
FED AID PROJECT No. F-058-1(1)
SCALE: AS NOTED DATE: SEPT. 1989
SHEET No. E1 OF 6 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-058-1(1)	1990	25	29



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

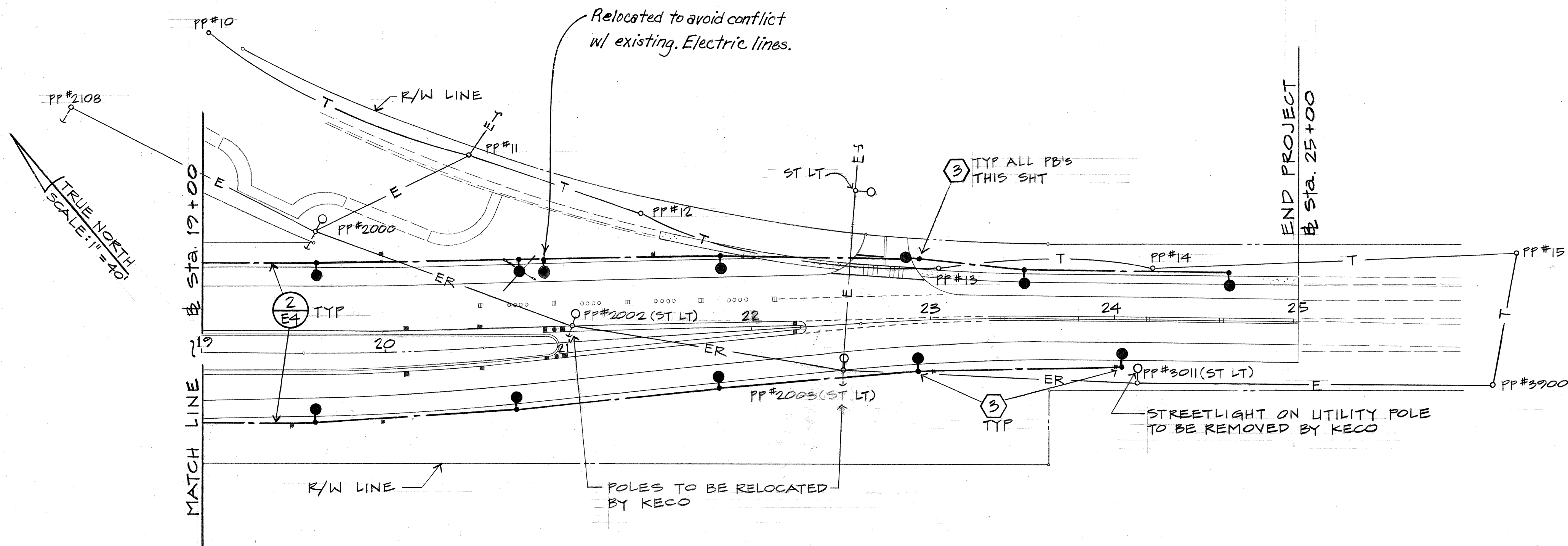


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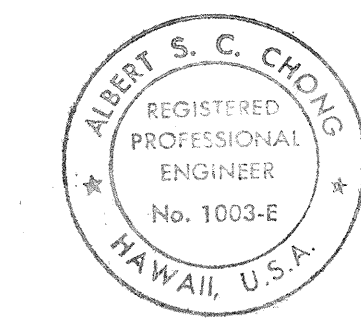
Albert S. C. Chong

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
ELECTRICAL PLAN
NAWILIWILI ROAD REALIGNMENT HALEHAKA ROAD TO KAUNUALII HIGHWAY
FED. AID PROJECT No. F-058-1(1)
SCALE: AS NOTED DATE: SEPT. 1989
SHEET No. E2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-058-1(1)	1990	26	69



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



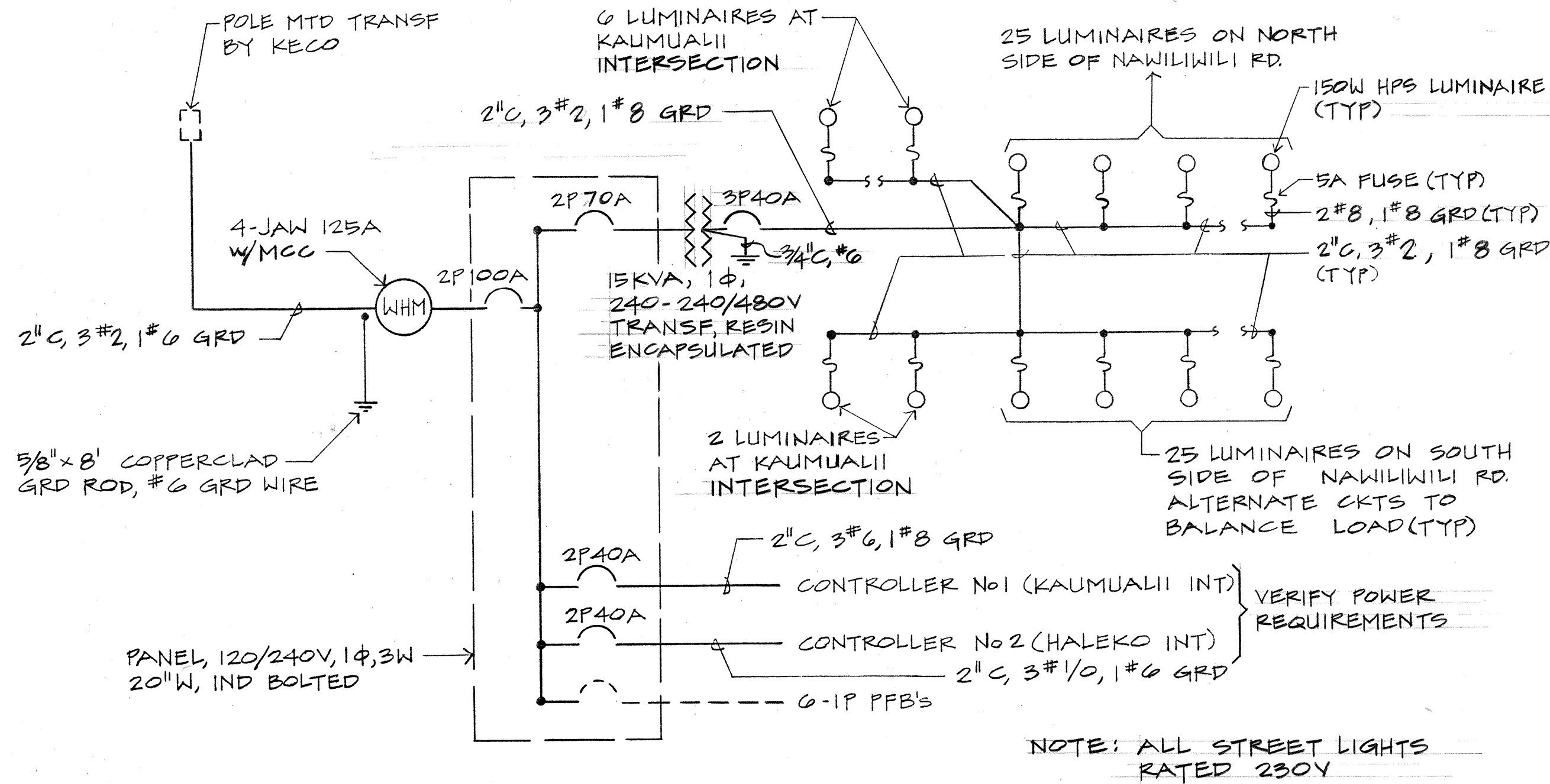
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

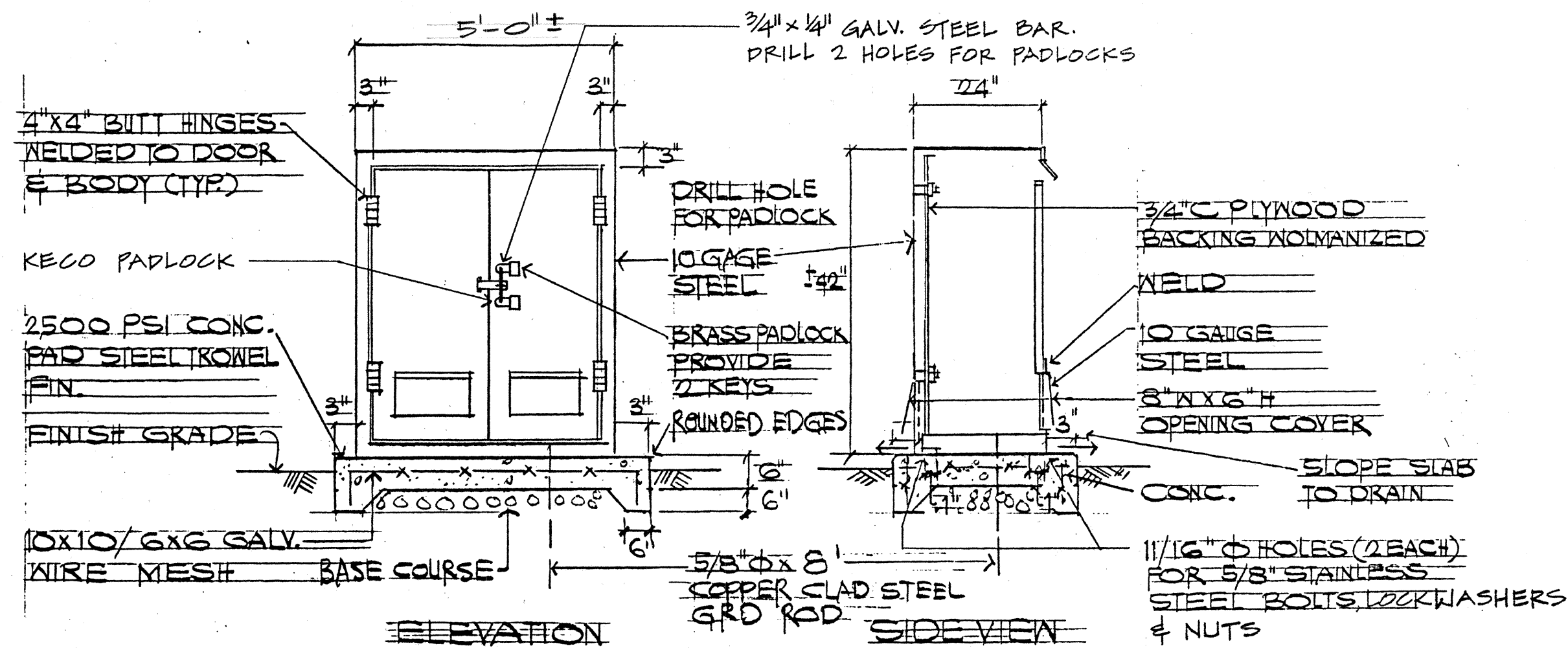
ELECTRICAL PLAN

NAWILIWILI ROAD REALIGNMENT
HALEHAKA ROAD TO KAUMUALII HIGHWAY
FED. AID PROJECT No. F-058-1(1)
SCALE: AS NOTED DATE: SEPT. 1989
SHEET NO. E3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-058-1(1)	1990	67	69



SINGLE LINE DIAGRAM
NTS



ELEVATION

SIDE VIEW

NOTES:

1. PROVIDE LARGER ENCLOSURE IF NEEDED TO SUIT EQUIPMENT.
2. ENCLOSURES TO BE GALVANIZED STEEL AND PAINTED.
3. PAINT ONE COAT ZINC RICH PRIMER AND TWO COATS OF 1.5-MIL DRY FILM PER COAT AND 4-MIL WET FILM PER COAT OF DEVCO #58177-01, #285 MEDIUM GREEN COLOR.
4. PAINT BOTTOM AND LOWER 6" OF ENCLOSURE WITH ASPHALT PAINT ON INSIDE AND OUTSIDE BEFORE PLACING ON CONCRETE PAD.

1 METAL CABINET ENCLOSURE DETAIL
E4 NTS

BACKFILL NOTES

TYPE "A"

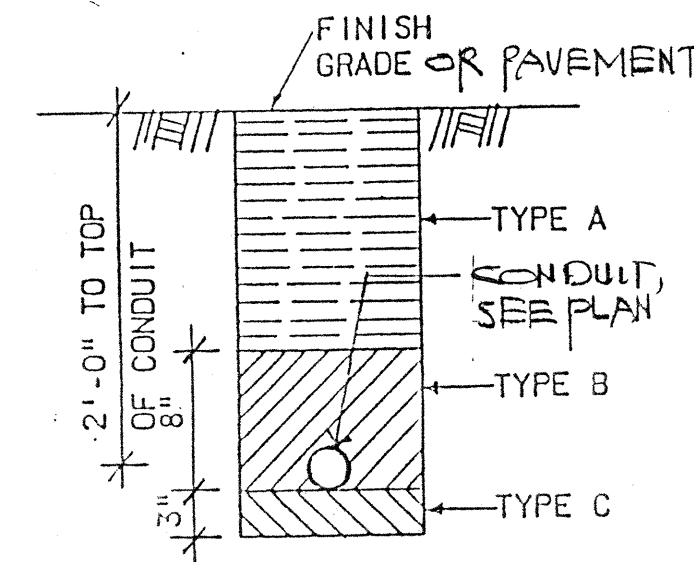
BEACH SAND, EARTH, OR EARTH AND GRAVEL, THE MAXIMUM ROCK SIZE SHALL BE 1" AND THE MIXTURE SHALL CONTAIN NO MORE THAN 50 PER CENT BY VOLUME OF ROCK PARTICLES.

TYPE "B"

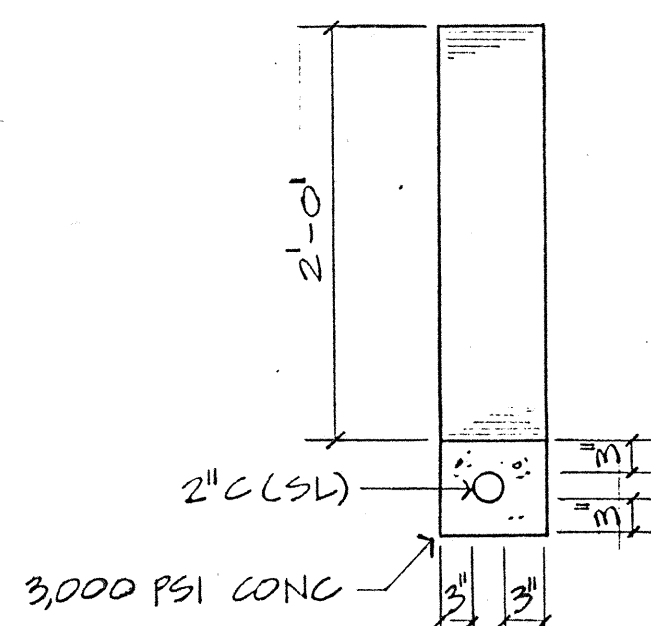
BEACH SAND, EARTH, OR EARTH AND GRAVEL, IF EARTH AND GRAVEL MIXTURE, MUST PASS A 1/2" MESH SCREEN AND CONTAIN NOT MORE THAN 20 PER CENT BY VOLUME OF ROCK PARTICLES.

TYPE "C"

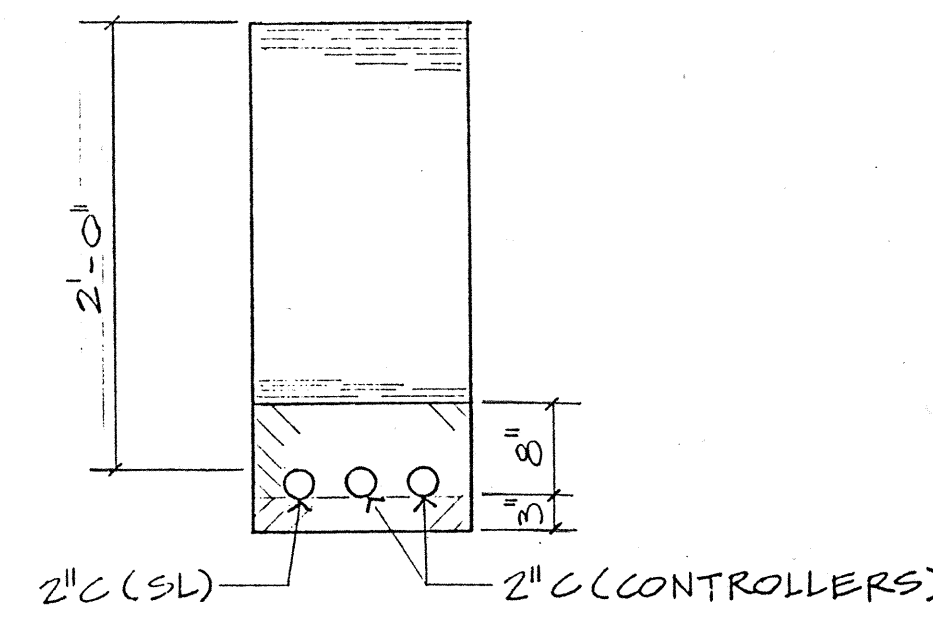
IF THE NORMAL MATERIAL IN THE BOTTOM OF THE TRENCH IS NOT TYPE "B", AN ADDITIONAL 3" SHALL BE EXCAVATED AND TYPE "B" BACKFILL SHALL BE PROVIDED.



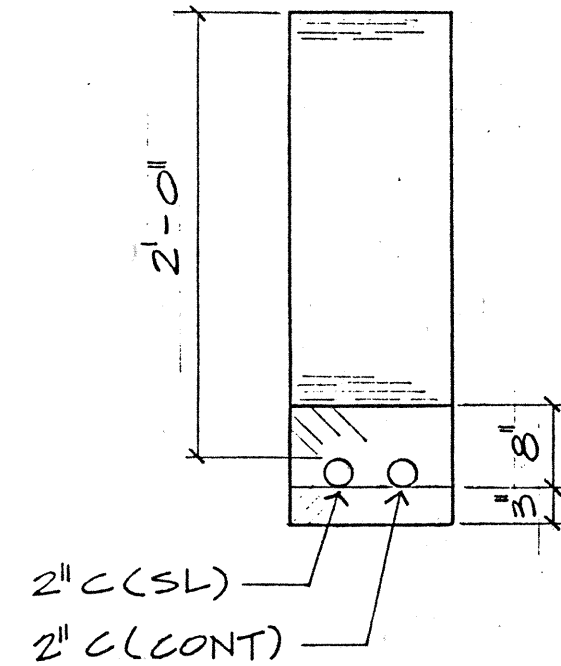
2 SECTION
E4 N.T.S.



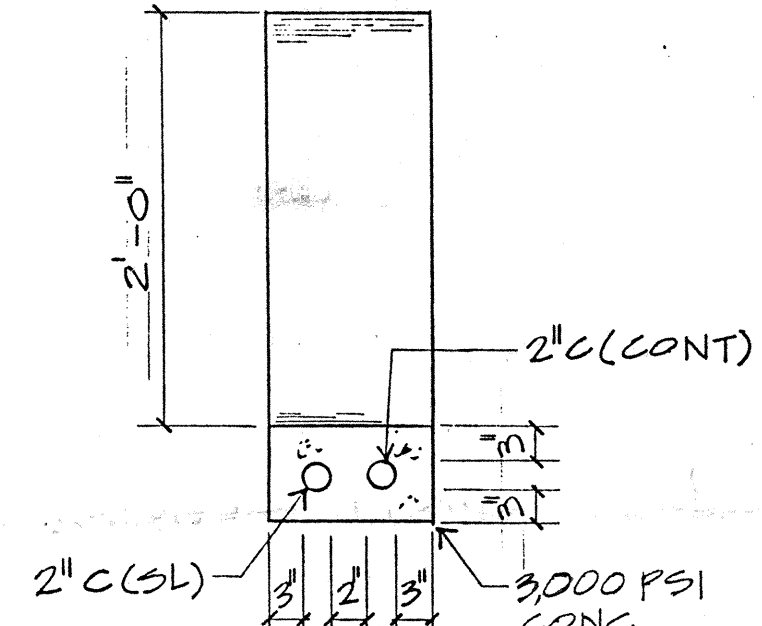
3
E4



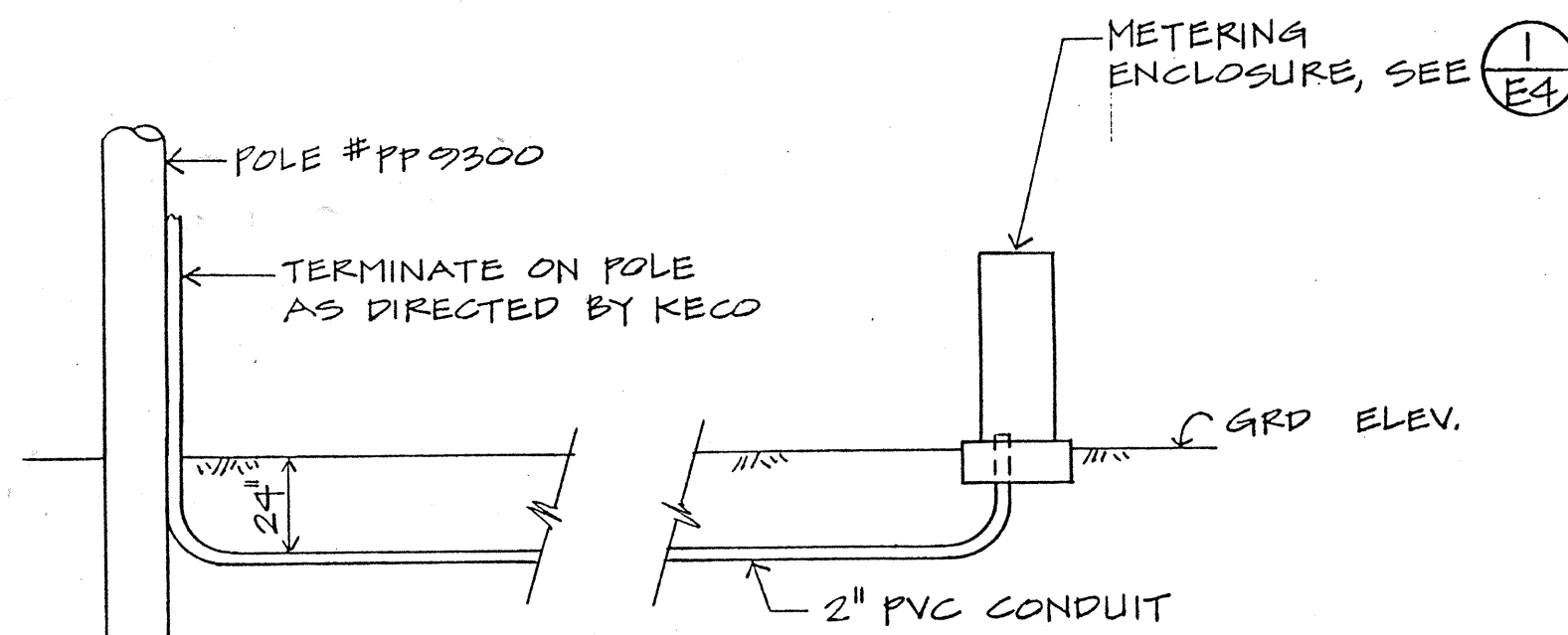
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E4



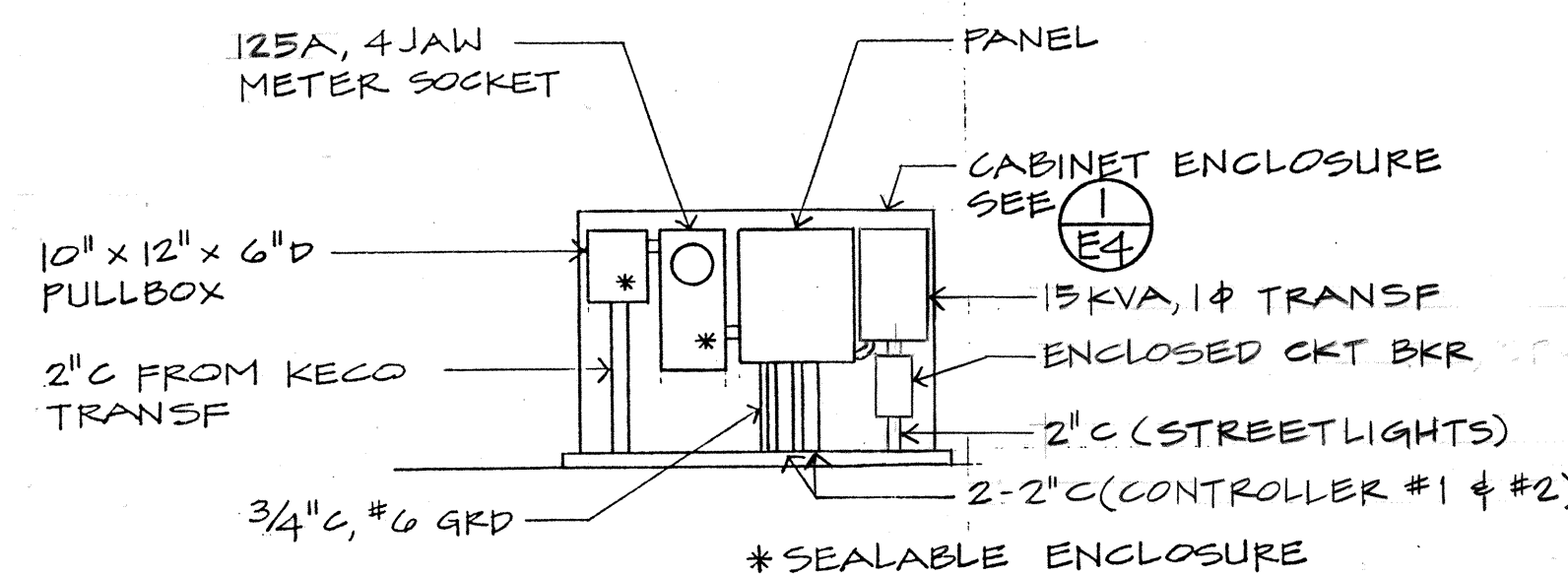
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E4



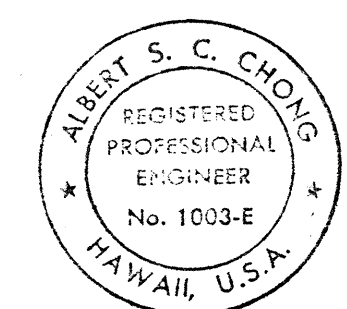
6
E4



7 DETAIL
E4 NTS



8 METER CABINET INTERIOR
E4 NTS



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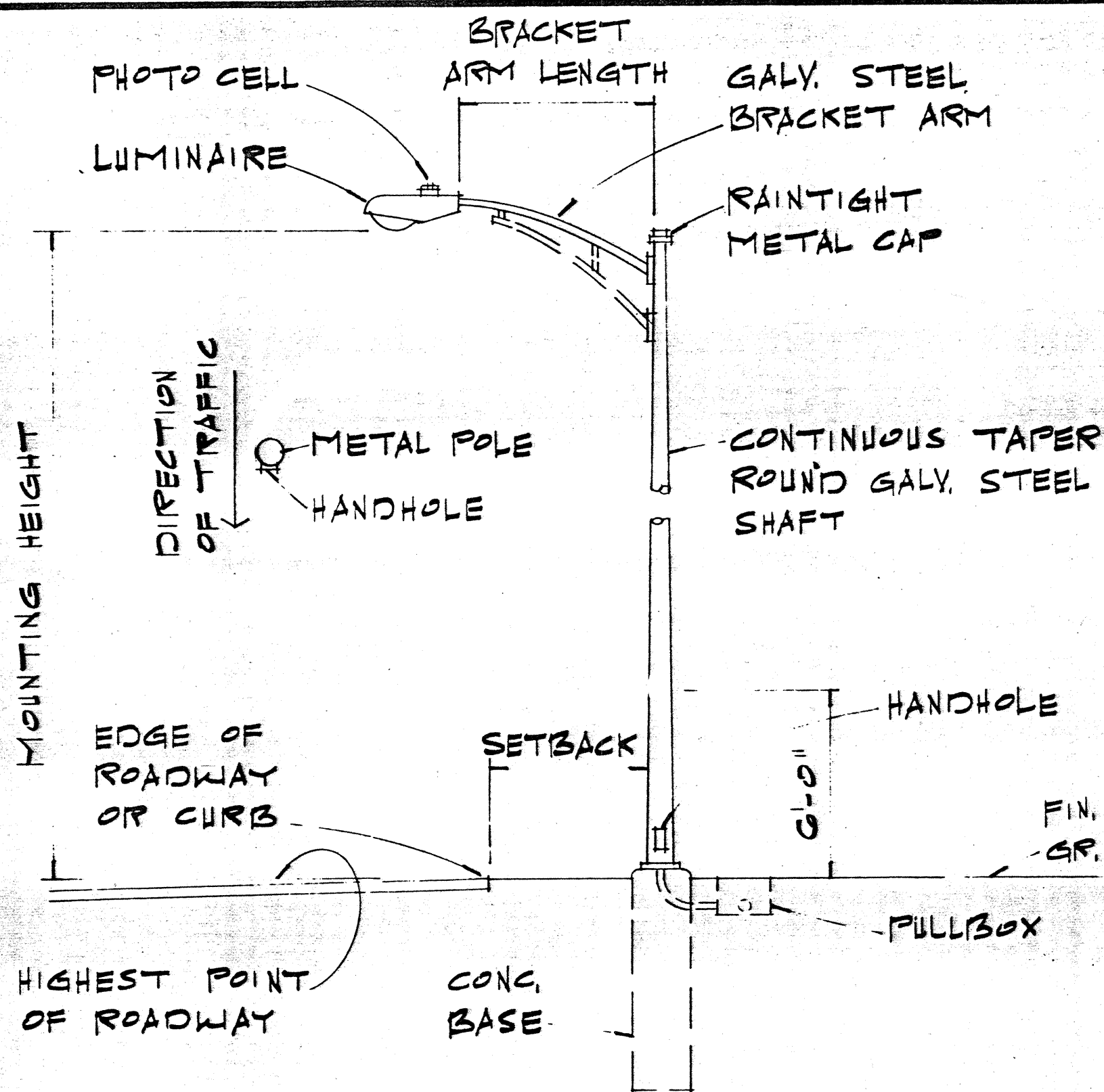
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DETAILS

NAWILIWILI ROAD REALIGNMENT
HALEHAKA ROAD TO KAUMUALII HIGHWAY
FED. AID PROJECT No. F-058-1(1)
SCALE: AS NOTED DATE: SEPT. 1989
SHEET NO. E4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-058-1(1)	1990	88	89

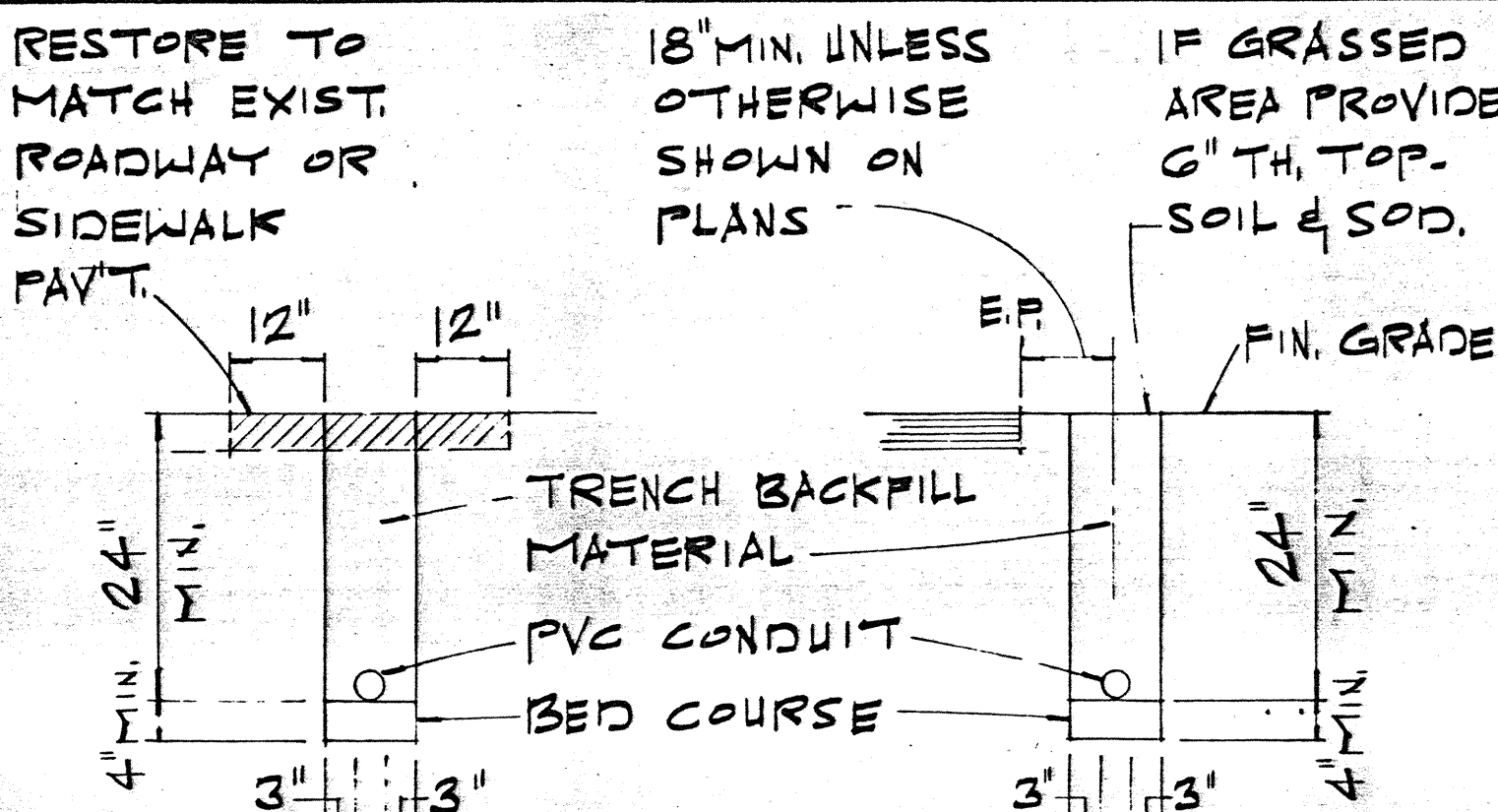
GENERAL NOTES

- ALL LUMINAIRES SHALL BE HIGH PRESSURE SODIUM TYPE W/ WATTAGE & IES TYPE LIGHT DISTRIBUTION AS SHOWN ON PLANS.
- ALL SECONDARY CIRCUIT EXTENSIONS TO SERVICE SHALL BE PROVIDED BY CONTRACTOR. ALL CONNECTIONS MADE BY SUBJECT TO CHARGE SHALL BE PAID BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING & INFORMING OF STREET LIGHT LOCATIONS ON PROJECT SITE PRIOR TO INSTALLATION OF SECONDARY CIRCUIT CONNECTION.
- THE CONTRACTOR SHALL NOTIFY & COORDINATE WORK W/ THE STATE ELECTRICAL MAINTENANCE SECTION, ADD. PH.# 72 HOURS IN ADVANCE OF COMMENCING INSTALLATION OF STREET LIGHT SYSTEM.
- THE CONTRACTOR SHALL LOCATE & VERIFY EXISTING STREET LIGHT SECONDARY VOLTAGE BEFORE ORDERING LIGHTING EQUIPMENT.



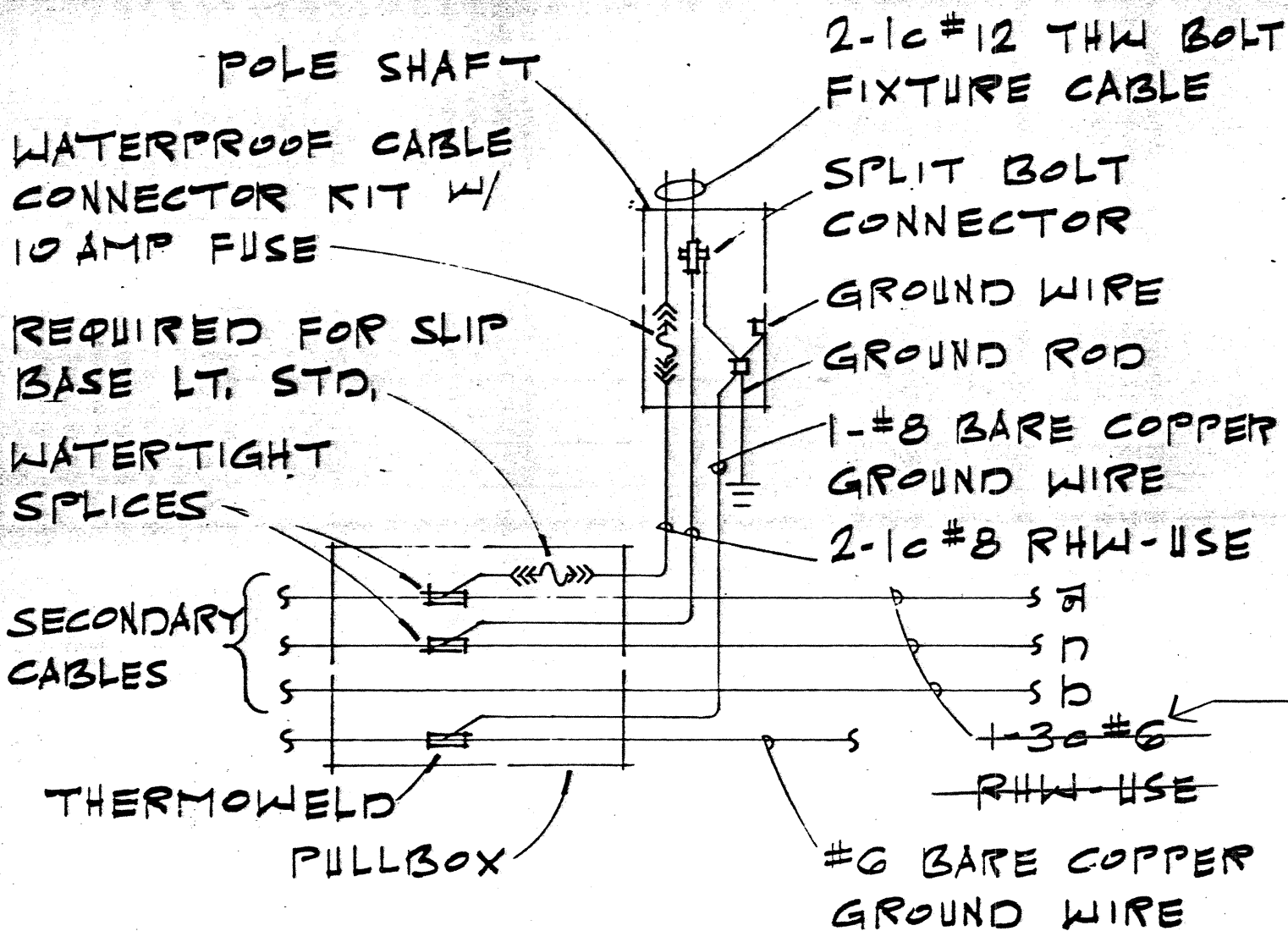
STREET LIGHT DETAIL

SCALE: 1/4" = 1'-0"

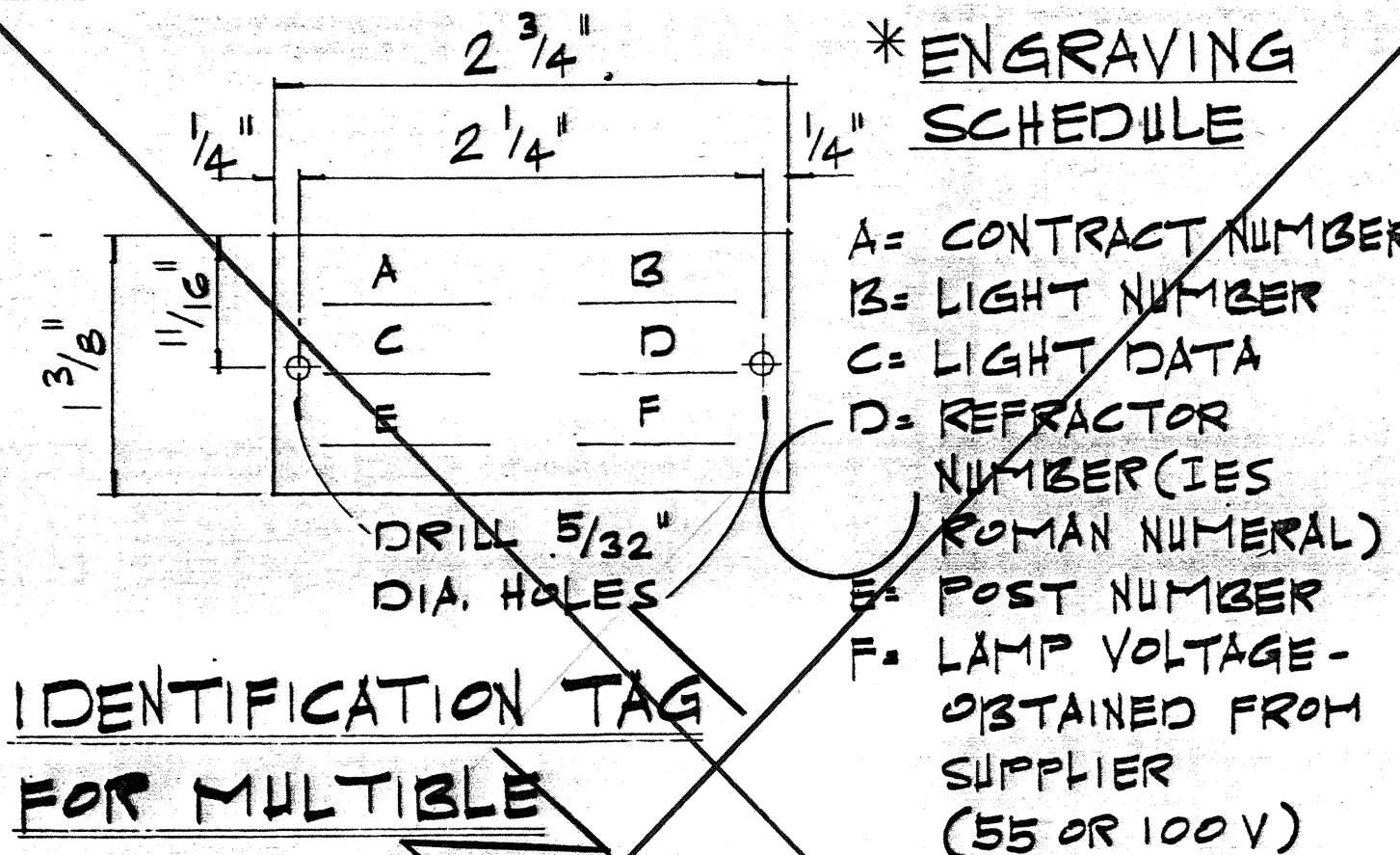


TYPICAL DUCT SECTION DETAIL

NOTE: SCALE: 1/2" = 1'-0"
FOR MULTIPLE CONDUIT LAYOUTS PROVIDE 3" CL. SPACING BETWEEN CONDUITS.

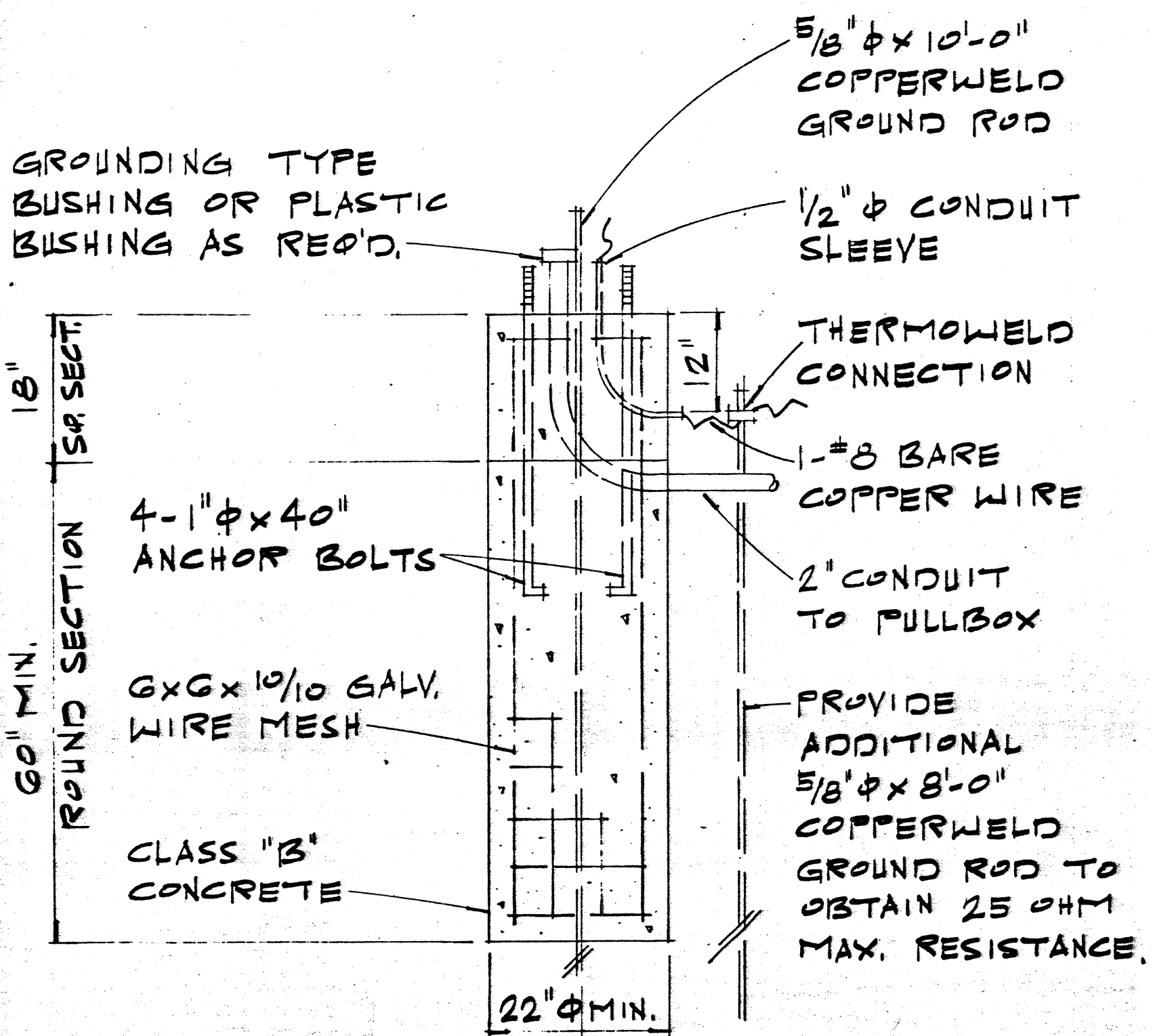


WIRING CONNECTION DIAGRAM



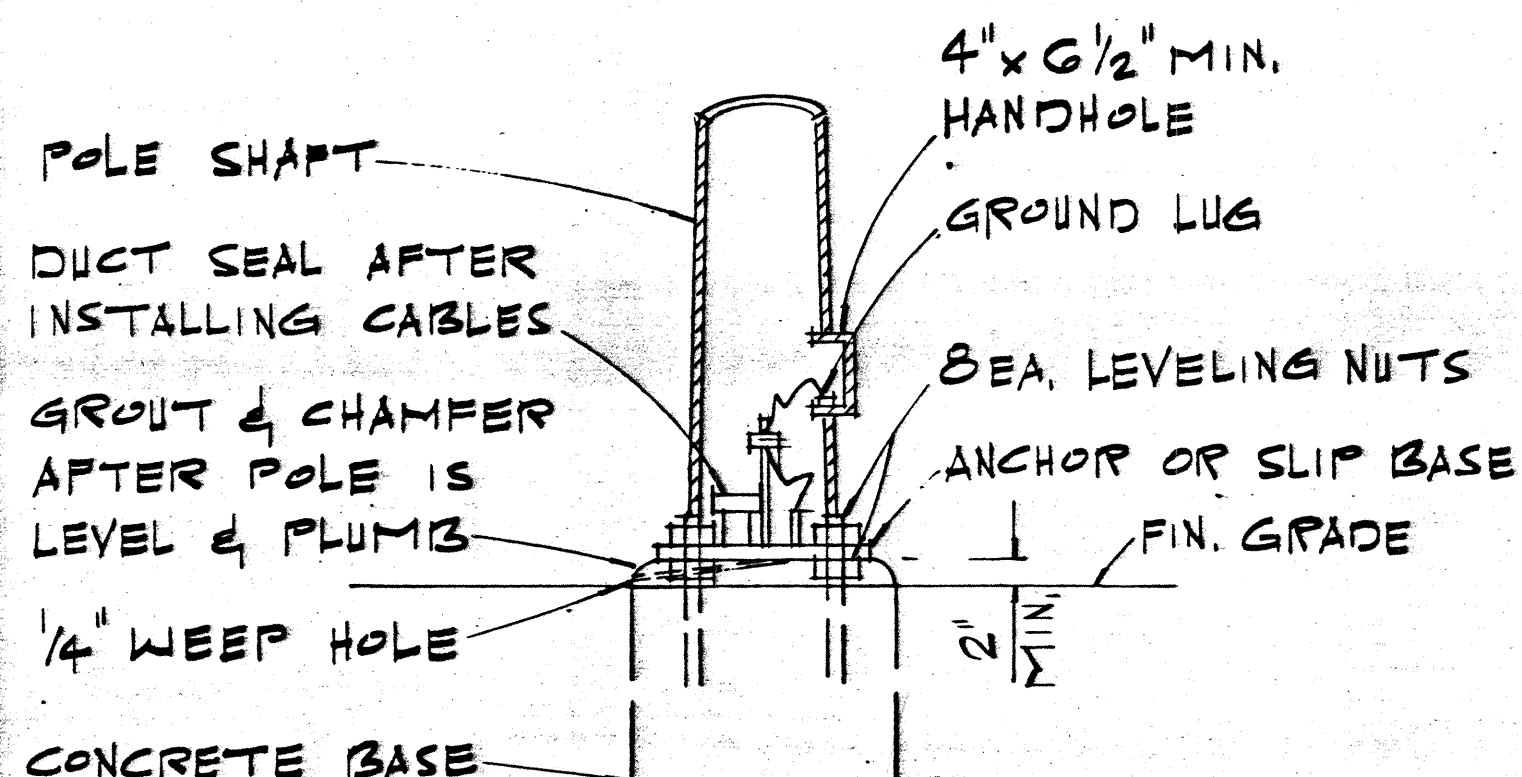
IDENTIFICATION TAG FOR MULTIPLE STREET LIGHTING

- NOT TO SCALE
- NOTE:
- MAKE FROM 3-PLY LAMINATED PLASTIC (BLACK-WHITE-BLACK) W/ 1/8" HIGH COMMERCIAL GOTHIC LETTERS ENGRAVED.
 - ATTACH TO POLE W/ #7 CADMIUM PLATED SCREWS.



CONCRETE BASE DETAIL

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



POLE MOUNTING DETAIL

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
TYPICAL DETAILS
HIGHWAY LIGHTING LUMINAIRE
MOUNTED ON METAL POLE

SCALE: AS SHOWN DATE: SEPT. 1989
SHEET NO. 88 OF 89 SHEETS

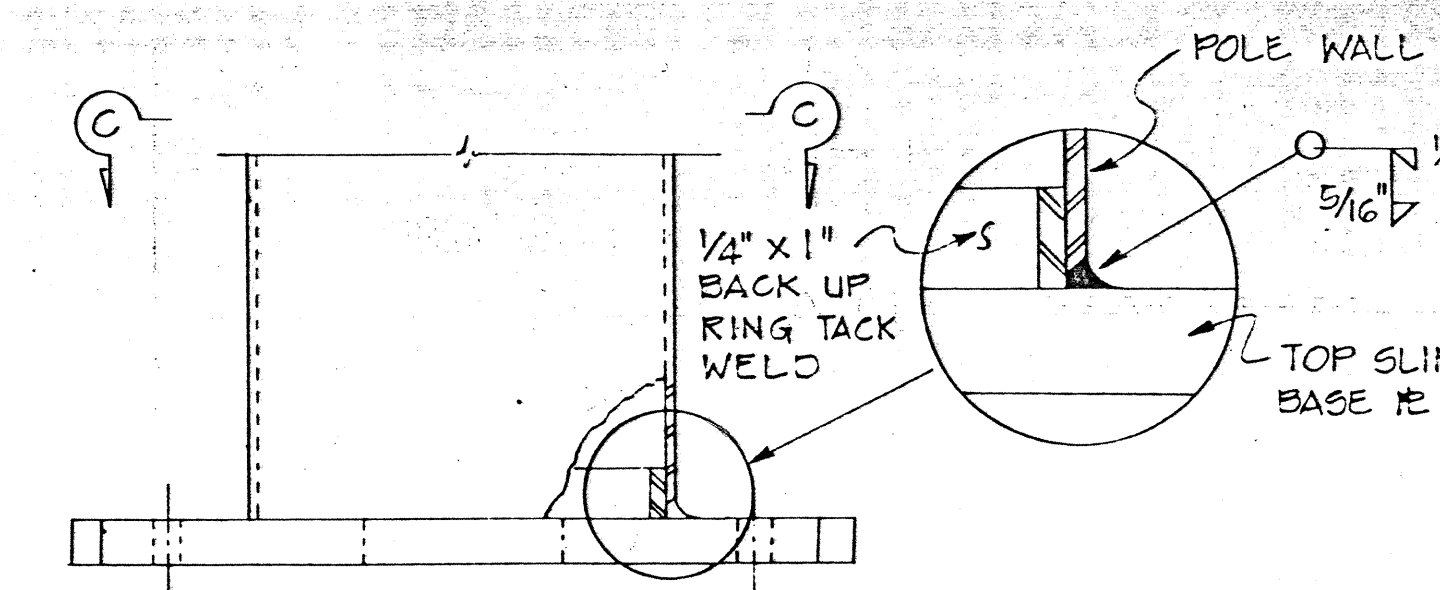
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-058-100	1990	60	69

NOTES

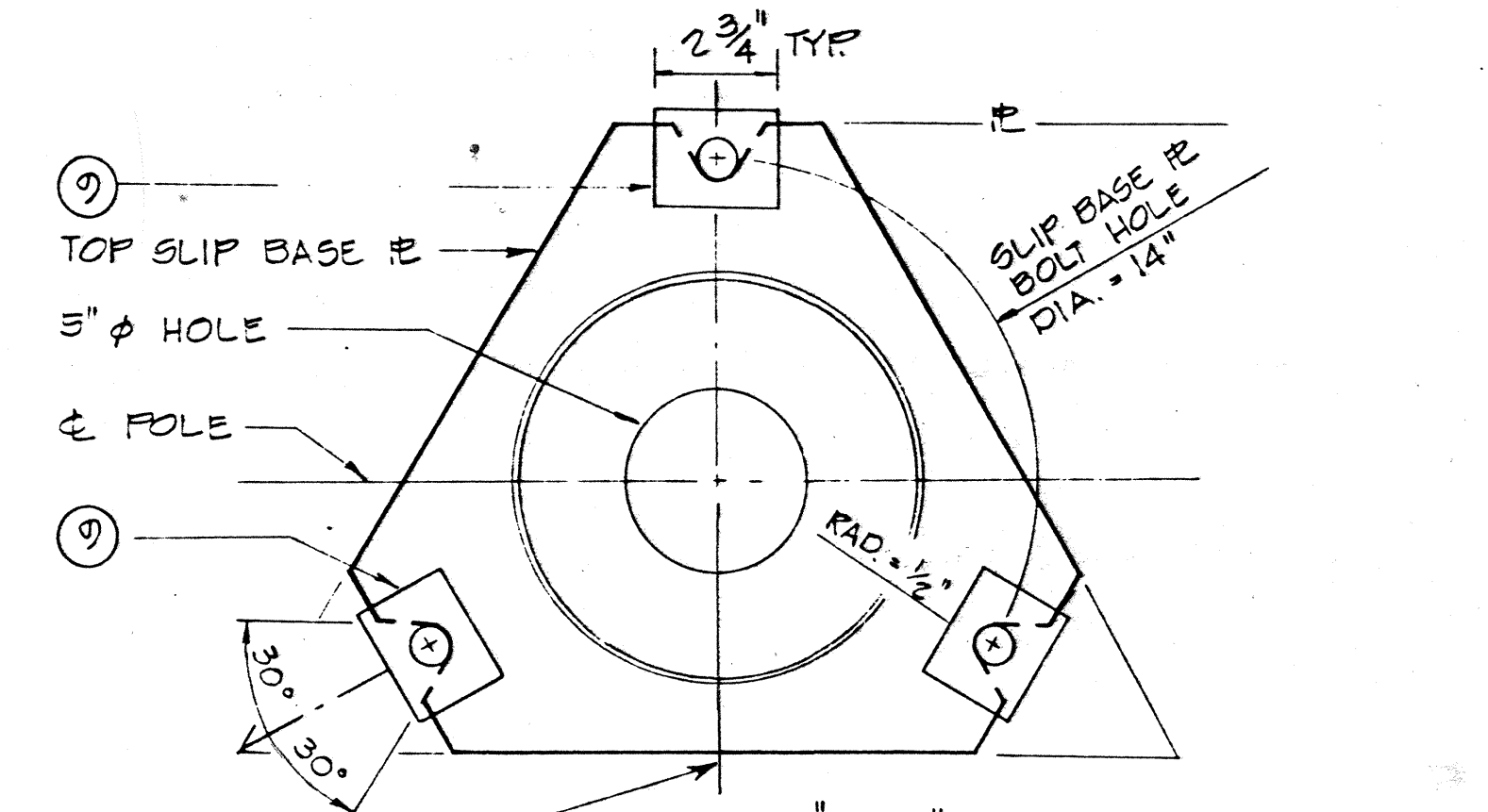
- ALL STEEL SHAFTS, P'S, MAST ARMS, BOLTS, SCREWS NUTS & WASHERS TO BE GALV. AFTER FAB. OR MODIFICATION.
- P'S TO CONFORM TO ASTM A-36.
- CAST OPTION TO CONFORM TO ASTM A-486 CL. 30.
- TORQUE $\frac{7}{8}$ " H.S. SLIP BASE P BOLTS TO 84 FT. LBS
- $\frac{7}{8}$ " H.S. ANCHOR BARS, WRENCH TIGHTEN-TORQUE REQUIREMENT WAIVED.
- FABRICATORS ELECTING LARGER THAN MIN ARM DIAMETERS MUST ADJUST DETAILS AS REQUIRED TO PERMIT SOLID SEATING OF CAP SCREWS. IN LIEU OF TORQUE REQUIREMENTS FOR H.S. BOLTS, CAP SCREWS SHALL BE TIGHTENED BY THE TURN OF NUT METHOD $\frac{1}{6}$ TURN FROM SNUG TIGHT CONDITION. NO WASHER WILL BE REQUIRED.
- $4" \times 6\frac{1}{2}"$ HANDHOLE REINFORCED W/ #3 GA. RING $1\frac{1}{2}"$ WIDE WELDED TO OUTSIDE OF POLE COVER OF 10 GA. P LOCATE 90 DEGREES OF MAST ARM UNLESS SHOWN OTHERWISE.
- 28 GA. KEEPER P, PLACE ON TOP OF MIDDLE FLAT WASHER ASTM A526 125 COMMERCIAL.
- PLATE WASHER
- $3-\frac{7}{8}" \phi$ H.S. BARS, THREAD G" & GALV. 10", W/ HEX, HD, NUT, LEVELING NUT & WASHER
- HEX. HD. NUT SHOWN OR AS AN ALT. DET. ANCHOR P'S MAY BE RETAINED W/ $\frac{5}{16}"$ FILLET WELDS ALL ROUND OR FORMED HEADS.
- ROUND TAPERED STEEL TUBE W/ MAX. TAPER OF 0.15"/FOOT.
- NO. 11 GAGE SHEET STEEL OF WELDABLE GRADE ACCEPTABLE IF STEEL AFTER FABRICATION HAS A MIN. YIELD STRENGTH OF 40,000 P.S.I.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**HIGHWAY LIGHTING
SLIP BASE POLE**

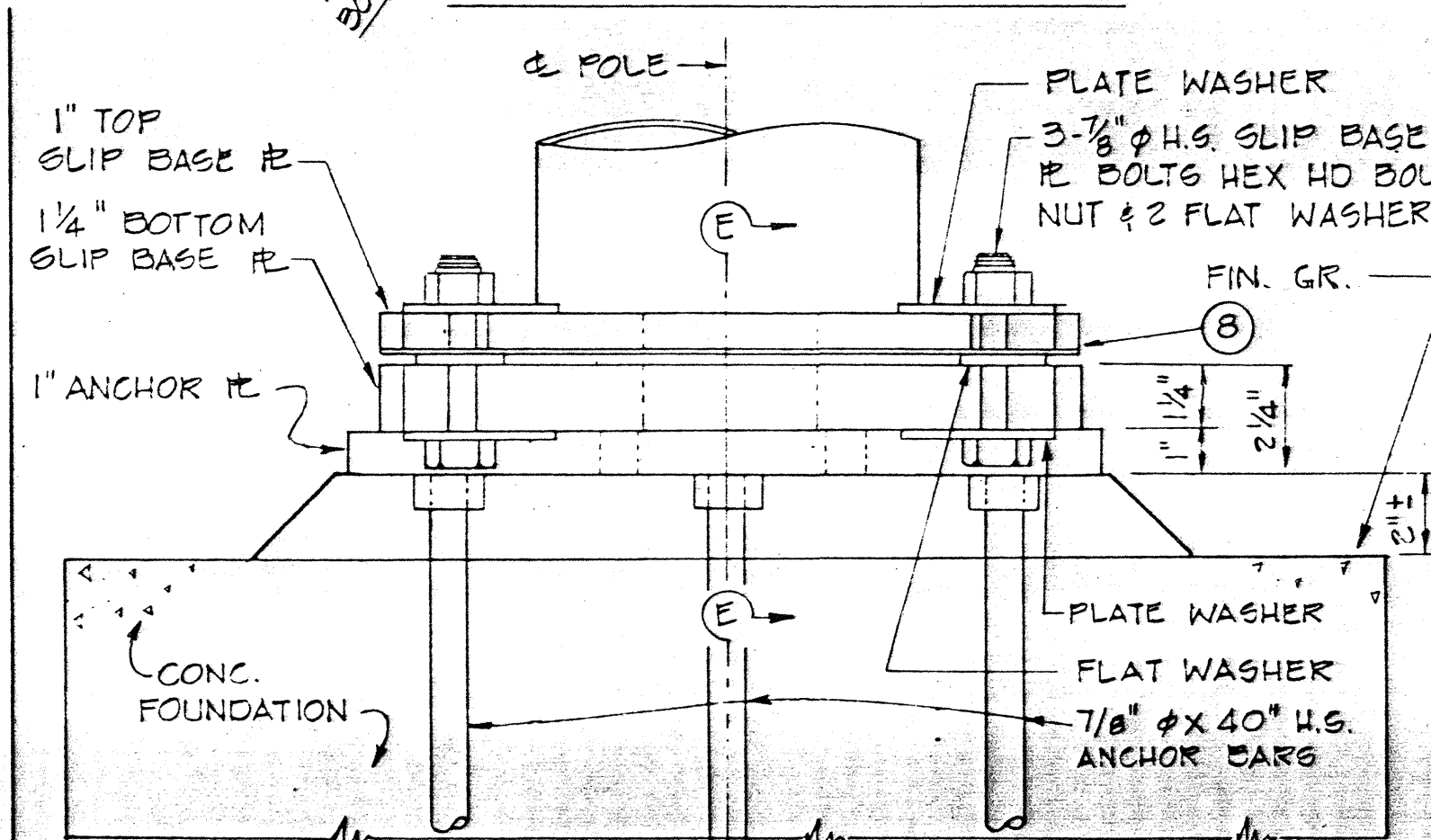
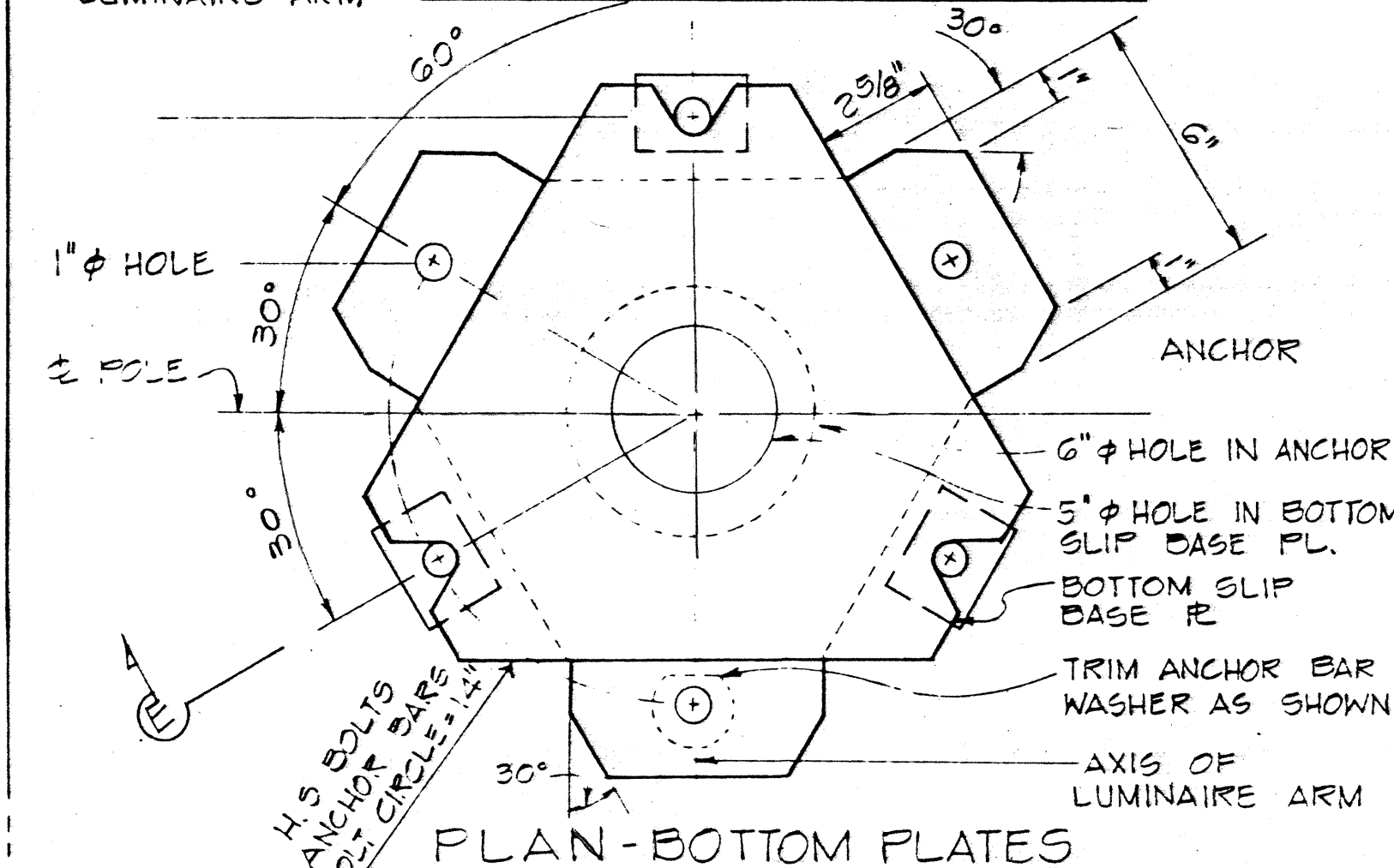
SCALE: AS SHOWN DATE: SEPT. 1989
SHEET No. 60 OF 6 SHEETS



TOP SLIP BASE PLATE



VIEW "C-C"
TOP SLIP BASE PLATE



BOTTOM SLIP BASE PLATE

SLIP BASE DETAIL

SCALE: 3" = 1'-0"

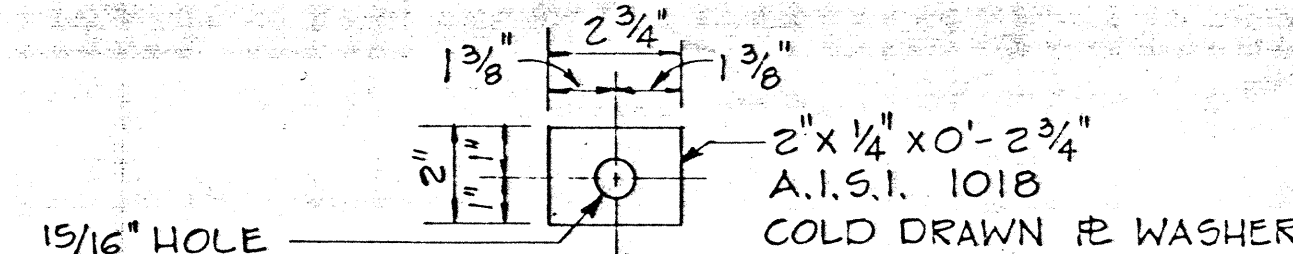
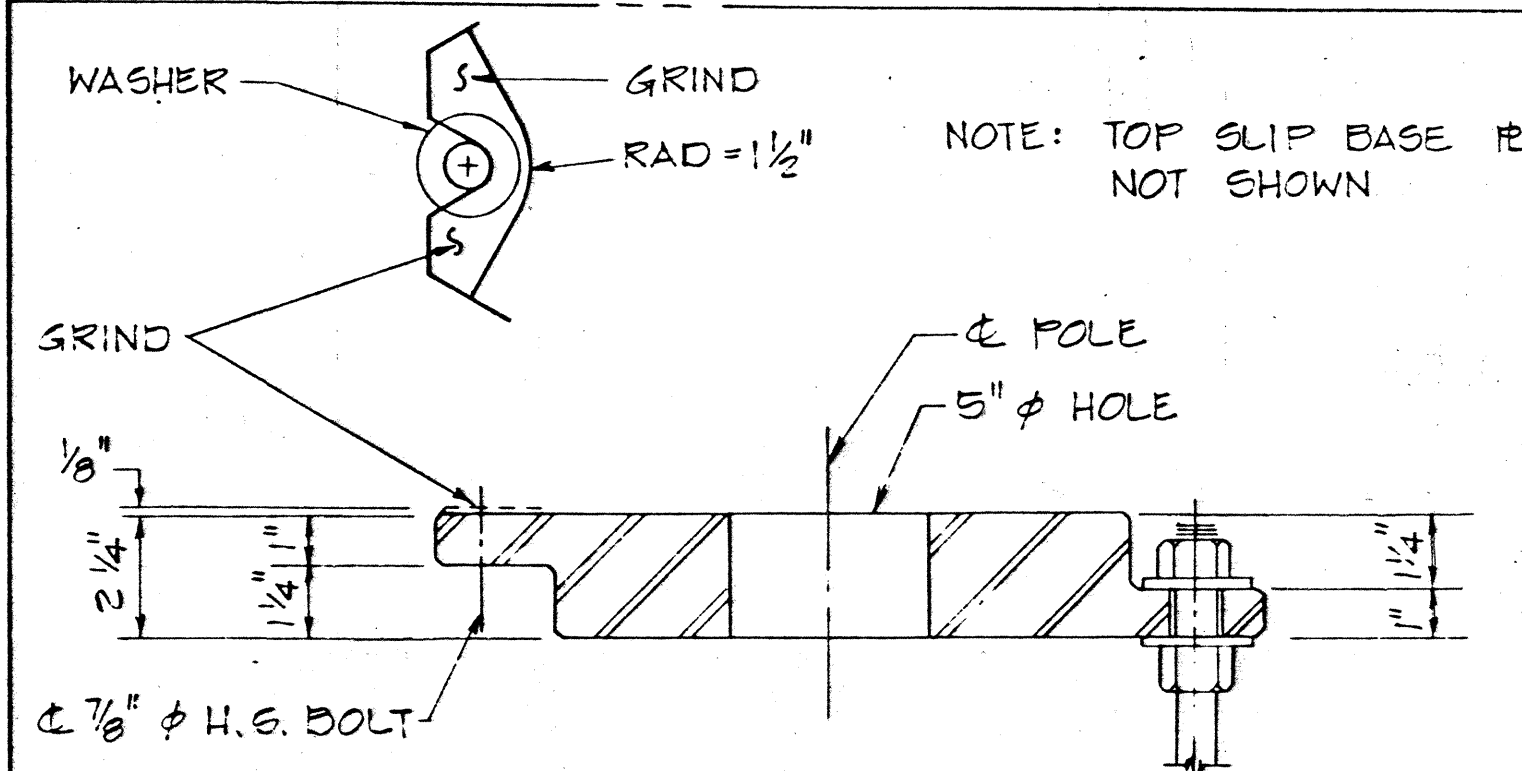
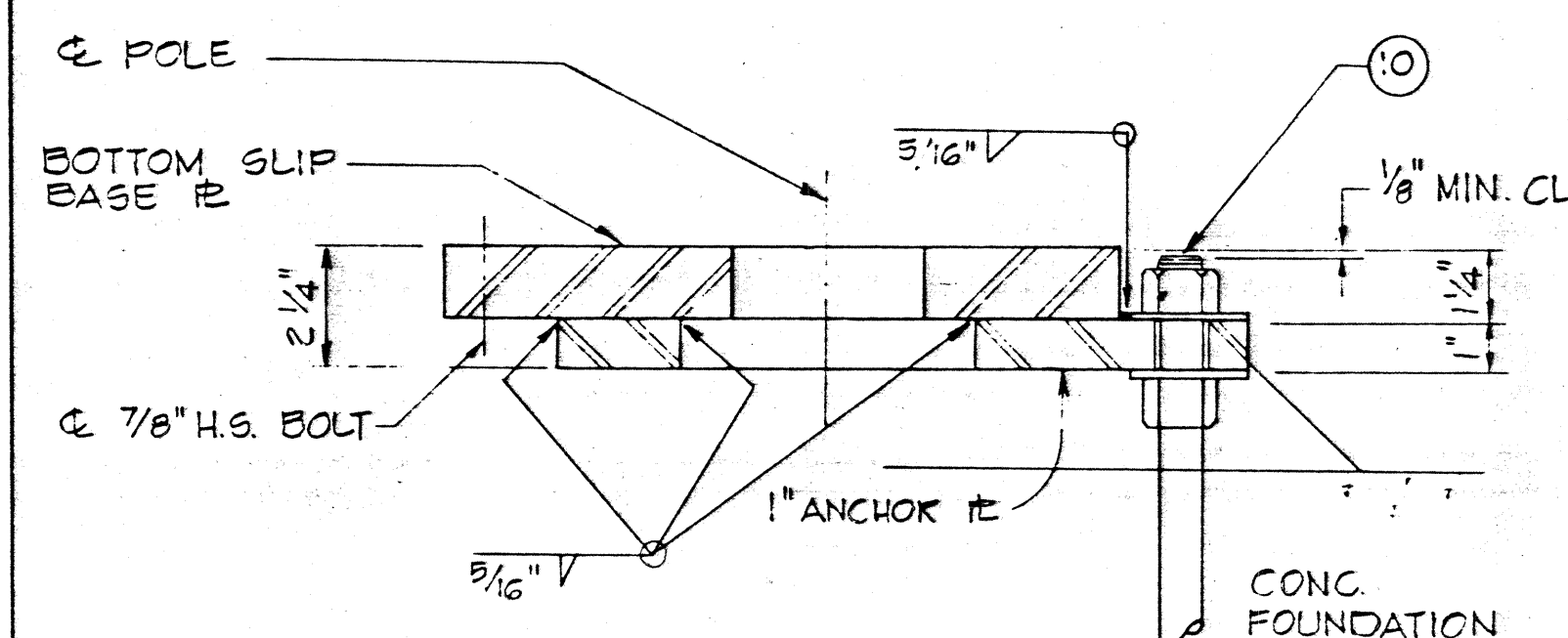


PLATE WASHER



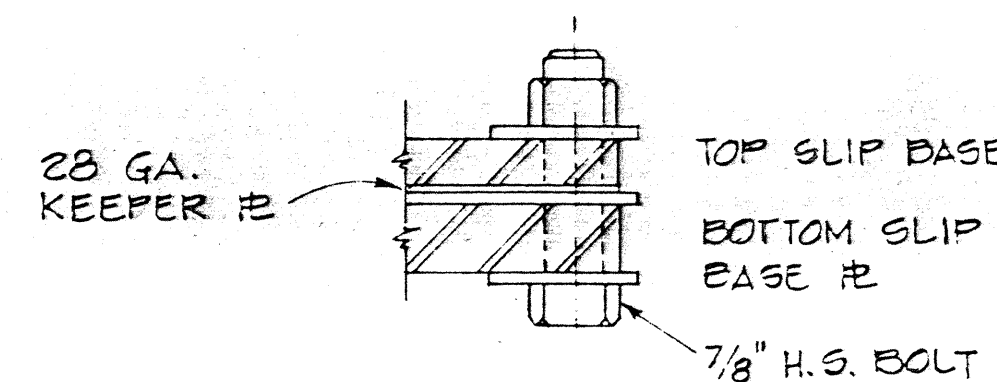
VIEW "E-E"
CAST OPTION

SCALE: 3" = 1'-0"

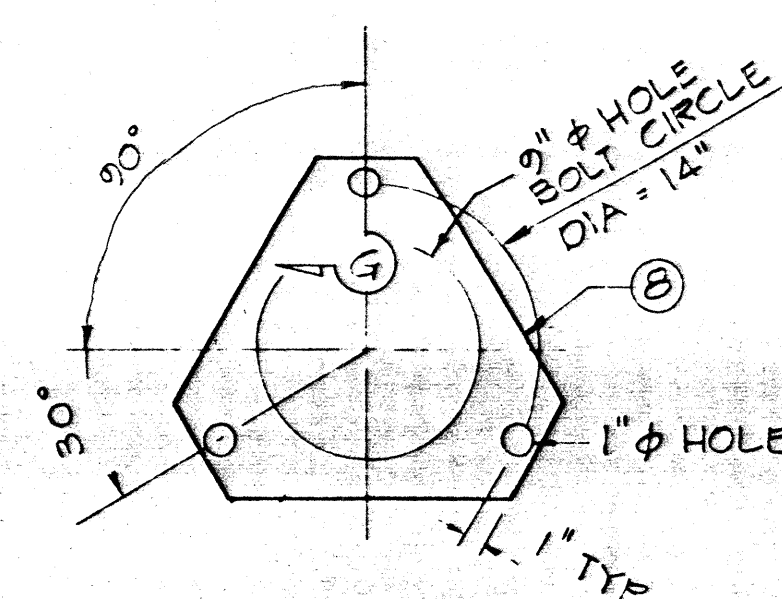


VIEW "E-E"
WELDED OPTION

SCALE: 3" = 1'-0"

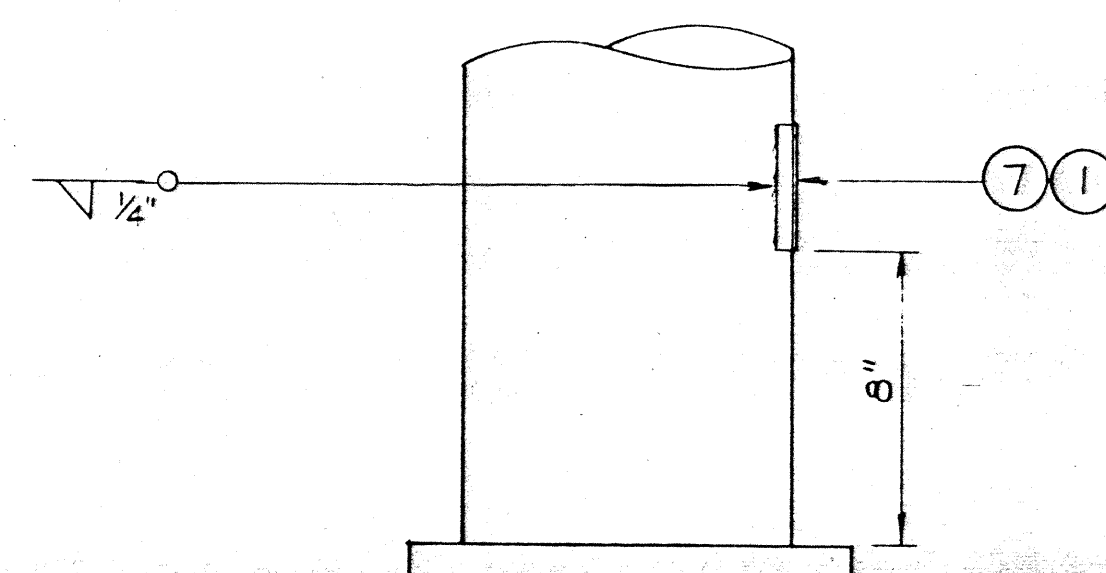
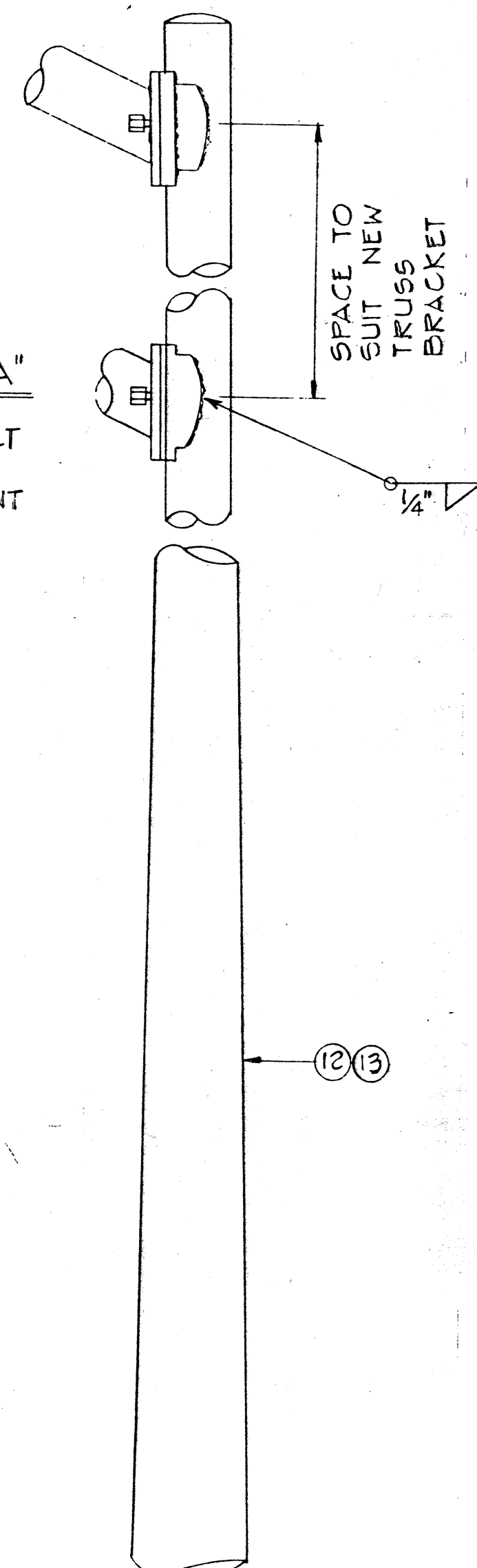


SECTION G-G



DETAIL "F"
KEEPER PLATE

DETAIL "A"
TRUSS BRACKET
2 BOLTS
ARM ATTACHMENT



DETAIL B

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