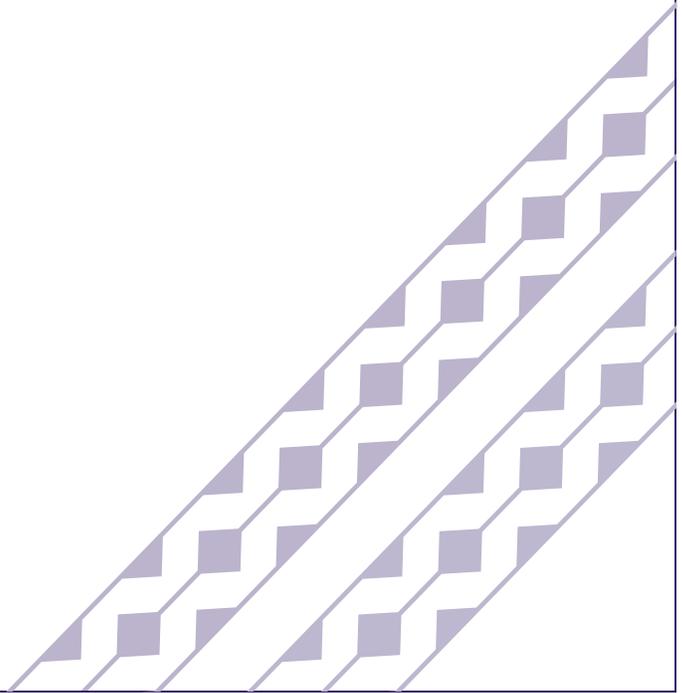




**Hawaiian
Electric**

The information found in this document are general guidelines that may be used to aid in the preparation of your service request proposal. Please be advised that depending on the specific needs and actual conditions of your project, Hawaiian Electric may require your design to comply with different specifications including specifications that include more stringent requirements than those included in these design specification guidelines. For further guidance and clarification on the actual specifications that will apply to your particular project, please refer to instructions issued by Hawaiian Electric's Planner or Engineer who is assigned to your particular (Project/Review Request/...). Additionally, please be advised that Hawaiian Electric reserves the right to require additional modifications to any approved design if it is determined during actual construction that additional modifications must be made to address certain field conditions that were not detected or Hawaiian Electric was unaware of during the design review process.

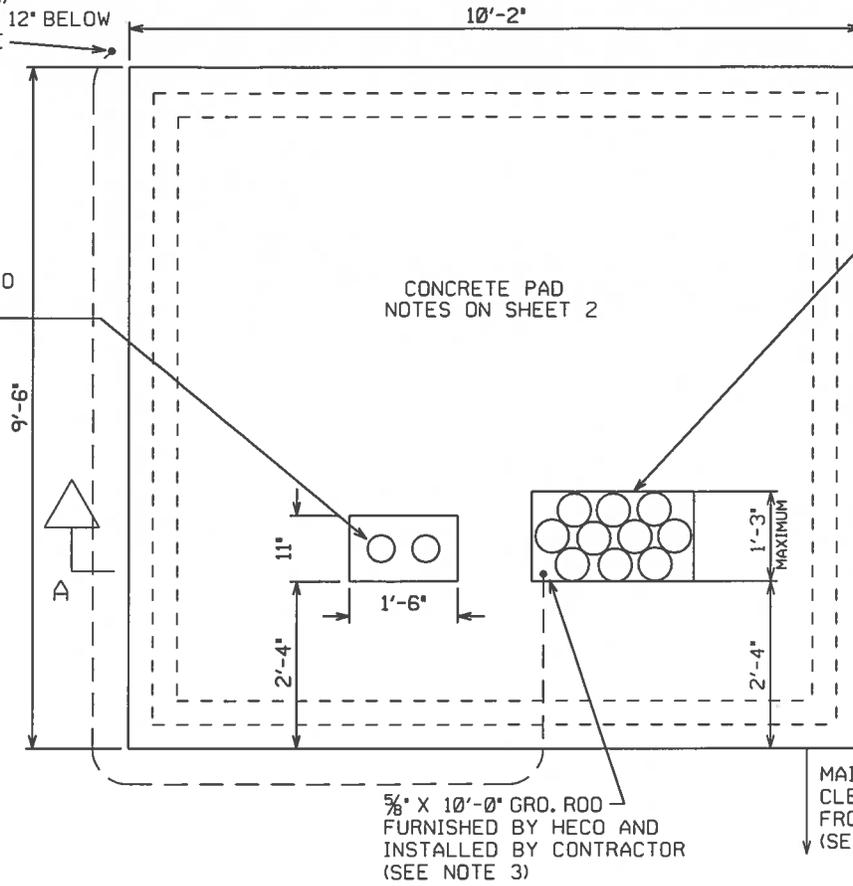


ADDITIONAL
5/8" x 8'-0" GROUND ROD
(SEE NOTE 3)
TOP OF ROD 12" BELOW
FINAL GRADE

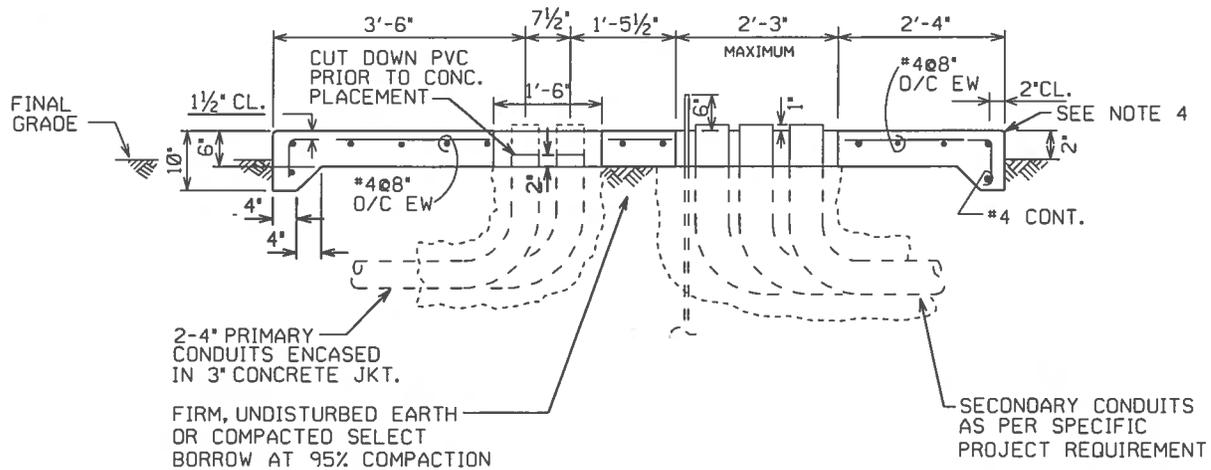
PRIMARY
CONDUITS
(2-4) ENCASED
IN 3" CONC.
JACKET.

CONCRETE PAD
NOTES ON SHEET 2

CUSTOMER TO
TERMINATE SECONDARY
CONDUITS IN THIS AREA.
SECONDARY CONDUITS
PER SPECIFIC PROJECT
REQUIREMENTS. (MAY
REQUIRE REDUCED
SPACING BETWEEN
DUCTS FROM NORMAL
SPACING)



PLAN VIEW
SEE NOTES ON SHEET 2



SECTION "A-A"

(15,000 POUNDS MAXIMUM)

DATE 10-04
INITIAL DJ
REVISION

DRAWN CT DESIGNED RAN WTM APPD WTM FK

REDRAWN

SUPERSEDES

CONCRETE PAD FOR 1000 - 1500 KVA
3 PHASE PADMOUNTED TRANSFORMERS
UG DUCTS & STRUCTURES

ORIGINAL OCTOBER 2002

30-5017

REV 1

ENGINEERING STANDARD
HAWAIIAN ELECTRIC CO. INC.

SHEET 1 OF 2

NOTES:

1. REFER TO STD. 30-5000 FOR LOCATIONS AND CLEARANCES.
2. REFER TO STD. 22-2005 FOR 3 PHASE PADMOUNTED TRANSFORMER REQUIREMENTS.
3. 5/8" DIAMETER x 10'-0" GROUND ROD (STOCK CODE 193457) FURNISHED BY HECO AND INSTALLED BY CUSTOMER. IF GROUND RESISTANCE IS MORE THAN 25 OHMS, INSTALL ADDITIONAL 5/8" DIAMETER x 8'-0" GROUND ROD (STOCK CODE 101527) AND CONNECT 4/0 BARE COPPER GROUND WIRE BETWEEN GROUND RODS. A MINIMUM OF 6'-0" SHALL BE MAINTAINED BETWEEN THE DRIVEN GROUND RODS. A SECOND GROUND ROD WILL PROBABLY BE REQUIRED WHEN SOIL RESISTIVITY IS GREATER THAN 67 OHM-METERS.
4. CONCRETE: 3000 PSI COMPRESSIVE STRENGTH IN 28 DAYS. MOISTURE CURE CONCRETE PAD A MINIMUM OF 7 DAYS. DO NOT INSTALL TRANSFORMER UNTIL CONCRETE COMPRESSIVE STRENGTH REACHES 1,500 PSI MINIMUM OR AFTER 14 DAYS.
5. REINFORCING: ASTM A615, GRADE 40 MINIMUM.
6. LOCATE, SECURE, AND CAP ALL CONDUITS BEFORE POURING PAD. TOP OF CONCRETE TO BE SMOOTH AND TRUE, WOOD-FLOAT FINISH, FREE OF DEFECTS, AS PER APPLICABLE CITY AND COUNTY SPECIFICATIONS. ROUND ALL EXPOSED EDGES TO 3/4" CHAMFER.
7. MAINTAIN A RELATIVELY LEVEL, MINIMUM CLEARANCE OF 2'-6" FROM THE SIDES OF THE PAD, 2'-0" FROM THE BACK OF PAD, AND 8'-0" IN FRONT OF PAD. EXTEND CONCRETE PAD AN ADDITIONAL 8'-0" IN FRONT IF LOCATED IN PLANTING AREA.

REVISION	DATE	INITIAL
	10-04	CJ

DRAWN CT	DESIGNED RAN WTM	APPD	REDRAWN
SUPERSEDES		CONCRETE PAD FOR 1000 - 1500 KVA 3 PHASE PADMOUNTED TRANSFORMERS UG DUCTS & STRUCTURES	ORIGINAL
ENGINEERING STANDARD HAWAIIAN ELECTRIC CO. INC.			30-5017
			REV 1
			SHEET 2 of 2

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