

**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.



2nd GROUND ROD,
5/8" x 10'-0"
(SEE NOTE 9)

CAST IN PLACE
SLAB

10'-6"

#4x2'-0" ADDITIONAL
REINFORCING AT CORNERS
(TYP.) (BEND AS REQD.)

PRIMARY CONDUIT
LOCATION. SIZE TO
BE DETERMINED ON
PROJECT DRAWING.
EITHER ONE 5" OR
THREE 2" CONDUITS
MAY BE SPECIFIED



3'-1"

2'-7"

1'-10"

3'-9"

8'-0"

8"

3'-1"

2'-7"

1'-10"

3'-9"

8"

3'-1"

2'-7"

1'-10"

3'-9"

8"

3'-1"

2'-7"

1'-10"

3'-9"

8"

8"X8"X8"
SUMP

PRECAST
BOX

5/8"X10' GROUND ROD
SEE NOTE 9

MAINTAIN AN
8'-0" (15KV) OR
10'-0" (25KV) CLEARANCE
FROM FRONT EDGE
OF PAD
(SEE NOTE 7)

PLAN VIEW

DATE
INITIAL

REVISION

DRAWN AP DESIGNED HH sm

APPD HH sm w B W. Hayalawa

REDRAWN

SUPERSEDES

CONCRETE BOX PAD FOR 1000-2500 KVA
3 PHASE PADMOUNTED TBS RADIAL FEED
CAST-IN-PLACE SLAB + PRECAST BOX
UG DUCTS AND STRUCTURES

ORIGINAL 07-2018

30-5022

REV
0

ENGINEERING STANDARD
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SHEET 1 OF 5

2nd GROUND ROD,
5/8" x 10'-0"
(SEE NOTE 9)

CAST IN PLACE
SLAB

10'-6"

9'-6"

PRIMARY CONDUIT
LOCATION. SIZE TO
BE DETERMINED ON
PROJECT DRAWING.
EITHER ONE 5" OR
THREE 2" CONDUITS
MAY BE SPECIFIED

PRECAST
BOX

ANGLE IRON
METAL PLATE
METAL CHANNEL
SEE NOTE 3

3'-1"

3'-1"

8"

3'-0"

3'-4"

8"X8"X8"
SUMP

5/8"X10' GROUND ROD
SEE NOTE 9

PLAN VIEW:
METAL PLATE AND METAL CHANNEL
ON CONCRETE BOX PAD

DATE
INITIAL

REVISION

DRAWN AP DESIGNED HH sm

APPD HH sm wr PS W. J. [Signature]

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SUPERSEDES

CONCRETE BOX PAD FOR 1000-2500 KVA
3 PHASE PADMOUNTED TSFS RADIAL FEED
CAST-IN-PLACE SLAB + PRECAST BOX
UG DUCTS AND STRUCTURES

ORIGINAL 07-2018

30-5022

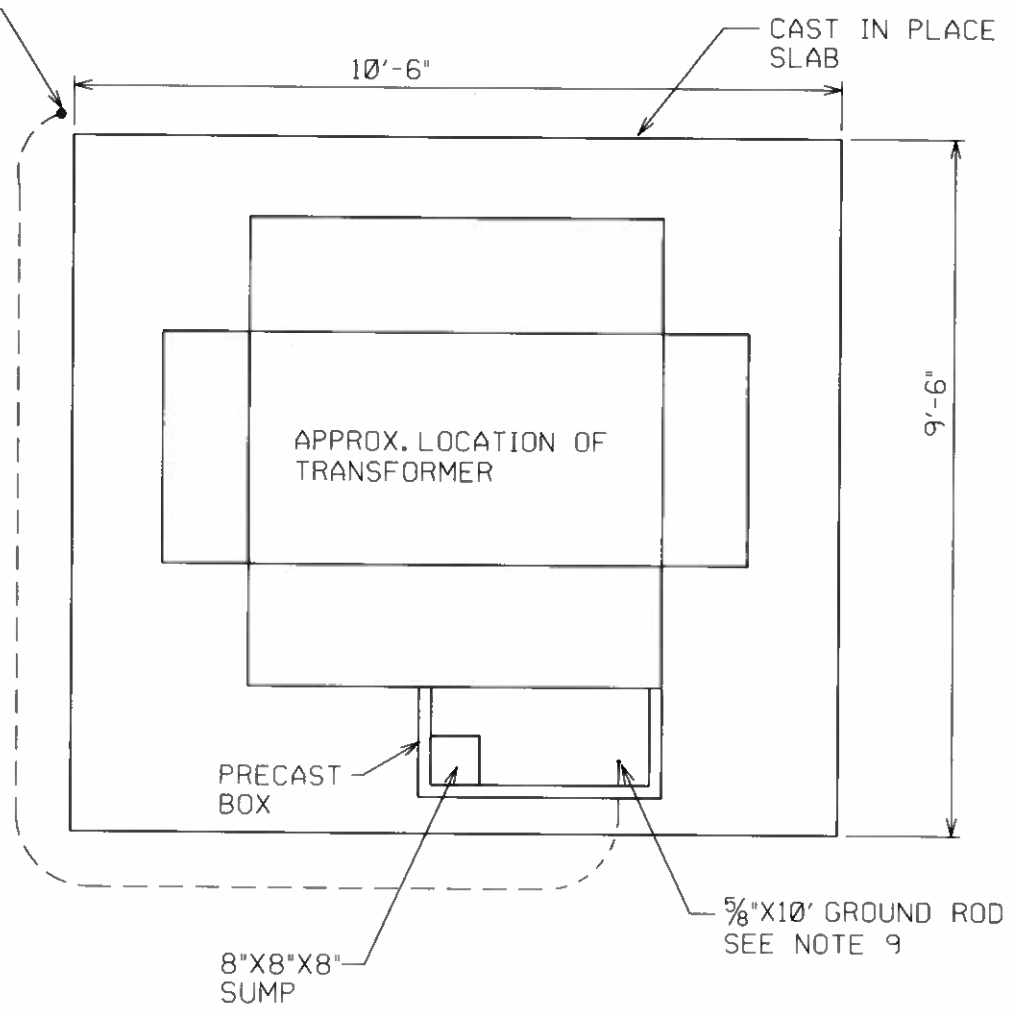
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SHEET 2 OF 5

2nd GROUND ROD,
 $\frac{5}{8}$ " x 10'-0"
 (SEE NOTE 9)

CAST IN PLACE
 SLAB



PLAN VIEW:
 TRANSFORMER ON CONCRETE BOX PAD

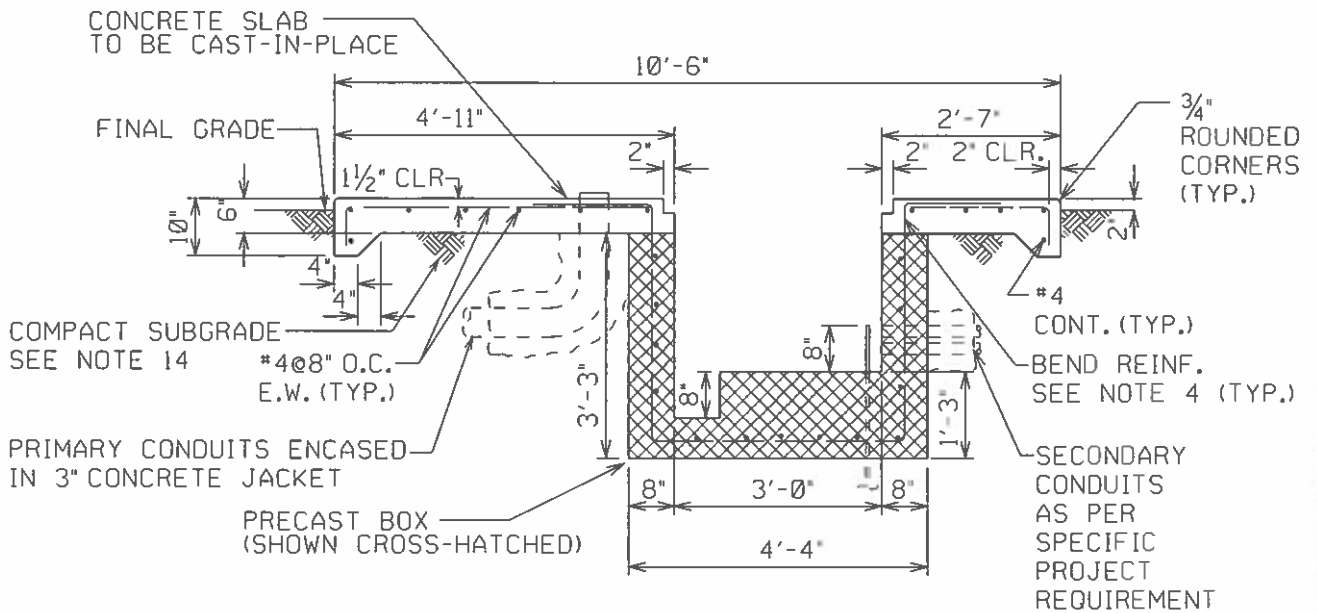
REVISION
 DATE
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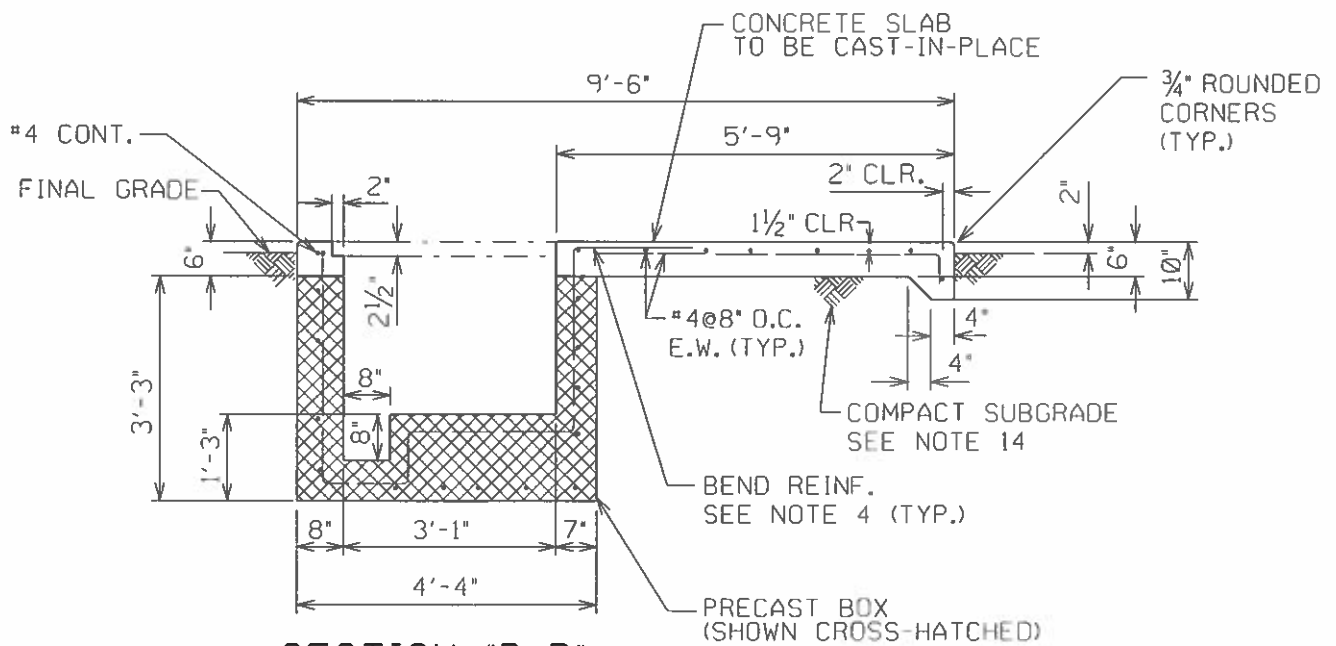
SUPERSEDES CONCRETE BOX PAD FOR 1000-2500 KVA 3 PHASE PADMOUNTED TSES RADIAL FEED CAST-IN-PLACE SLAB + PRECAST BOX UG DUCTS AND STRUCTURES ORIGINAL *07-2018* REV *0* SHEET 3 OF 5

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SECTION "A-A"



SECTION "B-B"

DATE
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APPD *HH sm wt W. Long*

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SUPERSEDES

CONCRETE BOX PAD FOR 1000-2500 KVA
3 PHASE PADMOUNTED TSFS RADIAL FEED
CAST-IN-PLACE SLAB + PRECAST BOX
UG DUCTS AND STRUCTURES

ORIGINAL 07-2018

30-5022

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SHEET 4 OF 5

NOTES

1. THIS DESIGN IS FOR PRECAST BOX + CAST-IN-PLACE SLAB.
2. PRECAST BOX AND HANDHOLE COVER (PER HECO UG STD. 30-5023 AND HECO DRAWING 101028, REV. 1 TYPE SW REMOVABLE CONCRETE COVER) WILL BE PROVIDED BY HECO APPROVED PRECASTER.
3. THE FOLLOWING METAL PARTS ARE TO BE PROVIDED BY HECO APPROVED PRECASTER (REFER TO HECO UG STD 30-5024):
 - a. METAL PLATE - 1'-3" x 1'-3"
 - b. ANGLE IRONS - 2-1/2 x 2-1/2 x 1/4 x 7" LONG AND 2-1/2 x 2-1/2 x 1/4 x 9" LONG
 - c. 5" WIDE CHANNEL FABRICATED FROM 2 ANGLE IRONS WELDED TOGETHER (EACH ANGLE IRON 2-1/2 x 2-1/2 x 1/4 x 3'-3/4" LONG)
4. CONCRETE SLAB TO BE CAST-IN-PLACE. TO CONNECT THE PRECAST BOX TO THE CAST-IN-PLACE SLAB, BEND PRECAST BOX VERTICAL WALL REINFORCEMENT DOWN INTO SLAB.
5. ALL ANCHORS SHALL BE GALVANIZED OR STAINLESS STEEL HILTI WEDGE ANCHORS (OR APPROVED EQUIVALENT). THE ANCHORS ARE INTENDED TO ANCHOR THE L2-1/2 x 2-1/2 x 1/4 x 7" LONG ANGLE IRON TO THE CONCRETE. (CONTRACTOR TO SUPPLY ANCHORS)
6. ALL BOLTS SHALL BE 3/8" DIAMETER PER ASTM A307 AND HOT DIPPED GALVANIZED. (CONTRACTOR TO SUPPLY BOLTS)
7. REFER TO STD. 30-5000 FOR LOCATIONS AND CLEARANCES.
8. REFER TO STD 22-2005 FOR 3 PHASE PAD MOUNTED TRANSFORMER REQUIREMENTS.
9. 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 10'-0" GROUND ROD 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. FOR SECOND GROUND ROD, TOP OF ROD SHOULD BE 12" BELOW FINAL GRADE.
10. CONCRETE: 3000 PSI CONCRETE COMPRESSIVE STRENGTH IN 28 DAYS. APPLY CURING COMPOUND IN ACCORDANCE WITH ASTM C309. DO NOT INSTALL TRANSFORMER UNTIL CONCRETE COMPRESSIVE STRENGTH REACHES 1500 PSI MINIMUM OR AFTER 14 DAYS.
11. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60
12. 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".
13. MAINTAIN RELATIVELY LEVEL MINIMUM CLEARANCE OF 2'-6" FROM SIDES OF PAD AND 2'-0" FROM BACK OF PAD, AND 8'-0" IN FRONT OF PAD. EXTEND CONCRETE PAD AN ADDITIONAL 8'-0" IN FRONT IF LOCATED IN PLANTING AREA.
14. COMPACT SUBGRADE TO 95% COMPACTION IN ACCORDANCE WITH ASTM D1557.

DATE
INITIAL

REVISION

DRAWN AP DESIGNED *HH sm* APPD *HH sm mr P.W. J. [signature]* REDRAWN

SUPERSEDES

CONCRETE BOX PAD FOR 1000-2500 KVA
3 PHASE PADMOUNTED TSFS RADIAL FEED
CAST-IN-PLACE SLAB + PRECAST BOX
UG DUCTS AND STRUCTURES

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SHEET 5 OF 5

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