

HAWAIIAN ELECTRIC COMPANY NOTES

1. LOCATION OF HECO FACILITIES

The location of HECO overhead and underground facilities shown on the plans are existing records with varying degrees of accuracy and are not guaranteed as shown. The Contractor shall verify in the field, the locations of the facilities and shall exercise proper care in excavating and working in the area. Wherever connections of new utilities to existing utilities and utility crossings are shown, the Contractor shall expose the existing lines at the proposed connections and crossings to verify the depths prior to excavation for the new lines. The Contractor shall be responsible for any damages to HECO's facilities whether shown or not shown on the plans.

2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS

The Contractor shall comply with the State of Hawaii's Occupational Safety and Health Laws and Regulations, including without limitation, those related to working on or near exposed or energized electrical lines and equipment.

3. EXCAVATION PERMIT

The Contractor shall obtain an excavation permit from HECO's Technical Division (543-5654) located at 820 Ward Avenue, 4th floor, two weeks prior to starting construction. Please refer to our request number at that time.

4. CAUTION!!! ELECTRICAL HAZARD!!!

Existing HECO overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The Contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities, which can result in electrocution.

5. OVERHEAD LINES

State laws requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50KV and below. For each additional 1KV above 50KV, an additional 0.4 inch shall be added to the 10-foot clearance requirement. The preceding information on line clearance requirement is provided as a convenience and it is the Contractor's responsibility to be informed of and comply with any revisions or amendments to the law.

Should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the Contractor shall notify HECO at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. re-location, de-energize, or blanket HECO lines) can be put in place. HECO's cost of safeguarding its line will be charged to the contractor.

Contact HECO's Customer Installation Department at 543-7846 for assistance in identifying and safeguarding overhead powerlines.

Refer to Section X of HECO's Electric Service installation Manual for additional guidelines when working around HECO's facilities. A copy may be obtained from HECO's Customer Installations Department.

6. POLE BRACING

A minimum clearance of 10 feet must be maintained when excavating around utility poles and/or their anchor system to prevent weakening or pole support failure. Should work require excavating within 10 feet of a pole and/or its anchor system, the Contractor shall protect, support, secure and take all other precautions to prevent damage to or leaning of these poles. The Contractor is responsible for all associated costs to brace, repair, or straighten poles. All means of structural support for the pole proposed by the Contractor shall first be reviewed by HECO before implementation. For pole bracing instructions, the Contractor shall call the HECO Construction and Maintenance Dept., Customer & System Superintendent at 543-4223 a minimum of two (2) weeks in advance.

7. UNDERGROUND LINES

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECO's existing electrical cables are energized and will remain energized during construction. Only HECO personnel are to break into existing HECO facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of HECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor. Special precautions are required when excavating near HECO's 138 KV underground lines (see HECO instructions to Consultant/Contractors on "Excavating Near HECO's Underground 138KV Lines" for detailed requirements.)

For verification of underground lines, the Contractor shall call HECO's Underground Division at 543-7049 a minimum of 72 hours in advance.

For assistance in providing proper support and protection of these lines, the Contractor shall call HECO's Construction and Maintenance Dept., Customer & System Superintendent, at 543-4223, a minimum of two (2) weeks in advance,

8. EXCAVATIONS

When trench excavation is adjacent to or beneath HECO's existing structures or facilities, the Contractor is responsible for:

- a) Sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave-ins, and settlements.
- b) Properly supporting existing structures or facilities with beams, struts, or under-pinnings to fully protect it from damage.
- c) Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Department for thermal backfill specifications).

9. RELOCATION OF HECO FACILITIES

Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not to be limited to, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalk and other facilities.

All costs associated with any relocation or modification (either temporary or permanent for the convenience of the Contractor, or to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

10. CONFLICTS

Any design or relocation of HECO's facilities not shown on the plans may be cause for lengthy delays. The Contractor acknowledges that HECO is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECO's electrical facilities in the field, regardless of whether the Contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, HECO should be notified immediately upon discovery or identification of such conflict.

11. DAMAGE TO HECO FACILITIES

The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. The Contractor shall immediately report such damages to HECO's Trouble Dispatcher at 548-7961. Repair work shall be done by HECO or by the Contractor under HECO's Supervision. Costs for damages to HECO facilities shall be borne by the Contractor.

In case of damage or suspected damage to HECO's fuel pipeline, the Contractor shall immediately notify HECO's Honolulu Power Plant Shift Supervisor at 533-2102 (a 24-hour number) so HECO personnel can secure the damaged section and report any oil spills to the proper authorities. All costs associated with the damage, repair, and oil spill cleanup shall be borne by the Contractor.

12. HECO STAND-BY PERSONNEL

The Contractor may request HECO to provide an inspector to stand-by during construction near HECO's facilities. The cost of such inspection will be charged to the Contractor.

The Contractor shall call the HECO Construction and Maintenance Dept., Customer & System Superintendent at 543-4223 a minimum of 5 working days in advance to arrange for HECO stand-by personnel.

13. CLEARANCES

The following clearances shall be maintained between HECO's ductline and all adjacent structures (charted and uncharted) in the trench:

STRUCTURE TYPE	MINIMUM CLEARANCE (INCHES)
Water Lines, parallel	36
Water Lines, crossing	12 (A)
Sewer Lines, parallel	36 (B)
Sewer Lines, crossing	24 (C)
Drain Lines, parallel	12
Drain Lines, crossing	6 (D)
Electrical and Gas Lines, parallel	12
Electrical and Gas Lines, crossing	12
Telephone Lines, parallel	6(D)
Telephone Lines, crossing	6(D)
Chevron Oil Lines, parallel	36
Chevron Oil Lines, crossing	48 below oil line (E)

- A. The minimum vertical clearances to water lines crossing electrical ductlines can be reduced to 6 inches if the electrical ductline structure is smaller than 16 inches, is concrete encased, and is below the water line.
- B. A minimum horizontal clearance of 36 inches is required between new handholes and existing sewer laterals.
- C. The minimum horizontal clearances to sewer pipes crossing electrical ductlines can be reduced to 12 inches if the sewer pipe is jacketed in concrete.
- D. The minimum clearances shall be increased to 12 inches if the electrical ductline is direct buried.
- E. The minimum vertical clearances to oil lines crossing electrical ductlines can be reduced to 24 inches below oil lines if the crossings are encased in 6 inches of concrete.
- F. The Contractor shall notify the Construction Manager & HECO of any heat sources (power cable duct bank, steamline, etc.) encountered that are not properly identified on the drawing.

14. INDEMNITY

The Contractor shall indemnify, defend and hold harmless HECO from and against all losses, damages, claims, and actions including but not limited to reasonable attorney's fees and costs based upon or arising out of damage to property or injuries to persons, or other tortious acts caused or contributed to by the Contractor or anyone acting under its direction or control or on its behalf; provided Contractor's indemnity shall not be applicable to any liability based upon the sole negligence of HECO.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H201A-01-06M	2008	4	64

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____ * _____
<i>9mnothecodgm</i>	DESIGNED BY _____ * _____
N.	QUANTITIES BY _____ * _____
	CHECKED BY _____ * _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HECO NOTES
MOANALUA FREEWAY
NORTH FRONTAGE ROAD RESURFACING
Vicinity of Ala Aolani to Vicinity of Ala Kapuna
Project No. H201A-01-06M

Date: May, 2008