

MAUI ELECTRIC COMPANY NOTES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(35)R	2006	7	79

1. LOCATION OF MECO FACILITIES

The location of MECO overhead and underground facilities shown on the plans are existing records with varying degrees of accuracy 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 MECO'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 MECO's Engineering Division (871-2390) 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 MECO overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with MECO. Only MECO 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 MECO facilities, which can result in electrocution.

5. OVERHEAD LINES

State laws requires that a worker and the longest object he or she may use 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 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 MECO 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 MECO lines) can be put in place. MECO's cost of safeguarding its line will be charged to the contractor.

Contact MECO's Engineering Department at 871-2390 for assistance in identifying and safeguarding overhead powerlines.

Refer to Section X of MECO's Electric Service installation Manual for additional guidelines when working around MECO's facilities. A copy may be obtained from MECO'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 poles proposed by the Contractors shall first be reviewed by MECO before implementation. For pole bracing instructions, the Contractor shall call the MECO Engineering Department at 871-2390, 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. MECO's existing electrical cables are energized and will remain energized during construction. Only MECO personnel are to break into existing MECO facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of MECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor.

For verification of underground lines, the Contractor shall call MECO's Engineering Department at 871-2390 a minimum of 72 hours in advance.

For assistance in providing proper support and protection of these lines, the Contractor shall call MECO's Engineering Department at 871-2390, a minimum of two (2) weeks in advance.

8. EXCAVATIONS

When trench excavation is adjacent to or beneath MECO'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 MECO FACILITIES

Any work required to relocate or modify MECO facilities shall be done by MECO, or by the Contractor under MECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for MECO'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 born by the Contractor.

10. CONFLICTS

Any design or relocation of MECO's facilities not shown on the plans may be cause for lengthy delays. The Contractor acknowledges that MECO 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 MECO'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, MECO should be notified immediately upon discovery or identification of such conflict.

11. DAMAGE TO MECO FACILITIES

The Contractor shall be responsible for the protection of all MECO surface and subsurface utilities and shall be responsible for any damages to MECO's facilities as a result of his operations. The Contractor shall immediately report such damages to MECO's Trouble Dispatcher at 871-7777. Repair work shall be done by MECO or by the Contractor under MECO's Supervision. Costs for damages to MECO facilities shall be borne by the Contractor.

12. MECO STAND-BY PERSONNEL

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

The Contractor shall call the MECO Engineering Department at 871-2390, a minimum of 5 working days in advance to arrange for MECO stand-by personnel.

13. CLEARANCES

The following clearances shall be maintained between MECO'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 & MECO of any heat sources (power cable duct bank, streamline, etc.) encountered that are not properly identified on the drawing

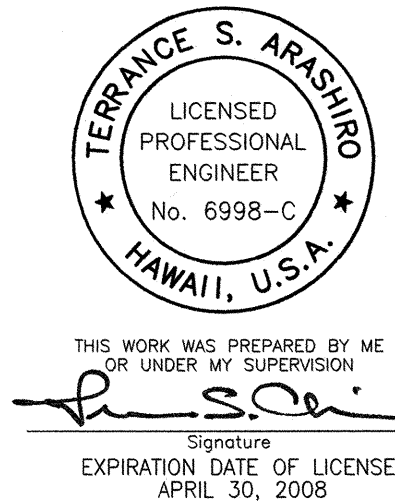
15. INDEMNITY

The Contractor shall indemnify, defend and hold harmless MECO 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 behalf; provided Contractor's indemnity shall not be applicable to any liability based upon the sole negligence of MECO.

APPROVED:

MAUI ELECTRIC COMPANY

DATE



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
UTILITY NOTES
HONOAPILANI HIGHWAY REALIGNMENT, PHASE 1A
Future Keawe Street Extension to Lahainaluna Road
Federal Aid Project No. NH-030-1(35)R
Scale: As Noted Date: April 2006

SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(35)R	2006	8	79

MAUI ELECTRIC COMPANY NOTES-CONT.

15. **SCHEDULE**
Contractor shall furnish his construction schedule at least 60 working days prior to starting work on MECO facilities. Contractor shall give MECO, in writing, forty (40) working days notice to proceed with MECO's portion of work.
16. **AUTHORITY**
All construction, restoration work and inspection shall be subject to whichever governmental agency has authority over the work.
17. **SPECIFICATION**
Construction of MECO's underground facilities shall be constructed in accordance with the latest revisions of MECO Specifications CS7001, CS7003, CS7202, CS9301, and CS9401 and applicable MECO standards.
18. **CONSTRUCTION**
Contractor shall furnish all labor, materials, equipment, and services to properly perform and fully complete all work shown on the contract, drawings, and specifications. All materials shall be new and manufactured in the United States of America. All manhole, handhole, and ductline installations shall be inspected and approved by MECO prior to excavation and prior to placing concrete. Contractor shall notify MECO's Engineering Department at 871-2390 at least 48 hours prior to placing concrete.
19. **STAKEOUT**
The Contractor shall stakeout all proposed MECO facilities within the project area so as to not conflict with any utility (existing or proposed) and any proposed construction or improvement work for verification by MECO before proceeding with MECO work.
20. **DUCTLINES**
All ductlines installations shall be PVC schedule 40 encased in concrete, unless otherwise noted. All completed ductlines shall be mandrel tested by the Contractor in the presence of MECO's inspector using MECO's standard practice. The Contractor shall install a 1/8" polyolefin pull line in all completed ductlines after mandrel testing is complete.
21. **JOINT POLE REMOVAL**
The last joint pole occupant off the poles shall remove the poles.

GENERAL DETOUR NOTES

1. The Contractor shall consider the temporary nature of the detour road pavement structure in the design.
2. Portable barriers shall be set a minimum of 2-feet from the edge stripe. Terminals of portable barriers shall be specified by the latest edition of the AASHTO Roadside Design Guide.
3. Inertial barrels will be allowed as end treatments for temporary barriers.
4. Fill slopes for the detour road shall be 2:1 (H:V) maximum. The engineer may accept steeper slopes if plans and calculations are submitted for approval by the Contractor.
5. All fill slopes that do not meet the clear zone requirements set forth by the latest edition of the AASHTO Roadside Design guide shall be shielded by NCHRP Report 350 and HDOT approved devices.
6. Design speed shall be 15 mph to 20 mph for the temporary detour road. Appropriate warning and regulatory signage shall be used.
7. Temporary illumination shall be provided for the temporary detour road.

SIGNING AND STRIPING NOTES

1. All signing, striping and pavement markings shall be designed by the Contractor in accordance with Federal Highway Administration Manual on Uniform Traffic control Devices dated 2003 and all subsequent amendments.

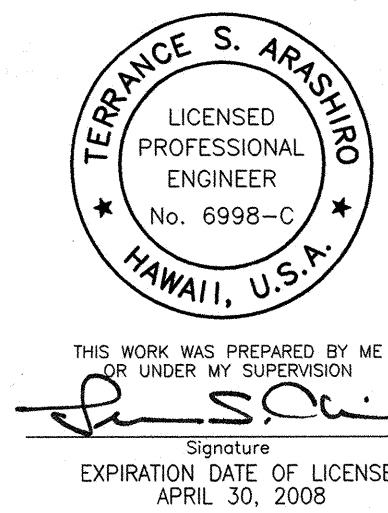
HIGHWAY LIGHTING NOTES

1. The Contractor shall notify Electrical Maintenance Section Department of Transportation, State Highway Division 72 hours in advance before commencing installation of temporary highway lighting system. Phone: 873-3535
2. All luminaires shall be high pressure sodium type with wattage and I.E.S. type light distribution as shown on the approved plans.
3. The Contractor shall have one set of approved plans at job site at all times during the construction work and record all changes occur on construction of Highway Lighting System.
4. The Contractor to stencil date of installation at the bottom of photocell. One photocell only is required as indicated on plan.
5. Final acceptance and inspection will be undertaken only after all work has been completed.
6. The Contractor shall measure and record ground resistance at each standard and submit recorded ground resistance to Traffic Section, and Maui District Maintenance Section, Department of Transportation, State Highway. The Contractor's electrical engineer shall certify all electrical tests, including but not limited to: Continuity Test and the Ground Rod Resistant Test prior to submission to the District Engineer.
7. Construction work shall be scheduled in such a manner that street lighting is provided during all hours of darkness either with new or existing luminaires or a combination thereof temporary connections shall be made to accomplish this end. The continuity of series street lighting circuits shall be maintained until the existing series street lighting fixtures are ready for removal.
8. The Contractor shall at his expense keep the project and surrounding area free from dust nuisance and shall be responsible for cleaning and removal of all silt and debris generated by the excavation work and deposited and accumulated within downstream waterways, ditches, drain pipes and on public roadways. Any citations (fines) received by the State for the Contractor's non-compliance of any Department of Health regulations shall be deducted from the progress payment.
9. Illumination shall be provided along the new bypass highway where the following occurs: merging traffic area onto the mainline roadway, temporary or permanent intersections along the mainline roadway or ramps with other County roadways, areas where there are significant horizontal curves or vertical curves and lighting is needed for sight distance purposes, off-ramp loop, temporary detour road, and Lahainaluna Grade Separation Structure.

APPROVED:

MAUI ELECTRIC COMPANY

DATE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1A

Future Keawe Street Extension
to Lahainaluna Road

Federal Aid Project No. NH-030-1(35)R

Scale: As Noted Date: April 2006

SHEET No. 2 OF 2 SHEETS