LINDA LINGLE
GOVERNOR

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
JIRO A. SUMADA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

HWY-PS
2.6554

September 20, 2010

Mr. Orlando "Dan" Davidson
Executive Director
Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Davidson:

Subject: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Olowalu Town Master Plan
Olowalu, Maui – TMK(2) 4-8-003:84, 98 through 118, and 124

Thank you for the opportunity to review the subject EISPN. We apologize for the delay in response and would like to provide the following comments:

1. Honoapiilani Highway is currently an access controlled State facility and is functionally classified as a Principal Arterial roadway. The proposed realignment of Honoapiilani Highway shall continue the classification as a Principal Arterial roadway and shall require the facility to be designed to meet the specified classification standards, as well as remain an access controlled facility.

2. A Traffic Impact Analysis Report (TIAR) for the subject development area is to be developed and is to address all mitigation corresponding to the number of units built in each of the phases. The TIAR is to be provided to the department for review and approval.

If you have any questions, please contact Ken Tatsuguchi, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.
Director of Transportation

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
ABBEY SETH MAYER
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-13113

September 21, 2010

Mr. Orlando Davidson
Executive Officer
Land Use Commission
P.O. Box 2359
Honolulu, Hawaiʻi 96804

Ms. Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaiʻi 96793

Dear Mr. Davidson and Ms. Suyama:

Subject: LUC Docket A10-786, Olowalu Town LLC/Olowalu Ekolu LLC
Proposed Olowalu Town Master Plan
Environmental Impact Statement Preparation Notice
TMK(s) (2) 4-4-003: 084, 098 through 118, and 124 (portions)
Olowalu, Maui, Hawaiʻi

The Office of Planning (OP) appreciates the opportunity to comment on the Environmental Impact Statement Preparation Notice (EISPN) for the above referenced proposal, for which the landowner(s) have filed a petition to reclassify approximately 320 acres of land from the State Agricultural District to the State Rural and Urban Districts. The petitioners propose to develop a master-planned community on approximately 636.48 acres of land at Olowalu.

OP will be coordinating the State's position on the petition with respect to areas of cross-cutting State concern. It is very important that the Draft Environmental Impact Statement (DEIS) fully identify and discuss potential impacts, including cumulative and secondary impacts, of the proposed project, as well as recommendations for mitigating potential adverse impacts, on the following areas of State concern.

1. **Groundwater and Surface Water Resources.** Water resource protection and water quality are critical State issues. The DEIS should discuss the water requirements of the proposed project, the proposed potable and non-potable water

sources to be used for the project, and measures proposed to reduce water demand and promote water reuse in the project. This discussion should identify whether the proposed project is within a designated Water Management Area, the impact of the project on the sustainable yield of affected aquifers, and the impact of the project on projected water use and system improvements contained in the County's water use and development plan.

The DEIS should provide an assessment of projected water use and impacts on affected groundwater and surface water resources under both single well and second well development scenarios. The DEIS should clarify the source of untreated agricultural water and how it will be used in the project. Existing diversions and current water use from Olowalu Stream should be quantified and discussed, as well as the cumulative water demand from the project and existing users that will be met by continued diversion of stream water and any plans for restoration of stream flows. Groundwater withdrawal for the project and its potential impact on Olowalu Stream and other surface and coastal water resources and habitats need to be addressed. The DEIS should also discuss the potential impact of proposed development along the stream corridor and how these impacts will be mitigated.

The DEIS should explain the factors that might constrain widespread use of native Hawaiian and drought resistant species in the project area.

2. **Agricultural Lands.** Preservation of important agricultural lands is a priority for the State and Counties. The DEIS should quantify the total amount of agricultural land being proposed for development under the proposed Master Plan and the amount of agricultural land that is being proposed for reclassification by their respective ALISH classification and Land Study Bureau overall productivity rating. The DEIS's agricultural impact assessment being conducted should include documentation of existing agricultural activity within and in the vicinity of the Master Plan area, and discuss the impact of the proposed development and loss of agricultural lands on localized agricultural activities and agriculture on Maui. The DEIS should explain how existing and proposed agricultural activity will be promoted and protected in Master Plan development and buildout. The DEIS should also discuss how adverse impacts from the loss of agricultural lands would be mitigated, including consideration of protection of an equivalent amount of quality agricultural lands elsewhere.

3. **Cultural, Archaeological, and Historic Resources**–The DEIS should include a complete inventory of archaeological and historic sites found on the subject property, and identify the status of any monitoring and preservation plans being prepared for or approved by the State Historic Preservation Division. The DEIS should identify and describe any cultural resources and cultural practices,

including visual landmarks, if applicable, on the subject property and within the ahupua'a in which the property is situated. The DEIS should discuss the impact of the proposed project on identified cultural resources and practices, alternatives considered, and proposed mitigation measures.

OP recommends the DEIS include a map that overlays the conceptual Master Plan with identified sites and resources to enable the reviewer to visualize the relationship between proposed development and existing resources to be preserved and protected. We understand that the DEIS will describe the Olowalu Cultural Preserve, existing and planned activities and resource management, how it is managed and administered, and what relationship, if any, it will have with the proposed new town.

4. **Coastal Zone Management (CZM) Concerns.** The State oversees protection of natural, cultural, and economic resources within the coastal zone, which is defined as all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the United States territorial sea (§205A-1, Hawaii Revised Statutes). The DEIS should note this definition of the coastal zone, and discuss how the proposed project will balance the competing values of economic development and preservation of coastal resources, including the following CZM objective areas.

The DEIS should include a map delineating the proposed 150-foot shoreline setback on the conceptual Master Plan.

a. **Coastal and Ocean Resources.** The State has an affirmative duty to protect Hawaii's nearshore waters. The DEIS should provide an inventory of and discuss important coastal and marine resources and ecosystems that may be impacted by the proposed project. Recent studies have indicated the presence of wastewater effluent in coastal waters off Lahaina from injection wells at the municipal wastewater treatment plant. The DEIS should discuss how wastewater and stormwater generated by the project will be prevented from adversely impacting nearshore waters, species, and habitats.

The DEIS should discuss the impact of the project on existing site and offsite hydrology and how the project will manage stormwater and runoff. OP recommends the use of green infrastructure, specifically the use of low impact development design and other best management practices (BMPs) that promote onsite infiltration and minimize runoff from storm events. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

b. **Coastal and Other Hazards.** The DEIS should describe any hazard conditions that are relevant to the site, such as potential risk or harm from tsunami, hurricane, wind, storm wave, sea level rise, flood, erosion, volcanic activity, earthquake, landslide, subsidence, and point and nonpoint source pollution. The DEIS should describe the measures that are proposed to mitigate any hazard impacts. It should discuss how climate change and the potential for sea level rise and storm events might impact the proposed community over time.

OP recommends the DEIS provide a map that overlays the FIRM zones and tsunami evacuation zone on the conceptual Master Plan for the reviewer. The DEIS should also include a discussion of wildfire hazards and any mitigation measures that might be required to address any potential threat from wildfires.

c. **Coastal-dependent Uses, Beach Protection, and Scenic Resources.** The DEIS should discuss why the proposed development needs to be located on the coast, the economic uses that will be of benefit to the State, as well as the measures to be taken to enhance beach protection and access. The DEIS should also discuss the project's impact on scenic views to and from the coast and how these will be mitigated.

d. **Recreational Resources.** The DEIS should include a complete description of recreational uses and facilities on or near the project site, and discuss how the impact of increasing users on these resources, in particular, coastal and ocean recreational resources, will be mitigated and managed during project development and at buildout.

5. **Affordable Housing.** Increasing the supply of affordable housing is a critical State and County issue. The DEIS should specifically discuss how the Petitioner plans to meet the County affordable housing and workforce housing requirements, to include a discussion of how the project's proposed residential product types will be allocated among the market and various affordable housing target populations, and the expected price ranges for the different product types.

6. **Impact on State Facilities.** The DEIS should include a discussion of anticipated short- and long-term project impacts on State-funded facilities, including schools, highways, harbors, and airports, and document State agency concerns related to their respective State facilities and resources. The DEIS should cite the measures proposed to mitigate the project's impacts on State facilities and describe discussions held with State agencies to address their concerns.

7. **Energy Use and Impacts.** The DEIS should quantify the projected energy requirements of the project by type of use, and discuss measures to be taken to reduce energy demand, promote energy efficiency, and to promote use of alternative, renewable energy sources, and otherwise advance State efforts to increase energy efficiency and alternative energy use under the Hawai'i Clean Energy Initiative. OP recommends the project's energy and resource use be evaluated with respect to the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating systems for new construction and neighborhood development. The DEIS should also identify any generating or transmission capacity constraints that may arise as a result of the proposed project and other projects planned for the region. The DEIS should also discuss the degree to which the project promotes transportation energy savings and reduces vehicular trips for project residents and users within the project and the region.

8. **Biota.** The DEIS should include an inventory of flora and fauna, including invertebrates, found on or in proximity to the project site and in any lava tubes and caves that may be on the property. Flora and fauna of concern should not be limited to listed threatened or endangered species or those under consideration for listing, and should include those species and ecosystems identified as "rare" by The Nature Conservancy of Hawai'i. The DEIS should also discuss measures to be taken to protect rare, threatened or endangered species or ecosystems of concern. Consideration should be given to conducting field observations in both wet and dry season surveys to capture the fullest range of flora and fauna.

   It is unclear from the EISPN how much of the conceptual Master Plan area has been surveyed for biological resources. The DEIS should clearly identify the surveys that are being relied on, the area they cover, and when they were conducted. Given the scale of the project, additional biological surveys may be warranted.

   The EISPN notes the presence of o'opu in Olowalu Stream. The scale of the project may require an updated stream assessment to establish a current baseline of the stream system and biota.

9. **Conservation District.** The DEIS should provide an inventory of conservation resources within the Master Plan area and identify potential impacts on these resources from proposed development, and how these impacts will be mitigated.

10. **Conformance with County Plan Designations and Urban Growth or Rural Community Boundaries.** Act 26, Session Laws of Hawaii 2008, reaffirmed the Land Use Commission's duty to consider any proposed reclassification with respect to the Counties' adopted general, community, or development plans. Thus, the DEIS should discuss the proposed project's consistency with the County land

use plans. If the proposed project is not consistent with the County plans, would require a County plan amendment, or lies outside a County urban growth or rural community boundary, then the DEIS should provide an analysis and discussion of the following:

a. **Alternative Sites Considered.** The DEIS should describe and discuss alternative sites that were considered for the project, and discuss why the project could not be accommodated on lands within the urban growth or rural community boundary, if the County plan delineates such boundaries, or on land already designated by the County for similar uses.

b. **Impact on Surrounding Lands.** The DEIS should discuss what the impacts of changing the County plan designation or extending the urban growth or rural community boundary would have on the surrounding lands. In particular, the DEIS should address how the proposed Rural District designation would impact neighboring agricultural activity on land in the Agricultural District. The DEIS should also discuss how rural and agricultural land use within and in proximity to the project will be maintained over the long-term.

c. **Significant Public Benefit.** The DEIS should discuss what, if any, public benefits are provided by the proposed project above that already required under existing approval and permitting requirements.

11. **Sustainability Analysis.** The adoption of sustainable building and development practices has long-term environmental, social, and economic benefits to Hawai'i's residents and communities. OP appreciates the considerable attention to sustainability principles reflected in the conceptual Master Plan. The EIS process is extremely valuable as a means to identify and discuss the specific sustainable design and development practices, including green building practices, which will be incorporated in the proposed project. The Office of Environmental Quality Control's *Guidelines for Sustainable Building Design in Hawai`i* and the U.S. Green Building Council's (U.S. GBC) LEED programs for new construction and its pilot program for neighborhood development (LEED-ND) offer guidelines and checklists for this purpose.

The LEED-ND rating system, in particular, is especially useful in profiling how a project protects and enhances the overall health, natural environment, and quality of life of communities. The rating system provides a range of development features and strategies that promote efficient water, energy, and resource use, including waste reduction, as well as location and design elements to reduce transportation impacts.

OP recommends that the DEIS include an analysis of the project with respect to the LEED-ND system, and provide a discussion of the LEED elements that will or could be incorporated into the project. This information would greatly aid agencies, decision makers, and the public in reviewing the project application.

12. **Solid Waste Management.** The DEIS should quantify the volume of solid waste likely to be generated by the project, and describe the impact the project will have on the County's existing and planned capacity for managing solid waste as represented in the County's solid waste management plan. The DEIS should discuss any mitigation measures to be taken to reduce solid waste generation and ensure that recycling and reuse are incorporated in the project.

13. **Public Health.** If the project will have a potential to generate hazardous materials or result in the possible contamination of the air, soil, or water, please discuss how public health and safety will be protected.

    The DEIS should identify and discuss any potential health and environmental threats that may be present due to contamination from past or current use of the site, including findings from Phase I or Phase II environmental site assessments conducted at the project site. OP recommends that an ASTM 1527-05 Phase I Environmental Site Assessment or equivalent be conducted for the Master Plan area, if one has not already been conducted. The Department of Health's Office of Hazard Evaluation and Emergency Response should be consulted as to issues to be addressed in the conduct of any site assessments for the project area.

14. **Development Timetable.** The EISPN noted that the proposed Master Plan will be developed over a 30-year time horizon. The State Land Use Commission (LUC) requires that projects seeking reclassification be substantially completed within ten years or seek incremental approvals. The DEIS should reference LUC rules (Section 15-15-50, Hawai'i Administrative Rules) and provide a schedule of development for each phase of the total project and a map showing the location and timing of each phase or increment of development. This development schedule will be critical for the review of the petition for the proposed district boundary amendment.

15. **Miscellaneous Comments**

    a. **Section IV, Alternatives to the Proposed Action.** The section needs to evaluate distinct alternatives to the proposed action, such as a smaller footprint for the proposed new community or the potential for siting the proposed development package in another location/s on the island. As currently written, the alternatives discussed are design variants on the preferred alternative. Furthermore, the discussion of the Deferral of

Action alternative needs to be evaluated separately from the No Action alternative, as it represents a later timeframe for development.

b. **Section V, Summary.** This section needs to identify and discuss unavoidable impacts and irretrievable commitments for both the construction and operational (full buildout) phases of the proposed project.

c. The list of permits/approvals should identify the type of permit/s that may be required, rather than stating "as appropriate."

d. **Table 2, Master Plan Land Use Allocation Summary.** The land use category of "Natural" should be changed to a more appropriate label, such as "Open Space", as this category includes ball fields, active parks, and "gathering facilities".

e. **Smart Code.** The DEIS should discuss how the proposed Smart Code would be implemented and integrated with existing County land use regulatory tools.

f. The sustainable yield for the Olowalu Aquifer cited on pages 54 and 55 is not consistent.

g. The "Wetland Assessment Report" cited as being included in the EISPN should be included in the DEIS.

OP looks forward to receiving the DEIS with the potential impacts and mitigation measures for the above issues addressed. If you have any questions, please call Ruby Edwards of the Land Use Division at (808) 587-2817.

Sincerely,

Abbey Seth Mayer
Director

CHARMAINE TAVARES
MAYOR

JEFFREY A. MURRAY
CHIEF

ROBERT M. SHIMADA
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE • WAILUKU, HAWAII 96793
(808) 244-9161 • FAX (808) 244-1363

September 10, 2010

Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High St.
Wailuku, HI 96793

Re : EISPN for proposed Olowalu Town Project
(2) 4-8-003: 84,98-118, and 124
Olowalu, Maui, HI

Dear Ms. Suyama,

Thank you for the opportunity to comment on EISPN for the proposed Olowalu Town Project. At this time, our office has the following general comments to provide as information in your on-going design process.

Fire department access roads:

- All roads shall be a minimum of 20 feet in clear width. Cul-de-sacs shall be a minimum of 32 feet in clear width. Dead ends in excess of 150 feet in length shall be provided with a turn-around with a minimum outside-turning-radius of 41 feet. The maximum grade for residential subdivisions is 14% and agricultural subdivisions is 18%.

Water supply for fire protection:

- A minimum of 2000 gpm with maximum hydrant spacing shall be provided for business/commercial areas. Apartment and townhouse areas shall be provided with a minimum of 1500 gpm at a maximum hydrant spacing of 250 feet. Single-family areas shall be provided with 1000 gpm at a maximum hydrant spacing of 350 feet.
If these two points are addressed, our office will not have any objection to this change of location.

A more detailed look at roads and water supply for fire protection will be done during the subdivision process, however this information should be valuable in your design.

Although Lahaina Fire station is only 7.5 miles away, the impact of 1500 more homes on emergency services will be felt. The inclusion of a future facility for fire/police/medic is a great idea. Extension and inclusion of these services into this town will help to lessen the impact and compliment the protection provided on the Lahaina side of the tunnel.

If there are any questions or comments, please feel free to contact me by phone at 244-9161 ext. 23 or by mail.

Sincerely,

Paul Haake
Captain, Fire Prevention Bureau
313 Manea Place
Wailuku, HI 96793

cc: Orlando "Dan" Davidson, Executive Director, Land Use Commission

CHARMAINE TAVARES
Mayor

JEFFREY K. ENG
Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

August 5, 2010

Ms. Colleen Suyama
Munekiyo & Hiraga
305 High St., Ste 104
Wailuku, HI 96793

Re: TMK: (2) 4-8-003:084, 098-118 & 124
Project Name: Proposed Olowalu Town Master Plan
Environmental Impact Statement Prep Notice (EISPN)

Dear Ms. Suyama:

Thank you for the opportunity to comment on the Environmental Impact Statement Prep Notice. The proposed development involves the construction of approximately 1,500 residential dwellings as well as appropriate infrastructure in phases spread over a period of approximately 30 years.

Source Availability, System Infrastructure and Consumption
The EISPN states that the project site will be served by the Olowalu Water Company, LLC, a private water utility company regulated by the Public Utilities Commission. Irrigation water will be provided by small, privately owned and operated treatment plants which will yield R-1 quality water. In addition, the document states that anticipated potable demand would be about 750,000 gallons per day (gpd). Absent detailed information, anticipated demand would be between approximately 900,000 and a little more than 2 million gpd, according to system standards. Please note that as of 2008, the sustainable yield set by the Commission on Water Resource Management for the Olowalu aquifer is 2 million gallons per day (mgd).

DWS does not review or set requirements on private water systems for domestic and fire protection purposes. However, fire protection should be a requirement in this fire prone area. We recommend that the water systems be built in accordance with the Statewide Water System Standards including appropriate backflow preventers, and that the DEIS reflect this.

We also note that the Planning Department included Olowalu within a planned protected area of the draft Maui Island Plan.

Conservation
To alleviate demand on the Olowalu system, please find attached a conservation checklist for the home and yard, condominiums and our planting brochure. We recommend that the following

conservation measures be included in the project design and noted in the draft EIS:

- Use Non-potable Water: Use brackish water for landscaping, dust control and other non-potable purposes where feasible.
- Use Climate-adapted Plants: Consider using climate-adapted native plants for all landscaping. The project is located in the "Maui County Planting Plan" - Plant Zone 3. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species.
- Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators. Such models should be avoided.
- Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Regular maintenance programs should be established.
- Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, water closets, and hose bibs.
- Prevent Over-Watering By Automated Systems: Provide rain shut offs and smart controllers on all automated irrigation systems. Any controllers which do not provide for soil moisture or evapotranspiration based response should be checked and reset at least once a month to reflect the monthly changes in evapo-transpiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.
- Limit Irrigated Turf: Limit irrigated turf to 25% or less of total landscaped area. Low-water use shrubs and ground covers can be equally attractive and require substantially less water that turf.
- Look for Opportunities to Conserve Water: A few examples of these are as follows: When clearing driveways, etc. of debris, use a broom instead of a hose. When washing cars, use a hand-operated spray nozzle instead of an open hose. Additionally, check for leaks in faucets and toilet tanks.

Pollution Prevention

We note that a portion of the master plan is only a few feet away from the shoreline. Cumulative impacts of increasing density this close to the shoreline should be considered. To address concerns regarding impacts to near shore waters as well as groundwater protection, the mitigation measures listed below should be implemented during construction:

- Prevent cement products, oil, fuel and other toxic substances from falling or leaching into the ground.
- Staging and storage of construction machinery and storage of debris should not take place on any sandy beach areas.
- Properly install and maintain erosion control barriers such as silt fencing or straw bales.
- Disturb the smallest area possible.
- Keep run-off on site.
- No construction or toxic materials or debris should be placed where it may enter the ocean

or discharged into coastal waters. Debris shall be disposed of outside the coastal zone.

- Construction debris and sediment should be removed from construction areas each day that construction occurs to prevent the accumulation of sediment and other debris which may be discharged into coastal waters.

We have attached Best Management Practices (BMPs) for stabilizing shoreline to prevent erosion as well as EPA's Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters for reference.

Should you have any questions, please contact our Water Resources and Planning Division at 808-244-8550.

Sincerely,

Jeffrey K. Eng, Director

mlb
cc: applicant, Executive Director Land Use Commission, engineering division

Attachments: Plant Brochure: "Saving Water in the Yard"; Checklist of Water Conservation Ideas for Home and Yard and Condominiums", BMPs for stabilizing shoreline

Best Management Practices

Shoreland

Stabilizing your Shoreline to Prevent Erosion

Erosion is a natural process and, therefore , some sediment does end up in surface water. Clearing shoreland vegetation and beach rocks, and increasing runoff to the shore will accelerate shoreline erosion.

Increased runoff is especially detrimental to high bluffs (Figure 1). Slumping of waterfront bluffs results from unstable soil, usually because surface and groundwater is reaching the bluff. On lakes, waves can erode supporting soil at the bottom of the bluff and cause slumping. Along river bluffs, river currents may erode the supporting soil.

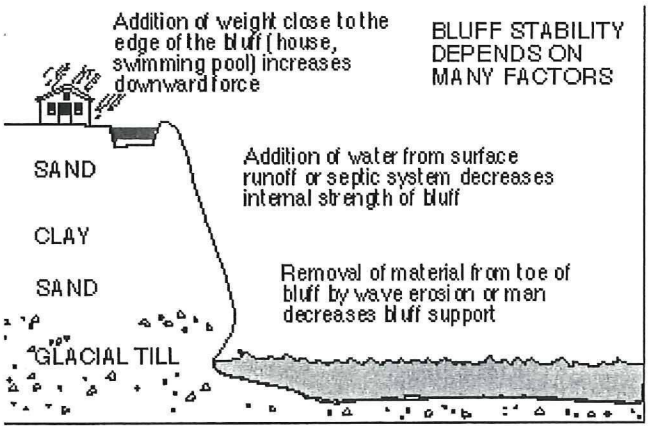


Figure 1 - Factors that can make bluffs unstable

Erosion of higher shoreline bluff areas can be prevented by:

- retaining moisture absorbing vegetation on the bluff
- outletting rain gutters and diverting surface runoff away from the bluff
- reducing runoff rate toward the bluff
- minimizing paved areas that increase runoff
- limiting groundwater flow toward the bluff
- installing septic systems and drainfields away from the bluff
- avoiding additional weight on the bluff edge, such as pools, buildings, or storage sheds

On property with steep slopes or bluffs, reducing the amount of water reaching the bluff will help with the stabilization. If diverting water away from the bluff is impractical, it should be routed through a non-perforated plastic drain pipe that outlets at the very bottom of the bluff. Rock should be placed around outlet to prevent erosion at the bottom of the drain. Surface water and some ground water can be intercepted before it reaches the bluff by installing a "French drain" (Figure 2).

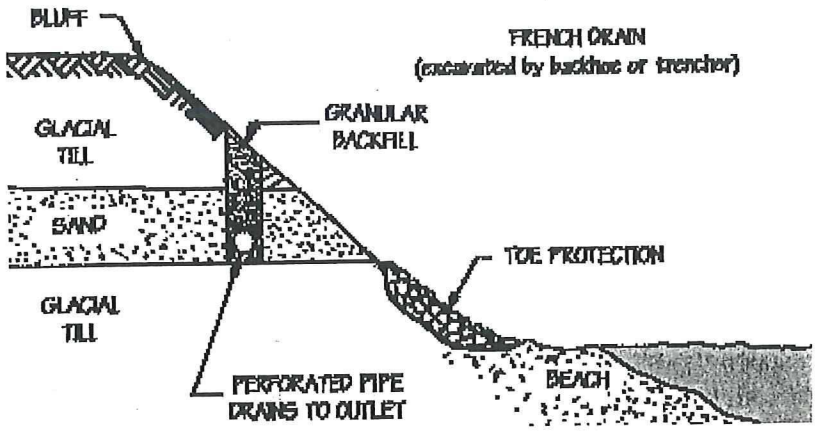


Figure 2 - French drains intercept surface water and increase soil stability. Deeper drains will intercept more ground water, but shallower drains are effective also and may cause less disturbance on the bluff. The maximum depth for French drains is 15 to 20 feet.

A French drain is a narrow trench set back from, but parallel to the top of the bluff and filled with free-draining sand or gravel. A perforated, corrugated plastic pipe at the bottom collects water and should drain away from the bluff. The entire perforated length of pipe must be wrapped with fabric or a filter sock. Installing deeper drains will intercept more ground water and provide better protection for the bluff.

No additional weight such as building, garage slab, or vehicle should be placed near the top of the bluff. Septic systems and swimming pools are especially inappropriate near the top of a bluff because they add weight and water.

For most property that slopes toward water , leaving the natural shoreland undisturbed is often the best and least inexpensive protection against erosion. A filter strip of thriving vegetation on and near the shore binds the soil and minimizes soil loss from surface runoff and waves, and from use by people (Figure 3). Existing vegetation can be enhanced by planting woody or aquatic plants.

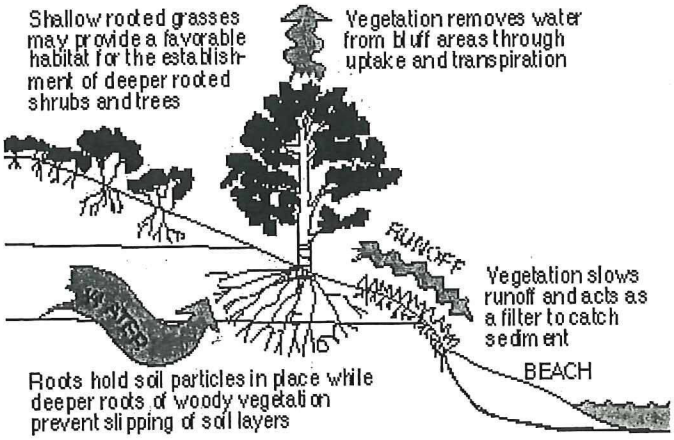


Figure 3 - Well-established vegetation on the shore stabilizes the soil and helps remove water

Regardless of the natural protection on your shore, the right combination of conditions (such as high ocean level and wind direction) can result in a severe wave pounding, and shoreland soil may need additional protection.

Placement of large rock, usually refers to as rip-rap, is the preferred and most common form of shore protection (Figure 4).

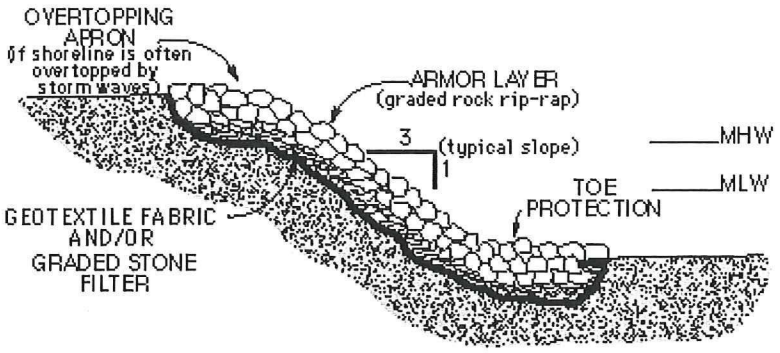


Figure 4 - Proper rip-rap placement (MHW = mean high water, MLW = mean low water)

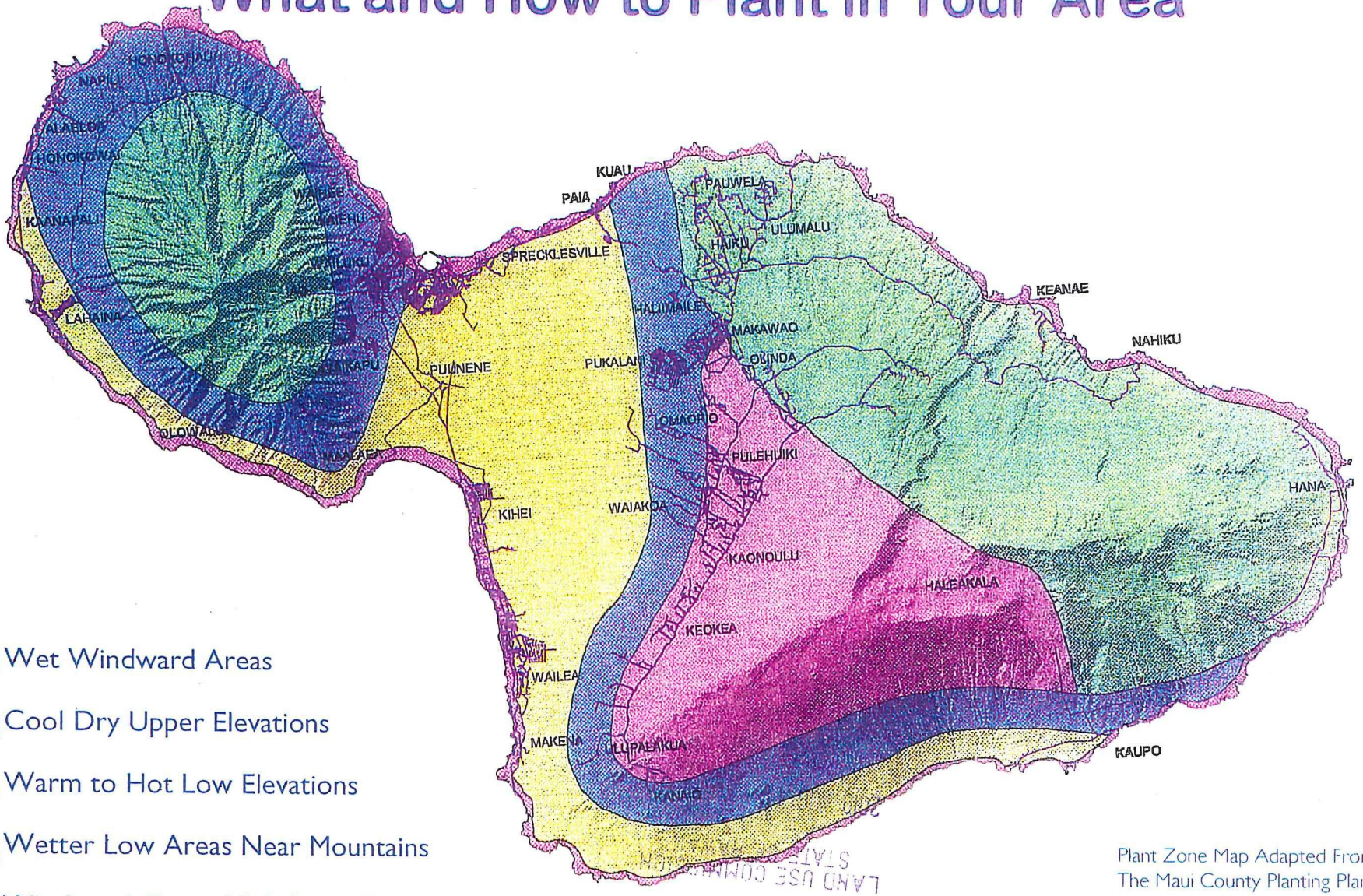
If rip-rap is used, crushed or blasted rock locks together better than rounded boulders, but can be very expensive unless it is already available.

Geotextile fabric is usually place beneath the rock rip-rap to prevent soil loss through rip-rap openings. It is easy to place and provides an excellent filter barrier (Figure 4). In order to prevent punctures, plenty of slack should be provided over protruding objects that cannot be removed. A layer of sand or fina gravel can be placed on the fabric for extra protection against puncture. Enough fabric should be laid out so that the rip-rap periphery can be "wrapped" by bringing the fabric up and back down into the rip-rap. This will help hold the rip-rap together as one structural unit. Keep in mind that sunlight will degrade exposed fabric. As an alternative to the fabric, a graded filter layer can be used beneath rip-rap to prevent soil loss through the rip-rap openings. Sufficient rock must be placed at the base of the rip-rap for toe protection.

Source: University of Minnesota Extension - WW-06946

Saving Water in The Yard

What and How to Plant in Your Area



1. Wet Windward Areas
2. Cool Dry Upper Elevations
3. Warm to Hot Low Elevations
4. Wetter Low Areas Near Mountains
5. Windward Coastal Salt Spray Zones

Plant Zone Map Adapted From
The Maui County Planting Plan

Tips From The Maui County Department of Water Supply

By Water All Things Find Life

Zone-specific Native and Polynesian plants for Maui County

Zone 1

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia arecina	lo'ulu, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	Pritchardia forbesiana	lo'ulu	15'			
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Cordyline fruticosa	ti, ki	6			
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Charpentiera obovata		15'			
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia mauiensis var. diffusa	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Charpentiera obovata		15'			
Tr	Erythrina sandwicensis	wiliwili	20'	20'	sea to 1,000'	Dry
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Sophora chrysophylla	mamane	15'	15'	1,000' to 3,000'	Medium
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr	Sesuvium portulacastrum	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Bidens menziesii ssp. menziesii	ko'oko'olau	1'	3'		
Sh	Bidens micrantha ssp. micrantha	ko'oko'olau	1'	3'		
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Canthium odoratum	Alahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Diospyros sandwicensis	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	Erythrina sandwicensis	wiliwili	20'	20'	sea to 1,000'	Dry
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Nesoluma polynesicum	keahi	15'	15'	sea to 3,00'	Dry
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Reynoldsia sandwicensis	'ohe makai	20'	20'	1,000' to 3,000'	Dry
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia arecina	lo'ulu, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	Pritchardia forbesiana	lo'ulu	15'			
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Artemisia mauiensis var. diffusa	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens menziesii ssp. menziesii	ko'oko'olau	1'	3'		
Sh	Bidens micrantha ssp. micrantha	ko'oko'olau	1'	3'		
Sh	Cordyline fruticosa	ti, ki	6			
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Canthium odoratum	Alahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	Charpentiera obovata		15'			
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Diospyros sandwicensis	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Sophora chrysophylla	mamane	15'	15'	1,000' to 3,000'	Medium
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 5

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Sesuvium portulacastrum	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 5

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Ipomoea pes-caprae	beach morning glory, pohuehue	1			

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
black wattle	Acacia mearnsii	Mimosaceae
blackberry	Rubus argutus	Rosaceae
blue gum	Eucalyptus globulus	Myrtaceae
bocconia	Bocconia frutescens	Papaveraceae
broad-leaved cordia	Cordia glabra	Boraginaceae
broomsedge, yellow bluestem	Andropogon virginicus	Poaceae
buffelgrass	Cenchrus ciliaris	Poaceae
butterfly bush, smoke bush	Buddleja madagascariensis	Buddlejaceae
cats claw, Mysore thorn, wait-a-bit	Caesalpinia decapetala	Caesalpiniaceae
common ironwood	Casuarina equisetifolia	Casuarinaceae
common velvet grass, Yorkshire fog	Holcus lanatus	Poaceae
fiddlewood	Citharexylum spinosum	Verbenaceae
fire tree, faya tree	Myrica faya	Myricaceae
glorybower	Clerodendrum laponicum	Verbenaceae
hairy cat's ear, gosmore	Hypochoeris radicata	Asteraceae
haole koa	Leucaena leucocephala	Fabaceae
ivy gourd, scarlet-fruited gourd	Coccinia grandis	Cucurbitaceae
juniper berry	Citharexylum caudatum	Verbenaceae
kahili flower	Grevillea banksii	Proteaceae
klu, popinac	Acacia farnesiana	Mimosaceae
logwood, bloodwood tree	Haematoxylon campechianum	Caesalpiniaceae
loquat	Eriobotrya japonica	Rosaceae
meadow ricegrass	Ehrharta stipoides	Poaceae
melaleuca	Melaleuca quinquenervia	Myrtaceae
miconia, velvet leaf	Miconia calvescens	Melastomataceae
narrow-leaved carpetgrass	Axonopus fissifolius	Poaceae
oleaster	Elaeagnus umbellata	Elaeagnaceae
oriental mangrove	Bruguiera gymnorrhiza	Rhizophoraceae
padang cassia	Cinnamomum burmanii	Lauraceae
palmgrass	Setaria palmifolia	Poaceae
pearl flower	Heterocentron subtriplinervium	Melastomataceae
quinine tree	Cinchona pubesens	Rubiaceae
satin leaf, caimitillo	Chrysophyllum oliviforme	Sapotaceae
silkwood, Queensland maple	Flindersia brayleyana	Rutaceae
silky oak, silver oak	Grevillea robusta	Proteaceae
strawberry guava	Psidium cattleianum	Myrtaceae
swamp oak, saltmarsh, longleaf ironwood	Casuarina glauca	Casuarinaceae
sweet vernalgrass	Anthoxanthum odoratum	Poaceae
tree of heaven	Ailanthus altissima	Simaroubaceae
trumpet tree, guarumo	Cecropia obtusifolia	Cecropiaceae
white ginger	Hedychium coronarium	Zingiberaceae
white moho	Heliocarpus popayanensis	Tiliaceae
yellow ginger	Hedychium flavescens	Zingiberaceae

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
	Jasminum fluminense	Oleaceae
	Arthrostema ciliatum	Melastomataceae
	Dissotis rotundifolia	Melastomataceae
	Erigeron karvinskianus	Asteraceae
	Eucalyptus robusta	Myrtaceae
	Hedychium gardnerianum	Zingiberaceae
	Juncus planifolius	Juncaceae
	Lophostemon confertus	Myrtaceae
	Medinilla cumingii	Melastomataceae
	Medinilla magnifica	Melastomataceae
	Medinilla venosa	Melastomataceae
	Melastoma candidum	Melastomataceae
	Melinis minutiflora	Poaceae
	Olea europaea	
	Oxyspora paniculata	Melastomataceae
	Panicum maximum	Poaceae
	Paspalum urvillei	Poaceae
	Passiflora edulis	Passifloraceae
	Phormium tenax	Agavaceae
	Pinus taeda	Pinaceae
	Prosopis pallida	Fabaceae
	Pterolepis glomerata	Melastomataceae
	Rhodomyrtus tomentosa	Myrtaceae
	Schefflera actinophylla	Araliaceae
	Syzygium jambos	Myrtaceae
Australian blackwood	Acacia melanoxylon	Mimosaceae
Australian tree fern	Cyathea cooperi	Cyatheaceae
Australian tree fern	Sphaeropteris cooperi	Cyatheaceae
Beggar's tick, Spanish needle	Bidens pilosa	Asteraceae
California grass	Brachiaria mutica	Poaceae
Chinese banyon, Maylayan banyon	Ficus mirocarpa	Moraceae
Chinese violet	Asystasia gangetica	Acanthaceae
Christmasberry, Brazilian pepper	Schinus terebinthifolius	Anacardiaceae
Formosan koa	Acacia confusa	Mimosaceae
German ivy	Senecio mikanioides	Asteraceae
Japanese honeysuckle	Lonicera japonica	Caprifoliaceae
Koster's curse	Clidemia hirta	Melastomataceae
Lantana	Lantana camara	Verbenaceae
Mauritius hemp	Furcraea foetida	Agavaceae
Mexican ash, tropical ash	Fraxinus uhdei	Oleaceae
Mexican tulip poppy	Hunnemannia fumariifolia	Papaveraceae
Mules foot, Madagascar tree fern	Angiopteris evecta	Marattiaceae
New Zealand laurel, karakaranut	Corynocarpus laevigatus	Corynocarpaceae
New Zealand tea	Leptospermum scoparium	Myrtaceae
Pampas grass	Cortaderia jubata	Poaceae
Panama rubber tree, Mexican rubber tree	Castilloa elastica	Moraceae
Shoebutton ardisia	Ardisia elliptica	Myrsinaceae
banana poka	Passiflora mollissima	Passifloraceae

Selection

As a general rule, it is best to select the largest and healthiest specimens. However, be sure to note that they are not pot-bound. Smaller, younger plants may result in a low rate of plant survival.[1] When selecting native species, consider the site they are to be planted in, and the space that you have to plant. For example: Mountain species such as koa and maile will not grow well in hot coastal areas exposed to strong ocean breezes. Lowland and coastal species such as wiliwili and Kou require abundant sunshine and porus soil. They will not grow well with frequent cloud cover, high rainfall and heavy soil.

Consider too, the size that the species will grow to be. It is not wise to plant trees that will grow too large.[2] Overplanting tends to be a big problem in the landscape due to the underestimation of a species' height, width or spread.

A large, dense canopied tree such as the kukui is a good shade tree for a lawn. However, it's canopy size and density of shade will limit what can be planted in the surrounding area. Shade cast by a koa and ohia lehua is relatively light and will not inhibit growth beneath it.

Keep seasons in mind when you are selecting your plants. Not all plants look good year round, some plants such as ilima will look scraggly after they have flowered and formed seeds. Avoid planting large areas with only one native plant. Mixing plants which naturally grow together will ensure the garden will look good all year round.[3] Looking at natural habitats helps to show how plants grow naturally in the landscape.

When planting an area with a mixed-ecosystem, keep in mind the size and ecological requirements of each plant. Start with the hardiest and most easily grown species, but allow space for fragile ones in subsequent plantings.

Acquiring natives

Plants in their wild habitat must be protected and maintained. It is best and easiest to get your plants from nurseries (see list), or friend's gardens. Obtain proper permits from landowners and make sure you follow a few common sense rules:

- collect sparingly from each plant or area.
- some plants are on the state or Federal Endangered Species list. Make sure you get permits (see app. A,B)

---

[1] K. Nagata, P.6

[2] K. Nagata, P.9

[3] Nagata, P.9

Soil

Once you have selected your site and the plants you wish to establish there, you must look at the soil conditions on the site. Proper soil is necessary for the successful growth of most native plants, which preform poorly in hard pan, clay or adobe soils. If natives are to be planted in these types of soil, it would be wise to dig planting holes several times the size of the rootball and backfill with 50-75% compost.[4] A large planting hole ensures the development of a strong root system. The plant will have a headstart before the roots penetrate the surrounding poor soil.[5]

It is recommended that native plants not be planted in ground that is more dense than potting soil. If there is no alternative, dig a hole in a mound of soil mixed with volcanic cinder which encourages maximum root development. Fill the hole with water, if the water tends to puddle or drain too slowly, dig a deeper hole until the water does not puddle longer than 1 or 2 minutes.[6] Well-drained soil is one of the most important things when planting natives as you will see in the next section.

Irrigation

Most natives do very poorly in waterlogged conditions. Do not water if the soil is damp. Water when the soil is dry and the plants are wilting. Once established, a good soaking twice a week should suffice. Deep soaking encourages the development of stronger, and deeper root systems. This is better than frequent and shallow watering which encourage weaker, more shallow root systems.

The following is a watering schedule from Kenneth Nagata's Booklet, *How To Plant A Native Hawaiian Garden*:

WATER REQUIREMENT	WATERING FREQUENCY
Heavy	3x / week
Moderate	2x / week
Light	1x / week

Red clay soils hold more water for a longer period of time than sandy soils do. If your area is very sunny or near a beach, things will dry out faster. Even in the area of one garden, there are parts that will need more or less water. Soils can vary and amount of shade and wind differ. After plants are established (a month or two for most plants, up to a year for some trees), you can back off watering.

---

[4] Nagata, p. 6

[5] Nagata, p. 8

[6] Nagata, p. 8

Automatic sprinkler systems are expensive to install and must be checked and adjusted regularly. Above-ground systems allow you to monitor how much water is being put out, but you lose a lot due to malfunctioning of sprinkler heads and wind. The most efficient way to save water and make sure your plants get enough water, is to hand-water. This way you are getting our precious water to the right places in the right amounts.[7]

Fertilizer

An all-purpose fertilizer 10-10-10 is adequate for most species. They should be applied at planting time, 3 months later, and 6 months thereafter. Use half the dosage recommended for ornamentals and pay special attention to native ferns which are sensitive to strong fertilizers. Use of organic composts and aged animal manures is suggested instead of chemical fertilizers. In addition, use of cinders for providing trace minerals is strongly recommended.[8]

Natives are plants which were here hundreds of years before the polynesians inhabited the Hawaiian Islands. They were brought here by birds, or survived the harsh ocean conditions to float here. They are well-adapted to Hawaii's varying soil and environmental conditions. This is why they make prime specimens for a xeriscape garden. However, natives will not thrive on their own, especially under harsh conditions. On the other hand, like any other plant, if you over-water and over-fertilize them, they will die. Follow the instructions given to you by the nursery you buy the plant from, or from this booklet. Better yet, buy a book (suggested readings can be found in the bibliography in the back of this pamphlet), read it, and learn more about native plants. I guarantee that you will be pleased with the results.

---

[7] Bornhorst, p. 19-20

[8] Nagata, p. 6

Propagation

There are many ways to propagate and plant-out native Hawaiian species. One of the most thourough and helpful book is Heidi Bornhorst's book, *Growing Native Hawaiian Plants.* The easiest, and best way to obtain natives for the novice gardener is to get them from a reputable nursery (see appendix c). That way all you will have to do is know how to transplant (if necessary) and plant-out when you are ready. These are the two methods I have listed here.

Transplanting

1. Use pots that are one size bigger than the potted plant is in
2. Get your potting medium ready

Good potting medium is a ½, ½ mixture of peat moss and perlite. If the plant is from a dry or coastal area, add chunks of cinder or extra perlite. If it is a wet forest species, add more peat moss or compost. Be aware that peat moss is very acidic and certain plants react severely to acidity.

If the plant is to eventually be planted into the ground, make a mix of equal parts peat moss, perlite, and soil from the area in which the plant is to be planted. Slow-release fertilizer can be mixed into the potting medium.

3. Once pots, potting medium, fertilizer and water are ready, you can begin re-potting. Keep the plant stem at the same depth it was in the original pot. Avoid putting the plant in too large a pot, as the plant may not be able to soak up all the water in the soil and the roots may drown and rot.

Mix potting medium and add slow-release fertilizer at this time. Pre-wet the medium to keep dust down and lessen shock to the plant. Put medium in bottom of pot. Measure for the correct depth in the new pot. Make sure there is from ½ to 2 inches from the top of the pot so the plant can get adequate water. Try to stand the plant upright and center the stem in the middle of the pot.

Water the plant thoroughly after transplanting. A vitamin B-1 transplanting solution can help to lessen the transplant shock. Keep the plant in the same type of environment as it was before, sun or shade. If roots were broken, trimm off some of the leaves to compensate for the loss.[9]

Planting out

1. Plant most native Hawaiian plants in a sunny location in soil that is well-drained.
2. Make the planting hole twice as wide as the root ball or present pot, and just as deep.

If the soil is clay-like, and drains slowly, mix in some coarse red or bland cinder, coarse perlite or

---

[9] Bornhorst, p.20-21

coarse compost. Place some slow-release fertilizer at the bottom of the hole.

3. Carefully remove the plant from the container and place it in the hole.

The top of the soil should be at the same level as the top of the hole, if it is too high or too low, adjust the soil level so that the plant is at the right depth.

4. Water thoroughly after you transplant.

Mulch

Most natives cannot compete with weeds, and therefore must be weeded around constantly in order to thrive. Mulch is a practical alternative, which discourages and prevents weeds from growing.

Hawaii's hot, humid climate leads to the breaking down of organic mulches. Thick organic mulches such as wood chips and leaves, may also be hiding places for pests.

Stone mulches are attractive, permanent and can help to improve soil quality. Red or black cinder, blue rock chips, smooth river rocks and coral chips are some natural choices.[10] Macadamia nut hulls are also easy to find and can make a nice mulch.[11]

Never pile up mulch right next to the stem or trunk of a plant, keep it a few inches away.

---

[10] Bornhorst, p. 24

[11] Nagata, p. 7

ZONES

The Maui County Planting Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

Zone 1:

Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.

Zone 2:

Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.

Zone 3:

Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.

Zone 4:

Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.

Zone 5:

Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planting for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be planted in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and or function.

PLACES TO SEE NATIVES ON MAUI:

The following places propagate native Hawaiian plants from seeds and/or cuttings. Their purpose is to protect and preserve these native plants. Please contact them before going to view the sites, they can provide valuable information and referral to other sources.

1.	Hoolawa Farms P O Box 731 Haiku HI 96708	575-5099
2.	The Hawaiian Collection 1127 Manu Street Kula HI 96790	878-1701
3.	Kula Botanical Gardens RR4, Box 228 Kula HI 96790	878-1715
4.	Maui Botanical Gardens Kanaloa Avenue, Kahului across from stadium	249-2798
5.	Kula Forest Reserve access road at the end of Waipoli Rd Call the Maui District Office	984-8100
6.	Wailea Point, Private Condominium residence 4000 Wailea Alanui, Kihei public access points at Four Seasons Resort or Polo Beach	875-9557
7.	Kahanu Gardens, National Tropical Botanical Garden Alau Place, Hana HI 96713	248-8912
8.	Kahului Library Courtyard 20 School Street Kahului HI 96732	873-3097

PLACES TO BUY NATIVE PLANTS ON MAUI

1. Ho'olawa Farms
   Anna Palomino
   P O Box 731
   Haiku HI 96708
   575-5099

   * The largest and best collection of natives in the state. They will deliver, but worth the drive to go and see! Will propagate upon request

2. Kahanu Gardens
   National Tropical Botanical Garden
   Alau Place, Hana
   248-8912

3. Kihana Nursery
   1708 South Kihei Road
   Kihei HI 96753
   879-1165

4. Kihei Garden and Landscape
   Waiko Road, Wailuku
   P O Box 1058
   Puunene HI 96784
   244-3804

5. Kula Ace Hardware and Nursery
   3600 Lower Kula Road
   Kula HI 96790
   876-0734
   * many natives in stock
   * get most of their plants from Ho'olawa Farms
   * they take special requests

6. Kulamanu Farms - Ann Carter
   Kula HI 96790
   878-1801

7. Maui Nui Botanical Gardens
   Kanaloa Avenue
   (Across from stadium)
   Kahului HI 96732
   249-2798

8. Native Gardenscapes
   Robin McMillan
   1330 Lower Kimo Drive
   Kula HI 96790
   870-1421

   * grows native plants and installs landscapes including irrigation.

9. Native Hawaiian Tree Source
   1630 Piiholo Road
   Makawao HI 96768
   572-6180

10. Native Nursery, LLC
    Jonathan Keyser
    250-3341

11. New Moon Enterprises - Pat Bily
    47 Kahoea Place
    Kula HI 96790
    878-2441

12. Waiakoa Tree Farm - Kua Rogoff
    Pukalani HI 96768
    Cell - 264-4166

A Checklist of Water Conservation Ideas for Condominiums

COOLING

Cooling Towers

Cooling Towers are used to reject heat from air conditioning systems. In a cooling tower, a circulating stream of warm water contacts an air flow, causing evaporation of a portion of the water. When this water evaporates, the water which remains behind is cooled. The cooled water then circulates through a cooling system, warms and then returns to the tower.

- ☞ Understand Your System: Prepare an inventory of each cooling tower you have, its cooling capacity, and the equipment or processes that it serves
- ☞ If you purchase chemicals for the treatment of the recirculating cooling tower water, have the chemical vendor explain the purpose and action of each chemical.
- ☞ Have your chemical vendor provide a written report of each service call, and be sure that the vendor explains the meaning of each analysis performed,as well as the test results.
- ☞ Tell your chemical vendor that water conservation is a priority, and ask about alternatives that may reduce the amount of water bled-off from the towers.
- ☞ Have vendors bid for your facility's water cooling tower water treatment. Require a predetermined minimum level of water efficiency. Have them provide figures showing projected annual water and chemical consumption and costs.
- ☞ Consider incorporating sulfuric acid to reduce carbonate scale and achieve significantly higher cycles of concentration. If you use sulfuric acid, be sure to observe appropriate safety precautions.
- ☞ Ozone is another alternative that can help remove dissolved minerals and act as a biocide. Again, observe the appropriate safety precautions.
- ☞ If available, use reclaimed water as a source of cooling tower make-up water.
- ☞ Blow-down water is the release of some of the circulating water to remove suspended and dissolved solids left behind as pure water evaporates from the system. Re-use blow down where possible for non-potable uses.

Evaporative Coolers

Evaporative coolers lower air temperature by increasing the humidity of incoming air being drawn into a building. The air's ambient or "dry bulb" temperature is lowered when the air absorbs water vapor. After a short period of operation, the recirculating air in the cooler reaches wet bulb temperature, which is theoretically the lowest temperature to which the entering air may be cooled. Some evaporative coolers have recirculation pumps.

All evaporative coolers require either a small amount of bleed-off or regular cleaning to maintain and prevent damage to the coolers pads. The principle opportunity for conservation in evaporative cooling is to reduce the amount of water bled-off, and to reuse that water wherever possible.

- ☞ Be sure your coolers have pumps to recirculate the water. This decreases water consumption and increases cooling efficiency.
- ☞ Check to make sure you are not bleeding off an excessive amount of water. For a typical small cooler, anything more htan a few gallons per hour may be excessive.
- ☞ Pipe the bleed-off water from your coolers to help water a landscaped area!

Eliminate Once Through Cooling!

Some coolers pass water through the equipment only once, and then discard it. "Single pass" technology is not good for two reasons. First, these single pass coolers use too much water! Secondly, they do not cool as effectively, because the water does not cool to wet bulb temperature. This type of cooling is illegal under Maui County Codes! Make sure your air conditioners, ice makers and other cooling systems are not single pass models!

- ☞ Replace single-pass cooling models with air-cooled or recirculating models
- ☞ Connect to a recirculating cooling water loop. Or retrofit models to be recirculating.
- ☞ If a piece of equipment can not be replaced immediately, remember, it is illegal to dump single pass cooling water into the sewer system. Re-use this water for landscaping or other non-potable uses.

A Checklist of Water Conservation Ideas for Condominiums

PLUMBING MEASURES FOR EACH UNIT

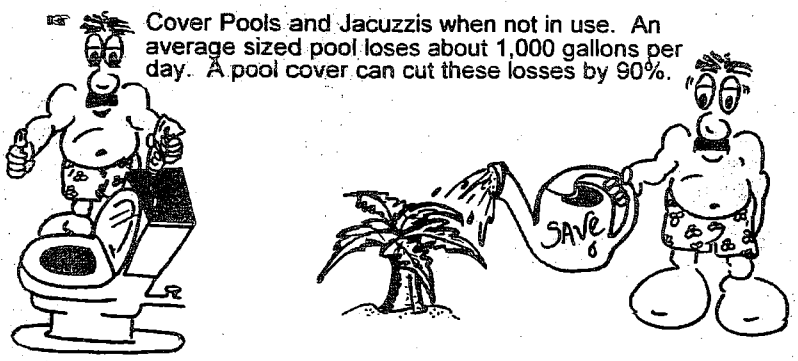
- Replace toilets with Ultra Low Flush Models, or retrofit with low flow flappers. Contact the Maui County Board of Water Supply at 243-7199 or the Wastewater Division at 243-7417 for more information.
- Retrofit faucets with aerators, or consider alternative faucet types such as self closing or, automatic sensor controlled faucets.
- Replace showerheads with low flow models. Contact the Maui County Board of Water Supply at 243-7199, or the Public Works Wastewater Division at 243-7417 to find out how you can get these!
- Check for leaks! Check for leaks! Check for leaks! Do dye tablet or food coloring tests in toilets to check for hidden leaks. Check for dripping faucets indoors and out!

COMMON LAUNDRY AREAS

- Efficient washing machines can save up to 20 gallons per load. These also save on energy. If you are replacing laundry facilities don't even consider anything but the new horizontal axis models. These not ony save up to 40% of water used, but deliver even more substantial energy savings - up to 65%!
- Water boilers also require blow-down, or bleed-off, just like air conditioners. Monitor total dissolved solids, and blow down only when necessary!
- Avoid excessive filter or softener back flush. Back flush only when needed.

NON-LANDSCAPED AREAS OUTDOORS

- Never hose your sidewalks and driveways. This is a complete waste of water, and a hose can use 25 gallons in just 5 minutes. Remember: A broom is best.
- Check for leaks! Note the number of outdoor faucets on the outsides of buildings. Make a list and check every one regularly.
- Cover Pools and Jacuzzis when not in use. An average sized pool loses about 1,000 gallons per day. A pool cover can cut these losses by 90%.



EDUCATION

- Knowledge is power. Educate people about how they can help to save water at your building or facility. You may be surprised at how willing people are to chip in, once they know what to do!

LANDSCAPES

- Understand your system: Develop a schematic of all water entry points. Know where your faucets, time clocks, solenoids, booster pumps, sprinklers, bubblers, valves, pipes and etc. are located.
- Make a checklist of system elements and check each one regularly for leaks! Finding and repairing leaks can lead to big savings, especially in irrigation systems!
- Use turf only where actually necessary. Avoid turf except in picnic or active play areas.
- Choose the right plants. Native plants appropriate for your region are best. These save water, because they are adapted to survive on the natural rainfall of the area. Besides saving water, they also help to avoid the spread of invasive alien plant species which can destroy native ecosystems. And they contribute to the true Hawaiian sense of place.
- Avoid over-watering! Use soil moisture over-rides and rain-shutoffs on all automated systems. Reset controllers at least once per month to account for changing evapotranspiration.
- Zone your plants. This means that plants with similar water needs should be grouped together. This avoids wasting water, overwatering some plants and under-watering others.
- Never water during the heat of the day. The best time to water is just around sunrise. Evenings are also acceptable. Once the sun comes up, the evapotranspiration rate soars, and much of your water is wasted.
- Having your soil tested also helps you to learn what type of watering is needed. Clay soils take from ¼ to ½" of water per hour before water starts running off and being wasted. Sandy soils require somewhat more frequent, shorter watering.
- Mulch, compost or other organic material will help soils hold moisture, keep the ground from overheating and discourage weeds. Loosening the soil while you add the organic matter will also help keep your lawn healthier
- Root feeder or water aerator probes around trees and bushes will help to direct water where it is needed. You can also build a watering basin in the soil around the base of your plants to help the water soak in deeply.

For More Information, Contact the Maui County Board of Water Supply - Water Resources & Planning Division @ 243-7199

A Checklist of Conservation Ideas for the Yard

Xeriscaping: This is a landscaping technique which utilizes native drought tolerant plants. Most of these plants only require water to become established. They are adapted to thrive on available nutrients. A handbook on this technique will be available soon from the Department of Water Supply (244-8550).

Limit Lawn Size: Most turf grasses require 30-50% more water than shrubs and ground covers. Limit the use of grass and lawns to active picnicking and play areas. Shade in these areas will reduce moisture loss and make a cool area for children to play. If you mow the grass too short, root shock will cause your grass to turn yellow despite your watering!

Soils & Mulch: Soils are not all alike. Sandy soils require more frequent watering than clay soils. You can have your soils tested. Call the Ag Extension Service at MCC for advice (244-3242). Compost or other organic material will also help soils hold moisture and support heartier, more drought-tolerant plants. Try leaves, grass clippings, manure, aged sawdust, wood chips, or humic acid. Mulching is an excellent way to hold moisture, keep the ground from overheating, and discourage weeds. You should also loosen the soil by rototilling or spading while you add the organic matter.

Designing for Irrigation Zones: Zone your plants so that each area has similar water needs. This will enable you to water more efficiently, and keep the plants healthier. Limit thirsty plants to small decorative borders around the house itself or in specific viewing areas or shady areas.

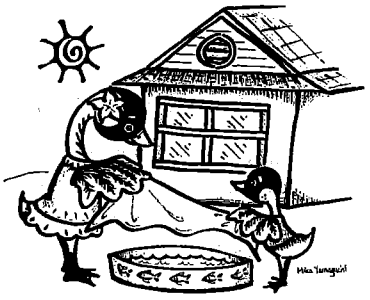
Irrigation Systems: Drip irrigation is designed to get water slowly and directly to the roots of plants. Use sprinklers with low, flat spray patterns and larger drops of water. Check timers on irrigation controllers and adjust them monthly to water appropriately for the season. If you use a hose, set a kitchen timer or buy a timer attachment that hooks on between the faucet and hose. This will help remind you not to over-water one area. Use a soaker hose on slopes to reduce run-off.

Choosing Native Plants -- A Hawaiian Sense of Place: Plant shrubs and trees that nature designed to look green and full here on Maui without a lot of water. once they are grown in, you can cut back or stop watering, depending upon your location.

Watering: If you do have a lawn, water only when it needs it. A good deep soaking is better than a light sprinkling. A good way to see if your lawn needs watering is to step on the grass. If it springs back up when you move, it doesn't need water. If it stays flat, it could use a bit. The best time of day to water is early in the morning before the sun and wind.

Watching the Weather: never water while it's raining! Install rain-shutoffs or soil moisture sensors on automated systems. Teach your family to turn off your irrigation in the rain. Sunny, exposed areas and slopes need to be watered more frequently than shady areas. Place your plants appropriately.

Cover Pools and Jacuzzis: They're fun, but they can waste a lot of water! An average sized pool loses about 1,000 gallons of water per month to evaporation. A pool cover can cut these losses by 90%!



Washing the Car: Do you wash your car at home? Use a bucket, or a hose with a trigger nozzle to avoid wasting water. Wet the car thoroughly, and then turn off the hose while you wash the car! Swab the car with soapy water from a bucket. You can use the hose again for a final rinse. Better still, take your car to a car wash. Most of the car washes on Maui are fitted with recirculating water.

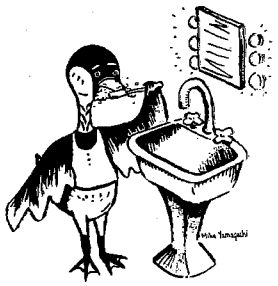
A Clean Sweep: Did you know that 5 minutes of unnecessary hosing will waste 25 gallons of water? Try sweeping sidewalks and driveways.

Find and Repair Leaks: Your garden hose and irrigation lines can carry thousands of gallons per day, so you can imagine a leak outdoors wastes a lot of water! Check and repair all of your outdoor fixtures regularly.

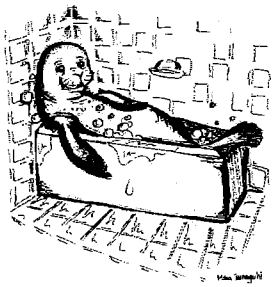
"By Water All Things Find Life"

A Checklist of Conservation Ideas for the Home

Shaving & Brushing Teeth: Stopper the sink and fill the basin half way when you shave, and you use just ½ a gallon! Turn off the water while brushing your teeth. Replace your faucet aerator and save over 500 gallons per year, they are free from the Department of Water Supply (244-8550).



Bathing & Showering: Make a habit of showering quickly or using a partially filled tub. Or try the "navy shower." Turn on the water to get wet, turn it off to soap up, and turn it back on to rinse off. It's a great conservation technique, especially in drought emergencies. Use a bucket to catch the water as it warms up, then water your plants with the water.



House Plants & Fish Tanks: If you have a fish tank, you probably clean it regularly. Use the dirty water to water your house plants. It saves using the same water twice, and the plants love the water, which is rich in nitrogen and phosphorous!

Food Prep: If you like to rinse off vegetables and fruits, stopper the sink or use a tub instead of using running water. And when you're finished, turn on the garbage disposal as you pull the plug or water your plants with the water.

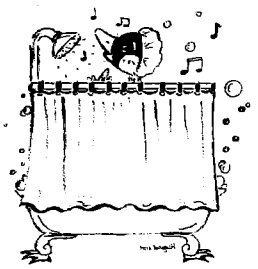
Doing Dishes: It is more water efficient to wash full loads. If you do wash dishes by hand, stopper the sink and run the disposal as you pull the plug.

Washing Machines: A water-efficient washing machine can save up to 20 gallons per load. With the average household washing 6 loads per week, that's a lot of water! Statistics on energy savings potential indicate that highly efficient washing machines save from 35% to 65% on energy used for washing!

For a Cold Glass of Water: Keep a pitcher of cool water in the refrigerator. Running the water until it turns cool can waste a gallon for each glass. Letting the water sit in the fridge can also allow any chlorine to dissipate, and improve the taste.

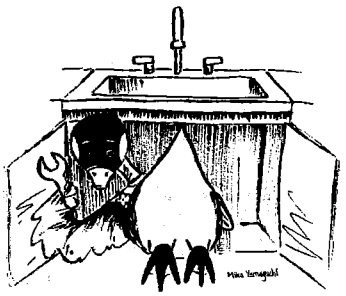
Toilets: Some people toss and flush away tissues, cigarettes or bits of trash in the toilet. Use a wastebasket instead. If everyone in the U.S. flushed just once less per day, we could save a sea full of water a mile wide, a mile long, and four feet deep, every day! Installing a water conserving or dual flush toilet can save more than 17 gallons per person per day. Even a low cost installing a toilet flapper can save more than 5 gallons per person per day.

Showerheads: Replacing your old showerhead with a low flow one can save as much as 7.2 gallons per person per day. You can also receive these free from the Department of Water Supply.



Faucets: Replacing your old faucets with more efficient models can save 4 gallons per person per day. Faucet aerators or spray taps can also help, by mixing air with water. This cuts the flow and reduces splashing, while leaving enough pressure to cut the soap and grease.

Check For Leaks: Leaking faucets cost you money! Even a slow drip wastes 15 gallons per day. A 1/8" stream can waste 400 gallons per day. Unfortunately, the average non-conserving home looses more than 10% of the water it pays for to leaks! Check for leaks regularly. Try putting 10 drops of food coloring in your toilet tank. Don't flush, just wait 15 minutes. If colored water shows up in the bowl, your tank is leaking. Check your water meter while no water is running in your house. If the meter is registering, you have a leak . Check your faucets twice a year. If any drip after you've turned them off firmly, turn off the supply line, take the faucet apart, and replace the washer. And don't forget the faucets outside of the house.



Pipes Break - Be Prepared: If a pipe breaks in your home, you could experience flooding and property damage as well as huge water waste unless you quickly shut your valve. Locate your valve and mark it for quick, easy identification. Learn how to shut it properly, and teach your family to do so as well.

"By Water All Things Find Life"

www.mauiwater.org

CHARMAINE TAVARES
Mayor

CHERYL K. OKUMA, Esq.
Director

GREGG KRESGE
Deputy Director

TRACY TAKAMINE, P.E.
Solid Waste Division

DAVID TAYLOR, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2200 MAIN STREET, SUITE 100
WAILUKU, MAUI, HAWAII 96793

August 12, 2010

Ms. Colleen Suyama
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

LAND USE COMMISSION
STATE OF HAWAII
2010 AUG 17 A 7:12

Dear Ms. Suyama:

SUBJECT: **OLOWALU TOWN PROJECT**
EIS PREPARATION NOTICE
TMK (2) 4-8-003:084, 098 - 118, AND 124, OLOWALU

We reviewed the subject application and have the following comments:

1. Solid Waste Division comments:

   a. None.

2. Wastewater Reclamation Division (WWRD) comments:

   a. None. There is no County wastewater system in the area of the subject project.

If you have any questions regarding this memorandum, please contact Gregg Kresge at 270-8230.

Sincerely,

CHERYL K. OKUMA
Director of Environmental Management

xc: Mr. Orlando "Dan" Davidson, Executive Director
Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
DOH/CWB

08019PSW.10

August 11, 2010

Mr. Orlando "Dan" Davidson
Executive Director
Land Use Commission
PO Box 2359
Honolulu, Hawaii 96804

LAND USE COMMISSION
STATE OF HAWAII
2010 AUG 16 P 1:27

Dear Mr. Davidson:

SUBJECT: **Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project at TMK (2)-4-8-003:84, 98 through 118, and 124 Olowalu, Maui, Hawaii**

The Department of Health, Clean Water Branch (CWB), has reviewed the document and CD received July 8, 2010 regarding the subject project and offers these comments. Please note that our review is based solely on the document for the subject project and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at http://hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Anti-degradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. This includes areas used for a construction base yard and the storage of any construction related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

b. Hydrotesting water,

c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html

3. For other types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 2 or Class AA waters, an NPDES individual permit will need to be obtained. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/environmental/water/cleanwater/forms/indiv-index.html

4. Please call the Army Corps of Engineers at (808) 438-9258 to determine which Department of the Army (DA) permit(s) shall be required for the subject project. Permits may be required for work performed in, over, and under navigable waters of the United States. Projects requiring a DA permit also require a Section 401 Water Quality Certification (WQC) from our office.

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at http://hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at 586-4309.

Sincerely,

ALEC WONG, P.E. CHIEF
Clean Water Branch

SW:ml

c: DOH-EPO #I-3247 [via email only]
Ms. Colleen Suyama, Munekiyo and Hiraga, Inc.

CHARMAINE TAVARES
Mayor
KATHLEEN ROSS AOKI
Director
ANN T. CUA
Deputy Director

COUNTY OF MAUI

DEPARTMENT OF PLANNING

August 6, 2010

Ms. Colleen Suyama
Munekiyo and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Suyama:

SUBJECT: COMMENTS REGARDING THE EISPN FOR THE PROPOSED OLOWALU TOWN MASTER PLAN; TMK'S: (2) 4-8-003: 084, 098-118, and 124, OLOWALU, MAUI, HAWAII (EAC 2010/0009)

The Department of Planning (Department) has the following comments in regard to the letter dated July 2, 2010 requesting comments on the Environmental Assessment/Environmental Impact Statement Preparation Notice (EISPN). This letter supersedes the Department's previous letter dated June 7, 2010, regarding this EISPN.

The Department understands the proposed action includes the following:

- A State District Boundary Amendment (DBA) from Agriculture to Urban and Rural for approximately 320 acres of land;
- The amendment would provide for the development of the Olowalu Town project on approximately 636 acres to be phased over a period of 30 years; and
- The Olowalu Town project would involve approximately 1,500 residential units, commercial and civic uses, parks and recreation sites, a cultural preserve, agricultural uses, a private domestic water system, a private wastewater system, and the relocation of Honoapi'ilani Highway.

Based on the foregoing, the Department provides the following comments on the EISPN:

1. If the Maui Island Plan is adopted prior to the submittal of the Final Environmental Impact Statement (EIS), then include in the Final EIS an analysis of how the proposed project complies with the Maui Island Plan;
2. All maps need to be to drawn to scale, especially the Master Plan, Figure 4 as it forms the basis for the DBA;
3. On Figure 4 - Master Plan, provide a complete legend to include excluded lands and agricultural lands. Also, the Rural designation in the legend should be colored blue to coincide with the color on the master plan. Identify in the legend what the colors black and beige designate. The master plan should indicate the boundary of the cultural reserve;
4. On page 13 – Project Need:
   a. Update the figures for projected housing needs, based on the most recent Census updates.

b. Include a reference to the Department's Long Range Division that estimates the need for housing in West Maui to be only 3,456 additional units by the year 2030, beyond those lands already entitled;
c. If the Maui Island Plan is adopted prior to the submission of the Final EIS and the project area is not included in the Urban Growth Boundaries please explain why the housing units are needed outside the approved Urban Growth Boundaries; and
d. Provide an analysis as to why another 1,500 housing units are needed in addition to the Department's recommended 3,651 units.

5. Many maps should have the term "Existing" added to their specific title to clarify existing from proposed. For example, Figure 5 could be misinterpreted to be identifying proposed State land use designations.
6. On page 15, West Maui Community Plan Amendment: It appears that some of the land has a Single-Family (SF) designation in the Community Plan. This should be confirmed and this paragraph revised accordingly.
7. On page 15 – Change in Zoning:
   a. It appears some of the land has a Hotel District zoning. This should be confirmed and this paragraph revised accordingly; and
   b. Clarify whether the "SmartCode" zoning will be a standard template crafted by Andres Duany or will be customized for Maui.
8. Obtain a Zoning Confirmation Form for all parcels within the entire Olowalu Town project. Then include a table indicating all existing and proposed State land use designations, community plan designations and zoning districts.
9. On Figure 6, Community Plan map: Revise the map to use colored lines to distinguish the designations easier.
10. On page 17 – Special Management Area Use Permit: Because a portion of the project is within the SMA, parcels located within the SMA including those in which a portion is within the SMA will be subject to the SMA regulations. The text needs to be revised to indicate this.
11. Figure 7 – Special Management Area Boundary Map: This map is inconsistent with the County Kiva SMA map. Update the map to be consistent with the County Kiva map or provide the basis for the boundaries of Figure 7.
12. On page 19, provide a population for the historic Olowalu plantation town and how the proposed Olowalu Town compares to the historic plantation town in terms of residents, stores, community facilities, etc.
13. On page 29, provide a justification for converting prime agricultural land into non-agricultural uses.
14. On page 30, Flood and Tsunami Hazards:
   a. Provide a map indicating the tsunami inundation zone;
   b. Provide information and maps indicating where the tsunami and floodplain zones will be in one hundred years based on anticipated sea level rise;
   c. Explain how development within the existing and anticipated tsunami and flood hazard areas will be mitigated;
   d. Explain why density should be created in tsunami and flood hazard areas; and

e. Add a section addressing wildland fire hazards existing conditions and impacts and mitigation including fire breaks, landscaping, building design and an evacuation plan; and explain why density should be created in an area that has been prone to wildfires.

15. Figure 12 – Flood Insurance Rate Map: Revise the map so it is more legible, such as using greater detail and darker colors to designate the flood hazard areas.
16. On page 38 - Archaeological Investigations: Include a map of archeological sites that are within and adjacent to the project site.
17. On page 42 - Scenic and Open Space Resources: Provide photos of existing views of the area, and computer generated photos of the area with the proposed development.
18. On page 42 – Shoreline Access:
    a. Indicate whether the three (3) proposed parks will be open to the public; and
    b. Include a map indicating how public access will be provided to the shoreline, including parking and pedestrian paths.
19. On page 45 – Economy: Include a market study that indicates the type of employment that would occur within the project for its residents; and the extent that residents will have to commute away from the Olowalu Town for employment and other needs.
20. On page 46 – Housing:
    a. Provide data on the range, type, sizes, income level, and demographic group regarding the affordable housing;
    b. Explain how affordable housing can be provided when the proposal will incur the costs of providing infrastructure including the relocated highway, wastewater treatment plants, medical, educational, police and fire facilities;
    c. Describe how it will be assured that the housing units will be purchased and used by residents, as opposed to visitors and/or second home-owners; and
    d. Indicate how the affordable housing units will initially be affordable and then remain affordable.
21. On pages 47-58, facilities and infrastructure are discussed. Include information that clearly indicates what land and/or facilities/infrastructure will be provided and/or maintained by the Olowalu Town developers or will have to be acquired and/or provided and/or maintained by the County or State; a schedule of when the facilities/infrastructure will need to be established; and what short-term and long-term fiscal impacts to the County or State would result.
22. On page 47 – Solid Waste: Indicate the distance the transfer station is from the proposed project.
23. On page 48 - Medical Facilities: Indicate the conditions under which medical facilities "may be implemented as part of the Master Plan".
24. On page 48 – Police and Fire Protection: Indicate under what conditions additional facilities will be generated by the Olowalu Town.
25. On page 49 – Educational Facilities: Include an analysis of the anticipated demographics of the proposal and whether the demographics will generate the need for any new facilities within the project.
26. On page 50 – Recreational Facilities: Include a site plan indicating the location of all recreational facilities, including parks, greenways, parking, and bicycle and pedestrian paths. Indicate whether the public will have access to such facilities.
27. On page 53 - Roadways:

a. Include in the Traffic Impact Analysis Report (TIAR) an analysis of the Olowalu Town's impacts on the Honoapi'ilani Highway traffic flow between Ma'alaea and Lahaina due to:
   i. Construction to re-align the highway; and
   ii. The increase in traffic generated from each phase of the build-out of the Olowalu Town.
b. Explain how the commuting generated by adding 1,500 new residential units - incorporating the market analysis regarding the extent that residents will have to commute away from the Olowalu Town for employment and other needs - will impact tourists and workers using the highway to reach Ma'alaea or Lahaina;
c. Provide an analysis of the economic effects that would result from such impacts to businesses that are dependent upon such tourists and workers; and
d. Provide more details on the innovative design standards to be used in conjunction with the relocated highway.

28. On page 54 – Water:
   a. Provide the reference for the statement that the Olowalu aquifer has an estimated sustainable yield of 2.0 mgd; and
   b. Provide an engineering report with calculations regarding demand generated by the proposal and a plan for the development of any additional water sources.
29. On page 56 – Wastewater Systems:
   a. Provide an engineering report regarding the anticipated capacity of the treatment system, what methodology it will use, and whether injections wells will be used. Include a map of the entire system.
30. On page 56 – Drainage:
   a. Provide a report on the quality of the nearby marine resources, especially the coral reefs. Provide an engineering report on the proposed drainage system, the best management practices for its construction, and the anticipated impacts to the marine resources from the drainage system.
31. On pages 59-63 – State Land Use District Criteria:
   a. Compare the amount of trading and employment that the proposal will generate on-site, with the amount of trading and employment that residents of the proposal will need to find off-site;
   b. Clarify which basic services the proposal will definitely provide, which may be provided, and which will definitely not be provided;
   c. Explain how the project's proposal to increase densities to urban and rural levels in tsunami and floodplain zones, is consistent with State DBA criteria;
   d. Provide an explanation as to how the project complies with State DBA criteria that says land contiguous with an existing urban designation shall be given more consideration than non-contiguous land;
   e. Explain why the proposed State DBA should not wait until the adoption of urban growth boundaries per the Maui Island Plan;
   f. Explain how the project complies with criteria that say a State DBA to urban may include lands which do not conform to urban criteria, "when surrounded by or adjacent to existing urban development;"

g. Explain how the project complies with criteria that say a State DBA will not include land, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services; and

h. Explain how the proposed Rural designated lands comply with State DBA criteria that say such lands may include land not surrounded by or contiguous to Rural lands if they are not suited for farm or agricultural uses.

32. On page 80, explain how the proposal complies with the following objectives/policies of the Countywide Policy Plan:
    a. "Reduce the affordable housing deficit for residents."
    b. "Ensure that basic infrastructure needs can be met during a disaster."
    c. "Require new developments to contribute their pro rata share of local and regional infrastructure costs."
    d. "Ensure that infrastructure is built concurrent with or prior to development."
    e. "Capitalize on existing infrastructure capacity as a priority over infrastructure expansion."
    f. "Perpetuate the authentic character and historic integrity of rural communities and small towns."
    g. "Direct urban and rural growth to designated areas."
    h. "Encourage redevelopment and infill in existing communities on lands intended for urban use to protect productive farm land and open-space resources."
    i. "Discourage new entitlements for residential, resort, or commercial development along the shoreline."
    j. "Restrict development in areas that are prone to natural hazards, disasters, or sea-level rise."
    k. "Direct new development in and around communities with existing infrastructure and service capacity, and protect natural, scenic, shoreline, and cultural resources."
    l. "Direct growth in a way that makes efficient use of existing infrastructure and to areas where there is available infrastructure capacity."
    m. "Planning for new towns should only be considered if a region's growth is too large to be directed into infill and adjacent growth areas."
    n. "Promote land use patterns that can be provided with infrastructure and public facilities in a cost-effective manner."

33. On page 84 – Maui Island Plan: Explain why the proposed DBA should be reviewed prior to the final adoption of the urban and rural growth boundaries in the draft Maui Island Plan that is currently under review by the County Council.

Thank you for the opportunity to comment. If you require further clarification, please contact Senior Planner Jeffrey Hunt by email at jeff.hunt@mauicounty.gov or by phone at 270-7821.

Sincerely,

for KATHLEEN ROSS AOKI
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator
Jeffrey S. Hunt, AICP, Senior Planner
Milton Arakawa, Director, Department of Public Works
Orlando "Dan" Davidson, Executive Director, State Land Use Commission
EAC File
General File

KRA:JSH
K:\WP_DOCS\PLANNING\EAC\2010\0009_OlowaluTown\Comment_Letter_EISPN_Aug_ 2010.doc

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 5, 2010

LAND USE COMMISSION
STATE OF HAWAII
2010 AUG -9 P 1:57

Munekiyo & Hiraga, Inc.
305 High Street Suite 104
Wailuku, Hawaii 96793

Attention: Ms. Colleen Suyama, Project Manager

Ladies and Gentlemen:

Subject: Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Division of Boating & Ocean Recreation, Commission on Water Resource Management, Office of Conservation & Coastal Lands, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Morris M. Atta
Acting Administrator

Cc: State Land Use Commission

RECEIVED
LAND DIVISION

2010 AUG 2 P 3:06

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:AB

Correspondence: MA-11-6

AUG - 2 2010

MEMORANDUM

TO: Charlene Unoki, Assistant Administrator
Land Division

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: Olowalu Town Project EISPN
LOCATION: Olowalu, Maui, TMKs: various
APPLICANT: Munekiyo & Hiraga, Inc.

The Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) has reviewed the information provided regarding the Olowalu Town Project Environmental Impact Statement Preparation Notice (EISPN).

The OCCL notes that there are four project parcels that appear to be located in the Conservation District: TMKs: (2) 4-8-003:084, 108, 118, and 124.

According to the applicant, no development is planned for the Conservation District land within the project area. The OCCL has no comments at this time regarding the Town plan as provided in the EISPN. However, should the applicant propose any land use[1] in the Conservation District, the OCCL should be contacted to determine what type of authorization may be required for this action.

Should you have any questions, contact Audrey Barker of our office at (808) 587-0316 or audrey.t.barker@hawaii.gov.

---

[1] As defined in HAR §13-5-2 Definitions, "land use" means: (1) The placement or erection of any solid material on land if that material remains on the land more than fourteen days, or which cause a permanent change in the land area on which it occurs; (2) The grading, removing, harvesting, dredging, mining or extraction of any material or natural resource on land; (3) The subdivision of land; or (4) The construction, reconstruction, demolition, or alteration of any structure, building, or facility on land.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

July 20, 2010

TO: Morris Atta, Administrator
Land Division

FROM: Lenore N. Ohye, Acting Deputy Director
Commission on Water Resource Management

SUBJECT: Olowalu Town EISPN

FILE NO.: N/A
TMK NO.: (2) 4-8-003:various

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://www.hawaii.gov/dlnr/cwrm.

Our comments related to water resources are checked off below.

☒ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☐ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☒ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/pp/index.htm.

☒ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☒ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at http://hawaii.gov/dlnr/cwrm/resources_permits.htm.

☐ 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water.

☐ 9. A Well Construction Permit(s) is (are) required any well construction work begins.

☐ 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 11. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 12. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.

☐ 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.

☐ 15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER:

The ground water source for this project is Well No. 4936-01, which has been pumping an average of about 43,000 gpd over the first months of this year. The document states that the adopted sustainable yield for the aquifer tapped by this well is 3 mgd, although this number was revised to 2 mgd in the 2008 Water Resource Protection Plan. The surface water portion for the project draws from Olowalu Stream, which is stated to have yielded in excess of 4 mgd, without qualifying this number; we believe this suggests it is a high number. The diversions are subject to a DLNR lease, also to any competing user petitioning for allocations of this public trust asset or for restoration. Estimated water demand is based upon use on 22 agricultural lots on 636 acres, but the maps provided do not show this. Estimates should reflect County standards, at minimum, and identify reasonable beneficial use in more detail.

If there are any questions, please contact Charley Ice at 587-0218.

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 12, 2010

MEMORANDUM

From:

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
x Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
__Div. of State Parks
x Commission on Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division –Maui District
x Historic Preservation

RECEIVED
LAND DIVISION
2010 JUL 22 A 10:09
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

To:

FROM: Charlene Unoki, Assistant Administrator Charlene
SUBJECT: Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project
LOCATION: Island of Maui
APPLICANT: Munekiyo & Hiraga, Inc.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 6, 2010.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(x) We have no comments.
( ) Comments are attached.

Signed: Edward R. Underwood
Date: 7/20/10

JUL15'10PM 1:46BOR DIV

LINDA LINGLE
GOVERNOR

PEARL IMADA IBOSHI
DIRECTOR

COLLEEN Y. LaCLAIR
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
830 PUNCHBOWL STREET, ROOM 321
HONOLULU, HAWAII 96813
www.hawaii.gov/labor
Phone: (808) 586-8844 / Fax: (808) 586-9099
Email: dlir.director@hawaii.gov

August 4, 2010

Ms. Colleen Suyama
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Suyama:

This is in response to your request for comments on the environmental impact statement preparation notice for the proposed Olowalu Town project in Olowalu, Maui. The Department of Labor and Industrial Relations does not have any comments.

Should you have any questions, please call me at (808) 586-8844, or Mr. Patrick Fukuki, our Business Management Officer, at (808) 586-8888.

Sincerely,

Colleen Y. LaClair

for PEARL IMADA IBOSHI
Director

c: Land Use Commission

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M. D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M. D., M. P. H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2102

August 5, 2010

Ms. Colleen Suyama
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Suyama:

Subject: Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project
TMK: (2) 4-8-003:84, 98 through 118 and 124

Thank you for the opportunity to comment on this project. We have the following comments:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage maybe required for this project. The Clean Water Branch should be contacted at 808 586-4309.

2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control." A noise permit may be required and should be obtained before the commencement of work.

3. All requirements of HAR, Chapter 11-62, "Wastewater Systems" must be complied with. Plan review and approval of all new wastewater disposal systems are required prior to construction of the systems. If you have any questions, please contact Roland Tejano, Environmental Engineer at 808 984-8232.

It is strongly recommended that the Standard Comments found at the Department's website: http://hawaii.gov/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230.

Sincerely,

Patti Kitkowski

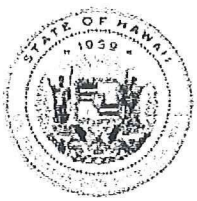
Patti Kitkowski
Acting District Environmental Health Program Chief

c EPO
Orlando Davidson

LINDA LINGLE
GOVERNOR

MAJOR GENERAL ROBERT G. F. LEE
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE



PHONE (808) 733-4300
FAX (808) 733-4287

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

August 4, 2010

Ms. Colleen Suyama
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Suyama:

Environmental Assessment/Environmental Impact Statement Preparatory Notice
Proposed Olowalu Town Master Plan, Olowalu, Maui, Hawaii

Thank you for the opportunity to comment on this development. After careful review of the project description and the accompanying maps and diagrams, we have several comments to make.

We feel that there is a need for a more extensive discussion of natural hazard mitigation. The area has a history of wildfires, in addition to being near the shoreline and therefore susceptible to coastal inundation from tsunamis and tropical cyclones. In addition, planned community locations along streams and in high risk flood zones raise concerns about flooding. We recommend that, since all Hawaiian Islands remain susceptible to these natural hazards, potential damage from these events are mitigated by strict compliance with all applicable building codes. We also suggest that public facilities be constructed to meet public shelter specifications.

We do concur with the inclusion of the referenced Cultural and Archaeological Inventory Surveys to safeguard these types of resources. We anticipate reviewing the Draft Environmental Impact Statement when it is completed and will make any further comments at that time. If you have any questions, please call Mr. Richard Stercho, Assistant Public Relations Officer, at (808) 733-4300, extension 583.

Sincerely,

EDWARD T. TEIXEIRA
Vice Director of Civil Defense

c: Orlando "Dan" Davidson, Land Use Commission

P.O Box 511
Kahului, Hi 96733
August 4, 2010

Mr. Orlando "Dan" Davidson
Executive Director
State Land Use Commission
P.O. Box 2359
Honolulu, Hi 96804

Dear Mr. Davidson

I would like to take this opportunity to respond to the Olowalu Town EIS. A similar letter was also written to Ms. Colleen Suyama, project manager of Munekiyo & Hiraga, Inc.

My name is Wallace H. Fujii, one of the partners of the Fujii Family Ltd Partnership. Our family owns the property identified as the Olowalu Store in the EIS. The store is currently thriving and although currently not open for business, a new operator of an adjacent restaurant space will shortly reopen.

Our family's concern is primarily on the mauka alignment of Honoapiilani Highway from its current alignment which passes in front of Olowalu Store. A statement on Page 12 of the the EIS states, "A significant infrastructure component of the Master Plan is the proposed relocation of Honoapiilani Highway along a mauka alignment to provide a route which is consistent with the County of Maui's proposed Pali to Puamana Plan."

The store relies heavily on sales from commuters, tourists, and beachgoers. As stated in paragraph 4 of an attached copy of our submittal to the Office of Environmental Quality Control and the Hawaii State Department of Transportation in 2007, "Should that part of the highway be moved far away from the current proximity of the store's location, we can predict a drastic drop in customers patronizing at

Olowalu Store." Further, the store will probably go out of business, creating an economic loss both to the lessees and our family.

Please review the attached copy as mentioned above for additional details and our proposals. (eg. "elbowing" the proposed realignment) May I ask that you give serious consideration to our input in order for longest operating business in Olowalu to continue serving our community.

Yours sincerely,

Wallace H. Fujii
Fujii Family Ltd Partnership

Attachment

P. O. Box 511
Kahului, HI 96733
June 15, 2007

Mr. Wayne Kawahara
Hawaii Department of Transportation
Highways Division, Planning Branch
869 Punchbowl Street, Room 301
Honolulu, HI 96813

SUBJECT: HWY-PA 2.4546

Dear Mr. Kawahara:

Thank you for allowing my brother, Donald, and me to meet with you last April where you informed us about the "Honoapiilani Highway Realignment/Widening , Maalaea to Launiupoko" plans. At that time you also informed us about the opportunity to submit our input regarding the plans. We are taking this opportunity by submitting our comments through this letter.

As you already know, our family grew up in Olowalu. We own the property comprising of the Olowalu Store, Chez Paul and our family residence which is located just mauka of the current Honoapiilani Highway. Our family owned the store from the early 1930s. Although the current store complex was built about 1965, the original store on the same location was already in existence from the very early 1900s when the Olowalu Sugar Plantation was a thriving industry. Back then the store drew its primary customers from the large sugar village.

Today, the store thrives heavily on commuters, beach goers and tourists who stop for quick snacks, bentos and cold refreshments. With Honoapiilani Highway adjacent to the store, customers readily see the "oasis" and can readily get off the highway to drop in.

Should that part of the highway be moved far away from the current proximity to the store's location, we can predict a drastic drop in customers patronizing at Olowalu Store. It is conceivable that the store will go out of business as it depends very heavily on the commuting traffic. With the demise of the store, there will be an economic loss both to the lessees and our family.

Additionally, losing the store will bring about a loss of the Olowalu history, culture and the last remaining retail business in that community. The loss of the business will mean that any new retail business will not have the history nor being in existence of over a 100 years in Olowalu.

Relocating the business is not a viable option as it will incur a heavy financial burden on the family. Besides there would be the need to purchase the land, construct the building, and go through a long planning and permitting process all over again. We do not consider that a feasible option.

In caring for future higher traffic volume for the Olowalu Store section of the highway, we would propose using the existing highway as the Lahaina-Wailuku two-lane highway. Then to create the additional two-lanes for the Wailuku-Lahaina bound traffic, we propose using the existing cane haul road, especially that part which borders the mauka side of the Olowalu Store. If this were to happen, with some modifications to the store and parking lot, we can anticipate having a reasonable number of customers stopping by to patronize.

Should that be the new alignment for that part of the Honoapiilani Highway, we would be satisfied that we can continue to operate the store for many more years in the future. The store's lessees who have about another 20 years in their current lease and who have invested heavily with renovations, including partnering with our family in expending over $200,000 in meeting the EPA's septic system. It will take quite a number of years to amortize the expense of converting to the septic system.

As you drive along the current highway in Olowalu, there is about a mile of monkey pod trees bordering it. These trees, I am sure, are over 100 years old. If the cane haul road is used for the Lahaina bound traffic in the future four-lane highway, both the Lahaina and Wailuku bound traffic will continue to be shaded by these giant trees.

I believe you will be receiving other testimonies regarding the shoreline erosion, etc. with remedies such as "elbowing" or elevating parts of the highway

where the highway already is or will be in harm's way. We will agree that a completely new highway is not necessary. We should use much of the existing alignment so that both our local people and tourists will have an up-front opportunity of enjoying and appreciating the natural beauty of the ocean, shoreline and views as they drive to and from Lahaina. Such a scenic panorama is rare to find today.

We thank you for this opportunity to input our concerns and proposals. Should you have any questions or needs for clarification, please feel free to write to me or email me at whfujii@hotmail.com.

Yours sincerely,

Wallace H. Fujii, Partner
Fujii Family Limited Partnership

cc:
Office of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, HI 96813

LINDA LINGLE
GOVERNOR

LILLIAN B. KOLLER, ESQ.
DIRECTOR

HENRY OLIVA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment and Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813-2936

August 2, 2010

Refer to: 10:0518

Ms. Colleen Suyama, Project Manager
Munekioy & Hiraga, Inc.
300 High Street, Suite 104
Wailuku, HI 96793

RE: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR PROPOSED OLOWALU TOWN PROJECT AT TMK (2) 4-8-003:84,98 THROUGH 118, AND 124, OLOWALU, MAUI, HAWAII

Dear Ms. Suyama:

Thank you for your letter dated July 2, 2010, requesting a review of an environmental impact statement preparation notice for the Olowalu Town Project. The Director of the Department of Human Services (DHS) has forwarded her letter to me for a response.

After a review the proposed project environmental impact statement, we do not have any comments or recommendations to offer at this time.

Please feel free to contact Ms. Linda Fukunaga, Maui Section Administrator at 243-5878 should you have any questions.

Sincerely,

Pankaj Bhanot

Pankaj Bhanot
Division Administrator

c: Lillian B. Koller, Director, Department of Human Services
Orlando "Dan" Davidson, Land Use Commission ✓

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
HOUSING DIVISION
COUNTY OF MAUI

CHARMAINE TAVARES
Mayor

LORI TSUHAKO
Director

JO-ANN T. RIDAO
Deputy Director

35 LUNALILO STREET, SUITE 102 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7351 • FAX (808) 270-6284

July 30, 2010

Ms. Colleen Suyama
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Suyama:

Subject: Environmental Impact Statement Preparation Notice For Proposed Olowalu Town Project at Olowalu. Maui, Hawaii, TMK (2) 4-8-003: 84, 98 through 118 and 124

Thank you for the opportunity to review the above subject Environmental Impact Statement Preparation Notice. The Department would like to offer the following comments:

1. Applicant has indicated workforce housing will be provided in keeping with the requirements of Chapter 2.96, Maui County Code.

2. Applicant has also indicated that the Draft EIS will detail the anticipated workforce housing allocations by income categories. We would like to reserve our opportunity to provide additional comments at the time of our review of the Draft EIS.

Please call Mr. Buddy Almeida of our Housing Division at 270-7355 if you have any questions.

Sincerely,

Wayde T. Oshiro

WAYDE T. OSHIRO
Housing Administrator

cc: Director of Housing and Human Concerns
Orlando "Dan" Davidson

CHARMAINE TAVARES
MAYOR

200 South High Street
Wailuku, Hawaii 96793-2155
Telephone (808) 270-7855
Fax (808) 270-7870
e-mail: mayors.office@mauicounty.gov

OFFICE OF THE MAYOR
County of Maui

July 28, 2010

Ms. Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR PROPOSED OLOWALU TOWN PROJECT TMK (2) 4-8-003:84, 98 THROUGH 118, AND 124, OLOWALU, MAUI, HAWAII

Dear Ms. Suyama:

Thank you for the opportunity to comment on the Environmental Impact Statement Preparation notice for the proposed Olowalu Town project located in Olowalu, Maui, Hawaii. It is important that all projects constructed in Maui County comply with all State of Hawaii and County of Maui zoning ordinances, the General Plan, the Maui Island Plan and community plans. At this time my office has no other comments on this project.

Sincerely,

CHARMAINE TAVARES
Mayor, County of Maui

CT:RS/ec
c: ✓Orlando Davidson, Executive Director, Land Use Commission

MAUI TOMORROW

Protecting Maui's Future

August 1, 2010

To: State Land Use Commission
PO Box 2359
Honolulu, HI 96804
Contact: Dan Davidson

Re: Comments on EISPN for Proposed Olowalu Town Master Plan
TMK (2) 4-8-003: 84, 98-118 and 124

Aloha Kakou

Maui Tomorrow Foundation, Inc. (MTF) appreciates the opportunity to offer comments on the EISPN for the Proposed Olowalu Town Master Plan, TMK (2) 4-8-003: 84, 98-118 and 124.

The Ahupua'a Model

The EISPN notes that the project is guided by the values and principles of the "ahupua'a," but that term is not defined. The EISPN does not refer to it, but the DEIS should discuss whether the ahupua'a of Olowalu verifiably supported 1500 households, who consumed 500 gallons of water a day per household? Would the ahupua'a system plan dwelling units in a known flood zone, or leave it open for crops and aquaculture? It would be important to know more about the "ahupua'a plan" for the Olowalu village and what natural carrying capacities it is based upon? The DEIS should provide this information.

The EISPN informs the Land Use Commissioners that Olowalu was once a thriving plantation community, and therefore would be a sensible place for a new town. A population of over 800 was noted in the 1832 census, but the geographical boundaries of this thriving Olowalu Community were not made clear. Are they the same as the proposed project area?

Olowalu Village Population

Was the 800 population in 1832 counted by how many habitations stretched from Launiupoko to Ukumehame, and based upon families who lived in the region and attended Olowalu Church? Or was it based upon dwellings in the Olowalu

Landing and stream area? It should be noted in the DEIS what the verified population for the project site was during the early Olowalu Plantation days, and later Pioneer Mill days. Records of these times do exist.

Records in our files indicate that Olowalu Plantation, in its report to the Territory in the early 1900's, had about 90 workers living on site. The manager noted that the crops and people ran short of water in the dry season. Will a future town of up to 1500 units, plus commercial areas be viable?

MTF feels the LUC should require a DEIS which analyzes a variety of unit counts for any proposed Olowalu village project.

Smart Planning Principles
The stated goal of this project is to be sustainable, green, use cutting edge technology, etc. This is all laudable, but the EISPN offers very little specific information to affirm the project goals, except in chosen areas such as expected population growth, roadways, or economic benefits.

Coverage of topics in the EA/EISPN is very uneven. The document strings together many undefined terms, designed to give an impression of environmentally sound planning, with no supporting data and, in general, does not meet the minimum standards put forth in HAR **§11-200-10 and §11-200-16.** The EISPN is the first opportunity for the public and regulatory agencies to review specific plans for the project and offer input yet the document offers more questions than answers.

Incomplete Information
Although the project's EISPN contains elaborate site maps and public relations brochures (p. 155- 176 of the pdf version of the EISPN), it puts forth little information about the project's specific impacts.

A number of maps provided in the electronic version of the EISPN do not accurately portray the 100 ft wide Government Beach Reserve as spanning the majority of the project's oceanfront land, regardless of ownership. Maps do not indicate what plans are for "lands owned by others."

What will happen to Kapaiki Village, where land is privately owned? The maps give no indication how many units are proposed for each colored polygon in the Olowalu Master Plan, only an overall project count by acreage.

A separate high-density development (Olowalu Elua) was proposed during the Maui Island Plan discussions on lands between Honoapiilani Hwy and the ocean at the north end of the project area. Would this former proposal be incorporated into the proposed Project District? It would be beneficial to decision makers to have specific information regarding what is proposed on prime agricultural lands adjacent to sensitive reef environments.

Impact issues which should have been discussed in the EISPN, and must be discussed in the Draft EIS:

Community Support Facilities
Will community support facilities such as a library, parks, school, fire and police stations, or community center be built by the developer? If they are "provided space," will it be at a cost to the public? Who will be responsible for building these facilities, and at what phase of the development are they expected to be built? Please elaborate on how and when these support facilities will be sustainably built.

Potable Water Supplies
The Sustainable Yield (SY) of Olowalu aquifer is noted as being 2 million gallons per day (mgd) in the beginning of the EISPN and 3 mgd on p. 54, then 2 mgd again on p. 55. The correct figure is 2 mgd according to the state's Water Resources Protection Plan (WRPP) of 2008.

The WRPP assigns Olowalu's SY value a 'confidence rating" of "2' meaning "Moderately Confident." The 2 rating means a moderate amount of hydrologic data is available about the aquifer, however, "more detailed studies are required to better refine the potential range of Sustainable Yields. " **The DEIS should provide those studies through installation and monitoring of an observation well in the Olowalu aquifer.**

The EISPN lists the development's projected demand for potable water at .75 mgd (750, 000 gallons a day). It indicates that the system currently has one well with a capacity of .36 mgd, that could possibly be boosted to .6 mgd.

The EISPN does not indicate what peak system demand will be, during hotter months, only that use of .75 mgd would be 37% of the aquifer's sustainable yield. Figures for fireflow will be provided later, even though the area has had 5 major fires in the last decade, and fireflow demands are very likely known.

It is doubtful that any independent hydrological expert would recommend exceeding more than 75% of a sustainable yield figure that is not fully confirmed.

The EISPN does not discuss how many wells are proposed for the system's future needs, or how they will be funded, or how many units would trigger the need for an additional well, only that a future analyses will be provided.

The EISPN does not discuss plans for backup wells for system redundancy; what water rates currently are in the private Olowalu system, or whether water costs will be the higher, lower, or the same, as current Olowalu system rates.

Will affordable housing water rates in the Olowalu project be the same as rates

for market priced housing?

What are existing nitrate levels in the project's wells supplying the potable water for the proposed development? Will groundwater quality be affected by use of reclaimed water? Will this be determined in the DEIS?

The Olowalu water system is currently in operation. While we are given detailed information about the proposed roadways the EISPN contains very little information on a water system that would be key to the project's viability. Current residents of the area have lodged complaints about the quality of water delivered to their homes. The LUC should ask for complete and thorough information about the proposed water source.

Stream Water

The EISPN states that 4 mgd was historically diverted from Olowalu stream, and state Water Commission records show that to be the case from 1988 to the closing of Pioneer Mill in 1999. Olowalu stream is characterized in the EISPN as "intermittent" although no source is given for this information and no data is presented to note months of low, high or no flows.

The EISPN refers to plans to enhance habitat for native stream life, but does not discuss that Olowalu Cultural Reserve volunteers are primarily concerned with taro restoration. Plans for preserving the stream's function should include funding needs and sources of such funding.

How much stream water is currently utilized by local residents with kuleana rights? Do they desire to use more, or are there unmet claims or needs?

The EISPN states a goal to reduce use of Olowalu stream water, but no figures are given on how much acreage is currently cultivated and by what number of owners or lessees. What are current potable and total non-potable water uses per household, and overall. Is there currently a charge for stream water use?

Do all present users want to use the reclaimed water and, if so, will there be a charge for such use? Will phosphate and nitrogen levels in the reclaimed water be lower or the same as that in county effluent?

These questions should be answered in the DEIS, in order to provide decision makers with sufficient information about the project's water resources and water use.

Wastewater

The EISPN indicates that the expected output of the private wastewater system will be .5 mgd but no figures are given for the project's water use for landscaping, parks, greenways and common area maintenance, agriculture, traditional taro growing. Will that demand exceed .5 mgd?

Information is needed as to the cost structure of the non-potable water supplies. Will reclaimed water costs be subsidized, as is County reclaimed water, or will it be full market value? Will residents or cultural restoration projects be charged for delivery of stream water? Will present residents with kuleana water rights be offered a choice of stream water or reclaimed water for agricultural needs?

Drainage

The EISPN has no specific information regarding drainage other than the comment that some retention basins will be utilized and a drainage report will be provided in the DEIS. The specific strategies that are being considered to minimize drainage impacts to the adjoining coral reefs should be presented for public and agency review and discussion at the earliest practicable opportunity to be in compliance with CH 343. That opportunity would be the EA/EISPN.

It is stated that drainage improvements will meet or exceed County standards, but there is no indication of how that will be achieved, or whether County drainage standards are actually effective at preventing degradation of reefs. Agencies will have limited opportunity to comment on effectiveness of the Olowalu drainage plan and proposed Best Management Practices (BMP) because so little information has been provided in this EA/EISPN document. We ask for this information in the DEIS.

The EISPN states that Olowalu's marine life, reefs and nearshore waters have had "limited" impact from human activities, therefore a water quality report will be prepared to address impacts. This report should consider the possibility that low-lying areas of the project site have functioned in the past as run-off filtration areas during storm events. These areas are now being proposed for high density residential development. Will detention and retention basins placed elsewhere on the property provide the same capacity to protect the reefs? Who will maintain the basins? Will homeowners be able to afford the upkeep? Could the project be designed to avoid development in natural retention areas?

Flood and Tsunami Hazards and Sea Level Rise

Fig 12 Flood Insurance Map in the EISPN seems to indicate, if one reads the accompanying text, that the majority of the proposed project district lies in an area at some risk to flooding during large storm events. Lands makai of Honoapiilani Highway and along Olowalu stream are subject to greater flooding, storm wash, tsunami impacts and sea level rise. The EISPN appears to downplay the risks they may be offering future homebuyers and residents of Olowalu. The DEIS should state whether a Flood Hazard Development permit will mitigate these risks and, if so, how? What alternative project designs are possible to minimize risk?

A map should be provided in the DEIS of the Special Flood Hazard Areas as well as the County Planning Department's Sea Level Rise Maps overlaid with proposed housing unit locations, parks, open space etc.

Shoreline Access
This development has an entire master plan with colored maps and plans; surely, specific plans for shoreline access could be discussed in the EISPN.
There is reference to a 150 ft set back along the shore, but no mention that this likely includes a 100 ft-wide state beach reserve along much of the oceanfront portion of the Olowalu of property.

Coastal Zone Impacts
The EISPN shows the SMA zone in a map, as affecting very little of the proposed project. The DEIS should note that while the SMA/Coastal Management Zone only extends to the Honoapiilani Hwy, impacts to the coastal zone can begin on the slopes of the Olowalu hills.
While the EISPN promises the project will have "minimal grading" no specific amount is given to qualify that statement as accurate.

Project Need
The EISPN cites 2003 housing demand numbers for Lahaina and then refers to numbers from 2005. It is not clear how much of that alleged "demand" is still expected given current and projected economic conditions. It is also not clear what proportion of the demand is already anticipated to be met by projects that are entitled, but not built out, or undergoing the approval process.

It is not discussed that the County Planning Department projected a surplus of almost 2500 units in West Maui after the General Plan Advisory Committee (GPAC) approved a West Maui map that included 1500 units at Olowalu. The Planning Commission's version of the West Maui Plan, including Olowalu, states a surplus of almost 3000 units.

Figures were cited in the EISPN for the median price of single and multifamily housing units in West Maui, but no figures were given for home prices in the Olowalu project. This information should be provided.

Police and Fire Protection
The Olowalu area has had 5 fires in the last 10 years. Currently fire safety personnel are responsible for the safety of fewer than 40 homes (approximately 100 residents). Pre-consultation comments from the Maui fire and police departments should have been included in the EA/EISPN to insure full compliance with Chapter 343 policies.

Educational Facilities
The chart on page 49 clearly indicates that every Lahaina area public school is at, or over, capacity at present time. The EISPN does not give an estimate of the

number of students the project will generate. There is no firm discussion of what "educational facilities" the project intends to provide. More information is needed for the Department of Education to evaluate impacts and mitigations.

Recreational Facilities
This section lists 220 acres of the project as open space, parks, greenways, etc. It does not indicate what portion of that amount is in the unbuildable lands of State Conservation Zone that overlays the steep slopes at the inland portion of the project area. What portion is the 100 ft State Beach Reserve or lands with burials or other protected archeological sites which must be set aside? This information is needed in order for LUC members to evaluate the project design and the adequacy of the EIS in addressing impacts.

Agricultural Lands
Large portions of Olowalu are classified as "prime" agricultural lands yet the current plan appears to leave no more than 50 acres open for agricultural activity. Exposed rocks described in the EISPN likely mark a former riverbed indicating natural forces that may again flow in the area.

A map should be included in the DEIS comparing Important Agricultural Land (IAL) areas in Olowalu shown on state and county maps with future farming areas set aside in the Olowalu Master Plan.

Flora and Fauna
The EISPN does not have enough current information to comment on the native flora and fauna in the proposed project area. The survey discussed (Hobdy, 2005) was not done for the entire 660 acres but only a 14-acre oceanfront parcel (TMK 4-8-03:124) The EISPN does not describe what acreage was covered in the 1999 study by Char and whether the majority of land proposed in the two development area was at Olowalu .

The DEIS summary, based upon limited and possibly outdated information, concluded that 16 native species documented during Char's survey were dismissed as being common in "other dryland forest areas." It fails to state that native nehe is rare. The EISPN does not disclose that 95% of Maui's dryland forests have been destroyed, making protection of every native dryland forest worthwhile.

The West Maui Community Plan contains language to protect habitat for rare, threatened or endangered species, including dryland forest remnants at Olowalu. The DEIS should include an updated Biological Survey with a draft preservation plan and a map of native species found, relative to proposed development and preserve areas.

Planting taro should not be considered appropriate as mitigation for loss of native plant habitat.

Nearshore Waters
A 2003 Baseline Study of Olowalu's marine environment (Appendix C) contains charts illustrating the results of the sediment testing. These charts were not readable in the pdf version of the EISPN and should be corrected for public and agency review.

It would appear that Puamana, a developed site with potential runoff and severely altered stream terminus, had more impacts to its reefs than Olowalu.

Maui Tomorrow is concerned that Olowalu's marine water quality report will be prepared by a consultant who has consistently found no impacts from development or human activities in other nearshore areas of Maui, despite evidence of decline in those waters. Marine studies consistently show Olowalu as West Maui's last healthy reef. This should not be downplayed in the environmental review process.

Cultural Resources
Some of the historical references in the EISPN's Cultural Resources section appear to be transposed. For instance, the report refers to the Chiefess Kalola as living in Olowalu at the beginning of 18th century and speaks of her marriage to Hawaii Island chief Kalaniopu'u and their daughter, Kekuiapoiwa Liliha , mother of Maui's Queen Keopuolani. Most historians have Kalola living on Hawaii Island with Kalaniopu'u during most of the 1700's until Kalaniopu'u's death in the 1780's. Then she married Kaopuiki and lived in Olowalu.

Historians such as Christian Klieger in his book*: Moku Ula Maui's Sacred Island* (p. 16) acknowledge Kalola and Kalaniopuu to have had a son, Kiwalalo. Kalola had a daughter, Kekuiapoiwa Liliha , mother of Keopuolani, with the Hawaiian island chief, Keoua (father of Kamehameha I.)

The EISPN refers to Olowalu stream being realigned during plantation times, possibly to avoid flooding. Soil testing, such as the Kolb, et. al. study of the Waipuilani area, should determine the original boundaries of the stream and be included on a map in the DEIS.

The cultural section of the EISPN is considerably more detailed than other sections since a study was prepared in1999/2000. **Other topics in the EA/EISPN would have been well served with an equal level of detail.**

The EISPN announces that the Olowalu Cultural Reserve has been expanded from 75 to 110 acres, but no explanation or map is provided. How are these reserve lands protected? Do they have a defensible conservation easement in perpetuity, held by a land trust; if not, what guarantees their future protection?

The EISPN refers to a 2007 archaeological field inspection of 500 of the 660 acres after a severe fire left Olowalu lands exposed. 16 of 30 previously documented sites were not relocated during this field inspection. The DEIS should clarify whether these sites have been impacted, or were located in an area of the parcel not surveyed in the 2007 field work. Olowalu residents are concerned that Kawaialoa heiau has been neglected and is becoming destabilized by plant growth. The 2007 field work indicated bulldozer pushpiles nearby the site.

The Kilea petroglyph cluster is still subject to defacement and the steps to Puu Kilea appear neglected. Does the Cultural Preserve receive adequate funding to care for the sites? The DEIS should discuss sources of funding and amounts needed.

Noise
The duration and impacts of noise from construction of the relocated highway may be significant; a study of those impacts should be provided.

Viewsheds
No discussion of viewsheds affected by the proposed development is included in the EISPN. Mauka-makai views are excellent over much of Olowalu in its undeveloped state. The DEIS should discuss which viewsheds will remain and whether there are alternative designs being considered to minimize viewshed impacts. Views of the night sky, exceptional at Olowalu, should also be considered.

Economics
The economic assumptions of the viability of Olowalu Town are not presented in the EISPN. The DEIS, under secondary impacts, should discuss the possibility of Olowalu never growing beyond the economic phase described in the EISPN as "Initially economic input will be from highway traffic and tourists."

Alternatives
Alternative project layouts to avoid sensitive areas are not discussed in the EISPN. There is only reference to future alternatives that may be discussed, but not what criteria will be used. In contrast, twenty-one pages of the EISPN are devoted to an advertising brochure describing the community planning process that preceded the proposed project.

The EISPN refers to greater analyses given to suggested alternatives which arose in the above-mentioned planning process. Sensitive environmental features are not listed as criteria in the "Formulation of Proposed Alternatives" section of the EISPN.

Suggestions were made to limit the size of the Olowalu project during both GPAC and Planning Commission Review of the Maui Island Plan.

The Urban Growth Boundary for the Olowalu region, adopted by the Maui Planning Commission, does not include any land makai of Honoapiilani Hwy. All the proposed Olowalu Master Plan site maps show urban and rural growth areas makai of Honoapiilani Hwy.

County Planning staff proposed no urban or rural growth boundaries for Olowalu. These planning maps should be included in the DEIS. It would be useful for agencies to see such maps as part of their review in order to consider what community input has been gathered concerning the project.

Thank you for the opportunity to comment; we look forward to being included as a consulted party.

Sincerely,

Irene Bowie

Irene Bowie
Executive Director

55 N. Church St., Ste. A5, Wailuku, HI 96793 808.244.7570 www.maui-tomorrow.org

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

SANDRA L.YAHIRO
DEPUTY COMPTROLLER

STATE OF HAWAI'I
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAI'I 96810-0119

(P)1212.0

JUL 26 2010

Ms. Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

LAND USE COMMISSION
STATE OF HAWAII
2010 JUL 28 A 7:56

Dear Ms. Suyama:

Subject: Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project at
TMK: (2) 4-8-003:84, 98 through 118, and 124
Olowalu, Maui, Hawai'i

Thank you for the opportunity to provide comments on the Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project. This proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Clarence Kubo of the Public Works Division at 586-0488.

Sincerely,

RUSS K. SAITO
State Comptroller

c: Mr. Orlando "Dan" Davidson, Land Use Commission

CHARMAINE TAVARES
Mayor

TAMARA HORCAJO
Director

ZACHARY Z. HELM
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

July 20, 2010

Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

SUBJECT: **Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project**
TMK: (2) 4-8-003:084, 98 thru 118, and 124
Olowalu, Maui, Hawai'i

Dear Ms. Suyama:

Thank you for the opportunity to review and comment on the subject project.

The department is concerned that adequate land be set aside for development of active recreational park facilities for the residents as well as the surrounding communities. This amount is significantly greater than the 500 square feet per unit required by Section 18.16 of the Maui County Code (park dedication requirements). The project will be required to go through several land use entitlement processes. We would like to continue discussions with the applicant on the size and location of the proposed park lands.

Please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning & Development, at (808) 270-7931 should you have any questions.

Sincerely,

TAMARA HORCAJO
Director of Parks & Recreation

xc: Orlando "Dan" Davidson, Executive Director, Land Use Commission
Patrick Matsui, Chief of Parks Planning and Development

TH:PTM:ca
S:\PLANNING\CSA\County Reviews\EA & EIS Reviews\Olowalu Town EIS Prep.doc

LINDA LINGLE
GOVERNOR

XXXXXXXXXXXXXXXXXXXX
PATRICIA HAMAMOTO
XXXXXXXXXXXXXXXX

KATHRYN S. MATAYOSHI
INTERIM SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

July 26, 2010

Ms. Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Suyama:

Subject: Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project, TMK (2) 4-8-003:84, 98-118, and 124, Olowalu, Maui

The Department of Education (DOE) has reviewed the Environmental Impact Statement Preparation Notice for the proposed Olowalu Town Project.

The DOE expects that this project will have a significant impact on its facilities. Additional students generated from this project would severely tax the DOE's resources in West Maui.

The DOE is in the process of implementing school impact fee districts. Should this project fall within a future school impact fee district, it will be subject to the district's impact fees.

Thank you for the opportunity to provide comments. If you have any questions, please call Jeremy Kwock of the Facilities Development Branch at (808) 377-8301.

Very truly yours,

Kathryn S. Matayoshi
Interim Superintendent

KSM:jmb

c: Randolph Moore, Assistant Superintendent, OSFSS
✓Orlando Davidson, Land Use Commission, Executive Director
Lindsay Ball, CAS, Hana/Lahainaluna/Lanai/Molokai Complex Areas

Margaret Schlachter
Owner of:
4435 L. Honoapiilani Dr. # 240
Lahaina, HI

July 19, 2010

Mr. Dan Davidson
POBox 2359
Honolulu, HI 96804

Re: Olowalu Development

Dear Mr. Davidson:
I am copying this quote from a recent real estate professionals' meeting:

> *One Realtor worried about a large oversupply of housing for sale: about 3,000 listings today at the Realtors Association's Multiple Listing Service, and probably another 1,500 in various forms of foreclosure and distress that are going to be piled on top of that.*

It seems to me with so many units empty, for sale, in foreclosure, and more becoming available in the foreseeable future, why do we need to add 1500 more units at this time? All these empty units are going to put tremendous pressure on sales prices and rental rates. So many people have left the island because of job losses. Where are these 1500 families going to come from to fill the new town? Why don't we wait until such time as the now available housing has been absorbed, vacancies are becoming more scarce, people have found jobs again and are looking for housing, before slapping up more new housing. The developers are the ones to profit, and that's about it. I have a feeling that with so many people on the mainland having lost savings and equity in their homes. the demand of the "boomers" for 2nd homes in Maui has dropped signficantly. That money is not going to come back anytime soon. There will be less need for housing on Maui because of this.

Maui has enough housing for a long time to come.

Respectfully yours,

LINDA LINGLE
GOVERNOR

KAREN SEDDON
EXECUTIVE DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

IN REPLY REFER TO:

10:PEO/115

July 21, 2010

Mr. Orlando "Dan" Davidson, Executive Director
State Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

LAND USE COMMISSION
STATE OF HAWAII
2010 JUL 22 A 7:56

Ms. Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Davidson and Ms. Suyama:

Re: Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Project, TMK: (2) 4-8-003: 84, 98 thru 118, 124, Olowalu, Maui, Hawaii

The proposed Olowalu Town Project combines various land uses including housing. Approximately 1,500 residential dwelling units are proposed for development, including single family houses, apartments, live-work apartments, cottages, rural homes and farmsteads. We are pleased to note that the housing units will be offered at a wide-range of income levels. Further, the workforce housing will be provided in compliance with Chapter 2.96 of the Maui County Code and details on the workforce housing allocations by income categories will be addressed in the Draft EIS.

The proposed project, and in particular residential use, is consistent with the affordable housing policy set forth in the Hawaii State Plan of increasing homeownership and rental housing opportunities and choices in terms of quality, location, cost, densities, style and size of housing.

Thank you for the opportunity to comment.

Sincerely,

Karen Seddon
Executive Director

United States Department of the Interior
U.S. GEOLOGICAL SURVEY
Pacific Islands Water Science Center
677 Ala Moana Blvd., Suite 415
Honolulu, Hawaii 96813
Phone: (808) 587-2400/Fax: (808) 587-2401

July 15, 2010

Mr. Orlando "Dan" Davidson
Executive Director
Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Davidson:

Subject: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Olowalu Town Project at TMK (2)4-8-003:84, 98 through 118, and 124, Olowalu, Maui, Hawaii

Thank you for forwarding the subject EISPN for review and comment by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,

Ronald L. Rickman
Acting Center Director

cc: Colleen Suyama, Project Manager, Munekiyo & Hiraga, Inc., Wailuku, Hawaii

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

July 2, 2010

U.S. Geological Survey
677 Ala Moana Blvd., Suite 415
Honolulu, Hawaii 96813

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR PROPOSED OLOWALU TOWN PROJECT AT TMK (2)4-8-003:84,98 through 118, and 124, OLOWALU, MAUI, HAWAII

Dear Sir or Madam:

This letter is being transmitted to you to respectfully request review of the enclosed Environmental Impact Statement Preparation Notice (EISPN) for the Olowalu Town Project.

The Land Use Commission (accepting authority) has reviewed the enclosed document and has made a determination, based on the scope of work proposed, that preparation of an Environmental Impact Statement (EIS) is warranted for the project. The EISPN will be published in the Office of Environmental Quality Control's (OEQC) Environmental Notice on July 8, 2010. The 30-day comment deadline is August 7, 2010.

Following your review of the EISPN, it would be appreciated if you would provide copies of your written comments to both the Land Use Commission and the consultant at the addresses listed below by August 7, 2010:

Orlando "Dan" Davidson
Executive Director
Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

Colleen Suyama, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Should you have any questions, please feel free to contact me at (808) 244-2015. Thank you for participating in this review process.

Very truly yours,

Colleen Suyama
Project Manager

CS:tn
Enclosure
cc: Orlando "Dan" Davidson, Executive Director, Land Use Commission (w/o enclosure)
Office of Environmental Quality Control (w/o enclosure)
Dave Ward, Olowalu Town LLC (w/o enclosure)
Heidi Bigelow, Olowalu Ekolu, LLC (w/o enclosure)
Blaine Kobayashi, Carlsmith Ball (w/out enclosure)
F:\DATA\OlowaluTown\MasterPl\EISPN\Agency EISPN.mrg.wpd

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF:

July 09, 2010

Regulatory Branch

File Number POH-2010-0175

Orlando "Dan" Davidson
Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Davidson,

We have received your request for the Department of the Army to review and comment on the Environmental Impact Statement Preparation Notice (EISPN) for the proposed Olowalu Town Project at TMK (2) 4-8-003:084, 098 through 118, and 124, Olowalu, Island of Maui, Hawaii. We have assigned the project the reference number **POH-2010-0175**. Please cite the reference number in any future correspondence concerning this project. We completed our review of the submitted document pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404).

Section 10 requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging and other activities occurring in, over, or under navigable waters of the U.S. The line of jurisdiction extends to the Mean High Water Mark for tidal waters. Section 404 requires that a DA permit be obtained for the discharge (placement) of dredge and/or fill material into waters of the U.S., including wetlands. The line of jurisdiction extends to the Mean Higher High Water Mark for tidally influenced waters, the Ordinary High Water Mark for non-tidal waters and the approved delineated boundary for wetlands.

Based on the information provided, the project site abuts the Pacific Ocean, a navigable water subject to Corps jurisdiction. Therefore, Section 10 authorization may be required should activities extend seaward of the Mean High Water Mark. Additionally, it appears the Olowalu Stream is a tributary to the Pacific Ocean, and is thus a water of the U.S. subject to Corps jurisdiction. Also be advised that any tributaries discharging into the Olowalu Stream may also be subject to Corps jurisdiction. The Corps does not have sufficient information to determine if the project site encompasses additional unidentified waters of the U.S. or whether such waters are proposed for impact, which may require authorization under Section 404. When developing the Environmental Impact Statement (EIS), we recommend you conduct a thorough aquatic resource survey, describing any wetlands, drainage ditches, gulches, gullies, streams, etc., on-site, especially those that may be impacted by any of the proposed project components. In addition, include sufficient information concerning the scope of work, including the use of Best Management Practices, i.e. silt fences and sandbag berms within the vicinity and in close proximity to potentially regulated bodies of water.

Only the Corps of Engineers has the authority to determine if any of these aquatic features are or are not waters of the U.S., potentially subject to regulations under Section 10 and/or Section 404. As such, we encourage the landowner to submit a request for an approved jurisdictional determination (JD) for these water bodies. Your request to the Corps should include descriptions of aquatic features proposed for impact, flow duration of each feature and the flow path of each feature into navigable waters. For instance: "the unnamed ditch contains flow for two consecutive weeks annually and, from the project impact site, flows for 700 linear feet prior to discharge into X Stream. X Stream flows year-round and flows 1,200 feet prior to discharge into the Pacific Ocean." For wetlands, you should submit a wetland delineation conducted in accordance with the Corps of Engineers 1987 Wetland Delineation Manual and the Hawai'i and Pacific Islands Regional Supplement. We recommend the applicant also include a vicinity map, map of the water bodies and flow paths and on-site photographs so the Corps may conduct an approved JD, if necessary.

If any water bodies are determined to be waters of the U.S., the applicant must obtain authorization from the Corps prior to discharge of dredged or fill material into these water bodies. Fill material, permanent or temporary, may include, but is not limited to: rock, dirt, sand, sandbags, concrete, piping a water of the U.S. or diverting a water of the U.S. into a pipe. The applicant should contact the Corps to determine if any of the proposed work constitutes a "discharge of fill" and submit an application and associated drawings that meet our drawing recommendations found at *http://poh.usace.army.mil/EC-R/EC-R.htm*. The Corps will then review the application to ensure it complies with all necessary federal laws and regulations. Note that if the fill results in the loss of waters of the U.S. and/or associated functions, the applicant may be required to provide compensatory mitigation for any unavoidable impacts. A request for an approved JD can be submitted prior to, or concurrently with, an application for the proposed work.

Thank you for contacting us regarding this project and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Jessie Pa'ahana at *808.438.9258* or via email at *Jessie.K.Paahana@usace.army.mil*. Please be advised you can provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at *http://per2.nwp.usace.army.mil/survey.html*.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

Copy furnished:
Colleen Suyama, Munekiyo & Hiraga, Inc., 305 High Street, Suite 104, Wailuku, Hawaii 96793

Maui Electric Company, Ltd. • West Kamehameha Avenue • PO Box 398 • ilui, Maui, HI 96733-6898 • (808) 871-8461

ORIGINAL

July 9, 2010

Mr. Dan Davidson
State Land Use Commission
Post Office Box 2359
Honolulu, Hawaii, 96804

Subject: Proposed Olowalu Town Master Plan - Environmental Impact Statement Preparation Notice
Tax Map Key: (2) 4-8-003:084, 98 through 118, and 124
Honoapi'ilani Highway
Olowalu, Maui, Hawaii

Dear Mr. Davidson,

Thank you for allowing us to comment on the Environmental Impact Statement Preparation Notice for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) has no additional comments at this time. Please refer to our MECO letter addressed to you and dated May 18, 2010, which responded to your prior request.

Should you have any questions or concerns, please call me at 871-2341.

Sincerely,

Kyle Tamori
Staff Engineer

c: Munekiyo & Hiraga, Inc. – Ms. Colleen Suyama

Maui Electric Company, Ltd.) West Kamehameha Avenue • PO Box 398 • K ui, Maui, HI 96733-6898 • (808) 871-8461

ORIGINAL

May 18, 2010

Mr. Dan Davidson
State Land Use Commission
Post Office Box 2359
Honolulu, Hawaii, 96804

Subject: Environmental Assessment/Environmental Impact Statement Preparation Notice for Proposed Olowalu Town Master Plan
Tax Map Key: (2) 4-8-003:084, 98 through 118, and 124
Honoapi'ilani Highway
Olowalu, Maui, Hawaii

Dear Mr. Davidson,

Thank you for allowing us to comment on the Environmental Assessment/Environmental Impact Statement Preparation Notice for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) will be requiring access and electrical easements for our facilities to serve the subject project site. Also, we highly encourage the customer's consultant to submit survey and civil plans to us as soon as practical to address and coordinate any possible relocations of our facilities. Since this project's anticipated electrical demand may have a substantial impact to our system, we encourage the customer's electrical consultant to submit the electrical demand requirements and project time schedule as soon as practical so that service can be provided on a timely basis. MECO may need to complete system upgrades along with securing a new substation site to accommodate the anticipated electrical load.

We also suggest that the customer or their consultant contact our Renewable Energy Department at 871-8461, for the installation of the photovoltaic and hydro-power systems.

Should you have any questions or concerns, please call me at 871-2341.

Sincerely,

Kyle Tamori
Staff Engineer

c: Munekiyo & Hiraga, Inc. – Ms. Colleen Suyama