Response Letter Attachments

Attachment

Revised Section 2.1.8 (Moloka'i Land Trust)

2.1.8 Moloka'i Land Trust

A land trust is a private, non-profit conservation organization set up for the purpose of acquiring lands or easements on land. Land trusts can manage the lands they acquire. A local land trust would be a community-based organization—in this instance, one dedicated to maintaining and protecting cultural and natural resources of Moloka'i.

The Moloka'i Land Trust, a community-based land steward organization, will be entrusted with ownership and management of the 26,200 acres (40 percent of Ranch lands) that MPL will donate to the Moloka'i community under the conditions of the *Community-Based Master Land Use Plan for Molokai Ranch*. In addition, the Land Trust will also administer land use policies that permanently protect 24,950 acres of easement lands and 434 acres of Lā'au Point's cultural preservation zones and Conservation District lands. The Land Trust will ensure perpetual care of these lands and any other future donated lands. Figure 10 shows potential future ownership and management for Molokai Ranch property, including the lands the Moloka'i Land Trust will own, manage, and administer.

The Moloka'i Land Trust will provide for the community's self-determination and protection of the island's resources with a mission "to protect and restore the land, natural and cultural resources of Molokai, and to perpetuate the unique Native Hawaiian traditions and character of the island, for the benefit of the future generations of all Molokai, particularly Native Hawaiians" (EC 2006). The Land Trust's unique goals are:

- Protecting historic cultural archeological sites.
- Preserving the precious natural and environmental resources.
- Enhancing indigenous rights through the protection of subsistence gathering.

The Moloka'i Land Trust will own in fee simple a total of 26,200 acres. Going from east to west, the Trust lands include:

- Cultural sites at the base of the Kawela Plantation (34.895 acres).
- Lands mauka of Kaunakakai for community expansion (1,160 acres).
- The Makahiki Grounds mauka of Kualapu'u and up through and including the cliffs of Nā'iwa.
- A large strip of land from Kawakanui beach, north to 'Īlio Point, stretching around to the MPL boundary with Department of Hawaiian Homes Lands in Ho'olehua and down to Pālā'au and over to Hale O Lono Harbor and including the Kā'ana Area.
- The fishing village 15-acre site adjacent to the north boundary of Kaupoa Camp.
- Pu'u O Kaiaka.
- Other sites as shown on ~~the Land Trust map (See Appendix A, p. 9)~~ Figure 10.

As a sign of good faith and to enable the Moloka'i Land Trust to begin its important work, MPL will donate a 1,600-acre parcel of land (referred to as the "Mokio parcel") ~~of~~ on the coastline between Mo'omomi and 'Īlio Point to Moloka'i Land Trust~~, as soon as the Moloka'i Land Trust obtains its tax-exempt status~~. Figure 11 shows the location of the Mokio parcel. The transfer of this land parcel also includes a partial assignment of rents that will provide $50,000 of annual income to the Land Trust. This land donation is regardless of the outcome of the Lā'au Point LUC petition and County applications. The Moloka'i Land Trust obtained its tax-exempt status in early 2007. As of August 2007, an agreement to transfer the 1,600-acre Mokio parcel to the Land Trust was in the final stages of attorney review, and it is anticipated the donation in fee will

take place early in 2008 following an extensive due diligence process conducted by the Trust and its advisors.

The Land Trust will permanently hold protective easements over a total of 24,950 acres of MPL-owned land: 14,390 acres will be dedicated as agricultural easement land and 10,560 acres will be dedicated as rural landscape reserve easement (see Appendix A, p. 9). The agricultural easement lands (depicted with diagonally-striped lines on p. 11 of Appendix A) will be dedicated for agriculture and only farm-related structures (i.e., barns, sheds, or farm dwellings) can be built there. The Community-Based Master Land Use Plan process designated proposed easement land areas based on the agricultural suitability of the area, without regard to specific TMK parcels; however, the area includes 20 TMK parcels. Under State law (Section 205-4.5) one farm dwelling could be built on each of the TMK parcels for a total of 20 potential farm dwellings.

The rural landscape reserve easement will protect open space and views on five large parcels of which no buildings or development will be permitted. The Land Trust will administer agreed upon land use policies for these areas, and enforce the dedicated use of the easement lands. The easements would carry with the land and future landowners would be bound to the easements. Therefore, these easement lands could be re-sold, but would be subject to the easement restrictions. The Moloka'i Land Trust will act as a long-term steward of the lands to assure the retention of the island's rural and open space character. To ensure the Moloka'i Land Trust is adequately funded for its administration costs, revenue for the Land Trust will come from a share of the Lā'au Point lot sales and existing communications rentals on the MPL land to be donated. Communications tower rents currently total $250,000 a year with a capitalized value of more than $2.5 million.

Table 1 below lists the assets and sources of income for the Land Trust as set forth in the Plan.

Table 1. Moloka'i Land Trust Revenue Stream

Proposed Donation	Revenue Stream
An initial parcel of 1,600 acres of land on the western shoreline of Moloka'i, known as the Mokio parcel. This donation is irrelevant to the outcome of the Lā'au Point entitlement process.	Land donation only. Included is rental income from the property for Aeronautical Radio, Inc. (ARINC) of $50,000 per annum.
Approximately 23,400 remaining acres of land (total donation with Mokio parcel 26,200 acres or 40% of the current MPL property).	Land donation. Also income from telecommunications and remaining ARINC rentals of aprox $200,000 per annum.
Will hold the easement over a further 24,000 acres of land that will be protected for agriculture (15,000 acres) and open space (14,000 acres).	No income from conservation easements.

~~The Moloka'i Land Trust has been registered with the State of Hawai'i and has an application before the Internal Revenue Service (IRS) for approval of its tax-exempt 509(a)(3) status.~~
The Moloka'i Land Trust received its 509(a)(3) tax exempt designation in early 2007 and is now operating under that designation.

The Land Trust meets monthly and has set up a number of committees (finance, lands and stewardship, and governance) to review:

- The detailed work necessary to be completed before accepting the first gift of 1,600 acres of land.
- Planning the future fund-raising necessary to enable the Land Trust to manage the lands to be donated.
- Future staffing, governance, and operational issues.

Trustees have undergone extensive training in the duties and obligations of a Land Trust with consultants approved by the Land Trust Alliance, the organization that sets standards and practices for the hundreds of land trusts throughout the United States.

In comments on the Draft EIS, a wide range of questions were asked about the Moloka'i Land Trust's activities since incorporation. It should be noted that the Moloka'i Land Trust is a private entity, separate from MPL. Therefore, specific questions about the Land Trust's activities and decisions have been referred directly to the Land Trust.

Land Trust directors as of June 30, 2007 were: Colette Machado, Davianna McGregor, Richard Cooke III, David Lunney, Stacy Crivello, Ed Misaki, Halona Kaopuiki, Cheryl Corbiell, and William Akutagawa. All current directors are Moloka'i community members.

MPL is an ex-officio member of the Moloka'i Land Trust and acts in an advisory capacity only, not taking part in any decision-making by the Trust. MPL does not have voting rights.

The Moloka'i Land Trust will play a major role in the Lā'au Point project. The Land Trust will:

- Hold and control the easement over the expanded Conservation District lands – the 434 acres in front of the subdivision that is important for subsistence practices. This easement document is in the final stages of preparation.
- Share the management responsibility of the expanded Conservation District lands equally with the Lā'au Point homeowners by having equal representation on a Council of land trustees and homeowners.
- Implement the Shoreline Access Management Plan (SAMP), which is the council's guide to management of the expanded Conservation District lands. The SAMP was approved by the Land Trust on August 10, 2007. A copy of the SAMP is provided as Appendix B of this EIS.
- Be a party and signatory to the Lā'au Point CC&Rs covering restrictions on aspects of the development (see Section 2.3.6).

In all cases, the Moloka'i Land Trust has been working with MPL in the preparation of these documents, and MPL will require the Land Trust, as the EC's successor, to sign-off the documents before they are finalized.

Section 7.1 of Appendix A contains further details of proposed Land Trust activities following the implementation of the *Community-Based Master Land Use Plan for Molokai Ranch.*

Attachment

Revised Section 2.1.9 (Moloka'i Community Development Corporation (CDC))

2.1.9 Moloka'i Community Development Corporation (CDC)

The *Community-Based Master Land Use Plan for Molokai Ranch* proposes the creation of the Moloka'i Community Development Corporation (CDC), an entity which will continue the efforts of the Enterprise Community (EC) after the EC's official US Department of Agriculture designation expires (The Moloka'i EC is part of the federal USDA EC/EZ Program which in 1999 designated the entire island of Moloka'i as an Enterprise Community and provided $7 million in grant funds toward implementing a 10-year strategic plan for Moloka'i). The CDC will have the following tasks:

- Develop affordable homes for the Moloka'i community.
- Promote economic development.
- Expand educational opportunities that will build capacity among the island's youth.
- Assist the Land Trust with project funding.

To assist the CDC with providing affordable housing, MPL will convey ownership of 1,100 acres of land mauka of Kaunakakai to the CDC for future housing development. MPL will also ~~reserve~~ put title restrictions on ~~200~~ 100 acres around each of the towns of Kualapu'u and Maunaloa ~~to be made available for community housing~~ to limit the use of these lands for affordable housing. Although MPL will retain ownership of the reserved lands, development decisions and timing will be made by the community via the CDC and not by MPL.

The CDC will work with partners such as Lokahi Pacific, the 501c3 organization that is currently completing 10 affordable homes in Maunaloa on land provided at a reduced price by MPL. Funds from the Lā'au development (the initial five percent of lot sales and the subsequent half a percent of subsequent lot or house and lot sales) will be used to fund CDC activities. The CDC will own the Kaunakakai land of 1,100 acres, it being donated by MPL.

Self-determination is a critical component behind the creation of the CDC and this plan for development of ~~community~~ affordable housing. Moreover, placing housing development in the hands of a community organization, rather than a developer, provides the opportunity for appropriate development timing, which is important in a slow-growing community like Moloka'i.

Affordable housing is intended for resident members of the Moloka'i community, within the income bracket and definitions as defined by the County of Maui. Affordable housing will be developed by the CDC. The CDC is tasked with providing affordable homes for Moloka'i residents. Residency requirements for affordable homes will be as specified under Section 2.96.020, Maui County Code (MCC).

In addition to land for housing, MPL will gift the CDC with the following assets that can be used for community development:

- A 5-acre parcel in central Kaunakakai zoned light industrial, which will be available for development in 2011 when the lease to the current lessee, the Junior Roping Club, expires.
- A 3.2-acre parcel adjacent to the Community College, which will be sold to the Maui Community College at market value. The proceeds from this sale would go to the CDC.

which would add to the organization's funding for community projects such as construction of affordable housing.

- $100,000 from the sale by MPL of a 5-acre site to the County for a new Kaunakakai Fire Station (contained within the 1,100 site above Kaunakakai).
- Endowment from the Lā'au Point project as a sustainable form of CDC funding, which will be structured as follows:
  - ~~A~~ An initial funding of the CDC arises from a net 5 percent of the sale revenue of all 200 lots in Lā'au Point. The value of this revenue is estimated to be $10 million over five years.
  - ~~A percentage, yet to be determined, of subsequent revenue when lot, or lot and house, is re-sold.~~ Future and perpetual income for the CDC comes from second and subsequent sale of lots or lots and houses, as a percentage (half a percent) of all future net sale proceeds from sellers of Lā'au Point properties will be diverted for CDC use. This will provide the CDC with a perpetual income. This provision to allocate income from subsequent lot sales will be provided for in the CC&Rs in the form of a perpetual and unchangeable covenant (Master Plan Covenant). The CC&Rs will require the percentage fee to be paid to the CDC at closing directly out of escrow.

Table 2 below lists the assets and sources of income for the CDC as set forth in the Plan.

Table 2. Moloka'i CDC Revenue Stream

Proposed Donations	Revenue Stream
1,100 acres above Kaunakakai town	Land for affordable housing
Land currently occupied on a short-term lease by the Junior Roping Club (4.18 acres) that is County-zoned industrial.	Land to either develop or realize in cash on sale.
The funds ($100,000) to be received from the County from the purchase of land for the new Kaunakakai Fire Station.	$100,000 in late 2007 or 2008.
The funds received from the University of Hawai'i from the future purchase of 3,213 acres designated for community college expansion.	Funds will be at market valuation of the property at the time of sale.
Five percent of the net proceeds from the initial sales of lots in the proposed 200-lot Lā'au Point subdivision (likely to be in excess of $10 million).	A total of $10 million over the period of the sale of the lots, anticipated to be a 5-year period.
A 0.5 percent (a half a percent) of all future lot and house sales in the Lā'au Point development, (giving the CDC a perpetual income forever).	A continuous income stream as lots, or lots and houses are resold.

A CDC steering committee, a project of the Moloka'i EC, has been already established and is investigating legal and tax structures to ensure the optimum use is made of its mission.

The CDC mission statement has now been defined by the steering committee as follows: "A community-based non-profit organization working to enhance the quality of life for residents

primarily in the area of affordable homes for the community, as well as economic development, education, health care, leadership, culture and the environment, while preserving Moloka'i's rural character."

The CDC steering committee has also been investigating partnerships with other non-profit organizations for the building of affordable homes, and a structure will be in place to accept the land and funding donations prior to the transfer of land and the first sale of Lā'au Point lots.

There is no relationship between the Moloka'i Land Trust and the CDC steering committee. Both operate as separate entities with differing but compatible interests.

Attachment

Revised Section 2.3.6 (Covenants)

2.3.6 Covenants

~~As previously stated,~~ Lā'au Point aims to attract people who respect the unique character of the site and Moloka'i, and who support conservation, cultural site protection, and coastal resource management. Residents of Lā'au Point will be educated and informed about the environment and culture, and taught to "mālama'āina," take care of the land and sea, through strict Conditions, Covenants, & Restrictions (CC&Rs) attached to the subdivision. The CC&Rs provide that every person whose name is on the property title must commit to undergo a certain amount of education about the Moloka'i community and its desires and aspirations with kupuna and the Maunaloa community. This will be conducted under the guidance of the Moloka'i Land Trust. The CC&Rs have been strengthened to protect the environment and resources at Lā'au Point. Enforcement and substantial penalties will be put in place to ensure that the covenants are respected and upheld. Although the CC&Rs are currently under development, because of the Master Plan process (Section 2.1.6), MPL does have a general idea of what the CC&Rs and some of the key provisions and concepts will be.

The CC&Rs will be monitored and enforced by the Board of the Association of Owners of Lā'au Point (the Board), affected lot owners, and in certain circumstances, the Moloka'i Land Trust as a signatory and Molokai Properties Limited as the Declarant under the CC&Rs. Failure to comply with the terms of the CC&Rs would expose the non complying owner to sanctions which include monetary fines, suspending an owner's right to vote, suspending services provided by the Association, exercising self-help or taking action to abate any violation, removal of the non compliant structure or improvement, precluding contractors, agents, or employees of any owner who fails to comply with the terms of the CC&Rs.

The CC&Rs for any development contain the conditions and restrictions that are placed on the property by the developer, which must be adhered to by subsequent owners of the property. In the case of the Lā'au Point development, these conditions and restrictions were developed by the Land Use Committee of EC Project #47. To implement the committee's vision the CC&Rs are designed to accomplish:

- The protection of subsistence gathering in the expanded Conservation District.
- The reduction of potential social conflicts between new homeowners and existing community members.
- The protection of cultural/archeological and environmental resources.

The Land Trust has subsequently taken over the role from the Moloka'i Enterprise Community (EC) of ensuring the implementation of the provisions set forth in the *Community-Based Master Land Use Plan for Molokai Ranch* (Master Plan). As such, the Land Trust must be a party and additional signatory to the "Lā'au Point Declaration of Covenants" to ensure that the covenant provisions are adhered to. As a party to these CC&Rs, the Land Trust will be able, in the unlikely event that breaches occur, to enforce the covenants.

There has been criticism on Moloka'i that CC&Rs have provisions that either allow for changes to key provisions after a certain period of time has elapsed or that such key provisions expire at a certain future date. This is the case in another West Moloka'i subdivision's covenants. Pāpōhaku's covenants now allow further subdivision of properties (subject to regulatory approvals) because original prohibitions on further subdivision contained in the CC&Rs have expired.

MPL is adamant this will not be the case with the Lā'au Point development. To ensure that at anytime in the future a majority of homeowners cannot attempt to rescind key provisions, covenants relating to the Master Plan will be designated as such (referred to in the CC&Rs as "Master Plan Covenants") and, unlike other provisions, are specifically prohibited from being changed, deleted, or modified by the Homeowners Association or the Board. Future homeowners will sign documents agreeing to adhere to the CC&Rs when they purchase lots at Lā'au Point. Adherence to the CC&Rs is a condition of ownership of the property.

To further protect the Master Plan Covenants, the Moloka'i Land Trust has agreed to be an additional signatory to the documents, giving it enforcement rights. The CC&Rs will provide that if the Homeowners' Association chooses not to prosecute a breach of a Master Plan Covenant, the Land Trust may, after proper notice and after giving the Homeowners' Association the opportunity to act, take legal and direct action against the homeowner and/or the Homeowners' Association to ensure that the Master Plan Covenants are not violated.

Critical provisions of the CC&Rs that will not be changeable include:

- A maximum of 200 lots are allowed in the subdivision.
- Further subdivision of lots, even if allowable in the future by County ordinance or the Moloka'i Planning Commission is prohibited.
- Design guidelines that specify color, size, height restrictions, landscaping, energy efficiency, and lighting of houses and lots.
- Restrictions on potable and non-potable water use by lot owners.
- Requirements for water catchment systems to contain run-off.
- Adherence to the provisions of the Shoreline Access Management Plan (Appendix B).
- The transfer fee when a lot or house is sold that is directed to the Community Development Corporation.

Other key Master Plan covenants are set out below. There have been additions based on input from the community at Cultural Impact Assessment review meetings, the receipt of the Social Impact Assessment report, and subsequent Draft EIS comment letters from community members and groups, and County, State, and Federal government agencies.

The CC&Rs will specify that the Land Trust will have two ex-officio non-voting seats on the board of directors of the homeowners' association. The Land Trust and the homeowners have at least two opportunities to work together; on the homeowners' association board and in the management of the expanded Conservation District lands.

The by-laws of the homeowners' association will specify a nine-member board of directors, including the two ex-officio Land Trust members. In general, the board will deal with normal association issues such as assessments and maintenance of common property.

Where the Land Trust members will assist the directors is in the interface of homeowners with subsistence gatherers, cultural practitioners, and community members who frequent the expanded 434-acre Conservation District adjacent to Pu'u Hakina and Kamāka'ipō (Lā'au) shoreline.

As well as association board meetings, the homeowners' representatives and Land Trustee share membership of a "Council" that manages and implements the provisions of the Shoreline Access Management Plan (see Section 4.3 and Appendix B for further discussion).

In their February 15, 2007 comment letter, the State Office of Environmental Quality Control (OEQC) recommended that the US Green Building Council's Leadership in Energy and Environmental Design (LEED) silver standard be applied. The LEED Green Building Rating System is a nationally accepted benchmark for the design, construction, and operation of sustainable buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

While creating the CC&Rs, the LEED certification process was reviewed. Currently, the LEED certification process mainly deals with certifying buildings, not lot subdivisions. The Lā'au Point project will create 200 residential lots for sale; buyers will build their own homes. Therefore, Lā'au Point will not go through a formal LEED certification process. However, the CC&Rs and subsequent design guidelines will strive for the same goals as LEED.

The following are some of the key design restrictions and other covenants that will be implemented at Lā'au Point:

- **Restriction to prevent a gated community.** Gates will be prohibited across roads and access roads. No street-facing walls or barriers may be higher than four feet.
  - All lots with frontage to the ocean will be required to have one of four or five types of fences (set out in the Design Guidelines) that create a physical separation between the lots and the Open Space and Expanded Conservation District areas that are being protected for subsistence gathering. Homeowners will be allowed gates that access these areas.
- **Subdivision.** No further subdivision of lots will be allowed.
- **Buildable area.** Allow disturbance of no more than 30 percent of the lot. (2-acre Lot = +/-26,000 s.f. or about 1/2 acre). Require ~~some~~ a level of maintenance of lot area to reduce fire hazard (remove dead wood). Building must be set back at least 50 feet inland from oceanfront property lines.
- **Restricted building coverage.** The maximum developable area of a home, or a home and 'ohana housing unit if allowed by the County, will be 5,000 sq ft. Further details are set out on Page 27 of Appendix A (Chapter 5, Land Use Plan).
- **Building code.** Restriction on building height; maximum height of 25 feet and one-story. Restrictions on building envelope and footprint. ~~Restriction~~ The Design Guidelines will outline restrictions on building materials, color, and ~~roof~~ roofs; homes should blend into landscape.
- **Green architecture.** Require "green" architecture that incorporates recycled materials, energy efficient equipment, natural ventilation, solar and photovoltaic systems, etc. Green architecture may be defined in the Lā'au Point Design Guidelines as design standards, which preserve as far as practicable, the characteristics of each lot and the project as a whole, and strive to minimize non-renewable energy requirements, water use, and the impact of the project on the natural environment.
- **Solar power.** Solar panels ~~requirement~~ (or comparable technology) ~~for water heating~~ sized to meet at least 80 percent of the hot water demand of each home and to supplement electric power for appliances will be required.

- **General energy.** All energy systems shall be designed and constructed to meet United States Environmental Protection Agency (EPA) conservation standards. An example of an EPA conservation standard is the ENERGY STAR program, which was established in 1992 for energy-efficient computers. Now a joint program under the EPA and the U.S. Department of Energy, the ENERGY STAR program has grown to encompass more than 35 energy-efficient product categories for homes and workplace. Homes that earn the ENERGY STAR designation must meet guidelines for energy efficiency set by the EPA. ENERGY STAR qualified homes can include a variety of energy-efficient features, such as effective insulation, high performance windows, tight construction and ducts, efficient heating and cooling equipment, and ENERGY STAR qualified lighting and appliances. These EPA standards for the ENERGY STAR program can be found at the following website: http://www.energystar.gov. For example, all dwellings will be required to have solar panels (or comparable technology) sized to meet at least 80 percent of the hot water demand of each home. Other energy-efficient measures will be required in the Lā'au Point Design Guidelines.
- **Pesticide/Fertilizer restriction.** Pesticide use will be prohibited. Only organic fertilizers will be allowed, although this has not been finalized as some concern was raised in comment letters concerning potential damage to fisheries from organic fertilizers as well.
- **Lighting.** Exterior lighting must be shielded from adjacent properties and the ocean.
- **Landscaping and irrigation.** ~~Landscaping~~ Common area irrigation systems ~~will be from~~ will utilize re-use water (treated effluent) from the wastewater treatment plant. ~~or collected in catchments systems;~~ Residential catchment systems may provide landscape irrigation to individual lots and homes. Drinking water will not be used for irrigation of any landscaped areas. ~~only~~ Only drip systems will be permitted for both common area and residential landscaping. Landscaping will be restricted to appropriate native and Polynesian species that are drought-tolerant and suitable for coastal locations; xeriscaping aims to reduce water use.
- **Storage tank.** All houses will be required to have at least a 5,000-gallon storage tank for water captured from roofs.
- **Water covenants.** Requirement of a dual-water system split into safe drinking and non-drinking water; safe drinking water will be limited to 500-600 gpd, or 96,000 gallons per day for potable water in the entire subdivision. Homes will be required to use double flush toilets and specially-designed showerheads for water conservation.
- **Fire Protection.** Each dwelling will be required to install a fire protection or sprinkler system when a house is constructed, until such time that a fire station is built on the West End of the island.
- **Drainage systems.** Require drainage systems that retain any run-off within the disturbed area of the lot. Maximize recharge into the ground. Restore land areas that have eroded by re-establishing vegetative cover. Minimize impervious (paved) surfaces on the Lot.
- **Soil erosion.** No building allowed on slopes greater than 50 percent. Manage open space common areas to reduce/eliminate soil erosion by restoring the vegetative cover. Deer and livestock fence will be placed at the rear of the subdivision.
- **Water quality monitoring.** Water quality will be continuously monitored at stormwater drains and in the ocean for: temperature, salinity, total suspended solids, total nitrogen, ammonia nitrogen, nitrate and nitrite, total phosphorus, chlorophyll A and silicate.
- **Land Trust easements.** The expanded State Conservation District of 434 acres, flood areas, archaeological sites, etc., ~~are~~ will be subject to ~~easements~~ an easement from the Land Trust.~~; the~~ The Land Trust will have ~~adequate~~ ex-officio representation on the homeowners' association (HOA) and ~~Both~~ both the Land Trust and HOA will share the

responsibility and cost to care for the easement area by equal representation on a "Council" that will provide day-to-day management of the easement lands. The Council will have representation from qualified subsistence gatherers, those with knowledge of cultural site protection and from Maunaloa. The Council will be guided by a Shoreline Access and Management Plan (Appendix B).

- **Subsistence access.** Perpetual right to subsistence gathering activities at Lā'au Point (see Section 2.3.7 below) will be set forth within the Easement document covering the expanded Conservation District.
- **Subsistence hunting.** Buyers must accept that hunting occurs in the broader surrounding area, mauka of the subdivision behind a deer and livestock fence.
- **Maintenance of deer and livestock fence.** The Homeowners' Association will be responsible for maintaining the deer and livestock fence along the mauka boundary of the project area.
- ~~**Fence to demarcate private property from public access areas.** A clear physical demarcation, such as a log fence, running along the individual property lines will distinguish the private near-shoreline lots from the expanded public Conservation District areas.~~
- **Lā'au Point community education.** Every owner must commit to undergo a certain amount of education about the Moloka'i community and its desires and aspirations.
- **Rentals.** Renting properties to third parties will be prohibited.
- **CC&Rs.** The ~~final~~ Master Plan covenants in the CC&Rs cannot be changed.
- **View plane.** The final subdivision map will designate proposed building sites to ensure the view planes of each lot and that the house to be built will not be unreasonably obtrusive when viewed from the ocean.

The Land Trust is a signatory to the CC&Rs and is given specific enforcement rights under the terms of the document. Certain covenants and restrictions in the CC&Rs are derived from the provisions of the Master Plan that represent the Land Trust and community concerns on protection of subsistence and cultural practices and the protection of cultural/archaeological and environmental resources. These are designated Master Plan Covenants under the terms of the CC&Rs. The CC&Rs provide that the Land Trust may prosecute breaches of the Master Plan Covenants and take legal action to ensure their enforcement.

Some provisions of CC&Rs will be able to be changed by a 75 percent majority vote of homeowners. These are operational in nature or concern and involve the management of the Association common areas. They bear no relationship to the covenants that are designed to implement the vision of the *Community-Based Master Land Use Plan for Molokai Ranch.*

~~The CC&Rs are currently being prepared in draft form. A key element of these will be the incorporation of the Moloka'i Land Trust as a party to the CC&Rs. This is critical because the Land Trust, as a party to the CC&Rs, will be able to enforce compliance.~~

As of November 2007, a draft of the CC&Rs were being developed by MPL in conjunction with the Land Trust. The Land Use Commission and other regulatory agencies may further require changes to the CC&Rs during their review process; therefore, a final version of the CC&Rs is not available as of November 2007, and the issue of the completion of the CC&Rs is included as an unresolved issue in this EIS (see Section 7.5). The CC&Rs will be available for review at the Land Use Commission hearings on the State Land Use District Boundary Amendment petition.

Attachment

Revised Section 2.4 (Community Meetings and Involvement)

2.4 COMMUNITY MEETINGS AND INVOLVEMENT

Since the establishment of the EC Project #47 for Compatible Community-Based Development in August 2003, members of the Moloka'i community have gathered to discuss and formulate the *Community-Based Master Land Use Plan for Molokai Ranch* and the Lā'au Point project. Throughout this community planning process, there have been numerous opportunities for public involvement, input, and review. ~~Table 2~~ Table 4 below contains a timeline summary list of meetings and public involvement.

~~Table 2~~ Table 4. Community Meetings & Involvement

Date	Community Activity
December 10, 2003 to October 20, 2005	28 total Land Use Committee meetings
March 1 to May 4, 2004	8 total Environment Committee meetings
March 2 to May 10, 2004	11 total Tourism Committee meetings
March 4 to July 19, 2004	25 total Cultural Committee meetings
March 8, 2004 to January 12, 2005	10 total Economics Committee meetings
March 10 to May 10, 2004	9 total Recreation Committee meetings
June 2, 2004	Expert Panel on Hawaiian Rights Issues
June 17, 2004	Land Use Committee site visit to Lā'au Point
June 17, 2004	Facilitated Land Use Committee meeting
July 18, 2004	Presentation to Native Hawaiian Legal Corporation—Board of Directors on Moloka'i
August 18, 2004	Presentation to Ahupua'a O Moloka'i
August 26, 2004	Presentation of draft Master Land Use Plan community meeting at Kulana 'Ōiwi, Kaunakakai
September 1, 2004	Maunaloa Community meeting at Maunaloa Park
September 1, 2004	Presentation at Moloka'i High and Intermediate School—Immersion Program
September 2, 2004	Presentation on access issues at Kulana 'Ōiwi
October 6, 2004	Presentation to Office of Hawaiian Affairs—Board of Trustees on Moloka'i
October 12, 2004	Presentation to HSTA and Moloka'i Chamber of Commerce
October 15, 2004	Presentation to Moloka'i Veterans Association
October 16, 2004	Presentation to Moloka'i Lions Club
October 27, 2004	Kualapu'u Community meeting at Kualapu'u Recreation Center
November 3, 2004	Kaunakakai Community meeting at Mitchell Pauole Center
November 13, 2004	Presentation to West Moloka'i Community Association
November 16, 2004	Presentation to Moloka'i General Hospital, Alu Like Inc.—Ke Ola Pono O Na Kupuna, and Executive Board of Moloka'i Chamber of Commerce
November 18, 2004	Presentation at Aka'ula School

Date	Community Activity
November 28, 2004	Presentation to Filipino Community Association
November 30, 2004	Mana'e Community meeting at Kilohana Recreation Center
November 30, 2004	Presentation at Aka'ula School
December 22, 2004	Presentation to Kamalama at Keawanui, Moloka'i
January 5, 2005	Presentation to AARP
January 8, 2005	Water Forum meeting at Lanikeha Community Center
January 12, 2005	Presentation to Spiritual Leaders in Maunaloa
January 15, 2005	Presentation to Kaluako'i golfers
January 27, 2005	Maunaloa Community meeting at Maunaloa Park
January 28, 2005	Presentation to Ahupua'a O Moloka'i
January 29, 2005	Public meeting---Mana'o Sharing on Water at Kulana 'Ōiwi
February 3, 2005	Ho'olehua Community meeting at Lanikeha Community Center
February 12, 2005	Public Meeting on Lā'au Point development at Kulana 'Ōiwi
March 5, 2005	Public Meeting on Master Land Use Plan at Kulana 'Ōiwi
June 15, 2005	Land Trust seminar conducted by the Conservation Fund
July 2005	Land Use Committee site visit to Lā'au Point
August 1, 2005	Land Use Committee vote to approve Master Land Use Plan
November 1, 2005	Enterprise Community Governance Board vote to approve Master Land Use Plan
May 26, 2006	EISPN distributed to agencies/organizations/individuals for public comment and made available at Moloka'i library
May 31, 2006	Cultural impacts assessment community meeting at Maunaloa Elementary School
June 1, 2006	Cultural impacts assessment community meeting at Kulana 'Ōiwi
June 5, 2006	Cultural impacts assessment community meeting focusing on fishing at OHA/DHHL Conference Room
June 6, 2006	Cultural impacts and subsistence community meeting at Kualapu'u Elementary School
June 7, 2006	Cultural impacts assessment community meeting at Kilohana Recreational Center
June 8, 2006	Focus on hunting & gathering cultural impacts assessment community meeting at Mitchell Pauole Conference Room
July 10, 2006	Water Plan public input meeting at Maunaloa
July 11, 2006	Water Plan public input meeting at Ho'olehua
July 12, 2006	Water Plan public input meeting at Kilohana
July 25, 2006	Social Impact Assessment Focus group meeting with Maunaloa residents
July 26, 2006	Social Impact Assessment meeting at Kaunakakai Elementary School
July 27, 2006	Social Impact Assessment Focus group meeting with Filipino residents
July 28, 2006	Social Impact Assessment Focus group meeting with ALDC
July 31, 2006	Social Impact Assessment Focus group meeting with Kaluako'i and Pāpōhaku Ranch residents
August 25, 2006	Meeting with EIS consulted parties
~~December 1, 2006~~	~~Consulted with Police Department – Moloka'i Station~~
December 23, 2006	Draft EIS distributed to agencies/organizations/individuals for public comment and made available at Moloka'i library

From March 2004 through May 2004, five committees (Environment, Cultural, Economics, Tourism, and Recreation) met with a total of 1,000 participants. The meetings were open to the public and most of the meetings were aired on the Akaku Channel 53. Representatives of the five committees formed the Land Use Committee, which worked to produce the policies and principles for the land use plan.

Between July 2004 and March 2005, there were 12 community meetings and 24 community and focus group presentations regarding the Community-Based Master Land Use Plan. The meetings were held island-wide, in Kaunakakai, Kualapu'u, Mana'e, Maunaloa, and Ho'olehua, with over 1,000 participants.

Four Land Use Committee meetings, specifically focusing on all aspects of the Lā'au Point project, were held between May 2005 and July 2005, and included presentations from MPL's planners and a visit to Lā'au Point by those who had concerns about subsistence issues.

Sign-in sheets were taken at all the Lā'au Point meetings. In the process, sign-in sheets were provided at every meeting, but there were individuals who chose not to sign in as they did not want their names to be published. Therefore, a complete list of names for every participant is not included. Appendix A and Section 8.0, however, contains lists of the most active participants during the processes.

On August 1, 2006, the 27-member EC Land Use Committee voted to approve the *Community-Based Master Land Use Plan for Molokai Ranch*. The final vote was 19 in favor, 6 opposed, 2 abstentions.

On November 1, 2005, the EC Governance Board of Directors voted to approve the *Community-Based Master Land Use Plan for Molokai Ranch* based on the recommendation from the EC Land Use Committee. The 13-member board voted 10 in favor, 2 opposed (1 Director did not vote).

Since the EC Land Use Committee and Governance Board of Director's approval of the *Community-Based Master Land Use Plan for Molokai Ranch*, MPL has moved forward with implementing the actions proposed in the Plan. Since the Lā'au Point EIS process began with the distribution of the EIS Preparation Notice, public community meetings have been held to help obtain feedback for the cultural assessment, social impact study, and water plans. In addition, MPL met with individuals that requested to be a consulted party to the EIS on August 25, 2006.

In addition to community meetings, the following activities have occurred to educate the Moloka'i community and others about the Plan:

- A 24-minute DVD was produced featuring a cross-section of Moloka'i residents and other supporters of the Plan. The video began airing on both O'ahu and Maui County public television stations in November 2006 and is will continue to be shown in 2007.
- The DVD will also be shown at selected public forums throughout the community and plans are underway to have each residential household on Moloka'i receive a copy of DVD.
- A brochure explaining the Plan was finalized and distributed to more than 3,200 Moloka'i households in December 2006.
- Radio spots about the Plan will begin airing on selected radio stations in December 2006.

- Supporters of the Plan are enrolled in classes provide by AKAKU Public Access Television to learn skills and techniques for producing videos that can be used to further educate television audiences about the Plan.
- A website was developed by volunteers that support the Plan and is being updated with information on a regular basis.
- Copies of the Plan have been printed and distributed to MPL employees with follow-up informational sessions and site tours being led by the employees. MPL employees, their families, and other interested community residents have participated in these tours and sessions.
- Copies of the Plan have been distributed to individuals in the community and will continue to be shared with interested persons upon requests.
- A series of articles about land trusts was prepared and submitted to Moloka'i newspapers by trustees of the Moloka'i Land Trust to inform the community about land trusts.
- Paid advertisements about the Plan were developed by volunteer MPL employees and the OHA trustee for Moloka'i. The ads were printed in the local Moloka'i newspapers and the OHA trustee's ad was printed in the Moloka'i papers in addition to being distributed statewide through OHA's newspaper.
- Copies of the DVD, interviews of Plan supporters, press releases, and letters to editors were submitted to newspapers on Moloka'i, Maui, and O'ahu, in addition to television news outlets on O'ahu.
- Informational sessions have been held with business organizations such as the Moloka'i Chamber of Commerce, and plans are underway to educate other community groups and organizations as well as students and faculty at the community college, and public and private schools on island.
- Educational rallies that are organized by MPL employees and Plan supporters are being implemented during the months of December 2006 through June 2007.
- Volunteer MPL employees have constructed and distributed educational signs that are seen in various locations on Moloka'i indicating support for the Plan.

During the Draft EIS comment period, there were numerous comments received from community members, whom sought information concerning the *Community-Based Master Land Use Plan for Molokai Ranch* (Master Plan) process, its validity, and the current status of other aspects of the Master Plan implementation, in particular about documentation between the parties involved. Questions also related to whether MPL had been honest in its intentions at the commencement of the Master Plan process.

In addition, the Social Impact Assessment Report recommended that MPL conduct further community outreach regarding the Master Plan, since it appeared that many island residents were unaware of the Master Plan's provisions; many were aware of the Lā'au development more than any other aspect of the entire Master Plan's purported benefits for the community. These important issues are discussed below:

2.4.1 MPL's Intentions at the Commencement of the Planning Process

At the commencement of EC Project #47 "Molokai Sustainable development," the Conservation Fund conducted a two-day seminar on likely outcomes of the planning process and made recommendations as to the process to be followed.

This seminar, attended by community leaders, and many of the current opponents to the Master Plan, including DeGray Vanderbilt, Walter Ritte, Glenn Teves, and others, took place on January 28 and January 29, 2003 at the OHA/DHHL conference room at the Kulana 'Ōiwi center in Kaunakakai.

The EC had been adamant that MPL outline its intentions at that meeting. MPL's CEO, Peter Nicholas, prepared a written speech detailing what MPL needed from the process and what it hoped the community could gain. That speech, which is attached as Appendix C sets out its vision for land protection, and its needs for a future development to sustain its on-going activities and curb its losses.

Many comment letters to the Draft EIS asserted that Lā'au Point was brought up only at the end of the community planning process. Page 2 of the speech clearly indicates the contrary, as it states: "Economically, we need some development at Lā'au Point, because the Kaluako'i Hotel and Golf Course will almost certainly lose money for many years until a marketing campaign kicks in. We need a larger financial engine than just the hotel and the golf course."

Subsequent to that speech, there was only one question concerning its Highland Golf Course option; an option that was subsequently discarded at the wishes of the Cultural Committee.

MPL believes it was always honest in its intentions and outlined all its proposals at the commencement of the process.

2.4.2 Validity of the Master Plan process

MPL believes in the validity of the community-based process, which resulted in the creation of the *Community-Based Master Land Use Plan for Molokai Ranch.*

As previously discussed in Section 2.1.6, between September 2003 and September 2005, MPL joined with community participants to discuss a community-based master land use plan for Molokai Ranch's lands in an EC-sponsored process (EC Project #47). The EC was the appropriate organization with which to partner in this planning exercise; it was an elected 501(a)(3) non-profit organization charged with the island's sustainable development future options. The EC ensured all meetings were open to the public, many being advertised extensively. Most committee meetings were shown on Akaku community television, which is broadcast on Moloka'i.

Despite comments to the contrary, MPL did not control the planning process; MPL was a participant. MPL participated in all committees, and later in the Land Use Committee. MPL answered all questions put to it during the process regarding the Lā'au Point development, including the presentation of shoreline setback studies, information concerning its operational financial losses, the funding it needed to re-open the Kaluako'i Hotel, and the many alternatives to Lā'au Point, which are further analyzed in Section 6.0 of this EIS.

Questions have been raised concerning the members of the Land Use Committee and those elected members of the EC who were MPL employees and who voted for the acceptance of the Master Plan. MPL acknowledges that 3 of the 29 members of the Land Use Committee were MPL employees. However, if MPL employees had abstained from voting, a majority of the remaining members would still have passed the Master Plan.

2.4.3 Further Plan Outreach

To ensure adequate information was supplied and feedback from the community received on the Master Plan and this LUC application, MPL currently employs two staff full-time who are responsible for community relations, outreach, and education concerning the Master Plan.

MPL has also distributed an information sheet and DVD on the Master Plan to all households on Moloka'i. MPL staff responds to letters to the local and national media, provides accurate information on a regular basis, and continues to attend outreach meetings with community groups, island, County, State, and Federal leaders.

A major rally outlining the plans for the future of the Kaluako'i Hotel and Golf Course was held in lat 2006 and more large group gatherings are planned.

2.4.4 Other Master Plan Implementation

While there has been a necessary concentration by MPL on preparing information for the Land Use Commission petition, other aspects of the Master Plan implementation have been underway.

Since the filing of the Draft EIS in December 2006, the following initiatives of the Master Plan have been implemented:

- **First Lands Donation.** The 1,600-acre Mokio parcel is on track for gifting to the Moloka'i Land Trust in early 2008, following an extensive due diligence process by the Land Trust and the preparation of a cultural and environmental inventory and an important access and management plan for the area.
- **Land Trust/MPL agreement on Master Plan implementation.** This agreement, an extensive and complicated document, is being drafted and should be finalized by November 2007.
- **Kaluako'i Hotel refurbishment.** MPL has filed an SMA application with the Maui County Planning Department and awaits a hearing date. Detailed working drawings are awaiting approval of preliminary design and landscape plans.
- **Pu'u Hakina & Kamāka'ipō Shoreline Access Management Plan.** This document which spells out the management criteria for the expanded Conservation District has been approved by the Land Trust and is attached as Appendix B.
- **Affordable Housing.** As a forerunner to future affordable housing partnerships with the CDC, a trial 10-lot affordable housing project is underway on MPL subdivided lots in Maunaloa. MPL and a developer will build these houses for a total sales price not exceeding $170,000 for the land and buildings. Completion is expected in early 2008.
- **Rural Landscape Reserve and Agricultural Easements.** Documents relating to the easement provisions on the Rural Landscape Reserve lands (10,560 acres) and land protected for agriculture (14,390 acres) are in preparation and will be completed early in 2008 for ratification by the Moloka'i Land Trust.
- **Protection of Subsistence Resources and Access Issues.** A major initiative under the Master Plan calls for improved access for the community to all of MPL's property for subsistence fishing and hunting. MPL employees and Maunaloa residents have been working closely with the Land Trust on preparatory plans, in particular on access to the Mokio donated parcel and with the protected areas within the Lā'au development.

Attachment

Revised Section 3.6 (Flora)

3.6 FLORA

The vast majority of Lā'au Point is vegetated by non-native plants. Although dominated by non-natives, healthy native plant communities can still be found in sandy beach, rocky shoreline shrub land/grassland, and seasonal wetland habitats. Three species considered rare in Hawai'i include: *Cressa truxillensis,* Hawaiian cotton or ma'o *(Gossypium tomentosum),* and 'ihi'ihilauakea *(Marsilea villosa).*

The sandy beach habitat of Lā'au Point contains the most extensive example in Hawai'i of a seasonal herb land dominated by *Cressa truxillensis.* Other native plants include: 'aki 'aki *(Sporobolus virginicus),* 'akulikuli *(Sesuvium portulacastrum),* pohuehue or beach morning glory *(Ipomoea pes-caprae),* the sedge *(Fimbristylis cymosa),* and pohinahina *(Vitex rotundifolia).* The non-native kiawe *(Prosopis pallida)* and animal grazing have been main pressures on these plant communities.

Only ten percent of the rocky shoreline shrub land/grassland habitat has native plant cover, but it contains the highest number of native plants, which include: naupaka *(Scaevola sericea),* uhaloa *(Waltheria indica),* Hawaiian cotton or ma'o *(Gossypium tomentosum),* 'ilima *(Sida fallax),* alena *(Boerhavia diffusa),* pau o Hi'iaka *(Jacquemontia ovalifolia ssp. Sandwicensis),* 'ihi *(Portulaca lutea),* akulikuli *(Sesuvium portulacastrum),* the grass *Panicum fauriei var. latius,* aki'aki *(Fimbristylis cymosa ssp. Umbellate-capitata),* and Kakonakona *(Panicum torridum).* Non-native plants that dominate this habitat include: golden crown beard *(Verbesina enceliodes),* Australian salt bush *(airiplex semibaccata),* dog fennel *(Dessodia tenuiloba),* and kiawe.
The federally endangered 'ihi'ihilauakea *(Marsilea villosa)* was found near a seasonal wetland along where the Kamāka'ipō Gulch drainage meets the coast. This native fern is the only federally listed endangered plant occurring in the Lā'au Point area. 'Ihi'ihilauakea was federally listed as endangered in 1992. A total of 11 populations have been reported: five on O'ahu, four on Moloka'i, and one on Ni'ihau. Although critical habitats for 'ihi'ihilauakea have been established on O'ahu, no critical habitats for 'ihi'ihilauakea have yet been designated for Moloka'i.

The Kamāka'ipō Gulch population of this rare fern is not a new discovery. This population is known from historic accounts and recent surveys. Collections were reported to state and federal agencies as part of required collection permit reporting. In the past, collections from this population have also been distributed to botanical gardens in Hawai'i with programs dedicated to endangered plant conservation.

Due to 'ihi'ihilauakea's unique requirement for flooded areas, this fern can be very difficult to find. Hence, the survey for the 'ihi'ihilauakea was specifically conducted over a six month period (November 28, 2005 to June 6, 2006), including surveys after the heavy rains of 2006, so that the populations could be found and mapped under the best possible conditions. All potential habitat in the area was checked multiple times in the survey period and no additional Marsilea populations were observed.

The 'ihi'ihilauakea population at Kamāka'ipō is currently expanding, despite occasional foot traffic. Samples are being preserved in three endangered plant collections around the state. The surrounding habitat is no longer the intact native shrubland that would have existed there hundreds of years ago.

Under drought situations, the seasonal wetland community is dominated by several dryland weed species, including cocklebur *(Xanthium saccharatum)*, bristly foxtail *(Setaria verticilata)*, finger grass *(Chloris barbata)*, and the vine *Merremia aegyptica*. The perimeter of the seasonal wetlands is dominated by kiawe and guinea grass *(Panicum maximum)*.

The most widespread plant community in the Lā'au Point parcel is kiawe lowland dry forest. In many areas, these forests stretch up to the high tide line due to the trees' ability to utilize brackish groundwater. The kiawe forests are most developed in areas where groundwater is available, just inland of the coastal strand, and in the drainages. Native plants in this habitat include: 'ilima, *Abutilon incanum*, and pili grass *(Heteropogon contortus)*.

Non-native lantana is the dominant species in lowland shrub land areas where rocky terrain, erosion, and lack of water have created gaps in the lowland kiawe forest.

Appendix ~~B~~ D of this EIS contains the botanical survey by William Garnett. The botanical survey was carried out over a period of six months (late November 2005 to early June 2006) to assure detecting 'ihi'ihilauakea (*Marsilea villosa*) and other seasonally ephemeral species. To assure complete coverage, detailed GPS track logs were kept to record both ground and air survey routes. To be aware of any possibilities, a list of historical plant collections made from within the survey area was provided by the Bishop Museum herbarium. However, it is always possible that additional populations could appear in other seasonal wetlands under different conditions in future years.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The majority of the native plant communities are located in the expanded Conservation District area in the sandy beach and rocky shoreline areas, where no development will occur ~~within the setback of the coastal conservation zone~~. Of the native plant species, ~~Only~~ only the 'ihi'ihilauakea *(Marsilea villosa)* population is located within the ~~proposed development~~ project area, at Kamāka'ipō Gulch. Kamāka'ipō Gulch will be part of the expanded Conservation District area, designated a Cultural Protection Zone, and managed by the Land Trust. No development will occur in expanded Conservation District area, including Kamāka'ipō Gulch. The 'ihi'ihilauakea population is not within the proposed residential houselot area.

~~A management plan is to be~~ A Shoreline Access Management Plan (SAMP) (Appendix B) has been ~~developed~~ adopted by the Land Trust as the easement holder of the expanded Conservation District area and county-zoned open space areas. Kamāka'ipō Gulch, which will be deeded to the Land Trust, is also covered by the SAMP. ~~This will~~ The provisions of the SAMP include managing ~~this~~ the significant 'ihi'ihilauakea population, including possible opportunities ~~to use~~ for private landowner "safe harbor" conservation programs. The 'ihi'ihilauakea might also benefit from habitat created by any settling ponds planned for the site. The key to protecting the 'ihi'ihilauakea is the creation and implementation of provisions to protect the fern from grazing, trampling, erosion, fire, or other habitat changes.

To protect environmentally sensitive features, including native, rare, threatened, and endangered plants, the Terrestrial Biological Resources Preservation of Resources section of the SAMP provides for:

1. Promulgation of rules and regulations to protect native, rare, threatened or endangered species.
2. Development of a natural resource management plan to identify management of terrestrial resources.
3. Provision of informational/educational signs where rare, threatened, or endangered plants or animals are found and to manage or control access.
4. Provision of buffer zones to ensure protection of sensitive species or habitats
5. Development of a monitoring program incorporating both scientific and anecdotal evidence to monitor the environment and ensure the viability of native species and habitats.
6. Enforcement of rules and prohibitions by an on-site Resource Manager.
7. Education of all individuals (staff, contract or volunteers) implementing the natural resource management plan.

The Lā'au Point project will include landscaping appropriate to the coastal setting. Where feasible, new landscaping will include drought-tolerant native plants and grasses.

Evidence at public meetings has been given that the kiawe and other non-native plant species drain the limited water resources that would otherwise be available for feeding native plants. The Land Trust and the homeowners together will plan for the best use of native plants, ensuring they have the necessary growth opportunities.

Attachment

Revised Section 3.7 (Fauna)

3.7 FAUNA

No native land birds, native water birds, or seabirds were observed at the project site during an avifaunal and feral mammal survey (Appendix E) conducted in August 2006. The only native land bird species likely to forage in this area is the Hawaiian Owl or Pueo (*Asio flammeus sandwichensis*). This species is listed by the State of Hawaii as endangered on O'ahu but not elsewhere in the State. They hunt in grasslands, agricultural fields and forests and nest on the ground in habitats with tall grass.

Four species of common migratory shorebirds were observed ~~on the survey~~: Pacific Golden-Plover or Kolea (*Pluvialis fulva*); Ruddy Turnstone or 'Akekeke (*Arenaria interpres*); Wandering Tattler or 'Ulili (*Heteroscelus incanus*); and Sanderling or Hunakai (*Calidris alba*). None of these migratory shorebirds are listed as threatened or endangered. Thirteen species of introduced alien birds were also tallied ~~on~~ during the survey, none of which are listed as threatened or endangered.

Most mammals typically found in the area are introduced, and include rats, mice, axis deer, and mongoose. ~~Two endangered~~ During the survey, two Hawaiian Monk Seals (*Monachus schawinslandi*) were observed resting on Sam Wights Beach north of Lā'au Point.

~~Appendix C of this EIS contains the avifaunal and feral mammal survey prepared by Phillip Bruner.~~

The Hawaiian monk seal is protected under the Endangered Species Act and the Marine Mammal Protection Act. In their comment letter on the Draft EIS dated February 5, 2007, the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) noted that since 1984, a total of 169 Hawaiian monk seal sightings have been documented on the shoreline of the project area. Most of these sightings were documented in 2005 and 2006 when increased observations occurred. To date, a total of 18 uniquely identifiable seals have been documented among these sightings. Because not all Hawaiian monk seal are tagged or well-identified by natural marks, these 18 represent a minimum number of individual seals that have used the area. Of the 18 identified seals, nine were known to have been born on Molokai: eight at Kalaupapa Peninsula, and one at a small pocket beach between Lā'au Point and Hale O Lono.

According to the NOAA NMFS, Lā'au Point is an especially good Hawaiian monk seal habitat because of its remoteness and limited access, sandy beach substrate, and proximity to foraging areas.

In a subsequent letter (dated June 21, 2007) to their comment letter on the Draft EIS, NOAA NMFS stated: "NMFS believes it would not be necessary to conduct a survey at the site to ascertain that Lā'au Point is important monk seal habitat, as that is already known."

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Lā'au Point project will be sensitive to natural systems and define areas for environmental protection. A State Land Use District Boundary Amendment is proposed to expand the existing

Conservation District, thereby increasing the amount of shoreline and Hawaiian monk seal habitat put into permanent protection. This request is reflective of the community's desire to preserve shoreline resources. The coastal area also falls within the County's Special Management Area which provides additional rules and regulations designed to protect shoreline resources.

In addition, the project proposes that lot lines should be set back at least 250 feet from the designated shoreline or high water mark. Residential lot boundary lines for Lā'au Point will be at least 50 feet behind the current Conservation District boundary. In addition, the makai lots along the shoreline will have an additional 50-foot building setback. These specified setbacks result in providing substantial building setbacks from the shoreline; in some areas, this is as much as 1,000 feet. These setbacks will prevent encroachment and provide a natural buffer zone within the Conservation District between the homes and shoreline.

~~Monk~~ Hawaiian monk seals have been documented on the sandy beaches around Lā'au Point. ~~Monk seals~~ and are known to visit deserted beaches, or beaches not heavily used by people. The project increases the potential for interactions between humans and the endangered ~~species~~ Hawaiian monk seal. In their February 5, 2007 letter commenting on the Draft EIS, NOAA NMFS notes that potential threats to Hawaiian monk seals as a result of the project include: 1) human-caused disturbance; 2) disturbance, physical harm, and potential disease transfer from dogs; and 3) hooking and entanglement associated with shore-based fishing. In their subsequent letter dated June 21, 2007 NOAA states that they believe there should be a monitoring program with regular surveys conducted before, during, and after development to determine whether or not Hawaiian monk seal use of the habitat changes as land and ocean uses change.

The Cultural Impact Assessment (see Section 4.2) calls for the need to provide education and enforce laws protecting Hawaiian monk seals. In addition, the Shoreline Access Management Plan (SAMP)(further discussed in Section 4.3 and provided as Appendix B) is a community-based and developed set of guidelines, rules, monitoring programs, and general principals for the protection and utilization of the cultural, biological, and social resources of the area, including Hawaiian monk seals.

The SAMP contains a plan and recommendations for the protection of Hawaiian monk seals developed in consultation with NOAA. Elements of the plan and recommendations were taken from NOAA's draft *Recovery Plan for the Hawaiian Monk Seal* (November 2006). NOAA. In addition, the SAMP provides for the establishment of management plans which include monitoring of potential impacts to resources, including Hawaiian monk seals.

The SAMP also provides rules to ensure non-disturbance of Hawaiian monk seal habitat and the promotion of Lā'au Point as an area for Hawaiian monk seals to frequent and "haul out." Rules have been developed on removal of gear, the use of certain types of gear, and responses to Hawaiian monk seal sightings. No domestic pets and animals (including hunting dogs) will be allowed in the managed area. The use of toxins and pesticides is specifically prohibited and equipment will be purchased for cordoning off areas where Hawaiian monk seals have come ashore.

To ensure that the project does not alter behavior of Hawaiian monk seals that visit the area, residents and visitors will be educated about possible interaction with these animals and the

appropriate human behavior for that interaction. Appropriate protocol if one encounters a Hawaiian monk seal on the beach is to notify National Marine Fisheries Service (NMFS), who will check if the animal is injured or entangled, then put tape around the site to keep people from approaching too closely. Due to the lack of available NMFS staff on Moloka'i, a Resource Manager will monitor the Lā'au shoreline area daily. The Resource Manager will:

- Post signs in regular intervals along the shoreline explaining the rules regarding Hawaiian monk seals.
- Cordon off areas, place signs around resting Hawaiian monk seals, and designate areas closed to fishing as a result of a Hawaiian monk seal sightings.
- Report Hawaiian monk seal sightings to NOAA and take whatever actions are required by NOAA to ensure the safety of the Hawaiian monk seal.
- Enforce all Hawaiian monk seal protection rules, regulations, and protocols.
- Report violations of federal or state laws to appropriate authorities and act as a witness in the prosecution of any person violating federal or state laws.
- Receive training as a Hawaiian monk seal protection specialist.
- Notify NOAA of entangled Hawaiian monk seals.
- Remove debris that may be harmful to Hawaiian monk seals from the shoreline area.
- Monitor the shoreline area for contaminants that may be harmful to Hawaiian monk seals.
- Work with NMFS to develop a volunteer seal monitoring program.

~~This information would will be included in the CC&Rs and other educational materials given to Lā'au Point buyers.~~ Adherence to the SAMP is required by the CC&Rs. In addition, everyone accessing the area must be educated on the law, rules, and protocols associated with Hawaiian monk seal protection. Additional information on the educational requirements of the SAMP is included in Section 4.2 (Trails and Access).

The SAMP also addresses other biological and endangered species protection. A long term monitoring program will be developed to adapt to changing circumstances and to measure the effectiveness of the mitigation measures.

~~The Lā'au Point project will be sensitive to natural systems and define areas for environmental protection. A State Land Use District Boundary Amendment is proposed to expand the existing Conservation District, thereby increasing the amount of shoreline and monk seal habitat put into permanent protection. This request is reflective of the community's desire to preserve shoreline resources. The coastal area also falls within the County's Special Management Area which provides additional rules and regulations designed to protect shoreline resources.~~

~~In addition, the project proposes that lot lines should be set back at least 250 feet from the designated shoreline or high water mark. Residential lot boundary lines for Lā'au Point will be at least 50 feet behind the current Conservation District boundary. In addition, boundaries for the makai lots along the shoreline will have covenants requiring an additional 50 foot building setback. These specified setbacks result in providing substantial building setbacks from the shoreline; in some areas, this is as much as 1,000 feet. These setbacks will prevent encroachment and provide a natural buffer zone within the Conservation District between the homes and shoreline.~~

The impact of the Lā'au Point project on birds is not expected to be significantly adverse. The expanded ~~shoreline setback zone~~ Conservation District will reduce impacts to protect water and shorebirds. Land birds and mammals may be displaced by the residential development. It is noted, however, that the vast majority of the parcel will be left in its natural condition. These species could readily relocate and re-populate adjacent open spaces.

As the shoreline and in-shore areas are available only for subsistence gathering, the Land Trust and the homeowners have a responsibility to protect land birds and mammals by firstly, educating visitors, and secondly, enforcing policies and procedures to be developed for subsistence gathering. The Lā'au Point landscaping will be restricted to appropriate native and Polynesian species that are drought-tolerant and suitable for coastal locations.

Regarding lighting impacts on animals, as addressed Section 2.3.6 (Covenants), the CC&Rs require that all exterior lighting be shielded. Although the subdivision roadways will be privately-owned, the street lighting standards will conform to County of Maui standards. Lā'au Point outdoor lights will include low-wattage, low-pressure sodium lamps that direct light downward, as recommended by the County's proposed Outdoor Lighting Standards, to curtail light pollution that interferes with astronomical observations and prevent turtles and seabirds from being disoriented during their migration. This recommendation is also promulgated by the US Fish & Wildlife Service.

Attachment

Revised Section 3.8 (Marine Environment)

3.8 MARINE ENVIRONMENT

Marine habitat characteristics at Lā'au Point are described as typical wave-exposed, low relief reef type with generally low coral cover. This area is exposed to high wave energy, moderate sand movement, and fairly low fishing pressure relative to other near shore areas in the main Hawaiian Islands.

Large-scale marine habitat features include shelf zone (84 percent), followed by reef flat (8 percent), fore reef (6 percent), and shoreline intertidal (2 percent). The sea bottom cover is dominated by turf algae (57 percent), followed by sand (22 percent), macroalgae (10 percent), and hard coral cover (6 percent).

Numbers of individual fish are higher north of Lā'au Point. Diversity, evenness, and species richness are higher north of the point as well. Fish biomass, however, are higher east of Lā'au Point.

Small schools of surgeonfishes (manini – *Acanthurus triostegus,* kala lolo – *Naso brevirostris,* na'ena'e – *A. olivaceus*), planktivores, triggerfishes, herbivores, and apex predators, primarily a single island jack (ulua – *Carangoides orthgrammus*) and two individuals of the introduced peacock grouper (roi – *Cephalopholis argus*) were observed around Lā'au Point.

Marine biological and water quality baseline surveys of the area found that fish characteristics at Lā'au Point are generally lower than average values reported from large-scale studies statewide. The amount of fish was more than four times lower at Lā'au Point compared to no-take Marine Life Conservation Districts (MLCDs) and 42 percent lower than open access areas across multiple habitat types statewide.

According to the State Department of Health Environmental Planning Office Total Maximum Daily Load (TMDL) Program, "Receiving waters for the proposed project are 'Class AA West Molokai open coastal waters,' and water quality in a portion of these receiving waters is impaired by excessive nutrients, turbidity, and suspended solids (Final 2004 List of Impaired Waters in Hawaii Prepared under Clean Water Act Section 303(d))."

The marine waters surrounding Lā'au Point experience episodic "red water" events following periods of heavy rainfall. Turbidity, suspended solids and nutrient concentrations may be significantly elevated during these events. Sediment delivery to coastal waters is exacerbated by soil loosened by natural causes, including the effects of deer and livestock transiting and foraging in upland areas. The return to baseline conditions after a storm event is aided by turbulent mixing from waves and advection by currents along this exposed coast. The coastal marine communities are adapted to this periodic influx of runoff as well as to occasional high surf and the resulting scour from moving sand and rocks. Coral cover in particular is low and the low relief of the substratum provides limited fish habitat.

Appendix ~~D~~ G of this EIS contains the marine biological and water quality baseline surveys prepared by The Environmental Company, Inc. (TEC). Section 4.2 (Cultural Resources) of this EIS provides discussion of subsistence gathering along the shoreline and nearshore waters. According to their letter dated February 15, 2007, the State Department of Land and Natural

Resources, Division of Aquatic Resources stated: "the methodology employed by their subcontractor TEC is consistent with acceptable practices, and very likely akin to what we would have done ourselves if given the task."

POTENTIAL IMPACTS AND MITIGATION MEASURES

The marine water quality report concludes that it is likely that sediment discharge from runoff to the ocean will be significantly less with the Lā'au Point development compared with existing conditions. This conclusion is based on several measures planned for Lā'au Point that will protect nearshore waters from increased degradation of water quality, such as drainage control systems, CC&Rs to regulate the use of fertilizers and pesticides, re-vegetation as a means of permanent erosion control measures throughout the developed areas, and fencing to keep deer and other animals from disturbing the soil near the community (see Section 2.3.6). Therefore, it is also likely that the long-term water quality in adjacent coastal waters may be improved by these measures.

Lā'au Point will be in compliance with all laws and regulations regarding runoff and non-point source pollution, ensuring that storm water runoff and siltation will not adversely affect the downstream marine environment and near shore and offshore water quality. The drainage plan (see Section 4.9.1) states that any increase in runoff from each developed lot will be retained onsite in surface or subsurface facilities. The anticipated increase in surface runoff from the paved roadway areas will be directed into surface or subsurface detention and/or desilting facilities before being released into the nearby drainage ways.

Potential short-term impacts of construction on marine waters will be mitigated by implementation of State and County approved Best Management Practices to control drainage and mitigate erosion from grading for the duration of the construction period. Subsequent water monitoring activities will be conducted by a Council representing Homeowners and the Moloka'i Land Trust. These organizations will have management responsibility and enforcement authority over the Pu'u Hakina and Kamāka'ipō (Lā'au area) shoreline area and fishing zone. The Land Trust will conduct the monitoring on a regular basis. Should it be determined that there is some problem with water quality, testing will be undertaken and investigation made as to the cause. The action taken will depend on the results of the investigation and the attributed cause. Through the CC&Rs or through the courts, the problem will be rectified of the cause is a violation of the law of the CC&Rs.

The Cultural Impact Assessment (see Section 4.2) indicated that Moloka'i subsistence fishermen felt the new Lā'au Point residents would probably not directly damage the fishing grounds because they would not know how to fish. The fishermen feel the real impact on the fishing resources comes from Honolulu boaters fishing all along the west end and south shore (for commercial purposes), and fishing out the grounds of lobster and fish. Therefore, to preserve inshore fishing/subsistence resources, a subsistence fishing management zone in the coastal waters along all of the Ranch's coastline property will be created, as previously discussed in Section 2.3.7 and as recommended in the *Community-Based Master Land Use Plan for Molokai Ranch* (Appendix A). In addition, a no commercial-take zone a quarter-mile from the shoreline (north and west shore) and from the beach to the reef edge/breaker line (south shore) will be established. Page 59 of Appendix A shows the proposed designated subsistence fishing zones. The Cultural Impact Assessment suggests using the pilot project at Mo'omomi and the rights of

the Kalapana people to fish in the Volcanoes National Park as community-based models. Efforts should also be coordinated with the communities of Miloli'i on Hawai'i, and Hā'ena on Kaua'i who are also establishing community-based fishing zones.

Preservation of offshore and shoreline resources for subsistence gathering is of great importance to the people of Moloka'i. Therefore, perpetual right to subsistence gathering will be noted on the titles of the areas to be preserved. Protections to subsistence gathering will be specified in the CC&Rs for Lā'au Point. The CC&Rs will establish policies that permit subsistence gathering and cultural practices, as well as permit the hiring of resource managers to maintain the subsistence lifestyle. Further discussion on subsistence fishing and gathering is presented in Section 4.2 on cultural impacts and mitigation.

Based on the community-proposed access plan (Appendix A, p. 105), protection of the offshore coastal resources at Lā'au Point would best be achieved by controlling access to the area so that the community can retain the area for subsistence gathering. Therefore, a ~~management plan will be~~ Shoreline Access Management Plan (SAMP)(further discussed in Section 4.3 and provided as Appendix B) has been developed and adopted to regulate (through legal and enforceable means) the use of the land and ocean resources to ensure the continuance of the resources for future generations.

The ~~proposed shoreline access management plan for Lā'au Point~~ SAMP consolidates public shoreline access to two locations at the proposed beach parks. The ~~shoreline access management plan would adopt~~ SAMP adopts protocol, rules, and permitted activities for persons engaging in subsistence shoreline fishing and gathering in ~~these~~ the expanded Conservation District shoreline ~~areas~~ area. ~~Mandatory~~ Under the SAMP, mandatory educational classes in traditional subsistence gathering and access responsibilities, safety and protocol ~~would also be~~ are required. Due to hazardous shoreline conditions toward Lā'au Point (USA Lighthouse parcel), public access to these areas would be discouraged. Access would be restricted to experienced subsistence fishermen only. Further discussion of the impacts upon marine and coastal resources as affected by shoreline access issues is presented in Section 4.3.

Attachment

Revised Section 4.3 (Trails and Access)

4.3 TRAILS AND ACCESS

An essential aspect of Native Hawaiian cultural and subsistence practices are access routes to reach subsistence and cultural resources. Maps produced by M.D. Monsarrat for the Hawaiian Government Survey in 1886 and 1897 clearly show a trail going from Kapālauo'a near Mo'omomi to 'Īlio Point and from 'Īlio Point along the west coast to Lā'au Point.

When the Cooke family owned Molokai Ranch until 1988, access to the west and south coastlines adjacent to Lā'au Point was limited to the Cooke family and the Ranch stockholders. Ranch employees could go hunting and fishing on the whole West End under a pass system.

Currently, a subsistence committee comprising of senior Molokai Ranch employees, most of who are from the Maunaloa community, manages permitted access by Ranch employees. Guided access is also provided to hotel guests and guests of out-sourced commercial operators who offer a range of approved recreational activities on the Ranch. Employees and their families usually camp out on weekends. However, employees who are off on weekdays can go during the week, provided access at that time is approved by the employees' committee. They are limited to two or three vehicles and ten adults. ATV's and motorcycles are not allowed. Families can go only once a month to give everyone a chance. Gathering is allowed for parties, and there is a three-gallon limit on 'opihi.

The Lā'au Point coastline offers a total of approximately 5.2 miles of shoreline from Hale O Lono Harbor to Kaupoa Beach. Stretches of white sand beach are broken by large, rocky outcroppings. The lava rock bluffs are generally steep and difficult to negotiate. The opening of public access to Hale O Lono Harbor increased access to the south shore out to Lā'au Point – both by foot and by boat. While it is still a long walk from Hale O Lono along the south coastline to Lā'au Point, it is closer than what it had been. Hale O Lono also provides a closer point for boats from Moloka'i to launch and get to the fishing grounds and 'opihi covered rocks of the south coastline.

The opening of Kaluako'i and Pāpōhaku also afforded closer access points to the western coast south to Lā'au Point – both by foot and by boat. Fishermen could begin at Kaunalu Bay or "Dixie" to walk south to Lā'au. Boaters can launch from Kainalu Bay and an area off Kaluako'i Resort.

Although the sandy beaches along Lā'au Point are excellent for picnicking and beachcombing, the waters off the south and west shores are often unsuitable for recreational swimming due to the exposure to swift ocean currents. There are a few surf spots on both the south and west shores, identified in Appendix 8 of the *Community-Based Master Land Use Plan for Molokai Ranch* (provided in Appendix A of this EIS).

POTENTIAL IMPACTS AND MITIGATION MEASURES

MPL recognizes and reaffirms all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes by descendants of Native Hawaiians. Project plans propose that Native Hawaiians and the general public will have Lā'au Point shoreline access from two points – one on the south shore at the southeast entry and one on the west shore at the northwest entry.

Vehicular access to the shoreline is restricted to the two public parks. Access beyond the two parks shall be by foot only. Vehicular access beyond the two parks is prohibited, except for emergency access. Off-road vehicles, ATVs, motorcycles and any other motorized vehicle are also specifically prohibited, except as needed by the Resource Managers.

In the process of developing the *Community-Based Master Land Use Plan for Molokai Ranch*, subsistence fishermen and gatherers were very concerned of marine resource depletion that could be caused by opening up the south and west shores to increase public access to every 1,500 feet, as the Maui County Code (MCC) Section ~~18.19.210~~ 18.16.210 provides. The County of Maui requires rights-of-way to be created where land fronting the shoreline is subdivided. The County of Maui recommends the placement of 15-foot wide shoreline access rights-of-way every 1,500 feet, where possible. This standard would require 16 public access rights-of-way for the project. Using the standard application of the County requirements as described above would result in many access rights-of-way in locations where access to the shoreline would be difficult and dangerous, thereby making the beach access locations undesirable for most users. This access method would also not be conducive to protecting the coastal resources of the Lā'au Point area.

Subsistence fishermen regretted that the opening of nearby Hale O Lono Harbor to general public access had severely decreased the marine resources there and they did not want to see the same happen to Lā'au Point. Opening up access points every 1,500 feet would have severe impact on the subsistence resources along the west and south coasts adjacent to Lā'au Point. The subsistence fishermen and gatherers felt that the provision of two access points and parking at either end of the project site would afford sufficient access, and that the need to walk in would protect the area.

As provided for in County regulations, the Director of Public Works, "may require that rights-of-way be consolidated to provide sufficient area for vehicular access, parking, development of shoreline or other recreational facilities, or other public purposes; or may modify the standard rights-of-way to take into consideration terrain features, length of frontage, uses of parcel to be subdivided and other pertinent features; provided, however, that the total area to be dedicated shall not differ substantially from that which would be required by the provision of standard rights-of-way, unless additional areas of improvement are mutually agreed to by the subdivider and Director" (MCC Sec. 18.16.210).

~~Some community members have expressed concerns that subdivision lot owners and their friends will have preferential access to the coast. Their concern is that there will be nothing to stop the owners who live along the shoreline and their guests from walking down to the beach and even using a vehicle. To some community members, affording only two access points for the general public while owners in the subdivision will have access from their homes, seems unequal. Informants also expressed concern that landowners might call police if they see the general public walking on the beach, as this has happened at Pāpōhaku.~~

Increased public access to the shoreline and other cultural and coastal resources has the potential to damage the natural environment and diminish the uniqueness and cultural resources of the coast. As a result of the Master Plan process, the community decided that protection of the off-shore coastal resources at Lā'au Point and the onshore cultural resources and subsistence practices would best be achieved by controlling access to the area so that the community can retain the area for subsistence gathering (see Appendix A, p. 105). Therefore, to protect the

natural resources of the shoreline, manage subsistence activities, and protect cultural resources a ~~shoreline access management plan~~ Shoreline Access Management Plan (SAMP) ~~for the area will be implemented which addresses maintenance and resource management for the area~~ has been developed with, and adopted by, the Moloka'i Land Trust to regulate the use of the land and cultural and ocean resources to ensure the continuance of the resources for future generations. The SAMP includes protocols, rules, and permitted activities for persons engaging in cultural activities and subsistence shoreline fishing and gathering in the shoreline area. It also contains provisions to protect the federally-listed endangered species in the area.

Appendix B contains the SAMP. In summary, the SAMP is a community-based and developed set of guidelines, rules, monitoring programs and general principals for the protection and utilization of the cultural, biological and social resources of Lā'au Point. It will ensure protection of the area's marine resources. The SAMP has been accepted by the Land Trust as an initial governing document based on current knowledge of the cultural, subsistence and biological resources of the site. From a social standpoint it is intended to foster a harmonious and respectful relationship between current users and subsistence practitioners of the area, Lā'au Point homeowners, and new local users of the area. Adherence to the SAMP is required by the CC&Rs.

Specific issues addressed by the SAMP include:

- **Hawaiian Monk Seal Protection** – The SAMP contains a plan and recommendations developed in consulation with NOAA. Elements of the plan and recommendations were taken directly from NOAA's draft *Recovery Plan for the Hawaiian Monk Seal* (November 2006). The SAMP reiterates the rules required to ensure non-disturbance of Hawaiian monk seal habitat and the promotion of La'au Point as an area for Hawaiian monk seals to frequent and "haul out." A Resource Manager for the area will undertake the removal of debris and materials that may be harmful to Hawaiian monk seals. Strict rules have been developed on removal of gear, the use of certain types of gear, and responses to Hawaiian monk seal sightings. No domestic pets and animals (including hunting dogs) will be allowed in the managed area. The use of toxins and pesticides is specifically prohibited and equipment will be purchased for cordoning off areas where Hawaiian monk seals have come ashore. These measures are designed to ensure the health and safety of the Hawaiian monk seals. Additional provisions governing monitoring programs and education and outreach are also included.
- **Biological/Endangered Species Protection** – Similar to the Hawaiian monk seal requirements, rules for access and designation of closed areas are set forth in the SAMP. The Resource Manager will be responsible for monitoring the health of any significant organisms, designating closed areas, and enforcing regulations designed to protect the resource including fires and limitations on access to the area. A long term monitoring program will also be developed to adapt to changing circumstances and to measure the effectiveness of the program.
- **Subsistence Gathering** – A large part of the SAMP activity and requirements is dedicated to education to ensure that the area remains open for subsistence use and that new residents will honor the rights of local practitioners. Limitations on over-night camping and the prohibition of vehicles onto the area will limit the taking of resources to what can be carried out. Protocols for monitoring resources are included as well as the ability to designate seasonal and long term restrictions.

- **Cultural Resource Management** – The Preservation Plan attached to the EIS designates areas for protection and preservation of cultural resources. These measures are to be made a part of the SAMP and implemented by the Resource Manager. A large part of the SAMP's protocols in this area also concern educational requirements. Concerns over continued access and desecration are mitigated by rules concerning who may access sites and when (by permission on notice), oversight (by a Resource Manager), the development of a "Kahu council" and the designation of access areas and non-access areas. Movement or harm to cultural resources will be strictly prohibited with enforcement by the council. Commercial activities (tours) are specifically prohibited. The educational program includes awareness of the rights and sacred nature of the assets and the area.
- **Marine Resource Management** – Limitations on access (non-vehicular) and regular monitoring of the health of the resource are indicated in the SAMP. Water quality monitoring, as well as the health of the fishery and stock will be assessed regularly. A plan and program will be developed from this program by the Resource Manager to ensure the resource is protected.
- **Access and Over-utilization** – Community concerns over excessive utilization of an area that has been closed to the public are addressed by limiting access to the to the area to footpaths from the two parks at the ends of the project area, prohibiting access from the subdivision roadways and specifying closure periods for the Parks themselves. In this manner increased traffic into the area will be minimized. Enforcement is through the Resource Manager.
- **Monitoring and Resource Management** – The resources are to be monitored, as set out above, to ensure that the SAMP is effective and actually protecting and preserving the various resources. On site Resource Managers will monitor the situation daily and adjustments made to the rules and plan to ensure the goals of the SAMP are met. Enforcement of the rules by the Resource Managers will further serve to ensure the mitigation of any impacts on the area resources.
- **Education (Cultural and Environmental of Homeowners)** – All homeowners must undertake an education program. This program will be designed to create awareness and will mitigate cultural and social impacts as well as instruct and inform homeowners and users of the rules and requirements of the SAMP and the cultural and biological resources being protected. The educational program sets forth topic areas on Hawaiian culture and Moloka'i social and cultural traditions to mitigate concerns that homeowners will not be sensitive to, or understand, the cultural environment they are entering. The program will explain rules on the handling of cultural and archaeological sites, their significance and use in the Hawaiian culture to prevent destruction and desecration and to provide recognition of the rights of families and practitioners to access the sites. Education on the social fabric of Moloka'i is designed to inform homeowners of the subsistence lifestyle and traditional use of the area for hunting, fishing, and gathering and its importance to Moloka'i's way of life. Training on the rules regarding Hawaiian monk seals and notice of the opportunity to volunteer in monitoring programs will be given to ensure adherence to the Hawaiian monk seal requirements. Similar instruction is required for biological assets to ensure their preservation. Additional training is to be provided to educate the homeowners on the rules and management policies regarding enforcement to ensure adherence to the SAMP guidelines and rules.

SAMP education will be conducted in a variety of forms - written, audio-visual and personal hands-on on-site orientations - and not be limited to any one form. The educational requirement will be mandatory. From a practical standpoint, it is recognized that short-term guests may not have the time to undertake the program. However, it can be assumed that the homeowners who have undertaken the program will inform and educate their guests.

Admittedly, educational classes for landowners, vacationing or permanent, are a new approach to a decades old problem of disconnect between new landowners from outside Hawai'i and the local and Native Hawaiian communities.

We can only assume that educating new residents would have a better effect than if new residents were not educated at all. It is very likely that new buyers will be willing to attend classes to learn how to protect the environmental resources and Moloka'i lifestyle and culture. This is already occurring, whereby relatively newer residents are participating in environmental advocacy and protection efforts.

Currently, MPL allows limited beach access for MPL employees and Maunaloa residents to the area projected for residential development. It is mandatory that employees and their guests view a conservation video in order to qualify for a beach pass. This system has worked well and received the cooperation of those who have used beach passes.

A timeline for completion of the SAMP can only be estimated. The SAMP requires the development of various mitigation and protection programs as well as the development of an educational program. Over the course of several months beginning in the fall of 2007 work will begin on creating the working programs required by the SAMP.

As ~~previously~~ discussed in Section 2.3.5 (Project Description), the Conservation District shoreline areas will be jointly controlled and managed by the Land Trust and homeowners' association (see Figure ~~11~~ 13). ~~A shoreline access management plan~~ The SAMP will be ~~included in~~ incorporated by reference into the CC&Rs, and homeowner orientation and education materials. Resource Managers hired by the Land Trust or security hired jointly with the homeowners' association will enforce the agreed-upon ~~shoreline access management plan~~ SAMP.

Some community members have expressed concerns that subdivision lot owners and their friends will have preferential access to the coast. Their concern is that there will be nothing to stop the owners who live along the shoreline and their guests from walking down to the beach and even using a vehicle. To some community members, affording only two access points for the general public while owners in the subdivision will have access from their homes, seems unequal. Informants also expressed concern that landowners might call police if they see the general public walking on the beach, as this has happened at Pāpōhaku. To mitigate these concerns, all Lā'au Point homeowners will be required to undergo an education program about the restrictions on access, its importance, and the requirements of the SAMP. Adherence to the SAMP is mandatory. In addition, the educational process, the lack of infrastructure and paths through to the shoreline, and the density of the foliage and rough terrain as a practical and natural barrier, will support adherence to the SAMP and serve to limit widespread access to the shoreline.

Vehicular access in the Conservation District area will be prohibited~~, unless identified for emergencies or kupuna use~~. The SAMP, contains several clarifications of this policy: 1) vehicular access will be provided for emergency services; and 2) kupuna who are unable to access the area on their own, as well as the infirmed wishing to access the site for cultural purposes, will be allowed assisted access in a form, including vehicular, at the discretion of the SAMP governing Council or its designee. Land alteration such as clearing and grading for vehicle trails will be prohibited and strictly enforced.

~~Based on the community-proposed access plan (see Appendix A, p. 105), protection of the off-shore coastal resources at Lā'au Point would best be achieved by controlling access to the area so that the community can retain the area for subsistence gathering. Therefore, a shoreline access management plan will be developed and adopted to regulate (through legal and enforceable means) the use of the land and ocean resources to ensure the continuance of the resources for future generations.~~

~~The shoreline access management plan would adopt protocol, rules, and permitted activities for persons engaging in subsistence shoreline fishing and gathering in these Conservation District shoreline areas. Mandatory educational classes in traditional subsistence gathering and access responsibilities, safety and protocol would also be required for every person wishing to gain access. A caretaker or Land Trust steward will supervise access to ensure overfishing does not take place, and that those who access the area have taken the appropriate education classes.~~

Participants in community meetings felt it was important to provide emergency access through the subdivision to the shoreline for emergencies. They were also concerned that access should be afforded for kupuna and persons with special needs. Some pointed out that the areas closest to the access points will be heavily impacted, while spreading out the access points might spread out the impact. It was also noted that the road down to Hale O Lono Harbor would need to be maintained in order to keep access to the area open.

Due to hazardous shoreline conditions toward Lā'au Point (USA Lighthouse parcel), public access to these areas would be discouraged. Access would be restricted to experienced subsistence fishermen only. The lighthouse property is owned by the US Government and is under the jurisdiction of the US Coast Guard. The shoreline and ocean area around this parcel can be treacherous and is not advisable for inexperienced users. MPL recognizes that it cannot exercise control over or prevent access along the shoreline below the high water mark. The area controlled by the Land Trust and the Homeowner's Association can be subject to conditions and rules of access. As the area near the lighthouse is hazardous, the conditions themselves will discourage inexperienced users. This could be supplemented by warning signs and educational materials.

Emergency access through the subdivision would be allowed. Emergency access for the project is further discussed in Section 4.10.3 of this EIS.

Attachment

Revised Section 4.9.1 (Drainage)

4.9.1 Drainage

There are several natural drainageways that transect the Lā'au Point project site in the mauka to makai directions, such as Kamāka'ipō Gulch and Hakina Gulch. There are numerous intermittent streams, which generally only have flows during or immediately following heavy rainfalls. There are no perennial streams on the project site.

Current runoff in these drainageways for a 100-year 24-hour storm range between 79 and 2,194 cubic feet per second (cfs). The current peak runoff from the project site for a 50-year 1-hour duration storm is 512 cfs.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Lā'au Point will be in compliance with all laws and regulations regarding runoff and non-point source pollution, ensuring that storm water runoff and siltation will not adversely affect the downstream Conservation District land's marine environment and nearshore and offshore water quality.

The present flow patterns in the existing drainageways will be maintained. Culverts will be sized to convey these flows across the roadways that generally run perpendicular to these natural drainageways. To minimize disturbance of existing conditions, existing drainageways that transect the lots in a mauka-makai direction, may be undergrounded and subsurface or surface detention facilities installed at the downstream end of such drainageways. In addition, the CC&Rs will state that the existing flow patterns through/across lots shall be retained and maintained by the lot owner.

~~The Lā'au Point project is not expected to have a significant adverse effect on the existing downstream properties. Although peak post-development runoff from the developed lots and roadways is projected at 623 cfs (111 cfs more than current conditions), mitigation measures will minimize disruption to the natural drainageways and preserve adequate drainage corridors. Surface and/or subsurface retention facilities will be sized to retain the difference in peak runoff in each lot. The runoff volume each lot must retain is approximately 282 cubic feet per acre of land.~~

Clearing, grubbing, and grading will be confined to road right-of-ways and other areas needed for infrastructure installation. All disturbed areas will be planted with groundcover upon completion of grading.

Roadways constructed across existing drainageways will be provided with culverts to convey 100-year, 24-hour offsite runoff safely across them. Storm drainage systems will also be installed along the roadway shoulders to convey pavement runoff into the closest drainageways. Subsurface storage and filtration systems (de-silting basins) will be installed at the end of each roadway drainage system to intercept waterborne silt and other debris before it is discharged into drainageways and coastal waters.

Perforated risers will be added to the inlets of these culverts as shown in Exhibit 7 of Appendix R. In addition, subject to the availability of boulders from the roadway excavation, boulder

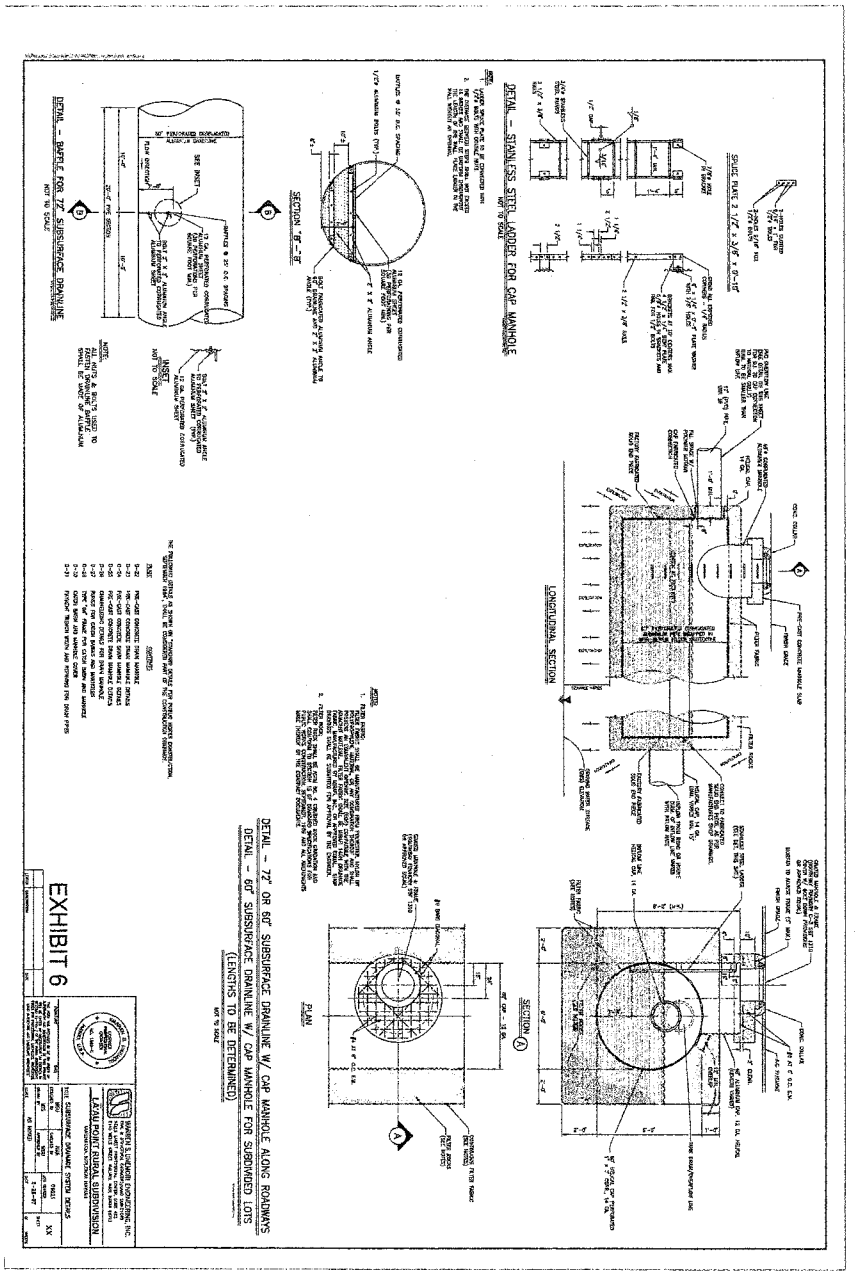
berms will be constructed upstream of some of the inlets to reduce the velocity in the drainway and also to induce gravitational settling of water borne silt and debris before it enters the culverts. Energy dissipators will be constructed at the outlets of these drainage culverts to keep the velocities equal to or less than pre-development velocities, in accordance with the provisions of Article 15-04-06 subparagraph (8) of Title NC-15, A Rules for the Design of Storm Drainage Facilities in the County of Maui.

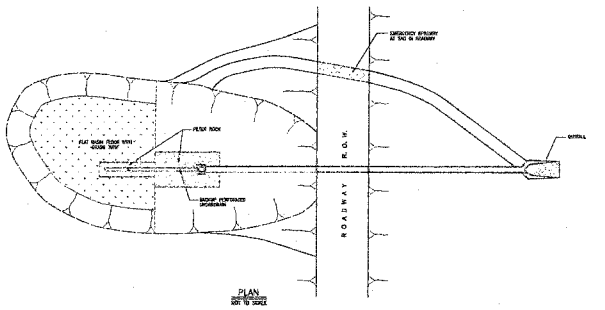
~~Where necessary, grass lined diversion ditches will be installed along mauka boundaries of the project site to keep offsite runoff from flowing across the lots.~~ All lots will also be required to retain runoff of their lot in surface or subsurface retention basins onsite. This is to ensure that additional runoff generated by the project is kept within the project limits in accordance with Maui County Storm Drainage Standards. The contractor will also be required to comply with State and County approved Best Management Practices for the duration of the construction period.

The current runoff from the proposed lots is 512 cubic feet per second (c.f.s.) for a 50-year 1-hour storm. This is expected to increase by 111 c.f.s. to 623 c.f.s. The total volume needed to store this increase is 152,390 ft³. Since the increase in runoff due to the roadway pavement is estimated at (53/111) = 48%, approximately 52% is attributable to the imperviousness in each lot. The required storage in the roadway and lots are (0.48 x 152,390) = 73,147 ft³ and 79,243 ft³ respectively. It is estimated that approximately 20 feet of 5 feet diameter perforated pipe buried in each lot or a retention basin of equal capacity will be required to handle the additional runoff generated during a 50-year 1-hour storm event. See Exhibit 6 in Appendix R for details of subsurface systems on road and in lots.

As previously discussed in Section 3.8 (Marine Environment), marine waters surrounding Lā'au Point will experience episodic "red water" events following periods of heavy rainfall. Sediment delivery to coastal waters is exacerbated by soil loosened by natural causes, including the effects of deer and livestock transiting and foraging in upland areas. Erosion control practices are planned for Lā'au Point that will protect existing natural drainageways and nearshore water quality, such as drainage control systems, re-vegetation as a means of permanent erosion control measures throughout the developed areas, and fencing to keep deer and other animals from disturbing the soil near the community.

The Land Trust will conduct the monitoring on a regular basis. Should it be determined that there is some problem with water quality, testing will be undertaken and investigation made as to the cause. The action taken will depend on the results of the investigation and the attributed cause. Through the CC&Rs or through the courts, the problem will be rectified if the cause is a violation of the law of the CC&Rs.





DETAIL – INFILTRATION BASIN

EXHIBIT 7

WARREN S. UNEMORI ENGINEERING, INC.

LA'AU POINT RURAL SUBDIVISION

DWG: BASIN DETAIL FOR DESILTING BASIN

Attachment

Revised Section 4.9.2 (Water)

4.9.2 Water

Water as a Community Concern – More so than most other places in the state, Moloka'i residents are keenly attuned to water issues. Significant segments of the population have long taken very active roles in issues relating to water planning, allocation, development and use. Moloka'i is where the State Commission on Water Resource Management, in 1992, elected to inaugurate and test the concept of a community-based water working group for addressing local water issues. Abundant water resources are located on the north and east sides of the island of Moloka'i, but very limited quantities of fresh water are available on the west, central, and south sides of the island where most of the current population resides, nearly all of the planned developments are to occur, and most of the agricultural lands are located. The relatively sparse population of the island and low level of economic activity add to the infrastructure challenges associated with the accessibility of water resources. Water, therefore, is, and will continue to be, of significant concern on Moloka'i.

Water Systems – The major water systems on Moloka'i include: Department of Hawaiian Homelands (DHHL), Maui County Department of Water Supply (DWS), Moloka'i Irrigation System (MIS), and private systems.

DHHL operates two wells (0801-01 and 0801-02) in Kualapu'u with permitted withdrawals of 367,000 gallons per day (gpd). In addition, it and has a groundwater reservation of ~~2,900,000~~ 2,905,000 gpd from the Kualapu'u Aquifer System.

Maui County DWS has one well (0801-03) in close proximity to the DHHL wells, and has a permit to withdraw ~~500,000~~ 516,000 gpd. Other County wells are in Kaunakakai and Ualapu'e.

The MIS was planned, designed, and constructed under a special Act of Congress (Reclamation Act of 1954) to develop surface water and high-level groundwater (Wells 0855-01, -02, and -03) in Waikolu Valley in northeastern Moloka'i to irrigate farmlands in central and western parts of the island. The MIS originally served large-scale pineapple operations, but was converted to serve diversified agriculture after the pineapple operations closed in the late 1970s. The system also serves the native Hawaiian homesteads in Ho'olehua, and pursuant to HRS Section 168-4, Hawaiian homesteads have a prior right to two-thirds of the water currently developed by the MIS. The MIS transports 1,500,000 gpd via a 10-mile transmission link to an open reservoir at Kualapu'u, where it is stored prior to entering a distribution network extending from Ho'olehua to Mahana.

When originally constructed, the MIS was administered by the State Board of Land and Natural Resources (BLNR). In 1975, the BLNR entered into an agreement (the Agreement) with Kaluako'i Corporation (Kaluako'i), renting "space" in the MIS for Kaluako'i to transport water from Well 17 to Mahana. The water is then treated to potable standards and used to supply potable water to Maunaloa town, the Pāpōhaku and Kaluako'i subdivisions, the Kaluako'i condominiums, and for other residential purposes as well as to meet the potable water needs of the resort areas on the West End. Under the terms of the Agreement, Kaluako'i would pump water from Well 17 into the MIS system and withdraw the water at Mahana. To account for potential system losses along the way, Kaluako'i was allowed to withdraw a lesser amount than was put in from Well 17. Additionally, Kaluako'i paid lease rent to the MIS. The Agreement was for the use of "excess capacity" in the system and provided that if there was no longer sufficient capacity in the system then the use would have to be relinquished on reasonable notice.

The 1975 Agreement was extended by the BLNR in 1985. In 1988, Kaluako'i assigned its interest in the Agreement to Kukui (Moloka'i), Inc. (KMI), which assignment was consented to by the BLNR. As a result of the Agreement, no other infrastructure to transport Well 17 water to the West end of Moloka'i was put into place.

Effective July 1, 1989, administration and management of the MIS was transferred from the BLNR to the State Department of Agriculture (DOA). In December 1989, the Agreement was amended to reflect the statutory transfer to the DOA.

Subsequently, the Agreement was extended twice through December 31, 2005. In late 2001, KMI assigned the Agreement to Kaluako'i Water, LLC (KWLLC), a Hawai'i limited liability company wholly owned by Molokai Properties Limited. The DOA acknowledged the assignment in early 2002.

Prior to and following the Agreement termination date of December 31, 2005, KWLLC and the DOA have been engaged in negotiations for the continued use of the MIS to transport Well 17 water to Mahana, and the DOA has conducted community meetings on the matter. By September 2007, a further extension to the Agreement was in the final stages of being completed following community input on aspects of the Agreement. The Agreement had been open for public input on Moloka'i before the MIS Advisory Board prior to its execution by the parties.

The extension agreement had not been executed when, on September 12, 2007, the DOA, through its Deputy Attorney General, officially determined that any agreement for the continued use of the MIS by KWLLC would be subject to the preparation of an environmental disclosure document pursuant to HRS Chapter 343. As of this writing, KWLLC continues to utilize the MIS to transport water; however, the DOA's Deputy Attorney General indicated in writing that the practice should cease pending preparation of the environmental disclosure document. Currently, there is no alternative means of transporting water from Well 17 to end users in Kaluako'i. Several alternatives are possible, each of which requires acquisition of new easements or modification of existing easements as well as engineering and cost studies. These items have to be addressed before MPL can rationally identify the practicable alternatives.

MPL operates ~~two private~~ three water systems that serve West Moloka'i~~: the Mountain System and the Kaluako'i System~~, two of which are subject to regulation by the Public Utilities Commission – Molokai Public Utilities, Inc., and Waiola O Moloka'i, Inc. All three systems, the third being Molokai Ranch Mountain System, are all subject to regulation by the State's Water Commission.

The Molokai Ranch Mountain System is the initial ranch water system. It is over 100 years old and relies totally on surface water delivered by gravity, which makes it cheaper to deliver to customers. The Ranch system moves surface water approximately 20 miles from the central mountains of Moloka'i to Pu'u Nana. The system relies on surface water diverted from the upper Kawela and Kamakou watersheds, both of which are separate from and distantly removed from streams serving the Hālawa and Waialua taro activities. From Pu'u Nana, the water is either treated to potable for Maunaloa and the Industrial Park or used in the Molokai Ranch irrigation system. In addition, the system provides water for landscaping at Maunaloa Village, the Molokai Lodge, Kaupoa Camp, and Molokai Ranch's livestock.

As with all surface systems, the mountain system's yield is highly weather-dependent. In winter storm months, flows of ~~1,300,000~~ 1,200,000 gpd can be achieved, while in summer drought

months, low yields of 65,000 gpd have occurred. The average yield of this system is 500,000 gpd. The system has a storage capacity of 39,000,000 gallons, which helps to compensate for the seasonal fluctuation in source.

The Kaluako'i System's source is Well 17 in Kualapu'u, which has a water use allocation of 1,018,000 gpd. Water from Well 17 is transported via rental space in the Moloka'i Irrigation System (MIS) to the Mahana pump station. The Kaluako'i System does not use MIS water. It puts in 1,111,111 gallons of water for every 1,000,000 gallons it takes out at its Mahana pump station. The amount of water pumped into the MIS from Well 17 and the amount that is withdrawn at Mahana are metered; the meters at both ends are monitored by the DOA. Over the course of a year, this additional input amounts to about 30,000,000 gallons.

From Mahana, water is then pumped to a 7,000,000-gallon reservoir at Pu'u Nana for treatment. The treated water is then piped to a 3,000,000-gallon reservoir in Maunaloa and gravity-fed to Kaluako'i. The distribution system terminates approximately 9,000 feet north of the Lā'au Point project site. With the Kaluako'i Hotel closed, current use of the Kaluako'i system is approximately 800,000 gpd.

Kaluako'i's use of the MIS to transport water from Well 17 to Mahana dates back to 1975. In September 2007, the DOA decided that continued use of the MIS to transport Well 17 water would be subject to the preparation of an environmental disclosure document pursuant to HRS Chapter 343 (See discussion above). Currently, there is no alternative means of transporting water from the source (Well 17) to end users in Kaluako'i. Upon completion of the environmental disclosure process, either there will be an agreement for the continued use of the MIS to transport Well 17 water or an alternative method of water transport will have to be established. Several alternatives are possible, each of which requires acquisition of new easements or modification of existing easements as well as engineering and cost studies. These items have to be addressed before MPL can rationally identify the practicable alternatives. As of October 2007, this issue remains unresolved.

Below is a table of the various existing water use permits held by MPL or its subsidiaries:

Table 6 Water Use Permits

WUP NO.	APPROVED	APPLICANT	WELL NO.	WELL NAME	WUP (mgd)	USE
617	12/19/2001	Kaluakoi Land, LLC	0901-01	Well #17	1.018	Moloka'i Public Utilities, Inc., Well Municipal Use
604	03/14/1995	Molokai Ranch Ltd.	0706-03	Palaau Salt	0.001	Aquaculture, Salt Water
607	11/17/1993	Molokai Ranch, Ltd.	0706-02	South Hoolehua	0.864	Aquaculture, Brackish Water

The Lā'au Point site is currently undeveloped and is not yet serviced by any of the previously-mentioned water systems.

Moloka'i Water Working Group – The Moloka'i Water Working Group was originally appointed in ~~1982~~ 1992 to: 1) recommend to the CWRM a plan for water development on Moloka'i that assists the County and community in developing its Water Use and Development Plan; and 2) test a community "working group" model that could be used in other communities faced with tough water issues. The Working Group was asked to enter into good faith deliberations aimed at producing the highest consensus possible on demand forecasts, bulk water allocations, recommendations to manage both supply and demand, and the best plans on balancing future water uses.

In 1993, the Working Group presented a written report. A second Working Group revisited and updated the 1993 report and issued its final report in 1996. Findings of these reports include the following estimates of existing uses, future demands, and supply:

- 1996 groundwater permitted usage is 8,590,000 gpd.
- 1996 surface water reported usage is 2,960,000 gpd.
- DHHL has a groundwater reservation of 2,905,000 gpd from the Kualapu'u aquifer system.
- 1993 projected potable water use for 2010 is estimated at 11,550,000 gpd.
- 1993 projected non-potable water use for 2010 to "build out" is estimated at 42,900,000 gpd.
- Current use (in 1996) plus 1993 projections of water use exceed supply.

From these findings, the Moloka'i Water Working Group's 1996 report set forth a number of general and specific recommendations to water resources and each of the four aquifer sectors on the island. The Water Plan Analysis (Appendix P) includes an analysis of relevant Moloka'i Working Group recommendations in relation to MPL's Water Plan.

In July 2007, at the request of Moloka'i residents, the Water Commission reconvened the Moloka'i Water Working Group because of the community focus arising from initiatives from MPL, DHHL, and the Maui County DWS. In the following "Additional Information and Analysis" section, further information is given on the initial meetings of the Water Working Group.

POTENTIAL IMPACTS AND MITIGATION MEASURES

In connection with the *Community-Based Master Land Use Plan for Molokai Ranch,* MPL developed a proposed Water Plan. A copy of the proposed Water Plan is provided as Chapter 6 in Appendix A. A key feature of the Water Plan is that only existing sources, at currently permitted amounts, will be utilized to meet all of the potable water needs for the current customers of the ~~two private~~ three water systems operated by MPL and MPL's future developments proposed under the Plan. These sources include the permitted 1,018,000 gpd from Well 17 in the Kualapu'u Aquifer and surface water from the Molokai Ranch Mountain Water system which is treated to potable quality at the Pu'u Nana water treatment plant. The constructed, but currently unused, Kākalahale well in the Kamiloloa Aquifer is being proposed as a new non-potable water source. The Water Plan also includes aggressive water conservation strategies for reducing demand and utilizing alternative sources of water. An analysis of the Water Plan was prepared by Morihara Lau & Fong LLP and is provided as Appendix P of this EIS.

In the Water Plan, MPL proposes that water from Well 17 be used solely for potable water needs. Irrigation uses, currently permitted under the Well 17 permit, will be supplied from other sources. Under this plan, MPL will not need to seek any more potable water than what is currently developed. MPL will sign covenants preventing it from ever seeking further potable water permits from the CWRM, and will abandon the Waiola Well application.

MPL is currently working with the DHHL, the County of Maui DWS, and USGS to comprehensively evaluate Moloka'i's long-term water demands and resources. It is expected that many of Moloka'i's water issues will be addressed by a comprehensive modeling analysis (see following "Additional Analysis and Information" section). Although the specifics of the water resource issues and modeling analysis have yet to be identified, MPL has long acknowledged publicly that its water use would yield to DHHL's priority first rights to water.

According to the Water Plan Analysis, MPL's plans are reasonable and realistic, from a regulatory standpoint, because the Water Plan calls for: 1) significantly decreasing the current use of safe drinking (potable) water for irrigation; 2) increasing efficiencies within existing systems; and 3) aggressive water conservation strategies.

Safe Drinking (Potable) Water – MPL plans to retain its current 1,500,000 gpd of safe drinking water: 1,018,000 gpd from Well 17 and 500,000 gpd from the Molokai Ranch Mountain System. Under the Water Plan, approximately 600,000 gpd of safe drinking water from Well 17 will be freed up from existing irrigation uses, leaving that amount available for safe drinking water needs associated with MPL's future developments of Lā'au Point and Kaluako'i. Safe drinking (potable) water will not be used for irrigation.

For Lā'au Point, safe drinking water demand is projected at 96,000 gpd at full build-out based on 600 gpd for 200 lots at 80 percent occupancy. An additional demand of 1,000 gpd of safe drinking is projected for the two parks within the project area. Modification of the uses of Well 17 (0901-01) to serve Lā'au Point will require a modification of the water use permit. The following "Additional Analysis and Information" section below indicates that even if the 200 lots each use 600 gpd, and not the 80 percent as projected, MPL's Water Plan still remain a valid document of future water demand.

~~The~~ Since 1975, the MIS has been utilized, pursuant to agreement with the State, to transport water from Well 17 to Mahana, where it is treated and then distributed to end users at Kaluako'i. MPL's plan was to extend this existing distribution infrastructure ~~at Kaluako'i~~ from Public Water System No. 231, Maunaloa-Kaluako'i, ~~will be extended~~ to service Lā'au Point. This extension shall be approved by the Director of Health (HAR, Chapter 11-20, Rules Relating to Potable Water Systems, Section 11-20-30). When customer demand in Kaluako'i warrants, a looped connection from Maunaloa to Lā'au Point is proposed to be added which will then supply Lā'au Point and augment deliveries to Kaluako'i whose original infrastructure was ~~undersized~~ not sufficiently sized to support full build-out of the area. MPL has also offered to make the excess safe drinking water capacity available from Well 17 for the use of communities outside its property.

The "loop" will not be built during the initial phase of construction. It will be added as demand warrants. Once the capacity of the existing line based on calculated demand, using accepted County standards, is reached, the loop will be constructed. Since potential build-out is gradual, it is estimated that construction will not be required for 5-10 years.

In September 2007, however, the DOA decided that continued use of the MIS to transport Well 17 water would be subject to the preparation of an environmental disclosure document pursuant to HRS Chapter 343 (See discussion earlier in this section). Currently, there is no alternative means of transporting water from the source (Well 17) to end users in Kaluako'i. Upon completion of the environmental disclosure process, either there will be an agreement for the continued use of the MIS to transport Well 17 water or an alternative method of water transport will have to be established. Several alternatives are possible, each of which requires acquisition of new easements or modification of existing easements as well as engineering and cost studies. These items have to be addressed before MPL can rationally identify the practicable alternatives. MPL's infrastructure plan for transporting and distributing water to Lā'au Point, therefore, remains unresolved as of this writing. This issue, however, will have to be resolved regardless of, and without reference to, the Lā'au Point project.

The MIS currently transports up to 1.018 mgd of water (12-month moving average) pumped from Well 17 to Mahana for distribution to existing, current users in Kaluako'i. Well 17 water will continue to be used by Kaluako'i customers whether or not the Lā'au Point project is approved. Thus, the issue of how to transport water from Well 17 to either Mahana or to Kaluako'i will have to be resolved regardless of the Lā'au Point project. Inasmuch as the MIS issue affects existing, current uses, there is an element of urgency, and it is likely that the MIS issue will be resolved prior to any discretionary land use decisions being made on the Lā'au Point project. Therefore, the decisions made with respect to continued use of the MIS may have to be made without consideration of the Lā'au Point project. The decisions made with respect to this MIS issue, however, will affect infrastructure planning for the transport and distribution of potable water to Lā'au Point.

Because there are existing customers in Kaluako'i dependent upon Well 17 water, water will have to somehow be transported from Well 17 to the facilities owned by MPL for further distribution to end users at Kaluako'i. Either the MIS will continue to be used or alternate infrastructure will be developed for this purpose. Either way, the infrastructure used to transport water from Well 17 to MPL distribution facilities will also be used to transport potable water to Lā'au Point. Therefore, even if use of the MIS to transport Well 17 water is discontinued, there will be a means of getting potable water to Lā'au Point. The decisions made with respect to this MIS issue, however, will affect infrastructure planning for the transport and distribution of potable water to Lā'au Point.

Non-Drinking (Non-potable) Water – Initially, water for irrigation and fire protection will be provided from ~~surplus~~ available mountain system water. Water for construction will be from available non-drinking (non-potable) water sources that will later be used for irrigation after build-out. In the long-term, MPL's water plan calls for drawing 1,000,000 gpd of brackish water from the Kākalahale Well for future non-drinking water needs. Of that amount, 340,000 gpd is for the proposed Lā'au development, 200,000 gpd is proposed for future expansion of Maunaloa and Kualapu'u, and the balance is needed to address future demands from existing developed lots, the renovation of the Kaluako'i Hotel, and existing Ranch uses. The Kākalahale Well sits at elevation 980 feet, and was drilled in 1969 to provide drinking water to Kaluako'i. However, due to the brackish water quality, the well was never used as a production well.

A storage tank or reservoir will be constructed above the project site to provide adequate pressure and to meet the storage requirements for fire protection. All lots will be metered. Fire flows are proposed to be provided from the non-drinking water system due the larger pipe and reservoir sizes that will be associated with this system. Fire hydrants will be installed along the

road spaced at intervals between 450 to 500 feet. At full build-out, some 20 years hence, non-drinking (non-potable) water use is projected to be 300,000 gpd for the 200 Lā'au Point rural residential lots and associated common areas, plus 40,000 gpd for the two parks within the project area. Various alignments are under consideration with respect to bringing non-drinking (non-potable) water to the project site.

A water use permit would be required before the Kākalahale Well (0700-01) can be put into production; this was confirmed by the DLNR Commission on Water Resource Management in their letter dated January 10, 2007. When Kākalahale Well use is permitted, MPL will not transmit brackish water from the well to the West End by the MIS system. Instead, MPL has indicated that it will seek to use existing pipeline easements across DHHL's Ho'olehua lands for the transmission of Kākalahale water.

The safe drinking (potable) and non-drinking (non-potable) water systems will be carefully designed and operated to prevent cross-connections and backflow conditions. The two systems will be clearly labeled and physically separated by air gaps or reduced pressure principle backflow preventers to avoid contaminating the safe drinking (potable) water supply. In addition, all non-potable spigots and irrigated areas will be clearly labeled with warning signs to prevent the inadvertent consumption of non-potable water.

A dual water system management plan will be developed at a later date and submitted by the water system owner and operator.

Water Conservation -- MPL will implement conservation measures recommended by the Maui County DWS such as: eliminating single-pass cooling, utlilizing low-flow fixtures and devices, maintaining fixtures to prevent leaks, using climate-adapted plants, and preventing over-watering by automated systems.

MPL will also continue its own water conservation campaign to Kaluako'i residents and future Lā'au Point residents by reducing consumption, shutting off irrigation systems during rainfall, and restructuring the water rates. MPL believes a combination of low occupancy, water conservation education, xeriscaping, and tiered water rates will moderate water consumption by Lā'au Point homeowners. As previously discussed in Section 2.3.6, CC&Rs will require the following water-related protocol:

- **Landscaping and Irrigation.** Common area ~~Landscaping~~ landscape irrigation systems ~~will be from~~ will utilize re-use water (treated effluent) from the wastewater treatment plant. ~~or collected in catchments systems;~~ Residential catchment systems may provide landscape irrigation to individual lots and homes. ~~only~~ Only drip irrigation systems will be permitted for both common area and residential landscaping. Landscaping will be restricted to appropriate native and Polynesian species that are drought-tolerant and suitable for coastal locations; xeriscaping aims to reduce water use.
- **Storage Tank.** All houses will be required to have at least a 5,000-gallon storage tank for water captured from roofs.
- **Water covenants.** Requirement of a dual-water system split into safe drinking and non-drinking water; safe drinking water will be limited to 500-600 gpd. Homes will be required to use double flush toilets and specially-designed showerheads for water conservation.

- **Drainage Systems.** Require drainage systems that retain any run-off within the disturbed area of the lot. Maximize recharge into the ground. Restore land areas that have eroded by re-establishing vegetative cover. Minimize impervious (paved) surfaces on the Lot.

Contingency Planning Alternatives – Concerns have been raised in the event MPL's water plan needs more water for increased demand for agriculture on its own lands or on land to be donated to the Land Trust. If more non-potable water is needed for agriculture in particular, MPL still has two options:

- The brackish water available to MPL from the Prawn Farm, at Pala'au, which currently is permitted for 864,000 gallons per day of which 500,000 gallons per day could be available for reuse. The following "Additional Analysis and Information" section below has also shown that even without the Kākalahale Well, MPL could satisfy the needs of its Lā'au Point customers, and provide for the build-out of all of the Kaluako'i subdivision from the existing systems and from extracting usable water from the Prawn Farm well.
- Desalinization.

The Prawn Farm water is very brackish and it would be three times as expensive to remove the salts to bring it to an acceptable level for use as agricultural water as compared to obtaining water from the Kākalahale Well. But it remains an option for the future and particularly for non-potable uses, such as agriculture.

Although improvements to desalination technology have been made, the technology's high operating cost (primarily energy costs) continues to be an issue for its use as an alternative water supply. If a desalination plant were to be located on the West End of Moloka'i using the underlying groundwater as the feedwater supply, the feedwater salinity would limit recovery of the product water to 50 percent or less of the water running through the plant.

Assuming the treatment plant utilizes reverse osmosis (RO) technology, the plant would use a pressure of approximately 700 psi to move the feedwater through the RO membranes. At an average electrical cost of $0.30/kwh and assuming the treatment plant were located at 500 feet elevation above Kaluako'i Resort, the cost of desalted product water (excluding capital recovery) would be at least $6.75 per thousand gallons (kgal).

Components of the Cost of Desalting at Moloka'i's West End (50% recovery rate)

	Dollars/kgal
Pumping the Feedwater Supply	$1.36
Pumping cost through the RO Filters	$4.39
Other RO Operating Costs	$1.00
Total	$6.75

In comparison, pumping water from the Kākalahale Well through a 69,000-foot long pipeline, also at $0.30/kwh, would cost approximately $2.60 per kgal. If the average use rate is 1.0 MGD, the operating cost difference of $4.15 per kgal would amount to $4,140 per day or more than $1.5 million per year.

Therefore, the significantly higher costs associated with desalination technology limit its use as an alternative solution today. However, as technology continues to improve, desalination may be

an option for the future and particularly for non-drinking water uses when the cost of producing water comes down.

As this technology continues to improve, the cost of producing water will come down. As the conservation rates go up, at some point the two price lines will cross, and MPL will find the balance between demand and supply. MPL has talked about the ability to have multiple rate blocks for both potable and non-potable water. Structured properly, these rates would, in effect, subsidize prudent or thrifty water users and penalize excessive water use. At the higher rate block, the cost of desalinization can be recovered. Therefore, if multiple rate blocks were implemented, there would be no pressure to pursue additional groundwater or surface water sources from the central or east end of the island.

4.9.2.1 Additional Water Information and Analysis

In response to several questions and comments on the Draft EIS received during the public comment period, this section clarifies issues, answers questions, and provides additional information regarding water-related issues.

4.9.2.2 Explanation of Moloka'i Aquifer Systems Geology

The State Commission on Water Resource Management (CWRM) has divided the island of Moloka'i into 16 management areas or aquifer systems, primarily defined on the basis of geologic conditions and topographic divides. The aquifer systems, however, are not necessarily isolated from one another. Significantly, not enough information is presently available to accurately determine the extent to which the basal aquifers that are most important for the island's domestic water supply – Kualapu'u, Kamiloloa, and Kewela – are hydrologically connected.

The Island of Moloka'i is formed primarily by the extrusive shield- and postshield-stage lavas of the older West Moloka'i Volcano and the younger East Molokai Volcano, and secondarily by rejuvenated-stage volcanic rocks at Kalaupapa Peninsula. The central saddle area between the two volcanoes was formed by lava flows from East Moloka'i Volcano banking up against and being deflected by the West Moloka'i Volcano. The zone of weathered West Moloka'i Volcanics and soil located beneath the contact of the West and East Moloka'i Volcanics impedes ground-water flow between East and West Moloka'i. This means that groundwater in the West Moloka'i Volcanics is limited to the recharge of minimal local rainfall. As a result, groundwater throughout all of West Moloka'i is too saline for irrigation or potable use without desalinization.

Although there are data gaps on hydrologic connectivity between aquifers on Moloka'i, there is empirical evidence to conclude that the Kākalahale well site is hydro geologically isolated from existing and proposed well sites in the Kualapu'u aquifer. When the Kākalahale Well was drilled and pump tested in 1969, the brackish quality of its water was not expected. The Kākalahale well site is situated downgradient of the Kākalahale Pu'u, which was formed by intrusive dikes which are barriers to groundwater flow. The poor quality of water from the Kākalahale Well is attributed to its location downgradient of these barriers.

Intrusive volcanic rocks include those rocks, such as dikes, that formed when magma cooled below the ground surface. Dikes associated with the rift zones of the West and East Moloka'i volcanoes are the dominant intrusive rocks on Moloka'i, and are most abundant within the

central area of the rift zones. The rift zones are hydrologically important because dikes have low permeability and tend to impound ground water to high altitudes within inter-dike compartments.

The dike compartments in Waikolu Valley, from which the MIS system obtains its water, are isolated from the basal ground water bodies from which most of the domestic water on Moloka'i is withdrawn.

The Punakou Aquifer – The Lā'au project area overlies the Punakou aquifer. The aquifer has a developable sustainable yield of 2.0 mgd. There is however, little or no fresh water associated with the Punakou aquifer. Although MPL has not conducted any test drillings itself, public records indicate that Louisiana Land, its predecessor in ownership, conducted tests between the early 1970s and early 1990s.

Several wells and a number of test borings have done in the Punakou and Kaluako'i aquifer immediately adjacent. The water in the aquifer has consistently shown up as being very brackish to near seawater salinity. In virtually all of the borings the water was also geothermally heated. Tests indicted that the water in the aquifer has salinity levels at 1/3 to 1/2 of seawater. Alpha USA reported similar results more recently. The water in the aquifer is not usable even for irrigation without desalinization.

Although the aquifer does not have a significant amount of potable water, MPL will use Best Management Practices (BMPs) designed to minimize infiltration of the aquifer by contaminants and to minimize runoff so that water can be retained in the system for recharging the aquifer. In developing BMPs MPL will utilize "Source Water Protection Practices – Managing Storm Water Runoff of Prevent Contamination of Drinking Water".

4.9.2.3 Moloka'i Designated a Ground Water Management Area

Criteria for designating a groundwater management area are set forth in HRS §174C-44. CWRM will designate a groundwater management area if:

1) Actual water use or "authorized planned use" will cause the maximum rate of withdrawal from that groundwater source to reach 90 percent of the sustainable yield;
2) The Department of Health determines that there is actual or threatened water quality degradation;
3) CWRM believes, based on evidence of excessively declining groundwater levels, that regulation is necessary to preserve the groundwater supply for the future;
4) Existing withdrawals of groundwater are endangering the stability or optimum development of the ground water body due to upconing or encroachment of salt water. Although the amount of water withdrawn may be well within the sustainable yields, the rates, times, spatial patterns, or depths of the withdrawals may nevertheless degrade the water source;
5) Chloride contents of existing wells are increasing to levels which materially reduce the value of their existing uses;
6) There is excessive and preventable waste occurring;
7) There are serious disputes about the use of groundwater resources; or
8) Water development projects that have received other governmental approvals would result in any of the above conditions.

The entire Island of Moloka'i was designated as a groundwater management area for a combination of reasons. There is no indication that current withdrawals are threatening the

health of any of the aquifers. Rising salinity levels in some of the wells appear to be localized phenomena associated with particular wells and not an indication of general aquifer degradation.

The total sustainable yield for groundwater resources on Moloka'i, which is established by CWRM, is 81 mgd. For planning purposes, the 1996 Moloka'i Water Working Group used 33.5 mgd as the developable yield of potable water on the island. Of the 81 mgd, less than 10 mgd is currently used. Additionally, there are 36 perennial streams on Moloka'i, but surface water usage on Moloka'i amounts to an average of about 3 mgd.

4.9.2.4 Moloka'i's "Sole Source Aquifer" Designation

Moloka'i has been designated a "Sole Source Aquifer" by the Federal Government pursuant to §1424(e) of the Safe Drinking Water Act of 1974. Under this federal program, designation as a "sole source aquifer" does not necessarily denote a hydrological determination. For purposes of the Sole Source Aquifer program, an "aquifer" may be a part of an aquifer, an entire aquifer, or an aquifer system. An aquifer system may be designated a "sole source aquifer" if all aquifers in the system are hydrogeologically connected. In Moloka'i's case, the petition to designate the entire Island of Moloka'i as a sole source aquifer was filed by Sarah Sykes in 1993. The petition acknowledged that aquifer boundaries are not known and proposed a "broad-brush agreement that there is basically only one hydrogeologically-linked aquifer underlying Moloka'i." From a hydrologic perspective, however, it is clear that ground water in West Moloka'i is relatively isolated from the basal aquifers in central and eastern Moloka'i, and that the dike-impounded waters are isolated from the basal aquifers. Moreover, the State Commission on Water Resource Management, for its regulatory purposes, divides the Island of Moloka'i into 16 aquifer systems.

The purpose of the Federal Sole Source Aquifer program is to protect ground water sources for drinking water purposes. The program is aimed at protecting water sources needed to supply 50 percent or more of the drinking water for an aquifer service area, where the volume of water which could be supplied by alternative sources is insufficient to replace the sole source aquifer should it become contaminated.

This program prohibits Federal financial assistance for projects that might contaminate an aquifer that has been designated by EPA as a sole or principal source of drinking water for an area. No Federal financial assistance is contemplated for any part of the Lā'au Point project and therefore the Sole Source Aquifer program is not applicable to Lā'au Point. However, in response to comments on the Draft EIS, a discussion of the Sole Source Aquifer designation for the island of Moloka'i is included here.

Proposed projects with Federal financial assistance that have the potential to contaminate sole source aquifers are subject to EPA review by a ground water specialist. Examples of projects that might be subject to review include highways, wastewater treatment facilities, construction projects that involve storm water disposal, public water supply wells and transmission line, agricultural projects that involve the management of animal waste, and projects funded through Community Block Grants. Project reviews can result in:

- EPA requirements for design improvements, ground water monitoring programs, maintenance and educational activities that would not otherwise occur; or
- District technical assistance, by identifying specific activities that may lead to ground water contamination. In addition, technical assistance usually involves site-specific coordination of ground water protection activities among State and local environmental and public health protection agencies.

To reiterate, no Federal financial assistance is contemplated for any part of the Lā'au Point project and therefore the Sole Source Aquifer program is not applicable to Lā'au Point.

4.9.2.5 Prior Studies by USGS on the Capacity of the DHHL Wells

There has been some mention of increased salinity levels in the DHHL Wells. Rising salinity was referred to in a previously released USGS study. The referenced changes in salinity appear to be related to local phenomena associated with particular wells and do not appear to be an indication of dangerously depleted resources.

The concentrated pumpage of the two DHHL wells (Well Nos. 0801-01 and 02) and the County DWS well (Well No. 0801-03) appear to be the cause of chloride rise in these wells. The DHHL and DWS wells are closely grouped and poorly located relative to each other. All three wells have upgradient/downgradient effects when the DWS well is running while one or the other of the DHHL wells is also operating. A 20 mg/L chloride rise—to levels of about 100 mg/L—in the DHHL wells was an almost immediate response to the start of pumping of the DWS Kualapu'u well in 1991. Chloride levels appear to have been stabilized in all three wells at the higher level.

Well 17 has been in use from 1952 to the present. There has never been a chloride response in the DHHL wells since they began operating in 1961 and 1981 or in DWS well since it began operating in 1991as a result of pumping the Well 17, even during periods of extended (continuous) pumpage of Well 17 at a 1750 gpm pumping rate (2.5 mgd). The fact that chloride levels for Well 17 have remained stable at about half (or less) the levels in the DHHL and DWS wells is further evidence that pumpage of Well 17 is not producing a chloride response in the DHHL/DWS wells, and vice versa.

Before the early 1980s, chloride concentrations of water pumped from the County's Kawela Shaft (Well No. 0457-01) ranged from 100 to 200 mg/L, and since 2002 chloride concentrations generally have been greater than 200 mg/L.

Before 2002, chloride concentrations of water pumped from the County's 'Ualapu'e Shaft (Well No. 0449-01) generally were less than 70 mg/L. From 2003-2005, however, chloride levels exceeded 70 mg/L, reaching a high of 100 mg/L during 2004.

The rising chloride levels in Kawela Shaft and 'Ualapu'e Shaft appear to be the result of localized phenomena, and the USGS and Maui County are exploring redistributing and increasing withdrawals to other locations, including locations within the Kawela and 'Ualapu'e aquifers.

MPL is not aware that the MIS is experiencing chloride problems. The sources of water for the MIS are stream diversions and three production wells located in Waikolu Valley, which withdraw water from the dike complex in northeastern Moloka'i. Unlike basal aquifers, fresh water in dike complexes do not overlie salt water.

4.9.2.6 Additional Information on the Kākalahale Well

Salinity and Impacts on Use

Water from Kākalahale Well is considered "slightly brackish" with chloride levels of approximately 400 mg/L. In contrast, seawater is about 19,500 mg/L, and the County's Kawela Shaft (a drinking water source) has chlorides of about 200 mg/L.

Types of crops that could be irrigated with water of these chloride levels include: asparagus, date palm, sugar beet, alfalfa, broad bean, onion, turnip, cabbage, lettuce, carrot (source: CTAHR <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/pnm17.pdf>).

Impact on the Aquifers of Pumping Water from Kākalahale

It is highly unlikely that pumping 1.0 mgd from the Kākalahale Well will have any measurable impact on the existing DHHL and DWS wells in Kualapu'u for several reasons. First, the Kākalahale Well is down- and across-gradient from the DHHL and DWS wells. Second, the Kākalahale Well is approximately 12,200 feet (2.31 miles) away from the DHHL and DWS wells; at that distance, it is unlikely that pumping 1.0 mgd will create a measurable effect. Third, there are known subsurface intrusives between the Kākalahale and DHHL/DWS well sites, namely Pu'u Kākalahale and Pu'u Luahine, which are barriers to ground water flow.

The Kākalahale Well was developed in 1969 as a drinking water well for the Kaluako'i Resort. However, due to the brackish quality of the water, the well was never put into production. Relative to its distance inland, chlorides of the Kākalahale Well are anomalously high. This anomaly is explained, however, by the presence of upgradient subsurface intrusives, i.e., the subsurface "plumbing" of Pu'u Kākalahale, which function as barriers to normal mauka-to-makai flow of groundwater. The upgradient intrusives, which create the brackish result in the Kākalahale Well, also function to limit the effect of pumping the Kākalahale Well on other wells upgradient of the intrusives, such as the DHHL and DWS wells in Kualapu'u.

It is also highly unlikely that withdrawing 1.0 mgd from Kākalahale Well will adversely impact DHHL's ability to develop its water reservation in Kualapu'u Aquifer.

For DHHL to develop its 2.905 mgd reservation in the Kualapu'u aquifer, new and appropriately spaced wells east of the existing DHHL/DWS well field will be required. All of these new wells will be upgradient of the known subsurface intrusives, Pu'u Kākalahale and Pu'u Luahine. These subsurface intrusives create a barrier to groundwater flow, benefiting wells that are upgradient of the intrusives and adversely impacting the wells downgradient of the intrusives. They also limit the impact that wells on one side of the intrusives have on wells on the other side of the intrusives.

The Kākalahale Well will be down- and across-gradient, and on the downstream side of known intervening intrusive structures, from any wells that DHHL is likely to develop to access any part of its 2.905 mgd reservation. Therefore, an adverse impact on future DHHL wells is highly unlikely.

Alternatives to the Use of Kākalahale-Sourced Water

The Kākalahale Well is an ideal source of non-potable water. The well is owned by MPL and already constructed (though not in production). More importantly, because the well site is hydro geologically isolated by subsurface intrusive structures, withdrawing water from the Kākalahale Well is unlikely to have any adverse impact on existing wells in the Kualapu'u aquifer, on DHHL's ability to withdraw its 2.905 mgd reservation amount from the Kualapu'u aquifer, or the development of potable water in the Kamiloloa aquifer.

In the event Kākalahale Well water is not available, however, there are alternative sources of non-potable water. Reclaimed water from the Pālā'au Shrimp Farm could be treated to make it suitable for irrigation purposes. Additionally, desalinization of either brackish water from West Moloka'i aquifers or sea water are alternative sources of irrigation water.

Desalinization is not the preferred alternative because of the cost. As mentioned in MPL's water plan, desalting is still about four times more expensive on Moloka'i (not helped by the island's high energy costs) than developing an operating deep groundwater well.

A pilot plan on O'ahu developed in the early 2000s still remains idle today because of escalating energy costs needed, in simple terms, to push the brackish water through a membrane to remove the salts.

MPL has previously been approached by two parties proposing desalination on Moloka'i as an economic business; neither party, following their detailed investigation, wished to continue with their plans for a desalination plant.

Desalinization is therefore too expensive to be considered MPL's first choice of non-potable water. However, it is an alternative if water from the Kākalahale Well is not available.

Recent Studies by USGS Indicate Pumping Kākalahale Will not have an Adverse Impact on the DHHL, County, or MPL Wells

Background – In August 2007, the USGS released preliminary results of a two-dimensional modeling study it did for the Army Corps of Engineers as a part of its Kaunakakai Stream Ecosystem Restoration Project entitled "Effects of Ground-Water Withdrawal on Kaunakakai Stream Environmental Restoration Plan, Moloka'i, Hawai'i," Scientific Investigations Report 2007-5128 by Delwyn S. Oki. The Kaunakakai project proposes the construction of 2.75 acres of shallow ponds and mudflats near the mouth of Kaunakakai Stream to restore habitat for the endangered Hawaiian Stilt. A study on the effects of well pumping mauka of the site was important as, where the wetland bottoms are below the water table, the ponds and wetlands are sustained by ground water discharge during the dry season. Because ground water is the main source of water for the proposed wetlands, a reduction of ground water discharge near the mouth of the stream will have an effect on the availability of habitat.

At the Army Corps' request the USGS undertook an investigation to estimate water levels using an existing numerical ground flow model and the changes that would occur if there were additional ground water withdrawals. Water levels in existing wells in the upstream aquifers and the coastal discharge changes (if any) were estimated for six different scenarios. The six scenarios were developed by assuming changes in pumping at existing wells and pumping at proposed new wells, at selected sites in the area between Kualapu'u and 'Ualapu'e.

The model used was the existing numerical ground water flow model done by Delwyn Oki in 1997. The 1997 study was used as the background for the various scenarios. The new 2007 study describes the results of model simulations that assess the effects of redistributed or additional ground water withdrawal using the 2006 average or May 2007 permitted withdrawal rates as a baseline. The study did not use any new (subsequent to 1997) data.

Available data was sufficient in 1997 to develop a detailed contour map of water levels for the entire island. Electrical–resensitivity measurements were used to determine the depth of saltwater below ground and then applied using a principal (Ghyben-Herzberg) or relation, to estimate the altitude of the water table for the western part of the island. This relationship (for hydrostatic conditions and assuming a sharp interface between salt and fresh water without the known transition zone) predicts that every foot of freshwater above sea level must be balanced by 40 feet of freshwater below sea level. This generally underestimates the freshwater lens thickness near the discharge zones. The method ignores the transition zone and does not account for dynamic conditions of the aquifer where water flows vertically.

The study notes that groundwater on Moloka'i occurs in two forms: 1) as a lens shaped body of fresh water floating on saltwater within permeable dike free rocks; and 2) as dike impounded water ten to hundreds of feet above seal level (meaning it is not directly a part of the lens).

Numerical Simulation of Additional Withdrawal – The regional (1997) model is two-dimensional. It is designed to simulate the flow of fresh ground water in systems that have a fresh water lens. The simulation assumes a sharp interface between fresh and salt water (meaning there is no transition zone allowed for in the model). It also assumes that water flow is entirely horizontal (there is no modeling of potential up and down movement) and all wells fully penetrate the freshwater lens. As such, if a well is actually using dike impounded water or is otherwise isolated from the lens, the model cannot take these factors into account.

The original 1997 study was used to estimate the effects of new well withdrawals in the model on ground water and coastal discharge. Although the original model covered the entire island, for this study only certain "nodes" were used from the 1997 report so that it could be focused on the desired area. To determine a base case, or current conditions without any changes, reported withdrawals from existing wells were used. The withdrawals, from a geographic perspective, were assumed to take place in an entire "node" of 3280 square feet.

The Waiola well was not considered as part of the scenario as the application has not been acted upon and the DHHL reservation was not considered as the location of the wells by DHHL has not been determined.

The total amount of water withdrawal is five percent of the total recharge of the aquifer.

Withdrawal rates for the various proposed wells in the different scenarios were developed from conversations with the various water purveyors. The various scenarios and withdrawal rates are set forth in each of the six scenarios.

The model has several limitations. The number of wells is insufficient to define the distribution of water levels in the southeastern part of Moloka'i in the west and in the dike complexes in the northeast part of the island. The simulated withdrawals are therefore unverified in some part of the island. Also, the thickness of the fresh water lens is not known on most parts of the island,

including the areas of proposed increase in groundwater withdrawals. Because of this and because of the other limitations mentioned above, the model should not be viewed as precise. The model is, nevertheless, a tool for analyzing possibilities.

Model Results – For each of the scenarios the water levels and coastal discharges were determined relative to what is currently occurring. Simulated changes were greatest at withdrawal sites and decrease outward from the site. Within the zone where water levels decline because of increased withdrawal, the salinity of water pumped from existing wells may increase, although the extent of the increase could not be predicted accurately because of the limitations in the model, mainly because it assumes a sharp interface between fresh and salt water (it assumes that there is no transition zone). However, greater water level changes are expected to cause greater salinity changes (all other factors being equal). Wells near the coast are likely to be closer to a transition zone and as such, water level changes affect the wells to a greater extent.

Simulated changes in coastal discharge are greatest immediately down gradient (below) from changes in withdrawal. The numerical models used in this study are estimates of changes in coastal discharge because the actual changes are difficult to measure.

- **Scenario 1.** In this scenario pumping of 1.0 gallons per day at Kākalahale was added to the base model. This causes water levels and coastal discharge decrease from what is currently estimated. The water level decline at the well itself is estimated at 0.61 feet and decrease moving away from the sell site. Near the Kaunakakai stream habitat the simulated water level decline is 0.08 feet. The percentage decrease is estimated at seven percent. However, this is likely overestimated as the stream only covers a small fraction of the area measured in the model.

  When Kākalahale is pumped at 1.0 mgd there is a 0.09-foot decrease in the level at Well 17. Kualapu'u Mauka decreases by 0.09 feet and Kawela Shaft by 0.01 feet. 'Ualapu'e shaft shows no decrease at all.

- **Scenario 2.** Withdrawals at Kākalahale are at 1.0 mgd and withdrawals at Well 17 are increased to 1.7 mgd in this scenario. Increased withdrawals from Well 17 cause greater simulated decline in coastal discharge than Scenario 1. The simulated level decline at Well 17 in this scenario is 3.4 feet and 0.71 feet at Kākalahale. Reductions of coastal discharge in the Kaunakakai Stream area increase to 11 percent. In the Kaunakakai Stream area, the simulated water decline is 0.04 feet greater than Scenario 1. As in Scenario 1, the decrease in coastal discharge is likely overestimated.

  In Scenario 2 the simulated water level at Kualapu'u Mauka decreases by an estimated 1.45 feet and the Kawela shaft by 0.02 feet. There is no impact on the 'Ualapu'e shaft.

- **Scenario 3.** The withdrawals are the same as Scenario 1 but Scenario 3 includes redistribution of withdrawals from existing wells to wells proposed by the Maui DWS. Withdrawal from the DWS Kualapu'u Mauka well is reduced to 0.232 mgd and withdrawal from a proposed Manawainui well was increased from zero to 0.232 mgd and the Kawela Shaft reduced to zero. A well proposed by DWS at Kawela was increased from zero to 0.237. 'Ualapu'e Shaft was decreased to zero and withdrawal and a new 'Ualapu'e well was increased from zero to 0.272.

Reduced withdrawals from the Kualapu'u mauka well results in a simulated increase in the immediate area by 0.57 feet. Because of the simulated increase at the two proposed wells the simulated water level decline at Kakalahale increases from scenario one by 0.04 feet. However, Kākalahale's impact on surrounding water levels decreases because of the decreased withdrawal from Kualapu'u Mauka. The simulated water level decline at the Kaunakakai stream is 0.01 greater than Scenario 1.

- **Scenario 4.** Scenario 4 is the same as Scenario 2 with the redistributed withdrawals from Scenario 3. Reduced withdrawals from the Kualapu'u Mauka, Kawela Shaft, and 'Ualapu'e Shaft wells decreases the water level decline at Well 17 from the Scenario 2 decline of 3.40 feet to 2.81 feet. However, the increased withdrawals from the proposed wells cause the Kākalahale well decrease in water level to increase from 0.71 to 0.74 feet. Near the Kaunakakai stream the decline is 0.01 greater than in Scenario 2.

- **Scenario 5.** Simulated withdrawal is the same as Scenario 3 except that withdrawal from Kualapu'u Mauka is further reduced by .2 mgd and withdrawal from the proposed Manawainui well increased by an equal amount. In this scenario the water level at Kualapu'u Mauka increases by 1.11 feet compared to .57 in Scenario 3. The simulated water level at the proposed Manwainui well increases from Scenario 3 by an additional .23. The simulated decline in Kaunakakai stream is the same as Scenario 3.

- **Scenario 6.** Simulated withdrawals in Scenario 6 are the same as Scenario 4 except that withdrawal at Kualapu'u Mauka is further reduced by 0.2 mgd and the Manawainui well is increased by the same amount. In this scenario, the water level at Kualapu'u Mauka decrease by 0.03 feet from the base case compared to 0.65 in Scenario 4. The decrease at the Manawainui well increases due to the increased withdrawal at the well. Water level decline at the Kaunakakai stream habitat is the same as Scenario 4.

  In the scenario that mirrors the proposed water withdrawals for the Lā'au Point project (Scenario 1), the results indicated that pumping Kākalahale would have a negligible impact on the DHHL wells (a 0.03-foot lowering). This would indicate that even if it is assumed that there are no geological intrusions, and that the down-gradient location of the Well is discounted such that there is an assumed direct connection between the aquifers and the wells, pumping Kākalahale at 1.0 mgd will not impact on DHHL's ability to continue to operate its well. In addition, the impact on the discharge of fresh water at the ocean is limited such that the water level decline is 0.08 feet.

Impact of Pumping Kākalahale on the Fresh Water Transition Zone

Within the dike-free lava flows, a freshwater lens floats on denser, underlying saltwater. Saltwater flows landward in the deeper parts of the aquifer, rises, and then mixes with seaward-flowing freshwater, creating a freshwater-saltwater transition zone. Under hydrostatic conditions, the thickness of the freshwater lens can be estimated by using the Ghyben-Herzberg relation, which predicts that every foot of freshwater above sea level must be balanced by 40 feet of freshwater below sea level. The Ghyben-Herzberg relation is sometimes used to estimate the depth at which brackish water in the transition zone has a salinity of about 50 percent of seawater.

USGS drilled a deep monitor well in the Kualapu'u area and collected salinity profiles from this well from 2001 to 2004. Measured salinity profiles indicate a freshwater lens of about 260 to 290 feet thick. The upper part of the freshwater-saltwater transition zone generally is about 150 feet thick.

The Kākalahale Well site, however, is hydrogeologically isolated by subsurface intrusive structures. The Kākalahale Well was developed in 1969 as a drinking water well for the Kaluako'i Resort. However, due to the brackish quality of the water, the well was never put into production. Relative to its distance inland, chlorides of the Kākalahale Well are anomalously high. This anomaly is explained, however, by the presence of upgradient subsurface intrusives, i.e., the subsurface "plumbing" of Pu'u Kākalahale, which function as barriers to normal mauka-to-makai flow of groundwater. The upgradient intrusives, which create the brackish result in the Kākalahale Well, also function to limit the effect of pumping the Kākalahale Well on other wells upgradient of the intrusives, such as the DHHL and DWS wells in Kualapu'u. Pumping water from the Kākalahale Well will not draw down on the fresh water lens underlying the Kualapu'u wells or cause a rise in the transition zone.

Impact of Pumping Kākalahale on the Coastal Environment, Limu, and Fishponds

Native Hawaiians gather limu and other marine resources all along the southern and eastern coastline of Moloka'i, including the shoreline area down gradient of the Kākalahale well site below the Kamiloloa Aquifer. They do not confine their gathering activities to areas within their ahupua'a of residence. The shoreline area of the Kamiloloa Aquifer, however, is not prime habitat for edible limu. Limu may occur in quantities sufficient for personal use, but the dibble species are not abundant. This is likely due to the fact that the area off the southern shore of Moloka'i has low water quality due to red sediment in the water after heavy rains. The marine life that flourishes in the area has therefore evolved, or is limited to, those species that can withstand radical water quality changes.

Groundwater pumped from the Kākalahale Well will be reduced by approximately the same amount the groundwater discharge along the south shore of Moloka'i. Coastal-discharge reductions due to such pumpage generally are greatest immediately downgradient from sites of withdrawal, and effects diminish with lateral distance from the directly downgradient location.

Groundwater modeling of proposed pumpage of 1.25 to 1.326 mgd from the proposed Waiola well predicted a reduction in groundwater discharge of 3 percent over a 13-mile coastline to 15 percent over a 6-mile stretch of coastline. At that magnitude, the resultant change in salinity at the shoreline would not be distinguishable. For example, in fishponds, which are subject to less sea water influence and mixing, the lowest salinity measured along the south coast of Moloka'i was 28.6 parts per thousand (ppt). Assuming the salinity of the groundwater at the point of the shoreline discharge is 4 ppt, reducing the quantity of discharge by 10 percent would cause a salinity increase in the fishpond of 0.6 ppt, from 28.6 ppt to 29.2 ppt. Such a change is less than the within-day salinity variation in the fishpond due to tides and mixing by wind.

Transmission of Brackish Water from Kākalahale Well

MPL will be seeking to transmit the Kākalahale brackish water to the West End in a separate pipe and not mix it, prior to transmission, with its existing potable water from Well 17.

MPL will not seek approval to use the MIS system for this water transmission, as stated in the Master Plan (Appendix A of this EIS) and its Water Plan contained as Chapter 6 within the Master Plan.

MPL intends to seek permission from DHHL, under its current easement agreement, to increase the size of one of its existing two pipes in the easement area to facilitate this transmission.

Under the joint easement agreement with DHHL, both parties need to seek approval from the other for amendments to their existing agreed pipe sizes, but the agreement notes that this approval "cannot be unreasonably withheld."

MPL has initially raised this issue with DHHL, along with a range of issues aimed at ensuring benefits to both parties from future water plans for the island.

4.9.2.7 DHHL's Future Water Needs

MPL Reiterates Support for DHHL's 2.905 mgd Kualapu'u Aquifer Reservation; MPL Opposition to DHHL Well Permits in the 90s

MPL has stated and re-iterates that it supports DHHL's 2.905 mgd reservation in the Kualapu'u Aquifer.

When DHHL applied for a water use permit to increase pumpage from its Kualapu'u wells in 1996, DHHL was a party in a contested case proceeding on Waiola o Moloka'i's application for a new well and water use permit in the Kamiloloa aquifer. In the Waiola contested case, DHHL took the position that pumping 1.25 mgd from the proposed Waiola well, which was more than three miles away from the Kualapu'u well field, would adversely affect existing pumping from the DHHL wells. According to DHHL, the transition zone was close to the bottom of its wells, thus the additional pumping by Waiola would result in an unacceptable increase in chloride levels in the DHHL Kualapu'u wells. At the same time, DHHL contradicted itself by filing an application to pump more out of its existing wells. Waiola/Molokai Ranch did not oppose DHHL's application, but sought to explore this contradiction through a contested case proceeding on DHHL's application.

DHHL did not receive a permit for additional pumping because the CWRM staff recommended that the application be denied because DHHL was proposing to increase pumpage from wells that were already showing indications of localized upconing due to the close proximity of the two DHHL wells and the County well. CWRM staff recommended that any increased withdrawals should be from new wells strategically located elsewhere in the Kualapu'u aquifer so as not to interfere with water quality in the existing wells. DHHL proposed reducing the amount of increased pumpage, but was not willing to consider a new well site.

Hawaiian Homesteaders have a priority right to two-thirds of the water developed in Phase I of the Moloka'i Irrigation System (MIS), which is owned and operated by the State Department of Agriculture. Water for the MIS is developed from dike compartments in Waikolu Valley, which are isolated from the basal ground water bodies from which Well 17 and Kākalahale well water is or will be withdrawn.

DHHL has a reserved 2.905 mgd from the Kualapu'u aquifer, the bulk of which is targeted for agricultural use. MPL's Water Plan (Chapter 6 of Appendix A) recognizes DHHL's future needs

and MPL's water development plans will not interfere with DHHL's ability to develop its water reservation. MPL is currently working with DHHL, the County of Maui DWS, and USGS to comprehensively evaluate Moloka'i's long-term water demands and resources. The goal is to appropriately locate wells and manage pumping such that all of the parties will be able, to the greatest extent possible, withdraw sufficient water to meet their needs.

DHHL's Current Water Shortages

The shortage of water available to Hawaiian Homesteaders is not due to a scarcity of water resources on Moloka'i. The total sustainable yield for groundwater resources on Moloka'i is 81 mgd, according to the 1996 Water Working Group. For planning purposes, the Moloka'i Water Working Group used 33.5 mgd as the developable yield of potable water on the island. Of the 81 mgd, less than 10 mgd is currently used. Additionally, there are 36 perennial streams on Moloka'i, but surface water usage on Moloka'i amounts to an average of about 3.0 mgd.

The lack of infrastructure has hampered DHHL's ability to meet the demands of its homesteaders. Since 1995, DHHL has had a reservation right to develop another 2.905 mgd of groundwater in the Kualapu'u aquifer. When DHHL requested that amount, it was anticipated that it would meet the domestic and agricultural water needs for DHHL lands in Ho'olehua and Kalama'ula.

In 1996, DHHL proposed to pump some of that reservation amount out of its existing wells in Kualapu'u. Because there already were indications of localized upconing due to the close proximity of the two DHHL wells and the County well, CWRM staff recommended that any increased withdrawals should be from new wells strategically located elsewhere in the Kualapu'u aquifer so as not to interfere with water quality in the existing wells. At the time, DHHL was not willing to consider a new well site.

To date, DHHL has not identified alternate well sites and thus, has not developed any of its 2.905 mgd water reservation.

Molokai Island Plan and DHHL Future Water Needs

In 2005, Group 70 completed the *Moloka'i Island Plan* (Island Plan) for DHHL. The Island Plan planned future growth of DHHL residential, commercial, and agricultural uses over the next 20 years on DHHL properties throughout Moloka'i.

Based on the Island Plan, DHHL asked its water consultants to study existing demand and the likely future demand at build-out, and whether there was adequate water reserved within its 2.905 mgd reservation within the Kualapu'u Aquifer.

This build-out anticipated an additional 466 residential units at Ho'olehua and 243 additional residential units at Kalama'ula, in addition to 113 acres at Ho'olehua and 89 acres at Kalama'ula for future commercial and community use.

At a presentation to stakeholders and to its constituents in June 2007, DHHL stated that at build out under their Island Plan, it anticipated an additional 2,037,521 mgd of additional source would be required. This left a 698,900 gpd balance of DHHL's reserve remaining within its reservation within the Kualapu'u Aquifer.

DHHL's System Improvements

A major focus of DHHL's future plans will be to improve its storage capacity and infrastructure within its Moloka'i water system and attempt to convert agricultural users from its system to intended MIS System use.

The DHHL water study showed that the homesteaders' use of DHHL potable water for agriculture also results in higher potable water demand and increases over-pumping of DHHL wells beyond the permitted allocation.

DHHL is also is committed to substantially improve its water losses, which were stated at the June 2007 presentation as being about 50 percent of the 357,000 gpd that it supplies to its users. DHHL has admitted that its current unaccounted water losses include theft of water from its system.

Source Development Options

DHHL has a number of options to meet source requirements for full build-out under the Island Plan. At the June 2007 presentation, DHHL recommended reviewing the construction or operation of four new well sources itself, and at the same time exploring all other source opportunities on Moloka'i, as follows:

- Develop New Sources. The required four new wells; source, transmission and infrastructure have a probable cost of $23 million, requiring $4 million to $6 million for well construction.
- Explore partnerships with Maui DWS to construct a new well on DHHL land, in place of current DWS plans for a well in the Manawainui Aquifer.
- Receive the excess capacity from MPL's Well 17. Well 17 has provided a proven water source, may yield up to 500,000 gpd, which DHHL could utilize for its own use, and means no water development cost for DHHL. Countering this was the downside that there was no existing stand-by well for Well 17, and such as arrangement would require easements in DHHL land to the West End of the island.

DHHL Recommendations

DHHL recommended that validation tests of all wells in the Kualapu'u Aquifer be undertaken to determine the safe pumping capacities of existing wells in order that the aquifer's integrity be protected.

4.9.2.8 USGS Modeling of Kualapu'u Aquifer

Any ground water withdrawals on Moloka'i must consider the impact it would have on DHHL's ability to develop its reservation of 2.905 mgd from the Kualapu'u aquifer.

Theoretically (based on sustainable yields), if DHHL, MPL, and the County DWS space out their wells, each of the parties should be able to develop the water they need, including the full amount of DHHL's reservation. On the other hand, a lack of coordination and cooperation could mean that none of the parties will be able to develop the water necessary to satisfy each of their needs. Indeed, depending on where DHHL locates its wells, it may not be able to withdraw its full 2.905 mgd reservation amount without adversely impacting its existing wells, even without

any withdrawals from the Kākalahale Well or additional DWS withdrawals. In a 2006 ground water modeling study, the USGS arbitrarily located four additional well sites within the Kualapu'u aquifer to withdraw an additional 2.905 mgd. These arbitrarily chosen sites were spaced relatively close together and not far distant from the existing Kualapu'u well site. Under that scenario, USGS concluded that DHHL could not develop the full amount of its reservation from the Kualapu'u aquifer.

The result of a 2006 USGS model simulation should not, and cannot, be taken to mean that there is not enough water within the Kualapu'u aquifer for DHHL to develop its full reservation amount within that aquifer. USGS is not proposing, as a result of its study, that the sustainable yield of the Kualapu'u aquifer be reduced. The lesson gleaned from the USGS modeling study is that the future development of ground water resources on Moloka'i demands coordination among the larger water developers—DHHL, DWS, and MPL—to accommodate, to the greatest extent possible, the water needs of all of the stakeholders.

MPL is currently working with DHHL, DWS, and USGS to comprehensively evaluate Moloka'i's long-term water demands and resources. The goal is to appropriately locate wells and manage pumping such that all of the parties will be able, to the greatest extent possible, to withdraw sufficient water to meet their needs.

Since September of 2006, MPL has attempted to join with DHHL and DWS in having USGS perform a comprehensive three-dimensional model for the Moloka'i aquifers. MPL is pleased that USGS will move forward with a joint study, the terms of which are currently under discussion with all parties. The timeline for completion of this modeling analysis is uncertain; however, based on total sustainable yield on Moloka'i, and the evidence of previous water studies, the modeling analysis is not a critically important element for acceptance of the Lā'au Point Final EIS.

MPL is participating in these studies and cooperative efforts notwithstanding the fact that it is highly unlikely that pumping 1.0 mgd from the Kākalahale Well will diminish the other parties' ability to develop the water they need, or, conversely, that water withdrawals by others will impact MPL's ability to withdraw 1.0 mgd from the Kākalahale Well. The Kākalahale Well is hydrogeologically isolated by upgradient subsurface intrusives, i.e., the subsurface "plumbing" of Pu'u Kākalahale, which function as barriers to normal mauka-to-makai flow of groundwater. The upgradient intrusives, which create the brackish result in the Kākalahale Well, also function to limit the effect of pumping the Kākalahale Well on other wells upgradient of the intrusives, where future potable wells in the Kualapu'u aquifer will have to be located.

The Kākalahale Well will be down- and across-gradient, and on the downstream side of known intervening intrusive structures, from any wells that DHHL is likely to develop to access any part of its 2.905 mgd reservation. Therefore, an adverse impact on future DHHL wells is highly unlikely.

4.9.2.9 Water Working Group Task Force 2007

Details of Proposed Action Plan

In July 2007, CWRM reconvened the 1996 Water Working Group on Moloka'i. This followed three major planning efforts "which had brought the community to a renewed focus on water issues," according to the deputy-director Ken Kawahara. These planning efforts had been

completed by MPL (*The Community-Based Master Land Use Plan for Molokai Ranch*), DHHL (*The Moloka'i Island Plan*), and the County of Maui (initiating a Water Use and Development Plan).

As of September 2007, it was unclear as to the likely outcome of the Water Working Group's deliberations because of the polarization of the participants on many issues.

The 1996 Water Working Group Project Water Use is Out-of-Date Under Master Plan

In considering available water supplies on Moloka'i, the 1996 Water Working Group limited its analysis to groundwater. Although the island's ground water sustainable yield is 81 mgd (it was 83 mgd at the time the Water Working Group's report was written), the Water Working Group decided to work with a conservative 41.5 mgd of developable yield. Of that amount, 33.5 mgd was considered "sweet" or potable water.

On the demand side, the Water Working Group projected a 2010 potable water demand of 11.55 mgd. That included 2.14 mgd for the Kaluako'i Resort and 2.0 mgd for the Alpha USA property. Since the Water Working Group report, MPL acquired Kaluako'i Resort and the Alpha USA property. MPL's current projected potable water demand for all of its existing and future developments is less than 1.5 mgd, significantly less than the 4.14 mgd projected need for just the Kaluako'i Resort and Alpha property that was utilized in the Water Working Group's analysis.

The big gap between water supply and demand, however, is reflected in the Water Working Group's non-potable water use projections. Total projected long-term non-potable water demand amounted to 42.9 mgd. Included within this amount was 10.6 mgd for Molokai Ranch's agricultural activities. Existing agricultural activities on Ranch lands are supplied with irrigation water from the Ranch's mountain system, not from groundwater. There are no plans to convert these uses to groundwater sources. Additionally, the Water Working Group projected that 5.8 mgd of non-potable water would be required for Kaluako'i Resort and the Alpha USA property. Under MPL's current ownership, and as identified in the *Water Plan for the EC/Community-Based Master Land Use Plan for Molokai Ranch* (see Appendix S), the total long-term demand for non-potable ground water will be less than 1.5 mgd.

In other words, the gap between water availability and water need as identified in the Water Working Group's Report is, under present conditions, overstated, and the conclusion that "projections of water use exceed supply" is probably inaccurate.

Nevertheless, MPL is keenly aware that water is Moloka'i's most precious resource, and therefore, has incorporated into its plans, water system improvements to increase efficiencies and decrease system losses and aggressive water conservation strategies to minimize water demands.

When MPL acquired the Moloka'i Public Utilities water system, inadequate maintenance had resulted in significant system losses amounting to approximately 200,000 gpd. MPL has already begun to implement system improvements and anticipates that system losses can be cut in half.

To minimize water demands, MPL will use a number of different strategies. Conservation rates that provide financial incentives to customers to conserve water have already begun to be implemented and the effectiveness of these rates have already been manifested. Additionally, covenants on Lā'au Point lots will limit further subdivision of the lots, restrict disturbance of

each lot to no more than 30 percent (approximately 1/2-acre), require catchment systems for each residence for irrigation use, and require drip irrigation systems, double flush toilets, and other water conservation devices.

4.9.2.10 Waiola Well Issues Raised

The Waiola Case and the Kakalahale Well

In 1998, the Commission on Water Resource Management issued a permit to Waiola O Molokai/Molokai Ranch authorizing the withdrawal of 655.928 gallons per day from the proposed Waiola well site in the Kamiloloa aquifer. The Water Commission's decision was appealed to the Hawai'i Supreme Court, which remanded the Waiola water use permit case to the Water Commission for further proceedings on two issues.

1) The court held that although it had be shown that pumping from the proposed Waiola well would not adversely impact the existing DHHL wells in Kualapu'u, MPL had not provided evidence to show that pumping from the Waiola well would not impact DHHL's ability to withdraw its 2.905 reservation amount from the Kualapu'u aquifer.
2) Second, the court held that MPL did not meet its burden in showing that water withdrawals from the Waiola well would not abridge native Hawaiian traditional and customary gathering rights. In the Waiola contested case, MPL took a defensive posture with respect to the issue of traditional and customary native gathering rights. In other words, MPL focused on discounting or impeaching the testimony of those who claimed that native Hawaiian gathering rights would be abridged. The court held that that was not sufficient for MPL to meet its burden as the applicant. Instead, MPL had to make an affirmative showing that withdrawal of water from the Waiola well would not abridge native Hawaiian traditional and customary gathering rights. Additionally, the court held that there was a procedural error in not allowing one of MPL's witnesses to be fully cross-examined, which may have affected the Water Commission's findings of fact with respect to the impact on native gathering rights.

The Supreme Court ruled that in all other respects MPL had met the requirements for a water use permit for the Waiola well.

MPL could ask that the proceedings be re-opened to give MPL the opportunity to address the two issues the Supreme Court identified as requiring further evidence. On MPL's request, the Water Commission has not yet re-opened those proceedings.

In order to withdraw 1.0 mgd from the Kākalahale Well, MPL will have to obtain a water use permit from the Water Commission. The issues addressed in the Waiola case will also have to be addressed for Kākalahale.

MPL will be able to show that withdrawing 1.0 mgd from the Kākalahale Well will not impact DHHL's ability to withdraw its 2.905 reservation amount from the Kualapu'u aquifer. Kākalahale Well is 1.5 miles downslope of the proposed Waiola well site and down gradient from the Kualapu'u well field. More importantly, unlike the Waiola well site, the Kākalahale Well site is hydrogeologically isolated and it is also highly unlikely that withdrawing 1 mgd from Kākalahale Well will adversely impact DHHL's ability to develop its water reservation in Kualapu'u Aquifer.

For DHHL to develop its 2.905 mgd reservation in the Kualapu'u aquifer, new and appropriately spaced wells east of the existing DHHL/DWS well field will be required. All of these new wells will be upgradient of the known subsurface intrusives, Pu'u Kākalahale and Pu'u Luahine. These subsurface intrusives create a barrier to groundwater flow, benefiting wells that are upgradient of the intrusives and adversely impacting the wells downgradient of the intrusives. They also limit the impact that wells on one side of the intrusives have on wells on the other side of the intrusives.

The Kākalahale Well will be down- and across-gradient, and on the downstream side of known intervening intrusive structures, from any wells that DHHL is likely to develop to access any part of its 2.905 mgd reservation. Therefore, an adverse impact on future DHHL wells is highly unlikely.

Additionally, by conducting a cultural impact study, MPL is addressing the issue of impacts on traditional and customary native Hawaiian rights;

4.9.2.11 Tenure of MPL's Water Resource Permits

The water use permit for 1.018 mgd from Well 17 is on appeal to the Supreme Court. However, a permit issued by the CWRM is valid, even though appealed, unless and until it is vacated or revoked by the Court or CWRM.

The Hawaii Supreme Court's decision in the Waiahole Ditch case cast a cloud over all of the interim in-stream flow standards adopted statewide. However, no petition has been filed to amend any of the interim in-stream flow standards adopted for any of the streams on Moloka'i. It is unlikely therefore, that Molokai Ranch's ability to continue to divert water in its Mountain Water System is in any jeopardy.

4.9.2.12 MIS issues

Well 17, located in Kualapu'u, currently provides water to Kaluako'i on the West End of Moloka'i. Water is transported from Well 17 to Kaluako'i first through the MIS system to the Mahana pump station. From Mahana, water is pumped to Pu'u Nānā for treatment. The treated water is piped to a reservoir in Maunaloa, and from there gravity fed to Kaluako'i.

Kaluako'i does not use any MIS water, i.e., water developed by the MIS system for agricultural irrigation. Instead, Molokai Public Utilities, Inc. (MPUI), which services Kaluako'i, "rents space" in the MIS system to transport Well 17 water to Mahana.

The water pumped from Well 17 is of potable quality. However, in the MIS, it is mixed with non-potable water that does not meet Safe Drinking Water standards. Thus, the water has to be treated at Pu'u Nānā before it can be distributed to end users in Kaluako'i.

Transmission Agreement

The MIS was planned, designed, and constructed under a special Act of Congress (Reclamation Act of 1954) to develop surface water and high-level groundwater (Wells 0855-01, -02, and -03) in Waikolu Valley in northeastern Moloka'i to irrigate farmlands in central and western parts of the island. The MIS originally served large-scale pineapple operations, but was converted to serve diversified agriculture after the pineapple operations closed in the late 1970s. The system

also serves the native Hawaiian homesteads in Ho'olehua, and pursuant to HRS section 168-4, Hawaiian homesteads have a prior right to two-thirds of the water currently developed by the MIS. The MIS transports 1,500,000 gpd via a 10-mile transmission link to an open reservoir at Kualapu'u, where it is stored prior to entering a distribution network extending from Ho'olehua to Mahana.

When originally constructed, the MIS was administered by the State Board of Land and Natural Resources (BLNR). In 1975, the BLNR entered into an agreement (the Agreement) with Kaluako'i Corporation (Kaluako'i), renting "space" in the MIS for Kaluako'i to transport water from Well 17 to Mahana. The water is then treated to potable standards and used to supply potable water to Maunaloa town, the Pāpōhaku and Kaluako'i subdivisions, the Kaluako'i condominiums, and for other residential purposes as well as to meet the potable water needs of the resort areas on the West End. Under the terms of the Agreement, Kaluako'i would pump water from Well 17 into the MIS system and withdraw the water at Mahana. To account for potential system losses along the way, Kaluako'i was allowed to withdraw a lesser amount than was put in from Well 17. Additionally, Kaluako'i paid lease rent to the MIS. The Agreement was for the use of "excess capacity" in the system and provided that if there was no longer sufficient capacity in the system then the use would have to be relinquished on reasonable notice.

The 1975 Agreement was extended by the BLNR in 1985. In 1988, Kaluako'i assigned its interest in the Agreement to Kukui (Moloka'i), Inc. (KMI), which assignment was consented to by the BLNR. As a result of the Agreement, no other infrastructure to transport Well 17 water to the West end of Moloka'i was put into place.

Effective July 1, 1989, administration and management of the MIS was transferred from the BLNR to the State Department of Agriculture (DOA). In December 1989, the Agreement was amended to reflect the statutory transfer to the DOA.

Subsequently, the Agreement was extended twice through December 31, 2005. In late 2001, KMI assigned the Agreement to Kaluako'i Water, LLC (KWLLC), a Hawai'i limited liability company wholly owned by Molokai Properties Limited. The DOA acknowledged the assignment in early 2002.

Prior to and following the Agreement termination date of December 31, 2005, KWLLC and the DOA have been engaged in negotiations for the continued use of the MIS to transport Well 17 water to Mahana, and the DOA has conducted community meetings on the matter. By September 2007, a further extension to the Agreement was in the final stages of being completed following community input on aspects of the Agreement. The Agreement had been open for public input on Moloka'i before the MIS Advisory Board prior to its execution by the parties.

The proposed extension Agreement would have permited MPL to transmit water through the MIS system until June 30, 2011 at an equivalent price of 70 cents per 1000 gallons transmitted. This compares to the 30 cents per 1,000 gallons paid for by homesteaders and commercial agricultural users of the system. Provisions of the Agreement include emergency use of surplus Well 17 pumping capacity in drought emergencies, the ability for MPL to store up to 20 million gallons in the MIS reservoir in case of breakdowns at its Well 17 pump, continued compensation for system losses and an option for extension of the Agreement, or early termination provisions should MPL seek to transmit water from Well 17 outside the MIS.

The extension Agreement had not been executed when, on September 12, 2007, the DOA, through its Deputy Attorney General, officially determined that any agreement for the continued use of the MIS by KWLLC would be subject to the preparation of an environmental disclosure document pursuant to HRS Chapter 343. As of October 2007, KWLLC continues to utilize the MIS to transport water; however, the DOA's Deputy Attorney General indicated in writing that the practice should cease pending preparation of the environmental disclosure document.

Currently, there is no alternative means of transporting water from the source (Well 17) to end users in Kaluako'i. Upon completion of the environmental disclosure process, either there will be an agreement for the continued use of the MIS to transport Well 17 water or an alternative method of water transport will have to be established. Several alternatives are possible, each of which requires acquisition of new easements or modification of existing easements as well as engineering and cost studies. These items have to be addressed before MPL can rationally identify the practicable alternatives. As of this writing, this issue remains unresolved.

Under MPL's Water Plan, Lā'au Point's potable water needs will be met from Well 17. MPL's infrastructure plan for transporting and distributing water to Lā'au Point, therefore, remains unresolved as of October 2007. This issue, however, will have to be resolved regardless of, and without reference to, the Lā'au Point project.

The MIS currently transports up to 1.018 mgd of water (12-month moving average) pumped from Well 17 to Mahana for distribution to existing, current users in Kaluako'i. Well 17 water will continue to be used by Kaluako'i customers whether or not the Lā'au Point project is approved. Thus, the issue of how to transport water from Well 17 to either Mahana or to Kaluako'i will have to be resolved regardless of the Lā'au Point project. Inasmuch as the MIS issue affects existing, current uses, there is an element of urgency, and it is likely that the MIS issue will be resolved prior to any discretionary land use decisions being made on the Lā'au Point project. Therefore, the decisions made with respect to continued use of the MIS may have to be made without consideration of the Lā'au Point project.

Because there are existing customers in Kaluako'i dependent upon Well 17 water, water will have to somehow be transported from Well 17 to the facilities owned by MPL for further distribution to end users at Kaluako'i. Either the MIS will continue to be used or alternate infrastructure will be developed for this purpose. Either way, the infrastructure used to transport water from Well 17 to MPL distribution facilities will also be used to transport potable water to Lā'au Point. Therefore, even if use of the MIS to transport Well 17 water is discontinued, there will be a means of getting potable water to Lā'au Point. The decisions made with respect to this MIS issue, however, will affect infrastructure planning for the transport and distribution of potable water to Lā'au Point.

Explanation of the "System Losses" Concept in MIS Agreement

As part of the rental agreement, MPUI, in addition to monetary payments to the MIS, puts in more water than it takes out of the MIS.

The "excess" water is meant to cover system losses. Thus, for every 1,111,111 gallons that is pumped from Well 17 into the MIS, 1 million gallons is taken out at Mahana for eventual use in Kaluako'i. The amount of water pumped into the MIS from Well 17 and the amount that is withdrawn at Mahana are metered; the meters at both ends are monitored by the DOA. In

recognition of this agreement, CWRM included a "MIS System Use Charge" of 94,000 gallons per day as part of the 1.018 mgd allocation for Kaluako'i.

MPL Kept Its Word, Did Not Use MIS Water During Well 17 Breakdown

During June and early July of 2007, MPL's Well 17 pump malfunctioned and the Well was inoperable for 36 days while the shaft was removed and the pump replaced. During this period, MPL instituted strict conservation measures and was able to use water from its mountain system that was stored in reservoirs to meet potable needs throughout its systems. Stream diversions in the mountain system were not increased during this time.

MPL received approval from CWRM to extend the service area of its mountain system to Kaluako'i during the breakdown period.

MPL did not use MIS water and did not seek permission to use MIS water.

MPL was able to maintain its buffer in the MIS system, ensuring the homesteaders and other agricultural users were not affected by the Well 17 breakdown.

4.9.2.13 Lā'au Project Issues

The Impact of 100 Percent of Lā'au Point Homes Using 600 gpd

Under the Water Plan, MPL will have approximately 1.5 mgd of potable water: 1.018 mgd from Well 17 plus 500,000 gpd from the Mountain water system.

Total anticipated long-term potable water needs amounts to 1,089,520 gpd. This includes 96,000 gpd for the Lā'au Point lots, which is based on 600 gpd for 200 lots at 80 percent occupancy (See page 9 of Water Plan Analysis, Appendix S).

If MPL were to increase the Lā'au Point potable allocation to 100 percent (i.e. all 200 homes used 600 gpd), the amount would be 120,000 gpd, an increase of 24,000 gpd. That would raise the total long-term potable water needs to 1,113,520 gpd, which can still be accommodated with the 1.5 mgd available.

The estimated use of 600 gpd for each Lā'au Point residence relates to potable water use only. This is the Maui County Department of Water Supply Water Demand Standard per residential unit.

Additional non-potable water is anticipated for irrigation uses.

Restricting the Water Use at Lā'au Point

Conservation rates are but one means of moderating water consumption. Covenants attached to the Lā'au lots will ensure conservation of water.

Residences at Lā'au Point, unlike the existing Kaluako'i residences, will be required to use a dual water system (potable and non-potable). Moreover, a number of covenants will be attached to the Lā'au lots that will ensure further conservation of potable water. These covenants include:

- Restrictions on further subdivision of lots.

- Disturbance of lot limited to no more than 30% (approx. 1/2-acre)
- Restrict water use for irrigation (landscaping).
    - Require re-use and collection/storage systems for catchments.
    - Only drip systems permitted for irrigation.
- Require all houses to have at least a 5,000-gallon storage tank for water captured from roofs (could be used for irrigation).
- Covenants on drinking water use -- designed to ensure an overall maximum drinking water daily use of 500-600 gpd.
    - Double flush toilets.
    - Specially designed shower heads for conservation.
    - Must use dual water system (potable and non-potable).

While the above conservation measures have not been precisely quantified, the restriction on drinking water use to a maximum of 500-600 gpd will ensure implementation of the above conservation measures and perhaps other measures to stay within the maximum daily drinking water limit.

Clarification that Water Plan Allows for Full Kaluako'i Build-Out

MPL's Water Plan projects long-term potable water needs of no more than 1.5 mgd. This includes, among other things, water for full build-out of the Kaluako'i residential properties. At full build-out, potable water requirements for Kaluako'i residential properties are expected to increase to 228,500 gpd from its current use of 77,500 gpd. Non-potable water needs for Kaluako'i residential properties are expected to increase from the current 143,825 gpd to 633,825 gpd at full build-out.

Transition of Potable Water to Non-Potable Uses in Kaluako'i.

The CWRM has permitted the use of 1.018 mgd from Well 17 for uses at Kaluako'i. More than half of that amount is for irrigation purposes. Under the Water Plan, the water pumped from Well 17, which is of drinking water quality, will not be used for irrigation purposes. Other sources of non-potable water, namely the Kākalahale Well, are intended to replace Well 17 water for irrigation. Until the alternate non-potable source is permitted, developed, and the infrastructure is in place to transport the water to Kaluako'i, Well 17 water will continue to be used for irrigation purposes.

As the alternate non-potable source becomes available, the water from Well 17 that was used, or slated for use, for irrigation purposes will be available for drinking water needs.

4.9.2.14 Desalinization- Additional Clarification

The incentive for desalinization is associated with costs. If the operational cost to desalinate water and the amortized capital costs become lower than the costs to pump and transmit water, we would choose to desalinate. Issues associated with the DHHL reservation and pipeline easements as well as the reliability of the MIS are added incentives.

After preliminary investigation, it was determined that desalinization was not a current reasonable economic alternative and it was therefore not included among those alternatives that were more rigorously explored.

As mentioned in the Water Plan, desalting is still about four times more expensive on Moloka'i (not helped by the island's high energy costs) than developing an operating a deep groundwater well.

A pilot plan on O'ahu developed in the early 2000s still remains idle today because of escalating energy costs needed, in simple terms, to push the brackish water through a membrane to remove the salts.

MPL has previously been approached by two parties proposing desalinization on Moloka'i as an economic business; neither party, following their detailed investigation, wished to continue with their plans for a desalinization plant.

Desalinization is therefore too expensive to be considered MPL's first choice of non-potable water. However, it is an alternative if water from the Kākalahale Well is not available.

4.9.2.15 Alternatives Studied Instead of Kākalahale under the Water Plan

West End Water Sources and East End Alternatives

Several wells and a number of test borings have been completed in both the Kaluako'i and Punakou aquifer systems. The water there is very brackish to near-seawater salinity. In virtually all of the borings, the water was also geothermally heated. These sources are not satisfactory for irrigation use.

There are also a number of small wells in the Kawela and 'Ualapu'e aquifers, including the County's Kawela Shaft and 'Ualapu'e Shaft, which have water use permits to pump 0.348 mgd and 0.234 mgd respectively. The USGS's 2006 modeling effort was given the task of, among other things, studying the effects of replacing these wells with new wells (some in other locations within the Kawela and 'Ualapu'e aquifers), and also of increasing pumpage from these wells. The USGS study modeled 14 different scenarios, each of which included, among other things, some withdrawals by the County from wells in both the Kawela and 'Ualapu'e aquifers.

The water level in the Pu'u O Hoku No. 1 well in the Waialua aquifer, which was drilled in 1998, is nine feet mean sea level, indicating that the well site is not in the dike complex as anticipated.

4.9.2.16 Other Water Issues Raised

Water for Agricultural Easement Land

The majority of MPL's west end holdings are currently in agricultural use. Agricultural easements will ensure that agricultural use of these lands will continue into the future. Much of these lands are utilized for ranching, which has low water requirements. Water for irrigation of MPL's agricultural lands is supplied by Molokai Ranch's Mountain Water System.

Drought Mitigation

In addition to the development of new sources for agricultural water, drought mitigation strategies are important in securing the viability of agriculture and agricultural activities on

Moloka'i. Recommended drought mitigation strategies for Moloka'i, identified by the Maui Drought Committee, include a number of measures to repair and improve the efficiencies of the Molokai Irrigation System. Another drought mitigation recommendation is to install a pump in MPL's Kākalahale well, which could supply brackish water for mixing with existing sources to meet non-potable demands. This drought mitigation measure can readily be incorporated into MPL's plans to utilize the Kākalahale Well for non-potable irrigation needs identified in the *Community-Based Master Land Use Plan for Molokai Ranch* (Appendix A).

Attachment

Revised Section 6.0 (Alternatives)

6.0 ALTERNATIVES TO THE PROPOSED ACTION

Under HAR, Title 11, Chapter 200, Environmental Impact Statement Rules, Section 11-200-10(6), the alternatives to the proposed action considered are limited to those that would allow the objectives of the project to be met, while minimizing potential adverse environmental impacts. The feasible alternatives must also address the project's economic characteristics while responding to the surrounding land uses that will be impacted by the project.

Project Objectives – As stated in Section 2.1.7, the objectives of the Lā'au Point project are rooted in MPL's desire to create a sustainable future for Moloka'i and the Ranch through the implementation of the *Community-Based Master Land Use Plan for Molokai Ranch* (Plan). The goal of the Plan was to create new employment and training opportunities for Moloka'i residents and to provide the community with certainty about its future. The objectives of the Plan are shared by the Lā'au Point project and include:

- Developing sustainable economic activities that are compatible with Moloka'i and the vision of the Moloka'i Enterprise Community (EC).
- Securing the role of the community in the management of MPL's 60,000+ acres.
- Re-opening the Kaluako'i Hotel and creating over 100 jobs.
- Protecting cultural complexes and sites of historic significance on MPL lands.
- Protecting environmentally valuable natural resources, agricultural land, pasture, and open space.
- Providing an endowment that serves as a continuous revenue stream for the Moloka'i Community Development Corporation (CDC).
- Protecting and enhancing subsistence gathering, an important element of life on Moloka'i that includes ensuring public access to and along the shoreline area adjacent to the project.
- Protecting Molokai's water resources, by minimizing drinking (potable) water use.

Criteria for Evaluating Alternatives – Alternatives to the Lā'au Point project were evaluated against the project objectives along with MPL's criteria of achieving economic viability while minimizing potential adverse environmental, social, and cultural impacts. These included:

- Reasonable financial returns must be generated from the funds invested.
- No expanded use of drinking (potable) water currently available to the company.
- No significant increase in population and large urban development of land beyond what the company conceived as acceptable to the community.
- Minimal displacement of land currently designated for agriculture or open space.
- Development of unsuitable lands with poor soil ratings rather than development on more potentially productive agricultural lands.
- Minimizing the cultural and social impacts by mitigating the impact of new people to the island and by ensuring that minimum amounts of drinking (potable) water are used.
- Protecting cultural sites and complexes.

While most alternatives analysis is based on financial feasibility and is economic by nature, this section is intended to also weigh the economic impacts with broader environmental concerns, which include social and cultural impacts, as appropriate. In its efforts to address community-wide concerns, MPL expanded their criteria for evaluation to compare how each alternative

addressed key issues related to the increase in population, availability of drinking water supplies, protection of cultural sites, subsistence activities, and agricultural land.

More detailed discussion of the cultural impacts of the proposed alternatives is discussed in Section 9 of the Cultural Impact Assessment Report (included as Appendix F of this EIS). The social impacts of various scenarios are discussed in Section 5 of the Social Impact Assessment Report (included as Appendix M of this EIS).

The Process of Examining Alternatives – During the two-year community planning process that led to the *Community-Based Master Land Use Plan for Molokai Ranch*, MPL in conjunction with the Enterprise Community (EC) under the auspices of EC Project #47 (Moloka'i Compatible Development Plan), examined a range of alternatives to the proposed Lā'au Point development.

Community concerns were raised about homes at Lā'au Point and whether MPL had been diligent in seeking alternatives that would be more acceptable to the community. In evaluating any proposed alternative, there was the need for economically viable projects that could generate revenue and returns on investment which could make the overall conservation initiatives proposed by the *Community-Based Master Land Use Plan for Molokai Ranch* feasible and sustainable for the benefit of the Moloka'i community. Similarly, the cultural and social impacts were evaluated.

The Alternative to Lā'au Development Committee (ALDC) and an outside planning consultant were funded and sponsored by the EC to find alternatives to the Lā'au Point development and review all the alternatives from the community and off-island. Clark Stevens of New West Land Company was hired based on his expertise in conservation planning. For all proposed alternatives, MPL analyzed the proposals using financial models to ensure it was not ignoring any feasible alternative. In April 2005, MPL reported to the Land Use Committee and the ALDC on its review of 10 alternatives that had been proposed over the previous 14 months by a variety of community members and planners~~, including alternatives proposed by the ALDC planning consultant~~. Later, after the ALDC consultant delivered his report to the EC, MPL evaluated each of the consultant's recommendations and included evaluations in the Draft EIS. In all cases, the alternative development plans proposed by the ALDC and others did not include any business case, revenue, or cost estimates that demonstrated a feasible alternative (see ~~Table 7~~ Table 11 in Section 6.4).

In summary, all alternatives proposed were evaluated against the project objectives and not selected over the proposed Lā'au Point project (detailed in Section 2.3) for the following primary reasons. The alternative plans:

- Did not produce the revenue and returns necessary to fund the re-opening of the Kaluako'i Hotel and support the future viability of Molokai Properties Limited.
- Were not viable economically as stand alone projects.
- Would require vastly increased safe drinking (potable) and non-drinking (non-potable) water use that could not be supported by the Land Use Committee or the EC.
- Proposed increases of up to 1,000 units which increased the resident population to levels that were unacceptable to the Land Use Committee and the EC.

In summary, MPL did not want to seek more drinking (potable) water from island resources, nor propose population increases that appeared to be unacceptable to the island's community. At the Lā'au Point project's build-out, it is anticipated that permanent residents will occupy only 60 of

the homes (30 percent), thus minimizing the social impact (see Section 4.8). Water use will be contained by strict CC&Rs attached to the project (see Section 4.9.2).

Another criteria was to ensure that current potentially usable agricultural land remain available for future agricultural use, thus protecting the desire to have Moloka'i remain an agricultural-based economy. Section 3.3 and 3.4 discuss soils at the Lā'au Point site as being poorly suited for soil-based agriculture. Other more suitable agricultural land has been identified elsewhere on other MPL lands in the Plan.

In conformance with applicable regulations (HAR, Title 11, Chapter 200, Environmental Impact Statement Rules, Section 11-200-10(6)), the alternatives to the proposed action that were derived during the community process and evaluated are listed below and discussed individually.

- No Action
- Bulk or "Piece-Meal" Sale of Other Land Inventory
- Agricultural Subdivision
- Other MPL Land Development Alternatives Considered
- ALDC Proposed Alternatives
- Other Proposed Uses for MPL Lands (Non-residential and Non-agricultural)
- Postponing Action Pending Further Study

6.1 "NO ACTION" ALTERNATIVE

The "no action" alternative would not involve any changes to the Lā'au Point project site, and the property would remain vacant of any additional improved uses. If the Lā'au Point project were not developed, lands would remain as fallow agricultural land. As agricultural land, the site is underutilized due to the poor soils (see Section 3.3) and lack of irrigation water.

With "no action", there would be no expansion of the Conservation District or designation of cultural and environmental preserves in the area.

In terms of meeting the goals of the *Community-Based Master Land Use Plan for Molokai Ranch* (Plan), maintaining the site in its present condition would forego a revenue source to pay for renovations of Kaluako'i Hotel. In addition, the "no action" alternative would not meet the Plan's objectives as previously detailed above and in Section 2.1.7. The Plan's needs (e.g. affordable housing, infrastructure improvements, housing demand) would not be met, and direct and indirect impacts would not occur.

Since the Lā'au Point project is the primary financial component to achieve the Plan's objectives, non-implementation of the project means that most, or all, of the Plan may not be realized. The only Plan component that will occur without the Lā'au Point project is the gifting of 1,600 acres to the Land Trust (as discussed in Section 2.1.8). The Land Trust would not receive the remainder donation of 24,600 acres, which include numerous culturally significant sites such as the makahiki grounds of Nā'iwa, Kawela Plantation, fishing village at Kaupoa Camp, and other sites.

A key negative impact of the "no action" alternative would be the effect on the financial viability of ongoing operations of Molokai Ranch and its employees. An evaluation of MPL's current and historical operating records shows that the net loss from 2001 to 2006 operations has been approximately $36.9 million. Painful cost-cutting has reduced operating losses in the last three

years, but increasing costs for water, energy, and insurance have made it difficult to expect profitable operations in the future.

The "no action" alternative would also not generate the $30 million+ required to renovate and re-open the Kaluako'i Hotel. MPL is currently seeking a Special Management Area permit in anticipation that the Lā'au Point project will receive approval. Unless MPL begins the preliminary design work on the hotel now, it could be at least two years after regulatory approvals for Lā'au Point that the hotel is re-opened. Doing the necessary preliminary work on the hotel now means an earlier re-opening.

Without the increase in support for golf and the existing Lodge and Beach Village hotel operations, MPL could be forced to reduce operations and perhaps close those facilities. In addition, MPL could also be forced to reduce or eliminate other subsidized operations such as maintenance, nursery, gas station, and other services. The impacts of these reductions would significantly affect existing employment at Molokai Ranch and in Maunaloa Town.

The "no action" alternative would not sustain the Ranch for the future. A continuation of present operating practices would eventually lead MPL to close down its ranch operations and either land bank the property for the future or put the lands up for sale (see Section 6.2). Employment would have to be reduced, tourist expenditures would be lost, and local businesses at Maunaloa Town and elsewhere would be affected. These losses in local jobs and probable business failures would also increase the need for County and State social services. While the "no action" alternative would allow the environment of Lā'au Point to remain untouched to the benefit of those opposing development, these negative effects of the impending closure of Ranch operations and unknown risk created by probable land sales would appear to have more far reaching effects upon the economic and social fabric of the larger Moloka'i community.

Finally, the "no action" alternative would deny the State, County, and general public of the potential public benefits associated with the Lā'au Point project. Some of these benefits include:

- $246 million in total development and construction investment.
- 1,350 person years of construction-related employment over project build-out (a "person year" is the amount of time a person can work in one year).
- $17.7 million in construction-related taxes.
- $1.3 million in annual real estate tax revenues at the end of the lot sales period in 2012; tax revenues will increase at a rate of $90,000 each year until it reaches $2.1 million at full build-out.
- Other County tax revenue (fuel tax, utility tax, license fee, permits, state/federal grants) which is estimated to reach $1.6 million annually after full build-out.
- Annual state revenues from taxes on residents and their expenditures of $276,000 at the end of lot sales in 2012; climbing to $1.3 million by 2023.
- Annual expenditures on Moloka'i at build-out of about $4.4 million, which represents about $22,000 in on-island spending per residence.
- Support of 60 on-going jobs upon full build-out in 2023 through resident spending and the Lā'au Point homeowners' association.
- Five percent of land sales going to support the Land Trust; this commitment is estimated to provide over $10.2 million (prior to the payment of any real estate commissions or other regulatory costs) for the on-going operations related to the preservation and enhancement of the dedicated lands.

The resulting environmental, social, and economic benefits of creating the proposed Lā'au Point project outweigh the loss of approximately 460 acres of currently vacant agricultural land. The ~~convertion~~ conversion to rural district for 200 lots and related infrastructure development would not impact Molokai Ranch's agricultural goals and production.

Given the above, and in consideration with the goals and objectives of the Lā'au Point project and the *Community-Based Master Land Use Plan for Molokai Ranch*, the alternative for "no action" is not a feasible alternative.

6.2 BULK OR "PIECE-MEAL" SALE OF OTHER MPL LAND INVENTORY ALTERNATIVE

MPL land holdings are comprised of 101 lots that could be sold within Pāpōhaku Ranchlands, Maunaloa (both Residential and Commercial), and the Industrial Park. Of these 101 lots, 23 are held by a Kaluako'i LLC, 70 by MPL, and 8 by Cooke Land Company. The golf course is actually held in six separate TMK parcels but is only counted as one, as it would be impractical to sell it to more than one buyer, unless it was to be abandoned. Each of the lots in Kaunakakai is counted as a separate lot as it could be sold to different buyers. It would be more likely that there would be a fair amount of consolidation and re-subdivision of those small lots for larger industrial or business uses.

This "land-banking," or individual parcel sales, would essentially close down ranch operations and reduce MPL's employment to only 10 full-time staff as the company sells its properties to potentially 101 new owners/residents. Although the immediate effect of reducing employees is always devastating often with longer-term implications, it is conceivable that subsequent landowners could rehire former employees and/or create new job opportunities. While the amount and type of new jobs is not known, these would likely occur over a longer period of time. A great concern will be how the local economy will be impacted shortly after it loses support of the island's largest private employer and user of goods and services.

In selling off its holdings, an existing allowable lot density analysis conducted by MPL shows that the west end agricultural-zoned parcels comprising approximately 43,000 acres could be subdivided into more than 1,500 lots, based on the Agricultural district subdivision standards for Maui County zoning (lots range from 2, 15, 25, and 40 acres) or the Community Plan (minimum 25-acre lots).

In this alternative, the 24,600 acres (this does not include the 1,600 acres to be gifted regardless of project outcome) that would otherwise have been donated to the Land Trust under the Lā'au Point proposed action would instead be sold off as separate parcels.

If these lots were sold off without the benefit of a master plan, such as the one prepared for Lā'au Point, the impact would include a greater number of new land owners/residents, less community control of development (i.e. design controls and CC&Rs), no land trust, and less financial support to the County and State (this later assumes that Lā'au Point is developed and taxed at its highest and best use and if not developed as such, that subsequent land owners could not develop their individual lots with the same intensity of uses in mind). Similar to the "no action" alternative (see Section 6.1), selling parcels separately would deny the State, County, and general public of the potential public benefits associated with the Lā'au Point project, of which the benefits have been cited before in the previous section.

Given the summary of impacts disclosed above, and in consideration with the goals and objectives of the Lā'au Point project and the *Community-Based Master Land Use Plan for Molokai Ranch*, the alternative for "bulk and piece-meal sale of other MPL land inventory" has been rejected as an acceptable alternative.

6.3 AGRICULTURAL SUBDIVISION ALTERNATIVE

The Lā'au Point project will require a State Land Use District Boundary Amendment (SLUDBA) to re-district 850 acres of land currently within Agricultural District to the Rural District. The Lā'au Point project site to be re-districted is a small portion of the larger agricultural parcel of 6,348 acres, identified as TMK 5-1-02:30. The "agricultural subdivision alternative" would not require a SLUDBA because the entire parcel is already within the State Agricultural District.

The project will also require both a Community Plan Amendment and Change in Zoning approval to re-district agricultural-designated lands (AG) to rural (R) designation. According to the Moloka'i Community Plan (Planning Standards, Subdivisions, Minimum Lot Size), the recommended minimum lot size for AG subdivisions shall be 25 acres; therefore, the Lā'au Point parcel could be subdivided into approximately 215 agricultural lots (with an allocation of 15% for roads). Under the Maui County Agricultural District Ordinance (Maui County Code, Chapter 19.30A), the entire parcel zoned AG could be subdivided into 223 lots ranging in size from 2 acres, 15 acres, 25 acres, and 40 acres.

Since the MPL parcels are already zoned for agriculture, agricultural subdivisions would not require MPL to obtain a State Land Use District Boundary Amendment, Community Plan Amendment, or County Change in Zoning approval.

As previously discussed in Section 3.3, the soils of the parcel have severe limitations for cultivation. Except for approximately 24 acres rated as poor ("D") soils, the Land Study Bureau classifies the soils of the parcel as very poor ("E"). Soils rated "E" are considered as having little or no suitability for soil-based agricultural production. Also, a majority of the soils of the parcel are unclassified by under the ALISH system, which means the soils provide no value for soil-based agriculture. Therefore, the only feasible agricultural activity that could prosper on this parcel would be grazing, which has proven to not be economically sustainable for Molokai Ranch.

For these reasons, it is questionable as to whether there would be a market for agricultural lots in West Moloka'i. Unlike the Lā'au Point project, which would subdivide and sell 400 acres (200 lots) to private landowners, the agricultural lot subdivision alternative would involve selling 6,348 acres to farmers in direct competition with more suitable agricultural lands elsewhere throughout Moloka'i and the State.

In addition, an agricultural subdivision of the parcel would not provide the environmental benefits of expanding the Conservation District at Lā'au Point and creating cultural/environmental preserves, or addressing the objectives of the *Community-Based Master Land Use Plan for Molokai Ranch*.

6.4 OTHER MPL LAND DEVELOPMENT ALTERNATIVES

Molokai Ranch has vast land holdings on Moloka'i of 60,000+ acres. These lands stretch from West Moloka'i east to scattered parcels near Kaunakakai and Kualapu'u. While large tracts of land appears available for development at first, options are narrowed when considering the importance of the development's location in relation to the shoreline and therefore its ability to attract interest and generate the necessary revenue to make the Plan work economically.

MPL examined various options in detail where it may be possible to develop a community at other Ranch land locations away from the Lā'au Point project area. Models were developed to compare alternative scenarios ranging among different agricultural and residential projects of between 27 lots/units and 1,000 lots/units.

MPL initially looked at large Agricultural lot developments conforming to existing State land use designations, the Moloka'i Community Plan, and County Zoning at Maunaloa Town and above Kaunakakai. MPL also looked at an affordable residential expansion at Kualapu'u as part of the first round of possible alternatives and at various rural and condo alternatives for Kaluako'i. MPL also examined DeGray Vanderbilt's Lā'au Point alternative (the Kaluako'i Rural Subdivision and Golf Course) to make sure MPL had looked at every aspect.

In efforts to avoid development specific to the Lā'au Point project area, MPL examined nine options in detail on other Ranch lands outside of the Lā'au Point project site. Financial models were created to examine the alternatives' ability to generate the necessary revenue to make the *Community-Based Master Land Use Plan for Molokai Ranch* work economically. It is important to note the following assumptions in relation to these financial models and resulting evaluation:

- Current land sales data of MPL transactions was used for establishing relative selling prices, benchmarked with prices of properties sold by local real estate agents at the West End at various locations.
- Development cost models were constantly reviewed and benchmarked with current projects such as the Maunaloa Community Center, the Kaluako'i Water Compliance project, and the Pāpōhaku erosion control project. Development and construction cost estimates were reviewed and updated quarterly with outside contractors, and factored in future inflation costs and labor requirements.

In all of the development alternatives evaluated below, the following has not been factored in, but would undoubtedly substantially reduce returns to the developer:

- The cost of capital or funding costs to develop.
- A percentage of lot sale revenue assigned to the Land Trust.
- The impact of delays in the regulatory permitting process, which can be significant.
- Sales momentum, the time taken to sell once developed, in other words the "time value of money" or net present value of future cash flows.

In this analysis, MPL found that all of the financial models had the common problem of not generating reasonable returns on the funds invested in meeting Lā'au Point's objective of providing adequate funding for the Kaluako'i Hotel and Golf Course renovations, and an endowment for the Land Trust and the CDC. The models that in theory were capable of generating returns in excess of 10 million dollars are massive in scope and in reality are probably less feasible than the smaller projects due to the need to phase them over years and the time taken to address both the construction requirements and market absorption. The outcomes

showed either proposed water use not available to the company or used vast amounts of land or increased the population beyond what was conceived as acceptable to the island, thus having dramatic cultural and social impacts.

In varying degrees, none of the alternatives evaluated meet the criteria established: adequate financial return, no further use of drinking (potable) water, no great population increase, no great displacement of lands designated for agriculture or open space, no use of potentially higher value agricultural lands versus less, suitable agricultural lands with poorer soil productivity ratings.

~~Table 7~~ Table 11 and the following sections provide a summary of the evaluation analysis of the alternative of "Other MPL Land Development".

~~Table 7~~ Table 11. Summary of Other MPL Land Development Alternatives

	Alternative	# of Lots/ Units	Approx. Land area (acres)	Estimated Water use per lot/unit (gals/day)	Estimated Total Water Use (gals/day)	Esti-mated Popu-lation impact per lot	Total Popu-lation	Estimated Financial Return (total dollars)
1	Maunaloa to Lā'au – 25-acre lots	175	4,650	3,000	525,000	2	350	$4,336,000
2	Maunaloa to Lā'au – 10-acre lots	420	4,350	3,000	1,260,000	2	840	$15,731,000
3	Maunaloa to Lā'au – 2-acre lots	600	1,450	3,000	1,800,000	2	1,200	$6,455,000
4	Maunaloa Ag	27	700	3,000	81,000	2	54	$2,613,000
5	Kaunakakai Ag	70	1,800	3,000	210,000	2	140	$1,974,000
6	Kualapu'u	40	7	500	20,000	4	160	($92,000)
7	Kaluako'i Rural #1	500	300 125	1,000/unit potable 2,000/acre nonpot	500,000 potable 250,000 nonpotable	2	1,000	$0
8	Kaluako'i Rural #2	800	720 180	1,000/unit potable 2,000/acre nonpotable	800,000 potable 360,000 nonpotable	2	1,600	$36,752,000
9	Kaluako'i Resort Condo	1,000	92.75	560/unit potable 2,000/acre nonpotable	560,000 potable 185,500 nonpotable	1.5	1,500	$38,000,000

6.4.1 Maunaloa Toward Lā'au Point

Professor Luciano Minerbi from the University of Hawai'i's Urban and Regional Planning Department recommended that MPL look at a development area below Maunaloa town extending toward Lā'au Point but staying a minimum of a mile from the shoreline. MPL ran three models for this area, a Moloka'i Community Plan-conforming Agricultural subdivision with a 25-acre minimum lot size, a subdivision in the same area using a 10-acre minimum lot size, and a 2-acre minimum lot size version.

25-acre Minimum Lot Size – this model contains 175 lots.

(a)	Revenue per lot:	$450,000
(b)	Total Revenue:	$72,450,000
(c)	Cost to Develop:	$68,114,000
(d)	Financial Return:	$4,336,000
(e)	Water Use:	525,000 gallons/day
(f)	Population increase:	350
(g)	Land Requirement:	4,650 acres

Agricultural lots are often marketed to farmers desiring to cultivate diversified crops. The economic feasibility and market demand of this alternative is questionable due to the lack of infrastructure and high cost of front-end investment needed.

10-Acre Minimum Lot Size – Located in the same geographic area as the project above, this project contemplates a Community Plan Amendment to create higher densities and greater net revenues. This model contains 420 units.

(a)	Revenue per lot:	$275,000
(b)	Total Revenue:	$115,500,000
(c)	Cost to Develop:	$99,769,000
(d)	Financial Return:	$15,731,000
(e)	Water Use:	1,260,000 gallons/day
(f)	Population increase:	840
(g)	Land Requirement:	4,350 acres

Although this alternative creates a high profit return, this alternative's proposed water use is not available to the company, more land is required, and the increase in population is beyond what was conceived as acceptable to the community. Therefore, this alternative was rejected.

2-Acre Minimum Lot Size – Smaller lots are preferable for small-scale diversified agricultural operations. Like the concept above, a Community Plan amendment to allow minimum 2-acre lot size is also contemplated with this scheme. This project of 600 sites, would have a much smaller footprint than the two alternatives above, but would have considerably greater population and water impacts.

(a)	Revenue per lot:	$200,000
(b)	Total Revenue:	$120,000,000
(c)	Cost to Develop:	$113,545,000
(d)	Financial Return:	$ 6,445,000
(e)	Water Use:	1,800,000 gallons/day
(f)	Population increase:	1,200
(g)	Land Requirement:	1,450 acres

This alternative does not generate reasonable returns on the funds invested, proposed water use is not available to the company, more land is required, and the increase in population is beyond what was conceived as acceptable to the community. Therefore, this alternative was rejected.

6.4.2 Maunaloa Agricultural Subdivision

This alternative would utilize the best 700 acres of pasture land just above Maunaloa to create a 25-acre agricultural lot subdivision. This development would provide 27 lots and infrastructure demands were relatively low.

(a)	Revenue per lot:	$500,000
(b)	Total Revenue:	$13,500,000
(c)	Cost to Develop:	$10,887,500
(d)	Financial Return:	$2,612,500
(e)	Water Use:	81,000 gallons/day
(f)	Population increase:	54 people
(g)	Land Requirement:	700 acres

This alternative does not generate reasonable returns on the funds invested. Therefore, this alternative was rejected.

6.4.3 Kaunakakai Agricultural Subdivision

This alternative would develop the existing cornfields below Manila Camp and all the land directly above Manila Camp up to about the 1500-foot elevation. Consistent with the Moloka'i Community Plan's 25-acre minimum agricultural lot size, the lots would require 1,800 acres, creating 70 lots – 2 suitable for diversified agriculture and 68 pasture lots. As the cornfields are an existing agricultural water use, that water use is not included in the summary below:

(a)	Revenue per lot:	$475,000 - $625,000
(b)	Total Revenue:	$33,980,000
(c)	Cost to Develop:	$32,006,000
(d)	Financial Return:	$1,974,000
(e)	Water Use:	210,000 gallons/day
(f)	Population increase:	140 people
(g)	Land Requirement:	1,800 acres

This alternative doe not generate reasonable returns on the funds invested, proposed water use is not available to the company, and more land is required. Therefore, this alternative was rejected.

6.4.4 Kualapu'u Residential Subdivision

Conceived as an affordable housing project adjacent to the existing town and the Kalae Highway, the project would be able to benefit from existing infrastructure to reduce costs to some degree. This initial increment was sized at 40 lots.

(a)	Revenue per lot:	$60,000
(b)	Total Revenue:	$2,400,000
(c)	Cost to Develop:	$2,492,000
(d)	Financial Return:	($92,000) loss
(e)	Water Use:	20,000 gallons/day
(f)	Population increase:	160
(g)	Land Requirement:	7 acres

This alternative results in a financial loss. Therefore, this alternative was rejected.

6.4.5 Kaluako'i Rural Subdivision and Golf Course

This concept looked at 500 half-acres designated for rural lot development in conjunction with a new 18-hole golf course. About half of the lots would have golf course frontage, while the remainder would have ocean views.

(a)	Revenue per lot:	$245,000
(b)	Total Revenue:	$122,256,000
(c)	Cost to Develop:	$122,259,000
(d)	Financial Return:	Breakeven
(e)	Water Use:	750,000 gallons/day
(f)	Population increase:	1,000
(g)	Land Requirement:	425 acres

This concept replicated a previous land use plan concept that provided 800 three-quarter acre lots planned around 27 holes of golf. As would be expected, the population and water impacts are considerable. However, the financial contribution from this project is disappointing.

(a)	Revenue per lot:	
	(1) Golf Course frontage:	$300,000
	(2) View Lots:	$200,000
(b)	Total Revenue:	$200,500,000
(c)	Cost to Develop:	$163,748,000
(d)	Financial Return:	$36,752,000
(e)	Water Use:	1,160,000 gallons/day
(f)	Population increase:	1,600
(g)	Land Requirement:	900 acres

This alternative's proposed water use is not available to the company and the increase in population is beyond what was conceived as acceptable to the community. Therefore, this alternative was rejected.

6.4.6 Kaluako'i Resort Condo Units

For this analysis MPL assumed that 1,000 units might determine a return that was feasible. Two-bedroom, 1,200 square foot units were assumed. It was also presumed that MPL would need to build the units with an investor/partner due to the enormous financial requirements of this development.

(a)	Revenue per unit:	$500,000
(b)	Total Revenue:	$500,000,000
(c)	Cost to Develop:	$462,000,000
(d)	Financial Return:	$ 38,000,000
(e)	Water Use:	745,000 gallons/day
(f)	Population increase:	1,500
(g)	Land Requirement:	92.75 acres

This alternative increases population beyond what was conceived as acceptable to the community and has water requirements beyond what's available the company. Therefore, this alternative was rejected.

Summary of Findings – To the extent that MPL could develop a community at another location on other MPL lands, the alternative for "Other MPL Land Development" was rejected for the following reasons:

- Other sites do not have the natural beauty and coastal attributes needed to achieve the full economic potential.

- Other sites would not attract the upper spending market that would pay a premium for lots at Lā'au Point. Sales of the residential lots are crucial for funding the Kaluako'i renovations and the Moloka'i CDC.
- Overall project density and population would be higher at the alternative locations.
- More water would be required, which would mean increased water permit applications.
- A consensus was reached with the *Community-Based Master Land Use Plan for Molokai Ranch* for the Lā'au Point project.

The models that in theory were capable of generating returns in excess of ten million dollars are massive in scope and in reality are probably less feasible than the smaller projects due to the need to phase them over years and the time taken to address both the construction requirements and market absorption. As stated, these factors were not addressed.

By comparison (refer to ~~Table 6~~ Table 11), the Lā'au Point project as currently conceived would:

- Require only 1/8 the land area of models (1) or (2), and much less than models (3), (4), (5), or (8).
- It would impact the population less than models (2), (3), (7), (8), or (9).
- It would also require much less water than models (2), (3), (7), (8), or (9).

More importantly, the Lā'au Point project can meet the financial requirements of MPL, protect the employment of existing staff and provide over 100 new jobs with the Kaluako'i Hotel re-opening, with slow, modest growth. Most importantly, it allows the creation of the Land Trust and the resulting transfer of 26,200 acres and the protection of an additional 25,000 acres.

6.5 ALDC ALTERNATIVES

The Alternative to Lā'au Development Committee (ALDC) efforts to find an alternative to the Lā'au Point project, and the hiring of Clark Stevens (New West Land Company), were funded by the Moloka'i Enterprise Community (EC). The former leader of the ALDC, Mr. Matt Yamashita, sought EC Board approval to delay a vote on the ~~Plan~~ *Community-Based Master Land Use Plan for Molokai Ranch* and Lā'au Point "until a process for solidly incorporating potential alternatives into the Land Use Plan was seriously considered by the EC." Ultimately, the EC Board rejected this motion after review and consideration of ALDC's proposed alternatives, which are described below.

In response to his comment letter on the Draft EIS dated February 21, 2007, we have incorporated the following statements by Mr. Yamashita:

> *"...the ALDC was formed by frustrated members of the community who had to petition the EC for the ALDC to become a part of the "community" process."*
>
> *"The ALDC was not formed until November of 2004. EC funding to support the work of the ALDC was not secured until June 2006!"*
>
> *"The reason the ALDC formed was because no action was being taken by the EC to allow the community to address potential alternatives to La'au Point. While there was a Tourism Committee, Economics Committee, Environment Committee, & Cultural Committee — no Committee was formed to look at the La'au development and other potential economic engines."*

6.5.1 New "Town"

This alternative proposed 50 view-shed lots at Lā'au Point, located between 0.5 mile and 1.5 miles from the Lā'au shoreline, and another 100 small residential lots, which would represent a new "town" similar to Maunaloa. No financial evaluation was provided with this proposed alternative.

This alternative was examined in some detail as the EC funded the ALDC to hire Clark Stevens to review alternatives. MPL examined every site proposed by Clark Stevens by walking the area proposed for these lots.

MPL's analysis of the alternative indicates that the total cost of infrastructure and lot construction (which would need to be brought in and connected to Maunaloa's systems) would cost $875,000 per lot (or a total cost of $44 million) for the 50 view-shed lots (not including the 100 small residential new "town"). The distance between the lots (lots were proposed to be spread out across the Lā'au Point parcel) and the fact that it would not be feasible to run infrastructure from Kaluako'i, resulted in this abnormally high infrastructure cost.

On this basis, MPL would lose money on this alternative as it is inconceivable that it could achieve a price of $875,000 for lots that only had ocean views and were sited between one mile and one and a half miles from the ocean.

A comparison can be made with the Kaluako'i lots, many of which are currently on the market by private sellers and are of similar distance from the ocean. Good ocean-view lots of five-acres in size, and that are close to the Kaluako'i Hotel, were selling for approximately $400,000 to $450,000 in October 2006.

The proposal to create a new "town" at Lā'au Point was soundly rejected by the community of Maunaloa; a community that is currently fighting to survive a declining West End economy. The *Community-Based Master Land Use Plan for Molokai Ranch* allows for the expansion of Maunaloa by up to 100 acres, but only when the community believes it is necessary, as discussed in Section 4.8.2 (Housing).
Some of the proposed sites were also in the middle of cultural site complexes (denoted as Cultural Protection Zones in Figure ~~10~~ 12), a factor not reviewed by Stevens in his report.

The Lā'au Point proposal protects more than 1,000 acres in front of and surrounding the development. This protection includes the gifting of an important cultural and archaeological complex at Kamāka'ipō Gulch to the Land Trust and protective easements covering other cultural sites.

The detail of the cultural impacts (Section 4.2) of proposed Lā'au Point project, the issues of access for the community for subsistence gathering (Sections 2.3.7, 4.2, and 4.3), and the proposed Water Plan (Section 4.9.2) are discussed in this EIS.
The budgeted construction for the proposed Lā'au Point project is $360,000 per lot. Because of the large cost and value difference between this alternative ($875,000 per lot) and the proposed project, the new "town" alternative was rejected.

6.5.2 Purchase of Lā'au Point Parcel

The other alternative proposed included several purchase options for Lā'au Point instead of development. ALDC's consultant, Clark Stevens, proposed that it would not be "unreasonable" to assume that an effort to purchase Lā'au Point would elicit broad-based financial support, particularly from the 400,000 people of Hawaiian ancestry who appreciated the culture of the Hawaiian Islands.

Stevens also proposed that the Land Trust purchase both the lands proposed for the Land Trust and the Lā'au Point parcel (a total of 33,000 acres), and then lease the land in 1,320 properties (25-acre lots). This option was rejected as it failed to recognize the desire of the Land Use Committee and the EC to protect vast areas of the property in conservation. It was not reasonable to assume that the Land Trust would purchase land that was already planned for fee donation to them under the proposed *Community-Based Master Land Use Plan for Molokai Ranch.*

Early in 2006, the ALDC, in a memorandum to the EC Board, indicated its support for the purchase of the Lā'au Point parcel, either in whole or in part, by a third party, individual, or entity. The ALDC stated it would prefer a conservation "philanthropic" buyer to purchase the entire 6,348-acre parcel, or a buyer who could use the tax incentives and develop mauka of the shoreline with less density. The ALDC asserted that in order for them to move forward with finding potential purchasers, MPL must be willing to keep this alternative open and determine a purchase price for the parcel.

In October 2006, Matt Yamashita, leader of the ALDC, told an EC Board meeting that the ALDC, as a formal organization, no longer existed, and he asserted it was the responsibility of the EC to consider looking for alternatives to the Lā'au Point development. He stated that the ALDC had not put effort into finding a conservation buyer for the parcel.

MPL has stated to the ALDC, regarding this purchase alternative, the following:

- If a purchaser offers the company a price for the Lā'au parcel that is equivalent to its development return, protects areas for subsistence as proposed, and provides an endowment income to the Land Trust/CDC as proposed under the Lā'au Point development plan, it will seriously consider the offer. MPL will seriously consider offers, but after an extensive two-year community process, does not desire to indicate a price for the parcel because of the many variables involved.
- Should a serious buyer emerge, MPL will enter meaningful negotiations with that party or parties.

6.6 OTHER PROPOSED USES FOR MPL LANDS (NON-RESIDENTIAL AND NON-AGRICULTURAL) ALTERNATIVES

Several other options were suggested which included a Marine Biology Center, a new University focusing on environmental sciences, a Health and Wellness Center, and a Cultural College; all proposed to have economic benefit equal to or better than the Lā'au Point project. MPL does not believe that these options are viable at this time and over the past decade has had no inquiries from institutions with any interest in establishing such projects or investing capital on Moloka'i for these types of ventures.

An alternative proposed by the U.S. Military was to use parts of Lā'au Point for non-live firing amphibious and air exercises. The Land Use Committee rejected this alternative citing it as an inappropriate use and contrary to the Plan and project objectives.

MPL was also asked to look at the area from Hale O Lono to Pālā'au There are several issues with this area, not the least of which is the proposed inclusion of this land in the Land Trust and the importance of the Kā'ana ahupua'a.

With respect to archeological sites, the area has had only limited analysis done to date, and where surveys have been conducted, sites have always been found. Based on the limited surveys, it is likely that extensive archaeological survey work would identify culturally-sensitive areas. The topography of the site is that of sloping ridges divided by deep, steep gullies. To access development along the more desirable coastal areas, it would be necessary for road construction to start at the top of Maunaloa and traverse down each of these ridges. MPL estimated that 24 miles of roads would be needed to service the area. This would not only be costly, but would severely impact the ability of this region to be used for subsistence hunting as currently proposed by the Plan. These roads and utilities would require the development of hundreds of lots to offset their construction costs. This analysis explains why Molokai Ranch in the past had shelved plans for initial development of this area as being economically unfeasible.

6.7 FURTHER ALTERNATIVE ANALYSIS

As part of a continuing commitment to analyze alternatives to the proposed development at Lā'au Point, and following a review of the many letters with questions relating to the alternatives published in the Draft EIS, MPL has further analyzed its previous complete list of alternatives (published in the Section 6 above).

- Further research has shown that Alternative 1 (175 twenty-five acre lots between Maunaloa and Lā'au Point), Alternative 2 (420 ten-acre lots between Maunaloa and Lā'au Point), Alternative 4 (27 Maunaloa Ag lots), Alternative 5 (70 Kaunakakai Agricultural lots), Alternative 6 (40 Kualapu'u residential lots), Alternatives 7 and 8 (500 and 800 rural lots in the Kaluako'i area) and the alternative proposed by the ALDC consultant, Clark Stevens, for a new "town" located between Maunaloa and Lā'au Point, are not economically feasible. The reasons given in the previous section for dismissing these particular developments are still valid.

Examined in greater detail were:

- The three alternatives for a variety of different developments on two-acre lots and ten-acre lots mauka of Lā'au Point and situated between half a mile and two miles between the current proposed La'au Point development and Maunaloa.
- A Kaluako'i Resort Condo development of 1,000 with a potential return of $38 million; and options for lesser units.

6.7.1 Relocating the Development Mauka of the Current Location at Lā'au

One of the primary questions asked in comment letters to the Draft EIS was: "Why can't the proposed development be relocated mauka by one-half mile to one mile?" In context with this question, comments raised the following issues in regard to currently proposed location of the Lā'au Point subdivision (that is at least 250 ft from the shoreline):

i. The homes may be visible from the beach and from the ocean, thereby depriving residents of the sense of an undeveloped place, as it now exists.
ii. The homes as currently located, increase adverse social inter-action and the new residents will have an adverse impact on the fishing and coastal resources of the area.
iii. The homes as currently located, increase the risk of adverse impacts from the subdivision such as run-off.
iv. What is the basis of the economic impact of re-locating the subdivision mauka of its current planned location, and can these be outweighed by the other adverse impacts of the current location.

In response to items (i), (ii) and (iii) above, MPL is extremely conscious of these issues. Specific sections of this EIS have provided suggested mitigation measures to minimize potential impacts. In response to item (iv) an economic analysis is provided below. The principle issue of the development of a piece of property close to the ocean, and the almost certainty that some houses will be visible from areas of the beaches, is an issue that cannot be overcome with the current siting, and MPL can only mitigate this issue to lessen the impact.

6.7.1.1 One Mile from the Shoreline

Relocating the subdivision at least one mile from the shoreline would:

- Overcome potential adverse visual impacts from the shoreline and the ocean;
- Lessen perceived adverse social impacts from inter-action from new residents with members of the community wishing to fish the ocean, and
- Reduce the potential for run-off from the subdivision into the ocean.

Locating the subdivision at least one mile from the shoreline would also:

- Place the development on Rural Reserve land, projected for no buildings whatsoever under the *Community-Based Master Land Use Plan for Molokai Ranch.*
- Interrupt rural views toward the ocean from Maunaloa and the Maunaloa Highway by the sight of houses. During the process of creating the *Community-Based Master Land Use Plan for Molokai Ranch*, protection of the rural views from the highway leading into Maunaloa was a primary concern of participants, particularly those from Maunaloa.
- Prohibit subsistence hunting, planned for that Rural Reserve area.

6.7.1.2 One-Half Mile from the Shoreline

In the case of siting the subdivision one-half mile from the shoreline, the potential visual impact would be minimized, but not overcome entirely as the high-point ridges of the hills above Lā'au Point are in many places more than one-half mile away. Some homes built within a half mile from the shoreline may be visible from the ocean and from some of the beaches.

For this alternative, the same protection measures to prevent runoff would need to be in place as the currently proposed plan and residents would be able to easily walk to the beaches. There would also be the same issues regarding interaction with subsistence fishermen, and there is the same potential for rubbish being littered in the areas between the subdivision and the beaches.

6.7.1.3 Comparative Analysis

The economics of locating the subdivision further from the shoreline is discussed in more detail below.

Input from the community at Social Impact Assessment review meetings and at Cultural Impact Assessment meetings led to incorporating extraordinary measures to overcome potential problems in the Lā'au project that equalized the impacts, or lack of impacts between the proposed project and alternatives examined wherein the homes were relocated further mauka. These include:

Visual Impact:

- The CC&Rs will prevent houses of more than one-story being built.
- House sites will be pre-determined by MPL on lot plans.
- At least two-thirds of the lot must remain undisturbed.
- Natural materials must be used in house construction.
- Any colors used will be pre-determined and will blend with the landscape.
- The front lots in the subdivision are setback at least 250 feet (and in some cases up to 1,000 feet or 1/4 -mile) from the registered shoreline. This is much further back from the shoreline than is usually the case e.g. the Kaluako'i subdivision.

Note: The Land Trust will be a party to the CC&R documents, and therefore, can enforce its provisions if they are not met by the homeowners, or even the Homeowners' Association representing the homeowners.

Subsistence Protection:

- A total of 254 acres of existing agricultural land behind the Conservation District of 180 acres adjacent to the beach is being designated as additional Conservation District land.
- This expanded Conservation District of 434 acres, where the community has access, will be under easement to the Land Trust.
- The area will be jointly managed by the homeowners and the Land Trust to ensure the easement provisions, which protect the cultural sites and guarantee subsistence practices for the community, are forever in place.
- Access to the area will only be by foot, from access points at each end of the subdivision.
- The lot owners and the Land Trust will employ Resource Managers to ensure those who visit the protected areas only take from the fishing resources what they can carry out.
- Lot owners will not be allowed to use pesticides or non-organic fertilizers to prevent dangerous materials leaching into the ocean.

Note: Contained in this Final EIS, is a Shoreline Access and Management Plan (Appendix B), developed by MPL in conjunction with the Moloka'i Land Trust, which will guide use of the Conservation District lands or shoreline areas in front of the subdivision.

Lot Owner Interaction:

- Each lot owner will be required under the CC&Rs to take a course, conducted by the Kupuna, only "Moloka'i style" and what is expected of them as new residents living at Lā'au Point.
- Restrictive CC&R provisions relating to energy and water conservation measures and the prohibition on vacation renting of the houses will mean that the Lā'au Point subdivision

is not for everyone. Only conservation-minded people, who are likely to respect what is dear to the island, are likely to be potential buyers of Lā'au Point lots.

- As the Land Trust is a party to the CC&Rs, the lot owners and representatives of the Land Trust will meet regularly and inevitably discuss any issues of concern.

Adverse Impacts from Run-off and Rubbish:

- A Soils Survey commissioned following the filing of the Draft EIS, and as a result of questions concerning soil suitability for lot construction and house-building, is contained in this Final EIS. It projects no adverse impact from the types of soils at Lā'au Point. The report is summarized in Section 3.3.4 and the full report is provided as Appendix D.
- A preliminary drainage and construction plan has been aimed at preventing the existing runoff from the lands around Lā'au Point so that during and following construction, there will not longer be muddy brown water in the nearshore areas of Lā'au Point following heavy rains.
- The lot plans shows that there will be no building or construction on all natural drainage ways and steep slopes above 50 percent.

Note: An exception of preventing existing runoff may be in the area of Kamāka'ipō Gulch, a 128-acre cultural reserve that will be donated to the Land Trust. This area, on the western shoreline is rich in archeological sites that must be protected.

Cultural Impacts:

- The Moloka'i Land Trust will ensure that all cultural sites and complexes are protected in the Lā'au Point area under the subdivision plan.
- Archeologists and Land Trust cultural advisers will work closely with the construction team to ensure any potential sites are identified and the governing laws relating to protection of sites during a construction period are strictly adhered to.
- Once construction is complete, Resource Managers will be on-site to ensure the continual protection and enhancement of cultural complexes.

6.7.1.4 The Economics of Lā'au Mauka Developments

In early 2005, MPL quantified the value loss from additional shoreline setbacks of lots that were more than 250 feet from the Lā'au shoreline. It also conducted a "Lā'au Shoreline setback study," which looked at the impact on sale prices of lots at various distances from the shoreline.

The results of these studies, which were discussed and debated at length by the Land Committee of the EC Project #47 (Sustainable Development), were independently verified by the Hallstrom Group, a registered land valuation company which has been operating in Hawai'i for many years.

The studies concluded that views of the ocean and shoreline, combined with ease of access to the shoreline, were the prime real estate value determinants in Hawai'i. This is evidenced by the many developments throughout Hawai'i that, in previous years, have allowed homes to be built right up adjacent to the shoreline; sometimes preventing access to beaches by the local community.

The studies provided that related to both factors of views and access was the factor of topography and how that affected the views and access to the shoreline.

The study projected that the potential revenue from the sale of the currently proposed Lā'au lots was $193 million. Lots, depending on their proximity to the ocean could range in price from:

- $1.45 million for the ocean-front lots
- $750,000 for those lots that overlooked the ocean, but were second-tier lots overlooking the oceanfront lots
- $500,000 for ocean-view home sites that were further inland, were on the "third-tier," and were a significant distance from the shoreline.

Pushing the subdivision back by another 200 feet was estimated by the studies to drop the overall lot sale prices by $52 million or 27 percent, to $141 million.

Notable in this exercise was that the projected 60 rear lots did not change in sale price and remained at $500,000, but the majority of the front lots dropped in value by 40 percent. Most were now projected to sell at $870,000.

It was these studies, and the MPL's experiences with lot prices in the mauka areas of Kaluako'i, that formed the basis of projections for alternatives that were either one-half mile or one mile from the Lā'au shoreline.

MPL also checked its sale assumptions with local real estate agents and continues to update its database with sale prices of similar property.

In all cases, the model of costs to develop was the same as that used for the currently proposed Lā'au Point development, with factors such as the provision of services adjusted for location.

Below is a sensitivity analysis of lot sales price, with higher prices for lots shown to reflect a price at which the subdivision may be feasible, ignoring facts such as ability to sell and the issue of the need for additional water for a greater amount of lots.

In each case, the same cost to develop has been used Table 11 above. It is important to note that none of these proposed subdivisions will have close ocean views as a distance of one mile from the shoreline takes the subdivision over the ridge separating the Lā'au foreshore with the Maunaloa agricultural land.

MPL also reviewed a 300-lot two-acre subdivision one mile from the shoreline (shown in Table 12 below as D), as a comparison to the 600 lot two-acre subdivision (shown below as "A")

Table 12. Additional Alternatives Analysis

Alternative	Price Per Lot Projected in EIS	Adjusted Lot Price	Profit contribution Pre-Funding Costs on Adjusted Lot Price
A. **600**-lot 2-acre subdivision mauka of La'au Point	$200,000	$300,000 (50% increase in projected sale price)	$61,700,000
		$240,000 (Projected 20% increase)	$28,600,000
B. **420**-lot 10-acre subdivision mauka	$275,000	$400,000 (45% increase in projected sale price)	$64,000,000

Alternative	Price Per Lot Projected in EIS	Adjusted Lot Price	Profit contribution Pre-Funding Costs on Adjusted Lot Price
of La'au Point		$330,000 (Projected 20% increase)	$37,000,000
C. 50 lots mauka of La'au as proposed by Clark Stevens (ALDC)	$875,000	$1,000,000 (Projected 14% increase)	$2,000,000
D. Adjusted 2-acre subdivision: Only 300 lots mauka of La'au Point		$300,000 $240,000	$30,800,000 $14,300,000

MPL then reviewed these "adjusted" sales prices with recent sales of similar type lots at Pāpōhaku and Maunaloa to test the accuracy of the adjusted lot size pricing.

There is little of a comparable size, or without views, that have sold recently in either Maunaloa or Kaluako'i.

The sale in 2006 of a similar lot (5-acres) without views achieved $270,000 in Papohaku, but none without views have sold in 2007. In Maunaloa, 1/4-acre residential sites have sold as high as $152,000. Other lots with close proximity views of the ocean have sold for about $500,000, the same selling price as projected for the third-tier lots in the currently proposed Lā'au Point plan.

Conclusion on sale prices that can be achieved in these options; original sale prices may have been conservative, but in the current market may be between $20,000 and $40,000 per lot lower than the market.

Although higher prices may now be able to be achieved for these revised alternatives, the issue of water source still remains the major stumbling block to any development. In these scenarios, each of the development option uses more water than the currently proposed Lā'au Point plan. Developments of 10 acres or more are likely to be intended for some sorts of agricultural use and require additional irrigation water.

6.7.2 Kaluako'i Resort Condo Alternative

Another question asked in many comment letters to the Draft EIS was "why can't MPL just develop its entitled land at Kaluako'i?" MPL further reviewed the Kaluako'i Resort Condo alternative using plans drawn up in 1991 by the previous owners of Kaluako'i on a site adjacent to the Paniolo Hale condominium units.

This proposal for 1,000 units generates $38 million profit contribution, but uses a land area of not more than 100 acres. Each unit had a projected sale price of $500,000 built at a cost of $462,000.

To further examine this option MPL modeled 200 units, which produced a contribution, pre-funding of $7,600,000. These were 1,200 sq ft two-bedroom units.

Only a condominium project in excess of 500 units would give a return equal to that of the currently proposed Lā'au Point. However, with funding costs in excess of $231 million, compared to the Lā'au construction cost funding costs of about $80 million, this is not an accepted alternative. Also, the ability to sell such a project is questionable.

The conclusion reached from further analysis of 1) moving lots further mauka and 2) the Kaluako'i Condominium alternative, is that that the higher the price achieved per unit or lot, the less number of lots that need to be developed.

This, along with the high cost of funding and the of the additional water necessary for a greater number of homes, are the principal reasons MPL still believes the current Lā'au Point development is the best alternative. Water use still remains a major barrier to larger-scale developments.

6.8 APPLICATION OF KEY CRITERIA IN ALTERNATIVE ANALYSIS

6.8.1 Alternative Access to the Lā'au Area

6.8.1.1 Benefits and Detriments of Limited Access

One of the cornerstones of the Master Plan and the reluctant agreement by the Land Use Committee and the Moloka'i Enterprise Community was that the development of the lands adjacent to Lā'au Point would not lead to a further depletion of the subsistence resources so important to the Moloka'i community. This was the strong advice of subsistence practitioners, and those with a long association with the Ahupua'a of Kaluako'i.

Experiences on Moloka'i of access to the beaches at Kaluako'i, and when Hale O Lono Harbor was open to the public, led by the Land Use Committee (on the recommendation of the Cultural Committee) to firmly resolve that multi-access points without restrictions over the entire property, not only at Lā'au Point, would lead to abuse and over-harvesting of the scarce fishing resources.

This principle was also adopted by the Moloka'i Land Trust, who on implementation of the Master Plan will control a significant portion of Molokai Ranch's current shoreline.

The Moloka'i Land Trust will only be allowing access by foot to its coastal lands within the 26,200 acres of donated MPL land. Visitors will need to take courses in conservation methods of fishing and hunting, and access for fishing, will be restricted at fish breeding times to particular areas. Community subsistence practitioners will only be able to take what they can carry themselves from the area. Conservation of the deer herd will be a primary focus for the Land Trust in granting hunting access.

To further support this belief that resource protection was paramount over free and open access, the Plan participants supported, and the Land Trust will seek to implement, a Subsistence Fishing Zone right around the property. In this zone, which would extend to the outer edge of the reef on the south shore and to 1/4-mile on the west and north shores, only community members could fish for subsistence purposes.

Plan participants saw no reason why this principle should not be adopted in relation to shoreline access within the Lā'au Point development. It would protect the in-shore fisheries and grant

access for genuine subsistence fisherman and practitioners. It would also assist in the MPL objective of "enhancing and improve the cultural and subsistence resources at Lā'au Point"

Community members involved in the planning process realized this was at variance with the current Maui County subdivision ordinance which states that access points in a development must be available every 1,500 feet, but were determined to protect the cultural heritage of the area and the subsistence resources.

But it determined that access only from each end of the subdivision, with full-time "guardians" ensuring there was no over-fishing and that visitors had taken part in conservation instruction from the Land Trust, was the only method to ensure long-term protection of the resources, both cultural and subsistence.

6.8.1.2 Benefits and Detriments of Increased Access

Letters have been received from community members and others questioning why the access ordinance is not being followed. Letters in opposition to the Master Plan's proposed access to La'au Point are summarized as follows:

- Anyone can walk along the beach, which is public space, and avoid the access points and control proposals.
- The subdivision should follow the County subdivision ordinance.
- Lot owners will have more access to the beaches than the community.
- Many community members would find it insulting to have to undergo education on conservation of the marine resources and care of cultural sites and complexes.

6.8.1.3 Access Comparative Analysis

A primary goal and principal of the project adopted by the Land Trust and MPL is that protection of the resources should take priority over multi-access points throughout MPL lands, not only within the Lā'au development.

The principles utilized in the analysis of this access issue as it is applied in the alternatives is set out as follows:

- ***Protection of Cultural Resources and the Spiritual Qualities Associated with the Solitude of the Area***

The west and south shorelines adjacent to Lā'au Point is where the proposed development is projected. According to the archaeological surveys and ethnographic documents there were settlement clusters around protected bays, such as at Kapukuwahine and Kanalukaha on the south shore. In addition, the Master Plan identified Kamāka'ipō as an important cultural and spiritual place.

Molokai Ranch proposes to change the State Land Use District boundaries of these areas from Agricultural to Conservation to protect the significant settlement areas and clusters along the west and south shores adjacent to Lā'au Point, notably at Kamaka'ipo, Kapukuwahine and Kanalukaha. These proposed archeologically significant areas are proposed for gifting to the Moloka'i Land Trust.

Lā'au Point, itself, can be considered a significant historic and cultural property. There are 51 acres at the Point, its coastline, and inland, which are owned by the federal government and managed by the U.S. Coast Guard. These 51 acres will remain undeveloped (Appendix I, page 79) and it is important to conserve the resources and spiritual qualities of Lā'au Point and of the west and south coastlines adjacent to Lā'au Point.

Many community members have ascribed a spiritual quality of the Lā'au Point area because of its isolation and solitude. Perhaps there is no way to fully mitigate the impact upon the solitude that can now be enjoyed at Lā'au if the rural residential subdivision is approved, but it is very important to minimize such impact and protect the special quality of the area. Limiting access to a walking trail that is set back behind a row of kiawe and providing a clear demarcation between the private lots and the general public access areas can help protect the integrity of the shoreline and mitigate the impact of the house lots upon the shoreline. Conservation zones provided for in the CC&Rs will protect the spiritual quality of important complexes such as Kamāka'ipō.

- ***Providing More Access than In The Past***

The area proposed for development of the rural residential lots is on private property. This area has been privately owned since Charles Reed Bishop purchased the Kaluako'i ahupua'a in 1875, 132 years ago. Since 1875, the coastal areas where the rural residential lots are projected have only been accessible by foot. Limited vehicular access has only been available for shareholders, cowboys and employees of Molokai Ranch.

On the west, the closest access point for the general public to enter on foot was the main highway, until the development of the Pāpōhaku Subdivision opened an access point at what is called Dixie Maru Bay in the 1980s. The development of the "tentalows" at Kaupoa opened vehicular access to guests of the Molokai Ranch Lodge and Beach Village as far as Kaupoa. An occasional special weekend rate for Moloka'i residents at the Beach Village has opened up the opportunity for vehicular to those Moloka'i residents while they are guests at the Beach Village.

On the south, the closest access point for the general public to enter on foot was at Pālā'au until access was opened to Hale O Lono Harbor in 1998.

The proposed access point on the west shore at the proposed West shoreline park and parking area (located at Kamāka'ipō Gulch) will be much closer than the current access point at Dixie Maru or even at the Kaupoa Beach Village.

The proposed access point on the south shore at the proposed South shoreline park and parking area (located at Pu'u Hakina) will be closer than the current access point at Hale O Lono.

In summary, given the history of the area, the proposed development will, in fact, increase access along the west and south coastal areas. As a means of limiting the impact upon subsistence resources with the increased access, vehicular access is proposed to be up as far as the two public access points, while walking access is unlimited. Access will also be increased for the general public on other lands granted to the Moloka'i Land Trust under the Master Plan.

- ***Important to Protect Subsistence Resources***

Traditionally, the west and south shoreline beach and nearshore ocean was accessed for subsistence by the Ranch shareholders, cowboys, employees and their 'ohana, and longtime

residents of Maunaloa. It is not a recreational area because of the rough ocean conditions and strong currents. Seasonally, there is good surf at Pu'u Hakina and Kaupoa, which, under this proposal, will be open to vehicles.

In order to protect the marine resources, the subsistence practitioners in the Moloka'i community had strongly urged that access be limited to foot access - so that the amount of resources harvested is limited to what can be carried out by each person. Access with vehicles and coolers will lead to over-harvesting of the resources. This advice is based upon the negative experience resulted with the opening of Kaluako'i in the 1970s, Pāpōhaku in the 1980s, and Hale O Lono in 1998. The abundant resources in each of these areas have been over-harvested.

In addition to limiting the area to foot access, rules and regulations on methods, bag limits, and seasonal harvesting under a community-based subsistence management fishing zone, as outlined in the Master Plan, will be implemented. Limited access in combination with rules and regulations which provide for accountability, a penalty process and a protocol for uses with established consequences for non-compliance are essential for the protection of the marine resources along the west and south coasts where the rural residential subdivision is being proposed.

6.8.2 Alternative Supplies of Water

6.8.2.1 Summary

Many letters and comments to the Draft EIS requested information on alternative supplies of water other than the Kākalahale Well and whether there were other sources of water that MPL could use. Further information was also requested on MPL's analysis of the desalination option, use brackish water on its own lands at the west end, and use of the brackish well water from the Pālā'au Prawn Farm. The analysis of alternatives to the Kākalahale Well include consideration of the following issues raised by various comments to the Draft EIS:

- The impact of the well on neighboring wells and analysis concerning the Kākalahale Well as contained in Section 4.9.2 (Water).
- How much of the 1,000,000 gpd groundwater MPL is requesting, is allocated for future community use as opposed to the Lā'au development?

6.8.2.2 Additional Analysis has been Conducted on the Options to Kākalahale

MPL had presented and discussed a wide range of water alternatives at community meetings in Maunaloa, Kualapu'u, Kaunakakai, and Mana'e in mid-2006 so it could obtain more information from the community on the water issue prior to filing its Draft EIS. Based on these discussions, the principal developed by MPL was to minimize water use and, if possible, keep potable water consumption to existing limits with a minimal impact on other wells. This principal was applied in analyzing the implications of the various alternatives.

Under the Master Plan, MPL needs a total of 1,000,000 gals per day to meet the needs of community expansion (such as future affordable housing projects in Maunaloa and Kualapu'u, build out of the Industrial Park, etc.), and the needs of the La'au Point development.

A total of only 40% of the 1,000,000 gals from Kākalahale that MPL is requesting will be effectively allocated for La'au Point residential uses. This is, as outlined in the Water Plan contained within the Master Plan, after MPL reallocates some current potable water (being used

for non-potable uses) to future potable uses and uses non-potable Kākalahale water for non-potable uses throughout the property.

In July 2006, MPL presented the following table (Table 13) at community meetings throughout Moloka'i on its Water Plan under the heading: "Where Will the 1,000,000 gals of Water Go that MPL is Requesting?" The table below reflects potable and non-potable uses of water that are either taken directly from the Kākalahale source or are taken from potable sources as a result of non-potable water being utilized for things that are currently potable (or would otherwise be potable without the addition of the Kākalahale well) in other areas. In effect this shows the application of the Kākalahale water although some of the uses in the table are labeled as potable.

Table 13. Proposed Use of Kākalahale Well

For Non-Lā'au Point Residential uses (60%):	
Build-out of Maunaloa Village and the Industrial Park:	160,500 gpd
Build-out of Kaluako'i residential	158,000 gpd
Community Directed growth at Maunaloa/ Kualapu'u	200,000 gpd
Ranch Operations	41,500 gpd
Total	**560,000 gpd**
Lā'au Point Public Parks Irrigation	40,000 gpd
Lā'au Point Public Parks potable water	1,000 gpd
Total Lā'au potable water	**41,000 gpd**
For La'au Point Residential uses (40%):	
La'au Point Rural Lots potable water	96,000 gpd
La'au Point Rural Lot Irrigation	300,000 gpd
Total	**396,000 gpd**
Total New Uses Shown	**997,000 gpd**

MPL has asserted that the Lā'au Point development is not contingent on the Kākalahale Well. However, it is the most efficient and cost-effective source of non-potable water and it does not believe its use to the levels proposed will significantly impact other wells or DHHL's 2.905 million gallon reservation in the Kualapu'u Aquifer.

In the event Kākalahale Well water is not available there are alternative sources of non-potable water. Reclaimed water from the Pālā'au Shrimp Farm could be treated to make it suitable for irrigation purposes. Additionally, desalinization of either brackish water from West Moloka'i aquifers or sea water, are alternative sources of irrigation water.

Desalinization is not the preferred alternative because of the cost. As mentioned in MPL's Water Plan, desalting is still about four times more expensive on Moloka'i (not helped by the island's high energy costs) than developing an operating deep groundwater well.

6.8.2.3 Alternative Water Sources Raised in Letters

- ***The Waiola Well***

MPL could go back to the Water Commission and ask to have the remand of the Waiola water use permit taken up again. However, MPL has said since the beginning of this planning process, that it does not need more potable water and that 1,000,000 gallons of brackish water would allow it to implement the Master Plan.

MPL has also said if the Master Plan is approved, it would abandon its application for this well. Accordingly, it would be inconsistent to use this source to complete our water infrastructure requirements. That having been said, MPL is aware of concerns in using the Kākalahale Well, and could reconsider this alternative.

The court held that although it had be shown that pumping from the proposed Waiola well would not adversely impact the existing DHHL wells in Kualapu'u, MPL had not provided evidence to show that pumping from the Waiola well would not impact DHHL's ability to withdraw its 2.905 reservation amount from the Kualapu'u aquifer.

MPL could ask that the proceedings be re-opened to give MPL the opportunity to address the two issues the Supreme Court identified as requiring further evidence. On MPL's request, the Water Commission has not yet re-opened those proceedings.

- ***Pālā'au Prawn Farm Brackish Water***

Several years ago, this source was proposed to irrigate a proposed Molokai Ranch second golf course on the West End.

With chlorides in the 1,400 parts per million ranges, it is too salty for general irrigation usage and can be used with only a limited number of salt tolerant grasses or by blending with low chloride water. Additionally, the exiting water use permit is for 864,000 gpd of which about 700,000 could be available for reuse, is an insufficient amount to meet the irrigation needs of the Water Plan, in particular the planned expansion of the community areas of Kualapu'u and Maunaloa, areas that are within MPL's water service catchment. Lā'au Point and the future build-out of Kaluako'i could be served by this source. The cost to consumers of this water would be three times that of water from the Kākalahale Well because of the high cost of removing the salts.

- ***Desalination***

The incentive for desalination is associated with costs. If the operational cost to desalinate water and the amortized capital costs become lower than the costs to pump and transmit water, we would choose to desalinate. Issues associated with the DHHL reservation and pipeline easements as well as the reliability of the MIS are added incentives.

After further investigation it has been determined that desalination is not a current reasonable economic alternative and it was therefore not included among those alternatives that were more rigorously explored.

As mentioned in MPL's water plan, desalting is still about four times more expensive on Moloka'i (not helped by the island's high energy costs) than developing an operating deep groundwater well.

A pilot plan on O'ahu developed in the early 2000s still remains idle today because of escalating energy costs needed, in simple terms, to push the brackish water through a membrane to remove the salts.

MPL has previously been approached by two parties proposing desalination on Moloka'i as an economic business; neither party, following their detailed investigation, wished to continue with their plans for a desalination plant.

Desalination is therefore too expensive to be considered MPL's first choice of non-potable water. However, it is an alternative if water from the Kākalahale Well is not available.

- ***Collecting Catchment Water: Kaho'olawe –Style from the West End.***

While Kaho'olawe and West Moloka'i have similar rainfall amounts and patterns, surface water catchment on the West End is not a viable alternative to meet its non-potable water requirements.

The Kaho'olawe rainwater catchment system was designed to collect 640,000 gallons per year and was constructed in 2002 at a cost of $3,000,000. A comparable system to meet the West end's long-term need of 1,000,000 gallons per day would have to be about 570 times larger. Assuming for comparison purposes, it could be built at half of the unit cost on Moloka'i that would still be over $850 million dollars.

The reliability of surface water systems are subject to weather cycles. Extended dry periods lasting 5-10 years are not uncommon. For a surface catchment system to reliably meet customer needs, it would have to be sized to deliver the required quantities of water with due consideration to these extended dry periods. In other words, it would need to be "oversized" for normal weather to be able to supply the requirements during drought conditions. Groundwater systems are able to tap aquifers that have sufficient storage to deal with long-term weather cycles.

The Kaho'olawe system was chosen because other alternatives there do not exist.

- ***Why Not Develop a Brackish Well on the West End?***

Eleven exploratory wells and boreholes have been drilled on the West End between 1945 and 1991. None of these wells produced water of usable quality, even for irrigation of salt-tolerant landscaping. All wells tapped into a thin, brackish to saline basal lens supported by only a modest amount of rainfall recharge. Several of the wells also exhibited geothermal heating. At Molokai's West End, the groundwater's potential use is limited to a source of feedstock for desalting.

6.9 POSTPONING ACTION PENDING FURTHER STUDY OR DELAYS

Postponing or delaying the Lā'au Point project for reasons, such as allowing the ALDC to find the necessary funding to purchase Lā'au Point, puts MPL in the position of being unable to continue its ongoing operations on Moloka'i.

MPL's cash flow is negative from its operations by approximately $3.8 million per year, plus the cost of capital replacement items and repair and maintenance costs. The Lā'au Point project will provide the funds to re-open the Kaluako'i Hotel and revitalize the town of Maunaloa, enabling the company to realize economic returns on many of its land holdings that previously had no return.

MPL is the largest single private contributor to the island of Moloka'i. Without MPL, the island would lose $9 million that it brings to the economy. This means that the $9 million the company

contributes directly and indirectly to the Moloka'i economy would be terminated: $3.8 million in on-island wages and benefits, $2.6 million annually in on-island supplier payments, $850,000 in taxes; and $1.9 million spent by tourists who stay at its tourism establishments.

Since MPL is cash negative, the shareholders will not permit this to continue without a solution. This solution was formulated over a two-year community process and the resultant *Community-Based Master Land Use Plan for Molokai Ranch.* If that process and its outcomes are not accepted, its only alternative is to find ways to reduce its overhead by shutting losing operations and selling off the property over time.

The most realistic method of achieving the maximum return for its properties is to sell the 101 parcels and other subdivided lots to individual buyers who will pay the best price.

The alternative of postponing action pending further study may allow some of the objectives of Lā'au Point to be met eventually. This alternative, however, is not considered acceptable for the following reasons:

- This EIS and its related technical studies provide a thorough evaluation of the Lā'au Point project's impacts and would provide for mitigation where warranted.

- Entitlement processing for Lā'au Point will include obtaining a State Land Use District Boundary Amendment, a Community Plan Amendment, a Change in Zoning, a Special Management Area Use Permit, and a County Special Use Permit. All of these steps provide for public input and comments, as well as opportunities for the public and decision makers to ask for more information or further study. Not withstanding the entitlement process, community members engaged in a planning process to achieve the Plan in 2003. The Moloka'i community has been kept informed of the planning process and status of the project.

- There is need for the implementation of the *Community-Based Master Land Use Plan for Molokai Ranch*:
    - MPL is currently operating on a negative cash-flow basis, and needs funding for its current tourism and agricultural operations to ensure the continued employment of its current staff.
    - The community desires to renovate and re-open the 152-room Kaluako'i Hotel and upgrade the Kaluako'i Golf Course, which is considered crucial for revitalizing the Moloka'i economy and providing more than 100 jobs for Moloka'i residents.
    - The slow economy on Moloka'i is creating an out-migration of its young people. Moloka'i has not yet recovered from the plantation closures. The island still needs economic opportunities that will provide a diversity of jobs, including management positions and alternatives to the visitor industry. A viable MPL and the benefits of implementing the Plan will contribute to a more stable economy.

Statement Regarding Detailed Analysis of Reasonable Alternatives – MPL has addressed all of the rational alternatives that have been suggested. MPL has analyzed all of these alternatives to the degree necessary to determine which among them are reasonable and feasible alternatives. MPL then selected these reasonable and feasible alternatives for detailed analysis and study.

Attachment

Revised Section 7.5 (Unresolved Issues)

7.5 UNRESOLVED ISSUES

Unresolved issues are invariably associated with projects in the planning and preliminary design stages, or due to negotiation of complicated agreements for such a unique project, primarily because there is so much reliance on the Moloka'i Land Trust for such things as monitoring access to the shoreline, and the enforcement of the project's CC&Rs.

Notwithstanding MPL's efforts, some aspects of the water issue remain unresolved between stakeholders at this stage of the planning process, as well as the final completion of several agreements between the Land Trust and MPL as mentioned in the previous paragraph.

7.5.1 Water

~~Water~~ — In ~~connection~~ conjunction with the participants who were involved in preparing the *Community-Based Master Land Use Plan for Molokai Ranch,* MPL developed a proposed Water Plan. A key feature of the Water Plan is that only existing sources, at currently permitted amounts, will be utilized to meet all of the potable water needs for the current customers of the ~~two~~ three private water systems operated by MPL and MPL's future developments proposed under the *Community-Based Master Land Use Plan for Molokai Ranch.* These sources include the permitted 1,018,000 gpd from Well 17 in the Kualapu'u Aquifer and surface water from the Molokai Ranch Mountain Water system. The constructed, but currently unused, Kākalahale well in the Kamiloloa Aquifer is being proposed as a new non-potable water source. The Kākalahale Well was drilled in 1969 to provide drinking water to Kaluako'i. However, due to the brackish water quality, the well was never used as a production well.

The Kākalahale Well is an ideal source of non-potable water. The well is owned by MPL and already constructed (though not in production). More importantly, because the well site is hydro geologically isolated by subsurface intrusive structures, withdrawing water from the Kākalahale Well is unlikely to have any adverse impact on existing wells in the Kualapu'u aquifer, on DHHL's ability to withdraw its 2.905 mgd reservation amount from the Kualapu'u aquifer, or the development of potable water in the Kamiloloa aquifer.

In the Water Plan, MPL proposes that water from Well 17 be used solely for potable water needs. Irrigation uses, currently permitted under the Well 17 permit, will be supplied from other sources. Under this plan, MPL will not need to seek any more potable water than what is currently developed. MPL will sign covenants preventing it from ever seeking further potable water permits from the State Commission on Water Resource Management (CWRM), and will abandon the Waiola Well application.

The MIS was planned, designed, and constructed under a special Act of Congress (Reclamation Act of 1954) to develop surface water and high-level groundwater (Wells 0855-01, -02, and -03) in Waikolu Valley in northeastern Moloka'i to irrigate farmlands in central and western parts of the island. The MIS originally served large-scale pineapple operations, but was converted to serve diversified agriculture after the pineapple operations closed in the late 1970s. The system also serves the native Hawaiian homesteads in Ho'olehua, and pursuant to HRS section 168-4, Hawaiian homesteads have a prior right to two-thirds of the water currently developed by the MIS. The MIS transports 1,500,000 gpd via a 10-mile transmission link to an open reservoir at Kualapu'u, where it is stored prior to entering a distribution network extending from Ho'olehua to Mahana.

When originally constructed, the MIS was administered by the State Board of Land and Natural Resources (BLNR). In 1975, the BLNR entered into an agreement (the Agreement) with Kaluako'i Corporation (Kaluako'i), renting "space" in the MIS for Kaluako'i to transport water from Well 17 to Mahana. Under the terms of the Agreement, Kaluako'i would pump water from Well 17 into the MIS system and withdraw the water at Mahana. At Mahana, the Well 17 water is then treated to potable standards and used to supply potable water to Maunaloa town, the Pāpōhaku and Kaluako'i subdivisions, the Kaluako'i condominiums, and for other residential purposes as well as to meet the potable water needs of the resort areas on the West End. To account for potential system losses along the way, Kaluako'i was allowed to withdraw a lesser amount than was put in from Well 17. Additionally, Kaluako'i paid lease rent to the MIS. The Agreement was for the use of "excess capacity" in the system and provided that if there was no longer sufficient capacity in the system then the use would have to be relinquished on reasonable notice. As a result of the Agreement no other infrastructure to transport Well 17 water to the West end of Moloka'i was put into place.

The 1975 Agreement was extended by the BLNR in 1985. In 1988, Kaluako'i assigned its interest in the Agreement to Kukui (Moloka'i), Inc. (KMI), which assignment was consented to by the BLNR.

Effective July 1, 1989, administration and management of the MIS was transferred from the BLNR to the State Department of Agriculture (DOA). In December 1989, the Agreement was amended to reflect the statutory transfer to the DOA.

Subsequently, the Agreement was extended twice through December 31, 2005. In late 2001, KMI assigned the Agreement to Kaluako'i Water, LLC (KWLLC), a Hawai'i limited liability company wholly owned by Molokai Properties Limited. The DOA acknowledged the assignment in early 2002.

Prior to and following the Agreement termination date of December 31, 2005, KWLLC and the DOA have been engaged in negotiations for the continued use of the MIS to transport Well 17 water to Mahana, and the DOA has conducted community meetings on the matter. By September 2007, a further extension to the Agreement was in the final stages of being completed following community input on aspects of the Agreement. The Agreement had been open for public input on Moloka'i before the MIS Advisory Board prior to its execution by the parties.

The extension agreement had not been executed when, on September 12, 2007, DOA, through its Deputy Attorney General, officially determined that any agreement for the continued use of the MIS by KWLLC would be subject to the preparation of an environmental disclosure document pursuant to HRS Chapter 343. As of this writing, KWLLC continues to utilize the MIS to transport water; however, the DOA's Deputy Attorney General indicated in writing that the practice should cease pending preparation of the environmental disclosure document. Currently, there is no alternative means of transporting water from Well 17 to end users in Kaluako'i. Several alternatives are possible, each of which requires acquisition of new easements or modification of existing easements, as well as engineering and cost studies. These items have to be addressed before MPL can rationally identify the practicable alternatives.

The MIS currently transports up to 1.018 mgd of water (12-month moving average) pumped from Well 17 to Mahana for distribution to existing, current users in Kaluako'i. Well 17 water will continue to be used by Kaluako'i customers whether or not the Lā'au Point project is

approved. Thus, the issue of how to transport water from Well 17 to either Mahana or to Kaluako'i will have to be resolved regardless of the Lā'au Point project. Inasmuch as the MIS issue affects existing, current uses, there is an element of urgency, and it is likely that the MIS issue will be resolved prior to any discretionary land use decisions being made on the Lā'au Point project. Therefore, the decisions made with respect to continued use of the MIS may have to be made without consideration of the Lā'au Point project.

Because there are existing customers in Kaluako'i dependent upon Well 17 water, water will have to somehow be transported from Well 17 to the facilities owned by MPL for further distribution to end users at Kaluako'i. Either the MIS will continue to be used or alternate infrastructure will be developed for this purpose. Either way, the infrastructure used to transport water from Well 17 to MPL distribution facilities will also be used to transport potable water to Lā'au Point. Therefore, even if use of the MIS to transport Well 17 water is discontinued, there will be a means of getting potable water to Lā'au Point. The decisions made with respect to this MIS issue, however, will affect infrastructure planning for the transport and distribution of potable water to Lā'au Point.

These water system improvements will need to be developed with the cooperation and consent of the County of Maui (DWS) and the CWRM. MPL ~~will work~~ has been working with the DWS and Department of Hawaiian Homes Lands (DHHL) to meet their future water needs, and all requirements of the CWRM. MPL must seek a water use permit from the State CWRM for its Kākalahale Well, and to vary the supply areas of its current permits.

For many participants in the community meetings, water is the primary cultural resource. They feel that drawing brackish water out of the Kākalahale Well will have a huge impact on the culture and way of life on Moloka'i. They expressed concern that the additional water proposed to be drawn out of the Kākalahale Well, even if it is brackish, will strain and diminish the water table on Moloka'i, increasing salinity levels of ocean discharge and in neighboring wells. They refer to findings in the Waiola Well Water Use Permit contested case before the Hawai'i State Commission on Water Resource Management which examined the potential impacts of withdrawing groundwater and affecting shoreline seepage on near shore marine resources makai of Kākalahale.

Hawaiian homesteaders, especially those with lots in Ho'olehua, feel that the greatest cultural impact of the Lā'au Point project is the MPL Water Plan (discussed in Section 6 of Appendix A and Section 4.9.2 of this EIS). They feel that the withdrawal of an additional 1,000,000 gallons per day of brackish water from the Kākalahale Well will take away water that DHHL will need to support future expansion of agriculture and residential lots on their Moloka'i lands.

MPL unquestionably supports the reservation of 2.9 million gallons reserved in the Kualapu'u aquifer for Hawaiian homestead users. ~~At an average of 1,000 gallons per day, this amounts to drinking water for an additional 2,900 homesteads.~~ A recent study by DHHL's consultants indicates that even after building out both Ho'olehua and Kalama'ula under DHHL's *Moloka'i Island Plan*, there will still be 698,900 gpd in the Kualapu'u Aquifer reserved for DHHL. This gives confidence that DHHL's future water needs are well protected. The recent two-dimensional modeling completed by USGS as part of the Kaunakakai Stream Ecosystem Restoration Project, gives additional confidence that the Kākalahale Well will have minimal impact on DHHL.

MPL has long acknowledged publicly that its water use would yield to DHHL's priority reservation rights to water. Further mitigation measures for potential water impacts are discussed in Section 4.9.2 of this EIS.

MPL is actively working with DHHL, the County of Maui DWS, and the US Geological Survey to comprehensively evaluate and seek a solution to Moloka'i's cumulative water demands and resources. The goal is to appropriately locate wells and manage pumping such that all of the parties will be able, to the greatest extent possible, withdraw sufficient water to meet their needs. It is expected that many of Moloka'i's water issues will be addressed by a comprehensive modeling analysis. ~~Although the~~ The specifics of the water resource issues and modeling analysis ~~have yet to be~~ are currently being identified by DHHL, Maui DWS, MPL, the CWRM, and other homeowner associations and the study is likely to commence later in 2007. ~~, MPL has long acknowledged publicly that its water use would yield to DHHL's priority reservation rights to water. Further mitigation measures for potential water impacts are discussed in Section 4.9.2 of this EIS.~~

MPL is participating in these studies and cooperative efforts notwithstanding the fact that it is highly unlikely that pumping 1.0 mgd from the Kākalahale Well will diminish the other parties' ability to develop the water they need, or, conversely, that water withdrawals by others will impact MPL's ability to withdraw 1.0 mgd from the Kākalahale Well.

In the event Kākalahale Well water is not available, however, there are alternative sources of non-potable water. Reclaimed water from the Pālā'au Shrimp Farm could be treated to make it suitable for irrigation purposes. Additionally, desalinization of either brackish water from West Moloka'i aquifers or sea water are alternative sources of irrigation water.

Therefore, the currently unresolved issue of water should not forestall proceeding with required approvals for the Lā'au Point project because:

1. It is highly unlikely that pumping 1.0 mgd from the Kākalahale Well will diminish other parties' ability to develop the water they need, or, conversely, that water withdrawals by others will impact MPL's ability to withdraw 1.0 mgd from the Kākalahale Well.; and
2. In the event Kākalahale Well water is not available, there are alternative sources of non-potable water available to MPL: a) reclaimed water from the Pālā'au Shrimp Farm could be treated to make it suitable for irrigation purposes; and b) desalinization of either brackish water from West Moloka'i aquifers or sea water are alternative sources of irrigation water.

7.5.2 Lā'au Point Homeowners' CC&Rs

The details and draft provisions outlining the Lā'au Point CC&Rs are referred to extensively in Section 2.3.6 (Covenants).

The CC&Rs, which also detail design guidelines for houses within the project area, were under review by the Moloka'i Land Trust at the time of the filing of this Final EIS and were not finalized. The Moloka'i Land Trust will: 1) be a party to the CC&Rs; 2) have a seat on the homeowner's association; and 3) be the CC&Rs enforcing organization.

The principal and important covenants relating to no further subdivision, restricting the use of water over the entire project and the allocation of income to the Community Development Corporation from lot sales are immutable and already have been agreed to.

MPL will have the draft CC&Rs available prior to the LUC hearings on the State Land Use District Boundary Amendment petition so the views of Commissioners may be incorporated into the final CC&Rs. It is not usual to complete CC&Rs until after a project is given approval, but in this instance MPL believes input is important prior to their finalization.

7.5.3 Easement Over Expanded Conservation District Lands

The *Community-Based Master Land Use Plan for Molokai Ranch* calls for the Moloka'i Land Trust to hold an easement (Easement) over 306 acres of the expanded Conservation District area of 434 acres (the remaining 128 acres of the 434-acre expanded Conservation District will be held by the Land Trust in fee, as will the 17 acres of parks). The Land Trust and the Lā'au Point homeowners will jointly manage the 434-acre expanded Conservation District and the 17 acres of parks (total 451 acres) through participation on a "council" of homeowners and Land Trust representatives and nominees.

The easement, to be held by the Moloka'i Land Trust over the 306 acres, will incorporate the provisions of the Shoreline Access and Management Plan (SAMP) which is included in Appendix B. The SAMP was approved by the Moloka'i Land Trust in August 2007.

The Moloka'i Land Trust will require the easement be in place prior to the project's implementation.

7.5.4 Moloka'i Community Development Corporation

The Moloka'i Community Development Corporation (CDC), responsible for the implementation of the affordable housing provisions anticipated under the *Community-Based Master Land Use Plan for Molokai Ranch*, will be incorporated by October 2007 and registered as a State entity.

Currently in preparation is the CDC's strategic plan to implement the affordable housing provisions in line with the CDC's funding sources of: 1) five percent of net lot sales; and 2) the use of land donated to the CDC as part of the implementation of the *Community-Based Master Land Use Plan for Molokai Ranch*. References to the CDC's mission statement and activities are further outlined in Section 2.1.9 (Moloka'i Community Development Corporation (CDC)).

Attachment

Revised Permits & Approvals

REVISED PERMITS AND APPROVALS

Section 1.1 (Project Profile) has been amended in the Final EIS as follows:

Permits/Approvals Required:

Compliance with Chapter 343, HRS
State Land Use District Boundary Amendment
Compliance with Chapter 6E, HRS (SHPD)
Community Plan Amendment
Change in Zoning
Special Management Area Use Permit
County Special Use Permit
Subdivision Approval
Conservation District Administrative Rule Amendment
Grading/Building Permit
NPDES permit
Water Use Permit
Approval for Distribution System for a Public Water System
Recycled Water System Approval

Section 1.7.4 (Required Permits and Approvals) and Table 10 in Section 5.3 (Approvals and Permits) has been amended in the Final EIS as follows:

Permit/Approval	**Responsible Agency**
Chapter 343, HRS Compliance	State Land Use Commission Office of Environmental Quality Control
State Land Use District Boundary Amendment	State Land Use Commission
Community Plan Amendment	County of Maui Planning Department Moloka'i Planning Commission Maui County Council
Change in Zoning	County of Maui Planning Department Moloka'i Planning Commission Maui County Council
Special Management Area	County of Maui Planning Department Moloka'i Planning Commission
County Special Use Permit	County of Maui Planning Department Moloka'i Planning Commission
Chapter 6E, HRS Compliance	State Historic Preservation Division
Conservation District Use Permit	State Department/Board of Land & Natural Resources
Conservation District Administrative Rule Amendment	State Department/Board of Land & Natural Resources
Subdivision Approval	County of Maui Department of Public Works & Environmental Management
Grading/Building Permits	County of Maui Department of Public Works & Environmental Management
National Pollutant Discharge Elimination System (NPDES) Permit	State Department of Health
Water Use Permit	State Commission on Water Resource Management
Approval for Distribution System for a Public Water System	State Department of Health
Recycled Water System Approval	State Department of Health

Attachment

February 13, 2007 SHPD Correspondence

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

February 13, 2007

Mr. Alan Suwa
PBR Hawaii
100 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawai'i 96813

LOG NO: 2007.0484
DOC NO: 0702NM10
Archaeology

Dear Mr. Suwa:

SUBJECT: **Chapter 6E-42 Historic Preservation Review (County/Molokai Properties Limited)**
Revised Data Recovery Plan Papohaku to Hakina Ahupua'a o Kaliako'i Island o Moloka'i (Majors, CLH, 2006)
West Moloka'i, Island of Moloka'i
TMK: (2) 5-1-002: 30; 5-1-006: 157; 5-1-008: 04, 03, 06, 07, 13, 14, 15, 21 and 25

Thank you for submitting the revised data recovery plan which is 875 acres for a residential community comprising of mixed residential uses, cultural preserves, parks and shoreline access.

Data recovery is to take place at the following sites: 697, 698, 743, 745, 746, 749, 755, 756, 758, 760, 761, 762, 1118, 1121, 1124, 1125, 1130, 1131, 1132, 1134, 1136, 1141, and 1145. Data recovery work is to include: relocation of these sites by GPS, mapping, testing and surface collections. Sites 761, 1125 and 1136 once relocated might be outside of the subdivision boundaries. We concur that if these three sites are outside the subdivision boundaries they will be preserved and included in an amended preservation plan which would include appropriate buffers around the sites.

This plan also mentions the road corridor survey and resurvey work. We recommend that this be completed as soon as possible.

Research questions on the data recovery will address land use in the settlement margins, agricultural practices, lithic production and mauka-makai routes. We concur with this framework for the research. Ideally the data recovery work shall take place prior to construction. To ensure that these sites are protected during construction and archaeological data recovery can take place, we recommend that all sites set for data recovery shall be marked by highly visible flagging tape.

This plan is approved. If you have any questions, please call Nancy McMahon, our Molokai Archaeologist at 808 -742-7033.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

NM:jen

c: Anthony Ching, State Land Use Commission P.O. Box 2359, Honolulu, HI 96804
OEQC, 235 S. Beretania St. Suite 702, Honolulu, HI 96813
Peter Nicholas, Molokai Properties Limited 745 Fort Street Mall, Suite 600, Hon, HI 96813
Mo Majors, Cultural Landscapes Hawaii

Attachment

June 21, 2007 NOAA Correspondence

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
1601 Kapiolani Blvd., Suite 1110
Honolulu, Hawaii 96814-4700
(808) 944-2200 · Fax: (808) 973-2941

JUN 2 1 2007

Mr. Thomas S. Witten
President, PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813

Dear Mr. Witten:

Thank you for your letter of April 17, 2007 regarding our discussions concerning potential impacts to monk seals at the proposed La'au Point development.

As described in our February 5, 2007 letter, the National Marine Fisheries Service (NMFS) considers La'au Point important monk seal habitat. As we discussed, we do have non-systematic data collected by NMFS staff, other agencies, and public reports of monk seals at La'au Point.

NMFS believes it would not be necessary to conduct a survey at the site to ascertain that La'au Point is important monk seal habitat, as that is already known. We do believe however (as expressed at our meeting) that there should be a monitoring program established whereby some regular surveys are conducted before, during, and after the development to determine whether or not monk seal use of this habitat changes as the land and ocean use changes. NMFS would be happy to consult with you on the design of such a monitoring plan to ensure that the information collected is the most useful possible and consistent with other information collected.

I commend you for making a commitment to address the very real threats to seals posed by this development – disturbance, domestic animals, and fishery interactions. Finally, NMFS has no information on hawksbill turtle use of this area. There may be hawksbill turtle foraging or nesting, but NMFS has thus far not collected any information on this species at this location.

Sincerely,

Chris E. Yates
Assistant Regional Administrator
For Protected Resources

Attachment

Response Letter to NOAA NMFS

Molokai Properties Limited

November 1, 2007

Chris E. Yates
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Pacific Islands Regional Office
1601 Kapiolani Blvd., Suite 1110
Honolulu, Hawai'i 96814-4700

SUBJECT: LĀ'AU POINT DRAFT ENVIRONMENTAL IMPACT STATEMENT

Dear Mr. Yates:

Thank you for your letter dated February 5, 2007 regarding the Lā'au Point Draft Environmental Impact Statement (EIS). We note that we have previously met with you on March 21, 2007 and July 12, 2007, and sent you an initial response to your February 5, 2007 comments on April 17, 2007, following our first consultation meeting. With this letter, we respond to your comments on the Draft EIS contained in your letter dated February 5, 2007.

We appreciate the breadth of knowledge you provided about Hawaiian monk seals and their presence at in the Lā'au Point areas. We acknowledge that the Lā'au Point area is frequented by Hawaiian monk seals and is considered a good Hawaiian monk seal habitat because of its limited access, sandy beach substrate, and proximity to foraging areas.

We note that NOAA National Marine Fisheries Service (NMFS) has non-systematic Hawaiian monk seal data provided by public sightings, other agency staff, and NMFS biologists. Although not systematic, these documented sightings provide reasonable conclusion that Lā'au Point is an important habitat for monk seals.

We acknowledge that the specific threats to monk seals that could be expected as a result of the project include: 1) human-caused disturbance; 2) disturbance, physical harm, and potential disease transfer from dogs; and 3) hooking and entanglement associated with shore-based fishing.

To incorporate the relevant above information provided in your letter under the headings, "Use of Lā'au Point area by Hawaiian monk seals," "Favorable characteristics of the Lā'au Point area as monk seal habitat," and "Potential deleterious effects of proposed action," into the Final EIS, in the Final EIS Section 3.7 (Fauna) will be revised as shown on the attachment titled, "Revised Section 3.7 (Fauna)."

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Concerns regarding proposed mitigating measures

1. *The DEIS proposes to limit public entry points to just two sites at opposite ends of the project area. However, even these two entry points will facilitate far greater access to the area beaches, which indeed is a goal of the plan. Further, it seems clear that residents of the proposed housing development will have multiple beach access points. It is not clear how members of the public will be prevented from accessing the shoreline from the residential areas.*

Response: As you point out, the project will create two public access points at each end of the project. Homeowners may access the shoreline from the residential area; however, they will be required to adhere to the rules of the Shoreline Access Management Plan (SAMP). The lack of infrastructure and paths through to the shoreline, and the density of the foliage and rough terrain as a practical and natural barrier, will support adherence to the SAMP and serve to limit widespread access to the shoreline.

To incorporate the relevant above information into the Final EIS, in the Final EIS Section 4.3 will be revised as follows:

> Some community members have expressed concerns that subdivision lot owners and their friends will have preferential access to the coast. Their concern is that there will be nothing to stop the owners who live along the shoreline and their guests from walking down to the beach and even using a vehicle. To some community members, affording only two access points for the general public while owners in the subdivision will have access from their homes, seems unequal. Informants also expressed concern that landowners might call police if they see the general public walking on the beach, as this has happened at Pāpōhaku. To mitigate these concerns, all Lā'au Point homeowners will be required to undergo an education program about the restrictions on access, its importance, and the requirements of the SAMP. Adherence to the SAMP is mandatory. In addition, the educational process, the lack of infrastructure and paths through to the shoreline, and the density of the foliage and rough terrain as a practical and natural barrier, will support adherence to the SAMP and serve to limit widespread access to the shoreline.

2. *The DEIS states that residents and visitors will be educated about proper behavior when monk seal are encountered in the project area, though details of how this will be achieved are not provided. This is a laudable goal and may indeed reduce the risks of some impacts on monk seals, especially among people who are compliant by nature. However, education without enforcement will not address the problem of persons who do not choose to respect guidelines of behavior. Additionally, one of the challenges of such education programs in Hawaii is that there is a large transient population of tourists. This segment of the population will also enjoy greater access to La'au Point if the proposed development occurs, and it is not clear how these people will be educated and policed.*

Response: The SAMP sets forth an education program required of all homeowners and visitors to the area that covers: cultural practices; cultural sensitivity and respect; environmental protection and concerns; historical significance of the area and resources; and the social fabric, traditions and culture of the Moloka'i community. In sum, the program is intended to make the users of the area aware of the value of the resources they encounter/harvest and to honor others rights and needs in the area.

Education will be conducted in a variety of forms - written, audio-visual and personal hands-on on-site orientations—and not be limited to any one form. It is intended that everyone be required to undertake the educational requirement. From a practical standpoint it is recognized that short term guests may not have the time to undertake the program. However, it can be assumed that the homeowners who have undertaken the program will inform and educate their guests.

Admittedly, educational classes for landowners, vacationing or permanent, are a new approach to a decades old problem of disconnect between new landowners from outside Hawai'i and the local and Native Hawaiian communities.

We assume that educating new residents would have a better effect than if new residents were not educated at all. It is very likely that new buyers will be willing to attend classes to learn how to protect the environmental resources and Moloka'i lifestyle and culture. This is already occurring, whereby relatively newer residents are participating in environmental advocacy and protection efforts.

Currently, MPL allows limited beach access for MPL employees and Maunaloa residents to the area projected for residential development. It is mandatory that employees and their guests view a conservation video to qualify for a beach pass. This system has worked well and received the cooperation of those who have used beach passes.

To incorporate the relevant above information into the Final EIS, in the Final EIS Section 4.3 will be revised as follows:

> **Education (cultural and environmental of homeowners)** – All homeowners must undertake an education program. This program will be designed to create awareness and will mitigate cultural and social impacts as well as instruct and inform homeowners and users of the rules and requirements of the SAMP and the cultural and biological resources being protected. The educational program sets forth topic areas on Hawaiian culture and Molokai social and cultural traditions to mitigate concerns that homeowners will not be sensitive to, or understand, the cultural environment they are entering. The program will explain rules on the handling of cultural and archaeological sites, their significance and use in the Hawaiian culture to prevent destruction and desecration and to provide recognition of the rights of families and practitioners to access the sites. Education on the social fabric of Molokai is designed to inform homeowners of the subsistence lifestyle and traditional use of the area for hunting, fishing, and gathering and its importance to Molokai's way of life. Training on the rules regarding Hawaiian monk seals and notice of the opportunity to volunteer in monitoring programs will be given to ensure adherence to the Hawaiian monk seal requirements. Similar instruction is required for biological assets to ensure their preservation. Additional training is to be provided to educate the homeowners on the rules and management policies regarding enforcement to ensure adherence to the SAMP guidelines and rules.

3. *A measure proposed to mitigate impact of increased shoreline access is: ". . .a caretaker or Land Trust steward will supervise access to ensure that damage to the environment does not take place, and that those who access the area have taken the appropriate education classes in traditional subsistence gathering and access responsibilities, safety and protocol." The apparent intention of this measure s primarily to allay concerns that opening the area to fishing will result in depletion of*

subsistence resources. It is not clear that the Land Trust steward would be charged with ensuring protection of monk seals. Moreover, it is not clear what authority the steward would have to actually police and enforce fishing practices, or any other behavior of beach visitors. Thus, we must anticipate that this measure will not provide adequate protection to monk seals at La'au Point.

Response: The "Monk Seal Protection Program" established in the SAMP has incorporated the information gained from our consultations with NOAA. Elements of the SAMP program were taken from the draft *Recovery Plan for the Hawaiian Monk Seal* (NOAA, 2006). The SAMP reiterates the rules required to ensure non-disturbance of Monk seal habitat and the promotion of Lā'au Point as an area for Monk seals to frequent and "haul out."

In response to your comment the regarding the duties of the Resource Manager in relation to Hawaiian Monk Seal protection, in the Final EIS Section 3.7 (Fauna) will be revised as shown on the attachment titled, "Revised Section 3.7 (Fauna)."

4. *The DEIS states that "A State Land Use District Boundary Amendment is proposed to protect and expand the existing Conservation District (shoreline area) by 254 acres, thereby increasing the amount of shoreline and habitats, such as for monk seals, put into permanent protection" (p. 17). This statement appears to suggest that if the plan is implemented, monk seals will somehow be afforded greater protection than they currently enjoy. In fact, the elements of the proposed plan discussed here suggest just the opposite will occur.*

Response: We note that the current Conservation District designation of the shoreline area affords protection from many activities that could be detrimental to monk seals. It is noted that the additional potential human visits to the project area could result in an increase in the likelihood of human conflict with Monk seals. It is anticipated however that the education program and the supervision of the Resource Manager will minimize the conflict. At present there is considerable human visitation to the area that is unsupervised and the threat to the Monk seals is potentially greater from fewer area users. We also note that the current vacant status of the property affords protection to the area as well. However, if the property were developed to its potential allowed under its existing Agricultural District designation, and thereby the Conservation District near the shoreline was not expanded, development could occur closer to the shoreline than what is being proposed by this project.

5. *In addition to our concerns, NMFS recently received a total of 22 letters from Molokai residents voicing their concerns for the monk seals of La'au Point. Residents are well aware of the importance of this currently remote and relatively undisturbed habitat to monk seals. While we typically do not respond to public outcry over coastal development, the letters are indicative of the degree of public support for protection of the seals and this valuable habitat.*

Response: We acknowledge your comment.

6. *Because this species is highly endangered and susceptible to disturbance by human presence, we are very interested in ensuring that the mitigation measures developed for this project will effectively protect seals when they haul out on beaches in the development area. In particular, we believe that the potential for increased disturbance warrants your consideration of hiring a full- time Hawaiian monk seal protection specialist, who could both educate the public about the seals and also protect them from the expected interactions. We are available to discuss this suggestion as well as any other*

ideas you may have for ways to ensure that the seals will not be adversely impacted by this development.

Response: We appreciate the consultation and expertise NOAA has already provided in developing mitigation measures to protect Hawaiian monk seals. We look forward to a continued relationship in developing monitoring programs, training, and other issues to protect Hawaiian monk seals. The SAMP does provide for hiring Resource Manager(s) to protect the cultural, biological, and social resources of the area, including Hawaiian monk seals. In response to your comment, in Final EIS Section 3.7 (Fauna) will be revised as shown on the attachment titled, "Revised Section 3.7 (Fauna)."

Thank you for reviewing the Draft EIS. Your letter will be included in the Final EIS.

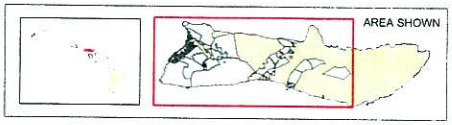
Sincerely,

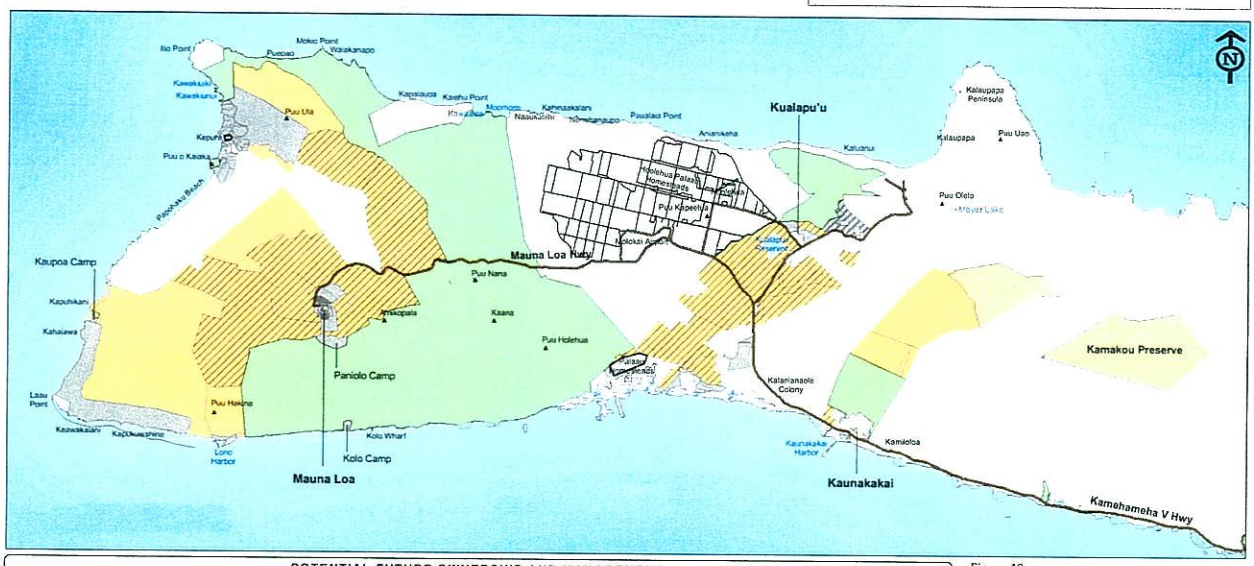
Peter Nicholas
President and CEO
Molokai Properties Limited

Attachment: Revised Section 3.7 (Fauna)

cc: Anthony Ching, State Land Use Commission
Office of Environmental Quality Control
Jeff Hunt, Maui Planning Department
Thomas S. Witten, PBR HAWAII

MOLOKA'I RANCH MASTER USE PLAN
PROPOSED LAND OWNERSHIP / MANAGEMENT





POTENTIAL FUTURE OWNERSHIP AND MANAGEMENT FOR MOLOKAI RANCH PROPERTY

- Proposed Transfer of Ownership to Community Land Trust (26,200 acres)
- Proposed Conservation / Open Space / Agricultural Easement Area (Ownership Retained by Molokai Ranch, 24,950 acres)
- Ownership and Management Retained by Molokai Ranch
- Agricultural Lands (14,390 acres)
- Protected by Existing Conservation Easement (4,040 acres)

Map Prepared By: The Conservation Fund
August 11, 2004

Figure 10
Proposed Land Trust Donations and Easements

Lā'au Point

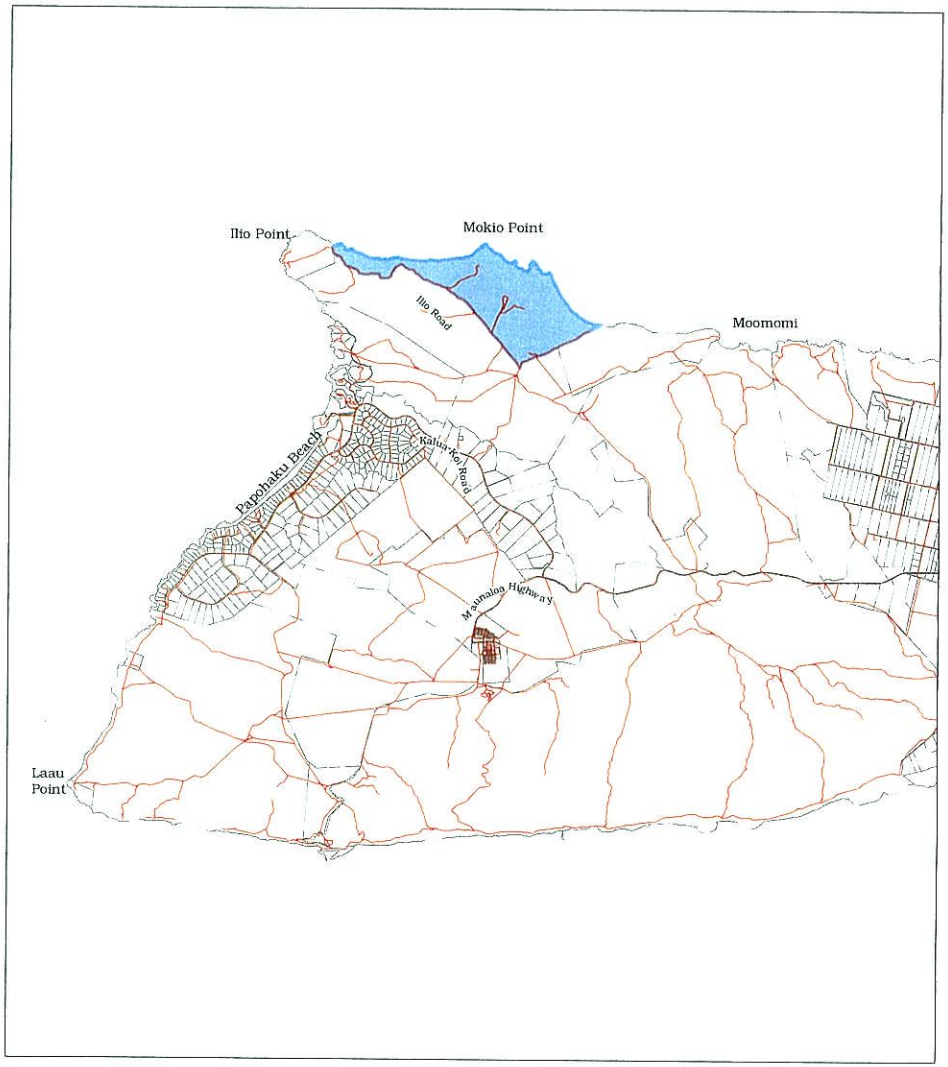
NOT TO SCALE

PBR

Attachment
Proposed Land Trust Donations and Easements

Attachment

First Land Trust Donation
Mokio Parcel



Legend

Roads

First Land Trust Donation Land

Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 11
First Land Trust Donation - Mokio Parcel

Lāʻau Point

Molokai Properties Limited
ISLAND OF MOLOKAI

NORTH
LINEAR SCALE (FEET)
0 5,000 10,000 20,000

PBR HAWAII