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Hiluhilu Development

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HILUHILU DEVELOPMENT

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DEC. OF ENVIRONMENTAL  
QUALITY CONTROL

Applicant:

Hiluhilu Development, LLC

Accepting Authority:

State of Hawaii Land Use Commission

July 2003



Group 70 International, Inc.  
Architecture ■ Planning ■ Interior Design ■ Environmental Services  
Honolulu, HI

HI  
280

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DATE DUE

April 13, 2004




HILUHILU DEVELOPMENT  
Draft Environmental Impact Statement

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**Chapter 1.0**  
Summary

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**1.0 SUMMARY**

**1.1 PROJECT INFORMATION SUMMARY**

<b>Project Name:</b>	Hiluhilu Master Plan
<b>Applicant:</b>	Hiluhilu Development, LLC. c/o Island Advisors, Inc. P.O. Box 7121 Kamuela, Hawai'i 96743 Contact: Guido Giacometti, Principal Telephone: (808) 882-1924
<b>EIS Accepting Authority:</b>	State Land Use Commission
<b>Planning/Environmental Consultant:</b>	Group 70 International, Inc. 925 Bethel Street, 5 <sup>th</sup> Floor Honolulu, Hawai'i 96813 Contact: George Atta, AICP (808) 523-5866
<b>Tax Map Key:</b>	3-7-2-05:01
<b>Land Area:</b>	725 acres ±
<b>Location:</b>	North Kona Judicial District, Island of Hawai'i Ahupua'a of Kau
<b>Land Owner:</b>	Hiluhilu Development LLC. P.O. Box 9007, Kailua Kona, HI 96745
<b>Existing Uses:</b>	Vacant
<b>Proposed Uses:</b>	Residential and Commercial Development
<b>State Land Use District:</b>	Conservation and Agriculture: 464.5 acres Agriculture 260.7 acres Conservation
<b>Hawai'i County General Plan:</b>	Urban Expansion
<b>General Plan Land Use Pattern: Allocation Guide (LUPAG)</b>	Urban Expansion

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<b>Zoning:</b>	Agricultural 3-acre (A-3a)
<b>Kona Regional Plan:</b>	Agricultural
<b>Keahole to Kailua Development Plan:</b>	Lands of Kau could provide housing for the resorts in North Kona and South Kona. Additional golf courses could be developed in this area.
<b>Special Management Area:</b>	Project is not located within the SMA
<b>Permits Required:</b>	Land Use Boundary Amendment, Rezoning, Subdivision, Grading and Building Permits, Irrigation Well Permits
<b>EIS Trigger:</b>	Use of conservation lands

## 1.2 PROJECT SITE

The Hiluhilu project site consists of approximately 725 acres of vacant land mauka of Queen Ka'ahumanu Highway and makai of Makalei Estates in North Kona on the Island of Hawai'i. The site is located within the ahupua'a of Kau and is situated near the Keahole International Airport (See Figure 1). The property is privately owned by the Hiluhilu Development LLC and is being managed by Island Advisors, Inc., a consulting firm in Kamuela, Hawai'i

## 1.3 PROPOSED ACTIONS

The Hiluhilu Development LLC., proposes to develop a 725 acre vacant parcel in North Kona with residential units, mixed uses, an 18 hole golf course, and a university village center. Applicant is engaged in joint planning with the University of Hawai'i to provide supporting infrastructure located on the Hiluhilu parcel for the proposed West Hawai'i campus on adjacent State Land.

The Hiluhilu Master Plan seeks to provide a mix of medium density residential lots and units which will include single family residential lots and multi-family units for sale or lease, commercial areas within the University Village Center area and adjoining areas for commercial uses, including University related uses and a medical wellness center. The preferred mode of development, subject to agreement with the University of Hawaii is to include in the University Village Center area a mixture of classroom and university office, commercial areas, conference facilities, and facilities for community outreach and commercial training support, parking, and athletic fields related to the University. Detailed project descriptions are provided in Section 2.0.

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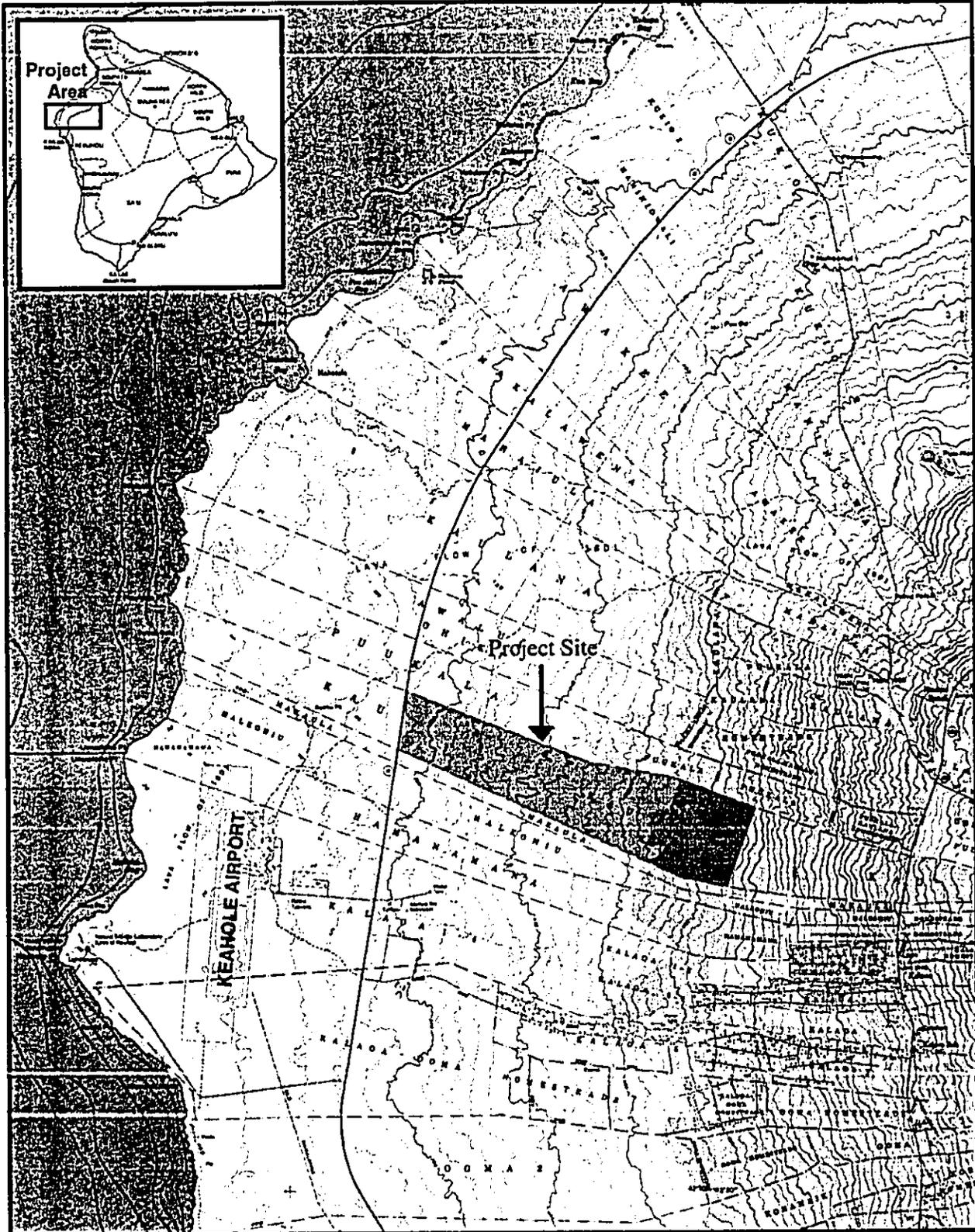


Figure 1-1  
Location Map

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**1.4 REASONS FOR PREPARING THIS ENVIRONMENTAL IMPACT STATEMENT**

The proposed actions that are described in this Environmental Impact Statement (EIS) involves development of lands which currently lie in the Conservation District. This action triggers the application of Chapter 343, Hawai'i Revised Statutes (HRS), and the Environmental Impact Statement Rules, Title 11, Chapter 200 of the Hawai'i Administrative Rules (HAR). This EIS has been filed with the State of Hawai'i's Office of Environmental Quality Control (OEQC) for publication in the Environmental Notice, and copies have been distributed to concerned and interested parties, as required under the EIS Rules.

The Draft EIS and the subsequent Final EIS will evaluate the potential impacts of the proposed Hiluhilu development on the natural and human environment. This document is presented in seven sections. Section 1.0 contains an introduction including an overview of the study's purpose. Section 2.0 describes the proposed project. Section 3.0 discusses project description. Section 4.0 discusses environmental setting. Section 5.0 identifies the relationship to land use plans, policies, and controls. Section 6.0 analyzes the probable impacts and mitigative measures. Section 7.0 identifies alternatives to the proposed actions. Section 8.0 is a summary of unresolved issues. Section 9.0 identifies required approvals and permits.

The public review and consultation for this Environmental Impact Statement is being processed pursuant to Hawai'i Revised Statutes, Chapter 343 and Chapter 200 of Title 11 Administrative Rules, Department of Health, "Environmental Impact Statement Rules."

**1.5 SIGNIFICANT BENEFICIAL AND ADVERSE IMPACTS**

Anticipated beneficial and adverse impacts of the proposed project are listed below.

**1.5.1 Beneficial Impacts**

Project actions would result in several benefits attributed to specific topics:

- ❖ Cultural Resources. Pre-historic sites in the project area have been identified in several archaeological studies. A historic preservation plan was prepared by the project archaeologist with consultation from a community advisory group to protect and preserve the known cultural resources in the area. The plan includes recommendations for the use of some of the resources as interpretive venues for educating students, residents, and visitors about Hawaiian history and culture. Without the project, many of these cultural resources would remain unknown and inaccessible to the people of West Hawai'i. Instead, the resources may become a source of pride and may contribute to the furtherance of education pertaining to Hawaiian culture.
- ❖ Land Use. Completion of the project would fulfill the goals, objectives, and policies stated in State and County planning documents. The plans are supportive of urban growth in this area.

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- ❖ Social Factors. The project would provide a mix of housing in a part of the island in which there is a strong demand for a range of housing types and prices. Assisting the University of Hawaii to start the new West Hawaii (UHCWH) campus would immediately bolster the opportunities for higher education in the West Hawai'i region. A permanent University facility in West Hawai'i would allow its citizens to have a physical symbol and focal point for their educational aspirations including job training and continuing education.
- ❖ Economic Factors. In the short-term, the new project would boost the regional economy by providing added employment for construction workers, fees for design and engineering professionals, and profits for construction companies and building suppliers. In the long-term, the project would provide a suitable mix of housing for Kona residents, a base for supporting commercial uses within the project, including increased employment related to those uses, employment related to the proposed golf course and also increased employment opportunities related to the West Hawaii Campus. Facilitating the establishment of the West Hawaii Campus would provide Kona residents an opportunity to improve skills to increase employment and would boost diversification of the economy.
- ❖ Medical Wellness Center. Part of the program for this project includes a potential medical wellness center.
- ❖ Recreation. The development of a golf course provides a recreational amenity for the residents in this area.
- ❖ Environmental Factors: Protection and preservation of natural, archaeological, cultural-historical features and elements are an integral part of the design of this project. There is a designated Dry Forest area that will be preserved. Detailed measures are discussed in Chapter 6. In addition, selected archaeological and cultural elements are preserved under preservation plans.

#### 1.5.2 Potential Adverse Impacts

Potential adverse impacts that may require mitigation measures are summarized below:

- ❖ Fauna. Exterior lighting may attract flying insects that in turn may attract species that prey on them, such as the endangered Hawaiian hoary bat. Night lights and human-made structures may cause injury to sea birds such as the endemic Dark-rumped Petrel. Grading activities may impact cave habitats that might contain endemic arthropods.
- ❖ Flora. Development in close proximity to the Dry Forest area may perpetually have adverse impacts to the area. Certain specimens of trees outside the Dry Forest area may be destroyed or damaged during construction. Mitigative measures will be taken to ensure the proper preservation of the Dry Forest area.
- ❖ Cultural Resources. Construction activities undertaken within an area known to have numerous archaeological sites and botanical resources may inadvertently cause damage to some resources.
- ❖ Natural Hazards. The project site is located in lava flow hazard zone "4" with "1" posing the greatest hazard and "9" posing the least. The project site also falls within an earthquake zone that comprises the entire Island of Hawai'i.

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- ❖ Traffic. Long-term impacts on surrounding areas include potential new traffic circulation patterns, increase in human consumption of land use and energy; increase in capital expenditures in the vicinity; new residents; increase in consumption of public infrastructure and utilities; increase in demand for public health and safety services. Traffic Level of Services (LOS) will be impacted from this project. The Palani Road/Queen Ka'ahumanu Highway intersection degrades from a will be impacted. The long-term traffic impacts are elaborated in Section 6.2.14, Roadways and Traffic.

## 1.6 PROPOSED MITIGATIVE MEASURES

Few potentially adverse impacts are anticipated to result from the planned improvements and relative to the benefits that are expected. Mitigative measures will be implemented to minimize these potential impacts, as well as to address and eliminate other potentially adverse impacts are as follows:

Mitigation measures that address potential adverse impacts are summarized below:

- ❖ Fauna. Night lighting will be properly shielded to minimize potential injury to bats and Dark-rumped Petrels. Efforts to minimize impacts to cave habitats during grading will be undertaken during the construction period.
- ❖ Cultural Resources. Adherence to the accepted conceptual historic preservation plan would allow for the protection of important archaeological sites and historic and cultural resources. Incorporation of the plan would also result in the previously mentioned benefits from the use of resources via interpretive venues. The Dry Forest area will be preserved according to a preservation plan.
- ❖ Natural Hazards. The project area will be served by access roads connecting to both the Queen Ka'ahumanu Highway adjacent to the makai boundary of the project and to the Mamalahoa Highway via the Makalei Estates subdivision road extending from said highway to the project boundary. Either road can serve as emergency egress from the project. There is sufficient space above the project site for the placement of lava diversion barriers if the technology for such devices improves and their effectiveness is proven. With respect to the earthquake hazard, the project includes the construction of one to two-story buildings built in accordance with Uniform Building Code requirements for Seismic Zone 3, which contain structural design standards for earthquake resistance.
- ❖ Construction Impact Mitigation. The proposed development is expected to create short-term disturbances to the present air quality, noise levels, and traffic for the area due to construction. Implementation of standard traffic, dust and noise attenuation measures during the construction period will be utilized to minimize the negative short-term effects on these conditions.
- ❖ Noise Mitigation. Unavoidable but temporary noise impacts may occur during the construction of the proposed project. Because construction activities are predicted to be audible at adjoining properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases. For this reason, the use of quiet equipment and construction curfew periods as required under

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the State Department of Health noise regulations will be implemented to minimize construction noise impacts.

- ❖ Traffic Mitigation. The project will create traffic volume increases, which will be mitigated by implementing deceleration lanes, right and left-turn lanes, and potential widening of Queen Ka'ahumanu Highway. These mitigative measures are further outlined in Section 6.2.14, Roadways and Traffic.
- ❖ Water Conservation Measures. Treated wastewater from the private wastewater treatment plant that will serve both the improvements within the project and the University of Hawaii improvements on the adjacent land will be used for golf course irrigation, thereby reducing pumpage of water from groundwater sources. Additional irrigation water for the golf course and other areas will be supplied from brackish water wells within the project area, thereby reducing the use of potable water.

### **1.7 ALTERNATIVES**

Alternative schemes were evaluated along with a no-action alternative. These analyses and summaries are provided in Chapter 7 of this document.

#### **NO-ACTION ALTERNATIVE**

The "no-action" alternative would involve no changes to the existing parcel. The parcel would remain undeveloped. Such a choice would impact support for the adjacent development of the University of Hawai'i expansion campus at West Hawai'i. The benefits from the development will not be realized. This alternative was reviewed and rejected early in the planning process.

#### **OTHER ALTERNATIVES**

Several concept plans were developed which differed in their layouts regarding the mid-level connection of the proposed Kawaihae to Kailua roadway into the Hiluhilu parcel; the layout of the golf course in regards to overall site planning and; the details of the Campus Village concept which links the Hiluhilu development with the adjacent University of Hawai'i West Hawai'i Campus expansion. Extension of the Agricultural subdivision pattern below Makalei Estates was another option considered.

### **1.8 UNRESOLVED ISSUES**

The following unresolved issues that remain at the time of the preparation of this document including:

- ❖ Additional conclusions and technical questions related to the traffic impact resulting in mitigation and associated costs.
- ❖ Management and interpretive programs relating to cultural resources still need to be developed.
- ❖ Regional coordination and cooperation related to water issues is ongoing and we are working with DLNR, Board of Water Supply, the University of Hawai'i, and other major landowners in the area.
- ❖ Additional information on best management practices and integrated pest management policies for golf course management will be implemented.
- ❖ An additional consultant report pertaining to cave fauna will be incorporated into the final EIS.

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**1.9 COMPATIBILITY WITH LAND USE POLICIES AND PLANS**

The proposed action is compatible with existing State policy documents (i.e. Hawaii State Plan and Functional Plans, and the West Hawaii Regional Plan). The proposed actions would be compatible with State and County policy documents such as the Hawaii County General Plan and the Keahole to Kailua Development Plan. This project will require a State Land Use Boundary Amendment and Rezoning in order to comply with State land use and County zoning requirements.

**1.10 REQUIRED APPROVALS AND PERMITS**

Several approvals and permits are required in order for this project to proceed.

- Acceptance of the Final Environmental Impact Statement by the State Land Use Commission.
- Approval of a State Land Use Boundary Amendment by the Land Use Commission
- Rezoning by Hawaii County.
- *Subdivision, grading and building permits by the County of Hawai'i, Planning Department.*
- Wastewater treatment facility and irrigation with treated effluent, State of Hawaii Department of Health.
- Approval of a highway entrance from Queen Ka'ahumanu Highway, State Department of Transportation.
- Water Source and Distribution System, Hawaii County Department of Water Supply
- State Historic Preservation Office Chapter 6E review.
- Endangered Species Act review.
- National Pollutant Discharge Elimination System (NPDES) permit.
- Commission on Water Resources Management approval of any brackish or potable wells permits for the project.

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- Commission on Water Resources Management approval of any brackish or potable wells permits for the project.

**Chapter 2.0**  
Purpose And Need For The  
Proposed Action

## 2.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

### 2.1 PURPOSE AND NEED FOR MIXED RESIDENTIAL DEVELOPMENT

The success of residential development at the lands of the Kau ahupua'a site depends on a number of factors: location, physical suitability of the site for development, and the overall market conditions for residential sales. The site is well suited for residential development and should develop into a unique urban node for North Kona.

The potential for new residential development is subject to a variety of pressures including interest rates, inflation, social, political, and other economic influences. Based upon the historical performance of the Hawai'i County housing market and upon the projected growth in new household formations shown earlier in this report, the demand for new residential construction can be segmented by tenure and type of unit.

Based on residential market analysis projections by THK, new household formations will average 1,360 per year during the projection period 2001-2011 which will produce a demand for the construction of 1,465 dwelling units annually when adjusted for vacancies and demolitions (see Appendix I). Single-family detached construction of 1,192 units annually during the next decade will account for approximately 81% of total construction in the Hawai'i County area. Townhome and condominium construction will average 90 units annually, or 6% of the total market followed by rental apartment construction with 180 units annually or 12% of total construction.

The important elements to evaluate when determining capture rates are the prestige of the community and the quality and character of the immediate area. The capture rates shown reflect the differences in the quality of the location and, the reputation, planning and amenities of competitive developments. These capture rates were based upon the geographic attributes of the subject site and those of competitive projects, as well as the number of competitors in a given price range within the immediate market area.

Based on the competitive review of other projects, the location of the site, its planned amenities, and its access to regional employment, retail, and recreation centers, THK believes that the Hiluhilu Development site will be able to capture either a generic capture rate or a higher than generic capture rate of the single-family detached market. In order to determine capture rates, THK reviewed the number of existing competitors and determined those that will still be marketing product during the Hiluhilu development period. THK then allowed for new project and resale competition and estimated a "fair" share capture rate, adjusted for the site (see Appendix I).

There is strong market support for a mix of moderately priced residential products within the University Village community setting at Hiluhilu Development. Based upon the analysis of general market support and the strong consumer response to the University Village concept, the development program includes a mix of lots, patio homes, townhomes, apartments, and senior housing targeted to meet the needs of local and seasonal residents. The village commercial program includes classroom and cultural facilities, village shopping, and a University related

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inn/conference center along with student and faculty housing. Outside the village center, space has been allocated for medical services and support, research and development activities, and future community commercial.

#### 2.2 PURPOSE AND DESIRABILITY FOR LINKAGE WITH WEST HAWAI'I CAMPUS

Linkage with the University of Hawai'i West Hawai'i campus is a desirable component in achieving a better place to live and quality of life. By placing mixed uses in close proximity to one another, alternatives to driving, such as walking or biking, become more viable. Mixed land uses and linkage also provides a more diverse and sizable population and commercial base for supporting viable public transit. It can enhance the vitality and perceived security of an area by increasing the number and attitude of people on the street. It helps restore the use of streets to a pedestrian-oriented basis and helping to revitalize community life.

Mixed land uses and linkage with the West Hawai'i campus will convey substantial fiscal and economic benefits to the entire community. In addition to providing training to improve the work force, commercial/educational uses in close proximity to residential areas often result in higher property values, and therefore help raise local tax receipts. The increased economic activity caused by having more people improves shopping activities.

Other needs identified in the *University of Hawai'i Center: West Hawai'i Development Plan, 1998-2007* (University of Hawai'i, Hawai'i Community College, 1997) are described in the following paragraphs.

- ❖ **Need Based on Demographic Factors.** The total population of the West Hawai'i region – this includes the districts of North Kohala, South Kohala, North Kona, South Kona, and the Western portion of Kau – is expected to grow to almost 100,000 persons by the year 2010. This is sufficient population to justify the construction of a higher education center serving 1,200 to 1,600 students by year 2010.

The West Hawai'i population includes more persons in the 25-39 age group than either Honolulu or Kauai. Course offerings, programs and delivery strategies must be developed to meet the needs of working adults in this age group.

The West Hawai'i population, in general, has a higher rate of high school graduation and a larger percentage of persons who have some college as compared to the populations in either Honolulu or Kauai. Many individuals who have completed either an associate or baccalaureate degree are professionals working in the region who desire further education to maintain or upgrade existing job skills.

Two factors may be contributing to the low, 2% rate of enrollment in postsecondary education by persons in West Hawai'i who are 18 years of age or older as compared to other reporting areas having a sizeable University of Hawai'i presence: the location and size of education facilities at Kealahou, and the limited range of courses and programs offered at this time.

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Despite the relatively close proximity between Konawaena High School and postsecondary facilities in Kealahou, there is a low, 22% participation rate of students continuing from that high school to the University of Hawai'i (including its community colleges as compared to other neighbor island high schools located near a UH campus.

- ❖ Need Based on Employment Trends. Employment trends in the West Hawai'i region are of great importance in the planning of the UHCWH because of two factors: most students cite preparation for employment as their primary reason for pursuing postsecondary education; and access to appropriately focused education and training programs can be a tremendous boost to the economic development of a community.

Service and sales positions account for 40% of the currently available jobs in West Hawai'i. In the West Hawai'i region, there is also a prevalence of executive/managerial and professional occupations that require extensive postsecondary education for entry to these fields. In the future, more scientific enterprises related to astronomy and ocean engineering may increase the need for professional and graduate education in West Hawai'i.

- ❖ Need for a More Central Location within West Hawai'i. The existing location of the UHCWH is considerably south of the population center of the region. This fact, coupled with the lack of adequate facilities and necessary infrastructure will continue to interfere with the delivery of quality programs at the UHCWH. Under these conditions, the growth of student enrollment at the UHCWH would be hampered.
- ❖ Need to Meet Community Expectations. The community of West Hawai'i has advocated strongly for increased postsecondary educational opportunities over the past twenty years. The UHCWH uses the results of community needs assessments to determine program and course offerings.

The proposed UHCWH will accomplish the following objectives:

- ❖ Allow the relocation of functions and programs from existing leased facilities in the commercial mall complex in Kealahou to State-owned facilities specifically built to accommodate existing and future University Center/Village functions;
- ❖ Reorganize facilities and functions into a cohesive campus that elevates the image of the University Center/Village within the West Hawai'i region and fosters a nurturing learning environment;
- ❖ Extend higher education services to residents who live and work in the West Hawai'i region – the only major population center in the Hawaiian Islands that does not have a permanent facility for higher education – and especially to those in West Hawai'i who cannot afford to pursue their educational needs at other University of Hawai'i campuses in Hilo or on other islands;
- ❖ Provide for the expansion of functions and programs to accommodate a future head count enrollment of 1,500 students; and
- ❖ Reflect the cultural legacy and volcanic origin of the West Hawai'i region through the integration of existing cultural resources in the layout of the University Center/Village and the use of lava materials and other architectural elements to create a Hawaiian sense of place.



**Chapter 3.0**  
Project Description

### 3.0 PROJECT DESCRIPTION

#### 3.1 HILUHILU MASTER PLAN

A Master Plan community, to be known as University Village, is envisioned as a first class residential community with recreational amenities of a golf course and commercial venues which integrate into the development of the adjacent University of Hawai'i West Hawai'i Campus (Figure 3-1).

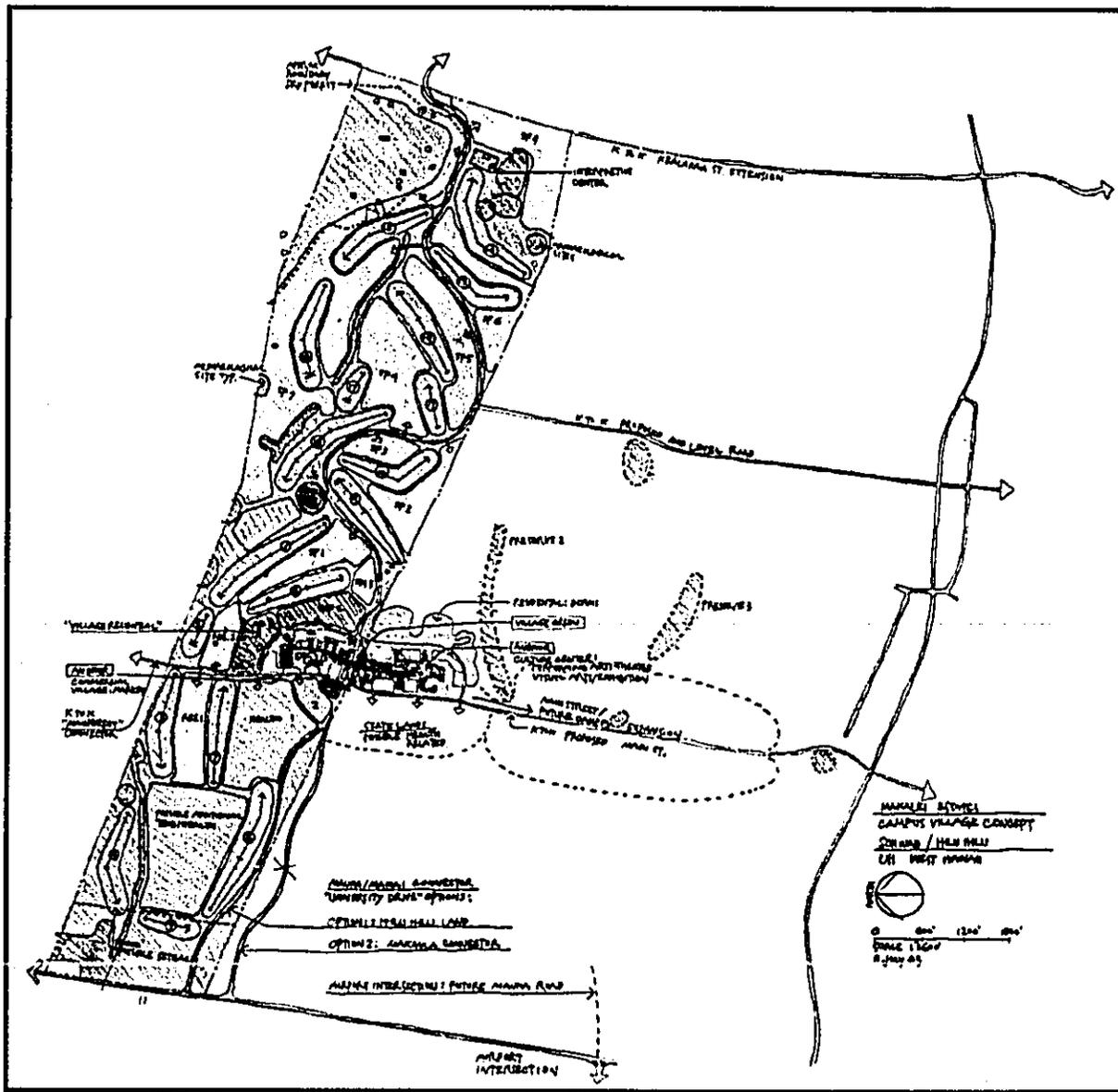


Figure 3-1  
Hiluhilu/UH West Hawaii Campus

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The various land use elements of the Master Plan include single and multiple family residential units, an 18-hole golf course, clubhouse, driving range, commercial and university residential facilities, open space and parking areas (See Table 3-1). Infrastructure facilities to support the development include access and internal circulation roadway networks, a wastewater treatment and disposal system, a potable water supply and fire protection system, a non-potable water irrigation system and other utility systems.

#### 3.1.1 Residential Component

Approximately 317 acres of the property is targeted for residential use. The project proposes a low to medium density development of 320 single-family units covering 142 acres along with 70 one acre lots in the Kau Uplands area of the project site. An additional 375 residential units will be developed to support the University of Hawai'i to be located in the University Village area of the project site. The housing market will include residents, second home purchasers and renters. Renters may include students, workers and short term faculty. Affordable housing requirements will be met with agreements discussed with County and State housing agencies.

#### 3.1.2 Commercial Component

Approximately 106 acres of the property is targeted for commercial use. The commercial center is focused primarily in the University Village core to support both the residential development of Hiluhilu as well as the neighboring University of Hawai'i West Hawai'i Campus. The following commercial activities are envisioned: 3 acres of classrooms and teaching labs; 10 acres of general commercial space; 8 acres for a University House Inn and Conference Center; 10 acres devoted to a medical and wellness campus; 5 acres for assisted living units; 50 acres for research related incubator and development space, and 20 acres for community commercial developments.

In order to facilitate the relocation of the University of Hawaii operations to its new location, Petitioner will work with the University to provide classroom and office facilities with the Hiluhilu portion of the University Village on an interim basis until new facilities can be constructed on the State land.

#### 3.1.3 University Linkages

Petitioner's preferred development mode is to have the University Village as an integrated development spanning the parcel owned by Hiluhilu Development, LLC and the parcel designed for the UH West Hawai'i Campus (Figure 3-2).

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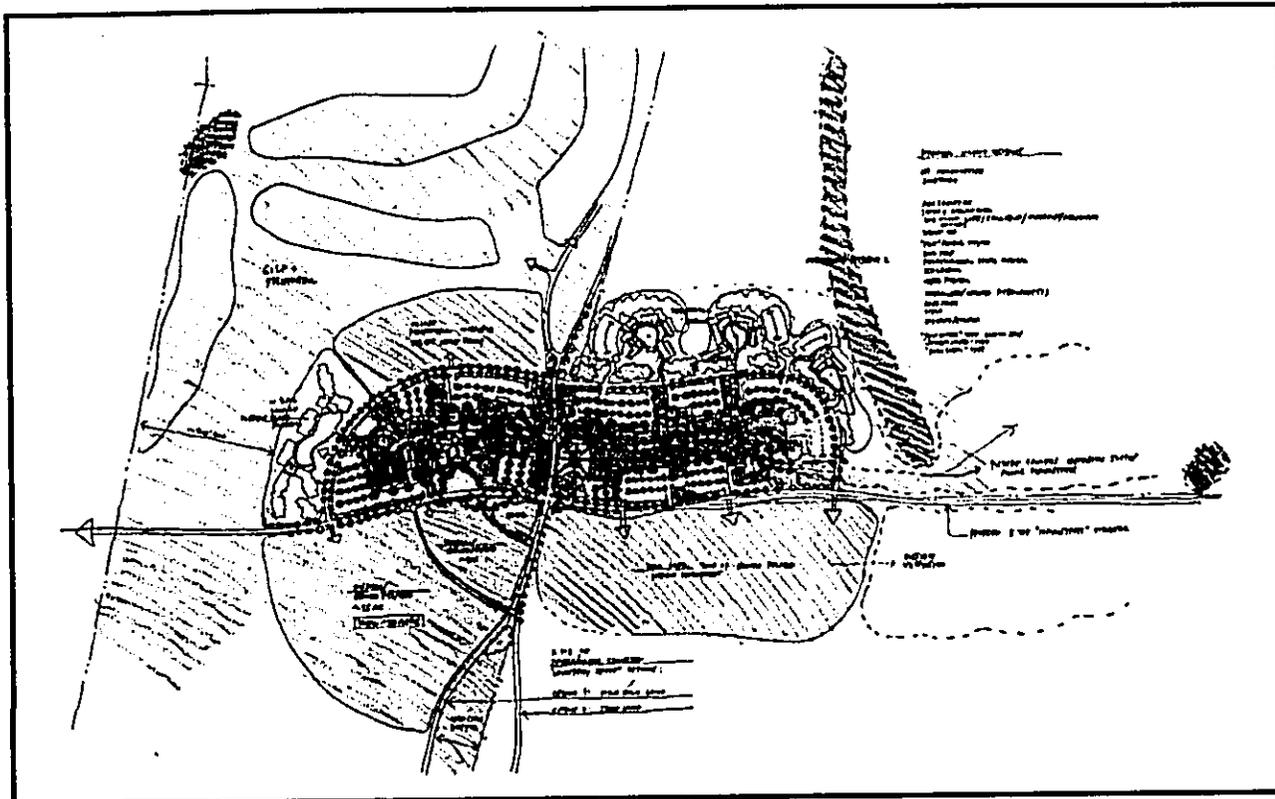


Figure 3-2  
University Village

The Village as conceived will have a horizontal, linear core spanning both properties which would be the focus for non-residential activities. The core would have a "village square" approximately at the boundary line of both properties with development extending laterally across the slope of the land. This allows pedestrians to easily walk from one end of the core to the other. Along this core would be University spaces such as classrooms, faculty offices, library spaces, teaching labs, etc. side-by-side with commercial and cultural facilities such as shops, restaurants, book store, coffee shop, professional and business offices, medical facilities, conference center/inn, performing arts and cultural facilities.

The University of Hawaii's vision for West Hawaii is to develop a unique educational environment that will integrate the community into the educational enterprise, that will serve the needs of students from high school through retired adult learners, and that will not only support an emphasis on Hawaiian studies, but also provide the structure for global interaction. The mission of the campus will incorporate the philosophies of multidisciplinary educational programs, a multicultural environment, a learning-centered focus, and using the entire Island as a living laboratory. It will be a technologically advanced campus, and well-positioned to support the future needs of the community.

Directly off the core would be the campus residential facilities, private sector apartments, possibly assisted living facilities, as well as medical facilities and research related incubator space. Residence halls will be developed to attract international students, and students from the U.S. mainland. Specialized residential programs will be offered during the summers,

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making the campus fully functioning year-round. A golf course would extend mauka-makai on the private parcel with adjacent single-family houses flanking the course.

The architectural character of the core buildings and adjacent facilities (one to two-stories) would be similar to the charming up-country Big Island character of the towns of Waimea and Hōlualoa. The feel of the community would be non-institutional. The entire development is envisioned to have aesthetic controls which would ensure the compatibility of structures. Design of buildings would include review for preservation of view planes. Landscaping including native species from this locale, would be coordinated and well maintained. The implementation of these elements will further link the University Village with the other developments for this project.

#### 3.1.4 Amenities

Approximately 180 acres of the property will be devoted to the development of an 18-hole golf course and clubhouse. The course will be periodically open for general community use. In addition to these development plans, approximately 94 acres will be used for open space and parking.

#### 3.1.5 Infrastructure

Civil infrastructure for the proposed development will be built in three phases, as appropriate for the gradual development of the site. Phase 1 will provide the required infrastructure for development of the golf course and a portion of the village center. Phase 2 will expand the infrastructure systems to accommodate additional residential and village center development. Phase 3 will provide infrastructure for complete build out of the Hiluhilu parcel as described in Section 3.1.

Each phase of infrastructure development will be designed and constructed to accommodate the proposed University of Hawai'i Center at West Hawai'i (UHCWH) campus development on the adjacent parcel south of the Hiluhilu parcel.

##### 3.1.5.1 Roadway System

###### Offsite Access

Access to the site is planned from Queen Ka'ahumanu Highway at an existing access point designated by DOT Highways Division. Connections to existing and proposed offsite roads to the east, north and south of the Hiluhilu parcel will be provided.

###### Onsite Roads

The project access road from Mamalahoa Highway will continue east past the village center through the golf course and single-family residential areas to the east end of the parcel. At the eastern boundary, the mauka-makai road will connect the existing mauka-makai road through Makalei Estates that connects to Mamalahoa Highway.

At the Village Center, the main north-south road will connect to the main road through the UHCWH campus center area to provide a continuous north-south road across the southern

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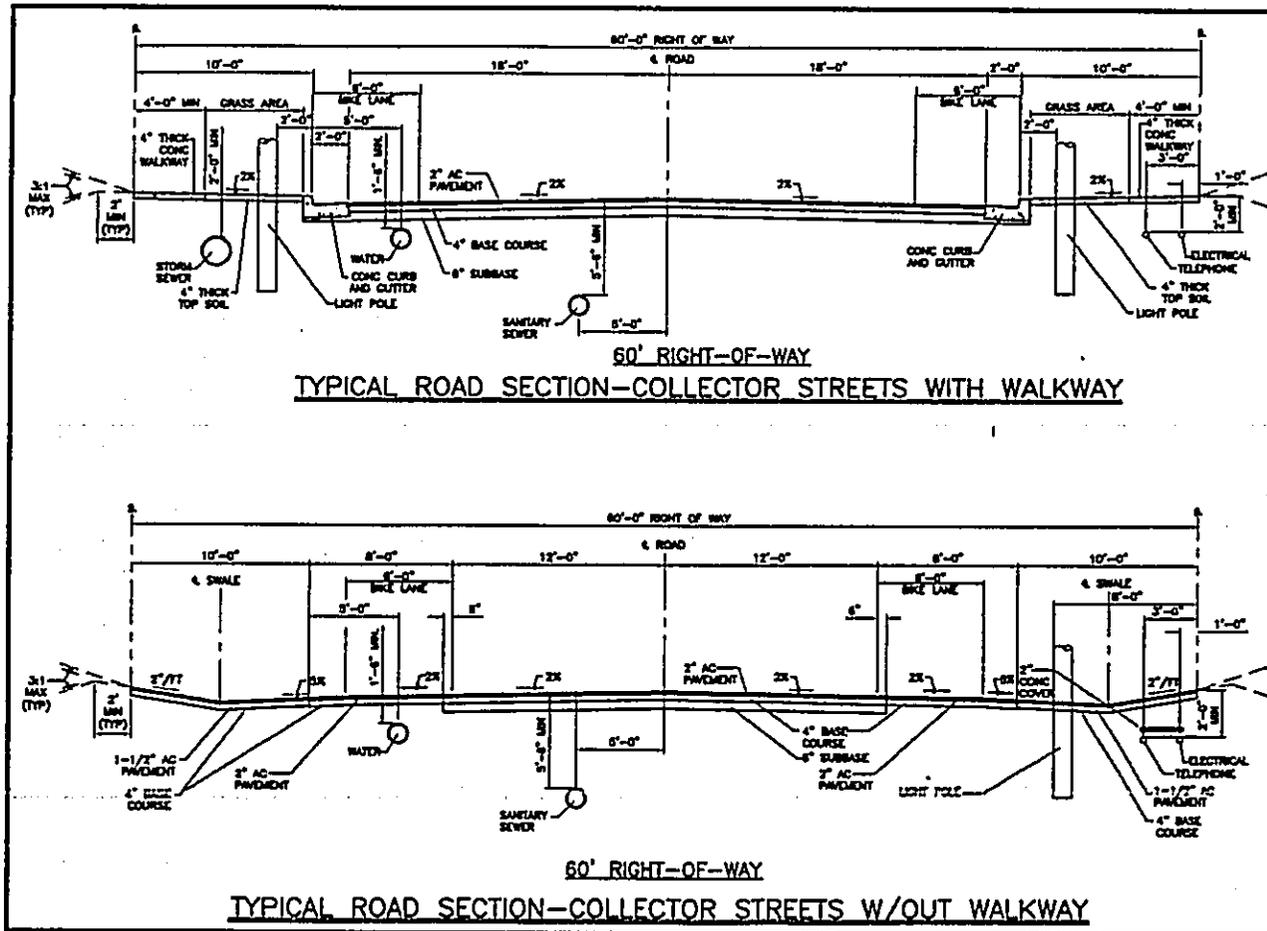
boundary. The road will be designed for continuation across the northern boundary in the future.

Two additional north-south connector roads east of the village center, as identified in the Keahole to Kailua Development Plan<sup>1</sup> will be accommodated by the Hiluhilu roadway system.

Minor roads within the development will serve the village and surrounding commercial/institutional areas, as well as residential areas within the project. Design of the specific roads will be based on standardized cross sections described in the following sections.

**Main Roads**

The Hawai'i County Public Works Department has two standard road types – streets with sidewalks (Standard Detail R-32) and streets without sidewalks (Standard Detail R-33). These standards will apply to the main connector roads within the project, which will be dedicated to the County. As a modification to the standard roadway sections, bicycle paths will be provided to support University-related and other bicycle traffic (Figure 3-3).



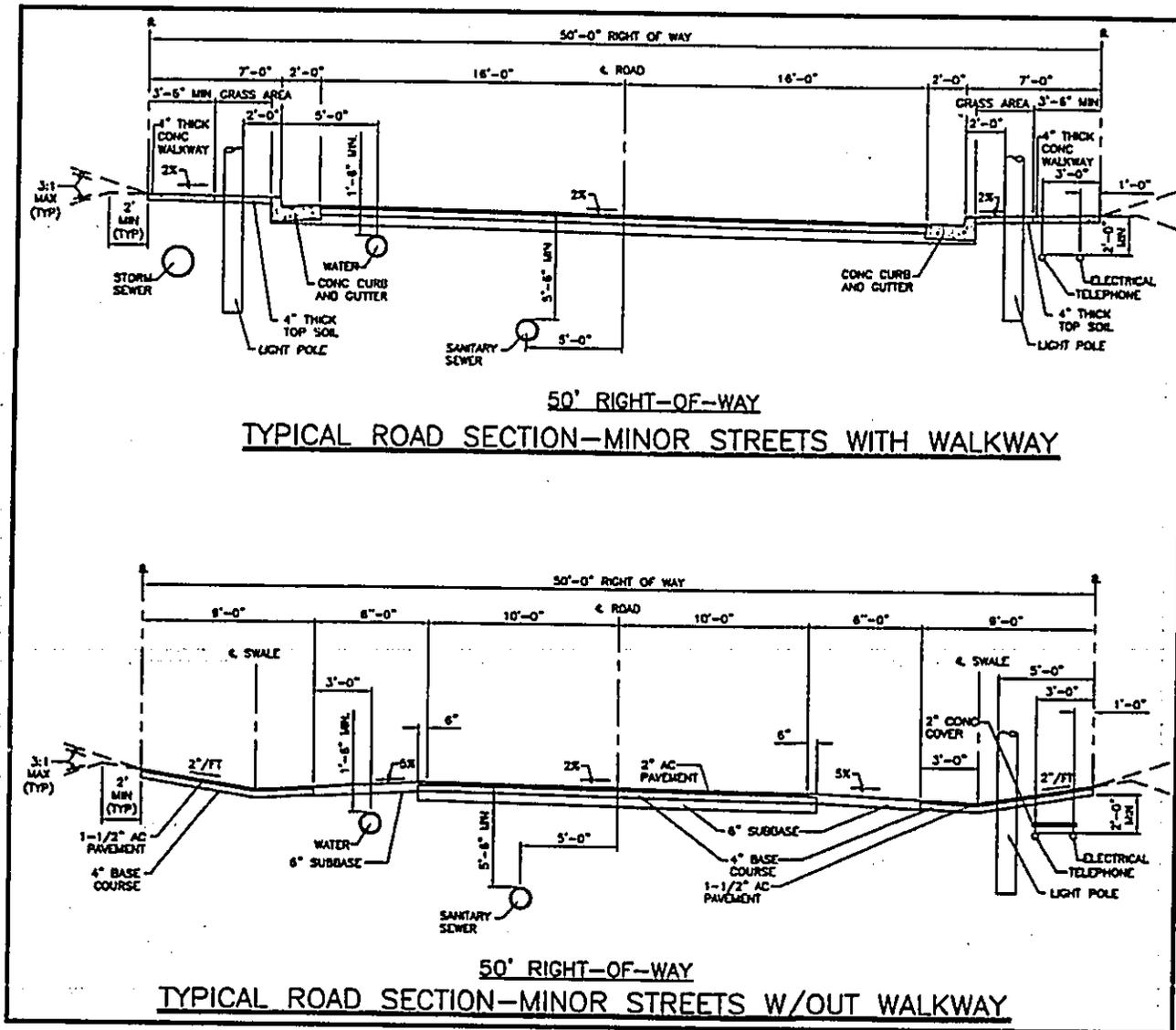
**Figure 3-3**  
Cross-section of Main Roads

<sup>1</sup> County of Hawai'i Department of Planning and R. M. Towill Corporation, April 1991.

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**Minor Roads**

The local roads within the development may remain private and may vary from County standards. Fifty (50) foot rights-of-way will be used (Figure 3-4). Minor roads in the village area will include sidewalks, but minor roads in single-family residential areas low-density commercial/institutional areas will not include sidewalks. Bicycle paths will not be designated on the minor roads due to the lower volume and lower speed of traffic that these roads will carry.



**Figure 3-4**  
**Minor Roads**

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**3.1.5.2 Site Grading and Erosion Control**

**Grading**

The project does not propose major grading of the site. The existing topography will be altered only to the extent necessary for construction of the proposed improvements. It is anticipated that grading will occur on a localized scale and that cut and fill quantities will generally balance as construction progresses.

**Erosion Control**

During all phases of construction on the Hiluhilu project, erosion control practices will comply with both State and County regulations. NPDES permits will be obtained from the Hawai'i Department of Health for stormwater discharges from construction activities. Best Management Practice plans to control erosion during construction will be a component of the NPDES permits.

**3.1.5.3 Storm Drainage System**

Stormwater runoff from impervious areas will be collected through a system of swales, catch basins, and pipes and transported to stormwater drywells or infiltration areas for disposal. The permeability of the existing soils is evident by the absence of any natural stormwater channels or gullies in the vicinity of the site. Infiltration areas will be located in the golf course and other open spaces, where practical. Drywells will be located within roadway rights-of-way and within individual parcels, as needed. Planning for stormwater runoff will include review of potential non point source pollution and use of appropriate best management practices.

**3.1.5.4 Water System**

The Hiluhilu Development will include expansion of the County's potable water system through the public rights-of-way within the project and construction of a non-potable water system for golf course irrigation. To date Hiluhilu Development has outfitted and dedicated one of the two potable wells on the Kau property to the Department of Water Supply (DWS).

**Potable Water<sup>2</sup>**

There are presently two wells (4458-01 & 02) situated along the east (Mamalahoa Highway) boundary of the parcel. These wells are intended as a drinking water source and are to be turned over to the County Department of Water Supply.

According to Water Resource Associates (WRA) undated report entitled "Water Resources and Supply for Lands of Kau, North Kona, Hawaii", Wells 1& 2 were each intended to produce 0.8 mgd (million gallons per day). The wells were to be pumped at a rate of 1000 gpm (gallons per minute) for 16 hours per day.

For this analysis, the buyer is estimating that water for about 81 homes at the top of the property will be needed. An additional potable water source will be required for a golf course clubhouse and about 20 surrounding upscale homes. The total potable water requirement is expected to be 343 water units or about .205 mgd.

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<sup>2</sup> Data and description for this section were derived from Waimea Water Services, Inc., Groundwater Resources of Kau, North Kona, Hawaii, A Water Study for Hiluhilu Development, LLC, June 2003, Appendix I, Brackish Source Report 1999. The full report is contained in Appendix J.

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For this review, based on the experience of the Hualalai Golf course, it is estimated that about 1 mgd of irrigation water will be required for the golf course during grow in. If the soil is adequately prepared, the golf course should not require more than 0.8 mgd, assuming that about 100 acres are under irrigation.

As indicated on the well location map, there are a series of potable wells to the north of the Kau Wells I & 2. These wells make up the Huehue Ranch well field. Well 1 is designed to pump at a rate of 350 gpm while Wells 2,3,4, & 5 are designed to pump at a rate of 500 gpm each. All are intended to be pumped for a 16-hour day and the expected production will average 2.0 mgd, the sustainable yield as estimated by Waimea Water Services in 1991.

Petitioner has been in ongoing discussions with the County Department of Water Supply, the successors to the KW Kohanaiki party in the water agreement involving the petition area and the Kohanaiki property, representatives from the Department of Land and Natural Resources to participate in sharing in the cost of improvements to the Department of Water Supply transmission lines and storage systems in return for water commitments. Petitioner expects that those improvements will provide adequate water for the project and the University of Hawaii West Hawaii Center.

The salinity in the Kau Wells is about 35 mg/L chlorides in comparison to a salinity of 150 mg/L in HR #2. Recent (April 1999) water levels in Kau#1 and HR#1 were 9.38' and 7.73' respectively.

The Huehue wells are spaced out over a distance of about 1.5 miles or a sustainable yield of about 1.33 mgd/mile of aquifer width. By contrast, the Kau wells are expected to have a sustainable yield of 1.6 mgd in 0.4 miles or 4 mgd/mile of aquifer width.

Potable water demand for the Hiluhilu Development is summarized as follows:

Table 3-1  
Potable Water Demand

Phase	Potable Water Demand (gpd)
1	289,000
2	398,000
3	519,000
Total	1,206,000

#### 3.1.5.5 Wastewater System

A self-contained, wastewater collection, treatment and disposal system is proposed for the Hiluhilu Development. A conceptual sketch of the system, which also shows a proposed location for the wastewater treatment plant, is provided in Figure 3-5).

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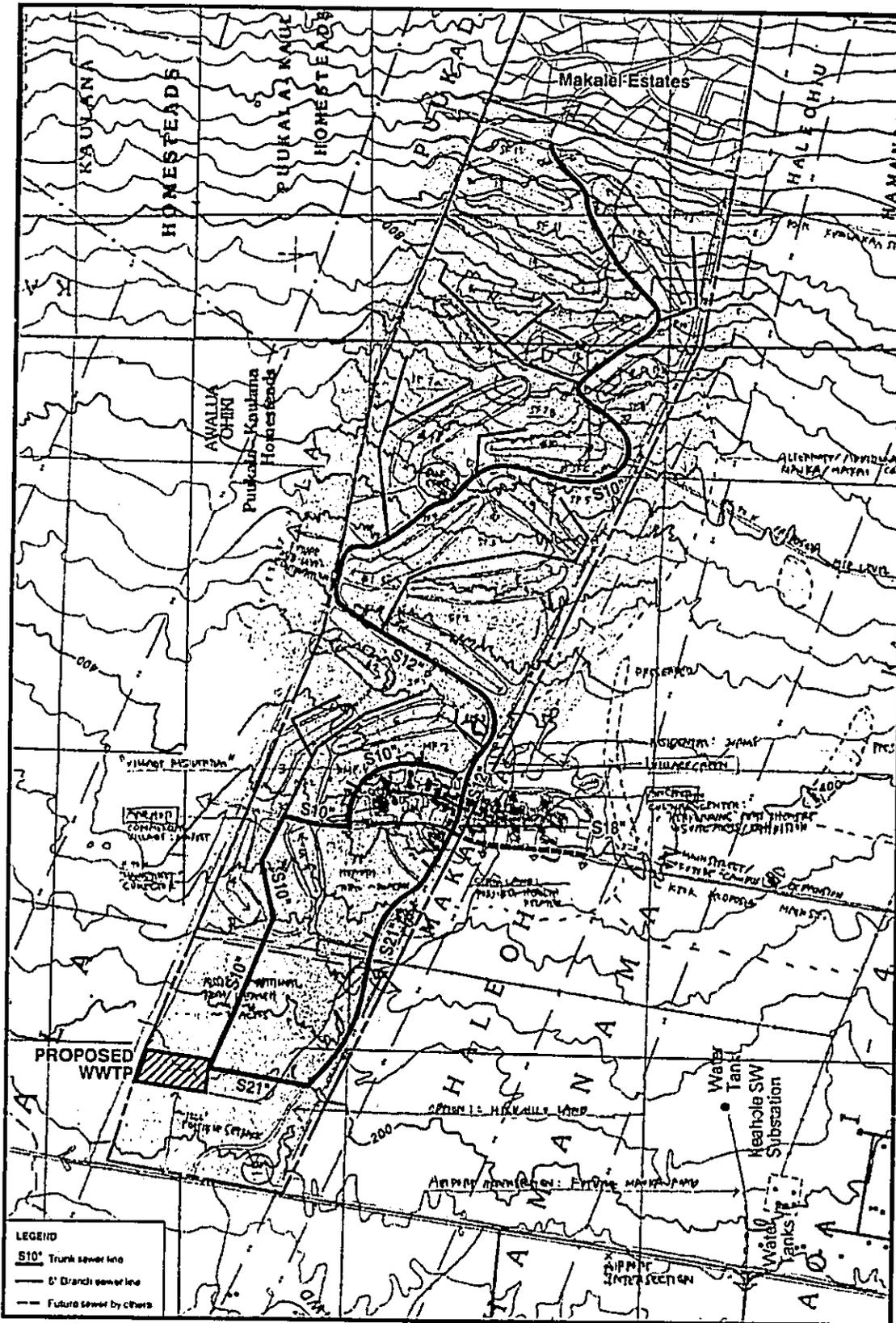


Figure 3-5  
Proposed Wastewater Treatment Plant

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**Wastewater Collection**

The proposed WWTP location has been selected to maximize the use of gravity flow of raw sewage to the WWTP. The individual wastewater collection system components will also be designed to minimize the need for pumping of raw sewage. Pumping of raw sewage is undesirable due to the high maintenance typically required to provide reliable pumping, the requirement of standby power for sewage pumping stations, the undesirable consequences of a sewage spill that could result from a pumping system failure, and the energy requirements of pumping.

**Wastewater Treatment**

The proposed WWTP would provide advanced wastewater treatment to produce recycled water for golf course irrigation meeting DOH's definition of "R-1 Water." The WWTP would employ a relatively simple "low-tech" process to treat the wastewater to the secondary treatment level. Advanced treatment to produce R-1 water would be accomplished by media or membrane filtration, and ultraviolet light (UV) disinfection.

The WWTP ultimate capacity will be approximately 850,000 gpd. The WWTP will be constructed in three phases to accommodate the development phases of the Hiluhilu project.

The WWTP will be designed to minimize energy consumption to the extent practicable. Elevation differences at the proposed site can be exploited to reduce the amount of energy needed to pump the process water within the WWTP. Energy conservation will also be considered in the selection of aeration method and equipment, and in the selection of UV disinfection equipment.

Odor control will also be an important criterion of the WWTP design. Passive odor control design will be employed to the extent practicable, and active odor control systems will be installed only if the passive systems cannot adequately address odors generated at the plant.

The design and layout of the WWTP will allow the University of Hawaii West Hawaii Campus to use the system as the campus develops.

**Effluent Reuse/Disposal**

The R-1 water produced by the WWTP will be pumped to a storage reservoir for use in the golf course irrigation system.

Injection wells are proposed to provide standby disposal, as required by DOH regulations. Effluent that could not be used for golf course irrigation due to rainy weather conditions would be discharged to the injection wells. Also, effluent not meeting the turbidity criteria for R-1 water, due to failure of a treatment component, could be discharged to the injection wells. The latter condition would be infrequent, but must be addressed in system design.

**Biosolids Reuse/Disposal**

Biosolids produced from the wastewater treatment process could be dewatered at the WWTP and composted with green waste from golf course and other landscaped areas to produce a soil amendment that could be used on-site or sold for use off site. The composting process will be designed to meet all EPA and DOH requirements applicable to the intended uses. The proposed composting facility would be located at the WWTP site and would be equipped with

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an odor control system to mitigate the potential of nuisance odors typically associated with composting facilities.

#### 3.1.5.6 Solid Waste

Solid wastes generated on site will be collected and disposed at approved County solid waste disposal facilities. A solid waste management plan will be developed to reduce the volume generated during construction.

### 3.2 DEVELOPMENT SCHEDULE AND PROCESS

Project development and implementation is scheduled to begin immediately following approvals of necessary land use amendments, permits, and available funding. The scope of the project requires substantial coordination with State and County agencies as well as collaboration with the University of Hawai'i. Further details regarding the development phasing will be discussed in the DEIS.

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**3.3 SUMMARY OF ESTIMATED PROJECT COSTS**

Table 3-2 lists the infrastructure costs for this project:

**Table 3-2: Hiluhilu 725 Acres--Budget Estimate of Infrastructure Costs**

Note all amounts in thousands.

Item	2003	2004	2005	2006	2007	2008	2009	2010	Total
Queen K Intersection	\$0	\$1,000	\$1,312	\$0	\$0	\$0	\$0	\$0	\$2,312
Roads	\$0	\$1,000	\$3,000	\$1,331	\$0	\$0	\$0	\$0	\$5,331
Storm Drain Drywells	\$0	\$682	\$0	\$0	\$0	\$0	\$0	\$0	\$682
Sewer pipe w/manholes	\$0	\$1,000	\$3,000	\$1,056	\$0	\$0	\$0	\$0	\$5,056
Sewage Treatment Plant	\$0	\$2,000	\$2,000	\$0	\$2,000	\$2,000	\$0	\$0	\$8,000
Water lines	\$0	\$1,000	\$1,771	\$0	\$0	\$0	\$0	\$0	\$2,771
Reservoirs	\$0	\$0	\$1,000	\$2,000	\$1,370	\$0	\$0	\$0	\$4,370
Power & Tel--underground	\$0	\$1,000	\$2,000	\$866	\$0	\$0	\$0	\$0	\$3,866
Street lights	\$0	\$0	\$535	\$0	\$0	\$0	\$0	\$0	\$535
Subtotal Infrastructure	\$0	\$7,682	\$14,618	\$5,252	\$3,370	\$2,000	\$0	\$0	\$32,922
Note: Above based on KKCC calculations.									
Golf Course w/clubhouse	\$0	\$6,000	\$12,000	\$9,000	\$0	\$0	\$0	\$0	\$27,000
Note: Above based on GL estimate.									

Source: Island Advisors, Inc.

**Chapter 4.0**  
Environmental Setting

## 4.0 ENVIRONMENTAL SETTING

This section presents background information on the existing natural and man-made environment. Utilizing this background, the proposed project is evaluated for its potential to generate significant environmental impacts, which are reviewed in Section 6.0. Technical studies have been prepared to analyze the existing environmental conditions and the potential impacts on the environment that could be generated by the proposed project. Findings of these reports are summarized in this section with the full consultant studies presented in the Appendices.

### 4.1 REGIONAL AND SITE OVERVIEW

The mokupuni, or island of Hawaii is the largest island in the Hawaiian chain, comprised of a land area of 4,028 square miles. According to U.S. Census 2000 data, the population of 148,677 people on the island of Hawaii represents approximately 12% of the entire state population of 1.2 million people.

This project is located in West Hawaii. The districts of West Hawaii are South Kona, North Kona, South Kohala, and North Kohala. The property to the south of the subject parcel is owned by UH and the State of Hawaii (DLNR). The mauka or east property is the Makalei Estates agricultural subdivision with various property owners.

The Hiluhilu project site consists of approximately 725.2 acres of vacant land mauka of Queen Ka'ahumanu Highway and makai of Mākālei Estates in North Kona. The site is located within the ahupua'a of Kau and is situated northeast of the Keahole Airport. The property is privately owned by the Hiluhilu Development LLC.

### 4.2 HISTORICAL PERSPECTIVE

#### 4.2.1 Early History

The following summaries are based on the traditional and historical literature review and the ethnographic data and analyses. These summaries condense the information from the Cultural Impact Study, and also serve to focus on a few significant individuals and events in North Kona's history in relation to Kau lands, as well as give a broad overview of land and water resources and uses in the general area as they reflect cultural practices. The Cultural Impact Study is based on two guiding documents, Act 50, and OEQC Guidelines (see Appendix D), as well as the Criteria for Historic Preservation cited in Section 4.9.

#### *Summary of Significant People and Events*

According to traditional and historical material, the North Kona District has gone through a number of significant changes, and witnessed the comings and goings of many significant people over time. Some of these people contributed substantially not only to the history of North Kona, but to the Island of Hawaii and the rest of the Hawaiian Islands. There were several people and events noted in the oral histories and later recorded by explorers, missionaries, native Hawaiian scholars and ethno-historians, from the time of Pa'ao to

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Kamehameha I who caused the various island kingdoms to come under one realm. These significant people lived in North Kona and vicinity, and were responsible for land modifications, shifts in polity and commerce, and the gene pool of Hawaii's alii and monarchs. Some of these people and events are noted below.

### *Mythical Entities*

The most significant mythical entity to impact North Kona, the lands of Kekaha and Kau, as well as greater Hawaii Island, was the volcano or fire goddess Pele, who left evidence of her visits in the form of pu'u which dot the landscape, and in her monumental lava flows, Pele annihilated villages, shelters, trails, temples, shrines, water sources, fishponds, pools, holua slides, and countless other structures and features, forever changing the landscape and the lives affected by the destruction. Even those living outside the direct flows of lava were affected as when lava covered fishponds and pools, and flowed into the marine environment. The people had to alter their lifestyles, look for other resources and start over again. Archaeologists, with the help of oral historians can often reconstruct the lives of the ancient ones through the clues left by abandoned shelters, house sites, sacred places and remains of the food they ate. This cannot be done in the places visited by Pele; for those places, the few stories that remain must suffice. However, the effects of the flows of Pele were not entirely negative. They created more land mass, new lava tube shelters and rugged beauty unique to Kekaha.

### *Ali'i nui*

One of the first legendary ali'inui was the priest Pa'ao who is said by some to have arrived on Hawai'i Island between AD 1100-1200. However, according to some traditional genealogy chants, the period would be around AD 480 (James 1998:143-144). In the oral histories, Pa'ao is credited with constructing at least three heiau (luakini or temples of human sacrifice) that radically changed the religious system and political structure of the people of Hawaii. Pa'ao not only brought about a significant change in religious practices, he also brought high chief Pili to rule in place of chiefs he believed had lost their mana or power because of too many intermarriages with commoners and/or ineffective rule. His new system introduced the concept of hierarchial (ali'i) rule to the islands and a new order of kahuna or priests.

Many battles took place across this land as relative fought relative for supreme rule. Among the relatively recent names that stand out are those of Kalani'opu'u and his nephew Kamehameha I. Kamehameha I not only successfully dominated the local island polities, but also went on to take power on the neighboring islands as well, putting him in a position that only Kualii was said to have done; that of having all the island polities under one rule. Kamehameha I used foreign weapons and foreign advisors, as well as powerful kahuna (priests). Two of these were Pu'ou and his son Hewahewa. The lands of Kekaha are said by some to have been kahuna lands; places where kahuna reside, and did their training. Although the common translation of "kahuna" is priest, "kahuna" are actually masters who studied all their lives in their particular craft and arts. Some were astronomers, others water managers, some were architects in the building of temples or fishponds. Pu'ou and Hewahewa were masters of many arts, and were considered kahuna nui, the highest rank of a kahuna.

Kamehameha I chose to live in Kailua-Kona during the final years of his life. After he died in 1819, his son, Liholiho (who also lived nearby) chose to capitulate to his mother, Queen Ke'opūolani and his Kuhina Nui (co-ruler) Queen Ka'ahumanu, and break the 'ai kapu. This signaled the end of the old way, the religion of Pa'ao. Hewahewa, who served as guardian and

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priest for Liholiho, resigned his position and helped the missionaries. Hewahewa eventually left Hawaii Island and moved to Waimea, Oahu.

The lands of Kau and other lands in the vicinity, were passed down to Hewahewa, from his father. Hewahewa and his father were descendants of Pa'ao, the first kahuna to honor the war god, Kūka'ilimoku.

### *People in the Historic Period*

In regard to the lands of Kau, the most significant person(s) from the Post-Contact times would be John Avery Maguire and his wife Luka, founders of Hu'ehu'e Ranch. Historically, the land of Kau is more associated with them, and Paalua who also lived during the Post-Contact/Historic Period, than any other significant persons in Kona history.

### 4.2.2 Land Use History

The following information is a brief chronological land use history of this property from 1978 to present:

**May 8, 1978:** Date of the original Change of Zone application (REZ 425) from Charles McCarthy requesting the 732+ acre area be rezoned from Unplanned to Agricultural-3 acres (A-3a) in order to facilitate the development of 203 3-acre lots as part of an agricultural park.

**February 11, 1982:** Decision by the Planning Commission on the appeal of the Planning Director's denial. The Commission reversed the Director's denial decision and recommended approval of the Change of Zone request to the County Council.

**February 15, 1983:** Ordinance No. 850 approved by the County Council to rezone a portion of the subject property from Unplanned to A-3a.

Time extensions were filed by McCarthy to the County from 1983-1987.

**February 29, 1988:** County Council approval of amendment to Ordinance No. 850. New Ordinance is 88-23.

**September 27, 1991:** Letter from Nansay Hawaii Inc. requesting a time extension to Condition H of Ordinance 88-23 relating to final subdivision plat approval; informing the Planning Department that it had acquired the property in 1989.

**October 14, 1992:** Nansay Hawaii requested amendments to Conditions C, E, H, and I of Ordinance 88-23. The request for amendment was made because 1) Nansay's plans had changed somewhat from the original applicant's in 1983, 2) the General Plan's LUPAG Map had, since the approval of the original zoning request, changed the classification of the subject property from Orchards and Extensive Agriculture to Urban Expansion, and 3) the Keahole to Kailua Development Plan had been adopted indicating residential uses for the property.

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**December 28, 1992:** Date of submittal of Subdivision Application 93-9 for the first increment of the project consisting of 81 3-acre plus lots and one remaining 725-acre lot. The proposed subdivision of the Lands of Kau is identified at "Makalei Plantations."

**March 17, 1993:** Planning Department granted tentative subdivision plat approval.

**May 12, 1993:** Effective date of Ordinance 93-45 amending Conditions C, E, H and I of Ordinance 88-23.

A time extension was applied for the Makalei Plantations subdivision plat from 1994-1995.

**January 31, 1995:** Letter from Nansay Hawaii, Inc. requesting a one-year time extension to secure final subdivision approval.

**April 5, 1995:** Letter from the Planning Director to Nansay Hawaii, Inc., informing the applicant that any further extensions of time to the conditions of approval will be considered by the County Council.

**August 9, 1995:** Final Plan approval issued to Makalei Plantations for the Kona Well No. 2 Development consisting of a .10 MG reservoir and well site and a .30 MG reservoir well site.

**October 18, 1999:** Letter from the Planning Department to Guido Giacometti, representative for Hiluhilu Development, LLC, granting approval of construction plans for Phase 1 of the proposed subdivision Makalei Plantations.

**November 5, 1999:** The Hawaii County Planning Commission approved a Use Permit (#180) allowing the development of an 18-hole golf course with a clubhouse and driving range, and related improvements. This permit is active. Petitioner will be submitting an application to the Land Use Commission for the review of a State Land Use Boundary Amendment.

### 4.3 CLIMATE

The climate is hot and arid. Southerly and southwesterly winds predominate in the project area as a result of shielding effect from landmasses such as Mauna Loa, Mauna Kea and Mt. Hualalai. Weather data recorded at Keahole Point and Kona International Airport indicate that calm conditions prevail approximately 28.8 and 23.6 percent of the time, respectively.

Rainfall at the project site tends to occur during the late afternoon and evening periods. The project site lies well below the high rainfall belt (with peak rainfall of 75 inches a year) located between a 1 to 2 mile wide area between elevations of 2,000 and 3,000 feet in West Hawaii. Average annual precipitation recorded at the Kailua monitoring stations (located at an elevation of 30 feet) is 25 inches. Rainfall on the project site is projected at less than 20 inches per year. (Source: Final EIS for University of Hawaii Center at West Hawaii, October 2000).

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### 4.4 TERRESTRIAL CONDITIONS

#### 4.4.1 Topography

The project site is situated within a localized depression (or a lowland area) on the southwestern slopes of Mt. Hualalai between the elevations of 150 feet above mean sea level (MSL) to 900 feet above MSL. The terrain at the project site slopes generally from northeast to southwest. Slopes vary from 5 to 10 percent.

#### 4.4.2 Visual Resources

The visual character of this area is defined by expanses of lava lands with clumps of scrub grass, small trees and shrubs, in general, appearing to be undeveloped land. The best views of the project site are from the vicinity of the Kona International Airport. On a clear day, the most expansive views from this vantage point span the western slopes of Mt. Hualalai including the project site and scattered pockets of urban development along Mamalahoa Highway and Kaiminani Drive.

#### 4.4.3 Geology

The predominant natural force shaping the landscape of North Kona is Hualālai Volcano. The site is framed by one of the major flows from the 1801 eruption. These and prior flows have created a harsh landscape of great beauty. These multiple flows of differing ages overlapping each other create a layered landscape with different lava colors reflecting differences in age, chemical composition and the impact of subsequent weathering. This underlying complexity merges rock and sky, which reflects spirituality close to nature. These flows are excellent examples of the geological processes that have created the Hawaiian Islands.

The existing geomorphology in the project area is the product of large-scale eruptions from Mt. Hualalai – a now dormant shield volcano. Large-scale eruptions from this volcano may have ceased some 130,000 years ago; however, the most recent flank eruptions and lava flows occurred circa 1800-1801. The subsurface layer comprises a basalt formation.

Geologic conditions at the project site are characterized by multiple interbedded pahoehoe and 'a'a flows. A pahoehoe lava flow hardens to form a generally smooth surface whereas the 'a'a type forms splintered or jagged fragments. Both flow types can contain buried voids such as pockets, blisters, extensive lava tubes and tunnels that formed as molten rock cooled and residual lava drained from primary flow pathways. Numerous lava tubes and/or voids including several prominent lava tube features have been discovered in the vicinity of the project site, and it is likely that the project site contains lava tubes or void features (C.W. Associates, Inc. 1998).

#### 4.4.4 Soils

Based on soil types, rainfall patterns and the associated plant species, this parcel of the Lands of Kau can be broadly divided into three distinct sections: A. Upper Area, B. Middle Area, and C. Lower Area. Several sources of information on soils classification (Soil Survey, Island of

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Hawaii), land use studies, and report on Agricultural Lands of Importance in the State of Hawaii (ALISH), were also consulted.

### *Upper Area:*

This area appears to have been previously cleared. According to the Soil Survey of Island of Hawaii by Sato et al (1973), the upper area is dominated by Punaluu soil series (extremely rocky peat [rPYD] 6-20% slope) with pockets of Kaimu soil series (extremely stony peat [rKED] 6-20% slope) and Pahoehoe land with some weathered volcanic ash and organic residues, which accumulated in low spots. Pockets of lava flows of A'a [rLV] are also observed in this area.

### *Middle Area:*

This middle portion, which appears to receive lower rainfall, is dominated by Pahoehoe lava flows [rLW] and Punaluu soil series [rPYD] with pockets of A'a Lava flows [rLV]. The terrain is very rough and inhospitable. A'a lava flows with jagged and clinker rocks with very sharp edges make it dangerous to traverse. The biomass in this section is much less than the upper area. Very few scrubby ohia trees, some cactus, noni, koa haole, fountain grass and few shrubs are found here. The lack of soil, the rough and un-even terrain and the low rainfall render this section unsuitable for any traditional farming.

### *Lower Area:*

Rainfall tends to decrease moving down the slope and the A'a [rLV] and Pahoehoe [rLW] flows dominate the "soil" picture. In this section the rock formations are very rugged, jagged, and difficult to traverse. Rocky gulches and bare small rocky hills are common to this section. The diversity of plant species is extremely limited. This may be due to the insufficient rainfall as well as the absence of fine soil material and organic residue, which can store moisture, essential for sustaining plant growth. Most of this section is void of vegetation, but where it exists, fountain grass, few rattlebox, some scrubby koa haole and very few ohia trees are found.

The summary for this section derives from the Lands of Kau - (North Kona) Soil Report, by Yusuf Tamimi, Ph.D. The full report is contained in Appendix H.

### 4.4.5 Surface and Groundwater Resources<sup>1</sup>

The groundwater resources beneath the land of Kau (between Mamalahoa and Queen Ka'ahumanu Highways) consist of a basal lens. In theory, fresh water floats on salt water in a ratio of 1:40 where, for every 1 foot of fresh water head above sea level, there are 40 feet of fresh water below sea level. This ratio becomes highly modified where the recharge varies seasonally and there is a strong tidal influence.

Fresh water is found in the basal lens near Mamalahoa Highway at elevation 1800' (wells 4458-01,02), where the water level stands at + 7'. As evidenced by a well on State land (well # 4360-01) in map 1 near the Kona Palisades subdivision, the lens becomes brackish (total chlorides at 580 mg/L) at elevation 680' with a head of +3.2'.

<sup>1</sup> Data and description for this section were derived from Waimca Water Services, Inc., Groundwater Resources of Kau, North Kona, Hawaii, A Water Study for Hiluhilu Development, LLC, June 2003. The full report is contained in Appendix J.

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At elevation 1800' above Mamalahoa Highway, well # 4358-01 struck a high level aquifer with the water level standing at elevation + 238' above sea level. Pumping tests at the time of construction indicate a draw down of nearly 100 feet with a salinity of 10 mg/L. The well is presently in DWS service with a pumping rate of 300 gpm.

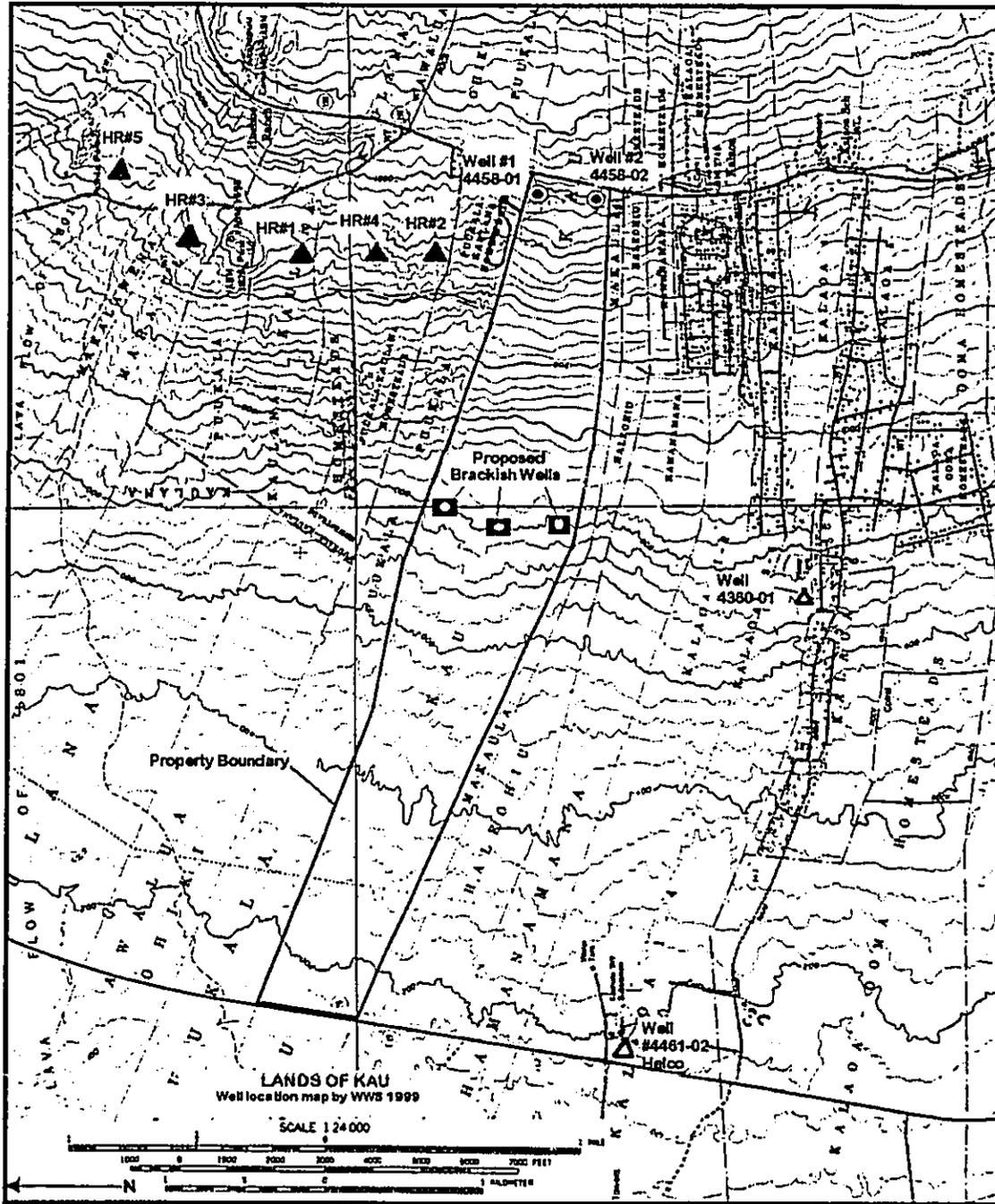


Figure 4-1  
Well Locations and Proposed Brackish Well Locations

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Although speculative, the high level aquifers seem to be most likely to be related to a fault system rather than dikes found within the rift zone of Hualalai. The high level aquifers along Mamalahoa to the south are all closely associated with coastal slumping ( Moore, et al , 1989-Prodigious Submarine Landslides on the Hawaiian Ridge).

There is no information to suggest that high-level water will occur within the project area.

The most conservative estimate (which does not account for fog drip) concludes that the groundwater recharge in units 1 and 2 of the study area (above elevation 900 feet) results in about 4 mgd of groundwater flow within the sub area.

Sustainable yield is defined as that amount of groundwater that can be pumped on a sustained basis. The aquifer sector (Keauhou), which includes the project area, extends from Kua Bay (at Kukio) and Keauhou to the south, and has an estimated sustainable yield of 38 mgd. The majority of the groundwater flow in the Keauhou sector occurs from Kailua-Kona to Keauhou.

Assuming, however, the flow to the shore is uniformly distributed, the 38 mgd would result in a sustainable yield of about 2 mgd/mile of shoreline. The width of the project study area is about 4 miles, a reasonable estimate might assume that the recharge for the total study sub area includes fog drip and that about 60% of the 7 mgd or 4.2 mgd recharge would be a more defensible estimate of sustainable yield.

The groundwater resources beneath the Land of Kau (between Mamalahoa and Queen Kaahumanu Highways) consist of a basal lens. In theory, fresh water floats on salt water in a ratio of 1:40 where, for every 1 foot of fresh water head above sea level, there are 40 feet of fresh water below sea level. This ratio becomes highly modified where the recharge varies seasonally and there is a strong tidal influence.

### 4.4.6 Drainage, Flood, and Tsunami Hazards

#### Flood:

The project site is located within a characteristically dry and arid environment where the risks from flooding are virtually nonexistent. The risks with respect to the flood hazard are therefore slight.

#### Tsunamis:

Tsunamis occur as a series of waves that strike a coastline, and the waves decrease in height over time. Tsunamis can cause serious damage to coastal areas. The degree of tsunami damage is dependent upon several factors including the topography of the affected area, wave origin, and wave intensity. The general tsunami inundation lines are concentrated within short distances of the shoreline. The project is located approximately 3 miles from the coastline of West Hawaii and presumably distant from high risk areas that are subject to a tsunami hazard.

### 4.4.7 Flora

A botanical reconnaissance for Hiluhilu was conducted by Patrick Hart, Ph.D in May and June of 2003. The objectives of the survey were to 1) identify and take Global Positioning System

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(GPS) coordinates for all threatened and endangered plant species; 2) list all plant and bird species encountered; and 3) describe the vegetation. The survey focused on identifying and assessing the value of any relict native forests or shrublands.

### Current Vegetation and Flora of the Area

Twenty-seven native (including 3 federally listed Endangered Species and two Species of Concern) and 35 introduced plant taxa were detected Table 4-1. Three general plant communities exist on the project site and are discussed below.

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Table 4-1. Inventoried Plant Species in Lands of Kau

Scientific Name	Family	Common Name	Life Form	Status
<i>Abutilon grandifolium</i>	<i>Malvaceae</i>	Hairy abutilon	Shrub	A
<i>Aleurites moluccana</i>	<i>Euphorbiaceae</i>	Kukui	Tree	A
<i>Antigonon leptopus</i>	<i>Polygonaceae</i>	Mexican creeper	Vine	A
<i>Argemone glauca</i>	<i>Papaveraceae</i>	Pua kala	Herb	E
<i>Boerhavia coccinea</i>	<i>Nyctaginaceae</i>	Boerhavia	Herb	A
<i>Caesalpinia kavaiensis</i>	<i>Fabaceae</i>	Uhiuhi	Tree	E
<i>Capparis sandwichiana</i>	<i>Capparaceae</i>	Maiapilo	Shrub	E
<i>Carica papaya</i>	<i>Caricaceae</i>	Papaya	Tree	A
<i>Catharanthus roseus</i>	<i>Apocynaceae</i>	Madagascar periwinkle	Shrub	A
<i>Chamaecrista nictitans</i>	<i>Fabaceae</i>	Partridge pea	Herb	A
<i>Chamaesyce multiformis</i>	<i>Euphorbiaceae</i>	'Akoko	Tree	E
<i>Chloris barbata</i>	<i>Poaceae</i>	Swollen finger grass	Grass	A
<i>Cocculus triloba</i>	<i>Menispermaceae</i>	Huehue	Vine	I
<i>Crotalaria incana</i>	<i>Fabaceae</i>	Fuzzy rattlepod	Herb	A
<i>Desmodium incanum</i>	<i>Fabaceae</i>	Spanish Clover	Herb	A
<i>Diospyros sandwicensis</i>	<i>Ebenaceae</i>	Lama	Tree	E
<i>Dodonea viscosa</i>	<i>Sapindaceae</i>	'A'ali'i	Shrub	I
<i>Eleusine indica</i>	<i>Poaceae</i>	Wire grass	Grass	A
<i>Erythrina sandwicensis</i>	<i>Fabaceae</i>	Wiliwili	Tree	E
<i>Grevillea robusta</i>	<i>Proteaceae</i>	Silk oak	Tree	A
<i>Hyptis pectinata</i>	<i>Lamiaceae</i>	Comb hyptis	Shrub	A
<i>Indigofera suffruticosa</i>	<i>Fabaceae</i>	Indigo	Shrub	A
<i>Ipomoea indica</i>	<i>Convolvulaceae</i>	Koali 'awa	Vine	I
<i>Jacaranda mimosifolia</i>	<i>Bignoniaceae</i>	Jacaranda	Tree	A
<i>Kalanchoe pinnata</i>	<i>Crassulaceae</i>	Air plant	Herb	A
<i>Lantana camara</i>	<i>Verbenaceae</i>	Lantana	Shrub	A

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<i>Leucaena leucocephala</i>	<i>Fabaceae</i>	Haole koa	Tree	A
<i>Malvastrum coromandelianum</i>	<i>Malvaceae</i>	False mallow	Herb	A
<i>Metrosideros polymorpha</i>	<i>Myrsinaceae</i>	Ohia	Tree	E
<i>Myoporum sandwicense</i>	<i>Myoporaceae</i>	Naio	Tree	I
<i>Nothoecstrum breviflorum</i>	<i>Solanaceae</i>	'Aiea	Tree	E
<i>Nototrichium sandwicense</i>	<i>Amaranthaceae</i>	Kulu'i	Shrub	E
<i>Opuntia ficus-indica</i>	<i>Cactaceae</i>	Panini	Shrub	A
<i>Osteomeles anthyllidifolia</i>	<i>Rosaceae</i>	'Ulei	Shrub	I
<i>Panicum maximum</i>	<i>Poaceae</i>	Guinea grass	Grass	A
<i>Passiflora foetida</i>	<i>Passifloraceae</i>	Love-in-a-mist	Vine	A
<i>Pennisetum setaceum</i>	<i>Poaceae</i>	Fountain grass	Grass	A
<i>Peperomia leptostachya</i>	<i>Piperaceae</i>	'Ala 'ala wai nui	Herb	I
<i>Phlebodium aureum</i>	<i>Polypodiaceae</i>	Hare's foot fern	Fern	A
<i>Pleomele hawaiiensis</i>	<i>Agavaceae</i>	Halapepe	Tree	E
<i>Pluchea symphytifolia</i>	<i>Asteraceae</i>	Sourbush	Shrub	A
<i>Plumbago zeylanica</i>	<i>Plumbaginaceae</i>	'Ilie'e	Herb	I
<i>Portulaca oleracea</i>	<i>Portulacaceae</i>	Pig weed	Herb	A
<i>Portulaca pilosa</i>	<i>Portulacaceae</i>	'Akulikuli	Herb	A
<i>Psidium cattleianum</i>	<i>Myrtaceae</i>	Strawberry guava	Tree	A
<i>Psidium guajava</i>	<i>Myrtaceae</i>	Common guava	Tree	A
<i>Psilotum nudum</i>	<i>Psilotaceae</i>	Moa	Fern	I
<i>Psydrax odoratum</i>	<i>Rubiaceae</i>	Alahe'e	Tree	I
<i>Reynoldsia sandwicensis</i>	<i>Araliaceae</i>	'Ohe makai	Tree	E
<i>Rhynchelytrum repens</i>	<i>Poaceae</i>	Natal redtop	Grass	A
<i>Rivina humilis</i>	<i>Phytolaccaceae</i>	Coral berry	Shrub	A
<i>Santalum paniculatum</i>	<i>Santalaceae</i>	Sandalwood	Tree	E
<i>Schinus terebinthifolius</i>	<i>Anacardiaceae</i>	Christmasberry	Tree	A
<i>Senna gaudichaudii</i>	<i>Fabaceae</i>	Kolomona	Tree	I
<i>Senna occidentalis</i>	<i>Fabaceae</i>	Coffee senna	Shrub	A

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<i>Sida fallax</i>	<i>Malvaceae</i>	'Ilima	Shrub	I
<i>Sophora chrysophylla</i>	<i>Fabaceae</i>	Mamane	Tree	E
<i>Stachytarpheta jamaicensis</i>	<i>Verbenaceae</i>	Jamaica vervain	Shrub	A
<i>Verbena littoralis</i>	<i>Verbenaceae</i>	Owi	Herb	A
<i>Waltheria indica</i>	<i>Sterculiaceae</i>	Uhaloa	Herb	I
<i>Wikstroemia sandwicensis</i>	<i>Thymeliaceae</i>	'Akiā	Shrub	E
<i>Xylosma hawaiiense</i>	<i>Flacourtiaceae</i>	Maua	Tree	E

List of Alien (A), Indigenous (I), and Endemic (E) plant species found during the course of the study. Bold lettering indicates a federally listed endangered species.

### *Pennisetum grasslands*

Much of the makai portion of the property below about 500 feet elevation consists of nearly barren lava flows, grasslands of introduced fountain grass (*Pennisetum setaceum*), and scattered native and introduced shrubs and trees. The rather sparse herb layer in these grasslands primarily consists of the indigenous uhaloa (*Waltheria indica*), and the introduced partridge pea (*Chamaecrista nictitans*). Other introduced plants include haole koa (*Leucaena leucocephala*), indigo (*Indigofera suffruticosa*), and *Pluchea symphytifolia*, which are present as low growing shrubs, and silk oak (*Grevillea robusta*), which is present as trees up to 25 feet tall. Native shrubs include the locally common maiapilo (*Capparis sandwichiana*), a federally listed Species of Concern (SOC), and 'a'ali'i (*Dodonea viscosa*). Native trees such as 'ohia (*Metrosideros polymorpha*), lama (*Diospyros sandwicensis*), naio (*Myoporum sandwicense*), alahe'e (*Psydrax odoratum*), and maua (*Xylosma hawaiiense*) are scattered in very low densities throughout this area. Most significantly, 3 individuals of the state and federally endangered uhi-uhi tree (*Caesalpinia kawaiensis*), and two individuals of the state and federally endangered aiea tree (*Nothocestrum breviflorum*) were encountered. However, one of the 'aiea trees may be growing just a few feet outside the property boundary. All of the native trees are growing in areas of otherwise barren 'a'a lava.

### *Pennisetum Scrub*

From approximately 500-650 feet in elevation, shrubs become co-dominant with fountain grass. The indigenous 'a'ali'i is abundant, forming dense thickets in some areas. Also present are the introduced haole koa and christmasberry (*Schinus terebinthifolius*). Interestingly, the shrubland to the north of the jeep road is dominated by 'a'ali'i, whereas much of the land to the south of the road is dominated by the introduced species. Native trees such as lama, alahe'e, mamane (*Sophora chrysophylla*), and iliahi (aka. sandalwood, (*Santalum ellipticum*)) occasionally emerge above these shrubs. The most remarkable component of this vegetation zone is the numerous stands of giant wiliwili trees that are scattered throughout the area (Figure 4-2). These trees are likely the last remnants of the dry forest that once existed there.

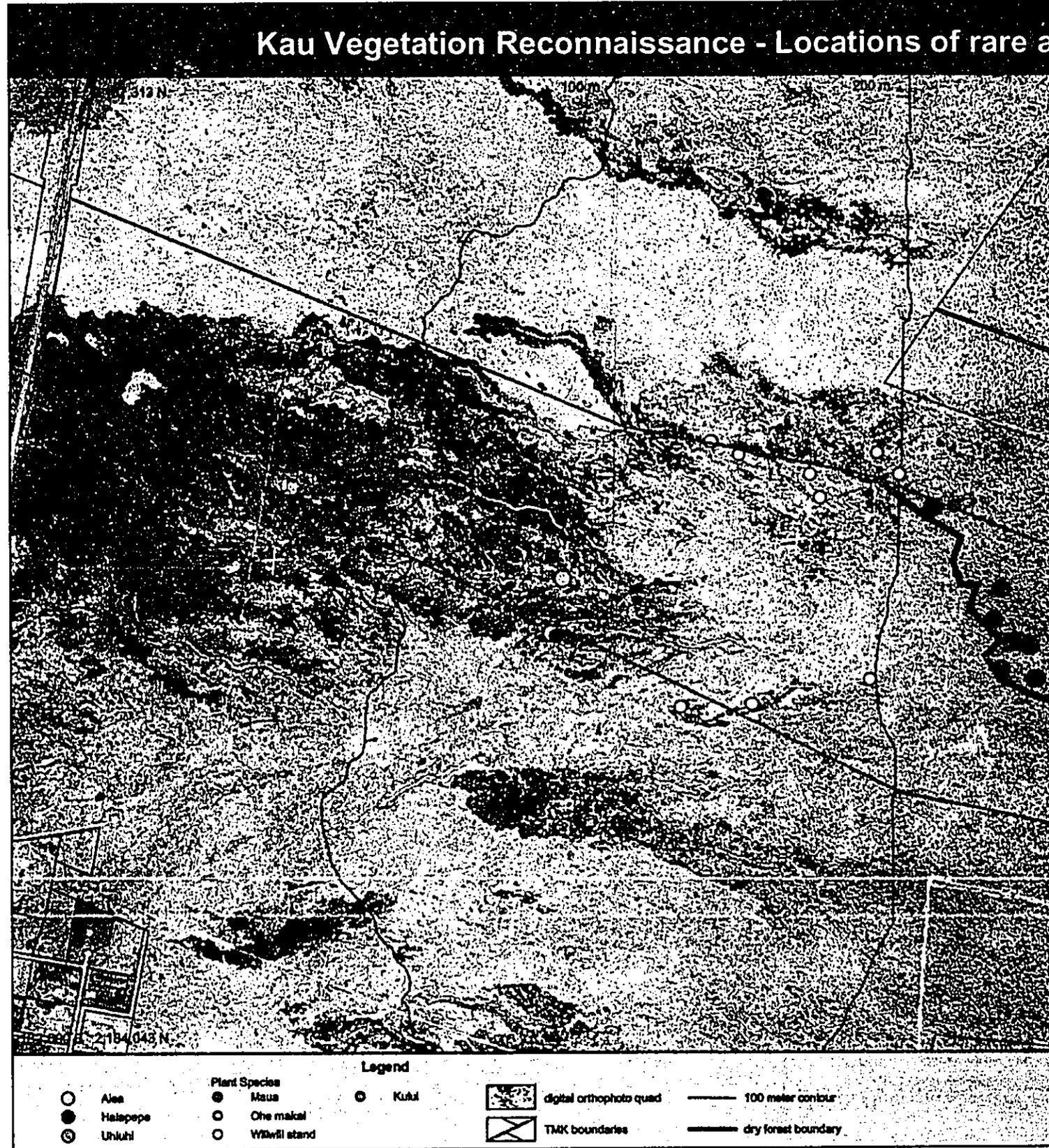


Figure 4-2  
Kau Vegetation Reconnaissance – Locations of Rare and Endangered Plants



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### *Diospyros-Psydrax-Santalum Dry Forest*

A Lowland Dry Forest (Gagne and Cuddihy 1990) that is dominated by lama, alahe'e, and sandalwood forms a relatively sharp but irregular boundary with the Pennisetum scrub at approximately 650 feet elevation, and continues to the mauka boundary of the property. The forest to the south of the jeep road has numerous large lama and alahe'e trees, but is relatively disturbed and is dominated by alien trees and shrubs such as silk oak, christmas berry, and haole koa. The dry forest to the north of the jeep road has apparently never experienced a major disturbance, and a 65-75 acre portion of this area may rank among the most intact Lowland Dry Forest fragments remaining on the island. This community consists of a closed canopy of lama and sandalwood trees up to 25 feet tall, with a sub-canopy primarily of alahe'e, interspersed with wiliwili, kolomona (*Senna gaudichaudii*), 'akia (*Wikstroemia sandwicensis*), mamane, 'ulei (*Osteomeles anthyllidifolia*), akoko (*Chamaesyce multiformis*), and 'a'ali'i. A few large ohia and silk oak form a scattered emergent layer. At least 13 individuals of the federally endangered halapepe (*Pleomele hawaiiensis*) were encountered within this area, and one ohe makai (*Reynoldsia sandwicensis*), a Species of Concern (SOC). With the exception of a few small, disturbed patches (and one old bulldozer cut) that contain fountain grass, christmas berry, and haole koa, much of the understory of this forest is composed of native tree seedlings and saplings, especially lama, alahe'e, and some sandalwood. Native vines include huehue (*Cocculus triloba*) and koali (*Ipomoea indica*). The abundance of kolomona and sandalwood trees is particularly striking in this forest, as are the numerous large individuals of *Chamaesyce multiformis*, many of which reach diameters larger than have ever been reported for this species.

### *Rare, Threatened, and Endangered Species*

Thirteen individuals of the federally endangered Halapepe were encountered. All of these are growing in the Lowland Dry Forest fragment in the upper portion of the property. Three individuals of the federally listed uhiuhi, two individuals of aiea were also detected, however, it is likely that one of the 'aiea individuals is located just outside the southern property boundary. In addition, maiapilo, a federally listed SOC was common in the makai half of the property. A single individual of ohe makai, another SOC, was located in the dry forest near the mauka boundary of the property (Figure 4-1).

### 4.4.8 Fauna

#### *Birds*

Three species of native birds (including one federally listed endangered species and one SOC), and 11 species of introduced birds were detected (Table 4-2). Hawaii amakihi were abundant in the mauka forested areas of the project site, with a mean density of approximately 4.5 birds per acre.

#### *Rare, Threatened, and Endangered Species*

The federally endangered Hawaiian Hawk ('Io) *Buteo solitarius*, was regularly seen in the forested sections in the mauka portion of the property. The Hawaiian short-eared owl (*Pueo*), *Asio flammeus sandwichensis*, is a federally listed SOC, and was seen on one occasion foraging in 'a'ali'i shrubland at approximately 500 feet elevation.

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Table 4-2. Inventoried Bird Species in Lands of Kau

Scientific Name	Common Name
Acridotheres tristis	Common Myna
<b>Asio flammeus sandwichensis</b>	<b>*Hawaiian Short-eared Owl (Pueo)</b>
<b>Buteo solitarius</b>	<b>*'O (Hawaiian Hawk)</b>
Cardinalis cardinalis	Northern Cardinal
Carpodacus mexicanus	House Finch
Francolinus francolinus	Black Francolin
Geopelia striata	Zebra Dove
Hemignathus virens virens	<b>*Hawaii Amakihi</b>
Lonchura malabarica	Warbling silverbill
Nutmeg mannikin	Lonchura punctulata
Serinus mozambicus	Yellow-fronted canary
Streptopelia chinensis	Spotted Dove
Zenaida macroura	Mourning dove
Zosterops japonicus	Japanese White-eye

\* indicates native endemic species or sub-species. Bold lettering indicates threatened or endangered status.

4.5 EXISTING USES AND ACTIVITIES

The existing use on the project site is vacant with State land use designations of conservation and agriculture. Makalei Estates, located to the east of the project site is 80, 3-acre lots. Adjacent uses to the north and south are vacant.

4.6 ROADWAYS AND TRAFFIC

There are no existing public roadways on the Hiluhilu parcel. However, the parcel is bounded by Queen Kaahumanu Highway on the western end and the Makalei Estates on the eastern end. The Makalei Estates subdivision has existing roadways, including a collector road that ends just east of the Hiluhilu parcel. A private jeep trail traverses the Hiluhilu parcel in an east-west direction.

The property immediately south of the Hiluhilu parcel is currently undeveloped. Kaimi Nani Drive runs approximately parallel to the southern property line between Queen Kaahumanu and Mamalahoa Highways about 1 ¼ miles south of the Hiluhilu parcel. Side streets and parallel streets with residential subdivisions exist along most of Kaimi Nani Drive. Kalaoa 1, 2, and 3 subdivisions exist approximately 3,000 to 4,000 feet south and southeast of the southeast corner of the Hiluhilu parcel, between Makalei Estates and Kaimi Nani Drive. They are accessed by branch roads from Mamalahoa Highway.

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### 4.7 DRAINAGE FACILITIES AND UTILITIES

The Hiluhilu parcel has no existing drainage, water, or sewerage facilities on site. The Makalei Estates subdivision, adjacent to the eastern end of the parcel, has existing on-site drainage facilities and an existing County water distribution system. Sewerage at the Makalei Estates subdivision is provided by individual wastewater systems.

The other existing subdivisions in the vicinity of the Hiluhilu parcel also have internal storm drainage systems that use drywells for disposal, are served by the County water system, and use individual wastewater systems for sewage disposal.

#### 4.7.1 Drainage Facilities

The topography of the existing undeveloped site shows no natural drainage channels, suggesting that despite the approximate 5 percent slope from east to west, the ground surface is very permeable and any runoff that occurs during large rainstorms percolates into the ground before it forms permanent channels. The drainage system in the Makalei Estates subdivision, adjacent to the eastern end of the parcel, consists of conveyance structures and drywells.

#### 4.7.2 Water Supply

There is no existing water system on the property. A 12-inch water line in the main road of the Makalei Estates subdivision, which is part of the County water distribution system, ends just west of the western end of the property. The 12-inch main through Makalei Estates connects to the existing 12-inch main in Mamalahoa Highway at the mauka end of Makalei Estates.

Two potable wells have been developed at the north and south mauka corners of Makalei Estates subdivision. Each well has a production capacity of 750,000 gallons per day (gpd). The southern well has been outfitted and is expected to provide water to the County Department of Water Supply system soon. The northern well has been capped and will need to be outfitted to be activated as a source. Figure 3-6 illustrates the well locations and proposed brackish wells for this project. Water transmission lines run along Mamalahoa Highway.

Belt Collins and Associates, Inc, (Walter Billingsley - personal communication) estimates that the potable water demand for the project when completed will be approximately 1.21 mgd average day demand. This would include the normal lot uses for irrigation of yards as well as domestic activities as well as those uses for the UH facilities. These uses are expected to generate about .85 mgd of wastewater. The main potable supply will be provided from wells #4458-01& 02.

The proposed golf course will require a supply of about .8 to 1 mgd of irrigation supply when matured. The golf course irrigation water will come from brackish wells drilled on site as originally proposed and permitted. New permits will be needed. These wells are shown on the map as "proposed brackish wells".

The combined estimated pump age from the Huehue Ranch wells is to be exported to Kukio (1.3 mgd) and mauka to Makalei Country Club (.6 mgd). About .5 mgd of the 1.3 mgd exported to Kukio will be from the HR # 5 well which pumps from the high-level rift zone aquifer outside

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the recharge sub area. This leaves a combined pumpage of 1.2 mgd to be pumped from the sub area.

Based on the estimates of recharge, sustainable yield and the reclamation of wastewater, it appears that there are adequate water resources in the recharge sub area to support the project.

In addition to the obvious supply benefit of recycled wastewater, the application of nutrients in that water to the golf course will consume them. In particular, phosphorus, which is notably absent in Hawaiian soils, will largely be consumed by the turf grass, along with nitrogen. As such, there will be a reduction in the need for the application of supplemental fertilizers

#### 4.7.3 Wastewater Collection, Treatment and Disposal

There is no existing sewerage system on the Hiluhilu parcel. The Makalei Estates subdivision, immediately east of the parcel uses individual wastewater systems for treatment and disposal of sewage, as do other subdivisions in the vicinity. The nearest wastewater collection and treatment system is the DOT Airports system serving Kona International Airport, approximately one mile to the west of the western parcel boundary. The nearest public wastewater collection system is the Kailua-Kona municipal system, approximately six miles to the south.

#### 4.7.4 Power and Communications

The project site receives no electrical power and no communications services because its undeveloped state requires neither service. HELCO currently has an overhead 69 kV transmission line running through the utility easement. The line runs from Mamalahoa Highway to the Keahole Substation located near the Queen Ka'ahumanu Highway.

The Keahole Power Plant located makai of the subject property consists of 30 mw that is operational, a transformation station, and 56 additional mw that is 85% complete. This power plant is located in land designated as Conservation.

### 4.8 SOCIAL-ECONOMIC CONDITIONS

Population predictions for the West Hawaii region indicate sufficient population to justify the construction of a higher education center serving 1,200 to 1,600 students by year 2010. Completion of the University Center at the project site in Kau would be a great benefit to the region by providing a permanent presence for higher education. This site is logical because the parcel is in close proximity to Keahole Airport, high technology developments (i.e. the Natural Energy Laboratory of Hawaii, etc.), residential communities, and an array of employment centers in Kailua-Kona and West Hawaii resorts.

In the short-term, the proposed action would generate general excise tax and income tax revenues to the State of Hawaii from construction employment and material expenses. In the long-term, the proposed action would provide a housing mix and, through the University of Hawai'i generate educational benefits that allow the residents of the West Hawaii region to pursue careers in service and sales occupations, executive/managerial and professional occupations, and scientific enterprises related to astronomy and ocean engineering.

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### 4.9 CULTURAL IMPACT ASSESSMENT

This study is in compliance with Act 50 SLH 2000 as it amends the State of Hawaii Office of Environmental Quality Control (OEQC) Guidelines for Environmental Impact Statement law (Chapter 343, HRS). It includes an overview of the history of land use by entities such as Hu'ehu'e Ranch.

A medium level of effort ethnographic survey was conducted, primarily because the area that will be impacted by this undertaking has been a working ranch for over one hundred years; and the project site has been impacted by ranching activities and feral animals such as goats, pigs, and donkeys. There are people currently living in the vicinity (Kekaha lands) who are fourth and fifth generation descendants of the original owners of Hu'ehu'e Ranch. There are also people currently living who worked on the ranch for a number of years. While the project site appears to be devoid of cultural remains due to the preponderances of lava from several ancient flows, a closer study reveals numerous sites and cultural resource features that attest to the ancient use of the area.

Despite the absence of references to Kau in the archival material, a field inspection reveals an abundance of cultural resources distributed throughout the landscape, in the form of ancient cave shelters, water collection caves, trails, ceremonial features and agricultural features. Kau also has a diverse range of endemic and indigenous flora, both in species and in habitat zones.

#### *Significant Events*

One of the most significant historic events in Kau is the 1801 lava flow which overran the makai lands of Kau. It is not known if anyone was living in the coastal area at that time. What is known is that the Great Fishpond of Kamehameha, the Pa'aiea Fishpond, was flourishing. People associated with the fishpond would most likely have lived nearby and farmed in the uplands. There is archaeological evidence of upland shelters and permanent habitation sites that were used through various periods of time. There was also evidence of fresh water collection places. It is therefore highly likely that the 1801 lava flow changed the lives of the people of Kau.

#### *Summary of Land Resources and Use*

The physical evidence of land use is in the form of stone ruins that have been preserved relatively intact, cultural remains such as artifacts, maiden and charcoal recovered from surface and sub-surface studies. Clues regarding function and use of cultural remains can be extrapolated from the stories, songs, chants and ethno-historical observations that have survived. Several of these stone cultural remains were recorded during studies of Kau lands and also mentioned by the consultants (i.e. heiau, caves, platforms, mounds, walls, enclosures, and burials). These are all evidence of both permanent and temporary use of the land and its diverse natural resources.

#### *Ancient Land Use*

While the traditional literature is largely silent on the subject of Kau, the cultural resources found on the site speak volumes. The permanent and temporary shelters, the midden at those

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sites and in the caves, the extended use of the lava tube systems, the habitation and agricultural complexes, and the heiau tell a story of ancient use of the land. People cultivated diverse natural resources (endemic/indigenous plants; bountiful marine resources; bountiful aquaculture), as well as their own Polynesian-introduced cultigens; their staples and their medicine and ritual plants. In spite of current appearances, Kau and Kekaha was not barren. Neighbors to the north and south had extensive field systems (Lapakahi, Kalaoa, Kona Field Systems); and trade was always possible, even during times of war.

### *Historic Land Resources and Use (Post 1801)*

Although the Pa'aiea Fishpond was destroyed, the marine resources have survived. Families of Kekaha still take advantage of the entire coastline. The diverse botanical resources of Kaū are still apparent today. There was an abundance of *hala* until recently; there still is an abundance of other medicine, craft and specialty lumber plants. There was a time, even historically (recent) when people were allowed to share the bounty of the land, all they did as a courtesy was to let the *konohiki*, or the *kahu* of the land know that they were going to go gather or go fishing. That tradition is still a way of life in many communities. If one's mango tree is laden with fruit all you have to do is ask and the owner will gladly share with you. Neighbor still trades with neighbor for fruits, vegetables, *hula* plants, wood and fish. Therefore access to resources is a traditional way of life, a cultural practice.

### *Summary of Water Resources and Use*

Although there are no streams, springs, or wells on Kaū, there is evidence of fresh water resources using ancient water-collection methods of placing a gourd under drips in caves. Several of these cave resources were discovered during archaeological surveys. During a recent site visit, some moisture was detected in a cave.

## SUMMARY OF SURVEY FINDINGS (CULTURAL PRACTICES)

### Summary of Survey Findings (Cultural Practices)

It is evident that the lands of Kaū were once part of an ancient Hawaiian life system. Archaeological remains such as the *heiau*, burials, enclosures, house platforms, petroglyphs, walls and mounds and numerous cave/sinkhole and lava tube systems show evidence of multiple uses of this land. Perhaps the biggest cultural resource still evident is the diverse collection of endemic ethno-botanical plants. Many of these are medicinal plants still used today by *la'au lapa'au*; plants used as dyes by crafters of *kapa*; and various species used for *hula* and *lua* practices and specialized wood crafters.

### Cultural Impact Study (CIS) Assessment/Recommendations.

According to the OEQC Guidelines, the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, religious and spiritual customs. None of these particular cultural practices will be affected by this project (between 150' and 800' elevation), although access to rare medicinal plants or other plants used by qualified *la'au lapa'au* practitioners and their students should be considered in conjunction with appropriate preservation plans required by law. However, having said that, and keeping in mind that the project area not only has diverse collections of

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endemic and indigenous plants, some endangered species (*ʻiliahi*), and a range of traditional sites that were used from antiquity and some up to historic times, it would be culturally irresponsible to say that any future development of the property would not have any adverse effects or impacts. Consultants expressed concern that certain sites be protected and preserved; any action/activity contrary to this would constitute an adverse affect.

Adaptation to life on the lava fields is unique to Kekaha; the lava tube habitation, water-collection practices, cave habitation, petroglyphs, agricultural complexes that exist in a place that appears to be a barren waste-land. These factors exist in proximity to the site of the planned University. It would be a shame if the students lost the perfect opportunity to learn more about the practices of ancient Hawaiians, right in their "back yard."

Any interpretive program for Kaū, should recognize the connection between Hewahewa and these lands. Recognition and some preservation of the remaining features found on the land that show the lifestyle and adaptability of ancient Hawaiians to these lands. It would be *pono* to allow the representatives of Hewahewa and Mahi families to contribute to any further interpretive planning for the *ahupua`a* of Kaū; just as it would be apropos to include the long time resident Hawaiian consultants in discussions regarding the future of the endemic/indigenous ethno-botanical plants in Kaū.

It should also be noted that for over a hundred years, native Hawaiians have lived in a culturally repressed state. It has only been within the last thirty years, due to evolved awareness, that native Hawaiians have been aggressively trying to reclaim their *wahi pana* (sacred and/or legendary places). The passage of Act 50 in 2000 legally recognizes and supports this effort. It is in this spirit that the recommendations above have been made.

**Qualifier.** When considering any future action(s) in regard to the project area (150' to 800' asl) based on the results of this study, one should be mindful that although much effort was made to locate people who are knowledgeable about Kaū and/or the lands of Kekaha in general, there may be others who have even more pertinent knowledge specifically about Kaū and the people who were the traditional guardians of this land. Consideration should be given to them should they come forth as information about the land and development project is made public.

**Chapter 5.0**  
Relationships Of The Proposed Project  
To Existing Plans And Policies

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### 5.0 RELATIONSHIPS OF THE PROPOSED PROJECT TO EXISTING PLANS AND POLICIES

#### 5.1 OVERVIEW

An important consideration in evaluating the potential impacts of a proposed action on the environment is how it may conform or conflict with approved or proposed land use plans, policies, and controls for the affected area. In addition to State of Hawaii policies and controls, the EIS addresses applicable Federal regulations regarding endangered species and equal accessibility. This chapter of the EIS will discuss the consistency of the project with respect to the County of Hawaii General Plan, County of Hawaii Zoning, West Hawaii Regional Plan, Master Plan for Kailua-Kona, and the Keahole to Kailua Development Plan.

#### 5.2 U.S GOVERNMENT PLANS AND CONTROLS

##### 5.2.1 Endangered Species Act

The Endangered Species Act of 1973 provides a legal means by which identified ecosystems that are determined to be essential to the sustainability of an endangered or threatened species can be conserved. Under this Act, the U.S. Fish and Wildlife Service in the Department of the Interior is responsible for all terrestrial and freshwater species, as well as migratory birds.

**Discussion:** Fifteen threatened or endangered plant species were identified and will be preserved and protected on the project site. Further, while no endangered species were noted during the field investigations, various migratory birds and avian species that are known to frequent the coastal areas in North Kona may utilize the site between the months of September and May. Small numbers of the endangered endemic Hawaiian subspecies of the Dark-rumped Petrel (*Pterodroma phaeopygia sanwicensis*) or Ua'u (a pelagic seabird) may also over-fly the project site between the months of May and October (Banko, 1980 and Harrison, 1990). The project site contains no suitable nesting habitat for this species.

##### 5.2.2 American with Disabilities Act of 1991

In 1991, the Federal government enacted the American with Disabilities Act to provide equal accessibility for persons with disabilities. Part of this statute is having building design consider the needs of persons with disabilities. Chapter 103-50 of the Hawaii Revised Statutes (HRS) states, "... all plans and specifications for the construction of public buildings, facilities, and sites shall be prepared so that the buildings, facilities, and sites are accessible to and usable by persons with disabilities." The Disability and Communication Access Board shall adopt rules for the design of buildings, facilities, and sites, by or on behalf of the State and counties.

**Discussion:** The Hiluhilu Development project will be cognizant of the design of buildings and facilities being accessible to persons with disabilities. This project will provide accessible design of buildings, facilities, and sites in compliance with the policies set forth by the Disability and Communication Access Board.

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**5.3 STATE OF HAWAII PLANS AND CONTROLS**

**5.3.1 Hawaii State Plan**

**State Land Use Boundary Amendment**

260.7 acres of the project site is located within the State Conservation District. 464.5 acres of the project site is located within the Agricultural District. Hiluhilu Development LLC. will be requesting the State Land Use Commission for reclassification of the entire project site from the Conservation District and the Agricultural District to the Urban District.

An assessment of compliance of the requested actions to the applicable goals, objectives, and policies of the Hawaii State Plan, Chapter 226, Hawaii Revised Statutes, and applicable priority guidelines will be covered under this section. Priority guidelines relating to the economy, housing, population growth, transportation, facility systems, and the physical environment (land based, shoreline, and marine resources; scenic, natural beauty, and historic resources; land, air, and water quality) will be discussed as they relate to the proposed Hiluhilu development.

It is the goal of the Hawai'i State Plan to achieve "a desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people." (Hawaii State Plan, Chapter 226, Hawaii Revised Statutes) Objectives and policies of the State Plan which are relevant to Hiluhilu Development include the following:

**Section 226-5: Population**

*(b)(1) Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.*

*(b)(2) Encourage an increase in economic activities and employment opportunities on the Neighbor Islands consistent with community needs and desires.*

**Discussion:** Buyers of homes in the proposed residential community who migrate from the Mainland U.S. and foreign countries will directly increase the population of the area. Increased demand for labor caused by development of the project, and other development projects in the region, will indirectly contribute to local population growth as State of Hawaii (as well as possibly some out-of-state) residents living outside of the County migrate to take advantage of increased employment opportunities. The mix of residential, golf course, university, medical and technical park land uses on the subject property will contribute long-term employment opportunities, government revenue generation, additional recreational resources, an increased housing stock, and a moderate population growth in the area. These increases in economic activity and employment opportunities are consistent with community needs and desires.

**Section 226-10: Economy - potential growth activities**

*(b)(8) Develop, promote, and support research and education and training programs that will enhance Hawaii's ability to attract and develop economic activities of benefit to Hawaii.*

**Discussion:** The proposed University of Hawaii Center at West Hawaii (UHCWH) will provide more opportunities for economic development benefits to Hawaii. The UHCWH will become a magnet for more economic diversification for this region.

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**Section 226-10.5: Economy – information industry**

- (b)(5) *Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the information industry.*

**Discussion:** The UHCWH will become a center for information technology for the region which will result in more job training and education opportunities for local and incoming residents. The proposed Technology Park will also provide job opportunities in the information industry field.

**Section 226-11: Physical Environment – Land-based, Shoreline, and Marine Resources**

- (a) *Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:*
- (1) *Prudent use of Hawaii's land-based shoreline and marine resources.*
  - (2) *Effective protection of Hawaii's unique and fragile environmental resources.*
- (b) *To achieve the land, air, and water quality objectives, it shall be the policy of the State to:*
- (1) *Exercise an overall conservation ethic in the use of Hawaii's natural resources.*
  - (3) *Take into account the physical attributes of areas when planning and designing activities.*
  - (4) *Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.*
  - (5) *Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.*
  - (6) *Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.*
  - (8) *Pursue compatible relationships among activities, facilities, and natural resources.*
  - (9) *Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.*

**Discussion:** The project site at Hiluhilu is characteristic of other North Kona/South Kohala land situated inland from the coastline. The project has been designed with consideration of the natural features on the site and, where possible, their preservation.

One of the purposes of the development is to offer golf and other recreational activities which involve the natural environment. The compatible mixture of uses and activities will provide ample opportunity for the residents and public to enjoy and learn of the Hiluhilu Development area. The Hiluhilu Development will also promote more recreational and educational opportunities through the uses of the golf course and UHCWH.

**Section 226-12: Physical Environment – Scenic, Natural Beauty, and Historic Resources**

- (a) *Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.*
- (b) *To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:*
- (1) *Promote the preservation and restoration of significant natural and historical resources.*
  - (2) *Provide incentives to maintain and enhance historic, cultural, and scenic amenities.*

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- (3) *Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean scenic landscapes, and other natural features.*
- (4) *Protect those special area, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.*
- (5) *Encourage the design of developments and activities that complement the natural beauty of the islands.*

**Discussion:** The archaeologist for this project, Robert Rechtman, recorded and inventoried 83 archaeological sites and has made recommendations concerning the treatment of the 12 archaeological sites recommended for preservation on the subject parcel. The botanist for the project, Phillip Hart, has made recommendations concerning the preservation of a Dry Forest area and certain trees found in other parts of the project. Those recommendations are being incorporated into the planning for this project.

Plans will include preservation of the Dry Forest area, preservation of significant archaeological features. In addition to these preservation areas, landscape planning and grading will include leaving certain areas in their original condition to preserve a sense of place, retaining significant view planes, preserving to the extent possible, the trees and plants identified as important in the botanical study and consulting with the University of Hawaii and others on interpretational programs for preserved features and other areas of interest on the land.

The natural beauty of the islands as it exists in the project area is precisely why a residential, golf and open space oriented development along with a university and other commercial uses is proposed. Scenic views and open space will be maintained and enhanced for the benefit of homeowners and the regional residents who will have access to the site for passive and active recreation purposes. The developed aspects of the proposed residential community will take care to complement the aesthetics of the West Hawaii region.

#### **Sect. 226-13: Physical Environment - Land, Air and Water Quality**

- (a) *Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:*
  - (1) *Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.*
  - (2) *Greater public awareness and appreciation of Hawai'i's environmental resources.*
- (b) *To achieve the land, air, and water quality objectives, it shall be the policy of this State to:*
  - (1) *Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources.*
  - (2) *Promote the proper management of Hawai'i's land and water resources.*
  - (3) *Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.*
  - (8) *Foster recognition of the importance and value of the land, air and water resources to Hawai'i's people, their cultures and visitors.*

**Discussion:** The land and water resources of the project site will be properly managed. A host of mitigation measures will be designed and implemented to assure that land, air, and water are not significantly impacted by the project. Stormwater runoff will be controlled through the use of detention basins, drywells, and possibly a wastewater treatment plant, all of which will be

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designed in consultation with the State Department of Health with respect to reasonable mitigation and monitoring to address non point source pollution issues, using Best Management Practices. The project will not exceed the water resource capabilities of the aquifer. Fertilizer and pesticide application at the golf course will be professionally managed by a certified Golf Course Superintendent. An Integrated Pest Management (IPM) program will be instituted to employ strict management and overall reduced pesticide usage.

#### **Section 226-21: Socio-Cultural Advancement – Education**

- (b)(2) *Ensure the provision of adequate and accessible education service and facilities that are designed to meet individual and community needs.*
- (b)(4) *Promote educational programs which enhance understanding of Hawaii's cultural heritage.*
- (b)(5) *Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands.*
- (b)(8) *Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.*

**Discussion:** UHCWH will provide educational service and facilities that will meet student and community needs. Cultural heritage educational programs and other programs to meet the changing employment and economic demands will be provided by this university.

#### **Section 226-23: Socio-Cultural Advancement – Leisure**

- (a) *Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.*
- (b) *To achieve the leisure objective, it shall be the policy of this State to:*
  - (1) *Provide a wide range of activities and facilities to fulfill the cultural, artistic, recreational needs of all diverse and special groups effectively and efficiently.*
  - (3) *Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.*
  - (4) *Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historic, geological, or biological values while ensuring that their inherent values are preserved.*
  - (5) *Ensure opportunities for everyone to use and enjoy Hawai'i's recreational resources.*
  - (6) *Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.*
  - (10) *Assure adequate access to significant natural and cultural resources in public ownership.*

**Discussion:** The proposed project is concerned with the fulfillment of the above objective and policies for recreation. The potential for recreation in an area of scenic, open space is maximized through the development of a golf course, clubhouse, and other community facilities on the site. Ocean and mountain views will be part of the recreational experience.

The primary users of the recreational facilities will be the project residents, with some availability for the public as well. Golf course buffer areas along property boundaries and separating some residential areas, will be enhanced through the re-introduction of native or endemic plant species, eventually providing a valuable botanical resource.

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The archaeological and botanical preserve areas offer an opportunity to allow students, those interested in native Hawaiian cultural practices, those with ties to the Kekaha area and others in the community to appreciate the ancient Hawaiian practices in the area.

#### Section 226-25: Socio-Cultural Advancement – Culture

- (a) *Planning for the State's socio-cultural advancement with regard to culture shall be directed towards the achievement of the objective of the enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people.*
- (b) *To achieve the culture objective, it shall be the policy of this State to:*
  - (1) *Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii*
  - (2) *Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.*
  - (3) *Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.*

**Discussion:** This project will be developed with regard to cultural heritage as one of the top priorities. Also mentioned in above, the UHCWH will have educational programs promoting the understanding and achievement of the cultural heritage and history of Hawaii.

#### Section 226-27: Socio-Cultural Advancement – Government

- (a) *Planning for the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the objectives.*
- (b) *To achieve the culture objective, it shall be the policy of this State to:*
  - (5) *Assure that government attitudes, actions and services are sensitive to community needs and concerns.*

**Discussion:** The project will provide opportunities for socio-cultural advancement with regard to government action. Community needs and concerns will be addressed during community meetings and charrettes for this project.

#### Section 226-107: Quality Education

- (5) *Increase and improve the use of information technology in education and encourage programs which increase the public's awareness and understanding of the impact of information technologies on our lives.*
- (6) *Pursue the establishment of Hawaii's public and private universities and colleges as research and training centers of the Pacific.*

**Discussion:** Planning for this project was conducted with all these policies in mind. One of the priorities of this project was to assist the University of Hawaii to establish its permanent West Hawaii Campus. To that end, the Petitioner has engaged in joint planning with the University of Hawaii to plan for shared infrastructure and the establishment of the University Village. All of the Petitioner's planning to date has taken into account the need to provide potable water, roads and wastewater disposal systems, for the University as well as for the Hiluhilu area. The Petitioner will continue to work with the University along those lines and has included in the

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discussions construction of initial classroom and office facilities within the project area to allow the University to start its relocation. Site planning considered all the constraints in designating developments and their placement. Management policies will ensure resource protection and long-term sustainability.

**5.3.2 State of Hawaii Functional Plans**

State Functional Plans are the primary guidelines for implementing the Hawaii State Plan. In contrast to the Hawaii State Plan which establishes long-term objectives, the State Functional Plans serve to establish objectives for shorter-term actions.

**State Higher Education Functional Plan**

The objective of this functional plan is to specify the objectives, policies, and high priority implementing actions that the States postsecondary education community will follow. Objectives and policies that relate to project actions are presented below.

*Objective A: A number and variety of postsecondary education institutions sufficient to provide the diverse range of programs required to satisfy individual and societal needs and interests.*

*Policy A(2): Provide professional and job-related training which responds to the needs of, and opportunities within, the State of Hawaii.*

The Hawai'i State Plan Functional Plans include objectives and policies to implement the broad goals of the Hawai'i State Plan.

**5.3.2.1 State Conservation Lands Functional Plan**

*Objective IIC: Enhancement of natural resources*

*Policy IIC(2): Expand and enhance outdoor recreation opportunities and other resource uses.*

*Policy IID(3): Develop recreational and archaeological resources on the shoreline and mauka areas.*

*Action IID(3)a: Acquire and/or develop areas for historic preservation.*

*Action IID(3)b: Establish a State-wide trails and access system.*

**Discussion:** Significant archaeological resources will be preserved as well as the Dry Forest Area. The construction of the golf course will enhance outdoor recreation in this area. UHCWH courses will promote appreciation and understanding of unique natural and cultural resources.

**5.3.2.2 State Recreation Functional Plan**

*Policy II-A(3): Proceed with planning, acquisition, and developments of trails.*

*Policy III-D(3): Effectively manage and maintain existing public access ways.*

*Policy IV-B(2): Protect, preserve, restore, and enhance recreational fishery resources.*

*Policy V-C(3): Explore innovative ways to manage and maintain recreational resources.*

*Objective VI-A and Policy VI-A(1):*

*Increase recreational access and opportunities in Hawaii's wetlands. Identify existing wetlands with the potential for recreational development without significantly affecting wetland resources, with an emphasis on passive recreation and education.*

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**Discussion:** Recreational activities for this site include the golf course and potential trail system through the dry forest area. This will enhance recreational opportunities for the public.

**5.3.2.3 State Historic Preservation Functional Plan**

**OBJECTIVE C:** *Management and Treatment of Historic Properties.*  
**Policy C.2.:** *Encourage the preservation and maintenance of historic properties through economic incentives and support.*

**Discussion:** Almost all of the policies and implementing actions in the State Historic Preservation Functional Plan are directed at State agencies, especially the Department of Land and Natural Resources (DLNR). An archaeological inventory survey of the project site has been completed. The Historic Preservation Division (HPD) is reviewing the significance evaluations and the general mitigation plans. Additional work will provide specific data recovery and preservation plans for the review and approval of the HPD. The project Master Plan includes preservation areas for important natural features and significant archaeological sites.

**5.3.2.4 State Tourism Functional Plan**

**Policy II.A.7:** *Improve the quality of existing parks and recreational areas, and ensure that sufficient recreational areas—including scenic byways and corridors—are available for the future.*  
**Objective III.A:** *Enhancement of respect and regard for the fragile resources which comprise Hawaii's natural and cultural environment. Increased preservation and maintenance efforts.*  
**Policy III.A.2:** *Assist in preserving, perpetuating, and interpreting cultural, historic and archaeological resources.*

**Discussion:** The plan outlines strategies to preserve natural and cultural resources throughout the site through educational programs integrated into the University curriculum. Interpretive programs will be provided to promote an appreciation and understanding of the natural and cultural resources of Hiluhilu. Archaeological, botanical and recreational resources will be protected. Facility improvements will expand opportunities for ocean and related coastal recreational activities.

**5.4 COUNTY OF HAWAII PLANS AND CONTROLS**

**5.4.1 General Plan**

The County General Plan Land Use Pattern Allocation Guide (LUPAG) Map currently designates the project site as Conservation and Agriculture. Hiluhilu Development LLC is requesting the following changes to the County of Hawaii General Plan and LUPAG map:

- ❖ Amend the LUPAG Map from the existing designation of Extensive Agriculture to Urban Expansion designation.

The following discussion provides an assessment of how the proposed project conforms to and implements the pertinent objectives and policies of the General Plan.

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**Economic Development**

*The County of Hawaii shall encourage the development of a visitor industry which is consistent with the social, physical, and economic goals of the residents of the County.*

*The County of Hawaii shall encourage the continuing development of the retirement industry.*

**Discussion:** Certain housing components of the proposed development will be marketed to older families. The projected buyer markets include Hawaii and western U.S. residents seeking a primary home in West Hawaii, other U.S. residents seeking a retirement home, and other U.S. and foreign residents seeking a second home.

**Flood Control and Drainage**

*It is the responsibility of both the government and the private sector to maintain and improve existing drainage systems and to construct new drainage facilities.*

**Discussion:** Hiluhilu Development LLC will be responsible for constructing all drainage improvements on-site through the use of detention basins and drywells. There will be no effect on off-site drainage conditions as a result of this project.

**Historic Sites**

*The County of Hawaii shall require both public and private developers of land to provide a historical survey prior to the clearing or development of land when there are indications that the land under consideration has historical significance.*

**Discussion:** An archaeological reconnaissance survey has been conducted by Rechtman & Associates, and its findings and recommendations have been submitted to the State Department of Land and Natural Resources (DLNR) Historic Preservation Division for review and approval. A historic preservation mitigation plan will be formulated prior to construction, per DLNR Administrative Rules.

**Natural Beauty**

*The County shall consider structural setback from major thoroughfares and highways and shall establish development and design guidelines to protect important view planes.*

**Discussion:** A setback area from Queen Ka'ahumanu Highway is proposed to remain as Open Area. Landscaping along the makai portion of the setback is anticipated.

**Natural Resources and Shoreline**

*The County shall encourage the public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.*

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*Encourage the use of native plants for screening and landscaping.*

**Discussion:** The project's Master Plan and specific design plans attempt to minimize adverse environmental effects and depletion of resources caused by development through a variety of means. Measures to be implemented include: large natural buffer areas, preserve zones, dual water systems, extensive landscaping with native plants, and xeriscaping.

**Housing**

*GOAL: Attain a diversity of socio-economic housing mix throughout the different parts of the County.*

*GOAL: Maintain a housing supply which allows a variety of choice.*

*The County shall encourage a volume of construction and rehabilitation of housing sufficient to meet growth needs and correct existing deficiencies.*

*The County shall work with, encourage, and support the private sector efforts in the provision of affordable housing.*

**Discussion:** The proposed development will provide a total of 950-1,000 units of single-family and multi-family residential units. Project-developed homes will be high quality market-priced units with the recreational amenities of a golf course. Hiluhilu Development LLC, will also develop, or participate in developing with other developers or government agencies, the construction of affordable homes, as required by State and County policies.

**Public Utilities**

*Water: A systematic program by the County, State, and private interest shall identify sources of additional water supply to ensure the development of sufficient quantities of water for future needs of high growth areas.*

**Discussion:** Dual potable and non-potable water systems will be developed to meet the project's water needs. The existing aquifer system has adequate capacity to serve potable and non-potable water requirements of the existing and proposed with the aquifer region. As stated in the Groundwater Resources of Kau, North Kona report by Steve Bowles, it is recommended that the proposed golf course be carefully designed to minimize water consumption and be planted with salt tolerant grass.

*Sewer: Private systems shall be installed by land developers for major resort and other developments along the shorelines and sensitive higher inland areas, except where connection to nearby treatment facilities is feasible and compatible with County's long range plans, and in conformance with State and County requirements.*

**Discussion:** Hiluhilu Development LLC will build a private wastewater treatment facility on its site to service both its project and the UH West Hawaii Campus.

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**Transportation**

*Thoroughfares and Streets: The County shall investigate various methods of funding road improvements, including private sector participation, to meet the growing transportation needs of the Island.*

**Discussion:** Hiluhilu Development LLC will fund the cost of connection of its access road intersection with Queen Ka'ahumanu Highway. Mitigation of traffic impacts from this project is discussed in the Traffic Impact Report.

**Land Use**

The Property site is designated "Urban Expansion Area" on the General Plan Land Use Pattern Allocation Guide (LUPAG) map. The proposed development is permitted under this designation.

According to the General Plan, Urban Expansion Area refers to lands which allow for a mix of high density, medium density, and low density, industrial and/or open designation in areas where new settlements may be desirable, but where the specific settlement pattern and mix of uses have not yet been determined. Within areas designated for development as Resort, portions of the resort area may be included in the Urban Expansion Area.

The Hiluhilu project will address the Housing component of the General Plan. The profile of North Kona district shows that housing for low and moderate income groups have remained critical.

*Zone urban and rural types of uses in areas with ease of access to community services and employment centers and with adequate public utilities and facilities.*

*Allocate appropriate requested zoning in accordance with existing or projected needs of neighborhood, community, region, and County.*

*The County shall encourage the development and maintenance of communities meeting the needs of its residents in balance with the physical and social environment.*

*Single Family Residential: The County shall encourage more innovative uses of land with respect to geologic and topographic conditions through the use of residential cluster and planned unit developments. The clustering of residential units in sloping areas is a means of minimizing grading and drainage problems, preserving the natural appearance of the topography, preventing strip development, and making optimum uses of the terrain for buildings and open space.*

*Multiple Residential: Appropriately zoned lands shall be allocated as the demand for multiple residential dwellings increases. These areas shall be allocated with respect to places of employment, shopping facilities, educational, recreational, and cultural facilities, and public facilities and utilities.*

*Open Space: Protect designated natural areas.*

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**Discussion:** Since the site is presently vacant, it has the potential for a well-planned community. Its size (725 acres) and shape also lend themselves to a well-planned community. In planning the residential areas of the project and the golf course, consideration of the natural slopes and features in the topography have been respected. Clustering of dwelling units in sections of the project will preserve the open space character. The development of the Village will also create a range of housing types and densities that allow greater flexibility and residential choices.

**Commercial**

*The development of commercial facilities should be designed to fit into the locale with minimal intrusion while providing the desired services. Appropriate infrastructure and design concerns shall be incorporated into the review of such developments.*

**Discussion:** The proposed outreach, research, and commercial developments will be designed to integrate with the locale. Hiluhilu LLC will provide appropriate infrastructure and design elements for these proposed developments while being cognizant of the impacts of these developments.

**5.4.2 Land Use Ordinance/Zoning Districts**

A Change of Zone application (Rezoning) will be made subject to obtaining approval of the State Land Use Boundary Amendments. The subject parcel lies within the zoning district designated as Agricultural 3-acre (A-3a). The Applicant will pursue a zoning change to accommodate the low and medium density residential development, the commercial developments and recreational amenities of the golf course and clubhouse facilities. The specific zoning district designations to be requested will be determined later in the planning process.

**5.4.3 West Hawaii Regional Plan**

The West Hawaii Regional Plan was developed by the Office of State Planning in November of 1989. The Plan identifies the Property as falling within the Kailua-Kona to Keāhole Urban Expansion Planning Area.

The West Hawaii Regional Plan is intended to compliment the County of Hawaii's General Plan and Community Development Plan and was developed to address the regional issues arising from rapid development in the West Hawaii area.

The following goals define the focus and direction of the West Hawaii Regional Plan as it relates to the Hiluhilu Development. This plan is expressed in terms of a Vision for West Hawaii. The Vision includes the need to:

- ❖ Promote a diversified economic base which maximizes job choice and opportunities.
- ❖ Ensure that existing and proposed developments can be adequately accommodated.
- ❖ Maintain the diversity of the region's natural and cultural assets.
- ❖ Maintain the diversity and character of existing communities.
- ❖ Ensure that the development does not lead to deterioration in quality of life.
- ❖ Maintain opportunities for community participation during plan implementation.

# CORRECTION

THE PRECEDING DOCUMENT(S) HAS  
BEEN REPHOTOGRAPHED TO ASSURE  
LEGIBILITY  
SEE FRAME(S)  
IMMEDIATELY FOLLOWING

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The way in which these goals manifest themselves into land use patterns, public funding, and implementation, is the heart of this plan. The plan attempts to have balance among economic development and urban growth, community development, and environmental concerns. The Hiluhilu Development will promote and ensure that these community and cultural assets are maintained and enhanced during the implementation phase. University facilities in Kalaoa is listed as one of the action statements in this plan (p.50).

#### **Strategies – Heritage Resources**

*Recognize and protect scenic areas, natural landmarks, open space, and viewsheds as amenities that improve the quality of life of Hawaii's residents; support the visitor industry; and influence land use patterns.*

*Identify and manage areas of cultural importance in ways that enhance and promote an appreciation of our cultural heritage.*

#### **Actions:**

- ❖ *Evaluate the potential impact of land use proposals on the visual quality of the landscape, including the view plane and open space considerations.*
- ❖ *Protect views afforded from Queen Ka'ahumanu Highway and from the shoreline.*

**Discussion:** The project area contains some culturally-significant archaeological remains which will be preserved per plans approved after DLNR review and approval. View planes from Queen Ka'ahumanu Highway to the shoreline will be preserved where practical. Features recommended for preservation by the archaeological inventory survey will generally be preserved.

#### **Strategies – Water Quality**

*Ensure the high quality of the groundwater is maintained.*

*Ensure that the high quality of the region's nearshore and coastal waters is maintained as assets for recreation, the economy, and natural biological systems.*

#### **Actions:**

- ❖ *Adopt the Department of Health's draft groundwater protection strategy.*
- ❖ *Expand the Department of Health's water quality monitoring program to include toxic monitoring, biomonitoring, and biosurveys.*

**Discussion:** The land and water resources of the project will be properly managed. All planned improvements will be consistent with and contribute to the implementation of these objectives and policies. Their basic intent is to support prudent use and management of natural resource areas for recreational purposes. New facilities are being planned and designed in a manner that takes into account and is compatible with the physical attributes of the different areas throughout the Hiluhilu Development and that avoids any costly or irreparable environmental damage.

The potential for surface water pollution is negligible on this site due to the extreme porosity of the soil and underlying geology. Stormwater runoff will be directed to open turf areas on the golf course, and to drywells scattered throughout the site. Runoff will eventually become

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groundwater, and groundwater flows underground and eventually seeps into the ocean at the shoreline. Hiluhilu will provide for groundwater monitoring as required by DOH.

#### **Strategies – Energy and Power Facilities**

*Minimize the negative impact of changes in the fuel and power generation and delivery systems on existing and new communities of residents and visitors.*

*Encourage the use of climate-appropriate architecture, vegetation, and landscaping.*

*Minimize transportation fuel consumption.*

#### **Action:**

- ❖ *Actively support efficient transportation methods for residents, visitors, and resort workers, such as buses, safe bicycling routes, van pooling, and car pooling, to minimize traffic and fuel supply problems.*

**Discussion:** This project will use green/climate appropriate architecture incorporating energy efficient technology and design, and appropriate vegetation and landscaping to moderate climatic effects. Working with the County, it hopes to participate in finding and encouraging energy efficient methods for transporting employees to their place of work. It will also work with HELCO to consider solar and co-generation opportunities in the development.

#### **Strategies – Sewage Disposal Systems**

*Provide sewage disposal systems that will foster continued regional growth.*

*Ensure that the high quality of offshore and coastal waters and the groundwater are maintained.*

#### **Action:**

- ❖ *Include buffer zones and disclose possible public exposure to the effluent in proposals to reuse sewage effluent.*
- ❖ *Ensure compatibility between adjacent land uses and the siting of, and zoning for, sewage treatment plants.*
- ❖ *State and County land use planning agencies should require the utilization of low-water consumption toilets and other appliances, explore the viability of waterless toilet systems, and encourage recycling wastewater for irrigation. Other measures to reduce wastewater generation should be developed and evaluated.*

**Discussion:** Hiluhilu Development LLC will construct its own on-site wastewater treatment facility. Odor control measures will be employed in designing the wastewater treatment plant. Treated wastewater effluent will be diluted and used for irrigation of the golf course. Landscaped areas around residential areas will be irrigated with brackish water only.

#### **5.4.4 Keahole to Kailua Development Plan**

The County of Hawaii established an overall goal and related specific objectives for the Keahole to Kailua Development Plan, as follows:

To develop a mixed residential, commercial, resort, industrial and recreational community, with approximately 8,000 or more residential units, in a functional, attractive, and

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financially viable manner. The community will include appropriate shoreline uses, public facilities, and infrastructure and will be built out over the next 20 years.

#### Objectives:

- Land Use:** To develop a plan for an integrated community consistent with the County General Plan, which can be served by the required infrastructure in phases, and which provides for a mix of land uses in a functional, efficient, and aesthetically pleasing manner.
- Design:** To develop design guidelines for critical visual aspects of the subject area.
- Roads:** To develop during the next 10 years an efficient, safe, and pleasing road network, which operates at level of service C over the next 20 years, and which interconnects the various land uses within the planning area and accommodates various modes of travel.
- Drainage:** To identify all areas subject to flood inundation by a 100-year storm or tsunami inundation and develop during the next 10 years an efficient, comprehensive flood control system.
- Water:** To develop a water system with a 6 mgd capacity over the next 10 years to serve the land uses planned within the subject site.
- Sewer:** To develop an area-wide system of sewerage facilities with a capacity of 6 mgd over the next 10 years.
- Solid Waste:** To develop facilities adequate for the needs of the area over the next 10 years.
- Parks:** To develop recreational facilities that meet the range of needs arising from 25,000 or more residents over the next 10 years.
- Finance:** In conjunction with land use and infrastructure plans, to develop a financing approach which provides for infrastructure financing, feasible land development, and a feasible level of County capital expenditures.

The Property falls within in the project area for the Keāhole to Kailua Development Plan (April 1991). The function of the "K to K" Development Plan is to guide land use actions by both the public and private sectors, and is not intended to supercede the General Plan nor impose additional development controls over property. Because the K to K Plan is not a regulatory instrument, no formal amendment process nor development compliance requirements are imposed.

#### 5.4.5 Kona Regional Plan

The Kona Regional Plan, adopted by the Planning Commission and County Council in 1984, serves as a guide in implementing the General Plan. This role of the Kona Regional Plan prescribed by the General Plan entails the formulation of desired land use patterns within the

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parameters of the General Plan goals, policies, standards, Land Use Pattern Allocation Guide Map, and Facilities Maps. The Regional Plan is not intended to supercede the General Plan nor pose additional development controls, but rather to guide the implementation of the General Plan. The land use concept map for the Kona Regional Plan designates the Property as Alternate Urban Expansion which would allow the project concept.

#### 5.4.6 County of Hawaii Zoning

The Property is zoned by the County of Hawaii as Agricultural 3 acres (A-3a). Pursuant to Chapter 25, Hawaii County Code relating to Zoning, the zoning for the project site does not allow higher density urban uses. Therefore, rezoning of this property is required and Hiluhilu Development, LLC will apply for rezoning in order to develop the various densities of residential and mixed uses.

**Chapter 6.0**  
Probable Impacts And  
Mitigative Measures

## 6.0 PROBABLE IMPACTS AND MITIGATIVE MEASURES

Two types of probable impacts on the environment are discussed in this section: short-term or construction-related impacts, and long-term or operations related impacts. Also described are mitigative measures that are proposed for implementation, where appropriate and feasible, to minimize any adverse impacts. Areas where there potentially could be adverse impacts, but where none are actually anticipated are also discussed.

Where there could be significant differences between short-term and long-term impacts (e.g., in the case of impacts on noise or air quality) separate discussions of both types of impacts are provided. Where little or no difference is anticipated, or is not considered to be significant (e.g., in the case of impacts on views) the entire discussion is included in the sections addressing long-term impacts.

### 6.1 POTENTIAL SHORT-TERM IMPACTS

#### 6.1.1 Topography, Soils, and Drainage

The short-term impact of the proposed action on soils is limited to the small potential for erosion during construction. All grading operations will be conducted in compliance with dust and erosion control requirements of the County of Hawai'i. A Grading Permit must be obtained from the County of Hawai'i in order to begin construction. During Grading Permit review and approval the grading plans for the site are reviewed by the Department of Public Works and specific conditions may be attached.

The topography of the Hiluhilu Development property will be only slightly affected by short-term construction. There will be no substantive alterations to existing drainage patterns.

Mitigative Measures – Strict erosion control measures, as required by the regulations, standards and guidelines cited below, will be followed in order to ensure that any significant adverse effects are avoided. This will include the preparation and approval of an Erosion Control Plan prior to any construction. Erosion control measures will, where appropriate, include the use of cut-off ditches, temporary ground cover, and detention/sedimentation basins. Dust controls will include the frequent watering of exposed areas, good housekeeping at the job sites, and paving or landscaping of exposed areas as quickly as possible.

The following documents specify erosion and dust control measures that will be followed during construction:

U. S. Soil Conservation Service's "Erosion and Sediment Control Guide for Hawai'i". This is a "how to" manual on ways to reduce erosion and sedimentation and conserve our soil resources. [This agency has been renamed the "U.S. Natural Resources Conservation Service".]

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#### 6.1.2 Surface Water Quality

No improvements are planned that will directly affect coastal waters or water quality. The project site is not situated along the coastline, so there will be no impacts to coastal waters. There are no streams or ponds on the project site that could be impacted by the development.

Mitigative Measures – The following regulations and guidelines will be followed in order to minimize any possible water quality effects:

- State Department of Health's "Water Quality Standards", Chapter 11-54 in the Public Health Regulations.
- Section II "Best Management Practices" in the State Department of Health's "Nonpoint Source Water Pollution Management Plan"
- U. S. Environmental Protection Agency/National Oceanic and Atmospheric Administration's "Guidance Specifying Control Measures for Sources of Nonpoint Pollution to Coastal Waters"

#### 6.1.3 Vegetation and Wildlife

Minor short-term effects to vegetation, wildlife and insects can be anticipated wherever site clearing and grading or excavation is necessary. Of particular concern would be any disturbance that would occur to the habitats for endangered species of vegetation or wildlife.

Human impact has substantially altered the vegetation of much of the property, either directly (eg. Clearing for farming and ranching) or indirectly (eg. Introduction of cattle and goats, introduction of alien plants, and fire). However, one area still exists where the original Lowland Dry Forest ecosystem is intact (Figure 4-1). This Dry Forest remnant is both ecologically and culturally valuable because over 95% of the State's Dry Forests have been destroyed, and the rest are severely degraded (Wagner et al. 1990). Comprising approximately 65-75 acres, this forest fragment may rank among the most intact of any remaining on the island, and perhaps the State. Preservation of the Dry Forest fragment and areas containing rare and endangered trees listed in Table 4-1, is a priority during the project planning.

Mitigative Measures – In order of importance, the following actions are recommended:

- ❖ Preserve as much of the Lowland Dry Forest fragment as possible. This forest currently faces 4 major threats – bulldozing, fire, goats, and invasion by exotic plants. If properly protected from these threats, this forest will be an immensely valuable asset to both the university and the surrounding community. In addition, preservation of this forest would protect nesting habitat for the endangered Hawaiian Hawk and continue to provide habitat for the Hawaii amakihi. It is recommended that the project planners for this project work with an organization such as the North Kona Dry Forest Working Group to establish a sound management plan for this forest.
- ❖ Preserve as many wiliwili stands as possible. Many of the wiliwili on this property are truly exceptional specimens, and all efforts should be made to preserve them. These trees could easily be incorporated into the landscape plans.

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- ❖ Preserve all maua, 'aiea, and uhiuhi trees. These trees should be fenced in as large an enclosure as possible to protect them from goats. Within these enclosures, seedlings of these and other rare species could be planted. This small scale restoration effort could be coordinated with the North Kona Dry Forest Working Group.
- ❖ Select native species that occur naturally on the property as landscaping elements in areas that will be graded. In particular, maiapilo (an SOC), alaha'e, and ilima should do well as landscaping plants and have added benefit of being drought tolerant.

#### 6.1.4 Cultural, Historic and Archeological Resources

As stated in the Cultural Impact Study, the forested wilderness zone uninhabited by people was the realm of Hawaiian gods, especially Kū, and is thus culturally significant. Short-term, or construction impacts will affect some of the cultural resources, but preservation of the dry forest and significant trees in other areas and mitigative measures listed in Section 6.2.7 will minimize the impact of the proposed development in this area.

##### *Archaeological Resources*

Short-term, or interim, protection measures designed to protect the sites during construction of the subdivision were implemented according to the Interim Site Protection Plan (Williams and Nees 1993a). These interim protection measures included the following:

1. Notification of all construction personnel that four archaeological sites slated for preservation exist and where they were located.
2. Defining a 50-foot temporary buffer zone around each site.
3. Flagging of the temporary buffer zone boundaries around the sites.
4. Monitoring the installation of plastic fencing on the site's buffer zone boundaries.
5. Monitoring vegetation grubbing around the fenced areas.
6. Providing consultation regarding construction of rock walls on the site's buffer zone boundaries.

Permanent mitigation and preservation plans will be coordinated with the State Historic Preservation Division and knowledgeable Kupuna from the North Kona Region.

#### 6.1.5 Air Quality

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term impacts from slow-moving construction equipment traveling to and from the project sites, from a temporary increase in local traffic caused by commuting construction workers, and from the disruption of normal traffic flow caused by lane closures of adjacent roadways (see Appendix F).

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Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is often a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions. Monitoring dust at the project property line could be considered to quantify and document the effectiveness of dust control measures.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Project construction activities will also likely obstruct the normal flow of traffic at times to such an extent that overall vehicular emissions in the project area will temporarily increase. The only means to alleviate this problem will be to attempt to keep roadways open during peak traffic hours and to move heavy construction equipment and workers to and from construction areas during periods of low traffic volume. Thus, most potential short-term air quality impacts from project construction can be mitigated.

#### 6.1.6 Noise

Construction activities at the project site would generate noise impacts that are temporary in nature. The impacts of construction activities would be experienced by area residents to a degree consistent with each individual's reaction or tolerance to noisy stimuli. Anticipated construction noise would be audible, but relatively low at neighboring properties due to a distance of approximately 6,000 linear feet between the project site and the nearest affected residential community along Kaiminani Drive. Residences in Makole Estates are adjacent to the project site but except for the golf course, most work during phases 1 and 2 will be at the lower elevations and miles away.

Mitigative Measures - Project actions include the use of properly muffled construction equipment as a means of noise control. The implementation of curfew periods and adherence to construction noise limits established by the State of Hawaii DOH would further minimize the nuisance to the residents of nearby communities in the project area. In light of these considerations, no short-term mitigation for noise impacts is proposed. The project is not anticipated to generate any negative long term noise impacts.

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#### 6.1.7 Employment

Employment trends are prime indicators of the economic growth of an area. Increases in employment generate growth for most sectors of the local economy and dictate the rate at which it will expand.

Planned improvements will generate short-term direct employment, both on- and off-site, during the construction period which will last approximately ten years. The number of jobs at any given time will vary considerably, depending on the level of construction activity. Construction activity will also generate indirect and induced employment opportunities and multiplier effects. Those affected will be local material suppliers and retail businesses.

In the Market Evaluation of Hiluhilu Project and University Village Development Opportunities prepared by Knowledge Based Consulting Group in association with THK Associates, it was concluded that based on the projected annual job growth in the trade area, THK can estimate job growth by sector to project additional space requirements for retail, office, and research and development space over the next ten years. Retail job growth is projected to average 203 annually through 2012. At 350 square feet needed per employee, an additional 700,000 square feet of retail space will be required in the primary trade area. THK estimates a site capture of 15% of this space, meaning 106,000 square feet of retail space will be demanded at the Hiluhilu Development site. With coverage of 22% and a speculative factor of 50%, the Hiluhilu development site can support 17 acres of retail development. Following the same methodology, the office and research and development/flex market yield 6 acres and 13 acres of space respectively.

Mitigative Measures – The short-term employment effects will be beneficial to both the overall Hawai'i and local economies. While the magnitude of the effects on the local economy cannot be accurately projected at this time, it should not be at a level that would generate any significant expansion or structural changes that could lead to negative effects when construction is completed. No mitigative measures are considered necessary.

#### 6.1.8 Roadways and Traffic

Construction activities will create some short-term effects primarily from trucks, heavy equipment and other vehicles that will use existing roads - primarily Queen Ka'ahumanu Highway - to access construction areas, for the purpose of delivering construction materials and hauling away demolition debris. While construction vehicles are relatively slow and difficult to maneuver, it is anticipated that they will only marginally affect overall traffic flow, especially since there is little to demolish.

Commuting construction workers will slightly increase traffic levels, although their effect is anticipated to be negligible.

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**6.2 POTENTIAL LONG-TERM IMPACTS**

**6.2.1 Topography, Soils, and Drainage**

**Topography:**

The project does not propose major grading of the site. The existing topography will be altered only to the extent necessary for construction of the proposed improvements. It is anticipated that grading will occur on a localized scale and that cut and fill quantities will generally balance as construction progresses. Therefore, it is not anticipated that there will be any long-term impacts to the topography.

**Soils:**

Based on the conclusions of the Soils report prepared by Dr. Yusuf Tamimi, there is no adequate soil in all of the area, and there is a complete absence of cultivable land in all portions of this parcel. Rainfall appears to be marginal at the upper area and very inadequate to sustain agriculture in the middle and lower sections. The dominantly rocky nature of this area makes it nearly impossible to develop into an economically viable agricultural land without huge investments to provide adequate and reliable water resources and a functional water distribution system as well as complete reshaping of the landmass, and establishment of suitable roads. The expected high cost of developing such amenities and the uncertainties of profitable returns on such investment may preclude such considerations.

Since 1989 when the present owners purchased this land parcel, no agricultural activities were attempted, possibly due to the expected economic futility of such an effort.

**Drainage:**

The general solution to local drainage in Hawaii County has been to construct dry wells, which redirect any manmade runoff into the ground. The sporadic nature of the rainfall rarely, if ever, results in long-term pollution.

Storm water runoff from impervious areas will be collected through a system of swales, catch basins, and pipes and transported to storm water drywells or infiltration areas for disposal. The permeability of the existing soils is evident by the absence of any natural storm water channels or gullies in the vicinity of the site. Infiltration areas will be located in the golf course and other open spaces, where practical. Drywells will be located within roadway rights-of-way and within individual parcels, as needed.

Proposed improvements at Hiluhilu will alter drainage patterns in minor ways. The golf course and residential development will alter drainage. The use of drywells and retention basins will be implemented to mitigate the drainage impacts from this project.

**6.2.2 Flood and Tsunami Inundation, Lava Flow, and Earthquake Hazards**

**Flood:** The property lies in an area that spans across four Federal Emergency Management Agency's Flood Rate Insurance Maps (maps 155166 0469 C, 155166 0488C, 155166 0682C, and 155166 0701C which are not published). Each of these maps indicate that the property is within Zone X, which represents areas determined to be outside the 500-year floodplain.

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**Tsunami:** Because the speed of a tsunami depends entirely on the depth of the water, the arrival time of a wave from any point on the Pacific rim can be predicted. The size of the wave is difficult to predict, however, because the Hawaiian Islands may be the first place to be hit by the wave. Locally generated tsunamis, such as those of 1868 and 1975, are potentially the most hazardous type, because the time between their origin and the arrival of the wave at the shoreline may be too brief to warn and evacuate people. In 1975, the first wave reached Punalu'u immediately after the earthquake; it arrived at Hilo in 20 minutes. Any earthquake strong enough to cause difficulty in standing or walking should be regarded as a tsunami warning by people in coastal areas, who should immediately head for higher ground. The Federal Emergency Management Agency Flood Insurance Rate Map indicates no areas of potential tsunami inundation on the property.

**Lava Flows:** Hazard zones from lava flows are based chiefly on the location and frequency of both historic and prehistoric eruptions. "Historic eruptions" include those for which there are written records, beginning in the early 1800's, and those that are known from the oral traditions of the Hawaiian people. Our knowledge of prehistoric eruptions is based on geologic mapping and dating of the old flows of each volcano. The hazard zones also take into account the larger topographic. The island of Hawaii is divided into nine hazard zones according to the level and degree of potential hazards related to lava flows. An area designated as Zone 1 is considered to be an area of greatest potential hazard. These designated zones are determined primarily from the location and frequency of past eruptions.

In the last 3000 years, Hualalai has erupted near its summit, along the northwest and south-southeast rift zones, and from vents on the north flank of the volcano. Twenty-five percent of the volcano is covered by flows less than 1000 years old. Hualalai last erupted in 1800-1801 from several vents on the northwest rift zone. Large flows spilled down both sides of the ridge formed by the rift zone and quickly reached the ocean. One of these flows lies south of Kiholo Bay, and part of the Kona Village resort is built upon it. Another flow underlies the northern end of the Keahole (Kona) Airport. Other major eruptions occurred about 300 and 700 years ago. A large flow from the 700-year old eruption forms the north side of Keauhou Bay, south of Kailua-Kona.

The Kailua-Kona area is within Zone 4, indicating a moderate hazard. Zone 4 includes all of Hualalai, where the frequency of eruptions is lower than on Kilauea and Mauna Loa. Flows typically cover large areas. The dormant Hualalai last erupted in 1801 (Stearns and McDonald, 1946). Since 1800, five percent of the Hualalai area has been covered by lava. In the last 750 years, 15% has been covered. (See Figure 6-1 USGS Lava Flow Hazard Zone Map.)

**Earthquakes:** The entire island of Hawaii is susceptible to earthquakes originating in fault zones under and adjacent to the island. Two fault zones have been identified within the Kona region: the Kealakekua and the Kaloko faults, both located in South Kona and well away from the Property. According to previously established procedures, the United States Geological Survey conducted a probabilistic seismic-hazards assessment in 1997. From this assessment, seismic zones were re-assigned for each county. Due to the island's active volcanic activity, the entire county of Hawaii lies in a seismic zone designated as Zone 4, the highest zoning

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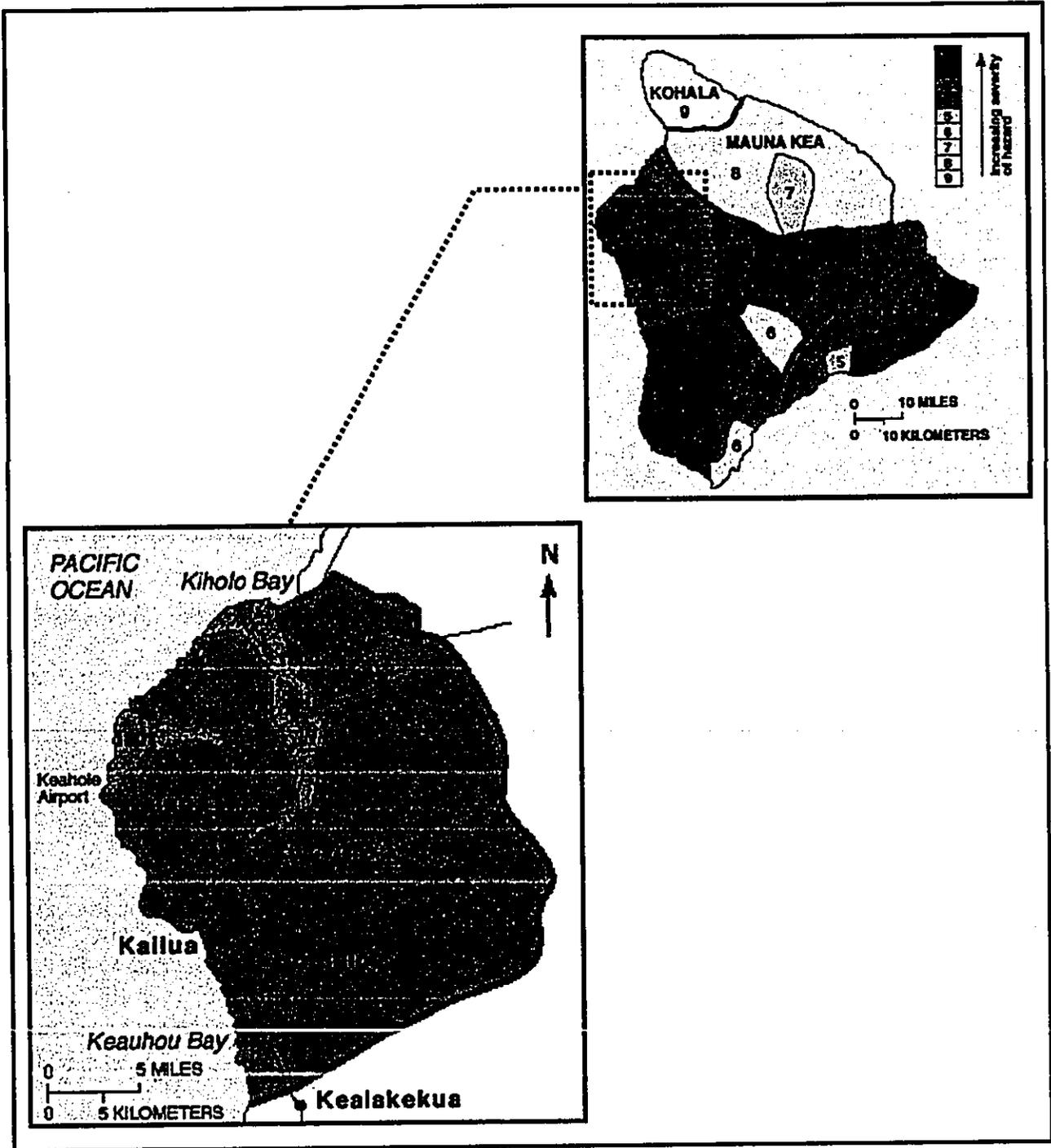


Figure 6.1  
USGS Lava Flow Hazard Zone Map

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designation. The classification system is based on a scale of 0 to 4, increasing in level of risk due to seismic occurrence and danger.

Under the uniform building code seismic provisions, a Zone 4 area could experience severe seismic activity between .30 and .40 of the earth's gravitational acceleration (g-forces) causing major damage to poorly designed or built structures. The potential of damage incurred by strong earthquakes is a prevalent concern for the entire county of Hawaii. As such, the proposed projects will be in compliance with the Uniform Building Code and County of Hawaii structural design standards, including earthquake design provisions.

#### 6.2.3 Surface Water Quality

There are no streams or drainage ways in the area and any manmade runoff should be directed underground as it is presently part of the existing recharge and should not be lost to the system.

#### 6.2.4 Groundwater

The area is underlain by very fresh, young and permeable lavas from the Hualalai volcano. The lands makai of the project are covered with the youngest of the eruptive series of 1801, which contain numerous lava tubes. The result is a very high horizontal transmissivity in the aquifer as reflected in tidal fluctuation in the water table. Any brief pollution events, which might enter the aquifer, are attenuated as they approach the shore. Even if pollution should be in evidence in moments of time, there will be no persistent pollution if the source is periodic.

Even long term pollution is likely masked and unidentifiable as the groundwater flow approaches the shoreline.

There are indications, according to data produced during the 1999 USGS Kaloko- Honokohau study, that there may be some manmade influence as inferred by the detection of phenols in the shallow wells makai of the Kaloko Industrial Park (Water Resources Investigation Report 99-4070).

There are a number of potential sources of phenols, however, there is no conclusive evidence as to source.

Regardless, there are no bodies of water in the vicinity of the Kau project which might be negatively influenced by the project including the underlying brackish lens.

#### 6.2.5 Hazardous Materials

The property is an agricultural site and was used for ranching purposes. Therefore it is highly unlikely that there exist hazardous materials. However, with the development of health technology industries and the University campus addition, there exists a long-term possibility of hazardous materials being generated and disposed. The University system already has developed plans for mitigating this kind of hazard and will utilize the same stringent standards on this satellite addition to their university system. Accordingly, a policy and plan will be developed addressing the production and disposal of hazardous waste materials for the

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technology park. The golf course will also have a monitoring system be in place and Best Management Practices and Integrated Pest Control Management will be utilized.

#### 6.2.6 Vegetation and Wildlife

The preservation of the approximately 65-75 acre Lowland Dry Forest area will protect critical botanical resources. In addition, selecting native plant species for landscape elements for areas to be graded will ensure that rare and endangered species will be protected and will create more of a linkage between the built and natural environments.

#### 6.2.7 Cultural, Historic and Archaeological Resources

A Cultural Impact Assessment for the project was completed (see Appendix D). The table below lists the concerns and mitigative measures of the cultural and historic impact of this project identified by the report:

<u>Concern</u>	<u>Comments/Mitigative Measures</u>
Landscaping and Salvaging Cultural Plants:	Kaū has important timber resources; lama, walahe'e, wiliwili, if need to be destroyed, salvage for cultural practitioners; or if removed by developer, stockpile for salvage. Attempt to transplant, if impossible, then salvage.
Sense of Kekaha:	Hope that portions of the landscape can retain their Kaha-ness so that the lava-scape doesn't get greened over. Should be mindful of the land as it is and not forget where we are. Be mindful of making good choices about the use of precious resources like water.
View plane of Kaū:	Be mindful of the view planes; of view vantage points to Kohala and Maui and Mahai'ula and the shoreline and mauka to the hills: to Nahāhā, Pūhi-a-Pele, To, Akahipu'u, Moananuiahea, 'Alala, the 'Ohi'as. (The ramp area) would be a good candidate for preservation...but don't put a building in front and obstruct the view.
Trails of Kaū:	There's a good trail linkage to the sites at the bottom of the project...maybe the trail in between the two would be modified in places, but if both sites could be designated for preservation and some sort of trail linkage [between them could either be maintained or a functional replacement be

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put in so that the two sites could be linked. I think it would be a nice cultural experience for attendees of the University as well as others who may be in the area.

#### Naming:

Because of the quality of the plant community (in Kaū) I always hope that any of the landscaping that is done as part of any development there we can take our cue from what occurs there naturally. That whether it is naming places, if we want to name something and if the name is already taken up, perhaps we can add a characteristic of the plant, the Kona pronunciation...to incorporate both into the place names and perhaps also the landscaping.

#### *Archaeological Resources<sup>1</sup>*

Rechtman Consulting, LLC conducted an archaeological inventory fieldwork between August 28 – November 12, 2002 on a roughly 725-acre property (TMK: 3-7-2-05:1 por.) in Kaū Ahupua'a, North Kona, Island of Hawai'i (Figure 1-1). The current study area is a portion of a larger (1000 acre) property that was subject to an archaeological inventory survey in 1990 (Schilz et al. 1990) by Ogden Environmental and Energy Services Company, Inc. (Ogden) [the Bishop Museum (Ching 1970, 1971; Ching and Rosendahl 1968; Rosendahl 1973) and PHRI (Rosendahl 1990) also conducted archaeological fieldwork on portions of this property]. The Ogden report was submitted to DLNR-SHPD and approved. However, based on more recent fieldwork in the upper portion of the original project area, both the current landowner and DLNR-SHPD felt the earlier work was suspect and that additional fieldwork would be warranted for the current study property. Their suspicions were correct; Ogden had recorded only 50 sites (that we collapsed into 34 sites) within the current project area, whereas during the current study we recorded 83 sites, a difference of over 244%.

The current report presents the results of the additional fieldwork, and should be considered an addendum to the original archaeological inventory survey. As such, background information relative to the study area is not repeated here; rather, the reader is referred to the original study (Schilz et al. 1990), and to a recent Cultural Impact Assessment (Orr 2003) prepared for the current project.

An addendum style report was agreed upon in consultation with Patrick McCoy of DLNR-SHPD, and presents the current field findings (correlated where possible with those of the earlier study), and revised significance assessments and treatment recommendations.

<sup>1</sup> Data and description for this section were derived from Rechtman Consulting, ADDENDUM: Archaeological Inventory Survey of the Kaū Development Area (TMK: 3-7-2-05:1 por.), June 2003. The full report is contained in Appendix C.

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The sites recorded on the property are assessed for their significance based on criteria established and promoted by the DLNR-SHPD and contained in the *draft* Hawai'i Administrative Rules 13§13-284-6, dated 1998. These significance evaluations are intended to override those for sites previously assessed (Schilz et al. 1990) and should be considered as preliminary until DLNR-SHPD provides concurrence. For a resource to be considered significant it must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

- A) Be associated with events that have made an important contribution to the broad patterns of our history;
- B) Be associated with the lives of persons important in our past;
- C) Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
- D) Have yielded, or is likely to yield, information important for research on prehistory or history;
- E) Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

All of the sites retain sufficient integrity for further evaluation, and that evaluation indicates the sites (except for SIHP sites 14369 and 23871) are considered significant under Criterion D at a minimum. Site 14369 and 23871 are not considered significant. Four of the sites (SIHP Sites 14360, 14367, 23862 and 23864) are also considered significant under Criterion E based on their religious/ceremonial (presence of petroglyphs or shrine) association (Table 6-1).

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<i>SIHP Site #</i>	<i>Site Description</i>	<i>Significance</i>	<i>Treatment Recommendation</i>
14338	Isolated find in lava tube	D	No further work
14339	Precontact temporary habitation lava tube	D	Data recovery
14340	Animal pen	D	No further work
14341	Precontact permanent habitation platform	D	Data recovery
14342	Precontact agricultural complex	D	Data recovery
14343	Precontact temporary habitation terrace	D	Data recovery
14344	Precontact temporary habitation enclosure	D	Data recovery
14345	Precontact temporary habitation C-shape	D	Data recovery
14346	Precontact temporary habitation lava tube	D	Data recovery
14347	Precontact temporary habitation enclosure	D	Data recovery
14348	Alignment	D	No further work
14349	Mound	D	No further work
14350	Precontact temporary habitation lava tube	D	Data Recovery
14351	Precontact temporary habitation complex	D	Data Recovery/Preservation
14354	Precontact permanent habitation terrace	D	Data recovery
14357	Trail	D	Data recovery
14358	Isolated find in lava tube	D	No further work
14359	Cattle enclosure	D	No further work
14360	<i>Heiau</i>	D, E	Preservation
14362	Trail	D	Preservation /NFW
14365	Precontact temporary habitation lava tube	D	Data recovery
14366	Precontact temporary habitation platform	D	Preservation
14367	Precontact temporary habitation lava tube	D, E	Preservation
14368	Precontact permanent habitation complex	D	Preservation
14369	"Hunting blind"	Not Significant	No further work
14371	Precontact permanent habitation platform	D	Data recovery
14372	Precontact temporary habitation platform	D	Data recovery
14373	Precontact temporary habitation lava tube	D	Data recovery
14374	Precontact temporary habitation complex	D	No further work

**Table 6-1.**  
**Site significance and recommended treatments.**

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<i>SIHP Site #</i>	<i>Site Description</i>	<i>Significance</i>	<i>Treatment Recommendation</i>
14375	Precontact lava tube habitation complex	D	Data recovery
14376	Trail	D	No further work
14377	Wall	D	No further work
14378	Cairns	D	No further work
14404	Trail	D	No further work
23862	Precontact permanent habitation complex	D, E	Preservation
23863	Cairn	D	No further work
23864	Precontact temporary habitation enclosure/shrine	D, E	Preservation
23865	Historic road bed	D	Preservation/NFW
23866	Precontact temporary habitation pavement	D	Data recovery
23867	Precontact temporary habitation C-shape	D	No further work
23868	Trail	D	No further work
23869	Historic boundary marker	D	No further work
23870	Precontact temporary habitation complex	D	Preservation
23871	Historic fence line	Not Significant	No further work
23872	<i>Pāhoehoe</i> evcavation	D	No further work
23873	Trail	D	No further work
23874	<i>Pāhoehoe</i> excavation	D	No further work
23875	Trail	D	Preservation
23876	Precontact temporary habitation modified outcrop	D	No further work
23877	Trail	D	No further work
23878	Trail	D	No further work
23879	<i>Pāhoehoe</i> excavation	D	No further work
23880	Precontact temporary habitation platform	D	No further work
23881	Precontact temporary habitation C-shape	D	No further work
23882	Trail	D	No further work
23883	Trail	D	No further work
23884	Trail	D	No further work
23885	Precontact temporary habitation complex	D	Data recovery
23886	Precontact temporary habitation enclosure	D	No further work
23887	Precontact temporary habitation pavement	D	Data recovery

**Table 6-1 (Continued)**  
Site significance and recommended treatments.

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<i>SIHP Site #</i>	<i>Site Description</i>	<i>Significance</i>	<i>Treatment Recommendation</i>
23888	Precontact temporary habitation modified outcrop	D	No further work
23889	Trail	D	No further work
23890	Trail	D	No further work
23891	Precontact temporary habitation terrace	D	No further work
23892	Precontact temporary habitation enclosure	D	No further work
23893	Precontact temporary habitation lava tube	D	No further work
23894	Precontact temporary habitation complex	D	Data recovery
23895	Precontact temporary habitation modified outcrop	D	Data recovery
23896	Precontact temporary habitation enclosure	D	Data recovery
23897	Precontact temporary habitation complex	D	Data recovery
23898	Historic habitation enclosure	D	No further work
23899	Precontact temporary habitation enclosure	D	Data recovery
23900	Precontact temporary habitation terrace	D	No further work
23901	Cairn	D	No further work
23902	Precontact temporary habitation terrace	D	Data recovery
23903	Precontact temporary habitation complex	D	Data recovery
23904	Precontact temporary habitation modified outcrop	D	Data recovery
23905	Precontact temporary habitation enclosure	D	Data recovery
23906	Precontact temporary habitation enclosure	D	No further work
23907	Historic habitation complex	D	Data recovery
23908	Precontact temporary habitation lava tube	D	Preservation
23909	Precontact permanent habitation platform	D	Data recovery
23910	Trail	D	No further work

**Table 6-1 (Continued)**

Site significance and recommended treatments.

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Treatment recommendations fall into three categories: Preservation, Data Recovery, and No further work. Of the 83 sites recorded during the current study, twelve (14%) are recommended for preservation and thirty (36%) are recommended for data recovery; no further work is the treatment recommendation for the remaining forty-one (50%) sites. At three of the preservation sites, only selected features or portions of the site will be preserved and the other features or portions of the sites will either be data recovered (SIHP Site 14351) or receive no further work (SIHP Sites 14362 and 23865). A Data Recovery Plan will be developed and submitted to DLNR-SHPD for review and approval for all sites recommended for data recovery; likewise, a Preservation Plan will be prepared and submitted.

Mitigative Measures – Sites recommended for possible preservation will be surveyed, and the site plan modified as necessary to ensure proper treatment of significant archaeological features. In cooperation with the State Historic Preservation Officer, a treatment and mitigation plan will be developed for any features determined to be archaeologically or historically significant. Once mitigated, there should be no further long-term impacts on archaeology. However, if in the future any inadvertent archaeological, cultural or historic discoveries are made on the property, the petitioner will report this matter to the State of Hawai'i, Department of Land and Natural Resources, Historic Preservation Division for review and assessment.

#### 6.2.8 Air Quality

After construction is completed, use of the proposed facilities will result in increased motor vehicle traffic in the project area, potentially causing long-term impacts on ambient air quality. Motor vehicles with gasoline-powered engines are significant sources of carbon monoxide. They also emit nitrogen oxides and other contaminants.

For this project, three scenarios were selected for the carbon monoxide modeling study: (1) year 2003 with present conditions, (2) year 2010 without the project, and (3) year 2010 with the project. Year 2010 is when full development and occupancy is expected to be achieved. To begin the modeling study of the three scenarios, critical receptor areas in the vicinity of the project were identified for analysis. Generally speaking, roadway intersections are the primary concern because of traffic congestion and because of the increase in vehicular emissions associated with traffic queuing. For this study, the four key intersections identified in the traffic study were also selected for air quality analysis. These included the following intersections:

- ❖ Queen Kaahumanu Highway at Palani Road;
- ❖ Queen Kaahumanu Highway at Kaiminani Drive;
- ❖ Queen Kaahumanu Highway at Keahole Airport Road;
- ❖ Queen Kaahumanu Highway at the northern project access road.

Mitigative Measures – The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive

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dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

After the proposed project is completed, any long-term impacts on air quality in the project area due to emissions from project-related motor vehicle traffic should be small. Worst-case concentrations of carbon monoxide should remain within both the State and the national ambient air quality standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.

#### 6.2.9 Noise

The existing and future traffic noise levels in the vicinity of the proposed Hiluhilu project in North Kona were evaluated for their potential impact on present and future noise sensitive areas. The future traffic noise levels along the primary access roadways to the project were calculated for the year 2010.

Along the existing Queen Ka'ahumanu Highway, traffic noise levels are expected to increase by 2.6 to 3.5 DNL between CY 2003 and CY 2010 as a result of both project and non-project traffic. Along Mamalahoa Highway, traffic noise levels are predicted to range from 1.7 to 2.8 DNL which is within the range of the noise increases caused by non-project traffic on these two roadways. These increases in traffic noise levels associated with project traffic range from the insignificant to the moderately significant. Fortunately, the larger and more significant increases in traffic noise levels are expected to occur along Queen Ka'ahumanu Highway, where the lands along the highway Rights-of-Way are generally undeveloped.

The project is outside of the airport noise contours, and special aircraft noise attenuation measures are not required over the project area.

Project residents should not be impacted by traffic noise from Queen Ka'ahumanu or Mamalahoa Highways since adequate setback distances have been provided from the highways.

Noise impacts from the nearby Keahole Generating Station are not expected to occur due to the large distances between the station and the project site. In addition, sound attenuation measures have been recently incorporated into the station's generating equipment, which have reduced plant noise levels to inaudible levels.

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#### 6.2.10 Visual Resources

In planning the residential areas of the project and the golf course, consideration of the natural slopes and features in the topography have been respected.

The development of a golf course will add standard and xeriscape landscaping to an otherwise dry area, enhancing the visual impacts of the area, increasing the desirability and adding value to the residential component.

View planes are preserved throughout. Clustering of dwelling units in sections of the project will preserve the open space character. The philosophy of the development is to "build to the land," avoiding major cuts and fills, designed to facilitate pedestrian access and provide a better quality of life for residents over the long term.

All buildings for the University Village and Center will be one to two-story to create a low profile that is compatible with the expansive lava-strewn setting of the site. Buildings will be designed to blend into the surroundings of the project site. The character and color of the surrounding lava would be used as a design element that contributes to a Hawaiian sense of place. The new visual character of the University Village within a cohesive design framework is expected to elevate its status as a center of higher education.

In this regard, no negative impacts to visual resources are anticipated and no mitigation is proposed.

#### 6.2.11 Recreational Resources

The planned improvements at Hiluhilu will expand access to recreational resources in terms of a golf course for private and public use. The proposed golf course will also serve as a practice facility for the University of Hawaii golf team. Smaller passive community parks will be developed in the detailed planning of the site. The Village will include recreational venues for residents.

#### 6.2.12 Population and Employment

Trends in population and household growth are principal indicators of the potential demand for real estate development. Population growth in the market area has been moderate since 1980; recent data shows this trend continuing. The district of North Kona contributed 22.3% of the growth in Hawaii County from 1980 to 2001. This trend of population growth in the Lands of Kau region indicates a demand for more residential development in the area which this project will provide.

Employment trends are prime indicators of the economic growth of an area. Increases in employment generate growth for most sectors of the local economy and dictate the rate at which it will expand. Since 1980, the Hawaii County market area has experienced growth in almost all employment sectors. Fueling the Hawaii County market area's employment growth is an increasingly diverse economic base. The market area will continue to experience steady growth especially with the addition of a University in the Lands of Kau region, which will serve as a catalyst for more economic growth.

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**6.2.13 Adjacent and Nearby Land Uses**

Land uses of adjacent and nearby areas consist of residential to the east (Makalei Estates), vacant land to the west north and south. Land uses to the southeast and northeast are primarily residential.

Currently, most of the land in the Kau ahupua'a is vacant. In the long-term, this project will add to the urbanization of North Kona. The adjacent UHCWH will be a magnet campus, which will attract other developments and land uses in this area.

**6.2.14 Roadways and Traffic**

The Palani Road eastbound left-turn traffic will require a double left-turn lane by Year 2009 with the project to accommodate the future left-turn traffic demand. The analysis includes the Palani Road/Queen Ka'ahumanu Highway intersection will shift traffic from Level of Service (LOS) condition "D" to LOS condition "E."

The probable impacts for the Northern Project Access Road are listed below: a) the projected traffic volumes at the Queen Ka'ahumanu Highway/Northern Project Access Road will most likely warrant installation of a traffic signal system by Year 2007; b) The Queen Ka'ahumanu Highway northbound approach at the Northern Project Access Road will require one through lane and an exclusive right-turn lane by Year 2007; c) the Queen Ka'ahumanu Highway southbound approach at the Northern Project Access Road will require one through lane and an exclusive left-turn lane by Year 2007; d) the Northern Project Access Road westbound approach will require a single lane approach serving both the right-turn and left-turn traffic by Year 2007; e) the Northern Project Access Road westbound approach will require an exclusive right-turn lane and an exclusive left-turn lane by Year 2009; and f) Queen Ka'ahumanu Highway would need to be widened from two-lanes to four-lanes between the Keahole Airport Road and Northern Project Access Road by Year 2010 to alleviate over-capacity conditions at the Northern Project Access Road intersection.

The probable impacts with the Airport Access Road alternative are listed below: a) If the Airport Access Road were to be pursued, the developer would need to resolve land acquisition issues to construct the portion of the alternative access road; b) the Queen Ka'ahumanu Highway/Keahole Airport Road intersection would require signal phasing modification to accommodate the additional forth leg at the Queen Ka'ahumanu Highway/Keahole Airport Road/Airport Access Road intersection; c) the Queen Ka'ahumanu northbound approach will require one exclusive left-turn lane, one through lane, and one shared right-turn/through lane by Year 2007; d) the Queen Ka'ahumanu Highway southbound approach will require one exclusive left-turn lane, one through lane, and one exclusive right turn lane by Year 2007; e) the Keahole Airport Road eastbound approach will remain the same as its existing condition for Years 2007, 2009, and 2010; f) the Airport Access Road westbound approach will require one exclusive right-turn lane, and one shared through/left-turn lane by Year 2007; and g) the Airport Access Road westbound approach will require one exclusive right-turn lane, and one shared through/left-turn lane and one exclusive left-turn lane by Year 2010.

Mauka makai roadway: County plans encourage the development of mauka/makai roadway to carry area traffic and provide alternative routes between Mamalahoa Highway and Queen

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Ka'ahumanu Highway. The street grades in the upper slopes makes the engineering of these routes a challenge. Hiluhilu Development will continue to work with the County Department of Public Works and the State DOT to address these concerns. Some roadway reserves or options will be included in the overall site planning and project development.

**Mitigative Measures:** The following measures are under consideration. Construct a double left-turn lane at the Palani Road eastbound approach at its intersection with Queen Ka'ahumanu Highway by Year 2009. Widen Queen Ka'ahumanu Highway to four lanes between the Keahole Airport Road and the Northern Project Access Road by Year 2010.

The following are mitigative measures for the Queen Ka'ahumanu Highway/Northern Project Access Road intersection:

- ❖ Install a traffic signal system at the Queen Ka'ahumanu Highway/Northern Project Access Road intersection 2007 when warranted;
- ❖ Provide an exclusive left-turn lane for the Queen Ka'ahumanu Highway southbound approach by the first project occupancy;
- ❖ Provide a right-turn deceleration lane for the Queen Ka'ahumanu Highway northbound approach by the first project occupancy;
- ❖ Provide a single lane approach for the Northern Project Access Road eastbound approach by the first project occupancy; and
- ❖ Provide an exclusive right-turn lane and a separate left-turn lane for the Northern Project Access Road by Year 2009.

The following are mitigative measures considered for the Airport Access Road Alternative:

- ❖ Modify the traffic signal system at the Queen Ka'ahumanu Highway/Keahole Airport Road for the Airport Access Road intersection;
- ❖ Provide an exclusive left-turn lane for the Queen Ka'ahumanu Highway southbound approach by the first project occupancy;
- ❖ Provide an exclusive right turn lane and a shared through/left-turn lane for the Airport Access Road approach by the first project occupancy;
- ❖ Provide an exclusive right-turn lane, a shared through/left-turn lane, and an exclusive left-turn lane for the Airport Access Road approach by Year 2010; and
- ❖ Provide a northbound right-turn deceleration lane for the Queen Ka'ahumanu Highway approach by Year 2010.

#### 6.2.15 Utilities/Power

The project site receives no electrical power and no communications services because its undeveloped state requires neither service. HELCO currently has an overhead 69 kV

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transmission line running through the utility easement. The line runs from Mamalahoa Highway to the Keahole Substation located near the Queen Ka'ahumanu Highway.

The Keahole Power Plant located south of the subject property consists of 30 mw generators that are operational, a transformation station, and 56 additional mw generators that are 85% complete. This power plant is located in land designated as Conservation.

Since the project site is currently undeveloped, utilities will need to be brought on site. This project will use green/climate appropriate architecture incorporating energy efficient technology and design, and appropriate vegetation and landscaping to moderate climatic effects. Buildings will consider LEED (Leadership in Environmental Design) or similar criteria in its design. Working with the County, it hopes to participate in finding and encouraging energy efficient methods for transporting employees to their place of work. It will also work with HELCO to consider solar and co-generation opportunities in the development.

#### 6.2.15.1 Water Supply

Water supply infrastructure, including distribution lines and storage reservoirs will be constructed as approved by the County of Hawaii Department of Water Supply (DWS) and as needed during site development. The proposed water main connection between the Makalei Estates and the existing DWS reservoir mauka of the Kona International Airport access road and Queen Kaahumanu Highway intersection will improve the distribution capabilities of the DWS system. No short-term detrimental impacts on the existing water supply system are anticipated as a result of the proposed project.

The long-term impacts of the project on the DWS distribution system would be positive, and would be similar to the impacts described under Potential Short-Term Impacts.

#### 6.2.15.2 Wastewater Disposal

The on-site collection, treatment, and disposal of wastewater will not impact any existing wastewater systems. The proposed treatment level will produce an effluent suitable for golf course and landscape irrigation, thus conserving the available water resources. Effluent that is discharged to the ground through injection wells due to inclement weather or other factors would be of high quality and would not detrimentally affect the aquifer or regional coastal waters.

The long-term impact of the proposed on-site wastewater collection, treatment, and disposal systems would be to provide a substantial amount of the irrigation water required for maintenance of the golf course. The occasional disposal of effluent to the subsurface would not result in significant impacts upon the groundwater or nearby coastal waters.

### 6.3 SUMMARY OF PROBABLE IMPACTS

#### 6.3.1 Interrelationships and Cumulative Environmental Impacts

Cumulative and interrelated impacts are those associated with existing, approved and foreseeable future projects that may produce related or additive impacts. Projects that have

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some approvals or are under construction could generate cumulative effects on the environment in the direct vicinity of the project.

The following encompasses the reasonably foreseeable proposed actions in the North Kona project vicinity that were identified at the time of this EIS and considered in the analysis of cumulative impacts.

- ❖ Development of the Makalei Estates (a 240+ acre residential subdivision) within the upper portion of the adjacent 1,000-acre Kau property (the former Nansei property);
- ❖ Development of an 18-hole golf course within the central portion of the same adjacent 1,000-acre Kau property; and
- ❖ Construction of two (2) new main roadways through the developed portions of the Kau property.

Makalei Estates: Makalei Estates has been developed as a residential subdivision of approximately eight (80) 3-acre lots. This development is situated immediately mauka of the affected property all drainage is being contained within Makalei Estates. The residential subdivision will generate trip traffic and require access to a transportation system. Potable water is available for the subdivision. Wastewater is by individual systems. The project requires solid waste collection and disposal. Demands for electricity and communications are expected. Socio-economic effects include the creation of housing opportunities in the project area.

An 18-hole golf course: This project entails land clearing and grading to prepare the site, then construction activities to create permanent structures and golf course facilities. Onsite runoff would be controlled at the site and conveyed to drainage systems. This project will require trip traffic and require access to a transportation system. Potable and non-potable water will be needed for domestic and irrigation purposes. Wastewater will be generated from the workers and visitors of the development such that a wastewater collection, treatment, and disposal system will be necessary. The project will require solid waste collection and disposal. Demands for electrical power and communications are expected. Anticipated socio-economic effects include the creation of new jobs and recreational amenities.

Construction of two (2) new main roadways through the Kau property: The development of new main roadways through the affected Kau property to serve the subdivisions and golf course will require connections to both the subdivision road through Makalei Estates which connects to Mamalahoa Highway and Queen Ka'ahumanu Highway since these are the two major transportation corridors in the project vicinity. Road development would entail land clearing, grubbing, and grading. The new roadways will be constructed to County standards to enable their dedication to the County. Public utility improvements to extend infrastructure service to the developed areas may occur along the alignment of the new roadways. New traffic patterns may occur along the alignment of the new roadways. New traffic patterns may be created as a result of the new roadway construction; however, these impacts may be largely confined to specific routes independent of the UHCWH site.

The impacts of the proposed University Village project, combined with the anticipated impacts from foreseeable projects suggest that the natural environment would be affected, but not to a significant extent. Established controls that require developers to consider and manage the

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undesirable effects attributed to their project should effectively limit and mitigate foreseeable long-term impacts. For example, anticipated potable water requirements and proposed potable water systems for each project must be coordinated with the County of Hawaii Department of Water Supply to ensure that water resources are available. Wastewater disposal systems must meet State of Hawaii Department of Health requirements to prevent unintended effects to affected water bodies or water resources. Runoff concerns must be addressed with on-site controls in accordance with County construction permits. Compliance with and adherence to established controls are expected to lessen the impact on natural resources, and achieve lasting effects in resource protection and conservation. Lastly, the proposed residential, golf course, and the UHCWH are expected to generate no significant levels of noise or air quality impacts due to the relatively quiet and unobtrusive types of activities that shall occur at respective sites.

The man-made environment would be impacted as a result of the proposed project combined with the anticipated impacts from the projects identified in the previous section; however, the developers must abide by established controls and provide appropriate mitigation for project-generated effects such as traffic and utility demands. Incremental traffic increases are likely to occur from specific and incremental developments that generate trip traffic in relative proportion to their scale of activities. Where deemed to be necessary, developers may be required to include signalization, stop signs, and similar features as part of mitigation for project impacts. Demands for water and wastewater services, solid waste disposal, electrical power and communications need to be coordinated with utility providers to ensure adequate service. For economic reasons and as a function of sound policy, projects are encouraged to be designed with energy-efficient and energy conservation features.

Socio-economic impacts resulting from the proposed project in addition to the foreseeable projects identified in the previous paragraphs are generally expected to be mostly beneficial. Construction will generate employment and economic opportunities. A population shift is anticipated due to the proposed single family, multi-family, and student and faculty housing. Improved access to higher education would generate an employable work force required for a growing economy. The proposed project also includes interpretive venues for educating students, residents, and visitors about Hawaiian history and culture, thereby providing a valuable resource for social and cultural enrichment.

### **6.3.2 Potential Secondary Effects**

This section evaluates the potential for the new development to induce growth outside the project area. Examples of these types of effects include the stimulation of addition development in an area, or a higher density development, as a result of the construction of public facilities such as a new sewerage system.

New development tends to attract other development. Having said that, it is important to note that the Hiluhilu site forms the northern boundary of the designated urban expansion of the Kailua-Kona area for North Kona. This policy line will lessen the scope of this secondary impact. Another secondary impact is the promotion of the growth and development of the new UH West Hawaii Campus. By providing supporting infrastructure with sufficient capacity to accommodate the campus, Hiluhilu will encourage the growth of the UHCWH. This is a positive secondary impact.

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#### 6.3.3 Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

These relationships are described below in context of the following four specific areas of potential concern: (1) Narrowing the range of beneficial uses of the environment; (2) Long-term risks to health and safety; (3) Foreclosure of future options; and (4) Trade-offs among short-term and long term gains and losses. The following discussion addresses each of these potential areas of concern.

(1) Narrowing the range of beneficial uses of the environment: The planned improvements are considered to be beneficial uses of the environment. Infrastructure improvements will further broaden the range of beneficial uses of this environment.

(2) Long-term risks to health and safety: The project will not generate risks to health and safety.

(3) Foreclosure of future options: The foreclosure of future options is very limited.

(4) Trade-offs among short-term and long-term gains and losses: There is no known significant "trade-off" involved in implementing the planned improvements for the use of the site. Potential short-term impacts and long-term impacts are offset by the planned mitigative measures. The short-term and long-term gains due to the project development outweigh any short-term or long-term losses.

#### 6.3.4 Irreversible and Irretrievable Commitments of Resources

Construction and operation of the proposed action will result in the irreversible and irretrievable commitment of certain natural and fiscal resources. Major resource commitments include the land on which the facilities will be constructed as well as money, construction materials, manpower, and energy.

#### 6.3.5 Adverse Environmental Effects That Cannot Be Avoided

Adverse impacts can be divided into short- and long-term effects. Short-term effects are generally associated with construction, and prevail only for the duration of the construction period. Long-term effects generally follow completion of the improvements, relate either simply to their existence or to the operation of the new facilities, and are permanent. Effects that can be considered both adverse and unavoidable are discussed below.

##### 6.3.5.1 Unavoidable Adverse Short-Term Effects

Construction impacts to air quality are short-term and temporary in nature. If mitigation measures are not provided, significant airborne emissions could include fugitive dusts (resulting in PM-10 emissions). Fugitive dust emissions are expected to result from earth-moving, cement-mixing activities, and vehicular travel in construction areas. HAR Section 11-60.1-33 prohibits the generation of fugitive dust without taking reasonable precautions to limit these emissions. As a result, significant fugitive dust generating activities will be minimized through mitigation measures identified in Section 6.1.5.

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Besides emissions resulting from combustion of fossil fuels from construction equipment, vehicular emissions will also occur from commuting construction workers.

Noise impacts generated by the proposed action will come from the operation of equipment during the construction phase.

**6.3.5.2 Unavoidable Adverse Long-Term Effects**

Traffic – Air quality from increased traffic. Air Quality report to provide more information.

**6.3.6 Significance Criteria**

Significance criteria for assessing environmental impacts pursuant to Chapter 343 are identified in Title 11 Section 200-12 of the Department of Health's Administrative Rules. The following is an evaluation of the project based on those criteria.

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;*

The Master Plan recognizes the richness of the cultural history of this area and intends to avoid development on known significant sites of natural or cultural significance. Archaeological studies and cultural assessments are being conducted during the EIS phase to determine the existence of such resources and appropriate mitigative measures to be taken should such resources be discovered and potentially be impacted by the planned development.

The archaeological inventory survey identifies sites for preservation, data recovery, and no further action. The Cultural Impact Study includes additional recommendations for preservation and protection. These items will be developed further and protected or enhanced as appropriate.

As stated previously both a natural forest preserve and an historical preservation area has been identified along with an interpretive center. Lava tubes and trails will also be protected to the maximum extent practicable. Additionally, we will continue to work with the advice of a cultural committee made up of local Kupuna who will advise the project on other items of significance.

2. *Curtails the range of beneficial uses of the environment;*

While any development closes off other options; the Hiluhilu Development intends to increase the range of beneficial uses of the environment by the community. This project will provide an increased housing stock, recreational uses, and above all, educational and cultural uses which will benefit the community.

The project will enhance protection and access to the native forest preserve and archaeological preserve. These resources are not currently accessible to the community.

**Chapter 7.0**  
Alternatives To The  
Proposed Actions

## 7.0 ALTERNATIVES TO THE PROPOSED ACTIONS

### 7.1 NO-ACTION ALTERNATIVE

The no action alternative for the residential and golf course components for this project would result in a lack of housing stock in an environment of increasing demand for housing and a lack of recreational opportunities from the absence of the golf course.

Shor-term and long-term employment opportunities will be forgone. Investment capital from the mainland will not arrive. Proposed Wellness facilities will not be built.

The positive dry forest and archaeological resources will not be managed because there will be no income from development to create the forest preserve, interpretive center, and archaeological preserves. These resources would slowly deteriorate from lack of management and protection.

The no action alternative would result in the continued use of the existing facilities at the Kealakekua Business Plaza which is a challenging learning environment for the UHCWH functions despite the conceptual plans and administrative approvals that are already in place for the creation of a permanent facility.

Continued use of the leased facilities at Kealakekua would hamper the growth of student enrollment at the UHCWH if there continues to be inadequate space for the instructional programs offered and additional programs planned. With no action, it would become increasingly difficult for the UHCWH to provide the diversity of courses and programs that are necessary to allow the West Hawaii work force to prepare and adapt to changing technology affecting job development and growth. The breadth and depth of programs and courses offered would be further compromised if a greater portion of the budget for the UHCWH must be allotted for lease rent as opposed to equipment, supplies, faculty, and staff.

The following inadequacies associated with the use of temporary facilities in Kealakekua for the UHCWH functions would be perpetuated with the no action alternative:

- ❖ Facilities for higher education would continue to be located considerably south of the geographic center of the West Hawaii region in an area that is not readily accessible via public transportation.
- ❖ The drive to the UHCWH would continue to require at least 40 minutes for more than half of the West Hawaii population.
- ❖ The UHCWH would continue to be sited within an existing commercial office center that does not afford the image or surroundings befitting an institution of higher education.
- ❖ An overall lack of centralization and cohesive organization of the UHCWH functions would prevail as the UHCWH continues to use the available spaces that are separated by federal, state, and county offices and private businesses.

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- ❖ Existing spaces utilized for the UHCWH programs and courses would continue to be under-sized, especially the classrooms, because the spaces in the commercial mall complex were not designed for this purpose.
- ❖ Support activities that require meeting spaces would continue to be held outdoors, at other locations or not at all due to the lack of ample and/or appropriate meeting areas within the Kealakekua Business Plaza.
- ❖ The educational experience would continue to worsen if classrooms are not soundproofed against the noise from commercial or business activities.
- ❖ The State of Hawaii would continue to pay lease rents because the land is not publicly owned.

Given the very marginal return of the land for conventional agriculture, there does not appear to be any prospect for starting ranching or any other active agricultural use of the property. The botanical study revealing the dry land forest area and presence of significant tree species outside that area complicates any efforts to clear land in the mauka parts of this property for agricultural use, especially for grazing.

#### 7.2 THE PROPOSED ACTION

The proposed Hiluhilu Development project creates a mixed use development that forms the northern node of the Kailua-Kona area. The implementation of the University campus, health care uses, commercial/retail uses, and the golf course will create a real community, not just a bedroom community.

Completion of the proposed action would create a permanent University Center along the Kau and Kalaoa sites. The proposed University Center and Village is intended to blend into the surrounding lava lands covered in scrub grass, small trees and shrubs. Proposed building forms would therefore be of a low-rise character. Building materials would mostly reflect the structure and color of the surrounding environment and the dominant character of pahoehoe lava.

The overall site plan for the University Center and Village reflects two main design themes: an entirely pedestrian-oriented campus and the integration of the campus area with important existing elements of a historical and cultural nature. To create the pedestrian-oriented campus, peripheral parking areas would be accessed via a curvilinear circumferential road. Buildings would be aligned along a main pedestrian mall oriented south to north roughly following the existing slope patterns of the area. The integration of historic and/or cultural elements would be exemplified in the creation of a central open space oriented perpendicular to the pedestrian mall. From an overall perspective, the campus would exude a strong visual connection extending from the campus entry in a mauka-makai direction to the slopes of Hualalai.

At completion, the project would exhibit the following design characteristics:

- ❖ Use of predominately one-story buildings in keeping with the low density development of University Center surroundings;
- ❖ Architectural and design elements that integrate the characteristics of the lava fields and natural vegetation within the University Center site;
- ❖ A central pedestrian mall;
- ❖ Parking on the perimeter of the project site for the purpose of keeping the interior portions of the site free for pedestrians;
- ❖ Landscaping in keeping with the natural surroundings of the site; and

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- ❖ Trails and interpretive signage that enhance the cultural experience and offer historical perspective;

The forest and archaeological preserves would be created ensuring the preservation of these resources and enhance the education of people about their value.

**7.3 ALTERNATIVE DESIGN SCENARIOS**

**Makalei Estates Expansion Alternative** One alternative is to have the Makalei Estates subdivision density expanded through the project site. This design alternative would have low density, 3-acre lots within the Kau ahupua'a with no golf course integrated with the subdivisions.

This alternative allows for only a single type of housing that does not serve the varied needs of today's diverse households. Moreover, this alternative does not integrate single and multi-family structures that would support a more diverse population and allow more equitable distribution of households of all income levels across the region.

This alternative will result in a lower overall density of the community, but will have less public and regional benefits because it will essentially be a bedroom community rather than a regional urban node for the Kailua-Kona area. Moreover, this development alternative will only cater to the wealthier population since it will only consist of 3-acre residential lots.

**Chapter 8.0**  
**Summary Of Unresolved Issues**

## 8.0 SUMMARY OF UNRESOLVED ISSUES

The consultation process for this project has yielded substantial input from government agencies, private interest groups, and individuals. The comments received from this Draft will be addressed in the Final EIS.

There are additional conclusions and technical questions related to the traffic impact resulting in serious mitigation and cost issues. Mitigation measures for the Queen Ka'ahumanu Highway section include installing a traffic signal system, and providing deceleration, left and right-turn lanes. The costs for these mitigative measures are still unresolved.

Hiluhilu Development is aware that additional concerns regarding the proposed project may arise in the future, particularly with respect to the preservation, integration, and interpretation of cultural resources. Hiluhilu Development, LLC will work with the State Historic Preservation Division (SHPD), interested government officials, area residents, administration and students of the UHCWH to ensure that the final project plans meet project objectives and are responsive to both public and agency concerns. The development of interpretive programs is being deferred until a later date to allow the students and staff of the UHCWH to become directly involved with those actions. The existence of cultural sites on the affected property provides the students and staff of the UHCWH with a unique opportunity to foster their understanding of traditional Hawaiian culture and history in an actual historical setting. Interpretive programs for each site will be coordinated with the SHPD for appropriate review and approval.

Regional coordination related to water issues is ongoing and the petitioner is working with DLNR, Board of Water Supply, and major landowners in the area.

Additional information on best management practices and integrated pest management policies for golf course management will be implemented.

An additional consultant report pertaining to cave fauna will be incorporated into the final EIS.

The parameters of a preservation plan for the Dry Forest area is another issue to address during this process. Once the project infrastructure is completed, there are several potential impacts to the sites that may occur in the future. These impacts include, but may not be limited to, damage to sites during construction of nearby homes; removal of surface rock from site features for landscaping efforts by homeowners; unintentional disturbance to site features by curious visitors, especially children; and intentional destruction of site features and deposits, by artifact collectors or vandals. Another impact is the continued deterioration of the sites due to natural processes, especially destructive vegetation growth within and on the architectural features of dry-laid stone. These issues can be addressed in the Covenants, Conditions and Restrictions (CC&Rs), which is discussed in more detail in Chapter 6.0. Hiluhilu Development LLC can work with the Homeowners' Association (HOA) to draft these CC&Rs to establish preservation/conservation easements for environmental, archaeological, and cultural areas on this property. The creation of the dry mesic forest preserve is a positive.

**Chapter 9.0**  
Required Approvals And Permits

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## 9.0 REQUIRED APPROVALS AND PERMITS

This section includes a description of the required approvals and permits to implement the Hiluhilu Development. The necessary entitlements include approvals from several state, and county agencies and entities. All necessary ministerial permits such as grading and building will be obtained prior to construction.

Permit or Approval	Authority
Land Use Boundary Amendment	State of Hawaii Land Use Commission
Wastewater Treatment Facility and Irrigation with Treated Effluent	State of Hawaii Department of Health
Highway entrance from Queen Ka'ahumanu Highway	State Department of Transportation
Subdivision and Plan Approvals	Hawaii County Planning Department
Water Source and Distribution System	Hawaii County Department of Water Supply
Building and Grading Permits	Hawaii County Department of Public Works
Rezoning	Hawaii County Planning Department
National Pollutant Discharge Elimination System (NPDES) permit	Hawaii Department of Health
Brackish and Potable Wells Permit	Water Resources Management

**Chapter 10.0**  
References

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**Chapter 11.0**  
Parties Consulted During The  
Preparation Of The Draft  
Environmental Impact Statement

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**11.0 PARTIES CONSULTED DURING THE PREPARATION OF  
 THE DRAFT ENVIRONMENTAL IMPACT STATEMENT**

This section lists the agencies, organizations, and individuals that were either sent the Environmental Impact Statement Notice of Preparation and/or this Draft Environmental Impact Statement (DEIS). A (✓) in the Received DEIS indicates that the DEIS was mailed to the party. The table also indicates which organizations and individuals provided comment letters to the EISPN. The comments and response letters are included in this section.

**11.1 FEDERAL GOVERNMENT**

	Rec'd EISPN	Comments Rec'd	Rec'd DEIS	Comments Rec'd
U.S. Department of the Interior, Fish & Wildlife Services	✓		✓	

**11.2 STATE OF HAWAII**

Department of Agriculture			✓	
Department of Accounting and General Services	✓	✓		
Department of Business, Economic Development, and Tourism (DEBDT)	✓	✓	✓	
DEBDT- Energy, Resources, and Technology Division			✓	
DEBDT- Office of State Planning	✓		✓	
Department of Defense	✓	✓	✓	
Department of Hawaiian Homelands	✓	✓	✓	
Department of Health (DOH)	✓	✓	✓	
DOH Clean Water Branch				
DOH Environmental Planning Office				
Department of Land and Natural Resources (DLNR)	✓		✓	
DLNR- State Historic Preservation Division	✓		✓	
Department of Transportation	✓		✓	
Office of Hawaiian Affairs	✓	✓	✓	
Office of Environmental Quality and Control	✓		✓	
Office of Hawaiian Affairs	✓	✓	✓	
UH Environmental Center (4)			✓	
University of Hawaii			✓	
UH Water Resources Research Center			✓	
Land Use Commission			✓	

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**11.3 COUNTY OF HAWAII**

Department of Parks and Recreation	✓	✓	✓	
Department of Public Works	✓		✓	
Department of Water Supply	✓		✓	
Office of Housing and Community Development	✓		✓	
Planning Department	✓	✓	✓	

**11.4 ELECTED OFFICIALS**


**11.5 ORGANIZATIONS AND INDIVIDUALS**

Bonnie Bator and Ohana	✓	✓	✓	

**11.6 MEDIA**

Honolulu Advertiser			✓	
Honolulu Star-Bulletin			✓	

**Chapter 12.0**  
Preparers Of The EIS

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12.0 PREPARERS OF THE EIS

This environmental impact statement was prepared for the applicant, the Hiluhilu Development LLC, by Group 70 International, Inc. The following list identifies the individuals and organizations involved in the preparation of this EIS and their respective contributions.

Group International, Inc.

Francis Oda, AIA, AICP	Conceptual Master Plan
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Barry Neal  
Yoichi Ebisu  
Yusuf Tamimi  
Clive Jones, KBCG & THK  
Waimea Water Services, Inc.  
Roger Harris  
Island Advisors  
Keauhou Kona Construction Corporation  
Nakamoto, Okamoto & Yamamoto

Technical Area

Civil Engineer  
Botanical Studies & Wildlife  
Resources (Flora & Fauna)  
Archaeology  
Ethnology  
Traffic  
Air Quality  
Noise  
Soil  
Market Feasibility  
Water  
Planning  
Project Management  
Planning  
Legal

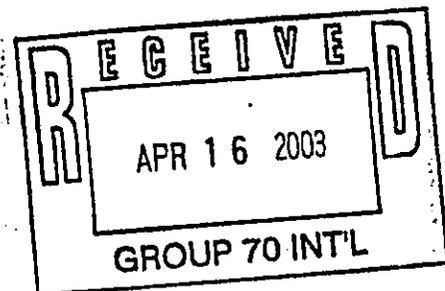
**Hiluhilu DEIS  
Response Letters**

PHONE (808) 594-1888

FAX (808) 594-1865



**STATE OF HAWAII**  
**OFFICE OF HAWAIIAN AFFAIRS**  
711 KAPI'OLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813



April 14, 2003

Mr. George Atta  
Chief Community Planner  
Group 70 International, Inc.  
925 Bethel Street - 5<sup>th</sup> Floor  
Honolulu, HI 96813-4307

**SUBJECT:        PROPOSED COMMUNITY - NORTH OF KONA  
INTERNATIONAL AIRPORT - EISPN**

Dear Mr. Atta:

Thank you for the opportunity to review the above referenced proposal for the development of approximately 725.2 acres for residential units, a university village center and an 18-hole golf course.

The Office of Hawaiian Affairs (OHA) has no comments at this point in time, but would encourage that you contact potentially interested stakeholders who should be able to provide you with information on the culture and history of the site of your project. There are a number of organizations to include the local Hawaiian Civic Clubs as well as local chapters of the royal societies. You might also wish contacting the following:

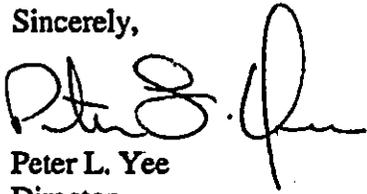
- Ms. Ruby McDonald  
OHA Community Affairs Coordinator  
75-5706 Hanama Place - Suite 107  
Kailua-Kona, HI 96740  
(808) 329-7368
- Hawaii County Native Hawaiian Chamber of Commerce  
80 Pauahi Street - Suite 209  
Hilo, HI 96720
- Kohanaiki 'Ohana  
P.O. Box 4753  
Kailua-Kona, HI 96745  
(808) 325-0844

Mr. George Atta  
April 14, 2003  
Page Two

Ms. Hannah Kihalani Springer, former OHA Trustee is very knowledgeable about the history and cultural aspects of the property you are considering. You may obtain a contact number for her from Ms. McDonald.

If you have any questions, please contact Jerry B. Norris at 594-1847 or email him at [jerryn@oha.org](mailto:jerryn@oha.org).

Sincerely,



Peter L. Yee  
Director  
Nationhood and Native Rights Division

cc: Ms. Genevieve Salmonson, OEQC

June 16, 2003

Mr. Peter L. Yee, Director  
State of Hawaii  
Office of Hawaiian Affairs  
Nationhood and Native Rights Division  
711 Kapi'olani Blvd., Suite 500  
Honolulu, HI 96813

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Mr. Yee:

Thank you for your letter of April 14, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. Stakeholders: The list of potentially interested stakeholders in your letter will be contacted during the DEIS process.

Your comments and this response letter will be included in the DEIS. We will forward you a copy of the Draft EIS for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,



George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Roger Harris  
Alan Okamoto

LINDA LINGLE  
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
225 SOUTH BERTANA STREET  
SUITE 702  
HONOLULU, HAWAII 96813  
Telephone (808) 586-4186  
Facsimile (808) 586-4188  
Email: deqc@hawaii.gov

April 30, 2003

Anthony Ching  
Land Use Commission  
PO Box 2359  
Honolulu, HI 96804

Attention: Russell Kumabe

Dear Mr. Ching:

Subject: Environmental Impact Statement (EIS) Preparation Notice  
Hiluhilu Development, North Kona

We have the following comments to offer:

**Figures:** Figure 2 includes written material that is illegible. In the draft EIS be sure the figures are clear and easy to read. Increase the size of the figures if required. Also on this figure indicate where the UH West Hawaii campus is in relation to Hiluhilu Development.

**Contacts:**

Section 7.2, *Agencies & Parties to be consulted*, does not include any community groups. Community consultation is an important element of the review process. If possible arrange for public presentations. It is also a good idea to notify county councilmembers, state representatives and state senators for this region about the project.

Document all contacts in the draft EIS, including those made during the scoping phase, and include copies of any correspondence.

**Visual impacts:** Identify public viewpoints of the project site from which visual impacts may occur, especially of mauka and makai viewplanes. Show these impacts by superimposing a rendering of the proposed facilities onto photographs taken from public vantage points.

**Cumulative impacts:** The Land Use Commission and the Hawaii County Planning Department should carefully consider the cumulative impact that this development will have on the region. The volume of development in Kona is substantial. Attached is a copy of our letter dated February

Anthony Ching  
April 30, 2003  
Page 2

4<sup>th</sup>, 2003 listing other development projects. Be sure this discussion is given adequate coverage in the draft EIS.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

*Genevieve Salmonson*  
GENEVIEVE SALMONSON  
Director

c: George Atta

June 16, 2003

Ms. Genevieve Salmonson, Director  
State of Hawaii  
Office of Environmental Quality Control  
235 S. Beretania Street, Suite 702  
Honolulu, HI 96813

**Subject: Hiluhilu Development  
EIS Preparation Notice**

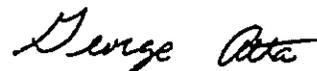
Dear Ms. Salmonson:

Thank you for your letter of April 30, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. **Figures:** We will ensure that all figures are legible in the Draft Environmental Impact Statement (DEIS).
2. **Contacts:** Some community groups and stakeholders have already been contacted and others will be added during the DEIS process. These contacts will all be documented and copies of these correspondences will be included in the DEIS.
3. **Visual Impacts:** Public viewpoints of the project site and mauka and makai viewplanes will be shown in the DEIS. Superimposed renderings of the proposed facilities onto photographs taken from public vantage points will also be included.
4. **Cumulative Impacts:** The OEQC letter dated February 4, 2003, listing other development projects in the region will be given adequate discussion in the DEIS.

Your comments and this response letter will be included in the DEIS. We will forward you a copy of the Draft EIS for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

  
George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Alan Okamoto  
Roger Harris

LINDA LINGLE  
BENJAMIN J. CAYETANO  
GOVERNOR

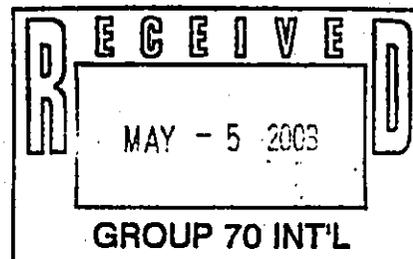


ANTHONY J.H. CHING  
EXECUTIVE OFFICER

**STATE OF HAWAII**  
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM  
**LAND USE COMMISSION**

P.O. Box 2359  
Honolulu, HI 96804-2359  
Telephone: 808-587-3822  
Fax: 808-587-3827

April 28, 2003



Mr. George Atta, AICP  
Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, HI 96813-4307

Dear Mr. Atta:

**Subject:** Environmental Impact Statement Preparation Notice ("EISPN")  
Hiluhilu Development  
TMK: (3) 7-2-5:001

This is to acknowledge receipt of your letter dated April 1, 2003, transmitting the subject EISPN.

Upon review of the EISPN, we understand that the Draft Environmental Impact Statement ("DEIS") will include more substantive assessments and technical studies, and we have the following comments to assist you in the preparation of the DEIS:

1. Regarding Section 1.3, Proposed Action, we recommend that the DEIS include a map that clearly shows the State Land Use Agricultural and Conservation Districts and their respective boundaries for the project area. We would like to point out when the Applicant submits a petition for district boundary amendment to the State Land Use Commission ("LUC" or "Commission"), we will require a full size survey map with metes and bounds that shows the districts and boundaries.

Mr. George Atta, AICP  
April 28, 2003  
Page 2

2. Regarding Section 2.1, Hiluhilu Development, we recommend the following for the DEIS:
  - Inclusion of the range of market prices for the proposed single-family units; and any alternative housing types that may be proposed and their impacts.
  - Clarification of the relationship of certain planned facilities in the project's commercial component with the University of Hawaii West Hawaii campus ("UHWH"), and discussion of planned coordinated activities between the project and the UHWH.
  - Clarification of Table 1, Land Use Development, of the Kau and UH profile information. The EISPN describes the subject project as the University Village, but the table distinguishes development between Kau and UH, which the University Village project crosses over both components.
  - Clarification if the proposed golf course area also would serve to accommodate regional drainage flows or other purposes beside recreational amenity.
  
3. Regarding Section 2.2, Development Schedule and Process, the DEIS should include a clearer discussion of the development schedule including: potential project phasing; the respective timeframe for the respective phases; and development alternatives.

The DEIS should also include more discussion of project funding such as the proposed sources of funding and if funding will be tied to project phasing.
  
4. Regarding Section 3.0, Project Setting, we recommend the following for the DEIS:
  - Section 3.1, Overview, should include more discussion of surrounding projects in the area such as the related housing developments associated with the UHWH development, the HELCO Keahole power plant and substation, nearby agricultural subdivisions, and the Natural Energy Laboratory of Hawaii and the Hawaii Ocean Science and Technology Park administered by the Natural Energy Laboratory of Hawaii Authority ("NELHA").

Mr. George Atta, AICP  
April 28, 2003  
Page 3

- Section 3.2, Terrestrial Conditions, should include assessment of potential impacts to near shore and coastal resources in the region such as the NELHA projects.
  - Section 3.3, Man-Made Environment, should include an archaeological inventory survey for the project, that would provide more substantive findings than an archaeological assessment; and the cultural assessment should include methodology and documentation verifying the proposed findings.
  - Section 3.4, Infrastructure and Utilities, should include the final technical studies; assessment of the cumulative impacts of other projects in the region upon infrastructure and utilities; and assessment of potential impacts of development alternatives, if applicable.
  - Section 3.5, Socio-Economic Conditions, should include assessments of cumulative impact such as other housing, commercial, and recreational projects and their market assessments.
  - Section 3.6, Cultural Impact Assessment, should include the methodology used to determine the proposed findings, especially in addressing PASH rights.
  - Section 3.7, Land Use Plans, Policies and Controls, should include the appropriate policies and objective of the Hawaii Coastal Zone Management Law or Chapter 205A, Hawaii Revised Statutes ("HRS"). Other permits or approvals needed would include any Department of Health ("DOH") environmental permits such as National Pollutant Discharge Elimination System permit ("NPDES"), Underground Injection Control ("UIC") wells, and other development related permits.
5. Regarding Section 4.0, Probable Impacts and Mitigation Measures, we recommend that the DEIS include the final studies, if possible, as referred to previously to support and verify the proposed findings.
6. Regarding Section 4.3, Significance Criteria, the DEIS should include assessment of cumulative impacts that extend beyond the project and the UHWH and include those aforementioned projects and activities.

Mr. George Atta, AICP

April 28, 2003

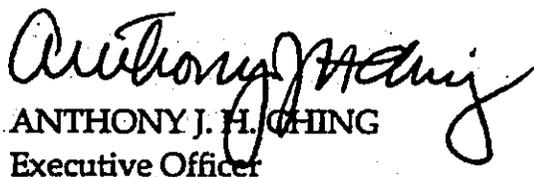
Page 4

7. Regarding Section 4.4, Reason For EIS, we would like to point out that the appropriate reference should be the proposed reclassification of any land in the Conservation District pursuant to Section 343-5 (7), HRS.
8. Regarding Section 5.2, Other Alternatives, the DEIS should include alternative development proposals such as multi-family or exclusion of either the housing, commercial, or recreational components of the project.
9. Regarding Section 7.2, Agencies & Parties To Be Consulted In Preparation of Draft EIS, we recommend including any community organizations in the area in addition to those agencies and organizations that is required by the Office of Environmental Quality Control, DOH.

We will reserve additional comments for the review of the DEIS.

Thank you for the opportunity to provide comment on the subject EISPN. Should you require clarification or further assistance in this matter, please contact Russell Kumabe of my staff at 587-3822.

Sincerely,

  
ANTHONY J. H. CHING  
Executive Officer

June 16, 2003

Mr. Anthony J.H. Ching  
Executive Officer  
State of Hawaii  
Land Use Commission  
P.O. Box 2359  
Honolulu, HI 96804-4307

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Mr. Ching:

Thank you for the letter of April 28, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. The Draft Environmental Impact Statement (DEIS) will include a map that clearly shows the State Land Use Agricultural and Conservation Districts and their respective boundaries for the project area. In addition, a full size survey map with metes and bounds showing the districts and boundaries will be included in the applicant's submittal for the Land Use District Boundary Amendment.
2. Regarding Section 2.1, Hiluhilu Development, the following will be included in the DEIS: The range of market prices for the proposed single-family units, alternative housing types that may be proposed, and their impacts. Clarification of the relationship of certain commercial planned facilities with the University of Hawaii West Hawaii (UHWH). Clarification of Table 1. Clarification of the golf course potentially serving and accommodating regional drainage flows or other purposes besides just serving as a recreational amenity. Certain sections of the golf course will serve as dry wells to serve as part of the stormwater drainage system.
3. Regarding Section 2.2, Development Schedule and Process, the DEIS will include a discussion of project phasing, the timeframe of the three phases, and development alternatives.
4. The following information will be included in Section 3.0, Project Setting, of the DEIS: Section 3.1, Overview, will include more discussion of surrounding projects in the area. Section 3.2, Terrestrial Conditions, will include an assessment of potential impacts to near shore and coastal resources in the region. Section 3.3, Man-Made Environment, will include an archaeological inventory survey, and a cultural assessment including methodology and documentation verifying the proposed findings. An inventory survey is currently being conducted. Section 3.4, Infrastructure and Utilities, will include the final technical studies, where available, assessment of the cumulative impacts of other projects in the region upon infrastructure and utilities, and an assessment of potential impacts of development

Letter to Mr. Anthony J.H. Ching  
June 16, 2003  
Page 2 of 2

alternatives. Section 3.5, Socio-Economic Conditions, will include assessments of cumulative impacts such as housing, commercial, recreational projects, and their market assessments. Section 3.6, Cultural Impact Assessment will include the methodology used to determine the proposed findings. PASH rights will be addressed. Section 3.7, Land Use Plans, Policies, and Controls, will include the appropriate policies and objectives of the Hawaii Coastal Zone Management Law, Chapter 205A, Hawaii Revised Statutes (HRS). Other permits and approvals that will be applied for include, Department of Health (DOH) environmental permits such as National Pollutant Discharge Elimination System (NPDES), Underground Injection Control (UIC) wells, and other development related permits.

5. Section 4.0, Probable Impacts and Mitigation Measures, the DEIS will include the final studies, as referred to previously, to support and verify the proposed findings.
6. In Section 4.3, Significance Criteria, the DEIS will include an assessment of the cumulative impacts that extend beyond the project and the UHWH and include the aforementioned projects in item 4 of this letter.
7. The proposed reclassification of any land in the Conservation District pursuant to Section 343-5 (7), HRS will be revised in Section 4.4, Reason for EIS.
8. In Section 5.2, Other Alternatives, the DEIS will include alternative development proposals, if applicable.
9. Section 7.2, Agencies and Parties to be Consulted in Preparation of the Draft EIS, will include community organizations in the area and any other potential stakeholders for this project.

Your comments and this response letter will be included in the DEIS. We appreciate your participation in the environmental review process.

Sincerely,

  
George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Alan Okamoto  
Roger Harris  
Clive Jones

May 7, 2003

To Hilo Hilo Development LLC  
att: Guido Giacometti

While the need for an expanded West Hawaii Campus for HCC + UH is clear, and supporting housing and services are indicated, a golf course is completely unacceptable. There is no need for another golf course. They are sources of coastal pollution and an unconscionable use of water and resources. It has nothing to do with higher education and doesn't contribute to a sustainable future. Please do not build another golf course!

Eden Pearl

CC: Group 70 Int'l & Co.  
925 Bethel 5th floor  
Honolulu, HI 96813  
att: George Atta

P.O. Box 926  
Naelehu, HI 96772

State Land Use Commission  
P.O. Box 2359  
Honolulu HI 96804-2359  
Contact Anthony Ching

Office of Environmental Quality Control  
235 S. Beretania suite 702  
Honolulu, HI 96813

June 16, 2003

Ms. Eden Pearl  
P.O. Box 926  
Naalehu, HI 96772

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Ms. Pearl:

Thank you for your letter of May 7, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. Your support for facilities related to the UH West Hawaii Campus and HCC facilities is appreciated.
2. We note your comments about the golf course and will provide a clearer description for our proposal in the Draft EIS to address specific issues.

Your comments and this response letter will be included in the DEIS. We will forward you a copy of the Draft EIS for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,



George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Roger Harris  
Alan Okamoto

Harry Kim  
Mayor



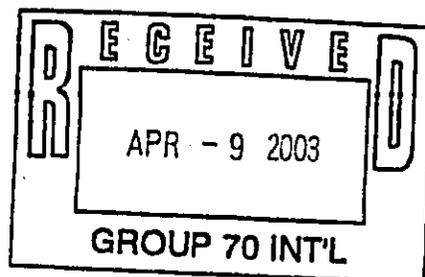
Patricia G. Engelhard  
Director

Pamela N. Mizuno  
Deputy Director

**County of Hawai'i**  
**DEPARTMENT OF PARKS AND RECREATION**  
101 Pauahi Street, Suite 6 • Hilo, Hawai'i 96720  
(808) 961-8311 • Fax (808) 961-8411

April 7, 2003

Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, HI 96813-4307



Attn: George Atta

Re: Hiluhilu Development, Kau, North Kona, Hawaii  
Environmental Impact Statement Preparation Notice (EISPN)  
TMK: (3) 7-2-05:01

Dear Mr. Atta:

Our review of the EISPN has raised the following questions:

1. Will the general public be allowed use of the golf course, performing arts and cultural facilities, and university-affiliated athletic fields?
2. Will any other recreational facilities, such as general use parks, playgrounds, etc., be developed for use by the general public?

Thank you for your anticipated response to the above and for the opportunity to provide input.

Sincerely,

A handwritten signature in cursive script, appearing to read "Pat Engelhard".  
Patricia Engelhard  
Director

cc OEQC

June 16, 2003

Ms. Patricia Engelhard  
County of Hawaii  
Department of Parks and Recreation  
101 Pauahi Street, Suite 6  
Hilo, HI 96720

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Ms. Engelhard:

Thank you for your letter of April 7, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. The Draft Environmental Impact Statement (DEIS) will address more specifically, the issue of the general public being allowed to use the golf course, performing arts and cultural facilities, and university-affiliated athletic fields.
2. In general, public facilities and open spaces in the Learning Village will be open to the public.
3. The accessibility of university related facilities will be determined by the university as the facilities are developed.
4. Other recreational facilities, such as general use parks and/or playgrounds, will be listed in the Summary chapter of the DEIS.

Your comments and this response letter will be included in the DEIS. We will forward you a copy of the Draft EIS for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,



George Atta, AICP  
Chief Community Planner

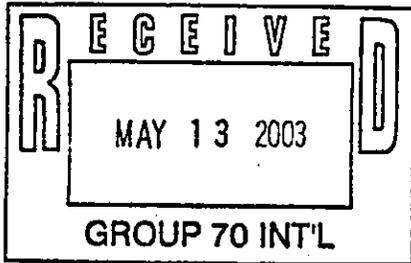
cc: Guido Giacometti  
Alan Okamoto  
Roger Harris

LINDA LINGLE  
GOVERNOR



RODNEY K. HARAGA  
DIRECTOR

Acting Deputy Director  
GLENN M. OKIMOTO



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

IN REPLY REFER TO:

STP 8.0757

May 9, 2003

Mr. George Atta, AICP  
Chief Community Planner  
Group 70 International  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813-4307

Dear Mr. Atta:

Subject: Hiluhilu Development  
Environmental Impact Statement Preparation Notice (EISPN)

In reply to your transmittal of the preparation notice, the following are our comments on the subject project:

1. A Traffic Impact Analysis Report (TIAR) should be prepared and submitted for our review and approval. The report should include analysis and discussion of each of the three (3) proposed access routes, including the intersection on Queen Kaahumanu Highway with the entrance access road to Kona International Airport at Keahole (KOA). Necessary roadway and intersection improvements for the mitigation of adverse traffic impacts caused by the development should be identified.

The TIAR should reflect the cumulative impacts of the entire planned development. The planned roadway operations, including collector roads running north or south (shown on Figure 2, Development Plan, in the EISPN) which may provide access to and from the development should be included in the analysis and discussion.

2. The subject development should be coordinated with adjacent developments.
3. The developer should construct all required roadway and intersection improvements at no cost to the State Department of Transportation.
4. The developer should be required to contribute to regional roadway improvements on a fair share basis.
5. Plans for construction within the State highway right-of-ways must be submitted for our review and approval.

Mr. George Atta, AICP  
Page 2  
May 9, 2003

STP 8.0757

6. Although the subject development is outside of the KOA airport noise exposure contours, the developer should be aware that overflights can occur from aircraft utilizing the airport.
7. The developer should submit Federal Aviation Administration (FAA) Form 7460-1, Notice of Proposed Construction or Alteration, so that the FAA can evaluate if there are any impacts to the airspace in the vicinity of KOA airport from the subject development.

We appreciate the opportunity to provide comments.

Very truly yours,

  
RODNEY K. HARAGA  
Director of Transportation

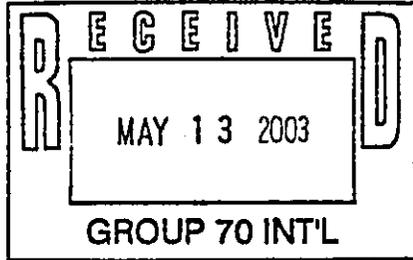
c: Genevieve Salmonson, OEQC

LINDA LINGLE  
GOVERNOR



RODNEY K. HARAGA  
DIRECTOR

Acting Deputy Director  
GLENN M. OKIMOTO



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

IN REPLY REFER TO:

STP 8.0757

May 9, 2003

Mr. George Atta, AICP  
Chief Community Planner  
Group 70 International  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813-4307

Dear Mr. Atta:

**Subject: Hiluhilu Development  
Environmental Impact Statement Preparation Notice (EISPN)**

In reply to your transmittal of the preparation notice, the following are our comments on the subject project:

1. A Traffic Impact Analysis Report (TIAR) should be prepared and submitted for our review and approval. The report should include analysis and discussion of each of the three (3) proposed access routes, including the intersection on Queen Kaahumanu Highway with the entrance access road to Kona International Airport at Keahole (KOA). Necessary roadway and intersection improvements for the mitigation of adverse traffic impacts caused by the development should be identified.

The TIAR should reflect the cumulative impacts of the entire planned development. The planned roadway operations, including collector roads running north or south (shown on Figure 2, Development Plan, in the EISPN) which may provide access to and from the development should be included in the analysis and discussion.

2. The subject development should be coordinated with adjacent developments.
3. The developer should construct all required roadway and intersection improvements at no cost to the State Department of Transportation.
4. The developer should be required to contribute to regional roadway improvements on a fair share basis.
5. Plans for construction within the State highway right-of-ways must be submitted for our review and approval.

Mr. George Atta, AICP  
Page 2  
May 9, 2003

STP 8.0757

6. Although the subject development is outside of the KOA airport noise exposure contours, the developer should be aware that overflights can occur from aircraft utilizing the airport.
7. The developer should submit Federal Aviation Administration (FAA) Form 7460-1, Notice of Proposed Construction or Alteration, so that the FAA can evaluate if there are any impacts to the airspace in the vicinity of KOA airport from the subject development.

We appreciate the opportunity to provide comments.

Very truly yours,



RODNEY K. HARAGA  
Director of Transportation

c: Genevieve Salmonson, OEQC

June 16, 2003

Mr. Rodney K. Haraga  
Director  
State of Hawaii  
Department of Transportation  
869 Punchbowl Street  
Honolulu, HI 96813-4307

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Mr. Haraga:

Thank you for the letter of May 9, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. The Traffic Impact Analysis Report (TIAR) will include discussion and analysis of each of the three proposed access routes including the intersection on Queen Ka'ahumanu Highway with the entrance access road to Kona International Airport at Keahole (KOA).

The TIAR will reflect the cumulative impacts of the entire planned development.

2. Where practicable, we have been coordinating with the UH and Makalei Estates. We are also starting regional coordination on water issues with public agencies and other large landowners. We will continue this approach throughout the development process.
3. The construction of all required roadway and intersection improvements at no cost to the State DOT will be discussed in the Transportation section of the DEIS.
4. Contribution to the regional roadway improvements on a fair share basis will be addressed in the DEIS.
5. Plans for construction within State highway right-of-ways will be submitted for your review and approval.
6. The developer does realize that overflights can occur from aircraft utilizing the KOA airport and the noise section of the DEIS will address this issue.
7. The developer will submit a Federal Aviation Administration (FAA) Form 7460-1, Notice of Proposed Construction or Alteration regarding any probable impacts to the airspace in the vicinity of KOA airport from the subject development.

Letter to Mr. Rodney K. Haraga  
June 16, 2003  
Page 2 of 2

Your comments and this response letter will be included in the DEIS. We appreciate your participation in the environmental review process.

Sincerely,



George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Alan Okamoto  
Roger Harris  
Keith Niya

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

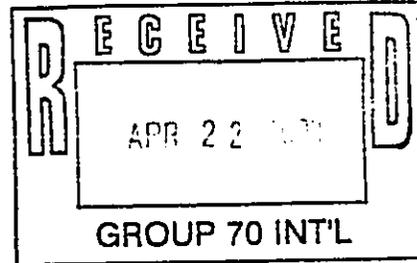
LINDA LINGLE  
GOVERNOR OF HAWAII



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

April 17, 2003

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



In reply, please refer to:  
EMD / CWB

04035PKP.03

Mr. George Atta, AICP  
Chief Community Planner  
Group 70 International  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813-4307

Dear Mr. Atta:

**Subject: Hiluhilu Development  
Environmental Impact Statement Preparation Notice (EISPN)  
Ahupuaa of Kau, North Kona Judicial District, Island of Hawaii  
TMK: 3-7-2-5-1**

The Department of Health, Clean Water Branch (CWB) has reviewed the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...."
2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:
  - a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).
  - b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the commencement of the construction activities.
  - c. Discharge of treated effluent from leaking underground storage tank remedial activities.

Mr. George Atta  
April 17, 2003  
Page 2

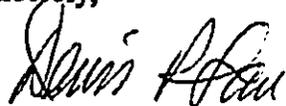
- d. Discharge of once through cooling water less than one (1) million gallons per day;
- e. Discharge of hydrotesting water.
- f. Discharge of construction dewatering effluent.
- g. Discharge of treated effluent from petroleum bulk stations and terminals.
- h. Discharge of treated effluent from well drilling activities.
- i. Discharges of treated effluent from recycled water distribution systems.
- j. Discharges of storm water from a small municipal separate storm sewer system.
- k. Discharge of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at <http://www.state.hi.us/doh/eh/cwb/forms/genl-index.html>.

- 3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. discharge enters Class 1 or Class AA waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at <http://www.state.hi.us/doh/eh/cwb/forms/indiv-index.html>.
- 4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD) or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. Please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

If you have any questions, please contact the CWB at 586-4309.

Sincerely,

  
DENIS R. LAU, P.E., CHIEF  
Clean Water Branch

KP:ndp

June 16, 2003

Mr. Denis R. Lau, P.E., Chief  
State of Hawai'i  
Department of Health  
Clean Water Branch  
P.O. Box 3378  
Honolulu, HI 96801-3378

**Subject: Hiluhilu Development  
EIS Preparation Notice**

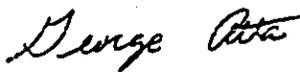
Dear Mr. Lau:

Thank you for the letter of April 17, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. The Army Corps of Engineers will be contacted to determine whether a 401 permit and 401 Water Quality Certification are required for this project.
2. We acknowledge that a National Pollutant Discharge Elimination System (NPDES) general permit is required for the activities listed in your letter as the list is broad and generic, we will review our activities and comply where required.
3. We also understand that an individual NPDES permit may be required if wastewater is discharged from the project site into State waters. However, we do not anticipate this occurring.
4. Pursuant to Hawai'i Administrative Rules, Section 11-55-38, a copy of the Notice of Intent (NOI) or NPDES request for review will be submitted to the State Historic Preservation Division (SHPD).

Your comments and this response letter will be included in the DEIS. We appreciate your participation in the environmental review process. Please contact me if you have any further questions or comments.

Sincerely,



George Atta, AICP  
Chief Community Planner

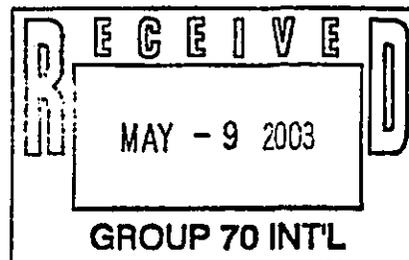
cc: Guido Giacometti  
Alan Okamoto  
Roger Harris

LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

PATRICIA HAMAMOT  
SUPERINTENDENT



OFFICE OF ADMINISTRATIVE SERVICES

May 7, 2003

Mr. George Atta  
Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> floor  
Honolulu, Hawaii 96813-4307

Dear Mr. Atta:

Subject: Hiluhilu Development  
Environmental Impact Statement Preparation Notice (EISPN)  
Kau, North Kona, Hawaii TMK: 7-2-05: 01

The Department of Education (DOE) has reviewed the EISPN for the Hiluhilu Development LLC (Petitioner) master plan community called University Village in North Kona. The proposed community will include approximately 765 residential units, including some student housing. The location of an additional 200 units of housing for students, faculty, and staff is mentioned but it is unclear whether those units are within the petition area or not.

The DOE will request that the Petitioner make a fair-share contribution to the schools that will serve the residents of University Village. The DOE does not require a fair-share payment for housing that has written prohibitions against children under the age of 18. Contribution amounts are set by the fair-share formula in place at the time that a developer and the DOE settle on an educational contribution agreement.

Thank you for the opportunity to review the University Village plans. We look forward to reviewing the Draft Environmental Impact Statement.

Should you have any questions, please call Ms. Heidi Meeker of our branch at 733-4862.

Sincerely yours,

Raynor M. Minami, Director  
Facilities and Support Services Branch

RMM:hy

cc: Rae M. Loui, OAS  
Genevieve Salmonson, OEQC

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

June 16, 2003

Mr. Raynor M. Minami, Director  
State of Hawai'i  
Department of Education  
Facilities and Support Services Branch  
P.O. Box 2360  
Honolulu, HI 96804

**Subject: Hiluhilu Development  
EIS Preparation Notice**

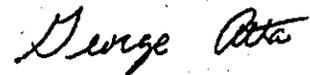
Dear Mr. Minami:

Thank you for the letter of May 7, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. The fair-share contribution to the schools that will serve the residents of University Village will be discussed in the Draft Environmental Impact Statement (DEIS). The petitioner will contact the DOE to settle on an educational contribution agreement.

Your comments and this response letter will be included in the DEIS. We appreciate your participation in the environmental review process.

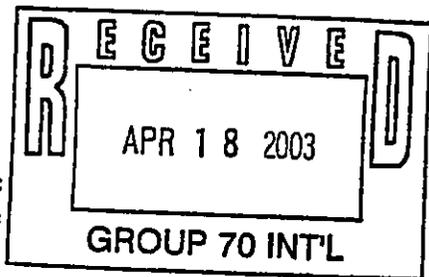
Sincerely,



George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Roger Harris  
Alan Okamoto

LINDA LINGLE  
GOVERNOR  
STATE OF HAWAII



MICAH A. KANE  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION

BEN HENDERSON  
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK  
HHL EXECUTIVE ASSISTANT

STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879  
HONOLULU, HAWAII 96805

April 16, 2003

Mr. George Atta, AICP  
Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813-4307

Dear Mr. Atta:

Thank you for providing a copy of the Environmental Impact Statement Preparation Notice for the proposed Hiluhilu Development on 725 acres (TMK 7-2-05:01) in the ahupua'a of Kau in North Kona on the island of Hawaii.

The Department of Hawaiian Home Lands (DHHL) has 483 acres of lands nearby in the ahupua'a of Kalaoa. We would appreciate being included for future consultations in preparation of the Draft Environmental Impact Statement for your Hiluhilu Development project.

The Highways Division of the State Department of Transportation should also be consulted regarding long-range plans for access via the Queen Ka'ahumanu Highway.

If you have any questions, please call Joe Chu of our Planning Office at 587-6421.

Aloha and mahalo,

  
Micah A. Kane, Chairman  
Hawaiian Homes Commission

c: Office of Environmental Quality Control

June 16, 2003

Mr. Micah Kane  
State of Hawaii  
Department of Hawaiian Home Lands  
P.O. Box 1879  
Honolulu, HI 96805

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Mr. Kane:

Thank you for your letter of April 16, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. The Department of Hawaiian Homelands (DHHL), will be included for future consultations in preparation of the Draft Environmental Impact Statement (DEIS).
2. We have consulted with the Highways Division of the State Department of Transportation regarding long-range plans for access via the Queen Ka'ahumanu Highway. We expect ongoing discussions on this issue.

Your comments and this response letter will be included in the DEIS. We will forward you a copy of the Draft EIS for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

  
George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Roger Harris  
Alan Okamoto



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT, AND TOURISM**

Energy, Resources, and Technology Division  
235 South Beretania Street, Laloopapa A Kamehameha Bldg., 5th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804-2359  
Web site: [www.hawaii.gov/abed/ert](http://www.hawaii.gov/abed/ert)

LINDA LINGLE  
Governor  
THEODORE E. LIU  
Director  
RAYMOND M. JEFFERSON  
Deputy Director

Telephone: (808) 587-3807  
Fax: (808) 587-3820

April 7, 2003

Group 70 International, Inc.  
925 Bethel St., 5<sup>th</sup> Floor  
Honolulu, HI 96813-4307  
Attn: George Atta

Dear Mr. Atta:

Subject: Hiluhilu Development  
Environmental Impact Statement Preparation Notice (EISPN)  
Ahupuaa of Kau, North Kona Judicial District, Island of  
Hawaii  
Tax Map Key: 3-7-2-5-1

In response to your April 1, 2003, notice, we wish to be a consulted party in the preparation of the Draft Environmental Impact Statement (DEIS) for the Hiluhilu Development.

Sincerely,

Maurice H. Kaya  
Chief Technology Officer

Enclosures

c: OEQC

June 16, 2003

Mr. Maurice H. Kaya  
Chief Technology Officer  
State of Hawaii  
Department of Business, Economic Development,  
And Tourism  
235 S. Beretania Street, 5<sup>th</sup> Floor  
Honolulu, HI 96813

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Mr. Kaya:

Thank you for your letter of April 7, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development.

We will forward you a copy of the Draft EIS for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,



George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Roger Harris  
Alan Okamoto

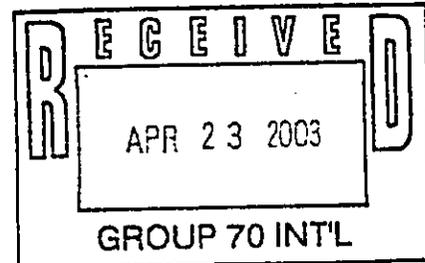
LINDA LINGLE  
GOVERNOR



RUSS K. SAITO  
COMPTROLLER  
KATHERINE H. THOMASON  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P.O. BOX 119, HONOLULU, HAWAII 96810

(P)1133.3



APR 22 2003

Mr. George Atta, Chief Community Planner  
Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813

Dear Mr. Atta:

Subject: Hiluhilu Development  
Environmental Impact Statement Preparation Notice (EISPN)  
Ahupuaa of Kau, North Kona Judicial District, Island of Hawaii  
TMK: 3-7-2-5:1

Thank you for the opportunity to review the subject project's Environmental Impact Statement Preparation Notice (EISPN). The project does not impact any of the Department of Accounting and General Services' projects or existing facilities. Therefore, we have no comments to offer.

If there are any questions regarding the above, please have your staff call Mr. David DePonte of the Planning Branch at 586-0492.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tadashi Yoshizawa".

TADASHI YOSHIZAWA  
Acting Public Works Administrator

DD:jo  
c: Ms. Genevieve Salmonson, OEQC

June 16, 2003

Mr. Tadashi Yoshizawa  
State of Hawaii  
Department of Accounting and General Services  
P.O. Box 119  
Honolulu, HI 96810

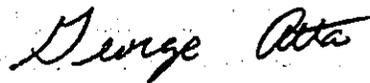
**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Mr. Yoshizawa:

Thank you for your letter of April 22, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development.

We will forward you a copy of the Draft EIS for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,



George Atta, AICP  
Chief Community Planner

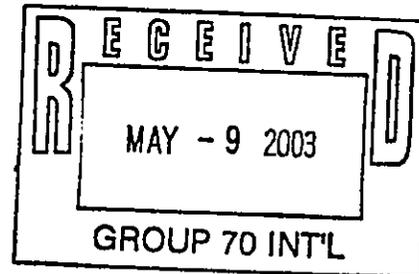
cc: Guido Giacometti  
Roger Harris  
Alan Okamoto

P.O. Box 565  
Kurtistown, Hawai'i 96760

28 April 2003

Hiluhilu Development  
c/o Group 70 International  
925 Bethel Street ~ 5<sup>th</sup> Floor  
Honolulu, Hawai'i 96813  
Contact: Guido Giacometti

Re: *Environmental Impact Statement (EIS) ~ TMK: 7-2-05:01*  
*Conservation District Land*  
*725.2 Acres ~ Ahupua'a of Ka'u*



Dear Sir or Madam and To Whom it May Concern:

Aloha! This correspondence is representative of myself, 'Ohana Members, and numerous interested parties— We are opposed to the use of conservation district lands for *Hiluhilu Development LLC*, in their proposal to construct commercial areas, a 18-hole golf course, and residential units in said 25.2 acres of land in North Kona.

Reclassification of these conservation lands, currently in *Conservation* and *Agricultural District* designation to *Urban District Designation* is unacceptable. Please reject approval an Environmental Impact Statement on the intent of *Hiluhilu Development LLC*.

Potential long-term impacts on surrounding areas will immense—it would behoove the State Land Use Commission to deny reclassification of these lands. Presently, North Kona has enough *Commercial Areas*, *Golf Courses*, and *Residential Units*. It is extremely important to retain land held in *Conservation* and *Agricultural Land Use Designations*.

Urban sprawl that envelops North Kona is already a major dilemma—constraint concerning unbridled development is overdue. On behalf of various residents, associates and 'Ohana members I implore those in the decision making processes to keep the lands in question in their current land use designation.

Thank you, for your time, we look forward to a response—additionally to be put on the mailing list to be kept abreast of Environmental Impact Statement (*EIS*) protocol.

Sincerely with ALOHA,  
*Bonnie P. Bator & 'Ohana*  
Bonnie P. Bator and 'Ohana

C: State Land Use Commission  
P.O. Box 2359  
Honolulu, Hawai'i 96804-2359  
Contact: Anthony Ching

Group 70 International, Inc.  
925 Bethel Street ~ 5<sup>th</sup> Floor  
Honolulu, Hawai'i 96813  
Contact: George Atta

Office of Environmental Quality Control  
235 S. Beretania Street  
Leiopapa A Kamehameha ~ Suite 702  
Honolulu, Hawai'i 96813

June 16, 2003

Ms. Bonnie P. Bator and 'Ohana  
P.O. Box 565  
Kurtistown, HI 96760

**Subject: Hiluhilu Development  
EIS Preparation Notice**

Dear Ms. Bator:

Thank you for the letter of April 28, 2003 regarding your review of the Environmental Impact Statement Notice of Preparation (EISPN) for the Hiluhilu Development. The following are offered in response to your comments:

1. Your discussion of the reclassification of conservation lands and potential long-term impacts of the proposed development will be addressed in the Draft Environmental Impact Statement (DEIS).

Your comments and this response letter will be included in the DEIS. You will be contacted regarding any EIS updates for this project. We appreciate your participation in the environmental review process.

Sincerely,



George Atta, AICP  
Chief Community Planner

cc: Guido Giacometti  
Roger Harris  
Alan Okamoto