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GOVERNOR
STATE OF HAWAII

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EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

February 27, 2007

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

SUBJECT: Finding of No Significant Impact (FONSI) for DHHL Waimanalo Residence Lots, TMK 4-1-08:10, 11, 81, 91 and 92, and 4-1-23:65, Koolaupoko, Oahu, Hawaii

Dear Ms. Salmonson:

The State of Hawaii, Department of Hawaiian Home Lands has reviewed the comments received during the 30-day public comment period which began on November 8, 2006. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the March 23, 2007 OEQC Environmental Notice.

We have enclosed the following items:

1. Four copies of the Final EA, and

2. Completed publication form (also to be emailed).

If you have any questions regarding the project, please call Darrell Ing of our Land Development Division at 586-3844.

Aloha and mahalo,

Ben Henderson

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: PBR Hawaii

Waimānalo Residence Lots, Kumuhau and Kakaina Streets Parcels

Final Environmental Assessment

Prepared by:

PBR HAWAII

January 2007

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1.0

Introduction

1.0 INTRODUCTION

1.1 PROJECT SUMMARY

The following summary describes the project location, existing entitlements, and proposed actions:

Project Name:	Kumuhau and Kakaina Streets Parcels
Location:	Waimānalo, Oʻahu, Hawaiʻi (Figure 1)
Landowner:	State of Hawaiʻi, Department of Hawaiian Home Lands (DHHL) State of Hawaiʻi, Department of Land and Natural Resources (DLNR)
Applicant:	State of Hawaiʻi, Department of Hawaiian Home Lands
Tax Map Key:	4-1-08: 10, 11, 81, 91, and 92 and 4-1-23: 65 (Figure 2)
Land Area:	Approximately 19.52 acres
Existing Use:	Agricultural and vacant land (Figure 3)
Proposed Use:	Single-family residential lots (Figure 4)
Land Use Designations:	State Land Use - Urban and Agricultural (Figure 5) Koʻolaupoko Sustainable Communities Plan - Low Density Residential (Figure 6) City and County of Honolulu Zoning - Restricted Agricultural (Figure 7)
Action Requested:	Use of State lands and funds for the development of 120 single-family residential lots for DHHL beneficiaries
Accepting Authority:	Department of Hawaiian Home Lands, State of Hawaiʻi
Determination:	Finding of No Significant Impact (FONSI)

1.2 PROPOSING AGENCY

In accordance with Section 343-5(b), *Hawaii Revised Statutes* (HRS), whenever an agency proposes the use of State lands, that agency shall prepare an environmental assessment for such action at the earliest practicable time to determine whether an environmental impact statement shall be required.

To identify the appropriate uses for the study area, the Department of Hawaiian Home Lands (DHHL) has contracted PBR HAWAII to prepare an environmental assessment in compliance with Chapter 343, HRS. The DHHL is the proposing agency for this project. The mailing address and primary contact person for the DHHL is listed below:

Mr. Darrell Ing
State of Hawai'i
Department of Hawaiian Home Lands
Land Development Division
P.O. Box 1879
Honolulu, Hawai'i 96805
Phone: 808.587.6451
Fax: 808.586.3923

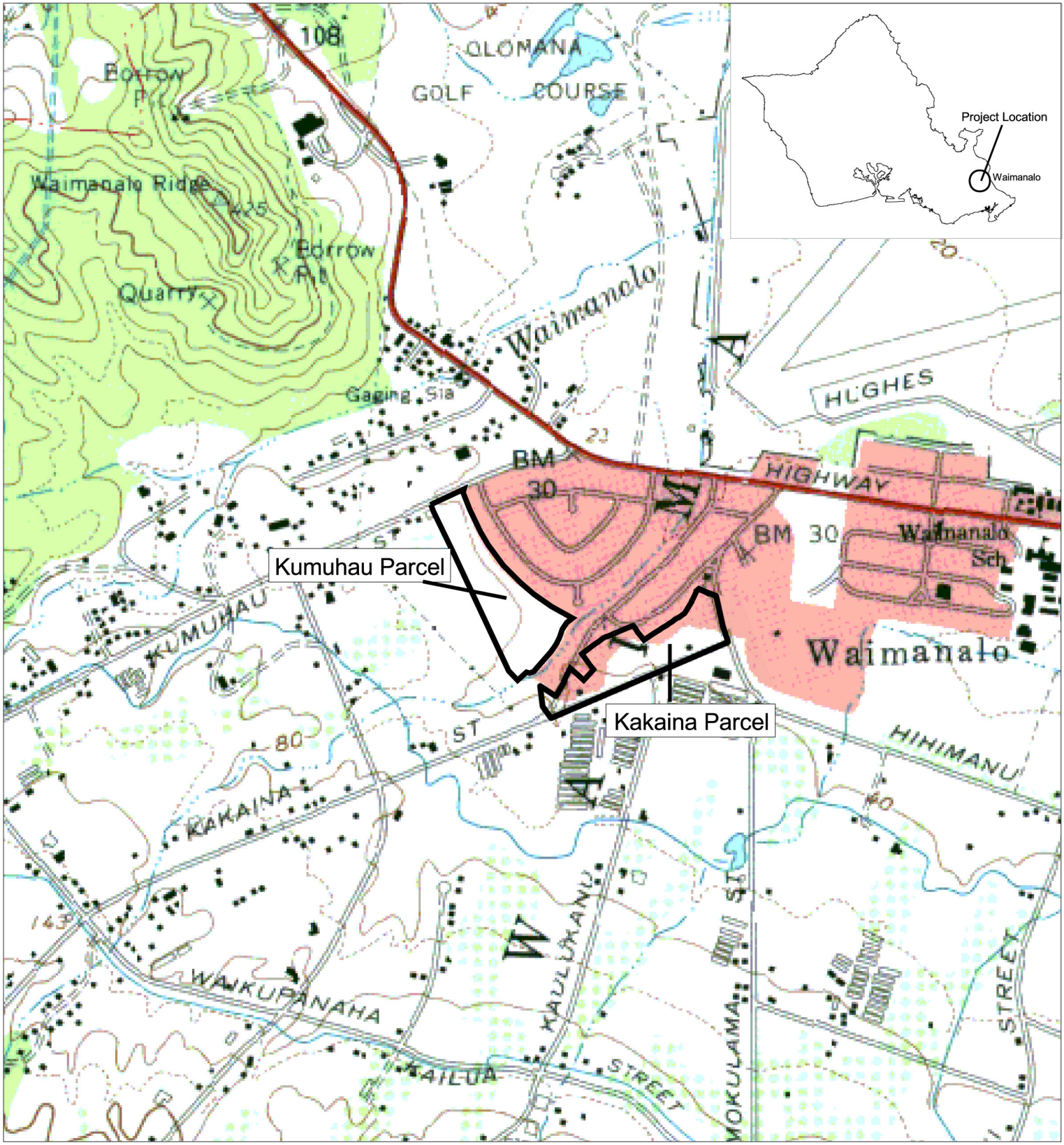
1.3 OWNERSHIP AND MAJOR APPROVALS REQUIRED

The DHHL is the landowner of the Kumuhau parcel and is in the process of having the Kakaina parcel conveyed to its inventory from the Department of Land and Natural Resources (DLNR). The DHHL is also the agency preparing this environmental assessment and applicant for the applicable entitlements. Primary approval from the State will be acceptance of the environmental disclosure documents in accordance with Chapter 343, HRS.

1.4 DESCRIPTION OF THE PROPERTY

The project sites are located in Waimānalo, O'ahu, within the City and County of Honolulu Ko'olaupoko District (Figure 1). The properties are located near the base of the Ko'olau Mountain range and are accessed from Kumuhau Street and Kakaina Street, through Kalaniana'ole Highway. The properties are identified as TMK: 4-1-08:10, 11, 81, 91 and 92 and 4-1-23:65, and contain approximately 19.52 acres (Figure 2). The sites generally range from 39 to 41 feet mean sea level (MSL) in elevation. The sites are located within approximately two miles of the ocean fronting Waimānalo Beach Park.

While the Kumuhau parcel is mostly open, presently, two residential dwellings, garage, farm equipment work sheds, and processing structures are located on the properties. The land is currently under a month-to-month revocable permit and is used for farming. The site has minor electrical and domestic water service.



Legend

Project Boundary Line

Figure 1
Location Map

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

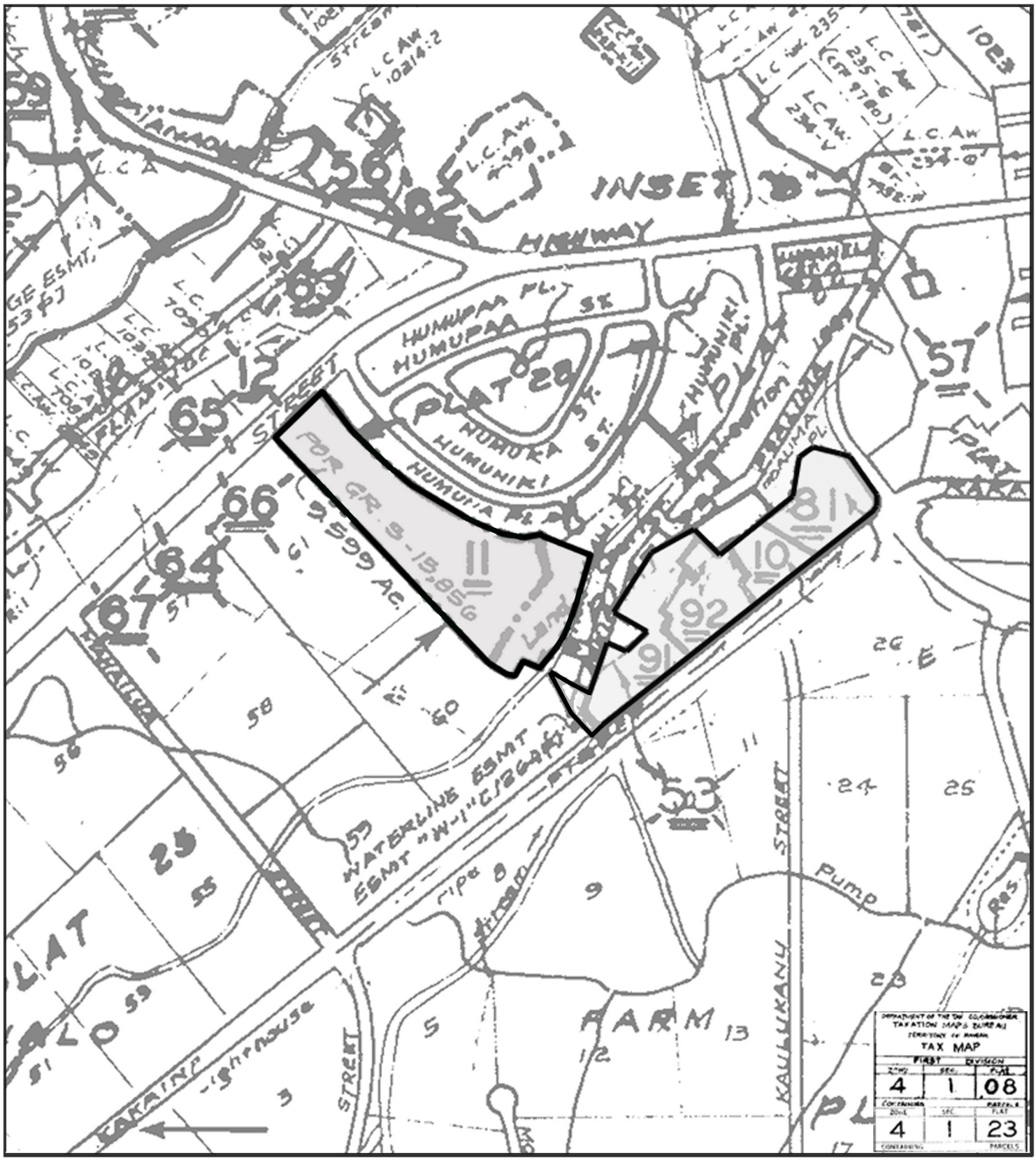
Department of Hawaiian Home Lands — ISLAND OF OAHU

NORTH

LINEAR SCALE (FEET)
0 250 500 1,000 2,000

PBR HAWAII

Source: USGS Topographic Map
Disclaimer: This graphic has been prepared for general planning purposes only



Legend

Project Boundary Line

Figure 2
Tax Map Key

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands

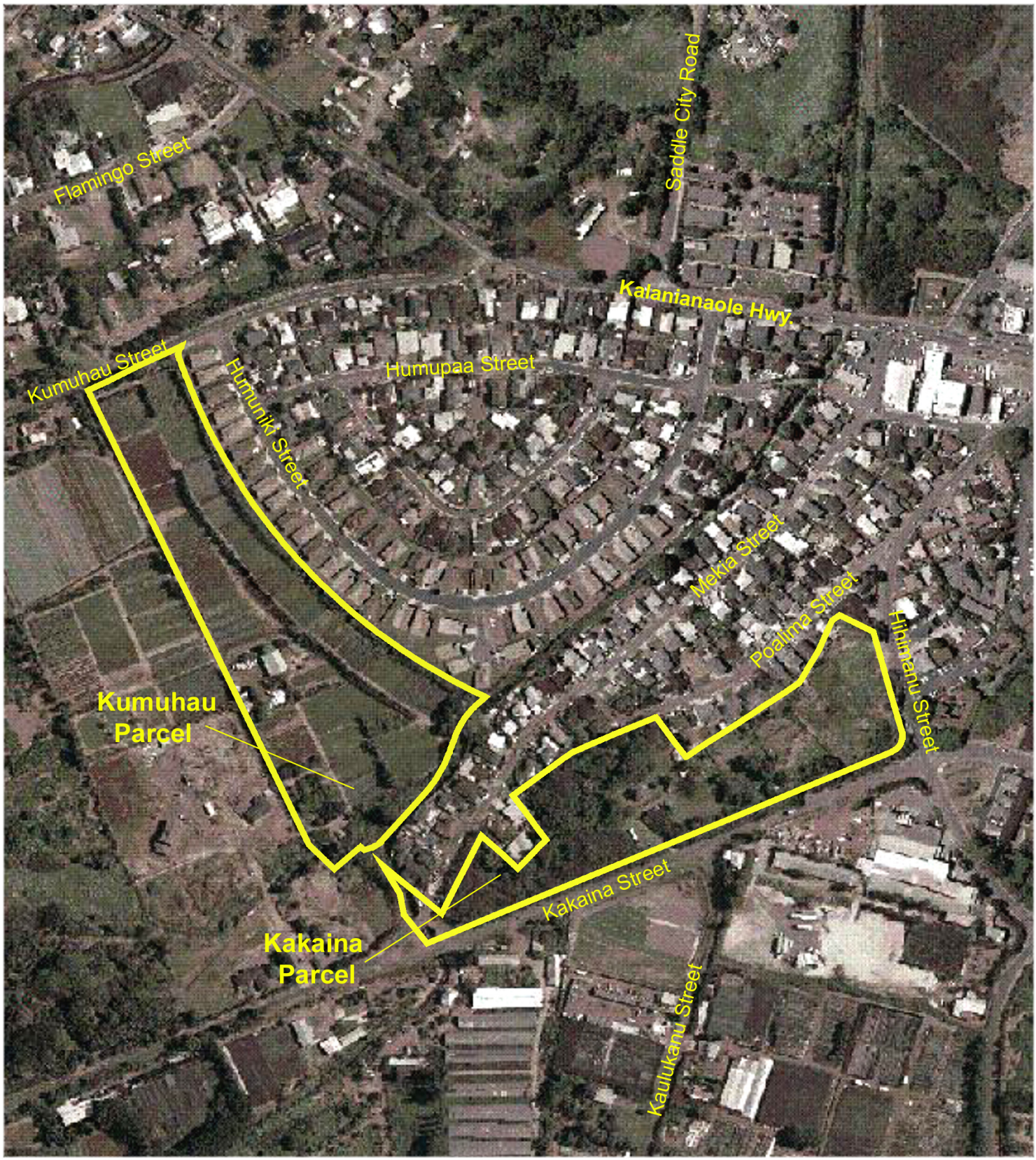
ISLAND OF OAHU

NORTH

NOT TO SCALE

PBR HAWAII

Source: City & County of Honolulu
Disclaimer: This graphic has been prepared for general planning purposes only.



Legend

Project Boundary

Figure 3
Aerial Photograph

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands — ISLAND OF OAHU

NORTH

NOT TO SCALE

Source: U.S. Geological Survey

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

PBR HAWAII

Legend

Project Boundary

Figure 4
Proposed Subdivision Development Plan

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

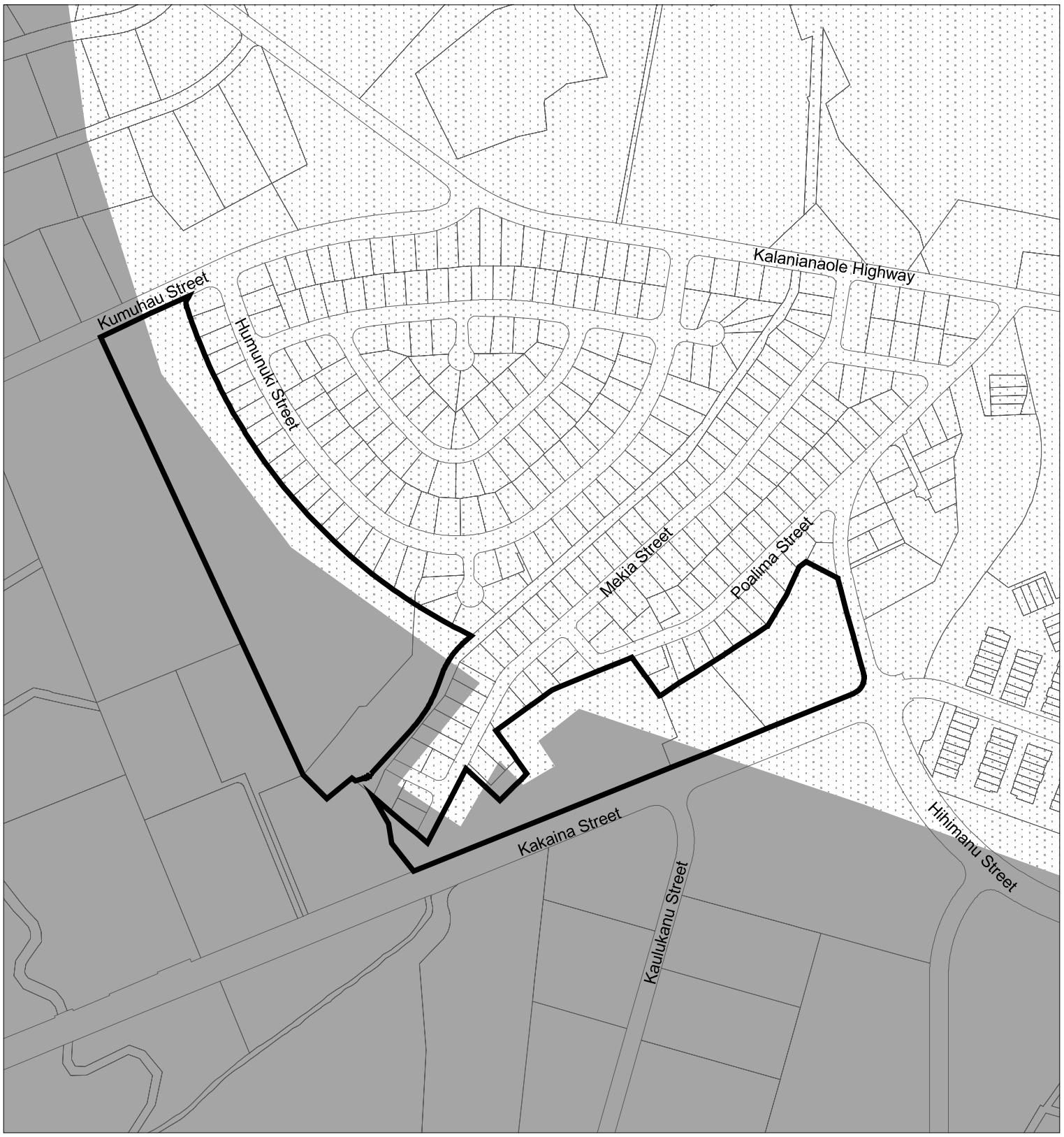
Department of Hawaiian Home Lands — ISLAND OF OAHU

NORTH

NOT TO SCALE

PBR HAWAII

Source: Akinaka & Associates, LTD. Oct 2006
Disclaimer: This graphic has been prepared for general planning purposes only



Legend

- Project Boundary Line
- Agricultural District
- Urban District

Figure 5

State Land Use Map

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands — ISLAND OF OAHU

NORTH

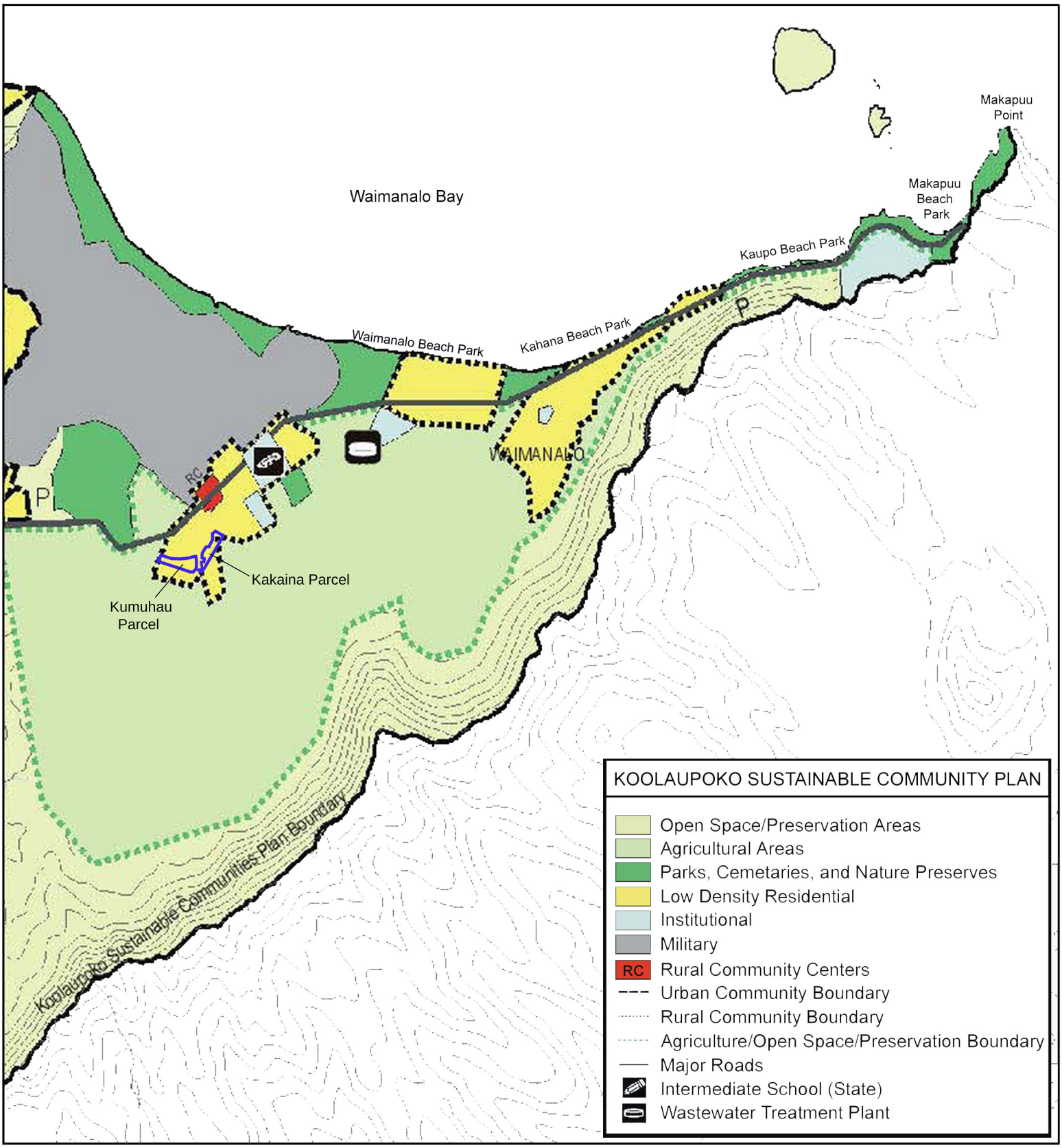
LINEAR SCALE (FEET)

0 95 190 380 760

PBR HAWAII

Source: State Land Use Commission

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



Legend

Project Boundary Line

Figure 6

Ko'olaupoko Sustainable Community Plan

Waimanalo Residence Lots Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands

ISLAND OF OAHU

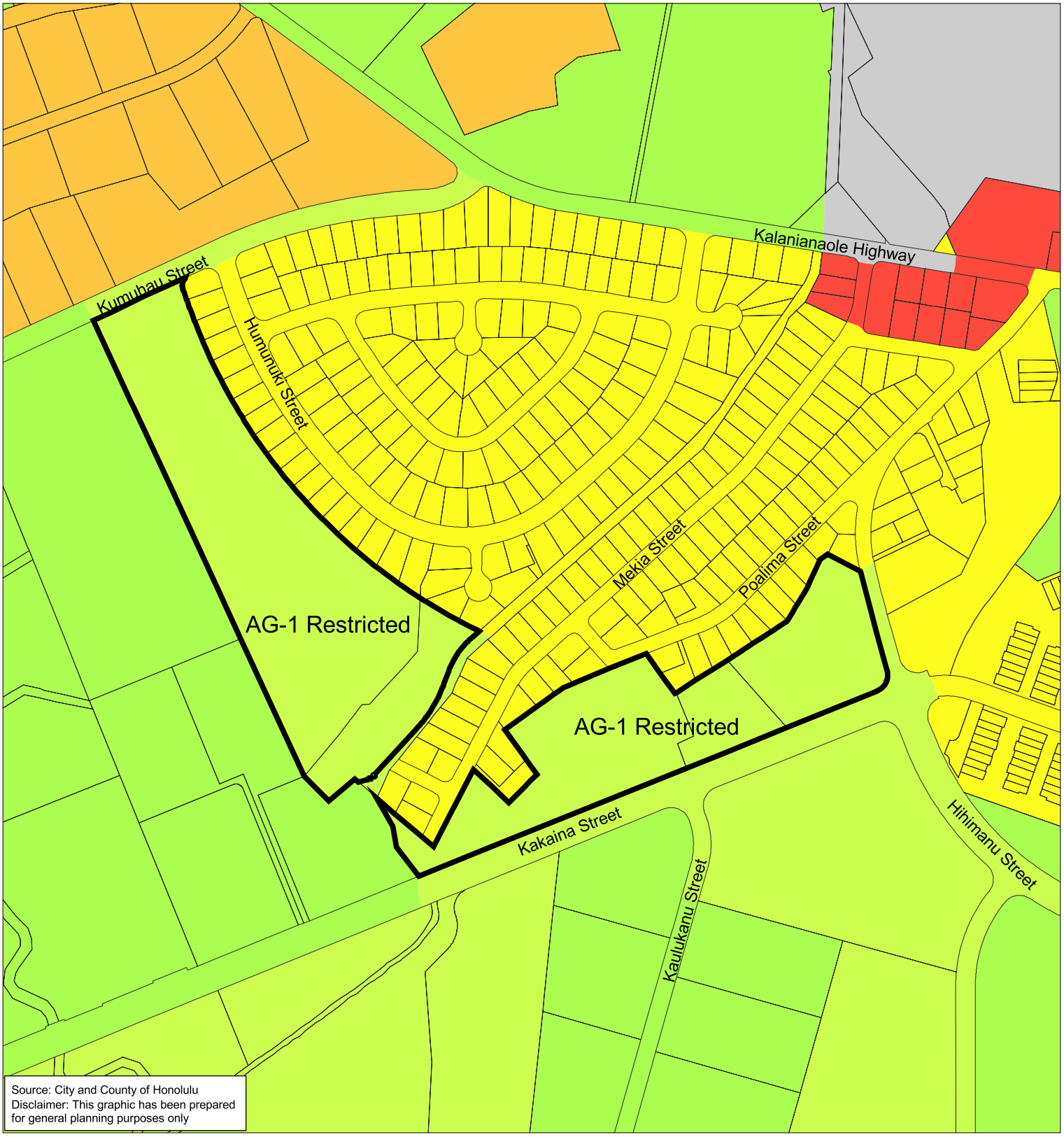
NORTH

NOT TO SCALE

PBR HAWAII

Source: City and County of Honolulu

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



Legend

- Project Boundary Line
- R-5 Residential
- B-1 Neighborhood Business
- AG-1 Restricted
- AG-2 General
- Country
- P-2 General
- F-1 Military and Federal

Figure 7

Zoning Map

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands

ISLAND OF OAHU

NORTH

LINEAR SCALE (FEET)

0 95 190 380 760

PBR HAWAII

The Kakaina parcel is vacant and unencumbered.

1.5 SURROUNDING LAND USES

The Koʻolaupoko district is characterized by a combination of urban, rural, and agricultural uses. The Kumuhau project site is bounded to the north by Kumuhau Street, to the east by the Humuniki Street residential development, to the south by a Kahawai Stream, and to the west by agricultural land. The Kakaina lot is bounded by Kakaina Street to the south, by the Poalima Street residential development to the north, Hihimanu Street to the east, and Mekia Street to the west.

Retail shops, restaurants, U.S. Post Office, and Waimānalo Beach Park are located east of the site. Waimānalo consists of many DHHL land awards which support truck farms and single-family residences. Other land uses in the surrounding area include non-DHHL residential subdivisions, family farms, Waimānalo Elementary & Intermediate School, and the Waimānalo Wastewater Treatment Plant (WWTP).

1.6 BACKGROUND

The mission of the DHHL is to manage the Hawaiian Home Lands trust effectively and develop and deliver land to native Hawaiians[1]. The DHHL manages a land trust consisting of 202,782 acres of land on Hawai'i, Maui, Molokaʻi, Oʻahu, Lānaʻi, and Kauaʻi. The DHHL proposes to develop the Waimānalo Residence Lots, Kumuhau and Kakaina parcels, on an approximately 19.52-acre property in Waimānalo on the island of Oʻahu. The proposed action will be implemented under the provisions of the Hawaiian Homes Commission Act (HHCA), 1920, as amended. The HHCA authorizes the DHHL to lease to native Hawaiians the right to use and occupy Hawaiian Home Lands for agricultural, pastoral, and residential purposes, and to grant licenses to public utilities and others for various purposes. In accordance with the HHCA, Hawaiian Home Lands are not subject to zoning or other land use controls by the State or County.

DHHL provides direct benefits to native Hawaiians in the form of 99-year homestead leases at an annual rental of $1 for residential, agricultural or pastoral purposes. The intent of the homestead program is to encourage and support economic self-sufficiency of native Hawaiians through the provision of land. Other benefits provided by the HHCA include financial assistance through direct loans or loan guarantees for home construction, home replacement or repair, and for the development of farms and ranches; technical assistance to farmers and ranchers, and the operation of water systems.

[1] In this report, a lower case "n" is used in the phrase "native Hawaiian" when referring to Hawaiian Homes Commission Act beneficiaries, who by definition must have 50 percent Hawaiian ancestry in order to qualify. The upper case "N" is used when more generally describing persons with any percentage of Hawaiian ancestry, as for Federal programs regarding health and education.

In addition to administering the homestead program, DHHL is also authorized to lease land and issue revocable permits, licenses and rights-of-entry for lands not in homestead use. Land within the Kumuhau parcel is currently leased for agricultural use under a month-to-month revocable permit. Revenues from lands in commercial, industrial, and other income-producing uses support homestead development activities.

The DHHL Waimānalo Residence Lots involve the development of 19.52 acres (providing 120 residential lots) for single-family residential use. Infrastructure improvements required for the proposed project include the construction of access and circulation roadways, water transmission facilities, drainage systems, connections to the Waimānalo Wastewater Treatment Plant, and electrical/communication systems to service the proposed development.

2.0

Description of the Project

2.0 DESCRIPTION OF THE PROJECT

2.1 PROJECT GOALS AND OBJECTIVES

The objective of this project is to provide 120 single family residential lots for native Hawaiians.

2.2 NEED FOR THE PROJECT

According to the *DHHL Applicant Survey, 2003* (SMS 2004), there has been a 57 percent increase in applicants for homesteads since 1995. Based on indicated preferences and focus groups, most applicants are looking to the DHHL to provide them with housing solutions. Of the three types of land awards (pastoral, agricultural, and residential), newer applicants have mostly applied for residential only or agricultural and residential land. Residential only applications have increased by 98 percent since 1995.

At the end of fiscal year of 2004-2005, there were 8,054 residential and 2,469 agricultural homestead applications for Hawaiian Home Lands on O'ahu. Based on location preference indicated in the 2004 SMS applicant survey, the highest demand for land in O'ahu was for the Windward area.

In 2000, approximately 40 percent of O'ahu applicants were below the 80 percent median income guidelines established by the U.S. Department of Housing and Urban Development (HUD), making home ownership difficult to impossible. The Waimānalo Residence Lots will help to meet the growing demand for residential land by providing much needed single-family lots for native Hawaiians. The project will also help to ease the statewide shortage of housing, as residences will become available to the general population once DHHL beneficiaries move to their homestead lots.

2.3 KEY ELEMENTS OF THE CONCEPTUAL PLAN

The project site is approximately 19.52 acres, and the proposed Waimānalo Residence Lots will include 120 single-family residential lots (5,000-square-foot minimum) and paved roadways (Figure 4). In support of the development, infrastructure facilities to be expanded or improved include access and circulation roadways, drainage systems, water distribution lines, connections to the wastewater treatment plant, and electrical/communication systems. In accordance with the HHCA 1920, as amended, Hawaiian Home Lands are not subject to land use controls by the State or County. However, the DHHL fully intends to develop its land by providing affordable housing in a clean and safe environment with the improvements, including water, sewer, and drainage, installed in conformance with State and County standards.

2.3.1 Site Development

The final layout and configuration of the proposed Waimānalo Residence Lots will be refined through the planning, engineering, and design process to ensure that long-range use of the property will be consistent with surrounding land uses. Where appropriate, guidelines for sustainable building design will be considered. The 19.52-acre Waimānalo Residence Lots will provide 120 single-family residential lots that are a minimum of 5,000 square feet in size (Figure 4).

2.4 INFRASTRUCTURE IMPROVEMENTS

Construction of the proposed Waimānalo Residence Lots will begin with the development of necessary infrastructure facilities, after the construction plans are approved and the applicable governmental permits are issued.

On-site Improvements. Presently, two residential dwellings, garage, farm equipment work sheds, and processing structures are located on the properties. The Kumuhau parcel is currently under a month-to-month revocable permit, and is used for farming. The Kakaina parcel is vacant and unencumbered. The site has minor electrical and domestic water service.

The roadways that will be used to access the Waimānalo Residence Lots are Kumuhau, Hihimanu, Poalima and Kakaina Streets, which provides the closest major transportation access to Kalaniana'ole Highway. DHHL proposes that access and utility services in Kakaina Subdivision be provided by a paved roadway with a 44-foot wide right-of-way. Access and utility services in Kumuhau Subdivision are proposed to be provided by a paved roadway with a 48-foot wide right-of-way. New on-site infrastructure will be required, including facilities for water transmission and distribution, drainage, electrical systems, and communication systems. Connection to the wastewater treatment plant will be installed, and sewer lines will also be installed for future connection to the Waimānalo Wastewater Treatment Plant (WWTP). Subdivision occupancy is dependent on expansion of the Waimānalo WWTP.

Off-site Improvements. Kumuhau Street provides access to the Kumuhau Parcel and also functions as the utility corridor. Near the site, there are overhead electrical and telephone lines and underground drain, water, and sewer lines. These utilities provide service to the Humuniki Subdivision of 150 single-family residences.

Kumuhau Street is 60 feet wide from its intersection with Kalaniana'ole Highway, to its intersection with Humuniki Street. After Humuniki Street, Kumuhau Street narrows to 40 feet in width. DHHL proposes that Kumuhau Street be widened to 60 feet along the frontage of the project site to match the existing eastern section of Kumuhau Street. The widened section along the frontage of the project site will have a concrete sidewalk on the southeast side of Kumuhau Street.

For the Kakaina Parcel, intersection improvements for Poalima and Hihimanu Streets are to be made when connecting to existing utilities. Proposed improvements include: concrete curbs and gutters on both sides of the road. The unrecorded extension of Mekia Street which intersects Kakaina Street will be re-designed and constructed to be in conformance with County standards.

There is a 12-inch water line along Kumuhau Street that will be extended to provide domestic service and fire protection to the Waimānalo Residence Lots. There is also an existing 8" water line in Kakaina Street. Water service has not been researched to date in Hihimanu and Poalima Streets. The existing primary and secondary electrical line located on Kumuhau Street provides power for the Humuniki Subdivision and subsequent residences along Kumuhau Street. All telecommunications infrastructure (i.e., underground conduit, handholes, and cabling) will be installed by Sandwich Isle Communication, Inc. (SIC) at no cost to the DHHL. SIC will install the fiber optic network from existing networks through Kumuhau, Hihimanu and Poalima streets. All improvements will be designed in accordance with the applicable standards of the County, State, and public utilities companies.

2.4.1 Water Supply and Distribution

The proposed water system within the subdivisions includes 8-inch water lines, fire hydrants, and a water service lateral for each lot. According to the Board of Water Supply letter dated September 18, 2006, the existing water system is adequate to accommodate the proposed development.

2.4.2 Wastewater Collection and Transmission

The Waimānalo Wastewater Treatment Plant (WWTP) is currently at capacity and there is a moratorium on new connections to the system. Construction is underway to upgrade the plant and increase capacity. It appears that upgrades to the WWTP will be completed before the start of construction of on-site infrastructure improvements. From the existing sewer main on Kumuhau, Poalima and Hihimanu streets, sewer lines will be built into project roadways for the municipal sewage system.

2.4.3 Drainage Facilities

There are 18-inch drain lines present along Kumuhau, Poalima and Hihimanu streets. These drain lines are currently at capacity.

The on-site drainage system proposed includes new catch basins, drain manholes, a drain outlet source and drain lines. The drain lines will transport the runoff to the outlet structures closest to Kahawai Stream. Silt will be filtered out of the runoff before it is discharged into Kahawai Stream. Discharges to Kahawai Stream would not be significantly increased over the existing conditions.

2.4.4 Transportation Improvements

The Waimānalo Residence Lots have three existing access points onto Kalaniana'ole Highway, Kumuhau, Poalima, and Mekia streets. There will be an internal network of roadways constructed to serve these subdivisions. The proposed roadways will comply with City and County of Honolulu roadway standards and will be paved with concrete curbs, gutters, sidewalks, and planter strips on both sides of the road. Parking will be allowed only on one side of the street.

2.5 PHASING AND TIMING OF ACTION

The current schedule includes engineering for Summer 2006 through Fall 2007, site construction at Kumuhau for Summer 2007 through Spring 2008, and site construction at Kakaina for Summer 2008 through Spring 2009.

3.0

Relationship to Plans and Policies

3.0 RELATIONSHIP TO PLANS AND POLICIES

3.1 CHAPTER 343, HAWAII REVISED STATUTES

This Environmental Assessment is prepared pursuant to Chapter 343, HRS and Section 11-200-4, HAR, which states that, "the governor, or an authorized representative, whenever an action proposes the use of state lands or the use of state funds, or, whenever a state agency proposes an action within section 11-200-6(b) shall be the final authority to accept an environmental impact statement."

The proposed project requires the use of State lands and funds, and the Chairman of the Hawaiian Homes Commission as the Governor's designated representative, will be the Accepting Authority for the *Waimānalo Residence Lots Environmental Assessment*.

Upon publication of this Draft Environmental Assessment (Draft EA) in the Office of Environmental Quality Control (OEQC) *The Environmental Notice*, a 30-day review period will commence for the Draft EA. All comments and applicable responses will be provided in the Final EA.

3.1.1 Chapter 205, Hawaii Revised Statutes – State Land Use Law

The State Land Use Law establishes the Land Use Commission (LUC) and gives this body the authority to designate all lands in the State into one of four districts: Urban, Rural, Agricultural, or Conservation. The two subdivisions are "split-zoned" with various portions of each subdivision within the Agricultural and Urban Districts. In accordance with the HHCA, Hawaiian Home Lands are not subject to land use controls by the State or County. However, the DHHL fully intends to develop its land by providing affordable housing in a clean and safe environment with the improvements, including water, sewer, and drainage, installed in conformance with appropriate State and County standards.

3.1.2 Chapter 226, Hawaii Revised Statutes – Hawaii State Plan

The *Hawaii State Plan* serves as a guide for the future long-range development of the State; identifies goals, objectives, policies, and priorities for the State; provides a basis for determining priorities and allocating limited resources, such as public funds, services, human resources, land, energy, water, and other resources; improves coordination of Federal, State, and County plans, policies, programs, projects, and regulatory activities; and establishes a system for plan formulation and program coordination to integrate all major State and County activities. Sections of the *Hawaii State Plan* applicable to the Waimānalo Residence Lots project are discussed in the following pages.

Section 226-4 State goals:

In order to guarantee, for present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self determination, it shall be the goal of the State to achieve:

(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations.
(2) 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.
(3) Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.

Discussion: The proposed Waimānalo Residence Lots, Kumuhau and Kakaina parcels, will help present and future generations of native Hawaiians reach their desired level of self-reliance by providing home ownership opportunities (with homestead lease). The project will also benefit the State by easing the shortage of housing as beneficiaries vacate residences in the open market and move onto homestead lots. The economy will also be supported through this project, which will provide numerous construction-related employment opportunities. Additional residents will increase the retail market for area businesses.

Section 226-5 Objective and policies for population:

(a) It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter.
(b) To achieve the population objective, it shall be the policy of this State to:
  (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.
  (3) Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.
  (7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.

Discussion: The DHHL Waimānalo Residence Lots project is consistent with these objectives and policies by helping to satisfy the housing demand of a growing population and providing native Hawaiians with residential lots (with homestead lease). Socio-economic opportunities for Hawai‘i’s people will be offered through the project, which will provide new land ownership opportunities.

Section 226-11 Objectives and policies for the physical environment – land-based, shoreline, and marine resources:

(a) Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives.

(2) Effective protection of Hawaii's unique and fragile environmental resources.

(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:

(1) Exercise an overall conservation ethic in the use of Hawaii's natural resources.

(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.

(3) Take into account the physical attributes of areas when planning and designing activities and facilities.

(4) 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: This EA identifies the physical, archaeological, and cultural attributes of the Waimānalo Residence Lots site. Several surveys of the site were conducted, and features such as slope, soil, streams and drainage, and fauna were identified. Potential impacts resulting from the project have been identified throughout this EA, which also reports on proposed mitigation measures. Proposed drainage improvements will better control runoff and erosion (compared to existing conditions under which the land is used for agriculture). Since the Waimānalo Residence Lots project is located approximately two miles away from Waimānalo Beach, it is not expected to have a significant impact on coastal or marine resources. No wetlands were identified on the project sites.

Section 226-12 Objective and policies for the 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 historic resources.

(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 areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.

(5) Encourage the design of developments and activities that complement the natural beauty of the islands.

Discussion: As further discussed in Sections 4.8, 4.9 and 5.1, no particularly unique or special habitat features essential to native wildlife and no historic resources were discovered on the site. The proposed use of the site for the Waimānalo Residence Lots project should not have a significant negative impact on the botanical or wildlife resources. The vegetation at the site is dominated by introduced species, and the U.S. Fish and Wildlife Service has not designated any critical habitat areas within the Waimānalo Residence Lots.

Section 226-15 Objectives and policies for facility systems – solid and liquid wastes:

(a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards achievement of the following objectives:

(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.

Discussion: Solid waste generated by the DHHL Waimānalo Residence Lots project will be transferred to the City's Honolulu Program of Waste Energy Recovery (H-POWER) plant. Once upgraded, the Waimānalo Wastewater Treatment Plant (WWTP) is expected to accommodate projected flows from the site. Sewer lines will be installed in project roadways for connection to the Waimānalo WWTP.

Section 226-16 Objective and policies for facility systems – water:

(a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.

(b) To achieve the facility systems water objective, it shall be the policy of this State to:

(1) Coordinate development of land use activities with existing and potential water supply.

Discussion: Potable water will be supplied by the Board of Water Supply (BWS) distribution system. All applicable governmental regulations will be observed to ensure the public's safety and health.

Section 226-19 Objectives and policies for socio-cultural advancement – housing:

(a) Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:

(1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawaii's population.

(2) The orderly development of residential areas sensitive to community needs and other land uses.

(b) To achieve the housing objectives, it shall be the policy of this State to:

(1) Effectively accommodate the housing needs of Hawaii's people.

(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.
(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.
(7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.

Discussion: The DHHL Waimānalo Residence Lots development will provide native Hawaiians with single family residential lots under a homestead lease. As beneficiaries move out of their current residences and into Waimānalo Residence Lots, the vacated units will become available to the general public, helping to ease the statewide shortage of housing. This project proposes the development of single-family lots that will be designed to reflect the character of existing adjacent residential neighborhoods of Waimānalo.

Section 226-52 Statewide planning system:

(a) The statewide planning system shall consist of the following policies, plans, and programs:
(2) The priority guidelines established in this chapter shall provide guidelines for decision-making by the State and the counties for the immediate future and set priorities for the allocation of resources. The formulation and amendment of state functional plans shall be in conformance with the priority guidelines.
(b) The statewide planning system shall also consist of several implementation mechanisms, including:
(2) The state budgetary, land use, and other decision-making processes. The state budgetary, land use, and other decision-making processes shall consist of:
(D) Land use decision-making processes of state agencies. Land use decisions made by state agencies shall be in conformance with the overall theme, goals, objectives, and policies, and shall utilize as guidelines the priority guidelines contained within this chapter, and the state functional plans adopted pursuant to this chapter. The rules adopted by appropriate state agencies to govern land use decision-making shall be in conformance with the overall theme, goals, objectives, and policies contained within this chapter.

Discussion: The DHHL Waimānalo Residence Lots project complies with the guidelines established by the *Hawaii State Plan* and *State Functional Plans* as discussed in this section and Section 3.1.3.

Section 226-103 Economic priority guidelines:

(f) Priority guidelines for energy use and development:
(1) Encourage the development, demonstration, and commercialization of renewable energy resources.
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.

***Discussion*:** Solar water heating and other energy-efficient devices are likely to be incorporated into the various structures on the property. The Waimānalo Residence Lots are conveniently located near Waimānalo Elementary and Intermediate School, retail shops, and restaurants thus encouraging walking and bicycling. Bus service routes 57, 89, and 77 are provided from bus stops on Kalaniana'ole Highway.

Section 226-104 Population growth and land resources priority guidelines:

(a) Priority guidelines to effect desired Statewide growth and distribution:
(1) Encourage planning and resource management to insure population growth rates throughout the State that are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii's people.

(b) Priority guidelines for regional growth distribution and land resource utilization:
(6) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.
(12) Utilize Hawaii's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.

Discussion: Population projections indicate that the City and County of Honolulu population will increase from 895,600 people in 2005 to 1,029,800 people in 2025, a 14.9 percent increase (SMS 2004). The *DHHL Applicant Survey, 2003* indicated that the region of highest demand for a residential homestead that the beneficiaries preferred (14.7 percent) was the Windward O'ahu region, compared to other regions offered statewide. Approximately 2,670 units are needed in Windward O'ahu to meet surveyed beneficiary demand. The Waimānalo Residence Lots will provide 120 single-family residential lots.

The project is not expected to negatively impact the shoreline, conservation lands, or other limited resources. It will provide single-family residential lots to eligible native Hawaiian homestead beneficiaries, helping to accommodate the projected population growth and address the demand for new housing.

Best management practices will be employed during construction to mitigate potential erosion, which has the potential for impacting air and water quality. Mitigation measures for other potential impacts resulting from this project have been identified in this EA.

Any historic and cultural sites encountered during the construction period will be treated in accordance with accepted standards and regulations of the State Department of Land and Natural Resources (DLNR) Historic Preservation Division (SHPD).

Section 226-106 Affordable housing:

(b) Priority guidelines for the provision of affordable housing:

(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.

(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.

(4) Create incentives for development which would increase home ownership and rental opportunities for Hawaii's low- and moderate-income households, gap-group households, and residents with special needs.

(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.

Discussion: The DHHL Waimānalo Residence Lots development will use public land and will provide residential lots under a homestead lease for eligible native Hawaiians. While the Hawaiian Homes Commission Act of 1920, as amended does not require beneficiaries to be in a low income category, various surveys have documented that a majority of applicants on the DHHL waitlist are below the HUD 80% median guide. The lots will be awarded under the DHHL Undivided Interest Program. One aspect of the program is the evaluation of the financial capabilities of each lessee, and if necessary, providing counseling and guidance to prepare them for house purchase and ownership through the Home Ownership Assistance Program (HOAP). The program thus allows DHHL to tailor the house development to meet the needs of and be affordable to the individual lessees. As DHHL beneficiaries move to the Waimānalo Residence Lots, the vacated residences will become available to the general public, thus helping to ease the statewide shortage of housing.

3.1.3 Chapter 226, Hawaii Revised Statutes – State Functional Plans

The *Hawaii State Plan* is primarily guided by the *State Functional Plans* (Chapter 226, HRS) and implemented by the State Department of Budget and Finance and the LUC. *State Functional Plans*, prepared by various State agencies with citizen input, provide specific recommendations for action. The areas addressed by the plans are: agriculture, conservation lands, education, employment, energy, health, higher education, historic preservation, housing, human services, recreation, tourism, and transportation. The following describes how the DHHL Waimānalo Residence Lots project complies with applicable *State Functional Plans*.

Historic Preservation Functional Plan

According to the *Historic Preservation Functional Plan*, the preservation of historic properties involves three major areas of activity: the identification, protection, and management and treatment of historic properties. The policies in the *Historic Preservation Functional Plan* are aimed primarily toward government action to provide mechanisms for improving the State's inventory, preservation systems, public access, and public awareness programs on archaeological matters.

Discussion: An Archaeological Assessment of both parcels was prepared by Scientific Consultant Services in 2006. In their report, SCS relayed that the existing buildings on the property are not historically significant and can be demolished without further documentation. The Archaeological Assessment (2006), indicates that agricultural activities within the project area would have destroyed any archaeological sites. The study discusses this in reference to the highly destructive commercial sugar cane operations known to have taken place from 1878 to 1947 in the area.

The SCS noted that since there have been extensive land use changes in the past two centuries, any significant archaeological remains would have been destroyed during the sugar plantation era. Therefore, it is highly unlikely that any archaeological sites remain on the Waimānalo Residence Lots properties which has been and continues to be used for agricultural purposes.

Housing Functional Plan

The State *Housing Functional Plan*, prepared by the State Housing Finance and Development Corporation (now Hawaii Housing Finance and Development Corporation), addresses six major areas of concern: 1) increasing home ownership; 2) expanding rental housing opportunities; 3) expanding rental housing opportunities for the elderly and other special need groups; 4) preserving housing stock; 5) designating and acquiring land that is suitable for residential development; and 6) establishing and maintaining a housing information system. The majority of the objectives, policies, and implementing actions of the State Housing Functional Plan apply to the government sector, and this project addresses the need for affordable land for housing native Hawaiians, who qualify.

The DHHL's Home Ownership Assistance Program (HOAP) will educate and counsel native Hawaiians on DHHL's wait list regarding the homeownership process and provide the necessary education and tools to current homeowners on Hawaiian home lands to maintain and repair their homes for the next generation.

Objective A: *Homeownership for at least sixty percent, or roughly 248,500 households by the year 2000.*

Strategy: *Expand the supply of affordably priced residential units through joint public/private sector efforts. Mobilize resources to better assist families seeking home ownership opportunities. Alternate or Innovative approaches to developing housing should also be pursued.*

Policy A (1): *Direct Federal, State and county resources and efforts toward the development of affordable for-sale housing units.*

Policy A (2): *Encourage increased private sector participation in the development of affordable for-sale housing units.*

Policy A (3): *Ensure that (1) housing projects and (2) projects which impact housing provide a fair share/adequate amount of affordable home ownership opportunities.*

Policy A (4): *Assist first time home buyers in purchasing a home.*

Policy A (5): *Use alternative approaches in providing affordable housing for sale.*

Discussion: The DHHL Waimānalo Residence Lots project proposes the development of 120 single-family lots with State resources. Housing opportunities afforded by this project will stimulate and promote increased housing choices for Hawai'i's citizens, directly to eligible native Hawaiians and indirectly to the general population as residences become available when DHHL beneficiaries move out of their current residences (on non-DHHL lands) and onto homestead lots. The proposed Waimānalo Residence Lots will also satisfy the beneficiaries' desire for residential land on the Windward side of O'ahu.

Agriculture Functional Plan

The *Agriculture Functional Plan* seeks to increase the overall level of agricultural development in Hawaii, in accordance with the two fundamental Hawaii State Plan objectives for agriculture: 1) continued viability of Hawaii's sugar and pineapple industries, and 2) continued growth and development of diversified agriculture throughout the State.

Discussion: The project will be developed on agricultural lands; however, other areas within Waimānalo and in the state exist where soil conditions are suited for commercial agriculture. Subsequent to the publication of the Agriculture Functional Plan, most sugar plantations in the State have closed, and large areas cultivated for canned pineapple have been withdrawn from cultivation.

Employment Functional Plan

The policies and recommended actions in the *Employment Functional Plan* center around the development and improvement of career/job training programs, the expansion of the labor pool, and the improvement of quality of life for workers.

Discussion: The proposed Waimānalo Residence Lots project will generate direct, indirect, and induced construction-related jobs, both within the property and on an island-wide and statewide basis. Construction industries, as well as industries supporting construction, will benefit from the employment and economic opportunities provided by the project. Once the project is completed, DHHL beneficiaries are likely to spend money on home improvements and will either purchase materials and do the work themselves or hire contractors to do improvements.

Energy Functional Plan

The *Energy Functional Plan* outlines policies to promote energy efficiency, displace fossil fuel consumption, support public education and legislation on energy, and better develop and manage energy.

Discussion: The DHHL Waimānalo Residence Lots are located near Waimānalo Elementary and Intermediate School, retail shops, and restaurants. This will encourage walking, bicycling, and the use of public transportation along Kalaniana'ole Highway to commute between homes and schools and workplaces.

The State's Model Energy Code will be considered during the detailed design phases of project development.

Recreation Functional Plan

The *Recreation Functional Plan* addresses government action toward the acquisition of recreation areas and accesses, the establishment and development of areas and facilities, and the management and usage of recreation resources.

Discussion: Recreational facilities are located nearby at the DHHL Waimānalo Projects, Olomana Golf Links, Bellows Field Beach Park, Honolulu Polo Field, Waimānalo Bay State Recreation Area, Waimānalo District Park, and Waimānalo Beach Park. There are no recreational facilities proposed within the Waimānalo Residence Lots, as the DHHL is exempt from the County subdivision park requirements. Table 6 provides a list of recreational areas and their distances from the site in Section 6.11.

Transportation Functional Plan

The overall objective of the *Transportation Functional Plan* is to provide for the efficient, safe, and convenient movement of people and goods. The *Transportation Functional Plan* is implemented as a short- to mid-term action agenda by the State Department of Transportation (DOT). It identifies four key issue areas as the most critical concerns relating to transportation in Hawaii. They are: (1) Congestion, (2) Economic Development, (3) Funding, and (4) Education. The following objectives, policies, and actions have the most relevance to the Waimānalo Residence Lots.

Objective I.A: *Expansion of the transportation system.*

Policy I.A.1: *Increase transportation capacity and modernize transportation infrastructure in accordance with existing master plans and laws requiring accessibility for people with disabilities.*

Policy I.A.2: *Improve regional mobility in areas of the State experiencing rapid urban growth and road congestion.*

Objective I.B: *Reduction of travel demand through zoning and decentralization initiatives.*

Policy I.B.1: *Close the gap between where people live and work through decentralization, mixed zoning, and related initiatives.*

Discussion: The Waimānalo Residence Lots project has three existing access points onto Kalaniana'ole Highway via Kumuhau, Mekia and Poalima Streets. DHHL proposes that Kumuhau Street be widened to 60 feet along the frontage of the project site to match the existing eastbound section of Kumuhau Street. The widened section along the frontage of the Kumuhau parcel is recommended to have a concrete sidewalk on the southeast side of Kumuhau Street. The proposed roadways in the Kumuhau Subdivision would be paved 48-foot wide right-of-ways with concrete curbs, gutters, sidewalks, and planter strips on both sides of the road. Drainage is currently handled via drains located in the asphalt swales adjacent to the roadways.

Access points for Kakaina Subdivision will be at Kakaina, Hihimanu and Poalima streets. Poalima Street intersects with Kalaniana'ole Highway at a cross-intersection controlled by a traffic signal. The proposed roadways in the Kakaina Subdivision would be paved 44-foot wide right-of-ways with concrete curbs, gutters, sidewalks, and planter strips on both sides of the road.

3.1.4 Section 205A, Hawaii Revised Statutes – Coastal Zone Management Program

The objectives of the Coastal Zone Management (CZM) Program are to provide the public with recreational opportunities, protect historic and prehistoric resources, protect scenic and open space resources, protect coastal ecosystems, provide facilities for economic development, reduce hazards, and manage development. Program objectives applicable to the DHHL Waimānalo Residence Lots project are discussed below.

Recreational Resources

Objective: *Provide coastal recreational opportunities accessible to the public.*

Policies:

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreation activities that cannot be provided in other areas.

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value.

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation.

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing.

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.

Discussion: The DHHL Waimānalo Residence Lots are inland from the coastline and will not impact access to coastal recreational opportunities. While the soils on site are rated as having erosion hazard of slight to moderate, all grading operations will be conducted in full compliance with dust and erosion control and other requirements of the City and County of Honolulu Grading Ordinance to prevent adverse impacts to Waimānalo Bay State Recreation Area, Waimānalo Beach Park, or Bellows Field Beach Park.

Historic Resources

Objective: *Protect, preserve, and where desirable, restore those natural and man made historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies:

(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Discussion: Excavations of the site indicated that agricultural activities within the project area would have destroyed any archaeological sites. Should any unknown sites be encountered during project development, work in the immediate area will halt and the State Historic Preservation District (SHPD) will be notified in accordance with State regulations.

Scenic and Open Space Resources

Objective: *Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.*

Policies:

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline.

(C) Preserve, maintain, and where desirable, improve and restore shoreline open space and scenic resources.

(D) Encourage those developments that are not coastal dependent to locate in inland areas.

Discussion: The Waimānalo Residence Lots project is located away from the shoreline, and is located near the base of the Koʻolau Mountains in Waimānalo, Oʻahu. This region has open space with outstanding views of the Koʻolau Mountain Range to the south.

The parcels will be transformed from agricultural land to a residential community as lessees build their homes. Full build-out is anticipated to occur gradually over several years.

Coastal Ecosystems

Objective: *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

Policies:

(B) Improve the technical basis for natural resource management.

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance.

(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs.

(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion: Although the DHHL Waimānalo Residence Lots project is located approximately 2.0 miles away from the shoreline, its development will incorporate measures to mitigate any water quality impacts from surface runoff in accordance with applicable State DOH drainage regulations.

Kahawai Stream borders the southern portion of the Kumuhau parcel. No adverse drainage impacts are anticipated, as both temporary and permanent erosion and sedimentation control measures will be implemented. Best management practices and erosion control measures will also be implemented during construction activities.

Economic Uses

Objective: *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Policies:

(A) Ensure that coastal dependent development such as harbors and ports, and coasted related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area.

(B) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside presently designated areas when:

(ii) Adverse environmental effects are minimized.

Discussion: The proposed Waimānalo Residence Lots will not be a coastal dependent development. Since the site is located inland, existing coastal areas are not likely to be affected by the project.

Coastal Hazards

Objective: *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

Policies:

(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards.

(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program.

(D) Prevent coastal flooding from inland projects.

Discussion: According to the Pacific Disaster Center, the DHHL Waimānalo Residence Lots are located out of the tsunami evacuation zone, and is not anticipated to be affected by a tsunami. The Flood Insurance Rate Map indicates that the majority of the Waimānalo Residence Lots are located in Zone X, which is determined to be outside of the 500-year floodplain. The southern end of the project site closest to Kahawai Stream is designated as Zone A, which includes areas within the 100-year flood zone (Figure 8).

Managing Development

Objective: *Improve the development review process, communication and public participation in the management of coastal resources and hazards.*

Policies:

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

(C) Communicate the potential short- and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Discussion: All improvements will be developed in accordance with all Federal, State, and County requirements and standards affecting health and safety. This EA is intended to communicate the impacts of the proposed project.

Public Participation

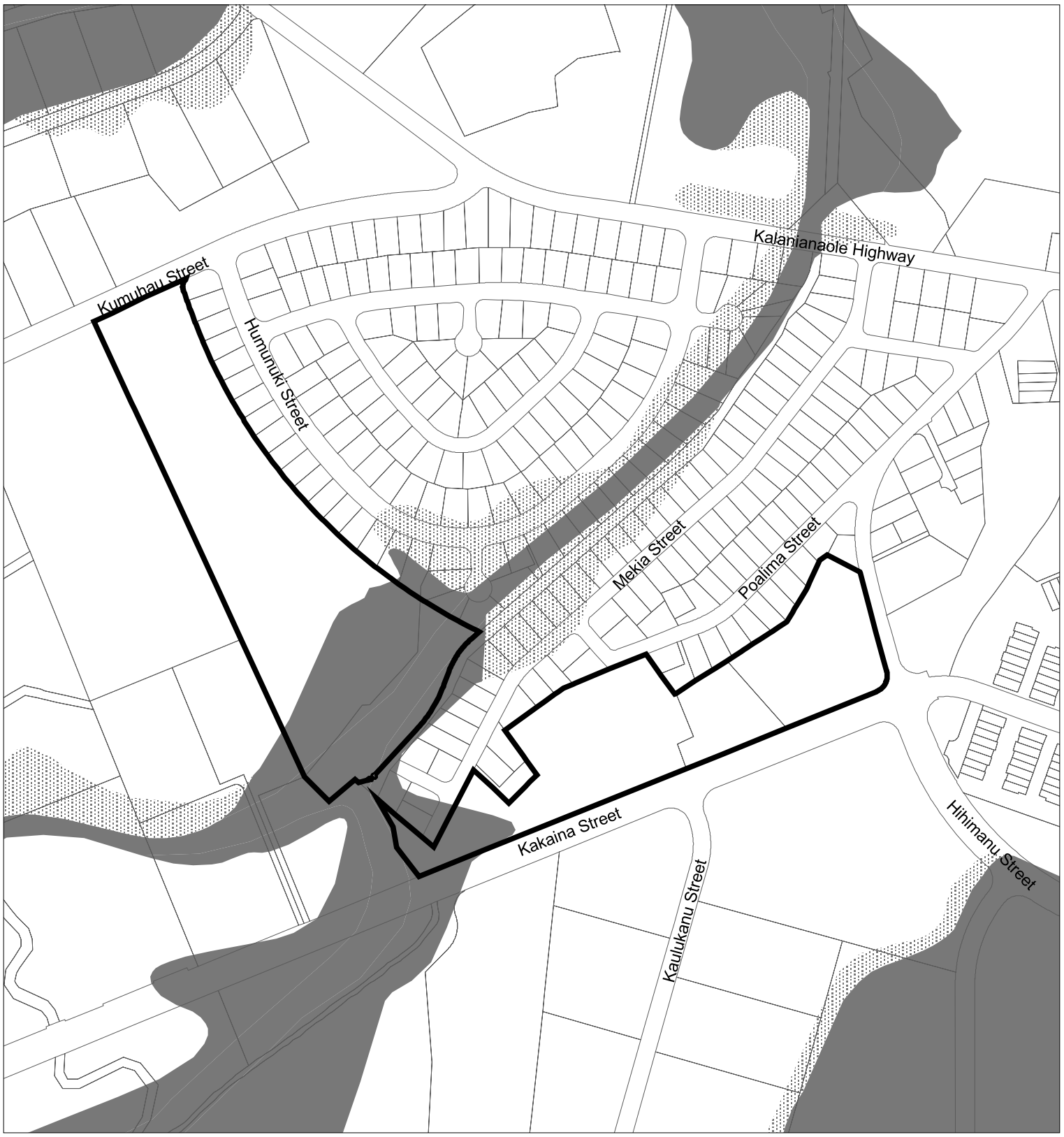
Objective: *Stimulate public awareness, education, and participation in coastal management.*

Policies:

(A) Promote public involvement in coastal zone management processes.

(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion: This EA reports on the potential short and long-term impacts of the proposed Waimānalo Residence Lots project. Prior to and throughout the development of the Draft



Legend

- Project Boundary Line
- ZONE A: 100-Year Floodplain
- ZONE X: 500-Year Floodplain
- Undetermined Flood Hazard

Source: Federal Emergency Management Agency
Disclaimer: This graphic has been prepared for general planning purposes only

Figure 8
Flood Insurance Rate Map

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands
ISLAND OF OAHU

NORTH

LINEAR SCALE (FEET)
0 95 190 380 760

PBR HAWAII

EA, various agencies (or agency documents) were consulted (see consultation list in Chapter 9.0). The Draft EA will be distributed to various agencies and submitted to the OEQC, commencing a 30-day public review period.

Beach Protection

Objective: *Protect beaches for public use and recreation.*

Policies:

(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion.

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Discussion: The DHHL Waimānalo Residence Lots development will be located inland and will not interfere with natural shoreline processes.

Marine Resources

Objective: *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

Policies:

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial.

(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency.

Discussion: As a development located away from the shoreline, the proposed Waimānalo Residence Lots are not expected to have an impact on marine and coastal resources.

3.2 STATE OF HAWAII – STATE LAND USE LAW

The project site is located within the Agricultural State Land Use District (Figure 6). In accordance with the HHCA 1920, as amended, Hawaiian Home Lands are not subject to land use controls by the State or County. However, the DHHL fully intends to develop its land by providing affordable housing in a clean and safe environment with the improvements, including water, sewer, and drainage, installed in conformance with appropriate State and County standards.

3.3 CITY AND COUNTY OF HONOLULU

3.3.1 Ko'olaupoko Sustainable Communities Plan

The subject area is designated for Low Density Residential and is within the Agriculture/Open Space/Preservation Boundary in the *Ko'olaupoko Sustainable*

Communities Plan (SCP) (Figure 6). Although the project is located outside of the Rural Community Boundary and within the Agriculture Boundary, the SCP acknowledges residential development on lands under DHHL jurisdiction. The project will be developed under guidelines for Urban Forms of Residential Development. The plans for the Waimānalo Residence Lots consist of single-family residential lots to be developed adjacent to the surrounding single-family residential developed along Humuniki, Mekia, Poalima and Hihimanu streets. The development of residential lots shall maintain and enhance the protection of the surrounding residential neighborhoods from incompatible uses and nuisance-producing activities. Building heights will not exceed two stories in height.

3.3.2 Zoning

The study area is presently zoned as Ag-1 Restricted Agriculture by the City Land Use Ordinance (LUO) (Figure 7). However, it should be noted that Hawaiian Home Lands needed for the purposes of the Hawaiian Homes Commission Act (HHCA) are not subject to County zoning requirements.

3.4 REQUIRED PERMITS AND APPROVALS

The following is an approximate list of major approvals and permits required for the implementation of the proposed Waimānalo Residence Lots development.

Table 1 - Required Permits and Approvals

Permit or Approval	Approving Authority	Status
Building/Grading Permits	City Department of Planning and Permitting	Applications to be filed
National Pollutant Discharge Elimination System (NPDES)	State Department of Health	Application to be filed
Sewer Connection Application	City Department of Planning and Permitting	Application to be filed
Trenching Permit	City Department of Planning and Permitting	Application to be filed
Drain Connection License	City Department of Planning and Permitting	Application to be filed
"No-Rise" Certification	City Department of Planning and Permitting	Application to be filed
Stream Channel Alteration Permit	State Department of Land and Natural Resources	Application to be filed

4.0

Assessment of the Existing Natural Environment Potential Impacts, and Mitigation Measures

4.0 ASSESSMENT OF THE EXISTING NATURAL ENVIRONMENT, POTENTAL IMPACTS, AND MITIGATION MEASURES

This chapter describes the existing natural environment associated with the property and potential impacts that may result from development of the Waimānalo Residence Lots. Mitigation measures to address potential impacts are also described, as applicable.

4.1 CLIMATE

The average temperatures in Waimānalo range from 65 to 83 degrees Fahrenheit with an average annual rainfall of approximately 40 inches, which ranges seasonally. Trade winds are generally from the northeast. Strong winds do occur at times in connection with storm systems moving through the area.

Potential Impacts and Mitigation Measures

The proposed project will have no effect on climatic conditions and no mitigative measures are necessary. Landscaping provided by the lessees will help mitigate any localized temperature increases from roadways and structures.

4.2 TOPOGRAPHY AND GEOLOGY

According to a USGS topographical map, elevations range from approximately 41 feet mean sea level (MSL) along the northwest edge of the property to approximately 39 feet MSL along the east edge of the parcel, yielding an average slope of about 0.1 percent.

Potential Impacts and Mitigation Measures

The site has been in agricultural use for over a century and has already been extensively modified by pasturage and varied agricultural ventures. No significant impacts to the site topography are anticipated, therefore, no mitigative measures are proposed.

4.3 DRAINAGE

As shown on Figure 8, the Flood Insurance Rate Map indicates that most of the Kumuhau and Kakaina parcels fall within Zone X (areas determined to be outside the 500-year flood plain). A portion of the Kumuhau parcel along the southern edge of the property closest to Kahawai Stream is designated as Zone A (areas determined to be inside the 100-year flood plain). A small portion of the western edge of the Kakaina parcel is also designated as Zone A. The National Flood Insurance Program does not have any regulations for developments within Zone X; however, it does regulate developments within Zone A.

Whenever development within a Special Flood Hazard Area is undertaken, the development must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR). 44CFR indicates the minimum standards set forth by the NFIP. During the public review period, the State Department of Land and Natural Resources, Engineering Division wrote that the community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards.

Potential Impacts and Mitigation Measures

The proposed Waimānalo Residence Lots project has the potential to increase runoff by creating impermeable surfaces such as roadways and structures. Most of both parcels gently slope towards Kahawai Stream. Drainage patterns will not be altered. Storm water will be directed to a new on-site drain system.

During the public review process for the Draft EA, the Department of Design and Construction noted that there is a history of flooding in parcels adjacent to the northwestern boundary of the project along Kumuhau Street. Drainage patterns will be maintained to direct runoff toward Kahawai Stream. In addition, efforts will be made to minimize the impact of runoff from Kumuhau Subdivision along Kumuhau Street.

The amount of impervious surface added by the project is small in relation to the larger drainage basin. As a result, changes to the runoff coefficient are expected to be negligible and the proposed project will not significantly increase the peak discharge to the existing drainage system. In addition to standard drainage improvements, the proposed drainage improvements will be constructed in conformance with all applicable Department of Planning and Permitting design criteria.

Because any homes built in the 100-year floodplain will have to be elevated above the 100-year base flood elevation, Phase II of the Kumuhau Subdivision may be deferred because of the cost of mitigation.

Detailed site specific measures for erosion and sediment control will be specified in the grading plans. Silt laden runoff from the site is anticipated during construction; however, the use of silt fences around the perimeter of the construction area and siltation basins will prevent the silt laden runoff from leaving the site.

4.4 SOILS

Three soil suitability studies have been prepared to describe the physical attributes of land and the relative productivity of different land types for agricultural production in Hawai'i. These studies include the University of Hawai'i – Land Study Bureau *Detailed Land Classification*, the U.S. Department of Agriculture – Soil Conservation Service Soil Survey, and the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

Detailed Land Classification. The University of Hawai'i – Land Study Bureau developed the *Detailed Land Classification, Islands of Kauai, O'ahu, Maui, Molokai, and Lanai* (1965 through 1972). The intent of these reports was to develop a land inventory and productivity evaluation based on statewide standards of crop yields and levels of management. A five-class productivity rating is applied using the letters A, B, C, D, and E, with A representing the class of highest productivity and E the lowest.

The majority of the soils on the Waimānalo Residence Lots project are rated B (good) (Figure 9). The remainder of the parcels contain soils not classified by the Land Study Bureau.

Soil Conservation Service Soil Survey. According to the U.S. Department of Agriculture *Soil Survey of the Island of Kauai, O'ahu, Maui, Molokai, and Lanai, State of Hawaii* (1972), the Waimānalo Residence Lots project contains three soil types (Figure 10). These soil types are described below.

Pohakupu silty clay loam, 0 to 8 percent slopes (PkB) – This soil is used for pasture, truck crops, and urban development. Permeability is moderately rapid and runoff is slow to medium. The erosion hazard is slight to moderate.

Hanalei silty clay, 0 to 2 percent slopes (HnA) – This soil is used for pastures, and the cultivation of taro and vegetables. Permeability is moderate and runoff is slow. The erosion hazard is slight.

Waialua clay, 2 to 6 percent slopes (WnB) – This soil is used for truck crops, orchards, and pastures. Runoff is slow and erosion hazard is slight.

Agricultural Lands of Importance to the State of Hawaii. The Agricultural Lands of Importance to the State of Hawaii (ALISH) (1977) system identifies and maps three broad classes of agricultural land – Prime, Unique, and Other Agricultural Land. Prime Agricultural Land is defined as "land best suited for the production of food, feed, forage, and fiber crops." This class of land has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed (including water management) according to modern farming methods. Prime Agricultural Land produces the highest yields with the lowest inputs of energy or money, and with the least damage to the environment. The two other classes are Unique Agricultural Land and Other Important Agricultural Land, which are successively less productive soils.

The majority of the lands within the Waimānalo Residence Lots project are designated Prime Agricultural Land (Figure 11). A portion of the Kumuhau parcel near the south is classified as Other Important Agriculture Land. The portions of both parcels closest to Humuniki, Mekia and Poalima streets are not classified by the ALISH system.

The *Preliminary Geotechnical Engineering Evaluation Feasibility Report for the Department of Hawaiian Home Lands Waimānalo Lot TMK 4-1-08:22 by Geolabs, Inc. 2004*, mentions the soil on the Kumuhau parcel has high to very high shrinkage and swelling potential when exposed to moisture fluctuations. If the foundations for the structures are not built correctly, the shrink/swell action of the soil will diminish the integrity of the building. This leads to cracks in the foundation and walls of the structure. Therefore, it is imperative that structures are built with adequate foundations, as recommended below, to mitigate the action of the soils on foundations.

Potential Impacts and Mitigation Measures

Soil is the primary environmental factor limiting the site's agricultural potential. Rainfall in the project area is sufficient for soil-based agricultural crops; however, other areas within Waimānalo and in the State exist where soil conditions are better suited for commercial agriculture.

While the soils on site are rated as having erosion hazard of slight to moderate, all grading operations will be conducted in full compliance with dust and erosion control and other requirements of the City and County of Honolulu Grading Ordinance and the provisions of Chapter 11-60.1, *Hawaii Administrative Rules*, Section 11-60.1-33 on fugitive dust. Best management practices (BMPs) to mitigate pollutants will be included in the construction plans.

To mitigate the effects of expansive soils, depending on the type of construction intended (concrete slabs on-grade), would require use of a minimum 36-inch thick layer of granular fill. The soil graded from the lots to install the foundations for the houses can be replaced in the yard areas, and landscaped to preserve the soil moisture content which will minimize the expansive nature of the soil. An alternative to reduce the effects of the shrink/swell behavior of the surface soils is to mix in fly ash, moisture recondition, and recompact the soil (Geolabs 2004).

4.5 AGRICULTURAL IMPACT

The 11.4-acre Kumuhau parcel is currently under a month-to-month revocable permit, and is being farmed. The Kakaina parcel is vacant and unencumbered.

Potential Impacts and Mitigation Measures

The proposed project will result in the loss of 19.52 acres of agricultural land. However, additional agricultural land is available elsewhere on O'ahu, and the land will be used to provide needed housing opportunities to native Hawaiians eligible to receive Hawaiian Home Lands. The limiting factor to the growth of diversified agriculture is not the land supply, but rather the size of the market for those crops than can be grown profitably in Hawai'i. Based on the ample supply of land suitable for diversified agriculture on O'ahu and the relative lack of market demand (compared to the supply available), no mitigation

Legend

- Project Boundary Line
- Prime Agricultural Soils
  - A: Excellent
  - B: Good
- Marginal Agricultural Soils
  - C: Fair
  - D: Poor
  - E: Very Poor
  - N: Unclassified

Source: Land Study Bureau

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

Figure 9

Detailed Land Classification

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands

ISLAND OF OAHU

NORTH

LINEAR SCALE (FEET)

0 95 190 380 760

PBR HAWAII

Legend

- Project Boundary Line
- PkB: Pohakupu Silty Clay Loam, 0-2% Slopes
- HnA: Hanalei Silty Clay, 0-2% Slopes
- WnB: Waialua Clay, 2-6% Slopes
- Other Soil Types

Source: Natural Resources Conservation Service
Disclaimer: This graphic has been prepared for general planning purposes only

Figure 10
Natural Resources Conservation Service
Soil Survey Map

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands — ISLAND OF OAHU

NORTH

LINEAR SCALE (FEET)
0 95 190 380 760

PBR HAWAII

Legend

- Project Boundary Line
- Unclassified Agricultural Land
- Prime Agricultural Land
- Other Agricultural Land

Source: State of Hawaii Department of Agriculture
Disclaimer: This graphic has been prepared for general planning purposes only

Figure 11

Agricultural Lands of Importance
to the State of Hawaii (ALISH)

Waimanalo Residence Lots
Kumuhau & Kakaina Parcels

Department of Hawaiian Home Lands — ISLAND OF OAHU

NORTH

LINEAR SCALE (FEET)
0 95 190 380 760

PBR HAWAII

measures are proposed for the loss of agricultural land and production associated with the proposed site.

4.6 GROUNDWATER RESOURCES/HYDROLOGY

Kahawai Stream borders the southern portion of the Kumuhau parcel and crosses the western tip of the Kakaina parcel. The proposed project will be designed not to impede stream flows (Figure 4).

Potential Impacts and Mitigation Measures

Silt-laden runoff from the site is anticipated during construction; however, the use of silt fences around the perimeter of the construction area and siltation basins will prevent the silt-laden runoff from leaving the site.

4.7 NATURAL HAZARDS

Natural hazards are events such as tsunami, earthquakes, floods, hurricanes, soil slippage, and volcanic hazards. The proposed Waimānalo Residence Lots are located well outside of the tsunami evacuation zone. The project site may be subject to hurricanes and minor earthquakes in the future; however, the site is not unique to these potential hazards.

Earthquakes in the Hawaiian Islands are associated with volcanic eruption or tectonic movement. O'ahu is periodically subject to episodes of seismic activity of varying intensity. Most of the earthquakes that have occurred were volcanic earthquakes causing little or no damage. Earthquakes cannot be predicted with any degree of certainty or avoided, and an earthquake of sufficient magnitude (greater than 5 on the Richter Scale) could cause significant damage to existing developments. However, the possibility of earthquakes occurring on O'ahu is not considered to be high.

Since 1982, Hawai'i has been affected twice by devastating hurricanes, 'Iwa in 1982 and 'Iniki in 1992. While it is difficult to predict these natural occurrences, it is reasonable to assume that events could be likely. The project area is no more or less vulnerable than the rest of the island to the destructive winds and torrential rains associated with hurricanes and cyclones. However, since the project area is not situated in a coastal area, it is not susceptible to hurricane-related storm surge.

Flood hazards are primarily identified by the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA) (Figure 8). The majority of both parcels are designated by the FIRM as Zone X, which falls inside the 500-year flood plain and includes areas of minimal flooding. A small southern portion of the Kumuhau parcel closest to Kahawai Stream and the western most portion of the Kakaina Street parcel are designated by the FIRM as Zone A, which falls inside the 100-year flood plain.

Potential Impacts and Mitigation Measures

The project will not exacerbate any hazard conditions. The potential impact of destructive winds and torrential rainfall of tropical hurricane and cyclones on structures within the project will be mitigated by compliance with the Uniform Building Code adopted by the City and County of Honolulu. All structures will be constructed for protection from earthquakes and tropical hurricanes and cyclones in accordance with the requirements of the City and County.

The project will comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken.

Construction of the proposed project will be phased to allow for initial construction outside of the 100-year flood plain limits. Future phases may include stream improvements to mitigate 100-year flood plain impacts. During the public review period for the Draft EA, the Department of Land and Natural Resources wrote: "a Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel." The Kakaina Subdivision will not require any stream improvements. The Kumuhau Subdivision will be developed in two phases. Plans for Phase 1 include a detention basin that will be constructed in the Phase 2 area of the Kumuhau Parcel. The implementation of Phase 2, if pursued, will require Kahawai Stream to be channelized and the construction of a bridge/culvert which crosses Kahawai Stream and connects to Koa Moali Place. Construction of lots within the flood plain may be deferred if the cost of mitigation is not economically practical.

4.8 FLORA

According to the biological resources survey for the Waimānalo Residence Lots conducted by Robert W. Hobdy, 2006, the Kumuhau parcel is currently used for commercial farming of a variety of vegetables, root crops, and fruits. Windbreaks of panax line many of the fields, with few ornamental plants growing around the farm buildings. Of the 88 plant species discovered on the Kumuhau parcel, none are endemic to Hawai'i, one is indigenous to Hawai'i and elsewhere, two were brought by Polynesians. The remaining 85 species are non-native plants and weeds. The Kumuhau parcel contains nothing of interest from a native botanical standpoint. Just two aggressive weedy species dominate the Kakaina Street parcel, koa haole (*Leucaena leucocephala*) and Guinea grass (Panicum maximum). Of a total of 69 plant species identified, none are endemic or indigenous to Hawai'i. The Waimānalo Residence Lots site contains no known endangered or candidate endangered species (USFWS, 1999).

Potential Impacts and Mitigation Measures

There is nothing of botanical concern with regard to this property, which has been maintained in an altered state for many years. Any proposed alterations or disturbances will have little significant impact on botanical resources. DHHL acknowledges that Hawaii Revised Statutes requires the use of native Hawaiian flora whenever and wherever possible. The DHHL Waimānalo Residence Lots will implement native Hawaiian flora as feasible. As recommended, the Division of Forestry and Wildlife of DLNR will be consulted before finalizing the landscaping plan for the project.

4.9 FAUNA

The biological resources survey for the Waimānalo Residence Lots conducted by Robert W. Hobdy, 2006 identified two mammal species and 14 bird species: red vented bulbul (*Pycnonotus cafer*), zebra dove (*Geopelia striata*), northern cardinal (*Cardinalis cardinalis*), red-crested cardinal (*Paroaria coronata*), common waxbill (*Estrilda astrild*), spotted dove (*Streptopelia chinensis*), house sparrow (*Passer domesticus*), red-whiskered bulbul (*Pycnonotus jocosus*), pacific golden plover or kolea (*Pluvialis fulva*), black-crowned night-heron or ʻAukuʻu (*Nycticorax nycticorax hoactli*), common mynah (*Acridotheres tristis*), cattle egret (*Bubulcus ibis*), and chickens (*Gallus gallus*). Domestic dogs and one domestic cat were observed on the parcels. No mongoose, rats, or mice were observed, but undoubtedly these mammals occur on the property. None of these mammals are listed as threatened or endangered (USFWS, 1999). Special efforts were made to identify the Endangered Hawaiian hoary bat, but none were observed. The habitat on the property is not suitable for any native forest birds, which are presently restricted to higher elevation forests on Oʻahu. The project area is not an ideal habitat for the Endangered Hawaiian hoary bat.

Potential Impacts and Mitigation Measures

Due to the disturbed nature of the habitat and relative scarcity of food on the property, development of the 120 residential lots is not expected to have significant negative impacts on fauna resources.

During the public review period for the Draft EA, the U.S. Fish and Wildlife Service (USFWS) noted that fledgling seabirds are attracted to night lighting, "end up circling the light source until they either collide with a man-made structure or fall to the ground due to exhaustion." The USFWS thus recommends "adding downward shielding to all street lights in your proposed development to minimize this ongoing sea bird mortality" of wedge-tailed shearwater (*Puffinus pacificus*). Although there is an additional cost for "cut-off" street lighting fixtures, DHHL intends to comply with the U.S. Fish and Wildlife Service's recommendation to add downward shielding to applicable street lights in the proposed development to minimize ongoing seabird mortality.

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5.0

Assessment of the Existing Human Environment, Potential Impacts and Mitigation Measures

5.0 ASSESSMENT OF THE EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

This chapter provides background information on the existing human environment. Subject areas addressed include archaeology, culture, air quality, noise, visual environment, population and housing, community character, and economic environment. This chapter also addresses the potential impacts of the project and identifies appropriate mitigation measures to minimize the identified short- and long-term impacts.

5.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

An archaeological assessment was prepared by Scientific Consultant Services, Inc. (SCS) for the two parcels in 2006. The assessment determined that the existing buildings on the property are not historically significant and can be demolished without further documentation.

Excavations of the site indicated that agricultural activities within the project area would have destroyed any archaeological sites. Highly destructive commercial sugar cane operations that took place from 1878 to 1947 destroyed and even plowed under *heiau* in the area. No archaeological deposits were identified during current subsurface testing of the current project site.

Based on results of the Archaeological Assessment's utilization of pedestrian survey and limited subsurface investigations, it was recommended that the larger portion of the project area – TMK (1) 4-1-08: 11 – not be subjected to further archaeological investigations. The smaller portion of the project area – TMK (1) 4-1-23: 65 – however, should be subjected to Archaeological Monitoring given its location next to an active water source as past archaeological studies have revealed numerous examples of associations with agricultural sites and active water sources (e.g., flowing streams). Parcel 2 – TMK (1) 4-1-08:10, 81, 91 and 92 – should also be subjected to archaeological monitoring during the clearing and grubbing phase of construction due to the inability to test the majority of the parcel. These recommendations have been developed in consultation with the Lead Oʻahu State Historic Preservation Division (SHPD) Archaeologist Chris Monahan, Ph.D. on February 1, 2006.

Potential Impacts and Mitigation Measures

During the public review period, SHPD wrote that it concurs with the findings and mitigation measures recommended by Scientific Consultant Services (SCS), Inc. that archaeological monitoring of ground disturbing activities be implemented for the smaller portion of TMK: 4-1-023: 065 and all of TMK: 4-1-008: 010, 081, 091 and 092) because of the limitations of conducting subsurface excavations on these parcels.

SHPD also stated that should the archaeological assessment be finalized and the recommended mitigation measures (monitoring) implemented, the proposed undertaking will have "no adverse effect" on historically-significant resources.

5.2 CULTURAL IMPACT ASSESSMENT

A Cultural Impact Assessment was prepared by Cultural Surveys Hawai'i, Inc. for the *Hawaii Plant Protection Laboratory Temporary Research Modules Project Final Environmental Assessment* (Hawaii Pacific Engineers, 2003). The temporary research modules are located approximately two miles east of the Waimānalo Residence Lots project site. The entire assessment can be found in Appendix D.

5.2.1 Legends and Traditions Associated with Waimānalo

Legends and traditional accounts of Waimānalo describe the scarcity of water (except for small springs and Waimānalo Stream), the abundance of food crops along Waimānalo Stream, and the fishing resources and broad reef fronting Waimānalo. These accounts also describe Waimānalo as somewhat isolated (especially in terms of land routes), but with sandy beaches allowing access by sea.

A 1915 account by Emerson describes eastern Waimānalo:

> *Our vegetables come from Waimānalo. When the people of that district bring down bundles of food we barter for it our fish.*

The story of Hi'iaka-i-ka-poli-o-Pele is described in the Hawaiian language newspaper *Ka Leo o Ka Lāhui*.

> *They traveled past Kuhui (Kukui?) And Pāhonu where the people shouted at the beauty of Hi'iaka. The news reached the ears of 'Āpuakea and she said to her mother, Muliwaiolena, "Oh, Muliwaiolena, go and take a look at the women whose beauty the people are shouting about and see if they are as beautiful as I am." Muliwaiolena came out and looked. Never had she seen anything on O'ahu to equal the beauty of these women. Turning to 'Āpuakea she said, "Daughter, your beauty does not compare with their great beauty. You are like the soles of their feet." Hearing this the expression on 'Āpuakea's face changed and she fainted away.*
>
> *Hi'iaka overheard the words of the woman to her daughter and she uttered this chant:*
>
> *O 'Āpuakea-nui, you beautiful woman,*
> *Comparisons have been made of your charms,*
> *You are beautiful, beautiful indeed.*
>
> *Muliwaiolena then called out to Hi'iaka and her friend, "Come in, eat and drink and when you are full then continue on your long journey." But the travelers did not accept as they did not like the embarrassing comparison that had been made between themselves and the young girl, 'Āpuakea.*

> *As the travelers went off Muliwaiolena suddenly fell dead. Shortly afterwards ʻĀpuakea died.*

ʻĀpuakea, by the coast of central Waimānalo, is said to be named for the local beauty, ʻĀpuakea, and her fair skin.

During Kamehameha's conquest of Oʻahu, part of his fleet landed near Makapuʻu and then joined with Kamehameha's other forces. Prior to the invasion, Kamehameha sent a message to Kahekili:

> *Kiʻkane, Kamehameha's messenger to Kahekili threw down two maika stones, this stone (the white) brings life through farming and fishing, rearing men, and providing them with food; this other stone (the black) brings war. Let the reader ponder the meaning of this answer. Kahekili asked, Is Kamehameha coming to Oʻahu to fight? 'Yes' answered Ki-kane. What harbor will he choose? It was Kikoʻoʻs counsel to make Waimānalo the harbor and battle site. 'It is too low there to cast sling stones to reach the heights. It is good only for food and fish…' (Kamakau 1961:250; in Silva 1981 A-16).*

After Kamehameha's conquest of Oʻahu and his division of the island among his chiefs, Waimānalo was retained as his personal property. This seems to be the case as in 1845, when Kamehameha III, Kauikeaouli, who had inherited the land as a son of Kamehameha I, claimed the ahupuaʻa of Waimānalo "to be the private lands of his Majesty Kamehameha III, to have and to hold to himself, his heirs and successors, forever; and said lands shall be regulated and disposed of according to his Royal will and pleasure, subject only to the rights of tenants." (Com. Of Public Lands, 1929:28).

An integral part of Hawaiian culture lies with legendary places, or *wahi pana*. The name given to the ahupuaʻa known as Waimānalo means, literally, "potable water." Kumuhau is named for the seven Land Commission Awards it is associated with.

5.2.2 Traditional Cultural Practices

Cultural practices, activities, and sites that may have been associated with Waimānalo typically include: hunting and plant gathering, ocean and stream resources, sacred sites, trails, and burials. However, none of these practices, activities, and sites can be identified within the present Waimānalo project area, which was under cultivation of sugarcane through most of the first half of the 20th century. Following the cessation of cane operations, the area included open agricultural land or vacant land. These modern activities have permanently altered the project area landscape, leaving no evidence of any Hawaiian cultural practices or activities that might have been associated with the area.

Potential Impacts and Mitigation Measures

The Cultural Impact Assessment for the Hawaii Plant Protection Laboratory Temporary Research Modules concluded that many culturally significant sites in the project area have been destroyed by ranching and agricultural activities in the past. No cultural practices

such as hunting and plant gathering are known to occur on the Waimānalo Residence Lots site. However, should iwi kupuna, or cultural or traditional deposits be encountered during construction, the procedures established by the Native American Graves Protection and Repatriation Act (NAGPRA) will be followed.

5.3 NOISE

Due to the rural nature of the project area, there are no major sources of noise. Ambient noise levels in the area are attributed to wind, wildlife, traffic along Kumuhau, Mekia, Poalima, Hihimanu and Kakaina streets, and agricultural equipment such as tractors, sprayers, and trucks.

Potential Impacts and Mitigation Measures

Since lessees are awarded lots and build their homes according to individual financing, project build-out is expected to occur over an indefinite time. During project construction, noise will be generated by construction and earth-moving equipment. However, these short-term noise impacts will occur only during working (daytime) hours and will primarily affect only those margins of the property that border sensitive land uses (i.e., residences along Humuniki, Mekia, Poalima and Kakaina streets). The project will comply with State DOH noise regulations, and if construction noise is expected to exceed the DOH "maximum permissible" property line noise levels, a permit will be obtained from the DOH (to allow the operation of vehicles, construction equipment, power tools, etc). After construction, long-term noise impacts could result from vehicular traffic gradually phased in as individual homes are built and occupied associated with the project. These impacts, however, are not expected to be significant or more intense than noise impacts that would result from traffic generated by other residential uses in the area. After homes are occupied, noise associated with vehicular traffic and daily living activities will be generated. Project activities will comply with Chapter 11-46, HAR, regarding Community Noise Control.

5.4 AIR QUALITY

Since there are no point sources of airborne emissions, and northeasterly tradewinds are almost always present, air quality at the Waimānalo Residence Lots project and surrounding area is very good. Most of the existing airborne pollutants are attributed primarily to vehicle-generated exhaust from the region's roadways. Other sources of airborne pollutants include fugitive dust and equipment emissions generated by agricultural machinery and activities. The surrounding farm lots may use fertilizers and/or pesticides for their crops. There also may be some odors and vectors from the surrounding farm lots, which are used as pig farms and horse stables. However, these sources are considered intermittent and the generated particulates are quickly dispersed by the prevailing northeasterly tradewinds. Upwind of the site, the area consists mainly of residential development.

Potential Impacts and Mitigation Measures

Development of the proposed project may produce short- and long-term air quality impacts. Short-term impacts could include fugitive dust and exhaust emissions produced by construction equipment and vehicles. Long-term impacts could result from increased activity and gradual occupation of homes within the subdivision. These impacts include increased vehicular exhaust and indirect emissions resulting from increased electrical power demand.

Construction of the proposed project will not significantly impact air quality. Vehicular emissions will increase from construction equipment during the short-term construction period and over the long-term from highway passenger vehicles. However, State and Federal air quality standards will not be exceeded and no significant adverse impacts are anticipated.

Short-term Mitigation

- Frequent watering during construction activities to maintain dust control in active work areas at least twice daily on days without rainfall.
- Initiation of a construction phasing plan that considers wind patterns with the existing and future residential land uses to minimize downwind dust impacts within the project site and surrounding residential areas.
- Landscaping as soon as practicable, once grading has been completed by lessees.
- Wind screening as appropriate to limit fugitive dust.
- Application of mulch and soil stabilizers on graded areas.
- Covering trucks traveling on roadways and on-site washing to keep dirt from traveled roadways.
- Monitoring dust at the project boundary during the construction period.

All construction activities will comply with State of Hawai'i Air Pollution Control regulations and the provisions of Section 11-60.1-33, HAR, on Fugitive Dust. A combination of mitigation measures will be implemented to minimize air quality impacts. During construction, these measures can be adjusted to reflect current site conditions. Impacts from exhaust emissions of construction vehicles will primarily be mitigated by winds; however, particular care will be taken when construction activities occur near existing homes or highways. A dust control management plan will be developed to identify and address all activities that may generate fugitive dust. The plan will also identify mitigation measures to minimize the potential impact on air quality.

5.5 VISUAL RESOURCES AND OPEN SPACE

The project site is visible from the adjacent Humuniki, Mekia, Poalima, Hihimanu and Kakaina streets, and adjacent agricultural and residential uses. The site affords

uninterrupted panoramic views of the Koʻolau Mountains. There is a row of trees along the Humuniki Street edge of the Kumuhau parcel.

Potential Impacts and Mitigation Measures

The proposed project will be visible to the residential lots on Humuniki, Mekia, Poalima, Hihimanu, Kakaina and Kumuhau streets. Typical one- or two-story residences should not affect mauka views of the Koʻolau Mountains and the design of the homes is likely to be consistent with existing residential structures in the neighborhood.

5.6 POPULATION

Honolulu is the slowest growing County in the State of Hawaiʻi. The 2000 U.S. Census reported that the resident population of Honolulu increased 4.77 percent from 836,231 in 1990 to 876,156 in 2000. Growth in Honolulu is expected to continue, with resident population projections for the year 2010 and 2020 estimated at 929,200 and 999,400, respectively.

The Koʻolaupoko region has also experienced small population growth. From 1990 to 2000, population increased 0.3 percent from 117,694 to 117,994. Projections for the region's year 2010 and 2020 populations are estimated at 118,295 and 118,597 respectively.

Potential Impacts and Mitigation Measures

Assuming three to five people per household and a total of 120 new households once the proposed Waimānalo Residence Lots project is completed and occupied, the development may contribute between 360 and 600 residents to the region's population. However, some future residents of the Waimānalo Residence Lots may already live in the Waimānalo region, and therefore, the actual number of new residents to the region may be lower. The increase in resident population is not anticipated to have a significant adverse impact on the County's resident population or the rural character of the area.

The Waimānalo Residence Lots project will provide native Hawaiians with much needed affordable single-family residential lots (versus competing against all Oʻahu residents in the open market). The beneficiaries of the individual lots are likely to be native Hawaiians already residing on Oʻahu, within the State, and out-of-State. Project build-out is expected to occur over the years and therefore any increase in population will be gradual.

5.7 HOUSING

The *DHHL Applicant Survey Report 2004* indicated that the 14.7 percent of the beneficiaries preferred the Windward Oʻahu region for residential homesteads.

Approximately 2,670 units are needed in Windward Oʻahu to meet surveyed beneficiary demand.

Potential Impacts and Mitigation Measures

Of the Windward Oʻahu lands that are in the DHHL inventory, Waimānalo presents an opportunity to develop residential homesteads and meet beneficiary demand. Within the 19.52-acre site, 120 lots would be designated for single-family residential use for native Hawaiians. The project will help to meet the high demand for homes in Oʻahu and will provide home ownership opportunities for native Hawaiians, especially with escalating residential land prices on the open market. The Waimānalo Residence Lots will also help the DHHL to fulfill its mandate to develop and deliver homesteads to native Hawaiians.

During the pre-consultation and public review periods for the Draft EA, the Hawaii Housing Finance and Development Corporation (HHFDC) stated that it is "generally supportive of the development of the proposed residential lots as they would add to the housing supply."

5.8 LIFESTYLE/CHARACTER OF THE COMMUNITY

According to the 2000 Census, approximately 46.5 percent of the population in the Waimānalo census tract is of Hawaiian or part-Hawaiian ancestry. A 1995 study indicated that employment opportunities in Waimānalo are generally limited to retail, farming and outdoor recreation. Most of the working residents of Waimānalo are employed outside of the community. According to the Census 2000 Profiles, the estimated average unemployment rate in Waimānalo was 8.9 percent. This is compared to 6.2 percent unemployment within the City and County of Honolulu and 3.8 percent in the State of Hawaiʻi during the same time period. The median household income in the Waimānalo census tract was $47,594, while the median household income of the City and County of Honolulu was $51,914 the median household income of the state was $49,820. The median household income of a DHHL family was $45,381(SMS 2004). This disparity of income puts greater pressures on families, especially on children and their education. Currently, some Native Hawaiian families in Waimānalo receive services from Waimānalo Homes Association Community Center, Queen Liliʻuokalani Children's Center, and Kamehameha Schools.

Potential Impacts and Mitigation Measures

The proposed Waimānalo Residence Lots are not expected to have a significant adverse impact on the character of the Koʻolaupoko region. The *Koʻolaupoko Sustainable Communities Plan* states, "Land use patterns should be evaluated not only in terms of existing communities, but in terms of developing new residential communities (i.e., Hawaiian Homes) which are consistent with and which complement the existing Waimānalo atmosphere." The Waimānalo Residence Lots are supported by the *Koʻolaupoko Sustainable Communities Plan* and will blend with the lifestyle and character

of the region. The proposed project will result in positive social impacts, including the enhancement of residents' quality of life through the provision of residential lots to native Hawaiians at a nominal lease rent for 99 years.

5.9 ECONOMIC CHARACTERISTICS

The Kumuhau parcel is currently under a month-to-month revocable permit and is used for farming. This activity generates some revenue and little demand for public facilities and services that require government revenue.

Potential Impacts and Mitigation Measures

In addition to providing opportunities for home construction, the proposed Waimānalo Residence Lots project will generate direct, indirect, and induced construction-related jobs, both within the site and island-wide and Statewide. Construction industries, as well as industries supporting construction, will benefit from the employment and economic opportunities provided by the proposed development. Various nearby businesses in the Waimānalo area would achieve significant economic gains, as construction workers and residents of the proposed development are expected to patronize them.

Numerous individuals and businesses will benefit from increased personal income and expenditures made possible by construction of the Waimānalo Residence Lots. The State will also benefit from the proposed project through the generation of income tax and general excise tax revenues.

6.0

Assessment of the Existing Infrastructure and Public Services and Potential Impacts and Mitigation Measures

6.0 ASSESSMENT OF THE EXISTING INFRASTRUCTURE AND PUBLIC SERVICES, AND POTENTIAL IMPACTS AND MITIGATION MEASURES

This chapter discusses the existing infrastructure of the project area and the proposed infrastructure improvements. Mitigation measures have also been identified to address potential impacts.

6.1 TRANSPORTATION FACILITIES

The Kumuhau Parcel is located south of the intersection of Kumuhau Street and Humuniki Street. Kumuhau Street provides the closest major transportation access to Kalaniana'ole Highway and will be used to access the Kumuhau Street Subdivision. Kumuhau Street is a two-lane roadway, and is one of several local roads serving the agricultural areas in Waimānalo. Traffic on Kumuhau Street stops before turning onto Kalaniana'ole Highway, and Kumuhau Street has separate lanes for left turns and right turns. Currently, Kumuhau Street is estimated to carry peak hour traffic volumes between 90 and 120 vehicles per hour.

Humuniki Street is a curbed, local street that loops around the Humuniki Street Subdivision. Humuniki Street intersects with Kumuhau Street at one end and with Kalaniana'ole Highway at the other end.

The Kakaina Parcel is located northwest of the intersection of Kakaina Street and Hihimanu Street, two-lane roadways that are among several minor collector roads serving the agricultural areas in Waimānalo. The subdivision includes new local streets that will intersect with Kakaina Street and with Hihimanu Street. At the Hihimanu Street intersection, the new local street will be the stop-controlled stems of a new "T"-intersection. At Kakaina Street, a four-way intersection will be formed with Kaulukanu Street. The local street that intersects with Kakaina Street will extend across the site in a northerly direction to connect to Poalima Street, a local residential street that currently serves approximately 30 existing houselots. Five of the houselots in the proposed subdivision will front or have access from Mekia Street.

Vehicular access to the vicinity of the project site would be by way of portions of Poalima Street, Hihimanu Street, and Kakaina Street, or Mekia Street. Poalima Street intersects with Kalaniana'ole Highway at a cross-intersection controlled by a traffic signal. The two-lane Kalaniana'ole Highway is a State highway that links east Honolulu with Windward O'ahu and provides access to Waimānalo. Poalima Street forms the south leg of the intersection and a driveway to a shopping center is the north leg of the intersection. Separate left turn lanes are provided on Kalaniana'ole Highway for drivers wishing to turn into the shopping center or onto Poalima Street.

Poalima Street proceeds south from the highway as a two-lane collector roadway with one lane of traffic in each direction; approximately 0.1 mile from the highway, the main southbound flow of traffic is directed onto Hihimanu Street veering left, as Poalima Street continues straight ahead and becomes a local residential street. Kakaina Street intersects with Hihimanu Street in a cross-intersection approximately 0.1 mile beyond the Poalima Street intersection.

Mekia Street is a local residential street that intersects Kalaniana'ole Highway at an unsignalized "T"-intersection located approximately 400 feet west of the signalized intersection with Poalima Street. A separate left turn lane is provided on the highway for westbound traffic turning to Mekia Street. Traffic on Mekia Street is controlled by a stop sign at the intersection with Kalaniana'ole Highway. The tax map indicates that the west end of Mekia Street is a dead end. In fact, it extends to and intersects with Kakaina Street.

Kalaniana'ole Highway (State Route 72) links East Honolulu with Kailua. It varies in width from two to six lanes. In the vicinity of the proposed project, Kalaniana'ole Highway is a two-lane roadway with a posted speed of 25 miles per hour. In the project area, Kalaniana'ole Highway carries approximately 23,000 vehicles per day, based on Average Daily Traffic (ADT) estimates developed by the State Department of Transportation (DOT) (Table 2).

Table 2 – Traffic Volumes without Project

Year	Vehicles per Day	
1999 ADT *	20,644	
2003 ADT *	21,895	
2006 ADT**	22,880	
Estimated 2006 Peak Hours of Traffic		
Direction on Kalaniala'ole Highway	**AM Peak Hour**	**PM Peak Hour**
Westbound	945	950
Eastbound	770	950

* Source: State of Hawai'i Department of Transportation Highways Division, *Traffic Summary – Island of Oahu, 2003.*

** Estimated

During peak traffic hours, high volumes of traffic on Kalaniana'ole Highway result in very long delays for traffic on Kumuhau Street attempting to enter the highway. At the signalized intersection with Poalima Street, the high volume of traffic on the highway is served by a long signal cycle, resulting in long delays for traffic on Poalima Street. At the Hihimanu Street intersection, the new local street will be the stop-controlled stems of a new "T"-intersection. At Kakaina Street, a four-way intersection will be formed with Kaulukanu Street.

The State Department of Transportation is planning to improve Kalaniana'ole Highway between Olomana Golf Course and Waimānalo Beach Park to increase safety and

improve operations on the highway. The project, intended to improve this segment of the highway to conform with current guidelines of the Americans with Disabilities Act (ADA), will include the addition of left turn lanes (and shelter lanes for vehicles turning left from these side streets onto the highway) at several intersections, including Kumuhau Street, Humuniki Street, and Mekia Street.

The only existing bus routes (57, 77 and 89) in the vicinity of the project run along Kalaniana'ole Highway. From the furthest points for both parcels, Kalaniana'ole Highway is located approximately 2,200 feet away. At a walking speed of approximately 4 miles per hour, Kalaniana'ole Highway is approximately a 6 to 7 minute walk. In the morning, TheBus route 89 provides express service to the Honolulu Central Business District (CBD), and in the afternoon this same route provides express service to Waimanalo (and points beyond) from the CBD. This bus is equipped with bike racks. On the State Highways Division website (http://www.hawaii.gov/dot/highways/bike/oahu/index.htm), Kalaniana'ole Highway in the vicinity of the project site is identified as a "Suggested Route for Experienced Bicyclists" (these include roads with space for adequate shared use between bicyclists and motorists). Kumuhau Street is identified as a "Suggested Route for Novice Bicyclists" (these include bicycle paths, roads with bicycle lanes or roads that are wide enough to accommodate bicyclists).

Potential Impacts and Mitigation Measures

During the pre-consultation period for the Draft EA, the State Department of Transportation (DOT) noted that "the project will contribute additional traffic to and from the nearby State highway. A traffic assessment report should be done for the agency developing the land and the report should be included with the environmental assessment that you are preparing."

A copy of the Traffic Impact Assessment Report is attached as Appendix E and summarized below. Traffic generated by the project was estimated using average trip rates for single-family dwellings, as shown in Table 3.

Table 3 – Project Generated Traffic

Trip Generation rates*		Project Trip Generation	
Average Trips per Single-Family Dwelling	**Percentage of Trips Entering**	**Vehicles Entering Subdivision**	**Vehicles Exiting Subdivision**
Average Weekday			
9.57	50	570	570
AM Peak Hour			
0.75	25	25	70
PM Peak Hour			
1.01	63	75	45

* Source: Institute of Transportation Engineers, *Trip Generation, 7th Edition.*

When the Kumuhau Street Subdivision reaches full occupancy, traffic volumes on Kumuhau Street will increase by approximately 60 percent over existing volumes. However, the 70 residential lots in the Kumuhau Street Subdivision are not expected to result in a significant traffic impact on Kumuhau Street immediately, since only lots will be provided by this project and build-out will occur over several years. The existing two-lane roadway will adequately handle the increased traffic volume.

Traffic delays during peak hours at the intersection of Kumuhau Street and Kalaniana'ole Highway will increase with additional traffic. However, the addition of left turn lanes from Kalaniana'ole Highway onto streets including Kumuhau Street and Humuniki Street, as well as the addition of shelter lanes for left-turn movements from side streets onto Kalaniana'ole Highway, (planned by the DOT) will mitigate these delays.

The Kakaina Street Subdivision project will create 50 houselots. The proposed subdivision will include a new local street that connects Poalima Street with Kakaina Street, providing alternative access routes not only for the new lots, but also for existing properties on Poalima Street and the nearby Mekia Street. Project traffic will have several options for entering or leaving the project site. Five of the lots will front or have access from Mekia Street; the other lots will be served by two local streets. The street oriented generally in a north-south direction, which directly serves eight lots, will begin at the existing turn in Poalima Street near Mekia Street and proceed south, ending across the end of Kaulukanu Street, converting the existing "T"-intersection with Kakaina Street to a cross-intersection. The other street, oriented east-west, will serve 37 lots and will extend in a westerly direction from a new "T"-intersection with Poalima Street, and extend across the north-south street, to a cul-de-sac.

The five additional lots on Mekia Street are 10% of the total project and represent an increase of approximately 8% in the number of existing lots served by Mekia Street; a corresponding increase in traffic volume on Mekia Street can be expected. Based on the traffic estimates shown in Table 3, the impact of full occupancy of these lots will be less than 50 vehicles per day and about 5 vehicles per hour in the PM Peak Hour.

Full occupancy of the other lots in the Kakaina Street Subdivision will add 430 vehicle trips per day and 46 vehicle trips in the PM Peak Hour. If all of the project traffic were to use the Poalima Street intersection of Kalaniana'ole Highway and Poalima Street, the "critical movements" at the intersection would increase by 30 vehicles per hour in the peak hour, or about 2.2% of the intersection's capacity.

The 50 residential lots in the Kakaina Street Subdivision are not expected to result in a significant traffic impact on the road system immediately, since only lots will be provided by this project and build-out will occur over several years. The existing two-lane roadways in the area will adequately handle the increased traffic volume.

Traffic delays during peak hours at the intersection of Poalima Street and Kalaniana'ole Highway will increase with additional traffic, some of which will be due to the Kakaina

Street Subdivision. However, improvements are being planned on Kalaniana'ole Highway to provide for future traffic will mitigate these delays. Increases in delays at the Mekia Street intersection due to both increased highway traffic and additional traffic generated by five houselots will be mitigated by the addition of a shelter lane to facilitate left turns. The minor impacts that could occur at the signalized intersection of Kalaniana'ole Highway and Poalima Street are not expected to be significant as improvements are planned for this segment of the highway to conform with current guidelines of the Americans with Disabilities Act (ADA).

Together, the two projects will add 1,140 vehicle trips on an average weekday. If 80% of the trips generated by the two projects were to go to or come from the highway west of Waimānalo, the impact of full occupancy of the project would be an increase in highway traffic of 4% of existing traffic, compared to the recent annual increases in traffic volume on the highway of approximately 1½% per year. The highest peak hour impact would be an increase of 62 vehicles per hour eastbound in the PM Peak Hour, or about 6½% of the existing peak hour volume.

For those future residents with jobs in Honolulu, it is possible to commute to work via Kumuhau Street and catching TheBus Route 89 utilizing TheBus' bike rack and transporting the riders' bikes to destination points in Honolulu. This would be supportive of and encourage other non-motorized modes of transportation systems that reduce reliance on the private automobile, conserve energy, decrease pollution and provide safe accommodation for their users.

During the pre-consultation period for the Draft EA, The City's Department of Transportation Services (DTS) noted that "the planning and design of subdivision roads should conform to City and County of Honolulu roadway standards… The project must be designed to Americans with Disabilities Act (ADA) Accessibility Guidelines standards." The design of applicable roadways will conform to the City and County of Honolulu's and ADA Accessibility Guidelines standards. Improvements will be constructed to bring the west end of Mekia Street into compliance with County roadway standards. During project construction, area residents may experience a slight increase in traffic delays in the Kumuhau and Kakaina Streets Subdivision. Careful consideration will be given to area residents during the construction of roadway improvements. Project-related construction will occur only during daytime hours. Area residents will be kept apprised of the details of the proposed project.

During the pre-consultation period for the Draft EA, the City's Department of Design and Construction (DDC) noted that "there are two, possibly three bridges within the project area" and expressed concern that any heavy equipment expected to be used are within load carrying capacities of these bridges. During the construction bid process, the contractors will be informed that the site may need to be reached via roads that cross small bridges and it will be the responsibility of the contractor and subcontractors to verify the load limit capacity of each bridge that may be crossed to ensure that the weight of any heavy equipment expected to be used and/or vehicle transporting materials/machinery is within the bridges' load carrying capacities.

During the public review period, the City's Department of Design and Construction (DDC), recommended that "During the design phase, the developer's structural consultant shall investigate the status and condition of each bridge and determine if the bridge can support the load capacity set by the City. A copy of the report shall be submitted to the City." DHHL does not believe this is reasonable, but instead shall have the selected contractor determine the route(s) and confirm that any bridges crossed in transporting materials or equipment to and from the project site are structurally adequate for his trucks and their loads.

6.2 WATER SUPPLY FACILITIES

A 12-inch water line along Kumuhau Street provides both fire protection and domestic service to the existing Humuniki Street Subdivision.

Potential Impacts and Mitigative Measures

During the pre-consultation period for the Draft EA, the Board of Water Supply (BWS) noted that "the existing water system is presently adequate to accommodate the proposed development… The final decision on the availability of water will be confirmed when the building permit is submitted for approval." During the public review period, the BWS wrote: "Our comments on the pre-consultation for the draft environmental assessment contained in this report, are still applicable." Per comments received from the State Department of Land and Natural Resources Engineering Division during the public review period, when water is made available, DHHL will be required to pay BWS a resource development charge and a Water System Facilities Charge for transmission and daily storage. DHHL acknowledges that the project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the building permit. In addition, the on-site fire protection requirement will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department. As requested during the public review period, water demands and calculations will be provided to the DLNR Engineering Division so that the proposed project can be included in the State Water Projects Plan Update.

6.3 WASTEWATER FACILITIES

A 12-inch sewer line along Kumuhau Street provides sewer service to the Humuniki Street residential subdivision. Approximately 65 percent of residences in the Waimānalo Wastewater Service area are served by a centralized wastewater collection, treatment, and disposal system. The Waimānalo Wastewater Treatment Plant (WWTP) has a 1997 rated average design capacity of 0.7 million gallons per day (mgd) and an average flow of approximately 0.6 mgd. The wastewater collection system, including the Kahawai Wastewater Pumping Station (WWPS), is owned by the State of Hawai'i, and is operated and maintained by the City and County of Honolulu. The plant has a record of unstable

performance and periodic effluent quality violations. The treated effluent is currently disposed through the use of subsurface injection wells. The existing capacity of the disposal wells is marginally adequate due to clogging of the wells from excessive suspended solids in the effluent. These problems are believed to stem from increased loading on the plant and the use of outdated liquid stream treatment technology. The homes in Waimānalo that are not connected to the public sewers are served by individual wastewater systems, which are generally either cesspools or septic tanks with leaching fields.

Potential Impacts and Mitigation Measures

The State has released $18.2 million to improve the Waimānalo Wastewater Treatment Plant. According to the DLNR project manager, construction of the improvements has started and completion is scheduled for September 2008. It appears that upgrades to the WWTP will be completed before the start of construction of on-site infrastructure improvements. The project will thus be designed with the assumption that additional connections to the municipal sewer system will be available when construction of on-site infrastructure is complete.

During the public review period for the Draft EA, the Department of Planning and Permitting wrote: *"a Sewer Connection Application Form (2006/SCA-0609) was submitted and denied on September 29, 2006. New connections to the Waimānalo Wastewater Treatment Plant (WWTP) are being denied until authorized by the City Department of Environmental Services."* The completion of the Waimānalo Wastewater Treatment Plant is expected to coincide with the start of construction of the Kumuhau Subdivision Improvements. As such, upon completion of upgrades to the Waimānalo WWTP, a Sewer Connection Application Form will be resubmitted for approval. If there are unforeseen delays, house construction will not start until the Waimānalo WWTP is upgraded.

The proposed Kumuhau Subdivision will be sewered by gravity lines flowing from Kumuhau Street toward Humuna Place. The sewer line will connect to an existing manhole at the cul-de-sac of Humuna Place. An easement will be required through the Hawaii Housing Authority "Waimanalo Core Development". The proposed Kakaina Subdivision will be sewered by gravity lines with connection points to the existing system at Kakaina Street and Hihimanu Street.

6.4 DRAINAGE FACILITIES

During the public review period, the City and County of Honolulu Department of Design and Construction wrote: "The existing surface drainage flow on Kumuhau Street flows along both sides of Kumuhau Street toward Kalanianaole Highway." Existing drainage facilities within Kumuhau Street consist of manholes, catchbasins and underground 18- and 24-inch concrete drain pipelines. The collected storm runoff is conveyed by underground drain pipelines to an existing concrete channel which eventually discharges into an existing unlined ditch on the makai side of Kalaniana'ole Highway.

Potential Impacts and Mitigative Measures

The proposed development will increase runoff by introducing impermeable surfaces such as roadways and structures. There are 18-inch drain lines located along Kumuhau Street. These drain lines are currently at capacity.

The drainage system for the Kumuhau parcel will be designed to minimize runoff towards the lower elevation areas of Kumuhau Street, while maintaining the existing Kumuhau Street drainage flow towards Kalaniana'ole Highway. The proposed on-site drainage system for the Kumuhau Subdivision will include new catch basins, drain manholes, a drain outlet source and drain lines. The drain lines will transport the runoff to the outlet structure near the southeast boundary of the property. Silt will be filtered out of the runoff before it is discharged into Kahawai Stream. Discharges to Kahawai Stream and to Kumuhau Street would not be significantly increased over the existing conditions.

The proposed on-site drainage system for the Kakaina Subdivision will include new catch basins, drain manholes, a drain outlet source and drain lines. The drain lines will transport the runoff toward a roadway swale at the northeast boundary of the property, into a drain inlet and underground system which will then discharge runoff into an existing drainage way located on the easterly side of Hihimanu Street.

6.5 SOLID WASTE DISPOSAL FACILITIES

Vegetation removed from property during the construction of the project will be chipped and disposed at a City and County approved landfill or waste-to-energy facility. Other construction material debris will be recycled or disposed in a similar manner. Solid waste generated during the operation of the projects will be collected and disposed of by the City and County, Department of Environmental Services, Refuse Division.

On O'ahu, most residential and general commercial trash is disposed at H-POWER, the City's waste-to-energy plant located at Campbell Industrial Park. The facility processes over 600,000 tons of solid waste annually, reducing the volume of solid waste going into landfills by 90 percent. H-POWER also generates about 7 percent of O'ahu's electricity. The electricity generated is bought under a purchase power agreement with Hawaiian Electric Company, Inc. (HECo). Ash and non-processables are transported and buried at the Waimānalo Gulch Landfill.

Potential Impacts and Mitigation Measures

The proposed Waimānalo Residence Lots will generate solid waste during the construction of infrastructure and as the project achieves build-out. The quantity of solid waste generated will vary with different construction activities, and some wastes may require separate and special disposal methods. However, the project is not expected to

have a significant impact on the H-POWER facility or the Waimānalo Gulch Landfill. As recommended by the Office of Environmental Quality Control during the public review period, a construction waste recycling plan will be developed.

6.6 ELECTRICAL AND COMMUNICATIONS FACILITIES

Electrical Facilities. The proposed project site currently has minor electrical service. Electricity for the surrounding area is provided by Hawaiian Electric Company, Inc. (HECo). HECo's available generation capacity (peak demand) is 1,669 megawatts (MW). Overhead electrical lines exist along Kumuhau Street.

Communications Facilities. Telephone and communications service is not currently provided at the proposed project site. Sandwich Isles Communications, Inc. (SIC) currently provides telephone service to DHHL properties in the Waimānalo area and will be the service provider for this project. Oceanic Time Warner Cable has an agreement with Verizon Hawaii for the use of its poles and has attached cables to extend their facilities to Waimānalo. Oceanic Time Warner Cable also has a conduit occupancy agreement with SIC, allowing it to extend service into DHHL properties.

Potential Impacts and Mitigation Measures

Electrical Facilities. Electrical facilities will be installed to provide electricity for the Waimānalo Residence Lots. Electrical service will be provided by HECo from the adjacent overhead pole lines. The Waimānalo Residence Lots will increase the existing electrical demand; however, this increase is not expected to affect the ability of HECo to provide service to other areas.

Communications Facilities. Sandwich Isle Communication, Inc. has an exclusive license to provide telecommunication services to new developments on Hawaiian Home Lands. All telecommunication infrastructure (i.e., underground conduits, handholes, and cabling) will be installed by SIC, at no cost to the DHHL. The proposed project is not expected to adversely affect SIC or other SIC service areas. During the public review period, Sandwich Isles Communications, Inc. had no comments.

Electrical and communications improvements necessary to support the development can be served by utility companies, with some off-site work required. The off-site improvements are ongoing activities for the utility companies and should not have an adverse effect on their ability to service other areas. Cables and ducts will be suitable for underground applications and will be tolerant of both wet and dry conditions. All electrical and communications utility systems will be constructed and maintained according to approved utility standards. On-site facilities will have minimal impact on the environment, as noise, aesthetic, and safety considerations will be within normally applied guidelines.

6.7 EDUCATIONAL FACILITIES

Public Schools. Public schools in the project area comprise the State Department of Education (DOE) Kailua Complex. Public schools located near the project area include Blanche Pope Elementary, Waimānalo Elementary & Intermediate, and Kailua High and are 2.6, 3.0, 1.0, and 3.1 miles from the project site, respectively. Official enrollments for these schools are shown in Table 4.

Table 4 - Kailua Complex 2002 to 2005 Fall Enrollments

School Name	2002-2003	2003-2004	2004-2005
Blanche Pope Elementary	314	304	281
Waimānalo Elementary & Intermediate	558	575	532
Kailua High	1045	986	987

Source: State of Hawai'i, Department of Education, *School Status and Improvement Report: School Year 2004-2005* (November 2005).

Private Schools. In addition to public schools, there are private schools located within 13 miles of the Waimānalo Residence Lots. Official enrollments for these schools are shown in the following table.

Table 5 - Private Schools Located Near the Project Site

School Name	2004-2005 Enrollment	Grades	Distance from Project (mi)
Kamehameha Schools Waimānalo Preschool	72	P	2.6
St John Vianney School	276	K-8	3.2
Kailua Christian Academy	54	K-12	3.8
Trinity Christian School	245	K-6	4.0
St Anthony's School	n/a	PK-8	5.4
Windward Adventist School	53	K-8	5.4
Redemption Academy	150	K-12	5.5
Le Jardin Academy	600	PK-10	6.6

Source: School Tree Organization. http://hawaii.schooltree.org/Honolulu-County-Schools.html

Potential Impacts and Mitigation Measures

The Waimānalo Residence Lots will likely introduce school-aged children who would enroll at Blanche Pope Elementary, Waimānalo Elementary & Intermediate, and Kailua High schools. Fall enrollments at these schools have declined since the 2001 to 2002 school year, according to the DOE *School Status and Improvement Report: School Year 2003-2004* (DOE 2005), and the report shows that these schools are under capacity and should be able to accommodate new students. Some future residents of the Waimānalo Residence Lots may already reside and attend public schools in the area. In addition, some students may obtain geographic exemptions to attend schools within or outside of the Kailua Complex, and others may enroll at private schools in the area. Therefore, new school-aged children associated with the proposed project are not expected to adversely affect existing educational facilities. Additionally, project build-out is expected to occur

slowly over the years. As such, the increase in population and the demand for educational facilities will occur gradually.

During the pre-consultation period for the Draft EA, the State Department of Education (DOE) noted that "students living in the project would be expected to attend Waimānalo Elementary and Intermediate School and Kailua High School. There is presently sufficient excess capacity at both of the schools to accommodate the new students who will live in the project."

6.8 POLICE PROTECTION

The nearest Police Substation is located at 219 Kuʻulei Road in the neighboring community of Kailua.

Potential Impacts and Mitigative Measures

There will be an occasional and unavoidable demand for police protection services associated with the project, however, it is anticipated that the existing police service will not be adversely affected by the proposed development. Additionally, project build-out is expected to occur slowly over the years. As such, the increase in population and the need for police protection will occur gradually. During the pre-consultation and public review periods for the Draft EA, The City and County of Honolulu Police Department (HPD) noted that "this project should have no unanticipated impact on the facilities or operations of the Honolulu Police Department."

6.9 FIRE PROTECTION

The Waimānalo Fire Station is located at 41-1301 Kalanianaʻole Highway, approximately 1.3 miles from the project site. There is an existing fire hydrant on Kumuhau Street within the vicinity of the proposed project site.

Potential Impacts and Mitigative Measures

During the pre-consultation period for the Draft EA, the City and County of Honolulu Fire Department (HFD) noted that fire apparatus roads should be designed and constructed in accordance with the Uniform Fire Code, Section 902.2. The project subdivisions will be designed to include roadways that will allow fire apparatus access within 150 feet of the first floor of all future structures. As required by the HFD, a water system connecting to the Board of Water Supply system will be installed, including on-site fire hydrants and mains capable of supplying the required fire flow. In addition, civil drawings will be submitted to the HFD for review and approval.

There will be an occasional and unavoidable demand for fire protection services associated with the project. The applicant will advise the Fire Department of project

implementation and phasing to permit adequate planning and advance notice of project completion. Existing levels of fire protection services and facilities are considered adequate to service the proposed project.

As part of the proposed project, the water transmission system and lines with adequate fire flow capacity and fire hydrants will be installed within the property, improving the fire fighting capabilities in the area. The water transmission system within the project is anticipated to fall within the Board of Water Supply jurisdiction and all related fire infrastructure will be designed to meet City standards. The design standards shall include the location of fire hydrants and minimum fire flow standards.

The project roadways will be designed to accommodate access for emergency vehicles into the project site. Roadways will be all-weather surfaces and will be designed to meet Department of Transportation Service and Fire Department standards. Additionally, project build-out is expected to occur slowly over the years. As such, the increase in population and the need for fire protection services will occur gradually.

During the public review period, the Honolulu Fire Department wrote that it had reviewed the material provided (the Draft EA) "…and it has no objections to the proposed project."

6.10 HOSPITALS/HEALTH CARE FACILITIES

The Waimānalo Health Center provides primary patient care to adults and children. The clinic is staffed with three physicians. Also within Waimānalo Town is the ʻOhana Physicians Group consisting of three private medical offices. All facilities currently provide only out-patient care. The nearest hospital is Castle Medical Center in Kailua, and is 7 to 10 minutes from the project location by ambulance service. Ambulance service is available from the Waimānalo Fire Station.

Potential Impacts and Mitigative Measures

There will be an unavoidable and occasional need for emergency health care services. However, the proposed project will not have a long-term adverse impact on emergency medical services.

6.11 RECREATIONAL FACILITIES

Recreational Facilities near the Waimānalo Residence Lots include; Olomana Golf Links, Waimānalo District Park, Bellows Field Beach Park, Honolulu Polo & Club Field, Waimānalo Bay State Recreation Area, Waimānalo Beach Park, Kaiona Beach Park, Enchanted Lake Park, Mauna-wili Trail, Kaupo Beach Park, Sea Life Park, Makapuʻu Beach, and Kaʻiwa Ridge Trail.

Table 6 - Recreational Facilities Near the Project Site

Recreation Site	Distance (mi)
Olomana Golf Links	0.7
Waimānalo District Park	1.3
Bellows Field Beach Park	1.5
Honolulu Polo & Club Field,	1.6
Waimānalo Bay State Recreation Area	1.7
Waimānalo Beach Park	1.8
Kaiona Beach Park	3.0
Enchanted Lake Park	3.5
Mauna-wili Trail	4.6
Kaupo Beach Park	5.1
Sea Life Park	5.2
Makapuʻu Beach	5.3
Kaʻiwa Ridge Trail	5.9

Potential Impacts and Mitigative Measures

During the public review period, the City and County of Honolulu Department of Parks and Recreation wrote:

> *We understand the development of this 120 unit residential subdivision by DHHL is exempt from the requirements of the City and County of Honolulu Park Dedication Ordinance however, there never seems to be enough recreational opportunities for the families that move into new subdivisions like this all over the island.*
>
> *Some open space and recreational area will compliment the DHHL Waimanalo Residence Lots subdivision and we encourage Hawaiian Home Lands to reconsider their site development plan to incorporate at least one on site open recreational area with a composite play apparatus designed for children 5 to 12, with supporting benches, tables and landscaping into their final plan.*

The southern portion of the Kumuhau parcel along Kahawai Stream is situated within a flood zone. The cost of stream improvements to mitigate the danger would be very high. Therefore, construction of those house lots in the flood zone may be deferred indefinitely. If so, a portion of that area could be improved with minimal grading and landscaping and serve as a passive park for the residents.

The proposed project will generate new residents to the area, however; project build-out is expected to occur slowly over the years. Therefore, additional demand on area parks

will occur gradually. The proposed project is near the Waimānalo Hawaiian Homes Association Community Center which also provides recreational opportunities.

6.12 COMMUNITY SERVICES

Community services and public facilities in the vicinity of the Waimānalo Residence Lots project include the following:

- Several public and private schools in Waimānalo and Kailua(see Section 6.7);
- Honolulu Police Department Substation in Kailua (see Section 6.8);
- Waimānalo Fire Station, (see Section 6.9);
- Hospitals/healthcare facilities including the Waimānalo Health Center, Castle Medical Center and ʻOhana Physicians Group in Waimānalo and Kailua (see Section 6.10);
- Ambulance service to Kailua (see Section 6.10);
- Several recreational facilities (see Section 6.11);
- Churches in Waimānalo;
- Public libraries in Waimānalo and Kailua;
- Waimānalo Hawaiian Homes Association Community Center
- Post office on Kalanianaʻole Highway; and
- Commercial centers in Waimānalo, Hawaiʻi Kai and Kailua.

Potential Impacts and Mitigation Measures

The proposed Waimānalo Residence Lots are not expected to have any adverse impact on community services. Anticipated impacts on public and private schools, police and fire facilities, hospitals and healthcare facilities, and recreational facilities were previously discussed in this chapter. Mitigation measures were also identified to minimize potential impacts. Although the project will introduce new residents to the area and increase the demand on these facilities and services, project build-out is expected to occur over gradually over the years. As such, the increase in demand will be gradual as lessees construct their homes and move onto the property.

During the public review period, the Department of Community Services (DCS) wrote that the proposed project will have no impact on the projects and programs of the DCS.

7.0

Alternatives to the Proposed Action

7.0 ALTERNATIVES TO THE PROPOSED ACTION

7.1 ALTERNATIVES CONSIDERED

Under Section 11-200-10(6), HAR, Environmental Impact Statement Rules, the alternatives to the proposed action considered are limited to those that would allow the objectives of the project to be met, while minimizing potential adverse environmental impacts. The feasible alternatives must also address the project's economic characteristics while responding to the surrounding land uses that will be impacted by the project. In conformance with applicable regulations, the following alternatives, including alternative sites and uses of the property, have been identified and investigated.

7.2 ALTERNATIVE SITES

The DHHL has a limited amount of developable land for housing its beneficiaries. The Waimānalo tract is the third largest of DHHL's land holdings on Oʻahu, after Nānākuli and Lualualei (DHHL, 2003). In the *DHHL Applicant Survey, 2003 (SMS, 2004)*, the largest percentage of applicants preferred the Windward area to other areas offered statewide. The proposed Waimānalo Residence Lots will provide single family lots to native Hawaiians in an area highly desired by Hawaiian Home Lands applicants. The project parcels were selected from a number of sites offered to the DHHL by the Department of Land and Natural Resources, thus the evaluation of alternate sites was completed prior to the start of this Environmental Assessment

7.3 "NO-ACTION" ALTERNATIVE

The mission statement of the DHHL is to manage the Hawaiian Home Lands trust effectively and to develop and deliver land to native Hawaiians. The "no-action" alternative would prevent the DHHL from fulfilling its mission of providing land to native Hawaiian beneficiaries on the DHHL waiting list. This alternative would forego opportunities for home ownership and the enhancement of residents' quality of life. Under this alternative, the site would continue to be used for agriculture, underutilized in terms of the positive socio-economic benefits that the proposed project would provide. Therefore, the no-action alternative has been rejected from further consideration. During the pre-consultation period for the Draft EA, the Hawaii Housing Finance and Development Corporation (HHFDC) stated that it is "generally supportive of the development of the proposed residential lots as they would add to the housing supply."

7.4 ALTERNATIVES RELATED TO DIFFERENT DESIGNS OR DETAILS OF THE PROPOSED ACTIONS WHICH WOULD PRESENT DIFFERENT ENVIRONMENTAL IMPACTS

Different designs related to density and design capacity could be applied to the proposed project and would result in different environmental impacts. For example, a higher

density development (with the same unit) count would reduce the buildable area and quantity of surface runoff, although more land-efficient, multi-family dwellings would not be appropriate to the rural character of the surrounding area. The quantities of water used and solid waste, wastewater, and traffic generated would also be greater with a higher density design with a greater unit per acre count than proposed. However, more beneficiaries could be served. With a lower density than what is proposed, infrastructure costs would be greater (on a per lot basis) since the development would be spread out. In addition, less DHHL beneficiaries would be served. The Waimānalo Residence Lots will provide 120 single family lots compatible with the rural character of Waimānalo.

7.5 ACTIONS OF A SIGNIFICANTLY DIFFERENT NATURE WHICH WOULD PROVIDE SIMILAR BENEFITS WITH DIFFERENT ENVIRONMENTAL IMPACTS

There are no known actions significantly different than the proposed Waimānalo Residence Lots that would provide the same level of housing opportunities for native Hawaiians. Depending on the environmental conditions and the availability of infrastructure, DHHL lands are used for agricultural (including ranching), industrial, or public use (such as community centers and preschools). All of these uses would benefit DHHL programs and beneficiaries, but each would have different environmental impacts. The proposed project would help fulfill the high demand for Hawaiian Home Land awards in this area.

8.0

Anticipated Determination, Findings, and Reasons for Supporting Determination

8.0 ANTICIPATED DETERMINATION, FINDINGS, AND REASONS FOR SUPPORTING DETERMINATION

This EA has evaluated the potential primary and secondary environmental impacts, both short-term and long-term, that could result from the proposed Waimānalo Residence Lots. Mitigation measures have also been proposed to address potential impacts resulting from the project.

8.1 ANTICIPATED DETERMINATION

Based on the significance criteria established by the *Hawaii Administrative Rules* (HAR) and the assessment of potential environmental impacts, a FONSI is anticipated to be issued by the DHHL (Accepting Authority), pursuant to Chapter 343, HRS.

8.2 SIGNIFICANCE CRITERIA

According to the Section 11-200-12, HAR, Significance Criteria, an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects and its short and long-term effects. The HAR establish a "significance criteria" to determine whether significant environmental impact will occur as a result of a proposed action. An action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The proposed site has been historically disturbed and does not contain any significant natural resources. Several archaeological studies have been conducted for the project area and have been coordinated with the State Historic Preservation Division (SHPD). The DHHL will continue to work with the SHPD and other agencies to ensure the appropriate design and construction of the project. Should any archaeologically significant artifacts, bones, or other indicators of previous on-site activity be uncovered during construction phases of development, their treatment will be conducted in compliance with the requirements of the SHPD.

(2) Curtails the range of beneficial uses of the environment;

The Kumuhau parcel is currently under a month-to-month revocable permit and is used for farming. The Kakaina parcel is vacant and unencumbered. The proposed project would provide improved lots for 120 native Hawaiian families. This will help to ease the statewide shortage of housing as residences vacated by DHHL beneficiaries will become available to the general population. In terms of socio-economic benefits that would be

provided with the proposed project (especially given current high land costs), the site is underutilized. The proposed project is not expected to adversely impact the natural environment.

(3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project is consistent with the environmental policies, goals, and guidelines established in Chapter 344, HRS, and this EA has addressed such issues as: natural resources conservation (to the extent possible); enhancement of the quality of life; population; land, water, visual, air, and other natural resources; flora and fauna; parks, recreation, and open space; economic development; transportation; energy; community life and housing; education and culture; and citizen participation.

(4) Substantially affects the economic welfare, social welfare, or cultural practices of the community or state;

The proposed project will positively affect the economic and social welfare of the native Hawaiian community by providing housing opportunities in a desirable area. The Waimānalo Residence Lots will be developed on approximately 19.52 acres and will include 120 single-family residential lots. This project will also affect the economic and social welfare of the State by adding to the statewide inventory of housing opportunities.

Construction of Waimānalo Residence Lots will also benefit the State by creating temporary jobs and increasing sales within the construction industry. Income taxes and sales taxes from the expenditure of construction employees' wages will be generated as a result of this development.

The proposed Waimānalo Residence Lots are not expected to affect the lifestyle and character of the Windward region, and the project is consistent with the *Koʻolaupoko Sustainable Communities Plan* goal for the "immediate implementation of programs and settlement of Native Hawaiians on lands of the Department of Hawaiian Home Lands."

There are no known cultural practices currently occurring on the site. Any culturally significant sites may have been destroyed by ranching and agricultural activities surrounding and within the property. Should any unknown sites be encountered during project development, work in the immediate area will halt and the State Historic Preservation District (SHPD) will be notified in accordance with State regulations.

(5) Substantially affects public health;

Construction of Waimānalo Residence Lots may pose the potential for temporary impacts to noise and air and water quality levels; however, these potential impacts will be short-term and are not expected to substantially affect public health. All construction activities will comply with applicable regulations and will implement appropriate mitigation

measures as necessary. After construction, the Waimānalo Residence Lots should have minimal impact on ambient noise levels or air and water quality.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The proposed DHHL Waimānalo Residence Lots will provide eligible native Hawaiians with much needed single-family residential lots. Although the proposed development may introduce new residents to O'ahu, the demand for energy and water, as well as solid waste and wastewater generation, should not increase significantly, either regionally or island-wide. Additionally, project build-out will occur gradually over the years. As such, increased demand on infrastructure will occur gradually.

(7) Involves a substantial degradation of environmental quality;

The proposed project is not expected to substantially degrade environmental quality. Past agricultural activities have significantly altered the land. Appropriate best management practices will provide safeguards for protection of water quality during the short-term construction period. Potential impacts to the environment resulting from development, and appropriate mitigation measures have been identified throughout this EA.

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;

Since much of the Windward region has been historically used for agricultural and cattle grazing purposes that altered the natural environment, the DHHL Waimānalo Residence Lots and other developments planned in the area are not expected to have a cumulative or considerable adverse impact on the environment.

(9) Substantially affects a rare, threatened or endangered species or its habitat;

No endangered, threatened, or candidate endangered avian or mammalian species were discovered on the property. As such, none are expected to be affected by the proposed Waimānalo Residence Lots.

(10) Detrimentally affects air or water quality or ambient noise levels;

Construction activities for development of the Waimānalo Residence Lots could potentially impact noise and air and water quality levels (i.e., fugitive dust from grading work, noise and exhaust emissions from construction equipment and vehicles). However, these potential impacts will be short-term and are not expected to be detrimental. All construction activities will comply with applicable regulations and will implement appropriate mitigation measures as necessary.

After construction, the Waimānalo Residence Lots are not expected to adversely impact ambient noise levels or water and air quality. Although impervious surfaces will be

created on currently undeveloped land, any increase in runoff would be accommodated by proposed drainage improvements and should not detrimentally affect water quality. The project will also introduce motorized vehicles, which could impact noise levels and air quality. However, no long-term regional air quality impacts are anticipated, as new technologies, increasingly stringent Federal air pollution control regulations, and walking and biking may offset potential increases in air pollution.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

The Waimānalo Residence Lots project is located in Waimānalo in the Koʻolaupoko District on Oʻahu. The site is on the mauka side of Kalanianaʻole Highway along Kumuhau Street and is approximately 19.52 acres in size. The project site is not located in an environmentally-sensitive area such as a tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, or coastal waters and would therefore have no adverse impacts upon such areas. The majority of the project site is located in Zone X, which lies outside the 500-year flood plain. While portions of both parcels closest to Kahawai Stream are identified as Zone A, which lies within the 100-year flood plain (Figure 8), the project will be designed not to obstruct flow and exacerbate the potential for flooding on adjoining properties.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies;

According to the City and County of Honolulu Coastal View Study (1987), the Waimānalo Residence Lots will not impact any stationary or roadway views from the major regional roadway through Waimānalo, Kalanianaʻole Highway. Additionally, shoreline and forest views are not visible from the site.

The site is located at lower elevations, and there are no ocean views, however the Koʻolau Mountains are visible to the south. Once fully developed, views from the project will be similar to typical subdivisions such as the much larger Humuniki Street Subdivision.

(13) Requires substantial energy consumption.

Construction of the proposed Waimānalo Residence Lots are not expected to require substantially more energy than other projects of similar size and scale. The proposed project will provide 120 single family residential lots. Lessees will be responsible for constructing their homes. Project build-out will occur slowly over the years, therefore demands for energy will be gradual.

9.0

Consulted Parties and Participants in the EA Process

9.0 CONSULTED PARTIES AND PARTICIPANTS IN THE EA PROCESS

Letters requesting pre-consultation comments on the proposed project were sent to various agencies in August 2006. The agencies that responded during the pre-consultation period or agency documents consulted in the preparation of this Draft EA are listed below. Pre-consultation comment letters and response letters have been reproduced and included in Appendix F.

State of Hawai'i

- Department of Agriculture
- Department of Business, Economic Development and Tourism, Hawaii Housing Finance and Development Corporation
- Department of Business, Economic Development and Tourism, Land Use Commission
- Department of Education
- Department of Land and Natural Resources, Land Division
- Department of Transportation
- Office of Environmental Quality Control
- University of Hawai'i, Land Study Bureau

County of Honolulu

- Department of Community Services
- Department of Design and Construction
- Department of Facility Maintenance
- Department of Parks and Recreation
- Department of Planning and Permitting
- Department of Transportation Services
- Fire Department
- Police Department
- Board of Water Supply
- Waimānalo Neighborhood Board

Federal

- Department of Agriculture, Natural Resource Conservation Service
- Federal Emergency Management Agency
- U.S. Fish and Wildlife Service
- U.S. Geological Survey

Other Organizations

- Waimānalo Hawaiian Homestead Association

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10.0 References

10.0 REFERENCES

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11.0

Comments Received During the EA Public Review Process

11.0 COMMENT LETTERS RECEIVED DURING THE PUBLIC REVIEW PERIOD

The DEA was published in the November 8, 2006 issue of the OEQC *The Environmental Notice* and sent to the parties listed in the following table. The 30-day public comment period ended on December 7, 2006. Agencies, organizations, or individuals that submitted comments on the Draft EA are listed in bold. Comment and response letters have been reproduced and follow Table 7 below.

Table 7 - Draft EA Comment Letters

	AGENCY	DEA MAIL DATE	DATE OF COMMENTS
State			
1	Department of Agriculture	11-06-06	--
2	**Department of Business, Economic Development and Tourism – Office of Planning**	11-06-06	12-19-06
3	**Department of Business, Economic Development and Tourism – Hawaii Housing Finance and Development Corporation**	11-06-06	11-15-06
4	**Department of Education**	11-06-06	11-28-06
5	**Department of Health – Environmental Planning Office**	11-06-06	12-12-06
6	**Department of Health – Office of Environmental Quality Control**	11-06-06	11-21-06
7	**Department of Land and Natural Resources**	11-06-06	12-08-06
8	**Department of Land and Natural Resources – Historic Preservation Division**	11-06-06	11-13-06 01-02-07
9	**Department of Transportation**	11-06-06	12-12-06
10	**Office of Hawaiian Affairs**	11-06-06	11-22-06
11	State Legislature – Representative Tommy Waters	11-06-06	--
12	State Legislature – Senator Fred Hemmings	11-06-06	--
13	Waimānalo Public Library	11-06-06	--
Federal			
14	Department of the Army – Army Engineer District	11-06-06	--
15	**Department of the Interior – Fish and Wildlife Service**	11-06-06	11-08-06
City			
16	**Board of Water Supply**	11-06-06	11-28-06
17	**Department of Community Services**	11-06-06	11-16-06
18	**Department of Design and Construction**	11-06-06	12-11-06
19	Department of Environmental Services	11-06-06	--
20	**Department of Facility Maintenance**	11-06-06	12-20-06
21	**Department of Parks and Recreation**	11-06-06	11-20-06
22	**Department of Planning and Permitting**	11-06-06	12-07-06
23	Department of Transportation Services	11-06-06	--

	AGENCY	DEA MAIL DATE	DATE OF COMMENTS
24	**Fire Department**	11-06-06	11-16-06
25	**Police Department**	11-06-06	11-08-06
26	Waimānalo Neighborhood Board, No. 32	11-06-06	--
Other Organizations/Individuals			
27	Hawaiian Electric Company, Inc.	11-06-06	--
28	**Sandwich Isles Communications, Inc.**	11-06-06	12-06-06
29	Waimānalo Hawaiian Homes Association	11-06-06	--

RECEIVED
DEC 2 1 2006
PBR HAWAII

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
LAURA H. THIELEN
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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

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

Ref. No. P-11599

December 19, 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: DHHL Waimanalo Residence Lots
Kumuhau and Kakaina Streets Parcels
Draft Environmental Assessment
TMK(s): 4-1-08: 10, 11, 81, 91 and 92 and 4-1-23:65
Waimanalo, Koolaupoko, Oahu

Thank you for sending the Office of Planning the draft Environmental Assessment (EA) for the above referenced proposal to use State lands and funds for the development of 120 single-family residential lots for Department of Hawaiian Home Lands (DHHL) beneficiaries.

The Office of Planning comments reflect the State's position on areas of crosscutting State concern. Many of those areas have been adequately addressed in the draft EA. I am writing to request that the final EA consider the impacts of the proposed project on the following issues:

1. **Affordable Housing** – Increasing the supply of affordable housing is a critical State and county issue. Please discuss specifically how the proposed project addresses the County's affordable housing requirements.

2. **Coastal Zone Management** – The State oversees protection of natural, cultural, and economic resources within the coastal zone. Please discuss in greater detail how the proposed project will address, through development conditions or covenants, flood hazard mitigation and soil erosion.

The Office of Planning looks forward to receiving the final EA with the potential impacts and mitigation measures for the above issues addressed. If you have any questions, please call Scott Derrickson in the Land Use Division at 587-2805.

Sincerely,

Laura H. Thielen
Director

c: Genevieve Salmonson, OEQC
Darrel Ing, DHHL-Land Development Division

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

January 10, 2007

Ms. Laura H. Thielen, Director
Office of Planning
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, HI 96804

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina Subdivisions Draft Environmental Assessment

Dear Ms. Thielen:

Thank you for your letter dated December 21, 2006. We offer the following responses to your comments:

1. **Affordable Housing.** We agree that increasing the supply of affordable housing is a critical State and county issue. The Waimanalo Residence Lots project will add up to 120 single-family residential lots to the statewide inventory. Housing opportunities afforded by this project will stimulate and promote increased housing choices for Hawaii's citizens: directly to eligible native Hawaiians and indirectly to the general population as residences become available when beneficiaries move out of their current dwellings and on to their homestead lots. While the Hawaiian Homes Commission Act of 1920, as amended does not require beneficiaries to be in a low income category, various surveys have documented that a majority of applicants on the DHHL waitlist are below the HUD 80% median guide.

2. **Coastal Zone Management.** The project will comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), the State Water Code, and any other applicable Federal, State, and County requirements.

The Kakaina Subdivision will not require any stream improvements. The Kumuhau Subdivision will be developed in two phases. Phase 1 is outside of the 100-year flood plain limits and will include a detention basin that will be constructed in the Phase 2 area. The implementation of Phase 2 will require Kahawai Stream to be channelized and the construction of a bridge/culvert which crosses Kahawai Stream and connects to Koa Moali Place. Construction of lots within the flood plain may be deferred if the cost of mitigation is not economically practical.

During construction the use of silt fences, siltation basins, and other Best management practices (BMPs) will prevent silt laden runoff from leaving the site.

While the soils on site are rated as having erosion hazard of slight to moderate, all grading operations will be conducted in full compliance with dust and erosion control and other requirements of the City and County of Honolulu Grading Ordinance.

Thank you again for your participation in the Environmental Assessment process for this project. Your letter will be included in the Final EA under Section 11.0.

If you have any questions regarding this project, please call Darrell Ing at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR HAWAII

LINDA LINGLE
GOVERNOR

ORLANDO "DAN" DAVIDSON
EXECUTIVE DIRECTOR

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

IN REPLY REFER TO:

06:PEO/185

November 15, 2006

Mr. Vince Shigekuni
Vice President
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Re: Draft Environmental Impact Statement (EIS) for the Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Street Parcels

Thank you for the opportunity to review the subject draft EIS.

We previously indicated that we generally support the development of the proposed residential lots as they would add to the housing supply. We have no further comments to add.

Sincerely,

Orlando "Dan" Davidson
Executive Director

c: Office of Environmental Quality Control
Darrell Ing, Department of Hawaiian Home Lands

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

Mr. Orlando "Dan" Davidson, Executive Director
Department of Business, Economic Development and Tourism
Hawaii Housing Finance and Development Corporation
877 Queen Street, Suite 300
Honolulu, HI 96813

Dear Mr. Davidson:

SUBJECT: Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision Draft Environmental Assessment (Draft EA)

Thank you for your letter dated November 15, 2006. We appreciate your support for the development of the proposed residential lots as they would add to the housing supply. We acknowledge that the Hawaii Housing Finance Development Corporation (HHFDC) has no further comments to add.

Your comment letter will be included in the Final EA under Section 11.0.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

November 28, 2006

Mr. Vincent Shigekuni
PBR Hawaii
Pacific Tower, Suite 650
1001 Bishop Street
Honolulu, Hawai'i 96813

Dear Mr. Shigekuni:

Subject: Pre-consultation for Waimanalo Residence Lots

The Department of Education (DOE) has reviewed the Draft Environmental Assessment (DEA) for the 120-lot project proposed by the Department of Hawaiian Home Lands (DHHL).

The DOE believes the project will generate an increase in enrollment in the public school serving the area. As the DEA points out, since Hawaiian Home Lands are not subject to land use controls, the DOE has no ability to request that the State Land Use Commission or the City and County of Honolulu impose a school fair-share contribution condition. While DHHL fully intends to develop its land in conformance with state and county standards, it is unfortunate that no effort is required to address impacts on the area's public schools.

If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

c: Randolph Moore, Acting Assistant Superintendent, OBS
Duane Kashiwai, Public Works Manager, FDB
Arlyne Yonemoto, CAS, Kailua/Kalaheo Complex Areas

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 18, 2006

TO: Patricia Hamamoto, Superintendent
Department of Education

FROM: Micah A. Kane, Chairman
Hawaiian Homes Commission

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment

Thank you for your letter dated November 28, 2006. It will be included in the Final Environmental Assessment, Section 11.0.

You commented that "it is unfortunate that no effort is required to address impacts on the area's schools." Your letter of September 12, 2006 (attached) in response to our consultant's pre-consultation inquiries indicated that there would be sufficient capacity to accommodate the new students. We thus assumed that there were no adverse impacts to mitigate. Please advise us if this assumption is incorrect and how we could address the impacts.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

c: Vincent Shigekuni, PBR Hawaii

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

September 12, 2006

Mr. Vincent Shigekuni
PBR Hawaii
American Savings Bank Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Pre-consultation for Waimanalo Residence Lots

The Department of Education (DOE) has received your letter of August 29, 2006, requesting comments about possible impacts of a 120-lot project proposed by the Department of Hawaiian Home Lands.

Students living in the project would be expected to attend Waimanalo Elementary and Intermediate School and Kailua High School. There is presently sufficient excess capacity at both of the schools to accommodate the new students who will live in the project.

If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

c: Randolph Moore, Acting Assistant Superintendent, OBS
Duane Kashiwai, Public Works Manager, FDB
Arlyne Yonemoto, CAS, Kailua/Kalaheo Complex Areas

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
EPO-06-198

December 12, 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

SUBJECT Draft Environmental Assessment for Waimanalo Residential Lots, Kumuhao and Kakaina Street Parcels, Koolaupoko, Oahu, Hawaii
TMK: (1) 4-1-008: 010, 011, 081, 091 and 092
(1) 4-1-023: 065

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have the following Clean Water Branch comments.

Clean Water Branch

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

1. The Army Corps of Engineers should be contacted at (808) 438-9258 for this project. Pursuant to Federal Water Pollution Control Act (commonly known as the "Clean Water Act" (CWA) Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) 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..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40, Code of Federal Regulations (CFR), Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

2. In accordance with HAR, Sections 11-55-04 and 11-55-34.05, the Director of Health may require the submittal of an individual permit application or a Notice of Intent (NOI) for general permit coverage authorized under the National Pollutant Discharge Elimination System (NPDES).

a. An application for an NPDES individual 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.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.

b. An NOI to be covered by an NPDES general permit is to be submitted at least 30 days before the commencement of the respective activity. A separate NOI is needed for coverage under each NPDES general permit. The NOI forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

   i. Storm water associated with industrial activities, as defined in Title 40, CFR, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi). [HAR, Chapter 11-55, Appendix B]

   ii. 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.** [HAR, Chapter 11-55, Appendix C]

   iii. Discharges of treated effluent from leaking underground storage tank remedial activities. [HAR, Chapter 11-55, Appendix D]

   iv. Discharges of once through cooling water less than one (1) million gallons per day. [HAR, Chapter 11-55, Appendix E]

   v. Discharges of hydrotesting water. [HAR, Chapter 11-55, Appendix F]

   vi. Discharges of construction dewatering effluent. [HAR, Chapter 11-55, Appendix G]

   vii. Discharges of treated effluent from petroleum bulk stations and terminals. [HAR, Chapter 11-55, Appendix H]

   viii. Discharges of treated effluent from well drilling activities. [HAR, Chapter 11-55, Appendix I]

   ix. Discharges of treated effluent from recycled water distribution systems. [HAR, Chapter 11-55, Appendix J]

   x. Discharges of storm water from a small municipal separate storm sewer system. [HAR, Chapter 11-55, Appendix K]

   xi. Discharges of circulation water from decorative ponds or tanks. [HAR, Chapter 11-55, Appendix L]

3. In accordance with HAR, Section 11-55-38, the applicant for an NPDES permit is required 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. If applicable, please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

4. Any discharges related to project construction or operation activities, with or without a Section 401 WQC or NPDES permit coverage, shall comply with the applicable State Water Quality Standards as specified in HAR, Chapter 11-54.

The Hawaii Revised Statutes, Subsection 342D-50(a), requires that "[n]o person, including any public body, shall discharge any water pollutants into state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this Chapter, or a permit or variance issued by the director."

If you have any questions, please contact Mr. Alec Wong, Supervisor of the Engineering Section, CWB, at (808) 586-4309.

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

C: EPO
CWB

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

January 9, 2007

Mr. Kelvin H. Sunada, Manager
Environmental Planning Office
Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina Subdivisions Draft Environmental Assessment

Dear Mr. Sunada:

Thank you for your letter dated December 12, 2006 (your reference: EPO-06-198). We have reviewed your letter and offer the following responses to the comments from the Clean Water Branch:

1. The U.S. Army Corps of Engineers will be contacted to determine whether a Section 401 Water Quality Certification is required.

2. A National Pollutant Discharge Elimination System (NPDES) permit will be obtained prior to construction. The need for this permit is stated in the Draft EA on Table 1 (Required Approvals and Permits).

3. The SHPD provided written comments during the public review period for the Draft EA stating that once our archaeological consultant's "study is finalized and recommended mitigation measures (monitoring) implemented, the we believe that the proposed undertaking will have no adverse effect on historically-significant resources." A copy of the letter is enclosed and will be included in the Final EA under Section 11.0.

4. DHHL acknowledges that any discharges related to project construction or operation activities, with or without a Section 401 WQC or NPDES permit coverage, shall comply with

the applicable State Water Quality Standards as specified in HAR, Chapter 11-54.

As recommended, the Standard Comments on the Department of Health website have been reviewed and will be adhered to as applicable.

Thank you again for your participation in the Environmental Assessment process for this project. Your letter will be included in the Final EA under Section 11.0.

If you have any questions regarding this project, please call Darrell Ing at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

encl.

c: Vincent Shigekuni, PBR HAWAII

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

November 21, 2006

Micah Kane
Department of Hawaiian Home Lands
PO Box 1879
Honolulu, Hawaii 96805

Attn: Darrell Ing

Dear Mr. Kane:

Subject: Draft environmental assessment (EA), **Waimanalo Residence Lots**

We have the following comments to offer:

Alternative transportation modes:
State policy (HRS 26, 226, 264, 344) requires the promotion of alternative forms of transportation systems that reduce reliance on the private automobile, conserve energy, decrease pollution and provide safe accommodation for their users. The analysis in the draft EA deals only with motor traffic. Expand your discussion to describe specifically walking distances and times (at 3 to 4 mph) from the farther points of the project area for both parcels to their nearest connections to Kalanianaole Highway or, if it exists, any closer bus stop. Pursuant to the policy noted above, discuss what provisions are being made to create bicycle lanes or facilities, promote pedestrian safety and/or encourage other non-motorized modes of transportation.

Recycling: We recommend that a construction waste recycling plan be developed.

Land ownership: Section 3.1.2, in discussing HRS § 226-5, mentions that the project will provide new land ownership opportunities. Other sections of the EA refer to home ownership with land leases. Clarify this in the final EA.

Landscaping:
Hawaii Revised Statutes 103D-408 requires the use of native Hawaiian flora whenever and wherever possible. In the final EA indicate if you will follow this requirement.

If you intend to have a landscaping plan, it may include invasive plant species. Before finalizing your plan consult the Division of Forestry & Wildlife of DLNR at 587-0166 or go to the Hawaii Ecosystems at risk (HEAR) website at www.hear.org to eliminate those species that may pose a threat to the environment.

Micah Kane
November 20, 2006
Page 2

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

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

c: Vince Shigekuni

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

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

Dear Ms. Salmonson:

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment

Thank you for your letter dated November 21, 2006. We offer the following responses to your comments:

1. We acknowledge that State Policy (HRS 26, 226, 264, 344) requires the promotion of alternative forms of transportation systems that reduce reliance on the private automobile, conserve energy, decrease pollution and provide safe accommodation for their users. As you recommend the Final EA will: 1) describe specifically walking distances and times (at three to four miles per hour) from the farther points of the project area for both parcels to their nearest connections to Kalanianaole Highway, or if it exists, any closer bus stop; and 2) include additional text discussing what provisions are being made to create bicycle lanes or facilities, promote pedestrian safety and/or encourage other non-motorized modes of transportation.

2. As recommended a construction waste recycling plan will be developed.

3. Section 3.1.2 will be revised to indicate that the project will provide new opportunities for home ownership with a homestead lease.

4. We acknowledge that Hawaii Revised Statues 103D-408

requires the use of native Hawaiian flora whenever and wherever possible. The DHHL Waimanalo Residence Lots will implement native Hawaiian flora as feasible. As recommended, the Division of Forestry & Wildlife of DLNR will be consulted before finalizing the landscaping plan for the project.

Your comment letter will be included in the Final EA under Section 11.0.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

LINDA LINGLE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 8, 2006

PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Attention: Vincent Shigekuni

Gentlemen:

Subject: Draft Environmental Assessment for DHHL Waimanalo Residence Lots, Waimanalo, Oahu, Tax Map Keys: (1) 4-1-8:10,11,81,91,92 and 4-23:65

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

Engineering Division
Division of Water Resource Management
Division of Forestry and Wildlife

Based on the attached responses, the Department of Land and Natural Resources has no comment to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Russell Y. Tsuji
Administrator

Cc: Central Files

DEC 05 2006

→ Nelson A.

LINDA LINGLE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 1, 2006

MEMORANDUM

TO: DLNR Agencies:
x Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
__Div. of State Parks
x Div. of Water Resource Management
__Office of Conservation & Coastal Lands
x Land Division – Oahu District - Gary Hooser

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for DHHL Waimanalo Residence Lots
LOCATION: Waimanalo, Oahu, TMK: (1) 4-1-8:10, 11, 81, 91, 92 and 4-1-23:65
APPLICANT: PBR Hawaii on behalf of DHHL

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 7, 2006.

A copy of the document is available for your review in Land Division office, Room 220.

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

Attachments

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

Signed: Paul J. Conry
Date:

PAUL J. CONRY, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE
DEC 7 2006

LINDA LINGLE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 1, 2006

2006 DEC -7 A 8:29

RECEIVED
LAND DIVISION

MEMORANDUM

TO: **DLNR Agencies:**
- x Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- x Engineering Division
- x Div. of Forestry & Wildlife
- Div. of State Parks
- x Div. of Water Resource Management
- Office of Conservation & Coastal Lands
- x Land Division – Oahu District – Gary Hatta

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for DHHL Waimanalo Residence Lots
LOCATION: Waimanalo, Oahu, TMK: (1) 4-1-8:10, 11, 81, 91, 92 and 4-1-23:65
APPLICANT: PBR Hawaii on behalf of DHHL

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 7, 2006.

A copy of the document is available for your review in Land Division office, Room 220.

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

Attachments

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

Signed: Eric T. Hirano
Date: 12/6/06

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/NAV
Ref.: Russell Y. Tsuji
Oahu.531

COMMENTS

(X) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zones X and A. The National Flood Insurance Program does not have any regulations for developments within Zone X; however, it does regulate developments within Zone A as indicated in bold letters below.

( ) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is also located in Zone ____.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(X) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

(X) Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

(X) The applicant should include water demands and infrastructure required to meet project needs. Please note that State-sponsored projects requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

(X) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Ms. Alyson Yim of the Planning Branch at 587-0259.

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 12/6/06

LINDA LINGLE
GOVERNOR OF HAWAII

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

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DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

12/07 due

December 1, 2006

MEMORANDUM

TO: DLNR Agencies:
- x Div. of Aquatic Resources
- ___ Div. of Boating & Ocean Recreation
- x Engineering Division
- x Div. of Forestry & Wildlife
- ___ Div. of State Parks
- x Div. of Water Resource Management
- ___ Office of Conservation & Coastal Lands
- x Land Division – Oahu District – Gary Hooser

FR:

RECEIVED
STATE OF HAWAII
2006 DEC -6 P 4:23
LAND DIVISION

TO:

FROM: Russell Y. Tsuji

SUBJECT: Draft Environmental Assessment for DHHL Waimanalo Residence Lots

LOCATION: Waimanalo, Oahu, TMK: (1) 4-1-8:10, 11, 81, 91, 92 and 4-1-23:65

APPLICANT: PBR Hawaii on behalf of DHHL

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 7, 2006.

A copy of the document is available for your review in Land Division office, Room 220.

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

Attachments

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

Signed: Gwin T. Yahata
Date: 12/5/06

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON

MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIWARA
CHIYOME L. FUKINO, M.D.
LAWRENCE H. MIIKE, M.D., J.D.
STEPHANIE A. WHALEN

DEAN A. NAKANO
ACTING DEPUTY DIRECTOR

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

December 5, 2006

REF:

TO: Russell Tsuji, Administrator
Land Division

FROM: Dean A. Nakano, Acting Deputy Director
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment for DHHL Waimanalo Residence Lots

FILE NO.:

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

Our comments related to water resources are checked off below.

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

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

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

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

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

☐ 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.

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

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

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

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

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

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

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

☐ 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.

☐ OTHER:

If there are any questions, please contact Ed Sakoda at 587-0234.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 12, 2006

PSF: 06HD-135
LD-GM

Mr. Vincent Shigekuni
Vice President, PBR Hawaii
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

COPY

Dear Mr. Shigekuni:

Subject: Pre-Consultation for the Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau, and Kahaina Street Parcels Draft Environmental Assessment

This is in response to your August 29, 2006 request for comments on the above referenced subject.

Parcels 10, 81, 91 and 92 are found in Tax Map Key: 4-1-08, however, your letter lists them as in Tax Map Key: 4-1-23. These parcels, which comprise a portion of the Department of Hawaiian Home Lands' (DHHL) proposed Waimanalo Residence Lots, are State-owned lands that have not yet been conveyed to DHHL by the Department of Land and Natural Resources (DLNR). DLNR will be conveying the parcels to DHHL in their entirety, together with any ditches, channels, roadways, etc. that cross over and/or under the parcels and all encumbrances recorded and unrecorded, if any.

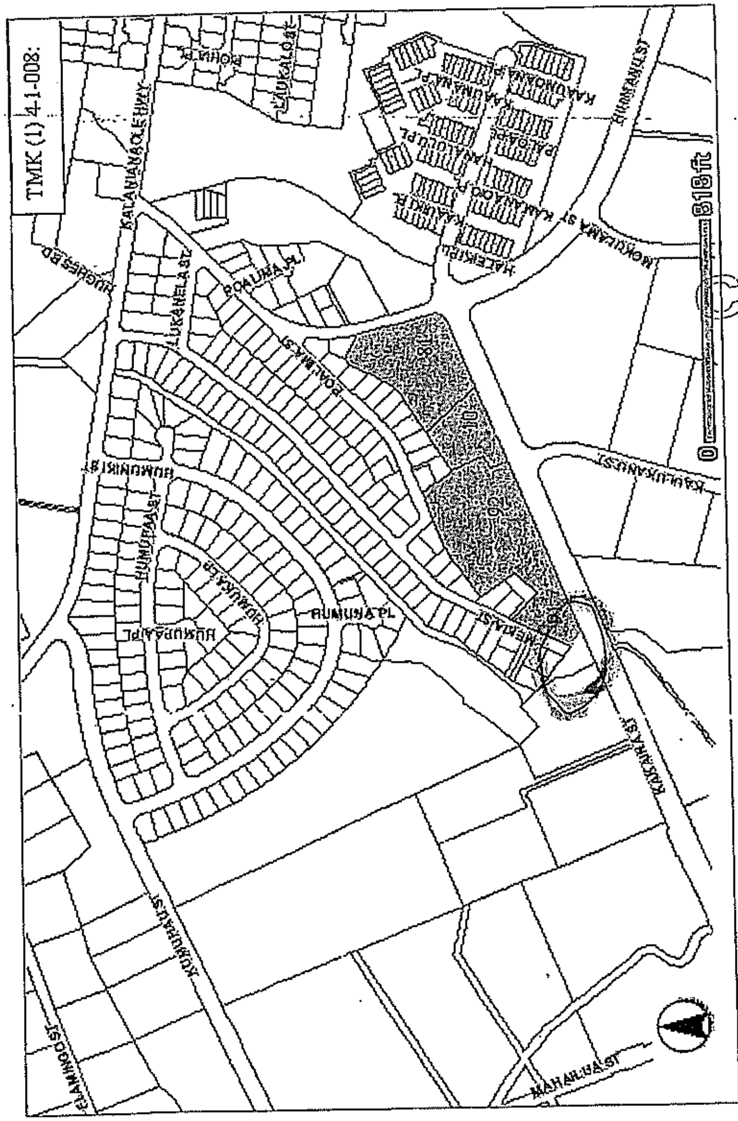
When preparing the environmental assessment please be sure that the study area includes parcels 10, 81, 91 and 92 in their entirety and in particular that part of parcel 91 above and below the roadway extension connecting Mekia Street to Kakaina Street and also the roadway extension itself.

If you have any questions, please contact Gary Martin at 587-0421. Thank you.

Sincerely,

RUSSELL Y. TSUJI
Administrator

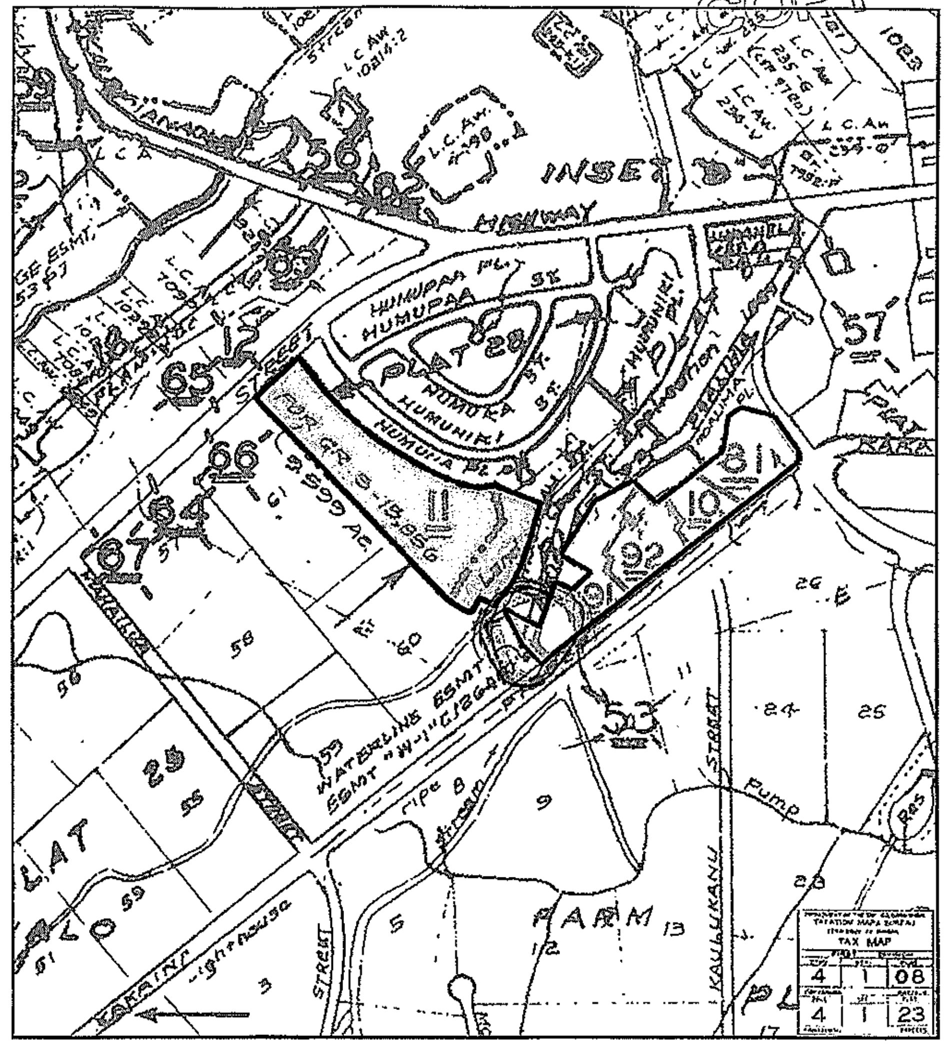
cc: Central/District Files



Parcels proposed for transfer to DHHL, Waimanalo, Oahu

pre-consultation DEA

EXHIBIT " A "



Legend

Project Boundary Line

DEA

Source: City & County of Honolulu
Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 2
Tax Map Key
Waimanalo Residence Lots
Kumuhau & Kakaina Parcels
Department of Hawaiian Home Lands
ISLAND OF OAHU

NORTH

NOT TO SCALE

PBR HAWAII

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

January 8, 2007

TO: Mr. Russell Y. Tsuji, Land Division Administrator
Department of Land and Natural Resources

FROM: Micah A. Kane, Chairman
Hawaiian Homes Commission

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina Subdivisions Draft Environmental Assessment

Thank you for your letter dated December 7, 2006. These are our responses to comments from the various DLNR divisions.

Engineering Division:

1. The project will comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken.

2. We realize that 44CFR indicates the minimum standards set forth by the NFIP, and acknowledge that the local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards.

3. The requirement for additional off-site infrastructure improvements is not anticipated. During the pre-consultation period for the Draft EA, the Board of Water Supply (BWS) noted that "the existing water system is presently adequate to accommodate the proposed development". As noted in the Draft EA, DHHL acknowledges the requirement to pay the Board of Water Supply (BWS) a resource development charge and a Water System Facilities Charge for transmission and daily storage.

4. We will provide the water demands and calculations to the Engineering Division so that the proposed project can be included in the State Water Projects Plan Update.

Division of Forestry and Wildlife:

We acknowledge that DOFAW has no objections.

Division of Water Resource Management:

We acknowledge that a Stream Channel Alteration Permit is required before any alteration can be made to the bed and/or banks of a stream channel. Such alteration would only occur if phase 2 of the Kumuhau Subdivision is developed: Kahawai Stream would be channelized and a bridge/culvert would be constructed over the stream connecting the new subdivision to Koa Moali Place. Construction of phase 2 may be deferred if the cost of mitigation is not economically practical. The Kakaina Subdivision will not require any stream improvements.

Thank you again for your participation in the Environmental Assessment process for this project. Your letter will be included in the Final EA under Section 11.0.

If you have any questions regarding this project, please call Darrell Ing at 587-6451.

c: Vincent Shigekuni, PBR HAWAII

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
NOV 15 2006
PBR HAWAII

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

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

November 13, 2006

Vincent Shigekuni, Vice President
PBR Hawai'i
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawai'i 96813-3484

LOG NO: 2006.3532
DOC NO: 0610aj015
Archaeology

Dear Mr. Shigekuni:

SUBJECT: Chapter 6E-42 Historic Preservation Review –
Pre-Consultation for the Department of Hawaiian Homelands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Street Parcels Draft Environmental Assessment
Waimanalo Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 4-1-008:010, 011, 081, 091, & 92 and 4-1-023:065

Thank you for the opportunity to comment on the aforementioned project, which we received on September 1, 2006. The proposed undertaking involves the construction of approximately 120 single-family residential lots and paved roadways on two parcels of approximately 19.5 acres. Infrastructure facilities, including access and circulation roadways, drainage systems, water distribution lines, municipal wastewater collection system, and electrical/communication systems, will be expanded and/or improved to support the project.

We have reviewed the archaeological assessment (*Tome, et. al. 2006. An Archaeological Assessment of Two Parcels Totaling Approximately 20 Acres in Waimanalo, Waimanalo Ahupua'a, Ko'olaupoko District, Island of O'ahu, Hawai'i*) conducted for the subject parcels by Scientific Consultant Services (SCS), Inc. Although we requested several minor, editorial, revisions of this report, we concurred with the findings and the mitigation measures recommended by SCS that archaeological monitoring of ground disturbing activities be implemented for the smaller portion of parcel 1 (TMK: 4-1-023:065) and all of parcel 2 (TMK: 4-1-008:010, 081, 091, and 092) because of the limitations of conducting subsurface excavations on these parcels.

Therefore, should the Tome *et al.* (2006) study be finalized and the recommended mitigation measures (monitoring) implemented, we believe the proposed undertaking will have "no adverse effect" on historically-significant resources. We look forward to receiving a final archaeological assessment report and archaeological monitoring plan for our review.

Please contact Mr. Adam Johnson at 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

aj:

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

Ms. Melanie Chinen, Adminstrator
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, HI 96707

Dear Ms. Chinen:

SUBJECT: Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment (Draft EA)

Thank you for your letter dated November 13, 2006. We offer the following responses to your comments:

We acknowledge that the State Historic Preservation Division (SHPD) concurs with the findings and mitigation measures recommended by Scientific Consultant Services (SCS), Inc. that archaeological monitoring of ground disturbing activities be implemented for the smaller portion of parcel 1 (TMK: 4-1-023:065) and all of parcel 2 (TMK: 4-1-008:010, 081, 091, and 092) because of the limitations of conducting subsurface excavations on these parcels.

Futher, that should the archaeological assessment *(Tome, et. al. 2006. An Archaeological Assessment of Two Parcels Totaling Approximately 20 Acres in Waimanalo, Waimanalo Ahupua'a, Ko'olaupoko District, Island of Oahu, Hawaii)* be finalized and the recommended mitigation measures (monitoring) implemented, the proposed undertaking will have "no adverse effect" on historically-significant resources.

A final archaeological assessment report and archaeological monitoring plan will be sent to your office for your review once they are completed. Your comment letter will be included in the Final EA under Section 11.0.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

LINDA LINGLE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

January 2, 2007

Vincent Shigekuni
PBR Hawai'i
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawai'i 96813-3484

LOG NO: 2007.0020
DOC NO: 0701AJ01
Archaeology

Dear Mr. Shigekuni:

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Draft Environmental Assessment – DHHL Waimānalo Residence Lots
Waimānalo Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 4-1-008:010, 011, 081, 091, 092 & 4-1-023:065

Thank you for the opportunity to review the aforementioned project, which we received on November 8, 2006. We apologize for the delay. The proposed undertaking involves the construction of approximately 120 single-family residential lots and paved roadways on two parcels of approximately 19.5 acres. Infrastructure facilities, including access and circulation roadways, drainage systems, water distribution lines, municipal wastewater collection system, and electrical/communication systems, will be expanded and/or improved to support the project.

We have reviewed the archaeological assessment (*Tome, et. al. 2006. An Archaeological Assessment of Two Parcels Totaling Approximately 20 Acres in Waimānalo, Waimānalo Ahupua'a, Ko'olaupoko District, Island of O'ahu, Hawai'i*) conducted for the subject parcels by Scientific Consultant Services (SCS), Inc. In a letter dated October 10, 2006 we concurred with the recommendations provided in the Tome *et al.* (2006) report, archaeological monitoring of ground disturbing activities for the smaller portion of parcel 1 [TMK: (1) 4-1-023:065] and parcel 2 [TMK: (1) 4-1-023:091,092,010, and 082] and no further work for the larger portion of parcel 1 [TMK: (1) 4-1-008:011]. However, in our October 10, 2006 letter we requested several revisions to the AIS report. Based on January 2, 2006 consultation with Mr. David Chafee of Scientific Consultant Services Inc. a revised report has been submitted to our office; however, we have not had the opportunity to review the revised report. Also, to the best of our knowledge, we have not yet received an archaeological monitoring plan for the proposed undertaking.

Nonetheless, provided the recommended archaeological monitoring program is carried out to completion, and fulfils the requirements of HAR 13-13-279 we believe that no historic properties will be adversely affected by the proposed undertaking.

Please contact Mr. Adam Johnson (O'ahu Assistant Archaeologist) if you have any questions about this letter.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

AJ:

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

January 10, 2007

Ms. Melanie Chinen, Adminstrator
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, HI 96707

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina Subdivisions Draft Environmental Assessment

Dear Ms. Chinen:

Thank you for your letter dated January 2, 2007. We offer the following responses to your comments:

We acknowledge your concurrence with the findings and mitigation measures recommended by Scientific Consultant Services (SCS), Inc. that archaeological monitoring of ground disturbing activities be implemented for the smaller portion of parcel 1 and all of parcel 2.

An archaeological monitoring plan will be developed and sent to your office for review well before construction starts.

We acknowledge that should the monitoring program be carried out to completion, no historic properties will be adversely effected.

Thank you again for your participation in the Environmental Assessment process for this project. Your letter will be included in the Final EA under Section 11.0.

Please call Mr. Darrell Ing at 587-6451 if you have any questions.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR HAWAII

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2354

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

December 12, 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Waimanalo Residence Lots, Draft Environmental Assessment (DEA)
Department of Hawaiian Home Lands, State of Hawaii (DHHL)
TMK: (1) 4-1-08: 10, 11, 81, 91, and 92 and 4-1-23: 65

We have the following comments on the subject proposed project:

1. Coordination of any necessary improvements at the Kalanianaole Highway intersections with Kumuhau Street, Humuniki Street, Mekia Street and Poalima Street with the build out of the residential units in the subject project should be discussed with our Highways Division.

2. The appropriate staff from DHHL and its project planning/construction representatives should consult with our Highways Planning Branch to ensure that anticipated traffic and roadways improvements are going to be available or implemented. If planned improvements to Kalanianaole Highway are constrained or delayed, alternative and/or interim traffic mitigation measures may be necessary.

We would appreciate your consideration of our comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

c: Genevieve Salmonson, Office of Environmental Quality Control
Darrell Ing, Department of Hawaiian Home Lands

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

January 9, 2007

TO: The Honorable Rodney K. Haraga, Director
Department of Transportation

FROM: Micah A. Kane, Chairman
Hawaiian Homes Commission

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina
Subdivisions Draft Environmental Assessment

Thank you for your letter dated December 12, 2006. We have reviewed your letter and provide the following comments:

If any improvements are necessary at the Kalanianaole Highway intersections with Kumuhau Street, Humuniki Street, Mekia Street and Poalima Street, DHHL will coordinate with the Department of Transportation's Highway Division.

DHHL staff will consult with your staff to be aware of the construction schedule for the planned traffic and roadway improvements to Kalanianaole Highway, and determine if interim traffic mitigation measures are required.

Thank you again for your participation in the Environmental Assessment process for this project. Your letter will be included in the Final EA under Section 11.0.

If you have any questions regarding this project, please call me at 586-3800, or your staff may contact Darrell Ing at 587-6451.

c: Vincent Shigekuni, PBR HAWAII

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

RECEIVED
LAND DEVELOPMENT DIVISION
Dec 8 10 17 AM
HRD06-2806

November 22, 2006

Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, HI 96813

RE: Draft Environmental Assessment (DEA), DHHL Waimānalo Residence Lots, Kumukau and Kakaina Streets Parcels, Waimānalo, O'ahu, TMK: 4-1-008:010, 011, 081, 091 & 092, and 4-1-023:065

Dear Vincent Shigekuni,

The Office of Hawaiian Affairs (OHA) is in receipt of your November 9, 2006, request for comments on the above-referenced project. We would first like to offer our enthusiastic support for this important project, which will provide much-needed housing for Native Hawaiians, and we also offer the following comments.

We note that your consultation list (p.61) includes local, state, and federal agencies, but no individuals or organizations based in Waimānalo. We recommend consultation with Dennis "Bumpy" Kanahele and with neighborhood organizations, in order to expand the consultation component of your DEA. We also recommend that the proposed development be coordinated with, and conditional upon, completion of ongoing and planned upgrades to the wastewater treatment facility on Hihimanu Street and other projects that will be important to the quality of life for the residents of the Kumukau and Kakaina Streets parcels (*e.g.*, sidewalk improvements along Hihimanu).

OHA further requests that if the proposed project goes forward, should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Policy Advocate – Native Rights, at (808) 594-0239 or jessey@oha.org.

Sincerely,

Clyde W. Nāmu'o
Administrator

C: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

✓ Darrell Ing
State of Hawai'i
Department of Hawaiian Home Lands
Land Development Division
P.O. Box 1879
Honolulu, HI 96805

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

December 18, 2006

Mr. Clyde W. Namu'o, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Dear Mr. Namu'o:

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment

Thank you for your letter dated November 22, 2006 which offered your enthusiastic support for this project. It will be included in the Final Environmental Assessment (EA) under Section 11.0. We offer the following responses to you comments:

- The consultation list inadvertently omitted the Waimanalo Neighborhood Board. They were also provided copies of the Draft EA to review and comment, as was the Waimanalo Hawaiian Homestead Association.

- The plans and schedule for development assume that the wastewater treatment plant improvements will be completed before the on-site infrastructure is complete and the lots are ready for house construction.

- Sidewalks will be constructed on Hihimanu Street if required by the County. Otherwise, we will minimize the amount of off-site work to make more funds available for homestead projects.

- Should iwi kupuna, or cultural or traditional deposits be encountered during construction, the procedures established by the Native American Graves Protection and Repatriation Act (NAGPRA) will be followed.

Your participation in the Environmental Assessment process

is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer to:
2007-FA-0002

DEC 8 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment, Waimanalo Residence Lots, Kumuhau and Kakaina Streets Parcels

Dear Mr. Shigekuni:

This letter is in response to your request for review of the Draft Environmental Assessment concerning the proposed development of 120 single-family residential lots for Department of Hawaiian Home Lands beneficiaries, located in Waimanalo, Oahu. Your Draft Environmental Assessment and cover letter, dated November 6, 2006, were received in this office on November 7, 2006.

Wedge-tailed shearwater (*Puffinus pacificus*) nest offshore of Waimanalo on nearby islands. Urban areas can present many hazards for birds protected under the Migratory Bird Treaty Act, 16 U.S.C. 703-712. For example, here in Hawaii bright, night lighting poses a significant threat to fledgling seabirds. The birds are attracted to lights, end up circling the light source until they either collide with a man-made structure or fall to the ground due to exhaustion. Once grounded, they are vulnerable to predators (cats, dogs, and mongoose) or often struck by vehicles along roadways. Every year many young shearwaters are observed dead along Kalanianaole Highway in Waimanalo. Therefore, we recommend adding downward shielding to all street lights in your proposed development to minimize this ongoing seabird morrality. This small step will benefit nesting seabirds along the windward side of Oahu.

TAKE PRIDE IN AMERICA

Mr. Vicent Shigekuni

Thank you for the opportunity to comment on the proposed Waimanalo residential development. If you have any questions regarding this letter, please contact Dr. Peter Cohen (phone 808/792-9400; fax: 808/792/9581).

Sincerely,

for Patrick Leonard
Field Supervisor

cc: Office of Environmental Quality Control
State of Hawaii, Department of Hawaiian Home Lands

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

January 2, 2007

Mr. Patrick Leonard, Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, HI 96850

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina Subdivisions Draft Environmental Assessment

Dear Mr. Leonard:

Thank you for your letter dated December 8, 2006. It will be included in the Final Environmental Assessment under Section 11.0.

DHHL will comply with the U.S. Fish and Wildlife Service's recommendation to add downward shielding to applicable street lights in the proposed development to minimize ongoing seabird mortality.

If you have any questions regarding this project, please call Darrell Ing at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR HAWAII

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 28, 2006

Mr. Vincent Shigekuni, Vice President
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Your Letter Dated November 6, 2006 Regarding Waimanalo Residenc Lots, Kumuhau And Kakaina Street Parcels Draft Environmental Assessment

Thank you for the opportunity to comment on the proposed project.

Our comments on the pre-consultation for the draft environmental assessment, contained in this report, are still applicable.

If you have any questions, please contact Robert Chun at 748-5440.

Very truly yours,

KEITH S. SHIDA
Principal Executive
Customer Care Division

cc: OEQC, Department of Hawaiian Homelands

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

Mr. Keith S. Shida, Principal Executive
Customer Care Division
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaiÿi 96843

Dear Mr. Shida:

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision Draft Environmental Assessment

Thank you for your letter dated November 28, 2006. We acknowledge that the Board of Water Supply comments provided on the pre-consultation letter for the Draft Environmental Assessment are still applicable. Your letter will be included in the Final EA under Section 11.0.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813 • AREA CODE 808 • PHONE: 527-5311 • FAX: 527-5498

MUFI HANNEMANN
MAYOR

DEBORAH KIM MORIKAWA
DIRECTOR

MARK K. OTO
SENIOR ADVISOR

November 16, 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: DHHL Waimanalo Residence Lots
Draft Environmental Assessment

We have reviewed the subject Draft Environmental Assessment and have determined that the subject project will have no impact on the projects and programs of the Department of Community Services. We appreciate the opportunity to provide these comments. Questions regarding this matter may be directed to Keith Ishida at 768-7750.

Sincerely,

Deborah Kim Morikawa
Director

DKM:rg

cc: Office of Environmental Quality Control
Department of Hawaiian Home Lands

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

Ms. Deborah Kim Morikawa, Director
Department of Community Services
City and County of Honolulu
715 South King Street, Suite 311
Honolulu, HI 96813

Dear Ms. Morikawa:

SUBJECT: Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision Draft Environmental Assessment (Draft EA)

Thank you for your letter dated November 16, 2006. We acknowledge your assessment that the subject project will have no impact on the projects and programs of the Department of Community Services. Your letter will be included in the Final EA under Section 11.0.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4564 • Fax: (808) 523-4567
Web site: www.honolulu.gov

MUFI HANNEMANN
MAYOR

EUGENE C. LEE, P.E.
DIRECTOR

CRAIG I. NISHIMURA, P.E.
DEPUTY DIRECTOR

December 11, 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment
DHHL Waimanalo Residence Lots
Oahu, Koolaupoko
TMK: (1) 4-1-08:10, 11, 81, 91 and 92 and 4-1-23:65

Thank you for giving us the opportunity to comment on the above Draft Environmental Assessment.

The Department of Design and Construction has the following comments:

- On page 46 under 6.3 Wastewater Facilities, it mentions an extension of the 6-inch force main from Kumuhau Street. Is there an existing pump station and is it privately owned and operated?

- The proposed development of 120 new residential lots will impact the City's parks and recreation programs, as noted by the Department of Parks and Recreation. The Department of Hawaiian Home Lands (DHHL) is exempt from legal compliance with the City's park dedication ordinance. However, it has licensed its land voluntarily to the City in communities it serves, including Waimanalo. The City respectfully requests that this relationship continue into the indefinite future, and that additional land be provided under license as the new residential units are developed and built. The City prefers long-term licenses of twenty year terms or longer so that the substantial investment in infrastructure such as comfort stations, community centers, play courts, ball fields, and other facilities can be justified. The DHHL may optionally provide these as private recreational facilities for their communities if it desires.

Mr. Vincent Shigekuni
Page 2
December 11, 2006

- **Figure 5** - Those parcels' (shown circled) elevations are lower than Kumuhau Street. There is a history of flooding in these parcels during heavy rain. It is suggested not to transport runoff from proposed development to outlet structures on Kumuhau Street.

- **Page 45, Second paragraph** - We recommend the following be inserted after the first sentence - "During the design phase, the developer's structural consultant shall investigate the status and condition of each bridge and determine if the bridge can support the load capacity set by the City. A copy of the report shall be submitted to the City."

- **Page 46, 6.4 Drainage Facilities, First paragraph** - The existing surface drainage flow on Kumuhau Street flows along both side of Kumuhau Street toward Kalanianaole Highway. When designing the Kumuhau parcel adjacent to Kumuhau Street, maintain the existing Kumuhau Street drainage pattern.

- **Page 47, Drainage Facilities, Potential Impacts and Mitigative Measures, Second Paragraph, Second Sentence** - The outlet structure near the southeast boundary of the property appears to be for the Kumuhau parcel only. A description of the drainage impacts from the Kakaina Parcel and its on-site drainage system should be included in the EA.

Should you have any questions, please call Craig Nishimura, deputy director, at 523-4716.

Very truly yours,

Eugene C. Lee, P.E.
Director

ECL:lt (181452)

Enclosures

c: DDC Wastewater Division
DDC Facilities Division
DDC Civil Division

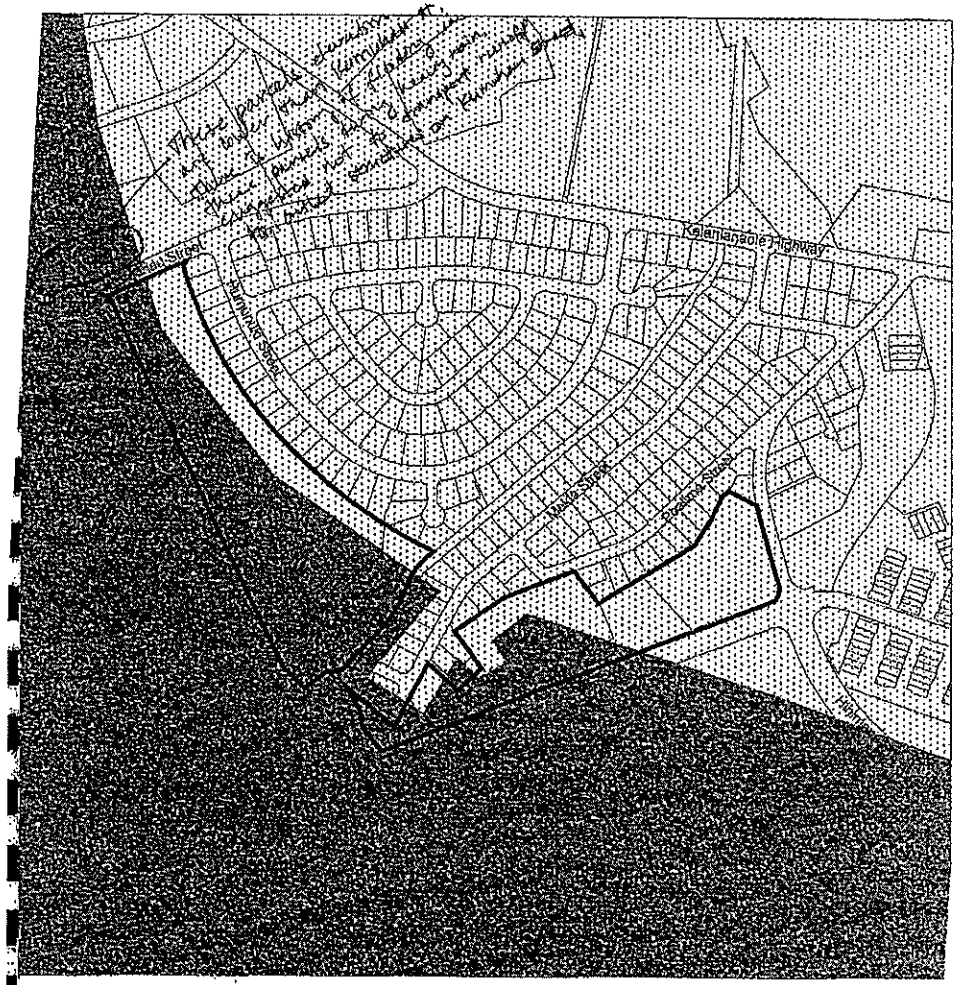


Figure 5
State Land Use Map
Waimanalo Residence Lots
Kumuhau & Kakaina Parcels
Department of Hawaiian Home Lands - ISLAND OF OAHU

an increase of 62 vehicles per hour eastbound in the PM Peak Hour, or about 61% of the existing peak hour volume.

During the pre-consultation period for this Draft EA, The City's Department of Transportation Services (DTS) noted that "the planning and design of subdivision roads should conform to City and County of Honolulu roadway standards... The project must be designed to Americans with Disabilities Act (ADA) Accessibility Guidelines standards." The design of applicable roadways will conform to the City and County of Honolulu's and ADA Accessibility Guidelines standards. Improvements will be constructed to bring the west end of Mekia Street into compliance with County roadway standards. During project construction, area residents may experience a slight increase in traffic delays in the Kumuhau and Kakaina Streets Subdivision. Careful consideration will be given to area residents during the construction of roadway improvements. Project-related construction will occur only during daytime hours. Area residents will be kept apprised of the details of the proposed project.

During the pre-consultation period for this Draft EA, the City's Department of Design and Construction (DDC) noted that "there are two, possibly three bridges within the project area" and expressed concern that any heavy equipment expected to be used are within load carrying capacities of these bridges. During the construction bid process, the contractors will be informed that the site may need to be reached via roads that cross small bridges and it will be the responsibility of the contractor and subcontractors to verify the load limit capacity of each bridge that may be crossed to ensure that the weight of any heavy equipment expected to be used and/or vehicle transporting materials/machinery is within the bridges' load carrying capacities.

6.2 WATER SUPPLY FACILITIES

A 12-inch water line along Kumuhau Street provides both fire protection and domestic service to the existing Humuniki Street Subdivision.

Potential Impacts and Mitigative Measures

During the pre-consultation period for this Draft EA, the Board of Water Supply (BWS) noted that "the existing water system is presently adequate to accommodate the proposed development... The final decision on the availability of water will be confirmed when the building permit is submitted for approval." When water is made available, DHHL will be required to pay BWS Water System Facilities Charges for resource development, transmission and daily storage. DHHL acknowledges that the project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the building permit. In addition, the on-site fire protection requirement will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

6.3 WASTEWATER FACILITIES

A 12-inch sewer line along Kumuhau Street provides sewer service to the Humuniki Street residential subdivision. Approximately 65 percent of residences in the Waimanalo Wastewater Service area are served by a centralized wastewater collection, treatment, and disposal system. The Waimānalo Wastewater Treatment Plant (WWTP) has a 1997 rated average design capacity of 0.7 million gallons per day (mgd) and an average flow of approximately 0.6 mgd. The wastewater collection system, including the Kahawai Wastewater Pumping Station (WWPS), is owned by the State of Hawai'i, and is operated and maintained by the City and County of Honolulu. The plant has a record of unstable performance and periodic effluent quality violations. The treated effluent is currently disposed through the use of subsurface injection wells. The existing capacity of the disposal wells is marginally adequate due to clogging of the wells from excessive suspended solids in the effluent. These problems are believed to stem from increased loading on the plant and the use of outdated liquid stream treatment technology. The homes in Waimānalo that are not connected to the public sewers are served by individual wastewater systems, which are generally either cesspools or septic tanks with leaching fields.

Potential Impacts and Mitigation Measures

The State has released $18.2 million to improve the Waimānalo Wastewater Treatment Plant. According to the DLNR project manager, construction of the improvements has started and completion is scheduled for September 2008. The project will thus be designed with the assumption that additional connections to the sewer system will be available when construction of on-site infrastructure is complete. If there are unforeseen delays, house construction will not start until the Waimānalo WWTP is upgraded.

A 12-inch sewer line along Kumuhau Street provides sewer service to the Humuniki Street residential subdivision. A connection to this line could service the Kumuhau parcel. Also, a separate connection to this line could service the Kakaina parcel.

The sewer system improvements that would take place offsite on Kumuhau Street include the installation of a sewer line, manhole, and an extension of the 6-inch force main from Kumuhau Street to within the proposed Waimānalo Residence Lots. The sewer line and manhole will be connected to the existing system via the manhole at the intersection of Kumuhau Street and Humuniki Street.

6.4 DRAINAGE FACILITIES

Existing drainage facilities within Kumuhau Street consist of manholes, catchbasins and underground 18- and 24-inch concrete drain pipelines. The collected storm runoff is conveyed by underground drain pipelines to an existing concrete channel which

The existing surface drainage flowing from Kumuhau Street flows along both sides of Kumuhau Street. When designing the Kumuhau parcel development to Kumuhau St., please maintain the existing Kumuhau street drainage pattern.

eventually discharges into an existing unlined ditch on the makai side of Kalaniana'ole Highway.

Potential Impacts and Mitigative Measures

The proposed development will increase runoff by introducing impermeable surfaces such as roadways and structures. There are 18-inch drain lines located along Kumuhau Street. These drain lines are currently at capacity.

The proposed on-site drainage system will include new catch basins, drain manholes, a drain outlet source and drain lines. The drain lines will transport the runoff to the outlet structure near the southeast boundary of the property. Silt will be filtered out of the runoff before it is discharged into Kahawai Stream. Discharges to Kahawai Stream and to Kumuhau Street would not be significantly increased over the existing conditions.

Appears to be for Kumuhau parcel only. Include description of drainage impacts from the Kakaina parcel and its on-site drainage system.

6.5 SOLID WASTE DISPOSAL FACILITIES

Vegetation removed from property during the construction of the project will be chipped and disposed at a City and County approved landfill or waste-to-energy facility. Other construction material debris will be recycled or disposed in a similar manner. Solid waste generated during the operation of the projects will be collected and disposed of by the City and County, Department of Environmental Services, Refuse Division.

On O'ahu, most residential and general commercial trash is disposed at H-POWER, the City's waste-to-energy plant located at Campbell Industrial Park. The facility processes over 600,000 tons of solid waste annually, reducing the volume of solid waste going into landfills by 90 percent. H-POWER also generates about 7 percent of O'ahu's electricity. The electricity generated is bought under a purchase power agreement with Hawaiian Electric Company, Inc. (HECo). Ash and non-processables are transported and buried at the Waimānalo Gulch Landfill.

Potential Impacts and Mitigation Measures

The proposed Waimānalo Residence Lots will generate solid waste during the construction of infrastructure and as the project achieves build-out. The quantity of solid waste generated will vary with different construction activities, and some wastes may require separate and special disposal methods. However, the project is not expected to have a significant impact on the H-POWER facility or the Waimānalo Gulch Landfill.

6.6 ELECTRICAL AND COMMUNICATIONS FACILITIES

Electrical Facilities. The proposed project site currently has minor electrical service. Electricity for the surrounding area is provided by Hawaiian Electric Company, Inc.

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

KEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

January 8, 2007

Mr. Eugene C. Lee, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina Subdivisions Draft Environmental Assessment

Dear Mr. Lee:

Thank you for your letter dated December 11, 2006. We have reviewed your letter and provide the following comments:

1. The Final EA will be corrected to indicate there is no existing pump station running along Kumuhau Street. The proposed Kumuhau Subdivision will be sewered by gravity lines flowing from Kumuhau Street toward Humuna Place. The sewer line will connect to an existing manhole at the cul-de-sac of Humuna Place. An easement will be required through the Hawaii Housing Authority "Waimanalo Core Development". The proposed Kakaina Subdivision will be sewered by gravity lines with connection points to the existing system at Kakaina Street and Hihimanu Street.

2. The southern portion of the Kumuhau parcel along Kahawai Stream is situated within a flood zone. The cost of stream improvements to mitigate the danger would be very high. Therefore, construction of those house lots in the flood zone may be deferred indefinitely. If so, a portion of that area could be improved with minimal grading and landscaping and serve as a passive park for the residents.

3. We acknowledge that there is a history of flooding in lower elevation areas along Kumuhau Street. As such,

efforts will be made to minimize the impact of runoff from Kumuhau Subdivision toward Kumuhau Street.

4. We do not believe it is reasonable for DHHL's structural consultant to "investigate the status and condition of each bridge" during the design phase. Once the contractor has been determined, he will be responsible for selecting the route(s) and confirming that any bridges crossed in transporting materials or equipment to and from the project site are structurally adequate for his trucks and their loads.

5. The design of the Kumuhau parcel adjacent to Kumuhau Street will maintain the existing surface drainage pattern along both sides of Kumuhau Street toward Kalanianaole Highway.

6. The proposed on-site drainage system for the Kakaina Subdivision will include new catch basins, drain manholes, a drain outlet source and drain lines. The drain lines will transport the runoff toward a roadway swale at the northeast boundary of the property, into a drain inlet and underground system which will then discharge runoff into an existing drainage way located on the easterly side of Hihimanu Street.

Thank you again for your participation in the Environmental Assessment process for this project. Your letter will be included in the Final EA under Section 11.0.

If you have any questions regarding this project, please call Darrell Ing at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR HAWAII

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 692-5054 • Fax: (808) 692-5857
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LAVERNE HIGA, P.E.
DIRECTOR AND CHIEF ENGINEER

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 06-1249

December 20, 2006

Mr. Vicent Shigekuni
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment (DEA)
Department of Hawaiian Home Lands (DHHL)
Waimanalo Residence Lots,
Kumuhau and Kakaina Streets Parcels

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) dated October 2006 for the subject Department of Hawaiian Home Lands (DHHL) residential subdivision project.

We have no comments to add to the document.

Should you have any questions, please call Charles Pignataro of the DRM, at 484-7697.

Sincerely,

Laverne Higa

Laverne Higa, P.E.
Director and Chief Engineer

LH:sm

cc: Department of Hawaiian Home Lands
Office of Environmental Quality Control

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

January 2, 2007

Ms. Laverne Higa, Director and Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street, Suite 215
Kapolei, HI 96707

Dear Ms. Higa:

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment

Thank you for your letter dated December 20, 2006. We acknowledge that you have no comments to add. Your letter will be included in the Final EA under Section 11.0.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

November 20, 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment - DHHL Waimanalo Residence Lots

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the DHHL Waimanalo Residence Lots.

The Department of Parks and Recreation does not share the Draft Environmental Assessments conclusion that "...there appears to be adequate recreational opportunities in Waimanalo." as stated in the discussion paragraph of the Regional Functional Plan.

We understand that the development of this 120 unit residential subdivision by DHHL is exempt from the requirements of the City and County of Honolulu's Park Dedication Ordinance however, there never seems to be enough recreational opportunities for the families that move into new subdivisions like this all over the island.

Some open space and recreational area will compliment the DHHL Waimanalo Residence Lots subdivision and we encourage Hawaiian Home Lands to reconsider their site development plan to incorporate at least one on site open recreational area with a composite play apparatus designed for children 5 to 12, with supporting benches, tables and landscaping into their final plan.

Should you have any question, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

LESTER K. C. CHANG
Director

LKCC:mk
(181798)

cc: Office of Environmental Quality Control
Department of Hawaiian Home Lands, Land Development Division

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 18, 2006

Mr. Lester K.C. Chang, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, HI 96707

Dear Mr. Chang:

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment

Thank you for your letter dated November 20, 2006. It will be included in the Final EA under Section 11.0. You suggested that our site development plan be reconsidered "to incorporate at least one on site open recreation area ..."

The southern portion of the Kumuhau parcel along Kahawai Stream is situated within a flood zone. The cost of stream improvements to mitigate the danger would be very high. Therefore, construction of those house lots in the flood zone may be deferred indefinitely. If so, a portion of that could be improved with minimal grading and landscaping and serve as a passive park for the residents.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4432 • FAX: (808) 527-6743
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2006/ELOG-2798(RY)

December 7, 2006

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment for Waimanalo Residence Lots, Kumuhao and Kakaina Streets Parcels, Waimanalo, Koolaupoko, Oahu
Tax Map Key: 4-1-8: 10, 11, 81, 91 and 92 and 4-1-23: 65

We have reviewed the subject Draft Environmental Assessment (DEA) and provide the following comments:

1. Section 3.4 (Required Permits and Approvals): The project will require a trenching permit and may require a drain connection license from the Department of Planning and Permitting (DPP). Also, the applicant should consult with the state Department of Land and Natural Resources as to whether a stream channel alteration permit may be required (refer to Section 4.7).

2. Section 4.3 (Drainage-Potential Impacts and Mitigation Measures): Please revise the last sentence of the second paragraph to read "...the proposed drainage improvements will be constructed in conformance with all applicable Department of Planning and Permitting design criteria."

3. Section 4.7 (Natural Hazards-Potential Impacts and Mitigation Measures): Describe the scope of the proposed stream improvements.

4. Section 6.4 (Drainage Facilities-Potential Impacts and Mitigative Measures): This section appears to describe the proposed drainage improvements to the Kumuhau parcel. Describe the drainage improvements proposed for the Kakaina parcel.

5. If the proposed drainage infrastructure drains into a City drainage facility, including all natural drainageways that the City has ownership and/or responsibility for, then the DEA should describe how the project will comply with Section II (Storm Water Quality) of DPP's "Rules Relating to Storm Drainage Standards".

6. A drainage report will be required at a later date.

7. Improvements within the floodway will require a "No-Rise" certification from a licensed professional engineer.

8. Sewer Connection Application Form (2006/SCA-0609) was submitted and denied on September 29, 2006. New connections to the Waimanalo Wastewater Treatment Plant are being denied until authorized by the City Department of Environmental Services.

9. The Koolaupoko Sustainable Communities Plan (SCP) recognize the primacy of the Department of Hawaiian Home Land's (DHHL's) ability to develop housing. Relevant sections of the report should be revised to indicate that although the project is located outside of the RCB and within the Agriculture Boundary, the SCP acknowledges residential development on lands under DHHL jurisdiction.

10. The DEA should indicate how the project's design will conform to Sections 3.6.3 and 3.6.4 of the SCP's relating to residential development. Specifically, whether the project will be developed under guidelines for Rural Forms of Residential Development or Urban Forms of Residential Development.

Should you have any questions, please contact Raymond Young of our staff at 527-5839 or by email at: ryoung@honolulu.gov.

Very truly yours,

for Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:lh
Doc: 499576

cc: OEQC
DHHL

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAILANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

January 8, 2007

Mr. Henry Eng, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

SUBJECT: Waimanalo Residence Lots, Kumuhau and Kakaina Subdivisions Draft Environmental Assessment

Dear Mr. Eng:

Thank you for your letter dated December 7, 2006. We offer the following responses to your comments:

1. We acknowledge that the project will require a trenching permit and may require a drain connection license from the Department of Planning & Permitting (DPP). As mentioned in our response letter to the Department of Land & Natural Resources, we acknowledge that a Stream Alteration Permit will be required for Phase 2 of the Kumuhau Parcel.

2. As recommended, the Final EA will be revised to note that the proposed drainage improvements will be constructed in conformance with all applicable Department of Planning and Permitting design criteria.

3. The Kumuhau Parcel will be developed in two phases. The first phase will be outside of the 100-year flood plain limits and will not require any stream improvements. The second phase, if implemented, would include channelizing the stream with lining and construction of a bridge or culvert to connect the new subdivision with the existing Koa Moali Place. The Kakaina Subdivision will not require any stream improvements.

4. The Final EA will note that the proposed on-site drainage system for the Kakaina Subdivision will include new catch basins, drain manholes, a drain outlet source and drain lines. The drain lines will transport the runoff toward a roadway swale at the northeast boundary of the property, into a drain inlet and underground system which will then discharge runoff into an existing drainage way located on the easterly side of Hihimanu Street.

5. A proposed detention basin will be constructed as part of Phase I for the Kumuhau Subdivision.

6. A drainage report will be submitted to DPP during the design phase of the project.

7. We acknowledge that any improvements made within the floodway will require a "No-Rise" certification from a licensed professional engineer.

8. We acknowledge that a Sewer Connection Application Form (2006/SCA-0609) was submitted and denied on September 29, 2006, and that new connections to the Waimanalo Wastewater Treatment Plant (WWTP) are being denied until authorized by the City Department of Environmental Services. As such, upon completion of upgrades to the Waimanalo WWTP, a Sewer Connection Application Form will be resubmitted for approval.

9. Relevant sections of the Final EA will be revised to indicate that although the project is located within the Agriculture Boundary of the Koolaupoko Sustainable Communities Plan (SCP), the SCP allows for residential development on lands under DHHL jurisdiction.

10. The Waimanalo Residence Lots will be developed under guidelines for Urban Forms of Residential Development. These single-family residential lots will be developed adjacent to existing single-family residential developments along Humuniki, Mekia, Poalima and Hihimanu streets. The proposed residential uses shall maintain and enhance the protection of the surrounding residential neighborhoods from incompatible uses and nuisance-producing activities. Building heights will not exceed two stories in height.

Thank you again for your participation in the Environmental Assessment process for this project. Your letter will be included in the Final EA under Section 11.0.

If you have any questions regarding this project, please call Darrell Ing at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR HAWAII

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
636 SOUTH STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 723-7139 • FAX: (808) 723-7111 • INTERNET: www.honolulufire.org

MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

November 16, 2006

Mr. Vincent Shigekuni
Vice President
PBR Hawaii & Associates, Inc.
Suite 650, ASB Tower
1001 Bishop Street
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment
Department of Hawaiian Home Lands, Waimanalo Residence Lots
Koolaupoko, Oahu, Hawaii
Tax Map Keys: 4-1-008: 010, 011, 081, 091, and 092
4-1-023: 065

In response to your letter dated November 6, 2006, regarding the above-mentioned subject, the Honolulu Fire Department reviewed the material you provided and has no objections to the proposed project.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Sincerely,

CHARLES WASSMAN
Acting Fire Chief

CW/SY:jl

cc: Office of Environmental Quality Control
State of Hawaii, Department of Hawaiian Home Lands
Land Development Division

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

Mr. Charles Wassman, Acting Fire Chief
Honolulu Fire Department
City and County of Honolulu
636 South King Street
Honolulu, HI 96813

Dear Mr. Wassman:

SUBJECT: Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision Draft Environmental Assessment (Draft EA)

Thank you for your letter dated November 16, 2006. We acknowledge that the Honolulu Fire Department has no objections to the proposed project. Your letter will be included in the Final EA under Section 11.0

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.honolulu.gov

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MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-DK

November 8, 2006

Mr. Vincent Shigekuni
Vice President
PBR Hawaii & Associates, Inc.
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813-3484

Dear Mr. Shikeguni:

This is in response to your letter of November 6, 2006, regarding a Draft Environmental Assessment for the Waimānalo Residence Lots, Kumuhau and Kakaina Streets Parcels, project.

This project should have no unanticipated impact on the facilities or operations of the Honolulu Police Department.

Should you have any questions, please call Major Janna Mizuo of District 4 at 247-2166 or Mr. Brandon Stone of the Executive Office at 529-3644.

Thank you for the opportunity to comment.

Sincerely,

BOISSE P. CORREA
Chief of Police

By William Chan
JOHN P. KERR
Assistant Chief of Police
Support Services Bureau

cc: OEQC
Mr. Darrell Ing, Department of Hawaiian Home Lands

Serving and Protecting with Aloha

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

Mr. Boisse P. Correa, Chief of Police
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, HI 96813

Dear Chief Correa:

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment

Thank you for your letter dated November 8, 2006. We acknowledge your assessment that the project should have no unanticipated impact on the facilities or operations of the Honolulu Police Department. Your letter will be included in the Final EA under Section 11.0.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

Sandwich Isles Communications, Inc.
A Waimana Company

December 6, 2006

Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Subject: Sandwich Isles Communications, Inc. Comments to "Waimanalo Residence Lots, Kumuhao and Kakaina Streets Parcels Draft Environmental Assessment"

Mr. Shigekuni:

Thank you for the opportunity to provide comments to the draft environmental assessment. We have no comments at this time. I would appreciate receiving a copy of the final environmental assessment when it is published.

Sincerely,

Rodney Kaulupali
Manager of Planning and Engineering

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 12, 2006

Mr. Rodney Kaulupali
Manager of Planning and Engineering
Sandwich Isles Communications, Inc.
1001 Bishop Street,. Pauahi Tower
Honolulu, HI 96813

Dear Mr. Kaulupali:

SUBJECT: Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Subdivision
Draft Environmental Assessment

Thank you for your letter dated December 6, 2006. We acknowledge that Sandwich Isles Communications, Inc. has no comments at this time. Your letter will be included in the Final EA under Section 11.0.

As requested, a copy of the Final Environmental Assessment will be sent to you when it is published.

Your participation in the Environmental Assessment process is greatly appreciated. If you have any questions regarding this project, please call Darrell Ing of our Land Development Division at 587-6451.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Vincent Shigekuni, PBR Hawaii

APPENDIX A

BIOLOGICAL RESOURCES SURVEY (KUMUHAU STREET)

BIOLOGICAL RESOURCES SURVEY

for the

KUMUHAU STREET SUBDIVISION

DEPARTMENT OF HAWAIIAN HOMELANDS

WAIMANALO, O'AHU

by

ROBERT W. HOBDY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
February 2006

Prepared for: PBR Hawaii & Associates, Inc.

BIOLOGICAL RESOURCES SURVEY
KUMUHAU STREET SUBDIVISION
Department of Hawaiian Home Lands Waimanalo, Oahu

INTRODUCTION

The Kumuhau Street Subdivision of the Department of Hawaiian Home Lands lies on the mauka fringe of downtown Waimanalo on windward O'ahu. This property is composed of two parcels of land, TMK 4-1-08:11 (9.6 acre) and 4-1-23:65 (1.8 acre) totaling 11.4 acres that is located between Kumuhau Street and a small stream channel west of Mekia Street, and above house lots along Humuniki Street.

SITE DESCRIPTION

This entire property is presently being farmed commercially in a variety of vegetables, root crops and fruits. The land is quite level and is part of an alluvial plain with an elevation of only 30-35 feet above sea level. Soils consist of Pohakupu Silty Clay Loam on the flats, and Hanalei Silty Clay along the stream channel (Foote et al, 1972). Rainfall averages 40 inches per year with the bulk falling between November and March (Armstrong, 1983).

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Kumuhau Street Subdivision – Hawaiian Home Lands, Waimanalo.
The objectives of the survey were to:

1. Document what plant, bird and mammal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.
5. Note which aspects of the proposed development pose significant concerns for plants or for wildlife and recommend measures that would mitigate or avoid these problems.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey was conducted across the agricultural fields, around farm structures, along windbreaks, and at the edge of the small stream channel. A complete inventory of plant species was made with the exception of the actual crop species that are transitory. Notes were made on plant species, status and abundance.

DESCRIPTION OF THE VEGETATION

The vegetation consists primarily of crop plants such as egg plant, okra, beans, bitter melon, squash, sweet potatoes and taro and fruit trees such as mango, star fruit, limes, sugar apples, bananas and sapodilla. Windbreaks of panax line many of the fields. A few ornamentals are planted around the farm buildings. Many weed species typical of agricultural areas are found among the crop plants, on access roads and along field margins.

DISCUSSION AND CONCLUSIONS

The resulting checklist of plants totaled 88 species. Of this total none were endemic to Hawaii, 1 was indigenous to Hawaii and elsewhere, 2 were brought to Hawaii by the Polynesians during their migrations and 85 were non-native plants and weeds. The property has been maintained in an altered state for many years and contains nothing of interest from a native botanical standpoint.

No Endangered or Threatened native plants (USFWS, 1999) occur on this property, nor were any special or unique habitats identified. There is nothing remotely resembling wetland habitat on this property either.

As a result of the described conditions, there is nothing of botanical concern with regard to this property. Any proposed alterations or disturbances will have little significant negative impact on the botanical resources in this part of O'ahu.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within each of two groups: Monocots and Dicots. Taxonomy and nomenclature of the flowering plants (Monocots and Dicots) are in accordance with Wagner et al. (1999) and Staples & Herbst (2005).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:
   - endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   - indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   - Polynesian = those plants brought to the islands by the Hawaiians during their migrations.
   - non-native = all those plants brought to the islands intentionally or accidentally after western contact.
4. Abundance of each species within the project area:
   - abundant = forming a major part of the vegetation within the project area.
   - common = widely scattered throughout the area or locally abundant within a portion of it.
   - uncommon = scattered sparsely throughout the area or occurring in a few small patches.
   - rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MONOCOTS			
ARACEAE (Aroid Family)			
Epipremnum pinnatum (L.) Engl.	taro vine	non-native	rare
Syngonium auritum (L.) Schott	five-fingers	non-native	rare
ARECACEAE (Palm Family)			
Cocos nucifera (L.)	coconut	Polynesian	rare
Roystonea regia (Kunth) Cook	royal palm	non-native	rare
CANNACEAE (Canna Family)			
Canna indica L.	Indian shot	non-native	rare
CYPERACEAE (Sedge Family)			
Cyperus gracilis R. Br.	McCoy grass	non-native	uncommon
Cyperus rontundus L.	nut sedge	non-native	uncommon
MUSACEAE (Banana Family)			
Musa acuminata x balbisiana Colla	banana	non-native	uncommon
POACEAE (Grass Family)			
Brachiaria mutica (Forssk.) Stapf	California grass	non-native	rare
Chloris barbata (L.) Sw.	swollen fingergrass	non-native	uncommon
Chloris radiata (L.) Sw.	plushgrass	non-native	uncommon
Coix lacryma-jobi L.	Job's tears	non-native	uncommon
Cymbopogon citratus (DC.) Stapf	lemon grass	non-native	uncommon
Cynodon dactylon (L.) Pers.	manienie	non-native	rare
Digitaria insularis (L.) Mez ex Ekman	sourgrass	non-native	uncommon
Echinochloa colona (L.) Link	jungle rice	non-native	uncommon
Eleusine indica (L.) Gaertn.	wiregrass	non-native	common
Panicum maximum Jacq.	Guinea grass	non-native	uncommon
Pennisetum purpureum Schumach.	Napier grass	non-native	rare
Setaria parviflora (Poir.) Kerguelen	yellow foxtail	non-native	uncommon
Sorghum bicolor (L.) Moench	sorghum	non-native	rare
Sorghum halapense (L.) Pers.	Johnson grass	non-native	uncommon
Stenotaphrum secundatum (Walter) Kuntze	St. Augustine grass	non-native	rare
DICOTS			
ACANTHACEAE (Acanthus Family)			

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Asystasia gangetica (L.) T. Anderson	Chinese violet	non-native	uncommon
AMARANTHACEAE (Amaranth Family)			
Amaranthus spinosus L.	spiny amaranth	non-native	rare
Amaranthus viridus L.	slender amaranth	non-native	uncommon
ANACARDIACEAE (Mango Family)			
Mangifera indica L.	mango	non-native	uncommon
Schinus terebinthifolius Raddi	Christmas berry	non-native	rare
ANNONACEAE (Custard-apple Family)			
Annona squamosa L.	sugar-apple	non-native	uncommon
ARALIACEAE (Aralia Family)			
Polyscias guilfoylei (W.Bull) L.H. Bailey	panax	non-native	uncommon
ASTERACEAE (Sunflower Family)			
Ageratum conyzoides L.	maile hohono	non-native	common
Bidens pilosa L.	Spanish needle	non-native	rare
Conyza bonariensis (L.) Cronq.	hairy horseweed	non-native	rare
Crassocephalum crepidioides (Benth.) S.Moore	----------	non-native	uncommon
Emilia fosbergii Nicolson	red pualele	non-native	uncommon
Sigesbeckia orientalis L.	small yellow crown-beard	non-native	uncommon
Sonchus oleraceus L.	pualele	non-native	uncommon
Youngia japonica (L.) DC.	oriental hawksbeard	non-native	rare
BIGNONIACEAE (Bignonia Family)			
Spathodea campanulata P.Beauv.	African tulip-tree	non-native	uncommon
BORAGINACEAE (Borage Family)			
Carmona retusa (Vahl) Masam.	Fukien-tea	non-native	uncommon
BRASSICACEAE (Mustard Family)			
Coronopus didymus (L.) Sm.	swinecress	non-native	uncommon
Lepidium virginicum L.	pepperwort	non-native	rare
Rorippa sarmentosa (J. Forst. ex DC.)J.R.Macbr.	pa'ihi	non-native	uncommon
BUDDLEIACEAE (Butterfly Bush Family)			
Buddleia asiatica Lour.	dog tail	non-native	rare
CARICACEAE (Papaya Family)			

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Carica papaya L.	papaya	non-native	uncommon
CLUSIACEAE (Mangosteen Family)			
Clusia rosea Jacq.	autograph tree	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea obscura (L.) Ker-Gawl.	----------	non-native	uncommon
Ipomoea triloba (L.)	little bell	non-native	uncommon
Merremia tuberosa (L.) Rendle	wood rose	non-native	rare
CUCURBITACEAE (Gourd Family)			
Coccinea grandis (L.) Voigt	ivy gourd	non-native	uncommon
Momordica charantia L.	balsam pear	non-native	uncommon
EUPHORBIACEAE (Spurge Family)			
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	non-native	uncommon
Macaranga tanarius (L.) Mull. Arg.	----------	non-native	uncommon
Phyllanthus debilis Klein ex Willd.	niruri	non-native	uncommon
Phyllanthus tenellus Roxb.	----------	non-native	rare
Ricinus communis L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
Leucaena leucocephala (Lam.) de Wit	koa haole	non-native	uncommon
Macroptilium lathyroides (L.) Urb.	wild bean	non-native	rare
Mimosa pudica L.	sensitive plant	non-native	uncommon
Neonotonia wightii (Wight & Arnott) Lackey	tineroo	non-native	uncommon
Pithecellobium dulce (Roxb.) Benth.	'opiuma	non-native	uncommon
Senna occidentalis (L.) Link	coffee senna	non-native	rare
Senna pendula (Humb.&Bonpl.ex Willd.) H. Irwin & Barneby	----------	non-native	uncommon
LAMIACEAE (Mint Family)			
Hyptis pectinata (L.) Poit.	comb hyptis	non-native	rare
Leonotis nepetifolia (L.) R. Br.	lion's tail	non-native	rare
LAURACEAE (Laurel Family)			
Persea americana Mill.	avocado	non-native	rare
MALVACEAE (Mallow Family)			
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native	rare
MORACEAE (Mulberry Family)			

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Artocarpus heterophyllus Lamarck	jakfruit	non-native	uncommon
MORINGACEAE (Drumstick Tree Family)			
Moringa oleifera Lamarck	horseradish tree	non-native	common
MYRTACEAE (Myrtle Family)			
Psidium guajava L.	guava	non-native	rare
Syzygium cumini (L.) Skeels	Java plum	non-native	uncommon
NYCTAGINACEAE (Four-o'clock Family)			
Bougainvillea spectabilis Willd.	bougainvillea	non-native	rare
Mirabilis jalapa L.	four-o-clock	non-native	rare
OXALIDACEAE (Wood Sorrel Family)			
Averrhoa carambola L.	star fruit	non-native	rare
Oxalis corniculata L.	'ihi'ai	Polynesian	rare
PHYTOLACCACEAE (Pokeweed Family)			
Rivina humilis L.	coral berry	non-native	rare
PORTULACACEAE (Purslane Family)			
Portulaca oleracea L.	pigweed	non-native	uncommon
RUBIACEAE (Coffee Family)			
Paederia foetida L.	maile pilau	non-native	uncommon
RUTACEAE (Rue Family)			
Citrus limon (L.) N.L. Burm.	lime	non-native	rare
SAPINDACEAE (Soapberry Family)			
Dimocarpus longan Loureiro	longan	non-native	uncommon
Litchi chinensis Sonnerat	litchi	non-native	rare
SAPOTACEAE (Sapodilla Family)			
Manilkara zapota (L.) P. Royen	sapodilla	non-native	rare
SOLANACEAE (Nightshade Family)			
Solanum americanum Mill	popolo	indigenous	rare
Solanum lycopersicum L.	tomato	non-native	uncommon
Solanum torvum Sw.	----------	non-native	uncommon
ULMACEAE (Elm Family)			
Trema orientalis (L.) Blume	gunpowder tree	non-native	rare
VERBENACEAE (Verbena Family)			
Citharexylum caudatum L.	----------	non-native	rare
VITACEAE (Grape Family)			
Cissus sp.	----------	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species and abundance. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Only two mammal species were observed on the property during the course of the survey. The diversity and numbers of mammals was low due to the urban nature of the area. Taxonomy and nomenclature follows Tomich (1986).

Domestic dog (*Canis familiaris)* - Three dogs were resident on the property where they serve as watchdogs for the farm.

Domestic cat (*Felis catus*) – One domestic cat was seen in the back of the property. It was obviously a pet, but even well-fed cats will roam their territory hunting for rodents and birds.

No other mammals were seen, but one could expect small numbers of mongoose (*Herpestes auropunctuatus*), rats (*Rattus rattus*) and mice (*Mus musculus*) in the neighborhood.

A special effort was made to look for the native Hawaiian hoary bat by making an evening survey of the area. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent . This area does not represent ideal bat habitat and there have been no reports of bat sightings in the vicinity.

BIRDS

Birdlife was moderate in both diversity and numbers in this urban-agricultural fringe area. Twelve species of birds were observed in the course of the survey during two visits to the property, including one indigenous bird, one migratory bird and ten non-native species. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Red-vented bulbul (*Pycnonotus cafer*) – These bulbuls were found in all parts of the property and their calls dominated all other bird calls.

Zebra dove (*Geopelia striata*) – These small doves were found in small groups throughout the agricultural fields where they feed on seeds.

Spotted dove (*Streptopelia chinensis*) – These large doves were also common in field openings as individuals or pairs.

Common waxbill (*Estrilda astrild*) – A moderate sized flock of these tiny birds was seen flying in various parts of the farm where they feed on weed seeds in field margins.

Common myna (*Acridotheres tristis*) – Several myna were seen about the property usually in pairs, feeding on insects.

Chicken (*Gallus gallus*) – Chickens were crowing at all times of the day. Many people in the neighborhood raise chickens and they forage between properties.

Northern cardinal (Cardinalis cardinalis) – A few cardinals were seen and heard in trees on the property. These birds feed primarily on fruits.

Red-crested cardinal (*Paroaria coronata*) – A few individuals were seen on telephone wires and calling from trees.

Red-whiskered bulbul (*Pycnonotus jocosus*) – A few of these high-crested bulbuls ventured down into this agricultural area from more densely forested areas further mauka.

Pacific golden plover/kolea (*Pluvialis fulva*) – One kolea was observed in the farm area where it had set up its territory. This species breeds in the Arctic during the spring and summer but migrates to Hawaii and other tropical islands in the fall and winter.

'Auku'u, Black-crowned night-heron (Nycticorax nycticorax hoactli) – This heron, which is also native to the southern U.S. and Mexico is a secretive species that keeps to itself. One juvenile 'auku'u was observed roosting in a tree along the small stream course during the evening survey. These large herons feed on small fish and crustaceans in streams and around ponds.

Cattle egret (*Bubulcus ibis*) One egret was seen transiting above the property during the evening. This property does not represent good habitat for these large birds.

A few other non-native birds might be expected to use this property occasionally, but the habitat is not suitable for any of the native forest birds which are presently restricted to higher elevations on O'ahu.

INSECTS

While insects in general were not tallied, one native Sphingid moth species, Blackburn's sphinx moth (*Manduca blackburni*), has been put on the federal Endangered species list and this designation requires special focus (USFWS 2000). Blackburn's sphinx moth was known to occur O'ahu historically but is not known to currently. Its former known range was on Leeward O'ahu. Its native host plants are species of 'Aiea (*Nothocestrum* spp.) and non-native host plants are tree tobacco (*Nicotiana glauca*) and tobacco (*Nicotiana tabacum*). None of these host species were seen on or near the property and no Blackburn's sphinx moth or their larvae were observed.

DISCUSSION AND CONCLUSIONS

Fauna surveys are seldom comprehensive due to the short windows of observation, the seasonal nature of animal activities and the usually unpredictable nature of their daily movements. This survey, however, should be considered fairly representative due to the disturbed nature of the habitat and relative scarcity of food resources on the property.

The indigenous 'auku'u and the migratory kolea are both widespread and common in Hawai'i. The other bird species are all common non-natives. No Endangered or Threatened mammal, bird or insect was found on the property, nor were any species that are a candidate for such status seen. As a result of this and of the nature and condition of the habitat there is little of concern regarding the wildlife resources on this property, and development plans are not expected to have a significant negative impact on the fauna resources in this part of O'ahu.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within two groups: Mammals, and Birds. For each species the following information is provided:

1. Common name

2. Scientific name

3. Bio-geographical status. The following symbols are used:

   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

   abundant = many flocks or individuals seen throughout the area at all times of day.
   common = a few flocks or well scattered individuals throughout the area.
   uncommon = only one flock or several individuals seen within the project area.
   rare = only one or two seen within the project area.

COMMON NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
MAMMALS			
Domestic dog	*Canis familiaris*	non-native	uncommon
Domestic cat	*Felis catus*	non-native	rare
BIRDS			
Red-vented bulbul	*Pycnonotus cafer*	non-native	abundant
Zebra dove	*Geopelia striata*	non-native	common
Spotted dove	*Streptopelia chinensis*	non-native	common
Common waxbill	*Estrilda astrild*	non-native	common
Common myna	*Acridotheres tristis*	non-native	uncommon
Chicken	*Gallus gallus*	non-native	uncommon
Northern cardinal	*Cardinalis cardinalis*	non-native	uncommon
Red-crested cardinal	*Paroaria coronata*	non-native	uncommon
Red-whiskered bulbul	*Pycnonotus jocosus*	non-native	uncommon
Kolea, Pacific golden-plover	*Pluvialis fulva*	migratory	rare
Auku'u, Black-crowned night-heron	*Nycticorax nycticorax hoactli*	indigenous	rare
Cattle egret	*Bubulcus ibis*	non-native	rare

Literature Cited

American Ornithologists' Union 2005. Check-list of North American Birds. 7th edition. American Ornithologists' Union. Washington D.C.

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Wagner, W. L., D.R. Herbst, and S. H. Sohmer. 1999. Manual of the Flowering Plants of Hawai'i. Univ. of Hawai'i Press and Bishop Museum Press. Honolulu.

APPENDIX B

BIOLOGICAL RESOURCES SURVEY (KAKAINA STREET)

BIOLOGICAL RESOURCES SURVEY

for the

KAKAINA STREET SUBDIVISION

DEPARTMENT OF HAWAIIAN HOME LANDS

WAIMANALO, O'AHU

by

ROBERT W. HOBDY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
August 2006

Prepared for: PBR Hawaii & Associates, Inc.

BIOLOGICAL RESOURCES SURVEY
KAKAINA STREET SUBDIVISION
Department of Hawaiian Home Lands Waimanalo, Oahu

INTRODUCTION

The Kakaina Street Subdivision of the Department of Hawaiian Home Lands lies on the mauka fringe of downtown Waimanalo on Windward O'ahu. This property is composed of four parcels, TMK 4-1-20:91, 92, 10 & 81 totaling approximately 8.2 acres. The property is bounded on the south by Kakaina Street, on the east by Hihimanu Street and on the north by single family homes along Poalima Street and Mekia Street.

SITE DESCRIPTION

The majority of this property is presently undeveloped and supports a dense growth of brush, grass and weeds. A small portion of it is landscaped and has non-commercial agriculture. The land is level to very gently sloping with elevations ranging from 25 to 30 feet above sea level. Soils consist of alluvial well drained Waialua clay (WnB) and Pohakupu silty clay loam (PkB) that are deep and dark reddish-brown (Foote et al, 1972). Rainfall averages 40 inches per year with the bulk falling between November and April.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Kakaina Street Subdivision property which was conducted in August 2006.
The objectives of the survey were to:

1. Document what plant, bird and mammal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.
5. Note which aspects of the proposed development pose significant concerns for plants or for wildlife and recommend measures that would mitigate or avoid these problems.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey was conducted across all parts of this property. An inventory of all plant species with the exception of the few transitory crop species which were being grown. Notes were made on plant species, status and abundance.

DESCRIPTION OF THE VEGETATION

Just two aggressive weedy species dominate the site and are listed as abundant: koa haole (*Leucaena leucocephiala*) and Guinea grass (*Panicum maximum*). They form the overstory and understory over most of the property. One other species, ivy gourd (*Coccinea grandis*), is also relatively common. Sixteen species had been planted for ornament or food. The remaining fifty species were also common weeds.

DISCUSSION AND CONCLUSIONS

The resulting checklist of plants totaled 69 species. Of this total none were endemic or indigenous to Hawaii, while 3 species, niu (*Cocos nucifera*), kukui (*Aleurites moluccana*) and milo (*Thespesia populnea*) were of Polynesian introduction and had been planted here. The remaining 66 species were ornamentals or common weeds. No Endangered or Threatened native plants (USFWS, 1999) occur on this property, nor were any special or unique habitats identified. There is nothing remotely resembling wetland habitat on this property either.

As a result of the described conditions, there is nothing of botanical concern with regard to this property. Any proposed alterations or disturbances will have little significant negative impact on the botanical resources in this part of O'ahu.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within each of two groups: Monocots and Dicots. Taxonomy and nomenclature of the flowering plants (Monocots and Dicots) are in accordance with Wagner et al. (1999) and Staples & Herbst (2005).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:
   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   Polynesian = those plants brought to the islands by the Hawaiians during their migrations.
   non-native = all those plants brought to the islands intentionally or accidentally after western contact.
4. Abundance of each species within the project area:
   abundant = forming a major part of the vegetation within the project area.
   common = widely scattered throughout the area or locally abundant within a portion of it.
   uncommon = scattered sparsely throughout the area or occurring in a few small patches.
   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MONOCOTS			
AGAVACEAE (Agave Family)			
Dracaena marginata Lamarck	money tree	non-native	rare
Dracaena reflexa Lamarck	----------	non-native	rare
ARACEAE (Aroid Family)			
Suyngonium auritum (L.) Schott	five-fingers	non-native	uncommon
ARECACEAE (Palm Family)			
Cocos nucifera (L.)	niu	Polynesian	uncommon
Dypsis lutescens (H.Wendl.) Beentje & J. Dransfield	golden-fruited palm	non-native	uncommon
Roystonea regia (Kunth) Cook	royal palm	non-native	rare
Veitchia merrillii (Beccari) H.E. Moore	Manila palm	non-native	rare
LILIACEAE (Lily Family)			
Asparagus plumosus J.G. Baker	climbing asparagus-fern	non-native	rare
POACEAE (Grass Family)			
Bothriochloa bladhii (Retz.) S.T. Blake	----------	non-native	rare
Chloris divaricata R.Brown	stargrass	non-native	uncommon
Chloris radiata (L.) Sw.	radiate fingergrass	non-native	rare
Cynodon dactylon (L.) Pers.	Bermuda grass	non-native	uncommon
Digitaria insularis (L.) Mez ex Ekman	sourgrass	non-native	rare
Echinochloa colona (L.) Link	jungle rice	non-native	rare
Eleusine indica (L.) Gaertn.	wiregrass	non-native	rare
Panicum maximum Jacq.	Guinea grass	non-native	abundant
Paspalum fimbriatum Kunth	Panama grass	non-native	rare
Sorghum halapense (L.) Pers.	Johnson grass	non-native	rare
Urochloa mutica (Forssk.) T.Q. Nguyen	California grass	non-native	uncommon
DICOTS			
ACANTHACEAE (Acanthus Family)			
Asystasia gangetica (L.) T. Anderson	Chinese violet	non-native	rare
Dicliptera chinensis (L.) Juss.	----------	non-native	rare
AIZOACEAE (Fig-marigold Family)			
Trianthema portulacastrum L.	----------	non-native	rare
AMARANTHACEAE (Amaranth Family)			
Alternanthera pungens Kunth	khaki weed	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Amaranthus spinosus L.	spiny amaranth	non-native	rare
Amaranthus viridis L.	slender amaranth	non-native	rare
ANACARDIACEAE (Mango Family)			
Mangifera indica L.	mango	non-native	rare
Schinus terebinthifolius Raddi	Christmas berry	non-native	rare
ARALIACEAE (Aralia Family)			
Schefflera actinophylla (Endl.) Harms	octopus tree	non-native	rare
ASTERACEAE (Sunflower Family)			
Bidens pilosa L.	Spanish needle	non-native	uncommon
Pluchea carolinensis (Jacq.) G. Don	sourbush	non-native	rare
Sonchus oleraceus L.	pualele	non-native	rare
Sphagneticola trilobata (L.) Pruski	wedelia	non-native	rare
BIGNONIACEAE (Bignonia Family)			
Spathodea campanulata P.Beauv.	African tulip-tree	non-native	rare
Tabebuia aurea (Silva Manso) S. Moore	silver trumpet tree	non-native	rare
BORAGINACEAE (Borage Family)			
Heliotropium procumbens Mill.	----------	non-native	rare
BRASSICACEAE (Mustard Family)			
Lepidium virginicum L.	pepperwort	non-native	rare
CARICACEAE (Papaya Family)			
Carica papaya L.	papaya	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea obscura (L.) Ker-Gawl.	----------	non-native	uncommon
CUCURBITACEAE (Gourd Family)			
Coccinea grandis (L.) Voigt	ivy gourd	non-native	common
EUPHORBIACEAE (Spurge Family)			
Aleurites moluccana (L.) Willd.	kukui	Polynesian	rare
Chamaesyce hirta (L.) Millsp.	hairy spurge	non-native	rare
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	non-native	rare
Chamaesyce prostrata (Aiton) Small	prostrate spurge	non-native	rare
Macaranga tanarius (L.) Mull. Arg.	----------	non-native	rare
Phyllanthus debilis Klein ex Willd.	niruri	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Ricinus communis L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
Erythrina variegata L.	tiger claw	non-native	rare
Leucaena leucocephala (Lam.) de Wit	koa haole	non-native	abundant
Macroptilium lathyroides (L.) Urb.	wild bean	non-native	rare
Neonotonia wightii (Wight & Arnott) Lackey	tineroo	non-native	uncommon
Pithecellobium dulce (Roxb.) Benth.	'opiuma	non-native	rare
Samanea saman (Jacq.) Merr.	monkeypod	non-native	rare
Senna septemptrionalis (Viv.) H. Irwin & Barneby	kolomona	non-native	rare
MALVACEAE (Mallow Family)			
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	non-native	rare
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native	rare
Sida rhombifolia L.	Cuban jute	non-native	rare
Thespesia populnea (L.) Sol. ex Correa	milo	Polynesian	rare
MORACEAE (Mulberry Family)			
Ficus microcarpa L. fil.	Chinese banyan	non-native	rare
MYRTACEAE (Myrtle Family)			
Syzygium cumini (L.) Skeels	Java plum	non-native	uncommon
NYCTAGINACEAE (Four-o'clock Family)			
Boerhavia coccinea Mill.	----------	non-native	rare
Bougainvillea spectabilis Willd.	bougainvillea	non-native	rare
Mirabilis jalapa L.	four-o-clock	non-native	
PASSIFLORACEAE (Passion Flower Family)			
Passiflora suberosa L.	huehue haole	non-native	rare
PHYTOLACCACEAE (Pokeweed Family)			
Rivina humilis L.	coral berry	non-native	rare
PORTULACACEAE (Purslane Family)			
Portulaca oleracea L.	pigweed	non-native	rare
RUTACEAE (Rue Family)			
Murraya koenigii (L.) Sprengel	curry-leaf	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Murraya paniculata (L.) W. Jack	mock-orange	non-native	rare
SAPINDACEAE (Soapberry Family)			
Filicium decipiens (Wight&Arnott) Thwaites ex J.D. Hook.	fern tree	non-native	rare
SOLANACEAE (Nightshade Family)			
Solanum torvum Sw.	----------	non-native	uncommon
VERBENACEAE (Verbena Family)			
Citharexylum caudatum L.	----------	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species and abundance. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Only one mammal species was observed on the property during the course of the survey. The diversity and number of mammals was low due to the urban nature of the area. Taxonomy and nomenclature follows Tomich (1986).

Domestic dog (*Canis familiaris*) - One dog from an adjacent home was seen on the property. This is a domesticated pet that wandered on to the subject property.

No other mammals were seen, but one could expect to see rats (*Rattus rattus*) and mice (*Mus domesticus*) that feed on seeds, fruits and herbacious vegetation and the occasional cat (*Felis catus*) and mongoose (*Herpestes auropunctatus*) that would hunt for these rodents.

A special effort was made to look for the native Hawaiian hoary bat by making an evening survey of the area. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent . This area does not represent ideal bat habitat and there have been no reports of bat sightings in the vicinity.

BIRDS

Birdlife was moderate in both diversity and numbers in the somewhat sterile urban fringe. Eight species of birds were observed during the course of the survey including two site visits. All of the birds were non-native species. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Red-vented bulbul (*Pycnonotus cafer*) – These black and red birds were common on the property feeding on fruits and making their distinctive calls.

Spotted dove (*Streptopelia chinensis*) – These large doves were seen regularly in trees, clearings and on power lines.

Zebra dove (*Geopelia striata*) – Several small groupings of these small doves were seen feeding in forest openings and lawns.

Common myna (*Acridotheres tristis*) – Several pairs of these gregarious birds were seen in trees, clearings, on powerlines or flying over the property.

Common waxbill (*Estrilda astrild*) – A few small flocks of these tiny brown birds with red-streaked faces were seen feeding on grass seeds.

House sparrow (*Passer domesticus*) – Several individuals and pairs of these small brown birds were seen in trees and in clearings feeding on insects.

Cattle egret (*Bubulcus ibis*) A few of these tall white birds were seen flying over the property especially during the evening when they are heading for their roost trees.

Chicken (*Gallus gallus*) – Several adjacent properties have chickens which may occasionally roam onto this property to scratch and feed.

A few other non-native birds might be expected to use this property occasionally, but the habitat is not suitable for any of the native forest birds which are presently restricted to higher elevations. Migratory Pacific golden plovers might occasionally utilize this property but were not in Hawaii at the time of this survey.

INSECTS

While insects in general were not tallied, one native Sphingid moth species, Blackburn's sphinx moth (*Manduca blackburni*), has been put on the federal Endangered species list and this designation requires special focus (USFWS 2000). Blackburn's sphinx moth was known to occur O'ahu historically but is not known to currently. Its former known range was on Leeward O'ahu. Its native host plants are species of 'Aiea (*Nothocestrum* spp.) and non-native host plants are tree tobacco (*Nicotiana glauca*) and tobacco (*Nicotiana tabacum*). None of these host species were seen on or near the property and no Blackburn's sphinx moth or their larvae were observed.

DISCUSSION AND CONCLUSIONS

Fauna surveys are seldom comprehensive due to the short windows of observation, the seasonal nature of animal activities and the usually unpredictable nature of their daily movements. This survey, however, should be considered fairly representative due to the disturbed nature of the habitat and relative scarcity of food resources on the property.

All of the mammals and birds species observed during this survey are common non-native species of no particular concern. No Endangered or Threatened mammal, bird or insect was found on the property, nor were any species that are a candidate for such status seen. As a result of this and of the nature and condition of the habitat there is little of concern regarding the wildlife resources on this property, and development plans are not expected to have a significant negative impact on the fauna resources in this part of O'ahu.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within two groups: Mammals, and Birds. For each species the following information is provided:

1. Common name

2. Scientific name

3. Bio-geographical status. The following symbols are used:

   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

   abundant = many flocks or individuals seen throughout the area at all times of day.
   common = a few flocks or well scattered individuals throughout the area.
   uncommon = only one flock or several individuals seen within the project area.
   rare = only one or two seen within the project area.

COMMON NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
MAMMALS			
Domestic dog	*Canis familiaris*	non-native	rare
BIRDS			
Red-vented bulbul	*Pycnonotus cafer*	non-native	common
Spotted dove	*Streptopelia chinensis*	non-native	common
Zebra dove	*Geopelia striata*	non-native	common
Common myna	*Acridotheres tristis*	non-native	uncommon
Common waxbill	*Estrilda astrild*	non-native	uncommon
House sparrow	*Passer domesticus*	non-native	uncommon
Cattle egret	*Bubulcus ibis*	non-native	rare
Chicken	*Gallus gallus*	non-native	rare

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APPENDIX C

ARCHAEOLOGICAL INVENTORY SURVEY

SCS Project Number 660-2

AN ARCHAEOLOGICAL ASSESSMENT OF TWO PARCELS TOTALING APPROXIMATELY 20 ACRES IN WAIMANALO, WAIMANALO AHUPUA`A, KO`OLAUPOKO DISTRICT, ISLAND OF O`AHU, HAWAI`I [TMK (1) 4-1-08:011 AND (1) 4-1-23:065]and [TMK (1) 4-1-08:91,92,10,81]

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ABSTRACT

Two Archaeological Assessments were conducted on two individual land parcels located in close proximity. The 1st parcel consisted of approximately 11.38-acres of land, the second parcel consisted of approximately 8.2 acres. Both parcels total approximately 20 acres and are located in Waimanalo, Waimanalo Ahupua`a, Ko`olaupoko District, Island of O`ahu, Hawai`i [TMK (1) 4-1-08:011 and (1) 4-1-23:065] and [TMK (1) 4-1-08: 91,92,10, and 81]. The subject properties have been modified by agricultural pursuits. No archaeological sites were identified on either of the two parcels during either Archaeological Assessment which included limited subsurface testing. Based on the current archaeological investigations on TMK (1) 4-1-08:011, it is suggested that additional subsurface investigations of the 9.599-acre parcel would not positively contribute to the archaeological record. Thus, no further archaeological investigations are recommended for TMK (1) 4-1-08:011.

Conversely, the combination of close-quarter crops and waterlines associated with the current agricultural pursuits severely limited subsurface testing areas with only three stratigraphic trenches placed in TMK (1) 4-1-23:065 and only three stratigraphic trenches placed in TMK (1) 4-1-23:81. No subsurface testing was conducted on parcels TMK (1) 4-1-23:91, 92, and 10 due to dense vegetation. Based on consultation with the State Historic Preservation Division (SHPD), Archaeological Monitoring is recommended for those areas, which are located adjacent to an active stream.

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INTRODUCTION

At the request of Vincent Shigekuni of PBR Hawaii, Scientific Consultant Services (SCS), Inc. performed an Archaeological Assessment on two separate parcels of land totaling approximately 20 acres of land in Waimanalo, Waimanalo Ahupua`a, Ko`olaupoko District, Island of O`ahu, Hawai`i Parcel -1[TMK (1) 4-1-08:011 and 4-1-23:065] and Parcel-2 [TMK (1) 4-1-08:91,92,10, and 81](Figures 1 and 2). According to Internet resources (http:///www.honolulupropertytax.com/) the lessee of Parcel-1 TMK (1) 4-1-08:011 (9.599-acres) and TMK (1) 4-1-23:065 (1.777-acres) is identified as Mr. You Soukaseum. The project area is owned by the State of Hawai`i Department of Land and Natural Resources (DLNR). The Department of Hawaiian Home Lands (DHHL) plans to acquire the land from the State of Hawai`i (DLNR) and develop it into residential subdivision containing approximately 70 family homes (Figure 3). A portion of Parcel-2 TMK(1) 4-1-23: parcels 91,92,10, and 81 (8.2 acres), is currently being leased by Mr. Gideon K. Kaonohi, JR. The rest of the parcel has been vacant for some time and is extremely overgrown in sections. Parcel-2 is also owned by the State of Hawai`i and DHHL plans to acquire these lands as well and use them for an extension of the Kumuhau Subdivision.

In February 2004, a lot feasibility study (with site visitation) was conducted of TMK (1) 4-1-08:011 and revealed a large portion of the subject parcel was utilized for small scale agricultural pursuits (Monahan 2004). Following the study, supplemented by archival research, it was concluded that archaeological deposits may be present along the northern and southern boundaries of the parcel with the notion that both areas were located near previous and current water sources. At the time of the current archaeological survey, only the southern portion of the parcel [now TMK (1) 4-1-23:065] was located next to a running stream (name unknown). No water resources were observed at the north end of the parcel.

In January 2006, Parcel-1 the combined 11.38-acres of land was subjected to an archaeological investigation conducted on January 30, 2006 by SCS archaeologists Leann McGerty, B.A. and Guerin Tome, B.A., under the direction of the Principal Investigator Robert L. Spear, Ph.D. The work was performed to investigate the presence/ absence of archaeological features on the subject parcel, and if found, assess feature function, construction methods, associated cultural deposits, and site significance. Because no archaeological sites were identified during this project, the results of this project are presented as an Archaeological Assessment and are detailed below.

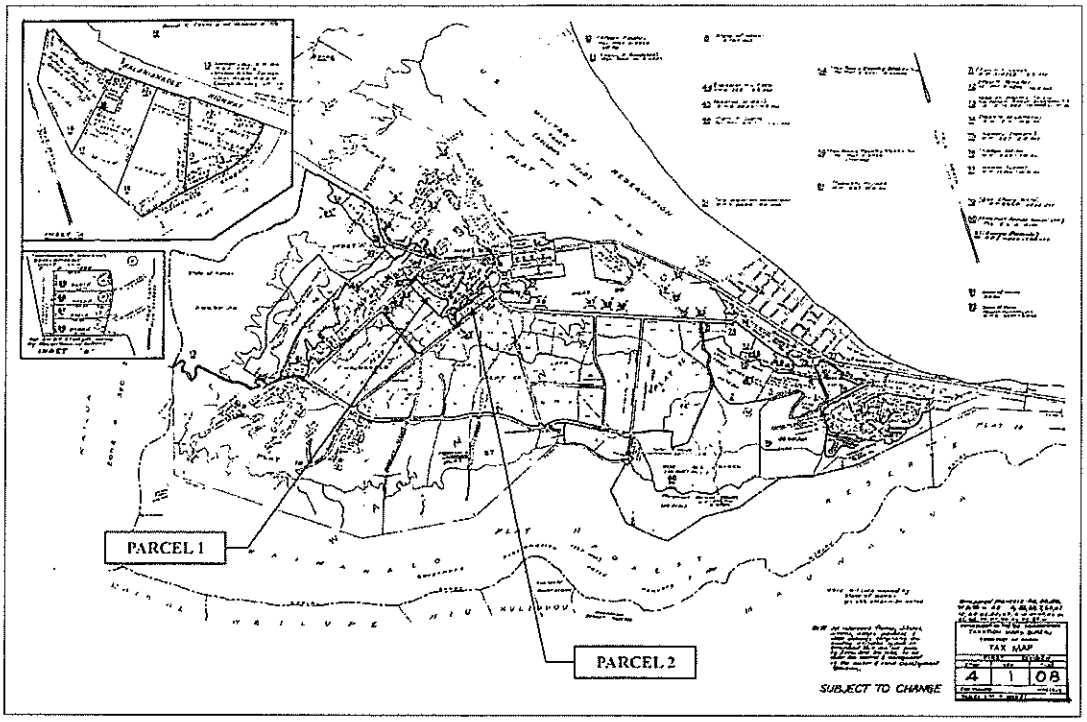

Figure 2: Tax Map Key [TMK] Showing Project Area.

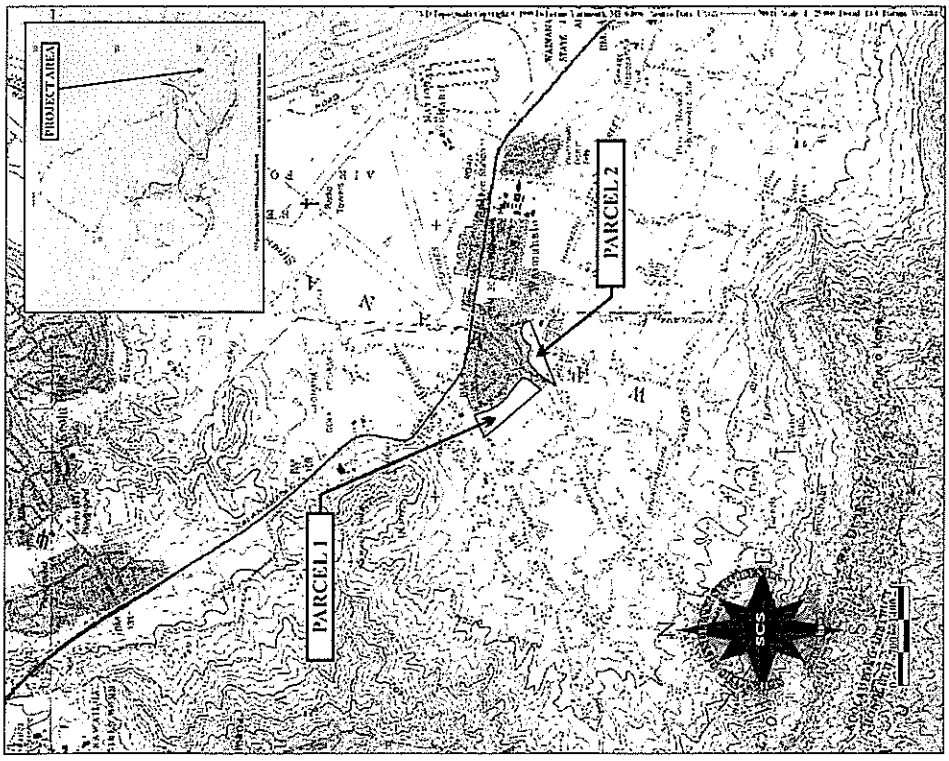

Figure 1: USGS Koko Head Quadrangle Map Showing Project Area Location.

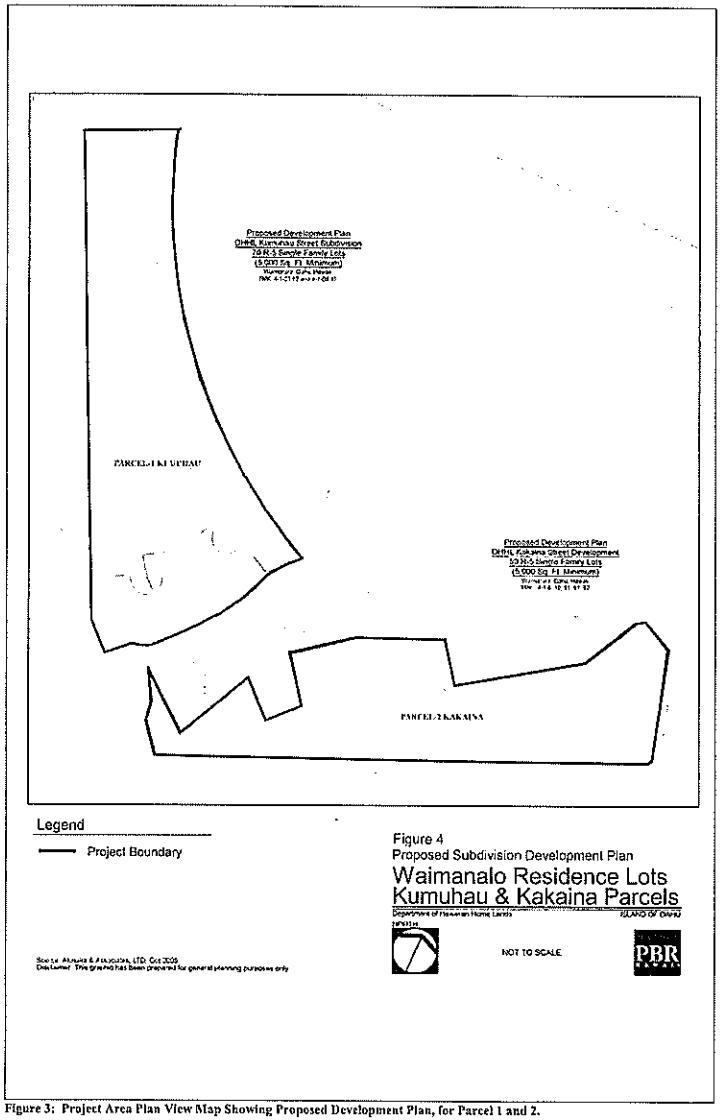

Figure 3: Project Area Plan View Map Showing Proposed Development Plan, for Parcel 1 and 2.

In May 2006, Parcel-2, 8.20 acres was subjected to an archaeological investigation by SCS archaeologists Lauren Morawski B.A. and Elizabeth Pestana A.A., under the overall direction of Principle Investigator Robert L. Spear, Ph.D. The work was performed to investigate the presence/absence of archaeological features on the subject parcel, and if found, assess feature function, construction methods, associated cultural deposits, and site significance. Because no archaeological sites were identified during this project, the results of this project are presented as an Archaeological Assessment and are detailed below.

PROJECT AREA DESCRIPTIONS

PARCEL-1

In Parcel-1 the project area consists of two tax map keys abutting each other (Figure 4). The larger of the two tax map keys—TMK (1) 4-1-08:011—is roughly rectangular-shaped with its long axis oriented in a northwest/ southeast direction. The smaller, roughly rectangular shaped lot—TMK (1) 4-1-23:065 with its long axis oriented in a northeast/ southwest direction—abuts the southeast boundary of the larger tax map key. Both tax map keys are located in Waimanalo with a total area of approximately 11.38-acres (Figure 5). The lot is entirely devoted to a small-scale, commercial farming operation housing numerous small agricultural fields operated by Mr. You Soukaseum. Other structures on the larger tax map key include a single residence, several small outbuildings and associated structures. The lot is bounded to the north by Kumuhau Street, to the east by existing residential development, to the south by a permanent stream drainage, and to the west by agricultural land. Altogether, the project area is located on the Waimanalo Plain, approximately 250.0 m south of the Puha (Waimanalo) Stream and a little more than one mile due west of the coastline. Elevation in the project area varies from 12 to 18 m (40 to 60 ft) amsl.

The terrain is relatively flat throughout the project area, though the eastern half of the parcel sits at a slightly higher elevation than the rest of the project area (see Figure 5) (Figure 6). This portion of the project area has clearly been built up over the years, perhaps by moving loam from other parts of the lot. Other than demarked fields and tree lines of various types, the project area is a relatively flat, featureless landscape.

Following an interview with the resident farmer (Mr. Soukaseum), Monahan (2004) relayed that the farmer reported to have worked the land for the past 26 years and that the land was not under cultivation at the time of the farmer's arrival in the late 1970s, but that two structures (a small residence unit, and a larger maintenance shed) were present. Monahan also inspected these two structures and suggested they were less than 50 years old in age and of no potential historic significance. These structures were observed intact during the current archaeological study.

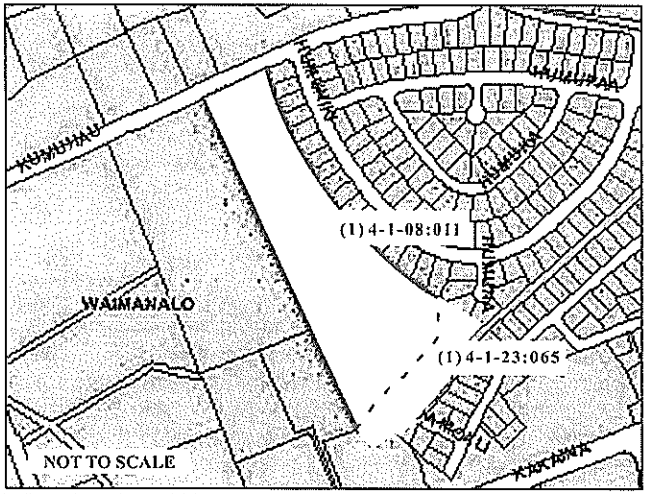

Figure 4: Location of TMK (1) 4-1-08:011 and (1) 4-1-23:065 (Grid North is True North).

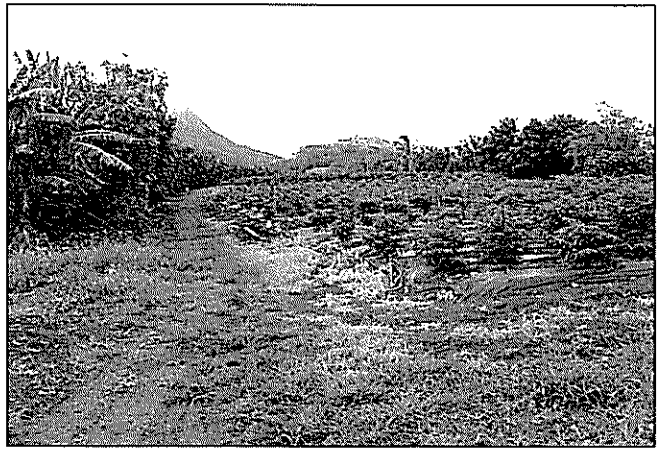

Figure 5: Photograph of Project Area Central Portion of Parcel-1 Showing Elevated Agricultural Fields. View to Northwest.

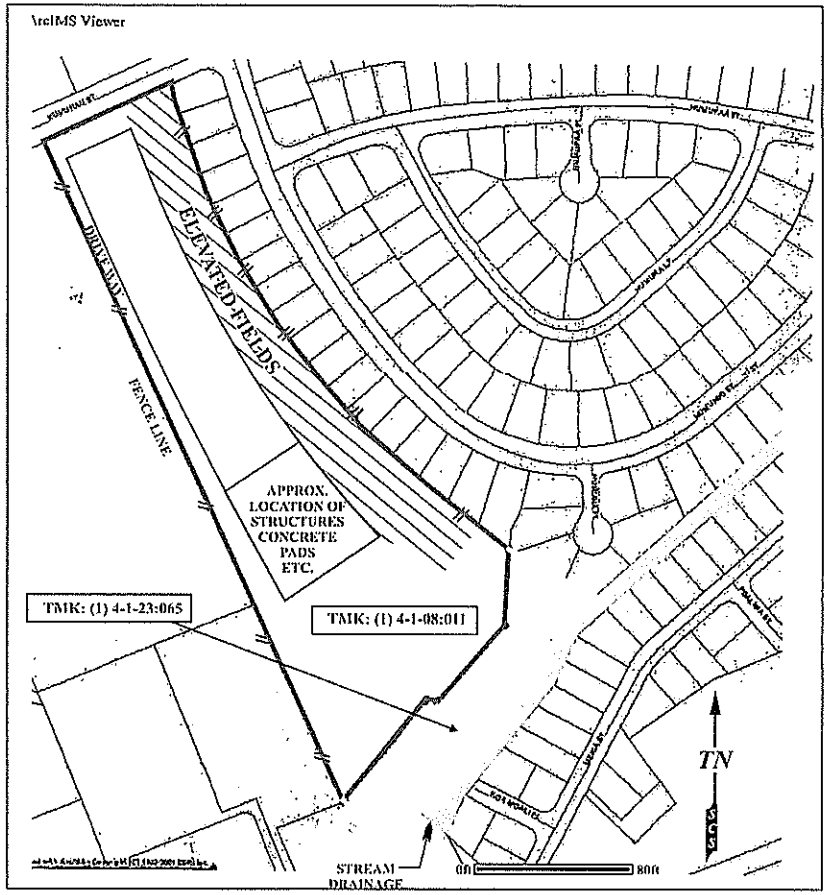

Figure 6: Plan View Map Showing Tax Map Keys Boundaries and Approximate Locations of Main Features on the Project Area.

Vegetation on this portion of the project area includes mainly crops such as eggplant (*Solanum* sp.), squash (*Cucurbita* sp.), lemon grass (*Cymbopogon citrates*), taro (*Colocasia esculenta*), basal (*Ocimum* sp.), banana (*Musa* sp.), papaya (*Carica* sp.), and horseradish trees (*Moringa oleifera*). Other introduced vegetation included koa haole (*Leucaena leucocephala*), slender amaranth (*Amaranthus viridis*), coconut (*Cocos nucifera*), and castor bean (*Ricinus communis*). No native vegetation was observed.

PARCEL-2

In Parcel-2 the project area consists of 4 adjoining parcels [TMK (1) 4-1-08:91,92,10, and 81] totaling 9.60 acres and located between Kakaina Street, Mekia and Poalima Streets, and Hihimanu Street to the northwest in Waimanalo town (Figure 7). The parcel is roughly rectangular shaped and oriented in a northwest and southeast direction. Overall surface topography or terrain of the parcel is flat.

The lots were at one time leased by the State of Hawai`i Department of Land and Natural Resources (DLNR), Division of Land Management to numerous tenants for agricultural and pasture usage. Only one tenant, Gideon Kaonohi Jr. was occupying the parcel at the time of the study. The rest of the parcel appeared to have been used for agricultural purposes in the relatively modern past, 10 to 20 years ago, as agricultural type fences demarcated space throughout the parcel.

At the intersection of Kakaina and Mekia Streets, the southwestern end of the project area, the corner is roughly paved into an informal "pull over" spot with several abandoned cars and other modern rubbish dumped in the area. Beyond that corner, the extreme south end of the parcel is in extremely dense vegetation. Tall california or guinea grass dominate the landscape along with abundant koa haole, 'opiuma, and a variety of introduced weeds which are covered in various creeping vines that greatly obscure surface visibility. The area appeared to have been used as a dumping area as a truck camper shell, various large tires along with other contemporary rubbish was observed here and there throughout this portion of the parcel.

The Kaonohi parcel is located in the central portion of the project area. Limited reconnaissance was conducted here as the tenants occupying the parcel were in residence. This area contrasted greatly with the surrounding parcels with a short mowed lawn. Several tall Mango and Banyon trees exist on the parcel along with several areas of ornamental landscaping. This parcel accounted for about 25 percent of the overall project area. This occupied parcel was

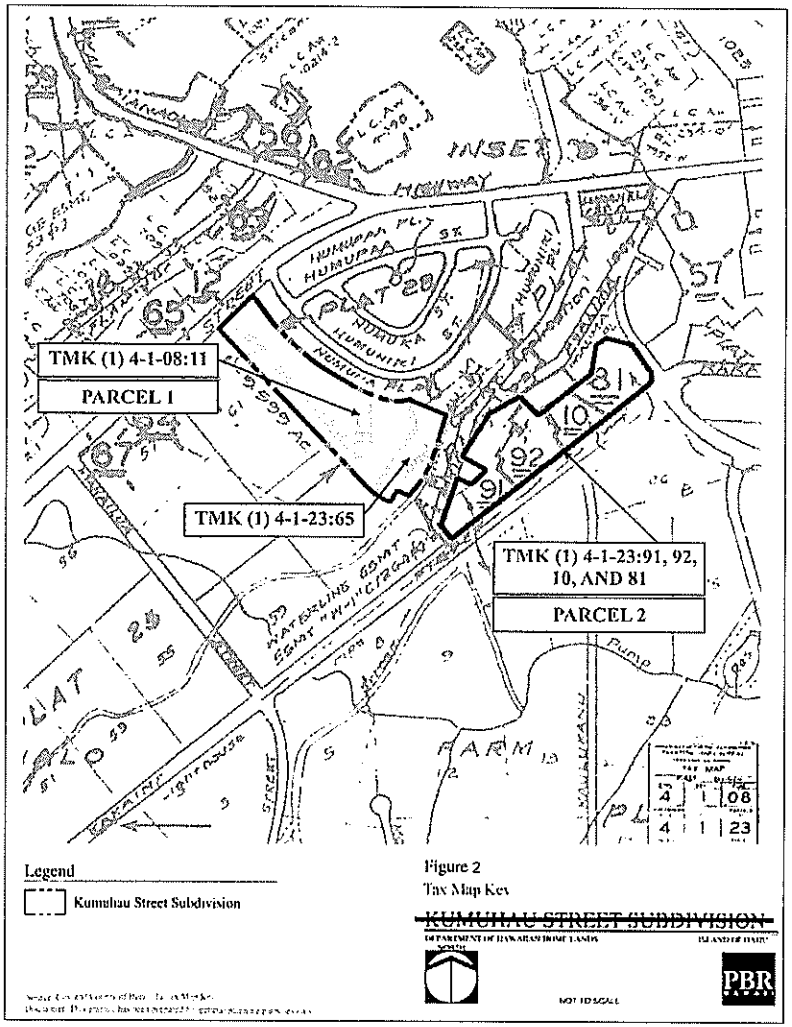

Figure 7: Plan View Map of the Parcels 1 and 2 Locations.

being used as a horse pasture and overall storage area for various trailers and vehicles. Several small temporary outbuildings exist and a long gravel driveway cuts up the middle of the parcel.

On the other side, north of the Kaonohi parcel, the area is again enveloped in dense vegetation. In two particular areas it appears that plant nurseries must have existed in the area and were abandoned at some point as two individual small clusters of ornamental and tropical plants and trees, including Norfolk Pine, Royal Palm, and Coconuts flourish. Java Plum and African Tulip line the eastern boundary along Kakaina Street. The parcel with the exception of the areas of ornamentals is dominated by introduced weeds and trees and covered in vines. Ground surface visibility due to the dense vegetation was poor and in areas piles of busted up concrete and clearing piles had been deposited further obscuring ground surface coverage.

Just inside of this area of dense vegetation on the eastern side of the parcel and north of the Kaonohi parcel exists a structure. The structure is a roofless building constructed of concrete block, this structure may have been used at one time as a storehouse. This structure was not interpreted as a significant historic property.

To the north of the structure the lots bordering the eastern side of the parcel or the Poalima Street side are encroaching into the project area. These occupied residential lots have fenced off various portions of the project area and are using them as extensions of their yards. Beyond this area is the northern extreme of the parcel and it exhibits a different type of surface vegetation. This area's vegetation did not obscure surface visibility as in other portions of the project area, and generally consisted of knee high weedy plants and shorter clumps of grass. This portion of the parcel borders Kakaina and Hihimanu Streets with tall Monkeypods and African tulip trees aligning the road corridors. This area, as it was relatively clear, was the only area where subsurface testing (excavation) was conducted during the present study. Descriptions and discussion of the subsurface testing are located in the Results section of this report.

The vegetation in Parcel-2 was completely different than the crop plants identified in Parcel-1. Vegetation in this portion of the project area included but was not limited to a variety of introduced grasses, weeds, and trees. Two indigenous plants were identified *'ilima* (*Sida fallax*) and *noni* (*Morinda citrifolia*). Large ornamental trees and shrubs are scattered throughout the parcel and are thought to be vestiges of earlier nursery operations located on the parcel. These trees include the Banyon, Norfolk Pine, coconut, papaya, royal palm, and hibiscus. Other introduced trees common in the project area included, Java plum, Mango, African tulip, 'opiuma,

Koa haole, umbrella or octopus trees, and klu. Additionally rampant grasses and unidentified weeds and vines cover the parcel with a surface blanket that generally obscures ground surface visibility.

Two main types of soils are described by Foote *et al.* (1972): (1) Hanalei silty clay loam (HmA) dominates the southeast end of the project area, nearest to the stream, and the extreme northwest portion along Kumuhau Street. In other areas where this type of soil is found, it is underlain by sand. However, excavations conducted during the Archaeological Assessment did not locate *in-situ* sand deposits. This soil forms 0 to 2 percent slopes on stream bottoms and flood plains of O'ahu, and is typically used for taro, sugar cane, and other crops. (2) Pohakupu silty clay loam (PkC) covers the rest of the project area. This soil is described by Foote *et al.* as having a slow to medium runoff characteristic and an erosional hazard of slight to moderate with 8 to 15 percent slopes and is typically used for commercial agriculture, ranching, and residential sites. As a side note, the closest sand deposits (*i.e.*, Jaucus sands), which are always deemed sensitive in Hawai'i due to the possible presence of human remains and burials, are located approximately 1,740 m (5,000 ft) due east at Bellows Air Force Station/ Marine Corps Training Area Bellows.

Rainfall in this area typically ranges between 40 to 60 inches annually (Armstrong 1983), though higher amounts fall in the nearby mountains west of the Waimanalo Plain, through which numerous streams flow to the sea. Today, all of the main streams in Waimanalo are artificially constrained into concrete channel alignments. Traditionally, the area was known for the one main stream named Puha (*i.e,* Waimanalo).

TRADITIONAL AND HISTORICAL SETTING

TRADITIONAL SETTING

According to oral accounts the Waimanalo Ahupua'a was settled in traditional times, with small villages, religious shrines, and other common site types all present by the historic era (Handy 1940; Sterling and Summers 1978). Oral histories suggest that Kailua and Kaneohe Bay were economic and political centers during the later centuries of the pre-Contact period and that Waimanalo played a more minor role (Dega *et al.* 1998).

Several religious shrines are known to have existed in and around the project area (Sterling and Summers 1978), which typically suggests a relatively substantial, resident population in traditional times. In fact, there are four *heiau*, each approximately one mile distant, to the north (Site 381), east (Site 383), south (Site 24), and west (Site 382) of the project

area (all are described in Sterling and Summers 1978). A large turtle 'fishpond' (State Site No. 50-80-15-1037), usually indicative of the presence of resident *ali`i*, was located a few miles southeast of the project area, near the present-day Sea Life Park (Site 383-A, Sterling and Summers 1978). Several *ko`i*, or fish shrines, are located along the coast and on the larger adjoining islands of Waimanalo (Sterling and Summers 1978; Drolet and Sinoto 2001).

Traditional Hawaiian burials have been documented near the shore in sandy deposits at Bellows Air Force Station and at Waimanalo Bay State Recreation Park. Oral tradition also alludes to burials in caves in the Ko`olau cliffs (Sterling and Summers 1978).

HISTORICAL SETTING

There are no Land Commission Awards (LCA) for the project area, but there is a good chance that it would probably have been under cultivation in traditional times. The general Waimanalo Plain area was known to be a place of wet taro farming, and terraces and water diversion features were reported in oral history accounts (Handy 1940), especially further up the slope in higher land south and southwest of the project area. Archaeologists have confirmed the presence of such agricultural features in the Waimanalo Ahupua`a.

Although there are no LCA on or abutting the project area, there are multiple LCA (>20) located north/ northwest of the project area most of which are located near a tributary stream running west to east. The location of these LCA near a running water source suggests land usage for agricultural pursuits (Figure 8).

More recently, most of the Waimanalo Plain was under commercial sugar cane production, and this would have had a dramatic effect on any traditional sites or features located at or under the ground surface. The Waimanalo Sugar Company, one of the smallest and least successful in Hawai`i, was established in 1878 and closed in 1947 (Wilcox 1996; Dorrance and Morgan 2000). Historical photographs indicate vast areas of inland Waimanalo under cane cultivation (Figure 9).

Ranching activities occurred throughout Waimanalo after sugarcane (Cowan-Smith and Stone 1988). Horse ranching continues to be popular in Waimanalo, although its effects on the landscape and on historic properties are less significant than sugar cane.

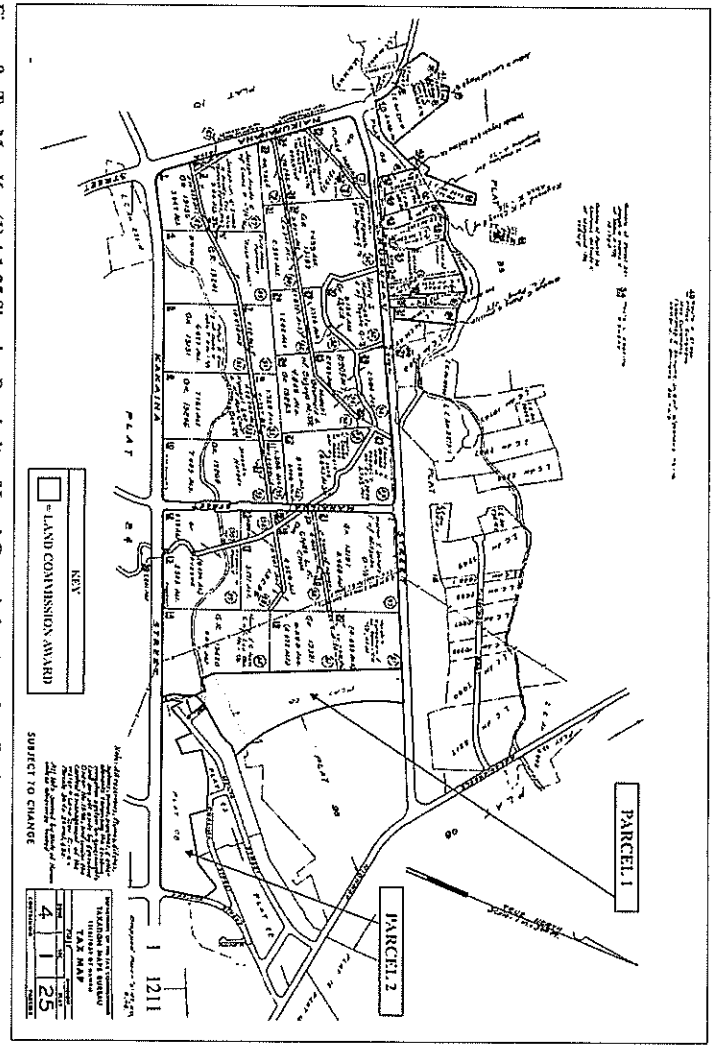

Figure 8: Tax Map Key (1) 4-1-25 Showing Proximity of Land Commission Awards to Project Area.

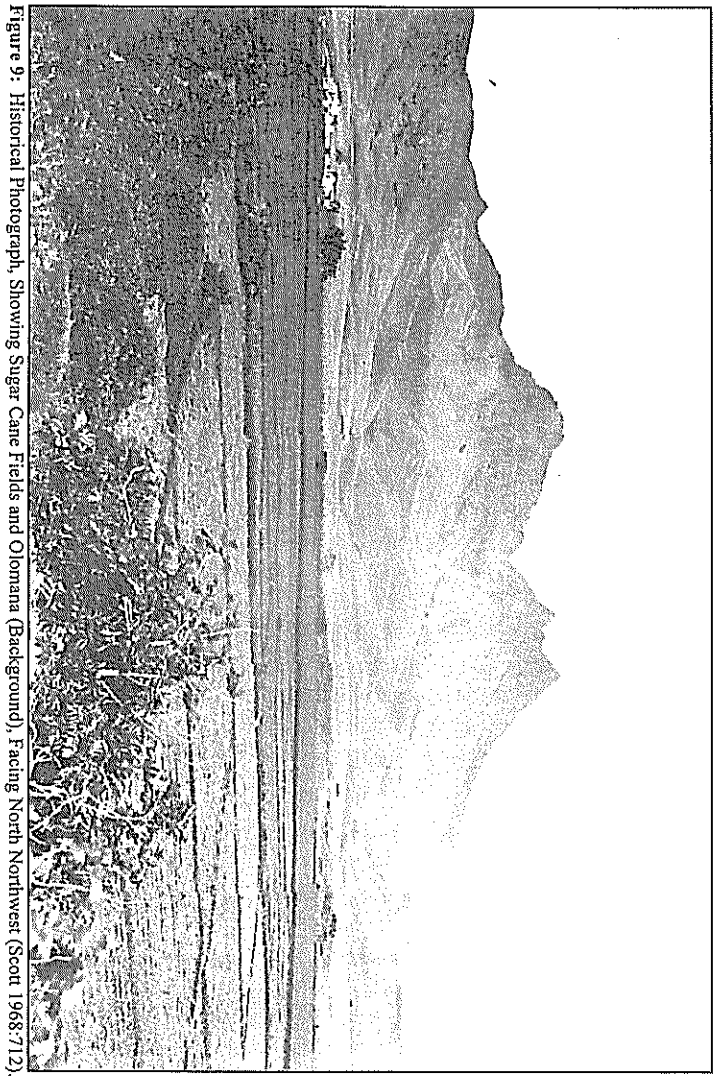

Figure 9: Historical Photograph, Showing Sugar Cane Fields and Olomana (Background), Facing North Northwest (Scott 1968:712).

EXPECTED ARCHAEOLOGICAL SITE TYPES

As stated above, only the most pertinent sources are discussed here (*i.e.,* those that relate specifically to the project area) and those needed to generally outline the archaeological context of the area. The only archaeological study conducted on the project area was in 2004 when the project area was subjected to a lot feasibility study (Monahan 2004). The feasibility study concluded that archaeological sites, if present, would be most likely to exist near water sources such as the tributary stream comprising the southern boundary for the project area.

Tuggle (1994) places the earliest human settlement of Waimanalo Ahupua`a inland along the Puha (Waimanalo) Stream starting at around. A.D. 800. The original main course of this stream is located just north of the subject project area. Older dates from Bellows, once thought to place human occupation at the coast as early as A.D. 400 to 500, have since been called into question (see Tuggle 1994). These radiocarbon dates suggests humans have been in the vicinity of the project area for at least a millennium, if not more.

Numerous archaeological projects have been conducted along the Waimanalo shoreline most of which were at Bellows Air Force Station/ Marine Corps Training Area Bellows (see Dega 2003). The military installation is situated about a mile to the east of the subject project area. The geomorphology and sediments of Bellows are different from the subject property, but the range and density of traditional sites are impressive. A minimum of 23 sites have been designated state site numbers at Bellows, ten of which are pre-Contact to late 19th century sites. These include habitations, burials, *heiau,* workshop areas, midden, and possible agricultural features. Other investigations south of Bellows at Waimanalo Bay State Recreation Park include Davis (1976) that reported a buried traditional cultural layer. Pearson (1971) also reported human burials.

Two studies have been conducted at a Bellows well site in Waimanalo (*e.g.,* Dixon 1993; Drolet and Sinoto 2001), located approximately 110 m (360 ft) amsl, one mile inshore from Waimanalo Beach Park. The geomorphological setting of a Bellows well site is similar to the parcel studied by Hammatt and Borthwick (1988). Drolet and Sinoto's (2001) Archaeological Inventory Survey identified three main historic sites: (1) portions of the Kailua Ditch, which is a component of the well-known Waimanalo Irrigation System (State Site No. 50-80-15-4042) (Neller 1980); (2) a possible remnant of a railroad berm; and (3) two stacked-stone structures (designated Feature 1 and 2 of State Site No. 50-80-15-5876).

SETTLEMENT PATTERN

Tuggle (1994:53-55) provides the most complete settlement model for Waimanalo Ahupua`a and the lands contained within the Bellows Air Force Station. Disagreements with Tuggle's (1994) model generally center on chronological issues, particularly regarding initial human occupation and settlement of the well-researched Site O-18. The current author accepts Tuggle's argument concerning the temporal context of Site O-18 and the model in general. Thus, Tuggle's model is reproduced (1994:53–55) rather than altering its integrity. Preceding the reproduction of Tuggle's well-crafted model below, additional comments and augmentations to the model are provided based on evidence recovered from the current fieldwork. These additions to the general model will be further highlighted in the interpretive sections of this report and will provide a baseline for expected findings during the course of this project's investigations.

MODEL OF PRE-CONTACT SETTLEMENT

Based upon the archaeological data from Bellows Air Force Station and on 19th century land records, the following model of Hawaiian settlement of the Bellows Air Force Station is proposed.

1. The settlement system for the region involved permanent habitation areas inland and temporary habitation along the coast and lower Puha (Waimanalo) Stream.

1a. There were no permanent settlements along the coast nor in the Puha lowlands east of the central Puha area.

1b. Habitation along the coast and along eastern Puha Stream was temporary, primarily associated with fishing and local gardening. Some may have also been associated with maintenance of small fishponds or *lo`i* ponds.

1c. There is no evidence that any of the coastal areas were intensively used as fishing camps, equivalent to that found in isolated locales elsewhere (such as Waiahuakini), so the temporary settlement was part of a local settlement system with permanent habitation located in the nearby inland area.

2. Permanent habitation occurred inland along central Puha Stream, and possibly at the western end of the lower Puha area. This point is predictive, based on the presence of the 19th century taro fields and permanent house lots in this area and on the absence of permanent sites in the lowlands.

3. The earliest occupation of the Bellows coast occurred sometime after A.D. 800. This point is based on existing archaeological data.

4. The earliest habitation in Waimanalo was located inland along Puha Stream.

4a. The earliest permanent habitation was located inland and dates to a period somewhat earlier than A.D. 800.

4b. The earliest habitation in Waimanalo was along the central Puha Stream.

These points are primarily predictive. The early radiocarbon dates from inland Bellows Air Force Station (Beta 25783 and 30891, see Tuggle 1994) are suggestive, but are not taken as important evidence for this model of early inland habitation. This point is partly based on the absence of coastal sites that would suggest intensively used, isolated fishing camps that would have existed before inland settlement. The model also suggests that the inland-coastal settlement system was established relatively quickly after the initial Waimanalo settlement.

The predicted location of the earliest settlement is central Puha Stream, based on the assumption that because this locale was nearest to the coast, it was most appropriate for development of irrigated taro (cf. Cordy 1993:5). This area had three water sources and a perfectly formed drainage area for taro cultivation (based on topographic information from the turn-of-the-century). This area also had stone available for construction and a basaltic-derived soil substrate. The water sources included a spring, the main Puha Stream, and a tributary. The most probable spot for early taro development and adjacent habitation was along the spring-fed stream, which would have been much less subject to flooding than the two other areas. This area is now under runway construction fill and earlier sugar cultivation fields.

Lower Puha Stream was much less suitable for taro development than the central area. It would have been subject to much heavier flooding than any of the three water sources above their confluence, and would have had a more serious problem with brackish water. Further, there was little or no immediately available stone.

5. There is no basis for predicting if the earliest Waimanalo settlement was also one of the early Polynesian settlements in Hawai`i. There are numerous places on O`ahu that would offer comparably good locales for early colonization.

6. Extensive sweet potato cultivation occurred over much of the Puha lowlands. This point is based on a preliminary assessment of the archaeological data.

7. Temporary habitation camps (or field houses) were scattered throughout the dry cultivation areas. The associated lithic workshops involved finishing and sharpening adzes for use in land clearing.

This point is based on archaeological data for the scattered areas of low intensity habitation. These habitation camps are the equivalent of C-shaped structures in other agricultural areas where stone was available.

8. A consequence of building non-masonry temporary structures on the beach along Puha Stream and in the field areas was the frequent need to relocate these structures. This contrasts with recurring use in a single place, which often characterizes the C-shaped structures' utilization.

The archaeological result of this pattern is a wide range of radiocarbon dates across the Puha lowlands, with cases of dates several hundred years apart in a thin cultural deposit.

One example of a similar model can be found in the archaeology of Pololu Valley on the island of Hawai'i (Tuggle and Tomonari-Tuggle 1980). This is an alluvial, flat-bottomed valley where the absence of sufficient irrigation water resulted in the dry cultivation of most of the valley bottom. The cultivation was in alluvium rather than sand, but the similarity between Pololu and the Puha lowland is seen in the habitation pattern associated with the cultivation. Rather than C-shaped structures, habitation evidence in Pololu is depicted through the presence of cultural debris and subsurface features such as hearths, postmolds, and earth ovens. The similarity to the Puha lowlands is striking, including the presence of clusters of basalt flakes in the agricultural soil.

9. Basalt was quarried from the dikes of the surrounding Keolu hills, worked into preforms or blanks, and finished in the Puha lowlands.

This point is based on archaeological data. Basalt debris from O-18 was compared to basalt from the Keolu hills and found to be similar (Pearson *et al.* 1971:228). Since that identification, one quarry (Site 4858-1) has been located at the base of the hills. The adze manufacturing process proposed here is based on the general statements from the archaeology reports about the debitage in lowland sites.

10. There were no stone shrines or temples in the lowland area or along the coast of what is now Bellows Air Force Station. Offerings for fishing and agriculture were made on wooden platforms, placed in selected open spots, or placed on low-tide reef exposures. The one or two stone structures in the northwest corner of Bellows Air Force Station were agricultural temples.

This point is partly predictive and partly based on archaeological data. No stone shrines have ever been reported along the coast of the Bellows Air Force Station area. Stone structures in that area or in the inland dunes would have been unlikely because of the limited availability of

stone. However, it is unlikely that Hawaiians would have fished or practiced agriculture without making food offerings in a variety of ways. The pig and dog burial found at Site 4853-1 could be part of such dedications. The proposed ceremonial function of the stone structures in the foothills is tentative, based on proximity to the proposed agricultural field areas. Insufficient investigation has been conducted to allow any definitive conclusions about their functions.

11. Burial activity at the coast and in the inland dunes occurred throughout the history of Waimanalo occupation and was often unrelated to any local coastal habitation. This model represents one of the most complete settlement models attempted for Waimanalo. Several additional points may further clarify the model (see also Dega *et al.* 1997).

a. Exploitation of arboreal and other related plant and animal resources occurred in various areas along the coast and coastal plain as well as further inland. Temporary camps and specialized processing sites were probably located in these areas in order to access and process these resources. McNeill's (1989) carbonized wood analysis suggests a wide variety of tree and other plant products were targeted. Additionally, *kukui* remains have been recovered from many of the sites in the area. The significance of traditionally important subsistence species such as coconut, breadfruit and banana is evident, even contemporarily. In the absence of rock for construction materials, wood may have played a more significant role in the repertoire of building materials. How these resources were exploited, managed, manipulated and dispersed throughout the local environment, however, remains elusive. Nevertheless, these concerns have implications about the nature and location of temporary sites and specialized processing sites.

b. Lithic flake scatters relate to adze reduction because the majority of the flake assemblage is likely industrial waste/by-products. However, some flake assemblages may have been tool assemblages rather than industrial waste assemblages. Flake tool assemblages may relate to specialized processing areas in which medium to hard contact materials (*e.g.*, wood) were processed. It is also conceivable that both classes of flake assemblages may be intermixed in a multi-functional processing site; one of adze reduction and processing hard contact materials with flakes. Further investigation is needed in order to differentiate between the two assemblage classes.

c. Swidden agriculture may have been practiced in the area in a manner in which stands of trees and brush were cleared but not extensively fired. This type of agriculture may account for parts of the buried paleo A-horizon and enigmatic pits yielding limited or no charcoal remains.

These additional points are presented as future concerns or potential hypotheses for future research projects and settlement model refinement rather than augmentations to Tuggle's model.

METHODOLOGY

FIELD METHODOLOGY

Multiple field tasks were completed during both the Archaeological Assessments. First, pedestrian survey was conducted in order to identify archaeological sites and assess project area geographical/physiographical features. Within Parcel-1 transect spacing of five meter intervals was employed as surface visibility was high. Interval spacing of five meters between SCS personnel was employed to insure adequate area coverage during the survey. Transect spacing within Parcel-2 varied as vegetation created extremely poor surface visibility. In general a two meter transect was employed, however certain portions of the parcel were so densely vegetated that transects were often irregular and somewhat informal. During the pedestrian survey, results were documented on standard graph paper as well as recorded with digital photography. Within Parcel-1 each excavation unit was plotted on an overall project area plan view map supplemented by a handheld Garmin eTrex Legend global positioning system (GPS) unit. The datum used for the GPS unit was NAD83. The accuracy of the GPS unit utilized for the project was recorded as well. Magnetic north compass orientation was also employed. All measurements were recorded in metric. Vegetation within the project area was identified using Whistler (1995), Kepler (1997), Pratt (1998).

Mechanically excavated stratigraphic trenches (ST) were placed where subsurface archaeological investigations would not impede (*i.e.*, cutting crop roots and severing waterlines) current agricultural pursuits. Soil stratigraphy encountered during excavation was documented utilizing metric graph paper and United States Department of Agriculture (USDA) Munsell soil color charts. If identified, portable archaeological materials were collected and recorded with applicable provenience and placed in plastic and paper bags for laboratory analysis.

LABORATORY METHODOLOGY

All field notes and digital photographs were curated at the SCS laboratory in Honolulu. Representative stratigraphic profiles have been drafted for presentation within this report. No archaeological materials (*e.g.*, midden, artifacts) were collected as none were observed during the current archaeological work.

ARCHAEOLOGICAL ASSESSMENT RESULTS

The archaeological investigations did not identify any archaeological sites through pedestrian survey and subsurface investigations. As a result, this report has been written as Archaeological Assessment. Various structures (*e.g.*, warehouse, office) in support of current

agricultural pursuits were observed and identified as not historically significant. A large portion of the project area had been developed for the sole purpose of such pursuits that left multiple subsurface waterlines and land mostly unsuitable for subsurface archaeological investigations.

Probable historic-era trash, including ceramics, fragments of brick, and bottle glass, was also observed on the ground surface on southeastern end of TMK (1) 4-1-23:065. Among this surface debris scatter, weathered coral and non-identifiable mammal bone were also observed. Monahan (2004) relayed that these items are frequently associated with traditional sites, but were not, in and of themselves, universally indicative of such sites. Modern trash was also observed in many places.

Limited areas were identified for subsurface testing and a total of 10 mechanically excavated stratigraphic trenches (Parcel-1; ST-1 through ST-7) (Parcel-2; ST-1 through ST-3) were placed where active agricultural pursuits were not taking place and where associated waterlines did not exist (Figures 10 and 11). The results of the 10 stratigraphic trenches and descriptions are located below.

EXCAVATION RESULTS PARCEL-1

STRATIGRAPHIC TRENCH 1 (ST-1)

ST-1 was placed on a non-active, agricultural plot located in the northern half of TMK (1) 4-1-08:011 (see Figure 11). Oriented 54/ 232 degrees (northeast/ southwest; magnetic), ST-1 was approximately 5.75 long by 0.50 m wide and excavated to a depth of 1.75 m below surface (bs). The ground on which ST-1 was placed was level with no observable midden. A total of three layers were identified (Figures 12 and 13). Layer I (0–30 cmbs) was a semi-compact, medium to thick (> 2 mm thick) platy structured, very dark grayish brown (10YR 3/2, dry) silty clay. This layer was interpreted as having been impacted by tilling. Layer II (30–125) cmbs was a compact, thin to very thick (>1 mm thick) platy structured, dark brown (10YR 3/3, dry) clayey loam. This layer was interpreted as not disturbed and no organic material was observed in the layer. Layer III (125–175 cmbs) was a compact, very coarse (>10 mm diameter) crumbly structured, mottled dark reddish brown (2.5YR 3/4, moist) and dark gray (10YR 4/1, moist) loamy clay. This layer was not observed as disturbed. No cultural material was observed throughout the excavation of ST-1.

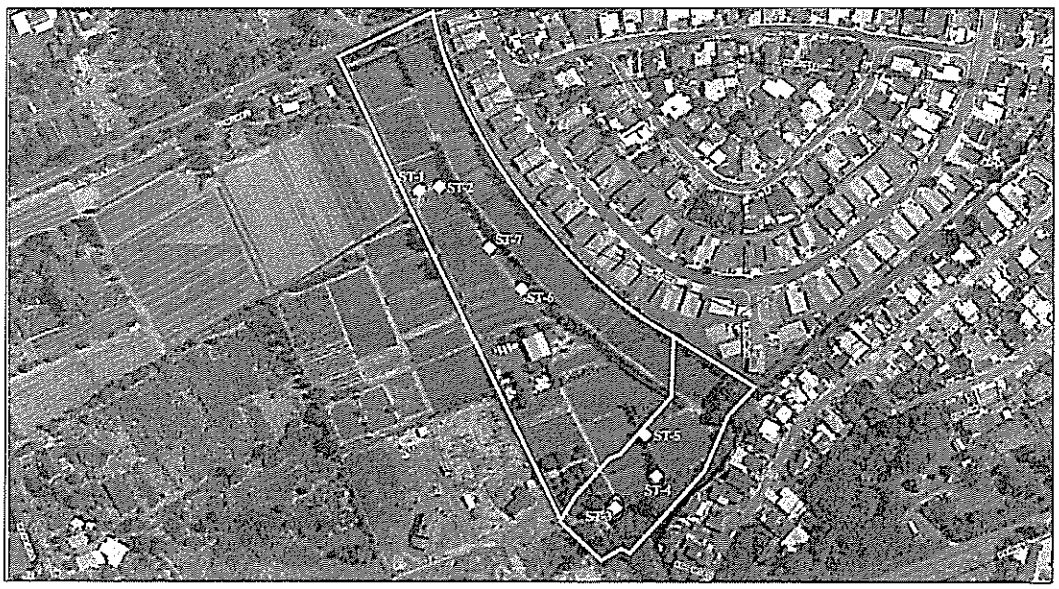

Figure 11: Aerial Photograph of Project Area Showing Stratigraphic Trench Locations in Parcel 1.

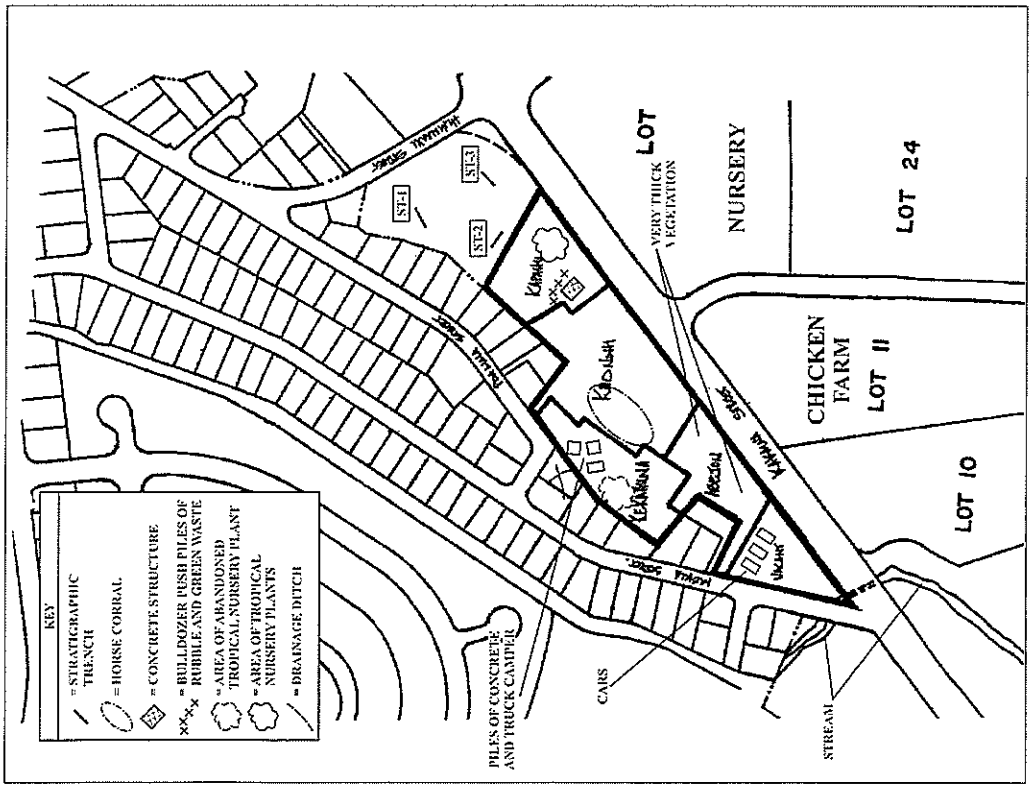

Figure 10: Plan View Map Showing Trench Locations in Parcel 2.

Figure 12: Photograph of Parcel-1 Stratigraphic Trench 1 Northwest Wall Stratigraphic Sectional Profile. View to Northwest.

Figure 13: Parcel-1 ST-1 Northwest Wall Stratigraphic Sectional Profile Drawing.

STRATIGRAPHIC TRENCH 2 (ST-2)

ST-2 was placed approximately 12.3 m southeast from the northwest end of ST-1 (see Figure 11). Oriented 141/321 degrees (southeast/ northwest; magnetic), ST-2 was approximately 5.70 m long by 0.50 m wide and excavated to a depth of 1.83 mbs. Like ST-1, the ground on which ST-2 was placed was level with no observable midden. Like ST-1, a total of three layers were identified (Figures 14 and 15). Layer I (0–25 cmbs) was a semi-compact, medium to thick (>2 mm thick) platy structured, very dark grayish brown (10YR 3/2, dry) silty clay. Layer II (25–130 cmbs) was a compact, thin to very thick (>1 mm thick) platy structured, dark brown (10YR 3/3, dry) clayey loam. This layer was interpreted as not disturbed and no organic material was observed in the layer. Layer III (130–183 cmbs) was a compact, very coarse (>10 mm diameter) crumbly structured, mottled dark reddish brown (2.5YR 3/4, moist) loamy clay and dark brown (10YR 3/3, moist) clayey loam. This layer was not observed as disturbed. No cultural material was observed throughout the excavation of ST-2.

Figure 14: Photograph of Parcel-1 Stratigraphic Trench 2 East Wall Stratigraphic Sectional Profile. View to Northeast.

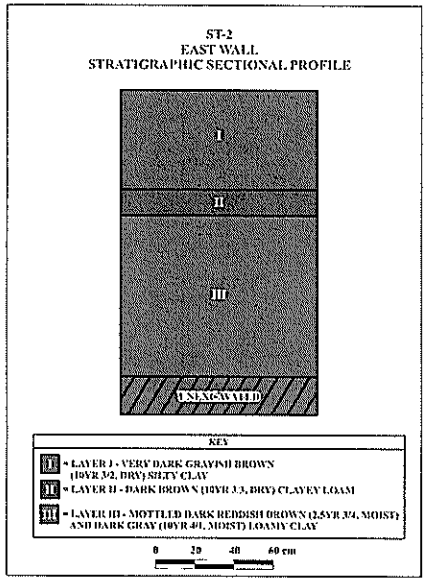

Figure 15: Parcel-1 ST-2 East Wall Stratigraphic Sectional Profile Drawing.

STRATIGRAPHIC TRENCH 3 (ST-3)

ST-3 was placed on the south half of TMK (1) 4-1-08:011 in a location where tall grass occupied that portion of the tax map key (see Figure 11). Oriented 7/ 187 degrees (north/ south; magnetic), ST-3 was approximately 6.30 m long by 0.50 m wide and excavated to a depth of 1.75 mbs. The ground on which ST-3 was placed was level with no observable midden. A total of three layers were identified within the trench (Figures 16 and 17). Layer I (0–30 cmbs) was a semi-compact, medium to thick (> 2 mm thick) platy structured, very dark grayish brown (10YR 3/2, dry) silty clay. This layer was interpreted as having been impacted by tilling. Layer II (30–70 cmbs) was a compact, thin to very thick (>1 mm thick) platy structured, dark brown (10YR 3/3, dry) clayey loam. This layer was interpreted as not disturbed and no organic material was observed in the layer. Layer III (70–175 cmbs) was a semi-compact, fine to very coarse (>1 mm diameter) crumbly structured, very dark brown (10YR 2/2, moist) loamy clay. This layer was interpreted as not disturbed. No cultural material was observed throughout the excavation of ST-3.

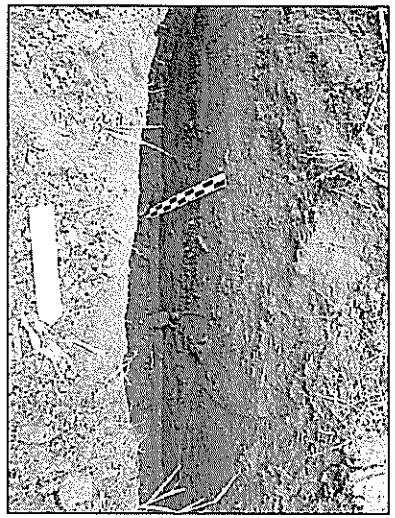

Figure 16: Photograph of Parcel-1 Stratigraphic Trench 3 West Wall Stratigraphic Sectional Profile. View to West.

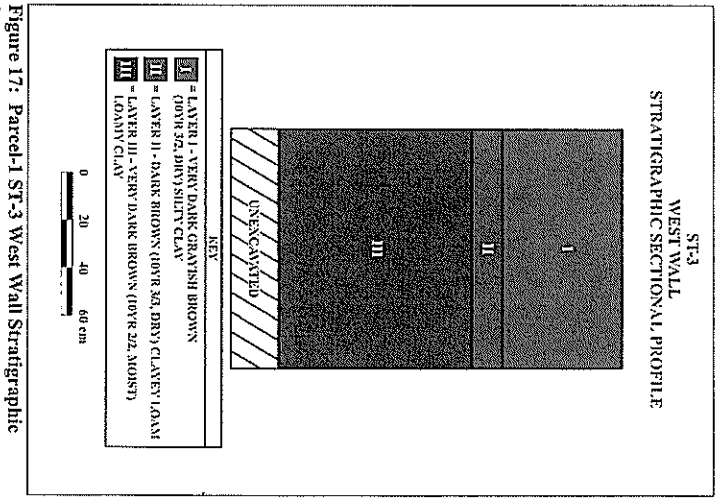

Figure 17: Parcel-1 ST-3 West Wall Stratigraphic Sectional Profile Drawing.

STRATIGRAPHIC TRENCH 4 (ST-4)

ST-4 was also placed on the southern half of TMK (1) 4-1-08:011 in a between a treeline and an active agricultural plot (see Figure 11). Oriented 144/ 324 degrees (southeast/ northwest; magnetic), ST-4 was approximately 5.70 m long by 0.50 m wide and excavated to a depth of 2.00 mbs. The ground on which ST-4 was placed was level with no observable midden. A total of two layers were identified within the trench (Figures 18 and 19). Layer I (0–25 cmbs) was a semi-compact, medium to thick (> 2 mm thick) platy structured, very dark grayish brown (10YR 3/2, dry) silty clay. This layer was interpreted as having been impacted by tilling. Layer II (25–200 cmbs) was a compact, thin to very thick (>1 mm thick) platy structured, dark brown (10YR 3/3, dry) clayey loam. This layer was interpreted as not disturbed and no organic material was observed in the layer. No cultural material was observed throughout the excavation of ST-4.

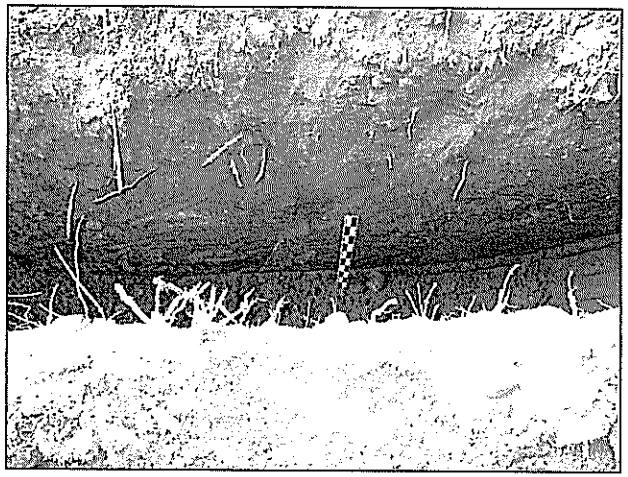

Figure 18: Photograph of Parcel-1 Stratigraphic Trench 4 Southwest Wall Stratigraphic Sectional Profile. View to Southwest.

STRATIGRAPHIC TRENCH 5 (ST-5)

ST-5 was also placed on the southeastern end of TMK (1) 4-1-08:011 between a treeline and an active plot of taro (see Figure 11). Oriented 136/ 316 degrees (southeast/ northwest; magnetic), ST-5 was approximately 5.20 m long by 0.50 m wide and excavated to a depth of 1.75 mbs. The ground on which ST-5 was placed was level with no observable midden. A total of two main layers and a sub-layer were identified within the trench (Figures 20 and 21).

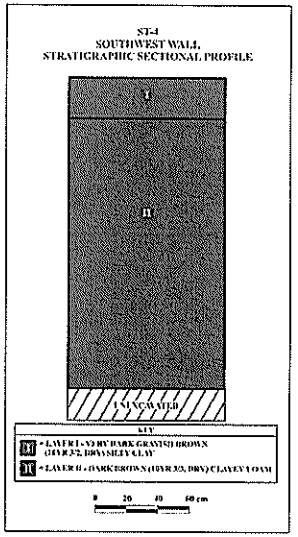

Figure 19: Parcel-1 ST-4 Southwest Wall Stratigraphic Sectional Profile Drawing.

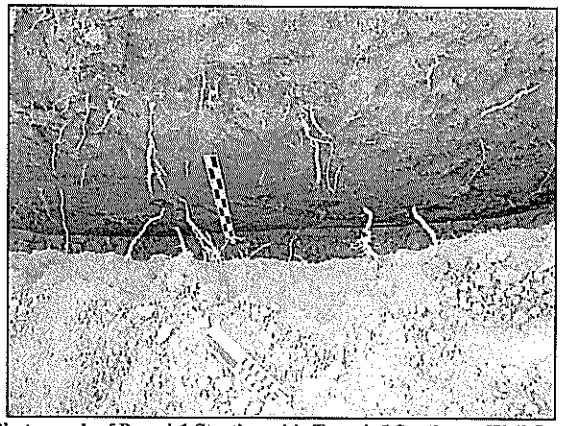

Figure 20: Photograph of Parcel-1 Stratigraphic Trench 5 Southwest Wall Stratigraphic Sectional Profile. View to Southwest.

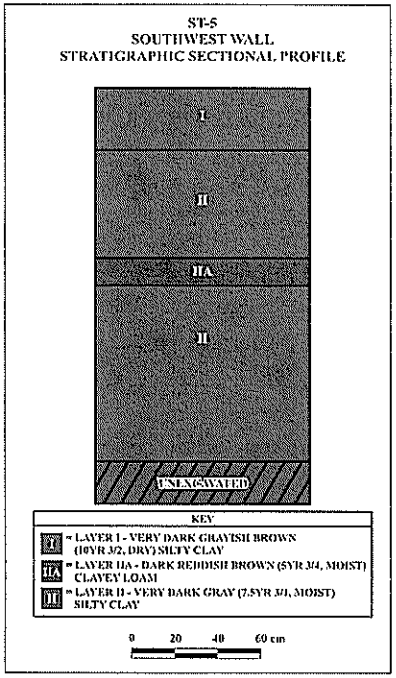

Figure 21: Parcel-1 ST-5 Southwest Wall Stratigraphic Sectional Profile Drawing.

Layer I (0–30 cmbs) was a semi-compact, medium to thick (>2 mm thick) platy structured, very dark grayish brown (10YR 3/2, dry) silty clay. This layer was interpreted as having been impacted by tilling. Layer II (30–175 cmbs) was a thick layer interrupted by a 10 cm thick layer of different matrix. Overall, Layer II was a compact, very dark gray (7.5YR 3/1, moist) silty clay that ended either what was interpreted as the area's water table or a water saturated soil layer. Layer IIA (80–90 cmbs) was a semi-compact, very coarse (>10 mm diameter), dark reddish brown (5YR 3/4, moist) clayey loam. The close proximity and the iron-rich content (based on soil color), it was surmised that Layer IIA may have had possible affiliations with the nearby taro field. No cultural material was observed throughout the excavation of ST-5.

STRATIGRAPHIC TRENCH 6 (ST-6)

ST-6 was placed on the southern half of TMK (1) 4-1-08:011 between a treeline and an active agricultural plot (see Figure 11). Oriented 125/ 305 degrees (southeast/ northwest; magnetic), ST-6 was approximately 5.0 m long by 0.50 m wide and excavated to a depth of 1.8 mbs. The ground on which ST-6 was placed was sloped slightly to the east with no observable midden. A total of two layers were identified within the trench (Figures 22 and 23). Layer I (0–90 cmbs) was a semi-compact, fine to very coarse (>1 mm diameter) crumbly structured, dark reddish brown (2.5YR 3/4, moist) clayey loam. This layer had been churned. Layer II (90–180 cmbs) was a compact, fine to very coarse (>1 mm diameter) crumbly structured, mottled dark reddish brown (2.5YR 3/4, moist) and dark reddish gray (2.5YR 4/1, moist) loamy clay. This layer appeared non-disturbed and naturally decaying due to the variation of colors (*i.e.*, saprolithic colors). No cultural material was observed throughout the excavation of ST-6.

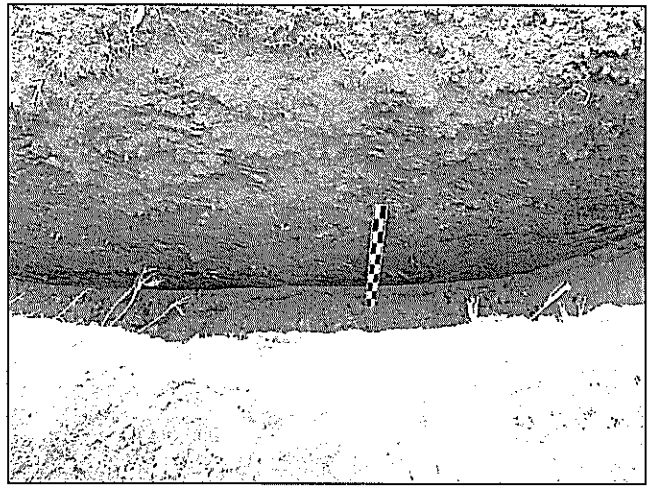

Figure 22: Photograph of Parcel-1 Stratigraphic Trench 6 Southwest Wall Stratigraphic Sectional Profile. View to Southwest.

STRATIGRAPHIC TRENCH 7 (ST-7)

ST-7 was placed a few meters north of ST-6 on TMK (1) 4-1-08:011 also between a treeline and an active agricultural plot (see Figure 11). Oriented 139/ 319 degrees (southeast/ northwest; magnetic), ST-7 was approximately 5.4 m long by 0.50 m wide and excavated to a depth of 1.75 mbs. The ground on which ST-7 was placed was also sloped slightly to the east

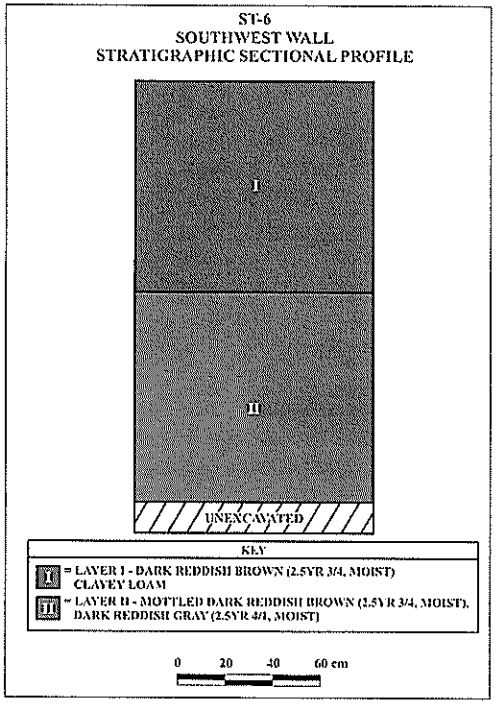

Figure 23: Parcel-1 ST-6 Southwest Wall Stratigraphic Sectional Profile Drawing.

with no observable midden. ST-7 contained the most soil layers totaling five (Figures 24 and 25). Layer I (0–15 cmbs) was a semi-compact, very fine to coarse (<10 mm diameter) crumbly structured, very dark brown (10YR 2/2, dry) sandy loam fill. Layer II (15–30 cmbs) was a semi-compact, very fine to coarse (<10 mm diameter) crumbly structured, dark brown (10YR /3/, dry) sandy silt fill. Layer III (30–60 cmbs) was a semi-compact, very coarse (>10 mm diameter) crumbly structured, very dark grayish brown (10YR 3/2, dry) silty clay fill. Layer IV (60–120 cmbs) was a semi-compact, dark grayish brown (10YR 4/2, moist) silty clay. This layer has been affected by moisture from agricultural purposes. Layer V (120–175 cmbs) was a compact, fine to very coarse (>1 mm diameter) crumbly structured, mottled dark reddish brown (2.5YR 3/4, moist) and dark reddish gray (2.5YR 4/1, moist) loamy clay.

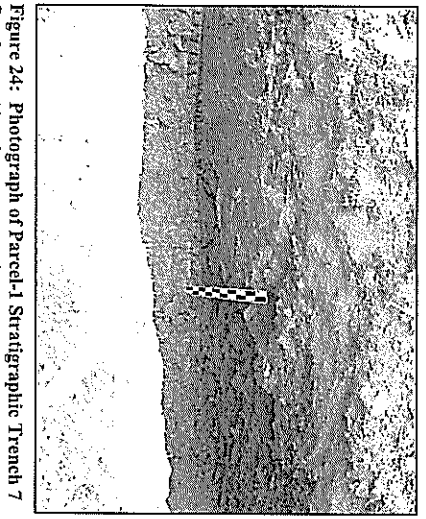

Figure 24: Photograph of Parcel-1 Stratigraphic Trench 7 Southwest Wall Stratigraphic Sectional Profile. View to Southwest.

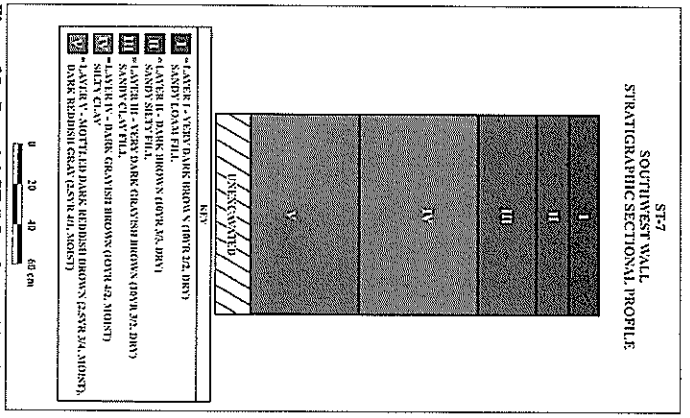

Figure 25: Parcel-1 ST-7 Southwest Wall Stratigraphic Sectional Profile Drawing.

EXCAVATION RESULTS PARCEL-2

STRATIGRAPHIC TRENCH-1 (ST-1)

ST-1 was placed on the northern end of the parcel within an open field of knee high grasses and weeds (See Figure11). The trench was oriented 82/262 (east/west; magnetic). ST-1 was approximately 4.7 m in length by 0.50 to 0.65 m in width and was excavated to a maximum depth of 1.45 mbs. The ground surface was level and no artifacts or midden were observed on the surface. Two discrete stratigraphic layers were identified (Figure 26). Layer I (0-20/45 cmbs) was a compact, dark yellowish brown (10YR 3/6 moist) clay, which contained a moderate amount of rubbish. This rubbish consists primarily of metal and broken glass. Moderate root disturbance was observable to approximately 0.50 cmbs. Layer II (20/45-1.45 cmbs) was a compact, dark reddish brown (5YR 3/3 moist) mottled with gray clay. No modern rubbish was observed within the layer. No cultural material was observed throughout the excavation.

STRATIGRAPHIC TRENCH-2 (ST-2)

ST-2 was placed to the south of ST-1 closer to the backyards of houses along Poalima Street (See Figure 11). This trench was placed on level ground and no artifacts or midden were observed on the surface. ST-2 was oriented 98/278 (east/west; magnetic). The trench measured 5.0 m in length and was 0.50 to 0.60 m in width and was excavated to a maximum depth of 1.75 mbs. Two discrete stratigraphic layers were identified (Figure 27). Layer I (0-30/50) cmbs was a compact yellowish brown (10YR 3/6) clay with rubbish and some grass root disturbance as well. Layer II (30/50-1.75) cmbs was a very mottled clay, predominately reddish brown (5YR3/3) with gray and orange brown mottling. No modern rubbish was observed within the layer. No cultural material was observed throughout the excavation.

STRATIGRAPHIC TRENCH-3 (ST-3)

ST-3 was placed to the east of ST-2 closer to Kakaina Street (see Figure 11). This trench was placed on level ground and no artifacts or midden were observed on the surface. The trench measured 5.5 m in length and was 0.60 to 0.65 m in width and was excavated to a maximum depth of 2.0 mbs. Two discrete stratigraphic layers were identified (Figure 28). Layer I (0-10/45) cmbs was a compact yellowish brown (10YR 3/6) clay with significantly less rubbish and some minimal grass root disturbance. The boundary between the two layers in ST-3 is more diffuse then the other trenches and it is also highly mottled within both layers. Layer II (10/45-2.0) cmbs was a very mottled clay, predominately reddish brown (5YR3/3) with gray and yellowish orange brown mottling. One piece of clear bottle glass was was observed within the layer. No cultural material was observed throughout the excavation.

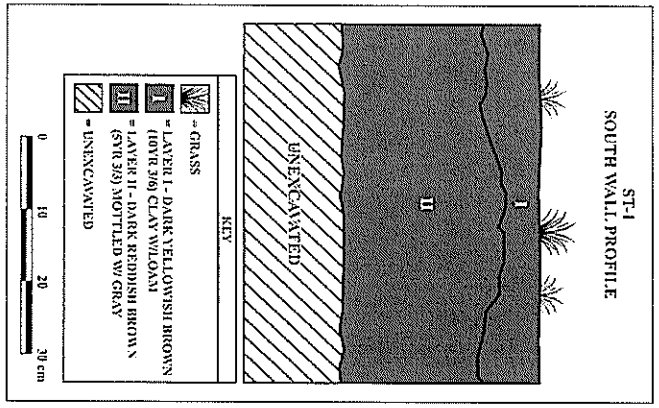

Figure 26: Parcel-2 ST-1 South Wall Profile.

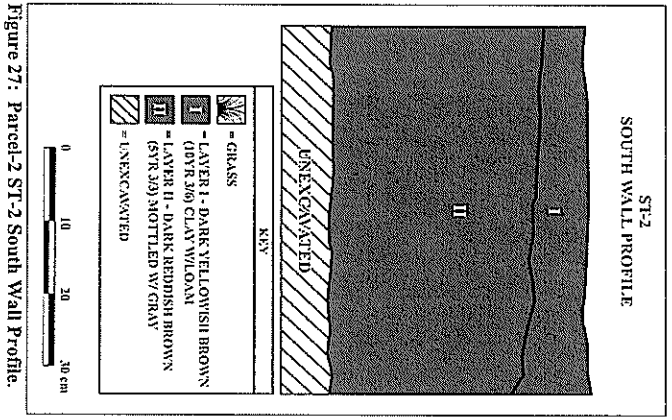

Figure 27: Parcel-2 ST-2 South Wall Profile.

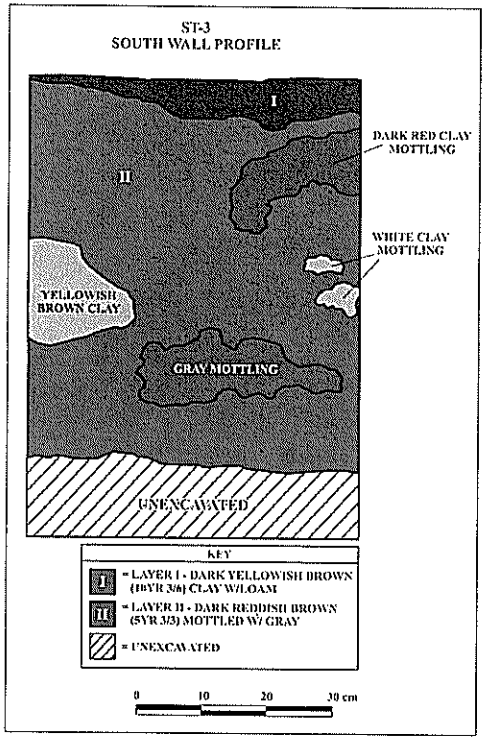

Figure 28: Parcel-2 ST-3 South Wall Profile.

DISCUSSION

In his 2004 lot feasibility report of Parcel-1 Monahan relayed that the existing buildings, which are less than 50 years old, are not historically significant and can be demolished without further documentation. The current Archaeological Assessment is in agreement with Monahan's determination. The existing building located on Parcel-2 was discussed with lead Oahu archaeologist Chris Monahan as well. The discussion resulted in the determination that the structure was not historically significant.

In discussion of the absence of archaeological sites on the ground surface and within subsurface locales, the Archaeological Assessment excavations suggests that agricultural pursuits within the project area would have contributed to the destruction of such by previous and current farming activities. Monahan also discusses this in reference to commercial sugar cane operations that were known in this general area to have taken place from 1878 to 1947 that were highly destructive, destroying and plowing under even *heiau*.

Although Monahan (2004) suggested for Parcel-1 that Archaeological Monitoring of areas closest to the existing stream drainage (southeast end of lot) and closest to the original location of the main Waimanalo Stream (northwest end of lot)—should be conducted, the absence of archaeological deposits noted through subsurface testing during the current Archaeological Assessment, did not support this recommendation. Subsurface archaeological investigations via excavation of both tax map keys [TMK (1) 4-1-08:011 and (1) 4-1-23:065] — especially TMK (1) 4-1-08:011—suggested that further subsurface archaeological investigations would not contribute to the identification of archaeological deposits. TMK (1) 4-1-08:011 however, was subjected to limited subsurface archaeological investigations with only three stratigraphic trenches. As a result of the density and proximity of crops and associated waterlines, alternative methods of archaeological investigations were discussed with State Historic Preservation Division (SHPD) Archaeologist Dr. Chris Monahan on February 1, 2006.

Consultation with SHPD, Dr Chris Monahan, about the environs of Parcel-2 was conducted after the completion of the fieldwork. At this time it was decided, based on the dense vegetation and the inability to test approximately 75 percent of the parcel, that Archaeological Monitoring would be recommended, particularly for the "grubbing" and "clearing" phase of land clearance associated with development.

Although it is unlikely that Native Hawaiian burials will be encountered during subsurface testing, it is possible that other traces of archaeological sites and features may be present subsurface. In particular, there may be buried remnants of traditional/ historic structures and/or occupational debris (*e.g.*, artifacts, food remains, and hearths) that should be documented. As stated above, the general area around the subject parcel has been documented as having perhaps the oldest settlement in the *ahupua`a*.

RECOMMENDATION

Based on results of the Archaeological Assessment's utilization of pedestrian survey and limited subsurface investigations, it is recommended that the larger portion of the project area—TMK (1) 4-1-08:011—not be subjected to further archaeological investigations. The smaller portion of the project area—TMK (1) 4-1-23:065— and Parcel 2 —TMK (1) 4-1-08:91,92,10, and 81—however, should be subjected to Archaeological Monitoring given its location next to an active water source as past archaeological studies have revealed numerous examples of associations with agricultural sites and active water sources (*e.g.*, flowing streams). These recommendations have been developed in consultation with the Lead Oahu State Historic Preservation Division (SHPD) Archaeologist Chris Monahan, Ph.D. on February 1, 2006.

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APPENDIX D

CULTURAL IMPACT ASSESSMENT

CULTURAL IMPACT ASSESSMENT FOR PROPOSED MODIFICATIONS OF THE USDA HAWAI'I FRUIT FLY PRODUCTION FACILITY AT WAIMĀNALO, KO'OLAUPOKO, O'AHU (TMK 4-1-26: Por. 1)

by

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Prepared for

Hawaii Pacific Engineers

CULTURAL SURVEYS HAWAI'I, INC.

NOVEMBER 2002

ABSTRACT

At the request of Hawaii Pacific Engineers, Cultural Surveys Hawai'i, Inc. conducted a Cultural Impact Assessment for the proposed USDA Fruit Fly Rearing Facility Expansion, Waimānalo *Ahupua'a*, Ko'olaupoko District, O'ahu (TMK 4-1-26: Por. 1). The assessment gathered information from historical documentation and archaeological investigations. Additionally, consultation was conducted with government agencies, private organizations, and the concerned community to identify knowledgeable *kūpuna* or *kama'āina* who could provide information on the history, previous land use and traditional practices of the study parcel. The organizations consulted included: the State Historic Preservation Division, the Office of Hawaiian Affairs, the O'ahu Island Burial Council, Alu Like, the Neighborhood Board Commission for Waimānalo (Number 32), the Waimānalo Hawaiian Civic Club, the Waimānalo Hawaiian Homes Association, Waimānalo Health Center, and the University of Hawai'i's Oral Research Center. Based on the recommendations by these agencies and organizations attempts were made to contact thirty-one individuals who either live in or have connections to Waimānalo. Twenty-five individuals with some knowledge of the Waimānalo area, through residency or professional concerns, were actually consulted. One individual was informally interviewed: Mr. Francisco Tabar, a *kama'āina* who worked and lived at the Waimanalo Sugar Plantation.

By the early 20th century, the project area was leveled and plowed for sugarcane cultivation which continued to the late 1940s. Subsequently the project area reverted to other agriculture or open, undeveloped land. These historic activities have removed any remnants of traditional Hawaiian use and activity within the project area. The community members consulted during the course of this assessment who had any knowledge of the project area could recall only the former sugarcane field. None of the individuals consulted could recall any traditional cultural resources, practices and beliefs that may have been associated with the project area. Neither did anyone mention any ongoing cultural activities associated with the area.

Based on the above considerations, it may be concluded that further development of the project area parcel should have no adverse impact on traditional cultural resources, practices or beliefs. The only precautionary note is the preservation of the Tai-Lee Ditch at the *makai* boundary of the project area.

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I. INTRODUCTION

A. Project Background

At the request of Hawai'i Pacific Engineers, Cultural Surveys Hawai'i, Inc. conducted a Cultural Impact Assessment for the proposed USDA Fruit Fly Rearing Facility Expansion, Waimānalo *Ahupua'a*, Ko'olaupoko District, O'ahu (TMK 4-1-26: Por. 1). (Figures 1 to 3).

The purpose of this cultural impact assessment is to consider the effects the proposed development may have on cultural traditions and practices, particularly those of native Hawaiians as it pertains to their right to practice traditional customs. The Hawai'i State Constitution, Article XII, Section 7 protects "all rights" of native Hawaiians that are "customarily and traditionally exercised for subsistence, cultural and religious purposes". The recently passed Act 50 expands the consideration of the cultural impact effects of a proposed action to consideration of the cultural practices of the community and State.

The Scope of Work (SOW) was designed to meet the cultural impact assessment concerns of the Office of Hawaiian Affairs (OHA), the Office of Environmental Quality Control (OEQC) and any other state and county agencies involved in the review process for the proposed project. The process for evaluating cultural impacts is evolving. There continue to be gray areas and unresolved issues pertaining to traditional access and gathering rights for native Hawaiians. Act 50 is an attempt to balance the scales between traditional lifestyles and development and economic growth.

B. Scope of Work

The cultural impact assessment is meant to satisfy requirements related to Native Hawaiian Gathering Rights and their applicability to the project area. CSH has completed many of these studies. The suggested scope is summarized as follows:

1) Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.

2) A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.

3) Conduct scoping, consultations and informal oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region.

4) Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

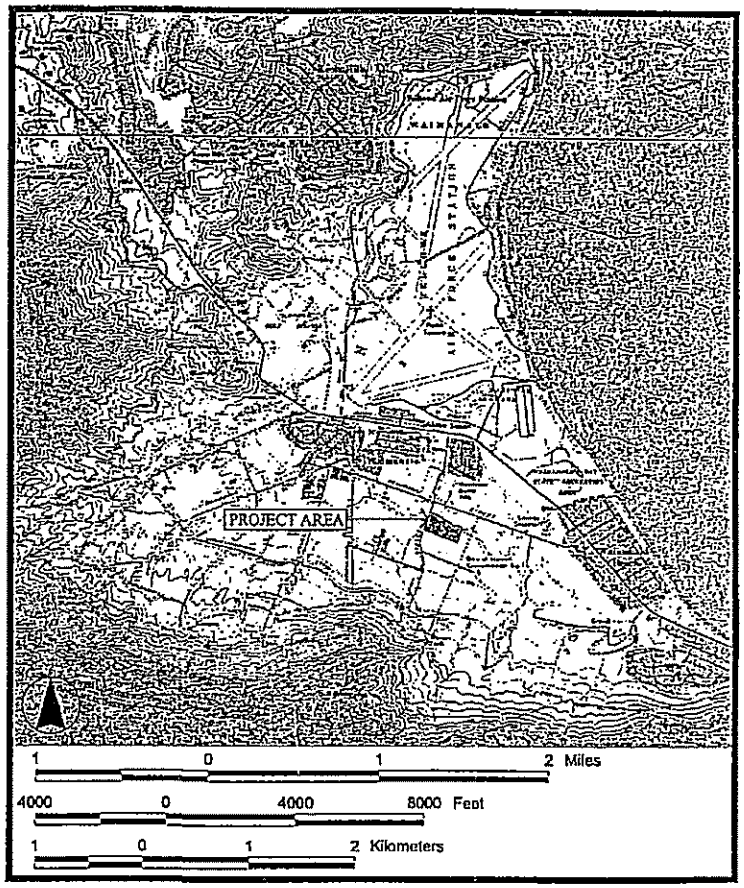

Figure 1: USGS Koko Head Quadrangle Map Showing Location of Project Area.

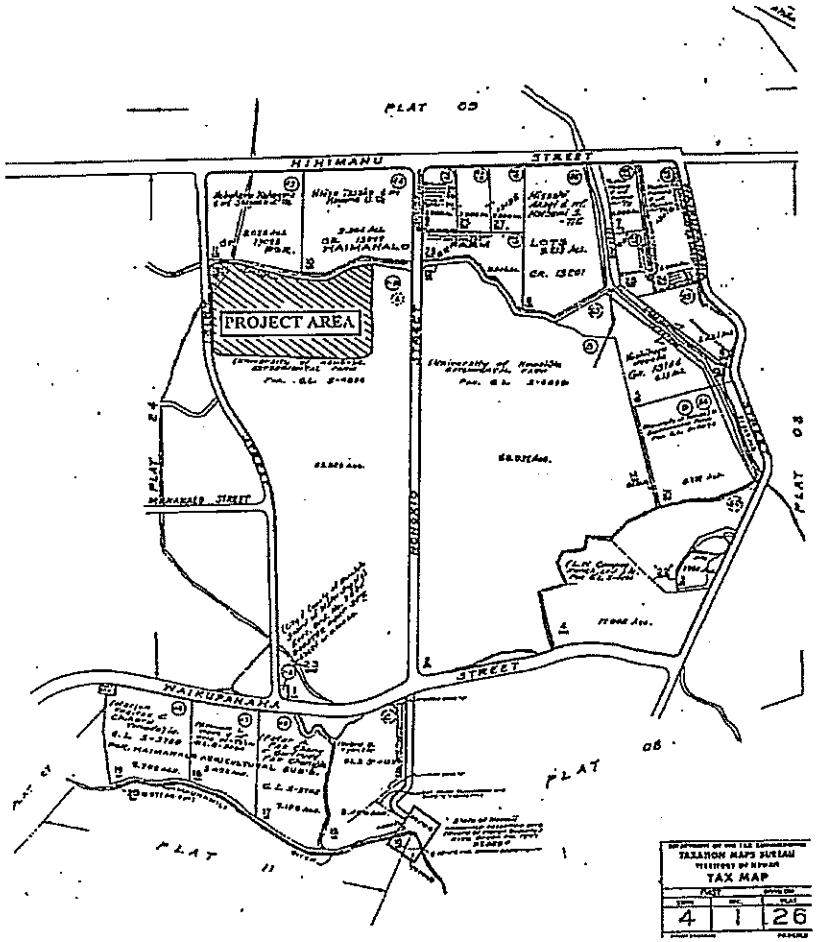

Figure 2: Portion of TMK 4-1-26 Showing Location of Project Aren (hatched).

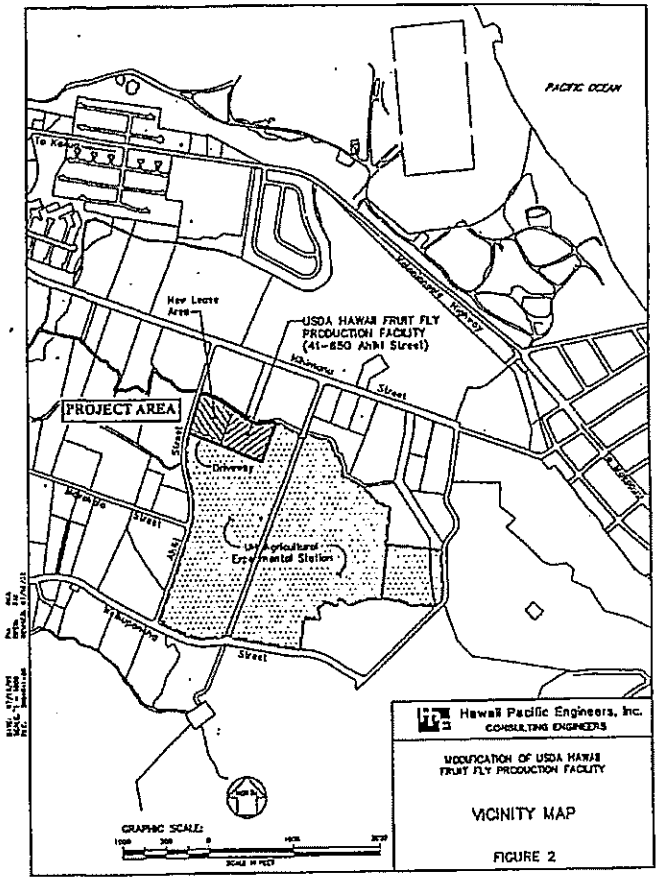

Figure 3 USDA Hawaii Fruit Fly Production Facility Location Map

C. Methodology

Historical documents and maps were researched at the Hawai'i State Archives, Hawai'i State Survey Office, State Historic Preservation Division library and files, Bishop Museum Photo Collection and the Cultural Surveys Hawai'i library.

Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. A discussion of the consultation process can be found below in Section V. Results of Community Consultations. Please refer to Table 2 for a complete list of individuals and organizations contacted.

D. Study Area Description

The project area is located on the windward side of the Island of O'ahu, in the district of Ko'olaupoko within the *ahupua'a* of Waimānalo (See Figures 1-3). Waimānalo is a broad amphitheater-shaped valley with a relatively level floor composed of moderately sloping alluvial fans. It is in the "late mature to old Age" stage of erosional development (MacDonald *et al.* 1983:217). The subject property is located at 41-650 Ahiki Street in central Waimānalo on the "Waimānalo Plain" (Armstrong, *et al.* 1973:30) approximately 700 m inland of Kalaniana'ole Highway at approximately 40-foot elevation. It is bounded by Ahiki Street to the west, the Tai-Lee Irrigation Drainage Ditch to the north and the University of Hawaii Experimental Station to the east and south.

II. CULTURAL AND HISTORICAL DOCUMENTATION

A. Legends and Traditions Associated with Waimānalo

Traditional accounts present some generally recurring themes about Waimānalo. The themes include the scarcity of water except for small springs and Waimānalo Stream; the abundance of food crops along Waimānalo Stream; the good fishing resources and the broad reef of the ocean fronting Waimānalo; and the somewhat isolated nature of Waimānalo, especially in terms of land routes, but with a sandy beach frontage allowing easy access by sea.

An example of the mythological references to Waimānalo, occurs in the Pele and Hi'iaka epic; "As they traveled on, Makapu'u and its neighbor hills passed out of sight. Arriving at Ka-ala- pueo, they caught view of the desolate hill Pōhaku-loa, faint, famished, forlorn ...." (Emerson 1915:89). Hi'iaka is moved to chant a chant of Hawai'i Island on the theme of privation including the line:

> *Wī 'ai 'ole, make i ka i'a 'ole, e.*
> It's famine, privation of bread, of meat! (Emerson 1915:89)

Emerson's (1915:89) account goes on to relate regarding eastern Waimānalo: "It is indeed a barren land. Fish is the only food it produces. Our vegetables come from Waimānalo. When the people of that district bring down bundles of food we barter for it our fish."

Another theme associated with Hi'iaka's traverse of Waimānalo is her interactions with the local beauty 'Āpunkea.. Fornander (1919: Vol. VI:343, "Philological and Miscellaneous Notes") relates: "At Kapu'a in Ko'olau Muliwaiolena and her daughter 'Āpunkea were killed because the latter compared herself to Hi'iaka in beauty." A fuller account is given in a rendition of the story of Hi'iaka-i-ka-poli-o-Pele in the Hawaiian language newspaper *Ka Leo o Ka Lāhui*;

> They traveled past Kuhui (Kukui?) And Pāhonu where the people shouted at the beauty of Hi'iaka. The news reached the ears of 'Āpuakea and she said to her mother, Muliwaiolena, "Oh, Muliwaiolena, go and take a look at the women whose beauty the people are shouting about and see if they are as beautiful as I am." Muliwaiolena came out and looked. Never had she seen anything on O'ahu to equal the beauty of these women. Turning to 'Āpuakea she said, "Daughter, your beauty does not compare with their great beauty. You are like the soles of their feet." Hearing this the expression on 'Āpuakea's face changed and she fainted away.
>
> Hi'iaka overheard the words of the woman to her daughter and she uttered this chant:
>
> O 'Āpuakea-nui, you beautiful woman,
> Comparisons have been made of your charms,
> You are beautiful, beautiful indeed.

Muliwaiolena then called out to Hi'inka and her friend, "Come in, eat and drink and when you are full then continue on your long journey." But the travelers did not accept as they did not like the embarrassing comparison that had been made between themselves and the young girl, 'Āpuakea.

As the travelers went off Muliwaiolena suddenly fell dead. Shortly afterwards 'Āpuakea died... (*Ka Leo o Ka Lāhui* March 14, 15 1893.)

It is said "that the people named the place ['Āpuakea, by the coast, central Waimānalo] for her and for her fair skin" (Alona Sept. 22, 1939 O'ahu Place Names)

Another myth (Thrum 1923:185 "Puna'aikea'e") includes references to the surf of Waimānalo in which two lovers swim till they are out of sight of land and eventually land on Moloka'i.

In the famous story of Kahalaopuna, her murderous fiancé is said to have been the son of a chief of Waimānalo, Kailua, Kāne'ohe and He'eia (Nakuina 1904:41).

In a canoe paddling race, Lonoikamakahiki is able to win O'ahu from the ruling chief Kākuhihewa in part through a stratagem of paddling to Kailua inside of the Waimānalo reef (Fornander 1917:IV 300301"Story of Lonoikamakahiki"):

Waimānalo was a frequent point of arrival and departure in late pre-contact and early post-contact times as in the following account of the loss of O'ahu sovereignty.

> When King Kahekili of Maui heard of the death of the priest, Kaopulupulu, by Kahahana (a chief appointed by Kahekili to govern Oahu), he sent some of his men thither by canoe, who landed at Waimānalo, Ko'olau, where as spies, they learned from the people respecting Kaopulupulu and his death, with that of his son; therefore they returned and told the King the truth of these reports, at which the affection of Kahekili welled up for the dead priest, and he condemned the King he had established. Coming with an army from Maui, he landed at Waikīkī without meeting Kahahana, and took back the government of O'ahu under his own kingship. The chiefs and people of O'ahu all joined under Kahekili for Kahahana had been a chief of wrong-doing... (Thrum 1907:212-3)

Samuel Kamakau in 1875 related: "The Ahupua'a of Waimanalo, including the fish pond at Maunalua and the traveling *uhu* of Makapu'u belonged to Maui-mua (First Maui)" (*Kuokoa* Nov. 27, 1875; in Sterling and Summers 1973:244).

During Kamehameha's conquest of O'ahu, part of his fleet landed near Makapu'u and then joined with Kamehameha's other forces, finally conquering O'ahu. Prior to the invasion, Kamehameha sent a messenger to Kahekili:

> Ki'kane, Kamehameha's messenger to Kahekili, threw down two *maika* stones, this stone (the white) brings life through farming and fishing, rearing men, and providing them with food; this other stone (the black) brings war. Let the reader ponder the meaning of this answer. Kahekili asked, Is Kamehameha coming to O'ahu to fight? 'Yes' answered Ki-Kane. What harbor will he choose? It was Kiko'o's counsel to make Waimanalo the harbor and battle site. 'It is too low there to cast sling stones to reach the heights. It is good only for food and fish... (Kamakau 1961:250; in Silva 1981 A-16).

After Kamehameha's conquest of O'ahu and his division of the island among his chiefs, Waimānalo apparently was retained as his personal property. This seems to be the case as in 1845, when Kamehameha III, Kauikeaouli, who had "inherited" the land as a son of Kamehameha I, claimed the *ahupua'a* of Waimānalo "to be the private lands of his Majesty Kamehameha III, to have and to hold to himself, his heirs and successors, forever; and said lands shall be regulated and disposed of according to his Royal will and pleasure, subject only to the rights of tenants" (Com. of Public Lands, 1929:28).

B. Early Historic Accounts

Two early foreign visitors, both missionaries, were generally unimpressed with Waimānalo; however, their descriptions are of interest. Levi Chamberlain in 1828 commented on Waimānalo being a "considerable settlement" and while there, stayed in a native house, "a miserable place for the abode of human beings and presented a motley group of children and women, dogs, hogs and fowls" (Chamberlain 1857:80-1, in Silva 1981:A-20). In 1830, Edwin Hall writes, "we could not however, but notice, that most of the inhabitants on the eastern end of the island were much more degraded, and exhibited far less evidence of improvement than any we saw on other parts of the island; a fact calling for our sympathy and pity, and for our endeavors to enlighten and elevate them" (Hall 1939:111; in Silva 1981: A-21).

C. Māhele Data

The *ahupua'a* of Waimānalo was awarded to Victoria Kamāmalu subject to the *kuleana* claims of the commoners. She received the third largest share of lands among the *ali'i nui* of the Kingdom of Hawai'i including 47 other *ahupua'a*-sized parcels in addition to Waimānalo. Approximately 113 *kuleana* Land Commission Award claims were awarded in Waimānalo. Nearly all of these *kuleana* were along Waimānalo Stream or its upper tributaries in the west portion of the *ahupua'a* (Figure 4). There appear to have been only two Land Commission Awards in all of central and east Waimānalo, both located on the coast in east Waimānalo. The Land Commission Awards nearest to the present study area is located to have been 1.3 kilometers to the west. While it seems highly probable that the Hawaiian population of Waimānalo was much larger and more dispersed in pre-contact times, it nevertheless appears highly likely that the traditional Hawaiian population of Waimānalo was always very much focused along Waimānalo Stream and its upper tributaries far from the present study area.

D. Ranching Period

In 1828 an Englishman, Thomas Cummins, arrived in Hawai'i and soon after married the High Chiefess Kaumakaokane, who was related to Kamehameha I. This marriage provided Cummins with connections to the throne. Cummins received a Royal Patent to an estate of crown lands in Waimānalo in 1842 (Dorrence 1995:1) and in 1850 Kamehameha III leased the entire Waimānalo *Ahupua'a* (except for the *kuleana*) to Thomas Cummins. The original deed is dated Feb. 12, 1850 and was for a period of 50 years for 6,970 acres at $350.00 per annum. However, there was confusion over land title. Alexander Liholiho Kamehameha IV, "deeded" Waimānalo to a Wm. Webster in 1855 for $1. Wm. Webster mortgaged the land for some $2,000 with the mortgage being released in 1857. The same thing happened again in 1857 with the mortgage clearing by April 1858. These deeds and mortgages did not actually cause the control of lands to change, as Thomas Cummins retained his lease, but they apparently served as security for loans made to Alexander Liholiho.

Thomas Cummins and his son John A. Cummins turned Waimānalo into a large cattle and horse ranch. The Cummins estate, "Mauna Rose" was known for its lavish parties. Cummins was also host to American and British officers on warships visiting in Hawaiian waters. The Kamehamehas, King Kalākaua and Queen Lili'uokalani all made this part of the island their home, and they spent a great part of their time at the Cummins Estate (*Star Bulletin* 6/22/1935:9; in Silva 1981:A-22).

However, it appears as if not all were enthusiastic about the cattle ranching:

> At the time, it seemed that the valley was filled with breadfruit, mountain apples, *kukui* and coconut trees. There were taro patches, with banks covered with *ti* and *wauke* plants. Grass houses occupied the dry lands, a hundred of them here and sweet potatoes and sugar cane were much grown. It was a great help toward their livelihood.... The whole *ahupua'a* of Waimānalo was leased to white men except the native *kuleana* and because the cattle wandered over them, they were compelled to build fences for protection. The taro patches that were neatly built in the time when chiefs ruled over the people and the land, were broken up. The sugar cane, *ti* and *wauke* plants were destroyed. The big trees that grew in those days, died because the roots could not get moisture. The valley became a place for animals (*Kuokoa*, Oct. 26, 1906; in Sterling and Summers 1973:244)

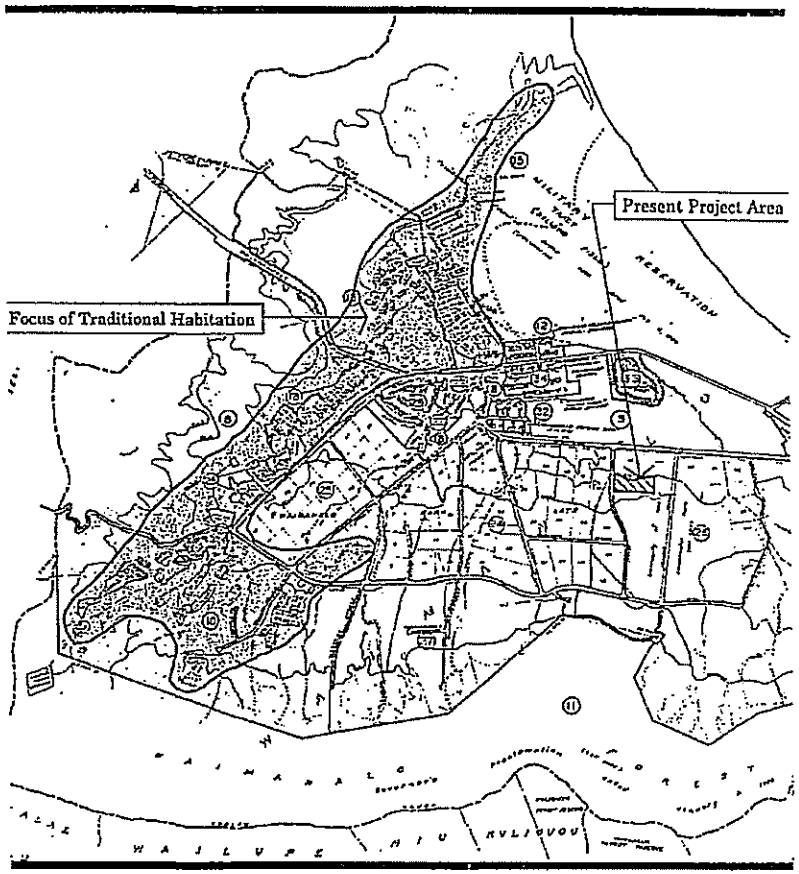

Figure 4 Map Showing Location of the Aggregation of *Kuleana* Land Commission Awards Along Waimānalo (Puhā) Stream in West Waimānalo

E. The Waimanalo Sugar Company

The Cummins family eventually began to buy up the *kuleana* of the native farmers, gaining some 200 acres in fee. By the early 1870's Chinese rice farmers were using some of these lands under agreement with John A. Cummins. In 1876 the Hawaiian Kingdom entered into a Reciprocity Treaty with the United States. This allowed the growing Hawaiian sugar industry a free market and the potential for great profits. One of the Chinese rice farmers, Tai Lee, began sugar cultivation on Cummins' land. Eventually Tai Lee and other Chinese farmers cultivated up to 1,200 acres of cane in Waimānalo.

John A. Cummins saw the potential of sugar production at Waimānalo and in 1880 started construction of a sugar mill. In 1890, J. A. Cummins renegotiated his father's lease for an additional 30 years and "sub-lets the lands of Waimānalo to the Waimanalo Sugar Company (W.S.C.) which he then controlled" (Bartholomew and Ass., 1959:14). The plantation continued to buy sugar from the Chinese farmers until around 1900, when W. S. C. did most of its own cultivation.

During this time, sugar and most goods were transported between Honolulu and Waimānalo by steamer. The Cummins estate was still renowned for its extravagant hospitality. Lavish week long *luaus* were given for Hawaiian royalty. King Kalākaua came and rode on the newly built railroad in 1882 and in 1885 Cummins was host in celebrating Queen Kapi'olani's birthday. The second steam engine Cummins bought in 1883 for his Waimānalo plantation, later named the "Olomana," is today in the Smithsonian Institution in Washington D.C. as a reminder of this period of history (Williams 1996:B1).

Waimanalo Sugar Co. continued to grow and business was good. More lands were being put under cultivation. New tracks were being laid and another locomotive was ordered. Interest in W. S. C. grew, and in 1885 W.G. Irwin of the W.G. Irwin & Co., agents for W. S. C., gained control with J. A. Cummins staying on as overseer. In 1894, J. A. Cummins sold the majority of shares in W. S. C. to two California men and a Kohala sugar planter Robert. R. Hind, with George Chalmers taking over duties as plantation manager. J. A. Cummins died in 1913 and his estate sold the remaining fee simple lands and the unexpired lease of Waimānalo to W. S. C. for $52,000. In 1910 W.G. Irwin and Co. merged with C. Brewer and C. Brewer controlled W. S. C. until its liquidation in 1947.

The present project area is understood to have been a portion of Field #6 (Figure 7) of the Waimanalo Sugar Co. It seems probable that the project area was entirely under commercial sugar cane cultivation from before 1900 up to the liquidation of the company in 1947, but the ditch system developed for sugar continued to survive for the agricultural lands in Waimānalo. . After the sugar company liquidated the land reverted back to the Territory of Hawaii since the land within the project area were leased government land, are now under State of Hawaii jurisdiction. Up until 1990 when the Fruit Fly Facility was built, the land was used for ranching and agriculture.

F. Irrigation Ditches

Water was a continuous problem for most sugar companies, including the Waimanalo Sugar Company. Irrigation for W. S. C. was dependent on three ditch and tunnel systems. The Maunawili Ditch and Tunnel is the uppermost system, the Kailua Ditch is the middle system and the Pump Ditch/ Reservoir Ditch is a name that was given to the most seaward. This Pump Ditch/ Reservoir Ditch is understood as another name for the Tai-Lee Ditch which bounds the seaward edge of the present project area. It is unclear when this ditch system was built, but water from Maunawili was used in Waimānalo as early as 1878. "Water sources in upper Maunawili Valley were first utilized prior to 1878 and have remained the basic supply for Waimānalo since that time" (Bartholomew and Ass. 1959:53). It is understood that this seaward ditch originally dates to the Chinese sugar cane growing period of 1876-1900 and was later modified by the W.S.C.

None of these three ditch systems appears on the 1919 Fire Control map series although a ditch is shown running seaward of the mill. A 1922 "Fields of Waimanalo Sugar Company" Map appears to show only the Kailua Ditch. The 1928 USGS map series shows the two *mauka*-most ditches (Maunawili Ditch and Kailua Ditch) but does not show the Pump Ditch/ Reservoir Ditch (Tai-Lee Ditch). The same is true for the 1943 War Department map series. Thus, on the basis of the available maps, it would appear that the Kailua Ditch was built between 1919 and 1922, and that the Maunawili Ditch was built between 1922 and 1928. Wilcox (1996:111) relates that "a second ditch, built in 1924, had its source in the Kwainui Swamp." This would fit the Kailua Ditch although the Waimanalo Sugar Company map suggests a slightly earlier date.

The precise dating of the construction of the ditch on the *makai* side of the present project area remains uncertain. Supplied maps identify this as the "Tai-Lee Irrigation/Drainage Ditch" which would associate this ditch with the individual of that name and the Chinese sugar cane growing period of 1876-1900. This "Tai-Lee Irrigation/Drainage Ditch" does not appear on any maps known to us prior to the Tax Map Key 4-1 dating to 1957. It seems probable that this was simply not regarded as in the same league as the Kailua Ditch and Maunawili Ditch and may have gone undocumented (Wilcox 1996:106 shows the Kailua Ditch and Maunawili Ditch in a map of "Major ... Ditches" but does not show the Pump Ditch/Reservoir Ditch or the Tai-Lee Irrigation/Drainage Ditch).

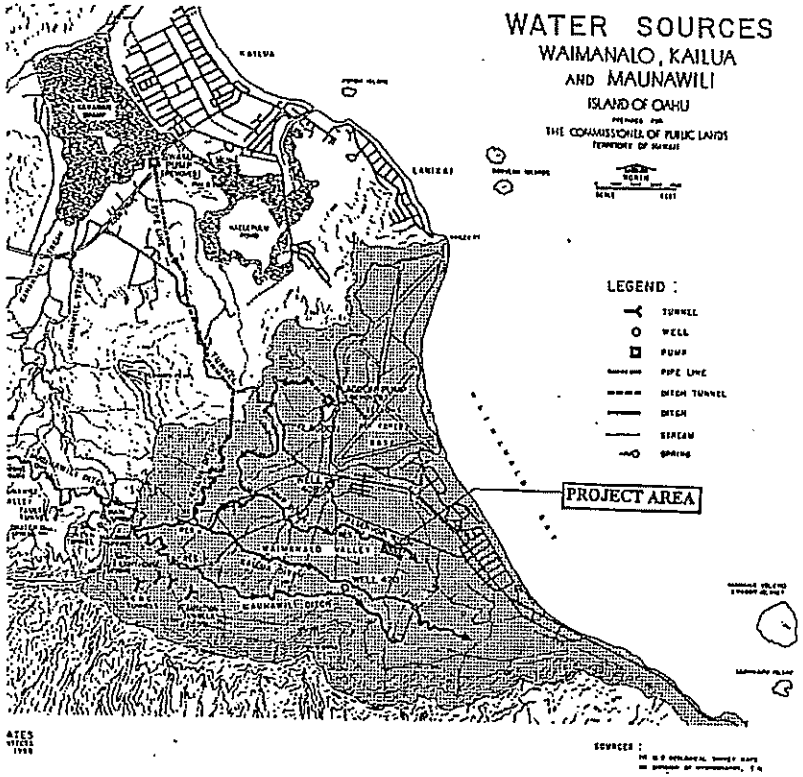

Figure 5 Water Systems of Waimānalo, Commissioner of Public Lands, 1958

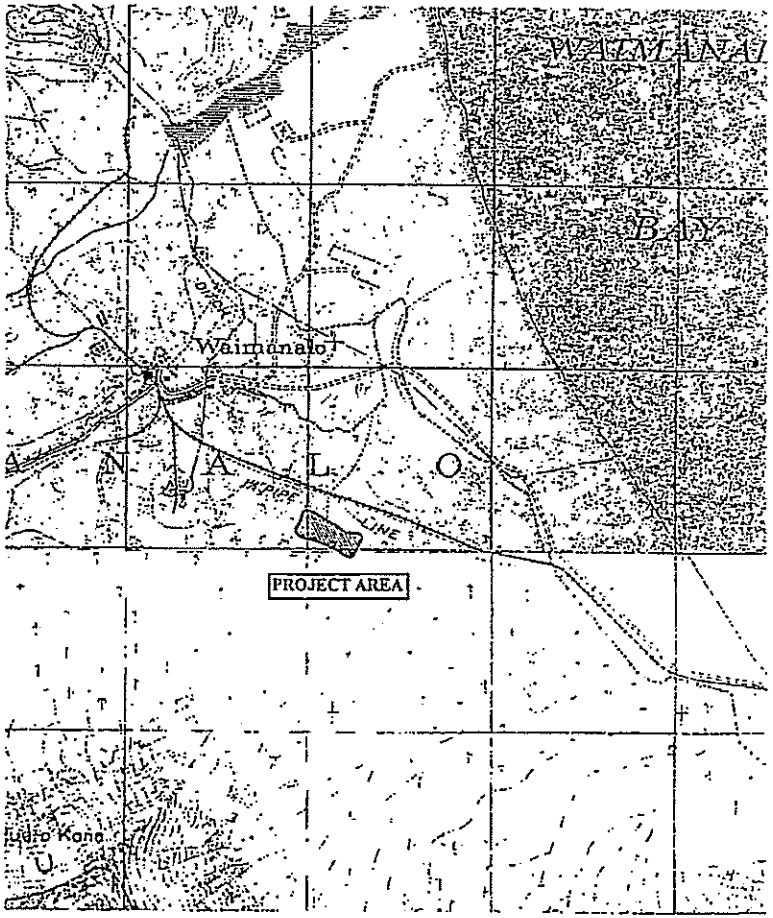

Figure 6 Portion of 1919 Fire Control Waimanalo and Koko Head Maps Showing Location of Project Area in Sugar Cane Fields

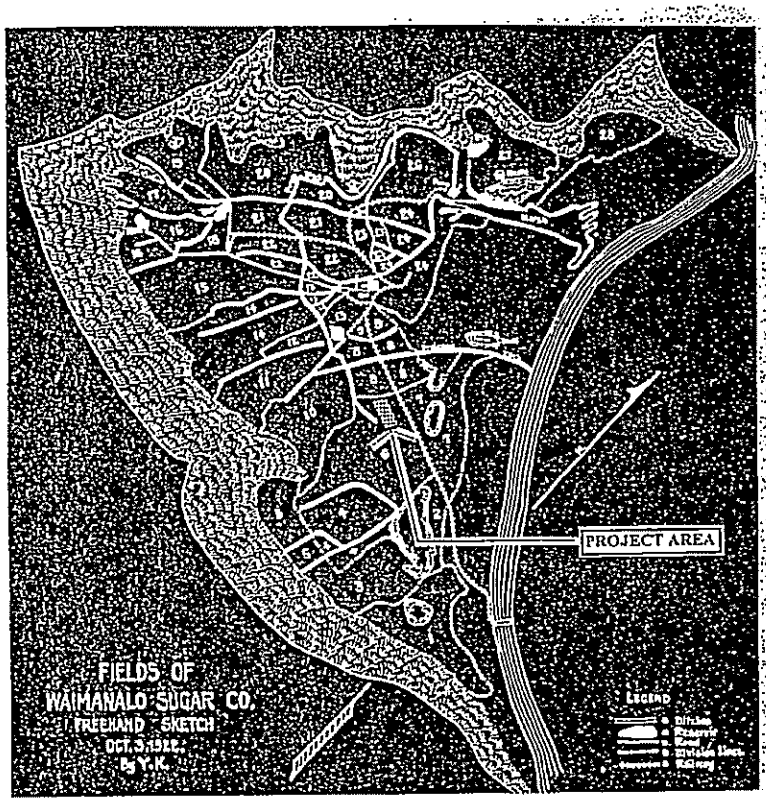

Figure 7 Portion of "Fields of Waimanalo Sugar Company Map (1922) Showing Project Area in Field 6

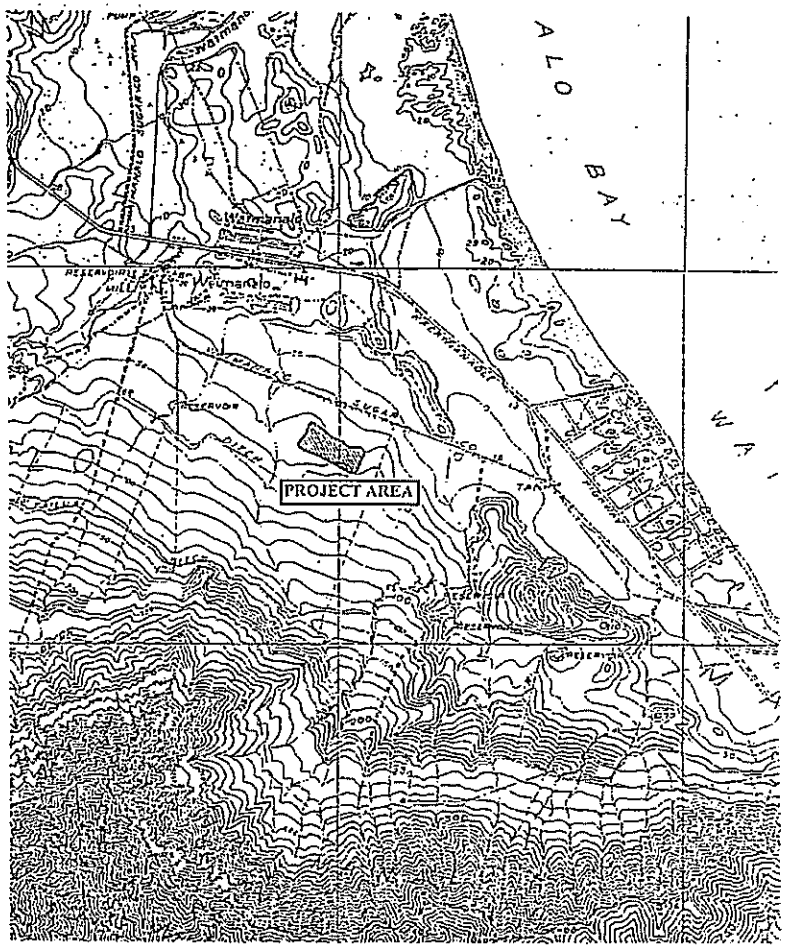

Figure 8 Portions of the 1928 USGS Mokapu and Koko Head Maps Showing Location of Project Area

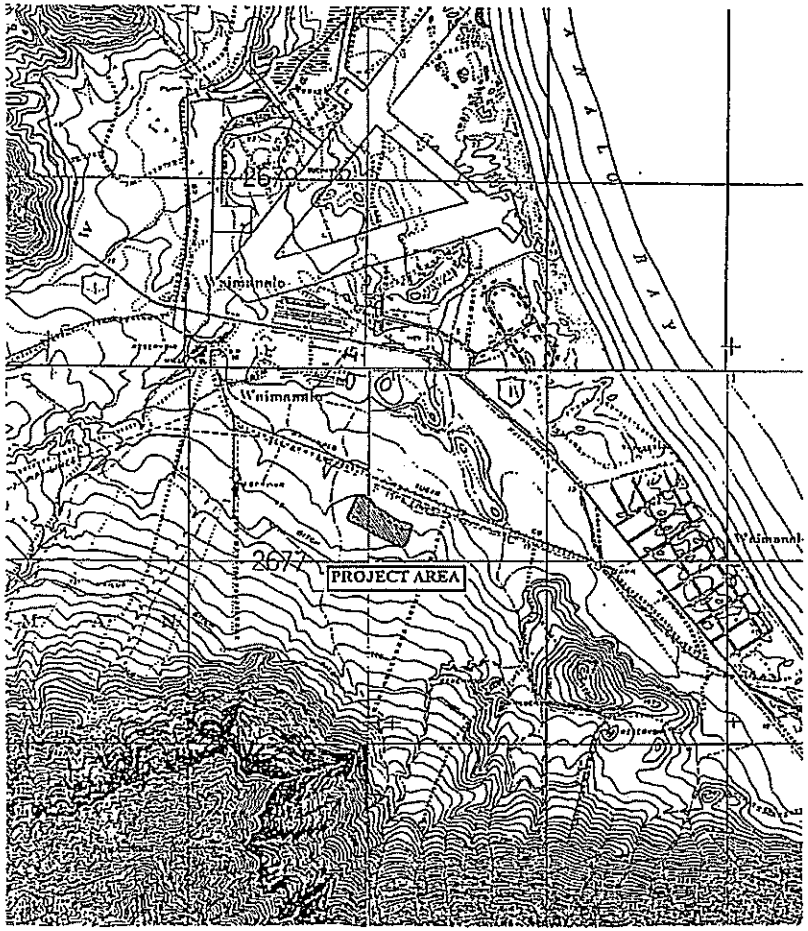

Figure 9 Portions of the 1943 War Department Kailua, Mokapu and Diamond Head Maps Showing Location of Project Area

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

Waimānalo, in general, is distinguished as being the place of one of the earliest archaeological investigations in the Hawaiian Islands. In 1879, Mr. Otto Finsch reported on human burials in sand deposits and associated artifacts in an area which is now Bellows Air Force Base (Finsch 1879).

McAllister, in his *Archaeology Oahu*, reports two sites in *mauka* Waimānalo (McAllister 1933:191). Both of these sites are *heiau*. Site 381 is located on the slope below Mt. Olomana to the northwest of the present study area. Site 382 is referred to by the name of the place - Pōhakunui - and stands on a hill near the top of Mahailua Road west-southwest of the present project area.

The major focus in archaeological research in Waimānalo has been the Bellows area and to a much lesser extent the Waimānalo State Recreation Area. Bellows Air force Station is one of the most extensively studied areas on O'ahu. Beginning in the 1960s, approximately 70 separate reconnaissance, survey, excavation and monitoring projects have taken place, most in conjunction with construction activity. Human burials, lithic scatters, soil features and/or occupation layers have been found almost everywhere archaeological investigation has taken place. Possibly the most important finds occurred in dune deposits adjacent to the mouth of Waimānalo Stream referred to as Site 018. Radiocarbon dates on charcoal from cultural layers within the dune which placed the earliest occupation to around 300-400 C14 years A.D. (Tuggle *et al.* 1978) have been much disputed but these deposits are still considered to be among the oldest in Hawaii (Pearson *et al.* 1972, Cordy and Tuggle, 1976 and Kirch, 1985:71). Much of the research since this discovery of early Bellows Dune occupation has focused on attempting to connect other archaeological finds in more inland areas of Bellows to this early Polynesian settlement.

Approximately a dozen archaeological studies were carried out at the Waimānalo State Recreation Area just south of Bellows mostly between 1976 and 1980. There was hope that the occupation layers documented just to the north might be present in the State Recreation Area but findings thus far have been disappointing.

Relatively little work has been conducted in Waimānalo *Ahupua'a* inland of Kalanianaʻole Highway. No inventory-level archaeological investigations have been conducted within or adjacent to the present project area. Studies in the general vicinity of the present project area by Barrera (1984), Dixon (1993), and Sinoto and Pantaleo (1993) have reported nothing of significance. Perzinski *et al.* 2002 report three inadvertently disturbed human burials and a cultural layer (State site #50-80-16-5939) which were encountered during construction activities on Department of Hawaiian Home Lands. These finds were, however, in Jaucas sand deposits and much closer to the coast.

Due to the lack of natural water sources in the vicinity, the distance from the coast and particularly the many decades of land altering activities associated with commercial sugar cane cultivation little was found in an archaeological inventory survey of the project

area conducted by Cultural Surveys Hawai'i in September of 2002. No sites of any kind were identified within the project area *per se*. No prehistoric archaeological features were observed within the project area. The seaward or north edge of the project area, however, is demarcated by a ditch understood as the Tai-Lee Ditch associated with the individual of that name and the Chinese sugar cane growing period of 1876-1900. This Tai-Lee Ditch is understood as a historic property and has been designated as State Inventory of Historic Places Site # 50-80-15-6427. Much of the ditch is earthen without improvements, although portions are lined with concrete and some water diversion and engineering constructions are present.

Table 1 below lists and summarizes the findings of previous archaeological research in Waimānalo.

Table 1 Previous Archaeological Studies Within Waimānalo *Ahupua'a*

Year	Author(s)	Title	Comments
1879	Finsch, Otto; Alexander, A.D. (Translator)	*Bericht Uber Insel Oahu (Letters from the Island of O'ahu)*	Told there was "a place of skulls" in Waimānalo
1933	McAllister, Gilbert	*Archaeology of O'ahu*	Identified 3 *heiau* (380, 381, & 382), a *pu'uhonua* (383), a fishpond (383a), and abandoned coastal village(384)
1971	Gormley, Michael K.; Yent, Martha; Davis, Bertell D.; Imamoto, Shirley; Kavanagh, B. P.	*Site 3000: University of Hawaii at Manoa, Summer Field School, Summer 1971.*	Study of Kaupo Fishing Village area
1971	Pearson, Richard	*Archaeological Reconnaissance Survey; Waimanalo Bay State Recreation Area; Waimanalo, Oahu TMK 4-1-03:016*	Site 512 remnant sand dune & cultural layer & 513, cultural deposits, human remains

1971 (1967)	Pearson, R.J., P.V. Kirch & M. Pietrusewsky	"An Early Prehistoric Site at Bellows Beach, Waimanalo, Oahu, Hawaiian Islands," *Archaeology and Physical Anthropology in Oceania* VI (3)	Reports study of stratigraphy, cultural finds & 5 setrs of human remains BAFS
1973	Davis Bertel	Kaupo Cave Shelter, Site 3000, Feature 1: A Preliminary Report on Artifact Analysis	UH Mānoa M.A. thesis based on field work at Kaupo Village complex
1974	Tuggle, H. David & M.J. Tomonari	*Surface and Sub-surface Survey of Selected Zones of Bellows Field Archaeological Area*	Summary of excavations historic deposits in 4 of 7 areas examined, BAFS
1975	Cordy, Ross	*O18 O'ahu Island New Work and New Interpretations*	Reports on further work at O18 and adjacent sites BAFS
1975	Nakama, Stella	*Archaeological Surveillance of a Drip Irrigation Line: Bellows Air Force Station, Oahu, Hawaii.*	Monitoring of a backhoe Trench - minimal findings BAFS
1975a	Tuggle H. David	*Report on Archaeological Investigations of the Bellow Archaeological Zone National Register Site and Adjoining Portions of Bellows Air Force Station, Spring 1975*	Presents findings at various zones of O18, BAFS
1976b	Tuggle, H. David	*Archaeological Surveillance of Construction Excavation in Bellows Field Archaeological Zone of the Bellows Air Force Station, HI.*	Brief study of construction monitoring NE BAFS
1976c	Tuggle, H. David	*Preliminary Report on Subsurface Investigation of a Portion of Proposed Irrigation Line, Bellows Air Force Base, for Archaeological Evaluation*	Letter report, no features or artifacts, BAFS
1976d	Tuggle, H. David	*Archaeological Examination of Areas of Bellows Air Force Station Subject to Construction Activities.*	Evaluates various areas, BAFS

1975	Tuggle, H. David, Stella K. Nakama, and Thomas N. Manabe	*Subsurface Investigations of Site 511-5 Bellows AFS, Oahu, Hawaii, Pertaining to "Seawall Repair and Drip Line" Project*	Provides data and conclusions re: archaeological import of site 511-5, BAFS
1976	Cordy, Ross and David Tuggle,	*Bellows, Oahu, Hawaiian Island: New Work and New Interpretation.*	Reviews problems, includes results of investigations in inland areas, BAFS
1976	Davis, Bertell D.	*Archaeological Investigations at the Waimānalo Bay State Recreation Area, Ko'olaupoko, Waimānalo, O'ahu Island.*	Not seen
1976	Davis, Bertell	*Archaeological Survey and Testing at the Waimānalo Bay State Recreation Area, Ko'olaupoko, Waimānalo, Oahu Island, TMK 4-1-08:16*	Sterile cores, Site 512 found *imu*
1976	Nakama, Stella & H. David Tuggle	*A Report on Archaeological Monitoring of Repair of Water Distribution System, Bellows AFS*	42 features possibly dating to Hawaiian traditional period, BAFS
1976	Tuggle, H. David and Thomas N. Manabe	*Archaeological Monitoring of Drip Irrigation Line Construction: Bellows Air Force Station #2.*	Results of second phase of drip irrigation monitoring, BAFS
1977	Davis, Bertell	*Archaeological Investigations at the Waimānalo Bay State Recreation Area, Ko'olaupoko, Waimānalo, Oahu Island: Phase I, Subsurface Survey*	Coring at Sites 512-513. Site 512 small stratified deposit with cultural features; Site 513 not locate reported burials or cultural deposit
1978	Davis, Bertell	*Subsurface Archaeological Reconnaissance of Selected Areas at Bellows AFS, O'ahu Island*	Reports cultural deposits and human remains from NE Bellows, BAFS
1978	Cox, David W.	*Waimānalo Bay State Recreation Area, Archaeological Monitoring of Fence Line, Water Line, Electrical Line, Sewer Line, Park Development, Phases I and II, Waimānalo, Ko'olaupoko, O'ahu Island (TMK 4-1-15:15)*	1 burial, site 512 outlined

1979a	Beggerly, Patricia	*Archaeological Subsurface Investigation at Waimānalo Bay State Recreation Area, Ko'olaupoko, O'ahu*	18 augur holes with no subsurface cultural deposits
1979b	Beggerly, Patricia	*Archaeological Monitoring and Subsurface Investigation at Waimānalo Bay State Recreation Area, Ko'olaupoko, O'ahu*	No findings
1979	Carter, Laura	*Archaeological Monitoring of Selected Areas at Bellows Air Force Station, O'ahu Island*	Presents data on site -9645 NE Bellows, BAFS
1979	Griffin, Agnes and Martha Yent	*Archaeological Subsurface Investigation at Waimānalo Bay State Recreation Area, Ko'olaupoko, O'ahu.*	Generally confirms absence of culture
1979	State Parks In-house Archaeologic al Team	*Archaeological Monitoring and Subsurface Investigation at Waimānalo Bay State Recreation Area, O'ahu. October 9, 1979-November 1, 1979.*	Not seen
1979	Yent, Martha; and Agnes Griffin	*Bulldozed Areas at Waimānalo Bay State Recreation Area, Ko'olaupoko, O'ahu*	No findings
1980	Beggerly, Patricia (Lovelace & Ota)	*Archaeological Test Coring at Waimānalo Bay State Recreation Area, Memorandum*	No cultural deposits located
1980	Lovelace, George & Jason Ota	*Archaeological Test Coring at Waimānalo Bay State Recreation Area*	No cultural deposits
1980	Ota, Jason	*Archaeological Monitoring at Waimānalo State Recreation Area Memorandum*	Modern trash under parking lot
1980	Riley, Thomas J.	*Archaeological Reconnaissance and Subsurface Testing of Proposed Boathouse Project Site at Bellows AFS, Hawaii*	Presents results of 111 auger borings & 10 1m^2 excavations - minimal findings, BAFS

1981	Kam, Wendell,	*Archaeological Report of a Human Burial at Manana Island, Ko'olaupoko, Waimānalo, O'ahu*	Not seen
1981	Neller, Earl	*Waimānalo Ditch System: Photo Survey*	Photographs of ditches
1981	Rosendahl, Paul H.	*Archaeological Reconnaissance Survey of Proposed Additional Marine Corps Training Areas Bellows Air Force Station Oahu*	Extensive historical summary, BAFS
1981	Rosendahl, Paul H. and Carol L. Silva	*Archaeological Reconnaissance Survey of Proposed Additional Marine Corps Training Areas, Bellows Air Force Station, Oahu, Hawaii*	Surface survey of 356-acre parcel, relocated 5 previously recorded sites, no new sites, BAFS
1982	Tuggle, David	*Archaeological Reconnaissance: Bellows Air Force Station Waimānalo, O'ahu, Hawai'i.*	No significant findings, BAFS
1983	Leidemann, Helen & Paul L. Cleghorn	*Archaeological Monitoring of Vegetation Clearance on Antenna Fields at Bellows Air Force Station, O'ahu, Hawai'i*	Site 3312, gravestone complex 1917 era, BAFS
1983	Sue, Roy K., Martha Yent, and Jason Ota	*Waimānalo Watershed Project and Archaeological Survey of the Solid Waste Collection Site, Waimānalo, O'ahu*	No sites located
1984a	Barrera, William	*Archaeological Services During Installation of Five Replacement Antennas at Bellows Air Force Station, Oahu, Hawaii*	Notes discontinuous but related archaeological deposits, BAFS
1984b	Barrera, William	*Waimānalo, O'ahu: Archaeological Survey at Proposed Well Locations*	Well sites III & IV, no significant findings
1985	Athens, J. Stephen	*Archaeological Monitoring for Soil Coring, Bellows Air Station, Waimānalo, O'ahu.*	No significant findings, BAFS

1985	Griffin, P. Bion	*Test Excavations at the Searex Tower Site, Bellows Field Archaeological Area, Bellows Air Force Station, Waimānalo, O'ahu*	No significant findings, BAFS
1985	Hammatt, Hallett H.	*Letter Report on Archaeological Monitoring at Bellows Air Force Station Post Exchange Site*	Minimal findings, BAFS
1985	Hammatt, Hallett	*Archaeological Monitoring for Fuel Tank Trench at Bellows Air Force Station, Waimānalo, O'ahu*	Notes human bone and fire hearth, BAFS
1985	Hurlbett, Robert E.	*Preliminary Report upon Completion of Fieldwork: Archaeological Reconnaissance and Subsurface Testing for Recreation Library Project Sites, Bellows AFS, O'ahu.*	No significant findings, BAFS
1985	Hurlbett, Robert E., Margaret Rosendahl, & Paul H. Rosendahl	*Archaeological Reconnaissance, Subsurface Testing and Monitoring of Proposed Projects HIC 84-1269, Recreation Library and HIC 86-3221, Recreation Library Utilities Support Project Sites at Bellows AFS, Waimānalo, Ko'olaupoko District, Island of O'ahu, Hawai'i (TMK:1-4-1-15:1),*	No evidence of cultural materials, BAFS
1985	Mc Neill, J. R.	*Archaeological Reconnaissance and Monitoring of Obstacle Course Construction at Bellows Air Force Station, O'ahu, Hawai'i.*	Minimal Findings, BAFS
1985	Neller, Earl	*An Archaeological Reconnaissance of Manana Island, O'ahu*	Not seen
1986a	Athens, Stephen	*Preliminary Report: Archaeological Reconnaissance Survey for Proposed Omni Antenna, Bellows A.F.S., Waimānalo, O'ahu, Hawai'i.*	Mostly transit work, no surface remains, brief synopsis of augering, BAFS

1986b	Athens, Stephen	*Site Summary: Archaeological Deposits at the Bellows A.F.S. Omni Antenna Pad & Trench, Waimānalo, O'ahu*	Presents results of work at Site -1445, BAFS
1986	Kam, Wendell	*Field Inspection of Bellows AFB Picnic Area #6, Waimānalo, Ko'olaupoko, O'ahu, Memorandum,*	Not seen, BAFS
1986	Kam, Wendell	*Bellows Fence Repair Burial.*	Account of human remains uncovered during construction, BAFS
1986	Kam, Wendell	*Investigation of Discovery of Human Skeletal Remains, Bellows AFS, Ko'olaupoko, O'ahu, Letter Report*	Account of human remains uncovered during construction, BAFS
1987	Athens, J. Stephen	*Archaeological Survey and Testing for Airfield Perimeter Fence Project, Bellows Air Force Station*	Designates sites -3709 subsurface cultural deposit and -3710 marsh deposits, BAFS
1987	Pietrusewsky, Michael	*Burial on Rabbit Island, Waimānalo Side, Waimānalo, Ko'olaupoko, O'ahu Island.*, Police, Honolulu; Medical Examiner, Honolulu	Not seen
1987	Spriggs, Matthew	*Report of Radiocarbon Dating Analysis*	Review of carbon dating, BAFS
1988a	Athens, J. Stephen	*Archaeological Reconnaissance and Subsurface Testing, Proposed Omni Antenna and Cable Trench, Bellows Air Force Station, Waimānalo, O'ahu.*	Documents discontinuous subsurface deposits & an area of basalt debitage, BAFS
1988b	Athens, J. Stephen	*Archaeological Survey and Testing for Airfield Perimeter Fence Project, Bellows Air Force Station, Oahu, Hawaii*	2 C14 dates A.D. 1390-1505 A.D. 1400-1525, BAFS
1988	Hammatt, Hallett H.	*Archaeological Reconnaissance of a 3.9-Acre Parcel Adjacent to Sea Life Park, Waimānalo, O'ahu,*	No findings - parcel had been leveled and filled

1988	Hammatt, Hallett H. & Douglas Borthwick	*Archaeological Reconnaissance of the Mauka Portion of Phase II Waimānalo Agricultural Park Waimānalo, O'ahu*	Previously under cane cultivation, notes two taro complexes
1988	McNeill, Judith R.	*Intensive Archaeological Survey and Data Recovery at Site 50-80-15-3709, Bellows Air Force Station, O'ahu, Hawai'i*	Describes essentially intact deposits of site -3709, BAFS
1988	Medical Examiner	*Police and Medical Examiner's Reports on Burial at Kaiona Beach Park, Honolulu*	Not seen
1988	Streck, Charles F. and Farley K. Watanabe	*Archaeological Reconnaissance of Areas Proposed for Emergency Flood Repair and Replacement of Structures, Bellows Air Force Station (BAFS), Waimānalo, O'ahu Island.*	Minimal Findings, BAFS
1989a	Hammatt, Hallett H. & David W. Shideler	*Archaeological Survey and Testing at Bellows Air Force Station for New Antennas and Trench Lines, Waimānalo, Ko'olaupoko, O'ahu*	Delimits cultural deposits in the vicinity of the Bellows runways, BAFS
1989b	Hammatt, Hallett H. & David W. Shideler	*Archaeological Reconnaissance and Subsurface Testing of Proposed KNMD 773133, Park Complex, North Coastal Region of Bellows AFS, Waimānalo, O'ahu, Hawaii.*	Delimits cultural deposits in the vicinity of the NE portion of Bellows, BAFS
1989	McNeill, Judith R.	*Intensive Archaeological Investigations at Site 50-80-15-3709, Bellows Air Force Station, O'ahu, Hawai'i*	Final Report of McNeil 1988, BAFS
1990	McMahon, Nancy; Michele T. Douglas, and Michael Pietrusewsky	*Burial Removal at 41-042 Manana Street, O'ahu, Site No. 50-80-15-4118, TMK: 4-1-05:027.*	Burial of a single individual

1990	Rolett, Barry V.	*University of Hawaii Archaeological Research on Bellows Air Force Station: Report of the 1989 Field School and a Proposal for Further Research in 1990*	Summary of 1989 Reconnaissance and areal excavation, BAFS
1991	Hibbard, Don and Michael Kolb	*Field Inspection of Houselot and Neighboring Area at TMK: 4-1-36:18, Waimānalo, Ko'olaupoko, O'ahu*	Notes a stacked mound and tumbled wall of unknown function
1991	Kawachi, Carol	*Kaupo Beach Park Burials, Waimānalo, Ko'olaupoko, O'ahu.*	Not seen
1991	Miller, Lynn	*Archaeological Monitoring of the Tinker Road Bridge Repair (Replacement) Project, Bellows Air Force Station, Waimānalo, O'ahu Island, Hawai'i.*	Reports cultural evidence of site -511 including 3 distinct occupational levels, BAFS
1992	Carpenter, Alan	*Fieldcheck of Kealakipapa Valley Road Remnants, Makapu'u Head, Maunalua, Ko'olaupoko, O'ahu.*	Presents a historical review and field observations focused on road remnants
1992	Rolett, Barry V.	*1990 Archaeological Excavation at Site 50-80-15-3300 (Bellows Air Force Station, Oahu), Conducted by the University of Hawaii Archaeological Field School*	Results of field school excavation at Site -3300, BAFS
1992a	Shun, Kanalei	*Archaeological Monitoring and Sampling during Installation of Perimeter Security Fencing, Bellows Air Force Station, Waimānalo, Ko'olaupoko District, Island of Oahu, Hawaii*	A.D. 1410-1635 base layer A.D. 430-905 from charcoal in river bank, BAFS
1992b	Shun, Kanalei	*Archaeological Reconnaissance Survey and Subsurface Testing for Proposed Electric Tie Circuit, Bellows Air Force Station, Waimānalo, Ko'olaupoko District, Island of Oahu, Hawaii*	Presents testing results, only remnant localized cultural deposits, BAFS

1993	Athens, J. Stephen & Jerome V. Ward	"Environmental Change and Prehistoric Polynesian Settlement in Hawai'i," *Asian Perspectives*	Scholarly work, BAFS
1993	Cordy, Ross H. and H. David Tuggle	"Bellows, Oahu, Hawaiian Islands: New work and New Interpretations," *Archaeology and Physical Anthropology in Oceania* XI (3)	Scholarly work, BAFS
1993	Dixon, Boyd	*An Archaeological Reconnaissance of Five Board of Water Supply Wells on O'ahu, Hawai'i.*	Waimānalo Well III site - no significant findings
1993	Landrum, Jim & Allan Schilz	*Archaeological Reconnaissance Survey, Monitoring, and Subsurface Testing at the Proposed Mini-Putt Golf Course Site Project KNMD 929122, Bellows Air Force Station, Waimānalo Ahupua'a, Ko'olaupoko District, Island of O'ahu, Hawaii*	4 C14s - A.D. 1259-1489 and A.D. 1280-1530; 1411-1681, 1427-1666 (200 meters from shore, Site 4522, BAFS
1993	Shun, Kanalei	*Archaeological Monitoring and Sampling During Emergency Flood Repair Construction, Waimānalo and Inoaole streams, Bellows Air Force Station, Waimānalo, Ko'olaupoko District, Island of O'ahu, Hawaii*	Cultural deposits, C14 A.D. 1600, A.D. 700, BAFS
1993	Sinoto, Aki and Jeffrey Pantaleo	*Archaeological Surface Assessment and Monitoring of 12.4 Acre Parcel for Hawaii Job Corps Center, Waimānalo, O'ahu*	Not seen
1993	Stride, Mark; Douglas F. Borthwick, and Hallett H. Hammatt	*Archaeological Reconnaissance Survey of the 56 Acres for the Proposed Olomana Golf Course Expansion Area (TMK: 4-1-13:11)*	Only parallel ditches and a reservoir were identified as a site (Site -4524), a component of Site -4042 Waimanalo Sugar Co. infrastructure

1994	Tuggle, H. David	*Archaeological Research of Areas Proposed for the development of Military Family Housing and Expansion of Military Training at Bellows Air Force Station, Oahu*	Site 4853, A.D. 380 to 600, BAFS
1995	Erkelens, Conrad	*Preliminary Report on Archaeological Monitoring and Data Recovery of Underground Storage Tank Removal, Bellows AFS, Waimanalo, Hawai'i*	C14 dates between A.D. 1400 to 1529 (73% probability), BAFS
1997	Carlson, Ingrid	*Archaeological Monitoring of Thirteen Locales for Site Assessment Field Sampling Activities at Bellows Air Force Station, Waimanalo, O'ahu, Hawai'i*	3 archaeological sites are located, no intact cultural deposits were found, BAFS
1997	Dega, Mike, Kyle, Latinis, and Randy Ogg	*Draft-Archaeological Monitoring and Sampling During Excavations for the Removal of Underground Storage Tanks at Bellows Air Force Station Hawai'i, Waimanalo, Ko'olaupoko District, Oahu, Hawai'i*	Understood as a draft of the following study, BAFS
1997	Latinis, D. Kyle, Michael F. Dega and Robert L. Spear	*Archaeological Monitoring and Salvage Data Recovery Excavations for the Removal of Underground Storage Tanks at Bellows AFS Hawai'i, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i.*	Reports site -5464 a disturbed cultural deposit & a human bone, BAFS
1997	Tuggle, David H.	*Final-Archaeological Research of Areas Proposed for Development of Military Family Housing and Expansion of Military Training at Bellows Air Force Station, O'ahu,*	Synthesis and reorganization of archaeological data, BAFS
1998	Carlson, Ingrid	*Archaeological Monitoring for Bellows Excess Lands Engineering Evaluation/Cost Analysis Phase I Field Sampling Activities Bellows Air Force Station, Waimanalo, O'ahu, Hawai'i*	Minimal findings at 13 areas, BAFS

1998	Carlson, Ingrid and Tom Dye	*Archaeological Monitoring Report for Site Investigations at Multiple Sites, Bellows Air Force Station, Waimanalo, Ko'olaupoko District, O'ahu, Hawai'i*	Identifies paleosols, but no cultural materials at two locations, BAFS
1998	Desilets, Michael and Thomas S. Dye	*Archaeological Monitoring and Sampling during Bellows OU7 UST Removal Project, Interim Remedial Action, Phase I, Bellows Air Force Station, Waimānalo, Ko'olaupoko, O'ahu*	Site 50-80-15-4853, Hawaiian-era deposits were located in swales of a beach ridge; large amount of imported rocks & coral, BAFS
1998	Dye, Thomas	*Archaeological Services in Support of the Final EIS for Proposed Expansion of Military Training and the Construction of Improvements to Existing Recreational Resources at Bellows Air Force Station, Waimānalo, Hawai'i*	Presents data on four sites -4851, -4853, -4855, -4857, BAFS
1999	Dye, Thomas and Coral Magnuson	*Archaeological Monitoring for Multiple Dump Sites DP\6, Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu, Hawai'i*	Reports a deeply buried wetland sediment but no direct evidence of taro or other cultivation, BAFS
1999	Marine Option Program	*Waimānalo Landing - Underwater Survey*	Documents machinery, pilings and various pieces of loading equipment
1999	Ogg, Randy and Michael Dega	*Archaeological Monitoring and Sampling During Waterline Replacement at Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i*	Reports results of monitoring of 1.4 kms of trenching - minimal findings, BAFS
2000	Desilets, Michael	*Archaeological Monitoring for Underground Storage Tank Removal on ST II Sites at Bellows AFS Hawai'i*	Documents 3 traditional Hawaiian sites (-4850, -5464, & -383) and 1 military site (-4859), BAFS

2000	Desilets, Michael	*Archaeological Monitoring and Sampling, Interim Removal Action Five Underground Storage Sites -047 Bellows AFS Hawai'i*	Traditionnl Hawaiian cultural remains identified at several POL sites including identification of two new sites -5799 & 5800, BAFS
2000	Eble, Francis and Lisa Anderson	*Results of Archaeological Pre-Construction Subsurface Reconnaissance for Replacement of Beach Cottages at Bellows AFS, Island of O'ahu, Hawai'i*	Reports recovery of cultural remains incl. midden and fishing gear from a disturbed context, BAFS
2000	McGuire, Ka'ohulani and Hallett H. Hammatt	*Archaeological Monitoring Report for the Installation of Light Poles for a Ballfield at Waimānalo Beach Park, Waimānalo, Ko'olaupoko District, Island of O'ahu (TMK: 4-1-003-016)*	Minimal findings
2000	McIntosh, James and Paul L. Cleghorn	*Report on Archaeological Pre-Construction Reconnaissance Subsurface Testing and Sampling for Proposed Housing Facilities Construction, Bellows AFS, Waimānalo, O'ahu Island, Hawai'i, TMK 4-1-15*	Reports on 40 auger and 2 hand excavnted test units - minimal findings, BAFS
2001	Addison, David J.	*Archaeological Subsurface Testing for the Removal of Pipeline Utilities Under the Installation Restoration Program at Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu, Hawai'i*	Reports results of 23 backhoe trenches & 3 test units documenting a wide-spread, partially intact cultural stratum, BAFS
2001	Leidemann, Helen	*Phase I Archaeological Inventory Survey of Housing Replacement at Bellows AFS Hawai'i TMK 1-4-1-15*	N edge of Bellows, minimal findings, BAFS
2001	Perzinski, David, John Winieski and Hallett H. Hammatt	*An Archaeological Monitoring Report for Waimānalo Sandwich Isles Communication Project, Waimānalo, Ko'olaupoko District, O'ahu, Hawai'i (TMK: 4-1-19,20, 21)*	Minimal findings

2002	Farrell, Nancy and Robert L. Spear	*Archival Research and Documentation of Battery Ricker, ST-10 USTS at Sherwood Forest State Park...*	Provides background data on history of Bellows Field area
2002	McGhee, Fred L. and Valerie Curtis	*Archaeological Monitoring and Sampling in Conjunction with Force Protection Installation Bellows Air Force Station*	Minimal findings, BAFS
2002	McIntosh, James and Paul L. Cleghorn	*Report of Archaeological Monitoring and Sampling During Placement of Electrical Poles at Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i, TMK 4-1-15*	Identified several buried cultural deposits at two locales, BAFS
2002	Ogg, Randy and Michael Dega	*Archaeological Testing and Sampling During Removal at Two Underground Storage Tanks at Sherwood Forest State Park, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i*	None of 13 trenches yielded significant cultural resources, BAFS
2002	Perzinski, David, Brian Colin, and Hallett H. Hammatt	*Archaeological Monitoring Report for Waimānalo Kūpuna Housing Project at 41-209 Hauhale Street, Waimānalo Ahupua'a, Ko'olaupoko District, O'ahu Hawai'i (TMK 4-1-19:32)*	3 human burials and a cultural layer are reported (Site -5939)
2002	Roberts, Alice K. S. and Patrick Bowar	*Archaeological Monitoring 8-Inch Waterline Installation Project Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i (DACA 83-00-P-0038)*	Describes a new sub-surface site -5854, BAFS
2002	Roberts, Alice K. S. and Eric W. West	*Archaeological Monitoring and Sampling During Construction of Housekeeping Facilities (BFMV 955000) Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i (DACA 83-01-P-0019)*	No significant cultural remains, BAFS

IV. PLACE NAMES OF WAIMĀNALO

Place names or *wahi pana* ("legendary place" Pukui and Elbert, 1958: 376) are an integral part of Hawaiian culture. "In Hawaiian culture, if a particular spot is given a name, it is because an event occurred there which has meaning for the people of that time"(McGuire, 2000: 23). The *wahi pana* were then passed on through language and the oral tradition, thus preserving the unique significance of the place. Hawaiians named all sorts of objects and places, points of interest which may have gone unnoticed by persons of other cultural backgrounds:

> Hawaiians named taro patches, rocks and trees that represented deities and ancestors, sites of houses and *heiau* (places of worship), canoe landings, fishing stations in the sea, resting places in the forests, and the tiniest spots where miraculous or interesting events are believed to have taken place. (Pukui and Elbert, 1974:x)

An attempt was made to include the proper diacritical marks for all known and generally accepted translations of place names. Making incorrect assumptions about the pronunciation and where to place the diacritical marks in a name can entirely change the meaning of a name, (e.g. *pūʻāʻā*: "scattered; to flee in disorder and fright"; *puaʻa*: "pig, pork"). Therefore, in cases where the pronunciation of a name was uncertain, diacritical marks were not used and no attempt was made to translate the name. In some cases, cultural relationships were made based on the literal translation of the root word.

Place Names of Hawai'i (Pukui *et al.*, 1974) was used as the primary source for all place name translations. Where there were no known translations, a literal translation of the place name was made using the *Hawaiian Dictionary* (Pukui and Elbert, 1986). The intent of the author's to merely present the available information and let the reader come to his own conclusions.

One of the beauties of the Hawaiian language is the dualism in names and the double meanings – the literal meaning and the *kaona* or hidden meaning. It should be remembered that the true significance of a place name lies only with the people who use them and know their history.

Ahiki	*'Ili* in Waimānalo associated with 7 Land Commission Awards; one of three peaks (least pointed one) of Mount Olomana on Waimānalo side, named for the *konahiki* of Kaʻelepūlu and Kawainui fishponds (Pukui *et al.* 1974:5)
Alekini	*'Ili* in Waimānalo associated with 1 Land Commission Award
ʻĀpuakea	Place near coast named for a maiden whose skin was fair Lit. "Fair ʻĀpua" (Alona, Sept. 22, 1939 *Oahu Place Names)*
Bellows	Air Force Base and Beach Park named after Lt. F. B. Bellows

Haununaniho	A small hill said to have been sacred and a place of refuge (McAllister's site 383), see Hūnānaniho.
Hoʻoinuwai	Name of a female uncarved stone image at Waimānalo, location unknown (Sterling and Summers 1978:256)
Hoʻolawa	Name of a male uncarved stone image at Waimānalo, location unknown (Sterling and Summers 1978:256)
Hoʻoneʻe	*'Ili* in Waimānalo associated with 1 Land Commission Award
Hūnānaniho	A hill near ʻĀpuakea, same as Haununaniho. Lit. "tooth concealment" (Alona, Sept. 22, 1939 *Oahu Place Names)*
Inikiolohe	At the Makapuʻu end of Waimānalo was an old *koʻa* or shrine dedicated to the fish goddess Mālei which increased the catch of *moi* and *uhu*
ʻIole	*'Ili* in Waimānalo associated with 2 Land Commission Awards, *Lit.* "Rat"
Kaʻākaupapa	Next to Pāhonu associated with saying "*Papa ke kānaka, papa ke akua, papa nā mea apau* - Multitudes of people, multitudes of gods, all in multitudes" (Alona, Sept. 14, 1939 *Oahu Place Names)*
Kaʻalo	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kaaoao	*'Ili* in Waimānalo associated with 6 Land Commission Awards
Kaeʻe	*'Ili* in Waimānalo associated with 3 Land Commission Awards
Kahalekai	While said to have been a fish shrine this construction in the sea at the Makapuʻu end of Waimānalo is understood as a watchtower or place to watch for canoes (Alona, Sept. 14, 1939 *Oahu Place Names)*
Kahikiea	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kahuelua	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kaʻiliʻili	*'Ili* in Waimānalo associated with 3 Land Commission Awards; Lit. "The pebble" (Pukui *et al.* 1974:68)
Kākalaioa	Rock in the sea off Makapuʻu (named after a thorny bramble -rocks here are as sharp as *kākalaioa* thorns)(Pukui *et al.* 1974:71)

Kalaeki'ona	Coastal point near Kaluahine; Lit. "Excrement Point" The *'alaea* (red earth) here was used in medicine (Alona, Sept. 14, 1939 *Oahu Place Names)*
Kalapueo	General name for the area near Makapu'u (including Kahalekai and Pōhakupa'akiki) that was a scene of fighting between Ka'eo and O'ahu forces in 1783; Lit. "owl proclamation" (owls called on others here to battle) or "rallying-of-the-owls" (Pukui *et al.* 1974:75; Alona, Sept. 14, 1939 *Oahu Place Names)*
Kalāwelukolue	A hill below Olomana and Ahiki where a young chiefess lost her virginity, Lit. "The-day-of-opening-the-vagina" (Alona, Sept. 22, 1939 *Oahu Place Names)*
Kaloloko	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kaluanula	*'Ili* in Waimānalo associated with 3 Land Commission Awards
Kaluahine	Near Makapu'u, where the *milo* trees grow by the lower side of the road, a place where a beautiful maiden lived who when very young turned into an old woman but was still beautiful with the charm and beauty of age. A *ko'a* fishing shrine was located here; Lit. "old woman"(Alona, Sept. 14, 1939 *Oahu Place Names)*
KaluaoPele	An old crater above Puhā a source of *pālolo* clay used for the scalp; Lit. "Pele's pit" (Alona, Sept. 22, 1939 *Oahu Place Names)*
Kaluapalolo	*'Ili* in Waimānalo associated with 2 Land Commission Awards
Kāohikaipu	An off-shore rock near Makapu'u -sometimes the name is (mis)-applied to Moku-Hope Island; Lit. "hold back the container" so called because the rock blocked sea-swept matter (Pukui *et al.* 1974:86)
Kapouli	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kapu'a	Land Division on central coast where Muliwaiolana and 'Āpuakea were killed because the later compared herself to Hi'iaka in beauty (Fornander; *Ka Leo o Ka Lahui*); Lit. "the whistle" (Pukui *et al.* 1974:89). Also said to be "Kapua" - the arrow or dart such as Pikoi-a-ka-'alalā used in rat-shooting there (*Kuokoa* "Pikoi-a-ka-'alalā" December 16, 1865)
Kapua'a	*'Ili* in Waimānalo associated with 2 Land Commission Awards
Kapuiki	*'Ili* in Waimānalo associated with 7 Land Commission Awards

Kaulanaka'iole	A resting place above Kapu'a on a trail traversed by Pikoi-a-ka-'alalā on his way across the Ko'olau to Mānoa and/or a place where Pikoi shot a rat (*Kuokoa* "Pikoi-a-ka-'alalā" December 16, 1865)
Kaulukanu	*'Ili* in Waimānalo associated with 5 Land Commission Awards
Kaupō	Once a fishing village near the present Sea Life Park (McAllister's site 384), previously known as Ko'onāpou (also known as Ke-ana-a-Kapoi and Koanapou); Lit. "landing [of canoes] at night" (Pukui *et al.* 1974:96)
Kaupokuhale	A low hill, half-way up the cliff-side, with a long ridge running from it to the foot of the hill. An abundance of superlative *'awa* was in the vicinity (Alona, Sept. 22, 1939 *Oahu Place Names)*
Kawaikupanaha	Makapu'u side of Puka-kukui, once a pool where people got their water, the road covered it up (Alona, Sept. 14, 1939 *Oahu Place Names)*
Kaweloloko	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kenalakaulae	*'Ili* in Waimānalo associated with 1 Land Commission Award
KeanaaKapoi	At Ko'onāpou (also known as Koanapou and later known as Kaupō) at the present Sea Life Park, this was the home of Kapoi who was a healer and wizard; Lit. the cave of Kapoi (Alona, Sept. 14, 1939 *Oahu Place Names)*
Keanapa'ū	On the east side of Pōhakuloa, a very small spot, Lit. "constantly moist cave" but there is no cave here of any kind - perhaps a figurative reference to a woman (Alona, Sept. 14, 1939 *Oahu Place Names)*
Keawaka'iole	Near Pukakukui, a spot in the sea where there were no waves, a stone on the bottom was given the name; Lit. "the channel of the rat" or "rat's sea port"(Alona, Sept. 14, 1939 *Oahu Place Names)*
Keohe	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kilohana	Understood as the summit of the Niu to Waimānalo Trail (*Kuokoa* February 10, 1922)
Kini	A female sacred rock and fish god that attracted *akule* and *'ō'io* fish and was offered *'awa* and first fish - moved to *mauka* side of Kalaniana'ole by road workers; Lit. "multitudes" (Pukui *et al.* 1974:112)

Koanapou	A variant of Ko'onāpou (also known as Ke-ana-a-Kapoi and later known as Kaupō)
Koha	A place above Kapu'a on a trail traversed by Pikoi-a-ka-'alalā on his way across the Ko'olau to Mānoa (*Kuokoa* "Pikoi-a-ka-'alalā" December 16, 1865)
Ko'onāpou	Once a fishing village near the present Sea Life Park (McAllister's site 384), commonly known as Kaupō (also known as Ke-ana-a-Kapoi and Koanapou); Lit. "staff posts (posts supported thatched roofs of the stone houses in this village)(Pukui *et al.* 1974:117)
Kuikui	Easternmost of four hills (east of highest Māilo) above Waimānalo (Pualewa W. N., *Ke Au Okoa* Nov. 12, 1866)
Kukui	Area on Makapu'u side of Pāhonu that was a scene of fighting between Ka'eo and O'ahu forces in 1793(trenches and earthworks were thrown up there), a small poor fishing settlement; Lit. "Candle-nut lamp, light of any kind" (Pukui *et al.* 1974:122)
Kuli'ou'ou	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kumakaiwa	*'Ili* in Waimānalo associated with 2 Land Commission Awards
Kumuhau	*'Ili* in Waimānalo associated with 7 Land Commission Awards
Kupuna	*'Ili* in Waimānalo associated with 1 Land Commission Award
Kupunakāne	A spring in the uplands that would call out to the Kupunawahine spring on calm sunny days and exchange temperature (become warm) on overcast days (*Hōkū o Hawai'i "Nā 'Ano'ai o O'ahu Nei"* March 11, 1930)
Kupunawahine	A spring in the lowlands that would call out to the Kupunakāne spring on calm sunny days and exchange temperature (become cool) on overcast days (*Hōkū o Hawai'i "Nā 'Ano'ai o O'ahu Nei"* March 11, 1930)
Lanipō	Peak (2,621 feet elevation) where Waimānalo and Kailua meet with Kona District; Lit. "dense (as plant growth)" (Pukui *et al.* 1974:129)
Laukupu	A coastal area later known as Pu'a (Kapu'a) (Alona, Sept. 14, 1939 *Oahu Place Names)*
Luamano	*'Ili* in Waimānalo associated with 2 Land Commission Awards

Maelo	Variant of Māilo, one of four hills above Waimānalo (Pualewa W. N., *Ke Au Okoa* Nov. 12, 1866)
Maha'ilua	*'Ili* in Waimānalo associated with 3 Land Commission Awards; across from Bellows field at the base of the cliff once thickly populated because there was a good water supply (Alona, Sept. 22, 1939 *Oahu Place Names)*
Māilo	The tallest peak said to be named after a strong chief; Lit. "thin" (Alona, Sept. 14, 1939 *Oahu Place Names;* Pukui *et al.* 1974:139)
Makakalo	*'Ili* in Waimānalo associated with 2 Land Commission Awards
Mānana	Off-shore island (67 acres, 200 feet high) popularly known as Rabbit Island (Pukui *et al.* 1974:145)
Maunalua	*'Ili* in Waimānalo associated with 1 Land Commission Award, in 20th century was transferred to Honolulu (Kona) District
Mokuhope	Island (11 acres, 40 feet elevation) off Makapu'u Lit. "island-behind [behind Mānana Island]"
Mokulama	*'Ili* in Waimānalo associated with 3 Land Commission Awards
Mo'oiki	*'Ili* in Waimānalo associated with 5 Land Commission Awards
Muliwaiolena	Famous as a stream mouth or pool of yellow or yellowish-green water near Kapu'a in central coastal Waimānalo (Unua, W. H., *Ke Au Okoa* Dec. 8, 1870)
Nonokio	*'Ili* in Waimānalo associated with 4 Land Commission Awards
Nu'ukauila	Westernmost of four hills (west of highest Māilo) above Waimānalo (Pualewa W. N., *Ke Au Okoa* Nov. 12, 1866)
Ohea	*'Ili* in Waimānalo associated with 5 Land Commission Awards
Olohana Heiau	McAllister thought the name applied to one of the Waimānalo *heiau* he described
Olomahā	Area once thickly populated with a spring and house sites (Alona, Sept. 22, 1939 *Oahu Place Names)*
Pāhonu	*'Ili* in Waimānalo associated with 3 Land Commission Awards; off-shore pond (McAllister site 383-A) where captured turtles were kept for chiefs, Lit. "Turtle enclosure" (Pukui *et al.* 1974:174)

PalioKau	Understood as a dark spot almost at the base of the cliff ascended by the Waimānalo/Niu Trail -perhaps named after the wife of the strong man Māilo (Alona, Sept. 14, 1939 *Oahu Place Names)*
Paliuli	One of four hills (west of highest Māilo) above Waimānalo (Punlewa W. N., *Ke Au Okoa* Nov. 12, 1866)
Panene	*'Ili* in Waimānalo associated with 2 Land Commission Awards
Pueo Heiau	McAllister thought the name applied to one of the Waimānalo *heiau* he described
Pōhakuloa	A large stone on the Makapu'u-side of Puka-kukui - another personage Hi'iaka met (Alona, Sept. 14, 1939 *Oahu Place Names;* Fornander 1919:343)
Pōhakunui	*'Ili* in Waimānalo associated with 7 Land Commission Awards; Lit."Large stone" Location of a small *heiau* (McAllister site 382)
Pōhakupa'akikī	A stone awash in the sea where offerings to the shark god Kamohoali'i were made and where kahuna would pray for healing; Lit. "hard stone" or "stubborn stone".
Poka'a	*'Ili* in Waimānalo associated with 1 Land Commission Award
Pu'a	A constal area later known as Knpu'a (Alona, Sept. 14, 1939 *Oahu Place Names)*
Puahia	*'Ili* in Waimānalo associated with 1 Land Commission Award
Pu'ewai	Name of surf at mouth of Puhā Stream when backed up waters were released, Lit. "Agitated water" (Cummins *The Mid-Pacific Magazine* Sept 1913 p. 235)
Puhā	*'Ili* in Waimānalo associated with 7 Land Commission Awards; Stream, Lit. "a hollow (as in a tree" (Pukui *et al.* 1974:192)
Pukakukui	A channel, not a very straight one leading to a landing place for canoes near Kukui (Alona, Sept. 14, 1939 *Oahu Place Names)*
Pukani	*'Ili* in Waimānalo associated with 1 Land Commission Award
Pu'u kilo i'a	East pf Puhā, here one looked for schools of fish and signaled to the men of the canoes where to go; Lit. "Hill for the sighting of fish" (Alona, Sept. 22, 1939 *Oahu Place Names)*

Pu'u Lon	Peak above Waimānalo (Handy 1940:Vol. 1 p 100)
Pu'uoKaha'i	A sand hill near Makapu'u Beach (different from the Mōkapu hill of the same name); Lit. "Kaha'i's hill" (Alona, Sept. 14, 1939 *Oahu Place Names)*
Pu'u o Kona	Peak above Waimānalo (2,200 feet high); Lit. "hill of leeward" (Handy 1940:Vol. 1 p 100; (Pukui *et al.* 1974:204)
Pu'u o Molokai	A low hill back from the coast in east/central Waimānalo where new-comers from Molokai made their home and kept to themselves (Alona, Sept. 14, 1939 *Oahu Place Names)*
Rabbit Island	Off-shore island (67 acres, 200 feet high) properly known as Mānana
Waikupanaha	*'Ili* (apparently in two pieces one in the uplands and one near the sea) in Waimānalo associnted with 6 Land Commission Awards; a spring in a valley *mauka* of the mill which fed taro patches. (Alona, Sept. 22, 1939 *Oahu Place Names)* Lit. "marvelous water"
WaiLea	Point between Lanikai and Waimānalo (Lit. Water of Lea,(canoe maker's goddess; also the name of a fish god that stands on this point) (Pukui *et al.* 1974:224)
Waimānalo	Name of *Ahupua'a;* Lit. "Potable water" (Pukui *et al.* 1974:225)

V. RESULTS OF COMMUNITY CONSULTATION

As partial fulfillment for the Scope of Work (SOW), consultation with government agencies, various organizations, and the concerned community was conducted to identify knowledgeable *kūpuna* or *kama'āina* who could provide information on the history, previous land use and traditional practices of the study parcel. The organizations consulted included: the State Historic Preservation Division, the Office of Hawaiian Affairs, the O'ahu Island Burial Council, Alu Like, the Neighborhood Board Commission for Waimānalo (Number 32), the Waimānalo Hawaiian Civic Club, the Waimānalo Hawaiian Homes Association, Waimānalo Health Center, and the University of Hawai'i's Oral Research Center. Based on the recommendations by these agencies and organizations attempts were made to contact thirty-one individuals who either live in or have connections to Waimānalo.

It was possible to contact twenty-five of the thirty-one recommended *kūpuna* and *kama'āina*. Most of those contacted stated that anyone who might have had some long-term recollections of the project area have passed on within the last few years. Some of the contacts pointed out that many of the Waimānalo area *kūpuna* are transplants from different parts of the islands who moved there in the early '40s and late '50s with the development of Hawaiian Homestead lands. The individuals contacted who were familiar with the project area recalled only former sugarcane fields and, following the shutdown of cane operations, diversified agricultural land.

An informal interview was conducted with Francisco Tabar at his home in Waimānalo. Frank, as he likes to be called, was born in Waimānalo in 1926. He remembers the project area covered with sugar cane, and after that it was diversified agricultural and farm lands. He mentioned that if anything significant was there before the plantation era it would have been destroyed during the plowing of the fields. At the time fields were plowed the workers would place all the rocks in piles destroying any remaining historic sites. Frank is the oldest former plantation worker alive and living in Waimānalo at this time.

Table 2: Individuals With Whom Consultation was Attempted

Key:
Y=Yes
N=No
A=Attempted (at least 3 attempts were made to contact individual, with no response)
S=Some knowledge of project area
D=Declined to comment
U=Unable to contact, i.e., no phone or forwarding address, phone number unknown
FFF=Fruit Fly Facility

NAME	AFFILIATION	CONTACTED	KNOWLEDGE OF PROJECT AREA	COMMENTS
Adviente, Grace	Hawaiian Civic Club of Waimānalo	Y	S	No comment
Aila, Ku'ulei	Hawaiian Civic Club of Waimānalo	Y	S	Made referral
Alu, Pua	Office of Hawaiian Affairs	Y	N	Made referrals
Aragon, Joseph A.	Waimānalo Neighborhood Board No. 32	Y	S	No comment
Burns, Richard	Waimānalo Public Library	Y	N	No comment
Ellsworth, Phillip and Lilac	Waimānalo Neighborhood Board No. 32	Y	S	Made referrals
Field, Greg	Waimānalo Community Development	Y	N	Made referral
Hale, Lilia (Mama Hale)	Hawaiian Language teacher/ Local resident	Y	N	No comment
Hewitt, Frank	Waimānalo Health Center/Kumu Hula	Y	S	Made referral
Ho, Kekoa	Waimānalo Neighborhood Board (Chair) No. 32	Y	Y	Made referrals
Jourdane, Moffett	SHPD/O'ahu Archaeologist	Y	N	No comment
Kaaihui, Gordon	Local Resident	Y	S	Made referrals
Kaaihui, Joseph	Local Resident	Y	S	Made referrals

Kauhui, Lilian	Local Resident	Y	S	Most of the old timers are gone now
Kalama, Kim and David	Local Residents/Cultural Practitioner	Y	Y	Concerned that the FFF is bad for the community ,made Referrals
Kanahele, Bumpy	Nation of Hawai'i	N	-	No number
Kini, Kalei	O'ahu Island Burial Council	Y	N	No comment
Lo, Jan	Local Resident	A	-	
Makaila, Penny	Local Resident	Y	N	No comment
Markell, Ka'iana	SHPD: Burials Division	Y	N	No comment
McElhowney, Holly	SHPD/Culture and History Branch	Y	S	No comment
Mendoza, Helen	Local Resident	A	-	
Pakelo, Margret	Local Resident	Y	Y	Made referral
Park, Kevin	Local Resident/FFF employee	Y	N	Made referral
Richards, Paul	Waimānalo Hawaiian Homes Association	-	-	No longer work for the Association
Robins, Mary	Local Resident	A	-	
Sang, Tony	Waimānalo Hawaiian Homes Association	Y	N	Most of the *Kūpuna*s are not from the area
Silva, John	FFF employee and local resident	Y	S	Made referrals
Stein, Stuart	FFF employee	Y	N	Made referral
Tabar, Francisco	Co-Chair of Naio Plantation Reunion	Y	Y	Informally interviewed on 11-6-02
Wright, Agnes Kainoa	Hawaiian Civic Club of Waimānalo (Historian)	A	-	

VI. TRADITIONAL CULTURAL PRACTICES

Traditional cultural practices, activities, and sites that may have been or currently are associated with a specific area typically include: hunting, ocean and stream resources, plant gathering, sacred sites, trails, and burials. However, none of these practices, activities and sites can be identified within the present Waimānalo project area. As documented in Section II above, the project area was under cultivation of sugarcane through most of the first half of the 20th century and, following the shutdown of cane operations, was open agricultural land or a vacant lot. These modern activities have permanently altered the project area landscape, leaving no evidence of any Hawaiian cultural practices or activities that might have been associated with the area. The only historic site associated with the area is the Tai-Lee Ditch at the *makai* edge of the project area, which lies outside the project boundaries.

VII. SUMMARY AND RECOMMENDATIONS

By the early 20th century, the project area was leveled and plowed for sugarcane cultivation which continued to the late 1940s. Subsequently the project area reverted to other agriculture or open, undeveloped land. These historic activities have removed any remnants of traditional Hawaiian use and activity within the project area. The community members consulted during the course of this assessment who had any knowledge of the project area could recall only the former sugarcane field. None of the individuals consulted could recall any traditional cultural resources, practices and beliefs that may have been associated with the project area. Neither did anyone mention any ongoing cultural activities associated with the area.

Based on the above considerations, it may be concluded that further development of the project area parcel should have no adverse impact on traditional cultural resources, practices or beliefs. The only precautionary note is the concern for preservation of the Tai-Lee Ditch at the *makai* boundary of the project area.

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Roberts, Alice K. S. and Patrick Bower
2002 *Archaeological Monitoring 8-Inch Waterline Installation Project Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i (DACA 83-00-P-0038)*, GANDA

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2002 *Archaeological Monitoring and Sampling During Construction of Housekeeping Facilities (BFMV 955000) Bellows AFS, Waimānalo, Ko'olaupoko District, O'ahu Island, Hawai'i (DACA 83-01-P-0019)*, GANDA

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1992, 1990 *Archaeological Excavations at Site 50-80-15-3300 (Bellows Air Force Station) Conducted by the University of Hawaii Field School*

Rolett, Barry V.
1990 *University of Hawaii Archaeological Research on Bellows Air Force Station: Report of the 1989 Field School and a Proposal for Further Research in 1990.*

Rosendahl, Paul H.
1981 *Archaeological Reconnaissance Survey of Proposed Additional Marine Corps Training Areas Bellows Air Force Station Oahu*, Archaeological Research Associates, Kurtistown, HI.

Rosendahl, Paul H. and Carol L. Silva
1981 *Archaeological Reconnaissance Survey of Proposed Additional Marine Corps Training Areas Bellows Air Force Station, O'ahu, HI.*

Shun, Kanalei
1993 *Archaeological Monitoring and Sampling During Emergency Flood Repair Construction, Waimanalo and Inoaole Streams, Bellows AFS, Waimanalo, Ko'olaupoko, O'ahu*

APPENDIX E

TRAFFIC ASSESSMENT REPORT

Julian Ng, Incorporated
Transportation Engineering Consultant
P. O. Box 816
Kaneohe, Hawaii 96744-0816

phone: (808) 236-4325
fax: (808) 235-8869
email: jnghi@hawaii.rr.com

October 19, 2006

Mr. Darrell H. Ing, Project Manager
Land Development Division
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

Subject: Traffic Assessment of Kumuhau & Kakaina Subdivisions
Waimanalo, Oahu, Hawaii (TMK 4-1-008:10, 11, 81, 91, & 92 and 4-1-023: 65)

Dear Darrell:

The proposed subdivisions together will create 120 residential lots. An assessment of the potential traffic impact of the addition of 120 homes in Waimanalo has found that the impact will not be significant. This letter provides the details of the assessment and compares the project impact to the recent trends in the growth in traffic volumes on Kalanianaole Highway. Vehicular access to approximately half of the lots will be provided on a new street that will intersect with Kumuhau Street; the remainder of the lots will be served by new or existing streets that tie into Kakaina Street, Hihimanu Street, Poalima Street, or Mekia Street.

Project Traffic Generation

Together, the proposed subdivisions will create 120 new residential lots. Homes will be constructed on the lots over a period of several years. The additional traffic generated at full occupancy of the 120 lots has been estimated using trip rates for suburban detached (single-family) dwellings from the Institute of Transportation Engineers. Table 1 shows the estimates of average weekday (nearest 10) and peak hour (nearest 5) traffic generation.

Table 1 – Traffic Generation

	Trip Rates * detached dwellings		Traffic Generated 120 dwelling units	
	Trips per dwelling	% entering	Total entering	Total exiting
Average weekday	9.57	50%	570	570
AM Peak Hour	0.75	25%	25	70
PM Peak Hour	1.01	63%	75	45

* Source: Institute of Transportation Engineers, *Trip Generation, 7th Edition.*

The traffic generated by the two subdivisions is less than the 100 vehicles per hour in the peak direction that has been suggested by the Institute of Transportation Engineers[1] as the threshold

[1] Institute of Transportation Engineers, *Traffic Access and Impact Studies for Site Development, A Recommended Practice, 1991*

for conducting a traffic impact or site access study. The traffic impact will be further reduced as it will be distributed to the various intersections with Kalanianaole Highway.

Existing Traffic Conditions in the Vicinity of the Proposed Project

Vehicular access to about half of the lots in the proposed subdivisions will be from Kumuhau Street, a two-lane roadway that is one of several local roads serving the agricultural areas in Waimanalo located south (mauka) of Kalanianaole Highway. Traffic on Kumuhau Street must stop before turning onto the highway and separate lanes are provided for left turns and for right turns from Kumuhau Street. Existing peak hour volumes on Kumuhau Street are estimated to be between 90 and 120 vehicles per hour.

Between Kalanianaole Highway and Humuniki Street, a local residential street that serves the approximately 130 existing residential lots in the subdivision northeast of the project site, a distance of approximately 700 feet, ten lots in the adjacent subdivision have direct access to Kumuhau Street. In this area, the street is curbed and the pavement is approximately 40 feet wide. Cars can park parallel along the lot frontages; on the opposite side of the street, parking is not permitted and a portion of the pavement is striped as a roadway shoulder. Beyond the Humuniki Street intersection, Kumuhau Street becomes an uncurbed street, with the pavement width narrowing to approximately 22 feet.

The other half of the lots will have primary access to the highway at either the unsignalized intersection at Mekia Street or the signalized intersection at Poalima Street. Mekia Street is located approximately 900 feet east of Kumuhau Street. Vehicles stopped on Mekia Street will turn either left or right onto the highway from a single lane. Mekia Street is a two-lane roadway that currently serves approximately 65 residential lots; traffic on Mekia Street has to option of turning right onto Lukanela Street, a two-lane local street that parallels Kalanianaole Highway, to get to Poalima Street.

A traffic signal controls the intersection of Kalanianaole Highway and Poalima Street, located approximately 1,600 feet east of Kumuhau Street. Poalima Street is a two-lane roadway, but it has sufficient width at its approach to the intersection with Kalanianaole Highway to allow vehicles wishing to turn right to pass one or two vehicles waiting to turn left.

Kalanianaole Highway (State Route 72), which links East Honolulu with Kailua on the windward side of Oahu, varies in width from two to six lanes. In the vicinity of the proposed project, Kalanianaole Highway is a two-lane roadway with a posted speed limit of 25 miles per hour as it passes through Waimanalo.

Kalanianaole Highway in this area carries approximately 23,000 vehicles per day, using an extrapolation of the estimates of Average Daily Traffic (ADT) that have been developed by the State Department of Transportation. The estimates of ADT in 1999 and 2003 are shown in Table 2, along with an estimate for 2006 ADT. Peak hour volumes have been estimated from "K" and "D" factors for year 2003 from the State's *Traffic Summary* report.

Table 2 – Highway Traffic Volumes

ADT in 1999 **	20,644	
ADT in 2003 **	21,895	
2006 ADT	22,880	
2006 Peak Hours	AM Peak Hour	PM Peak Hour
Westbound	945	950
Eastbound	770	950

** Source: State of Hawaii Department of Transportation Highways Division, *Traffic Summary – Island of Oahu, 2003.*

The high volumes of traffic on the highway during the peak hours result in very long delays for traffic on Kumuhau Street wishing to enter the Kalanianaole Highway. Drivers in the highway stream, which often is slow-moving, have been observed to cede the right-of-way to allow Kumuhau Street traffic onto the highway.

The State of Hawaii Department of Transportation is planning a project to improve Kalanianaole Highway between Olomana Golf Course and Waimanalo Beach Park. The improvement project is intended to increase safety and improve operations on the highway. The proposed improvements will include the addition of left turn lanes at several intersections, including Kumuhau Street and Humuniki Street. The improvements will include shelter lanes for left turning vehicles entering Kalanianaole Highway from the side streets, which will provide more opportunities for those vehicles to enter the highway.

Project Traffic Impact

The project impact will be distributed onto Kumuhau Street (from about 70 lots), Mekia Street (5 lots) and Kakaina Street/Poalima Street (45 lots). At full occupancy, the impact to Kumuhau Street would be to increase traffic volumes by approximately 60% over existing volumes, or from an average of one vehicle every 30-40 seconds to one vehicle every 20-25 seconds during peak hours. The existing two-lane roadway will adequately handle the increased traffic volume. The impacts on Mekia Street, Poalima Street, and Hihimanu Street will be less as each street will serve traffic from a lesser number of lots.

At the unsignalized intersection of Kumuhau Street and Kalanianaole Highway, existing very long delays during peak traffic hours will become longer as traffic volume increases. The left turn lane improvements to Kalanianaole Highway that have been proposed by the State Highways Division will mitigate some of the increased delays. Because traffic volumes on Kumuhau Street are not expected to be high enough to satisfy minimum requirements for changing the intersection from the existing stop sign control to a traffic signal, use of the stop sign control in the future will require that drivers on the highway continue to be courteous and allow Kumuhau Street traffic to enter the highway.

The impact at the unsignalized intersection of Mekia Street and Kalanianaole Highway will be minimal, with an increase of less than 5 vehicles per hour in one direction using the intersection. As is the case at the intersection of Kumuhau Street and Kalanianaole Highway, traffic signals will not be warranted and continued courteous behavior on the part of drivers on the highway will mitigate the delays.

At the signalized intersection of Poalima Street and Kalanianaole Highway, full occupancy of the 45 lots affecting traffic at that intersection will increase traffic volume by up to 46 vehicles in the PM Peak Hour. This volume is expected to increase the number of critical movements at the intersection by 30 vehicles per hour, or about 2.2% of the intersection's capacity (based on capacity at a critical movement sum of 1,400 vehicles per hour).

Project-generated traffic is expected to travel to and from both directions of the highway. If project-generated traffic were distributed onto the highway 75% to the west and 25% to the east, highway volumes would increase by approximately 4% of existing volumes to the west, and by less than 1.5% of existing volumes to the east.

The project impacts to the signalized intersection and to highway volumes described above compare to the average rate of increase in highway traffic volumes from 1999 to 2003 of 1.5% per year. The impact of the project to traffic, therefore, would be similar to that of less than three years of growth, based on recent trends.

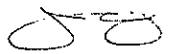
Conclusions

An assessment of the proposed project's traffic impact has found that the impact would not be significant. While impacts to the local street system may be noticeable, the existing streets will be able to accommodate the increases in traffic volumes, estimated to be less than 50 vehicles per hour in one direction at any one location. The impact to traffic volumes on the nearby Kalanianaole Highway will be less than the increase that would be expected in three years, based on recent trends in traffic volumes.

Should you have any questions, please contact me as noted above.

Sincerely,

JULIAN NG, INCORPORATED



Julian Ng, P.E., P.T.O.E.

copy: PBR Hawaii

PTOE is the Professional Traffic Operations Engineer certification from Transportation Professional Certification Board, Inc. For more information, please see http://www.ite.org/certification/PTOE/certification_about.asp

APPENDIX F

LETTERS RECEIVED DURING THE PRE-CONSULTATION PROCESS

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower
1001 Bishop Street #650
Honolulu, HI 96813

Subject: Pre-consultation for DHHL Waimanalo Residential Lots

Dear Mr. Shigekuni:

We are in receipt of your letter dated August 29, 2006 for DHHL Waimanalo Residential Lots.

At this time, we have no comments. We will review the documents and will offer any comment if need. Thank you for the opportunity to review your request and should you have any questions, please feel free to call our office at 586-4185.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

PBR HAWAII

LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

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1001 BISHOP STREET
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E-MAIL: sysadmin@pbrhawaii.com

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WAILUKU OFFICE
1787 WILI PA LOOP, SUITE 4
WAILUKU, HAWAI'I 96793-1271
TEL: (808) 242-2878
FAX: (808) 242-2902

October 17, 2006

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

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Ms. Salmonson:

Thank you for your letter received September 6, 2006. We acknowledge that the Office of Environmental Quality Control has no comments to offer at this time.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent R. Shigekuni

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.honolulu.gov

MUFI HANNEMANN
MAYOR

BOISS

GLEN
PAUL
DEP

OUR REFERENCE BS-DK

September 1, 2006

Mr. Vincent Shigekuni
Vice President, PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

This is in response to your letter of August 29, 2006, regarding a Draft Environmen Assessment Pre-Consultation for the Department of Hawaiian Home Lands Waima Residence Lots (Kumuhau and Kakaina Street Parcels) project.

This project should have no unanticipated impact on the facilities or operations of t Honolulu Police Department.

If there are any questions, please call Major Janna Mizuo of District 4 at 247-2166 Mr. Brandon Stone of the Executive Bureau at 529-3644.

Thank you for the opportunity to comment.

Sincerely,

BOISSE P. CORREA
Chief of Police

By William Chan
for JOHN P. KERR
Assistant Chief of Police
Support Services Bureau

Serving and Protecting with Aloha

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October 17, 2006

Mr. Boisse P. Correa, Chief of Police
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawai'i 96813

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Correa:

Thank you for your letter dated September 1, 2006. We acknowledge your assessment that the project should have no unanticipated impact on the facilities or operations of the Honolulu Police Department.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent R. Shigekuni

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

September 6, 2006

Mr. Vincent Shigekuni
Vice President
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment
Pre-Consultation for the Department of Hawaiian Home Lands (DHHL)
Waimanalo Residence Lots, Kumuhau and Kakaina Street parcels

Thank you for the opportunity to review and comment at the Pre-Consultation stage of the Draft Environmental Assessment relating to the Department of Hawaiian Home Lands (DHHL) development of 120 single family residential lots in Waimanalo.

The addition of 120 new residential units in Waimanalo will impact the City's parks and recreational programs in the Waimanalo community. Historically, DHHL projects have been exempt from the requirements of the City's Park Dedication Ordinance and we are looking forward to seeing how the park and recreation needs of this new community will be addressed.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

LESTER K. C. CHANG
Director

LKCC:mk
(171407)

PBR HAWAII
LAND PLANNING
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ASSOCIATE

SCOTT MURAKAMI
ASSOCIATE

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October 17, 2006

Mr. Lester K.C. Chang, Director
Department of Park and Recreation
City and County of Honolulu
Kapolei Hale
1000 Uluohia Street, Suite 309
Kapolei, Hawai'i 96707

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Chang:

Thank you for your letter dated September 6, 2006. We acknowledge your concern that the addition of 120 new residential units in Waimānalo will impact the City's parks and recreational programs in the Waimānalo community. Historically, DHHL projects have been exempt from the requirements of the City's Park Dedication Ordinance (Section 22-7, Revised Ordinances of Honolulu). We will continue to consult with your department throughout the environmental assessment process to address the park and recreation needs of this new community.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

September 12, 2006

Mr. Vincent Shigekuni
PBR Hawaii
American Savings Bank Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Pre-consultation for Waimanalo Residence Lots

The Department of Education (DOE) has received your letter of August 29, 2006, requesting comments about possible impacts of a 120-lot project proposed by the Department of Hawaiian Home Lands.

Students living in the project would be expected to attend Waimanalo Elementary and Intermediate School and Kailua High School. There is presently sufficient excess capacity at both of the schools to accommodate the new students who will live in the project.

If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

c: Randolph Moore, Acting Assistant Superintendent, OBS
Duane Kashiwai, Public Works Manager, FDB
Arlyne Yonemoto, CAS, Kailua/Kalaheo Complex Areas

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

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RAYMOND T. HIGA, ASLA
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KEVIN NISHIKAWA, ASLA
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October 17, 2006

Ms. Patricia Hamamoto, Superintendent
State of Hawai'i
Department of Education
P.O. Box 2360
Honolulu, Hawai'i 96804

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Ms. Hamamoto:

Thank you for your letter dated September 12, 2006. We acknowledge that there is presently sufficient excess capacity at nearby educational facilities to accommodate the new students who will live in the project.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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LINDA LINGLE
GOVERNOR

ORLANDO "DAN" DAVIDSON
EXECUTIVE DIRECTOR

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

IN REPLY REFER TO:
06:PEO/168

September 12, 2006

Mr. Vince Shigekuni
Vice President
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Re: Pre-Consultation for the Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau and Kakaina Street Parcels Draft Environmental Assessment

Thank you for the opportunity to provide comments on the subject project.

We are generally supportive of the development of the proposed residential lots as they would add to the housing supply.

Sincerely,

Orlando "Dan" Davidson
Executive Director

PBR HAWAII
LAND PLANNING
LANDSCAPE ARCHITECTURE
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October 17, 2006

Mr. Orlando "Dan" Davidson, Executive Director
State of Hawai'i
Department of Business, Economic Development and Tourism
Hawaii Housing Finance and Development Corporation
677 Queen Street, Suite 300
Honolulu, Hawai'i 96813

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Davidson:

Thank you for your letter dated September 12, 2006. We thank you for your support and concur with your assessment that the development of the proposed residential lots would add to the housing supply.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

September 18, 2006

Mr. Vincent Shigekuni, Vice President
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Your Letter Dated August 29, 2006 Regarding Pre-Consultation for the Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Street Parcels Draft Environmental Assessment

Thank you for the opportunity to comment on the proposed project.

The existing water system is presently adequate to accommodate the proposed development. However, please be advised that this information is based upon current data and, therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of your building permit. The final decision on the availability of water will be confirmed when the building permit is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The project is subject to Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the building permit.

The on-site fire protection requirement should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun at 748-5440.

Very truly yours,

for KEITH S. SHIDA
Principal Executive
Customer Care Division

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WAILUKU OFFICE
1787 WILI PA LOOP, SUITE 4
WAILUKU, HAWAI'I 96793-1271
TEL: (808) 242-2878
FAX: (808) 242-2902

October 17, 2006

Mr. Keith S. Shida, Principal Executive
Customer Care Division
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Shida:

Thank you for your letter received September 18, 2006. We offer the following responses to your comments:

1. We acknowledge your statement that the existing water system is presently adequate to accommodate the proposed development. We acknowledge that the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit, and that the final decision on the availability of water will be confirmed when the building permit is submitted for approval.

2. We acknowledge that DHHL will be required to pay the BWS Water System Facilities Charges for resource development, transmission and daily storage.

3. Board of Water Supply Cross-Connection Control and Backflow Prevention requirements will be fulfilled prior to the issuance of the building permit.

4. On-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

O:\JOB16\1682.41 DHHL Waimanalo Homestead Add\Pre Consultation\Comment Letters\BL-06 BWS response.doc

LINDA LINGLE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 12, 2006

PSF: 06HD-135
LD-GM

Mr. Vincent Shigekuni
Vice President, PBR Hawaii
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Shigekuni:

Subject: Pre-Consultation for the Department of Hawaiian Home Lands Waimanalo Residence Lots, Kumuhau, and Kahaina Street Parcels Draft Environmental Assessment

This is in response to your August 29, 2006 request for comments on the above referenced subject.

Parcels 10, 81, 91 and 92 are found in Tax Map Key: 4-1-08, however, your letter lists them as in Tax Map Key: 4-1-23. These parcels, which comprise a portion of the Department of Hawaiian Home Lands' (DHHL) proposed Waimanalo Residence Lots, are State-owned lands that have not yet been conveyed to DHHL by the Department of Land and Natural Resources (DLNR). DLNR will be conveying the parcels to DHHL in their entirety, together with any ditches, channels, roadways, etc. that cross over and/or under the parcels and all encumbrances recorded and unrecorded, if any.

When preparing the environmental assessment please be sure that the study area includes parcels 10, 81, 91 and 92 in their entirety and in particular that part of parcel 91 above and below the roadway extension connecting Mekia Street to Kakaina Street and also the roadway extension itself.

If you have any questions, please contact Gary Martin at 587-0421. Thank you.

Sincerely,

RUSSELL Y. TSUJI
Administrator

cc: Central/District Files

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LAND PLANNING
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SCOTT MURAKAMI
ASSOCIATE

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FAX: (808) 242-2902

October 17, 2006

Mr. Russell Y. Tsuji, Administrator
State of Hawai'i
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Tsuji:

Thank you for your letter received September 12, 2006. We offer the following responses to your comments:

Thank you for pointing out that Parcels 10, 81, 91 and 92 are found in Tax Map Key: 4-1-08. The DHHL Waimānalo Residence Lots Draft EA will include parcels 10, 81, 91 and 92 in their entirety.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2276

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

September 19, 2006

Mr. Vincent Shigekani, Vice President
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813-3484

RECEIVED
SEP 20 2006
PBR HAWAII

Dear Mr. Shigekani:

Subject: Pre-Consultation Environmental Assessment
Waimanalo Residence Lots
Department of Hawaiian Home Lands

Thank you for your notification on the subject project.

The project will contribute additional traffic to and from the nearby State highway. A traffic assessment report should be done for the agency developing the land and the report should be included with the environmental assessment that you are preparing.

As an interested party, we would appreciate receiving at least four (4) copies of the environmental assessment when it is completed.

We appreciate the opportunity to provide our comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

c: Micah Kane, Department of Hawaiian Home Lands

PBR HAWAII
LAND PLANNING
LANDSCAPE ARCHITECTURE
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ASSOCIATE

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ASSOCIATE

SCOTT MURAKAMI
ASSOCIATE

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FAX: (808) 242-2902

October 17, 2006

Mr. Rodney K. Haraga, Director of Transportation
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Haraga:

Thank you for your letter received September 19, 2006. We offer the following responses to your comments:

1. As suggested a traffic assessment report will be prepared and included in the *DHHL Waimānalo Residence Lots Draft Environmental Assessment.*

2. Please be assured that your agency will receive at least four (4) copies of the *DHHL Waimānalo Residence Lots Draft Environmental Assessment* when it is available for review.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813 • AREA CODE 808 • PHONE: 527-5311 • FAX: 527-5496

MUFI HANNEMANN
MAYOR

DEBORAH KIM MORIKAWA
DIRECTOR

MARK K. OTO
SENIOR ADVISOR

September 15, 2006

Mr. Vincent Shigekuni
Vice President, PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

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SEP 2 0 2006
PBR HAWAII

Dear Mr. Shigekuni:

Subject: Pre-Consultation for the Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau, and Kakaina Street Parcels Draft Environmental Assessment

Thank you for your letter dated August 29, 2006 seeking our comments on the above draft environmental assessment. We have no comments at this time. However, we look forward to receiving a copy of the draft environmental assessment. After reviewing the draft, we will be able to offer our comments.

Sincerely,

Deborah Kim Morikawa
Director

DKM:sk

PBR HAWAII
LAND PLANNING
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ASSOCIATE

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ASSOCIATE

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October 17, 2006

Ms. Deborah Kim Morikawa, Director
Department of Community Services
City and County of Honolulu
715 South King Street, Suite 311
Honolulu, Hawaii 96813

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Ms. Morikawa:

Thank you for your letter received September 15, 2006. We acknowledge that the Department of Community Services has no comments to offer at this time.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4564 • Fax: (808) 523-4567
Web site: www.honolulu.gov

MUFI HANNEMANN
MAYOR

EUGENE C. LEE, P.E.
DIRECTOR

CRAIG I. NISHIMURA, P.E.
DEPUTY DIRECTOR

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SEP 28 2006
PBR HAWAII

September 26, 2006

Mr. Vincent Shigekuni, Vice President
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: Pre-consultation for the Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Street Parcels Draft Environmental Assessment.

Thank you for giving us the opportunity to comment on the above Draft Environmental Assessment.

The Department of Design and Construction has the following comments:

- A sewer connection application should be submitted to the Department of Planning and Permitting.
- The Environmental Assessment should address the impact on the two, possibly three bridges within the project area. The developer's engineer should check and verify the load limit capacity of each bridge, to ensure that any heavy equipment expected to be used are within these load carrying capacities.

Should you have any questions, please contact Craig Nishimura, Deputy Director, at 523-4716.

Very truly yours,

Eugene C. Lee, P.E.
Director

ECL:lt (171165)

c: DDC Civil Division
DDC Wastewater Division

PBR HAWAII
LAND PLANNING
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October 17, 2006

Mr. Eugene C. Lee, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Lee:

Thank you for your letter received September 26, 2006. We offer the following responses to your comments:

1. A sewage connection application will be submitted to the Department of Planning and Permitting

2. The *DHHL Waimānalo Residence Lots Draft Environmental Assessment* will address the proposed project's impact on the two, possibly three bridges within the project area. During the construction bid process, the contractors will be informed that the site may need to be reached via roads that cross small bridges and it will be the responsibility of the contractor and subcontractors to verify the load capacity of each bridge that may be crossed to ensure that the weight of any heavy equipment expected to be used and/or vehicle transporting materials/machinery is within the bridges' load carrying capacity.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
636 SOUTH STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 723-7139 • FAX: (808) 723-7111 • INTERNET: www.honolulufire.org

MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

September 25, 2006

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SEP 28 2006
PBR HAWAII

Mr. Vincent Shigekuni
Vice President
PBR Hawaii
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Preconsultation on a Draft Environmental Assessment
Department of Hawaiian Home Lands, Waimanalo Residence Lots
Kumuhau and Kakaina Street Parcels
Tax Map Keys: 4-1-008: 011
4-1-023: 010, 065, 081, 091, and 092

In response to your letter of August 29, 2006, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) reviewed the material you provided and requires that the following be complied with:

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access road as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1.)

2. Provide a water supply, approved by the county, capable of supplying the required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

   On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of the 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2, as amended.)

3. Submit civil drawings to the HFD for review and approval.

In addition, please note that our new address is:

Honolulu Fire Department
636 South Street
Honolulu, Hawaii 96813-5007

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/SK:bh

PBR HAWAII
LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

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SCOTT ABRIGO
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SCOTT MURAKAMI
ASSOCIATE

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TEL: (808) 242-2878
FAX: (808) 242-2902

October 17, 2006

Mr. Kenneth G. Silva, Fire Chief
Honolulu Fire Department
City and County of Honolulu
636 South Street
Honolulu, Hawaii 96813

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Silva:

Thank you for your letter received September 25, 2006. We offer the following responses to your comments:

1. Fire apparatus access roads shall be designed and constructed in accordance with the Uniform Fire Code, Section 902.2.1.
2. Water infrastructure shall be designed and installed in accordance with the Uniform Fire Code, Section 903.2, as amended.
3. Civil drawings will be submitted to your Department for your review and approval.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

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DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
1000 Ulohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 692-5054 • Fax: (808) 692-5857
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LAVERNE HIGA, P.E.
DIRECTOR AND CHIEF ENGINEER

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

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OCT 04 2006
PBR HAWAII

IN REPLY REFER TO:
DRM 06-998

October 4, 2006

Mr. Vincent Shigekuni
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: **Pre-Consultation for the Department of Hawaiian Home Lands (DHHL) Waimanalo Residence Lots, Kumuhau and Kakaina Streets**

Thank you for the opportunity to review and comment on the pre-consultation for the subject Department of Hawaiian Home Lands (DHHL) residential subdivision project.

We have no existing or planned projects that will have impact on the DHHL proposed subdivision. We also have no comments regarding the subdivision to make at this time.

Should you have any questions, please call Charles Pignataro of the Division of Road Maintenance, at 484-7697.

Sincerely,

Laverne Higa , P.E.
Director and Chief Engineer

LH:sm

PBR HAWAII
LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

WM. FRANK BRANDT, FASLA
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PRINCIPAL

TOM SCHNELL, AICP
SENIOR ASSOCIATE

RAYMOND T. HIGA, ASLA
SENIOR ASSOCIATE

KEVIN NISHIKAWA, ASLA
ASSOCIATE

KIMI MIKAMI YUEN
ASSOCIATE

SCOTT ABRIGO
ASSOCIATE

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October 17, 2006

Ms. Laverne Higa, P.E., Director and Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street, Suite 215
Kapolei, Hawaii 96707

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Ms. Higa:

Thank you for your letter received October 4, 2006. We acknowledge your statement that the Department of Facility Maintenance has no existing or planned projects that will have an impact on the DHHL proposed subdivision. We also acknowledge that the Department of Facility Maintenance has no comments to offer at this time.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL

O:\JOB16\1682.41 DHHL Waimanalo Homestead Add\Pre Consultation\Comment Letters\BL-12 DFM response.doc

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

RICHARD F. TORRES
DEPUTY DIRECTOR

October 19, 2006

TP8/06-171137R

Mr. Vincent Shigekuni, Vice President
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: DHHL Waimanalo Residence Lots, Kumuhau and Kakaina Streets Parcels

Thank you for your August 29, 2006 letter, requesting our pre-consultation comments on the subject project. We have the following comments for your consideration as you prepare the draft environmental assessment (EA):

1. The EA should discuss probable transportation impacts, including short-term impacts during construction, and proposed mitigation measures.
2. The planning and design of subdivision roads should conform to City and County of Honolulu roadway standards.
3. The project must be designed to Americans with Disabilities Act Accessibility Guidelines standards.
4. The area neighborhood board, as well as community residents, businesses, emergency personnel, bus personnel, etc., should be kept apprised of the details of the proposed project and the impacts the project may have on the adjoining local street network area.

We look forward to reviewing the draft EA. Should you have any questions regarding these comments, please contact Ms. Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

MELVIN N. KAKU
Director

PBR HAWAII
LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

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October 20, 2006

Mr. Melvin N. Kaku
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

SUBJECT: DEPARTMENT OF HAWAIIAN HOME LANDS (DHHL) WAIMĀNALO RESIDENCE LOTS, KUMUHAU AND KAKAINA STREET PARCELS DRAFT ENVIRONMENTAL ASSESSMENT – PRE-CONSULTATION COMMENTS

Dear Mr. Kaku:

Thank you for your letter received October 19, 2006. We offer the following responses to your comments:

1. As suggested, the *DHHL Waimānalo Residence Lots Draft Environmental Assessment* will discuss probable transportation impacts, including short-term impacts during construction, and proposed mitigation measures. A Traffic Assessment Report has been conducted for the Kumuhau and Kakaina Streets Subdivision and is summarized in the Draft EA. During project construction, area residents may experience a slight increase in traffic delays in the Kumuhau and Kakaina Streets Subdivision. Careful consideration will be given to area residents during the construction of roadway improvements. Project-related construction will occur only during daytime hours. Area residents will be kept apprised of the details of the proposed project.

2. The planning and design of subdivision roads will conform to City and County of Honolulu roadway standards.

3. The project will be designed to Americans with Disabilities Act Accessibility Guidelines standards.

4. The area neighborhood board, as well as community residents, businesses, emergency personnel, bus personnel, etc., will be kept apprised of the details of the proposed project and the impacts the project may have on the adjoining local street network area.

Thank you again for your participation in the preparation of the upcoming Environmental Assessment. If you have any questions regarding this project, please do not hesitate to contact me at 521-5631.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Darrell Ing/DHHL