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DEPUTY TO THE CHAIRMAN

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

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

January 15, 2015

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MEMORANDUM

TO: Jessica Wooley, Director
Office of Environmental Quality Control

FROM: Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

SUBJECT: Draft Environmental Assessment and Anticipated Finding of No Significant Impact for the Waimea Nui Regional Community Development Initiative Development Plan TMK: (3)-6-4-38:11 (por.)

The Department of Hawaiian Home Lands (DHHL) hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI) for the development plan of the Waimea Nui Regional Community Development Initiative situated at TMK (3)-6-4-38:11(por.), in the South Kohala District on the island of Hawaii for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact Andrew Choy, DHHL Planner, at 808-620-9279.

Enclosures

AGENCY ACTIONS
SECTION 343-5(B), HRS
PUBLICATION FORM (FEBRUARY 2013 REVISION)

Project Name: Waimea Nui Regional Community Development Initiative
Island: Hawai'i Island
District: Waimea
TMK: (3)-6-4-38:011 (por.)
Permits: FAA Form 7460-1 Notice of Proposed Construction or Alteration Approval, State DOA Application for Irrigation Water Service, State DOA Approval for use of agriculture water for potable uses, DHHL Land Use Amendment, National Pollution Discharge Elimination System (NPDES) General Permit, DOH CWB Approval of wastewater system construction documents, DOH SDWB Approval of water treatment system construction documents, DOH Wastewater Branch Approval of wastewater system construction documents, HAR Title 19 Department of Transportation Permit to construct or use land located within flight aviation easement, HRS 6-E Historic Preservation Review Clearance, County Building Permit, County Electrical Permit, County Plumbing Permit, County Sign Permit,County Outdoor Lighting Permit, County Grading and Grubbing Permit, County Driveway Connection Permit, County Approval of construction drawings

Proposing/Determination Agency: Department of Hawaiian Home Lands, 91-5420 Kapolei Parkway, Kapolei, HI 96707.
Contact: Andrew Choy, 808-620-9279

Consultant: Group 70 International, 925 Bethel Street, 5th Floor, Honolulu, HI 96813
Contact: Mark Kawika McKeague, 808-523-5866

Status (check one only):

_**X**_DEA-AFNSI — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.

__FEA-FONSI — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

__FEA-EISPN — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day consultation period ensues upon publication in the periodic bulletin.

__Act 172-12 EISPN — Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.

__DEIS — The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.

__FEIS — The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may

send both the summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

__ Section 11-200-23 Determination

The accepting authority simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the proposing agency. No comment period ensues upon publication in the periodic bulletin.

__Section 11-200-27 Determination

The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.

__Withdrawal (explain)

Summary (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page)**:**

Located on 114 acres of Department of Hawaiian Home Lands in the Puʻukapu homestead, the Waimea Nui Regional Community Development Initiative (WNR-CDI) is based upon a 40-year vision of the Waimea Hawaiian Homesteaders' Association (WHHA) community. Approximately 28 acres will be developed to provide a homestead cemetery/chapel and columbarium; a community agriculture complex which includes a community agricultural park, a green waste biodigester with an electric grid, post-harvest facility, and commercial kitchen; an equestrian center and support facilities; and a golf facility inclusive of a practice course, driving range, chipping and putting area, and a clubhouse.

The project will enable the Puʻukapu homestead community to meet targeted goals of economic self-sufficiency through a dedicated program centered on the community lifestyle of Waimea, including agricultural, equestrian, and recreational activities while also providing the first homestead cemetery for families from the area. The WNR-CDI helps fulfill the purpose of the Hawaiian Homes Commission Act through fully supporting self-sufficiency and self-determination for native Hawaiians, as well as preserving Native Hawaiian values, traditions, and culture for generations. The DEA evaluates construction and operational impacts on environmental, archaeological, and cultural resources; utility infrastructure, roadway, and traffic conditions; and projected socio-economic benefits and costs.

WAIMEA NUI REGIONAL COMMUNITY DEVELOPMENT INITIATIVE

TMK: (3) 6-4-38:011 (por.)
Pu'ukapu, Waimea, Island of Hawai'i

Draft Environmental Assessment

Applicant:

HAWAIIAN HOME LANDS

Approving Agency:
Department of Hawaiian Home Lands
Hawaiian Homes Commission
Honolulu, Hawai'i

Prepared By:

GROUP 70 INTERNATIONAL

February 2015

WAIMEA NUI REGIONAL COMMUNITY DEVELOPMENT INITIATIVE

TMK (3) 6-4-38:011 (por.)
Waimea, Island of Hawai'i

Draft Environmental Assessment

This environmental document is prepared in accordance with the requirements of Chapter 343, HRS and Hawai'i Administrative Rules, Title 11, Department of Health.

Applicant:
Department of Hawaiian Home Lands
91-5420 Kapolei Parkway
Kapolei, Hawai'i 96707

Prepared By:
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawai'i 96813

February 2015

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E. Preliminary Engineering Report – Group 70 International, Inc.
F. Traffic Impact Assessment Report – Traffic Management Consultant, Inc.

ABBREVIATIONS/ACRONYMS

ADA	Americans with Disabilities Act
AIS	Archaeological Inventory Survey
ALISH	Agricultural Lands of Importance to the State of Hawai'i
APHIS	Animal and Plant Health Inspection Service
BMP	Best Management Practices
CZM	Coastal Zone Management
CZO	Comprehensive Zoning Ordinance
DHHL	State Department of Hawaiian Home Lands
DLNR	State Department of Land and Natural Resources
DNL	Day-Night Average Sound Level
DOT	State Department of Transportation
DOT-AIR	State Department of Transportation, Airports Division
DWS	County of Hawai'i Department of Water Supply
EA	Environmental Assessment
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FIRM	Flood Insurance Rate Maps
GPD	Gallons Per Day
HAR	Hawai'i Administrative Rules
HHC	Hawaiian Homes Commission
HHCA	Hawaiian Homes Commission Act
HRS	Hawai'i Revised Statutes
HSPL	Hawai'i State Public Library
KfA	Kīkoni very fine sandy loam, 0 to 3 percent slopes
KXC	Kīkoni very fine sandy loam, 3 to 12 percent slopes
LCA	Land Commission Awards
LOS	Levels of Service
LUPAG	Land Use Pattern Allocation Guide
MOA	Memorandum of Agreement
MG	Million Gallons
MSL	Mean Sea Level
NOx	Mono-nitrogen oxides NO and NO_2
NPDES	National Pollutant Discharge Elimination System
SHPD	State Historic Preservation Division
SK-CDP	South Kohala Community Development Plan
SO_2	Sulfur Dioxide
TIAR	Traffic Impact Analysis Report
TMDL	Total Maximum Daily Loads
TMK	Tax Map Key
UIC	Underground Injection Control
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDA NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
UXO	Unexploded Ordinance
vph	Vehicles Per Hour

WHHA	Waimea Hawaiian Homesteaders' Association
WIS	Waimea Irrigation System
WMC	Waimea very fine sandy loam, 6 to 12 percent slopes
WNCDC	Waimea Nui Community Development Corporation
WNR-CDI	Waimea Nui Regional Community Development Initiative

Section 1.0

PROJECT SUMMARY

1.0 INTRODUCTION

This Draft Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, HRS and Hawai'i Administrative Rules, Title 11, Department of Health. The proposed action involves the use of public lands owned by the State of Hawai'i Department of Hawaiian Home Lands.

1.1 PROJECT INFORMATION SUMMARY

Type of Document:	Environmental Assessment (EA)
Applicant:	Department of Hawaiian Home Lands 91-5420 Kapolei Parkway Kapolei, HI 96707 Andrew Choy, Planner
Accepting Authority:	Hawaiian Homes Commission Department of Hawaiian Home Lands Hale Kalaniana'ole 91-5420 Kapolei Parkway Kapolei, HI 96707
Project Name:	Waimea Nui Regional Community Development Initiative
CH. 343, HRS Trigger:	Use of State lands and funds
Project Location:	Pu'ukapu, Waimea, Island of Hawai'i (*Figure 1-1*)
Tax Map Key:	(3) 6-4-38:011(por.)
Landowner:	State of Hawai'i, Department of Hawaiian Home Lands
Project Area:	Approximately 114 Acres
DHHL Existing Land Use:	General Agriculture (*Figure 1-3*)
State Land Use District:	Agricultural (*Figure 1-4*)
Hawai'i County General Plan:	Intensive Agriculture (*Figure 1-5*)
Hawai'i County Zoning:	A-40a (*Figure 1-6*)
SMA:	Not in SMA
Flood Zone:	FIRM Zone X (outside 500-year flood plain)
Other Permits Required:	Grading and ministerial building permits
Anticipated Determination:	Finding of No Significant Impact (FONSI)

1.2 PROJECT SITE

The Waimea Nui region of Hawai'i Island covers over 27,000 acres of Hawaiian Homestead Lands, on which 536 leases have been awarded. The homestead is part of the Waimea Census County Division, which has a total population of about 9,212 people according to 2010 Census data, representing a 31.1% increase since 2000. The project site is located in the Pu'ukapu Homestead Farm Lots subdivision, which are located in the southeast section of Waimea. Situated on TMK (3)-6-4-38:011 (por.), the site surrounds the western and southern borders of Kanu O Ka 'Āina Learning 'Ohana Charter School, and is located northeast of the Waimea-Kohala Airport (*Figure 1-1*). Primary vehicular access to the project site is from Kamāmalu Street/Hi'iaka Street, which branches off from the main Māmalahoa Highway (I-19). Looking south from the project site, Mauna Kea and expanses of rolling pastoral lands can be seen. Other views, looking north and east, include Kanu O Ka 'Āina Learning 'Ohana Charter School and residential homes of the Waimea Homestead community.

1.3 OVERVIEW OF PROPOSED PROJECT

The Waimea Hawaiian Homesteaders' Association (WHHA) and its subsidiary organization, the Waimea Nui Community Development Corporation (WNCDC) have been actively conceptualizing a community development project for over 40 years to address the cultural, economic, and social needs of the Waimea area and of Waimea Homestead families in particular. The Waimea Nui Regional Community Development Initiative (WNR-CDI) was developed based upon the ideas and concepts articulated by the homestead community. It also incorporates the long-term visions of both WHHA and the Department of Hawaiian Home Lands (DHHL), as outlined in the DHHL Waimea Regional Plan (2012). The WNR-CDI proposes the following components: a homestead cemetery/chapel which includes a columbarium; a community agriculture complex inclusive of a community agricultural park, a green waste biodigester with electric grid, a post-harvest facility, and commercial kitchen; an equestrian center; and a golf facility inclusive of playing greens, driving range, chip and putt, and a clubhouse.

The WNR-CDI will enable the homestead community to meet their goals of self-sufficiency through a dedicated program of economic opportunities centered on agricultural, equestrian, and recreational activities while also ensuring a revered cemetery space for those individuals that wish to be buried within their homelands. Moreover, the WNR-CDI will aid in fulfilling the purpose of the Hawaiian Homes Commission Act and the Hawaiian Home Lands program, through fully supporting self-sufficiency and self-determination for native Hawaiians, as well as preserving Native Hawaiian values, traditions, and culture.

1.4 PURPOSE OF ENVIRONMENTAL ASSESSMENT

The Environmental Assessment is prepared in compliance with Hawai'i Revised Statutes, Chapter 343, which requires that any program or project that proposes the use of State or County lands or funding must undergo an environmental review. The WNR-CDI proposes to use State land, as it is located on a DHHL Homestead lands, and would require the use of State funds.

1.5 AGENCIES AND PUBLIC CONTACTED IN PRE-CONSULTATION PROCESS

The following agencies and groups having jurisdiction or a potential interest in the on-going development of the WNR-CDI have been consulted for this pre-consultation period.

Federal Agency
U.S. Army Corps of Engineers, Honolulu District
U.S. Department of Agriculture
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service

State of Hawai'i Agencies
State of Hawai'i Department of Agriculture
State of Hawai'i Department of Business, Economic Development & Tourism, Planning Office
State of Hawai'i Department of Hawaiian Home Lands
State of Hawai'i Department of Health
State of Hawai'i Department of Land and Natural Resources
State of Hawai'i Department of Land and Natural Resources, State Historic Preservation Division
State of Hawai'i Department of Transportation, Airports Division
State of Hawai'i Office of Environmental Quality Control
Office of Hawaiian Affairs
State of Hawai'i Senate District 4, Senator Lorraine Inouye
State of Hawai'i House District 7, Representative Cindy Evans

County of Hawai'i Agencies
County of Hawai'i Department of Environmental Management
County of Hawai'i Department of Parks and Recreation
County of Hawai'i Department of Public Works
County of Hawai'i Department of Water Supply
County of Hawai'i Planning Department
County of Hawai'i Council District 9, Councilwoman Margaret Wille

Community Groups and Associations
Waimea Hawaiian Homesteaders' Association
Waimea Community Association
Parker Ranch
South Kohala Community Development Plan Action Committee

1.6 KEY ISSUES IDENTIFIED IN PRECONSULTATION

Key issues identified by respondent agencies include the following (in no prioritized order): compatibility of uses with applicable land use policies; protection of bird species that may occasionally fly through or nest within project area; floodplain, stormwater retention, runoff, and drainage; earthwork and grading; compliance to building codes; traffic; water quality; additional coordination with other agencies; and relationship to airport activities. These issues are discussed within their respective sections of this EA. Preconsultation comment letters and their respective responses are included in Appendix A.

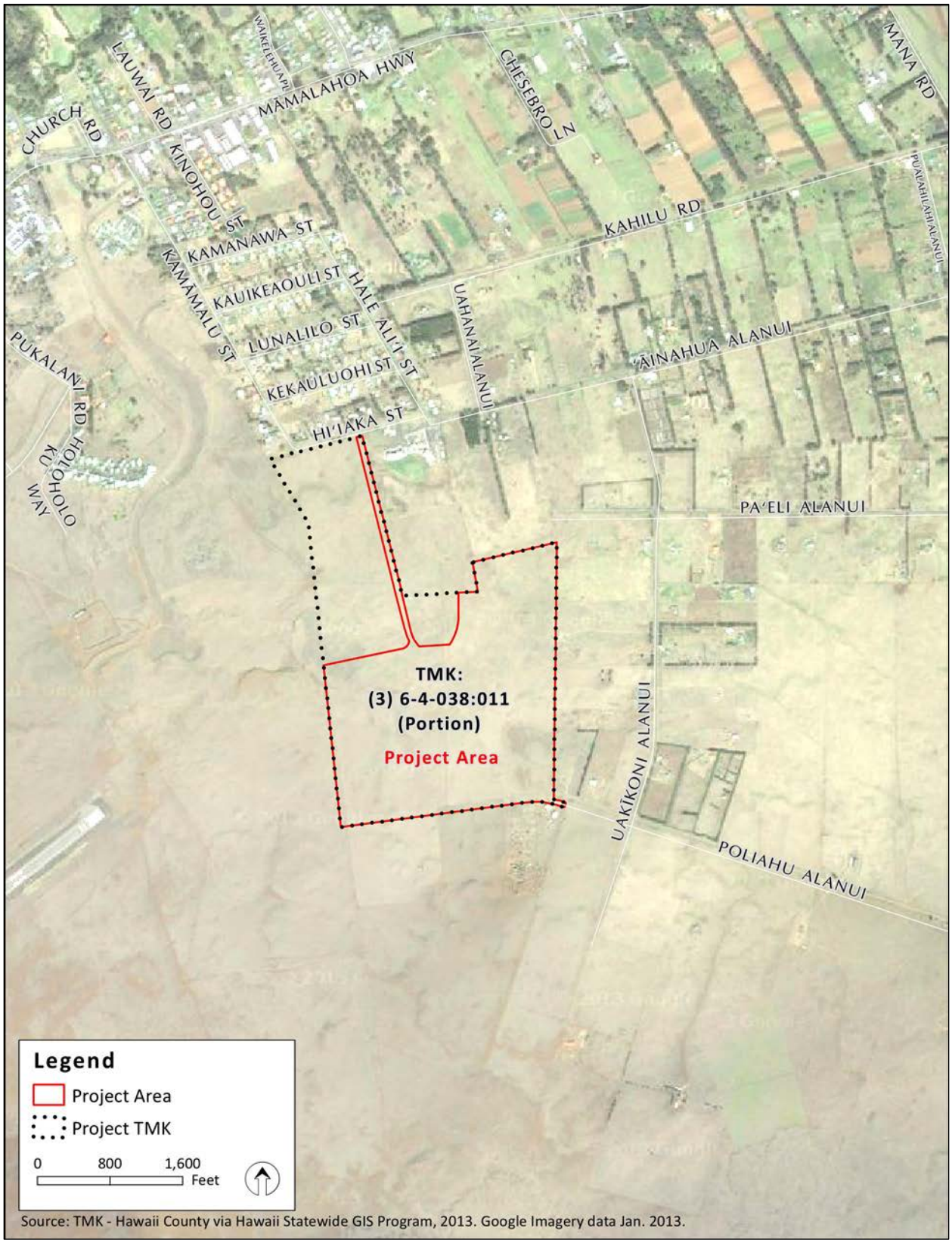
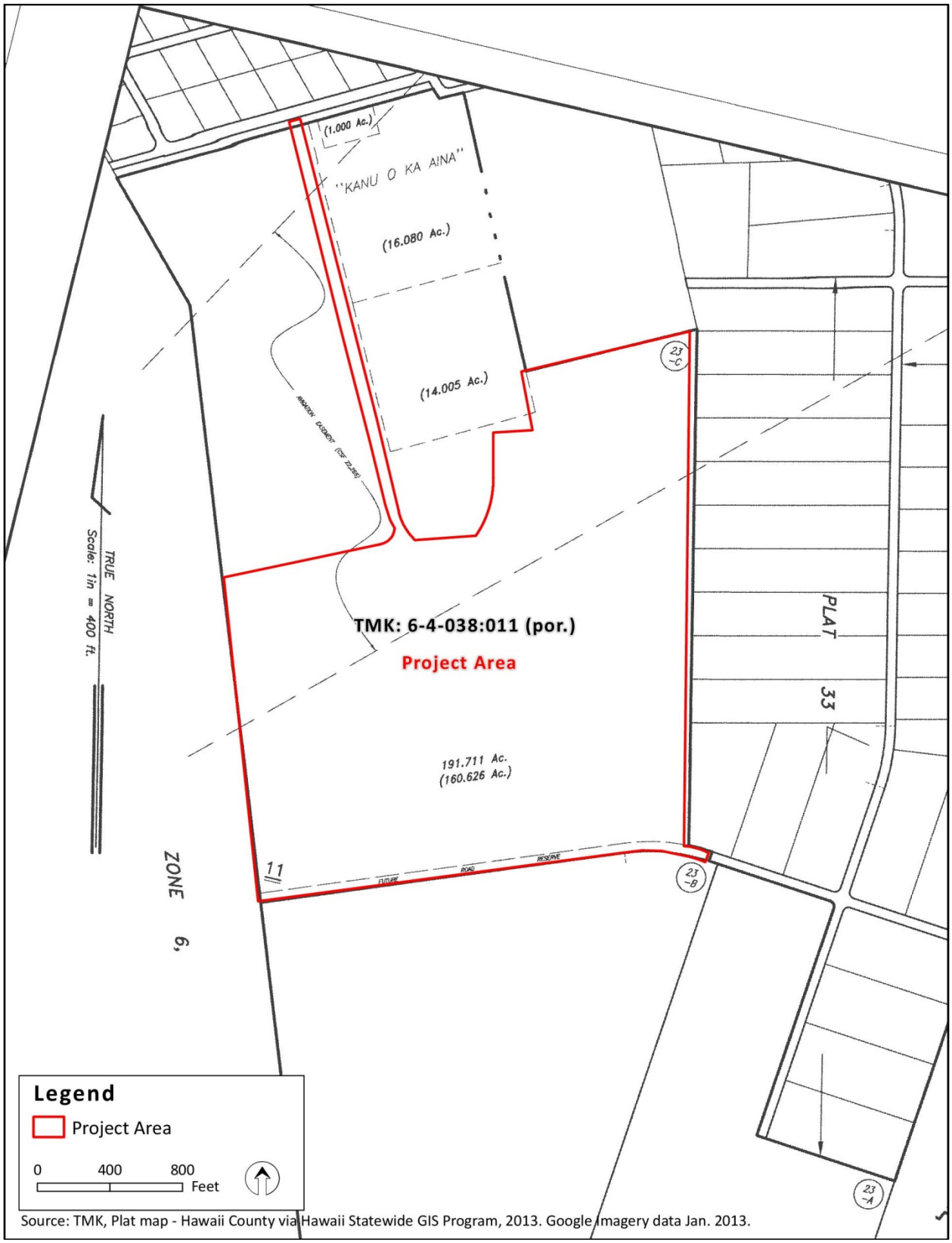


Figure 1-1: Project Location



Source: TMK, Plat map - Hawaii County via Hawaii Statewide GIS Program, 2013. Google imagery data Jan. 2013.

Figure 1-2: Tax Map Key (3) 6-4-38:011 (por.)

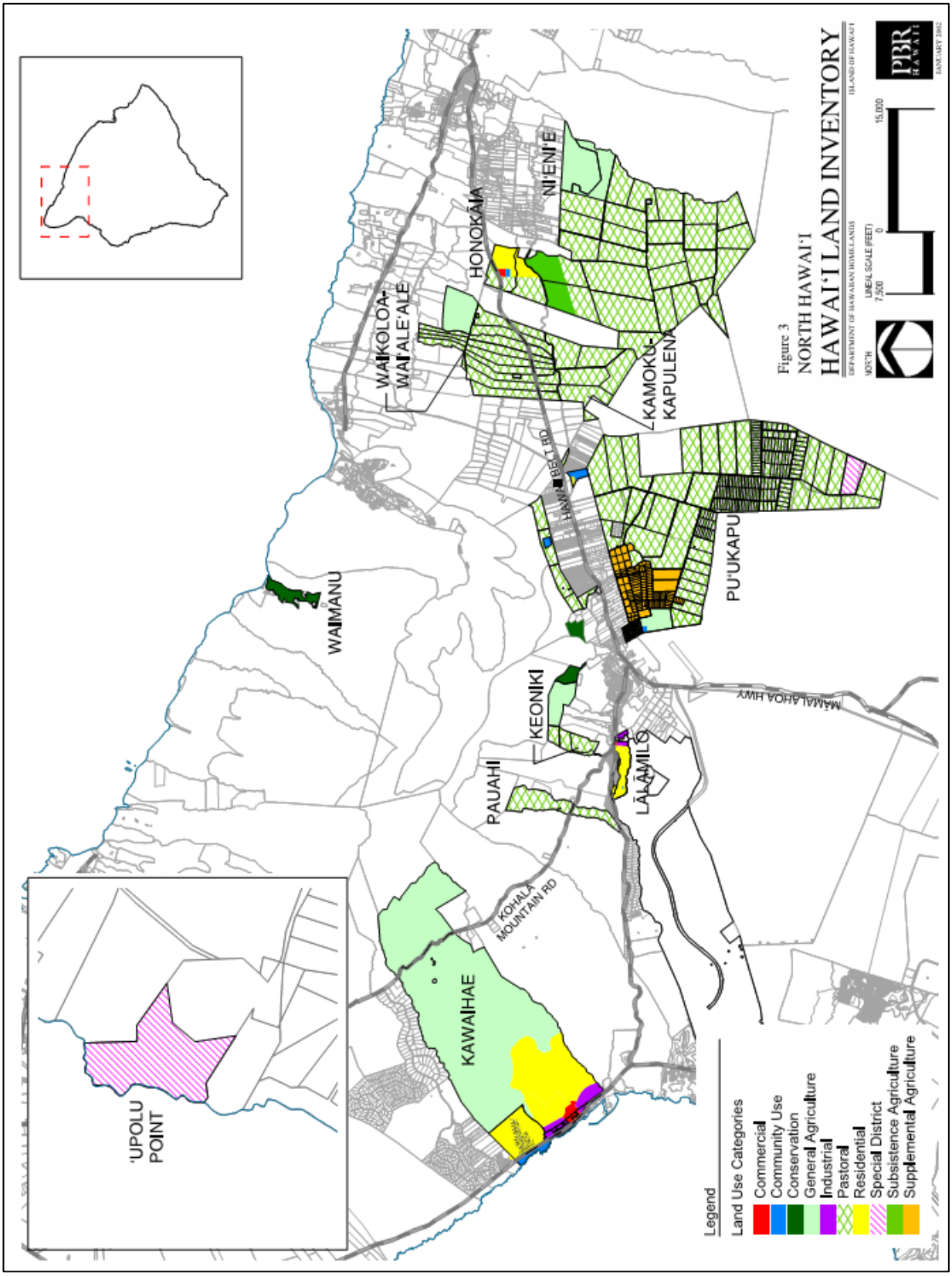


Figure 1-3: DHHL Land Use Designations (DHHL Hawai'i Island Plan 2002)

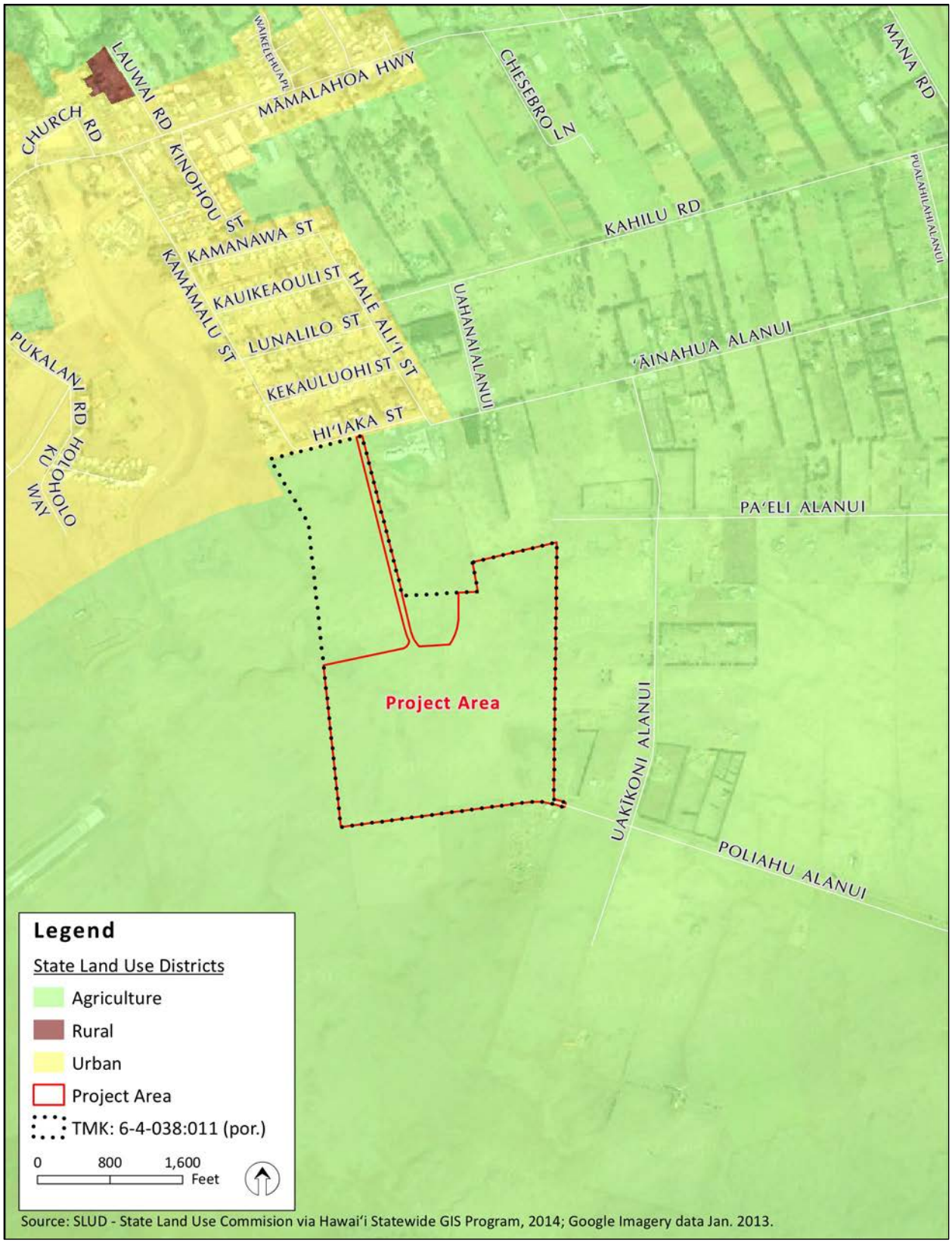


Figure 1-4: State of Hawai'i Land Use Classifications

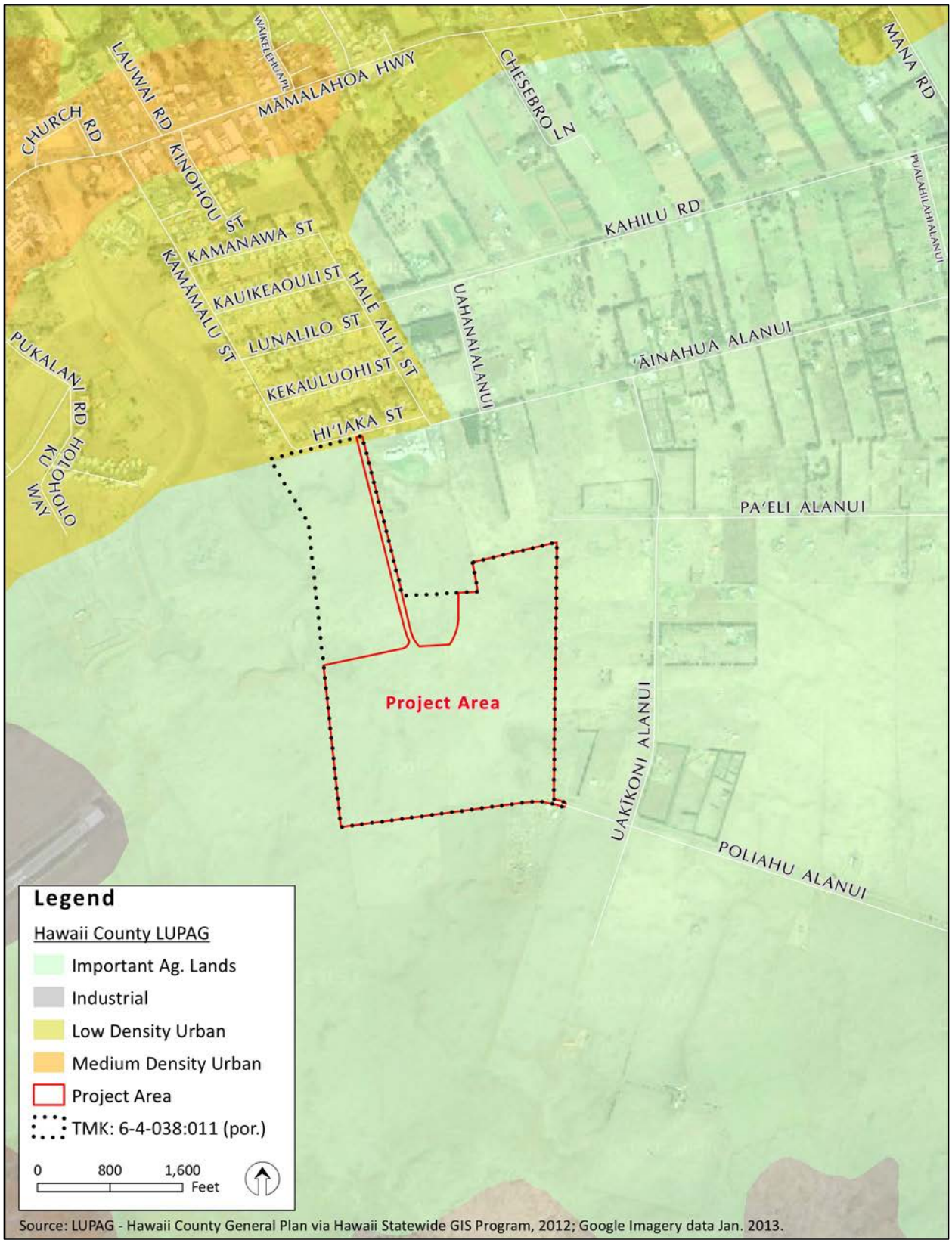


Figure 1-5: County of Hawai'i Land Use Pattern Allocation Guide

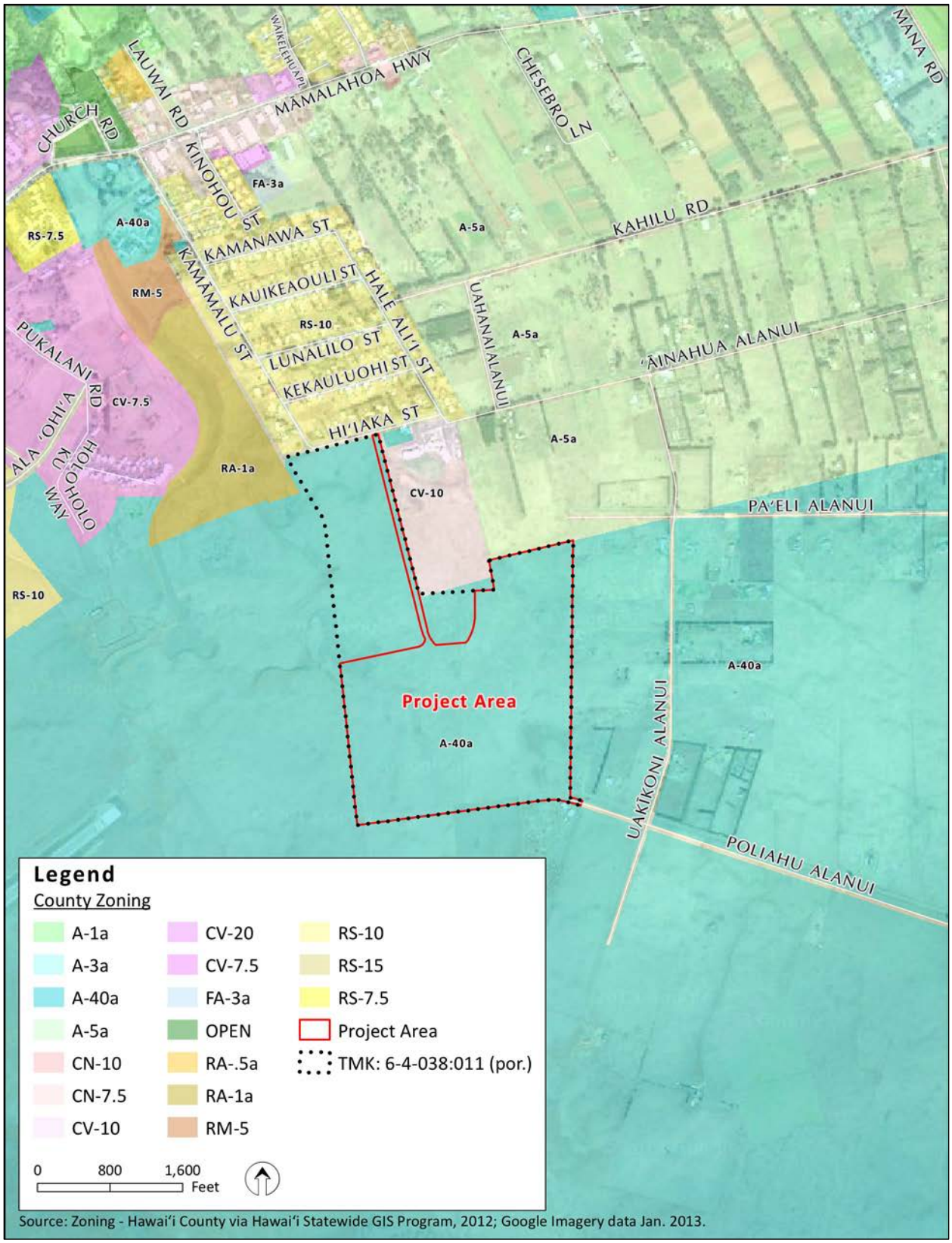


Figure 1-6: County of Hawai'i Zoning

Section 2.0

PROJECT DESCRIPTION

2.0 PROJECT DESCRIPTION

2.1 PURPOSE AND NEED

Through the efforts of Prince Jonah Kūhiō Kalaniana'ole, the Hawaiian Homes Commission Act was passed and signed into law in 1921, for the purpose of "[enabling] native Hawaiians to return to their lands in order to fully support self-sufficiency for native Hawaiians and the self-determination of native Hawaiians..."

For over 40 years, the Waimea Hawaiian Homesteaders' Association (WHHA) and its subsidiary, the Waimea Nui Community Development Corporation (WNCDC), have been actively conceptualizing community development projects in the Pu'ukapu Homestead Farm Lots to build a vibrant, self-sufficient community. With the desires of the homestead community in mind, the Waimea Nui Regional Community Development Initiative (WNR-CDI) was developed to move towards the intent of the Hawaiian Homes Commission Act and the vision of Prince Kūhiō.

According to past community surveys and discussions conducted by WHHA, the homestead community identified a cemetery as the area's top priority for development. Currently there is no cemetery in the Waimea region for homestead residents to inter their family members. With the closest cemetery options located over an hour away in Kona and Hilo, many families have been forced to opt for cremation—which is not always culturally aligned with Native Hawaiian values and protocol.

In addition to a cemetery, the Waimea Homestead community identified several other projects, which have been planned into the WNR-CDI, including a farmer's co-op, a certified kitchen, an equestrian center and roping arena, and a golf facility. The demand for farming and revenue-generating equestrian and golf operations are intended to provide economic opportunities in the area. Similar to the rest of Hawai'i Island, the Waimea Nui region trails behind the State in average household income. Moreover, most residents must commute over 40 to 50 miles each day to the Waikoloa Coast, where the majority of jobs, primarily tourist-related, are located.

Through the implementation of the WNR-CDI, WHHA will be able to create the fundamental infrastructure necessary to address a number of community needs pertaining to economic development, agriculture, equestrian activities, and recreation in Waimea Nui. The proposed land use for the project site is in line with the intended purposes of the Hawaiian Homes Commission Act (HHCA). Moreover, WNCDC is the development arm of WHHA, a homestead association formed in 1952 by Hawaiian Homes Commission Act beneficiaries, as stated under section 204 and 207 of the Act.

The proposed project benefits the trust and its beneficiaries by carrying forth the identified priority projects, which will further support homestead farmers and ranchers already on the land, create jobs for beneficiaries not yet on the land, as well as benefit the larger region.

2.2 PROJECT LOCATION AND CHARACTERISTICS

The project site is located in the southwestern portion of Waimea, known as the Puʻukapu Tract, in South Kohala on the Island of Hawaiʻi (*Figure 2-1*). The project site consists of approximately 114 acres and is part of a larger agricultural zoned parcel identified as Tax Map Key (3) 6-4-38:011. The parcel is part of the Puʻukapu Pasture Lots which is owned by the Department of Hawaiian Home Lands (DHHL). The adjacent lot to the east is part of the Puʻukapu Farm Lot subdivision. Both Kanu O Ka ʻĀina Learning ʻOhana Charter School and Hiʻiaka Street border the north end of the project. Hiʻiaka Street was created as part of the Puʻukapu Village House Lots subdivision (*Figure 1-1*).

The project site gently slopes from east to west. Elevations within the site range from 827 meters (2,714 feet) to 844 meters (2,770 feet) above mean sea level (MSL) (2006 LIDAR). The terrain is composed of a mix of ʻaʻa and pāhoehoe lava flows disgorged from Mauna Kea between 65,000 and 250,000 years ago during the Pleistocene Age. The site has been utilized as pasture for over 100 years. The Waimea-Kohala Airport is located approximately one mile away to the southwest of the project site. A portion of the project site falls within easement "A-1" which is for Aviation Purposes. The easement is in accordance with the Federal Aviation Regulations Part 77 (See Sections 3.0 and 5.0 for further discussion). Parker Ranch is the adjacent landowner to the west. Urban areas in proximity to the site include the commercial district of Waimea, located approximately one mile to the north, and the residential communities of Waimea, Kūhiō Village, and Waiaka.

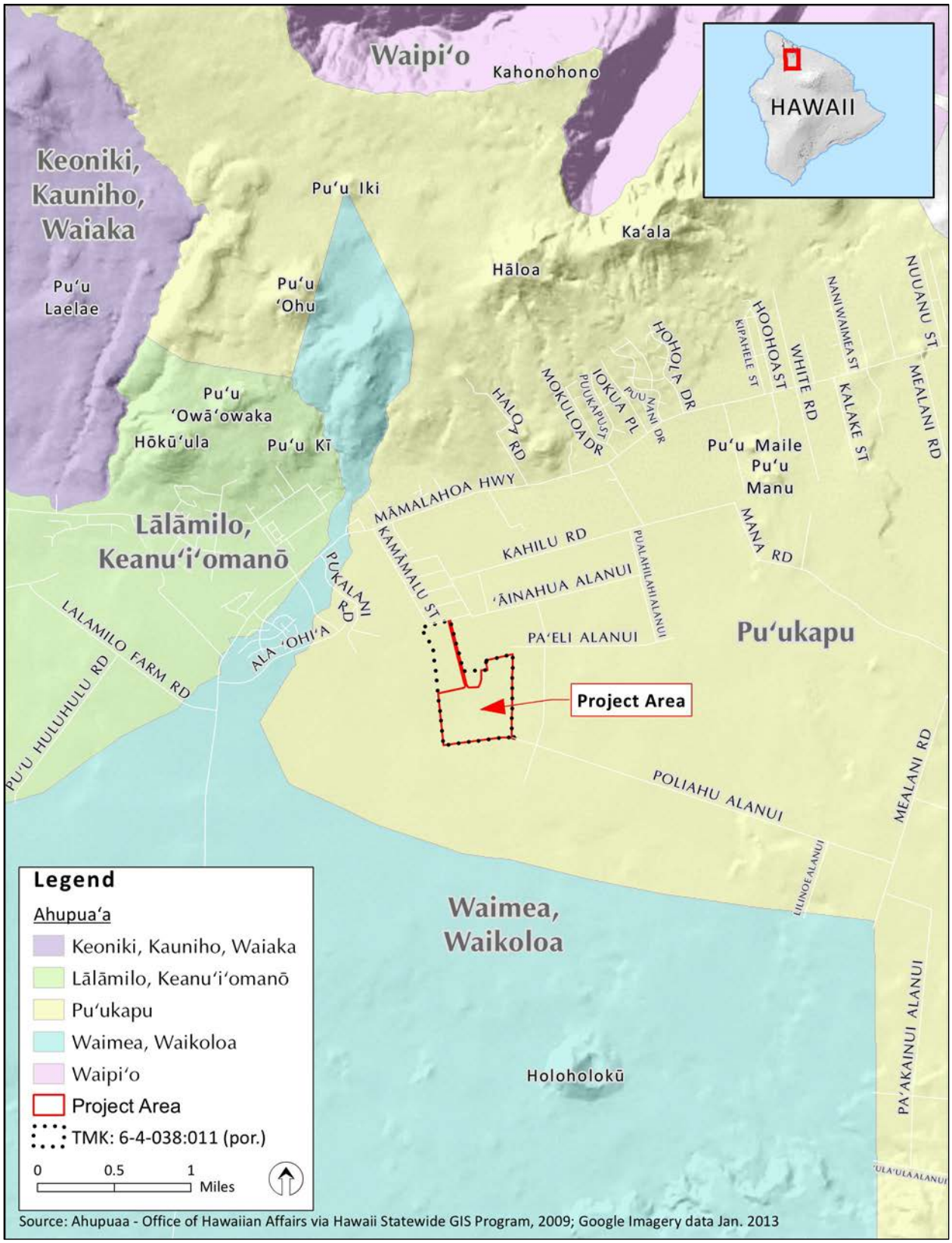
2.3 DESCRIPTION OF THE PROPOSED PROJECT

The WNR-CDI was developed based on the needs and desires of the homestead community. It also incorporates the long-term visions of both WHHA and DHHL, as outlined in the Waimea Regional Plan (2012). The WNR-CDI consists of plans for a cemetery, a community agriculture complex, equestrian center, and golf facility, and will have flexibility to incorporate planning needs beyond a foreseeable future, whose specifics would be assessed under a separate environmental analysis in the future. The following is a description of the proposed WNR-CDI Development Plan, which is displayed in *Figure 2-2*.

2.3.1 Homestead Cemetery/Chapel

The proposed cemetery will be located in the southwestern corner of the project site. Currently, there is no dedicated cemetery in the region for homesteaders to lay family members to rest. A cemetery will allow the homestead community to perform proper burials in Waimea Nui that are more aligned with Hawaiian values and protocol.

The cemetery site, which will also include a columbarium and chapel, will occupy approximately 10 acres, with the provision of 100 parking stalls. The chapel building will be able to host approximately 250 people during services, and will also house an administrative area, a preparation kitchen area, a reception room, and a lānai for wake services. The cemetery may require 1 full-time employee and 2 part-time employees for coordinating services, operations, and administrative support.



Source: Ahupuaa - Office of Hawaiian Affairs via Hawaii Statewide GIS Program, 2009; Google Imagery data Jan. 2013

Figure 2-1: Ahupuaʻa Map

2.3.2 Equestrian Center

Waimea has a longstanding ranching and paniolo history. The 14.7-acre equestrian center will provide a fairgrounds-like facility supporting recreational and economic opportunities for the community while revitalizing the area's rich heritage of equestrian traditions.

An equestrian center in the southeast corner of the parcel will be equipped with an arena that will serve as a venue for various activities such as ongoing training and practice; occasional competition events such as calf roping, team roping, leisure riding, barrel racing, and jumping; a once monthly livestock auction; and potentially, an equestrian show one night a week. The grandstand space of the arena will be able to host 1,500 visitors and could be a venue for local and national competitions.

The site will also include stables to initially house 50 horses but could accommodate and support up to 250 horses being housed. A paniolo heritage museum with a concession area for certified food vending will serve as a place to share the historical roots of paniolo traditions in the Waimea Nui region. It is estimated that 2-3 employees will be required to staff the museum facility. Initial employment for the equestrian center could be varied but inclusive of barn and stable management, horse training, event competition planning and promotion, and equestrian business management. Food vendor service operations would also vary initially but could include up to 4-8 employees or volunteer staff for select events.

All animal waste will be sustainably disposed of in the on-site biodigester for additional energy production and fertilizer. Raw manure that will be used in the biodigester will be temporarily stored in a covered containment area next to the stables.

2.3.3 Community Agriculture Complex

The 42.2-acre Community Agriculture Complex is a set of inter-related facilities which will be located in the northeastern corner of the proposed site. The purpose of the complex is to provide new and existing farmers in the Waimea region cost-effective, sustainable, shared facilities in which to learn to farm, process their produce to meet food safety certification requirements, create value-added products, and market and sell their fresh produce and goods. By partnering with various Federal and State agencies, WNCDC has developed farm training programs which will be available on site. Agricultural greenhouse lots and associated facilities in the Community Agriculture Complex will allow the community to build a base of farmers, increase food self-sufficiency, and revitalize the local agriculture industry.

The complex includes the following facilities:

Community Agriculture Park

The Community Agriculture Park is an integrated facility that will provide people and organizations who wish to farm at a small scale, a common place to come to begin farming. The Park will enable new farmers to learn from others, to share equipment, and to find out if farming is a career they would like to pursue. One of the most difficult pre-requisite hurdles for new farmers is the requirement for two years of experience that is built into most farm leases. The Community Agriculture Park will give interested people the opportunity to gain that experience, as WNCDC will have no such requirement.

The Community Agriculture Park will consist of two-hundred forty-six (average 800 to 5,000 square feet (sq. ft.)) farm lots, of which one-hundred (100) lots will have greenhouses erected on them, providing a 22′ x 96′ area for indoor growing. The property will have several buildings totaling roughly 10,000 sq. ft. serving a range of agriculture community needs. The front-most building will be a Farmers market for produce and value-added goods that are grown or produced on the property, as well as goods that are grown or produced by off-site local farmers. This communal facility will also allow local farmers to purchase commonly used goods, like fertilizer and packaging, in bulk, thereby reducing their overhead costs and improving profit margins. The center building will be used as an agricultural Resource Center for community agriculture workshops and gatherings. Office and classroom space will be available for supporting agricultural organizations such as U.S. Department of Agriculture, Natural Resources Conservation Service, and the University of Hawai‘i-Hilo Agriculture Department. A sandwich/coffee shop will also be available in the Resource Center. The third building, which will be facing the agriculture park, will be the community storage facility. This building will provide a common area for the members of the park co-operative to keep equipment and supplies, as well as for the co-op to house community equipment.

Green Waste Biodigester with Electric Grid

Hawai‘i Island, like any populated region, produces a tremendous quantity of organic waste. This waste comes in the form of farm waste, animal manure and byproducts, municipal solid waste, and wastewater. Typically, this waste has been disposed of by dispersing out over fields for use as fertilizer or by containing it in a landfill. These solutions are no longer tenable. Far more organic waste is generated than can be used as fertilizer, and such waste often produces noxious odors, complicating its application as a fertilizer. In addition, the release of organic waste into the environment has far-reaching implications due to its high levels of nitrogen and phosphorous which can severely damage ecosystems. The project will address these on-site waste production and disposal issues through a process called anaerobic digestion. During the process, air is excluded from the waste while communities of anaerobic microbes metabolize the biomass, reducing both quantity of solids and odor.

The process of digestion forms a solid output called digestate, which is a useful soil amendment or fertilizer. An important aspect of the biodigester is that the liquid component of waste materials will also be returned to the environment as a fertilizer with a much lower organic content, thereby reducing its environmental impacts. In addition, anaerobic microbes produce large quantities of biogas, which contains methane and CO_2, and will be used as a renewable biofuel.

The biodigester will operate by utilizing a constant waste stream to create biogas, which will be fed to an engine or generator to produce electricity. Biogas will be collected and stored at the facility to be used as a fuel source to power a generator. The generator will also be capable of using propane as a fuel source. Backup storage of propane will be provided at the facility as well as provisions to hook up to fuel tank truck in the event that the biodigester is out of service for an extended period of time.

The biodigester is co-located with a combined heat and power generation plant, a post-harvest facility, and a certified kitchen. This will allow the low cost energy and excess heat from the biogas generator to be used at the post-harvest facility and certified kitchen. Reducing energy costs will greatly improve the economics of cooling and processing produce on-site, with both

electricity being the largest expense for food processing facilities and electricity rates in Hawai'i being exceptionally high.

Post-Harvest Facility
A central component of the agriculture facilities on the parcel will be a modern, energy efficient post-harvest facility. The facility will be a 10,000-12,000 foot single-story building that will support the food safety certified washing, sorting, packing, and refrigeration for the region's produce. The building will be provided electricity and heat from the generator plant at the anaerobic digester. In addition to general floor space and refrigeration, it will contain a small office, restroom, washing, and locker facilities for employees.

The five main objectives of the post-harvest facility are:

- to maintain quality (appearance, texture, flavor and nutritive value)
- to meet food safety requirements
- to reduce losses between harvest and consumption
- to aggregate farm production to produce the quality and consistency needed by large customers
- to provide branding and marketing services of food products

Effective management during the post-harvest period, rather than the level of sophistication of any given technology, is the key to reaching the desired objectives. Many recent innovations in postharvest technology in developed countries have been in response to the desire to avoid the use of costly labor and the desire for cosmetically "perfect" produce. These methods are not sustainable over the long term. For example, the use of postharvest pesticides may reduce the incidence of surface defects but can be costly both in terms of money and environmental consequences. In addition, the growing demand for natural and organically produced fruits and vegetables offers new opportunities for small-scale producers and marketers. To support this, the facility is designed to support a variety of modern, simple technologies, which also provide for job creation. Additionally, the facility will have sorting capacity to gather off-grade produce for use in the commercial kitchen, and any additional waste will be fed into the digester to create energy and fertilizer.

Commercial Kitchen
The final component of the integrated Community Agricultural Complex is a commercial kitchen, which is located in the post-harvest facility building. The purpose of the kitchen is to create value-added products using local and regional fruits, vegetables, grains, and nuts, and providing opportunities to create value from off-grade produce. The kitchen will provide energy efficient facilities to create baked goods, jams, sauces, canned and frozen items, as well as prepared foods such as salad mixes. The facility will also have sufficient walk-in and reach-in refrigeration and freezing capacity to store 5 days of production from the kitchen. The facility will also have the capacity to serve as a butcher shop for local ranchers. Sufficient hanging and refrigeration space will be available to allow 21 days of aging for up to 150 cows. The refrigeration/freezer equipment will be selected to exceed the energy standards set forth in section 136(c) of the Energy Policy Act of 2005.

The commercial kitchen is an economic development facility that will be powered from the anaerobic digester generator plant. The kitchen will use the energy produced to create low cost opportunities to enable farmers to get the maximum value from the produce, particularly in effective use of the culls. The kitchen will be managed by the same team that is managing the post-harvest facility and will establish contracts with major buyers for the products produced at the kitchen.

2.3.4 Golf Facility

The proposed golf facility includes a practice course, a chipping and putting green, a driving range, and a club house, and will be located in the southwestern portion of the parcel. The golf greens will not include water hazards, sand traps, or fairways. The clubhouse will house a pro shop, as well as a full-service restaurant which will serve breakfast, lunch, and dinner. The operations of the entire golf facility will require approximately 20 staff members. Altogether, the total land area of all golf facilities and playing areas will amount to 32.2 acres of the entire project site.

The primary purpose of the golf facility is to generate revenues to support WNCDC operations of the agriculture complex which will also include services such as agricultural technical assistance and training programs. Revenue from the golf facility will also generate jobs and provide resources for future community planning efforts.

In summary, all of the WNR-CDI components will provide much needed places for the community to persist and thrive through subsistence agriculture, recreation, and revenue-generating activities, while also dedicating a culturally important space to honor those who have passed on.

2.4 PHYSICAL CHARACTERISTICS OF THE PROJECT

The following section provides the calculated areas and dedicated parking spaces for each of the WNR-CDI components.

Cemetery Total Area: 10 acres

The following is the estimated square footage of the Cemetery facilities:

- Columbarium ..... 1,600 sq. ft.
- Chapel ..... 16,360 sq. ft.
- Parking ..... 100 stalls

Community Agriculture Complex Total Area: 42.2 acres

The following is the estimated square footage for the Community Agriculture Complex facilities:

- Biodigester ..... 4,700 sq. ft.
- Post-Harvest Facility ..... 12,000 sq. ft.
- Co-op Facility ..... 10,000 sq. ft.
- Agriculture Resource Center ..... 10,000 sq. ft.
- Farmers Market Building ..... 10,000 sq. ft.
- Agricultural Plots ..... 246 ct. 800-5,000 sq. ft. lots
- Parking ..... 205 stalls

Figure 2-2: Waimea Nui Regional Community Development Initiative - Development Plan

Equestrian Center Total Area: 14.7 acres
The following is the estimated square footage for the Equestrian Center facilities:

- Stables ..... 68,400 sq. ft.
- Arena ..... 100,000 sq. ft.
- Spectator Seating Area ..... 10,800 sq. ft.
- Paniolo Museum ..... 6,000 sq. ft.
- Compost Storage ..... 6,100 sq. ft.
- Parking ..... 320 stalls

Golf Facility Total Area: 32.2 acres
The following is the estimated area for the Golf Facility facilities:

- Practice Courses ..... 18.2 acres
- Chipping and Putting Area ..... 7.6 acres
- Driving Range ..... 5.2 acres
- Clubhouse ..... 8,000 sq. ft.
- Parking ..... 50 stalls

Building Height: The building height for the project will follow zoning regulations. According to Hawai'i County Regulations, the height limits in Agricultural districts shall be forty-five (45) feet. Additionally, any structure within the Federal Aviation Administration (FAA) aviation easement will conform to applicable height limits based upon the slope relationship and topography of areas within the easement to the runway and approach (see *Sections 3.0 and 5.0* for further details).

2.5 INFRASTRUCTURE

Infrastructure facilities to support the proposed development include:

- Access and driveway networks
- Parking areas
- Non-potable water supply
- Potable water supply
- Wastewater treatment and disposal system
- Anaerobic biodigester to provide electricity
- Utilities for communication services
- Drainage improvements
- Landscaping

Parking and Access: Access into the site will continue to be through the existing driveways off of Hi'iaka Street and Poliahu Alanui Road. The two access points will be connected with a two-way, delineated driveway. The driveway will ultimately be constructed of asphalt pavement and will consist of a delineated horse trail, a 12-foot wide lane in each direction and a potential 10-foot wide median with turn pockets, if needed. (*Figure 2-3*).

A third access point will be created at the southwest corner of the property to provide a future road connection point for DHHL. A two-way, delineated driveway is proposed along the DHHL easement to connect the third access point with the previously mentioned driveway. This driveway

and access point will utilize a gated entry, and will only be used for overflow and emergency purposes. The driveway will ultimately be constructed of asphalt pavement and will consist of a 12-foot wide lane in each direction. In early phases of the project, the driveway cross-section may consist of compacted gravel without delineation. The portion of driveway within the existing easement may be dedicated to DHHL in the future.

On-site parking will be provided at each of the proposed project components and will include the stall counts in Section 2.4, above. Parking lots will have a stabilized surface and will be designed in compliance with County Fire Department access requirements, at a minimum. All parking lots will be landscaped to enhance their appearance and blend them with either tree-lined walkways or open space areas. To minimize the paved areas, the lots will be landscaped with trees and grass areas, incorporating low impact development options as much as feasible. Signage for all project sites will also be developed, as necessary.

Grading: The existing topography will be altered only to the extent necessary for construction of the proposed project components. It is anticipated that grading will occur on a localized scale and that cut and fill quantities will generally balance as construction progresses. Grading activities will follow guidelines provided under the County of Hawai'i Grading permit.

Erosion Control: During all phases of construction on the proposed WNR-CDI, erosion control practices will comply with both State and County regulations. National Pollutant Discharge Elimination System (NPDES) permits will be obtained from the Hawai'i Department of Health for stormwater discharges from construction activities. Best Management Practice (BMP) plans to control erosion during construction will be a component of the NPDES permits.

Storm Drainage System: Stormwater runoff from impervious areas will be collected by a proposed drainage system. The proposed drainage system will be designed in compliance with the County's Storm Drainage Standard. Pre-development flow patterns and flow rates will generally remain in post-development conditions with runoff continuing to discharge overland into adjacent properties.

BMPs will be included during project design and in the project's overall storm water operation and maintenance program. Landscape buffer strips along roads and common areas will be designed to filter pollutants and silt through sand and gravel layers. Vegetated retention basins will also provide some biological uptake of nutrients in stormwater.

Water System: The proposed WNR-CDI will have an average daily demand of approximately 57,500 gallons per day (GPD) for domestic water, approximately 104,000 GPD of irrigation water and 2 hours of 2,000 gallons per month fire flow. Irrigation water demands for the agricultural park utilized a 2,000 GPD per acre irrigation rate based on water consumption data at WOW Farms, provided by WHHA. Although lower than the 3,400 GPD per acre rate provided by the State Department of Agriculture, the type of irrigation and climate at the project site are intended to be similar to that used at WOW Farms. In lieu of providing County of Hawai'i Department of Water Supply (DWS) source improvements to accommodate projected domestic water demands, agriculture water from the Waimea Irrigation System will be treated and distributed on site for potable use and the system will be certified through the State Department of Health (DOH) as a public water system. The Waimea Irrigation System water will also be used for non-potable uses such as irrigation and fire protection, through a separate water distribution system. Since the

Waimea Irrigation System experiences low pressure during peak flows, a tank farm will be constructed such that water from the Waimea Irrigation System will fill tanks to meet potable and non-potable water demands without adversely affecting the system. Hydraulic analysis of the Waimea Irrigation System and further coordination with the State Department of Agriculture is necessary to determine tank and pump sizes needed to conform to the State Water System Standards.

Potable Water System: Agriculture water from the tank farm is considered non-potable and will be pumped to the Water Treatment System to create potable water on an as-needed basis. Following treatment and disinfection, potable water will be stored in Clearwater tanks until used. To minimize capital and operating costs, potable water will be pumped from the treatment system to proposed buildings for domestic uses only. The water treatment system will be designed to meet requirements contained in HAR Section 11-20 relating to Public Water Systems. If treatment of agriculture water is determined to be unviable in the future, potable water will be provided through a looped, on-site water system that connects to the existing DWS water system in Hiʻiaka Street and Poliahu Alanui Road. Since the property does not currently have sufficient water allocation to support the proposed WNR-CDI, further coordination with DWS is necessary to determine the extent of off-site water improvements needed to accommodate proposed water demands.

Non-Potable Water System: Agriculture water from the tank farm will be pumped to the project components for non-potable use only. Since the non-potable system will also supply fire protection water to on-site fire hydrants and building connections, the non-potable water distribution system will be designed to conform to the State Water System Standards.

Sewer System: Wastewater will be collected in a gravity sewer main along the proposed driveway and conveyed to a Wastewater Treatment Works Although the specific components of the proposed Wastewater Treatment Works will be determined during design, the following items are anticipated based on a typical biological treatment process:

- Influent screening—Trash and debris will be removed from raw wastewater. The screening unit will be enclosed in a building and/or installed with odor control unit for odor and vector control.
- Equalization Tank—Highly variable flow rates will be attenuated. Sizing and location will depend on phasing and variability in flow characteristics.
- Biologic Treatment—Wastewater treatment will consist of some form or anoxic and aerobic biologic reactors. Reactor configuration will depend on anticipated phasing and wastewater characteristics.
- Sludge digesters and dewatering unit—Waste sludge may be removed from the biological treatment process and dewatered. Reuse or disposal of sludge may occur onsite or offsite.
- Tertiary Treatment—Treated effluent from primary and secondary treatment may be further treated to produce recycled water and possibly to remove additional nutrients for water quality purposes.
- Disinfection—Filtration, ultra violet or chemical disinfection will be used to eliminate pathogens in treated effluent.

Wastewater collection and treatment components will be designed in compliance with HAR Section 11-62 relating to Wastewater Systems. Several options available for disposal or treated effluent include:

- Infiltration—Injection wells (such as seepage pits), infiltration trenches, absorption beds, ponds.
- Discharge—Direct discharge into oceans or streams
- Re-use—Non-potable irrigation

The project property is located mauka of the Underground Injection Control (UIC) line, prohibiting the use of injection wells. However, infiltration of treated effluent can still be utilized if it is not considered an injection well and is designed in compliance with HAR 11-62 and 11-23. Due to environmental concerns, as well as the distance of the project area from the ocean and streams, direct discharge into oceans and streams are not proposed. Wastewater reuse (for example, subsurface irrigation of areas surrounding the wastewater treatment center) can be utilized if designed in accordance with the DOH Guidelines for the Treatment and Use of Recycled Water.

Solid Waste: Green waste generated on site will be collected and used in the biodigester for energy production. Other solid wastes on site will be collected and disposed at approved County solid waste transfer facilities. A solid waste management plan will be developed to reduce the volume generated during construction. A recycling program will be encouraged throughout the project.

2.6 DEVELOPMENT SCHEDULE

Project development and implementation is scheduled to begin immediately following approvals of necessary land use permits and available funding. The scope of the project requires coordination with State and County agencies. Of the 114 acre site, approximately 28 acres will be developed. The balance of the remaining acreage will be open space and preservation easements. The proposed project will be developed over a nine year period from 2015 to 2024.

Phasing will be dependent upon funding and infrastructure installation. The proposed project is projected to be developed in three phases and anticipated to commence in mid-2015. The initial phase, Phase I, is proposed to include construction of the community agriculture park and cemetery/chapel. Phase II will include construction of the equestrian center, and a portion of the golf facility. Phase III will include construction of the remaining golf facilities.

2.7 REQUIRED APPROVALS AND PERMITS

Several construction approvals will be required from the Federal, State, and County levels to implement the proposed action. It is expected that the following list of construction approvals will be required.

The Federal government will require the following approvals:

<u>Federal Aviation Administration</u>

- Form 7460-1 - Notice of Proposed Construction or Alteration Approval (as required by 14 Code of Federal Regulations, Part 77 pursuant to 49 U.S.C., Section 44718)

The State of Hawai'i will require the following approvals and permits:

Department of Agriculture
- Application for Irrigation Water Service
- Approval letter for use of agriculture water for potable uses

Department of Hawaiian Home Lands
- Land Use Amendment

Department of Health, Clean Water Branch
- NPDES General Permit
- Approval of wastewater system construction documents

Department of Health, Safe Drinking Water Branch
- Approval of water treatment system construction documents

Department of Health, Wastewater Branch
- Approval of wastewater system construction documents
- Water Reuse Permit

Department of Transportation
- HAR, Title 19 DOT Permit to construct or use land located within the flight aviation easement

State Historic Preservation Division
- HRS 6-E, Historic Preservation Review Clearance

The County of Hawai'i will require the following permits:

Department of Public Works, Building Division
- Building Permit (Non-Residential)
- Electrical Permit (Non-Residential)
- Plumbing Permit (Non-Residential)
- Sign Permit
- Outdoor Lighting Permit

Department of Public Works, Engineering Division
- Grading and Grubbing Permit
- Driveway Connection Permit

Department of Water Supply
- Approval of Construction Drawings

Section 3.0

AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

3.1 CLIMATE

Existing Conditions – The weather in Waimea is characterized as cool with frequent drizzling rain and fog. The average temperatures range from 60 to 70 degrees F. Annual rainfall averages approximately 35 inches per year but variable along steep gradients in rainfall, with most rainfall occurring between December and April. Winds are dominated by northeast trades, which funnel through the saddle between the Kohala Mountains and Mauna Kea. Light and variable westerly kona winds occasionally replace this pattern, most often in the winter. Cloudbanks frequently form along the higher elevation slopes during the day. Typical wind velocities range from 3 to 14 knots.

Impacts and Mitigation – The proposed project will have no effect on climatic conditions, therefore, no mitigation measures are required.

3.2 GEOLOGY AND TOPOGRAPHY

Existing Conditions – The proposed project site is located in the saddle of the Mauna Kea and the Kohala Mountains at elevations of around 2,750 feet. Geologically, the terrain is composed of a mix of ʻaʻa and pāhoehoe lava flows disgorged from Mauna Kea between 65,000 and 250,000 years ago during the Pleistocene Age.

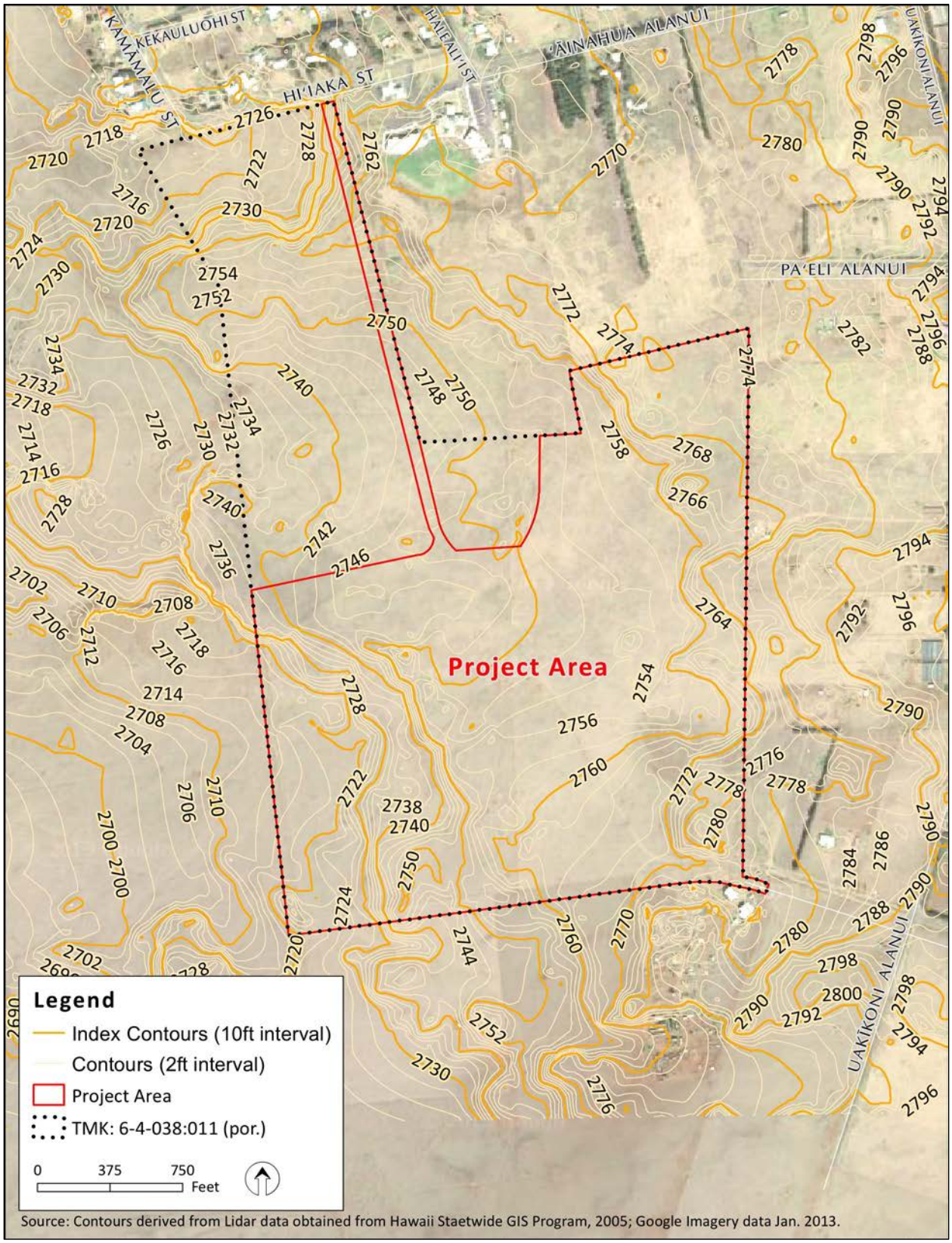
The general terrain of the site is relatively flat with elevations ranging from 827 meters (2,714 feet) to 844 meters (2,770 feet) above Mean Sea Level (MSL) (*Figure 3-1*). The surface has weathered through time to produce deep, well-drained soils. See *Section 3.3* for a further discussion on soils.

There are no significant landforms on the proposed site.

Impacts and Mitigation – Of the 114 acre site, approximately 28 acres will be developed. The balance of the remaining acres will be open space. The proposed project intends to take advantage of existing terrain and design the buildings and landscape in such a way that will complement existing natural conditions. The proposed facilities and parking areas will be flattened and smoothed along with the area for walkways. Best Management Practices (BMPs) will be implemented pursuant to the required Grading Permit to mitigate any potential impacts of soil erosion and fugitive dust during any grading or excavation. Mitigation measures related to soils and grading are described in the following section.

3.3 SOILS AND GRADING

Existing Conditions – According to the USDA NRCS Web Soil Survey, soils in Waimea belong primarily to the KfA (Kīkoni very fine sandy loam, 0 to 3 percent slopes), KXC (Kīkoni very fine sandy loam, 3 to 12 percent slopes), and WMC (Waimea very fine sandy loam, 6 to 12 percent slopes) soil classifications (*Figure 3-2*). The Kīkoni and Waimea series, found on the



Source: Contours derived from Lidar data obtained from Hawaii Staetwide GIS Program, 2005; Google Imagery data Jan. 2013.

Figure 3-1: Topography

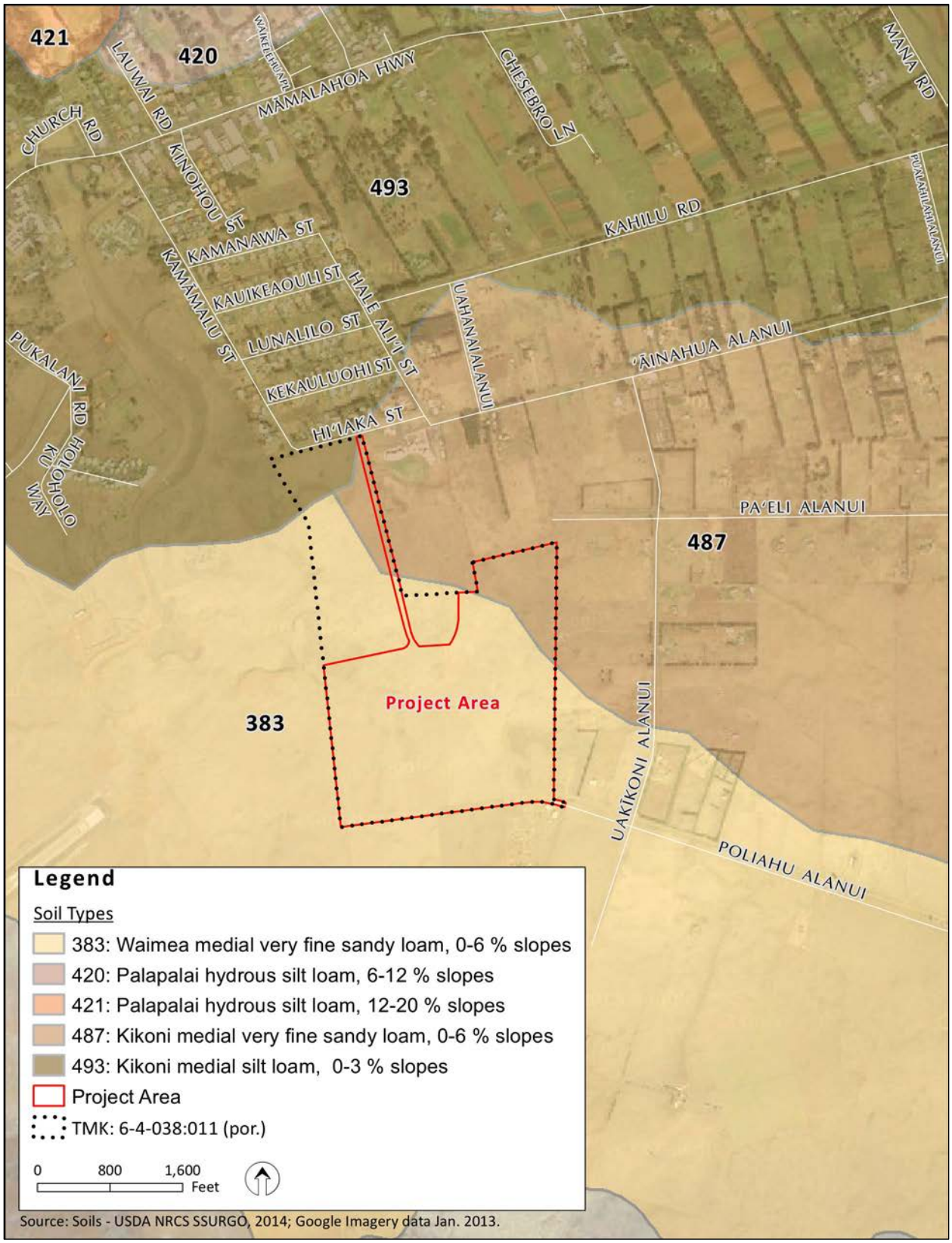


Figure 3-2: Soils

leeward side of Mauna Kea on the Waimea plains, both consist of well-drained very fine sandy loams that formed in volcanic ash. In a representative profile, the surface layer is very dark brown very fine sandy loam. The subsoil consists of dark-brown and dark-reddish brown very fine sandy loam and silt loam. The substratum is fragmental ʻaʻa lava. The depth of the bedrock ranges from 36 to 55 inches. Permeability is moderately rapid, runoff is slow, and the erosion hazard is slight. Roots can penetrate to a depth of 30 inches or more and in places the surface is extremely stony.

Impacts and Mitigation – Paving in the project area will minimally reduce permeability and increase runoff velocity in selected areas. At a minimum, proposed drainage improvements will be designed in compliance with the County's Storm Drainage Standard. Pre-development flow patterns and flow rates will generally remain in post-development conditions with runoff remediated on-site.

All grading operations will be conducted in compliance with Chapter 10, Erosion and Sediment Control, of the Hawaiʻi County Code. BMPs such as sediment basins, filter fences, diversion swales, and bio-filtration swales will also be used to minimize the amount of erosion and transport of sediment. The impact of construction activities will be mitigated by practicing strict erosion control and dust control measures, particularly those specified in the following:

- County of Hawaiʻi Grading Ordinance
- State of Hawaiʻi, Department of Health, Water Quality Standards, Chapter 11-54 (2014)
- State of Hawaiʻi, Department of Health, Total Maximum Daily Loads (TMDLs)
- USDA Soil Conservation Service, Hawaiʻi Erosion and Sediment Control Guide (1981)

The long-term landscape management plan will include proper management of fertilizers and pesticides. Site design will minimize runoff and collection through on-site dispersal and filtering methods. Increased surface runoff from newly paved parking and pedestrian areas will be minimized through these methods.

In addition, the Department of Health provides BMPs for golf courses (DOH 2002) and livestock waste management (UH CTAHR 2010), which will be implemented as much as feasible in the development of the respective components of the project. Groundwater and soil water quality monitoring could be performed periodically to ensure that State regulatory standards are continuously met.

3.4 SURFACE WATER, DRAINAGE, AND FLOODING

Existing Conditions – There are no existing sources of surface water located on the project site. The nearest surface water source is Lanimaumau Stream, which is located about 0.5 miles northwest of the site. Lanimaumau Stream originates in the Kohala Mountains and formerly drained into the Waimea plains but has been historically modified for purposes of flood control. There is no existing drainage system on the site. For the most part, existing natural permeability on the site soils is moderately rapid, the erosion hazard is slight, and runoff is slow. The on-site flows naturally drain west and discharge onto the adjacent property through several distinct low points along the western property line. Two of the low points are located within the project area.

The Federal Emergency Management Agency's flood hazard mapping program, *Risk Mapping, Assessment, and Planning*, specifies flood hazards for a subject area and illustrates floodplains and areas subject to high risk flood events. The proposed project site is within the Zone X designation of the Special Flood Hazard areas, which is described as areas outside of the 500-year flood plain. Zone X includes areas of minimal hazard from the principal source of flood in the area. The Flood Insurance Program does not have any regulations for development within this district.

Impacts and Mitigation – Construction of the facilities and parking areas may slightly alter the velocities, directions, and quantities of natural drainage patterns on-site. However, the project will be engineered to direct water flow to the proposed drainage system. At a minimum, the proposed drainage system will be designed in compliance with the County's Storm Drainage Standard. Pre-development flow patterns and flow rates will generally remain in post-development conditions with runoff remediated on-site.

3.5 NATURAL AND MANMADE HAZARDS

Existing Conditions – The entire Island of Hawai'i is subject to geologic hazards, especially lava flows and earthquakes. The project area's location on the margin of the extinct Kohala volcano and the dormant Mauna Kea volcano leads to a low risk level: Lava Flow Hazard Zone 8 (on a scale of ascending risk 9 to 1). Zone 8 areas have been free of lava flows for the last 750 years and have had only a few percent covered during the last 10,000 years.

In terms of seismic risk, the entire Island of Hawai'i is rated Zone 4 Seismic Probability Rating (*Uniform Building Code*, Appendix Chapter 25, Section 2518). Zone 4 areas are at risk from major earthquake damage, especially for poorly designed and/or built structures.

The project area is in the Waikoloa Maneuver Area Formerly Used Defense Site. Per the South Kohala Community Development Plan, the U.S. Army Corps of Engineers (USACE), Honolulu District has deemed the Pu'ukapu homestead area of low risk for the presence of unexploded ordinance (UXO).

Impacts and Mitigation – In general, geologic and flood conditions impose no major constraints on the project. All proposed buildings will be constructed in compliance with regulatory controls to meet County Building Code requirements and as appropriate to the Zone 4 Seismic Probability Rating. No mitigation measures are required in response to potential flooding or hazards from lava flows.

With regards to UXO, project construction will follow the safety procedures articulated by the U.S. Army Corps of Engineers. The USACE has emphasized in informational meetings in the Waimea community the 3 R's of safety with regards to UXO: Recognize, Retreat, and Report. A certified UXO removal technician will be utilized during project construction if it is deemed necessary after further consultation with the U.S. Army Corps of Engineers.

3.6 FLORA

A Botanical Survey was conducted by AECOS at the proposed site in November 2014 to determine if there are any plant species currently listed as endangered, threatened or proposed for listing under either Federal or the State of Hawai'i's endangered species programs on, or within the immediate vicinity of the proposed project site. The findings of the assessment are included as *Appendix B*.

Existing Conditions – According to the botanical survey, current vegetation of the project site consists of pasture grasses and a limited number of other herbaceous plants. The dominant plants within the site are Kikuyu grass (*cenchrus clandestinus*) and Madagascar ragwort (*senecio madagascariensis*), which are typical of the Waimea area (*Table 3-1*). All plants found during the site survey are non-native species.

Species	Common Name	Status	Abundance in Project Area
Asclepias physocarpa	balloon plant	naturalized	rare
Conyza bonariensis	hairy horseweed	naturalized	rare
Senecio madagascariensis	Madagascar ragwort	naturalized	very abundant
Lepidium sp.	peppergrass	naturalized	rare
Neonotonia wightii	glycine vine	naturalized	uncommon, but very numerous where encountered
Malvastrum coromandelianum	false mallow	naturalized	rare
Cenchrus clandestinus	kikuyu grass	naturalized	very abundant
Digitaria ciliaris	Henry's crabgrass	naturalized	uncommon, but very numerous where encountered
Melinus repens	Natal grass	naturalized	rare, but very numerous where encountered
Sporobolus cf. africanus	rattail grass	naturalized	rare, but numerous in a limited portion of survey area

Table 3-1: Plant Species Observed on Project Site

A nearby property approximately 1,000 yards west on Parker Ranch previously recorded the presence of two common native plants, the ʻilima (*sida fallax*) and ʻihiʻai (*oxalis corniculata*), which are typical of the area. There are no plant species on the federal endangered or threatened species lists in the study area.

Impacts and Mitigation – According to the survey, the vegetation present on the site is completely non-native. The development and operation of the proposed WNR-CDI will not result in any adverse impacts to native plant species.

Improvements to the project site will provide opportunities for new landscaped areas, trees, and plantings that may serve as habitat for existing area wildlife. The landscaping scheme could incorporate native trees and plants and other non-invasive, drought-tolerant species that are suitable to the climate and environment of the project area. Consideration would be given to full maturation heights of trees within the avigation easement areas as to not create an obstruction or conflict with aircraft approach to the Waimea-Kohala airport.

Native plants that could be utilized to landscape the area are suitable for the habitat and climate of the project area include koaiʻa (*Acacia koaiʻa*); wiliwili (*Erythrina sandwicensis*), ʻaʻaliʻi (*Dodanaea viscosa*), ʻilima (*Sida fallax*) and ʻākia (*Wikstroemia pulcherrima*). Perennial bunching grasses are popular in xeric gardens, and the native flora of Hawaiʻi includes a couple of very suitable species. *Pili* grass (*Heteropogon contortus*) makes an excellent specimen plant in xeric or mesic (watered) settings. A grass that once formed expansive tracks over dry parts of Hawaiʻi Island is *kāwelu* (*Eragrostis variabilis*). In minimally watered situations, these grasses will grow to modest heights.

3.7 FAUNA

Avian and mammalian surveys were conducted by AECOS at the proposed site in November 2014 to determine if there are any avian or mammalian species currently listed as endangered, threatened or proposed for listing under either Federal or the State of Hawaiʻi's endangered species programs on, or within the immediate vicinity of the proposed project site. The results of the surveys are included as *Appendix B*.

Existing Conditions – The habitat present within the study site is pasture. With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or ʻōpeʻapeʻa as it is known locally, all terrestrial mammals currently found on the island of Hawaiʻi are alien species. No Hawaiian hoary bats were detected during the course of this survey. Given the lack of suitable roosting trees, any use of the area by this species would be of an incidental foraging nature. Hawaiian hoary bats are widely distributed in the low to mid-elevation areas on the Island of Hawaiʻi and have been documented in and around almost all areas that still have some dense vegetation.

A total of 428 individual birds, of 15 different species, representing five separate families were recorded during station counts (*Table 3-2*). One of the species detected, the kōlea, or the Pacific Golden-Plover (*Pluvialis fulva*) is an indigenous migratory shorebird species. The species typically nest in the high Arctic during the late spring and summer and return to Hawaiʻi and the Pacific to spend fall and winter months. Some birds can be territorial and are known to return to the same territory until they die.

Species	Common name	Status
Francolinus pondicerianus	gray francolin	alien
Coturnix japonica	Japanese quail	alien
Gallus sp.	domestic chicken	domesticated
Phasianus colchicus	ring-necked pheasant	alien
Bubulcus ibis	cattle egret	alien
Pluvialis fulva	Pacific golden-plover	indigenous migratory
Columba livia	rock pigeon	alien
Streptopelia chinensis	spotted dove	alien
Geopelia striata	zebra dove	alien
Zenaida macroura	mourning dove	alien
Alauda arvensis	sky lark	alien
Acridotheres tristis	common myna	alien
Passer domesticus	house sparrow	alien
Euodice cantans	African silverbill	alien
Lonchura oryzivora	Java sparrow	alien

Table 3-2: Faunal Species Observed on Project Site

The remaining avian species that were recorded are considered to be alien to the Hawaiʻi. No species currently listed as endangered, threatened or proposed for listing under either the Federal or the State of Hawaiʻi's endangered species programs was detected on the site. The most common avian species recorded were the house sparrow (P*asser domesticus*) and cattle egret (*Bubulcus ibis*), which accounted for nearly 60% of all birds recorded during station counts.

Although not detected during the survey, it is marginally possible that small numbers of the endangered endemic ʻuaʻu, or Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened ʻaʻo or Newell's Shearwater (*Puffinus auricularis newelli*), may fly over the project area between the months of April and December. The top two causes of mortality for both these species are thought to be predation by alien mammalian species at the nesting colonies, and collision with man-made structures. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals. There is no suitable nesting habitat within or close to the proposed project site for either of these pelagic seabird species.

The Hawaiian goose (*branta sandvicensis*) may also be present in the vicinity of the proposed project at any time of the year, due to the bird's range and foraging behavior but also was not observed during field observations for the biological study.

According to the study, the proposed site is mainly vacant of mammalian species with the exception of about approximately 80 domestic cattle (*Bos taurus*) found on the site and adjoining pastures, along with mice (*Mus musculus domesticus*) and wild pigs (*Sus scrofa*). Nearby, several species were identified along the boundaries of the site, including domestic dogs (*Canis f. familiaris*), cats (*Felis catus*), horses (*Equus caballus*) and goats (*Capra aegagrus hircus*). As stated, Hawaiʻi's sole endemic terrestrial mammalian species, the endangered Hawaiian hoary bat, was not detected during the survey. Given the lack of suitable trees for roosting, it is likely that any use of the project area by the hoary bat would be mainly for foraging. However, the species has been seen in areas close to the proposed project site on a seasonal basis. According to the study, it is also likely that roof rats (*Rattus r. rattus*), brown rats (*Rattus norvegicus*), and Polynesian rats (*Rattus exulans hawaiiensis*) are seasonally present within the general project area. All of these introduced rodents are deleterious to native ecosystems and the native faunal species that are dependent on them.

Impacts and Mitigation – No plant, avian, or mammalian species currently protected or proposed for protection under either the Federal or State of Hawaiʻi endangered species programs were detected during the course of this survey. The cattle and horses currently allowed to graze at the site will be moved to the adjoining property. Fencing and medium-height shrubbery will be utilized as a buffer to keep cattle from the surrounding properties out of the project area.

The construction and operation of the proposed project is not expected to result in any adverse impacts to the native birds or the Hawaiian hoary bat that could fly over the project vicinity as the site is currently devoid of any shrubs or trees, which would be used for nesting. However, construction activities will be mindful to breeding and foraging seasons of critical species. If any of these species are observed within 100 feet of ongoing construction work, all activity will be temporarily suspended until the species move on their own to a safe distance of the project area. Additionally, if a significant flock or colony of native birds or hoary bats are observed foraging within the construction area, construction activity will be temporarily suspended, and a biologist may be notified to further survey the area. If nests are found within a radius of 150 feet of any construction work on the proposed site, or if a previously undiscovered nest is found within the radius after work has already commenced, all work will stop immediately and the U.S. Fish and Wildlife Service will be contacted for further guidance.

The primary potential impact that the construction and operation of the proposed WNR-CDI project poses to Hawaiian Petrels and Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by exterior lighting that may be required in conjunction with the construction and operation of the project. To reduce the potential for interactions between nocturnally flying Hawaiian Petrels, Newell's Shearwaters, and Hawaiian hoary bats with external lights and man-made structures, it is recommended that any external lighting planned to be used during construction or being proposed as permanent street lights must be shielded. This mitigation would serve the dual purpose of minimizing the threat of disorientation and downing of Hawaiian Petrels, Newell's Shearwaters, and Hawaiian hoary bats, while at the same time complying with the Hawai'i County Code Lighting Ordinance (§ 14-50 *et seq.*) which requires the shielding of exterior lights, so as to lower the ambient glare caused by unshielded lighting to the astronomical observations located on Mauna Kea.

The territorial nature of some indigenous kōlea (*pluvialis fulva*) may indicate that the project site will be revisited by the same bird(s) which were observed during the avian survey, as well as other kōlea that may have been foraging on days other than the avian survey. Construction activities will take into consideration the migratory season of kōlea to avoid unnecessary injury or takings of birds.

Relocation of domestic cattle to other portions of DHHL pasture lands in Pu'ukapu will be required once project commences.

3.8 AIR QUALITY, DUST, AND ODORS

Existing Conditions - Although the State of Hawai'i operates a network of air quality monitoring stations around the state, systematic data is not available for South Kohala. The closest air quality monitoring station, which measures for volcanic emissions, is located 16 miles to the southwest at TMK 3-6-8-002:019, in a fenced area approximately 2 miles northeast of Waikoloa (DOH 2014). The second closest monitoring station, which measures for population exposure, is located on the upper campus of Konawaena High School, approximately 50 miles south of the project location DOH 2014). In the State of Hawai'i, both Federal and State environmental health standards pertaining to outdoor air quality are generally met due to prevalent trade winds and the absence of major stationary sources of pollutant emissions. However, the Hawai'i carbon monoxide criteria, which are more stringent than the Federal standards, may be exceeded on occasion near high-volume intersections during periods when traffic congestion and poor dispersion conditions coincide. It is also possible that some areas near volcanic sources do not comply with air quality standards at times.

Volcanic emissions of sulfur dioxide (SO_2) from Kīlauea Volcano convert into particulate sulfate, forming a volcanic haze, locally called vog. Vog becomes trapped in the atmosphere of Kona (to the south of the study area) because of the diurnal wind reversal, which creates a largely closed airshed system. South Kohala receives small quantities of vog from winds blowing north from Kona, although in general it is kept away by dominant trade winds. A residential character and the relative absence of stationary pollutant sources in the area presumably keep air quality in the project area at levels considered good (i.e., well within the air quality standards). Fugitive dust from human activities and emissions from vehicular traffic represent the only sources potentially impacting the air quality at the subject property.

Impacts and Mitigation – The proposed project will have no long-term impact on air quality. There will be short-term impacts during the construction period in the form of exhaust from increased traffic and fugitive dust from construction activity.

A dust control management plan will be developed which identifies and addresses activities that have a potential to generate fugitive dust. The short-term effects on air quality during construction will be mitigated by compliance with provisions of Hawai'i Administrative Rules, Section 11-60.1-33 on Fugitive Dust. Potential control measures to reduce fugitive dust include:

- Using water or suitable chemicals to control fugitive dust in construction operations, the grading of roads, or the clearing of land;
- Applying asphalt, water, or suitable chemicals on roads, material stockpiles, and other surfaces which may result in fugitive dust;
- Installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Reasonable containment methods shall be employed during sandblasting or other similar operations;
- Covering all moving, open-bodied trucks transporting materials which may result in fugitive dust;
- Conducting agricultural operations, such as tilling of land and the application of fertilizers, in such manner as to reasonably minimize fugitive dust;
- Maintaining roadways in a clean manner;
- Promptly removing earth or other materials from paved streets which have been transported there by trucking, earth-moving equipment, erosion, or other means.

Total air quality impacts from operating the biodigester will be negligible. Use of the biodigester will actually reduce greenhouse gas emissions that are typically associated with livestock manure through both the storage of manure under anaerobic conditions, which prevent methane from being released into the atmosphere, and the use of biogas for energy production, which replaces the use of fossil fuels that generate greenhouse gas emissions. However, the combustion of biogas for energy production subsequently produces nitrogen oxides (NOx—general term for NO and NO_2), which are also greenhouse gases. The annual ambient air quality standard for NO_2 as defined by the State DOH, Clean Air Branch is 0.04 ppm. Air quality will be monitored at the biodigester site during peak periods of use to ensure that emission levels are in compliance with State ambient air quality standards.

3.9 LAND USE

Existing Conditions – The surrounding region has historically been used for agriculture and grazing. The proposed project site is currently unoccupied and is a part of the agricultural pastureland of the Pu'ukapu Farm Lot subdivision. A portion of the subject parcel is located within an avigation easement established by the State Department of Transportation (refer to *Section 3.18* for further discussion). The project site is bordered by Kanu O Ka 'Āina Learning 'Ohana Charter School, a developed residential neighborhood Kūhiō Village, Parker Ranch, and adjacent DHHL pastureland.

Development patterns on the Island of Hawai'i are set by State Land Use District designations, by the County of Hawai'i General Plan, and County zoning district designations. Per the Hawaiian

Homes Commissions Act, the Hawaiian Homes Commission (HHC) is responsible for determining land use on Hawaiian Home Lands. As such, the development patterns on the Island of Hawai'i are also influenced by DHHL land use designations as articulated in its Hawai'i Island Plan. The principle function of these plans and regulations is to specify where land uses such as commercial, residential, industrial, agricultural, open and public areas are permitted. The existing land use designations are briefly summarized below.

State Land Use Designation – The proposed site is situated within the State Land Use Agricultural District (*Figure 1-4*). According to the Land Study Bureau Detailed Land Classifications, the area has been classified for "Agricultural" type uses.

Coastal Zone Management Program – The parcel is not located in the Special Management Area established to administer the Coastal Zone Management (CZM) Program.

According to the DHHL *Hawai'i Island Plan Final Report* (2002), the proposed site has been recommended by the plan to be designated as General Agriculture. However, DHHL land use priorities have changed since the 2002 Hawai'i Island Plan was written, with new beneficiary input elicited during the DHHL Waimea Nui Regional Plan process which was completed in January 2012. Based upon beneficiary consultation during the regional plan process, the site is planned to be re-designated from General Agriculture to Community Use through a Land Use Designation Amendment, subsequent to approval from the Hawaiian Homes Commission after a Finding of No Significant Impact is issued for the final draft of this EA.

County of Hawai'i General Plan – The Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the project area as Intensive Agricultural Use (*Figure 1-5*). Land uses surrounding the project area include residential, agricultural, and the Waimea-Kohala Airport. Urban areas in proximity to the site include the commercial district of Waimea, which is located approximately one-mile to the north, and the residential communities of Waimea, Pu'ukapu, and Kūhio Village.

County of Hawai'i Zoning - The Hawai'i County Zoning Code (Chapter 25, Hawai'i County Code) designates the proposed project area as A-40a Agricultural District (*Figure 1-6*).

Impacts and Mitigation – Of the 114 acre site, approximately 28 acres will be developed. The balance of the remaining acres will be open space and preservation easements. Surrounding the proposed buildings, open space will be preserved. In addition, the area dedicated to the community agriculture complex will contribute to the self-sustainability of the Waimea Nui community.

State Land Use Designation – DHHL has granted WCNDC a permitted use of the site for a portion of the TMK boundary allowing for a permitted use of agricultural lands for community use, agriculture, equestrian, and recreational activities.

County of Hawai'i General Plan – The subject property is owned by DHHL. Based on the 2002 Memorandum of Agreement (MOA) between DHHL and the County of Hawai'i, the Hawaiian Homes Commission has authority to designate DHHL lands for intended purposes that meet the needs of the Department's mission. Based upon the MOA, DHHL will work with the County of Hawai'i to ensure that the appropriate County LUPAG designations are consistent with the project program elements and are compatible with existing uses in the surrounding area.

County of Hawai'i Zoning – The subject property is owned by DHHL, and is on agriculturally zoned lands under the County of Hawai'i. According to the Hawai'i County Code Section 25-5-7 (b), golf courses and driving ranges are not permitted within State land use agricultural districts unless approved by the County before 2005. Based upon its 2002 MOA with the County of Hawai'i, DHHL will work with the County of Hawai'i to identify an appropriate County zoning district in which a golf course is a permissible use and is compatible with the surrounding area.

3.10 AGRICULTURE

Existing Conditions – Most of the land in this area is identified by the U.S. Natural Resources Conservation Service (USDA NRCS 1973) as Prime, Unique, or Other Important Lands in the *Agricultural Lands of Importance to the State of Hawai'i* (ALISH) map series. ALISH is one of the predominant agricultural rating systems used in Hawai'i.

The majority of the agricultural land on the proposed project site has been loosely designated as "other agricultural lands" (*Figure 3-3*). Other Agricultural Lands are defined by the State of Hawai'i Classification System as land other than Prime or Unique Agricultural Land that is of statewide or local importance for the production of food, feed, fiber, and forage crops. The lands in this classification are important to agriculture in Hawai'i, yet they exhibit properties such as seasonal wetness, erodibility, limited rooting zone, slope, flooding, or droughtiness, that exclude them from the Prime or Unique Agricultural Land classifications. A small amount of the northeastern corner of the project site, which will be dedicated to the community agriculture complex, is designated as Prime Agricultural Lands. Further relationship to policies and plans is described in *Section 5*.

State Act 183 was enacted in 2005 to further establish incentives to encourage landowners to designate their agricultural lands as important. Such designations protect agricultural lands from being utilized for non-agricultural uses. Currently participation and adherence to IAL is on a voluntary basis. According to the preconsultation letter from the County of Hawai'i Department of Planning, the property is designated Important Agricultural Land in the County of Hawai'i general Plan.

Impacts and Mitigation –. Of the 114 acre site, approximately 42.2 acres of the project site will be dedicated to the community agriculture complex to provide people and organizations who wish to farm at a small scale a common place to learn and formalize their skills in farming. The equestrian center comprised of 14.7 acres will also serve the purpose of reintegrating horse riding, or paniolo, traditions back into the Waimea region.

While the golf facility is a commercial and recreational use of land, its location was strategically chosen for its lower elevations to act as a drainage and stormwater retention area for the parcel. Additionally, since the golf course will essentially preserve the land as open acreage, the area will be available to be reabsorbed by the community agriculture complex if agriculture expansion is needed in the future. Best management practices for the golf facility will be administered to ensure the existing natural state of the immediate area is maintained to existing or better conditions in case of this expansion need. Revenues generated by the golf-course will help to financially support the agricultural technical assistance and training programs provided by the agricultural complex, and thus help to promote agriculture in the surrounding region.

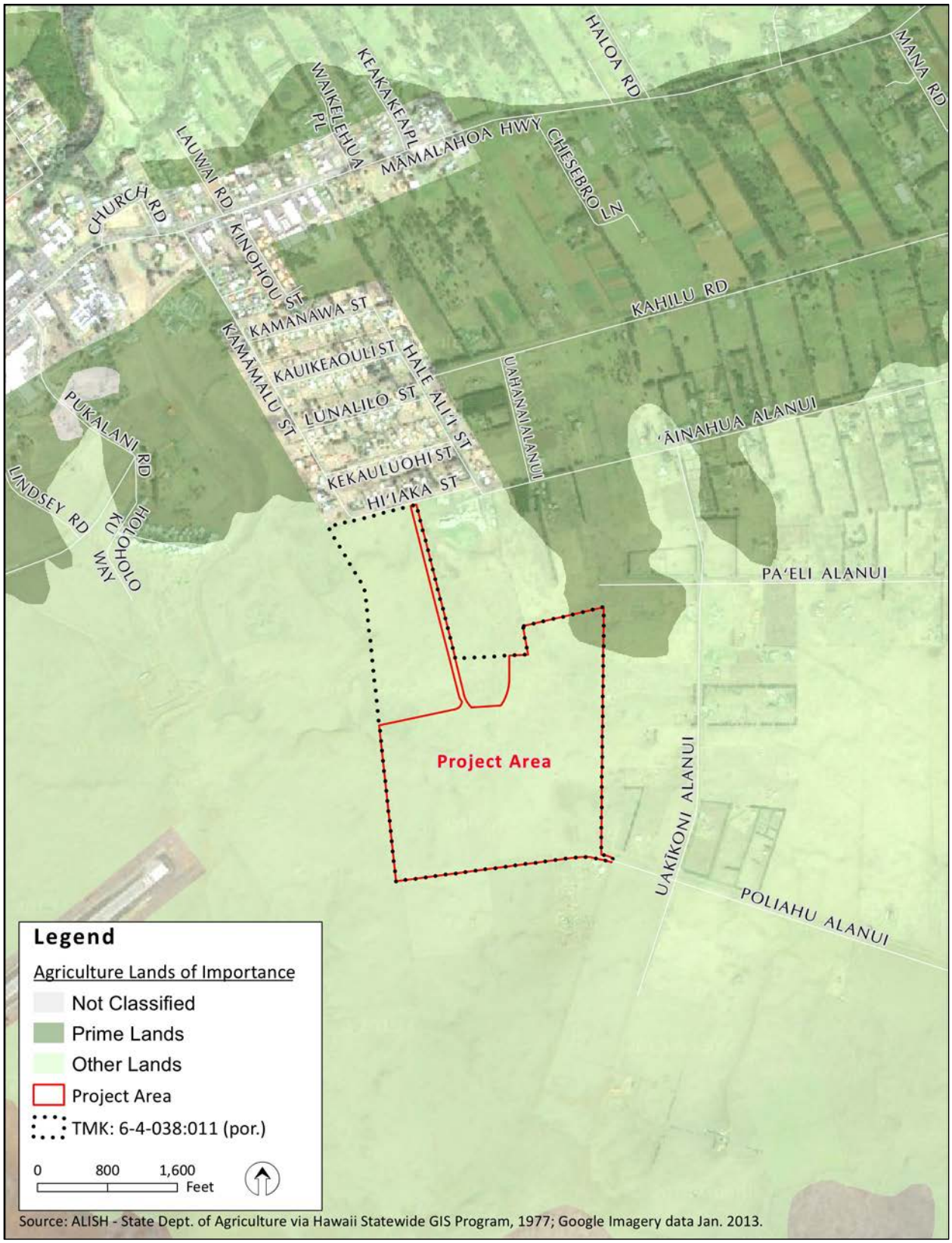


Figure 3-3: Agricultural Lands of Importance to the State of Hawai'i

3.11 ADJACENT LAND USES

Existing Conditions – Land uses of adjacent and nearby areas consist of residential and educational to the north (Kūhio Village and Kanu O Ka ʻĀina Learning ʻOhana Charter School), pastureland and agricultural land to the west, south, and east (*Figure 3-4*). Specifically, properties surrounding the proposed project parcel include the following:

- To the north is the Puʻukapu Homesteads residential subdivision community developed by the State of Hawaiʻi Department of Hawaiian Home Lands, and the recently developed Kanu O Ka ʻĀina Learning ʻOhana Charter School.
- To the south and west is a large parcel of undeveloped private land designated as agricultural by the State and County allocated land use guide and owned by Parker Ranch.
- To the south-west is the Waimea-Kohala Airport.

Impacts and Mitigation – The community of Kūhio Village will experience through traffic to Māmalahoa Highway along Hiʻiaka Street, Hale Aliʻi Street, and Kamāmalu Street. The Hawaiʻi Right-to-Farm Act (Chapter 165, HRS) protects agricultural activities from restrictions sought by new non-farming neighbors. In the long-term, this project will add to the urbanization of Waimea. However, the WNR-CDI was developed through the 30-year visioning process of the community and takes into account the suitability of the land use types as well as the scale of the project to the existing community. The project also includes agricultural activities, a marketplace, and support facilities for surrounding farmers.

3.12 ARCHAEOLOGICAL RESOURCES

An Archaeological Inventory Survey (AIS) was conducted within the project area in October 2014 by Keala Pono Archaeological Consulting, LLC of Honolulu, and is included as *Appendix C*. The archaeological inventory survey was conducted to determine the presence, nature, and extent of archaeological resources in the project area; evaluate their significance; and ensure compliance with the National Historic Preservation Act of 1966, as amended, Chapter 6E of the Hawaiʻi Revised Statutes (HRS), and the guidelines established by the State Historic Preservation Division (SHPD).

Existing Conditions – For the AIS, archaeological and historical literature and documents research was undertaken to understand the historical setting of the area. A surface survey was conducted by walking 5-8 meter (16-26 feet) transects throughout the project area. Results of the surface survey revealed two archaeological sites, which were then mapped with tape and compass, measured, described, photographed, and excavated. Additionally, a total of 10 trenches in arbitrary locations were excavated for the purpose of sampling the subsurface conditions of the parcel (*Figure 3-5*). A stratigraphic profile was measured from the surface, and sediments were described. No cultural remains, either prehistoric or historic, were encountered in any of the trenches. Stratigraphy consisted entirely of natural deposits with bedrock below.

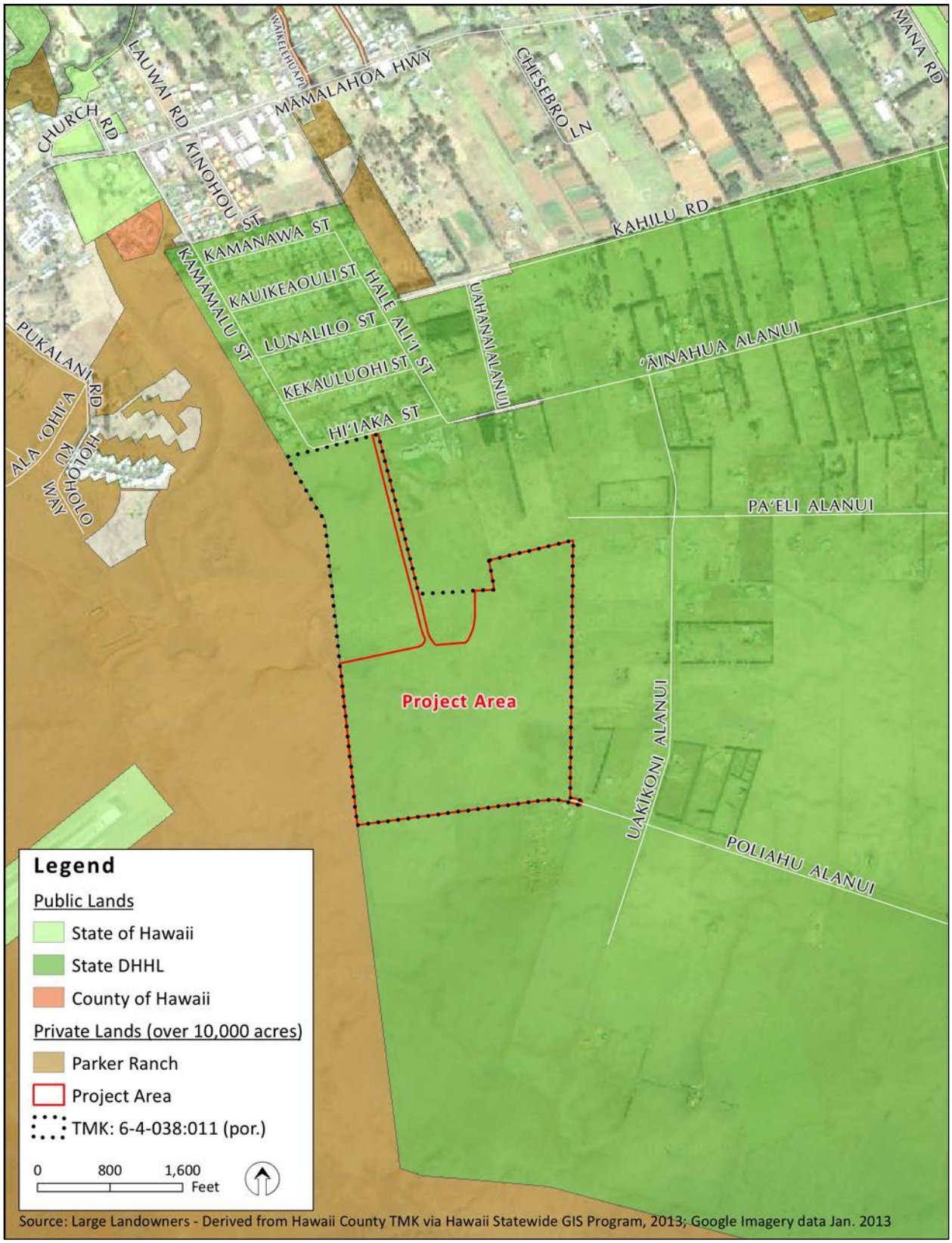


Figure 3-4: Adjacent Land Owners

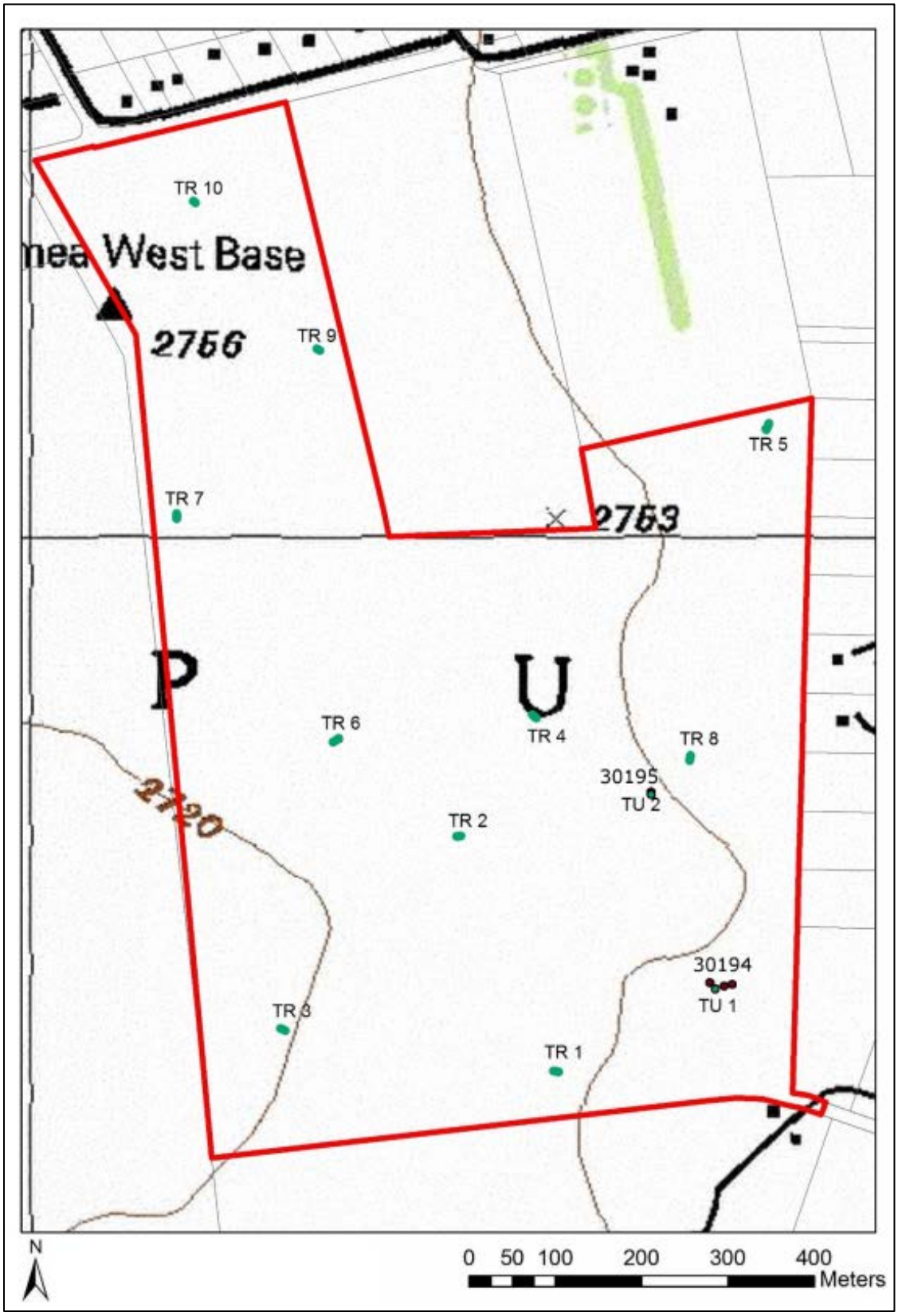


Figure 3-5: Location of Archaeological Trench Sites and Sites 30194 and 30195 (Keala Pono 2014)

The results of the archaeological inventory survey indicated that the project area consists of two sites: Site 30194, a possible historic or modern bulldozer push pile with a modified outcrop, and Site 30195, a surface L-shaped alignment of cobbles. Site 30194 is not significant, as it lacks integrity. In addition to the modified outcrop, a possible mound and two possible shelters were documented. Excavation of one of the possible shelters yielded faunal remains and a metal fragment. According to the assessment, the presence of subsurface metal at this feature may indicate use of the feature by humans even though it was naturally constructed. Parts of the site may be the result of bulldozing, while other parts may be natural.

Site 30195 consists of embedded cobbles measuring 3.1 meters long, 1.5 meters wide, and .21 meters high. No cultural material was found on the surface and the site is relatively intact and in fair condition. The assessment was not able to identify its age or function. The site is considered significant under Criterion D of HAR 13-284-6(b) for its potential to yield important information on history or prehistory.

Impacts and Mitigation – The proposed developments will avoid the two archaeological sites in order to have "no effect" on these sites. It should be noted that subsurface properties associated with former traditional Hawaiian activities in the project area, such as artifacts, cultural layers, and burials may be present despite the decades of historical pasture use. As a precautionary measure, personnel involved in the project should be informed of the possibility of inadvertent cultural finds and should be made aware of the appropriate notification measures to follow. In the event that any previously unidentified sites or remains are encountered during site work and construction, work in the immediate area shall cease. An archaeologist from the State Historic Preservation District shall be notified and work in the area will be suspended until further recommendations are made for appropriate treatment of archaeological and/or cultural materials.

3.13 HISTORICAL AND CULTURAL RESOURCES

As part of this project, a cultural impact assessment was completed for the project area by Keala Pono Archaeological Consultants, LLC. This assessment consisted of background research and oral interviews. The complete report is included as *Appendix D* of this EA.

The current project area is located in the ʻili of Puʻukapu in the ahupuaʻa of Waimea. The literal meaning of Puʻukapu is "sacred hill," and the literal meaning of Waimea is "reddish water," from the erosion of red soil. However, many elders familiar with the area do not attribute the red tint to the red soil, but rather to the natural color added as the water seeps through the hapuʻu (tree fern) forests on the slopes of the Kohala Mountains. Through recent history, this area of Waimea has been a part of the grazing lands of Parker Ranch.

3.13.1 Traditional Hawaiian Background

Waimea is referred to as a place where famous historical battles were fought. Just prior to Western contact in the early 18th century, Aliʻinui Alapaʻinui ruled all of Hawaiʻi island; however, internal conflicts divided the island, leaving Alapaʻi to rule the northern districts and Kalaniʻōpuʻu to rule the southern districts. After Alapaʻiʻs death in 1754, his son Keaweʻōpala inherited his seat, and was subsequently challenged by Kalaniʻōpuʻu for control of his lands. Kalaniʻōpuʻu prevailed in assuming rule of North Hawaiʻi lands, becoming the King of the entire Hawaiʻi Island. After the death of Kalaniʻōpuʻu in 1782, his son, Kīwalaʻō governed the island but was ultimately

challenged by and lost to Kamehameha, the son of Kalaniʻōpuʻu's brother. Kīwalaʻō was killed in battle by Kamehameha's forces and Kamehameha took his place. Following that decisive battle, the governance of Hawaiʻi Island was divided into three parts: the north half of the island from Hāmākua to Kohala to Kona ruled by Kamehameha; Hilo, ruled by Keawemaʻuhili, the brother of the deceased Chief Kalaniʻōpuʻu; and the districts of Kaʻū and Puna ruled by Keōuakūʻahuʻula, a son of Kalaniʻōpuʻu. Eventually, Keawemaʻuhili was killed by Keōuakūʻahuʻula's forces, and then Keōuakūʻahuʻula was defeated by Kamehameha's army. At the time of Captain Cook's arrival to the islands in 1778, during the reign of Chief Kalaniʻōpuʻu, there were an estimated 23,000+ natives living in the Kohala district, in which Waimea is situated.

3.13.2 Traditional & Historic Land Tenure and Use

Historically, the Waimea environment was naturally suited for intensive upland farming, which supported a sizable village population. The area is noted for having cultivated ʻuala and dryland taro, with extensive cultivations in the centuries just before Western contact during the reigns of Alapaʻinui and Kalaniopuʻu. Two heiau are connected to Waimea: Puʻukoholā, near the coast at Kawaihae, which was built under the rule of Kamehameha, and a women's heiau built inland of Waimea under the direction of Aliʻiwahine Hoapilihae. Some suggest that Puʻukoholā was built around the same pre-contact time period when food resources were strained.

After the arrival of foreigners to Hawaiʻi, Waimea underwent rapid transformation with the presence of ranchers, whalers, missionaries, sandalwood traders, and other agricultural businessmen. The changes in Waimea were coupled with and further accelerated by the Māhele, the royal proclamation by Kamehameha III, which replaced the traditional land tenure system with a Western capitalist system as a means to provide the Native Hawaiian population with irrevocable land base they would own. Within the Māhele, all of Hawaiʻi's lands were placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and Konohiki Lands, "all subject to the rights of native tenants." However, the convoluted and foreign process of securing land titles and filing claims seemingly disenfranchised many Native Hawaiians. A majority of the native population never received their LCA that recognized their land holdings due to several reasons, mainly rooted in the foreign and unfamiliar understanding of land ownership. This provided an opportunity for foreign interests to begin to make claims to and acquire title of Hawaiian lands.

Waimea's rich paniolo history has roots stemming from the late 18th century. In 1792, another British sailor, Captain George Vancouver, who had previously visited the islands on Captain Cook's earlier voyages, arrived and anchored at Hawaiʻi Island. On this visit, Vancouver brought gifts of cattle, goats, and sheep for Kamehameha I, who placed a kapu, or restriction, on the livestock. Anyone caught harming the animals could be persecuted by death. As a result, the population of cattle, goats, and sheep multiplied across Waimea and the rest of north Hawaiʻi Island. Construction of pens, walls, and enclosures were built to protect people's cultivated crops from destruction from the animals. Several years later in 1803, the horse was also introduced to the island.

After the kapu over the cattle was lifted in 1815, Kamehameha appointed American newcomer, John Palmer Parker, to be his authorized cattle hunter. Three years later, Parker married Keliʻi Kipikane Kaolohaka, a granddaughter of Kamehameha. The hunting of animals, and especially the salting and corning of beef and the procurement of hides and tallow, became a booming industry.

This business was notably fueled by the demand from visiting whaling ships. In 1832, the first of numerous Mexican cowboys arrived on Hawai'i Island to lend their expertise and skills in handling cattle. In 1847, Parker established the Parker Ranch, with the lands in Waimea, Kawaihae, and South Kohala becoming prosperous centers of the cattle industry, and the paniolo of this region among the finest in the world.

Overlapping with the arrivals of foreign sailors, whalers, and cowboys to the islands was the equally significant arrival of Christian missionaries. One of the most famous early missionaries was Lorenzo Lyons, who arrived in the islands in 1832 and later erected his church in Waimea. His written descriptions of the natural environment of Waimea depict a landscape filled with wind, rain, and running water, matching the oral accounts of the area. Another early missionary to Hawai'i Island who provide an invaluable historical account of Waimea was Reverend William Ellis, who arrived in the islands in 1822. In his historical anecdotes, Ellis documented the agricultural abundance in Waimea and the fertile characteristic of the soil and access to water making this a prime agrarian center on the island.

The current project area is a part of lands known as Pu'ukapu (*Figure 3-6*) which are owned by DHHL- whose formation is a part of another historical legacy through the establishment of the Hawaiian Homes Commission Act of 1920. Championed by Prince Jonah Kūhiō Kalaniana'ole, the primary goal to establish the act was to provide for the rehabilitation of the Native Hawaiian people (defined for the purposes of the Act as those with 50% or more blood quantum) through a homesteading program. DHHL has over 117,000 acres on the Island of Hawai'i. Pu'ukapu is the largest subdivision of the Homesteads with over 11,000 acres. Native Hawaiians began receiving awards in Waimea in 1949 and the Pu'ukapu subdivision was established in 1962. The HHCA made it possible for native Hawaiians to utilize these lands for agriculture and pasture. The project area has been primarily utilized historically for limited pastoral use.

By 1943, the U.S. military opened Camp Tarawa in Waimea through a lease from Parker Ranch of approximately 91,000 acres for military training. The camp, which hosted 50,000 troops between 1943 and 1945, was eventually abandoned after the end of World War II in 1946. The infrastructure deteriorated and the lands were reabsorbed by Parker Ranch until the lease expired and the former Crown Lands were reverted to DHHL. Surface clearing of UXO was conducted in 1946 and 1954 for Camp Tarawa and other previously used military training lands in Waimea and Waikoloa.

Impacts and Mitigation – Regarding the lands of Waimea, there were no LCAs within the project area, although according to the Waihona 'Aina database, 20 awards may have been made for the 'ili of Pu'ukapu. Nevertheless, there has been documentation of a land dispute from 1865 which sheds some light on the original ownership of the project site. One of the witnesses, a person named Cross, claimed that Pu'ukapu once belonged to Chief Kalaimoku, but by 1865, this person wasn't sure who the present owners were. Another witness in the same land dispute first claimed that the Pu'ukapu land was firmly kept by Kamehameha I. It is possible that the Pu'ukapu-Waimea lands were passed down from Kamehameha I to his son, Kamehameha III.

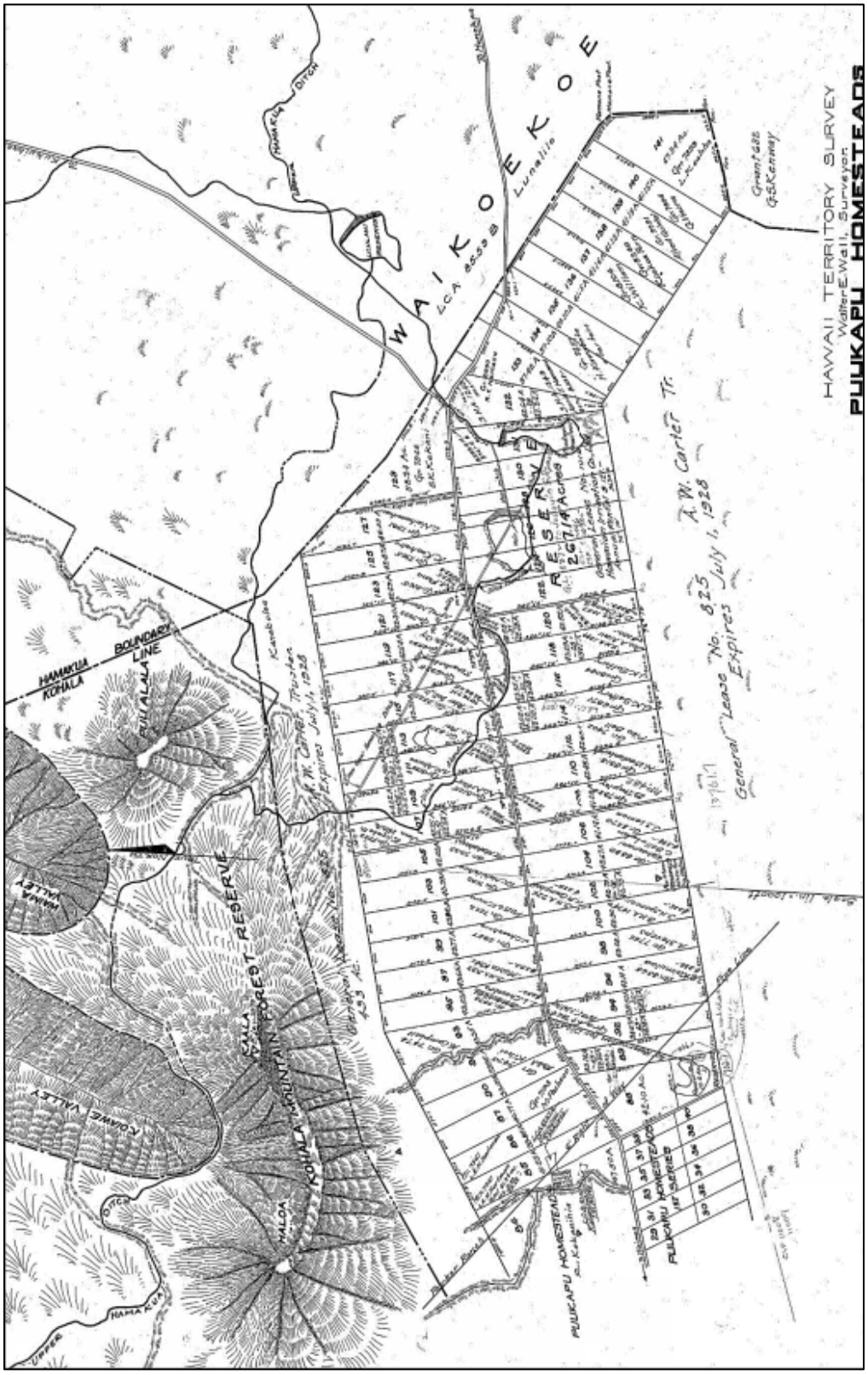


Figure 3-6: Waimea Government Lands 1913
(Kanakanui and Lutz, 1913, provided by Keala Pono 2014)

Based on the research conducted by Keala Pono, there were no previously identified historic properties located within the project area. Although these lands are part of a contiguous landscape that has been impacted by the historical land tenure transitions, there does not appear to be any specific or known cultural practices being actively conducted within or near vicinity to the project area. Of importance and relevance is the visual relationships that the project area provides to the kūpuna mauna (poetic term for the sacred mountain ranges of Mauna Kea and Kohala peaks). In the proposed development plan, community resource areas like the chapel and cemetery were sited and oriented to preserve those visual relationships important in creating connection. Overall though, the other proposed developments will have "no effect" on significant cultural resources.

3.14 SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions – Waimea has been an important settlement for over a thousand years and headquarters for Parker Ranch for over a century and a half. A substantial area of Hawaiian Home Lands supporting farms and ranches is also present. Twenty years of rapid growth have added thousands of homes for transplanted mainlanders and South Kohala resort workers to the charming cattle town.

According to the 2010 U.S. Census Data, the population in South Kohala has grown over the years from 4,607 in 1980 to 13,131 in 2000 and to 17,627 in 2010. There are more than 9,000 people who reside in Waimea alone. A mix of activities employs South Kohala residents ranging from service industries, wholesale and retail trade, government, ranching, diversified agriculture, manufacturing and construction. Overall, Waimea exhibits a higher proportion of service occupations, particularly those involving food, accommodation and entertainment, reflecting the importance of the visitor industry. In addition, there is a larger percentage of management and professional positions in Waimea than for Hawai'i Island as a whole. With continued population growth projected for the Hawai'i County, as forecasted by the Department of Business Economic Development and Tourism, demands for community economic development opportunities within the South Kohala will likely grow.

Although Waimea and the island as a whole exhibit many socioeconomic similarities, there are some important differences. According to the U.S. Census 2010, Waimea has a substantially larger Hawaiian population, and a somewhat smaller Asian population. In addition, it has fewer elderly and more children, and a lower median age. In comparison, it is also more prosperous, with greater average household incomes, more households that fall between $50,000 and $100,000, and fewer residents living below the poverty level.

Major public facilities located within proximity of the proposed site include Waimea Elementary and Intermediate School, Thelma Parker Memorial Public Library, Waimea Police and Fire Station, North Hawai'i Community Hospital, and Waimea Landfill. Other private educational facilities located in Waimea include Kanu O Ka 'Āina Learning 'Ohana Charter School, Parker School, and Hawai'i Preparatory Academy.

Impacts and Mitigation – The project will create short-term benefits as a result of design and construction employment. The project will create jobs for local construction personnel. Local material suppliers and retail businesses can also be expected to benefit through a multiplier effect from the increased construction activities.

The principal socio-economic impact of the proposed project will be the creation of the golf facility, community agriculture complex, and equestrian center. Long-term benefits of the proposed project will include jobs in agriculture, food vending, building management, and retail. In addition to the creation of jobs, the State of Hawaiʻi and County of Hawaiʻi will receive excise tax revenues on finished development and building materials, conveyance taxes, and income taxes on wages. The socio-economic impacts will be positive for the local community, as well as the County of Hawaiʻi and State. No specific socio-economic mitigation actions are recommended.

3.15 VISUAL RESOURCES

Existing Conditions – The project site is located on the edge of a developed urban residential neighborhood on vacant agricultural land. The existing views consist of the surrounding open space, Kanu O Ka ʻĀina Learning ʻOhana Charter School, the Kohala mountains, and the slopes of Mauna Kea (*Figures 3-7, 3-8, 3-9, and 3-10*).

The County of Hawaiʻi General Plan (2005) characterizes the scenic beauty of various areas and identifies sites and vistas of natural beauty. According to the General Plan:

> *"The Waimea region lies in a plateau between the Kohala Mountains and Mauna Kea. The Kohala Mountains provide a backdrop of rolling hills and volcanic cones covered with pastures kept green by fog, fine mist, and rain. Mauna Kea provides a distant but dramatic mass as it rises steeply above the plateau. Viewed at a distance, Waimea town lies nestled at the base of the Kohala Mountains…The pastures and puʻu immediately above Waimea Town have been identified as a vista of exceptional natural beauty"* (Section 7.5).

Impacts and Mitigation – Although the project scale and design will not significantly impact area views, views of the open pastoral landscape will be minimally affected by the new project elements. Overall though, the size, scale, and design details of the project will be in character to the surrounding area and key visual corridors will be maintained. Design details and landscaping will be utilized to maintain the visual character of the project site.

3.16 UTILITIES

A Preliminary Engineering Report was completed by the Civil Engineering Department of Group 70 International in January 2015 and is included as *Appendix E* in this study.

Water System: *Potable Water*: Presently, the site has no water use. Potable water service in the general area is provided by DWS' 4.0 MG (million gallons) clear water reservoir at the water treatment plant which has a spillway elevation of 3,052 feet above MSL. Based on existing site elevations between 2,714 feet and 2,770 feet above MSL, static pressures on-site are anticipated to range between 122 and 146 PSI. DWS indicated this water source is operating near capacity.

Existing water service available along the project's street frontage includes:

- A 6-inch cast iron water line located near the primary access point along Hiʻiaka Street is part of a looped water system within the Puʻukapu Pasture Lots subdivision
- An existing 8-inch ductile iron water line near the secondary access point off of Poliahu Alanui Road and is the end of a dead-end water line.

Figure 3-7: View from Project Area to the South/Southwest

Figure 3-8: View from Project Area to the North/Northwest

Figure 3-9: View from Project Area to the East

Figure 3-10: View from Project Area to the West

The County of Hawai'i Department of Water Supply (DWS) has indicated that the project property has a water allocation of 15 dwelling units –most of which has been used up through an existing water meter off the Hi'iaka Street water main serving a portion of the project property outside of the project area. As a result, increasing water demands at the property will require further coordination with DWS to determine what water improvements will be needed at the DWS water source to accommodate the proposed project. Pre-consultation comments received from DWS stated the project would require a Water Development Agreement in accordance with Rule 5 of DWS' Rules and Regulations with the Water Board in order to obtain a water commitment for the WNR-CDI. The Agreement establishes the scope of water system improvements, facilities charges to be paid, and a timeline for construction.

Fire hydrants along Hi'iaka Street and Poliahu Alanui Road are served by the aforementioned DWS water mains. Fire protection water lines do not extend into the project property.

Non-Potable Water: Non-potable water service in the general area is provided by the Department of Agriculture's 60 MG Waimea Reservoir through the Waimea Irrigation System (WIS). The WHHA's past correspondence about the WIS with the Department of Agriculture indicates the following:

- The existing system experiences low residual pressures during peak flows and on-site tanks should be utilized to attenuate additional impacts as a result of increased demand.
- A 24" agriculture water main extends to the property's secondary access point along Poliahu Alanui Road. Service off the WIS will be allowed through connection to the existing 24-inch agriculture water main.
- The Department of Agriculture currently has no objections to WHHA treating and utilizing water from the WIS for potable uses at the project site.

Impacts and Mitigation – The development of the proposed project will require County Department of Water Supply (DWS) service and will generate an increased demand for potable water and irrigation water. The project is projected to have an average daily demand of approximately 57,500 gallons per day (GPD) for domestic use, 104,000 GPD of irrigation water and 2 hours of 2,000 GPM fire flow.

In lieu of providing the DWS source improvements to accommodate projected domestic water demand, agriculture water from the WIS will be treated and distributed on-site for potable use and the system will be certified through the Department of Health as a public water system. WIS water will also be used for non-potable uses, such as irrigation and fire protection, through a separate water distribution system. Since the WIS experiences low pressure during peak flows, a tank farm will be constructed such that water from the WIS will fill tanks to meet potable and non-potable water demands without adversely affecting the WIS. Hydraulic analysis of the WIS and further coordination with the Department of Agriculture is necessary to determine tank and pump sizes needed to conform to the *Water System Standards.*

Potable Water: Agriculture water from the tank farm is considered non-potable and will be pumped to the water treatment system to create potable water on an as-needed basis. Following treatment and disinfection, potable water will be stored in Clearwater tanks until used. To minimize capital and operating costs, potable water from the treatment system will be pumped to proposed buildings for domestic uses only. The water treatment system will be designed to meet

requirements contained in HAR Section 11-20 relating to Public Water Systems. If treatment of agriculture water is determined to be unviable in the future, potable water will be provided through a looped, onsite water system that connects to the existing DWS water system along Hi'iaka Street and Poliahu Alanui Road. Since the property does not have sufficient water allocation to support proposed development, further coordination with DWS is necessary to determine the extent of off-site water improvements needed to accommodate proposed water demand. In either case, the potable water distribution system will be designed to conform to the Water System Standards.

Non-potable Water: Agriculture water from the tank farm will be pumped to proposed sites for non-potable use only. Since the non-potable system will also supply fire protection water to on-site fire hydrants and building connections, the non-potable water distribution system will be designed to conform to the Water System Standards.

Water efficient irrigation systems similar to WOW Farms' irrigation systems will be utilized to reduce irrigation water demand and conserve water on the majority of farm lots in the community agriculture park. Also, water demand for the proposed golf-facility will be significantly less than water demand for a standard golf course. The proposed golf facility will not include fairways and the irrigated areas of the golf facility will be limited to the tee boxes and greens which, together, are assumed to be approximately 10 percent of the total area set aside for the golf facility.

Sewer: The majority of Waimea rely on Individual Wastewater Systems (IWS) or a Wastewater Treatment Works. There are no existing sewer systems near the project site.

The project property is located within an agricultural zone. As such, any building in this zone may be exempt from HAR Section 11-62 sub-sections 2 and 3 if buildings or facilities are essential to the operation of an agricultural enterprise.

Impacts and Mitigation – Based on HAR 11-62 relating to Wastewater Systems, the project will generate an average daily wastewater flow of approximately 26,400 gallons GPD (*Table 3-3*). All wastewater flows produced from the project will need to be handled through a Wastewater Treatment Works. Although the specific components of the proposed Wastewater Treatment Works will be determined during design, the following items are anticipated based on a typical biological treatment process:

- Influent screening—Trash and debris will be removed from raw wastewater. The screening unit will be enclosed in a building and/or installed with an odor control unit for odor and vector control.
- Equalization Tank—Highly variable flow rates will be attenuated. Sizing and location will depend on phasing and variability in flow characteristics.
- Biological Treatment—Wastewater treatment will consist of some form of anoxic and aerobic biologic reactors. Reactor configuration will depend on anticipated phasing and wastewater characteristics.
- Sludge digesters and dewatering unit—Waste sludge may be removed from the biological treatment process and dewatered. Reuse or disposal of sludge may occur onsite or offsite.

- Tertiary Treatment—Treated effluent from primary and secondary treatment may be further treated to produce recycled water and possibly to remove additional nutrients for water quality purposes.
- Disinfection—Filtration, ultra violet or chemical disinfection will be used to eliminate pathogens in treated effluent.

All wastewater collection and treatment components will be designed in compliance with HAR Section 11-62 relating to Wastewater Systems. Several options are available for disposing and treating effluent, including infiltration (injection wells, infiltration trenches, absorption beds, ponds), discharge (direct discharge into oceans or streams), and re-use (non-potable irrigation). Wastewater re-use is the most viable option for the proposed project. The project property is located mauka of the UIC line, prohibiting the use of injection wells. Moreover, due to environmental concerns and the project's distance from the ocean and streams, direct discharge into oceans and streams is not proposed. Wastewater re-use can be utilized if designed in accordance with DOH Guidelines for the Treatment and Use of Recycled Water.

Gas: Gasco, Inc. distributes propane gas on the Island of Hawai'i. Gasco has metered gas available in limited areas of Waimea.

Impacts and Mitigation – The proposed project will have no significant impact or demand on existing utilities. No mitigation measures are required.

Electrical and Telephone: Electrical power on the Island of Hawai'i is provided by Hawaiian Electric Light Company, a privately owned utility company regulated by the State Public Utilities Commission. Existing power lines are available.

Photovoltaic (PV) panels with battery backup will be installed on all available rooftop surfaces for an additional source of renewable energy.

Hawaiian Telecom and Sandwich Isles Communications, Inc., provide telephone and telecommunications services.

Impacts and Mitigation – Electricity will be provided on-site by the energy produced by the biodigester. The digester can provide sufficient fuel for 12 hours per day of 450 kwh generation and 12 hours per day of 225 kwh production, enabling the generation facility to provide 450 kwh during peak power demand periods. Energy produced by the biodigester will be fed and regulated at a distribution hub located in the central portion of the property. In the event that the biodigester is out of service for an extended period of time, backup storage of propane as well as provisions to hook up to a propane truck will be available at the biodigester facility for continuous electricity generation.

Since the project site is currently undeveloped, utilities will need to be brought on site. This project will likely use green/climate appropriate architecture incorporating energy efficient technology and design, and appropriate vegetation and landscaping. Buildings will consider sustainable building design in its project. Solar and co-generation opportunities in the development will also be considered.

Table 3-3: Water Demands and Wastewater Flow Projections

PROJECT: DHHL Waimea Nui PER
CLIENT: State of Hawaii - Department of Hawaiian Home Lands
SUBJECT: Water Demand and Wastewater Flow Projection

1/26/2015

DHHL Waimea Nui	WATER DEMAND											WASTEWATER FLOW PROJECTION				
Proposed Use	POTABLE DEMAND (gcpd)	IRRIGATION DEMAND (gpd/acre)	WASTEWATER PROJECTION (gcpd)	Occupancy (# people or horses)	LAND USE AREA (Acres)	POTABLE (gpd) 7 days/wk	POTABLE (gpd) 2 days/wk	POTABLE (gpd) 1 days/wk	TOTAL	NON-POTABLE (gpd)	UNITS	GPD 7 days/wk	GPD 2 days/wk	GPD 1 days/wk	TOTAL	UNITS
Puukapu Cemetery		2000	20	3	10.0	75				20,000		60				
Chapel (with kitchen) - 2x/wk			10	250			3,125						2,500			
Community Agriculture Park		2000	20	492	31.3	12,300				62,600		9,840				
Farmers market Bldg			20	7.5		188						150				
Farmers market Bldg - vistors			5	120		750						600				
Agricultural Resource Center Bldg			20	7.5		188						150				
Community Storage Bldg																
Post Harvest Packing House (w/ comm. Kitchen)		0	20	13.5	6.0	338				0		270				
Post Harvest Packing House Operation						7,200						7,200				
Anaerobic Digester		0	20	10	4.9	250				0		200				
Equestrian Center and Roping Area		1000			14.7					14,700						
Stables	105			250		26,250										
Grandstands - 1x/wk			5	750				4,688						3,750		
Museum			20	4.5		113						90				
Golf Facility		2000	20	30	3.22	750				6,440		600				
Pro shop/restaurant			80	75		7,500						6,000				
					SUBTOTAL	**55,900**	**3,125**	**4,688**	**–**	**103,740**	gpd	**SUBTOTAL**	**25,160**	**2,500**	**3,750**	**--**	gpd
					GALLONS/WEEK	**391,300**	**6,250**	**4,688**	402,238		g	**GALLONS/WEEK**	**176,120**	**5,000**	**3,750**	184,870	g
					AVG DAILY DEMAND				57,463	103,740	gpd	**AVG DAILY FLOW**				26,410	gpd
					MAX DAILY DEMAND (1.5 for Potable, 1.65 for Irrigation)				86,194	171,171	gpd						
					PEAK HOUR DEMAND (3)				120	216	gpm						
					FIRE FLOW (2000gpm for 2 hrs)				240,000		g						

Assumptions:
Wastewater projections are from State of Hawaii, HAR 11-62 App F.
Potable water demand is 125% of the wastewater flow projection for each use, except for horse stables and Packing House Operation
Non-potable crop irrigation rate = 2000 gal/acre From Waimea Hawaiian Homestead Association water consumption data for WOW farms*
*State of Hawaii Dept of Agriculture, "Agricultural Water Use and Development Plan", Dec. 2004 indicates 3400 gal/acre for crop irrigation. However, WHHA provided rates are used in this calculation.
Non-potable landscape irrigation rate = 2000 gal/acre Assumes 0.5" of water applied weekly
Golf facility assumed to irrigate 10% of land area, Equestrian assumed to irrigate 50% of land area, No irrigation at packing house and anaerobic digestor sites.
Visitor wastewater flow projection based on "Picnic parks (toilet wastes only) (per picnicker)" from App. F
Number of vistors = 20ppl/hr x 12hr x 50% = 120 ppl
Post Harvest Packing House Operation water demand based 2,500 sqft/hose bib
Post Harvest Packing House Operation water demand: 12,000 sqft bldg/2,500 sqft/hose bib = 4.8 hose bibs = 5 hose bibs
Post Harvest Packing House Operation water demand: 2 GPM/hose bib * 60 min/hr * 12 hours/day * 5 hose bibs = 7200 gpd
Post Harvest Packing House water will be disposed of as gray water
Potable water demand for horse stables based on 15 gpd for drinking + 90 gpd for washing per horse = 105 gpd/horse
Horse wash water will be kept separate from manure and will be disposed of as graywater
Grandstand wastewater flow projection based on "Picnic parks (toilet wastes only) (per picnicker)" from App. F
Number of grandstand attendees = 1500 occupancy x 50% = 750 users
Number of seats at the golf restaurant = 75 seats

Solid Waste: Solid waste generated in West Hawai'i is disposed of at the West Hawai'i Landfill, a 300-acre facility that is situated approximately 18 miles from the project area in Pu'uanahulu, North Kona. This landfill is expected to be able to serve the County's needs well into the future.

Impacts and Mitigation – Solid wastes from construction activities are anticipated to have no significant short-term impacts on the existing solid waste collection and disposal system or the environment. There will be no demolition waste, as the property is currently undeveloped. The majority of pre-construction waste will be green waste from site clearing. Green waste will be recycled. The nature of the waste generated by the construction of the WNR-CDI will be minimized by emphasizing full use of materials, recycling, and proper disposal of all solid waste.

After build out, untreated manure and food waste from the equestrian center and community agriculture complex will be used for energy production in the biodigester. Solid waste generated by operation activities on site will be collected and disposed at approved County solid waste disposal facilities. Recycling of solid wastes will be accommodated and implemented to the extent practicable. Composting of green waste will be encouraged and landscape maintenance will recycle as much as possible. Solid waste systems will be designed to comply with the applicable DOH and County requirements.

Drainage: The County storm drainage system serving the Waimea area consists of a network of storm drainage pipes and culverts. Storm runoff collected by these pipes and culverts is either disposed of in sumps, drywells, or injection wells. In general, the porous overlying soil in the Waimea area facilitates percolation of rainwater into the ground. The existing site is unoccupied and has no drainage system. Existing on-site flows sheet flows to the west. The existing topography indicates that there may be off-site flows onto the site. There does not appear to be any existing sump conditions within the site.

Impacts and Mitigation – As previously discussed in *Section 3.4*, construction of the facilities and parking areas will change the velocities, directions and quantities of the water drainage. The flow pattern of excess rain runoff will need to be controlled to prevent flood damage. Off-site flows will need to be determined and managed by accepting the flows and diverting it within the site.

This project will incorporate efficient design to moderate stormwater runoff such as increased pervious surfaces, use of pavers, and landscaping to absorb water runoff. Buildings will consider sustainable building design in its project to increase pervious surface and water catchment opportunities in the surrounding landscape in order to decrease stormwater runoff.

3.17 ROADWAYS AND TRAFFIC

As part of this project, a traffic impact analysis report (TIAR) was completed by Traffic Management Consultant, Inc. in December 2014. This traffic analysis evaluated existing traffic operations, trip generation characteristics of the proposed project, analysis of the Year 2024 traffic conditions without the proposed project, identification and analysis of traffic impacts resulting from the proposed project, and recommendations. The highway capacity analysis performed for the TIAR defines Level of Service (LOS) as a qualitative measure describing the operational conditions within a traffic stream. This term is used to discuss the existing and future traffic conditions of the project area, and a definitions of the levels from A (satisfactory) through F (unacceptable), is found in *Table 3-4.* The full TIAR is included as *Appendix F*.

Existing Conditions – Primary access to the site is located immediately west of the Kanu O Ka ʻĀina Learning ʻOhana Charter School access driveway, on Hiʻiaka Street, which is accessible from Kamāmalu Street or Hale Aliʻi Street (*Figure 3-11*). Secondary access would be provided at the southeast corner of the project site from Poliahu Alanui Road, which connects to ʻĀinahua Alanui Road via Uakīkoni Alanui Road. Access to the east of the project location can be provided by the existing network of roadways, which includes ʻĀinahua Alanui Road, Pualahilani Alanui Road, Kahilu Road, and Mana Road, which connects to Māmalahoa Highway.

Māmalahoa Highway is a two-way, four-lane arterial highway in Waimea Town. East of Waimea Town, Māmalahoa Highway is a two-lane arterial highway.

Kamāmalu Street is a two-way, two-lane local street, which intersects Māmalahoa Highway at a signalized tee-intersection. Westbound, Māmalahoa Highway does not provide an exclusive left-turn lane at Kamāmalu Street. Existing levels of service (LOS) at the intersection of Māmalahoa Highway and Kamāmalu Street operate at LOS "B" in AM and PM peak hour traffic. The left-turn movement from Kamāmalu Street onto Māmalahoa Highway currently operates at LOS "D" in AM peak hour traffic.

Table 3-4: Intersection Level of Service Criteria

Level of Service (LOS)	Signalized Intersections		Unsignalized Intersections	
	Delay *d* (sec/veh)	Description	Delay *d* (sec/veh)	Description
A	$d \leq 10$	Few stops, little or no delay	$d \leq 10$	Little or no delays
B	$10 < d \leq 20$	Good progression, short cycle lengths	$10 < d \leq 15$	Short delays
C	$20 < d \leq 35$	Cycle failures begin to occur, i.e., vehicles stop at more than one red phase	$15 < d \leq 25$	Average delays
D	$35 < d \leq 55$	Noticeable number of cycle failures, unfavorable progression	$25 < d \leq 35$	Long delays
E	$55 < d \leq 80$	Frequent cycle failures, poor progression, long delays	$35 < d \leq 50$	Very long delays
F	$d > 80$	Over saturation, many cycle failures, high delays	$d > 50$	Extreme delays

Figure 3-11: Roadways (Traffic Management Consultant, Inc. 2014)

Mana Road is a two-way, two-land collector road with a 20-foot wide pavement. Mana Road is stop-controlled at its tee-intersection with Māmalahoa Highway, which is located about 1.5 miles east of Kamāmalu Street. Mana Road currently operates at LOS "E" in AM and PM peak hour traffic. Westbound, Māmalahoa Highway does not provide an exclusive left-turn lane at Mana Road.

Hiʻiaka Street is a two-way, two-lane local road with a 20-foot wide pavement. Hiʻiaka Street continues to the east at ʻĀinahua Alanui Road. ʻĀinahua Alanui Road, Pualahilani Alanui Road, Uakīkoni Alanui Road, and Kahilu Road make up a grid network of roadways between Hiʻiaka Street and Mana Road. These roadways are two-way, two-lane local roads with 18-20 foot-wide pavements.

Impacts and Mitigation – On average, traffic in the region is generally expected to increase by 2.2 percent per year to the year 2024 without the proposed project. The intersection of Māmalahoa Highway and Kamāmalu Street is expected to operate at LOS "B" during AM and PM peak hours of traffic without the proposed project. The left-turn movement from Kamāmalu Street is expected to operate at LOS "D" at Māmalahoa Highway in AM peak traffic without the proposed project. Mana Road at Māmalahoa Highway is expected to deteriorate to operate at LOS "F" during AM and PM peak hours of traffic without the proposed project.

The proposed WNR-CDI is not expected to have a significant impact on traffic operations in the project vicinity. Traffic operations along Māmalahoa Highway and the critical traffic movements at the project driveways are expected to continue to operate at acceptable levels of service during both peak hours of traffic. During the AM peak hours of traffic, the proposed project is expected to generate a total of 220 vehicles per hour (vph) entering the site and 43 vph exiting the site. During the PM peak hours of traffic, the project is expected to generate a total of 147 vph entering the site and 357 vph exiting the site.

According to the study, the AM peak hour traffic for the surrounding area is not expected to be significantly affected by the development of the proposed project. The Māmalahoa Highway intersection at Kamāmalu Street and Mana Road are not expected to be significantly affected. The Kamāmalu Street intersection is expected to continue to operate at LOS "B" during AM peak hours of traffic, and LOS "C" during PM peak hours of traffic with the project. Mana Road is expected to continue to operate at LOS "F" during both AM and PM peak hour traffic with the proposed project. The left-turn movement from Kamāmalu Street to the westbound Māmalahoa Highway is expected to continue to operate at LOS "D." Finally, the Project Access Driveway on Hiʻiaka Street is expected to operate at LOS "B" during AM peak hour traffic and LOS "C" during PM peak hour traffic.

Recommendations to mitigate the LOS "F" conditions projected without the proposed project to LOS "D" or better include the following improvements for Kamāmalu Street and Māmalahoa Highway:

1) Widening the westbound Māmalahoa Highway to provide an exclusive left-turn lane into Mana Road;
2) Widening the west leg of Māmalahoa Highway at Mana Road to provide a median refuge lane to facilitate the left-turn movement from Mana Road; and
3) Widening Mana Road at Māmalahoa Highway to provide separate left-turn and right turn lanes.

The primary traffic study recommendation with the proposed project is to conduct a traffic signal warrant analysis at the intersection of Māmalahoa Highway and Mana Road due to the future projected deterioration to LOS "F" without the proposed project.

It should be noted that the Waimea Bypass Road, which was initially proposed by the State of Hawai'i, Department of Transportation in the 1960s to reduce cross-island traffic movement between East and West Hawai'i. According to the South Kohala Community Development Plan (2008), movement of the project had been some initial work on its own separate Environmental Impact Statement. The plan also noted that at that time that "controversial questions surrounding this project [Bypass Road] include how, where, and whether to traverse the DHHL Pu'ukapu" lots, inclusive of the project area. However, accordingly to an approved FEA-FONSI for the the Pu'ukapu Hybrid Water System Project (February 2010), the "long standing plans to build a bypass around the center of Waimea through Pu'ukapu Hawaiian Home Lands have been placed on indefinite hold." As such, an assumption was made for this EA analysis that the potential of the Bypass Road being an active project is beyond the current scope of effort.

3.18 AIRPORT AVIGATION EASEMENT & APPROACH

Existing Conditions – A portion of the subject parcel is within the aviation easement for the Waimea-Kohala Airport. The aviation easements boundaries for the Waimea-Kohala Airport located on the site are shown by *Figure 3-12.* According to the Waimea-Kohala Airport Master Plan, the runway is 5,197 feet long. According to LIDAR data analysis, the project varies in elevation from 2,714 to 2,770 feet.

The building height limitations in the aviation easement are dependent upon the site location in relation to the distance from the runway. In accordance with the Department of Transportation, height limitations as described by Hawai'i Administrative Rules, Title 19, Chapter 12, Section 7, building height limitations within the avigation easement corridor would be limited to range of 13 to 51 feet as related to specific area elevations.

Impacts and Mitigation – Siting of structures and addressing building height limits within the avigation easement requirements were fully considered. To the extent feasible, proposed buildings were sited outside of the easement with the exception being the biodigester facility which the maximum height in the area is approximately 50 feet. It is anticipated the biodigester would be under 20 feet.

In addition, flight navigation operations, such as runway approach and/or flight paths will not be impacted by proposed building heights for the project. According to the Hawai'i Administrative Rules, Title 19, Chapter 12, a Department of Transportation permit must be approved to construct or use land located within the flight aviation easement. In addition, the FAA requires a Notice of Proposed Construction or Alteration approval as required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718.

3.19 NOISE

Existing Conditions – The primary noise sources in the area of the project site are related to traffic and adjacent residential and airport activities. Māmalahoa Highway and the Waimea-Kohala airport are the most significant source of noise in the project area. The site and surrounding area are generally quiet due to the rural uses for residential and agricultural activities.

The primary noise receptors in the area are farm dwellings and residences in the Pu'ukapu Hawaiian Home Lands. Most of the uses at the proposed WNR-CDI will not generate extended unacceptable levels of noise. Outdoor events, such as the farmers' market or other community events, which draw large crowds, could generate noise in the area. The Federal Aviation Administration has published criteria under 14 CFR, Part 150 for use in analyzing land use compatibility in and around the vicinity of airports and heliports. The Waimea-Kohala Airport Noise Compatibility Program describes the current and future non-compatible land uses based upon the parameters as established in Federal Aviation Regulation (FAR) Part 150, *Airport Noise Compatibility Planning*.

The Part 150 process ultimately results in the development of noise footprints that represents a line of exposure commonly referred to as a noise exposure contour (*Figure 3-12*). The noise exposure contours are measured in Yearly Day-Night Average Sound Levels (DNL). Where DNL values are 65 DNL or greater, land uses and land use compatibilities are identified and determined by the airport operator.

Impacts and Mitigation – Construction work at the project site will involve activities that may generate an increase in noise levels. However, such exposures will be a short-term condition, occurring during specific daylight hours.

Construction vehicles and activities must comply with State Department of Health Administrative Rules. The State of Hawai'i Department of Health's noise control regulation requires a permit for construction activities that emit noise in excess of 78 decibels or that cost a total of more than $250,000 (based on the value on the building permit). Mitigation measures to minimize construction noise will include the use of mufflers to suppress loud equipment and limitations on the hours of heavy equipment operation.

Project activities will comply with the Administrative Rules of the Department of Health, Chapter 11-39 on Air Conditioning and Ventilating, and Chapter 11-46 on Community Noise Control. Administrative controls will be implemented to control noise at all facilities and during outdoor events. These controls could include limiting community events to certain hours of the day.

According to the 2004 Noise Exposure Maps, the proposed site is located outside of the incompatible noise level contour of 55 Yearly DNL. The location of the proposed project in proximity to the Waimea-Kohala Airport will not require mitigation measures for noise exposure.

Figure 3-12: Avigation Easement, Noise Contours, and Height Restrictions

Section 4.0

ALTERNATIVES TO THE PROPOSED PROJECT

4.0 ALTERNATIVES TO THE PROPOSED PROJECT

This Draft Environmental Assessment evaluates four alternatives to the preferred action of the proposed project as described in *Section 2.0*. To evaluate the alternatives it is necessary to consider the impacts each alternative would have on the physical environment (visual, traffic, noise, and air quality, etc.). In addition, it is important to weigh these effects against the benefits each alternative would bring to the surrounding community. The alternatives include:

- No Action Alternative
- Alternative Development Levels
- Alternative Site Configurations
- Alternative Project Location

4.1 NO-ACTION ALTERNATIVE

The "no-action" alternative would result in the continued use of the land for pastoral use and maintain the current open space character. The site could be developed for agricultural or pastoral uses such as installation of animal stables for animal husbandry or other agricultural and ranching activities.

The no-action alternative would result in the continued shortage of opportunities for Native Hawaiian cultural enrichment and economic self-determination. The no-action alternative does not meet the needs of the community who have envisioned this initiative for nearly 40 years. While the no-action alternative would have no adverse environmental impacts, it cannot be considered a reasonable solution to the existing and future shortfalls facing the native Hawaiian community in Waimea or on the Island of Hawai'i.

In this alternative, development of the WNR-CDI would not occur and the anticipated new community services would be negated. Although this alternative would have limited adverse environmental impacts, the positive community benefits for Waimea and the Island of Hawai'i associated with the cemetery, community Agriculture complex, equestrian center, and golf facility would not be available.

The "no-action" alternative would have the least impact on the environment, noise level, and view planes. However, while open space agricultural land can be an important neighborhood amenity for view planes, the proposed built elements of 114-acre project will not greatly impact the visual resources. In this case, because the Pu'ukapu Farm Lots and open space buffer required by the avigation easement and approach for the Waimea-Kohala Airport are surrounding the site, the surrounding area will remain undeveloped and continue the open space character.

4.2 ALTERNATIVE DEVELOPMENT LEVELS

A second alternative would be to alter the scale, size, and intensity of development levels for the various WNR-CDI components. The alternative development levels for each of the programmed uses are described as follows:

- **Community Agriculture Complex:**

  - **Community Agriculture Park:**
    The Community Agriculture Park could vary in scale. There are two alternative levels of development: 1) reducing the number of greenhouse installations from the proposed 100 to 50 greenhouses on selected plots; or 2) not constructing a Park. Reducing the number of greenhouses or not constructing a park would hinder the overall push for local agriculture as a viable vocation in the homestead community. While open space would be preserved with fewer greenhouses, this alternative development level would be detrimental to developing sufficient infrastructure to support local agriculture. Failure to construct the Agriculture Park would also understandably preserve open space in Pu'ukapu; however, it would prevent any potential growth opportunities in professional development and local agriculture for the homestead community. The project was awarded State Capital Improvement Projects funding in the Fiscal Year 2015 budget, and WHHA has a vested interest in seeing the project through as proposed to meet the expectation of the homesteading community as a whole. As a result, developing the Park at full scale is the most feasible course of action that would be fiscally responsible and capable of fulfilling the goals of WHHA.

  - **Biodigester:**
    The biodigester could be either scaled down to a smaller biodigester or not constructed at all. The proposed biodigester design is appropriate for the electrical generation needs of the project, and a reduction in size would not significantly reduce facility costs. Coupled with the fact that the biodigester will be awarded a USDA High Energy Cost grant, funding is not a concern and the biodigester as is currently proposed would be the best option for a sustainable source of energy to power to WNR-CDI.

  - **Post-Harvest Facility/Commercial Kitchen:**
    Alternative development levels for the post-harvest facility include building the facility with minimal processing equipment, hardening the facility to Emergency Shelter specifications, or not constructing the facility at all. The alternatives would result in the continued shortage of opportunities for Waimea farmers to create value-added products that can be sold in the local market. Since the post-harvest facility is part of an integrated business model which will be supported by private funding, the post-harvest facility as proposed is the appropriate and desired scale for the project. The addition of Emergency Shelter specifications would produce added costs that would not be financially feasible.

- **Equestrian Center:**
  The equestrian center could be developed at three alternative levels: 1) constructing the arena, fencing, and infrastructure; 2) constructing a 150 x 150 training ring, without stables and grandstands; 3) not constructing an equestrian center as a part of the WNR-CDI. The facility is designed to provide a state of the art, low cost opportunity to revitalize paniolo traditions in the region. The center will also provide both career and scholarship opportunities for the Waimea Nui community and youth. Option 1 is the best and most productive development level for the WNR-CDI. Under this option, the stables would

provide ample housing for the horses, and the grandstands of the arena would create an environment more conducive to hosting community events. Reducing the Equestrian Center to a training ring or not constructing it at all would be a disservice to the homestead community, as they have expressed for many years their desire to revitalize the area's paniolo traditions.

- **Golf Facility:**
    - **Driving Range:**
      Two alternative development levels for the driving range would be reducing the size of the range by constructing retaining nets, or not constructing the driving range as part of the WNR-CDI. High retaining nets are unlikely to be constructed as the aesthetics would not blend well with the existing landscape. Furthermore, failure to construct the driving range at the golf facility would reduce potential revenue generation to keep the WNR-CDI and its community agriculture park technical assistance programs, financially sustainable. It is most probable that the proposed full driving range is the best development level for the overall golf facility.

    - **Chipping and Putting Green:**
      The alternative development level for the chipping and putting green area is to not construct one for the golf facility. Most revenue-generating golf facilities provide a chipping and putting green for customers to practice their short game on. Developing a fully planned chipping and putting area is the intended course of action for the WNR-CDI, as it would result in an overall more attractive golf facility, and subsequently higher generated revenues. Not constructing one at all would likely decrease the overall profitability of the golf facility.

    - **Practice Courses:**
      The practice courses could alternatively be scaled down to a 9-hole course or not constructed at all. The proposed practice course is preferred due to revenue projections which were provided by general managers from local golf courses. Reducing the golf course in size or not constructing a golf course altogether would decrease the revenues that are necessary to keep WRN-CDI as financially sustainable as possible.

    - **Pro Shop with Restaurant:**
      The alternative development level for the golf pro shop with a restaurant would be to not construct one at all. The current plans are designed to enable the pro shop and restaurant to scale over time. Developing a pro shop and restaurant on-site would allow the golf facility to be a welcoming, family-friendly place, as well as competitive with other revenue-generating golf courses on Hawai'i Island.

- **Cemetery and Chapel:**
  An alternative development level for the cemetery and chapel is to develop 5 acres instead of the proposed 10 acres for interment sites. The proposed plan for the cemetery and chapel is the preferred development level for the cemetery and chapel. Being the highest priority within the homestead community, the project as currently proposed is the preferred development level for the cemetery and chapel.

Although the alternative development levels would be potentially compatible with the surrounding neighborhood, and may potentially reduce traffic and noise levels to a small degree, the difference in development footprint would be negligible. However, a majority of the alternative levels of development reduce the functionality of the WRN-CDI and are not in accordance with the desires of DHHL and WHHA.

4.3 ALTERNATIVE SITE RECONFIGURATION

Another alternative would be to reconfigure the various components of the WNR-CDI on the proposed parcel. This alternative considers altering the preferred configuration to alternatives that address various compatibility issues to surrounding and neighboring uses.

In short, significant planning went into the preferred configuration and the relationships of the internal project configuration to external elements to address issues such as visual corridors, proximity to existing infrastructure, and maintaining adequate access and connection between adjoining lands. For example, siting of the cemetery in the southwest corridor was strongly supported by the homestead community as to create a visual and spiritual relationship to Mauna Kea.

Reconfiguring the project would also create inefficiencies in the development process, since many components were strategically placed in their respective locations for practical measures. For example, the Community Agriculture Complex location was chosen due to its close proximity to existing County water lines. In addition, the locations of the biodigester and commercial kitchen facility were selected for their ease of access for homestead and Waimea community farmers.

Under the site reconfiguration alternative, the community would still benefit from the development of the WNR-CDI and limited change in impacts, but it is anticipated that there would be community pushback for altering the site selections that were agreed upon by the homestead community and farmers. For practical and visual reasons, the proposed locations of facilities are deemed to be the highest and best use opportunities for this particular project. Furthermore, the current site selections on the parcel have been vetted by the homestead community–the ultimate beneficiaries of the Hawaiian Homes Commission Act and DHHL projects.

4.4 ALTERNATIVE LOCATION

This alternative would relocate elements of the project to an area outside of the proposed site in the Pu'ukapu Homestead Lots. The project location is already on DHHL approved lands for community economic and cultural development. Seeking out other vacant and developable lands that are located a convenient distance away from DHHL homesteaders would be difficult to obtain for a project of this type and scale. Moreover, the location was specifically chosen through collaborative planning efforts between WHHA and DHHL for the purpose of fulfilling the needs of the WHHA community as well as benefiting the greater Waimea community.

The proposed project is strategically located in the Pu'ukapu Homestead Farm Lots to make the best use of the property area and terrain for a community economic development project in close proximity to homestead residents.

Section 5.0

PLANS AND POLICIES

5.0 PLANS AND POLICIES

5.1 OVERVIEW

An important consideration in evaluating the potential impacts of a proposed action on the environment is how it may conform or conflict with approved or proposed land use plans, policies and controls for the affected area. In addition to the State of Hawaiʻi policies and controls, the Draft EA addresses applicable Federal regulations, including aviation regulation. This chapter of the Draft EA will discuss the consistency of the project with respect to the Federal Aviation Act, Americans with Disabilities Act, Hawaiʻi State Plan, Hawaiʻi State Functional Plans, Hawaiʻi State Land Use District Boundaries, DHHL Hawaiʻi Island Plan, DHHL Waimea Nui Regional Plan, DHHL Hoʻomaluō Energy Policy, DHHL Water Policy Plan, Hawaiʻi Right to Farm Act, Hawaiʻi Airport Zoning, County of Hawaiʻi General Plan, South Kohala Community Development Plan, and County of Hawaiʻi Zoning Ordinance.

5.2 FEDERAL AVIATION ACT OF 1958 & WAIMEA-KOHALA AIRPORT MASTER PLAN & NOISE COMPATIBILITY PROGRAM

The Federal Aviation Act of 1958 established the Federal Aviation Administration (FAA), which has the sole responsibility for the management of air navigation and air traffic control in the United States. As stated in Part 77 of Federal Aviation Regulations, the Administrator of the FAA is to be notified as to any proposed construction or alteration of an object that extends outward and upward at a slope of 25:1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of an airport, which could affect navigable air space, including approach and departure surfaces of airfields. The Federal Aviation Regulations Part 77 also requires a clear zone approach slope of 34:1 within a designated boundary (*Figure 3-12*).

In addition, the FAA has published criteria under 14 CFR, Part 150 for use in analyzing land use compatibility in and around the vicinity of airports and heliports. The *Waimea-Kohala Airport (MUE) Master Plan and Noise Compatibility Program (November 1998, rev. December 1999)* describes the current and future non-compatible land uses based upon the parameters as established in Federal Aviation Regulation (FAR) Part 150, Airport Noise Compatibility Planning.

The Part 150 process ultimately results in the development of noise footprints that represents a line of exposure commonly referred to as a noise exposure contour. These noise exposure contours are calculated by using a 24 hour averaged Day-Night Sound Level (DNL) which is expressed in decibels (dB). The DOT, HUD, DOD and EPA have determined that a 65 DNL dB is the threshold of significance for determining compatible land uses.

The MUE NCP provides recommended off-airport noise mitigation measures which are relevant to the relationship of the airport's location to the proposed project area. The program recommends a total of seven measures to prevent the introduction of additional non-compatible land uses and to reduce the effect of the noise generated at the airport, which include the following:

1. COMPREHENSIVE PLANNING AND ZONING. (Page 7-2, Sec. 7.2.2)

Description of element: Use comprehensive planning and zoning to maintain compatible land use. Prohibit zoning changes which will change a compatible land use into an incompatible land use. However, if the community determines that there is a need for new housing in an area exposed to noise levels of 60 to 65 DNL, then the County of Hawai'i, and the State of Hawai'i - Land Use Commission, should require an avigation easement to the State Department of Transportation, Airports Division (DOT-AIR) and acoustical treatment to maintain an interior value of 45 DNL. DOT-AIR should request that new residential developments have lesser densities (i.e. larger size lots), since visual flight rules aircraft flight tracks can vary greatly and overflights may be more common. In addition, the DOT-AIR should pursue an "Airport zone" within the airport environs to address height restrictions, noise and other DOT-AIR and FAA concerns.

FAA Action: APPROVED: This measure is considered to be within the authority of the State of Hawai'i and the County of Hawai'i. FAA prefers that no non-compatible development take place within the noise exposure map contours.

2. AVIGATION EASEMENTS. (Page 7-3, Sec. 7.2.2)

Description of element: Acquiring avigation easements from landowners that presently have compatible land but may become incompatible due to future development. The acquisition of avigation easements will maintain the operational characteristics of the Airport. The key areas are those lands directly under the aircraft flight tracks.

FAA Action: APPROVED. This approval does not constitute a commitment by the FAA to provide federal financial assistance for this project. FAA prefers that no non-compatible development take place within the noise exposure map contours.

As a requirement of the Part 150 program, two Noise Exposure Maps were produced. The first map indicates the existing conditions and the second map is based upon a 5-year projection of the airports operations. These maps are recommended to be updated every five years or if the operation of the airport would create a change of 1.5 dB or greater in any land area which was formerly compatible and now would be rendered non-compatible. Typical examples of this might be the use of a noisier aircraft at the airport, change in runway usage, change in flight paths, or an increase in nighttime operations. This 1.5 dB increase, or greater, is the benchmark also used by the Airports Division to trigger environmental actions requiring (at least) an Environmental Assessment for airport development projects (*Figure 3-12*).

Discussion: The Waimea-Kohala Airport resides approximately one mile away to the south-west of the project site (approximately 2,000 feet from the edge of the runway). A portion of the proposed project falls within easement "A-1," which is for Aviation Purposes. The easement has been delineated in accordance with the Federal Aviation Regulations Part 77. The boundary is 500 feet wide at the runway and 3,500 feet wide at the beginning of the approach 10,000 feet away. With an approximate elevation of 2,700 feet at the edge of the runway, the proposed project's maximum ground elevation of 2,772 feet poses no risk of violating the approach slope with the "A-1" easement. As required, notification will be provided to the FAA administrator during the time of review. The proposed project is not located within the noise threshold of significance and is therefore determined to be a compatible land use located in proximity to the Waimea-Kohala Airport.

5.3 AMERICANS WITH DISABILITIES ACT OF 1991

In 1991, the Federal government enacted the American with Disabilities Act (ADA) to provide equal accessibility for persons with disabilities. Part of this statute is having building design consider the needs of persons with disabilities. Chapter 103-50 of the HRS states that "public buildings, facilities, and sites shall be prepared so that the buildings, facilities, and sites are accessible to and usable by persons with disabilities…[and] shall conform to the Americans with Disabilities Act Accessibility Guidelines…and the requirements of the Federal Fair Housing Amendments Act" as adopted and amended by the Disability and Communication Access Board.

Discussion: The proposed buildings and facilities will comply with ADA accessibility requirements.

5.4 HAWAI'I STATE PLAN

The Hawai'i State Plan establishes a statewide planning system that provides goals, objectives, and policies which detail property directions and concerns of the State of Hawai'i. Priority guidelines relating to the economy, housing, population growth, facility systems, and the physical environment will be discussed as they relate to the proposed project.

It is the goal of the State, under the Hawai'i State Planning Act (Chapter 226, HRS), to achieve the following:

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

The objectives and policies of the State Plan that are relevant to the proposed WNR-CDI project are discussed below:

***Economy*:** The objectives for planning the State's economy include increasing and diversifying employment opportunities to provide a better economic quality of life for Hawai'i's people. It is also the objective of the State to create a diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands. It is the policy of the State to:

- Expand existing markets and penetrate new markets for Hawai'i's products and services.
- Foster greater cooperation and coordination between the public and private sectors in developing Hawaii's employment and economic growth opportunities
- Continue growth and development of diversified agriculture throughout the State.
- Increase the attractiveness and opportunities for an agricultural education and livelihood.

Discussion: The WNR-CDI supports the State's economic goals by revitalizing and diversifying the agricultural industry in Hawai'i through community agricultural lots, a co-op facility, on-the-job training, and an open farmers market. Moreover, the installation of new and inviting recreational activities at the golf facility and equestrian center will add to the local economy.

***Energy/Telecommunications*:** The State's objectives for energy include achieving dependable, efficient, and economical statewide energy and telecommunication systems capable of supporting the needs of people, and increasing energy self-sufficiency. Policies related to energy and telecommunications are as follows:

- Support research and development as well as promote the use of renewable energy sources
- Promote prudent use of power and fuel supplies through conservation measures
- Ensure that the development or expansion of power systems and sources adequately consider environmental, public health, and safety concerns, and resource limitations.

Discussion: The installation of photovoltaic (PV) panels with battery backup and a biodigester on the project site supports the State's goals for energy self-sufficiency. The installation of PV will take advantage of Hawai'i's year-round warm climate. In addition, as biodigesters are not widely used throughout Hawai'i, WNR-CDI's use of one has the potential to further research and development in this alternative energy generator.

Education: Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations. It is the policy of the State to:

- Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.
- Promote educational programs which enhance understanding of Hawai'i's cultural heritage.
- Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.

Discussion: The WNR-CDI supports the State's educational goals through its Community Agriculture Complex, which will provide include spaces for community workshops and training opportunities in agricultural development. The project will also provide space for use by supporting agricultural organizations. The overall vision of the Community Agriculture Complex is to support new farmers through a shared learning experience and space, where they have access to on-the-job training and necessary equipment, without facing the usual barriers to entry such as not being able to lease agricultural lots without two years of farming experience. In addition, the WNR-CDI's equestrian center, paniolo museum, and golf facility provide the community with programs and activities that enhance personal development, physical fitness, recreation, as well as sharing the legacy and heritage of the area's role in paniolo history.

Culture: Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai'i's people. It is the policy of the State to:

- Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai'i's people and which are sensitive and responsive to family and community needs.

Discussion: The WNR-CDI provides cultural opportunities and activities through the community agriculture lots and equestrian center which will help to bring back the traditions unique to Waimea. The proposed cemetery and chapel are also a step towards providing the community with a more culturally appropriate means and space for interment of deceased family members.

Conceptualized and improved by the WHHA and its subsidiary organization the WNCDC for over 40 years, the WNR-CDI is dedicated to having a lasting positive cultural impact on the landscape of Waimea Nui and its community members. The site selection, planning, design, development and programs are dedicated to preserving the cultural needs of the Waimea community and are in accordance with Hawaiian values.

5.5 HAWAI'I STATE FUNCTIONAL PLANS

The State Functional Plans implement the goals, objectives, policies and priority guidelines of the Hawai'i State Plan. The Functional Plans provide the connection between State programs and State policy. Twelve functional plans have been adopted by the State Legislative, including the areas of Agriculture, Conservation Lands, Education, Energy, Health, Higher Education, Historic Preservation, Housing, Recreation, Tourism, Transportation and Water Resources. These plan contain multiple objectives and specific action items to be implemented by specific state or county agencies in partnership with named entities such as academic institutions and/or community organizations. Although there are no specific action items tied to the proposed project, the general overall goals of these plans should be recognized and wherein appropriate, incorporated into the planning approach for this project.

5.6 HAWAI'I STATE LAND USE DISTRICT BOUNDARIES

The State of Hawai'i Land Use Law regulates the classification and uses of lands in the State to accommodate growth and development, and to retain the natural resources in the area. All State lands are classified by the State Land Use Commission, with consideration given to the General Plan of the County, as Urban, Rural, Agricultural, or Conservation.

Discussion: As discussed in *Section 3.0*, implementation of the project involves a permitted use of the proposed site. The proposed project site is located within the State designated Agricultural District with the surrounding area also including some limited Urban lands (*Figure 1-4*). As the project is within DHHL lands, the Hawaiian Homes Commission is the authority that determines its land use designations and governs the allowable use and activities within the parcel.

5.7 DHHL HAWAIʻI ISLAND PLAN

The State Department of Hawaiian Home Lands (DHHL) Hawaiʻi Island Plan (2002) assesses DHHL's 116,963 acres on Hawaiʻi Island. Under the DHHL Planning System, there are five components outlines in the island plans:

1) baseline analysis of existing physical environmental conditions and beneficiary preferences;
2) preliminary identification of appropriate land use based on those conditions and preferences;
3) community input and participation on the draft land use plan;
4) pre-final land use evaluation and public commentary on that evaluation by region; and
5) final land use analysis and recommendations.

The Hawaiʻi Island Plan designated the Puʻukapu lots as pastoral lands under DHHL's Land Use Categories (*Figure 1-3*). The parcel in which this project will be developed is currently designated by the Hawaiʻi Island Plan for General Agriculture.

Discussion: The project site in Puʻukapu was identified as a non-priority site for additional homestead development; however, DHHL land use priorities have changed since the 2002 Hawaiʻi Island Plan, and the WNR-CDI, which was conceptualized and vetted by the Homestead community, is now a priority project for DHHL. In compliance with Department rules and regulations, the project will require a Land Use Designation Amendment approval to its Hawaii Island Plan from the Hawaiian Homes Commission after a Finding of No Significant Impact is issued for the final draft of this EA. The purpose of this amendment is to formalize the DHHL land use assignment of the project from General Agriculture to Community Use land use designation.

5.8 DHHL WAIMEA NUI REGIONAL PLAN

DHHL regional plans are the third tier of DHHL's planning system, which supports the Department's general plan, strategic program plans, and island plans. The regional plans focus on applying the goals, policies, and land use designations to specific homestead areas, with a two to four year timeframe. The Waimea Nui Regional Plan was written in 2012 and includes a list of proposed projects. One of the proposals included is a Community Complex in Puʻukapu.

Discussion: Through the development of the cemetery and community agriculture opportunities, the WNR-CNI project will fulfill priorities set forth in the 2012 Waimea Nui Regional Plan. The project also further supports the Waimea Nui Region through the development of community economic development opportunities that will benefit the Puʻukapu Homestead community and general public.

5.9 DHHL HOʻOMALUŌ ENERGY POLICY

DHHL's 2009 Hoʻomaluō Energy Policy's purpose is to "enable native Hawaiians and the broader community… to achieve energy self-sufficiency and sustainability." The primary objectives of the policy are as follows:

1) Mālama ʻāina: Respect and protect native home lands;
2) Koʻo: Facilitate the use of diverse renewable energy resources;

3) Kūkulu pono: Design and build homes and communities that are energy efficient, self-sufficient and sustainable;
4) Kōkua nō i nā kahu: Provide energy efficiency, self-sufficiency, and sustainability opportunities to existing homesteaders and their communities;
5) Hoʻonaʻauao: Prepare and equip beneficiaries to promote a green energy efficient lifestyle in and around communities.

Discussion: The WNR-CDI supports the DHHL Hoʻomaluō Energy Policy through the development of alternative energy through an on-site biodigester. The use of a biodigester will spur the movement towards energy self-sufficiency on DHHL lands and prepare and equip Waimea Nui beneficiaries to promote a green energy lifestyle. The site can also serve as an educational setting for teaching local students about renewable energy.

5.10 DHHL WATER POLICY PLAN

The DHHL Water Policy Plan 2014 was developed with beneficiary input to create DHHL's vision and mission for water, as well as the supporting values, goals, and policies related to water. The mission of the Water Policy Plan is to strive to ensure adequate, quality water by working to understand DHHL's trust water assets; planning for DHHL's water needs; understanding, exercising, and asserting DHHL's kuleana as stewards of water; developing and protecting water resources; and managing water systems.

Discussion: The project supports the DHHL Water Policy Plan through water conservation and best management practices that will be implemented throughout the development. The proposed golf facility will not include any water features and only includes scaled-down practice courses and facilities. Moreover, the efficient use of irrigation water in the Community Agriculture Park in the greenhouses will result in lower levels of water use than is typical of commercial agricultural operations.

5.11 HAWAIʻI RIGHT-TO-FARM ACT

The State of Hawaiʻi Right-to-Farm Act protects agricultural activities from restrictions sought by new non-farming neighbors under the Hawaiʻi Revised Statutes, Chapter 165.

Discussion: The location of the WNR-CDI project between the existing farm lots and pasturage leases poses no concern. As discussed in *Section 3.0*, mitigation measures have been proposed and planned to protect residents and visitors from odors, fugitive dust, vectors, and other agriculturally related activities. As the surrounding area and proposed uses continue to engage in homestead related uses, including agriculture, there is no compatibility issue.

5.12 AIRPORT ZONING, HAWAIʻI REVISED STATUTES, CHAPTER 262

Under HRS, Chapter 262, airport zoning regulations adopted by the State Department of Transportation, Airports Division (DOT-AIR) require that a permit be obtained when a new structure, tree, or use may be constructed, planted, or established or an existing use, tree, or structure may be substantially changed, replanted, altered, or repaired in an identified airport hazard zone. The overall authorization of a permit is a duty of the DOT-AIR director, who is responsible for ensuring that a proposed structure, tree, or use does not establish, maintain, or

create an airport hazard. As stated in the associated Hawai'i Administrative Rules, Title 19, Section 12-12, the application for a permit needs to provide sufficient details that help determine whether or not a proposed structure or tree conforms to height limitations established within section 12-7 or whether or not a pending use violates use restrictions established in Section 12-10.

Discussion: Section 12-7 of the HAR defines the approach surface of an airport facility as having a horizontal surface that extends five thousand feet from the end of the runway's primary surface at a slope of 20:1 for all utility and visual runways. The boundary is 500 feet wide at the runway and 3,500 feet wide at the beginning of the approach 10,000 feet away. The edge of the runway is situated at approximately 2,700 feet while the highest ground elevation within the avigation easement is approximately 2,772. Based upon the slope relationship, the proposed project poses no risk of violating the approach slope relationship with the "A-1" easement. Estimated height restrictions were calculated to be approximately low as 13 feet with no proposed structures in the immediate area but identified as part of the chip and putt green. The only two built structures include a distribution hub network and the biodigester facility that have a height limit between 34-44 feet, respectively. Construction of proposed facilities will need to be reviewed for their conformance to the applicable aviation regulations with FAA and DOT-AIR and if it is determined necessary, an application for a permit will be filed at that time.

5.13 HAWAI'I COUNTY GENERAL PLAN

Adopted by Ordinance in 1989 and amended most recently in 2012, the General Plan for the County of Hawai'i sets forth long-range objectives for the general welfare and prosperity of the people of Hawai'i Island and broad policies to attain those objectives. The General Plan provides policies and courses of action intended to guide and coordinate growth patterns through the designation and preservation of lands for specified uses. One element of this coordination is the Zoning Code, which is the legal instrument that regulates land use within the County. As shown in *Figure 1-5*, the General Plan Land Use Pattern Allocation Guide (LUPAG) map illustrates the general location and relationships of various land uses to each other.

The development of the proposed WNR-CDI advocates the following goals and policies of the County of Hawai'i General Plan:

Economic:
Goal: Economic development and improvement shall be in balance with the physical and social environments of the island of Hawai'i. The County of Hawai'i strives for diversification of its economy by strengthening existing industries and attracting new endeavors. The County also strives to provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County's cultural, natural and social environment.

Policies:
1. The County shall assist in the expansion of the agricultural industry through the protection of important agricultural lands, development of marketing plans and programs, capital improvements and continued cooperation with appropriate State and Federal agencies.
2. Encourage the expansion of the research and development industry by working with and supporting the University of Hawai'i at Hilo and West Hawai'i, the Natural Energy Laboratory at Hawai'i Authority and other agencies' programs that support sustainable economic development in the County of Hawai'i.

3. Encourage the establishment of open farmers markets to allow local agricultural producers to market their products.

Energy
Goal: The County of Hawai'i strives towards energy self-sufficiency.

Policies:
1. Encourage the development of alternate energy resources
2. Encourage the development and use of agricultural products and by-products as sources of alternate fuel.
3. Strive to educate the public on new energy technologies and foster attitudes and activities conducive to energy conservation.
4. Strive to diversity the energy supply and minimize the environmental impacts associated with energy usage.

Environmental Quality
Goal: Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.

Policies:
1. Encourage the concept of recycling agricultural, industrial, and municipal waste material.
2. Require golf courses to implement best management practices to limit leaching of nutrients to groundwater in areas where they may affect streams or coastal ecosystems.
3. Require implementation of the management measures contained in Hawai'i's Coastal Nonpoint Pollution Control Program as a condition of land use permitting.
4. Review the County grading and grubbing ordinances to ensure that they adequately address potential erosion and runoff problems.

Agriculture
Goal: The County of Hawai'i preserves and enhances opportunities to expand Hawai'i's Agricultural Industry.

Policies:
1. Assist in the development of basic resources such as water, roads, transportation, and distribution facilities for the agricultural industry.
2. Agricultural land may be uses as on form of open space or as a green belt.
3. Assist in the development of agriculture.
4. Encourage, where appropriate, the establishment of visitor-related uses and facilities that directly promote the agricultural industry.

Land Use
Goal: The County designates and allocates land uses in appropriate proportions and mix in keeping with the social, cultural, and physical environments of the County.

Policies:
1. Allocate appropriate requested zoning in accordance with the existing or projected needs of neighborhood, community, region and County.

2. Encourage the development and maintenance of communities meeting the needs of its residents in balance with the physical and social environment.
3. Encourage urban development within existing zoned areas already served by basic infrastructure, or close to such areas, instead of scattered development.

Public Facilities

Goal: Encourage the provision of public facilities that effectively service community and visitor needs and seek ways of improving public service through better and more functional facilities in keeping with the environmental and aesthetic concerns of the community.

Policies:

1. Continue to seek ways of improving public service through the coordination of service and maximizing the use of personnel and facilities.
2. Coordinate with appropriate State agencies for the provision of public facilities to serve the needs of the community.

Discussion: The WNR-CDI promotes the objectives of the County General Plan by serving as a center for economic development, agricultural activity, renewable energy, recreation, and cultural opportunities in the Waimea Nui region. The Community Agriculture Complex will provide an unprecedented opportunity in the region for Waimea Homesteaders to have access to agricultural greenhouse plots, on-the-job training, commercial processing and packaging equipment, and additional agricultural resources to revitalize the local agricultural economy. The on-site farmers market will also allow local farmers and producers to market their products and provide residents and visitors with fresh, locally sourced products.

The WNR-CDI strives to protect the health of its water and soil resources through following appropriate Hawai'i Administrative rules, guidelines, and implementing best management practices for the cemetery, livestock waste management, and golf courses as provided by the Department of Health.

Furthermore, the WNR-CDI supports the environmental quality goals and policies outlined in the General Plan. The rooftop PV panels with battery backup on all available rooftop surfaces of the project will provide a clean source of renewable energy. Additionally, the biodigester will be one of the first of its kind on Hawai'i Island to reuse waste to generate energy at a fraction of the cost of current electricity rates.

The WNR-CDI is supportive of mixed-use developments that will serve the community's needs, while being cognizant of the balance between the physical and social environment. Through extensive beneficiary consultation, WNCDC developed this integrated mixed-use initiative that addresses a wide range of agricultural, economic, recreational, and cultural needs.

The project is also dedicated to having a lasting positive impact on the landscape of Waimea and its community members. The site selection, planning, design, development, and programs are dedicated to preserving the sustainable agriculture, economic, recreational, and cultural needs of the Waimea community and beyond in accordance with Hawaiian values. Although the golf facility is identified as a non-permissible use with the State Agricultural district, under HRS 205-4.5(a), land uses on DHHL lands are determined by the authority of the Hawaiian Homes Commission. Although DHHL has and continues to coordinate with both State and County land use planning initiative and seek alignment, there are situations where DHHL must determine the

best uses of lands to support its mission. For the components of the project, specifically the Community Agricultural Park and Equestrian Center to be economically viable, it had been determined by the community that a recreational use such as a golf facility could be built in a manner that had a low impact on the existing environment and if necessary could be reabsorbed for other more compatible uses if there was a need to support future expansion and activity. Additionally, the cemetery is long standing promise by the Department to the community to provide a place of eternal rest within the homestead community. Therefore, these uses are a necessary part to support the success of the entire project.

5.14 SOUTH KOHALA COMMUNITY DEVELOPMENT PLAN

Adopted in 2008, the South Kohala Community Development Plan (SK-CDP) was created to identify the community's priority issues and develop appropriate policies and action programs in response to address those priority issues. The SK-CDP is to be the forum for community input to manage growth and coordinate the delivery of government services to the community; create a long-range framework that guides decision-making; help to translate the County General Plan to specific actions; and direct physical development in the region. The district wide policies selected by the Steering Committee included: 1) preserve culture and sense of place; 2) traffic and transportation; 3) affordable housing; 4) emergency preparedness; and 5) environmental stewardship and responsibility.

Discussion: The project provides for more recreational space with the golf facility and a dedicated community resource space in the provision of a new Homestead cemetery. It proposes to establish bicycle, pedestrian, and equestrian travel through the property and connecting areas for commuting within the Homestead and adjacent lands. The project will promote the development alternative energy for the Waimea area as well as support the concept of food sustainability through the provision of the Community Agriculture Complex. Small-scale farming will be encouraged and the provision of the agricultural park represents an expansion in farming activity in the Pu'ukapu area. The provision of the equestrian center represents a commitment to promote and preserve Waimea's paniolo heritage.

5.15 HAWAI'I COUNTY ZONING DISTRICTS

Adopted in 1967, the purpose of the Comprehensive Zoning Ordinance (CZO) for the County of Hawai'i is to implement the General Plan and its policies for growth and development. As illustrated in *Figure 3-4*, the lands that comprise the proposed WNR-CDI project site are zoned as Agricultural (A-40a), with surrounding adjacent lands designated as Agricultural (A-5a), Village Commercial (CV-10) and Residential (RS-10).

Discussion: As previously mentioned, the subject property is owned by DHHL, and is on agriculturally zoned lands under the County of Hawai'i. According to the Hawai'i County Code Section 25-5-7 (b), golf courses and driving ranges are not permitted within State land use agricultural districts unless approved by the County before 2005. As previously mentioned, DHHL will work with the County of Hawai'i to identify the appropriate land use designation as stipulated by the 2002 Memorandum of Agreement (MOA) between the County of Hawai'i and DHHL. Negotiations will need to take place to ensure that all parties are abiding by the guiding principles as defined in the MOA. The subject property is owned by DHHL. A permitted use from the Planning Commission may be required to implement the proposed project, as stipulated in the Memorandum of Agreement between the County of Hawai'i and DHHL.

Section 6.0

FINDINGS SUPPORTING ANTICIPATED DETERMINATION

6.0 FINDINGS SUPPORTING ANTICIPATED DETERMINATION

6.1 ANTICIPATED DETERMINATION

After reviewing the significance criteria outlined in Chapter 343, Hawai'i Revised Statutes (HRS), and Section 11-200-12, State Administrative Rules, Contents of Environmental Assessment, it is anticipated that the proposed action will be determined to not result in significant adverse effects on the natural or human environment. A Finding of No Significant Impact (FONSI) is anticipated for this project.

6.2 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

The potential impacts of the development and future use after construction of the proposed Waimea Nui Regional Community Development Initiative (WNR-CDI) have been fully examined and discussed in this Draft Environmental Assessment. As stated earlier, there are no significant environmental impacts expected to result from the proposed action. This anticipated determination is based on the following assessments:

(1) Involve an irrevocable loss or destruction of any natural or cultural resources.

The project does not involve any known destruction of existing natural or cultural resources. The subject lands are undeveloped agricultural lands with no significant natural resources. No significant archaeological or historical sites are known to exist within the project site. If during the course of construction any cultural or archaeological resources are unearthed, the State Historic Preservation Division (SHPD) will immediately be notified, and necessary protection measures would be administered in compliance with regulatory requirements.

(2) Curtail the range of beneficial uses of the environment.

The project will create economic and social benefit for the Pu'ukapu homestead and local Waimea community. The main project components create a viable economic opportunity in agricultural, equestrian, and recreational uses suitable to the scale and character of the general Waimea district. Of the approximate 114 acres of the project area, only 28 acres will involve new development of buildings, structures, roadways, or support infrastructure. Both the built and remaining undeveloped areas will complement the rural character of the immediate homestead area.

(3) Conflict 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 project does not conflict 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. Rather it supports some of the underpinnings of the Chapter relative to creating opportunities for residents to improve their quality of life through diverse economic activities which are stable and in balance with the environment. Further, the promotion of agricultural activities concurrent with the use of a biodigester on-site for energy production is a commitment to enhance the natural environment, making prudent use of the land and natural environment, while reducing the use and need of nonrenewable resources.

(4) Substantially affects the economic or social welfare of the community or State.

This project is a beneficiary driven and shared community effort whose purpose is to create the fundamental infrastructure needed to build a vibrant, self-sufficient community grounded in traditional Hawaiian values. The project utilizes concepts of collaboration and cooperation in the development of the Community Agriculture Complex and Equestrian Center as a means to revitalize the farming and ranching activities that were once predominant in Waimea. Building an agricultural industry that builds upon the strengths of the homestead community will create an opportunity for food and energy self-sufficiency and establish a strong, lasting economy build by the homestead for the benefit of all. The cooperative element will enable new farmers to gain experience in an area with educational resources and mentors. As farmers become successful in their operational model, they can support other emerging new farmers from the homestead area and/or expand to the next level of agricultural enterprise.

The cemetery and chapel area provides a final resting place for homesteaders who in some cases have resided on these lands for generations but upon their death are buried as far away as Hilo and Kona. Provisions of a cemetery lend to the traditional Hawaiian idea that from where we are born, we then return to these lands from which our ancestors dwell, and from that cyclic relationship, mana goes back into the earth for future generations to thrive. The inclusion of a final resting place for the homestead community is an important center point that enhances both the social and cultural well-being of the community and fosters a sense of relationship and identity for Native Hawaiians that reside on these lands. .

The golf facility provides a source of revenue-generating income that can contribute to the continual operation and maintenance of other community benefit projects. The facility and its associated uses can be designed to have a very limited to no-impact on the landscape that if necessary could be reclaimed and repurposed for other activities, such as an expanded agricultural or equestrian use, if required in the future. For the current project, the facility is a key contributor to create and balance revenue generation with other existing or future non-profit services within the homestead community.

Design and construction work will generate indirect and induced employment opportunities and multiplier effects, but not at a level that would generate any significant expansion. The short-term employment impacts will be beneficial to the local economy.

The socio-economic benefit of the proposed project will be the creation of agricultural related jobs, a revitalized equestrian center, and limited employment for the long-term in the operation of the golf facility and chapel/cemetery. In addition to the creation of new jobs within the homestead community, both the State of Hawai‘i and County of Hawai‘i will receive excise tax revenues on finished development and building materials, conveyance taxes, and income taxes on wages. The socio-economic impacts will be positive for the local community, as well as the County and State.

(5) Substantially affects public health.

The project does not substantially affect health. The project components of farming in a co-op setting and the recreational uses of equestrian and golf activities actually promote beneficial opportunities for public health. No toxic or hazardous emissions will be generated by the biodigester. Noise levels relative to sounds emanating from the nearby airport runway use and landing patterns are within acceptable and safe thresholds. Although there would be some limited air and noise level impacts during construction, they will be mitigated through the implementation of best management practices. The long-term benefits associated with the project outweigh the temporary impacts to air and noise levels.

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

The project does not create any substantial secondary impacts on the existing population or on public facilities. Existing traffic conditions and projected future conditions without the project in place will require roadway improvements. Inclusion of the project will require additional considerations to widening immediately adjacent local streets on homesteads which would be the responsibility of DHHL. Impacts to water and wastewater generation are mitigated through the use of available surface water that would be treated on-site as potable water. Likewise, wastewater generation would be managed on-site. There are no impacts to the existing avigation easement restrictions as proposed height limits and noise contours are within acceptable design parameters.

(7) Involves a substantial degradation of environmental quality.

The project will actually bring a long-standing community vision to reality. In doing so, consideration to protecting the natural environment is a cornerstone to maintaining the rural character, feel, experience, and conditions within the area. For all planned activities, integration with topography, prevalent wind conditions, visual relationships, and understanding seasonal cycles to native biota and habitat were evaluated and determined to have no substantial negative impact. Overall, the project provides an opportunity to meet a community need and integrate its built design to work within the natural landscape. Minor impacts to air and noise quality will be experience during construction but will be mitigated to negligible to no impacts with best management practices.

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

The development and implementation of the project will have a limited and negligible impact on the natural and cultural environment while providing an overall general improvement to the social, recreational, and economic environments. These projects independently and collectively do not require or influence a commitment for larger actions.

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

There are no endangered plants or animal species located within the project site.

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

Short-term effects on air, water quality or ambient noise levels during construction will be mitigated by compliance with County of Hawai'i and State Department of Health rules which regulate construction-related activities. Water quality in the immediate area will be enhances as the primary draw of potable water will be derived from treatment of surface water that DHHL has rights of access and utilization.

After construction, the impacts on air and water quality should be minimal. Noise levels will be increased moderately with the addition of new facilities within the project area. Noise levels may slightly increase when open air community events such as performances are held at the site such as equestrian events or open farmers' market. However, the noise levels should not increase above appropriate levels.

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

The project site is not located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

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

The project site is currently undeveloped and the improvements will not deter from the overall appearance or aesthetics of the area. Prominent view planes to significant geographical points such as Pu'u Holoholokū, Mauna Kea, and the Kohala Mountains will be preserved through site orientation and placement of built features. Design guidelines could be developed during the detailed design phases of each of the facilities to ensure appropriate scale, setting, character, and feeling of the built environment enhances the relationship to the surrounding natural environment in this predominant homestead setting.

(13) Require substantial energy consumption.

Construction of the project will not require substantial energy consumption relative to other similar projects. In addition to producing renewable energy through the biodigester system, and possible but limited sourcing from photovoltaic and wind energy source, the application of green and sustainable design concepts will be utilized as much as possible in physical design of the buildings.

Section 7.0

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7.0 LIST OF REFERENCES

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Section 8.0

AGENCIES, ORGANIZATIONS AND INDIVIDUALS RECEIVING COPIES OF THE EA

8.0 LIST OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS RECEIVING COPIES OF THE EA

The following agencies, organizations, and individuals were included in either the Pre-consultation notification and/or the review of the Environmental Assessment. Comments letters received by the participants were recorded and are included in this section of the EA.

Respondents and Distribution	Pre-Consultation	Pre-Consultation Comments Received	Received Draft EA	EA Comments Received
Federal Agencies				
U.S. Army Corps of Engineers, Honolulu District	X		X	
U.S. Department of Agriculture (USDA), Farm Service Agency	X	X	X	
USDA, Rural Development			X	
USDA, Natural Resources Conservation Service			X	
USDA, Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine			X	
USDA APHIS, Veterinary Services			X	
USDA Agricultural Research			X	
USDA Forest Service			X	
U.S. Department of Transportation Federal Aviation Administration			X	
U.S. Environmental Protection Agency	X		X	
U.S. Fish and Wildlife Service	X	X	X	
State of Hawai'i Agencies				
Department of Agriculture	X	X	X	
Department of Business, Economic Development & Tourism	X		X	
Department of Hawaiian Home Lands	X	X	X	
Department of Health	X		X	
Department of Health, Environmental Planning Office	X	X	X	

Respondents and Distribution	Pre-Consultation	Pre-Consultation Comments Received	Received Draft EA	EA Comments Received
Department of Land and Natural Resources	X	X	X	
DLNR, State Historic Preservation Division	X		X	
Department of Transportation, Airports Division	X	X	X	
Hawai'i State Public Library (HSPL), Hawai'i Documents Center			X	
HSPL, Thelma Parker Memorial Public Library			X	
Office of Environmental Quality Control	X		X	
Office of Hawaiian Affairs	X		X	
Office of Planning	X	X	X	
Senate District 4, Senator Lorraine Inouye	X		X	
House District 7, Representative Cindy Evans	X		X	
County of Hawai'i Agencies				
Department of Environmental Management	X		X	
Department of Public Works	X	X	X	
Department of Water Supply	X		X	
Planning Department	X	X	X	
Council District 9, Councilwoman Margaret Wille	X	X	X	
Community Groups and Associations				
Waimea Hawaiian Homesteaders' Association	X		X	
Waimea Community Association	X		X	
Parker Ranch	X		X	
South Kohala Community Development Plan Action Committee	X		X	

APPENDIX A

Preconsultation Period Comments and Responses

Farm Service Agency
Hawaii & Pacific Basin

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Honolulu, Hawaii 96850
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Via Electronic Transmission - With no original to follow

December 23, 2014

Mark McKeague, MURP, Senior Planner
Group 70 International
925 Bethel Street, Fifth Floor
Honolulu, Hawaii 96813-4307

Subject: Pre-Consultation for a Draft Environmental Assessment
Waimea Nui Regional Community Development Initiative

Dear Mr. McKeague:

Thank you for your two (2) communications relating to the Pre-Consultation for a Draft Environmental Assessment (EA) for the Waimea Nui Regional Community Development Initiative. At this time, the United States Department of Agriculture (USDA) Farm Service Agency is not aware of any significant issues that should be considered during the EA process.

If other USDA agencies such as Rural Development; Natural Resources Conservation Service; Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine; APHIS Veterinary Services; Agricultural Research Service; and the Forest Service have not been consulted, it may be advantageous to do so.

Sincerely,

Diane L. Ley
State Executive Director

USDA is an Equal Opportunity Provider and Employer

GROUP 70
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February 7, 2015

Ms. Diane L. Ley
State Executive Director
Farm Service Agency, Hawaii & Pacific Basin
U.S. Department of Agriculture
300 Ala Moana Boulevard, Room 5-108
Honolulu, HI 96850

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Ms. Ley:

Thank you for your comment letter dated December 23, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We acknowledge that the U.S. Department of Agriculture (USDA) Farm Service Agency does not have any comments to offer at this time.

While other USDA agencies such as Rural Development; Natural Resources Conservation Service; Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine; APHIS Veterinary Services; Agricultural Research Service; and Forest Service were not consulted for this Preconsultation period, we will be providing their offices with a copy of the Draft EA for review.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

United States Department of the Interior

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

In Reply Refer To:
2015-TA-0095

Mr. Kawika McKeague
Group 70 International, Inc.
925 Bethel Street, 5th floor
Honolulu, HI 96813-4307

Subject: Pre-Consultation for the Draft Environmental Assessment for the Waimea Nui Regional Community Development Initiative, Waimea, Hawaii

Dear Mr. McKeague:

The U.S. Fish and Wildlife Service (Service) received your letter on December 8, 2014, requesting comment in preparation of a draft Environmental Assessment (DEA) for the proposed development of the Waimea Nui Regional Community Development Initiative located at Puukapu, Waimea on the island of Hawaii [TMK: (3) 6-4-38:011 (por.)]. The proposed project will construct a homestead cemetery/chapel, community agricultural park, equestrian center, and a golf facility with a par-3 course, driving range, and clubhouse. The following comments are in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Based on information you provided as well as information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, we have determined that the following listed species may occur within, or transit through, the proposed project area: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian goose (*Branta sandvicensis*), Hawaiian petrel (*Pterodroma sandwichensis*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*). We offer the following information for inclusion and review in the DEA.

Hawaiian hoary bat

The Hawaiian hoary bat is known to occur throughout the island of Hawaii. This bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in "nursery" trees and shrubs. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed. As a result, the Service recommends that woody plants greater than 15 feet tall should not be removed or trimmed from June 1 to September 15.

Hawaiian goose

Due to its range and foraging behavior, the Hawaiian goose may be present in the vicinity of the proposed project at any time of the year. If a Hawaiian goose appears within 100 feet of ongoing

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construction work, all activity should be temporarily suspended until the bird moves off to a safe distance of its own volition. Moreover, if any number of Hawaiian geese are observed loafing or foraging within the area of the proposed project during the Hawaiian goose breeding season (October through April), a biologist familiar with the nesting behavior of the Hawaiian goose should survey the area in and around the proposed construction footprint prior to the resumption of any work, or after any subsequent delay of work lasting three or more days (during which time birds may attempt to nest). If a nest is discovered within a radius of 150 feet of proposed construction work, or a previously undiscovered nest is found within said radius after work begins, all work must cease immediately and the Service contacted for further guidance.

Seabirds

The Hawaiian petrel and Newell's shearwater, collectively referred to as seabirds, may transit through the proposed action area while flying between the ocean and nesting sites in the mountains during their respective breeding seasons (typically March through December). Seabird fatalities resulting from collisions with artificial structures that extend above the surrounding vegetation have been documented in Hawaii where high densities of transiting seabirds occur. Additionally, outdoor artificial lighting such as flood lighting for construction work, security, and outdoor illumination can adversely affect seabirds by causing disorientation which may result in collision with utility lines, buildings, fences, and vehicles. Fledging seabirds are especially affected by artificial lighting and have a tendency to exhaust themselves while circling the light sources and become grounded. Too weak to fly, these birds become vulnerable to depredation by feral predators such as dogs, cats, and mongoose. Accordingly, to minimize impacts to seabirds we recommend shielding outdoor lights so that their light is directed downwards. It is also our recommendation that all construction activities take place only during daytime hours to avoid seabird injury or fatality.

We hope this information assists you in the preparation of your DEA. If you have questions about the recommendations included in this letter, please contact Chelsie Javar-Salas, Plant Biologist (phone: 808-792-9400, email: Chelsie_Javar@fws.gov).

Sincerely,

Chelsie Javar-Salas for

Michelle Bogardus
Geographic Team Leader
Maui nui and Hawaii Islands

GROUP 70
INTERNATIONAL

PRINCIPALS

Francis S. Oda, Arch.D., FAIA, AICP, LEED AP

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Tom Young, MBA AIA

Paul T. Matsuda PE, LEED AP

Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Ms. Michelle Bogardus
Geographic Team Leader
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Ms. Bogardus:

Thank you for your comment letter postmarked on December 18, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We appreciate the information you have provided regarding native faunal species that may occur within, or transit through, the project area. We have included a discussion of faunal species in or near the project area, potential impacts from the project, and recommended mitigative measures, in Section 3 of the Draft EA.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

DAVID Y. IGE
Governor

SHAN S. TSUTSUI
Lt. Governor

SCOTT E. ENRIGHT
Chairperson, Board of Agriculture

KEN H. KAKESAKO
Deputy to the Chairperson

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 South King Street
Honolulu, Hawaii 96814-2512

December 24, 2014

Mr. Mark McKeague, MURP
Planner
Group 70, Inc
925 Bethel St. 5th Floor
Honolulu, HI 96813-4307

Dear Mr. McKeague:

Subject: Pre-consultation for Draft Environmental Assessment
Department of Hawaiian Homelands
Waimea Nui Regional Community Development Initiative
TMK: (3)-6-4-3-38:11 (por.)

This is in response to your December 4, 2014 letter informing us of the proposed Draft Environmental Assessment (DEA) regarding the Waimea Nui Regional Community Development Initiative (WNCDI). The Department of Agriculture (DOA) notes that the proposed project area of 94 acres is entirely within the State Agricultural District, identified as "Intensive Agriculture" in the Hawaii County General Plan, and is zoned by the County as "A-40a."

The proposed project includes a 10 acre cemetery and chapel with a columbarium; a 31.3 acre community agriculture park with a parking facility, biodigester, agricultural resource center, co-op facility, and farmer's market; a 14.7 acre equestrian center with a compost storage facility, stables, a paniolo museum, and an arena; and, a 32.2 acre golf facility with a driving range, a 3-par course, and club house.

The proposed golf course facility and cemetery/chapel on land in the State Agricultural District appear to be inconsistent with the permitted uses found in Chapter 205, Hawaii Revised Statues (HRS). The Pre-consultation Summary for WNCDI (page 2, section 1.3) also indicates a financial relationship between the proposed non-agricultural activities and improvements and the community agricultural park – this should be explained in the DEA. We request that the DEA consider alternative locations for the proposed golf course facility and cemetery/chapel that would be consistent with State and Hawaii County land use laws.

The DEA should also include a description of current and historical uses within and adjacent to the project area. Additionally, the DEA should include a full description of the anticipated irrigation water demand for all proposed uses requiring irrigation; water source, quality, and adequacy of supply to meet peak demand; and water storage. This is particularly important with respect to the proposed community agricultural park.

We look forward to providing additional comments as your work progresses.

Sincerely,

Scott E. Enright
Chairperson, Board of Agriculture

c: DOA Agricultural Resource Management Division
Hawaii County Planning Department

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Paul T. Matsuda PE, LEED AP

Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Scott E. Enright
Chairperson, Board of Agriculture
Department of Agriculture
State of Hawai'i
1428 South King Street
Honolulu, HI 96814

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Enright:

Thank you for your comment letter emailed on December 24, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

The Draft EA takes into consideration applicable land use regulations within and adjacent to the project area. An assessment of alternatives considered is included in Section 4 of the Draft EA.

Section 3 of the Draft EA includes a description of current and historical uses within and adjacent to the project area, and further discusses anticipated water demand, water source, water quality, water storage, and adequacy of supply to meet the project demand.

Thank you for your participation in the environmental review process. We will provide you with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

DAVID Y. IGE
GOVERNOR OF HAWAII

KEITH YAMAMOTO
ACTING DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 14-262

December 12, 2014

Mr. Mark Kawika McKeague
Senior Planner
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307
Via email only: kmckeague@group70int.com

Dear Mr. McKeague:

SUBJECT: PC for DEA, Waimea Nui Regional Community Development Initiative

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter and 4 page summary to our office dated December 4, 2014. Thank you for allowing us to review and comment on the proposed project. The letter and summary will be routed to the District Health Office on Hawaii, the Clean Water Branch, Solid & Hazardous Waste Branch and Hazard Evaluation & Emergency Response Office. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments at: http://health.hawaii.gov/epo/home/landuse-planning-review-program/. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the recently revised Water Quality Standards Maps that have been updated for all islands. The new Water Quality Standards Maps can be found at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

The EPO suggests that you examine the many sources available on strategies to support sustainable and healthy design, including the:

- 2014 Climate Change Impacts in Hawaii: http://seagrant.soest.hawaii.edu/sites/seagrant.soest.hawaii.edu/files/publications/smfinal-hawaiiclimatechange.pdf

We request you share all of this information with others to increase community awareness on sustainable, innovative, inspirational, and healthy community design. We would appreciate an email to ensure your receipt of this response.
Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

c: DHO HI, CWB, SHWB, HEER {via email only}

GROUP 70
INTERNATIONAL

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Paul T. Matsuda PE, LEED AP

Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Ms. Laura Leialoha Phillips McIntyre, AICP
Program Manager
Department of Health, Environmental Planning Office
State of Hawai'i
P.O. Box 3378
Honolulu, HI 96801

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Ms. McIntyre:

Thank you for your comment letter dated December 12, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We appreciate the resources you have provided relating to Standard Comments, the Environmental Health Portal, Water Quality Standards Maps, and various sources on strategies to support the sustainable and healthy design of communities and buildings. The project will apply sustainability strategies and principles to the extent possible.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

DAVID Y. IGE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 26, 2014

Group 70 International, Inc.
Attention: Mr. Mark Kawika McKeague
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

via email: kmckeague@group70int.com

Dear Mr. Overton:

SUBJECT: Pre-Consultation on Draft Environmental Assessment for the Waimea Nui Regional Community Development Initiative, Department of Hawaiian Homelands, Applicant,Waimea, Hawaii; TMK: (3) 6-4-038:011

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

At this time, enclosed are comments from the (i) Engineering Division, and (ii) Hawaii District Land Office on the subject matter. Should you have any questions, please feel free to call Kevin Moore at (808) 587-0426. Thank you.

Sincerely,

for Russell Y. Tsuji
Land Administrator

Enclosure(s)

GROUP 70
INTERNATIONAL

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Paul T. Matsuda PE, LEED AP

Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Russell Y. Tsuji
Land Administrator
Land Division
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, HI 96809

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Tsuji:

Thank you for your comment letter dated December 10, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We appreciate the comments from the Engineering Division and the Hawai'i District Land Office on the WNR-CDI. We have individually responded to the comments offered by each division. Responses will be sent directly to each division.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

DAVID Y. IGE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

2014 DEC 15 A 11:55

RECEIVED
LAND DIVISION
HILO, HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 10, 2014

MEMORANDUM

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

RECEIVED
LAND DIVISION
2014 DEC 24 PM 1:37
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Consultation on Draft Environmental Assessment for the Waimea Nui Regional Community Development Initiative
LOCATION: Waimea, Hawaii; TMK: (3) 6-4-038:011
APPLICANT: Group 70 International for Department of Hawaiian Home Lands

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by December 24, 2014.

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 Kevin Moore at 587-0426. Thank you.

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

Signed: _____

Print name: GORDON C. HEIT
Date: 12/22/14

cc: Central Files

GROUP 70
INTERNATIONAL

PRINCIPALS

Francis S. Oda, Arch.D., FAIA, AICP, LEED AP

Norman G.Y. Hong AIA

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Tom Young, MBA AIA

Paul T. Matsuda PE, LEED AP

Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Gordon C. Heit
Land Administrator
Land Division, Hawai'i District
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, HI 96809

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Heit:

Thank you for your comment letter dated December 10, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We acknowledge that the Land Division Hawai'i District has no comments to offer at this time.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

DAVID Y. IGE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
2014 DEC 19 PM 2:48
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
LAND DIVISION

'14 DEC-12 AM 9:58 ENGINEERING

December 10, 2014

MEMORANDUM

~~TO:~~ FR:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
__Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

TO:

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Consultation on Draft Environmental Assessment for the Waimea Nui Regional Community Development Initiative
LOCATION: Waimea, Hawaii; TMK: (3) 6-4-038:011
APPLICANT: Group 70 International for Department of Hawaiian Home Lands

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by December 24, 2014.

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 Kevin Moore at 587-0426. Thank you.

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

Signed: _____

Print name: Carty S. Chang, Chief Engineer
Date: 12/18/14

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
REF: Pre-Consultation for DEA for Waimea Nui Regional Community Development Initiative Hawaii.057

COMMENTS

(X) **We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The National Flood Insurance Program does not have any regulations for developments within Zone X.**

( ) Please take note that the remainder of the project site according to the Flood Insurance Rate Map (FIRM), is located in Zones ___.

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

( ) Please note that the project site 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:

( ) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.

( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) 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: _____

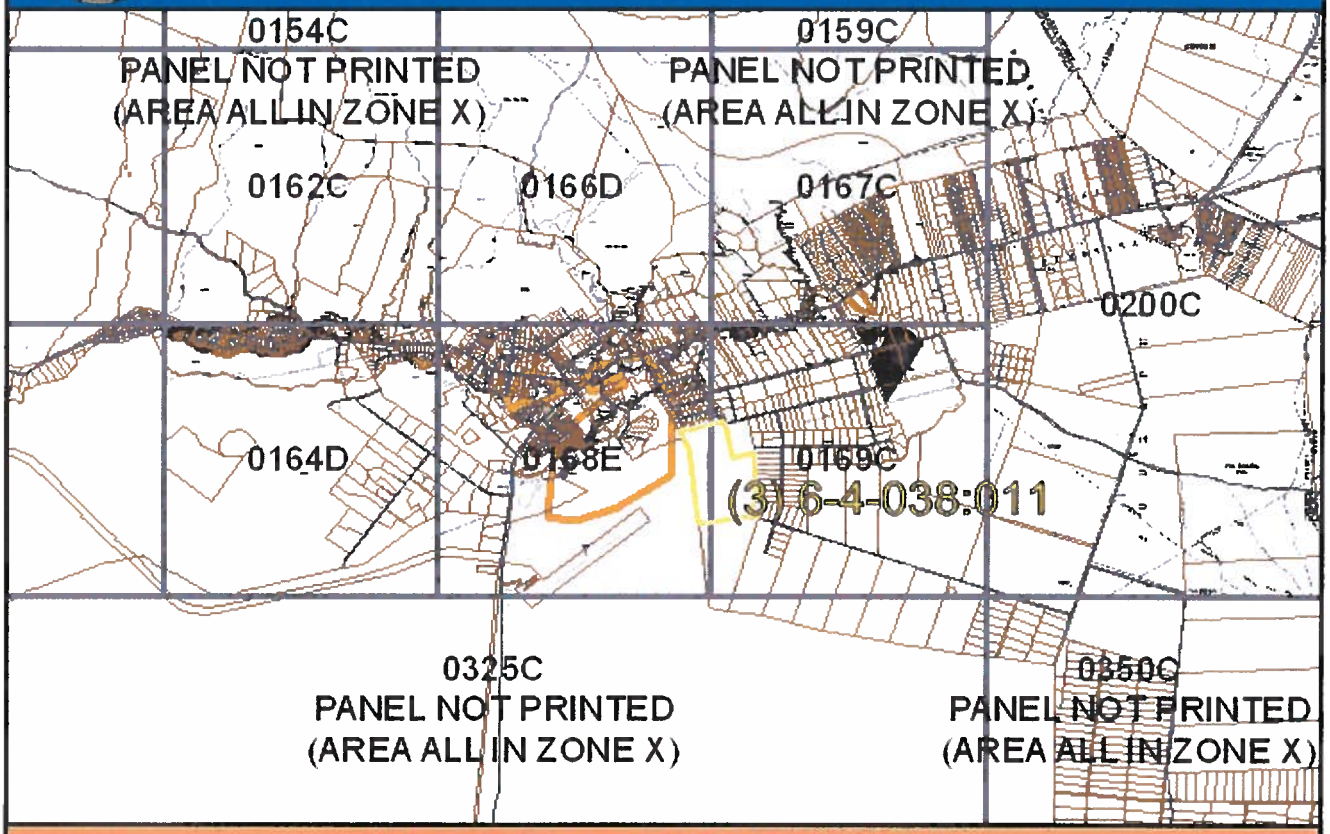
Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 12/18/14

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HAWAII
TMK NO:	(3) 6-4-038-011
PARCEL ADDRESS:	
FIRM INDEX DATE:	APRIL 02, 2004
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	1551660169C-SEPTEMBER 16, 1988 1551660168E-MAY 16, 1994
PARCEL DATA FROM:	JUNE 2013
IMAGERY DATA FROM:	MAY 2005

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
County of Hawaii	
Frank DeMarco, CFM	(808) 961-8042
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

Disclaimer: The Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR from any liability, which may arise from its use.

If this map has been identified as 'PRELIMINARY' or 'UNOFFICIAL', please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for flood zone determinations to be used for compliance with local floodplain management regulations.

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Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Carty S. Chang
Chief Engineer
Engineering Division
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, HI 96809

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Chang:

Thank you for your comment letter dated December 10, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We acknowledge that the project site is located in Flood Zone X, which does not have any regulations for developments.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASH
EDWIN H. SNIFFEN

RECEIVED

JAN 12 2015

GROUP 70 INTL

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

IN REPLY REFER TO:
AIR-EP
15.0003

January 9, 2015

Mr. Kawika McKeague, MURP
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Mckeague:

Subject: Waimea Nui Regional Community Development Initiative
Pu'ukapu, Waimea, Kohala Waho, Hawai'i Island
TMK: (3) 6-4-03-038:011 (por.)
Pre-Consultation for Draft Environmental Assessment

We have reviewed the proposed project and have the following comments:

1. The proposed site is located approximately 2,500 feet from the end of Runway 22 at Waimea-Kohala Airport and is below the approach and departure path of aircraft operating at the Airport. Therefore, the developer and project owner should be aware that the proposed uses at the site will be subject to aircraft noise and emissions from frequent aircraft overflights.

2. In accordance with Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports,* we would oppose any water feature which may attract wildlife and potentially create hazardous conditions to aircraft operations at Waimea-Kohala Airport.

3. Construction of any storm water management features must provide adequate drainage so as not to create above-ground standing water which may attract wildlife and potentially create hazardous conditions to aircraft operations at Waimea-Kohala Airport.

4. Due to the close proximity of the Airport to the proposed development, we recommend that plant and grass varieties used are not attractive to wildlife which may create hazardous conditions for aircraft operations at the Airport.

5. The developer should be cognizant of the mature heights of trees proposed for the subject project which may become a hazard/obstruction to aircraft operations at Waimea-Kohala Airport.

6. The developer should submit a Federal Aviation Administration (FAA) Form 7460-1 "Notice of Proposed Construction or Alteration" for any light poles or objects that may be a hazard to aircraft operations. In addition, a FAA Form 7460-1 should be submitted for any tall, temporary equipment, such as cranes, that may be used during construction. This form can be accessed at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp

7. Demolition and construction activities on the project shall employ best management practices at all times to control fugitive dust and eroded materials from migrating onto Airport property or into the approach or departure airspace. Any and all blasting work, if required, shall be coordinated with the Hawaii Department of Transportation, Airports Division, Hawaii Airport District Manager prior to commencing work.

Thank you for the opportunity to provide comments. Please contact Mr. David Hein, P.E., Hawaii District Engineer at (808) 987-3191 or Ms. Lynette Kawaoka, Planner at (808) 838-8818, if you have further questions.

Sincerely,

ROSS M. HIGASHI
Deputy Director – Airports

c: Mr. Ronnie V. Simpson, Federal Aviation Administration

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OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Ross M. Higashi
Deputy Director – Airports
Department of Transportation
State of Hawai'i
869 Punchbowl Street
Honolulu, HI 96813

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Higashi:

Thank you for your comment letter dated January 9, 2015 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI). The following responses are offered to your comments:

1) Section 3.19 of the Draft EA evaluates noise impacts, inclusive of aircraft noise and emissions from adjacent Waimea-Kohala flight operations.

2) Section 5 of the Draft EA provides a discussion of how the project and proposed uses at the site will comply with HAR rules and FAA requirements. No components of the WNR-CDI, including the golf facility, will include any water features.

3) Storm water management features will provide adequate drainage and are further described in Section 3 of the Draft EA.

4) A biological study was prepared as part of this project. It is anticipated that project conditions will continue to maintain the predominant biological composition of the site where development does not occur and therefore would not attract more wildlife than already occurs on-site through annual seasonal cycles.

5) We appreciate your recommendation to be mindful of mature heights of trees, which could create hazardous conditions for aircraft operations. This and item #4 of your letter have been noted and will be integrated into the landscaping considerations for the project.

6) Thank you for providing resources regarding FAA Form 7460-1 "Notice of Proposed Construction or Alteration." The Department of Hawaiian Home Lands will submit the proper forms for any light poles or objects that may be a hazard to aircraft operations as well as tall, temporary equipment, such as cranes, that may be used during construction.

7) Demolition and construction activities on the project will employ best management practices at all times and is further described in the Draft EA under Section 3.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
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
Web: http://planning.hawaii.gov/

Ref. No. 14609

RECEIVED

DEC 19 2014

GROUP 70 INTL

December 16, 2014

Mr. Mark Kawika McKeague, MURP
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. McKeague:

Subject: Pre-Consultation for the Draft Environmental Assessment (EA) Department of Hawaiian Home Lands, Waimea Nui Regional Community Development Initiative, Puukapu, Waimea, Kohala Waho, Hawaii Island
TMK: (3) 6-4-038:011

Thank you for the opportunity to provide early consultation comments on the Waimea Nui Regional Community Development Initiative (WNR-CDI). It is our understanding this project calls for the development of a Homestead Cemetery/Chapel, Community Agriculture Park, Equestrian Center, and Golf Center. The goal of the WNR-CDI is to enable this homestead community to become self-sufficient and develop economic opportunities centered on agricultural, equestrian, and recreational activities.

The Office of Planning (OP) has reviewed the documents sent to us by letter dated December 10, 2014, and has the following comments to offer:

1. The Office of Planning provides technical assistance to state and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, priorities, and priority guidelines for growth, development, and the allocation of resources throughout the State. The Hawaii State Plan includes diverse policies and objectives of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

   The Draft EA should include an analysis on the Hawaii State Plan, HRS Chapter 226, in a section that addresses whether this project conforms or is in conflict with state and county plans, policies, and controls. The analysis should include a discussion on the project's ability to meet the objectives and policies listed in HRS Chapter 226.

2. The Office of Planning is the lead agency for the Hawaii Coastal Zone Management (CZM) Program. The coastal zone management area is defined as "all lands of the State

and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

The Draft EA should include in a section that addresses how this project conforms or is in conflict with state and county plans, policies, and controls, a statement that discusses the proposed project's ability to meet all of the objectives and policies set forth in HRS § 205A-2. Where a conflict or inconsistency exists, the statement must describe the extent to which the applicant has reconciled its proposed action with HRS § 205A-2. These objectives and policies include: recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

3. The weather patterns in Waimea/Kamuela are typically sunny and dry; however this area, as well as the entire island chain, can be subject to flashy and unstable weather conditions during the winter that may lead to heavy rainfall and water runoff. Therefore, please consider utilizing OP's *Stormwater Impact Assessment* to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff occurrences. In particular, please examine the section on Low-Impact Development Concepts, which include decentralized micro-scale controls that infiltrate, filter, store, re-use, evaporate, and detain runoff close to its source.

   This guidance document will assist in integrating stormwater impact assessment within your review process. The purpose of this document is to provide guidance on assessing stormwater impacts in the planning phase of project development. The goal is to provide a suggested framework and various tools for integrating stormwater impacts assessment. These concepts are listed on pages 14-16 of the *Stormwater Impact Assessment* guidance. This can be found at http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf.

If you have any questions regarding this comment letter, please contact Josh Hekekia of our office at 587-2845.

Sincerely,

Leo R. Asuncion
Acting Director

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OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Leo Asuncion
Acting Director
Office of Planning
State of Hawai'i
235 South Beretania Street, 6th Floor
Honolulu, HI 96804

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Asuncion:

Thank you for your comment letter dated December 16, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI). The following responses are offered to your comments:

1) Section 5 of the Draft EA provides a discussion of how the project supports specific objectives and policies of the State Plan.
2) The project area is approximately 13.5 miles away from the nearest shoreline. All stormwater and runoff will be dealt with on-site.
3) We appreciate you providing the Office of Planning's Stormwater Impact Assessment reference to provide guidance on assessing stormwater impacts. A preliminary engineering report was conducted for the project site and is further discussed in Section 3 of the Draft EA.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

Kawika McKeague

From: MARGARET WILLE <margaretwille@mac.com>
Sent: Friday, December 26, 2014 11:59 AM
To: Kawika McKeague
Subject: Waimea Nui Regional Community Development Initiative

Mark Kavika McKeague
Senior Planner
Group 70 International

Dear Mr. McKeague:

Thank you for forwarding a copy of the initial description of the proposed DHHL plan. The proposal in this board outline looks good and do-able. Please keep be in the loop as you move forward through this environmental review process.

Regards,

Margaret Wille
Councilmember District 9
(North and South Kohala)

808-887-1419

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Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Ms. Margaret Wille
Councilmember, District 9
County of Hawai'i
margaretwille@mac.com

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Councilmember Wille:

Thank you for your comment letter emailed on December 26, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We acknowledge that you have no comments to offer at this time.

Thank you for your participation in the environmental review process. We will provide you with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

William P. Kenoi
Mayor

Duane Kanuha
Planning Director

Bobby Command
Deputy Planning Director

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
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Phone (808) 323-4770
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County of Hawai'i

PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

December 19, 2014

RECEIVED
DEC 30 2014
GROUP 70 INTL

Mr. Kawika McKeague
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI. 96813-4307

Dear Mr. McKeague:

Request for Comments for Pre-Consultation for Draft Environmental Assessment
Project: Waimea Nui Community Development Initiative
TMK: (3) 6-4-038:011; Pu'ukapu, South Kohala, Hawai'i

Thank you for your letter dated December 4, 2014, requesting comments from this office regarding the preparation of a Draft Environmental Assessment (DEA) for the subject project.

Group 70 on behalf of the Department of Hawaiian Home Lands is preparing a Draft EA for the proposed Waimea Nui Regional Community Development Initiative (WNR-CDI) on 94 acres of land in Pu'ukapu, South Kohala, Hawai'i. The land is currently used as pasture by the homestead ranchers. The initiative proposes the following: construction of a cemetery, a community agricultural park (includes an anaerobic digester and power generation facility, a post-harvest refrigeration and packing house), an equestrian park and a golf Facility (includes a par-3 course, driving range and club house).

The subject property consists of 191.711 acres that are under the control of the Department of Hawaiian Home Lands (DHHL). Zoning will ultimately be determined by DHHL per the 2003 Memorandum of Agreement with Hawai'i County; DHHL's current zoning for the property is largely Agricultural (A-40a) with approximately 30 acres zoned Village Commercial (CV-10). According to the County of Hawai'i General Plan 2005 (amended December 2006), the property is designated Important Agricultural Land. No portion of the property exists within the Special Management Area (SMA).

Hawai'i County Real Property records show the 9,388 s.f. Kanu o ka 'Āina Learning 'Ohana was built on the subject property in 2009.

The County of Hawai'i General Plan 2005 (amended December 2006) is the policy document for the long range comprehensive development of the island of Hawai'i and identifies the visions, values, and priorities important to the people of this County. It can be found electronically at (http://www.cohplanningdept.com/community-planning/general-plan/). General Plan goals and policies related to the Economy, Energy, Public Facilities, and Land Use, and relevant to this EA, include:

Economic

2.4.5.2(a)	"Assist in the development of agriculture by protecting important agricultural land from urbanization, providing or having provided the necessary capital improvements, such as water, and working cooperatively with the agricultural sector and government."
2.4.6.2(e)	"Encourage the preservation of the rural, ranching character within the town of Waimea."

Energy

3.2(a)	"Strive towards energy self-sufficiency."
3.2(b)	"Establish the Big Island as a demonstration community for the development and use of natural energy resources."
3.3(b)	"Encourage the development and use of agricultural products and by-products as sources of alternate fuel."

Public Facilities

10.2.4.4.3(a)	"Encourage the development of State and private higher educational facilities in West Hawai'i".
10.5.2(a)	"Encourage the development of new health care facilities or the improvement of existing health care facilities to serve the needs of Hāmākua, North and South Kohala, and North and South Kona.".
10.5.2(b)	"Develop and implement a cemeteries master plan for the sitting of future cemeteries."
10.5.2(e)	"Encourage the establishment or expansion of community health centers and rural health clinics."

Land Use

14.2.3(j)	"Ensure that development of important agricultural land be primarily for agricultural use."
14.2.3(k)	"Support the development of private and State agricultural parks to make agricultural land available for agricultural activities."
14.2.3(s)	"Important agricultural lands shall not be rezoned to parcels too small to support economically viable farming units."
14.2.3(u)	"Encourage other compatible economic uses that complement exiting agricultural and pastoral activities."

The South Kohala Community Development Plan (South Kohala CDP), adopted by ordinance in 2008, is the community-specific plan that translates broad statements within the General Plan into specific actions as they apply to the community. It can be found electronically at (http://www.hawaiicountycdp.info/south-kohala-cdp/skcdpfinaldraft11.18.08.pdf/view). South Kohala CDP policies relevant to this EA, include:

Policy No. 1	"Preserve the culture and sense of place of South Kohala communities."
Policy No. 1.3	"Provide for more developed park space and recreational facilities in South Kohala."
Policy No. 5.11	"Promote alternative energy."
Policy No. 5.13	"Support policies and programs that promote the concept of food sustainability."

We recommend that section 6.3, "Traffic and Access", of the pre-consultation material submitted to this department address the Waimea Bypass Road that is proposed to traverse the subject parcel. Details of this proposed road, long recognized as a need by the community, can be found in the South Kohala CDP, Chapter 4, Strategy 5.8. A map of the Waimea Town Conceptual Plan, inclusive of proposed road alignments, is found as Figure 4.4 of the South Kohala CDP and has been attached for your reference.

The State Department of Transportation has requested the County's cooperation in reviewing for potential flight hazards. They have asked for these potential projects that are within a 5-mile radius of an airport to be reviewed by the State DOT Airports Division for FAA clearance prior to building permit processing. As your parcel is within 5 miles of the Waimea airport, please contact the State DOT Airports Division for further information or forms and filing may be done online at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

Please be aware that the subject parcel(s) are identified as a Formerly Used Defense Site (FUDS) by the U.S. Army Corps of Engineers, who manage the investigation, clean-up and long-term monitoring on lands formerly used as an artillery firing range. Please check to see what additional steps may need to be taken in the development of the project. For more information, please contact Honolulu District Public Affairs, US Army Corps of Engineers 808-835-4004/4002, http://www.poh.usace.army.mil/Missions/Environmental/FUDS.aspx or www.poh.usace.army.mil.

We have no further comments to offer, at this time. However, please keep us informed and provide our department with a copy of the draft Environmental Assessment for our review and comment. If you have any questions or if you need further assistance, please feel free to contact Deanne Bugado of our Kona office at 323-4770.

Sincerely,

B. Mark

for DUANE KANUHA
Planning Director

DEB: deb

K:\Staff\Deanne\Letters\L-6-4-038-011 Pre-Consultation Waimea Nui Community Development Initiative.docx

xc: Planning Department, Kona

GROUP 70
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Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Duane Kanuha
Planning Director
Planning Department
County of Hawai'i
74-5044 Ane Keohokalole Hwy, Bldg E
Kailua-Kona, HI 96740

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Kanuha:

Thank you for your comment letter dated December 19, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI). The following responses are offered to your comments:

1. As the project is within DHHL lands, the Hawaiian Homes Commission is the authority that determines its land use designations and governs the allowable use and activities within the parcel. As such, we also acknowledge that DHHL will work with the County of Hawai'i to identify the appropriate land use designation as stipulated by the 2002 Memorandum of Agreement (MOA) between the County of Hawai'i and DHHL. Negotiations will need to take place to ensure that all parties are abiding by the guiding principles as defined in the MOA.

2. Kanu o ka 'Āina Learning 'Ohana (KALO) leases a portion of the cited TMK parcel. Although the WNR-CDI is contained within a portion of the same TMK parcel as KALO, this project is distinct and separate from school operations.

3. The County of Hawai'i General Plan and the South Kohala Community Development Plan's goals and policies as they relate to the project are discussed in Section 5 of the Draft EA.

4. Section 3.17 of the Draft EA provides a discussion on Roadways and Traffic and includes a discussion of the Waimea Bypass Road project.

5. We are aware that the project property is within a 5-mile radius of the Waimea-Kohala Airport, and have consulted with the State DOT Airports Division in this preconsultation period.

6. We have also consulted with the U.S. Army Corps of Engineers in regards to the Formerly Used Defense Site.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

William P. Kenoi
Mayor

Walter K. M. Lau
Managing Director

Warren H. W. Lee
Director

Brandon A. K. Gonzalez
Deputy Director

County of Hawai'i
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December 17, 2014

Mark Kawaika McKeague, MURP, Senior Planner
Group 70 International, Inc.
925 Bethel Street 5th Floor
Honolulu, HI 86813-4307

Subject: Pre-consultation for Draft Environmental Assessment (EA)
Department of Hawaiian Homelands
Waimea Nui Regional Community Development Initiative
Puukapu, Waimea, Hawaii
TMK: 6-4-038:011 (por.)

We reviewed the proposal and would appreciate a traffic impact assessment be included in the EA to include the intersections of Kamamalu Street and Mana Road with Hawaii Belt Road. General comments are as follows:

1. Buildings shall conform to all requirements of code and statutes pertaining to building construction.
2. All development generated runoff shall be disposed of on-site and shall not be directed toward any adjacent properties.
3. All earthwork and grading shall conform to Chapter 10, Erosion and Sediment Control, of the Hawaii County Code.

We appreciate the opportunity to provide comments. If you have any questions, please contact Kiran Emler of our Kona office at 323-4851.

Ben Ishii, Division Chief
Engineering Division

Copy: ENG-HILO

County of Hawai'i is an Equal Opportunity Provider and Employer.

GROUP 70
INTERNATIONAL

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OF COUNSEL

Ralph E. Portmore FAICP

February 7, 2015

Mr. Ben Ishii
Division Chief
Department of Public Works, Engineering Division
County of Hawai'i
101 Pauahi St., Suite 7
Hilo, HI 96702

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Ishii:

Thank you for your comment letter dated December 17, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI). The following responses are offered to your comments:

1) A traffic impact assessment was performed for the proposed project site, and is included in the Draft EA. The assessment includes the intersections of Kamāmalu Street and Mana Road with Māmalahoa Highway.
2) Buildings for the WNR-CDI will conform to all requirements of code and statutes pertaining to building construction.
3) We understand that all development generated runoff is required to be disposed of on-site and shall not be directed toward any adjacent properties. A preliminary engineering report pertaining to runoff is included in the Draft EA.
4) We are aware of Chapter 10 of the Hawai'i County Code pertaining to Erosion and Sediment control and have addressed this in Section 3 of the Draft EA.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

December 29, 2014

RECEIVED

DEC 31 2014

GROUP 70 INTL

Mr. Kawika McKeague
Group 70 International, Inc.
925 Bethel Street, 5th floor
Honolulu, HI 96813-4307

PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION
DEPARTMENT OF HAWAIIAN HOME LANDS
WAIMEA NUI REGIONAL COMMUNITY DEVELOPMENT INITIATIVE
TAX MAP KEY 6-4-038:011 (PORTION)

We have reviewed the subject Pre-Environmental Assessment Consultation and have the following comments.

Please be informed that water availability in the area, which is subject to change without notice, allows for up to a maximum of 25 units of water per pre-existing lot record. Each unit of water is equal to an average daily usage of 400 gallons. The subject parcel is currently serviced by a combination 8-inch x 4-inch meter, which is allocated 25 units of water or 10,000 gallons per day.

Therefore, the Department cannot provide additional water at this time. Extensive improvements and additions, which may include, but not limited to source, storage, booster pumps, transmission, and distribution facilities, would be required. Currently, sufficient funding is not available from the Department for such improvements and no time schedule is set.

The applicant of the subject parcel may proceed to enter into a Water Development Agreement, in accordance with Rule 5 of the Department's Rules and Regulations, with the Water Board in order to obtain a water commitment from the Department for the proposed development. The Agreement will establish, among other things, the scope of the necessary water system improvements, facilities charges to be paid, and timeline for construction.

Should there be any questions, please contact Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

fv Quirino Antonio, Jr., P.E.
Manager-Chief Engineer

RQ:dfg

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Ralph E. Portmore FAICP

February 7, 2015

Mr. Quirino Antonio, Jr., P.E.
Manager-Chief Engineer
Department of Water Supply
County of Hawai'i
345 Kekūanaō'a St., Suite 20
Hilo, HI 96702

Subject: Chapter 343 Draft Environmental Assessment
DHHL Waimea Nui Regional Community Development Initiative
TMK: (3) 6-4-38:011 (por.)
(Pu'ukapu, Waimea, Island of Hawai'i)

Dear Mr. Antonio:

Thank you for your comment letter dated December 29, 2014 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Department of Hawaiian Home Lands (DHHL) Waimea Nui Regional Community Development Initiative (WNR-CDI).

We understand that the allocation of water units (10,000 gpd) for this parcel has been maximized per County assignment and additional water cannot be provided by the Department unless extensive source, transmission, and storage improvements are made, which currently there are no County funds or schedule to accommodate.

The Preliminary Engineering Report prepared as part of this review and Section 3.16 (Utilities) of the Draft EA outline our analysis and strategy to address the project's demand projections. We welcome continued communication with your Department in this regard and ongoing consultation with DHHL as appropriate under the existing Memorandum of Agreement with the County.

Thank you for your participation in the environmental review process. We will provide your office with a copy of the Draft EA for your review. Please contact us if you have any questions or require additional information.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Mark Kawika McKeague, AICP
Senior Planner

APPENDIX B

Biological Surveys for the DHHL Waimea Nui Plan (TMK: [3] 6-4-038:011 por.) Waimea, Hawai'i

AECOS, Inc.

December 2014

AECOS No. 1397

Biological surveys for the DHHL Waimea Nui Regional Community Development Initiative (TMK: [3] 6-4-038:011 por.), Waimea, Hawai‘i

Prepared by:

***AECOS*, Inc.**
45-939 Kamehameha Hwy, Suite 104
Kāne’ohe, Hawai’i 96744

December 30, 2014

Biological surveys for the DHHL Waimea Nui Regional Community Development Initiative (TMK: [3] 6-4-038:011 por.), Waimea, Hawai‘i

December 30, 2014 *AECOS* No. 1397

Eric Guinther and Reginald David[1]
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Introduction

This report[2] presents results of a biological assessment survey covering approximately 96 ac (ha) of Department of Hawaiian Home Lands (DHHL) at Waimea on the Island of Hawai‘i (*Moku o Keawe*). The 160-ac Waimea Nui Regional Community Development Initiative site (TMK: [3] 6-4-038:011) is located in the saddle between Kohala and Mauna Kea volcanoes (Figure 1), roughly 0.4 mi east of the runway at Waimea Airport and 0.8 mi southeast of the main intersection in Waimea town. The property is gently rolling pasture land at an elevation of roughly 2750 ft (840 m). Annual rainfall in this location is around 35 in (900 mm), but variable over a short distance owing to a steep gradient in rainfall, being higher in the Honoka‘a (east; 95 in at Honoka‘a) direction and much lower in the Kawaihae (west; 11 in at Kawaihae) direction (Giambelluca et al., 2013).

Methods

Our biological survey was conducted on September 23, 2014. Plants were identified with nomenclature following *Manual for the Flowering Plants of Hawai‘i: Volumes I and II* (Wagner et al., 1990, 1999); updated name changes

[1] Rana Biological Consulting, Inc., Kailua-Kona, Hawai‘i.
[2] Prepared for Group 70 International and intended to become part of the public record for the Waimea Nui Plan environmental assessment process.

COVER PHOTO: View across the project site pasture land. CREDIT: R. David

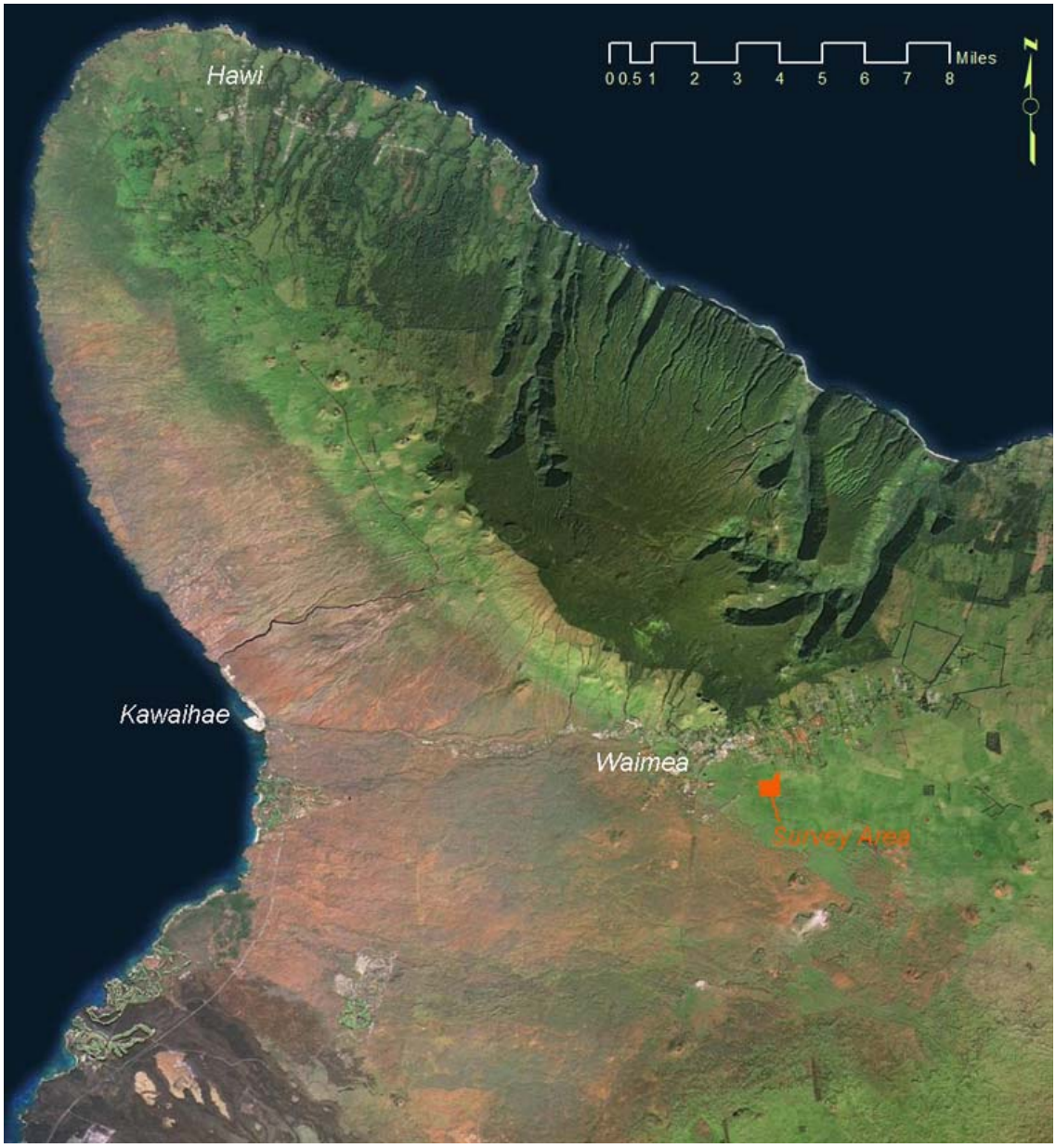

Figure 1. Northwest Hawaiʻi Island showing survey area for Waimea Nui Regional Community Development Initiative.

published in various sources are as summarized by Imada (2012). The avian phylogenetic order and nomenclature used in this report follows the *AOU Check-List of North American Birds* (American Ornithologists' Union, 1998), and the 42nd through the 55th supplements to the Check-List (American Ornithologists'

Union, 2000; Banks et al., 2002, 2003, 2004, 2005, 2006, 2007, 2008; and Chesser et al., 2009, 2010, 2011, 2012, 2013, 2014). Mammal scientific names follow (Wilson and Reeder, 2005).

Botanical Survey Methods

The botanical survey entailed walking about the area recording a progress track with a GPS unit (Trimble 6000 Series, GeoXH) used also to mark the location of any rare plants (if encountered) and other items of interest. Plant species were identified as they were encountered and notations made to develop a qualitative sense of abundance in the area. Plants not immediately recognized during the survey were photographed and/or a representative part (flower, fruit, frond) collected for later identification in the laboratory.

Avian Survey Methods

Eight avian count stations were sited roughly equidistant from each other within the survey area. A single eight-minute avian point count was made at each of the count stations. Field observations were made with the aid of Leica 8 X 42 binoculars and by listening for vocalizations. The avian counts were conducted in the early morning hours of September 23. Time not spent counting at point count stations was used to search the area for species and habitats not detected during the point counts. Weather conditions were good, with no rain, unlimited visibility and winds of between 8 to 40 kilometers an hour out of the north-northeast. These wind speeds are high, but are typical for this location.

Mammalian Survey Methods

The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all terrestrial vertebrate mammalian species detected within the project area.

Results

Vegetation

The project site is a pasture and the vegetation is limited to pasture grasses and a limited number of other herbaceous plants (Figure 2). Very scattered outcrops of basalt boulders occur across the site and offer a different habitat for

Figure 2. Typical habitat at the Waimea Nui Project site: active pasture.

Figure 3. Outcrop of basalt boulders;
these outcrops are few and widely scattered over the site.

plants but, with one exception (Figure 3, above), the same species of plants are to be found in these areas as elsewhere on the site.

Flora

Table 1 is a listing of all the plant species recorded during the survey. The pasture is singularly dominated by Kikuyu grass (*Cenchrus clandestinus*). Also very abundant is Madagascar ragwort or fireweed (*Senicio madagascariensis*). Both of these plants are extremely common in the Waimea area. Dominance of these two species is exemplified by the fact that all of the other species recorded have abundance ratings of rare or uncommon on the site.

Table 1. Flora listing for the Waimea Nui Project site, Waimea, Hawaiʻi

Family *Species*	Common Name	Status	Abundance
	FLOWERING PLANTS		
	DICOTYLEDONES		
ASCLEPIADACEAE			
Asclepias physocarpa (E. Mey.) Schlechter	balloon plant	Nat	R
ASTERACEAE (COMPOSITAE)			
Conyza bonariensis (L.) Cronq.	hairy horseweed	Nat	R
Senecio madagascariensis Poir.	Madagascar ragwort	Nat	AA
BRASSICACEAE			
Lepidium sp.	peppergrass	Nat	R
FABACEAE			
Neonotonia wightii (Wight & Arnott) Lackey	glycine vine	Nat	U3
MALVACEAE			
Malvastrum coromandelianum (L.) Garcke	false mallow	Nat	R
	MONOCOTYLEDONES		
POACEAE (GRAMINEAE)			
Cenchrus clandestinus (Hochst. ex Choiv.) Morrone	kikuyu grass	Nat	AA
Digitaria ciliaris (Retz) Koeler	Henry's crabgrass	Nat	U3
Melinus repens (Wild.) Zizka	Natal grass	Nat	R3
Sporobolus cf. *africanus* (Poir.) Robyns & Tournay	rattail grass	Nat	R1

Table 1 (continued).

Legend to Table 1

Status = distributional status

Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.

Abundance = occurrence ratings for plants on property in August 2013

R – Rare - encountered only rarely.
U - Uncommon - encountered occasionally.
O - Occasional - seen regularly, but not typically abundant.
C - Common - seen regularly in most environments; abundant in some places.
A - Abundant - found almost everywhere; may be locally dominant.
AA - Abundant - very abundant and dominant; a defining vegetation type.

Numbers (1 – 3) following qualitative rating of abundance indicate localized abundance is greater than occurrence rating. For example, R3 would be a plant encountered only once or twice, but very numerous where encountered. An A1 would indicate a plant abundant in a limited portion of the survey area.

Only ten (10) species of flowering plants were recorded (no ferns or fern allies), all herbaceous plants (no trees or shrubs). All of the species are naturalized species, by which is meant they are plants introduced to the Hawaiian Islands (non-native) that have spread on their own across the landscape. A survey of pasture land (which included a couple of trees) on Parker Ranch land directly west, produced a list of 28 plant species (David & Guinther, 2009). Somewhat drier conditions towards the airport reduced the dominance of kikuyu grass somewhat. However, even in that area, all of the species except kikuyu were rated as rare or uncommon in abundance.

Avian Survey

A total of 428 Individual birds of 15 species, representing seven separate families, were recorded during station counts in the survey area (Table 2). One of the species detected, Pacific Golden-Plover or *kōlea* (*Pluvialis fulva*) is an indigenous migratory shorebird species. The remaining 14 species detected are all alien to the Hawaiian Islands.

Avian diversity and densities were in keeping with the vegetation present on the study site and its location in Waimea, in a pastoral setting. Two species, House Sparrow (*Passer domesticus*) and Cattle Egret (*Bubulcus ibis*), accounted for 58% of all birds recorded during station counts. The most frequently recorded species was House Sparrow, which accounted for 39% of the total number of individual birds recorded during station point counts.

Table 2. Listing of avian species for the Waimea Nui project site

Common Name	Scientific Name	***ST***	***RA***
	PHASIANIDAE - Pheasants & Partridges		
	Phasianinae - Pheasants & Allies		
Gray Francolin	*Francolinus pondicerianus*	A	0.50
Japanese Quail	*Coturnix japonica*	A	0.25
Domestic Chicken	*Gallus* sp.	D	1.25
Ring-necked Pheasant	*Phasianus colchicus*	A	0.38
	PELECANIFORMES		
	ARDEIDAE - Herons, Bitterns & Allies		
Cattle Egret	*Bubulcus ibis*	A	9.75
	CHARADRIIFORMES		
	CHARADRIIDAE - Lapwings & Plovers		
	Charadriinae - Plovers		
Pacific Golden-Plover	*Pluvialis fulva*	IM	2.63
	COLUMBIFORMES		
	COLUMBIDAE - Pigeons & Doves		
Rock Pigeon	*Columba livia*	A	0.13
Spotted Dove	*Streptopelia chinensis*	A	0.75
Zebra Dove	*Geopelia striata*	A	0.25
Mourning Dove	*Zenaida macroura*	A	0.13
	PASSERIFORMES		
	ALAUDIDAE - Larks		
Sky Lark	*Alauda arvensis*	A	7.25
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	8.25
	PASSERIDAE - Old World Sparrows		
House Sparrow	*Passer domesticus*	A	20.88
	EMBERIZIDAE - Emberizids		
	ESTRILDIDAE - Estrildid Finches		
African Silverbill	*Euodice cantans*	A	0.75
Java Sparrow	*Lonchura oryzivora*	A	0.38

Legend to Table 2

ST	Status
A	Alien – Introduced to the Hawaiian Islands by humans
D	Domesticated species not currently considered to be established in the wild on the Island of Hawaiʻi
IM	Indigenous migratory shorebird species, native but not unique to the Hawaiian Islands
RA	Relative Abundance – Number of birds detected divided by the number of count stations (8)

Mammalian Survey

Seven terrestrial mammalian species were detected during the course of this survey (Table 3). A European house mouse was seen close to the gate to the property in the southeast corner of the site. Numerous dogs (*Canis familiaris*) were heard barking from other properties adjoining the site to the north and

Table 3. Listing of mammalian species for the Waimea Nui Project site

Common Name	Scientific Name	ST	Detection Type
	RODENTIA - Gnawers		
	MURIDAE - Old World Rats & Mice		
European house mouse	*Mus musculus domesticus*	A	V
	CARNIVORA- Flesh Eaters		
Domestic dog	*Canis familiaris*	A	Au, Tr, Sc
House cat	*Felis catus*	A	V, Tr, Sc
	PERISSODACTYLA - ODD-TOED UNGULATES		
	Equidae - Horses, Asses & Zebras		
Domestic horse	*Equus caballus*		
	ATRIODACTYLA - Even-Toed Ungulates		
	SUICIDAE - Old World Swine		
Pig	*Sus scrofa*	A	V, Au, Tr, Sc, Si
	BOVIDAE- Hollow-horned Ruminants		
Domestic cattle	*Bos taurus*	A	V, Au, Tr, Sc
Anglo-Nubian goat	*Capra aegagrus hircus*	A	V, Au

Legend to Table 3

ST	Status
A	Alien – Introduced to the Hawaiian Islands by humans
V	Visual – Species seen
Tr	Tracks seen
Au	Audio – species heard
Sc	Scat seen
Si	Sign, bedding, wallows, tunnels under fences, etc.

east. Tracks and scat of this species was also encountered in several locations within the site. One house cat (*Felis catus*) was seen along the northern boundary of the site. At least five horses (*Equus caballus*) were seen on adjoining pastures to the north and at least another four on pastures to the west of the survey site. We encountered at least two adult feral pigs (*Sus scrofa*) as well as 10 or more very young piglets on the site. Additionally, tracks, scat and sign of this species were present in numerous locations across the site. There were at least 80 black angus (*Bos taurus*) on the site and adjoining pastures with additional Herefords among them. Approximately 50 domestic Anglo-Nubian goats (*Capra aegagrus hircus*) were in a pasture outside of the survey site.

Discussion

Botanical Resources

The site is devoid of botanical resources of interest or concern. The property is presently used as pasture for cattle and the plants reflect that use. Two natives were previously recorded on a nearby parcel (David & Guinther, 2009): *ʻilima* (*Sida fallax*) and *ʻihiʻai* (*Oxalis corniculata*), both very common indigenous species (*ʻihiʻai* may be an early Polynesian introduction).

<u>Native plants in Landscaping</u> - There are many species of native plants that could be utilized in landscaping as the development plan is implemented. A tree used successfully in other parts of Waimea and native to this part of the Island is *Acacia koaiʼa* (*koaiʼa*; see Jensen, 2012). *Wiliwili* (*Erythrina sandwicensis*) would be another excellent choice for a long-lived native tree in exceptionally dry locations. Decorative shrubs native to this area, include indigenous *ʻaʼaliʼi* (*Dodonaea viscosa*) and *ʻākia* (*Wikstroemia* spp.). *ʻAʼaliʼi* forms spectacular shrublands on the slopes of Mauna Kea not far from the project area. Known as hopseed on the mainland, this plant is a popular landscaping plant there in cooler climes. A dozen species of *ʻākia* are endemic (uniquely native) to the Hawaiian Islands. Extremely popular in landscaping is *W. uva-ursi*; however, this particular *ʻākia* species is not native to the Big Island. Native to the project area is *W. pulcherrima*, an extremely attractive shrub or small tree with large fruits. Two other *ʻākia* species native to the Big Island, but not known in nature from Kohala, are *W. phillyreifolia* and *W. sandwicensis*. Another colorful shrub regularly seen in the wild in Kona, is *maiapilo* (*Capparis sandwichiana*) and could be suitable in areas of good drainage. More common shrubs native to Hawaiʻi and suitable in landscaping in this area would be *ʻilima* (*Sida fallax*),

alaheʻe (*Psydrax odorata*), *naupaka kahakai* (*Scaevola taccada*), and several of the native hibiscus.

Perennial bunching grasses are popular in xeric gardens, and the native flora of Hawaiʻi includes a couple of very suitable species. *Pili* grass (*Heteropogon contortus*) makes an excellent specimen plant in xeric or mesic (watered) settings. A grass that once formed expansive tracks over dry parts of the Big Island is *kāwelu* (*Eragrostis variabilis*). In minimally watered situations, these grasses will grow to modest height.

Avian Resources

The findings of the avian survey are consistent with the location and the habitats present on the property. The results are also in keeping with the results of at least three other faunal surveys conducted on lands immediately adjacent to the site and lands within close proximity to the property (David, 2005, 2014a; David and Guinther, 2009). Of the 15 avian species recorded, only one, Pacific Golden-Plover, is native. This migratory shorebird nests in the high Arctic during the late spring and summer months, returning to Hawaiʻi and the tropical Pacific to spend fall and winter months each year. The birds usually leave Hawaiʻi and return to the Arctic in late April or the very early part of May.

Although not detected during this survey, the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) likely over-fly the project vicinity between April and the middle of December each year in very small numbers. The primary cause of mortality in both species is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered second-most significant as a cause of mortality of these seabirds in Hawaiʻi. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, the birds may collide with manmade structures, and if not killed outright, are easy targets of opportunity for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al., 1998; Ainley et al., 2001; Hue et al., 2001; Day et al., 2003). No suitable nesting habitat for either seabird occurs on the subject property or for many miles around the site.

Mammalian Resources

The findings of the mammalian survey are consistent with pasture environment present on the site, as well as the findings of at least three other faunal surveys

conducted on lands in close proximity to the property (David, 2005, 2014a; David and Guinther, 2009).

We recorded seven terrestrial mammalian species, all alien to the Hawaiian Islands. Of those only two, European house mouse and pig, are wild animals. The other five are either pets or are raised as part of various ranching or other pastoral endeavors in the general neighborhood of the project site. It is probable that one or more of the other three established Muridae found on the Island of Hawaiʻi—roof rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), and Polynesian rat (*Rattus exulans hawaiiensis*)—use resources on the site on a seasonal basis.

With the exception of the endangered Hawaiian hoary bat or *ʻōpeʻapeʻa* (*Lasiurus cinereus semotus*), all terrestrial mammals currently found on the Island of Hawaiʻi are alien species, and most are ubiquitous. No Hawaiian hoary bats were detected during the course of this survey. Given the lack of suitable roosting trees, any use of the area by this species would be of an incidental foraging nature. Hawaiian hoary bats are widely distributed in the low to mid-elevation areas on the Island of Hawaiʻi and have been documented in and around almost all areas that still have some dense vegetation (Tomich, 1986; USFWS, 1998; David, 2014b).

Potential Impacts to Protected Species

No plant, avian, or mammalian species currently protected or proposed for protection under either the federal or State of Hawaiʻi endangered species programs were detected during the course of this survey (DLNR, 1998; USFWS; 2005a, 2014).

Seabirds - The only potential impact that development of the survey site poses to protected seabirds is an increased threat that birds will be downed after becoming disoriented by lights associated with the project components. Forms of outdoor lighting that could pose a threat to these nocturnally flying seabirds are: 1) lights associated with nighttime construction activities, and 2) streetlights, security, or other outdoor lighting following build-out of the project.

Lighting associated with construction activities should be shielded and, if large flood/work lights are used, these should be placed on poles that are high enough to allow the lights to be pointed directly at the ground. Streetlights or facility security lighting that may be required for public safety must be shielded (Reed et al., 1985; Telfer et al., 1987), a minimization measure serving the dual purpose of minimizing the threat of disorientation and downing of Hawaiian

Petrels and Newell's Shearwaters, and compliance with the Hawaiʻi County Code § 14 – 50 *et seq.* which requires the shielding of exterior lighting in order to lower the ambient glare to the astronomical observatories on Mauna Kea summit.

Critical Habitat

Currently there is no federally delineated Critical Habitat present on the property. There is no equivalent statute under State law. Thus, construction and operation of the proposed development will not result in modification of federal designated critical habitat.

Streams and Wetlands

There are no streams or wetlands located on the subject property.

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APPENDIX C

Archaeological Inventory Survey of TMK: (3) 6-4-038:011 (por.), Waimea Ahupuaʻa, South Kohala District, Island of Hawaiʻi

Keala Pono Archaeological Consulting, LLC.

December 2014

DRAFT—Archaeological Inventory Survey of TMK: (3) 6-4-038:011 (por.), Waimea Ahupua‘a, South Kohala District, Island of Hawai‘i

Prepared For:

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MANAGEMENT SUMMARY

An archaeological inventory survey was conducted for TMK: (3) 6-4-038:001 (por.) in Waimea Ahupua‘a, South Kohala District, on the Island of Hawai‘i. This was done in preparation for ground disturbance associated with construction of an agricultural park, cemetery, equestrian center, golf facility, and necessary site improvements for utilities, infrastructure, and road access. The archaeological work included a pedestrian survey that covered 100% of the parcel, as well as test excavations consisting of two test units and ten trenches. The entire property was utilized as ranch land and little remains on the surface. Stratigraphy consists entirely of natural deposits, with bedrock as shallow as 22 cm below surface.

Two archaeological sites were found. Site 50-10-06-30194 is a possible bulldozer push including a modified outcrop, in poor condition. Site 50-10-06-30195 is a surface alignment of cobbles, in fair condition. Excavation of Feature C of Site 30194 yielded faunal remains and a metal fragment. Site 30195 is significant under Criterion D of HAR §13-284-6(b) for its potential to yield important information on history or prehistory, while Site 30194 is not significant because it lacks integrity. No further work is recommended for Site 30194, and avoidance with no further work is recommended for Site 30195. Archaeological monitoring should be conducted during future ground disturbance only in the vicinity of the sites.

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INTRODUCTION

At the request of Group 70 International, Keala Pono Archaeological Consulting conducted an archaeological inventory survey of TMK: (3) 6-4-038:011 (por.) in Waimea Ahupuaʻa, South Kohala District, on the island of Hawaiʻi. Plans for the parcel include construction of an agricultural park, cemetery, equestrian center, golf facility, and necessary site improvements for utilities, infrastructure, and road access. The archaeological inventory survey was designed to identify any historic properties that may be located on the property in anticipation of the proposed construction.

This report is drafted to meet the requirements and standards of state historic preservation law, as set out in Chapter 6e of the Hawaiʻi Revised Statues and SHPD's draft *Rules Governing Standards for Archaeological Inventory Surveys and Reports*, §13–276. The report begins with a description of the project area and a historical overview of land use and archaeology in the area. The next section delineates methods used in the fieldwork, followed by the results of the archaeological survey. Project results are summarized and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary at the end of the document.

Project Location and Environment

The Waimea Nui project is located on Hawaiʻi Island in the district of Kohala Waho, or South Kohala; in the Kohala land division called Waimea; in the Waimea subdivision of Puʻukapu. Around Puʻukapu are the other Waimea subdivisions of ʻAlaʻōhiʻa, Nohoʻāina, Paulama, Pauweanui, Poʻokanaka, Pukalani, and Puʻukaʻaliʻali. TMK: (3) 6-4-038:011 is a 191.711-acre (77.58 ha) parcel owned by Hawaiian Home Lands. The parcel is bounded by Hiʻiaka Street on the north, Hawaiian Home Lands parcels on the east and south, and undeveloped ranchland on the west. The archaeological inventory survey covers 161.65 acres (65.42 ha) of the property (Figures 1 and 2).

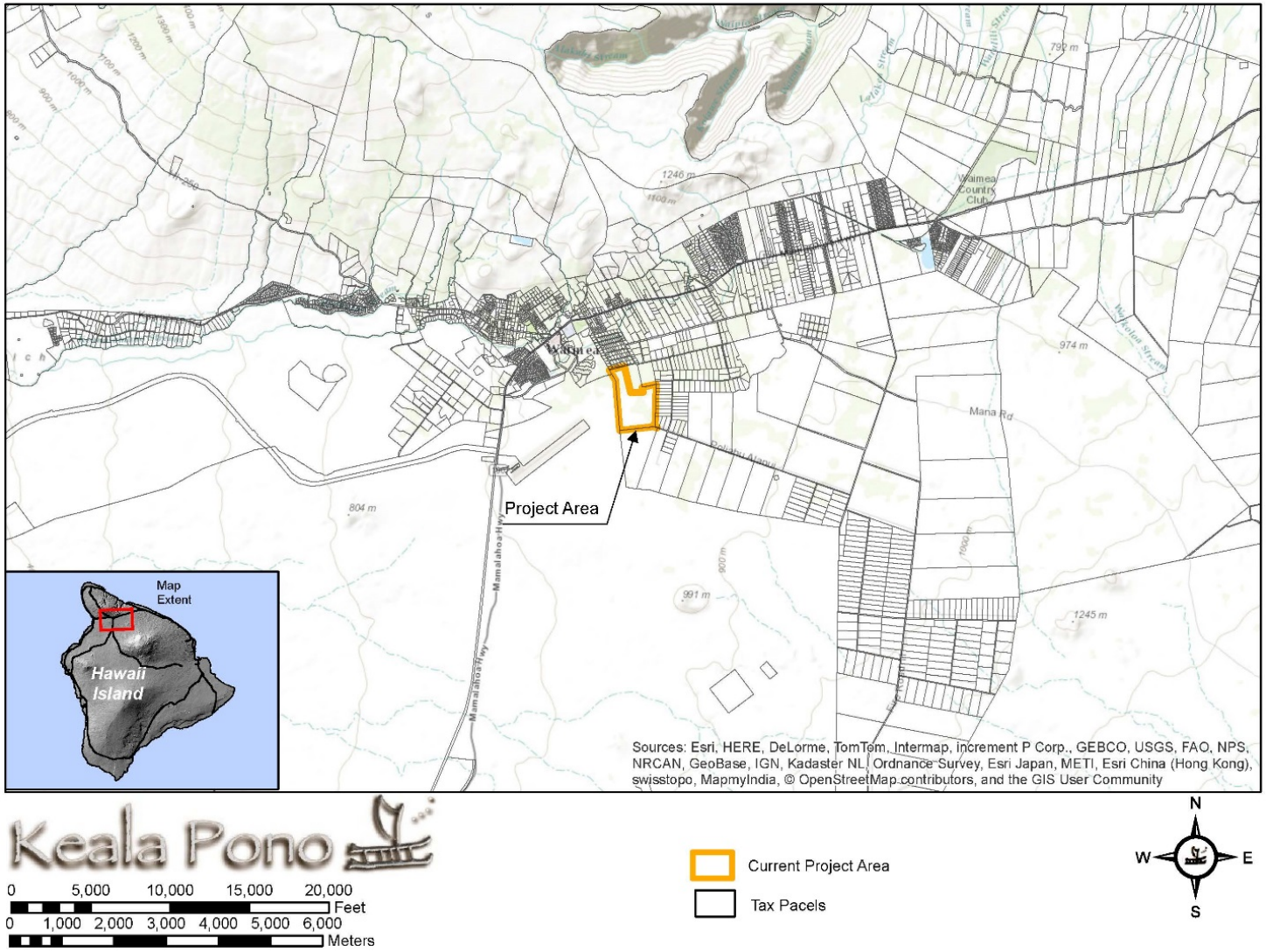
The project site is situated in the northern part of the Big Island of Hawaiʻi below the southern slopes of the Kohala Mountains, at an elevation of 2,000–3,000 feet (600–900 m), approximately 11 miles (18 km) from the coast. Temperatures here usually range from 60–70° Fahrenheit (15.5–21.1° C). There are several streams flowing down from the Kohala Mountains toward the project site, such as the Lanimaomao, the Waikoloa, and the Kohākōhau, but none of these streams enter the project area. The region has a mean annual rainfall of approximately 30–40 inches (75–100 cm) per year with most months seeing 2–4 inches (5–10 cm) of rain (Giambelluca et al. 1986:99).

The soils in the project area are of the Waimea-Kikoni-Naalehu association. These consist of "Very deep, nearly level to steep, well drained soils that have a medium-textured to moderately fine textured subsoil; on uplands" (Sato et al. 1973:oversize map). Particularly, Waimea very fine sandy loam, 6–12% slopes, (WMC) predominates (Figure 3). There are also small portions of Kikoni very fine sandy loam, 0–3% or 3–12% slopes, (KfA and KXC respectively) in the northern and eastern parts of the project area (Sato et al. 1973) (see Figure 3)

As unimproved pasture, the flora of the region consist mostly of *ʻaʻaliʻi*, *ʻilima*, cactus, and various grasses, although only grasses remain within the specific project area. The land in the study area is relatively flat, with a few low, rocky knolls and has fared well as pasture lands in recent history.

The Undertaking

The Waimea Hawaiian Homesteaders' Association (WHHA) and its subsidiary organization, the Waimea Nui Community Development Corporation (WNCDC) have been actively conceptualizing for over 40 years a community development project to address the cultural, economic, and social needs of the Waimea area and of Waimea Homestead families in particular (Figure 4). The Waimea



Keala Pono

0 5,000 10,000 15,000 20,000 Feet

0 1,000 2,000 3,000 4,000 5,000 6,000 Meters

Current Project Area

Tax Pacels

N W E S

Figure 1. Project area on a 7.5 minute USGS Waimea quadrangle map with TMK overlay.

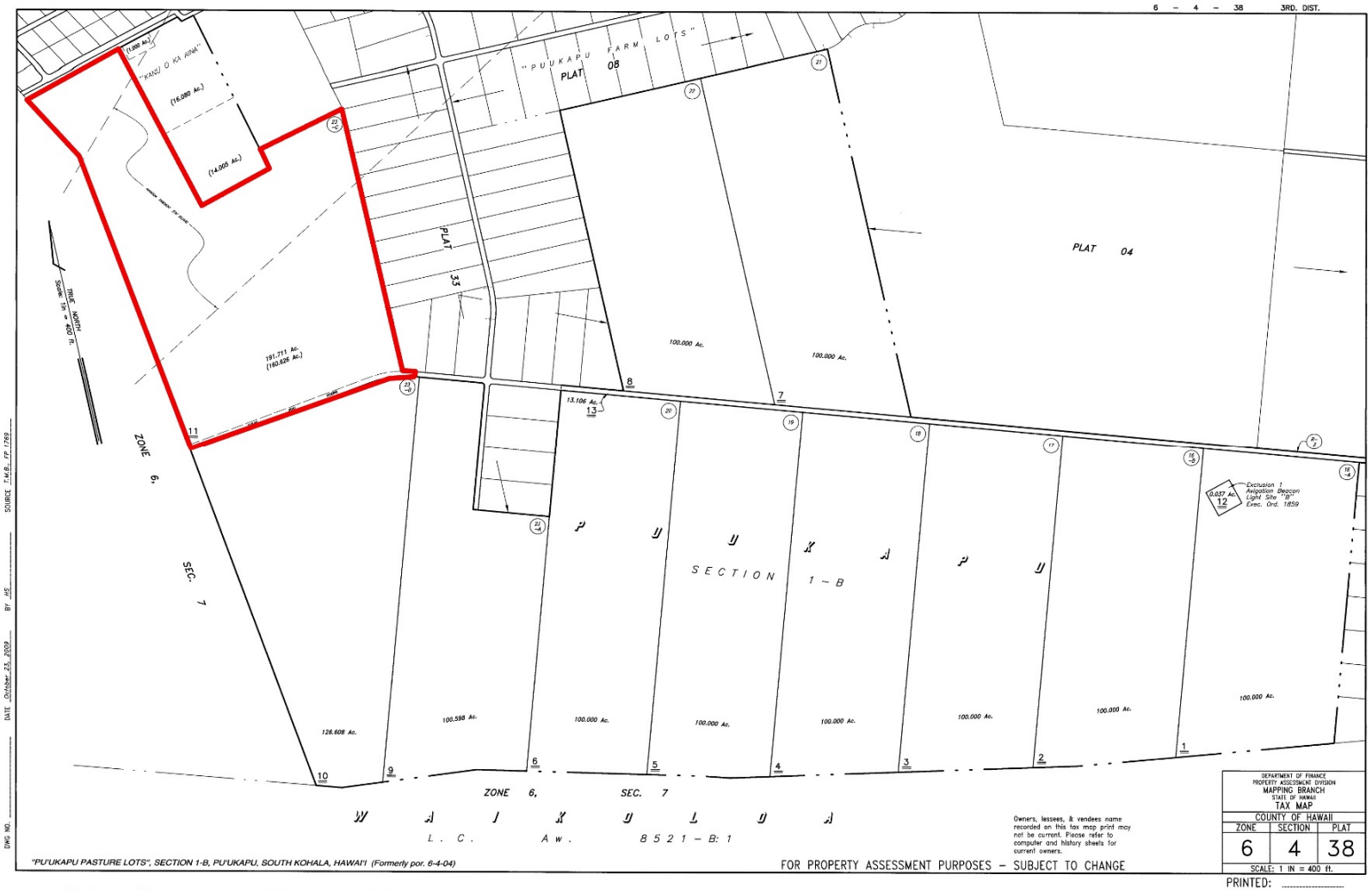
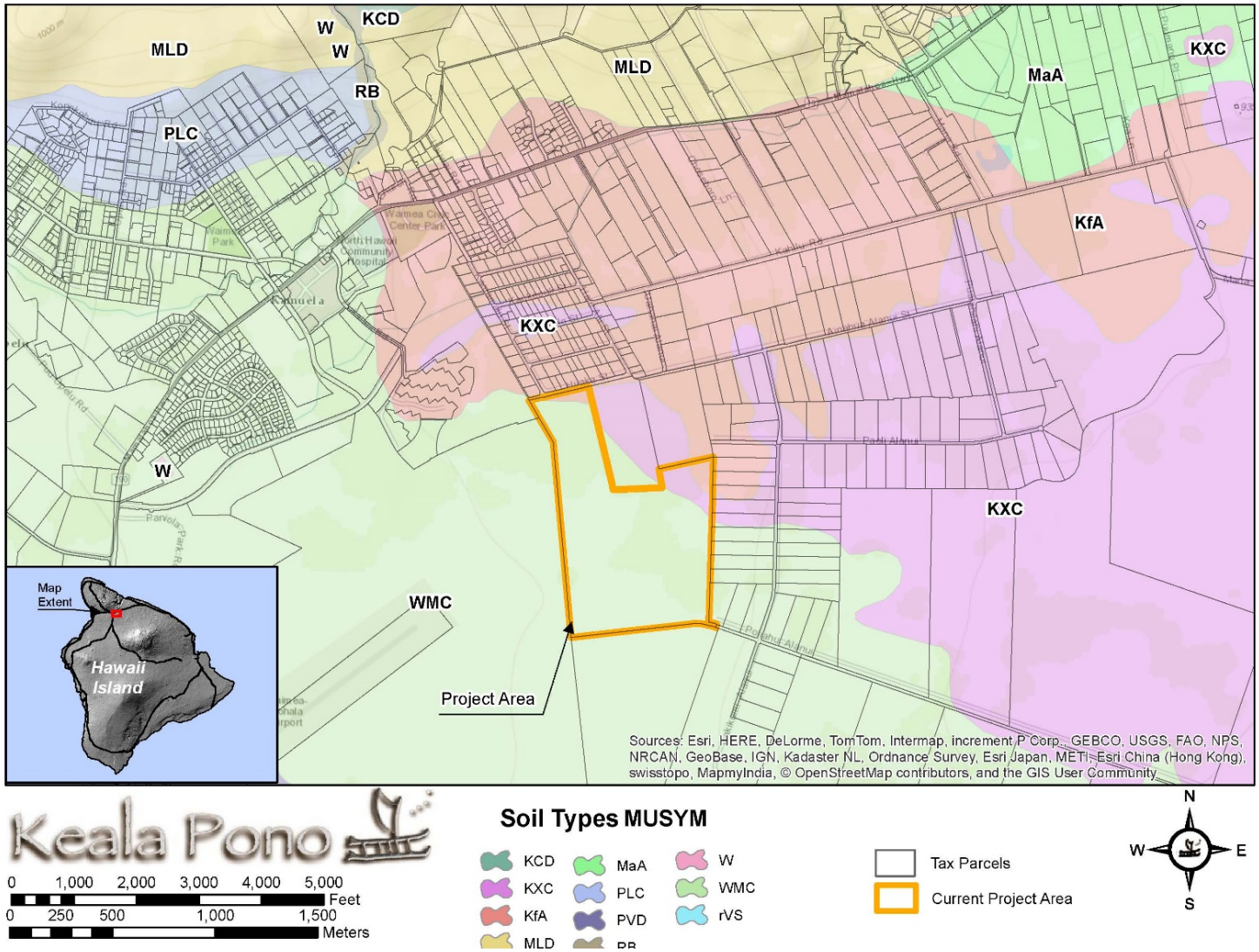


Figure 2. Project area (in red) on TMK plat map.



Keala Pono

0 1,000 2,000 3,000 4,000 5,000 Feet

0 250 500 1,000 1,500 Meters

Soil Types MUSYM

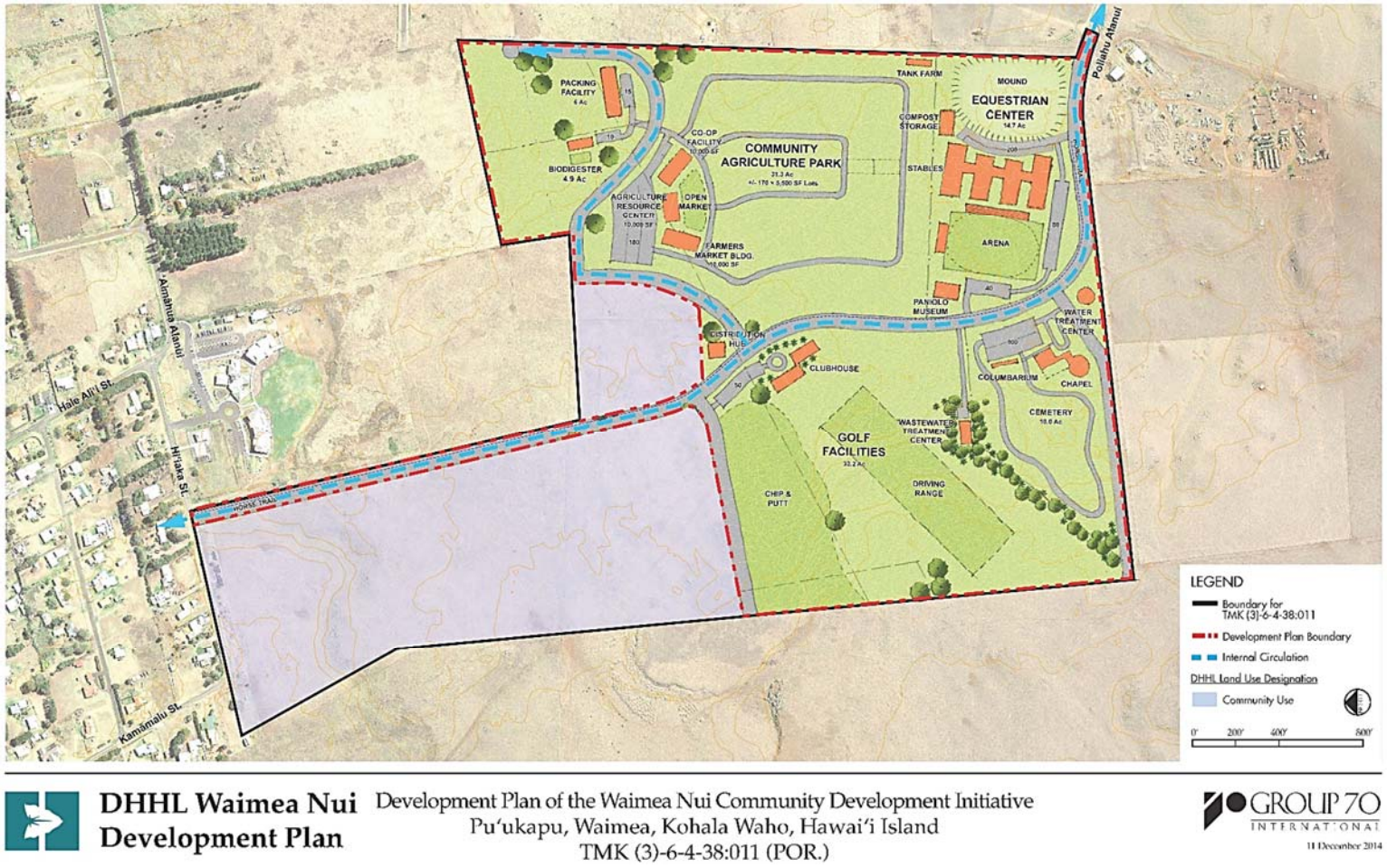
KCD, KXC, KfA, MLD, MaA, PLC, PVD, RB, W, WMC, rVS

Tax Parcels

Current Project Area

N W E S

Figure 3. Soils in the vicinity of the project area.



DHHL Waimea Nui Development Plan

Development Plan of the Waimea Nui Community Development Initiative
Pu'ukapu, Waimea, Kohala Waho, Hawai'i Island
TMK (3)-6-4-38:011 (POR.)

GROUP 70 INTERNATIONAL
11 December 2014

Figure 4. Conceptual plan for Waimea Nui.

Nui Regional Community Development Initiative (WNR-CDI) was developed based upon the ideas and concepts articulated by the homestead community. It also incorporates the long-term visions of both WHHA and the Department of Hawaiian Home Lands (DHHL), as outlined in the DHHL Waimea Regional Plan from 2012. The WNR-CDI proposes the following:

Homestead Cemetery/Chapel - Currently, there is no dedicated cemetery in the region for homesteaders to lay family members to rest. The closest cemetery options are over an hour away in Hilo or Kona, which has essentially forced families to opt for cremation in order to keep deceased family close by. A cemetery/chapel with a columbarium will allow the homestead community to perform proper burials in Waimea that are more aligned with Hawaiian values and protocol.

Community Agriculture Park – By partnering with various Federal and State agencies, the WNCDC is developing farm training programs on site. Agricultural greenhouse lots and associated facilities in the community agriculture park will allow the community to build a base of farmers, increase food self-sufficiency, and revitalize the local agriculture industry. An anaerobic biodigester will provide a proven renewable energy source at a fraction of the cost of current electricity rates for the refrigeration, sanitation, and processing of agricultural products through the use of biomass waste from farmers on-site and the adjacent equestrian center.

Equestrian Center - Waimea has a longstanding ranching and paniolo history. The equestrian center will provide recreational opportunities for the community while revitalizing the rich tradition in horse riding. The facility will serve as a venue for a host of community events such as calf roping; team roping; leisure riding, barrel racing, and jumping. Animal waste will be sustainably disposed of and used in the anaerobic digester for additional energy production.

Golf Facility - The proposed golf facility, which includes a par-3 course, driving range, and club house, will provide a recreational and economic opportunity to generate jobs and additional financial resources to support WNCDC operations and future planning of the area.

The WNR-CDI will enable the homestead community to meet their goals of self-sufficiency through a dedicated program of economic opportunities centered on agricultural, equestrian, and recreational activities while also ensuring a reserved space for those that lie in eternal rest.

BACKGROUND

A brief historic review for the Waimea area is provided below, to offer a better holistic understanding of the use and occupation of the project area. In the attempt to record and preserve both the tangible (i.e., traditional and historic archaeological sites) and intangible (i.e., *moʻolelo*, *ʻōlelo noʻeau*) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawaiʻi State Library, the University of Hawaiʻi at Mānoa libraries, the SHPD library, and online on the Huapala database, Papakilo database, Ulukau database, Waihona ʻAina database, and the State of Hawaiʻi Department of Accounting and General Services (DAGS) website. Historical maps, archaeological reports, and historical reference books were among the materials examined.

Waimea in traditional times

The history of Waimea begins with the history of Hawaiʻi Island:

> Hawaiʻi was another child of Papa and Wākea, their first-born child. He was the brother of Hoʻohoku-kalani. Hawaiʻi became the ancestor of the people of Hawaiʻi; the ancient name of Hawaiʻi island was Lono-nui-ākea. (Kamakau 1991:129)

Much of the oral accounts that narrate the events from the first peopling of Hawaiʻi to the recent period of written documentation has been lost in time. However, there are other means by which Hawaiʻi's history has been preserved. One often overlooked source of history is the information embedded in the Hawaiian landscape. Hawaiian place names "usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated… The place names provide a living and largely intelligible history" (Pukui et al. 1974:xii).

Among the places in Waimea with names which have been explicitly defined and connected to stories are ʻAlaʻōhiʻa, Nohoʻāina, Paulama, and Pukalani. ʻAlaʻōhiʻa, or "fragrant *ʻōhiʻa*," is an *ʻili* of Waimea that was said to have been covered in *ʻōhiʻa* with unusually large flowers. Nohoʻāina, or "live on the land," is an *ʻili* that was once cultivated in sweet potatoes grown by *aliʻi*. Paulama, or "extinct *lama*," is an *ʻili* that supported a grove of sacred *lama* trees that were frequented by native birds. Pukalani, or "heavenly gate," is a grassy plain that was used as a gathering place.

Pukui, Elbert, and Mookini's *Place Names of Hawaii* translates Puʻukapu as "Sacred hill" and Waimea as "Reddish water (as from erosion of red soil)" (Pukui et al. 1974:199, 226). However, many elders familiar with the area attribute the red tint not to the red soil, but to the natural color added as the water seeps through the *hāpuʻu* forest on the slopes of the Kohala Mountains. The fern plants there are a natural source of red dye, and so they say the reddish tint comes from that vegetation. Perhaps the red tint comes from both the soil and the *hāpuʻu*.

Subsistence and Traditional Land Use

Waimea has an environment naturally conducive to intensive upland farming, and this supported a sizable village in ancient Hawaiʻi.

> The population of Waimea became the most significant in density, scattered among fields adjacent to streams that provided year-round water for consumption… The availability of dependable irrigation systems gave Waimea a unique advantage whereby both dryland and irrigated *kalo* (taro) could be grown.
>
> The early Waimea inhabitants resided typically within a *pā hale* (fenced house lot) with a sleeping house and adjacent protected cooking facility. The *pā pōhaku* (stone wall)

> surrounded the *pā hale,* and likely included within was a *kīhāpai* (garden). The farming plot *(ʻapana)* of the householder was located elsewhere within the agricultural zone of the respective *ahupua'a.* These prehistoric farmed areas have become known as the Waimea Field System.
>
> Rudimentary farming of the ʻŌuli flats between Lanikepu and Keanuʻiʻomanō Streams *makai* (towards the ocean) of the [Waimea-Kohala] airport began as early as A.D. 1100–1200. The southernmost swales reflect the presence of housing and agriculture about A.D. 1300–1400. Substantial evidence, however, points to the cultivation of walled, irrigated fields coupled with permanent habitation during the period from A.D. 1600 to 1800. (Bergin 2004:16–19)

Handy et al. note that Waimea was well suited for the planting of *ʻuala* (1991:283). They elaborate on the cultivation of traditional crops: "Dry taro used to be planted along the lower slopes of the Kohala Mountains on the Waimea side, up the gulches and in the lower forest zones" (1991:532). Naturalist, Archibald Menzies, describes fertile plantations in the uplands of Waimea in 1793, which likely extended back into pre-contact times:

> A little higher up, however, than I had time to penetrate, I saw in the verge of the woods several fine plantations, and my guides took great pains to inform me that the inland country was very fertile and numerously inhabited. Indeed, I could readily believe the truth of these assertions, from the number of people I met loaded with the produce of their plantations and bringing it down to the water side to market…(Menzies 1920 [1793]:56)

There was a dramatic increase in extensive cultivation in the centuries just before Western contact. This coincided with the reign of Chiefs Alapaʻinui and Kalaniʻōpuʻu of the Waimea-Kawaihae area followed by Kamehameha and his construction of Puʻukoholā Heiau. It is suggested that during this pre-contact period, the strain on food resources had been pushed to its limits (Bergin 2004).

Puʻukoholā is not the only *heiau* connected to the area. Whereas Puʻukoholā is nearer to the coast at Kawaihae, there was another older *heiau* which stood further inland at Waimea. It was a women's *heiau* built under the direction of High Chiefess Hoapiliahae. This *heiau* was described in the accounts of the missionary Lorenzo Lyons in the 1820s:

> This [the wind of Waimea] is the piercing wind that so suddenly meets the traveler who makes his upward way from the heat of Kawaihae; and as he nears Waimea he comes upon a region once held sacred. Vivid were the rainbows of the Lanikepu hills, and red the rain, uakoko, that fell upon their slopes, for in the forest that was then their background was a heiau --- a women's heiau, the only one; and by these lovely tinted tokens the gods honored it, and signified their approval.
>
> Founded, dedicated and consecrated by the very high chiefess Hoapiliahae, it was attended exclusively by young virgins. There, in the sanctity of the cool highland forest, they performed the sacred ceremonies, learning also the science of healing so that they might eventually minister to others. And the names of the five rains of the heiau were given to the five children of Hoapiliahae.
>
> On a nearby ridge stood another heiau, builded there by the great Akua Makuakua who had come from far off Kahiki. He it was who, flying to a hillside to watch the rainbows, found there the beautiful goddess Wao, clad only in her long, silky hair. Love came swiftly and was mutual, and after glorious wedding festivities the couple went to live a Hokuula, the hill of the red planet.

> But to bear each of her children Wao returned to the Waimea hills, thereby made sacred. On these occasions a tabu was proclaimed, the forbidden ground extending down across the plains to whatever place a stone happened to stop rolling when started above by her servants. Stones they were themselves, these retainers, all through the night hours, for so Wao transformed them until daylight, when they became human again. (Doyle 1953:42, 43)

Moʻolelo

In Lorenzo Lyons' account, he does not connect the Waimea *heiau* with any particular deity. However, there are other stories of Waimea which connect the landscape to Uli, the goddess of sorcery, and to Lono, the god of agriculture and heavy rains.

A story published in the Hawaiian language newspaper, *Ka Hoku o Hawaiʻi,* in the early 1900s, narrated the legend of Ka-Miki and his brother Makaʻiole. In this legend, the two brothers had been training to be warriors and were traveling around Hawaiʻi Island. Near the end of their training, their great-grandmother instructed the brothers to visit their ancestor Laninuikuʻiamamaoloa who lived near Lanimaomao stream in Waimea. This ancestor of theirs, Laninuikuʻiamamaoloa, was the guardian of sacred objects to be used in the brothers' end-of-training ceremony. Among the sacred objects were the *ʻawa* mixing bowl called Hōkūʻula and the *ʻawa* strainer called Kalauokahuli. Kalauokahuli, the *ʻawa* strainer, was noted to be on the plains of Waikoloa, while Hōkūʻula, the *ʻawa* mixing bowl, was at the hill closer to Waipiʻo. Both were in the lands of north Hawaiʻi around Waimea. Furthermore, the *ʻawa* bowl of Hōkūʻula was said to belong to Lono-Makahiki and associated with rituals connected to the agricultural god (Wilkinson et al. 2012:13, 14).

The ancestor woman named Laninuikuʻiamamaoloa noted above is also mentioned in another story where she is identified as Uli, the goddess of sorcery. In this *moʻolelo*, which comes from the Kamohoalii Collection, Laninuikuʻiamamaoloa also goes by the name of Lanimaomao. This is the name of an important stream in the area today. It is said that Lanimaomao lived in the Mahiki forested area of Waimea. She was prayed to for heavy rains, a weather phenomenon also associated with the god Lono.

Yet another story connected to Waimea is one associated with the goddess Hiʻiakaikapoliopele, sister of the volcano goddess Pele. As Hiʻiaka traveled from Puna in the south toward Kohala in the north, she was denied passage by Mahiki. This Mahiki is the same namesake of the forested area in Waimea today, but in this story, the Mahiki refers to a horde of ill-tempered creatures. The leader of this horde was the dragon-like creature named Moʻolau. Hiʻiakaikapoliopele "resolved once and for all to make an end of this arrogant nuisance and to rid the island of the whole pestilential brood of imps" (Emerson 1997[1915]:50). The goddess was supported by a supernatural legion of male and female relatives which Pele called in to battle to support her sister. Moʻolau and the ill-tempered Mahiki were destroyed. Here is a chant which memorializes this battle and calls to mind the darkness of Mahiki with the cries of the malevolent horde in Waimea. Notice that the name of the sorcery goddess from the previous story is in this chant below:

O Kini Akua o Wai-mea,	Wai-mea's myriads of godlings,
O ka Lehu Akua o Mana.	Thy four hundred thousand, Mana.
Kini wale Wai-mea	Wai-mea thrills with the snarl of
I ka pihe o ke ʻkua o Uli, e.	witch-gods:
Po wale Mahiki;	Night's shadows brood over Mahiki;
A ia Mahiki ke uwa la no, e!	The uproar keeps on in Mahiki!
	(Emerson 1997[1915]:55)

Oli

Waimea's rightful place in Hawaiian pre-contact history is bolstered by its appearance in traditional chants such as the one quoted above. These expressions of folklore have not lost their merit in today's society. They continue to be referred to in contemporary discussions of Hawaiian history, Hawaiian values, and Hawaiian identity.

Other chants that mention Waimea do not hearken back to the distant time of the gods. Some chants only go back to the more recent era of Kamehameha the Great. This is fitting since Kamehameha was from Kohala and his warriors trained in Waimea. One of the most famous of these Kamehameha chants is *Hole Waimea.* The words, translation and background of the chant can be found on the huapala.org website (Kanoa-Martin 2012).

Hole Waimea

Hole Waimea i ka ihe a ka makani	Waimea strips the spears of the wind
Hao mai nāʻale a ke Kīpuʻupuʻu	Waves tossed in violence by the Kīpuʻupuʻu rains
He lāʻau kalaʻihi ʻia na ke anu	Trees brittle in the cold
I ʻōʻō i ka nahele o Mahiki	Are made into spears in Mahiki forest
Kū aku i ka pahu	Hit by the thrusts
Kū a ka ʻawaʻawa	Hit by the cold
Hananeʻe ke kīkala o kō Hilo kini	The hips of Hilo's throngs sag
Hoʻi luʻuluʻu i ke one o Hanakahi	Weary, they return to the sands of Hanakahi
Kū aku la ʻoe i ka Malanai	Pelted and bruised by
A ke Kīpuʻupuʻu	The Kīpuʻupuʻu rains
Holu ka maka o ka ʻōhāwai a Uli	The petals of Uli sway
Niniau ʻeha ka pua o ke koaiʻe	The flower of koaiʻe droops
Ua ʻeha i ka nahele o Waikā	Stung by frost, the herbage of Waikā

Source: This is a mele inoa (name chant) for Kamehameha I, that was inherited by his son, Liholiho. This is a tale of the Kīpuʻupuʻu, a band of runners whose name is taken from the cold wind of Mauna Kea that blows at Waimea on the big island of Hawaiʻi. They were trained in spear fighting and went to the woods of Mahiki, a woodland in Waimea haunted by demons and spooks, and Waikā to strip the bark of saplings to make spears. Hole means to handle roughly, strip or caress passionately. In the forest they sang of love, not of work or war. Hanakahi is the district on the Hamakua side of Hilo, named for a chief whose name means profound peace. Malanai is the name of gentle wind. Pua o Koaiʻe is the blossom of the Koaiʻe tree that grows in the wild, a euphemism for delicate parts. Parts of this old chant, full of double entendre or kaona, was set to music by John Spencer and entitled Waikā. (Kanoa-Martin 2012)

Another Kamehameha chant is *Hea ʻOe Kahaiolama.* In this chant the chiefess Kalama is in dialogue with Kamehameha, and he assures her that indeed, all of Hawaiʻi Island is his:

Hea ʻOe Kahaiolama

KAMEHAMEHA: Hea ʻoe Kahaiolama.	KAMEHAMEHA: Where are you, O Kalama?
KALAMA: He makaʻu mai au lā iā Kaʻahumanu.	KALAMA: I am afraid of Kaʻahumanu.
KAMEHAMEHA: Mai makaʻu mai ʻoe.	KAMEHAMEHA: Do not be afraid.
Noʻu o luna, noʻu o lalo,	All above is mine, all below is mine,
Noʻu o Kohala,	Kohala is mine,
Noʻu o Hāmākua,	Hāmākua is mine,
Noʻu o Hilo,	Hilo is mine,

No‘u o Puna,	Puna is mine,
No‘u o Ka’ū,	Ka‘ū is mine,
No‘u o Kona,	Kona is mine,
No‘u nā wahi āpau-o-loa	Everywhere is mine

CONTRIBUTOR: Mrs. Kaimu Kihe, Pu‘uanahulu, North Kona, Hawai‘i. Mele kake. (Bacon and Napoka 1995:194, 195)

And finally, the last two chants here are very similar, yet from different sources. Notice that both of these chants are accompanied by a type of string-figure game that was once familiar throughout the islands. And in both of these chants, as the string figures are being made, the words to these chants call out different features on the landscape around Hawai‘i Island. One of these string-figure chants is called *He Huaka‘i Ka‘apuni ma Hawai‘i*; here is a portion of that chant*:*

He Huaka‘i Ka‘apuni ma Hawai‘i	Ramble Round Hawai‘i
Kū e ho‘opi‘o ka lā	The rising sun travels in an arc
Ka lā i ke kula o Ahu-‘ena	reaches the flatlands of Ahu-‘ena
Komo i ka la‘i o Kai-lua e…	enters Kai-lua’s gentle landscape…
‘O Kohala:	Kohala last:
‘O Kohala-iki, ‘o Kohala-nui	lesser Kohala, greater Kohala
‘O Kohala-loko, ‘o Kohala-waho	inner Kohala, outer Kohala
‘O Pili, ‘o Ka-lā-hiki-ola	and then Pili and Ka-lā-hiki-ola
Nā pu‘u haele lua o Kohala	companion hills traveling as a twain

Kohala last: The district included shoreland, an extinct volcano, a mountainous upland famous for its strong dry wind, ‘Apa‘apa‘a.

Ka-lā-hiki-ola: The hill named Ka-lā-hiki-ola, ‘the life-bringing sun’, gave its name to the surrounding area.” (Pukui and Korn 1973:187–191)

The other chant is called *Na Moku ‘Eono o Hawai‘i Nei*, a portion of which is presented here*:*

Nā Moku ‘Eono o Hawai‘i Nei

Ka lā, ka lā, i ke kula o Ahu‘ena…	The sun, the sun shines on the plain of Ahu‘ena…
Noho i Kohala,	Kohala is reached,
‘O Kohala nui, ‘o Kohala iki,	Great Kohala, lesser Kohala,
‘O Kohala ‘āina ua ha‘aheo,	Kohala, a land that is proud of its rain,
I ka ua ‘Āpa‘apa‘a.	The ‘Āpa‘apa‘a rain.
‘O Pili me Kalāhikiola,	There lie Pili and Kalahikiola,
‘O nā pu‘u haele lua,	There the two-sided hills,
‘O nā pu‘u noho i uka…	The hills that remain inland…

CONTRIBUTOR: Z.P. Kalokuokamaile, Nāpō‘opo‘o, South Kona, Hawai’i. Mele hei. [String-figure chant.] (Bacon and Napoka 1995:96–99)

‘Ōlelo No‘eau

Waimea’s place in pre-contact Hawaiian history has also been preserved in *‘ōlelo no‘eau*, or traditional proverbs and wise sayings. In 1983, Mary Kawena Pukui published a volume of close to 3,000 *‘ōlelo no‘eau* that she collected throughout the islands. The introductory chapter of that book reminds us that if we know these proverbs and wise sayings well, then we will know Hawai‘i well (Pukui 1983). Most of the *‘ōlelo no‘eau* concerning Waimea point out the cold weather conditions of the region. But aside from the details of each saying, the simple fact that Waimea is memorialized

in these proverbs is a testament to the significance of the entire place. Here are the traditional sayings from Pukui's book which mention Waimea either in its text or in its explanation:

> (757) Hele pōʻala i ka anu o Waimea.
>
> *Going in a circle in the cold of Waimea.*
>
> Said of a person who goes in circles and gets nowhere. Waimea, Hawaiʻi, is a cold place and when foggy, it is easy for one unfamiliar with the place to lose his way.
>
> (777) Hemahema Kahuwā me Waimea.
>
> *Kahuwā and Waimea are awkward.*
>
> These places are in the upland, where people are said to be awkward in handling canoes.
>
> (1571) Ka ua Kīpuʻupuʻu o Waimea.
>
> *The Kīpuʻupuʻu rain of Waimea.*
>
> An expression often used in songs of Waimea, Hawaiʻi. When Kamehameha organized an army of spear fighters and runners from Waimea, they called themselves Kīpuʻupuʻu after the cold rain of their homeland.
>
> (1593) Ka ua Paliloa o Waimea.
>
> *The Tall-cliffs rain of Waimea.*
>
> The rain of Waimea, Hawaiʻi, that sweeps down the cliffs.
>
> (1748) Ke Kīpuʻupuʻu hōʻanu ʻili o Waimea.
>
> The Kīpuʻupuʻu rain of Waimea that chills the skin of the people.
>
> (2913) Waimea, i ka ua Kīpuʻupuʻu.
>
> *Waimea, land of the Kīpuʻupuʻu rain.*
>
> Waimea, Hawaiʻi, is famed in old *mele* for its cold Kīpuʻupuʻu rain.

Other *ʻōlelo noʻeau* in Pukui's compilation refer to the larger district of Kohala of which Waimea is a part. Whereas the Waimea proverbs and wise sayings focus on rain, the Kohala proverbs and wise sayings focus on wind. In addition, the Kohala *ʻōlelo noʻeau* refer to other aspects of the land and the characteristics of the people there:

> (211) ʻAʻohe uʻi hele wale o Kohala.
>
> *No youth of Kohala goes empty-handed*
>
> Said in praise of people who do not go anywhere without a gift or a helping hand. The saying originated at Honomakaʻu in Kohala. The young people of that locality, when on a journey, often went as far as Kapua before resting. Here, they made *lei* to adorn themselves and carry along with them. Another version is that no Kohala person goes unprepared for any emergency.
>
> (875) He pāʻā kō kea no Kohala, e kole ai ka waha ke ʻai.
>
> *A resistant white sugar cane of Kohala that injures the mouth when eaten.*
>
> A person that one does not tamper with. This was the retort of Pupukea, a Hawaiʻi chief, when the Maui chief Makakuikalani made fun of his small stature. Leter used in praise of the warriors of Kohala, who were known for valor.

(1171) I ʻike ʻia no o Kohala i ka pae kō, a o ka pae kō ia kole ai ka waha.

One can recognize Kohala by her rows of sugar cane which can make the mouth raw when chewed.

When one wanted to fight a Kohala warrior, he would have to be a very good warrior to succeed. Kohala men were vigorous, brave, and strong.

(1256) Ipu lei Kohala na ka Moaʻekū.

Kohala is like a wreath container for the Moaʻe breeze.

Kohala is a windy place.

(1313) Kahilipulu Kohala na ka makani.

Kohala is swept, mulch and all, by the wind.

Kohala is a windy place.

(1455) Ka makani ʻĀpaʻapaʻa o Kohala.

The ʻĀpaʻapaʻa wind of Kohala.

Kohala was famed in song and story for the ʻĀpaʻapaʻa wind of that district.

(1813) Kohala ʻāina haʻaheo.

Kohala, land of the proud.

The youths, *lei*-bedecked, were proud of their handsome appearance and of their home district.

(1814) Kohala ihu hakahaka.

Kohala of the gaping nose.

Kohala is full of hills, and the people there are said to breathe hard from so much climbing.

(1815) Kohala i ka unupaʻa.

Kohala of the solid stone.

The people of Kohala were known for their firm attitudes.

(1816) Kohala, mai Honokeʻā a Keahualono.

Kohala, from Honokeʻā to Keahualono.

The extent of Kohala.

(1973) Leʻi o Kohala i ka nuku na kānaka.

Covered is Kohala with men to the very point of land.

A great population has Kohala. Kauhiakama once traveled to Kohala to spy for his father, the ruling chief of Maui. While there, he did not see many people for they were all tending their farms in the upland. He returned home to report that there were hardly any mend in Kohala. But when the invaders from Maui came they found a great number of men, all ready to defend their homeland.

(1975) Lele au la, hokahoka wale iho.

I fly away, leaving disappointment behind.

Said of one who is disillusioned after giving many gifts. Waka‘ina was a ghost of North Kohala who deceived people. He often flew to where people gathered and chanted. When he had their attention he would say, “I could chant better if I had a tapa cloth.” In this way he would name one thing after another, and when all had been given him he would fly away chanting these words.

(1988) Lele o Kohala me he lupe la.

Kohala soars as a kite.

An expression of admiration for Kohala, a district that has often been a leader in doing good works.

(2220) Na ‘ilina wai‘ole o Kohala.

The waterless plains of Kohala, where water will not remain long.

After a downpour, the people look even in the hollows of rocks for the precious water.

(2276) Nani ka waiho a Kohala i ka la‘i.

Beautiful lies Kohala in the calm.

An expression of admiration for Kohala, Hawai‘i, or for a person with poise and charm --- especially a native of that district.

(2365) ‘Ohi hāpuku ka wahie o Kapa‘au.

Anything was gathered up as fuel at Kapa‘au.

Said of one who takes anything and everything. At one time Kohala suffered a drought and food became scarce. The women did their best to raise food at ‘Āinakea while the men traveled far in search of some means of relieving the famine. In order to cook their meager, inferior crops, the women used whatever they found for fuel --- dried sugar-cane leaves, grasses, potatoes, and so forth.

(2533) ‘Ope‘ope Kohala i ka makani.

Kohala is buffeted by the wind.

(2811) ‘Uala ne‘ene‘e o Kohala.

Ne‘ene‘e *potato of Kohala.*

A person who hangs around constantly. *Ne‘ene‘e*, a variety of sweet potato, also means “to move up closer.”

Historic Waimea

The island of Hawai‘i witnessed multiple changes in its political rule in the years just prior to Western contact. In the early 18th century, Chief Alapa‘i ruled the entire island of Hawai‘i. But due to internal strife, it became divided with Alapa‘i ruling the northern part of the island and Kalani‘ōpu‘u ruling the southern districts of Ka‘ū and Puna. In 1754, Alapa‘i died, and his son Keawe‘ōpala inherited the governance of Alapa‘i’s lands. However, later that same year, Kalani‘ōpu‘u wrested control of Keawe‘ōpala’s lands, and because of that, Kalani‘ōpu‘u became the ruler of the entire island. When Kalani‘ōpu‘u died in 1782, the governance of Hawai‘i went to his son Kīwala‘ō. However, it wasn’t long before Kīwala‘ō’s rule was challenged by Kamehameha, the son of Kalani‘ōpu‘u’s brother. In a subsequent battle between Kīwala‘ō’s and Kamehameha’s forces, Kīwala‘ō was killed, and Kamehameha took his place. Following that decisive battle, the governance

of Hawai‘i Island was divided into three parts. Kamehameha ruled the north half of the island from Hāmākua to Kohala to Kona. Keawema‘uhili, the brother of the deceased Chief Kalani‘ōpu‘u, ruled out of Hilo, and Keōuakū‘ahu‘ula, a son of Kalani‘ōpu‘u, ruled the districts of Ka‘ū and Puna. Eventually, Keawema‘uhili was killed by Keōuakū‘ahu‘ula’s forces, and then Keōuakū‘ahu‘ula was defeated by Kamehameha’s army. After that, Kamehameha had complete rule over the entire island, and from there he went on to conquer the rest of the Hawaiian Islands (translations in italics by D. Duhaylonsod):

> Ho‘i akula ‘o Alapa‘i i Hawai‘i i ke kaua, a ua lanakila ‘o Alapa‘i ma luna o nā ali‘i o Hawai‘i, a ua luku ‘ia nā ali‘i o Hawai‘i, a ua hui ‘ia i ho‘okahi aupuni ma lalo o Alapa‘i. (Kamakau 1996[1866]:1)
>
> *Alapa‘i returned to Hawai‘i Island to do battle, and Alapa‘i emerged victorious over the chiefs of Hawai‘i Island, the chiefs were slaughtered, and the entire kingdom was gathered as one under Alapa‘i.*
>
> I ke kaua ‘ana i Mahinaakāka ke kū ka‘awale ‘ana o Kalani‘ōpu‘u e noho mō‘ī no Ka‘ū me Puna, no ka mea, he ali‘i kama‘āina ‘o Kalani‘ōpu‘u no Ka‘ū, a ‘o kona one hānau ia o kona mau mākua. Ho‘i maila ‘o Alapa‘i a noho ma Hilo, a hala ka makahiki, ho‘i maila ‘o ia a noho ma Waipi‘o. A pau kona noho ‘ana ma Waipi‘o. Ho‘i maila ‘o Alapa‘i me nā ali‘i a hiki ma Waimea, a ‘o kekahi po‘e, ma kai o ka ‘au wa‘a, a pae i Kawaihae. Ho‘i akula ‘o Alapa‘i mai Waimea aku a Lanimaomao, loa‘a ihola i ka ma‘i… Ma Kikiako‘i, make ihola ‘o Alapa‘i. I ka A.D. 1754, noho ali‘i ihola ‘o Keawe‘ōpala no ke aupuni o Hawai‘i (Kamakau 1996[1866]:13).
>
> *From the battle at Mahinaakāka, Kalani‘ōpu‘u emerged as the king of Ka‘ū and Puna, because Kalani‘ōpu‘u was a native chief of Ka‘ū, and it was the birthplace of his parents. Alapa‘i returned to Hilo, and after some time, he went to live at Waipi‘o. After living at Waipi‘o, Alapa‘i and his chiefs went to Waimea, and others, by way of canoes, landed at Kawaihae. Alapa‘i went from Waimea to Lanimaomao, he became ill… At Kikiako‘i, Alapa‘i died. In the year 1754, Keawe‘ōpala (the son of Alapa‘i) became the ruler of Hawai‘i.*
>
> ‘Ōlelo aku ke kahuna ma hope o Kalai‘ōpu‘u [another name for Kalani‘ōpu‘u], ‘o Holo‘ae ka inoa, ["]Eia ka mea e make ai ‘o Keawe‘ōpala, aia a make ‘ē ke kahuna ma mua o Keawe‘ōpala, a laila, lilo ke aupuni iā ‘oe, no ka mea, ‘o ke kahuna ka mea e pa‘a ai ke aupuni iā Keawe‘ōpala.["]... ua hopu ‘ia ke kahuna o Keawe‘ōpala, ua pepehi ‘ia a kālua ‘ia e Kalani‘ōpu’u me ka ho‘omāinoino ‘ia… I ka makahiki A.D. 1754, ua lilo holo‘oko‘a ke aupuni o Hawai‘i iā Kalani‘ōpu’u (Kamakau 1996[1866]:13, 14).
>
> *The kahuna under Kalai‘ōpu‘u, whose name was Holo‘ae, spoke, "Here is the way Keawe‘ōpala will die, first his priest must die, and then, the kingdom will go to you, because it is the priest who keeps the kingdom securely under Keawe‘ōpala’s rule… the priest of Keawe‘ōpala was captured, and he was tortured, killed and burned in the pit by Kalani‘ōpu‘u… In the year 1754, the entire kingdom of Hawai‘i went under the rule of Kalani‘ōpu‘u.*
>
> I ka pau ‘ana o ka wā hī ‘ahi o Kalae, mana‘o ihola ‘o Kalani‘ōpu‘u e ho‘i i Kona, akā, ua loa’a ‘ē ‘o ia i ka ma‘i, no laila, ho‘i maila ‘o ia a noho ma Ka‘iliki‘i i Waio‘ahukini ma Pākini; māhuahua loa ka ma‘i, a make nō ma laila. I ka iwakāluakumamāiwa makahiki [ia] o kona noho ali‘i ‘ana ma luna o ke aupuni o Hawai‘i. A ‘o nā makahiki a pau o kona ola ‘ana, he kanahikukumamāiwa, a make ihola ‘o ia i ka malama ‘o Ianuari, i ka A.D. 1782 (Kamakau 1996[1866]:62).

When he was finished trolling for ʻahi at Kalae, Kalaniʻōpuʻu decided to return to Kona, but he became sick, and therefore, he went to stay at Kaʻilikiʻi in Waioʻahukini at Pākini; the illness intensified, and he died there. His reign over the kingdom of Hawaiʻi lasted twenty-nine years. And he lived for seventy-nine years, and died in the month of January, 1782.

I ka noho ʻana o Kalaniʻōpuʼu ma Kohala, ua hoʻoholo ihola nā aliʻi a me nā kuhina, e kauoha ʻia ke keiki hoʻoilina o ke aupuni (Kalanikauikeaoulikīwalaʻō)... Aia a make ʻo Kalaniʼōpuʼu, a laila, e ili aku ke aupuni i ka hoʻoilina (Kamakau 1996[1866]:59, 60).

When Kalaniʻōpuʻu was staying at Kohala, the chiefs and the cabinet members decided, and the command would be given that the child Kīwalaʻō would be the next heir to the kingdom… Kalaniʻōpuʻu died, and then, the heir inherited the kingdom.

I ko Kamehameha mā hiki ʻana mai ma hope, ua hoʻomaka mua aku ʻo Keʻeaumoku i ke kaua i ko Kīwalaʻō mau koa… A ʻike akula ʻo Keʻeaumoku iā Kīwalaʻō e huli ana i lalo, kokolo akula ʻo ia me ka leiomano ma ka lima, a papaʻi aʻela ma ko Kīwalaʻō kaniʻāʻī, a make loa ihola ia... ʻO ke ʻauheʻe ihola nō ia o nā aliʻi a me nā koa o Kīwalaʻō. ʻO Keōuakūʻahuʻula hoʻi a me kekahi poʻe aliʻi… holo akula i Kaʻū, a lilo ihola ʻo Keōuakūʻahuʻula i mōʻī no Kaʻū a me Puna… ʻO Keawemaʻuhili nō hoʻi ke aliʻi kapu i ke au o Alapaʻinui… a hele akula a hiki i Hilo, a lilo ihola ʻo ia i aliʻi no kekahi hapa o Hilo, a me kekahi hapa hoʻi o Puna, a pēlā nō hoʻi ʻo Hāmākua… Lilo ihola ʻo Kona, Kohala a me kekahi hapa o Hāmākua iā Kamehameha. Lilo ihola ka mokupuni ʻo Hawaiʻi i mau aupuni ʻekolu, a ʻekolu nō hoʻi mau mōʻī (Kamakau 1996[1866]:73, 74).

When Kamehameha arrived later, [his warrior-general] Keʻeaumoku had already started the battle with Kīwalaʻōʼs warriors… Keʻeaumoku saw Kīwalaʻō facing down, he crawled with a leiomano weapon in his hand, and struck at Kīwalaʻōʼs throat, and Kīwalaʻō died… The chiefs and the warriors of Kīwalaʻō fled. Keōuakūʻahuʻula and some chiefs sailed to Kaʻū, and Keōuakūʻahuʻula became the king of Kaʻū and Puna… Keawemaʻuhili also, he was a sacred chief from the time of Chief Alapaʻi… Keawemaʻuhili went to Hilo, and he became the chilef of parts of Hilo, Puna, and Hāmākua… Kona, Kohala, and a portion of Hāmākua became lands of Kamehameha. The island of Hawaiʻi was divided into three kingdoms, and with three kings.

Kiʻi maila ʻo Keōuakūʻahuʻula e kaua iā Keawemaʻuhili. Kaua ihola lāua i kinohi, a heʻe ʻo Keawemaʻuhili; a kaua hou ihola ma ʻAlae, ma Hilo Palikū, ua pepehi ʻia ʻo Keawemaʻuhili, a make pū ihola kekahi aliʻi, ʻo Kāoʻo kona inoa, he kaikoʻeke nō hoʻi nona (Kamakau 1996[1866]:105).

Keōuakūʻahuʻula came to do battle against Keawemaʻuhili. They fought in the beginning, and Keawemaʻuhili fled; and they fought again at ʻAlae, at Hilo Palikū, Keawemaʻuhili was killed, together with another chief named Kāoʻo, who was a brother-in-law of his.

Kiʻi akula ʻo Keaweaheulu a me Kamanawa, nā kuhina o Kamehameha, iā Keōuakūʻahuʻula, ka mōʻī o ka ʻaoʻao hikina o ka mokupuni ʻo Hawaiʻi… nīnau ihola ʻo Keōua, ʻHe aha kā ʻolua huakaʻi?ʼ Pane aʻela ʻo Keaweaheulu mā, ʻI kiʻi mai nei nō māua iā ʻoe, ʻo ʻoe nō ke keiki a ko māua kaikuaʻana haku; i kiʻi mai nei iā ʻoe, e holo kākou i Kona, a hui pū me kō kaikaina… E hoʻopau i ke kaua ʻana ma waena o ʻolua… Holo akula nō lākou nei a kokoke e pili i Mailekini ma Kawaihae… Kū maila nō hoʻi ʻo Keōuakūʻahuʻula a kāhea mai iā Kamehameha, ʻEia au lā.ʼ Kāhea mai nō hoʻi ʻo Kamehameha, ʻKū mai, a hele mai e ʻike kāua.ʼ Kū aʻela nō hoʻi ʻo Keōuakūʻahuʻula me ka manaʻo e lele mai i uka; e hou mai ana ʻo Keʻeaumoku i ka pololū… A ʻo Keōua a me kekahi poʻe ʻē aʻe ma ko lākou waʻa, ua pau loa lākou i ka make… I ka make ʻana o

> Keōuakū‘ahu‘ula, ke keiki a Kalani‘ōpu‘u, ka mō‘ī o Hawai‘i, a kau ‘ia ‘o ia ma Pu‘ukoholā ma Kawaihae, a laila, ua holo‘oko‘a ke aupuni o ka mokupuni ‘o Hawai‘i iā Kamehameha (Kamakau 1996[1866]:110–113).
>
> *Keaweaheulu and Kamanawa, the cabinet members of Kamehameha, went to get Keōuakū‘ahu‘ula, the king of the eastern side of Hawai‘i Island… Keōua asked, "Why have you two journeyed?" The two travelers answered, "We have come to get you, you are the child of our older brother, Chief [Kalani‘ōpu‘u]; we have come to get you that we may all sail to Kona and meet with your younger brother [cousin Kamehameha]... to put an end to the warfare between you two… They all sailed and approached close to Mailekini at Kawaihae… Keōuakū‘ahu‘ula stood and called out to Kamehameha, "Here I am." Kamehameha called back in return, "Stand up and come, let us see." Keōuakū‘ahu‘ula stood up with the thought of fleeing inland; (Kamehameha's warrior uncle) Ke‘eaumoku threw his spear… Keōua and the other people on that canoe, they all died… At the death of Keōuakū‘ahu‘ula, who was the child of Kalani‘ōpu‘u, the former king of Hawai‘i, Keōuakū‘ahu‘ula was placed on the sacrificial heiau of Pu‘ukoholā at Kawaihae, and then, the entire kingdom of Hawai‘i Island became under the one rule of Kamehameha.*

Prior to Kamehameha's reign, in 1778 during the reign of Chief Kalani‘ōpu‘u, the British sailor James Cook arrived in the Hawaiian Islands. He is credited as being the first Westerner to do so (Kamakau 1996[1866]). An estimated 105,000 natives were living on Hawai‘i Island at the time with more than 23,000 living in Kohala, the district in which Waimea is situated (Bergin 2004:21).

Historic Land Use

After the arrival of foreigners to Hawai‘i's shores, the islands were transformed culturally, politically, and economically. In the case of Waimea, numerous changes were spurred by the activities of ranchers, whalers, missionaries, sandalwood traders, and other agricultural businessmen. The transformation of Waimea was further shaped by the Māhele, a royal proclamation which replaced the traditional land tenure system with a Western capitalist one. And the final outside force which affected Waimea, though not as much as some other parts of the islands, was the establishment of the U.S. government and military presence.

Ranching

In 1792, another British sailor, Captain George Vancouver, arrived and anchored at Hawai‘i Island. Vancouver had previously visited the islands as a sailor on Captain Cook's earlier voyages. When he came back as a captain, Vancouver brought gifts of cattle, goats, and sheep for the king, Kamehameha. Kamehameha instituted a *kapu* or strict taboo on these gifts of livestock. Anyone caught harming the livestock could be put to death. As a result, the cattle and goats and sheep multiplied copiously across Waimea and the rest of the lands of north Hawai‘i Island. Many walls and enclosures had to be built to protect the people's cultivated crops from destruction from the animals. In 1803, the horse was also introduced to the island (Bergin 2004).

After the *kapu* over the cattle was lifted in 1815, the king appointed the American newcomer, John Palmer Parker, to be his authorized cattle hunter. Three years later, Parker married Keli‘i Kipikane Kaolohaka, a great-granddaughter of Kamehameha. The hunting of animals, and especially the salting and corning of beef and the procurement of hides and tallow, became a booming industry. This business was notably fueled by the demand from the visiting whaling ships. The immensity of this operation is shown when the numbers are tallied:

> The salted beef, hide, and tallow export industry grew to become a major component of commerce. Forty to fifty-nine whaling ships called annually at Kawaihae in the mid-1850s, taking aboard 1,500 barrels of salt beef, 5,000 barrels of sweet potatoes, 1,200 bullock

> hides, and 35,000 pounds of tallow on an average. Between Waimea and Kawaihae, South Kohala became the center of the cattle industry (Bergin 2004:32).

In 1832, the first of numerous Mexican cowboys arrived on Hawai‘i Island to lend their experience and skills in handling cattle. These Mexican cowboys inherited their expertise from generations of ranching, first introduced to America from the Iberian Peninsula in Spain. However, the introduction of cattle and horses and later ranching operations entered America from Europe in the 1500s and 1600s. This industry then made its way to Hawai‘i from America in the 1800s. It is important to realize that there was a span of perhaps 200 years for ranching in "New Spain" to evolve into something uniquely different from Old Spain. This evolution had a direct effect on the development the Hawaiian *paniolo,* or Hawaiian cowboy. Much of the current literature notes that the Hawaiian style of ranching has its roots in Spain and the American Southwest, although the differences between these two birthplaces of ranching are not explicitly stated. Many of Hawai‘i's pioneer *vaqueros*, or Mexican cowboys, were not entirely Spanish, but instead they were *mestizos,* persons of mixed Spanish and Native American bloodlines. An interesting line of research would be to determine which characteristics from the Native American background became an integral part of the Mexican ranching culture, differentiating it from the European Spanish ranching culture. After this analysis, perhaps a clearer picture of Hawaiian ranching practices can be made, giving separate and proper credit to their New World and Old World origins.

While the *vaqueros* were busy teaching their cowboy skills to Hawaiians in the 1800s, Parker became a leader in the industry. In 1847, he established the Parker Ranch, an enterprise which would later become one of the greatest ranches under the American flag. As intrinsic as the contributions of the Mexican cowboys are to the story of the *paniolo* and Hawaiian ranching, so are the contributions of the Parker Ranch and the Parker family to *paniolo* history in Hawai‘i. But besides the Parkers, there were other important families who have also added to the rich history of the Hawaiian cowboy. These other families include, among others, the Bell, the Fay, the Lindsey, the Purdy, and the Stevens *‘ohana.* The patriarchs and matriarchs of these aforementioned families with Anglo-American names married into the Native Hawaiian population, creating generations of descendants connected to the land on many levels.

Missionaries

Overlapping with the arrivals of foreign sailors, whalers, and cowboys to the islands was the equally significant arrival of Christian missionaries. Leading the cause to evangelize the Pacific were the American Board of Foreign Missions and the London Mission Society. The landing of the American Board of Foreign Missions on Hawai‘i's shores in 1820 could not have come at a more opportune time. Just a year earlier, King Kamehameha had died, his son Liholiho became the new king, and soon after that, the ancient traditional religion was abolished by the new king (Ellis 1963).

One of the most famous early missionaries was Lorenzo Lyons, who arrived in the islands in 1832 and later erected his church in Waimea. His written descriptions of the natural environment of Waimea are priceless. They depict a landscape filled with wind, rain, and running water, a description that matches the oral accounts of the area since time immemorial. The following passages about Waimea were originally written in the manuscript journals of Lorenzo Lyons (Doyle 1953):

> Waimea (Waikoloa) was a place of solitude, but a solitude by no means voiceless. The hours were few in the 365 days of the year when there was not 'a sound of going' in the mulberry trees. Normally the pliant boughs were strained and lashed by a northeast wind having the force of a full gale. The diapason of the weird music it made was the dominant fact of consciousness. Often for days at a time the wind was charged with fine drops of rain --- Scotch mist we called it --- and then its voice took on a fiercer, more uncompromising tone. This is the 'ua puupuu of Waimea'. The rain that raises the 'goose flesh.' The epithet,

> like the local epithets of Homer, is inseparable in poetic speech from the place. Even within the house the fierce impact of those minute raindrops driven by the violent wind gusts against unsheltered window panes makes a wild music like that of a driving sleet storm in New England.
>
> During the winter months come westerly breezes, swaying backward the mulberry boughs to which the more prevalent trades have given a permanent set toward the west, adding to the aeolian music a new and distant note. Beginning with a lisping whisper it swells to an inarticulate outcry of protest. Only rarely does this west wind approach the force of a gale [a Kona storm], when the clashing and boughs give to the music a martial motif. Great branches may finally be torn from trees which have withstood for decades the westward urge of the more violent trade winds.
>
> Whenever the voice of the wind is hushed, there is heard a sustaining deep note --- the sound of a series of cascades in the glen which brings down from the Kohala mountain the Waikoloa stream. Within a half mile, the fall must aggregate all of six or seven hundred feet, the water leaping 5, 10, even 20 feet at a time, to plunge into the deep excavation worn in the solid rock at the foot of the cascade. It is the monotone of this music rising and falling in volume of sound with capricious changes in the breezes that in the night lulls one to slumber. On quiet nights at Waikoloa when the stream is in freshet from a rain storm mauka, the sound gains in depth and volume, becoming impressive and even awe inspiring. At such times the stream which passes close to the mission premises --- under normal conditions merely a purling brook --- is a foaming, roaring torrent, sweeping along in its course not only branches of trees, but even great rocks torn from its bed. (Doyle 1953:41, 42)

Another early missionary to Hawai‘i Island who left us with invaluable written accounts of Waimea was William Ellis. Ellis arrived in the islands in 1822. In both Ellis' descriptions and in those of Lorenzo Lyons, the flora of Waimea do not appear to have been damaged yet by the introduction of foreign livestock. Ellis notes the lushness of Waimea's lands (Ellis 1963):

> Here [at Waimea] a number of villages appeared on each side of the path, surrounded with plantations, in which plantains, sugar-cane, and taro, were seen growing unusually large. (Ellis 1963[1827]:253)
>
> Mr. Thurston was informed that the inhabitants of the plantations, about seven miles in the interior, were far more numerous than on the shore… Mr. Thurston set out on a visit to the inland district of Waimea, having been furnished with a guide… Mr. Thurston walked on to Kalaloa, the residence of the chief of Waimea, Kumuokapiki (Stump of Cabbage). Leaving Kalaloa he walked on to Waiakea, from thence to Waikaloa, Pukalani, and Puukapu, which is sixteen or eighteen miles from the sea-shore, and is the last village in the district of Waimea… The soil over which he had travelled was fertile, well watered, and capable of sustaining many thousand inhabitants. In his walks he had numbered 220 houses, and the present population is probably between eleven and twelve hundred… In this district, and throughout the divisions of Hamakua and Kohala, together with the greater part of Hiro, the plough might be introduced with advantage, and the productions of intertropical climates raised in great abundance and excellent quality, as the sugar-cane and other indigenous plants, grown at Waimea, are unusually large. (Ellis 1963[1827]:288, 289)

Sandalwood

One very important entry not to be overlooked in the writings of William Ellis is his mention of the sandalwood trade taking place on Hawai‘i Island. Ellis documents that a multitude of people from

Waimea had been ordered to harvest sandalwood trees from the Kohala Mountains. It was arduous labor that required the men to carry these huge harvested trees to the coastline for shipping (Ellis 1963):

> [At Kawaihae] we were roused by vast multitudes of people passing through the district from Waimea with sandal wood, which had been cut in the adjacent mountains for Karaimoku, by the people of Waimea, and which the people of Kohala, as far as the north point, had been ordered to bring down to his storehouse on the beach, for the purpose of its being shipped to Oahu.
>
> There were between two and three thousand men, carrying each from one to six pieces of sandal wood, according to their size and weight. It was generally tied on their backs by bands made of ti leaves, passed over the shoulders and under the arms, and fastened across their breast. When they had deposited the wood at the storehouse, they departed to their respective homes. (Ellis 1963[1827]:286, 287)

Undoubtedly, the deforestation caused by the unbridled logging of sandalwood altered the landscape of Waimea. Other notable ventures which transformed the environment of Waimea include the cultivation and procurement of sugarcane, cotton, and *pulu*. In addition, rampant livestock grazing depleted the natural vegetation of Waimea, and this was countered by introducing various invasive plant species that suited the needs of the ranchers. The introduced invasive plant species would eventually supplant countless endemic and indigenous ones. All of these business interests which developed throughout the 1800s left Waimea's post-contact landscape exhaustively different from what it looked like in the pre-contact era (Wilkinson et al. 2012; Bergin 2004).

Māhele Land Tenure

By 1848, the third monarch of the Kamehameha dynasty, born Kauikeaouli, was the ruler of the islands. That year he enacted one of Hawai‘i's most transformative proclamations ever, the Māhele. This proclamation by the king divided the lands throughout Hawai‘i and set aside land ownership for three groups of people: the king, the chiefs, and the commoners. This was a sweeping departure from the traditional land tenure system which originally fostered common stewardship rather than private ownership:

> THE MAHELE is rightfully considered one of the most significant chapters in the modern history of Hawai‘i. Several legislative acts during the period 1845–1855 codified a sweeping transformation from the centuries-old Hawaiian traditions of royal land tenure to the western practice of private land ownership. (Moffat and Fitzpatrick 1995)

The king enacted the Māhele intending for it to provide the Native Hawaiian population with an irrevocable land base they would own. The process that the commoners needed to follow to secure their land titles consisted of filing a claim with the Land Commission; having their land claim surveyed; testifying in person on behalf of their claim; and submitting their final Land Commission Award (LCA) to get a binding royal patent. However, in actuality, the vast majority of the native population never received any land commission awards recognizing their land holdings due to several reasons, such as their unfamiliarity with the process, their distrust of the process, and/or their desire to cling to their traditional way of land tenure regardless of how they felt about the new process. In 1850, the king passed another law, this one allowing foreigners to buy land. This further hindered the process of natives securing lands for their families.

Regarding the lands of Waimea, there were no LCAs within the project area, although according to the Waihona ‘Aina database, 20 awards may have been made for the *‘ili* of Pu‘ukapu (Table 1). Nevertheless, there has been documentation of a land dispute from 1865 which sheds some light on

Table 1. Māhele Awards in the ʻIli of Puʻukapu, Ahupuaʻa of Waimea

LCA	Claimant	Island	District	*Ahupuaʻa*	*ʻIli*	Awarded
3672	Mana	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3675	Mahuka	Hawaiʻi	Kohala, South	Waimea	Puʻukapu, Waipio	1
3685	Mahoe	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3686	Moluhi	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3733	Imoehalau	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3842	Paukumoku	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3923	Naihe	Hawaiʻi	Kohala, South	Waimea	Maialaa, Puʻukapu	1
4130	Kanakaole	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4132	Kaina	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4183	Kaluahinenui	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
04183B	Kanaue	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4210	Kalua	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
04210B	Wawaeluhi	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4212	Kualehelehe	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4214	Hanehane	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4218	Kaohimaunu	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4227	Kaulunui	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4230	Kukahekahe	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4233	Kahuhu, E	Hawaiʻi	Kohala, South, Hāmākua	Waimea, Kaloaha	Puʻukapu, Puʻulama,	1
04348B	Purday, Harry	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1

the original ownership of the project site. One of the witnesses, a person named Cross, claimed that Puʻukapu once belonged to Chief Kalaimoku, but by 1865, this person wasn't sure who the present owners were. Another witness in the same land dispute, a person named Mi 1st, claimed that the Puʻukapu land was firmly kept by Kamehameha I. It is possible that the Puʻukapu-Waimea lands were passed down from Kamehameha I to his son, Kamehameha III. It was mentioned in the journal entry of Lorenzo Lyons in 1849:

> The King [Kamehameha III] owns Waimea, and has ordered all who have cattle, hogs, sheep, goats, horses, pasturing on his land to pay a certain rate per head. At this new regulation the people groan. (Doyle 1953:153)

Kamehameha III, in turn, entrusted administration of his Waimea lands to William Beckley, a part-Hawaiian of royal blood who had grown up with the king. Under William Beckley's authority, the Hawaiian kingdom government started to take over much of the cattle industry. Beckley's guidance of the crown's involvement in the cattle industry perhaps led to John Palmer Parker's lease of the Waimea lands to build his ranch.

Notice that in the above quote taken from a previous study, the exact end-date of Parker's lease of lands belonging to the crown is uncertain. What is certain is that Parker Ranch still utilized these lands well into the 20th century. This continuity of the ranch survived the American-backed overthrow of the Hawaiian monarchy in 1893 and the subsequent annexation of Hawaiʻi as an American territory in 1898.

Historic Maps

Historic maps help to paint a picture of Waimea in times past and illustrate the changes that have taken place in the region over the years. The earliest map found for this area likely dates to the mid-late 1800s (Figure 5). Puʻukapu is depicted in script lettering, with the points "Kaala," "East Base," and "West Base" surrounding it. Waimea Village is shown near West Base, but the settlement does not appear very developed.

The next map dates to 1913 (Figure 6). It shows the Puʻukapu Homestead area with streets and land parcels laid out in modern fashion. Puʻu Kakanihia is labeled on the west side of the subdivision, and an abandoned pipeline runs through the west side. An abandoned ditch snakes through the homesteads, extending from the Upper Hamakua Ditch to the Puʻukapu Reservoir. A new ditch is also shown, including a weir at its bend. The 10.6-acre Paiakuli Pond is illustrated on the southwest side of the homesteads.

A 1928 map of government lands in Waimea shows more development of the area (Figure 7). Several small LCAs are shown to the northwest of the project area, including LCA 987, 988, 2271, 4026, 4037, and 4198. The "road to Kona" is now illustrated, with a racetrack shown on the *mauka* side of the road. Several ranch pipelines are also depicted.

The Puʻukapu Homesteads are next shown in 1945 (Figure 8). The Lyons Ditch and a branch of this ditch flow from a dam in Waikoloa Stream. The U.S. military camp Tarawa is depicted between the Waimea and Puʻukapu Homesteads. Among the features illustrated are the division headquarters, a hospital, a school, an ice plant, a recreation field, a gasoline storage area, and several pipelines. Also shown on this map are the Waimea Public Park, a bakery, a Roman Catholic Church, and a Church of the Latter Day Saints.

A land classification map for the Waimea Plain shows the area in 1947 (Figure 9). The LCAs depicted in the 1928 map are still shown, with two more added: LCA 3682 and 4233. The roads to Kona and Kohala are now labeled as the "Gov't Main Road." Paiakuli Pond and the new Upper Hamakua Ditch with its weir are still shown. A tree nursery and forest ranger station are illustrated in the *mauka* section of the Puʻukapu Homesteads.

Mele

Like the traditional chants from ancient times that give us a window into pre-contact Hawaiʻi, the modern songs of today also provide a glimpse of the specific recent time and place that they were written in. It is interesting that the poetic references to Waimea from the days of old have found their way into the modern song compositions. Such is the case with the songs *I Ka Luna O Waimea, Hanohano E,* and *Na Kuahiwi Kaulana.* The rain of Waimea is still personified with the proper name, Kīpuʻupuʻu, and the wind of Kohala is similarly still called ʻĀpaʻapaʻa. Portions of the three songs are included here:

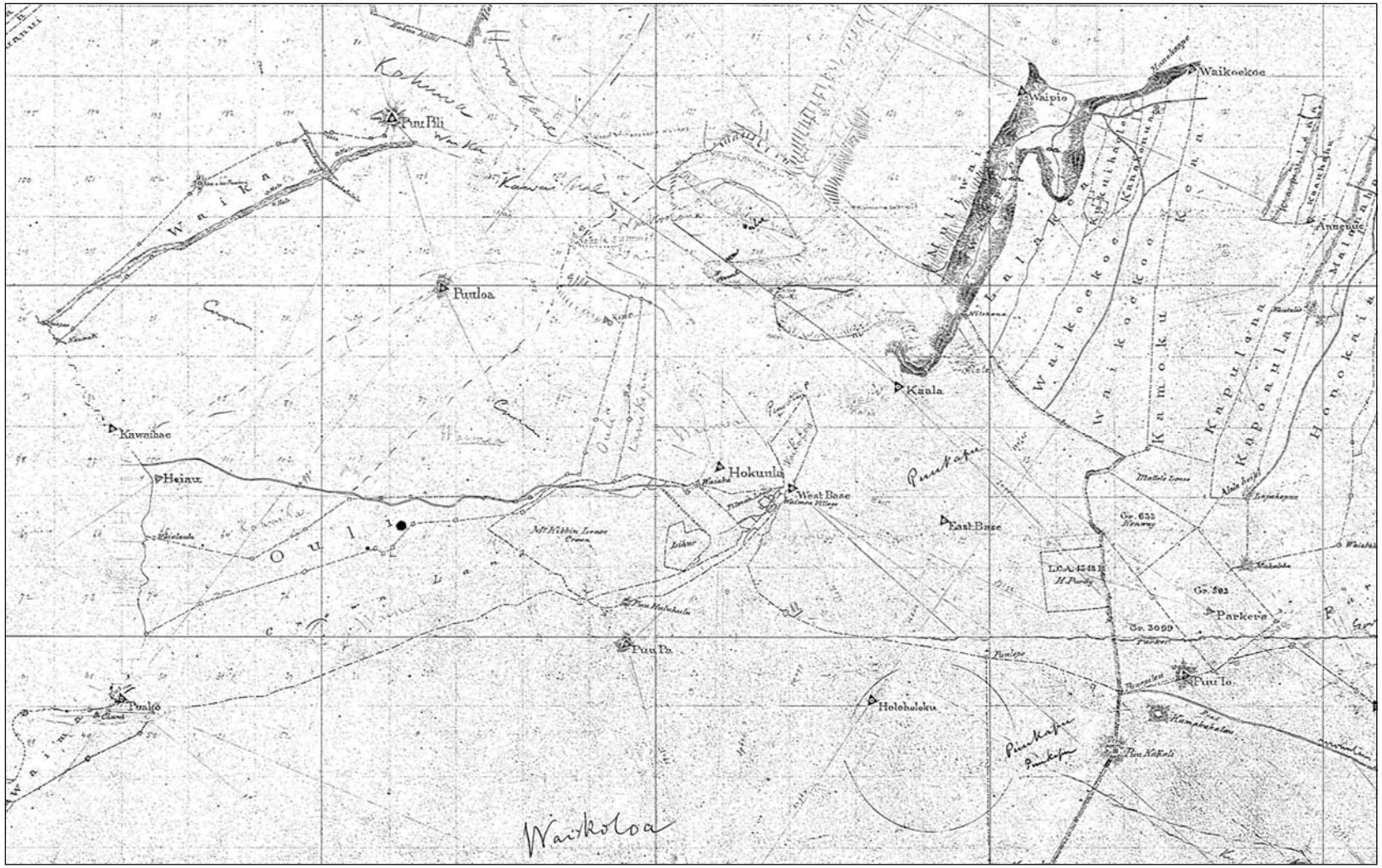


Figure 5. Portion of a North Hawai‘i Island map dating to the mid-late 1800s (Lyons n.d.).

Figure 6. Portion of a Pu'ukapu Homesteads map (Kanakanui and Lutz 1913).

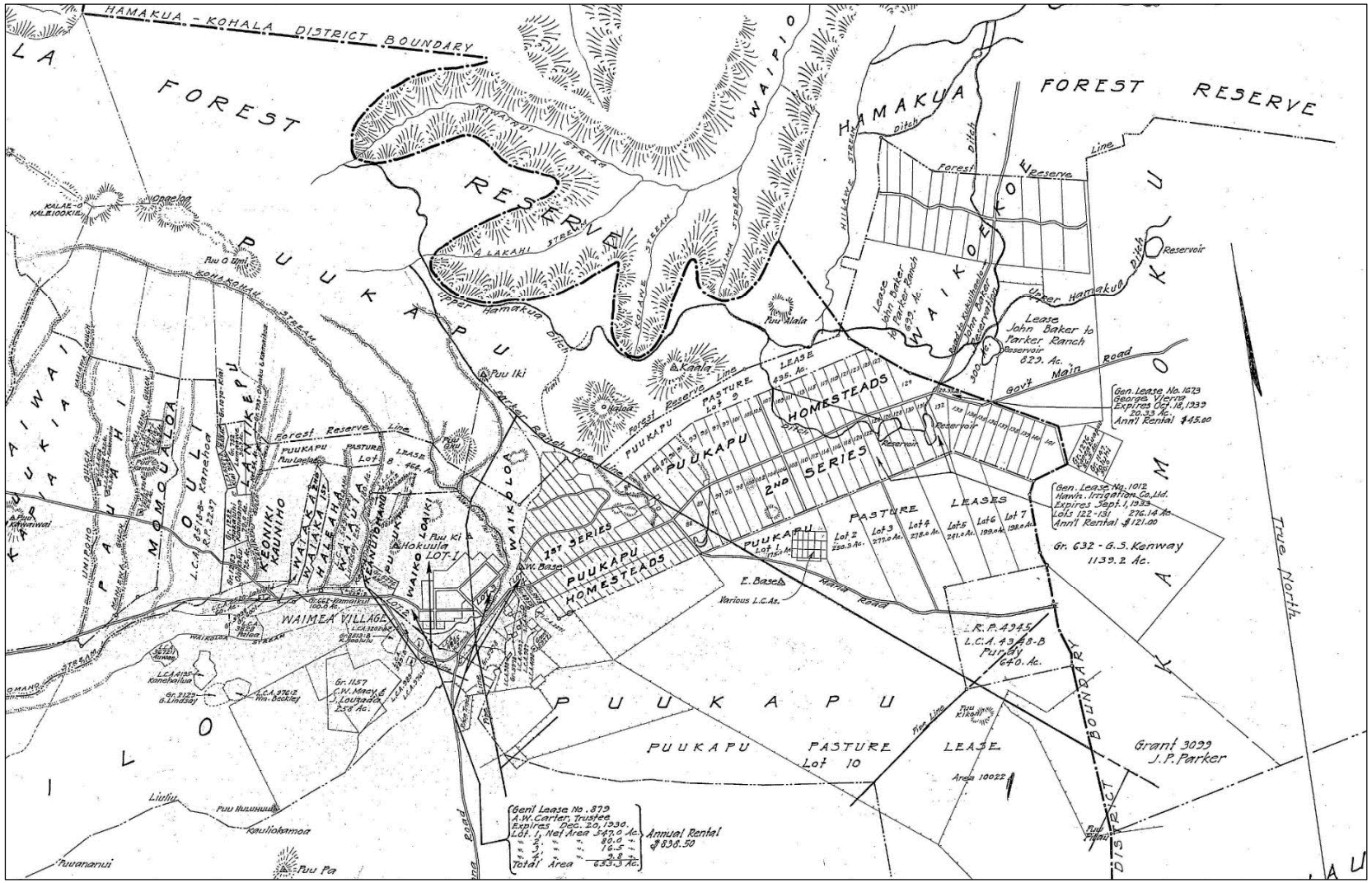


Figure 7. Portion of a Waimea Government Lands map (Wall 1928).

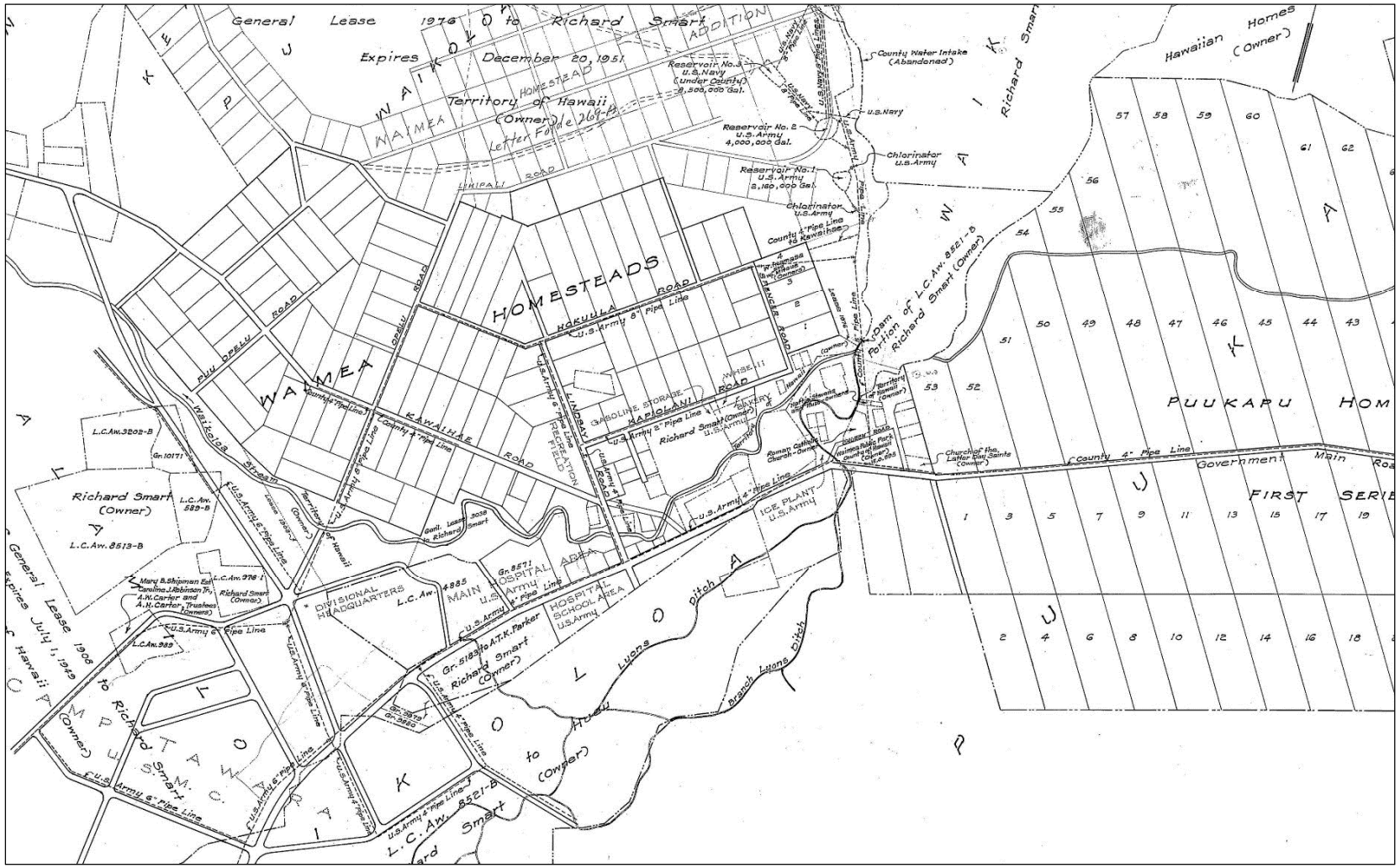


Figure 8. Portion of a South Kohala map (Marks 1945).

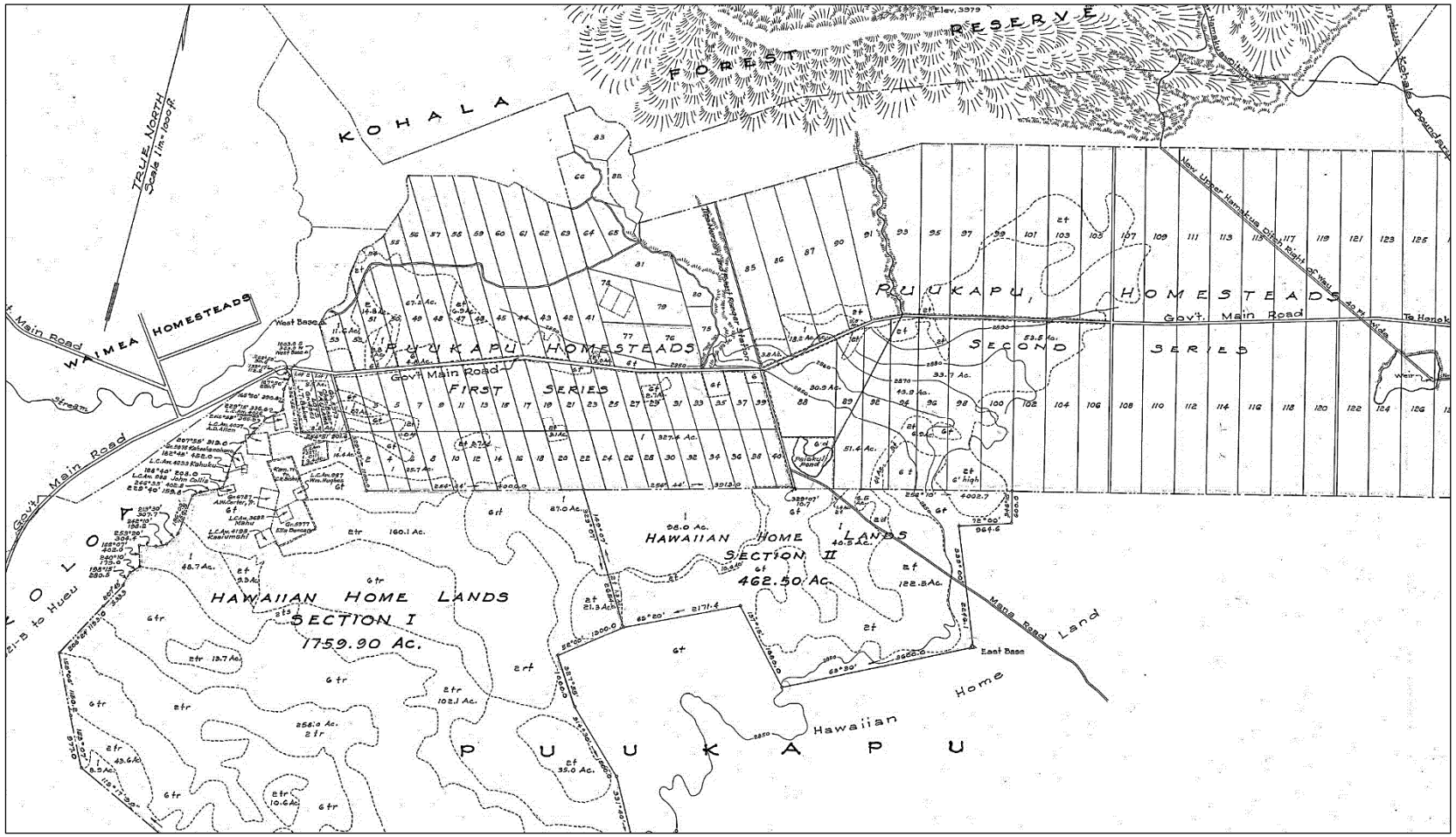


Figure 9. Portion of a land classification map of Waimea (Marks 1947).

I Ka Luna O Waimea by Keali‘ikaleo‘olaeaenuikaumanamana VIII Blaisdell

Aia i ka luna o Waimea	There, in the heights of Waimea
Pumehana ho‘i kāua	You and I share warmth
I ka ua e kipu‘upu‘u	From the cold rain
Me ka noe e a ka uhiwai	And the mist and fog

Source: Keali‘i Blaisdell's CD "Malumaluakua" -This was written (07/08/2008) about a naughty little dream of Keali‘i and his wife up in Waimea, Hawai‘i. Having a lot of kaona, shall we say PG-13 rating? Translated by Keali‘i Blaisdell, Copyright 2008, Keali‘i Blaisdell (Lyrics and translation to this song and all other songs in this section along with their accompanied descriptions are from the www.huapala.org database compiled by Kanoa-Martin).

Hanohano E (traditional song)

Hanohano e o Kohala e	Majestic Kohala
I ka makani e apa‘apa‘a e	In the gales
Hanohano e o Waimea e	Majestic is Waimea
I ka ua e kipu‘upu‘u e	In the hard, cold rain

Source: McKee Collection "Sonny Cunha Music Book" Translated by Mary Pukui

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Nā Kuahiwi Kaulana by Bill Lincoln

Ho‘o komo i kau apo a‘o Mahukona	Let us go to Mahukona and
I ka nuku kaulana o ka ‘āina	Enter this famous land
Ahuwale nā Kuahiwi o Kohala	Mountains of Kohala are in plain view
Ke holo a‘ela mai uka a ke kai	That run from the uplands to the sea
Hu‘i hu‘i kai hona ao Waimea	Water of Waimea is cold
Me ka wai ili ula	The water burns the skin
Ka ua Kipu‘upu‘u	The chilly rain Kipu‘upu‘u
I ka ku‘i kā ‘olu o Kawaihae	The smooth pounding sea of Kawaihae
Ke one pua kea i ke kai hāwanawana	The white sand and whispering sea
Alawa a‘e ua	Let us glance up
I ka nani a‘o Maunakea	At the beauty of Mauna Kea
Pumehana i ka poli kaupu a‘o Maunaloa	Think of the heat in the heart of Mauna Loa
E ae ou Hualalai e ku‘u mai la	There is the top of Hualalai
Nā kuahiwi kaulana i ke kapa‘au	The famous mountains where the gods dwell

Source: G.Cooke collection Translation by Kanani Mana

A beautiful addition to the the musical compositions written about Waimea is the inclusion of songs that reference the *paniolo*, or Hawaiian cowboy. This is undoubtedly unique to the few locales

throughout the islands where ranching dominated the community. Songs written about, for, and by Hawaiian cowboys are probably even more prominent in the Waimea-Kohala area where Hawai‘i’s cattle industry thrived. The following three songs are associated with the *paniolo*. The first, *Ka Waimea Swing,* mentions the partying of a cowboy in Waimea. The second, *Lepe ‘Ula‘ula*, is a Waimea love song about a cowboy. And the third, *Waiomina,* celebrates the victories that the handful of Hawaiian cowboys stunned the world with when they traveled to Wyoming to compete in the annual cowboy competitions at Cheyenne. Here are the three songs:

Ka Waimea Swing by Thelma Sproat Bugbee, Music by Irmgard ‘Aluli

Eia lā ka pō o ka wela lā	This is the gala night
Nui ana o ka le‘ale‘a lā	Fun and gaiety running high
E‘oni ana nā po‘e sure kēla!	Everyone in action for sure!
Hele hula nā wāwae	All the dancing feet moving
Me ka Waimea swing	In the Waimea swing
Me ka Waimea swing	In the Waimea swing
U‘i nā pua lei like ‘ole lā	Flower lei(s) of beauty unmatched
Pūlehulehu nā pua aia lā	Bounty of floral beauty gathered here
Kani nā kīkala ma kāma‘a lā	Harmony of jingling spurs and boots
Aia cowboy me ka Waimea swing	That’s a cowboy dancing the Waimea swing,
Me ka Waimea swing	The Waimea swing
Kani wāhie mai ne nā pila lā	Music breaks into the beauty and gaiety
Hū maila kani waiolina lā	Pouring forth harmony in violins
Hui nā ‘ukulele kīkā hō‘alu lā	Mingling with ‘ukulele and slack-key guitar
Kani maila e ka Waimea swing	Raising the echo of the Waimea swing,
E ka Waimea swing	The Waimea swing
Ma ‘ane‘i mai a ma ‘ō aku lā	Swing this way then that way
Huli ‘ākau a huli hema lā	To the right and to the left
Hene mai nā ‘aka ‘ana lā	Rippling laughter mingles
Holo ‘ana (Hī! Hū!)	With shouts, “Hee, Hoo!”
O ka Waimea swing	Of the Waimea swing
O ka Waimea swing	Of the Waimea swing
Ha‘ina mai ka puana lā	This is the story told
Eia lā ka pō o ka wela lā	The gala night of whoopee
E ‘oni ana nā po‘e sure kēla!	Everybody in action for sure!
Hele hula nā wāwae	All the dancing feet moving
Me ka Waimea swing	In the Waimea swing
Me ka Waimea swing	In the Waimea swing

Source: Hailama Farden from Kani ka pila! The musical legacy of Irmgard Keali‘iwahinealohanohokahaopuamana Farden ‘Aluli. Translation by Thelma Bugbee

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Lepe ʻUlaʻula by Kaimanahila

Lepe ʻulaʻula lepe o ka moa	The red comb of the rooster
Ke hua kūlina `ai a ka pelehu	The corn eating turkey
Keiki mai au no Kawaihae	I am a lad from Kawaihae
No ke kipuka ʻili lawe a lilo	With a winning lasso
ʻElua wale iho hoʻi māua	Just the two of us
Ka hau hāliʻi aʻo Waimea	Covered by the dew of Waimea
I laila māua kukuni e ka hao	There, we two used the branding iron
Kokope e ka ʻiʻo kupu kukuʻi e ka papa niho	Scraped the flesh from the gums
Mai nō ʻoe a hoʻopoina	Never forget
I ka lawe haʻaheo ake kipuka ʻili	The lasso and the proud catch
Haʻina ʻia mai ana ka puana	Tell the refrain
Lepe ʻulaʻula lepe o ka moa	The red comb of the rooster

Source: This Waimea love story tells of a Big island cowboy who uses his lariat to capture the object of his affection. Translator unknown

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Waiomina by Helen Parker

Kaulana Ikua me Kaʻaua, lā	Famous are Ikua and Kaʻaua
Naʻeu kīpuka ʻili	Both mischievous with the lariat
Na āiwaiwa ʻo Eulopa, lā	Both experts in Europe
Waimea e ka ʻeu	Waimea full of gusto
Ka ua Kīpuʻupuʻu	The hard rain named Kipuʻupuʻu
Kahua Waiomina	To the stadium of Wyoming
ʻOlua nā moho puna ke ao, lā	Both are delegates to the world championship
Naʻeu kīpuka ʻili	Both mischievous with the lariat
ʻAʻohe kupuʻeu nanā e aʻe, lā	No expert to excel you
Waimea e ka ʻeu	Waimea full of gusto
Ka ua Kīpuʻupuʻu	The hard rain named Kīpuʻupuʻu
Me ke anu aʻo Kaleponi	To the cold of California
Na ke kelekalapa i haʻi mai, lā	A telegraph brought us the word
Na ʻeu kīpuka ʻili	Of your mischievous lariats
Ikua e ka moho puni ke ao, lā	Ikua is the champion of the world
Waimea e ka ʻeu	Waimea full of gusto
Ka ua Kīpuʻupuʻu	The hard rain named Kīpuʻupuʻu
Nā kuahiwi ʻekolu	And the three mountains
Piha hauʻoli ou mau kini, lā	Your people are full of happiness
Na ʻeu kīpuka ʻili	Of your mischievous lariats
Kaulana ka ua Kīpuʻupuʻu, lā	Famous is the Kipuʻupuʻu rain
Waimea e ka ʻeu	Waimea full of gusto
Nā kuahiwi ʻekolu	The three mountains
Kahua Waiomina	The stadium of Wyoming

Haʻina hou mai ka puana, lā	Tell the refrain
Na ʻeu kīpuka ʻili	Of your mischievous lariats
Ke kaula ʻili aʻo kani ka uwepa, lā	The sound of the lariats
Waimea e ka ʻeu	Waimea full of gusto
Nâ kuahiwi ʻekolu	The three mountains
Waimea e ka ʻeu	Waimea full of life

Source: Penny Keliʻi - When the Waimea paniolo went to Cheyenne in 1907, they scouted the world's largest rodeo and decided they could compete and probably do well. They signed up to compete and returned the next year, 1908, with approximately 5 or 6 paniolo. They were well received and the Hersig Ranch loaned some of their best horses to our paniolo to use in the competition. Rancher Hersig was a good friend of Eben Low. Eben Low competed with only one hand, his right hand had been yanked off years before while roping cattle in Hawaiʻi. Jack Low, Eben's brother, had an asthma attack but competed anyway placing 6th in the competition. Ikua Purdy's average roping time was 56 seconds, and won him 1st place, stunning the rest of the competing cowboys. Archie Kaaua came in 3rd.

Finally there is the song *Nani Waimea.* This song is simply a proud tribute to the area. The composer is moved to express his love for his home there. Here is a portion of this musical tribute:

Nani Waimea by Sam Koki

Nani Waimea	Beautiful Waimea
Kuʻu home Kamuela	My home in Kamuela
Lei o ka heke	Best wreath
Lei o Hawaiʻi	Wreath of Hawaiʻi
Kuʻu pua milimili	My flower to caress
Anuanu Humuʻula ē	Coolness of Humuʻula
Kuʻu ʻāina aloha	Land that I love
ʻĀhē nani Waimea	Yes, Waimea is beautiful

Source: Humuʻula is a place name on the slopes of Mauna Kea.

Contemporary History

The first half of the 1900s saw Parker Ranch dominating the Waimea countryside. By then, Waimea had a few stores and a boarding house, but the economy was centered on its shipment of cattle to the outside markets. Under the management of A.W. Carter, more lands were purchased; more irrigation ditches were constructed; and a concentrated effort was made to breed better cattle and horses. Carter even ventured to train horses for polo and to provide cavalry horses for the U.S. military. He was succeeded as manager of the ranch by his son A.H. Carter in 1937 (Wilkinson et al. 2013).

In 1943, the Army leased from Parker Ranch approximately 91,000 acres of land for military training. Both the Army and the Marines utilized this land for battle maneuvers. The military 'camp' was initially named Camp Waimea, but then it was called Camp Tarawa. Its center of operations was located south of today's Waimea Town, near the current project site at Puʻukapu. The camp was abandoned in 1946 after the end of World War II. The camp infrastructure went into ruins, and the lands reverted back to Parker Ranch. When Parker Ranch's lease expired, these former Crown Lands reverted to the Department of Hawaiian Home Lands (Wilkinson et al. 2013).

The project area lies within Sector 15 of the Waikoloa Maneuver Area Formerly Used Defense Site (FUDS). This is a 123,000 acre area of Waimea and Waikoloa acquired by the Navy in 1943 (U.S. Army Corps of Engineers 2013). Approximately 50,000 troops were sent there from 1943–1945 to participate in live fire training exercises and troop maneuvers. Although surface clearing of unexploded ordnance (UXO) was conducted in 1946 and again in 1954, munitions and explosives are still being discovered in the Former Waikoloa Maneuver Area FUDS. To date, more than 22,600 acres of the Waikoloa Maneuver Area have been surface cleared of UXO, with a wide variety of munitions, explosives, and military debris removed. Clean up and investigative studies are ongoing.

Today, the lands of Waimea around this project site are still under the Department of Hawaiian Home Lands and designated for community and agricultural use. The current lessees use the land for cattle grazing.

The Hamakua Ditch

An offshoot of the Upper Hamakua Ditch runs through the Puʻukapu Homesteads, to the east of the project area. The main ditch was completed in January 1907 to divert water from tributaries of Wailoa Stream in Waipiʻo Valley for use as irrigation in sugarcane fields and for fluming at the sugar mills of the Hāmākua Coast (Wilcox 1996). At first, the ditch was not properly lined, and by 1915 average flow decreased by more than half, with the flumes and associated mountain trails badly deteriorating. The ditch was repaired at high cost and "boasted some of the best dressed-stone work in Hawaii" (Wilcox 1996:149). By 1921 much of the ditch had been rerouted and other parts were enlarged so by that time, none of the original ditch was in use. Even with the repairs, the ditch was unsuccessful, in part because of the inconsistent water source.

The Upper Hamakua Ditch was appropriated by the territorial government in 1948, but further repairs were not undertaken until the late 1980s. At this time the Alakahi and Koʻiawe sections were reconstructed and the Puʻu ʻAlalā section was abandoned. Water was diverted to homes and farms in Waimea, including the Puʻukapu Homesteads and the Lālāmilo Farm Lots. Nothing is left of the original 1907 ditch, although a few miles of the 1915 ditch can still be seen today (Wilcox 1996:150).

Previous Archaeology

The undertaking of archaeological work in the areas around Waimea has only started relatively recently, although a large amount of work has taken place. The following chronological review of archaeological studies summarizes reports found in the SHPD Kapolei library (Figure 10 and Table 2).

In 1981, an archaeological survey was conducted at the proposed Lālāmilo Agricultural Park (Clark 1981). A total of 321 historic properties were identified, and all were associated with the Waimea agricultural system. All of the irrigation ditches, to include the well-known "Akona's ʻAuwai", were designated as Site 9179.

In 1983, 4,561 archaeological features were identified during an investigation of the Mudlane-Waimea-Kawaihae road corridor (Clark and Kirch 1983). Numerous habitation and agricultural sites were recorded along with one dendritic irrigation system, possibly connected to "Akona's ʻAuwai", and designated as Site 2684. A portion of Section 4 of the extensive project area overlaps with the current study. Although no archaeological sites were found within the current area of study, 20 sites were located along Section 4 (Sites 8800–8819). These include C-shaped and U-shaped shelters, alignments, enclosures, terraces, walls, platforms, mounds, and agricultural fields.

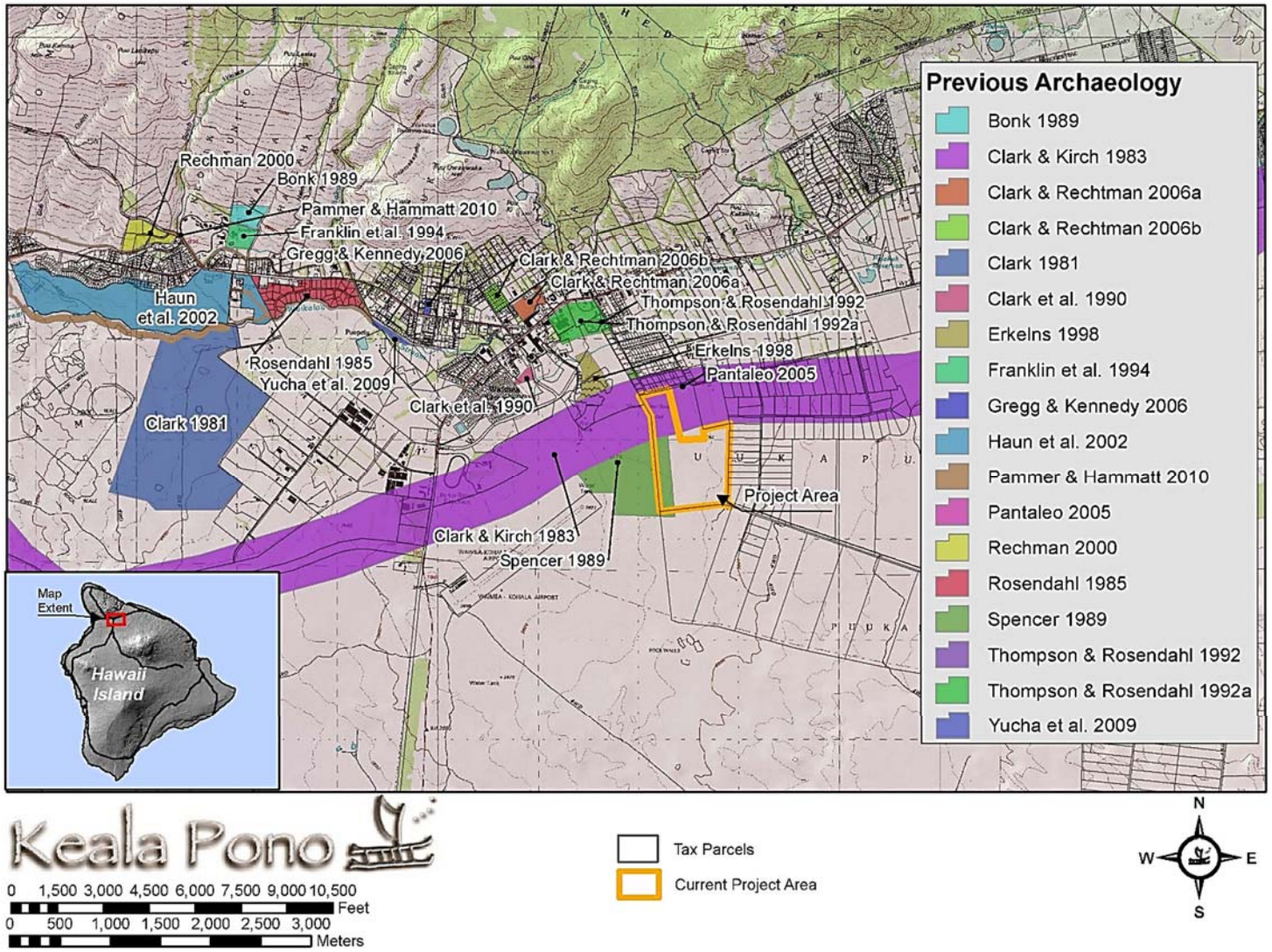

Figure 10. Previous archaeological studies in the vicinity of the project area.

Table 2. Previous Archaeological Studies in the Vicinity of the Project Area

Author	Year	Location	Work Completed	Findings
Clark	1981	Near Lālāmilo Agricultural Park	Archaeological Survey	Identified 321 historic properties associated with the Waimea agricultural system. All irrigation ditches including "Akona's 'Auwai" designated as Site 9179.
Clark and Kirch	1983	Mudlane-Waimea-Kawaihae road corridor	Archaeological Investigation	Identified 4,561 archaeological features. Dendritic irrigation system designated as Site 2684.
Rosdendahl	1985	Kawaihae Reservoir No. 1	Archaeological Reconnaissance	No findings.
Hammatt and Borthwick	1986	Lālāmilo Houselots	Archaeological Reconnaissance	Identified eight historic properties typical of the Waimea agricultural system.
Hammatt et al.	1988	Lālāmilo Houselots	Archaeological Inventory Survey and Subsurface Testing	Recorded artifacts and midden dating to the late prehistoric period.
Bonk	1989	Near Hawai'i Preparatory Academy	Archaeological Reconnaissance	Identified various agricultural terraces.
Hammatt and Shideler	1989	Lālāmilo Houselots and Ka La Loa Subdivision	Data recovery	Documented possible sweet potato farming with agricultural intensification over several centuries.
Spencer	1989	Lālāmilo	Archaeological Investigation	No findings.
Clark et al.	1990	Waimea School	Archaeological Testing and Data Recovery	Recovered charcoal samples dating to AD 1449–1674.
Thompson and Rosendahl	1992a	North Hawai'i Community Hospital	Archaeological Inventory Survey	Identified an agricultural field complex (Site 18054) and an irrigation system (Site 16095).
Thompson and Rosendahl	1992b	Waimea Elderly Housing	Archaeological Inventory Survey	Further documented Site 16095, previously recorded irrigation system.
Barrera	1993	Sandalwood Estates	Archaeological Inventory Survey	Identified an agricultural field complex (Site 14948).
Barrera	1994	Lanikepu and 'Ōuli	Archaeological Inventory Survey	Identified 43 properties from the pre-contact and historic periods including trails, walls, burials, 'animal barriers', agricultural, and habitation sites.
Franklin et al.	1994	Hawai'i Preparatory Academy	Archaeological Inventory Survey	Identified a historic habitation terrace (Site 19648), a cemetery (Site 19649), and five mixed habitation-agricultural sites (Sites 19643–19647).

Table 2. (continued)

Author	Year	Location	Work Completed	Findings
Erkelens	1998	Pukalani	Archaeological Investigation	Identified a breaking corral (Site 19419), a veterinary office (Site 19418), the Pukalani stables and blacksmith shop (Site 19417), the Duncan-Lanakila Cemetery (Site 19416), and the *kuleana* lots (Site 8812).
Nees and Williams	1998	Camp Tarawa	Archaeological Monitoring	Identified a C-shaped feature (Site 21325), an enclosure remnant (Site 21326), and 96 WWII artifacts and artillery fragments.
Wolforth	1999	North Hawai‘i Community Hospital	Data Recovery	Recorded subsurface features and collected sediment samples.
Rechtman	2000	TMK: 3-6-2-001:091	Archaeological Inventory Survey	Identified a historic trash dump (Site 18579) and several agricultural features (Site 18581).
Haun et al.	2002	DHHL at Lālāmilo	Archaeological Inventory Survey	Documented 819 features (walls, mounds, enclosures, platforms, irrigation ditches, and field boundaries) within 76 historic properties.
Kikiloi et al.	2002	Waimea Trails and Greenway	Literature Review and Field Inspection	Assessed five areas according to potential for cultural resources, terrain type, and degree of urbanization.
Pantaleo	2005	Kanu O Ka ‘Aina Learning Center at Pu‘ukapu	Archaeological Assessment	No findings.
Clark and Rechtman	2006a	TMK: 3-6-5-004:025 and 063	Archaeological Inventory Survey	Identified an *‘auwai* (Site 26682), a wooden structure (Site 26683), and two historic walls (Sites 26680 and 26681).
Clark and Rechtman	2006b	TMK: 3-6-5-4:029, 030, and 050	Archaeological Monitoring	Documented a stone-concrete decorative feature (Feature H of previously recorded Site 24168).
Gregg and Kennedy	2006	TMK: 3-6-5-002:043	Archaeological Assessment	No findings.
Yucha et al.	2009	Waimea Trails and Greenway	Archaeological Inventory Survey	Identified a concrete ford and connecting roadway (Site 26873), an earthen ditch determined to be part of “Akona’s ‘Auwai” (Site 26872), and WWII infrastructure from Camp Tarawa (Site 26871).
Pammer and Hammatt	2010	Waimea Trails and Greenway	Literature Review and Field Inspection	Identified seven historic properties consisting of alignments, enclosures, walls, and terraces.
McElroy et al.	in prep.	Current Project Area	Cultural Impact Assessment	Conducted ethnohostorical interviews and archival research.

In 1985, an archaeological reconnaissance survey was done at Kawaihae Reservoir No.1 (Rosendahl 1985). No historic properties were found, and no further work was recommended.

In 1986, a reconnaissance survey was conducted at the proposed site of the Lālāmilo house lots (Hammatt and Borthwick 1986). Eight historic properties were identified, and they were determined to be similar to the Waimea Agricultural System. As a follow up to the reconnaissance survey, 12 acres were designated for further work and inventoried in 1988. Subsurface testing indicated that the area was a habitation-agricultural complex, and the artifacts and midden that were uncovered dated the site to the late prehistoric period (Hammatt et al. 1988). In 1989, data recovery and radiocarbon dating of these properties suggested possible sweet potato farming with a gradual intensification of agriculture in the area over several centuries (Hammatt and Shideler 1989).

Also in 1989, an archaeological reconnaissance survey was completed near the Hawai‘i Preparatory Academy in Waimea (Bonk 1989). Various agricultural terraces were recorded but no irrigation ditches were found. Also, no habitation sites were identified in the survey. Additional mapping of the terraces and data recovery were recommended.

Also in 1989, an archaeological investigation was conducted at Lālāmilo for an irrigation pipeline and for a livestock distribution and management area (Spencer 1989). A portion of this investigation overlaps with the west side of the current area of study. No historic properties were observed, and no further work was recommended.

In 1990, archaeological testing and data recovery was conducted at Waimea School (Clark et al. 1990). Focusing on the previously recorded Site 8808, three irrigation ditches were studied, and it was concluded that there was a possible mix of historic and pre-historic construction. Charcoal samples from a lower subsurface lens yielded dates in the range of AD 1449–1674.

In 1992, an inventory survey was conducted for potential sites of the North Hawai‘i Community Hospital (Thompson and Rosendahl 1992a). Among the sites identified were an agricultural field complex, Site 18054, and an irrigation system, Site 16095. The irrigation system was further documented after additional adjacent lands for the Waimea Elderly Housing were surveyed (Thompson and Rosendahl 1992b). Archaeological monitoring was recommended.

In 1993, an archaeological inventory survey was conducted on approximately 50 acres of the Sandalwood Estates (Barrera 1993). A complex of agricultural field borders were recorded through subsurface testing. The complex was designated as Site 14948, and no further work was recommended.

In 1994, an inventory survey was conducted for the campus expansion of Hawai‘i Preparatory Academy Waimea (Franklin et al. 1994). Seven archaeological sites were identified, two of which were determined to be significant, Site 19649, a cemetery, and Site 19648, a historic habitation terrace. The other five sites had a mix of habitation and agricultural functions. These were given the site numbers 19643–19647.

Also in 1994, an inventory survey was conducted over 250 acres in Lanikepu and ‘Ōuli (Barrera 1994). A mix of 43 pre-contact and historic properties were identified, comprised of trails, walls, burials, ‘animal barriers’, and agricultural and habitiation sites.

In 1998, land around the *kuleana* lots in Pukalani were investigated (Erkelens 1998). Five historic properties were identified: the *kuleana* lots, Site 8812; the Duncan-Lanakila Cemetery, Site 19416;

the Pukalani stables and blacksmith shop, Site 19417; a veterinary office, Site 19418; and a breaking corral, Site 19419.

Also in 1998, while monitoring the investigation of unexploded ordnance at Camp Tarawa, two historic properties and approximately 96 WWII-era artillery fragments and other artifacts were identified (Nees and Williams 1998). The two sites recorded were an enclosure remnant, Site 21326, and a C-shaped feature, Site 21325.

In 1999, subsurface features were identified during a data recovery project at the North Hawai‘i Community Hospital (Wolforth 1999). In addition, sediment samples were collected for palynological analysis and radiocarbon dating while investigating an irrigation ditch of the Lālāmilo Field System.

In 2000, there was a survey of TMK: 3-6-2-001:091, in the vicinity of the project area (Rechtman 2000). Several previously recorded sites were assessed, and two new sites were identified: a historic trash dump, Site 18579; and several agricultural features, Site 18581.

In 2003, an area was surveyed in Lālāmilo for the Department of Hawaiian Home Lands (Haun et al. 2002). Numerous mounds, walls, enclosures, platforms, irrigation ditches, and field boundaries were identified, for a total of 819 features within 76 historic properties.

Also in 2002, a field inspection and literature review was conducted for the proposed Waimea Trails and Greenway Project (Kikiloi et al. 2002). The project area was broken down and categorized into five different zones based on the potential for cultural resources, terrain type, and degree of urbanization.

In 2005, an archaeological assessment was conducted of 15 acres in Pu‘ukapu for the proposed Kanu O Ka ‘Aina Learning Center (Pantaleo 2005). No cultural resources were identified in the surface survey or during subsurface testing. No further archaeological work was recommended.

In 2006, an archaeological inventory survey was conducted on TMK: 3-6-5-004:025 and 3-6-5-004:063 (Clark and Rechtman 2006a). Four historic properties were identified: a historic wooden structure probably erected in WWII; an *‘auwai* which ran parallel to the Waikōloa Stream; and two historic walls.

Also in 2006, archaeological monitoring was carried out during the construction of the Waimea Parkside Residential Subdivision (Clark and Rechtman 2006b). No new sites were identified during the monitoring, but a decorative pond-like feature was recorded and added as Feature H to the previously recorded Site 24168. In addition, midden, historic trash, and two adze fragments were documented in the area.

In another project in 2006, no historic properties were observed during an archaeological assessment of TMK: 3-6-5-002:043 (Gregg and Kennedy 2006).

In 2009, there was a survey of several portions of TMK: 3-6-5-003:004 in the Waimea Trails and Greenway Project area (Yucha et al. 2009). Three historic properties at the Waikoloa Stream were recorded: a concrete ford and connecting roadway, Site 26873; an earthen ditch, Site 26782; and a WWII-era site associated with Camp Tarawa, Site 26871. This latter site was made up of two features, a damaged concrete bridge and a paved road remnant. Site 26783 was determined to be a remnant of a 20th century roadway, and Site 26782 was found to be part of the previously recorded “Akona’s ‘Auwai”. Furthermore, Site 26782 was recommended for preservation due to meeting the Hawai‘i Register’s Criteria A and D of site significance.

In 2010, 14 historic properties were documented in other work for the Waimea Trails and Greenway Project while conducting a literature review and field inspection for some trail developments (Pammer and Hammatt 2010). Of the 14 sites documented, seven were previously recorded, and seven were newly identified sites. It was stated that more data is needed to assess the significance of the newly identified sites. Two of the previously recorded sites, Site 18588 and Site 18590, were recommended for preservation.

A cultural impact assessment is now being conducted for the current project area (McElroy et al. in prep.). Preliminary results show that the project area was once the location of Christmas Paddock, a ranching compound where horses were kept, although the interviewees say that there are no material remains of the paddock today.

Summary and Settlement Patterns

Waimea, on the island of Hawaiʻi, has its origin at the dawn of time when the earth mother Papa and the sky father Wākea dwelled together, and Hawaiʻi was born. This same Hawaiʻi was to become the ancestor of the Hawaiian people (Kamakau 1991).

Evidence such as radiocarbon dating, avifaunal extinctions, and vegetation change suggest that the major colonization of the Hawaiian Islands occurred around AD 700–800 (e.g., Athens et al. 2002:57). The initial settlers came from other Pacific Islands looking for a new home that was accessible to the sea and able to sustain their new population with drinking water and food resources. Although the Waimea area was rich with water and food resources, it was relatively far from the canoe landing sites on the shores and far from the abundance that the ocean provided. Rudimentary farming in this upland area of Hawaiʻi Island didn't start until AD 1100–1200, many centuries after initial colonization of the islands (Bergin 2004). Initial habitation on the *makai* edges of Waimea commenced around AD 1300–1400, and its permanent upland habitation along with the more intense and complex agricultural systems developed there during the 1600s–1800s (Bergin 2004).

The expansion of settlement to the interior of Waimea and its accompanying intensification of agriculture marked a pre-contact era that was full of political and economic change. Waimea saw a relatively quick succession of rulers in the 1700s from Chief Alapaʻinui (Alapaʻi) to Chief Keaweʻōpala to Chief Kalaniʻōpuʻu to Chief Kalanikauikeaolikīwalaʻō (Kīwalaʻō) and finally to King Kamehameha who eventually united all the Hawaiian Islands under his throne (Kamakau 1996[1866]). By the time of Kamehameha's rule, Western explorers had just found their way to Hawaiʻi. The arrival of Westerners spurred Waimea's growth of sandalwood harvesting and various agricultural ventures; the introduction of Waimea's Christian missions; and the development of Waimea's ranching industry which also helped support the whaling industry at Hawaiʻi Island's ports.

As Western capitalism transformed Waimea into the following century, it was complemented with the proclamation of the Māhele and other new laws in the mid-1800s concerning land ownership (Moffatt and Fitzpatrick 1995). Most, if not all, of Waimea remained in the hands of the *aliʻi* as Crown Lands, and the *aliʻi*, interested in supporting the flourishing ranching industry, leased a major portion of the Waimea Crown Lands to ranchers. Among those ranchers was John Palmer Parker who started Waimea's successful Parker Ranch, an enterprise which dominated the Waimea landscape throughout most of the 20th century.

Prior to the start of the 20th century, the Hawaiian monarchy was overthrown and there was a subsequent annexation of Hawaiʻi as an American territory. As a result, the Crown Lands were confiscated by the self-appointed Provisional Government and later given to the U.S.-appointed Territorial Government (Kameʻeleihiwa 1992). However, as stated above, the ranching operations

in Waimea continued throughout the 20th century. For a short time period around the Second World War, Parker Ranch leased a portion of its Waimea lands to the U.S. military for training purposes. A military camp was built, first called Camp Waimea and later renamed Camp Tarawa. After the war, the military training there ceased and the land went back to Parker Ranch operations. When Parker Ranch's lease expired in the 1980s, these former Crown Lands of Waimea became administered by the State Department of Hawaiian Home Lands where it remains today designated for community and agricultural use.

Anticipated Finds and Research Questions

Previous research has identified a wide range of activities that were carried out traditionally and historically in Waimea, including both dry and wetland cultivation, habitation, cattle ranching, and military use. It follows that a variety of archaeological remains may be found during the current survey. These might include traditional agricultural features such as stone terraces, subsurface pondfield deposits, and/or ditches. Habitation features such as temporary or permanent shelters or house foundations may also be encountered. Trails are another site type that may also be found.

Historic-era archaeological resources might also be identified, including vestiges of cattle ranching or military use of the area. These may include the remains of ranch houses, military structures, animal pens, cattle walls, faunal remains, and/or ceramic, glass, and metal artifacts. Of particular interest are any materials associated with Christmas Paddock, a ranching compound known to have been located on the project area.

Research questions will broadly address the identification of the above archaeological resources and may become more narrowly focused based on the kinds of resources that are found. Initial research questions are as follows:

1. Have any pre-contact archaeological remains survived historic and modern use of the parcel?
2. If so, what are the nature of these remains and where are they located?
3. Are there any vestiges of historic-era use of the project area, including Christmas Paddock or other ranching uses?

Once these basic questions are answered, additional research questions may be developed in consultation with SHPD, tailored to the specific kinds of archaeological resources that occur on the parcel.

METHODS

Archaeological inventory survey was conducted on September 19–22, 2014, for a total of four days. Archaeologists participating in the survey included Windy McElroy, PhD; Lokelani Brandt, BA; Leischene Calingangan, BA; Jeffrey Lapinad; and U‘ilani Macabio, BA. McElroy served as Principal Investigator, overseeing all aspects of the project. Either four or five archaeologists were present per day.

For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with transects walked for the entire project area. Of the 161.65-acre (65.42 ha) survey area, 100% was covered on foot. Wire fences marked the boundaries of the property and also divided it into several paddocks where livestock is currently grazing.

Vegetation was sparse throughout the property, consisting entirely of low grass, which did not limit the survey effort at all (Figure 11). Because of the high visibility, the spacing between archaeologists was relatively wide, approximately 5–8 m apart. Archaeological sites and their boundaries were identified visually, with any feature possibly made or used by humans and more than 50 years old considered a site.

The two archaeological sites that were identified were mapped with tape and compass, measured, described, photographed, and excavated. Controlled test units (TU) were excavated by hand at the two archaeological sites. Vertical provenience was measured from the surface and all sediment was screened through 1/8 inch mesh.

Mechanical test trenches (TR) were excavated in ten arbitrary locations throughout the survey area to determine the presence or absence of cultural deposits and document stratigraphy over a wide area. A mini excavator was used for digging of the trenches (Figure 12). Vertical provenience was measured from the surface, and trenches were excavated to bedrock where possible. For both the units and trenches, profiles were drawn and photographed, and sediments were described using Munsell soil color charts and a sediment texture flowchart (Thien 1979). Excavations and site locations were recorded with a 3 m-accurate Garmin GPSmap 62st, and all units and trenches were backfilled after excavation.

The scale in all field photographs is marked in 10 cm increments. The north arrow on all maps points to magnetic north. Throughout this report rock sizes follow the conventions outlined in *Field Book for Describing and Sampling Soils*: Gravel <7 cm; Cobble 7–25 cm; Stone 25–60 cm; Boulder >60 cm (Schoeneberger 2002:2–35). The only material collected consists of animal bone from TU 1. This was analyzed by Sara Collins of Pacific Consulting Services, Inc. and is temporarily being curated at the Keala Pono office.

Figure 11. Pedestrian survey, showing spacing of archaeologists and vegetation in the project area. Orientation is to the northeast.

Figure 12. Excavation of TR 5 with mini excavator. Orientation is to the southeast.

RESULTS

Pedestrian survey and subsurface testing were conducted in the 161.65-acre (65.42 ha) project area (Figure 13, Table 3). Two historic properties were found. They consist of Site 50-10-06-30194, a possible complex with a modified outcrop; and Site 50-10-06-30195, an alignment. The entire project area is currently used for livestock grazing, thus very little of the archaeological record remains on the surface. Excavation of ten test trenches did not yield any evidence of subsurface cultural deposits or features.

Community consultation for this project is ongoing in the form of speaking with community members and conducting a cultural impact assessment (McElroy et al. in prep.). At the time of writing, four ethnographic interviews with *kūpuna* were completed. The interviewees are Sonny Keakealani, Alan "Uku" Lindsey, Mark Yamaguchi, and an anonymous *kupuna*. Interviews were conducted in person by Keala Pono Ethnographer and Waimea resident, U'ilani Macabio, BA. The *kūpuna* noted that the historic ranching area called Christmas Paddock was located within the project area, although they say that nothing remains of the paddock today.

Site 50-10-06-30194

Temporary Site No. KP 1b
Formal Type: Modified Outcrop
Size: 4.2 m long, 2.9 m wide, 1.05 m tall
Shape: Irregular
Construction: Stacked
Surface Remains: None
Subsurface Deposits: None
Condition: Poor
Function: Possible Bulldozer Push
Age: Historic/Modern
Significance Criteria: D, May Yield Additional Information
Mitigation: No Further Work

Site 30194 consists of four possible features on the slope of a low hill near the southeast corner of the project area (see Figure 13), although two of the features may be natural. The features of Site 30194 are poorly defined and Feature B is the only component that was clearly made by humans (Figure 14). Excavation showed that Feature C was utilized in the post-contact era, although it is unclear if there was prior use of the feature. No cultural material was found on the surface at Site 30194. The site is in poor condition, overgrown with grass and poorly defined.

Feature A of Site 30194 is a possible mound that consists of piled and jumbed stones and cobbles (Figure 15). It measures 3.5 m long, 2.4 m wide, and up to .64 m high. The mound is poorly defined and possibly natural.

Feature B of Site 30194 is a modified outcrop. It consists of a short segment of stacked/piled rock among natural boulders which may include portions of bedrock outcrop (Figure 16). It measures 4.2 m long, 2.9 m wide, and up to 1.05 m tall. The stacked portion is made up of two courses of stones rising .58 m high. The modification to the outcrop may be a result of bulldozing.

Features C and D of Site 30194 are configurations of naturally-placed boulders that may have been used as temporary shelters or windbreaks (see Figure 14). Feature C is 3.5 m long, 2.7 m wide, and up to 1.2 m high (Figure 17). Feature D is 6 m long, 3.2 m wide, and up to .82 m high (Figure 18).

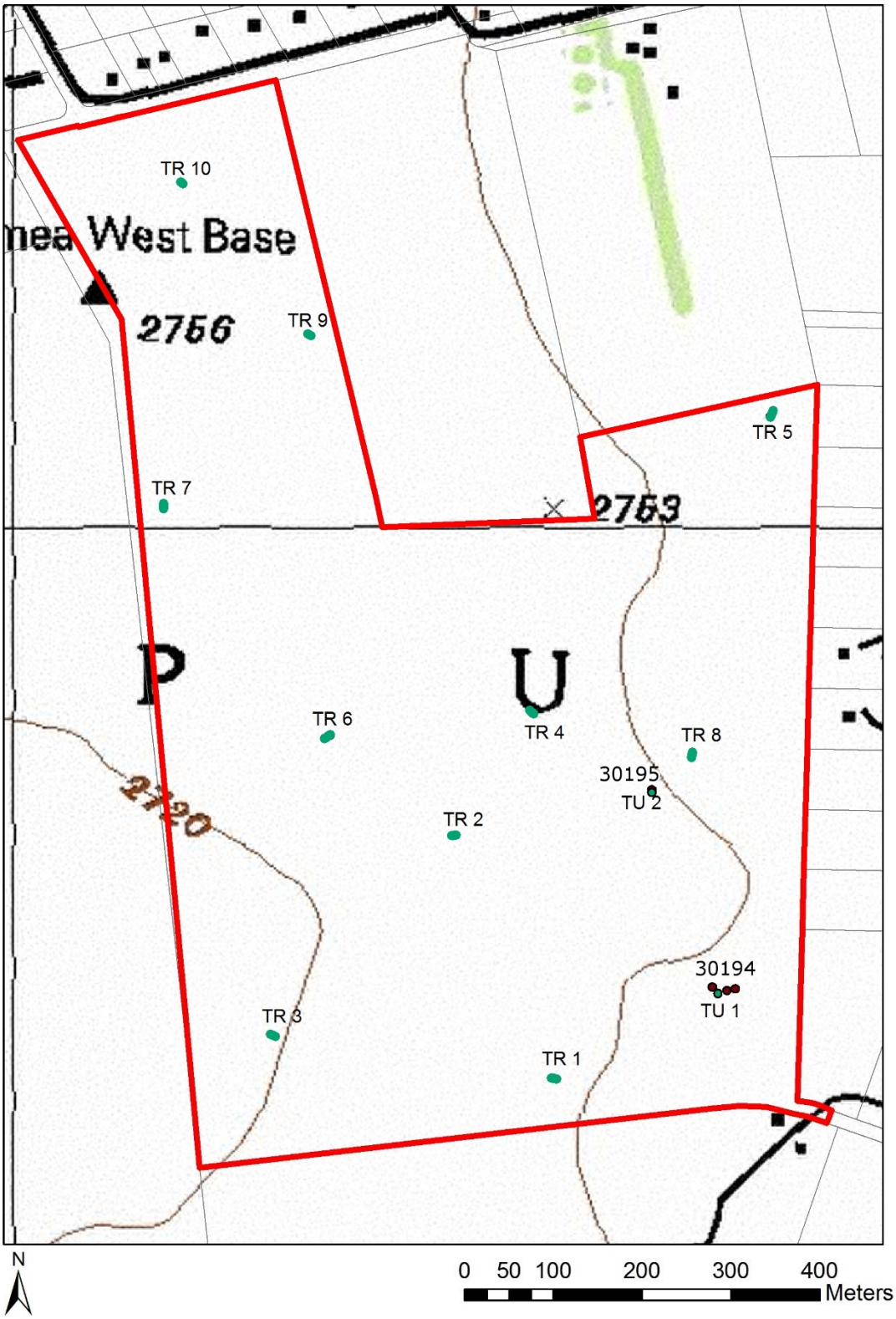

Figure 13. Location of Sites 30194 and 30195, Test Units 1 and 2, and Trenches 1–10 on a USGS Waimea quadrangle.

Table 3. Sediment Descriptions

Location	Layer	Depth (cmbs)	Color	Description	Interpretation
TU 1	I	0–22	2.5Y 4/4	Silt loam; 15% roots; 20% basalt cobbles and gravel; faunal material, metal fragment; base of excavation.	Natural
TU 2	I	0–10	10YR 3/3	Sandy loam; 50% roots; 10% basalt cobbles and gravel, smooth, abrupt boundary.	Natural
	II	10–30	2.5Y 4/4	Silt loam; 15% roots; 20% basalt cobbles and gravel; base of excavation.	Natural
TR 1	I	0–16	10YR 3/3	Sandy loam; 50% roots; 10% basalt cobbles and gravel, smooth, abrupt boundary.	Natural
	II	0–100	7.5YR 4/6	Silt loam; 15% roots; 10% basalt cobbles and gravel; base of excavation.	Natural
TR 2	I	0–12	10YR 3/3	Sandy loam; 50% roots; 10% basalt cobbles and gravel, smooth, abrupt boundary.	Natural
	II	0–110	7.5YR 4/6	Silt loam; 15% roots; 8% basalt cobbles and gravel; base of excavation.	Natural
TR 3	I	0–170	10YR 3/4	Loam; 10% roots; 1% basalt cobbles and gravel; base of excavation.	Natural
TR 4	I	0–15	10YR 3/3	Sandy loam; 50% roots; 10% basalt cobbles and gravel, smooth, abrupt boundary.	Natural
	II	0–120	7.5YR 4/6	Silt loam; 10% roots; 20% basalt cobbles and gravel; base of excavation.	Natural
TR 5	I	0–86	7.5YR 4/6	Silt loam; 10% roots; 10% basalt cobbles and gravel; base of excavation.	Natural
TR 6	I	0–93	7.5YR 4/4	Silt loam; 15% roots; 8% basalt cobbles and gravel; base of excavation.	Natural
TR 7	I	0–136	7.5YR 4/4	Silt loam; 15% roots; 5% basalt cobbles and gravel; base of excavation.	Natural
TR 8	I	0–112	2.5Y 4/4	Silt loam; 10% roots; 8% basalt cobbles and gravel; base of excavation.	Natural
TR 9	I	0–130	10YR 4/6	Silt loam; 15% roots; 2% basalt cobbles and gravel; base of excavation.	Natural
TR 10	I	0–110	10YR 4/4	Silt loam; 10% roots; 8% basalt cobbles and gravel; base of excavation.	Natural

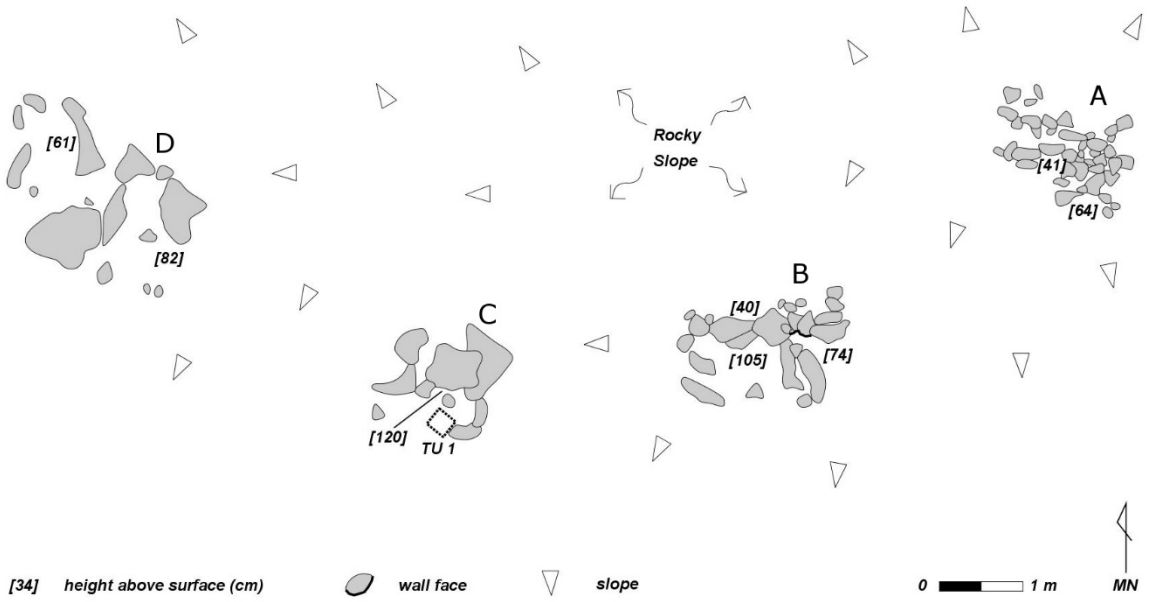

Figure 14. Plan view drawing of Site 30194.

Figure 15. Photograph of Feature A, Site 30194. Orientation is to the southwest.

Figure 16. Photograph of Feature B, Site 30194. Orientation is to the north.

Figure 17. Photograph of Feature C, Site 30194. Orientation is to the north.

Figure 18. Photograph of Feature D, Site 30194. Orientation is to the east.

These features were probably naturally formed but their high boulders would have been well suited as windbreaks for temporary field shelters.

TU 1, a 50 x 50 cm test unit, was placed within the area sheltered by the boulders of Feature C (see Figure 14). The purpose of the unit was to collect data that might inform on the age and function of Site 30194 and to determine if Feature C was utilized by humans or is merely a natural feature. The unit was excavated to 22 cmbs, where bedrock was encountered (Figure 19). The only items found were faunal remains at 0–20 cmbs in the northeast corner of the unit, with an unidentified piece of metal below them.

The faunal remains were collected and submitted to Pacific Consulting Services, Inc. for identification. Analyses indicate that the remains are from a juvenile dog, likely all part of the same individual.

The presence of subsurface metal at Feature C shows that the feature was used by humans in the post-contact era, although under what capacity is uncertain. The metal fragment was not fully excavated or collected due to concerns of unexploded ordnance. Therefore the nature of use for Feature C remains undetermined. The feature was clearly utilized in the historic era, but it is uncertain if it was used as a temporary shelter prior to that time.

Site 30195 may be partly natural and partly the result of bulldozer activity. The site is not significant under the criteria of HAR §13-284-6(b) because it lacks integrity. No further work is recommended.

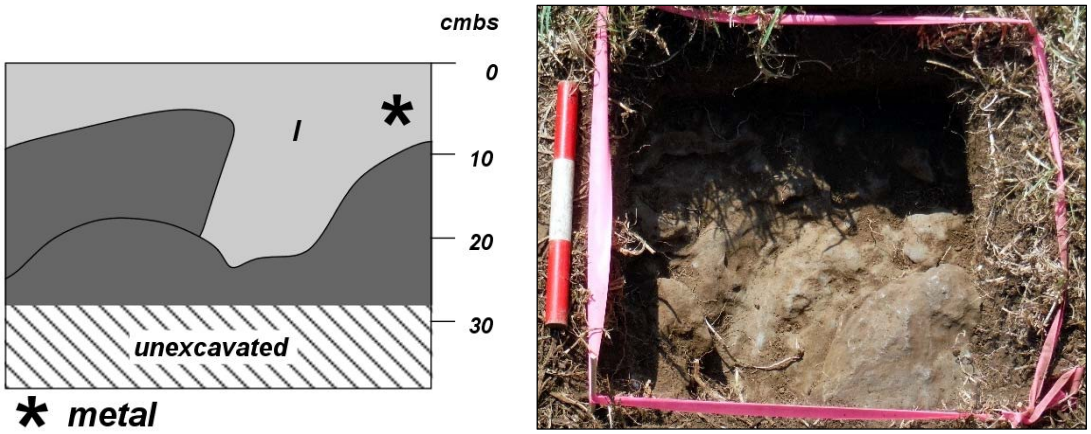

Figure 19. TU1 north face profile drawing (left) and plan view photo (right).

Site 50-10-06-30195

Temporary Site No. KP 2
Formal Type: Alignment
Size: 3.1 m long, 1.5 m wide, .21 m tall
Shape: L-shaped
Construction: Aligned
Surface Remains: None
Subsurface Deposits: None
Condition: Fair
Function: Undetermined
Age: Undetermined
Significance Criteria: D, May Yield Additional Information
Mitigation: Avoidance, No Further Work

Site 30195 is an L-shaped alignment that sits atop a low rise in the topography in the east-central portion of the project area (see Figure 13). It is composed of a single alignment of embedded cobbles, measuring 3.1 m long, 1.5 m wide, and .21 m high (Figures 20 and 21). No cultural material was found on the surface. The site is in fair condition, overgrown with grass but relatively intact. Its age and function, however are uncertain.

TU 2, a 50 x 50 cm test unit, was placed within the L-shaped portion of the alignment (see Figure 20). The purpose of the unit was to collect data that might inform on the age and function of Site 30195. The unit was excavated to 34 cmbs, where naturally-deposited, tightly packed rock hindered further excavation. Stratigraphy consisted of two natural layers (see Table 3), and no cultural material or deposits were encountered (Figure 22).

The age and function of Site 30195 remain undetermined. The site is significant under Criterion D of HAR §13-284-6(b) for its potential to yield important information on history or prehistory. Avoidance with no further work is recommended.

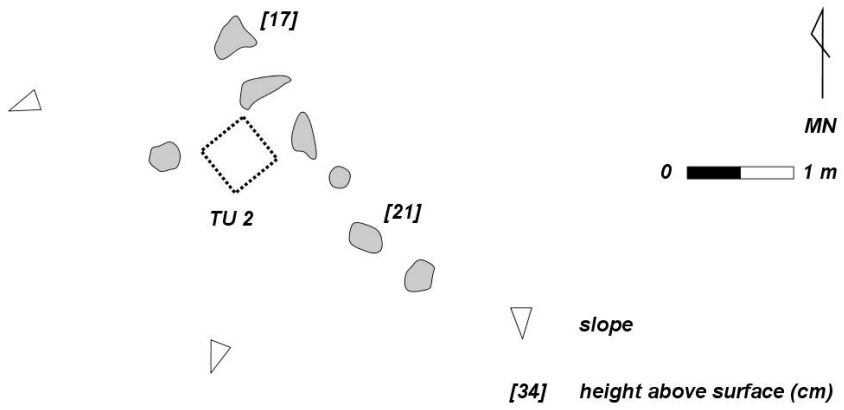

Figure 20. Plan view drawing of Site 30195.

Figure 21. Photograph of Site 30195 before excavation.

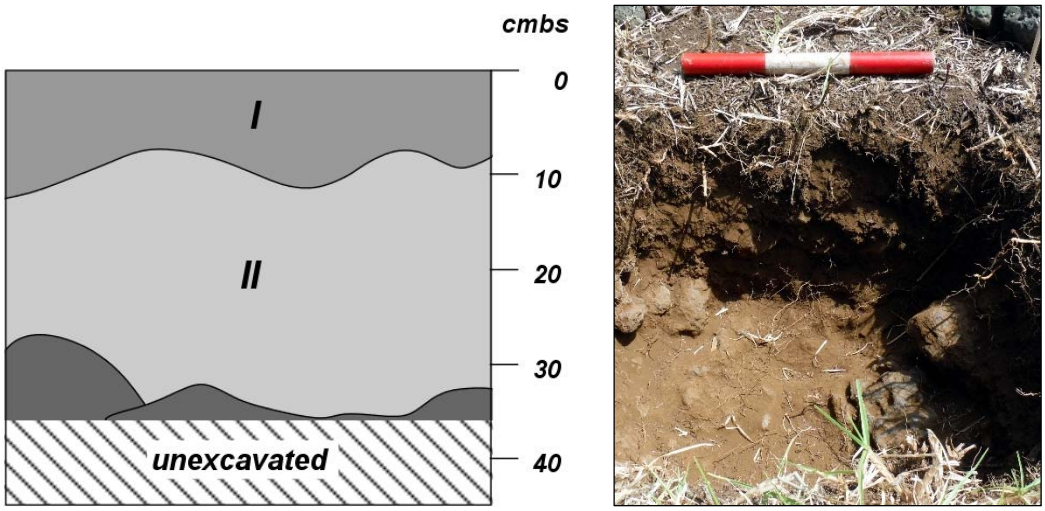

Figure 22. TU 2 northeast face profile drawing (left) and photo (right).

Stratigraphic Trenches

A total of ten trenches were excavated throughout the project area to determine the presence or absence of subsurface cultural deposits or material and to document the stratigraphy over a large area (see Table 3 and Figure 13).

TR 1 was excavated on the south end of the project area (see Figure 13). The trench measured 5.6 m long and .55 m wide. It was excavated to 100 cm below surface (cmbs) to bedrock. Stratigraphy consisted of two natural layers, and no cultural deposits or material were identified (Figure 23).

TR 2 was placed near the center of the property (see Figure 13). The trench measured 4.9 m long and .55 m wide. It was excavated to 60 cmbs on the west end and 110 cmbs on the east end, where bedrock was encountered throughout. Stratigraphy consisted of two natural layers, and no cultural deposits or material were found (Figure 24).

TR 3 was located toward the southwest corner of the parcel (see Figure 13). It measured 4.9 m long and .55 m wide. The trench was excavated to 170 cmbs but bedrock was not encountered here. Stratigraphy consisted of a single natural layer with no cultural deposits or material (Figure 25).

TR 4 was placed in the central portion of the project area (see Figure 13). The trench measured 5.8 m long, .55 m wide, and 120 cm deep. It was excavated to bedrock. Stratigraphy consisted of two natural layers, and no cultural deposits or material were identified (Figure 26).

TR 5 was placed near the northeast corner of the property (see Figure 13). The trench measured 5.3 m long and .55 m wide. It was excavated to 86 cmbs where bedrock was encountered. Stratigraphy consisted of a single natural layer with no cultural deposits or material (Figure 27).

TR 6 was excavated in the central portion of the project area (see Figure 13). The trench measured 5.2 m long and .55 m wide. It was excavated to 93 cm below surface (cmbs) to bedrock. Stratigraphy consisted of a single natural layer, and no cultural deposits or material were identified (Figure 28).

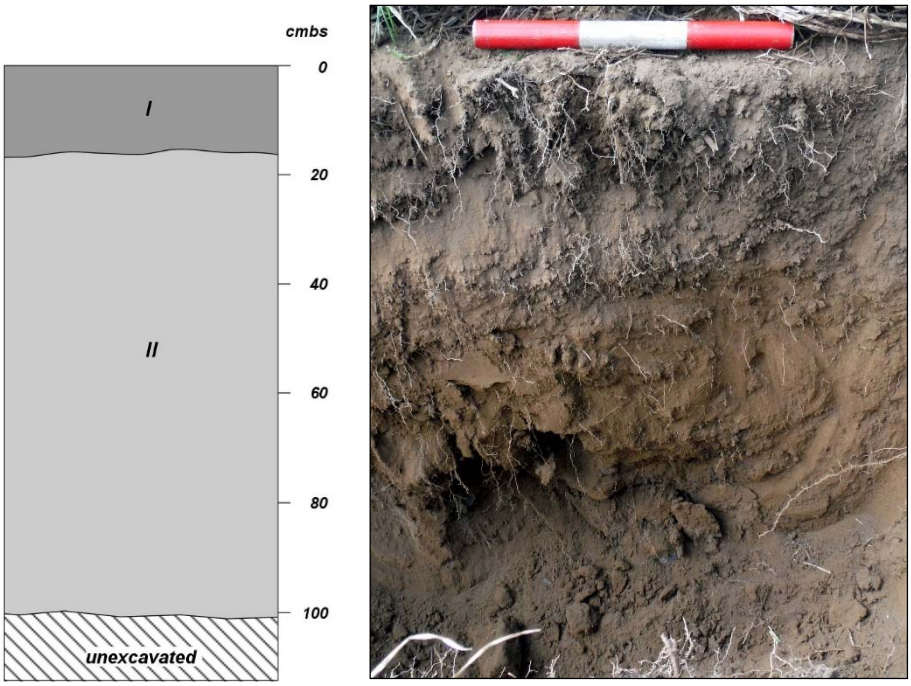

Figure 23. TR 1 south face profile drawing (left) and photo (right).

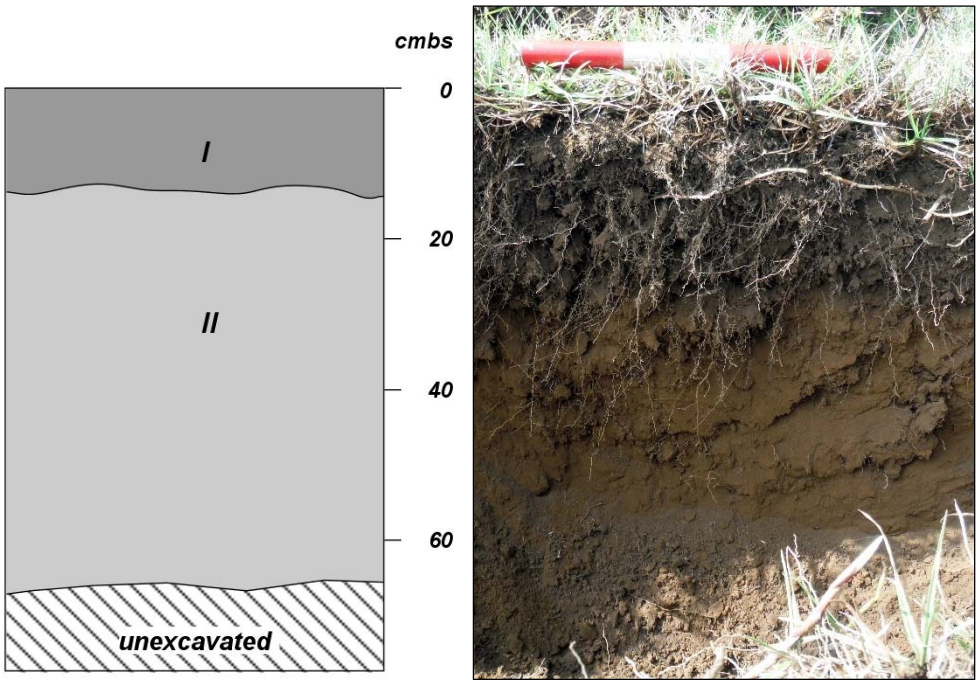

Figure 24. TR 2 west end, north face profile drawing (left) and photo (right).

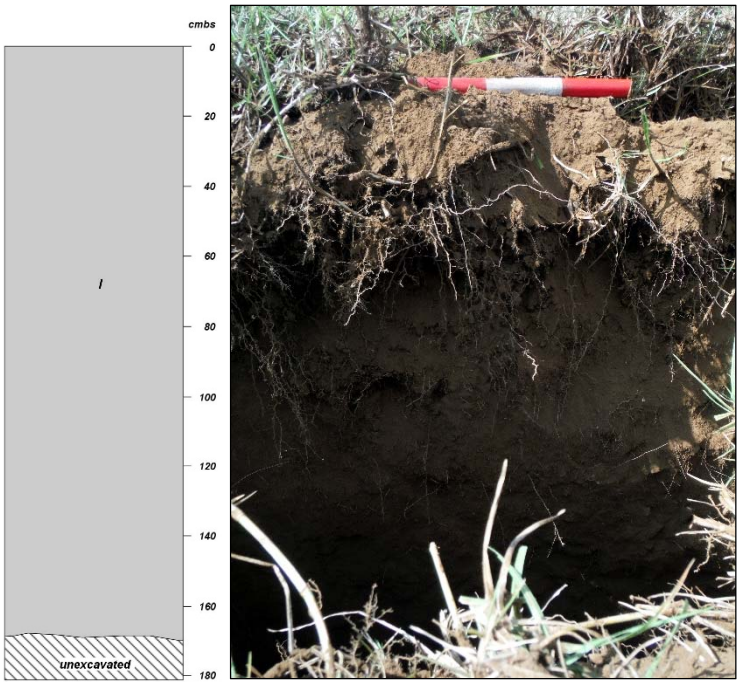

Figure 25. TR 3 south face profile drawing (left) and photo (right).

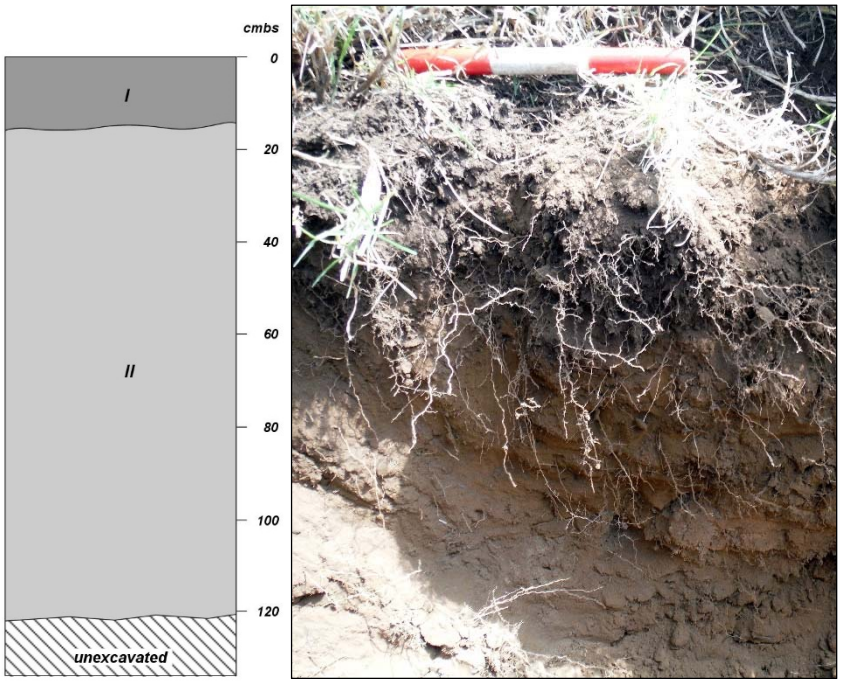

Figure 26. TR 4 north face profile drawing (left) and photo (right).

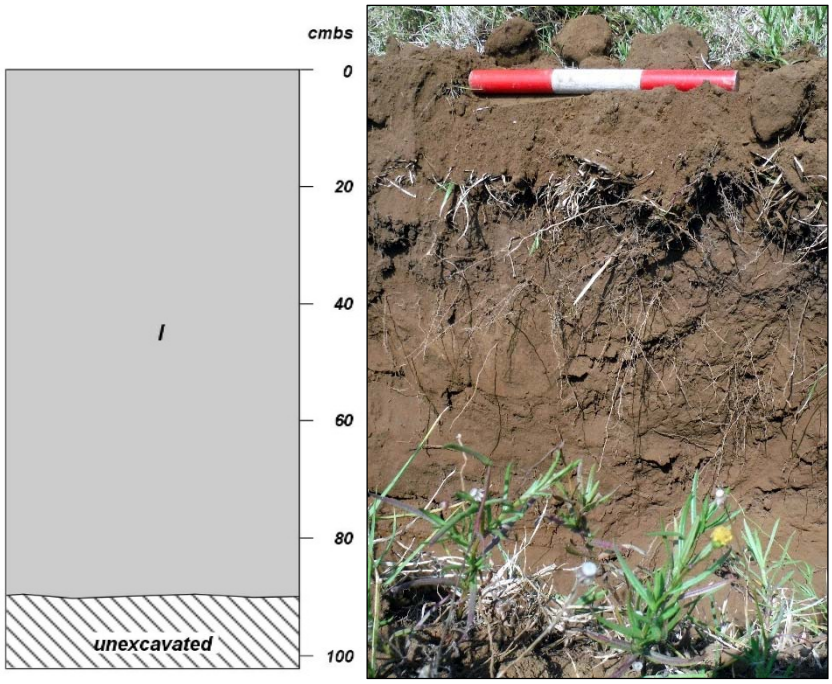

Figure 27. TR 5 east face profile drawing (left) and photo (right).

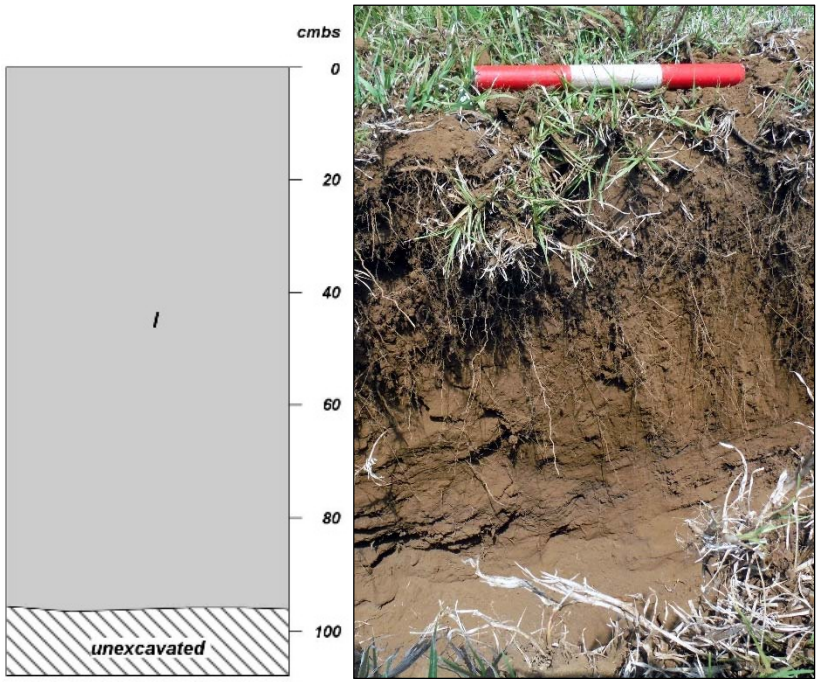

Figure 28. TR 6 northwest face profile drawing (left) and photo (right).

TR 7 was placed on the west side of the property (see Figure 13). The trench measured 5.1 m long and .55 m wide. It was excavated to 136 cmbs, where bedrock was encountered. Stratigraphy consisted of a natural layer with no cultural deposits or material (Figure 29).

TR 8 was located on the east side of the parcel (see Figure 13). It measured 4.4 m long and .55 m wide. The trench was excavated to 112 cmbs to bedrock. Stratigraphy consisted of a single natural layer with no cultural deposits or material (Figure 30).

TR 9 was placed in the north- central portion of the project area (see Figure 13). The trench measured 4.4 m long, .55 m wide, and 130 cm deep. It was excavated to bedrock. Stratigraphy consisted of one natural layer, and no cultural deposits or material were identified (Figure 31).

TR 10 was placed at the far north end of the property (see Figure 13). The trench measured 4.0 m long and .55 m wide. It was excavated to 110 cmbs, where bedrock was encountered. Stratigraphy consisted of a single natural layer with no cultural deposits or material (Figure 32).

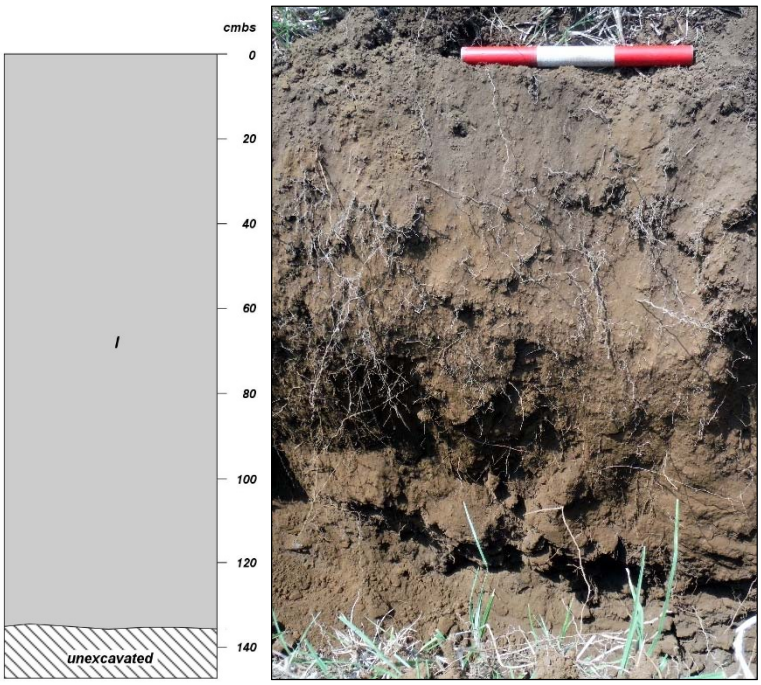

Figure 29. TR 7 west face profile drawing (left) and photo (right).

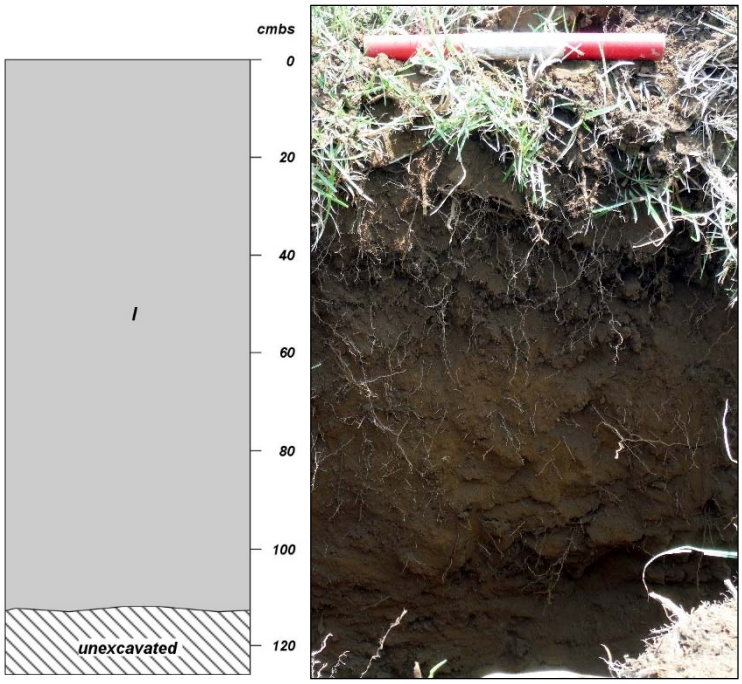

Figure 30. TR 8 southeast face profile drawing (left) and photo (right).

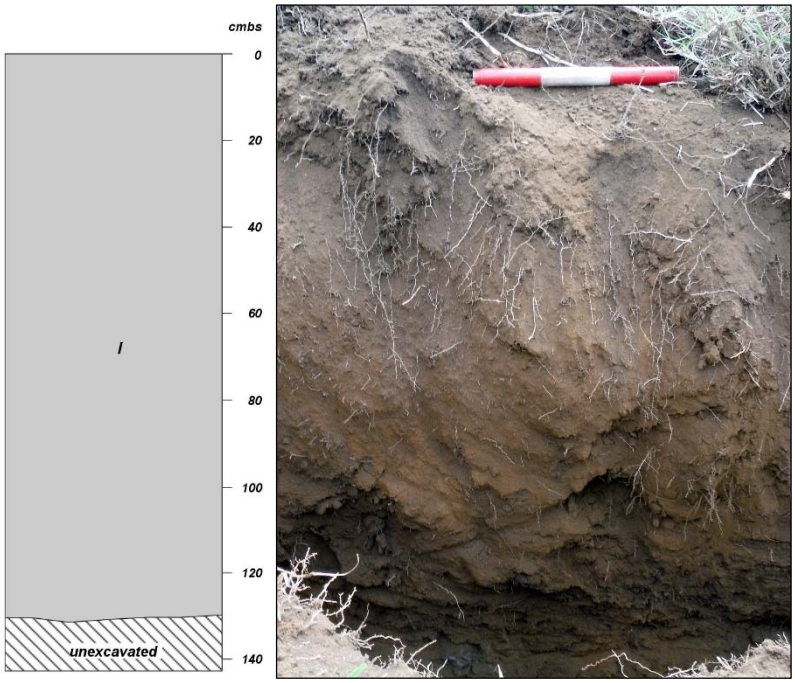

Figure 31. TR 9 south face profile drawing (left) and photo (right).

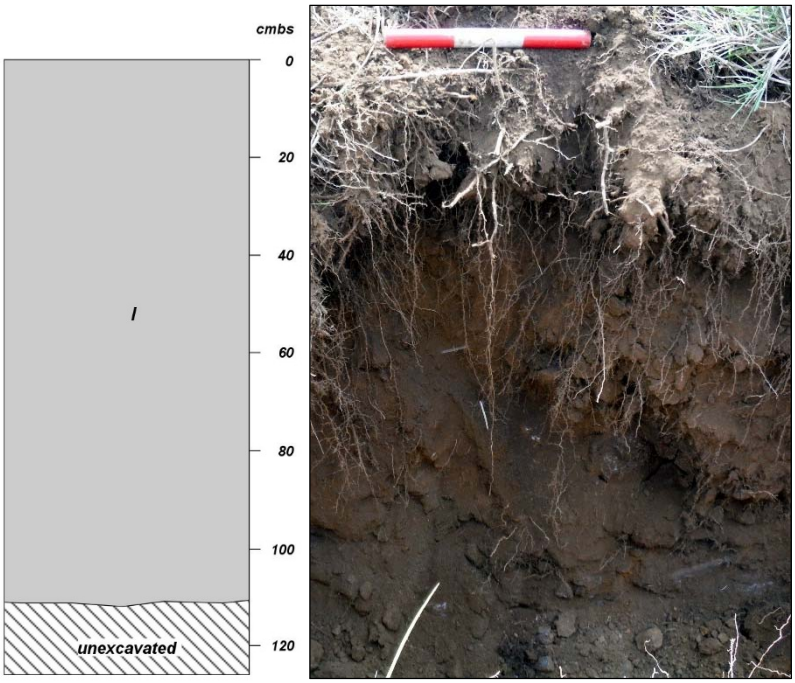

Figure 32. TR 10 southwest face profile drawing (left) and photo (right).

Summary of Findings

Pedestrian survey of TMK: (3) 6-4-038:011 (por.) in Waimea Ahupuaʻa, identified two historic properties: Site 50-10-06-30194, a possible bulldozer push with a modified outcrop; and Site 50-10-06-30195, an alignment. Test units excavated at the sites yielded very little cultural material, consisting of faunal remains and a metal fragment. Test trenches were excavated in ten locations throughout the parcel to determine the presence or absence of subsurface cultural material or deposits, and none were found. Stratigraphy consists entirely of natural deposits with bedrock below.

These findings provide meager evidence to answer the research questions outlined earlier:

1. Have any pre-contact archaeological remains survived historic and modern use of the parcel?

   Two surface archaeological sites were identified.

2. If so, what are the nature of these remains and where are they located?

   Site 30194 may be a historic or modern bulldozer push. The age and function of Site 30195 is undetermined.

   The sites are located in the east and southeast parts of the project area.

3. Are there any vestiges of historic-era use of the project area, including Christmas Paddock or other ranching uses?

   It is unclear whether the archaeological sites are associated with Christmas Paddock or had ranching uses.

SUMMARY AND RECOMMENDATIONS

An archaeological inventory survey was conducted for TMK: (3) 6-4-038:001 (por.) in Waimea Ahupua‘a, South Kohala District, on the Island of Hawai‘i. This was done in preparation for ground disturbance associated with construction of an agricultural park, cemetery, sports complexes, housing, and other facilities. The archaeological work included a pedestrian survey that covered 100% of the parcel, as well as test excavations consisting of two test units and ten trenches. The entire property was utilized as ranch land and little remains on the surface. Stratigraphy consists entirely of natural deposits, with bedrock as shallow as 22 cm below surface.

Two archaeological sites were found. Site 50-10-06-30194 is a possible historic or modern bulldozer push pile, including a modified outcrop, in poor condition. In addition to the modified outcrop, a possible mound and two possible shelters were documented. Excavation of Feature C, one of the possible shelters, yeilded faunal remains and a metal fragment. The presence of subsurface metal at Feature C may indicate use of the feature by humans even though it was naturally constructed.

Site 50-10-06-30195 is a surface alignment of cobbles, in fair condition. Excavation did not yield any cultural material. The age and function of the site are uncertain.

Significance Determinations

To determine if a historic property is significant under Hawaii Administrative Rules (HAR) for historic preservation, or is eligible for NRHP listing, it must be assessed for significance according to HAR §13-284-6(b) and National Register Bulletin 15, respectively. According to Bulletin 15:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That has yielded, or may be likely to yield, information important in prehistory or history.
>
> (National Park Service 1990:2)

To this set of criteria, HAR §13-284-6(b) adds Criterion E, which states that a property may be significant if it has:

> an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events, or oral accounts – these associations being important to the groups history and cultural identity.

Sites 50-10-06-30194 is not significant, as it lacks integrity. Parts of the site may be the result of bulldozing, while other parts may be natural. Site 50-10-06-30195 is significant under Criterion D, as further study may yield more information (Table 4). No further work is recommended on the sites, and Site 30195 should be avoided during construction. Archaeological monitoring is recommended for any ground disturbance near the sites.

In sum, two archaeological sites were found within the project area. Avoidance is recommended for Site 30195, and archaeological monitoring should be conducted in the vicinity of both sites. Given the absence of surface and subsurface cultural deposits or features in other parts of the project area, archaeological monitoring in the rest of the project area is not recommended. An archaeological monitoring plan should be produced, to further detail these stipulations.

It should be noted that isolated human burial remains may be discovered during construction activities, even though no evidence of human burials was found during the survey. Should human burial remains be discovered during construction activities, work in the vicinity of the remains should cease and the SHPD should be contacted.

Table 4. Significance Determination

Site	Description	Function	Criterion	Justification	Recommendation
30194	Possible Bulldozer Push	Undetermined	Not Significant	Lacks integrity.	Archaeological Monitoring
30195	Alignment	Undetermined	D	May yield information on history and prehistory.	Avoidance, Archaeological Monitoring

GLOSSARY

ʻaʻaliʻi	*Dodonaea viscosa*, the fruit of which were used for red dye, the leaves and fruits fashioned into *lei*, and the hard, heavy wood made into bait sticks and house posts.
ahupuaʻa	Traditional Hawaiian land division usually extending from the uplands to the sea.
ʻāpana	Piece, slice, section, part, land segment, lot, district.
ʻawa	The shrub *Piper methysticum*, or *kava*, the root of which was used as a ceremonial drink throughout the Pacific.
boulder	Rock 60 cm and greater**.**
cobble	Rock fragment ranging from 7 cm to less than 25 cm.
gravel	Rock fragment less than 7 cm.
hale	House.
hāpuʻu	*Cibotium splendens,* a fern endemic to Hawaiʻi; a forest fern to 5 m high.
heiau	Place of worship and ritual in traditional Hawaiʻi.
ʻili	Traditional land division, usually a subdivision of an *ahupuaʻa*.
ʻilima	*Sida fallax*, the native shrub whose flowers were made into *lei*, and sap was used for medicinal purposes in traditional Hawaiʻi.
kalo	The Polynesian-introduced *Colocasia esculenta*, or taro, the staple of the traditional Hawaiian diet.
kapu	Taboo, prohibited, forbidden.
kīhāpai	Small land division; cultivated garden, patch, orchard, or field; parish of a church.
lama	The native tree, *Diospyros sandwicensis*, that had many uses in traditional Hawaiʻi. Fruit was eaten, wood was fashioned into fish traps and sacred structures within *heiau*. *Lama* wood was also crushed and used for medicinal purposes.
Māhele	The 1848 division of land.
makai	Toward the sea.
mauka	Inland, upland, toward the mountain.
mele	Song, chant, or poem.
moʻolelo	A story, myth, history, tradition, legend, or record.
ʻōhiʻa	Two kinds of forest trees. See also *oʻōhiʻaʻai* and *ʻōhiʻa lehua.*
ʻōlelo noʻeau	Proverb, wise saying, traditional saying.

oli	Chant.
paniolo	Cowboy.
pōhaku	Rock, stone.
pulu	Fern fibers obtained from the *hāpu'u pulu* (*Cibotium glaucum*), tree fern.
sandalwood	*Iliahi (Santalum)*, several varieties endemic to Hawai'i. Known for their aromatic wood and medicinal qualities. Heavily exported in the 1800s.
stone	Rock fragment ranging from 25 cm to less than 60 cm.
'uala	The sweet potato, or *Ipomoea batatas*, a Polynesian introduction.

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APPENDIX D

Cultural Impact Assessment for the Waimea Nui Community Development Initiative, TMK: (3) 6-4-038:011, Waimea Ahupuaa, South Kohala District, Island of Hawaii

Keala Pono Archaeological Consulting, LLC.

December 2014

FINAL— Cultural Impact Assesment for the Waimea Nui Community Development Initiative, TMK: (3) 6-4-038:011, Waimea Ahupuaʻa, South Kohala District, Island of Hawaiʻi

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December 2014

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MANAGEMENT SUMMARY

A Cultural Impact Assessment was conducted for the Waimea Nui Community Development Initiative at TMK: (3) 6-4-038:011 in Waimea Ahupuaʻa, South Kohala District, Island of Hawaiʻi. The study took the form of background research and an ethnographic survey consisting of four interviews, all of which are included in this report. The background research synthesizes traditional and historic accounts and land use history for the Waimea region. Community consultations were performed to obtain information about the cultural significance of the subject property and Waimea as a whole, as well as to address any concerns the community members might have regarding the effects of the proposed construction on places of cultural or traditional importance.

The background study revealed that Waimea was traditionally a village based on an upland agricultural subsistence economy. It was later transformed into a vibrant ranching town that was home to world famous *paniolo*. Consultations with individuals knowledgeable about Waimea produced information on its rich cultural history, as well as their own personal recollections and *ʻohana* traditions. The project area was once a compound for horses known as Christmas Paddock. The consultants stated that there are no material remains of the paddock today and they did not know of any archaeological sites in the area. Cultural practices do continue, however, with the recent construction of an *ahu* just outside the project boundaries.

The consultants were generally supportive of the Waimea Nui Community Development Initiative but shared several concerns and recommendations. These included the need to construct another road into the area; concerns about cultural practices hindered by laws and regulations; concerns about further development; concerns about where the water will come from for the development; recommendations to utilize traditional place names; recommendations to hold a blessing before construction begins; and recommendations to work together with the *kamaʻāina* and foreigners in the planning process.

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INTRODUCTION

At the request of Group 70 International, Keala Pono Archaeological Consulting conducted a Cultural Impact Assessment for TMK: (3) 6-4-038:011 in Waimea Ahupuaʻa, South Kohala District, on the island of Hawaiʻi. Plans for the parcel include construction of an agricultural park, cemetery, equestrian center, golf facility, and necessary site improvements for utilities, infrastructure, and road access. The Cultural Impact Assessment study was designed to identify any cultural resources or practices that may occur in the area and to gain an understanding of the community's perspectives on the proposed development.

The report begins with a description of the project area and an historical overview of land use and archaeology in the area. The next section presents methods and results of the ethnographic survey. Project results are summarized, and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary, and an index at the end of the report assists readers in finding specific information. Also included are appendices with documents relevant to the ethnographic survey, including full transcripts of the interviews.

Project Location and Environment

The Waimea Nui project is located on Hawaiʻi Island in the district of Kohala Waho, or South Kohala; in the Kohala land division called Waimea; in the Waimea subdivision of Puʻukapu. Around Puʻukapu are the other Waimea subdivisions of ʻAlaʻōhiʻa, Nohoʻāina, Paulama, Pauweanui, Poʻokanaka, Pukalani, and Puʻukaʻaliʻali. TMK: (3) 6-4-038:011 is a 191.711-acre (77.58 ha) parcel owned by the Department of Hawaiian Home Lands (DHHL). The parcel is bounded by Hiʻiaka Street on the north, Hawaiian Home Lands parcels on the east and south, and undeveloped ranchland on the west (Figures 1 and 2).

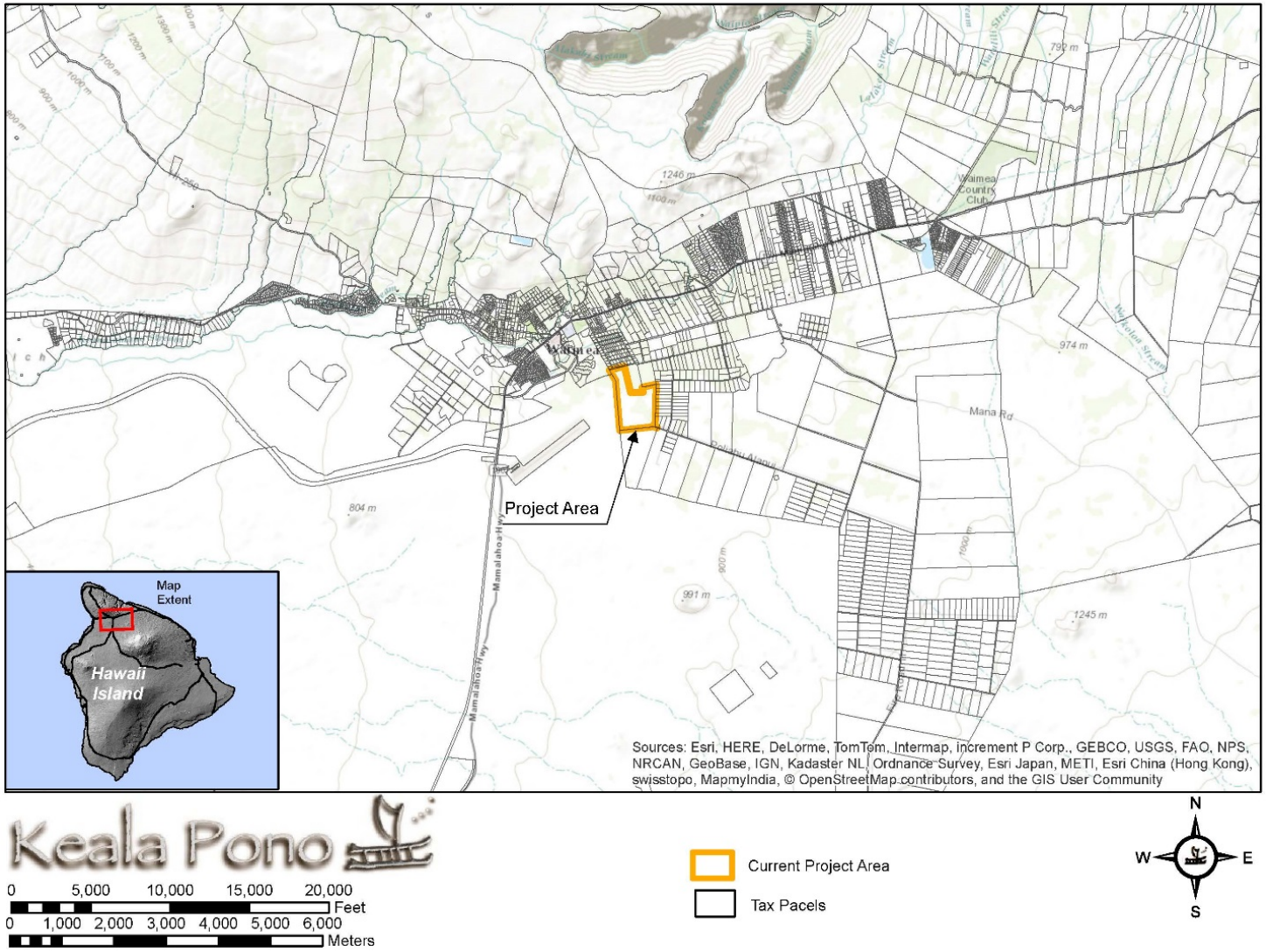
The project site is situated in the northern part of the Big Island of Hawaiʻi below the southern slopes of the Kohala Mountains, at an elevation of 2,000–3,000 feet (600–900 m), approximately 11 miles (18 km) from the coast. Temperatures here usually range from 60–70° Fahrenheit (15.5–21.1° C). There are several streams flowing down from the Kohala Mountains toward the project site, such as the Lanimaomao, the Waikoloa, and the Kohākōhau, but none of these streams enter the project area. The region has a mean annual rainfall of approximately 30–40 inches (75–100 cm) per year with most months seeing 2–4 inches (5–10 cm) of rain (Giambelluca et al. 1986:99).

The soils in the project area are of the Waimea-Kikoni-Naalehu association. These consist of "Very deep, nearly level to steep, well drained soils that have a medium-textured to moderately fine textured subsoil; on uplands" (Sato et al. 1973:oversize map). Particularly, Waimea very fine sandy loam, 6–12% slopes, (WMC) predominates (Figure 3). There are also small portions of Kikoni very fine sandy loam, 0–3% or 3–12% slopes, (KfA and KXC respectively) in the northern and eastern parts of the project area (Sato et al. 1973) (see Figure 3).

As unimproved pasture, the flora of the region consist mostly of *ʻaʻaliʻi*, *ʻilima*, cactus, and various grasses, although only grasses remain within the specific project area. The land in the study area is relatively flat, with a few low, rocky knolls and has fared well as pasture lands in recent history.

The Undertaking

The Waimea Hawaiian Homesteaders' Association (WHHA) and its subsidiary organization, the Waimea Nui Community Development Corporation (WNCDC) have been actively conceptualizing for over 40 years a community development project to address the cultural, economic, and social needs of the Waimea area and of Waimea Homestead families in particular (Figure 4). The Waimea



Keala Pono

0 5,000 10,000 15,000 20,000 Feet

0 1,000 2,000 3,000 4,000 5,000 6,000 Meters

Current Project Area

Tax Pacels

N W E S

Figure 1. Project area on a 7.5 minute USGS Waimea quadrangle map with TMK overlay.

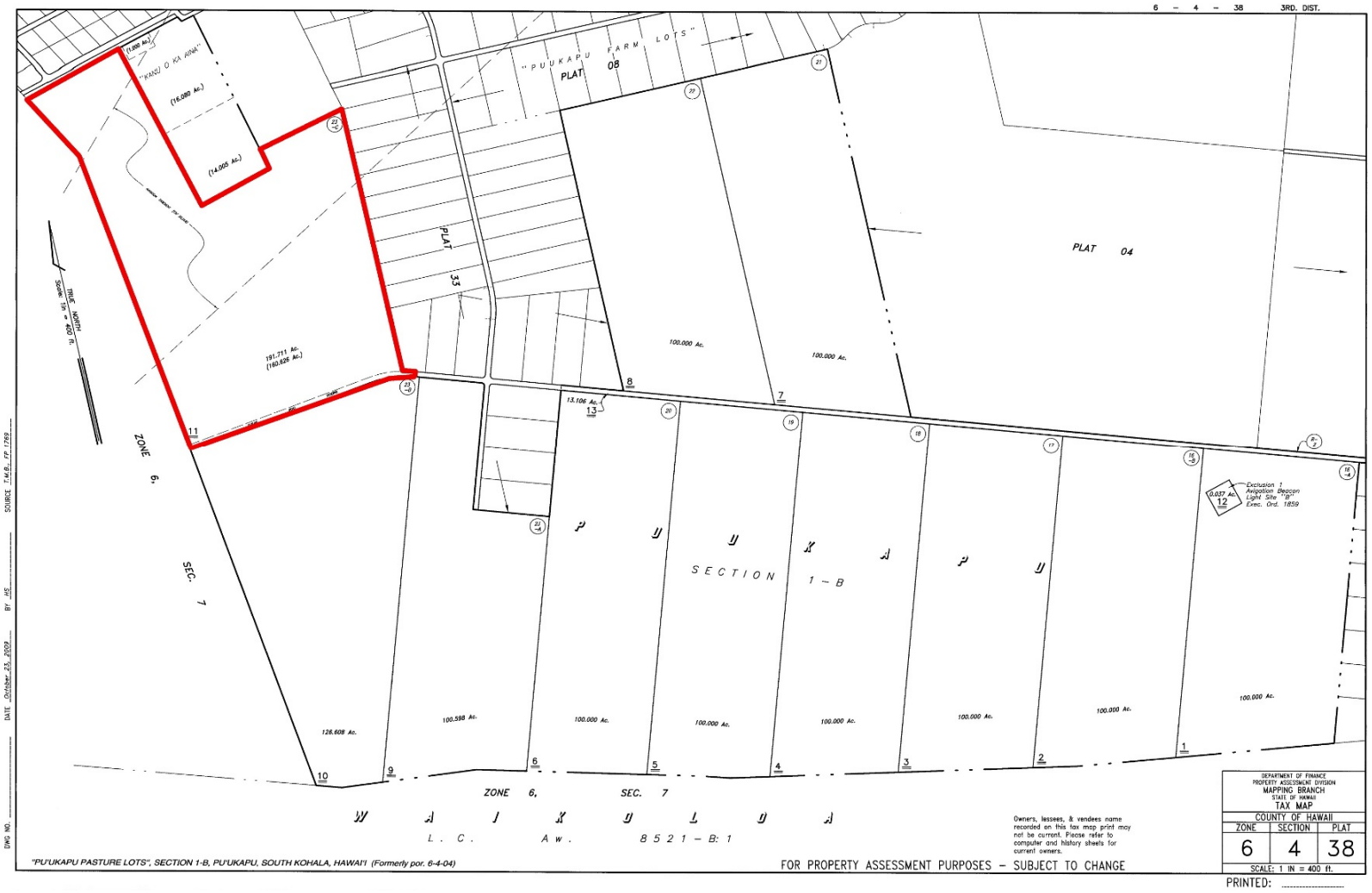
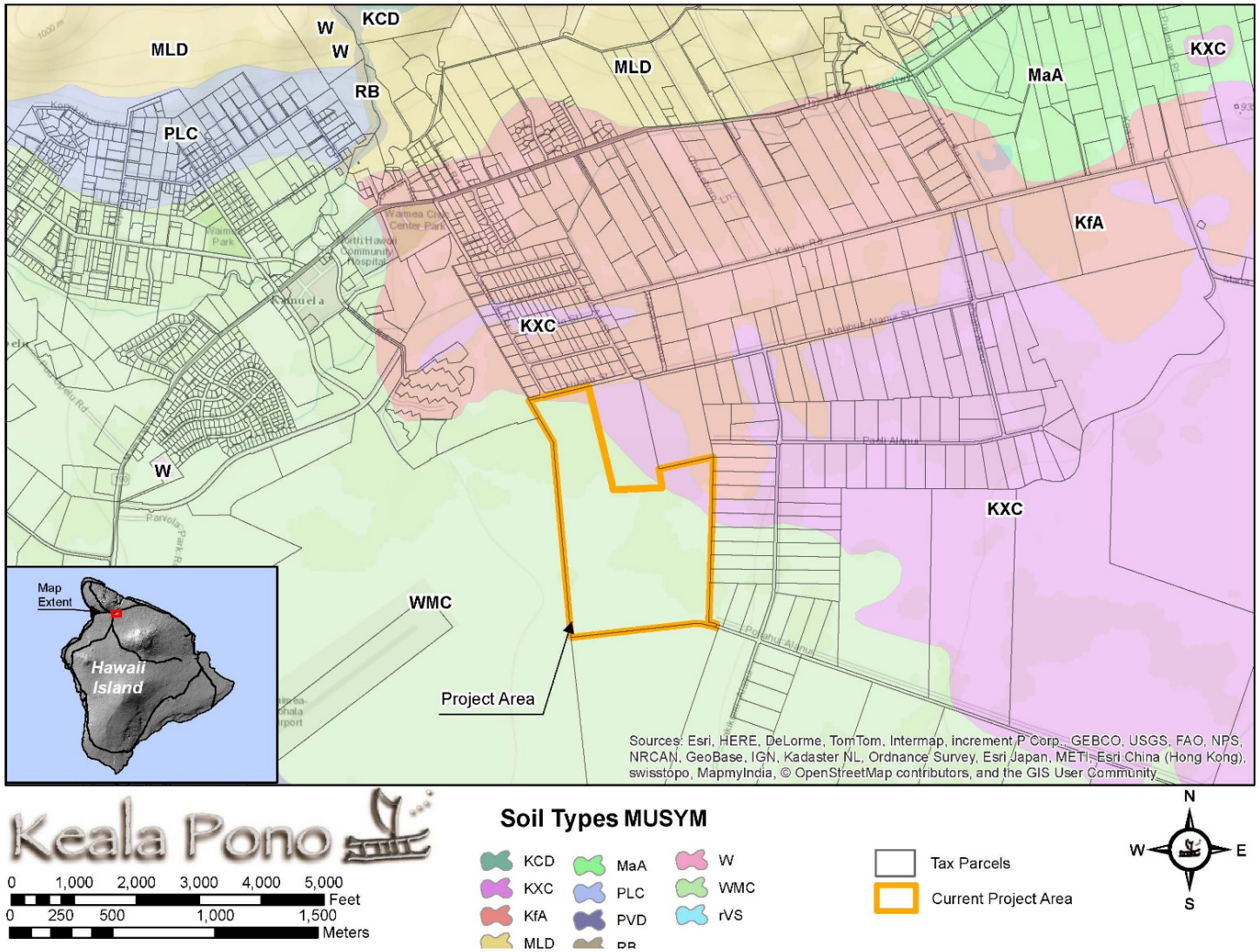


Figure 2. Project area (in red) on TMK plat map.



Keala Pono

0 1,000 2,000 3,000 4,000 5,000 Feet

0 250 500 1,000 1,500 Meters

Soil Types MUSYM

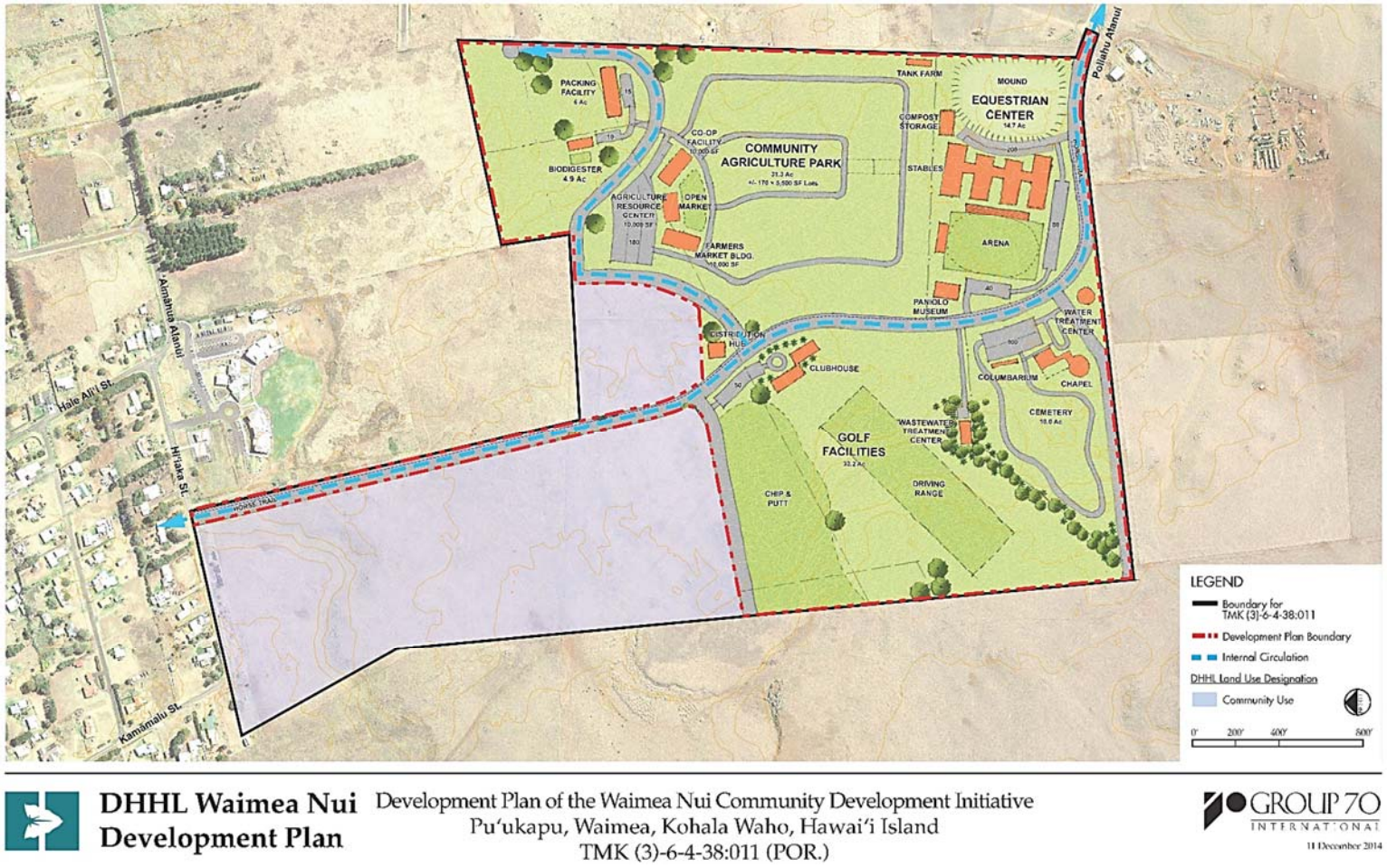
KCD, KXC, KfA, MLD, MaA, PLC, PVD, RB, W, WMC, rVS

Tax Parcels

Current Project Area

N W E S

Figure 3. Soils in the vicinity of the project area.



DHHL Waimea Nui Development Plan

Development Plan of the Waimea Nui Community Development Initiative
Pu'ukapu, Waimea, Kohala Waho, Hawai'i Island
TMK (3)-6-4-38:011 (POR.)

GROUP 70 INTERNATIONAL
11 December 2014

Figure 4. Conceptual plan for Waimea Nui.

Nui Regional Community Development Initiative (WNR-CDI) was developed based upon the ideas and concepts articulated by the homestead community. It also incorporates the long-term visions of both WHHA and the Department of Hawaiian Home Lands (DHHL), as outlined in the DHHL Waimea Regional Plan from 2012. The WNR-CDI proposes the following:

Homestead Cemetery/Chapel - Currently, there is no dedicated cemetery in the region for homesteaders to lay family members to rest. The closest cemetery options are over an hour away in Hilo or Kona, which has essentially forced families to opt for cremation in order to keep deceased family close by. A cemetery/chapel with a columbarium will allow the homestead community to perform proper burials in Waimea that are more aligned with Hawaiian values and protocol.

Community Agriculture Park – By partnering with various Federal and State agencies, the WNCDC is developing farm training programs on site. Agricultural greenhouse lots and associated facilities in the community agriculture park will allow the community to build a base of farmers, increase food self-sufficiency, and revitalize the local agriculture industry. An anaerobic biodigester will provide a proven renewable energy source at a fraction of the cost of current electricity rates for the refrigeration, sanitation, and processing of agricultural products through the use of biomass waste from farmers on-site and the adjacent equestrian center.

Equestrian Center - Waimea has a longstanding ranching and paniolo history. The equestrian center will provide recreational opportunities for the community while revitalizing the rich tradition in horse riding. The facility will serve as a venue for a host of community events such as calf roping; team roping; leisure riding, barrel racing, and jumping. Animal waste will be sustainably disposed of and used in the anaerobic digester for additional energy production.

Golf Facility - The proposed golf facility, which includes a par-3 course, driving range, and club house, will provide a recreational and economic opportunity to generate jobs and additional financial resources to support WNCDC operations and future planning of the area.

The WNR-CDI will enable the homestead community to meet their goals of self-sufficiency through a dedicated program of economic opportunities centered on agricultural, equestrian, and recreational activities while also ensuring a reserved space for those that lie in eternal rest.

BACKGROUND

A brief historic review for the Waimea area is provided below, to offer a better holistic understanding of the use and occupation of the project area. In the attempt to record and preserve both the tangible (i.e., traditional and historic archaeological sites) and intangible (i.e., *moʻolelo*, *ʻōlelo noʻeau*) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawaiʻi State Library, the University of Hawaiʻi at Mānoa libraries, the SHPD library, and online on the Huapala database, Papakilo database, Ulukau database, Waihona ʻAina database, and the State of Hawaiʻi Department of Accounting and General Services (DAGS) website. Historical maps, archaeological reports, and historical reference books were among the materials examined.

Waimea in traditional times

The history of Waimea begins with the history of Hawaiʻi Island:

> Hawaiʻi was another child of Papa and Wākea, their first-born child. He was the brother of Hoʻohoku-kalani. Hawaiʻi became the ancestor of the people of Hawaiʻi; the ancient name of Hawaiʻi island was Lono-nui-ākea. (Kamakau 1991:129)

Much of the oral accounts that narrate the events from the first peopling of Hawaiʻi to the recent period of written documentation has been lost in time. However, there are other means by which Hawaiʻi's history has been preserved. One often overlooked source of history is the information embedded in the Hawaiian landscape. Hawaiian place names "usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated… The place names provide a living and largely intelligible history" (Pukui et al. 1974:xii).

Among the places in Waimea with names which have been explicitly defined and connected to stories are ʻAlaʻōhiʻa, Nohoʻāina, Paulama, and Pukalani. ʻAlaʻōhiʻa, or "fragrant *ʻōhiʻa*," is an *ʻili* of Waimea that was said to have been covered in *ʻōhiʻa* with unusually large flowers. Nohoʻāina, or "live on the land," is an *ʻili* that was once cultivated in sweet potatoes grown by *aliʻi*. Paulama, or "extinct *lama*," is an *ʻili* that supported a grove of sacred *lama* trees that were frequented by native birds. Pukalani, or "heavenly gate," is a grassy plain that was used as a gathering place.

Pukui, Elbert, and Mookini's *Place Names of Hawaii* translates Puʻukapu as "Sacred hill" and Waimea as "Reddish water (as from erosion of red soil)" (Pukui et al 1974:199, 226). However, many elders familiar with the area attribute the red tint not to the red soil, but to the natural color added as the water seeps through the *hāpuʻu* forest on the slopes of the Kohala Mountains. The fern plants there are a natural source of red dye, and so they say the reddish tint comes from that vegetation. Perhaps the red tint comes from both the soil and the *hāpuʻu*.

Subsistence and Traditional Land Use

Waimea has an environment naturally conducive to intensive upland farming, and this supported a sizable village in ancient Hawaiʻi.

> The population of Waimea became the most significant in density, scattered among fields adjacent to streams that provided year-round water for consumption… The availability of dependable irrigation systems gave Waimea a unique advantage whereby both dryland and irrigated *kalo* (taro) could be grown.
>
> The early Waimea inhabitants resided typically within a *pā hale* (fenced house lot) with a sleeping house and adjacent protected cooking facility. The *pā pōhaku* (stone wall)

> surrounded the *pā hale,* and likely included within was a *kīhāpai* (garden). The farming plot *(ʻapana)* of the householder was located elsewhere within the agricultural zone of the respective *ahupua'a.* These prehistoric farmed areas have become known as the Waimea Field System.
>
> Rudimentary farming of the ʻŌuli flats between Lanikepu and Keanuʻiʻomanō Streams *makai* (towards the ocean) of the [Waimea-Kohala] airport began as early as A.D. 1100–1200. The southernmost swales reflect the presence of housing and agriculture about A.D. 1300–1400. Substantial evidence, however, points to the cultivation of walled, irrigated fields coupled with permanent habitation during the period from A.D. 1600 to 1800. (Bergin 2004:16–19)

Handy et al. note that Waimea was well suited for the planting of *ʻuala* (1991:283). They elaborate on the cultivation of traditional crops: "Dry taro used to be planted along the lower slopes of the Kohala Mountains on the Waimea side, up the gulches and in the lower forest zones" (1991:532). Naturalist, Archibald Menzies, describes fertile plantations in the uplands of Waimea in 1793, which likely extended back into pre-contact times:

> A little higher up, however, than I had time to penetrate, I saw in the verge of the woods several fine plantations, and my guides took great pains to inform me that the inland country was very fertile and numerously inhabited. Indeed, I could readily believe the truth of these assertions, from the number of people I met loaded with the produce of their plantations and bringing it down to the water side to market…(Menzies 1920 [1793]:56)

There was a dramatic increase in extensive cultivation in the centuries just before Western contact. This coincided with the reign of Chiefs Alapaʻinui and Kalaniʻōpuʻu of the Waimea-Kawaihae area followed by Kamehameha and his construction of Puʻukoholā Heiau. It is suggested that during this pre-contact period, the strain on food resources had been pushed to its limits (Bergin 2004).

Puʻukoholā is not the only *heiau* connected to the area. Whereas Puʻukoholā is nearer to the coast at Kawaihae, there was another older *heiau* which stood further inland at Waimea. It was a women's *heiau* built under the direction of High Chiefess Hoapiliahae. This *heiau* was described in the accounts of the missionary Lorenzo Lyons in the 1820s:

> This [the wind of Waimea] is the piercing wind that so suddenly meets the traveler who makes his upward way from the heat of Kawaihae; and as he nears Waimea he comes upon a region once held sacred. Vivid were the rainbows of the Lanikepu hills, and red the rain, uakoko, that fell upon their slopes, for in the forest that was then their background was a heiau --- a women's heiau, the only one; and by these lovely tinted tokens the gods honored it, and signified their approval.
>
> Founded, dedicated and consecrated by the very high chiefess Hoapiliahae, it was attended exclusively by young virgins. There, in the sanctity of the cool highland forest, they performed the sacred ceremonies, learning also the science of healing so that they might eventually minister to others. And the names of the five rains of the heiau were given to the five children of Hoapiliahae.
>
> On a nearby ridge stood another heiau, builded there by the great Akua Makuakua who had come from far off Kahiki. He it was who, flying to a hillside to watch the rainbows, found there the beautiful goddess Wao, clad only in her long, silky hair. Love came swiftly and was mutual, and after glorious wedding festivities the couple went to live a Hokuula, the hill of the red planet.

> But to bear each of her children Wao returned to the Waimea hills, thereby made sacred. On these occasions a tabu was proclaimed, the forbidden ground extending down across the plains to whatever place a stone happened to stop rolling when started above by her servants. Stones they were themselves, these retainers, all through the night hours, for so Wao transformed them until daylight, when they became human again. (Doyle 1953:42, 43)

Moʻolelo

In Lorenzo Lyons' account, he does not connect the Waimea *heiau* with any particular deity. However, there are other stories of Waimea which connect the landscape to Uli, the goddess of sorcery, and to Lono, the god of agriculture and heavy rains.

A story published in the Hawaiian language newspaper, *Ka Hoku o Hawaiʻi,* in the early 1900s, narrated the legend of Ka-Miki and his brother Makaʻiole. In this legend, the two brothers had been training to be warriors and were traveling around Hawaiʻi Island. Near the end of their training, their great-grandmother instructed the brothers to visit their ancestor Laninuikuʻiamamaoloa who lived near Lanimaomao stream in Waimea. This ancestor of theirs, Laninuikuʻiamamaoloa, was the guardian of sacred objects to be used in the brothers' end-of-training ceremony. Among the sacred objects were the *ʻawa* mixing bowl called Hōkūʻula and the *ʻawa* strainer called Kalauokahuli. Kalauokahuli, the *ʻawa* strainer, was noted to be on the plains of Waikoloa, while Hōkūʻula, the *ʻawa* mixing bowl, was at the hill closer to Waipiʻo. Both were in the lands of north Hawaiʻi around Waimea. Furthermore, the *ʻawa* bowl of Hōkūʻula was said to belong to Lono-Makahiki and associated with rituals connected to the agricultural god (Wilkinson et al. 2012:13, 14).

The ancestor woman named Laninuikuʻiamamaoloa noted above is also mentioned in another story where she is identified as Uli, the goddess of sorcery. In this *moʻolelo*, which comes from the Kamohoalii Collection, Laninuikuʻiamamaoloa also goes by the name of Lanimaomao. This is the name of an important stream in the area today. It is said that Lanimaomao lived in the Mahiki forested area of Waimea. She was prayed to for heavy rains, a weather phenomenon also associated with the god Lono.

Yet another story connected to Waimea is one associated with the goddess Hiʻiakaikapoliopele, sister of the volcano goddess Pele. As Hiʻiaka traveled from Puna in the south toward Kohala in the north, she was denied passage by Mahiki. This Mahiki is the same namesake of the forested area in Waimea today, but in this story, the Mahiki refers to a horde of ill-tempered creatures. The leader of this horde was the dragon-like creature named Moʻolau. Hiʻiakaikapoliopele "resolved once and for all to make an end of this arrogant nuisance and to rid the island of the whole pestilential brood of imps" (Emerson 1997[1915]:50). The goddess was supported by a supernatural legion of male and female relatives which Pele called in to battle to support her sister. Moʻolau and the ill-tempered Mahiki were destroyed. Here is a chant which memorializes this battle and calls to mind the darkness of Mahiki with the cries of the malevolent horde in Waimea. Notice that the name of the sorcery goddess from the previous story is in this chant below:

O Kini Akua o Wai-mea,	Wai-mea's myriads of godlings,
O ka Lehu Akua o Mana.	Thy four hundred thousand, Mana.
Kini wale Wai-mea	Wai-mea thrills with the snarl of
I ka pihe o ke ʻkua o Uli, e.	witch-gods:
Po wale Mahiki;	Night's shadows brood over Mahiki;
A ia Mahiki ke uwa la no, e!	The uproar keeps on in Mahiki!
	(Emerson 1997[1915]:55)

Oli

Waimea's rightful place in Hawaiian pre-contact history is bolstered by its appearance in traditional chants such as the one quoted above. These expressions of folklore have not lost their merit in today's society. They continue to be referred to in contemporary discussions of Hawaiian history, Hawaiian values, and Hawaiian identity.

Other chants that mention Waimea do not hearken back to the distant time of the gods. Some chants only go back to the more recent era of Kamehameha the Great. This is fitting since Kamehameha was from Kohala and his warriors trained in Waimea. One of the most famous of these Kamehameha chants is *Hole Waimea.* The words, translation and background of the chant can be found on the huapala.org website (Kanoa-Martin 2012).

Hole Waimea

Hole Waimea i ka ihe a ka makani	Waimea strips the spears of the wind
Hao mai nāʻale a ke Kīpuʻupuʻu	Waves tossed in violence by the Kīpuʻupuʻu rains
He lāʻau kalaʻihi ʻia na ke anu	Trees brittle in the cold
I ʻōʻō i ka nahele o Mahiki	Are made into spears in Mahiki forest
Kū aku i ka pahu	Hit by the thrusts
Kū a ka ʻawaʻawa	Hit by the cold
Hananeʻe ke kīkala o kō Hilo kini	The hips of Hilo's throngs sag
Hoʻi luʻuluʻu i ke one o Hanakahi	Weary, they return to the sands of Hanakahi
Kū aku la ʻoe i ka Malanai	Pelted and bruised by
A ke Kīpuʻupuʻu	The Kīpuʻupuʻu rains
Holu ka maka o ka ʻōhāwai a Uli	The petals of Uli sway
Niniau ʻeha ka pua o ke koaiʻe	The flower of koaiʻe droops
Ua ʻeha i ka nahele o Waikā	Stung by frost, the herbage of Waikā

Source: This is a mele inoa (name chant) for Kamehameha I, that was inherited by his son, Liholiho. This is a tale of the Kīpuʻupuʻu, a band of runners whose name is taken from the cold wind of Mauna Kea that blows at Waimea on the big island of Hawaiʻi. They were trained in spear fighting and went to the woods of Mahiki, a woodland in Waimea haunted by demons and spooks, and Waikā to strip the bark of saplings to make spears. Hole means to handle roughly, strip or caress passionately. In the forest they sang of love, not of work or war. Hanakahi is the district on the Hamakua side of Hilo, named for a chief whose name means profound peace. Malanai is the name of gentle wind. Pua o Koaiʻe is the blossom of the Koaiʻe tree that grows in the wild, a euphemism for delicate parts. Parts of this old chant, full of double entendre or kaona, was set to music by John Spencer and entitled Waikā. (Kanoa-Martin 2012)

Another Kamehameha chant is *Hea ʻOe Kahaiolama.* In this chant the chiefess Kalama is in dialogue with Kamehameha, and he assures her that indeed, all of Hawaiʻi Island is his:

Hea ʻOe Kahaiolama

KAMEHAMEHA: Hea ʻoe Kahaiolama.	KAMEHAMEHA: Where are you, O Kalama?
KALAMA: He makaʻu mai au lā iā Kaʻahumanu.	KALAMA: I am afraid of Kaʻahumanu.
KAMEHAMEHA: Mai makaʻu mai ʻoe.	KAMEHAMEHA: Do not be afraid.
Noʻu o luna, noʻu o lalo,	All above is mine, all below is mine,
Noʻu o Kohala,	Kohala is mine,
Noʻu o Hāmākua,	Hāmākua is mine,
Noʻu o Hilo,	Hilo is mine,

No‘u o Puna,	Puna is mine,
No‘u o Ka’ū,	Ka‘ū is mine,
No‘u o Kona,	Kona is mine,
No‘u nā wahi āpau-o-loa	Everywhere is mine

CONTRIBUTOR: Mrs. Kaimu Kihe, Pu‘uanahulu, North Kona, Hawai‘i. Mele kake. (Bacon and Napoka 1995:194, 195)

And finally, the last two chants here are very similar, yet from different sources. Notice that both of these chants are accompanied by a type of string-figure game that was once familiar throughout the islands. And in both of these chants, as the string figures are being made, the words to these chants call out different features on the landscape around Hawai‘i Island. One of these string-figure chants is called *He Huaka‘i Ka‘apuni ma Hawai‘i*; here is a portion of that chant*:*

He Huaka‘i Ka‘apuni ma Hawai‘i	Ramble Round Hawai‘i
Kū e ho‘opi‘o ka lā	The rising sun travels in an arc
Ka lā i ke kula o Ahu-‘ena	reaches the flatlands of Ahu-‘ena
Komo i ka la‘i o Kai-lua e…	enters Kai-lua’s gentle landscape…
‘O Kohala:	Kohala last:
‘O Kohala-iki, ‘o Kohala-nui	lesser Kohala, greater Kohala
‘O Kohala-loko, ‘o Kohala-waho	inner Kohala, outer Kohala
‘O Pili, ‘o Ka-lā-hiki-ola	and then Pili and Ka-lā-hiki-ola
Nā pu‘u haele lua o Kohala	companion hills traveling as a twain

Kohala last: The district included shoreland, an extinct volcano, a mountainous upland famous for its strong dry wind, ‘Apa‘apa‘a.

Ka-lā-hiki-ola: The hill named Ka-lā-hiki-ola, ‘the life-bringing sun’, gave its name to the surrounding area.” (Pukui and Korn 1973:187–191)

The other chant is called *Na Moku ‘Eono o Hawai‘i Nei*, a portion of which is presented here*:*

Nā Moku ‘Eono o Hawai‘i Nei

Ka lā, ka lā, i ke kula o Ahu‘ena…	The sun, the sun shines on the plain of Ahu‘ena…
Noho i Kohala,	Kohala is reached,
‘O Kohala nui, ‘o Kohala iki,	Great Kohala, lesser Kohala,
‘O Kohala ‘āina ua ha‘aheo,	Kohala, a land that is proud of its rain,
I ka ua ‘Āpa‘apa‘a.	The ‘Āpa‘apa‘a rain.
‘O Pili me Kalāhikiola,	There lie Pili and Kalahikiola,
‘O nā pu‘u haele lua,	There the two-sided hills,
‘O nā pu‘u noho i uka…	The hills that remain inland…

CONTRIBUTOR: Z.P. Kalokuokamaile, Nāpō‘opo‘o, South Kona, Hawai’i. Mele hei. [String-figure chant.] (Bacon and Napoka 1995:96–99)

‘Ōlelo No‘eau

Waimea’s place in pre-contact Hawaiian history has also been preserved in *‘ōlelo no‘eau*, or traditional proverbs and wise sayings. In 1983, Mary Kawena Pukui published a volume of close to 3,000 *‘ōlelo no‘eau* that she collected throughout the islands. The introductory chapter of that book reminds us that if we know these proverbs and wise sayings well, then we will know Hawai‘i well (Pukui 1983). Most of the *‘ōlelo no‘eau* concerning Waimea point out the cold weather conditions of the region. But aside from the details of each saying, the simple fact that Waimea is memorialized

in these proverbs is a testament to the significance of the entire place. Here are the traditional sayings from Pukui's book which mention Waimea either in its text or in its explanation:

> (757) Hele pōʻala i ka anu o Waimea.
>
> *Going in a circle in the cold of Waimea.*
>
> Said of a person who goes in circles and gets nowhere. Waimea, Hawaiʻi, is a cold place and when foggy, it is easy for one unfamiliar with the place to lose his way.
>
> (777) Hemahema Kahuwā me Waimea.
>
> *Kahuwā and Waimea are awkward.*
>
> These places are in the upland, where people are said to be awkward in handling canoes.
>
> (1571) Ka ua Kīpuʻupuʻu o Waimea.
>
> *The Kīpuʻupuʻu rain of Waimea.*
>
> An expression often used in songs of Waimea, Hawaiʻi. When Kamehameha organized an army of spear fighters and runners from Waimea, they called themselves Kīpuʻupuʻu after the cold rain of their homeland.
>
> (1593) Ka ua Paliloa o Waimea.
>
> *The Tall-cliffs rain of Waimea.*
>
> The rain of Waimea, Hawaiʻi, that sweeps down the cliffs.
>
> (1748) Ke Kīpuʻupuʻu hōʻanu ʻili o Waimea.
>
> The Kīpuʻupuʻu rain of Waimea that chills the skin of the people.
>
> (2913) Waimea, i ka ua Kīpuʻupuʻu.
>
> *Waimea, land of the Kīpuʻupuʻu rain.*
>
> Waimea, Hawaiʻi, is famed in old *mele* for its cold Kīpuʻupuʻu rain.

Other *ʻōlelo noʻeau* in Pukui's compilation refer to the larger district of Kohala of which Waimea is a part. Whereas the Waimea proverbs and wise sayings focus on rain, the Kohala proverbs and wise sayings focus on wind. In addition, the Kohala *ʻōlelo noʻeau* refer to other aspects of the land and the characteristics of the people there:

> (211) ʻAʻohe uʻi hele wale o Kohala.
>
> *No youth of Kohala goes empty-handed*
>
> Said in praise of people who do not go anywhere without a gift or a helping hand. The saying originated at Honomakaʻu in Kohala. The young people of that locality, when on a journey, often went as far as Kapua before resting. Here, they made *lei* to adorn themselves and carry along with them. Another version is that no Kohala person goes unprepared for any emergency.
>
> (875) He pāʻā kō kea no Kohala, e kole ai ka waha ke ʻai.
>
> *A resistant white sugar cane of Kohala that injures the mouth when eaten.*
>
> A person that one does not tamper with. This was the retort of Pupukea, a Hawaiʻi chief, when the Maui chief Makakuikalani made fun of his small stature. Leter used in praise of the warriors of Kohala, who were known for valor.

(1171) I ʻike ʻia no o Kohala i ka pae kō, a o ka pae kō ia kole ai ka waha.

One can recognize Kohala by her rows of sugar cane which can make the mouth raw when chewed.

When one wanted to fight a Kohala warrior, he would have to be a very good warrior to succeed. Kohala men were vigorous, brave, and strong.

(1256) Ipu lei Kohala na ka Moaʻekū.

Kohala is like a wreath container for the Moaʻe breeze.

Kohala is a windy place.

(1313) Kahilipulu Kohala na ka makani.

Kohala is swept, mulch and all, by the wind.

Kohala is a windy place.

(1455) Ka makani ʻĀpaʻapaʻa o Kohala.

The ʻĀpaʻapaʻa wind of Kohala.

Kohala was famed in song and story for the ʻĀpaʻapaʻa wind of that district.

(1813) Kohala ʻāina haʻaheo.

Kohala, land of the proud.

The youths, *lei*-bedecked, were proud of their handsome appearance and of their home district.

(1814) Kohala ihu hakahaka.

Kohala of the gaping nose.

Kohala is full of hills, and the people there are said to breathe hard from so much climbing.

(1815) Kohala i ka unupaʻa.

Kohala of the solid stone.

The people of Kohala were known for their firm attitudes.

(1816) Kohala, mai Honokeʻā a Keahualono.

Kohala, from Honokeʻā to Keahualono.

The extent of Kohala.

(1973) Leʻi o Kohala i ka nuku na kānaka.

Covered is Kohala with men to the very point of land.

A great population has Kohala. Kauhiakama once traveled to Kohala to spy for his father, the ruling chief of Maui. While there, he did not see many people for they were all tending their farms in the upland. He returned home to report that there were hardly any mend in Kohala. But when the invaders from Maui came they found a great number of men, all ready to defend their homeland.

(1975) Lele au la, hokahoka wale iho.

I fly away, leaving disappointment behind.

Said of one who is disillusioned after giving many gifts. Waka‘ina was a ghost of North Kohala who deceived people. He often flew to where people gathered and chanted. When he had their attention he would say, “I could chant better if I had a tapa cloth.” In this way he would name one thing after another, and when all had been given him he would fly away chanting these words.

(1988) Lele o Kohala me he lupe la.

Kohala soars as a kite.

An expression of admiration for Kohala, a district that has often been a leader in doing good works.

(2220) Na ‘ilina wai‘ole o Kohala.

The waterless plains of Kohala, where water will not remain long.

After a downpour, the people look even in the hollows of rocks for the precious water.

(2276) Nani ka waiho a Kohala i ka la‘i.

Beautiful lies Kohala in the calm.

An expression of admiration for Kohala, Hawai‘i, or for a person with poise and charm --- especially a native of that district.

(2365) ‘Ohi hāpuku ka wahie o Kapa‘au.

Anything was gathered up as fuel at Kapa‘au.

Said of one who takes anything and everything. At one time Kohala suffered a drought and food became scarce. The women did their best to raise food at ‘Āinakea while the men traveled far in search of some means of relieving the famine. In order to cook their meager, inferior crops, the women used whatever they found for fuel --- dried sugar-cane leaves, grasses, potatoes, and so forth.

(2533) ‘Ope‘ope Kohala i ka makani.

Kohala is buffeted by the wind.

(2811) ‘Uala ne‘ene‘e o Kohala.

Ne‘ene‘e *potato of Kohala.*

A person who hangs around constantly. *Ne‘ene‘e*, a variety of sweet potato, also means “to move up closer.”

Historic Waimea

The island of Hawai‘i witnessed multiple changes in its political rule in the years just prior to Western contact. In the early 18th century, Chief Alapa‘i ruled the entire island of Hawai‘i. But due to internal strife, it became divided with Alapa‘i ruling the northern part of the island and Kalani‘ōpu‘u ruling the southern districts of Ka‘ū and Puna. In 1754, Alapa‘i died, and his son Keawe‘ōpala inherited the governance of Alapa‘i’s lands. However, later that same year, Kalani‘ōpu‘u wrested control of Keawe‘ōpala’s lands, and because of that, Kalani‘ōpu‘u became the ruler of the entire island. When Kalani‘ōpu‘u died in 1782, the governance of Hawai‘i went to his son Kīwala‘ō. However, it wasn’t long before Kīwala‘ō’s rule was challenged by Kamehameha, the son of Kalani‘ōpu‘u’s brother. In a subsequent battle between Kīwala‘ō’s and Kamehameha’s forces, Kīwala‘ō was killed, and Kamehameha took his place. Following that decisive battle, the governance

of Hawai‘i Island was divided into three parts. Kamehameha ruled the north half of the island from Hāmākua to Kohala to Kona. Keawema‘uhili, the brother of the deceased Chief Kalani‘ōpu‘u, ruled out of Hilo, and Keōuakū‘ahu‘ula, a son of Kalani‘ōpu‘u, ruled the districts of Ka‘ū and Puna. Eventually, Keawema‘uhili was killed by Keōuakū‘ahu‘ula’s forces, and then Keōuakū‘ahu‘ula was defeated by Kamehameha’s army. After that, Kamehameha had complete rule over the entire island, and from there he went on to conquer the rest of the Hawaiian Islands (translations in italics by D. Duhaylonsod):

> Ho‘i akula ‘o Alapa‘i i Hawai‘i i ke kaua, a ua lanakila ‘o Alapa‘i ma luna o nā ali‘i o Hawai‘i, a ua luku ‘ia nā ali‘i o Hawai‘i, a ua hui ‘ia i ho‘okahi aupuni ma lalo o Alapa‘i. (Kamakau 1996[1866]:1)
>
> *Alapa‘i returned to Hawai‘i Island to do battle, and Alapa‘i emerged victorious over the chiefs of Hawai‘i Island, the chiefs were slaughtered, and the entire kingdom was gathered as one under Alapa‘i.*
>
> I ke kaua ‘ana i Mahinaakāka ke kū ka‘awale ‘ana o Kalani‘ōpu‘u e noho mō‘ī no Ka‘ū me Puna, no ka mea, he ali‘i kama‘āina ‘o Kalani‘ōpu‘u no Ka‘ū, a ‘o kona one hānau ia o kona mau mākua. Ho‘i maila ‘o Alapa‘i a noho ma Hilo, a hala ka makahiki, ho‘i maila ‘o ia a noho ma Waipi‘o. A pau kona noho ‘ana ma Waipi‘o. Ho‘i maila ‘o Alapa‘i me nā ali‘i a hiki ma Waimea, a ‘o kekahi po‘e, ma kai o ka ‘au wa‘a, a pae i Kawaihae. Ho‘i akula ‘o Alapa‘i mai Waimea aku a Lanimaomao, loa‘a ihola i ka ma‘i… Ma Kikiako‘i, make ihola ‘o Alapa‘i. I ka A.D. 1754, noho ali‘i ihola ‘o Keawe‘ōpala no ke aupuni o Hawai‘i (Kamakau 1996[1866]:13).
>
> *From the battle at Mahinaakāka, Kalani‘ōpu‘u emerged as the king of Ka‘ū and Puna, because Kalani‘ōpu‘u was a native chief of Ka‘ū, and it was the birthplace of his parents. Alapa‘i returned to Hilo, and after some time, he went to live at Waipi‘o. After living at Waipi‘o, Alapa‘i and his chiefs went to Waimea, and others, by way of canoes, landed at Kawaihae. Alapa‘i went from Waimea to Lanimaomao, he became ill… At Kikiako‘i, Alapa‘i died. In the year 1754, Keawe‘ōpala (the son of Alapa‘i) became the ruler of Hawai‘i.*
>
> ‘Ōlelo aku ke kahuna ma hope o Kalai‘ōpu‘u [another name for Kalani‘ōpu‘u], ‘o Holo‘ae ka inoa, ["]Eia ka mea e make ai ‘o Keawe‘ōpala, aia a make ‘ē ke kahuna ma mua o Keawe‘ōpala, a laila, lilo ke aupuni iā ‘oe, no ka mea, ‘o ke kahuna ka mea e pa‘a ai ke aupuni iā Keawe‘ōpala.["]... ua hopu ‘ia ke kahuna o Keawe‘ōpala, ua pepehi ‘ia a kālua ‘ia e Kalani‘ōpu’u me ka ho‘omāinoino ‘ia… I ka makahiki A.D. 1754, ua lilo holo‘oko‘a ke aupuni o Hawai‘i iā Kalani‘ōpu’u (Kamakau 1996[1866]:13, 14).
>
> *The kahuna under Kalai‘ōpu‘u, whose name was Holo‘ae, spoke, "Here is the way Keawe‘ōpala will die, first his priest must die, and then, the kingdom will go to you, because it is the priest who keeps the kingdom securely under Keawe‘ōpala’s rule… the priest of Keawe‘ōpala was captured, and he was tortured, killed and burned in the pit by Kalani‘ōpu‘u… In the year 1754, the entire kingdom of Hawai‘i went under the rule of Kalani‘ōpu‘u.*
>
> I ka pau ‘ana o ka wā hī ‘ahi o Kalae, mana‘o ihola ‘o Kalani‘ōpu‘u e ho‘i i Kona, akā, ua loa’a ‘ē ‘o ia i ka ma‘i, no laila, ho‘i maila ‘o ia a noho ma Ka‘iliki‘i i Waio‘ahukini ma Pākini; māhuahua loa ka ma‘i, a make nō ma laila. I ka iwakāluakumamāiwa makahiki [ia] o kona noho ali‘i ‘ana ma luna o ke aupuni o Hawai‘i. A ‘o nā makahiki a pau o kona ola ‘ana, he kanahikukumamāiwa, a make ihola ‘o ia i ka malama ‘o Ianuari, i ka A.D. 1782 (Kamakau 1996[1866]:62).

When he was finished trolling for ʻahi at Kalae, Kalaniʻōpuʻu decided to return to Kona, but he became sick, and therefore, he went to stay at Kaʻilikiʻi in Waioʻahukini at Pākini; the illness intensified, and he died there. His reign over the kingdom of Hawaiʻi lasted twenty-nine years. And he lived for seventy-nine years, and died in the month of January, 1782.

I ka noho ʻana o Kalaniʻōpuʼu ma Kohala, ua hoʻoholo ihola nā aliʻi a me nā kuhina, e kauoha ʻia ke keiki hoʻoilina o ke aupuni (Kalanikauikeaoulikīwalaʻō)... Aia a make ʻo Kalaniʼōpuʼu, a laila, e ili aku ke aupuni i ka hoʻoilina (Kamakau 1996[1866]:59, 60).

When Kalaniʻōpuʻu was staying at Kohala, the chiefs and the cabinet members decided, and the command would be given that the child Kīwalaʻō would be the next heir to the kingdom… Kalaniʻōpuʻu died, and then, the heir inherited the kingdom.

I ko Kamehameha mā hiki ʻana mai ma hope, ua hoʻomaka mua aku ʻo Keʻeaumoku i ke kaua i ko Kīwalaʻō mau koa… A ʻike akula ʻo Keʻeaumoku iā Kīwalaʻō e huli ana i lalo, kokolo akula ʻo ia me ka leiomano ma ka lima, a papaʻi aʻela ma ko Kīwalaʻō kaniʻāʻī, a make loa ihola ia... ʻO ke ʻauheʻe ihola nō ia o nā aliʻi a me nā koa o Kīwalaʻō. ʻO Keōuakūʻahuʻula hoʻi a me kekahi poʻe aliʻi… holo akula i Kaʻū, a lilo ihola ʻo Keōuakūʻahuʻula i mōʻī no Kaʻū a me Puna… ʻO Keawemaʻuhili nō hoʻi ke aliʻi kapu i ke au o Alapaʻinui… a hele akula a hiki i Hilo, a lilo ihola ʻo ia i aliʻi no kekahi hapa o Hilo, a me kekahi hapa hoʻi o Puna, a pēlā nō hoʻi ʻo Hāmākua… Lilo ihola ʻo Kona, Kohala a me kekahi hapa o Hāmākua iā Kamehameha. Lilo ihola ka mokupuni ʻo Hawaiʻi i mau aupuni ʻekolu, a ʻekolu nō hoʻi mau mōʻī (Kamakau 1996[1866]:73, 74).

When Kamehameha arrived later, [his warrior-general] Keʻeaumoku had already started the battle with Kīwalaʻōʼs warriors… Keʻeaumoku saw Kīwalaʻō facing down, he crawled with a leiomano weapon in his hand, and struck at Kīwalaʻōʼs throat, and Kīwalaʻō died… The chiefs and the warriors of Kīwalaʻō fled. Keōuakūʻahuʻula and some chiefs sailed to Kaʻū, and Keōuakūʻahuʻula became the king of Kaʻū and Puna… Keawemaʻuhili also, he was a sacred chief from the time of Chief Alapaʻi… Keawemaʻuhili went to Hilo, and he became the chilef of parts of Hilo, Puna, and Hāmākua… Kona, Kohala, and a portion of Hāmākua became lands of Kamehameha. The island of Hawaiʻi was divided into three kingdoms, and with three kings.

Kiʻi maila ʻo Keōuakūʻahuʻula e kaua iā Keawemaʻuhili. Kaua ihola lāua i kinohi, a heʻe ʻo Keawemaʻuhili; a kaua hou ihola ma ʻAlae, ma Hilo Palikū, ua pepehi ʻia ʻo Keawemaʻuhili, a make pū ihola kekahi aliʻi, ʻo Kāoʻo kona inoa, he kaikoʻeke nō hoʻi nona (Kamakau 1996[1866]:105).

Keōuakūʻahuʻula came to do battle against Keawemaʻuhili. They fought in the beginning, and Keawemaʻuhili fled; and they fought again at ʻAlae, at Hilo Palikū, Keawemaʻuhili was killed, together with another chief named Kāoʻo, who was a brother-in-law of his.

Kiʻi akula ʻo Keaweaheulu a me Kamanawa, nā kuhina o Kamehameha, iā Keōuakūʻahuʻula, ka mōʻī o ka ʻaoʻao hikina o ka mokupuni ʻo Hawaiʻi… nīnau ihola ʻo Keōua, ʻHe aha kā ʻolua huakaʻi?ʼ Pane aʻela ʻo Keaweaheulu mā, ʻI kiʻi mai nei nō māua iā ʻoe, ʻo ʻoe nō ke keiki a ko māua kaikuaʻana haku; i kiʻi mai nei iā ʻoe, e holo kākou i Kona, a hui pū me kō kaikaina… E hoʻopau i ke kaua ʻana ma waena o ʻolua… Holo akula nō lākou nei a kokoke e pili i Mailekini ma Kawaihae… Kū maila nō hoʻi ʻo Keōuakūʻahuʻula a kāhea mai iā Kamehameha, ʻEia au lā.ʼ Kāhea mai nō hoʻi ʻo Kamehameha, ʻKū mai, a hele mai e ʻike kāua.ʼ Kū aʻela nō hoʻi ʻo Keōuakūʻahuʻula me ka manaʻo e lele mai i uka; e hou mai ana ʻo Keʻeaumoku i ka pololū… A ʻo Keōua a me kekahi poʻe ʻē aʻe ma ko lākou waʻa, ua pau loa lākou i ka make… I ka make ʻana o

> Keōuakū‘ahu‘ula, ke keiki a Kalani‘ōpu‘u, ka mō‘ī o Hawai‘i, a kau ‘ia ‘o ia ma Pu‘ukoholā ma Kawaihae, a laila, ua holo‘oko‘a ke aupuni o ka mokupuni ‘o Hawai‘i iā Kamehameha (Kamakau 1996[1866]:110–113).
>
> *Keaweaheulu and Kamanawa, the cabinet members of Kamehameha, went to get Keōuakū‘ahu‘ula, the king of the eastern side of Hawai‘i Island… Keōua asked, "Why have you two journeyed?" The two travelers answered, "We have come to get you, you are the child of our older brother, Chief [Kalani‘ōpu‘u]; we have come to get you that we may all sail to Kona and meet with your younger brother [cousin Kamehameha]... to put an end to the warfare between you two… They all sailed and approached close to Mailekini at Kawaihae… Keōuakū‘ahu‘ula stood and called out to Kamehameha, "Here I am." Kamehameha called back in return, "Stand up and come, let us see." Keōuakū‘ahu‘ula stood up with the thought of fleeing inland; (Kamehameha's warrior uncle) Ke‘eaumoku threw his spear… Keōua and the other people on that canoe, they all died… At the death of Keōuakū‘ahu‘ula, who was the child of Kalani‘ōpu‘u, the former king of Hawai‘i, Keōuakū‘ahu‘ula was placed on the sacrificial heiau of Pu‘ukoholā at Kawaihae, and then, the entire kingdom of Hawai‘i Island became under the one rule of Kamehameha.*

Prior to Kamehameha's reign, in 1778 during the reign of Chief Kalani‘ōpu‘u, the British sailor James Cook arrived in the Hawaiian Islands. He is credited as being the first Westerner to do so (Kamakau 1996[1866]). An estimated 105,000 natives were living on Hawai‘i Island at the time with more than 23,000 living in Kohala, the district in which Waimea is situated (Bergin 2004:21).

Historic Land Use

After the arrival of foreigners to Hawai‘i's shores, the islands were transformed culturally, politically, and economically. In the case of Waimea, numerous changes were spurred by the activities of ranchers, whalers, missionaries, sandalwood traders, and other agricultural businessmen. The transformation of Waimea was further shaped by the Māhele, a royal proclamation which replaced the traditional land tenure system with a Western capitalist one. And the final outside force which affected Waimea, though not as much as some other parts of the islands, was the establishment of the U.S. government and military presence.

Ranching

In 1792, another British sailor, Captain George Vancouver, arrived and anchored at Hawai‘i Island. Vancouver had previously visited the islands as a sailor on Captain Cook's earlier voyages. When he came back as a captain, Vancouver brought gifts of cattle, goats, and sheep for the king, Kamehameha. Kamehameha instituted a *kapu* or strict taboo on these gifts of livestock. Anyone caught harming the livestock could be put to death. As a result, the cattle and goats and sheep multiplied copiously across Waimea and the rest of the lands of north Hawai‘i Island. Many walls and enclosures had to be built to protect the people's cultivated crops from destruction from the animals. In 1803, the horse was also introduced to the island (Bergin 2004).

After the *kapu* over the cattle was lifted in 1815, the king appointed the American newcomer, John Palmer Parker, to be his authorized cattle hunter. Three years later, Parker married Keli‘i Kipikane Kaolohaka, a great-granddaughter of Kamehameha. The hunting of animals, and especially the salting and corning of beef and the procurement of hides and tallow, became a booming industry. This business was notably fueled by the demand from the visiting whaling ships. The immensity of this operation is shown when the numbers are tallied:

> The salted beef, hide, and tallow export industry grew to become a major component of commerce. Forty to fifty-nine whaling ships called annually at Kawaihae in the mid-1850s, taking aboard 1,500 barrels of salt beef, 5,000 barrels of sweet potatoes, 1,200 bullock

> hides, and 35,000 pounds of tallow on an average. Between Waimea and Kawaihae, South Kohala became the center of the cattle industry (Bergin 2004:32).

In 1832, the first of numerous Mexican cowboys arrived on Hawai‘i Island to lend their experience and skills in handling cattle. These Mexican cowboys inherited their expertise from generations of ranching, first introduced to America from the Iberian Peninsula in Spain. However, the introduction of cattle and horses and later ranching operations entered America from Europe in the 1500s and 1600s. This industry then made its way to Hawai‘i from America in the 1800s. It is important to realize that there was a span of perhaps 200 years for ranching in "New Spain" to evolve into something uniquely different from Old Spain. This evolution had a direct effect on the development the Hawaiian *paniolo,* or Hawaiian cowboy. Much of the current literature notes that the Hawaiian style of ranching has its roots in Spain and the American Southwest, although the differences between these two birthplaces of ranching are not explicitly stated. Many of Hawai‘i's pioneer *vaqueros*, or Mexican cowboys, were not entirely Spanish, but instead they were *mestizos,* persons of mixed Spanish and Native American bloodlines. An interesting line of research would be to determine which characteristics from the Native American background became an integral part of the Mexican ranching culture, differentiating it from the European Spanish ranching culture. After this analysis, perhaps a clearer picture of Hawaiian ranching practices can be made, giving separate and proper credit to their New World and Old World origins.

While the *vaqueros* were busy teaching their cowboy skills to Hawaiians in the 1800s, Parker became a leader in the industry. In 1847, he established the Parker Ranch, an enterprise which would later become one of the greatest ranches under the American flag. As intrinsic as the contributions of the Mexican cowboys are to the story of the *paniolo* and Hawaiian ranching, so are the contributions of the Parker Ranch and the Parker family to *paniolo* history in Hawai‘i. But besides the Parkers, there were other important families who have also added to the rich history of the Hawaiian cowboy. These other families include, among others, the Bell, the Fay, the Lindsey, the Purdy, and the Stevens *‘ohana.* The patriarchs and matriarchs of these aforementioned families with Anglo-American names married into the Native Hawaiian population, creating generations of descendants connected to the land on many levels.

Missionaries

Overlapping with the arrivals of foreign sailors, whalers, and cowboys to the islands was the equally significant arrival of Christian missionaries. Leading the cause to evangelize the Pacific were the American Board of Foreign Missions and the London Mission Society. The landing of the American Board of Foreign Missions on Hawai‘i's shores in 1820 could not have come at a more opportune time. Just a year earlier, King Kamehameha had died, his son Liholiho became the new king, and soon after that, the ancient traditional religion was abolished by the new king (Ellis 1963).

One of the most famous early missionaries was Lorenzo Lyons, who arrived in the islands in 1832 and later erected his church in Waimea. His written descriptions of the natural environment of Waimea are priceless. They depict a landscape filled with wind, rain, and running water, a description that matches the oral accounts of the area since time immemorial. The following passages about Waimea were originally written in the manuscript journals of Lorenzo Lyons (Doyle 1953):

> Waimea (Waikoloa) was a place of solitude, but a solitude by no means voiceless. The hours were few in the 365 days of the year when there was not 'a sound of going' in the mulberry trees. Normally the pliant boughs were strained and lashed by a northeast wind having the force of a full gale. The diapason of the weird music it made was the dominant fact of consciousness. Often for days at a time the wind was charged with fine drops of rain --- Scotch mist we called it --- and then its voice took on a fiercer, more uncompromising tone. This is the 'ua puupuu of Waimea'. The rain that raises the 'goose flesh.' The epithet,

> like the local epithets of Homer, is inseparable in poetic speech from the place. Even within the house the fierce impact of those minute raindrops driven by the violent wind gusts against unsheltered window panes makes a wild music like that of a driving sleet storm in New England.
>
> During the winter months come westerly breezes, swaying backward the mulberry boughs to which the more prevalent trades have given a permanent set toward the west, adding to the aeolian music a new and distant note. Beginning with a lisping whisper it swells to an inarticulate outcry of protest. Only rarely does this west wind approach the force of a gale [a Kona storm], when the clashing and boughs give to the music a martial motif. Great branches may finally be torn from trees which have withstood for decades the westward urge of the more violent trade winds.
>
> Whenever the voice of the wind is hushed, there is heard a sustaining deep note --- the sound of a series of cascades in the glen which brings down from the Kohala mountain the Waikoloa stream. Within a half mile, the fall must aggregate all of six or seven hundred feet, the water leaping 5, 10, even 20 feet at a time, to plunge into the deep excavation worn in the solid rock at the foot of the cascade. It is the monotone of this music rising and falling in volume of sound with capricious changes in the breezes that in the night lulls one to slumber. On quiet nights at Waikoloa when the stream is in freshet from a rain storm mauka, the sound gains in depth and volume, becoming impressive and even awe inspiring. At such times the stream which passes close to the mission premises --- under normal conditions merely a purling brook --- is a foaming, roaring torrent, sweeping along in its course not only branches of trees, but even great rocks torn from its bed. (Doyle 1953:41, 42)

Another early missionary to Hawai‘i Island who left us with invaluable written accounts of Waimea was William Ellis. Ellis arrived in the islands in 1822. In both Ellis' descriptions and in those of Lorenzo Lyons, the flora of Waimea do not appear to have been damaged yet by the introduction of foreign livestock. Ellis notes the lushness of Waimea's lands (Ellis 1963):

> Here [at Waimea] a number of villages appeared on each side of the path, surrounded with plantations, in which plantains, sugar-cane, and taro, were seen growing unusually large. (Ellis 1963[1827]:253)
>
> Mr. Thurston was informed that the inhabitants of the plantations, about seven miles in the interior, were far more numerous than on the shore… Mr. Thurston set out on a visit to the inland district of Waimea, having been furnished with a guide… Mr. Thurston walked on to Kalaloa, the residence of the chief of Waimea, Kumuokapiki (Stump of Cabbage). Leaving Kalaloa he walked on to Waiakea, from thence to Waikaloa, Pukalani, and Puukapu, which is sixteen or eighteen miles from the sea-shore, and is the last village in the district of Waimea… The soil over which he had travelled was fertile, well watered, and capable of sustaining many thousand inhabitants. In his walks he had numbered 220 houses, and the present population is probably between eleven and twelve hundred… In this district, and throughout the divisions of Hamakua and Kohala, together with the greater part of Hiro, the plough might be introduced with advantage, and the productions of intertropical climates raised in great abundance and excellent quality, as the sugar-cane and other indigenous plants, grown at Waimea, are unusually large. (Ellis 1963[1827]:288, 289)

Sandalwood

One very important entry not to be overlooked in the writings of William Ellis is his mention of the sandalwood trade taking place on Hawai‘i Island. Ellis documents that a multitude of people from

Waimea had been ordered to harvest sandalwood trees from the Kohala Mountains. It was arduous labor that required the men to carry these huge harvested trees to the coastline for shipping (Ellis 1963):

> [At Kawaihae] we were roused by vast multitudes of people passing through the district from Waimea with sandal wood, which had been cut in the adjacent mountains for Karaimoku, by the people of Waimea, and which the people of Kohala, as far as the north point, had been ordered to bring down to his storehouse on the beach, for the purpose of its being shipped to Oahu.
>
> There were between two and three thousand men, carrying each from one to six pieces of sandal wood, according to their size and weight. It was generally tied on their backs by bands made of ti leaves, passed over the shoulders and under the arms, and fastened across their breast. When they had deposited the wood at the storehouse, they departed to their respective homes. (Ellis 1963[1827]:286, 287)

Undoubtedly, the deforestation caused by the unbridled logging of sandalwood altered the landscape of Waimea. Other notable ventures which transformed the environment of Waimea include the cultivation and procurement of sugarcane, cotton, and *pulu*. In addition, rampant livestock grazing depleted the natural vegetation of Waimea, and this was countered by introducing various invasive plant species that suited the needs of the ranchers. The introduced invasive plant species would eventually supplant countless endemic and indigenous ones. All of these business interests which developed throughout the 1800s left Waimea's post-contact landscape exhaustively different from what it looked like in the pre-contact era (Wilkinson et al. 2012; Bergin 2004).

Māhele Land Tenure

By 1848, the third monarch of the Kamehameha dynasty, born Kauikeaouli, was the ruler of the islands. That year he enacted one of Hawai‘i's most transformative proclamations ever, the Māhele. This proclamation by the king divided the lands throughout Hawai‘i and set aside land ownership for three groups of people: the king, the chiefs, and the commoners. This was a sweeping departure from the traditional land tenure system which originally fostered common stewardship rather than private ownership:

> THE MAHELE is rightfully considered one of the most significant chapters in the modern history of Hawai‘i. Several legislative acts during the period 1845–1855 codified a sweeping transformation from the centuries-old Hawaiian traditions of royal land tenure to the western practice of private land ownership. (Moffat and Fitzpatrick 1995)

The king enacted the Māhele intending for it to provide the Native Hawaiian population with an irrevocable land base they would own. The process that the commoners needed to follow to secure their land titles consisted of filing a claim with the Land Commission; having their land claim surveyed; testifying in person on behalf of their claim; and submitting their final Land Commission Award (LCA) to get a binding royal patent. However, in actuality, the vast majority of the native population never received any land commission awards recognizing their land holdings due to several reasons, such as their unfamiliarity with the process, their distrust of the process, and/or their desire to cling to their traditional way of land tenure regardless of how they felt about the new process. In 1850, the king passed another law, this one allowing foreigners to buy land. This further hindered the process of natives securing lands for their families.

Regarding the lands of Waimea, there were no LCAs within the project area, although according to the Waihona ‘Aina database, 20 awards may have been made for the *‘ili* of Pu‘ukapu (Table 1).

Nevertheless, there has been documentation of a land dispute from 1865 which sheds some light on the original ownership of the project site. One of the witnesses, a person named Cross, claimed that Puʻukapu once belonged to Chief Kalaimoku, but by 1865, this person wasn't sure who the present owners were. Another witness in the same land dispute, a person named Mi 1st, claimed that the Puʻukapu land was firmly kept by Kamehameha I. It is possible that the Puʻukapu-Waimea lands were passed down from Kamehameha I to his son, Kamehameha III. It was mentioned in the journal entry of Lorenzo Lyons in 1849:

> The King [Kamehameha III] owns Waimea, and has ordered all who have cattle, hogs, sheep, goats, horses, pasturing on his land to pay a certain rate per head. At this new regulation the people groan. (Doyle 1953:153)

Kamehameha III, in turn, entrusted administration of his Waimea lands to William Beckley, a part-Hawaiian of royal blood who had grown up with the king. Under William Beckley's authority, the Hawaiian kingdom government started to take over much of the cattle industry. Beckley's guidance of the crown's involvement in the cattle industry perhaps led to John Palmer Parker's lease of the Waimea lands to build his ranch.

Notice that in the above quote taken from a previous study, the exact end-date of Parker's lease of lands belonging to the crown is uncertain. What is certain is that Parker Ranch still utilized these lands well into the 20th century. This continuity of the ranch survived the American-backed overthrow of the Hawaiian monarchy in 1893 and the subsequent annexation of Hawaiʻi as an American territory in 1898.

Historic Maps

Historic maps help to paint a picture of Waimea in times past and illustrate the changes that have taken place in the region over the years. The earliest map found for this area likely dates to the mid-late 1800s (Figure 5). Puʻukapu is depicted in script lettering, with the points "Kaala," "East Base," and "West Base" surrounding it. Waimea Village is shown near West Base, but the settlement does not appear very developed.

The next map dates to 1913 (Figure 6). It shows the Puʻukapu Homestead area with streets and land parcels laid out in modern fashion. Puʻu Kakanihia is labeled on the west side of the subdivision, and an abandoned pipeline runs through the west side. An abandoned ditch snakes through the homesteads, extending from the Upper Hamakua Ditch to the Puʻukapu Reservoir. A new ditch is also shown, including a weir at its bend. The 10.6-acre Paiakuli Pond is illustrated on the southwest side of the homesteads.

A 1928 map of government lands in Waimea shows more development of the area (Figure 7). Several small LCAs are shown to the northwest of the project area, including LCA 987, 988, 2271, 4026, 4037, and 4198. The "road to Kona" is now illustrated, with a racetrack shown on the *mauka* side of the road. Several ranch pipelines are also depicted.

The Puʻukapu Homesteads are next shown in 1945 (Figure 8). The Lyons Ditch and a branch of this ditch flow from a dam in Waikoloa Stream. The U.S. military camp Tarawa is depicted between the Waimea and Puʻukapu Homesteads. Among the features illustrated are the division headquarters, a hospital, a school, an ice plant, a recreation field, a gasoline storage area, and several pipelines. Also shown on this map are the Waimea Public Park, a bakery, a Roman Catholic Church, and a Church of the Latter Day Saints.

Table 1. Māhele Awards in the ʻIli of Puʻukapu, Ahupuaʻa of Waimea

LCA	Claimant	Island	District	*Ahupuaʻa*	*ʻIli*	Awarded
3672	Mana	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3675	Mahuka	Hawaiʻi	Kohala, South	Waimea	Puʻukapu, Waipio	1
3685	Mahoe	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3686	Moluhi	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3733	Imoehalau	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3842	Paukumoku	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
3923	Naihe	Hawaiʻi	Kohala, South	Waimea	Maialaa, Puʻukapu	1
4130	Kanakaole	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4132	Kaina	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4183	Kaluahinenui	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
04183B	Kanaue	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4210	Kalua	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
04210B	Wawaeluhi	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4212	Kualehelehe	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4214	Hanehane	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4218	Kaohimaunu	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4227	Kaulunui	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4230	Kukahekahe	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1
4233	Kahuhu, E	Hawaiʻi	Kohala, South, Hāmākua	Waimea, Kaloaha	Puʻukapu, Puʻulama,	1
04348B	Purday, Harry	Hawaiʻi	Kohala, South	Waimea	Puʻukapu	1

A land classification map for the Waimea Plain shows the area in 1947 (Figure 9). The LCAs depicted in the 1928 map are still shown, with two more added: LCA 3682 and 4233. The roads to Kona and Kohala are now labeled as the "Gov't Main Road." Paiakuli Pond and the new Upper Hamakua Ditch with its weir are still shown. A tree nursery and forest ranger station are illustrated in the *mauka* section of the Puʻukapu Homesteads.

Mele

Like the traditional chants from ancient times that give us a window into pre-contact Hawaiʻi, the modern songs of today also provide a glimpse of the specific recent time and place that they were written in. It is interesting that the poetic references to Waimea from the days of old have found their way into the modern song compositions. Such is the case with the songs *I Ka Luna O Waimea, Hanohano E,* and *Na Kuahiwi Kaulana.* The rain of Waimea is still personified with the proper name, Kīpuʻupuʻu, and the wind of Kohala is similarly still called ʻĀpaʻapaʻa. Portions of the three songs are included here:

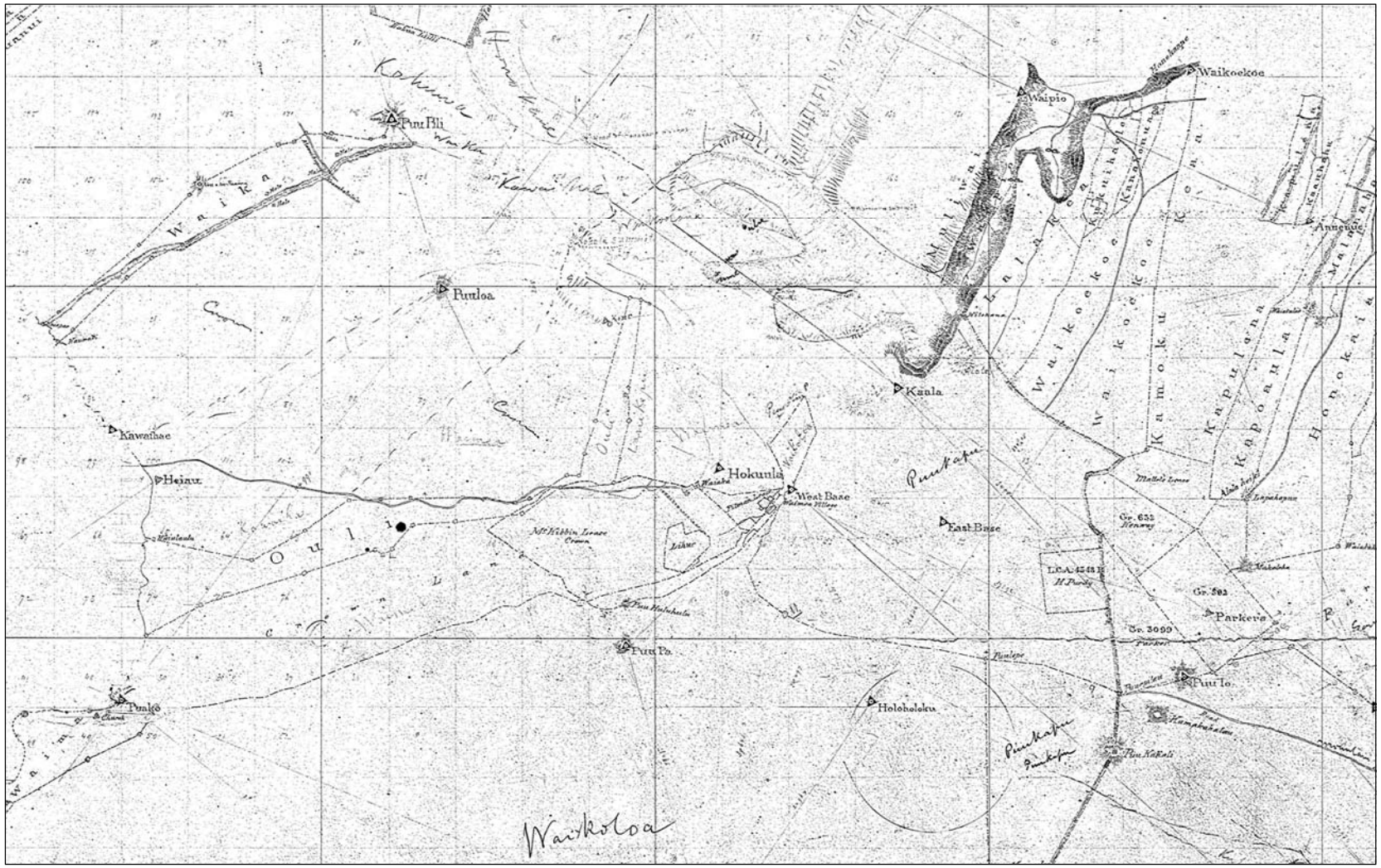


Figure 5. Portion of a North Hawai‘i Island map dating to the mid-late 1800s (Lyons n.d.).

Figure 6. Portion of a Puʻukapu Homesteads map (Kanakanui and Lutz 1913).

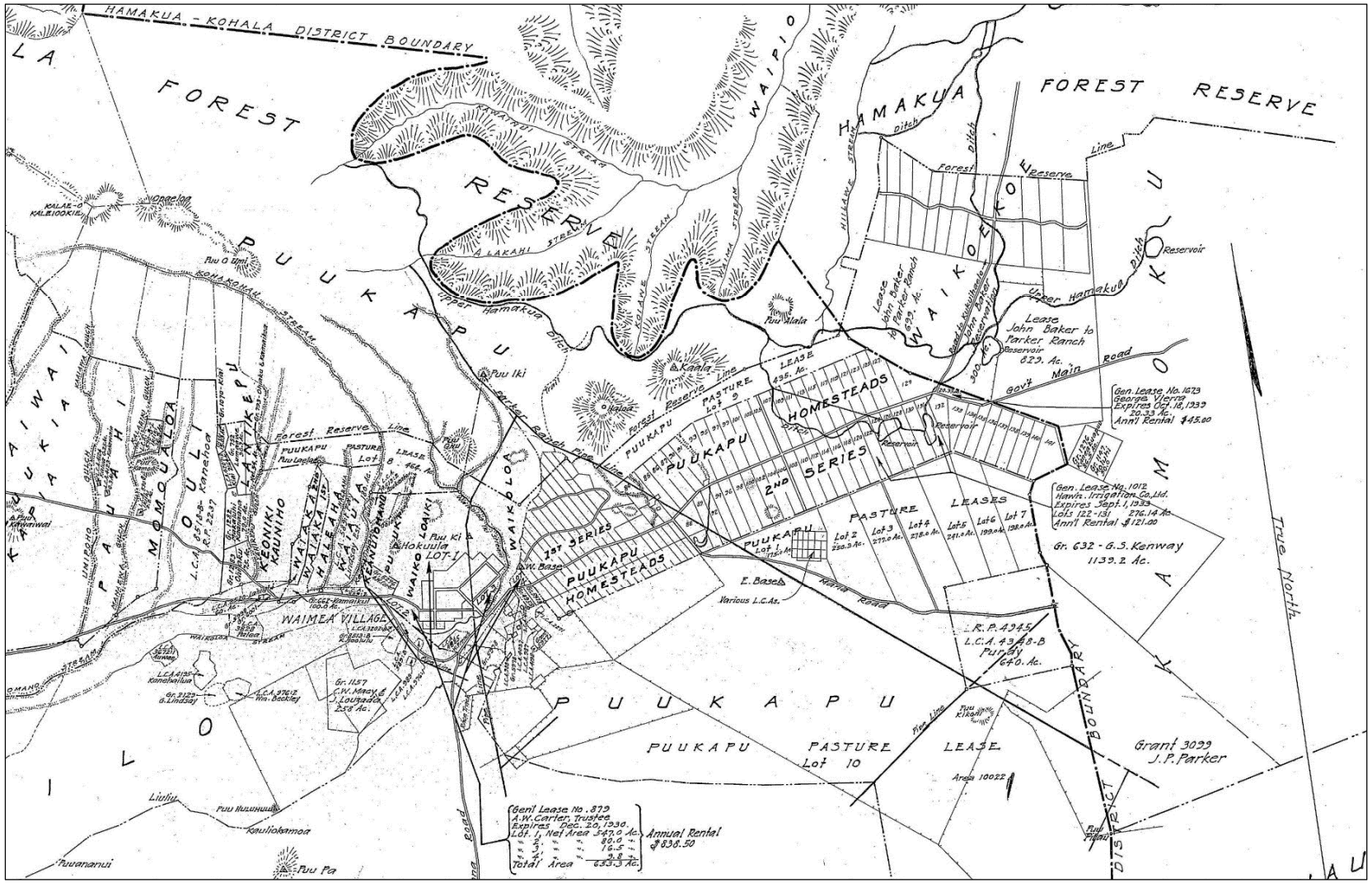


Figure 7. Portion of a Waimea Government Lands map (Wall 1928).

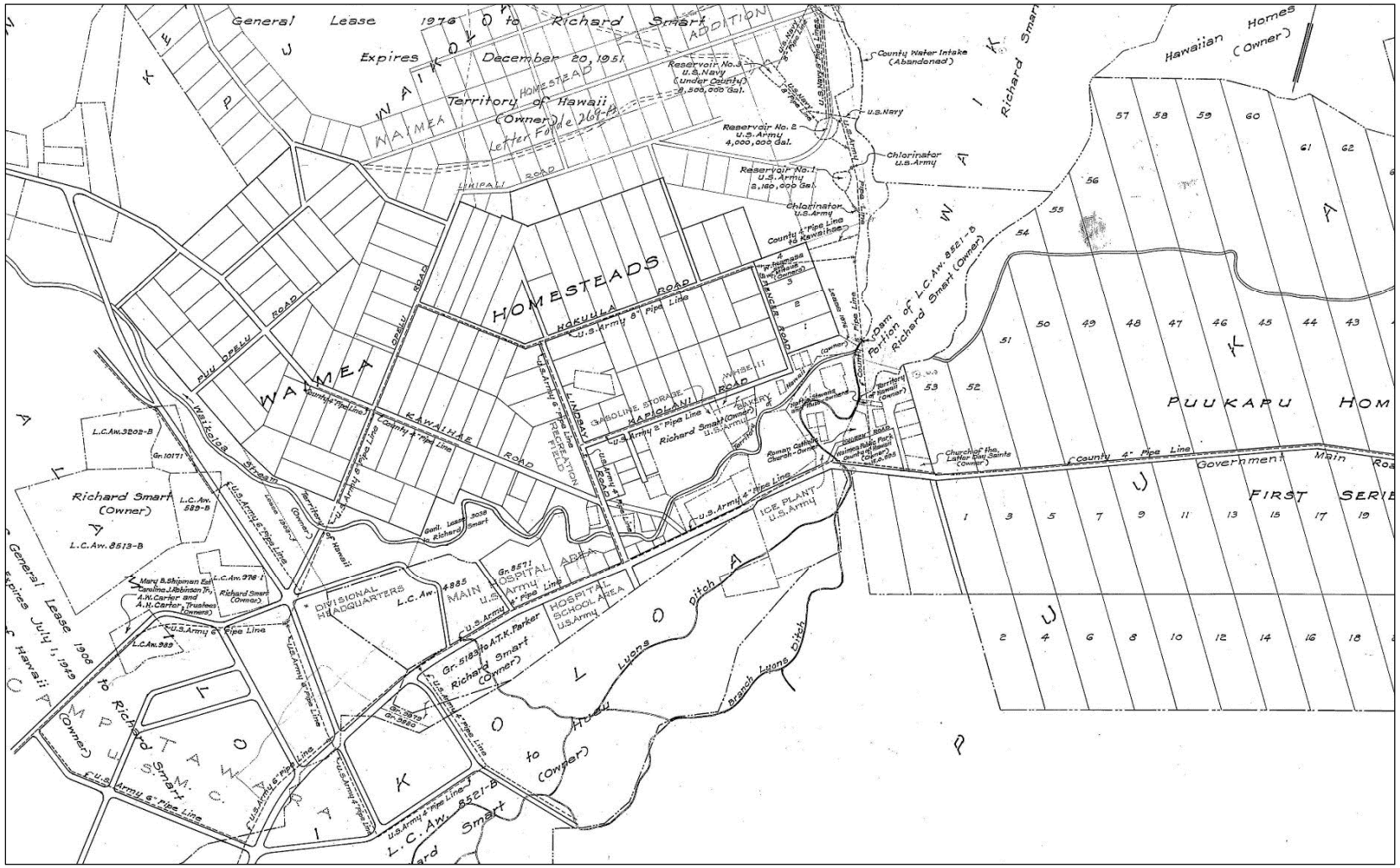


Figure 8. Portion of a South Kohala map (Marks 1945).

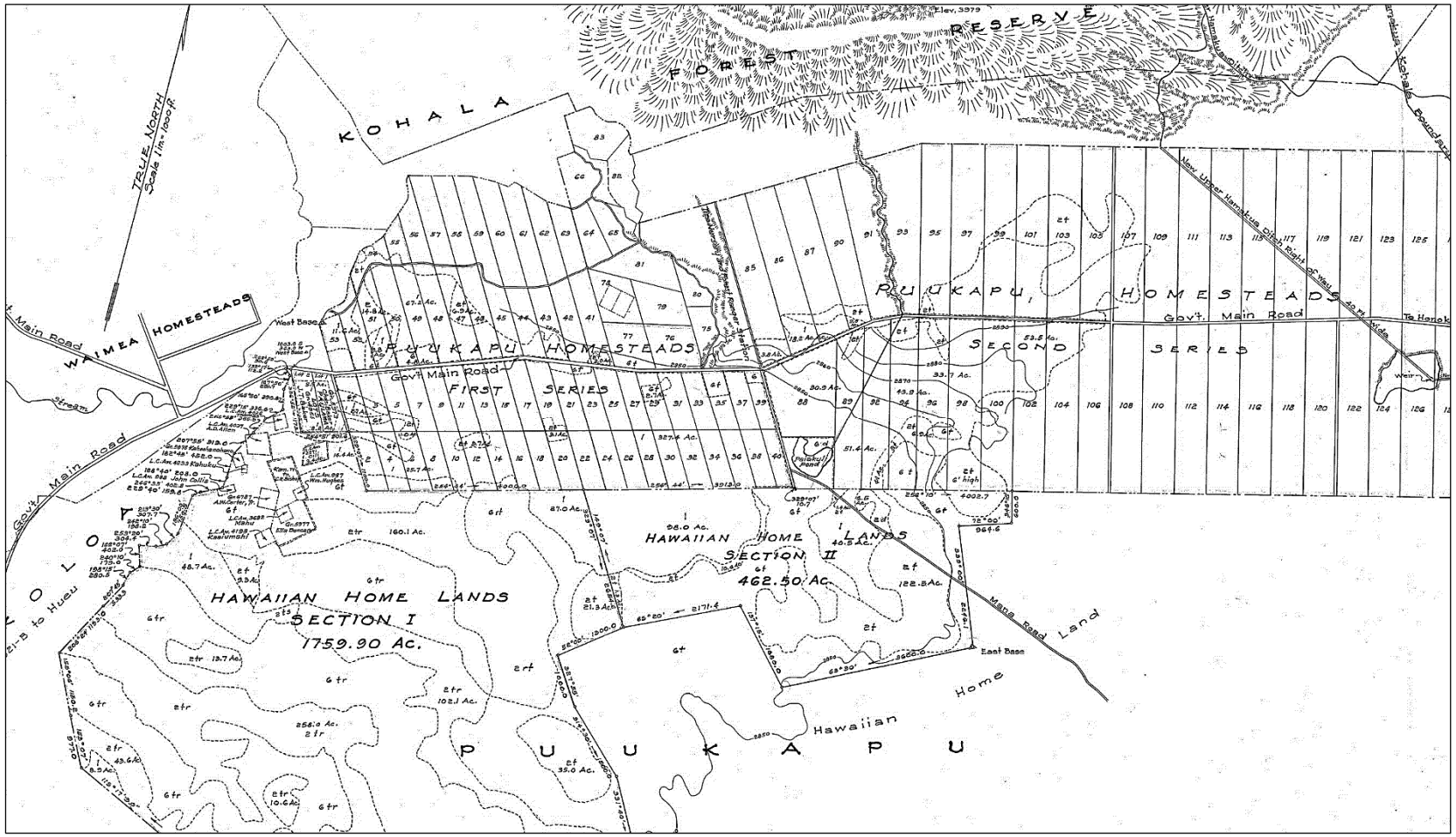


Figure 9. Portion of a land classification map of Waimea (Marks 1947).

I Ka Luna O Waimea by Keali‘ikaleo‘olaeaenuikaumanamana VIII Blaisdell

Aia i ka luna o Waimea	There, in the heights of Waimea
Pumehana ho‘i kāua	You and I share warmth
I ka ua e kipu‘upu‘u	From the cold rain
Me ka noe e a ka uhiwai	And the mist and fog

Source: Keali‘i Blaisdell’s CD “Malumaluakua” -This was written (07/08/2008) about a naughty little dream of Keali‘i and his wife up in Waimea, Hawai‘i. Having a lot of kaona, shall we say PG-13 rating? Translated by Keali‘i Blaisdell, Copyright 2008, Keali‘i Blaisdell (Lyrics and translation to this song and all other songs in this section along with their accompanied descriptions are from the www.huapala.org database compiled by Kanoa-Martin).

Hanohano E (traditional song)

Hanohano e o Kohala e	Majestic Kohala
I ka makani e apa‘apa‘a e	In the gales
Hanohano e o Waimea e	Majestic is Waimea
I ka ua e kipu‘upu‘u e	In the hard, cold rain

Source: McKee Collection “Sonny Cunha Music Book” Translated by Mary Pukui

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Nā Kuahiwi Kaulana by Bill Lincoln

Ho‘o komo i kau apo a‘o Mahukona	Let us go to Mahukona and
I ka nuku kaulana o ka ‘āina	Enter this famous land
Ahuwale nā Kuahiwi o Kohala	Mountains of Kohala are in plain view
Ke holo a‘ela mai uka a ke kai	That run from the uplands to the sea
Hu‘i hu‘i kai hona ao Waimea	Water of Waimea is cold
Me ka wai ili ula	The water burns the skin
Ka ua Kipu‘upu‘u	The chilly rain Kipu‘upu‘u
I ka ku‘i kā ‘olu o Kawaihae	The smooth pounding sea of Kawaihae
Ke one pua kea i ke kai hāwanawana	The white sand and whispering sea
Alawa a‘e ua	Let us glance up
I ka nani a‘o Maunakea	At the beauty of Mauna Kea
Pumehana i ka poli kaupu a‘o Maunaloa	Think of the heat in the heart of Mauna Loa
E ae ou Hualalai e ku‘u mai la	There is the top of Hualalai
Nā kuahiwi kaulana i ke kapa‘au	The famous mountains where the gods dwell

Source: G.Cooke collection Translation by Kanani Mana

A beautiful addition to the the musical compositions written about Waimea is the inclusion of songs that reference the *paniolo*, or Hawaiian cowboy. This is undoubtedly unique to the few locales throughout the islands where ranching dominated the community. Songs written about, for, and by Hawaiian cowboys are probably even more prominent in the Waimea-Kohala area where Hawai‘i’s cattle industry thrived. The following three songs are associated with the *paniolo*. The first, *Ka Waimea Swing,* mentions the partying of a cowboy in Waimea. The second, *Lepe ‘Ula‘ula*, is a Waimea love song about a cowboy. And the third, *Waiomina,* celebrates the victories that the handful

of Hawaiian cowboys stunned the world with when they traveled to Wyoming to compete in the annual cowboy competitions at Cheyenne. Here are the three songs:

Ka Waimea Swing by Thelma Sproat Bugbee, Music by Irmgard ʻAluli

Eia lā ka pō o ka wela lā	This is the gala night
Nui ana o ka leʻaleʻa lā	Fun and gaiety running high
Eʻoni ana nā poʻe sure kēla!	Everyone in action for sure!
Hele hula nā wāwae	All the dancing feet moving
Me ka Waimea swing	In the Waimea swing
Me ka Waimea swing	In the Waimea swing
Uʻi nā pua lei like ʻole lā	Flower lei(s) of beauty unmatched
Pūlehulehu nā pua aia lā	Bounty of floral beauty gathered here
Kani nā kīkala ma kāmaʻa lā	Harmony of jingling spurs and boots
Aia cowboy me ka Waimea swing	That's a cowboy dancing the Waimea swing,
Me ka Waimea swing	The Waimea swing
Kani wāhie mai ne nā pila lā	Music breaks into the beauty and gaiety
Hū maila kani waiolina lā	Pouring forth harmony in violins
Hui nā ʻukulele kīkā hōʻalu lā	Mingling with ʻukulele and slack-key guitar
Kani maila e ka Waimea swing	Raising the echo of the Waimea swing,
E ka Waimea swing	The Waimea swing
Ma ʻaneʻi mai a ma ʻō aku lā	Swing this way then that way
Huli ʻākau a huli hema lā	To the right and to the left
Hene mai nā ʻaka ʻana lā	Rippling laughter mingles
Holo ʻana (Hī! Hū!)	With shouts, "Hee, Hoo!"
O ka Waimea swing	Of the Waimea swing
O ka Waimea swing	Of the Waimea swing
Haʻina mai ka puana lā	This is the story told
Eia lā ka pō o ka wela lā	The gala night of whoopee
E ʻoni ana nā poʻe sure kēla!	Everybody in action for sure!
Hele hula nā wāwae	All the dancing feet moving
Me ka Waimea swing	In the Waimea swing
Me ka Waimea swing	In the Waimea swing

Source: Hailama Farden from Kani ka pila! The musical legacy of Irmgard Kealiʻiwahinealohanohokahaopuamana Farden ʻAluli. Translation by Thelma Bugbee

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Lepe ʻUlaʻula by Kaimanahila

Lepe ʻulaʻula lepe o ka moa	The red comb of the rooster
Ke hua kūlina `ai a ka pelehu	The corn eating turkey
Keiki mai au no Kawaihae	I am a lad from Kawaihae
No ke kipuka ʻili lawe a lilo	With a winning lasso
ʻElua wale iho hoʻi māua	Just the two of us
Ka hau hāliʻi aʻo Waimea	Covered by the dew of Waimea
I laila māua kukuni e ka hao	There, we two used the branding iron
Kokope e ka ʻiʻo kupu kukuʻi e ka papa niho	Scraped the flesh from the gums
Mai nō ʻoe a hoʻopoina	Never forget
I ka lawe haʻaheo ake kipuka ʻili	The lasso and the proud catch
Haʻina ʻia mai ana ka puana	Tell the refrain
Lepe ʻulaʻula lepe o ka moa	The red comb of the rooster

Source: This Waimea love story tells of a Big Island cowboy who uses his lariat to capture the object of his affection. Translator unknown

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Waiomina by Helen Parker

Kaulana Ikua me Kaʻaua, lā	Famous are Ikua and Kaʻaua
Naʻeu kīpuka ʻili	Both mischievous with the lariat
Na āiwaiwa ʻo Eulopa, lā	Both experts in Europe
Waimea e ka ʻeu	Waimea full of gusto
Ka ua Kīpuʻupuʻu	The hard rain named Kipuʻupuʻu
Kahua Waiomina	To the stadium of Wyoming
ʻOlua nā moho puna ke ao, lā	Both are delegates to the world championship
Naʻeu kīpuka ʻili	Both mischievous with the lariat
ʻAʻohe kupuʻeu nanā e aʻe, lā	No expert to excel you
Waimea e ka ʻeu	Waimea full of gusto
Ka ua Kīpuʻupuʻu	The hard rain named Kīpuʻupuʻu
Me ke anu aʻo Kaleponi	To the cold of California
Na ke kelekalapa i haʻi mai, lā	A telegraph brought us the word
Na ʻeu kīpuka ʻili	Of your mischievous lariats
Ikua e ka moho puni ke ao, lā	Ikua is the champion of the world
Waimea e ka ʻeu	Waimea full of gusto
Ka ua Kīpuʻupuʻu	The hard rain named Kīpuʻupuʻu
Nā kuahiwi ʻekolu	And the three mountains
Piha hauʻoli ou mau kini, lā	Your people are full of happiness
Na ʻeu kīpuka ʻili	Of your mischievous lariats
Kaulana ka ua Kīpuʻupuʻu, lā	Famous is the Kipuʻupuʻu rain
Waimea e ka ʻeu	Waimea full of gusto
Nā kuahiwi ʻekolu	The three mountains
Kahua Waiomina	The stadium of Wyoming

Haʻina hou mai ka puana, lā	Tell the refrain
Na ʻeu kīpuka ʻili	Of your mischievous lariats
Ke kaula ʻili aʻo kani ka uwepa, lā	The sound of the lariats
Waimea e ka ʻeu	Waimea full of gusto
Nâ kuahiwi ʻekolu	The three mountains
Waimea e ka ʻeu	Waimea full of life

Source: Penny Keliʻi —When the Waimea paniolo went to Cheyenne in 1907, they scouted the world's largest rodeo and decided they could compete and probably do well. They signed up to compete and returned the next year, 1908, with approximately 5 or 6 paniolo. They were well received and the Hersig Ranch loaned some of their best horses to our paniolo to use in the competition. Rancher Hersig was a good friend of Eben Low. Eben Low competed with only one hand, his right hand had been yanked off years before while roping cattle in Hawaiʻi. Jack Low, Eben's brother, had an asthma attack but competed anyway placing 6th in the competition. Ikua Purdy's average roping time was 56 seconds, and won him 1st place, stunning the rest of the competing cowboys. Archie Kaaua came in 3rd.

Finally there is the song *Nani Waimea.* This song is simply a proud tribute to the area. The composer is moved to express his love for his home there. Here is a portion of this musical tribute:

Nani Waimea by Sam Koki

Nani Waimea	Beautiful Waimea
Kuʻu home Kamuela	My home in Kamuela
Lei o ka heke	Best wreath
Lei o Hawaiʻi	Wreath of Hawaiʻi
Kuʻu pua milimili	My flower to caress
Anuanu Humuʻula ē	Coolness of Humuʻula
Kuʻu ʻāina aloha	Land that I love
ʻĀhē nani Waimea	Yes, Waimea is beautiful

Source: Humuʻula is a place name on the slopes of Mauna Kea.

Contemporary History

The first half of the 1900s saw Parker Ranch dominating the Waimea countryside. By then, Waimea had a few stores and a boarding house, but the economy was centered on its shipment of cattle to the outside markets. Under the management of A.W. Carter, more lands were purchased; more irrigation ditches were constructed; and a concentrated effort was made to breed better cattle and horses. Carter even ventured to train horses for polo and to provide cavalry horses for the U.S. military. He was succeeded as manager of the ranch by his son A.H. Carter in 1937 (Wilkinson et al. 2013).

In 1943, the Army leased from Parker Ranch approximately 91,000 acres of land for military training. Both the Army and the Marines utilized this land for battle maneuvers. The military 'camp' was initially named Camp Waimea, but then it was called Camp Tarawa. Its center of operations was located south of today's Waimea Town, near the current project site at Puʻukapu. The camp was abandoned in 1946 after the end of World War II. The camp infrastructure went into ruins, and the lands reverted back to Parker Ranch. When Parker Ranch's lease expired, these former Crown Lands reverted to the Department of Hawaiian Home Lands (Wilkinson et al. 2013).

The project area lies within Sector 15 of the Waikoloa Maneuver Area Formerly Used Defense Site (FUDS). This is a 123,000 acre area of Waimea and Waikoloa acquired by the Navy in 1943 (U.S. Army Corps of Engineers 2013). Approximately 50,000 troops were sent there from 1943–1945 to participate in live fire training exercises and troop maneuvers. Although surface clearing of unexploded ordnance (UXO) was conducted in 1946 and again in 1954, munitions and explosives are still being discovered in the Former Waikoloa Maneuver Area FUDS. To date, more than 22,600 acres of the Waikoloa Maneuver Area have been surface cleared of UXO, with a wide variety of munitions, explosives, and military debris removed. Clean up and investigative studies are ongoing.

Today, the lands of Waimea around this project site are still under the Department of Hawaiian Home Lands and designated for community and agricultural use. The current lessees use the land for cattle grazing.

The Hamakua Ditch

An offshoot of the Upper Hamakua Ditch runs through the Puʻukapu Homesteads, to the east of the project area. The main ditch was completed in January 1907 to divert water from tributaries of Wailoa Stream in Waipiʻo Valley for use as irrigation in sugarcane fields and for fluming at the sugar mills of the Hāmākua Coast (Wilcox 1996). At first, the ditch was not properly lined, and by 1915 average flow decreased by more than half, with the flumes and associated mountain trails badly deteriorating. The ditch was repaired at high cost and "boasted some of the best dressed-stone work in Hawaii" (Wilcox 1996:149). By 1921 much of the ditch had been rerouted and other parts were enlarged so by that time, none of the original ditch was in use. Even with the repairs, the ditch was unsuccessful, in part because of the inconsistent water source.

The Upper Hamakua Ditch was appropriated by the territorial government in 1948, but further repairs were not undertaken until the late 1980s. At this time the Alakahi and Koʻiawe sections were reconstructed and the Puʻu ʻAlalā section was abandoned. Water was diverted to homes and farms in Waimea, including the Puʻukapu Homesteads and the Lālāmilo Farm Lots. Nothing is left of the original 1907 ditch, although a few miles of the 1915 ditch can still be seen today (Wilcox 1996:150).

Previous Archaeology

The undertaking of archaeological work in the areas around Waimea has only started relatively recently, although a large amount of work has taken place. The following chronological review of archaeological studies summarizes reports found in the SHPD Kapolei library (Figure 10 and Table 2).

In 1981, an archaeological survey was conducted at the proposed Lālāmilo Agricultural Park (Clark 1981). A total of 321 historic properties were identified, and all were associated with the Waimea agricultural system. All of the irrigation ditches, to include the well-known "Akona's ʻAuwai", were designated as Site 9179.

In 1983, 4,561 archaeological features were identified during an investigation of the Mudlane-Waimea-Kawaihae road corridor (Clark and Kirch 1983). Numerous habitation and agricultural sites were recorded along with one dendritic irrigation system, possibly connected to "Akona's ʻAuwai", and designated as Site 2684. A portion of Section 4 of the extensive project area overlaps with the current study. Although no archaeological sites were found within the current area of study, 20 sites were located along Section 4 (Sites 8800–8819). These include C-shaped and U-shaped shelters, alignments, enclosures, terraces, walls, platforms, mounds, and agricultural fields.

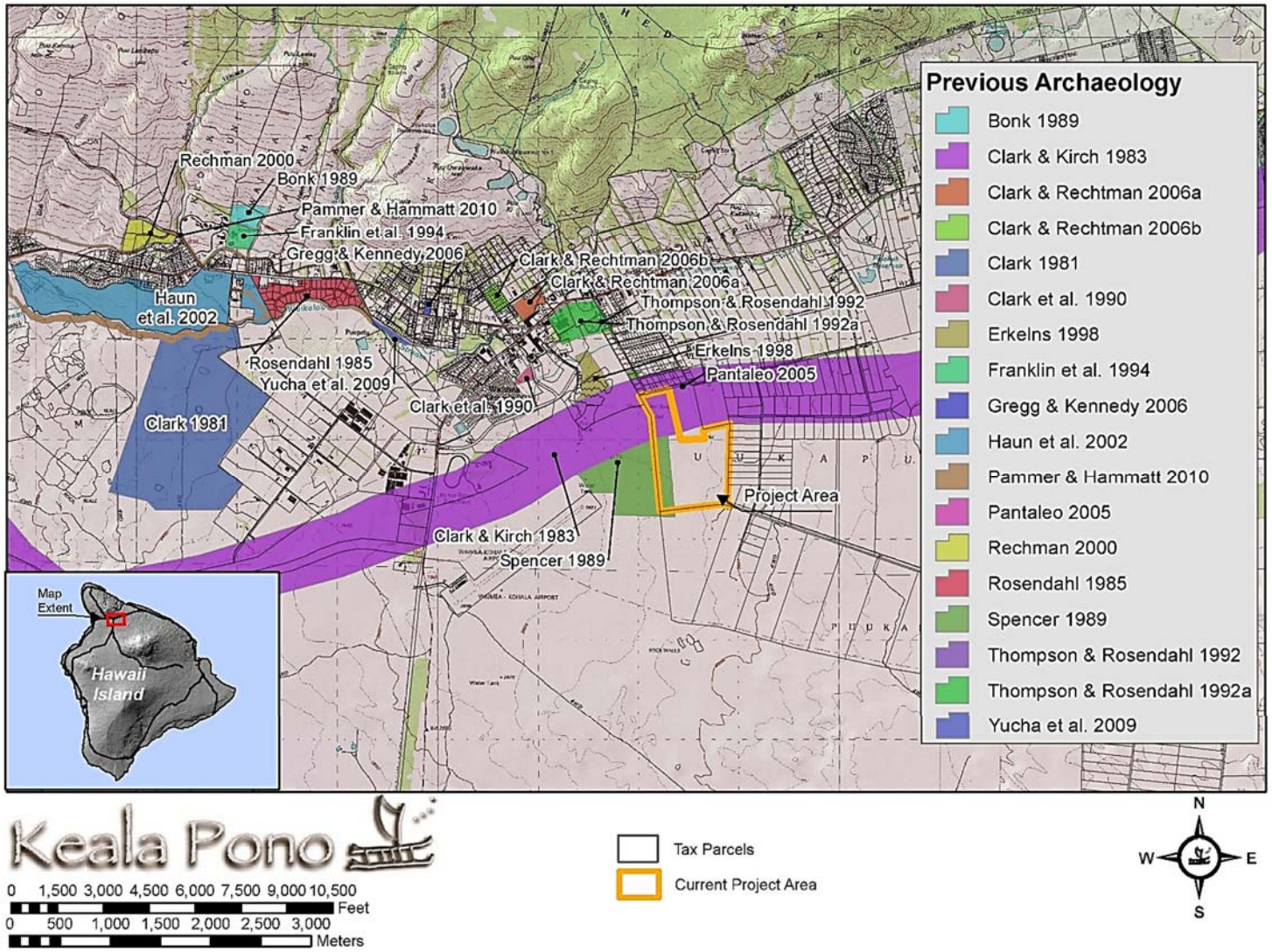

Figure 10. Previous archaeological studies in the vicinity of the project area.

Table 2. Previous Archaeological Studies in the Vicinity of the Project Area

Author	Year	Location	Work Completed	Findings
Clark	1981	Near Lālāmilo Agricultural Park	Archaeological Survey	Identified 321 historic properties associated with the Waimea agricultural system. All irrigation ditches including "Akona's 'Auwai" designated as Site 9179.
Clark and Kirch	1983	Mudlane-Waimea-Kawaihae road corridor	Archaeological Investigation	Identified 4,561 archaeological features. Dendritic irrigation system designated as Site 2684.
Rosdendahl	1985	Kawaihae Reservoir No. 1	Archaeological Reconnaissance	No findings.
Hammatt and Borthwick	1986	Lālāmilo Houselots	Archaeological Reconnaissance	Identified eight historic properties typical of the Waimea agricultural system.
Hammatt et al.	1988	Lālāmilo Houselots	Archaeological Inventory Survey and Subsurface Testing	Recorded artifacts and midden dating to the late prehistoric period.
Bonk	1989	Near Hawai'i Preparatory Academy	Archaeological Reconnaissance	Identified various agricultural terraces.
Hammatt and Shideler	1989	Lālāmilo Houselots and Ka La Loa Subdivision	Data recovery	Documented possible sweet potato farming with agricultural intensification over several centuries.
Spencer	1989	Lālāmilo	Archaeological Investigation	No findings.
Clark et al.	1990	Waimea School	Archaeological Testing and Data Recovery	Recovered charcoal samples dating to AD 1449–1674.
Thompson and Rosendahl	1992a	North Hawai'i Community Hospital	Archaeological Inventory Survey	Identified an agricultural field complex (Site 18054) and an irrigation system (Site 16095).
Thompson and Rosendahl	1992b	Waimea Elderly Housing	Archaeological Inventory Survey	Further documented Site 16095, previously recorded irrigation system.
Barrera	1993	Sandalwood Estates	Archaeological Inventory Survey	Identified an agricultural field complex (Site 14948).
Barrera	1994	Lanikepu and 'Ōuli	Archaeological Inventory Survey	Identified 43 properties from the pre-contact and historic periods including trails, walls, burials, 'animal barriers', agricultural, and habitation sites.
Franklin et al.	1994	Hawai'i Preparatory Academy	Archaeological Inventory Survey	Identified a historic habitation terrace (Site 19648), a cemetery (Site 19649), and five mixed habitation-agricultural sites (Sites 19643–19647).

Table 2. (continued)

Author	Year	Location	Work Completed	Findings
Erkelens	1998	Pukalani	Archaeological Investigation	Identified a corral (Site 19419), a veterinary office (Site 19418), the Pukalani stables and blacksmith shop (Site 19417), the Duncan-Lanakila Cemetery (Site 19416), and the *kuleana* lots (Site 8812).
Nees and Williams	1998	Camp Tarawa	Archaeological Monitoring	Identified a C-shaped feature (Site 21325), an enclosure remnant (Site 21326), and 96 WWII artifacts and artillery fragments.
Wolforth	1999	North Hawai‘i Community Hospital	Data Recovery	Recorded subsurface features and collected sediment samples.
Rechtman	2000	TMK: 3-6-2-001:091	Archaeological Inventory Survey	Identified a historic trash dump (Site 18579) and several agricultural features (Site 18581).
Haun et al.	2002	DHHL at Lālāmilo	Archaeological Inventory Survey	Documented 819 features (walls, mounds, enclosures, platforms, irrigation ditches, and field boundaries) within 76 historic properties.
Kikiloi et al.	2002	Waimea Trails and Greenway	Literature Review and Field Inspection	Assessed five areas according to potential for cultural resources, terrain type, and degree of urbanization.
Pantaleo	2005	Kanu O Ka ‘Aina Learning Center at Pu‘ukapu	Archaeological Assessment	No findings.
Clark and Rechtman	2006a	TMK: 3-6-5-004:025 and 063	Archaeological Inventory Survey	Identified an *‘auwai* (Site 26682), a wooden structure (Site 26683), and two historic walls (Sites 26680 and 26681).
Clark and Rechtman	2006b	TMK: 3-6-5-4:029, 030, and 050	Archaeological Monitoring	Documented a stone-concrete decorative feature (Feature H of previously recorded Site 24168).
Gregg and Kennedy	2006	TMK: 3-6-5-002:043	Archaeological Assessment	No findings.
Yucha et al.	2009	Waimea Trails and Greenway	Archaeological Inventory Survey	Identified a concrete ford and connecting roadway (Site 26873), an earthen ditch determined to be part of “Akona’s ‘Auwai” (Site 26872), and WWII infrastructure from Camp Tarawa (Site 26871).
Pammer and Hammatt	2010	Waimea Trails and Greenway	Literature Review and Field Inspection	Identified seven historic properties consisting of alignments, enclosures, walls, and terraces.
McElroy and Duhaylonsod	in prep.	Current Project Area	Archaeological Inventory Survey	Identified Site 30194, a possible complex; and Site 30195, an alignment.

In 1985, an archaeological reconnaissance survey was done at Kawaihae Reservoir No.1 (Rosendahl 1985). No historic properties were found, and no further work was recommended.

In 1986, a reconnaissance survey was conducted at the proposed site of the Lālāmilo house lots (Hammatt and Borthwick 1986). Eight historic properties were identified, and they were determined to be similar to the Waimea Agricultural System. As a follow up to the reconnaissance survey, 12 acres were designated for further work and inventoried in 1988. Subsurface testing indicated that the area was a habitation-agricultural complex, and the artifacts and midden that were uncovered dated the site to the late prehistoric period (Hammatt et al. 1988). In 1989, data recovery and radiocarbon dating of these properties suggested possible sweet potato farming with a gradual intensification of agriculture in the area over several centuries (Hammatt and Shideler 1989).

Also in 1989, an archaeological reconnaissance survey was completed near the Hawai‘i Preparatory Academy in Waimea (Bonk 1989). Various agricultural terraces were recorded but no irrigation ditches were found. Also, no habitation sites were identified in the survey. Additional mapping of the terraces and data recovery were recommended.

Also in 1989, an archaeological investigation was conducted at Lālāmilo for an irrigation pipeline and for a livestock distribution and management area (Spencer 1989). A portion of this investigation overlaps with the west side of the current area of study. No historic properties were observed, and no further work was recommended.

In 1990, archaeological testing and data recovery was conducted at Waimea School (Clark et al. 1990). Focusing on the previously recorded Site 8808, three irrigation ditches were studied, and it was concluded that there was a possible mix of historic and pre-historic construction. Charcoal samples from a lower subsurface lens yielded dates in the range of AD 1449–1674.

In 1992, an inventory survey was conducted for potential sites of the North Hawai‘i Community Hospital (Thompson and Rosendahl 1992a). Among the sites identified were an agricultural field complex, Site 18054, and an irrigation system, Site 16095. The irrigation system was further documented after additional adjacent lands for the Waimea Elderly Housing were surveyed (Thompson and Rosendahl 1992b). Archaeological monitoring was recommended.

In 1993, an archaeological inventory survey was conducted on approximately 50 acres of the Sandalwood Estates (Barrera 1993). A complex of agricultural field borders were recorded through subsurface testing. The complex was designated as Site 14948, and no further work was recommended.

In 1994, an inventory survey was conducted for the campus expansion of Hawai‘i Preparatory Academy Waimea (Franklin et al. 1994). Seven archaeological sites were identified, two of which were determined to be significant, Site 19649, a cemetery, and Site 19648, a historic habitation terrace. The other five sites had a mix of habitation and agricultural functions. These were given the site numbers 19643–19647.

Also in 1994, an inventory survey was conducted over 250 acres in Lanikepu and ‘Ōuli (Barrera 1994). A mix of 43 pre-contact and historic properties were identified, comprised of trails, walls, burials, ‘animal barriers’, and agricultural and habitiation sites.

In 1998, land around the *kuleana* lots in Pukalani were investigated (Erkelens 1998). Five historic properties were identified: the *kuleana* lots, Site 8812; the Duncan-Lanakila Cemetery, Site 19416;

the Pukalani stables and blacksmith shop, Site 19417; a veterinary office, Site 19418; and a breaking corral, Site 19419.

Also in 1998, while monitoring the investigation of unexploded ordnance at Camp Tarawa, two historic properties and approximately 96 WWII-era artillery fragments and other artifacts were identified (Nees and Williams 1998). The two sites recorded were an enclosure remnant, Site 21326, and a C-shaped feature, Site 21325.

In 1999, subsurface features were identified during a data recovery project at the North Hawai‘i Community Hospital (Wolforth 1999). In addition, sediment samples were collected for palynological analysis and radiocarbon dating while investigating an irrigation ditch of the Lālāmilo Field System.

In 2000, there was a survey of TMK: 3-6-2-001:091, in the vicinity of the project area (Rechtman 2000). Several previously recorded sites were assessed, and two new sites were identified: a historic trash dump, Site 18579; and several agricultural features, Site 18581.

In 2003, an area was surveyed in Lālāmilo for the Department of Hawaiian Home Lands (Haun et al. 2002). Numerous mounds, walls, enclosures, platforms, irrigation ditches, and field boundaries were identified, for a total of 819 features within 76 historic properties.

Also in 2002, a field inspection and literature review was conducted for the proposed Waimea Trails and Greenway Project (Kikiloi et al. 2002). The project area was broken down and categorized into five different zones based on the potential for cultural resources, terrain type, and degree of urbanization.

In 2005, an archaeological assessment was conducted of 15 acres in Pu‘ukapu for the proposed Kanu O Ka ‘Aina Learning Center (Pantaleo 2005). No cultural resources were identified in the surface survey or during subsurface testing. No further archaeological work was recommended.

In 2006, an archaeological inventory survey was conducted on TMK: 3-6-5-004:025 and 3-6-5-004:063 (Clark and Rechtman 2006a). Four historic properties were identified: a historic wooden structure probably erected in WWII; an *‘auwai* which ran parallel to the Waikōloa Stream; and two historic walls.

Also in 2006, archaeological monitoring was carried out during the construction of the Waimea Parkside Residential Subdivision (Clark and Rechtman 2006b). No new sites were identified during the monitoring, but a decorative pond-like feature was recorded and added as Feature H to the previously recorded Site 24168. In addition, midden, historic trash, and two adze fragments were documented in the area.

In another project in 2006, no historic properties were observed during an archaeological assessment of TMK: 3-6-5-002:043 (Gregg and Kennedy 2006).

In 2009, there was a survey of several portions of TMK: 3-6-5-003:004 in the Waimea Trails and Greenway Project area (Yucha et al. 2009). Three historic properties at the Waikoloa Stream were recorded: a concrete ford and connecting roadway, Site 26873; an earthen ditch, Site 26782; and a WWII-era site associated with Camp Tarawa, Site 26871. This latter site was made up of two features, a damaged concrete bridge and a paved road remnant. Site 26783 was determined to be a remnant of a 20th century roadway, and Site 26782 was found to be part of the previously recorded “Akona’s ‘Auwai”. Furthermore, Site 26782 was recommended for preservation due to meeting the Hawai‘i Register’s Criteria A and D of site significance.

In 2010, 14 historic properties were documented in other work for the Waimea Trails and Greenway Project while conducting a literature review and field inspection for some trail developments (Pammer and Hammatt 2010). Of the 14 sites documented, seven were previously recorded, and seven were newly identified sites. It was stated that more data is needed to assess the significance of the newly identified sites. Two of the previously recorded sites, Site 18588 and Site 18590, were recommended for preservation.

An archaeological inventory survey at the current project area identified two surface sites (McElroy and Duhaylonsod in prep.). Site 30194 is a possible complex including a modified outcrop, and Site 30195 is a cobble alignment. A metal fragment and animal bone were recovered from one of the features of Site 30194. Subsurface testing in the form of backhoe trenches did not yield any evidence of subsurface cultural material or deposits.

Summary and Settlement Patterns

Waimea, on the island of Hawaiʻi, has its origin at the dawn of time when the earth mother Papa and the sky father Wākea dwelled together, and Hawaiʻi was born. This same Hawaiʻi was to become the ancestor of the Hawaiian people (Kamakau 1991).

Evidence such as radiocarbon dating, avifaunal extinctions, and vegetation change suggest that the major colonization of the Hawaiian Islands occurred around AD 700–800 (e.g., Athens et al. 2002:57). The initial settlers came from other Pacific Islands looking for a new home that was accessible to the sea and able to sustain their new population with drinking water and food resources. Although the Waimea area was rich with water and food resources, it was relatively far from the canoe landing sites on the shores and far from the abundance that the ocean provided. Rudimentary farming in this upland area of Hawaiʻi Island didn't start until AD 1100–1200, many centuries after initial colonization of the islands (Bergin 2004). Initial habitation on the *makai* edges of Waimea commenced around AD 1300–1400, and its permanent upland habitation along with the more intense and complex agricultural systems developed there during the 1600s–1800s (Bergin 2004).

The expansion of settlement to the interior of Waimea and its accompanying intensification of agriculture marked a pre-contact era that was full of political and economic change. Waimea saw a relatively quick succession of rulers in the 1700s from Chief Alapaʻinui (Alapaʻi) to Chief Keaweʻōpala to Chief Kalaniʻōpuʻu to Chief Kalanikauikeaolikīwalaʻō (Kīwalaʻō) and finally to King Kamehameha who eventually united all the Hawaiian Islands under his throne (Kamakau 1996[1866]). By the time of Kamehameha's rule, Western explorers had just found their way to Hawaiʻi. The arrival of Westerners spurred Waimea's growth of sandalwood harvesting and various agricultural ventures; the introduction of Waimea's Christian missions; and the development of Waimea's ranching industry which also helped support the whaling industry at Hawaiʻi Island's ports.

As Western capitalism transformed Waimea into the following century, it was complemented with the proclamation of the Māhele and other new laws in the mid-1800s concerning land ownership (Moffatt and Fitzpatrick 1995). Most, if not all, of Waimea remained in the hands of the *aliʻi* as Crown Lands, and the *aliʻi*, interested in supporting the flourishing ranching industry, leased a major portion of the Waimea Crown Lands to ranchers. Among those ranchers was John Palmer Parker who started Waimea's successful Parker Ranch, an enterprise which dominated the Waimea landscape throughout most of the 20th century.

Prior to the start of the 20th century, the Hawaiian monarchy was overthrown and there was a subsequent annexation of Hawaiʻi as an American territory. As a result, the Crown Lands were confiscated by the self-appointed Provisional Government and later given to the U.S.-appointed

Territorial Government (Kame‘eleihiwa 1992). However, as stated above, the ranching operations in Waimea continued throughout the 20th century. For a short time period around the Second World War, Parker Ranch leased a portion of its Waimea lands to the U.S. military for training purposes. A military camp was built, first called Camp Waimea and later renamed Camp Tarawa. After the war, the military training there ceased and the land went back to Parker Ranch operations. When Parker Ranch’s lease expired in the 1980s, these former Crown Lands of Waimea became administered by the State Department of Hawaiian Home Lands where it remains today designated for community and agricultural use.

ETHNOGRAPHIC SURVEY

As we all know, there are some things that cannot be found in the archives, in textbooks, or at the library. It is here, through the stories, knowledge and experiences of our *kama'āina* and *kūpuna*, that we are able to better understand the past and plan for our future. With the goal to identify and understand the importance of, and potential impacts to, traditional Hawaiian and/or historic cultural resources and traditional cultural practices of Waimea, ethnographic interviews were conducted with community members who are knowledgeable about the project area.

Methods

This Cultural Impact Assessment was conducted through a multi-phase process between August and September 2014. Guiding documents for this work include The Hawai'i Environmental Council's Guidelines for Assessing Cultural Impacts, A Bill for Environmental Impact Statements, and Act 50 (State of Hawai'i). Personnel involved with this study include Windy McElroy, PhD, Principal Investigator of Keala Pono Archaeological Consulting, Dietrix Duhaylonsod, BA, Archival Researcher, and U'ilani Macabio, BA, Ethnographer.

Consultants were selected because they met one or more of the following criteria: 1) was referred by Keala Pono Archaeological Consulting or Group 70; 2) had/has ties to the project area or vicinity; 3) is a known Hawaiian cultural resource person; 4) is a known Hawaiian traditional practitioner; or 5) was referred by other cultural resource professionals. Four individuals participated in the current study. *Mana'o* and *'ike* shared during these interviews are included in this report.

Interviews were taped using a digital MP3 recorder. During the interviews, consultants were provided with a map or aerial photograph of the subject property, the Agreement to Participate (Appendix A), and Consent Form (Appendix B), and briefed on the purpose of the Cultural Impact Assessment. Research categories were addressed in the form of open questions which allowed the consultant to answer in the manner that he/she was most comfortable. Follow-up questions were asked based on the consultant's responses or to clarify what was said.

Transcription was completed by listening to recordings and typing what was said. A copy of the edited transcript was sent to each consultant for review, along with the Transcript Release Form. The Transcript Release Form provided space for clarifications, corrections, additions, or deletions to the transcript, as well as an opportunity to address any objections to the release of the document (Appendix C). When the forms were returned, transcripts were corrected to reflect any changes made by the consultant.

The ethnographic analysis process consisted of examining each transcript and organizing information into research themes, or categories. Research topics include place names, traditional land use and archaeological sites, cultural practices and gathering, *mo'olelo* and superstitions, *mele* and *oli*, reminiscences, change through time, ranching, and concerns and recommendations. Edited transcripts are presented in Appendices D–F).

Consultant Background

The following section includes background information obtained from each consultant during the interviews. This includes information on the consultant's *'ohana* and where the consultant was born and raised. Consultants include Sonny Keakealani, Allen "Uncle Uku" Lindsey, Mark Yamaguchi, and a *kupuna* who wished to remain anonymous.

Sonny Keakealani

Robert "Sonny" Keakealani, Jr. was born in 1943 in Kohala. He grew up in Puʻuanahulu and graduated from Kohala High School. His mother was from South Kona, with the maiden name of Maunu, while his father was from Puʻuanahulu. He comes from a long line of Puʻuanahulu cowboys on his father's side, beginning with his great-great grandfather. After high school he went to Hawaiʻi Technical School to learn the art of welding. He then worked as a *paniolo* for many years.

Allen "Uku" Lindsey

Allen "Uncle Uku" Naeʻa Lindsey was born in 1931 in Waimea at Halekea. He was raised in Waimea with Hawaiian and ranching values and comes from a long line of Waimea genealogy. Uncle Uku attended Waimea School, and later transferred to Kamehameha High School. He worked for Parker Ranch as a horse trainer since he was 14 years old, for $2 a day. He was raised with a strict ranch lifestyle and is a man of ranching innovation. He has been married to Malia Pacheco for 51 years. Together they raised four daughters in Waimea.

Mark Yamaguchi

Mark Yamaguchi comes from a renowned lineage of *paniolo*, including his father, Jiro, and his grandfather, Matsuichi. Matsuichi Yamaguchi came from Hiroshima, Japan to Waimea and was the first Japanese cowboy for Parker Ranch. Although Matsuichi suffered a fatal horseback riding accident in the 1930s, Jiro persevered in the industry and became one of the most decorated rodeo cowboys in Hawaiʻi. Following in the tradition of his family, Mark Yamaguchi worked as a *paniolo* and foreman for Parker Ranch for many years.

Anonymous *Kupuna*

The interviewee was born in Kohala in 1940. Her family comes from Lapakahi, Kohala. She comes from a long line of Hawaiian healers. Her grandmother raised her. Today, she is a widely known *lomilomi* and *lāʻau lapaʻau* practitioner.

Topical Breakouts

A wealth of information was obtained through the oral interviews. Quotes from the interviews are organized in the following sections by topic. Topical breakouts include place names, traditional land use and archaeological sites, cultural practices and gathering, *moʻolelo* and superstitions, *mele* and *oli*, reminiscences, change through time, ranching, and concerns and recommendations.

Place Names

> See, Kohala is the oldest place on this island, right? Mahukona in that area, below the sea, now before long time ago they used to have this volcano that was called Mahu, not Mahū. And it's now in the ocean. And people who knew that this mountain that caused the Kohala area, would come from wherever, far away parts of this island, and would come there. And this is what my *tūtū* shared with me, and of course my dad too. People would say, "'*Auhea kou Mahu*? Where is this mountain?" And they would say, "Kona." Kona. So that's how Mahukona got its' name. And that's one of the stories that I know from my grandma who raised me because she married into that family, who were originally the ʻAwaikumuhonua. When the missionaries came they dropped the Kumuhonua because it told what you were, teachers of the earth. Because they planted things for medicine they cut off that Kumuhonua and they only kept the name ʻAwai. So they shortened the name, and many Hawaiian people did that. Because before they only had one name and most of the names

that they took or they had, pretty much said what they were or what they did. It told the story. [Anonymous]

Was before, we had a corral before over there, but it's all the houses. Holoholokū housing. Which they get wrong name. It is not Holoholokū, that's Pukalani over there. [Sonny Keakealani]

That where they used to call Yotaka Pen. [Mark Yamaguchi]

Below the stable, that's Puhihale Stable…That is the stable below Pukalani [Mark Yamaguchi]

When the wind come down that's why they say *puhi*, and *hale* was the stable. [Sonny Keakealani]

It is not Honokāne, it is Kehena. You are on Pololu ridge. When you look down this way that is Honokāne Nui. When you go Pololu, then you look out it is Honokāne Iki. Then from here from Pololu, you can see Awini. When you at Pololu you look across. Then when, you in the back of Kehena, you can see all the trail on Honokāne. And then when look this side you are on Pololu ridge. When you go on the north side, you going toward Awini. Then you going hit Honokāne Iki, Waimā, and then come across to Waipio. Hiʻilawe is in the back here, by Lalakea. [Sonny Keakealani]

Well you know like now how the thing changed, all the *haoles* came in, see. They wanna run everything their way. But you see they put Hawaiian names and they don't know the meaning. Like um….Kanehua. You get two Kanehuas going Kawaihae. I told Dr. Bergen about his Kanehua, he never believe me. I said, "You know that's a male prostitute." *Kane* is man, *hua* is a prostitute. He tell me, "Why you tell me that now?" I said, "Because you went buy um, you in the prostitute area." He said, "But I'm not a prostitute." I said, "Well you gotta live with it, you know." Now if anybody like buy when I get older, maybe I can sell um. If they like be one male prostitute they can maybe. You get all your things in there, so remember what Uku wen' teach you— Kanehoa, male prostitute [laughs]. [Allen Lindsey]

Traditional Land use and Archaeological Sites

No more [archaeological sites or burials] over there. [Mark Yamaguchi]

No, as far as working the area. There were no area of practices like. No more, it was just under the Parker Ranch lease, the land. We just were employed by Parker Ranch and wen' work cattle, that's when we were in the area. As far, as we worked in the area corner to corner, there were no burial sites like that. The only part had in there was airport lights. You know, they had the *ahu* like, and that's about it. [Sonny Keakealani]

Cause more the burial sites were more in town. [Mark Yamaguchi]

[The burials were] in town, around breaking pen. [Sonny Keakealani]

All behind here [points to the back towards the area of Pukalani] was all burials. [Mark Yamaguchi]

Yeah, burial ground. Koʻomaloa…Behind us. It is all ranch land. Hawaiian Homes is outside. Like I said, it was barren. We leased the land. Never had burial grounds. The old people, like his dad [Jiro Yamaguchi] was one, and Henry Ah Sam they never tell us no go over there. They said everything is okay, *maikaʻi*. [Sonny Keakealani]

When I was working, there was this supervisor older then Uku, and same like his dad [Jiro Yamaguchi], way older than Uku. And they never mentioned [archaeological sites in the project area], and yet that's the area they worked. And no more hum bug. [Sonny Keakealani]

If had [archaeological sites in the project area], they would say. [Mark Yamaguchi]

And the ranch would go fence it off [if there were archaeological sites]. The ranch was good like that. [Sonny Keakealani]

Like behind here, this subdivision, they called my dad to have him show all the old burials, and graves. [Mark Yamaguchi]

No, not necessarily [when asked if she knows of archaeological sites in the project area]. [Anonymous]

People always say to me, "Oh there's a lot of places here that might have bones and whatever." And I say, "But until they dig it up, they don't really know. Like the area and whatever. For instance here we had healing *heiaus* that my family built and they tore it down. It didn't matter. So where the houses are now, and there were healing *heiaus*, if something happens to the people who live in that house, hey it will happen. There's nothing that we can do because it's already been built. [Anonymous]

From Pukawaiwai, that's the name of that mountain, going up Kohala Road. That's where get lots of caves in that area. You going see lot of coffins in there but look like canoes. With people buried inside there. And you'd be surprised how they get that coffin inside that cave. The only guy wen' screw up was Albert…he take all the good things from the Hawaiians, take um and put inside there. But he no leave nothing, see. Yeah but they wen' get to him. Albert Solomon. His brother was Thomas Solomon. And the brother used to be good. He said when you take anything from the cave you leave something. You never take and leave empty things there. 'Cause they going get back to you. [Allen Lindsey]

The only place get people buried is by Pu'u 'Ōpelu, by ---- house. There's seven people over there but I don't know who their names are because maybe I never meet um. I don't even know the name. There's seven Hawaiian men buried over there. Right by Pu'u 'Ōpelu, right by that Norfolk pine tree. [Allen Lindsey]

Cultural Practices and Gathering

There's herbs that can help heal broken legs. You get the *koali*, the morning glory. You use the roots. When you like fix broken leg, you get the darkest purple of the morning glory, you go down, dig up the roots, you pull um out, you take the roots, and you scrape um with a knife, scrape um. And then you get ti leaf, you *poke*, and with that roots and with salt and *poke* of the ti leaf, you put um inside the ti leaf and you put um on the body. For three, five days at the most, five days supposed to be alright. My dogs, I save them all with the morning glory. This old man, one time his hip, he wen' put um back and then put the morning glory. I put the ace bandage and I wen' tie um around his stomach. He no like even touch um after that. I *pana* his mouth. That's what the Hawaiians say, "I *pana* your *waha*." With the fingers. [Allen Lindsey]

Like we get the jo weed. It's a medication too, see? It's a long, skinny stem… *Koali*. If you going down to Waiki'i, Saddle Road, you go down that side by the old prison camp, you look for the darkest purple. That's a good medication for broken bones. That's the *koali*. Morning glory they call it in English…If you put it up your nostril you see triples. But you never going get sinus again. Like me, pau my sinus. Man, I see guys walking, I see three guys, triples…The flower is purple you know, this jo weed. You look for the dark purple one. That's the one that really can help you with broken bones and water knee and things like that. Drains all the water from your knees. [Allen Lindsey]

[*Koali*] has a little purple flower and it's good for fixing bones. ..It's a morning glory. And the flowers come light, dark. It's a vine. [Anonymous]

No more trees [in the project area]. No Hawaiian practices. [Sonny Keakealani]

The only trees was by Paakai Nui and Christmas by the corner, with the gum trees. That's the only trees had. Just a triangle of trees. [Mark Yamaguchi]

Our family never use *noni*…also most every other *kahuna* that I worked with, they use the *noni*. But not uncle, not our family because if you don't know, I call journalizing, how and what the use of the medicinal factors that this plant has, then you can get your kidneys and your liver to shrink. By taking the juice or any whatever. All we used it in my family that I heard of is for making yellow dye. [Anonymous]

The *'awa* and also the turmeric, the *'ōlena. 'Ōlena* was for inflammation and so many different things. That is like basic, and *pōpōlo*. [Anonymous]

I worked with a lot of *kahuna* in my past on Maui, Kaua'i, and O'ahu that did use *noni*. And I used it for shingles, by putting it in the bottle and then we leave it out for 5 months. Then you squeeze out all the seeds and you make a salve out of it, and you put it on the shingles and it disappears. But never ever our family used. I learned from Kaluakaia'ula [Pāpā Kalua], 'cause I teach his style of *lomi* and was given permission to do that. I think I learned from about seven different *kahunas* besides my grandma. We come from the family, so from hundreds of years they've been doing it [*lomi*]. So that's grandfathered in. I mind my own thing and whatever but I teach it because I want his style to be known to people from all over because he's the only kahuna that taught when, where, why, and how. What you do for each part of the body. Where all the rest of the guys, was all guys that I learned from, that whenever I asked a question, "Why are you doing this certain motion or style or whatever, they say, "Be quiet, don't ask any more questions. This is how I learned and that's all." But he was so nice and so *nahenahe* and so sweet. [Anonymous]

My mother and grandfather on mother's side were farmers. They knew everything about farming, eating plants. My grandpa never allowed us to plant things that would bloom, for making leis. It was for eating…The only thing he would eat was day lilies. He would dry it and he would put it in chop suey. He would take the things all off of the watchacall, and he would do that and then the bottom of day lilies, he would cut it up and make salad. And I wouldn't eat it because it was slimy. [Anonymous]

No. I know all the other places [when asked if she knows of any places for gathering plants in the project area]. That's why I wanted to move back here because on O'ahu too many *kapu* this and *kapu* that. They use the Hawaiian word "*kapu*" but it's all *haolefied*. Everyplace you gotta go, someplace is *kapu*. [Anonymous]

[At Lapakahi] on the left side, if you're looking this way but you're looking down on the right side, that was a hotel for all the people that when they first came there, they learned how to do medication. Medicines and *lomi* and whatever healing work. Although it's known as a fishing village, it was, I would say, the first university on this island. Because navigation was taught there, fishing equipment was taught there, *lomi* was taught there, Hawaiian medicine was taught there, building houses was taught there, how to make canoes also. All these things were taught there over these hundreds of years. So then people would be able to learn how to do it and then go out to all the other islands. Then especially on the medicine part, they had a convention every year after 1212 because it took many years, like 10 years you could *uniki*, you graduate. Or 15 years I always jokingly said, if you weren't so smart, to learn the medicine and the *lomi* and stuff like that. And so people could leave there freely and go to any other island and do their medicines and stuff. And every year at a certain time in November they would watch the skies and they would come back and they would have a convention for medicine. A medical convention there. [Anonymous]

The true way how they got married is that they got tapa and it takes 500 hours to make one piece of tapa. So they made all these blankets and stuff called *kihei*. Put them underneath the blanket, one night, you're married. That's why I say when people ask me, "Can I marry the real Hawaiian way?" And I say, "So sorry, I have no 500 hours to make millions of

tapa cloth so you can marry in the old Hawaiian way." Never have no ceremony, you just sleep underneath the blankets and you're married. [Anonymous]

Mo'olelo, Superstitions

My mom was always superstitious. No whistle, no sing in the morning when you get up. No sing in the house. And don't sweep outside nighttime. That was all da kine superstition. I sweep out nighttime. I sing in the morning. I don't whistle in the house though. I just don't whistle. But only I tell my people don't smoke or drink in my house. Not your house. 'Cause since I came back I stopped all that things and I try helping them. [Allen Lindsey]

You know that new road they get, used to be Ka'ala. Ho, that place they haunt people you know. You travel at night even you go up Makahalau, we travel on horse at night time. Sometimes they can hear somebody calling. And you know the guys all turn around. They follow the call, yeah. Then when they get to the certain area, no more nobody. So like I was saying the first time I wen' drive Christmas Paddock, I start from the bottom and I *kani ka 'ō*, and *kani ka 'ō* is yell, yeah. And all the horses come if I'm in the pasture, come down to the corral. And I heard somebody else *kini ka 'ō* too. I said, "Who the hell is this?" Somebody must be doing the same thing like me, driving the horse too, help me drive. So, I went *kani ka 'ō* and I heard the other one, "Come on, come on, come on *hele*, *hele lio*," speaking in Hawaiian for get the horses come down. So from that time on I would come on top the hill, I wen' listen what was one old timer. And he told me, "Boy, if you afraid of me, be not." And I said, "No, I not afraid of you, I know who you are. Old man Parker." "Yes, now you know me, huh? I'm not here to make you scared. I'm here to help you drive your horses." Lot of the guys they hear that, they turn around and they go home. They so scared of um. I said, "No, he's helping you drive the horse in, don't be afraid." 'Cause 5:00 we drive, 6:00 we gotta get in the corral because they gotta run to the chute, we gotta use what we going to work, and what horse we going ride, see. [Allen Lindsey]

You know the weather changes but you know when you get the *ma kai* wind? That's the sick wind. A lot of children get sick. [Allen Lindsey]

So one of the stories is that they got horses and they trained the horses and rode on the horses and stuff like that, and when she [Queen Liliuokalani] came to Mahukona on the ship, she would walk the trail from Mahukona all the way to Lapakahi and get medicated and *lomi'd*, and whatever. And she wasn't sassy, they said she never let them carry her, she walked. And when she came over there, they used to raise this really huge gourds, big ones, and they would cut the top off and that was her suitcase. They would cut the top off, and dig out all the seeds and plant some more. Then the retainers would put it on their head and it would have all her clothes inside. First suitcase. [Anonymous]

Mele, Oli

I got a whole bunch of old *olis* that can tell stories about our family…. Yeah it could be some from the people that came from there because before all of the names, Hawaiians only had one name, yeah? So I have a whole bunch of chants and things like that, that my sister in-law gave me before she passed away. [Anonymous]

Like the old song that we sing, I used to sing it for my *pākē* lady, she like "O Makalapua." I sing that once in a while. [Allen Lindsey]

We always used to sing like "Kila Kila Na Rough Rider," we sing all that kine. And we sing, "They coming round the mountain when she comes." We sing all that songs. And I get one good song I going sing um in English first: [singing] *My old man is a good old man, wash his face with the frying pan, comb his hair with a rocking chair. My old man is a good old man. Ku'e makule maika'i no, holo i kana maka me ka po palai, kahi loko kono lau o ho me ka la ho paepae, ku'e makule maika'i no.* [Allen Lindsey]

Reminiscences

You know that house before Halekea arena? I was born in that house. And inside that house we have *koa*. *Koa* walls. And it's a five bedroom house, big dining room, and the wash room on the side of the downstairs. And they get three bathrooms in that house. [Allen Lindsey]

You know where Punana is? Used to be Parker Ranch Pasture. And like up here, Hokuʻula, that hill up there is Hokuʻula. From that hill, we used to ride the cardboard, come down until we hit the boundary. Now is Halekea, yeah? My house is right below that before. [Allen Lindsey]

We would go and catch ourself. But you know, the people that used to live down there, we go down visit, we used to take meat, like smoke meat, smoke pork, and all kind. Then they would give us dry fish…Yeah, that is how everybody was family, one *ʻohana*. Even if you was Japanese or Filipino or whatever we was all one big *ʻohana*. [Mark Yamaguchi]

Change through Time

It never used to be dry. Before, it used to be all sandalwood, *lehua* trees, and stuff, and of course when Parker and all these other people came, cut everything down. Kamehameha, when he was alive, found out that the wood was really valuable so he had people just go there and cut up all the whatchacall [sandalwood] and send it all to China from Mahukona, on ships. [Anonymous]

I guess [there are still pigs], but you know with all the houses now, they move out. Not like before, was just pasture land right out to Māna Road, clear across. [Sonny Keakealani]

Used to rain a lot before. When I was young wind and rain Waimea every day. When come five o'clock in the afternoon it used to be so cold already. Everyone would be in the house already. Now it is all different. [Mark Yamaguchi]

You know the rivers right across the intersection. The rivers always used to run, constantly running, you know. Never did go empty unless there is a mean drought. That river used to run everyday. [Mark Yamaguchi]

On top of church row. See they diverted a lot of the gulches up there to build the subdivision. Before, it used to rain, and all those gulches used to be full. [Mark Yamaguchi]

Oh yeah. Used to be lot of pheasants and stuff [to catch and eat]…Now you see the turkeys and the chakas and stuff, before, you don't see them down here. Was always up in the mountains. Now, there are too much things happening in the mountain. That's why all the birds coming down. [Mark Yamaguchi]

I came here and worked for the ranch. But even in that years in the middle '70s till now, a lot of things changed. The ranch changed, our old ways of living changed. We went more toward the white man's way. We lucky we get Hawaiian Homes here. That's one thing I can say. *Kela ka lula o Waimea*. No mater what we say. Waimea will all be Waimea because of Hawaiian Homes connected to Waimea. That's part of the heart. Where Hawaiian Homes is connect with Waimea and the ranch. And how Mark grew up, he seen the changes. [Sonny Keakealani]

Our lifestyle from when we was young till now, is all changed already. Like before you know, everybody used to take care of one another. If your family need help and stuff. [Mark Yamaguchi]

Nothing being wasted, you know. Everything was used. But, everything was connected; people from Hawaiian Homes, people from within Waimea Village. They were all connected together. Whatever they did they were all family, *ʻohana*, two sides. Japanese

married to Hawaiian, Portuguese, Filipino, and Hawaiian. All was connected, like I said were all *ʻohana*. [This changed] in the late ’90s. [Sonny Keakealani]

Even the ocean change too, less fish, more people, more activities down on the beach areas. [Sonny Keakealani]

Before was different. The tides went like that with the *mahina*. Today different, girl. The land different with all the years of the tide change, and all the tsunami, earthquake. Everything shift. Our days was different. We were brought up old school. We would go fish when supposed to. We never just go fishing every weekend. We went hunt to put food on the table. That is how we were brought up. If you go down beach, we never had the *makai* roads before. Everything was military or jeep road from here to there. We never had nothing. Or horseback. [Sonny Keakealani]

Ranching

No, they had [fences]. There were all paddocks. Christmas was the paddock [where the project area is]…Yeah, It was a livestock paddock, cattle. They kept cattle in there, only cattle. [Sonny Keakealani]

In Christmas Paddock we used to keep our horses. Get one man every morning 6:00 he go drive the horses in and bring um down to the pen [at Puhihale]. You see, that is not Holoholokū. It’s Puhihale used to be. Right below Pukalani Stable is Puhihale. Then you go to Christmas Paddock, then you go to Holoholokū, then you go to Pukaʻaliali, then you go to Paʻakai Nui, then you go up all the way and then you hit Makahalau. [These area are all ranch land, pasture fields.] [Allen Lindsey]

I worked Mauna Kea division before, and that was the part of the pasture where they kept market cattle before. They were easier to bring in. Anything that we transferred from Māna coming down from Makahalau, came to Paakai Nui the paddock above Christmas. And then close to Waimea was Christmas. It was all market cattle. It was like a fattening paddock. They were left there to butcher and ship out. [Sonny Keakealani]

It was a pasture that they could hold maybe two to three weeks before they can ship to Honolulu. But it was mostly for market cattle. That is how we are involved. Because we were the ones in there that drove the area, and if we transferred cattle from Makahalau to the main ranch Waimea or Mauna Kea Division, we came down from Pukaʻaliʻali, then Makahalau, then to Waimea. Down through the area. [Sonny Keakealani]

It was all ranch land that came. And then it was Hawaiian Homes, and Parker Ranch lease. I’m talking like back in the ’70s. When I worked there…Even from Keaumoku, from Waikiʻi. Everything we walked was through ranch land. Anything from the *makai* side, the only time we cross the road was below the highway out here [Sonny points to the area in front of his house] by Puʻu Pā. From Kohala Mountain coming down by HPA, we crossed there. [Sonny Keakealani]

Yeah me and my men were the only bunch that we brand 1,200 calves in 45 minutes, all by roping, you know. We no use the *haole* ----. All by roping. Take about 2 ½ minutes to 3 minutes a calf. We would teach um how to, make the calf walk through the loop. [Allen Lindsey]

Yeah, then from there we would drive them, come down to the stable. Separate from what we don’t need. And, chop them or ship them to Kawaihae, Honolulu, some will go Hilo, some stays at the Waimea food market. [Mark Yamaguchi]

Yutaka Kimura, he used to be…but he passed away now. He was the one that taught me how to pregnancy test cattle and eyeball um. I learned all from him. I no say I wen’ learn um myself. I put his name in because he’s the one that helped me. He showed me how. When Dr. Bergen came over here I knew how to do all those kind of stuffs already. Because

I learned from the old timers. They no charge when they teach, see? Like nowadays everything is they charge you for do this, charge you for do that. They no give free from the heart kine. [Allen Lindsey]

Concerns and Recommendations

The only concern that I have is that lots of our cultural practices, things that we want to do are always held back by laws, and regulations, things like that. Like even if they say we have gathering rights. If I go somewhere, and it's like say a National Park, or place where DHHL owns, or whatever, like, "Sorry, can't get anything from here. You have to go get a permit." And I don't believe that we should have to get a permit. Because my family comes from here ages ago. Generations. And so why should we, as people who have been living here since, I would say 1200 that I know of, our family… [Anonymous]

And they have so much land here [DHHL] and I still can't understand why they have to charge people when they're supposed to give them the land and then they build their own place. And not go like because some people here did whatever they did. So what? So what? [Anonymous]

Well, one of the ways [to lessen adverse effects of the proposed development] would be to create another roadway to get into the place. I think that could help. From somewhere else, you know, a new roadway. [Anonymous]

So that is one of the things, I wouldn't say I'm against it, but there's too much laws and rules and stuff like that are made so we as Hawaiians want to do what we need to do. It's not what we want to do, to enhance the culture, to keep the culture, we don't have that freedom, the freedom, to just go and get things that we need or that we can use. [Anonymous]

Now, what I like prevent is people buying the land and building. It's too much; Waimea is getting too crowed. In my younger days you knew everybody in Waimea. [Mark Yamaguchi]

New Years, the Japanese custom you go house to house and celebrate. Today, you can't do that. There's so much people. Before you could go someplace, leave your house unlocked and... not today. [Mark Yamaguchi]

You know when they *kalua* pig, and make a party. Ho, the people used to come and help. Before, you could burn your rubbish at home. Now, they talking about building one big incinerator. At first they was talking about polluting the air and now they talking about putting up one incinerator. That is just as bad; might as well go back and let everyone burn their rubbish. Before, every house used to have one 55 gallon drum. You burn all your paper goods, and the bottles and stuff used to pile um up all on one side. [Mark Yamaguchi]

So I said, "When you white people came over here, you change everything around." But it's not the right thing, the right name that they had. "We had names before you changed it. But you wanted to change it your way. It cannot be your way. It has to go back to our way." And I told them it's not *pono*. So they asked me, "What is *pono*?" I said, "It's not back to normal." That's what *pono* is. It's like closing the deal. So after that, I get plenty guys, even the head master, tell me, "You know Mr. Lindsey, I never know us guys come over here screw you up." I said, "You never screw us up, you wanted to run us." [Allen Lindsey]

Make sure you can get the water though. That's the thing is, they gotta find where the water, because you know why, you know by that hill out there? Pu'u Holokū. Get one deep hole you know, and no more end to um. And you know that cave? Go all the way down to Kawaihae. [Allen Lindsey]

> You know they gotta get water. They gotta know the land. And they gotta know the weather. That's how you know if you can build if get too much wind. But this *puka* before I couldn't find um, I took my daughter, she wanted to find um. She took me on her truck, we went go look. Cannot find that *puka*. Either that, somebody wen' dig um away or close um up. But used to end up down Kawaihae. Where Bill White stay now….down by Wailea side, get one *puka* come out of there. That's where this *puka* go but that *puka* come back up. It's hard, they went close um yeah. Before you could hear the noise of the ocean. That's why somebody went backtrack um. And that guy went walk down in that *puka* and he came out by that place. [Allen Lindsey]
>
> But you know what they should do, bless the place first. Make sure *pono* the place. *Hana ka pule*, then you know work. Good, because God would never stop anybody's prayer. He always answer people's prayer. [Allen Lindsey]
>
> You gotta get the foreigners to come in and get together with you. You gotta talk to them. You know, like you see the *haoles*, try make meetings with them and talk, "How would you folks feel if we do this and we do that." You gotta talk among yourselves. It can be done you know. But like I say, it takes two to tango. It takes two to agree too. You know who your boss is and make your boss talk with their boss. Everybody get together. It's togetherness. Not only they going take from you and they don't give back. Because like I say how that going be for the Hawaiian, I try not to sell the land. If you sell, sell to Hawaiians. [Allen Lindsey]
>
> What I like see continue? I like see the ranch keep on growing. [Allen Lindsey]

Summary of Ethnographic Survey

The consultants shared a wealth of information on various topics. Several misconceptions about place names were explained. These include the history of the naming of Mahukona, Holoholokū, Honokāne, and Kanehua. An important piece of information is that the project area was known as Christmas Paddock, a ranching compound where horses were kept. The interviewees say that there are no material remains of the paddock today and they did not know of any archaeological sites in the area. The consultants did not say that the project area was or is a place for plant gathering, but they did expand upon traditional uses for plants, particularly the *koali*, or morning glory. They also shared several *mo'olelo* and *mele* and reminisced of their younger days and of working on the ranch. They noted that Waimea has changed over time, with regards to the weather, flora and fauna, as well as the lifestyle that was practiced. Some concerns and recommendations were:

- the need to construct another road into the area
- concerns about cultural practices hindered by laws and regulations
- concerns about further development, overpopulation, and the resulting trash
- concerns about where the water will come from for the development
- recommendations to utilize the old place names instead of changing the names
- recommendations to hold a blessing before construction begins
- recommendations to work together with the *kama'āina* and foreigners in the planning process

Modern *Ahu*

A modern *ahu* was recently constructed just outside the project area, along Hi'iaka Street. The community was asked about this *ahu* in an effort to document its construction and use as an ongoing cultural practice. The *ahu* was built by Keali'i Bertelmann, a singer, songwriter, and cultural practitioner. Mr. Bertelmann is also a part of Nā Kalai Wa'a, a non-profit organization that

perpetuates cultural traditions through the teaching and practice of navigation and voyaging. He agreed to a very informal interview with Keala Pono Ethnographer, U‘ilani Macabio, regarding the *ahu*. The interview was not recorded or transcribed but the conversation is summarized herein. Mr. Bertelmann stated that the purpose of constructing the *ahu* is to practice his culture, although he did not give specifics on the exact usage. He also said that he utilized loose, local rock for the *ahu*, as opposed to extracting or quarrying the stone or bringing it in from elsewhere. Mr. Bertelmann then graciously extended an invitation for the ethnographer to come by and visit the *ahu* during its construction.

CONCLUSIONS AND RECOMMENDATIONS

With its vibrant ranching history, Waimea is a unique place, both past and present. The Waimea community is very active in perpetuating their history and the Hawaiian culture. Four community members were interviewed to share their *mana'o* about the area and to help identify any potential cultural resources or practices that might be affected by the proposed Waimea Nui Community Development Initiative. The development is an important part of the growth of today's community, and the interviewees did not know of any cultural resources or practices that would be affected in the area proposed for construction. They did share a wealth of information about Waimea's past and their own personal stories.

Cultural Resources, Practices, and Beliefs Identified

Research and ethnographic survey compiled for the current study revealed that Waimea was once a sizeable village with an environment conducive to upland agriculture. Waimea was also the location of an important *heiau*, built under the direction of High Chiefess Hoapiliahae. Historically, the Waimea region was a celebrated ranching area, known for its world class *paniolo*, and the ranching tradition continues today.

Community members who are knowledgeable of the cultural resources of Waimea provided their *'ike* and generously shared their personal and *'ohana* connections to this *'āina*. The project area was known as Christmas Paddock, a ranching compound where horses were kept, but the interviewees noted that there are no material remains of the paddock and they did not know of any archaeological sites in the area. They also did not say that the project area was or is a place for plant gathering, but they did expand upon traditional uses for plants, particularly the *koali*, or morning glory. Nevertheless, cultural practices clearly continue today with the recent construction of an *ahu* just outside the project boundaries. This attests to the importance of perpetuating the Hawaiian culture in Waimea.

Potential Effects of the Proposed Project

The consultants were not aware of any specific cultural resources or practices which may be affected by the proposed development. In general, a concern was raised regarding the effects of laws and regulations on cultural practices and access to areas of cultural importance.

Confidential Information Withheld

During one of the ethnographic interviews, a consultant asked to have their name withheld from their transcription. In another interview, a consultant asked to stop the tape and speak off the record. No other sensitive or confidential information was discovered or revealed during the course of researching the present report and conducting the ethnographic survey program.

Conflicting Information

No conflicting information was obvious in analyzing the gathered sources. On the contrary, a number of themes were repeated and information was generally confirmed by independent sources.

Recommendations/Mitigations

The interviewees shared several concerns and recommendations, including the following:

- the need to construct another road into the area
- concerns about cultural practices hindered by laws and regulations
- concerns about further development, overpopulation, and the resulting trash
- concerns about where the water will come from for the development
- recommendations to utilize the old place names instead of changing the names
- recommendations to hold a blessing before construction begins
- recommendations to work together with the *kama'āina* and foreigners in the planning process

Background research and oral history interviews reveal that much of the project area has been previously disturbed, and archaeological resources are not likely to occur in the vicinity. An archaeological inventory survey identified two surface archaeological sites and no subsurface cultural features (McElroy and Duhaylonsod in prep.). Keala Pono recommends that archaeological monitoring be performed during any ground disturbing activities in the vicinity of the two sites. This will ensure that these resources are properly treated. Given the wide community interest in the Waimea Nui development, it is also recommended that DHHL continue to consult with the Waimea community during various phases of the project, should additional cultural resources be encountered.

GLOSSARY

ʻaʻaliʻi	*Dodonaea viscosa*, the fruit of which were used for red dye, the leaves and fruits fashioned into *lei*, and the hard, heavy wood made into bait sticks and house posts.
ahu	A shrine or altar.
ahupuaʻa	Traditional Hawaiian land division usually extending from the uplands to the sea.
ʻāpana	Piece, slice, section, part, land segment, lot, district.
ʻawa	The shrub *Piper methysticum*, or *kava*, the root of which was used as a ceremonial drink throughout the Pacific.
hale	House.
haole	White person, American, Englishman, Caucasian; formerly any foreigner.
hāpuʻu	*Cibotium splendens,* a fern endemic to Hawaiʻi; a forest fern to 5 m high.
heiau	Place of worship and ritual in traditional Hawaiʻi.
hele	To go, come, walk, move.
ʻike	To see, know, feel; knowledge, awareness, understanding.
ʻili	Traditional land division, usually a subdivision of an *ahupuaʻa*.
ʻilima	*Sida fallax*, the native shrub whose flowers were made into *lei*, and sap was used for medicinal purposes in traditional Hawaiʻi.
kahuna	An expert in any profession, often referring to a priest, sorcerer, or magician.
kalo	The Polynesian-introduced *Colocasia esculenta*, or taro, the staple of the traditional Hawaiian diet.
kālua	To bake by underground oven.
kani	Sound or noise; to sound, ring, cry out.
kapu	Taboo, prohibited, forbidden.
kīhāpai	Small land division; cultivated garden, patch, orchard, or field; parish of a church.
kīhei	Shawl, cape, garment worn over one shoulder and tied in a knot.
koa	*Acacia koa*, the largest of the native forest trees, prized for its wood, traditionally fashioned into canoes, surfboards, and calabashes.
koali, kowali	Vines of the morning glory *Ipomoea* spp., used traditionally to make swings and nets.
kupuna	Grandparent, ancestor; *kūpuna* is the plural form.
lāʻau lapaʻau	Medicine.
lama	The native tree, *Diospyros sandwicensis*, that had many uses in traditional Hawaiʻi. Fruit was eaten, wood was fashioned into fish traps and sacred structures within *heiau*. *Lama* wood was also crushed and used for medicinal purposes.
lehua	The native tree *Metrosideros polymorpha*, the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
lio	Horse.
lomi	To massage, rub, press.

Māhele	The 1848 division of land.
mahina	Moon, month, moonlight; farm, plantation, patch.
maikaʻi	Good, well, fine, beautiful, good health.
makai	Toward the sea.
mālama	To care for, preserve, or protect.
mauka	Inland, upland, toward the mountain.
mele	Song, chant, or poem.
moʻolelo	A story, myth, history, tradition, legend, or record.
noni	*Morinda citrifolia*, the Indian mulberry, a tree or shrub known for its medicinal value in traditional Hawaiʻi.
ʻohana	Family.
ʻōhiʻa	Two kinds of forest trees. See also *oʻōhiʻaʻai* and *ʻōhiʻa lehua.*
ʻōlelo noʻeau	Proverb, wise saying, traditional saying.
ʻōlena	The turmeric plant, *Curcuma domestica*, traditionally used as medicine and for spices and dyes.
oli	Chant.
pā	Fence, wall, enclosure; dish, flat basin; the mother-of-pearl shell (*Pinctada margaritifera*).
pā hale	Yard, house lot, fence.
pā pōhaku	Stone wall.
Pākē	Chinese.
paniolo	Cowboy.
pōhaku	Rock, stone.
poke	To slice, cut into pieces, or press out.
pono	Correct, proper, good.
pōpolo	The herb black nightshade (*Solanum nigrum*), traditionally used for medicine and in ceremony.
puhi	Eel, considered by some to be an *ʻaumakua*.
puka	Hole, void, space, entrance.
pulu	Fern fibers obtained from the *hapuʻu pulu* (*Cibotium glaucum*), tree fern.
sandalwood	*Iiliahi (Santalum)*, several varieties endemic to Hawaiʻi. Known for their aromatic wood and medicinal qualities. Heavily exported in the 1800s.
ti (*kī*)	The plant *Cordyline terminalis*, whose leaves were traditionally used in house thatching, raincoats, sandals, whistles, and as a wrapping for food.
tutu	Grandmother or grandfather.
ʻuala	The sweet potato, or *Ipomoea batatas*, a Polynesian introduction.
ʻūniki	Graduation ceremony.

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APPENDIX A: AGREEMENT TO PARTICIPATE

Agreement to Participate in the Waimea Nui Cultural Impact Assessment (CIA)

Ethnographer U‘ilani Macabio, Keala Pono Archaeological Consulting, LLC.

You are invited to participate in a Cultural Impact Assessment (CIA) of the Waimea Nui Community Development Initiative [TMK (3) 6-4-038:011] on the island of Hawai‘i (herein referred to as "the Project"). The Project is being conducted by Keala Pono Archaeological Consulting, LLC (Keala Pono), a cultural resource management firm, on behalf of Group 70 International. The ethnographer will explain the purpose of the Project, the procedures that will be followed, and the potential benefits and risks of participating. A brief description of the Project is written below. Feel free to ask the ethnographer questions if the Project or procedures need further clarification. If you decide to participate in the Project, please sign the attached Consent Form. A copy of this form will be provided for you to keep.

Description of the Project

This CIA is being conducted to collect information about Pu‘ukapu and the subject properties located within the Project area, on the island of Hawai‘i, through interviews with individuals who are knowledgeable about this area, and/or about information including (but not limited to) cultural practices and beliefs, *mo‘olelo*, *mele*, or *oli* associated with this area. The goal of this Project is to identify and understand the importance of any traditional Hawaiian and/or historic cultural resources, or traditional cultural practices in properties on the current subject property. This CIA will also attempt to identify any affects that the proposed development may have on present cultural resources, or once present within the Project area.

Procedures

After agreeing to participate in the Project and signing the Consent Form, the ethnographer will digitally record your interview and it may be transcribed in part or in full. The transcript will be sent to you for editing and final approval. Data from the interview will be used for the ethno-historical section of the CIA report for this project and transcripts may be included in part or in full as an appendix to the report. The ethnographer may take notes and photographs and ask you to spell out names or unfamiliar words.

Discomforts and Risks

Possible risks and/or discomforts resulting from participation in this Project may include, but are not limited to the following: being interviewed and recorded; having to speak loudly for the recorder; providing information for reports which may be used in the future as a public reference; your uncompensated dedication of time; possible misunderstanding in the transcribing of information; loss of privacy; and worry that your comments may not be understood in the same way you understand them. It is not possible to identify all potential risks, although reasonable safeguards have been taken to minimize them.

Benefits

This Project will give you the opportunity to express your thoughts and opinions and share your knowledge, which will be considered, shared, and documented for future generations. Your sharing of knowledge may be instrumental in the preservation of cultural resources, practices, and information.

Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected upon request. You may request, for example, that your name and/or sex not be mentioned in Project material, such as in written notes, on tape, and in reports; or you may request that some of the information you provide remain off-the-record and not be recorded in any way. To ensure protection of your privacy,

confidentiality and/or anonymity, you should immediately inform the ethnographer of your requests. The ethnographer will ask you to specify the method of protection, and note it on the attached Consent Form.

Refusal/Withdrawal

At any time during the interview process, you may choose to not participate any further and ask the ethnographer for the tape and/or notes. If the transcription of your interview is to be included in the report, you will be given an opportunity to review your transcript, and to revise or delete any part of the interview.

APPENDIX B: CONSENT FORM

Consent Form

I, _____, am a participant in the Waimea Nui Cultural Impact Assessment (CIA) (herein referred to as "the Project"). I understand that the purpose of the Project is to conduct oral history interviews with individuals knowledgeable about the subject property and Pu'ukapu, in the Waimea district region on the island of Hawai'i. I understand that Keala Pono Archaeological Consulting, LLC and/or Group 70 International will retain the product of my participation (digital recording, transcripts of interviews, etc.) as part of their permanent collection and that the materials may be used for scholarly, educational, land management, and other purposes.

_____ I hereby grant to Keala Pono, Group 70 International ownership of the physical property delivered to the institution and the right to use the property that is the product of my participation (e.g., my interview, photographs, and written materials) as stated above. By giving permission, I understand that I do not give up any copyright or performance rights that I may hold.

_____ I also grant to Keala Pono, Group 70 International my consent for any photographs provided by me or taken of me in the course of my participation in the Project to be used, published, and copied by Keala Pono, Group 70 International and its assignees in any medium for purposes of the Project.

_____ I agree that Keala Pono, Group 70 International may use my name, photographic image, biographical information, statements, and voice reproduction for this Project without further approval on my part.

_____ If transcriptions are to be included in the report, I understand that I will have the opportunity to review my transcripts to ensure that they accurately depict what I meant to convey. I also understand that if I do not return the revised transcripts after two weeks from the date of receipt, my signature below will indicate my release of information for the draft report, although I will still have the opportunity to make revisions during the draft review process.

By signing this permission form, I am acknowledging that I have been informed about the purpose of this Project, the procedure, how the data will be gathered, and how the data will be analyzed. I understand that my participation is strictly voluntary, and that I may withdraw from participation at any time without consequence.

_____

Consultant Signature **Date**

_____

Print Name **Phone**

_____

Address

Thank you for participating in this valuable study.

APPENDIX C: TRANSCRIPT RELEASE

Transcript Release

I, _____, am a participant in the Waimea Nui Cultural Impact Assessment [TMK: (3) 6-4-038:011] (herein referred to as "Project") and was interviewed for the Project. I have reviewed the transcripts of the interview and agree that the transcript is complete and accurate except for those matters delineated below under the heading "CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS."

I agree that Keala Pono Archaeological Consulting and/or Group 70 International may use and release my identity, biographical information, and other interview information, for the purpose of including such information in a report to be made public, subject to my specific objections, to release as set forth below under the heading "OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS."

CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS:

OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS:

_____

Consultant Signature **Date**

_____

Print Name **Phone**

_____

Address

APPENDIX D: INTERVIEW WITH ANONYMOUS KUPUNA

September 15, 2014
Anonymous Kohala and Waimea resident, 74 years old (Aunty)

Also present were:
Allen "Uncle Uku" Lindsey (AL)
Allen Lindsey's anonymous friend (Friend)

Interview took place at the Old Lady Damon's House in Waimea, Hawai'i.

By: U'ilani Macabio (UM)

AL: [talking about superstitions and church]

My first grandpa came here in the 1800s, and he still has his home here in Waimea. The Spencer house. It is one of the reasons why I wanted to move back and live in Waimea. I love the cool weather.

AL: [talking about church]

UM: So, the Spencer house is you grandfathers house?

AUNTY: Four times great grandfather.

He originally made the house when he came. He was originally married to Smith from Wales. He originally came from England. He worked for the king of England in the 1800s. From England the King gave him a ship. From England he went to Australia, and landed at Tasmania. And then because he was from England the people said, "We don't like you because you are from England." Because the English dropped off all the people there when they were prisoners, and the people treated him badly. From Australia he went over to New Zealand to the South Island and then had his wife with him, and then he finally didn't like it there either. So he said, "Do you want to go to Owhyee?" O-w-y-h-e-e. And so then she said, "Where's that?" He said, "Never mind, I'll just take you."

So he got a bunch of people and then he came on his ship that the king gave him and he brought himself with them over to Kawaihae. And when they got to Kawaihae there is a wind that comes down from the mountain, and then there's a wind that comes in from the ocean. When the winds get to certain place it has like a vortex of energy that goes around and around. So the ship was there and he asked all the people to come on deck, hold hands, and pray. He believed highly in prayer. So they prayed and eventually the ship went out of this vortex of energy, so it got to where is settled down. He made a promise when he had a daughter he would name her after the ship Servia, which came to Hawai'i. So anyhow, he docked there and he walked up to Waimea because there was a trail, no road, so he walked up.

When he got over here, he met this Hawaiian man who used to own all the land where KTA is. And this man fell in love with my grandfather. Not in a gay way, just because my grandfather was really handsome and very nice. And so he said, "I give you all this land except for where I live." Where the Lehua Jewelers place is [where Waimea Center is located]. He had a house there, and that's why they say till today that anybody who has a business there at that area can't stay that long. Out of the whole shopping center. Because that was his land. And I highly believe that he must have been some kind of *kahuna*.

[talking about family] In uncle's home, in his bedroom was the coldest, most chilly room in that house. Because that's where he slept. You know, after he died. And they would rent the house for cheap, $230 is what I was told. And then people would rent it, but it was mostly *haole* people would rent his old house. And it was like all wild grass and whatever. Before he was even born I think [talking to Uncle Uku]. How old are you now uncle?

AL: 83.

AUNTY: But because he gave that land, then my grandpa got people to go up to the mountain and get only *koa* wood. So that whole home is made out of huge lumber that's *koa*.

FRIEND: It's still there?

AUNTY: Yeah, it's right across from McDonald's. The old Spencer house. That's my great-great-great-great grandfather. His son married my great-grandmother from Lapakahi from Kohala. Because she and her brothers and sisters, there were eight of them, with their mommy, used to come up and walk from the beach all the way up the mountain, and there was a trail where all these old roads are now. Come and go to 'Imi'ola Church. 'Imi'ola Church I think was made in 1832. My grandma was born in 1844.

AL: Because this Parker School was made, what 1929?

AUNTY: And so anyhow, she would come to the church over here and she ended up marrying that Spencer in that church. And then my mom and my dad married in the church also.

UM: OH, my aunty got married in the church too.

FRIEND: [talking about his visit to Spencer house]

AUNTY: Yeah, it is an old church.

Now, there is a non-profit organization group of nine people that takes care of the Spencer house. They have just contacted me, because I have a house that I made out of *lauhala* and plywood that I want to give to them, and put on there with *hau* wood, I cut the words out with my saw. And it says "Da (D-a) Royal Bank." 'Cause eventually that grandfather met Liholiho. Kamehameha the second. When Kamehameha used to come all the way to Kawaihae on the ship, then he would walk up to Waimea in those days, and he saw my grandpa's house was kinda the only, I call "*haole*," house. Knock on the door, and my grandpa comes out and goes, "Hey, (in Hawaiian) who lives here?" My grandpa by then learned how to speak Hawaiian really quickly because he was in Hawai'i. And his first wife only lived I think three years and so many days, because of the cold. Waimea used be really cold. And so she passed away and he became single. So Liholiho became his very good friend and they used to *inu*, drink. So he would always come back to see my grandpa.

And so at one time he said, "Eh, you know I get one niece in Wailuku, Maui, and she's a Daniels (her last name). There is five daughters but they are got married, so this guy only got one more daughter, and it's my niece. Half *haole*, English or whatever. Why don't you go and there and ask for her hand." And my grandpa said, "For what? I just got single. My wife died." Then Liholiho goes like this, "Eh, you know how to read English?" And he said, "I come from there." "Okay I am going to bring some law books, and I want you to read them." So he said, "For what?" "Just never mind, I I'm gonna bring this books."

So he brought the books next time he came. Grandpa read it. Then next time Liholiho came to drink and have fun with my grandpa, he said, "Eh did you read those books?" He said, "Yes." "Did you finish?" "Yes." He said, "You understand the books?" He said, "Yeah." Liholiho said "Okay, now you one judge."

So then grandpa was able to go on ships between the islands and he would go here and there. So the first daughter he had he named Servia, after the first ship he was on. Then he had another daughter and named her, because another ship he rode between the islands was Zenovia. Z-e-n-o-v-i-a. And it's in one of the books that the Holt family wrote. From O'ahu. So then, Liholiho told him, "Now you can go and marry people." So my grandpa went to all the island marrying couples, and he would also marry himself to all these different women on all the different islands.

So during all the years of having our family reunion here, then people would come (I say new people, but they weren't really new) and they would bring their genealogy and say, "Oh I am from this Spencer family." And we'd say, "No you're not! Who's your grandpa?" They come up with this genealogy with that grandpa's name that had married so and so way back when, and we never knew about um.

FRIEND: How many of them were there?

AUNTY: A lot. He married in Kaua'i, he married in Moloka'i, he married in O'ahu, he married in Maui. He had all these different wives.

Eventually, ten years later he married Martha Daniels (Liholiho's niece). Because he went to Wailuku and he said, "Knock on this door." And the father came out and he said "I am here to ask if I could marry your daughter named Martha and I'd like to get married to her and I want to ask for her hand." And she was *momona*, right. So then the father said, "What about the rest of her body?" And then he said, "Oh, I'll take that too." So then they got married.

FRIEND: [asking about Liholiho] He became a judge and he married people in the Christian way. Prior to that did Hawaiians marry?

AUNTY: Yes, they did. The true way how they got married is that they got tapa and it takes 500 hours to make one piece of tapa. So they made all these blankets and stuff called *kihei*. Put them underneath the blanket, one night, you're married. That's why I say when people ask me, "Can I marry the real Hawaiian way?" And I say, "So sorry, I have no 500 hours to make millions of tapa cloth so you can marry in the old Hawaiian way." Never have no ceremony, you just sleep underneath the blankets and you're married.

FRIEND: In the old days could you marry more than one person?

AUNTY: You could if you agreed…

FRIEND: Daniels did it, right?

AUNTY: No, she didn't know. My grandma didn't know. My second grandma, not my real grandma. In the old days, this is what a lot of men did. It doesn't matter because when you study all the genealogy you see he was married to her and then pretty soon they get divorced, or no divorce, he still had another wife or whatever. [talking about family] My husband and I are the same way. He's my second cousin.

FRIEND: And you didn't know that?

AUNTY: No, until about five years ago. I left Big Island, so I wouldn't marry my own relative. But, came here and my son came home and told me… I told him, "That guy that you are talking about is my mother's first cousin." He said, well mom, "That was grandpa Napoleon's second wife's son." And that was my mother's first cousin. My mom always used to always talk about this silly guy. So when my son told me that I said, "Just wait. If grandpa Napoleon married Mini, as his second wife, and he had another wife before that and then had a son, that son with that name is my mother's first cousin." So grandpa Napoleon married this woman then went to Kaua'i and married Annie, who became my husband's grandma. So then, my husband is like my second cousin. because my grandpa made my father-in-law, eight children, in Kaua'i.

[AUNTY is drawing a chart to show how she and her husband are related]

AUNTY: We were married 55 years. [talks about how she found out they are cousins] They were the original caretakers of all the royal bones. They went by Napala, but the family name was actually Napela. [talks about change on birth certificate and problems with DHHL]

FRIEND: [talks about how he met Uncle Uku]

AUNTY: I was telling the people that started this [Waimea Nui project], they have to make a senior home first, before the people die. You don't need to have a graveyard first, you need a senior home for seniors. And also for people who are not able to afford houses, that they can rent, who are middle-aged and younger. For Hawaiian people, Hawaiian Homes. That's what Hawaiian Homes means to me. Putting the Hawaiians in the houses on the land and not costing them two arms and one leg.

FRIEND: More important you take care people when they're alive, not when they're dead.

AUNTY: Yeah, but you know the spirit lives on. And here in Waimea, we have so many people who are church people. So everybody has a place to be buried, or else they have the body burned and then they keep the body in the house, in an urn. They don't bury whole body most of the time because it costs so damn much. I know because I used to sell graveyards and whatever.

FRIEND: [talking about iphones]

AUNTY: Like she was talking about the park down there, Spencer Park. That's my father's brother that used to own that land. In 1946, I was about six years old and spoke only in Hawaiian, and he came over to see my *tūtū* that day and said, "I am going to sell my land" in Hawaiian. And my *tūtū* said, "Which one? You have so many." Because he was the chairman, like the mayor for this island. When he said, "I'm gonna sell the one in Kawaihae," she said, "'*A 'ole*." And he said, "Why not, 'cause I want to make money?" She said, "If it wasn't for the people on this island who voted for you to be in this place that you are, you would not even know about the land that's to be sold. So you are not going to sell it, you are going to give it back to the people for the future." Because she could see in the future. "It's going to be a hotel, for some visitors that come from all over the damn world, or it's gonna be a rich person's house that is built there and no one can go there, because that is one of the safest beaches on this island. You just give it back to the people." And he was so angry, he said "*'A 'ole*," and he walked off. He walked down the stairs, and he thought to himself, "I always come to ask my mom advice. So he turned around and walked back up the stairs and I was sitting on the rocking chair on the left side of her porch, and she was sitting on the right side. This old *koa* rocking chair…

UM: Aunty do you remember his name, your papa's brother?

AUNTY: Oh, Samuel Mahuka Spencer. He did not have a Hawaiian name out of all the brothers. When he was a young baby, the family from Lapakahi had a Sam Mahuka Awae. So that one, he married, but had no children, so then that Mahuka asked, "Can I have one of your babies?" Because my grandma had 14. So she said, "Okay." So she gave my Uncle Sam to him. And that uncle became *high makamaka*. Because he was the only child of that great-grandfather. Not my great-grandfather, but his name was Samuel Mahuka Awaekumuhonua. So because of that he never lived with my grandmother. He was the *punahele* child, the favorite child. He was brought up in a different way, but he always honored my grandmother. He would come and visits her all the time, and ask for advice. When he was chairman I remember him coming often and ask, "What should I do about this?" His wife died when they were very young, they married young. So, when he came and he said he wanted to sell the land she said no. So he came back, walked up the stairs, looked at her and he said, "Alright, okay. I will give the land back."

What was strange was when I came back to live here, I have a niece, my older sister's daughter, came from Oregon. She called me up and said, "Aunty I know you do *lomis*, can you bring your table down to Kawaihae Beach at the Spencer Park and massage me?" And I said, "Are you crazy or what? And she said, "Aunty I know you do that." So I said okay. So, I took my table and went down there and when I was massaging and *lomi-ing* my niece, I saw these two guys, they were doing surveying of the park. So, I said, "Hey, I have to leave you for a little while, I'm going to ask those guys why they are surveying the park, here (at Spencer Park)." She said okay so I went over and I said, "Eh you two guys, what are you doing surveying, don't tell me that the state is going to be selling this place. Because, I want to know." And then they said, "What business is it of yours?" And I said, "It is my business because my uncle owned this land, and he gave it back to the territory when he was the chairman for this island for 24 years. This is the story I know because I was there when he said he is going to sell it to someone and my *tūtū* in Kohala said, "No you're not, you're gonna give it back to the people so then more people can enjoy this park, this place, and this beach, from all this island." So then he was *hūhū*, walked off, came back, and…these two guys told me that long ago he signed the place over to the Territory of Hawaii. Because it was not a state. So then just recently, around 2001, the State just found out that it was given by my uncle to the territory. So now officially they were going to sign it over to the City and County. After all those years that he had given it to the territory way back when, and only now they found out.

So then I got to see Billy Kenoi two years ago at the Taste of the Range at Hilton. So two years ago I saw him and he was running for office again. So I said, "Hey, come." So he sat down, he said, "Yeah Aunty, what you like?" So I told him the story. And I said what me and my friend want to do, because of my grandmother saying give the land back to the people, I want to have a plaque made honoring my uncle and my grandmother. So I finally got pictures of my grandma and I finally got pictures of that uncle and now we're working on getting enough monies so we can put up a plaque with their pictures on it. Kenoi said it's fine to do it. So now we're raising the money.

FRIEND: [asking questions about the plaque]

AUNTY and AL: [talking about adoption and family and politics]

AUNTY: So what decided for you to be what you do?

UM: I was going to school for Hawaiian Studies, and going to Kahaku'ula was exhausting and tiring, and I used to love my culture and language, then I was like, "You know what, I'm going to Kahaku'ula, it's not making me love my culture and language like how I used to." So I stopped and I just wanted to get my *palapala* as fast as I could. So I went into Anthropology.

AUNTY: Anthropology and archaeology is kinda hard because all of the situations that goes on in Hawai‘i. Because DHHL, the State, all of these other organizations or whatever, you know governmental, you have to go through all this red tape, by that time you're already dead. It takes so long.

AUNTY: [talking about government and laws] That's why I say I am not American, I'm Hawaiian, and that's all I consider myself as. [talking about politicians] When I came back here, I was so proud to hear that this uncle that had that park, everybody said he was the most honest politician that Hawai‘i has ever saw. And I said, "You know why he was like that? Because of my grandmother." If it wasn't for my grandmother, telling him, advising him, he would not be

FRIEND: What was his name?

AUNTY: Samuel Mahuka Spencer. [talking about family, answers phone] And they have so much land here [DHHL] and I still can't understand why they have to charge people when they're supposed to give them the land and then they build their own place. And not go like because some people here did whatever they did. So what? So what?

AL: It's who you know…

FRIEND: [talking about owning land]

AUNTY and AL: [talking about sharing]

AUNTY: It's not going to help the future people, your grandchildren and great-grandchildren if you don't tell the whole story. Because once you tell the story and somebody knows it, then it'll be good for the future of the Hawaiian children and anybody else who is concerned with what's going to happen to the place.

AL: But the thing is, we gotta get these young people come interested too. So they take care, *mālama*. You have to take care what you want. And always take care what you get.

AUNTY and AL: [talking about planning for the future and wills]

UM: Aunty, do you have any more *mo‘olelo* of the Waimea area?

AUNTY: Well the only thing I have is right over here, where all my family came from Lapakahi and lived here until they chased them out.

UM: And then they migrated to go to ‘Imi‘ola?

AUNTY: No, they didn't go to ‘Imi‘ola per se. Only my great-grandmother's family was brought to the church to go the church there. They had a minister in Lapakahi but grandma didn't like him. My great-great grandma. That's how my grandma came over here to church and became a Spencer. And so all of this history it's good to know.

AL: [talking about his friend]

AUNTY: They lived here from 1918, and just one family stayed there [in Lapakahi] till 1960. Which is my time, like when I had my oldest son. And then they moved to Mahukona.

UM: They are rebuilding some things down there, yeah?

AUNTY: Yeah because of the earthquake they haven't done very much of rebuilding but there's some places that need to be rebuilt. Rock walls put back up and whatever. I just went there recently to see if they did anything much but they haven't done anything very much since the rocks fell down.

UM: Do you know any *mele* or *oli*?

AUNTY: I got a whole bunch of old *olis* that can tell stories about our family.

UM: Oh wow. Of Lapakahi?

AUNTY: Yeah it could be some from the people that came from there because before all of the names, Hawaiians only had one name, yeah? So I have a whole bunch of chants and things like that, that my sister in-law gave me before she passed away. I don't know if she knew she was going to pass away but she gave it to me and she got it from a lady from here who was blind and I don't remember the name of the lady. But she was asked by the lady's niece to come up here to Waimea and I think it was at Hawaiian Homes in Kuhio Village. And this lady was blind and she had all the chants, supposedly from Spencer family and the family that lived over there and back to way, way, way back. [talking about family and how she got the genealogies and *oli*]

UM: Aunty what is your Hawaiian family's last name?

AUNTY: My mother's family is Ne. N-e. And there's some family from Moloka'i that was Ne also.

UM: So Papa Awae was your *'ohana*?

AUNTY: On my father's side. My dad's side was from Lapakahi. Spencer. [talking about family and naming of her son]

UM: Do you know of any traditional sites around the project area or within the project area?

AUNTY: No, not necessarily. All I know is that my aunt got a place in 1952, right off the street from there. She's about a block away from Didi. She's right across from Kanu. [talking about family. One of the people I think you should get ahold of is Luela Schutte.

UM: She used to babysit my son.

AUNTY: You should talk to her.

AL: His brother's wife is a lawyer. [talking about Schutte family]

AUNTY: I would ask you to go see Ester Andrade, but she's forgetful now. Alzheimer's. She would have been a really good one to ask because she knew a lot about this place.

UM: Aunty do you know any gathering practices or do you gather around the area? Or do you know of people that gather around that area?

AUNTY: No. I know all the other places. That's why I wanted to move back here because on O'ahu too many *kapu* this and *kapu* that. They use the Hawaiian word "*kapu*" but it's all *haolefied*. Everyplace you gotta go, someplace is *kapu*.

AL: When you leave this place, where you going to?

AUNTY: Right here in Waimea.

UM: Uncle did you guys gather plants from the Christmas paddock area for like horses?

AL: We had to grow the grasses and things like that, see?

AUNTY: Only the grass.

AL: Yeah, only the grass.

UM: Like medicine purposes or healing stuff?

AL: Like we get the jo weed. It's a medication too, see? It's a long, skinny stem.

AUNTY: It has a little purple flower and it's good for fixing bones. [Aunty sketches a picture of the plant]

UM: Oh is that the *koali*?

AL: *Koali*.

UM: But that used to grow all over? *Laukahi* always grows over there.

AL: If you going down to Waiki'i, Saddle Road, you go down that side by the old prison camp, you look for the darkest purple. That's a good medication for broken bones. That's the *koali*. Morning glory they call it in English.

AUNTY: Yeah, a weed with purple flowers.

AL: If you put it up your nostril you see triples. But you never going get sinus again. Like me, *pau* my sinus. Man, I see guys walking, I see three guys, triples.

AUNTY: The flower you're talking about, you eat to help your sinus?

AL: The flower is purple you know, this jo weed. You look for the dark purple one. That's the one that really can help you with broken bones and water knee and things like that. Drains all the water from your knees.

AUNTY: It's a morning glory. And the flowers come light, dark. It's a vine.

AL: You know Pāpā Awai. He only use certain kind type of medicine, you know. He hardly use the *koali*. Because he like the *noni* and things like that.

AUNTY: No, we never used *noni* for medicine. Never.

AL: Oh, I thought he did like *noni*.

AUNTY: Our family never use *noni*, uncle, also most every other *kahuna* that I worked with, they use the *noni*. But not uncle, not our family because if you don't know, I call journalizing, how and what the use of the medicinal factors that this plant has, then you can get your kidneys and your liver to shrink. By taking the juice or any whatever. All we used it in my family that I heard of is for making yellow dye.

UM: I remember people saying that Pāpā Awai would use the *ʻalae*, the sea salt, and I think it might have been *ʻawa*, all in one mixture.

AUNTY: The *ʻawa* and also the turmeric, the *ʻōlena. ʻŌlena* was for inflammation and so many different things. That is like basic, and *pōpōlo*.

AL and AUNTY: [talking about *ʻawa*]

AUNTY: I worked with a lot of *kahuna* in my past on Maui, Kauaʻi, and Oʻahu that did use *noni*. And I used it for shingles, by putting it in the bottle and then we leave it out for 5 months. Then you squeeze out all the seeds and you make a salve out of it, and you put it on the shingles and it disappears. But never ever our family used. I learned from Kaluakaiaʻula [Pāpā Kalua], ʼcause I teach his style of *lomi* and was given permission to do that. I think I learned from about seven different *kahunas* besides my grandma. We come from the family, so from hundreds of years they've been doing it [*lomi*]. So that's grandfathered in. I mind my own thing and whatever but I teach it because I want his style to be known to people from all over because he's the only kahuna that taught when, where, why, and how. What you do for each part of the body. Where all the rest of the guys, was all guys that I learned from, that whenever I asked a question, "Why are you doing this certain motion or style or whatever, they say, "Be quiet, don't ask any more questions. This is how I learned and that's all." But he was so nice and so *nahenahe* and so sweet. [talking about Pāpā Kalua and the Bible]

When I was a little girl, I used to ask mu *tūtū*, ʼcause she never knew what religion she wanted to be, or what kind Christian, you know. So she would take me to every church, except the Buddhist church in Kohala. Every church in town. Catholic, whatever. She never knew what she wanted to be. But not the Buddhist because she never understood Japanese. I think she always knew English, but I never heard her speak English until she took me to school and threatened the teacher to harm her if she hits me again. That's the only time I ever heard her speak English. Every time she spoke in Hawaiian. My sisters and brothers had to speak Hawaiian when they were little. We all spoke Hawaiian, everybody of us. English was not allowed when my grandma was alive.

FRIEND: [talking about speaking Chinese at home]

All: [talking about speaking Hawaiian]

AUNTY: I learned some of the place names that I don't know because when I do weddings I want to know what the place names are, and I don't know all of the place names on this island, even if I was born here. Because we never had roadways in places that have roadways now because we are allowed to go and do weddings and things like that. So I like to know the names so when I do weddings I can share the history and why it was named that, or why that is a special place for the particular couple. The places that I know is all the natural things that I can get to make something and do Hawaiian cultural things. Where I can get the materials and supplies from. My dad was an ukulele maker, he was a guitar maker, he was a seafood gatherer, he was a fisherman.

FRIEND: Was he a farmer?

AUNTY: No, my grandma was. More medicine kind. His mother. My mother and grandfather on mother's side were farmers. They knew everything about farming, eating plants. My grandpa never allowed us to plant things that would bloom, for making leis. It was for eating. [talking about grandpa] The only thing he would eat was day lilies. He would dry it and he would put it in chop suey. He would take the things all off of the watchacall, and he would do that and then the bottom

of day lilies, he would cut it up and make salad. And I wouldn't eat it because it was slimy. But I was his favorite grandchild. [talking about family]

People don't believe I'm 74. They say, "You're 74?" I say, "Why does a 74 year-old have to be with a cane and walking all crooked?" Yeah normally. [talking about learning and teaching and family]

Just to have that knowledge that the Hawaiians did, because they had so many things, they had meager tools, the simple stuff, and how amazing that they could do all these wonderful tools, crafts, how to make the poi pounder, the poi, just to sustain yourself. And now, we are supposedly all struggling. Why do we have to struggle? If we do what we know how they did it then, we wouldn't have to have all of this, "Oh my God, what am I gonna do, I have no money." So when I taught Hawaiian Studies, I would teach my children how to go and gather things that are natural from the land to create something that you can sell, like making ti leaf leis, gathering different plants that you can make Christmas ornaments, wood. So then I could teach them how to do some things with wood and stuff. So then that way they wouldn't have to worry about, "How am I gonna make my money when I get older if I don't go to college?" [talking about education and family]

UM: Aunty, I have two more questions.

AUNTY: I'm married already.

Group: Laughs

UM: Okay, while development of the area continues, what could be done to lessen the adverse effects on any current cultural practices in the area?

AUNTY: Well, one of the ways would be to create another roadway to get into the place. I think that could help. From somewhere else, you know, a new roadway.

UM: anything else?

AUNTY: No.

AUNTY: [talking about Kawaiaha'o Church] People always say to me, "Oh there's a lot of places here that might have bones and whatever." And I say, "But until they dig it up, they don't really know. Like the area and whatever. For instance here we had healing *heiaus* that my family built and they tore it down. It didn't matter. So where the houses are now, and there were healing *heiaus*, if something happens to the people who live in that house, hey it will happen. There's nothing that we can do because it's already been built. [talking about friends, teaching, and her house]

FRIEND: What is the importance of the house?

AUNTY: The Damon lady used to own it and she comes from a very wealthy family that sold the place for $420 billion in Honolulu, in Moanalua Valley below Tripler. And she came from that family because her great-grandfather was a minister, only for a little while, for Kawaiaha'o Church way back when in the 1800s. When the first missionaries came, he was one of the many ministers. But he didn't like getting $230 a year for ministry for our church, so he decided to get out and make a store in Moanalua for the sugar plantation people. So once he did the store, all the Hawaiians that lived below Tripler, they worked for the plantation and he would say, "Okay you can charge the food in my store." And he'd let them go up to $300, and then he'd say, "Ah no need pay me the

money, just give me a square foot of your land." That's how he ended up owning all that Moanalua Valley. From the ocean to the mountain, except for Tripler. When that happened, lots of people did not like the Damon family, Hawaiians especially, because they said instead of making them pay, he just took their land.

UM: Aunty, I have one last question, what are the cultural concerns the community might have related to cultural practices?

AUNTY: The only concern that I have is that lots of our cultural practices, things that we want to do are always held back by laws, and regulations, things like that. Like even if they say we have gathering rights. If I go somewhere, and it's like say a National Park, or place where DHHL owns, or whatever, like, "Sorry, can't get anything from here. You have to go get a permit." And I don't believe that we should have to get a permit. Because my family comes from here ages ago. Generations. And so why should we, as people who have been living here since, I would say 1200 that I know of, our family…

AL and FRIEND: [say they have to leave]

AUNTY: So that is one of the things, I wouldn't say I'm against it, but there's too much laws and rules and stuff like that are made so we as Hawaiians want to do what we need to do. It's not what we want to do, to enhance the culture, to keep the culture, we don't have that freedom, the freedom, to just go and get things that we need or that we can use.

UM: That's like the biggest problem right now, like the hunters have to get permits or even fishing in places.

AUNTY: Or, any place.

UM: Yeah, any place.

AUNTY: And making laws and rules. I have nothing against them doing conservation areas. But like where Lapakahi is, they added on more places, areas this way so it's all conservation and I don't really feel that this should have been done.

UM: I know why some people do it too. Some land owners make it into conservation so the land taxes can be cheaper.

AUNTY: I know. And then, who owns that land? What I know, the people who own that land were all doctors from Kohala that own that land before [at Lapakahi]. It was sold by our family to them. The Kohala doctors. Dr. Tavra, Dr. Epaulet, there was another doctor that I don't know the name. But some of that land right next to Lapakahi was sold to them. And I think almost every one of them died in a tragic accident. Every one of um. That's why I say spirits still live on and each one of them wanted to do something like building a fabulous house, right next to the village. I was told that whoever owned that, I don't know which doctor, wanted to make a cultural center there, and then bring people from wherever, from next door to walk into Lapakahi State Park, I call it "village" because I never want to call it a State Park. To bring them into there and use that as part of their cultural showing, sharing, or whatever. And once that was thought about being done, and the person who was thinking about that was gone. So in a way I think that all the spirits of the past are still there and how and why would all these things happen to these three people like that? Why would it be tragic accidents for them to pass just when they decided, "I'm going to do this over there"? Because that's all part of Lapakahi, all along that shoreline.

UM: What *ahupua'a* is Lapakahi in? Is that Lapakahi, the *ahupua'a*?

AUNTY: 650 acres, from the ocean all the way up to the mountain.

UM: And that's part of the dryland field system, Lapakahi?

AUNTY: Mmhmm, It never used to be dry. Before, it used to be all sandalwood, *lehua* trees, and stuff, and of course when Parker and all these other people came, cut everything down. Kamehameha, when he was alive, found out that the wood was really valuable so he had people just go there and cut up all the whatchacall [sandalwood] and send it all to China from Mahukona, on ships. That's when they started taking little Hawaiian children and sending them off to China and different places in the world to be slaves. And that's why Queen Liliuokalani decided she wanted to make the children's center. So they could keep the children and help them with not having parents. At a certain time the parents were all dying from measles or different diseases.

And she used to come to the village before and my grandmother used to do healing work on her. They even learned that she loved riding horses. So one of the stories is that they got horses and they trained the horses and rode on the horses and stuff like that, and when she came to Mahukona on the ship, she would walk the trail from Mahukona all the way to Lapakahi and get medicated and *lomi'd*, and whatever. And she wasn't sassy, they said she never let them carry her, she walked. And when she came over there, they used to raise this really huge gourds, big ones, and they would cut the top off and that was her suitcase. They would cut the top off, and dig out all the seeds and plant some more. Then the retainers would put it on their head and it would have all her clothes inside. First suitcase.

On the left side, if you're looking this way but you're looking down on the right side, that was a hotel for all the people that when they first came there, they learned how to do medication. Medicines and *lomi* and whatever healing work. Although it's known as a fishing village, it was, I would say, the first university on this island. Because navigation was taught there, fishing equipment was taught there, *lomi* was taught there, Hawaiian medicine was taught there, building houses was taught there, how to make canoes also. All these things were taught there over these hundreds of years. So then people would be able to learn how to do it and then go out to all the other islands. Then especially on the medicine part, they had a convention every year after 1212 because it took many years, like 10 years you could *uniki*, you graduate. Or 15 years I always jokingly said, if you weren't so smart, to learn the medicine and the *lomi* and stuff like that. And so people could leave there freely and go to any other island and do their medicines and stuff. And every year at a certain time in November they would watch the skies and they would come back and they would have a convention for medicine. A medical convention there.

UM: At where again, sorry?

AUNTY: At Lapakahi. And the longest time they had it was for 13 days. Normally it wouldn't last that long. But if you're standing and looking down into the village, all the right side was built, the structures, for a hotel, where all the islands had a certain place where they would stay. And as soon as you come into that area, there's a long area, looks like a canoe house, and that was the storage place for the food. And all these other structures were put and made there just for like Ni'ihau, Maui, Kaua'i, Moloka'i, and even Kahoolawe.

UM: Just for healing?

YK: For healing. And they still have where Pāpā Awae's medicine people come still in November there, and when I work there they still do come in November. Just a hand full now, not too many,

because he passed away, yeah. So it's kinda like going down. But they still have Pāpālōkahi. That is in Honolulu. Before when you came there, no matter where you came from on this island, you would have to chant your genealogy, you would have to say where you came from, what your family name was or is, and you had to give all this information so then the people who did the medicine, which was all women. Before that it was men, but the men realized when they first came there in 1200, that they could not do medicine and building structures for the living area. So what they did is they started training all the women to be the medicine people. And then because they were more nurturing, more kind, more everything, nice or whatever, then the men, they decided to just leave them be and be the medicine people instead of the men. Because basically it was always the men that were the medicine man in our family until they moved there. They said they came from the south side and was all lava so they just kept coming, coming, coming until they got to Kohala.

See, Kohala is the oldest place on this island, right? Mahukona in that area, below the sea, now before long time ago they used to have this volcano that was called Mahu, not Mahū. And it's now in the ocean. And people who knew that this mountain that caused the Kohala area, would come from wherever, far away parts of this island, and would come there. And this is what my *tūtū* shared with me, and of course my dad too. People would say, "'*Auhea kou Mahu*? Where is this mountain?" And they would say, "Kona." Kona. So that's how Mahukona got its' name. And that's one of the stories that I know from my grandma who raised me because she married into that family, who were originally the 'Awaekumuhonua. When the missionaries came they dropped the Kumuhonua because it told what you were, teachers of the earth. Because they planted things for medicine they cut off that Kumuhonua and they only kept the name 'Awai. So they shortened the name, and many Hawaiian people did that. Because before they only had one name and most of the names that they took or they had, pretty much said what they were or what they did. It told the story.

UM: Same thing like my family. I would go to my uncle and ask what was our whole name was. He would tell me, "Oh, it's *kapu*. Don't ask that." Hopefully one day.

AUNTY: You should still say, "I would like to know, just for my own good." That way then you will know, because I always like to listen and hear people's names, especially if they're very long and they're old names. Then I like to take it and break it down to what it means, you know, and kinda what they did. And this is why our family got rid of the Kumuhonua because the missionaries studied, learned what your name was and they would know that you're this kind of person. And *tūtū*, and not only my *tūtū*, many other *tūtūs*, tell this very story that once the missionaries learn what you did and who you were, they put all of us in the same box, as kahuna, you know people that have a certain kind of knowledge, because each person was taught this. Or was chosen to be taught this in the olden days. So you were taught this, you were taught this. But you were watched and observed and then you were chosen to do this work. So once you learned how to do that, it was a lifetime thing until the person that was your teacher passed away. So you would have this knowledge of whatever they did, is what you did as a profession. You wouldn't go to school per se, like they do now days. But you were taught all of these things. So as the missionaries saw or heard your name, they would know more or less what you are. But they didn't really study us, I feel, completely, deeply enough to know that we as healers were good people, to help. They just bundled us up in one da kine and said, "Okay, you're a *kahuna* of this." And so then we were all like *kahuna 'ana'ana*. And we were considered as that. So when they learned, this is what my *tūtū* said, and not only was my *tūtū*, they learned how to da kine and then they also learned from people who would share the Hawaiian medicinal plants and stuff like that, and what the plants did, *tūtū* said they would tea you, because they were famous for tea-ing people, and give them a little bit, a little bit, a little bit, of your own medicine, right. And eventually it would kill you. And that is how they did to the royal family. They would say, "Come my house, drink some tea." And then you go drink the tea where they go put in all these things inside and they're gone.

UM: But who would teach them?

AUNTY: There's people that taught them how to do it. They would ask and whatever, they would find out, and then do this. [talking about child molestation in missionary schools]

UM: [talking about education]

AUNTY: That why I love teaching when I was teaching Hawaiian Studies. Because I always wanted to share this heart that I was hoping that I could instill in my children that I taught, this unconditional love and caring about each other. All of the times when I was teaching in the '80s until the '90s, I ask my children, "What did you learn from *kūpuna* for the whole year?" And most of the time they made me cry because they said, "You taught me how to love." Or, "You taught me how to care about my neighbor," or "You taught me how to love my mommy and daddy." You know because some of them were treated really badly by one parent or the other, or both parents. But no matter what, they are your parents, and you not have to love them, but love them for all that they do and they brought you into this world. So a lot of the time they would say, "You taught me how to love." Just that alone made me feel like I did something for them. And a lot of the kids at that time when I was teaching, a lot of the children's parents were so young got divorced. [talking about how divorce affects children]

UM: Children are so open. I love that about them.

AUNTY: They are so honest.

UM: Well, *mahalo* aunty for sharing. Do you have any questions for me?

AUNTY: Sorry, I don't have a lot of information for you.

APPENDIX E: INTERVIEW WITH SONNY KEAKEALANI AND MARK YAMAGUCHI

September 17, 2014
Interview with:
Robert Sonny Keakealani (SK)
And Mark Yamaguchi (MY)

Interview took place at Sonny Keakealani's house in Waimea

By: U'ilani Macabio (UM)

UM: Can you tell me about yourself, and how you're involved with the area, and your *'ohana* traditions?

SK: I'm Sonny Keakealani. I worked Mauna Kea division before, and that was the part of the pasture where they kept market cattle before. They were easier to bring in. Anything that we transferred from Māna coming down from Makahalau, came to Paakai Nui the paddock above Christmas. And then close to Waimea was Christmas. It was all market cattle. It was like a fattening paddock. They were left there to butcher and ship out.

MY: Butcher and go Honolulu.

SK: Yeah, Honolulu and all that. It was a pasture that they could hold maybe two to three weeks before they can ship to Honolulu. But it was mostly for market cattle. That is how we are involved. Because we were the ones in there that drove the area, and if we transferred cattle from Makahalau to the main ranch Waimea or Mauna Kea Division, we came down from Puka'ali'ali, then Makahalau, then to Waimea. Down through the area.

UM: Pukahāli'i? What was the name of the other area.

SK: Oh, Puka'ali'ali. That is the last paddock from Māna Division, from there we come inside Paakai Nui. That is Mauna Kea Division. Māna and Mauna Kea. Two different divisions. Now when we transfer cattle we walk the cattle to Christmas. From Paakai Nui to Christmas.

UM: Did you guys Māna Road or trails.

SK: No, no, it was all pasture.

UM: Oh, pasture.

SK: It was all ranch land that came. And then it was Hawaiian Homes, and Parker Ranch lease. I'm talking like back in the '70s. When I worked there.

UM: No trails?

SK: It was all through ranch land. We never did go through any highway, no roads, nothing.

UM: Okay.

SK: Even from Keaumoku, from Waiki'i. Everything we walked was through ranch land. Anything from the *makai* side, the only time we cross the road was below the highway out here [Sonny points to the area in front of his house] by Pu'u Pā. From Kohala Mountain coming down by HPA, we crossed there.

MY: Right above the rubbish dump.

SK: Right above. That is only when we cross state highway.

UM: Fence lines were far apart or they didn't have?

SK: No, they had. There were all paddocks. Christmas was the paddock.

UM: Ho that is a large paddock.

SK: Yeah, It was a livestock paddock, cattle. They kept cattle in there, only cattle.

UM: So do you guys know any stories *mo'olelo*, that maybe people before you guys shared?

SK: No, like I said I worked in the middle '70s and that's only what I know when I worked for the Mauna Kea Division that they only kept livestock in there. That's all I know. Nothing else. As far as people living there before. We were too young to know. Plus the old people never shared too much. Like our supervisors, the old *kama'aina* of Waimea, they never mention too much over there. It was Hawaiian Home Lands and Parker Ranch leased it until late 1990s maybe 2000s.

MY: After that Rice gave everything back.

SK: That is all we can share with you can share with you, because when we worked for the ranch it was just livestock and pasture. As far with *mo'olelo ma mua*, *'a'ole maopopo*. *Makou 'ōpi'o*.

UM: Even the cultural sites and burials?

MY: No more over there.

SK: No, as far as working the area. There were no area of practices like. No more, it was just under the Parker Ranch lease, the land. We just were employed by Parker Ranch and wen' work cattle, that's when we were in the area. As far, as we worked in the area corner to corner, there were no burial sites like that. The only part had in there was airport lights. You know, they had the *ahu* like, and that's about it.

MY: [Laugh].

UM: Did you guys ever need medicine, like lā'au lapa'au, when you were ranching?

SK: No, nothing.

MY: Cause more the burial sites were more in town.

SK: In town, around breaking pen.

MY: All behind here [Mark points to the back towards the area of Pukalani] was all burials.

SK: Yeah, burial ground. Ko'omaloa.

UM: Ko'omaloa?

SK: Behind us. It is all ranch land. Hawaiian Homes is outside. Like I said, it was barren. We leased the land. Never had burial grounds. The old people, like his dad was one, and Henry Ah Sam they never tell us no go over there. They said everything is okay, *maika'i*.

UM: You guys never felt anything strange ever? Everything was good?

SK and MY: [Laughing]

MY: Never have nothing. Had plenty pigs though.

SK: Yeah the pigs was fat. This time I would catch plenty pigs. [Mark laughs] House meat.

UM: And still yet get choke pigs roaming?

SK: I guess, but you know with all the houses now, they move out. Not like before, was just pasture land right out to Māna Road, clear across.

UM: It was only pasture lands, so there was no trees before?

SK: No more trees. No Hawaiian practices.

MY: The only trees was by Paakai Nui and Christmas by the corner, with the gum trees. That's the only trees had. Just a triangle of trees.

SK: Who planted the trees? Richard Smart?

MY: The ranch manager?

SK: The ranch planted that trees, not Hawaiian homes.

UM: Who was the ranch manager at the time?

SK: Hartwell Carter.

UM: Hartwell Carter?

SK: Yeah.

UM: I guess I knew that it was going to be hard to find information of the area. Because even Uncle Uku said there's nothing over there.

SK: He don't know.

UM: Yeah he said there is nothing.

SK: And yet, he is older than us. When I was working, there was this supervisor older then Uku, and same like his dad, way older than Uku. And they never mentioned, and yet that's the area they worked. And no more hum bug.

MY: If had, they would say.

SK: They would let us know.

MY: Yeah.

SK: And the ranch would go fence it off. The ranch was good like that.

MY: Like behind here, this subdivision, they called my dad to have him show all the old burials, and graves.

UM: So for this area, you guys would herd the cattle into Christmas Paddock?

MY: Yeah, then from there we would drive them, come down to the stale. Separate from what we don't need. And, chop them or ship them to Kawaihae, Honolulu, some will go Hilo, some stays at the Waimea food market.

UM: Okay. When you talk about the stable, you talking about Pukalani?

MY: Yeah.

UM: Oh, okay.

SK: Was before, we had a corral before over there, but it's all the houses. Holoholokū housing. Which they get wrong name. It is not Holoholokū, that's Pukalani over there.

MY: That where they used to call Yotaka Pen.

SK: Out there is Holoholokū, not there by the houses [points to the *pu'u* in the back of the house]. That's Pukalani right there.

MY: Below the stable, that's Puhihale Stable.

SK: Puhihale. The wind yeah.

UM: That's the name of the wind, Waimea wind?

MY: That is the stable below Pukalani

SK: When the wind come down that's why they say *puhi*, and *hale* was the stable.

UM: So talking about wind, what else kind of winds you knew about in that area that would come? Like the winds or rains that would come to that area.

MY: Used to rain a lot before. When I was young wind and rain Waimea every day. When come five o'clock in the afternoon it used to be so cold already. Everyone would be in the house already. Now it is all different.

UM: Now, it is so hot. So do think the seasons are changing?

SK: Yeah, plenty.

MY: You know the rivers right across the intersection. The rivers always used to run, constantly running, you know. Never did go empty unless there is a mean drought. That river used to run every day.

UM: Ho, wow, that is a big change. Now, we rarely see that river running.

MY: On top of church row. See they diverted a lot of the gulches up there to build the subdivision. Before, it used to rain, and all those gulches used to be full.

UM: Did you guys used to see the rivers going down from Kohala Mountain going down to Kawaihae?

MY: Yeah.

UM: Oh wow. Now you don't even see that anymore.

MY: Unless there is a big rain. Very seldom.

UM: In this area did you guys catch birds in Christmas Paddock?

MY: Oh yeah. Used to be lot of pheasants and stuff.

UM: And you used to catch it and eat it?

MY: Yeah.

SK: You gotta talk to Mark. Mark was born and raised over there so he knows that area. What you talking about, like bird season? And hunting season, pig or whatever. They open it for people.

UM: Did you guys used to eat *kōlea*?

MY: You're not supposed to but we used to eat um.

UM: Until when did you stop?

SK: Until they go back I guess. They came over here and got fat.

MY: Till April. Gotta wait 'til the chest come black.

SK: In English, plover. In Hawaiian they call it *kōlea*.

MY: If you get caught shooting that you would pay a big fine. Everybody used to hide. After, they would fly back to Alaska you can shoot in Alaska. But not in Hawai'i it was *kapu*.

SK: Bird season is bird season.

UM: Is now bird seasons?

SK. No. Later part of the year.

MY: November. Now you see the turkeys and the chakas and stuff, before, you don't see them down here. Was always up in the mountains. Now, there are too much things happening in the mountain. That's why all the birds coming down.

UM: Do you guys have any concerns about the development that Hawaiian Homes are gonna do?

[Sonny and Mark shake their head showing that they have no concerns]

UM: No concerns? What kind of issues do you see now in Waimea? Or through time, what would you prevent from happening?

SK: Ask Mark from his time of growing up.

MY: Now, what I like prevent is people buying the land and building. It's too much; Waimea is getting too crowed. In my younger days you knew everybody in Waimea.

UM: Yeah.

MY: New Years, the Japanese custom you go house to house and celebrate. Today, you can't do that. There's so much people. Before you could go someplace, leave your house unlocked and... not today.

SK: Before was Malie 'Ohana right there.

MY: Yeah.

SK: If we going talk about the ranch, I can share a little bit. Mark was born and raised here, but I am an outsider. I came here and worked for the ranch. But even in that years in the middle '70s till now, a lot of things changed. The ranch changed, our old ways of living changed. We went more toward the white man's way. We lucky we get Hawaiian Homes here. That's one thing I can say. *Kela ka Lula o Waimea*. No mater what we say. Waimea will all be Waimea because of Hawaiian Homes connected to Waimea. That's part of the heart. Where Hawaiian Homes is connect with Waimea and the ranch. And how Mark grew up, he seen the changes.

MY: Our lifestyle from when we was young till now, is all changed already. Like before you know, everybody used to take care of one another. If your family need help and stuff.

SK: That was part of our spiritual practices.

UM: Oh, yeah.

SK: Yeah.

MY: You know when they *kalua* pig, and make a party. Ho, the people used to come and help. Before, you could burn your rubbish at home. Now, they talking about building one big incinerator. At first they was talking about polluting the air and now they talking about putting up one incinerator. That is just as bad; might as well go back and let everyone burn their rubbish. Before, every house used to have one 55 gallon drum. You burn all your paper goods, and the bottles and stuff used to pile um up all on one side.

UM: Kaho'olawe they still do that.

SK: The old way.

MY: If everybody can start doing that at their own house they can recycle plastic and bottles. Then they no need worry about the paper products. Before they used to have *furo*. You know what a *furo*?

UM: Mmhmm. The Japanese bath.

MY: They used to burn all the paper in the *furo*, to make the water hot.

SK: Nothing being wasted, you know. Everything was used. But, everything was connected; people from Hawaiian Homes, people from within Waimea Village. They were all connected together. Whatever they did they were all family, *'ohana*, two sides. Japanese married to Hawaiian, Portuguese, Filipino, and Hawaiian. All was connected, like I said were all *'ohana*.

UM: When did you see that change?

SK: In the late '90s.

UM: Not that long ago.

SK: Not that long. Even the ocean change too, less fish, more people, more activities down on the beach areas.

UM: Yeah.

SK: We never had privacy. That's why today you see the goats come, because the man build there houses inside there where they were roaming for centuries. You can't blame the pigs because the man move into their area. Like I said there's always DLNR, or private owner and they control, yeah.

UM: Oh, yeah.

MY: Like I said everything today is politics.

UM: Yeah. Is there anything else you want to share about the project area?

SK: No, because when we worked the ranch was when we were familiar with the area. But it went back to Hawaiian Homes long time ago. Even when we were working in the late '90s it was turned back to Hawaiian Homes already.

UM: So, the lease went back to Hawaiian Homes but Parker Ranch was still using the place.

SK: MmHmm.

UM: When did HPA come in? Did you see an effect with HPA, the school? What was the major effect, was it the airport that affected more people coming to Waimea?

MY: No, they started HPA right in town.

SK: By the Episcopalian Church. You know where Small World School is? That was the old HPA. It was an old classroom.

UM: Oh wow, I didn't know that.

MY: Then eventually they built the high school.

SK: [talking about HPA]

UM: So Parker Ranch you guys worked all in this area [pointing to the *pu'u* of Waimea Hoku'ula and Pu'u Lae]. Did you guys notice a change in the forest? Did you guys go into the forest?

SK: No, but, I tell you it is one of the cleanest mountains and Ku‘ulei used to get classes up there. We had a lot of outsiders attended classes. Waimea Middle School, Pūnana Leo, Kanu o ka ‘Āina. But that mountain right there is life [points to the mountain]. Every mountain the four of them.

MY: All this from here going to Kohala is all Hawaiian Homes. You know all the away to the look out that is all Hawaiian Homes.

SK: You can check with Parker Ranch because the get the lease, you know. They gave up some of the lease.

MY: The ranch sold out all their land, and turn around and leased back the land.

SK: [laugh] That how, politics. Trustees.

UM: I went to the back of Honokāne with uncle Ala Lindsey. Is that still Parker Ranch lands?

SK: Yeah.

UM: It is nice over there.

SK: It is not Honokāne, it is Kehena. You are on Pololu ridge. When you look down this way that is Honokāne Nui. When you go Pololu, then you look out it is Honokāne Iki. Thenf rom here from Pololu, you can see Awini. When you at Pololu you look across. Then when, you in the back of Kehena, you can see all the trail on Honokāne. And then when look this side you are on Pololu ridge. When you go on the north side, you going toward Awini. Then you going hit Honokāne Iki, Waimā, and then come across to Waipio. Hi‘ilawe is in the back here, by Lalakea.

UM: Oh yeah, yeah.

SK: It’s behind. You know, everything from Kohala is different it’s all up front. Until you come from Waipio you go around.

UM: The trail from Waipio to Waimea is on the ridge, yeah?

SK: That is overgrown now. The last one I think traveled on that road was Sheldon Joaquin, and couple more other guys. They use the fisherman road. But after that they fly in by helicopter or they go with the zodiac from Waipio and come around.

UM: A lot of the trails are broken.

MY: One day we hiked from Waipio to Waimanu, we stayed overnight, and then walked all the way to Pololu.

UM: And that took one day?

SK: No, This Big Island, this not Honolulu.

MY: See what we did was when the tide was low, then we walked over. There’s a small bay then we stay overnight. We would have to wait for the tide go down. Then continue on.

UM: So, it was no moon or full moon?

SK and MY: No moon.

UM: Oh, wow.

SK: Before was different. The tides went like that with the *mahina*. Today different, girl. The land different with all the years of the tide change, and all the tsunami, earthquake. Everything shift. Our days was different. We were brought up old school. We would go fish when supposed to. We never just go fishing every weekend. We went hunt to put food on the table. That is how we were brought up. If you go down beach, we never had the *makai* roads before. Everything was military or jeep road from here to there. We never had nothing. Or horseback.

MY: We would just go down take what we need.

UM: Was it a community effort? Or was it just the individual?

SK: Depends, depends, was sometimes families go down. Usually was families. You know, about two, three families would go down. Because everything never have road going down, was all four-wheel drive.

MY: Or go with the boat.

SK: Yeah, from all the way Kawaihae you go Kīholo. Fish, come home, or go all the way to Mahukona.

UM: Did you guys in Waimea trade cattle with fish?

MY: We would go and catch ourself. But you know, the people that used to live down there, we go down visit, we used to take meat, like smoke meat, smoke pork, and all kind. Then they would give us dry fish.

SK: That's how was before. Simple. Wasn't money involved. You share the stories from up here, and they share the stories from there. It was expensive or was too far to travel.

MY: Yeah, that is how everybody was family, one *'ohana*. Even if you was Japanese or Filipino or whatever we was all one big *'ohana*.

SK: We were all one.

UM: I feel that the days now are kinda still like that. I feel like some parts of it are still like that. Our neighbor would catch fish and share with us.

SK: We still do that we share. My family I would bring fish or whatever. We still do that, we still do it. We still get the ranch way of living. That's how we were brought up, you share. Hawaiian Homes, because I have family in Hawaiian Homes, and we all shared. My grandma Kalani stayed up here, my grandpa Philip them, they were in Hawaiian Home land. When I started working ranch, I stayed on ranch land. So the connection was still there.

UM: *Mahalo nui* for sharing. [talking about family in other parts of the Big Island]

APPENDIX F: INTERVIEW WITH ALLEN "UKU" LINDSEY

September 11, 2014
Interview with Allen (Uku) Naeʻa Lindsey (AL)

Interview took place at Allen Lindsey's house at Hōkūʻula, Waimea, Hawaiʻi

By: Uʻilani Macabio (UM)

UM: You were born and raised in Waimea your whole life?

AL: You know where Halekea arena is?

UM: Yeah

AL: You know that house before Halekea arena? I was born in that house. And inside that house we have *koa*. *Koa* walls. And it's a five bedroom house, big dining room, and the wash room on the side of the downstairs. And they get three bathrooms in that house.

UM: Ho, that's big.

AL: Yes, you see my dad wanted to sell um for $18,000 when my mom passed away. So I wanted to buy um…my sister never like sell um. [talking about selling the house and his injured leg]

UM: What school did you go to?

AL: Well I went to Waimea School first. That's why the girls know I could jump rope [laughs]. I used to get so much rapping on the legs, see my mom hit me on the leg, and she take me and my brother, we get one outhouse yeah? ….We jump, jump because we no like get rap too much yeah? [talking about parents] And my mother used to string *akulikuli* lei for Kamehameha School. She had a contract with them. Only $2 one lei. One lei nowadays is $21 something. [talking about people]

UM: Then you went to Kamehameha School after?

AL: No then I went to Kohala Elementary. I went over there until 4th grade then she sent me to Kamehameha School. You know where Houghtailing Street is? That was all the school down there. From 4th grade to 10th grade. And I went all the way till 10th grade and that's when I left Kamehameha in 1948. I dropped out. But I made sure that my girls all got their education. [talking about daughters]

UM: So you have four girls?

AL: Four daughters. My oldest is Allison Lei Lokelani Lindsey. I mean Lindsey—now she's Myeda. That's my oldest. Then get Ann Marie Noenani Lindsey Stothers. See my mom's name is Kanoehaliʻi so I just cut um in half yeah?

UM: I like the Kanoehaliʻi.

AL: That's a *kapu* name that's why. That's why I never like use um….My oldest is October 7 she going be 64. She was born 1950. Then Blondie gonna be 63 because she was born '51. Then ---- just made 61 because she was born '53. And Elmira 1962, she just made 53…and she's the only one can speak Hawaiian fluently.

UM: Where does she work at?

AL: She works with *tutu* and me with the cousin. My brother in law's daughter she runs ---- and they go Kohala and travel all over. Take children.

UM: And they don't need to be like 3 years old, they can be real *li'ili'i*.

AL: Yeah, they can be small, from babies. They can *hānai* um and take care.

UM: You know Laua'e Bertelmann?

AL: She's my niece. Didi's daughter.

UM: She was saying that at one point the Lindseys owned a lot of Waimea.

AL: All this area here [points to map] was owned my uncle Jim Fay Lindsey. 275 acres. And you know what he did? He went sell um to the ranch. That's how I got um. The land. He was working for the ranch, when he retired, his wife started to get sick yeah? Laua'e them, they all come from that Jim Fay Lindsey side. Me I come from Thomas Westin Lindsey. That's why had two brothers yeah? My grandmother she married the youngest one of the two brothers. William Seymore. Then Thomas Westin was both of them side, so that's why they get Westin, Lindsey and all that. You know my nephew Westin...

UM: And then your *tutu*, she was the Hawaiian?

AL: Yup.

UM: Is Parker Ranch related to you guys?

AL: The old man Purdy. My grandmother, she was Henrietta Kaluna Purdy Lindsey. She married my grandfather. That's Ekoa Purdy's youngest daughter. That's my grandmother. That's why Ekoa is like my uncle, like yeah? [talking about Ekoa Purdy]

UM: Can you share with me more information about your *'ohana*? Like their *paniolo* days?

AL: During the *paniolo* days always had the Lindseys. You see, the Lindseys, the Spencers, and the Stevens all related. In that picture they get Spencers, they get Martin.

UM: I'm a Martin. I think we all related but from Ka'ū side.

AL: Your mom's side?

UM: Yeah my mama's side.

AL: You know before Martin it was Deveraux. That's the name they went by. [talking about people] Even the Philip family and the Akau family, they related to me too. [talking about people]

UM: What did your family do, their traditions, cultural…

AL: My mom was always superstitious. No whistle, no sing in the morning when you get up. No sing in the house. And don't sweep outside nighttime. That was all da kine superstition. I sweep out nighttime. I sing in the morning. I don't whistle in the house though. I just don't whistle. But only I tell my people don't smoke or drink in my house. Not your house. 'Cause since I came back I stopped all that things and I try helping them. [talking about people]

UM: What else did you guys do? Did you have *mala*, where was your *mala*?

AL: We had our own roping and things. [talking to family]

UM: So is that all you guys did, your *ʻohana* background? Because they owned a lot of land back then.

AL: My cousin Bolo, Fred, like Charlie Lindsey's dad, they own a lot of land too. They had a lot of land for them. All this land was all Lindsey's, you know right next to Merrimans? That's the Lindsey home. Sam Lindsey used to be. They all passed away and then people sold um. [talking to family]

UM: So Uncle, what kind of work you guys did in that area by Christmas Paddock and Paʻakai Paddock?

AL: In Christmas Paddock we used to keep our horses. Get one man every morning 6:00 he go drive the horses in and bring um down to the pen [at Puhihale]. You see, that is not Holoholokū.

It's Puhihale used to be. Right below Pukalani Stable is Puhihale. Then you go to Christmas Paddock, then you go to Holoholokū, then you go to Pukaʻaliali, then you go to Paʻakai Nui, then you go up all the way and then you hit Makahalau. [These area are all ranch land, pasture fields.]

UM: In that area you guys used to skip horses?

AL: Yeah me and my men were the only bunch that we brand 1,200 calves in 45 minutes, all by roping, you know. We no use the *haole* ----. All by roping. Take about 2 ½ minutes to 3 minutes a calf. We would teach um how to, make the calf walk through the loop. [Talking about people and lands outside project area] [asks to turn off tape]

AL: [tape starts again] I'm lucky I went by because the Japanese who went take care this place, Mitsunami family, they never like paint the room because Parker Ranch no like give um the paint. [talking about people] 1973 I bought this place. I bought um from the ranch, this place here. [talking about things bought and sold]

Nobody step on me before, even the manager I tell um, "If I'm no good on the ranch, fire me." I not scared of them. My father, he was so lean, he cannot answer to the bosses. I told him, "What if they tell you jump in the fire dad, you jump?" That's how I got the name Uku, because my dad race horse. All the years they get races, 4th of July he run against Yutaka Kimura. He get one thoroughbred and he run quarter mile. No thoroughbred can beat one quarterhorse. Never.

UM: Kimura from Waimea?

AL: Yup. Yutaka Kimura, he used to be…but he passed away now. He was the one that taught me how to pregnancy test cattle and eyeball um. I learned all from him. I no say I wen' learn um myself. I put his name in because he's the one that helped me. He showed me how. When Dr. Bergen came over here I knew how to do all those kind of stuffs already. Because I learned from the old timers. They no charge when they teach, see? Like nowadays everything is they charge you for do this, charge you for do that. They no give free from the heart kine. [talking about people] Now I get 15 grand and 5 great-grand [children] now. [talking about grand children]

UM: Do you know any *moʻolelo* or stories of the area?

AL: You know that new road they get, used to be Ka‘ala. Ho, that place they haunt people you know. You travel at night even you go up Makahalau, we travel on horse at night time. Sometimes they can hear somebody calling. And you know the guys all turn around. They follow the call, yeah. Then when they get to the certain area, no more nobody. So like I was saying the first time I wen’ drive Christmas Paddock, I start from the bottom and I *kani ka ‘ō*, and *kani ka ‘ō* is yell, yeah. And all the horses come if I’m in the pasture, come down to the corral. And I heard somebody else *kini ka ‘ō* too. I said, “Who the hell is this?” Somebody must be doing the same thing like me, driving the horse too, help me drive. So, I went *kani ka ‘ō* and I heard the other one, “Come on, come on, come on *hele*, *hele lio*,” speaking in Hawaiian for get the horses come down. So from that time on I would come on top the hill, I wen’ listen what was one old timer. And he told me, “Boy, if you afraid of me, be not.” And I said, “No, I not afraid of you, I know who you are. Old man Parker.” “Yes, now you know me, huh? I’m not here to make you scared. I’m here to help you drive your horses.” Lot of the guys they hear that, they turn around and they go home. They so scared of um. I said, “No, he’s helping you drive the horse in, don’t be afraid.” ’Cause 5:00 we drive, 6:00 we gotta get in the corral because they gotta run to the chute, we gotta use what we going to work, and what horse we going ride, see.

But now before cowboy, they get about ten, twelve horses, you break in your own. But now they only get eight. So they get hard time work with eight horses. So what they do, they try train horses for people. But they charge um. At the ranch, you bring all the horse, if you work um on the ranch they let you feed um the grain. Because they all get grain, see. [talking about people]

The Barber Hall, before they call that Barber Hall, where Parker School is now. 1929 that hall was built. So it’s about 80 something years old. Over 80, almost 84, 85 years old. Just as old as my wife. See my wife, she was born April 10, 1929. When I got married to her, she was 20 I was 18. So now I just made 83, she’s 85 because she’s two years older than me. So next year I going be 84, she going be 86. So all that going add in.

UM: So you were born 1931?

AL: ’31. September 10, 1931. [talking about doctors appointments]

UM: What was your wife’s name? Malia?

AL: Malia.

UM: And her maiden name?

AL: Maiden name was Mary Pacheco. [talking about wife and father in law]

UM: What year did you guys get married?

AL: April 8, 1950. And she passed away June 9, 2001. And her grave is up in the church cemetery. Mormon cemetery. [talking about cleaning the grave] [talking about people]

UM: Can you share with me about how things have changed and what you miss about the old times?

AL: Well you know like now how the thing changed, all the *haoles* came in, see. They wanna run everything their way. But you see they put Hawaiian names and they don’t know the meaning. Like um….Kanehua. You get two Kanehuas going Kawaihae. I told Dr. Bergen about his Kanehua, he never believe me. I said, “You know that’s a male prostitute.” *Kane* is man, *hua* is a prostitute. He tell me, “Why you tell me that now?” I said, “Because you went buy um, you in the prostitute area.”

He said, "But I'm not a prostitute." I said, "Well you gotta live with it, you know." Now if anybody like buy when I get older, maybe I can sell um. If they like be one male prostitute they can maybe. You get all your things in there, so remember what Uku wen' teach you— Kanehoa, male prostitute [laughs].

UM: What about even like the weather nowadays? Because that's changing.

AL: You know the weather changes but you know when you get the *ma kai* wind? That's the sick wind. A lot of children get sick. [talking about people]

One night Parker School when call me if I can speak for them and they had me to talk story. So I told them, "You know, the trouble is I don't wanna run you down, because I know most of you are white people. And we are locals. We call you *haoles*. We are Hawaiian Caucasian." So I said, "When you white people came over here, you change everything around." But it's not the right thing, the right name that they had. "We had names before you changed it. But you wanted to change it your way. It cannot be your way. It has to go back to our way." And I told them it's not *pono*. So they asked me, "What is *pono*?" I said, "It's not back to normal." That's what *pono* is. It's like closing the deal. So after that, I get plenty guys, even the head master, tell me, "You know Mr. Lindsey, I never know us guys come over here screw you up." I said, "You never screw us up, you wanted to run us." [talking about people]

UM: Do you know of any *mele* for the area or *oli* or place names?

AL: Like the old song that we sing, I used to sing it for my *pākē* lady, she like "O Makalapua." I sing that once in a while. [talking about getting old]

UM: What about *olis*?

AL: I don't *oli*.

UM: What about when you guys work *paniolo*, what kine song you guys…

AL: We always used to sing like "Kila Kila Na Rough Rider," we sing all that kine. And we sing, "They coming round the mountain when she comes." We sing all that songs. And I get one good song I going sing um in English first: [singing] *My old man is a good old man, wash his face with the frying pan, comb his hair with a rocking chair. My old man is a good old man. Ku'e makule maika'i no, holo i kana maka me ka po palai, kahi loko kono lau o ho me ka la ho paepae, ku'e makule maika'i no.*

UM: *Maika'i, mahalo*!

AL: [talking about people trying to claim songs that they did not compose, and about how some people back in the old days were not fully educated, but were hard workers]

UM: Uncle, you guys had *'ōlelo no'eau*, or sayings you had for when you were working?

AL: You know this Parker School, used to be our Christmas party and New Year's party every year. When Richard when give um to Parker that when change. Used to be Barber Hall before. Then they when change um to Parker School. [talking about the school] [asks to turn off the tape]

AL: [tape starts again] [talking about doctors] [talking to family members]

UM: Do you know of the traditional practices or land uses in that area by Christmas Paddock? By Kanu?

AL: You know where Punana is? Used to be Parker Ranch Pasture. And like up here, Hokuʻula, that hill up there is Hokuʻula. From that hill, we used to ride the cardboard, come down until we hit the boundary. Now is Halekea, yeah? My house is right below that before. [talking about people]

UM: So Uncle, the development of the area, they're gonna build a golf course, cemetery…

AL: Make sure you can get the water though. That's the thing is, they gotta find where the water, because you know why, you know by that hill out there? Puʻu Holokū. Get one deep hole you know, and no more end to um. And you know that cave? Go all the way down to Kawaihae.

UM: Oh wow. I know Uncle Ala Lindsey…

AL: My nephew?

UM: Yeah, he used to do the water system.

AL: On the ranch yeah? After ---- when *pau*.

UM: So water is important. What do you think is important for the developer, which is Hawaiian Homes, what do you think is important for them to know besides the water factor?

AL: You know they gotta get water. They gotta know the land. And they gotta know the weather. That's how you know if you can build if get too much wind. But this *puka* before I couldn't find um, I took my daughter, she wanted to find um. She took me on her truck, we went go look. Cannot find that *puka*. Either that, somebody wen' dig um away or close um up. But used to end up down Kawaihae. Where Bill White stay now….down by Wailea side, get one *puka* come out of there. That's where this *puka* go but that *puka* come back up. It's hard, they went close um yeah. Before you could hear the noise of the ocean. That's why somebody went backtrack um. And that guy went walk down in that *puka* and he came out by that place. [talking about people]

UM: How did you guys feed the cattle back then? What did the cattle drink back then?

AL: Was always water.

UM: Where did you get the water from though?

AL: From the lands.

UM: But in that area?

AL: You know this Holoholokū get plenty water.

UM: No, but by the ʻĀinamaloʻo area.

AL: Yeah, that's why I said Holoholokū Maloʻo area get plenty water under there if they know how to dig um. But you know what they should do, bless the place first. Make sure *pono* the place. *Hana ka pule*, then you know work. Good, because God would never stop anybody's prayer. He always answer people's prayer. [talking about faith and being kind to people and animals]

They even tried going down Kawaihae to get water from that mountain, you cannot get water from that mountain. From Pukawaiwai, that's the name of that mountain, going up Kohala Road. That's where get lots of caves in that area. You going see lot of coffins in there but look like canoes. With people buried inside there. And you'd be surprised how they get that coffin inside that cave. The only guy wen' screw up was Albert…he take all the good things from the Hawaiians, take um and put inside there. But he no leave nothing, see. Yeah but they wen' get to him. Albert Solomon. His brother was Thomas Solomon. And the brother used to be good. He said when you take anything from the cave you leave something. You never take and leave empty things there. 'Cause they going get back to you.

UM: Uncle, do you know if *kūpuna* are buried in the area where DHHL is going to develop? By Kanu area?

AL: The only place get people buried is by Puʻu ʻŌpelu, by ---- house. There's seven people over there but I don't know who their names are because maybe I never meet um. I don't even know the name. There's seven Hawaiian men buried over there. Right by Puʻu ʻŌpelu, right by that Norfolk pine tree. [talking about land ownership disputes]

UM: Waimea is developing so much, so much people coming in all the time; how can we continue cultural practices in Waimea or better educate foreigners to respect the cultural…
AL: You gotta get the foreigners to come in and get together with you. You gotta talk to them. You know, like you see the *haoles*, try make meetings with them and talk, "How would you folks feel if we do this and we do that." You gotta talk among yourselves. It can be done you know. But like I say, it takes two to tango. It takes two to agree too. You know who your boss is and make your boss talk with their boss. Everybody get together. It's togetherness. Not only they going take from you and they don't give back. Because like I say how that going be for the Hawaiian, I try not to sell the land. If you sell, sell to Hawaiians. [talking about family] [answers the phone] [talking about football] [talking about Keanakolu]

UM: What do you want to see continue in Waimea?

AL: What I like see continue? I like see the ranch keep on growing. [talking about people]

There's herbs that can help heal broken legs. You get the *koali*, the morning glory. You use the roots. When you like fix broken leg, you get the darkest purple of the morning glory, you go down, dig up the roots, you pull um out, you take the roots, and you scrape um with a knife, scrape um. And then you get ti leaf, you *poke*, and with that roots and with salt and poke of the ti leaf, you put um inside the ti leaf and you put um on the body. For three, five days at the most, five days supposed to be alright. My dogs, I save them all with the morning glory. This old man, one time his hip, he wen' put um back and then put the morning glory. I put the ace bandage and I wen' tie um around his stomach. He no like even touch um after that. I *pana* his mouth. That's what the Hawaiians say, "I *pana* your *waha*." With the fingers.

UM: Flick?

AL: Yeah.

UM: Do you have any questions for me?

AL: No, I have no questions. I like know when you like come back again if you need some more stories!

UM: I probably will. I'll go type this up and then I'll give um to you. And I'll call you first too, so you know.

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APPENDIX E

Preliminary Engineering Report

Group 70 International, Inc.

January 2015

PRELIMINARY ENGINEERING REPORT

Waimea Nui

January 21, 2015

Prepared for:
State of Hawai‘i – Department of Hawaiian Home Lands

Prepared by:
Group 70 International

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1 Introduction

1.1 Project Background and Description

Over the last 40+ years, the Waimea Hawaiian Homesteaders' Association (WHHA) conceptualized community development projects in the Pu'ukapu Homestead Farm Lots with the intent of building a vibrant, self-sufficient community. In recent years, WHHA identified the need for economic drivers to act as catalyst projects to help fund additional improvements in the area. Based on WHHA's desire for economic drivers as well as community desires identified in prior surveys, WHHA compiled the following list of projects to be included in this report:

- Cemetery
  - The cemetery site, which will also include a columbarium and chapel, will occupy approximately 10 acres, with the provision of 100 parking stalls. The chapel building will be able to host approximately 250 people during services, and will also house an administrative area, prep kitchen, reception room, and lanai for church services. The cemetery may require 1 full-time employee and 2 part-time employees for coordinating services, operations, and administrative support.
- Community Agriculture Complex
  - The 42.2-acre Community Agriculture Complex is an integrated facility, which will provide people and organizations, who wish to farm at a small scale, a common place to learn and formalize their skills in farming. Agricultural greenhouse lots and associated facilities in the community agriculture park will allow the community to build a base of farmers, increase food self-sufficiency, and revitalize the local agriculture industry.
- Bio-digester
  - A unique part of the agricultural complex is a mixed plug-flow anaerobic digester, which will power the refrigeration, sanitation, and processing of agricultural products at the park. The naturally occurring process will produce commodities such as biogas for energy production, and fertilizer. Generators at the bio-digester facility will utilize biogas as a fuel source to power the development. Propane will be utilized as a backup power source.
- Equestrian Center
  - A 14.7-acre equestrian center will be equipped with an arena that will serve as a venue for various activities such as training and practice; occasional competition events such as calf roping, team roping, leisure riding, barrel racing, and jumping; and potentially, an equestrian show one night a week. The grandstand space of the arena will be able to host 1,500 visitors. The site will also include stables to house an initial 50 horses, which is anticipated to grow in capacity to support up to 250 horses. A paniolo museum with a concession area for certified food vending, will serve as a place to share the historical roots of paniolo traditions in the Waimea Nui region. It is estimated that 3 employees will be required to staff the museum facility.

- Golf Facility
    - The proposed golf facility, chipping and putting green, driving range, and club house, will consist of approximately 32.2 acres. The practice course will utilize natural terrain and will not include water hazards, sand traps or fairways. As such, only the greens and tee-boxes, areas not anticipated to exceed 5 acres, will be irrigated. The clubhouse will house a pro shop, as well as a full-service restaurant which will serve breakfast, lunch, and dinner. The operations of the entire golf facility will require approximately 20 staff members.

1.2 Purpose

The purpose of this report is to assess existing roadways, water, wastewater and drainage systems to determine the extent of proposed infrastructure improvements that is necessary to support development of the site. As such, this report will provide the following items:

- Existing Civil Infrastructure Assessment
- Conceptual Civil Infrastructure Plan
- Rough Order of Magnitude (ROM) Estimated Cost of Construction

1.3 Site Location

The project property is a 191.711 acre parcel in Waimea, on the island of Hawaiʻi and is designated as Tax Map Key: (3) 6-4-038:011. Approximately 31.085 acres of the property is currently leased to others. The remaining 160.626 acres is currently leased to WHHA for community development purposes and is inclusive of an easement along the south edge of the property that is in favor of DHHL for a future roadway. The project area/site encompasses approximately 99.1 acres of the area leased by WHHA. See Figure 1 – Tax Map Key and Figure 2 – Location Map.

2 Roads and Access

2.1 Existing Conditions

2.1.1 Existing Off-site Roads

Primary access to the project property is through an unpaved driveway off of Hiʻiaka Street, along the northernmost property line. Hiʻiaka Street is a 16-foot wide, 2-lane, paved road that is owned and maintained by the County of Hawaiʻi. Hiʻiaka Street is accessed through Kamāmalu Street, off of Māmalahoa Highway. Kamāmalu Street is a 2-lane, paved road, owned and maintained by the County of Hawaiʻi, and Māmalahoa Highway is a 4-lane, paved road, owned and maintained by the State of Hawaiʻi.

Secondary access to the project property is through an unpaved driveway at the terminus of Poliahu Alanui Road, near the southeast corner of the property. Poliahu Alanui Road is an undelineated, paved road that is owned and maintained by the County of Hawaiʻi. Poliahu Alanui is accessed through a network of roads that ultimately connect to Māmalahoa Highway.

2.1.2 Existing On-site Roads

There are no existing roads within the project site. Vehicular access is currently through the use of off-road vehicles (i.e., trucks and ATVs) through the aforementioned access driveways.

An existing easement along the southern property line is in favor of DHHL for a future roadway. DHHL indicated there are currently plans to construct a road within the easement.

A 1999 Environmental Assessment for Waimea-Kohala Airport indicates proposed road alignments for the Waimea bypass road will bisect the project property. However, according to a FEA-FONSI for the DHHL Pu'ukapu Hybrid Water System project (2010), the bypass road project was determined to be on an "indefinite hold." As such, it is not evaluated under this PER.

2.2 Proposed Roads, Access and Parking

2.2.1 Off-Site Roads

A Traffic Impact Analysis Report (TIAR) was prepared by The Traffic Management Consultant in December 2014. Off-site road improvement recommendations include a Traffic Signal Warrant analysis at the intersection of Māmalahoa Highway and Mana Road and evaluation of alternatives to the installation of traffic signals.

2.2.2 On-Site Roads

Access to the property will continue to be through the existing driveways off of Hi'iaka Street and Poliahu Alanui Road. The two access points will be connected with a two-way, delineated driveway. The driveway will ultimately be constructed of AC pavement and will consist of a delineated horse trail, a 12'-wide lane in each direction and a potential 10'-wide median with turn pockets, if needed. See Figure 3 – Draft Development Plan.

A third access point will be created at the southwest corner of the property to provide a future road connection point for DHHL. A two-way, delineated driveway is proposed along the DHHL easement to connect the third access point with the driveway discussed above. This driveway and access point will utilize a normally closed gate and will be used for overflow and emergency purposes. The driveway will ultimately be constructed of AC pavement and will consist of a 12'-wide lane in each direction. In early phases of the project, the driveway cross-section may consist of compacted gravel without delineation. The portion of driveway within the existing easement may be dedicated to DHHL in the future.

2.2.3 On-site Parking

On-site parking will be provided at each of the proposed projects and will include the stall counts in Table 1, below. Parking lots will have a stabilized surface and will be designed in compliance with County Fire Department access requirements, at a minimum.

Proposed Use	Stalls
Cemetery	100
Community Agriculture Park	180
Packing Facility	15
Equestrian Center	320
Bio-Digester	10
Golf Facility	50
Total:	**675**

Table 2.2.3 – On-site Parking Stalls

3 Water Infrastructure

3.1 Existing Conditions

3.1.1 Existing Potable Water System (Department of Water Supply)

Potable water service in the general area is provided by the Department of Water Supply's (DWS) 4.0 MG clearwater reservoir with a spillway elevation of 3,052' above mean sea level (msl). Based on existing site elevations between 2,714' and 2,770' above msl, static pressures on-site are anticipated to range between 122 and 146 PSI. DWS indicated this water source is operating near capacity.

Water service is available along the project's street frontage as follows:

- A 6" cast iron water main is located near the primary access point, along Hiʻiaka Street, and is part of a looped, DWS system.
- An 8" ductile iron water main is installed near the secondary access point, off Poliahu Alanui Road, and is the end of a dead-end water line.

DWS indicated the project property has a 15 dwelling unit water allocation, all of which is used up through an existing water meter off the Hiʻiaka Street water main that serves a portion of the project property that is not part of the project area. As a result, an increase in water demand at the property requires further coordination with DWS to determine what water improvements are needed at the DWS water source to accommodate the proposed project. Pre-consultation comments from DWS state,

> *"The applicant of the subject parcel may proceed to enter into a Water Development Agreement, in accordance with Rule 5 of the Department's Rules and Regulations, with the Water Board in order to obtain water commitment from the Department for the proposed development. The Agreement will establish, among other things, the scope of the necessary water system improvements, facilities charges to be paid, and timeline for construction."*

Fire hydrants along Hiʻiaka Street and Poliahu Alanui Road are served by the aforementioned DWS water mains. Fire protection water lines do not extend into the project property.

3.1.2 Existing Non-Potable Water System (Waimea Irrigation System)

Non-potable water service in the general area is provided by the Department of Agriculture's (DOA) 60 MG Waimea Reservoir through the Waimea Irrigation System (WIS). The Waimea Hawaiian Homesteader's Association's (WHHA) past correspondence about the WIS with DOA indicates the following:

- The existing system experiences low residual pressures during peak flows and on-site tanks should be utilized to allow use during peak flow.
- A 24" agriculture water main extends to the property's secondary access point along Poliahu Alanui Road. Service off the WIS will be allowed through connection to the existing 24" agriculture water main.
- DOA currently has no objections to WHHA treating and utilizing water from the Waimea Irrigation System for potable uses at the project site.

In the 1950's the original funding for the system was provided by the Homestead Commission. As such, the Homestead Commission obtained first rights to 50% of the water from the WIS. DHHL currently uses approximately 10% of the water from the WIS.

3.2 Proposed Water

See Figure 4 – Conceptual Utility Plan.

3.2.1 Water Demand

Calculations in Figure 5 – Water Demand and Sewer Projection indicate the project exhibits the following characteristics:

- Average daily demand of approximately 57,500 gallons per day (GPD) for domestic use
- Average daily demand of approximately 104,000 GPD of irrigation water
    - The irrigation water demand for the agricultural park utilized a 2,000 gpd/acre irrigation rate based on water consumption data at WOW Farms, provided by WHHA. Although lower than the 3,400 gpd/acre rate provided by Hawai'i Department of Agriculture, the type of irrigation and climate at the project site are intended to be similar to that used at WOW farms.
- Fire flow requirement of 2,000 GPM for 2 hours

As seen in Figure 5, large events occurring throughout the week result in variable daily water demands throughout the week.

3.2.2 Water Source

In lieu of providing DWS source improvements to accommodate projected domestic water demand, agriculture water from the WIS will be treated/distributed on-site for potable use and the system will be certified through the Department of Health (DOH) as a public water system. WIS water will also be used for non-potable uses (e.g., irrigation, fire protection) through a separate water distribution system.

Since the WIS experiences low pressure during peak flows, a tank farm will be constructed such that water from the WIS will fill tanks to meet potable and non-potable water demands without adversely affecting the WIS. Hydraulic analysis of the WIS and further coordination with DOA is necessary to determine tank and pump sizes needed to conform to the *Water System Standards* (State of Hawai'i; 2002).

3.2.3 Potable Water System

Agriculture water from the tank farm is considered non-potable and will be pumped to an on-site water treatment system to create potable water on an as-needed basis. Following treatment and disinfection, potable water will be stored in clearwater tanks until used. To minimize capital and operating costs, potable water from the treatment system will be pumped to proposed buildings for domestic uses only. The water treatment system will be designed to meet requirements contained in HAR §11-20 – Rules Relating to Public Water Systems.

If treatment of agriculture water is determined to be unviable in the future, potable water will be provided through a looped, onsite water system that connects to the existing DWS water system in Hi'iaka Street and Poliahu Alanui Road. Since the property does not have sufficient water allocation to support proposed development, further coordination with DWS is necessary to determine the extent of off-site water improvements needed to accommodate proposed water demand.

In either case, the potable water distribution system will be designed to conform to the *Water System Standards* (State of Hawai'i; 2002).

3.2.4 Non-Potable Water System

Agriculture water from the tank farm will be pumped to proposed sites for non-potable use only. Since the non-potable system will also supply fire protection water to on-site fire hydrants and building connections, the non-potable water distribution system will be designed to conform to the *Water System Standards* (State of Hawai'i; 2002).

Water efficient irrigation systems similar to WOW Farms' irrigation systems will be utilized to reduce irrigation water demand and conserve water on the majority of farm lots in the community agriculture park. Also, water demand for the proposed golf-facility will be significantly less than water demand for a standard golf-course. The proposed golf-facility will not include fairways and the irrigated areas of the golf-facility will be limited to the tee boxes and greens which is assumed to be approximately 10 percent of the total area set aside for the golf-facility.

4 Wastewater Infrastructure

4.1 Existing Conditions

There are no existing County sewer systems near the project property. Wastewater in the area is typically treated and disposed of through the use of an Individual Wastewater System (IWS) or a

Wastewater Treatment Works, the latter having more stringent design criteria, permitting and operating requirements.

The project property is also located within an agricultural zone. As such, any building in this zone may be exempt from HAR §11-62 sub-sections 2 and 3 if buildings or facilities are essential to the operation of an agricultural enterprise.

4.2 Proposed Wastewater

See Figure 4 – Conceptual Utility Plan.

4.2.1 Wastewater Projection

Based on HAR §11-62 – Wastewater Systems, the project will generate an average daily wastewater flow of approximately 26,400 gallons per day (GPD). As seen in Figure 5 – Water Demand and Wastewater Flow Projections, large events result in a highly variable daily wastewater flow projection throughout the week.

4.2.2 Wastewater Collection and Treatment

Wastewater will be collected in a gravity sewer main along the proposed driveway and conveyed to the wastewater treatment works. Although the specific components of the proposed WWTW will be determined during design, the following items are anticipated based on a typical biological treatment process:

- Influent screening – Trash and debris will be removed from raw wastewater. The screening unit will be enclosed in a building and/or installed with odor control unit for odor and vector control.
- Equalization Tank – Highly variable flow rates will be attenuated. Sizing and location will depend on phasing and variability in flow characteristics.
- Biological Treatment – Wastewater treatment will consist of some form of anoxic and aerobic biologic reactors. Reactor configuration will depend on anticipated phasing and wastewater characteristics.
- Sludge digesters and dewatering unit – Waste sludge may be removed from the biological treatment process and dewatered. Reuse or disposal of sludge may occur onsite or offsite.
- Tertiary Treatment – Treated effluent from primary and secondary treatment may be further treated to produce recycled water and possibly to remove additional nutrients for water quality purposes.
- Disinfection - Filtration, ultra violet or chemical disinfection will be used to eliminate pathogens in treated effluent.

Wastewater collection and treatment components will be designed in compliance with HAR §11-62 – Wastewater Systems

4.2.3 Wastewater Disposal/Reuse

Several options are available for disposal of treated effluent:

- Infiltration – Injection wells (e.g., seepage pits), infiltration trenches, absorption beds, ponds
- Discharge – Direct discharge into oceans or streams
- Re-use – Non-potable irrigation

The project property is located mauka of the UIC line, / prohibiting the use of injection wells. However, infiltration of treated effluent can still be utilized if it is not considered an injection well and it is designed in compliance with HAR §11-62 and §11-23. Due to environmental concerns, as well as distance from the ocean and streams, direct discharge into oceans and streams are not proposed. Wastewater reuse (e.g., subsurface irrigation of areas surrounding the wastewater treatment center) can be utilized if designed in accordance with the *Guidelines for the Treatment and Use of Recycled Water* (DOH WWB; May 5, 2002).

5 Drainage Infrastructure

5.1 Existing Conditions

5.1.1 Existing Soil Conditions

Based on the *Soil Survey of the Island of Hawai'i* (USDA, 1973), most of the project area consists of Waimea medial very fine sandy loam with 0 to 6% slopes. The remaining area consists of Kikoni medial very fine sandy loam with 0 to 6% slopes. The soils present at the project site exhibit the properties in Table 5.1.1, below. See Figure 6 – Soil Map.

Soil Type	Waimea medial very fine sandy loam, 0 to 6%	Kikoni medial very fine sandy loam, 0 to 6%
Drainage Class	Well drained	Well drained
Runoff Class	Low	Low
Erosion Hazard	Slight	Slight
Permeability	Moderately Rapid (2.5-5 in/hr)	Moderately Rapid (2.5-5 in/hr)
Depth to Restrictive Layer	40-60" to Lithic Bedrock	n/a

Table 5.1.1 – Soil Properties

5.1.2 Existing Topography and Drainage Patterns

Light Detection and Ranging (LIDAR) data was obtained from the Department of Business, Economic Development and Tourism (DBEDT) in ENZI format and processed to create a topographic map for planning purposes.

As depicted in Figure 7 – Topographic Map (2006 LIDAR), the project property generally slopes to the west and discharges onto the adjacent property through several distinct low-points along the western property line. Two of the low points are located within the project area. Elevations within the project area range from 2,714' above msl to 2,770' above msl.

5.1.3 Existing Flood Hazards

Based on the effective Federal Management Agency's Flood Insurance Rate Maps (FIRM), the project site is located within Flood Zone X, defined as "Areas determined to be outside the 0.2% annual chance floodplain". The preliminary FIRM that has not yet been accepted by the County also identifies the project area as within Flood Zone X.

5.1.4 Existing Hydrology

The County Department of Public Works (DPW) Storm Drainage Standard, dated October 1970, was referenced to determine existing hydrologic conditions. Since the project property is approximately 160.626 acres and there are no stream gages in the general area, plates 6 and 6a were used to determine the property exhibits an approximately 16 cfs/acre peak stormwater runoff rate from the property.

5.2 Potential Drainage Requirements

At a minimum, proposed drainage improvements will be designed in compliance with the County's Storm Drainage Standard (DPW; October 1970). As such, pre-development flow patterns and flow rates will generally remain in post-development conditions with runoff continuing to discharge overland into adjacent properties.

6 Rough Order of Magnitude Cost Estimate

Figure 8 - ROM Cost Estimate was generated based on the Conceptual Utility Plan in Figure 4. Without adding contingency, infrastructure cost allowances are estimated as follows:

- Drainage - $100,000
- Water - $3,978,000
- Sewer - $2,775,000
- Site - $2,106,000
- Total (with 20% contingency) - $10,750,800
    - Cost per acre of project area - $108,600

7 Summary

The project property is a 191.711 acre parcel in Waimea, on the island of Hawai'i. The project area/site encompasses approximately 99.1 acres of the project property and includes the following list of projects:

- Cemetery
- Agriculture Facility
- Equestrian Center
- Golf Facility
- Bio-digester

There are no existing roads within the project site and vehicular access around the site is through the use of off-road vehicles (i.e., trucks and ATVs). Access to the property will continue to be through existing driveways off of Hi'iaka Street and Poliahu Alanui Road. The two access points will be connected with a delineated driveway that consists of a dedicated horse trail, travel lanes in each direction and a potential median with turn pockets. The driveway will ultimately be constructed of AC pavement, but may consist of compacted gravel without delineation in early phases of the project. A third access point will be created at the southwest corner of the property to provide a future road connection point for DHHL

Potable water service in the general area is provided by the Department of Water Supply (DWS). However, pre-consultation with DWS indicated there is no available capacity to serve additional development at the project property. In lieu of providing DWS source improvements to accommodate projected domestic water demand, agriculture water from the Waimea Irrigation System (WIS) will be treated/distributed on-site for potable use and the system will be certified through the Department of Health (DOH) as a public water system. If treatment of agriculture water is determined to be unviable in the future, potable water will be provided through connection to the existing DWS water system in Hi'iaka Street and Poliahu Alanui Road. In this case, further coordination with DWS is necessary to determine the extent of off-site water improvements needed to accommodate proposed water demand.

Non-potable water service will be provided by the Department of Agriculture's (DOA) Waimea Reservoir through the WIS. Since the WIS experiences low pressure during peak flows, a tank farm will be constructed to meet projected water demands without adversely affecting the WIS.

There are no existing County sewer systems near the project property. Wastewater will be collected in a gravity sewer main along the proposed driveway and conveyed to an on-site wastewater treatment works (WWTW). Effluent from the WWTW will be reused or disposed of on-site, through an infiltration-type disposal system (e.g., absorption bed, etc.).

The project property generally slopes to the west and discharges onto the adjacent property through several distinct low-points along the western property line. Pre-development flow patterns and flow rates will generally remain in post-development conditions with runoff continuing to discharge overland into adjacent properties.

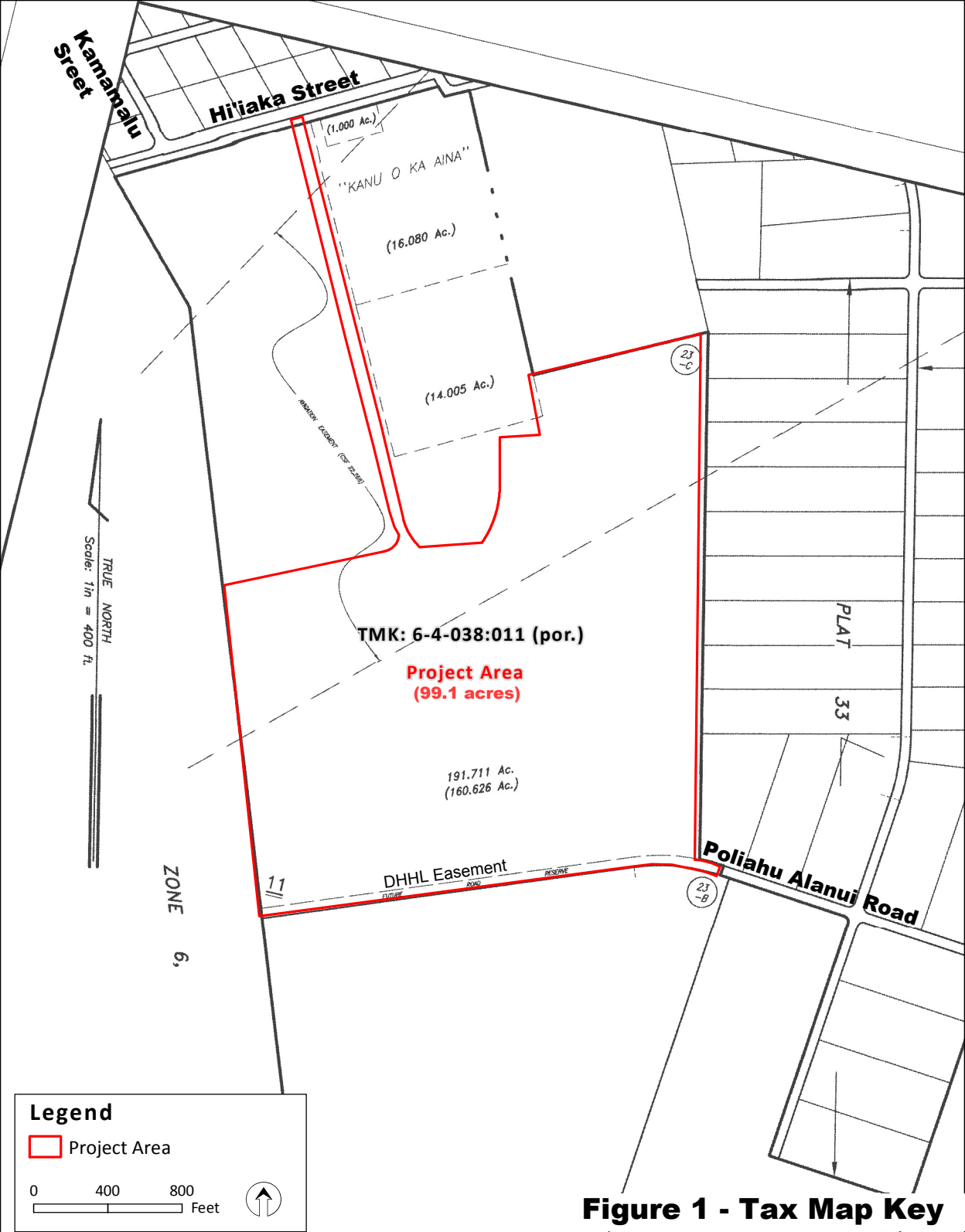


Figure 1 - Tax Map Key

Source: TMK, Plat map - Hawaii County via Hawaii Statewide GIS Program, 2013. Google Imagery data Jan. 2013.

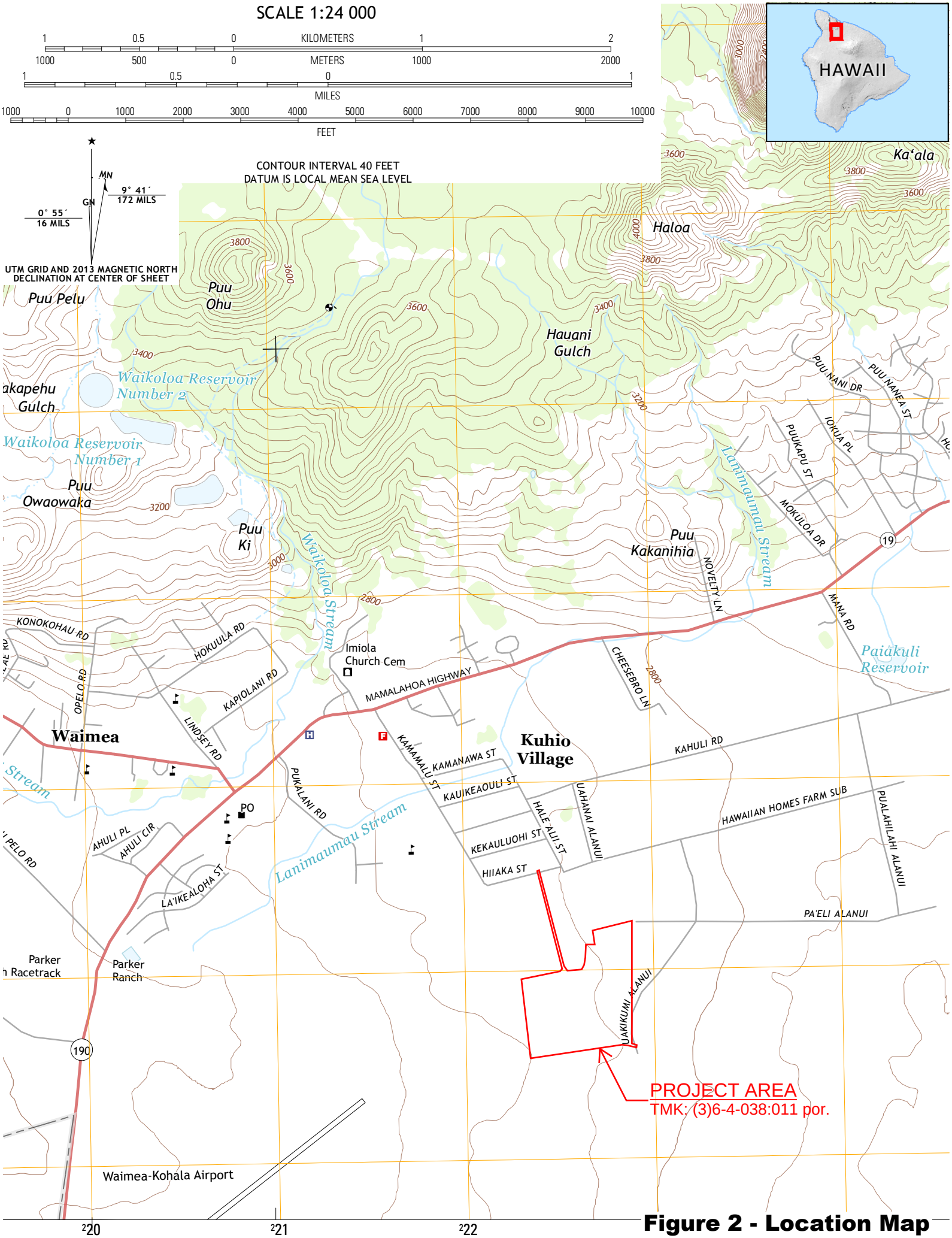
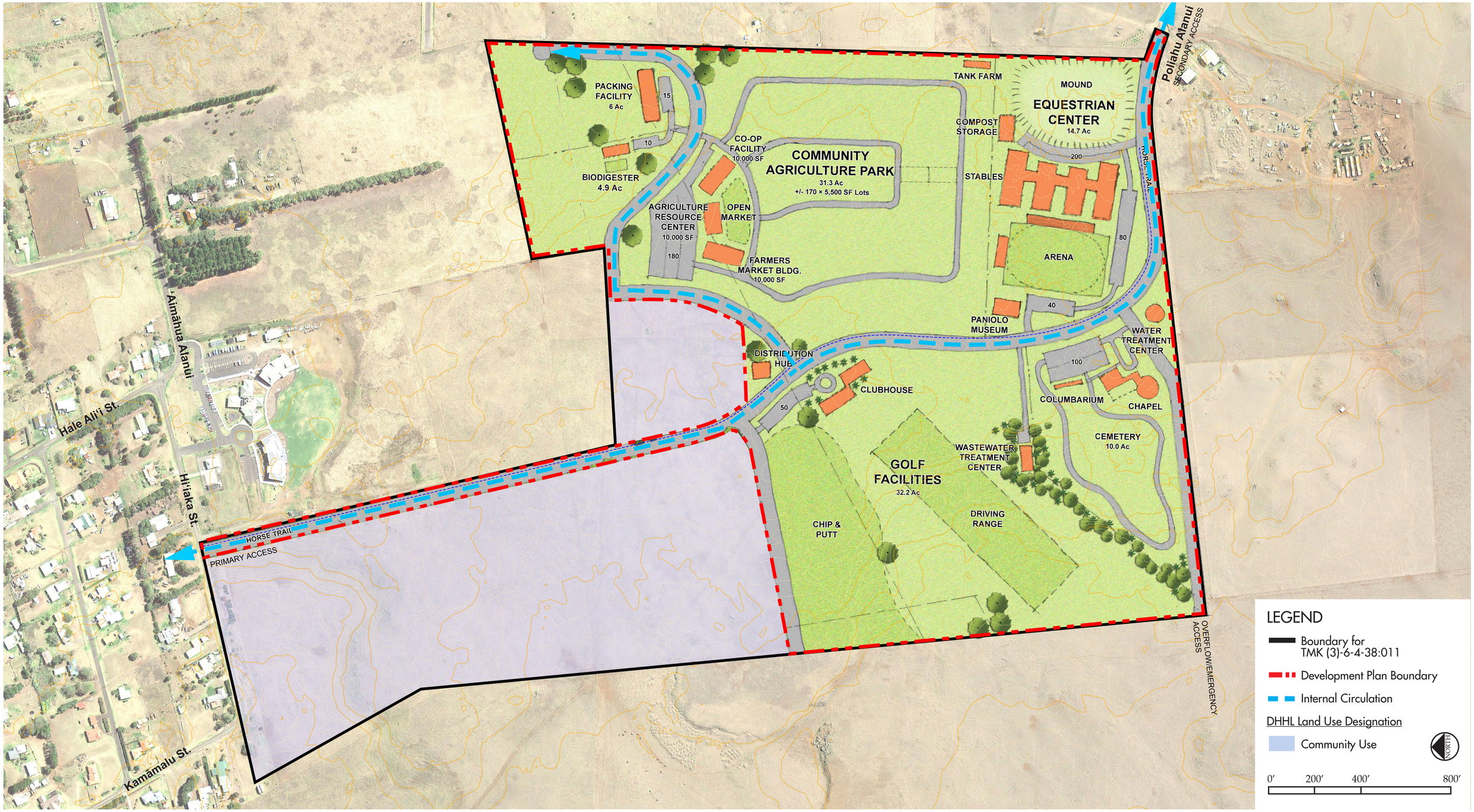


Figure 2 - Location Map



DHHL Waimea Nui Development Plan

Development Plan of the Waimea Nui Community Development Initiative
Pu'ukapu, Waimea, Kohala Waho, Hawai'i Island
TMK (3)-6-4-38:011 (POR.)

GROUP 70 INTERNATIONAL

11 December 2014

Figure 3 - Draft Development Plan

PROJECT: DHHL Waimea Nui PER
CLIENT: State of Hawaii - Department of Hawaiian Home Lands
SUBJECT: Water Demand and Wastewater Flow Projection

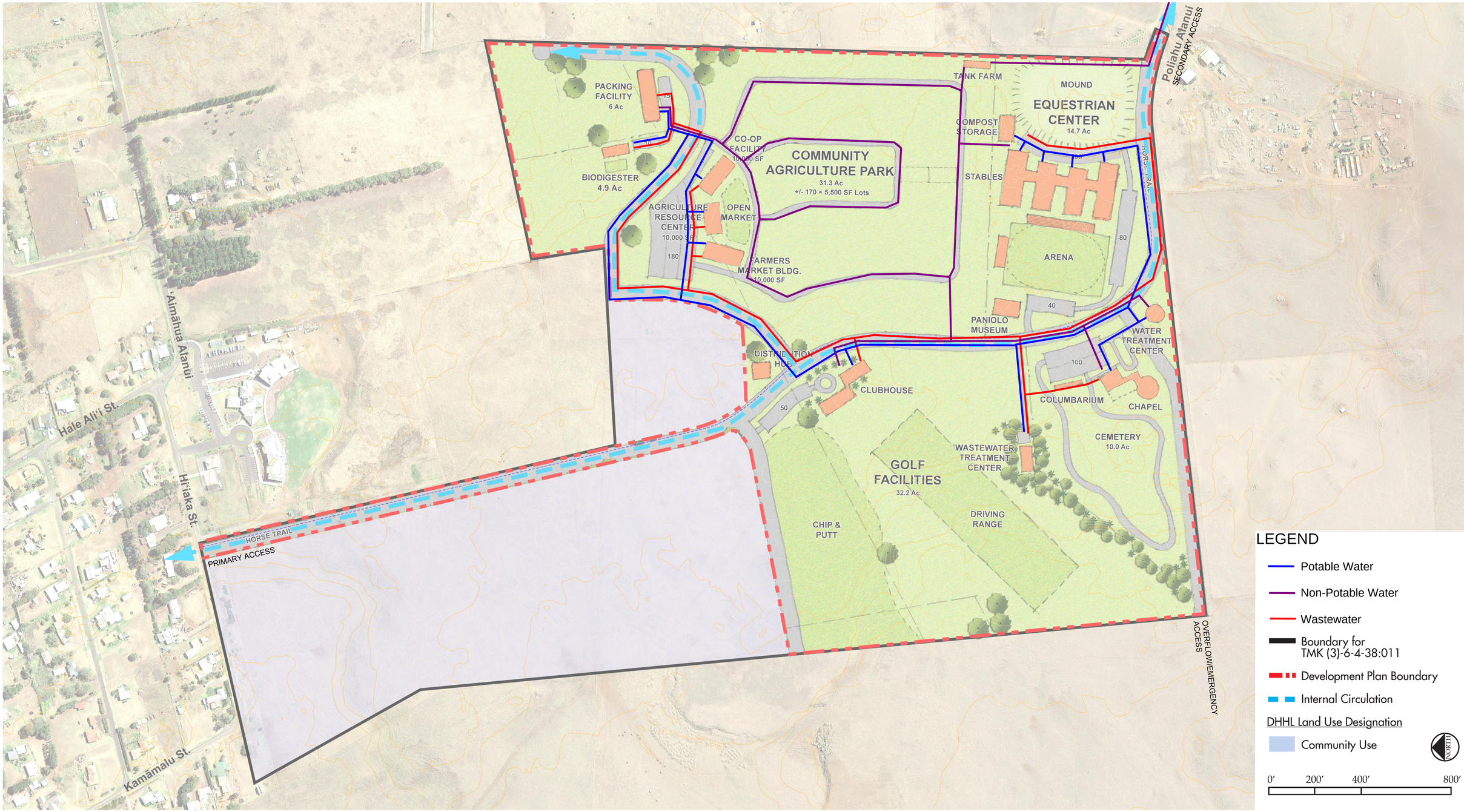
1/26/2015

DHHL Waimea Nui				WATER DEMAND							
Proposed Use	POTABLE DEMAND (gcpd)	IRRIGATION DEMAND (gpd/acre)	WASTEWATER PROJECTION (gcpd)	Occupancy (# people or horses)	LAND USE AREA (Acres)	POTABLE (gpd) 7 days/wk	POTABLE (gpd) 2 days/wk	POTABLE (gpd) 1 days/wk	TOTAL	NON-POTABLE (gpd)	UNITS
Puukapu Cemetery		2000	20	3	10.0	75				20,000	
Chapel (with kitchen) - 2x/wk			10	250			3,125				
Community Agriculture Park		2000	20	492	31.3	12,300				62,600	
Farmers market Bldg			20	7.5		188					
Farmers market Bldg - vistors			5	120		750					
Agricultural Resource Center Bldg			20	7.5		188					
Community Storage Bldg											
Post Harvest Packing House (w/ comm. Kitchen)		0	20	13.5	6.0	338				0	
Post Harvest Packing House Operation						7,200					
Anaerobic Digester		0	20	10	4.9	250				0	
Equestrian Center and Roping Area		1000			14.7					14,700	
Stables	105			250		26,250					
Grandstands - 1x/wk			5	750				4,688			
Museum			20	4.5		113					
Golf Facility		2000	20	30	3.22	750				6,440	
Pro shop/restaurant			80	75		7,500					
					SUBTOTAL	**55,900**	**3,125**	**4,688**	**--**	**103,740**	gpd
					GALLONS/WEEK	**391,300**	**6,250**	**4,688**	**402,238**		g
					AVG DAILY DEMAND				**57,463**	**103,740**	gpd
					MAX DAILY DEMAND (1.5 for Potable, 1.65 for Irrigation)				**86,194**	**171,171**	gpd
					PEAK HOUR DEMAND (3)				**120**	**216**	gpm
					FIRE FLOW (2000gpm for 2 hrs)				**240,000**		g

WASTEWATER FLOW PROJECTION					
	GPD 7 days/wk	GPD 2 days/wk	GPD 1 days/wk	TOTAL	UNITS
	60				
		2,500			
	9,840				
	150				
	600				
	150				
	270				
	7,200				
	200				
			3,750		
	90				
	600				
	6,000				
SUBTOTAL	**25,160**	**2,500**	**3,750**	**--**	gpd
GALLONS/WEEK	**176,120**	**5,000**	**3,750**	**184,870**	g
AVG DAILY FLOW				**26,410**	gpd

Assumptions:
Wastewater projections are from State of Hawaii, HAR 11-62 App F.
Potable water demand is 125% of the wastewater flow projection for each use, except for horse stables and Packing House Operation
Non-potable crop irrigation rate = 2000 gal/acre From Waimea Hawaiian Homestead Association water consumption data for WOW farms*
*State of Hawaii Dept of Agriculture, "Agricultural Water Use and Development Plan", Dec. 2004 indicates 3400 gal/acre for crop irrigation. However, WHHA provided rates are used in this calculation.
Non-potable landscape irrigation rate = 2000 gal/acre Assumes 0.5" of water applied weekly
Golf facility assumed to irrigate 10% of land area, Equestrian assumed to irrigate 50% of land area, No irrigation at packing house and anaerobic digestor sites.
Visitor wastewater flow projection based on "Picnic parks (toilet wastes only) (per picnicker)" from App. F
Number of vistors = 20ppl/hr x 12hr x 50% = 120 ppl
Post Harvest Packing House Operation water demand based 2,500 sqft/hose bib
Post Harvest Packing House Operation water demand: 12,000 sqft bldg/2,500 sqft/hose bib = 4.8 hose bibs = 5 hose bibs
Post Harvest Packing House Operation water demand: 2 GPM/hose bib * 60 min/hr * 12 hours/day * 5 hose bibs = 7200 gpd
Post Harvest Packing House water will be disposed of as gray water
Potable water demand for horse stables based on 15 gpd for drinking + 90 gpd for washing per horse = 105 gpd/horse
Horse wash water will be kept separate from manure and will be disposed of as graywater
Grandstand wastewater flow projection based on "Picnic parks (toilet wastes only) (per picnicker)" from App. F
Number of grandstand attendees = 1500 occupancy x 50% = 750 users
Number of seats at the golf restaurant = 75 seats

Figure 5 - Water Demand and Sewer Projections



DHHL Waimea Nui Development Plan

Development Plan of the Waimea Nui Community Development Initiative
Pu'ukapu, Waimea, Kohala Waho, Hawai'i Island
TMK (3)-6-4-38:011 (POR.)

GROUP 70 INTERNATIONAL

11 December 2014

Figure 4 - Conceptual Utility Plan

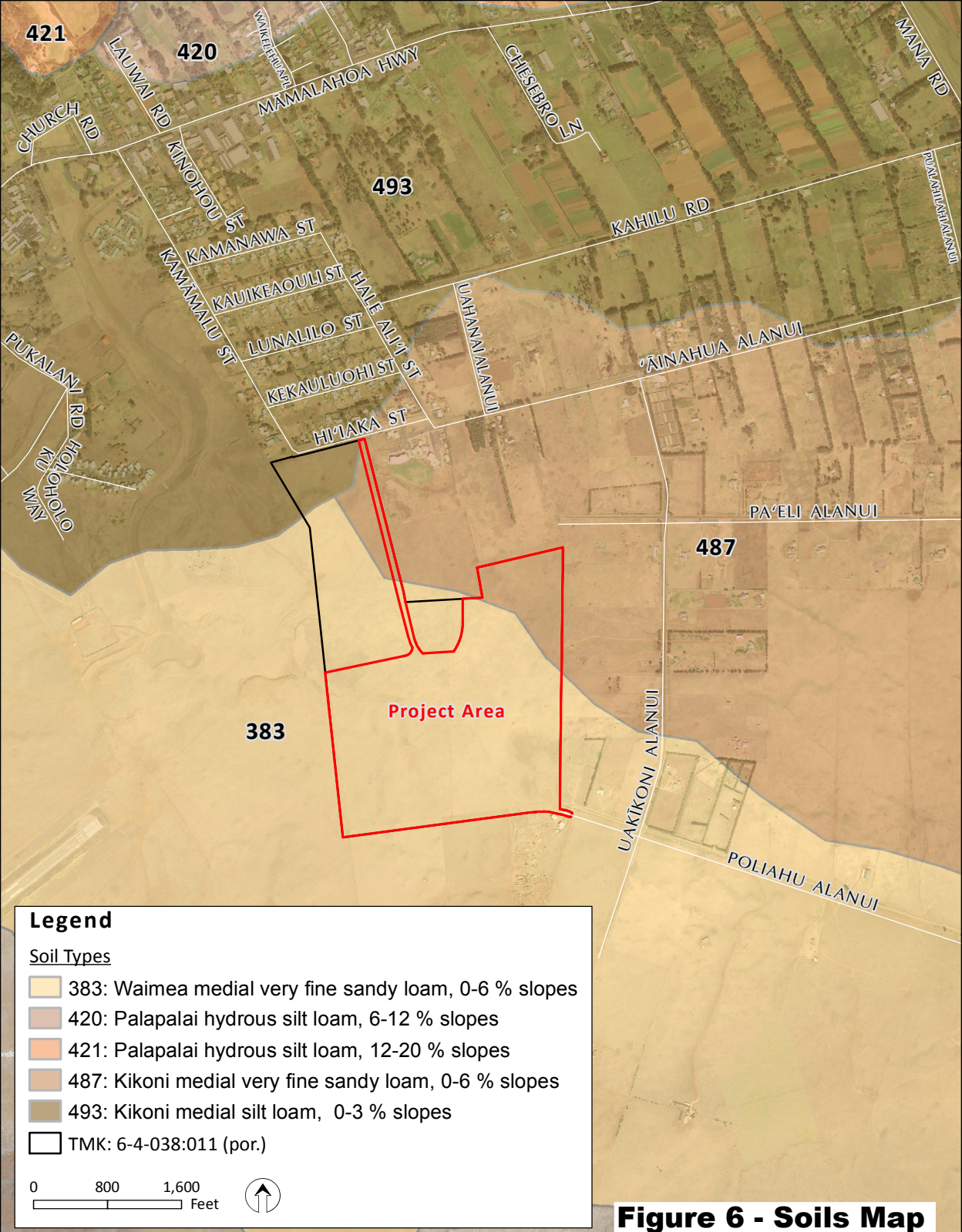


Figure 6 - Soils Map

Source: Soils - USDA NRCS SSURGO, 2014; Google Imagery data Jan. 2013.

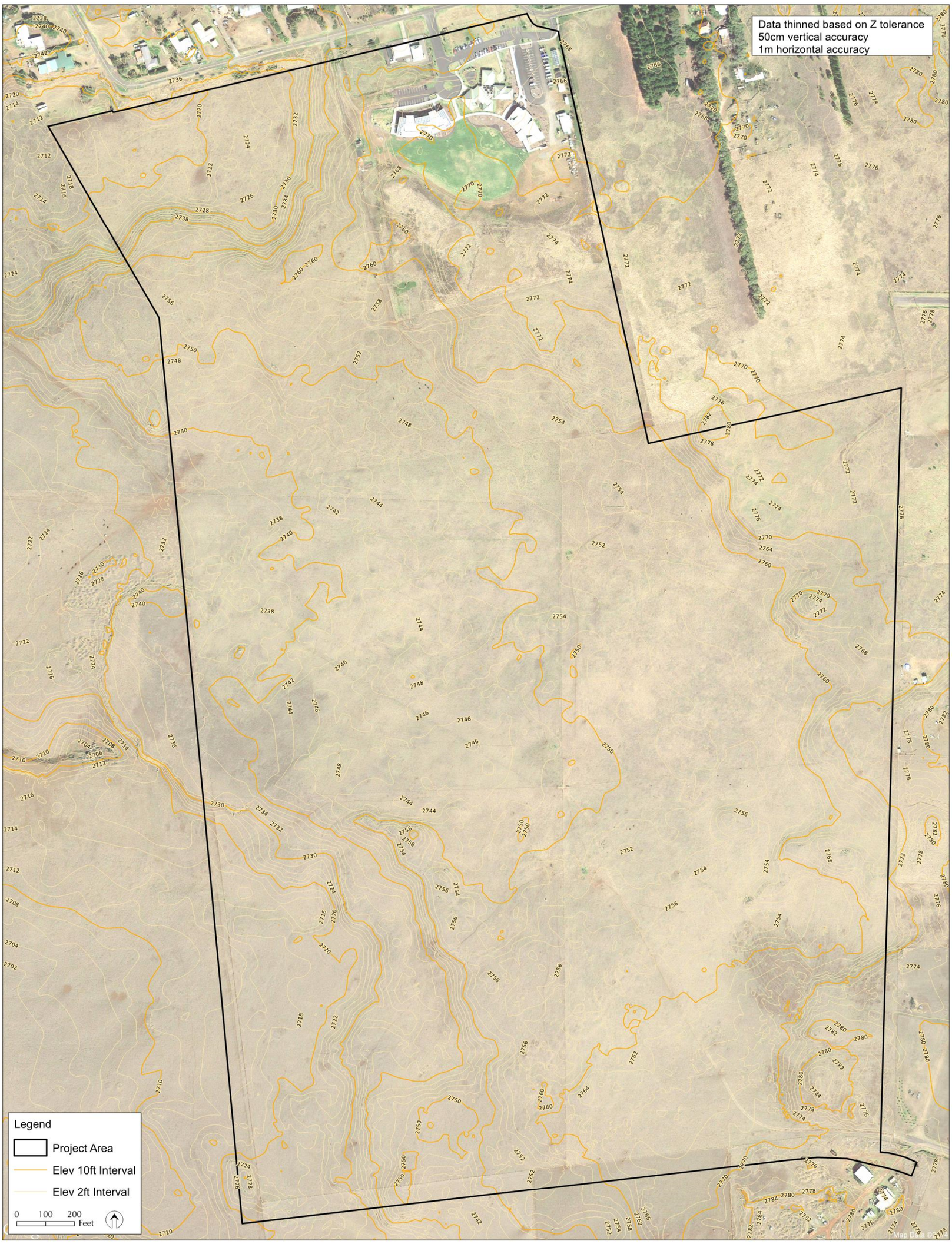


Figure 7 - Topographic Map (2006 LIDAR)

DHHL - WAIMEA NUI

ROUGH ORDER OF MAGNITUDE COST ESTIMATE

1/21/2015

Item	Description	QTY	Unit	Unit Cost	Total
	Drain				
1	Drainage Allowance	1	LS	$100,000.00	$100,000
	Subtotal				$100,000
	Water				
2	Potable Water Main (12")	7,000	LF	$230.00	$1,610,000
3	Non-Potable Water Main (12")	9,000	LF	$230.00	$2,070,000
4	Potable Water Lateral Allowance (4")	1	LS	$65,000.00	$65,000
5	Non-Potable Water Lateral Allowance (4")	1	LS	$65,000.00	$65,000
6	Fire Hydrants (6")	14	EA	$12,000.00	$168,000
	Subtotal				$3,978,000
	Sewer				
7	Sewer Main (12")	6,500	LF	$260.00	$1,690,000
8	Sewer Lateral Allowance (6")	1	LS	$85,000.00	$85,000
9	Sewer Manhole	20	EA	$10,000.00	$200,000
10	Wastewater Treatment Works	1	LS	$500,000.00	$500,000
11	Subsurface Wastewater Disposal	1	LS	$300,000.00	$300,000
	Subtotal				$2,775,000
	Site*				
22	A/C Pavement Roadway (24' wide, 2" AC, 12" Base)	25,000	SY	$60.00	$1,500,000
23	Gravel Horse Trail (8' wide; 6" thick)	2,900	SY	$15.00	$43,500
24	Grading	22,500	CY	$25.00	$562,500
	Subtotal				$2,106,000
				Sub-Total	$8,959,000
				20% Contingency	$1,791,800
				Total	$10,750,800
				Cost per Acre	$108,593.94

*In early phases of the Waimea Nui development, on-site driveways may consist of undelineated, compacted gravel (assumed to be 14" thick). As such, approximately 9,800 CY of crushed rock can be used in lieu of Cost Item 22.

Figure 8 - ROM Cost Estimate

APPENDIX F

Traffic Impact Analysis Report for the Proposed Waimea Nui Regional Community Development Initiative, Tax Map Key: (3) 6-4-38:11 (portion), Waimea, Hawai'i

Traffic Management Consultant, Inc.

December 2014

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
WAIMEA NUI REGIONAL COMMUNITY DEVELOPMENT INITIATIVE
TAX MAP KEY: (3) 6-4-038:011 (PORTION)
WAIMEA, HAWAI`I

I. Introduction

A. Project Description

The Waimea Nui Regional Community Development Corporation (WNRCDC) is a subsidiary organization of the Waimea Hawaiian Homesteaders' Association, which is planning to develop the Waimea Nui Regional Community Development Initiative (WNRCDI). The WNRCDI will address the cultural, economic, and social needs of the Waimea Homestead families and the greater Waimea area. The WNRCDI is expected to be built out by the Year 2024.

The WNRCDI is proposed on a property, which is located to the south of the existing Kanu O Ka `Aina Charter School (KOKA) on Hi`iaka Street in Waimea, Hawaii. The 114.25-acre project site is identified as a portion of Tax Map Key: (3) 6-4-038:011. Figure 1 depicts the project vicinity.

The primary access would be located on Hi`iaka Street, immediately west of the KOKA Main Driveway. Hi`iaka Street intersects Kamamalu Street to west, which connects to Mamalahoa Highway. Hi`iaka Street continues toward the east as Ainahua Alanui. Secondary access would be provided at the southeast corner of the project site to Poliahu Alanui, which connects to Ainahua Alanui via Uakikoni Alanui. Access to the east of the project location can be provided by the existing network of roadways, that includes Ainahua Alanui, Pualahilani Alanui, Kahilu Road, and finally Mana Road, which connects to Mamalahoa Highway.

The WNRCDI includes the following:

1. Pu`ukapu Cemetery/Chapel – The proposed cemetery, chapel, and columbarium would be located on a 10-acre parcel. The cemetery may have up to 3 employees. The chapel could host up to 250 people, during memorial services.

Figure 1. Vicinity Map

2. Community Agriculture Park – The proposed agriculture park would consist of 246 greenhouse lots, which would be subdivided on a 42.2-acre site. Agricultural activities would include: farm training programs and small-scale farming, with up to 3 farmers/workers per lot; a seven-day a week farmers' market, where the farmers can sell their produce in a 10,000 square feet of gross floor area (SFGFA) building, with a staff of up to 5 personnel; a packing house/post-harvest facility for the processing of agricultural products with a staff of up to 4 personnel; a commercial kitchen with a staff of up to 5 personnel; and the support facilities for power generation, sanitation, storage, and waste management with a staff of up to 5 personnel.

3. Equestrian Center – The proposed equestrian center will provide for horseback-riding recreational activities on an 14.7-acre site. The facility will include a 1,500-attendee venue for special events such as: calf roping, barrel racing, and horse jumping; a paniolo museum with a staff of up to 3 personnel; and concession space for food vendors.

4. Golf Facility – The proposed golf facility would consist of an 18-hole par-3 golf course, a driving range, and a clubhouse on a 32.2-acre site, with up to 20 employees.

Table 1 summarizes the WNRCDI Development Plan.

Table 1. Waimea Nui Regional Community Development Initiative

Land Use	Area
Cemetery/Chapel	10 Acres
Agriculture Park	42.2 Acres
Farmers' Market	10,000 SFGFA Building
Equestrian Center	14.7 Acres
Golf Facility	32.2 Acres
Totals	99.01 Acres

The site plan for the proposed development is depicted on Figure 2.

B. Purpose and Scope of the Study

The purpose of this study is to analyze the traffic impacts that may result from the development of the proposed WNRCDI project on the surrounding roadways. The scope of this study includes:

1. Evaluation of existing roadway and traffic conditions.

2. Development of trip generation characteristics of the proposed project.

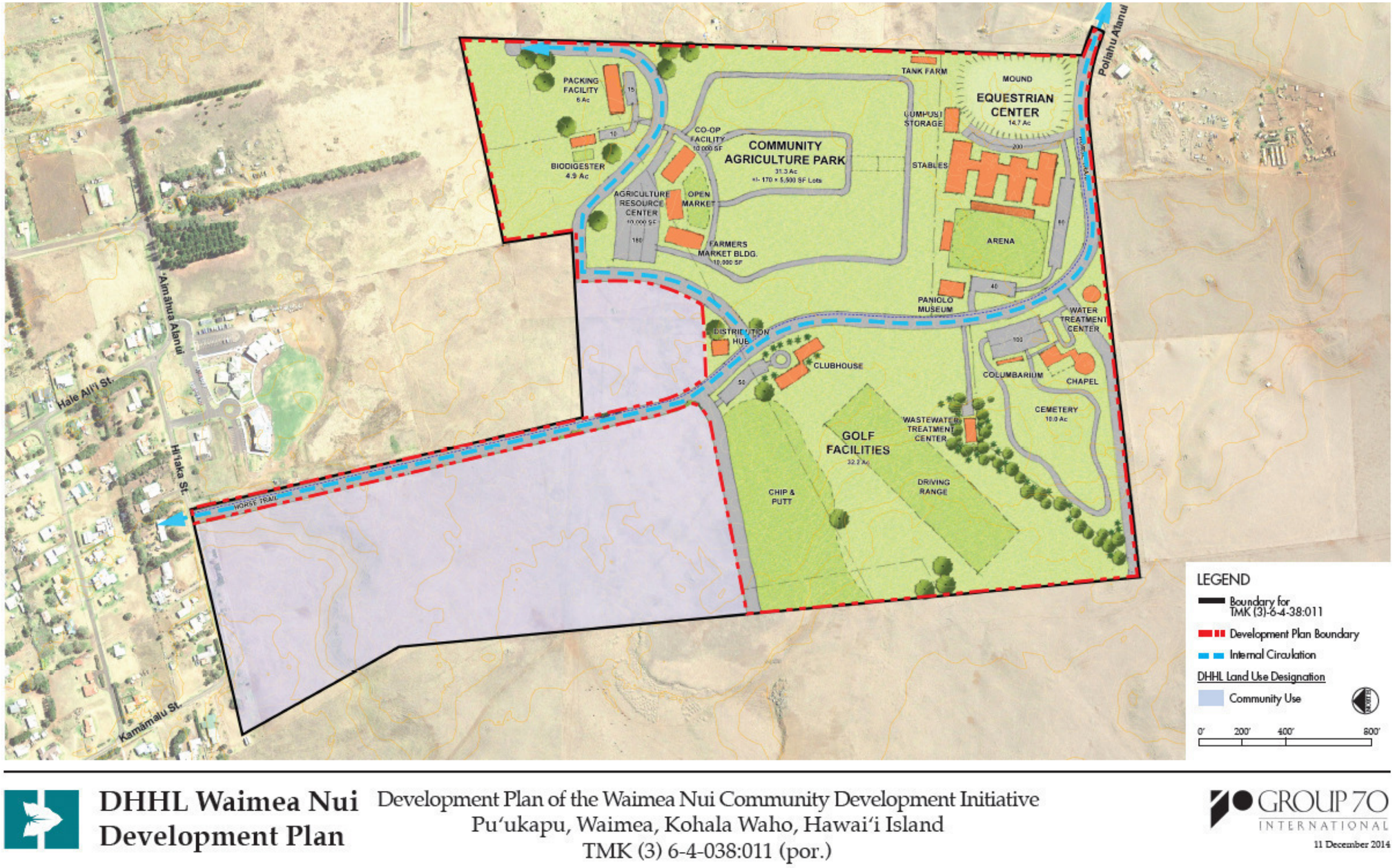


Figure 2. Site Plan

3. Analysis of the Year 2024 traffic conditions without the proposed project.
4. Identification and analysis of traffic impacts resulting from the full build out of the proposed project.
5. Recommendations of improvements, as necessary, that would mitigate the traffic impacts identified in this study.

C. Methodologies

1. Capacity Analysis Methodology

The highway capacity analysis, performed for this study, is based upon the procedures, which are presented in the Highway Capacity Manual (HCM), and published by the Transportation Research Board, 2010. HCM defines the Level of Service (LOS) as a qualitative measure, which describes the operational conditions within a traffic stream. Several factors may be included in determining the LOS, such as: speed, travel time, freedom to maneuver, traffic interruptions, driver comfort, and convenience. LOS's "A", "B", and "C" are considered satisfactory Levels of Service. LOS "D" is generally considered a "desirable minimum" operating Level of Service. LOS "E" is an undesirable condition, and LOS "F" is an unacceptable condition. Intersection LOS is primarily based upon average delay (*d*) in terms of seconds per vehicle (sec/veh). Table 2 summarizes the LOS criteria.

Table 2. Intersection Level of Service Criteria (HCM)

LOS	Signalized Intersections		Unsignalized Intersections	
	Delay *d* (sec/veh)	**Description**	**Delay *d* (sec/veh)**	**Description**
A	$d \leq 10$	Few stops, little or no delay	$d \leq 10$	Little or no delays
B	$10 < d \leq 20$	Good progression, short cycle lengths	$10 < d \leq 15$	Short delays
C	$20 < d \leq 35$	Cycle failures begin to occur, i.e., vehicles stop at more than one red phase	$15 < d \leq 25$	Average delays
D	$35 < d \leq 55$	Noticeable number of cycle failures, unfavorable progression	$25 < d \leq 35$	Long delays
E	$55 < d \leq 80$	Frequent cycle failures, poor progression, long delays	$35 < d \leq 50$	Very long delays
F	$d > 80$	Over saturation, many cycle failures, high delays	$d > 50$	Extreme delays

Synchro is a traffic analysis software that was developed by Trafficware Corporation. Synchro is an intersection analysis program that is based upon the HCM methodology. Synchro was used to calculate the Levels of Service for the intersections in the study area. The capacity analysis worksheets are compiled in the Appendix.

2. Trip Generation Methodology

The trip generation methodology is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in Trip Generation. The ITE trip rates are developed by correlating the total vehicle trip generation data with various activity/land use characteristics, such as the vehicle trips per hour (vph) per employee.

II. Existing Conditions

A. Roadways

Mamalahoa Highway is a two-way, four-lane arterial highway in Waimea Town. East of Waimea Town, Mamalahoa Highway is a two-way, two-lane arterial highway.

Kamamalu Street is a two-way, two-lane local street. Kamamalu Street intersects the four-lane Mamalahoa Highway at a signalized Tee-intersection. Westbound Mamalahoa Highway does not provide an exclusive left-turn lane at Kamamalu Street.

Mana Road is a two-way, two-lane collector road with a 20±foot wide pavement. Mana Road is stop-controlled at its Tee-intersection with the two-lane Mamalahoa Highway, which is located about 1.5 miles east of Kamamalu Street. Westbound Mamalahoa Highway does not provide an exclusive left-turn lane at Mana Road,

Hi`iaka Street is a two-way, two-lane local road with a 20±foot wide pavement. Hi`iaka Street continues to the east as Ainahua Alanui. Ainahua Alanui, Pualahilani Alanui, Uakikoni Alanui, and Kahilu Road make up a grid network of roadways between Hi`iaka Street and Mana Road. These roadways are two-way, two-lane local roads with 18 to 20-foot wide pavements.

B. Existing Peak Hour Traffic Volumes and Operating Conditions

1. Field Investigation and Data Collection

Turning movement traffic count surveys were conducted at the intersection of Mamalahoa Highway and Kamamalu Street, during the peak periods of weekday traffic – on October 29, 2014 from 6:30 AM to 8:30 AM, and on October 28, 2014 from 3:00 PM to 6:00 PM. Turning movement traffic count surveys also were conducted at the intersection of Hi`iaka Street and the KOKA Main Driveway on October 28-29, 2014, during the peak hours of weekday traffic – from 7:15 AM to 8:15 AM and from 2:30 PM to 5:30 PM. Additional turning movement traffic count surveys were conducted at the intersections of Mamalahoa Highway at Mana Road and Ainahua Alanui at the KOKA East Driveway, during the peak hours of weekday

traffic – on December 3, 2014 from 7:15 AM to 8:15 AM and on December 2, 2014 from 2:30 PM to 5:30 PM.

2. Existing AM Peak Hour Traffic

The existing AM peak hour of traffic on Mamalahoa Highway occurred between 7:15 AM and 8:15 AM. Mamalahoa Highway carried between 1,200 vehicles per hour (vph) and 1,650 vph, total for both directions. The directions of the AM peak hour traffic on Mamalahoa Highway were 65 percent westbound and 35 percent eastbound. Kamamalu Street carried about 400 vph, total for both directions. Hi`iaka Street, Ainahua Alanui, and Mana Road carried about 200 vph each.

The intersection of Mamalahoa Highway and Kamamalu Street operated at an intersection LOS "B", during the existing AM peak hour of traffic. The left-turn movement from Kamamalu Street onto Mamalahoa Highway operated at LOS "D".

Mana Road operated at LOS "E" at Mamalahoa Highway. Both KOKA Driveways operated at LOS "B", during the existing AM peak hour of traffic. Pedestrian traffic on Hi`iaka Street was virtually non-existent, during the field investigation. Figure 3 depicts the existing AM peak hour traffic volumes.

3. Existing PM Peak Hour Traffic

The existing PM peak hour of traffic on Mamalahoa Highway occurred between 4:30 PM and 5:30 PM. Mamalahoa Highway carried between 1,400 vph and 1,800 vph, total for both directions, during the existing PM peak hour of traffic. The directions of PM peak hour traffic on Mamalahoa Highway were 60 percent eastbound and 40 percent westbound. Kamamalu Street carried about 300 vph, total for both directions. Mana Road carried about 160 vph. Hi`iaka Street and Ainahua Alanui, carried about 100 vph each.

During the existing PM peak hour of traffic, the intersection of Mamalahoa Highway and Kamamalu Street operated at LOS "B". Mana Road operated at LOS "E" at Mamalahoa Highway. The KOKA Main Driveway operated at LOS "A", during the existing PM peak hour of traffic. Pedestrian traffic on Hi`iaka Street was virtually non-existent during the field investigation. The existing PM peak hour traffic volumes are depicted on Figure 4.

III. Future Traffic Conditions

A. Background Growth in Traffic

The traffic forecast for this study was based upon the Kawaihae Road Bypass State Project HWY-H-07-99 Revised Draft Transportation Impact Study (TIS), dated November 14, 2008, which was obtained from DOT. The TIS forecasted about a 2.2 percent annual increase in peak hour traffic in the Waimea-Kawaihae region. Therefore, a 22 percent increase in peak hour traffic over ten-year period was applied uniformly to the existing (Year 2014) traffic to estimate the Year 2024 peak hour traffic.

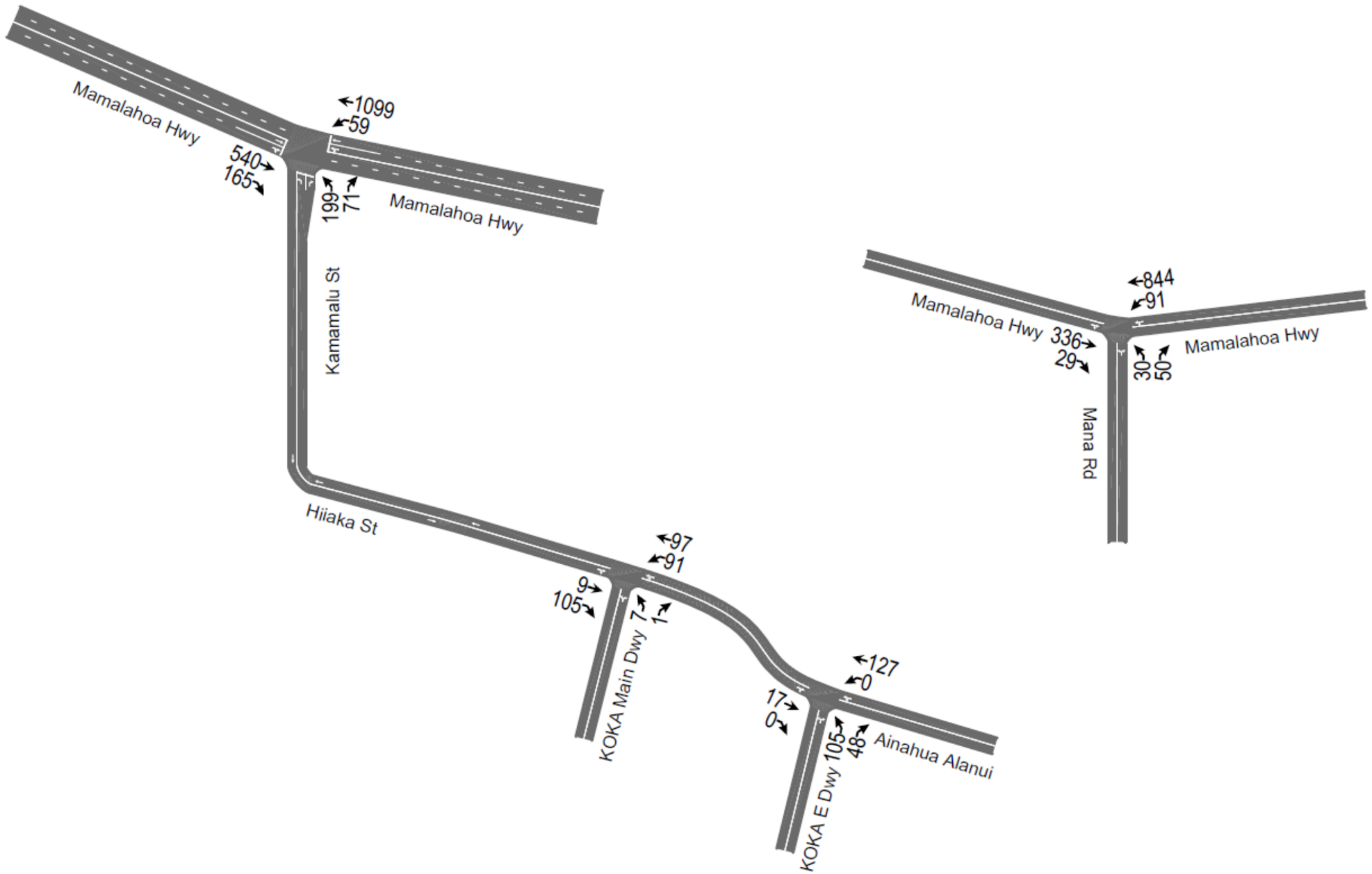


Figure 3. Existing AM Peak Hour Traffic

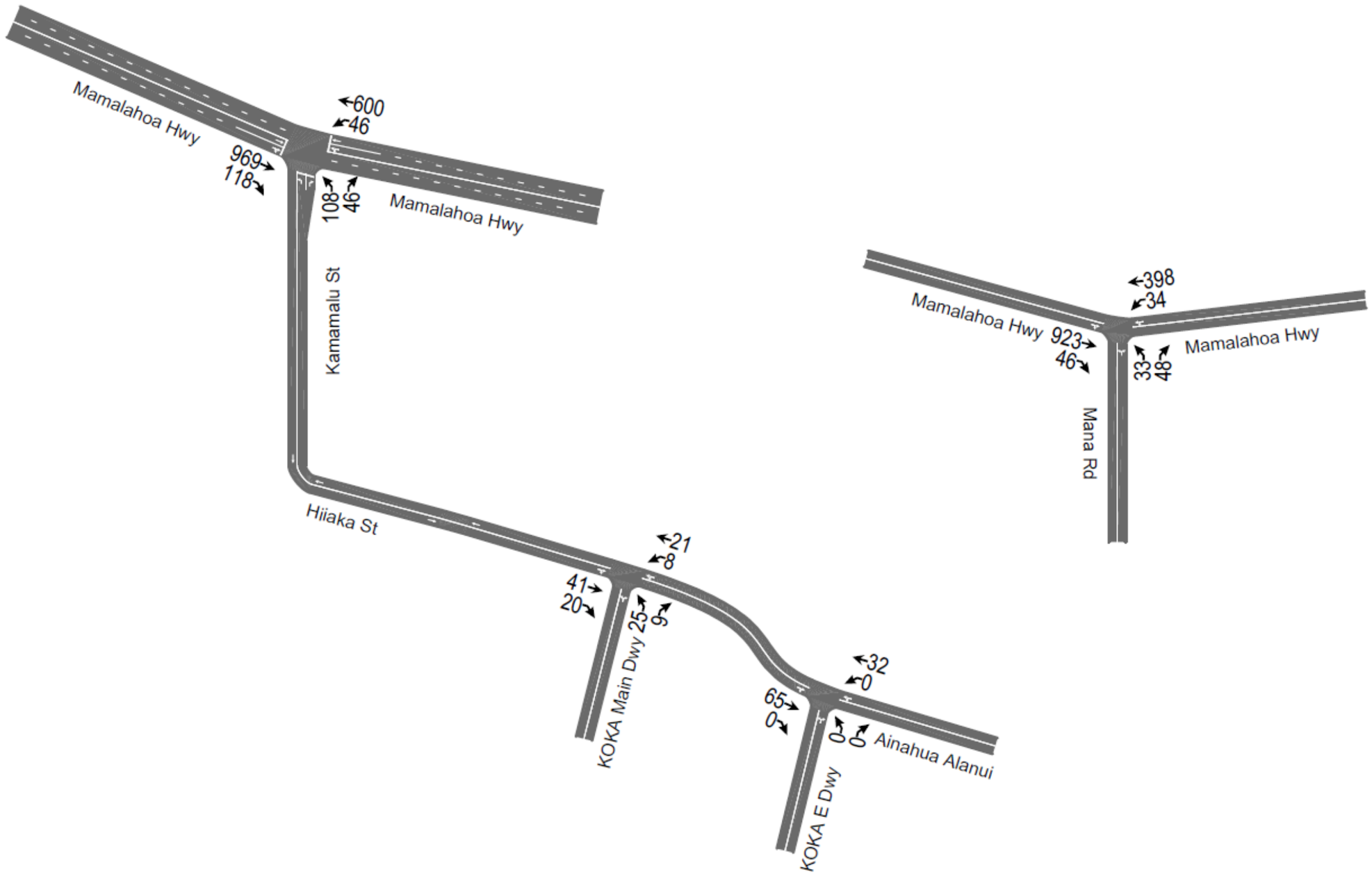


Figure 4. Existing PM Peak Hour Traffic

B. Waimea Bypass Highway

The State of Hawai`i Department of Transportation (DOT) is proposing to realign Mamalahoa Highway in Waimea, Hawai`i, between Mud Lane and the Kamuela Race Track. The Mamalahoa Highway Realignment (formerly known as the Waimea Bypass Highway) would be a two-lane, two-way 6.3-mile highway, which would be located to the south of Waimea Town. The proposed Bypass Highway is beyond the development time frame of this project, and was not taken into account in this traffic impact analysis.

C. Waimea Town Center

The Traffic Impact Analysis Report for the Proposed Waimea Town Center (TIAR) was prepared for Parker Ranch by The Traffic Management Consultant, dated April 24, 1996. The Waimea Town Center is an ongoing development on a 338+ acre site, which is located to the south of Waimea Town and to the west of the proposed project site, between Mamalahoa Highway near the Kamuela Race Track and Kamamalu Street. Ala Ohia Road is the major east-west collector roadway in the Waimea Town Center, which currently extends from Mamalahoa Highway to Pukalani Street. Ala Ohia Road is expected to be extended eastward to Kamamalu Street. For the purpose of this analysis, it was assumed that the extension of Ala Ohia Road is beyond the development time frame of the proposed project, and was not included in this traffic impact analysis.

C. Year 2024 Peak Hour Traffic Without Project

1. Year 2024 AM Peak Hour Traffic Analysis Without Project

The intersection of Mamalahoa Highway and Kamamalu Street is expected to operate at LOS "B", during the AM peak hour of traffic without the proposed project. The left-turn movement from Kamamalu Street is expected to operate at LOS "D" at Mamalahoa Highway.

Mana Road is expected to operate at LOS "F" at Mamalahoa Highway. Both KOKA Driveways are expected to continue to operate at LOS "B", during the AM peak hour of traffic without the proposed project. Figure 5 depicts the Year 2024 AM peak hour traffic without the proposed project.

2. Year 2024 PM Peak Hour Traffic Analysis Without Project

During the Year 2024 PM peak hour of traffic without the proposed project, the intersection of Mamalahoa Highway and Kamamalu Street is expected to operate at LOS "B". Mana Road is expected to operate at LOS "F" at Mamalahoa Highway, during the PM peak hour of traffic without the proposed project. The KOKA Main Driveway is expected to operate at LOS "A". The Year 2024 PM peak hour traffic without the proposed project is depicted on Figure 6.

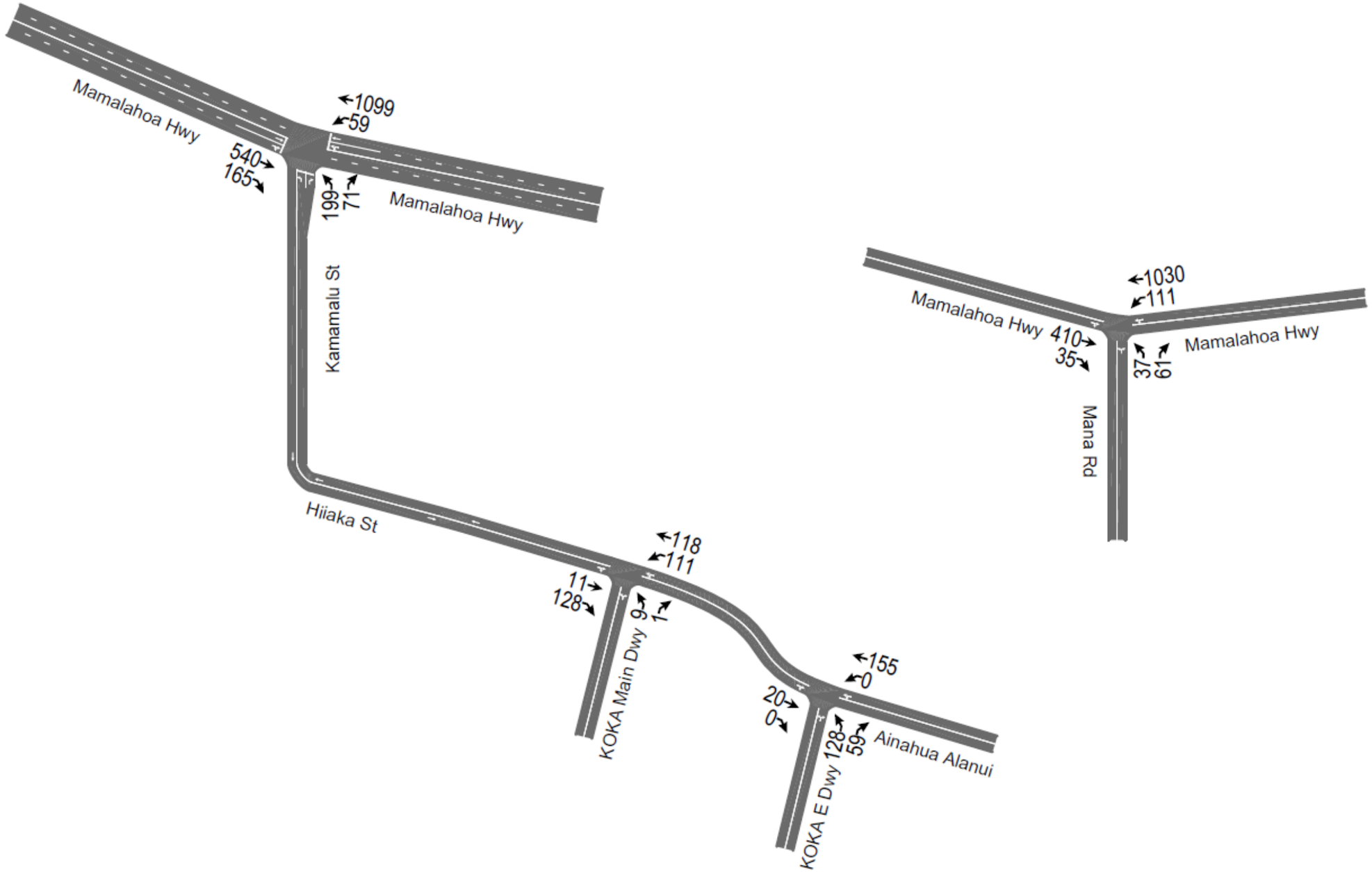


Figure 5. AM Peak Hour Traffic Without Project

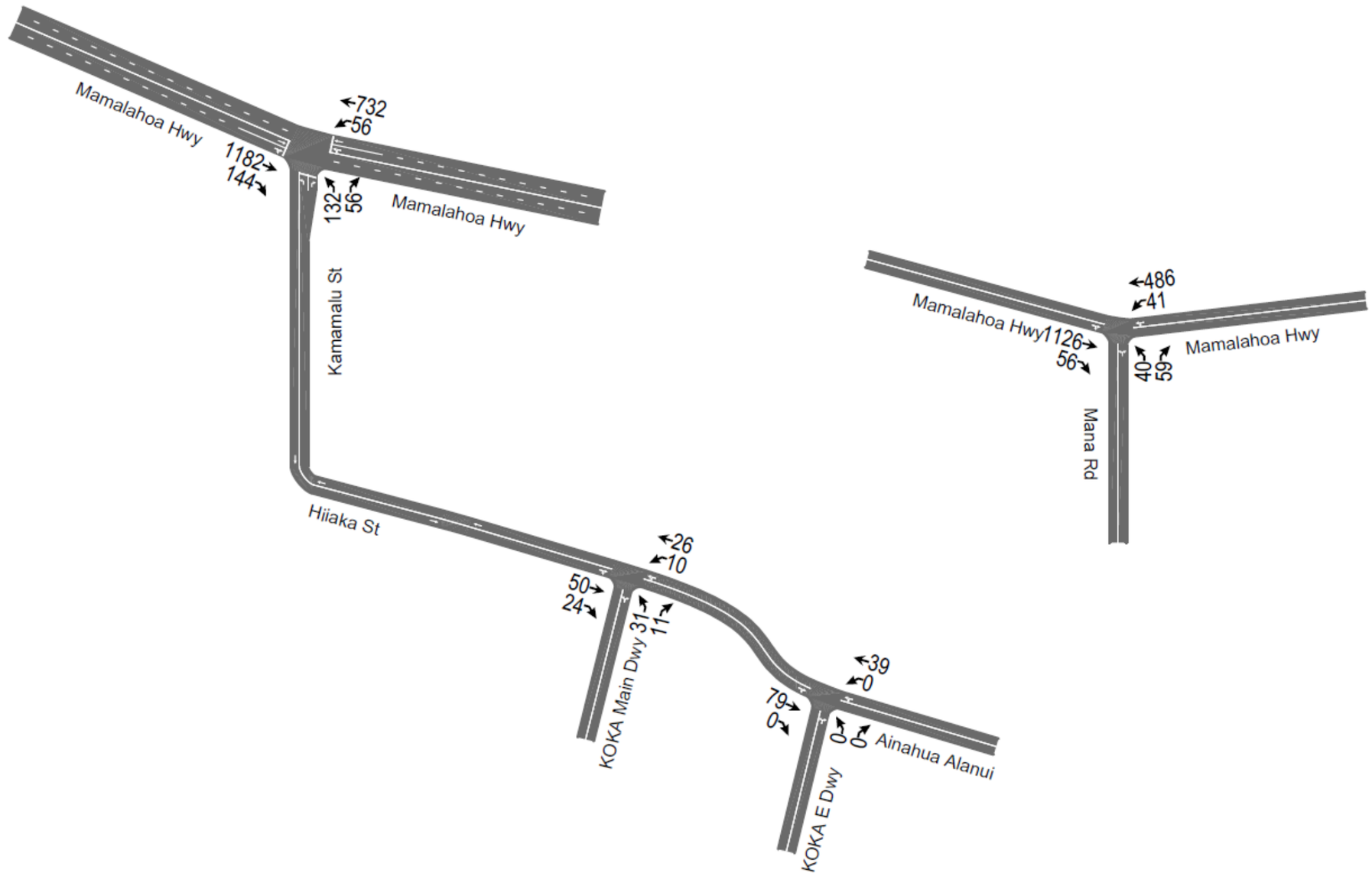


Figure 6. PM Peak Hour Traffic Without Project

IV. Traffic Impact Analysis

A. Trip Generation Characteristics

The trip generation for the cemetery and the golf facility were based upon their respective ITE trip generation rates. ITE does not provide trip generation characteristics for an agriculture park, a farmers' market, or an equestrian center. The trip generation for the agriculture park was based upon the ITE trip rates for a wholesale nursery with a total of 506 employees. The trip generation for the farmers' market was based upon the ITE trip rates for a 10,000 SFGFA supermarket. The trip generation for the equestrian center was based upon the ITE trip rates for an 14.7-acre multi-purpose recreational facility.

During the AM peak hour of traffic, the proposed project is expected to generate a total of 281 vph – 236 vph entering the site and 45 vph exiting the site. The proposed project is expected to generate a total of 500 vph, during the PM peak hour of traffic – 148 vph entering the site and 352 vph exiting the site. The trip generation characteristics for the proposed project are summarized in Table 3.

Table 3. Trip Generation Characteristics

Land Use (ITE Code)	Independent Variable	AM Peak Hour (vph)			PM Peak Hour (vph)		
		Enter	Exit	Total	Enter	Exit	Total
Cemetery (566)	3 Employees	3	1	4	7	14	21
Agriculture Park (818)	506 Employees	159	14	173	17	221	238
Golf Facility (430)	18 Holes	32	8	40	23	28	51
Equestrian Center (435)	14.7 Acres	20	8	28	47	38	85
Farmers' Market (850)	10,000 SFGFA	22	14	36	54	51	105
	Totals	236	45	281	148	352	500

The traffic assignments were based upon existing traffic patterns. Figures 7 and 8 depict the AM and PM peak hour site-generated traffic assignments for the proposed project, respectively.

B. Year 2024 AM Peak Hour Traffic Impact Analysis With Project

Westbound Mamalahoa Highway is expected to operate at LOS "C" at Kamamalu Street, during the AM peak hour of traffic with the proposed project. The left-turn movement from Kamamalu Street is expected to continue to operate at LOS "D" at Mamalahoa Highway. Mana Road is expected to continue to operate at LOS "F" at Mamalahoa Highway.

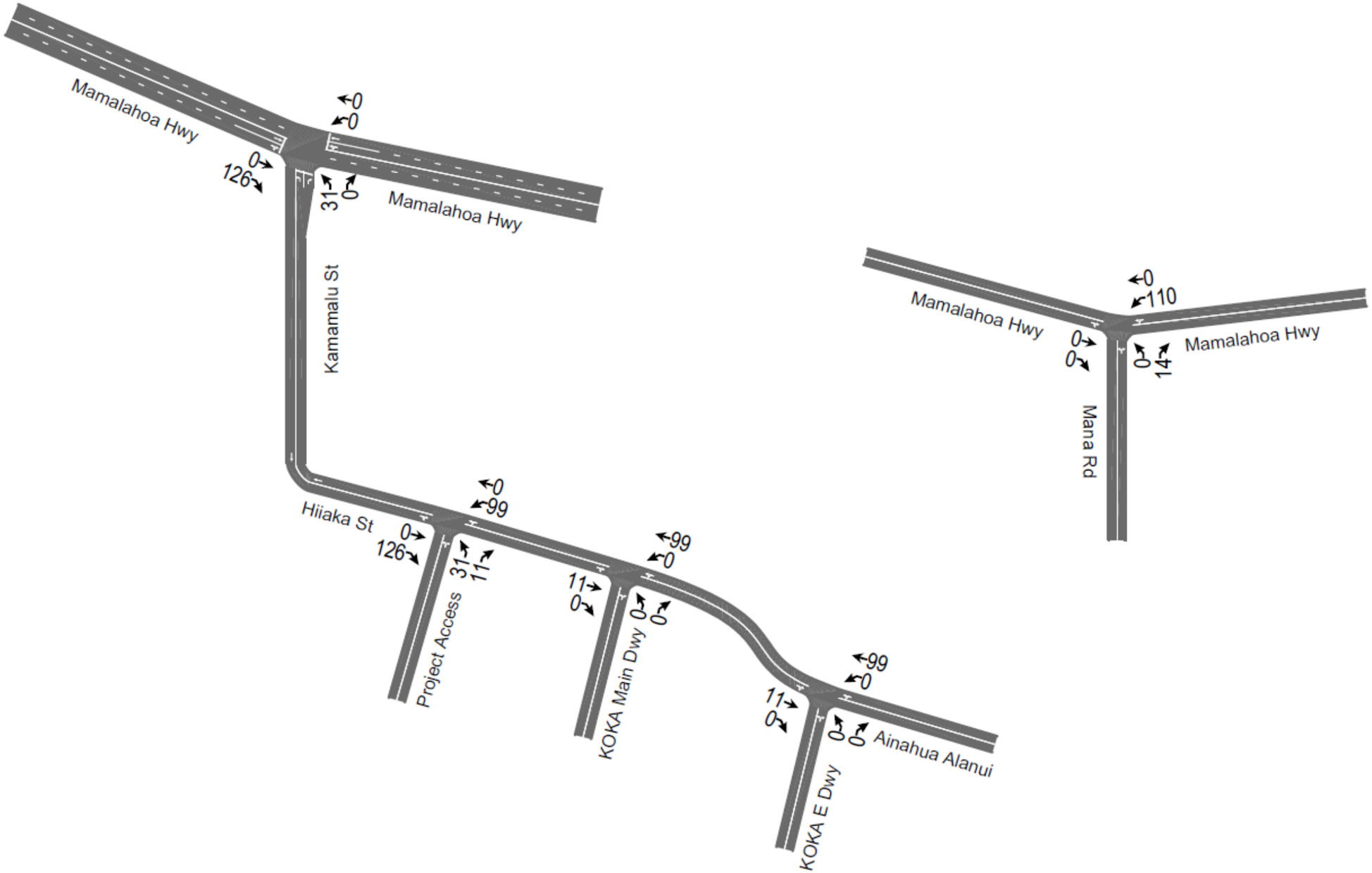


Figure 7. AM Peak Hour Site-Generated Traffic

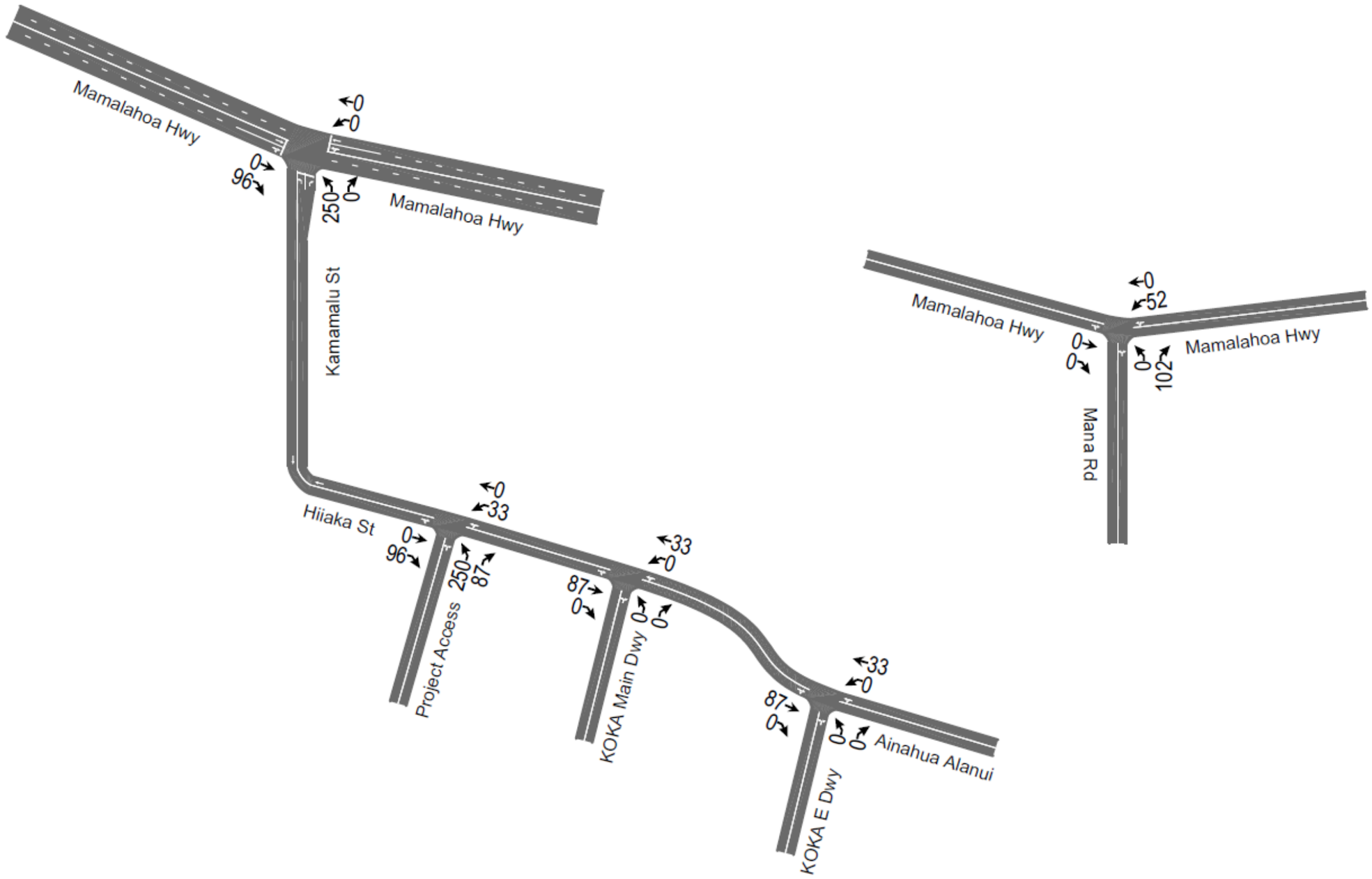


Figure 8. PM Peak Hour Site-Generated Traffic

The Project Access Driveway on Hi`iaka Street is expected to operate at LOS "B". The KOKA Main Driveway on Hi`iaka Street is expected to operate at LOS "C", while the KOKA East Driveway on Ainahua Alanui is expected to operate at LOS "B". Figure 9 depicts the Year 2024 AM peak hour traffic with the proposed project.

C. Year 2024 PM Peak Hour Traffic Impact Analysis With Project

During the Year 2024 PM peak hour of traffic with the proposed project, the intersection of Mamalahoa Highway and Kamamalu Street is expected to operate at LOS "C". The left-turn movement from Kamamalu Street onto westbound Mamalahoa Highway is expected to operate at LOS "D". Mana Road is expected to continue to operate at LOS "F" at Mamalahoa Highway, during the PM peak hour of traffic with the proposed project.

The Project Access Driveway on Hi`iaka Street is expected to operate at LOS "C", while the KOKA Main Driveway on Hi`iaka Street is expected to operate at LOS "B". The Year 2024 PM peak hour traffic with the proposed project is depicted on Figure 10.

V. Recommendations and Conclusions

A. Recommendations Without the Proposed Project

The following improvements are expected to improve the LOS "F" conditions to LOS "D" or better on Mana Road at Mamalahoa Highway without the proposed project.

1. Widen westbound Mamalahoa Highway to provide an exclusive left-turn lane into Mana Road.
2. Widen the west leg of Mamalahoa Highway at Mana Road to provide a median refuge lane to facilitate the left-turn movement from Mana Road.
3. Widen Mana Road at Mamalahoa Highway to provide separate left-turn and right-turn lanes.

B. Recommendations With the Proposed Project

1. Conduct a traffic signal warrant analysis at the intersection of Mamalahoa Highway and Mana Road, with the implementation of the traffic improvements recommended in the previous section, and after the build out of the proposed project.
2. Widen Hi`iaka Street, Ainahua Alanui, Pualahilani Alanui, Kahilu Road, and Mana Road, as necessary, to provide a minimum 20-foot wide traveled way.

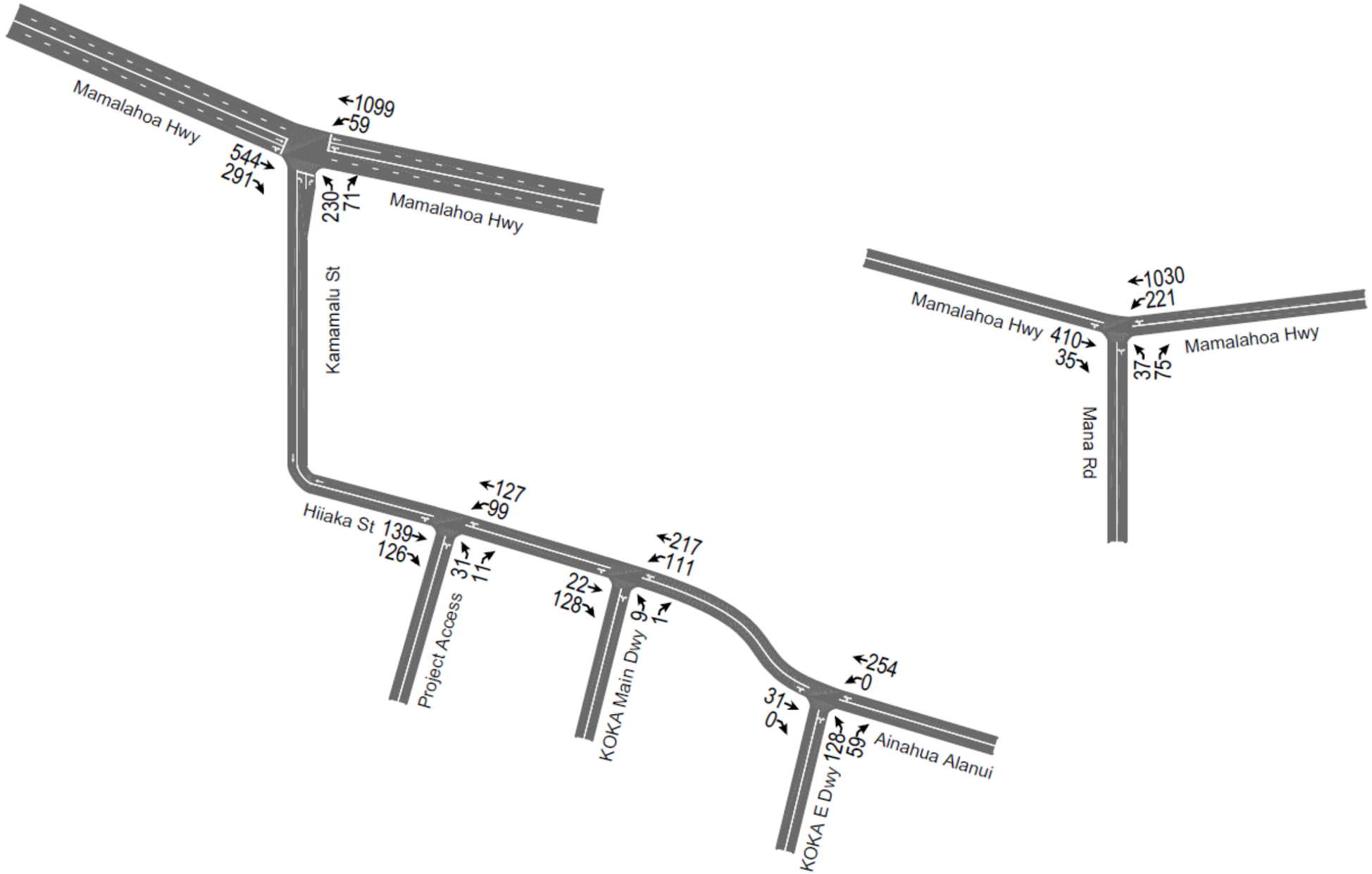


Figure 9. AM Peak Hour Traffic With Project

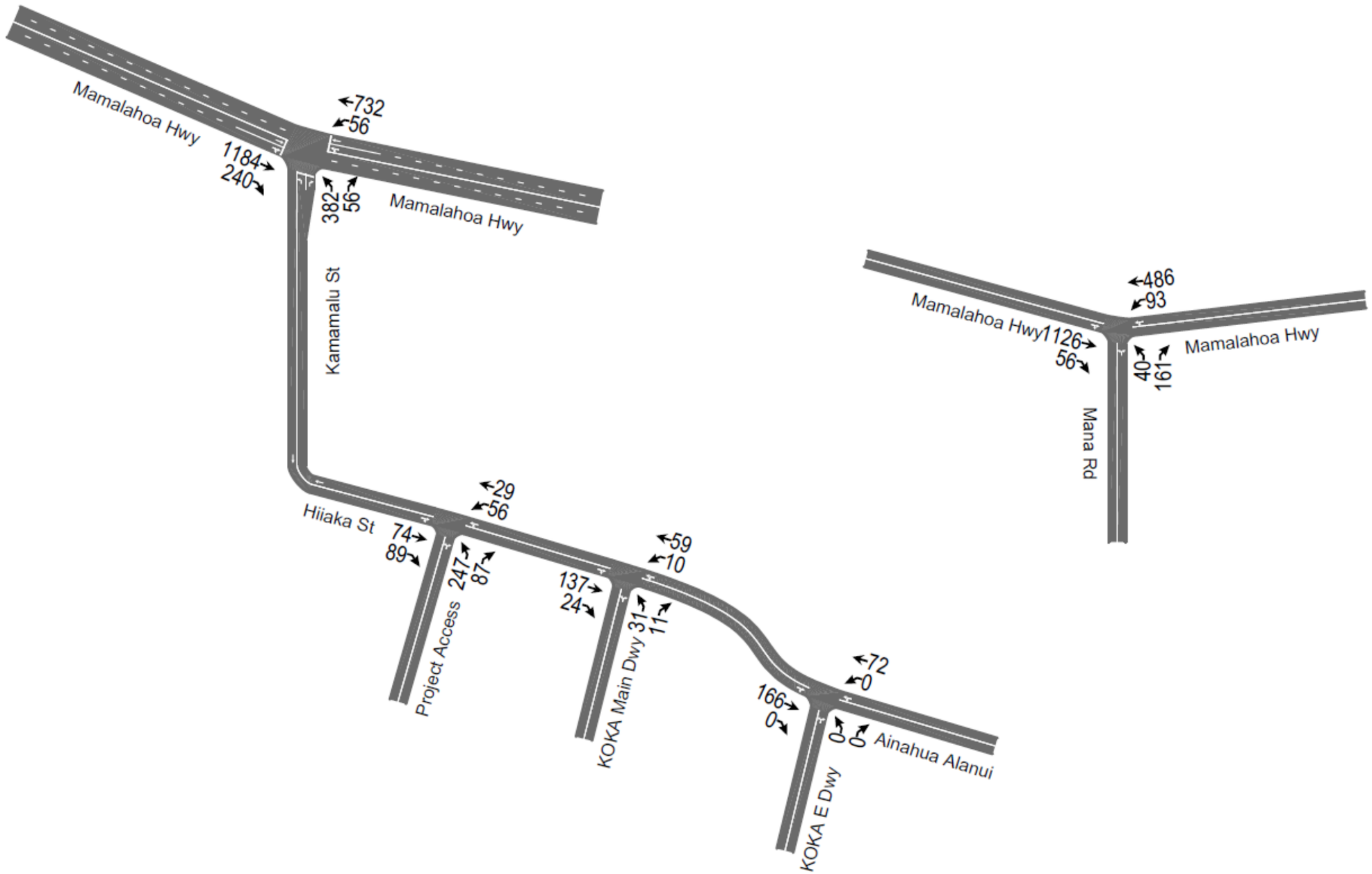


Figure 10. PM Peak Hour Traffic With Project

C. Conclusions

Traffic in the region is generally expected to increase by 2.2 percent per year to the Year 2024 without the proposed project. The extension of Ala Ohia Road is expected to provide another access route between Kamamalu Street and Waimea Town, and destinations further to the west via Mamalahoa Highway. Over the long term, the Mamalahoa Highway Realignment is expected to reduce traffic in Waimea Town by diverting through traffic. These regional improvements are beyond the planning horizon of this study, and were not taken into account in this traffic impact analysis.

The Waimea Nui Regional Community Development Initiative is expected to have a moderate impact on the intersection of Mamalahoa Highway and Kamamalu Street. The WNRCDI can be expected to impact the already congested intersection of Mamalahoa Highway and Mana Road. The proposed improvements are expected to improve the LOS "F" conditions to LOS "D" or better on Mana Road at Mamalahoa Highway without the proposed project. However, the left-turn movement from Mana Road onto Mamalahoa Highway is expected to operate at LOS "F", during the AM peak hour with the proposed project with the proposed improvements. Similarly, the right-turn movement from Mana Road onto Mamalahoa Highway also is expected to operate at LOS "F", during the PM peak hour with the proposed project. Table 4 summarizes the results of the capacity analysis.

Table 4. Summary of Capacity Analysis

Scenario	Intersection	MOE	EBT	EBR	WBL	WBT	NBL	NBR	Intersection
Existing AM Peak Hour Traffic	Kamamalu St. & Mamalahoa Highway	LOS	A		B		D	C	B
		v/c	0.45		0.85		0.57	0.24	0.85 (max)
		Delay	8.1		18.6		36.5	20.5	16.8
	Mana Road & Mamalahoa Highway	LOS	N/A		A	A	E		A
		v/c	N/A		0.09	N/A	0.48		N/A
		Delay	N/A		8.5	0.0	39.2		2.8
	KOKA Main Dwy & Hi`iaka Street	LOS	N/A		A	A	B		A
		v/c	N/A		0.10	N/A	0.02		N/A
		Delay	N/A		7.8	0.0	12.4		2.6
	KOKA East Dwy & Ainahua Alanui	LOS	N/A		A	N/A	B		A
		v/c	N/A		N/A	N/A	0.29		N/A
		Delay	N/A		0.0	N/A	11.0		5.7
Existing PM Peak Hour Traffic	Kamamalu St & Mamalahoa Highway	LOS	B		B		B	A	B
		v/c	0.73		0.57		0.24	0.16	0.73 (max)
		Delay	15.4		13.3		19.0	9.5	14.7
	Mana Road & Mamalahoa Highway	LOS	N/A		B	A	E		A
		v/c	N/A		0.06	N/A	0.47		N/A
		Delay	N/A		10.7	0.0	40.7		2.5
	KOKA Main Dwy & Hi`iaka Street	LOS	N/A		A	A	A		A
		v/c	N/A		0.01	N/A	0.06		N/A
		Delay	N/A		7.4	0.0	9.3		3.0
	KOKA East Dwy & Ainahua Alanui	LOS	N/A		A	N/A	A		A
		v/c	N/A		N/A	N/A	N/A		N/A
		Delay	N/A		0.0	N/A	0.0		0.0

Table 4. Summary of Capacity Analysis (Cont'd.)									
Scenario	**Intersection**	**MOE**	**EBT**	**EBR**	**WBL**	**WBT**	**NBL**	**NBR**	**Intersection**
AM Peak Hour Traffic Without Project	**Kamamalu St & Mamalahoa Highway**	**LOS**	A		B		D	C	B
		v/c	0.45		0.85		0.57	0.24	0.85 (max)
		Delay	8.1		18.6		36.5	20.5	16.8
	Mana Road & Mamalahoa Highway	**LOS**	N/A		A	A	F		B
		v/c	N/A		0.12	N/A	1.13		N/A
		Delay	N/A		8.9	0.0	207.1		12.7
	Mana Road & Mamalahoa Hwy-Improved	**LOS**	N/A		A	N/A	D	B	A
		v/c	N/A		0.12	N/A	0.25	0.12	N/A
		Delay	N/A		8.9	N/A	33.2	12.1	1.8
	KOKA Main Dwy & Hi`iaka Street	**LOS**	N/A		A	A	B		A
		v/c	N/A		0.12	N/A	0.04		N/A
		Delay	N/A		8.0	0.0	14.1		2.7
	KOKA East Dwy & Ainahua Alanui	**LOS**	N/A		A	N/A	B		A
		v/c	N/A		N/A	N/A	N/A		N/A
		Delay	N/A		0.0	N/A	12.1		6.3
PM Peak Hour Traffic Without Project	**Kamamalu St & Mamalahoa Highway**	**LOS**	B		B		C	B	B
		v/c	0.77		0.67		0.36	0.23	0.77 (max)
		Delay	14.9		13.6		26.2	14.4	15.2
	Mana Road & Mamalahoa Highway	**LOS**	N/A		B	A	F		A
		v/c	N/A		0.08	N/A	0.90		N/A
		Delay	N/A		12.2	0.0	124.4		7.1
	Mana Road & Mamalahoa Hwy-Improved	**LOS**	N/A		B	N/A	C	D	A
		v/c	N/A		0.08	N/A	0.19	0.30	N/A
		Delay	N/A		12.2	N/A	23.9	28.6	1.8
	KOKA Main Dwy & Hi`iaka Street	**LOS**	N/A		A	A	A		A
		v/c	N/A		0.01	N/A	0.07		N/A
		Delay	N/A		7.4	0.0	9.5		3.1
	KOKA East Dwy & Ainahua Alanui	**LOS**	N/A		A	N/A	A		A
		v/c	N/A		N/A	N/A	N/A		N/A
		Delay	N/A		0.0	N/A	0.0		0.0

Table 4. Summary of Capacity Analysis (Cont'd.)

Scenario	Intersection	MOE	EBT	EBR	WBL	WBT	NBL	NBR	Intersection
AM Peak Hour Traffic With Project	Kamamalu St & Mamalahoa Highway	LOS	A		C		D	C	B
		v/c	0.52		0.88		0.69	0.26	0.88 (max)
		Delay	7.8		21.4		42.3	22.4	18.4
	Mana Road & Mamalahoa Highway	LOS	N/A		A	A	F		F
		v/c	N/A		0.24	N/A	3.43		N/A
		Delay	N/A		9.5	0.0	1312.4		82.5
	Mana Road & Mamalahoa Hwy-Improved	LOS	N/A		A	N/A	F	B	A
		v/c	N/A		0.24	N/A	0.39	0.15	N/A
		Delay	N/A		9.5	N/A	56.6	12.3	2.8
	KOKA Main Dwy & Hi`iaka Street	LOS	A		A	C	A		A
		v/c	0.12		N/A	0.04	N/A		0.12
		Delay	8.0		0.0	15.8	2.3		8.0
	KOKA East Dwy & Ainahua Alanui	LOS	N/A		A	N/A	B		A
		v/c	N/A		N/A	N/A	N/A		N/A
		Delay	N/A		0.0	N/A	14.6		5.8
	Project Access Driveway & Hi`iaka Street	LOS	N/A		A	A	B		A
		v/c	N/A		0.09	N/A	0.11		N/A
		Delay	N/A		8.3	0.00	14.4		2.2
PM Peak Hour Traffic With Project	Kamamalu St & Mamalahoa Highway	LOS	C		B		D	B	C
		v/c	0.89		0.77		0.92	0.21	0.92 (max)
		Delay	22.3		19.1		49.8	16.3	25.8
	Mana Road & Mamalahoa Highway	LOS	N/A		B	A	F		E
		v/c	N/A		0.18	N/A	1.65		N/A
		Delay	N/A		13.1	0.0	383.1		39.9
	Mana Road & Mamalahoa Hwy-Improved	LOS	N/A		B	N/A	D	F	A
		v/c	N/A		0.18	N/A	0.20	0.81	N/A
		Delay	N/A		13.1	N/A	25.8	67.3	6.7
	KOKA Main Dwy & Hi`iaka Street	LOS	N/A		A	A	B		A
		v/c	N/A		0.01	N/A	0.08		N/A
		Delay	N/A		7.6	0.0	10.3		2.1
	KOKA East Dwy & Ainahua Alanui	LOS	N/A		A	N/A	A		A
		v/c	N/A		N/A	N/A	N/A		N/A
		Delay	N/A		0.0	N/A	0.0		0.0
	Project Access Driveway & Hi`iaka Street	LOS	N/A		A	A	C		A
		v/c	N/A		0.04	N/A	0.53		N/A
		Delay	N/A		7.8	0.0	15.8		9.3