

DRAFT ENVIRONMENTAL ASSESSMENT

LAND PARCEL ACQUISITION KALAHĒO, KAUA‘I, HAWAI‘I



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August 2010

**Prepared by:
Belt Collins Hawaii
Honolulu, Hawai‘i**

**Prepared for:
Department of Water
County of Kaua‘i**

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ACRONYMS AND ABBREVIATIONS

ALISH	Agricultural Lands of Importance to the State of Hawai‘i
BLNR	Board of Land and Natural Resources, State of Hawai‘i
CIP	Capital Improvement Program
CZM	Coastal Zone Management
CWRM	Commission on Water Resource Management
CZO	County Zoning Ordinance (County of Kaua‘i)
DLNR	Department of Land and Natural Resources, State of Hawai‘i
DOH	Department of Health, State of Hawai‘i
DOW	Department of Water, County of Kaua‘i
DPW	Department of Public Works, County of Kaua‘i
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GP	General Plan
HAR	Hawai‘i Administrative Rules
HRS	Hawai‘i Revised Statutes
KIUC	Kaua‘i Island Utility Cooperative
LSB	Land Study Bureau (University of Hawai‘i)
MG	million gallon
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System

OEQC	Office of Environmental Quality Control
SCS	Soil Conservation Service
SHPD	State Historic Preservation Division, State of Hawai‘i
SMA	Special Management Area
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

1 SUMMARY

PROPOSING AGENCY: Department of Water (DOW), County of Kaua‘i

APPROVING AGENCY: DOW, County of Kaua‘i

GENERAL PROJECT DESCRIPTION: The DOW is proposing to purchase a 0.71-acre parcel in Kalahēo, Kaua‘i and hold it in reserve for planning and future water systems use purposes.

PROJECT LOCATION: The subject property is located approximately 1.2 miles upland (north) of Kaumuali‘i Highway on Pu‘uwai Road in Kalahēo, Kaua‘i (see Figure 1). The Tax Map Key of the property is (4) 2-4-03: 7 (see Figure 2).

PRELIMINARY DETERMINATION: Anticipated Finding of No Significant Impact (FONSI)

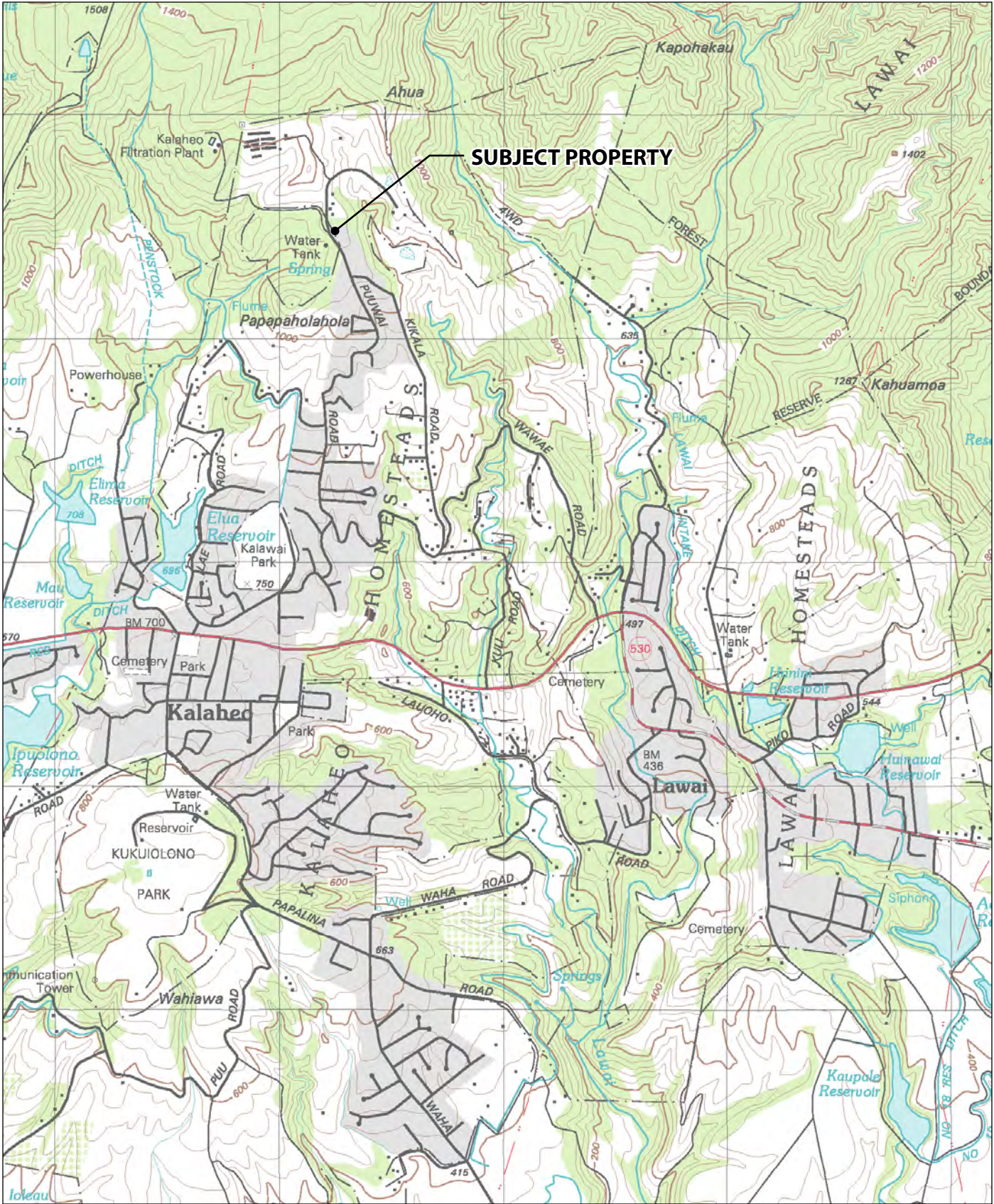
CONSULTED AGENCIES:

State Agencies

Department of Agriculture
Department of Health (DOH)
Environmental Management Division
Land Division, Department of land and Natural Resources (DLNR)
Office of Environmental Quality Control (OEQC)
State Historic Preservation Division (SHPD), DLNR

County Agencies

Finance Department
Fire Department
Planning Department
Police Department
Public Works Department



0 500 1000 2000
SCALE IN FEET

Figure 1
LOCATION MAP
Land Parcel Acquisition
Kalahelo, Kauai

Joseph K. Palama
0.503c
LCAN 6520

Benny G. Silva
18.45 Acs.
(17.51 Acs.)
VA TRACT
P. 263)

Grant B-215

10,35 Masato Sugimura inf.
Nobuyo Wada - T/E

11 County of Kauai
G-553 AC.

State of Hawaii

(Antone Andrade, Sr.) 18
G.L. 5-4863

KUWAAWAA PASTURE LAND

SUBJECT PROPERTY

PILLNER TRACT

David F. Duarte
& wf. Flora G. J.
Lawrence Vindin

4 William M. Ventura & wf.
= Mary I. - 4/1
William R. Ventura & wf.
Loretta A. - 7/8 - Rdm.

23 Sana D. Otry
(Ronald K. Lowery & Co.)

31 Toshiyuki Hirabayashi
Wf. Midori - Tie

29 Donald T. Kawane & H.

NOTE: Parcels 3, 32,
owned by Frank Rapozo
& Wf. Virginia A. - 1/2 unless
otherwise noted

32 Robert P. Buntain & wf
June - T/E

27,970 \$1,141 FLOORING CONDO

02/11/17 10:17:52

PORTION OF KALAHEO HOMESTEADS, 1ST SERIES, KOLOA, KAUAI.

NOTE: Parcels 15, 37 thru 45 owned by
Daniel M. Lord - 8%
James G. Netherill
Inf. Lena R. TIE - 78%
BZ Building Inc. - 80% - Tie
- unless otherwise noted

Dropped parcels: 21, 14, 16, 44, 34, 36, 38, 40, 42, 43, 48, 50, 51.

TAXATION MAPS BUREAU		
TERRITORY OF HAWAII		
TAX MAP		
FOURTH		DIVISION
ZONE	SEC.	PLAT
2	4	03
CONTAINING		PARCELS
SCALE: in		200 ft.

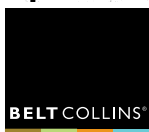
SUBJECT TO CHANGE

PRINTED

Figure 2 TAX MAP

Land Parcel Acquisition

Kalahēo, Kauaʻi



NORTH NOT TO SCALE

2 DESCRIPTION OF PROPOSED ACTION

2.1 Project Objective

In anticipation of future resident population growth in Kalahēo, DOW continues to plan for the long-term improvement of the region's water system. The current system is adequate to accommodate present needs, but further growth will require improvements to the area's storage and distribution system as well as replacement of aging, dilapidated facilities and equipment. The upgrade and replacement of some facilities will require expansion of existing DOW sites or acquisition of new supplemental sites.

DOW's existing Nursery Tank, located on Pu'uwai Road across from the subject property, is over 65 years old and presently requires extensive repair and upkeep. The 100,000 gallon concrete tank fully occupies the usable portion of the 1.9-acre site leaving little room for facility upgrade or expansion.

DOW is exploring opportunities to repair, upgrade, or replace the antiquated Nursery Tank as well as other aging facilities in the Kalahēo Water System. The availability of the subject property for acquisition is advantageous and presents the opportunity that DOW seeks in upgrading or improving the various components of its existing facilities.

2.2 Description of the Proposed Action

An opportunity has been provided for DOW to acquire a site that could be used for facilities upgrade or systems improvement. The subject property is located at an elevation that is within a pressure service zone targeted for facilities evaluation and improvements. Its high elevation presents an ideal condition for gravitational flow to the rest of the DOW water system in Kalahēo. The site is of sufficient size to accommodate a 0.5 million gallon (MG) reservoir, if needed, and is accessible from an improved public right-of-way. It is currently zoned R-2 Residential by the County (small sliver along the County road is in the State Conservation District (see Section 6.2)), which allows public utilities such as DOW facilities, and although slightly sloping can be utilized with proper grading.

The DOW is proposing to acquire the subject property from the present landowner, which is listed as Mildred F. Yamada Trust and Saitaro Yamada Trust Estate in the Kaua'i County Real Property Tax office. The owner has been contacted and is currently in negotiations with the County for possible sale of the property. The DOW intends to acquire full title to the land and hold it in reserve until an appropriate time for development. When development is ready to proceed on the property, the DOW will prepare another Environmental Assessment (EA) to describe the proposed action, assess its probable impacts, and propose mitigation measures to reduce or minimize any anticipated major project impacts. The present EA addresses the current proposed action to purchase the existing subject property by a public agency using public funds.

2.3 Preliminary Purchase Price

The purchase price for the subject property is in negotiations. Current County records (2010) at the Real Property Tax Office show an assessed land value of \$139,100 for the 0.71-acre property.

2.4 Acquisition Schedule

A land appraisal of the subject property was conducted by the County in 2009. Negotiations on the acquisition of the property began in August 2008. As required by law, a Chapter 343, Hawaii Revised Statutes (HRS), environmental review must be undertaken by the County for DOW's proposed action. The EA is expected to be completed in the fall of this year, at which time a final sales agreement would occur and the land purchase would be concluded.

3 DESCRIPTION OF AFFECTED ENVIRONMENT

3.1 Regional Setting

The Kōloa District of Kauaʻi consists of a mix of agricultural lands, small rural towns, and a coastal resort community. The primary agricultural crops include diversified truck crops and coffee. Earlier, these lands were predominantly in sugarcane until the sugar plantations on the island closed, the last in 2009.

The rural residential communities of ʻEleʻele, Kōloa, Lāwaʻi, and Kalahēo comprise the major settlements in the district. Each has a population of approximately 2,000 or more. Poʻipū, a coastal community, comprises the resort attraction in the district with such facilities as hotels, vacation rentals, golf courses, tennis, spas, and shopping villages. It has developed into a popular visitor spot with its warm climate and sandy beaches, and nearby Kōloa has become its commercial center.

The subject property is located in the upland elevations of Kalahēo, which is the largest of the four residential communities. This thriving community has a population of approximately 4,000 residents and includes a business district with a diversity of commercial and community facilities, including retail shops, medical clinics, churches, restaurants, gas station, schools, and playgrounds. Kaumualiʻi Highway which circles the southern half of the island, passes through the business district as its main street.

3.2 Existing Land Use and Land Ownership

The subject property, identified by Tax Map Key as 2-4-03: 7, is located on Puʻuwai Road in an upland rural area approximately 1.2 miles (linear distance) from the center of Kalahēo town. The lands surrounding the subject property consist of scattered residential homes in an abundant open space (see Figure 2-3). The Līhuʻe-Kōloa Forest Reserve is located mauka or above the subject property.



Figure 3
AERIAL PHOTO
Land Parcel Acquisition
Kalahēo, Kauaʻi



NORTH NOT TO SCALE

The subject property is primarily vacant with an old, abandoned residence occupying a small rear section of the parcel (see Figure 4). It is owned by the Saitaro and Mildred Yamada family who has had the property since 1939.

The abandoned residence, which was built in the early 1950s, was never completed nor occupied. A portion of the existing residence extends over the rear property line and into the adjacent parcel (TMK 2-4-03: 6) also owned by the Yamada family.

Along the same rear property line and outside the subject property is a water pipeline easement. This 10-foot wide easement, believed to contain a 4-inch diameter pipeline, connects with a tank site easement at the northeast corner outside of the subject property. A DOW water facilities map for Kalahēo shows that the pipeline connects the tank site with the 100,000-gallon Nursey Tank located across Puʻuwai Road from the subject property. Although the tank site is still on record as an easement, there is no storage facility on the property. The DOW map shows that this tank was known as the Spillner Tank, and it had a capacity of 5,000 gallons.

In addition to the pipeline easement that runs along the rear property line, a 10-foot wide pipeline easement traverses the adjacent northern parcel to connect with the Spillner Tank site. This pipeline easement appears to continue past the Spillner site in a straight line to the southeast beyond the subject property and its adjacent eastern property. The DOW water facilities map shows this easement contains a 6-inch diameter pipeline that connects to the Matias Tank, a 5,000 gallon tank, located approximately 1,800 feet to the southeast of the subject property. The DOW water facilities map indicates that the pipeline, as well as the Matias Tank, are inactive.

The majority of the subject property is in a natural state. Mature vegetation on the property includes trees, shrubs, and groundcover (see Section 3.7), both native and introduced species. (See Figure 5.)

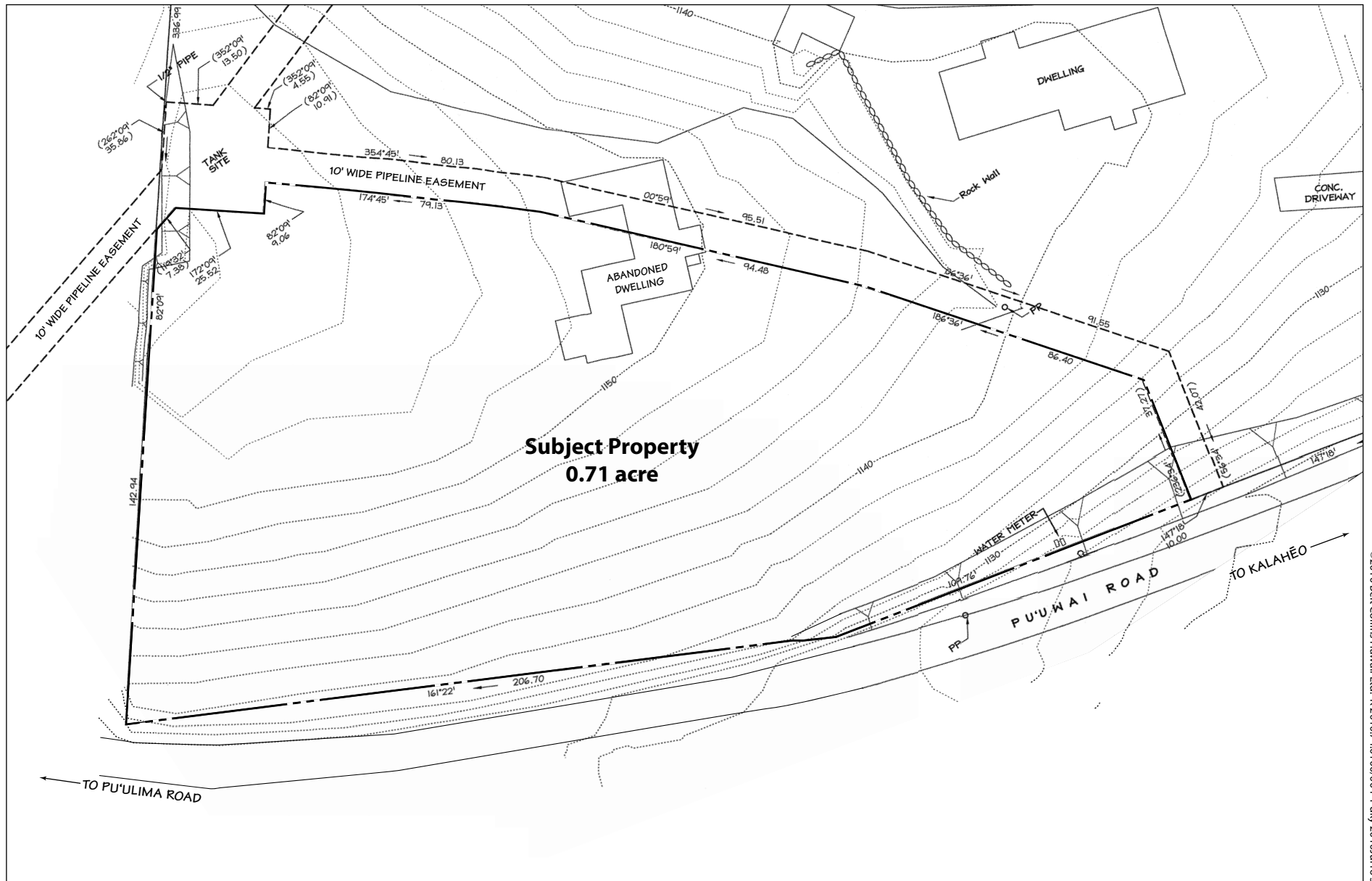
3.3 Topography

The subject property generally slopes from the parcel's northern boundary at elevation 1,158 feet to the southern boundary at elevation 1,124 feet over a distance of approximately 300 feet (see Figure 6). The terrain averages an overall slope of approximately 12 percent; however there are sub-areas that are relatively level particularly around the abandoned residence and northeastern section of the property.

The western side of the property slopes considerable, approximately 30 percent or more, from the east to the west toward the lower abutting County road.

3.4 Geology and Soils

The subject property is situated approximately 3.8 miles from the shoreline at the approximately 1,150-foot elevation. The island of Kauaʻi is the oldest of the main Hawaiian Islands, and was formed by shield volcanoes. The volcanic rocks of Kauaʻi were originally separated into the Waimea Canyon Volcanic Series and Kōloa Volcanic Series. The Waimea Canyon Volcanic Series, which was later subdivided into four formations; Nāpali, Hāʻupu, Olokele, and Makaweli, represents the shield stage formation of the island, and the younger Kōloa Volcanic Series,



Source: Survey map by Dennis M. Esaki



NORTH



Figure 4
SUBJECT PROPERTY
Land Parcel Acquisition
Kalahēo, Kaua'i



Puuwai Road (Subject Property on right)



Subject Property looking west



Subject Property looking south



Subject Property looking north

which dominates the eastern half of Kauai, represents the island's rejuvenated stage formation. Kalahēo is located on the southern slopes of Mt. Wai'ale'ale in the Waimea Canyon Volcanic Series.

According to the U.S. Department of Agriculture, Soil Conservation Service's (SCS) *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* (1972), soils on the subject property consist of Puhi silty clay loam (PnC), 8 to 15 percent slopes and Puhi silty clay loam (PnE), 25 to 40 percent slopes (see Figure 7). The Puhi series is characterized by well-drained soils that are derived from typical igneous rock, and occur on the upper slopes on the island of Kaua'i. The erosion hazard for PnC is described as slight and runoff on the soil is considered slow. Due to the steepness of the slopes, PnE is described as having a rapid runoff rate and severe erosion hazard. The land capability classifications for PnC and PnE are IIIe (irrigated or non-irrigated) and VIe (non-irrigated), respectively.¹

The Agricultural Lands of Importance to the State of Hawai'i (ALISH) classification system identifies the subject property as Other Important Agricultural Land. This classification does not include lands that qualify as Prime Agricultural Land or Unique Agricultural Land.

The University of Hawai'i Land Study Bureau's (LSB) agricultural productivity rating system designates the subject property with a relatively poor overall productivity rating of D (see Figure 8). The rating system consists of five classifications, A through E, of which A represents the class of highest productivity and E the lowest productivity.

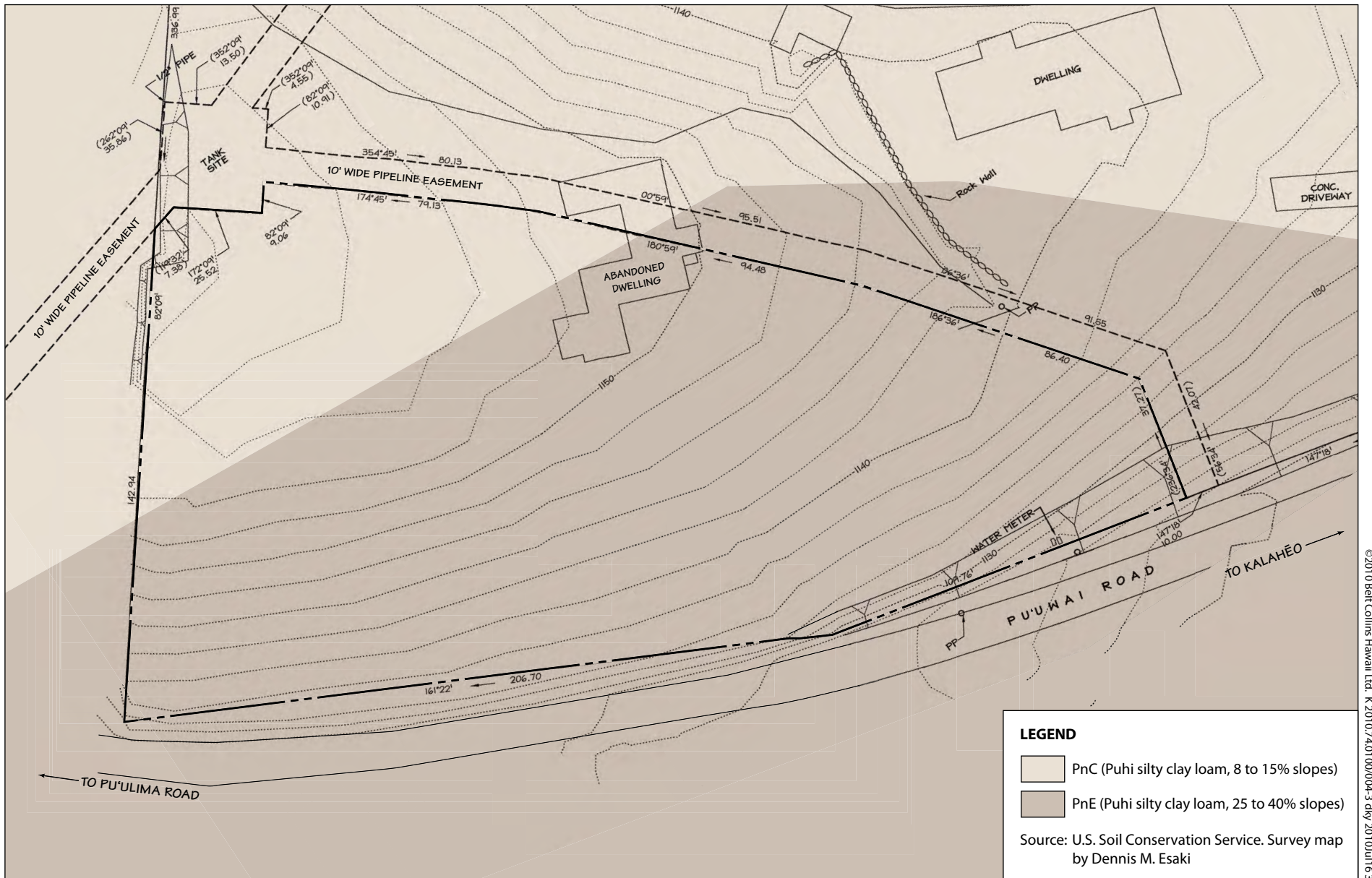
3.5 Hydrology

No stream or watercourse traverses the subject property. The nearest streams are an un-named watercourse, approximately 2,000 feet to the west, and Lāwa'i Stream, approximately 2,500 feet to the east. The un-named watercourse originates at the Alexander Reservoir up-gradient of the subject property and feeds a system of ditches and reservoirs southwest of the property. At the approximately 820-foot elevation, the water course is fed by a natural spring.

At its uppermost reach, the perennial Lāwa'i Stream originates roughly 7,000 feet uphill of the subject property, in the Līhu'e-Kōloa Forest Reserve. Lāwa'i Stream meanders through the Kalahēo Homesteads and Lāwa'i Homesteads in a general mauka-to-makai direction before discharging to Lāwa'i Bay in the Pacific Ocean.

Kaua'i has several types of groundwater resources. The most extensive is the basal freshwater lens that floats on seawater under much of the island. The complexity of Kaua'i's geology and the wide range in permeability of its substrata create a variegated formation of the basal lens, different than what is well formed for the islands of O'ahu and Maui. The Kalahēo area is identified as having perched groundwater. This type of water is "perched" on top of layers of impermeable material such as dense volcanic rock, beds of weathered and solidified ash, or clay-bearing sediments.

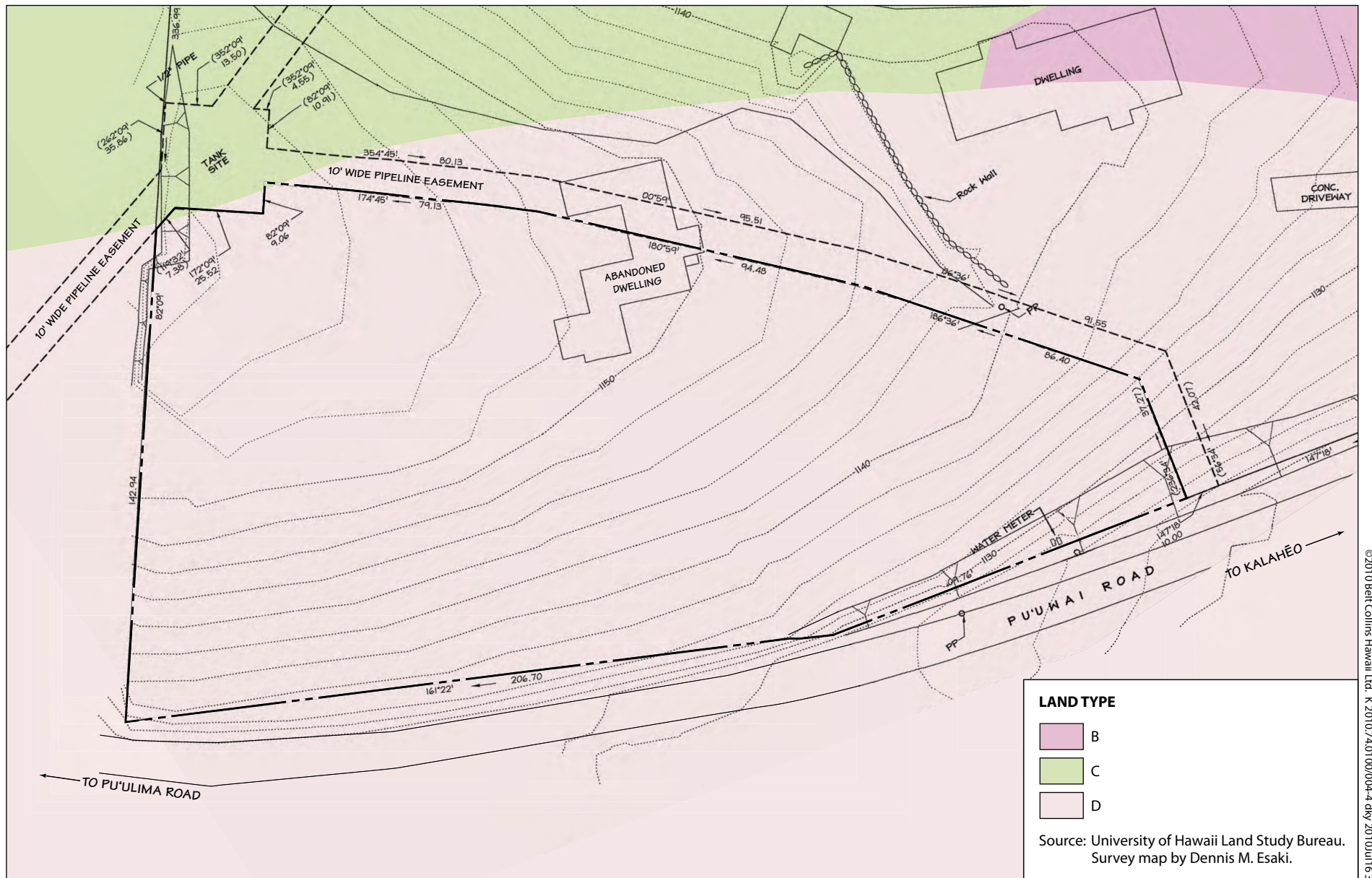
¹ The SCS land capability classification includes eight different soil categories, ranging from I to VIII. The classification system describes the suitability of soils for most kinds of crops, where lower roman numerals represent soils with fewer limitations and that are consequently more suitable for croplands. Letter designations appended to the classification numbers describe the following soil limitations: e – erosion; w – excess wetness; s – shallow, droughty or stony soils; and c – climactic limitations.



NORTH



Figure 7
SOIL MAP
Land Parcel Acquisition
Kalahēo, Kaua'i



NORTH

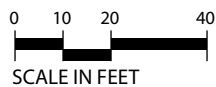


Figure 8
LAND TYPE
Land Parcel Acquisition
Kalahēo, Kaua'i

The DLNR Commission on Water Resource Management (CWRM) established groundwater hydrologic units which generally divide each Hawaiian island into regions with similar hydro-geologic properties. These hydrologic units were established to provide a consistent basis for managing the State’s groundwater resources. The subject property is part of the Kōloa Hydrologic Unit, which extends from Hanapēpē to Po‘ipū from the 3,310-foot elevation above Kalahēo at Kapalaoa Peak to the shore. The Kōloa Hydrologic Unit has a sustainable yield of 30 million gallons per day. Groundwater use by the proposed action would not be an issue since no construction or use of land is proposed with the potential land acquisition.

3.6 Natural Hazards

The Flood Insurance Rate Maps (FIRM) prepared by the Federal Emergency Management Agency (FEMA) for the County of Kaua‘i indicate that Map No. 1500020285E (effective September 16, 2005), which covers the subject property, is not printed and that there are no special flood hazard areas. The State DLNR notes that the subject property is, in fact, located in Flood Zone X, areas of minimal potential flooding. The Flood Insurance Program does not have any regulations for development within this flood zone.

Tsunamis in Hawai‘i are typically caused by earthquakes which generate waves of energy across the Pacific Ocean. The subject property is located nearly 4 miles from the coastline and outside of any tsunami evacuation zones delineated by the Pacific Disaster Center. The subject property is not threatened by any potential tsunami inundation.

Kaua‘i is the oldest of the major Hawaiian islands and does not contain any active or dormant volcanoes. Volcanic eruption or lava flow, as a result, is not a threat to the subject property.

Other natural hazards that might occur on the island include hurricanes, severe winds, earthquakes, and wildfires. None of these natural hazards may be considered particularly threatening to the proposed action.

3.7 Flora and Fauna

Mature vegetation occupies approximately 65 percent of the property (see Figures 5 and 6). Introduced species as well as invasive plants are predominant. The notable varieties include bamboo, strawberry guava, Christmas berry, eucalyptus, koa haole, sword fern, pothos, and wedelia. None of these species are rare, threatened, or endangered.

Fauna species that have been observed or are known to occur in the general area include the typical low-land urban avifauna, such as zebra dove, common myna, spotted dove, rice bird, house finch, Java sparrow, Japanese white-eye, western meadowlark, northern cardinal, and Japanese bush-warbler. None of these species are rare, threatened or endangered.

It is also noted that the migratory Pacific golden-plover may occur in the area. This species winters in the islands from August through late-April. Prior to the cold season, particularly during the month of July, migratory shorebirds are on their breeding grounds in the Arctic. The

Pacific golden-plover, also known as kōlea in Hawaiian, has been extensively studied, and is not listed as threatened or endangered.

Surrounded by residences and a public road, the small 0.71-acre property is not typically inhabited by feral mammals. Stray domestic dogs and cats and possibly rats or mice in the abandoned residence may occur.

3.8 Air Quality and Noise

The rural characteristics of Kalahēo contribute to the area's clean air quality. There are no sources of air contaminants in the vicinity, such as emissions from high-volume vehicular traffic, agricultural burnings, incinerators, manufacturing plants, and power generators.

The area's rural setting also sets the tone for its serene environment. Most of the area's ambient sounds are what is heard in nature and, on occasion, from vehicles traveling mauka or makai on the County road. Acquisition of the subject property will not alter the quality of the sonic environment.

3.9 Scenic Resources

The scenic resources of Kalahēo are primarily the large open spaces scattered around the countryside and vast forest reserves in the region's upland elevations.

Scenic resources as identified by the Kōloa-Po'ipū-Kalahēo Planning District Heritage Resources map of the County General Plan will not be negatively affected by the proposed action.

3.10 Cultural and Archaeological Resources

Land use in the project vicinity has occurred over a long period of time, extending from pre-contact days into the modern era. The vast majority of previous archaeological research in the Kalahēo ahupua'a has been in the area makai of the subject property. Through comparisons of the more abundant and detailed accounts of the adjacent Wahiawā and Lāwa'i ahupua'a, it appears that land use within the Kalahēo ahupua'a, during the pre-contact and early historic times, is in keeping with the thriving and well-populated traditional land unit. Traditional Hawaiian activities would include agriculture, habitation, transportation/pathways, religious activities, and resource gathering.²

During the later historic period, extensive commercial agriculture, including ranching and sugar cane and pineapple cultivation, dominated land use in the Kalahēo ahupua'a. It is possible that historic ditches, flumes, pipelines, and other features related to commercial plantation irrigation may exist within the project vicinity.³ Historic homesteads and ranching may have also left physical remains, such as barbed wire fences, wooden or stacked stone enclosures, water troughs, and historic habitation deposits. Many historic structures and cultural features within the

² Cultural Surveys Hawaii, Inc. June 2010.

³ Ibid.

Kalahēo ahupuaʻa, however, are known to have been heavily damaged by hurricanes over the years and may have been previously demolished.

Cultural Surveys Hawaii (CSH) conducted an archaeological survey of the subject property in May 2010 (see Appendix B). The survey performed both a literary research and site inspection and found no archaeological features or artifacts. The old, abandoned residence at the back of the property has no historic or preservation value. The archaeologist for CSH concluded that no further archaeological work is necessary and a copy of the CSH report will be filed with the State Historic Preservation Division of the DLNR.

4 SOCIO-ECONOMIC SETTING

4.1 General Characteristics

In the early 1900s, the uplands of Kalahēo were subdivided into homesteads, and ranching became the primary land use. At the lower elevations, sugar cane cultivation was the major activity which included an elaborate irrigation water system consisting of ditches, tunnels, and reservoirs. Plantation camps were a major presence in the area.

According to long-time residents, Kalahēo was first populated by Spanish and later Portuguese settlers during the plantation period. Truck crop, dryland taro, pineapple, sugarcane, and grapes were grown. During World War II, military personnel constructed a communications structure at the top of Papapaholahola Hill.

Today, Kalahēo is a small bedroom community with a population of approximately 3,913 (2000 U.S. Census). Residents work on the lands and in businesses within the community as well as in the adjacent and surrounding areas, such as Lāwaʻi, Kōloa, Poʻipū, Wahiawā coffee fields, ʻEleʻele, Port Allen, Hanapēpē, and beyond. It has a small commercial or town center consisting of retail and service enterprises, restaurants, convenience shops, and community facilities.

5 PUBLIC FACILITIES AND SERVICES

5.1 Access and Traffic

Puʻuwai Road, a two-lane paved County road, provides access to the subject property. At its makai terminus, furthest from the subject property, Puʻuwai Road intersects with Lae Road and connects with Kaumualiʻi Highway.

Kaumualiʻi Highway, a two-lane State right-of-way, provides regional access to the greater southern half of the island from Līhuʻe on the east to the Pacific Missile Range Facility in Mānā on the west. The only other access to the subject property from Kaumualiʻi Highway is via Kuli Road, which intersects with Kīkala Road and Puʻuwai Road.

Acquisition of the subject property is not expected to generate additional traffic on the area roadways.

5.2 Water, Sewer, Electricity, and Telephone

The DOW currently operates nine separate, unconnected water systems on the island of Kauaʻi, including the Kalahēo Water System. The subject property is situated near the highest elevation of the Kalahēo system.

Across Puʻuwai Road is a 1.94-acre parcel owned by the State of Hawaiʻi but used exclusively by the DOW (Executive Order No. 2374). A 100,000-gallon concrete tank presently occupies the parcel. Its aging condition is prompting DOW officials to commence planning for its rehabilitation or replacement. The Nursery Tank, as it is known, contains a booster pump that conveys its water to a 0.33 MG reservoir (known as Clearwell Tank) and associated filtration plant at the 1,200-foot elevation for high-level storage. There, the water is distributed by gravity flow to DOW customers below. The DOW is looking to rebuild the water filter treatment plant in the future to smooth production spikes from that facility.

Located at the 1,000-foot elevation near Papapaholahola hilltop, Kalahēo Wells A & B and associated booster pumps convey water also to the 0.33 MG Clearwell Tank via a transmission line through the Nursery Tank. A 0.5 MG on-site concrete tank at the Wells A & B site provides supplemental storage for customers in another section of Kalahēo.

In servicing the project vicinity, an 8-inch water line with fire hydrants is located along Puʻuwai Road adjacent to the subject property, and a 6-inch water line with fire hydrants is located along Puulima Road to serve customers further upland of the project area.

The County Department of Public Works (DPW), Division of Wastewater Management is responsible for developing and operating the County's wastewater infrastructure. There is no municipal wastewater collection and disposal system, however, in Kalahēo. Private individual wastewater systems presently serve properties in the area.

The Kauaʻi Island Utility Cooperative (KIUC) provides island-wide energy and Hawaiian Telcom provides land-line telephone services to residents of Kauaʻi. Overhead electrical and telephone lines are located on utility poles along Puʻuwai Road, adjacent to the subject property.

5.3 Solid Waste

The DPW, Solid Waste Division operates and maintains an island-wide municipal solid waste collection and disposal system. The solid waste program includes a landfill in West Kauaʻi and four refuse transfer stations; one each in Hanalei, Kapaʻa, Līhuʻe, and Hanapēpē. Planning is in progress to find a new landfill for Kauaʻi's future demand. The refuse transfer station nearest to the subject property is the Hanapēpē facility.

5.4 Public Services and Facilities

The nearest fire station is located in the commercial center of Kalahēo along Kaumualiʻi Highway, which is approximately one and one-quarter miles southeast of the subject property.

Kalahēo is also serviced by the Police Department’s Waimea Substation located approximately nine and one-half miles to the west. The headquarters for the Police Department is located in Līhu‘e.

The Kaua‘i Medical Clinic operates two satellite facilities in the nearby towns of ‘Ele‘ele and Kōloa. These satellite clinics do not provide emergency services. Such services are available at the Wilcox Memorial Hospital in Līhu‘e and West Kaua‘i Medical Center in Waimea.

Other public facilities in Kalahēo include Kalahēo Elementary School, Kukuilono Park, Kalawai Park, and Kalahēo Neighborhood Center.

6 RELATIONSHIP TO PUBLIC LAND USE POLICIES

6.1 Hawai‘i State Plan

A goal of the Hawai‘i State Plan, created by the Hawai‘i State Planning Act, HRS, Chapter 226, is to achieve a strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai‘i’s present and future generations.

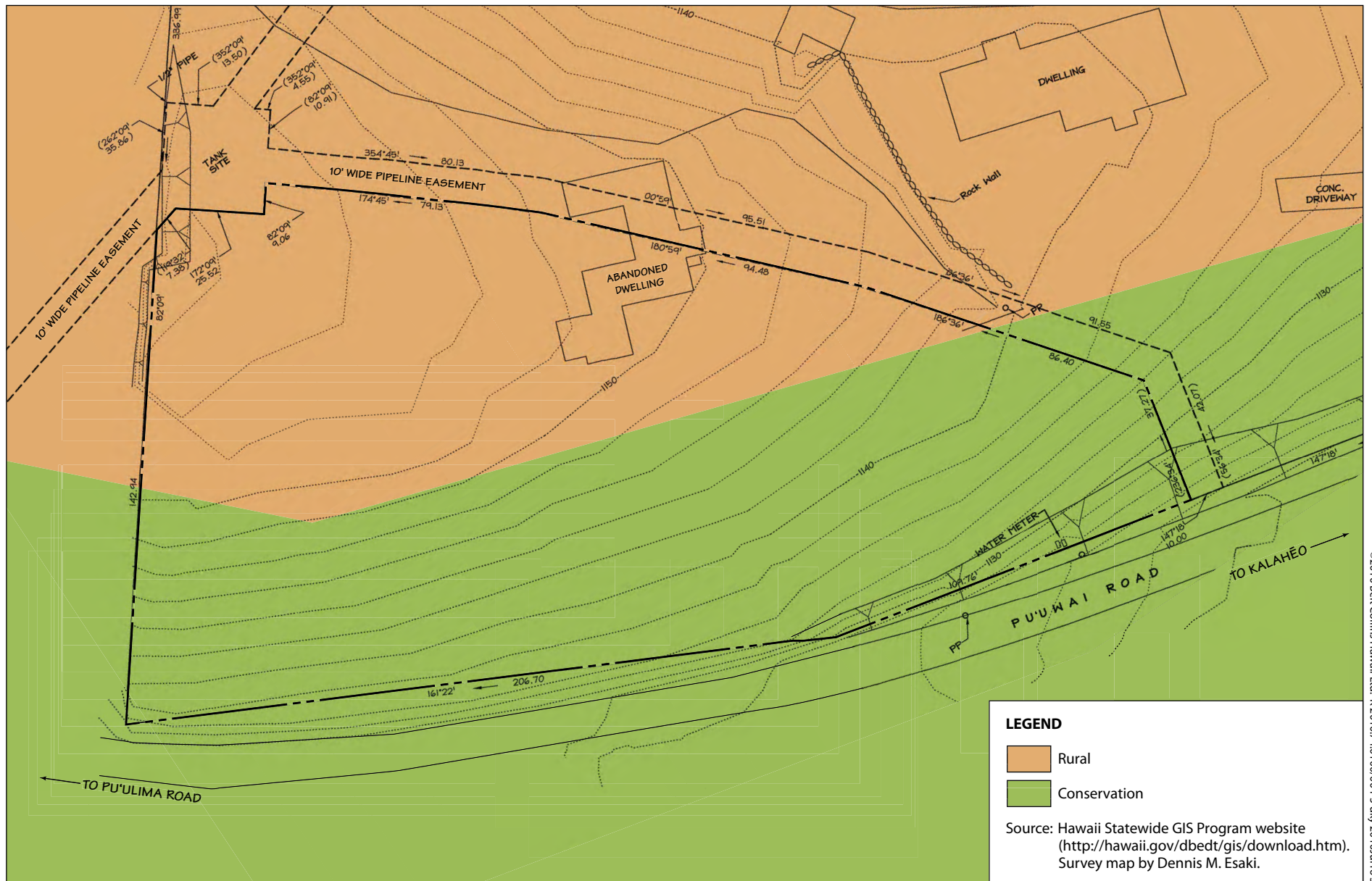
The DOW’s proposed action is consistent with the State Plan’s objective and policies for “facility systems – water,” which state that it shall be the policy of this State to “coordinate development of land use activities with existing and potential water supply” and “assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.”

The State Land Use Commission (LUC) administers the Land Use District Maps which consider the natural and man-made environments and the prospects of urban growth, conservation of natural resources, and preservation of unique and environmentally sensitive areas. The County General Plans and County Water Department programs coordinate with the State in the planning of water systems. State Department of Health (DOH) regulations establish an approval process for developing water sources for public use and standards for water quality. The Kaua‘i DOW operates to comply with these regulations and standards.

6.2 State Land Use Law

The subject property is located in the Rural and Conservation Districts of the County of Kauai, as delineated by the State Land Use District Maps (see Figure 2-9). Section 205-5(c) of the HRS, Chapter 205, states that “public, quasi-public, and public utility facilities” are permitted uses within the Rural District. The proposed action is a permitted use within the State Rural District.

Section 205-5(a) of the HRS states that Conservation Districts shall be governed by the Department of Land and Natural Resources pursuant to Chapter 183C. According to DLNR’s Conservation District Subzone Map for the Kalahēo area (November 2005), the subject property is designated in the Conservation District General Subzone. The proposed action is consistent with Hawai‘i Administrative Rules (HAR), Title 13, Chapter 5, which states that public purpose uses, such as water systems, are an identified land use in the General Subzone, and that a Board



NORTH



Figure 9
STATE LAND USE DISTRICT MAP
Land Parcel Acquisition
Kalahēo, Kauaʻi

of Land and Natural Resources (BLNR) permit is required. Land acquisitions and land title transfers, however, do not require BLNR approval.

6.3 State Environmental Policy

The proposed action conforms with the State Environmental Policy, as stated in HRS, Chapter 344, to “conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State’s unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawai‘i.” Its “land, water, mineral, visual, air, and other natural resources” guideline for implementing the policy states: “encourage management practices which conserve and fully utilize all natural resources” and “encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas.”

As a public utilities entity, the DOW operates under the purpose of conservation and protection of the island’s water resource to provide safe, drinkable water to the people of Kaua‘i. Its planning and programming of source development, storage, and distribution facilities carefully weigh the importance of the area’s natural resources as environmental assessments are prepared in conjunction with the development of those facilities. Any major impact that may be generated in the development of those facilities will include mitigation measures to reduce or minimize the effect of those impacts.

6.4 Kaua‘i County General Plan

The Kaua‘i General Plan was updated and adopted by the County in November 2000. The plan includes policies that guide future growth on the island with the welfare of the physical environment, public, culture, and island’s historical rural character in mind.

Section 7.4 of the General Plan states that existing municipal water systems of Kaua‘i generally have adequate source and storage capacity but recognizes that many of the systems are at or near capacity and would need to be expanded to meet future growth demands. Section 6.4 of the General Plan identifies Kalahēo as an area with a growing population.

The Land Use Map of the General Plan designates the project area as Residential Community. The Residential Community designation is one of the six urban land use designations included in the General Plan. Section 5.4 of the General Plan explains that the key policy governing the urban land use designations is “to promote growth and development in compact urban areas.” The section also specifies that Residential Community areas may be used for government facilities.⁴

The proposed action would allow DOW to obtain title to the subject property and upgrade its Kalahēo Water System to serve the increasing needs of the area’s resident population. The proposed action therefore is consistent with policies set forth in the Kaua‘i General Plan.

⁴ Subsection 5.4.3.1(a) of the Kaua‘i General Plan.

6.5 Development Plan

The Kōloa-Po‘ipū-Kalahēo Development Plan, which was adopted in 1983, is in the process of being updated. The community-based plan supplements the Kaua‘i General Plan by providing more detailed development policies for the Kōloa-Po‘ipū-Kalahēo region.

The proposed action conforms to the overall goals and objectives of the Kōloa-Po‘ipū-Kalahēo Development Plan, which states that one of its objectives is to “Encourage development of roads, sewerage, water facilities, drainage improvements and other public facilities necessitated by existing uses and proposed growth.”

6.6 County Zoning Ordinance

The County of Kaua‘i Comprehensive Zoning Ordinance (CZO) establishes regulations and standards for land development and land use on the island of Kaua‘i. The CZO consists of six major land use districts and two special districts, each having its own set of permitted uses and structures, and development standards.

A portion of the subject property is located in the State Conservation District which is subject to State BLNR land use regulations. The portion of the subject property not located within the State Conservation District, but is in the County designated Residential R-2 District, is subject to the County CZO regulations. Pursuant to the County zoning ordinance, private and public utilities and facilities are conditionally permitted, but will require a County Use Permit. Land acquisitions and title transfers are not subject to land use regulation or use permit approval by the County.

6.7 Coastal Zone Management and Special Management Area

Hawaii’s Coastal Zone Management (CZM) Program was enacted in 1977 (HRS Chapter 205A) through the passage of the Federal CZM Act of 1972. The objective of the CZM program is to protect and manage Hawai‘i’s coastal resources through land and water use regulations. Special Management Areas (SMA) have been established throughout the state under the CZM Program, and land use rules and regulations for those specially designated areas are being administered by the individual County planning authorities. The subject property is located outside of the SMA and is not subject to the County’s SMA rules and regulations.

6.8 Required Permits and Approvals

Acquisition of the subject property will require negotiations and settlement with the property owner and final approval by the County Board of Water Supply. No land use permits or approvals from State or County agencies will be required. Demolition of the abandoned structure, however, will require a demolition permit from the Building Division of the County Department of Public Works.

7 SUMMARY OF MAJOR IMPACTS

7.1 Short-Term Impacts

The use of County funds will be required to acquire and secure ownership of the subject property. Money for the acquisition will come from the County DOW funds.

County and State personnel will be required to process and transfer title to the property from the existing owner to the County. The title to the property would then be recorded with the State Bureau of Land Conveyance.

The DOW plans to demolish and remove the existing abandoned residence upon taking title to the subject property or delay the action until it is ready to develop the site. Noise and dust generated during demolition are expected to be minimal as the work would be completed in one to two weeks. Very minor grading, if any, would be performed to return the house site to its original grade, and as a result, little or no erosion or sedimentation is expected to occur. Debris from the demolition work will be disposed of at the Kekaha Landfill Phase II in West Kaua‘i. Smaller hauls are expected to be taken to any of the County’s four refuse transfer stations located at various convenience sites around the island. The nearest transfer station to the subject property is in Hanapēpē.

Green waste represents the largest component of the residential waste stream. The County presently grinds the green waste and offers it to Kaua‘i residents, other government agencies, and businesses. A green waste diversion site is located in Hanapēpē.

The subject property will be cleaned so no remnants of the old structure would remain. The ground beneath the removed structure will be leveled and compacted to match the existing grade, and the groundcover from the surrounding lawn would be allowed to grow back into the work area.

The demolition operation would require the use of the driveway on the adjacent parcel, TMK 2-4-03: 6. This driveway presently serves the abandoned residence, but is owned by the Yamada family to access the present residence on Parcel 6. Approval to use this driveway will be sought from the Yamada family through the final purchase agreement process.

7.2 Long-Term Impacts

In the long-term, the subject property will be included as an asset for the DOW for utility purposes. In particular, it will be kept in reserve by the DOW for future improvements to the Kalahēo Water System.

Maintenance of the property is expected to be in the form of security. DOW officials are expected to monitor the property to assure that no unauthorized use occurs on the site and that it does not become a hazard to abutting uses.

The existing water tank and water line easements will remain intact in an inactive state adjacent to the property. Since these are utility easements in favor of the DOW, there would be no consequences affecting DOW’s ownership of the subject property.

In obtaining ownership of the subject property, DOW will become fully responsible and liable for any use of the property.

8 MITIGATION MEASURES

8.1 Mitigation Measures for Short-Term Impacts

Acquisition of the subject property involves negotiations, review, and an approval process in accordance with existing State and County laws and administrative procedures. No mitigation measures are proposed.

Mitigation measures will be employed during the demolition of the abandoned residence. Although noise and dust would occur during the actual demolition, they would be temporary and short-term. Demolition will be scheduled during daylight hours to avoid evening and night-time noise, and suspended, if wind conditions are a threat to carry fugitive dust into adjacent properties. Dust screens otherwise could be installed to shield fugitive dust from drifting into other properties.

8.2 Mitigation Measures for Long-Term Impacts

The subject property could be fenced to protect it from unauthorized entry and use. Such a measure might be extreme however, if the likelihood of such an activity occurring there is improbable.

Another option, which may be more feasible, would be the posting of signs along the perimeter of the property announcing the property's ownership and risks of entering the area. It is also assumed that all property ownership carries property hazard and liability insurance.

9 ALTERNATIVES CONSIDERED

9.1 No Action

No action on the land acquisition would leave DOW without a site for future improvements to the Kalahēo Water System. The site would remain in private ownership in idle use. The property would continue to be overgrown with wild vegetation and occupied by an old, abandoned residence. Further, the County would be left without a site that could be used for future water systems improvement. The DOW would continue to plan and develop strategic programs to rehabilitate, upgrade, expand, and improve various components of its Kalahēo Water System.

9.2 Alternative Site

Kaua'i DOW reviewed its existing inventory of lands in upland Kalahēo and determined that although its properties are adequate for present water systems use, the existing sites do not provide the flexibility nor opportunities for further systems upgrade or expansion.

An alternative site approximately 1,500 feet above (to the north-northeast) the current subject property was considered, but was later determined to be unfeasible for possible use in upgrading its existing water system in the area. Its remoteness and lack of proper elevation were major factors in the site's rejection.

9.3 Alternative Use

The long-term use of the subject property will be for a water systems facility. The primary purpose of the Kaua'i DOW is to plan, develop, and provide sufficient safe and affordable drinking water to the people of the island. The subject property is planned for no other use than a water system improvement.

10 PRELIMINARY DETERMINATION

This EA demonstrates that the proposed action will have no significant adverse impacts on the environment and that an Environmental Impact Statement (EIS) would not be warranted. Therefore, a FONSI is anticipated for this project.

11 FINDINGS AND REASONS SUPPORTING ANTICIPATED DETERMINATION

The following findings and reasons indicate that the proposed action will have no significant adverse impacts on the environment based on the 13 significance criteria as provided in HAR 11-200-12.

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

Acquisition of the subject property will not result in any physical change to the property.

The subsequent action of removing the existing abandoned residence from the property would result in the land returning to its previous topographic condition and the surrounding vegetation naturally filling in on the former house site.

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

Upon acquisition of the subject property, no use of the site would occur. The land will be held in reserve for future purposes associated with the improvement of the County water system in Kalahēo. No curtailment of beneficial uses of the environment is anticipated.

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

As demonstrated in Chapter 6.3 of this document, the proposed action is consistent with the state's long-term environmental policies and guidelines as expressed in HRS, Chapter 344.

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

Acquisition of the subject property is expected to have minimal effect on the economic and social welfare of the community and state. No new jobs or salary increases are anticipated, and no new residents are expected to move to Kalahēo generating a population increase. The absence of a population increase should keep in check any additional demand for public facilities and services in the community.

Demolition and removal of the existing residence will mobilize some demolition laborers in the construction industry. The effect of one contractor employment on the local economy, however, will be minor and will not result in any substantial multiplier effect throughout the state economy.

5) Substantially affects public health.

Existing State DOH regulations protect air and water quality in the state. Best management practices will be employed during demolition to assure control of fugitive dust and sedimentation from entering adjacent properties. Demolition noise will be minimized through compliance with HAR Chapter 11-46, Community Noise Control.

A Phase I - Environmental Site Assessment would be conducted on the abandoned residence prior to demolition to determine if any hazardous material is present.

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

The proposed action will involve the transfer of land title. It will also include the removal of an old, abandoned residence. No population change is expected and, as a result, no secondary impacts on public facilities are anticipated.

7) Involves a substantial degradation of environmental quality.

The proposed action involves a paper transaction that does not result in a direct impact on the natural environment.

There will also be a removal of an existing structure that was never occupied. The land beneath the structure will be returned to its previous condition. As a result, no degradation of environmental quality is anticipated.

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

The proposed action is not part of a continuously phased operation under a single contract or part of a multi-component development. It is a proposed one-time occurrence and its effect on the environment will be minor with the demolition of the existing structure.

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

The proposed action will not result in a negative effect on any significant fauna species (rare, threatened, or endangered) nor any significant flora in the area.

10) Detrimentially affects air or water quality or ambient noise levels.

The anticipated impacts associated with the demolition work, such as dust, noise, and possible erosion and sedimentation, if any, are short-term and temporary. These impacts would be minimized by the implementation of best management practices and mitigation measures in accordance with applicable statutes, laws, ordinances, and rules and regulations of the federal, state, and county governments.

The long-term idle use of the DOW site is not expected to have any detrimental effect on air quality, water quality, or ambient noise levels.

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

The subject property is located approximately 3.8 miles from the shoreline, and is not susceptible to potential hazards of the coastal environment. The subject property is not located in any riverine flood zones.

12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.

The proposed action will not involve the construction of a structure that could interfere with existing scenic vistas or viewplanes.

13) Requires substantial energy consumption.

The proposed action will involve an exchange of land title and the demolition and removal of an existing structure. The demolition work may not require any electrical energy consumption, but probably diesel fuel for heavy equipment operations. The amount of diesel fuel consumption is expected to be small considering the project's minor scale.

12 REFERENCES

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- Earth Tech, Inc. November, 2007. *Final Environmental Assessment, Kekaha Landfill Phase II Lateral Expansion*.
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- State of Hawai‘i, Department of Agriculture. November, 1977. *Agricultural Lands of Importance to the State of Hawaii (Revised)*.
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- State of Hawaii, Department of Land and Natural Resources. November 2005. *State of Hawaii, Department of Land and Natural Resources Conservation District Subzone Map for the Island of Kauai*.
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- State of Hawaii. Hawaii Statewide GIS Program website. Survey map by Dennis M. Esaki. <http://hawaii.gov/dbedt/gis/download.htm>. Accessed July 7, 2010.
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U.S. Geological Survey. No date. *Koloa Quadrangle Reference No. N2152-W15925/7.5.*

APPENDICES

Appendix A

Preconsultation Letters

LINDA LINGLE
GOVERNOR OF HAWAII



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

RECEIVED

20 JUL -7 AM 11:08

BELT COLLINS HAWAII LTD.



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 6, 2010

Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819-4554

Attention: Mr. Glen T. Koyama, Senior Project Manager

Ladies and Gentlemen:

Subject: Early Consultation for Draft Environmental Assessment to Acquire
Private Property for a Future Reservoir Site by County of Kauai,
Department of Water

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

Other than the comments from Land Division-Kauai District, Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

A handwritten signature in dark ink, appearing to read "Morris M. Atta".

 Morris M. Atta
Acting Administrator



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 16, 2010

MEMORANDUM

~~TO:~~
FROM

DLNR Agencies:

- ☒ Div. of Aquatic Resources
- ☐ Div. of Boating & Ocean Recreation
- ☒ Engineering Division
- ☐ Div. of Forestry & Wildlife
- ☐ Div. of State Parks
- ☒ Commission on Water Resource Management
- ☐ Office of Conservation & Coastal Lands
- ☒ Land Division - Kauai District
- ☒ Historic Preservation

RECEIVED
LAND DIVISION
2010 JUN 28 P 12:13
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

TO

~~FROM:~~ Charlene Unoki, Assistant Administrator
~~SUBJECT:~~ Early Consultation for Draft Environmental Assessment to Acquire Private Property for a Future Reservoir Site
~~LOCATION:~~ Island of Kauai
~~APPLICANT:~~ Belt Collins Hawaii Ltd. on behalf of County of Kauai, Department of Water

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by **June 28, 2010.**

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

Attachments

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

Signed:
Date: 6/23/2010



RECEIVED
LAND DIVISION



2010 JUN 24 P 2:08
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 16, 2010

MEMORANDUM

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

FROM: Charlene Unoki, Assistant Administrator

SUBJECT: Early Consultation for Draft Environmental Assessment to Acquire Private Property for a Future Reservoir Site

LOCATION: Island of Kauai

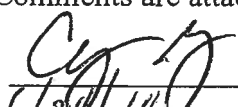
APPLICANT: Belt Collins Hawaii Ltd. on behalf of County of Kauai, Department of Water

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by **June 28, 2010**.

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

Attachments

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

Signed: 

Date: 6/24/10

**DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION**

LD/CharleneUnoki

RE: EAAcquirePropertyFutureReservoir

Kauai.92

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- (X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The Flood Insurance Program does not have any regulations for developments within Flood Zone X.**
- () 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 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. Robert Sumitomo at (808) 768-8097 or 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. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
 - () Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
-
- () 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 Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: 
CARTY S. CHANG, ACTING CHIEF ENGINEER

Date: 6/24/10

BERNARD P. CARVALHO, JR.
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT



RECEIVED

DONALD M. FUJIMOTO
COUNTY ENGINEER
TELEPHONE 241-4992

EDMOND P.K. RENAUD
DEPUTY COUNTY ENGINEER
TELEPHONE 241-4992

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUAI, HAWAII 96766-1340

June 23, 2010

Belt Collins Hawai'i, Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819-4554
Attention: Mr. Glen T. Koyama

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR ACQUISITION OF
0.71 ACRE PARCEL FOR COUNTY OF KAUAI, DEPARTMENT OF
WATER TMK 2-4-003-007 PW 6.10.043

Gentlemen,

We reviewed the subject introductory information and attached maps that were submitted with your letter dated June 8, 2010. We offer the following comments regarding the acquisition of the subject property for a future reservoir site:

1. We understand from your letter that an existing abandoned wood frame residence occupies the subject property and it is the intent to demolish and remove the residence from the site. We believe a demolition permit is required from our Building Division. Please contact them as to the demolition permit requirements. Additionally, our Building Division House Numbering Section needs to be notified so that they may be current with their house numbering maps.
2. A grading permit may be required for this reservoir construction.
3. Regardless of whether a grading permit is required or not, Best Management Practices shall be provided at all times to the maximum extent practicable to prevent damage by sedimentation, erosion or dust to streams, water courses, natural areas and the property of others.

We wish to remain on your mailing list as more detailed plans are developed for the proposed reservoir site. Should you have any questions, please contact me at (808) 241-4891.

Very truly yours,

A handwritten signature in black ink, appearing to read "Wallace Kudo".

Wallace Kudo, P.E.
Chief, Engineering Division

CONCUR,

A handwritten signature in black ink, appearing to read "Donald M. Fujimoto".

DONALD M. FUJIMOTO, P.E.
County Engineer

WK

cc: Building Division
Design and Permitting

Appendix B

Archaeological Study

**Archaeological Literature Review and Field Inspection
Study for a 0.71-Acre Parcel in Kalāheo Ahupua‘a,
Kona District, Island of Kaua‘i
TMK [4] 2-4-003:007**

**Prepared for
Belt Collins Hawaii, Ltd.**

**By
Peter Moser, B.A.
Alexander Hazlett, Ph.D.
and
Hallett H. Hammatt, Ph.D.**

**Prepared by
Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(KALAHEO 1)**

June 2010

**O‘ahu Office
P.O. Box 1114
Kailua, Hawai‘i 96734
Ph.: (808) 262-9972
Fax: (808) 262-4950**

www.culturalsurveys.com

**Maui Office
1993 Main St.
Wailuku, Hawai‘i 96793
Ph: (808) 242-9882
Fax: (808) 244-1994**

Management Summary

Report Reference	Archaeological Literature Review and Field Inspection Study for a 0.71-Acre Parcel in Kalāheo Ahupua‘a, Kona District, Island of Kaua‘i (TMK [4] 2-4-003:007) (Moser et al. 2010)
Date	June 2010
Project Number	Cultural Surveys Hawai‘i Job Code: KALAHEO 1
Investigation Permit Number	The fieldwork component of the archaeological assessment was carried out under archaeological permit number 10-10 issued by the Hawai‘i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per Hawai‘i Administrative Rules (HAR) Chapter 13-282.
Study Area Location	The study area is comprised of TMK: [4] 2-4-003: 007, located in Kalāheo Ahupua‘a along the <i>mauka</i> (northern) portion of Pu‘uwai Road. This area is depicted on the 1998 U.S. Geological Survey 7.5 Minute Series Kōloa Quadrangle map.
Land Jurisdiction	Belt Collins Hawaii, Ltd
Agencies	State Historic Preservation Division / Department of Land and Natural Resources (SHPD/DLNR).
Study Area Acreage	0.71 acres
Area of Potential Effect (APE)	The area of potential effect is limited to the footprint of the entire 0.71 acre project area. The proposed project involves the construction of a water tank.
Historic Preservation Regulatory Context	The proposed project is subject to Hawai‘i State environmental and historic preservation review legislation [Hawai‘i Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawai‘i Administrative Rules (HAR) Chapter 13-275, respectively]. While this investigation does not fulfill the requirements of an archaeological inventory survey investigation (per HAR Chapter 13-276), it serves as a document to facilitate the proposed project’s planning and supports historic preservation review compliance by assessing if there are any major archaeological concerns within the study area and to develop data on the general nature, density and distribution of archaeological resources.

Document Purpose	This archaeological literature review and field inspection study was completed for use as a due-diligence and/or long-range planning document. The purpose of the archaeological study was to determine if there are any major archaeological concerns within the study area and to develop data on the general nature, density and distribution of archaeological resources. The report and recommendations are designed for use as a due diligence document and to explain the State Historic Preservation Division requirements that would need to be fulfilled prior to land alteration within the study area.
Fieldwork Effort	The fieldwork component of the archaeological literature review and field inspection was conducted on May 18th, 2010 by three CSH archaeologists, Gerald Ida, B.A., Missy Kamai, B.A., and Peter Moser, B.A., under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator). The fieldwork required 1 person-day to complete.
Results Summary	Pedestrian inspection identified no archaeological sites within the study area. Approximately 50% of the survey area was observed to have been disturbed by land modifications associated with development of adjacent residential housing. No historic properties were observed within the survey area.
Recommendations	<p>No historic properties were observed within the project's APE, therefore Cultural Surveys Hawai'i recommends no further archaeological work for the proposed project.</p> <p>In the unlikely event that previously unidentified subsurface historic properties are encountered by project construction, the project proponents should immediately stop work in the vicinity and contact DLNR/SHPD.</p>

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Section 1 Introduction

1.1 Project Background

At the request of Belt Collins Hawaii, Ltd., Cultural Surveys Hawai'i, Inc. (CSH) completed an archaeological field inspection and literature review for a 0.71-acre parcel located in Kalāheo Ahupua'a, Kona District, Island of Kaua'i (TMK 2-4-003:007) (Figures 1-3). The study area is located in Kalāheo Ahupua'a along the *mauka* (northern) portion of Pu'uwai Road.

1.2 Scope of Work

The agreed upon scope of work for the archaeological inventory survey was as follows:

1. Historical research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near this property.
2. Limited field inspection of the project area to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This assessment will identify any sensitive areas that may require further investigation or mitigation before the project proceeds.
3. Preparation of a report to include the results of the historical research and the limited fieldwork with an assessment of archaeological potential based on that research, with recommendations for further archaeological work, if appropriate. It will also provide mitigation recommendations if there are archaeologically sensitive areas that need to be taken into considerations.

This scope of work also includes full coordination with the State Historic Preservation Division, and County relating to archaeological matters. This coordination takes place after consent of the owner or representatives.

1.3 Project Area Description

The project area is located approximately 6000 ft. (1828 m) *mauka* (north) of Kaumuali'i Highway, near the intersection of Pu'uwai Road and Pu'ulima Road. The project area is bounded on the west by Pu'uwai Road. Elevation within the project area is approximately 1600 ft. (488 m) AMSL. Much of the project area is forested, vegetation within the project area includes bamboo, Christmas berry (*Schinus terebinthifolius*), eucalyptus (*Eucalyptus spp.*), exotic palms, and guava (*Psidium guajava*).. The northeastern portion of the project area had been cleared previously, based on the stumps and downed logs still present there. The project area receives approximately 79 in. (2000 mm) of annual rainfall (Giambelluca et al. 1986:151).

The land in Kalāheo is a result of the Kōloa Volcanic Series - post-erosional lavas less than 1.5 million years old. Numerous vents including cinder and spatter cones and even a small shield volcano are located within Kalāheo Ahupua'a. Rapid soil formation on these lavas is attributable

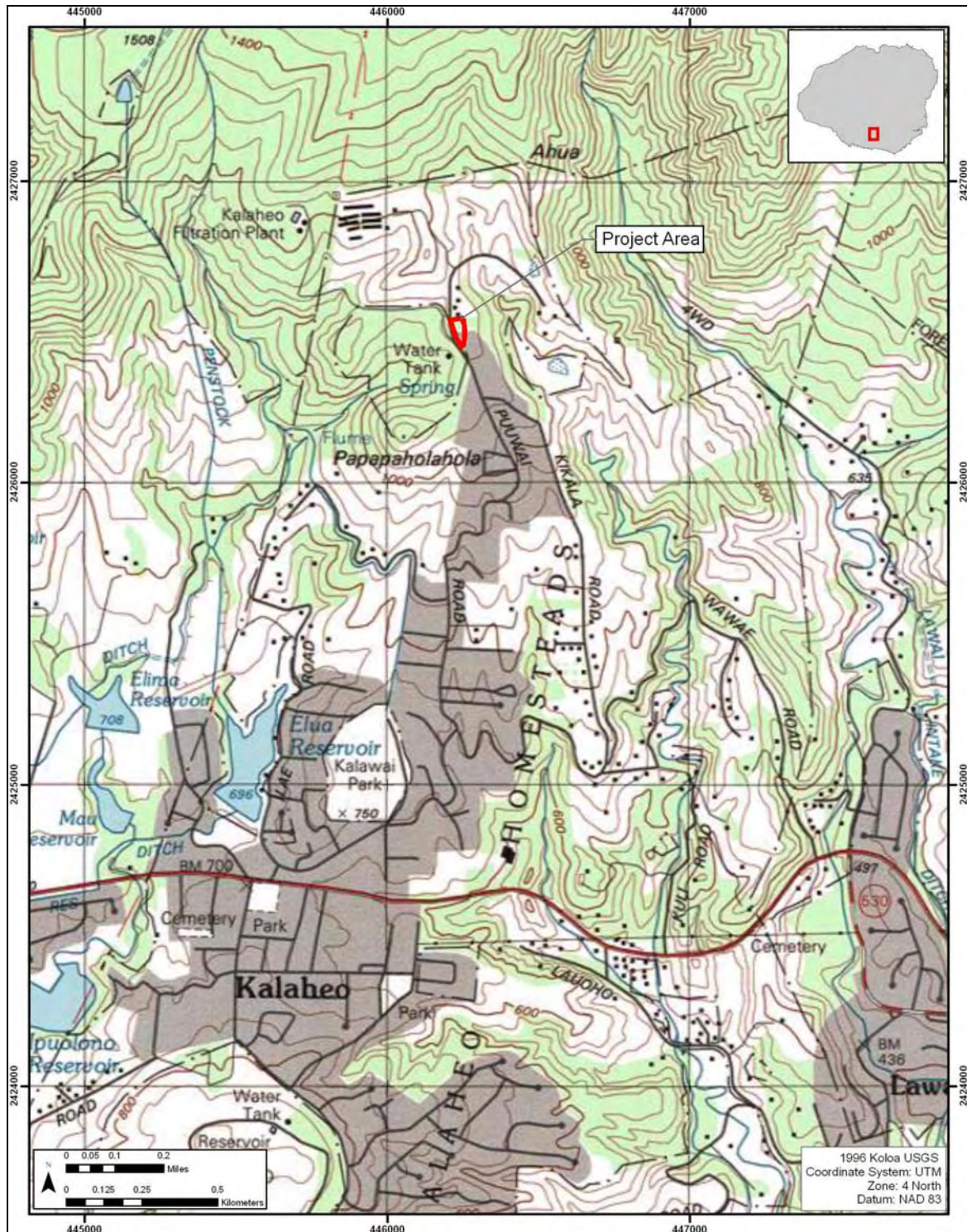


Figure 1. 1998 U.S. Geological Survey 7.5 Minute Series Kōloa Quadrangle Map showing the project area

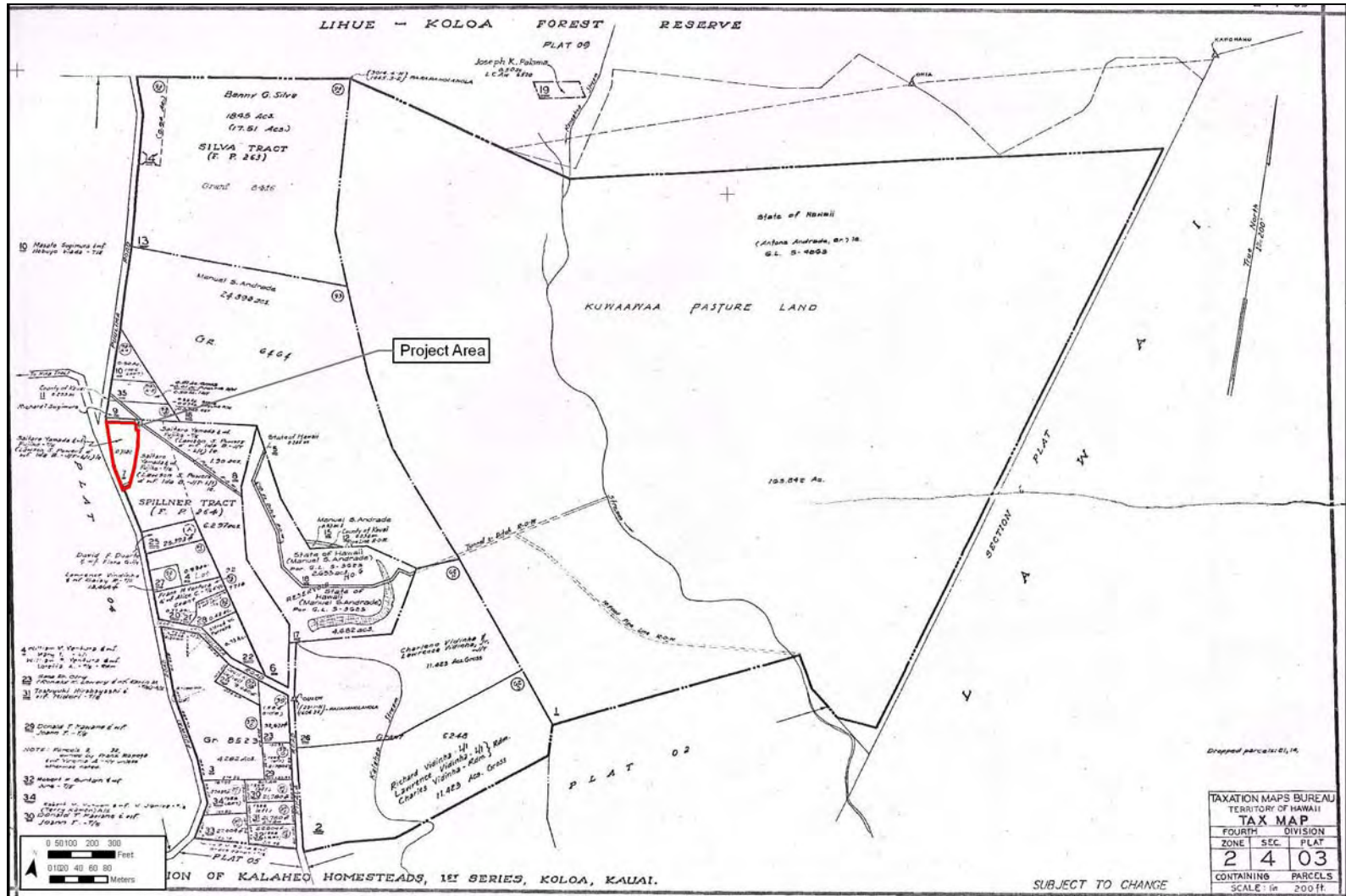


Figure 2. Tax Map Key (TMK) plat 2-4-003, showing the project area



Figure 3. Aerial photo of the project area (USGS Orthoimagery 2005).

to the warm humid climate acting on the volcanic ash as well as the frequent and often long quiet periods between eruptions at any particular place during the Kōloa Series (McDonald and Abbott 1970). Numerous young intermittent and perennial streams bisect the Kalāheo hill slopes.

Soils within the upper plateau portion of the project area are primarily comprised of Rough Broken Land (rRR), except for the northeast corner of the project area, which is Puhi Silty Clay Loam 8 to 15 percent slopes (PnC) (Foote et al. 1972) (Figure 4). Puhi Series soils are described as “well-drained soils on uplands on the island of Kaua‘i...developed in material derived from basic igneous rock” (Foote et al. 1972:115). Rough Broken Land is described as “very steep land broken by numerous intermittent drainage channels. In most places it is not stony” (Foote et al. 1972:119).

1.4 Methods

Historic and archival research included information obtained from the UH Hamilton Library and the State Historic Preservation Division Library. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. Information on Land Commission Awards was accessed through Waihona Aina Corporation at waihona.com (1999, *Māhele* Database, Waihona Aina).

This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the project area.

The fieldwork component of the archaeological literature review and field inspection was conducted on May 18th, 2010 by three CSH archaeologists, Gerald Ida, B.A., Missy Kamai, B.A., and Peter Moser, B.A., under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator). Archaeologists carefully inspected the project area to assess the potential of locating significant archaeological sites in these areas.

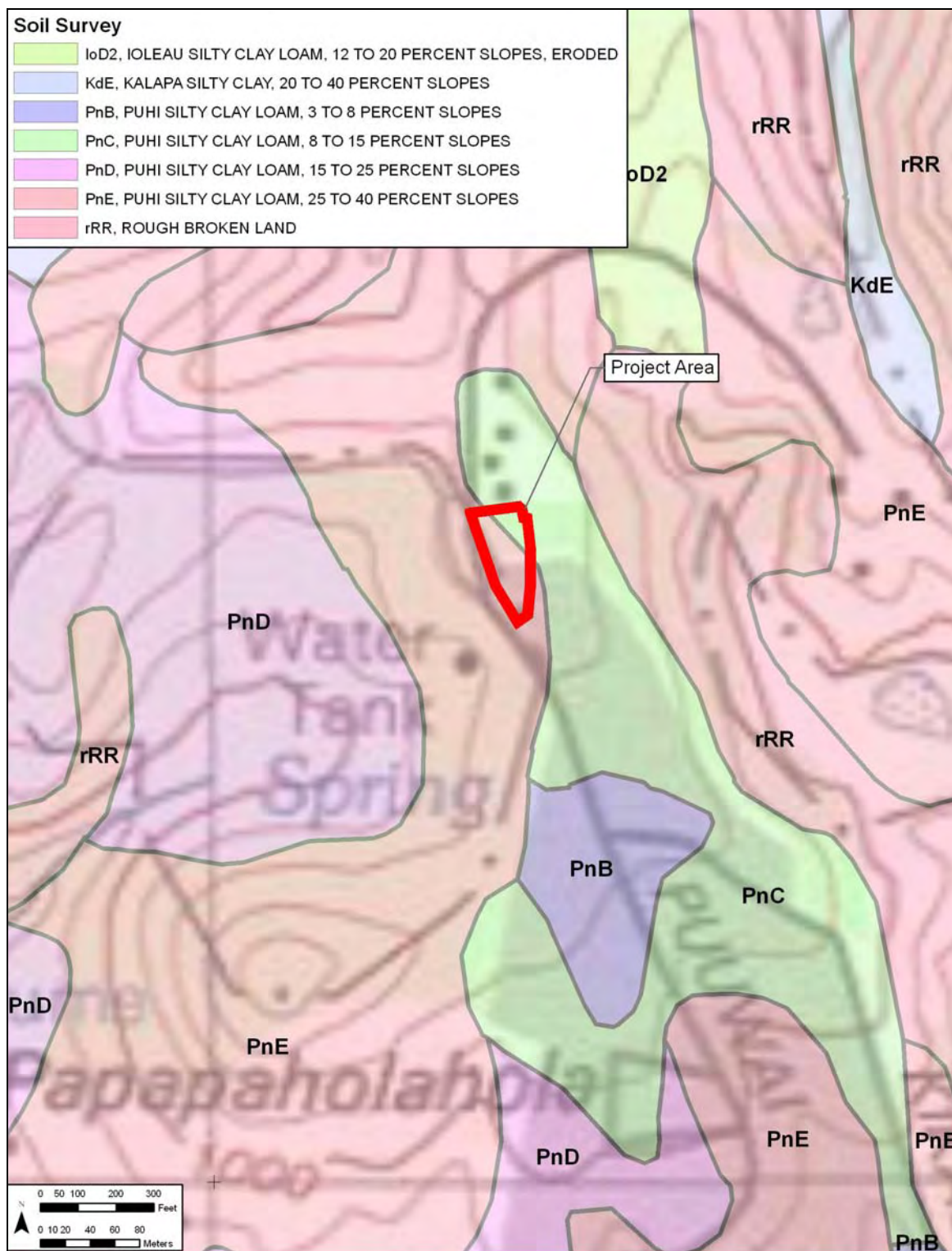


Figure 4. 1998 U.S. Geological Survey 7.5 Minute Series Kōloa Quadrangle Map showing the project area boundary with soil overlay (Foote et al 1972).

Section 2 Historical Background

2.1 Pre-Contact to 1848

Historical references to Kalāheo are scarce, though they are suggestive of the importance of Kalāheo as both a center for agriculture and for religious activities. Mythical accounts place a Kalāheo pond, “Nōmilu,” as the foci for numerous traditional stories. Wichman (1998:35) states:

On one side of the pond is a spring called Ka-Kalua, “sinkhole,” where shrimp were caught. These shrimp were a light pink and had a white spot in front of the head and sometimes a white tail. The Menehune were especially fond of these shrimp, which were not always to be found here.

Another account details a meeting between the goddess Pele and her sister Nāmakaokaha'i at Nōmilu:

The site of the fishpond was once a small hill. Pele, before she found her home in the volcano of Mauna Loa on Hawai'i, searched all of Kaua'i for a suitable place to live. When she came here, Nāmakaokaha'i caught up to her. Nāmakaokaha'i was Pele's older sister and greatest enemy. During the battle, Pele kicked up a lot of dirt into a pile, which turned into the hill Kāpeku, “to splash water by kicking the feet.” Then Pele caused the hill she and her sister were fighting on to erupt, which covered the plains of Wahiawa with stones the size of coconuts. Nāmakaokaha'i flooded the new crater, forming the pond. Pele fled to O'ahu, followed by Nāmakaokaha'i. The cape at Nōmilu is named Nā-maka-o-Kaha'i, in memory of she who put out the volcano.

Before Pele left, she turned two supernatural eels, Puhi-'ula, “red eel,” and Puhi-pakapaka, “scaly eel,” into stone as guardians of the pond. They are still there. (Wichman 1998:35-36)

There are few early descriptions of Kalāheo. The Rev. Hiram Bingham gives us one vivid description of the uplands between Hanapēpē and Kilohana in 1824:

...a country of good land, mostly open, unoccupied and covered with grass, sprinkled with trees and watered with lively streams, that descend from forest covered mountains, and wind their way along ravines to the sea. It is much finer country than the western part of the island. Bingham 1847:219).

The earliest documentation of the population of the district of Kōloa (including Kalāheo) appears in the 1850s when missionary censuses recorded a total population of 1,296 (Schmitt 1977:12). Population totals in the entire island of Kaua'i prior to 1850 had shown rapid decline, suggesting that similar trends likely occurred in Kōloa and Kalāheo. By 1878, the population of Kōloa bottomed out at 1,008, and then began steadily increasing to 1,500 in 1884, 1,835 in 1896, and 4,564 by 1900 (Schmitt 1977:13). Other nearby *ahupua'a* of Kaua'i demonstrate similar trends.

2.2 1848-1851

The Organic acts of 1845 and 1846 initiated the process of the *Māhele* - the division of Hawaiian lands - which introduced private property into Hawaiian society. It is through records for Land Commission Awards (LCAs) generated at the *Māhele* that the first specific documentation of life in Kalāheo Ahupua'a, as it had evolved up to the mid-19th century, come to light (Table 1).

While Kamehameha III (Kamehameha III) retained ownership of Kalāheo Ahupua'a, as Crown Lands (Indices of Awards 1929.) in the *Māhele*, eleven individuals made land claims and were awarded lands within the *ahupua'a*. Figure 5 shows the distribution of the eleven awards (some including multiple parcels) in relation to major land forms - the sea and streams and Nōmilu fishpond - and to major roads and trails.

Land Commission documents recording these awards further clarify our understanding of the *āina* from the perspective of the Hawaiian planter and fisherman in traditional times. Most of the awards (LCA 3395B to Keoua, LCA 6647 to Una, LCA 6745 to Oluhe, LCA 8044 to Alauka, and LCA 8840 to Kanenehakaoli) include plots of taro *lo'i* (pondfields), *kula* (non-irrigated fields) and house lots located along Kalāheo Stream, clustered around the "Government Road." In addition, one or more plots for sweet potato and salt making were located at the seashore in the vicinity of Nōmilu fishpond. Only one claim of land (LCA 6520 to Waipa) was awarded in the *mauka*-most regions of Kalāheo; Waipa did not claim land elsewhere. Another claimant's land - LCA 6584 to Paele - may have been located only at Nōmilu near the shore, although the Foreign Testimony, Native Register, and maps showing award locations do not agree on this. Three other claimant's awards (LCA 3394B to Kaneiki, LCA 3396B to Kihei, and LCA 6688 to Laa) are located only in the upland.

In describing the conditions of Wahiawa (the adjacent *ahupua'a*, directly west of Kalāheo) prior to the use of irrigation, Ida Elizabeth Knudsen Von Holt writes of her father's (Valdemar Knudsen's) hardships during the 1850s and 60s:

In those early days, land was very cheap. There was no way of watering or irrigating the fields, and the grass became absolutely parched and dead during the dry months. Cattle often died for want of food and water... (Von Holt 1985:66)

By the 1930s, when E.S. Craighill and Elizabeth Handy were collecting ethnographic and ethnobotanical data for their monumental works on the Hawaiian planter (Handy 1940; Handy and Handy 1972), the character of the *ahupua'a* of Kalāheo had become an obscure memory. Kalāheo is described in the 20th century as:

...little more than a gulch formed by an insignificant stream which probably never had a constant flow. Kukui-o-Lono (Light of Lono) was a famous place in this section [land division] for sweet potato culture. (Handy and Handy 1972:428)

This description seems hardly adequate for an *ahupua'a* formerly reserved for the *ali'i nui*. Especially as Lāwa'i and Wahiawa, adjoining *ahupua'a* to the east and west of Kalāheo, both described glowingly by Handy and Handy (1972), were awarded to the lesser *ali'i* James Young Kanehoa and Moses Kekuaiwa (respectively). Kalāheo, Lāwa'i, and Wahiawa share essentially

Table 1. Kalāheo Ahupua'a Land Commission Awards Summary

LCA #	Claimant	<i>ʻIli</i>	Land Use	Awarded/Not Awarded
03394B	Kaneiki	Kapaeli	House, Cultivation	1 <i>ʻāpana</i> , 1 <i>loʻi</i> ,
03395B	Keoua	Puʻuhalulu, Kalaukiela, Omomilu	House, Cultivation	4 <i>ʻāpana</i> , 30 <i>loʻi</i> , 1 house lot, 2 salt lands, 1 oranges
03396B	Kihei, Samasona	Punipoi, Waiʻāpuka, Kaʻawa	Cultivation	3 <i>ʻāpana</i> , 34 <i>loʻi</i> , 1 oranges
06345	Kaneiki	Kalāheo (<i>ahupuaʻa</i>)	-	Not awarded
06346	Keoua	Kalāheo (<i>ahupuaʻa</i>)	-	Not awarded
06347	Kanenehakuole	Kalāheo (<i>ahupuaʻa</i>)	-	Not Awarded
06520	Waipa	Umiumihale	Cultivation	1 <i>ʻāpana</i> , 12 <i>loʻi</i>
06535	Haia, wahine	Lonohale	-	Not Awarded
06584	Paele	Omomilu	House lot, Cultivation	4 <i>ʻāpana</i> , 1 house lot, 5 salt lands, sweet potatoes
06647	Una	Kolau	House lot, Cultivation	3 <i>ʻāpana</i> , 1 <i>loʻi</i> , 2 house lots
06688	Laa	Koali	Cultivation	1 <i>ʻāpana</i> , 17 <i>loʻi</i> , 1 <i>kula</i>
06745	Ohule	Haleopai, Makaʻalaea, Omomilu	House lot, Cultivation	3 <i>ʻāpana</i> , 17 <i>loʻi</i> , 1 <i>kula</i> , 1 house lot, 5 salt lands, 1 sweet potatoes
08044	Alauka	Paele, Holeikamaina	House lot, cultivation	3 <i>ʻāpana</i> , 14 <i>loʻi</i> , 1 <i>kula</i> , 4 salt lands
08840	Kanenehakuole	Kaʻawa	Cultivation	2 <i>ʻāpana</i> , 15 <i>loʻi</i> , 4 salt lands

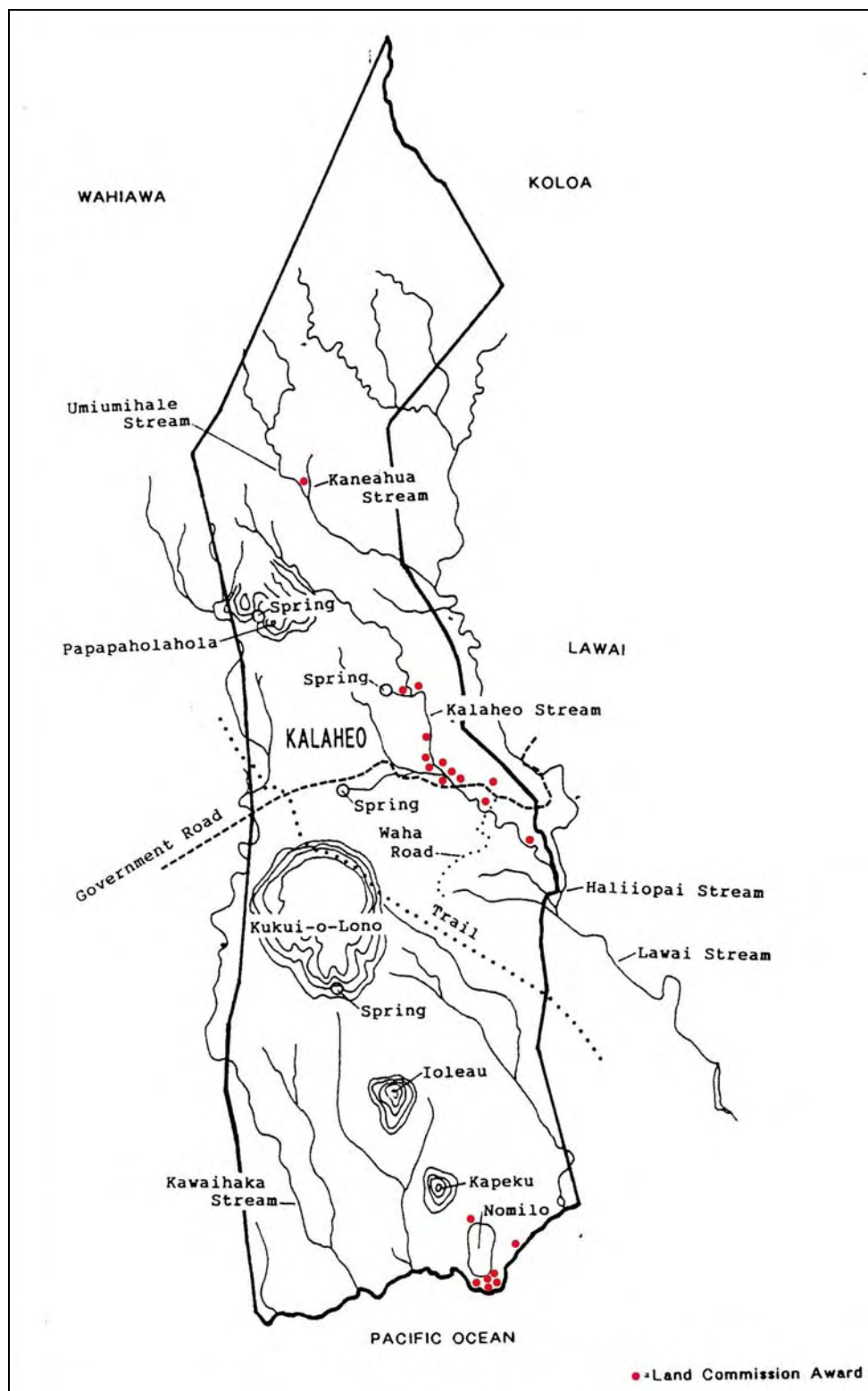


Figure 5. Distribution of Land Commission Awards within Kalāheo Ahupua'a

identical environmental parameters of topography, rainfall, temperature, and abundant spring and stream water in close association with substantial arable land. Thus, we premise that if additional informants from Kalāheo had been available to them, Handy and Handy's description of Kalāheo would be as exuberant as this for Wahiawa:

...the taro terraces extended all the way down the valley to the *muliwai* (inlet). A short distance above the present highway bridge was a spring named Ka'ulupaniau, which watered a small group of terraces. Inland from this was Kawaikapulalo [The-sacred-water-below], and here were terraces and *wauke* (paper mulberry) plantations. Above this was *kula* land named Kawaikapuluna [The-sacred-water-above], on which were the houses and sweet-potato plantations. Continuing upstream to a point opposite Pu'u Aukai there were other terraces in the stream bed, with houses and sweet-potato plantations on *kula* land above...Of this upper area Bennett (1931:115) remarks that "the remains of terraces" were observed to be "remarkable in places for their number on a small area of land." (Handy and Handy 1972:428)

2.3 Post-1850

According to Ethel Damon (1931), the Nōmilu fishpond in coastal Kalāheo was still in use in the 1860s when Judge Duncan McBryde, at the time living in nearby Wahiawa, received fish from:

...the natives...always being ready to stretch their gill net for the weekly catch in the celebrated pond at Nōmilu. This is a deep pool, quite uniformly so, about twenty-four feet in a direct drop after the first narrow ledge near the rim, in structure not unlike a volcanic fire pit. (Damon 1931:552)

Historical documentation of late 19th and early 20th century Kalāheo is scarce. Early in the 20th century land use and the population density changed dramatically in Kalāheo. The uplands were subdivided in homesteads and ranching became the primary land use. At lower elevations sugar cane cultivation became the major activity, with irrigation water collected from the uplands by means of an extensive system of ditches and reservoirs. Plantation camps were scattered around the south of Kalāheo and Wahiawa ahupua`a. A map of the McBryde Sugar Company (Figure 6) shows the northern extent of sugar train tracks in the Kalāheo Homestead vicinity (Condé and Best 1973:193).

According to long-time Kalāheo residents, Kalāheo was first populated by the Spanish and later Portuguese settlers in the early 1900s. Truck crops, dryland taro, pineapple, sugarcane, and grapes were grown in the project area vicinity. Ranching also became an integral part of the Kalāheo community. During World War II, military personnel constructed a communication structure at the top of Papapaholahola Hill, which still stands today. Today, Kalāheo is a small community with a hotel, restaurants, post office and grocery store. Pasture land is still visible along the surrounding hillsides.



Section 3 Previous Archaeological Research

3.1 Previous Studies

Previous archaeological research in Kalāheo Ahupua'a is summarized in Table 2 and is discussed briefly below.

As part of his fieldwork in the 1920s, Wendell C. Bennett (1931) reviewed and revisited many sites located by early 20th century archaeological studies on Kaua'i, including sites in the *ahupua'a* of Kalāheo. Bennett (1931:115-116) lists five archaeological sites in Kalāheo, numbered 64 to 68. Three of these are located at or near the coast and include: "Site 64. House sites, in Kalāheo [Kawaihaka] gulch at the sea"; "Site 67. Fish pond, salt pans, and taro terraces, at Nōmilu"; and "Site 68. Kapoho Heiau, inland from the fish pond at Nōmilu, Kalāheo." The other two sites are located further *mauka* and consist of "Site 66. Kukuilono Heiau, once located on Kukuilono hill but now destroyed." and "Site 65. Kahaleki'i Heiau, on the western slope of Kukuilono hill...now completely destroyed."

The *ahupua'a* of Kalāheo is dominated by a large cinder cone, "Kukui-o-Lono" (light of Lono), on top of which stood Kukuilono Heiau. The *heiau* is believed to have been the largest of Kaua'i, though it had been destroyed by the time of Bennett's survey in the 1920s. Thrum (1907 cited in Bennett 1931) described it as:

A large three terraced *heiau*, east section being 95 by 112 feet, mid-section 105 by 83 feet and west division 105 by 51 feet, giving a total length of 246 feet straight on the seaward side. Near east end is a large oven; near the division wall is the *kahua* of the oracle 22 x 30 feet, and on north side of mid-section are foundations of two houses which measure 15 by 42 feet. The sacrifices for this heiau were executed at some distance from it and the bodies then brought and placed on the altar that the temple be not polluted with blood. The place of sacrificing was, "Na pohakuakiola."

Located on the western slope of Kukuilono hill was Kahaleki'i Heiau. Kahaleki'i *heiau* was also destroyed by the time of Bennett's survey. Thrum (1907, cited in Bennett 1931) described it as:

A square three-terraced *heiau* of large size, with several divisions: was high walled and paved: class unknown.

In 1961, Kalāheo again became the subject of archaeological study during a survey by William K. Kikuchi (1963). The survey of the Kona District of Kaua'i, from Hanapēpē to Māhā'ulepū, located twenty-three (23) archaeological sites within Kalāheo Ahupua'a and field numbers were assigned to them. In coastal Kalāheo, the archaeological sites begin with No. 25: a shelter cave at the shore at Lokoawa, near the western boundary of the *ahupua'a*. Five more sites (No. 26-30), including a shelter cave, stone walls, house sites, a spring, and an historic tunnel are recorded by Kikuchi (1963) in the shoreward reaches of Kawaihaka Stream valley. Among these sites, in all probability, is Bennett's Site 64. Five additional previously unrecorded sites (No. 31-35) were located at Kalu'uahole (Kaluaahole) and Papapua'a (Paapuaa) along the shore between

Table 2. Archaeological Studies in Kalāheo, Kaua‘i

Reference	Type of Study	Location of Study	Findings
Thrum 1907	<i>Heiau</i> study	Island wide	For Kalāheo Ahupua‘a briefly lists 3 <i>heiau</i> : Kahaleki‘i Heiau, on the western slope of Kukuilono hill; Kapoho Heiau <i>mauka</i> of the fishpond; and Kakainahoa Heiau, location not given, “all destroyed”
Bennett 1931	Site Survey	Island wide	Site 64. House sites, in Kalāheo [Kawaihaka] gulch at the sea”; Site 65. Kahaleki‘i Heiau, on the western slope of Kukuilono hill...now completely destroyed Site 66. Kukuilono Heiau Site 67. Fish pond, salt pans, and taro terraces, at Nōmilu”; and “Site 68. Kapoho Heiau
Kikuchi 1963	Archaeological Survey and Excavations	Kona District, Kaua‘i	Located and assigned field numbers to 23 archaeological sites within Kalāheo Ahupua‘a
McMahon 1988	State of Hawaii, Department of Land and Natural Resources Letter to File from Nancy McMahon Job No. 87-9	A proposed water pipeline corridor through State of Hawai‘i property (TMK 2-4-04:5) on the slope of Papapahola-hola Hill	Identified a historic property consisting of a stonewall associated with terraces and a paved platform. This site was assigned State Site 50-30-10-406, and was posited to be a remnant of Kakaianahoa or Kahaleki‘i Heiau
Folk and Hammatt 1991	Archaeological Survey and Subsurface Testing	Land Commission Award 6647 at Kalāheo	No significant finds. This absence of cultural features/deposits resulted from land disturbance from the attempted but never completed construction of an agricultural reservoir feature.

Reference	Type of Study	Location of Study	Findings
Hibbard 1991	Letter from Don Hibbard to Keith Nitta. May 30, 1991 (archaeological survey by Nancy McMahon)	An approximately 10-acre lot (TMK 2-4-01:12) located in Kalāheo, <i>mauka</i> of Kaumuali'i Highway near Kuli Road.	Many earthen terraces were identified and found to be remnants of "pineapple era fields."
Pantaleo and Williams 1991	Archaeological Reconnaissance Survey	Portions of the Port Allen-Wainiha Transmission Line Corridor	No studies in Kalāheo Ahupua'a as the corridor was "located in areas that have been modified by pasture or sugar cane cultivation"
Perzinski et al. 2001	Archaeological Inventory Survey	For the Proposed Improvements to the Kalāheo Water System, Kalāheo Well Site	Documents SIHP #s 50-30-10-406 and 50-30-10,485
Tulchin et al. 2005	Archaeological Field Check and Literature Review	Kukuiolono Park and Golf Course	Three historic sites were identified: site 50-30-10-3906, -3907, -3908 (see Jones et al. 2006 for greater detail)
Jones et al. 2006	Archaeological Inventory Survey	Kukuiolono Park and Golf Course	Three sites comprised of 22 features were identified and recorded: 50-30-10-3906 consists of an assemblage including historic artifacts and historic structures, within Kukuiolono Park attributed to the Estate of Walter D. McBryde and remaining military infrastructure from WWII use. Site 50-30-10-3907 consists of a collection of traditional Hawaiian stones and artifacts assembled by Walter D. McBryde. 50-30-10-3908 designates the graves of Walter D. McBryde and companion John P. Kamanuwai.

Kawaihaka and Nōmilu, including a fishing shrine, house sites, and shelter caves. At Nōmilu (Nomilo) Kikuchi records seven sites (No. 36-42), including Nōmilu (Nomilo) fishpond, walls salt pans, an historic tunnel, and Kapoho (Kaponō ?) Heiau. Kikuchi's sites include Bennett's sites 67 and 68. Three additional previously unrecorded sites (No. 43-45) are located in the vicinity of Manoloa (Manuloa), a point on the shore at the eastern *ahupua'a* boundary. These sites include an enclosure, walls, and a fishing shrine.

Further upland, within the current project area, Kikuchi (1963), like Bennett, records only Kukui-o-Lono *heiau* (Kikuchi site 46; Bennett site 66; Bishop Museum site KA-B6-3; State Site 50-30-10-66) and Kahaleki'i (Kahakekii) *heiau* (Kikuchi site 47; Bennett site 65; Bishop Museum site KA-B6-4; State Site 50-30-10-65). Kikuchi does not observe any evidence of the sites and notes that both *heiau* had been destroyed.

In 1988, Nancy McMahon (1988), a State Historic Preservation Division staff archaeologist, conducted a field inspection of a proposed water pipeline through State of Hawaii property (TMK 2-4-04:5) on the slope of Papapaholahola Hill. During the inspection, McMahon identified a historic property consisting of a stonewall associated with terraces and a paved platform. This site was assigned State Site 50-30-10-406, and was posited to be a remnant of Kakaianahoa or Kahaleki'i Heiau, both of which were described by Thomas Thrum in 1906 as having been destroyed.

An archaeological study conducted by Jeffrey Pantaleo and Scott Williams (1991) involved inspection of portions of a proposed power line corridor from Port Allen to Wainiha. Although the corridor passes through Kalāheo Ahupua'a, studies were not conducted there because the corridor is "located in areas that have been modified by pasture or sugar cane cultivation" (Pantaleo and Williams 1991:1-2).

In May 1991, Nancy McMahon conducted an archaeological survey (Hibbard 1991) of an approximately 10-acre lot (TMK 2-4-01:12) located in Kalāheo, *mauka* of Kaumuali'i Highway near Kuli Road. Many earthen terraces were identified by McMahon and found to be remnants of "pineapple era fields." No additional work was recommended.

In December 1991, Folk and Hammatt (1991) reported on the archaeological survey and subsurface testing of Land Commission Award 6647 at Kalāheo. No archaeological surface features were located. Subsurface testing found no cultural deposits. This absence of cultural features/deposits resulted from land disturbance from the attempted but never completed construction of an agricultural reservoir feature, to encompass all of L.C.A. 6697, in the early 20th century (Folk and Hammatt 1991).

In December 2000, Perzinski et al. (2001) conducted an archaeological inventory survey for the Kalāheo water system expansion project; this study area was located just west of the current project area, on the other side of Pu'uwai Road. The study area had been previously inspected by McMahon (1988). Two historic sites were identified. Site 50-30-10-406, previously located by McMahon, was relocated and determined to be of historic origin. Subsurface testing within Site -406 encountered a horse burial, indicating the historic age of the site. Site -406 was posited to be related to historic truck crop or pineapple cultivation. Site 50-30-10-485 is a dike determined to be a historic water diversion feature. No further work was recommended for these sites.

In March 2005 Tulchin, Jones and Hammatt conducted a field inspection and literature review for improvements to Kukuilono Park. A total of five archaeological sites were located within the project area. Site 50-30-10-3906 consisted of an assemblage of historic properties within Kukuilono Park, including historic artifacts and historic structures, attributed to the Estate of Walter D. McBryde. Site 50-30-10-3907 consisted of a collection of traditional Hawaiian stones and artifacts assembled by Walter D. McBryde. Site 50-30-10-3908 consisted of the graves of Walter D. McBryde and companion. Site 50-30-10-3909 consisted of a loosely stacked stone retaining wall / terrace (historic), located along the southern slopes of Kukuilono. Site 50-30-10-3910 consisted of a remnant stone wall alignment (possibly pre-contact), located along the southern slopes of Kukuilono.

The SHPD review letter of that study (dated April 7, 2005; Log No 2005.0676, Doc No. 0504NM09) called for the study to be upgraded to an archaeological inventory survey report. This Archaeological Inventory Survey (Jones, Tulchin and Hammatt 2006) covered a significantly smaller area than that of the previous field inspection and literature review study and focused on those areas for which improvements were under consideration. Three sites were documented. Site 50-30-10-3906 comprised nine features, twentieth-century historic artifacts and historic structures within Kukuilono Park attributed to the Estate of Walter D. McBryde, to the military occupation of the park, or to the use of this land by the Kaua'i Pineapple Co. Site 50-30-10-3907 comprised ten features, a collection of traditional pre-contact Hawaiian stones and artifacts assembled by Walter D. McBryde. Site 50-30-10-3908 comprised three features related to the graves of Walter D. McBryde and John P. Kamanuwai and associated stone artifacts.

3.2 Settlement Pattern Summary and Predictive Model

From previous archaeological studies, historic documents, and cultural documentation, it is apparent that land use in the vicinity of the current project area is long and varied, extending from pre-contact times into the modern era. The vast majority of the previous archaeological research in Kalāheo Ahupua'a has been significantly *makai* of the current project area. However, through comparisons of the more abundant and detailed accounts of Wahiawa and Lāwa'i *ahupua'a* on either side of Kalāheo, it appears that the land use within Kalāheo Ahupua'a during pre-contact and early historic times is in keeping with a thriving and well populated traditional land unit. Traditional Hawaiian activities in the vicinity of the current project area would have included agriculture, habitation, transportation/pathways, religious activities, and resource gathering.

During the later historic period, extensive commercial agriculture, including ranching and sugar cane and pineapple cultivation, dominated land use in Kalāheo Ahupua'a. It is possible that historic ditches, flumes, pipelines, and other features related to commercial plantation irrigation may exist within the current project area. Historic homesteads and ranching may have also left physical remains within the current project area. Barbed wire fences, wooden or stacked stone enclosures, water troughs, and historic habitation deposits, including structure foundations, retaining walls, and refuse dumps, could potentially be found within the project area. However, many historic structures within Kalāheo Ahupua'a are known to have been heavily damaged by hurricanes over the years and may have been previously demolished.

Based on the results of the archaeological inventory survey for the Kalāheo water system expansion project (Perzinski et al. 2001) that took place just west of the current project area, on

the other side of Pu'uwai Road, the most likely sites in the project area would be related to historic agriculture.

Section 4 Field Inspection Results

4.1 Survey Findings

The fieldwork component of this field inspection was conducted on May 18, 2010 by CSH archaeologists, Gerald Ida, B.A., Nancine Kamai, B.A., and Peter Moser, B.A., under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator). The fieldwork required four person-hours to complete.

Archaeologists carefully inspected the APE for evidence of cultural material. Pedestrian inspection of the APE confirmed the findings of background research and the predictive model. The only cultural deposits observed within the APE were a ruined modern house and car (Figure 7, Figure 8, Figure 9) located near the south end of the project area, and a scattered pile of construction debris (including wood, concrete, metal pipe, and corrugated iron sheet) and two rubber tires (Figure 10, Figure 11). Much of the project area was forested. The northeastern portion of the project area had been cleared previously, based on the stumps and downed logs still present there (Figure 12, Figure 13). Vegetation observed included large Eucalyptus trees, *Waiwi* (Strawberry Guava) trees, and Bamboo.



Figure 7. Photograph of the ruined modern house and car in the south end of the project area, view to south.



Figure 8. Closer view of the ruined house at the south end of project area, view to south.



Figure 9. Photograph showing the south edge of the project area (the mowed area belongs to the property next door), view to south.



Figure 10. Photograph of construction debris (wood, pipe, metal sheet), view to southeast.



Figure 11. Photograph of scattered construction debris, concrete debris, and two tires, view to southeast.



Figure 12. Photograph of the previously cleared northeast portion, view to southeast.



Figure 13. Photograph of stumps and downed logs in cleared northeast portion, view to north.

Section 5 Significance and Recommendations

This archaeological literature review and field inspection study was completed for use as a due-diligence and/or long-range planning document. The purpose of the archaeological study was to determine if there are any major archaeological concerns within the study area and to develop data on the general nature, density and distribution of archaeological resources. The report and recommendations are designed for use as a due diligence document and to explain the State Historic Preservation Division requirements that would need to be fulfilled prior to land alteration within the study area.

Pedestrian inspection identified no archaeological sites within the study area. Approximately 50% of the survey area was observed to have been disturbed by land modifications associated with development of adjacent residential housing, and a ruined house and car were observed within the study area.

No historic properties were observed within the survey area, therefore Cultural Surveys Hawai'i recommends no further archaeological work for the proposed project. In the unlikely event that previously unidentified subsurface historic properties are encountered by project construction, the project proponents should immediately stop work in the vicinity and contact DLNR/SHPD.

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