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COMMISSION ON WATER RESOURCE MANAGEMENT

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

ref:OCCL:MC

CDUA HA-3661

MAY 23 2013

Gary Gill, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813

Dear Mr. Gill:

With this letter, the Office of Conservation and Coastal Lands (OCCL) hereby transmits the final environmental assessment and finding of no significant impact (FEA-FONSI) for the Schattauer Single Family Residence situated at TMK (3) 7-9-006:014, in the North Kona District of Hawai'i for publication in the next available edition of the Environmental Notice.

The Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for CDUA HA-3661 was published in OEQC's February 23, 2013 *Environmental Notice*. The FEA includes copies of public comments and the corresponding responses from the applicant that were received during the 30-day public comment period on the DEA-AFONSI.

We have determined that this project will not have significant environmental effects, and have therefore issued a FONSI. The FONSI does not constitute approval of the CDUA; authority to grant or deny the final permit lies with the Board of Land and Natural Resources.

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

If there are any questions, please contact Michael Cain at 783-2501

Sincerely,

SAMUEL J. LEMMO, Administrator
Office of Conservation and Coastal Lands

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

13 MAY 23 P4:14

RECEIVED

Enclosures: *Final EA (2), OEQC Pub Form*
Disc: *FEA, OEQC Pub Form*

c:Ali'i Architects

**APPLICANT ACTIONS
SECTION 343-5(C), HRS
PUBLICATION FORM (JULY 2012 REVISION)**

Project Name: Schattauer Single Family Residence
Island: Hawai'i
District: North Kona
TMK: (3) 7-9-006:014
Permits: Conservation District Use Permit

Approving Agency: Office of Conservation and Coastal Lands, Department of Land and Natural Resources,
PO Box 621, Honolulu, HI 96809. Contact: Michael Cain, 587-0048

Applicant: Kainaliu Kahakai LLC, PO Box 2300, Kealahou, HI 96750. Contact: George A.
Schattauer, Jr., Member-Manager

Consultant: Ali'i Architects, 75-5742 Kuakini Highway, Suite 205, Kailua Kona, 96740. Contact:
Ali Ghalamfarsa, 329-8777

Status (check one only):

- __DEA-AFNSI Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day comment period ensues upon publication in the periodic bulletin.
- X FEA-FONSI Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov; no comment period ensues upon publication in the periodic bulletin.
- __FEA-EISPN Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day consultation period ensues upon publication in the periodic bulletin.
- __Act 172-12 EISPN Submit the approving agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov. NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
- __DEIS The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.
- __FEIS The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
- __ Section 11-200-23
Determination The approving agency simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the applicant. No comment period ensues upon publication in the periodic bulletin.
- __Statutory hammer
Acceptance The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it failed to timely make a determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and that the applicant's FEIS is deemed accepted as a matter of law.
- __ Section 11-200-27
Determination The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.
- __Withdrawal (explain)

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

The applicant proposes to build a one-story two-bedroom single family residence on a 2.35-acre coastal parcel. The total developed area of the residence will be 2448 square feet. The foundation will be a combination of post and concrete piers and shear footings. The finished height will be nineteen feet above grade.

The proposed residence will be set back 40 feet from the shoreline, and 33 feet mauka from an existing rock wall that runs parallel to the shore. Access will be via an unpaved driveway. No additional landscaping is proposed.

The soil is stony silt loam with underlying pāhoehoe lava. The slope ranges from six to twelve percent, with a maximum height of 14-feet above mean sea level. The vegetation is dominated by non-native grasses, kiawe, koa haole, tamarind, and coconut palms. An archaeological survey identified ten sites of interest: a well system, stone walls, a house platform, and pre-Contact papamū, poho, water basins, and petroglyphs. The applicant has proposed passive protection of these through the establishment of two preservation easements.

Traditional uses of the property include pole fishing, throw net fishing, `opihi gathering, and crabbing. The applicant states that they both support and participate in these activities.

FINAL ENVIRONMENTAL ASSESSMENT

KAINALIU KAHAKAI LLC
GEORGE A. SCHATTAUER, JR.
Member-Manager

SINGLE FAMILY RESIDENCE

Honua`ino 1st, North Kona, Hawaii
TMK (3) 7-009-006:014

Prepared by:
Ali`i Architects, Inc.
75-5742 Kuakini Hwy., Suite 205
Kailua Kona, Hawaii
96740

May 2013

FINAL ENVIRONMENTAL ASSESSMENT
KAINALIU KAHAKAI LLC SINGLE-FAMILY RESIDENCE
CONSERVATION DISTRICT AT HONUAA`INO 1ST

TMK (3) 7-009-006:014
Honua`ino 1st, North Kona, County of Hawaii, State of Hawaii

APPLICANT:

Kainaliu Kahakai, LLC
George A. Schattauer, Jr., Member-Manager
79-7390 Mamalahoa Hwy.
P.O. Box 2300
Kealahou, HI 96750

APPROVING
AGENCY:

State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 131
Honolulu, HI 96813

CONSULTANT:

Ali`i Architects, Inc.
75-5742 Kuakini Hwy. #205
Kailua Kona, HI 96740

CLASS OF ACTION:

Use of Land in Conservation District

This document is prepared pursuant to:
The Hawai`i Environmental Protection Act,
Chapter 343, Hawai`i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai`i Department of Health Administrative Rules

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EXHIBITS

- A. Existing Conditions Photographs and Directory Map
- B. Certified Shoreline Map
- C. Engineer's Report – Base Flood Elevations and Special Hazard area Determination for Kainaliu Drainage way
- D. NRCS Soil Resource Report
- E. Witcher Engineering LLP proposed IWS Site Plan
- F. Metes and Bounds Description
- G. Wind Exposure Category Zone map.
- H. Effective Wind Speed map.
- I. County of Hawaii, Planning Department, exemption from Special Management Area review.

J. Site plan and Certified letter prepared by Bruce Witcher LLP

APPENDICES

- Appendix 1 Archaeological Inventory Survey
- Appendix 2 Draft Archaeological Preservation Plan
- Appendix 3 Coastal Erosion Study for Kainaliu Kahaki Property
- Appendix 4 Comment letters from approval departments and responses.

SUMMARY OF PROJECT, ENVIRONMENT IMPACT AND MITIGATION MEASURES

Kainaliu Kahakai LLC (the applicant) seeks a Conservation District Use Permit (CDUP) to build a single-family residence and related improvements on a 2.35-acre lot located near the shoreline, but mauka of the Certified Shoreline, in Honua`ino 1st, North Kona. The residence would occupy a footprint of 2,448 square feet and would include a lanai and stairways on both the mauka and makai elevations. Other features include a driveway with parking area, septic system, and solar battery and generator shed.

Construction activities over about 4,000 square feet (less than 4% of the lot) would produce minor short-term impacts to noise, air quality, and scenery. Best Management Practices expected to be required as conditions of the Conservation District Use Permit would mitigate these. There will be no land clearing or mass grading as the house pad is situated in an open, fairly level area of the lot. The proposed design calls for a foundation consisting of concrete pillars and spread footings; therefore, the Applicant anticipates only minor excavation for footings. There will be only minimal impervious surfaces added. The footprint of the columns, concrete landings at staircases, and the concrete slab for solar accessory equipment (situated on an existing rocky area of the site) will create no adverse effect to the natural drainage of the site. The Applicant will ensure that its contractor performs all earthwork in conformance with applicable laws, regulations and standards. The project has been fully surveyed for threatened and endangered plants and none are present. Archaeological and cultural resources have been avoided through inventory, consultation, and site planning, which has situated the structure well away from any sites designated for preservation. In the unlikely event that additional undocumented archaeological resources, including shell, bones, midden deposits, or similar finds, are encountered during construction within the project site, work in the immediate area of the discovery will be halted and the State Historic Preservation Division will be contacted to determine the appropriate actions.

PART 1: PROJECT DESCRIPTION AND E.A. PROCESS

1.1 Project Description and Location

The Applicant (Kainaliu Kahakai LLC) seeks a Conservation District Use Permit (CDUP) to build a single-family residence and finish an existing gravel access drive on a 2.35-acre lot mauka of the shoreline, on the North Kona Coast of the Big Island of Hawai`i.

The parcel is located below Palika Ranch on the Old Kainaliu Beach Road running along the coastline in North Kona, Island and County of Hawaii (Figure 1). The parcel lies in the ahupua`a identified as Honua`ino 1st, has the Tax Map Key number (3) 7-9-006:014 (Figure 2) and is 2.35 acres more or less in area. The lot abuts Beach Road, a private unpaved gravel road, along the eastern property line. The property is owned by Kainaliu Kahakai LLC.

1.2 Existing Uses and Conditions

The subject parcel is currently vacant. A perimeter stone wall surrounds the parcel and varies in condition. An unpaved driveway enters the parcel at the east through an opening in the perimeter wall and a wooden gate. There is an existing small well with a shed in need of some repairing work to the roof and wood posts and rafters. The lot is in its natural state with trees, some coconut and kiawe. Photographs of the subject parcel with an accompanying directory map are attached as Exhibit "A".

Surrounding Areas: The surrounding uses are as follows:

North: One residential parcel, TMK (3) 7-9-006:013 have been developed with a single family residence.

South: One residential parcel, TMK (3) 7-9-006:015 have been developed with a single family residence.

East: A 4.7-acre parcel, TMK (3) 7-9-006:002, which is vacant and unimproved. Allen Wall 2010 Trust, Patricia Wall Trust and Patricia W. Wilson own the parcel. A 39.996 parcel, TMK (3) 7-9-006:003 and 004, which are vacant and unimproved. The parcels are owned by Palika Ranch Family Limited Partnership. A 12 acre parcel, TMK (3) 7-9-006:005, which are vacant and unimproved. The parcel is owned by Heirs of Agnes Smith, Agnes K.P. Smith. (Figure 9 – Area Map)

West: Sea

1.3 Proposed Use

The single-family residence proposed for the subject parcel is a two bedroom two bath dwelling. The residence will be painted in natural tones to blend with the surrounding area. The foundation for the structure is a combination of post and concrete pier and shear footings that will require the minimum of excavation. The structure will be elevated and the finish floor will be approximately 5 feet above existing grade, therefore maintaining the existing topography. A lanai faces seaward while the enclosed portion of the dwelling lies at the mauka portion. Area

under roof is 2,448 square feet of which 1,300 square feet is living area and 1,148 square feet is lanai. The top of the roof is well below the 25 feet above the lowest point of the natural ground adjacent to the structure.

The lot is currently in its natural environmental state with various trees, vines, and weeds. The applicant wishes to maintain the existing conditions as much as possible, removing invasive species of plant material, in order to preserve the beauty of the natural surrounding area. The applicant also proposed to repair and keep the small shed over the existing well.

Electricity, telephone and cable services are not available, therefore photovoltaic with backup generator, solar water, and propane are planned for the proposed dwelling. County water is currently available at the site and is provided via an above-grade pipeline through Palika Ranch. An Individual Wastewater System, per requirements of the State Department of Health, Wastewater Branch will be utilized to treat and dispose of sewage.

(Figures 3, 4, 5, 6 and 7).

1.4 Environmental Assessment Process

This Environmental Assessment (EA) process is being conducted in accordance with Chapter 343 of the Hawai`i Revised Statutes (HRS). This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawai`i Administrative Rules (HAR), is the basis for the environmental impact assessment process in the State of Hawai`i. According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. Part 4 of this document states the anticipated finding that no significant impacts are expected to occur, based on the preliminary findings for each criterion made by the consultant in consultation with the Hawai`i State Department of Land and Natural Resources (DLNR), the approving agency. If, after considering comments to the Draft EA, DLNR concludes that, as anticipated, no significant impacts would be expected to occur, then the agency will issue Finding of No Significant Impact (FONSI), and the action will be permitted to proceed. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement (EIS) will be prepared.

1.5 Public Involvement and Agency Coordination

The following agencies, organizations and individuals were consulted during the Environmental Assessment Process:

Federal
Natural Resources Conservation Service
State
Department of Land and Natural Resources
Department of Health, Wastewater Branch

County
Department of Public Works
Planning Department
Department of Water Supply

PART 2: ALTERNATIVES

2.1 Proposed Project

The proposed project and its location are described in Section 1.1 above and illustrated in Figures 1 through 8.

2.2 No Action

Under the No Action Alternative, the residence would not be built. The lot, which was part of a larger property legally subdivided for eventual residences, would remain unused. This EA considers the No Action Alternative as the baseline by which to compare environmental effects from the project. No other alternative uses for the property are desired by the Applicant, and thus none are addressed in this EA.

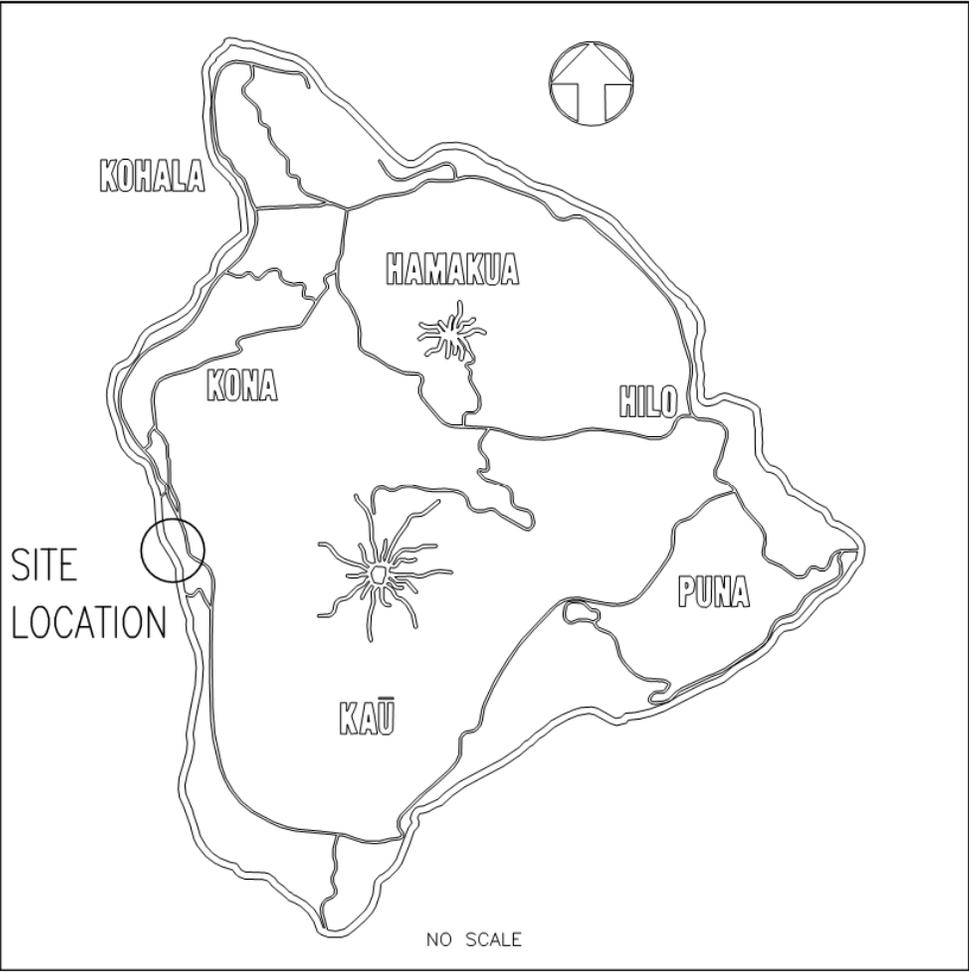


Figure 1
Location Map



Figure 2
Vicinity Map

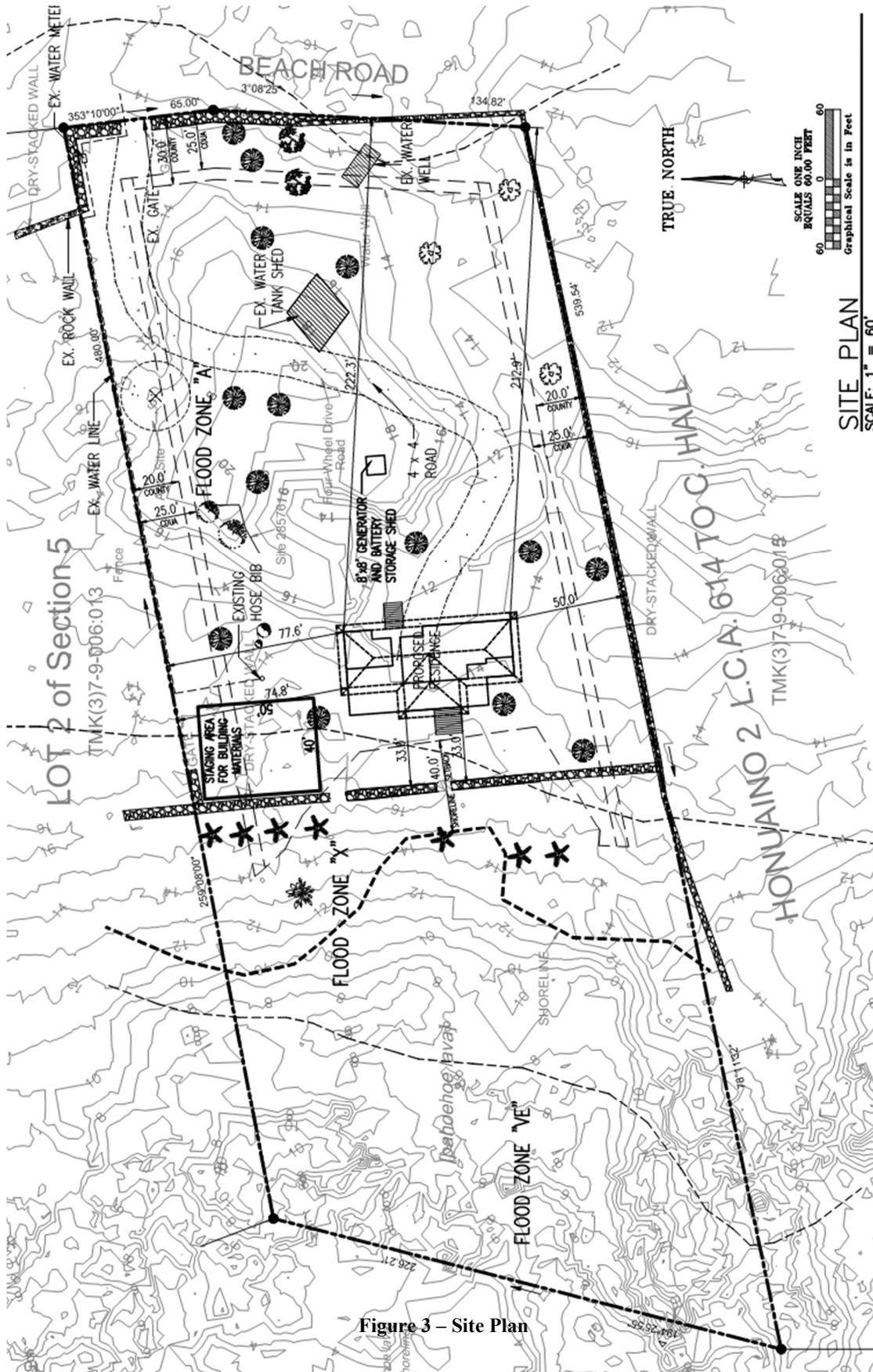


Figure 3 – Site Plan

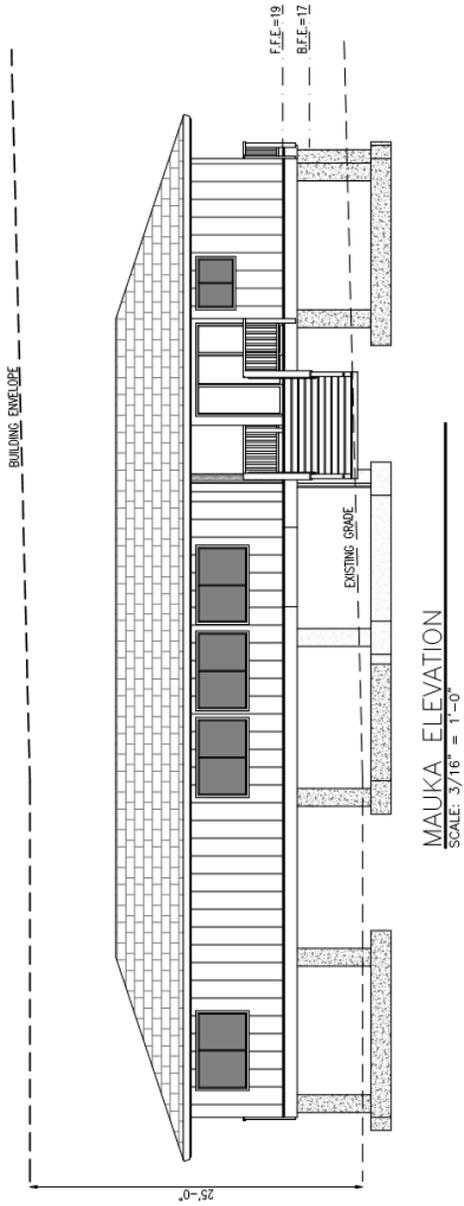


Figure 4 – Mauka Elevation

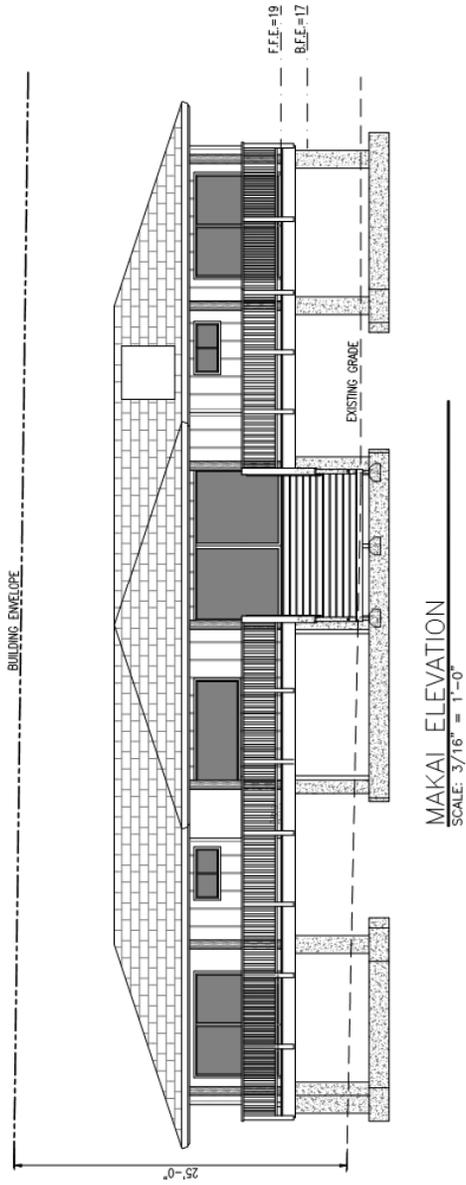


Figure 5 – Makai Elevation

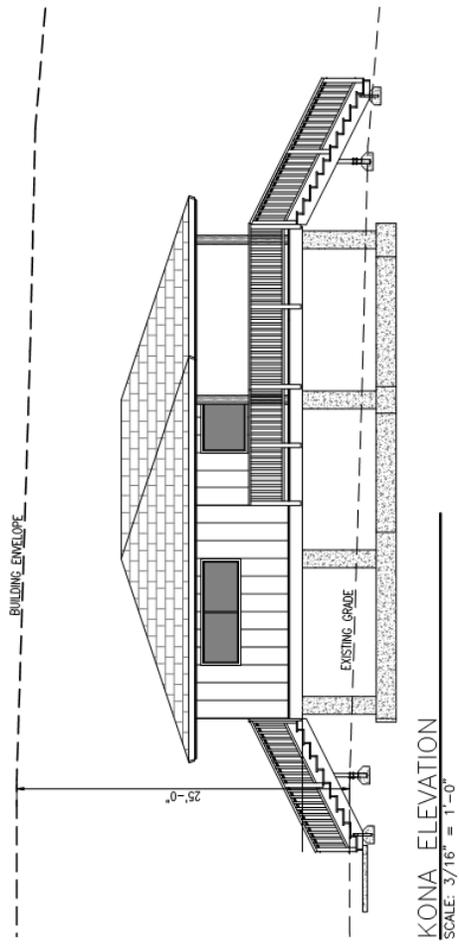


Figure 6 – Kona Elevation

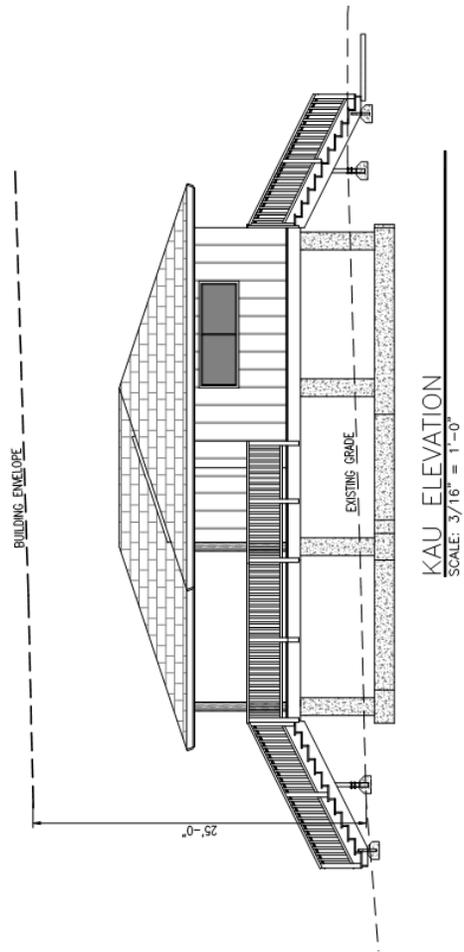


Figure 7 – Kau Elevation

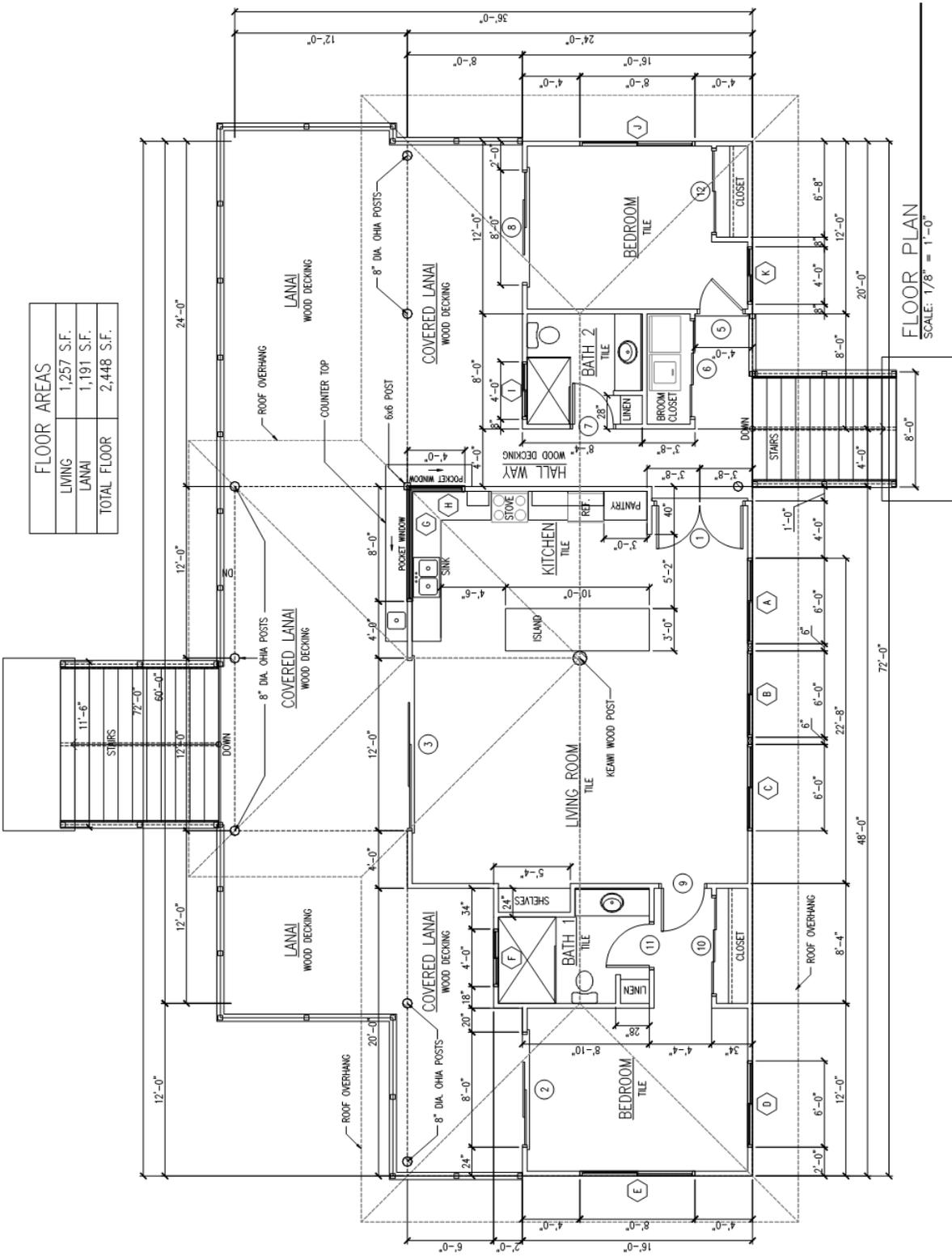
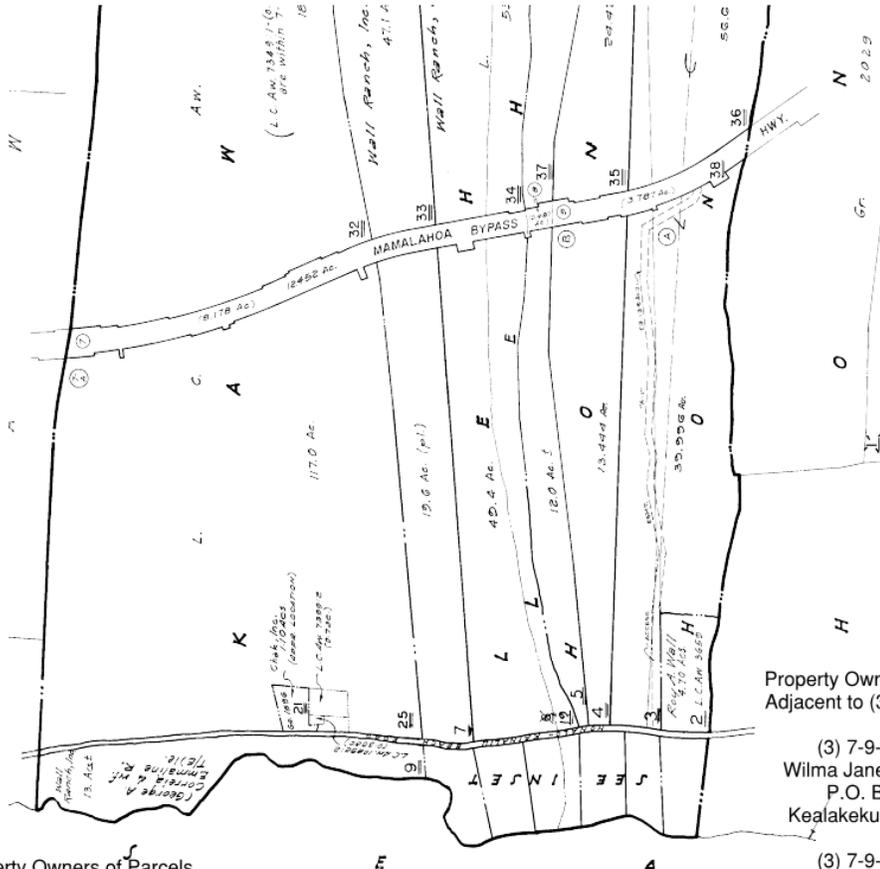


Figure 7a – Floor Plan



Property Owners of Parcels
Adjacent to (3) 7-9-006:014

(3) 7-9-006:013
Wilma Jane Paris Trust
P.O. Box 136
Kealahou, HI 96750

(3) 7-9-006:015
Ackerman Ranch Inc.
P.O. Box 555
Kealahou, HI 96750

Property Owners of Parcels
Adjacent to (3) 7-9-006:014

(3) 7-9-006:002
Allen Wall 2010 Trust
Patricia Wall Trust
Patricia W. Wilson
P.O. Box 187
Kealahou, HI 96750

(3) 7-9-006:003
(3) 7-9-006:004
Palika Ranch Family
Limited Partnership
P.O. Box 229
Kealahou, HI 96750

(3) 7-9-006:005
Heirs of Agnes Smith
Agnes K.P. Smith
346 Ilimalia Loop
Kailua, HI 96734

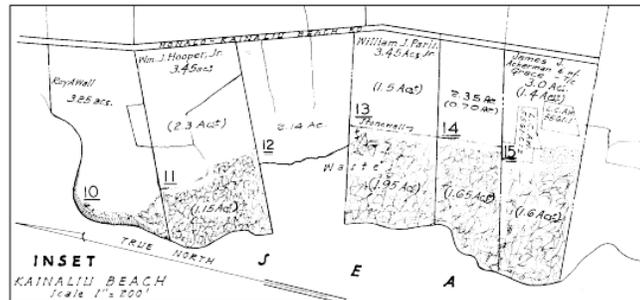


Figure 8 – Area Map

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

3.1 Physical Characteristics

3.1.1 Climate

Environmental Setting

The Kona district is located in leeward area of Hawaii. The Mauna Kea, Mauna Loa and Hualalai block the prevailing winds. The result is an alternating system of air circulation driven by differences in land and water temperatures. On warm days, this system produces light winds that blow offshore in the morning and early afternoon and onshore in the late afternoon and evenings.

The Kona coast is the only region in the islands where summer rainfall exceeds winter rainfall. Kona has an annual rainfall range from 20” along the coast to 100” on the mountain slopes. Kona showers are frequent and heavy enough to produce a much higher mean rainfall in Kona than in other leeward areas in the State. Most of the precipitation in the district occurs in the summer months because the differences in land and water temperatures generate a moderate sea breeze circulation resulting in showers that are typically spotty in distribution and highly variable in duration and intensity. Kona is atypical in that it receives the majority of its annual precipitation in summer, from May through August.

Impacts and Mitigation Measures

Climatic conditions impose no constraints on the proposed action.

3.1.2 Flood and Coastal Hazards.

Environmental Setting

Floodplain status for many areas of the Island of Hawai`i has been determined by the Federal Emergency Management Agency (FEMA), which produces the National Flood Insurance Program’s Flood Insurance Rate Maps (FIRM). The map for the subject project area is 155166 0939C. (Figure 9) FEMA identifies the Base Flood Elevation for coastal flood zones as 13 feet in this area. The engineering report shows the BFE for this parcel to be at 16.35. The highest point of the subject property is at 20 feet above Mean Sea Level and slopes gradually to the Sea. The subject property is within four different flood zones. Starting at the ocean and proceeding mauka, they are “VE”, “AE”, “X”, and “A”. (See Figure 10 – Definitions of FEMA Floor Zone Designations). The Certified Shoreline Map is attached as Exhibit “B”.

Additionally, in September 2011 Witcher Engineering LLP prepared an Engineer’s Report, Base Flood Elevations and special Hazard Area Determination for Kainaliu Drainageway for the subject property. The Report which identifies existing hydrologic conditions and analysis is attached as Exhibit “C”.

Hawaii is a hurricane-prone region and wind-borne debris, per IBC and ASCE-7 Based on NOAA land cover data 2002 and land satellite images, this property falls within Wind Exposure Category Zone “C”, see Exhibit “G”. The effective wind speed based on 105 mph for this area is 90 mph, see Exhibit “H”.

Impacts and Mitigation Measures

The proposed structure shall meet all the Floodplain Management requirements as per Chapter 27 of Hawaii County Code. Exhibit “J” has been prepared by the office of Witcher Engineering LLP and it confirms the fact that the proposed structure is within “ZONE A”. The base flood elevation has also been determined to be at 16.35. Per chapter 27 of Hawaii County Code the finished floor is required to be one foot above determined base flood elevation, in this case 17.35. The proposed finished floor is at 19 feet, which will be approximately 1.65 higher than what is required. The high tide elevation at shoreline is about 14 feet, keeping it well below the bottom of the proposed lowest structural members.

The proposed structure may be subject to wind and hurricane impact. The proposed structure shall be designed and constructed to meet all requirements per Chapter 5 of Hawaii County Building Code.

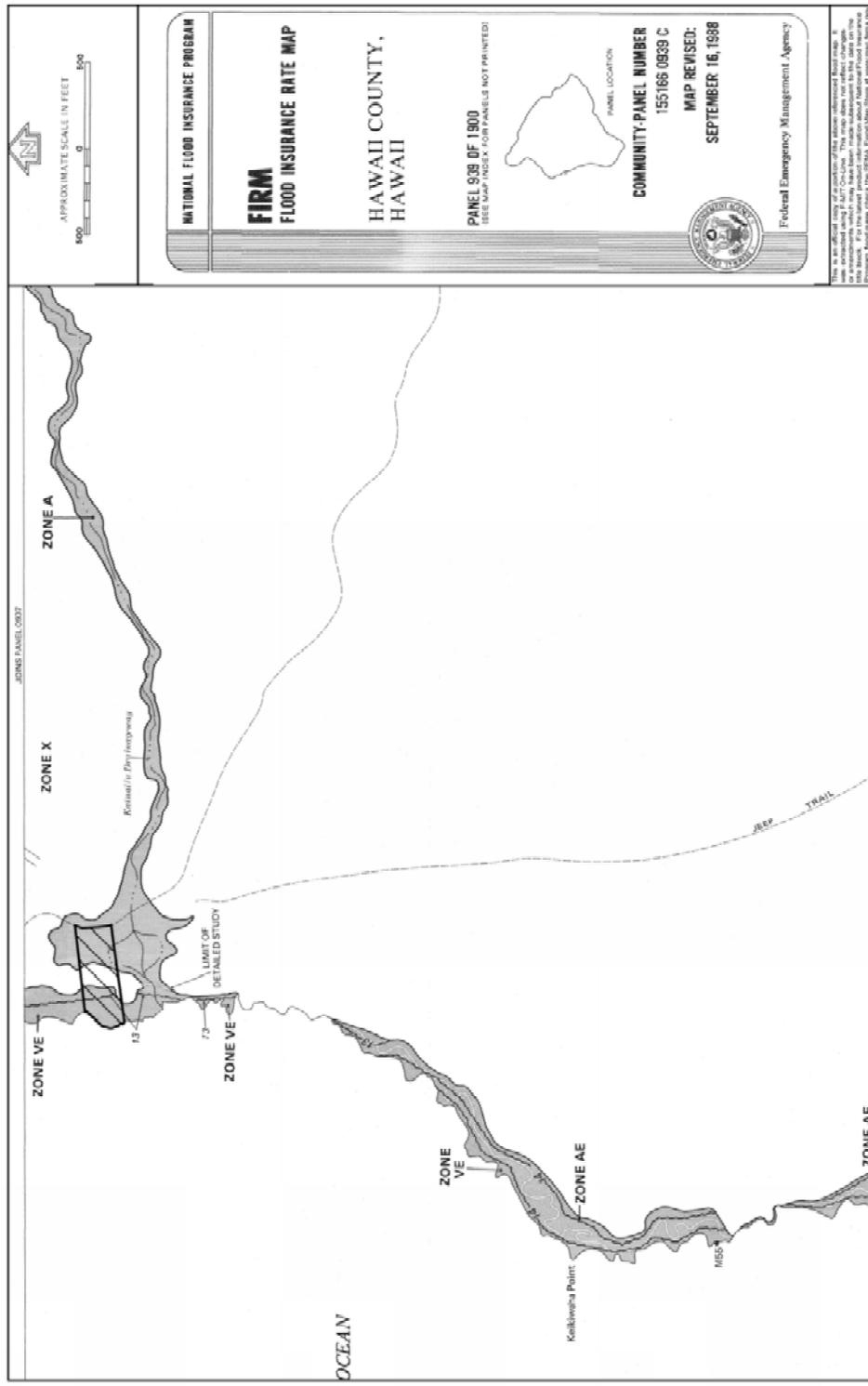


Figure 9 – FIRM Map



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[Home](#) > FEMA%20Flood%20Zone%20Designations

Log on

Definitions of FEMA Flood Zone Designations

Flood zones are geographic areas that the FEMA has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map. Each zone reflects the severity or type of flooding in the area.

Moderate to Low Risk Areas

In communities that participate in the NFIP, flood insurance is available to all property owners and renters in these zones:

ZONE	DESCRIPTION
B and X (shaded)	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
C and X (unshaded)	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.

High Risk Areas

In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:

ZONE	DESCRIPTION
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
A99	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.

Figure 10 – FEMA Flood Zone Designation

High Risk - Coastal Areas

In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:

ZONE	DESCRIPTION
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
VE, V1 - 30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

Undetermined Risk Areas

ZONE	DESCRIPTION
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.

3.1.3 Geology, Soils and Geologic Hazards

Environmental Setting

With four active volcanoes (Kilauea, Lo`ihi, Mauna Loa, and Hualalai), the entire island of Hawai`i is subject to geologic hazards. The United States Geological Survey (USGS) has developed Lava Flow Hazard Zone Maps. These maps were first prepared in 1974 by Donal Mullineaux and Donald Peterson of the USGC and were revised in 1987. The current map divides the island into zones that are ranked from 1 through 9 based on the probability of coverage by lava flows. Hazard zones from lava flows are based chiefly on the location and frequency of both historic and prehistoric eruptions. "Historic eruptions" include those for which there are written records, beginning the early 1800's, and those that are known from the oral traditions of Hawaiians. Knowledge of prehistoric eruptions is based on geologic mapping and dating of the old flows of each volcano. The hazard zones also take into account the larger topographic features of the volcanoes that will affect the distribution of lava flows.

The project site is located in an area designated by the United States Geological Survey (USGS) as Lava Flow Hazard Zone 3. Zone 3 areas are gradationally less hazardous than Zone 2 because of their greater distances from recently active vents, or because the topography makes it less likely that flows will cover these areas.

In terms of seismic risk, the entire Island of Hawai`i is rated Zone 4 Seismic Hazard (Uniform Building Code, 1997 Edition, Figure 16-2). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built. The project site does not appear to be subject to subsidence, landslides, or other forms of mass wasting.

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) has conducted soil surveys for portions of the Island of Hawai`i. The NRCS has identified the soil in the subject area as consisting of Punaluu-Lava flows complex, 10 to 20 percent slopes, and Waiaha medial silt loam, 2 to 10 percent slopes. A Soil Resource Report with Map Unit Setting, Properties and Qualities, and Component Legend is attached as Exhibit "D".

Impacts and Mitigation Measures

Generally speaking, the geologic conditions impose no constraints on the proposed action, as much of the Island of Hawai`i faces similar volcanic and seismic hazards.

All Building Code requirements for construction within Earthquake Zone 4 will be met.

3.1.4 Flora/Fauna

Environmental Setting: Flora

Natural vegetation in the project area is dominated by Kiawe, with some Koa Haole, Opiuma, Coconut trees, and various sedges and coastal herbs.

Kiawe is a species of mesquite tree. It is a spreading bush or moderately sized tree, bearing spines, spikes of greenish-yellow flowers, and long pods filled with small brown seeds. The Kiawe was first planted in Hawaii in 1828; today it is a ubiquitous shade tree and invasive weed in the Hawaiian Islands.

Koa Haole may take the form of either a shrubby bush or a tree that can occasionally grow to 60 feet. It forms dense shady thickets and stands of individuals with globular white flower heads about one inch in diameter. It produces large bunches of long, thin seed pods that each contain a single row of small seeds. A native of the American tropics, it was introduced to the island's lowland and mesic forests by humans in the early nineteenth century. Though originally grown as a source of cattle fodder and as a shade tree on coffee plantations, it has turned out to be an aggressive pest species in the islands. While Koa Haole is acknowledged to be an aggressive weed species, its widespread use as cattle fodder has, until recently, prevented the State government from instituting any control or eradication programs.

Opiuma trees are common in the shoreline areas in this region of South Kona, and are sometimes called Manila tamarinds, although they are from tropical America. It is a thorny tree that can become weedy. In Hawai'i it has a reputation as a pest in grass pastures, but normally only when fields have been left nitrogen-starved. It is a tree with many uses – food (sweet pods), firewood, honey, fodder, soap oil, tannin, hedges and shade.

Although the Kiawe, Koa Haole, and Opiuma trees may be referred to as weeds, the stately Coconut has for thousands of years, been used by Pacific Islanders has a primary course of food and medicine. More than just a sustainable food crop, every part of the coconut tree is useful including the roots, trunks, leaves, husks, fiber, fruit, water, sap, oil, milk and meat. The coconut tree is a member of the palm family, and the term “coconut” generally refers to the fruit it produces. When Portuguese explorers first found this fruit growing on tropical islands throughout the Indian Ocean, they named it “coquo” (coco), meaning “small animal”, because the eyes and mount on the brown outer shell reminded them of the grinning face of a monkey. Coconut trees are found growing near coastal water all along the leeward side of the Island of Hawai'i, and are included in the flora inventory of the subject property.

Environmental Setting: Fauna

Birds typically expected to be seen in this area, some of which have been observed during site visits, include Common Myna, Northern Cardinal, Spotted Dove, and House Finch. There is a flock of Parrots which occasionally fly by, that are descended from pet parrots escaped into the wild. No native birds have been identified, and it unlikely that any native forest birds would be expected to use the project site due to its low elevation, and lack of adequate forest resources. Shorebirds such as the Pacific Golden Plover, Wandering Tattler, and Ruddy Turnstone may be observed on the pahoehoe lava at the seaward edge of the property, feeding on shoreline resources. They would be unlikely to make much use of the property itself, which offers no habitat for them. All three are common migratory visitors, arriving in the islands in August and leaving for arctic breeding and nesting grounds in April/May.

Mammals in the project area are all introduced species, including feral cats, small Indian mongoose, and various species of rats. None are of conservation concern and all are detrimental to native flora and fauna.

Impacts and Mitigation Measures

Because of the minor nature of the project and the lack of sensitive ecosystems, and threatened or endangered plant species, construction and use of the single-family residence are unlikely to cause any adverse biological impacts. The Applicant wishes to preserve the existing landscaping as much as possible, while at the same time providing control over potential spread of invasive species.

3.1.5 Water Quality

Environmental Setting

The property is bounded by the ocean on the west side. No water features such as streams, or springs are found on or near the property. There is evidence of a well and water storage and delivery system that was constructed during the late 1940s and early 1950s, which is described in detail as SIHP Site 22397 in the Rechtman Consulting Archaeological Inventory Survey attached as Appendix 1. The water this system produced was used for both cattle and residential purposes. Currently, potable water is piped to the area from a mauka water source, and the well is no longer functional, but anchialine water is still present within.

Impacts and Mitigation Measures

The proposed improvements are more than 100 feet away from the shoreline and set well away from the old well site. There will be only minimal excavation required for foundation footings, and the septic system (240sqft). No mass grading will be necessary.

As part of construction, the Applicant will require that the construction contractor implement the following practices:

The total amount of land disturbance will be minimized. The construction contractor will be limited to the delineated construction work areas within the lot.

The contractor will not allow any sediment to leave the site, particularly towards the ocean.

Construction activities with the potential to produce polluted runoff will not be allowed.

Cleared areas will be replanted or otherwise stabilized as soon as possible.

Upon completion, the residence will be similar to others in the area and is not expected to contribute to sedimentation, erosion, or pollution of coastal waters.

3.1.6 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air quality in the area is relatively good, due to its rural nature and minimal degree of human activity, although vog quite often covers the Kona coast with a dense and almost constant haze of vog. “Vog (volcanic smog) is a visible haze comprised of gas and an aerosol of tiny particles and acidic droplets, created when sulfur dioxide and other gases emitted from Kilauea Volcano chemically interact with sunlight and atmospheric oxygen, moisture and dust. Along the Kona coast on the west side of Hawai`i Island and in other areas far from the volcano, vog is dominated by an aerosol of sulfuric acid and other sulfate compounds.” (Hawaii Volcano Observatory)

Noise on the project site is low, and is derived from natural sources (such as surf and wind) due to the very rural nature of the area.

The area shares the rustic, dryland, scenic beauty of the Kona coastline.

Impacts and Mitigation Measures

The project would not affect air quality or noise levels in any substantial ways. Brief and minor adverse effects could occur during construction, however there are virtually no sensitive noise receptors in the vicinity, and given the small scale of the project, noise mitigation will likely not be necessary.

Although the addition of a structure may be considered to detract at some level from the scenic landscape, the proposed residence is an integrative design and will be painted to blend in with the natural environment of the surrounding area. There are a few residences in the immediate area and the proposed dwelling will be compatible with the overall appearance of the neighborhood. The proposed residence will not materially degrade the scenery of the project area.

3.1.7 Hazardous Substances, Toxic Waste, and Hazardous Conditions

Environmental Setting

Based upon onsite inspection and the Applicant’s ownership history, it appears the site contains no hazardous or toxic substances and exhibits no other hazardous conditions.

Impacts and Mitigation Measures

To ensure minimization of any possibility for spills of hazardous materials during construction, the Applicant proposes the following conditions:

Unused materials and excess fill will be removed and disposed of at an authorized waste disposal site. The contractor will be encouraged to recycle or donate for reuse excess material, as appropriate. During construction, emergency spill treatment, storage, and disposal of any hazardous materials will be explicitly required to meet all State and County requirements, and the contractor will be asked to adhere to good housekeeping practices for all appropriate substances.

- Onsite storage of the minimum practical quantity of hazardous materials necessary to complete the job;
- Fuel storage and use will be conducted to prevent leaks, spills, or fires;
- Products will be kept in their original containers unless non-resealable, and the original labels and safety data will be retained, and disposal of surplus will follow manufacturer's recommendation and adhere to all regulations;
- Manufacturers' instructions for proper use and disposal will be strictly adhered to;
- Regular inspection by contractor to ensure proper use and disposal;
- Onsite vehicles and machinery will be monitored for leaks and receive regular maintenance to minimize leakage;
- Construction materials, petroleum products, waste, and debris will be prevented from blowing, falling, flowing, washing or leaching into the ocean;
- All spills will be cleaned up immediately after discovery, using proper materials that will also be properly disposed of, and regardless of size, spills or toxic or hazardous materials will be reported to the appropriate government agency;
- Should spills occur, the spill prevention plan will be adjusted to include measures to prevent spills from re-occurring and for modified cleanup procedures.

3.2 Socioeconomic and Cultural

3.2.1 Land Use, Designations, and Controls

Existing Environment

The property is bordered by the shoreline to the west, by Old Kainaliu Beach Road to the east, and by private property to the north and south.

The State Land Use District for the property, and adjacent properties is Conservation. Its subzone is Resource, for which, according the Hawai'i Administrative Rules (HAR) §13-5-15, a single-family residence is an identified use.

The property site is within the Special Management Area. Single-family residences may be determined to be an exempt action under the County's Special Management Area (SMA) guidelines. The County of Hawai'i Planning Department requires preparation of an SMA Assessment Application, in which SMA issues will be expressly discussed and dealt with.

The proposed project is consistent with the regulations and policies of the Conservation District and the Special Management Area, as discussed in Section 3.6.2 and 3.6.3 hereof.

3.2.2 Socioeconomic Characteristics and Recreation

Existing Environment

The project site is a privately owned parcel situated in the Kainaliu Beach Lots subdivision, located within the ahupua`a of Honua`ino on the western shore of the Island of Hawai`i and lies within what has been termed the Kona Field System. This area of dryland agricultural fields extends north from Ho`okena Ahupua`a south to Kau Ahupua`a and east from the coastline to the forested slopes of Hualalai.

The beginning of the Kona Field System is marked by the development of formal walled agricultural fields, and later during what is known as the Territorial Period (1900 to 1959), associated with agriculture and ranching pursuits. The subject project area and much of the adjacent lands continue to be utilized for cattle ranching purposes. It was during the early part of this Period that the ranches subdivided out the Kainaliu Beach Lots (including the subject project site) for private residential purposes. Further discussion of the Kona Field System may be reviewed in the Archaeological Inventory Survey prepared by Rechtman Consulting and attached as Appendix 1.

The families of the surrounding ranches have historically built and maintained beach houses for their private use and occasional gathering of Ohana after a day's work or weekend get-together for beach activities.

Impacts and Mitigation Measures

No adverse socioeconomic impacts are expected to result from the project. The project will have a very small positive economic impact for the County of Hawai`i. The residence and associated improvements will not adversely affect recreation, as access along the coast will undergo no changes or restrictions.

3.2.3 Historic, Archaeological and Cultural Resources

The Archaeological Inventory Survey by Rechtman Consulting referenced above includes discussion of the property's history and the identification of a number of archaeological sites, and as stated previously, is attached as Appendix 1. It is summarized below.

Historic and Cultural Background.

The site lies within what has been termed the Kona Field System. A large portion of the field system is designated in the Hawai`i State Inventory of Historic Places (SIHP) as Site 50-10-37-6601 and has been determined eligible for inclusion in the National Register of Historic Places. The basic characteristics of this agricultural/residential system have been confirmed and elaborated on by ethno historical investigations (Kelly 1983) and summarized by Cordy (1995). The construct is based on the Hawaiian terms for the major vegetation zones, which are used to define and segregate space within the region's ahupua`a. These zones are bands roughly parallel

to the coast that mark changes in elevation and rainfall. The subject parcel is located at the shore in the *kula* zone.

The *kula* zone is the area from sea level to 600 feet elevation. Annual rainfall in the *kula* is 75 to 125 centimeters. This lower elevation zone is traditionally associated with habitation and the cultivation of sweet potatoes, paper mulberry, and gourds. Informal agricultural features, such as clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common throughout the agricultural portion of the *kula*, but they are commonly concentrated along the shoreline (Cordy 1981). The more mauka portion of this zone was primarily used for agricultural purposes and mainly temporary habitations and an occasional permanent habitation (Borthwick et al. 1997; Rosendahl and Rosendahl 1986).

During the Precontact period permanent habitation and subsistence activity was initially focused on the windward side of the island. During that time it is likely that windward residents traveled to the leeward Kona coast for resource extraction purposes, but later permanent habitation was beginning in Kona and was concentrated along the shoreline and lowland slopes.

The Historic period begins with Captain Cook's arrival in the islands (A.D. 1778) and ends with King Kamehameha's death and the abandonment of the traditional *kapu* system in 1819. Early historical accounts emphasize that modern day Kailua Town was a significant political seat and population center at this time. Further discussion of this period is provided in Rechtman's Survey report (Appendix 1).

The period A.D. 1920-1847 was a time of social change in Hawai'i. Some of the work of the commoners shifted from subsistence agriculture to production of foods and goods they could trade to the early Western visitors. Missionaries began arriving to Hawai'i in the 1820's.

The ever-growing population of Westerners forced religious, socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership, and the Great *Mahele* became the vehicle for determining ownership of native lands.

During the *Mahele* all lands were placed in one of the three categories: Crown Lands, Government Lands, and *Konohiki* Lands.

As a result of the *Mahele*, Honua`ino Ahupua`a was awarded in its entirety as a *konohiki* award to W. C. Lunalilo, who in 1873 became the sixth Hawaiian monarch. His reign was short, lasting only 13 months, and he was succeeded in 1874 by King Kalakaua. There appear to have been five *kuleana* claims made in Honua`ino 1st. Of these, Kanakaole (LCAw. 7901) claimed one *apana* as a "house lot claim which is *Makai* in the *ahupua`a* of Honuaino 1." (Native Register v.8.512). It is possible that Kanakaole's coastal house is the platform identified as SIHP Site 28576 (see discussion below and Appendix 1).

Following the *Mahele*, a program was initiated to sell parcels of land to interested residents. The parcels of land sold in the grants were quite large, ranging in size from approximately ten acres to many hundreds of acres. When the sales were agreed upon, Royal Patents were issued and recorded.

Much of the area surrounding the subject property was acquired by grant and later private purchase. William Johnson came to own much of the general project area and beyond. Johnson was the progenitor to many of the Kona ranching families, and his lands were eventually divided among several descendants into separate adjoining ranches. The subject project area was part of the ranch lands of W. J. Paris.

The Applicant, Kainaliu Kahakai LLC, is comprised of members of the descendants of W. J. Paris. The two elders of the family, William “Billy” Johnson Hawawakaleoonamanuonakkanahale Paris Jr. (born 1922), and his sister, Margaret Kalikolamaikapaliokaukini Paris-Schattauer (born 1927), are descended from Hawaiian families that have lived in Kona since the days of Kamehameha I. Their Anglo relatives (Paris and Johnson) have lived in Kona since 1850-1852, and their families have been a significant element in the history of land use within South Kona having played an important role in recording and preserving the history of this district.

Archaeological Investigations and Resources.

In 2010, Rechtman Consulting conducted an archaeological inventory survey of the project site (Revised September 2011). The full Archaeological Inventory Survey prepared can be reviewed for detail, and is attached as Appendix 1.

In summary, as a result of the inventory survey ten archaeological sites were identified. Of these, a portion of one site had been previously described by Mills and Irani (2000) as SIHP Site 22397. This site is a mid-twentieth century well and associated water storage and delivery system. The other sites recorded during Rechtman’s survey include two historic walls (SIHP Sites 28574 and 28577); a late Precontact/early Historic house platform (SIHP Site 28576); and six sites where the bedrock has been modified creating either *poho* (SIHP Site 28582), *papamu* (SIHP Sites 28575, 28579, and 28581), *papamu* and basins (SIHP Site 28578) and *papamu* and a petroglyph (SIHP Site 28580).

All of the sites documented during Rechtman’s survey retain sufficient integrity and are assessed as significant under Criterion D for the information they have yielded or for potential additional information that could be collected relative to changing land use patterns from late Precontact times to the middle twentieth century.

Four of these sites have been identified as requiring “No further work” as they have been successfully documented.

The remaining six of the ten sites identified have been recommended for preservation. All of these are situated such that they can be avoided during any proposed development of the property.

Impacts and Mitigation for Archaeological Resources

Rechtman Consulting, subsequent to its preparation of the Archaeological Survey, prepared a Preservation Plan. A complete copy of the draft Preservation Plan is attached as Appendix 2. The Applicant will fully comply with the proposed preservation plan, and the actions anticipated may be summarized as follows:

Preservation in place for all six sites, achieved through avoidance and protection. For the long-term preservation of the sites, two preservation easements will be established on the property. The larger of these will comprise the entire shoreward portion of the parcel delineated on the *mauka* side by a reconstructed stone wall. This preservation area will contain SIHP Sites 28578, 28579, 28580, and 28581. No development activity will be permitted within this preservation easement (although nothing is intended to curtail continued use of the shoreline area for recreational and subsistence activities). The second preservation easement will encompass SIHP Sites 28575 and 28578 and the intervening area along with a buffer zone of 15 feet around its perimeter. No ground-altering activity will be permitted within this preservation easement, which will be left in its existing natural state. Any future necessary maintenance activities (vegetation clearing and/or removal) within this preservation easement will be conducted using hand tools.

No stabilization or maintenance activities will be undertaken, nor will the sites be identified by signage. The sites will be left in their current existing conditions.

A legal document describing the locations of the six sites within the subject parcel along with the Preservation Plan will be recorded with the Bureau of Conveyances.

Prior to the commencement of development activities on the subject parcel, an awareness briefing will be presented to all members of the construction team informing them of the locations and inviolability of the preservation easements. Orange construction fencing will be placed along the permanent preservation buffer at Site 28575 and 28576. This protective fence will stay in place until construction activities have been completed. The already reconstructed rock wall will serve to protect the shoreline preservation easement containing Sites 28578, 28579, 28580, and 28581.

Other Cultural Resources and Practices

The investigations of the property did not reveal any cultural resources or practices aside from the traditional Historic findings. Although fishing and gathering occur on the shoreline, this area is makai of the proposed residential structure.

3.3 Public Facilities and Utilities

3.3.1 Roads and Access

Existing Environment, Impacts and Mitigation Measures

Access to the project site is from the Ali'i Drive extension through Hokulia subdivision, down a private road traversing Greenwell, Ackerman, and Wall ranch land, to the existing Old Kainaliu

Beach Road, an unimproved, narrow, mostly unpaved gravel, private road. The lot also has a recorded roadway easement to it from Hokuli'a bypass road, which is an unpaved ranch road that winds down through Palika Ranch's TMK 3-7-9-006-003. No adverse impact to area roads or traffic is anticipated as a result of this project.

3.3.2 Public Utilities and Facilities

Existing Environment, Impacts and Mitigation Measures

Wastewater System. The subject parcel of land lies in a Critical Wastewater Zone with no exceptions as determined and administered by the State of Hawaii, Department of Health, and Wastewater Branch. An Individual Wastewater System designed in accordance with Chapter 11-62 HAR, Wastewater Regulations and approved by the Wastewater Branch will be specified for the proposed residence. The proposed IWS Site Plan prepared by Witcher Engineering LLP is attached as Exhibit "E".

Water System. County water is available through Palika Ranch via an existing water line and a sub-meter located at the project boundary along the access road.

Electrical and Telephone. Electricity will be provided via a solar photovoltaic system, with batteries and backup generator. A solar hot water system with on-demand propane water heater as backup is planned. LP gas will be utilized for kitchen and laundry appliances.

Fire and Police Protection. The Applicant acknowledges and understand that the lot, along with others in this area, is remote from emergency services.

The addition of one single-family home will have no measurable adverse impact to or additional demand on public facilities such as schools, police or fire services, or recreational areas.

3.4 Secondary and Cumulative Impacts

Due to its small scale, the proposed project would not produce any major secondary impacts, such as population changes or effects on public facilities.

3.5 Required Permits and Approvals

County of Hawai`i:

Special Management Area Permit or Exemption
Plan Approval, and Building Permits

State of Hawai`i:

Conservation District Use Permit

3.6 Consistency with Government Plans and Policies

3.6.1 Hawai'i County General Plan

The General Plan for the County of Hawai'i is a document expressing the broad goals and policies for the long-range development of the Island of Hawai'i. The plan was adopted by ordinance in 1989, revised in 2005, and amended in 2007. The General Plan's Land Use Allocation Guide Map designates the subject parcel as Open. The General Plan is organized into thirteen elements with policies, objectives, standards, and principles for each. Following are pertinent sections followed by a discussion of this project conforms to those elements.

Economic Goals

- (a) Provide residents with opportunities to improve their quality of life through economic development that enhances the County's natural and social environments.
- (b) Economic development improvement shall be in balance with the physical, social, and cultural environments of the Island of Hawai'i.
- (c) Provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County's cultural, natural, and social environment.

Discussion: The proposed project is in balance with the natural, cultural and social environment of the County, would create temporary construction jobs for local residents, and would indirectly boost the economy through construction industry purchases from local suppliers. A multiplier effect takes place when these employees spend their income for food, housing, and other living expenses in the retail section of the economy. Such activities are in keeping with the overall economic development of the County.

Environmental Quality Goals

- (a) Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are visible and sustainable.
- (b) Maintain and, if feasible, improve the existing environmental quality of the island.
- (c) Control pollution.

Environmental Quality Policies

- (a) Pollution shall be prevented, abated, and controlled at levels that will protect and preserve the public health and well being, through the enforcement of appropriate Federal, State and County standards.
- (b) Incorporate environmental quality controls either as standards in appropriate ordinances or as conditions of approval.
- (c) Federal and State environmental regulations shall be adhered to.

Discussion: The proposed project would not have any substantial adverse effect on the environment and would not diminish the valuable natural resources of the region. The residence and associated improvements will be compatible with the existing rural single-family homes and

recreational uses in the area. Pertinent environmental regulations will be followed, including those for mitigation of water quality impacts during construction.

Historic Sites Goals

- (a) Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawai'i.
- (b) Appropriate access to significant historic sites, buildings, and objects of public interest should be made available.

Historic Sites Policies

- (a) Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.
- (b) Amend appropriate ordinances to incorporate the stewardship and protection of historic sites, buildings and objects.
- (c) Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.
- (d) Public access to significant historic sites and objects shall be acquired, where appropriate.

Discussion: The archaeological survey and follow-up studies have properly documented historical and/or culturally sensitive resources, and a preservation plan has been adopted to mitigate impacts to these historic sites and provide fuller protection to the Hawaiian cultural heritage they represent.

Natural Beauty Goals

- (a) Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.
- (b) Protect scenic vistas and view planes from becoming obstructed.
- (c) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

Natural Beauty Policies

- (a) Increase public pedestrian access opportunities to scenic places and vistas.
- (b) Develop and establish view plane regulations to preserve and enhance views of scenic or prominent landscapes from specific locations, and coastal aesthetic values.

Discussion: The proposed improvements are minor and consistent with traditional uses of the land and will not cause scenic impacts or impede access.

Natural Resources and Shoreline Goals

- (a) Protect and conserve the natural resources from undue exploitation, encroachment and damage.
- (b) Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.

- (c) Protect and promote the prudent use of Hawai`i's unique, fragile, and significant environmental and natural resources.
- (d) Protect rare or endangered species and habitats native to Hawai`i.
- (e) Protect and effectively manage Hawai`i's open space, watersheds, shoreline, and natural areas.
- (f) Ensure that alterations to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure to the event of earthquake.

Natural Resources and Shorelines Policies

- (a) Require users of natural resources to conduct their activities in a manner that avoids or minimized adverse effects on the environment.
- (b) Maintain the shoreline for recreational, cultural, educational, and /or scientific uses in a manner that is protective of resources and is of the maximum benefit to the general public.
- (c) Protect the shoreline from the encroachment of man-made improvement and structures.
- (d) Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.
- (e) Encourage the use of native plants for screening and landscaping.
- (f) Ensure public access is provided to the shoreline, public trails and hunting areas, including free public parking where appropriate.
- (g) Ensure that activities authorized or funded by the County do not damage important natural resources.

Discussion: More than 30% of the subject property (the entire shoreline portion, delineated by a reconstructed dry-stack rock wall) has been designated as an archaeological easement. The proposed residence is set back 33 feet from the rock wall, at an elevation of about 12-14 feet above sea level, and would not affect shoreline resources or be damaged by waves or tides. In the Coastal Erosion Study for Kainaliu Kahakai Property prepared (after site investigation) by Geohazards Consultants International, Inc. (Appendix 3), J. P. Lockwood, Ph.D. states "The Certified Shoreline as staked out on the Property is well above the highest tide and normal wave level, although beach sand deposits indicate waves to reach this area during winter storms. The March, 2011 tsunami waves apparently washed over this Certified Shoreline, but did not cause any damage to the dry-stacked stone wall located above 15 feet mauka of this line."

3.6.2 Special Management Area

The proposed land use complies with provisions and guidelines contained in Chapter 205A Hawai`i Revised Statutes (HRS), entitled Coastal Zone Management. Single-family residences may be determined to be an exempt action under the County's Special Management Area (SMA) guidelines. The proposed use would be consistent with Chapter 205A because it would not affect public access to recreational areas, historic resources, scenic and open space resources, coastal ecosystems, economic uses, or coastal hazards.

The proposed improvements are not likely to result in any substantial adverse impact on the surrounding environment. The house site is set back from the shoreline and will not restrict any shorelines uses such as hiking, fishing, or water sports. Lateral pedestrian use of the shoreline area will not be impacted and there will be no effect on the public's access to or enjoyment of this shoreline area. View planes toward the project site will not be adversely impacted in any substantial way. It is not expected that the project will result in any impact on the biological or economic aspects of the coastal ecosystem. The project is not situated over any major natural drainage system or water feature that would flow into the nearby coastal system. The property contains common, introduced plants. No floodplains are present in the area. Flood Insurance Rate Maps (FIRM) delineates the areas of the property in which construction would occur as Zone "X" and "A". In terms of beach protection, construction is set back from the shoreline and would not affect any beaches nor adversely affect public use and recreation of the shoreline in this area. No impacts on marine resources are likely to occur. Historic sites and cultural uses have been properly assessed.

The Planning Director has been asked to make the determination that the proposed development of a single-family home is not considered a "development" under Special Management Area Rules and Regulations of the County of Hawai'i, Section 9-4 (10) (B).

3.6.3 Conservation District

The property is in the State land Use Conservation District, Resource subzone. Any proposed use must undergo an examination for its consistency with the goals and rules of this district and subzone. The Applicant has concurrently prepared a Conservation District Use Application (CDUS), to which this EA is an Appendix. The CDUA includes a detailed evaluation of the consistency of the project with the criteria of the Conservation District permit process. Briefly, The following individual consistency criteria should be noted:

1. The proposed land use is consistent with the purpose of the Conservation District;

The development of a single-family residence is in conformance with the purpose of the Conservation District. The proposed use of the subject property for a single-family residence is an identified use within the Conservation District, requiring a Board Permit for such use. A commitment by the Applicant to conscientious management of the project site will conserve, protect, and preserve the natural features of the subject property. The proposed use will not impact the lateral public access or the public's ability to utilize the coastal resources that front this property. Additionally due to the careful and limited nature of the proposed development, there will be no significant impacts to the natural or cultural resources of the area.

2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

The objective of the Resource subzone "...is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." This identified use, which

conforms to the design standards in HAR §13-4-41, will ensure the sustained use of the natural resources in the project area by mitigating potential impacts as outlined in this document. Single-family residences are an identified use in the Resource subzone under HAR §13-5-24, R-8.

3. *The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled “Coastal Zone Management, “where applicable;*

The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawa`i Revised Statutes (HRS), as discussed above in Section 3.6.2.

4. *The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region;*

Because of the relatively minor nature of the project and the lack of native terrestrial ecosystems and threatened or endangered plant species, construction and use of the property for a single-family residence is not likely to cause adverse biological impacts. The Applicant is planning to maintain the existing, natural landscape of the property, which will minimize the visual impact of the structure as seen from adjacent public areas. Additionally, the construction of the proposed residence will allow for the management and maintenance of the property. No effect on any coastal ecosystem will occur because no activities are contemplated for the seaward portion of the property. The proposed action will have no impact on the public’s current access to or use of the shoreline area fronting the property.

5. *The proposed land use, including building, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel;*

The proposed use is consistent with single-family residence use on Conservation land. The home will have a low-key design of an elevated one story with 2,448 square feet. This identified use, which confirms to the design standards in HRS §13-5-41, will ensure the sustained use of the natural resources in the project area by mitigating potential impacts. The use will not adversely affect the surrounding properties or affect how these properties are utilized.

6. *The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;*

The proposed use of the subject property for a single-family residence and commitment to management of the site will help conserve, protect and preserve the natural features of the area.

7. *Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District;*

The proposed action does not involve or depend upon subdivision and will not lead to any increase in density of use beyond the requested single-family residence.

8. *The proposed land use will not be materially detrimental to the public health, safety and welfare;*

The general area is already in use for recreation and ‘beach-house’ residences of the landowners of the area and the proposed single-family residence will not be detrimental to the public health, safety, or welfare.

PART 4 (RESERVED): DETERMINATION, FINDINGS AND REASONS

4.1 Determination

(RESERVED)

4.2 Findings and Supporting Reasons

(RESERVED)



View "A"



View "B"



View "C"



View "D"



View "E"



View "F"



View "G"



View "H"



View "I"



View "J"



View "K"

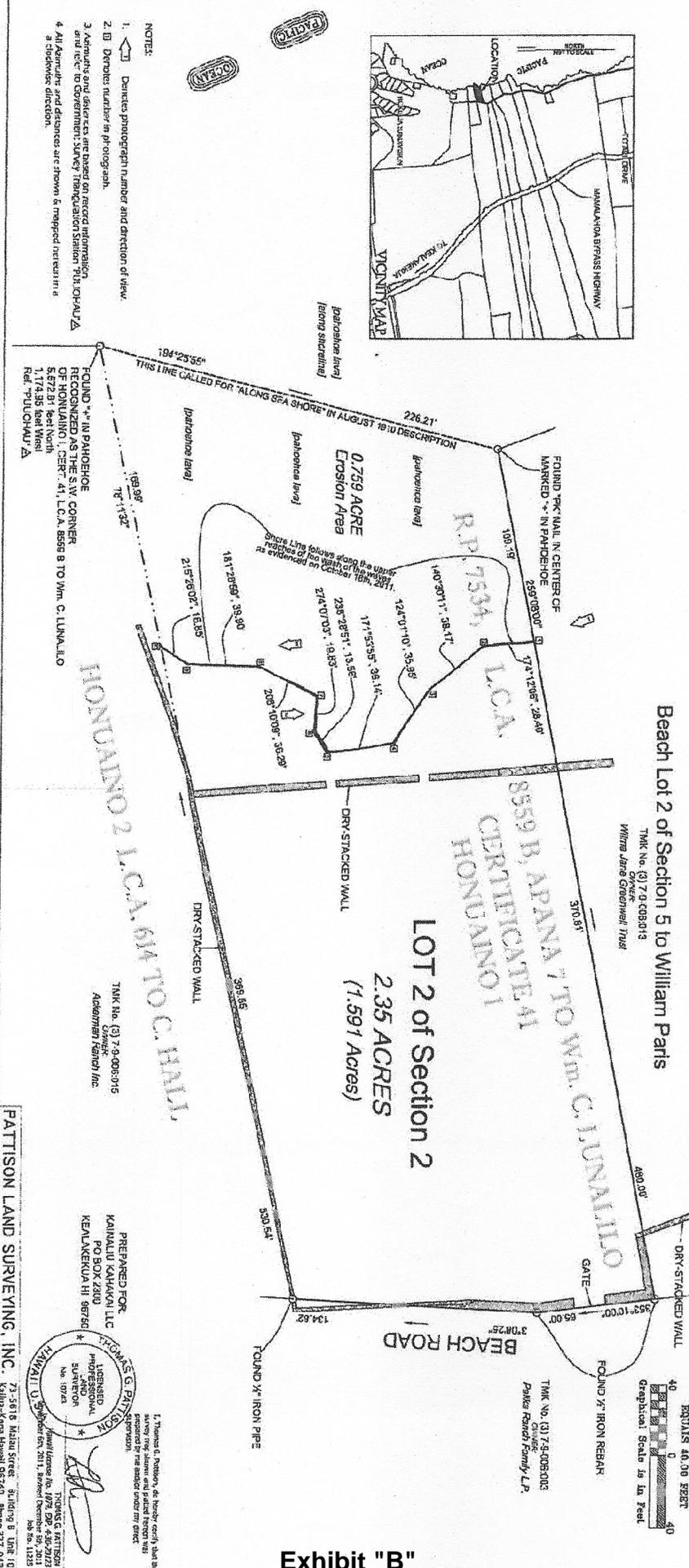
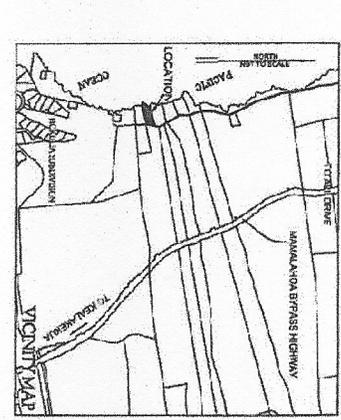


View "L"

SHORELINE CERTIFICATION
 of BEACH LOT 2 OF SECTION 2
 KAINALIU BEACH
 Being a Portion of Royal Patent 7534, L.C. Aw. 8559-B, Apana 7
 to Wm. C. Lunaililo
 At Honuaiohi I., District of North Kona,
 County, Island & State of Hawaii
 TMK No. (3) 7-9-006:014

The shoreline as delineated in red is
 hereby certified as the shoreline as of
 FEB - 6 2011
 [Signature]
 Chairperson, Board of Land and Natural Resources
 [Signature]
 Mr. [Signature]

Beach Lot 2 of Section 5 to William Paris
 TMK No. (3) 7-9-008:013
 With a Lane Crossed There



- NOTES:
1. [Symbol] Denotes photograph number and direction of view.
 2. [Symbol] Denotes number in photograph.
 3. Adjacent and adjacent are based on recent information and refer to Government Survey, Hawaiian System, 'ULUOHIAU' & adjacent direction.
 4. All bearings and distances are shown & mapped (refer to a & adjacent direction).

HONUAIOHI 2 L.C.A. 614 TO C. HALL

TMK No. (3) 7-9-006:015
 [Signature]
 Adamantani Ranch Inc.

PREPARED FOR:
 KAIHALIU KAHAKAI LLC
 PO BOX 280
 KELAUKERUA HI 96760

APPROVED AND
 SIGNED
 No. 10745
 [Signature]
 PATRICK G. PATTON
 PROFESSIONAL
 SURVEYOR
 License No. 10745
 Issued December 20, 2011
 Exp. 12/20
 13 * 22

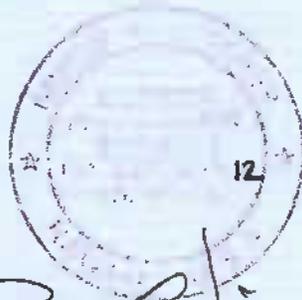
PATTISON LAND SURVEYING, INC.
 73-5615 Mauna Street, Building B Unit 105
 Kailua-Kona Hawaii 96740 Phone 277-9199

Exhibit "B"

**ENGINEER'S REPORT
BASE FLOOD ELEVATIONS AND
SPECIAL HAZARD AREA DETERMINATION FOR
KAINALIU DRAINAGEWAY AT
TMK (3)7-9-006:014**

SEPTEMBER, 2011

**PREPARED FOR
KEOKI SCHATTAUER**



[Handwritten Signature]
PREPARED BY

**WITCHER ENGINEERING LLP
P.O. BOX 348
HOLUALOA, HI 96740
(808)334-0322**

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**ENGINEER'S REPORT
BASE FLOOD ELEVATIONS AND
SPECIAL HAZARD AREA DETERMINATION FOR
KAINALIU DRAINAGEWAY AT TMK (3)7-9-006:014**

I. PROJECT DESCRIPTION AND PURPOSE

The purpose of this report is to determine the base flood elevations for Lot 2 of Section 2 of Kainaliu Beach Subdivision, TMK (3)7-9-006:014. The owner wishes to construct a beach home on the property. The County code requires that base flood elevations (BFE) be established for "A" zones so that the finished floor of a structure will be above the 100-year water surface.

The project will consist of a house, elevated to above the determined BFEs, and will, in all likelihood, be on piers.

II. EXISTING CONDITIONS

The site currently has no structures other than a low, dry stack wall running across the property approximately one-third of the way between front and back. See Exhibit 1. The property slopes mostly toward the ocean with a small portion sloping toward the old beach road. The highest area of the lot is in the northeasterly corner. The total property area is 2.35 acres.

III. EXISTING HYDROLOGIC CONDITIONS

Exhibit 2 is a portion of FIRM Panel 937C with the property boundary superimposed thereon. It should be noted that the property is within four different flood zones. Starting at the ocean and proceeding mauka, they are "VE", "AE", "X" and "A". Exhibits 3A and 3B are included showing the various flood zones superimposed over the TMK map for the area, TMK (3)7-9-006. The riverine portions of the flood zones as shown on the above referenced maps was determined in the North Kona Flood Plain Management Study. Exhibit 4 is a copy of the map taken from the study. The subject property is superimposed on this map also.

IV. METHODOLOGY

The original work to determine the special flood hazard areas (SFHA) was performed on maps with five-foot contours at 1" = 200'. Our work was performed on maps with two-foot contours and a scale of 1" = 40'. This produces much more accurate results.

For the quantity of flow, Q, 610 cfs was used which was determined in the North Kona Flood Plain Management Study. HEC-RAS, the hydrologic computer developed by the Corps of

Engineers, was used to model the flow and to determine the actual location of the flood hazard area.

What was found is that the flow is generally where it is shown on the FIRM with the exception that most of the flow travels around the easterly and northerly sides of the property with only a small portion flowing to the ocean in the location shown on the FIRM. Onsite viewing seems to bear this out.

V. FLOW DISTRIBUTION

In order to properly distribute the flow, two computer models were created. One of these models the flow around the northerly side of the property and the other flows oceanward, south of the property.

By trial-and-error a common location was located in each model where the water surfaces would be equal. By adjusting the "Qs" so that the water surface elevations at the common location matched, it was determined that the flow around the northerly side of the property was 528 cfs while the southerly flow was 82 cfs. These flows were used to determine the BFEs in the two models. The equal water surface elevation point occurs at river Station 4 in Exhibit 5A and at river Station 10 in Exhibit 5B and is 16.41 ft.

VI. EFFECT OF SPECIAL FLOOD HAZARD AREA ANALYSIS

From the topographic map and the present analysis, the high area of the lot acts as a levee so that most of the flow moves around the mauka side and the north side of the property. Exhibit 6 is a topographic map showing the various BFEs and the outline of the SFHA as we have determined it to be. From this work it can be determined that the BFE for the property is 16.35. This is determined by the location of River Station 8, Exhibit 5B. Please note that there is sufficient area on the property upon which to build that is not affected by our determination of the SFHA.

TOPOGRAPHIC MAP

SHOWING EXISTING CONDITIONS UPON

BEACH LOT 2 OF SECTION 2

KAINALIU BEACH

Being a Portion of Royal Patent 7534, L.C. Aw. 8559-B, Apana 7

to Wm. C. Lunalilo

At Honouaino 1, District of North Kona,

County, Island & State of Hawaii

TMK No. (3) 7-9-006:014

LOT 2 of Section 5

TMK(3)7-9-006:013

LOT 2 of Section 2

2.35 ACRES

HONUAINO 2 L.C.A. 614 TO C. HALL

TMK(3)7-9-006:015

DRY-STACKED WALL

GATE

DRY-STACKED WALL

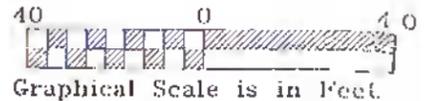
SHORELINE SETBACK APPROXIMATE TO BE DETERMINED

SHORELINE APPROXIMATE TO BE DETERMINED

DRY-STACKED WALL

TRUE NORTH

SCALE ONE INCH
EQUALS 40.00 FEET



Setback Lines are shown from current data, but should be verified by builder.
The description on this plot was provided to us by the client, and does not guarantee ownership, and should be compared to your Deed, Abstract or Certificate of Title.
All building restrictions, building lines and easements may or may not be shown, check your Deed, Abstract, Title Report, and local ordinances, no responsibility is assumed by surveyor.
Check all points before building by sight, and report any discrepancy at once.
Dimensions are shown in feet and decimal parts thereof, no dimension is to be assumed by scaling.

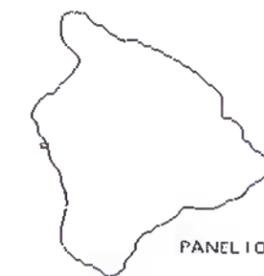
PATTISON LAND SURVEYING, INC. 73 5618 Maiau Street • Building B • Unit 1014
Kailua • Phone: 808-261-1111 • Fax: 808-261-1112

EXHIBIT 1

FIRM
FLOOD INSURANCE RATE MAP

HAWAII COUNTY,
HAWAII

PANEL 939 OF 1900
(SEE MAP INDEX FOR PANELS NOT PRINTED)



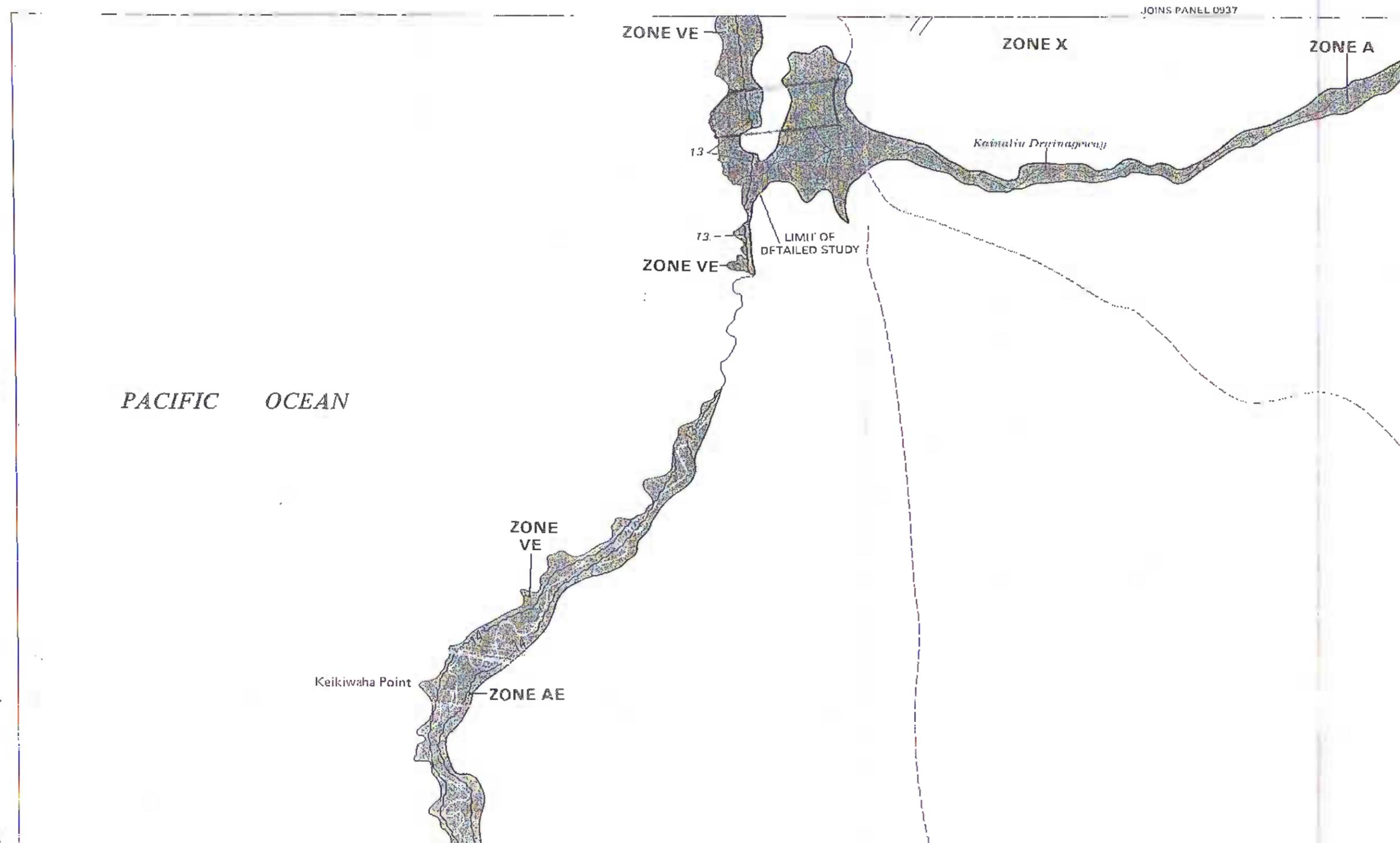
COMMUNITY-PANEL NUMBER
155166 0939 C

MAP REVISED:
SEPTEMBER 16, 1988

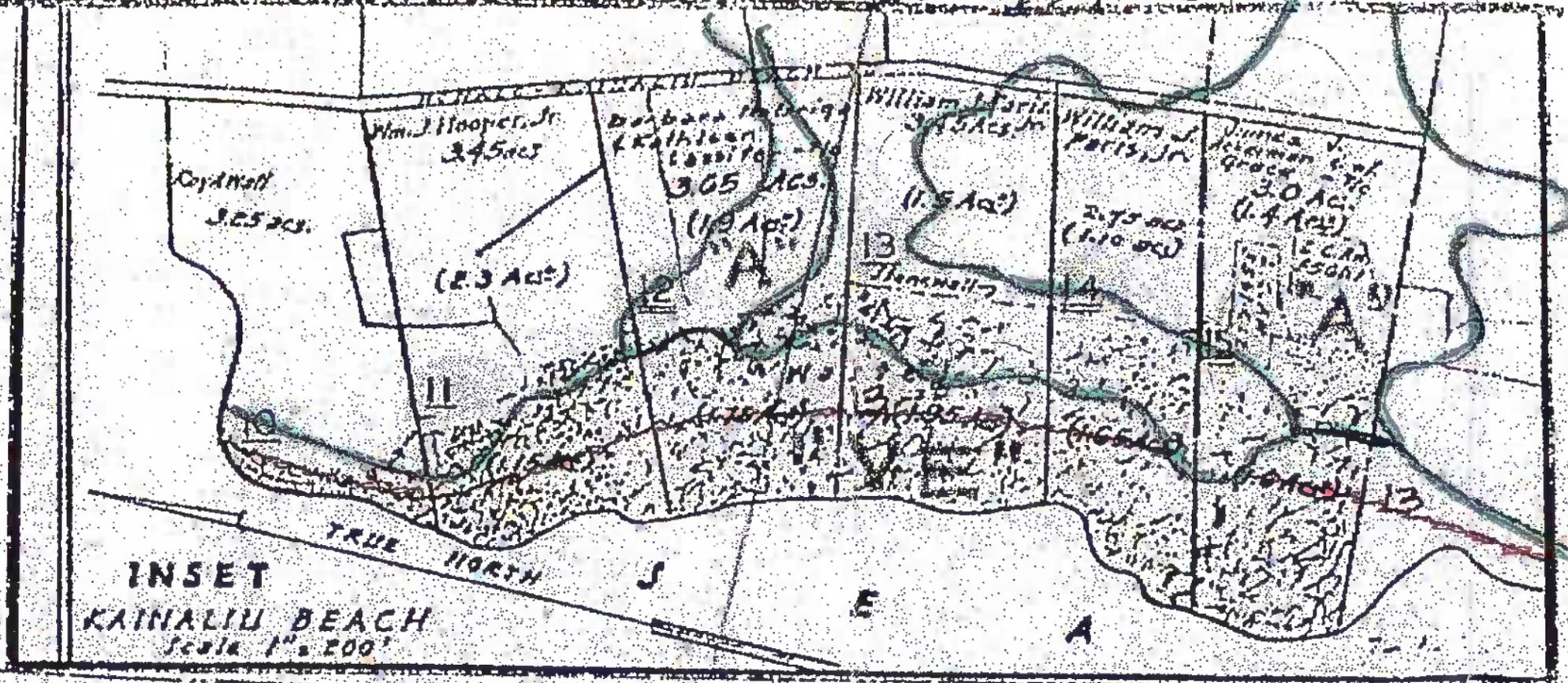


Federal Emergency Management Agency

EXHIBIT 2



937-C - 939-C



INSET
KAINALIU BEACH
Scale 1" = 200'

PLAT 05

Wall Ranch, Inc.
910.747 ACS

(199.207 ACS)

STUDY

PLAT 05

2ND

PLAT 08

1ST

2ND

EXHIBIT 3B

K

A

W

L.

C.

A.W.

K

A

W

G



EXHIBIT 4

<ul style="list-style-type: none"> 100 Year Flood Hazard Area 500 Year Flood Hazard Area Cross Section Location Stream Channel 	<ul style="list-style-type: none"> X BM-1 Elevation Reference Marks 	<ul style="list-style-type: none"> Limits of Flooding May Vary From Actual Ground Location 	<ul style="list-style-type: none"> Contour Data Derived From R.M. Towill Corp., Honolulu Hawaii Contour Interval Change From 5' to 10' Intervals After 250' Elevation 	<ul style="list-style-type: none"> U.S.G.S. Ortho Photography 1977
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J.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	FLOOD HAZARD AREA
NORTH KONA FLOOD PLAIN MANAGEMENT STUDY NORTH KONA DISTRICT, HAWAII	KAWANUI / LEHUULA / KAINALIU DRAINAGEWAYS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	L.G. Elev (ft)	F.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
1	12	PF 1	610.00	84.00	86.72	86.72	87.39	0.017468	6.99	110.55	88.92	0.86
1	11	PF 1	610.00	68.00	69.92	69.92	70.56	0.026312	6.91	88.23	59.86	1.00
1	10	PF 1	610.00	55.20	57.34	57.34	58.01	0.027763	6.61	92.26	69.69	1.01
1	9	PF 1	610.00	42.10	44.62	44.62	45.15	0.024264	6.17	116.22	117.86	0.95
1	8	PF 1	610.00	31.80	33.08	33.08	33.53	0.030171	5.36	115.02	142.98	0.91
1	7	PF 1	610.00	25.60	27.33	27.33	27.88	0.029506	5.93	102.89	96.20	1.01
1	6	PF 1	610.00	16.00	18.18	18.18	18.60	0.033179	5.20	117.31	145.82	1.02
1	5	PF 1	610.00	12.00	16.46	16.46	16.46	0.000051	0.62	1548.34	544.54	0.05
1	4	PF 1	610.00	13.20	16.42	16.42	16.45	0.000520	1.30	476.08	229.14	0.15
1	3	PF 1	82.00	15.00	16.17	16.14	16.36	0.035332	3.50	23.45	55.36	0.95
1	2	PF 1	82.00	10.50	10.87	10.87	11.01	0.044436	3.04	26.99	93.58	1.00
1	1	PF 1	82.00	3.80	4.27	4.19	4.33	0.018703	2.16	46.03	150.51	0.66

EXHIBIT 5A

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W S. Elev (ft)	Crit W.S. (ft)	E. G. Elev (ft)	L. G. Slope (ft/ft)	Vel/Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Frroude # Chl
1	17	PF 1	610.00	84.00	86.72	86.72	87.39	0.017468	6.99	110.55	89.97	0.86
1	16	PF 1	610.00	68.00	69.92	69.92	70.66	0.026312	6.91	88.23	59.86	1.00
1	15	PF 1	610.00	55.70	57.34	57.34	58.01	0.027763	6.61	92.26	69.64	1.01
1	14	PF 1	610.00	42.10	44.62	44.62	45.15	0.024264	6.17	116.27	117.86	0.95
1	13	PF 1	610.00	31.80	33.08	33.08	33.53	0.030171	5.35	115.02	142.98	0.99
1	12	PF 1	610.00	25.60	27.33	27.33	27.88	0.029506	5.93	102.88	96.20	1.01
1	11	PF 1	610.00	16.00	18.19	18.19	18.60	0.031791	5.11	119.28	147.24	1.00
1	10	PF 1	610.00	12.00	16.41	16.41	16.41	0.000044	0.52	1217.95	367.17	0.05
1	9	PF 1	528.00	12.00	16.40	16.40	16.41	0.000108	0.84	689.06	208.53	0.08
1	8	PF 1	528.00	12.00	16.35	16.35	16.38	0.000470	1.27	440.10	205.91	0.15
1	7	PF 1	528.00	13.70	16.08	16.08	16.18	0.004346	2.58	204.58	158.66	0.40
1	6	PF 1	528.00	13.90	15.92	15.92	16.01	0.003115	2.49	212.25	135.11	0.35
1	5	PF 1	528.00	14.00	15.67	15.67	15.77	0.002949	2.45	216.47	140.60	0.34
1	4	PF 1	528.00	14.00	15.56	15.56	15.63	0.002258	2.06	256.89	174.34	0.30
1	3	PF 1	528.00	14.00	15.43	15.43	15.47	0.001677	1.61	327.67	251.97	0.25
1	2	PF 1	528.00	14.00	14.68	14.68	14.99	0.036085	4.47	118.17	192.41	1.00
1	1	PF 1	528.00	6.00	6.93	6.93	7.19	0.018703	4.04	130.71	154.43	0.77

EXHIBIT 5B

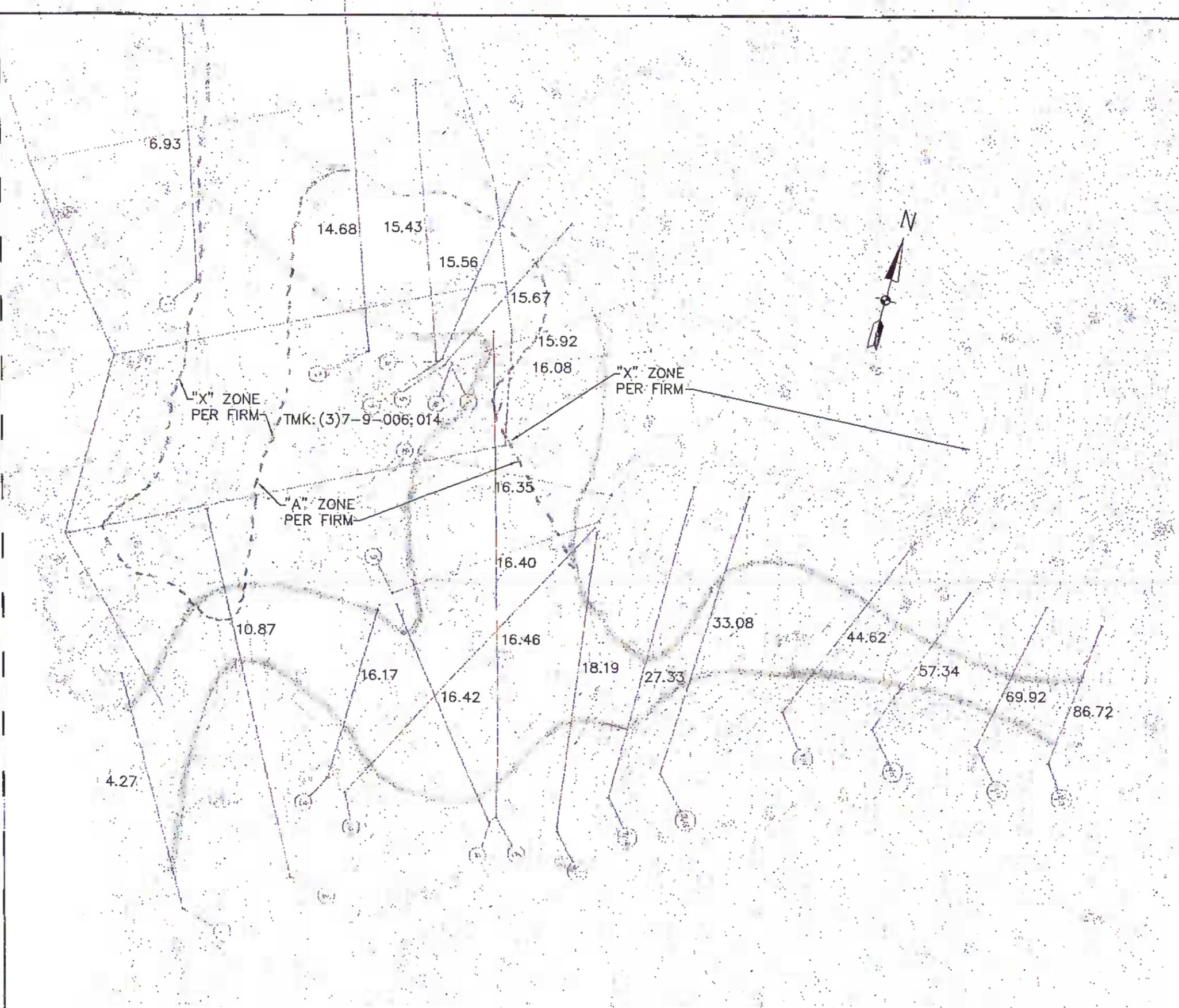


EXHIBIT 6

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE CHECKED BY ME OR UNDER MY SUPERVISION AS REQUIRED UNDER SECTION 10-115-2 OF CHAPTER 101.

SIGNATURE _____ DATE _____



WITCHER ENGINEERING LLP

P.O. Box 348
 Honolulu, Hawaii 98725
 (808) 334-0322

Consulting Civil Engineers
 Construction Managers

NUMBER	REVISIONS	
	DATE	APPROVED
▲	_____	_____
▲	_____	_____
▲	_____	_____
▲	_____	_____

SCHATTAUER
 FLOOD PLAIN ANALYSIS

Z:\Schattauer\Schattauer.DWG

SHEET
FP-1
 1 OF 1

DATE: JULY 30, 2011

TMK: (3) 7-9-006:014
 Job# 600-01-11



A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Island of Hawaii Area, Hawaii



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nracs>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

Custom Soil Resource Report

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

Custom Soil Resource Report

intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Island of Hawaii Area, Hawaii

122—Punaluu-Lava flows complex, 10 to 20 percent slopes

Map Unit Setting

Elevation: 0 to 1,000 feet

Mean annual precipitation: 20 to 50 inches

Mean annual air temperature: 70 to 75 degrees F

Frost-free period: 365 days

Map Unit Composition

Punaluu and similar soils: 60 percent

Lava flows, pahoehoe: 35 percent

Minor components: 5 percent

Description of Punaluu

Setting

Landform: Pahoehoe lava flows

Landform position (two-dimensional): Summit, backslope, shoulder, footslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Linear

Across-slope shape: Linear, convex

Parent material: Organic material over pahoehoe lava

Properties and qualities

Slope: 10 to 20 percent

Depth to restrictive feature: 2 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low
(0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)

Available water capacity: Very low (about 1.3 inches)

Interpretive groups

Farmland classification: Not prime farmland

Land capability classification (irrigated): 7s

Land capability (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: Diospyros sandwicensis-Psydrax odorata/Osteomeles
anthyllidifolia-Dodonaea viscosa/Peperomia (F161BY501HI)

Typical profile

0 to 6 inches: Highly decomposed plant material

6 to 16 inches: Bedrock

Description of Lava Flows, Pahoehoe

Setting

Landform: Pahoehoe lava flows

Down-slope shape: Linear

Across-slope shape: Linear, convex

Custom Soil Resource Report

Parent material: Pahoehoe lava

Properties and qualities

Slope: 10 to 20 percent

Depth to restrictive feature: 0 to 2 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low
(0.00 to 0.06 in/hr)

Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Farmland classification: Not prime farmland

Land capability classification (irrigated): 8s

Land capability (nonirrigated): 8s

Typical profile

0 to 10 inches: Bedrock

Minor Components

Waiaha

Percent of map unit: 3 percent

Landform: Ash fields on aa lava flows

Landform position (two-dimensional): Summit, backslope, shoulder, footslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Linear

Across-slope shape: Linear, convex

Kainaliu

Percent of map unit: 2 percent

Landform: Ash fields on aa lava flows

Landform position (two-dimensional): Summit, backslope, shoulder, footslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Linear

Across-slope shape: Linear, convex

242—Waiaha medial silt loam, 2 to 10 percent slopes

Map Unit Setting

Elevation: 0 to 1,000 feet

Mean annual precipitation: 20 to 50 inches

Mean annual air temperature: 70 to 75 degrees F

Frost-free period: 365 days

Map Unit Composition

Waiaha, medial silt loam, and similar soils: 90 percent

Minor components: 10 percent

Description of Waiaha, Medial Silt Loam

Setting

Landform: Ash fields on pahoehoe lava flows
Landform position (two-dimensional): Summit, backslope, shoulder, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Basic volcanic ash over pahoehoe lava

Properties and qualities

Slope: 2 to 10 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low
(0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 1.6 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): 7s
Land capability (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Diospyros sandwicensis-Psydrax odorata/Osteomeles
anthyllidifolia-Dodonaea viscosa/Peperomia (F161BY501HI)

Typical profile

0 to 8 inches: Medial silt loam
8 to 15 inches: Extremely cobbly medial fine sandy loam
15 to 25 inches: Bedrock

Minor Components

Lava flows, pahoehoe

Percent of map unit: 5 percent
Landform: Pahoehoe lava flows
Down-slope shape: Linear
Across-slope shape: Linear, convex

Punaluu

Percent of map unit: 5 percent
Landform: Pahoehoe lava flows
Landform position (two-dimensional): Summit, backslope, shoulder, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear, convex

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Component Legend (Kainaliu Kahakai LLC)

This report presents general information about the map units and map unit components in the selected area. It shows map unit symbols and names and the components in each map unit. It also shows the percent of the components in the map units, the kind of component, and the slope range of each component.

Report—Component Legend (Kainaliu Kahakai LLC)

Custom Soil Resource Report

Component Legend– Island of Hawaii Area, Hawaii						
Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. slope		
				Low	RV	High
122—Punaluu-Lava flows complex, 10 to 20 percent slopes						
	60	Punaluu	Series	10	15	20
	35	Lava flows, pahoehoe	Miscellaneous area	10	15	20
	3	Waiaha	Series	10	15	20
	2	Kainaliu	Series	10	15	20
242—Waiaha medial silt loam, 2 to 10 percent slopes						
	90	Waiaha, medial silt loam	Series	2	6	10
	5	Lava flows, pahoehoe	Miscellaneous area	2	6	10
	5	Punaluu	Series	2	6	10

Building Site Development

This folder contains a collection of tabular reports that present soil interpretations related to building site development. The reports (tables) include all selected map units and components for each map unit, limiting features and interpretive ratings. Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Dwellings and Small Commercial Buildings (Kainaliu Kahakai LLC)

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome

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without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings (Kainaliu Kahakai LLC)

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings– Island of Hawaii Area, Hawaii							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
122—Punaluu-Lava flows complex, 10 to 20 percent slopes							
Punaluu	60			Very limited			
				Flooding	1.00		
				Organic matter content	1.00		
				Depth to hard bedrock	1.00		
				Slope	1.00		
Lava flows, pahoehoe	35			Not rated			
242—Waiaha medial silt loam, 2 to 10 percent slopes							
Waiaha, medial silt loam	90			Very limited			
				Flooding	1.00		
				Depth to hard bedrock	1.00		
				Large stones	0.06		

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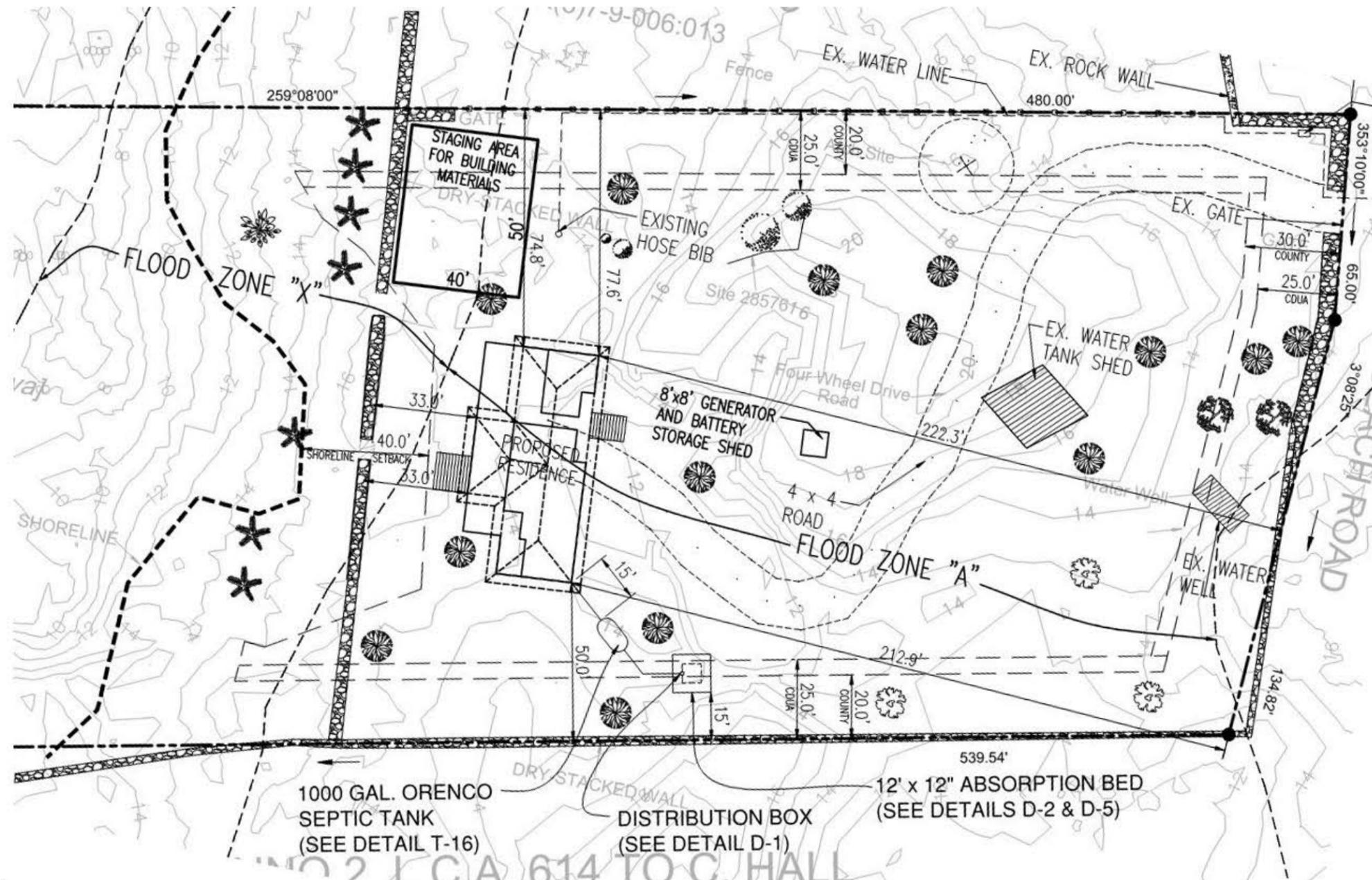
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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. <http://soils.usda.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. <http://soils.usda.gov/>

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.



GENERAL NOTES

1. SEPTIC TANK AND LEACH FIELD ARE TO BE PLACED NOT LESS THAN 5 FEET FROM ANY STRUCTURE OR PROPERTY LINE NOR LESS THAN 10 FEET FROM ANY TREE WHICH IS APPROXIMATELY 4 INCHES MINIMUM DIAMETER. SEPTIC SYSTEM SHALL ALSO BE LOCATED NOT LESS THAN 1000 FEET FROM ANY POTABLE WATER SOURCE (WELL).
2. THE DEPTHS TO THE PIPE INVERTS OF THE SEPTIC TANKS, DISTRIBUTION BOX AND ABSORPTION SYSTEM ARE CONTROLLED BY TOPOGRAPHIC FEATURES AND THE INVERTS OF THE BUILDING SEWER WHICH MAY IMPACT THE DEPTHS SHOWN ON THE DRAWINGS.
3. ENGINEER MUST APPROVE ALL CHANGES PRIOR TO CONSTRUCTION.
4. PROVIDE 1/4" PER FOOT MINIMUM SLOPE ON ALL SEWER LINES AND C.O.T.G. AT ALL BENDS.
5. WORK SHALL BE DONE BY A LICENSED CONTRACTOR.

NOTE:

1. CONTRACTOR TO CONTACT ENGINEER FOR PRE-CONSTRUCTION MEETING PRIOR TO GROUND DISTURBANCE
2. ENGINEER RESERVES RIGHT TO REJECT ANY WORK ON THE IWS SYSTEM INSTALLATION PERFORMED PRIOR TO PRE-CONSTRUCTION MEETING



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION, AND CONSTRUCTION WILL BE UNDER MY OBSERVATION.

SIGNATURE _____ DATE _____

SCALE 1" = 40'

WARNING: THE ORIGINAL DOCUMENT CONTAINS A PURPLE COLORED PROFESSIONAL SEAL.

 **WITCHER ENGINEERING LLP**
 P.O. Box 348
 Honolulu, HI 96725
 (808) 334-0322
 Consulting Civil Engineers
 Construction Managers

SITE PLAN
SCHATTAUER RESIDENCE
 TMK: (3)6-8-040-024

M - 3

LEGAL DESCRIPTION OF

"BEACH LOT 2 OF DIVISION 2 TO JOHN D. PARIS" (KAINALIU BEACH)

Being a Portion of Royal Patent 7534, Land Commission Award No. 8559 B, Apana 7 to Wm. C. Lunalilo, Certificate 41

**At Honuaino 1, North Kona, Island of Hawaii, Hawaii
Being TMK: (3rd) 7-9-006:014**

Being the same parcel of land as described in August, 1910 by Thomas Cook

Beginning at a found \perp in the pahoehoe at the Sea Shore, being the Southwest corner of this herein described parcel of land, being the recognized Southwest corner of Honuaino 1, Certificate 41, Royal Patent 7534, L.C. Aw. 8559 B, Apana 7 to Wm. C. Lunalillo; said beginning point coordinates of which are referred to Government Survey Triangulation Station "PUUOHAU" being 5,572.81 feet North and 1,174.95 feet West and running by azimuths measured clockwise from true South:

Thence along the remainder of Royal Patent 7534, Land Commission Award 8559 B, Apana 7 to Wm. C. Lunalilo with the following Four (4) courses:

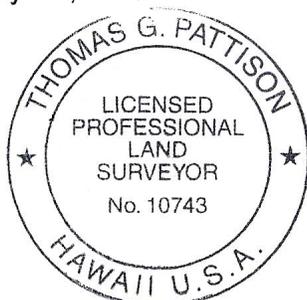
- 1. 194°25'55" 226.21** feet along Sea Shore (as described in 1910 description), to a set "PK" nail in a chiseled \perp ;
- 2. 259°08'00" 480.00** feet along Beach Lot 2 of Section 5 (TMK: (3rd) 7-9-006:013) to a set ½" rebar with a red plastic cap marked No. 10743 at the makai side of Old Beach Road;
- 3. 353°10'00" 65.00** feet along Old Beach Road (as described in 1910 description), to a set ½" rebar with a red plastic cap marked No. 10743;
- 4. 3°08'25" 134.82** feet along same to a found ½" iron pipe in a dry-stacked rock wall recognized as the original Southeast corner of this herein-described parcel;
- 5. 78°11'32" 539.54** feet along Honuaino 2, L.C. Aw. 614 to C. Hall (TMK: (3rd) 7-9-006:015), partially along a dry-stacked rock wall to the point of beginning and containing **2.35 acres**, more or less.

**73-5618 Maiiau Street
Building B Unit 104
Kailua Kona Hawaii 96740**

PATTISON LAND SURVEYING INC.

February 5th, 2010

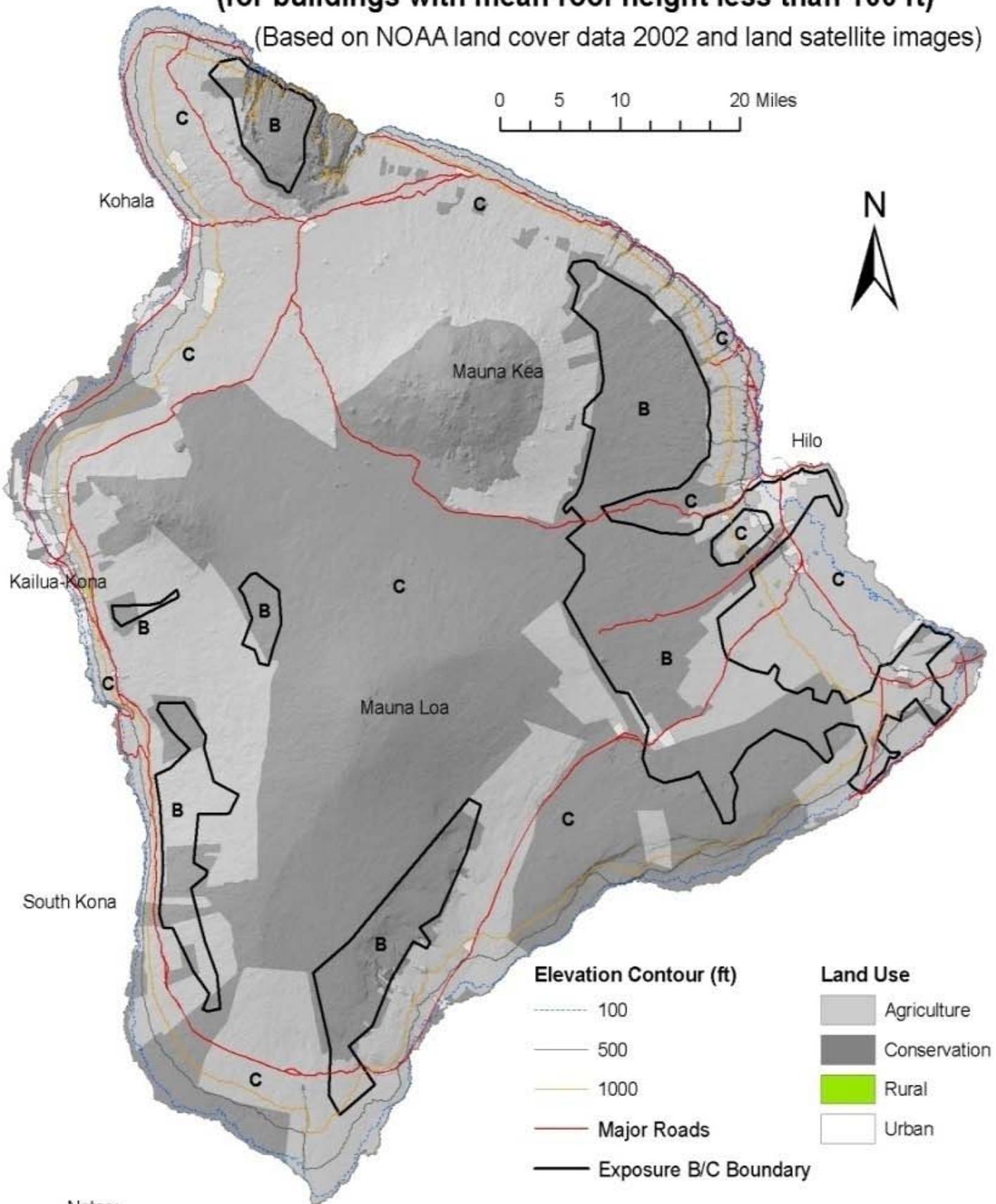
Description prepared by:



Thomas G. Pattison,
Licensed Professional Land Surveyor
Certificate No. 10743 Expires 4/30/2010

Exposure Category Zones for the Island of Hawaii (for buildings with mean roof height less than 100 ft)

(Based on NOAA land cover data 2002 and land satellite images)

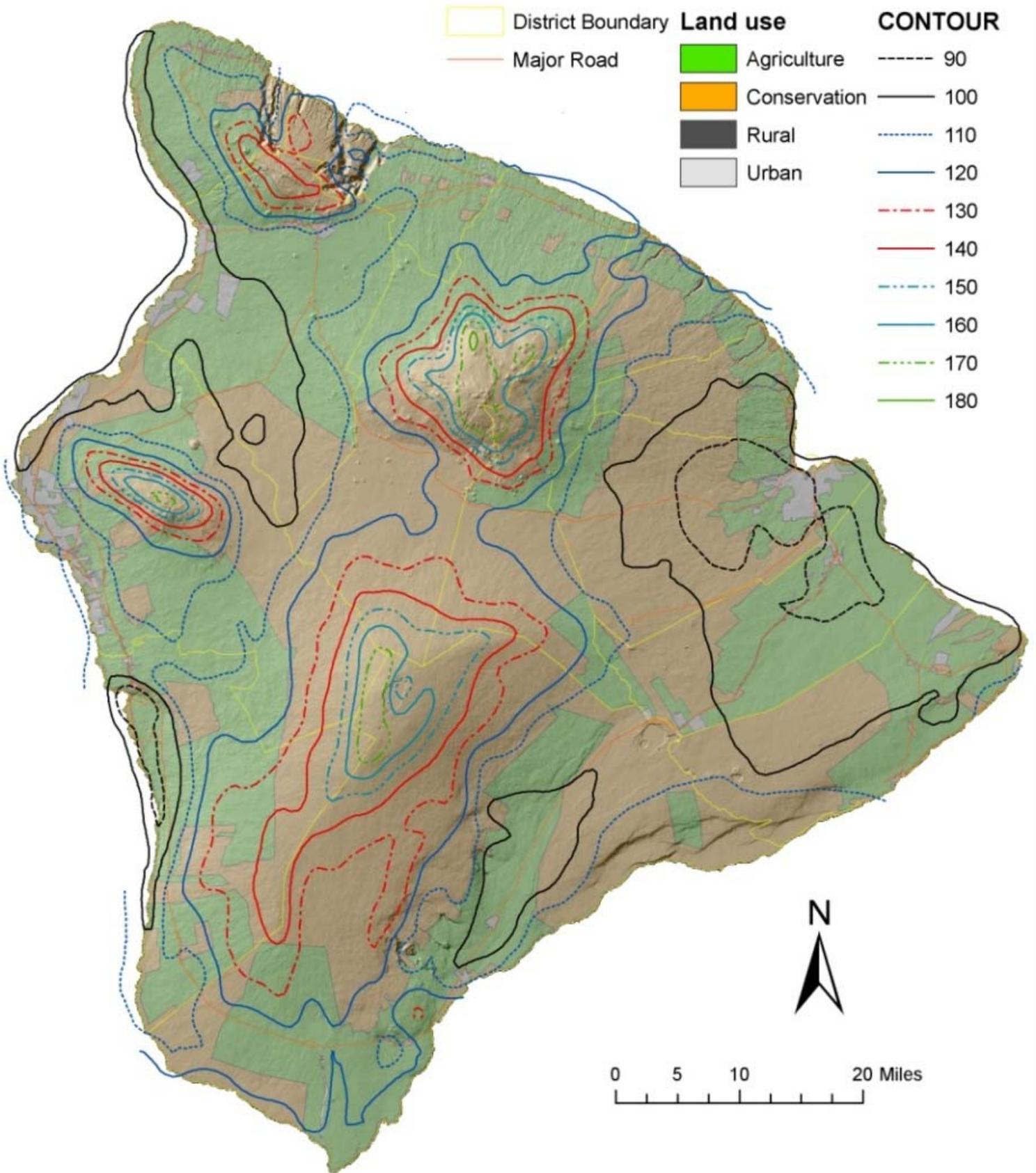


Notes:

1. Intermediate exposures between categories B and C are permitted when substantiated per ASCE 7.
2. For buildings whose mean roof height is less than or equal to 30 ft, exposure category shall be permitted to be evaluated per Section 1609.4.
3. For buildings whose height is equal to or greater than 100 ft, exposure category shall be determined per Section 1609.4.1.

Effective Wind Speed for the Island of Hawaii

(For Components and Cladding with Mean Roof Height not greater than 100ft)





WITCHER ENGINEERING LLP

Principal
Bruce E. Witcher, P.E.

Consulting Civil Engineers
Construction Managers

May 1, 2013

Mr. Samuel J. Lemmo, Administrator
State of Hawaii, Department of Land & Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, HI 96809

**SUBJECT: Schattauer Residence, Kailua-Kona, HI
TMK (3) 7-9-006:014
(CDUA) HA-3661**

Dear Mr. Lemmo:

This letter is to certify that the proposed residence as shown on the attached drawing lies entirely within the "A" Zone as depicted on the current FIRM 939-C. The house finished floor will be above the base flood elevation (BFE) in accordance with established FEMA criteria and Chapter 27 of the Hawaii County Code. The BFE was established by this office in accordance with Chapter 27 criteria.

Please feel free to contact us if you have any questions.

Sincerely,
WITCHER ENGINEERING LLP


Bruce E. Witcher, P.E.
Partner



cc: Mr. Keoki Schattauer
Mr. Ali Ghalamfarsa

TOPOGRAPHIC MAP

SHOWING EXISTING CONDITIONS UPON

BEACH LOT 2 OF SECTION 2

KAINALIU BEACH

Being a Portion of Royal Patent 7534, L.C. Aw. 8559-B, Apana 7.

to Wm. C. Lunalilo

At Honuaino 1, District of North Kona,

County, Island & State of Hawaii

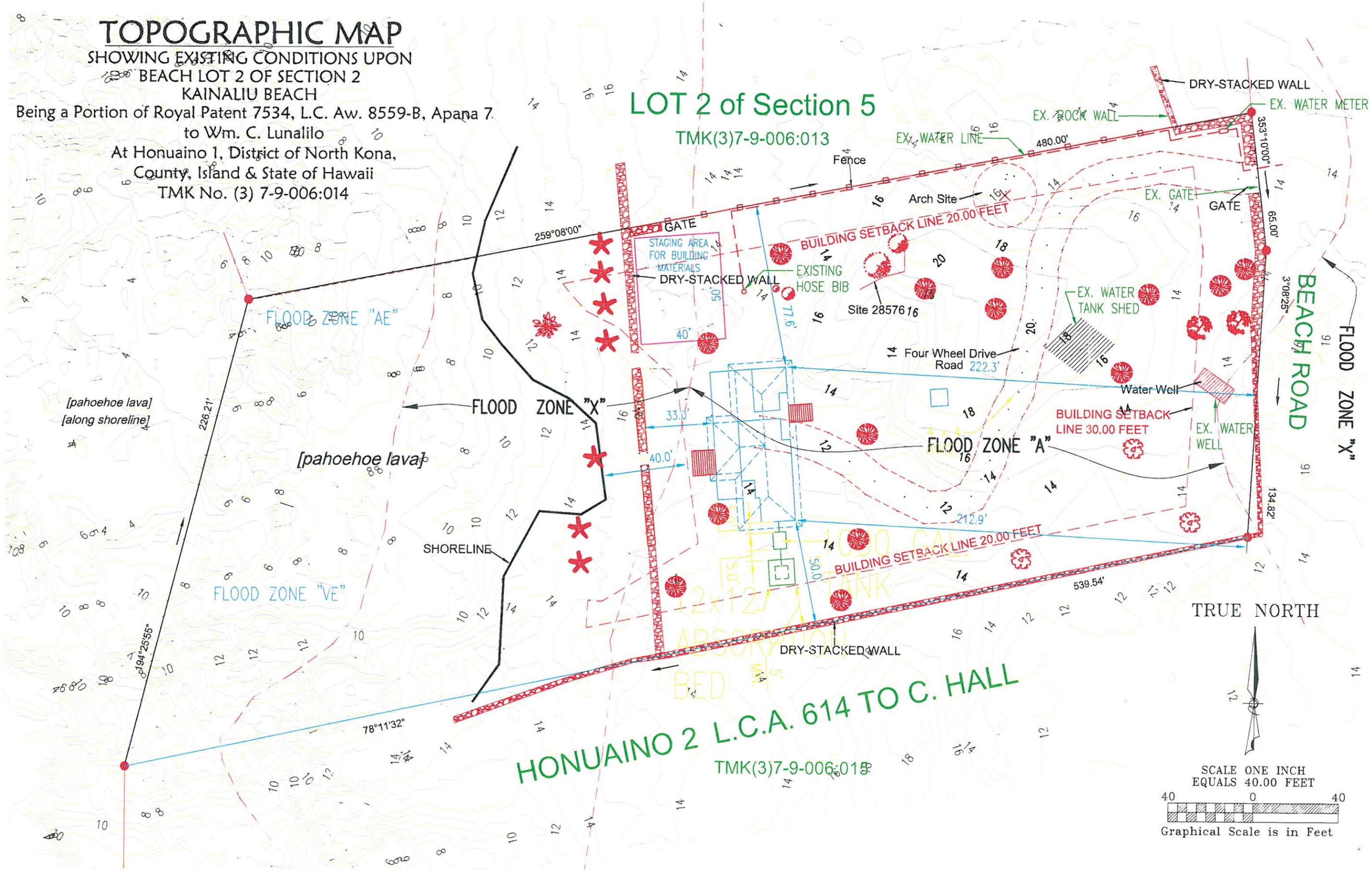
TMK No. (3) 7-9-006:014

LOT 2 of Section 5

TMK(3)7-9-006:013

HONUAINO 2 L.C.A. 614 TO C. HALL

TMK(3)7-9-006:013



An Archaeological Inventory Survey of TMK:3-7-9-06:014

Honua‘ino 1st Ahupua‘a
North Kona District
Island of Hawai‘i



Final Version

PREPARED BY:

Robert B. Rechtman, Ph.D.

PREPARED FOR:

Margaret Schattauer
P.O. Box 1189
Captain Cook, HI 96704

November 2010
(revised September 2011)

RECHTMAN CONSULTING, LLC

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ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

An Archaeological Inventory Survey
of TMK:3-7-9-06:014

Honua'ino 1st Ahupua'a
North Kona District
Island of Hawai'i

EXECUTIVE SUMMARY

At the request of Margaret Schattauer, Rechman Consulting, LLC conducted an archaeological inventory survey of a 2.75 acre parcel (TMK: 3-7-9-06:014) in Honua‘ino 1st Ahupua‘a, North Kona District, Island of Hawai‘i. This report contains background information outlining the project area’s physical and cultural contexts, a presentation of previous archaeological work in the vicinity of the parcel, and current survey expectations based on that previous work. Also presented is an explanation of the project’s methods, a detailed description of the archaeological sites encountered, interpretation and evaluation of those resources, and treatment recommendations for the documented sites.

As a result of the current inventory survey ten archaeological sites were identified (Table 1). A portion of one of these sites had been previously described by Mills and Irani (2000) as SIHP Site 22397. This site is a mid-twentieth century well and associated water storage and delivery system. The other sites recorded during the current study include two historic walls (SIHP Sites 28574 and 28577); a late Precontact/early Historic house platform (SIHP Site 28576); and six sites where the bedrock has been modified creating either *poho* (in one case, SHIP Site 28582), *papamū* (in three cases, SIHP Sites 28575, 28579, and 28581), *papamū* and basins (in one case, SIHP Site 28578), and *papamū* and a petroglyph (in one case, SIHP Site 28580). No subsurface testing was conducted.

All of the sites documented during the current study retain sufficient integrity and are assessed as significant under Criterion D for the information they have yielded and in one case (SIHP Site 28576) for potential additional information that could be collected relative to changing land use patterns from late Precontact times to the middle twentieth century. SIHP Sites 28575, 28576, 28578, 28579, 28580, 28581 are also considered significant under Criterion E due to the clustered presence of *papamū* and a petroglyph at the sites and the cultural significance that Hawaiians generally assign to such features. No further work is recommended for four of these sites (SIHP Sites 22397, 28574, 28577, and 28582) as they have been successfully documented as a result of the current study. Preservation is the recommended treatment for the other six sites (SIHP Sites 28575, 28576, 28578, 28579, 28580, and 28581), all of these are situated such that they can be avoided during any proposed development of the property. A preservation plan for these sites should be prepared and submitted to DLNR-SHPD for review and approval.

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INTRODUCTION

At the request of Margaret Schattauer, Rechtman Consulting, LLC conducted an archaeological inventory survey of a 2.75 acre parcel (TMK: 3-7-9-06:014) in Honua'ino 1st Ahupua'a, North Kona District, Island of Hawai'i (Figure 1). The landowner plans on building a single-family residence in the central portion of the *mauka* half the parcel. The current project was undertaken in compliance with both the historic preservation review process requirements (HAR 13§13-248-5) of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) and the County of Hawai'i Planning Department.

This report contains background information outlining the project area's physical and cultural contexts, a presentation of previous archaeological work in the vicinity of the study area, and current survey expectations based on that previous work. Also presented is an explanation of the project's methods, a detailed description of the archaeological sites encountered, interpretation and evaluation of those resources, and treatment recommendations for all the documented sites.

Project Area Description

Although the current study parcel is 2.75 acres (Figure 2), more than half of the area (1.65 acres) is considered shoreline and tidal consisting of a shallow beach sand deposit and an exposed *pāhoehoe* shelf (Figure 3). The remaining 1.1 acres of land exhibits shallow soil deposits over *pāhoehoe* bedrock, which is exposed on the surface throughout much of the parcel. The study parcel is bounded on its *mauka* side by the old coastal Government Road corridor, on the *makai* side by the ocean, and to the north and south by already developed single-family residential parcels.

The current study area is situated at elevations ranging from sea level to 20 feet above sea level. Throughout much of the project area the terrain is undulating *pāhoehoe* (Figure 4). The soil within the parcel is described as Waiaha extremely stony silt loam (WHC) on 6-12 percent slopes and Pahoehoe lava flow (rLW) (Sato et al. 1973). Project area flora consist of an over story of *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), and *opiuma* (*Pithecellobium dulce*) with a sparse under story of various non-native grasses, vines, and weeds (Figure 5), and a few coconut palms located at the sand/coastal *pāhoehoe* interface (Figure 6).

TOPO! map printed on 11/22/10 from "Untitled.tpo"
155°57.000' W WGS84 155°56.000' W

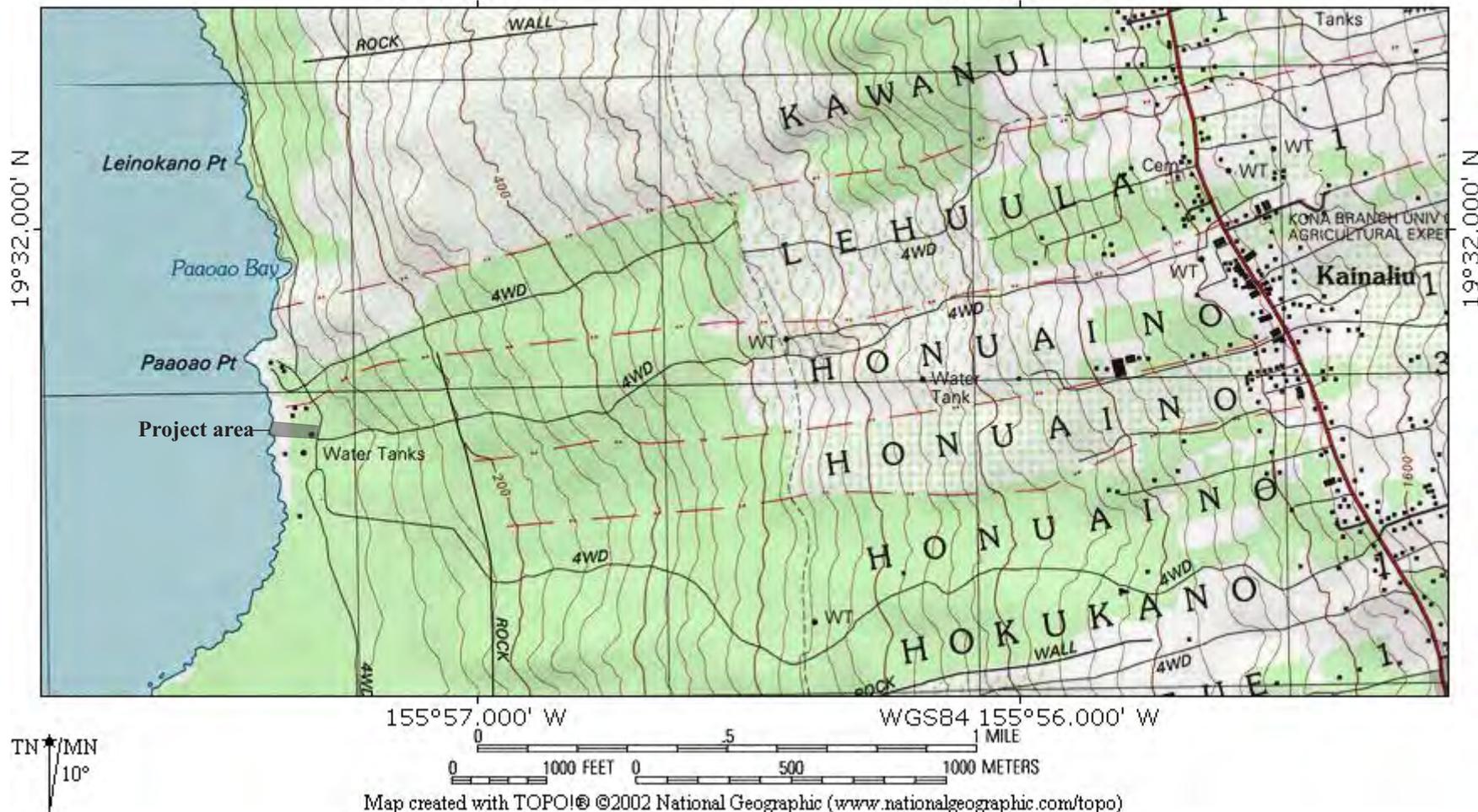


Figure 1. Project area location.

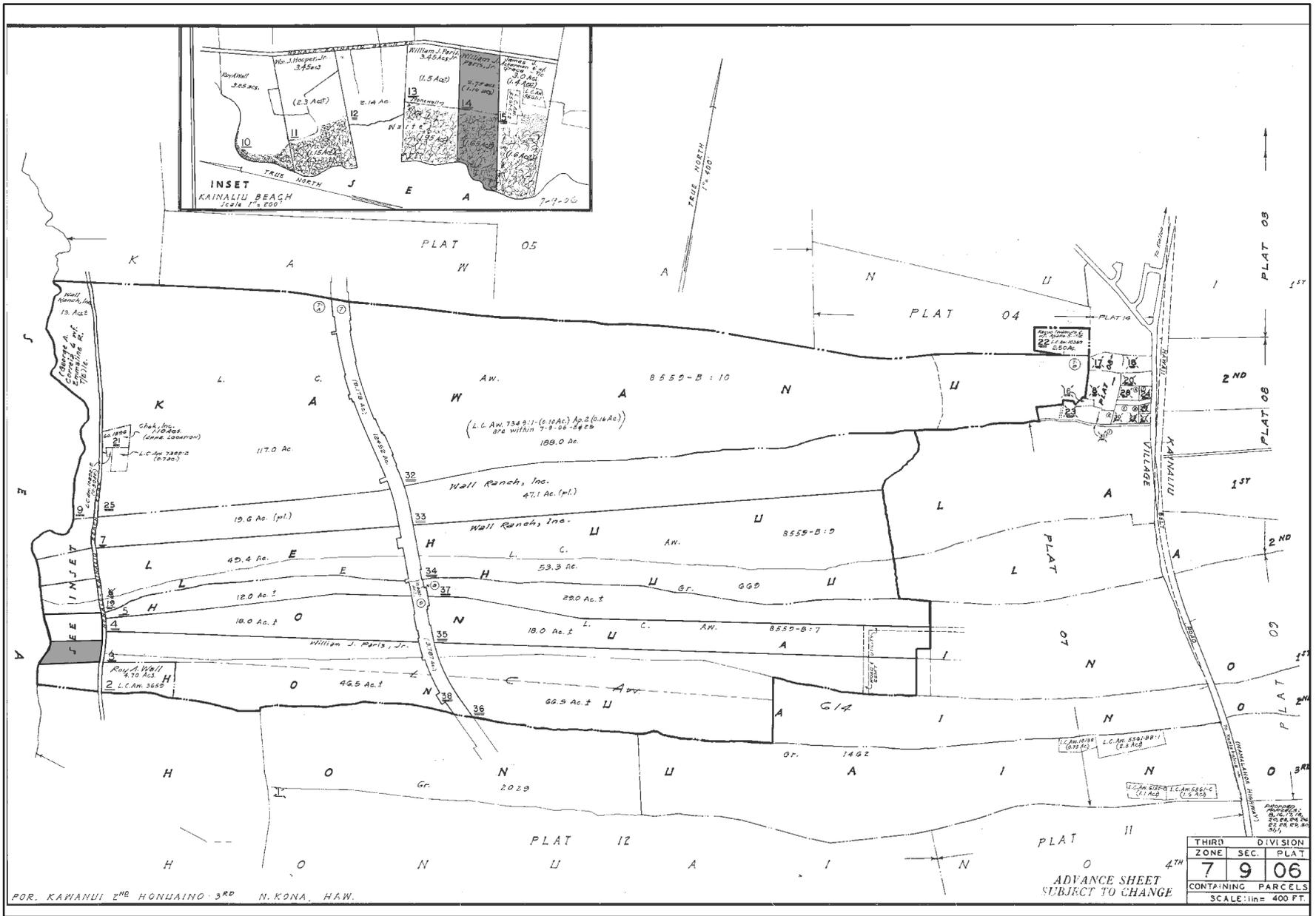


Figure 2. Tax Map Key (TMK): 3-7-9-06 showing the current study parcel shaded gray (Parcel 014).



Figure 3. *Makai* portion of study parcel, view to the northwest.



Figure 4. Typical ground surface with undulating *pāhoehoe*, view to the east.



Figure 5. Typical vegetation cover, view to the east.



Figure 6. Coconut palms at sand/*pāhoehoe* interface, view to the north.

BACKGROUND

To generate a set of expectations regarding the nature of archaeological resources that might be encountered on the study parcel, and to establish an environment within which to assess the significance of any such resources, a general culture-historical context for the region relative to the project area and a review of previous archaeological studies in the vicinity of the current project area are presented.

Culture-Historical Context and Ahupua‘a Settlement Patterns

The current project area lies within what has been termed the Kona Field System (Cordy 1995; Newman 1970; Schilt 1984). This area of dryland agricultural fields extends north from Ho‘okena Ahupua‘a south to at least Kaū Ahupua‘a and east from the coastline all the way to the forested slopes of Hualālai (Cordy 1995). A large portion of the field system is designated in the Hawai‘i State Inventory of Historic Places (SIHP) as Site 50-10-37-6601 and has been determined eligible for inclusion in the National Register of Historic Places. The basic characteristics of this agricultural/residential system as presented in Newman (1970) have been confirmed and elaborated on by ethnohistorical investigations (Kelly 1983) and summarized by Cordy (1995). The construct is based on the Hawaiian terms for the major vegetation zones, which are used to define and segregate space within the region’s *ahupua‘a*. These zones are bands roughly parallel to the coast that mark changes in elevation and rainfall. The current study parcel is located at the shore in the *kula* zone. Provided below is information on the Kona Field System abstracted from prior studies (PHRI 1999; Rechtman et al. 2001).

The *kula* zone is the area from sea level to 600 feet elevation. Annual rainfall in the *kula* is 75 to 125 centimeters. This lower elevation zone is traditionally associated with habitation and the cultivation of sweet potatoes (*‘uala*), paper mulberry (*wauke*), and gourds (*ipu*). Informal agricultural features, such as clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common throughout much of this zone, as shown in archaeological findings (Hammatt and Clark 1980; Hammatt and Folk 1980; Haun et al. 1998; Schilt 1984). Permanent habitation sites can be scattered throughout the agricultural portion of the *kula*, but they are commonly concentrated along the shoreline subdivision of the *kula* zone (Cordy 1981). The more *mauka* portion of this zone was primarily used for agricultural purposes with mainly temporary habitations and an occasional permanent habitation (Borthwick et al. 1997; Rosendahl and Rosendahl 1986).

The archaeological record contributes to an understanding of how the Kona Field System developed over time. Precisely how the record is interpreted is reflected in the various chronologies proposed for the system (Burtchard 1995; Cordy 1995; Haun et al. 1998; Hommon 1986; Kirch 1985; Schilt 1984). The chronology and terminology outlined by Haun et al. (1998) is used in the present discussion, and the chronological summary below is abstracted from Rechtman et al. (2001).

The conventional wisdom has been that first inhabitants of Hawai‘i Island probably arrived by at least A.D. 300, and focused habitation and subsistence activity on the windward side of the island (Burtchard 1995; Kirch 1985; Hommon 1986). However, there is no archaeological evidence for occupation of the Kona region (or perhaps anywhere in Hawai‘i) during this initial, or Colonization stage of island occupation (A.D. 300 to 600). More recently, Kirch (2010) has convincingly argued that Polynesians may not have arrived to the Hawaiian Islands until at least A.D. 1000, but expanded rapidly thereafter. The implications of this on the currently accepted chronology would only alter the timing of the Colonization and Early and Late Expansion Periods, shifting the colonization to A.D. 1000 to 1100, the Early Expansion to A.D. 1100 to 1200, and the late expansion to A.D. 1200 to 1400.

Through the first half of the Early Expansion Period, permanent habitation was still concentrated on the windward side of the island. It is likely that windward residents traveled to the leeward Kona coast for resource extraction purposes (Cordy 1995). By the latter half of the Early Expansion Period, permanent habitation was beginning in Kona and was concentrated along the shoreline and lowland slopes (Cordy 1981; 1995; Schilt 1984). Informal agricultural fields were probably situated in areas with higher rainfall.

The Late Expansion Period saw the spread of agricultural fields and habitation areas across the slopes and coastal areas of Hualālai (Burtchard 1995; Cordy 1995). The earliest fields may have been located in the southern portion of the system (Schilt 1984), with new fields expanding northward over time (Haun et al. 1998).

The beginning of the Kona Field System is marked by the development of formal walled agricultural fields sometime during the initial stages of the Intensification Period (A.D. 1400 to 1600) (Schilt 1984). Radiocarbon data indicates that the population in Kona increased dramatically during this period (Burtchard 1995; Haun et al. 1998; Schilt 1984). The pressures of a growing population on the food supply demanded growth in the agricultural fields.

The Competition Period (A.D. 1600 to 1800) may have seen the environment reach its maximum carrying capacity, resulting in social stress between neighboring groups. The resulting hostility is reflected archaeologically with the frequent occurrence of refuge caves dating to this period (Schilt 1984). This volatile period was probably accompanied by internal rebellion and territorial annexation (Hommon 1986; Kirch 1985).

Historic Period

The chronology presented below is a modified version of one developed during the Ali'i Highway inventory survey and associated oral history work (Haun et al. 1998).

The first Historic Period, termed the Last of the Ruling Chiefs (A.D. 1778-1819), begins with Captain Cook's arrival in the islands and ends with King Kamehameha's death and the abandonment of the traditional *kapu* system in 1819. Early historical accounts emphasize that modern day Kailua Town was a significant political seat and population center during this period. Settlement and subsistence practices within the Kona Field System continued to operate much as it had prehistorically through the first few decades of the Historic era (Handy and Handy 1972). During this period nearby Onouli Ahupua'a is referenced as the location where the boat that was stolen from Captain Cook's Ship in February 1779, was dismantled for its iron nails by Chief Palea, a close friend of Chief Kalani'opu'u. Iron nails were highly prized by the Hawaiians specifically for fashioning fishhooks. In fact, although the English had given the Hawaiians fishhooks, they preferred to manufacture their own from nails. It was the theft of this boat that led to the skirmish in which Captain Cook was killed (Kamakau 1992). In 1819 Kamehameha died and his son Liholiho becoming the successor (Kelly 1983). Six months after Liholiho became the successor the traditional *kapu* system was abandoned, but not without resistance. Late in 1819, Kekuaokalani led a military campaign against Liholiho in a last ditch effort to protect the old religion. This conflict has been dubbed the Battle of Kuamo'o, which took place about 3 kilometers to the north of the current study parcel. Liholiho's forces were able to defeat Kekuaokalani and his warriors and the ensuing changes in the social and economic patterns began to affect the lives of the common people.

The Merchants and Missionaries Period (A.D. 1820-1847), was a time of social change in Hawai'i. This period begins with Liholiho moving his court to O'ahu, lessening the burden of resource procurement for the chiefly class. Some of the work of the commoners shifted from subsistence agriculture to the production of foods and goods that they could trade to the early Western visitors. Introduced foods specific for trade with Westerners included yams, coffee, melons, Irish potatoes, Indian corn, beans, figs, oranges, guavas, and grapes (Wilkes 1845). Missionaries began arriving to Hawai'i in the 1820's and brought more social and religious change. In 1823, the Missionary William Ellis traveling south around the island stopped at Honua'ino. He reported:

Leaving Tuamoo [Kuamoo], we passed on to Honuaino, where, being thirsty and weary, we sat down on the side of a canoe, under the shade of a fine-spreading hibiscus, and begged a little water of the villagers.

We had not remained many minutes before we were surrounded by about 150 people. After explaining to them in a few words our feelings on meeting them, we asked them if they would like to hear what we had to say to them. They replied, Ae (yes,) and sat down immediately.

We sung a hymn and prayed, and I addressed them for about a half an hour on the first principles of Christianity. They all appeared gratified . . . (Ellis 2004:111)

The ever-growing population of Westerners forced religious, socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership, and the Great *Māhele* became the vehicle for determining ownership of native lands. During this period, termed the Legacy of the Great *Māhele* (1848-1899), land interests of the King (Kamehameha III), the high-ranking chiefs, and the low-ranking chiefs, the *konohiki*, were defined. The chiefs and *konohiki* were required to present their claims to the Land Commission to receive awards for lands provided to them by Kamehameha III. They were also required to provide commutations to the government in order to receive royal patents on their awards. The lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This process expedited the work of the Land Commission (Chinen 1961:13).

During the *Māhele* all lands were placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and *Konohiki* Lands. All three types of land were subject to the rights of the native tenants therein. In 1862, the Commission of Boundaries (Boundary Commission) was established in the Kingdom of Hawai‘i to legally set the boundaries of all the *ahupua‘a* that had been awarded as a part of the *Māhele*. Subsequently, in 1874, the Commissioners of Boundaries was authorized to certify the boundaries for lands brought before them. The primary informants for the boundary descriptions were old native residents of the lands, many of which had also been claimants for *kuleana* during the *Māhele*. This information was collected primarily between A.D. 1873 and 1885 and was usually given in Hawaiian and transcribed in English as they occurred.

As a result of the *Māhele*, Honua‘ino 1st Ahupua‘a was awarded in its entirety as a *konohiki* award to W. C. Lunalilo (Figure 7), who in 1873 became the sixth Hawaiian monarch. His reign was short, lasting only 13 months, and he was succeeded in 1874 by King Kalākaua. There appear to have been five *kuleana* claims made in Honua‘ino 1st (Appendix A), all were awarded but only one of these (LCAw. 8523-D) positively shows up on maps; three of the others could be unlabeled parcels depicted in Figure 8 just *mauka* of Māmalahoa Highway. With the exception of the award to Kanakaole (LCAw. 7901), these *kuleana* appear to have been located *mauka* in the *ahupua‘a*. Kanakaole claimed one *apana* as a “house lot claim which is *makai* in the *ahupua‘a* of Honuaino 1.” (Native Register v.8:512). It is possible that Kanakaole’s coastal house is the platform identified as SIHP Site 28576 (see below).

As Honua‘ino 1st was a *konohiki* award its boundaries were verified during Boundary Commission testimony in 1873. The testimony cited below becomes clearer when also looking at Figures 7 and 8.

Keakaikawai^k sworn

I know the land of Honuaino 1st and the boundaries of the portion that lies *mauka* of the *makai* wall of the Great walled lot. The boundary between this portion of Honuaino 1st and Lehuula iki, is at the *makai* side of the Great walled lot, on the *kuaiwi* between the two lands, that runs from the shore to this point. Thence *mauka* across the Great walled lot, on the same *kuaiwi*, thence up the *Kau* side of the *awaawa* [gulch], that is on Lehuula iki to a *kukui* tree; thence Lehuula nui and Honuaino 1st join; thence along Lehuula Nui to Koaneenee where Honuaino 3rd and Lehuula Nui join and cut Honuaino 1st off. Thence down along Charley Hall’s land on Honuaino 2nd [LCAw. 614]. The lands there are about as wide as from here to Todd’s house.

Hapuku^k sworn

There is a *kuaiwi* from the shore to the Great walled lot; between Honuaino 1st and Lehuula iki. Thence *mauka* along the *kuaiwi*, across the Great walled lot to the *mauka* end of Lehuula iki, thence along Lehuula Nui to Koaneenee where Honuaino 1st ends, thence *makai* along Honuaino 2nd to *makai* of the woods, thence down the *kuaiwi* to the *makai* end of the great walled lot.

While the above testimonies do not provide much in the way of coastal detail, they both mention the Great walled lot. This was a property owned by William Johnson that he purchased (among many others) as a grant (see Figures 7 and 8).

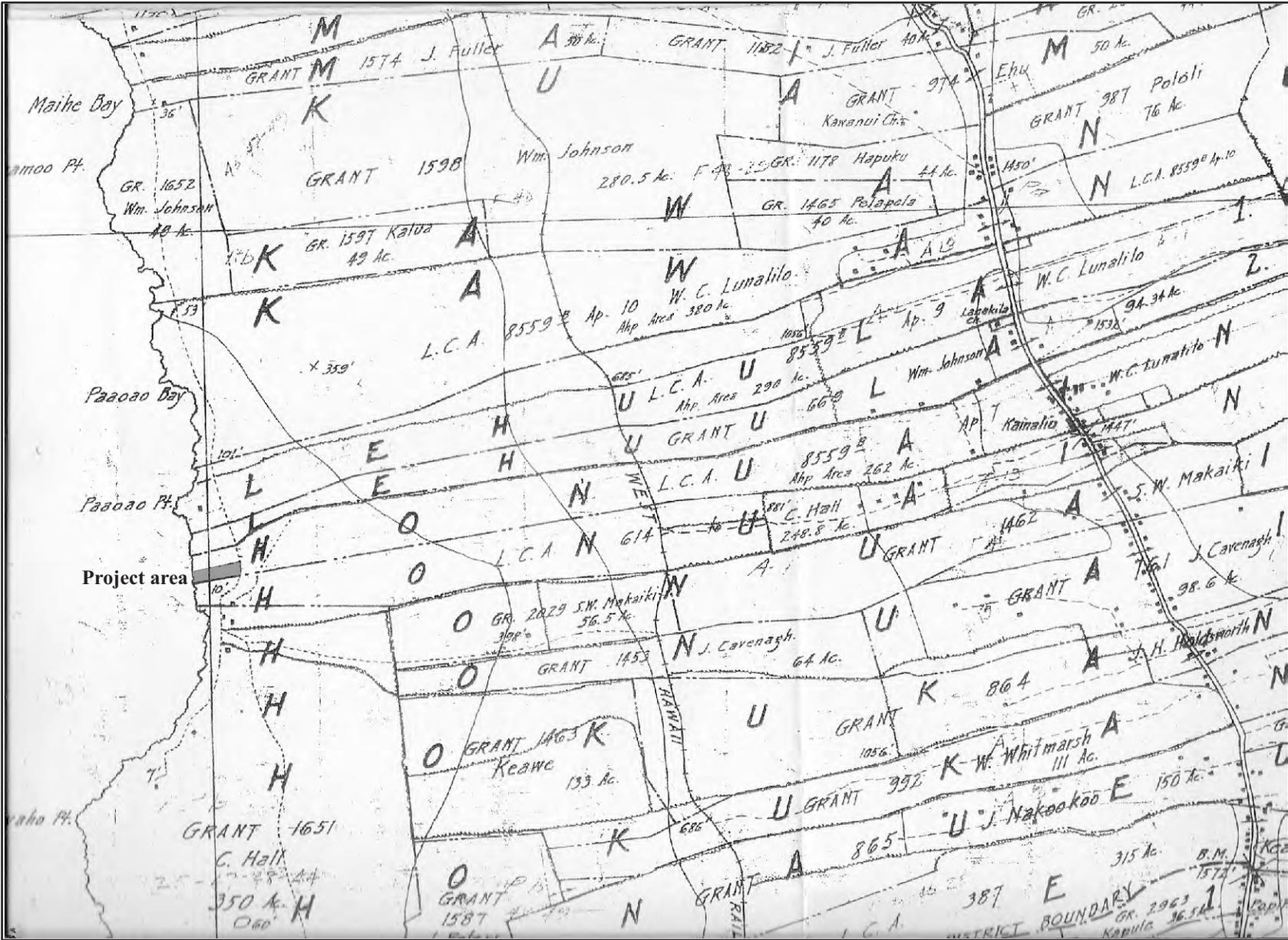


Figure 7. Portion of a 1928 Keauhou to Onouli Real property Tax Office Map showing the current project area.

Following the *Māhele*, the Kingdom initiated a program of selling parcels of land to interested residents. The land was that reserved as Government lands — those lands retained by the government, or commuted to the Government in lieu of paying for other parcels retained by the *konohiki* awardees of the *Māhele*. The grant program was initiated in an effort to encourage more native tenants onto fee-simple parcels of land, although non-Hawaiians also took advantage of the program. The parcels of land sold in the grants were quite large, ranging in size from approximately ten acres to many hundreds of acres. When the sales were agreed upon, Royal Patents were issued and recorded following a numerical system that remains in use today. As can be seen on Figure 7 and 8 much of the area surrounding the current study parcel was acquired by grant and later private purchase (as was the case with Lunalilo’s *ahupua‘a* award). William Johnson came to own much of the general project area and beyond. Johnson was the progenitor to many of the Kona ranching families, and his lands were eventually divided among several descendants into separate adjoining ranches. The current project area was part of the ranch lands of W. J. Paris.

The final period in this sequence is the Territorial Period (1900 to 1959). This period is marked by a significant decline in the native population. Residences along the shore comprised of garden plots and animal pens were concentrated in a few coast settlements (i.e., Kailua and Keauhou). Residences occurring inland were associated with agriculture and ranching pursuits. During this period many walls were constructed to keep cattle from entering the garden and residential areas. The land encompassed by the current project area and much of the adjacent lands continued to be utilized for cattle ranching purposes by the Johnson descendant families during this Period. And it was also during the early part of this Period that the ranches subdivided out the Kainaliu Beach Lots (including the current study parcel) for private residential purposes.

Previous Archaeological Research

John Rienecke (n.d.) surveyed this portion of the Kona coast in 1929 and recorded that “the entire section of Honuaino, Lehuula, and Kawanui above the government trail, on the coarse lava of the steep slope, is covered with traces of ruins, walls old and new, pens, house platforms, puoa or grave mounds, and nondescript platforms, heaps, and fills in depressions. Probably there are two or three hundred sites here, could one identify them. Unfortunately the slope is very thickly overgrown and entirely impracticable to survey.” (n.d.:105). A more recent reconnaissance of a portion of this area conducted by Rechtman Consulting, LLC in 2007 did find that hundreds of archaeological features do exist *mauka* of the old Government Road. Several archaeological studies have taken place to the south of the current project area (Hammatt et al. 1997; Haun and Henry 2004; Robins et al. 2001; Rosendahl and Jensen 2000; Walker and Rosendahl 1990). The findings of these studies are summarized below.

Paul H. Rosendahl, Ph.D. Inc. (PHRI) conducted a field inspection (Walker and Rosendahl 1990) of a portion of the proposed Oceanside 1250 (Hokulia) project area. Their work focused on the coastal sites and only noted the existence of features in the *mauka* portion of their study area. This study area was incorporated into the more comprehensive inventory survey conducted by Cultural Surveys Hawaii (Hammatt et al. 1997) for the entire Oceanside 1250 (Hokulia) development area. As a result of the survey conducted by Hammatt et al. (1997) a total of 408 sites were identified consisting of 722 structural and non-structural features. Formal site types included; *ahu*, alignment, C-shape, U-shape, and L-shape, enclosure, lava blister and tube, modified blister, sink, and outcrop, mound, *pahoehoe* basins depression, pavement, petroglyphs and *papmu*, platform, platform-enclosure, rock shelter, terrace, trail, and wall. “Eleven primary function categories were identified among the sites within the project area: agriculture; animal containment (pens); habitations; walls (boundary or agricultural); human burial; heiau and shrines; railroad; refuge structures; indeterminate; trails and roads; and well structures” (Hammatt et al. 1997 vol.1:95). Agricultural complex Site 16379 was located directly *makai* of the current study area and consisted of the remains of formal walled fields, mounds, one enclosure (Site 16488) and one terrace (Site 16491) that had been greatly disturbed by modern and historic pasture improvement. SIHP Site 7214/10302, the historic railroad bed that runs the length of the current study area’s *makai* boundary also marks much of the Hammatt et al. (1997) survey area’s *mauka* boundary. This railroad bed was used by the above-referenced sugar operations between 1901-1926 to transport sugarcane to the Waiaha Mill. Other sugarcane related areas within the Hammatt et al. (1997) survey include Site 10305 in which earlier agricultural features (*kuaiwi* and terrace walls) *muaka* of the railroad bed were modified to create rectangular fields. Harvested sugarcane was transported by the use of sleds, pulleys, and gravity down slope to the railroad. Large, semi-circular well-faced mounds were also recorded as clearing piles to facilitate sugarcane cultivation. Site 16359 also

exhibits similar ground and formal walled field alterations for the cultivation of sugarcane. Sites 10305 and 16359 were located north of the current study area and at approximately the same elevation.

In 2000, PHRI conducted an archeological inventory survey of TMK: 3-8-1-07:Por. 1 and 45, a 248 acre parcel located in the *ahupua'a* of Onouli 1st and 2nd, and Keopuka (Rosendahl and Jensen 2000). PHRI recorded fifty-seven Precontact and Historic Period sites. Formal feature types included walls, pits, terraces, mounds, alignments, enclosures, platforms, an agricultural area, a modified outcrop, a stepping stone trail, a kerbstone trail, and a railroad causeway. Two of the sites recorded during their study are also present within the current study area. Both of these sites have also been recorded in other archeological surveys and have previously and subsequently been assigned separate SIHP Site numbers. The railroad causeway identified by Rosendahl and Jensen (2000) as SIHP Site 11328 was previously recoded as SIHP site 7214 and SIHP Site 10302, and a portion of it serves as the western boundary for the current study parcel. The Historic boundary/ranching wall recorded by PHRI as SIHP Site 11276 was rerecorded by Hammatt et al. (1997) and Robbins et al. (2001), and designated as SIHP Site 16800, this wall serves as the southern property boundary of the current study parcel.

In 2001, Scientific Consultant Services (Robins et al. 2001) Inc. conducted an archaeological inventory survey for the proposed Māmalahoa bypass road corridor. The proposed road corridor extends through 17 *ahupua'a* within the North and South Kona Districts on the Island of Hawai'i. Two sites (Sites 16799 and 16800), both previously recorded by Hammatt et al. (1997), extend *makai* into the current project area. Functions for the recorded Historic sites are ranching and boundary walls. Site 16799 extends *makai* along the *ahupua'a* boundary between Kalukalu 3rd and Onouli 1st through the current project area and continues *makai* out of the current project area for an undetermined distance. Site 16800 extends *makai* into the study parcel along the *ahupua'a* boundary of Onouli 1st and 2nd, and trends *makai* out of the study parcel for an undetermined distance. Site 16800 forms the southern property boundary of the current study parcel.

In 2004, Haun & Associates (Haun and Henry 2004) conducted an archeological inventory survey of TMK: 3-7-9-12:por. 9, a 4 acre parcel located in the *ahupua'a* of Hokukano 2nd, North Kona District Island of Hawai'i, for Mr. Gary Yamagata. Their project area was located north of the current project area at roughly the same elevation. The survey identified three sites, consisting of a Historic railroad causeway (SIHP Site 7214/10302), a stone wall, and a Historic agricultural pavement.

Closer to the current study area, Mills and Irani (2000) completed a survey of along a roughly two-mile section the old Government Beach Road extending from Honalo Ahupua'a in the north to Honua'ino in the south. They recorded three features within the current study parcel, a Historic Period well (SIHP Site 22397) and two walls (Wall #4 and Wall #6). The site number for the well was retained, and the latter two features were assigned a single SIHP number (SIHP Site 28574) as part of the current study.

CURRENT SURVEY EXPECTATIONS

Archaeological studies undertaken within the North and South Kona Districts indicate that initial prehistoric settlement was concentrated primarily along the coast (Cordy 1981, Cordy et al. 1991). As coastal populations increased, so did the development of agricultural fields in the upland areas, reaching their greatest extent in the late 1700s. As the fields expanded so did native populations in the upland resource areas. In Historic times, with the shift to a market economy and a western style of land ownership in Hawai'i, populations shifted from the coast to the upland areas (Cordy 1995, Ellis 2004). Much of the old style of agriculture was abandoned in favor of sugarcane plantations, coffee farms and cattle ranches, which have had a significant impact on the Prehistoric archaeological record. Given the extensive ranching history and intensive use of the project area for both cattle and residential activities beginning in the late nineteenth century and continuing into modern times, it is expected that Historic Period features associated with these activities will exist within the current project area. It can also be expected that if any features dating from the Precontact Period were present within the project area that would have been significantly impacted, if not totally destroyed, by subsequent land use activities.

FIELDWORK

Fieldwork for the current inventory survey was conducted between September 10-27, 2010 by Robert B. Rechtman, Ph.D., Matthew R. Clark B.A., and Christopher S. Hand B.A.

Methods

During the intensive inventory survey of the study area, the entire parcel was subject to pedestrian transects with fieldworkers spaced at 5-meter intervals; ground visibility was excellent throughout. During these initial transect sweeps observed features were identified and plotted on a map of the study parcel using Garmin 76s handheld GPS technology. Each observed feature was then revisited, cleared of vegetation (if necessary), mapped using tape and compass, photographed, and described using standardized site record and feature forms. No subsurface testing was conducted. Two brief phone consultations were conducted with William “Billy” Paris Jr. Billy was born in 1922 and raised in Kāināliu. He is descended from Hawaiian and Caucasian families who have resided in the area since at least the time of Kamehameha I, families that have and continue to own the current study parcel. Billy was asked about the specific features on the study parcel and what he knew of their origin, construction, and use. The information he provided is incorporated into the site descriptions below.

Findings

As a result of the current inventory survey ten archaeological sites were identified (Table 1). A portion of one of these sites had been previously described by Mills and Irani (2000) as SIHP Site 22397. This site is a mid-twentieth century well and associated water storage and delivery system. The other sites recorded during the current study include two historic walls (SIHP Sites 28574 and 28577); a late Precontact/early Historic house platform (SIHP Site 28576); and six sites where the bedrock has been modified creating either *poho* (in one case, SHIP Site 28582), *papamū* (in three cases, SIHP Sites 28575, 28579, and 28581), *papamū* and basins (in one case, SIHP Site 28578), and *papamū* and a petroglyph (in one case, SIHP Site 28580). Also observed, but not recorded, was an additional cluster of *poho* (Figure 9) situated outside of the parcel boundary on its shoreward side. Detailed descriptions of all the recorded sites follow below, and their locations are depicted on Figure 10.

Table 1. Archaeological sites recorded during the current inventory survey.

<i>SIHP No.</i>	<i>Formal Type</i>	<i>Functional Type</i>	<i>Age</i>
22397	Well and water storage	Ranching	Historic
28574	Boundary wall	Ranching	Historic
28575	<i>Papamū</i>	Recreation	Precontact/Historic
28576	Habitation platform	Residential	Precontact/Historic
28577	Boundary wall	Ranching	Historic
28578	<i>Papamū</i> and basins	Recreation	Precontact/Historic
28579	<i>Papamū</i>	Recreation	Precontact/Historic
28580	<i>Papamū</i> and Petroglyph	Recreation	Precontact/Historic
28581	<i>Papamū</i>	Recreation	Precontact/Historic
28582	Bedrock mortars	Food preparation?	Precontact/Historic



Figure 9. Concentration of *poho* at the immediate shoreline, view to the west.

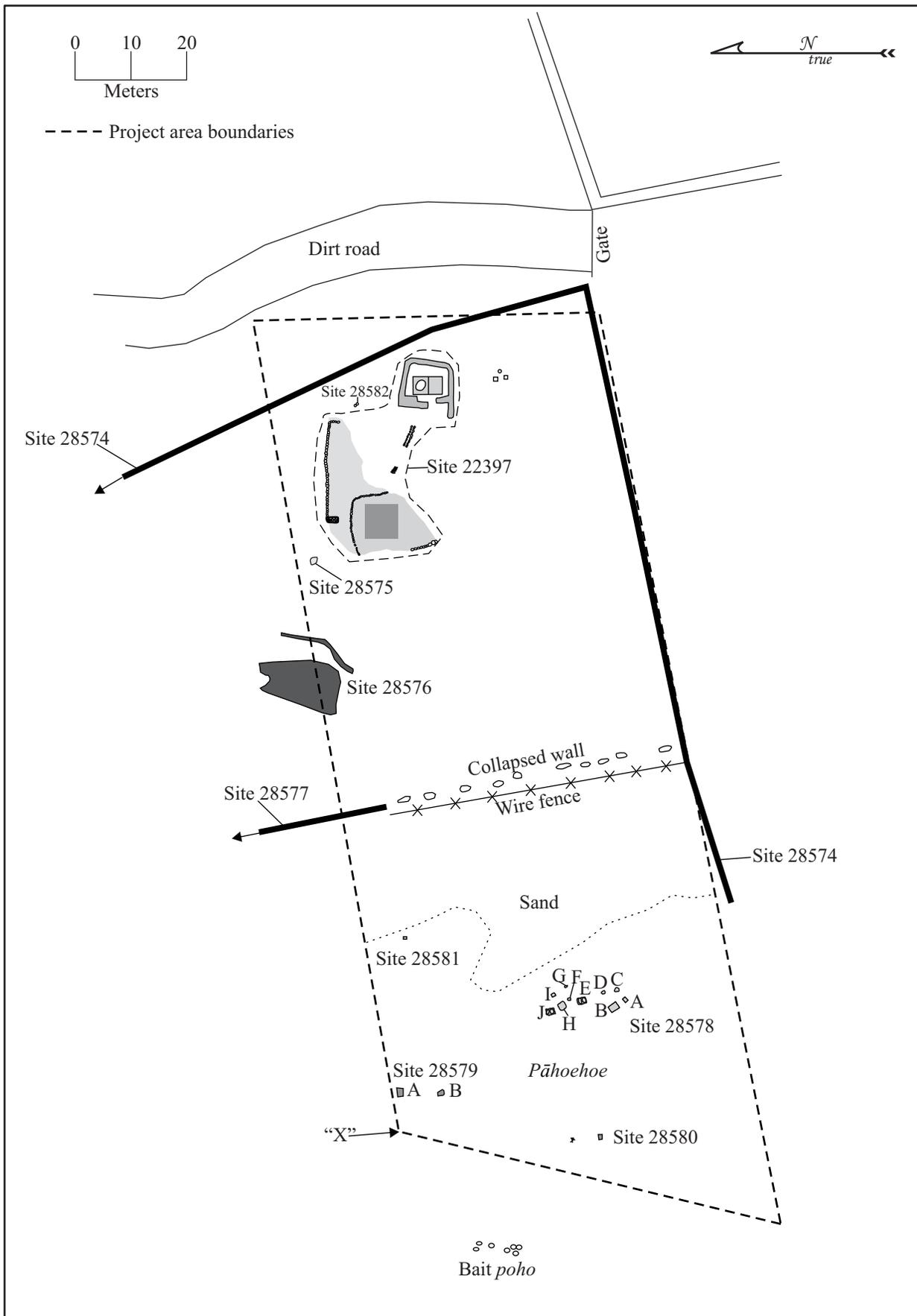


Figure 10. Project area plan view.

SIHP Site 22397

SIHP Site 22397 was first recorded by Mills and Irani during their study of the old Government Beach Road, and described as a Historic Period well with “other features . . . visible further west, such as a large structure with a corrugated metal roof and open sides, but could not be adequately described from the road” (2000:55). As described in the current study, Site 22397 constitutes several elements that are integral parts of a well and water storage and delivery system. This site occupies the eastern portion of the study parcel (see Figure 10), and in its current state reflects ranching activity during the middle twentieth century. The water source tapped by the well was likely used during earlier times, perhaps by the residents of Site 28576 (see discussion below). According to Billy Paris, the features at this site were constructed during the late 1940s and early 1950s. This oral information is supported by “1948” dates etched into the concrete at the well and pump stand. Billy Paris also indicated that the mid-twentieth century work at the well itself was performed as an upgrade to the existing early twentieth century well development. Possible evidence of the earlier well development is seen roughly 7 meters south of the existing enclosure wall where two concrete blocks have been discarded (Figure 11) along with a rounded water worn slab that contains a *papamū* (Figure 12). The *papamū* measures 55-60 centimeters in diameter with faintly pecked holes 2 centimeters in diameter present on one side forming a 7 x 9 grid. The concrete blocks are perforated (Figure 13) may have been supports for a hand pump and piping system, and the water worn slab may have been used as a well cap.



Figure 11. Discarded concrete blocks south of well, view to the southwest.



Figure 12. Discarded *pāpamu* stone south of well.



Figure 13. Pipe hole and fittings in discarded concrete block.

Water pumped from the well (Figure 14) was piped to a redwood storage tank (no longer extant) that sat on concrete piers on a cobble platform, which was covered by a roof structure (Figure 15). The stored water in the tank then passed through piping to the north and was used for both cattle and residential purposes. Currently, water is piped to the area from a *mauka* water source, and the well is no longer functional, but water is still present within. The elements of the well and water storage and delivery system are depicted on Figure 16, and individually described below.



Figure 14. SIHP Site 22397 well shed, view to the east.



Figure 15. SIHP Site 22397 water tank shed, view to the south.

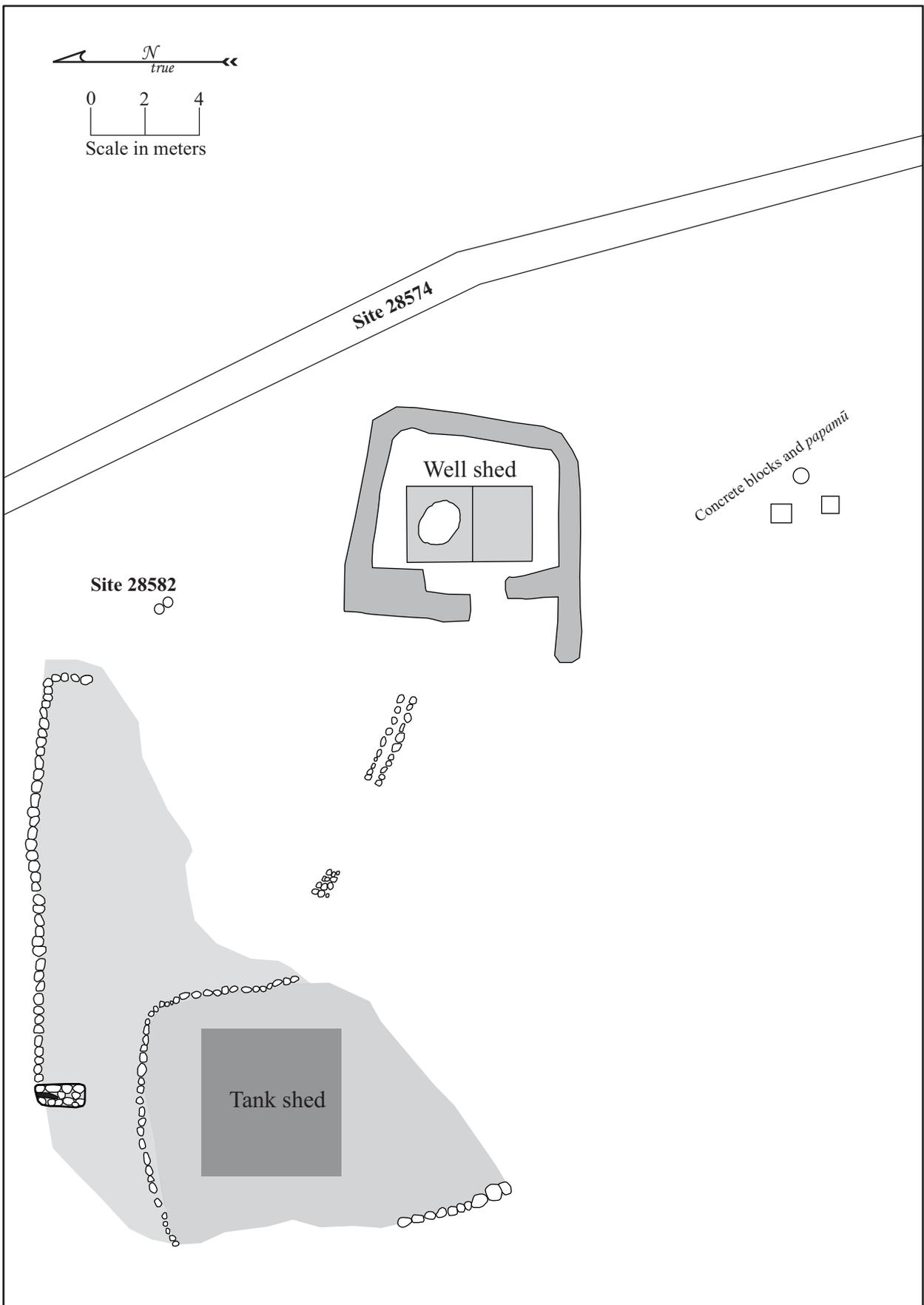


Figure 16. SIHP Site 22397 plan view.

The well itself is situated within a stone and concrete foundation, covered by a wooden shed with corrugated metal roofing, and surrounded by a rock wall (Figures 17 and 18). The well has an egg-shaped surface opening that measures 1.9 meters (north/south) by 1.5 meters (east/west) and is surrounded by a 0.5-0.6 meter wide lip of concrete (Figure 19). An inscription in the lip at the northwest corner of the opening reads: "3/18/48" (Figure 20). The well shaft inside is constructed of stacked cobbles held together with concrete. The shaft measures 3.9 meters deep and has 1.3 meters deep water at the bottom. A rubber hose (6 centimeters in diameter) runs from the center of the well shaft to the southwest and is held in place with ropes attached to the ceiling of the shed and the west wall (see Figure 19). The hose once attached to a pump that was located 1 meter south of the well shaft. All that remains is the pump stand.

The pump stand consists of a concrete block measuring 86 centimeters by 76 centimeters and 30 centimeters tall (see Figure 17). Bolted to the concrete is a 2 x 12 board supported by two 4 x 4s (Figure 21). The two 4 x 4s are 48.5 centimeters long. They are located at either (long) end of the concrete block, and are held by bolts into the concrete, one at each end of each 4 x 4. The 2 x 12 is 74 centimeters long, and attached to the 4 x 4s with two bolts at either end. The 2 x 12 runs lengthwise between the 4 x 4s. The pump would have sat on top of the 2 x 12. Several; used cans of motor oil (2 stroke) and some rotted lumber are present on the ground surface nearby. Both the well and pump stand are within a cobble and concrete foundation. A section of lead pipe and an iron bar are discarded on the pump stand. The concrete contains the inscription: "3/19/48" in its southeast corner (Figure 22).

The stone and concrete foundation measures 4.5 meters long (north/south) by at least 3.6 meters wide (east/west) (see Figure 19). It is almost rectangular in shape, but not quite, as the north edge is not parallel to the south edge and does not form a right angle with the east edge. The west edge is buried beneath soil and a rock wall, and as a result is not clearly defined. The other three edges are all constructed with neat alignments of stacked cobbles held together with concrete. The ground surface that the foundation sits on slopes to the north, giving the foundation greater height along the north edge (50 centimeters) than the south edge (10 centimeters). The surface of the foundation (except along its exterior edges and around the well shaft) is paved with loose small cobbles, pebbles, and pieces of coral. To the west, the paving stops at a line of flat-laid water worn cobbles, two abreast, that may mark the western extent of the foundation. These cobbles are partially buried beneath the rock wall that surrounds the shed (Figure 23).

A wooden shed with a corrugated metal roof covers the well and pump stand (see Figure 14). The shed measures 4.5 meters (north/south) by 2.75 meters (east/west) and it stands 2.1 meters tall to the west and 1.8 meters tall to the east owing to the slope of the roof. The shed has two doors on its west side; one to access to the well and one to access to the pump (see Figure 16). Posts measuring 4 x 6 inches support the roof, one at each corner and one each in the middle of the east and west sides. Boards measuring 2 x 6 inches run horizontally between the 4 x 6 posts, which are resting on flat-laid cobbles (Figure 24). The southern supports are off of the foundation to the south (Figure 25) and the northern supports are on the foundation, off-set from the north edge. The horizontal lumber has gaps between it so that it resembles a fence more than a wall. A large gap is present between the top board and the roof (Figure 26). The north, east, and south sides of the shed each have four horizontal boards, and the west side has five. Purlins, measuring 2 x 3 inches support the metal roof. Inside the shed, a single 2 x 8 inch board runs between the two middle supports separating the well from the pump stand, 10 centimeters above the surface of the foundation. The shed is in a poor state of repair, with significant termite damage. It appears as though the section of shed around the well may have built before the section around the pump.

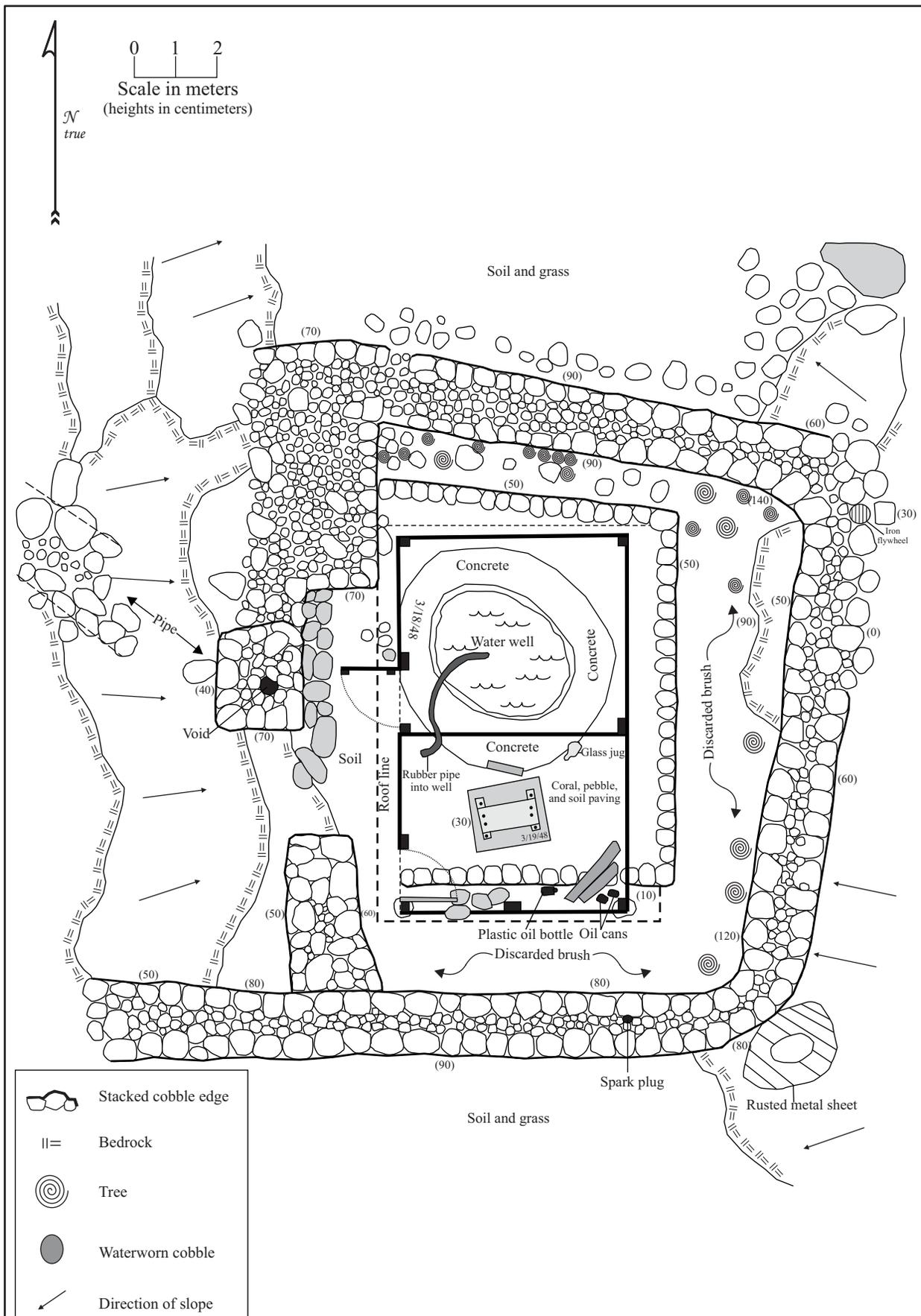


Figure 17. SIHP Site 22397 plan view.

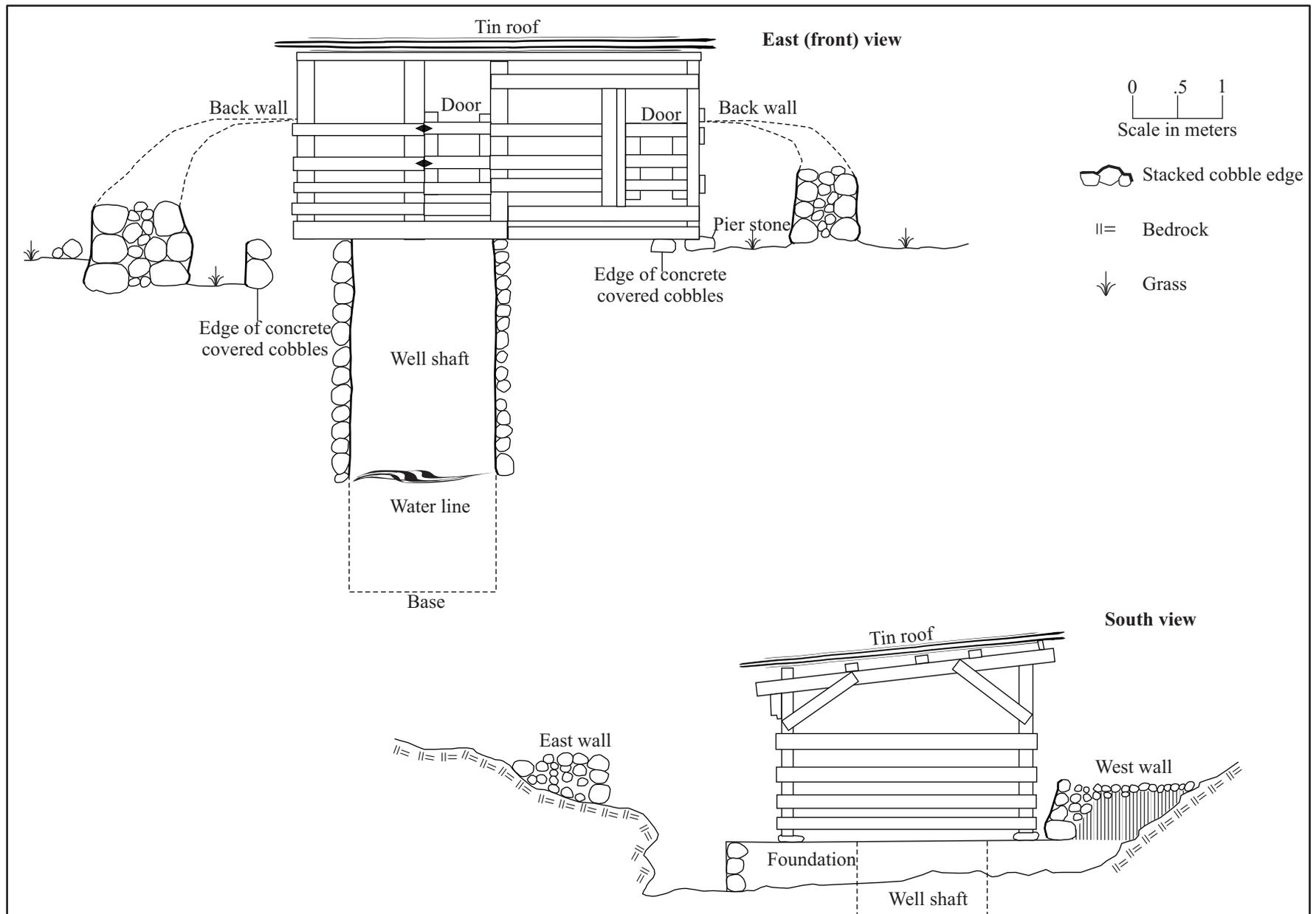


Figure 18. SIHP Site 22397 well shed profiles.



Figure 19. SIHP Site 22397 well hole.



Figure 20. SIHP Site 22397 etched date.



Figure 21. SIHP Site 22397 pump stand.



Figure 22. SIHP Site 22397 dated etched in pump stand.



Figure 23. SIHP Site 22397 double row of water worn rocks extending under wall.



Figure 24. SIHP Site 22397 well shed corner on rock foundation pier.



Figure 25. SIHP Site 22397 well shed corner off of foundation pier.



Figure 26. SIHP Site 22397 well shed, view to the south.

A core-filled rock wall, with an opening to the west, surrounds the shed (see Figure 17). The north, east, and south sides of the wall are a fairly uniform 80 centimeters wide and appear to have been built during a single construction episode. The north and south walls are free-standing, roughly 90 centimeters tall. The east wall is constructed against a vertical bedrock face so that it stands 1.2 meters tall along its west edge and 0-60 centimeters tall along its east edge. Some exposed bedrock is present in the west face of the east wall at its north end. The wall on the west side appears to have been either modified, or added the site more recent than the others sides. The west wall includes both north and south sections, separated by a 1.2 meter wide opening where the wall is absent. The south section measures 2 meters long by 1.2-1.5 meters wide and it stands 50-60 centimeters tall. This section is constructed of dry-stacked cobbles that were clearly added after the south wall was built. The south wall continues beyond the southern section of the west wall, and the cobbles of that wall were clearly added against the north face of the pre-existing wall. The north section of the west wall was built on top of the water worn cobbles that may mark the western extension of the foundation. The southern end of the north section is off-set from the northern end and from the southern section of wall on the opposite side of the opening. It may have been moved to allow for the well door to open outward (the pump door opens inward). The southern 1.6 meters is off-set, and this part of the wall measures 1.0 meters wide, and it is built of stacked cobbles and boulders. It is 1.0 meters tall along its east edge and 0.4 meters tall along its west edge to match sloping bedrock surface against which it is constructed. The southern section is 30 centimeters taller than the northern section of the north wall and it appearance almost to be a separate construction. The northern portion of the north section of the west wall is low and broad (2.1 meters by 1.6 meters). Along its east edge it has neatly stacked cobbles and boulders that stand 70 centimeters above the surface of the foundation and 1.1 meters above ground surface to the north of the foundation. The west edge fades into the east sloping bedrock ground surface. The top of this wall section consists of small cobbles forming a level pavement. The junction between the north wall and the west wall is somewhat obscured by the small cobble paving and leaf litter, but it looks as though the north wall was built first. For the most part, the rock wall surrounding the well is in a good state of repair with very little collapse. To the west (1 meter) of the northern section of the west wall near its southern end, two parallel lines of boulders run upslope along the bedrock ground surface in the direction of the water storage tank shed (Figure 27). The boulders are set approximately 60 centimeters apart, and appear to mark the location of where the filler pipe ran between the well and the water tank, a distance of roughly 15.5 meters.



Figure 27. SIHP Site 22397 rock alignment leading from well to water tank, view to the west.

The water tank was a redwood barrel and hoop style tank as evidenced by remnant redwood slats and metal hoops scattered about the area; and the tank sat on a foundation of twelve pier block, under an open-sided wooden structure with a corrugated metal roof (Figure 28). The roughly square structure measured 5.5 meters on a side and rested on eight poured in place cement and rock foundation blocks (Figure 29). The roof structure is currently off of its foundation blocks and will likely collapse in the near future. The original framing lumber is termite eaten and consisted of dimensional lumber measuring $2\frac{1}{2}$ x $3\frac{1}{2}$ and $1\frac{1}{2}$ x $2\frac{1}{2}$. These lumber sizes are consistent with a middle twentieth century date.



Figure 28. SIHP Site 22397 interior of water tank shed, view to the southeast.



Figure 29. SIHP Site 22397 water tank shed foundation pier.

The water tank structure sits on a level stone platform built between outcropping bedrock, and measures 9 meters east/west by between 9 and 13 meters north/south (Figure 30). An eastern extension of the platform was built in a triangular shape against bedrock on the south side and elevated 80 centimeters above the surrounding soil covered ground on the north side (Figure 31). This extended area is triangular with dimension of 15 meters on the long side, 9 meters on the short side, and 13 meters across the hypotenuse (see Figure 30). According to Billy Paris this platform was built in the early 1950s, but no structure was ever placed on it. At the western of the extension and in line with the center of the tank area is a roughly 1 meter by 2 meter rectangular stacking of rocks elevated between 40 centimeters and 1 meter above the platform. A galvanized water pipe is present within this rock pedestal (Figure 32), which likely served as a support for the water delivery piping that came out of the tank and extended to a corral residential area to the north on the adjacent parcel.



Figure 31. SIHP Site 22397 stacked face of platform extension, view to the southwest.

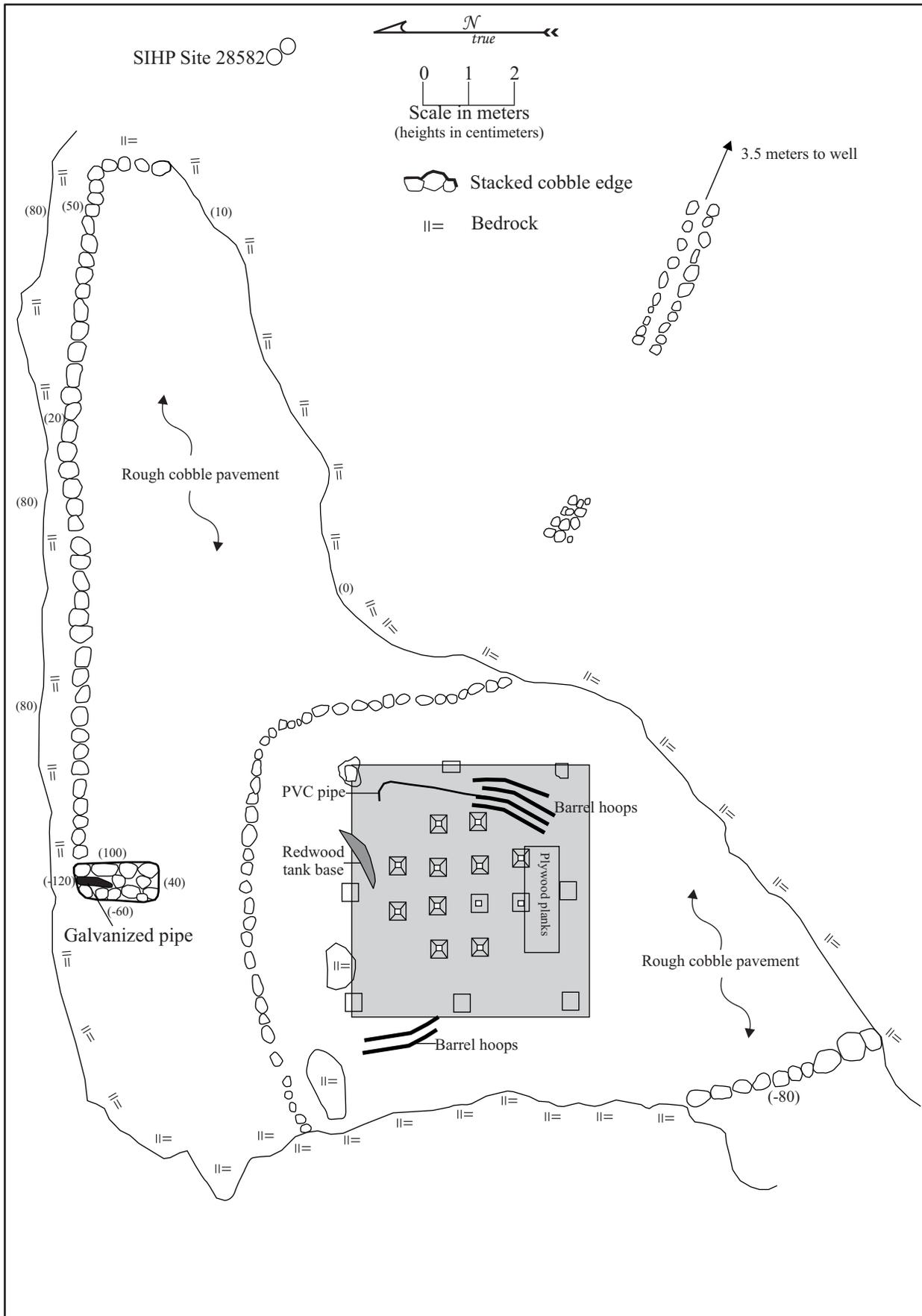


Figure 30. SIHP Site 22397 water tank shed and platform plan view.



Figure 32. SIHP Site 22397 stacked rocks for supporting the water outlet pipe, view to the south.

SIHP Site 28574

SIHP Site 28574 is a stacked core-filled wall that roughly marks the southern and eastern boundaries of the current study parcel (see Figure 10). In its present configuration the wall is “L” shaped. Commencing in collapse along the southern parcel boundary roughly where the beach sand gives way to the exposed coastal *pāhoehoe* shelf (Figure 33) the wall extends for 115 meters slightly beyond the southeast parcel corner. At this point the wall makes a 90 degree turn (Figure 34) and extends in a northwesterly direction beyond the parcel boundary. The northeastern corner of the study parcel is on the eastern side of the wall (see Figure 10). Overall the wall is relatively intact with a consistent width of 80 centimeters. Wall heights in the intact sections range between 90 and 130 centimeters (5 to 6 courses) co-varying with the terrain (Figures 35 and 36). It seems likely that this wall was originally built when the Kainaliu Beach Lots were established in the early twentieth century, and its maintenance has been on-going.



Figure 33. SIHP Site 28574 where wall terminate in collapse along coastal southern boundary, view to the southeast.



Figure 34. SIHP Site 28574 near southeastern corner, view to the northwest.



Figure 35. SIHP Site 28574 along eastern boundary, view to the west.



Figure 36. SIHP Site 28574 along southern boundary, view to the south.

SIHP Site 28575

SIHP Site 28575 is a *papamū* on an exposure of *pāhoehoe* bedrock that is tilted 10 degrees with a northeastern aspect (Figure 37). It is situated 25 meters west of Site 28582 and 20 meters east of Site 28576 (see Figure 10). The badly eroded surface of the *papamū* measure 90 centimeters by 75 centimeters and appears to be arranged in a 15 hole by 12 hole pattern. A coral abrader fragment was observed on the surface 3.5 meters to the southwest of the *papamū* at the edge of the *pāhoehoe* outcrop (Figure 38). It is possible that this site was associated with the use of Site 28576 during Precontact and early Historic times.



Figure 37. SIHP Site 28575, view to the west.



Figure 38. SIHP Site 28575 coral abrader on surface.

SIHP Site 28576

SIHP Site 28576 is a roughly rectangular platform and remnant wall feature located 20 meters west of Site 28575 along the northern parcel boundary; the study parcel boundary actually bisects the site, with the bulk of the platform being on the adjacent parcel (see Figure 10). The platform, which is 15 meters long and between 8 meters and 5 meters wide, is elevated on three sides and level with a bedrock outcrop on its northern side (Figure 39). The southern face of the platform is most intact measuring up to 140 centimeters above the surrounding ground surface (Figure 40). The eastern platform edge is the most collapsed, but where intact measures 90 centimeters above the surrounding ground surface. Where intact, the western edge of the platform stands 60 centimeters and appears to have a ramped and lined entrance (Figure 41). The surface of the platform is level with the central area paved with small cobble and coral (Figure 42). It is likely that it is within this area that a house structure was erected. Several artifacts were observed on the paved surface including a coral abrader and fragment of yellow glazed stoneware (Figures 43 and 44). Also, on the west central edge of the paved portion of the platform (see Figure 39) is a cluster of branch coral (Figure 45). This may be the location of a house altar. Between 1 and 5 meters to the east of the platform along a raised bedrock ridge, a partially collapsed basalt cobble wall was built. In its present state, this wall extends from near the southeast corner of the platform for a distance of roughly 27 meters where it terminates in collapse. This stacked wall stand a maximum of 90 centimeters above the bedrock outcrop upon which it was built (Figure 46).

Given the construction style (paved stone platform with remnant protective wall) and site constituents (traditional artifacts, European ceramics, a traditional home altar), it seems likely that this site represents a transitional period household. Perhaps it was first inhabited during late Precontact times and used into the early Historic Period. Its use and location may be associated with the former traditional water source at Site 22397. Also, Sites 28582 and 28575 may have been used by the inhabitants of Site 28576. Given the *Māhele* testimony it is possible that Site 28576 was the *makai* residence referred to by Kanakaole.

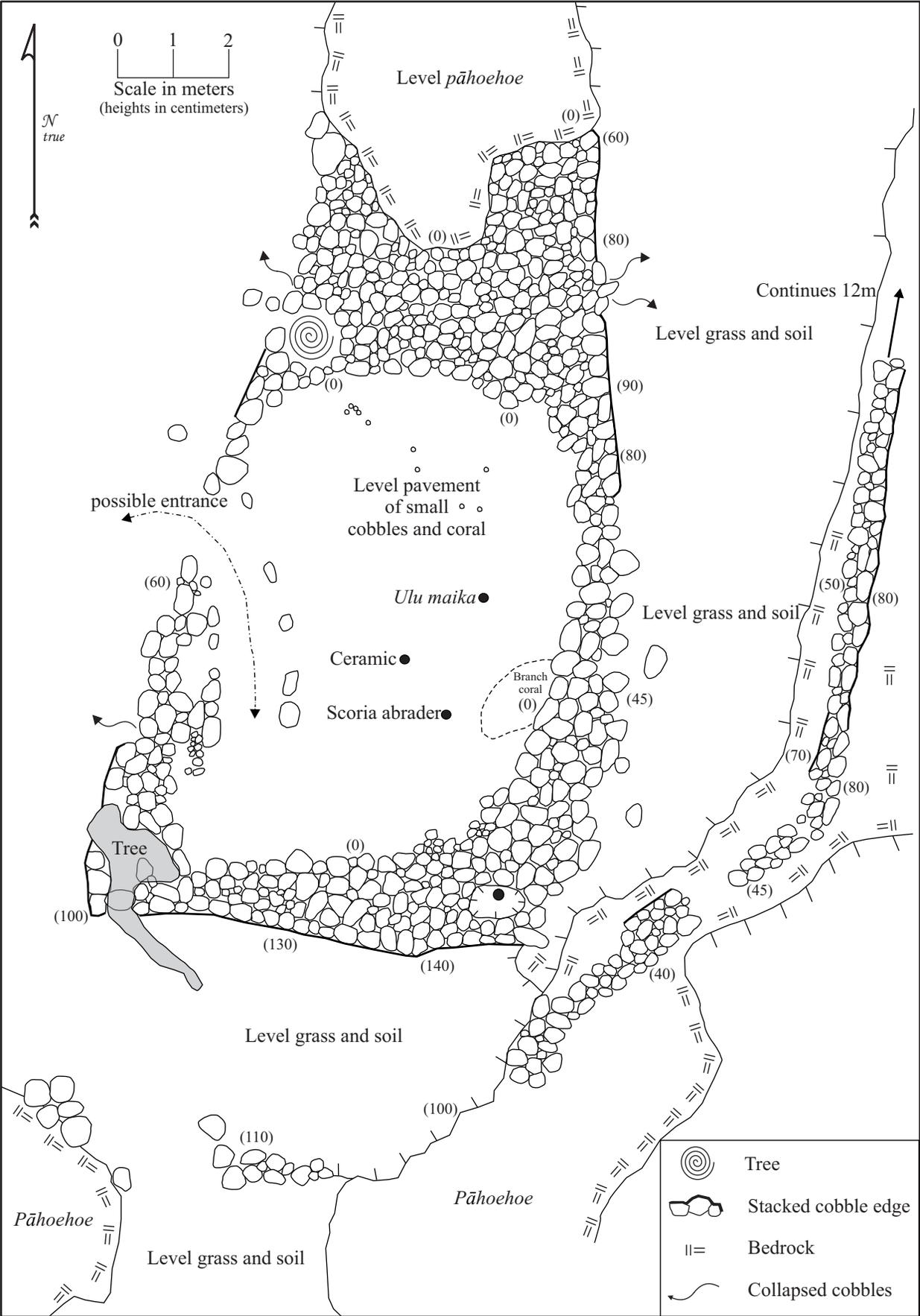


Figure 39. SIHP Site 28576 plan view.



Figure 40. SIHP Site 28576 southern wall of platform, view to the north.



Figure 41. SIHP Site 28576 cobble lined ramp.



Figure 42. SIHP Site 25676 paved platform view to the southeast.



Figure 43. SIHP Site 28576 coral abrader on platform pavement.



Figure 44. SIHP Site 28576 yellow glazed stoneware sherd on platform pavement.



Figure 45. SIHP Site 28576 branch coral concentration on platform pavement.



Figure 46. SIHP Site 28576 perimeter wall view to the east.

SIHP Site 28577

SIHP Site 28577 is a mostly collapsed core filled wall remnant located near the center of the parcel separating the immediate coastal area from the vegetated more inland area (see Figure 10). A barbed-wire fence has been placed where the wall has collapsed (Figure 47), indicating that at one point in time the wall functioned to limit the movement of livestock. There is a section of this wall that extends from the north into the study parcel for a distance of 8.2 meters (Figure 48). Here the wall is 1 meter high and 115 centimeters wide. While this wall was likely originally constructed during the middle twentieth century; according to Billy Paris, storm surge during the 1980s was responsible for damaging the wall, and the currently intact portion was rebuilt then and the wire fence was put up rather than rebuilding the entire wall.



Figure 47. SIHP Site 28577 collapsed portion, view to the east.



Figure 48. SIHP Site 28577, view to the northeast.

SIHP Site 28578

SIHP Site 28578 is a grouping of ten features (Features A – J) located in the west central portion of the study parcel and situated on the exposed coastal *pāhoehoe* (see Figure 10). Three of the ten features (Features A, B and I) and seven are pecked basins (Features C, D, E, F, G, H, J, and K) in a roughly linear arrangement (Figure 49). Each feature is individually described below.

Feature A, a *papamū*, is the southernmost feature at the site (see Figure 49). It has a 5 by 7 hole grid pattern and overall dimensions of 40 centimeters by 50 centimeters (Figure 50). Feature B is a *papamū* situated 80 centimeters to the northwest of Feature A (see Figure 49) with an overall dimension of 80 centimeters by 1 meter, and a 12 by 15 hole grid pattern (Figure 51). Feature C, located about 1 meter northeast of Feature A (see Figure 48), is a roughly rectangular pecked basin measuring 20 centimeters by 25 centimeters with a depth of 2 centimeters (Figure 52). Feature D, located 1 meter north of Feature C (see Figure 49), is a roughly rectangular pecked basin measuring 20 centimeters by 30 centimeters with a depth of 4 centimeters (Figure 53). Feature E, located 180 centimeters north of Feature D (see Figure 49), is a pecked double basin with an overall measurement of 60 centimeters by 80 centimeters with basin depths of 4 centimeters (southern basin) and 6 centimeters (northern basin) (Figure 54). Feature F is situated 60 centimeters north of Feature E (see Figure 49); it is a roughly square pecked basin measuring 30 centimeters by 30 centimeters with a depth of 2 centimeters (Figure 55). Feature G is similar in outline to Feature F (square measuring 30 centimeters on a side), but has a depth of 8 centimeters (Figure 56). Feature G is 120 centimeters east of Feature F (see Figure 49). Feature H is a relative large rectangular pecked basin (50 centimeters by 80 centimeters, 12 centimeters deep; Figure 57) located 40 centimeters north of Feature E (see Figure 49). Feature I is a very faint *papamū* (maybe a 5 by 7 hole grid) located 1 meter east of Feature H (see Figure 49). Two nails have been hammered into the *pāhoehoe* within this feature (Figure 58). Feature J, the northernmost of the sites features (see Figure 49), is a pecked double basin with an overall measurement of 60 centimeters by 1 meter with basin depths of 10 centimeters (northern basin) and 15 centimeters (southern basin) (Figure 59).

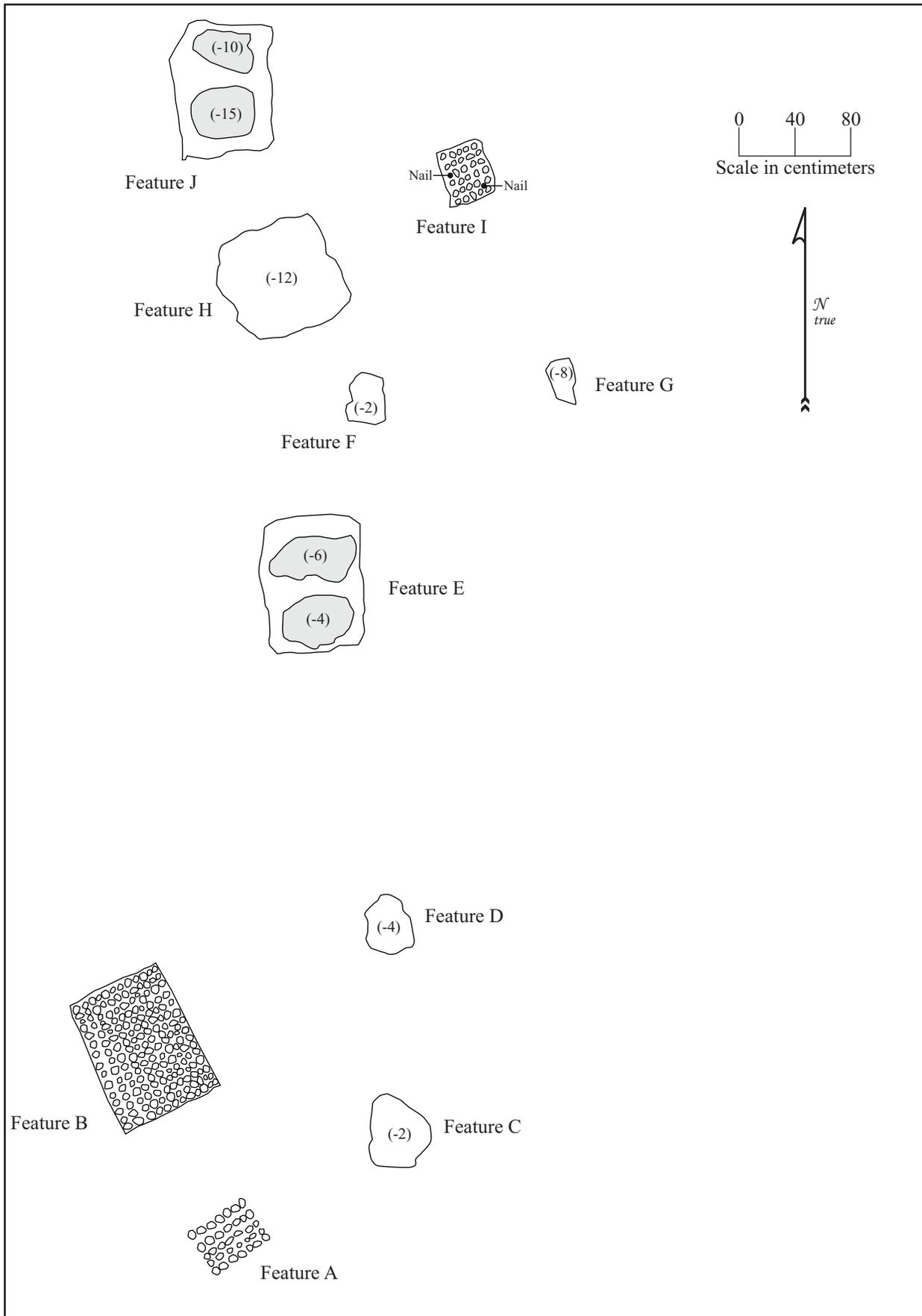


Figure 49. SIHP Site 28578 plan view.



Figure 50. SIHP Site 28578 Feature A, view to the northeast.



Figure 51. SIHP Site 28578 Feature B, view to the north.



Figure 52. SIHP Site 28578 Feature C, view to the northeast.



Figure 53. SIHP Site 28578 Feature D, view to the north.



Figure 54. SIHP Site 28578 Feature E, view to the northwest.



Figure 55. SIHP Site 28578 Feature F, view to the north.



Figure 56. SIHP Site 28578 Feature G, view to the north.



Figure 57. SIHP Site 28578 Feature H, view to the north.



Figure 58. SIHP Site 28578 Feature I, view to the northeast.



Figure 59. SIHP Site 28578 Feature J, view to the north.

SIHP Site 28579

SIHP Site 28579 is a cluster of two faint *papamū* situated 8 meters apart and close to the northwest parcel corner (see Figure 10), which is marked with a “+” etched into the bedrock (Figure 60). The northern *papamū* (Feature A) measures 90 centimeters by 75 centimeters (Figure 61) and southern *papamū* (Feature B) measures 50 centimeters by 40 centimeters (Figure 62). Both are badly eroded on level *pāhoehoe* and the grid patterns cannot be determined for either.



Figure 60. Northwest parcel corner marked by “+” in the *pāhoehoe*.



Figure 61. SIHP Site 28579 Feature A, view to the east.



Figure 62. SIHP Site 28579, view to the southeast.

SIHP Site 28580

SIHP Site 28580 consists of a *papamū* (Feature A) and a petroglyph (Feature B) located near the western parcel boundary (see Figure 10). The very faint *papamū* is on level *pāhoehoe* and measure 80 centimeters by 40 centimeters and the grid pattern cannot be discerned (Figure 63). The petroglyph is also very faint and is a triangle body form with overall dimensions of 45 centimeter up and down and 40 centimeters wide (Figure 64).



Figure 63. SIHP Site 28580 Feature A, view to the south.



Figure 64. SIHP Site 28580 Feature B, view to the east.

SIHP Site 28581

SIHP Site 28581 is a single *papamū* situated on elevated and tilted bedrock at the sand/*pāhoehoe* interface in the northwestern portion of the study parcel (see Figure 10). This 13 hole by 12 hole grid *papamū* measures 60 centimeters by 55 centimeters and presents an eastern aspect on a 30 degree tilted block of *pāhoehoe* (Figure 65). There are two additional holes on the south side of the grid. Together with Sites 28578, 28579, and 28580, this *papamū* is part of a larger complex of such sites along this portion of the coast.



Figure 65. SIHP Site 28581, view to the west (note two holes above scale bar).

SIHP Site 28582

SIHP Site 28582 consists of two bedrock mortars or *poho* ground into a fractured *pāhoehoe* surface roughly 20 meters northwest of the well at Site 22397 (see Figure 10). Both holes are 20 centimeters in diameter, with the western one being 10 centimeters deep and the eastern one 13 centimeters deep (Figure 66). It is possible that the use of this site was associated with the nearby water source during the Precontact and/or early Historic Period before the Historic well was constructed.



Figure 66. SIHP Site 28582, view to the southeast.

Summary and Conclusions

As a result of the current inventory survey nine previously unrecorded archaeological sites, and one previously recorded site were identified. The previously recorded site (SIHP Site 22397) is a middle twentieth-century well and water storage and delivery system. The newly discovered sites include two Historic ranching/boundary walls (SIHP Sites 28574 and 28577), one likely late Precontact/early Historic house platform (SIHP Site 28576), and six sites where the exposed bedrock has been modified into either mortars, basins, *papamū*, or a petroglyph (SIHP Sites 28575, 28578, 28579, 28580, 28581, and 28582). Based on the observed and recorded archaeological evidence it appears that the immediate project area was not intensively inhabited during Precontact times, perhaps only a single household that was reliant on a small water source. The area also appears to have been frequented by fisherman as evidenced by the *poho* and pecked basins, which presumably were used to prepare *palu* (bait and chum) for fishing. If modern traditional fishing practices can be used as a corollary, then the type of fishing using pounded bait would have been line fishing from the shore for *papio* and or *ulua* (juvenile and adult trevally). The numerous *papamū* might then have been used to pass time while fishing. It is also possible that the many *papamū* were used to plan for what has become known as the Battle of Kuamo‘o, which took place in 1819 roughly 3 kilometers north of the project area.

During the Historic Period the project area and surround land was converted for cattle ranching and by the early twentieth century the immediate shoreline was used by the ranch families for overnight and extended stays. The roadway, fencing, and water systems were improved during the middle twentieth century, obscuring and destroying earlier features. The archaeological evidence recorded and interpreted during this study documents this land use transition from the late Precontact through the Historic Period to Modern times.

SIGNIFICANCE EVALUATION AND TREATMENT RECOMMENDATIONS

The above-described archaeological sites are assessed for their significance based on criteria established and promoted by the DLNR-SHPD and contained in the Hawai'i Administrative Rules 13§13-284-6. This significance evaluation should be considered as preliminary until DLNR-SHPD provides concurrence. For a resource to be considered significant it must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

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

The significance and recommended treatment for the twenty-one recorded sites are discussed below and presented in Table 2.

Table 2. Site significance and treatment recommendations.

<i>SIHP No.</i>	<i>Type</i>	<i>Temporal Association</i>	<i>Significance</i>	<i>Recommended Treatment</i>
22397	Well and water storage	Historic	D	No further work
28574	Boundary wall	Historic	D	No further work
28575	<i>Papamū</i>	Precontact/Historic	D, E	Preservation
28576	Habitation platform	Precontact/Historic	D	Preservation
28577	Boundary wall	Historic	D	No further work
28578	<i>Papamū</i> and basins	Precontact/Historic	D, E	Preservation
28579	<i>Papamū</i>	Precontact/Historic	D, E	Preservation
28580	<i>Papamū</i> and Petroglyph	Precontact/Historic	D, E	Preservation
28581	<i>Papamū</i>	Precontact/Historic	D, E	Preservation
28582	Bedrock mortars	Precontact/Historic	D	No further work

All of the sites documented during the current study retain sufficient integrity and are assessed as significant under Criterion D for the information they have yielded and in one case (SIHP Site 28576) for potential additional information that could be collected relative to changing land use patterns from late Precontact times to the middle twentieth century. SIHP Sites 28575, 28576, 28578, 28579, 28580, 28581 are also considered significant under Criterion E due to the clustered presence of *papamū* and a petroglyph at the sites and the cultural significance that Hawaiians generally assign to such features. No further work is recommended for four of these sites (SIHP Sites 22397, 28574, 28577, and 28582) as they have been successfully documented as a result of the current study. Preservation is the recommended treatment for the other six sites (SIHP Sites 28575, 28576, 28578, 28579, 28580, and 28581); all of these are situated such that they can be avoided during any proposed development of the property. A preservation plan for these sites should be prepared and submitted to DLNR-SHPD for review and approval.

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APPENDIX A – LCAw. Testimony

No. 5523, Ohelo N.R. 181v8

Hear ye, ye Land Commissioners: Here is our petition to you for our land claim. I have an entire mo`o, mauka of Kula, that is the petition.
OHELO, at Honuaino

N.T. 634v8 No. 5523, Naohelo

Kaholua and Keawe, sworn, they have seen his ili section of Kapahee in Honuaino from Koholua in 1844.

No one objected to him.

[Award 5523; R.P. 3909; Honuaino 1 N. Kona; 1 ap.; 1 Ac.]

No. 5561G, Kaaoaokapu N.T. 641v8

Pepehu and Kahunanui, sworn, they have seen his house lot in Kapokiwai ili of Honuaino from Kaholua.

No one objected to him.

[Award 5561G; R.P. 4009; Honuaino 1 Kona; 1 ap.; .37 Ac.]

No. 6042, Ahia N.R. 186-187v8

Hear ye, ye Land Commissioners to Quiet Land Titles: This claim is for your information. The explanation concerns the `ili kupono which has been lost, of Lehuula nui. However, the coconut /trees/ of the kupono which have been taken by the ahupua`a should be returned, and the kupono /status/ should apply permanently, so says the law. Or else, let the coconut trees be divided at the boundaries of the `ilis between those coconuts. Or else there is a great loss to my land claim. A certain lihi /piece of boundary land/ has been lost to the ahupua`a, and another to the government. I have not suffered a loss of the government lihi, but my loss is of the lihi of the ahupua`a. It is for you to rectify my land claim. This petition is by
AHIA

Lehuula, Hawaii, 21 January 1848

N.T. 634v8 No. 6042, Ahia

Kamahiai and Pepehu, sworn, they have seen his land.

Section 1 - Ililoa, Lehuula from Kuahini [Kuakini?] in 1844.

Section 2 - House lot in Halelani of Honuaino 1 ahupuaa from Nawahine, Kahanaholua is also in this claim.

No one objected.

[Award 6042; R.P. 5220; Honoino N. Kona; 2 ap.; .81 Ac.]

No. 7901, Kanakaole, Kailua, January 27, 1848
N.R. 512v8

Greetings to the Land Commissioners: I hereby state my house lot claim which is makai in the ahupua'a of Honuaino 1. It is 72 fathoms /in circumference/. My land claim is also in Honuaino 1 in the ili named Waipio. 3 taro kihapai are in the ahupua'a of Lehuula 1, and 5 sweet potato kihapai are in Honuaino 1.
 KANAKAOLE

N.T. 640-641v8
 No. 7901, Kanakaole

Kaaoakapu and Pepehu, sworn, they have seen section 1 - Ili of Waipio in Honuaino 1 ahupuaa from Kaholua in 1844.

Section 2 - House lot in Haliipalala ili of Honuaino, from the parents in 1819.
 Section 3 - 5 potato kihapais in Kapahee ili of Honuaino from Keawe in 1847.

No one objected to him.

[Award 7901; R.P. 3908; Honuaino 4 Kona; 1 ap.; 2 Acs]

No. 8523D, Kaoeno (page 475)
N.T. 633v8

Kapuhi and Pepehu, sworn, they have seen his ili section of Kamuku in Honuaino, from the parents in 1819.

[Award 8523D; R.P. 5054, Honuaino N. Kona; 1 ap.; .45 Ac.; no text located on page 475]

An Archaeological Preservation Plan for Six Sites on TMK:3-7-9-06:014

Honua'ino 1st Ahupua'a
North Kona District
Island of Hawai'i



Draft Version

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ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

An Archaeological Preservation Plan for Six Sites
on TMK:3-7-9-06:014

Honua'ino 1st Ahupua'a
North Kona District
Island of Hawai'i

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1. Archaeological preservation sites within the subject parcel.	1
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INTRODUCTION

At the request of Margaret Schattauer, Rechtman Consulting, LLC has prepared this preservation plan for six sites (SIHP Sites 28575, 28576, 28578, 28579, 28580, and 28581) on a 2.75 acres parcel (TMK: 3-7-9-06:014) in Honua‘ino 1st Ahupua‘a, North Kona District, Island of Hawai‘i (Figure 1). The landowner plans on building a single-family residence in the central portion of the *mauka* half the parcel. An Archaeological Inventory Survey (Rechtman 2010) was completed for the project area, which resulted in the recordation of ten archaeological sites. A portion of one of these sites had been previously described by Mills and Irani (2000) as SIHP Site 22397. This site is a mid-twentieth century well and associated water storage and delivery system. The other sites recorded during the current study include two historic walls (SIHP Sites 28574 and 28577); a late Precontact/early Historic house platform (SIHP Site 28576); and six sites where the bedrock has been modified creating either *poho* (in one case, SHIP Site 28582), *papamū* (in three cases, SIHP Sites 28575, 28579, and 28581), *papamū* and basins (in one case, SIHP Site 28578), and *papamū* and a petroglyph (in one case, SIHP Site 28580).

Within the current study parcel, six sites (SIHP Sites 28575, 28576, 28578, 28579, 28580, and 28581) were recommended for preservation (Table 1). Collectively these sites typify Precontact and early Historic use of this shoreline area, preserving them will help to conserve a cultural legacy that is rapidly disappearing.

Table 1. Archaeological preservation sites within the subject parcel.

<i>SIHP No.</i>	<i>Formal Type</i>	<i>Functional Type</i>	<i>Age</i>
28575	<i>Papamū</i>	Recreation	Precontact/Historic
28576	Habitation platform	Residential	Precontact/Historic
28578	<i>Papamū</i> and basins	Recreation	Precontact/Historic
28579	<i>Papamū</i>	Recreation	Precontact/Historic
28580	<i>Papamū</i> and Petroglyph	Recreation	Precontact/Historic
28581	<i>Papamū</i>	Recreation	Precontact/Historic

All SIHP site numbers are preceded by the state, island, and U.S.G.S. quad prefix 50-10-37.

Project Area Description

Although the current study parcel is 2.75 acres (Figure 2), more than half of the area (1.65 acres) is considered shoreline and tidal consisting of a shallow beach sand deposit and an exposed *pāhoehoe* shelf (Figure 3). The remaining 1.1 acres of land exhibits shallow soil deposits over *pāhoehoe* bedrock, which is exposed on the surface throughout much of the parcel. The study parcel is bounded on its *mauka* side by the old coastal Government Road corridor, on the *makai* side by the ocean, and to the north and south by already developed single-family residential parcels.

The current study area is situated at elevations ranging from sea level to 20 feet above sea level. Throughout much of the project area the terrain is undulating *pāhoehoe* (Figure 4). The soil within the parcel is described as Waiaha extremely stony silt loam (WHC) on 6-12 percent slopes and Pahoehoe lava flow (rLW) (Sato et al. 1973). Project area flora consist of an over story of *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), and *opiuma* (*Pithecellobium dulce*) with a sparse under story of various non-native grasses, vines, and weeds (Figure 5), and a few coconut palms located at the sand/coastal *pāhoehoe* interface (Figure 6).

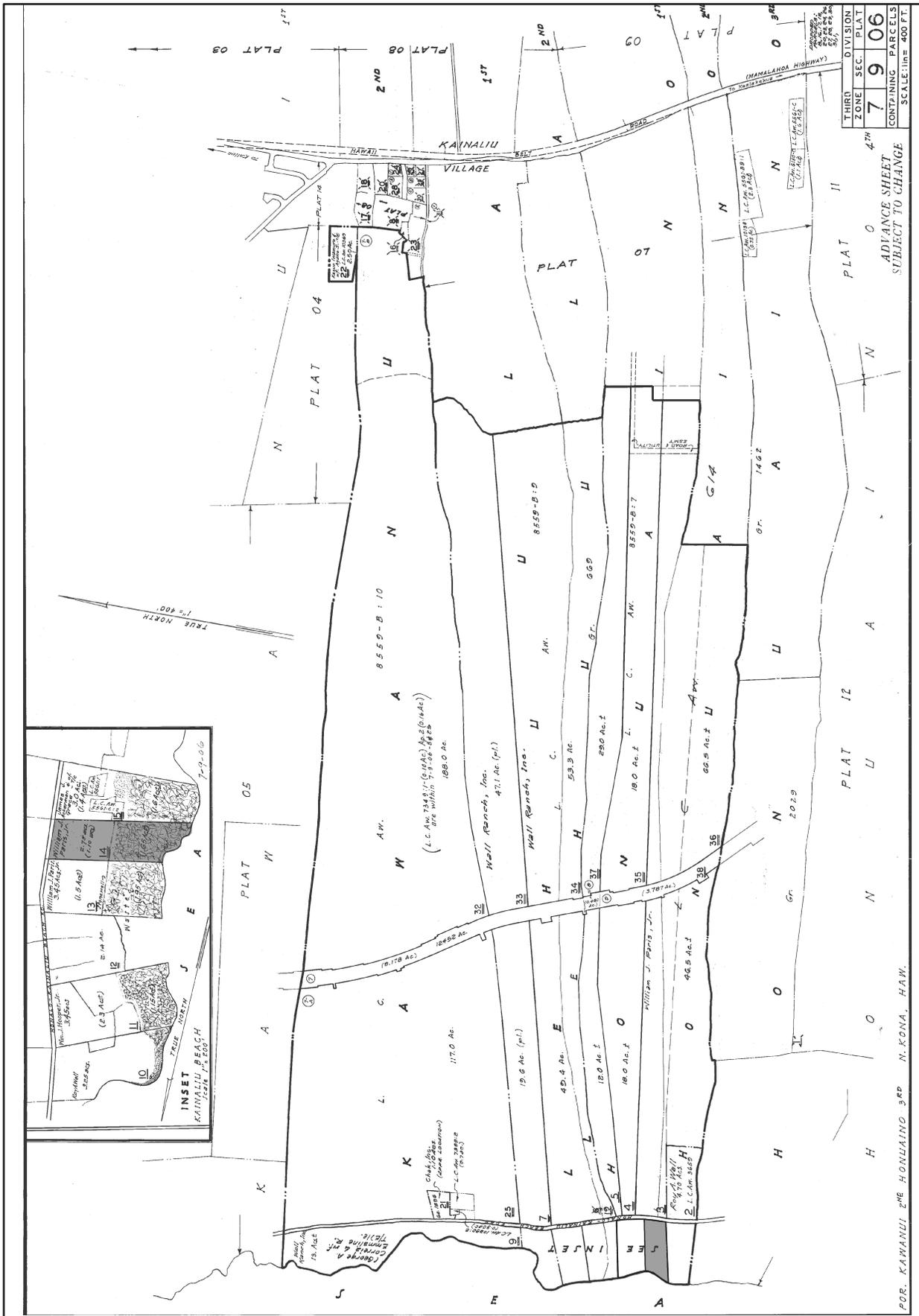


Figure 2. Tax Map Key (TMK): 3-7-9-06 showing the current study parcel shaded gray (Parcel 014).



Figure 3. *Makai* portion of study parcel, view to the northwest.



Figure 4. Typical ground surface with undulating *pāhoehoe*, view to the east.



Figure 5. Typical vegetation cover, view to the east.



Figure 6. Coconut palms at sand/*pāhoehoe* interface, view to the north.

ARCHAEOLOGICAL BACKGROUND

John Rienecke (n.d.) surveyed this portion of the Kona coast in 1929 and recorded that “the entire section of Honuaino, Lehuula, and Kawanui above the government trail, on the coarse lava of the steep slope, is covered with traces of ruins, walls old and new, pens, house platforms, puoa or grave mounds, and nondescript platforms, heaps, and fills in depressions. Probably there are two or three hundred sites here, could one identify them. Unfortunately the slope is very thickly overgrown and entirely impracticable to survey.” (n.d.:105). A more recent reconnaissance of a portion of this area conducted by Rechtman Consulting, LLC in 2007 did find that hundreds of archaeological features do exist *mauka* of the old Government Road. Several archaeological studies have taken place to the south of the current project area (Hammatt et al. 1997; Haun and Henry 2004; Robins et al. 2001; Rosendahl and Jensen 2000; Walker and Rosendahl 1990). The findings of these studies are summarized below.

Paul H. Rosendahl, Ph.D. Inc. (PHRI) conducted a field inspection (Walker and Rosendahl 1990) of a portion of the proposed Oceanside 1250 (Hokulia) project area. Their work focused on the coastal sites and only noted the existence of features in the *mauka* portion of their study area. This study area was incorporated into the more comprehensive inventory survey conducted by Cultural Surveys Hawaii (Hammatt et al. 1997) for the entire Oceanside 1250 (Hokulia) development area. As a result of the survey conducted by Hammatt et al. (1997) a total of 408 sites were identified consisting of 722 structural and non-structural features. Formal site types included; *ahu*, alignment, C-shape, U-shape, and L-shape, enclosure, lava blister and tube, modified blister, sink, and outcrop, mound, *pahoehoe* basins depression, pavement, petroglyphs and *papmu*, platform, platform-enclosure, rock shelter, terrace, trail, and wall. “Eleven primary function categories were identified among the sites within the project area: agriculture; animal containment (pens); habitations; walls (boundary or agricultural); human burial; heiau and shrines; railroad; refuge structures; indeterminate; trails and roads; and well structures” (Hammatt et al. 1997 vol.1:95). Agricultural complex Site 16379 was located directly *makai* of the current study area and consisted of the remains of formal walled fields, mounds, one enclosure (Site 16488) and one terrace (Site 16491) that had been greatly disturbed by modern and historic pasture improvement. SIHP Site 7214/10302, the historic railroad bed that runs the length of the current study area’s *makai* boundary also marks much of the Hammatt et al. (1997) survey area’s *mauka* boundary. This railroad bed was used by the above-referenced sugar operations between 1901-1926 to transport sugarcane to the Waiaha Mill. Other sugarcane related areas within the Hammatt et al. (1997) survey include Site 10305 in which earlier agricultural features (*kuaiwi* and terrace walls) *muaka* of the railroad bed were modified to create rectangular fields. Harvested sugarcane was transported by the use of sleds, pulleys, and gravity down slope to the railroad. Large, semi-circular well-faced mounds were also recorded as clearing piles to facilitate sugarcane cultivation. Site 16359 also exhibits similar ground and formal walled field alterations for the cultivation of sugarcane. Sites 10305 and 16359 were located north of the current study area and at approximately the same elevation.

In 2000, PHRI conducted an archeological inventory survey of TMK: 3-8-1-07:Por. 1 and 45, a 248 acre parcel located in the *ahupua’a* of Onouli 1st and 2nd, and Keopuka (Rosendahl and Jensen 2000). PHRI recorded fifty-seven Precontact and Historic Period sites. Formal feature types included walls, pits, terraces, mounds, alignments, enclosures, platforms, an agricultural area, a modified outcrop, a stepping stone trail, a kerbstone trail, and a railroad causeway. Two of the sites recorded during their study are also present within the current study area. Both of these sites have also been recorded in other archeological surveys and have previously and subsequently been assigned separate SIHP Site numbers. The railroad causeway identified by Rosendahl and Jensen (2000) as SIHP Site 11328 was previously recoded as SIHP site 7214 and SIHP Site 10302, and a portion of it serves as the western boundary for the current study parcel. The Historic boundary/ranching wall recorded by PHRI as SIHP Site 11276 was rerecorded by Hammatt et al. (1997) and Robbins et al. (2001), and designated as SIHP Site 16800, this wall serves as the southern property boundary of the current study parcel.

In 2001, Scientific Consultant Services (Robins et al. 2001) Inc. conducted an archaeological inventory survey for the proposed Māmalahoa bypass road corridor. The proposed road corridor extends through 17 *ahupua’a* within the North and South Kona Districts on the Island of Hawai‘i. Two sites (Sites 16799 and 16800), both previously recorded by Hammatt et al. (1997), extend *makai* into the current project area. Functions for the recorded Historic sites are ranching and boundary walls. Site 16799 extends *makai* along the *ahupua’a* boundary between Kalukalu 3rd and Onouli 1st through the current project area and continues

makai out of the current project area for an undetermined distance. Site 16800 extends *makai* into the study parcel along the *ahupua'a* boundary of Onouli 1st and 2nd, and trends *makai* out of the study parcel for an undetermined distance. Site 16800 forms the southern property boundary of the current study parcel.

In 2004, Haun & Associates (Haun and Henry 2004) conducted an archeological inventory survey of TMK: 3-7-9-12:por. 9, a 4 acre parcel located in the *ahupua'a* of Hokukano 2nd, North Kona District Island of Hawai'i, for Mr. Gary Yamagata. Their project area was located north of the current project area at roughly the same elevation. The survey identified three sites, consisting of a Historic railroad causeway (SIHP Site 7214/10302), a stone wall, and a Historic agricultural pavement.

Closer to the current study area, Mills and Irani (2000) completed a survey of along a roughly two-mile section the old Government Beach Road extending from Honalo Ahupua'a in the north to Honua'ino in the south. They recorded three features within the current study parcel, a Historic Period well (SIHP Site 22397) and two walls (Wall #4 and Wall #6). The site number for the well was retained, and the latter two features were assigned a single SIHP number (SIHP Site 28574) as part of the current study.

CULTURE-HISTORICAL CONTEXT

The current project area lies within what has been termed the Kona Field System (Cordy 1995; Newman 1970; Schilt 1984). This area of dryland agricultural fields extends north from Ho'okena Ahupua'a south to at least Kaū Ahupua'a and east from the coastline all the way to the forested slopes of Hualālai (Cordy 1995). A large portion of the field system is designated in the Hawai'i State Inventory of Historic Places (SIHP) as Site 50-10-37-6601 and has been determined eligible for inclusion in the National Register of Historic Places. The basic characteristics of this agricultural/residential system as presented in Newman (1970) have been confirmed and elaborated on by ethnohistorical investigations (Kelly 1983) and summarized by Cordy (1995). The construct is based on the Hawaiian terms for the major vegetation zones, which are used to define and segregate space within the region's *ahupua'a*. These zones are bands roughly parallel to the coast that mark changes in elevation and rainfall. The current study parcel is located at the shore in the *kula* zone. Provided below is information on the Kona Field System abstracted from prior studies (PHRI 1999; Rechtman et al. 2001).

The *kula* zone is the area from sea level to 600 feet elevation. Annual rainfall in the *kula* is 75 to 125 centimeters. This lower elevation zone is traditionally associated with habitation and the cultivation of sweet potatoes (*'uala*), paper mulberry (*wauke*), and gourds (*ipu*). Informal agricultural features, such as clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common throughout much of this zone, as shown in archaeological findings (Hammatt and Clark 1980; Hammatt and Folk 1980; Haun et al. 1998; Schilt 1984). Permanent habitation sites can be scattered throughout the agricultural portion of the *kula*, but they are commonly concentrated along the shoreline subdivision of the *kula* zone (Cordy 1981). The more *mauka* portion of this zone was primarily used for agricultural purposes with mainly temporary habitations and an occasional permanent habitation (Borthwick et al. 1997; Rosendahl and Rosendahl 1986).

The archaeological record contributes to an understanding of how the Kona Field System developed over time. Precisely how the record is interpreted is reflected in the various chronologies proposed for the system (Burtchard 1995; Cordy 1995; Haun et al. 1998; Hommon 1986; Kirch 1985; Schilt 1984). The chronology and terminology outlined by Haun et al. (1998) is used in the present discussion, and the chronological summary below is abstracted from Rechtman et al. (2001).

Precontact Period

The conventional wisdom has been that first inhabitants of Hawai'i Island probably arrived by at least A.D. 300, and focused habitation and subsistence activity on the windward side of the island (Burtchard 1995; Kirch 1985; Hommon 1986). However, there is no archaeological evidence for occupation of the Kona region (or perhaps anywhere in Hawai'i) during this initial, or Colonization stage of island occupation (A.D. 300 to 600). More recently, Kirch (2011) has convincingly argued that Polynesians may not have arrived to the Hawaiian Islands until at least A.D. 1000, but expanded rapidly thereafter. The implications of this on the currently accepted chronology would only alter the timing of the Colonization and Early and Late Expansion Periods, shifting the colonization to A.D. 1000 to 1100, the Early Expansion to A.D. 1100 to 1200, and the late expansion to A.D. 1200 to 1400.

Through the first half of the Early Expansion Period, permanent habitation was still concentrated on the windward side of the island. It is likely that windward residents traveled to the leeward Kona coast for resource extraction purposes (Cordy 1995). By the latter half of the Early Expansion Period, permanent habitation was beginning in Kona and was concentrated along the shoreline and lowland slopes (Cordy 1981; 1995; Schilt 1984). Informal agricultural fields were probably situated in areas with higher rainfall.

The Late Expansion Period saw the spread of agricultural fields and habitation areas across the slopes and coastal areas of Hualālai (Burtchard 1995; Cordy 1995). The earliest fields may have been located in the southern portion of the system (Schilt 1984), with new fields expanding northward over time (Haun et al. 1998). The beginning of the Kona Field System is marked by the development of formal walled agricultural fields sometime during the initial stages of the Intensification Period (A.D. 1400 to 1600) (Schilt 1984). Radiocarbon data indicates that the population in Kona increased dramatically during this period (Burtchard 1995; Haun et al. 1998; Schilt 1984). The pressures of a growing population on the food supply demanded growth in the agricultural fields.

The Competition Period (a.d. 1600 to 1800) may have seen the environment reach its maximum carrying capacity, resulting in social stress between neighboring groups. The resulting hostility is reflected archaeologically with the frequent occurrence of refuge caves dating to this period (Schilt 1984). This volatile period was probably accompanied by internal rebellion and territorial annexation (Hommon 1986; Kirch 1985).

Historic Period

The chronology presented below is a modified version of one developed during the Ali'i Highway inventory survey and associated oral history work (Haun et al. 1998).

The first Historic Period, termed the Last of the Ruling Chiefs (A.D. 1778-1819), begins with Captain Cook's arrival in the islands and ends with King Kamehameha's death and the abandonment of the traditional *kapu* system in 1819. Early historical accounts emphasize that modern day Kailua Town was a significant political seat and population center during this period. Settlement and subsistence practices within the Kona Field System continued to operate much as it had prehistorically through the first few decades of the Historic era (Handy and Handy 1972). During this period nearby Onouli Ahupua'a is referenced as the location where the boat that was stolen from Captain Cook's Ship in February 1779, was dismantled for its iron nails by Chief Palea, a close friend of Chief Kalani'opu'u. Iron nails were highly prized by the Hawaiians specifically for fashioning fishhooks. In fact, although the English had given the Hawaiians fishhooks, they preferred to manufacture their own from nails. It was the theft of this boat that led to the skirmish in which Captain Cook was killed (Kamakau 1992). In 1819 Kamehameha died and his son Liholiho becoming the successor (Kelly 1983). Six months after Liholiho became the successor the traditional *kapu* system was abandoned, but not without resistance. Late in 1819, Kekuaokalani led a military campaign against Liholiho in a last ditch effort to protect the old religion. This conflict has been dubbed the Battle of Kuamo'o, which took place about 3 kilometers to the north of the current study parcel. Liholiho's forces were able to defeat Kekuaokalani and his warriors and the ensuing changes in the social and economic patterns began to affect the lives of the common people.

The Merchants and Missionaries Period (A.D. 1820-1847), was a time of social change in Hawai'i. This period begins with Liholiho moving his court to O'ahu, lessening the burden of resource procurement for the chiefly class. Some of the work of the commoners shifted from subsistence agriculture to the production of foods and goods that they could trade to the early Western visitors. Introduced foods specific for trade with Westerners included yams, coffee, melons, Irish potatoes, Indian corn, beans, figs, oranges, guavas, and grapes (Wilkes 1845). Missionaries began arriving to Hawai'i in the 1820's and brought more social and religious change. In 1823, the Missionary William Ellis traveling south around the island stopped at Honua'ino. He reported:

Leaving Tuamoo [Kuamoo], we passed on to Honuaino, where, being thirsty and weary, we sat down on the side of a canoe, under the shade of a fine-spreading hibiscus, and begged a little water of the villagers.

We had not remained many minutes before we were surrounded by about 150 people. After explaining to them in a few words our feelings on meeting them, we asked them if they would like to hear what we had to say to them. They replied, Ae (yes,) and sat down immediately.

We sung a hymn and prayed, and I addressed then for about a half an hour on the first principles of Christianity. They all appeared gratified . . . (Ellis 2004:111)

The ever-growing population of Westerners forced religious, socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership, and the Great *Māhele* became the vehicle for determining ownership of native lands. During this period, termed the Legacy of the Great *Māhele* (1848-1899), land interests of the King (Kamehameha III), the high-ranking chiefs, and the low-ranking chiefs, the *konohiki*, were defined. The chiefs and *konohiki* were required to present their claims to the Land Commission to receive awards for lands provided to them by Kamehameha III. They were also required to provide commutations to the government in order to receive royal patents on their awards. The lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This process expedited the work of the Land Commission (Chinen 1961:13).

During the *Māhele* all lands were placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and *Konohiki* Lands. All three types of land were subject to the rights of the native tenants therein. In 1862, the Commission of Boundaries (Boundary Commission) was established in the Kingdom of Hawai'i to legally set the boundaries of all the *ahupua'a* that had been awarded as a part of the *Māhele*. Subsequently, in 1874, the Commissioners of Boundaries was authorized to certify the boundaries for lands brought before them. The primary informants for the boundary descriptions were old native residents of the lands, many of which had also been claimants for *kuleana* during the *Māhele*. This information was collected primarily between A.D. 1873 and 1885 and was usually given in Hawaiian and transcribed in English as they occurred.

As a result of the *Māhele*, Honua'ino 1st Ahupua'a was awarded in its entirety as a *konohiki* award to W. C. Lunalilo (Figure 7), who in 1873 became the sixth Hawaiian monarch. His reign was short, lasting only 13 months, and he was succeeded in 1874 by King Kalākaua. There appear to have been five *kuleana* claims made in Honua'ino 1st (Appendix A), all were awarded but only one of these (LCAw. 8523-D) positively shows up on maps; three of the others could be unlabeled parcels depicted in Figure 8 just *mauka* of Māmalahoa Highway. With the exception of the award to Kanakaole (LCAw. 7901), these *kuleana* appear to have been located *mauka* in the *ahupua'a*. Kanakaole claimed one *apana* as a "house lot claim which is *makai* in the *ahupua'a* of Honuaino 1." (Native Register v.8:512). It is possible that Kanakaole's coastal house is the platform identified as SIHP Site 28576 (see below). There were no maps located showing the location of this *kuleana* parcel.

As Honua'ino 1st was a *konohiki* award its boundaries were verified during Boundary Commission testimony in 1873. The testimony cited below becomes clearer when also looking at Figures 7 and 8.

Keakaikawai^k sworn

I know the land of Honuaino 1st and the boundaries of the portion that lies *mauka* of the *makai* wall of the Great walled lot. The boundary between this portion of Honuaino 1st and Lehuula iki, is at the *makai* side of the Great walled lot, on the *kuaiwi* between the two lands, that runs from the shore to this point. Thence *mauka* across the Great walled lot, on the same *kuaiwi*, thence up the *Kau* side of the *awaawa* [gulch], that is on Lehuula iki to a *kukui* tree; thence Lehuula nui and Honuaino 1st join; thence along Lehuula Nui to Koaneenee where Honuaino 3rd and Lehuula Nui join and cut Honuaino 1st off. Thence down along Charley Hall's land on Honuaino 2nd [LCAw. 614]. The lands there are about as wide as from here to Todd's house.

Hapuku^k sworn

There is a *kuaiwi* from the shore to the Great walled lot; between Honuaino 1st and Lehuula iki. Thence *mauka* along the *kuaiwi*, across the Great walled lot to the *mauka* end of Lehuula iki, thence along Lehuula Nui to Koaneenee where Honuaino 1st ends, thence *makai* along Honuaino 2nd to *makai* of the woods, thence down the *kuaiwi* to the *makai* end of the great walled lot.

While the above testimonies do not provide much in the way of coastal detail, they both mention the Great walled lot. This was a property owned by William Johnson that he purchased (among many others) as a grant (see Figures 7 and 8).

Following the *Māhele*, the Kingdom initiated a program of selling parcels of land to interested residents. The land was that reserved as Government lands — those lands retained by the government, or commuted to the Government in lieu of paying for other parcels retained by the *konohiki* awardees of the *Māhele*. The grant program was initiated in an effort to encourage more native tenants onto fee-simple parcels of land, although non-Hawaiians also took advantage of the program. The parcels of land sold in the grants were quite large, ranging in size from approximately ten acres to many hundreds of acres. When the sales were agreed upon, Royal Patents were issued and recorded following a numerical system that remains in use today. As can be seen on Figure 7 and 8 much of the area surrounding the current study parcel was acquired by grant and later private purchase (as was the case with Lunalilo's *ahupua'a* award). William Johnson came to own much of the general project area and beyond. Johnson was the progenitor to many of the Kona ranching families, and his lands were eventually divided among several descendants into separate adjoining ranches. The current project area was part of the ranch lands of W. J. Paris.

The final period in this sequence is the Territorial Period (1900 to 1959). This period is marked by a significant decline in the native population. Residences along the shore comprised of garden plots and animal pens were concentrated in a few coast settlements (i.e., Kailua and Keauhou). Residences occurring inland were associated with agriculture and ranching pursuits. During this period many walls were constructed to keep cattle from entering the garden and residential areas. The land encompassed by the current project area and much of the adjacent lands continued to be utilized for cattle ranching purposes by the Johnson descendant families during this Period. And it was also during the early part of this Period that the ranches subdivided out the Kainaliu Beach Lots (including the current study parcel) for private residential purposes.

DESCRIPTION OF PRESERVATION SITES

Six sites on TMK:3-7-9-06:014 are to be preserved and protected from potential impacts caused by the development of a single family dwelling within the subject parcel. The preservation sites include a late Precontact/early Historic house platform (SIHP Site 28576); three *papamū* sites (SIHP Sites 28575, 28579, and 28581), a *poho* site (SIHP Site 28582), a *papamū* and basin site (SIHP Site 28578), and a *papamū* and a petroglyph site (SIHP Site 28580). Site 28576 was determined to be significant under Criterion D and the other five sites under Criteria D and E. The locations of the preservation sites relative to each other and the subject parcel boundaries are shown in Figure 9. These sites were recorded in detail by Rechtman (2010). Descriptions of each site are provided below.

SIHP Site 28575

SIHP Site 28575 is a *papamū* on an exposure of *pāhoehoe* bedrock that is tilted 10 degrees with a northeastern aspect (Figure 10). It is situated 25 meters west of Site 28582 and 20 meters east of Site 28576 (see Figure 9). The badly eroded surface of the *papamū* measure 90 centimeters by 75 centimeters and appears to be arranged in a 15 hole by 12 hole pattern. A coral abrader fragment was observed on the surface 3.5 meters to the southwest of the *papamū* at the edge of the *pāhoehoe* outcrop (Figure 11). It is possible that this site was associated with the use of Site 28576 during Precontact and early Historic times.

SIHP Site 28576

SIHP Site 28576 is a roughly rectangular platform and remnant wall feature located 20 meters west of Site 28575 along the northern parcel boundary; the study parcel boundary actually bisects the site, with the bulk of the platform being on the adjacent parcel (see Figure 9). The platform, which is 15 meters long and between 8 meters and 5 meters wide, is elevated on three sides and level with a bedrock outcrop on its northern side (Figure 12). The southern face of the platform is most intact measuring up to 140 centimeters above the surrounding ground surface (Figure 13). The eastern platform edge is the most collapsed, but where intact measures 90 centimeters above the surrounding ground surface. Where intact, the western edge of the platform stands 60 centimeters and appears to have a ramped and lined entrance (Figure 14). The surface of the platform is level with the central area paved with small cobble and coral (Figure 15). It is likely that it is within this area that a house structure was erected. Several artifacts were observed on the paved surface including a coral abrader and fragment of yellow glazed stoneware (Figures 16 and 17).

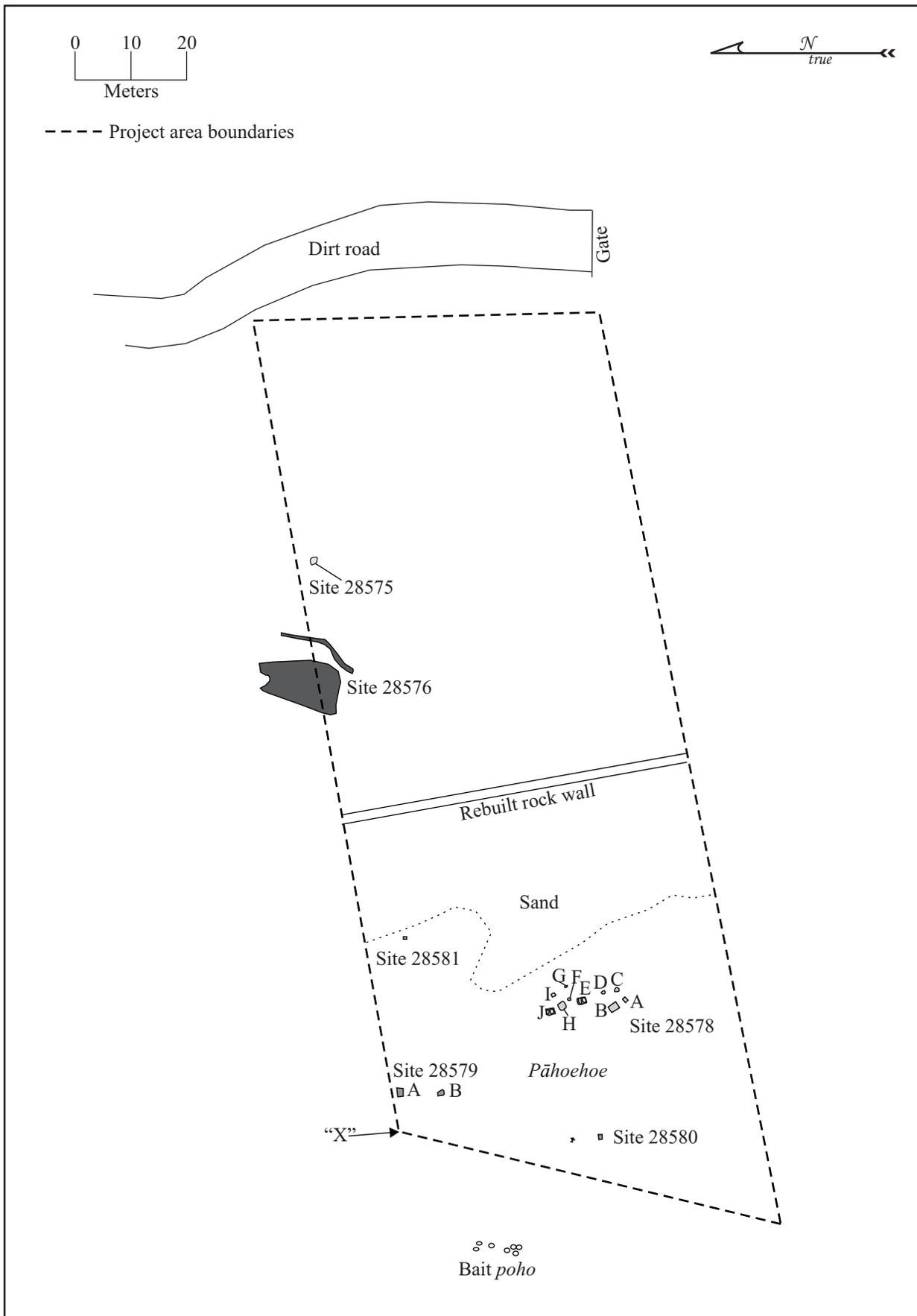


Figure 9. Locations of preservation sites within subject parcel.

Also, on the west central edge of the paved portion of the platform (see Figure 12) is a cluster of branch coral (Figure 18). This may be the location of a house altar. Between 1 and 5 meters to the east of the platform along a raised bedrock ridge, a partially collapsed basalt cobble wall was built. In its present state, this wall extends from near the southeast corner of the platform for a distance of roughly 27 meters where it terminates in collapse. This stacked wall stand a maximum of 90 centimeters above the bedrock outcrop upon which it was built (Figure 19).

Given the construction style (paved stone platform with remnant protective wall) and site constituents (traditional artifacts, European ceramics, a traditional home altar), it seems likely that this site represents a transitional period household. Perhaps it was first inhabited during late Precontact times and used into the early Historic Period. Its use and location may be associated with the former traditional water source at Site 22397. Also, Sites 28582 and 28575 may have been used by the inhabitants of Site 28576. Given the *Māhele* testimony it is possible that Site 28576 was the *makai* residence referred to by Kanakaole.



Figure 10. SIHP Site 28575, view to the west.



Figure 11. SIHP Site 28575 coral abrader on surface.

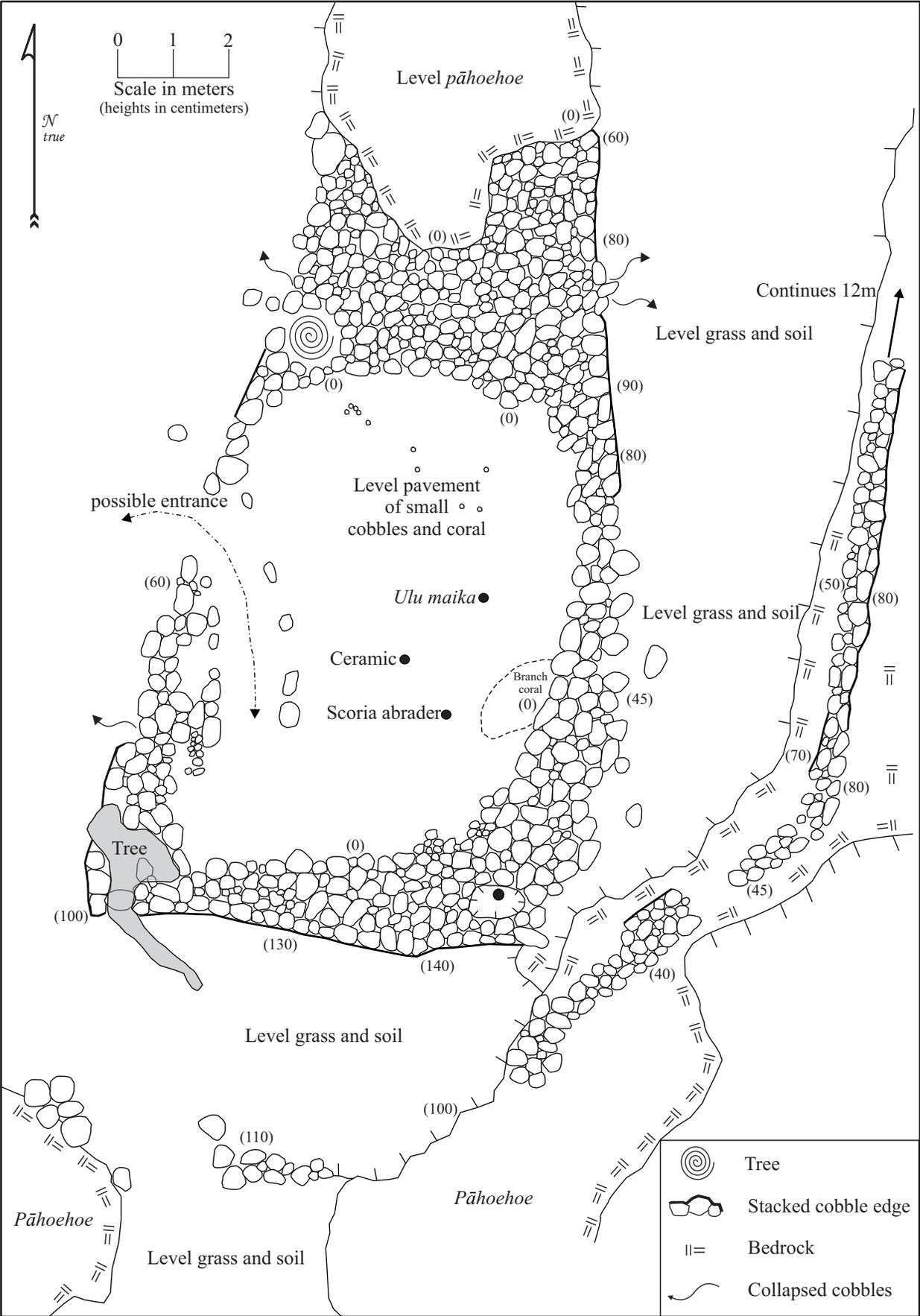


Figure 12. SIHP Site 28576 plan view.



Figure 13. SIHP Site 28576 southern wall of platform, view to the north.



Figure 14. SIHP Site 28576 cobble lined ramp.



Figure 15. SIHP Site 25676 paved platform view to the southeast.



Figure 16. SIHP Site 28576 coral abrader on platform pavement.



Figure 17. SIHP Site 28576 yellow glazed stoneware sherd on platform pavement.



Figure 18. SIHP Site 28576 branch coral concentration on platform pavement.



Figure 19. SIHP Site 28576 perimeter wall view to the east.

SIHP Site 28578

SIHP Site 28578 is a grouping of ten features (Features A – J) located in the west central portion of the study parcel and situated on the exposed coastal *pāhoehoe* (see Figure 9). Three of the ten features (Features A, B and I) and seven are pecked basins (Features C, D, E, F, G, H, J, and K) in a roughly linear arrangement (Figure 20). Each feature is individually described below.

Feature A, a *papamū*, is the southernmost feature at the site (see Figure 20). It has a 5 by 7 hole grid pattern and overall dimensions of 40 centimeters by 50 centimeters (Figure 21). Feature B is a *papamū* situated 80 centimeters to the northwest of Feature A (see Figure 20) with an overall dimension of 80 centimeters by 1 meter, and a 12 by 15 hole grid pattern (Figure 22). Feature C, located about 1 meter northeast of Feature A (see Figure 48), is a roughly rectangular pecked basin measuring 20 centimeters by 25 centimeters with a depth of 2 centimeters (Figure 23). Feature D, located 1 meter north of Feature C (see Figure 20), is a roughly rectangular pecked basin measuring 20 centimeters by 30 centimeters with a depth of 4 centimeters (Figure 24). Feature E, located 180 centimeters north of Feature D (see Figure 20), is a pecked double basin with an overall measurement of 60 centimeters by 80 centimeters with basin depths of 4 centimeters (southern basin) and 6 centimeters (northern basin) (Figure 25). Feature F is situated 60 centimeters north of Feature E (see Figure 20); it is a roughly square pecked basin measuring 30 centimeters by 30 centimeters with a depth of 2 centimeters (Figure 26). Feature G is similar in outline to Feature F (square measuring 30 centimeters on a side), but has a depth of 8 centimeters (Figure 27). Feature G is 120 centimeters east of Feature F (see Figure 20). Feature H is a relative large rectangular pecked basin (50 centimeters by 80 centimeters, 12 centimeters deep; Figure 28) located 40 centimeters north of Feature E (see Figure 20). Feature I is a very faint *papamū* (maybe a 5 by 7 hole grid) located 1 meter east of Feature H (see Figure 20). Two nails have been hammered into the *pāhoehoe* within this feature (Figure 29). Feature J, the northernmost of the sites features (see Figure 20), is a pecked double basin with an overall measurement of 60 centimeters by 1 meter with basin depths of 10 centimeters (northern basin) and 15 centimeters (southern basin) (Figure 30).

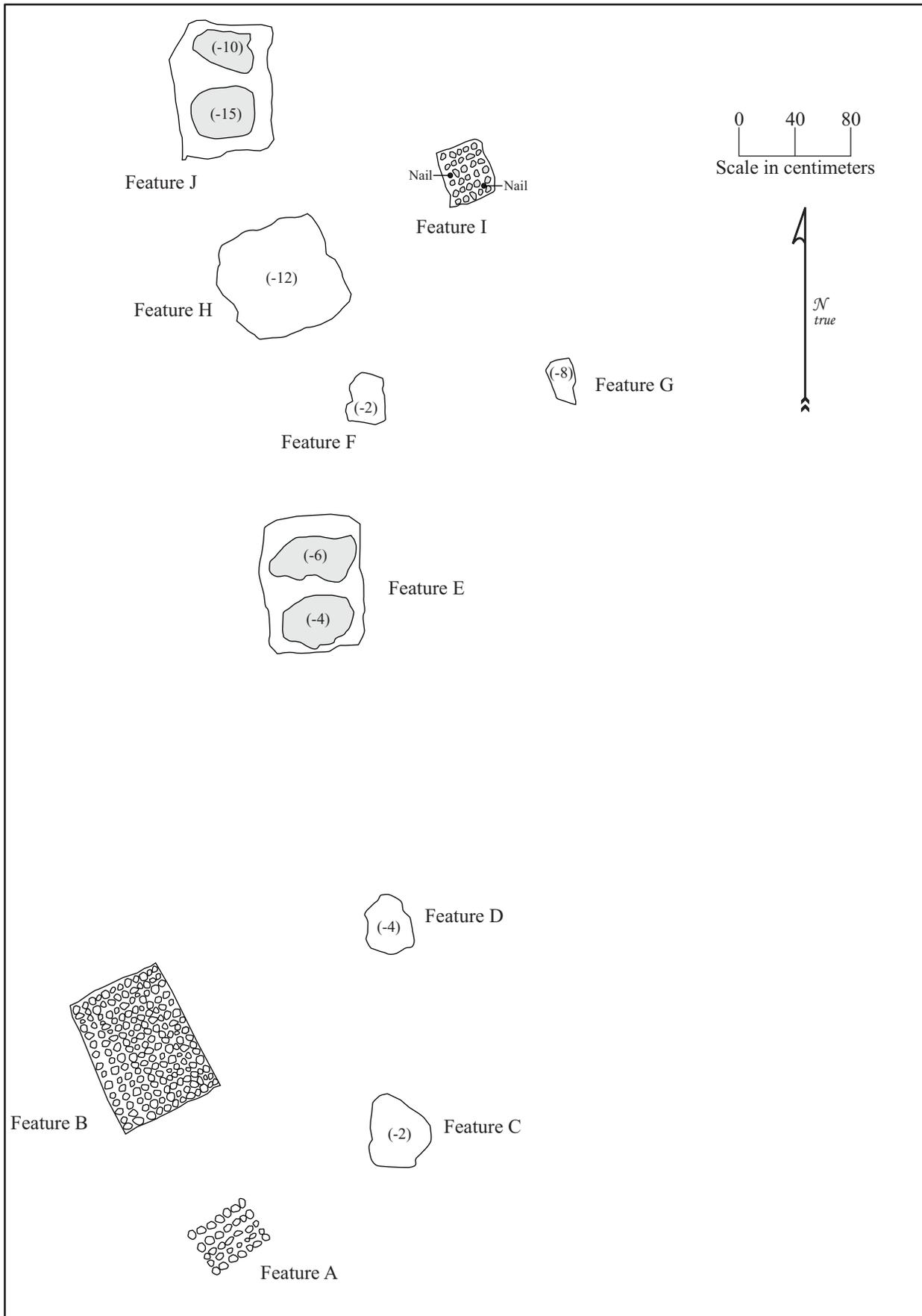


Figure 20. SIHP Site 28578 plan view.



Figure 21. SIHP Site 28578 Feature A, view to the northeast.



Figure 22. SIHP Site 28578 Feature B, view to the north.



Figure 23. SIHP Site 28578 Feature C, view to the northeast.



Figure 24. SIHP Site 28578 Feature D, view to the north.



Figure 25. SIHP Site 28578 Feature E, view to the northwest.



Figure 26. SIHP Site 28578 Feature F, view to the north.



Figure 27. SIHP Site 28578 Feature G, view to the north.



Figure 28. SIHP Site 28578 Feature H, view to the north.



Figure 29. SIHP Site 28578 Feature I, view to the northeast.



Figure 30. SIHP Site 28578 Feature J, view to the north.

SIHP Site 28579

SIHP Site 28579 is a cluster of two faint *papamū* situated 8 meters apart and close to the northwest parcel corner (see Figure 9), which is marked with a “+” etched into the bedrock (Figure 31). The northern *papamū* (Feature A) measures 90 centimeters by 75 centimeters (Figure 32) and southern *papamū* (Feature B) measures 50 centimeters by 40 centimeters (Figure 33). Both are badly eroded on level *pāhoehoe* and the grid patterns cannot be determined for either.



Figure 31. Northwest parcel corner marked by “+” in the *pāhoehoe*.



Figure 32. SIHP Site 28579 Feature A, view to the east.



Figure 33. SIHP Site 28579, view to the southeast.

SIHP Site 28580

SIHP Site 28580 consists of a *papamū* (Feature A) and a petroglyph (Feature B) located near the western parcel boundary (see Figure 9). The very faint *papamū* is on level *pāhoehoe* and measure 80 centimeters by 40 centimeters and the grid pattern cannot be discerned (Figure 34). The petroglyph is also very faint and is a triangle body form with overall dimensions of 45 centimeter up and down and 40 centimeters wide (Figure 35).



Figure 34. SIHP Site 28580 Feature A, view to the south.



Figure 35. SIHP Site 28580 Feature B, view to the east.

SIHP Site 28581

SIHP Site 28581 is a single *papamū* situated on elevated and tilted bedrock at the sand/*pāhoehoe* interface in the northwestern portion of the study parcel (see Figure 9). This 13 hole by 12 hole grid *papamū* measures 60 centimeters by 55 centimeters and presents an eastern aspect on a 30 degree tilted block of *pāhoehoe* (Figure 36). There are two additional holes on the south side of the grid. Together with Sites 28578, 28579, and 28580, this *papamū* is part of a larger complex of such sites along this portion of the coast.



Figure 36. SIHP Site 28581, view to the west (note two holes above scale bar).

CONSULTATION

The preservation measures described in this plan were developed in consultation with the extended Schattauer/Paris Family. Members of this family not only own the current study parcel, but also other parcels in the immediate project area. The two elders of the family, William “Billy” Johnson Hawawakaleonamanuonakanahahe Paris Jr. (born 1922), and his sister, Margaret Kalikolamaikapaliokaukini Paris-Schattauer (born 1927), are descended from Hawaiian families that have lived in Kona since the days of Kamehameha I. Their Anglo (Paris and Johnson) relatives have lived in Kona since 1850-52, and their families have been a significant element in the history of land use within South Kona and have played an important role in recording and preserving the history of this district.

PROPOSED TREATMENT OF PRESERVATION SITES

Preservation in place is the treatment proposed for all six sites covered by this preservation plan. This will be achieved through avoidance and protection (conservation). No stabilization or maintenance activities are proposed, nor will the sites be identified by signage. The sites will be left in their current existing conditions. A legal document describing the locations of the six sites within the subject parcel along with this preservation plan will be recorded with the Bureau of Conveyances. The specific permanent and interim preservation measures are described below.

Permanent Preservation Measures

For the long-term preservation of the sites, two preservation easements will be established on the property (Figure 38). The larger of these will comprise the entire shoreward portion of the parcel delineated on the *mauka* side by a reconstructed stone wall (formerly SIHP Site 28577). This preservation area will contain SIHP Sites 28578, 28579, 28580, and 28581. No development activity will be permitted to occur within this preservation easement; however nothing in this preservation plan is intended to curtail the continued use of the shoreline area for recreational and subsistence activities.

The second preservation easement (see Figure 38) will encompass SIHP Sites 28575 and 28576 and the intervening area along with a buffer zone of 15 feet around its perimeter. No ground-altering activity will be permitted to occur within this preservation easement, which will be left in its existing natural state. Any future necessary maintenance activities (i.e., vegetation clearing/removal) within this preservation easement will be conducted using hand tools.

Interim Protection Measures and Implementation of the Preservation Plan

Prior to the commencement of any development activities on the subject parcel, an awareness briefing will be presented to all members of the construction team informing them of the locations and inviolability of the preservation easements. Orange construction fencing will be placed along the permanent preservation buffer at Sites 28575 and 28576. This protective fence will stay in place until construction activities have been completed, at which time the fencing will be removed and the permanent preservation measures as outlined above will be implemented. The already reconstructed rock wall (former Site 28577) will serve to protect the shoreline preservation easement containing Sites 28578, 28579, 28580, and 28581.

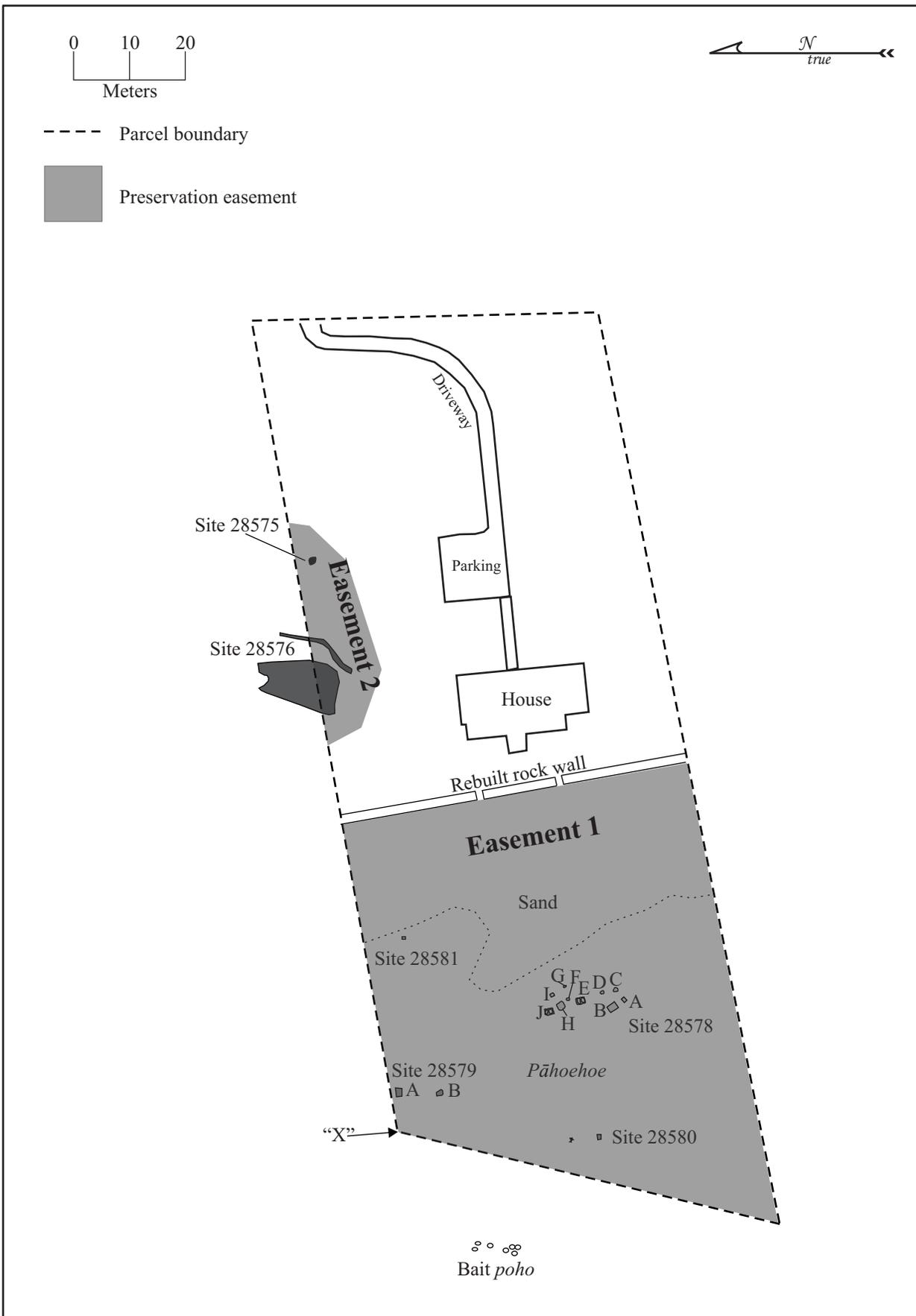


Figure 38. Archaeological preservation easements.

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APPENDIX A – LCAw. Testimony

No. 5523, Ohelo N.R. 181v8

Hear ye, ye Land Commissioners: Here is our petition to you for our land claim. I have an entire mo`o, mauka of Kula, that is the petition.

OHELO, at Honuaino

N.T. 634v8

No. 5523, Naohelo

Kaholua and Keawe, sworn, they have seen his ili section of Kapahee in Honuaino from Koholua in 1844.

No one objected to him.

[Award 5523; R.P. 3909; Honuaino 1 N. Kona; 1 ap.; 1 Ac.]

No. 5561G, Kaaoaokapu N.T. 641v8

Pepehu and Kahunanui, sworn, they have seen his house lot in Kapokiwai ili of Honuaino from Kaholua.

No one objected to him.

[Award 5561G; R.P. 4009; Honuaino 1 Kona; 1 ap.; .37 Ac.]

No. 6042, Ahia N.R. 186-187v8

Hear ye, ye Land Commissioners to Quiet Land Titles: This claim is for your information. The explanation concerns the `ili kupono which has been lost, of Lehuula nui. However, the coconut /trees/ of the kupono which have been taken by the ahupua`a should be returned, and the kupono /status/ should apply permanently, so says the law. Or else, let the coconut trees be divided at the boundaries of the `ilis between those coconuts. Or else there is a great loss to my land claim. A certain lihi /piece of boundary land/ has been lost to the ahupua`a, and another to the government. I have not suffered a loss of the government lihi, but my loss is of the lihi of the ahupua`a. It is for you to rectify my land claim. This petition is by AHIA

Lehuula, Hawaii, 21 January 1848

N.T. 634v8

No. 6042, Ahia

Kamahiai and Pepehu, sworn, they have seen his land.

Section 1 - Ililoa, Lehuula from Kuahini [Kuakini?] in 1844.

Section 2 - House lot in Halelani of Honuaino 1 ahupuaa from Nawahine, Kahanaholua is also in this claim.

No one objected.

[Award 6042; R.P. 5220; Honoino N. Kona; 2 ap.; .81 Ac.]

No. 7901, Kanakaole, Kailua, January 27, 1848
N.R. 512v8

Greetings to the Land Commissioners: I hereby state my house lot claim which is makai in the ahupua'a of Honuaino 1. It is 72 fathoms /in circumference/. My land claim is also in Honuaino 1 in the ili named Waipio. 3 taro kihapai are in the ahupua'a of Lehuula 1, and 5 sweet potato kihapai are in Honuaino 1.
 KANAKAOLE

N.T. 640-641v8
 No. 7901, Kanakaole

Kaaoakapu and Pepehu, sworn, they have seen section 1 - Ili of Waipio in Honuaino 1 ahupuaa from Kaholua in 1844.

Section 2 - House lot in Haliipalala ili of Honuaino, from the parents in 1819.
 Section 3 - 5 potato kihapais in Kapahee ili of Honuaino from Keawe in 1847.

No one objected to him.

[Award 7901; R.P. 3908; Honuaino 4 Kona; 1 ap.; 2 Acs]

No. 8523D, Kaoeno (page 475)
N.T. 633v8

Kapuhi and Pepehu, sworn, they have seen his ili section of Kamuku in Honuaino, from the parents in 1819.

[Award 8523D; R.P. 5054, Honuaino N. Kona; 1 ap.; .45 Ac.; no text located on page 475]



GEOHAZARDS CONSULTANTS INTERNATIONAL, INC.
Appraisal of hazards – reduction of risk

Coastal Erosion Study for the
Kainaliu Kahakai (Schattauer) Property
Kainaliu Beach, Hawaii
TMK: (3) 7-9-006:014

J.P. Lockwood, Ph.D.

June, 2012

John P. Lockwood

A circular professional seal for the American Institute of Professional Geologists (AIPG). The seal has a double-line border. The outer ring contains the text "AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS" at the top and "JOHN P. LOCKWOOD" at the bottom. The inner ring contains "CERTIFICATE NUMBER" at the top and "CERTIFIED PROFESSIONAL GEOLOGIST" at the bottom. In the center of the seal is a shield-shaped emblem with the letters "AIPG" and a small icon of a geological hammer. Above the shield, the number "9806" is printed.

P.O. BOX 479 · VOLCANO, HAWAI'I 96785 · USA
TEL: (808) 967-8579 · FAX: (808) 967-8525 · email: geohaz@hawaii.rr.net

Introduction

The Hawaii Administrative Rules concerning Conservation Districts (Title 13, Subtitle 1, Chapter 5, adopted August 12, 2011) state that applicants for Single Family Residential construction in coastal Conservation Districts must consider rates of coastal erosion affecting their properties in order to determine minimum shoreline setbacks for permitting. DLNR established a requirement that Annual Coastal Erosion Rates must be determined, based on formal “Coastal Erosion Studies”.

This report documents the nature of erosion and shoreline migration at the Kainaliu Beach Schattauer property (TMK (3) 7-9-006:014 – hereafter referred to as the “Property”), located immediately south of Pa’ao’ao Point, 8 miles south of Kailua-Kona. This report is based on quantitative measurements and observations obtained through field inspection, aerial photography, satellite imagery, and a review of geologic literature. The site field inspection was conducted in March, 2012, but unavoidable delays have prevented preparation of this Report until now. I include my sincere apologies to the property owner and to the DLNR for the tardiness of this Report

Field Inspection

The Property was visited on March 7th, 2012. Field observations were taken as the tide dropped from about 1.1 to 0.1 feet above the tidal datum as reported at the National Oceanic and Atmospheric Administration’s Kawaihae Station (No. 1617433). The sea was remarkably calm, with low swells (1-3feet) from the west-northwest, with light on-shore winds. The gentle seas allowed direct inspection of the irregularly embayed low sea cliff (typically 4-6’ high above normal high tide (limu line) on headlands; 1-2’ high in embayments. The makai boundary of the Property is set back from 50-100 feet back from this sea cliff, which forms the actual limit of the sea during normal tides and sea conditions (Fig. 1 – sketch). This bordering area of the property consists of dense pahoehoe lava that has been repeatedly overtopped by storm waves, but is not impacted by significant erosion, and serves as a wave energy dispersal buffer for the Property.

Fig. 1 (sketch) here

Physical Setting and Geological Environment

The pahoehoe lava underlying the Property was entirely derived from a single prehistoric flow that underlies the Property and forms the adjacent coastline (Fig. 2). This flow was mapped as unit “k” on the Geologic Map of Hawaii (Wolfe and Morris, 1996) with an estimated age of “>10,000 years”. My inspection revealed residual surface glass and delicate surface structures on this flow, however, which indicates the flow is much younger – likely erupted not more than 5-8,000 years ago. Wolfe and Morris suggest this flow was derived from the north flank or summit of Mauna Loa volcano, although a Hualalai eruptive source is also possible.



Figure 2. View to the west, showing the pahoehoe lava flows that border the seaward edge of the Property. . The thin sands in the foreground are deposited by waves that wash over the pahoehoe during winter storms. The Certified Shoreline on the Property is marked by the wooden stake. Note that sparse vegetation occurs seaward of this line.

This lava contains 8-10% olivine phenocrysts 2-3 mm in diameter – set in a tough, dense microcrystalline matrix that is very resistant to mechanical weathering. In contrast to many other areas along adjacent coastlines, the sea cliff here consists of a single lava flow, and thus is not marked by the inter-flow boundaries that commonly serve as erosional weakness planes elsewhere. Because this flow is relatively thick (at least 20') and cooled relatively slowly after emplacement, it is characterized by incipient columnar jointing that does allow for vertical cracks, fractures that do contribute to mechanical erosion (Fig. 3).



Figure 3. View of the upper surface of the pahoehoe lava at the coastal sea cliff fronting the Property. These vertical cracks are caused by the weathering of rock joints that formed as the thick lava flow cooled. The impact of storm waves can cause rock failure along these cracks and the occasional erosion of large blocks from the sea cliff.

Erosion Rate

The broad pahoehoe flow lying makai of the Property boundary shows little sign of erosion, except along the sea cliff. High storm waves dissipate energy as they strike the sea cliff, but apparently have little erosive power as they flow over the broad area of pahoehoe lying makai of the Property boundary. This is indicated by the fact that original surface features, including ropy pahoehoe textures (Fig. 4) and konane playing boards (Fig. 5) are well preserved in many places well below the Certified Shoreline, and thin selvages of original surface glass can also be found – in areas that are clearly overtopped by waves during storms. Large boulders are found above this flow as far as 100' inland from the sea cliff, attesting to the transport power of these storm waves, but passage of these boulders over the pahoehoe surface has had little erosive effect. Most of these boulders are rounded and show extensive salt erosion (Fig. 6), indicating that they were eroded from their sources long ago. A few boulders near the sea cliff are unrounded and are bounded by angular surfaces (Fig. 7), indicating that they have recently been broken off the sea cliff face.



Figure 4. Delicate surface structures (ropy pahoehoe) preserved directly above the sea cliff fronting the Property. Original surface glass is also preserved on this surface. Storm waves clearly overtop this cliff at times, but they have little erosive power.



Figure 5. Hawaiian konane board etched onto the surface of pahoehoe fronting the Property. Although storm waves clearly flow over this area (as shown by beach cobbles deposited in cracks) the waves have little erosive power.



Figure 6. Weathered boulders located on the pahoehoe flow fronting the Property. These subrounded blocks are apparently moved by exceptionally high storm waves, but the deep salt-weathering pits on their surfaces indicate that movement must be a rare occurrence.



Figure 7. Angular lava block located on an embayment in the sea cliff fronting the Property. The angular fracture surfaces and lack of any marine organisms suggest that this block was eroded from the coastal sea cliff and transported inshore fairly recently (within a few decades?).

Examination of the sea cliff showed that erosion has occurred by the mechanical failure of the cliff along semi-vertical columnar joint faces (Fig. 8). Storm waves apparently are able to force

water into these joints, causing failure by hydraulic ramming. Such failures must be uncommon, as angular blocks are sparse inland from the sea cliff – though it is possible that many such excavated blocks fall back into the sea and are not thrown up over the cliff. A concerted effort was made to determine if such mechanical erosion of the sea cliff is measurable over time, but inspection of aerial photographs of the area taken in 1954, 1965, 1977, and 2000 and direct inspection in 2012 show no major changes in sea cliff positions over this 58 year period. The small scale of these photographs would, however, not allow documentation of small changes.



Figure 8. Detailed view of low sea cliff fronting the Property. Note the angular surfaces of many of the rock faces. This suggests that mechanical erosion of the sea cliff does occur at times of strong storm activity, although few blocks are found inland – eroded blocks likely are deposited offshore after dislocation. No changes in the position of the sea cliff could be documented through inspection of historical photographs, indicating that cliff retreat must be very slight.

Date	Agency	Flight Line	Frames
1954	USN-USGS	17	028, 029
1965	USDA	EKL-7CC	163, 164
1976	USGS	GS-VEEC 3	221, 222
2000	NASA	2	2948, 2949
2010	Google Earth	1-20-2010 image	

Table 1 Aerial photographs and images reviewed

Available aerial photographs show no measurable change in position of the overall coastal sea-cliff or of the vegetation line since the earliest 1954 photos. The large-scale of the aerial photographs consulted for the study (Table 1) makes quantitative visual analyses of fine-scale

morphological changes of the shoreline impossible. Since an approximation of the erosion rate at this property is not statistically feasible using the methods outlined by Hwang, any shoreline determinations must rely upon alternative indicators. These include, as mentioned above, the quantitative assessment of the intersection between a tidal datum with the coastal profile to inform us of shoreline dynamics (Boak and Turner 2005:690-691).

General Coastal Zone Hazards

Hwang (2005) recommends that all hazards facing coastal areas should be considered when planning for land-use zoning in Hawaii, and not just erosion. Fletcher *et al.* (2002) portray generalized hazards assessments for long areas of Hawaii’s coastlines; they rate the specific hazards for this area of Kona as shown in the following Table:

Hazard Type	Relative Threat	Scale (1-4)
Tsunami	Medium-high	3
Stream Flooding	Medium-high	3
High Waves	Medium-low	2
Storms	Medium-high	3
Erosion	Medium-low	2
Sea Level Change	Medium-low	2
Volcanic/Seismic	High	4

Table 2 Natural hazards in Hawaii’s coastal zone (from Fletcher et al., 2002:150)

The Property lies within Lava Flow Hazard Zone 3 as defined by Wright and others (1992), indicating it is moderately vulnerable to future lava flows derived from Mauna Loa’s summit or northwest flank, although no lava flows have impacted this general area for several thousand years. The youngest lava flow in this area forms Keikiwahi Point a half-mile south of the Property and is about 3,000 years old (Lockwood and others, 1988).

The minimal impact of the March 11, 2011 Japan tsunami on the Property indicates that the deep offshore water and bordering sea cliff make the risk from future tsunami damage minimal. Storm waves clearly can impact the western half of the property, but such waves will have little erosive power after passing over the bordering pahoehoe field, and raised structures will offer adequate protection from wave flooding.

Effects of Subsidence and Sea Level Rise on Shoreline

An overall rise in sea level of 3.3 feet (1 meter) by the end of the 21st century has been proposed by Fletcher (2010) and others. Hwang et al (2007) use a figure of .16 in/yr in their assessments. The combined effects of subsidence and rising ocean levels may cause an overall (relative) drop in the shoreline elevation fronting the Property of between .1 - .3 in/yr., but the

erosion resistance and height of the coastal sea cliff indicates that relative sea level change will not cause significant shoreline transgression in this area for at least the next century.

Summary

The Kainaliu Kahakai (Schattauer) property is protected from coastal erosion and shoreline transgression by a broad area of erosion-resistant pahoehoe lava fronting the Property. Although a few angular blocks of this lava have apparently been mechanically eroded from the coastal sea cliff in the recent past, no measurable landward migration of this sea cliff nor coastal shoreline erosion could be determined from inspection of aerial photographs dating back to 1954.

“Shorelines” are defined in Hawaii as *“The upper reaches of the wash of the waves, other than storm and seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves”* (HAR §13-5-2). The “Certified Shoreline” as staked out on the Property is well above the highest tide and normal wave level, although beach sand deposits indicates waves do reach this area during winter storms. The March, 2011 tsunami waves apparently washed over this Certified Shoreline, but did not cause any damage to a dry-stacked stone wall located about 15’ mauka of this line.

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NEIL ABERCROMBIE



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
POST OFFICE BOX 621
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WILLIAM J. AILA, JR.
CHAIRPERSON
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ESTHER KIA'AINA
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

ref:OCCL:MC
CDUA: HA-3661

Acceptance Date: February 8, 2013
180-Day Exp. Date: August 7, 2013

MAR 28 2013

Ali Gharamfarsa
Ali'i Architects
75-5742 Kuakini Highway, Suite 205
Kailua Kona, HI 96740

Dear Mr. Gharamfarsa,

SUBJECT: END OF COMMENT PERIOD
Conservation District Use Application (CDUA) HA-3661
Schattaaur Single Family Residence
Kainaliu Old Beach Road in Honua'ino, North Kona, Hawai'i
TMK (3) 7-9-006:014

This letter is regarding the processing of CDUA HA-3661. The public and agency comment period on your application has closed. Attached to this letter are copies of the comments received by the Office of Conservation and Coastal Lands (OCCL) regarding your CDUA.

Please respond directly to any comments, and copy OCCL on your responses.

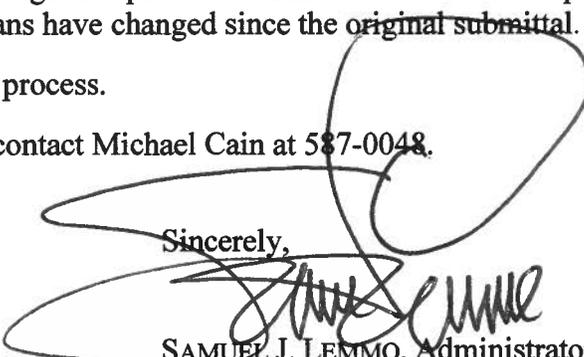
You should include the attached letters with the final Environmental Assessment, as well as the additional information that you submitted clarifying that the proposed residence is in the "A" Flood Zone. Please also include a section discussing the project's compatibility with the applicable County Regulations regarding the National Flood Insurance Program.

Please submit two hard copies and two digital copies of the Final EA. We also request that you submit a new project summary if the plans have changed since the original submittal.

Early response will expedite the review process.

Should you have any questions, please contact Michael Cain at 587-0048.

Sincerely,


SAMUEL J. LEMMO, Administrator
Office of Conservation and Coastal Lands

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



**HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES**

601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

WILLIAM J. AILA, JR.
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BOARD OF LAND AND NATURAL RESOURCES
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

March 27, 2013

Michael Cain
Office of Conservation and Coastal Lands
1151 Punchbowl ave, Kalanimoku Building, Room 131
Honolulu, HI 96809
Michael.Cain@hawaii.gov

LOG NO: 2013.1911
DOC NO: 1303MV21
Archaeology

Dear Mr. Cain:

**SUBJECT: Chapter 6E-42 Historic Preservation Review -
Conservation District Use Permit (HA-3661) for the Schattauer Residence
Honuaino Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-9-006:014**

Thank you for the opportunity to review the aforementioned permit application that was received by our office on February 15, 2013. According to the application, Kainaliu Kahakai LLC plans to construct a single story 2-bedroom, 2-bath residence on the subject parcel. A review of our records indicates that an archaeological inventory survey (AIS) was conducted on this parcel, and the report was accepted by SHPD in 2011 (Rechtman 2010; Log 2011.2683, Doc. 1110MV14). Ten historic properties were identified in the subject parcel; six of these sites were recommended for preservation (SIHP 50-10-37-28575, 28576, and 28578 through 28581), and the remaining four sites were recommended for no further work. Our office concurred with these recommendations, and we recently accepted a preservation plan for the six sites that are recommended for preservation (Rechtman 2012; Log 2012.2975, Doc. 1302MV03).

The preservation of these six sites will be accomplished by the creation of two permanent preservation easements. One easement will be located in the makai portion of this project area and will encompass SIHP 50-10-37-28578 through 28581. The preservation of this group of sites in a larger preservation easement serves to better preserve the setting of these sites than providing individual buffers for each site. The makai preservation easement is delineated on the mauka side by the reconstructed stone wall (formerly SIHP 28577), which is approximately 20 meters from the nearest preservation site within the makai preserve. The second preservation easement will encompass SIHP Sites 28575 and 28576 with a 15 foot buffer. According to the plan, these preservation areas and associated buffers will be recorded as preservation easements with the Bureau of Conveyances. In addition, interim preservation measures include the placement of orange plastic construction fencing around the perimeter of the preservation areas to prevent impacts during construction. In the review of the special management area application SHPD indicated that no historic properties would be affected (LOG NO: 2013.0490, DOC NO: 1302MV04). There is no new information that would alter this previous determination. Therefore, we believe that if the terms of the preservation plan are adhered to, **no historic properties will be affected** by this project. In the event that historic resources, including human skeletal remains, structural remains, sand deposits, midden deposits, or lava tubes are identified during project activities, please cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division at (808) 933-7651. Please contact Mike Vitousek at (808) 652-1510 or Michael.Vitousek@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Handwritten signature of Mike Vitousek in black ink.

Michael Vitousek
Lead Archaeologist Hawaii Island Section
Historic Preservation Division



ALI'I ARCHITECTS INC.
ARCHITECTS • PLANNERS • ENGINEERS

Kamana'opono M. Crabbe, Ph. D
Ka Pouhana, Chief Executive officer
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

May 15, 2013

Re: Conservation District Application (CDUA) HA-3661
Schattauer Single Family Residence
Kainaliu Old Beach Road in Honua'ino, North Kona, Hawai'i

Dear Mr. Crabbe:

The Office of Conservation and Coastal Lands has forwarded your comment letter to Samuel Lemmo dated March 25, 2013, which contained the following recommendations with respect to the Archaeological Sites Preservation Plan (Plan):

We recommend that this shoreline boundary be reinforced visually with orange construction fencing as well, and that the parameters [SIC] of the permanent buffers around SIHP 18575 and 28576 be increased to at least 25 feet during construction activities to avoid any damages within the permanent buffer. Additionally, a legal document describing the locations of the six sites within the subject parcel along with the preservation plan, once it has been reviewed and accepted by the State Historic Preservation Division (SHPD), will be recorded with the Bureau of Conveyances.

In response, DLNR-SHPD has already accepted the Plan as final (Log 2012.2975, Doc. 1302MV03). However, in deference to your recommendations, when the temporary construction fencing is placed in the field we will make every effort to create as large a buffer beyond the 15 foot permanent preservation buffer as is feasible given any construction constraints. We will also place additional construction fencing along the *mauka* side of the reconstructed rock wall, which marks the *mauka* boundary of the *makai* preservation area. The Plan already contains the following language on page 30, "A legal document describing the locations of the six sites within the subject parcel along with this preservation plan will be recorded with the Bureau of Conveyances."

Also, as shown on Exhibit E of the EA, the individual wastewater system will be located on the opposite side of the parcel from the *mauka* preservation area and between 80 and 110 feet *mauka* of the reconstructed wall that marks the *mauka* boundary of the *makai* preservation area.

Thank you for your comments and I trust that we have satisfactorily addressed all of your concerns.

Sincerely,

Ali Ghalamfarsa
Ali'i Architects, Inc.

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GOVERNOR OF HAWAII



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

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2013 FEB 25 A 8:17

2013 FEB 15 P 1:11

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NATURAL RESOURCES DIVISION
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HONOLULU, HAWAII 96809
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NATURAL RESOURCES DIVISION
HILO, HAWAII

ref:OCCL:MC

CDUA HA-3661

180 Day Expiration Date: August 7, 2013

FEB 14 2013

MEMORANDUM:

To: DLNR

- Division of Forestry and Wildlife Resources
- Division of Conservation and Resource Enforcement
- Historic Preservation Division
- Land Division

- Hawai'i Board Member
- Office of Hawaiian Affairs
- County of Hawai'i Planning Department

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS – CONSERVATION DISTRICT USE APPLICATION HA-3661
Schattauer Single Family Residence

LOCATION: Honua`ino, North Kona, Hawai`i

TMK: (3) 7-9-006:014

Please find a Conservation District Use Application (CDUA) HA-3661 and the associated draft Environmental Assessment for the proposed Schattauer Single Family Residence. We would appreciate any comments your agency or office has on the application.

Please note that the parcel has a number of pre-Contact artifacts, including papamū, poho, water basins, and petroglyphs. The applicant has proposed preservation easements that would allow for their passive protection.

Please contact Michael Cain at 587-0048, should you have any questions on this matter. A hard copy of the application and EA are available for review at our office.

If no response is received by the suspense date of March 27, 2013, we will assume there are no comments.

Comments Attached

No Comments

FEB 22 2013
Signature

Attachments: CDUA (2); Acceptance Letter

PHONE (808) 594-1888



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

FAX (808) 594-1865
2013 MAR 28 A 9:49

NA
STATE OF HAWAII

HRD-13-6432B

March 25, 2013

Samuel J. Lemmo
Administrator
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
Post Office Box 621
Honolulu, Hawai'i, 96809

Re: Conservation District Use Application and Draft Environmental Assessment for the Construction of the Schattauer Single Family Residence, Honua'ino, North Kona, Hawai'i
TMK: (3) 7-9-006:014

Aloha e Mr. Lemmo:

The Office of Hawaiian Affairs is in receipt of your February 14th, 2013 request for comments on the development of a single family residence in Honua'ino, North Kona, Hawai'i. The applicant proposes to build a one story two bedroom single family residence with a developed area of 2,448 square feet on a 2.35 acre parcel located on the makai side of Old Kainaliu Beach Road. The foundation will be a combination of post and concrete pier and shear footings that will require a minimum of excavation. There will be no land clearing or mass grading associated with the development of the parcel as the house pad is situated in an open fairly level portion of the lot. Photovoltaic with backup generator, solar water and propane are planned for the proposed dwelling. County water is available via an above the ground pipeline through Palika Ranch. An Individual Wastewater Treatment System, per requirements of the State Department of Health Wastewater Branch, will be utilized to treat and dispose of sewage.

According to the Draft Environmental Assessment the proposed action is not likely to result in any substantial adverse impact on the surrounding environment. The house site will be setback from the shoreline and will not restrict any shoreline uses. Lateral pedestrian access to the shoreline will not be impacted and there will be no effect on the public's access to or enjoyment of the shoreline area. View planes towards the project site will not be adversely

impacted in any substantial way. It is not expected that the project will result in any impact to biological and economic aspects of the coastal ecosystem. The project is not cited over any major natural drainage systems or water features that flow into the nearby coastal system. The property contains mainly common introduced plants, which will be maintained in their natural state.

The property underwent an Archaeological Inventory Survey (AIS) in 2011 and a total of ten archaeological/cultural sites were identified. The identified sites include; a mid-twentieth century well and associated water storage and delivery system (State Inventory of Historic Properties (SIHP) 22397), two historic era stone walls associated with the ranching (SIHP 28574 and 28577), a late pre-contact/early historic house platform (SIHP 28576), three papamū (SIHP 28575, 28579, and 28581), a papamū and petroglyph (SIHP 28580), a papamū and bedrock modified into poho (SIHP 28578), and a modified bedrock poho (SIHP 28582). All of the documented sites were assessed as significant under Hawai'i Administrative Rules (HAR) 6E-42 § 13-284-6 Criteria D for their informational content and six of the sites; SIHP 28575, 28574, 28578, 28579, 28580 and 28581 were evaluated as significant under Criteria D and E for the important cultural value to the Native Hawaiian community that they possess.

Six of the ten sites have been recommended for preservation per the attached 'Draft' Preservation Plan. According to this plan, passive preservation will be achieved through avoidance and protection. Preservation measures described in the "Draft Preservation Plan" were developed through consultation with members of the Schattauer/Paris Family. Members of this family own this parcel as well as several others in the vicinity. The two elders in the family, William "Billy" Johnson Hawawakaleonamanoakanahale Paris Jr, and Margaret Kalikolamaikapaliokaukini Paris-Schattauer are descended from Hawaiian families that have lived in Kona since the days of Kamehameha I.

Two preservation easements will be established on the property. The larger preservation easement will comprise the entire shoreward portion of the parcel, which is delineated on the mauka side by the reconstructed stone wall (SIHP 28577). The coastal preservation easement will include SIHP 28578, 28579, 28580, and 28581. No development activities will be permitted within the easement. The second preservation easement will include SIHP 28575 and 28576 along with the intervening area and a 15 foot buffer around the perimeter. No ground altering activity will be allowed within the preservation easement, which will be left in its natural state. Any vegetation maintenance within the preservation easement will be done with hand tools.

Interim protection measures include a pre-construction coordination briefing to all members of the construction team on the locations of and inviolability of the preservation easements. Orange construction fencing will be placed around the permanent preservation buffer at sites 28575 and 28576. The fence will remain in place until construction activities have been completed. The "Draft Preservation Plan" states that the reconstructed rock wall will serve to protect the makai shoreline preservation easement from construction activities.

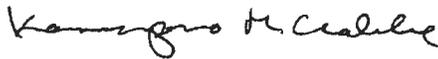
Mr. Samuel Lemmo
March 25, 2013
Page 3

We recommend that this shoreline boundary be reinforced visually with orange construction fencing as well, and that the parameters of the permanent buffers around SIHP 18575 and 28576 be increased to at least 25 feet during construction activities to avoid any damages within the permanent buffer. Additionally, a legal document describing the locations of the six sites within the subject parcel along with the preservation plan, once it has been reviewed and accepted by the State Historic Preservation Division (SHPD), will be recorded with the Bureau of Conveyances.

Our only additional concern at this time is the siting of the Wastewater Treatment System. The location of the system is not demarcated on any of the enclosed maps and/or drawings of the subject property included with the submission. We recommend that the wastewater system not be sited in the direct vicinity of either of the preservation easements.

We will rely on the applicant's assurances that should any additional undocumented archaeological/cultural resources be identified during the course of construction activities all work in the immediate area of the find will be stopped and the State Historic Preservation Division will be contacted to determine appropriate actions. If you have any questions please contact Lauren Morawski at (808) 594-1997 or laurenm@oha.org.

'O wau iho nō me ka 'oia'i'o,



Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KMC;lm

C; William Aila – Chair, Department of Land and Natural Resources
Pua Aiu – Administrator, State Historic Preservation Division (via email)
Theresa Donham - Archaeological Branch Chief (SHPD) (via email)
Ali Gharamfarsa - Ali'i Architects (via email)

BM

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



PLANNING DEPARTMENT
COUNTY OF HAWAII

2013 FEB 15 PM 2:53

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
ESTHER KUA'AINA
FIRST DEPUTY
WILLIAM M. TAM
DEPUTY DIRECTOR - WATER
AQUATIC RESOURCES
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KAHOOLAWE ISLAND RESTORATION COMMISSION
LAND
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

ref:OCCL:MC

CDUA HA-3661

180 Day Expiration Date: August 7, 2013

FEB 14 2013

MEMORANDUM:

To: DLNR

- Division of Forestry and Wildlife Resources
- Division of Conservation and Resource Enforcement
- Historic Preservation Division
- Land Division

- Hawai'i Board Member
- Office of Hawaiian Affairs
- County of Hawai'i Planning Department

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS – CONSERVATION DISTRICT USE APPLICATION HA-3661
Schattauer Single Family Residence

LOCATION: Honua'ino, North Kona, Hawai'i

TMK: (3) 7-9-006:014

Please find a Conservation District Use Application (CDUA) HA-3661 and the associated draft Environmental Assessment for the proposed Schattauer Single Family Residence. We would appreciate any comments your agency or office has on the application.

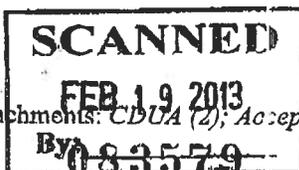
Please note that the parcel has a number of pre-Contact artifacts, including papamū, poho, water basins, and petroglyphs. The applicant has proposed preservation easements that would allow for their passive protection.

Please contact Michael Cain at 587-0048, should you have any questions on this matter. A hard copy of the application and EA are available for review at our office.

If no response is received by the suspense date of March 27, 2013, we will assume there are no comments.

Comments Attached

No Comments



Signature

Attachments: CDUA (2); Acceptance Letter

William P. Kenoi
Mayor



BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

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

March 27, 2013

Mr. Samuel J. Lemmo
Administrator
Office of Conservation and Coastal Land
Department of Land and Natural Resources
State of Hawai'i
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Lemmo:

SUBJECT: Conservation District Use Permit Application
Applicant: Ali Ghalanfarsa
Project: Single Family Residence and Associated Improvements
TMK: (3) 7-9-006:014; Honua'ino, North Kona, Hawai'i

This is in response to your request for comments on the above referenced application. We have reviewed the subject Conservation District Use Application (HA-3661) for a single family residence and associated improvements on the subject property.

The subject parcel consists of 2.35 acres and is located in the State Land Use Conservation District and designated as Extensive Agricultural and Open by the Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map. Because the project area is located entirely within the Conservation District, there is no county zoning, per se. Therefore, the State of Hawai'i Department of Land and Natural Resources (DLNR) has jurisdiction on any use or activity within the Conservation District on this parcel. Finally, the subject parcel is located entirely within the Special Management Area (SMA) with frontage along the shoreline.

Special Management Area Determination:

A Special Management Area Use Permit Assessment Application (SAA-12-000794) was submitted for our review on January 9, 2013. According to Chapter 205A-22, HRS and Planning Commission Rule 9 relating to Special Management Area, "development" does not include "Construction or reconstruction of a single-family residence that is less than

Mr. Samuel J. Lemmo
Administrator
Office of Conservation and Coastal Land
Department of Land and Natural Resources
March 27, 2013
Page 2

seven thousand five hundred square feet of floor area and is not part of a larger development." Therefore, the construction of the 2,448 square-foot single-family dwelling and related improvements may be exempt from the definition of "development".

However, because the project location appears to be located in the State Land Use Conservation District, prior to the processing of the SMA determination, compliance with Hawai'i Revised Statutes, Chapter 343 Environmental Impact Statements must be satisfied.

The Draft Environmental Assessment was posted in the February 23, 2013 Department of Health, Office of Environmental Quality Control Environmental Notice. We understand that your Department has anticipated a finding of no significant impact to the environment (FONSI) for the proposed project.

However, due to the recent correction to the subzone determination that may require a revision to the proposal, we will not be able to issue our SMA determination until the project has fully complied with HRS Chapter 343 and the revised SMA Use Permit Assessment Application is resubmitted to our office.

We have no further comments to offer at this time. If you have any questions, please feel free to contact Bethany Morrison of our office at (808) 961-8138.

Sincerely,



BJ LEITHEAD TODD
Planning Director

BJM:bjm

P:\wpwin60\Bethany\General Zoning Inquiries\CDUA Ghalamfarsa-Schattauer.doc

xc: Mr. Ali Ghalamfarsa
75-5742 Kuakini Highway, Suite 205
Kailua Kona, HI 96740



Ms. BJ Leithead Todd
Planning Director
County of Hawaii
74-5044 Ane Keohokalole Hwy
Kailua Kona, Hawai'i 96740

May 15, 2013

Re: Conservation District Application (CDUA) HA-3661
Schattauer Single Family Residence
Kainaliu Old Beach Road in Honua'ino, North Kona, Hawai'i

Dear Ms Leithead

This is in response to your letter of March 28, 2013. We have made all the necessary corrections in our proposal with regard to subzone which reflected in final Environmental Assessment.

Thank you for your comments and I trust that we have satisfactorily addressed your concern.

Sincerely,

Ali Ghalamfarsa
Ali'i Architects, Inc.

Cc:/Sam Lemmo, OCCL Ali'i Architects Inc.

AFTER 10 DAYS, RETURN TO
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
P.O. BOX 621
HONOLULU, HAWAII 96809



2013 APR -2 A 8: 26

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