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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:TM

CDUA: HA-3830

To: Scott Glenn, Director
Office of Environmental Quality Control

JAN 29 2019

From: Suzanne D. Case, Chairperson
Department of Land and Natural Resources

Subject: Final Environmental Assessment (EA) for Conservation District Use Application (CDUA) HA-3830 for a Single Family Residence and Associated Improvements Located at Pīhā, North Hilo, Island of Hawai'i, TMK: (3) 3-2-004:038

The Department of Land and Natural Resources has reviewed the final EA for the subject project and has determined a Finding of No Significant Impact (FONSI). Please be advised, however, that this finding does not constitute approval of the proposal.

The draft EA was published in the November 23, 2018 edition of *The Environmental Notice*. Comments on the draft EA were sought from relevant agencies and the public, and were included in the final EA. The final EA has been prepared pursuant to Chapter 343, Hawai'i Revised Statutes and Chapter 11-200, Hawai'i Administrative Rules. Please publish this notice in OEQC's upcoming February 8, 2019 edition of *The Environmental Notice.*

We have enclosed one (1) hard copy of the FEA and OEQC publication form, as well as one (1) USB Drive with a pdf file of the Final EA and the OEQC publication form in word document format for publication purposes.

Please contact Tiger Mills of our Office of Conservation and Coastal Lands at 587-0382 should you have any questions.

Attachments: *FEA, OEQC Pub Form, 1 USB*

19-245

APPLICANT
PUBLICATION FORM

Project Name:	Ramos Single-Family Residence in the Conservation District at Pīhā
Project Short Name:	Ramos Residence at Pīhā
HRS §343-5 Trigger(s):	Use of Land in Conservation District
Island(s):	Hawai'i
Judicial District(s):	North Hilo
TMK(s):	3-3-2-004:038
Permit(s)/Approval(s):	
Approving Agency:	Hawai'i State Department of Land and Natural Resources
Contact Name, Email, Telephone, Address	Tiger Mills, Sr. Planner DLNR-OCCL 808-587-0382 kimberly.mills@hawaii.gov DLNR- Office of Conservation and Coastal Lands PO Box 621 Honolulu, HI 96809
Applicant:	
Contact Name, Email, Telephone, Address	Pedro Pablo Ramos 3193 Scrub Oak Trail Oviedo, Florida 32765-9743 C/O James Leonard 808-896-3459; jmleonard.mac.com
Consultant:	
Contact Name, Email, Telephone, Address	Ron Terry, Geometrician Associates LLC 808-969-7090 rterry@hawaii.rr.com P.O. Box 396 Hilo, Hawai'i 96721

Status (select one)	**Submittal Requirements**
___ DEA-AFNSI	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
_x_ FEA-FONSI	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the approving agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance Determination	The approving agency simultaneously transmits to both the OEQC and the applicant a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
____ FEIS Statutory Acceptance	The approving agency simultaneously transmits to both the OEQC and the applicant a notice that it did not make a timely determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and therefore the applicant's FEIS is deemed accepted as a matter of

19-245

law.

____ Supplemental EIS 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 or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

Pedro Ramos plans a single-family residence on his 18.3-acre Conservation District property near Ninole, Island of Hawai`i. The home would have a total of 3,554 square feet of developed area including a great room with kitchen, 2 bedrooms, 2 baths, several lanai, a carport, and a water tank. Other features include an improved driveway, solar panels, and an individual wastewater system. The location of structures and the driveway has been planned to maximize use of already disturbed area. Landclearing over less than a quarter-acre would produce short-term impacts to noise, air and water quality, and scenery, mitigated by Best Management Practices. A botanical survey has determined that no threatened or endangered plant species are present. The native ʻōhiʻa and tree ferns scattered in the area will be almost completely conserved, and invasive strawberry guava, eucalyptus and various melastomes will be removed to make way for native and Polynesian species meant to provide an attractive setting near the home and restore native forest surrounding it. Impacts to the islandwide-ranging endangered Hawaiian hoary bat and Hawaiian hawk will be avoided through vegetation removal timing. An archaeological survey has been conducted that found no archaeological sites, and a cultural impact assessment has determined that no cultural site or practices would be affected.

Final Environmental Assessment

Ramos Single-Family Residence in the Conservation District at Pīhā

February 2019

TMK (3rd): 3-2-004:038
Pīhā, North Hilo District, County of Hawai‘i, State of Hawai‘i

APPLICANT:

Pedro Pablo Ramos
3193 Scrub Oak Trail
Oviedo, Florida 32765-9743

DETERMINING AGENCY:

State of Hawai‘i
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 131
Honolulu, Hawai‘i 96813

CONSULTANT:

Geometrician Associates LLC
P.O. Box 396
Hilo, Hawai‘i 96721

Final Environmental Assessment

Ramos Single-Family Residence in the Conservation District at Pīhā

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CONSULTANT:

Geometrician Associates LLC
P.O. Box 396
Hilo, Hawai‘i 96721

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 (HAR)

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PART 1: PROJECT DESCRIPTION AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Description and Location

Pedro Ramos (the applicant) seeks a Conservation District Use Permit (CDUP) to build a single-family residence on a portion of his 18.3-acre property at the end of a driveway that extends from near the *mauka* end of Pīhā-Kahuku Road. The property abuts the Hilo Forest Reserve, at 1,800 feet in elevation, in the North Hilo District of the Island of Hawai‘i (Figures 1-2). The plan for the home consists of a split-level structure with 2 bedrooms; 2 baths; a great room with a kitchen, dining and living area; a foyer; a wardrobe/laundry; several lanai; a hot tub; and a carport (see Site Plan, Floor Plan and Elevation in Figure 3). Around the home will be an array of ground and roof-mounted solar photovoltaic panels, a satellite telecommunications dish, a water catchment system consisting of a 10,000 gallon tank and a 5,000-gallon tank; a pump room; a propane storage tank; a back-up electrical generator and an individual wastewater system meeting or exceeding all regulatory requirements (sf).

The location of structures and the driveway has been being planned to minimize disturbance of native vegetation and maintain a wide setback to a nearby gulch. Landclearing would be minimal in depth and extend over about a quarter-acre. A house pad and turnaround area will be built and minor improvements will be made to the driveway. As shown in the Landscape Plan sheet of Figure 3, the native ‘ōhi‘a and tree ferns scattered in the area will be almost completely conserved. Invasive plants, including strawberry guava, eucalyptus and various melastomes, will be removed to make way for native and Polynesian species meant to provide an attractive setting near the home and restore native forest surrounding it. About a dozen mostly juvenile ‘ōhi‘a trees in the house site that are bound up in the roots of the eucalyptus trees require removal, but at least six new ōhi‘a trees will be planted in the landscaping surrounding the house. A small area of already disturbed land will be set aside for a garden of vegetables in raised planter beds, and various fruit trees will be planted. The driveway will be gated, and a pig-proof hogwire fence will enclose the home and about a half-acre surrounding it to prevent pig damage.

Currently, there is limited access from Pīhā-Kahuku Road for those who wish to hunt or gather in the Hilo Forest Reserve, which lies *mauka* of the Ramos property. Consultation with neighbors, DLNR officials and others indicates that people park along various spots in the road and walk along trails that wind through various private properties as well as the paper route of the Pīhā-Kahuku Road extension until they are in the Forest Reserve. Mr. Ramos will provide a turnaround area just outside the gate on the driveway near the *makai* boundary of the property, where the driveway and the Pīhā-Kahuku Road diverge, to accommodate those seeking to access the Forest Reserve.

Figure 1 Project Location Map

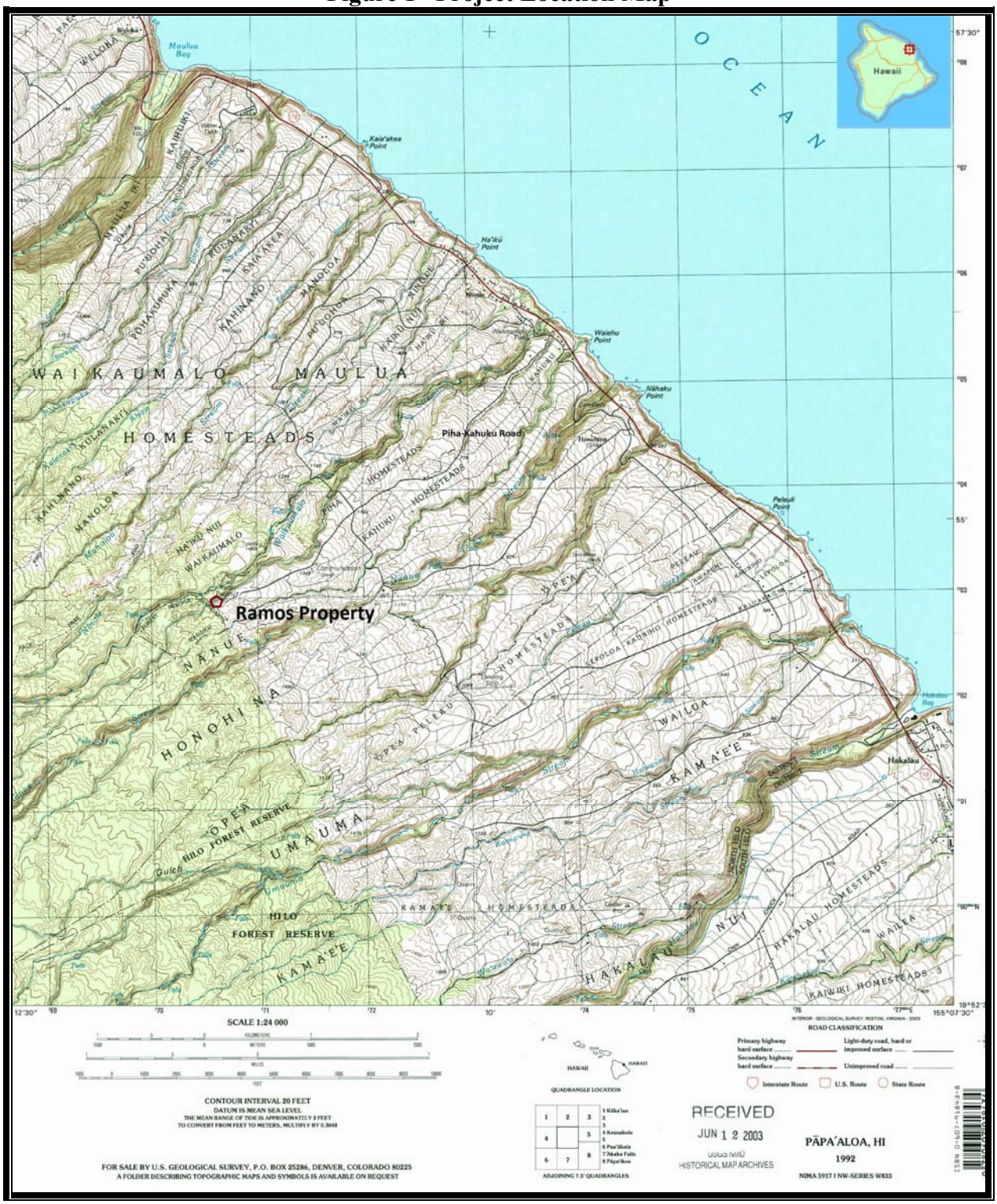
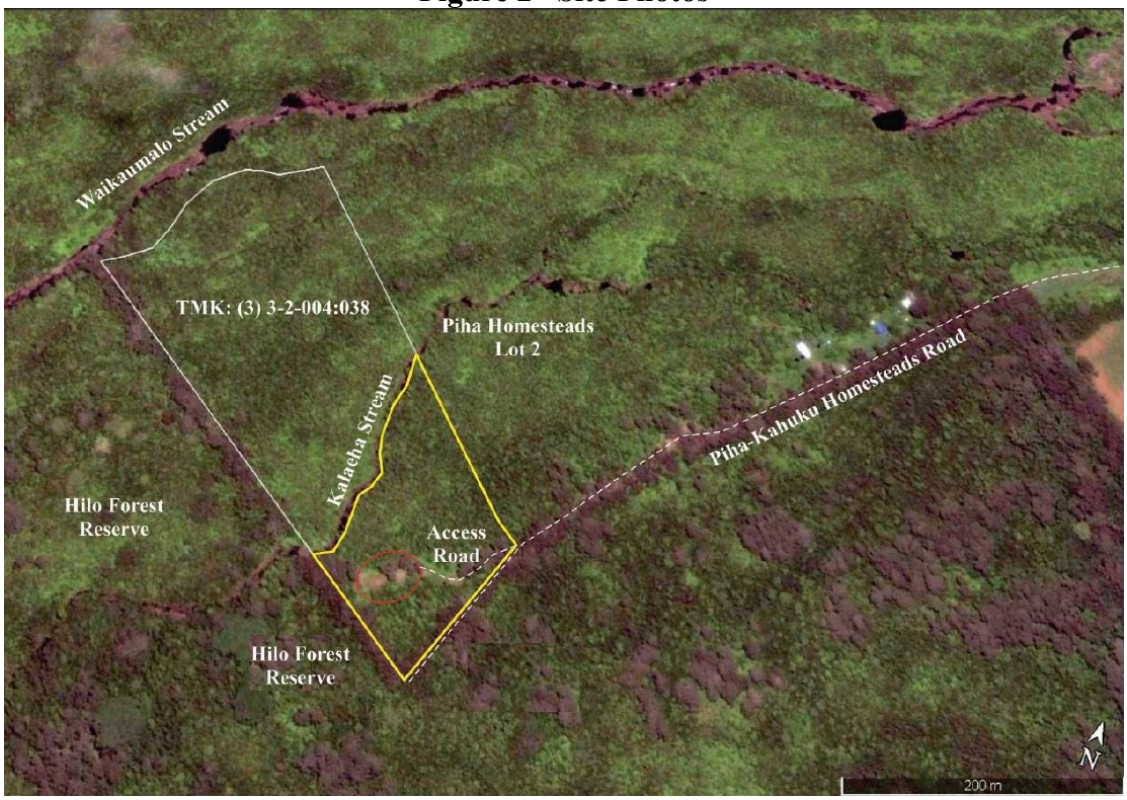


Figure 2 Site Photos



2a, Above: Aerial Image with Property Boundary from Google Earth ©
2b, Below: Proposed house site and eucalyptus trees beyond

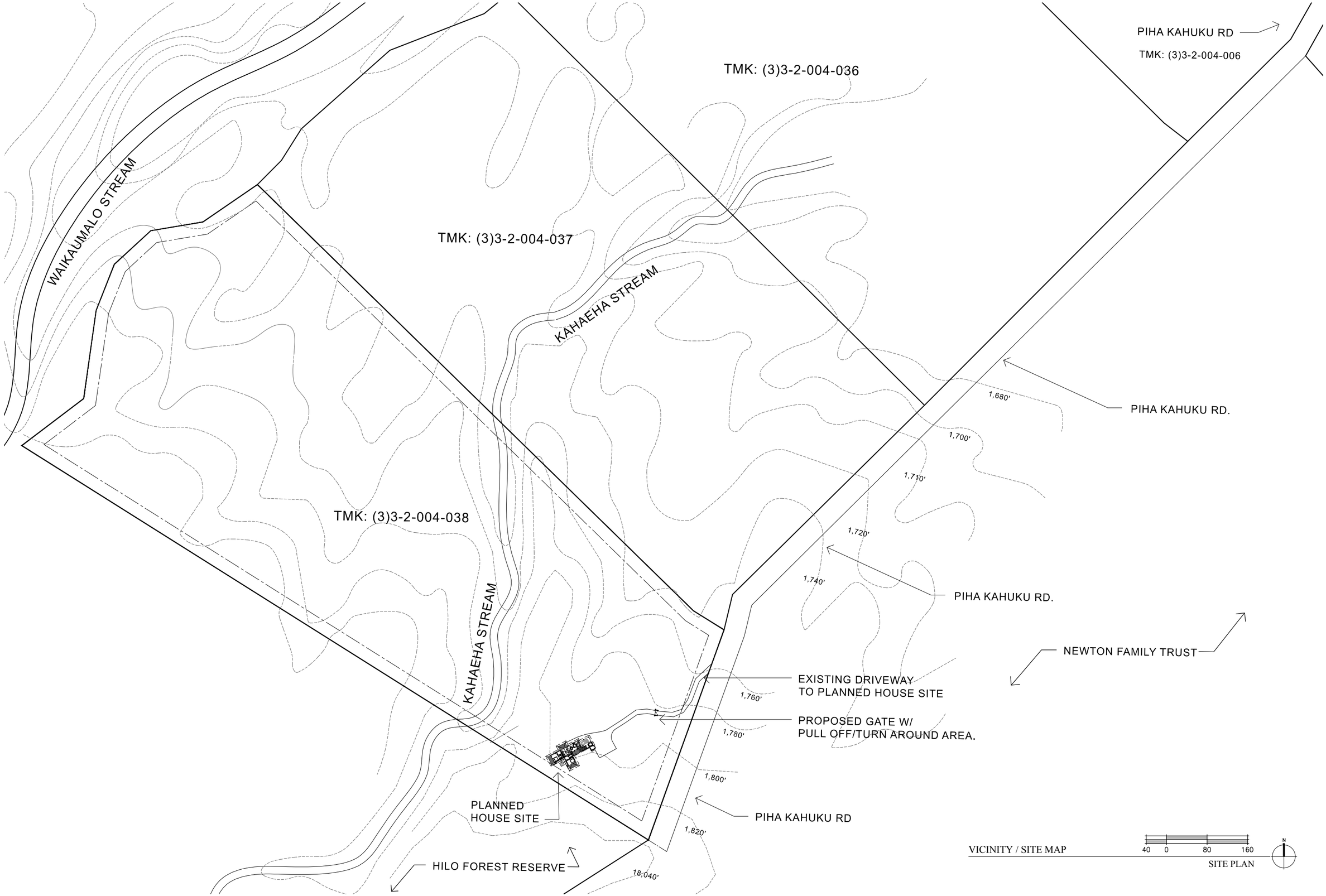
Figure 2. Site Photos

2c, Above: View to NE at the end of driveway toward proposed driveway/parking area. 2d, Below: Driveway below house site

SUMMARY OF PROJECT, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Pedro Ramos (the applicant) seeks a Conservation District Use Permit (CDUP) to build a single-family residence on a portion of his 18.3-acre property at the end of a driveway that extends from near the *mauka* end of Pīhā-Kahuku Road. The property abuts the Hilo Forest Reserve, at 1,800 feet in elevation, in the North Hilo District of the Island of Hawai‘i. The plan for the home consists of a split-level structure with 2 bedrooms; 2 baths; a great room with a kitchen, dining and living area; a foyer; a wardrobe/laundry; several lanai; a hot tub; and a carport. Around the home will be an array of ground and roof-mounted solar photovoltaic panels, a satellite telecommunications dish, a water catchment system consisting of a 10,000 gallon tank and a 5,000-gallon tank; a pump room; a propane storage tank; a back-up electrical generator and an individual wastewater system meeting or exceeding all regulatory requirements. The total developed area as defined under the Conservation District rules is 3,554 square feet.

The location of structures and the driveway has been planned to maximize use of already disturbed area and minimize disturbance of native vegetation. A botanical survey has determined that no threatened or endangered plant species are present. Clearing timing restrictions will help prevent impacts to endangered Hawaiian hoary bats and Hawaiian hawks, which are widely distributed throughout the island of Hawai‘i. An archaeological survey has been conducted that found no archaeological sites, and a cultural impact assessment has determined that no cultural site or practices would be affected. The surroundings are heavily forested and there are no views of the building site from other properties, except for the edge of State land directly *mauka*. No scenic impacts would occur. Landclearing would be minimal and occur over about a quarter-acre, with very minor short-term impacts to noise, air and water quality and scenery. These would be mitigated by Best Management Practices associated with the CDUP and grading permit. The applicant will ensure that all earthwork and grading conform to applicable laws, regulations and standards. In the unlikely event that additional undocumented archaeological resources, including shell, bones, midden deposits, lava tubes, 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.


PIHA KAHUKU RD
TMK: (3)3-2-004-006
TMK: (3)3-2-004-036
TMK: (3)3-2-004-037
WAIKAUMALO STREAM
KAHAEHA STREAM
PIHA KAHUKU RD.
1,680'
1,700'
1,710'
1,720'
1,740'
PIHA KAHUKU RD.
NEWTON FAMILY TRUST
EXISTING DRIVEWAY
TO PLANNED HOUSE SITE
1,760'
PROPOSED GATE W/
PULL OFF/TURN AROUND AREA.
1,780'
1,800'
TMK: (3)3-2-004-038
KAHAEHA STREAM
PLANNED
HOUSE SITE
PIHA KAHUKU RD
1,820'
HILO FOREST RESERVE
18,040'
VICINITY / SITE MAP
40 0 80 160
SITE PLAN
N

PROPOSED GATE W/
PULL OFF/
TURN AROUND AREA

EXISTING EUCALYPTUS

EXISTING OHIA TREES TO BE PROTECTED

EDGE OF BRUSH
TYP.

EXISTING
OHIA

FOREST

KAHAEHA
STREAM

40'-6"

TOP OF GULCH

40'-0"

31'-0"

PUMP ROOM
70 SQ FT

10K & 5K GAL.
WATER TANK 250 SQ FT.

LPG

5K

10K

STOR

MECH

SEPTIC/
LEACH

PROPOSED SOLAR ARRAY
350 TO 500 SQ FT

PROPOSED GARDEN
PLANTERS 250 SQ FT

EXISTING OHIA PATCH

PROPOSED FENCE

EDGE OF CLEARING

EXISTING INVASIVE
EUCALYPTUS
TO BE REMOVED
(SHADED CIRCLES)

PROPERTY LINE

PROPOSED FENCE

HILO FOREST RESERVE

25' SETBACK

25' SETBACK

PROPERTY LINE

PIHA KAHUKU RD.

196.0 198.0 200.0 202.0 204.0 206.0 208.0 210.0 212.0 214.0 216.0 218.0 220.0

121°40'00"

AREA SUMMARY

RESIDENCE	1,306 SF
COVERED LANAI / WALKS / STAIRS	523 SF
CARPORT / STORAGE / MECH ROOM	380 SF
PAVED WALKWAY / PATIO / HOT TUB	215 SF
WATER / GAS TANKS / PUMP ROOM	380 SF
GARDEN PLANTERS	250 SF
GROUND MOUNTED SOLAR ARRAY	500 SF
TOTAL AREA	3,554 SF

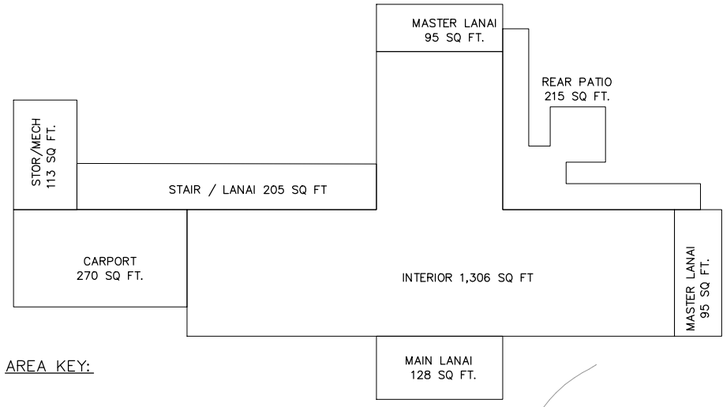
RAMOS RESIDENCE

NINOLE, ISLAND OF HAWAII

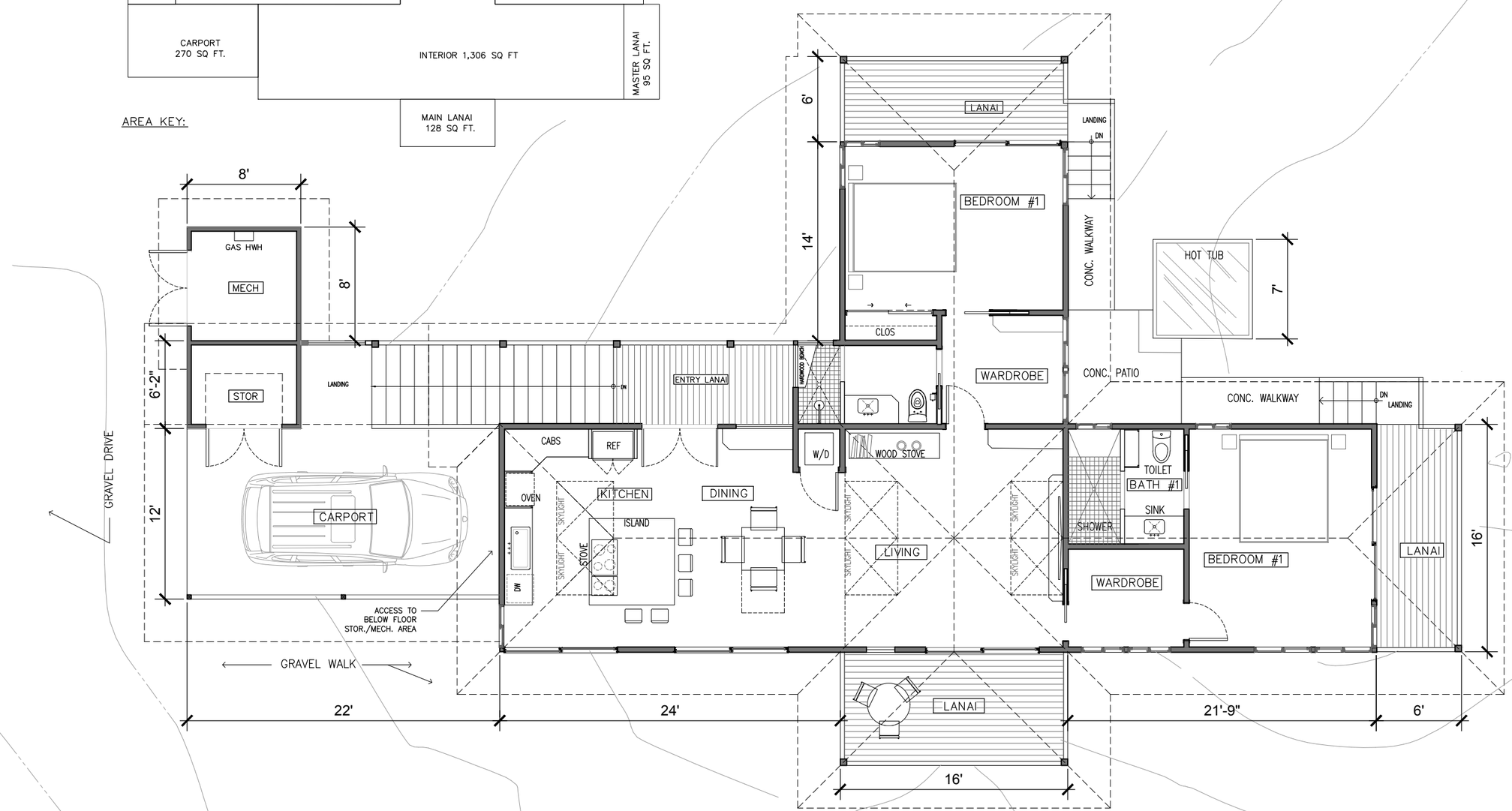
6 0 12 24

N

SITE PLAN



AREA KEY:



RAMOS RESIDENCE

NINOLE, ISLAND OF HAWAII

2 0 4 8

FLOOR PLAN

N

RAMOS RESIDENCE

NINOLE, ISLAND OF HAWAII

2 0 4 8

SOUTH ELEVATION

RAMOS RESIDENCE

NINOLE, ISLAND OF HAWAII

2 0 4 8

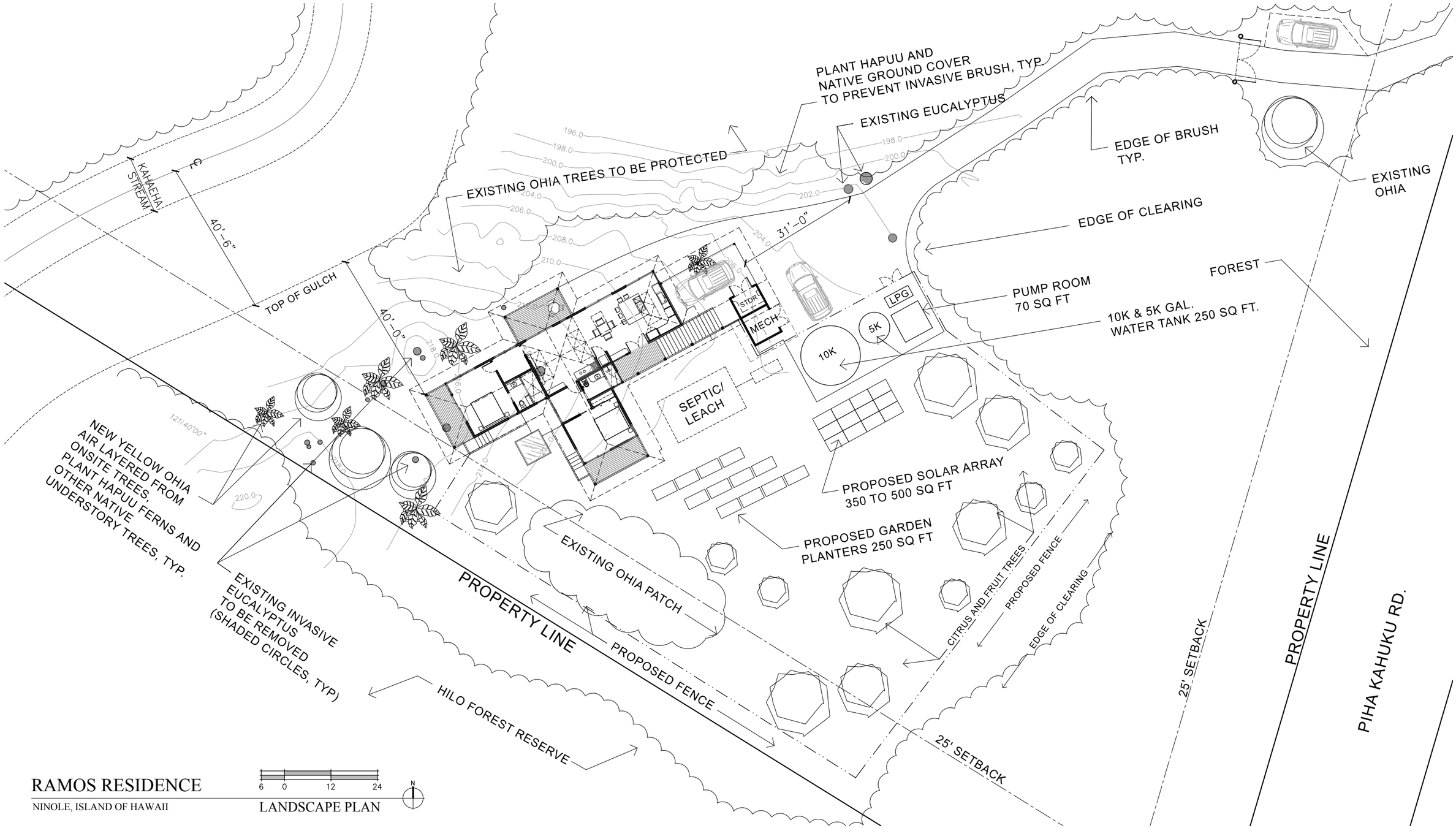
EAST ELEVATION

EXISTING TREES/PLANTS
Manono (Kadua spp.), Hame (Antidesma Pulvinatum), ʻŌhiʻa, and Hapuʻu pulu.

PROPOSED NATIVE TREES TO BE PLANTED:
Ohia, Kopiko (Psychotria sp.), Kanawao (Broussaisia arguta), Kolea (Myrsine spp.), manono (Kadua spp.), and Hame (Antidesma Pulvinatum)

PROPOSED GROUNDCOVER TO BE PLANTED:
Lauai Fern, 'Uki'uki, and Pohinahina

PROPOSED FRUIT TREES:
Mango, Avocado, Banana, Soursop, Rambutan, Citrus (lemon, lime orange, mandarin orange, etc.), Pomegranate, Cacao, Mountain apple, and Ulu (breadfruit).



RAMOS RESIDENCE
NINOLE, ISLAND OF HAWAII

6 0 12 24

N

LANDSCAPE PLAN

1.2 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, the determining 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 a Finding of No Significant Impact (FONSI), and the action will be permitted to proceed to other necessary permits. 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.

1.3 Public Involvement and Agency Coordination

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

County:

Planning Department	County Council	Civil Defense Agency
Fire Department	Department of Public Works	Police Department

State:

Department of Health, Environmental Planning Office
Department of Land and Natural Resource (DLNR), Land Division, DOFAW and OCCL
Office of Hawaiian Affairs

Private:

Sierra Club
Three Nearby Property Owners: Newton, Mata, Sanderson

Copies of communications received during early consultation are contained in Appendix 1a. Notice of the availability of the Draft EA was published in the November 23, 2018 *OEQC Environmental Notice*. Appendix1b contains written comments on the Draft EA and the responses to these comments. Various places in the EA have been modified to reflect input received in the comment letters; additional or modified non-procedural text is denoted by double underlines, as in this paragraph.

PART 2: ALTERNATIVES

2.1 Proposed Project, Alternative House Sites and Alternative Uses

The proposed project and its location are described in Section 1.1 above and illustrated in Figures 1-3. The location of the home site, in a longstanding clearing at the end of a driveway, was chosen because it is on a slightly flattened ridge and minimizes disturbance to topography and surrounding vegetation.

A number of other locations on the property could also theoretically serve as the site for a residence, but all would require significantly more clearing, and most would be closer to streams. Given the soil, vegetation and slopes, minimal clearing is a key consideration for the home site. There is no known environmental or other reason for seriously considering other sites on the property.

No other alternative uses for the property that are identified in the Conservation District Rules, such as a farm or a commercial nature park, are desired by the applicant, and thus none are addressed in this EA.

2.2 No Action

Under the No Action Alternative, the residence would not be built. The lot would remain unused, except for temporary camping and picnicking by the owner. This EA considers the No Action Alternative as the baseline by which to compare environmental effects from the project.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

The 18.3-acre property is located at the *mauka* end of Pīhā-Kahuku Road, at 1,800 feet in elevation. A number of farms and residences, as well as water supply and communication facilities, are on Pīhā-Kahuku Road, which is a County-owned and maintained facility for most of its length. The property is bordered by Waikaumalo Stream on the northwest, by the Pīhā Section of the Hilo Forest Reserve on the southwest, and by private properties on the northeast and southeast. The term project site is used to mean the proposed driveway and house-pad area that will be affected by the proposed action, while the term project area is flexibly used to denote the broader Hāmākua Coast or, in some cases, the entire Big Island.

3.1 Physical Environment

3.1.1 Climate, Geology, Soils and Geologic Hazards

Environmental Setting

The project site receives an average of about 205 inches of rain annually, with a mean annual temperature of approximately 68 degrees Fahrenheit (Giambelluca et al 2014; UH Hilo-Geography 1998:57). Winds in the area are dominantly northeast trades, replaced periodically by winds with a southerly component that often bring with them volcanic haze, or vog (UH Hilo 1998).

The project site is on the southeastern flank of Mauna Kea. The lava flows here are dated from prior to 14,000 years before the present (BP), although areas several miles upslope have surface flows dated from as recently as 4,000 to 10,000 years BP (Wolfe and Morris 1996). All lava flows in this area are mantled with a thick layer of volcanic ash derived from Kohala and Mauna Kea volcanoes (USGS-HVO: 2009). Soil in the area is classified as Kaiwiki highly organic hydrous silty clay loam, 6 to 20 percent slopes. The deep, ash-derived soils that developed in this geology and climate nurtured highly productive farming from early Hawaiian times through the century of sugar cane until today. Kaiwiki hydrous silty clay loams are fairly well drained but have medium to high runoff (U.S. Soil Conservation Service 1973). Locally boggy conditions develop when the soil is compressed by cultivation, vehicles or animals.

The entire Island of Hawai‘i is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the U.S. Geological Survey in this area of the island is Zone 8 on a scale of ascending risk 9 to 1 (Wright et al 1992). The relatively low hazard risk is because Mauna Kea is an inactive volcano. Zone 8 includes areas that have had no lava flows in the last 750 years, and only a few percent covered by lava in the past 10,000 years. Volcanic hazard here is thus very low.

The Island of Hawai‘i experiences high seismic activity and is at risk from earthquake damage (USGS 2000), especially to structures that are poorly designed or built, as the 6.7-magnitude quake of 2006 and the 6.9-magnitude quake of 2018 demonstrated. The portion of the property site proposed for improvement is on a slightly flattened topographic ridge that descends into shallow valleys on either side. There are appropriate setbacks to surrounding steeper slopes, and there does not appear to be a substantial risk at the site from subsidence, landslides or other forms of mass wasting.

Impacts and Mitigation Measures

The current extremely wet climate of East Hawai‘i poses challenges to homeowners in areas where stream flooding or localized road flooding can occasionally cut off access. Steep driveways in muddy areas can also become almost impassable. The access to the Ramos property does not involve any stream crossings outside of County road and State highway bridges that to date have nearly always adequately passed large floods. The driveway has been periodically maintained by stabilizing with gravel and removing eucalyptus tree roots, and it will continue to require regular periodic maintenance.

Guidance to federal agencies for addressing climate change issues in environmental reviews was released in August 2016 by the Council on Environmental Quality (US CEQ 2016). The guidance urged that when addressing climate change, agencies should consider: 1) the potential effects of a proposed action on climate change as indicated by assessing greenhouse gas emissions in a qualitative, or if reasonable, quantitative way; and, 2) the effects of climate change on a proposed action and its environmental impacts. It recommends that agencies consider the short- and long-term effects and benefits in the alternatives and mitigation analysis in terms of climate change effects and resiliency to the effects of a changing climate. Although this guidance has since been withdrawn for political reasons, the State of Hawai‘i in Hawai‘i Revised Statutes §226-109 encourages a similar analysis. It is possible, and even likely, that larger and more frequent tropical storms and even hurricanes will affect the Hawaiian Islands in the future. In addition, accelerating sea level rise is expected.

In order to deal with the potential for larger and more frequent tropical storms that could be part of a changing climate, the driveway has previously been reinforced, the home has been designed to withstand hurricane force winds, and trees with the potential to be fall on the home are planned for removal (particularly several large non-native eucalyptus trees just *mauka* of the home site).

In general, geologic conditions do not impose undue constraints on the proposed action, as the lava flow hazard is very low, the seismic hazard is manageable with proper design that meets the Uniform Building Code, and the site is not otherwise geologically hazardous. The applicant understands that there are some climatic and geologic hazards associated with homes on the slopes of Mauna Kea and has made the decision that a residence is not imprudent to construct or inhabit.

3.1.2 Flood Zones

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 flood zones for this region were recently mapped, and digital maps and reports are available from the Department of Land and Natural Resources at http://gis.hawaiinfip.org/fhat/. The property is within Flood Zone X, areas outside the mapped 500-year floodplain (Figure 4). There is no risk of tsunami inundation, and it is outside both the tsunami evacuation and any dam evacuation zone.

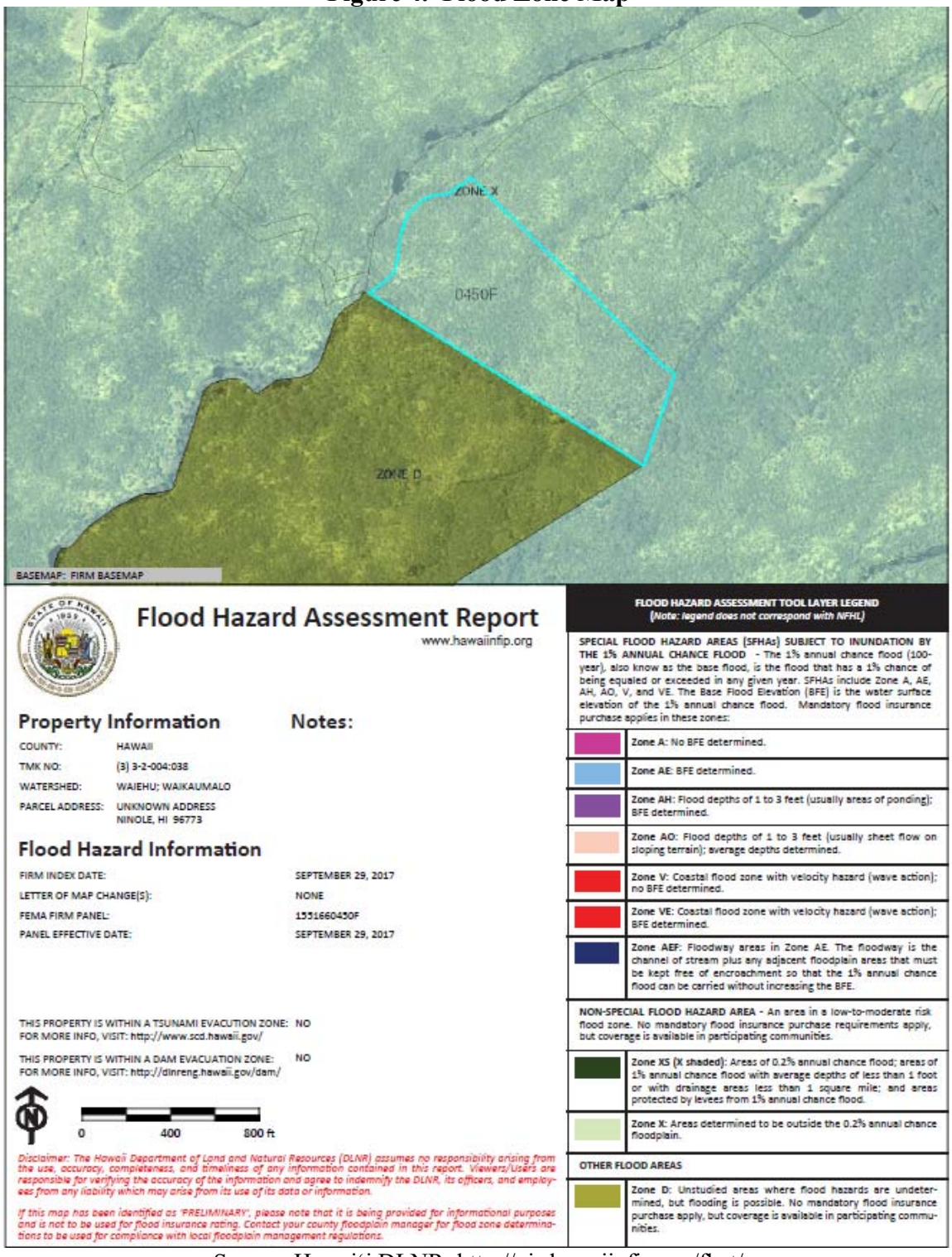
Notwithstanding the flood zone, the two steep stream channels and the lower portion of the stream banks on either side are subject to periodic stream flooding. Waikaumalo Stream is just outside the northwestern edge of the property, and Kalaeha Stream crosses lengthwise through the middle of the property. The proposed action does not appear to be affected in any way by stream flooding, which is restricted to the steep channels and does not overtop the high banks. The proposed home site and driveway are not near these two streams, and the driveway does not have to cross either.

3.1.3 Water Quality

The grading work would be limited to the home site its related spaces for driveway/parking, solar panels, septic system, water catchment and construction staging area. The total area of disturbance would be approximately a quarter-acre and would be set back a minimum of 75 feet from the closest stream. No grading activities would occur in areas with the potential to cause erosion near the stream banks. Grading will be planned and conducted to balance cut and fill material for the graded area in order to avoid the need to import or export of soils from the site. For trenching required for water pipelines and the septic system, extracted materials (spoils) will be used to refill the trenched areas and to blend the areas with the surrounding topography. As discussed in Section 3.3, a wastewater system fully conformant with State Department of Health Rules will be constructed to serve the home.

A County grading permit will be required. After actual grading plans are developed, the applicant and engineer will determine whether the area of disturbance is sufficiently large to require a National Pollutant Discharge Elimination System (NPDES) permit. Initial estimates indicate that the total grading

Figure 4. Flood Zone Map



Source: Hawai‘i DLNR: http://gis.hawaiinfip.org/fhat/

area will be far less than an acre and that an NPDES permit will not be required. Grading for the driveway and house lot will include practices to minimize the potential for sedimentation, erosion and pollution of coastal waters. The applicant will ensure that their contractor shall perform all earthwork and grading in conformance with:

(a) "Storm Drainage Standards," County of Hawai‘i, October, 1970, and as revised.
(b) Applicable standards of Chapter 27, "Flood Control," of the Hawai‘i County Code.
(c) Applicable standards and regulations of the Federal Emergency Management Agency.
(d) Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawai‘i County Code.
(e) Conditions of an NPDES permit, if required, and any additional best management practices required by the Board of Land and Natural Resources.

Best Management Practices (BMPs) will include, but not be limited, to the following:

- The area of the minimum stream setback will be marked and fenced in the construction areas to avoid disturbance to the ground or vegetation within the setback area during construction;
- The total amount of land disturbance will be minimized. The construction contractor will be limited to the specific delineated construction work areas within the lot;
- The contractor will take special precautions, including use of a dual-layer sedimentation control system in erosion prone areas, to prevent any sediment leaving the work areas, particularly towards the direction of nearby streams;
- Construction activities with the potential to produce polluted runoff will not be allowed during unusually heavy rains or storm conditions that might generate storm water runoff; and
- Cleared areas will be replanted or otherwise stabilized as soon as possible.

With proper implementation of standard BMPs, the construction and use of the residence and associated facilities would be not expected to contribute to sedimentation, erosion, and pollution of stream waters.

3.1.4 Flora and Fauna

Environmental Setting: Flora

No prior botanical surveys are known to have been conducted on the property, but in the *Manual of the Flowering Plants of the Hawaiian Islands,* Gagne and Cuddihy (1990) classified the natural, pre-human vegetation in areas with similar geology, elevation and rainfall as Lowland Wet Forest. Dominant species were likely ‘ōhi‘a trees (*Metrosideros polymorpha*), uluhe (*Dicranopteris linearis*) and hapu‘u ferns (*Cibotium* spp.), and a larger variety of trees, shrubs, ferns and herbs[1]. In the steeper, shadier and rockier soils of the gulches, different assemblages of species may have been present. However, this area has a

[1] Latin names for organism are generally given after the first use of a common name in this report. Refer to Table 1 for a full list of observed plants.

long history of intensive cultivation. Areas *makai* of 2,000 feet in elevation on windward Mauna Kea were cultivated with dryland taro, sweet potatoes, and bananas for centuries after the arrival of Polynesians on the Hawaiian Islands approximately 1,000 years ago (Handy and Handy 1972). After 1850, most of the lowlands in the North Hilo District were cultivated in sugar cane, although it appears that sugar cane plantations did not extend quite as far *mauka* as the property, based on air photographs dated from 1965 in the collection of the University of Hawai‘i at Manoa (https://guides.library.manoa.hawaii.edu/c.php?g=704385&p=5001010). Handwritten notes on the parcel history maps in the County Real Property records indicate that the property was probably grazed. Although cane cultivation in the general area ceased in the 1980s, and no grazing is currently occurring, the existing seedbank of non-native plants and the constant activity of feral pigs, cattle and rats promotes a vegetation dominated by invasive plants in which many native plants are suppressed. As gulches were generally less affected by sugar cane cultivation and grazing, they tend to retain more native elements.

At the present time, the vegetation is a mixed native-non-native forest dominated by paperbark (*Melaleuca quinquenervia*), strawberry guava (*Psidium cattleianum*), and ‘ōhi‘a. There is a dense shrub layer dominated by the non-native *Melastoma candidum*, but also with significant cover of uluhe and hapu‘u. On the ground, non-native grasses and weeds dominate, including the highly invasive Koster’s curse (*Clidemia hirta)*. A number of native ferns and few non-native ones are present as epiphytes. A few native species that are found only in scattered locations – e.g. hame (*Antidesma platyphyllum*) and ‘ie‘ie (*Freycinetia arborea*) – are remnants of a once diverse native forest. The native plants found on the property are common in the region, on the island, and for most, throughout the Hawaiian Islands. A list of species detected on the project site (for botanical purposes, the entire third of the property southeast of Kalaeha Stream was surveyed) is provided in Table 1.

Environmental Setting: Fauna

During several visits in 2018, we observed very few individual birds on the property and only five species: Japanese white-eyes (*Zosterops japonicus*), northern cardinals (*Cardinalis cardinalis*), Japanese bush warblers (*Cettia diphone*), spotted doves (*Streptopelia chinensis*), and striped doves (*Geopilia striata*). Long-term observation would probably reveal a wider bird fauna. The relatively low elevation leads to warm temperatures that promote mosquitos, which are inimical to most native birds. None were identified, but it is highly likely that the property is occasionally utilized by the Hawai’i ‘amakihi (*Hemignathus virens*), as some populations of this native honeycreeper appear to have adapted to the mosquito borne diseases of the Hawaiian lowlands.

As with all of East Hawai‘i, several endangered native terrestrial vertebrates may be present in the general area and may overfly, roost, nest, or utilize resources of the property. These include the endangered Hawaiian hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the endangered band-rumped storm petrel (*Oceanodroma castro*), and the threatened Newell’s shearwater (*Puffinus auricularis newelli*).

Table 1. Plant Species Observed on Project Site

Scientific Name	Family	Common Name	Life Form	Status*
Adenophorus tamariscinus	Polypodiaceae	Wahine Noho Mauna	Fern	E
Ageratum conyzoides	Asteraceae	Ageratum	Herb	A
Antidesma platyphyllum	Euphorbiaceae	Hame	Tree	E
Arundina graminifolia	Orchidaceae	Bamboo orchid	Herb	A
Andropogon virginicus	Poaceae	Broomsedge	Herb	A
Axonopus fissifolius	Poaceae	Carpet Grass	Herb	A
Blechnum appendiculatum	Blechnaceae	Hammock Fern	Fern	A
Christella parasitica	Thelypteridaceae	Christella	Fern	E
Cibotium glaucum	Dicksoniaceae	Hapu‘u pulu	Fern	E
Cibotium menziesii	Dicksoniaceae	Hapu‘u mea	Fern	E
Clidemia hirta	Melastomataceae	Clidemia	Herb	A
Cyperus halpan	Cyperaceae	Sharp Edge Sedge	Herb	A
Cyperus polystachyos	Cyperaceae	Manyspike Flatsedge	Herb	I
Dicranopteris linearis	Gleicheniaceae	Uluhe	Fern	I
Digitaria sp.	Poaceae	Digitaria	Herb	A
Diplopterygium pinnatum	Gleicheniaceae	Uluhe Lau Nui	Fern	E
Elaphoglossum crassifolium	Lomariopsidaceae	Hoe a Maui	Fern	E
Erechtites valerianifolia	Asteraceae	Erechtites	Herb	A
Fimbristylis dichotoma	Cyperaceae	Fimbristylis	Herb	I
Freycinetia arborea	Pandanaceae	‘Ie ‘Ie	Vine	I
Grammitis tenella	Grammitidaceae	Kolokolo	Fern	E
Heterocentron subtriplinervium	Melastomataceae	Pearlflower	Shrub	A
Melaleuca quinquenervia	Myrtaceae	Paperbark Tree	Tree	A
Metrosideros polymorpha	Myrtaceae	‘Ōhi‘a	Tree	E
Nephrolepis exaltata	Nephrolepidaceae	Kupukupu	Fern	I
Nephrolepis multiflora	Nephrolepidaceae	Sword Fern	Fern	A
Ophioderma pendulum	Ophioglossaceae	Adder’s Tongue	Fern	I
Psidium cattleianum	Myrtaceae	Strawberry Guava	Tree	A
Psilotum nudum	Psilotaceae	Moa	Fern Ally	I
Sadleria cyatheoides	Blechnaceae	Ama‘u	Fern	E
Schizachyrium condensatum	Poaceae	Tufted Beardgrass	Herb	A
Sphaerocionium lanceolatum	Hymenophyllaceae	Palai Hinahina	Fern	E
Sphenomeris chinensis	Lindsaeacea	Pala‘ā	Fern	I
Sporobolus indicus	Poaceae	Sporobolus	Herb	A
Torenia glabra	Scrophulariaceae	Torenia	Tree	A

A=Alien E=Endemic I=Indigenous END=Federal and State Listed Endangered

Some native waterbirds might also be present in or near the property, particularly at Waikaumalo Stream, just beyond the far northwestern boundary. In the Hilo-Hāmākua Coast in general, waterbirds are found in streams, estuaries, natural and artificial ponds, and wetlands. The most common native waterbird is the indigenous black-crowned night heron, or ‘auku‘u (*Nycticorax nycticorax hoactli*). This bird is likely present at times in the property’s streams. It is also not unusual to spot the wide-ranging, friendly but

endangered Hawaiian goose or nēnē (*Branta sandwicensis*) in various parts of the island. Far less likely to be seen in the property's streams are two endangered waterbirds that are occasionally present in the Hāmākua coast: the Hawaiian duck or koloa maoli (*Anas wyvilliana*), and the Hawaiian coot or ʻalae keʻokeʻo (*Fulica alai)*. Of these, only the koloa maoli is noted in streams somewhat similar to Waikaumalo. No waterbirds were observed during any of the field visits to the property.

Aside from the Hawaiian hoary bat, all mammals in the project area are all introduced species, including feral cats (*Felis catus*), feral pigs (*Sus scrofa*), small Indian mongooses (*Herpestes a. auropunctatus*) and various species of rats (*Rattus* spp.). Several species of non-native reptiles and amphibians are also likely present. Coqui frogs (*Eleutherodactylus coqui*) were heard and an undetermined skink lizard (Family: Scincidae) was seen. None of these non-native vertebrates are of conservation concern and all are deleterious to native flora and fauna.

The *Hawai'i Watershed Atlas* (http://www.hawaiiwatershedatlas.com/ha_hilo.html) contains information about the watershed, stream character and biota of Waikaumalo Stream. The 18.6-mile long perennial stream has a watershed of 36.4 miles, indicating a long, narrow watershed with few tributaries – typical of streams in fairly young volcanic slopes. The maximum elevation of the watershed 8,884 feet above sea level. The cliffed coast provides no area for an estuary. The percent of the watershed in the different land use districts is as follows: 35.5% agricultural, 64.1% conservation, 0.4% rural, and 0% urban. About 37% of the watershed is controlled by the State, 17.2% by the Office of Hawaiian Affairs (according to the atlas), 34.5% is on federal land, and the remainder is in private hands. Fully 71.1% is in some form of watershed protection. Under various watershed quality criteria, Waikaumalo Stream ranks in the upper quartile of Hawaiian streams.

Surveys of varying intensities and goals were conducted at several locations on the upper reaches of Waikaumalo Stream in 1967, 1990 and 1995. The native fish ʻoʻopu alamoʻo (*Lentipes concolor*), ʻoʻopu ʻakupa (*Eleotris sandwicensis*), ʻoʻopu nākea (*Awaous guamensis*), (*Kuhlia xenura*), and ʻoʻopu nōpili (*Sicyopterus stimpsonis*), as well as the native shrimp or ōpaekalaʻole (*Atyoida bisulcata*) and various native insects, were recorded in the surveys. An unidentified amphipod, a worm, and a number of insects were also among the native fauna observed in the stream. No threatened or endangered species were recorded. Various non-native species including Tahitian prawns, Louisiana crayfish and guppies were also seen. Based upon existing knowledge of the stream biota, the area was rated as having some biotic importance according to the DLNR Division of Aquatic Resources Decision Rule criteria for native macrofauna diversity, but not for native insect diversity, native species abundance, presence of candidate endangered species, Newcomb's snail habitat, or absence of Priority 1 introduced species.

An endangered insect, the orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*), lives in streams and wetlands at locations around the island's coastline, primarily in estuaries and ponds at sea level. On other islands, it has been sighted as high as 3,280 feet above sea level. According to conservationists, its limited habitat and small scattered populations may affect long-term stability. The species is susceptible to the effects of habitat loss and introduced species (https://xerces.org/orangeblack-hawaiian-damselfly/; https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=I063; DLNR-DOFAW 2013; Polhemus 1993 and 1995; Polhemus and Asquith 1996). The species has not been noted from Waikaumalo Stream.

No activity will occur within 1,200 feet of Waikaumalo Stream itself. Kalaeha Stream, one of three smaller tributary streams to Waikaumalo Stream, is within as close as 75 feet of project actions, although separated by a heavily forested area. This stream is not listed in the Hawai‘i Stream Assessment or Hawai‘i Watershed Atlas. Reconnaissance of this smaller stream found abundant native shrimp or ōpaekala‘ole (*Atyoida bisulcata*), which often inhabit the middle and upper reaches of streams in the Hawaiian Islands. Various insects, including a not conclusively identified native damselfly (*Megalagrion* sp., probably *M. blackburnii)* and a non-native *Tetragnatha* stream spider were among other fauna observed in the stream. No non-native fish, amphibians or crustaceans were observed. No threatened or endangered species were recorded.

Impacts and Mitigation Measures

The project's small footprint and degree of physical disturbance combined with its location in an area of the property with few sensitive flora or fauna resources limits the biological impacts to negligible levels.

No rare, threatened or endangered plant species are present. Although a number of natives are present, the area of impact is dominated by non-natives. The owner wishes to preserve and enhance the native vegetation through gradual thinning of weedy species and promotion of native species through planting or simple weeding. With minimal care and input, the native component of the vegetation could increase. An issue for construction projects located in ‘ohi‘a forests has recently surfaced. A fungus called *Ceratocystis fimbriata* has led to a disease that is new to science and new to Hawai‘i – Rapid ‘Ohi’a Death (Hawai‘i DOFAW 2017). This disease has killed hundreds of thousands of ‘ohi‘a trees across more than 34,000 acres of the Big Island. It was first discovered in Lower Puna. Projects that harm or relocate ‘ohi‘a trees can spread the disease, and mitigation measures are recommended, although it is important to recognize that treatment protocols are evolving. The following mitigation is recommended:

- A small number of mostly juvenile ‘ohi‘a trees are planned for careful removal; identify any other ‘ohi‘a trees near the construction area and ensure that their branches are not accidentally broken during construction;
- Treat any unavoidable scars to prevent infestation of the fungus;
- Stack all removed ‘ohi‘a trees and dispose of by burying or chipping; do not remove from project site. Decontaminate boots and work tools prior to entering the construction site and after leaving;
- Implement any other conditions imposed as part of the CDUP.

The project avoids sensitive locations directly adjacent to streams, and in fact no activities whatsoever are proposed for the roughly two-thirds of the property from Waikaumalo Stream southeast to, and including, Kalaeha Stream. The precautions for preventing effects to water quality during construction listed in Sections 3.1.1 and 3.1.6 will reduce adverse impact on stream organisms to negligible levels.

Preventing certain biological impacts will require specific mitigation actions. In order to avoid impacts to the endangered but regionally widespread terrestrial vertebrates listed above, the applicant will commit to certain conditions, which are expected to be proposed for the CDUP. Specifically:

- Construction will refrain from activities that disturb or remove shrubs or trees taller than 15 feet between June 1 and September 15, when Hawaiian hoary bats may be sensitive to disturbance. Furthermore, in order to avoid bat entanglement, barbed wire will not be used, with the possible exception of a bottom strand on the hogwire fence surrounding the home, which would not be expected to entangle bats because of its low location.
- If landclearing occurs between the months of March and September, inclusive, a pre-construction hawk nest search by a qualified ornithologist using standard methods will be conducted. If Hawaiian hawk nests are present, no land clearing will be allowed until October, when hawk nestlings will have fledged.
- Any exterior lighting will be shielded from shining upward, in conformance with Hawai‘i County Code § 14 – 50 et seq., to minimize the potential for disorientation of seabirds.

3.1.5 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air quality in the area is generally excellent, due to its rural nature and minimal degree of human activity, although vog from Kilauea volcano is occasionally blown into this part of the North Hilo Coast. Noise on the site is very low, and what sounds exist are mostly natural sources, primarily birdsong and wind in trees. The occasional helicopter overflight causes some noise.

This deeply forested area has some visual quality, but because of the dense vegetation, sloping terrain and distance from public roads and other viewpoints, it offers no scenic resources. The County of Hawai‘i General Plan contains Goals, Policies and Standards intended to preserve areas of natural beauty and scenic vistas from encroachment. The General Plan discusses views of the gulches from the Hawai‘i Belt Road and Old Mamalahoa Highway as noted features of natural beauty in North Hilo. No features or views on or near the project site are noted.

Impacts and Mitigation Measures

The project would not affect air quality, scenery or noise levels in any substantial ways. Brief and minor adverse effects would occur during construction. However, there are no sensitive noise or visual receptors in the vicinity – with no houses or other structures within 1,200 feet of the proposed home site. Given the small scale and short duration of any noise impacts, coupled with the lack of sensitive receptors, noise mitigation would not be necessary. The single-family home would be in harmony with the rural landscape of North Hilo.

3.1.6 Hazardous Substances, Toxic Waste and Hazardous Conditions

Based on onsite inspection and the lack of any known former and current uses on the property, it appears that the site contains no hazardous or toxic substances and exhibits no other hazardous conditions. In

addition to the measures related to water quality detailed in Section 3.1.3, in order to ensure to minimize the possibility for spills of hazardous materials, the applicant proposes the following:

- Unused materials and excess fill will be disposed of at an authorized waste disposal site.
- During construction, emergency spill treatment, storage, and disposal of all hazardous materials, will be explicitly required to meet all State and County requirements, and the contractor will adhere to "Good Housekeeping" for all appropriate substances, with the following instructions:
    - 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 unresealable, and original labels and safety data will be retained;
    - Manufacturers' instructions for proper use and disposal will be strictly followed;
    - 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, wastes, debris, and landscaping substances (herbicides, pesticides, and fertilizers) 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 be properly disposed of;
    - 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 clean-up procedures.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristics

Existing Environment

The Ramos property is located at the *mauka* end of Pīhā-Kahuku Road, about 3 miles from the center of the nearest village, Ninole. This region of traditional Hawaiian settlement was transformed by commercial sugar cane cultivation into a collection of plantation camps and individual homes, some within old government grants and homestead lots. Like many villages along the Hāmākua coast, its former retail, service and government establishments were slowly consolidated and absorbed into a few larger towns. A small and picturesque post office box building still remains. Since the demise of sugar cane, the area at first lost population but then began to gain it, mostly from new residents to Hawai‘i, many attracted by large lots in the uplands that could be farmed or ranched, host a vacation rental, enjoyed as a peaceful hideaway, or serve as a place from which to commute to Hilo. More and more residents tele-commute to jobs around the globe.

Ninole is too small to be measured as a discrete unit by the U.S. Census Bureau, but 2,041 residents were counted in the North Hilo District of which Ninole is a part in the 2010 U.S. Census. This is the smallest of all judicial districts in Hawai‘i, but represents steady growth since the figure of 1,541 in 1990.

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 population or demand for services.

3.2.2 Cultural and Historic Resources

An archaeological assessment survey of the portion of the property east of Kalaeha Stream and a cultural impact assessment of the project were prepared and are attached as Appendices 2 and 3, respectively. Research for this report included primary fieldwork, consultation of archaeological and ethnographical studies and primary documents including maps and Mahele testimony, and consultation of informants, including descendants of original grantees and several officials of the Division of Forestry and Wildlife (DOFAW) who administer hunting and/or have hunted in the area. In the interest of readability, the summary below does not include all scholarly references; readers interested in extended discussion and sources may consult these appendices. Separately, the Office of Hawaiian Affairs, Councilperson Valerie Poindexter, the Sierra Club, DOFAW officials and five neighbors were also consulted by mail, email, and/or telephone as part of the EA for any information on natural or cultural resources that might be present or affected, and additional research on cultural resources and impacts was conducted.

Historical and Cultural Background

The first inhabitants of Hawai‘i were believed to be settlers who had undertaken difficult voyages across the open ocean. For many years, researchers have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai‘i were underway by A. D. 300, although recent work suggests that Polynesians may not have arrived in Hawai‘i until at least A. D. 1000 (Kirch 2012).

The initial inhabitants of Hawai‘i are believed to have come from the southern Marquesas Islands and settled initially on the windward side, eventually expanding to leeward areas. Early Hawaiian farmers developed new strategies and tools for their new environment (Kirch 2012; Pogue 1978). Societal order was maintained by their traditional philosophies and by the conical clan principle of genealogical seniority (Kirch 2012). Universal Polynesian customs brought from their homeland included the observance of major gods *Kane*, *Ku*, and *Lono*; the *kapu* system of law and order; cities of refuge, various beliefs, and the concepts of *mana* and the *‘aumakua* (Fornander 1969).

The Development Period, believed under Kirch’s new concept to have occurred from A. D. 1100 to 1350, brought an evolution of traditional tools, including a variation of the adze (*ko‘i*), and some new Hawaiian inventions such as the two-piece fishhook and the octopus-lure breadloaf sinker. That was followed by the

Expansion Period (A. D. 1350 to 1650) which saw greater social stratification, intensive land modification, and population growth. This period was also the setting for the second major migration to Hawai‘i, this time from Tahiti. Also established during this period was the *ahupua‘a*, a land-use concept that incorporated all of the eco-zones from the mountains to the shore and beyond. The usually wedge-shaped *ahupua‘a* provided a diverse subsistence resource base (Hommon 1986) and added another component to what was already becoming a well-stratified society (Kirch 2012).

As population grew during the following centuries so did the reach of inland cultivation in the upland environmental zones and consequent political and social stresses. During the Proto-Historic Period (A. D. 1650-1795), wars reflective of a complex and competitive social environment are evidenced by *heiau* building. During this period, sometime during the reign of Kalaniopu‘u (A. D. 1736-1758), Kamehameha I was born in North Kohala.

Ahupua‘a were ruled by *ali‘i ‘ai ahupua‘a* or lesser chiefs and managed by a *konohiki*. *Ali‘i* and *maka‘ainana*, or commoners, were not confined to the boundaries of *ahupua‘a* as resources were shared when a need was identified. *Ahupua‘a* were further divided into smaller sections such as *‘ili, mo‘o‘aina, pauku‘aina, kihapai, koele, hakuone* and *kuakua*. The chiefs of these land units have their allegiance to a territorial chief or *mo‘i* (literally translated as king) (Hommon 1986). The Ramos property is located within the *ahupua‘a* of Pīhā, which translates literally as “flotsam” (Pūku‘i et al. 1974), in the now-judicial district of North Hilo, which was part of the traditional *moku-o-loko* or district of Hilo. Hilo comprises dozens of *ahupua‘a* on the eastern/windward shores of Hawai‘i Island. As Pīhā encompasses *mauka* agricultural and forest resources and *makai* fisheries, residents were once able to procure nearly all that they needed to sustain their families and contribute to the larger community from within the land division.

Traditionally, the *moku* of Hilo was divided into three *‘okana* (land divisions) with place names that have their origins in legendary times. The three divisions are (from north to south): Hilo Palikū, Hilo One, and Hilo Hanakahi. The location of the Ramos property is within Hilo-pali-kū or “Hilo of the upright cliff” (Pukui et al. 1974:46), which extends north from the Wailuku River to Ka‘ula Gulch (Maly and Maly 2006). In *Pele and Hi‘iaka*, Emerson recounted the following *mele* that Hi‘iaka sang while journeying between Hilo and Puna through the forest territory of the *mo‘o* Pana‘ewa, which mentions the area (1993:32-33):

Pau ke aho i ke kahawai lau o Hilo	One’s strength is exhausted, climbing, climbing
He lau ka pu‘u, he mano ka iho‘na	The countless valleys and ridges of Hilo,
He mano na kahawai o Kula‘i-po	The streams without number of Ku-la‘i-po,
He wai Honoli‘i, he pali o Kama-e‘e,	The mighty water of Hono-li‘i, the precipice walls of Kama-e‘e
He pali no Koolau ka Hilo-pali-ku	And the pali of Ko‘olau: Such a land is Hilo-pali-ku.
He pali Wailuku, he one ke hele ia;	The banks of Wailuku are walls; the road to its crossing but sand;
He one e ke‘ehia la i Wai-olama.	Sandy the way at Wai-o-lama.

Kepā and Onaona Maly provided additional information pertaining to the ancient land division of Hilo Palikū in the following translation of an excerpt from a legendary account called "*Ka'ao Ho'oniua Pu'uwai no Ka-Miki"* ("The Heart Stirring Story of Ka-Miki"). This legend was originally published in Hilo's Hawaiian Language newspaper *Ka Hōku o Hawai'i*:

> Of Hilo Paliku it is said, one becomes short of breath traveling through Hilo, for there are many (400) hills, many (4,000) areas to descend, and many (40,000) streams, indeed while swimming through the waters of Hilo one becomes out of breath, but one is never out of water at Hilo! (Maly and Maly 2006:13)

Pukui (1983:107) provided a further poetic description of Hilo Palikū a part of an '*ōlelo no'eau* or poetical saying:

> *Hilo iki, pali 'ele'el*e.
> Translation: Little Hilo of the dark cliffs.
> Interpretation: Hilo-pali-ku, or Hilo-of-the-standing-cliffs, is always green because of the rain and mists.

King David Kalākaua (1888:284) described the lands of the northern portion of Hilo as he recounted the tale of 'Umi-a-Līloa presented in his book, the *Legends and Myths of Hawai'i*. His description of the region is taken from a time when North Hilo and Hāmakua were in the thick of the commercial sugar industry, but mentions the presence of scattered *lo'i kalo* and bananas:

> The northeastern coast of the island of Hawaii presents an almost continuous succession of valleys, with intervening uplands rising gently for a few miles, and then more abruptly toward the snows of Mauna Kea and the clouds. The rains are abundant on that side of the island, and the fertile plateau, boldly fronting the sea with a line of cliffs from fifty to a hundred feet in height, is scored at intervals of one or two miles with deep almost impassable gulches, whose waters reach the ocean either through rocky channels worn to the level of the waves, or in cascades leaping from the cliffs and streaking the coast from Hilo to Waipio with lines which seem to be molten silver from the great crucible of Kilauea.
>
> In the time of Liloa, and later, this plateau was thickly populated, and requiring no irrigation, was cultivated from the sea upward to the line of frost. A few *kalo* patches are still seen, and bananas grow, as of old, in secluded spots and along the banks of the ravines; but the broad acres are green with cane, and the whistle of the sugar-mill is heard above the roar of the surf that beats against the rock-bound front of Hamakua.

Native Planters in Old Hawaii (Handy et al 1972:538-9) discussed traditional planting areas and methods in the North Hilo area. While Waikaumalo Stream was not mentioned as a significant area of taro *lo'i*, it was noted that unirrigated taro was planted in the lower forest and along streams.

The specific Pīhā area appears to have been sparsely populated and there is little traditional information in the form of *mele*, *oli* or *ʻōlelo* concerning the area's inhabitants or happenings. Nevertheless, it is clear from work in similar areas of Hawaiʻi that different elevations of Pīhā comprised various social-ecological zones that had profound consequences for not only resources but also the sacredness of the landscape. The inland zones, or *wao*, are stratified by variations in elevation and rainfall, and are considered as a region all their own. As Handy et al. (1991:56) explained:

> *Wao* means the wild—a place distant and not often penetrated by man. The *wao laʻau* is the inland forested region, often a veritable jungle, which surmounts the upland *kula* slopes on every major island of the chain, reaching up to very high elevations especially on Kauai, Maui, and Hawaii. The Hawaiians recognized and named many divisions or aspects of the *wao*: first, the *wao kanaka*, the reaches most accessible, and most valuable, to man (*kanaka*); and above that, denser and at higher elevations, the *wao akua*, forest of the gods, remote, awesome, seldom penetrated, source of supernatural influences, both evil and beneficent. The *wao kele*, or *wao maʻu kele*, was the rain forest. Here grew giant trees and tree ferns (*ʻamaʻu*) under almost perpetual cloud and rain. The *wao kanaka* and the *wao laʻau* provided man with the hard wood of the *koa* for spears, utensils, and logs for boat hulls; pandanus leaves (*lau hala*) for thatch and mats; bark of the *mamaki* tree for making tapa cloth; candlenuts (*kukui*) for oil and lights; wild yams and roots for famine time; sandalwood, prized when shaved or ground as a sweet scent for bedding and stored garments. These and innumerable other materials were sought and found and worked by man in or from the *wao*.

Traditional life in Hawaiʻi' took a sharp turn on January 18, 1778 with the arrival of British Capt. James Cook in the islands. On a return trip to Hawaiʻi ten months later, Kamehameha visited Cook aboard his ship the *Resolution* off the east coast of Maui and helped Cook navigate his way to Hawaiʻi Island. Cook exchanged gifts with Kalaniopuʻu at Kealakekua Bay the following January, and Cook left Hawaiʻi in February. However, Cook's ship then sustained damage to a mast in a severe storm off Kohala and returned to Kealakekua, setting the stage for his death on the shores of the bay.

During the Proto-Historic Period there was a continuation of the trend toward intensification of agriculture, *aliʻi*-controlled aquaculture, settling of upland areas and development of traditional oral history. The *Ku* cult, *luakini heiau* and the *kapu* system were at their peaks, but the influence of western civilization was being felt in the introduction of trade for profit and a market-system economy. By 1810, the sandalwood trade established by Europeans and Americans twenty years earlier was flourishing. That contributed to the breakdown of the traditional subsistence system, as farmers and fishermen were required to toil at logging, which resulted in food shortages and a decline in population.

The rampant sandalwood trade resulted in the first Hawaiian national debt, as promissory notes and levies granted by American traders were enforced by American warships. The assimilation of western ways continued with the short-lived whaling industry to the production of sugarcane, which was more lucrative but carried a heavy environmental price.

Following the death of Kamehameha I in 1819, the customary relaxing of *kapu* took place. But with the introduction of Christianity shortly thereafter, his successor, Kamehameha II, renounced the traditional religion and ordered that *heiau* structures either be destroyed or left to deteriorate. The family worship of *'aumakua* images was allowed to continue.

In 1823, British missionary William Ellis and members of the American Board of Commissioners for Foreign Missions (ABCFM) toured the island of Hawai'i scouting communities in which to establish church centers for the growing Calvinist mission. Ellis recorded observations made during this tour in a journal, including Hilo Palikū:

> The country, by which we sailed, was fertile, beautiful, and apparently populous. The numerous plantations on the eminences and sides of the deep ravines or valleys, by which it was intersected, with the streams meandering through them into the sea, presented altogether a most agreeable prospect. The coast was bold, and the rocks evidently volcanic. We frequently saw water gushing out of hollows in the face of the rocks, or running in cascades from the top to the bottom (Ellis 1826:316).

In 1840, Lieutenant Charles Wilkes, head of the U.S. Exploring Expedition, traveled to northern Hilo and described the landscape of this region:

> The coast to the north of Hilo is slightly peculiar: it is a steep bluff, rising about two hundred feet; this is cut into small breaks here called "gulches," within which the villages are generally situated, and the natives grow banana and taro. In some places they cultivate small patches of sugarcane, which succeed well (Wilkes 1845).

The *Mahele 'Aina* took place in 1848, placing all land in Hawai'i into three categories: Crown Lands, Government Lands and Konohiki Lands. Ownership rights were "subject to the rights of the native tenants," or those individuals who lived on the land and worked it for their subsistence and for their chiefs.

Pīhā Ahupua'a is not listed in the Buke Māhele, but ~~appears~~ was surmised by the authors of the Cultural Impact Assessment to have become Crown Land as a result of the Māhele, as J. Dominis, agent of the Crown Lands, would later apply for the settlement of the land division's boundaries. In actuality, research by the DLNR, Division of Forestry and Wildlife's Na Ala Hele Program (see letter of December 14, 2018, in Appendix 1b), indicated a slightly different land ownership history. According to Na Ala Hele: "The land of Piha 1 & 2 was never assigned or awarded at the time of the Mahele of 1848. Controversy arose over the ownership of this land when the Trustees of the Estate of Bernice Pauahi Bishop claimed this land as an heir to certain lands which had been continuously held and claimed by her ancestors. In order to settle the controversy a compromise was proposed whereby the Minister of the Interior conveyed other lands to the Trustees, who in tum conveyed the land of Piha (besides other lands) to the Kingdom of

Hawaii on December 20, 1890. Thus the land of Piha was made a part of the Government land of the Kingdom of Hawaii."

In any case, as part of recording the boundaries of the land in the Māhele, several older residents of the area provided testimony, including Ku, Hemahema, Kalaualoha, Kupahu, and D.H. Hitchcock, the Government Surveyor who surveyed the Pīhā boundaries. D.H. Hitchcock testified that he surveyed the boundaries of Pīhā Ahupuaʻa in October of 1874 with Ku as his *kamaʻāina* (person familiar with the land). Hitchcock also took Kalaualoha with him along a part of the Nanue boundary, and talked with Hemahema prior to the survey, but found that the recollections of Hemahema and Ku agreed regarding the boundaries, so only took Ku with him. The testimony indicated that the boundary between Kahuku and Pīhā Ahupuaʻa (a part of which is the eastern boundary of the Ramos property) was once marked by an "old trail" used by bird catchers to access the forest, and that the owner of Nanue Ahupuaʻa, Alapai, disputed the *mauka*-eastern boundary of Pīhā Ahupuaʻa as described by Ku and depicted by D.H. Hitchcock in his survey.

Native tenants could claim and acquire title to *kuleana* parcels on which they actively lived or farmed at the time of the Māhele. The Kuleana Act of December 21, 1849 provided the framework by which native tenants could apply for and receive fee-simple interest in their *kuleana* lands from the Land Commission. The Board of Commissioners administered the lands as Land Commission Awards (LCAw.). No claims were made for *kuleana* lands within Pīhā Ahupuaʻa during the Māhele ʻĀina of 1848.

Prior to the 1870s, the cultivation of sugar cane was becoming an important economic activity that also transformed land use in many districts of the Hawaiian Islands. This included the Hāmākua Coast, where population rapidly dropped in the mid-19th century as a result of both epidemics and migration of rural inhabitants to towns and cities. Following the signing of the 1875 Treaty of Reciprocity, a free-trade agreement between the United States and the Kingdom of Hawaiʻi that guaranteed a duty-free market for Hawaiian sugar in exchange for special economic privileges for the United States, a number of new sugar plantations incorporated in the Islands. In 1878, Claus Spreckels, with W.G. Irwin & Company as his agent, established the Hakalau Plantation Company on 9,000 acres of land located along the North Hilo coast, 16 miles from Hilo (Dorrance and Morgan 2000). The fields of the Hakalau Plantation Company ranged from 250 feet above sea level along the shoreline bluffs to 2,000 feet above sea level at their western (*mauka*) limits. The cane was conveyed by flume from the various fields to its mill site, where it was then processed. The Hakalau Mill, built in 1890 on the shore at the foot of a 200-foot bluff within Hakalau Gulch, produced 5,000 tons of sugar annually during its early years (Ibid). Until 1913 when a railroad connecting the plantation to the port at Hilo was built, the plantation shipped its product from the Hakalau Landing to Honolulu via inter-island vessels that anchored offshore. The lands of Pīhā Ahupuaʻa (containing 4,250 acres) were leased to the Hakalau Plantation Co. on February 11, 1892 (see C.S.F. 449), and the *makai* lands were cleared and used for the cultivation of sugarcane.

The fields of the Hakalau Plantation Company never reached as far *mauka* as what is now the Ramos property, which remained forest land throughout the late nineteenth century. The importance of the forest lands and their valuable watersheds for agricultural purposes and the well-being of the people in general

was recognized quite early on by the Territorial Government of Hawai‘i as well as the burgeoning Hawaiian sugar industry. Consequently, a proclamation recommending that 110,000 acres of land in the Districts of North and South Hilo be reserved from development was signed by Lt. Governor A.L.C. Atkinson on July 24, 1905, and the Hilo Forest Reserve was created. The reserve, which abuts the eastern boundary of the Ramos property, was described by the Division of Forestry in 1906 as follows:

> The Hilo Forest Reserve embraces the area of heavy forest on the lower slopes of Mauna Kea, lying between the 1855 and 1881 Lava Flows back of Hilo Town and the Hamakua District line, and extending from a line varying in elevation from 1,750 to over 2,000 feet, drawn back of and above the sugar plantations to another line along the upper edge of the woods, at an elevation of approximately 6,000 feet. The water from this reserve is of great importance to all the plantations along the coast, being at present used for the most part for fluming cane to the mill. From the character of the country many of the streams could be utilized for the production of power. This will be an important consideration when the Hilo District comes to be developed, as it is sometime bound to be. The object of the Hilo Forest Reserve is to protect the sources of this important water supply (Hawaii Territory Division of Forestry 1906:25).

The Land Act of 1895 broadened the definition of public land and placed Hawai‘i’s Crown Lands (such as Pīhā) into the public domain. The Land Act, coupled with clarifications to Hawai‘i’s land policies set forth in the 1900 Organic Act, made land available to family farmers through homesteading programs. Many of the Territory lease lands held by the Hakalau Plantation Company were divided into homestead lots (Horowitz et al. 1969). By the early twentieth century, as the plantation’s lease on its Pīhā lands was set to expire, the Territorial Government began the process of subdividing the *makai* section of the *ahupua‘a* below the Hilo Forest Reserve into homesteads. The survey of the Pīhā homestead tract began in 1912 and was completed by 1913. “The land of Piha was subdivided into 28 lots, comprising 393.81 acres, 5 miles of roads containing 20.44 acres, and flumes and ditches and remnant covering 5.95 acres” (Department of Interior 1913:65). The Pīhā-Kahuku Homestead Road created as part of the Pīhā homestead subdivision appears to follow the route of the older road described along the boundary between those two *ahupua‘a* during the Boundary Commission hearings of 1875. Following the subdivision of the Pīhā homesteads, the Hakalau Plantation, owned at the time by C. Brewer & Co., brought up the question of the boundary between the homesteads and the adjoining lands owned or controlled by the company, which they felt had been encroached upon. Additional surveys of the Pīhā homestead tract, involving extensive triangulation work, were then made during the early part of 1914, until the matter was decided to the satisfaction of all parties involved (Department of the Interior 1914:521).

While many of the *makai* lots of the newly created Pīhā Homesteads (Lots 9-28) were sold at auction in June of 1914 to various homesteaders, the more *mauka* lots (Lots 1-8, which include the Ramos property) were not. This is perhaps because they were less accessible or less developed, and therefore less desirable. Instead, a general 10-year lease (Lease No. 878; Figure 13) for Lots 1-8 of the Pīhā Homesteads (and Lots 13-16 of the adjoining Kahuku Homesteads) was purchased at public auction by the Hakalau Plantation Company on July 14, 1915 (U.S. Department of the Interior 1916:526).

For unknown reasons this lease was never fully executed, and Lots 1-8 were eventually sold to various homesteaders. Lot 1, the Ramos property, was purchased (along with Lot 2) by William Breithaupt on August 23, 1916 as Grant No. 8584. Several of his family members purchased other lands within Pīhā Homesteads, including Lots 5-6, 7-8, and 15-16. It appears that Breithaupt once ran cattle on Lot 1, and that he was responsible for helping to construct a portion of the fence along the *makai* boundary of the Hilo Forest Reserve.

The Hakalau Plantation Company continued to operate on lands *makai* of the Ramos property throughout the first half of the twentieth century, but by the early 1940s, nearly 40 percent of the sugarcane on the plantation was grown by independent growers, some of whom had purchased Pīhā Homestead lots. In 1943, the neighboring Wailea Milling Company merged with the Hakalau Plantation Company, expanding the operation, and by 1944 the plantation had reached its maximum output, producing 26,000 tons of sugar that year (Dorrance and Morgan 2000). On April 1, 1946, the Hakalau Mill and the railroad connecting the plantation to Hilo were severely damaged by a *tsunami* triggered by an earthquake in the Aleutian Islands. The mill was rebuilt, but the railroad shut down and the product was trucked to the docks at Hilo. In 1962, C. Brewer & Co. merged the Hakalau Plantation Company into the Pepeekeo Sugar Company, its southern neighbor, and the Hakalau Mill was shut down (Dorrance and Morgan 2000). In 1973, C. Brewer & Co. then merged the Pepeekeo Sugar Company into the Mauna Kea Sugar Company, combining under one corporate name what had once been five separate sugar plantations situated along the Hilo coast. This plantation, later named Mauna Kea Agribusiness Company, harvested its last crop in 1994 and then closed its doors for good.

With a century of reliance on sugar cane as the mainstay of the economy suddenly gone, the region was left essentially without an economic mainstay. Ranching and farming of diversified crops varying from silage corn to cacao to mushrooms to tea have occupied some of the lands and employ growing numbers of workers. Tourism based on the attractions in and near Honokaʻa and Honomū also provides local jobs. Despite this, it would appear that most residents either commute to Hilo or the west side of the island for jobs, have independent, often web-based businesses, or subsist mostly on retirement or trust income. For long-time residents, a major issue of this transformation has been maintenance of the shoreline and forest access formerly enjoyed as part of the lifestyle of the plantation community. Hunting and fishing remain important subsistence and social activities that are being jeopardized by deteriorating roads, new fences and gates, and no-trespassing signs.

Despite changes, there is a feeling of continuity and heritage in this community. In the words of the draft Hāmākua Community Development Plan (Hawaiʻi County Planning Department 2018: 20):

> The region referred to as Hamakua stretches along north of Hilo along the upright cliffs (Hilo Paliku) to the majestic, historic valley of Waipiʻo and up the slopes to the sacred summit of Mauna Kea. It is against this sweeping, lush green landscape that the people of the Hamakua region have flourished for generations. The region was historically renowned as a powerful religious, economic, and demographic center of Hawaiʻi Island and from early times, the region

was known for its agriculture. One cannot truly understand Hamakua's people without appreciating the legacy that agriculture has stamped on this land and its people.

For some, Hamakua is a place where their ancestors flourished for centuries and for others, agricultural employment drew their ancestors to emigrate from foreign lands. Here they raised their children and learned to love the land and sea as their own. Still others have come in search of a simpler way of life, drawn by the beauty of the land and a host of personal stories that testify to the magical attraction that draws people to places where they feel at home. Together, these groups form the modern communities of Hamakua.

Regardless of their background, the people of Hamakua share a deep appreciation for the historical heritage of their small towns and highly value preserving an ʻohana-centered community that emphasizes quality of life, neighborhood cooperation, and the aloha spirit. The people of Hamakua recognize that their future is tied to the preservation of their way of life and the natural and cultural resources that have sustained them for generations.

Archaeological Investigations and Resources

Previous archaeological studies conducted in the general project area and reviewed in Appendix 2 provided a working model for the types and density of features that the archaeologists could expect on the project site. The upland forest areas of Hilo were used traditionally for catching birds and gathering forest resources, both of which are transitory activities that are unlikely to have left a substantial, or easily recognizable, archaeological record. Access to the forest lands in the vicinity of the Ramos property was facilitated by a bird catcher's trail that followed the boundary between Kahuku and Pīhā ahupuaʻa, passing near the eastern boundary of the Ramos property. This trail once intersected with a canoe maker's trail from Nanue Ahupuaʻa near the *mauka* boundary of Kahuku Ahupuaʻa, in the general vicinity of the southern corner of the Ramos property. While the actual Precontact/early Historic trail routes, if they ever entered the property at all, are likely to be difficult to identify archaeologically given the thickly vegetated terrain and the overlay of historic land use, rock constructions once built adjacent to the trails, such as temporary shelters or cairns, may be encountered. The route of the trail along the Pīhā/Kahuku boundary was likely similar to the route of the existing (bulldozed) alignment of the Pīhā-Kahuku Homestead Road, which remains a public right-of-way, but is not part of the Ramos property. Historic use of the property in Pīhā Homesteads, which was purchased by William Breithaupt in 1916, may be marked by archaeological features related to ranching, habitation, or other early twentieth century homesteading activities.

Fieldwork consisted of a pedestrian survey of a roughly 5-acre portion of the property, which includes all of the area proposed for activity with a large buffer of areas not planned for activity all the way to Kalaeha Stream. The archaeological survey was conducted on February 1, 2018 by Robert B. Rechtman, Ph.D., Matthew R. Clark, M.A., and Ashton Dircks Ah Sam, B.A. During the survey, fieldworkers walked northwest/southeast oriented pedestrian transects spaced at 25-meter intervals across the entire project site, between the Pīhā-Kahuku Homesteads Road and Kalaeha Stream. While some portions of the survey area were densely overgrown with ʻuluhe, and the up and down terrain was bisected by numerous,

eroded drainage channels making walking difficult and slow going, the ground visibility was generally adequate for identifying any extant archaeological remains that may have been present. In the vicinity of the site for the proposed single-family dwelling, where the hand clearing of vegetation had occurred prior to the survey, ground visibility was excellent. No archaeological remains of any kind were identified on the surface of the study area as a result of the pedestrian survey.

The survey was provided to SHPD for their review and comment on May 10, 2018. To date, there has been no response. Although no archaeological sites or other historic properties appear to present, in the unlikely event that any unanticipated archaeological resources are unearthed within the project site during the proposed development activities, work in the immediate vicinity of those resources should be halted and SHPD should be contacted in compliance with Hawai‘i Administrative Rules 13§13-280. As of December 26, 2018, no response from SHPD had been received by project archaeologists. In addition, as part of the CDUA, a form was filed with SHPD concerning compliance with laws and rules related to historic preservation, and no response was received.

Cultural Resources and Practices

Investigations of the property and its history did not reveal any cultural resources or practices on the project site itself. No consulted individuals with ties to and history with the area had any specific information concerning this area, and no archaeological features are present. Streams are present in the northwestern part of the property but will not be affected by any aspect of the proposed action. No gathering of plant or animal material is noted from the property.

However, historical documentation reveals that the *wao* of Pīhā were used for the procurement of special resources and were specifically utilized for bird-catching and the hewing and carving of *koa* wood for canoes. Although the traditional cultural practices and craft specialization associated with these traditions are no longer actively practiced in Pīhā, the recognition of their practice and importance reinforces the importance of the *mauka* Pīhā lands to the Hawaiian people. Boundary commission testimonies for Pīhā in 1875 revealed that an old trail utilized by bird catchers extended along the boundary of Pīhā and Kahuku Ahupua‘a, which is coterminous with the eastern boundary of the Ramos property. According to the testimony, a canoe road in Nanue, the *ahupua‘a* that begins only slightly to the northeast of the Ramos property where Kahuku terminates, extended *mauka* and led to a place named Ka‘ahina where canoes were made. The presence of these trails and their association with known traditional customs and practices in the area emphasize Pīhā’s significance as a cultural landscape and its value to the Hawaiian people’s cultural identity.

The forested lands immediately *mauka* of the Ramos property have been protected under conservation as the Hilo Forest Reserve since 1905. Its lands and watersheds, the protection of which were the primary reason for the establishment of the reserve, remained virtually untouched by the flourishing sugar industry that dominated the more *makai* lands of Pīhā and adjacent areas. Protected within these forests are many of the same natural resources that were extant during the Precontact and early Historic Periods. Prior to the establishment of the Hilo Forest Reserve, large populations of feral animals, particularly pigs, have

wreaked havoc on the health of the forest. While the creation of the reserve focused primarily on the protection of the forest watersheds, it provided the added benefit of controlling the feral pig population through the subsequent establishment of DOFAW, which manages various natural area, forest, and game management reserves, wildlife sanctuaries, and public bird/mammal hunting areas throughout the State of Hawai‘i. Although no evidence was uncovered as part of the cultural impact assessment, the Hilo Forest Reserve may be utilized for gathering other forest resources, such as wood or lei materials.

Recreational hunting of introduced species of feral pigs is not recognized by many cultural experts as a traditional Hawaiian cultural practice, but it is nonetheless a long-standing tradition practiced in the islands for over a century and a half (Maly et al n.d.). The pigs originally introduced by the Polynesians were for the most part domesticated, and were an important food product and cultural resource in ancient Hawai‘i, but they were not recreationally hunted (ibid.). As the *wao* were considered sacred, particularly the *wao akua*, great care was taken by the Hawaiians as they passed through. Entry into the depths of the *wao* was conducted with focused intention for the collection of very special natural resources including feathers, wood, foliage, and medicine. It is within the custom of exercising profound respect for the spiritual and physical entities that inhabit the *wao akua* that these resources were protected in the ancient days. As noted by Maly et al. (n.d.), “*Pua‘a* were valuable cultural resources, but in ancient times were kept away from the *wao akua*, which held so much more value to Hawaiians than a single species such as a pig.” Following the demise of the Polynesian-introduced pig and the population influx of Western-introduced pig species, who thrived on a seemingly endless supply of forest forage, every layer of the *wao* has been infiltrated and the state of native Hawaiian forests are in continual decline as a result. The recreational hunting program managed by DOFAW serves to mitigate degradation to native vegetation caused by feral pigs by allowing the public to hunt within designated hunting units within the reserve. Thus, it can be argued that the continuation of pig hunting within the Pīhā Section of the Hilo Forest Reserve will aid in restoring the *mauka* lands to a more natural state, particularly in the absence of fences that can exclude feral ungulates.

When assessing potential cultural impacts to resources, practices, and beliefs, input gathered from community members with genealogical ties and/or long-standing residency relationships to the study area is vital. It is precisely these individuals who ascribe meaning and value to traditional resources and practices. Community members may also retain traditional knowledge and beliefs unavailable elsewhere in the historical or cultural record of a place.

As stated in the OEQC Guidelines for Assessing Cultural Impacts, the goal of the oral interview process is to identify and help determine the significance of potential cultural resources, practices, and beliefs associated with the affected project area, along with potential cultural impacts and appropriate mitigation as necessary. A notice describing the action and location and inviting consultation was published in the Office of Hawaiian Affairs (OHA) newspaper *Ka Wai Ola* (March 2018). To date, there have been no response to the *Ka Wai Ola* notice. However, with the knowledge that the primary regional resources are associated with forest use, the cultural team at ASM Affiliates consulted with officials with expertise in the use of these resources. Contact was made with Joey Mello, the Hawai‘i Branch DOFAW Wildlife Program Manager for East Hawai‘i, along with Ian Cole of DOFAW, David Penn, the current Program

Specialist for DOFAW's Legacy Land Conservation/Native Ecosystems Protection & Management, Clement Chang, a Trails and Access Specialist with DOFAW. Furthermore, eleven members of the Breithaupt family, a family with known historical ties to the Ramos property and other Pīhā Homestead parcels in the immediate vicinity, were contacted. The granddaughter of Ernest McComber Breithaupt, son of A.K. Breithaupt (Grant 7862), responded to the inquiry and indicated that her mother might be of assistance, but to date she has not contacted ASM. None of the other Breithaupt family members who were contacted have responded to ASM's inquiry to date.

The full results of the consultation are included in Appendix 3. Key information concerning historical and modern access points to Unit C of the Hilo Forest Reserve (the area adjacent to the Ramos property) was obtained during the interview with Ian Cole. This area is utilized to hunt feral pigs and wild sheep situated, particularly in the upper reaches of Pīhā and nearby Laupāhoehoe within the Hilo Forest Reserve. According to Mr. Cole, the entrance into the Unit C hunting area is publicly accessible by Mānā Road, where a hunter check station is present. He related that there is no formal *makai* access to Unit C through the Pīhā-Kahuku Road that extends to the southeastern corner of the Ramos property (despite the presence of an old DOFAW sign on the road stating "Hilo Forest Reserve Piha Section Right of Way Trail", but that a number of informal access points exist in various locations in North Hilo and have been and are utilized by individuals seeking to hunt within the reserve. There are several hunter check stations (e.g. in Laupāhoehoe and ʻŌʻokala) which hunters use to access different hunting units, but Mr. Cole explained that in some cases hunters may enter through these various other check points and traverse to Unit C, bypassing the official checkpoint, thereby not leaving a paper trail. As such, assessing the number of hunters who utilize Unit C is not possible. He further indicated that DOFAW does maintain a presence in the Pīhā section of the reserve, particularly above Laupāhoehoe and in *mauka* Pīhā, and are especially concerned with the hunters who pass through different hunting units into Unit C with their canines, as hunters in Unit C are not permitted to hunt with the aid of dogs. According to Mr. Cole, the issue of hunter access into the forest reserve has been and remains as a particularly a troublesome issue in the Hāmākua District. He did not see how the construction of a single-family residence on the Ramos property would impact hunters, as there is technically no formal access to Unit C through Pīhā-Kahuku road, and certainly not accessible through privately-owned property, including the Ramos property.

In addition to consultation within the Cultural Impact Assessment, the EA project team discussed hunting access with Victor Souza, a long-time resident of Pīhā-Kahuku Road and hunter in the area. Mr. Souza remembered two routes into the Forest Reserve: the old "main trail" that ran, and still runs as far as he knows, through the private property just to the east, and a secondary route up the Pīhā-Kahuku Road and the driveway that branches off it. The latter route was formerly in such bad shape that it was walked rather than driven. When he was informed of Mr. Ramos' access plans, he said that they appeared acceptable and that it was good that Mr. Ramos wanted to facilitate access.

Impacts to and Mitigation for Cultural Resources and Practices

As stated in Section 1, landowner Pedro Ramos recognizes the somewhat diffuse access situation for those who hunt or gather in the Hilo Forest Reserve. No official access exists on or near his property, and

the Pīhā-Kahuku Road in this area is only a paper road that is not easily traversable because of overgrowth. Consultation with neighbors, DLNR officials and others indicates that people park along various spots in the road and walk along trails that wind through various private properties as well as the paper route of the Pīhā-Kahuku Road extension until they are in the Forest Reserve. Mr. Ramos will provide a turnaround area on the driveway at the *makai* boundary of the property, where the driveway and the Pīhā-Kahuku Road diverge, to accommodate those seeking to access the Forest Reserve.

As such, the proposed construction of a single-family residence on the Ramos property will not impede access to the forest for pig hunting and any potential cultural utilization of forest resources. Should individuals with genealogical and/or historical relationships with Pīhā reinitiate using the forest lands for the gathering traditional resources such as *koa* and *ʻōhiʻa* for timbers, or other plants for medicinal and/or ceremonial purposes, a use which should be encouraged, no aspect of the project will restrict this. It is likely that restoring access to those with ties to the land who wish to access it and rejuvenate traditional resource procurement will aid in the rehabilitation of the forest. As such, this will only aid in the restoration of native vegetation which has been encroached upon and slowly overrun by invasive species. Given the above consultation and assessment, it was the conclusion of the cultural impact assessment that the proposed development of a single-family residence on the Ramos Property would not result in impacts to any traditionally valued cultural or historical resources nor will it impact any traditional cultural practices or beliefs. The Draft EA was distributed to agencies and groups who might have knowledge in order to confirm this finding. No party reviewing the Draft EA supplied any cultural information.

3.3 Public Roads, Services and Utilities

3.3.1 Roads and Access

Existing Environment, Impacts and Mitigation Measures

The sole road access to the project site is via an existing rough driveway that extends *mauka* from the paved terminus of Pīhā-Kahuku Road (see Figure 2 for ground an aerial photos). The existing driveway that currently extends to proposed house site has previously been and improved with gravel but left unpaved. Near the residence, the driveway will be expanded and improved and will include an unpaved parking and turn-around area. Mr. Ramos will also provide a turnaround area on the driveway at the *makai* boundary of the property, where the driveway and the Pīhā-Kahuku Road diverge, to accommodate those seeking to access the Forest Reserve. According to research by DLNR's Na Ala Hele Program (see Appendix 1b), the Pīhā-Kahuku Road should be considered a County road. Therefore, DLNR stated that should improvements be required to facilitate the proposed construction, authorization should be sought from the County that has jurisdiction over the road pursuant to HRS, Chapter 265A. The landowner has become aware of this determination of jurisdiction for the (largely paper) road and will coordinate with the County of Hawaiʻi DPW if and when needed.

3.3.2 Public Utilities and Services

Environmental Setting, Impacts and Mitigation Measures

Ground and rooftop-mounted solar photovoltaic panels together with a backup generator would provide electricity and a satellite dish would provide telecommunications. There would be no extension of electric lines from Pīhā-Kahuku Road.

As stated in a November 16, 2018 letter from the County of Hawai‘i’s Department of Water Supply (DWS; see Appendix 1b), there are no existing DWS facilities within the project area and the parcel is not within the service limits of the DWS’s existing water system. The DWS Director stated that this agency has no objections to the proposed application, subject to the applicant understanding and accepting that DWS cannot provide service to this property. Domestic water would be supplied via a catchment system adjacent to the home (see Fig. 3 for location). The proposed storage is expected to be more than adequate to meet the expected demand, based on the owner‘s expected use of less than 200 gallons per day.

Wastewater would be treated with a septic system in conformance with State Department of Health regulations (see Figure 3 for location). No parks, schools or other public facilities are present nearby. Police, fire and emergency medical services are available from stations about eight road miles away in Laupāhoehoe. For onsite fire protection, the applicant proposes use of the water tanks.

There will be no adverse impact to any public or private utilities. 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. Mr. Ramos acknowledges and understands that this lot, along with almost all other residences in the rural areas of the North Hilo District, is not located within a mile of emergency services.

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.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. The County of Hawai‘i occasionally performs road maintenance on Pīhā-Kahuku Road. No substantial government or private projects such as roadways, schools, businesses, or subdivisions, are known to be occurring or in planning for this portion of North Hilo. There are several dozen private lots on the two-mile Pīhā-Kahuku Road. At any given time, a home or agricultural structure or communications facility may be undergoing maintenance or construction, and occasionally there are two or more minor projects occurring simultaneously. The adverse effects of building a single-family residence in this context are very minor and involve temporary disturbances to air quality, noise, traffic and visual quality during construction. It should again be noted that the proposed home is in a somewhat isolated, sparsely populated area, and no

accumulation of adverse construction effects would be expected. Other than the precautions for preventing adverse impacts during construction listed above in Sections 3.1.3 and 3.1.6, no special mitigation measures should be required to counteract the small adverse cumulative effect.

3.5 Required Permits and Approvals

County of Hawai'i:

Plan Approval and Grubbing, Grading, and Building Permits

State of Hawai'i:

Conservation District Use Permit
Wastewater System Approval

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 the 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 and revised in 2005. The General Plan's Land Use Allocation Guide Map designates the property as Open. The *General Plan* is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai'i. Below are pertinent sections followed by a discussion of conformance.

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 and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawaii.
(d) 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 construction and occupation of a single-family home would be 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 sector of the economy. Such activities are in keeping with the overall economic development of the island.

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 viable and sustainable.
(b) Maintain and, if feasible, improve the existing environmental quality of the island.
(c) Control pollution.

ENVIRONMENTAL QUALITY POLICIES

(a) Take positive action to further maintain the quality of the environment.

ENVIRONMENTAL QUALITY STANDARDS

(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 construction and occupation of a single-family home would not have a substantial adverse effect on the environment and would not diminish the valuable natural resources of the region. The home and associated improvements would be compatible with the existing rural single-family homes and agricultural and recreational uses in the area. Pertinent environmental regulations would be followed, including those for mitigation of water quality impacts.

HISTORIC SITES GOALS

(a) Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawaii.
(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: An archaeological survey determined that no historic sites were present. There are no known cultural resources or known or expected cultural uses on the lot; access to traditional forest resources and hunting areas will not be affected.

FLOOD CONTROL AND DRAINAGE GOALS

(a) Protect human life.
(b) Prevent damage to man-made improvements.
(c) Control pollution.
(d) Prevent damage from inundation.
(e) Reduce surface water and sediment runoff.
(f) Maximize soil and water conservation.

FLOOD CONTROL AND DRAINAGE POLICIES

(a) Enact restrictive land use and building structure regulations in areas vulnerable to severe damage due to the impact of wave action. Only uses that cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, shall be allowed in these areas.
(g) Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with all State and Federal laws.

FLOOD CONTROL AND DRAINAGE STANDARDS

(a) "Storm Drainage Standards," County of Hawaii, October, 1970, and as revised.
(b) Applicable standards and regulations of Chapter 27, "Flood Control," of the Hawaii County Code.
(c) Applicable standards and regulations of the Federal Emergency Management Agency (FEMA).
(d) Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawaii County Code.
(e) Applicable standards and regulations of the Natural Resources Conservation Service and the Soil and Water Conservation Districts.

Discussion: The proposed home site, turnaround area and driveway, which comprise the small area planned for modification, are within Zone X, or areas outside of the 500-year floodplain as determined by detailed methods in the Flood Insurance Rate Maps (FIRM). The project will conform to applicable drainage regulations and policies of the County of Hawai‘i.

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

NATURAL RESOURCES AND SHORELINES 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 Hawaii's unique, fragile, and significant environmental and natural resources.
(d) Protect rare or endangered species and habitats native to Hawaii.
(e) Protect and effectively manage Hawaii'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 in the event of an earthquake.

NATURAL RESOURCES AND SHORELINES POLICIES

(a) Require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.
(c) 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.
(d) Protect the shoreline from the encroachment of man-made improvements and structures.
(h) 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.
(p) Encourage the use of native plants for screening and landscaping.
(r) Ensure public access is provided to the shoreline, public trails and hunting areas, including free public

parking where appropriate.
(u) Ensure that activities authorized or funded by the County do not damage important natural resources.

Discussion: Natural resources will not be affected the proposed action, and there would be very minimal alteration of natural landforms. Access to natural resources would not be affected. No unreasonable exposure to natural hazards not shared by every resident of the island would occur.

HĀMĀKUA COMMUNITY DEVELOPMENT PLAN

The Hāmākua Community Development Plan (CDP) planning area encompasses not only the judicial district of Hāmākua, but also that of North Hilo, and a portion of the South Hilo district commonly referred to as Rural South Hilo (Wainaku to Hakalau. It is being developed under the framework of the February 2005 County of Hawai‘i General Plan, but it has not yet been adopted. In February 2018, the Planning Director recommended that the CDP be adopted with some changes that clarify and strengthen the plan (http://www.hawaiicountycdp.info/hamakua-cdp/recommended-cdp-2018).

Community Development Plans are intended to translate broad General Plan Goals, Policies, and Standards into implementation actions as they apply to specific geographical regions around the County. CDPs are also intended to serve as a forum for community input into land-use, delivery of government services and any other matters relating to the planning area.

The Hāmākua CDP does not specify land use per se on the property, but has policies relevant to construction of a single-family home in certain aspirational priorities for natural and cultural resources and community infrastructure:

- Protects coastal areas, agricultural land, and mauka forests from development
- Protects open space, areas with natural beauty, and scenic view planes
- Guides the development of programs to strengthen protections for coastal and agricultural lands as well as open space and view planes
- Preserves historic resources
- Ensures appropriate public access to the shoreline and mauka forests
- Guides the development of a regional network of trails
- Guides collaborative stewardship and enhancement of coastal and forest ecosystems, cultural resources, agricultural lands, public access, and trails
- Concentrates future development in the existing towns, villages, and subdivisions
- Supports the preservation of village and town character and guides the enhancement of communities’ unique sense of place

Discussion: The proposed single-family home would not represent development of *mauka* forest lands, as the property was subdivided as part of the Pīhā-Kahuku Homesteads in the early part of last century as a site for farming, ranching and residences. A home on this lot fulfills the purpose of this rural subdivision. No pristine native vegetation, rare species, forest resources would be affected. A home on this secluded

site would have no adverse effect on natural beauty and scenic view planes. No historic properties are affected, and there would be impact to the access to the forest. Occupation of the home would promote additional patronage of local businesses in Laupāhoehoe and Honomū, helping to preserve the quality of life and economy. The construction of a single-family home here would be consistent with the CDP.

3.6.2 Conservation District

The State Land Use District for the Ramos property is Conservation. Its subzone is Resource, for which, according to Hawai‘i Administrative Rules (HAR) §13-5-15, a single-family residence is an identified use. 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 (CDUA), 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 the single-family residence is in conformance with the purpose of the Conservation District. It is an identified use within the Conservation District, requiring a Board Permit for such use. The owner is committed to conserve, protect and preserve the natural features on the subject property. The proposed use will not impact public forest reserve access or the public’s ability to utilize forest reserve resources present mauka of the property. Additionally, due to the careful and limited nature of the proposed development, there would 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.”* A *s*ingle-family residence is an identified use in the Resource subzone under HAR 13-5-24, R-8. The proposed home conforms to the design standards in 13-5-41 and will ensure the sustained use of the natural resources in the project area by mitigating potential impacts, as outlined in this EA.

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 uses is outside the Special Management Area (SMA) and is thus not subject to County SMA rules. The use complies with all provisions and guidelines contained in Chapter 205A, Hawai‘i Revised Statutes (HRS), entitled *Coastal Zone Management*. Most of the objectives, policies and guidelines of the Coastal Zone Management (CZM) program are specifically focused on the protection of coastal resources, such as the coastal recreational, historic, scenic, and marine resources, as well as

beaches and ecosystems; or speak to the government's regulatory or management functions, such as managing development, providing public facilities in suitable locations, or promoting public participation in the management of coastal resources.

The property's location at 1,800 feet in elevation and over three miles from the coast removes it from the area of direct impact on coastal resources. However, even projects located well inland can still have an impact to water quality as a result of onsite erosion and sedimentation impacting nearby streams, or from chemicals applied to the ground finding their way to the ground water and eventually to the coastal waters. In regard to erosion and sedimentation control, the applicant has taken extra precautions in the planning and siting of the planned residence, as discussed in Section 3.1.2. The house will be set back approximately 40 feet from the top of the gulch of the nearby Kalaeha Stream so as to provide a sufficient vegetative buffer area between the house site and the stream. Additionally, the applicant will require that the construction contractor implement a set of best management practices, as discussed above. Also, with regard to the use of chemicals that could potentially leach to the ground water, the applicant will be composting all greenwaste on site, which will be used on the garden instead of chemical fertilizers. No aspect of the project will have direct or indirect impacts on the State's coastal zone or its resources.

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 threatened or endangered plant species or pristine native ecosystems, the proposed single-family residence is not likely to cause adverse biological impacts. Impacts to the island wide-ranging endangered Hawaiian hoary bat and Hawaiian hawk will be avoided through timing of vegetation removal and/or hawk nest survey. The proposed action will also have no impact on the public's current access to or use of the forest reserve.

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

The proposed use is consistent with single-family residential use in the area. The proposed home will be split-level, 2,490 square feet in size (including lanais, porches, carport and utility structures such as water tank), and outside the flood zone. It will be in area not visible to the public on any public road or any other public vantage point. This identified use, which conforms to the design standards in HAR 13-5-41, will ensure the sustained use of the natural resources in the project area by mitigating impacts. The use will not adversely affect the surrounding properties or how these properties are utilized. This land use will be attractive and compatible with the area, as there are scattered single-family residences on other lots on Pīhā-Kahuku Road.

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 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 intensity 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 proposed single-family residence will not be detrimental to the public health, safety, and welfare.

PART 4: DETERMINATION, FINDINGS AND REASONS

4.1 Determination

Based on the findings below, and upon consideration of comments to the Draft EA, the applicant expects that the State of Hawai‘i, Department of Land and Natural Resources, will determine that the proposed action will not significantly alter the environment, as impacts will be minimal, and that this agency will accordingly issue a Finding of No Significant Impact (FONSI).

4.2 Findings and Supporting Reasons

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* No valuable natural or cultural resource would be committed or lost. Various common native plants are present but native ecosystems would not be adversely affected, particularly given the limited scale of disturbance and the context within the most disturbed quarter-acre of the 18-acre property. No adverse impact upon vegetation or endangered species should occur. An archaeological inventory survey has determined that no historic sites are present on the property or would be affected. No valuable cultural resources and practices such as forest access, fishing, gathering, hunting, or access to ceremonial sites would be affected in any way.

2. *The proposed project will not curtail the range of beneficial uses of the environment.* No restriction of beneficial uses would occur by residential use on this lot.

3. *The proposed project will not conflict with the State's long-term environmental* policies. The State's long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project is environmentally benign and minor, and it is thus consistent with all elements of the State's long-term environmental policies.

4. *The proposed project will not substantially affect the economic or social welfare of the community*

or State. The project would not have any substantial effect on the economic or social welfare of the Big Island community or the State of Hawai‘i.

5. *The proposed project does not substantially affect public health in any detrimental way.* The project would not affect public health and safety in any way. Wastewater will be disposed of in conformance with State Department of Health regulations.

6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities*. The small scale of the proposed project would not produce any major secondary impacts, such as population changes or effects on public facilities.

7. *The proposed project will not involve a substantial degradation of environmental quality*. The project is minor and environmentally benign, and thus it would not contribute to environmental degradation.

8. *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* Thorough survey has determined that no endangered plant species are present. Other than Hawaiian hoary bats and Hawaiian hawks, island wide-ranging species that will experience no adverse impacts due to mitigation in the form of timing of vegetation removal and/or hawk nest survey, no rare, threatened or endangered species of fauna are known to exist on or near the project site, and none would be affected by any project activities.

9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The adverse effects of building a single-family residence are limited very minor and temporary disturbance to traffic, air quality, noise, and visual quality during construction. This area is fairly isolated from sensitive receptors. The County of Hawai‘i occasionally performs road maintenance on Pīhā-Kahuku Road. There are no substantial government or private projects in construction or planning, and no accumulation of adverse construction effects would be expected. Other than the precautions for preventing adverse effects during construction listed above, no special mitigation measures should be required to counteract the small adverse cumulative effect.

10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* No substantial effects to air, water, or ambient noise would occur. Brief, temporary effects would occur during construction and would be mitigated. The context of the property’s location, with no residences, parks, or other sensitive uses nearby, will help avoid noise impacts. Erosion and sedimentation impacts will be avoided by implementation of Best Management Practices during grading, which will occur in a very limited area.

11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* The proposed home site is not located in a flood

zone or any other hazardous area, and it would not affect any such area.

12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* No scenic views are located nearby or would be affected in any way. The attractive design of the home, combined with a context in which the home would not be visible from public vantage points, would ensure that the scenery of the project area would not be affected.

13. *The project will not require substantial energy consumption*. Negligible amounts of energy input would be required for construction and occupation of the residence. Electrical power will be provided via a solar photovoltaic (PV) system. The project has adapted to climate change by accounting for the potential for larger storms, through minimizing hard surfaces that generate runoff in heavy rainfall and removing invasive trees that could fall during strong winds.

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Draft Environmental Assessment
Ramos Single-Family Residence
in the Conservation District at Pīhā

APPENDIX 1a
Comments in Response to Early Consultation

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Harry Kim
Mayor

Wil Okabe
Managing Director

Allan G. Simeon, P.E.
Director

Merrick H. Nishimoto
Deputy Director

County of Hawai'i
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APRIL 27, 2018

ATTN: RON TERRY
GEOMETRICIAN ASSOCIATES, LLC.
P.O. BOX 396
HILO, HAWAII 96721
(via email to rterry@hawaii.rr.com)

SUBJECT: EARLY CONSULTATION FOR ENVIRONMENTAL ASSESSMENT FOR PROPOSED SIGNLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT, NORTH HILO DISTRICT, ISLAND OF HAWAII
TMK: (3) 3-2-004:038

We received the subject dated April 13, 2018 and have the following comments:

The subject parcel is in an area designated as Zone X on the Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA). Zone X is an area determined to be outside the 500-year floodplain.

All activities shall comply with the requirements of Hawaii County Code (HCC), Chapter 10, Erosion and Sedimentary Control.

Construction within the County right-of-way shall comply with HCC, Chapter 22, County Streets.

Should there be any questions concerning this matter, please contact Ms. Robyn Matsumoto in our Engineering Division at (808) 961-8924.

BEN ISHII, Division Chief
Engineering Division

RM

Harry Kim
Mayor

Paul K. Ferreira
Police Chief

Kenneth Bugado Jr.
Deputy Police Chief

County of Hawai`i

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April 25, 2018

Mr. Ron Terry, Principal
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P. O. Box 396
Hilo, HI 96721

Dear Mr. Terry:

Subject: Early Consultation for Environmental Assessment for Proposed Single-Family Residence in the Conservation District, North Hilo District, Island of Hawaii, TMK (3) 3-2-004:038

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or other public safety concerns. We are not requesting a copy of the Draft EA when completed.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Andrew Burian, Commander of the North Hilo and Hāmākua Districts, at (808) 775-7533.

Sincerely,

MITCHELL K. KANEHAILUA JR.
ASSISTANT POLICE CHIEF
AREA I OPERATIONS BUREAU

AB:lli/180390

From: Jerome K. Yasuhara <jeromey@oha.org>
Sent: Monday, April 30, 2018 1:49 PM
To: 'rterry@hawaii.rr.com' <rterry@hawaii.rr.com>
Cc: Jerome K. Yasuhara <jeromey@oha.org>
Subject: Early Consultation for EA for Proposed Single-Family Residence in the Conservation District, North Hilo District, Island of Hawai`i, TMK (3rd) 3-2-004:038

Aloha e Mr. Terry,

Concerning the above-referenced project, this is indicating our request to receive notice of the availability of the Draft EA when it is completed. Mahalo.

Me ka ha`aha`a,
Jerome Yasuhara

Jerome Yasuhara | Ka `Aho Pueo, Kia`i Känäwai | **Compliance Specialist**
OFFICE OF HAWAIIAN AFFAIRS

OFFICE OF HAWAIIAN AFFAIRS
560 N. Nimitz Highway, Suite 200 | Honolulu, HI 96817
☎: 808.594.0129 | 🖷: 808.594.1825 | ✉: jeromey@oha.org

Harry Kim
Mayor

Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

April 30, 2018

Ron Terry
Geometrician Associates
P.O. Box 396
Hilo, Hawai'i 96721

Dear Mr Terry:

SUBJECT: Early Consultation for Environmental Assessment for Proposed Single Family Residence in the Conservation District, North Hilo District, Island of Hawai'i, TMK (3) 3-2-004:038

In regards to the above-referenced Early Consultation for Environmental Assessment application, the following shall be in accordance:

NFPA 1, UNIFORM FIRE CODE, 2006 EDITION
Note: Hawai'i State Fire Code, National Fire Protection Association 2006 version, with County of Hawaii amendments. County amendments are identified with a preceding "C~" of the reference code.

Chapter 18 Fire Department Access and Water Supply

18.1 General. Fire department access and water supplies shall comply with this chapter.

For occupancies of an especially hazardous nature, or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or areas where there is an inadequate fire flow, or inadequate fire hydrant spacing, and the AHJ may require additional safeguards including, but not limited to, additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved.

18.1.1 Plans.

18.1.1.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.

18.1.1.2 Fire Hydrant Systems. Plans and specifications for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

C~ 18.1.1.2.1 Fire Hydrant use and Restrictions. No unauthorized person shall use or operate any Fire hydrant unless such person first secures permission or a permit from the owner or representative of the department, or company that owns or governs that water supply or system. Exception: Fire Department personnel conducting firefighting operations, hydrant testing, and/or maintenance, and the flushing and acceptance of hydrants witnessed by Fire Prevention Bureau personnel.

18.2 Fire Department Access.

18.2.1 Fire department access and fire department access roads shall be provided and maintained in accordance with Section 18.2.

18.2.2* Access to Structures or Areas.

18.2.2.1 Access Box(es). The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security.

18.2.2.2 Access to Gated Subdivisions or Developments. The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system.

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 18.2.2.1 or 18.2.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access.

18.2.3 Fire Department Access Roads. (*may be referred as FDAR)

18.2.3.1 Required Access.

18.2.3.1.1 Approved fire department access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated.

18.2.3.1.2 Fire Department access roads shall consist of roadways, fire lanes, parking lots lanes, or a combination thereof.

18.2.3.1.3* When not more than two one- and two-family dwellings or private garages, carports, sheds, agricultural buildings, and detached buildings or structures 400ft^2 (37 m^2) or less are present, the requirements of 18.2.3.1 through 18.2.3.2.1 shall be permitted to be modified by the AHJ.

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features.

18.2.3.2 Access to Building.

18.2.3.2.1 A fire department access road shall extend to within in 50 ft (15 m) of at least one exterior door that can be opened from the outside that provides access to the interior of the building. Exception: 1 and 2 single-family dwellings.

18.2.3.2.1.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.1 shall be permitted to be increased to 300 feet.

18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.2 shall be permitted to be increased to 450 ft (137 m).

18.2.3.3 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

18.2.3.4 Specifications.

18.2.3.4.1 Dimensions.

C~ 18.2.3.4.1.1 FDAR shall have an unobstructed width of not less than 20ft with an approved turn around area if the FDAR exceeds 150 feet. **Exception:** FDAR for one and two family dwellings shall have an unobstructed width of not less than 15 feet, with an area of not less than 20 feet wide within 150 feet of the structure being protected. An approved turn around area shall be provided if the FDAR exceeds 250 feet.

C~ 18.2.3.4.1.2 FDAR shall have an unobstructed vertical clearance of not less then 13ft 6 in.

C~ 18.2.3.4.1.2.1 Vertical clearances may be increased or reduced by the AHJ, provided such increase or reduction does not impair access by the fire apparatus, and approved signs are installed and maintained indicating such approved changes.

18.2.3.4.1.2.2 Vertical clearances shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

C~ 18.2.3.4.2 Surface. Fire department access roads and bridges shall be designed and maintained to support the imposed loads (25 Tons) of the fire apparatus. Such FDAR and shall be comprised of an all-weather driving surface.

18.2.3.4.3 Turning Radius.

C~ 18.2.3.4.3.1 Fire department access roads shall have a minimum inside turning radius of 30 feet, and a minimum outside turning radius of 60 feet.

18.2.3.4.3.2 Turns in fire department access road shall maintain the minimum road width.

18.2.3.4.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

18.2.3.4.5 Bridges.

18.2.3.4.5.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with county requirements.

18.2.3.4.5.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus.

18.2.3.4.5.3 Vehicle load limits shall be posted at both entrances to bridges where required by the AHJ.

18.2.3.4.6 Grade.

C~ 18.2.3.4.6.1 The maximum gradient of a Fire department access road shall not exceed 12 percent for unpaved surfaces and 15 percent for paved surfaces. In areas of the FDAR where a Fire apparatus would connect to a Fire hydrant or Fire Department Connection, the maximum gradient of such area(s) shall not exceed 10 percent.

18.2.3.4.6.2* The angle of approach and departure for any means of fire department access road shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m) or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the AHJ.

18.2.3.4.6.3 Fire department access roads connecting to roadways shall be provided with curb cuts extending at least 2 ft (0.61 m) beyond each edge of the fire lane.

18.2.3.4.7 Traffic Calming Devices. The design and use of traffic calming devices shall be approved the AHJ.

18.2.3.5 Marking of Fire Apparatus Access Road.

18.2.3.5.1 Where required by the AHJ, approved signs or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof of both.

18.2.3.5.2 A marked fire apparatus access road shall also be known as a fire lane.

18.2.4* Obstruction and Control of Fire Department Access Road.

18.2.4.1 General.

18.2.4.1.1 The required width of a fire department access road shall not be obstructed in any manner, including by the parking of vehicles.

18.2.4.1.2 Minimum required widths and clearances established under 18.2.3.4 shall be maintained at all times.

18.2.4.1.3* Facilities and structures shall be maintained in a manner that does not impair or impede accessibility for fire department operations.

18.2.4.1.4 Entrances to fire departments access roads that have been closed with gates and barriers in accordance with 18.2.4.2.1 shall not be obstructed by parked vehicles.

18.2.4.2 Closure of Accessways.

18.2.4.2.1 The AHJ shall be authorized to require the installation and maintenance of gates or other approved barricades across roads, trails, or other accessways not including public streets, alleys, or highways.

18.2.4.2.2 Where required, gates and barricades shall be secured in an approved manner.

18.2.4.2.3 Roads, trails, and other access ways that have been closed and obstructed in the manner prescribed by 18.2.4.2.1 shall not be trespassed upon or used unless authorized by the owner and the AHJ.

18.2.4.2.4 Public officers acting within their scope of duty shall be permitted to access restricted property identified in 18.2.4.2.1.

18.2.4.2.5 Locks, gates, doors, barricades, chains, enclosures, signs, tags, or seals that have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with, or otherwise vandalized in any manner.

18.3 Water Supplies and Fire Hydrants

18.3.1* A water supply approved by the county, capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ. For on-site fire hydrant requirements see section 18.3.3.

EXCEPTIONS:

1. When facilities or buildings, or portions thereof, are completely protected with an approved automatic fire sprinkler system the provisions of section 18.3.1 may be modified by the AHJ.
2. When water supply requirements cannot be installed due to topography or other conditions, the AHJ may require additional fire protection as specified in section 18.3.2 as amended in the code.
3. When there are not more than two dwellings, or two private garage, carports, sheds and agricultural. Occupancies, the requirements of section 18.3.1 may be modified by AHJ.

18.3.2* Where no adequate or reliable water distribution system exists, approved reservoirs, pressure tanks, elevated tanks, fire department tanker shuttles, or other approved systems capable of providing the required fire flow shall be permitted.

18.3.3* The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on a fire apparatus access road on the site of the premises or both, in accordance with the appropriate county water requirements.

18.3.4 Fire Hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.3.5 Private water supply systems shall be tested and maintained in accordance with NFPA 25 or county requirements as determined by the AHJ.

18.3.6 Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.3.7 The AHJ shall be notified whenever any fire hydrant is placed out of service or returned to service. Owners of private property required to have hydrants shall maintain hydrant records of approval, testing, and maintenance, in accordance with the respective county water requirements. Records shall be made available for review by the AHJ upon request.

C~ 18.3.8 Minimum water supply for buildings that do not meet the minimum County water standards:

Buildings up to 2000 square feet, shall have a minimum of 3,000 gallons of water available for Firefighting.

Buildings 2001- 3000 square feet, shall have a minimum of 6,000 gallons of water available for Firefighting.

Buildings, 3001- 6000 square feet, shall have a minimum of 12,000 gallons of water available for Firefighting.

Buildings, greater than 6000 square feet, shall meet the minimum County water and fire flow requirements.

Multiple story buildings shall multiply the square feet by the amount of stories when determining the minimum water supply.

Commercial buildings requiring a minimum fire flow of 2000gpm per the Department of Water standards shall double the minimum water supply reserved for firefighting.

Fire Department Connections (FDC) to alternative water supplies shall comply with 18.3.8 (1)-(6) of *this code.*

NOTE: In that water catchment systems are being used as a means of water supply for firefighting, such systems shall meet the following requirements:

1) In that a single water tank is used for both domestic and firefighting water, the water for domestic use shall not be capable of being drawn from the water reserved for firefighting;

2) Minimum pipe diameter sizes from the water supply to the Fire Department Connection (FDC) shall be as follows:
   a) 4" for C900 PVC pipe;
   b) 4" for C906 PE pipe;
   c) 3" for ductile Iron;
   d) 3' for galvanized steel.

3) The Fire Department Connection (FDC) shall:
   a) be made of galvanized steel;
   b) have a gated valve with 2-1/2 inch, National Standard Thread male fitting and cap;
   c) be located between 8 ft and 16 ft from the Fire department access. The location shall be approved by the AHJ;
   d) not be located less than 24 inches, and no higher than 36 inches from finish grade, as measured from the center of the FDC orifice;
   e) be secure and capable of withstanding drafting operations. Engineered stamped plans may be required;
   f) not be located more than 150 feet of the most remote part, but not less than 20 feet, of the structure being protected;
   g) also comply with section 13.1.3 and 18.2.3.4.6.1 of *this code.*

4) Commercial buildings requiring a fire flow of 2000gpm shall be provided with a second FDC. Each FDC shall be independent of each other, with each FDC being capable of flowing 500gpm by engineered design standards. The second FDC shall be located in an area approved by the AHJ with the idea of multiple Fire apparatus'conducting drafting operations at once, in mind.

5) Inspection and maintenance shall be in accordance to NFPA 25.

6) The owner or lessee of the property shall be responsible for maintaining the water level, quality, and appurtenances of the system.

EXCEPTIONS TO SECTION 18.3.8:

1) Agricultural buildings, storage sheds, and shade houses with no combustible or equipment storage.

2) Buildings less than 800 square feet in size that meets the minimum Fire Department Access Road requirements.

3) For one and two family dwellings, agricultural buildings, storage sheds, and detached garages 800 to 2000 square feet in size, and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 1000 feet.

4) For one and two family dwellings, agricultural buildings, and storage sheds greater than 2000square feet, but less than 3000 square feet and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 500 feet.

5) For buildings with an approved automatic sprinkler system, the minimum water supply required may be modified.

If there are any questions regarding these requirements, please contact the Fire Prevention Bureau at (808) 932-2911.

DARREN J. ROSARIO
Fire Chief

RP:ds

Harry Kim
Mayor

Michael Yee
Director

Daryn Arai
Deputy Director

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

May 2, 2018

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawai'i 96721

Dear Mr. Terry:

SUBJECT: Early Consultation for Preparation of an Environmental Assessment for Proposed Single-Family Residence in the Conservation District
TMK: (3) 3-2-004:038, North Hilo District, Island of Hawai'i

Thank you for your letter dated April 13, 2018, requesting comments from this office regarding the preparation of a Draft Environmental Assessment (DEA) for the subject property.

The subject parcel consists of 18.3 acres and is in the State Land Use Conservation (C) district. In addition, the parcel is designated Conservation (C) by the Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map. The subject parcel is not zoned because it is a forest reserve and authority lies in the State Land Use (SLU) designation of Conservation. The subject parcel is also located in the Watershed Protection Priority 1 area.

The principle permitting jurisdiction is the State of Hawai'i Board of Land and Natural Resources. Therefore, the comments we are providing only concern general information about the parcel. Because the subject parcel is in the SLU Conservation District, the owner will need to submit a Conservation District Use Application (CDUA). Additional information can be found in Department of Land and Natural Resources (DLNR) Hawai'i Administrative Rules (HAR) Title 13 Chapter 5.

The DEA should describe how the proposed project is consistent with the policies, standards, and courses of action of the County of Hawai'i General Plan 2005 (as amended). The project site is located in the Hāmākua Community Development Plan (CDP) planning area. The Hāmākua

CDP has not yet been adopted and is currently in the final stages of the planning process. However, the DEA should outline the proposed project's coherence with the DRAFT Hāmākua CDP, which is available for viewing and download at the following web address: http://www.hawaiicountycdp.info/hamakua-cdp/recommended-cdp-2018.

Given that the site for the proposed project is adjacent to the Hilo Forest Reserve, the Hakalau Forest National Wildlife Refuge, and the Waikaumalo Stream, appropriate attention should be given to identify potential impacts (ROD, little fire ants, stream pollution, etc.) the proposed use may have on surrounding areas.

We have no further comments to offer at this time. Please keep us informed and provide our department with a copy of the DEA for our review and comment.

If you have any questions, please feel free to contact Keiko Mercado of this office at Keiko.Mercado@hawaiicounty.gov or (808) 961-8134.

Sincerely,

MICHAEL YEE
Planning Director

KM:ja
\\COH33\planning\public\wpwin60\Keiko\EA-EIS Review\preconsultationEA-Piha.Homesteads.332004038.doc

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 17, 2018

Geometrician Associates, LLC
Attention: Mr. Ron Terry
P.O. Box 396
Hilo, Hawaii 96721

via email: rterry@hawaii.rr.com

Dear Mr. Terry:

SUBJECT: Early Consultation for Environmental Assessment for Proposed Single-Family Residence in the Conservation District located at North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038 for **Pedro Ramos**

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

At this time, enclosed are comments from the (a) Engineering Division, (b) Office of Conservation & Coastal Lands, and (c) Land Division – Hawaii District on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at (808) 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

'18 APR 20 PM02:16 ENGINEERING

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 20, 2018

RECEIVED
LAND DIVISION
2018 MAY -3 AM 11:04
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

MEMORANDUM

~~TO:~~ FROM

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

~~FROM:~~ TO:
Russell Y. Tsuji, Land Administrator

SUBJECT: Early Consultation for Environmental Assessment for Proposed Single-Family Residence in the Conservation District

LOCATION: North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038

APPLICANT: Geometrician Associates on behalf of **Pedro Ramos**

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **May 14, 2018.**

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

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

Signed: _____

Print Name: ~~Carty S. Chang, Chief Engineer~~

Date: 5/2/18

Attachment
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji

Ref: Early Consultation for Environmental Assessment for Proposed Single-Family Residence in the Conservation District, North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). State projects are required to comply with 44CFR regulations as stipulated in Section 60.12. Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 5/2/12

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

FYI

2018 MAY 20 A 8:52

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2018 MAY -7 AM 10:43
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

April 20, 2018

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation for Environmental Assessment for Proposed Single-Family Residence in the Conservation District
LOCATION: North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038
APPLICANT: Geometrician Associates on behalf of **Pedro Ramos**

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **May 14, 2018.**

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

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

Signed: _____

Print Name: K. Tiger Mills

Date: May 7 2018

Attachment
cc: Central Files

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:TM

Correspondence: HA 18-196

MAY - 7 2018

Ron Terry
Geometrician Associates, LLC
PO Box 396
Hilo, HI 96721

SUBJECT: Early Consultation for Environmental Assessment for a Proposed Single Family Residence Located at Piha-Kahuku Road, Waikaumalo, North Hilo, Hawai'i, TMK: (3) 3-2-004:038

Dear Mr. Terry:

The Office of Conservation and Coastal Lands (OCCL) has reviewed your information regarding the subject matter. The location appears to lie within the Resource subzone of the Conservation District.

A single family residence is an identified land use in the Resource subzone that could be applied for pursuant to the Hawai'i Administrative Rules (HAR) §13-5-24 R-7 SINGLE FAMILY RESIDENCE (D-1) a single family residence that conforms to design standards as outlined in this chapter. This proposed land use requires the filing of a Conservation District Use Application (CDUA) and all required attachments such as an Environmental Assessment. The proposed land use will require a Board permit, therefore to allow, modify or deny the proposed land use would be at the discretion of the Board of Land and Natural Resources.

If improvements are required to facilitate proposed construction of the residence outside of the subject parcel such as road amendments, please include these proposed land uses along with a description of the scope of work and location within the CDUA. Besides the residence, please attempt to site all proposed improvements [photovoltaic, water catchment, individual wastewater system, wall, fence, etc.] on one site plan. The description of these features should include dimensions and purpose.

Recent issues pertaining to climate change, rapid 'ohia death, as well as proposed mitigation for both should be addressed in the environmental assessment. Should you have any questions regarding this correspondence, contact Tiger Mills of our Office at (808) 587-0382.

Sincerely,

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

C: County of Hawai'i
-Planning

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

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HONOLULU, HAWAII 96809

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HILO, HAWAII

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DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
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LAND DIVISION

April 20, 2018

MEMORANDUM

FROM:
TO:

DLNR Agencies:
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
_X_ Div. of Forestry & Wildlife
___Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District
_X_ Historic Preservation

TO:
FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation for Environmental Assessment for Proposed Single-Family Residence in the Conservation District
LOCATION: North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038
APPLICANT: Geometrician Associates on behalf of **Pedro Ramos**

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **May 14, 2018.**

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

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

Signed: _____

Print Name: GORDON C. HEIT

Date: 5/1/18

Attachment
cc: Central Files

Draft Environmental Assessment
Ramos Single-Family Residence
in the Conservation District at Pīhā

APPENDIX 1b
Comments to Draft EA and Responses

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DAVID Y. IGE
GOVERNOR OF
HAWAI'I

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES

OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

REF: OCCL: TM

CDUA: HA-3830
Acceptance Date: November 12, 2018
180 Day Expiration Date: May 11, 2019

DEC 27 2018

James Leonard
JM Leonard Planning, LLC
56 Laukona St.
Hilo, HI 96720

SUBJECT: Conservation District Use Application (CDUA) HA-3830 and Environmental Assessment (EA) for a Proposed Single Family Residence and Related Improvements Located at Piha, North Hilo, Hawai'i, TMK: (3) 3-2-004:038

Dear Mr. Leonard:

This letter is regarding the processing of CDUA HA-3830 and the associated EA. The public and agency comment period on the EA has closed (December 23, 2018). Attached to this letter are copies of the comments received by the Office of Conservation and Coastal Lands (OCCL) regarding your client's CDUA/EA.

Please send copies of your responses to the questions raised in these letters directly to the authoring agency. The final copy of this project's Environmental Assessment (EA) needs to include your responses to the queries raised in these letters. These responses can be attached to the end of the Final EA document.

OCCL Comments

In addition, attached please find relevant sections of the Hawaii Revised Statutes (HRS), §205A as it pertains to the Coastal Zone Management Area. As "all lands of the State" are considered the 'Coastal Zone Management Area', please respond to Conservation Criteria 3 in regards to the ten objectives and policies of the Coastal Zone Management Program to complete the CDUA.

In reviewing the County of Hawai'i's Fire Department comments, due to the location and condition of the road, it is apparent should an emergency occur, the residence most likely will be on their own. Please identify fire prevention actions, [storage of fuels, firebreak, etc] that would be implemented and provide a discussion of the Fire Department's 'Early Consultation' comments as it relates to the site and identify the dedicated water source for firefighting. A Fire Contingency Plan [attached] shall be required should the proposed land use be granted.

Regarding what appears to be a separate structure with doors identified as the WATER/GAS TANKS/PUMP ROOM 380 SF on Figure 4 of the CDUA; this feature is not on Figure 7 East Elevation of the CDUA nor fully described in the application. Explain the dimensions of this area/structure, what it is; it's purpose and if it is attached to the SFR.

Regarding our former comments on road improvements in the Conservation District, it appears the road belongs to the County of Hawai'i, should improvements be required to facilitate the proposed construction, authorization should be sought from the County that has jurisdiction over the road pursuant to HRS, Chapter 265A.

Please send 3 hard copies of the Final EA and 2 CDs or flash drives **in searchable pdf. format** to the OCCL by **February 1, 2019**. You may wish to include an electronic copy of the Office of Environmental Quality Control (OEQC) Publication Form on the data storage unit or you may send an electronic copy of the Publication Form to Tiger Mills at kimberly.mills@hawaii.gov. If the project summary has changed, include a new summary. Please include a hard copy of the submitted publication form with the Final EAs.

Should the Department determine a Finding of No Significant Impact (FONSI) for the final version of the Environmental Assessment then this project's CDUA shall be placed on the agenda of the Board of Land and Natural Resources for their consideration. Early submittal of your response to comments will expedite the review process. Should you have any questions, please contact Tiger Mills of our Office of Conservation and Coastal Lands at (808) 587-0382.

Sincerely,

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

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

December 18, 2018

MEMORANDUM

TO: SAMUEL J. LEMMO
OFFICE OF CONSERVATION AND COASTAL LANDS, ADMINISTRATOR

FROM: for DAVID G. SMITH
FORESTRY AND WILDLIFE, ADMINISTRATOR

SUBJECT: Comments on the Conservation District Use Application (CDUA) HA-3830 *Ramos Single Family Residence (SFR)*

Thank you for the opportunity to comment on CDUA HA-3830 for the Ramos SFR. The Division of Forestry and Wildlife (DOFAW) would like to provide the following comments:

- The Environmental Assessment states that the applicant agreed to construct an unpaved parking lot and turn-around area, at the makai boundary of his property where the driveway and Pīhā-Kahuku Road diverge, to allow public access to the Hilo Forest Reserve along his boundary. DOFAW would like this clearly stated in the approval documents.
- Our research finds that the government laid out and appropriated money in 1939 for Pīhā-Kahuku Road, which today is a public county road pursuant to Chapter 264-1, Hawai'i Revised Statutes. As a public road, Pīhā-Kahuku Road provides direct access for members of the public to the Hilo Forest Reserve. Individuals wishing to access the forest reserve from this point will be able to park in the unpaved parking lot agreed to be built by the applicant near the boundary of his property and walk along Pīhā-Kahuku Road/ROW to access the Piha section of the Hilo Forest Reserve which is also a Hunting unit B. Unit B is open for hunting daily. This has been an important access corridor to the forest reserve for decades and it is important to keep it open. Additional information is attached.

The Division of Forestry and Wildlife appreciates your consideration of these comments. For additional information, please contact Steve Bergfeld, Hawai'i Branch Manager at (808) 974-4221.

Attachment: Ref: H18:14 Piha Kahuku

NA ALA HELE
Hawai'i Trail & Access System

December 14, 2018

Ref: H18:14 Piha Kahuku

TO: Kylee Widemann, Hawaii Island Forestry Associate

FROM: Doris Moana Rowland, Na Ala Hele Trails and Access Program Abstractor

SUBJECT: Comments regarding Conservation District Use Application (CDUA) HA-3830 for the Ramos Single Family Residence situate at Piha, North Hilo, Island of Hawaii, designated as Tax Map Key: 3-2-004:038

Available records disclose the Piha Kahuku Road (also known as Kahuku Piha Road) that adjoins the southern boundary of the subject parcel is a public county road that provides direct access to the Hilo Forest Reserve. The basis for this opinion is discussed below together with a brief history as to how the government acquired the ahupuaa of Piha.

The land of Piha 1 & 2

The land of Piha 1&2 was never assigned or awarded at the time of the Mahele of 1848. Controversy arose over the ownership of this land when the Trustees of the Estate of Bernice Pauahi Bishop claimed this land as an heir to certain lands which had been continuously held and claimed by her ancestors. In order to settle the controversy a compromise was proposed whereby the Minister of the Interior conveyed other lands to the Trustees who in turn conveyed the land of Piha (besides other lands) to the Kingdom of Hawaii on December 20, 1890. Thus the land of Piha was made a part of the Government land of the Kingdom of Hawaii. Unaware of this settlement, the author of the Archaeological Assessment of the subject CDUA erroneously categorized the land of Piha as Crown land.

The survey of the Piha Tract began in 1912 was completed by 1913. In 1915 William Breithaupt applied for and received Special Homestead Agreement No. 1252. Upon successful completion of all requirements of this agreement, the government sold the subject parcel to Breithaupt in fee simple in 1924. Land Patent (Grant) No. 8584 was issued to Breithaupt by the Governor of the Territory of Hawaii (see attachment). The Piha-Kahuku Road was identified in Grant 8584 as the Kahuku-Piha Road being 40 feet wide, running outside of the Breithaupt parcel along its southern boundary. This road is also shown on Registered Map No. 2568 (RM 2568) titled "Piha Homesteads" dated 1914 (see attached). Both the survey sketch made a part of Grant 8584 and RM 2568 show the road provides direct access to the Forest Reserve.

Piha Kahuku Road is a public county road

The government laid out and appropriated money in 1939 for construction of the Piha Kahuku Road, which today is a public county road pursuant to Chapter 264-1, Hawaii Revised Statutes. This section provides that "public highways are of two types: (1) State or federal-aid highways which are all those under the jurisdiction of the department of transportation, and (2) County highways, which are all other public highways."

Section 264-2, Hawaii Revised Statutes, then provides that "the ownership of all county highways is transferred to and vested in the respective counties in which the county highways lie." This language was enacted by Act 221, 1965 Hawaii Session Laws 338.

The subject CDUA reports the portion of Piha Kahuku in the vicinity of the Ramos parcel is overgrown up to the boundary of the State Forest Reserve property. While the condition of the road may not be ideal, it is my opinion based on the evidence in the documents and maps I have reviewed, the Piha Kahuku Road is a public road that provides direct access to the Forest Reserve. As a public road access is secure for all persons who wish to enter the Forest Reserve.

Please contact me at 587-0057 if you have any questions or concerns regarding the Piha Kahuku Road.

Land Patent No. 6584

(Grant)

Issued On

SPECIAL HOMESTEAD AGREEMENT

By THIS PATENT the Governor of the Territory of Hawaii, in conformity with the laws of the United States of America and of the Territory of Hawaii, makes known to all men that he has this day granted and confirmed unto

WILLIAM BREITHAUPT

for the consideration of his having paid into the Treasury the sum of THREE HUNDRED TWENTY-FOUR AND 00/100 Dollars, $ 324.00,

and for the further consideration of his having complied with the terms and conditions of Special Homestead Agreement No. 1252, all in accordance with the provisions of Section 73 of the Hawaiian Organic and Section 352 et seq. of the Revised Laws of Hawaii of 1915,

all of the land situate at PIHA HOMESTEADS

in the District of NORTH HILO Island of HAWAII bounded and described as follows:

Lots 1 & 2, Reg. Map 2568, First Land Dist.

Beginning at a 2 inch galvanized iron pipe at the East corner of Lot 2, the South corner of Lot 3, and on the North side of the Kahuku-Piha 40 foot road, the coordinates of said point of beginning referred to Government Survey Trig. Station "Haiku" being 8748.7 feet South and 6736.9 feet West, as shown on Government Survey Registered Map No. 2568, and running by true azimuths:

1. 44° 33' 593.5 feet along the Kahuku-Piha Road to a pipe;
2. 16° 18' 462.7 feet along the Kahuku-Piha Road to a pipe on Forest Reserve boundary;
3. 121° 40' 1411.1 feet along Forest Reserve to a pipe on top of the South edge of the Waikaumalo Gulch;
4. Thence along the top of the South edge of Waikaumalo Gulch to a pipe, the direct azimuth and distance being: 211° 41' 743.5 feet;
5. Thence still along the top of the South edge of the Waikaumalu Gulch to a pipe, the direct azimuth and distance being: 236° 47' 30" 620.8 feet;
6. 315° 20' 1191.2 feet along Lot 3 to the point of beginning.

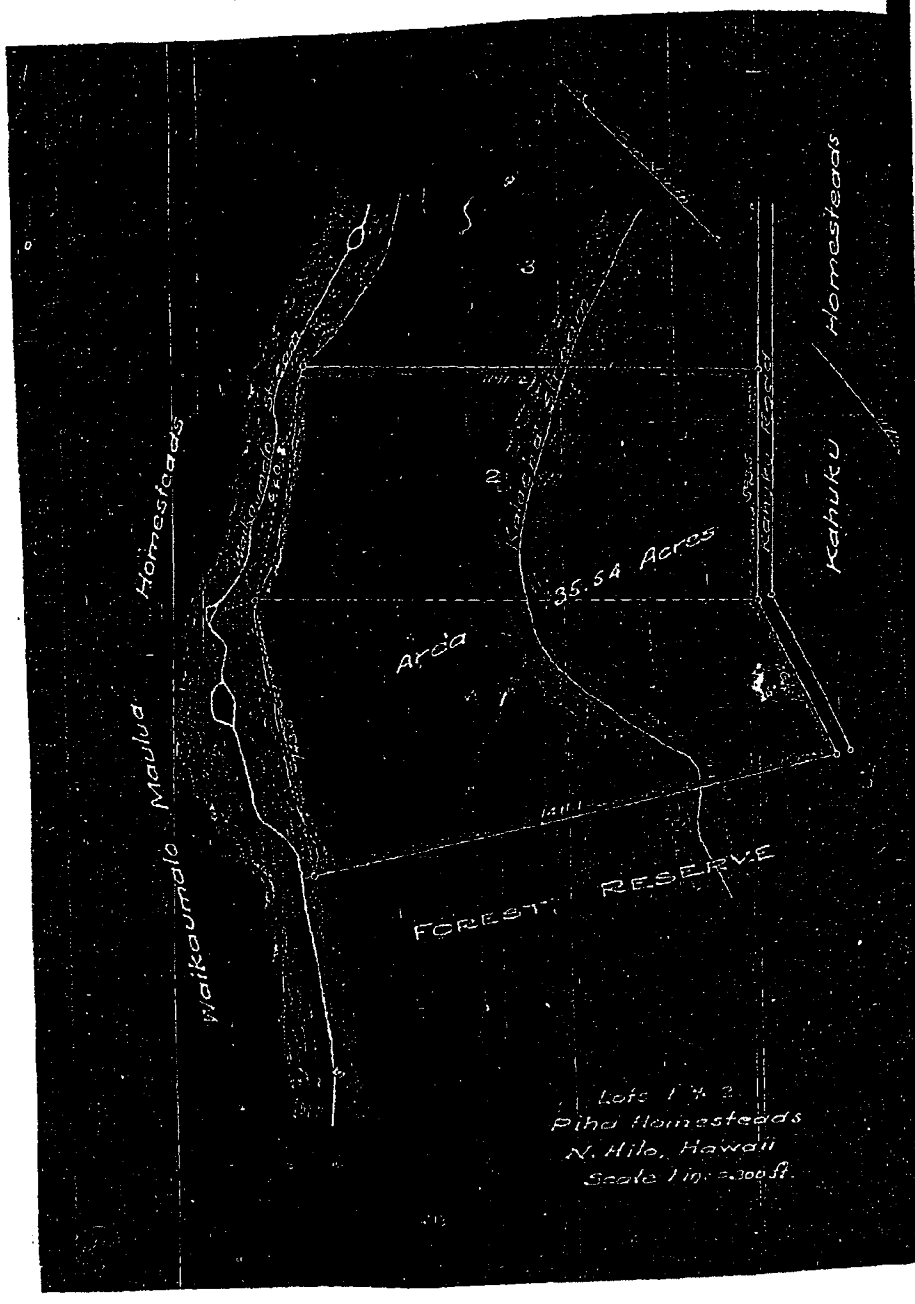
AREA 35.54 ACRES.

Excepting and reserving therefrom the Kalaeha Stream and all riparian rights in and to this stream and the waters thereof.

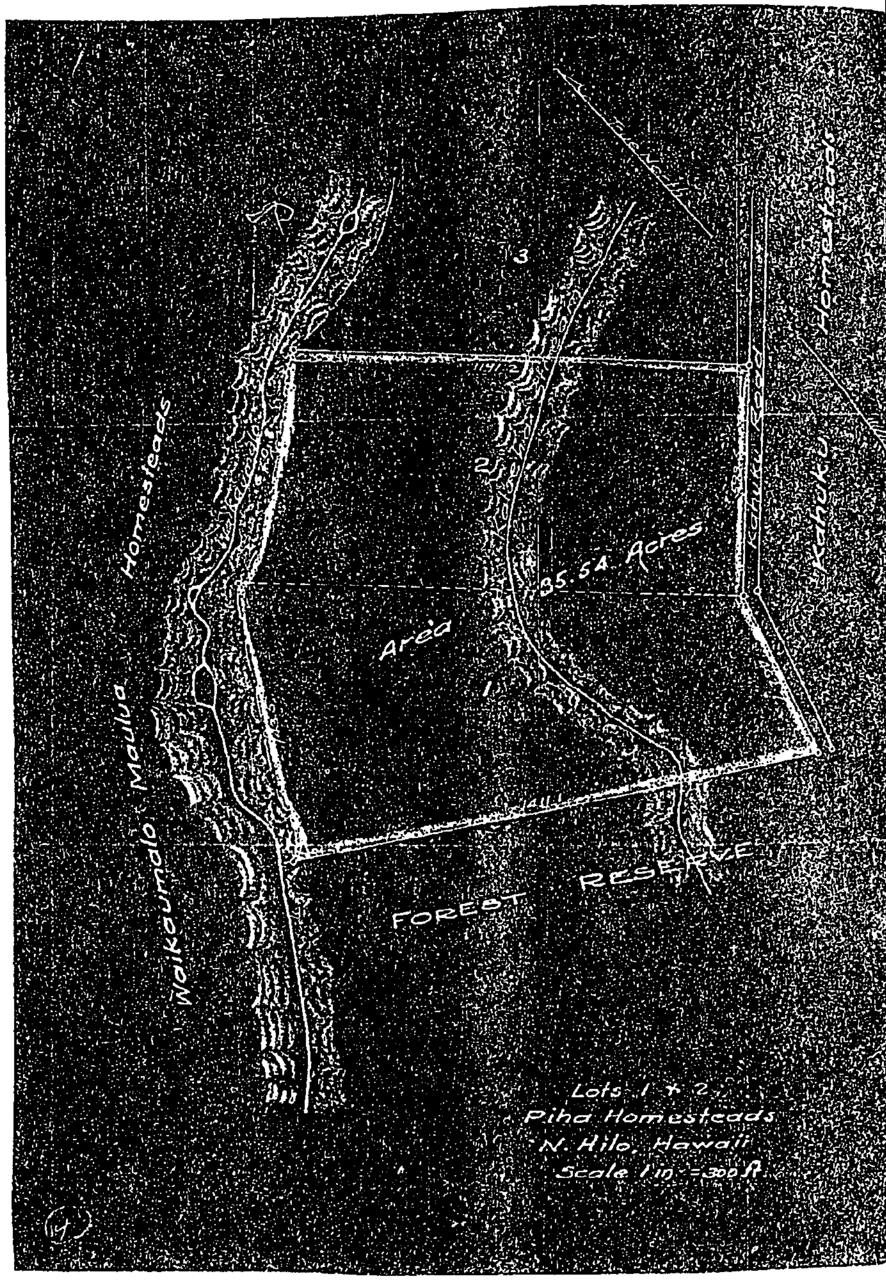
Attached hereto and made a part of Grant No. 8584.

W. R. Farrington
Governor of Hawaii.

J. Bailey
Commissioner of Public Lands.



Waikaumalo Maulua Homesteads
Homesteads
Kahuku
Area
35.54 Acres
FOREST RESERVE
Lots 1 & 2
Piha Homesteads
N. Hilo, Hawaii
Scale 1 in = 300 ft.


Waikaumalo Maulua
Homesteads
Kahuku Homesteads
Area
35.54 Acres
FOREST RESERVE
Lots 1 + 2
Piha Homesteads
N. Hilo, Hawaii
Scale 1 in. = 300 ft.

Kahuku Homesteads

Containing ——— 35.54 ——— *Acres, more or less.*

TO HAVE AND TO HOLD the above granted Land unto the said

WILLIAM BREITHAUPT

and — his — heirs and assigns forever;

Subject, however, to the conditions contained in Section 73 of the Hawaiian Organic Act, and more particularly of that portion thereof which reads as follows:

"No public land for which any such certificate (of occupation), (right of purchase) lease, or (cash freehold agreement or special homestead) agreement is issued after May 27, 1910, or any part thereof or interest therein or control thereof shall, without the written consent of the commissioner and governor, thereafter, whether before or after a homestead lease or patent has been issued thereon, be or be contracted to be in any way, directly or indirectly, by process of law or otherwise, conveyed, mortgaged, leased or otherwise transferred to or acquired or held by or for the benefit of any alien or corporation; or, before or after the issuance of a homestead lease or before the issuance of a patent, to or by or for the benefit of any other person; or, after the issuance of a patent, to or by or for the benefit of any person who owns, holds, or controls, directly or indirectly, other land or the use thereof the combined area of which and the land in question exceeds eighty acres. The prohibitions of this paragraph shall not apply to transfers or acquisitions by inheritance or between tenants in common. Any land in respect of which any of the foregoing provisions shall be violated shall forthwith be forfeited and resume the status of public land and may be recovered by the Territory or its successors in an action of ejectment or other appropriate proceedings."

IN WITNESS WHEREOF, The Governor of the Territory of Hawaii has hereto set his hand and caused the Great Seal of the Territory to be hereunto affixed, this

22nd *day of* December *A. D. 1924*

W. R. Farrington

BY THE GOVERNOR:

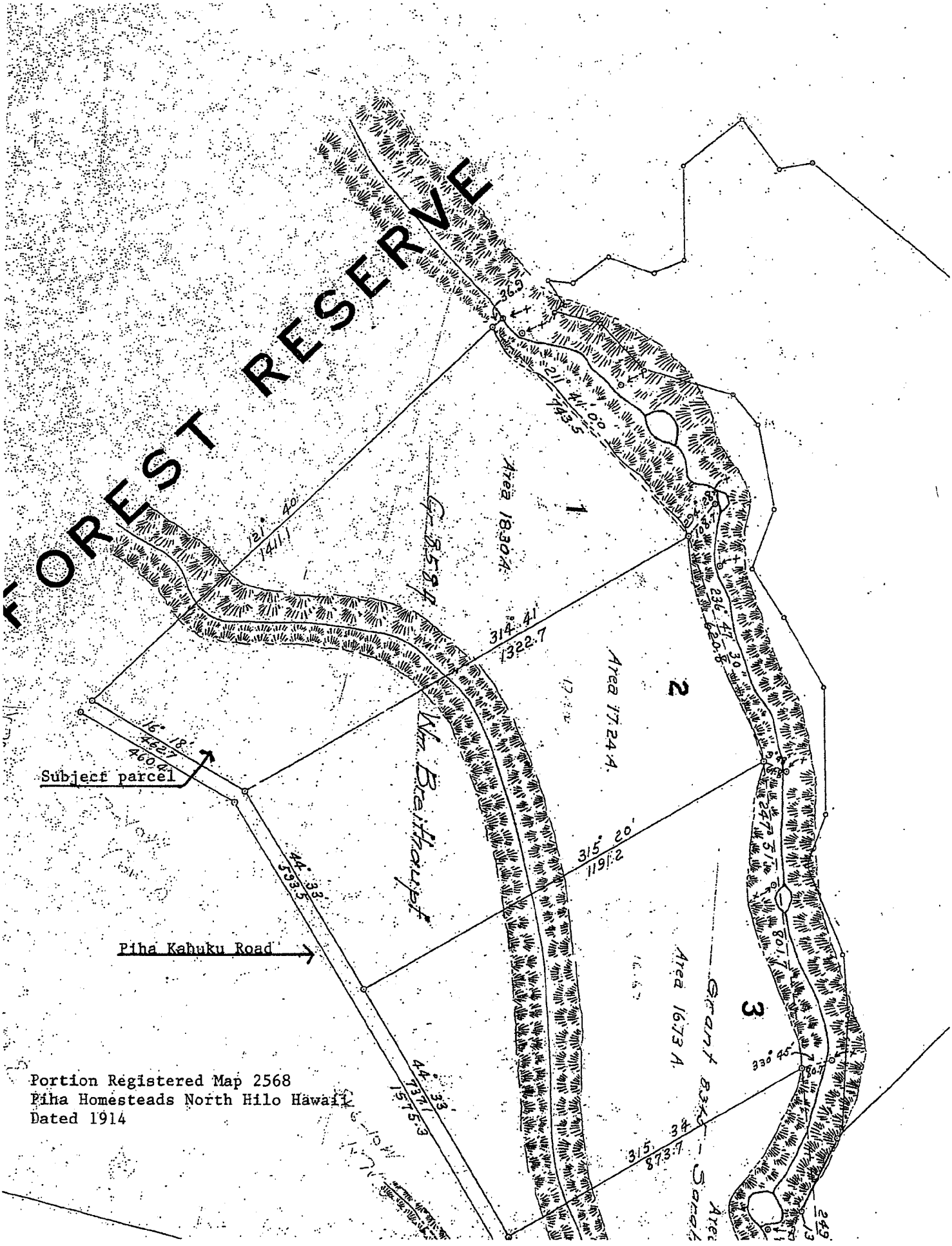
J. T. Bailey

Commissioner of Public Lands.

Approved as to form:

H. M. Watt

1st Deputy Attorney General.



Portion Registered Map 2568
Piha Homesteads North Hilo Hawaii
Dated 1914

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 14, 2018

Geometrician Associates, LLC
Attention: Mr. Ron Terry
P.O. Box 396
Hilo, Hawaii 96721

via email: rterry@hawaii.rr.com

Dear Mr. Terry:

SUBJECT: Draft Environmental Assessment for the Proposed **Ramos Single-Family Residence in the Conservation District at Piha** located at Piha, North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038

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

At this time, enclosed are comments from the Division of Forestry & Wildlife on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at (808) 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure
cc: DLNR – Office of Conservation and Coastal Lands
Attn: Mr. Sam Lemo (w/copy, via email: dlnr.occl@hawaii.gov)
Central Files

19272

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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CONSERVATION AND COASTAL LANDS
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
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2018 DEC 21 A 8:10

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF: OCCL: AJR

CDUA: HA-3830

MEMORANDUM:

TO: FROM

___ HDLO	___ HDOT	___ CWRM
✓ DOFAW	___ OHA	___ County of Hawaii - DWS
___ SHPD	___ DOH-CWB	___ County of Hawaii - Planning

FROM: TO:

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

SUBJECT: REQUEST FOR COMMENTS – CONSERVATION DISTRICT USE APPLICATION (CDUA) HA-3830
Ramos Single Family Residence (SFR)

LOCATION: Piha, North Hilo District, Island of Hawaii

TMK: (3) 3-2-004:038

Please find Conservation District Use Application (CDUA) HA-3830 for the proposed *Ramos Single Family Residence Project* located in the North Hilo District, Island of Hawai'i. We would appreciate a review of the proposal and any comments your agency or office has on the application. You may download a copy from our website:

http://dlnr.hawaii.gov/occl/current-applications/ → CDUA: HA-3830

Please contact Alex J. Roy, M.Sc. of the Office of Conservation and Coastal Lands staff at 587-0316, should you have any questions on this proposal. If no response is received by the suspense date of **December 23, 2018**, we will assume there are no comments.

X Comments Attached Dec 18, 2018 from DOFAW

( ) No Comments

Signature

19324

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
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DEPUTY DIRECTOR - WATER

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STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

DEC 10 2018

MEMORANDUM

TO: RUSSELL Y. TSUJI, Administrator
Land Division

FROM: DAVID G. SMITH, Administrator
Division of Forestry and Wildlife

SUBJECT: **Division of Forestry and Wildlife Comments on the Draft Environmental Assessment (EA) for the Proposed Ramos Single Family Residence in the Conservation District at Pīhā**

The Department of Land and Natural Resources Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding the draft EA for the proposed Ramos Single Family Residence located in the Conservation District, Resource Subzone at Pīhā in the District of North Hilo, Island of Hawai'i, TMK: (3) 3-2-004:038. The proposed project would consist of construction of a split-level residence including a carport, ground-mounted solar photovoltaic panels, a water catchment system with two tanks, a pump room, an electrical generator, and an individual wastewater system, and improvements to the existing driveway. The project proponent states that approximately a quarter of an acre of land will be cleared, and the total developed area will be 3,554 feet. A biological survey commissioned by the project proponent identified no evidence of rare or endangered plants or animals on the property. DOFAW provides the following comments in reference to the information outlined in the draft EA.

The State and Federal listed Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the project area and may roost in trees. To avoid the potential for impacts to this tree-roosting species, site clearing should be timed to avoid disturbance during the bat birthing and pup rearing season (June 1 through September 15). If this cannot be avoided woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed without consulting DOFAW. Barbed wire should be avoided for any construction because bat mortalities have been documented as a result of becoming ensnared by barbed wire during flight.

The State and Federal listed Hawaiian Hawk or 'Io (*Buteo solitarius*) may occur in the project vicinity. DOFAW recommends surveying the area to ensure no Hawaiian Hawk nests are present if trees are to be cut.

We note that artificial lighting can adversely impact seabirds that may pass through the area at night causing disorientation that could result in collision with manmade artifacts or grounding of birds. For nighttime lighting that might be required, DOFAW recommends that any lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting should be avoided

during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea.

We recommend using native plant species for landscaping that are appropriate for the area (i.e. climate conditions are suitable for the plants to thrive, historically occurred there, etc.). Please do not plant invasive species. DOFAW recommends consulting the Hawai'i-Pacific Weed Risk Assessment website to determine the potential invasiveness of plants proposed for use in the project (https://sites.google.com/site/weedriskassessment/home).

To prevent the spread of rapid 'ōhi'a death (ROD), if 'ōhi'a trees will be removed, trimmed, or potentially injured DOFAW requests that the information and guidance at the following website be reviewed and followed: https://cms.ctahr.hawaii.edu/rod.

You should avoid moving soil or other plant material within and between the islands due to the potential presence of pathogens. We recommend consulting the Hawai'i Interagency Biosecurity Plan at http://dlnr.hawaii.gov/hisc/plans/hibp/ in planning, design, and construction of the project.

We appreciate your efforts to work with our office for the conservation of our native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Jim Cogswell, Wildlife Program Manager at (808) 587-4187 or James.M.Cogswell@hawaii.gov.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
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December 21, 2018

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Attention: Mr. Ron Terry
P.O. Box 396
Hilo, Hawaii 96721

via email: rterry@hawaii.rr.com

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Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure
cc: DLNR – Office of Conservation and Coastal Lands
Attn: Mr. Sam Lemo (w/copy, via email: dlnr.occl@hawaii.gov)
Central Files

DAVID Y. IGE
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ROBERT K. MASUDA
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
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2018 NOV 13 P 12:55

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2018 NOV 30 A 11:36

RECEIVED
LAND DIVISION
HILO, HAWAII

REF: OCCL: AJR

CDUA: HA-3830

MEMORANDUM:

NOV - 9 2018

FROM: ~~TO:~~

✓ HDLO	___ HDOT	___ CWRM
___ DOFAW	___ OHA	___ County of Hawaii - DWS
___ SHPD	___ DOH-CWB	___ County of Hawaii - Planning

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

SUBJECT: REQUEST FOR COMMENTS – CONSERVATION DISTRICT USE APPLICATION (CDUA) HA-3830
Ramos Single Family Residence (SFR)

LOCATION: Piha, North Hilo District, Island of Hawaii

TMK: (3) 3-2-004:038

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Please contact Alex J. Roy, M.Sc. of the Office of Conservation and Coastal Lands staff at 587-0316, should you have any questions on this proposal. If no response is received by the suspense date of **December 23, 2018**, we will assume there are no comments.

( ) Comments Attached

(X) No Comments → The DLNR Land Division (HI District Branch) has no comments regarding this request.

Signature

Gordon C. Heit, District Land Agent

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2018 NOV 30 P 12:42

RECEIVED
LAND DIVISION
HILO, HAWAII

November 28, 2018

MEMORANDUM

FROM:
~~TO:~~

DLNR Agencies:
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
_X_ Div. of Forestry & Wildlife
___Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District
_X_ Historic Preservation

~~FROM:~~ Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the Proposed **Ramos Single-Family Residence in the Conservation District at Piha**
LOCATION: Piha, North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038
APPLICANT: Geometrician Associates on behalf of Pedro Pablo Ramos

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **December 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oegc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

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

Signed: _____

Print Name: GORDON C. HEIT

Date: 12/13/18

Attachments
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 27, 2018

Geometrician Associates, LLC
Attention: Mr. Ron Terry
P.O. Box 396
Hilo, Hawaii 96721

via email: rterry@hawaii.rr.com

Dear Mr. Terry:

SUBJECT: Draft Environmental Assessment for the Proposed **Ramos Single-Family Residence in the Conservation District at Piha** located at Piha, North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038

Thank you for the opportunity to review and comment on the subject matter. In addition to our previous comments dated December 14 and 21, 2018, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at (808) 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure
cc: DLNR – Office of Conservation and Coastal Lands
Attn: Mr. Sam Lemo (w/copy, via email: dlnr.occl@hawaii.gov)
Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2018 DEC 24 AM 11:34
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 28, 2018

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment for the Proposed **Ramos Single-Family Residence in the Conservation District at Piha**
LOCATION: Piha, North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038
APPLICANT: Geometrician Associates on behalf of Pedro Pablo Ramos

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **December 20, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

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

Signed: _____

Print Name: Carty S. Chang, Chief Engineer

Date: 12/19/18

Attachments
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji

Ref: Draft Environmental Assessment for the Proposed Ramos Single-Family Residence in the Conservation District at Piha, Piha, North Hilo, Island of Hawaii; TMK: (3) 3-2-004:038

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). State projects are required to comply with 44CFR regulations as stipulated in Section 60.12. Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 12/19/12

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

January 14, 2019

Sam Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Lemmo:

Subject: Comments on Draft Environmental Assessment (DEA)/Conservation District Use Application (CDUA) for Ramos Single-Family Residence in the Conservation District at Pīhā, Island of Hawai‘i, TMK 3-3-2-004:038

I am in receipt of your letter of the comment letters on the Draft EA for the subject project provided by Kimberly Mills via email to project planner James Leonard and myself.

In the interest of a complete record on comment letters to the EA/CDUA, I would first like to acknowledge receipt of comments from DLNR and other agencies contained within form memos circulated by your office. We acknowledge here the *no-comment* remarks of the Hawai‘i Island Land Division, as well as the comment from the Engineering Division that the property owner must research the flood hazard of the property and associated ordinances. The EA for the project discusses this in Section 3.1.2.

Regarding the December 10, 2018 memo from David G. Smith, Administrator of DOFAW, we would first like to thank DOFAW for the comprehensive checklist of issues that should be addressed. We would note that that DOFAW's recommended mitigation measures for threatened or endangered species and Rapid ‘Ōhi‘a Death are essentially the same as those proposed in the EA. Although no barbed wire was planned as part of the project, the recommendation to not allow it in order to avoid bat entanglement has been explicitly added as a mitigation measure in the Final EA, with the possible exception of a bottom strand on the hogwire fence surrounding the home, which would not be expected to entangle bats because of its low location. We would note that no night construction will occur. The Hawai‘i Pacific Weed Risk Assessment was consulted prior development of the landscape plan concerning the invasiveness of the species proposed for landscaping (which are primarily natives), and no invasive species are proposed. No soil will be moved between islands.

With respect to the comment in the December 21, 2018 memo from DOFAW discussing the Na Ala Hele Program's findings concerning Pīhā-Kahuku Road, we appreciate the research on the origin

and status of the road. It confirms the findings of our own research and reinforces the need for Mr. Ramos' plan to honor and protect public access by providing a turn-around area/parking spot just outside the gate on the driveway near the makai boundary that can accommodate a car or truck. We would note that there are several locations lower down along the unpaved portion of Pīhā-Kahuku Road that hunters have traditionally parked for access and will undoubtedly continue to do so. The applicant is in agreement with the suggestion that the public access condition be part of any approval documents. Thank you for the information concerning the ownership of the land prior to 1890, which has been added to the EA.

We have also attached to this letter a copy of our response to the Hawai'i County Department of Water Supply. It is our understanding from Kimberly Mills that no other comment letters were received.

The comments from your office are summarized below, along with our responses to each:

1. *Coastal Zone Management Area and CDUA criteria No. 3.*

The evaluation from the CDUA concerning the CZM and Chapter 205a has been added to the Final EA. We would note that no aspect of the project is inconsistent with the CZM objectives and policies, and that not coastal zone resources would be impacted in any way.

2. *County of Hawai'i's Fire Department comments.*

The Hawai'i Fire Department responded to the request for early consultation in a letter dated April 30, 2018, which cited several portions of the Fire Code. In relation to these comments we note that the applicant's architect has reviewed the Fire Code requirements that would be applicable to the proposed single-family residence with the Department of Public Works, Building Division staff and has planned and designed the house accordingly. The designer will also review the plans with the appropriate Fire Department personnel prior to the applicant's submittal for building permit approval to ensure residence is designed in full compliance with applicable Fire Department regulations.

3. "*Separate structure with doors" identified as the WATER/GAS TANKS/PUMP ROOM 380 SF*.

Regarding the comment that there appears to be "a separate structure with doors identified as the WATER/GAS TANKS/PUMP ROOM 380 SF on Figure 4" and the request for an explanation of its dimensions, area and purpose; what is shown on Figure 4 and listed in the Area Summary Table in this exhibit as WATER/GAS TANKS/PUMP ROOM 380 SF is the combined area of the separate utility features (water tanks (2), a LPG gas tank, and a pump room) which are located together in an open area adjacent to the driveway. What appears to be "doors" are, in fact, the gates within a fence line that would run between the driveway and this utility area. The purpose of the pump room, shown adjacent to the water tank on the Site Plan (Figure 4), is to house and protect the water pump, pressure tank and water filtration system and would be a simple wood structure about 8 feet square and 8 feet in height and would have a total area of approximately 70 square feet, as indicated on the Plan.

4. *Should improvements be required to facilitate the proposed construction, authorization should be sought from the County that has jurisdiction over the road pursuant to HRS, Chapter 265A.*

The landowner has become aware of the jurisdiction of the (mostly paper) road and will coordinate with the County of Hawai‘i DPW as needed. This information has been added to the Final EA.

Thank you for circulating the EA and CDUA for review by DLNR agencies. If you have any questions about the EA, please contact me at (808) 969-7090; for questions about the project or CDUA, please contact James Leonard, Project Planner, at (808) 896-3459.

Sincerely,

Ron Terry, Principal
Geometrician Associates

Cc: James Leonard, Pedro Pablo Ramos
Cc: DLNR agencies: DOFAW; Engineering; Na Ala Hele

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

November 16, 2018

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

Dear Mr. Lemmo:

Subject: **Request for Comments – Conservation District Use Application**
Application No. (CDUA) HA-3830
Tax Map Key 3-2-004:038

We have reviewed the subject application and have the following comments.

The subject parcel does not have an existing water service with the Department, as the parcel is not within the service limits of the Department's existing water system.

Therefore, the Department has no objections to the proposed application, subject to the applicant understanding and accepting that the Department cannot provide service to the proposed additional farm dwelling.

Should there be any questions, please contact Mr. Troy Samura of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Keith K. Okamoto, P.E.
Manager–Chief Engineer

TS:dfg

copy – Planning Department
JM Leonard Planning, LLC

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

January 14, 2018

Keith K. Okamoto, P.E., Manager-Chief Engineer
Hawai'i County DWS
345 Kekuanaoa Street, Suite 20
Hilo, Hawai'i 96720

Dear Mr. Okamoto:

Subject: **Comments on Draft Environmental Assessment (DEA)/Conservation District Use Application (CDUA) for Ramos Single-Family Residence in the Conservation District at Pīhā, Island of Hawai'i, TMK 3-3-2-004:038**

Thank you for your comment letter dated November 16, 2018, in which you stated that there are no existing Department of Water Supply facilities within the project area, that the parcel is not within the service limits of the Department's existing water system, and that the Department has no objections to the proposed application, subject to the applicant understanding and accepting that the Department cannot provide service to this property. The applicant has proposed and designed the home with this understanding, which is now stated explicitly in the Final EA

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Sam Lemmo, James Leonard, Pedro Pablo Ramos #

Draft Environmental Assessment
Ramos Single-Family Residence
in the Conservation District at Pīhā

APPENDIX 2
Archaeological Assessment Survey

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An Archaeological Assessment of a Portion of Lot 1 of the Pīhā Homesteads

TMK: (3) 3-2-004:038 por.

Pīhā Ahupua'a
North Hilo District
Island of Hawai'i

DRAFT VERSION

Prepared By:

Matthew R. Clark, M.A.

Prepared For:

Mr. Pedro Pablo Ramos
3193 Scrub Oak Trail
Oviedo, FL 32765

March 2018

ASM affiliates
Archaeology • History • Anthropology • Architectural History
Hilo Office: (808) 969-6066 Fax: (808) 443-0065
507-A E. Lanikaula Street, Hilo, HI 96720
Honolulu Office: (808) 439-8089 Fax: (808) 439-8087
820 Mililani Street, Suite 700, Honolulu, HI 96813

ASM Project Number 29530.00

An Archaeological Assessment of a Portion of Lot 1 of the Pīhā Homesteads

TMK: (3) 3-2-004:038 por.

Pīhā Ahupuaʻa
North Hilo District
Island of Hawaiʻi

ASM affiliates

EXECUTIVE SUMMARY

At the request of Mr. Pedro Pablo Ramos (landowner), ASM Affiliates conducted an archaeological survey of a roughly 5-acre portion of Lot 1 of the Pīhā Homesteads (TMK: (3) 3-2-004:038 por.), Pīhā Ahupuaʻa, North Hilo District, Island of Hawaiʻi. The current study, which was conducted in support of an Environmental Assessment (EA) being prepared for the development of a single-family residence on the property, was undertaken in accordance with Hawaiʻi Administrative Rules 13§13–284, and was performed in compliance with the Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports as contained in Hawaiʻi Administrative Rules 13§13–276. According to 13§13-284-5(b)(5)(A) when no archaeological resources are discovered during an archaeological survey the production of an Archaeological Assessment report is appropriate. Compliance with the above standards is sufficient for meeting the historic preservation review process requirements of both the Department of Land and Natural Resources–State Historic Preservation Division (DLNR–SHPD) and the County of Hawaiʻi Planning Department.

The archaeological survey was conducted on February 1, 2018 by Robert B. Rechtman, Ph.D., Matthew R. Clark, M.A., and Ashton Dircks Ah Sam, B.A. During the survey, fieldworkers walked northwest/southeast oriented pedestrian transects spaced at 25-meter intervals across the entire study area, between the Pīhā-Kahuku Homesteads Road and Kalaeha Stream. As a result of the survey no archaeological resources were identified within the study area. Given these findings, it is our conclusion that the proposed construction of a single-dwelling on a portion of TMK: (3) 3-2-004:038 will not affect any historic properties. With respect to the historic preservation review process of both the Department of Land and Natural Resources–State Historic Preservation Division (DLNR–SHPD) and the County of Hawaiʻi Planning Department, our recommendation is that no further work needs to be conducted. In the unlikely event that significant archaeological resources are discovered during the construction of the proposed dwelling, work shall cease in the area of the discovery and DLNR-SHPD contacted pursuant to HAR 13§13-280-3.

CHAPTERS

Page

FIGURES

Page

1. INTRODUCTION

At the request of Mr. Pedro Pablo Ramos (landowner), ASM Affiliates conducted an archaeological survey of a roughly 5-acre portion of Lot 1 of the Pīhā Homesteads (TMK: (3) 3-2-004:038 por.), Pīhā Ahupuaʻa, North Hilo District, Island of Hawaiʻi (Figures 1and 2). The current study, which was conducted in support of an Environmental Assessment (EA) being prepared for the development of a single-family residence on the property, was undertaken in accordance with Hawaiʻi Administrative Rules 13§13–284, and was performed in compliance with the Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports as contained in Hawaiʻi Administrative Rules 13§13–276. According to 13§13-284-5(b)(5)(A) when no archaeological resources are discovered during an archaeological survey the production of an Archaeological Assessment report is appropriate. Compliance with the above standards is sufficient for meeting the historic preservation review process requirements of both the Department of Land and Natural Resources–State Historic Preservation Division (DLNR–SHPD) and the County of Hawaiʻi Planning Department. This report provides a study area description, a detailed culture-historical background, a discussion of prior archaeological studies conducted in the vicinity of the current study area, and the results of the field investigation.

STUDY AREA DESCRIPTION

The current study area consists of a roughly 5-acre portion of TMK: (3) 3-2-004:038 (Lot 1 of the Pīhā Homesteads) located in Pīhā Ahupuaʻa, North Hilo District, Island of Hawaiʻi (see Figures 1and 2). Situated at an elevation of roughly 1,680 to 1,840 feet (512 to 560 meters) above sea level, the study parcel is the *mauka*-most of the Pīhā Homestead lots. It is accessed by the Pīhā-Kahuku Homestead Road, which extends 4.75 kilometers (2.95 miles) from Old Māmalahoa Highway to the eastern corner of the study area (Figure 3), transitioning from a paved road, to a gravel road, to a four-wheel drive road as it progresses up slope (Figure 4). The study area includes only the southwestern portion of the larger 18.3-acre parcel, an area that is bounded to the southeast and southwest by old fence lines that mark the *makai* the boundaries of the Hilo Forest Reserve (Figure 5), to the northwest by Kalaeha Stream (Figure 6), and to the northeast by Lot 2 of the Pīhā Homesteads. The area is currently undeveloped and covered by thick vegetation typical of Hawaiʻi's lowland rainforests, except near the outlet of Pīhā-Kahuku Homestead Road, at the location of the proposed single-family residence, where some hand clearing of brush has occurred (Figure 7). Vegetation cover within the study area consists primarily of strawberry guava (*Psidium cattleianum*), *ōhiʻa* (*Metrosideros polymorpha*), *uluhe* (*Dicranopteris linearis*), and various other grasses, vines, ferns, shrubs, and weeds, with some large paper bark trees (*Melaleuca leucadendra*) growing near the proposed building site. Soils in this area are classified as Kaiwiki highly organic hydrous silty clay loam on 6 to 20 percent slopes (Soil Survey Staff, USDA 2018). These soils have formed on Pleistocene lava flows of the Hāmākua Volcanic Series (Qhm) that originated from Mauna Kea Volcano 64,000 to 300,000 years ago (Sherrod et al. 2007). Rainfall in the vicinity of the study area averages 5,285 millimeters (208 inches) per year, and the mean annual air temperatures is 66°F (19°C) (Giambelluca et al. 2013, 2014).

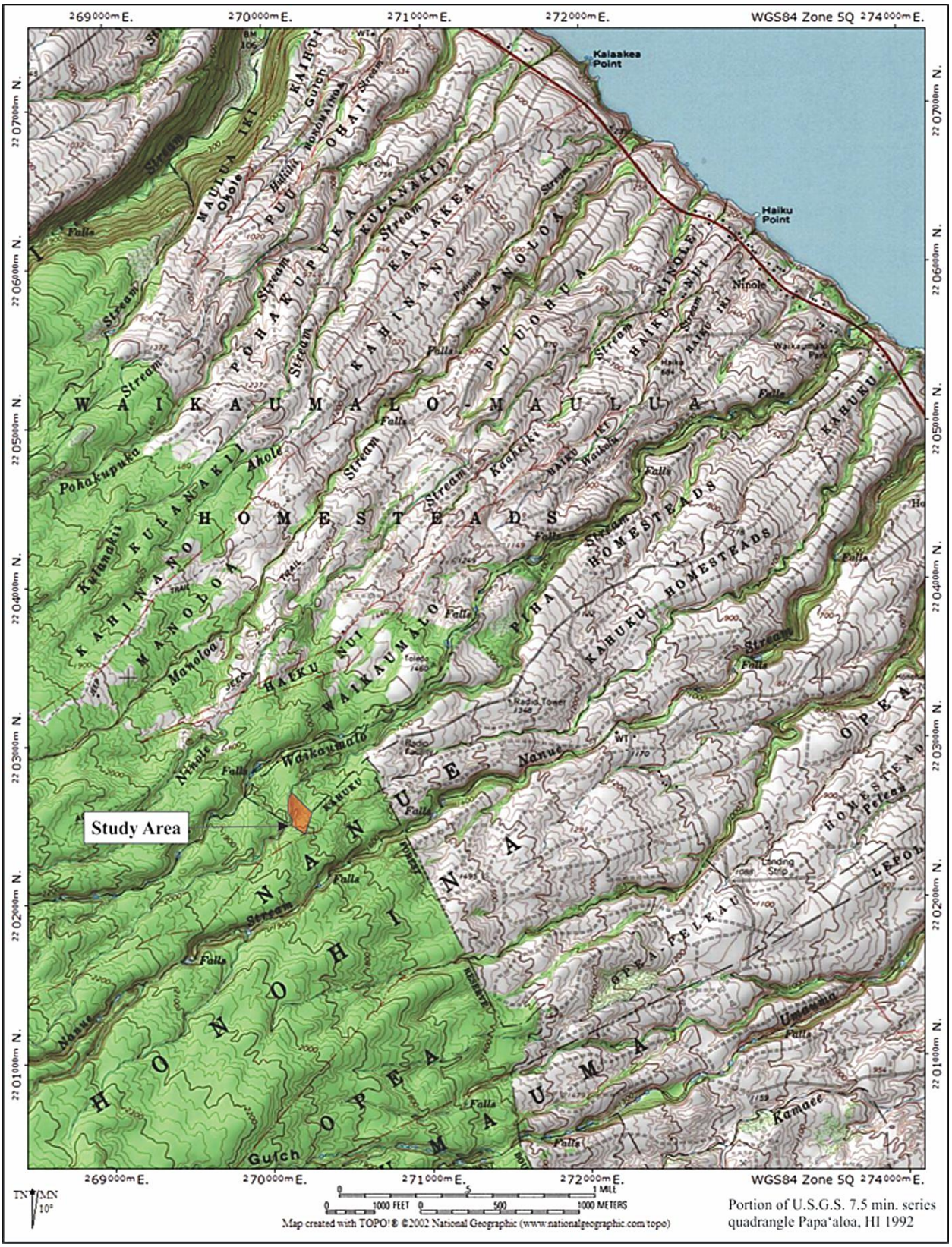

Figure 1. Study area location.

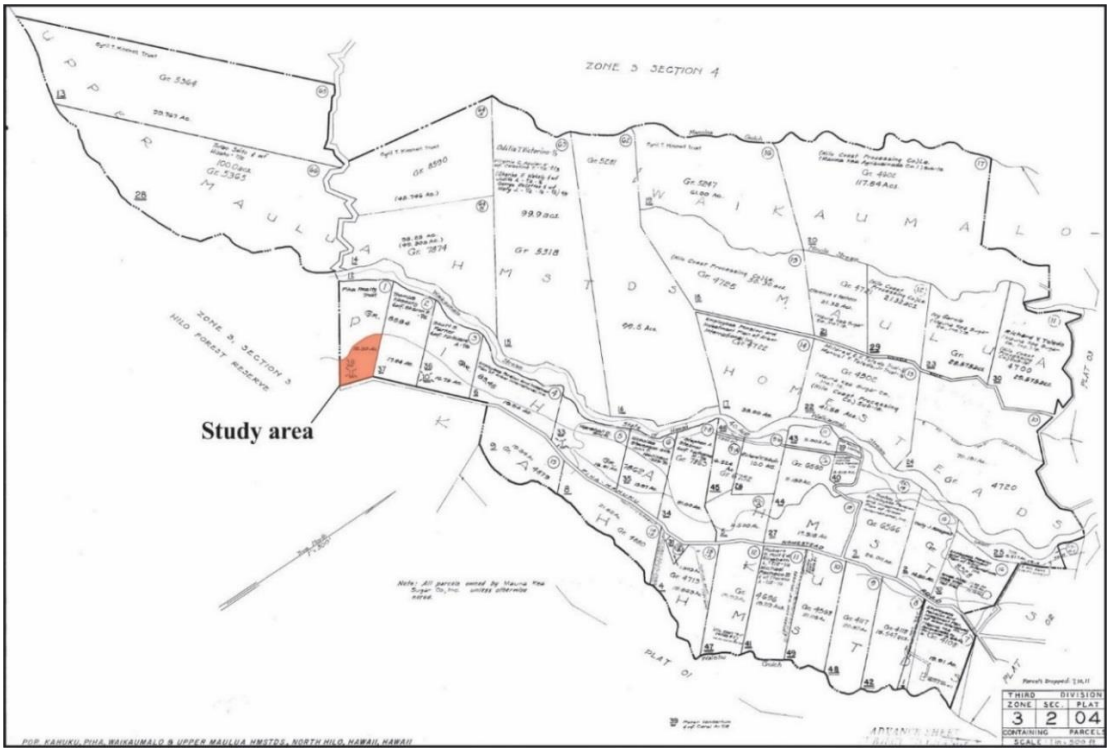

Figure 2. Tax Map Key (TMK): (3) 3-2-004 showing the current study area (portion of Parcel 038).

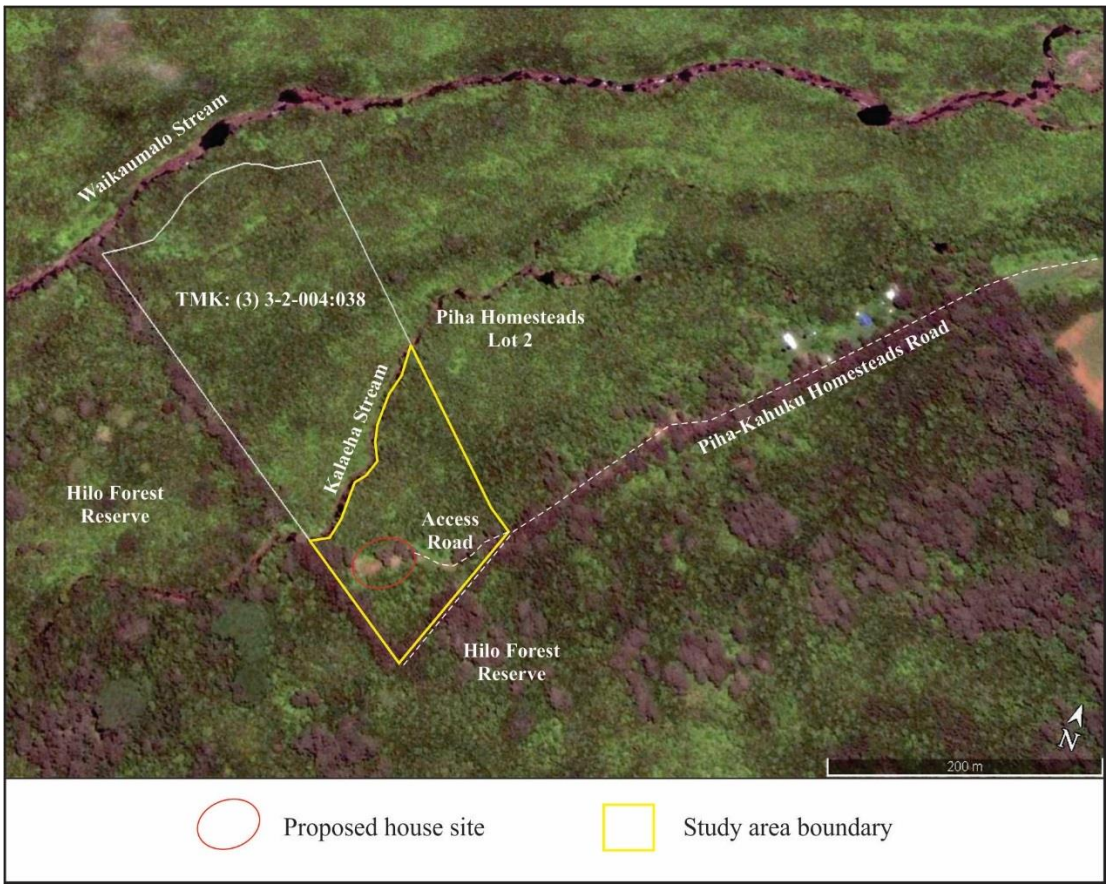

Figure 3. Google Earth image showing the current study area.

Figure 4. Pīhā-Kahuku Homestead Road near the eastern corner of the study area, view to the southwest.

Figure 5. Old fence line along the southwestern boundary of the study area, view to the southwest.

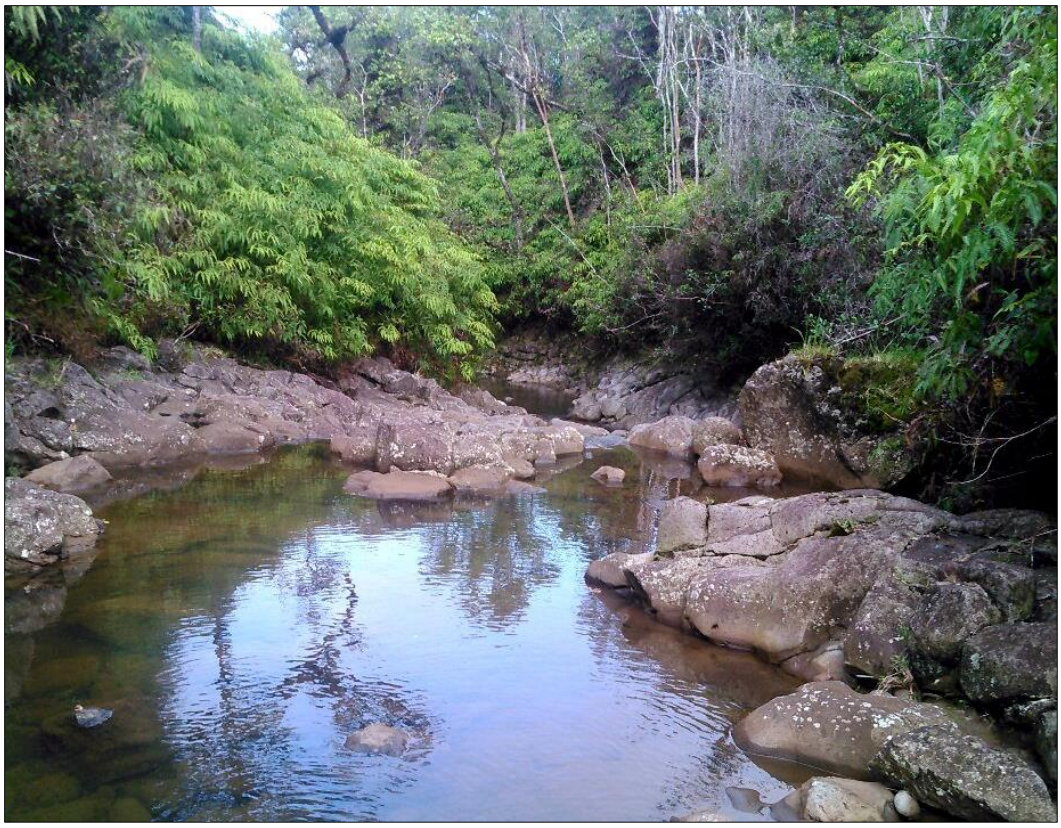

Figure 6. Kalaeha Stream, view to the north.

Figure 7. Hand cleared vegetation at the proposed house location, view to the east.

2. BACKGROUND

To generate a set of expectations regarding the nature of cultural resources that might be encountered within the study area, and to establish an environment within which to assess the significance of any such resources, a brief culture-historical background for the North Hilo District and Pīhā Ahupua‘a is presented, followed by a summary of prior archaeological research conducted in the vicinity of the study area.

CULTURE-HISTORICAL CONTEXT

The current study area is located within the *ahupua‘a* of Pīhā, in the District of North Hilo, on the windward coast of Hawai‘i Island (Figure 8). This portion of the district was traditionally referred to as *Hilo-pali-Kū* or “Hilo of the upright cliffs” (Maly and Maly 2006). The name describes the region’s treacherous coastline, with its sheer cliffs broken only by a string of narrow gulches containing streams that pour down from the slopes of Mauna Kea. Pīhā, which literally translates as “flotsam” (Pukui et al. 1974:184), meaning any floating material carried by flood waters or the sea, is one of many land divisions (*ahupua‘a*) extending inland from the coast of North Hilo with boundaries that generally follow the meanderings of the gulches, and encompass the tablelands in between. It was along these gulches, and on the tablelands near the ocean’s edge, that the first Polynesian settlers of this part of Hilo lived. Over generations they shaped and utilized the natural environment to provide all they needed for sustenance and survival. In the process they created a uniquely Hawaiian culture that was wholly adapted to that environment. The brief generalized cultural sequence that follows below provides a time frame for the peopling of Hawai‘i, the development of Hawaiian culture, the expansion and intensification of the Hawaiian population, and the resulting stresses on it from the earliest Polynesian settlers to the time of European Contact.

A Generalized Model of Hawaiian Prehistory

This generalized cultural sequence is based on Kirch’s (1985) model, but is amended to include more recent revisions offered by Kirch (2011) and Athens et al. (2014). 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 Hawai‘i Island (or perhaps anywhere in Hawai‘i) during this initial settlement, or colonization stage of island occupation (A.D. 300 to 600). More recently, Kirch (2011) and Athens et al. (2014) have 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 alter the timing of the Settlement, Developmental, and Expansion Periods, possibly shifting the Settlement Period to A.D. 1000 to 1100, the Developmental Period to A.D. 1100 to 1350, and the Expansion Period to A.D. 1350 to 1650.

The initial settlement in Hawai‘i is believed to have occurred from the southern Marquesas Islands. This was a period of great exploitation and environmental modification, when early Hawaiian farmers developed new subsistence strategies by adapting their familiar patterns and traditional tools to their new environment (Kirch 1985; Pogue 1978). Their ancient and ingrained philosophy of life tied them to their environment and kept order. Order was further assured by the conical clan principle of genealogical seniority (Kirch 1984). According to Fornander (1969), the Hawaiians brought from their homeland certain universal Polynesian customs: the major gods Kāne, Kū, and Lono; the *kapu* system of law and order; cities of refuge; the *‘aumakua* concept; various epiphenomenal beliefs; and the concept of *mana*. Initial permanent settlements in the islands were established at sheltered bays with access to fresh water and marine resources. Communities shared extended familial relations and there was an occupational focus on the collection of marine resources.

Over a period of several centuries the areas with the richest natural resources became populated and perhaps even crowded, and there was an increasing separation of the chiefly class from the common people. As the environment reached its maximum carrying capacity, the result was social stress, hostility, and war between neighboring groups (Kirch 1985). Soon, large areas of Hawai‘i were controlled by a few powerful chiefs.

The Development Period brought about a uniquely Hawaiian culture. The portable artifacts found in archaeological sites of this period reflect not only an evolution of the traditional tools, but some distinctly Hawaiian inventions. The adze (*ko‘i*) evolved from the typical Polynesian variations of plano-convex, trapezoidal, and reverse-triangular cross-section to a very standard Hawaiian rectangular quadrangular tanged adze. A few areas in Hawai‘i, such as rhe summit region of Mauna Kea, produced quality basalt for adze production. The two-piece fishhook and the octopus-lure breadloaf sinker were also Hawaiian inventions of this period, as are ‘*ulu maika* stones and *lei niho palaoa*. The later was a status item worn by those of high rank, indicating a trend toward greater status differentiation (Kirch 1985).

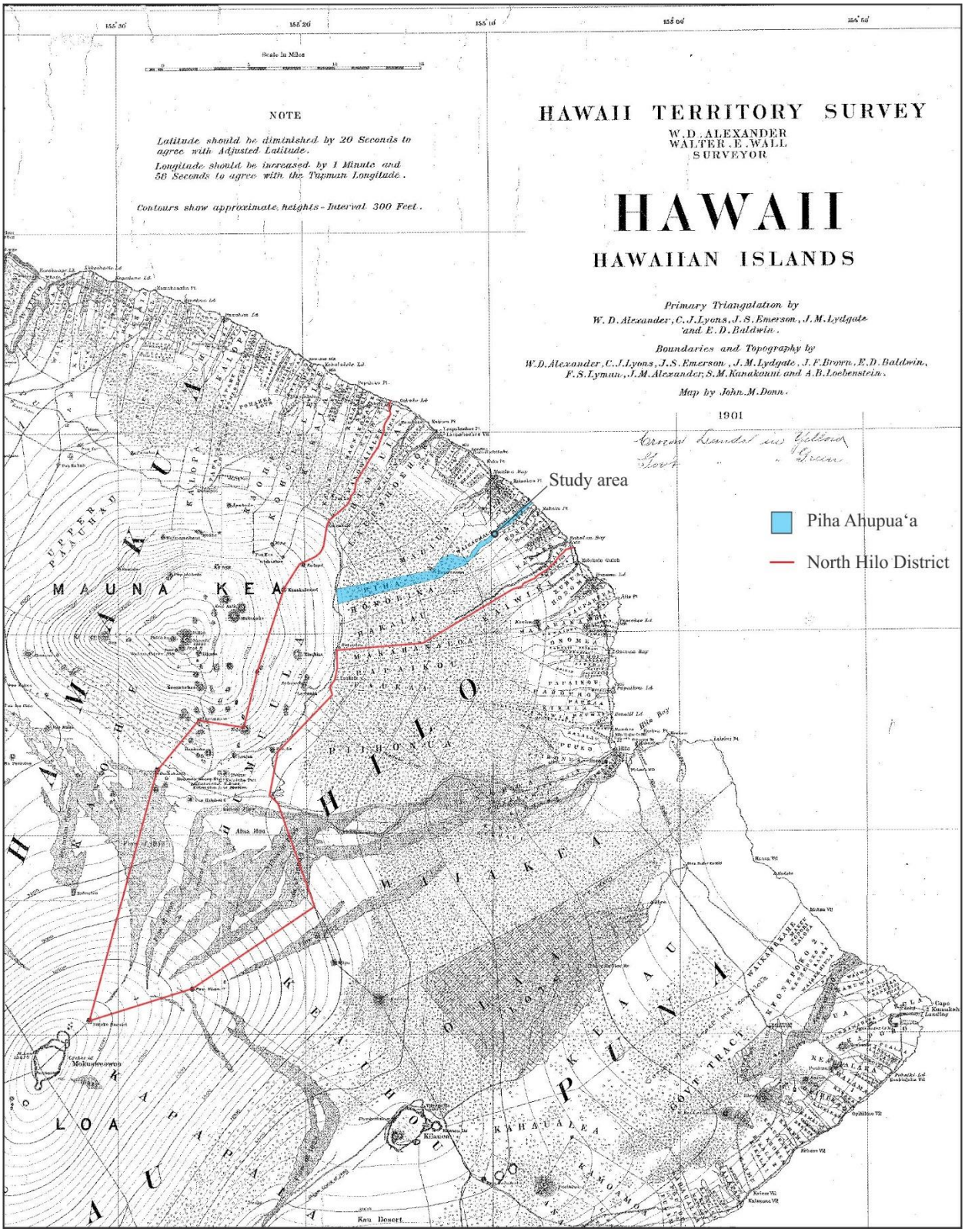

Figure 8. 1901 map of Hawai'i Island (prepared by John M. Donn 1901), showing the North Hilo District, Pīhā Ahupua'a, and the approximate location of the current study area.

The Expansion Period was characterized by the greatest social stratification, major socioeconomic changes, and intensive land modification. Most of the ecologically favorable zones of the windward and coastal regions of all major islands had been settled and the more marginal leeward areas were being developed. The greatest population growth occurred during the Expansion Period. Subsistence patterns intensified as crop farming evolved into large irrigated field systems and expanded into the marginal dry land areas. The *loko* or fishpond aquaculture flourished during this period (Bellwood 1978; Kirch 1985).

The concept of the *ahupua'a* was likely established during the Expansion Period (Kirch 1985), adding another component to a then well-stratified society. This land unit became the equivalent of a local community, with its own social, economic, and political significance. *Ahupua'a* were ruled by *ali'i 'ai ahupua'a*, or lesser chiefs, who, for the most part, had complete autonomy over this generally economically self-supporting piece of land, which was managed by a *konohiki*. *Ahupua'a* were usually wedge or pie-shaped, incorporating all of the eco-zones from the mountains to the sea and for several hundred yards beyond the shore, assuring a diverse subsistence resource base (Hommon 1986).

The *ali'i* and the *maka'āinana* (commoners) were not confined to the boundaries of the *ahupua'a*; when there was a perceived need, they also shared with their neighbor *ahupua'a ohana* (Hono-ko-hau 1974). The *ahupua'a* were further divided into smaller sections such as the *'ili, mo'o'aina, pauku'aina, kihapai, koele*, *hakuone*, and *kuakua* (Hommon 1986, Pogue 1978). The chiefs of these land units gave their allegiance to a territorial chief or *mō'ī* (king). *Heiau* building flourished during the Expansion Period as religion became more complex and embedded in a sociopolitical climate of territorial competition. Monumental architecture, such as *heiau*, "played a key role as visual markers of chiefly dominance" (Kirch 1990:206).

It was during the Expansion Period that a second major migration settled in Hawai'i, this time from Tahiti in the Society Islands. According to Kamakau (1976) the *kahuna* Pā'ao settled in the islands during the 13th century. Pā'ao was the keeper of the god Ku'ka'ilimoku, and had fought bitterly with his older brother, the high priest Lonopele. After much tragedy on both sides, Pā'ao was expelled from his homeland by Lonopele. He prepared for a long voyage, and set out across the ocean in search of a new land. On board Pā'ao's canoes were thirty-eight men (*kānaka*), two stewards (*kānaka 'ā'īpu'upu'u*), the chief Pilika'aiea (Pili) and his wife Hina'aukekele, Nāmau'u o Malaia, the sister of Pā'ao, and the prophet Makuaka'ūmana (Kamakau 1991). In 1866 Kamakau (1991:100-102) told the following story of their arrival in Hawai'i:

> Puna on Hawai'i Island was the first land reached by Pā'ao, and here in Puna he built his first heiau for his god Aha'ula and named it Aha'ula [Waha'ula]. It was a luakini. From Puna, Pā'ao went on to land in Kohala, at Pu'uepa. He built a heiau there called Mo'okini, a luakini.
>
> It is thought that Pā'ao came to Hawai'i in the time of the ali'i La'au because Pili ruled as mo'i after La'au. You will see Pili there in the line of succession, the mo'o kū'auhau, of Hanala'anui. It was said that Hawai'i Island was without a chief, and so a chief was brought from Kahiki; this is according to chiefly genealogies. Hawai'i Island had been without a chief for a long time, and the chiefs of Hawai'i were ali'i maka'āinana or just commoners, maka'āinana, during this time.
>
> . . . There were seventeen generations during which Hawai'i Island was without chiefs—some eight hundred years. . . . The lack of a high chief was the reason for seeking a chief in Kahiki, and that is perhaps how Pili became the chief of Hawai'i. He was a chief from Kahiki and became the ancestor of chiefs and people of Hawai'i Island.

The Pili line's initial ruling center was likely in Kohala, but Cartwright (1933) suggests that Pili resided in and ruled from Waipi'o Valley in the Hāmākua District. Ethnohistorical traditions (Fornander 1880) indicate that valley was associated with at least nine successive Pili line rulers of Hawai'i Island, from Kaha'imoele'a to Umi (from roughly A.D. 1460 to 1620). Prior to the establishment of these Pili rulers, Waipi'o was the residential base for powerful local rulers dating back to at least the A.D. 1200s (Cartwright 1933).

Līloa and his son 'Umi were two of the most renowned rulers of the Pili line. Both were from Hāmākua and had their ruling centers in Waipi'o (Cordy 1994). 'Umi, who is often credited with uniting the island of Hawai'i under one rule, had a chiefly father (Līloa) and a mother (Akahi) who was a commoner (Kamakau 1992). Līloa met Akahi when he secretly left the valley to visit his other Hāmākua lands. As a young boy 'Umi was raised in the Hāmākua countryside by his mother, but he soon moved to Waipi'o to reside with his father and learn the chiefly ways (Kamakau 1992). Waipi'o remained a leading chiefly center until the end of 'Umi's reign around ca. 1620 (Cordy 1994).

Kirch (1985) places the beginning of the Proto-Historic Period during the rule of Lonoikamakahiki. This was a time marked by both political intensification and stress and continual conquest by the reigning *ali'i*. Wars occurred regularly between intra-island and inter-island polities during this period. It was during this time of warfare that Kamehameha, who would eventually rise to power and unite all the Hawaiian Islands under one rule, was born in the

District of North Kohala on the Island of Hawai‘i (Kamakau 1992). There is some controversy about the year of his birth, but Kamakau (1992:66-68) places the birth event sometime between A.D. 1736 and 1758, most likely nearer to the later date. This period was one of continual conquest by the reigning *ali‘i*. In A.D. 1775 Kalani‘ōpu‘u and his forces, who had already conquered Hana in eastern Maui, raided and destroyed the neighboring Kaupō District, then launched several more raids on Moloka‘i, Lāna‘i, Kaho‘olawe, and parts of West Maui. It was at the battle of Kalaeoka‘ilio that Kamehameha, a favorite of Kalani‘ōpu‘u, was first recognized as a great warrior and given the name of Pai‘ea (hard-shelled crab) by the Maui chiefs and warriors (Kamakau 1992).

History After Contact

Captain James Cook landed in the Hawaiian Islands on January 18, 1778. Ten months later, on a return trip to Hawaiian waters, Kalani‘ōpu‘u, who was at war with Kahekili, visited Cook on board the *Resolution* off the East coast of Maui. The following January [1779], Cook and Kalani‘ōpu‘u met again in Kealakekua Bay and exchanged gifts. In February, Cook set sail intending to leave the Hawaiian Islands, but a severe storm off the Kohala coast damaged a mast and he was forced to return to Kealakekua Bay. Cook’s return occurred at an inopportune time, and this misfortune cost him his life (Kuykendall and Day 1976).

Around A.D. 1780 Kalani‘ōpu‘u proclaimed that his son Kiwalao would be his successor, and he gave the guardianship of the war god Kū‘kā‘ilimoku to Kamehameha. Many chiefs, concerned about their land claims, which Kiwalao did not seem to honor, preferred Kamehameha as the next ruler. Encouraged by these chiefs Kamehameha usurped Kiwalao’s authority during a sacrificial ritual in Ka‘ū. He then withdrew to his home district of Kohala where he farmed the land, growing taro and sweet potatoes (Handy and Handy 1972). After Kalani‘ōpu‘u died in A.D. 1782 civil war broke out, Kiwalao was killed, and Kamehameha became the ruler of Hawai‘i Island. The wars between Maui and Hawai‘i continued until A.D. 1795 (Kuykendall and Day 1976; Handy and Handy 1972).

In 1793-1794 Captain George Vancouver, who had previously visited Hawai‘i with Cook in 1778-1779, returned leading his own expedition. It was on this voyage that Vancouver first introduced cattle to the Island of Hawai‘i, giving 17 head to King Kamehameha as a gift (Barrére 1983). Kamehameha placed a *kapu* on the cattle, and they were driven to the upland plain of Waimea to increase and multiply (Vancouver in Kuykendall 1938). Inevitably, some escaped and made their way to the mountain lands, where they would later play an important role in land use for much of the nineteenth and early twentieth centuries.

Demographic trends during the early Contact Period indicate population reduction in some areas, due to war and disease, yet increase in others, with relatively little change in material culture. There was a continued trend toward craft and status specialization, intensification of agriculture, *ali‘i* controlled aquaculture, upland residential sites, and the enhancement of traditional oral history. The Kū cult, *luakini heiau*, and the *kapu* system were at their peaks, although Western influence was already altering the cultural fabric of the Islands (Kirch 1985; Kent 1983). Foreigners had introduced the concept of trade for profit, and by the end of the 1700s, Hawai‘i saw the beginnings of a market system economy (Kent 1983). This marked the end of the Proto-Historic Period and the end of an era of uniquely Hawaiian culture.

By 1796 Kamehameha, with the aid of foreign weapons and advisors, had conquered all of the island kingdoms except Kaua‘i. In 1810, when Kaumuali‘i of Kaua‘i gave his allegiance to Kamehameha, the Hawaiian Islands were unified under a single rule (Kuykendall and Day 1976). Kamehameha would go on to rule the islands for another nine years. He and his high chiefs participated in foreign trade, but continued to enforce the rigid *kapu* system.

Kamehameha I died in 1819 at Kamakahonu in Kailua-Kona. With the passing of Kamehameha, his heir Liholiho was given the name of Kamehameha II. Ka‘ahumanu, the favorite wife of Kamehameha, announced the last commands of Kamehameha I:

> O heavenly one! I speak to you the commands of your grandfather. Here are the chiefs; here are the people of your ancestors; here are your guns; here are your lands. But we two shall share the rule over the land. Liholiho consented and became ruling chief over the government. (Kamakau 1992:220)

Following the death of a prominent chief, it was customary to remove all of the regular *kapu* that maintained social order and the separation of men and women and elite and commoner. Thus, following Kamehameha’s death a period of *‘ai noa* (free eating) was observed along with the relaxation of other traditional *kapu*. It was for the new ruler and *kahuna* to re-establish *kapu* and restore social order, but at this point in history traditional customs changed:

> The death of Kamehameha was the first step in the ending of the tabus; the second was the modifying of the mourning ceremonies; the third, the ending of the tabu of the chief; the fourth, the ending of carrying the tabu chiefs in the arms and feeding them; the fifth, the ruling chief’s decision

> to introduce free eating (*ʻainoa*) after the death of Kamehameha; the sixth, the cooperation of his aunts, Ka-ahu-manu and Ka-heihei-malie; the seventh, the joint action of the chiefs in eating together at the suggestion of the ruling chief, so that free eating became an established fact and the credit of establishing the custom went to the ruling chief. This custom was not so much of an innovation as might be supposed. In old days the period of mourning at the death of a ruling chief who had been greatly beloved was a time of license. The women were allowed to enter the heiau, to eat bananas, coconuts, and pork, and to climb over the sacred places. You will find record of this in the history of Ka-ula-hea-nui-o-ka-moku, in that of Ku-aliʻi, and in most of the histories of ancient rulers. Free eating followed the death of the ruling chief; after the period of mourning was over the new ruler placed the land under a new tabu following old lines. (Kamakau 1992:222)

Immediately upon the death of Kamehameha I, Liholiho was sent away to Kawaihae to keep him safe from the impurities of Kamakahonu brought about by the death of Kamehameha. After purification ceremonies Liholiho returned to Kamakahonu:

> Then Liholiho on this first night of his arrival ate some of the tabu dog meat free only to the chiefesses; he entered the *lauhala* house free only to them; whatever he desired he reached out for; everything was supplied, even those things generally to be found only in a tabu house. The people saw the men drinking rum with the women *kahu* and smoking tobacco, and thought it was to mark the ending of the tabu of a chief. The chiefs saw with satisfaction the ending of the chief's tabu and the freeing of the eating tabu. The *kahu* said to the chief, "Make eating free over the whole kingdom from Hawaii to Oahu and let it be extended to Kauai!" and Liholiho consented. Then pork to be eaten free was taken to the country districts and given to commoners, both men and women, and free eating was introduced all over the group. Messengers were sent to Maui, Molokai, Oahu and all the way to Kauai, Ka-umu-aliʻi consented to the free eating and it was accepted on Kauai. (Kamakau 1992:225)

When Liholiho, Kamehameha II, ate the *kapu* dog meat, entered the *lauhala* house and did whatever he desired it was still during a time when he had not reinstituted the eating *kapu* but others appear to have thought otherwise. Kekuaokalani, caretaker of the war god Kūʻkāʻilimoku, was dismayed by his cousin's (Liholiho) actions and revolted against him, but was defeated.

With an indefinite period of free-eating and the lack of the reinstatement of other *kapu* extending from Hawaiʻi to Kauaʻi, and the arrival of the Christian missionaries shortly thereafter, the traditional religion had been officially replaced by Christianity within a year following the death of Kamehameha I. By December of 1819 Kamehameha II sent edicts throughout the kingdom renouncing the ancient state religion, ordering the destruction of the *heiau* images, and ordering that the *heiau* structures be destroyed or abandoned and left to deteriorate. He did, however, allow the personal family religion, the ʻ*aumakua* worship, to continue (Oliver 1961; Kamakau 1992). With the end of the *kapu* system changes in the social and economic patterns began to affect the lives of the common people. Liholiho moved his court to Oʻahu, lessening the burden of resource procurement for the chiefly class on the residents of Hawaiʻi Island. Some of the work of the commoners shifted from subsistence agriculture to the production of foods and goods that they could trade with early Western visitors. Introduced foods often grown for trade included yams, coffee, melons, Irish potatoes, Indian corn, beans, figs, oranges, guavas, and grapes (Wilkes 1845).

In October of 1819, seventeen Protestant missionaries set sail from Boston to Hawaiʻi. They arrived in Kailua-Kona on March 30, 1820 to a society with a religious void to fill. Many of the *aliʻi,* who were already exposed to western material culture, welcomed the opportunity to become educated in a western style and adopt their dress and religion. Soon they were rewarding their teachers with land and positions in the Hawaiian government. In 1823, the Reverend William Ellis, one of the first Protestant missionaries to arrive in Hawaiʻi, passed along the South Hilo coast during his tour of Hawaiʻi Island. Having been warned against walking due to the ruggedness of the terrain, he sailed from Hilo to Laupāhoehoe in a canoe, and described the Hilo coastline he saw from the canoe as follows:

> The country, by which we sailed, was fertile, beautiful, and apparently populous. The numerous plantations on the eminences and sides of the deep ravines or valleys, by which it was intersected, by streams meandering through them into the sea, presented altogether a most agreeable prospect. (Ellis 2004:344)

With the arrival of foreigners in the islands, Hawaiʻi's culture and economy underwent drastic changes. Demographic trends during the early part of the nineteenth century indicate population reduction in some areas, due to war and disease, yet increase in others, with relatively little change in material culture. At first there was a continued trend toward craft and status specialization, intensification of agriculture, *aliʻi* controlled aquaculture, upland

residential sites, and the enhancement of traditional oral history (Kirch 1985; Kent 1983). Later, as the Historic Period progressed, Kamehameha I died, the *kapu* system was abolished, Christianity established a firm foothold in the islands, and introduced diseases and global economic forces had a devastating impact on traditional life-ways.

Overland travel across the central and northern Hilo District remained difficult throughout the first part of the nineteenth century due to its rugged coastline and many deep gulches. Transportation difficulties may have even temporarily delayed large-scale commercial exploitation of the *kula* lands in the vicinity of the project area (Desilets et al. 2004). Initial commercial exploitation of these lands was limited to small scale agriculture in areas with coastal access for shipping and receiving goods. The Reverend Titus Coan, who settled at the Hilo Mission Station in 1835, wrote that:

> For many years after our arrival there were no roads, no bridges, and no horses in Hilo, and all my tours were made on foot. . . The path was a simple trail, winding in a serpentine line, going down and up precipices, some of which could only be descended by grasping the shrubs and grasses, and with no little weariness and difficulty and some danger. (Coan 1882:31-32)

Pīhā Ahupuaʻa During the Māhele ʻĀina of 1848

By the mid-nineteenth century, the ever-growing population of Westerners in Hawaiʻi forced socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership, and in 1848 the *Māhele ʻĀina* became the vehicle for determining ownership of native lands. This change in land tenure was promoted primarily by the missionaries and Western businessmen in the island kingdom. Generally these individuals were hesitant to enter business deals on leasehold land. The *Māhele* (division) defined the land interests of Kamehameha III (the King), the high-ranking chiefs, and the *konohiki*. During the *Māhele*, all lands in the Kingdom of Hawaiʻi were placed in one of three categories: (1) Crown Lands (for the occupant of the throne); (2) Government Lands; and (3) *Konohiki* Lands (Chinen 1958:vii, 1961:13). 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. Pīhā Ahupuaʻa is not listed in the *Buke Māhele*, but appears to have become Crown Land as a result of the *Māhele*, as J. Dominis, agent of the Crown Lands, would later apply for the settlement of the land division's boundaries.

All lands awarded during the *Māhele* were subject to the rights of the native tenants therein; those individuals who lived on the land and worked it for their subsistence and the welfare of the chiefs (Sinoto and Kelly 1970). Native tenants could claim, and acquire title to, *kuleana* parcels that they actively lived on or farmed at the time of the *Māhele*. The Kuleana Act of December 21, 1849 provided the framework by which native tenants could apply for and receive fee-simple interest in their *kuleana* lands from the Land Commission. The Board of Commissioners over saw the program and administered the lands as Land Commission Awards (LCAw.). No claims were made for *kuleana* lands within Pīhā Ahupuaʻa during the *Māhele ʻĀina* of 1848.

The 1875 Boundary Commission Hearings for Pīhā Ahupuaʻa

In 1862, the Commission of Boundaries (Boundary Commission) was established in the Kingdom of Hawaiʻi to legally set the boundaries of the lands that were awarded during the *Māhele*. Subsequently, in 1874, the Commissioners of Boundaries were authorized to certify the boundaries for lands brought before them. The primary informants for the boundary descriptions were old native residents of the *ahupuaʻa*, many of whom had also been claimants for *kuleana* during the *Māhele*. The boundary testimonies were collected primarily between 1873 and 1885 and were usually given in Hawaiian, but transcribed in English as they occurred.

On February 8, 1875, on the application of J. Dominis, agent of the Crown Lands and administrator for the estate of M. Kekuanaoa, the Boundary Commission met at the court house in Hilo to settle the boundaries of Pīhā Ahupuaʻa (Boundary Commission Vol. B pgs. 325-330; Appendix A). Several older residents of the area provided testimony at the hearing including Ku, Hemahema, Kalaualoha, Kupahu, and D.H. Hitchcock, the Government Surveyor who surveyed the Pīhā boundaries (Figure 9). D.H. Hitchcock testified that he surveyed the boundaries of Pīhā Ahupuaʻa in October of 1874 with Ku as his *kamaʻāina* (person familiar with the land). Hitchcock also took Kalaualoha with him along a part of the Nanue boundary, and talked with Hemahema prior to the survey, but found that the recollections of Hemahema and Ku agreed regarding the boundaries, so only took Ku with him. From the testimony we learn that boundary between Kahuku and Pīhā *ahupuaʻa* (forming the eastern boundary of the current study area) was once marked by an "old trail" used by bird catchers to access the forest, and that the owner of Nanue Ahupuaʻa, Alapai, disputed the *mauka*-eastern boundary of Pīhā Ahupuaʻa as described by Ku and depicted by D.H. Hitchcock in Figure

9. The following summary of the 1875 Boundary Commission testimony for Pīhā concentrates on the Kahuku boundary of the *ahupua'a*, which is adjacent to the eastern boundary of the current study area.

Ku, described in the boundary commission records as "an old man" born during the time of Kamehameha I, stated that he had learned the boundaries of Pīhā from his grandfather, Hue, and his father, Mahiai, both of whom were bird catchers, and that his older brother, Koia, was once *konohiki* of the *ahupua'a*. Ku accompanied Hitchcock during the boundary survey and pointed out the boundaries to him, showing him a stone *ahu* at the *mauka* corner of Pīhā (where the *ahupua'a* is cut off by Humu'ula) that his brother had built during the reign of Kamehameha II. With regards to the trail along the Pīhā/Kahuku boundary, Ku testified that:

> …My grandfather made the road on Honohina to Moohalohalo, and I made the road to Hopuwai, Kahuku bounds Piha on Hilo side at shore, there is a small gulch there called Alanaio on boundary, thence runs up gulch a short distance above road to head of it, thence up old trail to Kaawau, thence bounded by Nanue up old trail to Nenelu old kauhale [group of houses], thence up trail to Waipahehoe a kahawai [stream/gulch] and kauhale, the old trail does not reach to the gulch, but turns to the left…(page 325)

When cross-examined Ku clarified that:

> …Piha and Nanue join at Kawau cutting off Kahuku. I have stated that the mauka boundary of Nanue is at Kaahina not at Nahuina of Waipahoehoe. There is an old kauhale kalaiwaa [group of canoe carvers' houses] at this place, this is the boundary I have always known. Nanue had no old road. The birds in olden times belonged to Piha and not to Nanue. (page 326)

Hemahema, described as a "quite old man" in the testimony, stated that he had learned the boundaries of Pīhā from his father, Waiwai, who was the *konohiki* of "these lands to Pohakupua [six *ahupua* northwest of Pīhā]," and that he had gone bird catching with his grandfather on the lands. He testified that bird catchers from Pīhā and Malua *ahupua'a* (adjacent to the northwestern *mauka* boundary of Pīhā) used to catch birds in common. With regards to the trail along the Hilo side boundary of Pīhā, Hemahema stated that:

> …Kahuku bounds Piha at the shore at Hilo side, a small gulch, boundary runs up trail to Nahuina where Piha and Nanue join and Kahuku ends, thence boundary runs up trail to Kaahina near Waipahoehoe, this is as far as I ever knew about Nanue…(page 327)

When cross-examined Hemahema clarified that:

> …Nahuina and kumukawau are the same…From Kawau boundary between Nanue and Pīhā runs up old trail to Kaahina this is a far as I ever knew Nanue to run. It is where Hakai made a canoe. I heard from Kihili, Napihe and Kulaipahu that this was the mauka end of Nanue. Hapai ma said the same thing. (page 327)

Kalaualoha, described as an "old man" in the testimony, stated that he had learned the boundaries of Pīhā from "Kaulanahiai, Koia, and Waikane, now dead." Kalaualoha, who was the father-in-law of Alapai, the owner of Nanue Ahupua'a at that time, disagreed with the boundary testimony of Ku and Hemahema, and went with Hitchcock to point out what he believed to be the correct boundary between Nanue and Pīhā to be (see Figure 9). Kalaualoha testified that:

> …Piha and Nanue join each other at Kawau an old trail into the woods, thence boundary runs up this trail to Waipahoehoe, thence boundary runs up this stream to Mahuia kauhale on Piha, thence boundary runs up to Koapololei, thence up old trail to upper edge of woods to Kalapaohelo, to a place called Kaluaalu…In olden times the birdcatchers used to go up the Honohina and Piha roads, they could not go up the Nanue as the road was so bad. The canoe road of Nanue ran to mauka of Kaahiwa, there it ended. But the roads on Honohina and Piha ran way mauka…(page 329)

Kupahu, the uncle of Alapai (the owner of Nanue Ahupua'a), who was described as a "quite old man" in the testimony, stated that he knew a little about the boundaries of Pīhā because he "went up the road to Kalapaohelo after beef" (page 329), and that Koia, his guide, pointed out the boundaries to him. Kupahu's testimony only addressed the *mauka*-eastern boundary of Pīhā where it joins Nanue. He stated that, "…Kahuku ends at Nahuina, and there Nanue and Piha join, Kumukawai is one name of this place…" (page 329).

At the conclusion of the testimony it was decided by R. A. Lyman, the Commissioner of Boundaries, that the boundaries of Pīhā as given by Ku be accepted, that the notes of the survey be filed (see Figure 9), and Certificate of Boundaries be issued accordingly (see Appendix A).

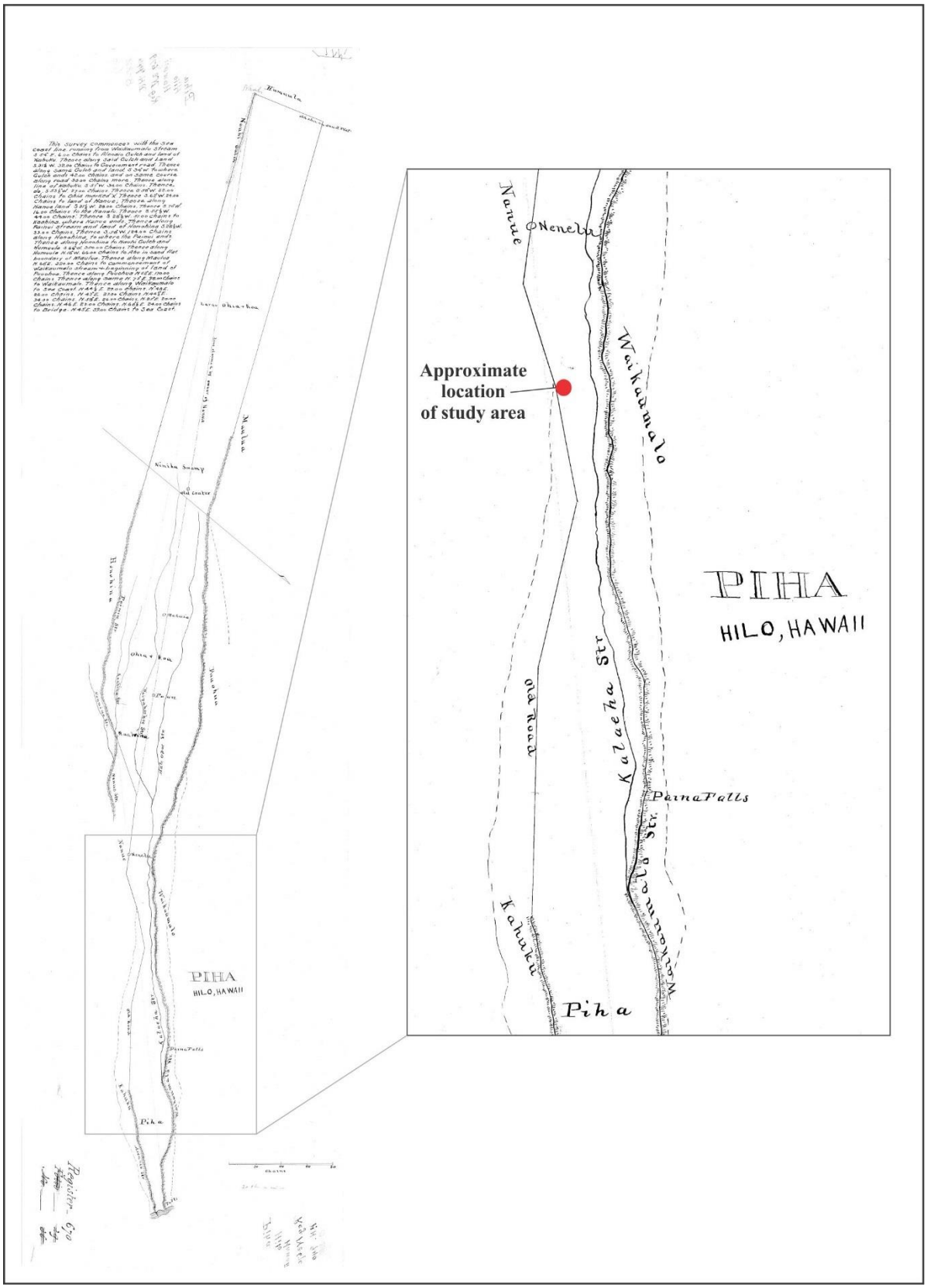

Figure 9. Hawai‘i Registered Map No. 670 (Hitchcock n.d.) showing Pīhā Ahupua‘a in ca. 1874, with the approximate location of the current study area indicated.

Pīhā Ahupua‘a During the Late Nineteenth and Twentieth Centuries

Following the signing of the 1875 Treaty of Reciprocity, a free-trade agreement between the United States and the Kingdom of Hawai‘i, which guaranteed a duty-free market for Hawaiian sugar in exchange for special economic privileges for the United States, a number of new sugar plantations incorporated in the Islands. In 1878, Claus Spreckels, with W.G. Irwin & Company as its agent, established the Hakalau Plantation Company on 9,000 acres of land located along the North Hilo coast, 16 miles from Hilo (Dorrance and Morgan 2000). The fields of the Hakalau Plantation Company ranged from 250 feet above sea level along the shoreline bluffs to 2,000 feet above sea level at their western (*mauka*) limits. The cane was flumed from the various fields to its mill site, where it was then processed. The Hakalau Mill, built in 1890 on the shore at the foot of a 200-foot bluff with Hakalau Gulch, produced 5,000 tons of sugar annually during its early years (Dorrance and Morgan 2000). Initially, and continuing until 1913 when a railroad connecting the plantation to the port at Hilo was built, the plantation shipped its product from the Hakalau Landing to Honolulu via inter-island vessels that anchored offshore. The lands of Pīhā Ahupua‘a (containing 4,250 acres) were leased to the Hakalau Plantation Co. on February 11, 1892 (see C.S.F. 449), and the *makai* lands were cleared and used for the cultivation of sugarcane.

The fields of the Hakalau Plantation Company never reached as far *mauka* as the current study area, however, which remained forest land throughout the late nineteenth century. The importance of the forest lands and their valuable watersheds for agricultural purposes and the well-being of the people in general was recognized quite early on by the Territorial Government of Hawai‘i, and by the burgeoning sugar industry in the islands. Consequently, a proclamation recommending that 110,000 acres of land in the Districts of North and South Hilo be reserved from development was signed by Lt. Governor A.L.C. Atkinson on July 24, 1905, and the Hilo Forest Reserve was created (Figure 10). The reserve, which abuts the southern and eastern boundaries of the current study area (Figure 11), was described by the Division of Forestry in 1906 as follows:

> The Hilo Forest Reserve embraces the area of heavy forest on the lower slopes of Mauna Kea, lying between the 1855 and 1881 Lava Flows back of Hilo Town and the Hamakua District line, and extending from a line varying in elevation from 1,750 to over 2,000 feet, drawn back of and above the sugar plantations to another line along the upper edge of the woods, at an elevation of approximately 6,000 feet. The water from this reserve is of great importance to all the plantations along the coast, being at present used for the most part for fluming cane to the mill. From the character of the country many of the streams could be utilized for the production of power. This will be an important consideration when the Hilo District comes to be developed, as it is sometime bound to be. The object of the Hilo Forest Reserve is to protect the sources of this important water supply. (Division of Forestry 1906:25)

Following the passage of the Land Act of 1895, which broadened the definition of public land, placed Hawai‘i’s Crown Lands (such as Pīhā) into the public domain, and made land available to family farmers through homesteading programs, and the clarifications to Hawai‘i’s land policies set forth in the Organic Act, which went into effect on June 14, 1900, many of the lease lands held by the Hakalau Plantation Company were divided into homestead lots (Horwitz et al. 1969). By the early twentieth century, as the plantation’s lease on its Pīhā lands was set to expire, the Territorial Government began the process of subdividing the *makai* section of the *ahupua‘a*, below the forest reserve line, into homesteads. The survey of the Pīhā homestead tract began in 1912 and was completed by 1913 (Figure 12), when the Survey Department of the Territory of Hawai‘i reported that “the land of Piha was subdivided into 28 lots, comprising 393.81 acres, 5 miles of roads containing 20.44 acres, and flumes and ditches and remnant covering 5.95 acres” (Department of Interior 1913:65). The Pīhā-Kahuku Homestead Road created as part of the Pīhā homestead subdivision appears to follow the route of the older road described along the boundary between those two *ahupua‘a* during the Boundary Commission hearings of 1875.

Following the subdivision of the Pīhā homesteads, the Hakalau Plantation, now owned by C. Brewer & Co., brought up the question of the boundary between the homesteads and the adjoining lands owned or controlled by the company, which they felt had been encroached upon. Additional surveys of the Pīhā homestead tract, involving extensive triangulation work, were then made during the early part of 1914, until the matter was decided to the satisfaction of all parties involved (Department of the Interior 1914:521).

While many of the *makai* lots of the newly created Pīhā Homesteads (Lots 9-28) were sold at auction in June of 1914 to various homesteaders, the more *mauka* lots (Lots 1-8), perhaps because they were less accessible or less developed, and therefore less desirable, were not. Instead, a general 10-year lease (Lease No. 878; Figure 13) for Lots 1-8 of the Pīhā Homesteads (and Lots 13-16 of the adjoining Kahuku Homesteads) was purchased at public auction by the Hakalau Plantation Company on July 14, 1915 (Department of the Interior 1916:526).

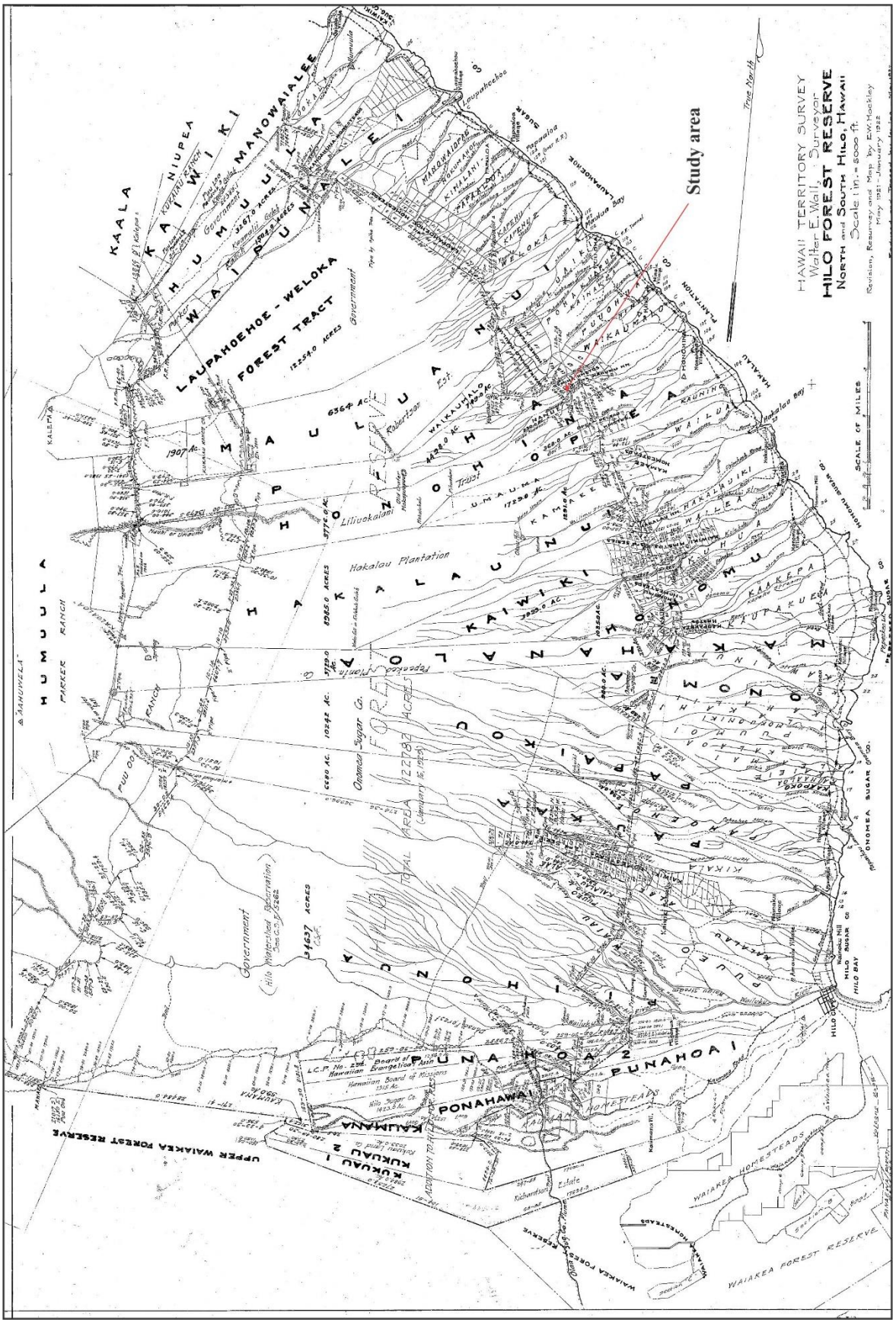

Figure 10. Map of the Hilo Forest Reserve (HTS Plat 799) with the location of the current study area indicated (Hockley 1922).

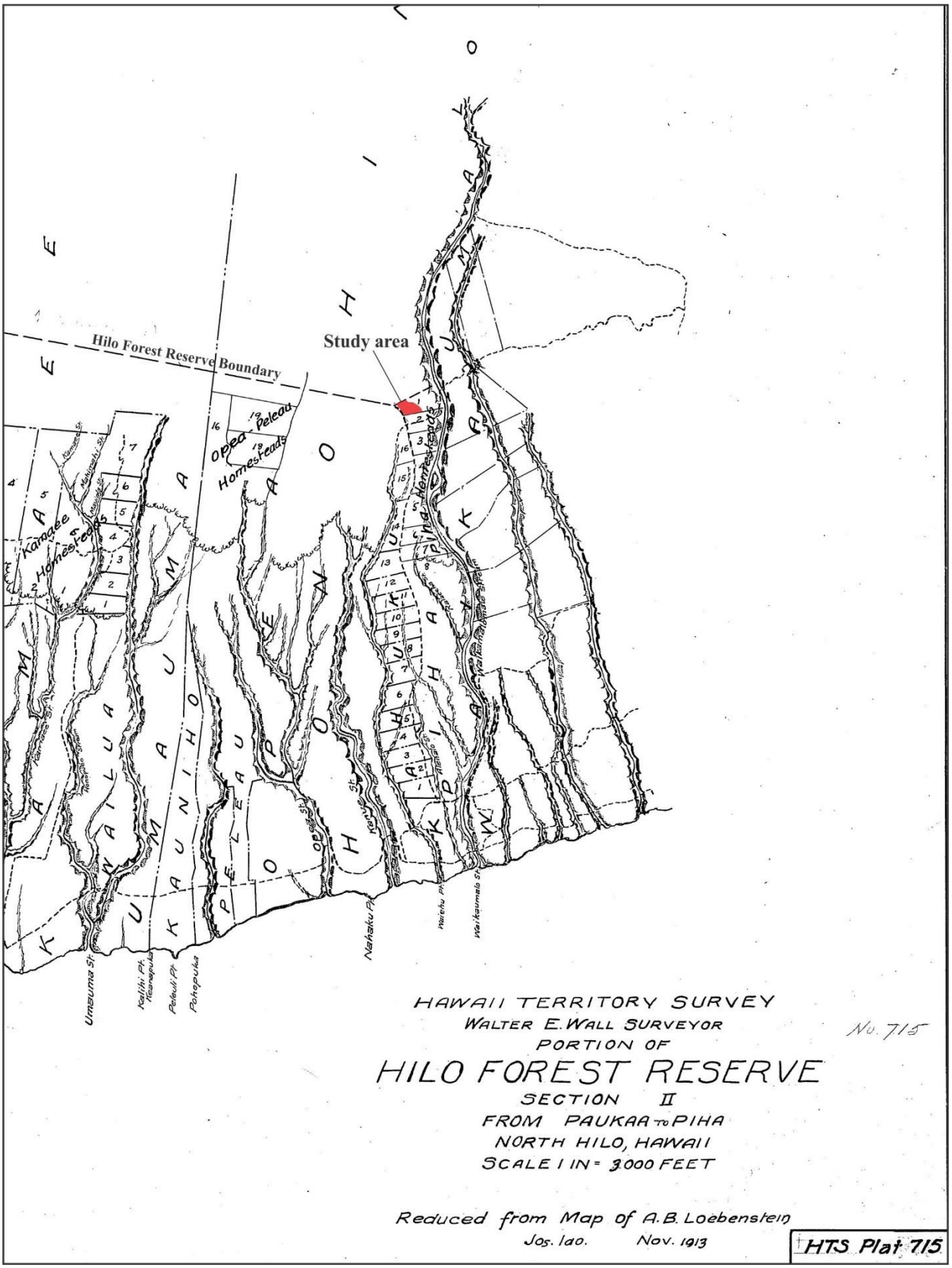

Figure 11. Portion of a 1913 map of Section II of the Hilo Forest Reserve (HTS Plat 715) with the location of the current study area indicated (Iao 1913).

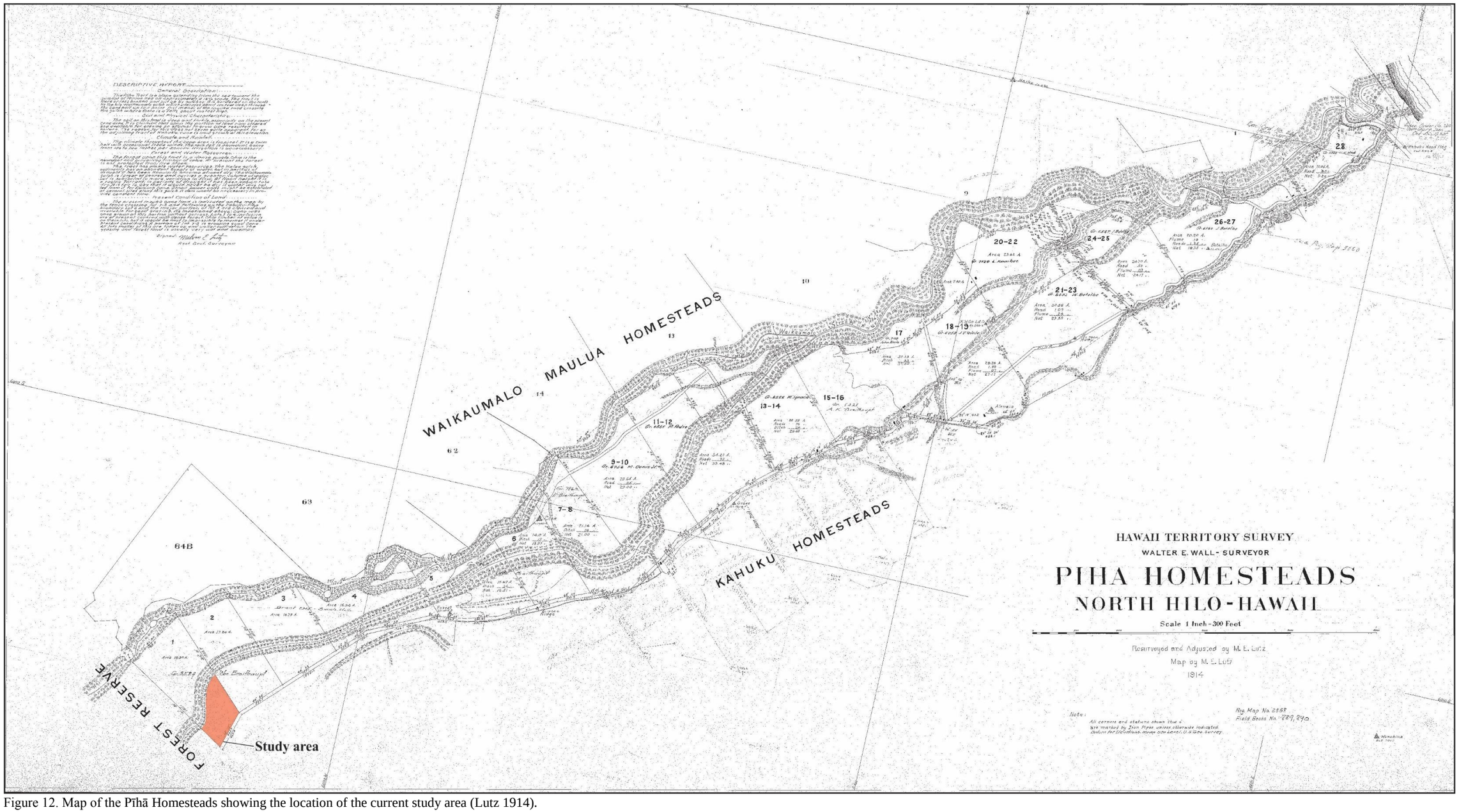

Figure 12. Map of the Pīhā Homesteads showing the location of the current study area (Lutz 1914).

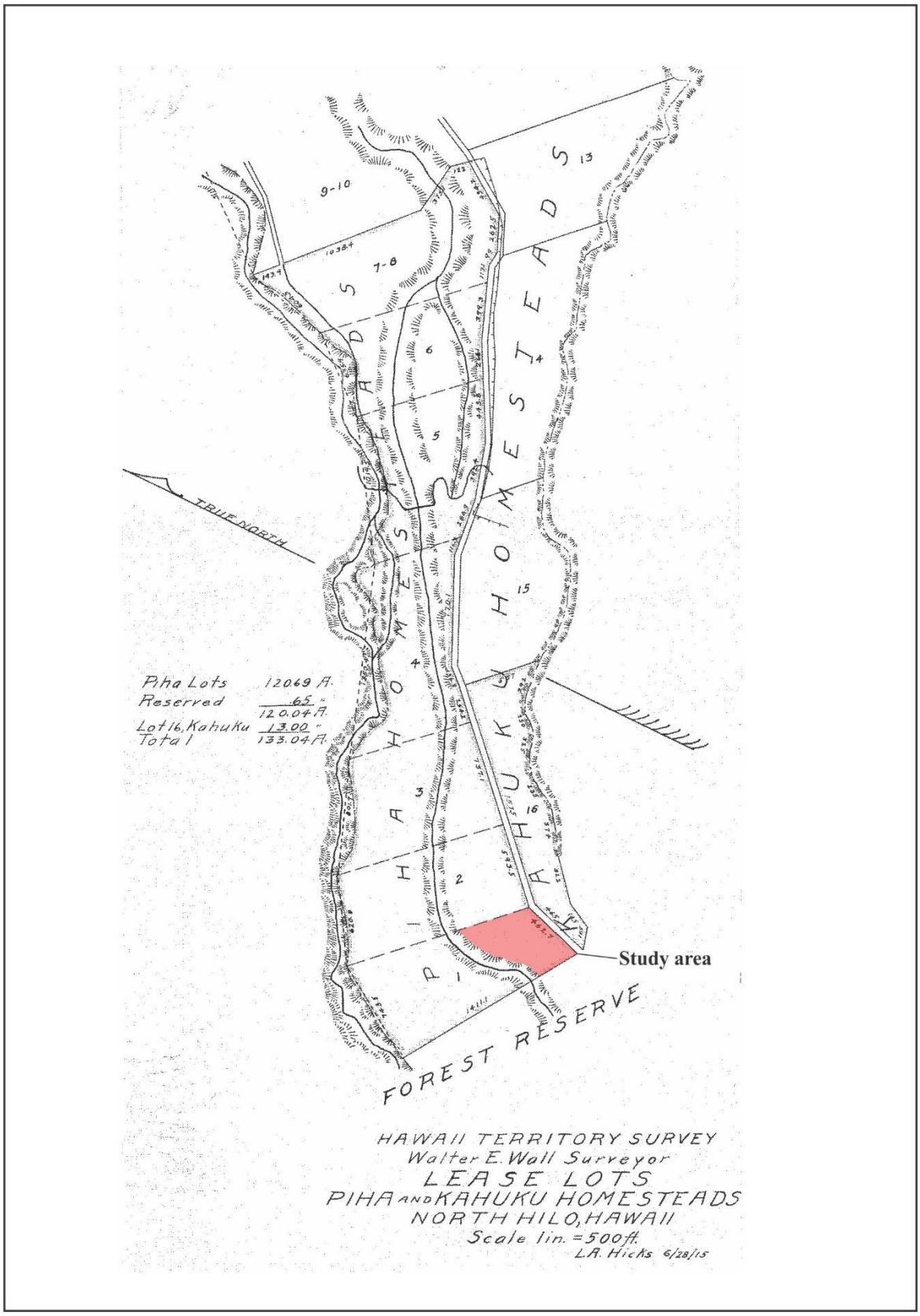

Figure 13. Map showing the Pīhā-Kahuku Homestead lands leased to the Hakalau Plantation Company on July 14, 1915 (Hicks 1915).

This Hakalau Plantation Company's lease (see Figure 13), for unknown reasons, was never fully executed and Lots 1-8 were eventually sold to various homesteaders. Lot 1, which includes the current study area, was purchased (along with Lot 2) by William Breithaupt on August 23, 1916 as Grant No. 8584. Several other Breithaupt's purchased lands within the Pīhā Homesteads as well, including A.K. Breithaupt (Lots 15-16; Grant No. 8328), Ella Breithaupt (Lots 7-8; Grant No. 7863), and Otto Breithaupt (Lots 5-6; Grant No. 7862). It appears that William Breithaupt once ran cattle on Lot 1, and that he was responsible for helping to construct a portion of the fence along the *makai* boundary of the Hilo Forest Reserve. In May of 1922, the Assistant Superintendent of Forestry reported that "…A stretch of about 1000 feet along the mauka boundary of Piha Lot 1, from Kalaiha Gulch to Waikaumalo Gulch, remains to be built. William Breithaupt, owner of the lot, was advised to finish the fence at once, and he expects to complete it during July" (Kraebel 1922:179). However, by September of 1922 the Superintendent of Forestry, reported that:

> It has been necessary to bring pressure to bear on Wm. Breithaupt, the owner of Lot 1 of the Piha Homesteads. We supplied wire to him last December and he built an excellent fence on the forest reserve boundary for a distance of .58 mile, but since April he has done little or no work. He has 900 feet more of fence to build and has been notified that unless this is completed by the end of August and all his cattle gathered in, we will proceed against him for cattle trespass. (Judd 1922:207)

This pressure appears to have been effective, as the Superintendent of Forestry reported in November of 1922 that Mr. Breithaupt had finally finished the 0.77-mile length fence along the forest reserve boundary of Pīhā Homesteads Lot 1 to his satisfaction.

The Hakalau Plantation Company continued to operate on lands *makai* of the current study area throughout the first half of the twentieth century, but by the early 1940s, nearly 40 percent of the of the sugarcane on the plantation was grown by independent growers, some of whom had purchased Pīhā Homestead lots. In 1943, the neighboring Wailea Milling Company (also started by Claus Spreckels) was merged into the Hakalau Plantation Company, expanding the operation, and by 1944 the plantation had reached its maximum production, producing 26,000 tons of sugar that year (Dorrance and Morgan 2000). On April 1, 1946, the Hakalau Mill and the railroad connecting the plantation to Hilo were severely damaged by a *tsunami* triggered by an earthquake in the Aleutian Islands. The mill was rebuilt, but the railroad shut down and the product was trucked to the docks at Hilo. In 1962, C. Brewer & Co. merged the Hakalau Plantation Company into the Pepeʻekeʻō Sugar Company, its southern neighbor, and the Hakalau Mill was shut down (Dorrance and Morgan 2000). In 1973, C. Brewer & Co. then merged the Pepeʻekeʻō Sugar Company into the Mauna Kea Sugar Company, combining under one corporate name what had once been five separate sugar plantations situated along the Hilo coast. This plantation, later named Mauna Kea Agribusiness Company, harvested its last crop in 1994 and then closed its doors for good.

PREVIOUS ARCHAEOLOGICAL STUDIES

A review of reports and correspondence on file at the SHPD office in Hilo indicates that no prior archaeological studies have been conducted in the vicinity of the current study area, but that SHPD has previously written "no effect" letters for at least eight parcels situated *makai* of the current study area within the Pīhā and Kahuku Homesteads. These "no effect" letters include a November 1, 1996 letter for TMK: (3) 3-2-004:025 (*Log No. 18344 Doc No. 9610ms04*), an April 24, 1998 letter for TMK: (3) 3-2-004:027 (*Log No. 21307 Doc No. 9804PM15*), a June 1, 1998 letter for TMK: (3) 3-2-004:039 (*Log No. 21050 Doc No. 9802PM03*), an August 18, 1998 letter for TMK: (3) 3-2-004:041 (*Log No. 22025 Doc No. 9807ms17*), a June 19, 2001 letter for TMK: (3) 3-2-004:043 and 044 (*Log No. 27706 Doc No. 0105ms08*), a December 31, 2010 letter for TMK: (3) 3-2-004:045 (*Log No. 28884 Doc No. 0112PM10*), and an April 17, 2013 letter for TMK: (3) 3-2-004:046 (*Log No. 2013.2304 Doc No. 1304SN05*) (see Figure 2). The reason generally given for SHPD's belief that the proposed development of these parcels would have "no effect" on significant historic sites, was that a review of aerial photographs revealed that intensive cultivation of sugarcane had already altered the land. No archaeological survey of the parcels listed above was undertaken by SHPD.

Very few archaeological studies have been conducted anywhere within the district of the North Hilo at elevations similar to the current study area. The first archaeological work conducted in East Hawaiʻi was that of the early twentieth century *heiau* researchers Thrum and Stokes (Thrum 1908, Stokes and Dye 1991). Neither investigator was able to identify *heiau* within Pīhā Ahupuaʻa or, for that matter, within the larger region between the town of Hilo and Laupāhoehoe Ahupuaʻa. In the early 1930s, A.E. Hudson, working under the aegis of the Bishop Museum, also conducted archaeological investigations in East Hawaiʻi, surveying primarily along the coast of the district (Hudson 1932). He found little in the region *makai* of the study area, although he did note the presence of a .25 mile square area of taro terraces in the upper part of Hakalau Gulch. According to Hudson (1932:218), there was formerly a kōnane board in the bottom of Hakalau Gulch, and the gulch was at one time a robber's stronghold.

More recently, Walker and Rosendahl (1994a, 1994b) conducted an archaeological study of some 595 acres of Hakalau Nui Ahupuaʻa, South Hilo District, situated between Hawaii Belt Road and the 1,500-foot elevation contour. Low-level aerial (helicopter) survey was conducted over some of the uncultivated, forested portions of that study area, and other uncultivated areas were inspected using "variable-coverage (partial to 100%) variable-intensity ground survey" (Walker and Rosendahl 1994b:2). Walker and Rosendahl reported that the study area had been extensively modified during the Historic Period for sugarcane cultivation, and that no archaeological sites or "significant cultural materials of any kind" were found (Walker and Rosendahl 1994b:2).

Tomonari-Tuggle (1996) prepared a cultural resource overview for the Hakalau National Wildlife Refuge that included lands *mauka* of the current study area (but not Pīhā Ahupuaʻa). Very little archaeological survey was undertaken as part of the study, but Tomonari-Tuggle (1996:67-72) does provide a predictive model for site distribution within the upland forests of Hilo. She notes that the forest areas were used primarily for the collection of special resources, and that:

> …Traditionally these resources would have been birds (for featherwork) and hardwoods (for tools and canoes). In historical times, birds and hardwoods would have continued as resources, with the addition of cattle for meat and hides. The upland forests may also have been transited by individuals going from the coast to the upper slopes or summit of Mauna Kea...
>
> These transitory activities would likely have left neither a substantial nor easily recognized archaeological record. Further, the density and rapid regrowth of vegetation in the rainforest would also make any remains virtually impossible to identify once abandoned. (Tomonari-Tuggle 1996:67)

Specific site types discussed by Tomonari-Tuggle (1996) that might be encountered within the upland forests of the Hilo District include temporary shelters used by bird catchers, canoe builders, bullock hunters, scientists, travelers, surveyors, shrines or other religious structures, ponds and waterholes, roads and trails, bullock pits, surveyor's marks and ranch structures. She describes the lowest forest zone, above the current study area as the "Wet *ʻŌhiʻa* Zone," an area that was largely used as a source of specialized forest resources such as hardwoods for crafts or construction, and forest birds for feathers.

3. STUDY AREA EXPECTATIONS

Based on the culture-historical context and the findings of previous archaeological studies presented above a set of archaeological expectations for the current study area is now presented. As discussed by Tomonari-Tuggle (1996) the upland forest areas of Hilo were used traditionally for catching birds and gathering forest resources, both of which are transitory activities that are unlikely to have left a substantial, or easily recognizable, archaeological record. As indicated in the 1875 Boundary Commission testimony for Pīhā Ahupuaʻa, however, access to the forest lands in the vicinity of the study area was facilitated by a bird catcher's trail that followed the boundary between Kahuku and Pīhā *ahupuaʻa*, passing near the eastern boundary of the study parcel. This trail once intersected with a canoe makers trail from Nanue Ahupuaʻa near the *mauka* boundary of Kahuku Ahupuaʻa, in the general vicinity of the southern corner of the current study area. While the actual Precontact/early Historic trail routes, if they ever entered the current study area at all, are likely to be difficult to identify archaeologically given the thickly vegetated terrain and the overlay of historic land use, rock constructions once built adjacent to the trails, such as temporary shelters or cairns, may be encountered. The route of the trail along the Pīhā/Kahuku boundary was likely similar to the route of the existing (bulldozed) alignment of the Pīhā-Kahuku Homestead Road, which remains a public right-of-way, but is not part of the current survey area. Historic use of Lot 1 of the Pīhā Homesteads, which was purchased by William Breithaupt in 1916, may be marked by archaeological features related to ranching, habitation, or other early twentieth century homesteading activities.

4. CURRENT FIELD INVESTIGATION

Fieldwork consisted of a pedestrian survey of a roughly 5-acre portion of Lot 1 of the Pīhā Homesteads (TMK: (3) 3-2-004:038 por.), Pīhā Ahupua‘a, North Hilo District, Island of Hawai‘i (see Figures 1 and 2). The archaeological survey was conducted on February 1, 2018 by Robert B. Rechtman, Ph.D., Matthew R. Clark, M.A., and Ashton Dircks Ah Sam, B.A. During the survey, fieldworkers walked northwest/southeast oriented pedestrian transects spaced at 25-meter intervals across the entire study area, between the Pīhā-Kahuku Homesteads Road and Kalaeha Stream (see Figure 3). While some portions of the survey area were densely overgrown with *‘uluhe*, and the up and down terrain was bisected by numerous, eroded drainage channels making walking difficult and slow going, the ground visibility was generally adequate for identifying any extant archaeological remains that may have been present. In the vicinity of the site for the proposed single-family dwelling, where the hand clearing of vegetation had occurred prior to the survey, ground visibility was excellent (see Figure 7). No archaeological remains of any kind were identified on the surface of the study area as a result of the pedestrian survey.

5. CONCLUSION AND RECOMMENDATIONS

As a result of the pedestrian survey no archaeological resources were identified within the current study area. Given these findings, it is our conclusion that the proposed construction of a single-dwelling on a portion of TMK: (3) 3-2-004:038 will not affect any historic properties. With respect to the historic preservation review process of both the Department of Land and Natural Resources–State Historic Preservation Division (DLNR–SHPD) and the County of Hawai‘i Planning Department, our recommendation is that no further work needs to be conducted. In the unlikely event that significant archaeological resources are discovered during the construction of the proposed dwelling, work shall cease in the area of the discovery and DLNR-SHPD contacted pursuant to HAR 13§13-280-3.

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APPENDIX A – Boundary Commission Documents, Pīhā Ahupua‘a

The Ahupuaa of Piha, District of Hilo, 325.
x Island of Hawaii 3rd J.C.

On this the 8th day of February A.D. 1875, the commission of Boundaries for the Island of Hawaii 3rd J.C., met at the Court house, Hilo, Hawaii, on the application of J. O. Dominis Admtr Est M. Kekuanaoa, for the settlement of the boundaries of Piha, situated in District of Hilo, Island of Hawaii. Due notice of hearing personally served on all owners or agents of adjoining lands as far as known.

Present – E. G. Hitchcock on part of applicant, Agent of Crown Lands J. O. Dominis and R. Keelikolani, D. Kamai for Hawaiian Government, Alapai for self. Maps and notes of survey filed.

For Petition see Folio 242. Book A

– Testimony –

Kuu K. Sworn. (An old man)

I was born at Honohina, Hilo, at time of Okolehao during reign of Kamehameha I. Was old enough to cook at time of Okuu. My kupunakane Hue and my father Mahiai, bird catchers told me boundaries. My Grandfather made the road on Honohina to Moohalohalo, and I made the road to Hopuwai, Kahuku bounds Piha on Hilo side at shore, there is a small gulch there called Alanaio on boundary, thence runs up gulch to a short distance above road to head of it, thence up old trail to Kaawau, thence bounded by Manue, up old trail to Nenelu old kauhale, thence up trail to Waipahoehoe a kahawai and a kauhale, the old trail does not reach to the gulch but turns to the left, the old boundary between lands running to Ohiapiiha, till time Hapai made canoes, then boundary was carried up to Kaahina, where Piha ... and Manue end, and Honohina

326. join about this place, thence boundary between Honohina and Piha runs up the Painiu gulch, to the head of the gulch, thence up through the woods to Nauhi gulch, and to Kalapaohelo on Hamakua boundary. Humuula bounds it on the mauka side above the woods. There is a pile of stones at Kalapaohelo, that my older brother Koia put up when he was Konohiki of land. Waikaumalo bounds Piha at shore on Hamakua side, there is a gulch there, the water belongs to Waikaumalo, thence the boundary between these two lands runs up stream to place called Haleopai, thence up gulch bounded by Puuohua to Kumuohia, there gulch ends and Piha is bounded by Mauna Nui to Kalapaohelo a straight boundary. The bird catchers used to go back and forth in old times on Piha and Maulua. Koia pointed out boundaries to me. I went with D. H. Hitchcock, a short time since, and pointed out boundaries to him from shore to above woods. I told him where Mamani grew was Humuula. The Ahu was built in time of Kamehameha II. I saw it built. I never saw mamani there in olden times at this place, but now I see there are some young mamani trees there. Kalaualoha, Alapai, and Kaiahua were along with us. I made the road up through the woods at time of (Kuakini's) killing cattle by Kuakini.

CX'd by D. Kamai.

By Alapai, Piha and Nanue join at Kawali cutting off Kahaiku. I have stated that the mauka boundary of Nanue is at Kaahina not at Nahuina of Waipahoehoe. There is an old Kauhale Kalaiwaa at this place, this is the boundary I have always known. Nanue had no old road. The birds in olden times belonged to Piha and not to Nanue.

Hemahema K. Sworn. (Quite old man).

327.

in Hamakua, moved to Hilo to Puuohua when quite young and went over these lands with Waiwai my father. He was Konohiki of these lands to Pohakupuka. Went with my Kupunakane bird catching. Waikaumalo bounds Piha on Hamakua side at shore, boundary runs up gulch to Kaalaiki at Haleopae, where Puuohua bounds it, boundary runs up gulch to Niuika where Puuohua ends, and Maulua bounds it to the mountain. Bird catchers from these two lands used to catch in common. The mauka boundary is at Kalapaohelo above the woods at old ahu. There are several ahus there now. Humuula bounds it on mauka side to Nauhi gulch. Kahuku bounds Piha at shore at Hilo side, a small gulch, boundary runs up gulch to head, and up old trail to Nahuina where Piha and Nanue join and Kahuku ends, thence boundary runs up trail to Kaahina near Waipahoehoe, this is as far as I ever knew about Nanue, then bounded by Honohina, do not know as Honohina runs through woods, but know that Piha runs up to Nauhi gulch. I do not know what gulch it is makai now.

CX by D. Kamai, Niuika is at mauka end of Puuohua, Kumuohia is on Piha place. Nahuina and Kumukawau are the same.

" by Alapai, From Kawau boundary between Nanue and Piha runs up old trail to Kaahina, this is as far as I ever knew Nanue to run. It is where Hakai made a canoe. I heard from Kilikili, Napihe and Kukaipahu that this was the mauka end of Nanue. Hakai ma said the same thing.

D. H. Hitchcock K Sworn. I surveyed Piha last October. Ku was my kamaaina. Kalaualoha went along on part of Nanue. I had already talked with Hemahema, and as he agreed with Ku I did not take him, but surveyed the land as Ku pointed it out, commencing at shore on Hilo side went to ... that

328. Kahuku ended. I then went up to below Waipahoehoe where Kalanaloha said that boundary went on to gulch Waipahoehoe and up stream, Nanue ran through woods, but Ku and Hemahema said that the boundary ran up trail to Kaakiwa. The other two men said it (Nanue) ended at Kaahuia. I found that most of the gulches ended at Kuika, and gulches from mauka ended at swamp. When I got to Nauhi gulch at upper edge of woods both Kalanaloha and Ku said that it was the upper corner of Piha. Ku said Piha was bounded there by Honohina, and Kalanaloha that it was bounded by Nanue. They both went to a sandy place and pointed out an old pile of stones at Kalapaoheho and said that was boundary between Piha and Maulua, it is in the upper edge of woods with a few young mamani below it. I think it is about 25 chains makai of Humuula road. I surveyed the Waikaumalo side, giving the general courses and distances of gulches and marked trees. The map and notes of survey filed today, are the ones I made out from my field notes -

C.L.

Kalanaloha K. Sworn, (old man).

I live at Nanue, was born at Honohina, know boundaries of Piha, Kulamahiai, Kaia, and [illegible] now dead told me boundaries. Piha and Nanue joins each other at Kawau on old trail into woods, thence boundary runs up this trail to Waipahoehoe, thence boundary runs up this stream to Mahuia kauhale on Piha, thence boundary runs up to Koapololei, thence up old trail to upper edge of woods to Kalapaoheho, to a place called Kaluaalu about as far on the Piha side of Kalapaoheho as from here to Wailuku Gulch. Nanue reaches to Kaluaalu. Nauhi gulch is in the middle of Nanue. Nauhi Gulch only runs a short distance into woods

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In olden times the birdcatchers used to go up the Honohina and Piha roads, they could not go up Nanue as the road was so bad. The canoe road of Nanue ran to mauka of Kaahiwa, there it ended. But the roads on Honohina and Piha ran way mauka. Alapai now owns Nanue. I am his father in law. I did not tell Hitchcock that Nauhi was the boundary of Piha. I was a witness on boundary of Nanue and Humuula—

Kupahue K. sworn. (Quite an old man).

Was born at time of Peleleu, in Kona, moved to Hilo with parents to Puuohua, afterwards moved to Nanue. I am uncle to Alapai. Know a little about boundaries of Piha. Went up road to Kalapaohelo after beef. Koia was our guide and told us boundaries: Piha is bounded by Nanue from shore Kahuku between. Kahuku ends at Nahuina, and there Nanue and Piha join, Kumukawai is one name of this place, thence boundary runs up to Waipahoehoe gulch across gulch up road to upper edge of woods, to place called Kalapaohelo at Pima base of Kualapaohelo.

CX'd. Know places called Pahau & Mahuia, there the boundary is at road. Know Kumuohia. It is on the boundary between Nanue and Piha, Know Kukai &c, (Places Hitchcock states are on boundary between Maulua and Piha). — —

Testimony Closed.

E.G. Hitchcock moved that testimony given by Kalauwaloha as to boundaries between Humuula and Piha and Nanue be introduced as evidence— Granted—

Alapai states that he accepts Kaahiwa as the mauka boundary of Nanue. —

330.

Decision

Boundaries of Piha decided to be as given in evidence of Ku, and Notes of Survey filed. Certificate to be issued accordingly.—

R. A. Lyman
Com. of Boundaries 3rd J. C.—

Copied by J. B. Castle.

The above is a true copy of the evidence, and decision of Boundaries of Piha, Hilo Hawaii, Given Feb. 11th 1875.

For Certificate of Boundaries see No. 64. Folios 124, 125, 126, & 127. Liber I.—

R. A. Lyman
Commissioner of Boundaries 3rd J. C.

Costs see Folio 127. Liber I.

about 23.5 [illegible]

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For Testimony of Piha, Hilo,
See Folio 325 Book B.

Land Boundary Commission } No. 64
Hawaii 3rd J.C.

Certificate of the Boundaries of Piha, District of Hilo Island of Hawaii 3rd J.C.

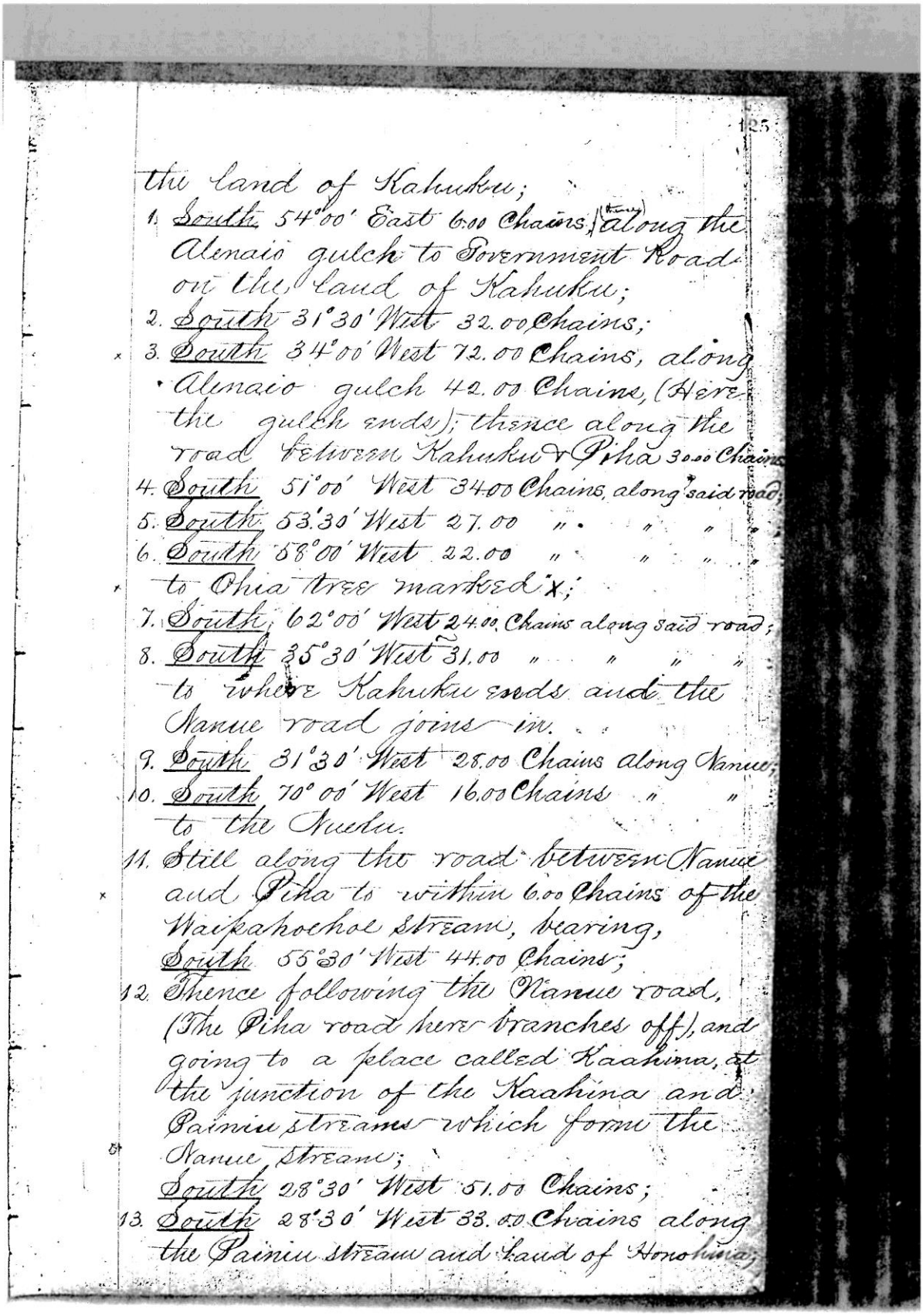
Upon the Application of "J. O. Dominis Administrator of the Estate of M. Kekuanaoa," and by virtue of the authority vested in me by law as Sole Commissioner of Land Boundaries for the Island of Hawaii 3rd J.C. I hereby decide and certify the Boundaries of the Ahupuaa of Piha, situated in the District of Hilo, Island of Hawaii, to be as hereinafter set forth.

Given under my hand at Hilo, Hawaii, This Second day of March A. D. 1875.

R. Lyman
Commissioner of Boundaries 3rd J.C.

Boundaries of Piha.

Commencing at the falls of the Waikaumalo stream at the sea coast, and running along the coast to the Alenaio gulch, the boundary of



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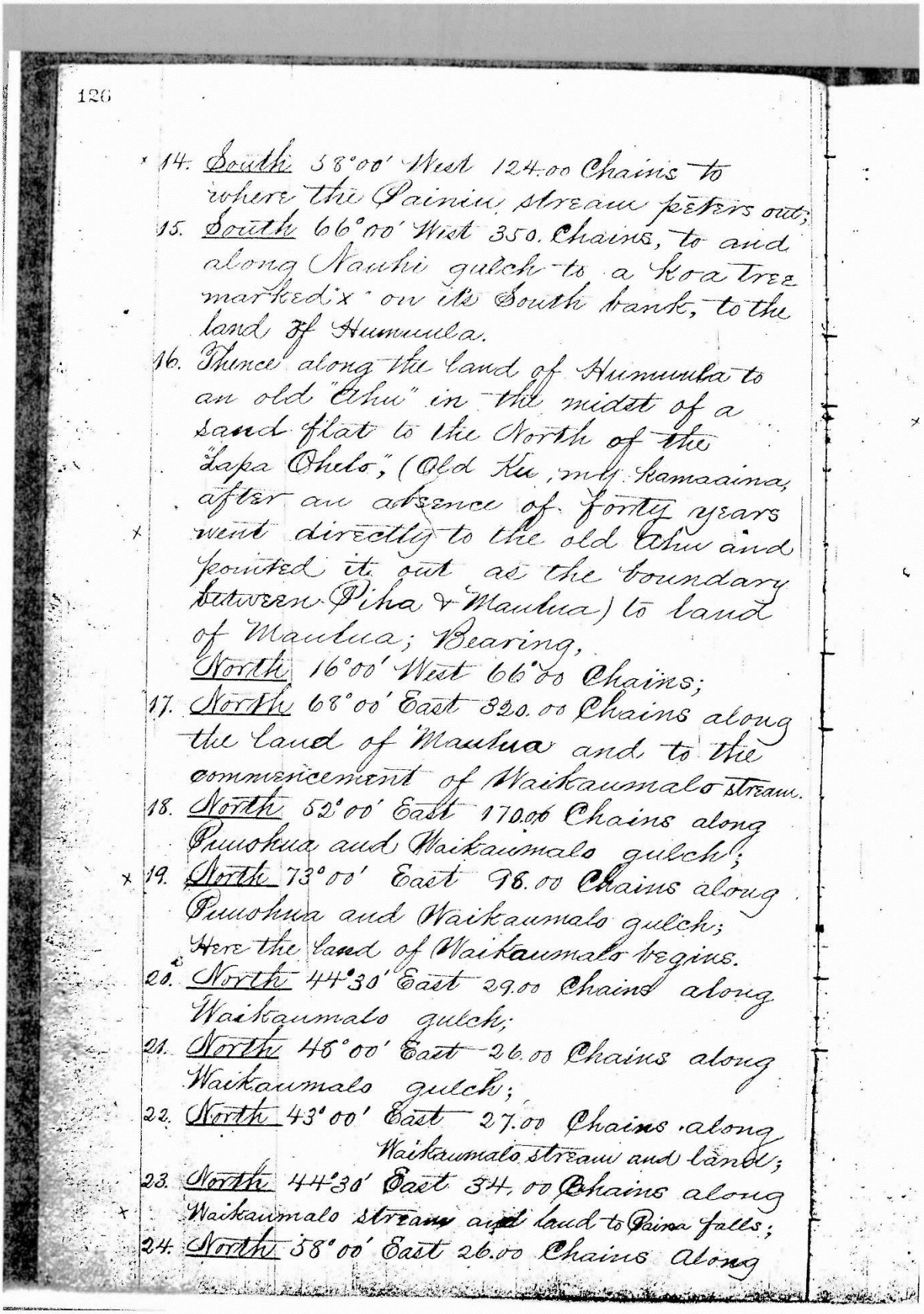
the land of Kahuku;
1. South 54°00' East 6.00 Chains, along the Alenaio gulch to Government Road on the land of Kahuku;
2. South 31°30' West 32.00 Chains;
3. South 34°00' West 72.00 Chains, along Alenaio gulch 42.00 Chains, (Here the gulch ends); thence along the road between Kahuku & Piha 30.00 Chains
4. South 51°00' West 34.00 Chains, along said road;
5. South 53°30' West 27.00 " " " "
6. South 58°00' West 22.00 " " " "
to Ohia tree marked X;
7. South 62°00' West 24.00 Chains along said road;
8. South 35°30' West 31.00 " " " "
to where Kahuku ends and the Nanue road joins in.
9. South 31°30' West 28.00 Chains along Nanue;
10. South 70°00' West 16.00 Chains " "
to the Auku.
11. Still along the road between Nanue and Piha to within 6.00 Chains of the Waikahoehoe Stream, bearing,
South 55°30' West 44.00 Chains;
12. Thence following the Nanue road, (The Piha road here branches off), and going to a place called Kaahina, at the junction of the Kaahina and Painiu streams which form the Nanue Stream;
South 28°30' West 51.00 Chains;
13. South 28°30' West 33.00 Chains along the Painiu stream and land of Honohina;



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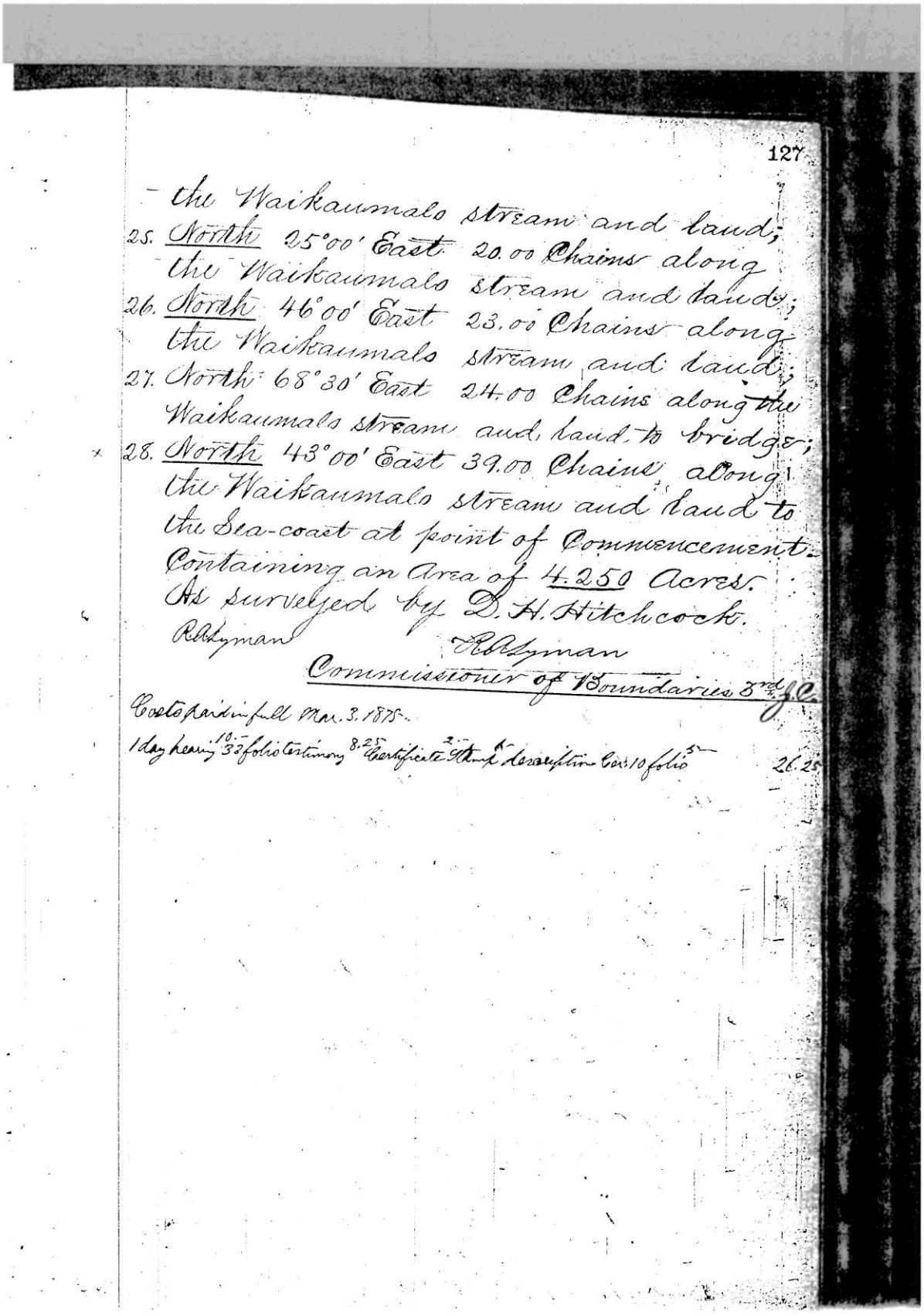
14. South 38°00' West 124.00 Chains to where the Paiwiu stream peters out;
15. South 66°00' West 350. Chains, to and along Naahii gulch to a Koa tree marked "x" on its South bank, to the land of Humuula.
16. Thence along the land of Humuula to an old "Ahu" in the midst of a sand flat to the North of the "Lapa Ohelo", (Old Ku, my kamaaina, after an absence of forty years went directly to the old Ahu and pointed it out as the boundary between Piha & Maulua) to land of Maulua; Bearing, North 16°00' West 66°00 Chains;
17. North 68°00' East 320.00 Chains along the land of Maulua and to the commencement of Waikaumalo stream.
18. North 52°00' East 170.00 Chains along Puuohua and Waikaumalo gulch;
19. North 73°00' East 76.00 Chains along Puuohua and Waikaumalo gulch; Here the land of Waikaumalo begins.
20. North 44°30' East 29.00 Chains along Waikaumalo gulch;
21. North 46°00' East 26.00 Chains along Waikaumalo gulch;
22. North 43°00' East 27.00 Chains along Waikaumalo stream and lands;
23. North 44°30' East 34.00 Chains along Waikaumalo stream and land to Piina falls;
24. North 58°00' East 26.00 Chains along



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– the Waikaumalo stream and land;
25. North 25°00' East 20.00 Chains along
the Waikaumalo stream and land;
26. North 46°00' East 23.00 Chains along
the Waikaumalo stream and land;
27. North 68°30' East 24.00 Chains along the
Waikaumalo stream and land to bridge;
28. North 43°00' East 39.00 Chains along
the Waikaumalo stream and land to
the Sea-coast at point of Commencement.
Containing an Area of 4.250 Acres.
As surveyed by D. H. Hitchcock.
R B Lyman

R B Lyman
Commissioner of Boundaries 3rd J.C.

Costs paid in full Mar. 3. 1875.
1 day hearing 10.33 folio testimony 8.25 Certificate 2 Stamps 5 Description Costs 10 folio 3 — 26.25

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Draft Environmental Assessment
Ramos Single-Family Residence
in the Conservation District at Pīhā

APPENDIX 3
Cultural Impact Assessment

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A Cultural Impact Assessment of a Portion of Lot 1 of the Pīhā Homesteads

TMK: (3) 3-2-004:038 (por.)

Pīhā Ahupuaʻa
North Hilo District
Island of Hawaiʻi

DRAFT VERSION

Prepared By:

Lauren M. U. K. Tam Sing
and
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Prepared For:

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Hilo, HI 96721

April 2018

ASM Project Number 29530.00

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A Cultural Impact Assessment of a Portion of Lot 1 of the Pīhā Homesteads

TMK: (3) 3-2-004:038 (por.)

Pīhā Ahupuaʻa
North Hilo District
Island of Hawaiʻi

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CHAPTERS

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FIGURES

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1. INTRODUCTION

At the request of James Leonard on behalf of Mr. Pedro Pablo Ramos, ASM Affiliates has prepared this Cultural Impact Assessment (CIA) for the development of a single-family residence on a portion of a 18.3-acre Conservation Zoned property (TMK: (3) 3-2-004:038) located in Pīhā Ahupuaʻa, North Hilo District, Island of Hawaiʻi. (Figures 1, 2, and 3).

This CIA will serve as a companion document to an Environmental Assessment (EA) being prepared in compliance with Hawaiʻi Revised Statutes Chapter 343; as well as pursuant to Act 50; and in accordance with the Office of Environmental Quality Control (OEQC) *Guidelines for Assessing Cultural Impact*, adopted by the Environmental Council, State of Hawaiʻi, on November 19, 1997. As stated in Act 50, which was proposed and passed as Hawaiʻi State House of Representatives Bill No. 2895 and signed into law by the Governor on April 26, 2000, "environmental assessments . . . should identify and address effects on Hawaii's culture, and traditional and customary rights . . . native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the 'aloha spirit' in Hawaiʻi. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on governmental agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups."

Below is a description of the general study area and proposed development activity, followed by a detailed culture-historical background and a presentation of prior studies; all of which combine to provide a physical and cultural context for the current study area. The results of the consultation process are then presented, along with a discussion of potential impacts to the cultural landscape as well as appropriate actions and strategies to mitigate any such impacts.

STUDY AREA DESCRIPTION

The current study area consists of a roughly 5-acre portion of TMK: (3) 3-2-004:038 (Lot 1 of the Pīhā Homesteads) located in Pīhā Ahupuaʻa, North Hilo District, Island of Hawaiʻi (see Figures 1and 2). Situated at an elevation of roughly 1,680 to 1,840 feet (512 to 560 meters) above sea level, the study parcel is the *mauka*-most of the Pīhā Homestead lots. It is accessed by the Pīhā-Kahuku Homestead Road, which extends 4.75 kilometers (2.95 miles) from Old Māmalahoa Highway to the eastern corner of the study area, transitioning from a paved road, to a gravel road, to a four-wheel drive road as it progresses up slope. The study area includes only the southwestern portion of the larger 18.3-acre parcel, an area that is bounded to the southeast and southwest by old fence lines that mark the *makai* the boundaries of the Hilo Forest Reserve, to the northwest by Kalaeha Stream, and to the northeast by Lot 2 of the Pīhā Homesteads. The area is currently undeveloped and covered by thick vegetation typical of Hawaiʻi's lowland rainforests, except near the outlet of Pīhā-Kahuku Homestead Road, at the location of the proposed single-family residence, where some hand clearing of brush has occurred. Vegetation cover within the study area consists primarily of strawberry guava (*Psidium cattleianum*), *ōhiʻa* (*Metrosideros polymorpha*), *ʻuluhe* (*Dicranopteris linearis*), and various other grasses, vines, ferns, shrubs, and weeds, with some large paper bark trees (*Melaleuca leucadendra*) growing near the proposed building site. Soils in this area are classified as Kaiwiki highly organic hydrous silty clay loam on 6 to 20 percent slopes (Soil Survey Staff, USDA 2018). These soils have formed on Pleistocene lava flows of the Hāmākua Volcanic Series (Qhm) that originated from Mauna Kea Volcano 64,000 to 300,000 years ago (Sherrod et al. 2007). Rainfall in the vicinity of the study area averages 5,285 millimeters (208 inches) per year, and the mean annual air temperatures is 66°F (19°C) (Giambelluca et al. 2013, 2014).

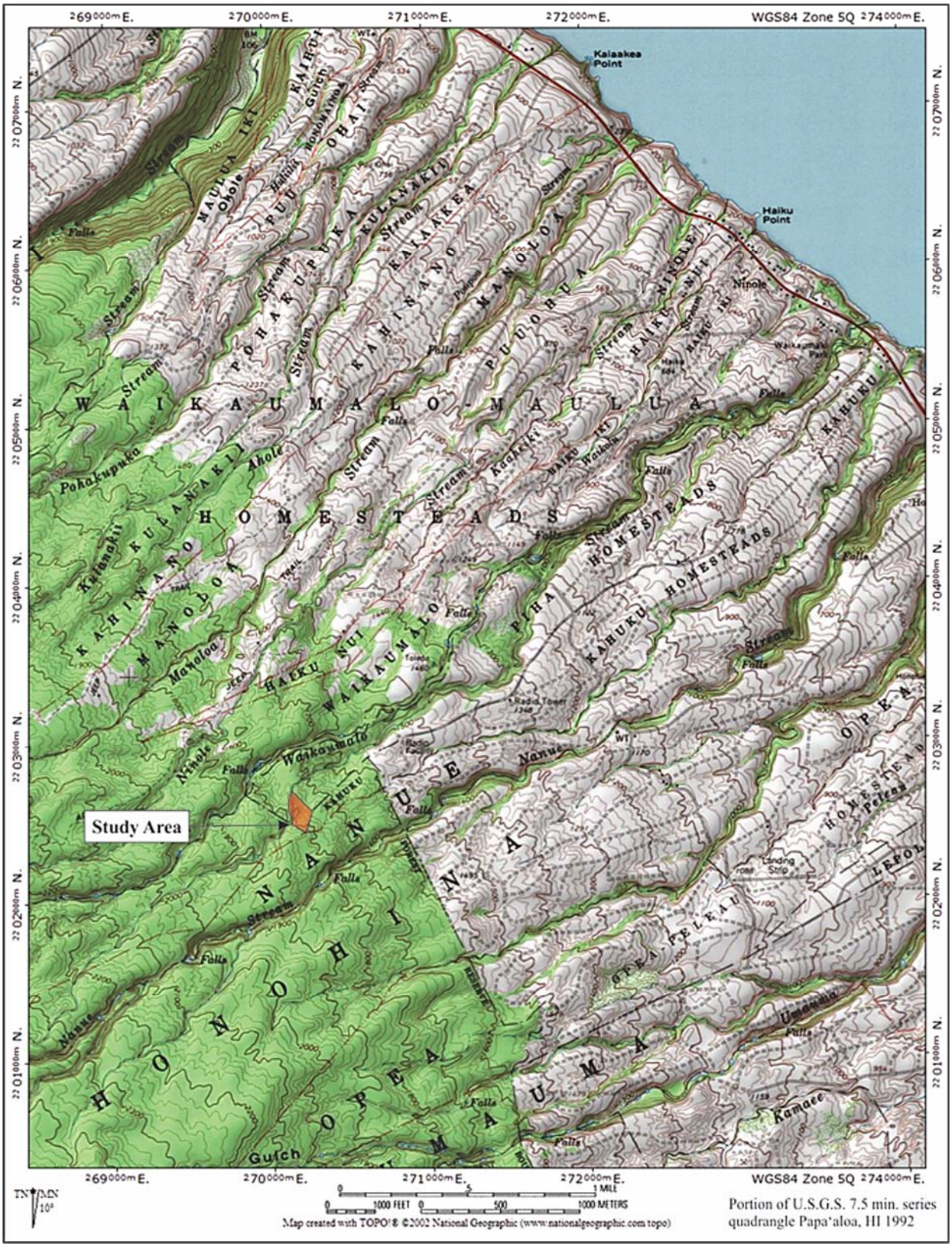

Figure 1. Study area location plotted on a portion of the U.S.G.S. 7.5-minute series, Papa'aloa, HI quadrangle, 1992 (shaded red).

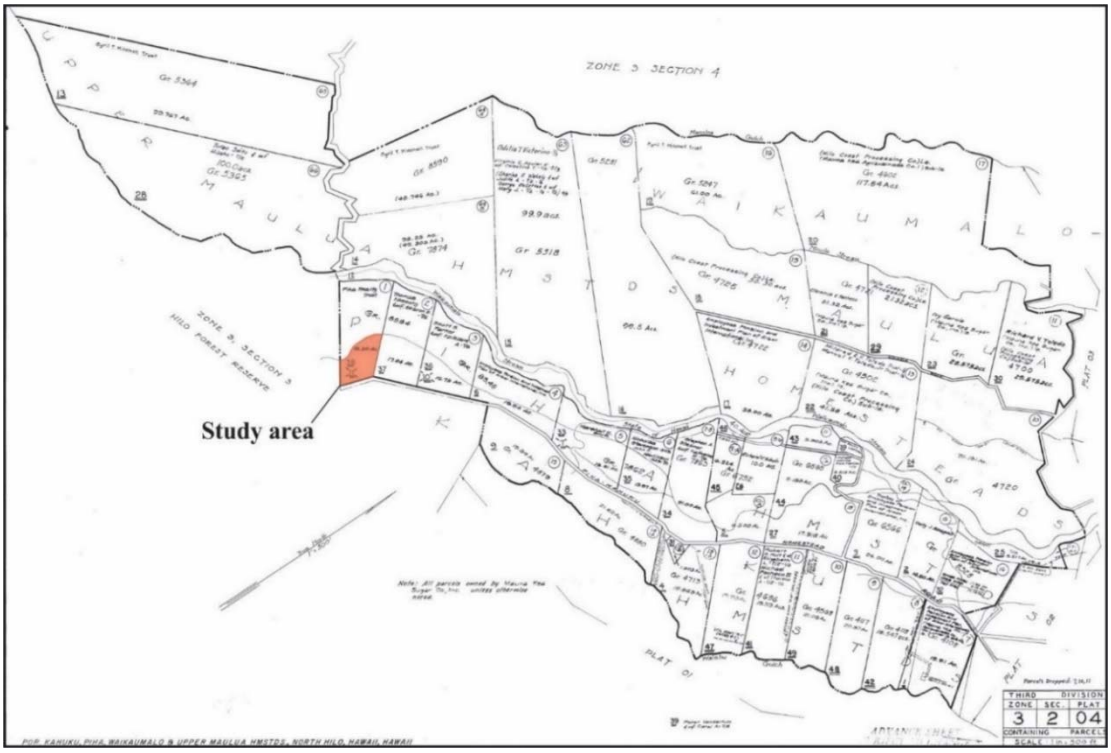

Figure 2. Tax Map Key (TMK): (3) 3-2-004 showing the current study area (portion of Parcel 038).

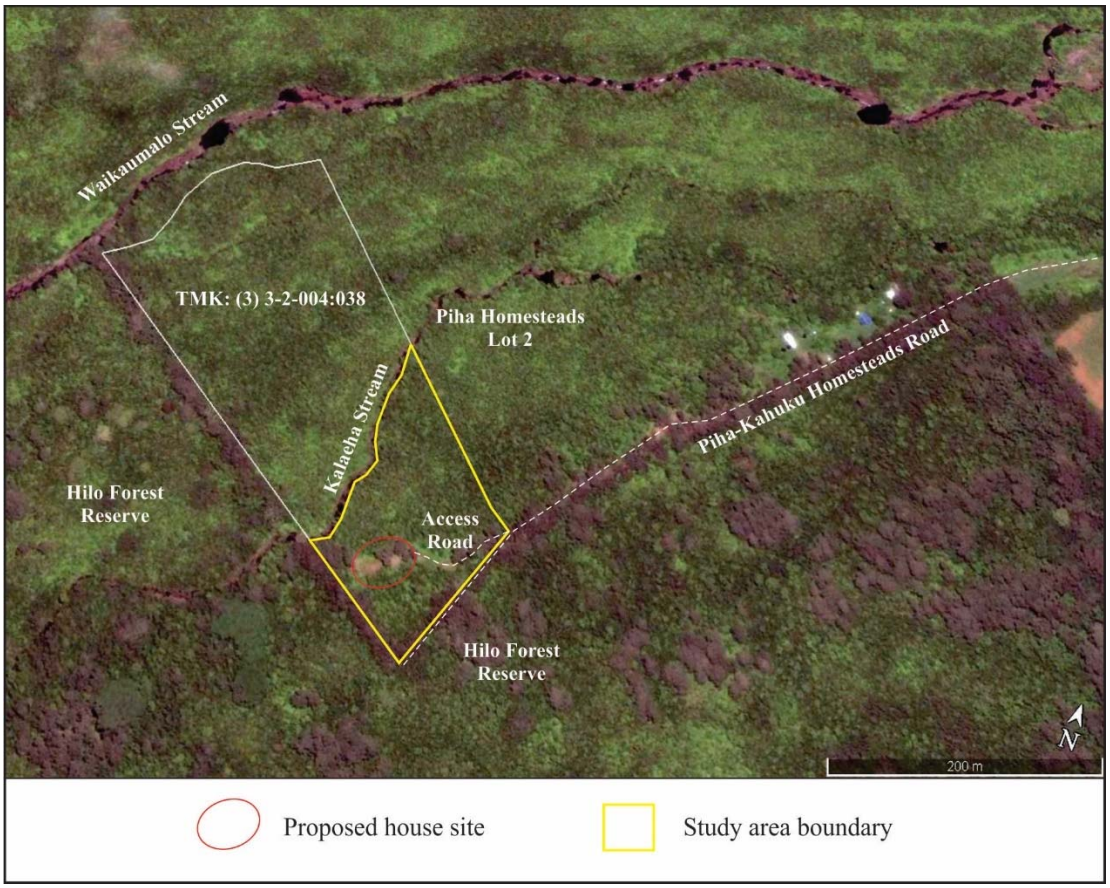

Figure 3. Google Earth™ image showing the current study area location.

2. BACKGROUND

This section of the report includes a discussion of the cultural-historical background for the study area and a synthesis of relevant prior research. This information is presented to provide a comprehensive understanding of the cultural significance of the study area and general vicinity and to establish an analytical basis for the assessment of any potential cultural impacts. The ability to assess the cultural significance of the current study area is contingent upon developing (at a minimum), a comprehensive understanding of the *ahupua'a* in which the study area is located. As will be demonstrated in the ensuing section, a consideration of the broader region and island landscape is also required at times.

CULTURE-HISTORICAL CONTEXT

The chronological summary presented below begins with the peopling of the Hawaiian Islands and a generalized model of Hawaiian Prehistory followed by a summary of Historic events in the Hawaiian Islands after the arrival of foreigners. The discussion continues with a presentation of historical references to Pīhā Ahupua'a and the general North Hilo area. This summary includes oral traditions and first-hand Historic accounts recorded by visitors and missionaries. Land use practices in the study area vicinity are also presented, including commercial sugar cultivation.

A Generalized Model of Hawaiian Prehistory

While the question of the timing of the first settlement of Hawai'i by Polynesians remains unanswered, several theories have been offered that derive from various sources of information (i.e., genealogical, oral-historical, mythological, radiometric). However, none of these theories is today universally accepted (c.f., Kirch 2011). What is more widely accepted is the answer to the question of where Hawaiian populations came from and the transformations they went through on their way to establish a uniquely Hawaiian culture. The initial settlement in Hawai'i is believed to have originated from the southern Marquesas Islands (Emory in Tatar 1982). During these early times, Hawai'i's inhabitants were primarily engaged in subsistence level agriculture and fishing (Handy et al. 1991). This was a period of great exploitation and environmental modification when early Hawaiian farmers developed new subsistence strategies by adapting their familiar patterns and traditional tools to their new environment (Kirch 1985; Pogue 1978). Their ancient and ingrained philosophy of life tied them to their environment and kept order; which was further assured by the conical clan principle of genealogical seniority (Kirch 1984). According to Fornander (1880), the Hawaiians brought from their homeland certain universal Polynesian customs and belief: the major gods Kāne, Kū, and Lono; the *kapu* system of law and order; cities of refuge; the *'aumakua* concept; and the concept of *mana*. The initial permanent settlements were established at sheltered bays with access to fresh water and marine resources. These communities shared extended familial relations and there was an occupational focus on the collection of marine resources. Over a period of a few centuries, the areas with the richest natural resources became populated and perhaps even crowded, and there was an increasing separation of the chiefly class from the common people. As populations increased so did societal conflict, which resulted in hostility and war between neighboring groups (Kirch 1985). Soon, large areas of Hawai'i were controlled by a few powerful chiefs.

As time passed, a uniquely Hawaiian culture developed. The portable artifacts found in archaeological sites of this next period reflect an evolution of the traditional tools and distinctly Hawaiian inventions. The adze (*ko'i*) evolved from the typical Polynesian variations of plano-convex, trapezoidal, and reverse-triangular cross-section to a very standard Hawaiian rectangular quadrangular tanged adze. The two-piece fishhook and the octopus-lure breadloaf sinker are Hawaiian inventions of this period, as are *'ulu maika* stones and *lei niho palaoa*. The latter was a status item worn by those of high rank, indicating a trend toward greater status differentiation (Kirch 1985). As the population continued to expand so did social stratification, which was accompanied by major socioeconomic changes and intensive land modification. Most of the ecologically favorable zones of the windward and coastal regions of all major islands were settled and the more marginal leeward areas were being developed. During this expansion period, additional migrations to Hawai'i occurred from Tahiti in the Society Islands. Rosendahl (1972) has proposed that settlement at this time was related to seasonal, recurrent occupation in which coastal sites were occupied in the summer to exploit marine resources, and upland sites were occupied during the winter months, with a focus on agriculture. An increasing reliance on agricultural products may have caused a shift in social networks as well; as Hommon (1976) argues, kinship links between coastal settlements disintegrated as those links within the *mauka-makai* settlements expanded to accommodate the exchange of agricultural products for marine resources. This shift is believed to have resulted in the establishment of the *ahupua'a* system sometime during the A.D. 1400s (Kirch 1985), which added another component to an already well-stratified society. The implications of this model include a shift in residential patterns from seasonal, temporary

occupation, to permanent dispersed occupation of both coastal and upland areas.

The *ahupua'a* became the equivalent of a local community, with its own social, economic, and political significance, which added another component to a then well-stratified society. *Ahupua'a* were ruled by *ali'i 'ai ahupua'a* or chiefs who controlled the *ahupua'a* resources; who, for the most part, had complete autonomy over this generally economically self-supporting piece of land. *Ahupua'a* lands were in turn, managed by an appointed *konohiki* or lesser chief-landlord. The *ali'i-'ai-ahupua'a*, in turn, answered to an *ali'i 'ai moku* (chief who claimed the abundance of the entire district). Thus, *ahupua'a* resources supported not only the *maka'āinana* (commoners) and *'ohana* (families) who lived on the land but also contributed to the support of the royal community of regional and/or island kingdoms. *Ahupua'a* are land divisions that typically incorporated all of the eco-zones from the mountains to the sea and for several hundred yards beyond the shore, assuring a diverse subsistence resource base (Hommon 1986). Although the *ahupua'a* land division typically incorporated all of the eco-zones, their size and shape varied greatly. This form of district subdividing was integral to Hawaiian life and was the product of resource management planning that was strictly adhered to. In this system, the land provided fruits and vegetables and some meat for the diet, and the ocean provided a wealth of protein resources (Rechtman and Maly 2003). In communities with long-term royal residents, divisions of labor (with specialists in various occupations on land and in the procurement of marine resources) were also strictly enforced.

By the seventeenth century, large areas of Hawai'i Island were controlled by a few powerful *ali'i 'ai moku*. There is island-wide evidence to suggest that growing conflicts between independent chiefdoms were resolved through warfare, culminating in a unified political structure at the district level. It has been suggested that the unification of the island resulted in a partial abandonment of portions of leeward Hawai'i, with people moving to more favorable agricultural areas (Barrera 1971; Schilt and Sinoto 1980). 'Umi a Līloa, a renowned *ali'i* of the Pili line, is often credited with uniting the Island of Hawai'i under one rule during the Precontact Period (Cordy 1994).

A Brief History of Hawai'i After Western Contact

The arrival of Western explorers in Hawai'i signified the end of the Precontact Period, and the beginning of the Historic Period. With the arrival of foreigners, Hawai'i's culture and economy underwent drastic changes. Demographic trends during the late Proto-Historic Period/early Historic Period indicate population reduction in some areas, due to war and disease, yet increase in others, with relatively little change in material culture. At first there was a continued trend toward craft and status specialization, intensification of agriculture, *ali'i* controlled aquaculture, the establishment of upland residential sites, and the enhancement of traditional oral history. The Kū cult, *luakini heiau*, and the *kapu* system were at their peaks, although western influence was already altering the cultural fabric of the Islands (Kirch 1985; Kent 1983). Foreigners very quickly introduced the concept of trade for profit, and by the time Kamehameha I had conquered O'ahu, Maui and Moloka'i, in 1795, Hawai'i saw the beginnings of a market system economy (Kent 1983). Some of the work of the commoners shifted from subsistence agriculture to the production of foods and goods that they could trade with early visitors. Introduced foods often grown for trade with Westerners included yams, coffee, melons, Irish potatoes, Indian corn, beans, figs, oranges, guavas, and grapes (Wilkes 1845). Later, as the Historic Period progressed, Kamehameha I died, the *kapu* system was abolished, Christianity established a firm foothold in the islands, and introduced diseases and global economic forces began to have a devastating impact on traditional life-ways in the Hawaiian Islands. This marked the end of the Proto-Historic Period and the end of an era of uniquely Hawaiian culture.

Kirch (1985) places the beginning of the Proto-Historic Period during the rule of Lonoikamakahiki. This was a time marked by both political intensification and stress and continual conquest by the reigning *ali'i*. Wars occurred regularly between intra-island and inter-island polities during this period. It was during this time of warfare that Kamehameha, who would eventually rise to power and unite all of the Hawaiian Islands under one rule, was born in the District of North Kohala on the Island of Hawai'i (Kamakau 1992). There is some controversy about the year of his birth, but Kamakau (1992) places the birth event sometime between a.d. 1736 and 1758, most likely nearer to the later date.

PĪHĀ AHUPUA‘A AND GREATER NORTH HILO

The current study area is located within the *ahupua‘a* of Pīhā, in the District of North Hilo, on the windward coast of Hawai‘i Island (Figure 4). The name describes the region’s treacherous coastline, with its sheer cliffs broken only by a string of narrow gulches containing streams that pour down from the slopes of Mauna Kea. Pīhā, which literally translates as “flotsam” (Pukui et al. 1974:184), meaning any floating material carried by flood waters or the sea, is one of many land divisions (*ahupua‘a*) extending inland from the coast of North Hilo with boundaries that generally follow the meanderings of the gulches, and encompass the tablelands in between. This *ahupua‘a* is located within the traditional *moku* (district) of Hilo, which is one of six *moku* of Hawai‘i Island. The Hawaiian proverb, “*Hilo, mai Mawae a ka pali o Maulua*” details the extent of the district spanning from Mawae the southernmost boundary and Maulua as the northernmost boundary (Pukui 1983:108). Handy et al. (1991:538) provides a general description of the district:

> Hilo as a major division of Hawai‘i included the southeastern part of the windward coast most of which was in Hamakua, to the north of Hilo Bay. This, the northern portion, had many scattered settlements above streams running between high, forested kula lands, now planted with sugar cane. From Hilo Bay southeastward to Puna the shore and inland are rather barren and there were few settlements. The population of Hilo was anciently as now concentrated mostly around and out from Hilo Bay, which is still the island’s principal port. The Hilo Bay region is one of lush tropical verdure and beauty, owing to the prevalence of nightly showers and moist warmth which prevail under the northeasterly trade winds into which it faces. Owing to the latter it is also subject to violent oceanic storms and has many times in its history suffered semidevastation from tidal waves unleashed by earthquake action in the Aleutian area of the Pacific.

Traditionally, the *moku* of Hilo was divided into three *‘okana* (land divisions) with place names that have their origins in legendary times. The three divisions are (from north to south): Hilo Palikū, Hilo One, and Hilo Hanakahi. The location of the current study area coincides best with Hilo-pali-kū or “Hilo of the upright cliff” (Pukui et al. 1974:46), which extends north from the Wailuku River to Ka‘ula Gulch (Maly and Maly 2006). In *Pele and Hi‘iaka*, Emerson recounts the following *mele* that Hi‘iaka sang while journeying between Hilo and Puna through the forest territory of the *mo‘o* Pana‘ewa, which mentions the study area vicinity:

Pau ke aho i ke kahawai lau o Hilo:	One’s strength is exhausted, climbing, climbing
He lau ka pu‘u, he mano ka iho‘na;	The countless valleys and ridges of Hilo,—
He mano na kahawai o Kula‘i-po;	The streams without number of Ku-la‘i-po,
He wai Honoli‘i, he pali o Kama-e‘e, Kama-e‘e	The mighty water of Hono-li‘i, the precipice walls of
He pali no Koolau ka Hilo-pali-ku;	And the pali of Ko‘olau: Such a land is Hilo-pali-ku.
He pali Wailuku, he one ke hele ia;	The banks of Wailuku are walls; The road to its crossing but sand;
He one e ke‘ehia la i Wai-olama.	Sandy the way at Wai-o-lama. (1993:32-33)

Kepā and Onaona Maly provide additional information pertaining to the ancient land division of Hilo Palikū in the following translation of an excerpt from a legendary account called “*Ka‘ao Ho‘oniua Pu‘uwai no Ka-Miki”* (“The Heart Stirring Story of Ka-Miki”). This legend was originally published in Hilo’s Hawaiian Language newspaper *Ka Hōku o Hawai‘i*:

> Of Hilo Paliku it is said, one becomes short of breath traveling through Hilo, for there are many (400) hills, many (4,000) areas to descend, and many (40,000) streams, indeed while swimming through the waters of Hilo one becomes out of breath, but one is never out of water at Hilo! (Maly and Maly 2006:13)

The other two ancient land divisions are located to the south of the current study area. Hilo-one, or sandy Hilo, extends along the shoreline of Hilo Bay between the Wailoa and Wailuku rivers (Edith Kanaka‘ole Foundation 2012); while Hilo Hanakahi, “Hilo, [land of] chief Hanakahi” (Pukui and Elbert 1986:129), extends from the Wailoa River to include Keaukaha. The *ahupua‘a* in which the current study area is situated lies within the verdant region of Hilo Palikū, as described by Pukui (1983:107):

> *Hilo iki, pali ‘ele‘ele.*
> Little Hilo of the dark cliffs.
> Hilo-pali-ku, or Hilo-of-the-standing-cliffs, is always green because of the rain and mists.

ʻŌlelo Noʻeau of Hilo

The oral tradition of Hawaiʻi is perhaps best preserved in *ʻōlelo noʻeau*, which have been passed down throughout the generations. Many *ʻōlelo noʻeau* speak of Hilo and most mention the region's abundant water and agricultural prosperity. The following proverbs illustrate Hilo in great detail, and appear below as they were interpreted and published in *ʻŌlelo Noʻeau, Hawaiian Proverbs & Poetical Sayings* by Mary Kawena Pukui (1983):

ʻAu umauma o Hilo i ka wai.
Hilo has breasted the water.
To weather the storm. The district of Hilo had many gulches and streams and was difficult to cross.
(1983:28)

Halulu me he kapuaʻi kanaka la ka ua o Hilo
The rain of Hilo makes a rumbling sound like the treading of feet.
(ibid.:53)

Hilo ʻai lūʻau.
Hilo, eater of taro greens.
The people of Hilo were said to be fond of cooked taro greens. When storms came to Hilo, it was impossible to obtain fish from the streams or the sea. The people had to be content with taro greens.
(ibid.:107)

Hilo ʻāina ua lokuloku.
Hilo of the pouring rain.
(ibid.:107)

Hilo i ka ua Kani-Lehua.
Hilo of the Kanilehua rain.
The Kanilehua rain, or the rain that patters in the *lehua* forest, is frequently referred to in the chants and songs of Hilo.
(ibid.:168)

Hilo mahi haʻaheo.
Hilo of the proud farmers.
The climate makes the soil of Hilo very easy to till, so the farmers used to make a game of planting. They used long digging sticks to make the holes and wore *lei* to work. Working in unison, they made a handsome picture.
(ibid.:107)

Hilo, mai Mawae a ka pali o Maulua.
Hilo, from Mawae to the cliff of Maulua.
The extent of the Hilo district is from Mawae on the Puna side to Maulua on the Hāmākua side.
(ibid.:108)

Hilo, nahele paoa i ke ʻala.
Hilo, where the forest is imbued with fragrance.
Hilo's forest is fragrant with *hala* and *lehua* blossoms.
(ibid.:108)

Hilo paʻele ku.
Hilo is dark all over.
(ibid.:108)

Ka ua lei māʻohu o Waiānuenue.
The rain of Waiānuenue that is like a wreath of mist.
Wai-ānuenue (Rainbow-water) in Hilo, Hawaiʻi, is now known as Rainbow Falls. On sunny days a rainbow can be seen in the falls, and on rainy days the rising vapor is suggestive of a wreath of mist.
(ibid.:170)

Kau i ka lani ka holowaʻa ua o Hilo.
Placed high in heaven is the rain trough of Hilo.
An expression of admiration for a person of regal bearing.
(ibid.:173)

Ka ua he‘e nehu o Hilo.
The *nehu*-producing rain of Hilo.
The people knew the season when the schools of *nehu* fish followed the rain.
(ibid.:167)

Ku pāpū Hilo i ka ua.
Hilo stands directly in the path of the rain.
(ibid.:207)

Le‘a ka ‘ai a ka ‘iola, ua nui ka ‘ili.
The rats joyously eat their fill, there are many skins [remaining].
There were two Hilo brothers who lived at Kukuau and Pu‘ueo. The latter was very prosperous but neglectful of his needy brother. One day the Kukuau man decided to visit his wealthy brother and found many friends eating. After watching them for a while he made this remark. It was overheard by someone who reported it to their host. When he came to see who it was he found that it was his own brother. Sadly he realized then how he had neglected his own kin while outsiders enjoyed his wealth. This saying is sometimes used for one who does for outsiders but neglects his own.
(ibid.:212)

Lu‘ulu‘u Hanakahi i ka ua nui.
Weighted down is Hanakahi by the heavy rain.
Hanakahi, Hilo, was named for a chief of ancient times. This expression was much used in dirges to express heaviness of the heart, as tears pour like rain.
(ibid.:219)

“Māmā Hilo?” “‘Ae, māmā Hilo i ka wai ‘ole.”
“Is Hilo light?” “Yes, Hilo is light for lack of water.”
A question asked of a runner, and his reply. It means that the way is clear, with no robbers or unpleasant experiences, and no rains to swell the streams and make traveling difficult.
(ibid.:232)

Noho maialile ka ua o Hilo, ‘elua wale no māua.
Keep your silence, O rain of Hilo, there are only two of us.
Uttered by Kanuha in retort when rebuked by the Reverend Titus Coan for Sabbath-breaking: “Hold your silence, for there are only two of us in authority” – meaning Kanuha and Governor Kuakini. Rev. Coan was not to give orders when either was present. Now it is used to mean, “Keep quiet. You’re not the boss around here.”
(ibid.:253)

Pau kea ho i ke kahawai lau o Hilo.
One’s strength is exhausted in crossing the many streams of Hilo.
Said of or by one who is weary with effort. First uttered by Hi‘iaka in a chant when she found herself weary after a battle with the lizard god Pana‘ewa.
(ibid.:287)

Pā mai, pā mai ka makani o Hilo; waiho aku i ka ipu iki, hō ma ii ka ipu nui.
Blow, blow, O winds of Hilo, put away the small containers and give us the large one.
La‘amaomao, the god of wind, was said to have a wind container called Ipu-a-La‘amaomao. When one desires more wind to make the surf roll high, or a kite sail aloft, he makes this appeal.
(ibid.:285)

Pāuli hiwa ka lani o Hilo.
Black with rainclouds is the sky of Hilo.
Sometimes said in humor when a dark-skinned person is seen.
(ibid.:287)

Pō Hilo i ka ua Kanilehua.
Hilo is darkened by the Kanilehua rain.
Said of one who is weighted by sorrow and grief.
(ibid.:293)

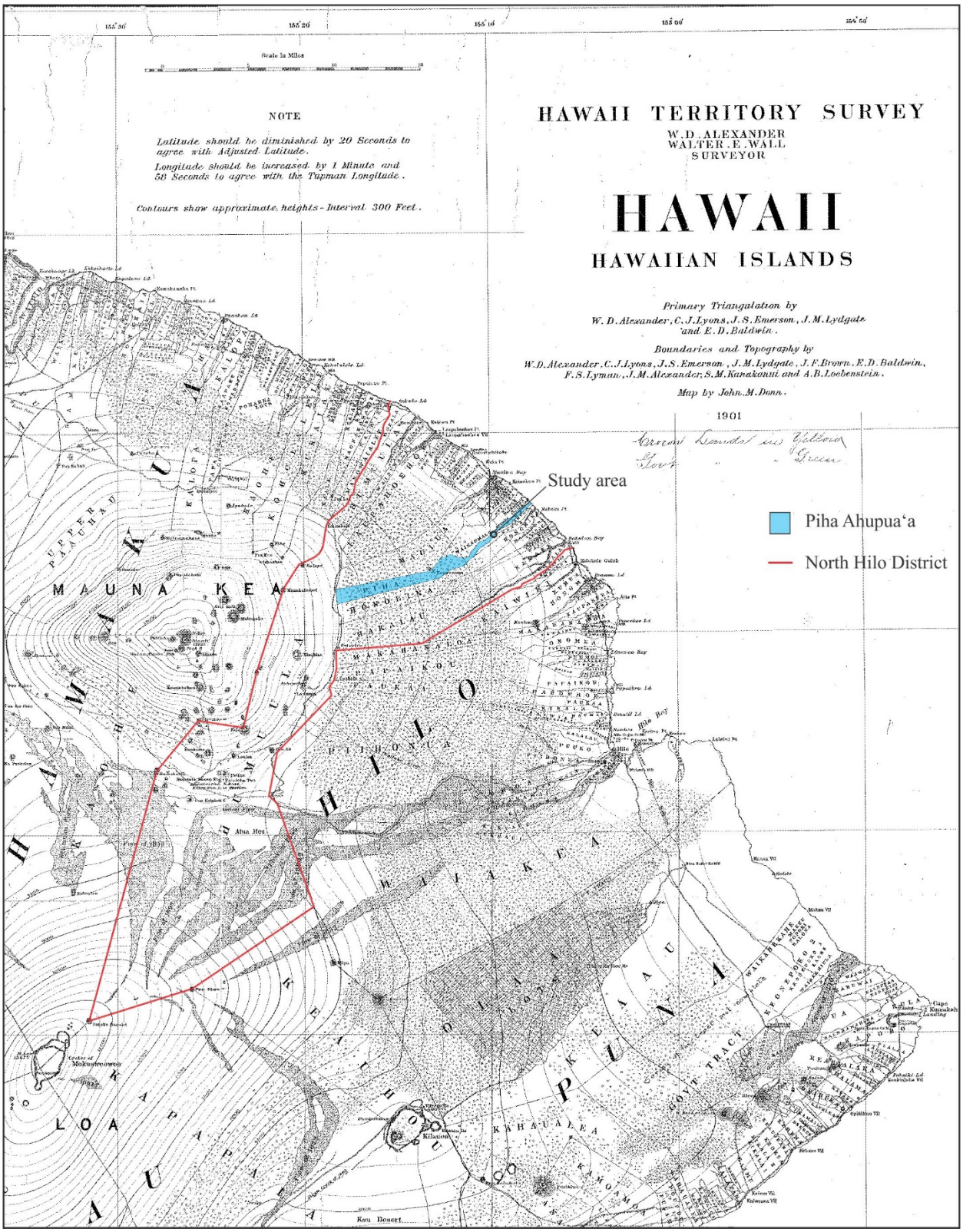

Figure 4. 1901 map of Hawai'i Island (prepared by John M. Donn 1901), showing the North Hilo District, Pīhā Ahupua'a, and the approximate location of the current study area.

The Legacy of the *Māhele ʻĀina* of 1848

By the mid-nineteenth century, the ever-growing population of Westerners in the Hawaiian Islands forced socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership. By 1840 the first Hawaiian constitution had been drafted and the Hawaiian Kingdom shifted from an absolute monarchy into a constitutional government. Convinced that the feudal system of land tenure previously practiced was not compatible with a constitutional government, the *Mōʻī* Kauikeaouli and his high-ranking chiefs decided to separate and define the ownership of all lands in the Kingdom (King n.d.). The change in land tenure was further endorsed by missionaries and Western businessmen in the islands who were generally hesitant to enter business deals on leasehold lands that could be revoked from them at any time. After much consideration, it was decided that three classes of people each had one-third vested rights to the lands of Hawaiʻi: the (*Mōʻī*) monarch, the (*aliʻi*) chiefs and *konohiki* (land agents), and the *makaʻāinana* (common people or native tenants).

In 1845 the legislature created the Board of Commissioners to Quiet Land Titles (more commonly known as the Land Commission), first to adopt guiding principles and procedures for dividing the lands and granting land titles, and then to act as a court of record to investigate and ultimately award or reject all claims brought before them. All land claims, whether by chiefs for entire *ahupuaʻa* or by tenants for their house lots and gardens, had to be filed with the Land Commission within two years of the effective date of the Act (February 14, 1848) to be considered. This deadline was extended several times for the *aliʻi* and *konohiki*, but not for commoners (Alexander 1920; Soehren 2005)

The *Mōʻī* and some 245 *aliʻi* (Kuykendall 1938) spent nearly two years trying unsuccessfully to divide all the lands of Hawaiʻi amongst themselves before the whole matter was referred to the Privy Council on December 18, 1847 (King n.d.). Once the *Mōʻī* and his *aliʻi* accepted the principles of the Privy Council, the *Māhele ʻĀina* (Land Division) was completed in just forty days (on March 7, 1848), and the names of all of the *ahupuaʻa* and *ʻili kūpono* (nearly independent *ʻili* land division within an *ahupuaʻa*) of the Hawaiian Islands and the chiefs who claimed them, were recorded in the *Buke Mahele* (also known as the *Māhele* Book) (Soehren 2005). As this process unfolded the *Mōʻī*, who received roughly one-third of the lands of Hawaiʻi, realized the importance of setting aside public lands that could be sold to raise money for the government and also purchased by his subjects to live on. Accordingly, the day after the division when the last chief was recorded in the *Buke Māhele* (*Māhele* Book), the *mōʻī* commuted about two-thirds of the lands awarded to him to the government (King n.d.). Unlike the *Mōʻī*, the *aliʻi* and *konohiki* were required to present their claims to the Land Commission to receive their Land Commission Award (LCAw.). The chiefs who participated in the *Māhele* were also required to provide commutations of a portion of their lands to the government to receive a Royal Patent that gave them title to their remaining lands. The lands surrendered to the government by the *Mōʻī* and *aliʻi* became known as "Government Land," while the lands that were personally retained by the *Mōʻī* became known as "Crown Land," and the lands received by the *aliʻi* became known as "*Konohiki* Land" (Chinen 1958:vii, 1961:13). Most importantly, all lands (Crown, Government, and Konohiki lands) identified and claimed during the *Māhele* were "subject to the rights of the native tenants" therein (Garavoy 2005:524). Finally, all lands awarded during the *Māhele* were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be formally surveyed. This process expedited the work of the Land Commission. Pīhā Ahupuaʻa is not listed in the *Buke Māhele*, but appears to have become Crown Land as a result of the *Māhele*, as J. Dominis, agent of the Crown Lands, would later apply for the settlement of the land division's boundaries.

As the *Mōʻī* and *aliʻi* made claims to large tracts of land during the *Māhele*, questions arose regarding the protection of rights for the native tenants. To address this matter, on August 6, 1850, the *Kuleana* Act or Enabling Act was passed, allowing native tenants to claim a fee simple title to any portion of lands which they physically occupied, actively cultivated, or had improved (Garavoy 2005). Additionally, the *Kuleana* Act clarified rights to gather natural resources, as well as access rights to *kuleana* parcels, which were typically land locked. Lands awarded through the *Kuleana* Act were, and still are, referred to as *kuleana* awards or *kuleana* lands. The Land Commission oversaw the program and administered the *kuleana* as Land Commission Awards (Chinen 1958). Native tenants wishing to make a claim to their lands were required to submit a Native Register to the Land Commission, followed by Native Testimony given by at least two individuals (typically neighbors) to confirm their claim to the land. Upon successful submittal of the required documents, the Land Commission rendered their decision, and if successful, the tenant was issued the LCAw. No claims were made for *kuleana* lands within Pīhā Ahupuaʻa during the *Māhele ʻĀina* of 1848.

Commission of Boundaries (1862-1876)

In 1862, the Commission of Boundaries (Boundary Commission) was established in the Kingdom of Hawaiʻi to legally set the boundaries of all the *ahupuaʻa* that had been awarded as a part of the *Māhele*. Subsequently, in 1874, the

Boundary Commission were authorized to certify the boundaries for lands brought before them. The primary informants for the boundary descriptions were old native residents who learned of the boundaries from their ancestors. The boundary information was collected primarily between 1873 and 1885 and was usually given in Hawaiian and simultaneously transcribed into English. Although hearings for most *ahupua'a* boundaries were brought before the Boundary Commission and later surveyed by Government employed surveyors, in some instances, the boundaries were established through a combination of other methods. In some cases, *ahupua'a* boundaries were established by conducting surveys on adjacent *ahupua'a*. Or in cases where the entire *ahupua'a* was divided and awarded as Land Claim Awards and or Government issued Land Grants (both which required formal surveys), the Boundary Commission relied on those surveys to establish the boundaries for that *ahupua'a*. Although these small-scale surveys aided in establishing the boundaries, they lack the detailed knowledge of the land that is found in the Boundary Commission hearings.

On February 8, 1875, on the application application of J. Dominis, agent of the Crown Lands and administrator for the estate of M. Kekuanaoa, the Boundary Commission met at the court house in Hilo to settle the boundaries of Pīhā Ahupua'a (Boundary Commission Vol. B pgs. 325-330; Appendix A). Several older residents of the area provided testimony at the hearing including Ku, Hemahema, Kalaualoha, Kupahu, and D.H. Hitchcock, the Government Surveyor who surveyed the Pīhā boundaries (Figure 5). D.H. Hitchcock testified that he surveyed the boundaries of Pīhā Ahupua'a in October of 1874 with Ku as his *kama'āina* (person familiar with the land). Hitchcock also took Kalaualoha with him along a part of the Nanue boundary, and talked with Hemahema prior to the survey, but found that the recollections of Hemahema and Ku agreed regarding the boundaries, so only took Ku with him. From the testimony we learn that boundary between Kahuku and Pīhā *ahupua'a* (forming the eastern boundary of the current study area) was once marked by an "old trail" used by bird catchers to access the forest, and that the owner of Nanue Ahupua'a, Alapai, disputed the *mauka*-eastern boundary of Pīhā Ahupua'a as described by Ku and depicted by D.H. Hitchcock in Figure 5. The following summary of the 1875 Boundary Commission testimony for Pīhā concentrates on the Kahuku boundary of the *ahupua'a*, which is adjacent to the eastern boundary of the current study area.

Ku, described in the boundary commission records as "an old man" born during the time of Kamehameha I, stated that he had learned the boundaries of Pīhā from his grandfather, Hue, and his father, Mahiai, both of whom were bird catchers, and that his older brother, Koia, was once *konohiki* of the *ahupua'a*. Ku accompanied Hitchcock during the boundary survey and pointed out the boundaries to him, showing him a stone *ahu* at the *mauka* corner of Pīhā (where the *ahupua'a* is cut off by Humu'ula) that his brother had built during the reign of Kamehameha II. With regards to the trail along the Pīhā/Kahuku boundary, Ku testified that:

> …My grandfather made the road on Honohina to Moohalohalo, and I made the road to Hopuwai, Kahuku bounds Piha on Hilo side at shore, there is a small gulch there called Alanaio on boundary, thence runs up gulch a short distance above road to head of it, thence up old trail to Kaawau, thence bounded by Nanue up old trail to Nenelu old kauhale [group of houses], thence up trail to Waipahehoe a kahawai [stream/gulch] and kauhale, the old trail does not reach to the gulch, but turns to the left…(page 325)

When cross-examined Ku clarified that:

> …Piha and Nanue join at Kawau cutting off Kahuku. I have stated that the mauka boundary of Nanue is at Kaahina not at Nahuina of Waipahoehoe. There is an old kauhale kalaiwaa [group of canoe carvers' houses] at this place, this is the boundary I have always known. Nanue had no old road. The birds in olden times belonged to Piha and not to Nanue. (page 326)

Hemahema, described as a "quite old man" in the testimony, stated that he had learned the boundaries of Pīhā from his father, Waiwai, who was the *konohiki* of "these lands to Pohakupua [six *ahupua* northwest of Pīhā]," and that he had gone bird catching with his grandfather on the lands. He testified that bird catchers from Pīhā and Maulua *ahupua'a* (adjacent to the northwestern *mauka* boundary of Pīhā) used to catch birds in common. With regards to the trail along the Hilo side boundary of Pīhā, Hemahema stated that:

> …Kahuku bounds Piha at the shore at Hilo side, a small gulch, boundary runs up trail to Nahuina where Piha and Nanue join and Kahuku ends, thence boundary runs up trail to Kaahina near Waipahoehoe, this is as far as I ever knew about Nanue…(page 327)

When cross-examined Hemahema clarified that:

> …Nahuina and kumukawau are the same…From Kawau boundary between Nanue and Pīhā runs up old trail to Kaahina this is a far as I ever knew Nanue to run. It is where Hakai made a canoe. I heard from Kihili, Napihe and Kulaipahu that this was the mauka end of Nanue. Hapai ma said the same thing. (page 327)

Kalaualoha, described as an "old man" in the testimony, stated that he had learned the boundaries of Pīhā from "Kaulanahiai, Koia, and Waikane, now dead." Kalaualoha, who was the father-in-law of Alapai, the owner of Nanue Ahupua'a at that time, disagreed with the boundary testimony of Ku and Hemahema, and went with Hitchcock to point out what he believed to be the correct boundary between Nanue and Pīhā to be (see Figure 9). Kalaualoha testified that:

> …Piha and Nanue join each other at Kawau an old trail into the woods, thence boundary runs up this trail to Waipahoehoe, thence boundary runs up this stream to Mahuia kauhale on Piha, thence boundary runs up to Koapololei, thence up old trail to upper edge of woods to Kalapaohelo, to a place called Kaluaalu…In olden times the birdcatchers used to go up the Honohina and Piha roads, they could not go up the Nanue as the road was so bad. The canoe road of Nanue ran to mauka of Kaahiwa, there it ended. But the roads on Honohina and Piha ran way mauka…(page 329)

Kupahu, the uncle of Alapai (the owner of Nanue Ahupua'a), who was described as a "quite old man" in the testimony, stated that he knew a little about the boundaries of Pīhā because he "went up the road to Kalapaohelo after beef" (page 329), and that Koia, his guide, pointed out the boundaries to him. Kupahu's testimony only addressed the *mauka*-eastern boundary of Pīhā where it joins Nanue. He stated that, "…Kahuku ends at Nahuina, and there Nanue and Piha join, Kumukawai is one name of this place…" (page 329).

At the conclusion of the testimony it was decided by R. A. Lyman, the Commissioner of Boundaries, that the boundaries of Pīhā as given by Ku be accepted, that the notes of the survey be filed (see Figure 5), and Certificate of Boundaries be issued accordingly (see Appendix A).

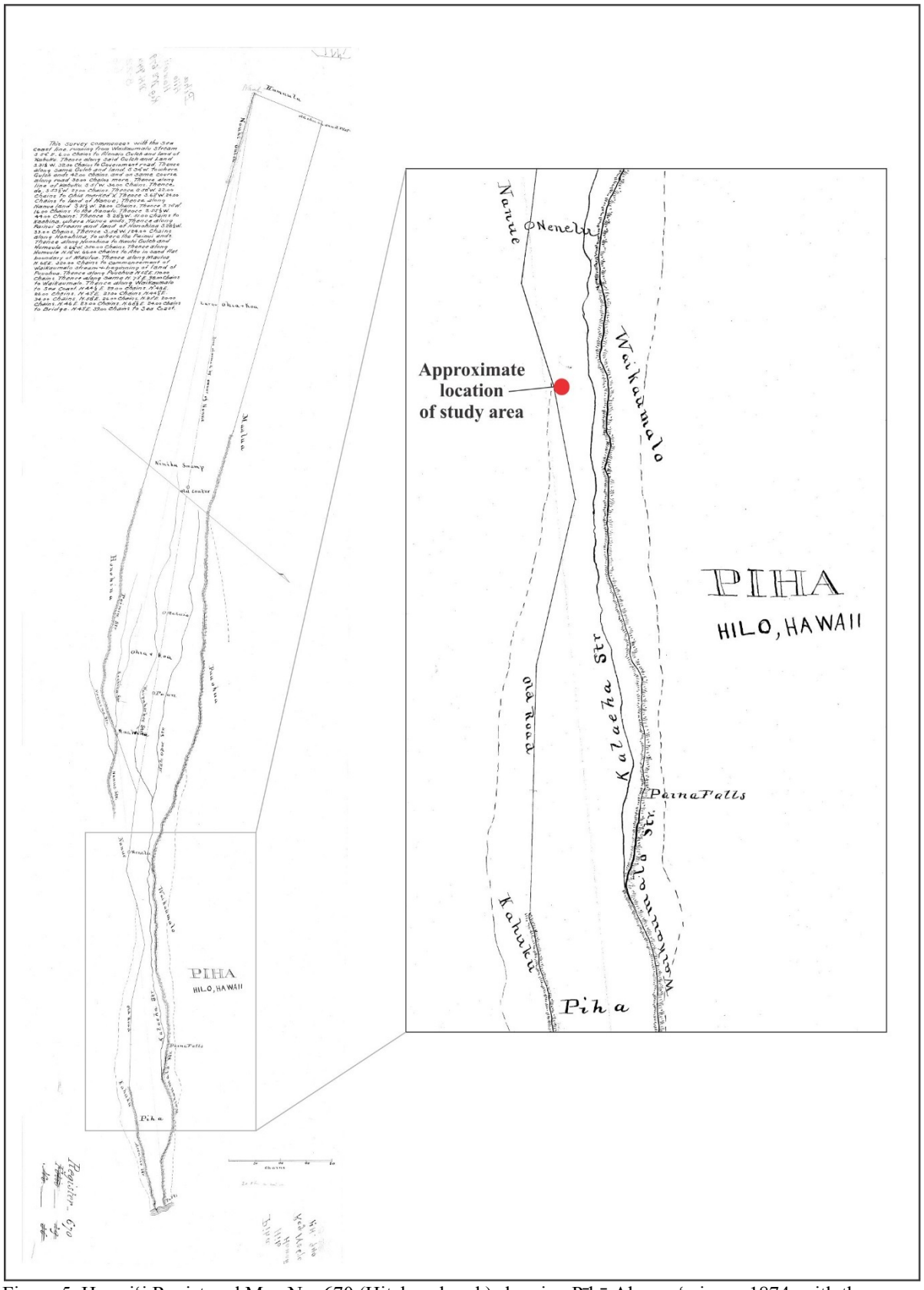

Figure 5. Hawai‘i Registered Map No. 670 (Hitchcock n.d.) showing Pīhā Ahupua‘a in ca. 1874, with the approximate location of the current study area indicated.

Historical Accounts of Pīhā and the Greater North Hilo District

Written accounts penned by early visitors to the Island of Hawai‘i offer insight into what life may have been like for the Hawaiians of Pīhā and North Hilo. Such accounts describe North Hilo as incredibly verdant and rich in fresh, flowing water, which was frequently noted as carving through mountain streams and emptying into the sea. Also remarked upon was the surprising population that lived along the coast from South Hilo to Laupāhoehoe to the north of Pīhā, particularly in the vicinity of the many steep gulches. Many of the individuals who traveled north or south along the coast to or from the Hāmākua District commented upon the rugged terrain, inescapably treacherous and everlasting. Ever-flowing streams and waterfalls fed by frequent mountain rainfall allowed for richly cultivated ravines and gulches, splendidly planted in taro, banana, and occasionally sugarcane.

In 1823, British missionary William Ellis and other members of the American Board of Commissioners for Foreign Missions (ABCFM) toured the island of Hawai‘i seeking out communities in which to establish church centers for the growing Calvinist mission (Ellis 2004). Ellis estimated that at the time of his visit, about 2,000 people lived in 400 houses or huts along the coastline at Hilo Bay (ibid.). Ellis described the residential and land use practices he observed while in the Hilo (“Hiro”) District, which is applicable to the study area vicinity, thusly:

> *Hiro*, which we had now left, though not so extensive and populous as Kona, is the most fertile and interesting division on the island.
>
> The coast from Waiakea to this place is bold and steep, and intersected by numerous valleys or ravines; many of these are apparently formed by the streams from the mountains, which flow through them into the sea. The rocks along the coast are volcanic, generally a brown vesicular lava. In the sides and bottoms of some of the ravines, they were occasionally of very hard compact lava, or a kind of basalt.
>
> This part of the island, from the district of Waiakea to the northern point, appears to have remained many years undisturbed by volcanic eruptions. The habitations of the natives generally appear in clusters at the opening of the valleys, or scattered over the face of the high land. The soil is fertile, and herbage abundant.
>
> The lofty Mouna-Kea, rising about the centre of this division, forms a conspicuous object in every view that can be taken of it. The base of the mountain on this side is covered with woods, which occasionally extend within five or six miles of the shore. . . rain is frequent in this and the adjoining division of Hamakua, which forms the centre of the windward coast, and is doubtless the source of their abundant fertility. The climate is warm. Our thermometer was usually 71° at sun-rise; 74° at noon; and 72° or 73° at sun-set. Notwithstanding these natural advantages, the inhabitants, excepting at Waiakea, did not appear better supplied with the necessaries of life than those of Kona, or the more barren parts of Hawai‘i. They had better houses, plenty of vegetables, some dogs, and a few hogs, but hardly any fish, a principle article of food with the natives in general. (ibid.:263-264)

Another early written account by Ellis describes the stretch of land between South Hilo and Laupāhoehoe, north of the current study area, as a fertile, verdant, and well-watered countryside with a sizeable population:

> The country, by which we sailed, was fertile, beautiful, and apparently populous. The numerous plantations on the eminences and sides of the deep ravines or valleys, by which it was intersected, with the streams meandering through them into the sea, presented altogether a most agreeable prospect. The cost was bold, and the rocks evidently volcanic. We frequently saw water gushing out of hollows in the face of the rocks, or running in cascades from the top to the bottom. (Ellis 1826:316)

In 1840, Lieutenant Charles Wilkes, head of the U.S. Exploring Expedition, traveled to northern Hilo and described the landscape of this region:

> The coast to the north of Hilo is slightly peculiar: it is a steep bluff, rising about two hundred feet; this is cut into small breaks here called “gulches,” within which the villages are generally situated, and the natives grow banana and taro. In some places they cultivate small patches of sugar-cane, which succeed well.
>
> These gulches are ravines, from eight hundred to one thousand feet deep, which have apparently been worn by water-courses: they extend back into the woods, and have made the country impassable for either vehicles or riders on horseback, for no sooner is one passed than another one occurs. There is no landing for boats, for all along the shore the surf beats on the rocks with violence.

Journalist Henry Martyn Whitney published the very first guide book to the islands in 1875, entitled *The Hawaiian Guide Book, For Travelers: Containing A Brief Description of the Hawaiian Islands, Their Harbors, Agricultural Resources, Plantations, Scenery, Volcanoes, Climate, Population, and Commerce*. An excerpt from his book describes his treacherous trek from Laupāhoehoe to Hilo, passing through the vicinity of the study area:

> From Laupahoehoe on the north to Puna on the south extends this large and fertile district [Hilo], where the trade winds are neutralized by the mountains, and where the rain falls in such abundance as to keep the land perpetually green to the water's edge. Except at Hilo Bay, the coast is composed of bold bluff cliffs from a hundred to upwards of 1000 feet high; these are higher on the north and the pali, at Laupahoehoe, is a remarkable one. . .On the other cliff, one mile distant, you discern horsemen and decide that the road to Hilo lies over there, but how to get there. This wall extends inland for miles, a stream rolls down its precipitous valley, plainly one must go down before getting up the other side. At length the ribbon road wound downward on the shelving roof of the valley appears. From twenty minutes to half an hour will b occupied in the descent, according as you risk the neck of horse and rider. More than a score, some say fifty similar valleys, with twice this number of similar ribbon windings, miniature Alpine passes, lie between Laupahoehoe and Hilo village. (Whitney 1875:70-72)
>
> Mountain torrents rush through each of these passes, and one of the wonders of this volcanic country lies in these gulches, with their gothic steeps that disrupt the land for three score miles or less, piercing the land's centre. The number of waterfalls is beyond estimate, their height varies from tens to thousands of feet, and many of the streams literally *leap* into the sea. A mere sprinkle at the beach often increases, higher up the mountain, to a heavy rain, and the stream may rush in torrents for a mile and then resume the common course of a brook. It is not uncommon for the traveler to be detained by a swollen stream for half a day. In olden times the streams were crossed by stepping stones. "La Paz" says of this overland route: "As we rode along, the rain poured, rattling among the leaves, pattering among the impromptu pools and drains, the torrents tumbled from the hills or leaped through chasms, over frightful rocks, with a thundering sound that jarred the cavernous earth; the ocean waves came surging and groaning against the beetling cliffs like a wail of despair, and our horses kept tumbling over a corduroy road of mud ridges and holes of water, alternating with the regularity of rice rows; a succession of mud ridges and miniature hog wallows.
>
> "Before reaching the Scotchman's gulch, we passed a deep chasm, where some rough stone piers indicated where the apology for a bridge had formerly stood. Through this swept a mad and foaming torrent, near four feet deep, whirling and rushing past gigantic balsaltic bounders, a cataract above, a waterfall below; we passed between this Scylla and Charybdis, and came near being carried away by the foaming flood. We have crossed the Rocky Mountains six times, the Sierra Madre of Mexico often, the volcanic chain of Central America three times and the Andes twice; and we here most solemnly protest that we have never traveled a road that gave the traveler more ups and downs on a sliding scale than the pathway from Laupahoehoe to Hilo."

The road to Laupāhoehoe from South Hilo was also described in George Bowser's *Hawaiian Kingdom Statistical and Commercial Directory* (Bowser 1880:536) as a treacherous but beautiful journey, containing several adequate landings for boats, and prime agricultural land suited for the potential cultivation of commercial crops:

> On the way to Laupahoehoe the road is not first-rate, even in the fine weather I enjoyed on my trip, besides which there are a great number of deep gulches, the sides of which are very steep. The track is certainly very rugged and uneven; but, then, to make up for it, the scenery with a parallel in the world. All the way from Hakalau to Laupahoehoe, the country is as yet unsettled by the white man, although in that stretch of about fourteen miles of coast, by a width of a great many miles inland, the land is suitable for the culture of sugar, coffee, wheat, oats, barley and many minor crops, and only wants the presence of capital and industry to make it a veritable paradise. Good landing can be obtained about every two miles along the coast, places which only require the expenditure of from three to ten thousand dollars to make the landing facilities good in any weather and all times of the year. The only inhabitants of this wide tract are some thirty native[s], who own among them about 3,000 acres, of which they cultivate about 150. The rest of the land belongs principally to the King and to members of the royal family.

King David Kalākaua (1888:284) described the lands of the northern portion of Hilo as he recounted the tale of ʻUmi-a-Līloa presented in his book, the *Legends and Myths of Hawai'i*. His description of the region is taken

from a time when North Hilo and Hāmakua were in the thick of the commercial sugar industry, but mentions the presence of scattered *loʻi kalo* and bananas:

> The northeastern coast of the island of Hawaii presents an almost continuous succession of valleys, with intervening uplands rising gently for a few miles, and then more abruptly toward the snows of Mauna Kea and the clouds. The rains are abundant on that side of the island, and the fertile plateau, boldly fronting the sea with a line of cliffs from fifty to a hundred feet in height, is scored at intervals of one or two miles with deep almost impassable gulches, whose waters reach the ocean either through rocky channels worn to the level of the waves, or in cascades leaping from the cliffs and streaking the coast from Hilo to Waipio with lines which seem to be molten silver from the great crucible of Kilauea.
>
> In the time of Liloa, and later, this plateau was thickly populated, and requiring no irrigation, was cultivated from the sea upward to the line of frost. A few *kalo* patches are still seen, and bananas grow, as of old, in secluded spots and along the banks of the ravines; but the broad acres are green with cane, and the whistle of the sugar-mill is heard above the roar of the surf that beats against the rock-bound front of Hamakua.

Pīhā Ahupuaʻa During the Late Nineteenth and Twentieth Centuries

Following the signing of the 1875 Treaty of Reciprocity, a free-trade agreement between the United States and the Kingdom of Hawaiʻi, which guaranteed a duty-free market for Hawaiian sugar in exchange for special economic privileges for the United States, a number of new sugar plantations incorporated in the Islands. In 1878, Claus Spreckels, with W.G. Irwin & Company as its agent, established the Hakalau Plantation Company on 9,000 acres of land located along the North Hilo coast, 16 miles from Hilo (Dorrance and Morgan 2000). The fields of the Hakalau Plantation Company ranged from 250 feet above sea level along the shoreline bluffs to 2,000 feet above sea level at their western (*mauka*) limits. The cane was flumed from the various fields to its mill site, where it was then processed. The Hakalau Mill, built in 1890 on the shore at the foot of a 200-foot bluff with Hakalau Gulch, produced 5,000 tons of sugar annually during its early years (Dorrance and Morgan 2000). Initially, and continuing until 1913 when a railroad connecting the plantation to the port at Hilo was built, the plantation shipped its product from the Hakalau Landing to Honolulu via inter-island vessels that anchored offshore. The lands of Pīhā Ahupuaʻa (containing 4,250 acres) were leased to the Hakalau Plantation Co. on February 11, 1892 (see C.S.F. 449), and the *makai* lands were cleared and used for the cultivation of sugarcane.

The fields of the Hakalau Plantation Company never reached as far *mauka* as the current study area, however, and remained forest land throughout the late nineteenth century. The importance of the forest lands and their valuable watersheds for agricultural purposes and the well-being of the people in general was recognized quite early on by the Territorial Government of Hawaiʻi, and by the burgeoning sugar industry in the islands. Consequently, a proclamation recommending that 110,000 acres of land in the Districts of North and South Hilo be reserved from development was signed by Lt. Governor A.L.C. Atkinson on July 24, 1905, and the Hilo Forest Reserve was created (Figure 6). The reserve, which abuts the southern and eastern boundaries of the current study area (Figure 7), encompasses roughly 64,000 acres overall, 4,574.11 of which are located in the Pīhā Section, one of nine internal reserve divisions (http://dlnr.hawaii.gov/forestry/frs/reserves/hawaii-island/hilo). The Hilo Forest Reserve was described by the Division of Forestry in 1906 as follows:

> The Hilo Forest Reserve embraces the area of heavy forest on the lower slopes of Mauna Kea, lying between the 1855 and 1881 Lava Flows back of Hilo Town and the Hamakua District line, and extending from a line varying in elevation from 1,750 to over 2,000 feet, drawn back of and above the sugar plantations to another line along the upper edge of the woods, at an elevation of approximately 6,000 feet. The water from this reserve is of great importance to all the plantations along the coast, being at present used for the most part for fluming cane to the mill. From the character of the country many of the streams could be utilized for the production of power. This will be an important consideration when the Hilo District comes to be developed, as it is sometime bound to be. The object of the Hilo Forest Reserve is to protect the sources of this important water supply. (Division of Forestry 1906:25)

Following the passage of the Land Act of 1895, which broadened the definition of public land, placed Hawaiʻi's Crown Lands (such as Pīhā) into the public domain. As a result, land was made available to family farmers through homesteading programs, and the clarifications to Hawaiʻi's land policies were set forth in the Organic Act, which went into effect on June 14, 1900.

Shortly after the creation of the Hilo Forest Reserve, as the plantation's lease on its Pīhā lands was set to expire, the Territorial Government began the process of subdividing the *makai* section of the *ahupua'a* into homesteads. Crown Lands such as Pīhā were made available to family farmers for homesteading purposes following the passage Land Act of 1895. The process for obtaining homestead lots was then clarified by the Organic Act of 1900, a law enacted at a time in the islands (and in the United States congress) when there was growing concern regarding the consolidation of land ownership within the plantation system, and its reliance on foreign labor (Horwitz et al. 1969). Survey of the Pīhā homestead tract began in 1912 and was completed by 1913 (Figure 8), when the Survey Department of the Territory of Hawai'i reported that "the land of Piha was subdivided into 28 lots, comprising 393.81 acres, 5 miles of roads containing 20.44 acres, and flumes and ditches and remnant covering 5.95 acres" (Department of Interior 1913:65). The Pīhā-Kahuku Homestead Road created as part of the Pīhā homestead subdivision appears to follow the route of the older road described along the boundary between those two *ahupua'a* during the Boundary Commission hearings of 1875.

Following the subdivision of the Pīhā homesteads, the Hakalau Plantation, now owned by C. Brewer & Co., brought up the question of the boundary between the homesteads and the adjoining lands owned or controlled by the company, which they felt had been encroached upon. Additional surveys of the Pīhā homestead tract, involving extensive triangulation work, were then made during the early part of 1914, until the matter was decided to the satisfaction of all parties involved (Department of the Interior 1914:521).

While many of the *makai* lots of the newly created Pīhā Homesteads (Lots 9-28) were sold at auction in June of 1914 to various homesteaders, the more *mauka* lots (Lots 1-8), perhaps because they were less accessible or less developed, and therefore less desirable, were not. Instead, a general 10-year lease (Lease No. 878; Figure 9) for Lots 1-8 of the Pīhā Homesteads (and Lots 13-16 of the adjoining Kahuku Homesteads) was purchased at public auction by the Hakalau Plantation Company on July 14, 1915 (Department of the Interior 1916:526).

This Hakalau Plantation Company's lease (see Figure 9), for unknown reasons, was never fully executed and Lots 1-8 were eventually sold to various homesteaders. Lot 1, which includes the current study area, was purchased (along with Lot 2) by William Breithaupt on August 23, 1916 as Grant No. 8584. Several other Breithaupt's purchased lands within the Pīhā Homesteads as well, including A. (August) K. Breithaupt (Lots 15-16; Grant No. 8328), Ella Breithaupt (Lots 7-8; Grant No. 7863), and Otto Breithaupt (Lots 5-6; Grant No. 7862). It appears that William Breithaupt once ran cattle on Lot 1 and that he was responsible for helping to construct a portion of the fence along the *makai* boundary of the Hilo Forest Reserve. In May of 1922, the Assistant Superintendent of Forestry reported that "…A stretch of about 1000 feet along the mauka boundary of Piha Lot 1, from Kalaiha Gulch to Waikaumalo Gulch, remains to be built. William Breithaupt, owner of the lot, was advised to finish the fence at once, and he expects to complete it during July" (Kraebel 1922:179). However, by September of 1922 the Superintendent of Forestry, reported that:

> It has been necessary to bring pressure to bear on Wm. Breithaupt, the owner of Lot 1 of the Piha Homesteads. We supplied wire to him last December and he built an excellent fence on the forest reserve boundary for a distance of .58 mile, but since April he has done little or no work. He has 900 feet more of fence to build and has been notified that unless this is completed by the end of August and all his cattle gathered in, we will proceed against him for cattle trespass. (Judd 1922:207)

This pressure appears to have been effective, as the Superintendent of Forestry reported in November of 1922 that Mr. Breithaupt had finally finished the 0.77-mile length fence along the forest reserve boundary of Pīhā Homesteads Lot 1 to his satisfaction.

Territory of Hawai'i tax records indicate that Grant No. 8584 was transferred from William Breithaupt to his son, A.K. Breithaupt on September 21, 1936. Subsequently, the property was transferred from A.K. Breithaupt's estate to his daughter, Ella Briethaupt Schmidth on January 1, 1952. Just eight months later, on September 10, 1953, the property was transferred to Ella's younger brother, Graven Breithaupt, who became trustee of the property.Subsequent to this final transfer, on September 20, 1957, the original grant parcel appears to have been consolidated and resubdivided into their current TMK parcels. Tax records from 1944 to 1956 indicate that Lot 1 remained as undeveloped forest land, while William Breithaupt's neighboring grant, Lot 2, was utilized as pasture land.

The Hakalau Plantation Company continued to operate on lands *makai* of the current study area throughout the first half of the twentieth century, but by the early 1940s, nearly 40 percent of the of the sugarcane on the plantation was grown by independent growers, some of whom had purchased Pīhā Homestead lots. In 1943, the neighboring Wailea Milling Company (also started by Claus Spreckels) was merged into the Hakalau Plantation Company,

expanding the operation, and by 1944 the plantation had reached its maximum production, producing 26,000 tons of sugar that year (Dorrance and Morgan 2000). On April 1, 1946, the Hakalau Mill and the railroad connecting the plantation to Hilo were severely damaged by a *tsunami* triggered by an earthquake in the Aleutian Islands. The mill was rebuilt, but the railroad shut down and the product was trucked to the docks at Hilo. In 1962, C. Brewer & Co. merged the Hakalau Plantation Company into the Pepeʻekeʻō Sugar Company, its southern neighbor, and the Hakalau Mill was shut down (Dorrance and Morgan 2000). In 1973, C. Brewer & Co. then merged the Pepeʻekeʻō Sugar Company into the Mauna Kea Sugar Company, combining under one corporate name what had once been five separate sugar plantations situated along the Hilo coast. This plantation, later named Mauna Kea Agribusiness Company, harvested its last crop in 1994 and then closed its doors for good.

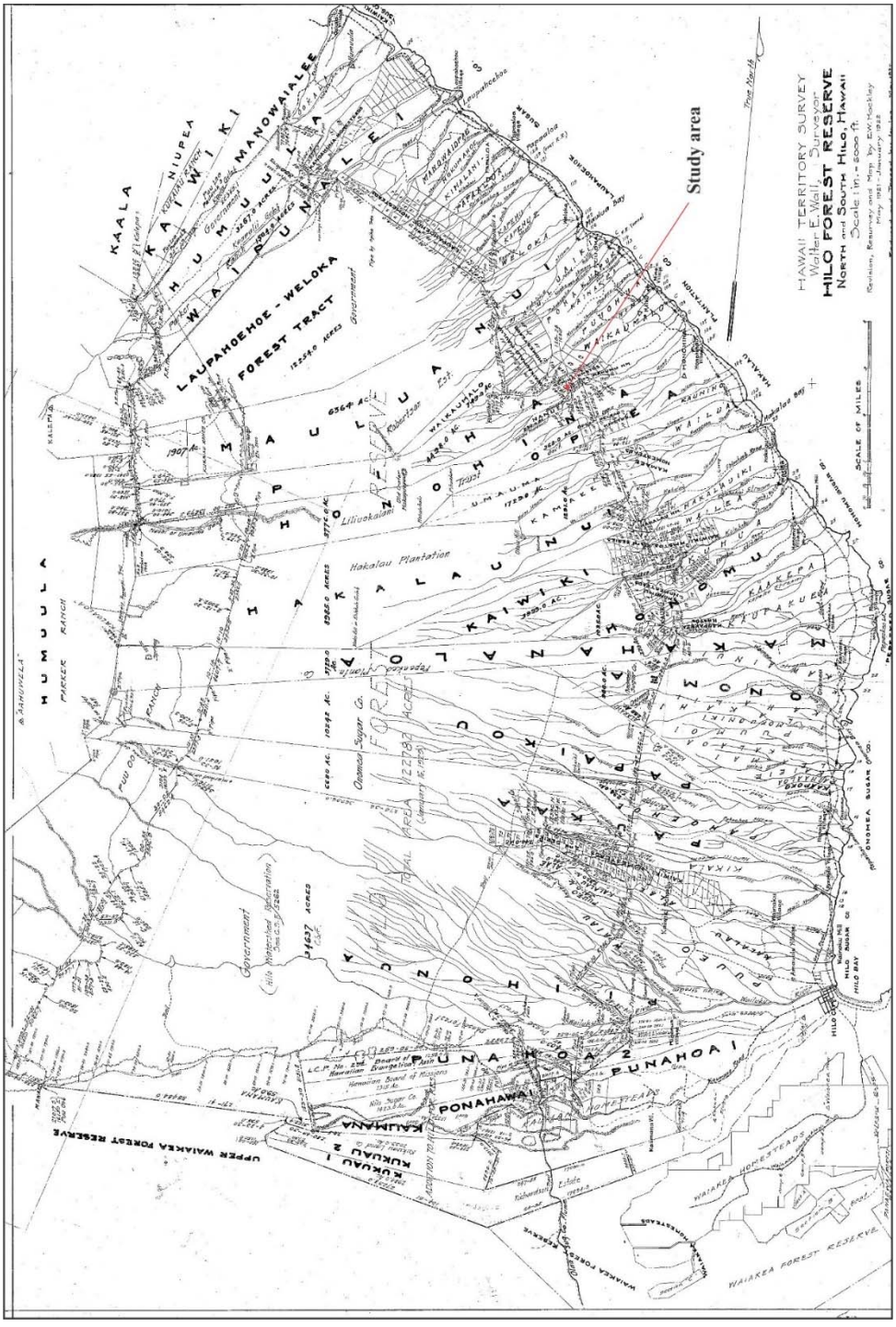

Figure 6. Map of the Hilo Forest Reserve (HTS Plat 799) with the location of the current study area indicated (Hockley 1922).

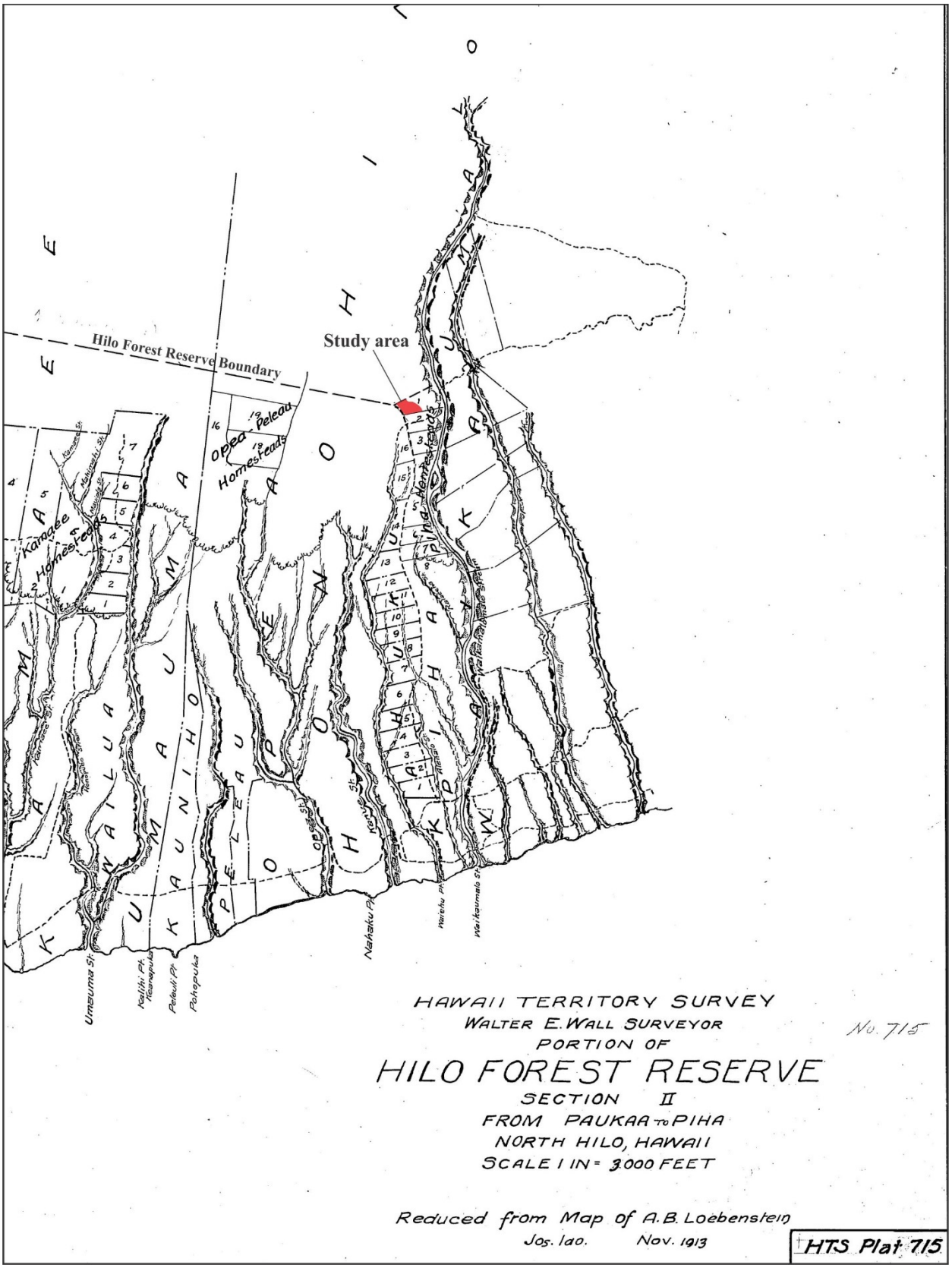

Figure 7. Portion of a 1913 map of Section II of the Hilo Forest Reserve (HTS Plat 715) with the location of the current study area indicated (Iao 1913).

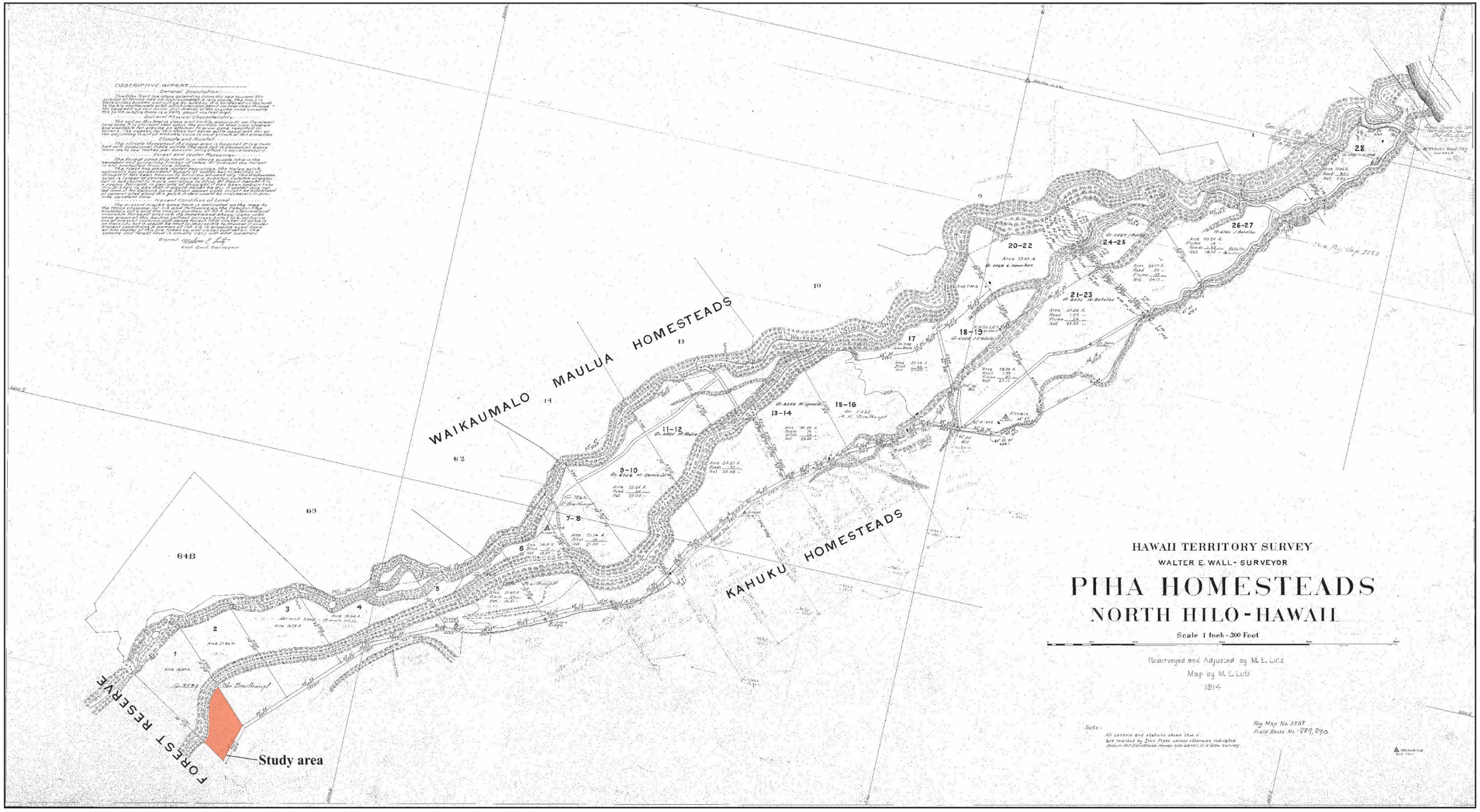

Figure 8. Map of the Pīhā Homesteads showing the location of the current study area (Lutz 1914).

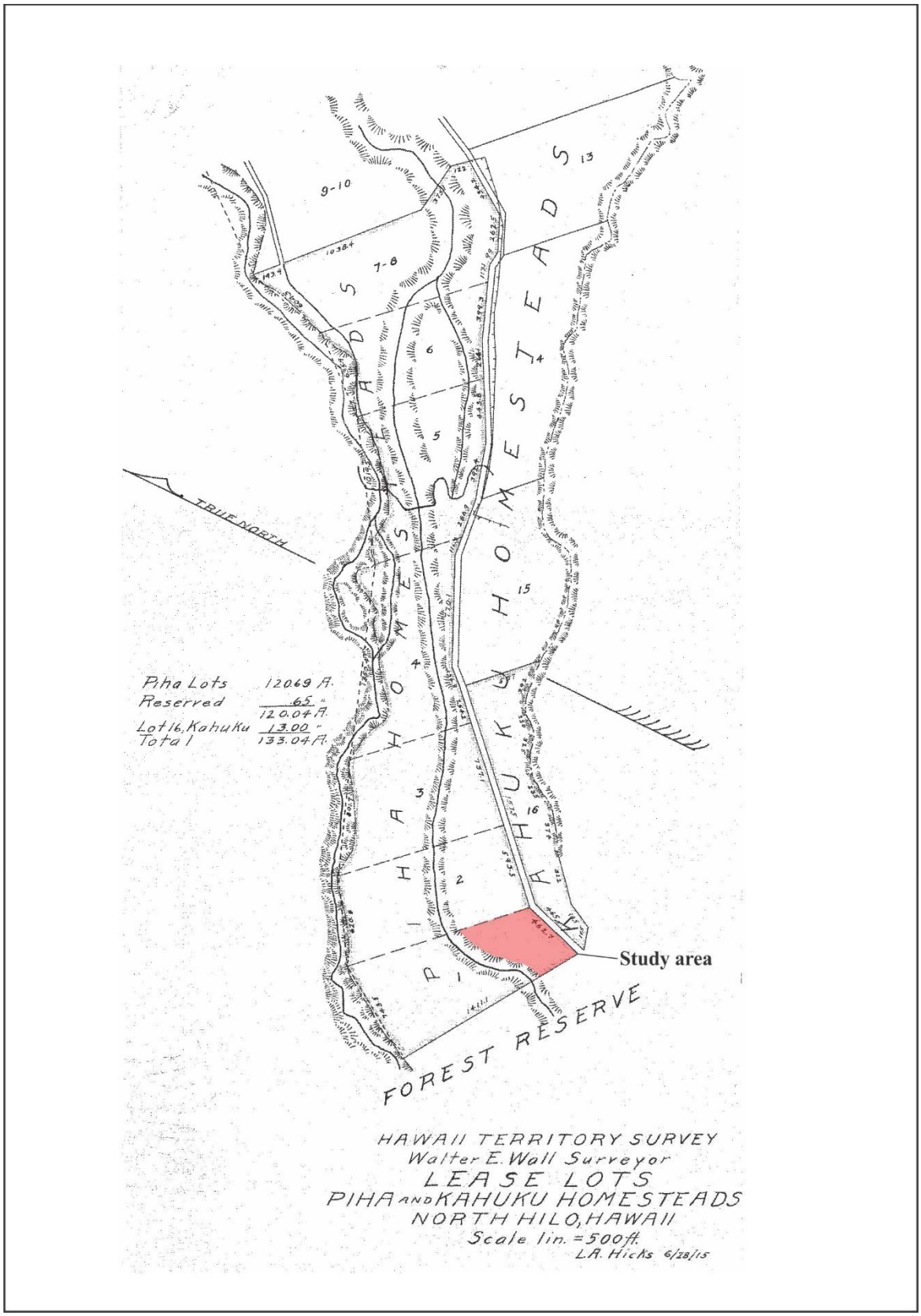

Figure 9. Map showing the Pīhā-Kahuku Homestead lands leased to the Hakalau Plantation Company on July 14, 1915 (Hicks 1915).

PRIOR STUDIES

A review of reports and correspondence on file at the SHPD office in Hilo indicates that no prior archaeological studies have been conducted in the vicinity of the current study area, but that SHPD has previously written "no effect" letters for at least eight parcels situated *makai* of the current study area within the Pīhā and Kahuku Homesteads. These "no effect" letters include a November 1, 1996 letter for TMK: (3) 3-2-004:025 (*Log No. 18344 Doc No. 9610ms04*), an April 24, 1998 letter for TMK: (3) 3-2-004:027 (*Log No. 21307 Doc No. 9804PM15*), a June 1, 1998 letter for TMK: (3) 3-2-004:039 (*Log No. 21050 Doc No. 9802PM03*), an August 18, 1998 letter for TMK: (3) 3-2-004:041 (*Log No. 22025 Doc No. 9807ms17*), a June 19, 2001 letter for TMK: (3) 3-2-004:043 and 044 (*Log No. 27706 Doc No. 0105ms08*), a December 31, 2010 letter for TMK: (3) 3-2-004:045 (*Log No. 28884 Doc No. 0112PM10*), and an April 17, 2013 letter for TMK: (3) 3-2-004:046 (*Log No. 2013.2304 Doc No. 1304SN05*) (see Figure 2). The reason generally given for SHPD's belief that the proposed development of these parcels would have "no effect" on significant historic sites, was that a review of aerial photographs revealed that intensive cultivation of sugarcane had already altered the land. No archaeological survey of the parcels listed above was undertaken by SHPD.

Very few archaeological studies have been conducted anywhere within the district of the North Hilo at elevations similar to the current study area. The first archaeological work conducted in East Hawai'i was that of the early twentieth century *heiau* researchers Thrum and Stokes (Thrum 1908, Stokes and Dye 1991). Neither investigator was able to identify *heiau* within Pīhā Ahupua'a or, for that matter, within the larger region between the town of Hilo and Laupāhoehoe Ahupua'a. In the early 1930s, A.E. Hudson, working under the aegis of the Bishop Museum, also conducted archaeological investigations in East Hawai'i, surveying primarily along the coast of the district (Hudson 1932). He found little in the region *makai* of the study area, although he did note the presence of a .25 mile square area of taro terraces in the upper part of Hakalau Gulch. According to Hudson (1932:218), there was formerly a kōnane board in the bottom of Hakalau Gulch, and the gulch was at one time a robber's stronghold.

More recently, Walker and Rosendahl (1994a, 1994b) conducted an archaeological study of some 595 acres of Hakalau Nui Ahupua'a, South Hilo District, situated between Hawaii Belt Road and the 1,500-foot elevation contour. Low-level aerial (helicopter) survey was conducted over some of the uncultivated, forested portions of that study area, and other uncultivated areas were inspected using "variable-coverage (partial to 100%) variable-intensity ground survey" (Walker and Rosendahl 1994b:2). Walker and Rosendahl reported that the study area had been extensively modified during the Historic Period for sugarcane cultivation, and that no archaeological sites or "significant cultural materials of any kind" were found (Walker and Rosendahl 1994b:2).

Tomonari-Tuggle (1996) prepared a cultural resource overview for the Hakalau National Wildlife Refuge that included lands *mauka* of the current study area (but not Pīhā Ahupua'a). Very little archaeological survey was undertaken as part of the study, but Tomonari-Tuggle (1996:67-72) does provide a predictive model for site distribution within the upland forests of Hilo. She notes that the forest areas were used primarily for the collection of special resources, and that:

> …Traditionally these resources would have been birds (for featherwork) and hardwoods (for tools and canoes). In historical times, birds and hardwoods would have continued as resources, with the addition of cattle for meat and hides. The upland forests may also have been transited by individuals going from the coast to the upper slopes or summit of Mauna Kea...
>
> These transitory activities would likely have left neither a substantial nor easily recognized archaeological record. Further, the density and rapid regrowth of vegetation in the rainforest would also make any remains virtually impossible to identify once abandoned. (Tomonari-Tuggle 1996:67)

Specific site types discussed by Tomonari-Tuggle (1996) that might be encountered within the upland forests of the Hilo District include temporary shelters used by bird catchers, canoe builders, bullock hunters, scientists, travelers, surveyors, shrines or other religious structures, ponds and waterholes, roads and trails, bullock pits, surveyor's marks and ranch structures. She describes the lowest forest zone, above the current study area as the "Wet *'Ōhi'a* Zone," an area that was largely used as a source of specialized forest resources such as hardwoods for crafts or construction, and forest birds for feathers.

3. CONSULTATION

When assessing potential cultural impacts to resources, practices, and beliefs; input gathered from community members with genealogical ties and/or long-standing residency relationships to the study area is vital. It is precisely these individuals who ascribe meaning and value to traditional resources and practices. Community members may also possess traditional knowledge and beliefs that are unavailable elsewhere in the historical or cultural record of a place. As stated in the OEQC Guidelines for Assessing Cultural Impacts, the goal of the oral interview process is to identify potential cultural resources, practices, and beliefs associated with the affected study area.

In an effort to identify individuals knowledgeable about traditional cultural practices and/or uses associated with the current subject property, a public notice was submitted to the Office of Hawaiian Affairs (OHA) for publication in their newspaper, *Ka Wai Ola* (Appendix B). The notice appeared in the Malaki (March) 2018 issue of the publication. As of the date of the current report, no responses have been received from the public notice. The OHA East Hawai‘i office was also contacted for guidance on individuals with genealogical or historical relationships with Pīhā, however, no response was received. Additionally, Lauren Tam Sing of ASM Affiliates also consulted with Ian Cole of the State of Hawai‘i Department of Forestry and Wildlife (DOFAW) division in Hilo. Joey Mello, the Hawai‘i Branch DOFAW Wildlife Program Manager for East Hawai‘i was also contacted, but time constraints prevented a more formal consultation. He did, however, indicate in a voicemail message that the access to the Unit C hunting area was restricted to the Mānā Road entry, situated 15.5 miles inland from the Mauna Kea Access Road. David Penn, the current Program Specialist for DOFAW’s Legacy Land Conservation/Native Ecosystems Protection & Management was also contacted, and subsequently forwarded our request for information to Clement Chang, a Trails and Access Specialist with DOFAW. Mr. Chang related that he was not familiar with any other access points to Unit C other than Mānā Road. Furthermore, eleven members of the Breithaupt family, a family with known historical ties to the current study area and other Pīhā Homestead parcels in the immediate vicinity, were contacted. The granddaughter of Ernest McComber Breithaupt, son of A.K. Breithaupt (Grant 7862), responded to our inquiry and indicated that her mother might be of assistance, but to date she has not contacted ASM. None of the other Breithaupt family members who were contacted have responded to our inquiry to date.

IAN COLE

On April 5, 2018, Lauren Tam Sing consulted with Mr. Ian Cole of DOFAW by telephone to discuss historical and modern access points to Unit C, an area utilized for hunting of feral pigs and wild sheep situated the upper reaches of Pīhā and nearby Laupāhoehoe within the Hilo Forest Reserve. According to Mr. Cole, the entrance into the Unit C hunting area is publically accessible by Mānā Road, where a hunter check station is present. He related that there is no formal *makai* access to Unit C through the Pīhā-Kahuku Road that extends to the southeastern corner of the current study area, however, he noted that informal access points in various locations have been and are utilized by individuals seeking to hunt within the forest reserve. There are several hunter check stations (e.g. in Laupāhoehoe and ‘Ō‘okala) which hunters use to access different hunting units, but Mr. Cole explained that in some cases hunters may enter through these various other check points and traverse to Unit C, bypassing the official checkpoint, thereby not leaving a paper trail. And as previously discussed, hunters enter the reserve independently at various locations, As such, assessing the number of hunters who utilize Unit C is not possible. He further indicated that DOFAW does maintain a presence in the Pīhā section of the reserve, particularly above Laupāhoehoe and in *mauka* Pīhā, and are especially concerned with the hunters who pass through different hunting units into Unit C with their canines, as hunters in Unit C are not permitted to hunt with the aid of dogs. According to Mr. Cole, the issue of hunter access into the forest reserve has been and remains as a particularly a troublesome issue in the Hāmākua District. He did not see how the construction of a single-family residence within the current study area would impact hunters, as there is techincally no formal access to Unit C through Pīhā-Kahuku road, and certainly not accessible through privately-owned property, including the current subject parcel.

4. IDENTIFICATION AND MITIGATION OF POTENTIAL CULTURAL IMPACTS

The OEQC guidelines identify several possible types of cultural practices and beliefs that are subject to assessment. These include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The guidelines also identify the types of potential cultural resources, associated with cultural practices and beliefs that are subject to assessment. Essentially these are natural features of the landscape and historic sites, including traditional cultural properties. A working definition of traditional cultural property is:

> "Traditional cultural property" means any historic property associated with the traditional practices and beliefs of an ethnic community or members of that community for more than fifty years. These traditions shall be founded in an ethnic community's history and contribute to maintaining the ethnic community's cultural identity. Traditional associations are those demonstrating a continuity of practice or belief until present or those documented in historical source materials, or both.

The origin of the concept of traditional cultural property is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service. "Traditional" as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. "Cultural" refers to the beliefs, practices, lifeways, and social institutions of a given community. The use of the term "Property" defines this category of resource as an identifiable place. Traditional cultural properties are not intangible, they must have some kind of boundary; and are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, the significance of traditional cultural properties should be determined by the community that values them.

It is however with the definition of "Property" wherein there lies an inherent contradiction, and corresponding difficulty in the process of identification and evaluation of potential Hawaiian traditional cultural properties, because it is precisely the concept of boundaries that runs counter to the traditional Hawaiian belief system. The sacredness of a particular landscape feature is often cosmologically tied to the rest of the landscape as well as to other features on it. To limit a property to a specifically defined area may actually partition it from what makes it significant in the first place. However offensive the concept of boundaries may be, it is nonetheless the regulatory benchmark for defining and assessing traditional cultural properties.

As the OEQC guidelines do not contain criteria for assessing the significance for traditional cultural properties, this study will adopt the state criteria for evaluating the significance of historic properties, of which traditional cultural properties are a subset. To be significant the potential historic property or traditional cultural property 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 value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

While it is the practice of DLNR-SHPD to consider most historic properties significant under Criterion d at a minimum, it is clear that traditional cultural properties by definition would also be significant under Criterion e. A further analytical framework for addressing the preservation and protection of customary and traditional native practices specific to Hawaiian communities resulted from the *Ka Pa'akai O Ka'āina* v Land Use Commission court case. The court decision established a three-part process relative to evaluating such potential impacts: first, to identify whether any valued cultural, historical, or natural resources are present; and identify the extent to which any traditional and customary native Hawaiian rights are exercised; second, to identify the extent to which those resources and rights will be affected or impaired; and third, specify any mitigative actions to be taken to reasonably protect native Hawaiian rights if they are found to exist.

A review of the culture-historical background material reveals that traditionally, the rich upland forested areas of Pīhā, preserve within them the sacredness of an ancient landscape. The presence and transition between the various traditional inland environmental and social-ecological systems including but not limited to the *wao kānaka*, *wao lā'au*, *wao nāhele*, *wao kele*, and the *wao akua*, exist within Pīhā's sacred landscape, and protected within are the sacrosanct memories of traditional ancient customs and natural and cultural resources. These inland zones, or *wao*, are stratified by variations in elevation and rainfall, and are considered as a region all their own. Handy et al. (1991:56) further elaborates:

> *Wao* means the wild—a place distant and not often penetrated by man. The *wao la'au* is the inland forested region, often a veritable jungle, which surmounts the upland *kula* slopes on every major island of the chain, reaching up to very high elevations especially on Kauai, Maui, and Hawaii. The Hawaiians recognized and named many divisions or aspects of the *wao*: first, the *wao kanaka*, the reaches most accessible, and most valuable, to man (*kanaka*); and above that, denser and at higher elevations, the *wao akua*, forest of the gods, remote, awesome, seldom penetrated, source of supernatural influences, both evil and beneficent. The *wao kele*, or *wao ma'u kele*, was the rain forest. Here grew giant trees and tree ferns (*'ama'u*) under almost perpetual cloud and rain.
>
> The *wao kanaka* and the *wao la'au* provided man with the hard wood of the *koa* for spears, utensils, and logs for boat hulls; pandanus leaves (*lau hala*) for thatch and mats; bark of the *mamaki* tree for making tapa cloth; candlenuts (*kukui*) for oil and lights; wild yams and roots for famine time; sandalwood, prized when shaved or ground as a sweet scent for bedding and stored garments. These and innumerable other materials were sought and found and worked by man in or from the wao.

Historical documentation reveals that the *wao* of Pīhā were used for the procurement of special resources and were specifically utilized for bird-catching and the hewing and carving of *koa* wood for canoes. Although the traditional cultural practices and craft specialization associated with these traditions are no longer actively practiced in Pīhā, the recognition of their practice and importance reinforces the importance of the *mauka* Pīhā lands to the Hawaiian people. Boundary commission testimonies for Pīhā in 1875 revealed that an old trail utilized by bird catchers extended along the boundary of Pīhā and Kahuku Ahupua'a, which is coterminous with the eastern boundary of the current study area. According to the testimony, a canoe road in Nanue, the *ahupua'a* that begins only slightly to the northeast of the current study area where Kahuku terminates, extended *mauka* and lead to a place named Ka'ahina where canoes were made. The presence of these trails and their association with known traditional customs and practices in the area emphasize Pīhā's significance as a cultural landscape and its value to the Hawaiian people's cultural identity.

The forested lands immediately *mauka* of the current study area have been protected under conservation as the Hilo Forest Reserve since 1905. Its lands and watersheds, the protection of which were the primary reason for the establishment of the reserve, remained virtually untouched by the flourishing sugar industry that dominated the more *makai* lands of Pīhā and adjacent areas. Protected within these forests are many of the same natural resources that were extant during the Precontact and early Historic Periods. Prior to the establishment of the Hilo Forest Reserve, large populations of feral animals, particularly pigs, have wreaked havoc on the health of the forest. While the creation of the reserve focused primarily on the protection of the forest watersheds, it provided the added benefit of controlling the feral pig population through the subsequent establishment of DOFAW, who manages various natural area, forest, and game management reserves, wildlife sanctuaries, and public bird/mammal hunting areas throughout the State of Hawai'i.

While the recreational hunting of introduced species of feral pigs is not recognized as a traditional Hawaiian cultural practice, it is a long-standing tradition practiced in the islands for over a century and a half (Maly et al. n.d.). The pigs originally introduced by the Polynesians were for the most part domesticated, and were an important food product and cultural resource in ancient Hawai'i, but they were not recreationally hunted (ibid.). As the *wao* were considered sacred, particularly the *wao akua*, great care was taken by the Hawaiians as they passed through. Entry into the depths of the *wao* was conducted with focused intention for the collection of very special natural resources including feathers, wood, foliage, and medicine. It is within the custom of exercising profound respect for the spiritual and physical entities that inhabit the *wao akua*, that these resources were protected in the ancient days. As noted by Maly et al. (n.d.), "*Pua'a* were valuable cultural resources, but in ancient times were kept away from the *wao akua*, which held so much more value to Hawaiians than a single species such as a pig."

Following the demise of the Polynesian-introduced pig and the population influx of Western-introduced pig

species, who thrived on a seemingly endless supply of forest forage, every layer of the *wao* has been infiltrated and the state of native Hawaiian forests are in continual degradation as a result. The recreational hunting program managed by DOFAW serves to mitigate decimation to native vegetation caused by feral pigs by allowing the public to hunt within designated hunting units within the reserve. Thus, the continuation of pig hunting within the Pīhā Section of the Hilo Forest Reserve will aid in restoring the *mauka* lands to a more natural state. The proposed construction of a single-family residence on the subject property will not impede access to the forest for pig hunting activities, nor will it impact any potential cultural utilization of forest resouces.

Should individuals with genealogical and/or historical relationships with Pīhā wish to re-utilize its forest lands for the gathering of traditional cultural resources such as *koa* and *ʻōhiʻa* for timbers, or various other plants for medicinal and/or ceremonial purposes, this use should be encouraged. It is likely that restoring access to those with ties to the land who wish to access it and rejuvenate traditional resource procurement will aid in the rehabilitation of the forest. As such, this will only aid in the restoration of native vegetation which has been encroached upon and slowly overrun by invasive species.

Given the above consultation and assessment, it is our conclusion that the proposed development of a single-family residence on TMK: (3) 3-2-004:038 will not result in impacts to any traditionally valued cultural or historical resources nor will it impact any traditional cultural practices or beliefs.

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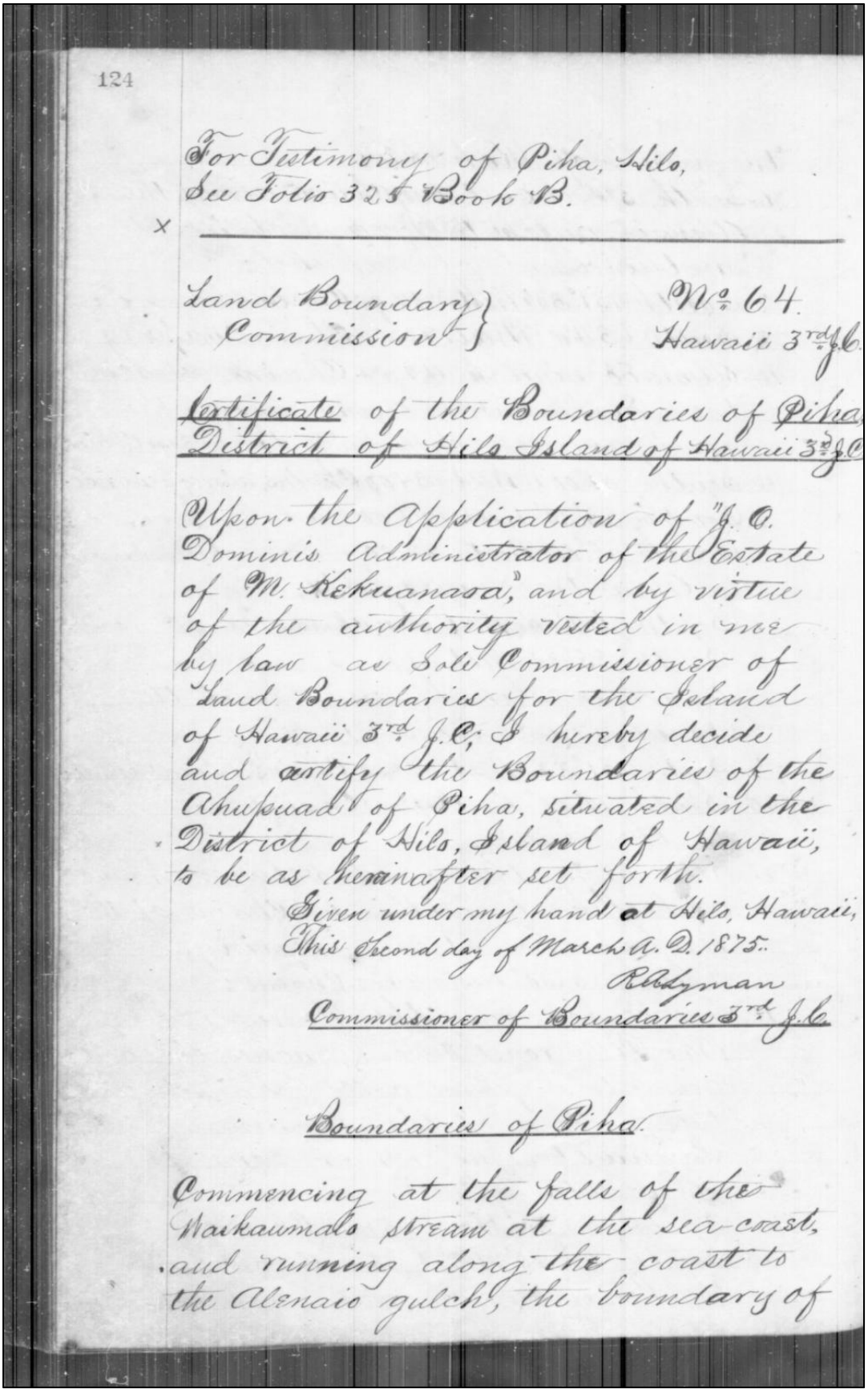
APPENDIX A

BOUNDARY COMMISSION TESTIMONY FOR PĪHĀ AHUPUA‘A



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For Testimony of Piha, Hilo,
See Folio 325 Book B.

X

Land Boundary Commission } No. 64.
Hawaii 3rd J.C.

Certificate of the Boundaries of Piha, District of Hilo Island of Hawaii 3rd J.C.

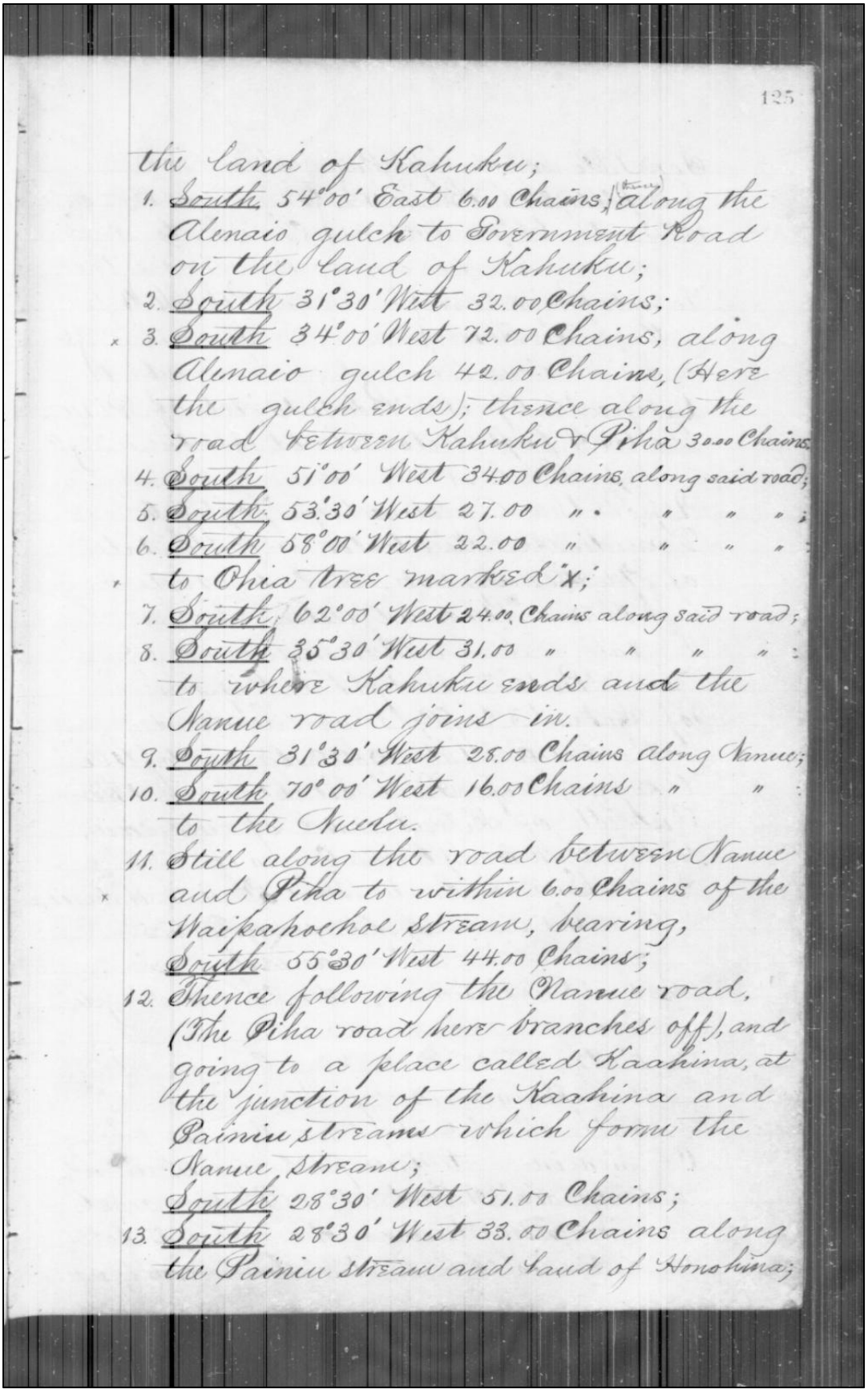
Upon the Application of "J. O. Dominis Administrator of the Estate of M. Kekuanaoa," and by virtue of the authority vested in me by law as Sole Commissioner of Land Boundaries for the Island of Hawaii 3rd J.C., I hereby decide and certify the Boundaries of the Ahupuaa of Piha, situated in the District of Hilo, Island of Hawaii, to be as hereinafter set forth.

Given under my hand at Hilo, Hawaii, This Second day of March A. D. 1875.

R. Lyman
Commissioner of Boundaries 3rd J.C.

Boundaries of Piha.

Commencing at the falls of the Waikaumalo stream at the sea coast, and running along the coast to the Alenaio gulch, the boundary of



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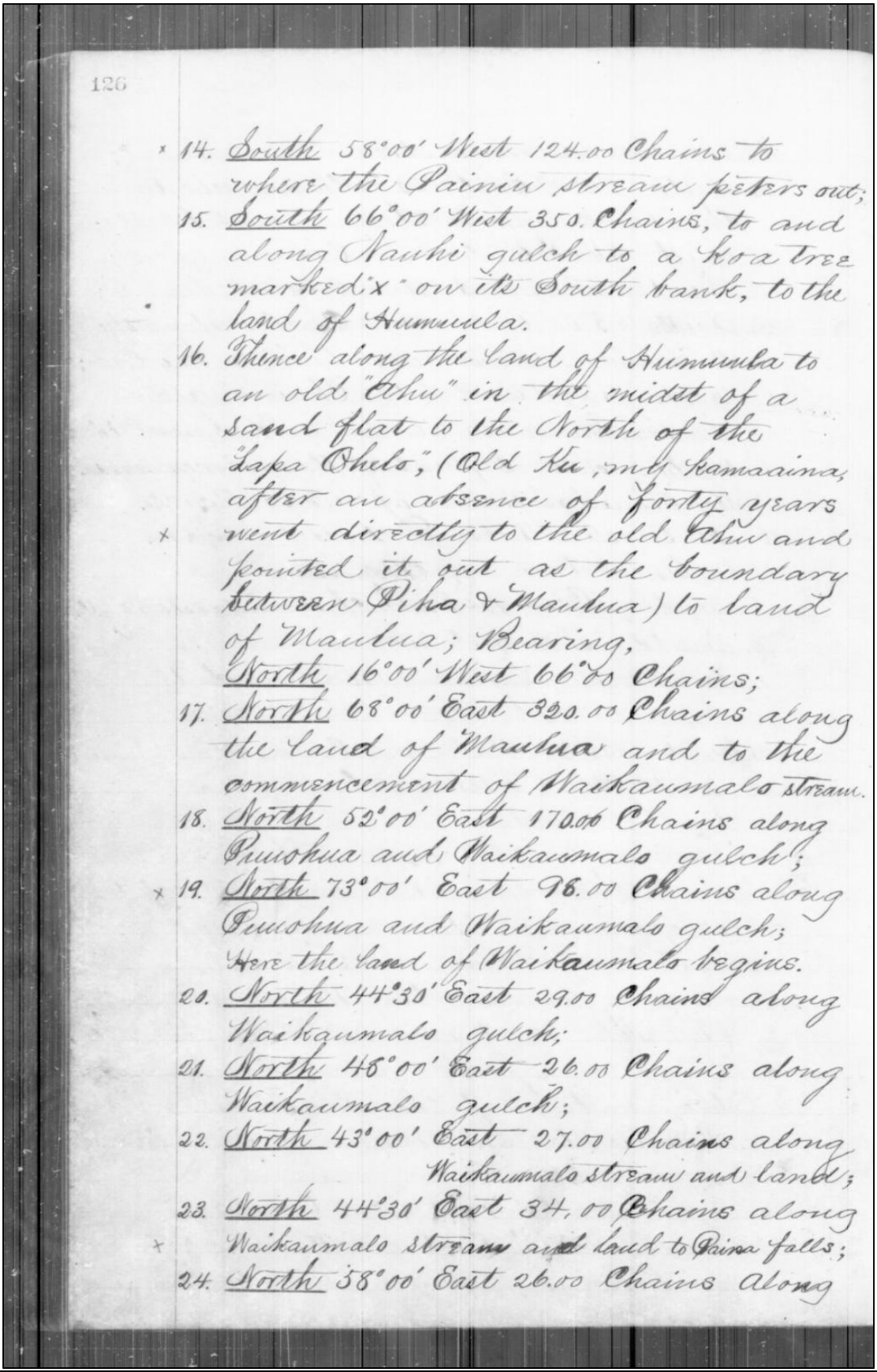
the land of Kahuku;
1. South 54°00' East 6.00 Chains; along the Alenaio gulch to Government Road on the land of Kahuku;
2. South 31°30' West 32.00 Chains;
3. South 34°00' West 72.00 Chains, along Alenaio gulch 42.00 Chains, (Here the gulch ends); thence along the road between Kahuku & Piha 30.00 Chains.
4. South 51°00' West 34.00 Chains along said road;
5. South 53°30' West 27.00 " " " " ;
6. South 58°00' West 22.00 " " " " ;
to Ohia tree marked X;
7. South 62°00' West 24.00 Chains along said road;
8. South 35°30' West 31.00 " " " " ;
to where Kahuku ends and the Nanue road joins in.
9. South 31°30' West 28.00 Chains along Nanue;
10. South 70°00' West 16.00 Chains " " ;
to the Sweet.
11. Still along the road between Nanue and Piha to within 6.00 Chains of the Waikahoehoe Stream, bearing,
South 55°30' West 44.00 Chains;
12. Thence following the Nanue road, (The Piha road here branches off), and going to a place called Kaahina, at the junction of the Kaahina and Painiu streams which form the Nanue Stream;
South 28°30' West 51.00 Chains;
13. South 28°30' West 33.00 Chains along the Painiu Stream and land of Honohina;



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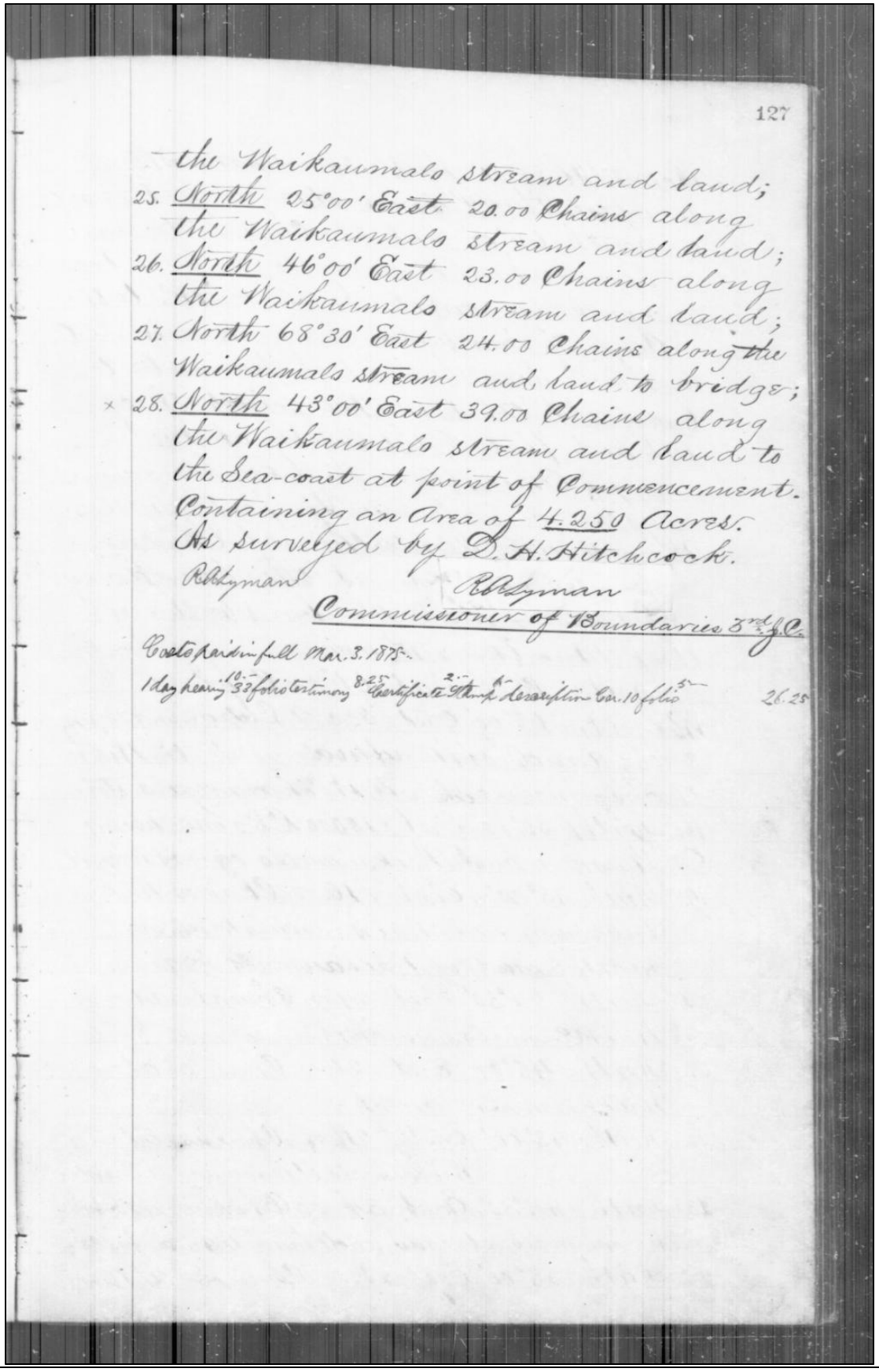
14. South 58°00' West 124.00 Chains to where the Painiu stream peters out;
15. South 66°00' West 350. Chains, to and along Nauhi gulch to a Koa tree marked "x" on its South bank, to the land of Humuula.
16. Thence along the land of Humuula to an old "Ahu" in the midst of a sand flat to the North of the "Lapa Ohelo", (Old Ku, my kamaaina, after an absence of forty years went directly to the old Ahu and pointed it out as the boundary between Piha & Maulua) to land of Maulua; Bearing,
North 16°00' West 66°00 Chains;
17. North 68°00' East 320.00 Chains along the land of Maulua and to the commencement of Waikaumalo stream.
18. North 52°00' East 170.00 Chains along Puuohua and Waikaumalo gulch;
19. North 73°00' East 96.00 Chains along Puuohua and Waikaumalo gulch; Here the land of Waikaumalo begins.
20. North 44°30' East 29.00 Chains along Waikaumalo gulch;
21. North 46°00' East 26.00 Chains along Waikaumalo gulch;
22. North 43°00' East 27.00 Chains along Waikaumalo stream and land;
23. North 44°30' East 34.00 Chains along Waikaumalo stream and land to Piina falls;
24. North 58°00' East 26.00 Chains along



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the Waikaumalo stream and land;
25. North 25°00' East 20.00 Chains along
the Waikaumalo stream and land;
26. North 46°00' East 23.00 Chains along
the Waikaumalo stream and land;
27. North 68°30' East 24.00 Chains along the
Waikaumals stream and land to bridge;
28. North 43°00' East 39.00 Chains along
the Waikaumalo stream and land to
the Sea-coast at point of Commencement.
Containing an Area of 4.250 Acres.
As surveyed by D. H. Hitchcock.
R. A. Lyman
R. A. Lyman
Commissioner of Boundaries 3rd Jud. Cir.

Costs paid in full Mar. 3. 1875.
1 day hearing 10.- 33 folios testimony 8.25 Certificate 2.- Stamps 6 description Bk. 10 folio 5 26.25

The Ahupuaa of Piha, District of Hilo, Island of Hawaii 3rd. J. C.

On this the 8th day of February A.D. 1875, the commission of Boundaries for the Island of Hawaii 3rd. J.C, met at the Court house, Hilo, Hawaii, on the application of J. O. Dominis Admr Est M. Kekuanaoa. for the settlement of the boundaries of Piha, Situated in District of Hilo, Island of Hawaii. Due notice of hearing personally served on all owners or Agents of adjoining lands as far as known.

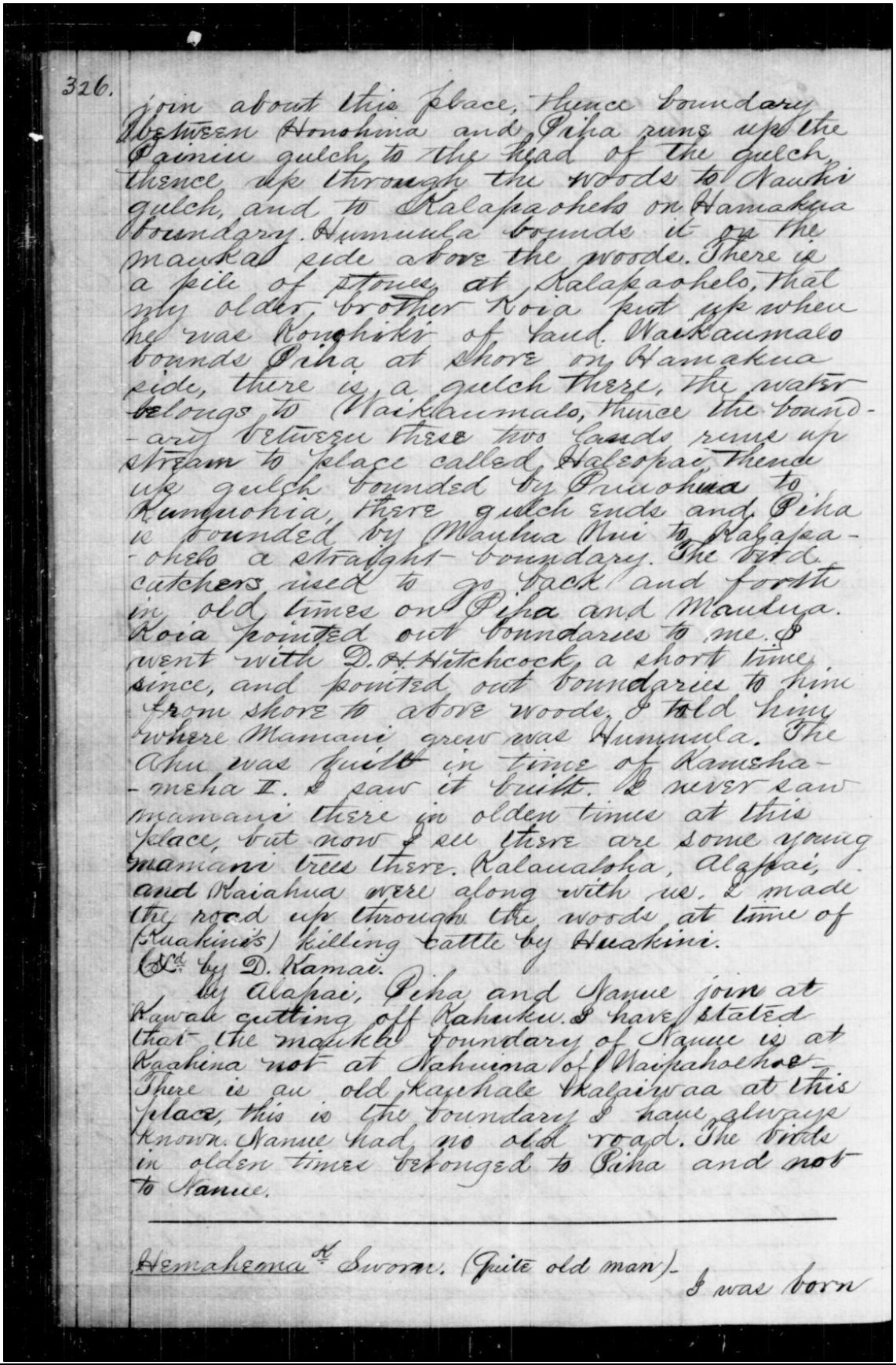
Present- E. G. Hitchcock on part of applicant, Agent of Crown Lands J. O. Dominis, and R. Keelikolani, D. Kamai for Hawaiian Government, Alapai, for self. Maps and notes of survey filed.

For Petition see Folio 242. Book A

- Testimony -

Ku x Sworn. (an old man)

I was born at Honohina, Hilo, at time of Okolehas during reign of Kamehamehas I Was old enough to cook at time of Okuu. my kupuna-kane Hue and my father Mahoai bird catchers told me boundaries. My Grandfather made the road on Honohina to Moohalohalo, and I made the road to Hopuwai, Kahuku bounds Piha on Hilo side at shore, there is a small gulch there called Alanaio on boundary, thence runs up gulch to a short distance above road to head of it, thence up old trail to Kaawau, thence bounded by Nanue, up old trail to Nenelu old, Kaukale, thence up trail to Waipahoehoe a kahawai and Kaukale, the old trail does not reach to the gulch but turns to the left, the old boundary between lands running to Ohiapuha, till time Hapai made caboces, then boundary was carried up to Kaahina, where Piha-iki and Nanue end, and Honohina and Piha-nui join. There are three gulches



326.

join about this place, thence boundary between Honohina and Piha runs up the Paimiu gulch to the head of the gulch, thence up through the woods to Nauhi gulch, and to Kalapaohelo on Hamakua boundary. Hummula bounds it on the mauka side above the woods. There is a pile of stones at Kalapaohelo, that my older brother Koia put up when he was Konohiki of land. Waikaumalo bounds Piha at shore on Hamakua side, there is a gulch there, the water belongs to Waikaumalo, thence the boundary between these two lands runs up stream to place called Halepaa, thence up gulch bounded by Puuohina to Kumuohia, there gulch ends and Piha is bounded by Mauka Nui to Kalapaohelo a straight boundary. The bird catchers used to go back and forth in old times on Piha and Mauka. Koia pointed out boundaries to me. I went with D. H. Hitchcock a short time since, and pointed out boundaries to him from shore to above woods, & told him where Mamani grew was Hummula. The Ahu was built in time of Kamehameha II. I saw it built. I never saw mamani there in olden times at this place, but now I see there are some young mamani trees there. Kalanaloha, Alapai, and Kaiahua were along with me. I made the road up through the woods at time of (Kuakini's) killing cattle by Kuakini.

Qd. by D. Kamai.

by Alapai, Piha and Nanue join at Kawaa cutting off Kahuku. I have stated that the mauka boundary of Nanue is at Kaahina not at Kahuina of Waipahoehoe. There is an old Kaehale Kalaiwaa at this place, this is the boundary I have always known. Nanue had no old road. The birds in olden times belonged to Piha and not to Nanue.

Hemahemaha Sworn. (Quite old man). I was born

in Hamakua, moved to Hilo to Puuohua when quite young and went over these lands with Waiwai my father. He was konohiki of these lands to Pohakupuka. Went, with my kupuna akane bird catching. Waikaumalo bounds Piha on Hamakua side at shore, boundary runs up gulch to Kaalaiki at Kaleopai where Puuohua bounds it, boundary runs up gulch to Niuka where Puuohua ends, and Madiya bounds it to the mountain. Bird catchers from these two lands used to catch in common. The mauka boundary is at Kalapaohelo above the woods at old ahu. There are several Ahus there now. Hummula bounds it on mauka side to Nauhi gulch. Kahuku bounds Piha at shore at Hilo side, a small gulch, boundary runs up gulch to head, and up old trail to Nahuina where Piha and Nanue join and Kahuku ends, thence boundary runs up trail to Kaahina near Waipahochoe, this is as far as I ever knew about Nanue, then bounded by Honohina, do not know as Honohina runs through woods, but know that Piha runs up to Nauhi gulch. I do not know what gulch it is makai now.

Q. by D. Kamai, Niuka is at mauka end of Puuohua, Kumuohia is on Piha. place. Nahuina and Kumukawau are the same.

" by Alapai, From Kawau boundary between Nanue and Piha runs up old trail to Kaahina, this is as far as I ever knew Nanue to run. It is where Hapai made a canoe. I heard from Kiliili, Napihe and Kaiapapu that this was the mauka end of Nanue. Hapai ma said the same thing.

D. H. Hitchcock Sworn. I surveyed Piha last October. Ku was my kamaaina. Kalauaoha went along on part of Nanue. I had already talked with Hembahema, and as he agreed with Ku, I did not take him, but surveyed the land as Ku pointed it out, commencing at shore on Hilo side went to Nahuina where both kamaainas said that

328. Kahuku ended. I then went up to below Waipahoehoe where Kalaualoha said that boundary went on to gulch Waipahoehoe and up stream, (Nanue) ran through woods, but Ku and (Hemahema said that the boundary ran up trail to Kaahiva. The other two men said it (Nanue) ended at Kaahuia. I found, that most of the gulches ended at Niuika, and gulches from mauka ended at swamp. When I got to Nauhi gulch at upper edge of woods both Kalaualoha and Ku said that it was the upper corner of Piha. Ku said Piha was bounded there by Honohina, and Kalaualoha that it was bounded by Nanue. They both went to a sandy place and pointed out an old pile of stones at Kalapaohelo and said that was boundary between Piha and Maulua, it is in the upper edge of woods, with a few young mamani below it. I think it is about 25 chains makai of Laumaia road. I surveyed the Waikaumalo side, giving the general courses, and distances of gulches, and marked trees. This map and notes of survey filed today, are the ones I made out from my field notes.
CAL.

Kalaualoha K. Sworn, (old man).
I live at Nanue, was born at Honohina, know boundaries of Piha, Kulamahiai, Koia, and Waikaue now dead told me boundaries. Piha and Nanue join each other at Kawau on old trail into woods, thence boundary runs up this trail to Waipahoehoe, thence boundary runs up this stream to Mahuia kauhale on Piha, thence boundary runs up to Koapololei, thence up old trail to upper edge of woods to Kalapaohelo, to a place called Kaluaalu about as far on the Puna side of Kalapaohelo as from here to Wailuku gulch. Nanue reaches to Kaluaalu. Nauhi gulch is in the middle of Nanue. Nauhi gulch only runs a short distance into woods and there spreads out all around —
CAL.

In olden times the birdcatchers used to go up the Honohina and Piha roads, they could not go up Nanue as the road was so bad. The canoe road of Nanue ran to mauka of Kaahina, there it ended. But the roads on Honohina and Piha ran way mauka. Alakai now owns Nanue. I and his father in law. I did not tell Hitchcock that Naukii was the boundary of Piha. I was a witness on boundary of Nanue and Humuula.

Kaipahue sworn. (Quite an old man).

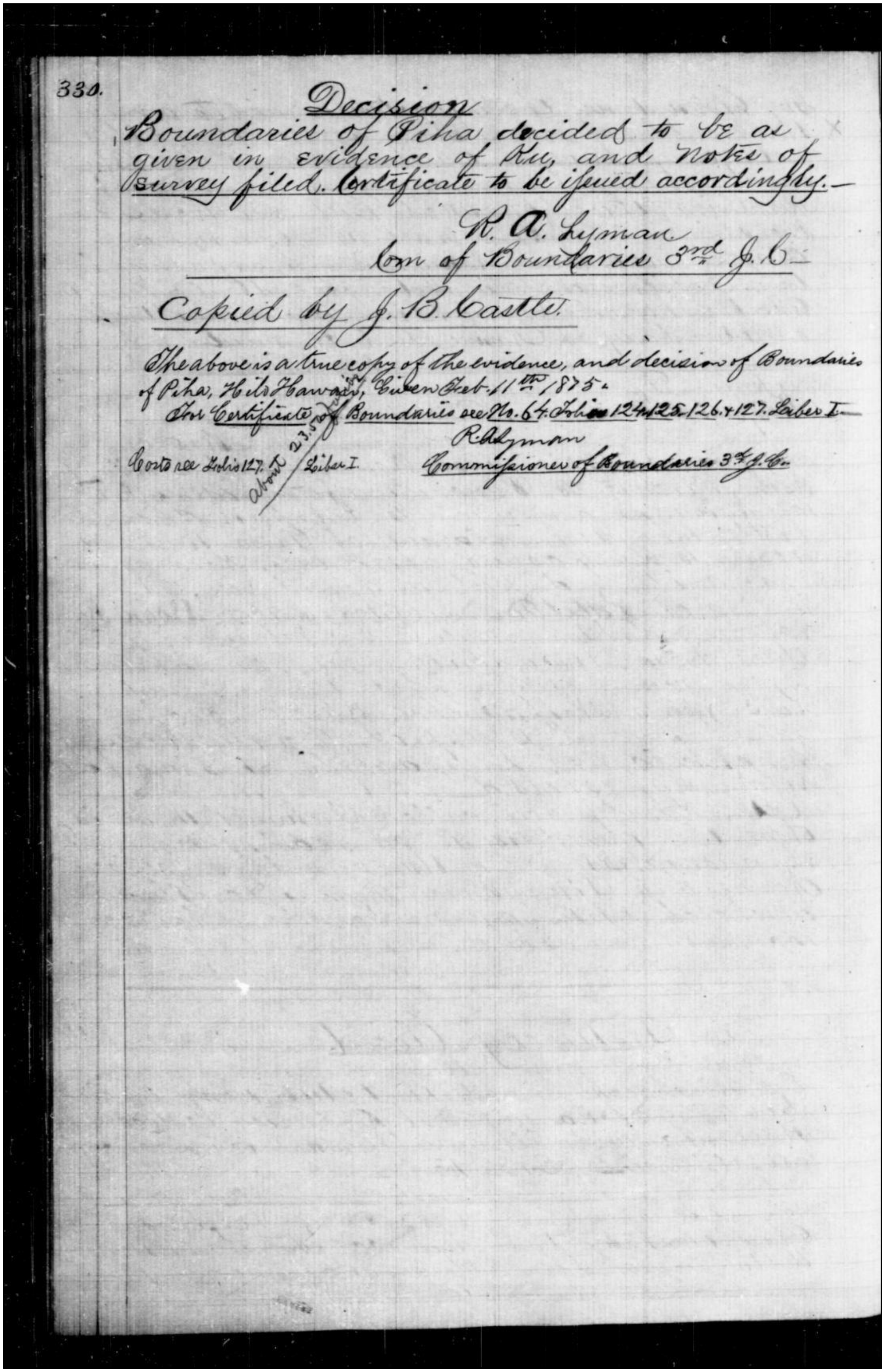
Was born at time of Pelekeo, in Kona, moved to Hilo with parents to Punohina, afterwards moved to Nanue. I am uncle to Alakai. Know a little about boundaries of Piha. Went up road to Kalapaohelo after beef. Koia was our guide and told me boundaries. Piha is bounded by Nanue from shore Kahuku between. Kahuku ends at Kahuina, and there Nanue and Piha join, Kumukawai is one name of this place, thence boundary runs up to Kaipahoehoe gulch across gulch up road to upper edge of woods to place called Kalapaohelo at Puna base of Kualapaohelo. ——

C.S., Know places called Pahau & Mahuia, there the boundary is at road. Know Kumuohia. It is on the boundary between Nanue and Piha, Know Kukai &c, Places Hitchcock states are on boundary between Mauhua and Piha). —— ——

Testimony Closed.

E.S. Hitchcock moved that testimony given by Kalauaoha as to boundaries between Humuula and Piha and Nanue be introduced as evidence — Granted —

Alakai states that he accepts Kaahina as the mauka boundary of Nanue. ——



330.

Decision

Boundaries of Piha decided to be as given in evidence of Ku, and notes of survey filed. Certificate to be issued accordingly.—

R. A. Lyman
Com of Boundaries 3rd J. C.

Copied by J. B. Castle.

The above is a true copy of the evidence, and decision of Boundaries of Piha, Hilo Hawaii, Given Feb. 11th 1875.
For Certificate of Boundaries see No. 64. Folios 124, 125, 126, & 127. Liber I.

Costs see Folio 127. Liber I.

about 23.5

R. A. Lyman
Commissioner of Boundaries 3rd J. C.

242

Hon R. A Lyman
Boundary Commissioner
Island of Hawaii

The undersigned would herewith make application for the Settlement of the Boundaries of the following Ahupuaa's & Lands, belonging to Her Ex R Keelikolani; viz

Kikala Hilo. Hawaii.
Bounded by Maumau. J H Harris Paukaa, C C Harris Kaiwiki - Govt
Haiku Hilo Hawaii
Bounding lands unknown
Kaumoko Hilo Hawaii
Bounding lands unknown
Waikaumalo Hilo Hawaii
Bounding lands unknown
Lepoloa Hilo Hawaii " "
Piha Hilo Hawaii " "
Kaulakailio Hilo Hawaii " "
Kaiwiki Hamakua Hawaii " "
Humuula & other lands
Kalakalaula Hamakua Hawaii
Bounds unknown
Kapoaula Hamakua Hawaii
adjoining lands unknown
Kemau Hamakua Haw
adjoining lands unknown
Pohakuhaku Hamakua Haw
Waikaloa Hamakua Haw " "
Paalaea Hamakua Haw " "
Kaala Hamakua Haw " "
Manowaialei Hamakua Haw " "
adjoining lands Humuula &c
Kealoa Hamakua Haw
adjoining land not known
Kaua Hamakua Haw
Kapaaula Hamakua Haw " "
Waialeale Hamakua Haw " "

243.

Niulii — Kohala Haw — adjoining lands not known

Puanuipoipoi — Kohala Haw

Puanui — Kohala Haw

Hamanamana — Kona Haw

Opea — Kona Haw

Keopu 3rd — Kona Haw

Kailua — Kona Haw

Kuliluu — Kona Haw

Kaiipuhi — Kona Haw

Niumalii — Kona Haw

Naheana — Kona Haw

Kalehanaole — Kona Haw

Puuloa — Kona .. or Kohala

Kapaula — Kona . or Kohala

Honokahauiki — Kona
Hono kahaunui & Kealakehe Govt lands adjoining.

Moeauoa — Kona Haw
Lanihaunui, & Moeauoa, belonging to Govt, adjoining

Kaumalumalu — Kona Haw
adjoining lands Holualoa & Pahoehoe. Govt

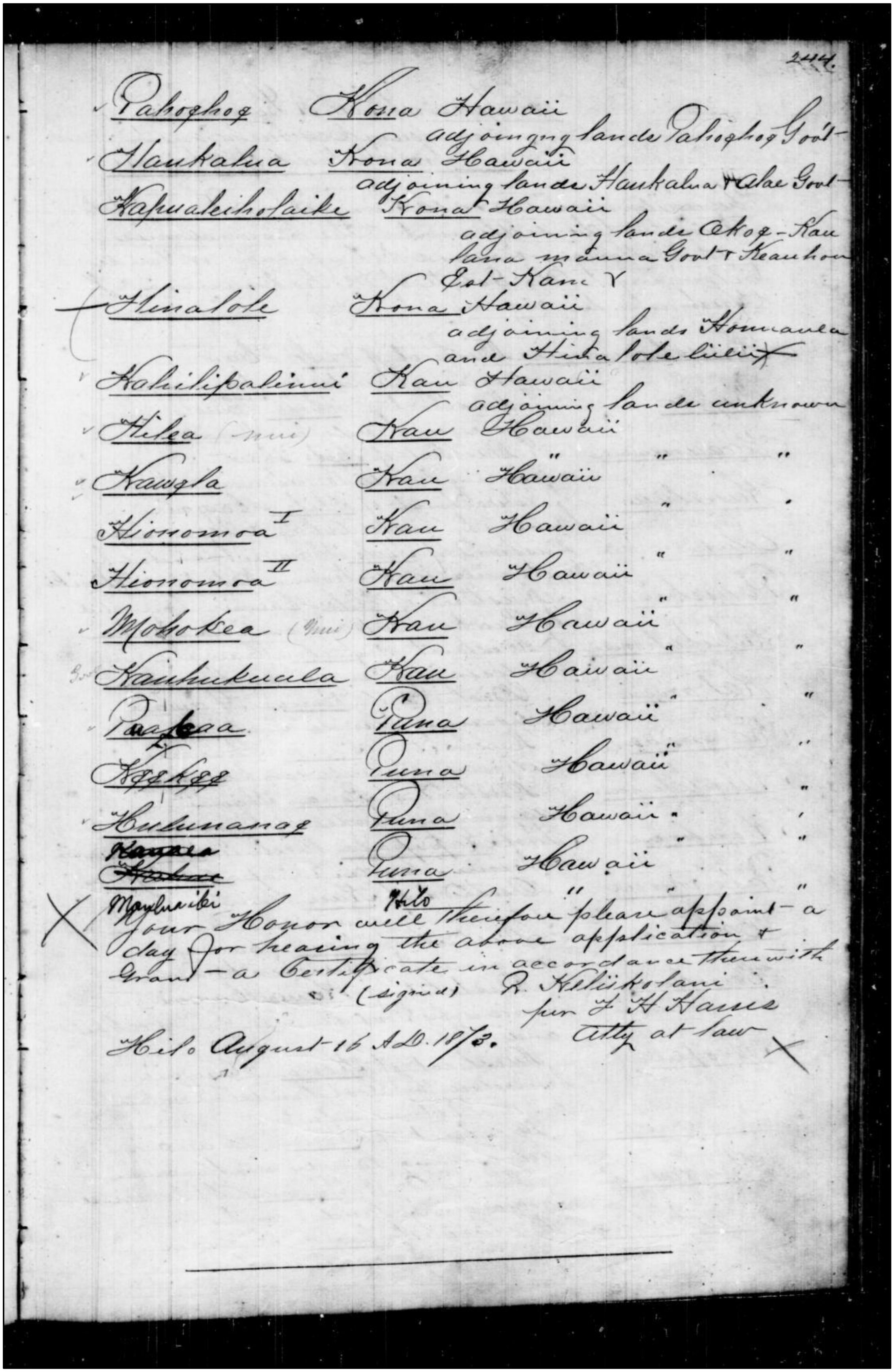
Laaloa I — Kona Hawaii
adjoining lands Laaloa & Pahoehoe Govt

Kealia 2d — Kona Hawaii
adjoining lands Kealia & Hookena

Keokea — Kona Hawaii
adjoining lands Hoonaunau C R Bishop & Kiilae G Hueu

Hookena — Kona Hawaii
adjoining lands Kealia & Kauhako Govt

Pinole 2, — Hilo Hawaii



244.

Pahoehoe — Kona Hawaii
adjoining lands Pahoehoe Govt
Haukalua — Kona Hawaii
adjoining lands Haukalua & Alae Govt
Kapualeiholaike — Kona Hawaii
adjoining lands Akoe — Kaulana mauna Govt & Keauhou Est. Kam. V
Hinalole — Kona Hawaii
adjoining lands Honuaula and Hinalole liilii
Kahilipalinui — Kau Hawaii
adjoining lands unknown
Hilea (nui) — Kau Hawaii
Kawela — Kau Hawaii " "
Hionomoa I — Kau Hawaii " "
Hionomoa II — Kau Hawaii " "
Mohokea (nui) — Kau Hawaii " "
Kauhukuula — Kau Hawaii " "
Paakea — Puna Hawaii " "
Keekee — Puna Hawaii "
Kulunanae — Puna Hawaii "
~~Hanaea~~ ~~Halua~~ — Puna Hawaii "
Maulueibi — Hilo
Your Honor will therefore "please appoint" a day for hearing the above application & Grant a Certificate in accordance therewith
(signed) R. Keliikolani
per F. H. Haws
Atty at law
Hilo August 16 A.D. 1873.

APPENDIX B

KA WAI OLA PUBLIC NOTICE

HO'OLAHA LEHULEHU
PUBLIC NOTICE

CULTURAL IMPACT ASSESSMENT

ASM Affiliates is preparing a Cultural Impact Assessment (CIA) in support of HRS Chapter 343 Environmental Assessment of TMK: (3) 3-2-004:038 in Pīha Ahupua'a, North Hilo, District, Island of Hawai'i. We are seeking consultation with any community members that might have knowledge of traditional cultural uses of the proposed project area; or who are involved in any ongoing cultural practices that may be occurring on or in the general vicinity of the subject property, which may be impacted by the proposed project. If you have and can share any such information please contact Bob Rechtman brechtman@asmaffiliates.com, or Lauren Tam Sing ltamsing@asmaffiliates.com, phone (808) 969-6066, mailing address ASM Affiliates 507A E. Lanikāula Street, Hilo, HI 96720.