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STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P O BOX 1879
HONOLULU, HAWAII 96805

JUN 2 3 2021

May 20, 2021

ref.: PO-21-137

Mr. Keith Kawaoka, Acting Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813

Subject Final Environmental Assessment (FEA) and Finding of No Significant Impact (FONSI) for the Anahola Kuleana Homestead Settlement
Anahola and Kamalamalo'o Ahupua'a, Kawaihau District, Kaua'i, Hawai'i
Tax Map Key (TMK): (4) 4-8-002:001 (por.), 003:006 (por.), and (4) 4-7-002:004 (por.)

Dear Mr. Kawaoka:

With this letter, the State of Hawai'i, Department of Hawaiian Home Lands (DHHL), Hawaiian Homes Commission hereby transmits the Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for the Anahola Kuleana Homestead Settlement project situated at TMK (4) 4-8-002:001 (por.), 003:006 (por.), and (4) 4-7-002:004 (por.) in the Kawaihau District on the island of Kaua'i, for publication in the June 8, 2021 edition of *The Environmental Notice*.

Prior to this letter, DHHL submitted the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) document for the subject project to the Office of Environmental Quality Control (OEQC) which was published in the May 8, 2020 edition of *The Environmental Notice*.

DHHL reviewed the comments and information received after the 30-day public comment period, and in light of the significance criteria in Hawai'i Administrative Rules, Section 11-200.1-13, finds that the proposed action would not result in significant adverse effects on the natural or human environment. We understand that publication of the FEA-FONSI will initiate a final 30-day review and judicial challenge period for the applicant's proposed action.

An unlocked, searchable PDF file of the FEA/FONSI and a zip file that contains the shapefile of the project location will be uploaded to the OEQC website along with this letter.

If there are any questions, please contact Julie-Ann Cachola at (808) 779-5084.

Sincerely,

William J. Aila, Jr.
Chairman

Enclosures

21-176

From: webmaster@hawaii.gov
To: HI Office of Environmental Quality Control
Subject: New online submission for The Environmental Notice
Date: Thursday, May 20, 2021 3:11:31 PM

Action Name

Anahola Kuleana Homestead Settlement Plan

Type of Document/Determination

Final environmental assessment and finding of no significant impact (FEA-FONSI)

HRS §343-5(a) Trigger(s)

- (1) Propose the use of state or county lands or the use of state or county funds

Judicial district

Kawaihau, Kauaʻi

Tax Map Key(s) (TMK(s))

(4) 4-8-002:001 (por.); (4) 4-8-003:006 (por.); (4) 4-7-002:004 (por.)

Action type

Agency

Other required permits and approvals

Grading, Grubbing, Trenching and Stockpiling Permits, IWS Permit, Other Permits as determined by the Kuleana Homestead Association and approved by the Hawaiian Homes Commission

Proposing/determining agency

Department of Hawaiian Home Lands / Hawaiian Homes Commission

Agency contact name

Julie-Ann Cachola

Agency contact email (for info about the action)

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Was this submittal prepared by a consultant?

Yes

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Action summary

The Department of Hawaiian Home Lands (DHHL) is proposing the Anahola Kuleana Homestead Settlement Plan to offer 115 homestead lots (14 Pastoral and 101 Subsistence Agriculture) on 432 acres on the Island of Kaua'i. According to HAR Chapter 10-3-30 Kuleana Homestead Leases, DHHL agrees to survey, stake and award lots and provide an unpaved roadway suitable to access the lots. As a nontraditional program, the Kuleana Homestead Program places responsibility for development of infrastructure in the hands of native Hawaiian beneficiaries. This arrangement provides beneficiaries land within a shorter time frame than the traditional DHHL awarding process, as well as the opportunity to create a new self-sufficient community. The Project is proposing the following DHHL land uses: Subsistence Agriculture, Pastoral, Community Use and Special District. These uses are intended to integrate the Settlement Plan area with the Anahola Town Center to create an intact contemporary ahupua'a.

Reasons supporting determination

Please see Chapter 6 Findings Supporting the Anticipated Determination in the Final EA for reasons supporting DHHL's determination.

Attached documents (signed agency letter & EA/EIS)

- Anahola-Settlement-Plan-FEA_5.19.21.pdf
- PO-21-137-Anahola-FEA-Request-for-Publication-Letter-SIGNED.pdf

Shapefile

- The location map for this Final EA is the same as the location map for the associated Draft EA.

Authorized individual

Barbara Natale

Authorization

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

ANAHOLA KULEANA HOMESTEAD SETTLEMENT PLAN FINAL ENVIRONMENTAL ASSESSMENT

TMK: 4-4-8-002:001 POR., 003:006 POR., 4-4-7-002:004 POR.

ANAHOLA AND KAMALOMALOʻO, KAWAIHAU, KAUAʻI



PREPARED FOR:

HAWAIIAN HOME LANDS
HAWAIIAN HOMES COMMISSION · DEPARTMENT OF HAWAIIAN HOME LANDS

PREPARED BY:

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JUNE 2021

ANAHOLA KULEANA HOMESTEAD SETTLEMENT PLAN FINAL ENVIRONMENTAL ASSESSMENT

TMK: 4-4-8-002:001 POR., 003:006 POR., 4-4-7-002:004 POR.

ANAHOLA AND KAMALOMALO'O, KAWAIHAU, KAUA'I

APPLICANT:

HAWAIIAN HOME LANDS
HAWAIIAN HOMES COMMISSION · DEPARTMENT OF HAWAIIAN HOME LANDS

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JUNE 2021

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E. Archaeological Reconnaissance Survey, Nohopapa Hawai'i, December 2018

F. Cultural Impact Assessment, Nohopapa Hawai'i, March 2020

G. Comment Letters

Forward:

Changes made to the Final Environmental Assessment (EA) are primarily reflected in Section 3.10.1 Water. This information is not presented in Ramseyer format but rather mentioned here for disclosure. Additional information provided to DHHL after the publication of the Draft EA further informs the non-potable water discussion. Other edits made in the Final EA are grammatical or reflect requests made in letters commenting on the Draft EA.

Section 1

Introduction

Chapter 1

Introduction

This Environmental Assessment (EA) has been prepared in accordance with the requirements of Hawai'i Revised Statutes (HRS) Chapter 343, and Hawai'i Administrative Rules (HAR) Title 11, Chapter 200.1, Department of Health, which set forth the requirements for the preparation of environmental assessments.

1.1 Project Information Summary

Type of Document:	EA
Project Name:	Anahola Kuleana Homestead Settlement Plan
Applicant:	Department of Hawaiian Home Lands (DHHL) P.O. Box 1879 Honolulu, HI 96805 Contact: Julie Cachola, Planner (808) 620-9500
Agent:	G70 111 S. King St., Suite 170 Honolulu, HI 96813 Contact: Kawika McKeague, AICP, Principal (808) 523-5866
Approving Agency:	Hawaiian Homes Commission (HHC) Department of Hawaiian Home Lands P.O. Box 1879 Honolulu, HI 96805 Contact: William Ailā Jr., Chairman, Hawaiian Homes Commission (808) 620-9501
EA Trigger:	Use of State Lands and State Funds
Project Location:	Keālia Road, Anahola, HI 96703 and Kapa'a, HI 96746 *(Figure 1-1)*
Tax Map Keys (TMK) and Landowners:	4-4-8-002:001 (por.), 003:006 (por.), 4-4-7-002:004 (por.) DHHL *(Figure 1-2)*
Project Area:	462 Acres

DHHL Land Use Designation:	Subsistence Agriculture, Pastoral, Special District, Community Use *(Figure 1-3)*
State Land Use District:	Agricultural *(Figure 1-4)*
Special Management Area (SMA):	Outside SMA *(Figure 1-5)*
Flood Zone:	Zone X: Area of Minimal Flood Hazard; Zone A: 1% Annual Chance of Flooding – (Reservoirs) *(Figure 1-6)*
Anticipated Determination:	Finding of No Significant Impact (FONSI)

1.2 Project Background

1.2.1 The Hawaiian Homelands Program

The mission of the DHHL is to effectively manage the Hawaiian Home Lands Trust and to develop and deliver lands to native Hawaiians. To accomplish this, DHHL works in partnership with government agencies, private landowners, non-profit organizations, homestead associations, and other community groups.

The Hawaiian Homelands Program was started with the passage of the Hawaiian Homes Commission Act, 1920, as amended (HHCA) due to the efforts of Prince Jonah Kūhiō Kalaniana‘ole. Passed by Congress and signed into law by President Warren Harding on July 9, 1921 (chapter 42, 42 Stat. 108), the HHCA provides for the rehabilitation of the native Hawaiian people through a government-sponsored homesteading program. Native Hawaiians are defined as individuals having at least 50 percent Hawaiian blood.

The stated aim of the legislation was to enable native Hawaiians to escape the tenements and slums in Honolulu; by settling them to become self-supporting, self-sufficient, and thrive once more. Unfortunately, the Act was never fully funded. The lack of financial resources combined with very remote lands has made accomplishing the Department’s objectives a challenge.

The main method by which DHHL serves beneficiaries is through the 99-year homestead lease. The leases are provided for Residential, Pastoral, and Agricultural uses for an annual fee of one dollar. According to the 2004 Kaua‘i Island Plan (KIP), DHHL targeted the awarding of 1,577 Residential lots, 150 Subsistence Agriculture lots, and 14 Pastoral lots in Anahola. The KIP found that applications for agricultural leases made up the largest type of applications, with residential awards being the most preferred. Community input from the KIP included inquiries about availability of agricultural lots. According to a community-wide survey conducted for the KIP, the majority (71%) of agriculture applicants preferred a lot that is five acres or less, to use for small-scale agriculture operations or a home garden. In addition, beneficiary preference is for small Pastoral lots, less than 50 acres in size. Agriculture and Pastoral applicants also voiced a preference to live on their homesteads.

In 2020, 744 native Hawaiians residing on Kaua‘i have received a homestead lease award; a majority of the lessees have received Residential homestead awards. Unfortunately, approximately 4,000 applicants remain unawarded. At the end of 2019, of the unawarded applicants, 53% have applied for an Agricultural lease, 40% have applied for a Residential lease, and 7% have applied for a Pastoral lease.

1.2.2 The Kuleana Homestead Program

For many years, beneficiaries have expressed a strong desire to pursue alternative settlement options and to play a role in helping to manage and preserve the natural and cultural resources of this area. Beneficiaries also requested for the Department to deliver homestead lots at a quicker rate by awarding raw, undeveloped land.

In 1992, a native Hawaiian beneficiary group, Ka ʻOhana o Kahikinui (KOOK) took the initiative to develop the proposal "A Conceptual Community Land Use Plan for the Ahupuaʻa of Kahikinui." This proposal became the foundation for the Kuleana Hou program, which would distribute raw, undeveloped lands as recommended in 1983 by the Federal-State Task Force on the Hawaiian Homes Commission Act. In 1993, the Hawaiian Homes Commission approved the Kuleana Hou pilot program at Kahikinui, Maui. In 1999, the first 76 Kuleana Homestead lots were awarded.

In 1998, the first Kuleana Homestead Program was officially adopted as part of the department's *HAR §10-3-30*. Under this non-traditional homestead program, the department agrees to survey, stake and award lots, and to provide a compacted unpaved roadway suitable for four-wheel drive vehicles to access the lots. DHHL beneficiaries, who choose to enter into this homestead lease agreement, understand and agree that the provision of utilities, housing and the maintenance and repair of the access road becomes the responsibility of the lessee. The Kuleana Homestead Program provides a homesteading alternative for immediate access to raw land (without utilities) and an opportunity to create a new self-sufficient community. This concept was similar to the "kuleana" land award, which refers to a small area of land awarded to a Hawaiian by the King or ruling monarch of the 1850s. This granting of land carried with it the responsibility to respect, care and cultivate the land. The wise stewardship of the land provided sustenance and well-being to its occupants. This sense of responsibility, both to the land, and to those who share in the use of the land, is the guiding principle of the Kuleana program.

Factors influencing the decision to consider the Kuleana program, versus the standard residential concept, involve the long lead times required for securing infrastructure financing, major difficulty for DHHL in obtaining new monies for development of infrastructure and the need for DHHL to seek innovative solutions in order to increase the pace of distribution of lands to native Hawaiians.

Under the Department's provisions, the Kuleana Homestead Program expands the range of program options provided to native Hawaiian beneficiaries. Under a standard residential community concept, it is necessary for infrastructure such as roads, electricity, sewer, and water to be developed in advance of settlement. As a non-traditional program, awarding raw, undeveloped land for beneficiaries to develop and manage, the Kuleana Homestead Program places responsibility for development of infrastructure in the hands of beneficiaries in return for availability and early access to unimproved land. Through the Kuleana Homestead Program, time spent on the waiting list is reduced. Native Hawaiians receive land within a quicker time frame and are given the opportunities to develop and manage their community.

The Kuleana Homestead Program is not for everyone. The program is designed for the beneficiary who can handle the rigors of an "off-grid", subsistence living lifestyle. In addition, the lessee must agree to participate as an active member in the Kuleana Homestead Association and to comply with rules developed and agreements entered into by the Kuleana Homestead Association. The lessee must also participate in the maintenance of the right-of-way to the Kuleana Homestead tract and lots.

A guiding principle of the program is empowering Hawaiian Home Lands beneficiaries with the opportunity to determine, as a group or as individuals, choices as to how they wish to develop their Kuleana Homestead awards. Along with the empowerment to choose comes the responsibility to manage the awards in accordance with the Kuleana Homestead Program's principles, required health and safety standards, applicable state and county codes, design and building standards, and lease agreement provisions jointly determined by the Department and each homesteader involved in the Kuleana Homestead Program. No Kuleana Homestead Association-developed zoning, building, health and safety codes and permitting processes in addition to current county codes shall be effective unless and until they are approved by HHC.

Initially, basic needs will be provided using the following measures:

- Homesteaders will be responsible for constructing their own dwelling units. Permits and or other entitlement approvals will need to be completed by each respective homesteader.
- Homesteaders may need to carry potable water to individual Kuleana Homestead lots to ensure their own provisions of potable water. Catchment basins may supplement the need for additional water. Development of water sources for agricultural needs would be a longer-range priority.
- Homesteaders shall be responsible for providing their own energy needs. Electricity could be provided via generators or alternative energy production sources.
- Homesteaders shall be responsible for their own solid waste and wastewater disposal. Sewage could be handled via portable septic systems or dry composting toilets.
- Homesteaders shall be responsible for providing their own communication systems. Communications could be handled via cellular telephones or amateur (ham) radio.

1.2.3 Criteria for Kuleana Homesteading in Anahola

DHHL's inventory of lands in Anahola and Kamalomaloʻo total 4,228 acres, or 20% of DHHL Kauaʻi lands, making it the largest Hawaiian homestead community on Kauaʻi. DHHL's lands in Anahola extend from the eastern shoreline to the Keālia Forest Reserve; representing a fully intact ahupuaʻa. As the largest Hawaiian homestead community on Kauaʻi, Anahola is home for 77% of all Kaua'i homestead lessees. Most of the land, however, remains undeveloped.

Of the DHHL-owned 4,228 acres of land in Anahola and Kamalomaloʻo, 462 acres in upper Anahola have been proposed for the development of Kuleana Homestead Subsistence Agriculture and Pastoral lots. This area fulfills the requirements for designation as Kuleana Homestead lots as defined under *HAR §10-3-30*, which include the following:

1. Physical and environmental characteristics of the land;
2. Excessive cost to develop the tract for any reason including: the physical characteristics of the land, the distance of the land from existing electrical, water, wastewater disposal, communications, and other utility systems;
3. Department land management plans and programs;
4. Applicant interest or proposals identifying tracts of land; and
5. Suitability for use by lessees who wish immediate access to the land for subsistence uses and who are willing to live on the land and accept an unimproved lot.

Historically, the area of Anahola has been home to good quality soils for agriculture. The area was once abundant in ʻulu (breadfruit) cultivation along with loʻi kalo (wetland taro cultivation) and rice. Throughout the plantation era, much of the current DHHL-owned land in Anahola was where the former Līhuʻe Plantation operated. The Līhuʻe Plantation built irrigation ditches, sluice gates and culverts, a road to haul sugar and a small airstrip used for crop dusting. Although the landscape has changed since the closing of the Līhuʻe Plantation with an overabundance of the invasive albizia trees *(Falcateria moluccana)* growing on the landscape, the area of Anahola with its rich agricultural history and current conditions, including a high average rainfall to naturally irrigate crops, made this location a prime candidate for the Kuleana Homestead Program.

The project is intended to carry out the mission of the DHHL to effectively manage the Hawaiian Home Lands Trust and to develop lands for native Hawaiians. The Subsistence Agricultural and Pastoral homesteads will keep the former sugar plantation lands in agricultural cultivation and provide opportunities for beneficiaries to return to their agricultural roots and stewardship desires. It will also include Community Use areas to promote community cohesion and provide opportunities to expand economic agricultural opportunities. The natural stream and drainageway areas are identified as having the best potential for native plant restoration and have been designated as Special District areas that will remain undeveloped.

1.2.4 Prior Planning Efforts

The Anahola Kuleana Homestead Settlement is the Project as defined under *HAR §10-3-30* and is a part of the DHHL 3-tiered Planning System. At tier one is the General Plan which articulates long-range Goals and Objectives for the Department. At the second tier, there are Strategic Program Plans that are statewide in focus, covering specific topic areas such as the Native Hawaiian Housing Plan and a Native Hawaiian Development Program Plan. This second tier also includes the Department's Island Plans that identify the Department's Land Use Designations per island which function similar to the counties' land use zones. Regional plans are located at the third tier in the Department's planning system which focuses at the community/regional level, and apply the goals, policies, and land use designations to specific geographic regions. Settlement Plans are also at this third tier, focusing on areas that are not yet developed.

Previous plans related to the project area include the 1987 Anahola-Kamalomaloʻo and Moloaʻa Development Plan (Development Plan), 2004 KIP, and 2010 Anahola Regional Plan. A 2009 Anahola Town Center plan does not include the current settlement area, but is located makai and adjacent to this area, within the same ahupuaʻa.

The 1987 Development Plan analyzed all DHHL lands in Anahola (mauka and makai) and made corresponding land use recommendations *(Figure 1-7).* This plan provided for a mixture of land uses: cultural, homestead, agriculture, pastoral, income-generating and public services. The area was envisioned as a contemporary ahupuaʻa, with homestead, business, and supportive community service uses linked by a system of community resource areas that extend from the shoreline to the stream valleys and into the mauka forests.

The 2004 KIP increased the Anahola residential land use areas, reflecting DHHL's emphasis on residential awards and therefore ensuring that Anahola would continue to be the largest residential homestead area on the Island of Kauaʻi *(Figure 1-3).* The KIP did not make any major changes to the overall ahupuaʻa concept of the Development Plan; however, specific land use alterations were recommended to reflect changes that had occurred since that time. For example, the size of Subsistence Agricultural lots were reduced from three to two acres, increasing the number of lots. In addition, the size of the Pastoral lots were increased from five to ten acres, reducing the number of Pastoral lots.

The KIP found that applications for agricultural leases made up the largest type of request, with residential awards being the most preferred. Community input from the KIP included inquiries about availability of agricultural lots. According to a community-wide survey conducted for the Kaua'i Island Plan, the majority (71%) of agriculture applicants prefer a lot that is five acres or less, to use for small-scale agriculture operations or a home garden. In addition, beneficiary preference is for small pastoral lots, less than 50 acres in size. Agriculture and pastoral applicants also voiced a preference to live on their homesteads. The Kuleana Homestead lots to be awarded in Anahola are designated as Subsistence Agriculture and Pastoral. Currently (in 2020) 2,543 beneficiaries are on the Kaua'i Island Wait List for an Agricultural or Pastoral homestead award.

In order to inform this Anahola Settlement Plan, reference is made to the Kahikinui, Maui project – the first DHHL Kuleana Homestead Program that occurred in the late 1990s. As this was the first of its kind, lessees provided feedback to DHHL to improve the program for both the Department and beneficiaries. The initial settlement process was confusing for the beneficiaries. Beneficiaries expressed that a major challenge for lessees awarded a Kuleana Homestead Lease was understanding the scope of work required and estimated costs to develop working infrastructure to meet County standards. Without individual TMKs awarded to lessees, lessees struggled to receive traditional loans and home insurance to develop their land. With only 12 households residing full time, the community was too small to manage community resources such as the roads, forests, historic sites, and fire management. The Anahola Kuleana Homestead Settlement Plan has taken this feedback into consideration to prepare for a more successful settlement.

1.3 Purpose of the Environmental Assessment

This EA will comply with Hawai'i's Environmental Review Process, *HRS §343*. The EA is being prepared due to the proposed project utilizing State lands and funds. The HHC is the approving agency.

This EA includes the following as required by *HAR §200.1*: identification of the applicant and approving agency; a list of the required permits and approvals; identification of the trigger requiring *HRS §343* environmental review; identification of agencies consulted in preparing the Draft EA; description of the action's technical, economic, social, cultural, historical, and environmental characteristics; summary description of the affected environment, including suitable and adequate maps; identification and analysis of impacts and alternatives considered; proposed mitigation measures; and anticipated determination from the approving agency. After the 30-day review period of the Draft EA has concluded, public comments received will be considered and addressed to the extent feasible within the project scope and evaluation. A Final EA will then be prepared, highlighting key areas of the document that were revised, updated, or modified based upon information received during the public comment period. Upon acceptance of the Final EA, a FONSI is anticipated.

1.4 Agencies, Organizations and Individuals Contacted During the Early Consultation Process

The awarding of Kuleana Homestead leases requires applicants, together with DHHL, to develop a plan for settlement and development of the designated tract. As part of this process, beneficiary consultation meetings were held in August and November 2019 *(Appendix A).* The August 28, 2019 meeting was held to provide beneficiaries with a better understanding of the Kuleana Homestead Program, site characteristics and conditions of the project area, reaffirm a shared vision for the area, and seek beneficiary preferences for lot size and configuration.

Prior to this meeting, studies were conducted to provide a clear evaluation of existing conditions, including plants and animals of the area, stream water quality, archaeology, wildfire risk, roads and existing infrastructure, and the potential for community-based economic opportunities.

Based on the feedback received during the August 2019 meeting, attendees ranked improving site safety and access as the top priority for the Anahola Settlement Community, with maximizing the number of lots ranked second. Beneficiaries believed that two acres was a suitable lot size for their Subsistence Agriculture homestead needs with backyard Subsistence Agriculture as the preferred primary agricultural activity for the homestead community. Participants were somewhat divided on their preference for Pastoral lot size, with 41% of attendees voting ten acres as a suitable size; while 30% believed 10 acres was too large, and 30% believed 10 acres was too small. Participants perceived that the greatest physical challenge for the homestead community will be access to potable water, followed by road maintenance and access to electricity.

In addition, as part of this process an additional beneficiary consultation meeting was held on November 14, 2019 to review the Settlement Plan concepts. During this meeting, beneficiaries shared a preference to be awarded and move onto the land as quickly as possible and forgo waiting for DHHL to improve roadways or possibly develop water/wastewater infrastructure if at all. Beneficiaries believed that individual wastewater systems (IWS) or composting toilets would be acceptable options in lieu of larger scale wastewater utilities. Participants also expressed an interest in accepting an Undivided Interests Award for Anahola. Undivided Interest Awards are awarded to a group of individuals for a non-parceled land base. Participants believed this option would provide time for awardees to prepare for land ownership while DHHL develops the project and the property is cleared of albizia trees by Green Energy Team. Awardees could get to know their neighbors, learn the community's strengths, form the homestead association, create the Covenants, Conditions, and Restrictions (CC&Rs) and further some initial ideas for economic development and resource management before ever moving onto their lots. To move the project schedule along, participants also preferred that DHHL act on the Settlement Plan at the next available HHC meeting, even if the meeting is not located on Kaua'i.

A list of agencies and other parties that were presented notice of the proposed project or were contacted during the early consultation period of the EA is provided in *Chapter 7* of this EA. Additionally, a listing of those agencies that were provided an opportunity to review the Draft EA is provided in *Chapter 7*. Copies of the comment letters on the Draft EA and letters sent in response are included.

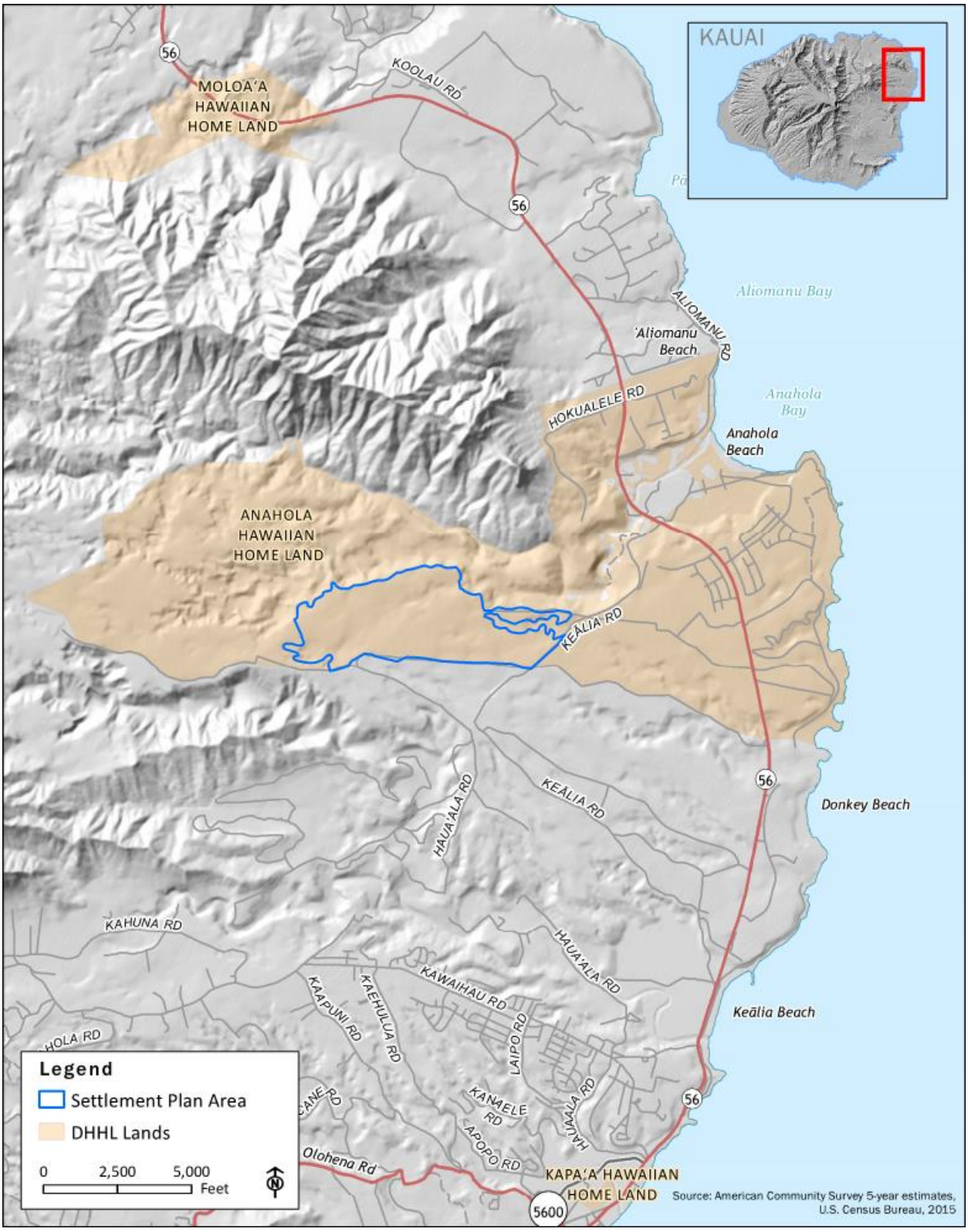

Figure 1-1 **Project Location**

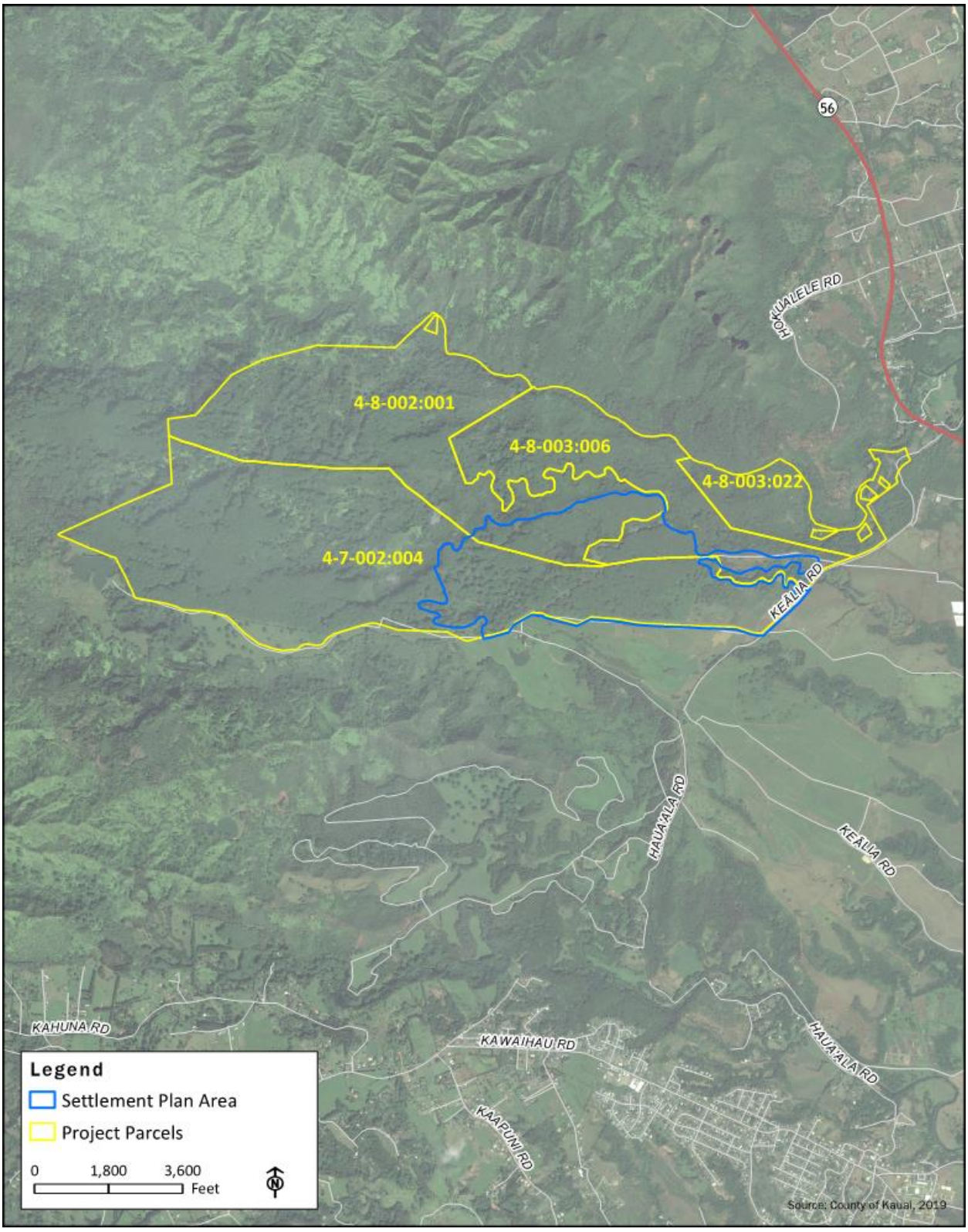

Figure 1-2 **Tax Map Key Parcel Map**

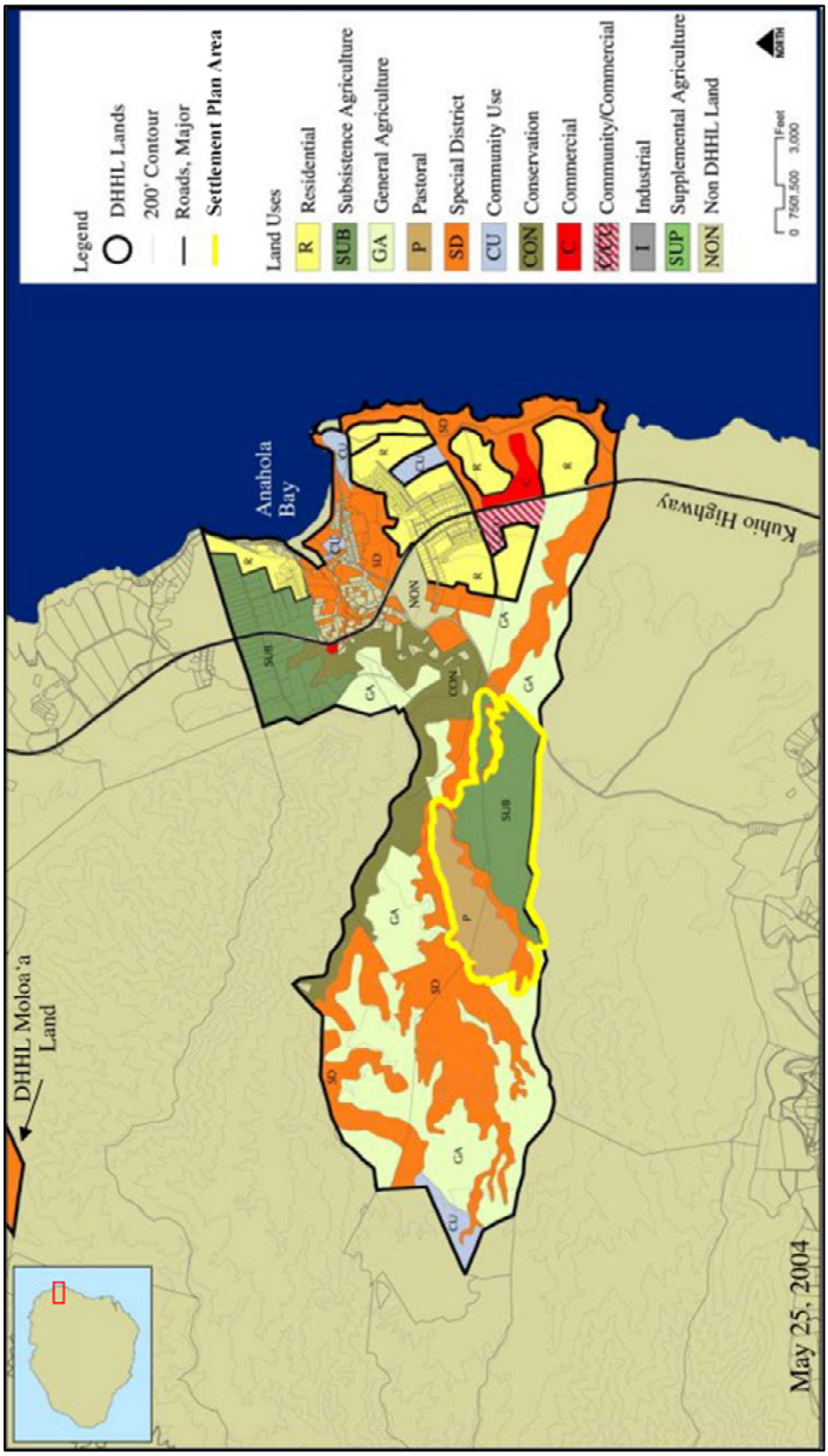

Figure 1-3 **DHHL Land Use Designation, Kaua'i Island Plan (2004)**

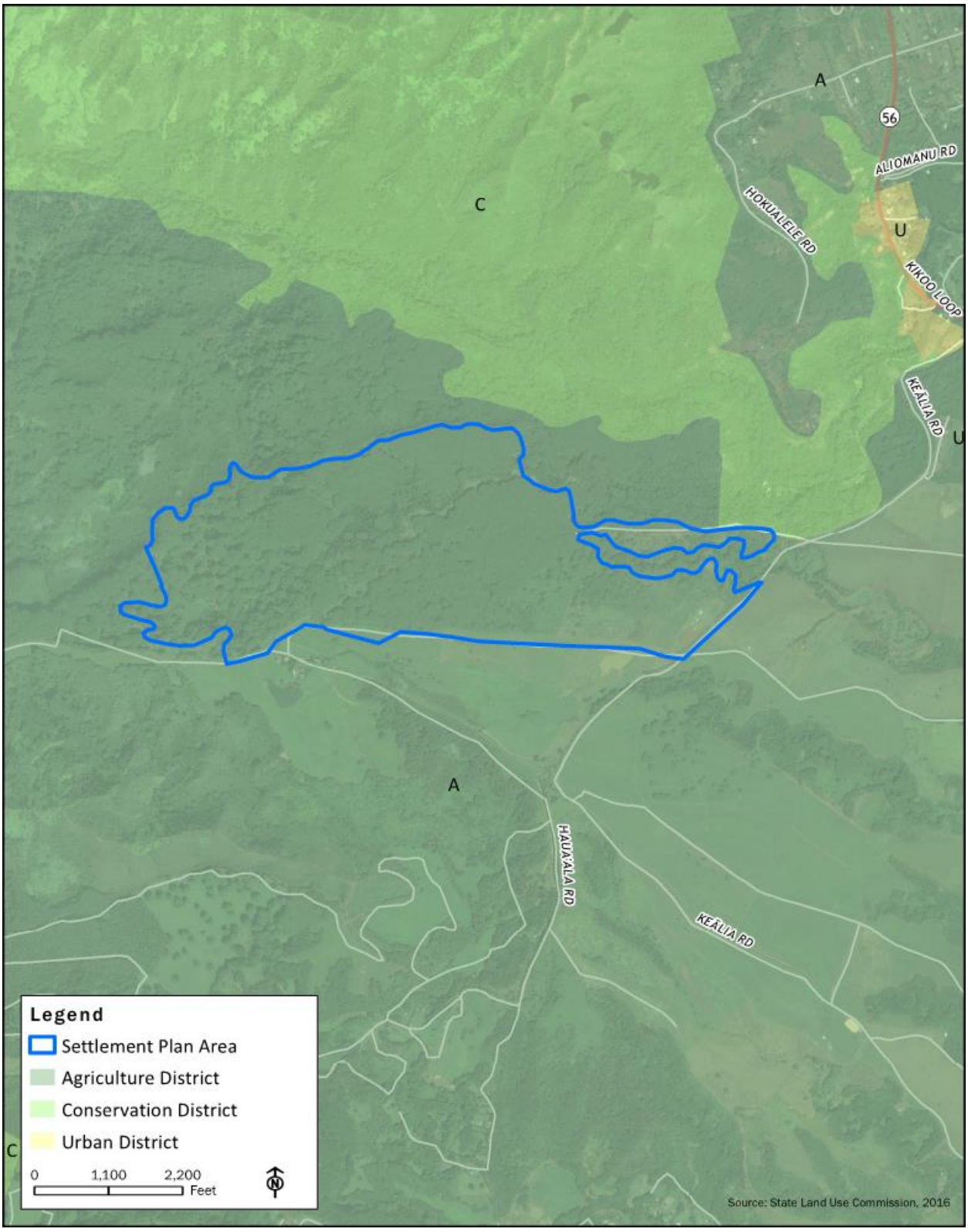

Figure 1-4 **State Land Use District Boundary Map**

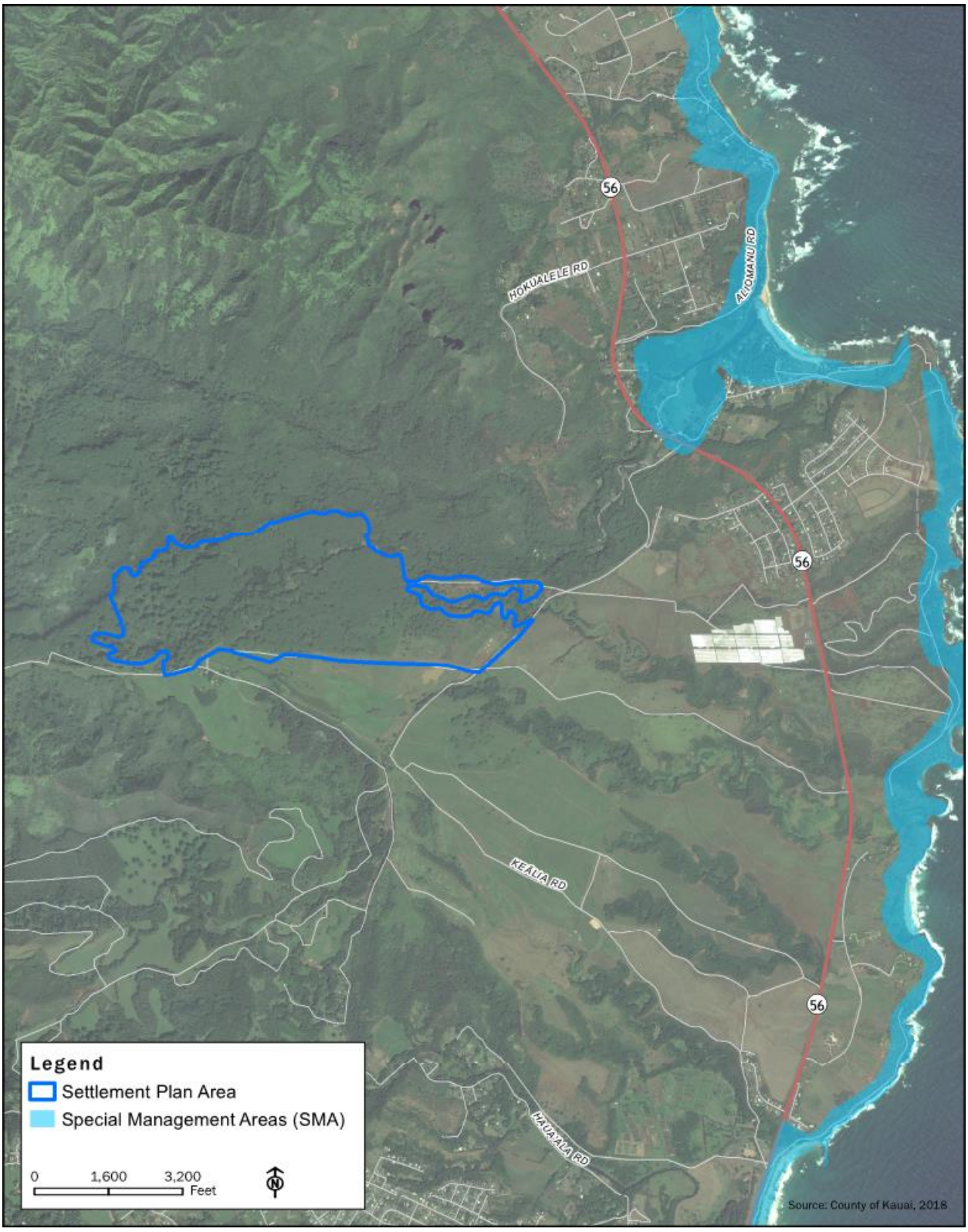

Figure 1-5 **Kaua'i County Special Management Area Map**

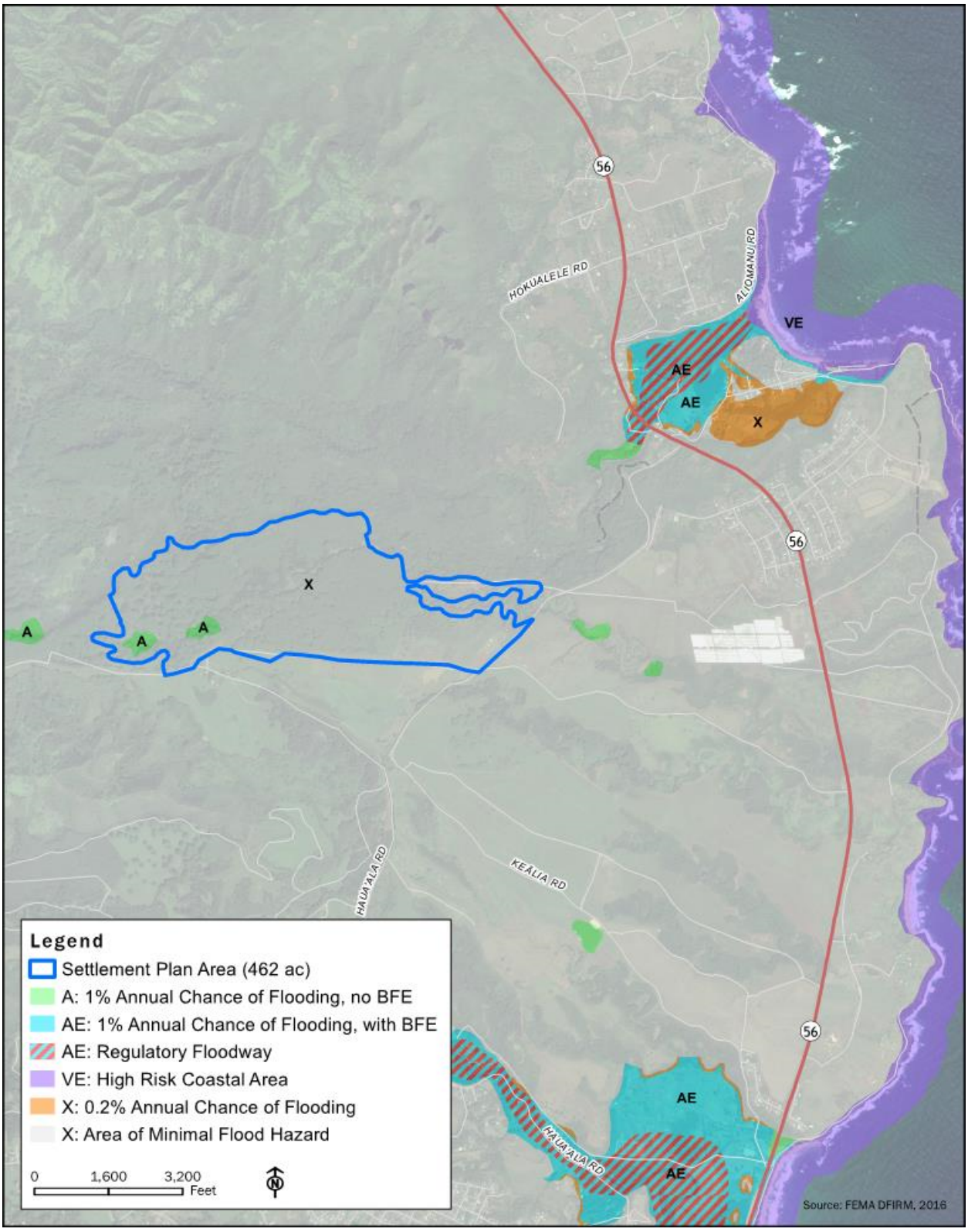

Figure 1-6 **FEMA Flood Insurance Map Designation, 150002**

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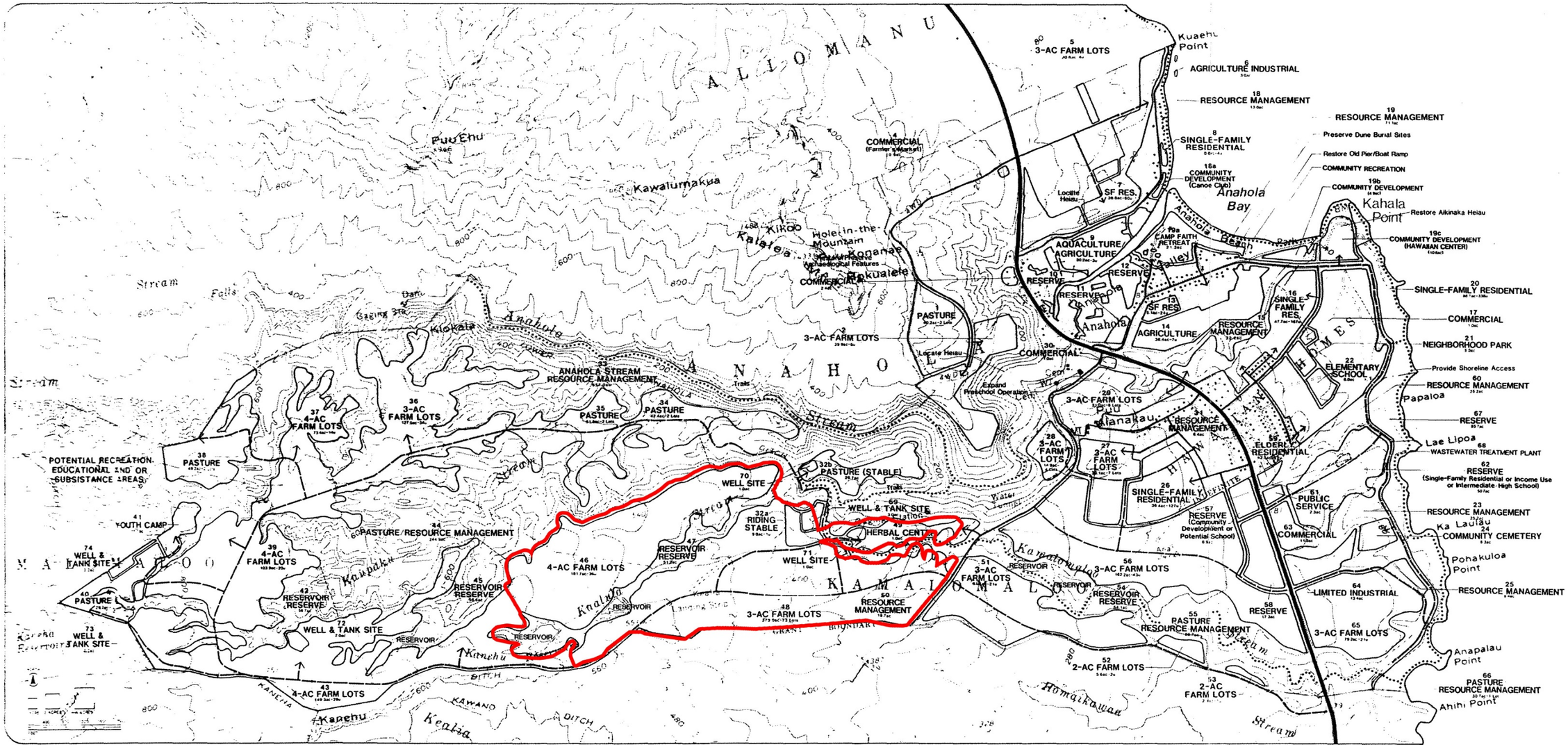

Figure 1-7 **1987 Anahola-Kamalomalo'o and Moloa'a Development Plan Land Use Map**

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Section 2

Description of the Project

Chapter 2

Description of the Project

2.1 Description of Project

The plan for settlement and development of the project area is constrained by the physical characteristics of the land. As outlined in *Table 2-1* below, the Settlement's lotting scheme considered site topography and drainage, accessibility, size of lots, proximity to water, wildfire risk, proximity to natural and cultural resources, and beneficiary preferences. When evaluating lot schemes, parameters considered included: maximizing the number of lots to be awarded within understood thresholds of carrying capacity, the size and density of the parcels, their layout, the understood need for awarded beneficiaries to share both benefits and burdens of maintenance and improvements, activities and uses adjacent to the lots, and consideration to the future build-out of other DHHL lands in close proximity.

Table 2-1 Kuleana Homestead Lot Selection and Planning Criteria

CRITERIA	VALUE
Topography	Less than 15% slopes, away from drainage ways and flood hazards
Proximity to Roadways	Existing dirt roads
Size	2-acre Subsistence Agriculture and 10-acre Pastoral Lots
Proximity to Water	Rainfall and the Ka'alūlā Stream
Wildfire Risk	Sited away from fuel sources, easy wildfire dispersal
Proximity to Natural and Cultural Resources	Sited away from denser areas of intact native forested areas, and traditional, cultural sites and features
Beneficiary Preferences	Community consensus on lot scheme

The DHHL General Plan provides 10 possible land use designations for Hawaiian Home Lands. Of the 462-acre project area, approximately 202 acres are designated under the DHHL land use system as Subsistence Agriculture, 140 acres as Pastoral, 92 acres as Special District, and 28 acres as Community Use (*Figure 2-1*). Areas identified for Subsistence Agriculture are intended for lifestyle purposes and for people who may want to supplement their food resources or incomes with agriculture as a secondary economic activity. Pastoral Lots are intended for large lot agriculture specifically for pastoral uses. Special District lands are areas that require special attention because of unusual opportunities or constraints. These may include natural hazard areas, areas with cultural or historic value, special view planes and vistas, waterways, and other areas that require in depth planning and analysis. Lands designated as Community Use are common areas intended for uses such as cultural activities, parks, recreation activities, meeting pavilions, camping areas, public amenities, commercial activities, and community-based economic development (CBED). CBED is a process by which communities can initiate and generate their own solutions to their common economic problems and, thereby, build long-term community capacity and foster the integration of economic, social, and environmental objectives. The designated usages are intended to integrate

the Settlement Plan Area with the Master Plan for the Anahola Town Center to create an intact contemporary ahupua'a.

The size and number of Subsistence Agriculture and Pastoral Lots have been updated from previous plans for the mauka Anahola area (*Table 2-2*). The 2004 KIP did not make any major changes to the overall ahupua'a concept of the 1987 Development Plan; however, specific land use alterations were recommended to reflect changes that had occurred since that time. The 2004 KIP found that although applications for Agricultural leases made up the largest type of applications, Residential awards were most preferred. *HAR §10-3-26* allows for one residence per lessee on Agricultural or Pastoral Lots. Therefore, the size of Subsistence Agricultural lots were reduced from three to two acres, increasing the number of lots. In addition, the size of the Pastoral Lots were increased from five to ten acres, reducing the number of Pastoral Lots. Community Use areas in both previous plans were located outside the current Anahola Settlement Plan Area.

Table 2-2 Settlement Plan Lot Strategy

Land Use	1987 Anahola Development Plan	2004 Kaua'i Island Plan	2020 Anahola Settlement Plan
Subsistence Agriculture Lots	(89) 3-acre lots	(103) 2-acre lots	(101) 2-acre lots
Pastoral Lots	(30) 5-acre lots	(14) 10-acre lots	(14) 10-acre lots
Community Use	0	0	28 acres

After further analysis and consultation with the community, the 2020 Anahola Kuleana Homestead Settlement Plan keeps the (14) 10-acre lots; however, the Subsistence Agriculture lots are slightly reduced to 101. This is due to the expansion of the Special District area to allow for additional safety measures related to wildfire and flooding. In addition, Community Use areas are located within the Settlement Plan area for improved accessibility by the homesteaders.

Consistent with the DHHL's Land Use Designation in the 2004 KIP (*Figure 1-3*), the makai portion of the Settlement Plan Area remains designated as Subsistence Agriculture with the addition of Community Use areas adjacent to Keālia Road. The mauka portion of the Settlement Plan Area remains designated as Pastoral with an additional Community Use area sited adjacent to the access road for the Pastoral Lots. The Special District area separates the Subsistence Agriculture and Pastoral Lots with Keālia Number 2 and an Unnamed Reservoir feeding the Ka'alūlā Ditch Stream, flowing throughout the Settlement Plan Area.

The plateaus on the southeastern part of the Settlement Plan area, just mauka of Keālia road, have been designated as Subsistence Agriculture (*Figure 2-1*). Subsistence Agriculture lands are designated for small lot agriculture and have been divided into 101 lots at two acres each. Two-acre lots were highly preferred (75% of those voted) by beneficiaries at the beneficiary Meeting held in August 2019. These lots will provide for a lifestyle intended to allow for home consumption of agricultural products. When asked what settlement layout was preferred (*Figure 2-2*), 85% of the beneficiaries that answered chose individual lots, while 15% chose shared agriculture lots. An example of a shared agriculture lot configuration could include adjacent 2-acre lots, each with their own home, but the agricultural burden shared among the 4 acres. Two other configurations offered, with clustered homes and either individual or shared agriculture, did not receive any votes. An example of what a 2-acre farm lot could become is illustrated in *Figure 2-3*.

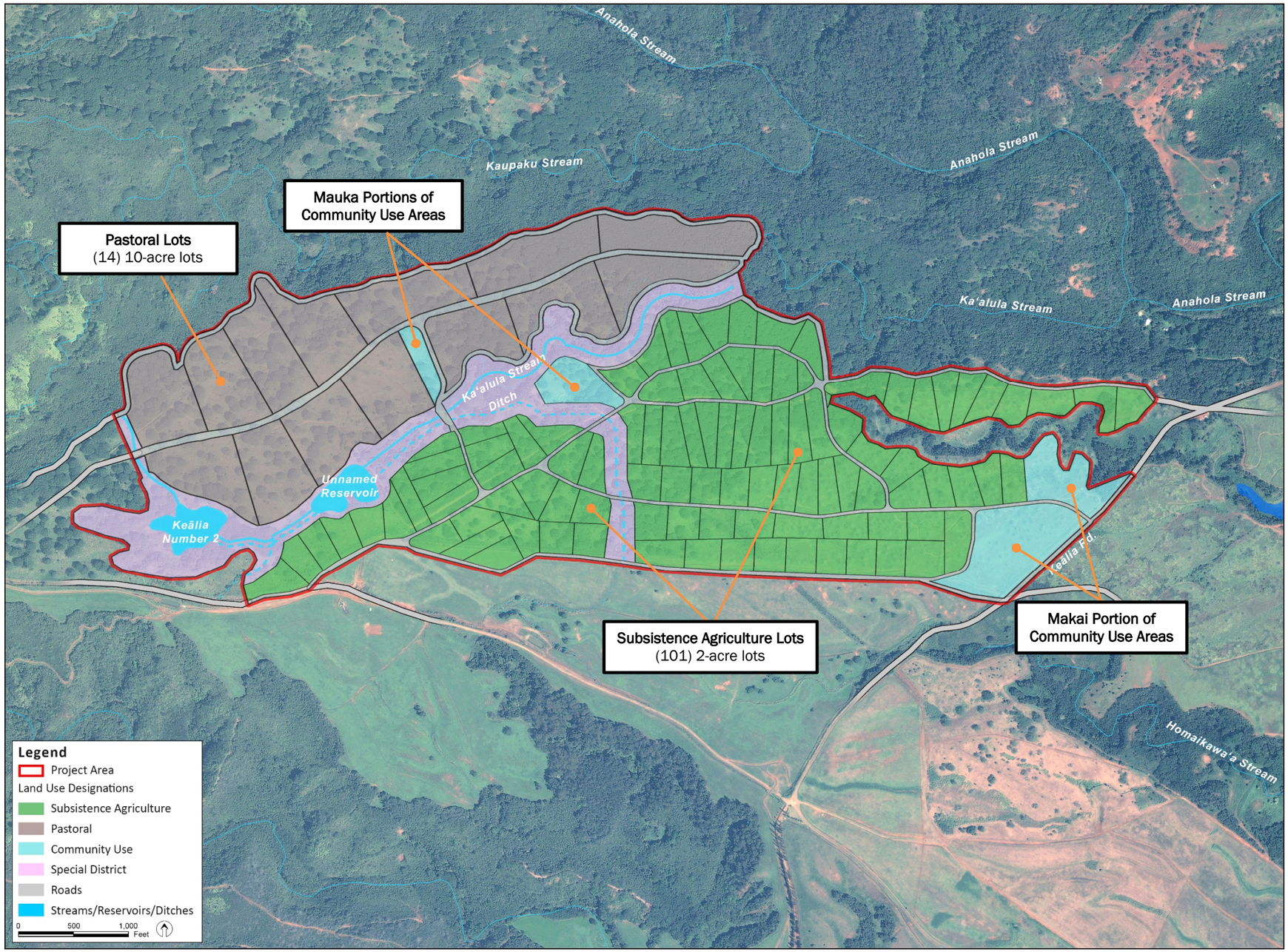

Figure 2-1 **Anahola Kuleana Homestead Settlement Plan, 2020**

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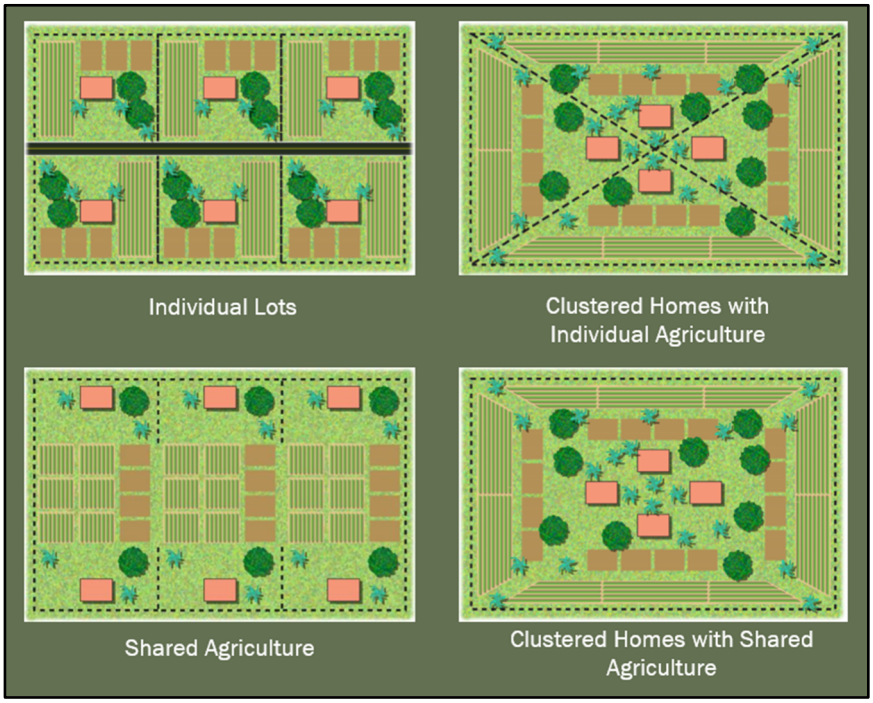


Figure 2-2 **Potential Lot Configurations**

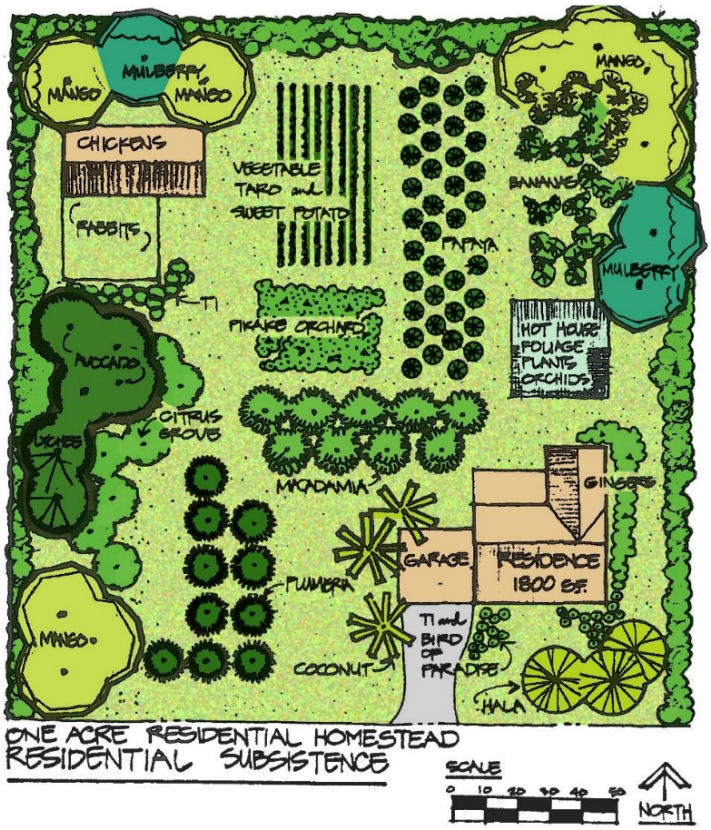
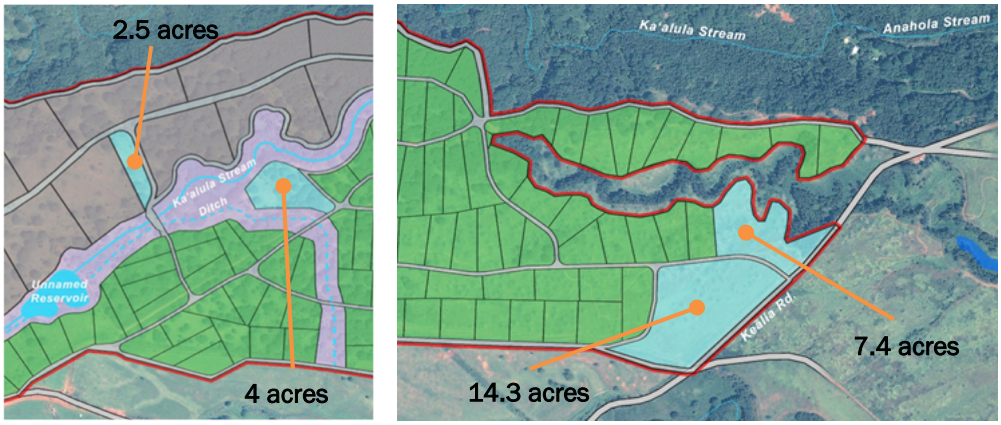


Figure 2-3 **Example of What an Agriculture Homestead Lot Could Be**

The Pastoral homesteading area is located at the northwesternmost portion of the Settlement Plan Area and adjacent to Ka‘alūlā Stream (*Figure 2-1*). The site is remote with difficult access making infrastructure costs very expensive. Pastoral Lots are generally areas with soils better suited for large lot grazing rather than agricultural usage. At the August 2019 beneficiary meeting, beneficiaries were able to vote on their behalf of the suggested Pastoral Lot size of 10 acres. A majority of attendees approved of the 10-acre Pastoral Lot size for a total of 14 Pastoral Lots in Anahola.

The 2004 KIP defined Community Use lands in Anahola as common areas. Approximately 28 acres of the Settlement Plan Area are designated for Community Use *(Figures 2-1 and 2-4).* Community Use areas are sited both in the makai and mauka portions of the Settlement Plan Area. In the makai portion, approximately 22 acres are split in two separate lots. The two separate lots, measuring approximately 7.4 acres and 14.3 acres, sit adjacent to each other in the easternmost corner of the Settlement Plan Area. This location was selected due to the proximity to existing utilities (should they be needed in the future), as well as access to the planned Anahola Town Center. In the mauka portion, approximately 2.5 acres of Community Use area is located northwest of Ka‘alūlā Stream within the Pastoral Lots. A four-acre Community Use area was also sited in the central portion of the Settlement Plan area, southeast of Ka‘alūlā Stream. These two spaces have potential for fuel storage, farm equipment storage and repair. *Section 2.2* of this EA suggests uses for both the makai and mauka Community Use areas that will need to be determined by the future lessees. The intent is to integrate the mauka homestead settlement to the Town Center to create an intact contemporary ahupua‘a.



Figures 2-4 **Community Use Areas**

2.2 Community Management and Economic Development

As the Kuleana Homestead Program is intended to rehabilitate native Hawaiians by providing opportunities for self-sufficiency and self-determination, raw land is being offered to beneficiaries to live on, grow food to sustain their family, and utilize for economic purposes. Beneficiaries receiving awards for Kuleana Homestead Lots agree to accept unimproved land in “as-is” condition. Infrastructure such as water, sewage, and electricity will not be provided. Additionally, beneficiaries will be responsible for the maintenance and upkeep of the homestead tract’s rights-of-way, management of wildfire risks, and the preservation of significant historical and biological resources. As such, lessees will be required to become active participants in the Kuleana Homestead Association to develop rules and agreements for community-based management.

Beneficiaries were consulted at the August 2019 beneficiary meeting for their preferences regarding economic and cultural opportunities on the homestead property. Beneficiaries envisioned various ideas for the Community Use. The activities below are potential possible uses that could occur in Community Use areas.

Agricultural Related

- After School Agriculture/ ʻĀina Program for Keiki, teaching them farm skills
- Agricultural Chill and Storage Space
- Agricultural/Farmers Market
- Arena for Livestock
- Community Butcher Shop
- Community Kitchen
- Farming Supplies and Machinery Rentals
- Growing Food and Animals to Eat
- Marketplace to Sell Farm Goods
- Processing Center

Civic/Community Related

- Activity Center for Keiki
- Community Center
- Cultural Learning Center for Cultural Practice and Activities
- Laundromat
- Multi-purpose Activities
- Opportunities for Hawaiian People for Jobs
- Park
- Recreation Center

Any potential future development for the Community Use areas must comply with the rules determined by the Anahola Kuleana Homestead Association. Potential impacts associated with erosion and drainage can be mitigated with Low Impact Development (LID) measures and Best Management Practices (BMPs). Overall, none of the suggested uses are anticipated to cause significant impacts. Potential water, wastewater and electrical impacts are reviewed in Chapter 3.

The non-profit organization, Sustain Hawaiʻi, conducted an Economic Resource Assessment to evaluate the range of community-based economic opportunities relative to Pastoral, Subsistence Agricultural, Special District, and Community Use areas for the Anahola project area (*Appendix B*). The report, *Anahola: Innovation-oriented, Ag-centric, Sustainable Community Development* (2019), envisions a homestead settlement committed to the implementation of the United Nations (UN) Sustainable Development Goals, a set of 17 global goals it adopted in 2015 to improve health and education while also tackling climate change. In *Figure 2-5*, kaiāulu (community-level well-being) and

ola (individual well-being) are seen as embedded parts of the ‘āina, or biosphere. This model, based on a community-scale, healthy food system moves away from the western sectorial approach to development, where social, economic, and ecological development are separate parts. The focus is shifting from the environment as externality, to a Native Hawaiian perspective where the ‘āina is a precondition for ola, kaiāulu, and sustainability.



Figure 2-5 **Community-Scale Healthy Food System**

The homestead community could accomplish these goals by establishing a cooperative. Cooperatives are community-owned, needs-based organizations that address the community needs from a commodity-based perspective, creating the basis for self-sufficiency and determination. Beneficiary consultation and the Sustain Hawai‘i Report have resulted in a range of specific proposals for community management and economic development. These proposals are explored in the sections below.

2.2.1 Agricultural Cooperative/Food Hub

As a subsistence-based community, the primary purpose of these homestead lands are to preserve and promote unique traditional subsistence practices, which provides homesteaders with the opportunity to sustain themselves by growing food for their family. If a surplus of food can be grown, beneficiaries may also have the opportunity to supplement their incomes with the agricultural products grown on their lots.

Maintaining a vegetarian diet of 2,300 calories per person requires approximately .44 acres per person. This includes fruits, grains, and vegetables. In an ideal setting, suitable farmland can also grow fruit trees to provide a well-rounded diet. Some vegetables require much more land than others, including potatoes and cucumbers.

In the 1987 Anahola Development Plan, there was a strong community sentiment that beneficiaries should have an opportunity to participate in income-generating uses at Anahola. Participation should include opportunities at both the management and employee levels. Use of mercantile licenses was one means that was suggested to assure beneficiary participation.

At the beneficiary consultation meeting held in August 2019, participants identified a commercial kitchen and farmers market as the most preferred income generating opportunity for the homestead community. An Agricultural Cooperative/Food Hub was the second most preferred option. An Agricultural Cooperative is an organization in which a cluster of small farms work together as a business, to share resources and help each other to produce and sell their crops. Farmers with common interests may organize through Agricultural Cooperatives to strengthen their collective market power. When agricultural activities increase sufficiently, there likely will be a need for facilities to process and store products. A food hub would help facilitate agricultural product collection, processing, and distribution. A food hub would fill the gap between production and consumption and generate jobs and revenue. A flour mill for ʻulu, kalo and ʻuala is one example.

Commercial kitchens can be used to turn agricultural products into packaged foods or value-added products. A professional commercial kitchen offers optimal operational efficiency and compliance with local rules and regulations. Food and value-added goods could then be distributed to wholesalers or sold locally at an onsite farmers market.

Farmers markets reconnect communities to their food system. They create an opportunity where farmers can simultaneously sell fresh, local food and serve as food educators, revitalizing the way consumers shop and eat. They are places where farmers and neighbors meet to socialize and exchange ideas around cooking, nutrition, culture and agriculture. Both a commercial kitchen and a farmers' market have already been established in the Anahola Town Center. Further analysis is needed to determine if this should take place in the mauka Settlement Plan Area as well.

2.2.2 Lease Land for Renewable Energy Project

Beneficiaries at the August 2019 meeting identified renewable energy as the third most preferred income-generating opportunity for the homestead community. One currently approved project will allow the Green Energy Team to lease approximately 1,067 acres of Hawaiian home lands in Anahola. The Green Energy Team is a renewable energy company that operates a 7.5-megawatt electrical biomass-to-energy facility on the island of Kauaʻi.

The existing project area is currently dominated by large albizia trees rendering the land nearly unusable and a liability for DHHL. In September 2019, the Green Energy Team presented an *Application for a Right of Entry to Remove Albizia Trees on Hawaiian Home Lands Located at Kamalomalo and Anahola, Island of Kauaʻi* to the Hawaiian Homes Commission. The Green Energy Team was approved to clear the property of the invasive albizia trees, which will allow the land to become once again accessible for pastoral and agricultural uses for beneficiaries. Harvesting will be done on a large-scale by clear-cutting large tracks of land called units (*Figure 2-6)*. The property has been preliminarily divided into 12 units and will tentatively be harvested in a 21-month period. All trees and branches would be removed from the property leaving behind only the stumps. Once the trees are removed, Green Energy Team would use wood chips to create electricity at its thermal steam plant in Kōloa.

In addition to clearing the land of invasive albizia and providing annual lease revenues to DHHL, access to the homestead property will be restored. Green Energy Team will repair the access roads and make these usable for truck-trailer combinations. Future tenants would benefit by having improved access to the property with standard vehicles and trucks.

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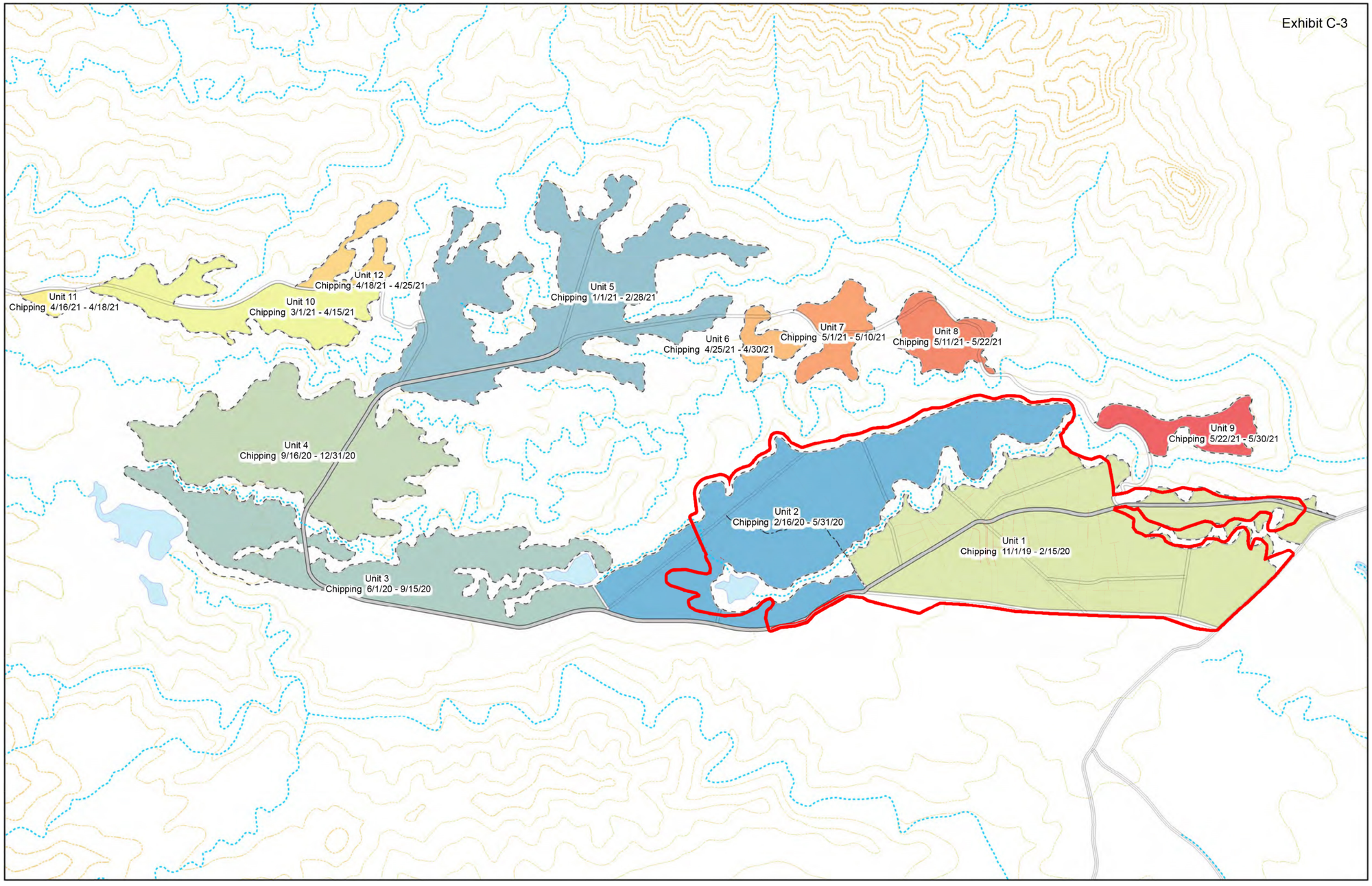

Figure 2-6

Green Energy Team, Albizia Tree Removal Phasing Strategy
(Source: Application for a Right of Entry to Remove Albizia Trees, 2019)

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2.2.3 Lumber Processing and Manufacturing

An alternative option to manage the albizia trees is by turning the invasive timber into a resource for building materials (*Figure 2-7*). A sawmill and manufacturing center could be developed in the Community Use area.

The albizia could be carefully felled and cut into desired lengths. The logs could then be loaded by forklift, crane, or winch loads and hauled to the sawmill on flatbed trailers. The sawmill would cut and treat the rough lumber and fabricate pieces to desired manufacturing component dimensions. The lumber could then be processed and utilized to build structures for the homestead settlement and reduce the cost with economies of scale.

As one example of a type of structure, students from the University of Hawai'i, School of Architecture, developed an innovative temporary housing unit out of invasive albizia. A protype was constructed as a proof-of-concept of a single-family low-income shelter (*Figure 2-8*).

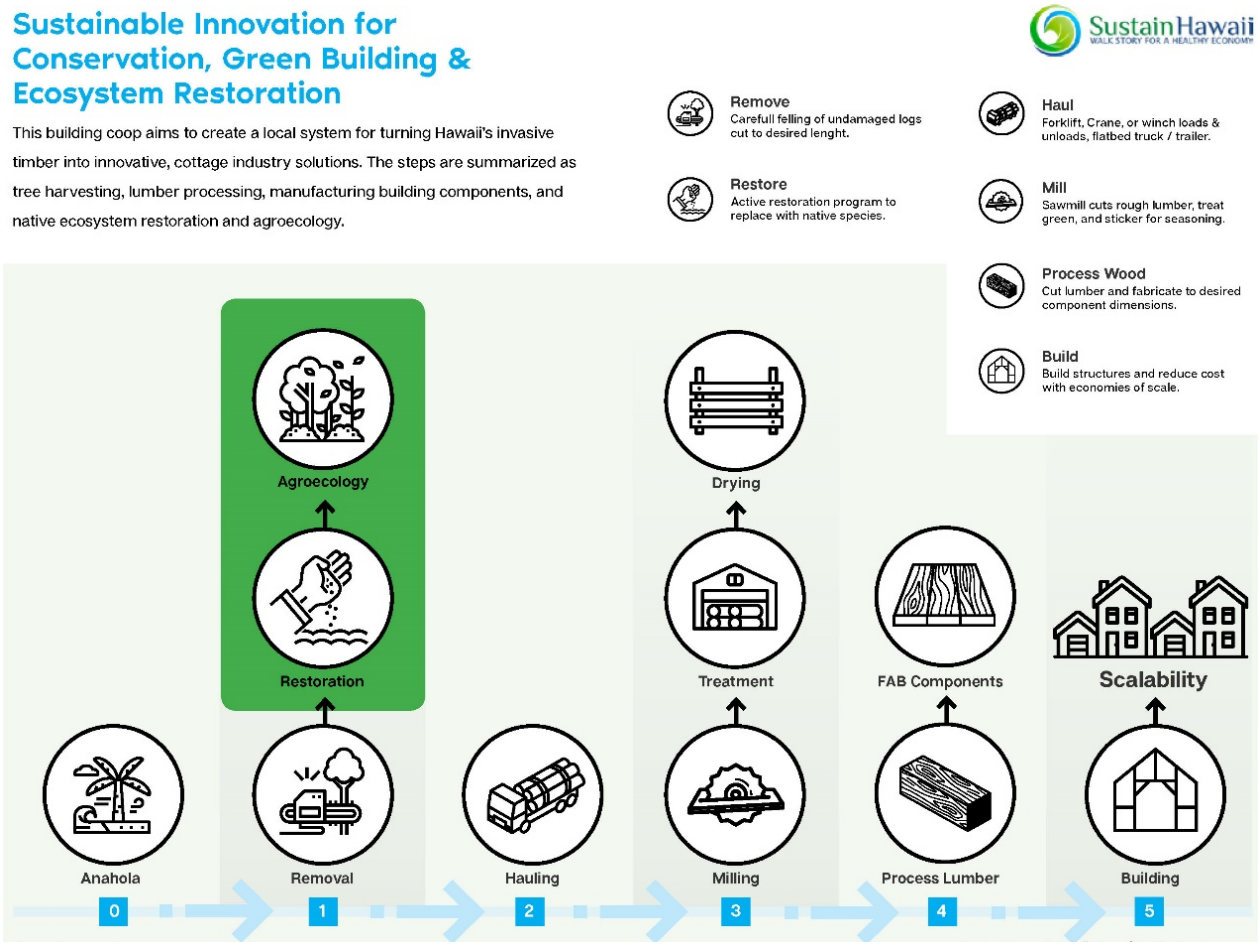


Figure 2-7 Sustainable Innovation for Conservation, Green Building & Ecosystem Restoration



Figure 2-8 **Prototype Single-Family Shelter Made from Albizia**

2.2.4 Resilience Hub

The Hawaiian Islands have historically been subjected to a variety of environmental hazards. Changes in the Earth's climate are predicted to increase the intensity and frequency of extreme weather events in the future, further increasing the risks of a major disaster event. As an isolated island in the Pacific, evacuation to a neighboring state to escape impact or seek shelter is not an option. If Hawai'i's airports or harbors are significantly damaged, access to assistance and supplies could be delayed. Individuals and families must rely on a minimum of two weeks of their own emergencies supplies and resources. A high hazard exposure, coupled with Anahola's numerous physical and social vulnerabilities, underscores the necessity to anticipate and prepare for future disaster events.

Vulnerability, in the disaster context, is a person's or group's capacity to anticipate, cope with, resist, and recover from the impact of a hazard. The elderly and the least advantaged often suffer the greatest disaster losses and have the most limited access to public and private recovery assets. Socioeconomically disadvantaged individuals often lack access to the knowledge and resources to engage in self-protective activities. Education and literacy can also influence access to information on disaster risks and risk-education measures. Considering the historic marginalization of Native Hawaiians and an average beneficiary age of 61 years, the Anahola Settlement must take proactive measures to protect vulnerable individuals and strengthen community resilience.

The relative remoteness and limited infrastructure of the proposed Anahola Settlement Plan Area creates a need for meaningful community engagement to plan for and protect against potential hazards. A Resilience Hub is a potential use that could be developed on land designated for Community Use within the Settlement Plan Area. As defined by the Urban Sustainability Directors Network (USDN), Resilience Hubs are community-serving facilities that support residents and coordinate resource distribution and services before, during or after a hazard event. They are intended to equitably enhance community resilience while improving local quality of life. They are a smart local investment with the potential to reduce burden on local emergency response teams, improve access to health improvement initiatives, foster greater community cohesion, and increase the effectiveness of community-centered institutions and programs.

For lessees living in the Settlement Plan Area, a Resilience Hub can provide an opportunity to build local community power and leadership. It can provide the resources beneficiaries need to enhance their own individual capacity while also supporting and strengthening the homesteading community. Instead of being led by Kaua'i county government, it would be supported by local government and other partners but led and managed by the homestead community members.

A Resilience Hub could serve several functions for the residents in Anahola including:

- Community center and gathering space
- Training/education classrooms
- Emergency shelter for lower Anahola residents within the tsunami evacuation zone
- Energy storage (batteries/fuel tanks)
- Wifi hotspot and charging station
- Storage for emergency equipment (food, water, ice, medical supplies, generators, fuel, maps, tools, portable water tanks)
- Emergency communication systems (HAM radio)
- Temporary medical center
- Helipad for firefighting and air-evacuation

2.2.5 Restoration and Conservation

The approximately 92 acres of lands designated in the project area as Special District are typically gulch areas that comprise the Ka‘alūlā Stream and its drainageways. These gulch areas are generally not suitable for farming or occupancy, and therefore will not be divided into homestead lots.

The Special District lands represent important drainageways that exhibit steep and irregular topography. These areas are sensitive areas and will be maintained in conservation and open space. Disturbing the gulches through development could lead to increased erosion and impacts to stream water quality. The Ka‘alūlā Stream is a perennial stream with important downstream uses that should be protected from contamination and siltation. Streams and drainageways in the project area should in no way be developed or obstructed. Closing of these waterways can create drainage problems in the mauka areas and restrict the types of uses which can occur there.

The Kaua‘i Island Plan stipulates that land designated as Special District should provide open space which can remain in a natural state or be used for activities which respect or enhance their sensitive qualities. Sloped areas (more than 20%) are typically not ideal for traditional annual crops. The land could conceivably be used to cultivate native plants that are important for cultural activities. Streams in the Anahola area were known historically to be developed by ancient Hawaiians as lo‘i kalo with a system of ‘auwai. Soil on the slopes could be stabilized and embankments created for growing specific crops utilizing terraced planting techniques (*Figure 2-9*).

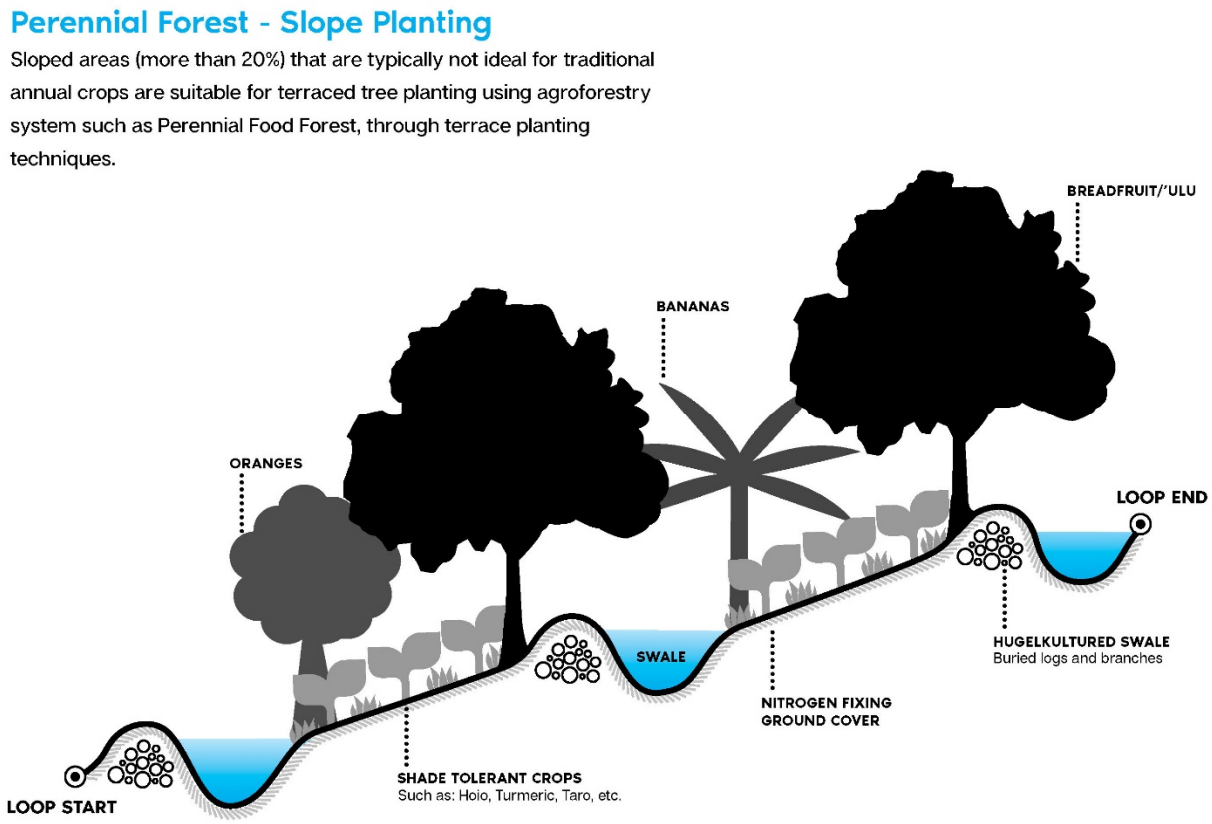


Figure 2-9 **Perennial Forest – Slope Planting**

2.3 Settlement Timetable

The Anahola Kuleana Homestead Settlement Plan has been presented to and developed based on feedback by DHHL beneficiaries. The Settlement Plan is being evaluated under the state environmental review process as promulgated under *HRS §343*. The Settlement Plan and EA will need to be approved by HHC before lots are offered. DHHL will notify holders of Revocable Permits (RPs) in the area that they will need to vacate the premises. In the meantime, the Green Energy Team is set to begin the clearing of albizia trees within the Settlement Plan Area in the year 2020. In compliance to the Hawaiian Hoary Bat season, the clearing of albizia trees will not occur between June and September; thereafter clearing of albizia trees will resume with clearing areas mauka of the Settlement Plan Area.

Once the Settlement Plan Area is cleared, DHHL will be responsible to survey and stake the project area to determine the metes and bounds descriptions of each Kuleana Homestead Lot (including TMKs and addresses), and prepare an unpaved right-of-way to the awarded lots. Although unpaved, these minimal roadways should be hard-packed to ensure access by homesteaders and emergency vehicles including fire, ambulance, and police services. DHHL will not plan for the installation of any other improvements. Once completed, the Awards department may begin the offering process of the Kuleana Agriculture and Pastoral Lots. The projected offerings process could begin as soon as 2022 but is subject to change with the completion of the preceding actions described above.

Development of permanent, long-term infrastructure solutions may eventually be desired by the homestead community. Cooperatives, improvement associations, community development corporations and self-help programs are recommended to equitably share costs and to maximize economies of scale. The lessees may also find it productive to work with counties in the provision and maintenance of those services. Prospective applicants who are interested in becoming Kuleana Lessees must understand that DHHL's only commitment is to provide the land, an unpaved road, and to survey, stake, and award lots in accordance with *HAR §10-3-30*, Kuleana Homestead Leases.

2.4 Summary of Projected Costs: Traditional Homestead vs Kuleana Homestead

Development costs calculated in the 2004 KIP are located in *Table 2-3*. In response to the beneficiary demand to live on the lots, the costs include wastewater treatment, paved roads built to rural standards, site preparation, and electricity. The total cost for both Subsistence Agriculture and Pastoral is $15 Million. Currently, as per *HAR §10-3-30*, DHHL plans only to be responsible for the survey and stake for each lot to determine the metes and bounds descriptions of each kuleana homestead lot, and prepare an unpaved right-of-way to the awarded lots.

Table 2-3 DHHL's Potential Development Costs for Providing Infrastructure Under a Traditional Homestead Program

Land Use	Water	Sewage	Roads	Site Prep	Electricity	Total
	Catchment	IWS	Roadway improvements (paved roads)	Grubbing & Clearing & 4,000 sf pad	Transmission Lines*	
Subsistence Agriculture	$0	$3.03 M	$7.50 M	$2.35	$3.14 M	$16.02 M
Pastoral	$0	$420,000	$2.00 M	$1.43 M	$1.50 M	$5.35 M
Total	$0	$3.45 M	$9.50 M	$3.78 M	$4.64 M	$21.37 M

**Price estimate from the KIP (2004) adjusted for inflation*

Table 2-4 DHHL's Potential Development Costs To Provide Infrastructure For Anahola Kuleana Homestead Lots

Land Use	Water	Sewage	Roads	Site Prep	Electricity	Total
	Catchment	IWS	Roadway Improvements (gravel roads)	Grubbing & Clearing & 4,000 sf pad	Transmission Lines	
Kuleana Agriculture	$0	$0	$2.10 M	$0	$0	$2.10 M
Kuleana Pastoral	$0	$0	$1.00 M	$0	$0	$1.00 M
Total	$0	$0	$3.10 M	$0	$0	$3.10 M

Section 3

Description of the Environmental Setting, Potential Impacts, & Mitigation Measures

Chapter 3

Description of the Environmental Setting, Potential Impacts, & Mitigation Measures

3.1 Project Location and Characteristics

Department of Hawaiian Home Lands owns a total of 20,565 acres on the island of Kaua'i. Of the 20,565 acres, 4,228 acres are located in the moku of Kawaihau in the ahupua'a of Anahola and Kamalomalo'o (*Figure 3-1*). This area extends from the Keālia Forest Reserve boundary line makai to the shoreline and is characterized by flat plateaus extensively cut by river valleys and gulches. The Settlement Plan area (462 acres) is bisected by two reservoirs and Ka'alūlā Stream and ditch. The Keālia mountain range abuts the property along its northern boundary and provides a dramatic backdrop. Previously in sugar cane cultivation, the entire area is primarily covered by albizia-dominated forest. The DHHL-owned land in Anahola is the largest Hawaiian homestead community on Kaua'i. Other DHHL regions on Kaua'i include Moloa'a, Wailua, Hanapēpē and Kekaha.

The Settlement Plan Area sits mauka of Keālia Road on portions of TMKs (1) 4-4-8-002:001, 003:006, and (1) 4-4-7-002:004 (*Figure 1-2*). The Settlement Plan Area is located midway between Līhu'e (14 miles south) and Hanalei (18 miles north), and just north of the residential/resort towns of Kapa'a and Wailua. The Settlement Plan Area is bordered to the south by Cornerstone Hawaii Holdings LLC, a private investment company owned by Riverbend Management, Inc. (*Figure 3-2*). The Keālia Forest Reserve, managed by State of Hawai'i's Department of Land and Natural Resources (DLNR), borders the DHHL property to the north and west. DHHL owns the lands makai of the project area all the way to the coast. Access to the Settlement Plan Area is via two unimproved former cane haul roads off of Keālia Road.

Under the SLUD Boundary System, the Settlement Plan Area is designated as Agricultural District (*Figure 1-4*). Agricultural Districts are reserved for the cultivation of crops, aquaculture, raising of livestock, wind energy facilities, timber cultivation, agriculture-support activities, and land with significant potential for agriculture uses. Lot sizes in Agricultural Districts shall be no less than one acre in size, unless permitted by the County, with one dwelling unit for each one-acre parcel. While the Settlement Plan Area is located on DHHL-owned land, which are not subject to State and County land use regulations, Subsistence Agriculture and Pastoral land uses are allowable under these designations, conforming to their purpose and intent.

Today, DHHL leases a portion of the property under RPs. RPs are short-term (30-day month-to-month, annually renewable), which can be cancelled by DHHL at its sole discretion and for any reason whatsoever. Permits may be revoked at any time during the twelve-month period upon a 30-day advance notice in writing to the tenant. There are four existing RPs under three RP lessees within the Settlement Plan Area totaling approximately 175 acres. These leases are being used by the tenants for various ranching and small agricultural pursuits. The tenants of these leases will need to be contacted prior to the allocation of future awards. Other than the cleared RP areas, the remainder of the project area is more or less undeveloped by modern structures.

The environmental setting, potential impacts, and mitigation measures for the Anahola Kuleana Homestead Settlement Plan are addressed in the sections below.



Figure 3-1 **Ahupua'a Map**

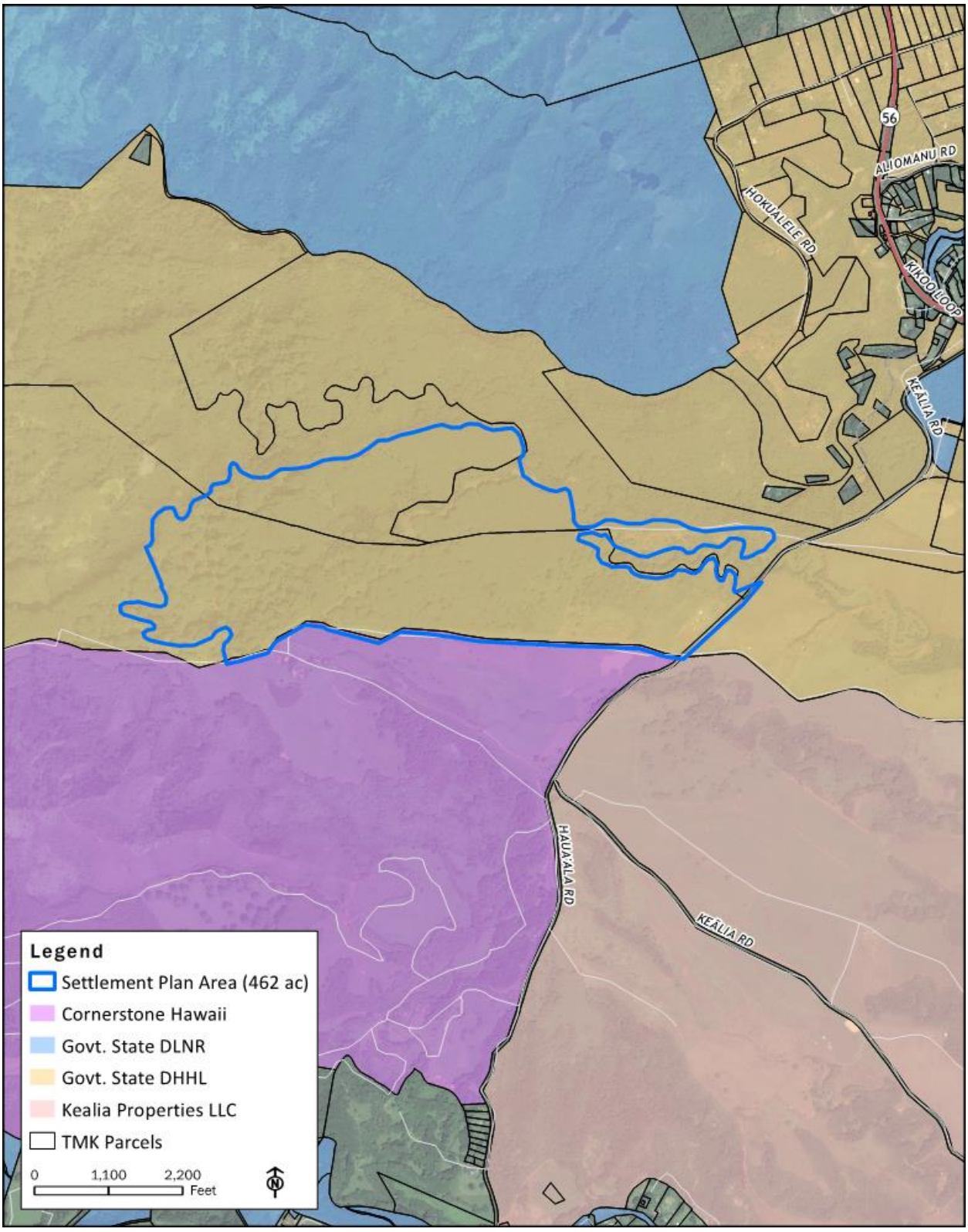


Figure 3-2 **Adjacent Landowners**

3.2 Climate

Existing Conditions

According to the University of Hawai'i Geography Department *Climate of Hawai'i* interactive mapping tool, the annual average air temperature in Anahola is 75°Fahrenheit (°F). The average monthly low temperature is 68°F in February and the average monthly high temperature is 76°F. The eastern and northern region of the island are typically wetter than the western and southern regions. The mean annual rainfall for the overall Anahola project area is 61 inches (*Figure 3-3*). The wettest month of the year is December with 64 inches of rainfall.

In general, rainfall is highly variable depending upon elevation and location. There are notable climactic differences for different portions within the Anahola region. Areas designated for Subsistence Agriculture between Keālia Road and Ka'alūlā Stream are described as relatively dry compared to the areas mauka. A second climate has been described as "generally wetter" for areas surrounding Kaupaku Stream and a third climate described as "very wet" for the remaining areas surrounding Anahola Stream to the north (outside of the current project area). Rainfall data from the nearest rainfall gauges showed a high variation of rainfall from different elevations (mauka and makai end of the property).

Rain gauge data was obtained from the National Oceanic Atmospheric Administration (NOAA) Climatic Data Center for station names: Anahola 1114 and Kaneha Reservoir 1092. The Anahola 1114 rain gauge is located at elevation 180 feet above mean sea level (MSL) and approximately 1.5 miles makai of the project area. The Kaneha Reservoir 1092 rain gauge is located at elevation 845 feet above MSL and approximately 2.5 miles mauka of the project area. Daily rainfall data is available at the Anahola 1114 rain gauge from January 1980 until September 2000. Rainfall data for the Kaneha Reservoir is available from January 1972 until December 1991. Using this data, the average annual rainfall during these periods for the Anahola station was 27.68 inches, and for the Kaneha Reservoir station, 59.86 inches. The high variation of rainfall data between the two gauges alludes to the "micro-climate" effect due to the elevation differences mentioned previously.

Global climate change has been associated with changes in Hawai'i's local climate. The University of Hawai'i, Center for Island Climate Adaptation and Policy published a *Briefing Sheet* summarizing specific changes observed in Hawai'i (Fletcher, 2010). Based on peer-reviewed scientific journals and government reports, it presents evidence of climate change in Hawai'i as:

1. Rising surface temperature,
2. Decreased rainfall and stream flow,
3. Increased rain intensity,
4. Increased sea level and sea surface temperatures, and
5. Ocean acidification.

Due to the heat-trapping effects of greenhouse gases (GHG), climate scientists project that if GHG emissions continue to accelerate at current output trends, then the average global temperature will likely increase by three to seven degrees Fahrenheit (1.7 to 3.9 degrees Celsius) by the year 2100. These figures were derived from a number of global climate models, which were based on various scenarios of changes in the concentrations of GHG in the Earth's atmosphere.

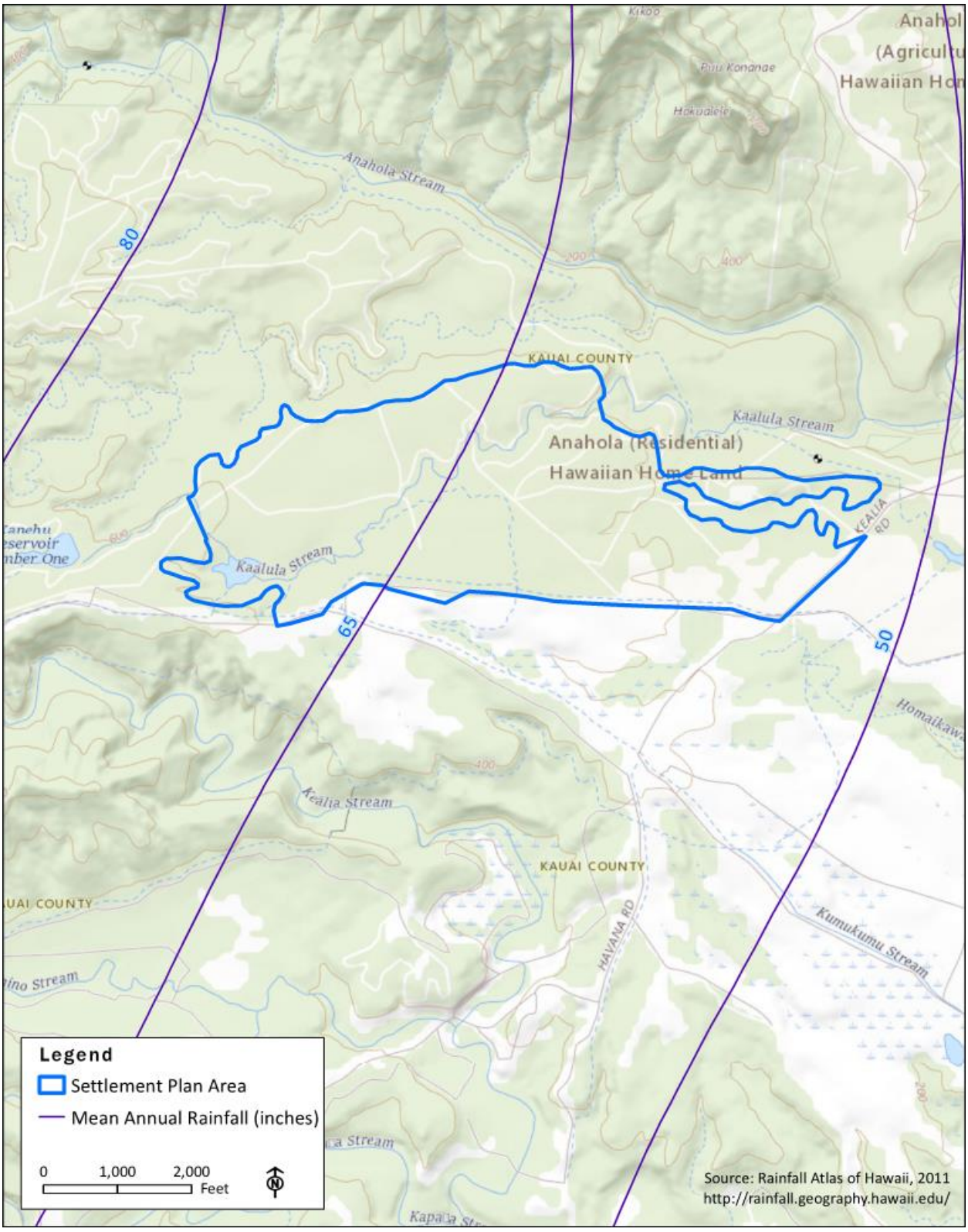


Figure 3-3 **Mean Annual Rainfall (Inches)**

Anticipated Impacts and Mitigation Measures

According to the Intergovernmental Panel on Climate Change, the three main causes of the increase in GHG observed over the past 250 years have been fossil fuels, land use, and agriculture. The proposed project involves the removal of the existing albizia forest to clear land for DHHL Subsistence Agricultural and Pastoral lots. This action has the potential to affect the microclimate of the area.

According to the Intergovernmental Panel on Climate Change's (IPCC) Climate Change and Land report (2019), when forests are replaced by crop or pasture lands, a larger amount of carbon dioxide (CO_2) enters the atmosphere due to the absence of trees and their function in the carbon cycle. Large amounts of carbon are stored in the stems, branches, bark, and foliage of trees. Traditional agriculture crops and grasses contain less biomass than trees, therefore, carbon will be lost to the atmosphere upon clearing of the albizia forest. Additionally, the remaining tree stumps and roots will eventually be decomposed to CO_2 by soil organisms. CO_2 is a greenhouse gas emission that contributes to global climate warming. Ranching and agricultural practices have the potential to impact the climate as nitrous oxide (N_2O) released from fertilizers and methane (CH_4) from livestock are large contributors of greenhouse gas in the atmosphere.

Removal of the albizia forest may also impact the surface temperature and evapotranspiration levels in the area. As sunlight reaches the land surface, a portion of light is reflected back into the atmosphere and a remaining portion is absorbed and converted into heat. Darker surfaces absorb more solar radiation than lighter surfaces. Agricultural and pastoral lands would reflect more solar radiation into the atmosphere than the darker colored canopy of the albizia forest. Therefore, change in land use from albizia forest to crop and pastoral land could result in lower land surface temperatures in the project area.

Native forest restoration in the Special District areas and carbon farming practices could be implemented by lessees to offset the carbon footprint generated by the proposed action. Carbon farming involves implementing practices that are known to improve the rate at which CO_2 is removed from the atmosphere and converted to plant material and/or soil organic matter. Successful carbon farming results in carbon gains from land management and conservation practices that exceed carbon losses (IPCC, 2019). The Homestead Association as well as the individual lessees would be responsible for initiating such carbon farming techniques.

While much of the land has irrigation ditches running through it, current rainfall data suggests that portions of the land can be irrigated by the heavy rainfall alone. Although the effects of global warming could substantively change the amount of rainfall in the area, rainfall combined with catchment may or may not offer a viable option for non-potable water during times of drought. DHHL has conducted an additional non-potable water infrastructure assessment as part of this Settlement Plan and EA process to look at other potential water supply options for irrigation. More discussion on this is located in *Section 3.10.1 Water.*

3.3 Topography

Existing Conditions

The 462-acre Settlement Plan area is located on both flat and gently rolling regions with a deeply incised, gorge-like perennial stream with steep rocky sides and small waterfalls. Literally translating as "moving calmly," the Ka'alūlā stream originates at its source mauka of the Settlement Plan area in Kamalomalo'o, and meanders through the center of the project area, eventually flowing makai of the property and funneling into Anahola Stream (*Figure 3-3*). Elevations range from approximately 300 feet (ft) to 560 ft.

Anticipated Impacts and Mitigation Measures

No substantial changes to the site's topography will be made, although some excavation and grading will be required during the construction process to accommodate the clearing of albizia trees (*Falcateria moluccana)*. BMPs will be implemented pursuant to the required Grading Permit to mitigate potential impacts of soil erosion and fugitive dust during grading or excavation. According to HAR §11-55, a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater permit will be required as grading of the planned improvements will involve one acre or more. The contractors will implement the practice of utilizing erosion control and land-based sources of pollution (LBSP) barrier measures at the project site where there is the opportunity for sediment discharge into nearby waters.

3.4 Soil Conditions

Existing Conditions

The soils within the 462-acre Settlement Plan Area are well-draining and good planting soils. The Land Study Bureau of the University of Hawai'i prepared an inventory and evaluation of the State's land resources during the 1960s and 1970s. Ratings were developed for overall productivity, with a rating of "A" very good, to "E" not suitable. The majority of lands comprising the project area are classified as B and C, with some D and E located in the gulch lands adjacent to the Ka'alūlā stream (*Figure 3-4*).

These lands are also classified as Prime or "Other Important Agricultural Land" (*Figure 3-5*) under the Agricultural Lands of Importance to the State of Hawai'i (ALISH).

In the southeastern portion of the Settlement Plan Area, south of Ka'alūlā Stream, are soils of the Puhi silty clay loam series. Soils consisting of the Puhi silty clay loam series are well-draining soils that are ideal for planting and agricultural purposes. Northwest of Ka'alūlā Stream are soils of the Kapa'a silty clay series. Soils consisting of the Kapa'a silty clays are well-draining and good planting soils, but are less ideal for agricultural purposes and rather suitable for pastoral land use (*Figure 3-6*). The well-draining soils throughout Anahola made the area well-known for its abundant 'ulu cultivation along with the cultivation of lo'i kalo and rice.

The steep sloping gulch lands, designated as Special District, are typically comprised of rough broken land and poor-quality soils. These gulch areas are generally not suitable for farming. An exception is a thin sliver of land located downstream of the Unnamed Reservoir comprised of the Hanalei silty clay series. These are superior soils for planting and this area should be considered an ideal candidate for native reforestation or a perennial food forest.

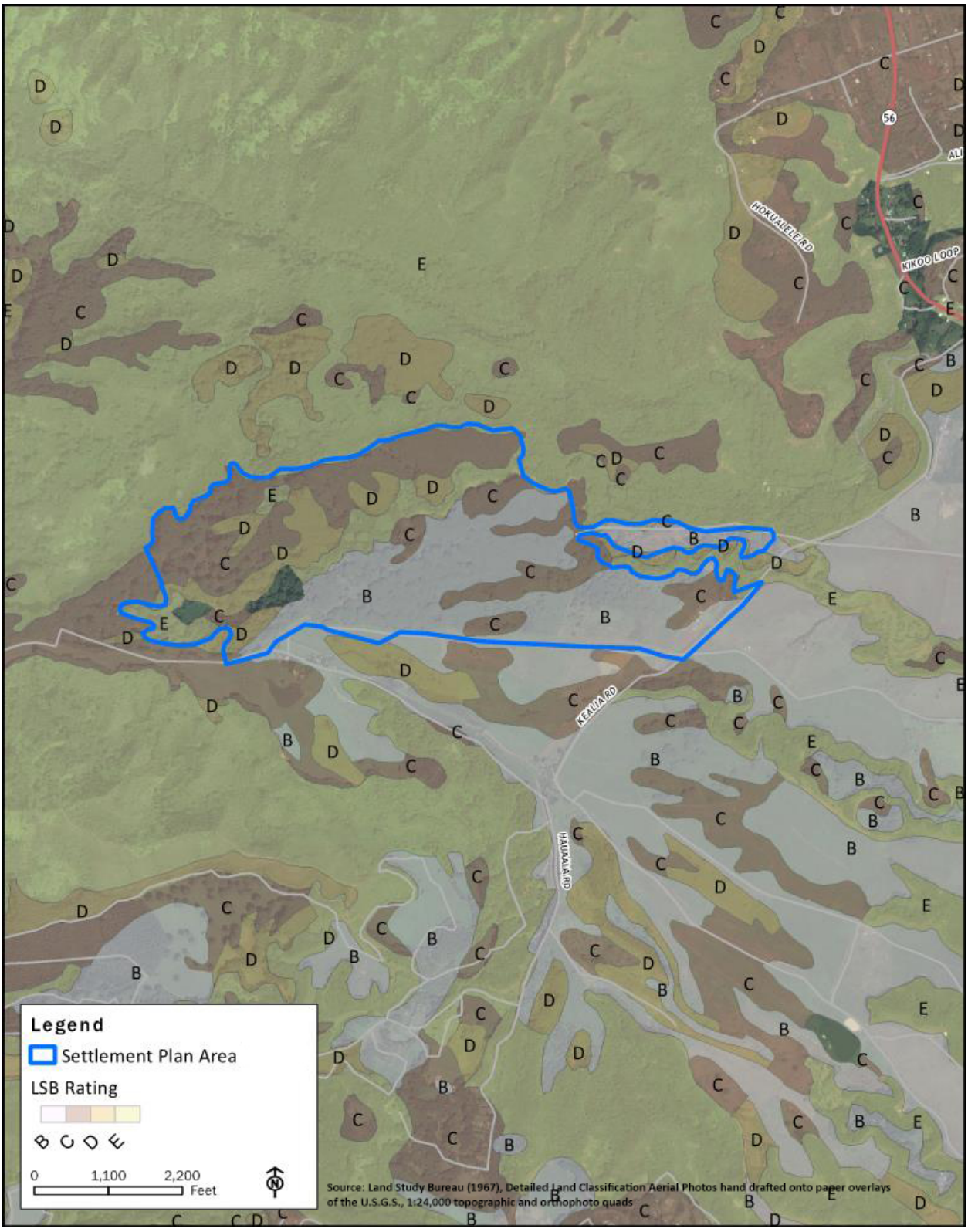


Figure 3-4 **Land Study Bureau Overall Agricultural Productivity Rating**

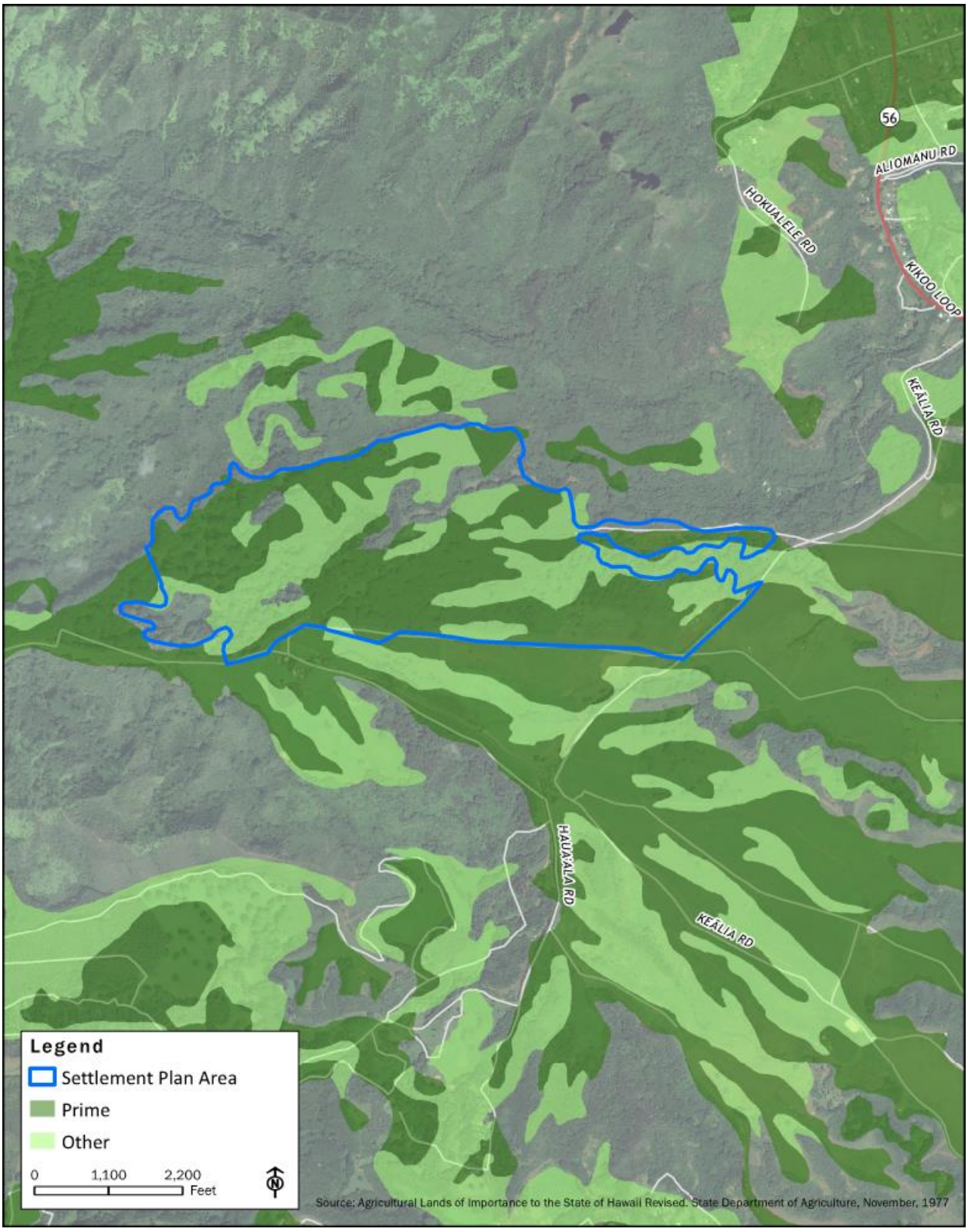


Figure 3-5 **Agricultural Lands of Importance to the State of Hawai'i**

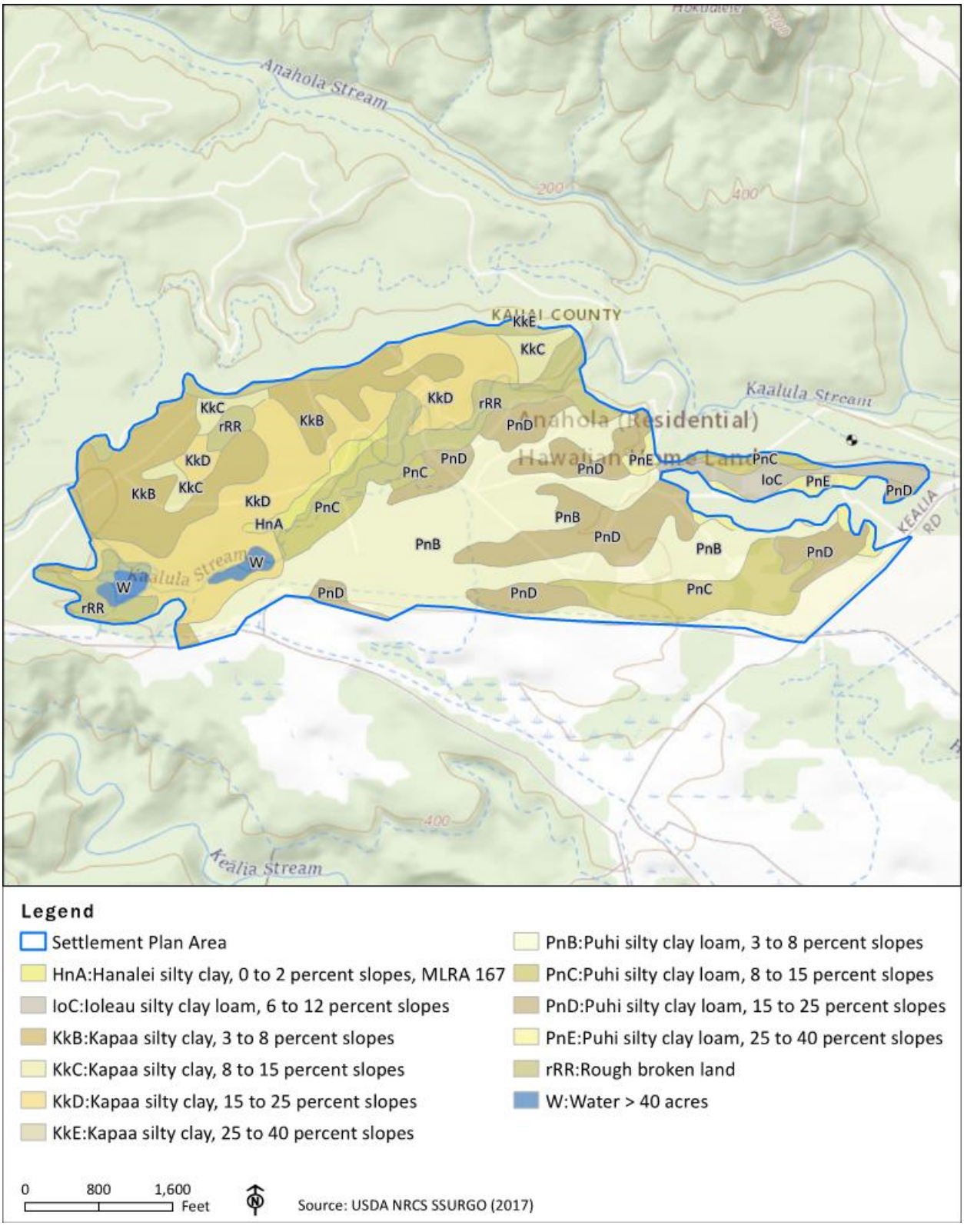


Figure 3-6 **Soils**

Anticipated Impacts and Mitigation Measures

There will be limited soil disturbance to the site's topography, although some excavation and grading will be required during the construction process to accommodate the clearing of albizia trees and improving of existing roadways. Clearing the land and developing Kuleana Lots for beneficiaries will allow these good quality soils to once again be utilized for food production.

The albizia trees will be cut at the trunk leaving the stump and the roots in place. Leaving the roots in-situ will prevent soil loss to erosion. Erosion control practices will comply with County and State regulations. BMPs will be implemented by the Green Energy Team pursuant to the required grading permit to mitigate potential impacts of soil erosion and fugitive dust during grading or excavation. These practices will include sediment traps, silt fences, and dust fences.

3.5 Hydrology

Existing Conditions

The Anahola Settlement Plan Area lies within the Anahola watershed on the windward side of the Island of Kauaʻi. For more than 70 years during the plantation era of Hawaiʻi, the Makee and Līhuʻe plantations leased and had full use and control of much of the DHHL lands in Anahola. The land underlying the project area was formally used by the Līhuʻe Plantation for sugar cultivation. While the plantation was in operation, several construction projects were undertaken to deliver water throughout the various planting areas. Irrigation ditches, sluice gates and culverts can be found throughout the Settlement Plan Area.

Since 1877 when sugarcane was first cultivated in Anahola, surface water was captured in the mauka areas and discharged into the Kaneha Reservoir. The Anahola Stream fed the Upper Anahola Intake, delivering water to Kaneha Reservoir. A portion of the diverted water collected in the Kaneha reservoir was transported via the Kaneha ditch to a series of smaller reservoirs and ultimately to the sugarcane fields. Two of these reservoirs and their associated ditch systems are located within the Settlement Plan Area: Keālia Number 2 and Unnamed Reservoir (*Figure 3-7*). A portion of the waters from these reservoirs was also discharged into the Kaʻalūlā Stream.

The land transformed drastically after the closing of the Līhuʻe Plantation in 1997, and ownership of the property returned to the DHHL inventory. The Upper Intake at Anahola Stream was demolished cutting off flow from Anahola Stream to the Kaneha Reservoir. Additionally, Kaneha reservoir no longer feeds water to the reservoirs below. The Kaneha reservoir is located on land now owned by Cornerstone Holdings, and the Kaneha ditch has been rerouted for delivering water onto their property. The DHHL owned reservoirs are now essentially dry and only fill during periods of heavy rainfall. A Stream Channel Alteration Permit (SCAP) would be required to restore the upper intake and reroute the ditch to feed DHHL reservoirs below.

Presently, Keālia Number 2, the mauka reservoir in the Settlement Plan Area, is a large earthen reservoir that is currently almost entirely dry except for the natural Kaʻalūlā Stream flowing through it. The reservoir was originally part of the natural stream that was excavated to create an approximately 5.5-acre basin. This reservoir is currently in the process of being decommissioned by DHHL. Directly connected by the Kaʻalūlā Stream, Unnamed Reservoir is an approximately 5.6-acre naturally occurring, basin located makai of Keālia Number 2.

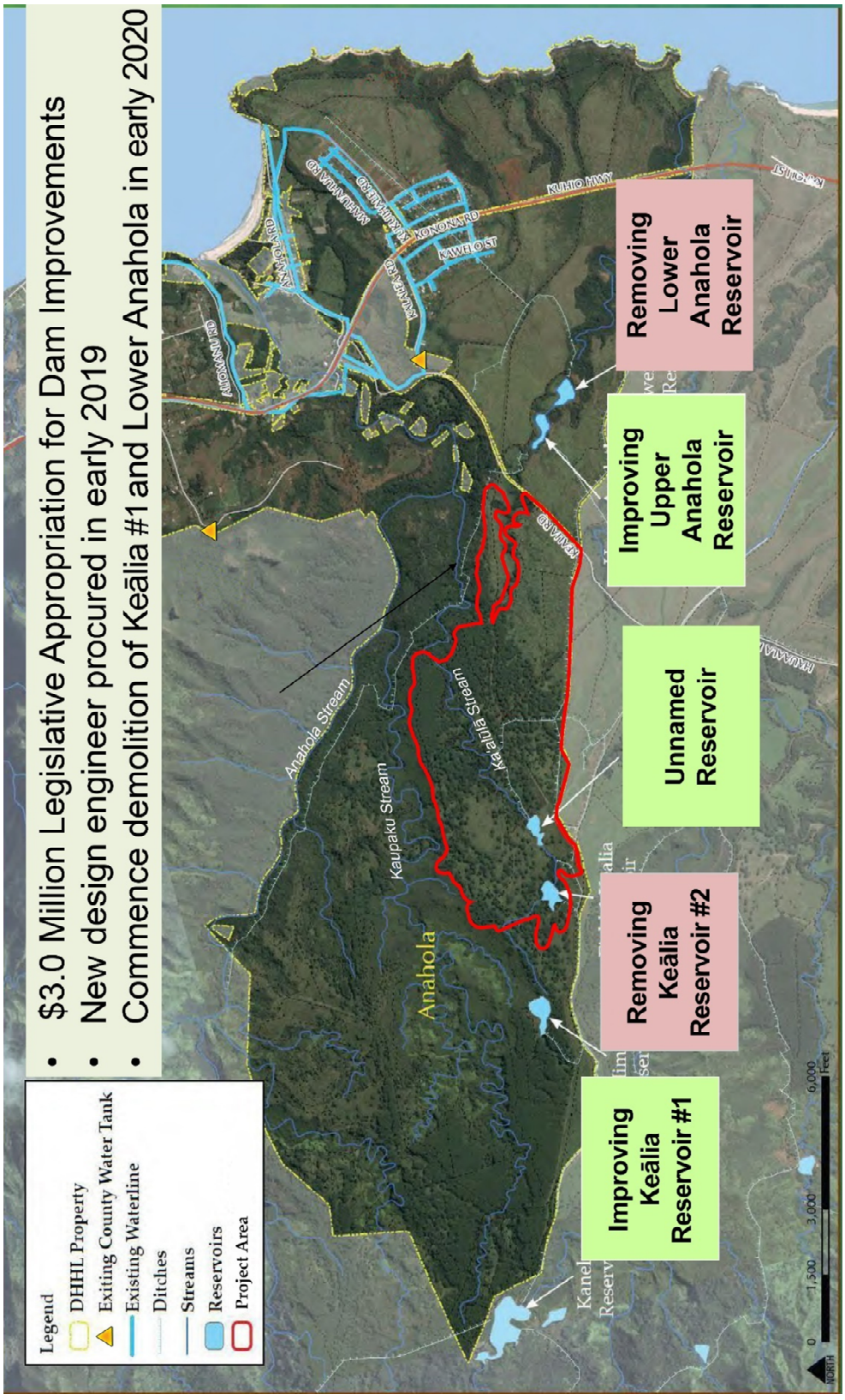


Figure 3-7 **Anahola Dam and Reservoir Impovements**

Unnamed Reservoir is also nearly completely dry. Both reservoirs were also once connected to a third reservoir (Keālia Number 1), located mauka of the Settlement Plan Area limits. Collectively, these reservoirs and ditch system constituted the water storage and distribution system for the previous commercial plantation agricultural operations in the Settlement Plan Area. Vegetation in the reservoirs is now indicative of wetland environments dominated by native hau (*Hibiscus tiliaceus*) and numerous albizia trees.

The Ka‘alūlā Stream is a tributary of Anahola Stream and joins the main channel approximately 1 mile mauka of the stream’s mouth. Near the mouth of the Anahola Stream is an estuary that extends about three-quarters of a mile inland from the Pacific Ocean. The Ka‘alūlā Stream is an interrupted stream (perennial, but with segments sometimes dry) and has both gaining and losing reaches. Where the channel is incised, the stream bed includes steps and pools, in many places with silt-covered boulders. In flat areas, such as in the reservoirs, the stream bed is mostly silt. The stream flows through hau forest within the unnamed reservoir and through hydrophytic herbaceous vegetation through the Keālia Number 2 reservoir.

Ka‘alūlā Stream water quality measurements were taken by AECOS and documented in the Biological Surveys on Selected DHHL Lands in Anahola (January 2019) (*Appendix D*). On November 7, 2018, AECOS biologists took field measurements in Ka‘alūlā Stream for temperature, conductivity, dissolved oxygen, and pH, and collected water samples for analysis of total suspended solids (TSS), turbidity, nitrate-nitrite nitrogen (NO_3+NO_2), total nitrogen (TN), and total phosphorus (TP) at 5 stations (*Figure 3-8*). The AECOS survey found the gentle-flowing stream waters to vary greatly between two separate survey days (*Figure 3-9*). Observations on November 6, 2018 were of cool clear stream water. Water clarity dramatically decreased the following day after a morning rain event.

Temperature and conductivity varied little from station to station. Temperature readings ranged from 22.7 degrees Celsius (°C) at station 4 to 23.9°C at station 1. Stream waters were well oxygenated at three of the five stations with values ranging from 80% to 85% based on ambient water temperature. Stations 2 and 3 were noticeably lower at 48% and 33% respectfully. Values for pH ranged from 6.23 to 6.55 standard units.

Turbidity and TSS increased with distance downstream and were especially high at Station 2. Elevated nitrate+nitrite was also observed at Station 2. This pattern is likely the result of recent runoff from overnight rainfall on adjacent lands, and erosion of the unimproved road just upstream of sample station 2. A relatively small change in conductivity with distance downstream indicates little intrusion of groundwater into the stream.

Not all of the water quality measurements made by the AECOS survey can be compared directly with the state water quality criteria to establish compliance with these standards, because such a comparison requires representative geometric mean values, calculated from a minimum of three sampling events at each station in the stream. The AECOS one-time sampling event only reveals stream conditions at the time of their survey.

USGS field measurements were made in 2011 to study the Ka‘alūlā streamflow. Measurements taken on September 2, 2011, indicate a stream flow of 8.19 ft^3/s. A second measurement on April 15, 2011 indicated a flow of 13.1 ft^3/s.

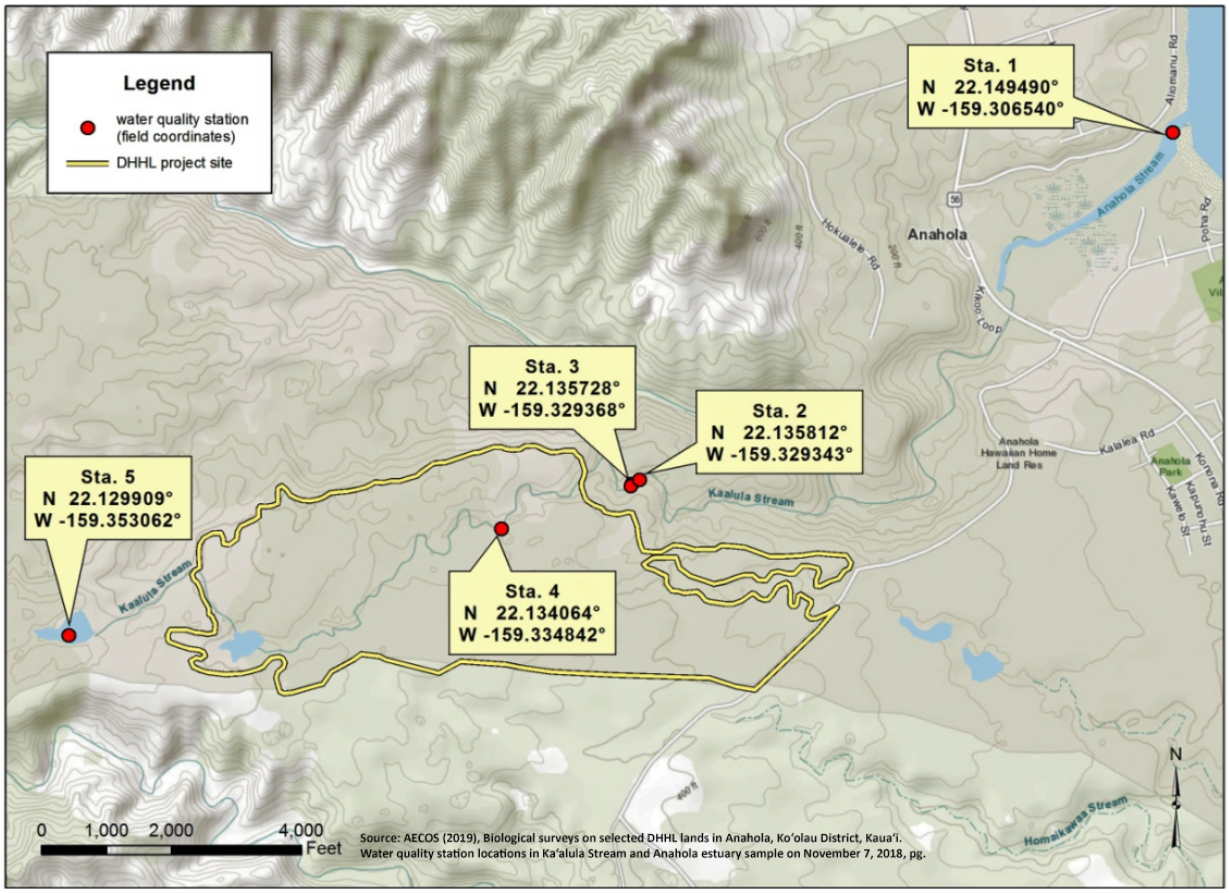


Figure 3-8 **Water Quality Stations in Kaʻalūlā and Anahola Streams**



Figure 3-9 **Changes in Water Clarity in Kaʻalūlā Stream**

Anticipated Impacts and Mitigation Measures

None of the proposed activities are anticipated to significantly impact the existing hydrology and drainage around the project area. As the Project will not involve an increase in area covered by impervious surfaces, increased surface runoff and drainage problems are not anticipated. The overall drainage pattern will remain the same as existing, with runoff from the site flowing into the Ka‘alūlā Stream channel. The limited regrading associated with roadway improvements will be done in a manner that will retain the existing onsite surface runoff and preclude any runoff from flowing onto neighboring properties. LID measures and BMPs will minimize potential drainage problems.

Under *HAR §10-3-30 – Kuleana Homestead Leases*, the provision of potable or irrigation water is not required for the issuance of Kuleana Homestead Leases. Once the lots are awarded, the lessees will be responsible for providing their own potable water needs. Unnamed Reservoir could be improved to feed the homesteads directly with untreated non-potable water. While much of the property has irrigation ditches running through it, portions of the land can be irrigated by the high levels of rainfall received alone. Accordingly, catchment is an option for both potable water and irrigation water.

Potential inadvertent runoff from agriculture and pastoral lands can be mitigated using the BMPs outlined for the Pacific Islands Area (PIA) in the National Resources Conservation Service (NRCS) practices and manuals. The lessee shall be responsible for all required waste management plans for proper disposal or management of non-domestic and agricultural wastes, as required by HAR. The Homestead Association could decide to seek partnership and funding from NRCS. East Kaua‘i has a NRCS local chapter called the Hawai‘i Association of Conservation Districts (HACD). The Homestead Association could collaborate with HACD to develop a Conservation Plan for the Settlement Plan Area to ensure pastoral practices do not generate inadvertent runoff of livestock waste into streams or ditches.

Overall, the impact to groundwater resources in the immediate area will be negligible, and if BMPs are utilized, there will be no material effect on ground or surface water quality downstream and in Anahola Bay. Long term drainage and water quality conditions following construction are expected to be similar to existing conditions or improved through lo‘i production and native forest recovery efforts.

Invasive species removal will be necessary throughout the life of the restoration project; however, this activity will not utilize any chemical treatments due the potential for effects on the water source and future agricultural operations in the immediate vicinity. Riparian forest recovery with appropriate native and introduced, non-invasive plants may contribute to the long-term watershed health of the area.

3.6 Natural Hazards

Existing Conditions

Flooding and Tsunami Inundation

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the Settlement Plan Area is located in Zone X, an area determined to be minimal flood risk (*Figure 1-6*). The two reservoirs on the property, Keālia Number 2 and Unnamed Reservoir, are designated as Zone A, area with an annual 1% chance of flooding. While the buildable property is not vulnerable to flooding or subject to any flood regulations or located within a FEMA Special Flood Hazard Area (SFHA), the project area does contain valleys, gullies, and drainage ways that are subject to flooding. The Settlement Plan Area is also not within a tsunami evacuation area (*Figure 3-10*). The evacuation areas are located makai of the Settlement Plan area, along the shore and low-lying coastal areas of the Island, and do not extend as far mauka as the Settlement Plan Area.

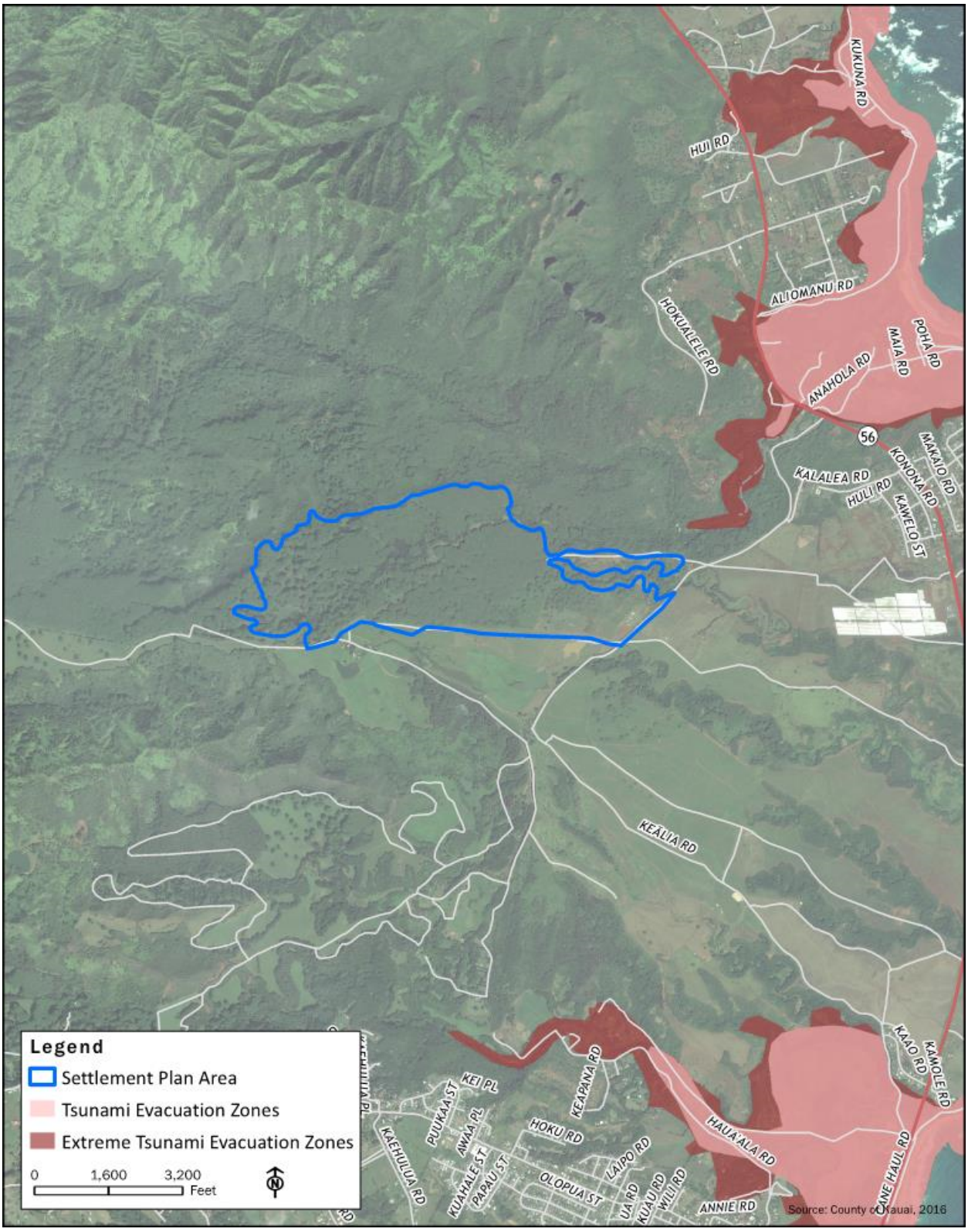
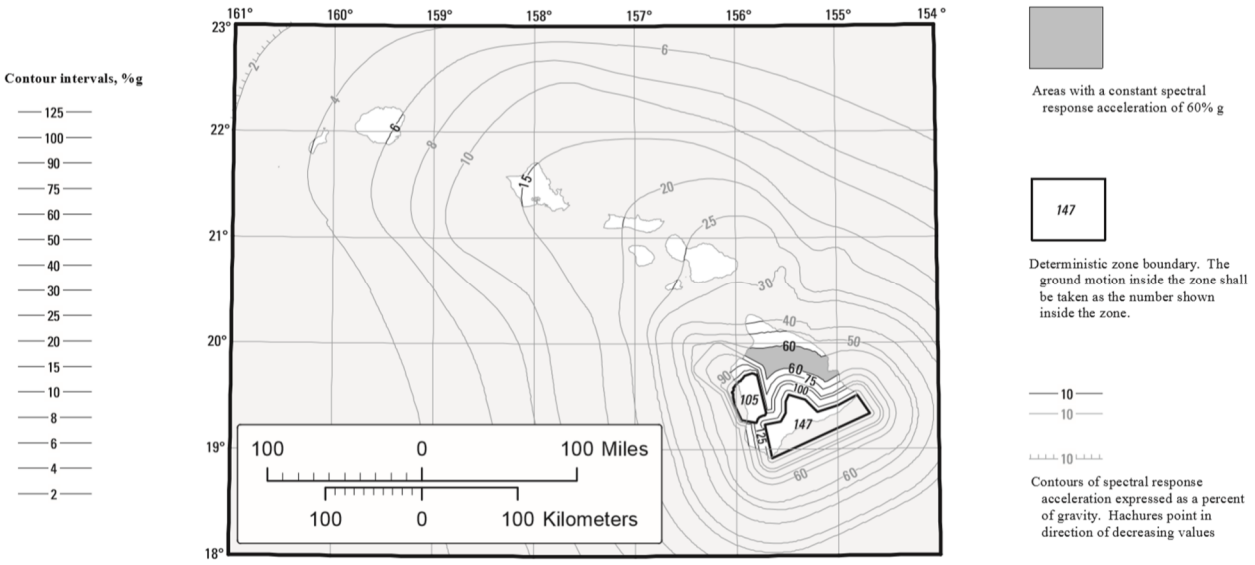


Figure 3-10 **Tsunami Evacuation Map**

Seismic Activity

Per the 2012 International Building Code (IBC) seismic design map (*Figure 3-11*), the entire island of Kaua‘i could experience seismic activity between five and six percent of the earth’s gravitational acceleration (g-force) under a 1.0 second spectral response acceleration event. In comparison the Island of Hawai‘i, home to active volcanoes, could experience seismic activity ranging anywhere from 40 to 147 percent of earth’s g-force. This represents the upper limits of probable force experienced by the region during a probable seismic event.



Source: USGS (2012), 1.0s MCE Ground Motion

Figure 3-11 1.0 Second Spectral Response Acceleration (5% of Critical Damping)

Wildfires

The Hawai‘i Wildfire Management Organization (HWMO) assessed the wildfire occurrence history, hazard risk, and methods for reducing overall ignition risks for the project area. HWMO is a nonprofit organization that serves as a hub of wildfire prevention, mitigation, and planning activities in the Hawai‘i-Pacific region through proactive, collaborative, and forward-thinking projects.

Wildfires are a mauka to makai issue, affecting everything from human safety, infrastructure, drinking water, agricultural production, cultural resources, native forests, watersheds, and coral reefs. In Hawai‘i, 98% of wildfires are caused by people, both accidental and intentional. Communities can be at high risk of wildfire due to unmitigated fuels, limited community engagement, insufficient water and firefighting resources, and under-addressed pre- and post-fire planning and preparedness.

Rainfall patterns across Hawai‘i are changing and have led to intense wet and dry pulse events with heavy rains and floods as well as periods of dry and/or drought conditions. It is during these dry conditions that wildfire hazard may be high. Given the high numbers of fire ignitions already occurring (*Figure 3-12*) and the heavy vegetation in the Anahola area, it is the precipitation and vegetative moisture keeping wildfire spread and impacts low. An ignition that occurs during a drier period or drought episode may encounter a different set of factors. Desiccated and dense vegetation can allow fire to spread rapidly. Combined with heavy winds and steep slopes in the area, the wildfire hazard under those circumstances increases dramatically.

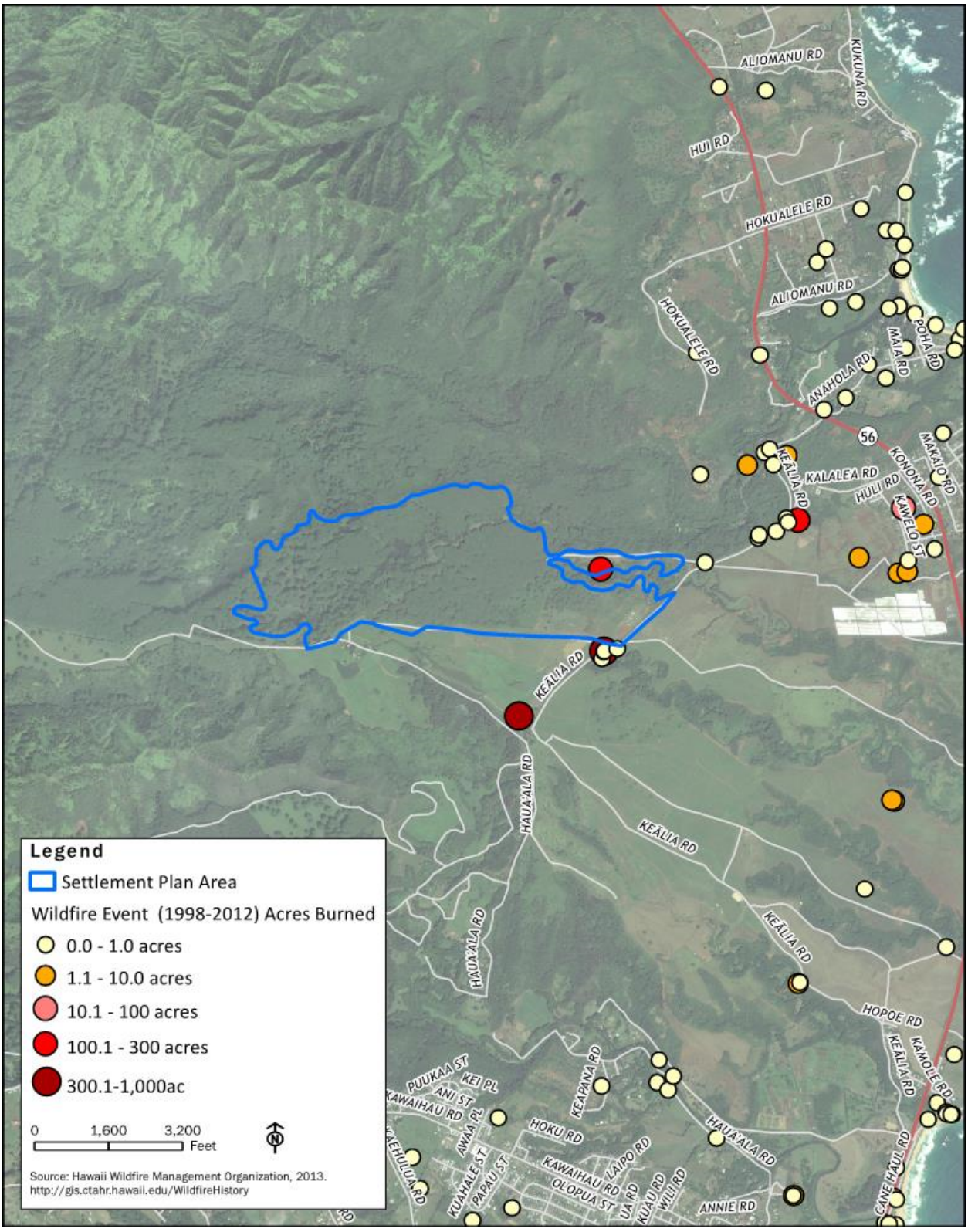


Figure 3-12 **Anahola, Kaua'i Wildfire Incidents 1998-2012**

Overall, the HWMO assessed the Settlement Plan Area and found the area to be located in a high-risk area for fire starts. The greater Anahola area has been known to be an area with a high density and frequency of fire ignitions. Trends in human ignited fires on Kaua'i indicate that majority of human ignited fires are started along roads and human-access areas such as trails. Histories of wildfires in Anahola indicate that despite the area having frequent precipitation and high vegetative moisture, wildfires do readily burn, as grasses in the area are highly susceptible to ignition and can easily spread wildfires. Both illegal dumping and intentional human-caused fires are an issue within Anahola that have contributed to the high counts of wildfires. As the Settlement Plan Area develops to become more accessible, there is an increased risk of fire ignitions based off current fire trends on Kaua'i and in the area of Anahola.

Climate Change and Sea Level Rise

The U.S. Environmental Protection Agency (EPA) indicates that many islands are particularly vulnerable to adverse effects of climate change because of their small sizes, low elevations, remote locations, and concentration of infrastructure along coastlines. In addition to experiencing hotter air temperatures, rising sea levels, and warmer, more acidic coastal waters, precipitation patterns are forecast to change. Long-term change is thought be to be occurring, but its superimposition on normal variability plus multi-year regional cycles such as El Niño/La Niña events make the change signal difficult to read and forecast. Models for Hawai'i indicate a small decrease in precipitation during the wet season and a small increase during the dry season, with additional variability from storms (Leong et al 2014). Higher sea levels, inundation, flooding, and shoreline and beach erosion are expected to affect critical transportation, energy, and water infrastructure, including airports, roads, ports, and wastewater systems.

Anticipated Impacts and Mitigation Measures

According to the Hawai'i Sea Level Rise Vulnerability and Adaptation Report (2017), rising sea levels mostly caused by man-made climate change will affect coastal locations around the State of Hawai'i. The UH School of Ocean and Earth Science and Technology (SOEST) provide a sea level rise scenario for Kaua'i projecting up to a three foot increase over the next 85 years. According to the UH SOEST, sea levels in the central western Pacific Ocean may reach approximately 1 to 2.5 ft higher than the global average sea level rise by the end of the century. An appropriate planning target would include a sea level benchmark of 1 ft by mid-century, and about 3.2 ft by the end of the century.

It is estimated that 6.5 miles of major roads island-wide would be flooded with 3.2 ft of sea level rise. This includes portions of Kūhīo Highway that would become chronically flooded and eroded away. This could result in wide-spread regional issues such as loss of commerce and increased traffic on other roads and highways. Flooding of electric and telecommunication transmission lines could result in service disruptions. Access to the Settlement Plan Area from Kūhīo Highway could be compromised by coastal flooding and erosion. It is possible that Keālia Road could become the major inland roadway in the future.

Climate change is expected to increase the difficulty for farmers and ranchers to grow crops and raise animals. Longer periods of extreme heat and drought could threaten crop yields and forage availability for livestock. Additionally, climate change may increase the prevalence of harmful pests and parasites. Changes in temperature and precipitation may require that farmers adapt by changing the types of crops planted, dates of planting and harvesting, and pest management practices. Education and training programs may help mitigate climate impacts by building the capacity of lessees to respond and adapt to the impacts of climate change. The location of the Settlement Plan Area in the mauka area of Anahola has the benefit of avoiding the direct impacts of sea level rise and coastal erosion. With an elevation ranging between 300 ft to 560 ft, the project area is well above the 3.2 ft projected sea level rise scenario (*Figure 3-13*).



Figure 3-13 **Sea Level Rise Exposure Area (3.2 ft rise scenario)**

Considering the increased risk of wildfire ignition as the Settlement Plan Area further develops, the Kaua'i Fire Department may see an increase in fire responses in Anahola. To mitigate the increased risk of wildfire ignition, the Kuleana Homestead Association requires lessees to become active participants in their community to develop rules and agreements for community-based management. As part of the community-based management approach, lessees are expected to agree upon procedures to effectively manage and maintain fires in the Settlement Plan Area. The HWMO has recommended wildfire management prevention which includes reducing and maintaining vegetation along roads and in human-accessed areas; managing grasses to interrupt continuity of fuel sources throughout the project area; managing "ladder fuels," or areas where ground vegetation is connected to canopy vegetation; eliminating illegal dumping, and creating buffers of reduced vegetation around developed areas. Planning for drier conditions and addressing seasonal heavy growth of vegetation in the project area will also be necessary for wildfire protection.

A portion of the space allocated for Community Use could be used as a staging area to set up a dipping pool for firefighting purposes. The staging area should be relatively flat and sited near a water source or standpipe. It should be easily accessed and able to accommodate several parked trucks in addition to the temporary water tank. The airspace above should be unobstructed for helicopters to access. The Homestead Association would need to store and maintain the portable dipping tanks. To accommodate the size of the Settlement Plan Area, the Homestead Association should plan for a 3,000 to 5,000 gallon tank up to 16 ft by 16 ft. There are several types of tanks the association could utilize including: supported (steel or aluminum frame), or self-supporting (onion tanks, blivits, pillow, or bladder). See *Figure 3-14* for concepts. See *Section 3.12.4 Fire* for further detail.

The Homestead Association could also decide to establish a Resilience Hub on the Community Use land. Resilience Hubs are designed to build a community's capacity to anticipate and respond to potential hazards. It could also house emergency firefighting equipment and offer routine fire prevention and control training.



Figure 3-14 **Dipping Pool Concepts for Fire Prevention**

3.7 Biological Resources

Existing Conditions

A biological survey, entitled *Biological surveys on selected DHHL lands in Anahola, Koʻolau District, Kauaʻi* (2019), was completed by AECOS, Inc. and included in this EA (*Appendix D*). The survey was conducted to identify and catalog the flora and fauna throughout the Settlement Plan Area.

Flora

The survey described the area as a forested region dominated by large albizia trees (*Falcataria moluccana*). The understory vegetation is sparse and varies greatly in variety and density by location. The rapid growth of albizia and the shading that resulted has tended to prevent many potential introductions from getting established. Given the prior history of agriculture on the land, there is little evidence of prior habitation by native forest.

A total of 126 species of vascular plants were recorded within the project area. There were no endangered or threatened plant species recorded. Seven indigenous species were identified inclusive of: uluhe (*Dicranopteris linearis*, false staghorn fern), moa (*Psilotum nudum*, upright whiskfern), hau (*Hibiscus tilaceus*, sea hibiscus), uhaloa (*Waltheria indica*, sleepy morning), alaheʻe (*Psydrax odorata*), pōpolo (*Solanum americanum*, glossy nightshade), and hala (*Pandanus tectorius*, pandan). Additionally, there were two endemic species identified: niʻaniʻau (*Nephrolepidaceae exaltata hawaiiensis*, sword fern) and koa (*Acacia koa*, koa). The distribution of vegetation types is provided in *Figure 3-15*.

It is possible that a more native species of plants could be found along the streams by a more thorough investigation of the gulch lands. Flora within the gulches likely remains much as it was 30 years ago. The native (and early Polynesian introduced) species recorded in the survey were mostly observed on the steep sides of the gulch areas.

Aquatic Species

There were 11 aquatic species identified in the Kaʻalūlā Stream and associated drainageways. One endemic goby (ʻoʻopu nākea, (*Awaous stamineus*, common stream goby)) and one endemic damselfly (pinao ʻula (*Megalagrion oresitrophum*, slender Kauaʻi damselfly)) were observed. Four non-native damselflies were also recorded. Four separate indigenous algae *(Synedra Ulna, Stigeoclonium sp., Rhizoclonium sp.,* and *Spirogyra sp.)* were identified in abundance in the stream and riparian zone. No threatened or endangered species were observed in the waterways.

Avifauna

The survey recorded 1,015 individual birds representing 27 species in the project area. Of the 27 species, two indigenous species were identified (ʻaukuʻu (*Nycticorax nycticorax hoactli,* black-crowned night-heron) and the koaʻe kea (*Phaethon lepturus*, white-tailed tropicbird) and one native, indigenous migratory shorebird (kōlea, (*Pluvialis fulva*, golden-plover)). Additionally, the nēnē goose (*Branta sandvicensis*, Hawaiian goose*)* was observed flying over the property. The nēnē was the only threatened bird species observed.

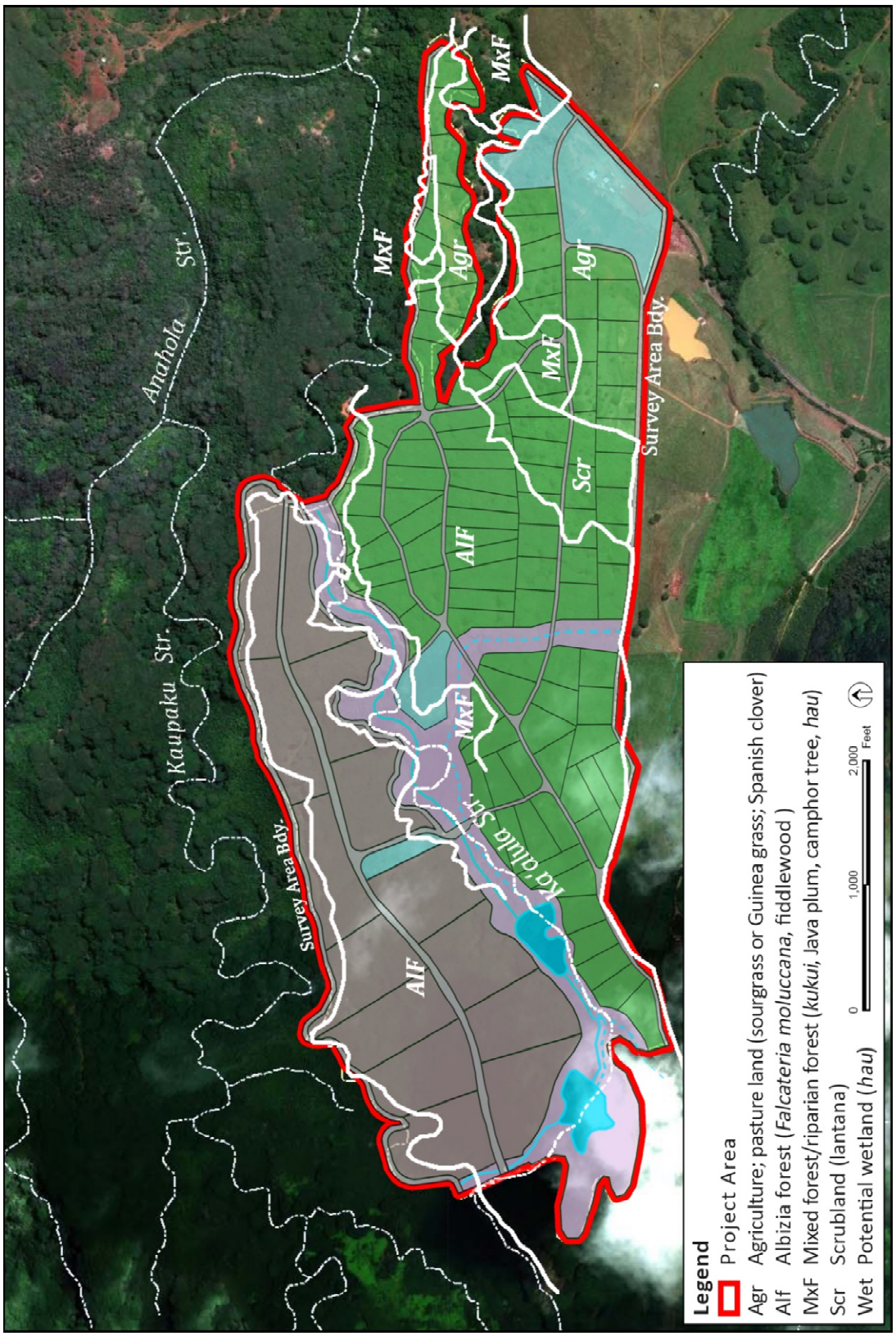


Figure 3-15 **Vegetation Map (AECOS Study, January 2019)**

DLNR notes that State listed waterbird species such as the Hawaiian Duck *(Anas wyvilliana),* Hawaiian Stilt *(Himantopus mexicanus knudseni),* Hawaiian Coot *(Fulica alai),* and Hawaiian Common Gallinule *(Gallinula chloropus sandvicensis)* have the potential to occur in the project area, for instance, if pooled water forms, or the reservoirs or irrigation system were to be improved.

Mammalia

According to the United States Fish and Wildlife Service (USFWS), the ʻōpeʻapeʻa (*Lasiurus cinereus semotus*, Hawaiian hoary bat) roosts in both exotic and woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. While no bats were observed during the survey, it is assumed that bats could be present or use resources in the Settlement Plan Area. No mammalian species proposed for listing or listed as endangered or threatened were recorded.

Anticipated Impacts and Mitigation Measures

Observed invasive plant species at Anahola may be managed through mechanical removal efforts. Boundary fences may be needed to prevent feral ungulate populations from traversing the homestead and forested areas. Beneficiaries should strive to protect any indigenous or endemic species identified on their settlement lots, as these plants have cultural significance to Native Hawaiians. Species such as hala and koa were known to be traditional building materials by Native Hawaiians. As demonstrated by their resilience to grow under the harshest of environments, these species have developed a genetic adaptation to this location that would likely allow them to thrive once the albizia have been removed from the property. Areas designated as Special District are ideal areas for native forest restoration.

Conversion of the land from non-native forest to Pastoral and Subsistence Agricultural lots has the potential to affect water quality in the streams and drainageways as well as aquatic biota in these areas. Much of the stream biota remains relatively intact, even surviving the operation of the Makee and Līhuʻe plantations. Kuleana Homestead Lots are expected to operate at a less intensive scale than the prior sugar plantations. Restoration activities in the Special District lands will help reduce erosion and runoff and rehabilitate native ecosystems in the gulch lands and waterways. Best management practices should be employed to prevent degradation of water quality and protect native aquatic biota. Streams should be monitored to ensure that water quality and stream fauna are not adversely impacted.

The movement of plant or soil material between worksites will be minimized to reduce the potential impacts that invasive fungal pathogens (e.g. Rapid 'Ohi'a Death), vertebrate and invertebrate pests (e.g. Little Fire Ants), or invasive plant parts could inflict onto native species and ecosystems. DLNR recommends consulting the Kauaʻi Invasive Species Committee in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. It is recommended that all equipment, materials, and personnel be cleaned of excess soil and debris to minimize the risk of spreading invasive species. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water and sprayed with 70% alcohol solution to prevent the spread of Rapid 'Ohi'a Death and other harmful fungal pathogens.

Waterbirds have the potential to occur in the vicinity of the project area. It is against State law to harm or harass these species. If any of these species are present during construction activities, then all activities within 100 feet (30 meters) should cease, and the bird should not be approached. Work may continue after the bird leaves the area of its own accord. If a nest is discovered at any point, the Kauaʻi DLNR Division of Forestry and Wildlife (DOFAW) Office should be contacted.

To minimize potential impacts to the endangered ʻōpeʻapeʻa, woody plants greater than 15 ft tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15), and barbed wire will not be used for fencing.

Land conversion from forest to agricultural and pastoral lands could result in avifauna habitat loss. Restoring native forests and conservation programs would mitigate and create potential beneficial impacts to avifauna. Hawaiian seabirds may traverse the project area at night during the breeding season (September 15 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and may become disorientated and collide with nearby structures or impact on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by alien mammalian species. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable. To avoid and minimize potential impacts to avifauna, DHHL will ensure that no nighttime construction activity will occur during the seabird fledging period. Agricultural and homesteading activities could increase the level of nighttime light pollution. DLNR DOFAW recommends that all beneficiaries at the site to follow seabird friendly lighting guidelines for the homesites, community centers, and other facilities that may require nighttime lighting, such as fully shielded and downward facing lights to minimize impacts.

The Homestead Association would be responsible developing appropriate mitigation and conservation programs. Mitigation may include actions to minimize predator presence, mitigate the spread of Rapid ʻŌhiʻa Death, and prevent the spread of invasive species; however, these programs must ultimately be determined and approved by the future Homestead Association.

Although the Nēnē was downlisted from endangered to threatened in 2019, there is still a need for continued protection. When the forest is cleared for agricultural or other purposes, it is expected that the nēnē will increase their usage of resources on the site. It is recommended by DLNR to install a construction barrier to prevent Nēnē from entering the construction zone. The main limiting factors affecting nēnē recovery are predation by introduced mammals, insufficient nutritional resources for both breeding females and goslings, limited availability of suitable habitat, and human-caused disturbance and mortality. The following recovery actions were established in the USFWS's 2004 Recovery Plan for the Nēnē:

6. Identify and protect nēnē habitat which focuses on the identification and protection of sufficient habitat to sustain target population levels;
7. Manage habitat and existing populations for sustainable productivity and survival complemented by monitoring changes in distribution and abundance;
8. Control alien predators which addresses control of introduced mammals to enhance nēnē populations;
9. Continue captive propagation program which describes techniques and priorities for the captive propagation and release of nēnē into the wild;
10. Establish additional nēnē populations which focuses on partnerships with private landowners;
11. Address conflicts between nēnē and human activities which addresses potential management and relocation of nēnē in unsuitable areas;
12. Identify new research needs and continue research which describes general categories of research needed to better evaluate threats to nēnē and develop and evaluate management strategies to address these threats;

13. Provide a public education and information program which describes important outreach and education activities; and
14. Validate recovery actions which calls for formalizing the Nēnē Recovery Action Group and evaluating management and research projects to determine if recovery objectives have been met.

The Homestead Association may choose to partner with USFWS service to collaborate on nēnē conservation and develop innovative strategies to assure this threatened species' full recovery.

3.8 Air Quality

Anticipated Impacts and Mitigation Measures

Fugitive dust generation from vehicle movement and clearing of albizia trees will be the two types of short-term air quality impacts as a result of construction activities for the project. On-site/off-site emissions from moving construction equipment and commuting construction workers will also be present on site.

State of Hawai'i Air Pollution Control regulations prohibit visible emissions of fugitive dust from construction activities at the property line. A dust control program will be implemented to control dust from construction activities. Per *HAR §11-60.1-33*, the Department of Health (DOH) provides a list of seven (7) reasonable precautions for fugitive dust control. These precautions include:

1. Use of water or suitable chemicals for control of fugitive dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
2. Application of asphalt, water, or suitable chemicals on roads, material stockpiles, and other surfaces which may result in fugitive dust;
3. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Reasonable containment methods shall be employed during sandblasting or other similar operations;
4. Covering all moving, open-bodied trucks transporting materials which may result in fugitive dust;
5. Conducting agricultural operations, such as tilling of land and the application of fertilizers, in such manner as to reasonably minimize fugitive dust;
6. Maintenance of roadways in a clean manner; and
7. Prompt removal of earth or other materials from paved streets which have been transported there by trucking, earth-moving equipment, erosion, or other means.

Fugitive dust emission will be mitigated through the adherence of these precautions. The development of the Settlement Plan Area will not result in outputs that will affect air quality, therefore an air pollution control permit is not required. In addition, there will be no construction or demolition activities that involve asbestos. No emissions of dust are anticipated to be generated in the long-term as a result of the project.

3.9 Noise

Existing Conditions

There are natural noises in the project area due primarily to wind in the surrounding foliage. Existing background ambient noise levels within the project area are largely attributed to motor vehicle traffic along the main highway east of the project site. The noise levels around the project site are consistent with noise levels found in rural areas.

Anticipated Impacts and Mitigation Measures

There will be short term noise generated during construction; however, noise levels are not expected to adversely affect residents near the project site. Construction activities will comply with the provisions of *HAR §11-46* for community noise control. The contractor will be required to obtain a noise permit if the noise levels from construction activities are expected to exceed allowable levels. Heavy vehicles traveling to and from project sites will comply with the State's administrative rules for vehicular noise control. Over the long term, the project will not affect ambient noise levels.

3.10 Utilities and Infrastructure

The 462-acre Settlement Plan Area in Anahola remains undeveloped. Beneficiaries who are awarded Kuleana Homestead Lots agree to accept unimproved land in "as-is" condition. The lessees are responsible for providing their own utility and infrastructural needs such as electrical, water, solid waste and wastewater disposal, and communications.

3.10.1 Water

Existing Conditions

Potable Water

Anahola Town receives potable water from a County of Kauaʻi Department of Water (DOW)-owned system and partners with DHHL to operate portions of the system. The system is serviced by the Anahola Aquifer. The existing DOW Anahola system is supplied by two wells, Anahola Well "A" and Anahola Well "B". Each well serves two concrete water storage tanks, the 0.15 MG Anahola Tank which is served by Well "A" and the 0.5 MG Anahola #2 New Tank, served by Well "B". Both wells and tanks serve the 288 Zone within Anahola. Further, DHHL is guaranteed a 1.47 million gallons per day (MGD) reservation of water from the Anahola aquifer. However, currently there are no existing potable water systems serving the project area, as it is at a higher elevation than Anahola Town.

Non-Potable Water

There are no existing non-potable water sources serving the project area. In addition, Kauaʻi's DOW does not operate, maintain or own a non-potable system on the island. Currently, agricultural land in lower Anahola Town is irrigated using the available potable water system.

Historically, Anahola has used surface waters as a source for non-potable water through irrigation ditches and reservoirs, which have since become abandoned or unused. The former Līhuʻe Plantation developed a diversion into the Upper Anahola Ditch at an elevation of 830 feet. Past records indicate flows of more than one million gallons per day occurred at elevation 300 to 400 feet. The 2010

Anahola Regional Plan identified surface water resources developed by the former Līhu‘e Plantation remain intact, but have been abandoned and poorly maintained resulting in many sources in disrepair.

There are two existing reservoirs in the project area, Keālia Reservoir 2 and an Unnamed Reservoir (*Figure 3-7*). Keālia Reservoir 2 is currently in the process of being decommissioned. Unnamed Reservoir could be improved to feed the homesteads directly with untreated non-potable water. While much of the land has irrigation ditches running through it, portions of the land can be irrigated by the heavy rainfall alone. Accordingly, rainfall, combined with catchment offers a viable option for non-potable water.

Anticipated Impacts and Mitigation Measures

Potable Water

The existing municipal potable water service is currently unable to serve the project site due to the location of the proposed development. The project site currently sits above the 288 ft elevation zone and the existing storage tanks (*Figure 3-7*); therefore, the existing system will not be able to serve the development without extensive infrastructure upgrades such as new booster pumps, onsite storage tank and transmission mains, or a new source development.

Under the provisions of *HAR §10-3-30 – Kuleana Homestead Leases*, the provision of potable or irrigation water is not required for the issuance of Kuleana Homestead Leases. There are other sources of water available to lessees including catchment for rain water and hauling in personal water supplies. Water treatment systems installed at respective lots will need to meet the requirements as provided in *HAR §11-20 – Rules Relating to Public Water Systems*. Options for water treatment include individual water storage tanks or ponds combined with commercially available compact reverse osmosis or ultraviolet disinfection systems for residential use.

The 1987 Anahola-Kamalomalo‘o and Mola‘a Development Plan and the 2010 Anahola Regional Plan present other options for lessees to obtain potable water. The area of Anahola is located within the Koloa Volcanic series where the topography is poorly to moderately permeable and offer limited yield. The 1987 Development Plan indicates well sources are the most economically friendly choice for the Anahola area due to the area’s natural topography. Well sources and storage tanks have been mapped out in the 1987 Development Plan for the upper Anahola area if desired for future implementation. If designed, wells should be drilled 200 to 500 feet below sea level to achieve yields 200 to 350 gallons per minute (GPM).

Non-Potable Water

According to the KIP, rainfall within Anahola is considered to be a dependable source for non-potable water. Rainfall, combined with catchment and storage, offers a viable option for non-potable water for the project.

Surface water resources in upper Anahola hold the potential for non-potable water with the extensive network of stream diversions, reservoirs, dams, ditches and pump stations developed by the former Līhu‘e Plantation. However, re-implementation of the agricultural ditch systems and existing reservoirs would require additional coordination and agreements with adjacent landowners, as source ditches and reservoirs are off property, and would require studies, inspections, and examination of safety risks.

Additionally, water service and infrastructure are not required to be provided by DHHL as part of the Kuleana Homestead program. However, DHHL understands the critical need for water for successful

homesteading, support of community agriculture and pastoral activities, and long-term sustainability of the homesteading community for Anahola. As such, DHHL initiated a water study (G70, 2021) to research historical, plantation-era, and post-plantation era water usage in Anahola and to determine potential improvements that can be made to provide the proposed Kuleana homestead development with a source of non-potable water.

Initial analysis forecasts the expected non-potable water demand for the project area as approximately 0.99 MGD *(Table 3-1).* According to a United States Geological Survey (USGS) Anahola Stream study in 2012, 2.7 MGD flows at an upstream location of Anahola Stream while 8.47 MGD was measured at a location downstream of Anahola Stream, illustrating the numerous tributary streams that feed Anahola Stream at any given point. This USGS study also discussed the possibility of using Anahola Stream water as an irrigation source for the DHHL property and concluded that approximately 1.5 MGD of flow could be diverted onto DHHL property.

Table 3-1 Water Use Demands for the Anahola Kuleana Homestead Project

Land Use	Gallons/Acre/Day	Acres	MGD
Pastoral	3,800	140	0.532
Subsistence Ag	2,000	202	0.404
Community	2,000	28	0.056
Special District	--	92	--
Total		**462**	**0.992**

This information, along with an analysis of rainfall, previous irrigation systems, recent aerial and topography data, and consultation with residents with experience on the land either through past plantation employment or through cultural access practices, shaped potential options for non-potable irrigation within the project area. While approval of the method for ditch restoration was not available at the time of publication for this EA, a formal water master plan may be the next step for analysis and design of improvements desired.

3.10.2 Wastewater

Existing Conditions

There are currently no County municipal sewer systems in the general area of the project site. The nearest municipal sewage treatment facility is located in Wailua, approximately four miles away from the project site. It would be cost prohibitive to connect to this existing system. According to *HAR §11-62-31.1(1)* the State DOH allows individual wastewater systems (IWS) for developments of 50 or more single family lots, with lots greater than one acre in size and one dwelling unit per lot.

Anticipated Impacts and Proposed Mitigation

Due to the absence of a County municipal system or wastewater treatment plant for the Anahola area, the project is anticipated to continue to use approved IWSs to service the proposed lots as needed.

The proposed project's development density (two acres per dwelling unit) allows for the use of IWSs under the *HAR §11-62* with no requirements for a variance. On-site wastewater systems provide effective, low-cost, long-term solutions for wastewater disposal as long as they are properly designed, installed, and maintained. Wastewater systems for homestead lots and the community common areas will be planned in accordance with *HAR §11-62 – Wastewater Systems*. An IWS consists of two components: 1) treatment (septic of other active treatment system), and 2) disposal (infiltration or reuse). Each awardee would be responsible for obtaining and managing the IWS for their own property.

Infiltration of treated effluent can be utilized if it is not considered an injection well, and if designed in compliance with *HAR §11-62* using infiltration trenches, absorption beds, or ponds. Wastewater reuse (e.g. subsurface irrigation of areas surrounding the wastewater treatment center) can be utilized if designed in accordance with the Department of Health Wastewater Branch's Guidelines for the Treatment and Use of Recycled Water (Wastewater Systems and *HAR §11-23 Underground Injection Control*). Wastewater can be a valuable resource for rural communities. In addition to easing the strain on limited freshwater supplies, the reuse of wastewater can improve the quality of streams by reducing the effluent discharges that they receive. For example, should a laundromat become part of the Community Use area, laundry wastewater recycling can potentially reuse up to 95% of its wastewater, saving on the amount of water used as well as reducing the amount of wastewater that is release to the groundwater. Wastewater may also be reclaimed and reused for crop and landscape irrigation.

A cluster system approach is another alternative for wastewater management. Cluster systems are a cooperative wastewater treatment organization that collects wastewater from a small number of homes, usually two to ten, and transport it via an alternative sewer to a pretreatment land absorption area with no surface discharge of effluent. An absorption field includes several perforated pipelines placed in long, shallow trenches filled with gravel. The pipes distribute the effluent over a sizable area as it seeps through the gravel and into the underlying layers of soil. Cluster systems have lower development cost and offer less complex operation and maintenance than conventional centralized sewage treatment systems. Any type of communal treatment system will be subject to review by regulatory authorities. The future Homestead Association and lessees would be responsible for developing and maintaining the cluster wastewater system.

For any proposed commercial kitchens in the planned community areas, grease interceptors will be installed in accordance to the Uniform Plumbing Code to capture fats, oils, and grease from the proposed kitchen before entering the site's IWS system. Any kind of butcher show or agricultural processing center will also require pre-treatment to remove solids and oils prior to IWS disposal. Each type of food processing wastewater will have special actors to consider, and in addition to technology performance issues, seasonality of production will add to the complexity of treatment choices.

3.10.3 Drainage

Existing Conditions

The project property generally slopes to the east and discharges to nearby streams and gulches. There are currently no County municipal drainage systems in the general area of the project site. Based on the Federal Management Agency's Flood Insurance Maps (FIRM), the proposed locations of the lots are located within Flood Zone X, defined as "Area of Minimal Flood Hazard". The areas in the immediate vicinity of the existing reservoirs are located within Flood Zone A, defined as "1% Annual Chance of Flooding with no Base Flood Elevations".

Anticipated Impacts and Proposed Mitigation

At a minimum, proposed drainage improvements will be designed in compliance with the County's *Storm Water Runoff System Manual* (DPW, July 2001). Pre-development flow patterns and flow rates will generally match post-development conditions with runoff continuing to discharge overland into adjacent properties and into the valleys and drainage channels, as the improvements generally do not consist of impervious areas.

Minor grading and installation of road culverts will be required to mitigate the erosion currently exhibited at the site. The location of Kuleana Homestead Lots considers the impact from flood hazards. The development is anticipated to avoid the installation of large flood conveyance systems. However, irrigation and runoff cutoff ditches along fields, lots, and roadways will likely be constructed in accordance with NRCS Standard Practice Codes (Best Management Practices). New roadway crossings with piping or culverts will need to be installed at locations where flood waters may cross roadways. Roads must be consistently maintained by either dropping gravel stabilization as needed, or through pavements if sections are steep and often washed out.

Individual lessees will be responsible for constructing drainage improvements on their specific lot and improvements should be designed to minimize downstream impacts.

3.10.4 Electrical Power

Existing Conditions

The Kauaʻi Island Utility Cooperative (KIUC) supplies electricity for the County of Kauaʻi. KIUC power lines extend from Kūhīo Highway west down Keālia Road, but terminate about a quarter mile before reaching the Settlement Plan Area. Although under *HAR §10-3-30*, the provision of electricity is not required for the issuance of Kuleana Homestead Leases, the Homestead Association may attempt to secure power from KIUC for areas designated as Community Use.

Anticipated Impacts and Proposed Mitigation

Being proactive on the energy front, DHHL recently adopted an Energy Policy. The goal of this policy is to enable native Hawaiians and the broader community to work together and lead Hawaiʻi's effort in achieving energy self-sufficiency and sustainability. An objective of this policy is to facilitate the use of diverse renewable energy sources on both large and small scale. The objective of this initiative is to not only generate renewable energy, but also to reduce energy costs for beneficiaries and to develop other communities' benefits like employment opportunities and reinvestments in the local economy. One of the renewable energy opportunities that can meet this objective is to provide energy efficiency, self-sufficiency, and sustainability opportunities to existing homesteaders and their communities. This can be fulfilled with the installation of photovoltaic systems on both homes and Community Use facilities. The proposed Project will not impact the existing utility services provided to the Anahola community.

In alignment with the adopted Energy Policy, re-establishing former surface water resources developed by the former Līhuʻe Plantation also carries the potential for hydroelectric power. Surface water and dam capacity may potentially generate electricity for the Anahola area but will require further assessment and discussion if desired for future implementation.

3.10.5 Traffic and Roadways

Existing Conditions

Vehicular access to the project area is currently provided by two unimproved roads from Keālia Road. This portion of Keālia Road is a paved two-lane road owned and maintained by the County of Kaua'i. The project area is interwoven with several unimproved 4-wheel drive roads, many of which originated in the 1920s for sugarcane and irrigation operations by the Līhu'e Plantation (*Figure 3-16*). Many of these unpaved roads are lined with barbed-wire fences. Some roads are still in use, while others are completely overgrown with vegetation or virtually blocked by fallen tree limbs, making it difficult to traverse the entire property. These roads exhibit extensive erosion with significant deep ruts. An old currently degraded and abandoned airstrip is also located within the project area. This small-plane landing/take-off runway was historically used for crop dusting of fields during the plantation era. It has now become part of the road system.

The lotting scheme was designed to utilize the existing roadways to the extent practical. These existing roads may require some minimal improvements such as grading and filling. DHHL will construct approximately 10,500 feet (2 miles) of new 4x4 gravel roads to improve access and circulation throughout the Settlement (*Figure 3-16*).

The Green Energy project has agreed to improve access to the site in order to transport construction vehicles on and off the property for tree removal operations (*Figure 3-17*). The project involves approximately 8,900 feet (1.68 miles) of road. Roadway improvements will include crowning, grading, and firming the roads with rock fill. Beneficiaries will benefit by having the existing roadways upgraded to a higher standard.

After DHHL prepares the remaining unpaved roads within the network of the project area, beneficiaries will be responsible for the long-term maintenance and operational upkeep of the roadways inclusive of repairs, re-grading, and installation of culverts to address erosion issues. The roads will all remain as unpaved, compacted gravel roads requiring 4-wheel drive vehicles.

Anticipated Impacts and Mitigation Measures

Improving existing cane haul roads and the removal of albizia will generate short-term construction-related traffic associated with worker vehicles, transport vehicles for machinery, and waste disposal vehicles.

To minimize potential traffic impacts, the following mitigation measures are recommended, and will be adhered to, for optimal traffic conditions during construction:

- Construction activities and construction material or waste should be located and stored away from vehicular traffic. Sight lines for drivers on the roadway should be carefully maintained.
- Trucks delivering construction material and disposing of construction waste should be scheduled on weekdays during times of non-peak commuter periods (9:00 AM to 3:00 PM).

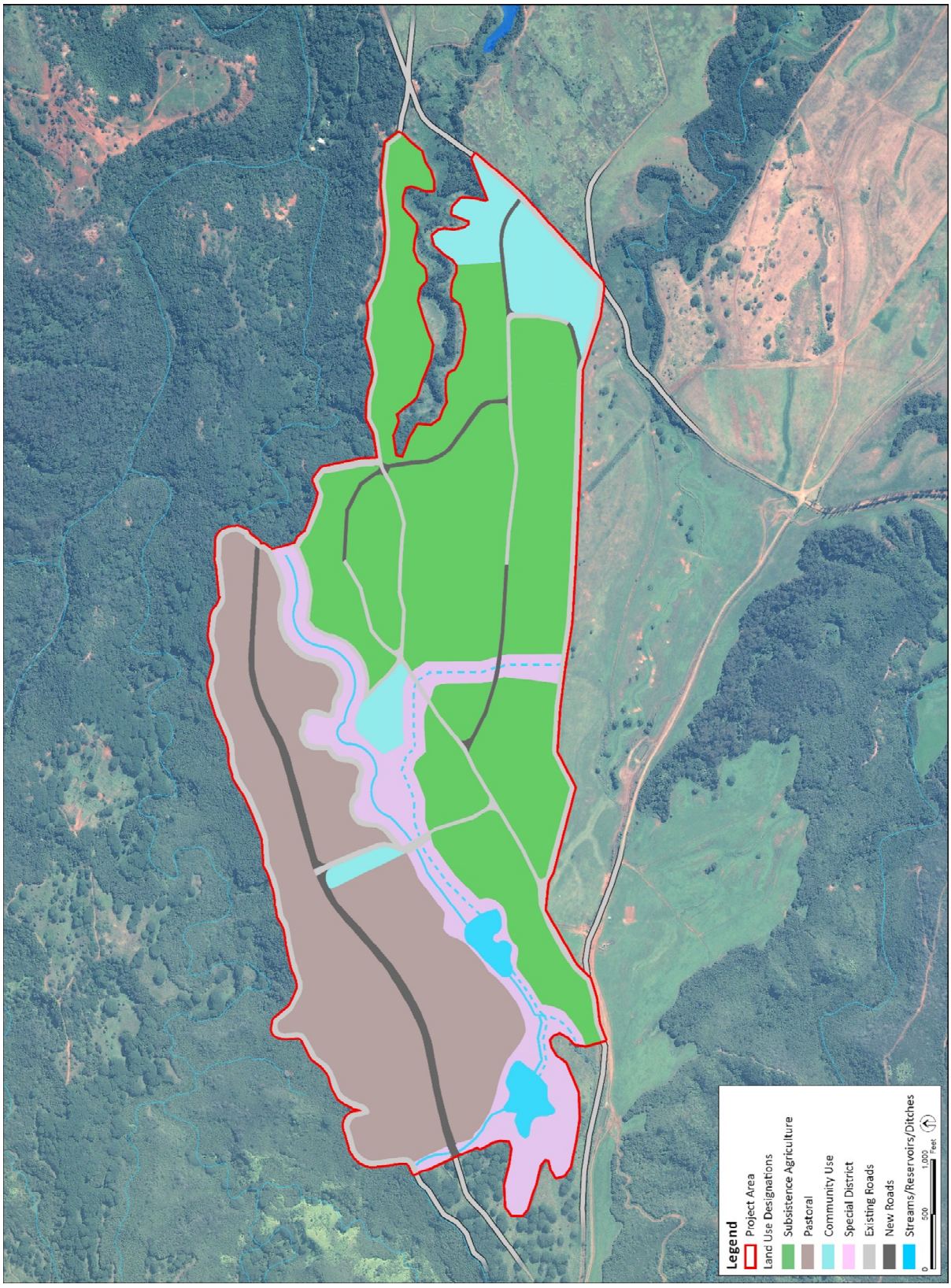


Figure 3-16 **New and Existing Roadways**

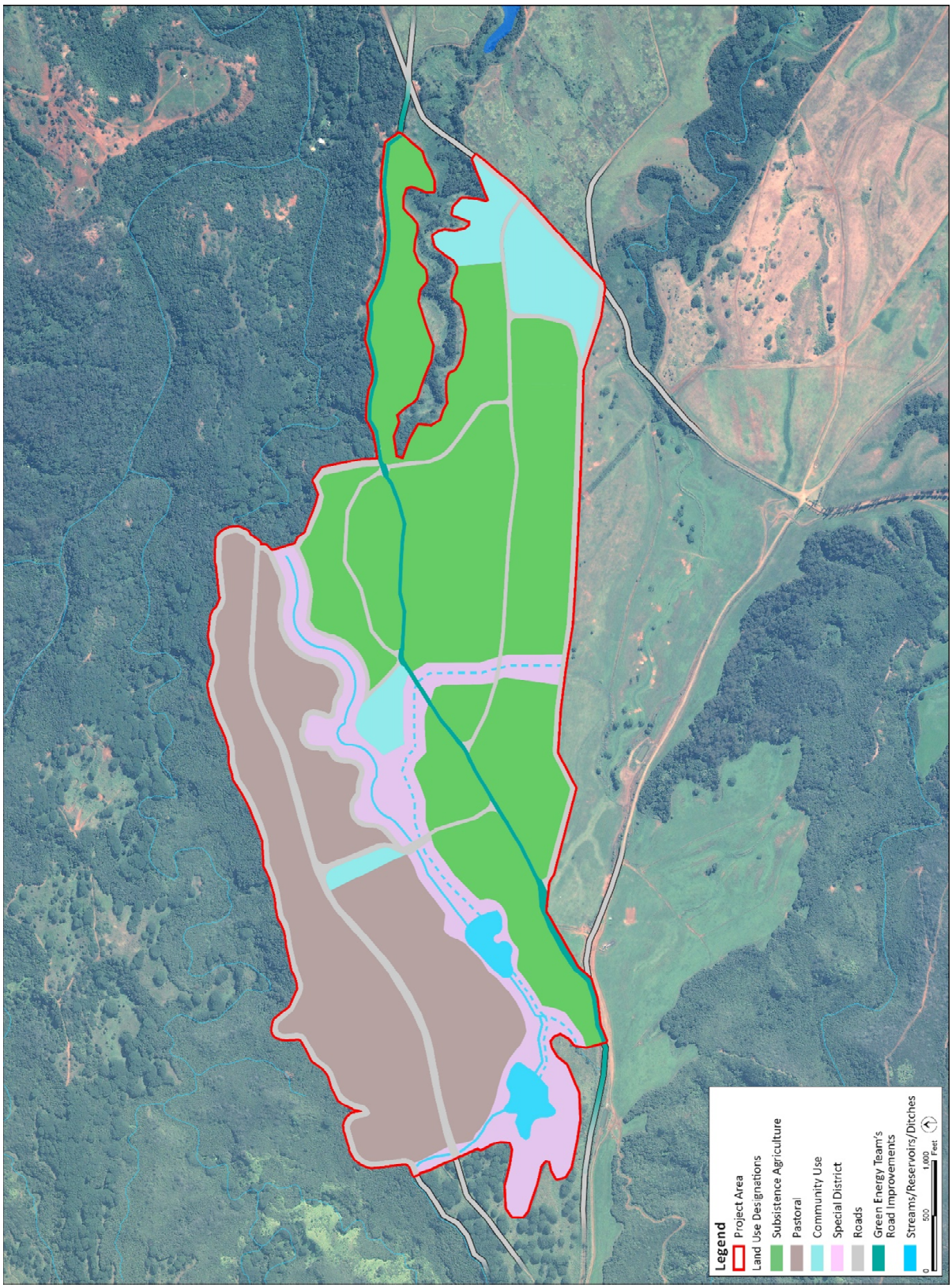


Figure 3-17 **Green Energy Road Improvements**

The National Fire Protection Association (NFPA) 1141-Standard for Fire Protections Infrastructure for Land Development in Wildland, Rural, and Suburban Areas, Chapter 5, provides fire protection standards for roadways in rural areas where water may not be available. Roads in the Settlement Plan Area will comply with the following standards:

1. "Roadways shall be constructed of a hard, all-weather surface designed to support all legal loads of the jurisdiction" (5.2.2).
2. Roadway widths = 12 ft for each lane of travel (5.2.3)
3. Roadway vert clearance = 13.5 ft
4. Minimum radius for turns = 60 ft (to the outside turn)
5. Grades no greater than 10 percent. If grades are greater, the agency having jurisdiction can dictate additional requirements needed.
6. Roadways greater than 300 ft require a turnaround (120-ft diameter turnaround)

The development and awarding of the Settlement Plan Area may minimally impact the serviceability of adjacent public roadways in the project area, namely Keālia Road and Kūhīo Highway. According to OHA 2013 Census data, Native Hawaiian families have an average of 2.4 vehicles per household. As the proposed project will include the awarding of 110 homestead lots (14 Pastoral and 101 Subsistence Agriculture), it is anticipated that up to 264 vehicles will be utilizing Keālia Road to access the site if all lots were to be improved to include a residential unit.

The specific uses within the planned Community Use areas are not defined in this EA and will be determined by the future Kuleana Homestead Association. At the time that DOT permits are required for the Project, DHHL will provide relevant data that is collected and analyzed in accordance with DOT standards. Potential impacts and proposed mitigation strategies will be determined.

3.11 Socio-Economic Characteristics

Existing Conditions

The project site is located in Anahola, Kauaʻi within Census Tract 9400. *Table 3-2* below presents demographic information from the 2013-2017 American Community Survey 5-Year Estimates for Census Tract 9400 and the County of Kauaʻi. In 2017, it was estimated that Native Hawaiians were the largest racial group residing within Census Tract 9400. Based on historic trends and development of the Settlement Plan Area, the population in the Anahola region is expected to continue increasing.

Approximately a quarter of the total civilian labor force within the Census Tract 9400 and the County of Kauaʻi are employed in the Entertainment, Accommodation, and Food Services sector. The other highly populated job sectors include Educational and Health Care, Construction, and Retail Trade. Overall, the unemployment rate within Census Tract 9400 and the County of Kauaʻi are continuing to drop. In 2017, the lowest unemployment rate was recorded from the start of the 5-Year Estimate in 2013. Although the unemployment rate within Census Tract 9400 is greater than the unemployment rate of the entire County of Kauaʻi, the unemployment rate has significantly decreased with the ongoing development of the Anahola Town Center Master Plan. Because Subsistence Agriculture and Pastoral activities offer opportunities for CBED and economic gains, the unemployment rate is expected to continue to decrease with the development of the Settlement Plan Area.

In 2017, the reported median income within Census Tract 9400 was $29,625, and the median income for the County of Kaua'i was $31,965. In comparison, the U.S. median income was $63,179. The gap between median incomes, and specifically the low median income within Census Tract 9400 and the County of Kaua'i has greatly contributed to the high rate of poverty determined within Census Tract 9400 and the County of Kaua'i.

Anticipated Impacts and Mitigation Measures

The Kuleana Homestead Program is an outgrowth of the DHHL effort intended to rehabilitate native Hawaiians by delivering lands to them. The development of the Settlement Plan Area with Subsistence Agriculture and Pastoral homestead will continue to ensure Anahola as the largest residential homestead on the island of Kaua'i and increase the overall population of native Hawaiians in Anahola.

As part of the Kuleana Homestead Development program, Beneficiaries were consulted at the August 2019 beneficiary meeting for their preferences regarding economic and cultural opportunities on the homestead property. Working with these beneficiary preferences, Sustain Hawaii, a non-profit organization, conducted an Economic Resource Assessment evaluating the range of community-based opportunities relative to the Settlement Plan Area (*Appendix B*).

Table 3-2 Demographic Information for Census Tract 9400 and Kaua'i County, 2017

	Census Tract 9400	Kaua'i County
Population	3,197	71,093
Race		
White	26.6%	32.8%
Black/African American	1.6%	0.7%
Amer Indian/Alaskan Native	0.4%	0.5%
Asian	11.0%	34.8%
Nat Hawn/Other Pac Islander	31.2%	9.4%
Other race	0.0%	0.5%
Two or more Races	29.2%	21.3%
Total Households		
Avg household size	2.96	3.12
Median household income	$29,625	$31,965
Households with One or more People Under 18 Years of Age	26.4%	31.0%
Unemployment Rate	6.8%	4.4%

Source: U.S Census Bureau, American Fact Finder

With Subsistence Agriculture and Pastoral homestead lots, homesteaders may be able to grow some surplus of food that could be sold for nominal profit. Beneficiaries identified and preferred community-use areas serving as commercial kitchens and farmers markets to package and sell the surplus of foods grown on their lots. The second most preferred option for community-use areas include an

Agricultural Cooperative / Food Hub for different farmers to collaborate more as a business, to share and help each other produce and sell foods on the market. The development of the Settlement Plan Area with Subsistence Agriculture and Pastoral homestead lots will allow homesteaders to preserve and promote unique traditional subsistence practices while sustaining themselves economically.

Other economic opportunities for the Settlement Plan Area voiced by Beneficiaries include leasing land to the Green Energy Team for renewable energy production. With the DHHL-owned land in Anahola overgrown with albizia trees, the Green Energy Team has proposed to clear the land of albizia to chip and use for producing electricity. Another alternative for clearing the project area of albizia trees includes utilizing Community-Use areas as lumber processing and manufacturing centers. Albizia may be felled and cut into desired lengths to use in housing structures, or goods that could be sold at market. Manufacturing centers for albizia wood provide a unique economic opportunity for Kuleana Homestead residents.

Overall, the Kuleana Homestead Development Program is an outgrowth of the DHHL mission and the population of Anahola is anticipated to increase. The development of the Settlement Plan Area will provide short term benefits with the need for clearing of albizia and the installment of proper infrastructure. Upon completion, the development of the Settlement Plan Area is intended to rehabilitate native Hawaiians providing them with access to raw land and an opportunity to create a new self-sufficient community with beneficial long-term impacts.

3.12 Public Facilities and Services

This section discusses the potential for impacts to public facilities and services.

3.12.1 Educational Facilities

Existing Conditions

The proposed Kuleana Homestead development will be served by four public schools operated under the State Department of Education (DOE). There is one elementary, intermediate and high school, and a K-12 charter school. Educational facilities located near the project site include:

- Kapa‘a Elementary School located at 4886 Kawaihau Road, is approximately 4.5 miles away from the project site and is the closest elementary school facility.
- Kapa‘a Middle School is located at 4867 Olohena Road, is approximately 5.2 miles away from the project site and is the closest middle school facility.
- Kapa‘a High School, located at 4695 Mailihuna Road, is approximately 3.5 miles away from the project site and is the closest high school facility.
- Kanuikapono Public Charter School & Learning Center, located at 4333 Kukuihale Rd, is approximately 1.2 miles away from the project site and is a Hawaiian immersion school grades K-12.

Anticipated Impacts and Mitigation Measures

The development of the Settlement Plan Area will not adversely affect public schools serving the Anahola area. Although the development of the Settlement Plan Area will increase the number of students attending the public schools serving the Anahola area, the influx of students will not adversely affect the public school’s mission of providing educational services. No adverse impacts are anticipated, and no mitigation measures are proposed.

3.12.2 Recreational Facilities

Existing Conditions

There are four public parks located in Anahola: The Anahola Hawaiian Homes Park, Village Park, Anahola Beach Park and Lae Lipoa Beach. Anahola Hawaiian Homes Park has a community pavilion, playing courts, playing field, comfort stations and the Anahola Club House. Anahola Beach Park and Lae Lipoa Beach accommodate beach activities inclusive of swimming, paddling, surfing, and fishing.

Anticipated Impacts and Mitigation Measures

The proposed project is not expected to impact existing recreational facilities; therefore, no mitigation is proposed.

3.12.3 Police

Existing Conditions

The Anahola area is served by the Kauaʻi Police Department Hanalei District which covers the area from Kapaʻa to Hāʻena. The Hanalei Substation is located approximately 17.7 miles from the project site.

Anticipated Impacts and Mitigation Measures

Hanalei District police resources currently provide services for the existing Anahola area. This project will not impact the Police Department's operations or ability to provide adequate services to the surrounding community. Keeping the existing project site roadways unimproved may impede upon response time or the ability to access and provide police services. No adverse impacts are anticipated, and no mitigation measures are proposed.

3.12.4 Fire

Existing Conditions

The Kauaʻi Fire Department has two fire station within 10 miles of the project site located in Kapaʻa. Kauaʻi Fire Station 8 is located approximately 4.5 miles south and Kapaʻa Fire Station is located approximately 6.7 miles south.

KFD works with the Emergency Medical Services (EMS), who dispatches the closest available unit. During an emergency, this may be either an EMS ambulance or a fire company depending on the type of emergency and location.

Anticipated Impacts and Mitigation Measures

This project is not expected to impact the Fire Department's operations or ability to provide fire protection services to the surrounding Anahola community. Keeping the existing project site roadways unimproved may impede upon response time or the ability to access and provide fire services.

To mitigate potential impacts to fire services, the Kuleana Homestead Association will be responsible for developing their own self-determined strategies to effectively self-manage and maintain fires within

the Settlement Plan Area. Wildfire management prevention may include procedures that reduce and maintain vegetation along roads and in human-accessed areas; manage grasses to interrupt continuity of fuel sources throughout the project area; manage "ladder fuels," or areas where ground vegetation is connected to canopy vegetation; eliminate illegal dumping, and create buffers of reduced vegetation hazards around developed areas. Planning for drier conditions and addressing seasonal heavy growth of vegetation in the project area should also be considered. Regardless of how the program is managed, homestead awardees will work and be involved with the direct protection and management of their natural and cultural resources.

The Kuleana Homestead Association may decide to allocate a portion of Community Use areas as a staging area for installing portable dipping tanks for firefighting purposes. The staging area should be relatively flat and sited near a water source or standpipe. It should be easily accessed and able to accommodate several parked trucks in addition to the temporary water tank. The area above should be maintained to ensure unobstructed access for helicopters. The Homestead Association would be responsible for storing and maintaining the portable dipping tanks.

The Homestead Association may also decide to establish a Resilience Hub on the Community Use lands. Resilience Hubs are designed to build a community's capacity to anticipate and respond to potential hazards. It could also house emergency firefighting equipment and offer routine fire prevention and control training.

3.12.5 Emergency Medical Services

Existing Conditions

The nearest hospital to the project is Samuel Mahelona Memorial Hospital, located approximately five miles south. Sam Mahelona primarily provides long-term elderly care, however, includes ambulance service by EMS and urgent care. The second nearest hospital is the Wilcox Medical Center located in Līhu'e, 13 miles away. Wilcox provides specialized care and surgical services.

Anticipated Impacts and Mitigation Measures

The project will not impact the handling of EMS or medical emergencies to the surrounding Anahola area. Keeping the existing project site roadways unimproved may impede upon response time or the ability to access and provide emergency medical services. Samuel Mahelona Memorial Hospital will be accessible should there be an accident or illness affecting residents of the Settlement Plan Area. No mitigation is proposed.

3.12.6 Solid Waste Management

Existing Conditions

The nearest refuse station to the project site is the Kapa'a Refuse Transfer Center, located 5 miles away from the project area.

Anticipated Impacts and Mitigation Measures

Construction activities related to the project will generate limited amounts of construction waste. Solid waste material will be removed from the site for proper disposal. No mitigation is proposed.

Solid waste collection via municipal services will not be provided for the Settlement Plan Area. Lessees will be responsible for the collection and disposal of all non-domestic and agricultural wastes, as required by rule and statute. The Homestead Community may potentially decide to collect waste materials through a private collection service. The Homestead Association may also decide to develop a recycling program. Recyclable materials could be collected and delivered to the Reynolds Recycling Kapahi Redemption Center located about 5.5 miles away.

Individual composting and green waste recycling will be encouraged. Composting involves allowing organic matter like food scraps and yard waste to decompose into a material that can provide nutrients to a garden. Compost can also be added to worm casting bins for producing nutrient-rich organic fertilizers. Bulkier organic material, like logs and tree limbs, can be chipped to produce mulch. Mulch is used in landscaping for conserving soil moisture, minimizing erosion, weed control, and providing nutrients in plants.

The Homestead Association could potentially decide to develop a community green waste recycling program. A collection center could be established on Community Use areas, whereby green waste could be stored. Material could be chipped to produce mulch and distributed to residents for agricultural purposes. The Association could also potentially obtain a pyrolysis oven for producing biochar. Biochar is a charcoal-like material created by sustainably burning organic material. Biochar can be applied to farmland for improve soil quality. Another alternative could involve converting green waste into fuel using a biodigester. Green waste is broken down inside the biodigester by micro-organisms to produce renewable energy and fertilizer.

3.13 Historic, Archaeological and Cultural Resources

3.13.1 Historic and Archaeological Resources

Existing Conditions

An Archeological Reconnaissance Survey (ARS), entitled *Archaeological Reconnaissance Survey of an Approximately 467-Acre Project Area* (2018), was completed by Nohopapa, and included in this EA (*Appendix E*). The purpose of this study was to establish the presence/absence or likelihood of cultural resources within the project area.

The survey concluded that the project area had been completely transformed by mechanized plantation agriculture for both sugar cane and pineapple operations that took place during the Historic period, and well into the middle-late twentieth century. There are no undisturbed ground surfaces or subsurface deposits dating from pre-Contact times (before 1778) in the project area. One indication of this comprehensive transformation of the entire landscape is the near-complete absence of any rocks on the ground surface. Clearing and removal of rocks was one of the first tasks that would have been carried out by plantation workers. Occasional boulders are commonly marked by "bulldozer scars" or have chain/wire marks on them.

Areas along Ka'alūlā Stream, where pre-Contact Hawaiian structures might have survived plantation operations, have been thoroughly flooded/washed out many times over. The rocks in the stream have been disturbed and not in-situ.

Eight plantation-era historic properties (some with multiple component features) were identified during the ARS field study (*Table 3-3* and *Figure 3-18*). Findings include two large, earthen reservoirs, including a formally-constructed rock and mortar structure (possible pump house), irrigation ditches, a section of dry-stacked boulder retaining wall, concrete and rock sluice gates, a small, informally-constructed diversion dam/culvert, many earthen roads (some with culverts and other drainage features), a railroad bed (but no intact rails or ties), a few displaced iron railroad rails (not in their original position), and a remnant airstrip, which consists of a degraded, road-like strip of old asphalt/concrete. The survey identified an inscribed date of 1925 on one of the concrete sluice gates, along with the names of two Japanese workers who built it, and some Japanese (kanji) script. In portions of the main irrigation ditch running through the middle of the project area, the survey identified sections of well-constructed, dry-stacked rock work that may be worth preserving. Other inscriptions on plantation infrastructure included a date of 1960.

The survey identified one traditional Hawaiian stone tool (an adze "preform") on the ground surface. This isolated find was the only traditional Hawaiian material observed during the survey.

Anticipated Impacts and Mitigation Measures

The project is not expected to result in significant adverse impacts to historic properties of the site. The majority of the historic sites that were identified in the survey lie outside areas targeted for lease awards. The future Homestead Association would be responsible for developing a preservation plan for historical and cultural resources located within the Special District or Community Use lands.

For those areas identified as affected by a historic property at present, DHHL will engage in the historic preservation review process to determine if identified historic properties could either be 1) integrated into the care and protection of the lessee under a future preservation plan; 2) be documented sufficiently under data recovery to then warrant their removal; or 3) be determined as historically insignificant at present suggesting no further work is necessary.

Management/protection of any unknown historic property within each respective parcel would be the responsibility of the family within whose parcel a site may lie. Although a limited Archaeological Reconnaissance Survey was completed as a part of the Settlement Plan study, future lessees of the Kuleana Homesteading Lots within Anahola would be required to comply with *HRS Chapter 6E* and the applicable administrative rules for any project that may require a State or County permit or approval. Further, since DHHL lands are defined as tribal lands under the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, if iwi kūpuna, funerary objects, sacred objects, or objects of cultural patrimony are encountered, its statutory requirements and rules for notification, inventory, consultation, and resolution will apply. Sites undocumented at present would be recorded to certain standards sufficient for State Historic Preservation Division (SHPD) review. Lessees must agree to a non-disclosure of sites beyond informing SHPD and DHHL.

Table 3-3 Inventory of Historic Properties in the Settlement Plan Area					
No.	**Form - Description**	**No. of Features**	**Function**	**Age**	**Comments**
Site 1	Irrigation Ditch, Sluice Gate & Culvert System (labeled Kaneha Ditch on a 1963 map)	7	Irrigation/water distribution	Historic Portions as early as 1904 or earlier	Diverse/varied construction materials & methods (see text) – there are some well-preserved, formal features and sections of this system
Site 2	Railroad Bed/Right-of-Way (ROW)	1	Transportation of plantation materials & product	Historic Portions as early as 1904 or earlier	All this is left of this site is a level (earthen) railroad bed (no evidence of in-situ rails or ties)
Site 3	Reservoir 2	--	Water storage/distribution	Historic Portions as early as 1904 or earlier	Known as Kanehu Reservoir 2 on some older maps
Site 4	Airstrip – "Kealia (Keālia) Landing Strip" on a 1963 map	--	Transportation	Historic Built between 1955 & 1963	Simple asphalt/concrete surface w, no auxiliary structures or features – poor to fair physical condition
Site 5	Reservoir 3	3	Water storage/distribution	Historic Portions as early as 1904 or earlier	Known as Kanehu Reservoir 3 on some older maps
Site 6	Dam & Culvert	--	Part of water distribution system	Historic – Plantation era	Diversion dam/culvert functioned to keep stream flow in place and protect adjacent road from being washed out
Site 7	Retaining Wall (Dry-stacked)	--	Soil retention for landscape stability	Historic – Plantation era	A small ridge next to (south of) and slightly above main is retained by dry-stacked retaining wall
Site 8	Earthen Road System	2	Transportation	Historic Portions as early as 1904 or earlier	-
No. #	Isolated Surface Artifact	n.a.	Adze (koʻi) preform	Probably Pre-Contact	Basalt preform found on ground surface of Site 2 (Railroad ROW)

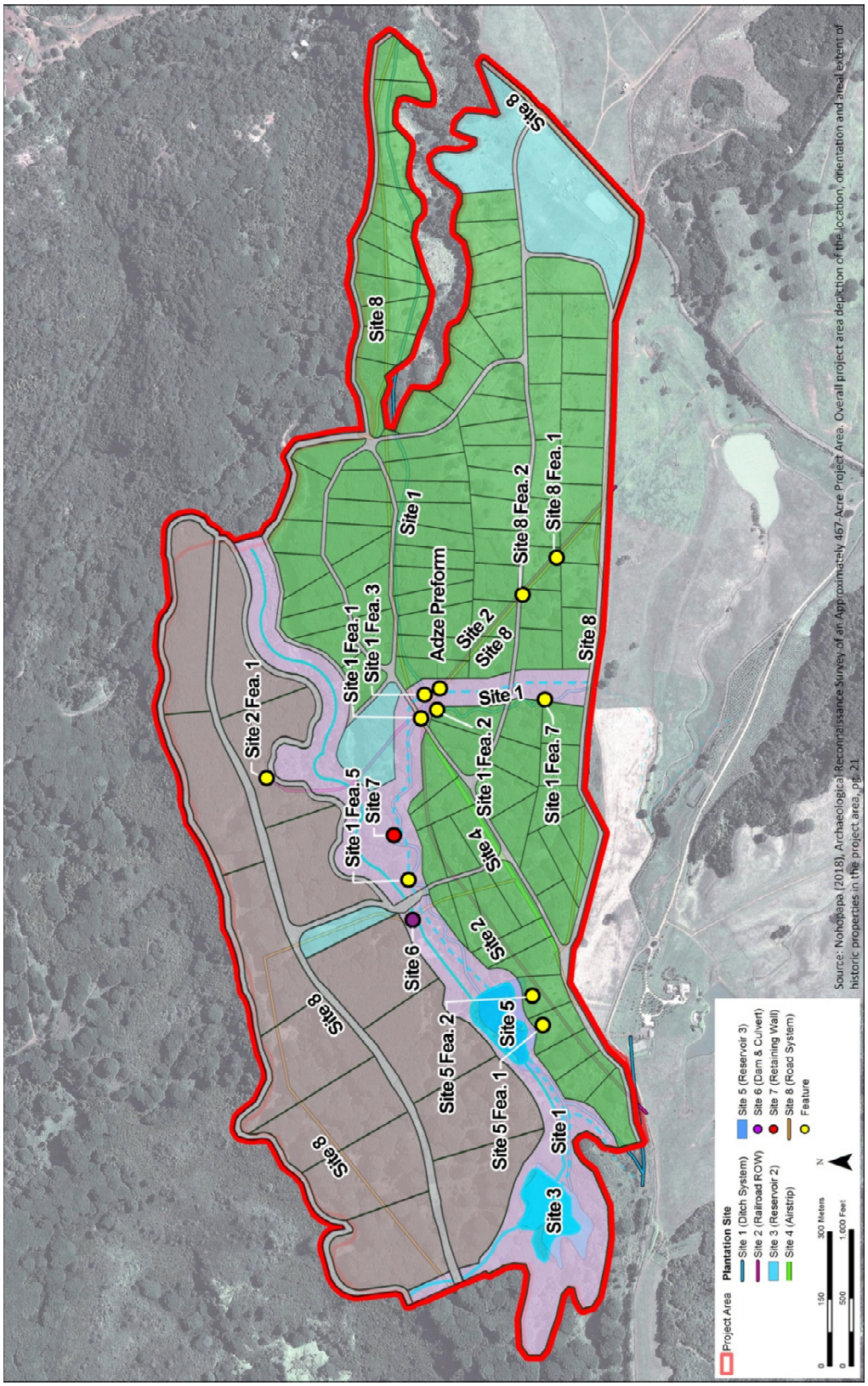


Figure 3-18 **Historic and Archaeological Sites (Nohopapa)**

3.13.2 Cultural Resources

A Cultural Impact Assessment (CIA) was completed by Nohopapa Hawai'i in January, 2020 *(Appendix G).* The CIA includes background research of traditional and historic accounts in the Anahola area, and an ethnographic survey including cultural informant interviews.

Existing Conditions

Anahola and Kamalomalo'o are located in the district known today as Kawaihau. The older (pre-Contact) land district of Kawaihau was once known as the land division of Ko'olau Moku. Sitting south of Ko'olau Moku is Puna Moku where some sources (e.g., Handy and Handy 1972:423) place the old moku boundary between Ko'olau and Puna at the boundary between the ahupua'a of Anahola (Ko'olau) and Kamalomalo'o (Puna). Historically, both Anahola and Kamalomalo'o have been known for their valuable resources. Anahola is home to one of the largest rivers in the Ko'olau District with a wide bay, and more extensive lower flat lands with great agriculture potential to feed and support people. According to Pukui et al. (1974:12), Kamalomalo'o, which has been historically referenced to as Kamalomalo, Kamamalo, and Kamamalo'o, is associated with mo'olelo (oral-historical accounts) about chiefs arriving on the shoreline from their wa'a (canoe) and being supplied with a "dry malo."

The project area is situated almost halfway from the mountains to the sea on kula lands within the ahupua'a of Anahola. The study found when lands in Anahola were divided for private ownership, the ahupua'a of Anahola was no longer intact. Access to areas within Anahola became illegal with owners putting up gates to keep trespassers out and water was diverted and privatized for personal use. Ultimately, when the ahupua'a was replaced with private ownership, it affected Native Hawaiians' abilities to remain connected to their land.

Access to place is extremely important to the continuing pilina (connection) of Hawaiians to their environment and culture. It is one of the reasons Hawaiians kanu 'iewe and piko after the birth of a child. "Returning the first honua to the honua we live on is a powerful way to reaffirm the connection of a child to their 'āina hānau (birthplace)." The importance of anchoring keiki to wahi physically and metaphorically through their 'iewe speaks to the importance of place and access to place as a cultural cornerstone. Many parents who continue to kanu 'iewe today seek to go mauka, for safe places, free from development where their keiki's first honua can dwell undisturbed.

With pilina comes understanding, respect; this continued access to wahi creates a relationship between Hawaiians and those places. Arguably, the most important cultural component of the development of a Hawaiian relationship to place is kuleana. Hawaiian communities that have relationships to the places around them – places they use and access – also develop a growing understanding of those places, their inoa (names), their mo'olelo (stories). With this relatioship comes kuleana, the resposibility to mālama place.

Access to mauka Anahola became a growing concern with the adjacent property's previous owners (the McCloskey family) and current RP holders putting up gates. Blocking off mauka Anahola blocks the ability to rightfully practice a customary or traditional native Hawaiian practice on land. Although accesses which were previously blocked have recently been removed for individuals to rightfully practice their culture, this also opens the opportunity for the public to access these areas and disrupt the connections Native Hawaiians are beginning to re-establish.

Wai (water), like access to place, is important. Wai is arguably central to all things. What affects the wai hālau, the rain catching mountains, at the apex of the ahupua'a has the potential to affect the fish in the muliwai. For ho'okupu, a traditional Hawaiian offering, it is almost always the case that the most appropriate and noa offering is wai. Tap water wai is not maika'i ho'okupu, it must come from a special

place or time, from a spring or a certain place in a stream. Currently it is not feasible for beneficiaries in Anahola to collect wai ho‘okupu from mauka. This seems he mea iki (a small thing), but with the resurgence of Makahiki ceremonies in Anahola, cultural education at Kanuikapono Public Charter School, and the current project area development, it is a small thing that speaks volumes.

The study found growing concerns with proper water management. This is due to the area’s historic and current water flow. In the early 2000s, modifications made to the plantation ditch system gave neighboring landowners at the time (McCloskey) water rights. Water was diverted from DHHL-owned land in Kamalomalo‘o and Anahola to private properties in Keālia with a fixed price. The diversion of water hindered water flow in the project area and has created the concern of a water shortage for homesteaders to pursue agricultural and pastoral endeavors along with cultural activities.

Blocking access to mauka Anahola over time has affected the ability to perpetuate Hawaiian cultural traditions. Haumāna have an incomplete relationship with their own ahupua‘a and the keiki do not have a sense of place in Anahola beyond the dumping and abandoning of cars. Kanuikapono, a K-12 Public Charter School in Anahola has been providing efforts to conduct Makahiki opening ceremonies with its students. The efforts put forth by Kanuikapono helps build a relationship with the land and keiki to perpetuate the livelihood of Hawaiian culture.

Anticipated Impacts and Mitigation Measures

The Anahola Settlement Plan has few direct impacts to cultural resources, and many opportunities for potentially positive cultural impacts are present. The awarding of subsistence agricultural and pastoral lots provides homesteaders with the ability to re-establish a connection to the land. When connections are made with the land the ability to mālama ‘āina follows. Rebuilding connections to the land and improving the health of the kula lands alongside the efforts of Kanuikapono Public Charter will continue to strengthen the overall health of the ahupua‘a and pride in Anahola.

3.14 Visual Resources

Existing Conditions

The Anahola Settlement Plan area is located along the gentle slopes of mauka Anahola, approximately 1.6 miles from Kaua‘i’s eastern coast. The Pacific Ocean and Anahola Bay can be viewed in unobstructed areas when looking makai. The most dominant land feature in the Anahola area is Kalalea Mountain, which abuts the DHHL property to the north. Kalalea mountain includes two major peaks, Hokualele peak and Mano mountain. Mano, meaning shark in Hawaiian, exhibits a distinct shark-fin like appearance. The Kalalea Mountain ridge extend westward towards the Namahana Mountains. Mauka of the project area (west-southwest) is the Keālia Forest Reserve and the Makaleha Mountains.

The project area is located in an area previously under sugar cane cultivation. The site has since been left essentially unmanaged and is presently covered by invasive albizia forest. Albizia can grow up to 150 feet tall with massive trunks and open crowns. Viewsheds from the project area are generally obscured by the overgrowth of these trees. Public views of the property are largely from Anahola town, Kūhīo Highway and Keālia road, located makai of the project area. Views are primarily of pasture lands, trees, and shrubs.

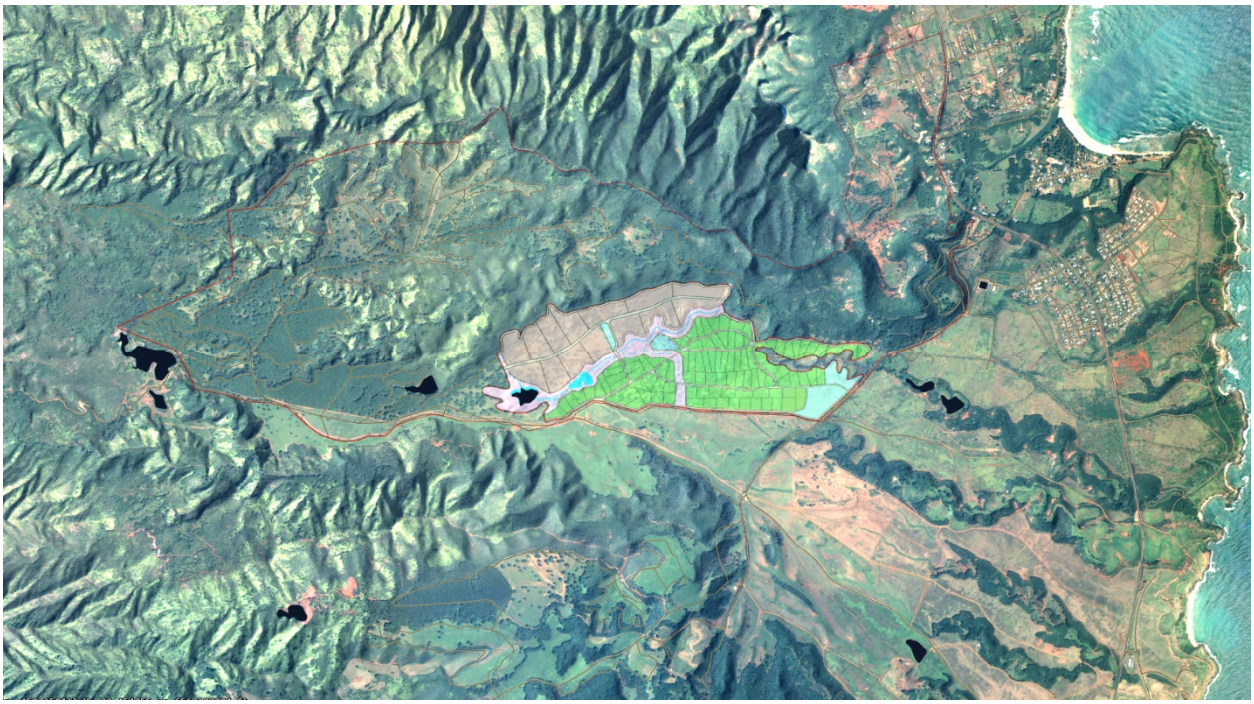


Figure 3-19 **Aerial View of Project Area (wide)**

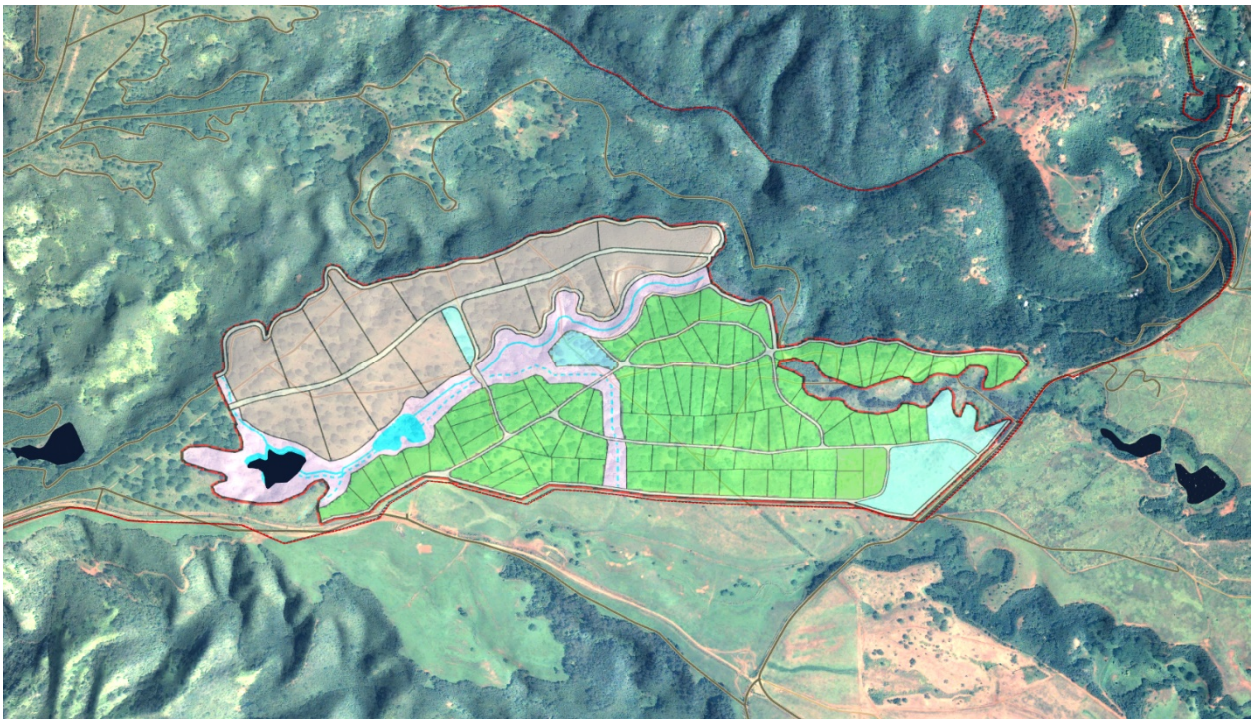


Figure 3-20 **Aerial View of Project Area**

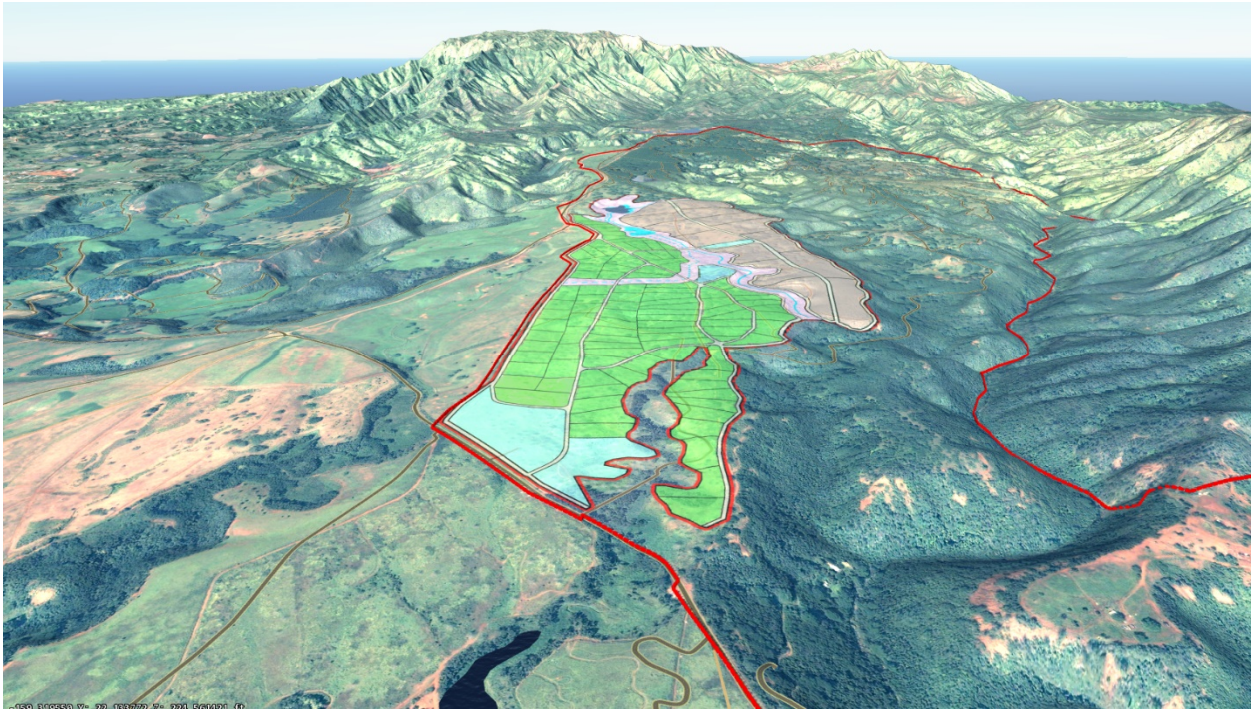


Figure 3-21 **Mauka View of Project Area**

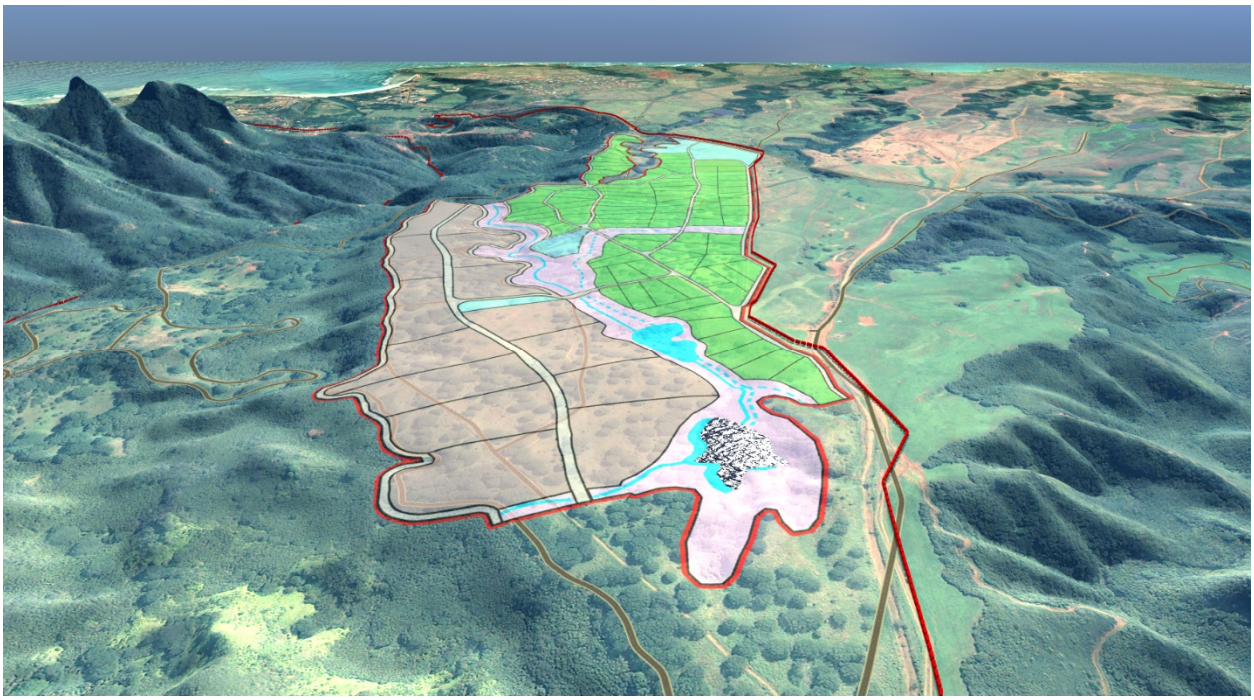


Figure 3-22 **Makai View of Project Area**

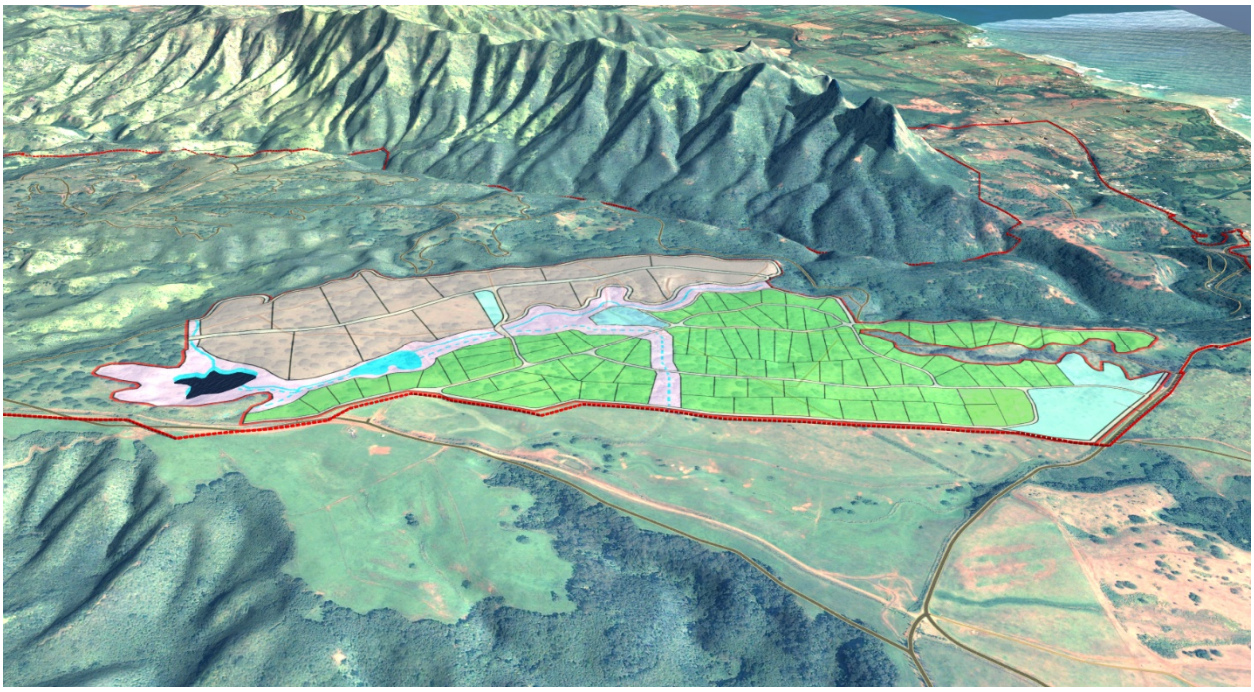


Figure 3-23 **North Facing View of Project Area**

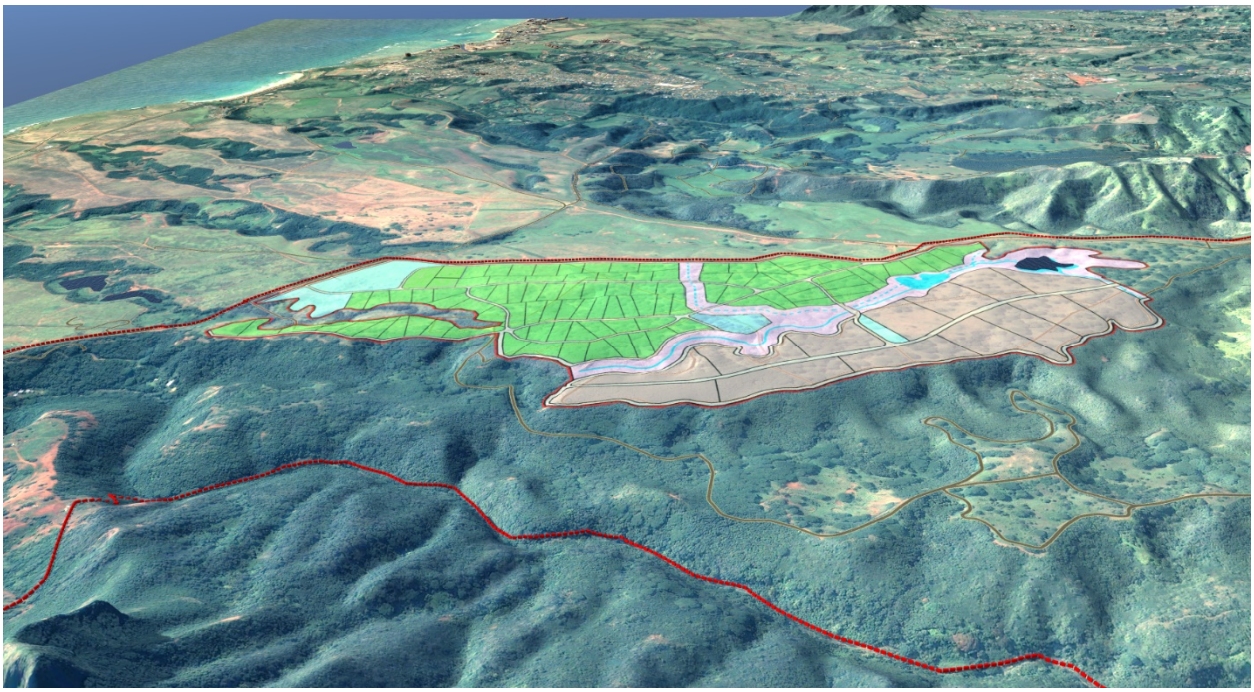


Figure 3-24 **South Facing View of Project Area**

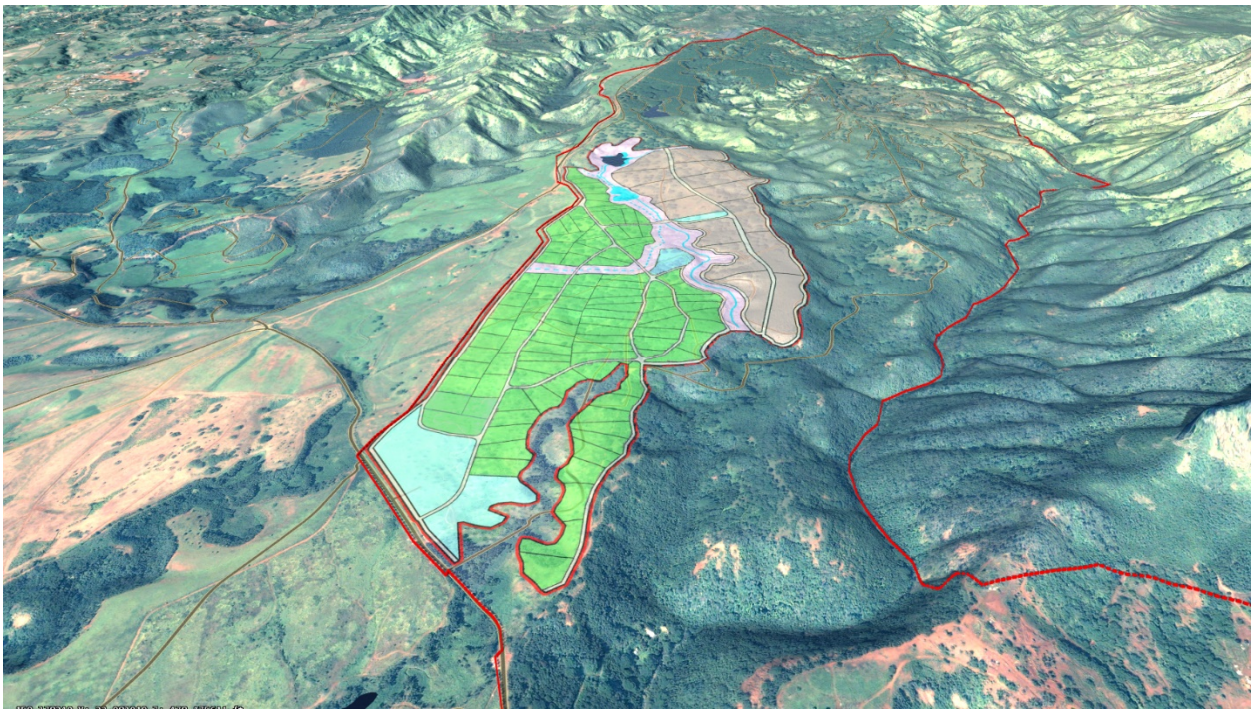


Figure 3-25 **Mauka Perspective View of Project Area**

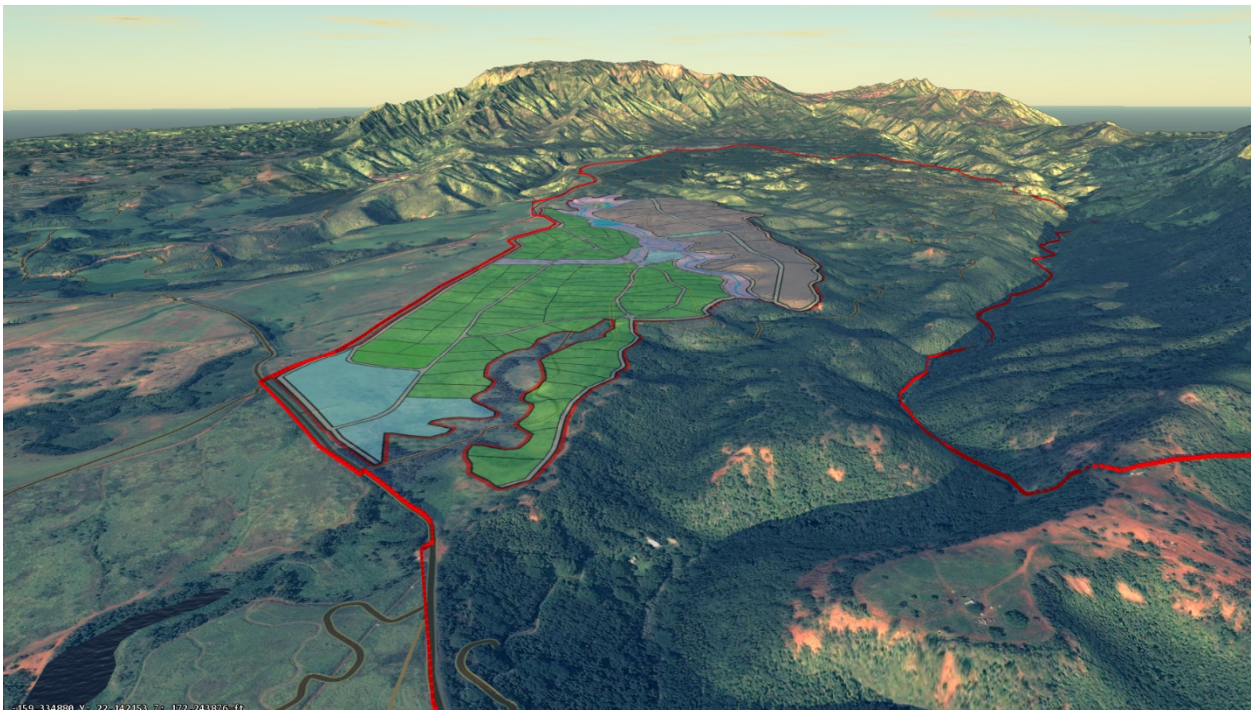


Figure 3-26 **Morning Over Anahola**

Anticipated Impacts and Mitigation Measures

The project involves the conversion of invasive albizia forest into Pastoral and Subsistence Agricultural lots. Lessees may build single family homes on their lots. Felling of the albizia will have a positive impact on viewsheds by removing trees that obstruct coastal views and scenic vistas. Native forest restoration and conservation efforts planned for the gulch lands will provide views of native ecosystems.

3.15 Potential Cumulative and Secondary Impacts

Cumulative effects are impacts which result from the incremental effects of an activity when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertake such other actions. Minor but collectively significant actions over a period can result in cumulative impacts to a place.

When coupled with the development of the Anahola Town Center, the new Settlement Plan Area will create an intact contemporary ahupua‘a stretching from mauka to makai. Residents of the Settlement Plan Area are expected to sustain themselves primarily from the food produced on their individual lot, however, may also rely on additional goods and services available in the Anahola Town Center. The influx of families in the Anahola area is expected to increase profits of businesses in Anahola. Providing homestead lots for 115 families may produce additional housing opportunities elsewhere on Kaua‘i as beneficiaries may vacate their existing homes when moving onto their new Kuleana lots.

Secondary effects are impacts that are associated with an activity but do not result directly from the activity. Overall, the project will have beneficial secondary impacts on the Anahola community. By creating additional space for settlement, this project will award 115 Hawaiian families on the DHHL waitlist. Creating settlement opportunities for beneficiaries to establish a self-sufficient and self-determining agricultural community will help to empower residents and rehabilitate Hawaiian culture in Anahola.

Construction activity during the proposed project will generate direct employment as well as indirect and induced employment in construction-related industries. Short-term construction-related impacts on the environment will be generated by the project, and mitigation measures will be implemented to minimize these impacts. Construction related impacts will be temporary and will be in the immediate vicinity of the project site. Federal, State, and County environmental regulations will be met throughout the construction and operation of the project.

Section 4

Alternatives to the Proposed Project

Chapter 4

Alternatives to the Proposed Project

The following presents an analysis of the alternatives to the proposed project.

4.1 Alternative A – No-Action Alternative

The "No-Action" alternative is the baseline against which all other alternatives are measured. "No-action" refers to the future site conditions that would result should the project not proceed.

The "No-Action" alternative would involve not proceeding with the development of the Anahola Kuleana Homestead Settlement Plan leaving the existing DHHL-owned land in Anahola undeveloped. RP holders could continue to lease property from DHHL in Anahola. Meanwhile, DHHL beneficiaries, some of whom have been on the waitlist for over 30 years will continue to wait for leases. The waitlist for the Kaua'i Island will continue to grow while quality farm land will be utilized by few farmers/ranchers who may not necessarily be beneficiaries of the Hawaiian Homes Trust or be unnecessarily paying for an RP. Additionally, no improvements on the land would be made and the overgrowth of albizia will continue to increase and ultimately keep the DHHL away from serving their mission of rehabilitating native Hawaiians back on their land.

For these reasons, the "No-Action" alternative was not considered a viable alternative.

4.2 Alternative B – Alternative Location

In alignment with the 1987 Anahola-Kamalomalo'o and Mola'a Development Plan's vision of a contemporary ahupua'a, an alternative location for the development of a Kuleana Homestead within the Anahola area has been analyzed. The 1987 Development Plan designated the mauka area of Anahola as Agricultural for Farm and Pastoral Lots *(Figure 2-1).* The 2004 KIP revised some of the land uses outside of the current project area from Farm and Pastoral Lots to General Agriculture, to reflect changes that had occurred since the time of the 1987 Development Plan.

Land previously designated for Agriculture or Pastoral homesteads has been designated as General Agriculture to make it available to cooperative, beneficiary farming and/or development groups rather than being permanently given out as individual Agriculture or Pastoral homestead lots. Specifically, 1,018 acres total were converted to General Agriculture as compared to approximately 75 acres in the 1987 plan. The revision in land use allows for large scale farming and ranching which may be developed by cooperative or hui and may be a quicker and more effective opportunity for beneficiaries to get back on the land. Land designated General Agriculture can be short-term leased for farming to generate income for the Department. It may service as an interim use until opportunities for higher and better uses become available, but land designated General Agriculture is primarily preserved for future uses.

Although previously designated as Farm and Pastoral lots, developing this property before the current Settlement Plan Area would be more difficult and costly. The roads to this area (passing through the current project area) would still need to be developed in order to access this property. Those that settle in this area would be accountable for maintaining these roads in addition to those in the settled area. Most likely these roads would pass through areas where albizia would grow back, potentially blocking the roads. In addition, distance to the current Anahola Town may discourage beneficiaries from even accepting an offer on these lands. For these reasons, the area mauka of the current Settlement Plan Area is not an option at this time.

4.3 Alternative C – Alternative Residential Homestead Development

Developing the DHHL-owned land in Anahola as a Residential Homestead is another alternative. Anahola was selected to be developed as a Kuleana Homestead because of the large number of applicants applying for an Agricultural or Pastoral lot and the characteristics of the natural environment. Although Residential Homestead Awards are preferred, developing the area as a Residential Homestead, with new homes and working infrastructure and utilities, would be excessively costly for the DHHL and extend the time beneficiaries will spend on the waiting list. A Residential Homestead would not fully utilize the quality soil available in Anahola for agricultural and pastoral purposes that may sustain lessees. The projected economic income may not be completely fulfilled with the development of Residential Homestead and stray away from the Master Plan of Anahola Town Center of creating an intact contemporary ahupua‘a. The development of a Residential Homestead limits lessees with the ability to develop and manage their homestead community.

The development of a Residential Homestead would not be as beneficial with many applicants waiting for Agricultural and Pastoral lots and the costs and time spent towards developing a Residential Homestead.

4.4 Alternative D – Alternative Land Use

The 2004 KIP designates land in Anahola for Residential, Subsistence Agriculture, Pastoral, General Agriculture, Special District, Conservation, Community Use, and Commercial. The characteristics of the natural environment, with quality soil and heavy rainfall for natural irrigation, and historic land use in the mauka area of Anahola have favorable conditions for Subsistence Agriculture and Pastoral homestead lots. In addition, the designation of Special District areas along streams would allow for the rehabilitation of waterways and the designation of Community Use areas to support the agriculture and pastoral homestead.

Developing this area as Residential or Commercial would be very costly. These types of land uses specifically require infrastructure for water, wastewater and electricity, with roads built to County urban standards. The Settlement Plan Area is not close enough to existing infrastructure in order to accommodate these requirements. Developing the area solely as Pastoral or General Agriculture would reduce the number of lots available to beneficiaries.

For these reasons, the characteristics of the natural environment in the mauka area of Anahola favor the development of a Kuleana Homestead. The development will provide opportunities for native Hawaiians to rehabilitate and restore the land for its historic and greatest usage. Alternative land usages identified for Anahola in the KIP were eliminated from further consideration. The characteristics of the natural environment are most suitable for development of a Kuleana Homestead.

4.5 Alternative E – Alternative Lot Sizes

Beneficiary Meetings held in August 2019 and November 2019 allowed beneficiaries to voice and collectively agree upon lot sizes for Subsistence Agriculture and Pastoral designated areas. Beneficiaries collectively agreed to preferred option of 2-acre Subsistence Agriculture lots and 10-acre Pastoral lots. The preferred lot sizes will result in 101 2-acre Subsistence Agriculture lots and 10-acre Pastoral Lots, totaling 110 lots. Another 28 acres will be utilized as Community Usage. Reducing the acreage of Subsistence Agriculture lots or Pastoral lots may impact the ability for lessees to produce the foods needed to sustain themselves and grow a surplus for an economic profit. Increasing the acreage of Subsistence Agriculture lots or Pastoral lots may increase the production to sustain lessees and increase profit, but it will reduce the number of lots available. Reducing the acreage for Community Usage may impact the opportunities for lessees to cohesively work together to generate an economic profit.

For these reasons, with majority of beneficiaries agreeing to 2-acre Subsistence Agriculture lots and 14-acre Pastoral lots along with the projected economic profit of the Anahola Kuleana Homestead Settlement Plan, reducing or increasing the proposed usages of lot sizes was not further concurred.

4.6 Alternative F – Future Expansion

Based on the additional information provided in the preliminary water study (G70, 2021), General Agriculture lands above elevation 560 ft within DHHL property were assessed at a high level and have been conceptually contemplated in the future for Kuleana homestead. At this early juncture, the rough estimate potential for the 629 acres of General Agriculture land could be revised to approximately 302 acres of Pastoral and 327 acres of Subsistence Agriculture. This could potentially translate to 30 Pastoral lots and 163 Subsistence Agriculture lots based on water availability and other criteria (see *Section 1.2.3 Criteria for Kuleana Homesteading in Anahola).*

These mauka areas have been described as extremely wet and historically did not require irrigation infrastructure during the plantation era. Rainfall data alludes to this condition where rainfall data showed an abundance of rainfall at higher elevations near Kaneha Reservoir and less rainfall at lower elevations. Initial water demand calculations for these General Ag lots without rainfall data is 1.81 MGD. When examining available rainfall data near Kaneha Reservoir and applying the average rainfall monthly depths (in inches) over the 629 acres, the data shows that, on average, effective rainfall could almost meet the demand requirements for Pastoral and Subsistence Agriculture use in most months (based on monthly data averaged per day, meaning some fluctuation in averages is anticipated).

Due to the elevation differences, and locations of existing infrastructure and water source, non-potable water service cannot directly service these areas without introducing a costly pump system to a restored irrigation system. However, water could be provided by surface flow in lieu of a piped, pressurized system. Between the rainfall amounts and potential flow amounts remaining from Anahola Stream after the current Anahola project area is accounted for, it is anticipated that Pastoral and Subsistence Agriculture uses can be supported on the lands further mauka.

Although it may take 10+ years before future expansion will be feasible, a Supplemental EA will be necessary. The preliminary information will need to be verified with further technical studies and analysis beyond the scope of this current EA, should DHHL decide to pursue this phase of the project in the future.

Section 5

Plans and Policies

Chapter 5

Plans and Policies

The consistency of the Anahola Kuleana Homestead Settlement Plan with applicable State of Hawai'i and County of Kaua'i planning and land use objectives, policies, principles and guidelines are discussed below.

5.1 Hawai'i State Plan

The Hawai'i State Plan establishes a statewide planning system that sets forth goals, objectives, policies, and priority directions to provide for the wise use of Hawai'i's resources and guide the future long-range development of the State. The Project's relationship to the goals and applicable objectives, policies, and priority directions are presented in *Table 5-1* below.

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
Section 226-1: Findings and Purpose			
Section 226-2: Definitions			
Section 226-3: Overall Theme			
Section 226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:			
(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai'i's present and future generations			X
(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.	X		
(3) Physical, social and economic well-being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	X		
<u>Discussion:</u> The Anahola Kuleana Homestead Settlement Plan will ensure that beneficiaries approach their desired levels of self-reliance and self-determination, with a land area that enhances the mental and physical well-being of the individuals and families in Anahola, nourishing a sense of community responsibility, of caring, and of participation in community life.			
Section 226-5: Objective and policies for population. (a) It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter; (b) To achieve the population objective, it shall be the policy of this State to:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawai'i's people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs-and desires.	X		
(3) Promote increased opportunities for Hawai'i's people to pursue their socioeconomic aspirations throughout the islands.	X		
(4) Encourage research activities and public awareness programs to foster and understanding of Hawai'i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai'i's population.			X
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among states, provided that such actions do not prevent the reunion of immediate family members.			X
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population			X
(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area	X		
Discussion: The purpose of the Anahola Kuleana Homestead Settlement Plan is to serve the beneficiaries of DHHL, many of whom have been on the waiting list for over 30 years. The Project will provide increased opportunity for the beneficiaries to pursue their socioeconomic aspirations, however the operations of the Project will not increase the State's overall population.			
Section 226-6: Objectives and policies for the economy in general.			
(a) Planning for the State's economy in general shall be directed toward achievement of the following objectives:			
(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people.	X		
(2) A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.			X
(a) To achieve the general economic objectives, it shall be the policy of this State to:			
(1) Expand Hawai'i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			X
(2) Promote Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people.			X
(3) Seek broader outlets for new or expanded Hawai'i business investments.			X
(4) Expand existing markets and penetrate new markets for Hawai'i's products and services.			X
(5) Assure that the basic economic needs of Hawai'i's people are maintained in the event of disruptions in overseas transportation.			X
(6) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.			X
(7) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai'i's small scale producers, manufacturers, and distributors.	X		

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(8) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.	X		
(9) Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities.			X
(10) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.			X
(11) Maintain acceptable working conditions and standards for Hawai'i's workers.			X
(12) Provide equal employment opportunities for all segments of Hawai'i's population through affirmative action and nondiscrimination measures.			X
(13) Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy.			X
(14) Promote and protect intangible resources in Hawai'i, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.			X
(15) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular.			X
(16) Foster a business climate in Hawai'i--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			X
Discussion: One of the primary directives of a Kuleana Homestead is the development of a homestead cooperative, or association. In addition to determining management of community resources, this group will decide to form an agricultural cooperative to process and market excess produce and livestock. Although subsistence agriculture and pastoral work is labor-intensive, it can be both socially and economically satisfying. This Project is not associated with the expansion of economic activities capitalizing on defense, dual-use, or science and technology assets.			
Section 226-7 Objectives and policies for the economy - agriculture. (a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawai'i's sugar and pineapple industries.			X
(2) Growth and development of diversified agriculture throughout the State.	X		
(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawai'i's strategic, economic, and social well-being.	X		
(a) To achieve the agriculture objectives, it shall be the policy of this State to:			
(1) Establish a clear direction for Hawai'i's agriculture through stakeholder commitment and advocacy.	X		
(2) Encourage agriculture by making best use of natural resources.	X		
(3) Provide the governor and the legislature with information and options needed for prudent decision making for the development of agriculture.			X
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai'i's economy.			X
(6) Seek the enactment and retention of federal and state legislation that benefits Hawai'i's agricultural industries.			X
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai'i's producers and consumer markets locally, on the continental United States, and internationally.			X
(8) Support research and development activities that provide greater efficiency and economic productivity in agriculture.			X
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.	X		
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			X
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.	X		
(12) Expand Hawai'i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.	X		
(13) Promote economically competitive activities that increase Hawai'i's agricultural self-sufficiency.			X
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.			X
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.			X
(16) Facilitate the transition of agricultural lands in economically non-feasible agricultural production to economically viable agricultural uses.	X		
Discussion: DHHL is enhancing agricultural growth by providing private initiatives through the awarding of these Anahola lands. The designation and settlement of Anahola with Subsistence Agriculture and Pastoral uses will increase the opportunities for an agricultural livelihood, and in turn increase the growth and development of diversified agriculture in Kaua'i. This will expand Hawaii's agricultural base by promoting growth and development of food crops, livestock, and other potential enterprises. The beneficiaries that lease these lots will be committed and advocate for agriculture in their area. Currently unproductive sugar cane lands will be transitioned into economically agricultural uses, and Special District lands will be used for agriculture while protecting their function.			
Section 226-8 Objective and policies for the economy--visitor industry. (a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai'i's economy. (b) To achieve the visitor industry objective, it shall be the policy of this State to:			
(1) Support and assist in the promotion of Hawai'i's visitor attractions and facilities.			X
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable		S	N/S	N/A
(3)	Improve the quality of existing visitor destination areas.			X
(4)	Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			X
(5)	Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai'i's people.			X
(6)	Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the visitor industry.			X
(7)	Foster a recognition of the contribution of the visitor industry to Hawai'i's economy and the need to perpetuate the aloha spirit.			X
(8)	Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai'i's cultures and values.			X
Discussion: The objective of the Anahola Kuleana Homestead Settlement Plan is not related to achieving a visitor industry that constitutes a major component of steady growth for Hawai'i's economy. Its primary function is to serve the needs of the native Hawaiian people.				
Section 226-9 Objective and policies for the economy--federal expenditures. (a) Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai'i's economy. (b) To achieve the federal expenditures objective, it shall be the policy of this State to:				
(1)	Encourage the sustained flow of federal expenditures in Hawai'i that generates long-term government civilian employment.			X
(2)	Promote Hawai'i's supportive role in national defense.			X
(3)	Promote the development of federally supported activities in Hawai'i that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai'i's environment.			X
(4)	Increase opportunities for entry and advancement of Hawai'i's people into federal government service.			X
(5)	Promote federal use of local commodities, services, and facilities available in Hawai'i.			X
(6)	Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai'i.			X
(7)	Pursue the return of federally controlled lands in Hawai'i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead Lots to beneficiaries. The Project is not federally funded. This objective is not applicable to the proposed Project.				
Section 226-10 Objective and policies for the economy--potential growth activities. (a) Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawai'i's economic base. (b) To achieve the potential growth activity objective, it shall be the policy of this State to:				

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable		S	N/S	N/A
(1)	Facilitate investment and employment in economic activities that have the potential for growth such as diversified agriculture, aquaculture, apparel and textile manufacturing, film and television production, and energy and marine-related industries.	X		
(2)	Expand Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people.			X
(3)	Enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts.			X
(4)	Accelerate research and development of new energy-related industries based on wind, solar, ocean, and underground resources and solid waste.			X
(5)	Promote Hawai'i's geographic, environmental, social, and technological advantages to attract new economic activities into the State.			X
(6)	Provide public incentives and encourage private initiative to attract new industries that best support Hawai'i's social, economic, physical, and environmental objectives.			X
(7)	Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research.			X
(8)	Develop, promote, and support research and educational and training programs that will enhance Hawai'i's ability to attract and develop economic activities of benefit to Hawai'i.			X
(9)	Foster a broader public recognition and understanding of the potential benefits of new, growth-oriented industry in Hawai'i.			X
(10)	Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai'i's social, economic, physical, and environmental objectives.			X
(11)	Increase research and development of businesses and services in the telecommunications and information industries.			X
Discussion: Awarding Anahola Kuleana Homestead Lots will allow beneficiaries the potential for growth in diversified agriculture.				
Section 226-10.5 Objectives and policies for the economy--information industry. (a) Planning for the State's economy with regard to the information industry shall be directed toward the achievement of the objective of positioning Hawai'i as the leading dealer in information businesses and services in the Pacific Rim. (b) To achieve the information industry objective, it shall be the policy of this State to:				
(1)	Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai'i to accommodate future growth in the information industry;			X
(2)	Facilitate the development of new business and service ventures in the information industry which will provide employment opportunities for the people of Hawai'i;			X
(3)	Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;			X
(4)	Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people;			X
(5)	Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the information industry;			X

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(6)	Foster a recognition of the contribution of the information industry to Hawai'i's economy; and			X
(7)	Assist in the promotion of Hawai'i as a broker, creator, and processor of information in the Pacific.			X
<u>Discussion:</u> The Anahola Kuleana Homestead Settlement Plan will not help to position Hawai'i as a leader in broadband and wireless communications and applications in the Pacific Region.				
Section 226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources.				
(a)	Planning for the State's physical environment with regard to land-based, shoreline and marine resources shall be directed towards achievement of the following objectives:			
(1)	Prudent use of Hawai'i's land-based, shoreline, and marine resources.	X		
(2)	Effective protection of Hawai'i's unique and fragile environmental resources.	X		
(b)	To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:			
(1)	Exercise an overall conservation ethic in the use of Hawai'i's natural resources.	X		
(2)	Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	X		
(3)	Take into account the physical attributes of areas when planning and designing activities and facilities.	X		
(4)	Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	X		
(5)	Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.	X		
(6)	Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.	X		
(7)	Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.	X		
(8)	Pursue compatible relationships among activities, facilities and natural resources.	X		
(9)	Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational and scientific purposes.			X
<u>Discussion:</u> The Project supports the protection of land-based, shoreline, and marine resources and has been designed to ensure that these resources will be minimally affected by the construction of dwellings and use of the land. When planning and designing the lotting scheme for activities and facilities, the physical attributes of the area were considered to reduce risk for wildfire, flooding and erosion. DHHL provides incentives that encourage the beneficiaries to protect significant natural resources from degradation or unnecessary depletion. It is inherent within the Kuleana Homestead Rules Hawai'i Revised Statutes (HRS) §10-3-10 that the members of the beneficiary association will exercise an overall conservation ethic in the use and management of Hawai'i's natural resources, encouraging their beneficial and multiple use without generating costly or irreparable environmental damage. It is in the best interest of the beneficiaries to pursue compatible relationships among activities, facilities and natural resources.				

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Section 226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources.				
(a)	Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.			
(b)	To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:			
(1)	Promote the preservation and restoration of significant natural and historic resources.	X		
(2)	Provide incentives to maintain and enhance historic, cultural, and scenic amenities.	X		
(3)	Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.			X
(4)	Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.	X		
(5)	Encourage the design of developments and activities that complement the natural beauty of the islands.			X
<u>Discussion:</u> Survey of the project area concludes that it had been completely transformed by mechanized plantation agriculture for both sugar cane and pineapple operations that took place during the Historic period, and well into the middle-late twentieth century. There are no undisturbed ground surfaces or subsurface deposits dating from pre-Contact times (before 1778) in the project area. Eight plantation-era historic properties (some with multiple component features) were identified during the survey. Management/protection of any unknown site would be the responsibility of the family within whose parcel a site may lie. A biological survey was completed by AECOS (*Appendix D*) for the project area. The survey found the project area to contain many native flora and fauna species dated from the pre-contact period and non-native flora and fauna species introduced to the Anahola area with the development of the Līhu'e Plantation. Kuleana Homestead Lessees should strive to take measures that will continue the protection of any indigenous or endemic species identified on their settlement lots. The Homestead Association may choose to partner with the Government operated USFWS service for the continued protection and restoration of endangered and threatened species.				
Section 226-13 Objectives and policies for the physical environment--land, air, and water quality.				
(a)	Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:			
(1)	Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.	X		
(2)	Greater public awareness and appreciation of Hawai'i's environmental resources.			X
(b)	To achieve the land, air, and water quality objectives, it shall be the policy of this State to:			
(1)	Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources.			X
(2)	Promote the proper management of Hawai'i's land and water resources.	X		
(3)	Promote effective measures to achieve desired quality in Hawai'i's surface, ground and coastal waters.			X
(4)	Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people.			X

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(5)	Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.			X
(6)	Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.	X		
(7)	Encourage urban developments in close proximity to existing services and facilities.	X		
(8)	Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors.	X		
<u>Discussion:</u> The Project is not anticipated to pose significant detrimental effects to the surrounding area. The Subsistence Agriculture and Pastoral nature of the Project naturally promotes the proper management of land and water resources in the pursuit of improved quality in Hawai'i's land, air, and water resources. Design and construction practices that enhance the physical qualities of Hawai'i's communities are encouraged. The Community Use area has been sited near existing services and facilities should utility connections need to be made. This community will continue to foster recognition of the importance and value of the land, air, and water resources for themselves and for their culture.				
Section 226-14 Objective and policies for facility systems--in general. (a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives. (b) To achieve the general facility systems objective, it shall be the policy of this State to:				
(1)	Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	X		
(2)	Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	X		
(3)	Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	X		
(4)	Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	X		
<u>Discussion:</u> The Kuleana Homestead Program is the outgrowth of a DHHL effort to expand the range of program options provided to native Hawaiian beneficiaries. This program encourages flexibility in the design and development of settlement lots and infrastructure to promote prudent use of resources and accommodate changing public demands and priorities. Under a standard residential community concept, it is necessary for infrastructure to be developed in advance of settlement. The Kuleana Homestead Program places responsibility for development of infrastructure in the hands of beneficiaries in return for availability and early access to unimproved land. The development of a Kuleana Homestead in Anahola with Subsistence Agriculture and Pastoral homestead lots falls in alignment with land use designations under the Kaua'i Island Plan and the Anahola Regional Plan				

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§226-15 Objectives and policies for facility systems--solid and liquid wastes.				
(a)	Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:			
(1)	Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	X		
(2)	Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.	X		
(b)	To achieve solid and liquid waste objectives, it shall be the policy of this State to:			
(1)	Encourage the adequate development of sewerage facilities that complement planned growth.	X		
(2)	Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.			X
(3)	Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.			X
<u>Discussion</u>: The Project supports the objectives and policies for facility systems regarding solid and liquid wastes. As discussed in *Section 3.10.2* of this EA, the wastewater improvements will potentially be processed through onsite Individual Wastewater Systems (IWS). Solid waste disposal and recycling programs within the Anahola Kuleana Homestead Settlement area will need to be managed by the beneficiary association.				
§226-16 Objective and policies for facility systems--water.				
(a)	Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.			
(b)	To achieve the facility systems water objective, it shall be the policy of this State to:			
(1)	Coordinate development of land use activities with existing and potential water supply.			X
(2)	Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			X
(3)	Reclaim and encourage the productive use of runoff water and wastewater discharges.			X
(4)	Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.			X
(5)	Support water supply services to areas experiencing critical water problems.			X
(6)	Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.			X
<u>Discussion</u>: DHHL completed a Water Policy Plan in 2014 to provide direction on water related issues, actions and decisions so that water is treated as a key trust asset. However, according to the Kuleana Homestead program, DHHL is not responsible for providing water infrastructure, and recommends water catchment for potable water needs.				
§226-17 Objectives and policies for facility systems--transportation.				
(a)	Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:			

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(1)	An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.			X
(2)	A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.			X
(b)	To achieve the transportation objectives, it shall be the policy of this State to:			
(1)	Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;			X
(2)	Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;			X
(3)	Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;			X
(4)	Provide for improved accessibility to shipping, docking, and storage facilities;			X
(5)	Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;			X
(6)	Encourage transportation systems that serve to accommodate present and future development needs of communities;			X
(7)	Encourage a variety of carriers to offer increased opportunities and advantages to inter-island movement of people and goods;			X
(8)	Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;			X
(9)	Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;			X
(10)	Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai'i's natural environment;			X
(11)	Encourage safe and convenient use of low-cost, energy- efficient, non-polluting means of transportation;			X
(12)	Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and			X
(13)	Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.			X
Discussion: According to the Kuleana Homestead Program, DHHL is responsible for providing an unpaved right-of-way to the awarded lots. Although unpaved, these minimal roadways will be hard packed to ensure access by homesteaders and emergency vehicles including fire, ambulance, and police services. Planning for the State's facility systems regarding transportation is not applicable to the proposed Project.				
§226-18 Objectives and policies for facility systems--energy.				
(a)	Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:			
(1)	Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;			X

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(2)	Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;	X		
(3)	Greater energy security in the face of threats to Hawai'i's energy supplies and systems; and	X		
(4)	Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.			X
(b)	To achieve the energy objectives, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable energy services to accommodate demand.			
(c)	To further achieve the energy objectives, it shall be the policy of this State to:			
(1)	Support research and development as well as promote the use of renewable energy sources;			X
(2)	Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;			X
(3)	Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;			X
(4)	Promote all cost-effective conservation of power and fuel supplies through measures including: (A) Development of cost-effective demand-side management programs; (B) Education; and (C) Adoption of energy-efficient practices and technologies;			X
(5)	Ensure to the extent that new supply-side resources are needed, the development or expansion of energy systems utilizes the least-cost energy supply option and maximizes efficient technologies;			X
(6)	Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs, practices, and technologies;			X
(7)	Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;	X		
(8)	Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications; and			X
(9)	Support actions that reduce, avoid, or sequester Hawai'i's greenhouse gas emissions through agriculture and forestry initiatives.			X
Discussion: Under the Kuleana Homestead Program, DHHL is not responsible for providing electric utilities. It will be up to the beneficiaries to provide for their own energy source.				
§226-18.5 Objectives and policies for facility systems--telecommunications. (a) Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people. (b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand. (c) To further achieve the telecommunications objective, it shall be the policy of this State to:				
(1)	Facilitate research and development of telecommunications systems and resources;			X
(2)	Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;			X
(3)	Promote efficient management and use of existing telecommunications systems and services; and			X
(4)	Facilitate the development of education and training of telecommunications personnel.			X

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Discussion: The purpose of the Project is to provide Kuleana Homestead Lots to beneficiaries. Planning for the State's telecommunication facility systems capable of supporting the needs of the people is not applicable to the proposed Project.				
§226-19 Objectives and policies for socio-cultural advancement--housing.				
(a)	Planning for the State's socio- cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:			
(1)	Greater opportunities for Hawai'i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawai'i's population.	X		
(2)	The orderly development of residential areas sensitive to community needs and other land uses.			X
(3)	The development and provision of affordable rental housing by the State to meet the housing needs of Hawai'i's people.			X
(b)	To achieve the housing objectives, it shall be the policy of this State to:			
(1)	Effectively accommodate the housing needs of Hawai'i's people.			X
(2)	Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.	X		
(3)	Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	X		
(4)	Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.			X
(5)	Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.	X		
(6)	Facilitate the use of available vacant, developable, and underutilized urban lands for housing.			X
(7)	Foster a variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods that reflect the culture and values of the community.	X		
(8)	Promote research and development of methods to reduce the cost of housing construction in Hawai'i.			X
Discussion: Although DHHL is not providing the actual housing unit, the land that is being provided for the beneficiaries will stimulate and promote feasible approaches that increase housing choices, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals. This can be done through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawai'i's population. This will increase homeownership opportunities and choices in terms of quality, location, cost, style, and size of housing, considering the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas. The Kuleana Homestead program fosters a variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods that reflect the culture and values of the community.				

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§226-20 Objectives and policies for socio-cultural advancement--health.				
(a)	Planning for the State's socio- cultural advancement with regard to health shall be directed towards achievement of the following objectives:			
(1)	Fulfillment of basic individual health needs of the general public.			X
(2)	Maintenance of sanitary and environmentally healthful conditions in Hawai'i's communities.	X		
(b)	To achieve the health objectives, it shall be the policy of this State to:			
(1)	Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.			X
(2)	Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.			X
(3)	Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.			X
(4)	Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.			X
(5)	Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.	X		
(6)	Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.			X
Discussion: The Kuleana Homestead Lessee must agree to participate as an active member in the Kuleana Homestead Association and to comply with rules developed and agreements entered by the Kuleana Homestead Association. This includes the maintenance of the right-of-way to the Kuleana Homestead Tract and Lots, Community Use areas, and the Special District drainageways.				
§226-21 Objective and policies for socio-cultural advancement--education.				
(a)	Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.			
(b)	To achieve the education objective, it shall be the policy of this State to:			
(1)	Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.			X
(2)	Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.			X
(3)	Provide appropriate educational opportunities for groups with special needs.			X
(4)	Promote educational programs which enhance understanding of Hawai'i's cultural heritage.			X
(5)	Provide higher educational opportunities that enable Hawai'i's people to adapt to changing employment demands.			X
(6)	Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.	X		

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(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.			X
(8) Emphasize quality educational programs in Hawai'i's institutions to promote academic excellence.			X
(9) Support research programs and activities that enhance the education programs of the State.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead Lots to beneficiaries. The Subsistence Agriculture lots are intended for lifestyle purposes and for people who may want to supplement their food resources or incomes with agriculture as a secondary economic activity. Community Use areas will promote community cohesion and provide opportunities to expand economic agricultural opportunities.			
§226-22 Objective and policies for socio-cultural advancement--social services. (a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being. (b) To achieve the social service objective, it shall be the policy of the State to:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			X
(2) Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.	X		
(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawai'i's communities.			X
(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			X
(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			X
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			X
Discussion: The Kuleana Homestead Program is an outgrowth of a DHHL effort to expand the range of program options provided to native Hawaiian Beneficiaries. Through the Program, native Hawaiian Beneficiaries are given opportunities to practice indigenous livelihoods, maintain food security and apply natural laws on indigenous lands promoting self-sufficiency and self-determination.			
§226-23 Objective and policies for socio-cultural advancement--leisure. (a) Planning for the State's socio- cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations. (b) To achieve the leisure objective, it shall be the policy of this State to:			
(1) Foster and preserve Hawai'i's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.			X

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(2)	Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.			X
(3)	Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.			X
(4)	Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.			X
(5)	Ensure opportunities for everyone to use and enjoy Hawai'i's recreational resources.			X
(6)	Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.			X
(7)	Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawai'i's people.			X
(8)	Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.			X
(9)	Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai'i's population to participate in the creative arts.			X
(10)	Assure adequate access to significant natural and cultural resources in public ownership.			X
<u>Discussion</u>: The purpose of the Project is to provide Kuleana Homestead Lots to beneficiaries. Planning for the State's advancement with regard leisure to accommodate diverse cultural, artistic, and recreational needs is not applicable to the proposed Project.				
§226-24 Objective and policies for socio-cultural advancement--individual rights and personal well-being.				
(a)	Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.			
(b)	To achieve the individual rights and personal well- being objective, it shall be the policy of this State to:			
(1)	Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.			X
(2)	Uphold and protect the national and state constitutional rights of every individual.			X
(3)	Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			X
(4)	Ensure equal opportunities for individual participation in society.	X		
<u>Discussion</u>: The Anahola Kuleana Homestead Settlement Plan will provide a variety of opportunities through a traditional lifestyle of Hawai'i valuing the culture of community allowing native Hawaiian Beneficiaries to fulfill their socio-economic needs and aspirations.				
§226-25 Objective and policies for socio-cultural advancement--culture.				
(a)	Planning for the State's socio- cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai'i's people.			
(b)	To achieve the culture objective, it shall be the policy of this State to:			

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(1)	Foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and the history of Hawai'i.	X		
(2)	Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai'i's people and which are sensitive and responsive to family and community needs.	X		
(3)	Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawai'i.			X
(4)	Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawai'i's people and visitors.			X
Discussion: The Kuleana Homestead Program is an outgrowth of a DHHL effort to expand the range of program options provided to native Hawaiian Beneficiaries. Through the Kuleana Homestead Program, native Hawaiian Beneficiaries are given the opportunity to practice indigenous livelihoods rooted in agricultural and apply natural laws on indigenous land for the growth of a healthy community.				
§226-26 Objectives and policies for socio-cultural advancement--public safety.				
(a)	Planning for the State's socio- cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1)	Assurance of public safety and adequate protection of life and property for all people.			X
(2)	Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.	X		
(3)	Promotion of a sense of community responsibility for the welfare and safety of Hawai'i's people.	X		
(b)	To achieve the public safety objectives, it shall be the policy of this State to:			
(1)	Ensure that public safety programs are effective and responsive to community needs.			X
(2)	Encourage increased community awareness and participation in public safety programs.			X
(c)	To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:			
(1)	Support criminal justice programs aimed at preventing and curtailing criminal activities.			X
(2)	Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			X
(3)	Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.			X
(d)	To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:			
(1)	Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.	X		
(2)	Enhance the coordination between emergency management programs throughout the State.	X		
Discussion: A Resilience Hub has been proposed for Community Use areas in the event of a natural disaster, or other major disturbance. A Resilience Hub provides the opportunity to build local community power and leadership while also creating a resilient homestead.				

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
§226-27 Objectives and policies for socio-cultural advancement--government.			
(a) Planning the State's socio- cultural advancement with regard to government shall be directed towards the achievement of the following objectives:			
(1) Efficient, effective, and responsive government services at all levels in the State.	X		
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.	X		
(b) To achieve the government objectives, it shall be the policy of this State to:			
(1) Provide for necessary public goods and services not assumed by the private sector.	X		
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.	X		
(3) Minimize the size of government to that necessary to be effective.			X
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawai'i.	X		
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.	X		
(6) Provide for a balanced fiscal budget.			X
(7) Improve the fiscal budgeting and management system of the State.			X
(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.			X
Discussion: This Kuleana Homestead project empowers a community to form their own association and develop their own CCRs and create their own lifestyle. Limitations in infrastructure improvements will require more innovation on the part of beneficiaries and perhaps more flexibility by agencies including DHHL.			
§226-101 Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.			
§226-102 Overall direction. The State shall strive to improve the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action in five major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation.			
§226-103 Economic priority guidelines.			
(a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:			
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.			
(A) Encourage investments which:			
(i) Reflect long term commitments to the State;	X		
(ii) Rely on economic linkages within the local economy;			X
(iii) Diversify the economy;	X		
(iv) Reinvest in the local economy;	X		

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	(v)	Are sensitive to community needs and priorities; and	X		
	(vi)	Demonstrate a commitment to provide management opportunities to Hawai'i residents.			X
(2)		Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.			X
(3)		Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.			X
(4)		Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.			X
(5)		Streamline the building and development permit and review process, and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where public health, safety and welfare would not be adversely affected.			X
(6)		Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai'i's small-scale producers, manufacturers, and distributors.	X		
(7)		Continue to seek legislation to protect Hawai'i from transportation interruptions between Hawai'i and the continental United States.			X
(8)		Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:			X
	(A)	An industry that can take advantage of Hawai'i's unique location and available physical and human resources.			X
	(B)	A clean industry that would have minimal adverse effects on Hawai'i's environment.	X		
	(C)	An industry that is willing to hire and train Hawai'i's people to meet the industry's labor needs at all levels of employment.			X
	(D)	An industry that would provide reasonable income and steady employment.			X
(9)		Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawai'i business.	X		
(10)		Enhance the quality of Hawai'i's labor force and develop and maintain career opportunities for Hawai'i's people through the following actions:	X		
	(A)	Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.	X		
	(B)	Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.			X
	(C)	Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.	X		
	(D)	Promote career opportunities in all industries for Hawai'i's people by encouraging firms doing business in the State to hire residents.			X
	(E)	Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on- the-job training opportunities.	X		

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	(F)	Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.	X		
(b)	Priority guidelines to promote the economic health and quality of the visitor industry:				
(1)		Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawai'i's residents and visitors.			X
(2)		Encourage the development and maintenance of well- designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.			X
(3)		Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.			X
(4)		Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai'i's significant natural, scenic, historic, and cultural resources.			X
(5)		Develop and maintain career opportunities in the visitor industry for Hawai'i's people, with emphasis on managerial positions.			X
(6)		Support and coordinate tourism promotion abroad to enhance Hawai'i's share of existing and potential visitor markets.			X
(7)		Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.			X
(8)		Support law enforcement activities that provide a safer environment for both visitors and residents alike.			X
(9)		Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.			X
(c)	Priority guidelines to promote the continued viability of the sugar and pineapple industries:				
(1)		Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.			X
(2)		Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawai'i.			X
(3)		Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.			X
(d)	Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:				
(1)		Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.			X
(2)		Assist in providing adequate, reasonably priced water for agricultural activities.			X
(3)		Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.			X
(4)		Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.			X

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(5)	Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawai'i's agricultural community.			X
(6)	Seek favorable freight rates for Hawai'i's agricultural products from interisland and overseas transportation operators.			X
(7)	Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.	X		
(8)	Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.			X
(9)	Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.			X
(10)	Support the continuation of land currently in use for diversified agriculture.	X		
(e)	Priority guidelines for water use and development:			
(1)	Maintain and improve water conservation programs to reduce the overall water consumption rate.	X		
(2)	Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.	X		
(3)	Increase the support for research and development of economically feasible alternative water sources.			X
(4)	Explore alternative funding sources and approaches to support future water development programs and water system improvements.	X		
(f)	Priority guidelines for energy use and development:			
(1)	Encourage the development, demonstration, and commercialization of renewable energy sources.	X		
(2)	Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.			X
(3)	Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.			X
(4)	Encourage the development and use of energy conserving and cost-efficient transportation systems.			X
(g)	Priority guidelines to promote the development of the information industry:			
(1)	Establish an information network that will serve as the catalyst for establishing a viable information industry in Hawai'i.			X
(2)	Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			X
(3)	Encourage the development of small businesses in the information field such as software development, the development of new information systems and peripherals, data conversion and data entry services, and home or cottage services such as computer programming, secretarial, and accounting services.			X
(4)	Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			X
(5)	Encourage research activities, including legal research in the information and telecommunications fields.			X

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(6)	Support promotional activities to market Hawai'i's information industry services.			X
Discussion: An Economic Resource Assessment was conducted (*Appendix B)* to evaluate the range of community-based economic opportunities with the development of a Kuleana Homestead in Anahola. Subsistence Agriculture and Pastoral lots will maintain food security for lessees. A surplus of crops may be sold at local Farmer's Markets or through the formation of an agricultural cooperative. The development of a Kuleana Homestead in Anahola is in alignment with the State's planning advancements to expand economic growth and job opportunities in agricultural activity helping diversify and reinvest in the local economy.				
§226-104 Population growth and land resources priority guidelines.				
(a)	Priority guidelines to effect desired statewide growth and distribution:			
(1)	Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai'i's people.			X
(2)	Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i's people.			X
(3)	Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	X		
(4)	Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.	X		
(5)	Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.			X
(6)	Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.			X
(7)	Support the development of high technology parks on the neighbor islands.			X
(b)	Priority guidelines for regional growth distribution and land resource utilization:			
(1)	Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.			X
(2)	Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.			X
(3)	Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.			X
(4)	Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			X
(5)	In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.			X
(6)	Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.			X

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(7)	Pursue rehabilitation of appropriate urban areas.			X
(8)	Support the redevelopment of Kaka'ako into a viable residential, industrial, and commercial community.			X
(9)	Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.			X
(10)	Identify critical environmental areas in Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.			X
(11)	Identify all areas where priority should be given to preserving rural character and lifestyle.	X		
(12)	Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	X		
(13)	Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources.			X
Discussion: The purpose of the Anahola Kuleana Homestead Settlement Plan is to support the mission of the DHHL. The proposed Project provides opportunities to practice indigenous livelihoods and apply natural law on indigenous land for lessees to preserve and manage the land properly.				
§226-105 Crime and criminal justice. Priority guidelines in the area of crime and criminal justice:				
(1)	Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.			X
(2)	Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			X
(3)	Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.			X
(4)	Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			X
(5)	Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			X
(6)	Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead Lots to beneficiaries. The priority guidelines in the area of crime and criminal justice are not applicable to the proposed Project.				
§226-106 Affordable housing. Priority guidelines for the provision of affordable housing:				
(1)	Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.			X
(2)	Encourage the use of alternative construction and development methods as a means of reducing production costs.	X		

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(3)	Improve information and analysis relative to land availability and suitability for housing.				X
(4)	Create incentives for development which would increase home ownership and rental opportunities for Hawai'i's low- and moderate-income households, gap-group households, and residents with special needs.				X
(5)	Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai'i's people for the purchase of initial owner- occupied housing.				X
(6)	Encourage public and private sector cooperation in the development of rental housing alternatives.				X
(7)	Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.				X
(8)	Give higher priority to the provision of quality housing that is affordable for Hawai'i's residents and less priority to development of housing intended primarily for individuals outside of Hawai'i.				X
Discussion: The purpose of the Project is to provide Kuleana Homestead Lots to beneficiaries. The development of a Kuleana Homestead takes into consideration the long lead times required for securing infrastructure financing, major difficulty in obtaining new monies for development, the need for DHHL to seek innovative solutions in order to increase the pace of distribution of lands, and allow native Hawaiian Beneficiaries opportunities for self-sufficiency and self-determination.					
§226-107 Quality education. Priority guidelines to promote quality education:					
(1)	Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;				X
(2)	Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;				X
(3)	Initiate efforts to improve the quality of education by improving the capabilities of the education work force;				X
(4)	Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities;				X
(5)	Increase and improve the use of information technology in education by the availability of telecommunications equipment for:				
	(A)	The electronic exchange of information;			X
	(B)	Statewide electronic mail; and			X
	(C)	Access to the Internet. Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;			X
(6)	Pursue the establishment of Hawai'i's public and private universities and colleges as research and training centers of the Pacific;				X
(7)	Develop resources and programs for early childhood education;				X
(8)	Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and				X
(9)	Strengthen and expand educational programs and services for students with special needs.				X
Discussion: The purpose of the Project is to provide Kuleana Homestead Lots to beneficiaries. The priority guidelines in the area of education are not applicable to the proposed Project.					

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§226-108 Sustainability. Priority guidelines and principles to promote sustainability shall include:				
(1)	Encouraging balanced economic, social, community, and environmental priorities;	X		
(2)	Encouraging planning that respects and promotes living within the natural resources and limits of the State;	X		
(3)	Promoting a diversified and dynamic economy;	X		
(4)	Encouraging respect for the host culture;	X		
(5)	Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;	X		
(6)	Considering the principles of the ahupuaa system; and	X		
(7)	Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai'i.	X		
Discussion: The Anahola Kuleana Homestead Settlement Plan supports the overall direction of the State in the area of sustainability. The development of Subsistence Agricultural and Pastoral homestead lots will provide opportunities for lessees to practice indigenous livelihoods rooted in agriculture to sustain food security and economic profit. The return to an agriculture-based livelihood will contribute to the diversification and balancing of Hawai'i's economy. Natural laws will be returned to indigenous lands with lessees taking on the role of managing their homestead community to properly sustain its natural resources. Areas around water ways designated as Special District will remain undeveloped to promote the restoration of native plants. The intention of the Kuleana Homestead in upper Anahola is to further create a contemporary ahupua'a with the Anahola Town Center Master Plan.				
§226-109 Climate change adaptation priority guidelines. Priority guidelines to prepare the State to address the impacts of climate change, including impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas; natural and cultural resources; education; energy; higher education; health; historic preservation; water resources; the built environment, such as housing, recreation, transportation; and the economy shall:				
(1)	Ensure that Hawai'i's people are educated, informed, and aware of the impacts climate change may have on their communities;	X		
(2)	Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;	X		
(3)	Invest in continued monitoring and research of Hawai'i's climate and the impacts of climate change on the State;			X
(4)	Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;	X		
(5)	Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change;			X
(6)	Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments;	X		
(7)	Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options;	X		

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(8)	Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities;	X		
(9)	Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans; and			X
(10)	Encourage planning and management of the natural and built environments that effectively integrate climate change policy.	X		
Discussion: If not specifically educated, informed and aware of the impacts climate change may have on their community, the people of Kaua'i know that they want to be protected and ready in the event of a natural disaster. A Resilience Hub has been proposed for Community Use areas in the event of a natural disaster as a means of protecting the people of Anahola. This EA has integrated and identified the threats of climate change to the resilience in *Chapter 3.*				

5.2 Hawai'i 2050 Sustainability Plan

The long-term strategy of the Hawai'i 2050 Sustainability Plan is supported by its main goals and objectives of respect for culture, character, beauty, and history of the State's island communities; balance among economic, community, and environmental priorities; and an effort to meet the needs of the present without compromising the ability of future generations to meet their own needs.

The 2050 Plan delineates five goals toward a sustainable Hawai'i accompanied by strategic actions for implementation and indicators to measure success or failure. The goals and strategic actions that are pertinent to the Anahola Kuleana Homestead Settlement Plan are as follows:

Goal One: A Way of Life - Living sustainably is part of our daily practice in Hawai'i. Strategic Action: Develop a sustainability ethic.

Goal Two: The Economy - Our diversified and globally competitive economy enables us to meaningfully live, work, and play in Hawai'i. Strategic Actions: Develop a more diverse and resilient economy; Support the building blocks for economic stability and sustainability; and Increase the competitiveness of Hawai'i's workforce.

Goal Three: Environment and Natural Resources - Our natural resources are responsibly and respectfully used, replenished, and preserved for future generations. Strategic Actions: Reduce reliance on fossil (carbon-based) fuels; Conserve agricultural, open space and conservation lands and resources.

Goal Four: Community and Social Well-Being - Our community is strong, healthy, vibrant and nurturing, providing safety nets for those in need. Strategic Action: Strengthen social safety nets.

Goal Five: Kanaka Maoli Culture and Island Values - Our Kanaka Maoli and island cultures and values are thriving and perpetuated. Strategic Actions: Honor Kanaka Maoli culture and heritage; Celebrate our cultural diversity and island way of life; Enable Kanaka Maoli and others to pursue traditional Kanaka Maoli lifestyles and practices; and Provide support for subsistence-based businesses and economics.

Discussion: The Anahola Kuleana Homestead Settlement Plan is consistent with the State's Sustainability Plan. As the Kuleana Homestead Program is intended to rehabilitate native Hawaiians by providing opportunities for self-sufficiency and self-determination, raw land is being offered to beneficiaries to live on, grow food to sustain their family, and utilize for economic purposes. As a subsistence-based community, the primary purpose of these homestead lands is to preserve and promote unique traditional subsistence practices, which provides homesteaders with the opportunity to sustain themselves by growing food for their family as well as selling surplus for profit. Overall, the proposed Project will address many of the social issues Native Hawaiians are continuing to face and provide opportunities for upward social mobility. The proposed Project will not only diversify and provide economic stability for Hawai'i, but it will reconnect lessees to their agricultural roots and restore traditional agricultural practices in Anahola.

5.3 Hawai'i State Land Use District Guidelines

State Land Use Districts are established by the State Land Use Commission in accordance with the State of Hawai'i Land Use Law, *HRS §205*. The intent of the law is to regulate the classification and uses of lands in the State in order to accommodate growth and development as needed, and to retain and protect important agricultural and natural resources areas. All state lands are classified as Urban, Rural, Agricultural, or Conservation, with consideration given to county general and development plans in determining the classification.

Discussion: The proposed Project site is located within the State designated Agricultural District (*Figure 1.3*). As the Project is within DHHL lands, it is not subject to statutes controlling land use Pursuant to the *Hawaiian Homes Commission Act (HHCA) §206*, which stipulates, "The powers and duties of the governor and the board of land and natural resources, in respect to lands of the State, shall not extend to lands having the status of Hawaiian home lands, except as specifically provided in this title." Therefore, the HHC is the authority that determines its land use designations and governs the allowable use and activities within the parcel.

5.4 Hawai'i Coastal Zone Management Program

The Coastal Zone Management Program (CZMP) is a comprehensive nationwide program that establishes and enforces standards and policies to guide the development of public and private lands within the coastal areas. In the State of Hawai'i, the CZMP is articulated in the State Coastal Zone Management (CZM) law in *HRS §205A*. The State CZM objectives and policies address ten subject areas. These subject areas include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources. Virtually all relate to potential development impacts on the shoreline, near shore, and ocean area environments. The objectives of the program are to reduce coastal hazards and to improve the review process for activities proposed within the coastal zone.

Each county is responsible for designating a SMA that extends inland from the shoreline. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the Hawai'i CZM Program.

Discussion: *HRS §205A* requires all state and county agencies to enforce Hawai'i CZM objectives and policies as set forth in *HRS §205A-2*. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the CZM Program. The entire Settlement Plan Area is outside the SMA as delineated by the County of Kaua'i *(Figure 1-5)* and as such, does not require an SMA Use Permit.

The following table addresses the applicability of the objectives/policies of the Settlement Plan Area in relation to the ten subject areas listed above.

Subject Area	Objective/Policy
Recreational resources	The proposed Project is limited to an upland area on the island, and will not affect existing fishing, surfing or other coastal recreational opportunities accessible to the public. The planned Settlement Plan Area will not affect coordination and funding of coastal recreation planning and management. Anahola Beach Park and the numerous beaches in the Kapa'a direction combine to make this area a prime recreational area for residents as well as a unique tourist attraction. The planned improvements are not expected to adversely affect recreational activities at nearby beaches.
Historic resources	The Anahola Kuleana Homestead Settlement Plan will have no adverse effect on natural or manmade historic or prehistoric resources. Preservation activities, undertaken by the Homestead Association, will have a beneficial impact on historic properties that are presently abandoned, and in danger of decay and encroachment by invasive vegetation.
Scenic and open space resources	The Anahola Kuleana Homestead Settlement Plan will not adversely impact scenic or open space resources. Once developed, the proposed Settlement Plan Area would not be visible from Anahola Beach Park or other nearby coastal recreational resources. Neither short-term construction activities, nor long-term homesteading activities would disrupt ongoing use of the park or access to the shoreline.
Coastal ecosystems	The Project will not adversely impact coastal ecosystems or water quality. The Project is located in the upland area of Anahola. Best management practices and erosion control measures will be employed during construction activities to minimize soil loss and control erosion and discharge from the site. There will not be a net increase in runoff from the site.
Economic uses	The Project is providing a facility that is in a suitable location, and will not negatively impact the state's economy. The location is not coastal dependent.
Coastal hazards	The Project site is not within an area vulnerable to tsunami, storm waves, stream flooding, erosion, subsidence or pollution.
Managing development	Project activities will be conducted in compliance with Hawai'i State and Kaua'i County environmental rules and regulations. This EA identifies and, where necessary, proposes mitigation measures to address anticipated impacts from the construction and operation of the Project.
Public participation	The Project has no impact on this specific CZM objective. An early consultation notice was sent to several federal, state and county agencies and community organizations. In addition, two DHHL beneficiary consultation meetings were conducted on August 28th, 2019, and on November 13th, 2019 to share and receive input and feedback on concepts. The Draft EA was distributed to these same agencies and groups, and the 30-day public review period allowed for public participation and input regarding the proposed Project.
Beach protection	The Project is not anticipated to result in adverse effects to local beaches, nor should it affect public use of nearby coastal resources and recreational opportunities.
Marine resources	The Project will not impact the protection or use of marine and coastal resources. During construction, best management practices will mitigate erosion and runoff from the homestead lots.

5.5 State Water Projects Plan

The Engineering Division of the Department of Land and Natural Resources (DLNR) has accountability for State projects and is responsible for the preparation of the State Water Projects Plan (SWPP) in conjunction with the Commission on Water Resource Management (CWRM) and other State agencies. The purpose of the SWPP is to provide a framework for planning and implementation of water development programs to meet projected demands for State projects over a 20-year planning horizon. The objective of the SWPP is to review current and future state water projects to ensure orderly authorization and development of the state's water resources. The contents of the SWPP include, but are not limited to:

- An inventory of existing State wells, stream diversions and water systems;
- Identification of proposed State projects/developments;
- Assessment of future water demand projections;
- A water development strategy, strategy implementation and recommendations; and
- Incorporation of State agricultural water needs as outlined in the State's Agricultural Water Use and Development Plan (AWUDP).

The first SWPP report was completed in 2000, and a revised SWPP report was completed in 2003. Due to budgetary constraints, DLNR decided that only DHHL projects would be considered for the 2017 update of the SWPP. DHHL was selected for the following reasons: DHHL possesses one of the largest areas of land of all State agencies and thus could have significant impact and requirements on water resources; and water needs of DHHL are Public Trust uses of water and have a special protection and priority in the water code. The most recent SWPP was revised in June 2020.

Discussion: The SWPP water development strategy objective was to provide more effective planning, coordination, and development of water resources to meet projected DHHL water demands. It is understood that the mauka Anahola General Ag lands listed in the KIP can be sufficiently irrigated by ambient rainfall, and the Kamalomalo'o Valley Sub Ag lands can possibly be supplied by ditches. DHHL has indicated that there are ditches and a reservoir throughout the lands that can divert water from Anahola Stream. The 2004 AWUDP states that Anahola Ditch Irrigation System, which was one of the systems acknowledged but not studied, has basically been abandoned. The 2019 AWUDP update addresses the feasibility of reinstating the system and proposes a Capital Improvement Projects program to repair the ditch system. Both the 2017 and 2020 SWPP recommend reinstating the Anahola Irrigation System. DHHL has initiated an investigation and consulted with beneficiaries of the Anahola Ditch Irrigation System to further determine if and how it can be repaired, and what might be the appropriate distribution system for the Kuleana Homestead residents. Approval of the method for ditch restoration was not available at the time of publication for this EA. A formal water master plan may be the next step for analysis and design of improvements desired.

5.6 Hawaiian Homes Commission Act

The purpose of the Hawaiian Homes Commission, enacted by Congress in 1920 through the HHCA, is to "provide for the rehabilitation of the native Hawaiian people through a government-sponsored homesteading program." The responsibility of the Hawaiian Home Lands trust was transferred to the State in 1959, when the HHCA was incorporated as a provision in the State Constitution. Today, the State's DHHL now manages and administers the Hawaiian Home Lands trust, which provides homestead leases and loans for residential, agricultural, and pastoral purposes. The specific goals and objectives of the HHCA as administered through DHHL are laid out in the DHHL General Plan.

Discussion: The project is consistent with the applicable objectives and policies of the HHCA.

5.7 DHHL General Plan

DHHL has developed a three-tiered planning system to guide planning of its land holdings and policies for resource management, and for the benefit of current and future beneficiaries. The planning system includes an over-arching General Plan, followed by Strategic Program Plans and Island Plans in the second tier, and Regional and Development Plans in the third tier.

The General Plan, approved by the HHC in February 2002, is a statewide plan with a long-term perspective that established seven categories of goals and objectives to meet DHHL's mission. The seven categories are: Land Use Planning, Residential Uses, Agricultural and Pastoral Uses, Water Resource, Land Resource Management; Economic Development; and Building Healthy Communities. The following goals and objectives relevant to the Project are as follows:

Land Use Planning

Goals:

- Utilize Hawaiian Home Lands for uses most appropriate to meet the needs and desires of the beneficiary population.
- Encourage a balanced pattern of contiguous growth into urban and rural growth centers.
- Develop livable, sustainable communities that provide space for or access to the amenities that serve the daily needs of its residents.

Objectives:

- Provide space for and designate a mixture of appropriate land uses, economic opportunities, and community services in a native Hawaiian-friendly environment.
- Develop improved relationships with the Counties to ensure reliable and adequate delivery of services to homesteaders.

Agricultural and Pastoral Uses

Goals:

- Increase the number of agricultural and pastoral leases awarded each year.
- Provide infrastructure, technical assistance and financial support commensurate with the intended uses of agricultural and pastoral lots.
- Provide agriculture and pastoral commercial leasing opportunities for beneficiaries.
- Conserve the most productive agriculture lands for intensive agriculture and pastoral use.

Objectives:

- Provide agriculture and pastoral homestead lots for subsistence and supplemental purposes.
- Establish minimum infrastructure requirements for agricultural and pastoral leases.

Water Resources

Goals:

- Provide access to quality water in the most cost-effective and efficient manner.
- Ensure the availability of sufficient water to carry out the mission of Hawaiian Home Lands.
- Aggressively exercise and protect Hawaiian home land water rights.

Objectives:

- Establish water partnership arrangements.
- Identify and establish a clear understanding of existing water resources available to the Hawaiian Home Lands Trust.
- Implement State water use plans, rules, and permits to ensure access to water resources for current and future uses on Hawaiian home lands.

Land and Resource Management

Goals:

- Be responsible, long-term stewards of the Trust's lands and the natural, historic and community resources located on these lands.

Objectives:

- Preserve and protect significant natural, historic and community resources on Trust lands.
- Manage interim land dispositions in a manner that is environmentally sound and does not jeopardize their future uses.

Building Healthy Communities

Goals:

- Empower the homestead associations to manage and govern their communities.
- Establish self-sufficient and healthy communities on Trust lands.

Objectives:

- Build partnerships with public and private agencies to ensure reliable and adequate delivery of services to homesteaders.
- Establish and implement a planning system that increases beneficiary participation in the development and use of Hawaiian home lands and improves communications between DHHL and the beneficiary community.

Discussion: The Anahola Kuleana Homestead Settlement Plan is consistent with the DHHL General Plan. The Anahola lands would have excessive costs to develop due to topography and distance to existing utilities; thereby designating this area under the Kuleana Homestead Program provides the most appropriate use and provides an opportunity for beneficiaries to manage their lands and deliver homestead lots at a faster rate than traditional homestead development. Establishing land use as Subsistence Agriculture, Pastoral, Community Use and Special District designates a mixture of appropriate land uses, economic opportunities, and community services in a native Hawaiian-friendly environment. With these designations, the number of agricultural and pastoral leases awarded each year will increase on land that is already agriculturally productive. Areas identified for Subsistence Agriculture and Pastoral are intended for lifestyle purposes and for people who may want to supplement their food resources or incomes with agriculture as a secondary economic activity. The Kuleana Homestead Program also requires the beneficiaries to work together as long-term stewards of the natural, historic and community resources of the area.

The program is designed for the beneficiary who can handle the rigors of an "off-grid", subsistence living lifestyle. In addition, the lessee must agree to participate as an active member in the Kuleana Homestead Association and to comply with rules developed and agreements entered into by the Kuleana Homestead Association.

5.8 DHHL Strategic Program Plans

The second planning tier at DHHL includes completed or developing Strategic Program Plans, focusing on five statewide programs and policies: Native Hawaiian Development, Cultural and Natural Resources, Energy, Water Policy and Agriculture. The Strategic Program Plans provide strategic direction, implementing actions, and budgets for major program areas for the near-term three to five-year period based on the goals and objectives of the General Plan. Of the completed Program Plans, the Energy, Native Hawaiian Development, and Water Policies are applicable to the development of the proposed Project.

Hoʻomaluō Energy Policy

Objective 1 Mālama ʻāina: Respect and protect our native home lands.

Activities:

- Develop, implement, and maintain plans to reduce DHHL's carbon footprint (reduce greenhouse gas emission).

Objective 2 Koʻo: Facilitate the use of diverse renewable energy resources.

Activities:

- Identify properties in DHHL's land inventory that have potential for renewable energy projects.
- Encourage existing and future lessees and licensees of DHHL's properties to design and build their facilities so that they are energy and resource efficient.
- Seek partnerships for the development of renewable energy resources. In this connection, build relationships that could assist DHHL on non-energy related issues.

Objective 3: Kūkulupono: Design and build homes and communities that are energy efficient, self-sufficient and sustainable.

Activities:

- Strive to plan, design, and build new communities utilizing the "ahupuaʻa" concept and the "Green Communities" program. (The Green Communities program's criteria are designed to provide a cost effective approach and standard for creating healthy, affordable, and environmentally responsible homes and communities.

Native Hawaiian Development Program Plan

I. Individual Development

Goal:

Provide opportunities for native Hawaiians to obtain the knowledge and skills that will increase their ability to earn a living, become self-sufficient, or secure and make better use of their homestead award.

Implementation Actions for 2012-2014:

1.2 Homesteading Opportunities Assistance Program (H.O.A.P.)

Objective: Revive, expand, and rebrand the existing "Homeownership Assistance Program" into the "Homestead Opportunities Assistance Program," to assist all beneficiaries.

Expansion and enhancement of the program may include technical assistance in residential, agricultural, pastoral, and aquaculture homesteading. Evaluation indicators to measure program outcomes and results will need to be developed for each Implementation Action.

1.2.2 Agricultural Technical Assistance

Provide educational and technical assistance programs to Hawaiian Home Lands agricultural lessees. The objective of the program is to increase the number of successful homesteaders in agricultural enterprises by increasing their knowledge and training in commercial and subsistence agricultural production, best management practices, business planning, processing, and marketing on Kauai, Molokai and Hawaii Islands.

Homestead farmers have expressed the need to have more input into the program's direction and scope of work to make effective use of limited resources (technical assistance, land, loans, project support) in accordance with intent (farm plan) and capabilities (experience, financing).

1.2.3 Pastoral Technical Assistance

Provide educational and technical assistance programs to Hawaiian Home Lands Pastoral homestead lessees. The objective of the program is to increase the number of successful homesteaders in pastoral enterprises by increasing their knowledge and training in commercial and subsistence pastoral production, best management practices, marketing, financial and business skills. Current technical assistance includes group training in food productions, disease control, best management practices, business planning, processing, and marketing on Kauai, Molokai, and Hawaii Islands.

Homestead rangers have expressed the need to have more input into the program's direction and scope of work to make effective use of limited resources (technical assistance, land, loans, project support) in accordance with intent (ranch plan) and capabilities (experience, financing).

Water Policy Plan

- Policy 6. Foster self-sufficiency of beneficiaries by promoting the adequate supply of water for homesteading when developing or managing water.
- Policy 7. Foster the self-determination of beneficiaries by seeking ways for beneficiaries to participate in the management of water by delegating authority related to water subject to the discretion of the HHC as described in the HHCA.
- Policy 8. Make water decisions that incorporate traditional and place-based knowledge of our people and are clear and methodical in their reasoning.
- Policy 12. Explicitly consider water availability and the costs to provide adequate water when developing new homestead areas, designating land uses, issuing land dispositions, or exchanging properties.

Discussion: The Anahola Kuleana Homestead Settlement Plan encompasses the DHHL's Strategic Program Plans. The proposed Project allows lessees to reconnect with their agricultural roots with opportunities of self-sufficiency and self-determination by means of agriculture production and the provision of water. Community Use areas provide a variety of opportunities for lessees and the function of Community Use areas will be determined by future lessees. Beneficiaries have voiced their preferences for Community Use areas which include the possibility of a cultural learning center where lessees receive guidance and assistance for their Subsistence Agriculture and Pastoral lots and the option of providing a space for renewable energy production. Both are aligned with the DHHL's Strategic Plan Programs.

5.9 DHHL Kaua'i Island Plan

The project area is located on Hawaiian Home Lands trust on Kaua'i Island; therefore, the project must adhere to guidelines provided by the DHHL Kaua'i Island Plan. The proposed development is situated within the Pastoral, Subsistence Agriculture, and Special Districts, thus corresponding development standards must be followed.

Pastoral designations are meant for large lot, pastoral usage. Subsistence Agriculture designations are meant for small lot agricultural production for home consumption. The Special District designations are defined as areas requiring attention because of unusual opportunities and/or constraints, such as natural hazard areas, open spaces, and raw lands far from infrastructure.

Discussion: Anahola has been recognized as the largest residential homestead area on Kaua'i in the DHHL Kaua'i Island Plan. According to a community-wide survey conducted for the Kaua'i Island Plan, the majority (71%) of agriculture applicants prefer a lot that is five acres or less, to use for small-scale agriculture operations or a home garden. In addition, beneficiary preference is for small pastoral lots, less than 50 acres in size. Agriculture and pastoral applicants also voiced a preference to live on their homesteads. The Kuleana Homestead lots to be awarded in Anahola are designated as Subsistence Agriculture and Pastoral, two acres and ten acres, respectively. The Kuleana Homestead is in alignment with the Kaua'i Island Plan's vision of a Subsistence Agriculture and Pastoral homestead located mauka of Kūhiō Highway serving as a component for the envisioned contemporary ahupua'a.

5.10 Kaua'i County General Plan

The Kaua'i Kākou, the 2018 Kaua'i County General Plan, establishes priorities for managing growth and community development over a 20-year planning timeframe. The plan guides future action concerning land use and development regulations, urban renewal programs, and expenditures for capital improvements. Nineteen policies address the issues most important to Kaua'i residents in the face of existing issues and future growth. Policies applicable to the Settlement Plan Area include, but are not limited to, the following:

- Manage Growth to Preserve Rural Character
- Provide Local Housing
- Recognize the Identity of Kauai's Individual Towns and Districts
- Help Agricultural Lands be Productive
- Respect Native Hawaiian Rights and Wahi Pana

Community Planning guidance is also provided for East Kaua‘i. Applicable goals include:

- Accommodate East Kaua‘i’s projected housing needs
- Ensure that East Kaua‘i is resilient to Climate Change and coastal hazards
- Support DHHL’s Island General Plan and Anahola Plan
- Support DHHL in their mission to provide housing to their beneficiaries.

Within the Opportunity & Health for All Sector, Community access is addressed in the “Increasing Access to Privately Owned Recreational Space” subsection. The subsection's objective is to actively protect, restore, and increase access to the places where recreational and subsistence activity occur. Given the project's proximately to State-owned land within the conservation district, there is an opportunity to further the following actions:

- Inventory and improve hunting access to Forest Reserves and government trails.
- Focus trail acquisition in areas with a low number of public trails compared to the population, including South Kaua‘i, Līhu‘e, Anahola, and Hanapēpē-Ele‘ele.
- Increase opportunities for access to subsistence hunting, fishing, and gathering.

Discussion: DHHL will work with the County of Kaua‘i to ensure the Anahola Plan is compatible with the area’s Community Plan. However, pursuant to the *HHCA §206*, Hawaiian home lands are not subject to zoning or other land use controls by the County.

5.11 East Kaua‘i Community Plan

There is no current East Kaua‘i Community Plans which cover the Settlement Plan Area. Community Plan means a public document that provides specific proposals for future land uses, developments, and public improvements in a given community within the county of Kaua‘i. In the 2000 General Plan, community plans were referred to as “development Plans.” Community plans are intended to be region specific and capture the community’s vision for the area. The County is in the process of updating its 1973 Kapa‘a-Wailua Development Plan and will include the Anahola area as part of its planning effort.

5.12 County of Kaua‘i Comprehensive Zoning Ordinance

The County of Kaua‘i’s Comprehensive Zoning Ordinance (CZO) provides regulations and standards for land development and the construction of buildings and other structures in the County of Kaua‘i. These regulations and standards prescribed are intended to regulate development to ensure its compatibility with the overall character of the island. The CZO was initially adopted in 1972. Since that time, there have been several amendments to specific provisions. The County concluded the first of two phases of an effort to update the CZO with amendments adopted on December 3, 2012 (Ordinance No. 935). Ordinance No. 935 is the newly adopted zoning code for the County of Kaua'i and will serve as the official zoning code until the County completes the second phase of the project.

Discussion: The Settlement Plan Area is zoned Agriculture by the County of Kaua'i. This zoning is consistent with the Area's current State Land Use designation as Agricultural. The CZO defines agriculture as the breeding, planting, nourishing, caring for, gathering and processing of any animal or plant organism for the purpose of nourishing people or any other plant or animal organism; or for the purpose of providing the raw material for non-food products. Single family detached dwellings are a permitted use within the agricultural district of the CZO.

5.13 Special Management Area Rules and Regulations of the County of Kaua'i

The SMA is a designation established to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai'i. Special controls on developments within the SMA area are necessary to avoid permanent loss of valuable resources and foreclosure of management options. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the CZM Program. The SMA guidelines of Section 4.0 of the Special Management Area Rules and Regulations of the County of Kaua'i (2011) are used by the Director of the Planning Commission for the review of developments proposed in the SMA. These guidelines are derived from *HRS § 205A-22*.

Discussion: The SMA boundary for the Settlement Plan Area is shown in *Figure 1-5 and* is outside the SMA. The development within the Settlement Plan Area is not expected to have any substantial, adverse environmental or ecological effect. Any adverse effect will be minimized to the extent practicable, including the potential cumulative impact of individual developments.

Section 6

Findings Supporting the Anticipated Determination

Chapter 6

Findings Supporting the Anticipated Determination

6.1 Anticipated Determination

Based on a review of the significance criteria outlined in *HRS, Chapter 343 and Hawai'i Administrative Rules, Section 11-200.1-13*, development of the Settlement Plan Area has been determined to not result in significant adverse effects on the natural or human environment. A FONSI is anticipated.

6.2 Reasons Supporting the Anticipated Determination

The potential impacts of the development have been fully examined and discussed in this EA. As previously stated, there are no significant environmental impacts expected to result from the project. This determination is based on the assessments as presented below for criterion (1) to (13).

(1) Irrevocably commit a natural, cultural, or historic resource.

The archaeological and cultural landscapes have been documented in studies conducted specifically for the project area. As detailed in *Section 3.13* of this report, the project does not involve any known loss or destruction of existing natural, cultural, archaeological or historical resources. There is the unknown potential for the inadvertent discovery of subsurface historical or cultural resources, including the unknown possibility of iwi kūpuna (ancestral remains). If any cultural or archaeological resources are unearthed or ancestral remains are inadvertently discovered, the DLNR, SHPD, the O'ahu Island Burial Council representative and participating interests from lineal descendants and individuals will be notified. The treatment of these resources will be conducted in strict compliance with the applicable historic preservation and burial laws.

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

The project will not curtail the range of beneficial uses of the environment. Although the project is located on DHHL-owned land, which is not subject to County land use regulations, proposed uses conform to existing land use designations. The project will provide a beneficial effect, following the mission set by the DHHL of delivering lands to native Hawaiians.

(3) Conflict with the State's environmental policies or long-term environmental goals established by law.

The project does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in *HRS §344*, and any revisions thereof and amendments thereto, court decisions, or executive orders.

(4) Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.

The project will benefit the economic welfare, social welfare, and cultural practices of the community and State by providing native Hawaiian beneficiaries opportunities to develop and manage their community. Homesteaders will be able return to their traditional agricultural and pastoral roots while sustaining themselves. Opportunities to expand economic agriculture as a community may generate an income for homesteaders. The project is intended to further the development of the Master Plan of Anahola Town Center to create an intact contemporary ahupua‘a.

(5) Have a substantial adverse effect on public health.

The project is consistent with existing land uses and is not expected to affect public health. However, there will be temporary short-term impacts to air quality from possible dust emissions and temporary degradation of the acoustic environment in the immediate vicinity resulting from construction equipment operations. The project will comply with State and County regulations during the construction period and will implement best management practices to minimize temporary impacts.

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

As detailed in *Section 3.11,* although the project will increase the population in Anahola, the increase in population will not incur secondary impacts to public facilities serving the Anahola area. All lessees will be required to pay property taxes on their lot, as applicable under current County of Kaua‘i Ordinance. Wastewater will be managed through DOH-approved individual wastewater systems, so there will be no impact on public wastewater treatment facilities. Similarly, water will most likely be supplied by individual catchment systems, so that the County water system will not be impacted.

(7) Involve a substantial degradation of environmental quality.

The project will not involve a substantial degradation of environmental quality. Long-term impacts to air and water quality, noise, and natural resources are not anticipated. The use of standard construction and erosion control BMPs will minimize the anticipated construction-related short-term impacts.

(8) Be individually limited but cumulatively have substantial adverse effect upon the environment or involved a commitment for larger actions.

The project will reestablish traditional agricultural and pastoral practices, while also preserving Special District areas around natural streams and drainage areas, providing an overall general improvement to the environment. This project does not require or influence a commitment for larger actions.

(9) Have a substantial adverse effect on a rare, threatened or endangered species, or its habitat.

The project site does not contain known identified rare, threatened, or endangered species or habitat. As outlined in *Section 3.7,* tree disturbance will be timed outside of the bat birthing and pup rearing season to avoid potential impacts to Hawaiian hoary bats. Further, measure to avoid potential impacts to Hawaiian seabirds are identified in *Section 3.7,* in the unlikely event that they may nest within the project area. No impacts are anticipated.

(10) Have a substantial adverse effect on air or water quality or ambient noise levels.

General temporary impacts associated with construction are identified in *Chapter 3* of this EA. Mitigation measures which are outlined in this EA will be applied during the on-going construction activity. No detrimental long-term impacts to air, water, or acoustic quality are anticipated with the project improvements. The improvements are not anticipated to detrimentally affect air or water quality or ambient noise levels.

(11) Have a substantial adverse effect on or be likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

The project is not located in an environmentally sensitive area. It is located outside of the flood plain, tsunami zone, beach area, geologically hazardous land, estuary and coastal water. No impact is anticipated.

(12) Have a substantial adverse effect on scenic vistas and viewplanes, during day or night, identified in county or state plans or studies.

The project involves the conversion of invasive albizia forest into Pastoral and Subsistence Agricultural lots. Lessees may build single family homes on their lots. Felling of the albizia will have a positive impact on viewsheds by removing trees that may obstruct coastal views and scenic vistas. Views mauka to Kalalea mountain are not expected to be obstructed. No significant adverse impacts are anticipated.

(13) Require substantial energy consumption or emit substantial greenhouse gases.

The new agricultural activities and homes will require an increase in energy consumption, but nothing more substantial when compared to other similar projects. The impact to local energy sources is not anticipated, as the project is expected to primarily rely on alternative energy sources such as photovoltaic systems.

Section 7

List of Agencies, Organizations and Individuals Receiving Copies of the EA

Chapter 7

List of Agencies, Organizations and Individuals Receiving Copies of the EA

7.1 Consultation List

Early consultation on the Anahola Kuleana Homestead Settlement Plan has been carried out with various agencies and stakeholders as part of the scoping process for this Project. Parties contacted in preparation of the Draft EA process and those that were provided an opportunity to review the Draft EA are identified below.

Table 7-1 Agencies, Organizations and Individuals Receiving Copies of the EA

Respondents and Distribution	Early Consultation	Receiving Draft EA	Draft EA Comments Received
Federal Agencies			
U.S. Fish and Wildlife Service		X	
U.S. National Resources Conservation Service		X	
State of Hawai'i Agencies			
Department of Agriculture		X	
Department of Accounting and General Services		X	
Department of Business, Economic Development & Tourism (DBEDT)		X	
DBEDT, Office of Planning		X	
Department of Health (DOH)		X	
DOH, Clean Water Branch		X	
DOH, Wastewater Branch		X	X
Department of Land and Natural Resources (DLNR), Land Division		X	
DLNR, Commission on Water Resources Management (CWRM)		X	X
DLNR, Division of Aquatic Resources (DAR)			X
DLNR, Division of Forestry and Wildlife (DOFAW)			X
DLNR, Engineering Division		X	
DLNR, Land Division		X	

Table 7-1 Agencies, Organizations and Individuals Receiving Copies of the EA			
Respondents and Distribution	**Early Consultation**	**Receiving Draft EA**	**Draft EA Comments Received**
DLNR, State Historic Preservation Division (SHPD)		X	
DLNR, SHPD, Kaua'i-Ni'ihau Island Burial Council		X	
State of Hawai'i Agencies			
DLNR, Office of Conservation and Coastal Lands		X	
Department of Transportation		X	X
Office of Hawaiian Affairs		X	
Office of Hawaiian Affairs, Kaua'i Office		X	
County of Kaua'i Agencies			
Department of Water		X	
Fire Department	X	X	X
Housing Agency	X	X	
Kaua'i Emergency Management Agency		X	
Kaua'i Historic Preservation Review Commission		X	
Office of Economic Development		X	
Planning Department	X	X	X
Police Department		X	
Public Works Department		X	X
Transportation Agency		X	
Elected Officials			
Senator Ronald D. Kouchi – Senate District 8		X	
Representative Nadine Nakamura – House District 14		X	
Mayor Derek Kawakami		X	
Council Chair Arryl Kaneshiro		X	
Councilmember Mason K. Chock		X	
Councilmember Bernard P. Carvalho, Jr. (Joined County Council after DEA was published)			
Councilmember Felicia Cowden		X	
Councilmember Bill DeCosta (Joined County Council after DEA was published)			

Table 7-1 Agencies, Organizations and Individuals Receiving Copies of the EA			
Respondents and Distribution	**Early Consultation**	**Receiving Draft EA**	**Draft EA Comments Received**
Elected Officials			
Councilmember Luke A. Evslin		X	
Councilmember KipuKai Kualiʻi		X	
Community and Private Organizations			
ʻAhahui Kiwila Hawaiʻi O Moʻikeha		X	
Anahola Hawaiian Homes Association		X	
Anahola Farmers and Ranchers Association		X	
Cornerstone Holdings, LLC / Riverbend Management		X	
Edward & Erica Taniguchi	X	X	
Frank & Amber Rivera		X	
Gerald Gonsalves			X
Green Energy Team	X	X	
Henry Kupihea	X	X	
John Kaohelaulii			X
Kanuikapono Public Charter School & Learning Center		X	
Kapaʻa Public Library		X	
Leland & Kristy Keale		X	
Nicola Barca			X
Paul Alston			X
Perfecto Llanto	X	X	
Tarey Low	X	X	
Sovereign Council of Hawaiian Homestead Associations (SCHHA)			X

7.2 Summary of Comments

A summary of comments received during the Draft EA comment period by major topics and associated responses is provided in *Table 7-2*. The major comment topics include potable and non-potable water, biological resources, flooding, wastewater, fire code, traffic assessment, Kuleana homestead development, and compliance with plans and policies. Refer to comment letters in *Appendix G*.

Table 7-2 DEA Summary of Comments and Responses		
Comments	**Commenter**	**Responses**
Water		
Recommendation for water efficient fixtures and practices, alternative water sources, BMPs for stormwater management, and coordination with State and County to incorporate Project into ongoing and future water and development plans. The EA should discuss the 2017 State Water Projects Plan. Permits will be required if the Project involves any alteration to stream channels or diversions, or new/expanded diversions. The Project's water demand should be identified and calculated.	DLNR-CWRM	The future Anahola Kuleana Homestead Association will develop its own governing documents that could determine the types of water fixtures and conservation practices they deem are appropriate. The Final EA will identify and provide the calculations used to estimate water demands for the Project. The Final EA will also include a discussion of the 2017 State Water Projects Plan as recommended.
Concern over where water to fill cisterns would be sourced. The EA needs more attention to address structural fires. Water must be made available for emergencies. Concern over access for emergency vehicles.	Fire Department	A helicopter/water tender could collect water from an on-site reservoir. Each homestead lot will be equipped with a rainwater catchment system with accessible standpipe. As discussed in the EA *Section 3.10.5,* roads will comply with the following standards outlined in The National Fire Protection Association's (NFPA) 1141-Standard for Fire Protections Infrastructure for Land Development in Wildland, Rural, and Suburban Areas, in rural areas where water may not be available.
Biological Resources		
Project will not have impacts to aquatic resources as long as BMPS are implemented. Recommends use of erosion control and LBSP barrier measures where excavation or grading will occur.	DLNR-DAR	Runoff from construction will be managed under grading permit requirements. According to Hawai'i Administrative Rules (HAR) §11-55, an NPDES Construction Stormwater permit will be required as grading of the planned improvements will involve one acre or more. The contractors will implement the practice of utilizing erosion control and land-based sources of pollution (LBSP) barrier measures at the project site where there is the opportunity for sediment discharge into nearby waters. Future lessees shall be responsible for all required waste management plans for proper disposal or management of non-domestic and agricultural wastes, as required by rule and statute.

Table 7-2 DEA Summary of Comments and Responses		
Comments	**Commenter**	**Responses**
Recommends use of downward facing and fully shielded lights to prevent impacts to sea birds. Other seabirds not mentioned could potentially inhabit the Project Area. Nene is endangered per State of Hawaii endangered species law. Waterbirds have the potential to occur in the area. Mitigate predator presence, prevent spread of Rapid Ohia Death, and minimize spread of invasive species.	DLNR-DOFAW	A discussion of the DLNR guidelines related to seabird-friendly light styles will be included into the Final EA and will include a discussion of these State-listed water birds that may inhabit the region. The future homestead association may consider developing appropriate mitigation and conservation programs. Mitigation may include actions to minimize predator presence, mitigate the spread of Rapid ʻŌhiʻa Death, and prevent the spread of invasive species; however, these programs must ultimately be determined and approved by the future homestead association.
Flooding		
The valleys and gullies throughout the Project Area are subject to flooding. Amend reference to Storm Water Runoff System Manual, July, 2001.	Public Works Department	The Final EA will update the flood information and amend the reference to the Storm Water Runoff Systems Manual.
Wastewater		
Domestic wastewater generated by the project shall be collected, treated and disposed of in accordance with HAR, Chapter 11-62, "Wastewater Systems." The reuse of effluent for irrigation from individual wastewater systems is currently not allowed under HAR, Chapter 11-62. A cluster wastewater treatment system shall be required to comply with applicable provisions of HAR, Chapter 11-62, Subchapter 2, Wastewater Treatment Works. A wastewater treatment system which serves a commercial kitchen or kitchens in the planned community areas shall also comply with the requirements under HAR, Chapter 11-62, Subchapter 2, Wastewater Treatment Works.	DOH – Wastewater Branch	DHHL acknowledges that any wastewater treatment system which would serve a potential commercial kitchen must comply with the requirements under HAR, Chapter 11-62, Subchapter 2, Wastewater Treatment Works. Any commercial kitchen developed for the project will be equipped with a grease interceptor in accordance with the Uniform Plumbing Code to capture fats, oils, and grease from the kitchen before entering the site's IWS system. Any kind of butcher shop or agricultural processing center will also require pre-treatment to remove solids and oils prior to IWS disposal. "
Plans and Policies		
The EA should discuss the Kauaʻi County General Plan. The County Zoning District of the Project area is Agriculture and Open Space.	Planning Department	Chapter 5 of the EA will include discussion of these County Planning elements.

Table 7-2 DEA Summary of Comments and Responses		
Comments	**Commenter**	**Responses**
Traffic		
A Traffic Assessment or Traffic Impact Analysis Report should be included and should be prepared by a Professional Engineer with State license and traffic expertise. The EA and Traffic Study should include a discussion on the anticipated uses of the Community Use areas.	DOT	The specific uses within the planned Community Use areas are not defined in this EA and will be determined by the future Kuleana Homestead Association. At the time that DOT permits are required for the Project, DHHL will provide relevant data that is collected and analyzed in accordance with DOT standards. Potential impacts and proposed mitigation strategies will be determined.
Kuleana Homestead Development		
Consider issuing lease awards for the Anahola Kuleana Homestead Development either under the Kuleana administrative rules, or to issue through the decades practice of Undivided Interest awards, whichever will expedite awards to waitlist beneficiaries. DHHL should fully disclose the condition of a "Kuleana" lot award. DHHL should NOT predetermine, nor require any "kanawai" (DCC&Rs of a homeowners association), versus a homestead association. We recommend that DHHL NOT predetermine State agency approval for access through our trust lands by anyone to access adjacent, non-trust lands, and instead include in the planning functions of the project, gated access points for such access.	Sovereign Council of Hawaiian Homestead Associations (SCHHA)	DHHL agrees that the future community should determine the form of its governing structure and will not pre-determine or require DCC&Rs, that should be a decision for the future association to make. DHHL also agrees that awards to waitlist applicants for the kuleana homestead should be expedited in order to convene community conversations to develop the community's governing documents. DHHL is currently looking at the pros and cons of all potential options to expedite awards including undivided interest lease tool, however, those discussions are still on-going internally. DHHL also agrees that the future association should determine gated access points to adjacent neighboring lands. Access points should be located in areas that are deemed appropriate by the future homestead community. The specific process and tools of how DHHL will offer awards to interested waitlist applicants will not be explicitly discussed in the context of the EA as the focus of the EA is to assess potential environmental impacts that may be caused by this future homestead development. The EA also identifies potential mitigation measures for potential impacts.
Will lessees be allowed to reside on their lot or can they only farm or raise livestock? It will be difficult to protect the property from thieves without a continual presence. How many buildings are allowed on the property? What size?	Gerald Gonsalves	Lessees are allowed and encouraged to reside on their homestead lot. HAR §10-3-26 allows one residence per lessee on Agricultural or Pastoral Lots within three years of award. In addition, a workers' quarters may be permitted per lessee on Pastoral lots subject to conditions of §10-3-26(c). The maximum structure size will be determined by the future Homestead Association.

Table 7-2 DEA Summary of Comments and Responses		
Comments	**Commenter**	**Responses**
How will lots be assigned? Do you have a future date for awarding lots? Will there be access to any of the streams / reservoirs in that area to pump water? What are installation costs for water and electricity? Will the road be fixed?		The lots will be offered for award in the order of the agricultural and pastoral waitlists for Kaua'i per HAR §10-3-7. There is no definitive timetable for lease award at this time, but it is the intent of DHHL to award as soon as possible. Waitlist applicants will be made aware of award offerings by DHHL. There can be access to the streams and reservoirs within the Project area. Rules related to access will need to be developed by the future homestead association and the decision to pump water will also be at the discretion of the future association. Initial cost projections for water and electric are listed in *Section 2.4 Summary of Projected Costs* of the Final EA. It is currently unknown whether the roads outside the project area will be fixed. It will be necessary to negotiate with the owners of the roads, which are primarily the County of Kaua'i. Information on road development and maintenance within the project area is described in *Section 3.10.5 Traffic and Roadways* of the Final EA.
For this project to be successful, it needs to start organizing a homestead organization(s) now and not in 2022 after the fact. A homestead organization(s) could lease out lands for eco-tourism activities to beneficiary or Native Hawaiian small businesses thus creating opportunities for homesteaders in the area. Having an alternative source and delivery of drinking water not only eases the burden on lessees, but supports the eco-tourism opportunity. Well & Tank site" (77) is recognized as a posable source of water and should have been investigated in the draft. I also had a concern about the decommission of Keālia number 2 & Lower Anahola reservoirs. I also understand that historic rainfall in the area should be enough, but the effects of global warming is right around the corner.	John Kaohelaulii	DHHL agrees that awards to waitlist applicants for the kuleana homestead should be expedited in order to convene community conversations to develop the community's governing documents. DHHL is currently looking at the pros and cons of all potential options to expedite, however, those discussions are still on-going internally. Potential activities that are deemed appropriate for the new kuleana homestead area such as eco-tourism will be discussed by the future homestead association and incorporated into its governing documents. DHHL agrees that the effects of global warming could substantively change the amount of rainfall in the area and catchment systems to supply the homestead area may not be sufficient during times of drought.

Table 7-2 DEA Summary of Comments and Responses		
Comments	**Commenter**	**Responses**
		DHHL has conducted an additional non-potable water infrastructure assessment as part of this Settlement Plan and EA process to look at other potential water supply options for irrigation.
The plan could be improved if it addressed mauka access to the neighboring State land, which lays adjacent and mauka to the proposed development.	Nicolai Barca	The future homestead association will determine appropriate points of access to neighboring non-DHHL lands. In addition, safety zones must be developed as a buffer to ensure safety of future homestead residents. A MOU will need to be developed among DLNR, DHHL, and the future homestead association that identifies agreements related to hunter access, enforcement, and homesteader safety.
Adjacent Landowner		
Cornerstone Holdings and the McCloskey family sold the property more than two years ago. The new owner is an entity owned by Frank Vandersloot.	Paul Alston	The EA has been updated throughout with the recent land ownership information.

Section 8

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Chapter 8

List of References

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Appendices

Appendix A

Beneficiary Informational Meeting Notes August 2019 and November 2019

CONFERENCE REPORT

111 S. King Street
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TO:	The Department of Hawaiian Home Lands (DHHL)		
FROM:	G70		
DATE:	8/28/2019	**LOCATION:**	Kapa‘a, Kaua‘i
PROJECT:	DHHL Anahola Kuleana Homestead Lots Settlement Plan	**PROJECT NO:**	218006-01
SUBJECT:	Beneficiary Consultation Meeting #1	**NO. OF PAGES:**	8
THOSE PRESENT:	DHHL: Andrew Choy, Nancy McPherson, Julie-Anne Cachola, Erna Kamibayashi	G70: Kawika McKeague, Ryan Char, Barbara Natale, Cody Winchester, Kai Akiona-Ferriman	

The Department of Hawaiian Home Lands (DHHL) and G70 held a joint public meeting with beneficiaries who are on the Kaua‘i Island Agricultural Waitlist. The meeting was held at the Kapa‘a Elementary School auditorium on August 28th, 2019, from 6:00 to 8:00 pm. Approximately 56 attendees participated in the meeting.

Opening Statements:

- Andrew Choy (DHHL) opened the meeting
- Introductions of DHHL staff present at the meeting
- There are upcoming opportunities for Kuleana Homesteading on Kaua‘i at Pu‘u ‘Ōpae and Anahola.
- Julie-Anne Cachola (DHHL) discussed the purpose of the meeting to involve the applicants in the planning of the land
- Kuleana Homesteading is part of DHHL’s efforts to address beneficiaries concerns about lengthy waits on the waitlist and requests to be awarded raw land
- Pule provided by meeting attendee

Presentation by Kawika McKeague (G70):

The presentation had a duration of approximately 2 hours and included a PowerPoint presentation, beneficiary input using an online polling platform, and a final Q&A.

The presentation covered the following topics:

1. *Kuleana Homestead Program: What is it and what does it mean to me?*
2. *Anahola History: What does the history of this ‘āina teach us?*
3. *Previous Plans: How does this plan respect past community input?*
4. *Existing Conditions: What does the ‘āina provide?*
5. *Community Vision: What community values will direct this plan?*

6. *Anahola Settlement: When will actual awarding of lots occur?*

The presentation showcased a conceptual lotting plan. The plan proposed 14 10-acre pastoral lots, 103 2-acre subsistence agriculture lots, and 28 acres designated for community use space.

Of the approximately 56 individuals in attendance, about 47 participated in the online polling exercises. Both the PowerPoint presentation and the results of the polling exercise will be posted on the DHHL webpage.

At the conclusion of the presentation, the audience had an opportunity to ask questions and provide comment. Comment forms were also available for beneficiaries to write down and submit their mana‘o.

Comments on the Waitlist:

- Beneficiaries expressed a shared sentiment of frustration at how long the process has taken
- Many feared that they would die before they were awarded land
- Curiosity about what position they were in the waitlist
- Some beneficiaries were confused about which type of land they had signed up for and wanted to know how to find out

DHHL: Beneficiaries can find out their position on the waitlist and for which land type by calling the Kauai DHHL office at (808) 274-3131.

Questions about Kuleana Homestead Lots:

- Can a Kuleana Homestead also have their residential lot too?
- Are beneficiaries required to move onto the lot?
- How long will it take until I can move onto the land?
- Why Kuleana Homestead Lots rather than Traditional farm lots?
- Why are permits required to develop on DHHL lands?
- How much will it cost me to set up a Kuleana Homestead site?

DHHL: Those that have a residential lot may also have a subsistence agricultural Kuleana Homestead lot or pastoral Kuleana Homestead lot, but not both (§10-3-4).

Questions about what is provided:

- Will utilities be provided?
- *How will we receive irrigation water?*

DHHL: Kuleana Homestead leases are designated for undeveloped available Hawaiian home lands. Such parcels only require unpaved access to the homestead site. Suitable lessees are those who wish immediate access to the land for subsistence uses, are willing to live on the land and willing to accept a lot in its “as is” condition- without infrastructure such as sewer, water or electricity (§10-3-30). Lessees will agree to accept the lot in its “as is” condition with no expectation of additional improvements.

Questions about what activities can be done on the land:

- Can we build a home on pastoral land?
- What kind of livestock can be raised on subsistence agriculture lots? Pastoral?
- What can I grow on subsistence agriculture lots?

- *DHHL: Residences shall be permitted on agricultural or pastoral lots. Only one residence shall be permitted per lessee on Hawaiian home lands (§10-3-26). Lessees may raise animals intended for consumption on their subsistence agricultural leasehold to supply immediate family needs (§10-3-27(a)). Lessees with pastoral lots may raise crops for fodder to be used only for animals on the lot. A portion of the pastoral lot may be utilized to raise vegetables or fruit crops for consumption by the lessee's immediate family (§10-3-27(c)).*

Summary of the Polling Results:

1. A majority of meeting attendees identified as homestead applicants (69%). The remaining 31% identified as homestead lessees.
2. Beneficiaries felt a strong connection to the land for the Anahola Settlement Community.
3. Attendees ranked improving site safety and access as the top priority for the Anahola Settlement Community. Maximizing the number of lots was ranked second. Preservation of historical and archaeological sites was ranked third. Reforestation and stream management was ranked forth. Renewable energy opportunities were ranked 5th. Community based economic development was ranked 6th.
4. Beneficiaries believed that 2 acres were a suitable lot size for their subsistence agriculture homestead needs.
5. Beneficiaries preferred backyard subsistence agriculture as the primary agricultural activity for the homestead community.
6. Participants were somewhat divided on their preference for pastoral lot size. 41% of attendees believed that 10 acres was a suitable size; while 30% believed 10 acres was too large, and 30% believed 10 acres was too small.
7. A commercial kitchen and farmers market was selected as the preferred income generating opportunity for the homestead community. An agricultural food hub / co-op was the second most preferred option.
8. Participants perceived that the greatest physical challenge for the homestead community will be access to potable water. Road maintenance and upkeep is perceived as the second greatest physical challenge. Access to electricity was the third greatest challenge.

Question 1	
Question	What is your favorite hali'a aloha (memory) that you have of Anahola?
Respondents	24
Responses	
I don't have any memory	
My parents	
Im orginally from Oahu my home is 4 years old	
I grew up in Anahola. I had many experiences can't think of one now	
Thatwe could go anyplace and gather anything we wanted	
No memory	
Spending time with grandpa them.	
Coaching anahola kids to basketball championships	
No memory! Grew up/ raised in the mainland.	
Camping at the beach with family	
Surfing , fishing, camping, family parties in Anahola	
happy, safe, ohana @ anahola beach	
Very safe place to grow up	
The potential of this place to provide for the future of our children	
Camping	
The quiet and peacefulness. Hardly any people or cars on the road.	
Growing up in Anahola in the 60's & 70's and fishing at the beach	
Visiting from the mainland to Anahola in 1974 with my Mom and Dad where she met her half brother on the beach. At that point I knew my destiny was Anahola.	
My mom was awarded in 1959 and I left in 1960 so I never really lived in Anahola	
I knew all the people in my neighborhood and a true sense of aloha.	
Hiking up mauka to eat the fresh opae/wi and cooling down in the fresh water	
Going fishing/camping in the backroads feeling safe without worrying about cronics	
Haveing Fun @ The Beach & Singing Hawaiian Songs	
The local fisherman getting together to surround akule in the bay, the community that came together to accomplish a single goal	

Question 2	
Question	I am a . . .
Respondents	29
Choices	**Votes**
homestead lessee	9
homestead applicant	20
interested in applying	0
other	0

Question 3	
Question	Do you feel like you have a pilina (connection) to this ʻāina?
Respondents	30
Choices	**Votes**
ʻAe (Yes)	26
ʻA'ole (No)	4

Question 4	
Question	If you do, how?
Respondents	29
Responses	
Brothers lived in anahola	
We want to do a gram to table	
Anahola is a beautiful community but my heart is west side at pub opae	
Cultivate the land and be self sustaining	
Born and raised Anahola my roots are here	
To create opportunities for the next generation	
I want to provide for my family	
I grew up in Anahola and live there now.	
I like the greenery or country scenery	
Build a home raising animals.	
Opportunity to create a more sustainable island	
Work the land. Self sufficiency opportunities for my Ohana in perpetuity.	
My kupuna.. was there ...my dad was there...i am there with my 9 keik and 25 moopuna are all there.I was and always teach my culture and eat in hawaiian cooking farming style as in Kahiko	
Rise my family, with the opportunity for farm to table via gardening/hydroponic	
Build home and raise animals	
Having a place for ohana	
Been living in Anahola since 1997, it's our home, and can't think of being anywhere else. I want my grandchildren to be able to live in this beautiful place	
Grew up on this dude of the island and where our family want to be.	
Raise my children and grandchildren. Farm kalo and self substantial food sourse	
Land is life the ability to perpetuate a sustainable lifestlye to feed whoever hungry	
I want to be part of the change to make Anahola be what I always knew it to be...	
To be able to allow my children to be able to live off the land that has been lost during this generation	
I hunt & surf there, would like to farm there also. I have a friend with a farm there where we practice part of the Culture cooking pig in da Imu.	
We have been living & farming in anahola for generations & want to continue doing so. Want to see our aina revived up mauka, & our ohanas too. Sustainability & getting our people back on the land is key	
My family is there	
Our people valued the valleys due to the watershed. Albezia trees will be a huge cost. I'll make chop sticks out of albezia trees	
A place that I can leave for my children and grandchildren to come home to.	
As a child gathering rights and hiking and the enjoyment of the aina was always so wonderful. Safety for the Keiki is always first and foremost in anything.	
planting food and fruit trees to sustain ohana and generate income	

Question 5	
Question	If you don't feel like you have a pilina, by coming here tonight what would you hope to see/learn that would help create that pilina?
Respondents	9
Responses	
Aole ko'u mana'o	
More information about process	
N/A ... my love is Anahola!	
This is my first mtg so I don't know what to expect	
Im actually here because I want to stand in support of my brothers and sisters that want Anahola	
Support	
I would hope to have DHHL keep our pilina by truly listening to the people and not just management or a certain few in associations.	
Malama aina	
Malama ka aina, malama ohana, have a place where our children can learn to be sustainable help eachother	

Question 6	
Question	What three words (or simple sentence) can be used to describe what you hope for the community at Anahola?
Respondents	26
Responses	
Sustainable, ohana, cultural	
UnifiedLahui HawaiiOhana values mea hookahi	
To bring the true sense of community back	
Aloha , freedom , Ohana	
A Hale and a place to create sustainable food for families	
Ohana , farm,food	
Have some land to grow food	
Reconnecting ohanas reconnecting to aina Revive the aina from up mauka down	
Security, sustainability, community values for our generations	
Malama AlohaLokahi	
Safety, security and self sustaining	
Keeping generations in Anahola	
Sustainable ... entrepreneur.... kanaka grounded	
Community connection to the ʻĀina	
Fellowship, Comunity security, Hale, keiki Kupuna support	
Aloha ʻAina ʻOhanaMālama ʻaina	
Having a place for the next generation	
Ohana, mea'i, aloha	
Akua first! practice Culture & Malama each other.	
respect for self elders and ainastrengthen communitykeiki to kupuna bonding	
Unified community values	
Education, unity, sustainability	
Connected. Healthy. Thriving	
Solid foundation in truly teaching our keiki to work hard plant food and malama ka aina	
Culture Education for future of our Keikis, sense of community	
STRONG COMMUNITY, GROWTH, & SUPPORT.	

Question 7	
Question	What do you want to leave for the next generation?
Respondents	27
Responses	
A lease	
Our land	
Security ... sense of place...	
A home	
Land	
A home, freedom, security	
Keep Hawaiian lands in Hawaiian hands.	
Sustainable Aina and culture	
The ability to live on the land they were born	
ʻAina that they can utilize and free from trash.	
A place they can call home	
A sense of placeOlelo Hawa'iAloha Aina	
Land to pass on	
A place to live, a place to for self sustainment,	
The knowledge of the aina and to always respect the aina and othersKeep Hawaiian lands in Hawaiian hands	
A place they can call home. And to be connected to the land and our culture.	
A home and knowledge of farming	
A home for our generation s to come. As intended by prince Kuhio	
Hawaiian aina	
I would like to leave land to my children say they can be take care of themselves in the community, Aloha	
who they are: identity	
An island where there is still room for us kanaka. An island that they can still live from, eat from, ocean they can still swim in & fish from. Home security. I don't want my children to be forced to move away	
More opportunities in cultural education,	
Security i can give my keiki a puaa to eat or i can teach them how to eat and grow paa mau	
For our Keiki to know the true Hawaiian culture and not let it die	
A place for children and grandchildren to live and thrive.	
HISTORY OF HAWAIIAN CULTURE AND ANCESTORS.	

Question 8	
Question	Are you familiar with any past planning efforts for the Anahola comunity?
Respondents	31
Choices	**Votes**
'Ae (Yes)	13
'A'ole (No)	15
Not sure	3

Question 9	
Question	Did you participate in the planning process for any of the following plans of the Anahola Community?
Respondents	16
Choices	**Votes**
1987 Development Plan	7
2004 Kaua'i Island Plan	7
2009 Town Center Master Plan	7
2010 Regional Plan	9

Question 10	
Question	Does the vision from 1987 still resonate with you today?
Respondents	29
Choices	**Votes**
'Ae (Yes)	15
'A'ole (No)	4
Kanalua (undecdied)	10

Question 11	
Question	What would you like to add to the vision for Anahola?
Respondents	24
Responses	
unity aloha kekahi i kekahi	
Speed_up_process	
More_cultural_events More_farmlits	
Self empowerment	
Action	
Local_residents	
Pride	
A place to live produce Security Food growth	
Maintain culture Peace Ohana	
Clean_it_up	
More_farm_lots	
Kakoo Lokomaikai Huipu	
Evict the cronics	
Healthy Unity Youth_engagement_programs	
Speed_up_the_process	
lands belowKeali rd	
Culture center Sustainability Farming	
Growth	
More_farm_lots People_taking_pride And_stop_dumping_opala	
More awarded land	
Unity	
Unity Education_opportunities	
Need_water_to_farm 2_acres_is_perfect	

Question 12	
Question	What physical characteristics of the land at Anahola are most important to you?
Respondents	23
Responses	
the Valleys	
Water	
Water	
Potable Water availability	
Water	
Make it accessible	
access to property, access to water	
Having a place to live good roads why has this taken so long 30 years my gosh	
Water	
Water system	
Roads , water. Take invasive trees	
The soil, water, the run off areas, accessiblity,	
Protect the vegetation	
Return of our water....	
Flat lands, water accessible	
Roadways, drainage, remove albizias, no airport clean secure Hawaiian community	
Water, run off , roads	
Ke kahawaiEveryone needs wai.Water is life.Need roadsAia ke ola i ka Aina ola	
Good roads	
Access, water,	
Protect the stream & water because that is effecting our reef that we eat from. Mauka forest should be reestablished to strengthen our water table system & keep us sustainable for the future	
Safe access, water	
Water, roads	

Question 13	
Question	Based on what you already know about Anahola, describe the overall feeling of the existing community.
Respondents	3
Responses	
Get it done asap	
Community based economic development	
Safty	

Question 14	
Question	Rank from highest to lowest what you feel the Anahola Settlement should focus on?
Respondents	29
Items	**Rank**
renewable energy opportunities	5
reforestation and stream management	4
improve site safety and access	1
community based economic development	6
preservation of significant historial and archaeological sites	3
maximize the number of subsistence ag lots	2

Question 15	
Question	Is 2 acres a suitable lot size for your subsistence agriculture homestead needs? (an acre is about the size of a football field)
Respondents	32
Choices	**Votes**
Good Size	23
Too Small	8
Too Large	1

Question 16	
Question	Which image best represents your vision for agricultural activity at Anahola?
Respondents	32
Choices	**Votes**
Backyard Subsistence Agriculture	23
Large community cooperative	0
Small community cooperative	4
Shared traditional agriculture	8

Question 17	
Question	Which is your prefered settlement layout?
Respondents	27
Choices	**Votes**
Individual Lots	23
Shared Agriculture	4
Clustered Homes with Individual Agriculture	0
Clustered Homes with Shared Agriculture	0

Question 18	
Question	Is 10 acres a suitable lot size for your pastoral needs?
Respondents	27
Choices	**Votes**
Good Size	11
Too Small	8
Too Large	8

Question 19	
Question	What do you envision as the best use for the area designated as Community Use?
Respondents	26
Responses	
Community center	
Cultural learning center	
Growing food and animals to eat	
Community kitchen	
Cultural center for cultural practice.	
Chill space .. storage ... processing center	
Cultural center, farmers market	
Farming supplies machinery processing center training rentals cultural activities	
Community butcher shop/arena for live stock	
Fire station, ag market,	
Activity center keikiLaundromat Farmers market cultural centerPreschool	
Community Center	
Park, Recreation Center, Community Center	
Culture learning center	
Cultural learning center	
Kupuna Farm Housing.	
Marketplace to sell farm goods	
After school ag /aina program for keiki, teaching them farm skills etc	
Not enough information tonight to make a educational decision	
Recreational area, Opertunities for Hawaiian people for jobs	
Community Kitchen	
Multi purpose	
Not sure	
Cultural Farmers and community center	
Getting old need to get a lot	
Estimate 200 waitlistee out of the 2500 on list will have lotswhat about lands who have people with ROE. make them available	

Question 20	
Question	Prior plans have identified several potential income generating opportunities for the mauka DHHL lands in Anahola. What is your preferred option?
Respondents	28
Items	**Rank**
Green Energy	3
Lumber Mill	7
"Green" Golf Course	9
Agriculture Food Hub / Co-op	2
Hydroelectiric Plant	6
Anahola Airport	8
Commercial Kitchen and Farmers Market	1
Wastewater Treatment Facility	4
Other	5

Question 21	
Question	What excites you the most about the Kuleana Homestead opportunity at Anahola?
Respondents	28
Responses	
To_get_a_lot_before_I_die	
Action	
Opportunity_for_ownership	
Making_it_happen	
Finally	
A_home_and_grouth Security Get_a_lot_before_I_die_to	
Finally Moving_forward Mahalo	
Self_Determination	
Mälama_'aina	
Getting_kanaka_on_land Get_albizia_gone	
Award_now	
Opportunity	
Expedite_project	
Give_my_grandson_land	
Possibilities	
waiting_almost_60_years Self_sustainability	
Get_a_lot_before_I_die	
Opertunities_for_keiki Things_before_I_pass_away	
Moving_forward	
Make_this_happen	
Landforohana Hopeweawaslost Homeainaforohana	
Kupuna_first Farm_housing Plant	
No_Need_Pay_Rent Having_A_Nice_Home	
Opportunity Education Sustainability	
wha_about_ROE_lands	
Opportunity_for_ag_lots Nuff_talk_Onipaa 10_acres_is_way_too_much	
Move Hirry	

Question 22	
Question	Choose how to allocate your 100 points. What do you envision as the greatest physical challenges for the Anahola Settlement Community?
Respondents	26
Choices	**Score**
Road maintenance and upkeep	18.50146505
Access to potable water	20.80368355
Managing fire hazard risk	7.743825869
Preserving historic and cultural resources	12.59941398
Access to electricity	14.56676434
Preserving biological resources and invasive species control	5.190456258
Waste disposal	6.697362913
Other concerns not mentioned	13.89702805

Question 23	
Question	Do you have any questions for us?
Respondents	15
Responses	
How long is this going to take when I die!!!	
I need a home asap	
Please help the Hawaiian people please	
Utilities???	
On ag lots...is it open to raise and plant plants fruit trees and moa...puaas etc??	
Get. This done Mahalo	
Mahalo	
How do i know what i signed up for?Its been decades	
Where am i in position???I going not live 4 eva	
Thank you	
We need after school programs for Our keiki	
Why kuleana and not traditional farm lots	
I can't keep waiting n waiting 5 years I be pau	
How do you get on the list?	
Thankyou lesu pu alohaHana awiwi ke oluolu	
what would b the cost to set up a kuleana homestead site?	
How many people in this room will be dead by the time the lots are awarded	
can farm lots raise sheep?	
Please don't take so long Mahalo	
can a kuleana homestead also have their residential lot too?	
Can we build home on pastoral land	
What about irrigation water ?	
Are you required to move onto the lot?	
The lots are on DHHL lands! Why do we need to get the permits to build that takes forever to get. Again, it's DHHL Lands!	
Mahalo. Please move forward as quickly as can, kupuna passing away. 59 years too long	
Mahalo for considering this & giving is the opportunity to get on our aina	
How does thie designation applies on Kuleana land if you have an existing residential lot?	

925 Bethel Street
5th Floor
Honolulu, HI 96813
808.523.5866
www.g70.design

CONFERENCE REPORT

TO:	Department of Hawaiian Home Lands		
FROM:	G70		
DATE:	November 15, 2019		
PROJECT:	Anahola Kuleana Settlement Plan	**PROJECT NO:**	218006-01
SUBJECT:	Beneficiary Meeting – November 13, 2019		
LOCATION:	Kapa'a Elementary School	**NO. OF PAGES:**	6
THOSE PRESENT:	G70: Kawika McKeague and Cody Winchester DHHL: Andrew Choy, Julie Cochola, Erna Kamibayashi, Stuart Matsunaga, Paula Aila 32 beneficiaries signed in		

SUMMARY:

Meeting Notes

Start time: 6:07 PM

1. Opening Statements. Andrew Choy-Welcome and Introduction of Planning team.

2. Pule- Ben Kahaulua (beneficiary)

3. Commissioner Neves- Welcome beneficiaries. Encourage beneficiaries to be engaged and provide feedback. Invite your friends and family.

4. Kawika-
   - Show of hands how many participated in last meeting. (about 8-10)
   - Orientation to DHHL land in Anahola and the Settlement Plan Area.

5. Julie-
    - Introduction to Kuleana Homestead Program
    - Story of Kahikinui, Maui. Origin of Kuleana Program.
    - Average time on waitlist is 23 years.
    - Average age of beneficiary is 61 years.6
    - Conventional Lease vs Kuleana Lease: Timeline comparison.

6. Kawika
    - What is G70 and what is our roll? Engineering, Architecture and Planning Firm. We are here to assist DHHL with the development of the Settlement Plan
    - Past beneficiary consultation- meeting held on August 28th, 2019
        - Review of feedback from beneficiaries- priorities and concerns
        - Defining a community- building a vision statement: "Aloha, Ohana, Aina, Malama"
        - Size of Subsistence Agriculture Lots- 2 acres. Consensus
        - Size of Pastoral Lots- 10 acres. No clear consensus. More discussion may be required.
        - Preference for backyard subsistence agriculture
        - Preference for classical style lot layout (individual lots)
        - Preference for agricultural support functions (food hub) and community cooperative
    - Review of past planning efforts
    - 17 Sustainable Development Goals
    - Proposed number of lots: Subsistence Agriculture- 96 2-acre lots, Pastoral- 14 10-acre lots, Community Use- 32 acres
    - What can be done on an acre of land?
    - Existing road conditions
    - Potable water- rainwater catchment
    - Wastewater- Individual wastewater systems (IWS). Compostable toilet.
    - Green Energy Company Albizia Tree Strategy- biofuel project. Green Energy will clear the land of the existing trees. Green Energy will also repair the existing roads. 356 acres in the first 5 years. Settlement Plan project area is within the area planned to be targeted first.
    - Planning criteria for lot scheme
    - Settlement Plan lot scheme.
    - Community Use spaces. Potential economic opportunities.
    - Resilience hubs.
    - Special District area- perennial forest. Preserve bio and archaeological properties.

- Historic properties.
- Biological resources- mostly covered by albizia forest. Fauna, aquatic, avifauna

7. Andrew-
    - Updated Timeline

8. Commissioner Neves
    - Door will be open for the department to provide future improvements. No timeline or funding for improvements at this time. Uncertain how long down the road until improvements could be provided. Tradeoffs- get in now with no improvements or wait longer for improvements to be in place. This is the best opportunity and fastest means to receive land and start farming.

9. Questions posed to beneficiaries (Andrew). Answer verbally or submit answers on comment forms.
    - The Rules say DHHL has to provide an unpaved road—do you think it should be paved?
    - What would be viable alternatives for acquiring potable water?
    - What would be viable alternatives for handling wastewater?
    - What would be viable alternatives to provide power to lots?
    - The Kuleana Lease provides an unimproved lot and access to the lot. Would you be interested in a Kuleana Lease?

10. Beneficiary questions and comments
    - What is estimated timeframe to move in?
        - HRS will be completed before the end of 2020. No specific date for moving onto the land. Beneficiaries will be notified of updates to the timeline as the project progresses through the required steps.
    - Can settlement begin prior to tree removal?
        - No. Trees must be removed, and roads improved for safety reasons.
    - Can awards be given before roadways cleared. This could guarantee that a family will receive the land. Property can be secured, and the community can get to know each other (undivided interest).
        - DHHL will consider undivided interest
    - Once a beneficiary is awarded, what are the lessees' requirements?

    - CC&Rs (Community Covenants and Restrictions. These are rules established by the homestead association and approved by the Hawaiian Homestead Commission.

- Can homestead community form before settlement begins? This would allow for the community to learn each other's strengths, skills and get to know each other. Develop ideas for CBED and how to share resources.
    - Once DHHL identifies who the lessees will be, then conversations with lessees can begin. DHHL will look at feasibility of undivided interests.
- A beneficiary shared support for septic systems. This is preferable to waiting for DHHL to develop wastewater infrastructure.
- DHHL should look at other areas like Moloa'a for Kuleana Homesteading. Don't give away large pastoral lots to single owner. Land could serve more people and help put more kapuna on the land.
- Should the Department take action on the Settlement Plan if the HHC meeting is not on Kauai? This would move the project along faster.
    - Feedback. Act faster. Okay if not on Kauai. Complete consensus.
- Has DHHL secured water rights?
    - Not at this time. Kuleana Homesteading does not require that water be secured.
- What is the condition of the ditch system and reservoirs? Can community restore these?
    - Beneficiary- Restoring Reservoir is not a good idea. Water should be directed from wells further up mauka.
    - Stuart- Goodfellow consulted to identify feasibility of restoring damns. Issues with Dam Safety Act. Permits for both Keālia reservoirs are currently being sought (hopefully approved by end of 2020). Construction to begin soon to restore both Anahola Reservoirs. Keālia 2 will be decommissioned. Funds are being sought to restore Keālia 1.
- Are the plans for the reservoirs and water system set in stone? Were existing plans for reservoirs made before the conceptual plans for Kuleana homesteading in Anahola.
    - Stuart: 3 million dollars were given to the Department to address issues with Anahola's dams and reservoirs. If the money is not used, then it will be lost. Existing plans are to address the downstream risks associated with aging dans and eliminate DHHL's potential liability. Additional funding can be

sought to improve water improvement/ supply water to homestead in the future.
    - Julie: Part of the Kuleana Homestead program is for the community to take ownership (kuleana) of its own water system.

Written Comments:

- No paved roads to start. We can do later. Just get people on the land fast! Award lessees as soon as possible.
- Excellent presentation given tonight. No, roads should not be paved. Award land to those who are able and willing to put in hard work and sweat. Those who are awarded land should be responsible and find alternatives to wastewater handling, power, etc.
- Please select the next beneficiaries on the waitlist for these pastoral and ag lands. If these people are ready, they should meet together and get their award lease (to be able to pass to next generation) and work on their kuleana as an association regarding rules, codes and other community. 40 years on the list. Applied in 1979. 61 this year.
- The young generations not going come meetings if no no good examples so far we only see Bad Solar Farm – car lot – Bad people operating da thrift store. We should get da license to report da bad people down by da beach. I put my time for put fence in Anahola and somebody going damage fence wat I going nothing cause no can do nothing if no license for take care- Wea I have to sign for get land?
- Has HHL secured water rights back from Kauai Ranch Co. (Cornerstone/McCloskey?)
- Cannot be subject to all county zoning requirements, but health and safety codes should be followed, like plumbing, electric and fire code.
- This is year 40 on The Waitlist! I would like to strongly suggest that the commissioners select the next group of Beneficiaries on the waitlist for the pastoral and ag lands. This next group can meet and form the association and start developing plans to work as a community, put tighter codes necessary to establish association governing rules. The reason is working on new relationships and it takes time to develop that, then rules and regulations will be more time! Award beneficiaries already! Waited way too long! Mahalo!
- Do you think it should be a paved road? No. Alternative to acquiring potable water? Individual water catchment, community water catchment, ag water from reservoirs and ditch systems. Alternative to handling wastewater? Composting toilets. Alternative to providing power to lots? Don't know. Would you be interested in a Kuleana lease? Yes (unimproved lot and access to the lot). Don't wait for HHC meeting in August. Do it sooner if can even if not on Kaua'i. Question:

Will ag waitlister, like me, be allowed to take subsistence ag lot just for farming and keep a residential lot as long as just farm and not build?

- The HHC approval should be done as soon as possible without further delay. Green Energy should provide an estimate timeline of project from start to completion. We would be interested in a Kuleana Lease. Next meeting have a wireless microphone so we can all hear the questions being asked.
- 1. Paved road- no gravel road sufficient. 2. Put HD pipe at reservoir area – DHHL has water from Kanaha. 3. Septic system. 4. Solar, generators. 5. Absolutely!

Appendix B

Anahola: Innovation-oriented, Ag-centric, Sustainable Community Development (Sustain Hawaii)



Anahola

Innovation-oriented, Ag-centric,
Sustainable Community Development

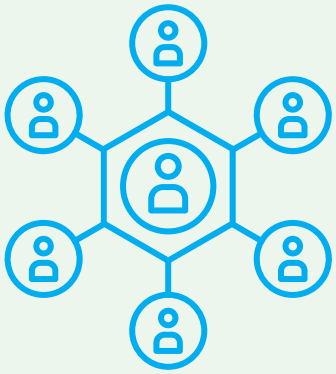
SustainHawaii
WALK STORY FOR A HEALTHY ECONOMY

Walk Story for a Healthy Economy

Community-Scale, Healthy Food System

The Anahola ag-centric, sustainable community development project is an ideal opportunity to feature DHHL's leadership and alignment with Governor Ige in adopting and committing to the implementation of the UN Sustainable Development Goals (SDGs) via the formalized partnership with the State of Hawaii as a UN Local2030 chapter.





Create a Federation of Cooperatives

Cooperatives help address the inherent tensions and conflicts of interest between producers (most profit) and consumers (lowest price, highest quality) by becoming both... prosumers. Community-owned, needs-based and commodity-oriented businesses create the basis for self-sufficiency and determination.

1 — Clean Energy
Micro-KIUC

1.1 — Smart Roads
Solar Roads, Sidewalks, Driveways, Parking Lots, etc with Wi-Fi

1.2 — Smart Mesh Networks
Internet of Things

2 — Water Management
Rainwater harvesting, Catchments, Retention ponds, Lo'i, Swales, etc

3 — Waste Management
Bio & Phyto-remediation

4 — Green Building
Living Building Challenge level

4.1 — Closed-loop Manufacturing
Makerspace, Open Source Ecology

5 — Regenerative Agriculture/ Food System / Vertical Farming

6 — Clean Transportation
Electric, Hybrid, Hydrogen

7 — Credit Unions

Sustainable Innovation for Conservation, Green Building & Ecosystem Restoration

This building coop aims to create a local system for turning Hawaii's invasive timber into innovative, cottage industry solutions. The steps are summarized as tree harvesting, lumber processing, manufacturing building components, and native ecosystem restoration and agroecology.

Remove
Carefull felling of undamaged logs cut to desired lenght.

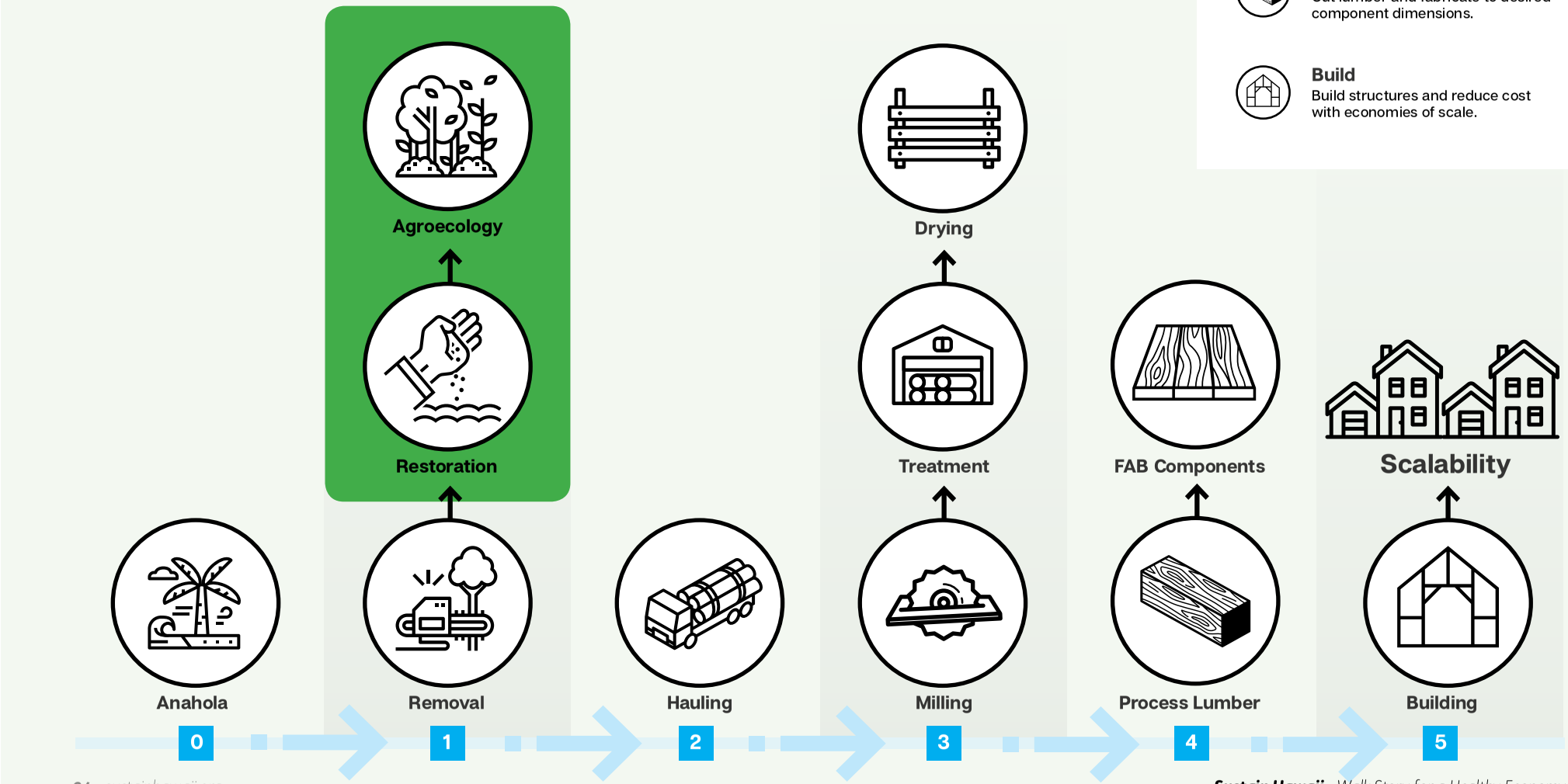
Restore
Active restoration program to replace with native species.

Haul
Forklift, Crane, or winch loads & unloads, flatbed truck / trailer.

Mill
Sawmill cuts rough lumber, treat green, and sticker for seasoning.

Process Wood
Cut lumber and fabricate to desired component dimensions.

Build
Build structures and reduce cost with economies of scale.

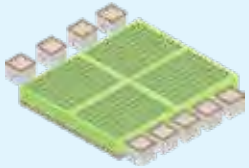


Community Scale, Agricultural Models



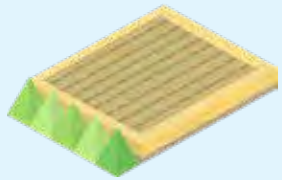
Individual Residential Lots

Each home has its own garden, typically in the backyard, to supplement the household consumption of vegetables and fruits.



Pocket Neighborhood

A group of homes share a garden space that can be connected to other pockets, forming a “green belt”, which typically fits within a neighborhood block.



Community Garden

This non-commercial garden is tended collectively by participating gardeners. They can be temporary spaces or held in trust by local governments or nonprofits.



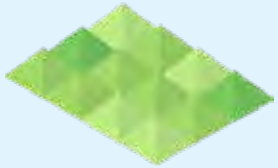
Edible Park

Public landscape with mixed uses, including food production which privileges the growing of edible plants for harvesting or foraging over ornamental plants.



Development Supported Agriculture

A residential real estate development that incorporates preservation or incubation of agriculture land use as its primary organizing structure.



Food Forest

Seven-layer polyculture food production in perennial forest ecosystems, intermixing fruits trees, herbs, vines, shrubs, and perennial vegetables.



Street Planting

Public right-of-ways that incorporate food production involving orchard-lined streets, fruit boulevards, planting strips or tree lawns, and edible front yards.



Group Gap Food Hub

Food collection, processing, and distribution. The food hub fills the gap between production and consumption, and generates jobs and revenue. A flour mill for ulu, kalo and u’ala is one example.



Vertical Farming

13,500 square foot vertical greenhouse on a 1/10 acre site can grow 100,000 lbs of produce annually, equivalent to 10 acres of traditional farming.

Agroecology provides an excellent methodology for ag-centric community development projects.

Agroforesty or food forest systems can yield an average 16.94 tons per acre or .78 lbs per sq ft given proper plant/crop selection.

If viewed from a consumption by weight perspective, fruit & vegetable production can account for about 20 people per acre per year with high nutritional value, increased biodiversity, carbon sequestration, soil remediation, zero toxic chemicals, cleaner water, lower water use, increased precipitation, etc. All of which help significantly align with the UN Sustainable Development Goals.

Over-Story Climax Species
Estimated Yields

6.28 tons per Acre

Estimated yield per acre	100% Density	75% Density
Breadfruit/'Ulu	13.35 tons	10 tons
Avocado	4.6 tons	3.45 tons
Jackfruit	7.59 tons	5.69 tons
Mango	8 tons	6 tons

HOW IS THIS CALCULATED?

Yields based on aggregated average of Mango, Breadfruit, Avocado and Jackfruit production at 75% planting density. Decreasing density allows for increased Understory & Ground Cover diversity and food production.

Understory Species
Estimated Yields

7.63 tons per Acre

Estimated yield per acre	100% Density	50% Density
Banana	8.5 tons	4.25 tons
Citrus	24 tons	12 tons
Starfruit	20 tons	10 tons
Guava	8.6 tons	4.3 tons

HOW IS THIS CALCULATED?

Estimated Yields based on aggregated average of Bananas, Citrus, Starfruit, & Guava production at 50% average planting density.

Ground Cover Shade Tolerant Species
Estimated Yields

3.03 tons per Acre

Estimated yield per acre	100% Density	25% Density
Taro/Kalo	10 tons	2.5 tons
Sweet Potato/U'ala	9.6 tons	2.4 tons
Turmeric/Olena	9 tons	2.25 tons
Ginger	20 tons	5 tons

HOW IS THIS CALCULATED?

Estimated Yields based on aggregated average of Sweet Potato, Turmeric, Ginger & Taro at 25% planting density.

Edible Landscapes

Basic Plan

Maintenance Requirements: 1 hour per month
Largest Impact & Lowest Maintenance.
** Monthly Maintenance Plans available*

RECOMMENDED FOR ALL HOMEBUYERS.

What are Edible Landscapes?

Our edible landscapes are inspired by traditional food forest gardens systems... designed to be low maintenance, practical, healthy and beautiful, these gardens create a cultural connection to the past while providing abundance for the future.

ʻUlu (Breadfruit)

- Ma'afala variety.
- Foodshed Impact: 711 lbs of food per year once mature?
- Begins bearing fruit in 2 years, optimum production at 5 years

Choice of One Fruit Tree from the following...

- Mai'a (Bananas)
- Noni (Indian Mulberry)
- ʻOhi'a Ai (Mountain Apple)
- Non-Canoe Plant Fruit Trees
  - *Avocado*
  - *Lemon*
  - *Lime*
  - *Kau Orange*
  - *Guava*
  - *Starfruit*
  - *Mango*
  - *Wax Jambu*
  - *Sapodilla*
  - *and more.*
- Kukui (Candlenut):
  - *Technically edible in small quantities, but best for fuel, oils or other purposes.*

Kalo (Taro)

- Clumping Varieties
- Foodshed Impact: 1 lbs per square ft year

ʻApe (Tannia/Elephant Ear)

- Ornamental & edible root

ʻUala (Sweet Potato)

- Ground Cover
- Foodshed Impact: 1lbs per 2.5 sq ft per year

ʻOlena (Turmeric)

- Clumping Varieties
- Foodshed Impact: 1 lbs per square ft year

Ki (Ti)

- Cultural significance
- Brings color to garden
- Tolerant of shade

ʻAwapuhi Kuahiwi (Shampoo Ginger)

- Shade preferred
- Cosmetic & medicinal uses

Additional possible Canoe Plants

- Ko (Sugar Cane)
- ʻAwa (Kava)
  - *Shade tolerant, prefers shade when young*
- Niu (Coconut)
- ʻOhe (Bamboo)
  - *Requires clumping varieties which can be expensive*

Edible Landscapes

Premium Plan

Maintenance Requirements: 1 - 2 hours per month

Daily Harvest of Fruits & Vegetables.

** Monthly Maintenance Plans available*

RECOMMENDED FOR THOSE INTERESTED IN HARVESTING DAILY FRUITS & VEGGIES FROM THEIR EDIBLE LANDSCAPE.

What are Edible Landscapes?

Our edible landscapes are inspired by traditional food forest gardens systems... designed to be low maintenance, practical, healthy and beautiful, these gardens create a cultural connection to the past while providing abundance for the future.

Premium Edible Landscapes includes all of the plants in the Basic Edible Landscapes plan listed above along with the addition of:

Choice of 2 Fruit Trees from the following...

- Mai'a (Bananas)
- Noni (Indian Mulberry)
- 'Ohi'a Ai (Mountain Apple)
- Non-Canoe Plant Fruit Trees
  - *Avocado*
  - *Lemon*
  - *Lime*
  - *Kau Orange*
  - *Guava*
  - *Starfruit*
  - *Mango*
  - *Wax Jambu*
  - *Sapodilla*
  - *and more.*
- Kukui (Candlenut):
  - *Technically edible in small quantities, but best for fuel, oils or other purposes.*

Salad & Herbs

- *Okinawan Spinach*
- *Brazilian Spinach*
- *Cranberry Hibiscus*
- *Sweet Leaf Shrub*
- *Holy Basil*
- *African Blue Basil*
- *Cuban Oregano*
- *Mexican Mint Marigold*
- *Lemon Balm*
- *Chives*
- *Rosemary*
- *Lemon Grass*
- *Sage*
- *Thyme & more*
- *Total Food Shed Impact: 40 lbs of fresh salad greens & herbs per year*

Moringa "Miracle Tree"

- Nutrient dense leaves eaten fresh or cooked
- Edible seeds & pods used in curries & soups
- provides a complete plant protein

Mamaki Tea (Native)

- Leaves used to make tea

Chaya "Tree Spinach"

- Nutritional dense cooking greens

Mulberry

- Fresh berries
- Foodshed Impact: 20 lbs a year per tree

Papaya

- A tropical favorite
- Foodshed Impact: 40 lbs a year per tree

Fig

- Great fresh or dried
- Foodshed Impact: 35 lbs per year

Comfrey

- A medicinal & ornamental plant that also helps improve soil and increase fruit tree production

Pigeon Pea

- Beans used fresh or dried in soups, stewed and curries. Traditionally used to make dahl.

Pineapple

- Low maintenance, ornamental fruit

Ginger

- Edible root, prefers shade

Cassava

- Edible starchy root

Warabi & Ho'io Edible Fern

- Edible fiddlehead fern
- Needs shade



‘Ulu (Breadfruit)
The base of Perennial Food Forest in Hawaii

Breadfruit was one of the main starch of Hawaii’s diet prior to introdution of rice and introduction of wheat. Nowadays, cultivation of rice is practically not existent in Hawaii and ‘ulu remains as one of the main local sources of starch, along with taro. It is known that groves of ‘ulu used to cover vast areas of land in the Hawaiian Islands and thoughtout the Pacifc, with other understory crops cultivated below. ‘Ulu is consumed in nature when ripe, or cooked in dishes such as ‘ulu chips, baked with butter, ‘ulu salad, or proccessed in products such as ‘ulu four.

The Perennial Forest would consist of Over-Story Climax Species (tall trees), Understory Species (small trees), and Ground Cover Shade Tolerant Species.

16.94 **tons/acre/year of diverse crop, mainly ‘Ulu (Breadfruit) at ultimate build out.**

94% **Greater average yield harvested than conventional farming methods.**

Easy **Medium to low level of Maintenance and man power needed.**

Long Term Planning

Once well established, an ulu only needs to be pruned once a year and harvested 2-3 times per year. Upon each harvest add’l compost should be added around the tree and/or a cover crop of nitrogen-fxing legumes planted. Compost tea can also be added in the proper quantity during that time.

Maintenance

- 1 hour or less to prune per year
- 1 hour or less to harvest, 2-3 times per year
- .25 hour to add compost and compost tea, 2-3 times per year

Total labor should be less than 5 hours per tree per year per person.

Starting the Forest

How to get ‘Ulu trees?

‘Ulu trees are supplied by diferent organizations, proft and non-proft. The current increase of demand offers an opportunity to enter the breadfruit business, through propagation of breadfruit and cultivation of starter plants in Steward Farms. Another business and technology opportunity is the micropropagation of selected cultivars to maintain desirable qualities.

The preferred methods for propagation of breadfruit are (seeds are not recommended):

- Root shoots or cuttings
- Air layering & grafting
- Micro propagation

Planting should occur at the onset of the rainy season at a density of up to 48 plants per acre, and irrigated as needed for the frst 1-3 months of establishment. Trees usually begin fruiting within 2-3 years from planting and will reach optimal fruiting at 5-6 years. With proper care, they can continue fruiting abundantly for over 80 years.



Fertilizing

The following nutrients are amounts used on average per acre is usually dependent upon crop, so can range from:

140-230
lbs/year/acre
for nitrogen

60-160
lbs/year/acre
for phosphate

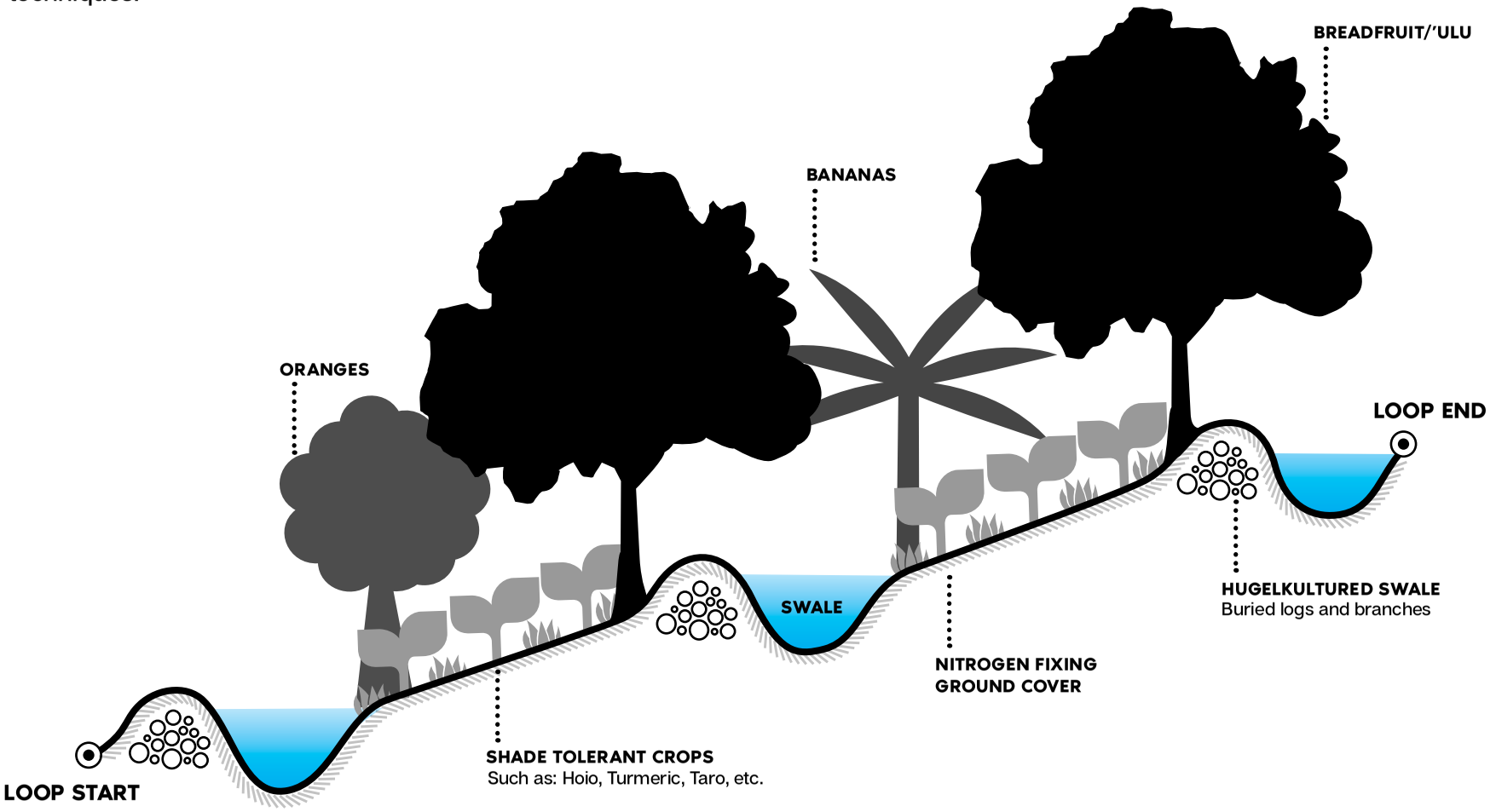
80-200
lbs/year/acre
for potasium

19-95
lbs/year/acre
for sulfur

These nutrients can be provided by 100% “green manure” from compost, mulch, biochar, effective microorganisms (EM) and mycelium. Healthy soil is based on biodiversity and a thriving community of microorganisms. Mulch and biochar help with water retention. Mycelium and microbes are great nutrient transport networks and vehicles. The healthier the soil is, the healthier the plants are, which acts as its own pesticide, since pests primarily attack unhealthy, vulnerable plants.

Perennial Forest - Slope Planting

Sloped areas (more than 20%) that are typically not ideal for traditional annual crops are suitable for terraced tree planting using agroforestry system such as Perennial Food Forest, through terrace planting techniques.



APPENDIX A: PLANT LIST

SPECIES	POSITION & ROLE IN AGROFORESTRY	CLIMATE ADAPTABILITY	SOIL ADAPTABILITY
Breadfruit		**Great -** Site provides ideal rainfall, temperature & humidity	**Good -** Shallow root system may benefit from improved soil drainage
Jackfruit		**Great -** Site provides ideal rainfall, temperature & humidity	**Good -** May benefit from improved soil drainage
Banana/Plantains		**Great -** Site provides ideal rainfall, temperature & humidity	**Good -** Short roots may benefit from improved soil drainage
Moringa		**Good -** Ideal in semiarid regions but adapted to many areas	**Fair -** Prefers lighter soils but tolerant of all soil types
Chaya		**Great -** Thrives in heavy rain with high temperatures	**Great -** Well adapted to heavy soils
Pigeon Pea		**Good -** Ideal in semiarid regions but adopted to many climates	**Great -** Tap root well adapted to break up clay soils
Cassava		**Good -** Tolerant of high rainfall & moisture content	**Good -** Large tubers help loosen clay soil
Mexican Sunflower		**Good -** Well adapted to high heat and rainfall	**Great -** Aggressive root system helps to loosen clay soil
Taro		**Great -** Site provides ideal rainfall, temperature & humidity	**Great -** Thrives in wet, clay soils
Sweet Potato		**Great -** Prefers steady moisture and semishade from hot sun.	**Good -** Large tubers help to break apart heavy clay though may be deformed
Comfrey		**Good -** Adapted to steady moisture, high temps may prevent flowering	**Great -** Thrives in wet, clay soil. Tap root helps to break up clay soils
Seminole Pumpkin		**Great -** Native to rainy, humid regions.	**Great -** Well adapted to heavy soils

Overstory
Understory
Protein Rich
Groundcover
Heavy mulch
Shade Resistant
Dessert
Seed Pods
Vining
Fast Growing
Starchy
Leaves
Cooking Greens
Food
Edible Fern
Staple
Suppress Weeds
Nitrogen-Fixing
Provides Shade
Edible Seeds
Shrub
Green Manure
Medicinal
Ripe and Unripe Fruits
Nutrient Dense
Beneficial Insect
Cash Crop

APPENDIX A: PLANT LIST

Understory Fruit Trees

SPECIES	POSITION & ROLE IN AGROFORESTRY	CLIMATE ADAPTABILITY	SOIL ADAPTABILITY
Rollinia	**Sweet lemony fruit superior to Atemoya**	**Good -** May need protection from high winds	**Great -** Thrives in wet, heavy soils
Carambola	**High production fruit, rich in Vitamin-C & antioxidants**	**Great -** High production with steady moisture	**Great -** Tolerant of many soil types
Guava	**Crispy sweet or dessert fruits**	**Great -** Site provides ideal rainfall, temperature & humidity	**Great -** Highly adaptable of wet, heavy clay soils
Fig	**High fiber, fresh or dried fruit**	**Good -** Excess, sudden rain can cause fruits split	**Great -** Adapted to wide range, clay soil reduces risk of nematodes
Wax Jambu	**Crispy sweet or dessert fruits**	**Great -** High production in high rainfall areas	**Great -** Well adapted to heavy clay soils
Sapodilla	**Sweet brown sugar fruit**	**Great -** Well adapted to high winds & heavy rain	**Good -** Prefers well drained soil to tolerates clay
Avocado	**High fat and protein fruit**	**Good -** High winds may damage fruit production	**Fair -** May require increased drainage

Nitrogen Fixing Trees

SPECIES	POSITION & ROLE IN AGROFORESTRY	CLIMATE ADAPTABILITY	SOIL ADAPTABILITY
Ice Cream Bean		**Great -** Native to lowland rainforest of South America	**Great -** Tolerant of waterlogging and heavy clay soils
Gliricidia Sepium		**Great -** High precipitation improves vigor	**Great -** Well adapted to wide range of soil types
Sesbania Sesban		**Great -** Well adapted to heavy rains and even temporary flooding	**Great -** Well adapted to wide range of soil types

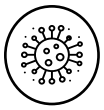
Medicinal & Annual Crops

SPECIES	POSITION & ROLE IN AGROFORESTRY	CLIMATE ADAPTABILITY	SOIL ADAPTABILITY
Turmeric		**Great -** Shallow roots require steady moisture	**Fair -** Rocky clay soils needs drainage improvements
Ginger		**Great -** Optimum growth with steady moisture and shade	**Fair -** Rocky clay soils needs drainage improvements
Warabi		**Good -** Steady moisture and shade required	**Great -** Performs well in heavy, wet soils

APPENDIX B
Agroforestry Techniques



Mulching
Aids in moisture retention, slope stability, increased microbial life and soil structure. Mulching mimicking nature by creating rich, abundant, healthy forest food in fast forward.



Mycorrhizal fungi
Forms symbiotic relationships with plant roots to aid in the uptake of water & nutrients, reducing the need for supplemental irrigation and fertilizers, particularly phosphorus.



Nitrogen-Fixing Trees (NFT)
Pioneering, fast growing leguminous trees form symbiotic relationship with rhizobia bacteria. When pruned, NFTs release nitrogens into the soil, providing fertility to surrounding trees.



Green Manures/Dynamic Accumulators
Specialized at accumulating a wide range of nutrients through their aggressive root systems, these plants provide a surplus of nutrient rich biomass for mulching & composting.



Beneficial Insect Attractors
Perennial flowering plants such a Wild Basil & Chicory provide habitats for beneficial insects & wildlife to create balanced ecosystems and mitigate the use for pesticides.



Biochar
Permanently sequesters carbon in the form of charred biomass to remediate compacted and degraded lands. Biochar provides aids in the retentional of nutrients and plays host to a diverse range of soil microbial life.



Companion Planting
Understanding plant functions & needs is critical to good design. Planting comfrey at the base of a banana patch is one example of this. Comfreys tap root mines nutrients, particularly calcium & potassium, from deep in the subsoil and accumulates it in its leaves. When pruned and mulched, these leaves feed the shallow roots of the banana with large amount of the potassium needed for healthy growth & production.

APPENDIX C
Estimated Labor before canopy closes

TASK	ESTIMATED TIME TO COMPLETE
Clearing and land prep	15-20 Hours
Gathering and seed starting of planting	10 Hours
Planting	20-25 Hours
Weeding (every two weeks until canopy closes)	2-3 Hours
Topographic Survey	4 Hours
Filming	5 Hours
Creating educational materials	5 Hours
TOTAL TIME	61-72 Hours

Estimated Labor after canopy closes

TASK	ESTIMATED TIME TO COMPLETE
Pruning (every two weeks)	2-3 Hours
Harvest (every two weeks)	2-4 Hours
Food distribution/sales	1-2 Hours
TOTAL TIME	5-9 Hours

CALCULATED PER HALF-ACRE CLEARING.

APPENDIX D: PROJECTED PRODUCE

YIELDS/REVENUE (PER HALF-ACRE)

		Year 1		Year 2		Year 3		Year 4		Year 5	
	PLANT NAME	YIELDS	REVENUE	YIELDS	REVENUE	YIELDS	REVENUE	YIELDS	REVENUE	YIELDS	REVENUE
EARLY SUCCESSION	Squash (25%)	1500 lbs	$2,250.00	1275 lbs	$1,912.50	1050 lbs	$1,575.00	825 lbs	$1,237.00	600 lbs	$900.00
	Sweet Potato (25%)	2400 lbs	$2,208.00	2040 lbs	$1,876.00	1680 lbs	$1,545.00	1320 lbs	$1,214.00	960 lbs	$883.00
	Moringa (10%)	1000 lbs	$1,428.00	850 lbs	$1,214.00	700 lbs	$1,000.00	550 lbs	$785.00	400 lbs	$571.00
	Taro (10%)	1000 lbs	$500.00	850 lbs	$425.00	700 lbs	$350.00	550 lbs	$275.00	400 lbs	$200.00
STEADY	Bananas (50%)	-	-	1300 lbs	$533.00	1300 lbs	$533.00	1300 lbs	$533.00	1300 lbs	$533.00
CLIMAX SPECIES	Breadfruit (50%)	-	-	-	-	1320 lbs	$1,320.00	2640 lbs	$2,640.00	3960 lbs	$3,960.00
	Understory Fruit Trees (25%)	-	-	-	-	432 lbs	$734.00	846 lbs	$1,438.00	1270 lbs	$2,159.00
TOTAL YIELDS		5900 lbs	$6,386.00	6315 lbs	$6,386.00	7182 lbs	$5,960.50	8031 lbs	$8,122.00	8890 lbs	$9,206.00



Revenue calculated based on wholesale prices.

Revenue could double or triple if sold directly to consumers.

- % represents planting density of each plant at initial planting (compared to standard mono-crop production)
- Early Succession Crop yields diminsh by 15% each year as Climax Species canopy begins to close
- Climax Species yields increase by 20% each year once production begins at Year 3

Appendix C

Wildfire Considerations Memorandum (HWMO)

Hawaii Wildfire Management Organization
65-1279 Kawaihae Rd. Ste 211, Kamuela, HI 96743

HawaiiWildfire.org
(808) 885-0900

January 31, 2019

To: Kawika McKeague
Re: Anahola Kuleana Homestead Master Plan, Wildfire Considerations Memo 1

Please find the attached document, which has been written to satisfy the following portion of our proposed work:

- Provide a written memorandum that advises on wildfire-related recommendations at the broader master planning level. This will include an assessment of fire weather and vegetative fuel hazards for residential and ag placement, wildfire occurrence history, and reducing overall wildfire ignition risk. It will also advise on optimizing firefighting access, resources (water), and evacuation safety.

Additional notes and recommendations will be provided following subsequent site visits and discussion.

Thank you,

Elizabeth Pickett
Executive Director

ASSESSMENT METHODS

A field trip was taken with Group 70 representatives in November 2018. A preliminary assessment of several large-scale wildfire hazard-related factors could be conducted. However, due to rain and road/mud conditions, only the lower elevation portions and adjacent lands were visited. An additional field survey will be conducted in the coming months to provide further detail on the upland portions of the area.

Several documents and plans that Group 70 representatives provided were also consulted, most relevant to this assessment were:

- Availability and Distribution of Low Flow in Anahola Stream, Kaua'i, Hawai'i, USGS 2012
- DHHL Anaholoa Land Use Designation Map
- Consultant field assessment communications

Some of the information in this memo is based on HWMO's 2013 statewide Wildfire Hazard Assessment (WHA), conducted by HWMO in collaboration with DLNR-DOFAW staff and county fire departments. All communities throughout the state, including the existing developed area in Anahola, were assessed for 36 hazard components and rated by fire and emergency personnel from the aforementioned agencies.

The Kauai Community Wildfire Protection Plan, updated in 2016 by HWMO and signed by DLNR, Kauai Fire Department, and Kauai Emergency Management Agency, included wildfire hazard assessment information and community input collected in Anahola. This memo includes relevant information from the plan and its community input process.

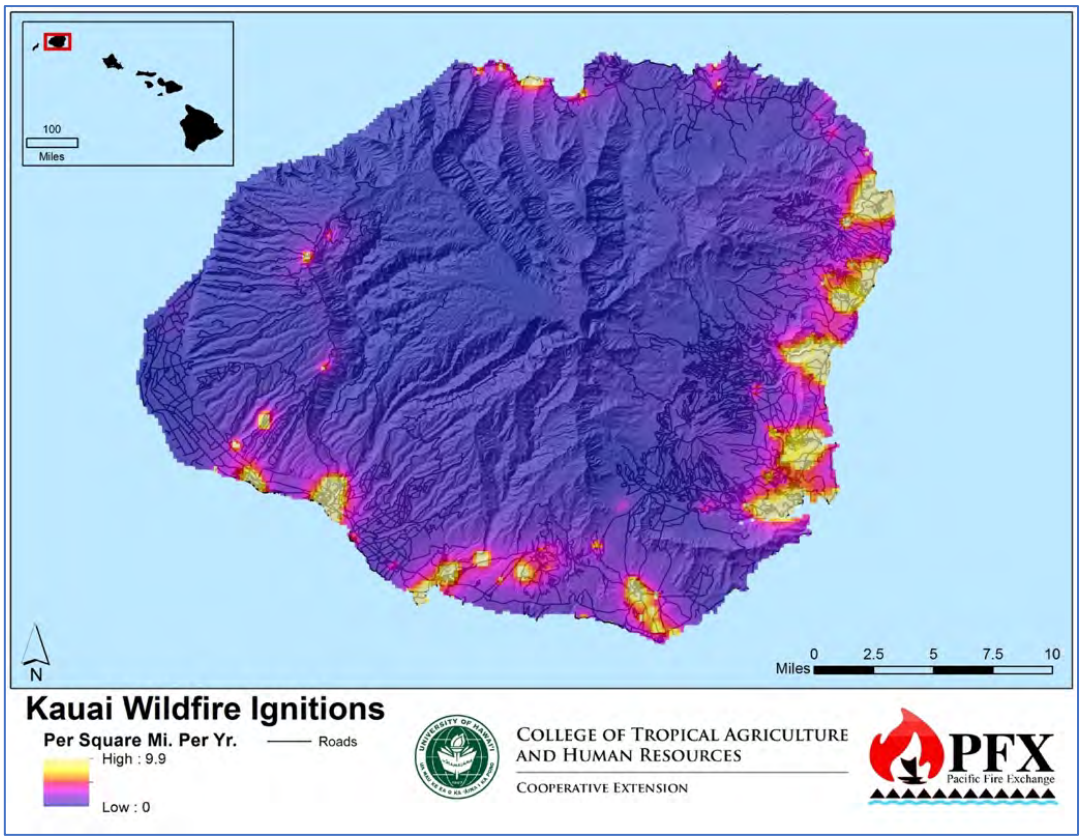
ASSESSMENT FINDINGS

Wildfire hazards and level of risk are determined by many factors. Ultimately, we look at: 1) the likeliness that a fire will be ignited, 2) what fire behavior is anticipated (what is there to burn, how will a fire travel, and how quickly/intense will it burn), and 3) how efficiently and effectively will the fire be suppressed. These are discussed below as they relate to the DHHL Anahola Kuleana Master Plan area.

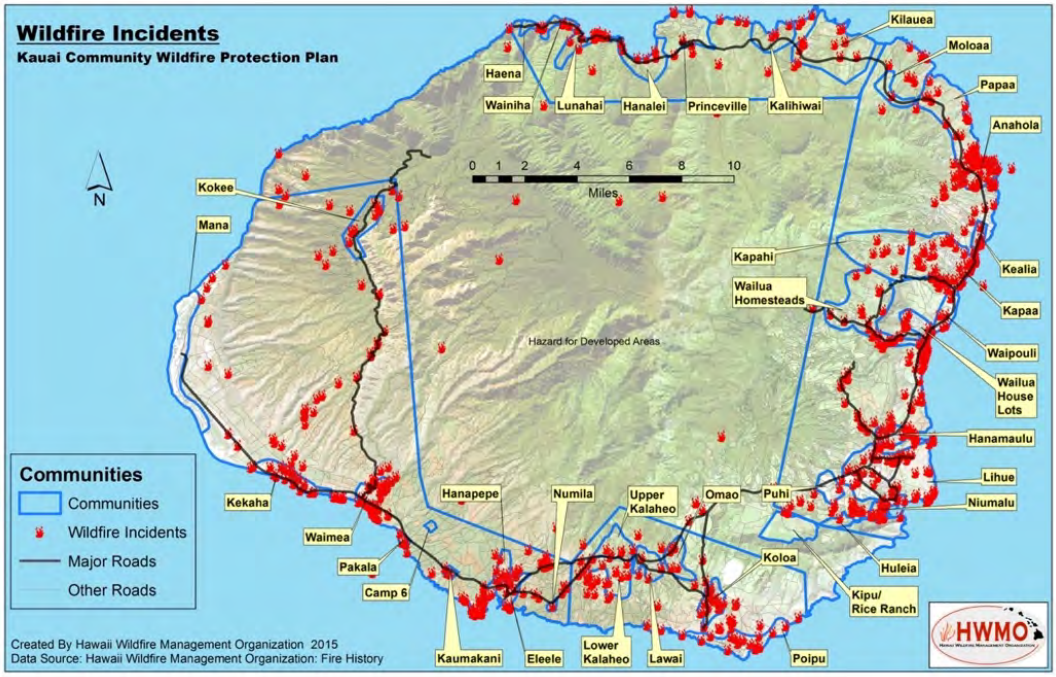
Anahola Wildfire Ignitions

In Hawaii, 98% of wildfires are caused by people, both accidental and intentional. To assess the likelihood of future fire occurrence in an area, it is helpful to understand its fire history as an indicator of human fire-starting behavior in an area. A review of fire history in the broader Anahola area indicates that the area is at high risk for fire starts. It is one of the areas on Kauai with a high density and frequency of ignitions. The following map shows areas of dense wildfire ignitions on Kauai, with Anahola being one of them. See Map 1 below.

In addition to frequency and density of fire ignitions, it is important to understand the trends for where human-caused fire ignitions occur. On Kauai, the large majority of fires are started along roads and human-access areas such as trails. As an area is developed and made more accessible, its fire ignitions increase. For the DHHL Anahola Kuelana Master Plan area, it will be important to consider and mitigate this dynamic as new areas become accessible and traversed by residents and visitors. See Maps 2 and 3 below.

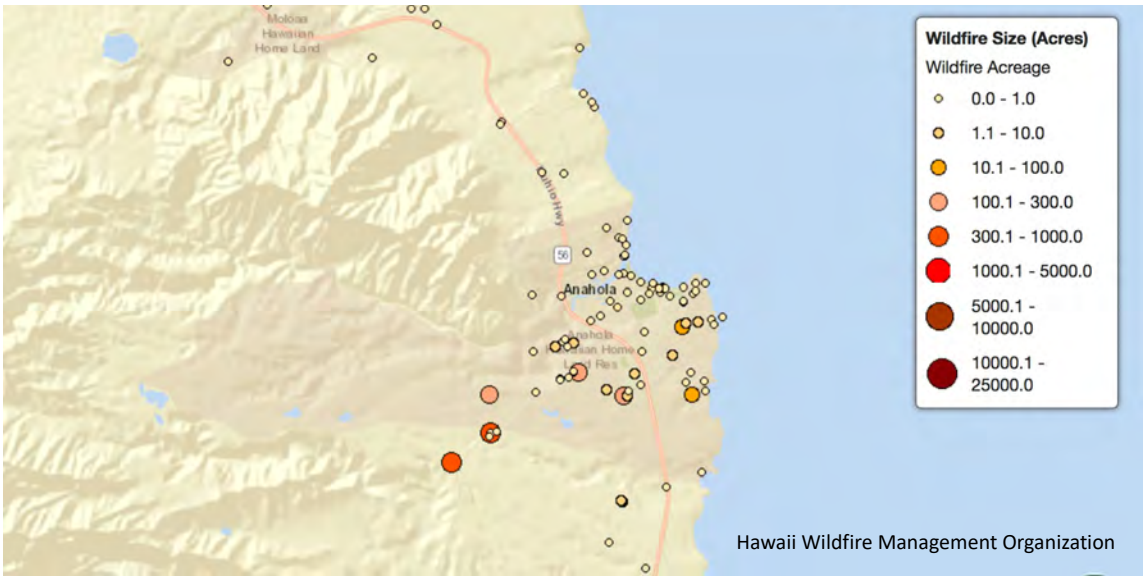


Map 1. Kaua'i Wildfire Ignition Density Map. Lighter areas depict regions with the highest occurrence of ignitions. Source: Trauernicht, University of Hawai'i, CTAHR and Pacific Fire Exchange.



Map 2. Kaua'i Fire Incident Map. Incidents recorded from 1988-2011. Points displayed are ignition sites only and do not indicate perimeter boundaries of burned areas. Note that ignitions occur island wide along roads and human-accessed areas.

Anahola, Kauai Wildland Fire Incidents 2000-2012



Map 3. Anahola wildfire incidents 2000-2012. Note that the larger fires occurred in the upland areas, indicating that under certain circumstances, wildfires can burn large acreages in the area despite its position in a wetter area of the island.

To understand wildfire ignition history, the following photos may be helpful. In 2017, several arson fires were started in the existing Anahola community. These photos depict several important factors that the broader Anahola region faces: 1) wildfires do readily burn in the area despite high vegetative moisture and frequent precipitation, 2) grasses are particularly susceptible to ignition and spread, 3) illegal dumping can be both a cause of wildfire ignitions and add combustible material, and 4) intentional human-caused fire starts are an issue in the area.



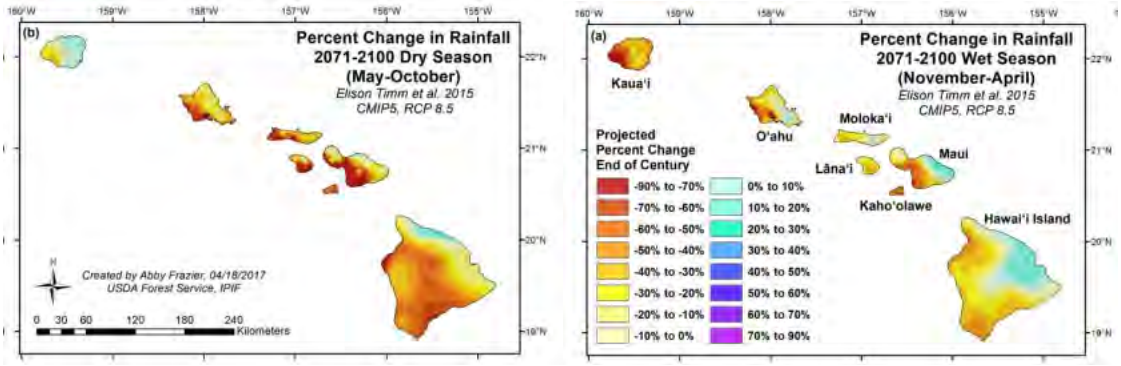
Photos 1 and 2. 2017 Anahola arson fire, courtesy Kauai Fire Department.

Fire Environment

Understanding the fire environment is important for anticipating the behavior, intensity, and impact of wildfires that are ignited in an area. There are several factors to be considered— climate, weather, wind, rainfall, topography, seasonal fluctuations and drought, and vegetation (type, density, and structure). For the DHHL Anahola project area, key considerations are highlighted below.

Weather and climate— Positioned on the windward side of Kauai, the lowland Anahola area receives an annual average of 57 inches of rain per year, with precipitation falling an average of 155 days per year. These numbers increase with elevation. This is typically considered a low hazard for wildfire spread and intensity. However, it is important to consider and mitigate for the variations on this pattern. Rainfall patterns across Hawaii are changing and have led to intense wet and dry pulse events with heavy rains and floods as well as periods of dry and/or drought conditions. It is during these dry conditions that wildfire hazard may be high. Given the high numbers of fire ignitions already occurring and the heavy vegetation in the Anahola area (including the Anahola Kuleana lands), it is the precipitation and vegetative moisture keeping wildfire spread and impacts low. An ignition that occurs during a drier period or drought episode may encounter a different set of factors. Desiccated and dense vegetation can allow fire to spread rapidly. Combined with heavy winds and steep slopes in the area, the wildfire hazard under those circumstances increases dramatically.

Over the next century, rainfall patterns are projected to shift, increasing the wildfire hazard in the broader Anahola area. This underlines the importance of planning for fire-prone conditions and incorporating hazard reduction measures in the formative stages of this project. There is an anticipated seasonal reversal, in that the "dry season" is expected to be wetter in the future, and the "wet season" is expected to be much drier. See the following climate projections below. Planning for drier conditions and addressing seasonal heavy growth of vegetation in the project area will be necessary for wildfire protection.



Graphs 1 and 2. Credit: Abby Frazier, USDA Forest Service, Institute of Pacific Island Forestry, 2017.

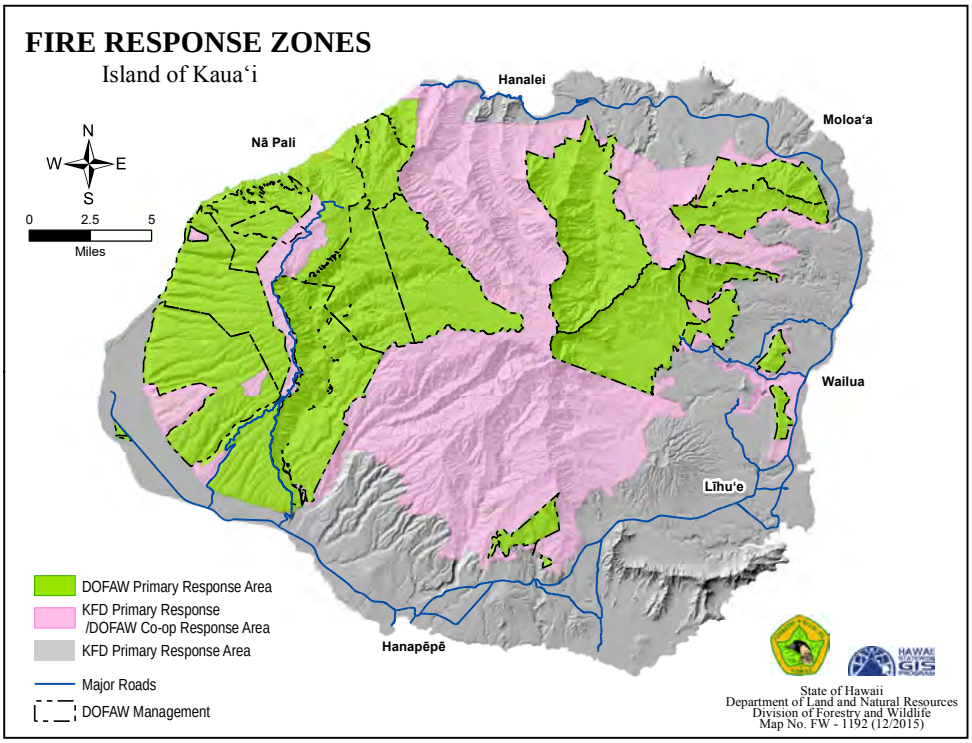
Topography— The DHHL Anahola Kuleana lands have specific topographical challenges that affect wildland fire hazard. The topographical features that may adversely affect fire behavior and make firefighting challenging include steep slopes, gulches, ravines, and stream channels. The overall slope of the area is a concern because wildfires travel more quickly uphill. Flames from wildfires can pre-dry vegetation on the slope ahead of the fire front, curing and directing fire spread, often into areas with more and more challenging access for firefighting. This dynamic could be exacerbated by the predominant wind direction that could also spread

wildfire in an upslope direction. Gulches, ravines, and stream channels may also create challenges to firefighting when they impede access or intensify wildfire spread.

Vegetative hazards— The vegetation within the DHHL Anahola Kuleana area is of low-moderate hazard during typical wet weather conditions, and increases to high-extreme hazard during dry conditions. This will particularly be true when conditions are dry and human access/traffic in the area has increased. It is primarily the arrangement of the vegetation that is of concern. The combination of grasses, shrubs, and trees create a "ladder fuels" situation, in which ground fires can easily travel up to the tree canopy. These fires often require aerial suppression and are much more difficult to suppress, allowing fires to travel faster and farther, and impact a larger area. Additionally, the continuity of vegetation yields a high hazard in the area. In a situation of drought conditions with these contiguous vegetative fuels, fire could spread rapidly, even gaining spread because of the lack of interruption.

Emergency response

Initial response to the majority of wildfires, as well as all medical and other emergencies, is the responsibility of Kauai Fire Department. DLNR-DOFAW responds to wildfire events on State lands and provides additional wildland firefighting assistance when State lands are threatened and/or mutual aid agreements are invoked. Map 3 below was developed by DLNR-DOFAW and demonstrates the independent and shared response zones of each agency. Emergency response capacity is high in terms of training and equipment, however the DHHL Anahola Kuelana area has challenging topography for firefighting and suffers from very limited access through and around what will become the settlement and adjacent areas. Adequate firefighting access, defensible space, and multiple evacuation routes are key factors to address for human safety, efficient wildfire suppression, and limited wildfire impacts on the landscape.



Map 4. Kauai Fire Response Zones. Note that the Anahola area is a combination of both Kauai Fire Department and State Division of Forestry and Wildlife.

DISCUSSION, RECOMMENDATIONS

The following are important hazard reduction considerations, based on the initial assessment of the area.

Reduce ignitions

- It will be imperative for residents and agricultural operators in the area to be aware and trained in best practices to avoid wildfire ignitions. Wildfires are predominantly caused by humans, and a key component in wildfire prevention is education.
- Once roads are created, roadside vegetation should be managed or a roadside buffer cleared or hardened to reduce roadside ignition hazards.

Reduce wildfire spread and damage potential (via vegetation management)

- The settlement area should have a buffer of reduced or removed vegetation around its perimeter, optimally created to concurrently slow fire coming into the area and to provide firefighting access.
- On a broader scale: break up contiguous vegetation, both vertically (to reduce ladder fuels) and horizontally (to interrupt fire spread and acceleration). Whenever possible, fuelbreak lines should be cut horizontal to the slope of the terrain, to minimize erosion while interrupting/slowing upslope progress of fires.
- Residents and agriculturalists should be provided information, training, and guidelines to ensure dwellings, structures, and landscaping incorporate Firewise principals in their design and maintenance (additional detail below).

Optimize for emergency response

- Create multiple ingress-egress routes for evacuation
- Develop water storage and availability for firefighting
- Identify and develop access and staging areas for emergency response vehicles
- Roads should be wide enough for firefighting vehicles, labeled with visible street signs for quick and effective emergency response, and designed for sustained or easy roadside vegetation maintenance.

Prepare community members for settlement area wildfire safety considerations: Follow Firewise guidelines for dwellings, structures, and landscaping—

Wildfire behavior and impact through the settlement area will be dominated by the residential building/development characteristics of the area. By addressing structural and vegetative vulnerabilities, residents will be able to substantially reduce their exposure to loss. There are several best practices for both reducing structural ignitability and landscaping hazards that can be provided to inform residential hazard reduction efforts, including:

- Maintaining and thinning vegetation around homes and structures (there are several resources available with best practices and priority areas to address)
- Utilizing non-combustible building, roofing, and fencing materials
- Landscaping with native plants, drought-resistant plants, fire-resistant plants
- Creating defensible space so that firefighting efforts can take place on individual properties
- Minimizing storage of hazardous materials in areas of high hazard areas, proper storage of gases and combustible materials
- Underground utility lines whenever possible

Appendix D

Biological Survey (AECOS)

AECOS No. 1553

Biological surveys on selected DHHL lands in Anahola, Koʻolau District, Kauaʻi



Dense albizia tree growth with fiddlewood understory.

Prepared by:

AECOS, Inc.
45-939 Kamehameha Hwy, Suite 104
Kāneʻohe, Hawaiʻi 96744-3221

January 4, 2019

Biological surveys of selected DHHL lands in Anahola, Koʻolau District, Kauaʻi[1]

January 4, 2019 AECOS No. 1553

Eric Guinther, Reginald David[2], Allen Cattell, Susan Burr, Bryson Luke, David Miranda, and Chad Linebaugh
AECOS Inc.
45-939 Kamehameha Hwy, Suite 104
Kāneʻohe, Hawai`i 96744
Phone: (808) 236-1782 Author email: guinther@aecos.com

Introduction

The windward Kauaʻi valley of Anahola is located on the northeast coast of the Island of Kauaʻi Figure 1). The land is characterized by gently sloping inter-fluves—previously in sugar cane cultivation—and deep-cut fluvial features. The primary stream draining the north side of the valley is Anahola Stream. Kealia Stream drains the south side. Kaupaku Stream, a tributary of Anahola, drains much of the DHHL Anahola property and another tributary, Kaʻalula Stream, drains the portion of the valley that is the focus of this report (the "Survey Area").

DHHL lands within Anahola Valley *mauka* of Kealia Road occupy just under 2,200 ac (890 ha; see Figure 2). Of this acreage, DHHL identified two areas of current interest (as "Pastoral" and "Subsistence Agriculture") totaling 467 ac (189 ha) and including a portion of Kaʻalula Stream. This area is the DHHL "Settlement Plan Area" and constitutes the aforementioned designated Survey Area for this report.

In addition to completing biological surveys of the Survey Area, DHHL requested that the *AECOS* team attempt to visit other areas of the larger DHHL

[1] This report was prepared for G70 for use in preparing planning and environmental documents for DHHL. This report will become part of the public record.
[2] Rana Biological Consulting, Inc., Kailua-Kona, Hawaiʻi.

lands in Anahola in order to make statements as to gross similarities or differences in comparison with the project Survey Area.

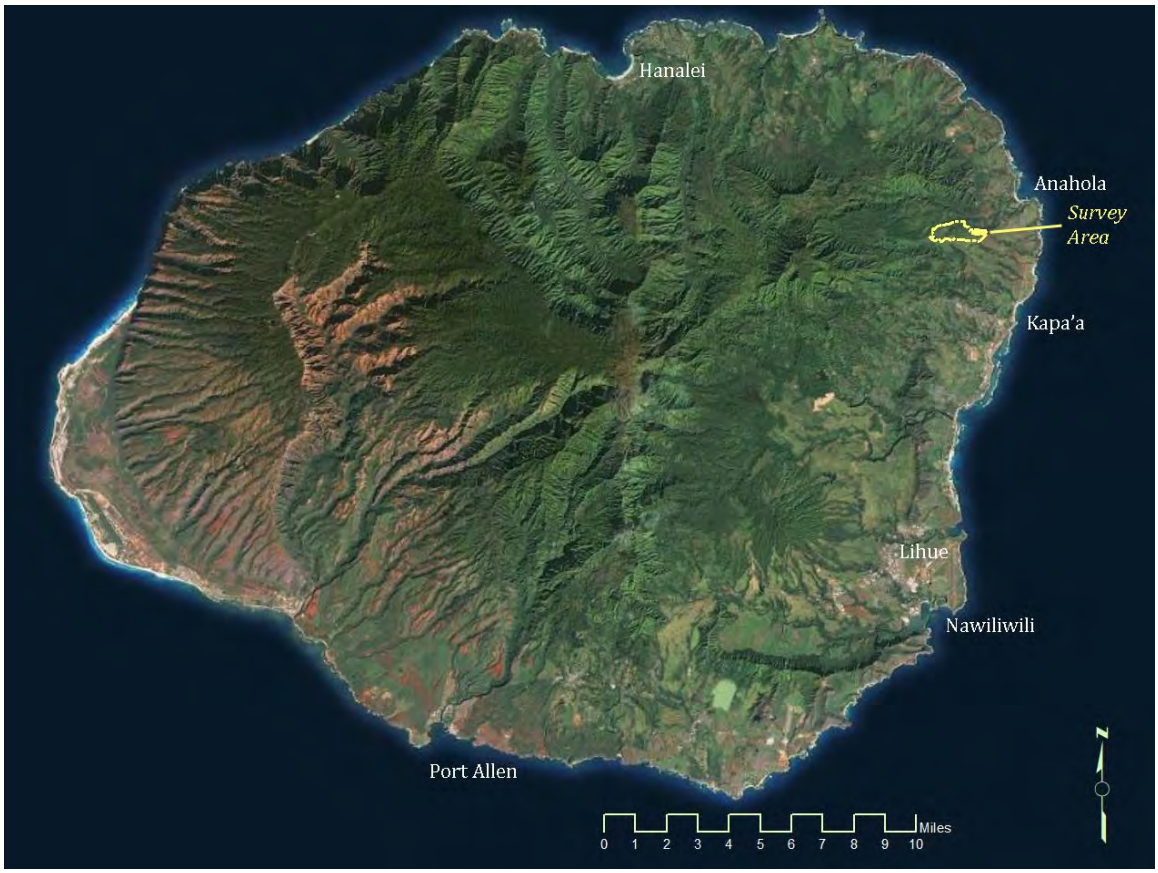


Figure 1. Island of Kaua'i showing survey area in Anahola Valley.

Methods

Stream Water Quality

AECOS biologists, Susan Burr and Chad Linebaugh, measured stream parameters and collected water samples at four stations in Ka'alula Stream (Stas. 2 – 5) and one station in Anahola Stream (Sta. 1) near the mouth of the *muliwai* on November 7, 2018 (Figure 3). The automated rain gage operated by National Weather Service in Anahola recorded 0.18 in (4.57 mm) of rain in the 24-hour period ending at 0800 on November 7, 2018 (NOAA-NWS, 2019). Temperature, conductivity, pH, and dissolved oxygen (DO) were measured *in*

situ. Water samples were collected, chilled, and returned to the *AECOS* laboratory for analyses (*AECOS* Log No. 36844). The following parameters were measured in the laboratory: conductivity, turbidity, total suspended solids (TSS), nitrate+nitrite (NO_3+NO_2), total nitrogen (TN), and total phosphorus (TP). Analytical methods are shown in Table 1.

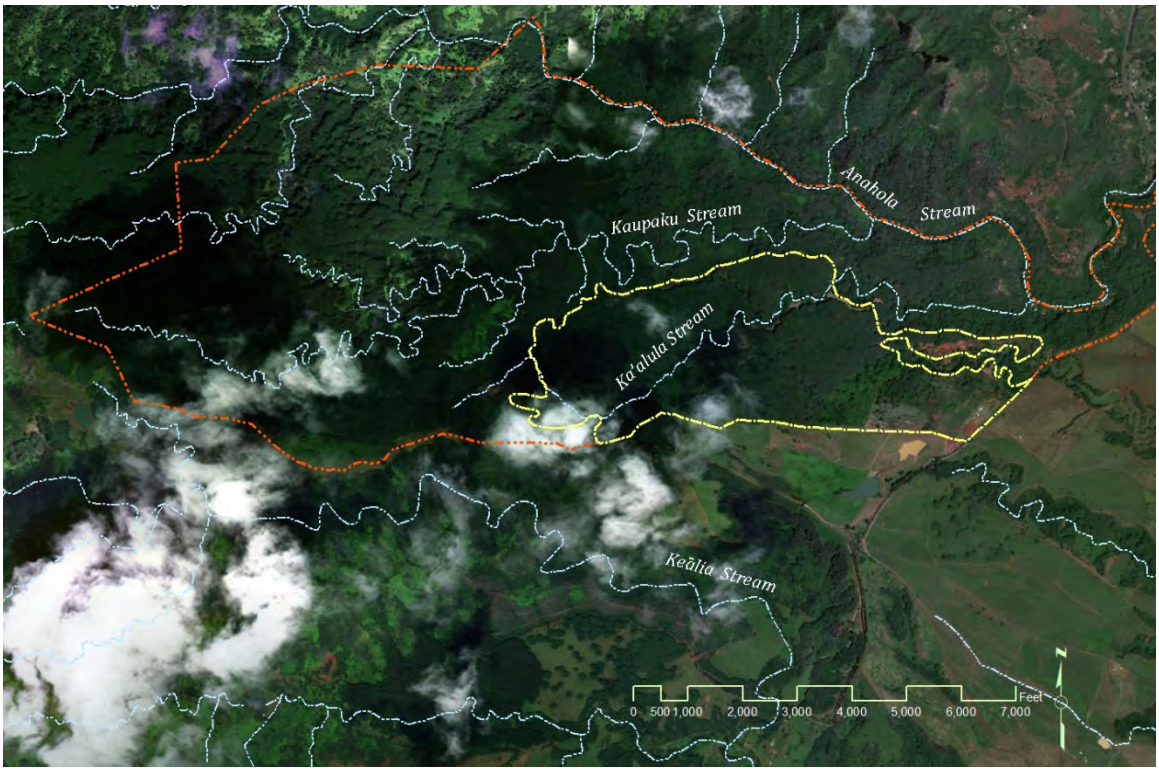


Figure 2. DHHL lands in upper Anahola Valley (outlined in red) and designated Survey Area for the present report outlined in yellow.

Plant Survey

AECOS botanists, Eric Guinther and David Miranda, conducted a botanical survey of the Project area on November 5, 6, and 7, 2018 using a wandering pedestrian transect that entailed covering the entire Project area. Handheld GNSS units (Trimble GeoXH and GeoXT 6000 Series) were used to record progress tracks and mark positions of features and any plant species occurrences of special interest or concern. Plant species were identified as they were encountered. Notations were made in field notebooks and used to develop qualitative abundance values for each species as the survey progressed.

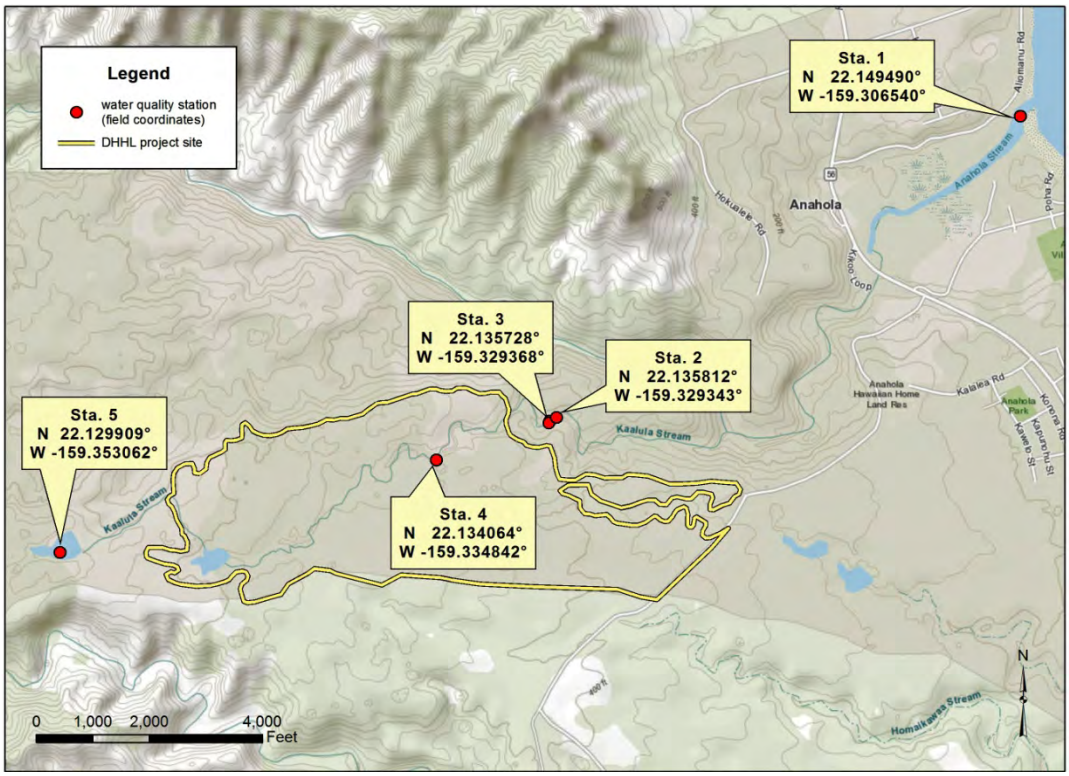


Figure 3. Water quality station locations in Ka'alula Stream and Anahola estuary sampled on November 7, 2018.

Table 1. Analytical methods used in Ka'alula Stream water quality sampling of November 7, 2018.

Analysis	Method	Reference
Temperature	SM 2550B	SM (1998)
Conductivity	SM 2510-B	SM (1998)
pH	SM 4500H+	SM (1998)
Dissolved Oxygen	SM 4500-O G	SM (1998)
Turbidity	EPA 180.1, Rev. 2.0	USEPA (1993a)
Total Suspended Solids	SM 2540D	SM (1998)

Table 1 (continued).

Analysis	Method	Reference
Nitrate + Nitrite	EPA 353.4-2	USEPA (1993b)
Total Nitrogen	EPA 353.4	
Total Phosphorus	365.5	USEPA (1978)

Any plant not immediately recognized during the survey was photographed and/or a representative feature (e.g., a flower, fruit, or leaf) collected for later identification at the laboratory. The survey period encompassed the early rainy season and nearly all plants encountered were readily identifiable by strong growth, flowers, and fruits.

Plant names used herein follow *Manual of the Flowering Plants of Hawaiʻi* (Wagner, Herbst, & Sohmer, 1990; Wagner & Herbst, 1999) for native and naturalized flowering plants, *Hawaiʻi's Ferns and Fern Allies* (Palmer, 2003), and *A Tropical Garden Flora* (Staples & Herbst, 2005) for ornamental and crop plants. More recent name changes for naturalized plant species follow Imada (2012).

Surveys of DHHL land outside of the Survey Area were conducted by vehicle, making frequent stops to inspect plants and better describe the vegetation encountered. This survey crossed Kaʻalula and Kaupaku streams on the old cane road, then proceeded *mauka* up the north side of the DHHL land as far as vehicular travel on the road was passible. However, numerous fallen albizia trunks and branches stopped 4-WD access and the biologists then walked to near the far western (*mauka*) end of the DHHL property.

Aquatic Biota Survey

AECOS biologists, Susan Burr and Chad Linebaugh, conducted a survey of aquatic biota along waterways in the Survey Area on November 5, 6, and 7, 2018. The biologists made visual observations of aquatic organisms in both natural and man-made waterways, noting relative abundances (e.g., rare, common, abundant) of each species encountered as the survey progressed. Hand nets were used to capture fishes for close inspection and discover more cryptic, bottom-dwelling species. Visibility was too poor and waters were too shallow to conduct a snorkel survey. To assess the potential for migration of

native amphidromous[3] animals and the distribution of aquatic organisms throughout the watershed, our investigation included observations at Keālia Field 1 Reservoir, upslope of the Project area, and Anahola estuary, downslope of the Survey Area. Nomenclature and identifications follow *Hawai'i's Native and Exotic Freshwater Animals* (Yamamoto and Tagawa, 2000) and *Hawaiian Damselflies: a Field Identification Guide* (Polhemus and Asquith, 1996).

Birds and Mammals Survey

Bird and mammal surveys were conducted by Reginald David and Bryson Luke. Twenty-five avian count stations were sited roughly equidistant from each other within the Survey Area. A single eight-minute avian point count was made at each of the 25 count stations. Field observations were made with the aid of Leica 8 X 42 binoculars and by listening for vocalizations. The avian counts were conducted in the early morning hours. Time not spent counting at point-count stations was used to search the site for species and habitats not detected during the point-counts. Weather conditions were good to excellent with winds of between 5 and 20 kilometers per hour and only one morning of rainfall.

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

The avian phylogenetic order and nomenclature used in this report follows the *AOU Check-List of North American Birds* (American Ornithologists' Union, 1998), and the 42nd through the 56th supplements to the Check-List (American Ornithologists' Union, 2000; Banks et al., 2002, 2003, 2004, 2005, 2006, 2007, 2008; Chesser et al., 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018). Mammal scientific names follow (Wilson and Reeder, 2005).

Results

Stream Water Quality

The results of water quality sampling and analyses are shown in Table 2. Water temperatures were similar at all stations, except Sta. 4, where it was slightly below the other four sampled locations. No trends in pH or DO

[3] Meaning a species that moves between fresh and salt water as part of the life cycle.

saturation were apparent, except that DO saturation was noticeably low at Sta. 2 and Sta. 3. Except for the slightly elevated conductivity at Station 5, conductivity increased steadily downstream as is expected in a stream system. Turbidity also increased with distance downstream in Ka'alula Stream and was especially high at Sta. 2, but was very low in the Anahola Stream *muliwai*, compared with Stas. 2 – 5. TSS showed the same pattern, increasing with distance downstream, peaking at 116 mg/L at Sta. 2, then decreasing in the *muliwai* to 1.2 mg/L. This same pattern was repeated for Total Phosphorus (TP), peaking at Sta. 2, but quite low in the *muliwai* and the nitrogen moieties except for especially high values at Sta. 4. Although the results from water quality testing in the Anahola Stream *muliwai* are distinct from all of the upstream stations (reflecting, in general, better water quality), the conductivity value of 297 µmhos/cm and pH of 6.31 are indicative of no marine water influence at this station; that is, the water was not estuarine at the time sampoled.. A likely explanation is that the water in the muliwai is that from Anahola Stream, with very minimal influence from Ka'alula Stream water.

Table 2. Results of water quality sampling on November 7, 2018; stations arranged from upstream in Ka'alula Stream to the Anahola Stream mouth.

Station	Temp. (° C)	Cond. (µmhos/cm)	pH (SU)	DO (%Sat.)	Turbidity (ntu)
5	23.5	193	6.41	80	12.4
4	22.7	122	6.55	82	13.3
3	23.6	166	6.23	33	38.4
2	23.5	204	6.52	48	214
1	23.9	297	6.31	85	4.06

Station	TSS (mg/L)	NO_3+NO_2 (µg/L)	TN (µg/L)	TP (µg/L)
5	5.0	91	201	<3
4	6.8	367	426	14
3	12	166	213	23
2	116	304	427	112
1	1.2	20	95	7

Vegetation

The Survey Area, indeed much of the DHHL property in the valley, is covered by forest, and that forest is dominated by large albizia (*Falcateria moluccana*) trees (see cover photo and Figures 1 and 2). Exceptions are the pasture and farm areas at the *makai* end of the property and the riparian areas, also forested, but with a forest of mixed tree species. In a few areas along the Ka'alula Stream and especially in the basin of the abandoned "unnamed" reservoir (and to a lesser extent in the basin of abandoned Field 2 Keālia Reservoir) vegetation is indicative of wetlands, especially where dominated by *hau* (*Hibiscus tiliaceus*).

Within the dominating albizia forest, the understory varies considerably from place to place. Generally, the dominant vegetation is one of shrubs and can be rather open (Figure 4) or impenetrable. Large numbers of presumably wild cattle roam these areas, and their activity may determine the nature of the understory, as some areas are well-fenced and others are fenced but with open gates and/or downed wires. Cattle are regularly encountered in the *mauka* parts of the Project area.



Figure 4. Typical albizia forest with sparse understory. In most areas, this understory is juvenile fiddlewood (*Citherexyllum caudatum*).

Flora

A listing of all the plant species encountered by the botanical survey is provided as Table 3. Although this listing is complete for the survey dates, note <1> indicates those species only observed outside the designated survey area but on DHHL property in Anahola Valley. These latter species are not included in the accounting of total species and species by status. Species indicated by note <2> were present in both "areas", but notably more abundant or encountered more regularly outside the survey area. Note <3> species occur in the survey area, but are mostly characteristic of the lower parts of the valley where there are small farms and larger, active pasture areas. These disturbances, and plantings of selected species such as papaya and *'olena*, provide for a much different flora than is characteristic of the property as a whole. Otherwise, both the forest in the Survey Area and the forested land beyond on the DHHL property are very similar in their floristic character.



Figure 5. Albizia forest with nearly impenetrable shrub understory: here and typically thimbleberry (*Rubus rosifolius*), Koster's curse (*Clidemia hirta*), shoebutton ardisia (*Ardisia elliptica*), and wait-a-bit (*Caesalpinia decapitala*).

Table 3. Checklist of plants recorded for DHHL property in Anahola Valley.

Family *Species*	Common name	STATUS	ABUNDANCE	NOTES
PTERIDOPHYTES - FERNS & FERN ALLIES				
BLECHNACEAE				
Blechnum appendiculatum Willd.	---	Nat	Uc	
CYATHEACEAE				
Sphaeropteris cooperi (Hook. ex F. Muell.) R. M. Tryon	Australian tree fern	Nat	R	<2>
GLEICHENIACEAE				
Dicranopteris linearis (Burm f.) Underw.	*uluhe*	**Ind**	R	<1>
MARATTIACEAE				
Angiopteris evecta (G. Forst.) Hoffm.	giant mule's-foot fern	Nat	R	<1>
NEPHROLEPIDACEAE				
Nephrolepis exaltata hawaiiensis W.H. Wagner	*ni'ani'au*	**End**	Oc	<1>
Nephrolepis multiflora (Roxb.) F.M. Jarrett ex C.V. Morton	sword fern	Nat	O	
POLYPODIACEAE				
Phlebodium aureum (L.) J. Sm.	rabbit's-foot fern	Nat	U	
Phymatosorus grossus (Langsd. & Fisch.) Brownlie	*laua'e*	Nat	Uc	<2>
PSILOTACEAE				
Psilotum nudum (L.) P. Beauv.	*moa*	**Ind**	R	
THELYPTERIDACEAE				
Christella parasitica (L.) H. Lév.	wood fern	Nat	Oc	
FLOWERING PLANTS – DICOTS				
ACANTHACEAE				
Thunbergia fragrans Roxb.	sweet clock-vine	Nat	O	
ANACARDIACEAE				
Mangifera indica L.	mango	Nat	R	
Schinus terebinthifolius Raddi	Christmas berry	Nat	O	
ANNONACEAE				
Annona muricata L.	soursop	Orn	R	<3>
APIACEAE				
Centella asiatica (L.) Urb.	Asiatic pennywort	Nat	Ru	
Ciclospermum leptophyllum (Pers.) Sprague	fir-leaved celery	Nat	R	

Table 3 (continued).

Family *Species*	Common name	STATUS	ABUNDANCE	NOTES
ARALIACEAE				
Schefflera actinophylla (Endl.) Harms	octopus tree	Nat	U	
ASCLEPIADACEAE				
Asclepias curassavica L.	butterflyweed	Nat	R	
ASTERACEAE				
Agaratina adenophora (Spreng.) R. King & H. Robinson	Maui *pāmakani*	Nat	R	<1>
Agaratina riparia (Regel) R. King & H. Robinson	Hāmākua *pāmakani*	Nat	Rc	<1>
Ageratum conyzoides L.	*maile hohono*	Nat	A	
Ageratum houstonianum Mill.	*maile hohono*	Nat	U	
Calyptocarpus vialis Less.	---	Nat	R	<3>
Conyza bonariensis (L.) Cronq.	hairy horseweed	Nat	Uu	
Conyza canadensis (L.) Cronq.	horsewed	Nat	Uu	
Crassocephalum crepidioides (Benth.) S. Moore	---	Nat	R	<1>
Cyanthillium cinereum (L.) H. Rob.	little ironweed	Nat	R	
Elephantopus mollis Kunth	---	Nat	Ou	
Emilia fosbergii Nicolson	Flora's paintbrush	Nat	R	
Erechtites valerianifolia (Wolf) DC.	---	Nat	R	<2>
Parthenium hysterophorus L.	false ragweed	Nat	R	
Pluchea carolinensis (Jacq.) G. Don	---	Nat	O	<2>
Sigesbeckia orientalis L.	sm. yellow crownbeard	Nat	R	
Sphagneticola trilobata L.	wedelia	Nat	Rc	<3>
Synedrella nodiflora (L.) Gaertn.	nodeweed	Nat	Ua	
Youngia japonica (L.) DC.	Oriental hawksbeard	Nat	R	<1>
ARALIACEAE				
Polyscias guilfoylei (W. Bull.) L. H. Bailey	common plantain	Nat	U	<1>
BIGONACEAE				
Spathodea campanulata P. Beauv.	African tulip tree	Nat	O	
BUDDLEIACEAE				
Buddleia asiatica Lour.	dog tail	Nat	R	<1>
CARICACEAE				
Carica papaya L.	papaya	Nat	R	<3>
CARYOPHYLLACEAE				
Drymaria cordata (L.) Willd. ex Roem. & Schult.	*pipili*	Nat	R	

Table 3 (continued).

Family *Species*	Common name	STATUS	ABUNDANCE	NOTES
CECROPIACEAE				
Cecropia obtusifolia Bertol.	guarumo	Nat	U	
CONVOLVULACEAE				
Ipomoea obscura (L.) Ker-Gawl.	---	Nat	R	<3>
Ipomoea triloba L.	little bell	Nat	U	
Merremia tuberosa (L.) Rendle	wood rose	Nat	R	
CUCURBITACEAE				
Lagenaria siceraria (Molina) Standley	*ipu*	**Pol**	R	<3>
EUPHORBIACEAE				
Aleurites moluccana (L.) Wild.	*kukui*	Pol	U	
Euphorbia hirta L.	garden spurge	Nat	R	<3>
Euphorbia hypericifolia L.	graceful spurge	Nat	R	<3>
Euphorbia prostrata L.	prostrate spurge	Nat	R	<3>
Macaranga tanarius (L.) Müll.Arg.	---	Nat	U	
Phylanthus debilis Klein ex Willd.	*niuri*	Nat	U	
Ricinus communis L.	castor bean	Nat	R	<3>
FABACEAE				
Acacia koa A. Gray	*koa*	**End**	R	<1>
Caesalpinia decapitala (Roth) Alston	wait-a-bit	Nat	C	
Canavalia cathartica Thouars	*maunaloa*	Nat	R	
Chamaecrista nictitans (L.) Moench	partridge pea	Nat	U	<3>
Crotalaria incanum L.	fuzzy rattlepod	Nat	U	<3>
Crotalaria pallida Aiton	smooth rattlepod	Nat	R	<3>
Desmodium incanum DC.	Spanish clover	Nat	AA	
Falcateria moluccana (Miq.) Barneby & Grimes	albizia	Nat	AA	
Indigofera suffruticosa Mill.	indigo	Nat	U	<3>
Leucaena leucocephala (Lam.) deWit	*koa haole*	Nat	U	
Mimosa pudica var. *unijuga* (Duchass. & Walp.) Griseb.	sensitive plant	Nat	Oa	
Senna occidentalis (L.) Link	coffee senna	Nat	R	<3>
Stylosanthes friticosa (Retz.) Alston	---	Nat	R	
LAMIACEAE				
Hyptis pectinata (L.) Poit.	comb hyptis	Nat	U	
Leonotis nepetifolia (L.) R. Br.	lion's ear	Nat	R	<3>

Table 3 (continued).

Family *Species*	Common name	STATUS	ABUNDANCE	NOTES
LAURACEAE				
Cinnamomum camphora (L.) J. Presl.	camphor tree	Nat	C	
Persea americana Mill.	avocado	Nat	R	
LYTHRACEAE				
Cuphea carthagenensis (Jacq.) Macbr.	tarweed	Nat	U	
MALVACEAE				
Hibiscus tiliaceus L.	*hau*	**Ind**	Uc	<2>
Malachra alceifolia Jacq.		Nat	R	
Sida acuta N. L. Burm.	---	Nat	Ou	
Sida rhombifolia L.	---	Nat	O	
Waltheria indica L.	*uhaloa*	**Ind**	U	
MELASTOMATACEAE				
Clidemia hirta (L.) D. Don	Koster's curse	Nat	O	
MELIACEAE				
Melia azedarach L.	Chinaberry	Nat	R	
MORACEAE				
Ficus microcarpa L. fil.	Chinese banyan	Nat	R	<1>
MYRSINACEAE				
Ardisia elliptica Thunb.	shoebutton ardisia	Nat	C	
MYRTACEAE				
Psidium cattleianum Sabine	strawberry guava	Nat	Ca	<2>
Psidium cattleianum var. *littorale* (Raddi) Fosb.	*waiawī*	Nat	U	<1>
Psidium guajava L.	common guava	Nat	O	
Syzygium cuminii (L.) Skeels	Java plum	Nat	O	
ONAGRACEAE				
Ludwigia octovalvus (Jacq.) Raven	primrose willow	Nat	Ua	
OXALIDACEAE				
Oxalis corymbosa DC.	pink wood sorrel	Nat	U	
Oxalis corniculata L.	yellow wood sorrel	**Pol**	U	
PASSIFLORACEAE				
Passiflora edulis Sims	passion fruit	Nat	U	
Passiflora laurifolia L.	yellow grandilla	Nat	Uo	
Passiflora suberosa L.	*huehue haole*	Nat	U	
PLANTAGINACEAE				
Plantago major L.	common plantain	Nat	Ru	
POLYGALACEAE				
Polygala paniculata L.	bubblegum plant	Nat	U	

Table 3 (continued).

Family *Species*	Common name	STATUS	ABUNDANCE	NOTES
PROTEACEAE				
Grevillea robusta A. Cunn. ex R. Br.	silk oak	Nat	R	
ROSACEAE				
Rubus rosifolius Sm.	thimbleberry	Nat	A	
RUBIACEAE				
Paederia foetida L.	*maile pilau*	Nat	R	<3>
Psydrax odorata (G. Forster) A.C. Sm. & S. Darwin	*alahe'e*	**Ind**	R	
Morinda citrifolia L.	*noni*	**Pol**	O	
Spermacoce assurgens Ruiz & Pav.	buttonweed	Nat	AA	
RUTACEAE				
Citrus sp.	---	Orn?	R	
SAPINDACEAE				
Dimocarpus longan Lour.	lychee	Orn	R	<3>
SCROPHULARIACEAE				
Castilleja arvensis Cham. & SchlechtEnd	Indian paintbrush	Nat	R	<1>
SOLANACEAE				
Solanum americanum Mill.	*pōpolo*	**Ind**	R	<1>
TILIACEAE				
Triumfetta semitriloba Jacq.	Sacramento bur	Nat	U	
VERBENACEAE				
Citharexylum caudatum L.	fiddlewood	Nat	AA	
Lantana camara L.	lantana	Nat	Oc	
Stachytarpheta urticifolia (Salisb.) Sims	vervain	Nat	Oc	
Verbena littoralis Kunth	*ōwī*	Nat	U	
FLOWERING PLANTS – MONOCOTS				
AGAVACEAE				
Cordyline fruticosa (L.) A. Chev.	ti; *kī*	**Pol**	R	
ARACEAE				
Alocasia macrorrhizos (L.) G. Don	*'ape*	**Pol**		<1>
Dieffenbachia maculata (Loddiges) G. Don	dieffenbachia	Nat	R	<1>
Epipremnum pinnatum (L.) Engl.	pothos	Nat	R	<4>
Syngonium sp.	nephthytis	Nat		
Xanthosoma rosea Schott	*'ape*	Nat		
ARECACEAE				
Cocos nucifera L.	coconut palm; *niu*	**Pol**	U	
Roystonea regia (Kunth.) O.F. Cook	royal palm	Orn	R	

Table 3 (continued).

Family *Species*	Common name	STATUS	ABUNDANCE	NOTES
CANNACEAE				
Canna indica L.	Indian-shot	Nat	R	
COMMELINACEAE				
Commelina diffusa N.L. Burm.	day flower; *honohono*	**Pol**	Uc	
CYPERACEAE				
Cyperus haspan Kunth	---	Nat	Ru	<3>
Cyperus involucratus Rott.	umbrella sedge	Nat		
Cyperus polysytachyos		Nat		
Kyllinga brevifolia Rottb.	green kylinga; *kili'o'opu*	Nat	R	
Kyllinga nemoralis (J.R. Forster & G. Forster) Dandy ex Hutchinson & Dalziel	white kyllinga; *kili'o'opu*	Nat	Uc	
LILIACEAE				
? Hippeastrum sp.	amaryllis-like	Nat	U	<4>
MUSACAEAE				
Musa acuminata Colla	hybrid banana	**Pol**	R	<3>
PANDANACEAE				
Pandanus tectorius S. Parkinson ex Z	*hala*	**Ind**	R	<2>
POACEAE (GRAMINEAE)				
Axonopus compressus (Sw.) P. Beauv.	brd-lf carpetgrass	Nat	AA	
Cenchrus purpureus (Schumach.) Marrone	elephant grass	Nat	R	
Chloris barbata (L.) Sw.	swollen fingergrass	Nat	U	<3 >
Coix lachryma-jobi L.	Job's tears	Nat	R	<1>
Dactyloctenium aegypticum (L.) Wild.	beach wiregrass	Nat	R	<3>
Digiteria ciliaris (Retz.) Koeler	Henry's crabgrass	Nat	O	
Digiteria insularis (L.) Mez ex Ekman	sourgrass	Nat	AA	<3>
Digitaria violascens Link	violet crabgrass	Nat	U	<3>
Eleusine indica (L.) Gaertn.	wiregrass	Nat	U	<3>
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Nat	O	
Megathyrsus maximus (Jacq.) B.K. Simon & W.L. Jacobs	Guinea grass	Nat	AA	
Oplismenus hirtellus (L.) P. Beauv.	basketgrass	Nat	R	<2>
Paspalum conjugatum Bergius	Hilo grass	Nat	A	
Sacciolepis indica (L.) Chase	Glenwood grass	Nat	U	

Table 3 (continued).

Family *Species*	Common name	STATUS	ABUNDANCE	NOTES
POACEAE (continued)				
Setaria gracilis Kunth	yellow foxtail	Nat	R	
Sporobolus indicus (L.) R.Br.	West Indian dropseed	Nat	C	
Urochloa distachya (L.) T.Q. Nguyen	---	Nat	U	
ZINGIBERACEAE				
Curcuma longa L.	*ʻōlena*, tumeric	**Pol**	R	<3>

Key to Table 3.

Status = distributional status
- End = endemic; native to Hawaii and found naturally nowhere else.
- Ind = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.

Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since 1778 and well-established.
- Orn. = exotic, ornamental or cultivated; plant not naturalized (not well-established outside of cultivation).
- Pol. = Polynesian introduction before 1778.R

Abundance = occurrence ratings for plants in survey area.
- R – Rare - only one, two, or three plants seen.
- U - Uncommon - several to a dozen plants observed.
- O - Occasional - found regularly around the site.
- C - Common - considered an important part of the vegetation and observed numerous times.
- A - Abundant - found in large numbers; may be locally dominant.
- Numbers after letter indicates clustered distribution: number of plants greater than abundance category (for R, U, or O), which then becomes indication of number of clusters. For C or A number indicates species very common or abundant in limited area(s) only.

Notes:
- <1> Recorded from the DHHL property but not within the survey area boundary.
- <2> Recorded outside survey area boundary in greater abundance (rare or uncommon in survey area).
- <3> Recorded only in farms in survey area or much more abundant in these areas.
- <4> Plant without flower or fruit; identification uncertain.

In all, Table 3 lists 143 species of vascular plants (not counting two trees and a liana seen only once each and yet to be identified). However, 126 of these were recorded within the designated Survey Area, the others recorded only outside the Survey Area, but most of these additional 17 species are likely to occur in small numbers somewhere within the Survey Area.

Aquatic Biota Survey

Kaʻalula Stream enters Anahola Stream approximately 1 mi (1.6 km) upstream of the estuary. Within the Survey Area, Kaʻalula Stream flows across the low-sloping terrain of the interfluve south of Anahola Stream, but the channel



Figure 6. Anahola pasture land, dominated here by sourgrass (*Digiteria insularis*).

is deeply incised in the lower one-third of the Survey Area. Kaʻalula Stream is an interrupted stream (perennial, but with segments sometimes dry) and has both gaining and losing reaches. Where the channel is incised, the stream bed includes steps and pools, in many places with silt-covered boulders (Figure 7). In flat areas, such as through the abandoned reservoirs, the stream bed is mostly silt. Stream flow is through *hau* forest in some areas (e.g., through the unnamed reservoir; Figure 8) and through hydrophytic herbaceous vegetation in other areas (e.g., through Keālia Field 1 Reservoir; Figure 9).

A listing of all the aquatic biota species encountered during our survey (including species observed in the *muliwai*, which is downstream of the survey area), as well as those recorded from previous DLNR-DAR stream surveys of Anahola Watershed, is provided in Table 4. An estimate of relative abundance for animals observed by us is also provided. In all, *AECOS* biologists noted 11 aquatic species in the waterways in the survey, including one endemic goby, *ʻoʻopu nākea* (*Awaous stamineus*) and one endemic damselfly, *pinao ʻula* (*Megalagrion oresitrophum*).



Figure 7. Stream habitats in the lower one-third of the Survey Area include steps and pools.



Figure 8. Stream flow is in slow runs, such as shown in this *hau* forest in the unnamed reservoir bottom.



Figure 9. Stream flow is sinuous through Fioeld 1 Keālia Reservoir and the bottom of the basin includes hydrophytic herbaceous plants.

Birds and Mammals Survey

A total of 1015 individual birds of 27 species, representing 19 separate families, were recorded during station counts (Table 5). An additional species, Black-crowned Night-Heron (*Nycticorax nycticorax hoactli*), a resident indigenous water obligate species was recorded as an incidental observation by the stream biologists. One species recorded—Nēnē (*Branta sandvicensis*)—is an endemic species that is listed as an endangered under both federal and State of Hawaiʻi endangered species statutes. Six Nēnē were seen flying over pastureland outside of the survey area. One species recorded—Pacific-Golden Plover

Table 4. Checklist of aquatic biota observed in waterways in Project vicinity and/or reported previously as present in Anahola River.

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Abund.	Status	ID Code
	ALGAE			
BACILLARIOPHYTA				
FRAGILARIACEAE				
Synedra ulna (Nitzsch) Ehrenb.	diatom	--	**Ind**	1
CHLOROPHYTA				
CHAETOPHORACEAE				
Stigeoclonium sp.		--	**Ind**	1
CLADOPHORACEAE				
Rhizoclonium sp.		--	**Ind**	1
ZYGNEMATACEAE				
Spirogyra sp.		--	**Ind**	1
	INVERTEBRATES			
PLATYHELMINTHES, TREPAXONEMATA, NEOOPHORA				
PLANARIIDAE				
indet.	flatworm	--	Nat	3
MOLLUSCA, BIVALVIA, VENEROIDA				
CYRENIDAE				
Corbicula fluminea Muller	Asian clam	--	Nat	2,3
PHYSIDAE				
Physa sp.	--	R	Nat	1
MOLLUSCA, GASTROPODA				
NEOTAENIOGLOSSA				
THIARIDAE				
Melanoides tuberculatus (Muller)	red-rim melania	--	Nat?	3
MOLLUSCA, GASTROPODA				
NERITOPSINA				
NERITIDAE				
Neritina granosa Sowerby	*hīhīwai*	--	**End**	2
ARTHROPODA, INSECTA				
DIPTERA				
CHIRONOMIDAE				
Telmatogeton sp.	midge	--	--	2

Table 4 (continued)

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Abund.	Status	ID Code
ARTHROPODA, INSECTA				
HEMIPTERA				
NOTONECTIDAE				
Notonecta indica Linnaeus	backswimmer	O	Nat	1
ARTHROPODA, INSECTA				
ODONATA				
COENAGRIONIDAE				
Ischnura posita Hagen	fragile forktail	R	Nat	1,3
Ischnura ramburii Selys	Rambur's forktail	R	Nat	1
Megalagrion sp.	native Hawaiian damselfly	--	**End**	3
Megalagrion heterogamias Perkins	Kauai mountain damselfly	--	**End**	2
Megalagrion oresitrophum Perkins	*pinao 'ula,* slender Kauai damselfly	R	**End**	1,2,3
Megalagrion orobates Perkins	yellowface Kauai damselfly	--	**End**	2
Megalagrion vagabundum Perkins	scarlet Kauai damselfly	--	**End**	2,3
LIBELLULIDAE				
indet. Libellulidae	dragonfly naiad	R	Nat	1
Crocothemis servillia (Drury)	scarlet skimmer	--	Nat	3
ARTHROPODA, INSECTA				
TRICHOPTERA				
HYDROPHYCHIDAE				
Cheumatopsyche analis (Banks)	little sister sedge caddisfly	--	Nat	3
ARTHROPODA, MALACOSTRACA, DECOPODA				
ATYIDAE				
Atyoida bisulcata JW Randall	Hawaiian shrimp *'ōpae kālā 'ole*	--	**End**	2,3
CAMBARIDAE				
Procambarus clarkii (Girard)	red swamp crayfish	--	Nat	3
PALAEMONIDAE				
Macrobrachium grandimanus JW Randall	Hawaiian prawn; *'ōpae'ohea'a*	--	**End**	2,3
Macrobrachium lar J.C. Fabricius	Pacific prawn	--	Nat	2,3
	FISHES			

Table 4 (continued)

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Abund.	Status	ID Code
CHORDATA, ACTINOPTERYGII, CYPRINODONTIFORMES				
POECIILIDAE				
Gambusia affinis (Baird and Girard)	mosquitofish	--	Nat	3
Poecilia sphenops Valenciennes	molly	U	Nat	1,2,3
Xiphophorus helleri Heckel	green swordtail	O	Nat	1,2,3
CHORDATA, ACTINOPTERYGII, GOBIIFORMES				
ELEOTRIDAE				
Eleotris sandwicensis Vaillant & Sauvage	*ʻoʻopu ʻakupa*	--	**End**	2,3
GOBIIDAE				
Awaous stamineus Valenciennes	*ʻoʻopu nākea*	U	**Ind**	1,2,3
Lentipes concolor Gill	*ʻoʻopu ʻalamoʻo*	--	**End**	2
Sicyopterus stimpsoni Gill	*ʻoʻopu nōpili*	--	**End**	2,3
Stenogobius hawaiiensis Watson	*ʻoʻopu naniha*	--	**End**	3
OXUDERCIDAE				
Stenogobius hawaiiensis Watson	*ʻoʻopu naniha*	--	**End**	1,2
CHORDATA, ACTINOPTERYGII, PERCIFORMES				
CENTRARCHIDAE				
Micropterus salmoides Lacepede	largemouth bass	--	Nat	2
CICHLIDAE				
Oreochromis mossambicus Peters	Mozambique tilapia	--	Nat	2
Tilapia sp.	tilapia	--	Nat	1
KUHLIIDAE				
Kuhlia sandvicensis Steindachner	Hawaiian flagtail, *āholehole*	--	**Ind**	1
Kuhlia xenura Jordan & Gilbert	strange-tailed flagtail, *āholehole*	--	**End**	1,2,3
CHORDATA, ACTINOPTERYGII, SILURIFORMES				
CLARIIDAE				
Clarias fuscus Lacepede	Hong Kong catfish	--	Nat	1,3
CHORDATA, ACTINOPTERYGII, MUGILIFORMES				
MUGILIDAE				
Mugil cephalus Linnaeus	striped mullet, *ʻamaʻama*	--	**Ind**	1,2,3

Table 4 (continued)

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Abund.	Status	ID Code
	AMPHIBIANS			
CHORDATA, AMPHIBIA, ANURA				
BUFONIDAE				
Bufo marinus L.	cane toad (adult/tadpole)	R/C	Nat	1,2,3
RANIDAE				
Lithobates catesbeianus Shaw	American bullfrog (adult/tadpole)	O/O	Nat	1,2,3

KEY TO TABLE 4:

Abundance categories:
- R – Rare – only one or two individuals observed.
- U – Uncommon – several to a dozen individuals observed.
- O – Occasional – seen irregularly in small numbers
- C – Common -observed everywhere, although generally not in large numbers.
- A – Abundant – observed in large numbers and widely distributed.

Status categories:
- **End** – Endemic – species found only in Hawai'i.
- **Ind** – Indigenous – species found in Hawai'i and elsewhere.
- Nat – Naturalized – species were introduced to Hawai'i intentionally, or accidentally.

Identification codes:
- 1 – Reported present in AECOS field identification, November, 2018.
- 2 – Reported present within the Anahola Watershed (DLNR-DAR, 2008).
- 3 – Reported present within Anahola Stream (Chen and Wolff, 2012).

(*Pluvialis fulva*)—is an indigenous migratory shorebird species. One species—White-tailed Tropicbird (*Phaethon lepturus*)—is an indigenous nesting seabird species. The remaining 24 avian species recorded are established alien species.

Table 5. Avian species detected on DHHL property in Anahola Valley.

Common Name	Scientific Name	ST	***RA***
	ANSERIFORMES		
	ANATIDAE - Ducks, Geese & Swans		
	Anserinae - Geese & Swans		
Hawaiian Goose	*Branta sandvicensis*	**EE**	0.24
	Anatinae – Ducks		
Muscovy	*Cairina moschata*	A	0.16

Table 5 (continued).

Common Name	Scientific Name	ST	***RA***
	PHASIANIDAE – Pheasants & Partridges		
	Phasianinae – Pheasants & Allies		
Red Junglefowl	*Gallus gallus*	A	1.96
Ring-necked Pheasant	*Phasianus colchicus*	A	0.12
	COLUMBIFORMES		
	COLUMBIDAE – Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	2.32
Zebra Dove	*Geopelia striata*	A	0.64
Mourning Dove	*Zenaida macroura*	A	0.08
	CHARADRIIFORMES		
	CHARADRIIDAE – Lapwings & Plovers		
	Charadriinae – Plovers		
Pacific Golden-Plover	*Pluvialis fulva*	IM	0.20
	PHAETHONIFORMES		
	PHAETHONTIDAE – Tropicbirds		
White-tailed Tropicbird	*Phaethon lepturus*	IS	0.32
	PELECANIFORMES		
	ARDEIDAE – Herons, Bitterns & Allies		
Cattle Egret	*Bubulcus ibis*	A	0.28
Black-crowned Night-Heron	*Nycticorax nycticorax hoactli*	IR	**I-1**
	PSITTACIFORMES		
	PSITTACULIDAE – Lories, Lovebirds, and Indomalayan and Papua-Australasian Parrots		
	Psittaculineae – Indomalayan and Papua-Australsian Parrots		
Rose-ringed Parakeet	*Psittacula krameri*	A	5.44
	PASSERIFORMES		
	CETTIIDAE – Bushwarblers		
Japanese Bush-Warbler	*Horornis diphone*	A	0.92
	ZOSTEROPIDAE – White-eyes		
Japanese White-eye	*Zosterops oronata*	A	11.60

Table 5 (continued).

Common Name	Scientific Name	ST	***RA***
	TIMALIIDAE – Babblers		
Greater Necklaced Laughingthrush	*Garrulax pectoralis*	A	0.32
Chinese Hwamei	*Garrulax canorus*	A	3.44
	TURDIDAE – Thrushes		
White-rumped Shama	Copsychus malabaricus	A	3.56
	MIMIDAE – Mockingbirds & Thrashers		
Northern Mockingbird	Mimus polyglottos	A	0.16
	STURNIDAE – Starlings		
Common Myna	*Acridotheres tristis*	A	2.44
	FRINGILLIDAE – Fringilline and Carduline Finches & Allies		
	Carduelinae – Carduline Finches and Hawaiian Honeycreepers		
House Finch	Haemorhous mexicanus	A	1.60
	ICTERIDAE – Blackbirds		
Western Meadowlark	*Sturnella neglecta*	A	0.24
	CARDINALIDAE – Cardinals & Allies		
Northern Cardinal	Cardinalis cardinalis	A	1.28
	THRAUPIDAE – Tanagers		
	Thraupinae – Core Tanagers		
Red-crested Cardinal	*Paroaria 25oronate*	A	0.88
	ESTRILDIDAE – Estrildid Finches		
Common Waxbill	*Estrilda astrild*	A	0.20
Red Avadavat	*Amandava amandava*	A	0.40
Java Sparrow	*Lonchura oryzivora*	A	0.28
Scaly-breasted Munia	*Lonchura punctulata*	A	0.56
Chestnut Munia	*Lonchura atricapilla*	A	0.96

Legend to Table 5

ST = Status

EE = Endangered Endemic – A species unique to the Hawaiian Islands and listed as endangered under federal and State of Hawaii endangered species statutes.

A = Alien – Introduced to the Hawaiian Islands by humans

IM = Indigenous Migratory – A migratory species indigenous but not unique to the Hawaiian Islands

IS = Indigenous Seabird - In this case a species which does breed on Kaua'i

IR = Indigenous Resident – Native resident breeding species, not unique to the Hawaiian Islands

RA = Relative Abundance - Number of birds detected divided by the number of count stations (25)

Three species, Japanese White-eye (*Zosterops japonicus*), Rose-ringed Parakeet (*Psittacula krameri*), and White-rumped Shama (*Copsychus malabaricus*), accounted for 51% of all birds recorded during station counts. The most commonly recorded species was Japanese White-eye, which accounted for 29% of the total number of individual birds recorded.

We recorded eight terrestrial mammalian species while on the site. In table, 6 the types of detections recorded are shown for each species.

Table 6. Mammalian species detected during terrestrial fauna surveys on DHHL property in Anahola Valley.

Common name	Scientific name	ST	DT
	RODENTIA - GNAWERS		
	Muridae - Old World Rats & Mice		
Roof rat	*Rattus rattus*	A	V, Car
European house mouse	*Mus musculus domesticus*	A	V
	CARNIVORA- FLESH EATERS		
	Canidae - Wolves, Jackals & Allies		
Domestic dog	*Canis familiaris*	A	V, A, Sc, Tr,
	Felidae- Cats		
House cat	*Felis catus*	A	V
	ATRIODACTYLA - Even-Toed Ungulates		
	SUICIDAE - Old World Swine		
Pig	*Sus scrofa*	A	V, Sc, Tr, Si, Sk
	CERVIDAE - Antlered Ruminants		
	Bovidae- Hollow-horned Ruminants		
Feral goat	*Capra hircus*	A	V, A, Sci,
	Bovidae- Hollow-horned Ruminants		
Cattle	*Bos taurus*	A	V, Tr, Sc
Feral goat	*Capra hircus*	A	A

Key to table 6

ST Status

A Alien – introduced to the Hawaiian Islands by humans.

DT Detection type.

V Visual – an animal seen.

Table 6 (continued).

Car	Carcass – an animal identified by the presence of a carcass.
A	Audio – an animal heard.
Sc	Scat – an animal detected by fecal droppings.
Tr	Tracks -an animal detected by the presence of tracks.
Si	Sign – an animal detected by sign, i.e., tunnels, beds, tree scrapping, etc.
Sk	Skeleton – an animal detected by bone remains.

Discussion

Water Quality

The water quality data collected from Ka'alula Stream in November 2018 (see Table 2) can be compared to some of the state water quality criteria established for streams (Table 7). Criteria for turbidity, TSS, and nutrients are based on geometric means not to exceed specific criterion values. Since geometric means require a minimum of three separate sampling events per station, our single event results cannot be compared with state geometric mean criteria. Nevertheless, these criteria are useful guides for what HDOH regards as good stream water quality.

Criteria for DO saturation and specific conductance are based upon not-to-exceed values; the latter was met at all five stations, while DO saturation met its criterion at three of the five stations. pH values at all five stations were within the range specified for streams. The criteria for temperature (and also a second criterion for pH) are based on "deviations from ambient conditions"—these criteria essentially pertain to discharges that might cause deviations. The sampling results could be used as part of a larger data set to establish ambient conditions for various parameters in the future.

The relatively small changes in conductivity with distance downstream indicate little intrusion of groundwater into the stream. The elevated particulates levels (turbidity and TSS) at Sta. 2 are the result of recent runoff from adjacent lands—specifically, erosion of the unimproved road just upstream of the station. Elevated nitrate+nitrite, TN, and TP at Sta. 2 were apparently due to overnight rainfall runoff into Ka'alula Stream. *AECOS* biologists noted that stream water at these two sites were much clearer the previous day (Figure 10). Elevated nitrate+nitrite at Sta. 4 is the result of unknown inputs.

Table 7. State water quality criteria applicable to streams (HDOH, 2014a).

Parameter	Geometric Mean value not to exceed this value	Value not to be exceeded more than 10% of the time	Value not to be exceeded more than 2% of the time
Total Nitrogen (µg N/L)	250.0* 180.0**	520.0* 380.0**	800.0* 600.0**
Nitrate+Nitrite (µg N/L)	70.0* 30.0**	180.0* 90.0**	300.0* 170.0**
Total Phosphorus (µg P/L)	50.0* 30.0**	100.0* 60.0**	150.0* 80.0**
Total Suspended Solids (µg/L)	20.0* 10.0**	50.0* 30.0**	80.0* 55.0**
Turbidity (NTU)	5.0* 2.0**	15.0* 5.5**	25.0* 10.0*

* Wet season – November 1 through April 30.
** Dry season – May 1 through October 31.

Other "standards":
- pH units are not to deviate more than 0.5 units from ambient and are to be neither lower than 5.5 nor higher than 8.0.
- Dissolved oxygen is not to decrease below 80% of saturation.
- Temperature is not to vary more than 1C° from ambient conditions.
- Specific conductance is to be less than 300 µmhos/cm.

Plants

With the exception of the steep-sided gulch that transects the survey area, all of the interfluve was formerly in sugar cane cultivation (under lease to Lihue Plantation Co.; BCA, 1987). Sugar cultivation ceased in 1988 (Souza et al., 1996; USGS, 2012). Remnants of the former irrigation system and field access roads can be found across the area, although these are rapidly deteriorating. The former "cane haul" roads remain usable, although regularly blocked by limb drop from the albizia trees. The distribution of vegetation types is provided in the Fig. 11 map.



Figure 10. Water clarity in Kaʻalula Stream decreased dramatically after a morning rain event. Sta. 2 shown here before the rain on November 6, 2018 (left) and after the rain on November 7, 2018 (right).

The following description from Cheng & Wolff (2012, p. 4) is pertinent:

> A majority of the Anahola Stream drainage basin supports alien forests and grasslands. Among the more prominent alien plant species are *Psidium guajava* (guava), *Albizia falcataria* ([now *Falcataria moluccana*] Molucca albizia), and *Caesalpinia decapetala* (cat's-claw [common name is actually wait-a-bit]). The guava and Molucca albizia trees are mostly found in the intermediate to upper slopes, whereas the cat's-claw is more common in the lower slopes of the drainage basin above Kūhiō Highway… Native forests and wetlands are limited to the headwaters [of Anahola Valley] and parts of the valley walls surrounding Keaʻoʻopu Stream.

The size and density of albizia trees spread over nearly all of the surveyed land is amazing considering the land was in open cultivation just 30 years ago. However, in this period of time just a limited number of plant species managed

to get established on presumably weedy open ground that remained after sugar was no longer irrigated or fields cleared. The rapid growth of albizia (*AlF*) and the shading that resulted has tended to keep many potential introductions from getting established. Given the prior history of agriculture on the land, it is not surprising that no evidence of prior habitation by native forest remains. It is possible that a few more native species of plants could be found along the streams by a more thorough survey of the gulches. On the other hand, it is likely that the flora of the gulches remains much as it was 30 years previous (and longer), the mixed forest (*MxF*) in these streamside habitats maintaining. While possibly not much disturbed during the Sugar Era, the mixed forest is secondary growth that has replaced the native flora of these gulches with mostly introduced species. The native (and early Polynesian introduced) species recorded in our survey were mostly observed on the steep sides of the gulch areas.

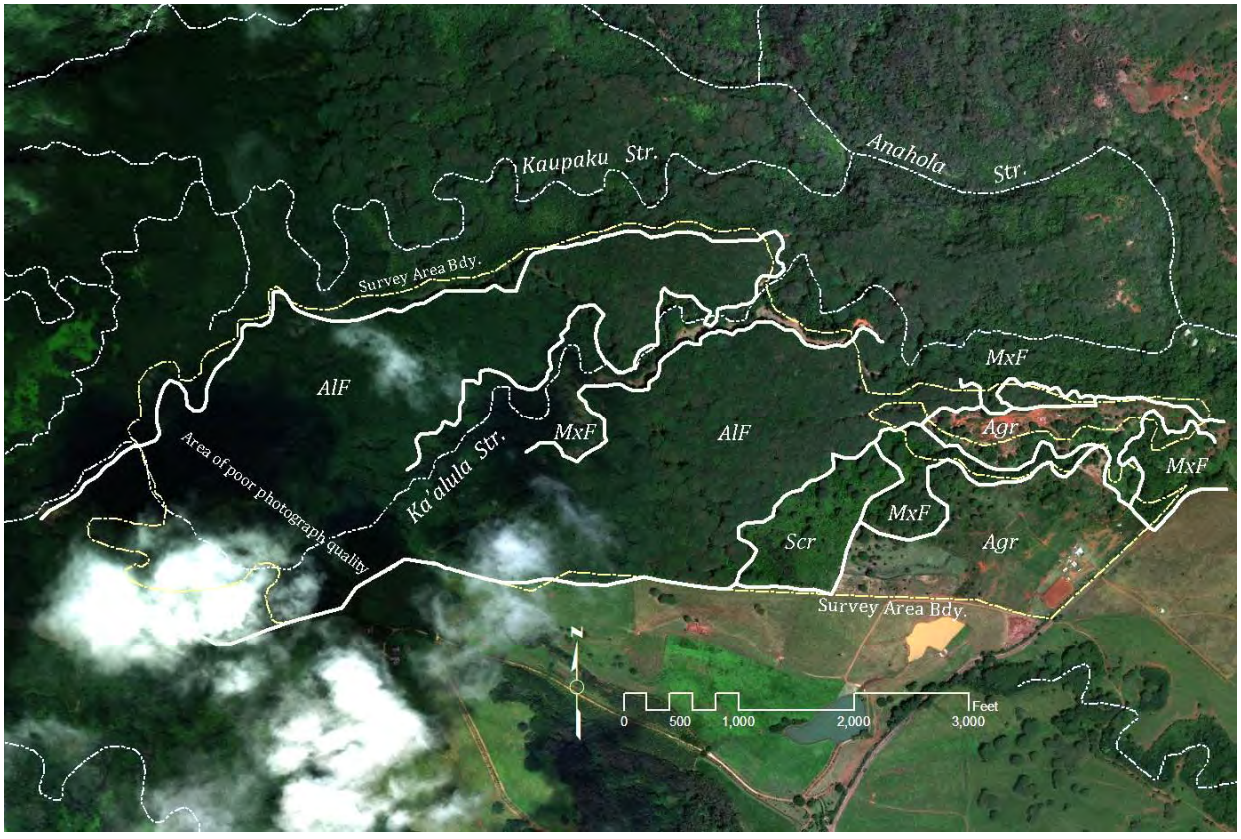


Figure 11. Survey area vegetation map (see key to codes in Table 8).

Table 8. Key to vegetation map codes.

Code	Name	Typical species
Agr	Agriculture; pasture land	sourgrass or Guinea grass; Spanish clover
Alf	Albizia forest	*Falcateria moluccana*, fiddlewood
MxF	Mixed forest/riparian forest	*kukui*, Java plum, camphor tree, *hau*
Scr	Scrubland	lantana
Wet	Potential wetland	*hau*

Scattered open areas of grassland (Agr) and/or shrubland (*Scr*) represent areas more or less actively cleared for pasturage and concentrated in the lower elevation part of the Survey Area.

No plant species proposed for listing, or listed as endangered or threatened under either federal or state of Hawaiʻi endangered species statutes (DLNR, 1998; USFWS, nd) was recorded during the course of this survey

Aquatic Biota

No aquatic species protected by State of Hawaiʻi Administrative Rules (HDLNR, 1989, 2007), nor state or federally threatened or endangered species (HDLNR, 2015; USFWS, nd) were observed in waterways of the Survey Area or vicinity. Other than the endemic slender Kauai damselfly (*Megalagrion oresitrophum*) and the endemic goby, *ʻoʻopu nākea* (*Awaous stamineus*), most aquatic biota observed in the survey area are naturalized species.

Streams in Keālia and Anahola watersheds were modified beginning in the 1800s to water cane fields in the drier, lower elevations of the watersheds and water was transferred between the watersheds to serve fields of the Makee Sugar Company and later the Lihue Plantation (Wilcox, 1996). Three water storage reservoirs were constructed on Kaʻalula Stream in the 1920s (HDLNR, 2006): in descending order, these reservoirs are: Keālia Reservoir No. 1 (located upstream of the Survey Area), Keālia Reservoir No. 2, and a third, unnamed reservoir.

DHHL now owns the irrigation system on their land, including Upper Anahola Ditch (no longer operational), Anahola Ditch, and a portion of Kaneha Ditch; McCloskey of Cornerstone Hawaii Holdings, LLC owns and operates Keālia Ditch, Kaneha Reservoir, and most (possibly all) of Kaneha Ditch. (K. Duncan,

DHHL, pers. comm.). Water is no longer actively pumped into and stored in the reservoirs on Kaʻalula Stream and DHHL anticipates still using Keālia Reservoir No. 1 and decommissioning Keālia Reservoir No. 2. The dam at the unnamed reservoir is natural and no plans exist to remove it.

Most stream macrofauna (fishes, crustaceans, and mollusks) native to Hawaiʻi are diadromous: eggs are laid in the stream and the larvae that hatch from these eggs move downstream and out into the ocean where they develop for a time before migrating back into freshwater to grow to maturity (Ford and Kinzie, 1982; Kinzie, 1988). Drifting larvae and recruiting juvenile organisms migrate in streams during freshets. Therefore, a high quality stream in Hawaiʻi that includes a full component of expected native species has perennial flow in one or more segments and unimpeded flow during freshets. The HDLNR-DAR Watershed Atlas rates Anahola Watershed a 10 (out of 10) for native species biodiversity (Parham et al., 2008). A survey conducted by the US Geological Survey (USGS) in 2011 observed three of five species of endemic amphidromous *ʻoʻopu* and one of two species of endemic amphidromous *ʻōʻpae* in the lower reach of Anahola Stream (Cheng and Wolff, 2012), whereas we observed only a single species of *ʻoʻopu* in our survey of Kaʻalula Stream at a similar elevation. The low native stream biodiversity in Kaʻalula Stream is attributable to the interrupted stream flow in the Project area.

Development of the watershed by DHHL should employ best management practices (BMPs) around Project waterways to prevent degradation of water quality and protect native aquatic biota. If construction or modification along Project waterways are anticipated, streams should be monitored to ensure that native stream fauna and water quality are not adversely impacted. A path for stream flow should be maintained at all times during construction and diversions should be temporary and not impede migration of native diadromous species through the area. If modifications to waterways are anticipated, modifications should not include drains or grates that may trap drifting larvae or overhanging culverts that may obstruct upstream movement of recruiting juveniles.

Avian Fauna

The findings of the avian survey are consistent with the location of the property and the secondary growth forest, almost totally alien species dominated. We had originally planned on separating the avian and mammalian data into those collected within the Survey Area (Figure 2) and those data collected in the larger parcel that we had been directed to provide an overview of the biological resources. After analyzing the data, our results show that, with the exception of the small area in the southeast corner of the Survey Area (see Fig. 8) currently

being managed predominately for grazing, the vertebrate results are essentially the same across both areas.

As previously mentioned we recorded 27 avian species during point counts, and an additional species as an incidental observation. Of the 28 species recorded on the property, one of them, Nēnē is an endangered species seen flying over the pastoral area of the Survey Area. If additional forest is cleared for agricultural or other purposes, it can be expected that Nēnē will increase their usage of resources on the site. Currently, only a small part of the Survey Area or the larger DHHL parcel has suitable habitat for this grassland species. Two indigenous species were recorded: Black-crowned Night-Heron and White-tailed Tropicbird. The former is a year round resident, water obligate species and the later is an indigenous seabird species, which nests in various locations on the Island of Kauai and elsewhere in the state. No suitable nesting habitat occurs in the broader survey area, although they are known to nest on the cliff faces of Anahola Mountain directly north of the Survey Area. We also recorded Pacific Golden-Plover. This species is a native, indigenous migratory shorebird species that nests in the high Arctic during the late spring and summer months, returning to Hawaiʻi and the Tropical Pacific to spend the fall and winter months each year. *Koloa* usually leave Hawaiʻi for the Arctic in late April or the very early part of May and are widely distributed across the Hawaiian Islands during the winter month. The remaining 24 avian species recorded are established alien species (Table 5).

Although not detected during this survey, the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), Band-rumped Storm-Petrel (*Oceanodroma castro*), and threatened endemic Newell's Shearwater (*Puffinus newelli*) have been recorded over-flying the general Project area between April and the end of November each year (David, and Cooper, 2002; Morgan et al., 2003, 2004; David, 2003; David and Planning Solutions, 2008). Additionally, the Save Our Shearwaters Program has recovered injured birds of these three species from the Anahola area over the past three decades (Morgan et al., 2003, 2004; David and Planning Solutions, 2008; SOS, 2018).

The petrel and storm-petrel are listed as endangered, and the shearwater as threatened under both federal and State of Hawaiʻi endangered species statutes. The primary cause of mortality in both Hawaiian Petrels and Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawaiʻi. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, the birds can

collide with man-made structures and, if not killed outright, dazed or injured birds are easy targets of opportunity for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al., 1998; Ainley et al., 2001; Hue et al., 2001; Day et al., 2003).

Mammalian Fauna

The findings of the mammalian survey are consistent with the location of the property and habitats present on the site. We did not record Hawaiian hoary bats resident or overflying the site. Hawaiian hoary bats are widely distributed in the low to mid-elevation areas on the Island of Kaua'i and have been documented in and around almost all areas that still have some dense vegetation (Tomich, 1986; USFWS, 1998; David, 2018). We would expect that this endangered endemic species uses resources on the site and likely roosts on the property in small numbers. All of the mammalian species detected on the site are deleterious to native ecosystems and the native animals that depend on them for survival.

No mammalian species proposed for listing, or listed as endangered or threatened under either federal or state of Hawai'i endangered species statutes, was recorded during the course of this survey (DLNR, 1998; USFWS, nd).

Critical Habitat Designations

There is no federally delineated Critical Habitat for any species on, the areas surveyed. Thus, modifications of habitat on the sites will not result in impacts to federally designated Critical Habitat. No Critical Habitat has been designated for plants in either the Survey Area or the broader DHHL lands outlined in Fig. 2. No equivalent statute exists under state laws.

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Appendix E

Archaeological Reconnaissance Survey (Nohopapa Hawai‘i)

Archaeological Reconnaissance Survey of an Approximately 467-Acre Project Area Anahola & Kamalomaloʻo Ahupuaʻa Kawaihau (Koʻolau/Puna) Moku, Kauaʻi

TMK (4) 4-7-002:004 (por.), 4-8-002:001 (por.) & 4-8-003:006 (por.)



Detail of concrete irrigation-ditch feature with inscriptions from its builders in 1925

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EXECUTIVE SUMMARY

Nohopapa Hawai'i prepared this Archaeological Reconnaissance Survey (ARS) report for a 467-acre project area in Anahola and Kamalomalo'o Ahupua'a, Kawaihau (Ko'olau/Puna) Moku, Kaua'i, TMK (4) 4-7-002:004 (por.), 4-8-002:001 (por.) and 4-8-003:006 (por.). The primary objective was to identify humanly-modified sites and landscape features that may be older than 50 years in age, which qualifies them as historic properties under HAR § 13-13-275. This ARS report is intended to serve as a planning tool for the project proponent, planners and land managers as well as other stakeholders interested in future development of the subject parcel. Prior to starting the fieldwork, based on the results of archival research, we georeferenced several historical maps (from the early 20th century) depicting the location of various plantation-era features. We then integrated these data into a GIS database, and loaded these data on hand-held (Garmin) GPS devices. In general, this data proved invaluable in helping us locate and confirm the existence of many historic properties dating from the early 20th century. From November 12–16, 2018, we completed an ARS of the project area. Our survey methods included a combination of (a) systematic pedestrian survey transects, (b) targeted pedestrian survey to inspect known historic properties, (c) systematic survey through the entire main drainage system, and (d) "windshield" survey (i.e., driving by and inspecting portions of the project area that could be easily observed from the vehicle). We recorded our track logs with the two Garmins in order to show where we surveyed. We also recorded a total of 29 GPS points to indicate the location of various site-features. We conclude that the project area has been completely transformed by mechanized plantation agriculture: both sugar cane and pineapple operations took place during the Historic period, and well into the middle-late twentieth century. There are no undisturbed ground surfaces or subsurface deposits dating from pre-Contact times in the project area. One indication of this comprehensive transformation of the entire landscape is the near-complete absence of any rocks on the ground surface: clearing and removal of rocks was one of the first tasks that would have been carried out by plantation workers. Occasional boulders are commonly marked by "bulldozer scars" or have chain/wire marks on them. The main drainage through the middle of the project area—where pre-Contact Hawaiian structures might survive plantation operations—has been thoroughly flooded/washed out many times over. The rocks in this drainage are jumbled and disturbed. Eight (8) plantation-era historic properties (some with multiple component features) were identified. Findings include two large, earthen reservoirs (including a formally-constructed rock and mortar structure [possible pump house] on the south side of Reservoir 3), irrigation ditches, a section of dry-stacked boulder retaining wall, concrete and rock sluice gates, a small, informally-constructed diversion dam/culvert, many earthen roads (some with culverts and other drainage features), a railroad bed (but no intact rails or ties), a few displaced iron railroad rails (not in their original position), and a remnant airstrip, which consists of a degraded, road-like strip of old asphalt/concrete. We identified an inscribed date of 1925 on one the concrete sluice gates, along with the names of two (Japanese) workers who built it, and some Japanese (kanji) script. In portions of the main irrigation ditch running through the middle of the project area, along the south side of the main natural stream channel, we found sections of well-constructed, dry-stacked rock work that may be worth preserving. Other inscriptions on plantation infrastructure included a date of 1960. Some extant components of historic properties in the project area are depicted on a 1904 map (Registered Map 2282; see Figure 7); other components appear on a detailed 1955 map (Plat 3003-B; see Figure 8). Finally, we found a traditional Hawaiian stone tool (an adze "preform") on the ground surface. This isolated find was the only traditional Hawaiian material observed during our survey. A Discussion section presents our preliminary significance assessments, project effect determination, and mitigation recommendations.

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INTRODUCTION

At the request of the Department of Hawaiian Homelands (DHHL), Nohopapa Hawai'i, LLC (Nohopapa) prepared this Archaeological Reconnaissance Survey (ARS) report for a 467-acre project area in Anahola and Kamalomalo'o Ahupua'a, Kawaihau (Ko'olau/Puna) Moku, Kaua'i, TMK (4) 4-7-002:004 (por.), 4-8-002:001 (por.) and 4-8-003:006 (por.) (Figure 1 to Figure 4).[1]

According to the agreed-upon Scope of Work (SOW), Nohopapa conducted an ARS of the entire project area. The specific methods are described in the next section (see METHODS).

The primary objective was to identify humanly-modified sites and landscape features that may be older than 50 years in age, which qualifies them as historic properties under HAR § 13-13-275. The fieldwork and resulting report were not designed to fulfill all the requirements of a formal HAR § 13-13-276 Archaeological Inventory Survey (AIS) (e.g., we did not consult with the State Historic Preservation Division [SHPD]). However, the completed work represents a solid foundation for finishing an AIS, if such a study is required.

This ARS report is intended to serve as a planning tool for the project proponent, planners and land managers as well as other stakeholders interested in future development of the subject parcel.

A companion study—a Cultural Impact Assessment (CIA)—of the same project area is also being prepared by Nohopapa. The CIA will include extensive, formal consultation with the community, as well as in-depth archival and ethnohistorical research. The current ARS report includes relatively less archival/ethnohistorical research and no formal consultation. Background research for the ARS was focused primarily on historical land use changes through time, since these data directly impact the types of historic properties we expected to find.

Environmental Setting

The project area is located about one and a half miles southwest and mauka (inland) of Anahola Bay, which is on the northern portion of Kaua'i's windward coast; and due west of Lae Līpoa (Līpoa Point), the dividing line between the ahupua'a of Anahola and Kamalomalo'o.[2] This ahupua'a line runs through the center of the project area; thus, its northern half is in Anahola, while its southern half is in Kamalomalo'o. The modern district within which the project area is located is Kawaihau, but its older (pre-Contact) land division was known as Ko'olau Moku (and some sources include it in Puna Moku—see CULTURAL AND HISTORICAL CONTEXT).

Elevation in the project area varies from about 300 ft. above mean sea level (amsl) to 560 ft. amsl.

One natural stream, known as Kaalula (or Ka'alula), runs through the center of the project area from the southwest to the northeast. As documented in this report, Ka'alula Stream has been substantially altered by historic plantation activities that began more than a century ago. For example, two artificial reservoirs have been excavated in the upper reaches (in the project area) of Ka'alula Stream. In its current condition, Ka'alula is a meandering stream in the west and center of the project area; downstream, towards the northeast terminus of the project area, Ka'alula is a deeply-incised, gorge-like stream drainage with steep, rocky sides, and small waterfalls. Historical

[1] The original project area size for the ARS, according to the agreed-upon Scope of Work, was 343 acres; this was eventually increased to the current 467 acres.

[2] Words in the Hawaiian language ('Ōlelo Hawai'i) are not italicized in this report since Hawaiian is not a foreign language but, rather, an official state language.

maps (e.g., see 1910 USGS topographic, Kapaa quadrangle) show there was once another natural stream in the southern portion of the project area, known as Kamalomalo (a common mis-spelling of Kamalomaloʻo). This stream appears to have been diverted/altered beyond recognition, and is no longer in evidence on the landscape.

Annual rainfall in the project area is about 50–60 inches (1,270–1,525 mm) (Giambelluca 2013).

Soils in the project area (Foote et al. 1972) are diverse, and the graphic showing soil mapping units (Figure 5) at first appears to be complicated; close inspection of these data, however, show the southeast portion of the project area—basically everything southeast of Kaʻalula Stream, consists of silty clay loam. In general, such soils are ideal for planting. Northwest of Kaʻalula Stream, soils are almost entirely silty clays, which are somewhat less ideal for agricultural purposes but still good planting soils.

Built Environment

As shown effectively in aerial imagery (see Figure 2), the eastern quarter or so of the project area has been more or less entirely cleared of trees; these areas are currently under Revocable Permits (month to month), and are being used for various ranching and small agricultural pursuits. Unimproved roads define the eastern and southern boundary of the project area.

Other than the cleared (Revocable Permitted) areas, the rest of the project area is more or less undeveloped by modern structures, although there are many barbed-wire fences and dirt roads. An old (currently degraded and abandoned) airstrip (i.e., a small-plane landing/take-off runway) is also located in the project area.

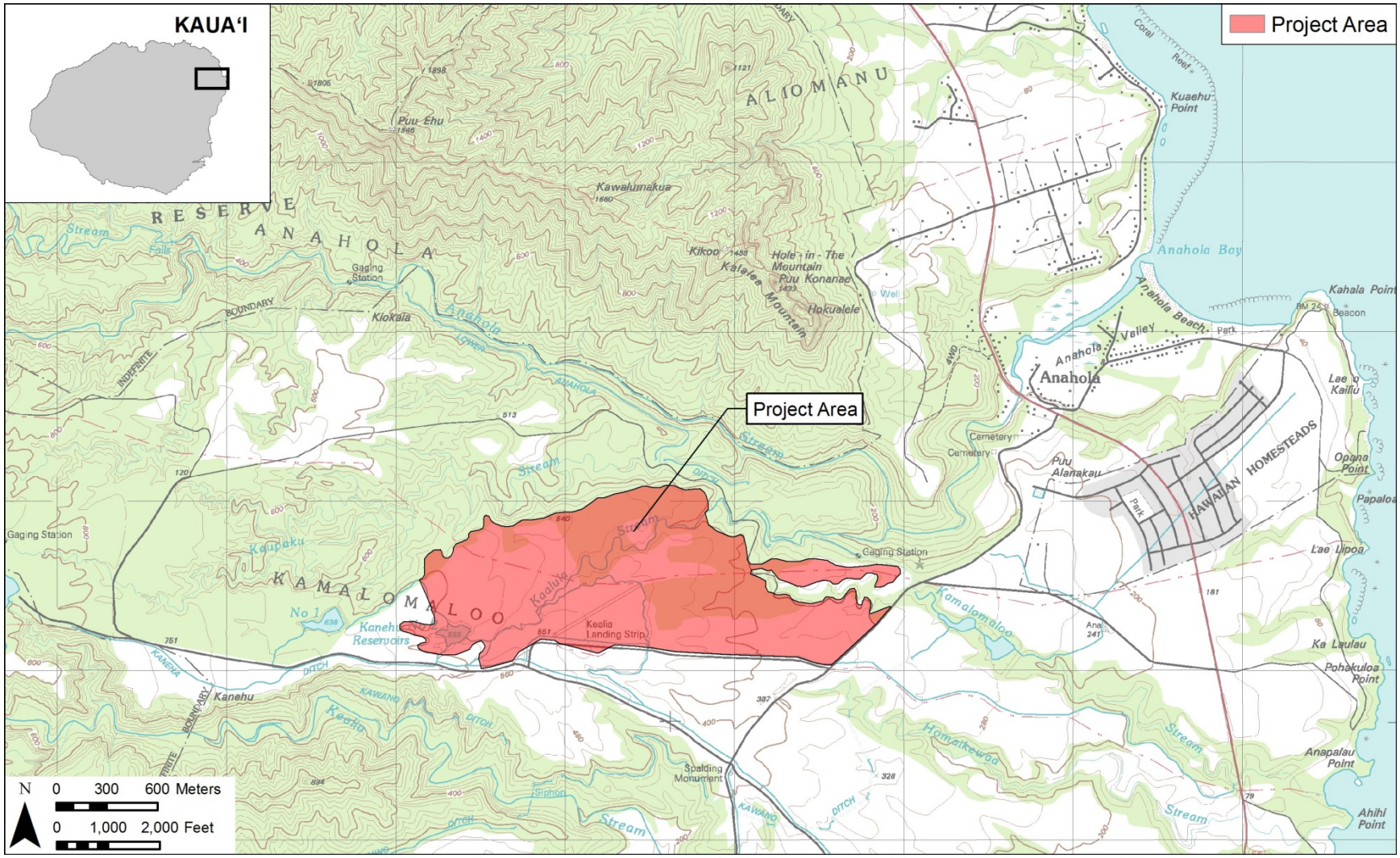

Figure 1. Project area location on a portion of USGS topographic map (1:24,000 scale).



Figure 2. Project area location on an aerial image.

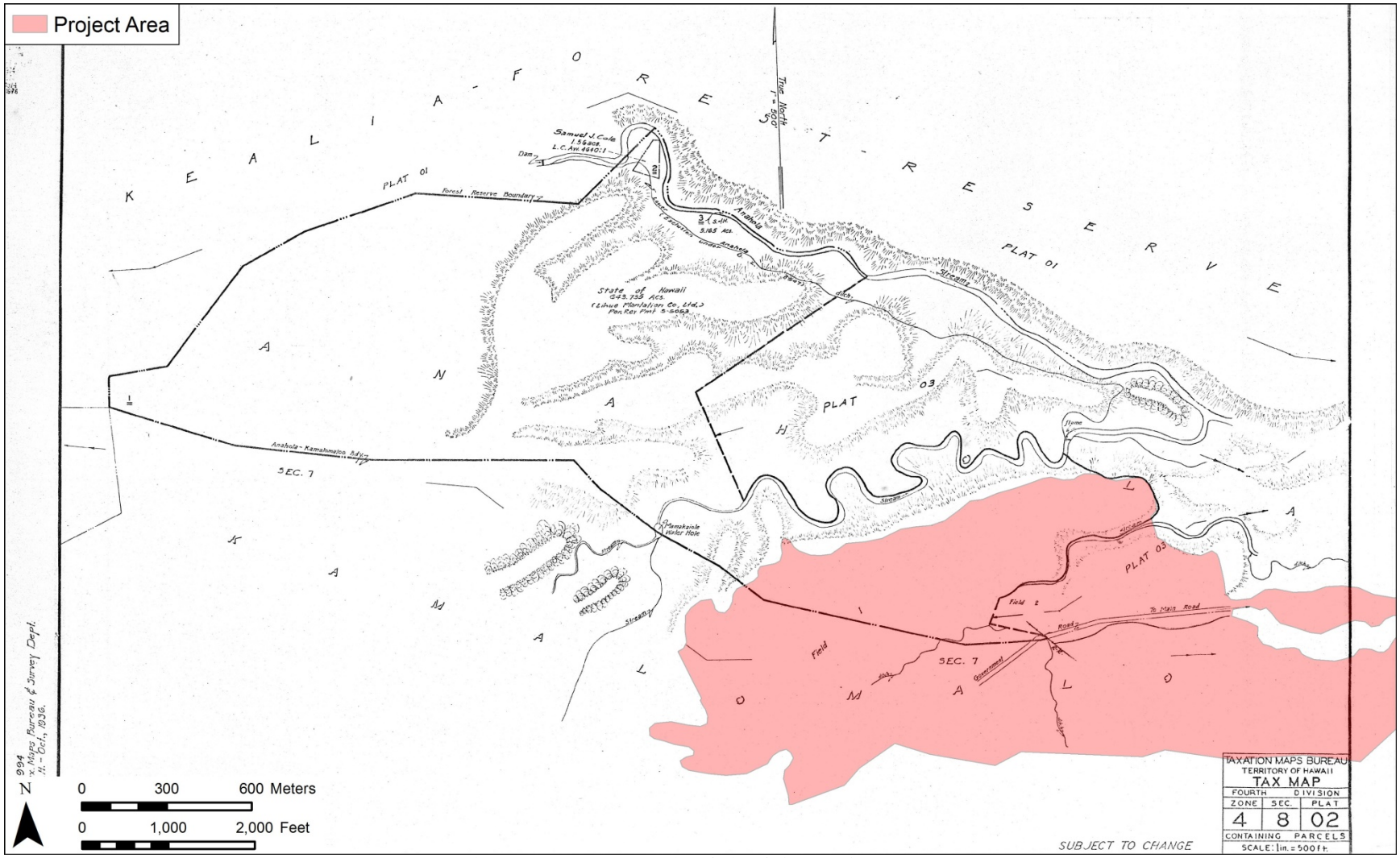

Figure 3. TMK map (1 of 2) of the project area.

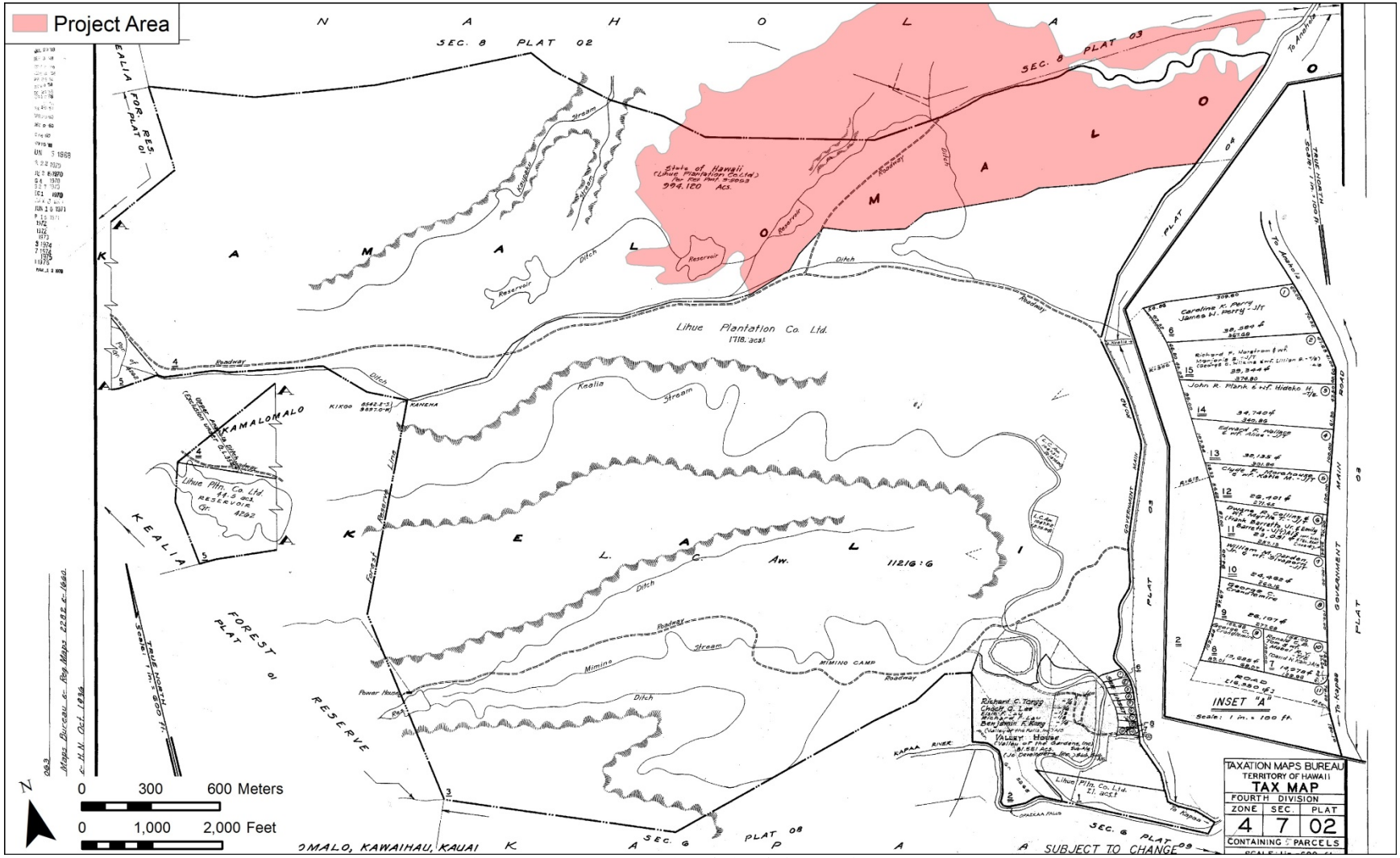

Figure 4. TMK map (2 of 2) of the project area.

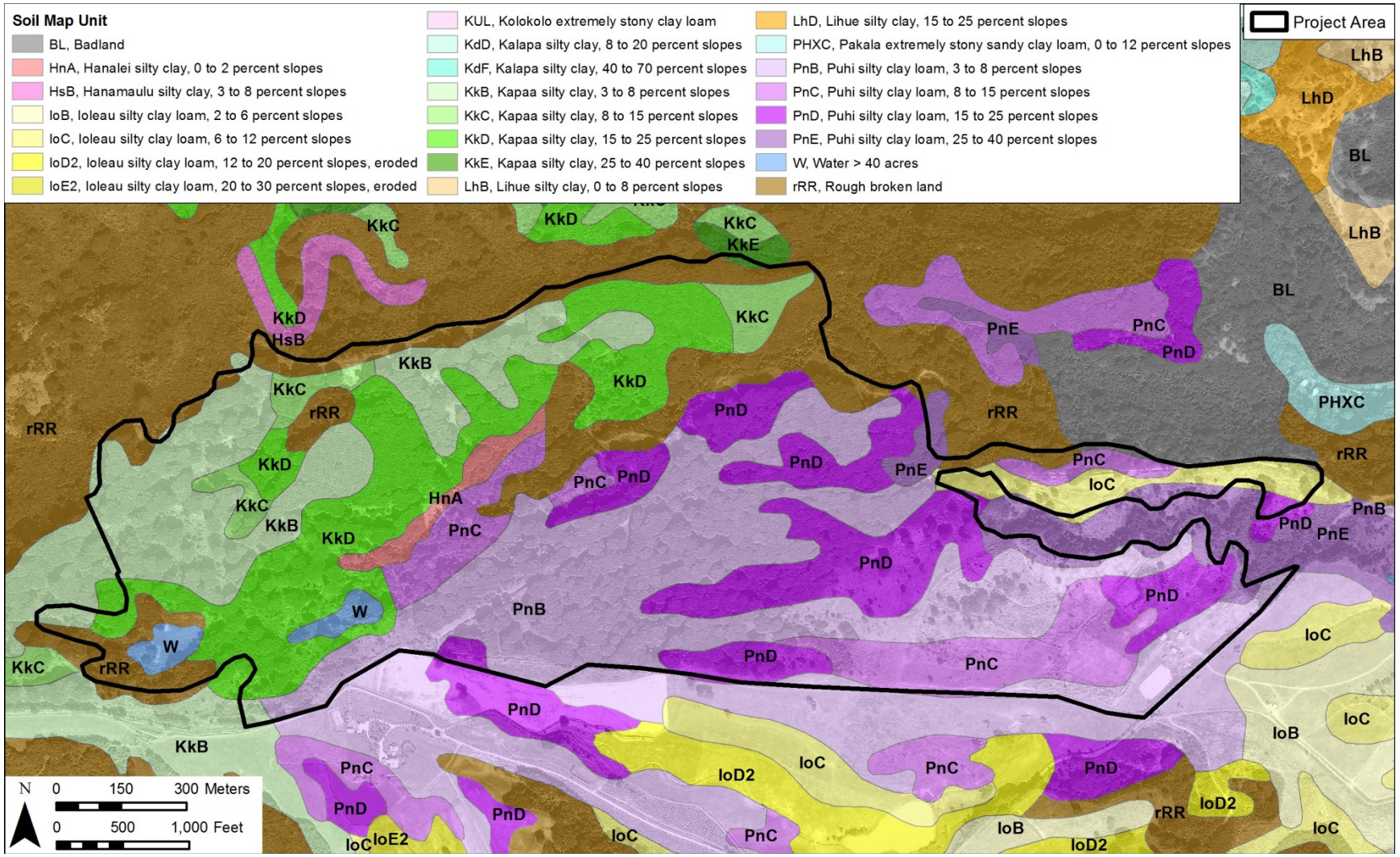

Figure 5. Soil mapping units in and near the project area.

METHODS

This subsection describes the method by which we prepared for and conducted the work needed to complete this Archaeological Reconnaissance Survey (ARS).

Pre-fieldwork

Prior to entering the field, we georeferenced several historical maps (from the early 20th century) depicting the location of various plantation-era features. We then integrated these data into a GIS database, and loaded these data on hand-held (Garmin) GPS devices. In general, these data proved invaluable in helping us locate and confirm the existence of many historic properties dating from the early 20th century.

In addition to obtaining some background reports from DHHL staff, we also searched the SHPD library in Kapolei in October, 2018, for previous archaeological and other cultural resource reports. Prior to this, in early October, 2018, we contacted the SHPD librarian, Helen Smith, to inquire about available electronic reports in and near the current project area.

Finally, Nohopapa Hawai‘i routinely searches more than a dozen on-line websites now available that contain a multitude of cultural and historical data sets (e.g., historical maps, Hawaiian language resources, land tenancy, archaeological resources, etc.).

We also consulted with staff at the Kaua‘i Museum and Kaua‘i Historical Society (KHS) in Līhu‘e for information related to plantation activities in and near the project area.

Fieldwork

From November 12–16, 2018, we conducted and completed archaeological reconnaissance survey of the project area. On 11/12/18, Chris Monahan and Dominique Cordy conducted a first inspection/overview of portions of the project area, in order to assess the conditions, work out access points, and prepare for the full-crew survey (total of four archaeologists) that took place the rest of the week.

Our survey methods included a combination of (a) systematic pedestrian survey transects, (b) targeted pedestrian survey to inspect known historic properties, (c) systematic survey through the entire main drainage system, and (d) "windshield" survey (i.e., driving by and inspecting portions of the project area that could be easily observed from the vehicle).

We recorded our track logs with the two Garmins in order to show where we surveyed (Figure 6). We also recorded a total of 29 GPS points to indicate the location of various site-features (and other purposes, such as navigation/orientation points).

Post-fieldwork

The GPS data was post-processed and protected on map/aerial images using ESRI software. Some graphics were prepared using Adobe Illustrator software.

Mitigating Factors

In addition to identifying historic properties, one of the objectives of a high-quality archaeological reconnaissance study should also be to report general conditions on the ground, in order to assist project planners and provide information to other stakeholders. The following list of mitigating factors is offered in the spirit of providing our first-hand observations about the project area.

- It rained every day we were in the field, more so earlier in the week, and clearing a bit by the middle-end of the week. The rain did not prevent us from completing our work, but it is important to note that the ground surface in much of the project area—particularly much of the "upper" (Anahola) portions—was completely saturated and extremely muddy, slippery and somewhat hazardous when trying to go up or down steep slopes;

- Cattle roaming throughout the project area were frequently encountered, and, at times, we were concerned about spooking or scaring them into running off and injuring themselves;

- The project area is criss-crossed with many dirt roads, some still in use and some more or less completely overgrown; many of these are lined/defined by barbed-wire fences, and there are other barbed-wire fences in different areas; these many barbed wire fences, meant to keep the cattle confined, presented some logistical and safety issues;

- By far, the most significant mitigating factor affecting our ability to identify historic properties, and one that was noted by the crew who conducted the biological survey as well, was the presence of large areas of more or less "unsurveyable" lands due to different types of vegetation, including (a) dense hau bush in different portions of the main drainage running through the middle of the project area, (b) mature stands of lantana in many different areas, and, by far the worst, (c) utterly impassible cat's claw. These areas probably make up about one-third of the project area. In addition to these, other areas are so densely covered in thick ground-cover vegetation, that it is impossible to see the ground surface. Taking into effect the practically impassible hau/lantana/cat's claw as well as the otherwise obscured ground surface, these probably constitute about half of the project area;

- By far the most significant health and safety issue is the presence of thousands of albizia trees of all sizes, including many giant ones in various states of decay and partial collapse; a major collapse of a large albizia limb happened very close to one of us during one of our transects.

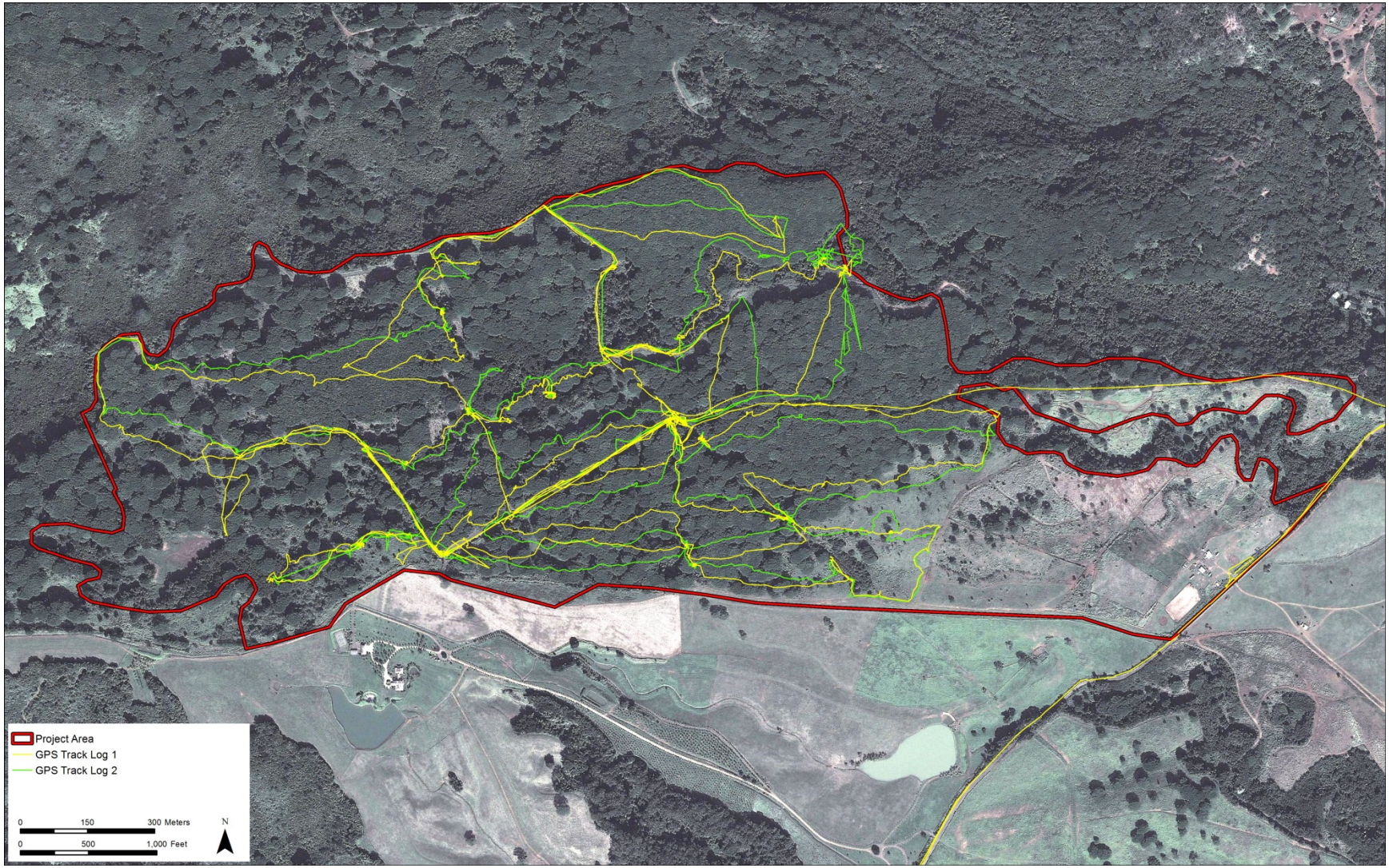

Figure 6. Garmin GPS track logs for the archaeological reconnaissance survey; it is important to note that we carried two GPS devices for four archaeologists, thus, actual survey coverage is twice as dense as depicted in this graphic

CULTURAL AND HISTORICAL CONTEXT

As stated in the Introduction, Nohopapa Hawai'i is preparing a Cultural Impact Assessment (CIA) of the same (ARS) project area. The CIA will include extensive archival and ethnohistorical research. The current ARS report, however, includes only a brief overview of the cultural and historical context of the project area; this section focuses primarily on historical land use changes through time, since these data directly impact the types of historic properties we expected to find, and since the entire project area has clearly been transformed by plantation agriculture.

Hawaiian Cultural Landscape

The project area is about 1.5 miles mauka (inland) of Anahola Bay, and a quarter- to a half-mile south of the main Anahola Stream valley. Thus, while partially in Anahola Ahupua'a—the boundary between Anahola (to the north) and Kamalomalo'o (literally, "the dry malo" [loincloth]) (to the south) runs roughly through its center—the project area is on the periphery of Anahola's primary planting and habitation areas, which would have been along the main stream and at its delta and bay.[3] In traditional Hawaiian terms, the project area would have been part of the wao kānaka, or accessible forested lands where valuable resources (e.g., medicinal plants, trees for wood, etc.) could be easily gathered.

Although the modern district within which the project area is located is Kawaihau, its older (pre-Contact) land division was once known as Ko'olau Moku. Puna Moku to the south was generally looked upon as the most fertile (agriculturally-productive) district (particularly Kapa'a and Wailua), with Ko'olau being somewhat less so. Some sources (e.g., Handy and Handy 1972:423) place the old moku boundary between Ko'olau and Puna at the boundary between Anahola (Ko'olau) and Kamalomalo'o (Puna).

Regardless, in general, given its larger stream, wide bay, and more extensive lower flat lands, Anahola Ahupua'a—known for its abundant 'ulu (breadfruit trees) (Handy and Handy 1972:152)—is more well-known (given its higher "carrying capacity," or ability to feed and support more people) compared with Kamalomalo'o. Referring to the agricultural potential of these lands, Handy and Handy (1972:423) describe Anahola:

> Here is the largest river in Ko'olau District. There are old abandoned terraces along its banks far upstream. There are old *lo'i* from two to four miles inland along Anahola River and its tributary Ka'alua Stream, and below their point of juncture there are many *lo'i* on flats along the river banks as it meanders through its wide gulch. The delta is three-fourths mile wide, and this was all terraced.

Kamalomalo'o, on the other hand, was described (along with Keālia) as ". . . rather dry, with small streams and gulches and only a few *lo'i* areas" (ibid.).

Pukui et al. (1974:12) do not provide a translation for Anahola, but they do refer the reader to Kanahāwale (literally, "easily broken"), described as an ancient surfing area at Anahola. Kamalomalo'o (which also appears in different historical records as Kamalomalo, Kamamalo, and Kamamalo'o) is associated with mo'olelo (oral-historical accounts) about chiefs arriving on the shoreline from their wa'a (canoe) and being supplied with a "dry malo."

Schmitt (1966:301–304) published census data by ahupua'a on the number of people living in "northern Kauai" in 1847; included ahupua'a extended from Kalalau (northwest coast) to Keālia

[3] Unless cited otherwise, all place name translations and interpretations are from Pukui et al. (1974).

(neighboring Kamalomaloʻo on its south side). According to these data, the total population for this area was 2,698, and Anahola had the second-highest population (280) behind Hanalei (which, at 637, was significantly higher than any other area). Interesting, Kamalomaloʻo (and several others, including nearby Aliomanu) was not included, perhaps indicating it was subsumed under "greater Anahola."

Regarding land tenancy, Anahola Ahupuaʻa was Crown Lands, returned by Lunalilo (6th monarch of the Hawaiian Kingdom), who was the second-largest landowner (trailing only Kamehameha III) at the time of the initiation of the Māhele (middle nineteenth century). Kamalomaloʻo was initially retained by Lunalilo but was eventually surrendered to the government in lieu of commutation at the Māhele (Indices of Awards 1929).

Plantation Land Use of the Project

There is not much specific information on plantation activities in the current project area, although it is clear—based on historical maps, that both sugar cane and pineapple were grown over the years (sometimes simultaneously in different fields). By far, the most useful and specific information available on historical land use of the project area comes from two maps (from 1904 and 1955) that are reproduced (and discussed) below.

In general, commercial sugar cane agriculture in the vicinity of the project area appears to have started with the Makee Sugar Co. (Lihue Plantation Company 1987) in 1877, named after (and founded by) Capt. James Makee, from Ulupalakua on Maui, who partnered with King Kalākaua and others. Operations, which were originally centered in Kapaʻa, moved to Keālia in 1885. In the 1930s, the Makee Sugar Co. and all its assets were bought up by the Lihue Plantation Co. (Lihue Plantation Company 1987). By 1988, sugar cane operations in the area ceased for good (Cheng and Wolff 2012).

Of direct relevance to the subject ARS report, Figure 7 is a portion (detail view) of 1904 historical map (Registered Map 2282) with the georeferenced current project area. This map shows that many, but not all, of the historic properties identified during the current survey appear on this map, suggesting they are more than 114 years old (i.e., they pre-date 1904). The 1904 map also shows the project area was divided into three main fields (Field 1, 2 and 3). In Field 3, there are also two small patches identified as "lantana." Interestingly, the built structures at this time, as depicted on the map, were confined to the Kamalomaloʻo half of the project area.

Figure 8, a portion (detail view) of a 1955 map (Plat 3003-B) with the georeferenced current project area, shows nearly all (except the airstrip) of the historic properties identified during the current survey appear were built by this time (thus, sometime between 1904 and 1955). The 1955 map shows some extension of features (e.g., the railroad line) up into the Anahola portion of the project area. This map also shows that the upper project area was in pineapple, while the lower was still in sugar cane.

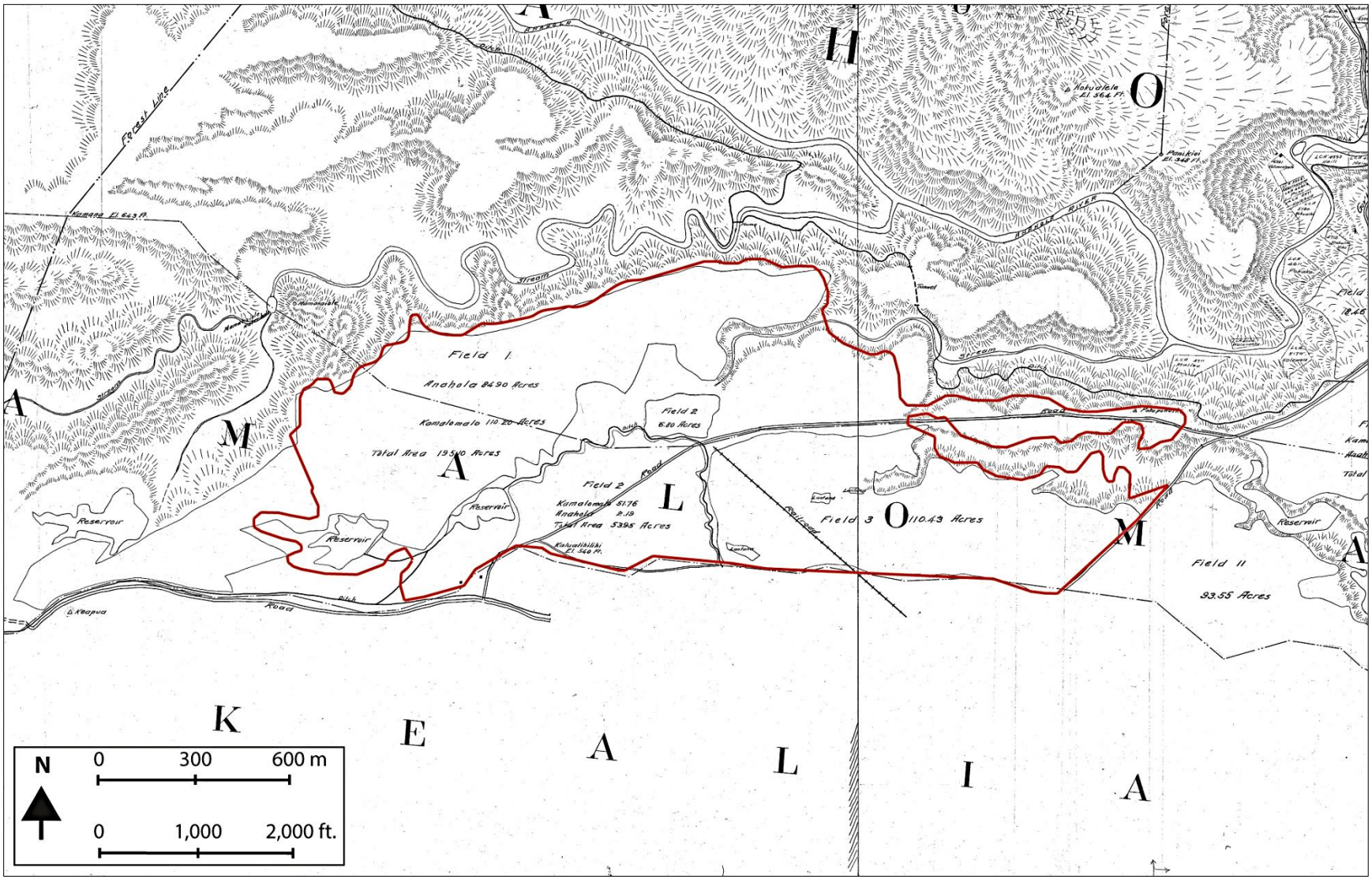

Figure 7. Portion of 1904 Registered Map 2282 with current project area (red boundary) georeferenced; as discussed in the Results section below, many—but not all—historic properties identified during the current survey appear on this map

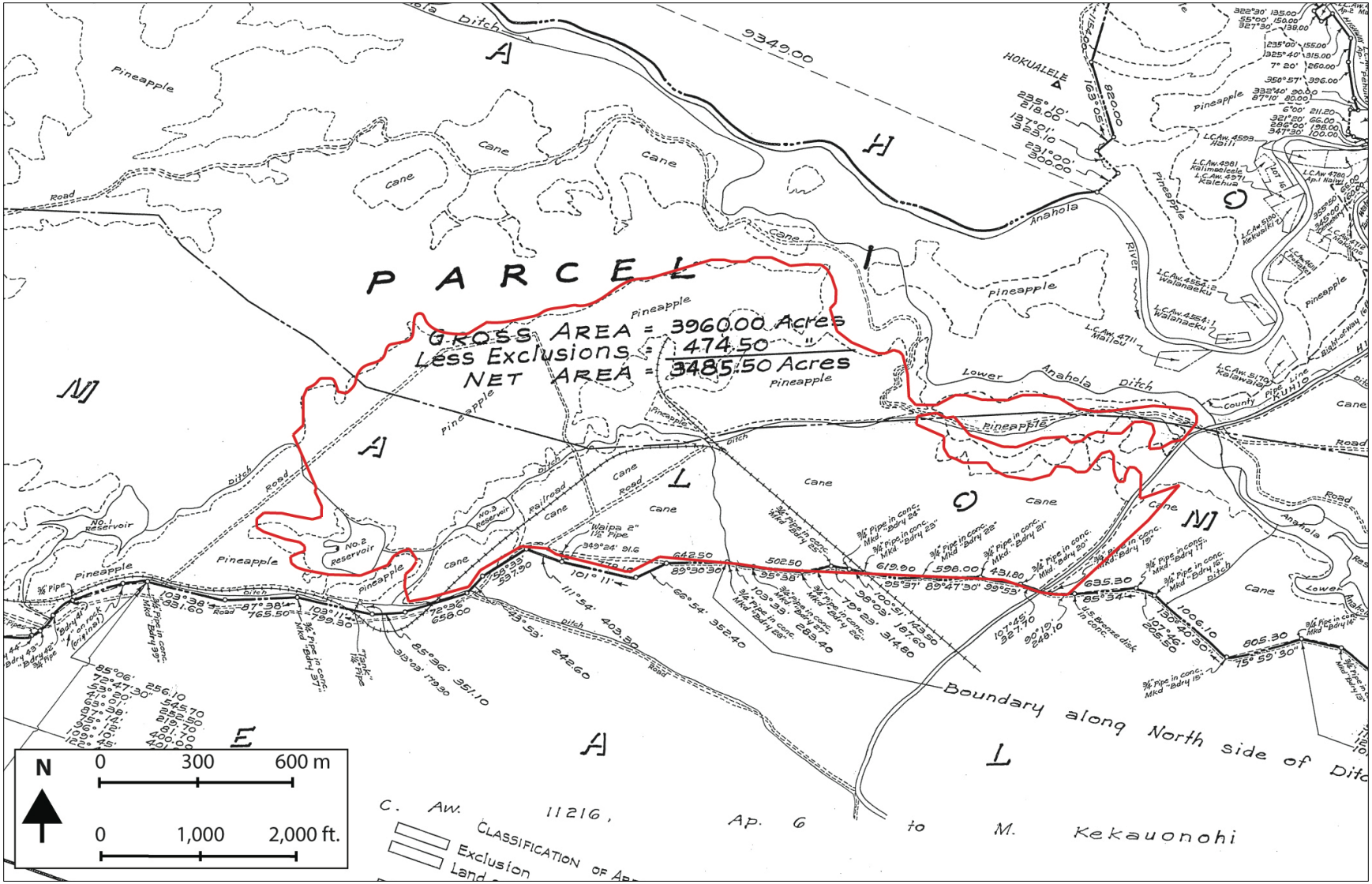

Figure 8. Portion of 1955 Plat 3003-B with current project area (red boundary) georeferenced; as discussed in the Results section below, nearly all (except the airstrip) of the historic properties identified during the current survey appear on this map

PREVIOUS ARCHAEOLOGICAL RESEARCH

This section provides an overall context for understanding how the historic properties in DHHL's parcels are part of a larger, interconnected record of pre-Contact and historic-period land use.[4] It also contributes to a reconstruction of the cultural landscape of Anahola and Kamalomaloʻo, of which the current project area is but a small portion.

With the exception of one Architectural study of Reservoir 2 (Mason Architects 2016), there have not been any prior historic-preservation studies (and no archaeological studies) in the current project area.

Table 1 is a listing of previous archaeological and historic-preservation studies and results in and near the current project area. Figure 9 is a graphic depiction of previous archaeological and historic-preservation studies in and near the current project area. These studies reflect the reports that could be located at the SHPD library in Kapolei and digital database. If the current study becomes a formal HAR § 13-13-276 AIS, this previous archaeological research section may be expanded to include more studies.

Within the project area, the only previous historic-preservation work was the Historic American Engineering Records (HAERs) documentation by Mason Architects (2016) of Reservoir 2 (i.e., the mauka-most [to the west] reservoir in the current project area).

Drennan's (2007) AIS of 2,008 acres in Keālia Ahupuaʻa recorded 101 sites, mostly plantation-era structures related to water storage and distribution, as well as workers' camps and Makee sugar mill. This study, which also identified several "*kuleana* and/or historic habitation sites," is lower in elevation, compared with the current project area, and includes near-coastal level lands, which likely accounts for the high number of house sites (habitations).

East of the current project area, in the makai portion of Kamalomaloʻo Ahupuaʻa (between 180–360 ft. elevation), Sholin and Dye's (2013) AIS documented two sugar cane irrigation ditches designated Site #2160), but no evidence of traditional Hawaiian materials.

A few studies on the makai side of the famous Kalalea Mountain (Kikuchi 1979, 1983; Yent 1983; Tome and Dega 2009) have identified several traditional-style, presumably pre-Contact Hawaiian sites: a C-shape shelter (Site #471), agricultural terraces (Site #472), an enclosure (Site #473) that has variously been interpreted as either a heiau remnant (cf. Kikuchi 1979) or an animal enclosure (cf. Bennett 1931; Yent 1983), and Site #5026, a pre-Contact habitation and agricultural complex.

On the south side of the makai floodplain of the Anahola Stream, Rechtman and Dougherty (2001) identified a pre-Contact agricultural soil layer in subsurface context (Site #877). On the other (north) side of this same stream mouth area, there have been conflicting interpretations about whether the remnants of Kuhua Heiau (Site #115) can still be seen (e.g., compared Ota 1985 with Taniguchi 1996).

Further up the coast, in Aliomanu Ahupuaʻa, near Kuaehu Point, Denham et al. (1992) identified a subsurface firepit dated to pre-Contact times(Site #996); and, documented several pre-Contact

[4] In reference to interpretations of the age of archaeological sites, all of the commonly used terms have their own built-in biases, strengths and weaknesses. Unless stated otherwise, the term "pre-Contact" (rather than "prehistoric") is used to refer to the time before the arrival of Captain James Cook in the Hawaiian Islands, generally understood to be 1778. This convention, however, by no means implies Hawaiians were isolated or out of "contact" with the rest of the world prior to 1778.

and Historic-era artifacts on the ground surface or from screened alluvium (including an adze blank, basalt flakes, and a Hawaiian Kingdom coin dating to 1847).

Table 1. Previous Archaeological Studies and Results near the Current Project Area

Reference	Location[1]	Type of Study	Results and Comments
Kikuchi 1979	Anahola Ahupuaʻa TMK (4) 4-8-001:001	Archaeological Reconnaissance Survey of "Hawaiian Homes Farmlands"	Identified Site #473 (dry-stacked enclosure, interpreted as possible heiau)
Kikuchi 1983	Anahola Ahupuaʻa TMK (4) 4-8-001:001	Site inspection of small area	Documented Site #471 (C-shape shelter) and #472 (agricultural terraces)
Yent 1983	Anahola Ahupuaʻa TMK (4) 4-8-001:001	Re-visit/inspection of the site identified by Kikuchi (1979), above	Inspected Site #473, and suggested it is (and was originally described in 1929 by Bennett [1931]) as an animal enclosure, not a heiau
Ota 1985	Anahola Ahupuaʻa TMK (4) 4-9-010: 1, 2, 3 & 5; & 4-8-various	Inspection of possible heiau sites (Kuhua, Site #115 & ʻAikanaka, Site #113)	No evidence of these heiau was found, confirming their reported destruction
Denham et al. 1992	Aliomanu Ahupuaʻa TMK (4) 4-9-004:001	AIS of 13.7 acres; subsurface excavation consisted of 31 trenches	Site #996 (subsurface firepit dated to pre-Contact times); several pre-Contact and Historic-era artifacts were also found on the ground surface or from screened alluvium (including an adze blank, basalt flakes, and a Hawaiian Kingdom coin dating to 1847)
Taniguchi 1996	Anahola Ahupuaʻa TMK (4) 4-8-018:024	Site inspection	Site #115 (remnants of Kuhua Heiau)
Rechtman & Dougherty 2001	Anahola Ahupuaʻa TMK (4) 4-8-003:005, 016 (por.) – DHHL lands	AIS of 38 acres; included backhoe trenching	Site #877 (pre-Contact agricultural soil layer in subsurface context); no surface (above-ground) historic properties were identified
Drennan 2007	Keālia Ahupuaʻa TMK (4) 4-7-003:002 (por.) & 4-7-004:001 (por.)	AIS of 2,008 acres; subsurface excavation consisted of 61 trenches, 1 test unit & 11 shovel probes	101 archaeological sites comprised of 261 component features: most sites were plantation-agricultural features; several sites were associated with the Makee sugar mill and/or plantation camps; several sites were kuleana and/or historic habitations
Tome & Dega 2009	Anahola Ahupuaʻa TMK (4) 4-8-001:001 (por.) & 4-8-005:037 (por.)	Archaeological Monitoring Report	Documented Site #5026 (pre-Contact habitation and agricultural site)
Sholin & Dye 2013	Kamalomaloʻo Ahupuaʻa TMK (4) 4-7-004:002	AIS of 60 acres with backhoe trenching	Documented Site #2160, which consists of two sugar cane field irrigation ditches
Mason Architects 2016	Portion of the current project area (Reservoir 2)	Historic American Engineering Records (HAERs) for the reservoir)	Photographic and historical documentation of the reservoir

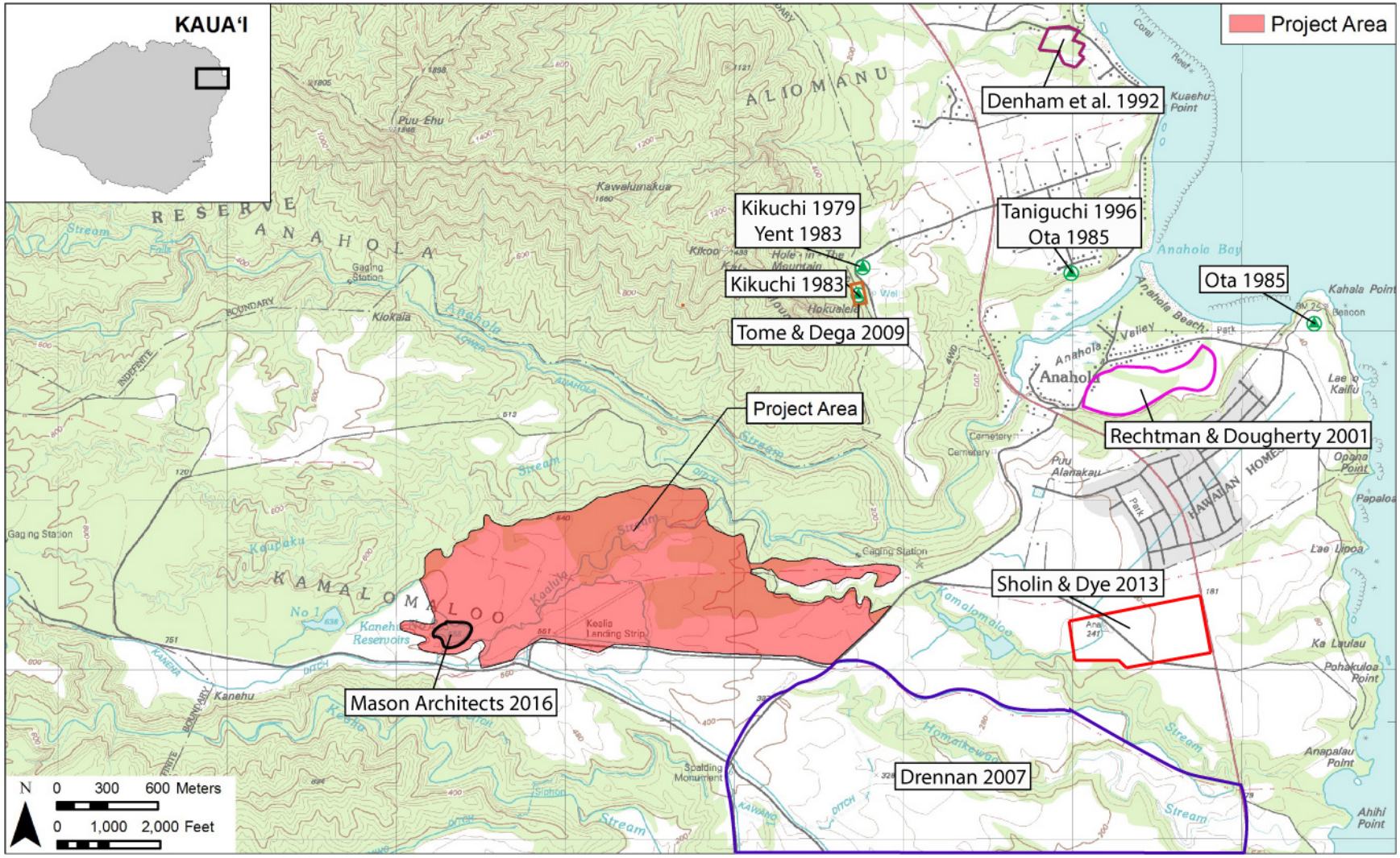

Figure 9. Previous historic-preservation studies in and near the current project area (see text and Table 1 for details); note that Drennan's project area extends further to the south (beyond the limits of this graphic).

RESULTS OF ARCHAEOLOGICAL RECONNAISSANCE SURVEY

This section describes and documents the results of our recent archaeological reconnaissance survey fieldwork for this project. Our fieldwork methods and tasks have been outlined in a previous section above. This section first presents a general overview of the findings, followed by site descriptions and documentation in the next subsection.

Overview of Results

Table 2 is a summary of the historic properties in the project area. Figure 10 is an overall plan map of these cultural resources, based on the results of Nohopapa's archaeological reconnaissance survey.

Based on all available evidence, we believe the project area has been completely transformed by mechanized plantation agriculture: both sugar cane and pineapple operations took place during the Historic period, and well into the middle-late twentieth century. There are no undisturbed ground surfaces or subsurface deposits dating from pre-Contact times in the project area. One indication of this comprehensive transformation of the entire landscape is the near-complete absence of any rocks on the ground surface: clearing and removal of rocks was one of the first tasks that would have been carried out by plantation workers in order to maximize planting and harvesting activities, while also gathering raw material for building and construction projects (e.g., irrigation ditches, sluice gates and culverts). Occasional boulders are commonly marked by "bulldozer scars" or have chain/wire marks on them (a result of their having been dragged over the landscape during clearing activities). The main drainage that traverses the middle of the project area—where pre-Contact Hawaiian structures might survive plantation operations—has been thoroughly flooded/washed out many times over. The rocks in this drainage are jumbled and disturbed.

Eight (8) plantation-era historic properties (some with multiple component features) were identified. In general, all of these cultural resources were anticipated based on archival research and georeferencing of historical maps, although we also found several unique and interesting features that provide more detail than the old maps indicate. Findings include two large, earthen reservoirs (including a formally-constructed rock and mortar structure [possible pump house] on the south side of Reservoir 3), irrigation ditches, a section of dry-stacked boulder retaining wall, concrete and rock sluice gates, a small, informally-constructed diversion dam/culvert, many earthen roads (some with culverts and other drainage features), a railroad bed (but no intact rails or ties), a few displaced iron railroad rails (not in their original position), and a remnant airstrip, which consists of a degraded, road-like strip of old asphalt/concrete.

We identified an inscribed date of 1925 on one the concrete sluice gates, along with the names of two (Japanese) workers who built it, and some Japanese (kanji) script. It is worth noting that, in the portions of the main irrigation ditch running through the middle of the project area, along the south side of the main natural stream channel, we found sections of well-constructed, dry-stacked rock work that may be worth preserving. Other inscriptions on plantation infrastructure included a date of 1960. Some extant components of historic properties in the project area are depicted on a 1904 map (Registered Map 2282; see Figure 7); other components appear on a detailed 1955 map (Registered Map 3003-B; see Figure 8).

Finally, on the ground surface of a portion of the old railroad right-of-way, we found a traditional Hawaiian stone tool (an adze "preform"). This isolated find on the ground surface was the only traditional Hawaiian material observed during our survey.

Table 2. Inventory of Historic Properties in the Project Area based on Archaeological Reconnaissance Survey by Nohopapa Hawai'i

#[1]	Form - Description	# of Fea.[2]	Function	Age	Comments
Site 1	Irrigation Ditch, Sluice Gate & Culvert System (labeled Kaneha Ditch on a 1963 map)	7	Irrigation/water distribution	Historic Portions as early as 1904 or earlier	Diverse/varied construction materials & methods (see text) – there are some well-preserved, formal features and sections of this system
Site 2	Railroad Bed/Right-of-Way (ROW)	1	Transportation of plantation materials & products	Historic Portions as early as 1904 or earlier	All this is left of this site is a level (earthen) railroad bed (no evidence of in-situ rails or ties)
Site 3	Reservoir 2	--	Water storage/distribution	Historic At least as early as 1904 or earlier	Known as Kanehu Reservoir 2 on some older maps
Site 4	Airstrip – "Kealia (Keālia) Landing Strip" on a 1963 map	--	Transportation	Historic Built between 1955 & 1963	Simple asphalt/concrete surface w. no auxiliary structures or features – poor to fair physical condition
Site 5	Reservoir 3	3	Water storage/distribution	Historic At least as early as 1904 or earlier	Known as Kanehu Reservoir 3 on some older maps
Site 6	Dam & Culvert	--	Part of water distribution system	Historic – Plantation era	Diversion dam/culvert functioned to keep stream flow in place and protect adjacent road from being washed out
Site 7	Retaining Wall (Dry-stacked)	--	Soil retention for landscape stability	Historic – Plantation era	A small ridge next to (south of) and slightly above main is retained by this dry-stacked retaining wall
Site 8	Earthen Road System	2	Transportation	Historic Portions as early as 1904 or earlier	--
No #	Isolated Surface Artifact	n.a.	Adze (ko'i) preform	Probably Pre-Contact	Basalt preform found on ground surface of Site 2 (Railroad ROW)

Notes:
[1] These are temporary site numbers that can be formalized into State Inventory of Historic Places numbers if necessary (e.g., if a formal Archaeological Inventory Survey [AIS] of the project area is conducted).
[2] This number denotes the number of documented features at each site. In some cases—as discussed in the individual site descriptions, there are probably additional, as-yet undocumented, features at some of the sites.

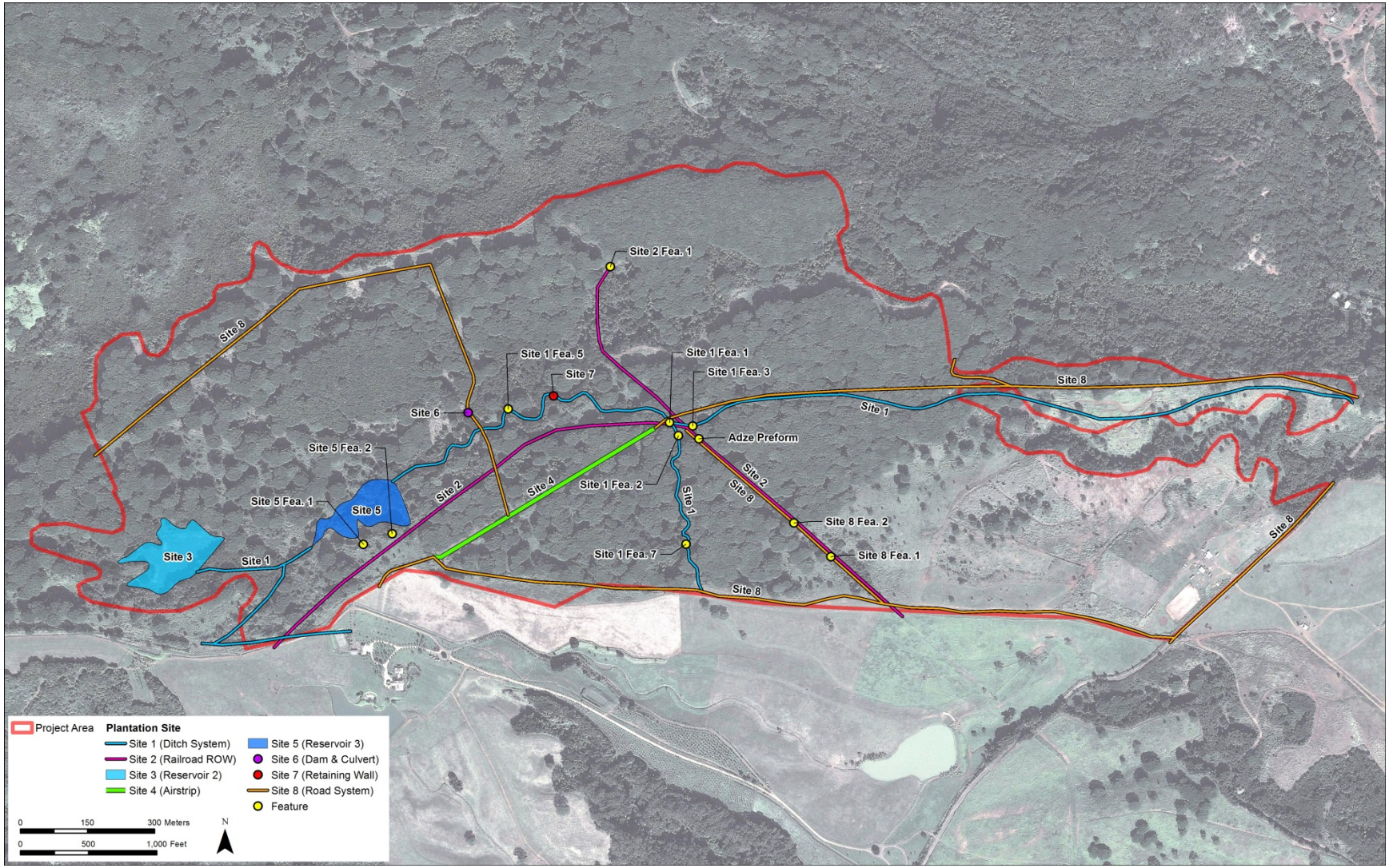

Figure 10. Overall project area depiction of the location, orientation and areal extent of historic properties in the project area.

Site Descriptions

The order in which the historic properties were assigned site numbers was random, and simply serves as a data-organizing device. As noted in the table above, these temporary (field) numbers would need to be replaced with formal State Inventory of Historic Places (SIHP) #s if the project progresses to the point of needing a formal HAR § 13-13-276 Archaeological Inventory Survey (AIS).

SITE #1 – Main Irrigation Ditch, Sluice Gate & Culvert System

FORMAL SIHP #:	n.a.
NAME/S:	Kaneha Ditch
FORMAL SITE TYPE:	Irrigation Ditch, Sluice Gate & Culvert System
# OF DOCUMENTED FEA.:	7*
MAXIMUM DIMENSIONS:	~1.5 miles (E/W) by ~0.25 miles (N/S)**
PHYSICAL CONDITION:	Variable – Good to Poor
FUNCTIONAL INTERPRET.:	Plantation Irrigation/Water Distribution
AGE INTERPRETATION:	Historic (components from 1904 or earlier)

* Additional study (e.g., a formal HAR § 13-13-276 AIS) would definitely yield more features
** Within current project (site extends beyond project area to east, south and west)

Site 1 is an extensive irrigation system consisting of a variety of features, including formally-defined ditches (lined with dry-stacked basalt clasts),[5] earthen ditches (with no added materials), concrete and rock sluice gates, siphons (pipes), and culverts. In general, the ditch system is located within the lower half of the project area (i.e., corresponding with Kamalomaloʻo Ahupuaʻa, but not within Anahola Ahupuaʻa) (see Figure 10). On a 1963 USGS topographic map, this irrigation system is referred to as the Kaneha Ditch (which Pukui et al. 1974 list as "[p]ronunciation and meaning uncertain). The ditch system (Site 1) connects with two large reservoirs (designated Sites 3 and 5) in the southwest portion of the project area. Site 1 follows the Kaʻalula Stream drainage through the middle of the project area. Inscriptions on some features of Site 1 indicate dates of construction as early as 1925, but there are also features dated 1960 and even 1980. As documented below, one feature has the names of two Japanese workers who built a structure in 1925. Portions (but not all) of this ditch system are depicted on a 1904 map (Registered Map 2282; see Figure 7), but probably date from as early as the late nineteenth century.

We identified seven (7) discrete features of Site 1, designated Features 1–7, and we are certain there are additional features that could be identified and added to Site 1, given more systematic inspection of its entire linear extent (which we did not do, since it was beyond the scope of this archaeological reconnaissance survey).[6] One pair of concrete sluice gates (Feature 6) was inscribed with a construction date of 1980. We do not discuss this feature any further in this report, since it is a modern construction (however, we did obtain a GPS point for it, for management purposes).

In general, the physical condition of Site 1 varies widely from good to fair to poor, as described in the feature description below.

[5] "Clast" is a geological term referring, generally, to rocks of all sizes (e.g., pebbles, cobbles and boulders).
[6] Recommendations for future work are presented in a Discussion section following the Results.

Features 1–4 are a cluster of concrete and rock-and-mortar sluice gates, culverts and siphon pipes along the main ditch system near the center of the project area. In general, these four structural features are heavily-built and designed to accommodate substantial water flow. These four features are in fair physical condition, with some structurally intact sections and some that are failing.

Feature 1 (Figure 11 to Figure 14) is a culvert/sluice gate and siphon pipe structure built in 1925 (11/20/1925 to be precise) by Y. Nakao and M. Furumoto. The names and date of construction are written in both English and Japanese (kanji script; see Figure 14). The structure consists of poured-in-place concrete with abundant heavy gravels mixed in. A dislodged siphon pipe is located at this feature. This pipe is not made of metal, but seems to consist of an old-style composite material (e.g., a precursor to today's PVC). It is probably a later addition to the site, compared with the 1925 concrete work. Feature 1 occupies an area measuring approximately 6.2 meters (N/S) by 6.0 meters (E/W) by 1.5 meters (maximum height) with 30-centimeter-thick wall sections.

Feature 2 (Figure 15 to Figure 18) is a sluice gate/siphon pipe structure with three outlets (one to the ENE [cross-slope] and two to the south [downslope]). The sluice gates are constructed of concrete with some natural basalt clasts (mostly small boulders) mortared together. Feature 2 occupies an area measuring approximately 6.9 meters (N/S) by 5.6 meters (E/W) by 1.2 meters (maximum height). Sluice gate slots are built into the poured-in-place concrete structure in a few places. These would have originally held wooden gates to control water flow.

Feature 3 (Figure 19 to Figure 22) is an unusually heavily-built sluice gate/culvert with an inscribed date of 1960 on top of the poured-in-place portion of its structure. In addition to the concrete portions, much of this feature is built using dressed (shaped) basalt blocks and mortar. Feature 3 has a set of sluice gate slots at its downslope end. Feature 3 occupies an area measuring approximately 7.4 meters (N/S) by 1.9 meters (E/W) by 1.9 meters (maximum height) with 14 centimeter-thick wall sections. The diameter of the concrete culvert is approximately 0.90 meters.

Feature 4 (Figure 23 and Figure 24) is another heavily-built sluice gate/culvert structure. The sluice gates are constructed of concrete with some natural basalt clasts (mostly small boulders) mortared together.[7]

Feature 5 (Figure 25) is a discontinuous series of dry-stacked sections of mostly small boulders, up to 5–6 course high, retaining the north side of the main ditch east of Reservoir 3, just south of Ka'alula Stream. The section we recorded was approximately 1.0 meter high. We only recorded (photographed and obtained a GPS point) one representative section of this formal dry-stacked rock work. Further investigation of this feature would yield more examples of this well-constructed ditch wall-retaining work. This feature is generally in good physical condition.

Feature 7 (Figure 26) is a single sluice gate with gate slots near the southern (lower) end of Site 1. The structure, which is located within a simple earthen ditch, measures about 1.2 meters in height; the sluice gate opening is about 0.9 meters wide. This feature is in good physical condition.

[7] A GPS point was not obtained for Feature 4, which is located right across the road (to the north of) Feature 1.



Figure 11. Overview of Feature 1 (Site 1) (concrete sluice-gate and culvert), view south; earthen ditch extends out of the image to the south; note, displaced water pipe to the right.



Figure 12. Another view of Feature 1 (Site 1), facing northwest; rectangular-shaped culvert below the photo scale goes under the road leading to the airstrip.



Figure 13. Overview of Feature 1 (Site 1), facing northwest.



Figure 14. Detail of inscription “Made by M. Furumoto, 11/20/25,” and Japanese kanji script to the left, at Feature 1 (Site 1).



Figure 15. Overview of Feature 2 (Site 1), view east; note, natural boulders incorporated into concrete construction.



Figure 16. Another view of Feature 2 (Site 1), facing west-southwest.



Figure 17. Feature 2 (Site 1), facing east-northeast.



Figure 18. Another view of Feature 2 (Site 1), facing southeast.



Figure 19. Overview of Feature 3 (Site 1), facing east.



Figure 20. Another view of Feature 3 (Site 1), facing north; note use of varied materials and methods (poured-in-place concrete as well as shaped basalt boulders and mortar.



Figure 21. Culvert portion of Feature 3 (Site 1), view southwest.



Figure 22. Inscription on poured-in-place concrete portion of Feature 3 (Site 1), reading "6/3/60."



Figure 23. Portion of Feature 4 (Site 1), view northeast; note, sluice gate grooves in lower portion of image



Figure 24. Overview of Feature 4 (Site 1), facing northeast



Figure 25. Feature 5 (Site 1), representative section of well-constructed (dry-stacked) boulder irrigation ditch wall



Figure 26. Feature 7 (Site 1), dressed basalt block and mortar sluice gate, view northwest

SITE #2 – Railroad Bed/Right-of-Way (ROW)

FORMAL SIHP #:	n.a.
NAME/S:	n.a.
FORMAL SITE TYPE:	Railroad Bed/Right-of-Way (ROW)
# OF DOCUMENTED FEA.:	1*
MAXIMUM DIMENSIONS:	~0.5 mile (NW/SE) by 0.5 mile (NE/SW)**
PHYSICAL CONDITION:	Variable – Good to Fair (railroad bed only)
FUNCTIONAL INTERPRET.:	Transportation of Materials & Products
AGE INTERPRETATION:	Historic (components from 1904 or earlier)

* Additional study (e.g., a formal HAR § 13-13-276 AIS) may yield more features
** Within current project (site extends beyond project area to south and southwest)

Site 2 is a remnant railroad bed (level, earthen right-of-way [ROW]) radiating out in two lines from near the center of the project area (see Figure 10). One line is oriented roughly NW/SE, and the other is oriented roughly NE/SW. Portions of this railroad are depicted on a 1904 map (Registered Map 2282; see Figure 7), but most this site is not fully depicted until a 1955 map (Registered Map 3003-B; see Figure 8), suggesting—like the ditch system (Site 1), it was built in stages or phases over time.

In general, and without the benefit of having historical maps from the early twentieth century that depicted a railroad, this site is not necessarily identifiable as such in the field: it simply resembles another old dirt road, of which there are many in the project area (Figure 27). Knowing of its prior existence, however, we were able to follow it in some places and describe it, at least in general terms. We did not find any in-situ iron rails of wooden ties, which must have been removed after it was no longer needed. We did find a few locations in the project area where a couple to several iron rails were either discarded on the ground surface, sticking out of a bulldozed soil berm (i.e., partially buried) (see Feature 1 description, below), or repurposed (re-used) as fence post-like uprights (see "possible pump house" at Site 5 [Feature 1] description, below).

The Site 2 ROW is generally a below grade (i.e., somewhat sunken, or lower than the adjacent ground surface) level soil corridor. In some places, for example, in its southeast portion (below the main access road and heading slightly downslope to the southeast), the ROW is depressed or sunken by several meters. In other places, for example, in its northern spur located in the ahupua'a of Anahola, it is generally closer to the current grade and not so depressed/sunken.

Feature 1, near the northern terminus of Site 2 (in Anahola Ahupua'a), is a small section of informally-placed cobbles creating a pavement-like surface on the ROW (Figure 28). These paving stones, which cover a relatively small area (e.g., on the order of 100 ft^2), may have placed to keep the ground surface under the railroad intact in times of heavy rains.

Immediately adjacent to Feature 1, a short distance to the northeast along the east side of the ROW, two displaced iron rails (Figure 29) are sticking out of a bulldozed berm. These rails are not in their original position, but were incorporated into the soil berm after the railroad was abandoned.



Figure 27. Overview of Site 2 (Railroad ROW), a level, earthen corridor representing an old railroad bed; this photograph is at the location of the isolated surface find of the adze preform; facing southeast



Figure 28. Feature 1 (Site 2), informal cobble paving on the surface of the old Railroad ROW, near the north end of the site, facing southwest



Figure 29. Two rails near the north end of the old Railroad ROW; these are not in their original position, but have been incorporated into a soil berm/push pile adjacent to Site 2; view south

SITE #3 – Reservoir 2

FORMAL SIHP #:	n.a.
NAME/S:	Kanehu Reservoir 2
FORMAL SITE TYPE:	Reservoir (earthen pit)
# OF DOCUMENTED FEA.:	None, other than reservoir, itself
MAXIMUM DIMENSIONS:	182 m (600 ft.) (E/W) x 122 m (400 ft.) N/S 5.5 acres
PHYSICAL CONDITION:	Fair to Good
FUNCTIONAL INTERPRET.:	Water storage/distribution
AGE INTERPRETATION:	Historic (at least as early as 1904 or earlier)

Site 3 is a large, earthen reservoir, currently almost entirely dry (empty) except for a small drainage running through it, which is the natural Kaʻalula Stream (see Figure 10). Our brief inspection of this site, from its northeast end, suggests it was originally part of the natural stream that was excavated to create an approximately 5.5-acre hole in the ground. Vegetation in the reservoir is currently more open (lacking large trees), compared with the other reservoir. We did not measure its depth, but estimate it to be at least 30–40 ft. deep, compared with the adjacent (surrounding) ground surface. There is a vertical depth-measuring device—a long wooden pole or post—in the middle of the site. On historical maps, this site is identified as Reservoir 2. We did not inspect this site in detail, but—based on our more in-depth inspection of the other reservoir (see Site 5, below), there may be large retaining boulders around parts of the upper margins of the reservoir.

Site 3 is directly connected to the other reservoir (Site 5, also known as Reservoir 3 on historical maps), as well as the main irrigation ditch system (Site 1); collectively, these reservoirs and ditch system constitute the water storage and distribution system for the commercial plantation agricultural operations in the project area.

Both of these two reservoirs were also once connected to a third (Reservoir 1), currently mauka (west) of the project area limits. Collectively, these three reservoirs are labeled Kanehu Reservoirs 1, 2 and 3 on some, relatively recent maps (e.g., 1963 USGS topographic map). A 1904 map (Registered Map 2282; see Figure 7) shows Reservoir 2 (Site 3) and Reservoir 1 (mauka of the current project area) were not yet connected by a ditch that does appear (and connects them) by 1955 (Registered Map 3003-B; see Figure 8).

SITE #4 – Airstrip

FORMAL SIHP #:	n.a.
NAME/S:	Kealia (or Keālia) Landing Strip
FORMAL SITE TYPE:	Asphalt/concrete landing/take-off runway
# OF DOCUMENTED FEA.:	None, other than airstrip, itself
MAXIMUM DIMENSIONS:	533 m (1,750 ft.)/0.5 km (0.33 mile) long 0.46 acres (total area)
PHYSICAL CONDITION:	Fair to Poor
FUNCTIONAL INTERPRET.:	Transportation (currently part of the road system)
AGE INTERPRETATION:	Built between 1955 and 1963

Site 4 is a late Historic period airstrip in the middle-southern portion of the project area (see Figure 10). This airstrip, which is labeled on a 1963 USGS topographic map as Kealia (or Keālia) Landing Strip, is not depicted on an extremely detailed 1955 map (Registered Map 3003-B), which shows all of the rest of the historic properties we identified in the current project. Thus, it is likely that the airstrip was built between 1955 and 1963; this means it is barely old enough to qualify as a historic property (the current "cut off" date according to Hawai'i historic preservation laws and rules is 1968). On earlier maps, including the 1955 map, the current location of what would become the airstrip appears as a cane haul road between sugar cane fields.

In general, the airstrip is indistinguishable on the ground from an old asphalt/concrete road (Figure 30 and Figure 31). There are no other associated or auxiliary features one might expect at a landing strip. The physical condition of Site 4—basically the current state of the asphalt/concrete road—is fair to poor (Figure 32).



Figure 30. Northeast end of airstrip (Site 4), facing southwest



Figure 31. Southwest end of airstrip (Site 4), facing northeast



Figure 32. Detail of a portion of the airstrip (Site 4) surface; photo scale measures 2.0 meters (6.6 ft.) long

SITE #5 – Reservoir 3

FORMAL SIHP #:	n.a.
NAME/S:	Kanehu Reservoir 3
FORMAL SITE TYPE:	Reservoir (earthen pit)
# OF DOCUMENTED FEA.:	3*
MAXIMUM DIMENSIONS:	213 m (700 ft.) (E/W) x 107 m (350 ft.) N/S 5.6 acres
PHYSICAL CONDITION:	Fair to Good
FUNCTIONAL INTERPRET.:	Water storage/distribution
AGE INTERPRETATION:	Historic (at least as early as 1904 or earlier)

* Additional study (e.g., a formal HAR § 13-13-276 AIS) would definitely yield more features

Site 5 is a large, earthen reservoir, currently almost entirely dry (empty) except for a small drainage running through it, which is the natural Kaʻalula Stream (see Figure 10). Our brief inspection of this site, along its southern margin, suggests it was originally part of the natural stream that was excavated to create an approximately 5.6-acre hole in the ground. Vegetation in the reservoir is dominated by numerous albizia trees. We did not measure the site's depth, but estimate it to be at least 40–50 ft. deep, compared with the adjacent (surrounding) ground surface (Figure 33). On historical maps, this site is identified as Reservoir 3. Some sections of large retaining boulders are located around parts of the reservoir's upper margins.

At the northeast end of Site 5, there is a large opening—similar to a road cut or channel—where the reservoir emptied into the natural stream (Kaʻalula)/Site 1 ditch complex. In addition to this large opening at the northeast end of Site 5 (designed Feature 3),[8] we documented two other features at Reservoir 3.

Feature 1, along the southern margin of Reservoir 3, is a formal structure, possibly a pump house (Figure 34 to Figure 36). The main materials and methods are dressed (shaped) basalt blocks with mortar, although there are also some bricks and possibly poured-in-place sections around the doorway opening. The rectangular structure measures about 7.4 meters (along NW or downslope side) by 6.0 meters (along NE or cross-slope side) with a maximum height above ground surface (downslope side) of 3.2 meters. The walls are about 0.7 meters thick. The interior top of the doorway arch is about 2.0 meters tall. This structure is located several meters south of the southern margin of the reservoir, and may represent a pump house where water could be siphoned up from Reservoir 3. Right in from of the possible pump house structure, on the north side of an earthen irrigation ditch (designated Feature 2, see below), there are several upright iron (railroad) rails that likely functioned as a support for the siphon pipe as it crossed over the ditch and into the possible pump house. Feature 1 is in fair to poor physical condition. As explained in the Discussion section below, if this unique feature were preserved, it would need to be repaired/stabilized, since, in its current state, it represents a safety hazard.

Feature 2 is an earthen irrigation ditch that runs along the southern margin of Reservoir 3. At the location of the possible pump house (Feature 1), the ditch is between the structure and the reservoir.

Site 5 is directly connected to the other reservoir (Site 3, also known as Reservoir 2 on historical maps), as well as the main irrigation ditch system (Site 1); collectively, these reservoirs and ditch

[8] We did not obtain a GPS point for this feature, which is easily observed by walking or driving down the unimproved road along the east end of Reservoir 3.

system constitute the water storage and distribution system for the commercial plantation agricultural operations in the project area.

Both of these two reservoirs were also once connected to a third (Reservoir 1), currently mauka (west) of the project area limits. Collectively, these three reservoirs are labeled Kanehu Reservoirs 1, 2 and 3 on some, relatively recent maps (e.g., 1963 USGS topographic map). A 1904 map (Registered Map 2282; see Figure 7) shows Reservoir 2 (Site 3) and Reservoir 1 (mauka of the current project area) were not yet connected by a ditch that does appear (and connects them) by 1955 (Registered Map 3003-B; see Figure 8).



Figure 33. Overview of east end of Reservoir 3 (Site 5) taken from southeast margin



Figure 34. Pump house structure (Feature 1 at Site 5), view southeast



Figure 35. Doorway to pump house structure (Feature 1 at Site 5), view south



Figure 36. Interior view of doorway to pump house structure (Feature 1 at Site 5), view west; note, north arrow is in error by 180 degrees (north is to the right in this view)

SITE #6 – Diversion Dam & Culvert

FORMAL SIHP #:	n.a.
NAME/S:	n.a.
FORMAL SITE TYPE:	Diversion Dam & Culvert
# OF DOCUMENTED FEA.:	None, other than dam/culvert, itself
MAXIMUM DIMENSIONS:	15 m (49.2 ft.) N/S x 5 m (16.4 ft.) E/W
PHYSICAL CONDITION:	Fair to Good
FUNCTIONAL INTERPRET.:	Part of water distribution system
AGE INTERPRETATION:	Historic - Plantation era

Site 6 is a small diversion dam built along the north side of the Ka‘alula Stream drainage, and a culvert that directs the stream flow (diverted by the dam) under a historic road (part of Site 8). Site 6 is located east (downstream) of Reservoir 3 (see Figure 10).

The diversion dam is constructed of basalt rock and concrete, finished in a relatively informal (rough) way (it is slightly convex, rather than level on top). The dam appears to have been built to keep stream flow from extending to north (thus, out of the floodplain of the drainage), and also to keep it from flooding the adjacent dirt road. The water is diverted into a metal culvert (reinforced with angular basalt boulders) under the adjacent road (Figure 37 and Figure 38).

Site 6 is generally in good physical condition.



Figure 37. Standing atop Site 6 (small diversion dam looking down into stream drainage and culvert [just under photo scale] under dirt road); view east



Figure 38. Detail of culvert at Site 6, view east

SITE #7 – Dry-stacked Retaining Wall

FORMAL SIHP #:	n.a.
NAME/S:	n.a.
FORMAL SITE TYPE:	Dry-stacked Retaining Wall
# OF DOCUMENTED FEA.:	None, other than wall, itself
MAXIMUM DIMENSIONS:	20 m (65.6 ft.) length (see text for more details)
PHYSICAL CONDITION:	Good
FUNCTIONAL INTERPRET.:	Soil retention for landscape stability
AGE INTERPRETATION:	Historic – Plantation era

Site 7 is a dry-stacked basalt-boulder retaining wall located just south of (and several feet above, in elevation) the main irrigation ditch system (Site 1), near the center of the project area (see Figure 10). The retaining wall (Site 7) is located on top of a low ridge directly above the ditch (Site 1), and its function is to retain the soil and keep it from eroding down into the irrigation ditch. The retaining wall sits at the edge of a steep, slippery slope down into the irrigation ditch.

The wall is about 20 m (65.6 ft.) long with 3–4 courses of dry-stacked, sub-angular and sub-rounded boulders (Figure 39). It grades into the ground surface on its south side.

Site 7 is generally in good physical condition.



Figure 39. Central portion (detail) of dry-stacked retaining wall, view south

SITE #8 – Unimproved (Dirt) Road Network

FORMAL SIHP #:	n.a.
NAME/S:	n.a.
FORMAL SITE TYPE:	Earthen Road System
# NO. OF DOCUMENTED FEA.:	2*
MAXIMUM DIMENSIONS:	Throughout most of project area (see Figure 10)**
PHYSICAL CONDITION:	Variable from Poor to Fair to Good
FUNCTIONAL INTERPRET.:	Transportation
AGE INTERPRETATION:	Historic (portions from as early as 1904)

* Additional study (e.g., a formal HAR § 13-13-276 AIS) would definitely yield more features
** Site extends beyond project area boundaries to east, southeast, southwest and west

Site 8 is a network of unimproved (dirt) roads throughout the project area (see Figure 10). Some of these roads appear on a 1904 map (Registered Map 2282; see Figure 7), and the rest appear on a 1955 map (Registered Map 3003-B; see Figure 8).

In general, these "cane haul" roads do not have any structural features other than a drivable (two-track) surface. We documented two features, and a more thorough investigation of these entire road system would likely identify more.

Feature 1 is a unique, hand-dug (through hard clay) culvert under a section of the road (Figure 40).

Feature 2 is a small, square concrete and metal drainage feature along the east side of a section of the road system.

The condition of this road system varies considerably from poor to fair to good throughout the project area.



Figure 40. Hand-excavated culvert through dense clay (Feature 1 at Site 8) under historic dirt road; view northeast

No Site # – Isolated Surface Artifact (Adze Preform on Basalt)

FORMAL SIHP #:	n.a.
NAME/S:	n.a.
FORMAL SITE TYPE:	Surface Artifact (Adze Preform)
# OF DOCUMENTED FEA.:	n.a.
MAXIMUM DIMENSIONS:	See text
PHYSICAL CONDITION:	n.a.
FUNCTIONAL INTERPRET.:	Adze Preform (see text)
AGE INTERPRETATION:	Pre-Contact

This isolated surface find is a flaked basalt tool of traditional (Hawaiian) design. It presumably dates from pre-Contact times, but may also date from the early Historic period. The artifact was discovered on the ground surface of a portion of the railroad ROW (Site 2) (see Figure 10). This isolated surface find is an adze preform (Figure 41). It measures approximately 13.0 cm (maximum length) by 8.0 cm (maximum width) by 3.5 cm (maximum thickness). The surface of the tool has been affected by subaerial weathering, which indicates it has been on the ground surface (rather than recently dug up) for quite some time.

We recorded a GPS point for the artifact (see Figure 10), but left it in place (i.e. we did not collect it). We also did not mark it physically in the field (e.g., by wrapping it with flagging tape), in order to not visually bring attention to it.



Figure 41. Four views of the isolated surface artifact found on the ground (see text); scale bar is in increments of 1 cm

Although this study is not a formal HAR § 13-13-276 Archaeological Inventory Survey (AIS), but, rather, an Archaeological Reconnaissance Survey (ARS), in this section we present *preliminary* significance assessments. The purpose of this discussion is to assist project planners and other stakeholders as they consider potential impacts to, and mitigation options for, the cultural landscape and historic properties in the project area. This section starts with presenting our preliminary significance and integrity assessments; next, we discuss preliminary project effect and mitigation recommendations. It is important to reiterate that, if a formal AIS is required, such an investigation might reveal as-yet undiscovered historic properties that could alter these preliminary (HAR § 13-13-275) assessments.

Preliminary Significance Assessments

In accordance with HAR § 13-13-275-6, significance of a historic property is evaluated by first establishing that it possesses "integrity of location, design, setting, materials, workmanship, feeling, and association," and, second, that it meets 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; or
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.

In a formal HAR § 13-13-276 AIS, all of the historic properties determined to meet one or more of the "significance criteria" would first also have to be discussed in terms of their "integrity" (we would also obtain formal State site #s from the SHPD). In this ARS report, we do not provide a complete discussion for each historic property's integrity, but the following is one example (that would be provided for each significant historic property) of the "integrity" plus "significance" presentation:

> Site 1 (Irrigation Ditch, Sluice Gate & Culvert System, components of which date to earlier than 1904, labeled "Kaneha Ditch" on some maps) retains integrity of **location**, **design**, **workmanship**, and **materials**. The site is generally *located* where it was originally created (with the exception of some siphon pipes that have been dislodged/moved); many of its documented features retain recognizable *design* elements (e.g., dressed/shaped basalt blocks, evidence of poured-in-place concrete forms), there are several examples of quality *workmanship* (particularly the dry-stacked ditch walls [e.g., Feature 5] and dressed/shaped basalt blocks [e.g., Features 3 and 7], and its constituent *materials* (basalt rock and mortar, concrete, dry-stacked rocks) have not been significantly altered. The site's integrity of **setting** has been altered substantially by the presence of thousands of invasive albizia trees that would not have been present when it was used primarily for sugar cane and pineapple agriculture. Likewise, the site's integrity of **feeling** and

association have been altered by the many invasive plants that blanket the landscape; however, the inscriptions of the names of two Japanese workers who built Feature 1 adds to the site's *feeling* and *association* with those who once worked so hard on this landscape.

Therefore, Site 1 is evaluated as significant under criterion "d" for its intrinsic informational value to research on the history of commercial plantation agriculture (both sugar cane and pineapple) in the Anahola area (ahupuaʻa of Anahola and Kamalomaloʻo) more than a century ago.

Table 3 is a summary of preliminary significance assessments and mitigation recommendations for all eight (8) identified historic properties. Five historic properties (Sites 1, 3, 5, 6 and 7) are significant under criterion "d." Three historic properties—the railroad bed (Site 2), the airstrip (Site 4), and the dirt road system (Site 8)—are not significant under any criteria. The isolated artifact (Hawaiian-style stone tool) is significant under both criteria "d" and "e" (the applicability of the latter criterion is related to the fact that this artifact, on this thoroughly transformed landscape, is a rare, surviving remnant of "old Hawaiʻi").

Preliminary Project Effect and Mitigation Recommendations

Based on all available evidence, Nohopapa Hawaiʻi recommends a preliminary effect determination of "effect, with agreed upon mitigation commitments."

Mitigation for the three sites determined to be "not significant" (Site 2, 4 and 8) is "not applicable." No further historic-preservation work (NFW) is needed for Sites 3, 5 and 6 (i.e., the two reservoirs and the small diversion dam and culvert, respectively). The retaining wall designated Site 7 is a good candidate for preservation, as are selected features of Site 1. The isolated artifact could be collected and curated by the landowner, in order to save it from disappearing during development activities.

Table 3. Preliminary Significance Assessments and Mitigation Recommendations

#*	Formal Type	Function	Age	Sign. Assess.	Recomm. Mitig.**
Site 1	Irrigation Ditch, Sluice Gate & Culvert System	Irrigation/water distribution	Historic Portions as early as 1904 or earlier	d	Preservation of selected features
Site 2	Railroad Bed/ Right-of-Way (ROW)	Transportation of plantation materials & products	Historic Portions as early as 1904 or earlier	Not significant	n.a.
Site 3	Reservoir 2	Water storage/ distribution	Historic At least as early as 1904 or earlier	d	NFW
Site 4	Airstrip – "Kealia (Keālia) Landing Strip" on 1963 map	Transportation	Historic Built between 1955 & 1963	Not significant	n.a.
Site 5	Reservoir 3	Water storage/ distribution	Historic At least as early as 1904 or earlier	d	NFW
Site 6	Dam & Culvert	Part of water distribution system	Historic – Plantation era	d	NFW
Site 7	Retaining Wall (Dry-stacked)	Soil retention for landscape stability	Historic – Plantation era	d	Preservation
Site 8	Earthen Road System	Transportation	Historic Portions as early as 1904 or earlier	Not significant	n.a.
No #	Isolated Surface Artifact	Adze (koʻi) preform	Probably Pre-Contact	d, e	Collect & curate for future generations

* These are temporary site numbers that can be formalized into State Inventory of Historic Places numbers if necessary (e.g., if a formal Archaeological Inventory Survey [AIS] of the project area is conducted).

** n.a. = not applicable, NFW = no further historic-preservation work needed.

CONCLUSION

At the request of the Department of Hawaiian Homelands (DHHL), Nohopapa Hawai'i, LLC (Nohopapa) prepared this Archaeological Reconnaissance Survey (ARS) report for a 467-acre project area in Anahola and Kamalomalo'o Ahupua'a, Kawaihau (Ko'olau/Puna) Moku, Kaua'i, TMK (4) 4-7-002:004 (por.), 4-8-002:001 (por.) and 4-8-003:006 (por.).

The primary objective was to identify humanly-modified sites and landscape features that may be older than 50 years in age, which qualifies them as historic properties under HAR § 13-13-275. The fieldwork and resulting report were not designed to fulfill all the requirements of a formal HAR § 13-13-276 Archaeological Inventory Survey (AIS). However, the completed work represents a solid foundation for finishing an AIS, if such a study is required. This ARS report is intended to serve as a planning tool for the project proponent, planners and land managers as well as other stakeholders interested in future development of the subject parcel.

Prior to starting the fieldwork, based on the results of archival research, we georeferenced several historical maps (from the early 20th century) depicting the location of various plantation-era features. We then integrated these data into a GIS database, and loaded these data on hand-held (Garmin) GPS devices. In general, these data proved invaluable in helping us locate and confirm the existence of many historic properties dating from the early 20th century.

From November 12–16, 2018, we conducted and completed archaeological reconnaissance survey of the project area. Our survey methods included a combination of (a) systematic pedestrian survey transects, (b) targeted pedestrian survey to inspect known historic properties, (c) systematic survey through the entire main drainage system, and (d) "windshield" survey (i.e., driving by and inspecting portions of the project area that could be easily observed from the vehicle). We recorded our track logs with the two Garmins in order to show where we surveyed. We also recorded a total of 29 GPS points to indicate the location of various site-features (and other purposes, such as navigation/orientation points).

Based on all available evidence, we believe the project area has been completely transformed by mechanized plantation agriculture: both sugar cane and pineapple operations took place during the Historic period, and well into the middle-late twentieth century. There are no undisturbed ground surfaces or subsurface deposits dating from pre-Contact times in the project area. One indication of this comprehensive transformation of the entire landscape is the near-complete absence of any rocks on the ground surface: clearing and removal of rocks was one of the first tasks that would have been carried out by plantation workers in order to maximize planting and harvesting activities, while also gathering raw material for building and construction projects (e.g., irrigation ditches, sluice gates and culverts). Occasional boulders are commonly marked by "bulldozer scars" or have chain/wire marks on them (a result of their having been dragged over the landscape during clearing activities). The main drainage that traverses the middle of the project area—where pre-Contact Hawaiian structures might survive plantation operations—has been thoroughly flooded/washed out many times over. The rocks in this drainage are jumbled and disturbed.

Eight (8) plantation-era historic properties (some with multiple component features) were identified. In general, all of these cultural resources were anticipated based on archival research and georeferencing of historical maps, although we also found several unique and interesting features that provide more detail than the old maps indicate. Findings include two large, earthen reservoirs (including a formally-constructed rock and mortar structure [possible pump house] on the south side of Reservoir 3), irrigation ditches, a section of dry-stacked boulder retaining wall, concrete and rock sluice gates, a small, informally-constructed diversion dam/culvert, many

earthen roads (some with culverts and other drainage features), a railroad bed (but no intact rails or ties), a few displaced iron railroad rails (not in their original position), and a remnant airstrip, which consists of a degraded, road-like strip of old asphalt/concrete.

We identified an inscribed date of 1925 on one the concrete sluice gates, along with the names of two (Japanese) workers who built it, and some Japanese (kanji) script. It is worth noting that, in the portions of the main irrigation ditch running through the middle of the project area, along the south side of the main natural stream channel, we found sections of well-constructed, dry-stacked rock work that may be worth preserving. Other inscriptions on plantation infrastructure included a date of 1960. Some extant components of historic properties in the project area are depicted on a 1904 map (Registered Map 2282; see Figure 7); other components appear on a detailed 1955 map (Registered Map 3003-B; see Figure 8).

Finally, on the ground surface of a portion of the old railroad right-of-way, we found a traditional Hawaiian stone tool (an adze "preform"). This isolated find on the ground surface was the only traditional Hawaiian material observed during our survey.

A Discussion section (just before the Conclusion section) presents our preliminary significance assessments, project effect determination, and mitigation recommendations.

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Appendix F

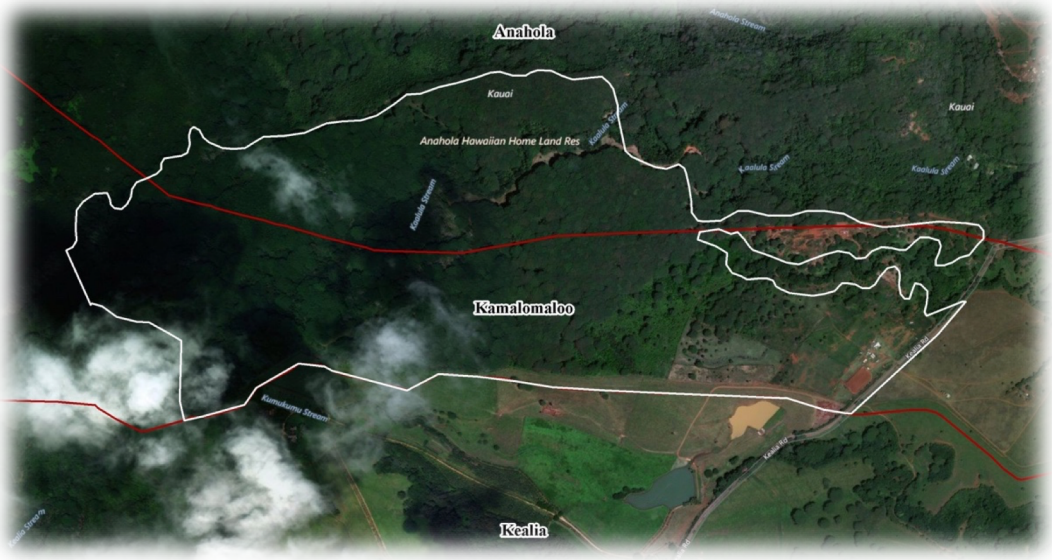
Cultural Impact Assessment (Nohopapa Hawai‘i)

Anahola i ke Au Holo

A Cultural Impact Assessment for DHHL's Anahola Kuleana Homestead Tract

Kamalomaloʻo Ahupuaʻa, Puna Moku and Anahola Ahupuaʻa, Koʻolau Moku, Kauaʻi Mokupuni
TMKs (4) 4-7-002:004, (4) 4-8-002:001, and 4-8-003:006

Lilia Merrin, MA, Dominique Cordy, MA,
And Devin Kamealoha Forrest, MA



Prepared for:
Group 70

Prepared by:

NOHOPAPA HAWAIʻI

March 2020

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INTRODUCTION AND METHODS

Scope of Work

At the request of Group 70 (G70), Nohopapa Hawai‘i, LLC conducted a Cultural Impact Assessment (CIA) for the Anahola Kuleana Homestead Tract for Department of Hawaiian Home Lands (DHHL). TMK parcels are located in the ahupua‘a of Anahola, Ko‘olau moku, and the ahupua‘a of Kamalomalo‘o, Puna moku, on the mokupuni of Kaua‘i.

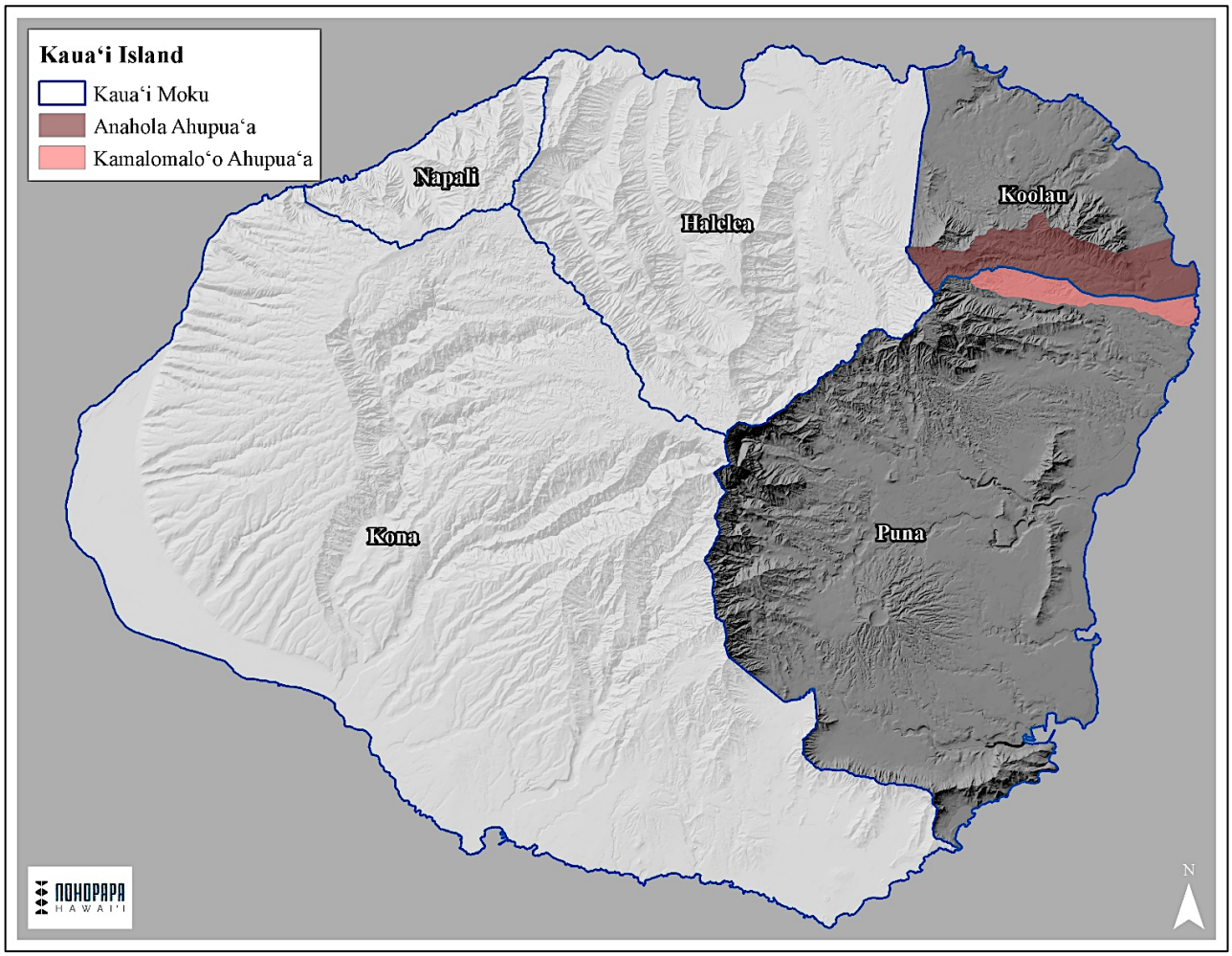

Figure 1. Map of Kaua‘i Island, highlighting the ahupua‘a of Anahola and Moloa‘a, as situated within their moku (respectively) Ko‘olau moku and Puna moku.

The primary purpose of this project is to document cultural features, resources, and practices in the project area, to give voice to some of the community's ‘ike (knowledge) and mana‘o (thoughts) on the proposed project; and to summarize community concerns and recommendations as they relate to Cultural practices relating to the study area, specifically how the proposed project might impact the community—past, present, and future. This report is intended to be used as a source to develop strategies, make informed decisions, and provide recommendations specific to this portion of the DHHL Anahola Settlement Plan (2019 update, of the Proposed Lot Scheme).

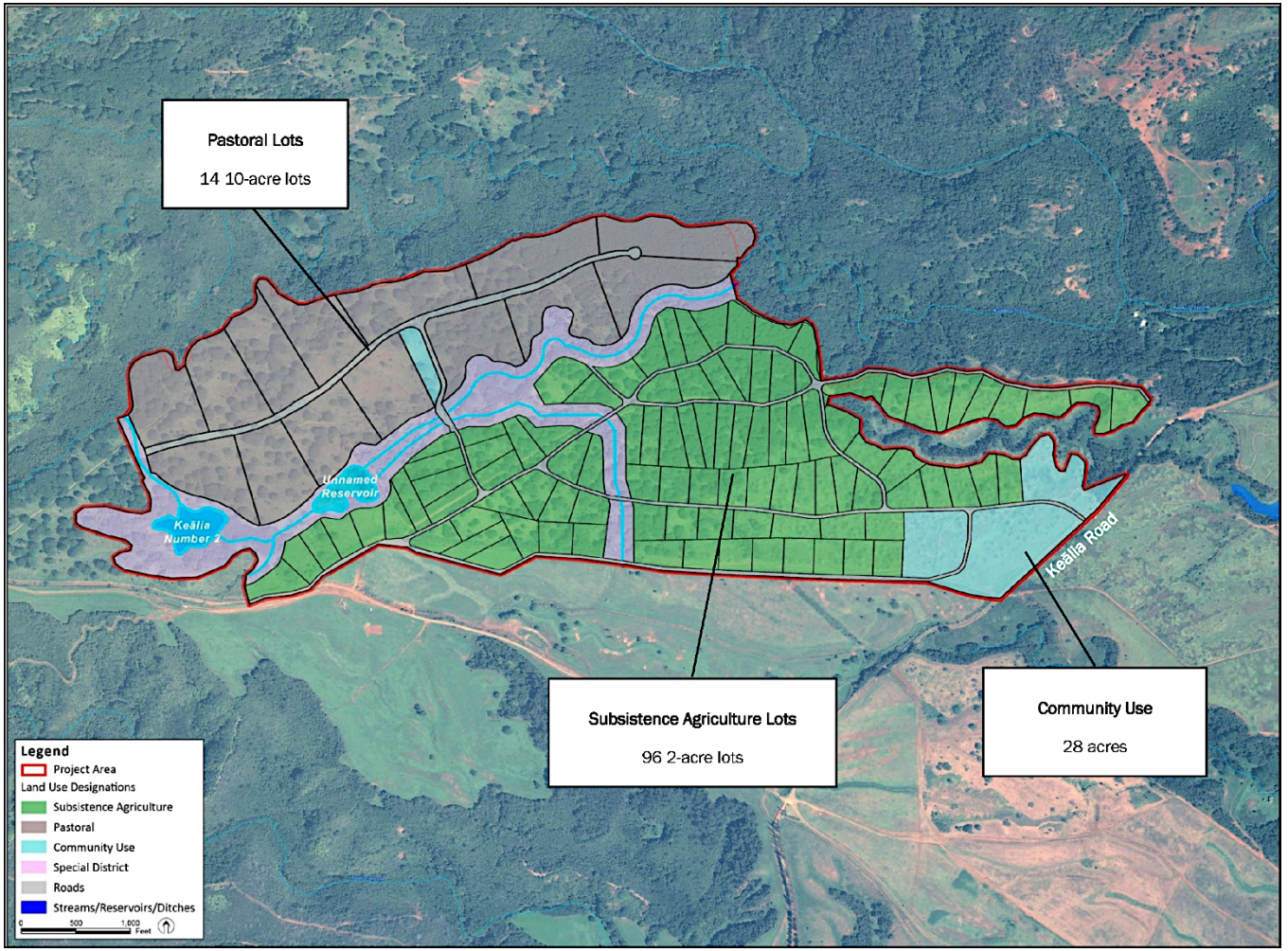

Figure 4-1

Anahola Kuleana Settlement Plan, 2019

Figure 2. Taken from p.17 of the draft Anahola Settlement Plan, this is the current lot scheme this CIA is based upon.

Specifically, Nohopapa Hawaii, has been tasked to provide:

Cultural and Historical Research, including a general overview of:

- Natural landscapes and resources (environmental zones, soils, geology, plants, waterways, coastlines, fisheries).
- Native Hawaiian traditions and accounts (kaʻao, moʻolelo, inoa ʻāina, mele, oli, ʻōlelo noʻeau, nūpepa, wahi pana).
- Post-European contact historical accounts (early visitor accounts, plantation era, historic maps, English newspapers).
- Kingdom of Hawaiʻi land use and resource management practices (Māhele information –Boundary Commission Testimonies, Land Commission Awards, Native & Foreign Testimonies and Registers, Government Land Grants, Crown lands).
- Archaeological information pertaining to cultural and historic sites within the study area to reconstruct traditional land use activities and to identify and describe cultural resources and practices in the area.
- Research focusing on traditions and legends; limited historic research; research of oral histories conducted within and around project area.

Ethnographic interviews and community consultation with persons and/or organizations knowledgeable of the project area.

Information compiled in this CIA will be used to inform the Environmental Assessment (EA) and should serve as an initial Cultural background and guide for the development of the Anahola Kuleana Homestead.

The CIA includes a review of literature (in English and Hawaiian), historical maps, photographs, and a compilation and summary of various ethnographic interviews related to traditional cultural practices and land use. Contents of the study include:

- A discussion of the methods utilized for ethnohistorical research and review, and community consultation.
- A general description of the natural landscapes and resources of Anahola and Kamalomaloʻo ahupuaʻa including geology, soils, climate, water resources, traditional ecological zones, native flora and fauna, and traditional subsistence practices.
- A compilation of cultural traditions such as inoa ʻāina, moʻolelo, ʻōlelo noʻeau, oli, and mele.
- An examination of the traditional land uses of Anahola and Kamalomaloʻo and a historical overview of land use changes including historical maps, visitor recollections, and Māhele information.
- A review and summary of the archaeological and cultural resources within Anahola and Kamalomaloʻo ahupuaʻa.
- A compilation of interview summaries from community participants.
- A discussion concerning the cultural beliefs, practices and resources identified, and if they are affected directly or indirectly by the proposed project.
- A presentation of final recommendations regarding the future management and stewardship of the study areas and a brief conclusion.

The structure and content of this Cultural Impact Assessment is in compliance with the primary guiding documents including: The Hawaiʻi Environmental Council's Guidelines for

Assessing Cultural Impacts (Appendix A), A Bill for Environmental Impact Statements (Appendix B), and Act 50 (Appendix C). This Cultural Impact Assessment meets industry standards and is in accordance with Chapter 343, HRS.

Methods

This CIA consisted of three primary tasks: (1) ethnohistorical research and review; (2) community ethnographic interviews, summaries, and recommendations; and (3) final report compilation. The study spanned a 3-month period from December 2019 through February 2020. Project personnel included: Kelley Uyeoka, MA, Dominique Leu Cordy, MA, Lilia Merrin, MA, and Devin Kamealoha Forrest, MA. While conducting this study, Nohopapa Hawai'i's research team incorporated a set of values and beliefs to help guide our research, analysis, behavior, perspective, and overall frame of reference. The core values directing our hui included:

* **Aloha 'āina**- to have a deep and cherished love for the land which created and sustains us
* **Ha'aha'a**- to be humble, modest, unassuming, unobtrusive, and maintain humility
* **Ho'omau**- to recognize, appreciate, and encourage the preservation, perpetuation, and continuity of our wahi pana and lāhui (nation)
* **'Ike pono**- to recognize, feel, and understand righteousness, properness and goodness in all we do
* **'Imi Na'auao**- to seek knowledge or education; be ambitious to learn
* **Kuleana**- to view our work as both a privilege and responsibility
* **Pule**- to open the connection and communication lines to a higher source of power so that this work is intentionally guided

These values represent the underlying foundation, spirit, and structure for this study. It was our hope that by providing a frame of reference and guiding values, the teams' efforts would be better understood in the context of our being indigenous researchers genuinely believing in and practicing aloha 'āina and aloha lāhui.

The collection of information was divided into two parts – ethnohistorical and ethnographic.

Ethnohistorical Research and Review

A variety of repositories and resources were examined to develop a general description of the natural, cultural, historical, and archaeological background of the Anahola Kuleana Homestead Tract in Anahola and Kamalomalo'o ahupua'a. Information about the natural landscape was gathered primarily through reviewing County, State and Federal GIS data, atlases, maps, scientific reports, and reference books and archaeological investigations. Inoa 'āina, mo'olelo, oli, and 'ōlelo no'eau were compiled from Hawaiian language and English sources in books, newspapers, online databases and archives. Historical accounts of Anahola and Kamalomalo'o ahupua'a were collected from primary and secondary documents including records, journals, newspapers, previous reports from various state and private collections such as the Bernice Pauahi Bishop Museum (BPBM) Archives and Kaua'i Historic Society (KHS). Historical land documents and Māhele data was gathered from the Buke Māhele, Boundary Commissions, and the Biennial Report of the Comissioners of Crown Lands, 1894. Historic maps from the State of Hawai'i's Department of Accounting and General Services online. Archaeological information was compiled from previous archaeological reports and studies available at the State Historic Preservation Department.

Digital Archival repositories included Ulukau, Nupepa, AVA Konohiki, Hawaii Office of Planning GIS repository, Papakilo Database, Kīpuka Database, and others.

Community Ethnographic Interviews

Ethnographic research involves gathering oral histories and conducting interviews with living communities to record and acknowledge people's historical connections to place as well as document the visions communities have for their wahi pana. Ethnographic work provides a "voice" for a community's history, traditions, and concerns and is used to capture and understand the indigenous viewpoint (past and present) associated with cultural places. Hawaiians have always maintained intimate relationships with their environments and by generating detailed stories about places; knowledge is passed on to future generations.

Ethnographic research involves an intimate connection between the ethnographer and the participant, a trusting relationship must be developed. Nohopapa ethnographers, possess a special understanding and appreciation of Hawai'i's history, environment, and culture that allows them to collaborate and work closely with communities in a sensitive and culturally appropriate fashion. In retrospect, the professionalism and cultural sensitivity and awareness of Nohopapa staff encourages the forging of an understanding, trusting, and genuine relationship with the community.

Data Gathering

Ethnographic work was conducted from December 2019 through February 2020. As a multi-phase study, the ethnographic process consisted of identifying appropriate and knowledgeable individuals, conducting oral history interviews, summarizing the digitally recorded interviews, analyzing the oral history data, and preparing the report. The data gathering methodology utilized for this study included scoping via word of mouth sampling, semi-structured interviews, site visits, and personal observations.

Scoping and Interviewee Selection Criteria

Scoping for this project began with contacting interested and knowledgeable individuals, organizations, and groups recognized as having genealogical, cultural, historical, or managerial connections to the project ahupua'a. Initial scoping methods included utilizing emails and prepared mail out letters to inform individuals of the project, contacting and following up with individuals by telephone, and/or meeting with individuals in person to discuss the project (Appendix D).

Knowledgeable consultants were selected if they met one or more of the following criteria: 1) were referred by Nohopapa Hawai'i, or other cultural resource individuals; 2) possessed genealogical ties to the project area or vicinity; and/or 3) were considered Hawaiian cultural practitioners. Participants were selected because of their familiarity with or knowledge of the project area. Consequently, project staff had to rely heavily upon those resource persons who were interviewed as well as on secondary information sources such as reports, newspapers, and other written documents and materials. Five community members participated in formal interviews.

Knowledge Sources:

During the study, project staff learned that interview participants obtained their knowledge about the project ahupuaʻa from four primary sources:

1. ʻOhana knowledge or knowledge and information passed on within the ʻohana from one generation to the next.
2. Knowledge obtained from individuals outside their ʻohana such as teachers, cultural practitioners, and kūpuna.
3. Knowledge obtained through written sources such as books, documents, newspapers, reports, and studies.
4. Knowledge gathered through personal observations and practices (such as knowledge acquired through cultural work and practices within the project area).

Generally, the individuals interviewed acquired their knowledge about Anahola and Kamalomaloʻo through personal experience or from older family & community members who shared with them personal, historical, and/or genealogical information about Anahola and Kamalomaloʻo. Some individuals acquired their knowledge from written sources or from other individuals outside their family. A handful of cultural practitioners obtained their knowledge about the project ahupuaʻa by spending time in the area and through first-hand observation.

Ethnographic Interviews:

The study utilized semi-structured interviews because they are open ended yet follow a general script covering a pre-determined list of topics. The interviews were conducted in a "talk story" format to allow for a more informal dialogue and free-flowing sharing. This style of interview is typically more comfortable for interview participants as it flows more naturally and does not follow a rigid structure. The interview questions were open ended which allowed for more freedom to answer but still kept the interview focused on the desired research outcomes. Information gathered during the initial phases of archival research and scoping for this project was utilized to construct the open-ended questions for the semi-structured interviews. The interview questions were derived from those primary themes identified as being crucial for obtaining an understanding of the historical and contemporary knowledge of Anahola and Kamalomaloʻo (Appendix E). The primary themes guiding the interviews included:

- ʻOhana and individual connections and relationships to the area
- Moʻolelo, place names, mele, oli, hula
- Past and present cultural practices and protocols
- Knowledge of natural and cultural resources
- Traditional and historic land use and ownership
- Traditional and historic events and persons associated with
- Concerns and suggestions regarding future management of this area
- Referrals of kūpuna and kamaʻāina who might be willing to share their cultural knowledge of the area

A unique factor affective this study area is its previous use by the plantation andmore recently restricted use. Bedcause of theintensive nature of the plantation system, the study area was altered physically by pinneapple and sugar and culturally by through blocked access to the area historically and more recently. The above questions were posed to community members, but they often circled back to themes of wai, access, cultural restoration as their main concerns, often linking these to the their utlimate desires for the future: cultural education for the next generation.

Data Integration

Each interview was audio recorded, and portions were then transcribed and summarized. The summaries were then sent to the interviewee for review, an accuracy check, and to confirm they were comfortable with the thoughts, information, and comments being shared. A great amount of scrutiny and care was used to ensure that all of the collected data, information, and transcriptions were presented as accurately as possible. Throughout the study, project staff remained keenly aware of the critical importance of ensuring that the voices of the community were honored and respected, correctly heard, and properly conveyed.

Ethics

Throughout the study, and particularly before any type of meeting or interview, it was explicitly and carefully explained to all participants that their involvement in the study was strictly voluntary. A comprehensive informed consent process was initiated and completed, including providing project background information, before participation in the study. The informed consent forms (Appendix F) included all of the specific participant rights including notification that participants could choose to remain anonymous. Project background information included explaining the study focus and the purpose, significance, and importance of the study. After proper notification and discussion, some interview participants voluntarily provided verbal, written, emailed, and even texted consent for the researchers to use their manaʻo for the study. Throughout the project period, all participants had open access to the interviewer. All of the interviews were scheduled and arranged for the participant's convenience, and none of the interviews or meetings was initiated until participants felt completely satisfied with the process.

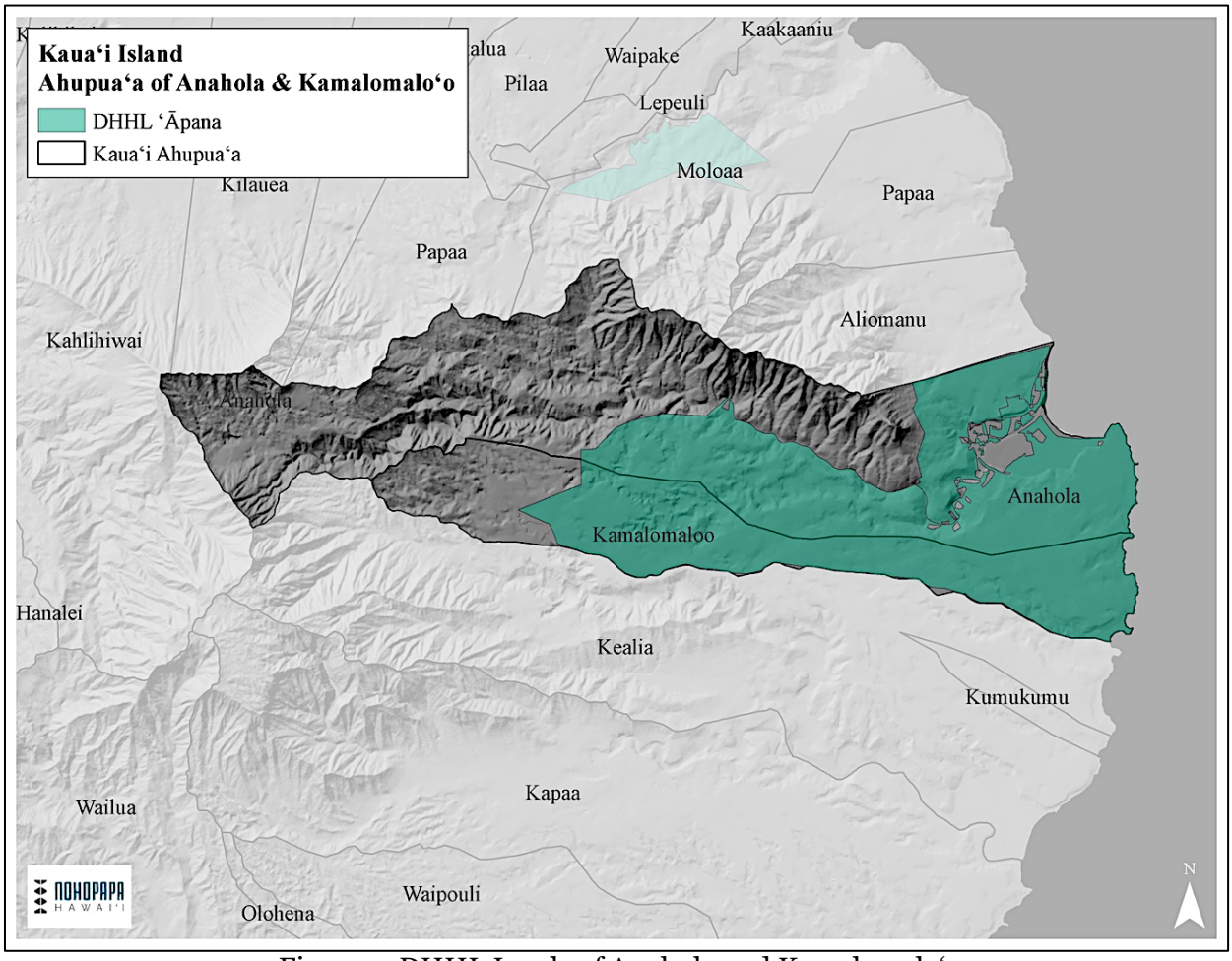

Figure 3. DHHL Lands of Anahola and Kamalomalo‘o

Project Area

The Project area for this CIA focuses on an undeveloped 462-acre portion within the DHHL Anahola property, mauka of Kuhio Highway, that includes portions of TMK(s) (4) 4-7-002:004, (4) 4-8-002:001, and 4-8-003:006. These parcels are located on the eastern side of Kaua‘i island straddling the traditional ahupua‘a of Anahola and Kamalomalo‘o (Figure 2).

Specifically, the project area is located about one and a half miles southwest and mauka (inland) of Anahola Bay, which is on the northern portion of Kaua‘i’s windward coast; and due west of Lae Līpoa (Līpoa Point), the dividing line between the ahupua‘a of Anahola and Kamalomalo‘o, and the moku of Ko‘olau and Puna. This ahupua‘a and moku line runs through the center of the project area; thus, its northern half is in Anahola (which is part of Ko‘olau Moku), while its southern half is in Kamalomalo‘o (Which is in Puna Moku).

The land is designated as Agricultural District under the State Land Use District (SLUD) system. Agricultural Districts are reserved for the cultivation of crops, aquaculture, raising of livestock, wind energy facilities, timber cultivation, agriculture-support activities, and

land with significant potential for agriculture uses. While the proposed “Anahola Kuleana Homestead Tract” would be located on DHHL lands, which are not subject to State and County land use regulations, subsistence agriculture and pastoral land uses are consistent under these designations, aligning, in good faith, to their purpose and intent.

DHHL's inventory of lands in Anahola and Kamalomaloʻo total 4,228 acres, making it the largest Hawaiian homestead community on Kauaʻi. The 4,228-acre DHHL property extends from the shoreline mauka to the Keālia Forest Reserve, managed by the Department of Land and Natural Resources (DLNR). It is located midway between Līhuʻe (14 miles south) and Hanalei (18 miles north), and just north of the residential/resort towns of Kapaʻa and Wailua. Regional access is via the Kuhio Highway right-of-way (Route 56).

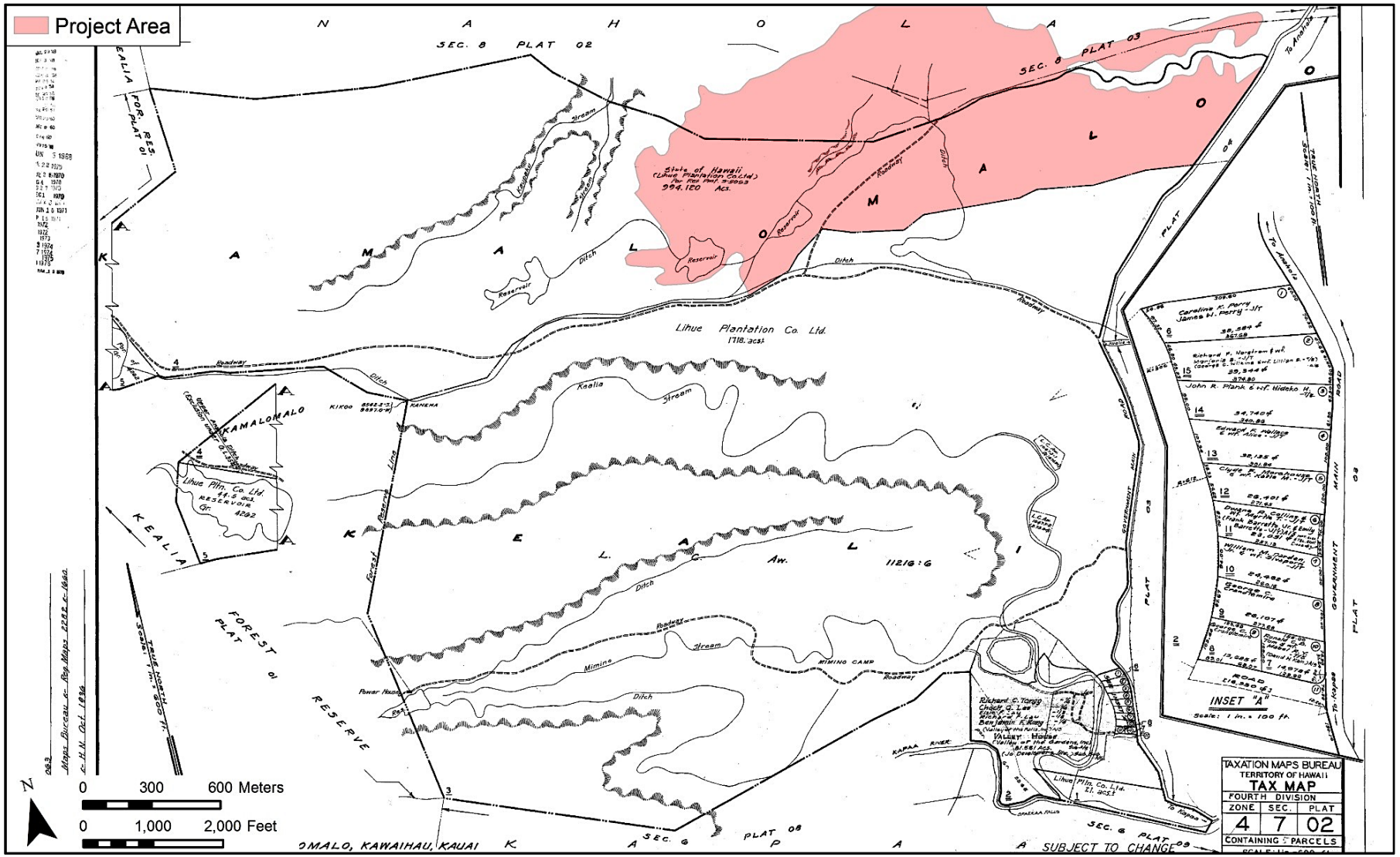

Figure 4. Showing the study are situated within TMK Plat 4-7-002.

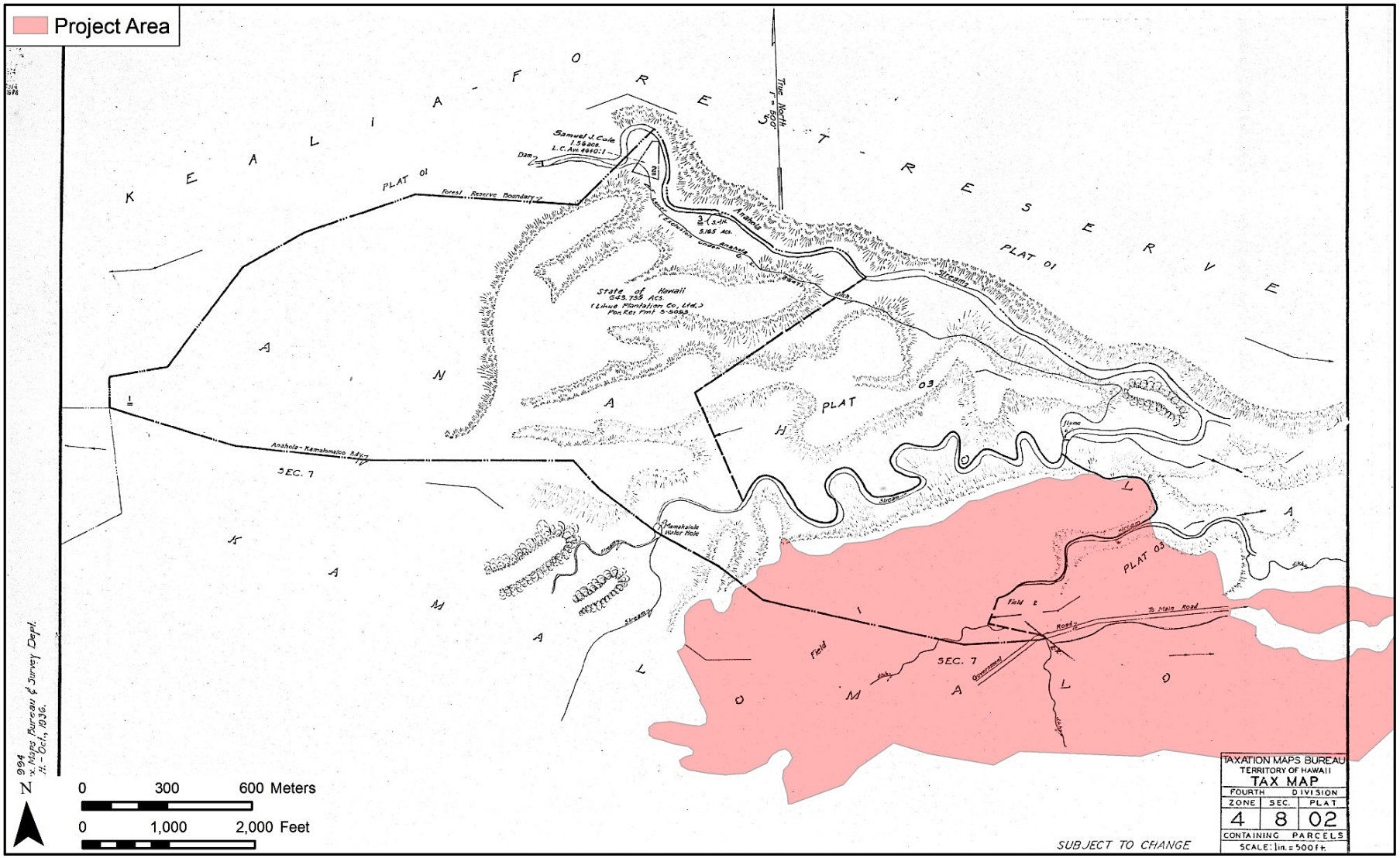

Figure 5. Showing the study are situated within TMK Plat 4-8-002.

Environmental Setting

Elevation in the project area varies from about 300 ft. above mean sea level (amsl) to ~600 ft. Amsl (GDSI data set, Kauaʻi 50-ft contours).

One natural stream, known as Kaalula (or Kaʻalula), runs through the center of the project area from the southwest to the northeast. As documented in this report, Kaʻalula Stream has been substantially altered by historic plantation activities that began more than a century ago. For example, two artificial reservoirs have been excavated in the upper reaches (in the project area) of Kaʻalula Stream. In its current condition, Kaʻalula is a meandering stream in the west and center of the project area; downstream, towards the northeast terminus of the project area, Kaʻalula is a deeply-incised, gorge-like stream drainage with steep, rocky sides, and small waterfalls. Historical maps show there was once another natural stream in the southern portion of the project area, known as Kamalomalo (a common mis-spelling of Kamalomaloʻo). This stream appears to have been diverted/altered beyond recognition, and is no longer in evidence on the landscape at the elevation of the project area.

Annual rainfall in the project area is about 50–60 inches (1,270–1,525 mm) (Giambelluca 2013 & HI State GIS data).

Soils in the project area (Foote et al. 1972) are diverse, and the graphic showing soil mapping units (Figure 3) at first appears to be complicated; close inspection of these data, however, show the southeast portion of the project area—basically everything southeast of Kaʻalula Stream, consists of silty clay loam. In general, such soils are ideal for planting. Northwest of Kaʻalula Stream, soils are almost entirely silty clays, which are somewhat less ideal for agricultural purposes but still good planting soils.

Table 1. Soil types found within the study area. Munsell Symbol (MUSYM) correlates with Figure 6 on following page.

MUSYM	SOIL	FARM	EROSION
HnA	Hanalei silty clay, 0 to 2 percent slopes	Prime farmland if protected from flooding or not frequently flooded during the growing season	Not highly erodible land
IoC	Ioleau silty clay loam, 6 to 12 percent slopes	All areas are prime farmland	Potentially highly erodible land
KkB	Kapaa silty clay, 3 to 8 percent slopes	All areas are prime farmland	Potentially highly erodible land
KkB	Kapaa silty clay, 3 to 8 percent slopes	All areas are prime farmland	Potentially highly erodible land
KkC	Kapaa silty clay, 8 to 15 percent slopes	All areas are prime farmland	Potentially highly erodible land
KkC	Kapaa silty clay, 8 to 15 percent slopes	All areas are prime farmland	Potentially highly erodible land
KkC	Kapaa silty clay, 8 to 15 percent slopes	All areas are prime farmland	Potentially highly erodible land
KkD	Kapaa silty clay, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
KkD	Kapaa silty clay, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
KkD	Kapaa silty clay, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
KkE	Kapaa silty clay, 25 to 40 percent slopes	Not prime farmland	Highly erodible land
PnB	Puhi silty clay loam, 3 to 8 percent slopes	All areas are prime farmland	Potentially highly erodible land
PnC	Puhi silty clay loam, 8 to 15 percent slopes	All areas are prime farmland	Potentially highly erodible land
PnC	Puhi silty clay loam, 8 to 15 percent slopes	All areas are prime farmland	Potentially highly erodible land
PnC	Puhi silty clay loam, 8 to 15 percent slopes	All areas are prime farmland	Potentially highly erodible land
PnC	Puhi silty clay loam, 8 to 15 percent slopes	All areas are prime farmland	Potentially highly erodible land
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land

MUSYM	SOIL	FARM	EROSION
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
PnD	Puhi silty clay loam, 15 to 25 percent slopes	Not prime farmland	Highly erodible land
PnE	Puhi silty clay loam, 25 to 40 percent slopes	Not prime farmland	Highly erodible land
PnE	Puhi silty clay loam, 25 to 40 percent slopes	Not prime farmland	Highly erodible land
rRR	Rough broken land	Not prime farmland	Highly erodible land
rRR	Rough broken land	Not prime farmland	Highly erodible land
W	Water > 40 acres	Not prime farmland	Not highly erodible land

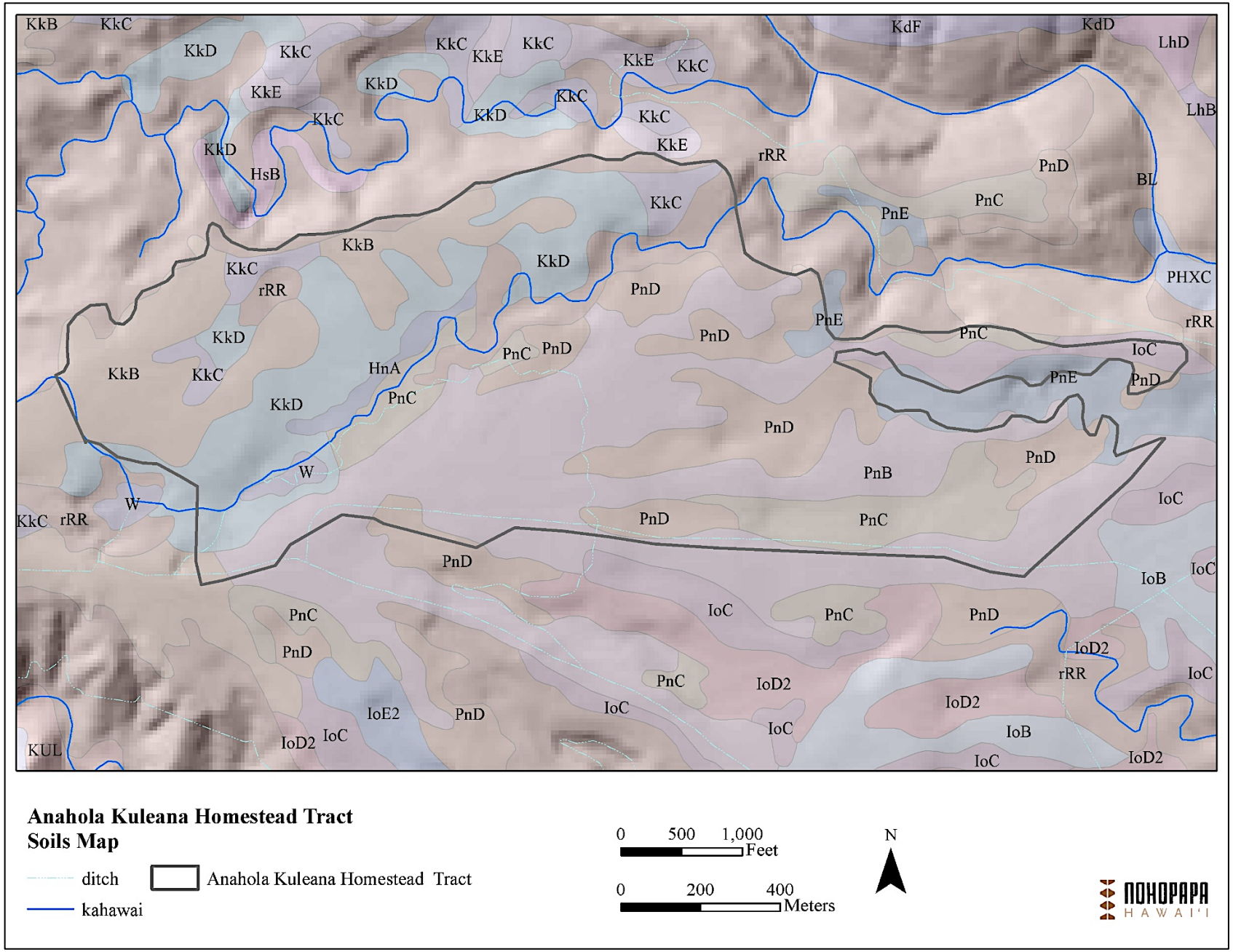

Figure 6. Soil mapping unites in and near the project area.

Built Enviornment

The eastern quarter or so of the project area has been more or less entirely cleared of trees; these areas are currently under Month-to-Month permits (revocable permits) and are being used for various ranching and small agricultural pursuits. Unimproved roads, some remnant from plantation infrastructure, define the eastern and southern boundary of the project area.

Other than the cleared Month-to-Month permit areas, the rest of the project area is more or less undeveloped by modern structures, although there are many barbed-wire fences and dirt roads. An old (currently degraded and abandoned) airstrip (i.e., a small-plane landing/take-off runway) is also located in the project area. This airstrip was little more than an improved asphalt roads, today in disrepair and encroached on by surrounding forest. The airstrip was built and used for plantation planes to spray chemical fertilizers and pesticides/heribicides on sugar and pineapple crops (Monahan et al 2018 & Kauaʻi Historic Society Līhuʻe Plantation Records).

Hawaiian Cultural Landscape

Although the modern district within which the project area is located is historically referred to as Kawaihau, its traditional land division is Koʻolau Moku. Puna Moku to the south was generally looked upon as the most fertile (agriculturally-productive) district (particularly Kapaʻa and Wailua), with Koʻolau being somewhat less so. Carson (2005:72) describes the Koʻolau as "literally the "windward" part of the island, and predictably it receives abundant and reliable rainfall. However, most of the streams are cut steeply into drainages, creating little or no opportunity for irrigated terracing on the steep-sides valley slopes." Handy and Handy (1972:423), place the old moku boundary between Koʻolau and Puna at the boundary between Anahola (Koʻolau) and Kamalomaloʻo (Puna).

While partially in Anahola Ahupuaʻa—the boundary between Anahola (to the north) and Kamalomaloʻo (literally, "the dry malo" [loincloth]) (to the south) runs roughly through its center—the project area is on the periphery of Anahola's primary planting and habitation areas, which would have been along the main stream and at its delta and bay. In traditional Hawaiian terms, the project area would have been part of the wao kānaka, or accessible forested lands where valuable resources (e.g., medicinal plants, trees for wood, etc.) could be easily gathered.

Anahola Ahupuaʻa is more well-known than Kamalomaloʻo—given its higher "carrying capacity," or ability to feed and support more people, its unique geography, surf breaks, large number of historic Māhele claims, and developed modern community,. Kamalomaloʻo has a small stream, a rocky reef; and alhtough it stretches far mauka, it is characterized by extensive kula lands. Anahola, vs Kamalomaloʻo, also has a higher "carrying capacity," or ability to feed and support more people. Referring to the agricultural potential of these lands, Handy and Handy (1972:423) describe Anahola:

> Here is the largest river in Koʻolau District. There are old abandoned terraces along its banks far upstream. There are old loʻi from two to four miles inland along Anahola River and its tributary Kaʻalua Stream, and below their point of juncture there are many loʻi on flats along the river banks as it meanders through its wide gulch. The delta is three-fourths mile wide, and this was all terraced. Kamalomaloʻo, on the other hand, was described (along with Keālia) as "...rather dry, with small streams and gulches and only a few loʻi areas." (Handy and Handy 1972:423)

PALAPALA ʻĀINA (HISTORICAL MAPS)

Early maps of Anahola and Kamalomaloʻo ahupuaʻa and the surrounding area provide information describing the project area landscape prior to modern times. Historic maps physically document changes to the land occurring over a period of years. The following are historic maps of Puna and Koʻolau; focusing on the ahupuaʻa of Anahola and Kamalomaloʻo (highlighted in purple). The earliest map presented is from 1875; dates for the remainder vary but run through the year 1942. Most of these maps illustrate the ahupuaʻa in the district as well as general information on boundaries, land use, land ownership, and cultural and natural resources.

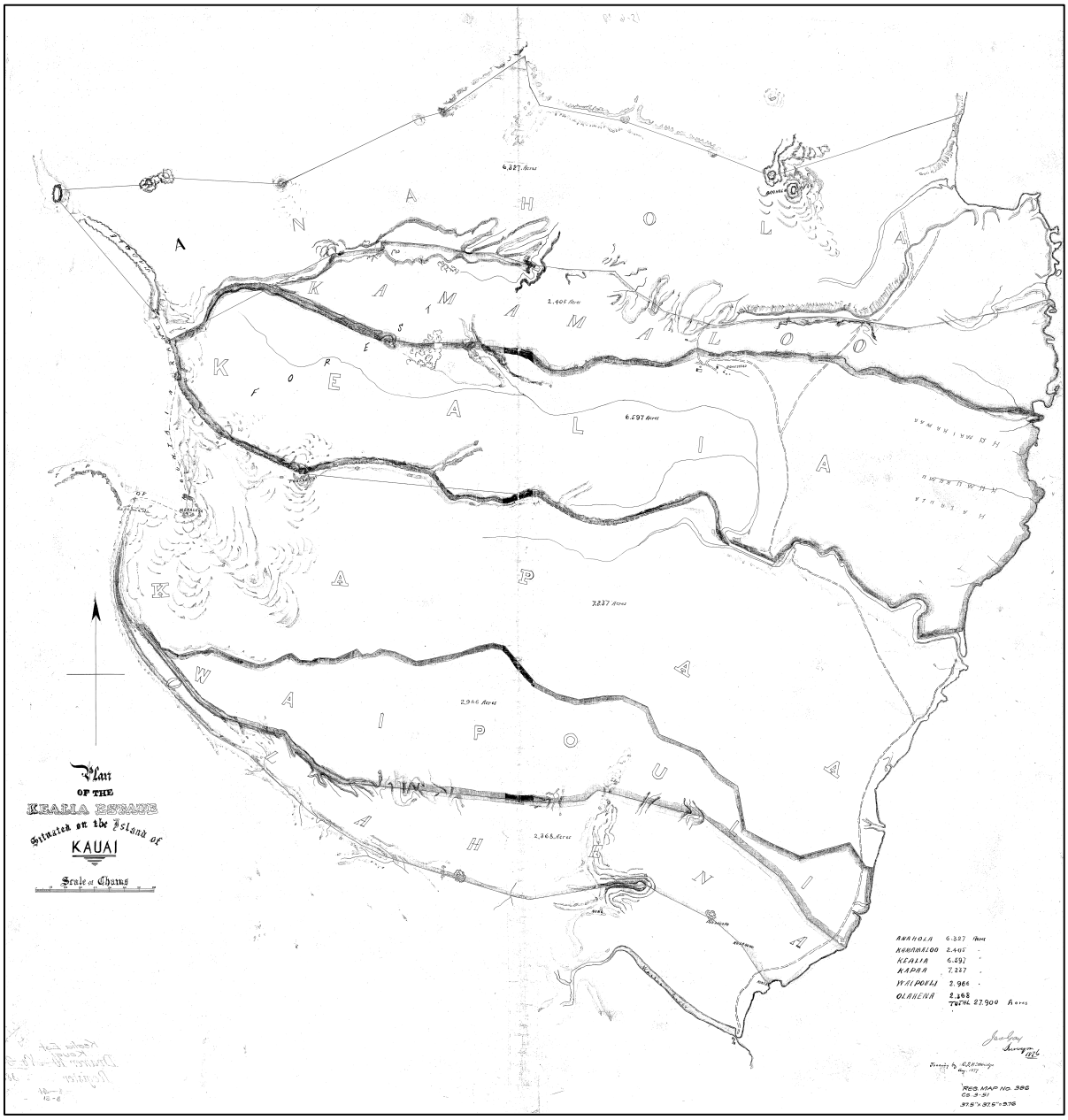

Figure 7. "Plan of the Kealia Estates Situated on the Island of Kauai" Map, 1876 showing Anahola and Kamalomaloʻo. DAGS Registered Map No. 386.

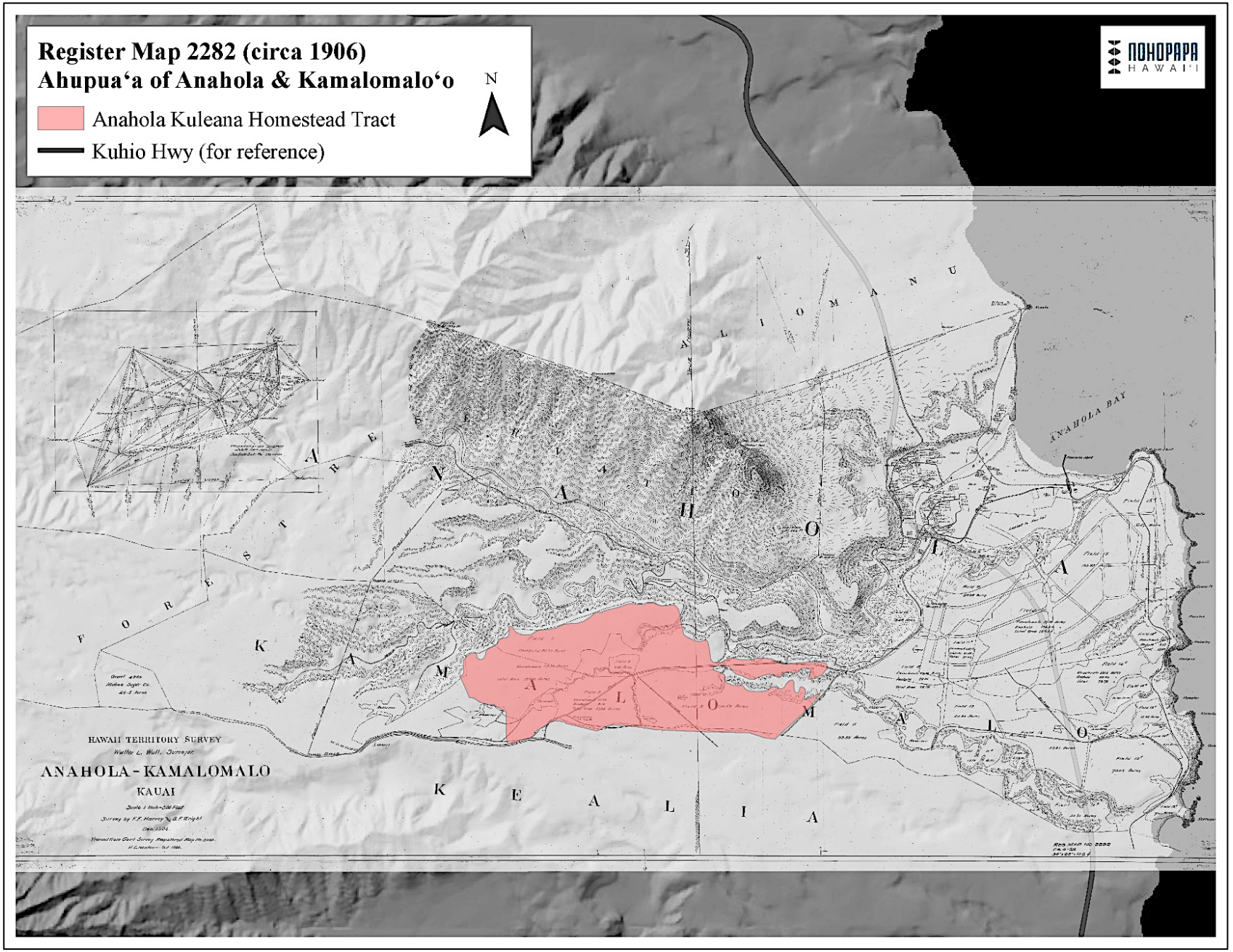

Figure 8.“Anahola- Kamalomalo, Kauai” Map, Hawai‘i Territory Survey by Walter E. Wall 1904 showing plantation field numbers and acrages, leases and Land Comissions Awards, waterways, roads, and place names. DAGS Registered Map No. 2282.

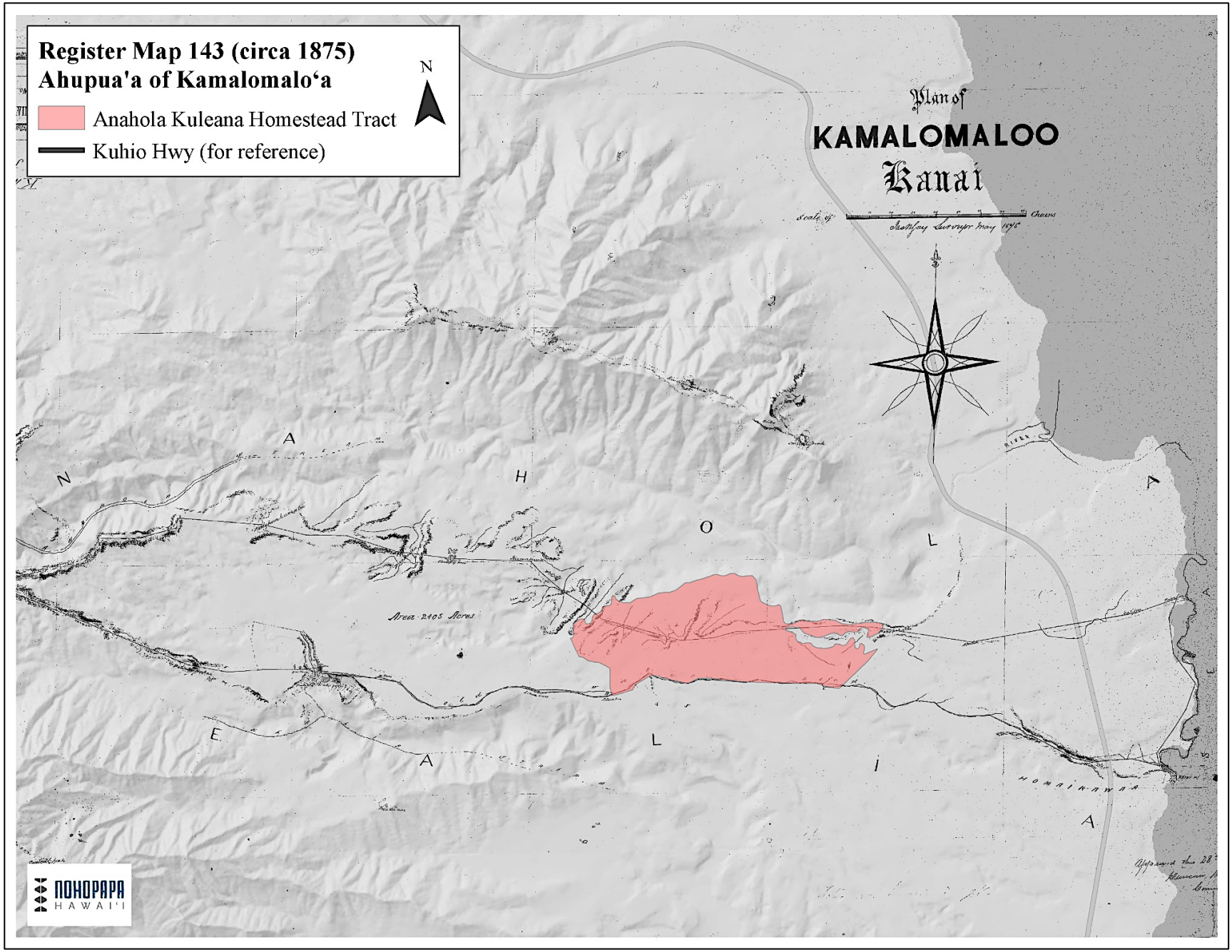

Figure 9. "Plan of Kamalomaloo, Kauai" Map, 1875. DAGS Registered Map 143.

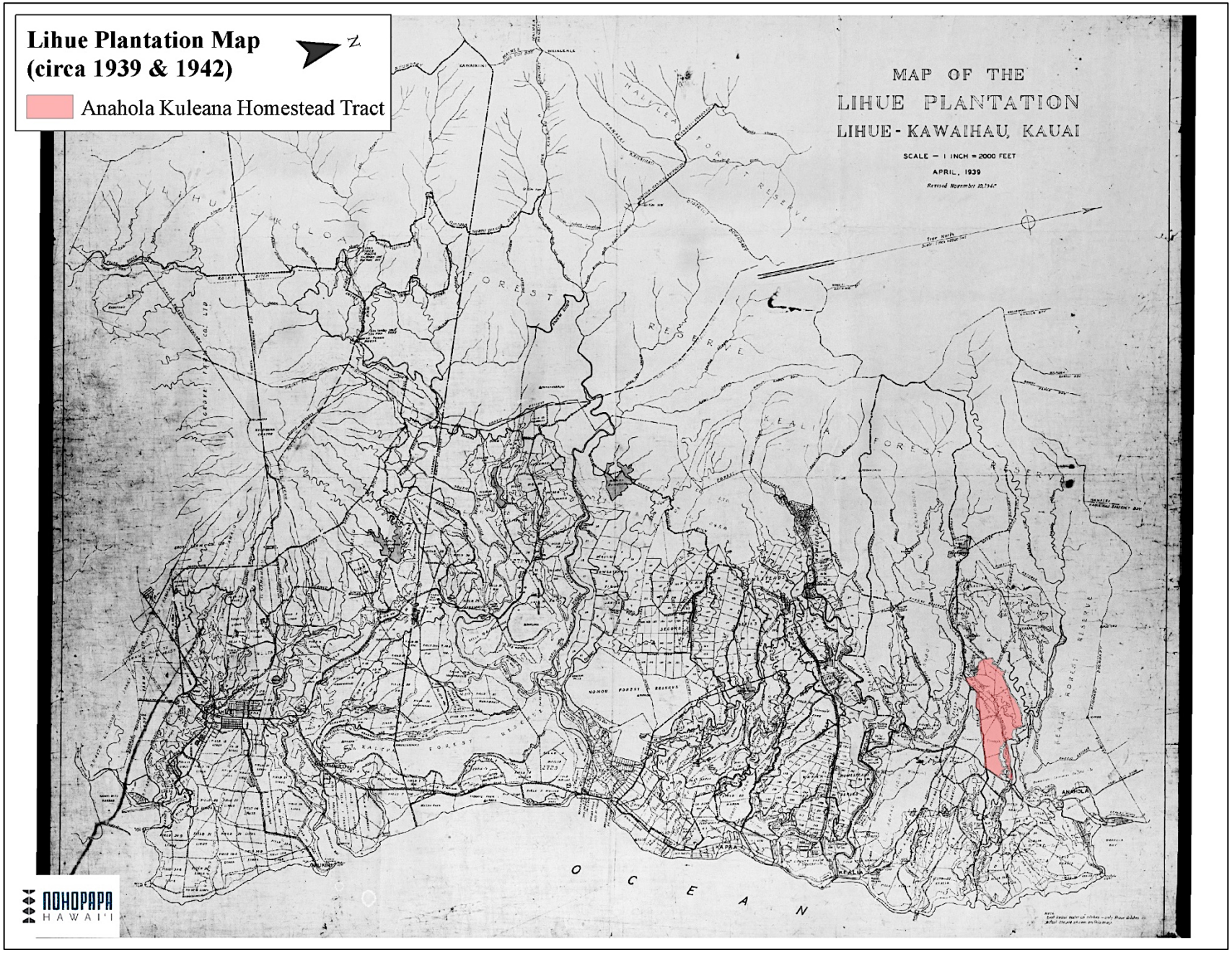

Figure 10. "Map of the Lihue Plantation, Lihue-Kawaihau, Kauai" from Kaua'i Historical Society dated 1939 and 1942.

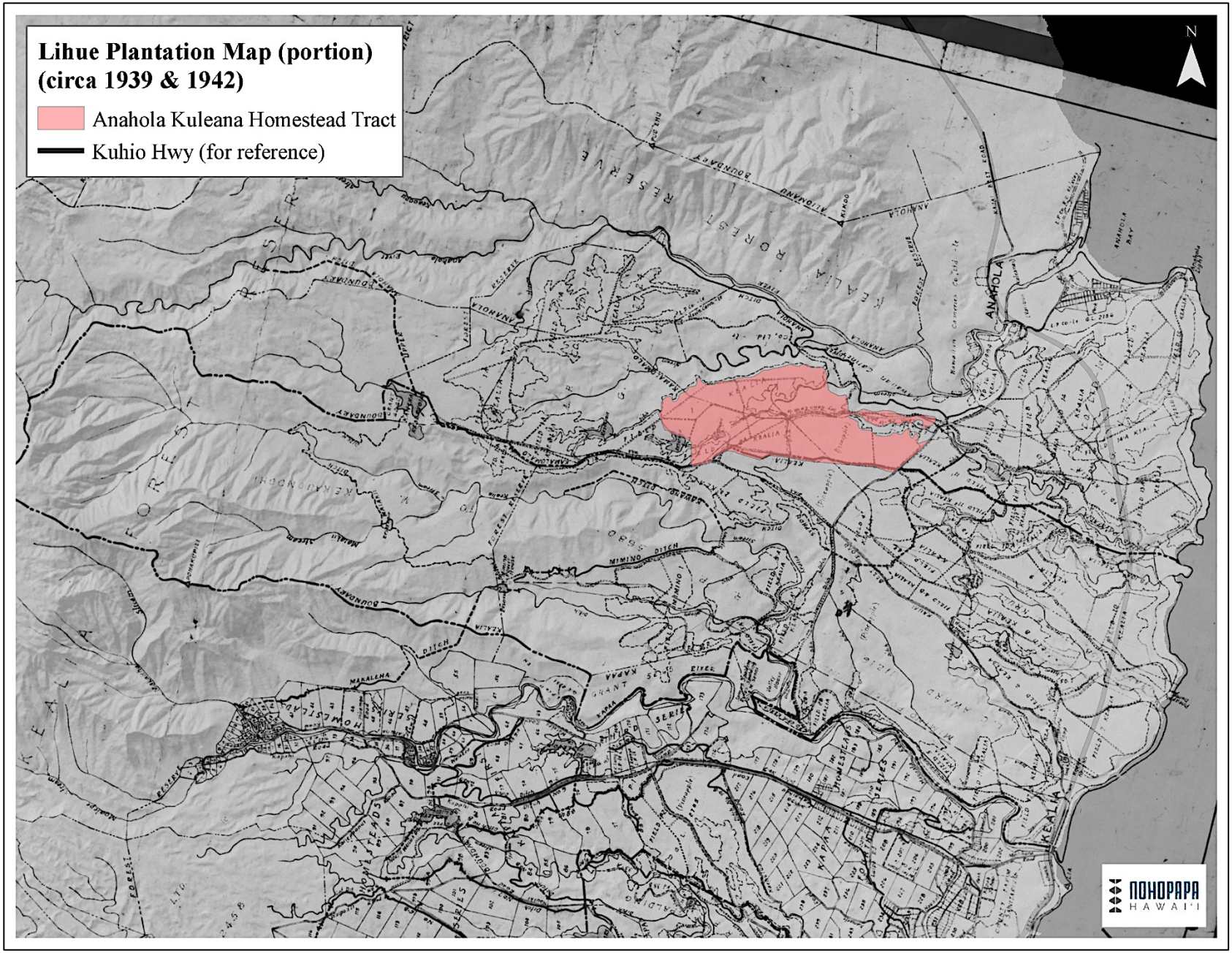

Figure 11. Detail of "Map of the Lihue Plantation, Lihue-Kawaihau, Kauai" from Kaua'i Historical Society dated 1939 and 1942.

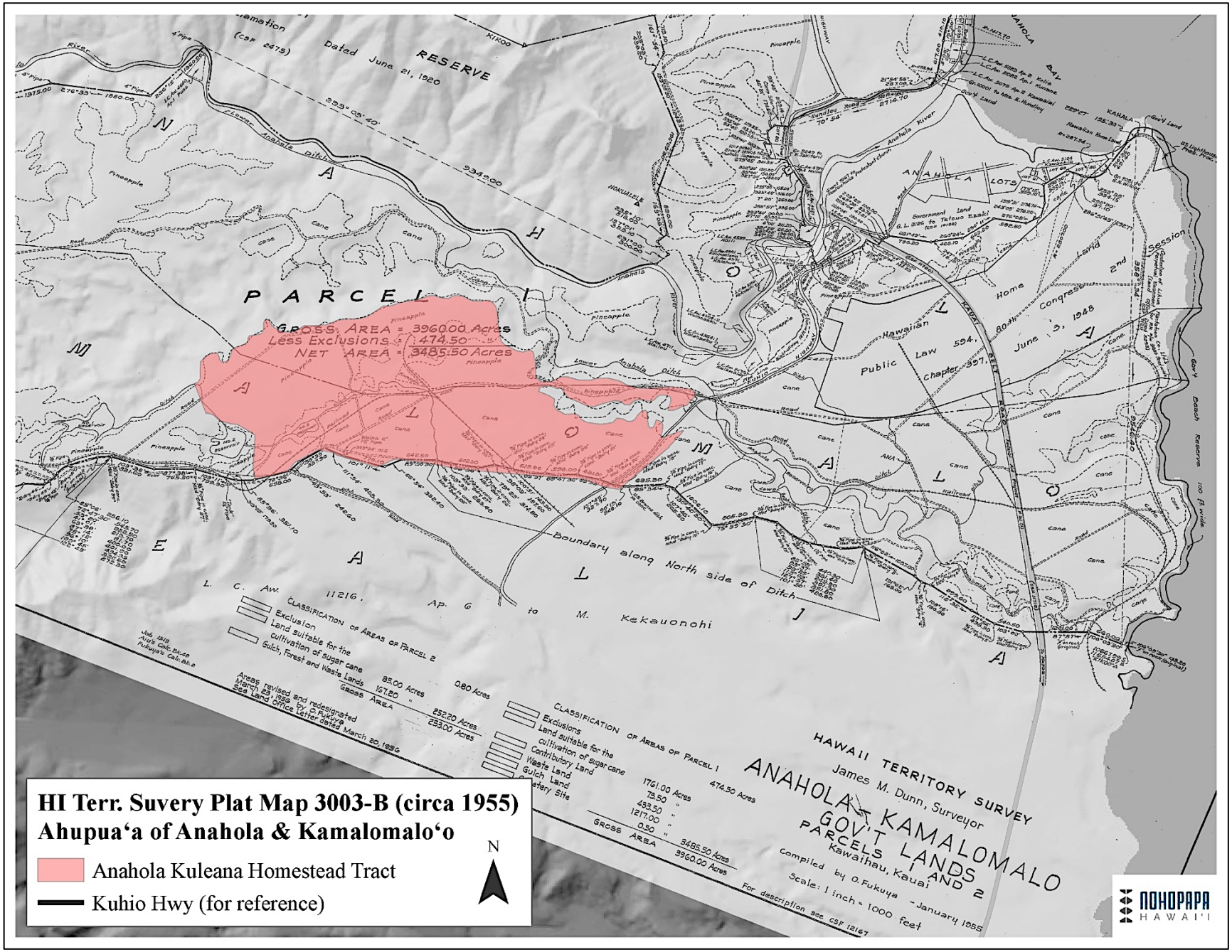

Figure 12. HTS Plat 3003-B Map titled "Anahola-Kamalomalo Gov't Lands Parcels 1 and 2" by James Dunn

NĀ INOA ʻĀINA (PLACE NAMES)

The mindset of kānaka (Hawaiian people) evolved and developed over centuries of being intimately in tuned with the natural environment from the heavens above to the depths below. One piece of evidence that provides a hint of how nā kūpuna (the ancestors) saw the landscape of Hawaiʻi is through the thousands of place names still recorded today. Traditional place names provide an avenue to understand a landscape and tap into the mana (spiritual power) that is part of each area. A place name may tell of a commemorative event, an important person, may describe the physical environment, or reveal the function of the land. When explaining the concept of mana that is instilled in a name, Pūkuʻi (1972) writes, "Once spoken, an inoa took on an existence, invisible, intangible, but real. An inoa could be a causative agent, capable of marshaling mystic elements to help or hurt the bearer of the name. And, so went the belief, the more an inoa was spoken, the stronger became this name-force and its potential to benefit or harm" (Pukui, Haertig, & Lee 1972:94).

In Pukui & Elbert's, Hawaiian Dictionary (1974:12), no translation is translation for Anahola.[1] Frederick B. Wickman attributes the name Anahola to a legendary moʻo who had lived in Koʻolau moku. In Mary Kawena Pukui's interviews with Anahola kūpuna (BPBM archives), many pronounce Anahola as *Anehola*.

Anahola or Anehola? In most if not all cases, when researching places in Hawaiʻi, variations in spelling and pronunciation occur. In some places, the variation is due to a lack of auditory acuity to the nuances of the spoke Hawaiian language, and in others, because of local colloquialism or dialect. In the case of Anahola or Anehola, it seems to be the latter. While both spelling appear when word searched within archival database, it seems that the "kamaʻāina," as recorded in interviews by Mary Kawena Pukui in the 1930s, lean toward the use of Anahola, white those not native to the locale used Anahola. Today, Anahola is the pronunciation commonly used by both kupaʻāina and malihini.

Kamalomaloʻo (which also appears in different historical records as *Kamalomalo*, *Kamamalo*, and *Kamamaloʻo*) is associated with moʻolelo (oral-historical accounts) about chiefs arriving on the shoreline from their waʻa (canoe) and being supplied with a "dry malo." Kamalomaloʻo in fact, literally translates to, "the dry malo." This is supported by definitions in Place Names of Hawaiʻi (Pukui et. al 1976) and the Parker Dictionary (Andrews 1922), which provide the translations of Kamalomaloʻo (respectively) as, "the dry loincloth" or "the dry girdle."

Traditional Hawaiian place names often reoccur in oli, mele, moʻolelo, and ʻōlelo noʻeau. Other sources that have documented these names include ethnographic surveys, historic maps, and early historic documents such as Land Commission Award (LCAw) claims, Government Grant sales, and Boundary Commission testimonies. The place names that are presented in the following table were gathered from research done by Pukui and Elbert (1970), Pukui, Elbert, and Moʻokini (1970), and Lloyd Soehren (2002). There are no diacritical marks (ʻokina and kahakō) used in the initial spelling of names because these are rarely used in original sources. However, there is a lexicology section that includes the documented spelling and translation of specific place names. Presented below are the place names associated with the ahupuaʻa of ʻAnahola (Koʻolau) and Kamalomaloʻo (Puna).

[1] Although Anahola is not defined by Pukui et al (1974), they do refer the reader to Kanahāwale (literally, "easily broken"), described as an ancient surfing area at Anahola.

Abbreviations and Symbols in Place Name Table

BC	Boundary Certificate No. (volume: page)
BCT	Boundary Commission Testimony
IDLL	Interior Department, Land, Letters (Incoming). Archives of Hawaii.
LCAw	Land Commission Award
MB	Māhele Book
NR	Land Commission, Native Register
NT	Land Commission, Native Testimony
PE	Pukui & Elbert, Hawaiian Dictionary
PEM	Pukui, Elbert & Moʻokini, Place Names of Hawaii
TM	Tax Map (zone, section, plat)
USGS	United States Geological Survey

*See references for complete citations

Hawaiian Words in Place Name Table

- Ahupuaʻa - Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones.
- ʻIli ʻāina - Land section, next in importance to ahupuaʻa and usually a subdivision of an ahupuaʻa.
- Puʻu - Hill, peak, cone hump, mound, bulge heap, pile, portion.
- Wahi Pana- A legendary or storied place
- Wai Hālau- Wai is water; Hālau literally means long house, large, or numerous. It is the source from which many waters will expand or make numerous.
- Kahawai- Stream, river, ravine, gluch, whether wet or dry.
- Loko- Pond, lake pool.

Table 2. Place Name table for features within and near the project area in Anahola and Kamalomaloʻo.

Name	Feature	Comments	Lexicology	Location	Source
Anahola	Ahupuaʻa	Returned by Lunalilo, retained by Crown at the Māhele	Anahola. Fish poison cave (Parker)	Anahola. Located directly in the project area.	MB. 26, 288; IN 28; USGS 1963
Kamalomaloʻo	Ahupuaʻa	Retained by Lunalilo nu surrendered in Lieu of commutation at the Māhele. (Also written Kamalomalo, Kamamalo, Kamamaloo).	Kamalomaloʻo. the dry loincloth	Kamalomaloʻo. Located directly in the project area.	MB 27; IN 51, 79; USGS 1963
Māmakaʻiole	Puʻu	"...a large pond in stream" half on Kamalomaloo and half on Anahola. Between Kaluakawele and Kamakaiwa on the Kamalomaloo/Anahola bdry.	Māmakaʻiole. Māmaka is a game and also means bearer traveler. ʻIole is a Hawaiian rat. Meaning uncertain.	Anahola, Kamalomaloʻo. Just west of Mamakaiole water hole, where Kaupaku stream tributaries meet. On RM143 and RM378 (c.1875) wahi is "Mamakiole".	RM143 and RM378 (1875). RM2282 trace (c.1906) BC 19 (1:103); BCT 1:101.
Kiokala	Puʻu	Possibly an ili name, probably puʻu or plateau summit name. Claim no. 4640 by Puaa: "No. 2 is 7 lois & kula adj. in Kiokala." TMK 4802:2. A bdry point on the Kealia Forest Reserve. Elev. about 540 ft.	Kiokala. No translation, meaning uncertain.	Anahola.	RM2282 trace (c.1906). FT 12:120; USGS 1963.
Pohopohoiki	Wahi pana	Perhaps an ili or boundary name. "...small hollow" between Apulu and Kaluakawela on the Kamalomaloo/Anahola bdry.	Pohopohoiki. Pohopoho literlly means sinking, marshy, muddy. Iki literally means small. Meaning uncertain.	Anahola. Located directly in the project area.	RM143 and RM378 (c.1875). RM2282 trace (c.1906). BC 19 (1:103); BCT 1:101.
Kekoiki	Wai hālau, Puʻu	Highest peak of the Namahana Mountains. The head of Anahola on the Kawaihau/Hanalei District bdry. Elev. 2814 ft. "...called Kokoiki [sic], also called Malamalamaiki in a survey...made by M. D. Monsarrat..." On one side is Anahola, Kalihiwai on the other.	keko-iki. PE: little keko [said to be an ancient name for a small and ugly creature, especially with a pug nose].	Anahola, Kalihiwai. Located directly in the project area.	BC 31 (1:155); USGS 1963.

Name	Feature	Comments	Lexicology	Location	Source
Kaʻālula	Kahawai	Begins at Kanehu Reservoirs, enters Anahola Stream.	Kaʻālula. Perhaps ka-ʻālula is the endemic Brighamia spp., written ālula in PE, ʻālula in PEM.	Anahola, Kamalomaloʻo. Located directly in the project area.	KHS-E-17 (c.1939 & 1942). USGS 1963.
Kaluakaweli	Wahi pana	Along ahupuaa border of Anahola and Kamalomalo, possibly an ili?	Kaluakaweli. No translation, meaning uncertain.	Anahola, Kamalomaloʻo. Located directly in the project area.	RM143 (c.1875) and RM378 (1875).
Kamakaua	Wahi pana	Along ahupuaa border of Anahola and Kamalomalo, possibly an ʻili.	Kamakaua. No translation, meaning uncertain	Anahola, Kamalomaloʻo.	RM143 (c.1875) and RM378 (1875).
Kamana	Puʻu	RM2282 trace (circa 1906) shows elevation is 643 ft amsl. Wahi is on the forest line.	Kamana. Possibly meaning the branch or the power.	Anahola, Kamalomaloʻo.	RM2282 trace (c.1906)
Peʻekoapu	Wahi pana	RM2282 trace (circa 1906) shows elevation is 643 ft amsl. Wahi is on the forest line.	Peʻekoapu. No translation, meaning uncertain.	Anahola, Kamalomaloʻo.	RM143 (c.1875) and RM378 (1875).
Kalehuakamaliʻi	Wahi pana	A stone at the edge of the woods between Pohakaleho and Puu Awa on the Kamalomaloo/Anahola bdry.	Kalehuakamaliʻi. Possibly meaning expert children.	Anahola, Kamalomaloʻo. Along ahupuaʻa border of Anahola and Kamalomalo, possibly an ʻili.	RM143 (c.1875) and RM378 (1875).
Puʻu ʻawa	Puʻu	A peak on the Kamalomaloo/Anahola bdry. Elev. 1160+ ft.	Puʻu ʻAwa literally means ʻAwa Hill.	Anahola, Kamalomaloʻo.	RM143 (c.1875) and RM378 (1875). BC 19 (1:103); USGS 1963.
Nāmahāna	Wai hālau	Namahana is the mauka-most upland of Anahola and the wai halau of Anahola stream.	Nāmāhana. PEM: the twins.	Anahola, Kilauea.	RM1378 (c.1875). USGS Topo.
Kaneha	Reservior Dam	Receive water from the Upper Anahola Ditch and the Kealia Ditch. Elev. 820 ft.	Kaneha. Possibly meaning a rusting sound.	Kamalomaloʻo. Dam is near head of Kaupaku Stream where Kaneha Ditch crosses it.	State of Hawaii GIS (Joan Esposo) , USGS 1963.
Keālia	Reservior Dam	Field 1 and Field 2. Takes water from Kealia Stream to Kaneha Reservoirs.	Keālia. PEM: the salt encrustation.	Kamalomaloʻo. Located directly in the project area.	State of Hawaii GIS (Joan Esposo) USGS 1963.

Name	Feature	Comments	Lexicology	Location	Source
Kanehu (No. 2)	Reservior, Loko	A seasonal pond and Reservoir along Kaʻalula stream. Possibly natural, but heavily impacted by plantation infrastructure, ditch entrances and Kaʻalua is excavated and widened at ingess and egress. Receives water from the Kaneha Ditch. Elev. Of No. 2 is 555 ft.	Kanehu. No translation, meaning uncertain.	Kamalomaloʻo. Located directly in the project area. Dam is on Kaupaku Stream, downstream of the Kaneha Reservoir.	KHS-E-17 (c.1939 & 1942). Plat3003-B. Joan Delos Santos, USGS Topo.
Kawano	Ditch	Takes water from Kealia Stream and Mimino Ditch into Kamalomaloo plantation.	Kawano. No translation, meaning uncertain.	Kamalomaloʻo, Keālia. Located directly in the project area. Runs parallel to and south of study area connecting Kealia stream to lower Anahola ditch.	HI State GIS, USGS 1963.
Pōhakuhāpai	Puʻu	On Kealia/Kamalomaloo bdry. Elev. 1050 ft.	Pōhakuhāpai. Pōhaku literally means rock. Hāpai literally means to carry, bear, lift, support, or to concieve. Meaning uncertain.	Kamalomaloʻo, Keālia.	RM143 (c.1875). USGS Topo.
Hōmaikewaʻa	Kahawai	Parallel to and just south of Anahola DHHL apana.	Hōmaikawaʻa. PEM: give me the canoe.	Kealia. Located directly in the project area.	DOT, USACE CEPOH Technical Integration Branch (TIB), and from the HI State GIS (Joan Esposo).
Puʻu ʻEu	Puʻu	On the boundary of Anahola and Moloaʻa, at 1,805 ft amsl., per USGS Topo. . “Puu Eu the highest peak” (BC 20) Elev. 1946 ft. Written “Pueu” in testimony and TM 4800, “Puu Eu” on RM 1395; misspelt “Puu Ehu” on USGS.	Puʻu ʻEu. PEM: Rascal hill.	Moloaʻa, Aliomanu, Anahola.	RM378 (c.1875). BC 20 (1:97); BCT 1:94,95,96; RM 1395; TM 4800.

Name	Feature	Comments	Lexicology	Location	Source
Puʻu Keākea	Puʻu	Puʻu Keakea is at the apex of Papaʻa (mauka) on its Anahola border. It does feed one of the mauka tributaries of Moloaʻa stream, which flows through the Moloaʻa DHHL apana. Also apex of an Anahola stream 33ributary feeding Anahola DHHL apana.	Keākea. PEM: the breadth.	Papaʻa (mauka), Anahola. On the boundary of Anahola and Moloaʻa, between Puʻu ʻEu and Mālamalamaiki on the Anahola/Moloaʻa bdryat 1,565 ft amsl., per USGS Topo.	RM378 (c.1875). RM1971 trace (1918 trace of a 1892 Monsarrat map). BC 20 (1:97); BCT 1:94,95,96; USGS 1963.
Puʻu Ehu	Wai hālau	Misspelt, see Puʻu ʻEu. Puʻu ʻEhu is point where three ahupuaʻa connect, Moloaʻa, Aliomanu, and Anahola.	Puʻu Ehu. PEM: Dust hill.	Moloaʻa, Aliomanu, Anahola.	RM378 (c.1875). RM2282 & trace (c.1904 & 1906). KHS-E-17 (c.1939 & 1942). USGS Topo
Mālamalamaiki	Wai hālau	"…Kokoiki [Kekoiki], also called Malamalamaiki in a survey of a portion of Kalihiwai made by M. D. Monsarrat…" Elev. 2814 ft. See Kekoiki.	Mālamalamaiki. PEM: little light.	Moloaʻa, Anahola.	RM143 (c.1875). USGS Topo. BC 31 (1:155).
Kahoʻopulu	Wai hālau	Kahoʻopulu is the wai hālau for Moloaʻa Stream. It is where three ahupuaʻa connect, Moloaʻa, Papaʻa (mauka) and Anahola.	Kahoʻopulu. PEM: the wetting	Moloaʻa, Papaʻa, Anahola.	USGS 1963.
Keaoʻopu	Wai hālau	Water source of Keaoʻopu stream. Alongside this wahi, RM1378 (circa 1875) shows an "old roadway" running north south across a pass in the mountains. Per USGS Topo, 1,385 ft amsl.	Keaoʻopu. No translation, meaning uncertain	Papaʻa, Anahola.	USGS Topo

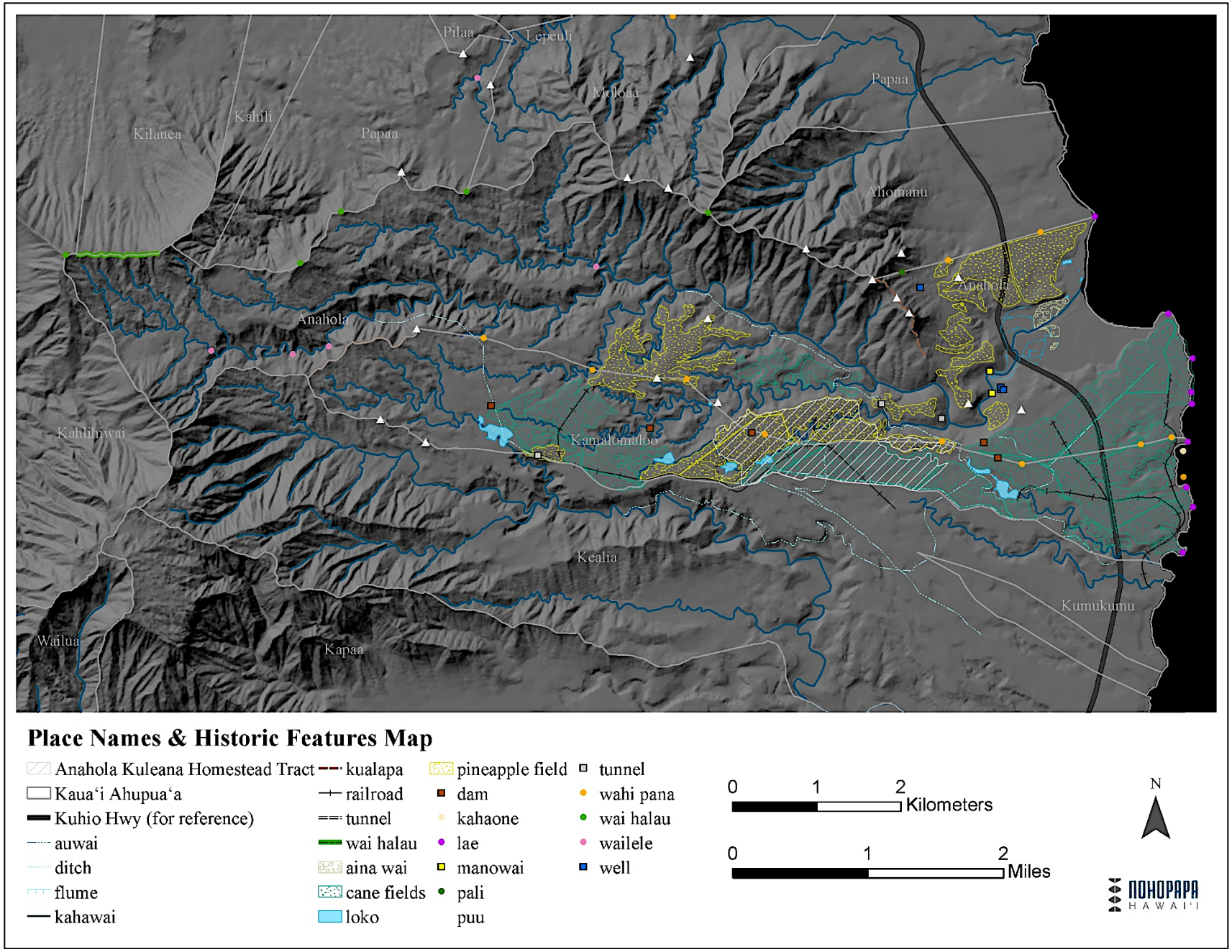

Figure 13. Map showing place names within and surrounding the Kuleana Homestead Tract.

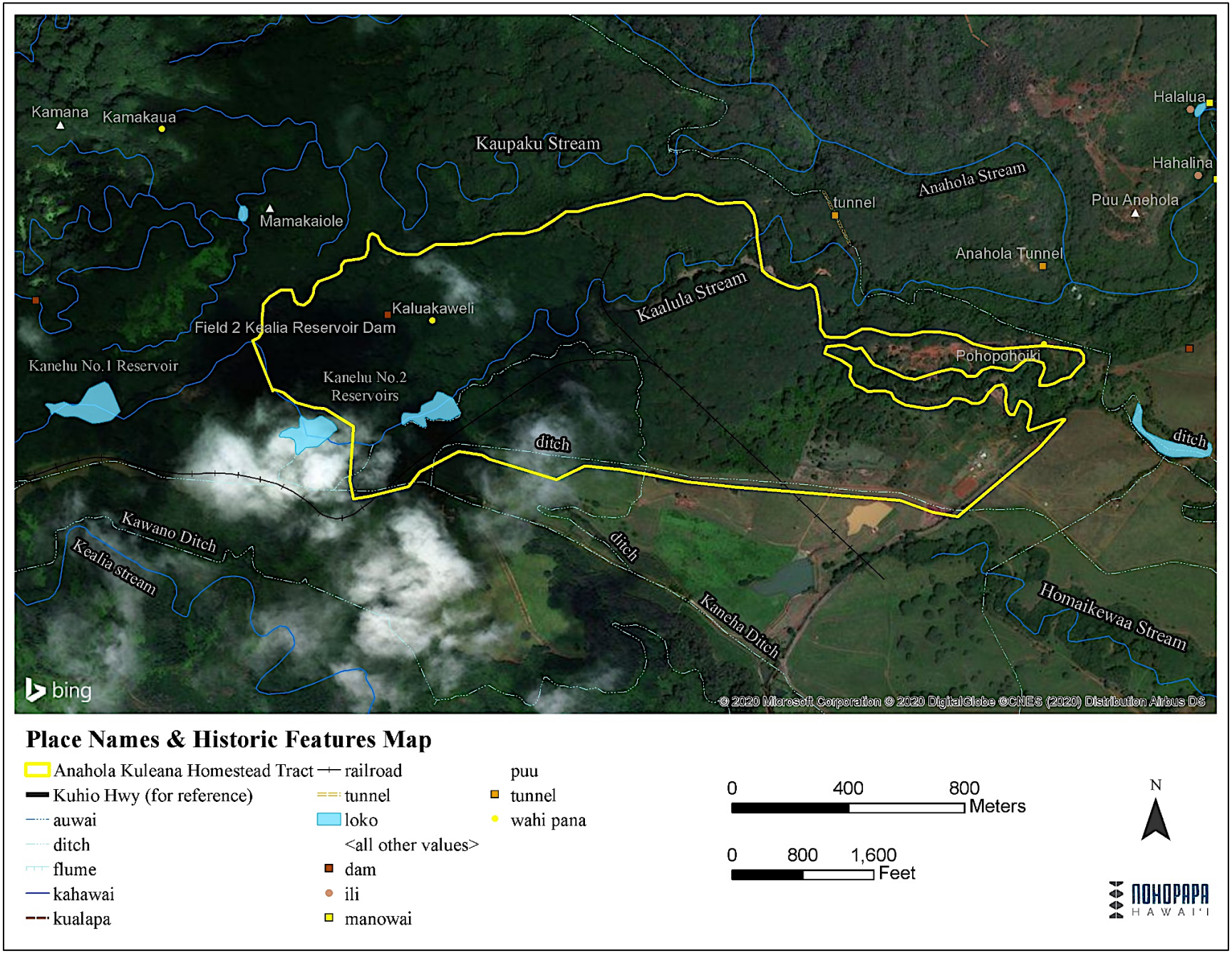

Figure 14. Detail map showing place names within the Kuleana Homestead Tract.

Table 3. Table of features (not named) that are located directly within the study area of Anahola and Kamalomaloʻo.

Feature Type	Comments	Location	Source
Pineapple Field	Crownland.	Anahola	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Pineapple Field	Crownland.	Anahola	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Pineapple Field	Crownland.	Anahola	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Plantation Railroad	Multiple land types present	Anahola, Kamalomaloʻo.	2282 trace (c.1906). KHS-E-17, a Lihue Plantation Co. map (c.1932 & 1942). Plat 3003-B (c.1955).
Pineapple Field	Multiple land types present.	Anahola, Kamalomaloʻo.	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Plantation Road		Anahola, Kamalomaloʻo.	N/A
Pineapple Field	Multiple land types present.	Anahola, Kamalomaloʻo.	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Pineapple Field	Government Grant.	Kamalomaloʻo.	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Cane Field	Government Grant.	Kamalomaloʻo.	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Cane Field	Government Grant.	Kamalomaloʻo.	Plat3003-b (c.). KHS-E-17 Lihue Plantation Co. map (c.1939 & 1942).
Ditch	Multiple land types present.	Kamalomaloʻo, Kealia.	HI State GIS program shapefile "ka_surf_wat_centerline_StateWeb". USGS Topo raster dataset.
Ditch	Multiple land types present.	Kamalomaloʻo, Kealia.	HI State GIS program shapefile "ka_surf_wat_centerline_StateWeb". USGS Topo raster dataset.

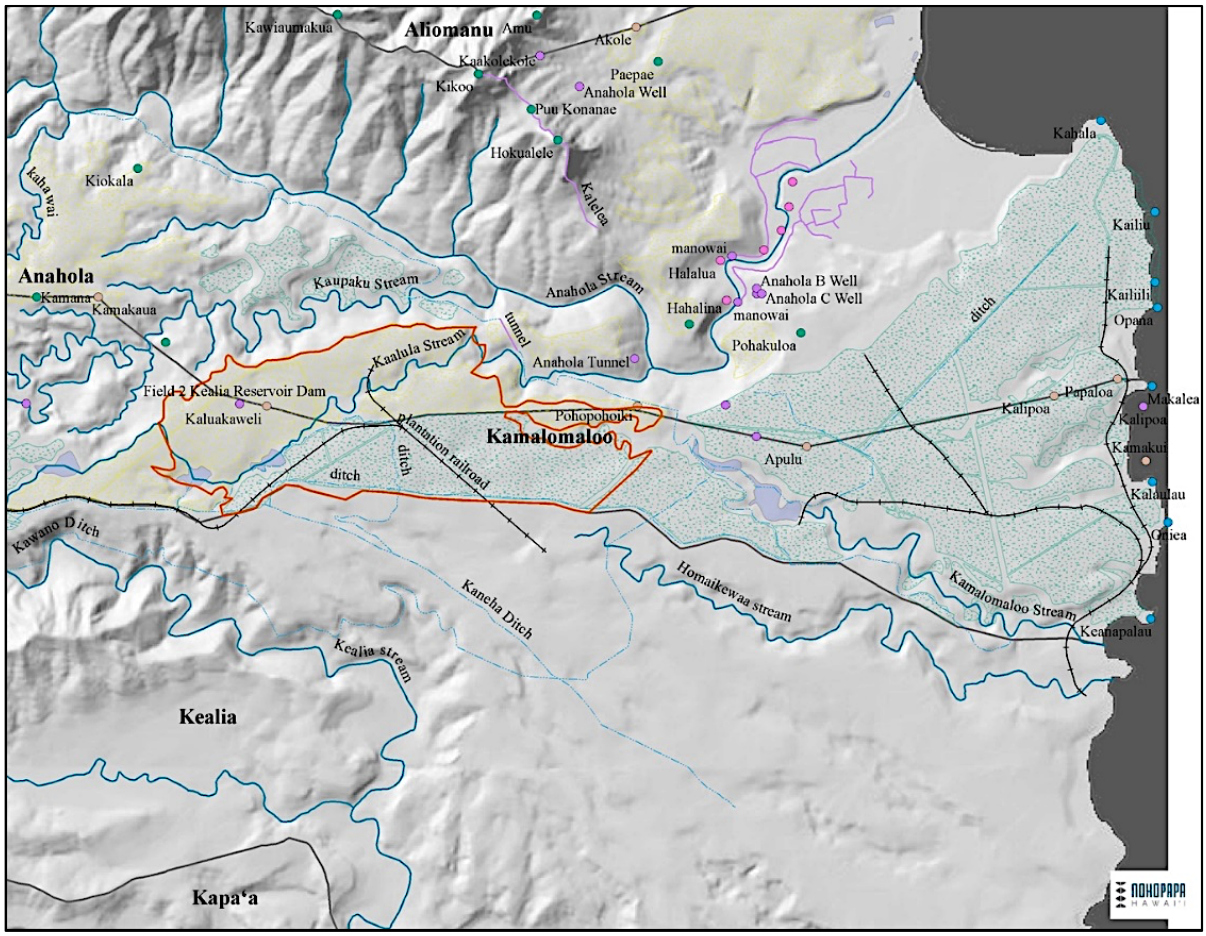

Figure 15. Map showing features within study area. Yellow showing pineapple (pastoral area), Green showing sugar cane.

Hawaiian Oral Traditions

Introduction

Hawaiian Oral Traditions are historical information that has been passed down by word of mouth from one generation to the next and recorded in more contemporary times. Hawaiian oral traditions are important because it gives a general sense of Kanaka Maoli history, their connection to land, how they lived, and their traditional land tenure. These Hawaiian Oral traditions come in the form of oli (chants), mele (songs), ʻōlelo noʻeau (proverbs), pana noʻeau (sayings), moʻolelo (stories) & moʻokūauhau (genealogies), and nupepa (historic newspaper articles). These forms of oral traditions can be woven into each other. For instance, a moʻolelo may present an mele or oli about a moʻokūʻauhau. Essentially, these forms are the methods to ensure the survival of cultural beliefs and the vehicles for intergenerational transmission of knowledge. They are a direct link to experience Hawaiʻi through a timeless bridge of cultural insights that have guided Hawaiians for many generations.

Today, through written form and English translation, these cultural traditions are a source of wisdom to be better understood and appreciated. Bush (1994) further explains, "The stories provide the younger generation with the reason to uphold our intimate and fond attachment to our revered land, notable sites and prominent heroic deeds of our ancestors." The following Hawaiian Oral Traditions tell of the resources of the land, akua (gods), kupua (supernatural dieties), ʻaumākua (familial guardians), aliʻi (chiefs), and ka poʻe kānaka (the Hawaiian people) whose stories weave a unique and treasured history of this ʻāina.

Nā ʻŌlelo Noʻeau

ʻŌlelo noʻeau have long contributed to the perpetuation of traditional knowledge. These creative expressions not only present kaona (hidden meaning) used in Hawaiian language, but they also integrate observational knowledge with educational values, history, and humor. The following ʻōlelo noʻeau were gathered by Mary Kawena Pukui and published in her book titled, ʻŌlelo Noʻeau Hawaiian Proverbs and Poetical Sayings (1983). While no ʻōlelo noʻeau were found directly for Anahola or Kamalomaloʻo, included are ʻōlelo noʻeau for the larger landscape, the moku of Koʻolau and Puna, to explore and commemorate some of the renowned traditions of these districts.

Moku o Koʻolau

78 **ʻAi manu Koʻolau**
Eat of the birds of Koʻolau
Said of a feast where delicious foods are eaten.

550 **He au Koʻolau aku ia.**
That is Koʻolau weather
The Koʻolau, or windward side of an island is often stormbeaten. This expression was first used in a chant to Hiʻiaka by Wahineʻomaʻo, who pleaded with her not to let her wrath lead to destruction. Later used as a warning that headstrong willfulness leads to distress.

1976 **Lele I Kona; lele I Koʻolau**
Flies to the leeward side of the island and flies to the windward.
Said of one who is hard to locate.

2153 **Me he lau no ke Koʻolau ke aloha.**
Love is like the ends [fingertips] of the Koʻolau breeze.
Love is like a zephyr- gentle and invisible but present nevertheless.

2467 **O Kilohana ia, he ʻaweʻawe moku.**
That is the Kilohana of the broken bundle cords.
Said of Kilohana above Līhuʻe on Kauaʻi. An old trail went by here, leading from Kona to Koʻolau. Robbers hid there and waylaid lone travelers or those in small companies and probed them of their bundles.

Moku o Puna

838 **He nani wale no Puna mai ʻo a ʻo.**
There is only beauty from one end of Puna to the other.
There is nothing to complain about. Refers to Puna Kauaʻi.

Nā Oli a me Mele o Anahola

Oli (chants) and mele (songs) have long been a means of perpetuating traditional knowledge through artistic expression. Pukui (1949) refers to oli and mele composition and writes, "Hawaiians were lovers of poetry and keen observers of nature. Every phase of nature was noted and expressions of this love and observation woven into poems of praise, of satire, of resentment, of love and of celebration for any occasion that may arise." The word oli refers to a chant that is not danced to and the word mele refers to a song, poem, or chant of any kind (Elbert & Pukui 1959). Oli and mele are often given as hoʻokupu (a gift or offering) to honor akua and aliʻi, to commemorate place visits and events, to celebrate life and death, and to share stories.

In the translation of oli and mele, there is oftentimes a double meaning that consists of the literal translation and an interpretation of the kaona, or inner meaning. Pukui explains that the kaona can sometimes be obvious enough that anyone familiar with the figurative use of Hawaiian language can understand it. Other times, it may be so veiled that it is only understood by those to whom the composition belongs (Pukui 1949). During this study very few mele and oli were found for Anahola and Kamalomaloʻo. Presented below are two historical mele that make reference to Anahola and its adjacent areas.

The mele, Anahola by Jerimiah Kaialoa, Sr. speaks of Anahola, the homestead land on Kauaʻi, Kalalea, the hill inland at Anahola. The legend says a spear was hurled at the hill piercing it. This hole is named Konanae and collapsed during hurricane ʻIniki. The spear is lying in the stream bed nearby. Verse 3 tells of the activities at the ship's landing on the southern corner of Anahola beach, that was constructed about 1900. Amu is the place name of a small section of land and the name of the wind there, that blows in all directions. The translator of this mele is unknown and the Hawaiian Text was edited by Puakea Nogelmeier.

Anahola- Jeremiah Kaialoa, Sr.

Hanohano Kalalea kau mai i luna	Majestic Kalalea rises above
ʻO ka pali kaulana aʻo Anahola	The famous cliff of Anahola
ʻAlawa iho ʻoe iā Konanae	You glance at Konanae
ʻO ka hoapili like o kuʻu milimili	The beloved close companion
I laila hoʻi au ʻike ihola	I was there and I saw
Nā kaula likini mōliolio	The rigging lines pulled tautly
Huli aku nānā iā Amu	Turn and look at Amu
I ka makani ʻalo ʻehu hele ulūlu	The wind that blows fiercely
Haʻina ʻia mai ana ka puana	The story be told
ʻO ka pali kaulana aʻo Anahola	Of the famous cliff of Anahola

The next mele, titled Kalalea was composed by Kealiʻikuaʻāina Kahanu & Kaleialoha Williams. P. Williams is the great granddaughter of the composers. It was recorded by Kainani Kahaunaele, great, great, great grandaughter of composers, "Naʻu ʻOe" CD. - Kalalea is the prominent hill overlooking Anahola, Kawaihau, Kauaʻi. Legend says Hulu, the demigod, who could take the form of a moʻo or bird, pecked the hole near the top, to see the other side. Another legend tells of the hero Kawelo, thrusting his spear to form the hole named Aolani (heavenly cloud). Others give the name of the hero as Kapūnohu.

Kalalea - Kealiʻikuaʻāina Kahanu & Kaleialoha Williams

Kiʻekiʻe Kalalea`a i ka makani	Kalalea stands majestically in the wind
ʻO ka pali kaulana o Anahola	Famed cliff of Anahola
Noho iho e ka ʻohu noe i nā pali	The mist rests upon the cliffs
A he nani maoli nō mai ʻō a ʻō	Simply exquisite from end to end
A ke aku la e ʻike	I yearn to see
I ke kai nehe aʻi Hālaulani	The rustling sea at Hālaulani
ʻO ka pā kolonahe a ka makani	The gentle breeze
I laila māua me kuʻu aloha	That's where I am with my sweetheart

An 1860 article published the nupepa (newspaper) Ka Hae Hawaiʻi, shares the importance of publishing traditional mele to ensure the continuance of these compositions and their meaning are remembered onward for future generations.

> "Ua aneane nalowale paha na mele o ka wa kahiko, kawalawala loa na kanaka i ike. He mea minamina ia, no ka mea, ma ua mau mele la, ua maopopo ke ano o ka noho ana o kanaka i ka wa mamua loa aku nei, a o ka mooolelo o ka aina kekahi. O ka mea e mau aku ai a nalowale ole na mele, oia ke pai ana ma ka buke a ma ka nupepa paha, alaila, he hiki no i na hanauna hou aku ke heluhelu a e kawiliwili iloko o ka manao..."
> -*Ka Hae Hawaiʻi*. March 21, 1860

> Traditional Hawaiian songs may soon be forgotten; they are not seen enough by people. This is very unfortunate, because it is within these compositions that that the lives of those who lived before us are

> understood, as well as the stories of the land. What will ensure the continuance of these traditional Hawaiian songs so that they are not lost, is publishing them in books and perhaps newspapers, then, future generations will be able to read them and become entwined in their meaning…[English Translation, *Ka Hae Hawai'i*. March 21, 1860].

However just as important as publishing traditional mele, is also the composition of new mele. A very important aspect of doing cultural, strength, and project-based education is incorporating Hawaiian protocol as part of the learning process. Oli, Mele, and Pule, are ways to show respect to the ʻāina where a project, excursion, or research takes places and is a way to build a relationship with that ʻāina as well.

Kaiāulu Papaloa is a non-profit educational organization based in Wailua, Puna, Kauaʻi and is dedicated to promoting and perpetuating Kauaʻis traditional knowledge of natural and cultural marine resources. Practicing traditional knowledge, their website features two (2) mele and one (1) oli, written and inspired by their students who their attended their intersession and after school outreach programs. These mele/oli were composed by conducting background research about Anahola. They share the following three (3) references to be the most useful, ʻAʻā Hoaka is a traditional story about the Koʻolau area that appeared in the Kū ʻOkoʻa Hawaiian Newspaper in the 1800 hundreds but is written only in Hawaiian and is widely used amongst Hawaiian language speaking educators. Nā Makani Hawaii is a research paper put out by the former Hawaiian Studies Institute at Kamehemeha Schools, and He Mele Hawaii is a reference book that can be found at the local libraries.

Kaulana ʻO Anahola

Kaulana iʻo nō ʻo Anahola	Famous is the place called Anahola.
ʻĀina ʻuluwehi, kai momona	The land is lush and the ocean filled with delicacies.
Pōʻai ke aloha me nā malihini	This is a place surrounded with aloha for malihini.
Nānea hoʻi kau me ka lehu	This is a place where one can relax with everyone.
Makamae mau nō ʻo Kahala	Forever cherished is the place Kahala.
ʻApapa ʻoluʻolu, ka moani ʻuli	The reef is very kind/forgiving and the ocean blue/deep.
He nani iʻo nō ke ʻike aku	This is a place that is beautiful when looking out into the ocean.
Kū ʻia hoʻi wale me ka mālie	However, donʻt forget, it's a reef so one must stand relaxed and calm.
Hanohano palenaʻole ʻo Kanahawale	Famous is the surf break Kanahawale.
Nalu maikaʻi, he kai ʻehu	The waves are great and the ocean is so clear.
Papaheʻenalu, nā hoa paʻa	This is a place where best friends surf.
Kohukohu ʻia hoʻi ma ke kai lā	This is a place where one can show off what they do in the ocean.
Puʻana iʻo nō e, ʻo Anahola	This is where my story ends in Anahola.
ʻĀina uluwehi, kai momona	The land is lush and the ocean filled with delicacies.
Pōʻai ke aloha me nā malihini	This is a place surrounded with aloha.
Nānea hoʻi kau me ka lehu	This is a place where one can relax with everyone.

Mele Kaiāulu

Eia nō he moʻolelo e Pili ʻia nā kaiāulu e Haliʻa mai ka manaʻo e Mehana kuʻu puʻuwai e	This is a story about the gentle winds of Anahola. These winds remind me of a different time and my heart becomes warm when I think of the past.
Hui: ʻO Anahola kuʻu kulāʻiwi e Paʻa ka mauna e ka makani e Iho ʻia noʻeau kahiko e Ea hoʻi mai ke kilihune e	Chorus: Anahola is my beloved ʻāina. As the winds hit the mountain, the wisdom of the past descends down, hitting the ocean causing a mist (spray) of ʻike.
ʻO Kuaehu kuʻu kūpuna e Mehameha ke ʻano makani e Nānea ʻia nō ma ke kai lā e Nalu wale kuʻu iho e	Kuaehu is my kūpuna and the wind blows in solitude. As I sit by the ocean, I ponder on what occurred before in this place.
ʻO Amu kuʻu hoa e Kū kilakila ke ʻano makani e Paʻa ke kuahiwi e hoʻi nui e Hoʻolono ia mea kahiko lā e	Amu is my beloved friend and the wind blows so majestically/feisty. As it hits the mountain and spreads across the land, I hear the voices of the past.
ʻO Kahala kuʻu kaina e Nahenahe ke ʻano makani e Kuʻi ʻia mai ke kai o luna lā e Piha ka ʻāina, e pono hoʻi e	Kahala is my beloved brother and the wind is gentle. As it strikes the ocean, the ocean is filled with momona and pono returns to our land.
Pu ana ʻia mau e kaiāulu e Eia nō he moʻolelo e Haliʻa mai ka manaʻo e Mehana kuʻu puʻuwai e	This is my story with aloha about a moʻolelo about the gentle winds of Anahola. These winds remind me of a different time and my heart becomes warm when I think of the past.

Oli Hea Kaiāulu Anahola

Hea mai ka leo aloha lā Eia nō mākou ē Nā Pua o ke awa lau o Anahola ē Mai Papaloa a Kūaehu ē Ke kai a momona Hānai ʻia e nā kai E ulu aʻe ke kanu E ulu aʻe ka ʻiʻo E ulu aʻe nā Mamo o Kūʻula Pūpūkahi e holomua Pua a Kū Kanaloa ē Wiliʻia ka lei maile aloha me ka mokihana E Ola e, he leo wale nō ē Aloha ē, Aloha ē, Aloha ē	This is an chant that celebrates the importance of the ocean resources to the people in Anahola. From this we understand that Anahola stretches from Papaloa to Kuaehu and that the ocean is a source of many types of food for people in Anahola and the larger district of Anahola. We also celebrate our relationship with two Hawaiian Gods, Kanaloa and Kūʻula. Kanaloa, according to Hawaiian tradition is the god of the ocean and Kūʻula

Many of these contemporary compositions are written for or about Anahola makai. Today, the concentration of population, housing, and access to resources of Anahola is primarily all in the makai portion of the ahupuaʻa. It is also important for Hawaiians to also establish a relationship with Anahola mauka. In addtion to these newer mele and oli, it is highly reccomended to receive instruction in how to chant and sing the songs from directly from Kaiāulu Papaloa.

Nā Moʻolelo a me Kaʻao

The term moʻolelo refers to stories, myths, and legends, while the term kaʻao is used to refer to a fictional legend or fanciful tale. Pukui describes the tradition of storytelling as, "a principal source of entertainment while simultaneously providing instruction in the many interwoven aspects of life – ancestry, history, religion, human relations, crafts, and the natural world" (Pukui & Green 1995:xii). Before Hawaiian became a written language in the 1820's, cultural knowledge was perpetuated through various forms of oral repetition and passed down from generation to generation through mele (songs), hula (dances), kūʻauhau (genealogies), kaʻao (legends), or moʻolelo (traditional stories) (Kalākaua; Daggett; Grant 1990:ii). Today, through written form and English translation, these traditional compilations serve as sources of wisdom for a much larger audience.

A limited amount of narratives that directly reference Kamalomaloʻo and Anahola Ahupuaʻa. The tables below document moʻolelo associated Anahola Ahupuaʻa that were found during this study and are the more commonly known, it should be noted that this is no way a complete list moʻolelo. There is a potential for more moʻolelo to be uncovered.

Table 4. Comprised list of moʻolelo for the Ahupuaʻa of Anahola.

Anahola Ahupuaʻa Moʻolelo
"Pohaku-Loa, Long Stone of Kauai" Armitage, George T., and Henry P. Judd, *Ghost Dog and Other Hawaiian Legends*
"Legend of Kaipalaoa, the Hoopapa Youngster" Fornander, Abraham, *Fornander Collection of Hawaiian Antiquities and Folk-Lore, Volume 4*
"Legend of Kapunohu" Fornander, Abraham, *Fornander Collection of Hawaiian Antiquities and Folk-Lore, Volume 5*
"Legend of Kuapakaa" Fornander, Abraham, *Fornander Collection of Hawaiian Antiquities and Folk-Lore, Volume 5*
"The Legends of Kawelo" Thrum, Thomas G., *More Hawaiian Folk Tales: A Collection of Native Legends and Traditions*
"The Penalty for Peeking" Armitage, George T., and Henry P. Judd, *Ghost Dog and Other Hawaiian Legends*

Anahola in the Nupepa

The following are a list and brief summary of the newspaper articles pertaining to Anahola from the database of Hawaiian Language Newspaper (Nūpepa):

Table 5. Selected Nupepa clipping for Anahola.

Source	Summary
He papa o na Kanaka ma Kauai *Ke Kumu Hawaii* 14 October 1835	Anehola: Adults 274, Children, 49, Total: 323 living in Anehola, Puna district
Ka Moolelo o Laieikawai *Ka Nupepa Kuokoa* 29 November 1862	The prophet goes to top of Kalelea in Anehola and see the signs that a high chief is born.
Kauai Muliwau Nui *Ka Nupepa Kuokoa* 22 August 1868	Logging and ranching the biggest businesses in Anahola, there is a fear the because of these and the amount of people moving here that the land will become barren.
Huakai Makaikai ia Kauai, na D. Keawemahi *Ka Lahui Hawaii* 17 August 1876	Tour of David Keaweamahi on Kauaʻi, visits Anahola and told the story of Kapukalani relating to Māui the demi-god and PōhakuokauaʻI outside of Kaʻena.
He Moolelo no Aahoaka *Ka Nupepa Kuokoa* 30 December 1876- 3 March 1877	Story of the chiefs of Koʻolau Kauaʻi. Place names correspond to aliʻI and characters in the moʻolelo.
Mai Anahola Kauai mai *Ko Hawaii Pae Aina* 12 March 1881	From Anahola to Kīlauea in quarantine because of smallpox.
Me ke Kauoha, Hoolaha kuai o no hoolimalima o na aina aupuni o Wailua a me Anahola Kamalomalo *Kauai Ka Hoku o Hawaii* 10 May 1939	Auction of leases to 2 parcels of that was owned by Līhuʻe Sugar in Anahola/ Kamalomalo about 2860 acres, including: Sugar lands including the train, reservoir, pasture, and arid land.

Anahola of the Kānaka

In the late 1930s, Mary Kawena Pukui began working for the Bishop Museum. As part of her work, she traveled throughout the islands conducting interviews with Hawaiians, gathering the moʻolelo they remembered about the places they lived. She did a series of interviews with kūpuna from Anahola who shared the following:

HAW 50.1.1: Mrs. Elizabeth Leinaʻala Ewaliko:

According to Mrs. Ewaliko, who moved to Anahola in 1914, her father was Robert Hanapī a Judge for Anahola. There was no water to irrigate their, or any of the homesteads. It was her husband that sought out the rights to bring water down from the upland streams to irrigate the fields.

Mrs Ewaliko also talked about how abundant the ʻoʻopu was and that the time to fish for them was from September to December. There used to be a river where the road to Hanalei was but it is intermittent perhaps because of all the work to build the road.

Anahola was also known for its ʻAlaea or red dirt for medicine. The more effective form being from near the ocean. The ocean was also abundant with many types of seaweed like kohu, wāwae ʻiole, līpoa and līpeʻepeʻe.

HAW 50.1.2: Mrs. Rena Peters:

Mrs. Peters and her family are longtime residents of Anahola. She shares that the farmers there produced rice and taro of the lehua variety to sell to Oʻahu but use to also grow lūkea and other varieties to eat. But because people want to buy the red poi lehua is the preferred for selling and farming.

The ʻoʻopu or goby was plentiful in Anahola, the ʻoʻopu hua were the golden fish that were prized, she also talks of the lai ʻulaʻula, a small fish that they would catch using a hopai, or small net. These fish lived in the irrigated taro fields along with ʻoʻopu and other freshwater creatures.

HAW 50.2.3: Mrs Daisy Valpoon Lovell:

Mrs. Lovell is a long time kamaʻāina of Anahola, her family home is near the ocean at Puʻukoaniani. She explains that they would gather their water from the mountain streams and irrigation ditches of the plantations. These streams were full of ʻoʻopu the goby and ʻōpae kala ʻole or freshwater shrimp. The streams and irrigation ditches had been broken many times due to massive flooding. The people of Anahola are working for the pineapple plantation and are involved with mostly harvesting.

There is a stream called Alaweo whose waters are said to be special and come from a spring in a cave was the dwelling for the moʻo. The area near the river is sacred or haunted place by three women, which is why no one has been able to live there. The mountain behind Anahola have three different names for the three parts, the first is Kalalea, the second is Konanai and the last ʻĀmū, these are also the names David Kahanu as well as other kūpuna of that time use. Kalalea is a male mountain, Konanai female.

The ocean of Anahola was very productive. The people would call out through the community to do surround fishing for akule. Mrs Lovell and others would sell limu kohu from the surrounding reefs for .25 cents a pound. According to Mrs. Lovell, the currents have changed since she was a little girl and parts of the reef have fallen away. When she was younger they would be able to walk from one reef to the next, now there are deep channels.

The point of Paliʻau was a place to get ʻalae wahine or the dark red dirt for medicine. During the moons of Hilo and Hoaka the ʻaʻama would come out. The bay of Anahola was also a place for feeding the shark aumakua.

Cultural Traditions Summary

Anahola has a rich natural and cultural history. From these sources we scratch the surface of what these histories have to offer us in our time. Looking at the earliest articles, we see that Anahola was prosperous and had a large population so much so that it was a favorite place for chiefs of Koʻolau. However, as we progress into modern era, it was on the road to destroying these natural resources.

From Mrs. Ewaliko, Mrs. Peters and Mrs. Lovell, we learn how life was in the early 1900s during the plantation era. These women share the important cultural and natural resources

that span from the uplands out to the reef and surrounding ocean. We learn that the water courses and irrigation were vital to the people and that new water ways had to be made in order to feed the homesteads there. We also learn that the aquatic life was thriving, both in mountain streams and in the ocean, enough to feed the population as well as sell to communities as far away as Oʻahu. We are given specifics on places and times in which these resources were gathered and maintained by the kamaʻāina of this area along with the changes they have seen in their lifetime there. In comparing these sources of the past with the knowledge of kamaʻāina in this present day, we are able to bridge the gap between knowledge and history that has been forgotten, bringing to light a fuller history of this storied place.

Historic Era

Māhele of 1848

The 1848 Māhele was established to guide Hawai‘i in its transition from a traditional system of land use to a western model of privatization of property during the reign of King Kamehameha III Kauikeaouli. The traditional Hawaiian land system previously existed within the context of a highly stratified hierarchy and social order, a self- sustaining model of ahupua‘a management and use, and a communal and subsistence based economy which worked effectively for the people for generations.

The traditional land tenure system was based on a reciprocal relationship which derives from the lesson of mālama ‘āina (to care for the land). It is derived from a cosmological worldview that Hawaiians have a genealogical connection to the land. This relationship is defined by the kaikaina- kua‘ana (younger sibling-older sibling) reciprocal relationship (Kame‘eleihiwa 1992:25). The land and water was not owned in any legal sense, but revocable rights to its use were allocated and reallocated from the mō‘ī (king or paramount chief) down through the ranked system of ali‘i (lower chiefs) and finally to the maka‘āinana (commoners). Therefore, this historical event introduced the foreign concept of private property and fundamentally changed people’s relationship to land.

During this process tenants of the land were required to document their claims to specific parcels in order to gain permanent title. The application process required claimants to provide a native testimony, foreign testimony, and native or foreign registrar. These records of the historical Land Commission Award (LCA) documents provide firsthand accounts of residency, resources, land use, access, traditional and customary practices of the lands they lived and actively cultivated from late pre-contact history into the period of the Kingdom of Hawai‘i.

Historical land documents from the Māhele contain useful and relevant information in regards to understanding traditional Hawaiian land tenure and the transformation of this system into one based on land privatization. The Land Commission Awards (LCA) documented the size of the land, the sale of the land, award number, and royal patent number. The native and foreign registers were written by the claimant and provided information about the claims to their land. However, after a reviewing and compiling all of the Kuleana in Anahola (see Appendix H), historically the number of Māhele awards are more makai. There are no kuleana in and around the project area.

Regarding land tenancy, Kamalomalo‘o was initially retained by Lunalilo but was eventually surrendered to the government in lieu of commutation at the Māhele (Indices of Awards 1929). Anahola Ahupua‘a was Crown Lands, returned by Lunalilo (6th monarch of the Hawaiian Kingdom), who was the second-largest landowner (trailing only Kamehameha III) at the time of the initiation of the Māhele (middle nineteenth century). In a Crown land inventory, Anahola is stated as:

> Anahola. – This land is siuate in the district of Koolau and comprises an area of 6237 acres. Nearly all the land in the valley is good rice land, mostly on kuleanas. The Anahola stream furnishes an abundant supply of water. A considerable portion above the valley, about 500 acres is under cultivation of cane by the Makee Sugar Co., the remainder being good pasture and wood land. Good roads connect it with the plantation.

C.P. Iaukea, Agent of Crown Lands
In, The Biennial Report of the Commissioners of Crown Lands, 1894, p38.

Post-Māhele Period- Foreign Visitors

An article written by Dixon et. al (2005: 74-84) provides a good summary of foreign visitors who wrote about the landscape of Anahola in the post-Māhele period.

> Brief mention of the Anahola Valley is made in several visitors' journals dating to the latter half of the nineteeth century, a period which seems ot have been one of the considerable change for the district's inhabitants and their land. In 1849, the Anahola Valley was described as "chequered with kalo patches & studded with houses…" (Alexander 1991:123), painting a picture of relatively undisturbed traditional land use. A somewhat later visit in 1865 states that "The coast of Kauai… near Anahola is abrupt in places and very read from the soil; few trees except the pandanus were seen" (Lydgate 1991:136). Such a different description only 16 years later suggests the effect of deforestation associated with the introduction of non-traditional agriculture on the valley slopes and costal plain. Another visitor in 1895 only mentioned in crossing the Anahola River, but the described a "melon patch" to the north in Moloaʻa (Knudsen 1991:152) suggestion the much of the region was being transformed from traditional land use into an area of commercial agricultural production, a process occurring elsewhere on Kauaʻi by the end of the nineteenth century (Mawyer and Creed 1997).
>
> By the early 1900s, the pond field and terrace system in Anahola Valley appears to have been converted into a primary rice production ceter on the island (Joesting 1984), with local Chinese merchants selling their product in Kapaʻa (Char 1979) among other markets. Chinese rice farming declined in the 1930s, however, due to rising costs and production on the U.S. mainland, and many pond fields were left fallow for years, some only recently returning to taro production. Pineapple production began in the late 1800s on elevated terraces above the project area, but it also slowed in the 1930s, as did sugarcane production. Vegetable farming of the flood plain soils and coastal plain also altered the landscape of Anahola after this period, as did the small-scale cattle grazing. [Dixon et. al 2005: 81-81]

Plantation Land Use

Summary of Ernest Krull Estate to Makee Sugarcane (Kealia Mill)

An article titled "Ernest Krull's Dairy" was written by Hank Sobole and published in The Garden Island on September 7, 2014. This article documents important details in the timeline of the Ernest Krull Sugar Estate leading up to Makee Sugar Company and eventually Lihu'e Sugar Plantation.

> In 1854, German immigrant Ernest Krull purchased a tract of land at Kealia, Kaua'i from the Hawaiian Government for $200 (about $5,720 in 2013 dollars), which extended westward from the area where the Spalding Monument would later be built to nearly the vicinity of the Waipahee Slippery Slide.
>
> Then, about six years later, Krull began operating a dairy on his land for the purpose of selling visiting whaling ships and Honolulu merchants beef and dairy products — mainly hides, tallow and butter. He sold firewood to ships anchored off Anahola as well.
> During the 1860s and early 1870s, large herds of cattle could be seen roaming over Krull's broad pastures.
>
> While touring Kauai in 1863, American visitor Mary E. Anderson described Krull's dairy homestead at Kalualihilihi as follows:
>
> "Mr. Krull has a large dairy, which in part supplies the Honolulu market with butter. He has a well-conducted, elegant and tasteful establishment; indeed, it was difficult to imagine that no lady's hand was employed in it.
>
> The grounds about the house are prettily laid out, and two walks lead to a picturesque summer-house, called "Bellevue," from which one looks off over an extensive plain to the sea. We slept in a nice grass house with matting on the side instead of paper. Familiar engravings adorned the walls, and the beds, with their pretty muslin mosquito-curtains, looked inviting enough to the weary traveler.
>
> We saw many kinds of tea-roses with their delicate tints. The garden abounded in a variety of vegetables, and we feasted on strawberries which were hanging on their stems in the morning. Within sight was a fine bluff extending down to the sea."
>
> Krull sold his dairy and ranch lands to sugar planters Capt. James Makee and his son-in-law, Col. Z. S. Spalding, in 1876 for the sum of $30,000 ($673,000.00 in today's dollars) — lands that would later become part of Makee Sugar Company and eventually, Lihue Plantation.

Saito and Campbell (1987) processed the document, *Hawaiian Sugar Planter's Association – Plantation Archives* covering the years 1850-1968 providing details of The Lihue Plantation Company history. The table below is a summarized timeline of events from Ernest Krull Sugar Estate to Makee Sugarcane.

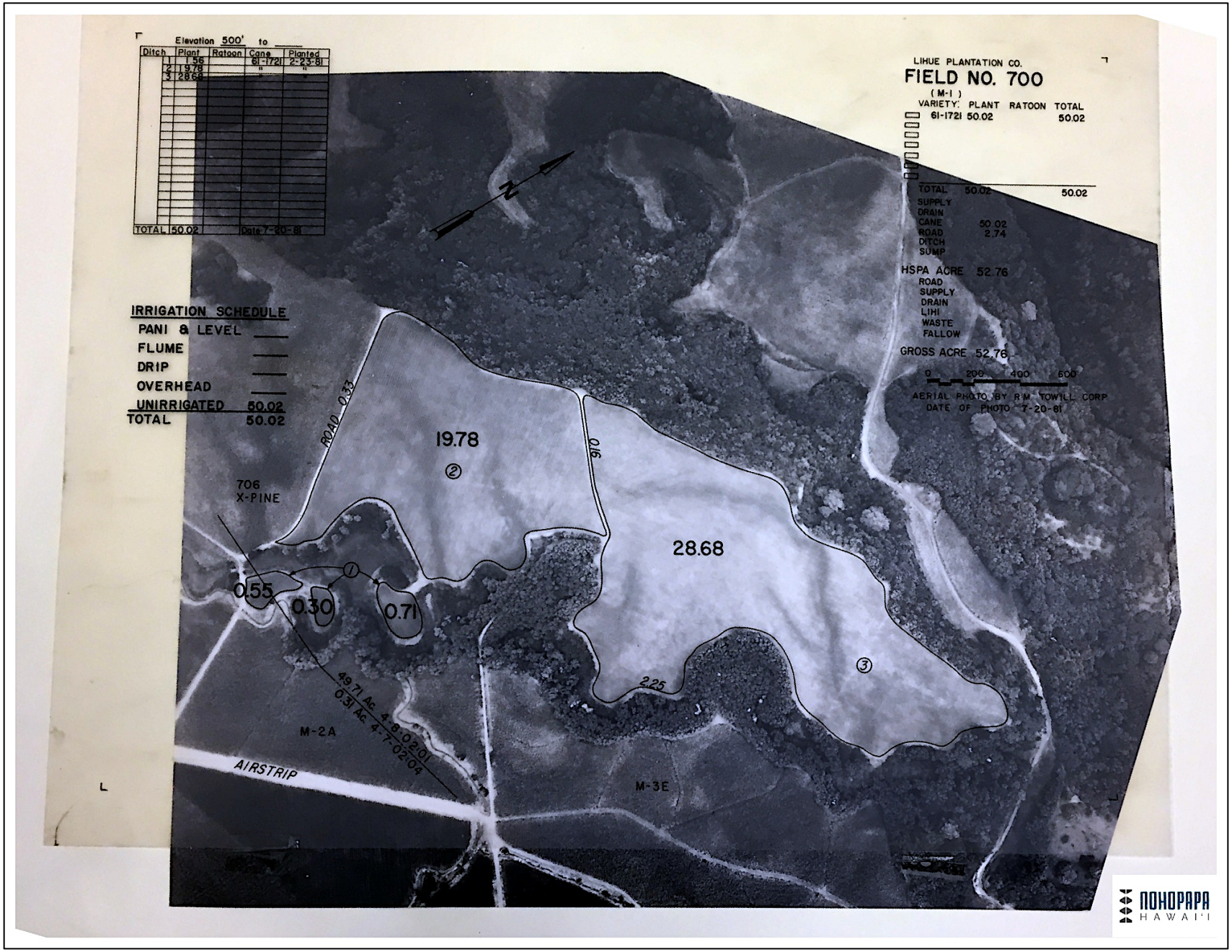

Figure 16. Plantation aerial imagery from the early 1980s, from Kaua'i Historical Society. Showing Field No.700, within the study area.

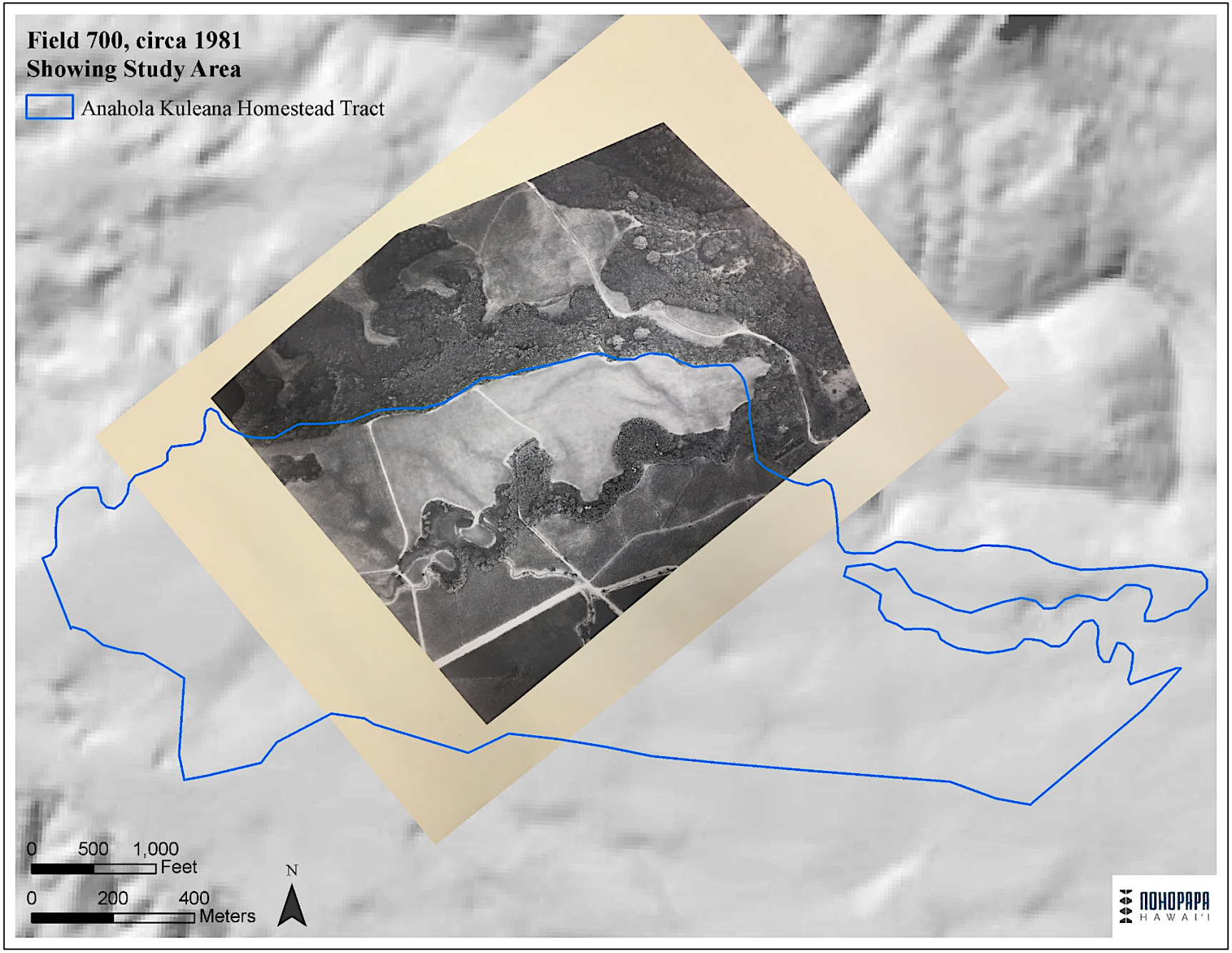

Figure 17. Plantation aerial imagery from the early 1980s, from Kaua'i Historical Society. Situating Field No.700, within the study area



Figure 18. Plantation aerial imagery from the early 1980s, from Kaua'i Historical Society. Showing Field No.706, within the study area.

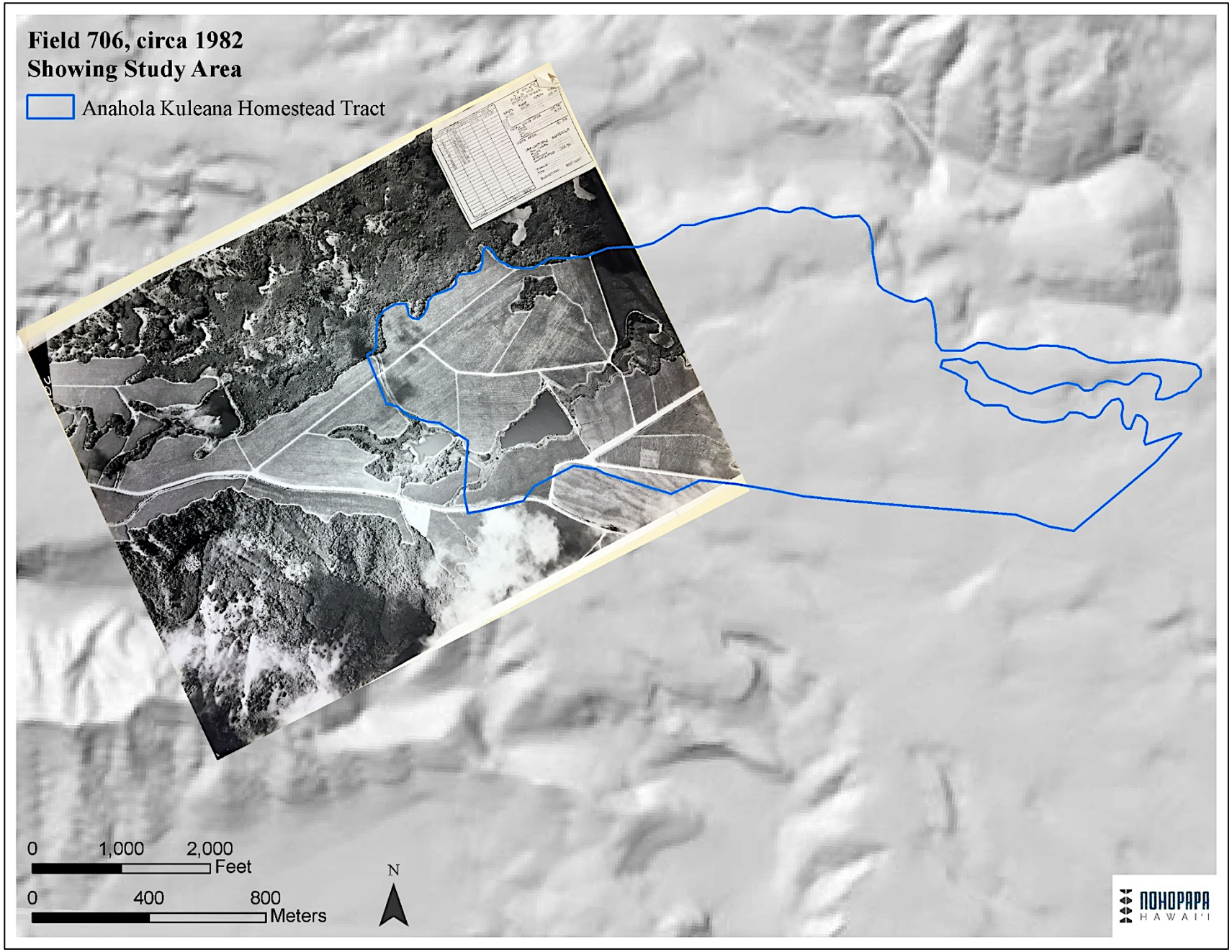

Figure 19. Plantation aerial imagery from the early 1980s, from Kauaʻi Historical Society. Situating Field No.706, within the study area.

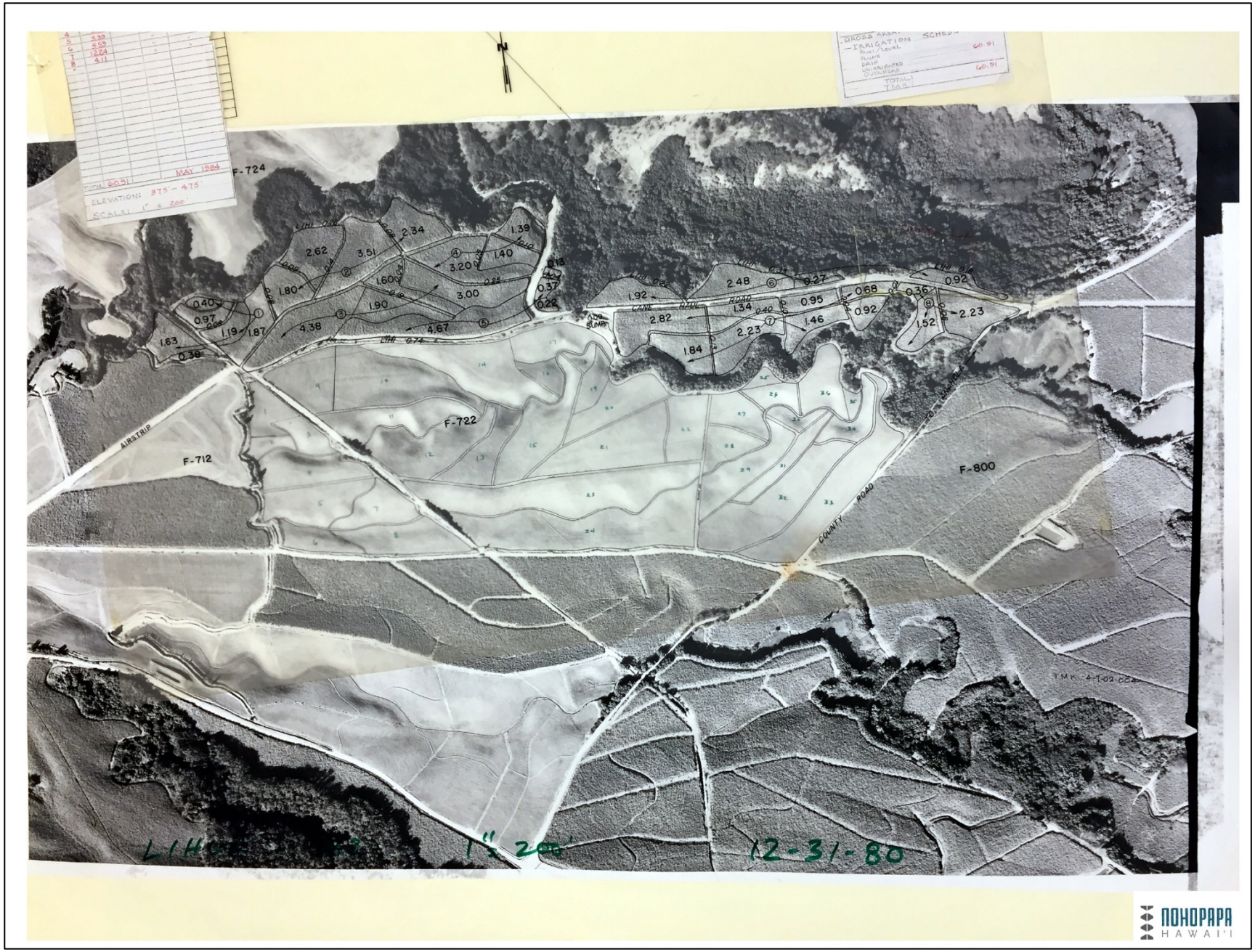

Figure 20. Plantation aerial imagery from the early 1980s, from Kaua'i Historical Society. Showing Field No.723, within the study area.

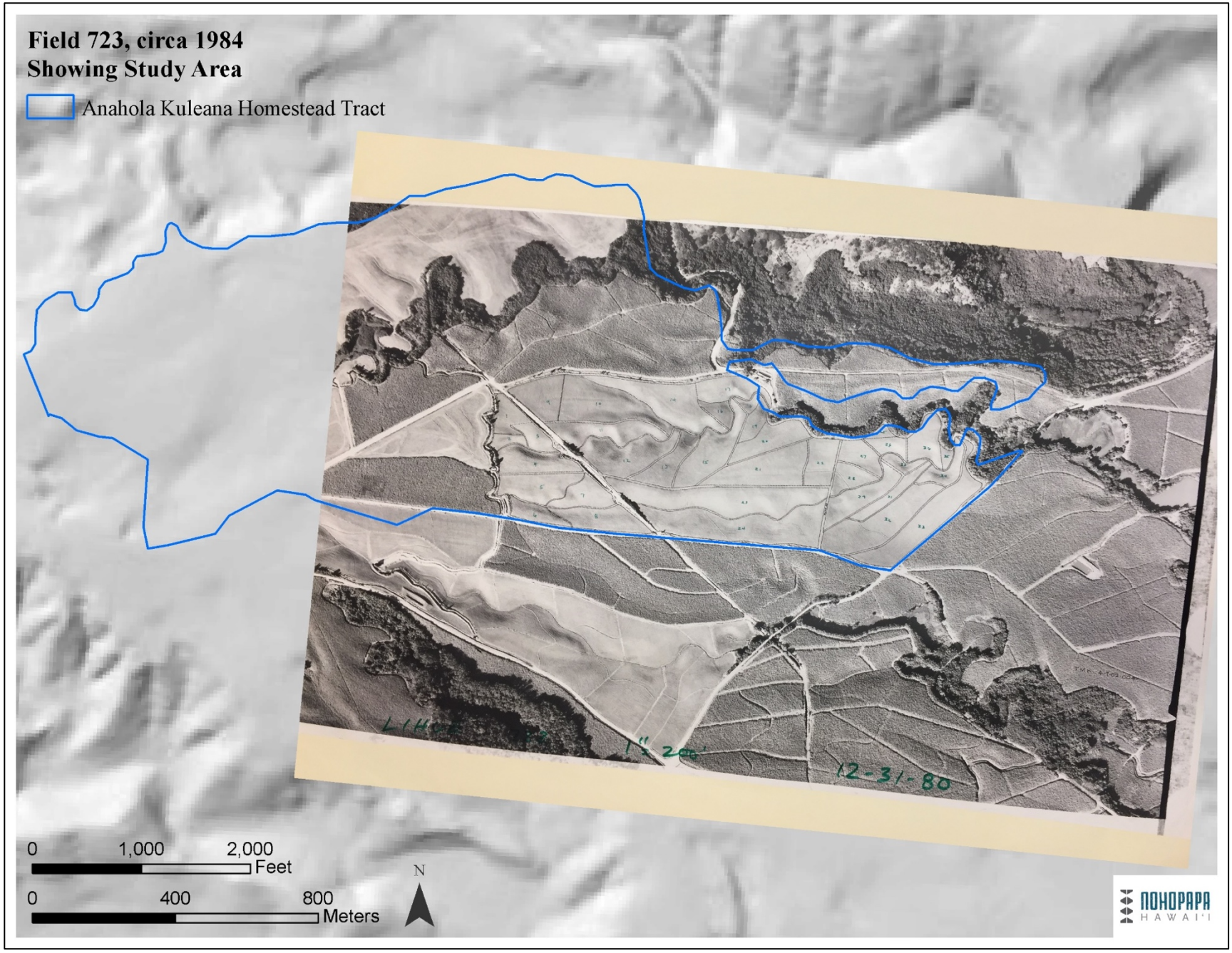

Figure 21. Plantation aerial imagery from the early 1980s, from Kaua'i Historical Society. Situating Field No.723, within the study area.

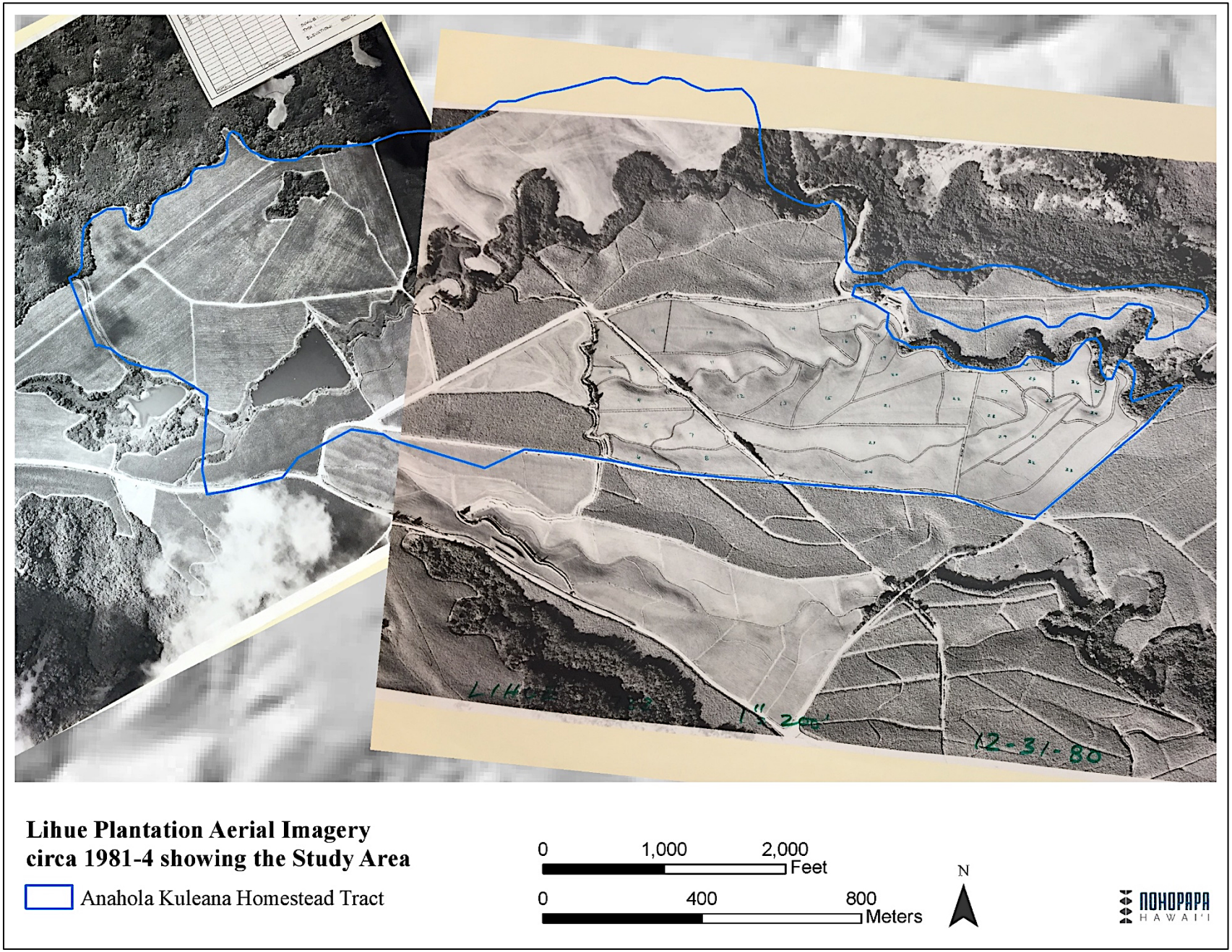

Figure 22. Aerial imagery, early 1980s, from Kaua'i Historical Society. Stitched and georeferenced photos show plantation Fields No.700 and No.723 highlighting the massive impacts plantation had upon study area landscape.

Table 6. Timeline in chronological order of Ernest Krull Sugar Estate to Makee Sugarcane

Year	Event
1854	Ernest Krull Sugar Estate
1877	Cpt James Makee (from Ulupalakua), King Kalakaua, & others, purchased Ernest Krull sugar estate.
1877	May 1st, Makee Sugar Co. signs 30-year Crown land Lease for Kapa'a/Anahola lands. $600/year, extended to July 1, 1913 (Biennial report of Crown Land Commissioners Table F. Rent Roll, p75).
1877-8	Col Spalding (Cpt Makee's son) purchases land & erects mill at Kealia.
1878	Makee died & his son Col. Z.S. Spalding purchased majority interest & took over Makee Sugar Co. mgmt..
1880	190 men employed on Kapaa plantation, ~1500 tons (estimated) sugar crop. Annual fuel consumption 244 tons coal & 250 cords of firewood. *Lihue Plantation Co. Ltd., p.5*
1885	Col. Splading dismantled Kapa'a mill & moves it to Kealia & combines two factories (Kealia & Kapaa or Makee & Kealia).
1887	Up to 1887 W.G. Irwin & Co. were agents for Makee Sugar.
1887	C.Brewer & Co. Ltd agents for Makee Sugar.
1889	Makee Sugar - 1,030 workers producing 5000 tons of sugar/year. Confirmed irrigation ditches brining mountain wai to plantation.
1904	H. Hackfield Agents for Makee sugar.
1909	Hackfield became American Factors (now American Factors) agents of Makee Sugar.
1910	Lihue Plantation purchases controlling interest in Makee Sugar Co.
1916	Lihue Plantation & W.F. Sanborn purchased 6,000-acre Princeville Plantation
1922	American Factors (successor co. of H. Hackfield & Co.) acquired control of Lihue Plantation Co. by purchasing 3,026 shares of its stock.
1933	Lihue Plantation Company sole owners of Makee Sugar Co. & plantations merged.
1934	Kealia mill (Makee Sugar Co.) dismantled and combined with Lihue factory. Prior to merger with Lihue Makee Sugar Co. managers: Col. Spalding and Messrs. Fairchild, Blaisdell, Wilcox and Wolters.

In 1877-1878 the Kealia Mill was erected. According to a Kaua'i Historical Society finding aid (re-write) of the Lihue Plantation Co. Ltd.:

> Col. Spalding dismantled the Kapaa mill and moved it to Kealia, where he combined the two factories. Shortly thereafter, Col. Spalding changed to the diffusion process of sugar manufacture. To keep the process continually fed with cane, Makee Sugar Co. instituted the first night manufacture in Hawaii. The factory was outfitted with electric lights and even the fields were lighted for night harvesting, which enabled the new plant to handle 400 tons of sugar every 24 hours."
>
> In 1900, the diffusion plant was changed back to the maceration process and in ten years, a modern nine roller mill was in operation. Power for the mill was generated by burning bagasse as well as hydroelectrically from mountain streams and the company had its own ice plant. Approximately 2000 acres of cane were harvested in 1914 producing 10,660 tons of sugar. [KHS finding aid (re-write) Lihue Plantation Co. Ltd.]

During this time of sugar, it is evident that water was a major resource needed for the mill to thrive. The sugar operations in Kealia most likely needed various water supplies to support its production which was likely obtained from Kamalomalo'o (see SUMMARY and RECCOMENDATIONS).

Historic Era Summary

Following the 1848 Māhele, cash-crop agriculture and cattle ranching gradually replaced traditional subsistence pursuits on the land, and labor from outside Hawai‘i was also brought in to the sugarcane and pineapple plantations, many of these individuals eventually marrying into local families. Lo‘i (or irrigated pond fields) and terraces were converted to rice production in the valley bottom, and kula land once planted in traditional tree crops became the locus of vegetable farming for markets outside the district.

PREVIOUS ARCHAEOLOGICAL WORK

This section of the report summarizes previous archaeological studies that have been conducted in the project area and surrounding vicinity. A chronological summary of archaeological work conducted in the project area is discussed and presented in the table below.

Table 7. Previous Archaeology in Anahola and Kamalomaloʻo Ahupuaʻa and Surrounding Area.

Reference	Location	Type of Study	Results and Comments
Kikuchi 1979	Anahola Ahupuaʻa TMK (4) 4-8-001:001	Archaeological Reconnaissance Survey of "Hawaiian Homes Farmlands"	Identified Site #473 (dry-stacked enclosure, interpreted as possible heiau)
Kikuchi 1983	Anahola Ahupuaʻa TMK (4) 4-8-001:001	Site inspection of small area	Documented Site #471 (C-shape shelter) and #472 (agricultural terraces)
Yent 1983	Anahola Ahupuaʻa TMK (4) 4-8-001:001	Re-visit/inspection of the site identified by Kikuchi (1979), above	Inspected Site #473, and suggested it is (and was originally described in 1929 by Bennett [1931]) as an animal enclosure, not a heiau
Ota 1985	Anahola Ahupuaʻa TMK (4) 4-9-010: 1, 2, 3 & 5; & 4-8-various	Inspection of possible heiau sites (Kuhua, Site #115 & ʻAikanaka, Site #113)	No evidence of these heiau was found, confirming their reported destruction
Denham et al. 1992	Aliomanu Ahupuaʻa TMK (4) 4-9-004:001	AIS of 13.7 acres; subsurface excavation consisted of 31 trenches	Site #996 (subsurface firepit dated to pre-Contact times); several pre-Contact and Historic-era artifacts were also found on the ground surface or from screened alluvium (including an adze blank, basalt flakes, and a Hawaiian Kingdom coin dating to 1847)
Taniguchi 1996	Anahola Ahupuaʻa TMK (4) 4-8-018:024	Site inspection	Site #115 (remnants of Kuhua Heiau)
Rechtman & Dougherty 2001	Anahola Ahupuaʻa TMK (4) 4-8-003:005, 016 (por.) – DHHL lands	AIS of 38 acres; included backhoe trenching	Site #877 (pre-Contact agricultural soil layer in subsurface context); no surface (above-ground) historic properties were identified
Drennan 2007	Keālia Ahupuaʻa TMK (4) 4-7-003:002 (por.) & 4-7-004:001 (por.)	AIS of 2,008 acres; subsurface excavation consisted of 61 trenches, 1 test unit & 11 shovel probes	101 archaeological sites comprised of 261 component features: most sites were plantation-agricultural features; several sites were associated with the Makee sugar mill and/or plantation camps; several sites were kuleana and/or historic habitations

Reference	Location	Type of Study	Results and Comments
Tome & Dega 2009	Anahola Ahupuaʻa TMK (4) 4-8-001:001 (por.) & 4-8-005:037 (por.)	Archaeological Monitoring Report	Documented Site #5026 (pre-Contact habitation and agricultural site)
Sholin & Dye 2013	Kamalomaloʻo Ahupuaʻa TMK (4) 4-7-004:002	AIS of 60 acres with backhoe trenching	Documented Site #2160, which consists of two sugar cane field irrigation ditches
Mason Architects 2016	Portion of the current project area (Reservoir 2)	Historic American Engineering Records (HAERs) for the reservoir)	Photographic and historical documentation of the reservoir
Nohopapa Hawaiʻi 2018	Anahola & Kamalomaloʻo Ahupuaʻa TMK (4) 4-7-002:004 (por.), 4-8-002:001 (por.) & 4-8-003:006 (por.)	Archaeological Reconnaissance Survey	Documented 0 (zero) traditional Hawaiian sites, and 8 (eight) historic sites that include an Irrigation Ditch, Railroad Bed, Airstrip, Reservoir, Dam & Culvert, Retaining Wall, Earthen Road System and one isolated surface object.

Summary

Table 7 is a summary of the idnetified "historic properties" in the project area. Figure 23 is an overall plan map of these historic properties, based on the results from Nohopapa's (Monahan et al, 2018) Archaeological Reconnaissance Survey (ARS).

Based on all available evidence, we believe the project area has been completely transformed by mechanized plantation agriculture: both sugar cane and pineapple operations took place during the Historic period, and well into the middle-late twentieth century. There are no undisturbed ground surfaces or subsurface deposits dating from pre-Contact ("prehistoric") times in the project area. One indication of this comprehensive transformation of the entire landscape is the near-complete absence of any rocks on the ground surface: clearing and removal of rocks was one of the first tasks that would have been carried out by plantation workers in order to maximize planting and harvesting activities, while also gathering raw material for building and construction projects (e.g., irrigation ditches, sluice gates and culverts). Occasional boulders are commonly marked by "bulldozer scars" or have chain/wire marks on them (a result of their having been dragged over the landscape during clearing activities). The main drainage that traverses the middle of the project area—where pre-Contact Hawaiian structures might survive plantation operations—has been thoroughly flooded/washed out many times over. The rocks in this drainage are jumbled and disturbed.

In the 2018 ARS, eight (8) plantation-era historic properties (some with multiple component features) were identified within the project area. In general, all of these cultural resources were anticipated based on archival research and georeferencing of historical maps, although several unique and interesting features were also found during this ARS that provide more detail than the old maps indicate. Findings include two large, earthen reservoirs (including a formally-constructed rock and mortar structure [possible pump house] on the south side of Reservoir 3), irrigation ditches, a section of dry-stacked boulder retaining wall, concrete and

rock sluice gates, a small, informally-constructed diversion dam/culvert, many earthen roads (some with culverts and other drainage features), a railroad bed (but no intact rails or ties), a few displaced iron railroad rails (not in their original position), and a remnant airstrip, which consists of a degraded, road-like strip of old asphalt/concrete.

Identified was also an inscribed date of 1925 on one the concrete sluice gates, along with the names of two (Japanese) workers who built it, and some Japanese (kanji) script. It is worth noting that, in the portions of the main irrigation ditch running through the middle of the project area, along the south side of the main natural stream channel, we found sections of well-constructed, dry-stacked rock work that may be worth preserving. Other inscriptions on plantation infrastructure included a date of 1960. Some extant components of historic properties in the project area are depicted on a 1904 map (Registered Map 2282; see Figure 6); other components appear on a detailed 1955 map (Registered Map 3003-B; see Figure 9). Finally, on the ground surface of a portion of the old railroad right-of-way, a traditional Hawaiian stone tool (an adze "preform") was found. This isolated find on the ground surface was the only traditional Hawaiian material observed during our survey.

Table 8. Inventory of Historic Properties in the Project Area based on Archaeological Reconnaissance Survey by Nohopapa Hawai'i

#[1]	Form - Description	# of Fea.[2]	Function	Age	Comments
Site 1	Irrigation Ditch, Sluice Gate & Culvert System (labeled Kaneha Ditch on a 1963 map)	7	Irrigation/water distribution	Historic Portions as early as 1904 or earlier	Diverse/varied construction materials & methods (see text) – there are some well-preserved, formal features and sections of this system
Site 2	Railroad Bed/Right-of-Way (ROW)	1	Transportation of plantation materials & products	Historic Portions as early as 1904 or earlier	All this is left of this site is a level (earthen) railroad bed (no evidence of in-situ rails or ties)
Site 3	Reservoir 2	--	Water storage/distribution	Historic At least as early as 1904 or earlier	Known as Kanehu Reservoir 2 on some older maps
Site 4	Airstrip – "Kealia (Keālia) Landing Strip" on a 1963 map	--	Transportation	Historic Built between 1955 & 1963	Simple asphalt/concrete surface w. no auxiliary structures or features – poor to fair physical condition
Site 5	Reservoir 3	3	Water storage/distribution	Historic At least as early as 1904 or earlier	Known as Kanehu Reservoir 3 on some older maps

Site 6	Dam & Culvert	--	Part of water distribution system	Historic – Plantation era	Diversion dam/culvert functioned to keep stream flow in place and protect adjacent road from being washed out
Site 7	Retaining Wall (Dry-stacked)	--	Soil retention for landscape stability	Historic – Plantation era	A small ridge next to (south of) and slightly above main is retained by this dry-stacked retaining wall
Site 8	Earthen Road System	2	Transportation	Historic Portions as early as 1904 or earlier	--
No #	Isolated Surface Artifact	n.a.	Adze (ko‘i) preform	Probably Pre-Contact	Basalt preform found on ground surface of Site 2 (Railroad ROW)

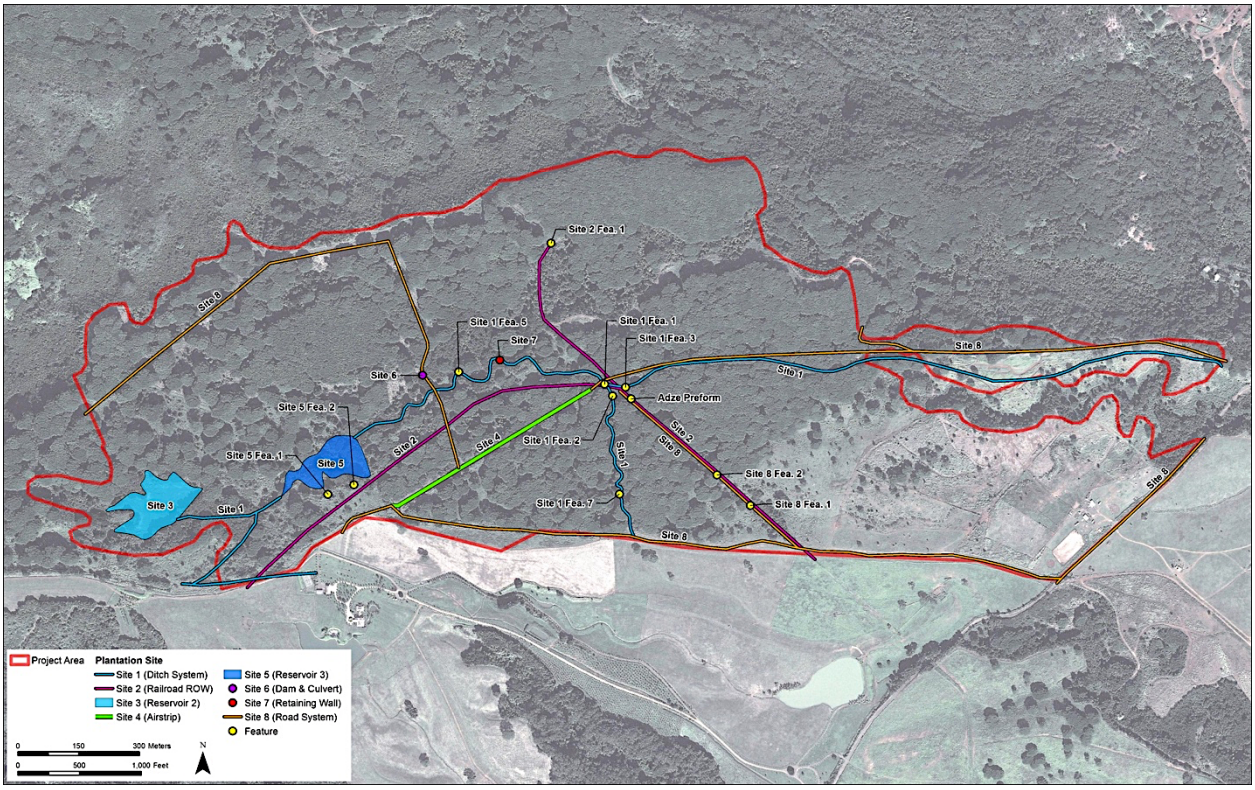

Figure 23. Overall project area depiction of the location, orientation and areal extent of “historic properties” (as defined by Historic Preservation Law) in the project area.

ETHNOGRAPHIC COMMUNITY INTERVIEWS

Introduction

Ethnographic research involves gathering oral histories and conducting interviews with living communities to record and acknowledge peoples historical connections to place as well as document the visions communities have for their wahi pana. Hawaiians have always maintained intimate relationships with their environments and through generating detailed stories about places; knowledge is passed on to future generations. In Anahola (Koʻolau) and Kamalomaloʻo (Puna), many kūpuna and kamaʻāina have maintained close connections to their ʻāina and have kept the stories of the landscape alive. Through our ethnographic efforts, we have tried to capture and present some of these personal histories and moʻolelo. The manaʻo of these long-time residents who graciously shared their ʻike and memories should be respected and acknowledged. We hope that these histories will be shared and honored for both present and future generations.

Ethnographic work for this study was conducted from November 2019 through February 2020. As a multi-phase study, the ethnographic process consisted of identifying appropriate and knowledgeable individuals, conducting oral history interviews, summarizing the digitally recorded interviews, analyzing the oral history data, and preparing the report. Eight individuals were contacted in regards to this CIA. Five individuals participated in ethnographic interviews, and three did not respond or participate for various reasons. The table below lists the names, background information and the dates of individuals that were contacted for this CIA, whether they participated in this study or not.

Table 9. Community members we attempted to contact for DHHL Anahola CIA.

#	Name	Affiliation	Status
1	Kanoe Ahuna	Executive Director of Kanuikapono Public Charter School on DHHL land in Anahola. Her children also attended kula in Anahola.	**Interviewed.** Summary approved.
2	Palala Harada	Luna hoʻokele for ʻIke Hawaiʻi at Kanuikapono Public Charter School on DHHL land in Anahola. A Hawaiian cultural practitioner, long time teacher at Kanuikapono, whose children also go to kula in Anahola.	**Interviewed.** Summary approved.
3	Edward Taniguchi	Long time homesteader, lived in Anahola since 1995, but in his youth he managed pīpī for Princeville Ranch and others in the area; with memories of the project area from the 1960ʻs. Edward Taniguchi is also marking his 60th year on the Pastoral waitlist.	**Interviewed.** Summary approved.
4	Walter Apana	A long time Anahola resident. Uncle Walter drove truck and pulled Pineapple for the plantation in Anahola. He has been all over mauka in his youth and has an intimated and extended understanding of the water system in and around the project area.	**Interviewed.** Summary approved.
5	Erica Taniguchi	She facilitated the interview with her grandfather (Edward Taniguchi) and we incorporated her manaʻo as a young Anahola business owner and mother. The granddaughter of Edward Taniguchi, part of a beneficiary ʻohana, Erica is an Anahola resident, her childern also go to kula in Anahola.	**Interviewed.** Summary approved.

#	Name	Affiliation	Status
6	Henry Kupihea	Month to month lessee within study area.	Several contact attempts made. Pending...
7	Ornellas ʻohana	Several generations of this ʻohana hunt in and mauka of the study area.	We asked a family member; there is interest, but not available w/n project window.
8.	Canen Hoʻokano	Worked for Plantation in and around the study area when he was in high school. Also hunts and involved in past cultural access into mauka areas	Several contact attempts made.

Acknowlegements

Nohopapa Hawaiʻi would like to mahalo the individuals who shared their precious time, memories, and stories with us. Without their willingness to share personal recollections and manaʻo with us, this important study would not have been possible. The manaʻo that was shared will keep the stories of Anahola and Kamalomaloʻo alive and enable future generations to better understand, appreciate, and cherish the very special beauty and uniqueness of this place.

The interviews below are arranged alphabetically by community participant.

SUMMARY AND RECCOMENDATIONS

Community Input – Concerns & Comments

Based on interviews and comments we have received to date, the following are some of the main themes of potential Cultural impacts and concerns that have been voiced. We separated these into three main topics: 1) Access, 2) Wai, and 3) Continuing Cultural Education.

1) Access

Access is a huge part of culture. The obvious needs for access are to resources, water - for kalo, hoʻokupu, & hana noʻeau; puaʻa - for hunting (a practice) and for food (subsistence); lāʻau for lei, hoʻokupu, maʻawe, lapaʻau. The current project offers the possibility for Anahola beneficiaries to expand their cultural practice to a place it has historically been, within their own community – mauka.

Access to place is extremely important to the continuing pilina (connection) of Hawaiians to their environment and culture. It is one of the reasons Hawaiians kanu ʻiewe and piko after the birth of a child. “Returning the first honua to the honua we live on is a powerful way to reaffirm the connection of a child to their ʻāina hānau (birthplace).” The importance of anchoring keiki to wahi physically and metaphorically through their ʻiewe speaks to the importance of place and access to place as a cultural cornerstone. Many parents who continue to kanu ʻiewe today seek to go mauka, for safe places, free from development where their keiki’s first honua can dwell undisturbed.

With pilina comes understanding, respect; this continued access to wahi creates a relationship between Hawaiians and those places. Arguably, the most important cultural

component of the development of a Hawaiian relationship to place is kuleana. Hawaiian communities that have relationships to the places around them – places they use and access – also develop a growing understanding of those places, their inoa (names), their moʻolelo (stories). With this relatioship comes kuleana, the resposibility to mālama place.

In order to carry out the intent of the Kuleana Act, even King Kamehameha III reserved important rights of access and water to support the continued occupancy of kuleana lands and the continued practice of subsistence living, that at a minimum provided a place to live and grow food. While Hawaiian Homelands are not kuleana lands, the intent is the same and the historical need for Hawaiians to access resources for subsistence, to maintain their culture and way of life has legal precedence. It is therefore a valid cultural concern when Hawaiians in the Anahola community speak of access as a barrier to cultural resources and cultural practices.

Several concerns and comments shared to us about the proposed project, all which have the potential to be addressed in a positive way during the planning and project implementation process. There were worries the proposed project would create or perpetuate impediments to Hawaiians to access a part of Anahola that few beneficiaries have a realtionship with, let alone kuleana to. There were worries it would open up un-regulated access to tourists and those with no kuleana. Just because access is currently blocked off does not mean that the project continuing to block cultural access is not a negative impact to cultural practices. Interviewees have established that access restrictions are relatively recent in time. At the same time un-regulated access is also a concern. These concerns were shared by all interviewees to some extent and should be addressed.

Here are some of the "Access" take-aways:

Blocked Access and Ability to go Mauka.

Comments across the board voiced the need for access, via existing roads, through- and to-the study area, and to mauka resources.

- Concerns over gates put in by month to month lessees that block beneficiaries to mauka Anahola.
- Concerns that all beneficiaries and all Hawaiians should have the same right to access Hawaiian Homelands, at least parcels not awarded to specific beneficiaries.
    - Concerns over a lack of policy for month to month lessees and lessee requirements.
    - Concerns were also voiced in favor of month to month lessees who would lose their access to mauka areas.

There was concern that a road that DHHL possibly shares a right of access or ownership with a neighboring parcel since plantation times. We were told that a road that had previously been open to beneficiaries, has in the last decade been closed off.

- The road divides Kealia and the DHHL lands of Kamalomaloʻa, on the Monument side. It was share with us that DHHL potentially has historic and modern access rights to that road, and that property's previous owner (McCloskey) moved a gate which now blocks off that road.

- The worry was that if this project does not address the issue it will never be resolved and Hawaiians will lose an alternate and potentially an important Emergency exit from the study area.

Some interviewees remembered people going mauka to catch fish, hunt pig, and gather lāʻau for lei before gates were in place and albisia

Safety for access was sighted by everyone we talked to. The albisia, mauka is very dangerous for walking and driving access, many acknowledged this.

- Some community members can remember a time before albisia grew rampant on HHL.
- Satisfaction was expressed over DHHL project efforts to cut down albisia.
  - One wanted to know what would be done to ensure it doesn't all just grow back.

Too much and open access

Impacts of Social Media and Exposure to Areas. Social media (such as Instagram and blogging) have the potential to lead people to areas where they should not go.

- Concern over what DHHL has in place to prevent inappropriate access once project is implemented
- Concern overall how access will be regulated, if at all, but who? Will there be a policy in place? A PoC for violations?
  - One comment was for a modern konohiki style of oversight

How to allow Hawaiians and beneficiaries to engage in cultural activities mauka, to access cultural resources, continue cultural education, and develop pilina to place without opening it up to "anyone with a jeep wrangler," i.e. tourists.

2) Wai

Wai, like access to place, is important. Wai is arguably central to all things. What affects the wai hālau, the rain catching mountains, at the apex of the ahupuaʻa has the potential to affect the fish in the muliwai. The study area is situated mid-ahupuaʻa, almost halfway from the mountains and the sea.

For hoʻokupu, a traditional Hawaiian offering, it is almost always the case that the most appropriate and noa offering is wai. Tap water wai is not maikaʻi hoʻokupu, it must come from a special place or time, from a spring or a certain place in a stream. Currently it is not feasible for beneficiaries in Anahola to collect wai hoʻokupu from mauka. This seems he mea iki (a small thing), but will the resurgence of Makahiki ceremonies in Anahola, cultural education at Kanuikapono Public Charter School, and the current Study Area development, it is a small thing that speaks volumes.

Community members were concerned how water would be managed. They were concerned not only about its current flow, but its recent past and historic flow. How can flow, healthy flow be restored? How can existing plantation infrastructure be utilized for beneficiaries and for stream restoration. Interestingly, some were concerned that there is continued water diversion off of DHHL lands, through plantation infrastructure, into the reservoirs of adjacent large landowners.

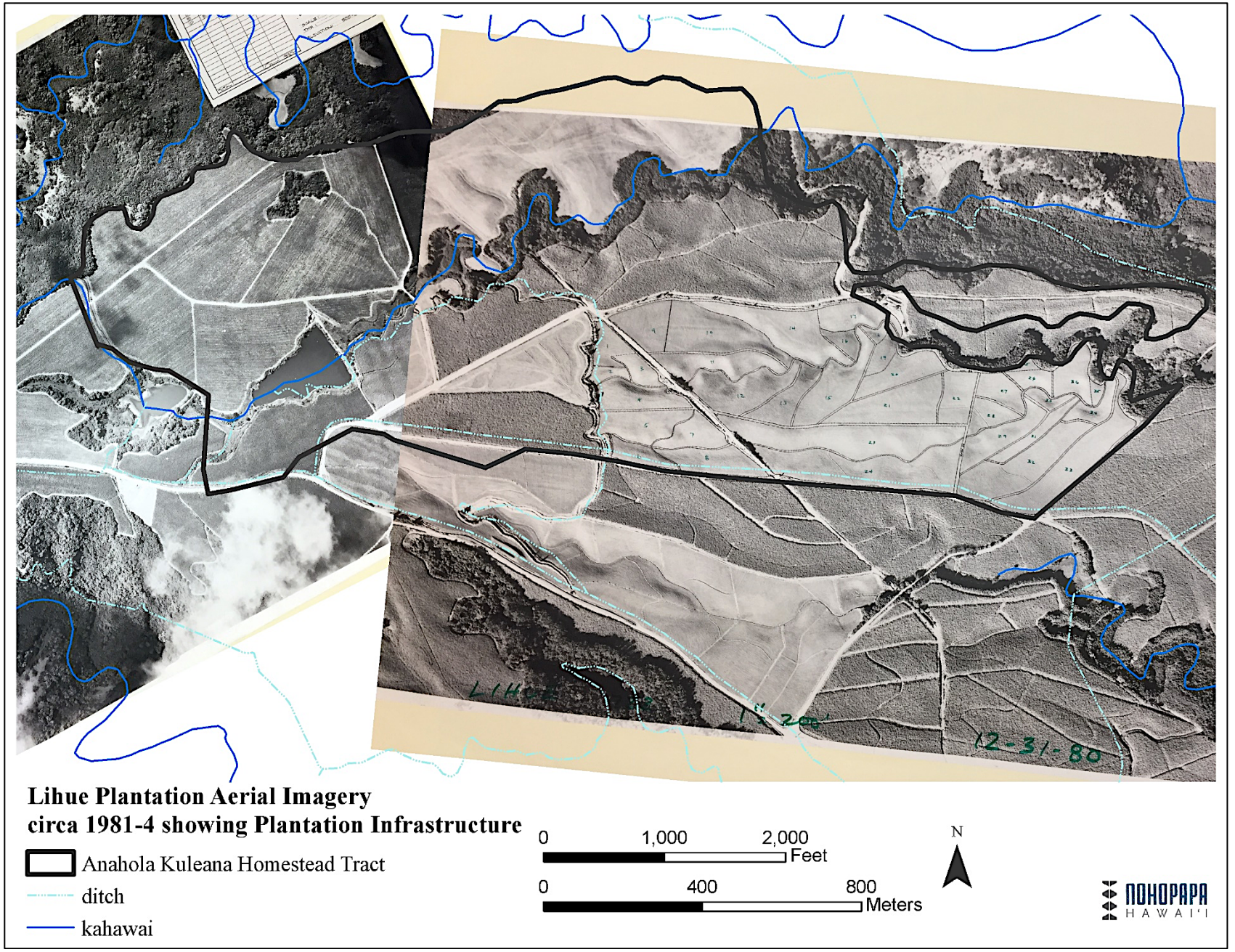

Figure 24. A composite stitch of aerial Imagery from Kaua'i Historical Society Archives, showing Plantation photos from the early 1980s of the Study Area. Water infrastructure is highlighted.

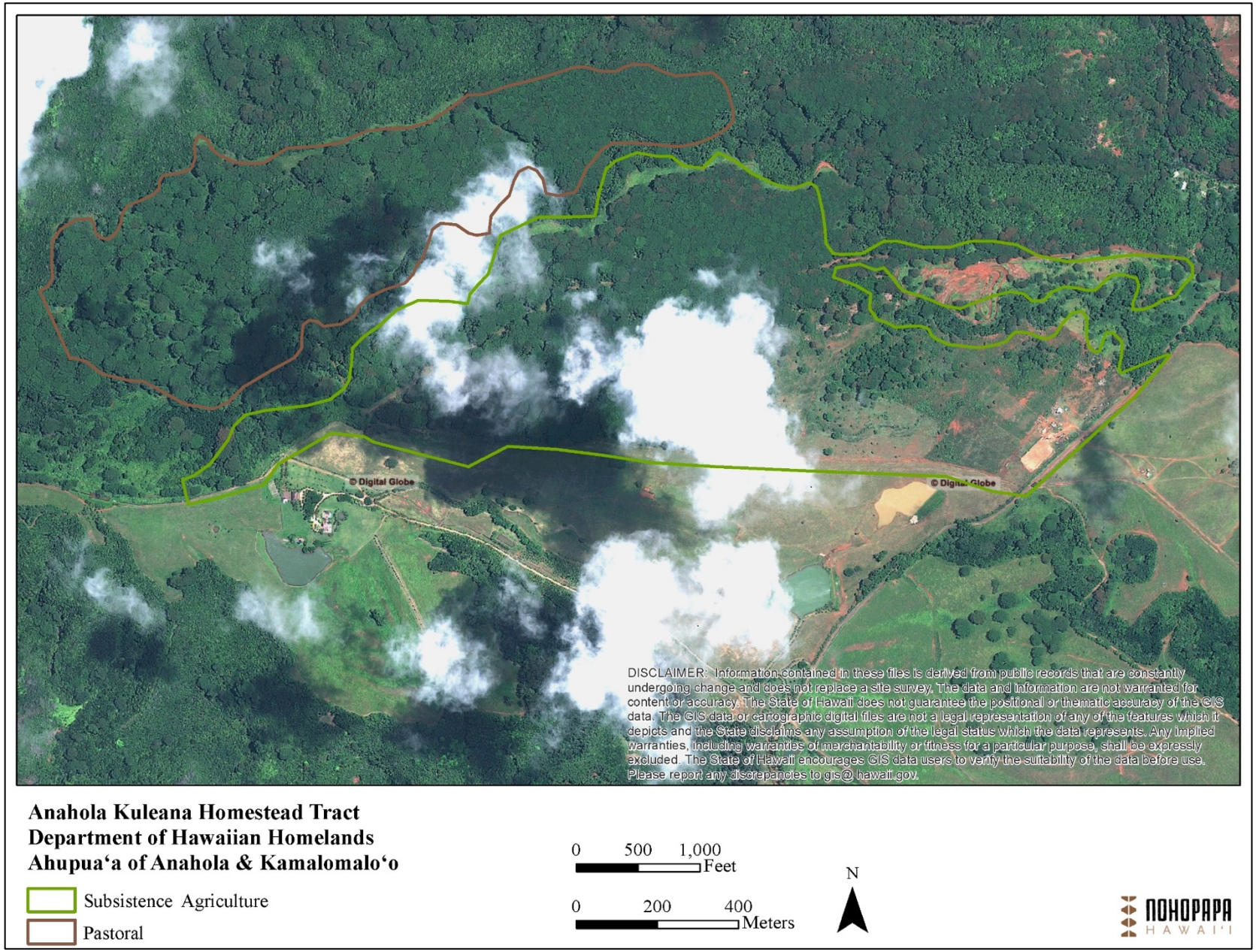

Figure 25. A modern aerial image showing the Study Area shows dry reservoirs on DHHL parcels. Note the two large reservoirs to the south of the DHHL study areas. These are not evident in 1980s aerials and are potentially still tied to plantation infrastructure tied to DHHL parcels.

Water diversion off DHHL

It was shared with us that in the early part of the 2000s, there were modifications made to the existing plantation ditch system which has allowed neighboring land owners, at time of diversion McCloskey, to divert water off of DHHLs in Kamalomaloʻo and Anahola to private properties in Kealia.

- Concerns were expressed that the water is also being sold.
- Recommendations were made that current diversions of water that will feed the Study's planned homestead be investigated.

The worry was expressed that there would not be enough water for homesteaders to pursue pastoral and agricultural endeavors let alone for cultural activities in the area.

3) Continuing Cultural Education – ʻŌpiʻo

An important part of Hawaiian culture isn't always looking backwards to history, but facing forward to the future. To perpetuate Hawaiian cultural traditions, we must pass them on to our keiki. Exploring how the next generation of cultural practitioners can and will engage with resources is an important part of understanding long term cultural impacts of a project in a community.

Kanuikapono is a K-12 public charter school in Anahola on DHHL land. Next year Kanuikapono will be renewing its WASC (Western Association of Schools and Colleges) accreditation and a new Charter renewal contract. Towards this end it is currently working to incorporate ʻike Hawaiʻi into core content area classes. The idea isn't to isolate ʻike Hawaiʻi as a separate course, but to weave it across the curriculum spectrum. In addition, each grade will have a focus; a moku, wahi pana, different mele, and even a lāʻau. The school has a desire to expand its farming and community learning and service initiatives. Kaniukapono tries to develop culturally minded young people they also try to nurture a pilina to place within them. Pride in Anahola. Yet many haumāna do not have a holistic relationship to Anahola; it was shared with us that Anahola is seen as more of a makai and kula place, not an upland, forested or mauka place.

Restoration & Education

Re-propagation of native plants, and each grade's specific lāʻau is an important way to teach science, natural geography and ʻike Hawaii. Unfortunately, in Anahola at present there is no access nor partnerships that allow haumāna to access mauka.

- The example of ʻōhiʻa was given as a native species under threat. Currently is no access or Hawaiian presence in or above the study area; there are no opportunities for Kanuikapono Public Charter School to holo mauka to gather natives for re-propagation and possibly out plant mauka for the types of natives that grow better mauka than on the coastal plateau and plains.

Pilina and Pride of Place

Currently mauka Anahola isn't open, so many Anahola kids don't have a sense of place mauka beyond dumping and abandoned cars.

- There isn't a presence, a Hawaiian or community presence very far above the Highway. It's become something like a void for many Anahola young people.
- Worry was expressed that Anahola haumāna had an incomplete relationship with their own ahupua'a.

Makahiki Ceremony

An important Hawaiian religious ceremony that has experienced a huge resurgence has been Makahiki. Celebrating its opening and the return of Lono, the shifting of seasons as Kū steps aside. Makahiki traditions include processions, the gathering of kinolau of Lono, ho'okupu, ceremony, a time of peace, the cessation of war, and makahiki games, among other things.

Since 2013, Kanuikapono has held Makahiki opening ceremonies.

- The desire was voiced to gather from mauka for this Hawaiian cultural religious ceremony.
- Also voiced was the hope to have a full ahupua'a procession, from makai, to kula lands, and mauka.

Hawaiian and Hawaiian Cultural Presence

- Several community members, consultees and two interviewees noted a lack of Hawaiian presence in and above the study area.
  - Many of the problems plaguing the area were attributed to this lack of community and lack of *cultural* community. Problems like: a lack of restoration efforts for traditonal sites and native forest; no one farming kalo; no one around to police and mālama the streams and gulches; dumping and abandoning of cars; or the un-checked invasive species forest and dangerous albisia in the area.
  - All but one interviewee specifically expressed a desire for some kind of cultural community space up mauka.
  -

All though not explicitly cultural in nature these last concerns were shared with us, and we did not want to exclude them from the summary since community members took the time to share them.

Best Management Practices (BMPs). There was some uncertainty among interviewees about DHHL policy and plans, coupled with wishes for DHHL to have clearer policies on things like:

- why gates are up
- month to month lease process
- who too coordinate with at DHHL for potential cultural and educational projects
- get answers about mauka access for beneficiaries and haumāna
- questions about water systems and restoration actions

The lack of transparency and clarity of Hawaiian Home Land policy for several topics of concern seemed to be a source of frustration for some people. Perhaps there is outreach in place, but perhaps it is not equal in who it reaches? Perhaps more formalized, publicly available, and transparent policies for some of the main concern issues would provide beneficiaries with information and more confidence in the way DHHL is managing its trust lands. It might also funnel beneficiary disputes to more appropriate channels if it is clear to them what the policy is, who is in charge of it, and if there are formal avenues to air their

concerns and pursue change (alternative to monthly Hawaiian Homes Commission Meetings).

Recommendations

These following are summarized and condensed recommendations given to us. They echo the themes above. Some recommendations come with community willingness to kōkua with implementation.

1. Creating a mauka access plan design including best practices, policy, in planning for the possibility of future community access.

2. Opening Mauka Access on the Mounment Side. Opening up the monument side of the road to not only walking access but driving access as well. Access for educational opportunities mauka

3. Designating cultural community space while some ideas were from general community consultees some of these recommendations were provided by Kanuikapono Public Charter School admin & staff, who whould be willing to partner programs and projects for Anahola haumāna

    - Native plant nursery or propogation
    - area that could be used as a type of classroom (or satellite classroom)
    - open space or arena that community could use for events
    - open or closed structure - marae-style to host different cultural events and cultural groups

4. Foster Cultural Stewardship. In order to prevent illegal dumping, water diversions, invasive species encroachment (albisia), community members suggested establishing a cultural presence in, around or mauka of the study area hand and hand with its lot awarding could go a long way to healing the area.

    - “The reefs (makai) are connected to what happens upstream (mauka).”
    - “The watershed is the health of the ahupuaʻa.”
    - “Having cultural stewardship in place up mauka could help strengthen the overall health of the ahupuaʻa.”

5. Community garden plots. Kanuikapono Public Charter School was specifically interested in this opportunity. For many Hawaiian children in Anahola, they are too young to be DHHL subsistence ag lot beneficiaries. It was suggested that having the kuleana, and the know how to mālama a garden or small farm a small area would give them the know how to subsist in the future as DHHL beneficiaries recieving or inheriting their own homesteads.

    - “This would be a good way for the kids to learn entrepreneurship in having a small lot set aside for them to farm.”
    - Kanuikapono Public Charter School has a cultural specialist who helps with native plant propagation, cuttings, etc. They suggest having mauka nursery and garden space would allow for the growing of more diverse native plants and foods (outside of the windswept kula zone). “We would be able to feed our kids.”

6. Makahiki ceremonies. Open opportunities for the community & Kanuikapono to expand annual Makahiki opening ceremonies to extend mauka to makai. Helping to develop positive cultural relationships between students and community with mauka lands. “That would bring positive action and pride into Anahola.”

7. Stream gulch restoration was suggested as a way to get more Hawaiians involved in the cultural restoration of the study area. Stream gulches currently crisscross the project area.

    - If properly stewarded, these areas could be a cultural resource for native plants, fish, and stream life as well as a healthier source of water for beneficiaries.

While it seems there are many concerns, there was also a lot of positive feelings shared with us about the proposed project. People really want to see pastoral and subsistence agricultral lots awarded. Food sovereignty and self sufficiency was normal in kahiko times and rare today. The proposed project, has few direct impacts to cultural resources, and many opportunities for potentially positive cultural impacts are present. We do urge the consideration of the three over-archinge themes of community concerns for cultural impacts: Access, water and access to resources for continuing cultural education.

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APPENDIX A: GUIDELINES FOR ASSESSING CULTURAL IMPACTS

1. INTRODUCTION

It is the policy of the State of Hawai'i under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

Background

Prior to the arrival of westerners and the ideas of private land ownership, Hawaiians freely accessed and gathered resources of the land and seas to fulfill their community responsibilities. During the Mahele of 1848, large tracts of land were divided and control was given to private individuals. When King Kamehameha the III was forced to set up this new system of land ownership, he reserved the right of access to privately owned lands for Native Hawaiian ahupua'a tenants. However, with the later emergence of the western concept of land ownership, many Hawaiians were denied access to previously available traditional resources.

In 1978, the Hawaii constitution was amended to protect and preserve traditional and customary rights of Native Hawaiians. Then in 1995 the Hawaii Supreme Court confirmed that Native Hawaiians have rights to access undeveloped and under- developed private lands. Recently, state lawmakers clarified that government agencies and private developers must assess the impacts of their development on the traditional practices of Native Hawaiians as well as the cultural resources of all people of Hawaii. These Hawaii laws, and the National Historic Preservation Act, clearly mandate federal agencies in Hawaii, including the military, to evaluate the impacts of their actions on traditional practices and cultural resources.

If you own or control undeveloped or under-developed lands in Hawaii, here are some hints as to whether traditional practices are occurring or may have occurred on your lands. If there is a trail on your property, that may be an indication of traditional practices or customary usage. Other clues include streams, caves and native plants. Another important point to remember is that, although traditional practices may have

been interrupted for many years, these customary practices cannot be denied in the future.

These traditional practices of Native Hawaiians were primarily for subsistence, medicinal, religious, and cultural purposes. Examples of traditional subsistence practices include fishing, picking opihi and collecting limu or seaweed. The collection of herbs to cure the sick is an example of a traditional medicinal practice. The underlying purpose for conducting these traditional practices is to fulfill one's community responsibilities, such as feeding people or healing the sick.

As it is the responsibility of Native Hawaiians to conduct these traditional practices, government agencies and private developers also have a responsibility to follow the law and assess the impacts of their actions on traditional and cultural resources.

The State Environmental Council has prepared guidelines for assessing cultural resources and has compiled a directory of cultural consultants who can conduct such studies. The State Historic Preservation Division has drafted guidelines on how to conduct ethnographic inventory surveys. And the Office of Planning has recently completed a case study on traditional gathering rights on Kauaʻi.

The most important element of preparing Cultural Impact Assessments is consulting with community groups, especially with expert and responsible cultural practioners within the ahupuaʻa of the project site. Conducting the appropriate documentary research should then follow the interviews with the experts. Documentary research should include analysis of mahele and land records and review of transcripts of previous ethnographic interviews. Once all the information has been collected, and verified by the community experts, the assessment can then be used to protect and preserve these valuable traditional practices.

Native Hawaiians performed these traditional and customary practices out of a sense of responsibility: to feed their families, cure the sick, nurture the land, and honor their ancestors. As stewards of this sacred land, we too have a responsibility to preserve, protect and restore these cultural resources for future generations.

2. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupuaʻa is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes

all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupuaʻa and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

1. Identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupuaʻa;

2. Identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;

3. Receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;

4. Conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;

5. Identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and

6. Assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

3. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.

2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.

3. Ethnographic and oral history interview procedures, including the circumstances, under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.

5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.

6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8. An explanation of confidential information that has been withheld from public disclosure in the assessment.

9. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

APPENDIX B: A BILL FOR ENVIRONMENTAL IMPACT STATEMENTS

A BILL FOR AN ACT RELATING TO ENVIRONMENTAL IMPACT STATEMENTS

[UNOFFICIAL VERSION] HOUSE OF REPRESENTATIVES H.B. NO, 2895 H.D.1

TWENTIETH LEGISLATURE, 2000, STATE OF HAWAIʻI

A BILL FOR AN ACT RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAIʻI:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaiʻi's culture, and traditional and customary rights.

The legislature also finds that 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 government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawaiʻi Revised Statutes, is amended by amending the definitions of "environmental impact statement' or "statement" and "significant effect", to read as follows:

"Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of

the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic [or] welfare, social welfare[.], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

Approved by the Governor as Act 50 on April 26, 2000.

APPENDIX C: ACT 50

Act 50 [State of Hawai‘i 2000]. H.B. NO. 2895 H.D.1 was passed by the 20th Legislature and approved by the Governor on April 26, 2000 as Act 50. The following excerpts illustrate the intent and mandates of this Act:

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the “aloha spirit” in Hawai‘i. Articles IX and XII of the State constitution, other State laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

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APPENDIX D: COMMUNITY CONTACT LETTER

January 1, 2019

Welina mai me ke aloha,

On behalf of the Department of Hawaiian Homelands (DHHL) and Group 70 (G70), Nohopapa Hawai'i, is gathering community mana'o for inclusion in a Cultural Impact Assessment (CIA). The CIA will document cultural features and practices in the project area to inform the Enviornmental Assesment (EA). The primary purpose of this project is to summarize and give voice to some of the community's 'ike and mana'o; as a source to develop strategies, make informed decisions, and recommendations specific to this portion of the update DHHL Anahola Settlement Plan, 2019 Proposed Lot Scheme.

The study area for these interviews is the Anahola Kuleana Homestead Tract; its development is outlined in the Anahola Settlement Plan. The Kuleana Homestead Tract covers 462-acre of undeveloped DHHL land mauka of Kealia road; occupying a portion of the Ahupua'a of Anahola, Puna Moku and a portion of Kamalomalo'o Ahupua'a, Puna Moku with focus on the Anahola Kuleana Lands (see attached maps).

The Department of Hawaiian Homelands is proposing a 28-acre Commmunity Use area and the awarding of a total of 106 lots:

- ten (10) 140-acre Pastoral lots
- ninety-six (96) Aubsistence Agriculture lots

Proposed project improvements before awarding:

> ...DHHL will be responsible for the survey and stake for each lot to determine the metes and bounds descriptions of each kuleana homestead lot, and prepare an unpaved right-of-way to the awarded lots. Although unpaved, these minimal roadways should be hard-packed to ensure access by homesteaders and emergency vehicles including fire, ambulance, and police services. DHHL will not plan for the installation of any other improvements.
>
> Anahola Settlement Plan, 2019, p34, in DRAFT

We would like to engage with individuals, 'ohana, and organizations that have relationships to this specific wahi, and have knowledge and mana'o of its mo'okū'auhau. In particular, we would like to gather information relating to:

- Personal relationships to this place personal, historical, or organizational.
  - Any mo'okū'auhau of 'ohana or 'āina you would like to share
- The natural, cultural, and historical landscapes of the Anahola Kuleana lands and the surrounding area
- Hawaiian cultural beliefs, protocols and practices (both traditional and contemporary) specific to this place
- Any mo'olelo, wahi inoa, oli, hula, mele, traditions, akua, 'ohana, or people associated with this place.
- Cultural preservation concerns and recommendations such as:
  - Access, security, and safety issues
  - Buffer zones and appropriate protective barriers
  - Interpretation and usage suggestions
  - Educational opportunities
  - Restoration opportunities of cultural resources and practices
- 'Ina Mauli Ola – natural resources and ecosystems & changes over time, as well as traditional management practices

- Recommendations and/or concerns regarding future management and stewardship of the Anahola Kuleana Homestead Tract
    - Any potential project impacts negative and/or positive
- Recommendations and/or concerns about project impacts to cultural mea
- Referrals to other ʻohana and individuals who are connected to the project area

Our community consultation team members, Dominique Cordy and Lilia Merrin, will be contacting you shortly. We look forward to collaborating with you to document your manaʻo on the future Development of the DHHL Anahola Kuleana Homestead Land Tract.

Dominique Cordy	(808) 346-1585	liveinthenaau@gmail.com
Lilia Merrin	(808) 652-7049	liliamerrin@hotmail.com

Me ka haʻahaʻa,

Nohopapa Hawaiʻi, LLC

APPENDIX E: INTERVIEW QUESTIONS

HANAPĒPĒ CIA INTERVIEW QUESTIONS

A Cultural Impact Assessment (CIA) will be prepared for the Anahola Kuleana Homestead Tract project by Nohopapa Hawai'i LLC. The CIA will document cultural features and practices in the project area for the purposes of informing the Environmental Assessment for the project. The CIA will include research and interviews with individuals and organizations that are connected to the project area to gather information on:

Background Information:

- Name:
- When and where were you born:
- Where did you grow up:
- Where you reside
- Occupation /Affiliation/title:
- Personal/Family connection to the Anahola area:

Mo'olelo, Place Names, Mele, Hula:

- Hula
- Legends or mo'olelo –
- Akua & 'aumakua -
- Place names -
- Mele and Oli –
- 'ōlelo no'eau
- Kaulana events or people?

Historical Information

- Plantation
- Airstrip & WWII
- Sandalwood, sugar, railway, pipi (ranching)
- Plantation camps

Natural Landscapes, Resources, Uses:

- Restoration efforts
- Native plants and trees -
  - Uses of these resources -
- Water resources, springs, streams -
- Winds & rains -
- Mountains, pu'u, pali -

- Fishing & marine resources -
- Native manu, peʻapeʻa, oʻopu

Cultural Landscapes and Resources:

- Any off site wahi associated or impacting area?
- Groups who want access? Hālau, non-profits, ʻohana

Cultural Practices (gathering, hula, protocol, hoʻokupu):

- What resources would access for the haumāna and kula provide?
- What ways do you see access to this upland area impacting, positive or negative, Hawaiian Cultural education in Anahola
- In what ways would engagement with this area benefit Cultural Traditions
- Are people or groups in Anahola practicing Makahiki ceremonies? Upland?
- How is Kanuikapono working towards restoration of Hawaiian Cultural Practice in Anahola

Recommendations

- What changes in the landscape, practices and uses of natural and cultural resources have you observed in your lifetime?
- What concerns do you have about potential impacts to the Cultural resources in the area?
- Do you have any recommendations or concerns regarding cultural and natural resource management or protection, and land use in the area?
- What solutions do oyu think would be helpful towards these concerns?
- How would you like others to culturally interact with anahola mauka? Do you think there can be improvements to sharing about cultural resources in the area? If so how? (ask)

Manaʻo:

- Is there any information you shared with us that you do not want to be public -
- Referrals to other individuals or organizations with knowledge of Hanapēpē
- I just need to get verbal consent, may we use the information from todays interview for our write up to G70 for DHHL?

APPENDIX F: INFORMED CONSENT FORM

INFORMED CONSENT FORM

Aloha mai, Nohopapa Hawai'i appreciates your generosity and willingness to share your knowledge of the wahi pana of mauka Anahola, Kamalomalo'o. This mea will be used to guide and inform Nohopapa Hawai'i's Cultural Impact Assessment (CIA) for the DHHL Kuleana Homestead Tract, a 462-acre portion within the larger Anahola Settlement Plan. The CIA is a contributing component of the Environmental Assessment (EA) for this project. The EA is being prepared by Group70 (G70), for the Department of Hawaiian Home Lands (DHHL). The EA will serve as the compliance document for the survey staking and road improvements needed to award pastoral and Subsistence Agricultural lots within the Anahola Kuleana Homestead Tract.

Nohopapa Hawai'i understands our responsibility in respecting the wishes and concerns of the interviewees participating in this study. Here are the procedures we promise to follow:

1. The interview will not be recorded without your knowledge and explicit permission.
2. You will have the opportunity to review the written transcript and summary of your interview. At that time, you may make any additions, deletions or corrections you wish.
3. You will be given a copy of the interview transcript and/or summary for your records.
4. You will be given a copy of this release form for your records.
5. You will be given a copy of any photographs taken of you during the interview.

For your protection, we need your written confirmation that (*circle* yes or no below):

1. You consent to the use of the complete transcript and/or interview quotes for the purposes of this study. Yes No
2. If a photograph is taken during the interview, you consent to the photograph being included in this study. Yes No

I, _____, agree to the procedures outlined above and,
(Please print your name here)
by my signature, give my consent and release of this interview and/or photograph to be used as specified.

_____

_____ _____
(Signature) (Date)

Nohopapa Hawai'i, LLC nohopapa.hawaii@gmail.com

APPENDIX G: KULEANA AWARDS IN ANAHOLA

Helu	Claimant	Book	Vol	Page	Comments
3030	Lupaieie	MA	4	532	same as helu 4699 & 4908
3411	Paupau	MA	7	97	
4526	Opae	MA	4	541-2	
4530	Ohaoo	MA	4	536-7	
4538	Kanuha ma	MA	8	526	same helu as 4556 & 4913
4547	Anahola	MA	4	540-1	
4554	Walanaeku	MA	8	164	
4556	Kanuha ma	MA	8	526	same helu as 4538 & 4913
4559	Wahie	MA	4	534-5	
4581	Huluhulu	MA	4	538	
4590	Hoopana	MA	8	525	same as helu 5190:Kekuaiki
4591	Hulu	MA	8	166	**unlocated**
4593	Haili	MA	4	527	
4611	Pokake	MA	8	169	
4621	Pehuiki	MA	4	520-1	
4624	Paa	MA	4	524-5	
4627	Paia	MA	4	525-6	
4632	Lono (akahi)	MA	4	541	same as helu 4694
4640	Puaa	MA	8	165	
4643	Piawe	MA	4	521-3	
4651	Poopoo	MA	4	527-8	
4655	Puaokekau	MA	4	535	
4656	Puoa	MA	8	169	
4657	Puaunahi	MA	4	535	
4690	Nalawaianui	MA	4	536	
4693	Luaheli	MA	4	529-30	
4694	Lono (lua)	MA	4	519-20	
4694	Lono (akahi)	MA	4	541	same as helu 4632
4699	Lupaieie	MA	4	532	same as helu 4905 & 3030
4711	Mailou	MA	8	171	
4712	Makaino Kiko	MA	8	167	
4718	Maumau	MA	4	542-3	
4719	Makaola	MA	8	167	**unlocated**
4722	Mahilauawa	MA	4	528-9	

4724	Mona	MA	4	537-8	
4727	Mailou	MA	4	531	
4728	Makaino	MA	4	533-4	
4730	Manamana	MA	4	525	
4731	Makuakane	MA	4	518	
4760	Naeleele	MA	4	528	
4765	Naololi	MA	4	523-4	
4777	Nukuwaiki	MA	4	539	
4780	Naiwi	MA	4	531-2	
4782	Nakea	MA	4	530	
4908	Lupaieie	MA	4	532	same as helu 4699 & 3030
4909	Kaeleu	MA	8	162	
4913	Kanuha ma	MA	8	526	same helu as 4538 & 4556
4916	Kumukou	MA	4	517	
4935	Kolehaka	MA	4	530-1	
4971	Kalehua	MA	8	167-8	
4980	Kuohu	MA	4	537	
4981	Kalimaeleele	MA	8	168	
4984	Kale	MA	8	170	
4987	Keanukawaii	MA	4	521	
5022	Kunane	MA	4	533	
5023	Kolia (Golia)	MA	8	163	
5078	Kawaaiai	MA	4	526	
5083	Kiei	MA	4	539-40	
5084	Kaniku	MA	8	166	**unlocated**
5099	Kauhailae	MA	4	518-9	
5102	Kuihee	MA	4	524	
5104	Kawaohia	MA	4	526-7	
5105	Kahaiola	MA	7	325-6	
5141	Kaukai	MA	4	529	
5142	Kaliuwaa	MA	3	724-5	
5142	Kaliuwaa	MA	8	170	
5170	Kalawaia	MA	8	171	
5190	Kekuaiki	MA	8	525	same as helu 4590:Hoopana
5199	Kueha	MA	8	165-6	
5205	Kaholomoana	MA	8	168	
5391	Hilo	MA	8	524	**unlocated**
4694 B	Lono (iki)	MA	4	542	

APPENDIX H: COMMUNITY ENGAGEMENT
Interview with Kanoe Ahuna and Palala Harada

Background Information:

Name:

» Kanoe Ahuna

» Wayne "Palala" Harada

Where were you born:

» Kanoe was born Honolulu, Oʻahu
» Palala was born and raised on Kauaʻi, Wainiha Ahupuaʻa, moku ʻo Haleleʻa

Occupation /Affiliation/title:

» Kanoe is the Executive Director of Kanuikapono Public Charter School since October 2018
» Palala is a kumu Luna Hoʻokele for ʻIke Hawaiʻi in the Hawaiian Studies Department at Kanuikapono Public Charter School

Personal/Family connection to the Anahola area:

» Kanoe shared her maiden name is Apana, "So that's probably my only relation over here to Anahola, but I did not grow up in Anahola." She mentioned she's been in the Charter School movement since it's birthing in 2001, "I started off at Hālua and then moved over to Kauaʻi in 2005 or 2006 and worked with Kanuikapono at that time for a good year or so. Have worked with various charter schools, such as, Kanu o ka ʻĀina, Kawaikini for over the last 20 years. And then returned to Kanuikapono in 2016 or 2015 as the Student Services Coordinator, part-time. And then as Executive Director beginning October, 2018."

» Palala shared his connection to Anahola is having family in Anahola, "Not really living in Anahola but being in the Charter School movement for probably the last 15 to 20 years now. With Kanuikapono and also other educational programs doing a lot of cultural work within Anahola and moku of Koʻolau with students ages kindergarten to post-secondary."

Hawaiian Cultural Education:

What do you see the vision for Kanuikapono Public Charter School and Hawaiian cultural Education? Or the haumāna interaction in the larger Anahola community in the sense of mauka to makai resources?

» Kanoe answered that they continue to move forward with their initial vision that is focused in and around the Anahola community renewal, "We're actually in our last year of our six-year WASC (Western Association of Schools and Colleges) accreditation and moving into a new WASC accreditation beginning 2021. As well as a new Charter renewal contract, which will follow in 2021 and 2022. So right now, we currently have 232 students, Kindergarten through 12th grade and about 110 in Elementary and the rest in about 60 in Middle School and the rest remaining in High School. We just started to revisit the school's framework as it relates and aligns to the vision and the mission statement and identify with what the school has been really participating in within community events on an annual basis.

» So, the events that we've participated in since ~2013 are Makahiki. Event here every year so Kanuikapono component has always had its own. Whereas the other Hawaiian Charter Schools do a collective one annually. *Eō, e Liliʻu Song Contest* at the Kauaʻi Mokihana Festival, we participate with the other four charter schools yearly. And then every year, our

hoʻopuka or our graduation our whole school celebrates in a hōʻike. This last school year, we've began participating in Eo E Emmalani again. Anahola has an annual Prince Kūhiō Festival which we participate in. Every year we participate in Kuʻi Ka Lono which is a Hawaiian Charter School Conference which was hosted on our campus last year (for the second time). Under *Kuʻi Ka Lono* is the Ke Ea Project (Hawaiʻi Student Leadership). So, all the Hawaiian Charter Schools participate in this youth leadership project. Each Hawaiian Charter School has a youth representative that is usually a High School student who represents the school and they do collaborative things in regards to leadership and getting the understanding the political aspects of today's Hawaiian movement.

» So, with Anahola community renewal, we have our ʻIke Hawaiʻi team. What we've identified with is running ʻIke Hawaiʻi, which is our cultural aspects of our school, through the core content area classes. So, Kindergarten through 12th grade we have an ʻIke Hawaiʻi blueprint, which identifies with each grade level identifying with a native plant."

» Palala adds that each class has a focus such as a moku, wahi pana, different mele, "Kindergarten, because they're the foundational class, they first start with the home base or the home people of Anahola. And then from there we move out towards the other ahupuaʻa and the other moku. But we feel like Anahola is our piko of our school so we would need to know our place before we can spread our wings to other places. This year, we're starting to look at the ʻōhiʻa in Anahola. So, a lot of the ʻōhiʻa were these thoughts of planning to be proposed areas mauka.

» Kanoe continued to share about the ʻIke Hawaiʻi team, "Depending on the different grade levels on campus here, we're doing re-propagation of native plants. So that we can do restoration projects in Anahola and removing non-natives and replacing them with natives. So that's one project that reaches out into the community. Then it would be very helpful if our students could move mauka and do more projects mauka because it would help us not only gather natives to then repropagate here (Kanuikapono). But for some native plants that don't do as well here (Kanuikapono), we could possibly start projects up mauka for the type of natives that grow better mauka. So that would be a <u>huge</u> benefit to the school."

» Kanoe shares about some of their projects at Kanuikapono, "Kindergarten through 5th grade (Elementary School), the Foundational Blueprint is really focused on the breath. So, our saying is 'Travel the length and the breadth.' In Elementary, we're really looking at building their foundational knowledge and having them being introduced to different cultural sites and activities. As they reach Middle School (6th to 8th grade), they identify more and develop those skills further so that's the depth. So, in 6th grade we're looking at focusing and looking at loʻi and wai. And so that would really support that grade level with mauka opening up. In 7th grade, it's more focused on loko iʻa and kai. 8th grade is more nā wahi pana and taking more of an in-depth approach to understanding heiau and celestial, so we go from wai, kai to sky, the different wao.

» In High School (9th to 12th grade), is what we call *Pilina Hawaiʻi* which is more application, applying knowledge and skills as they have a deeper knowledge (from the Foundational Blueprint) of each area of wai, kai, wao, loʻi, loko iʻa, wahi pana. Now High School can be more focused, project based on the Anahola community renewal and specifically do restoration projects around that. So that's the cultural aspect. But this all runs through our Core Common Content Area Curriculum.

» In our English Learning Academy (ELA) program, we use the expeditionary learning curriculum and that curriculum really supports social restoration and social justice. Restorative restoration. The expeditionary learning provides the ELA curriculum and is able to kind identify those social restorative type of projects in the content area. So, we just tweaked that to the cultural type of restorative projects.

» With ʻIke Hawaiʻi, we are moving into intertwining with the classroom content area. A lot of these projects are supported by Kamehameha Schools (KS) in regards to not just financial support (Kanuikapono receives per pupil allocation) but we also receive support with resources and services. So right now, we're doing culturally relevant assessment where KS provides a resource person, Chelsea (Keen), who comes out once a month and works with our content area teachers from the different grade levels and Palala's ʻIke Hawaiʻi team. They work together to build what we call our 'Capstone Rites of Passage.' They've identified grades 1st, 5th, 8th, and 11th, which is preparing them to puka into 12th grade. So, each of those Culturally Relevant Assessments (CRA) is what we want to say is it's like a Rite of passage. So, they're going from Lower L (kindergarten, 1st grade) and puka into Upper L. And then 5th grade you puka to Middle School. And then 8th grade you puka to High School. That's where there's a crossover too between the ʻIke Hawaiʻi team and the Content Area teachers because they work together to create those assessments. All of those assessments are more qualitative versus quantitative types of assessments."

» Kanoe shares how Kanuikapono goal is community pride for Anahola, "Not only just community pride within our school and on our campus, but community pride for Anahola. So that we have haumāna that can say, and if they don't live in Anahola, they come to our school and they live ina Kapaʻa. 'I'm proud to be going to a school in Anahola.' And if they do live in Anahola, 'I'm proud to live and be from Anahola.' It's that community pride and we're trying to build that within our haumāna. So this is my maikaʻi, opening up the mauka."

» Kanoe continues, "That's our educational framework. In High School, we're trying to do a lot more career opportunities because not everybody has an interest or wants to go to college. So right now, we have a dual credit program. Because we're such a small school, we don't have enough to bring the professor here onto campus. So, on Tuesdays and

» Thursdays we have our Kula Nui Academy students and there's eight of them right now who attend KCC (Kauaʻi Community College) in a dual credit classes on KCC campus.

» And then just starting next month (February), our Junior Firefighter Program. We'll have five students participating in the first Junior Firefighter Program in the State and across the pae ʻāina. And those five students will get the opportunity to go through a Junior Firefighter Training Program and acquire a certification from them. And then it will prepare them, if they wish, to go into a Fire Science Program right off the bat. So that's a six-module program. And we're looking for more partnerships to do more career path programs mixed into our project-based learning.

» And then with High School, we have our Pilina Hawai‘i program where it’s focused on navigation because historically wa‘a came into this bay (of Anahola). And then also because of Hokualele which was seen as kind of a light house, a navigational point for navigators.

» We want to support and educate our students in those specific wahi pana of Anahola. It would really help them to understand the different types of heiau, how heiau connected to celestial and navigation. Our Pilina Hawai‘i program, we’re really building on creating a four-year type of curriculum centered around that. We are moving our dual credit program more into a focus where we’re working with KCC and uncle Dennis Chun guys to identify our dual credit program to focus around the vision and the mission. So, meaning that we’re going to offer just only the Hawaiian studies type of certification, dual credit or Polynesian voyaging certification or Hawaiian Botany. It’s going to be more focused in and around that where we actually can get more students involved. And then uncle Dennis them can come to campus to offer those classes. We’re trying to identify what community members (such as aunty Nalani Kaniokua, uncle Maka, Pelika Andrade, etc.) are connected to navigation to bring them into the school community.”

Natural Landscapes, Resources, Uses:

Restoration efforts

» Kanoe shares about one loko i‘a identified on the Aliomanu map, “We are looking at the overlays of the Aliomanu map and helping students understand and identify with those place names along that area. We reached out to Peleke to ask him to come down and check to see if there was a loko i‘a which was identified on this map. So, if we could look at restoration projects like that, how can we clean that and restore it back to somewhat of its original state? And then having the students understand what and why did it get like this? Was it water diversion? Was it natural causes like Iniki, tsunamis? What were all the historical things that took place from that map when it’s identifying that loko i‘a there? And what took place between now and then that might have caused it to close up like that?”

» Kanoe shares about Hokualele Heiau, “We have introduced our haumāna to this heiau and looking to move in the direction of restoration and preservation including maintenance to give the students that connection and mālama. We’re teaching our High Schoolers how to do the research. We’re starting to do map overlays and really identify the place names of Anahola and the mo‘olelo that goes with that. And then interviews of kūpuna and community members to build and empower that community pride in engagement.”

Cultural Landscapes and Resources:

» Palala shares the cultural connection with Kalale‘a to Pu‘u o Mahuka, O‘ahu, “As being in alignment for navigation. Kumu Kehau (Kekua) was the one that talked about this connection and I went to Pu‘u o Mahuka with her.”

- Kanoe continues, “We did a study for Kupopolo Heiau on the North Shore, O‘ahu. And we definitely found some connections to Hokualele and this because it’s directly across the channel to each other.”

Cultural Practices (gathering, hula, protocol, hoʻokupu):

What ways do you see access to this upland area impacting, positive or negative, Hawaiian Cultural education in Anahola?

» Kanoe and Palala both express that mauka access has been a barrier including, "Kids don't have a sense of place mauka besides trash, abandoned cars, etc. It's not a place to go." Kanoe comments, "The positive to this, if there is access mauka to open it up and when there's a presence then you're not going to have those kinds of things (trash, abandoned cars, etc.)."

» Palala shares about how access would be important to Kanuikapono, "It will give the school access mauka all the way to makai and give Kanuikapono more classroom sights. Opening a new area for community pride and self-pride for Anaholoa, mauka to makai. Right now, we only have a lot of access to kai and to the kula areas, but not so much mauka. Also access of irrigation/agriculture waters would be an important asset for our school to allow us to farm."

» Kanoe comments, "The Anahola community really want to see our students to be empowered to mālama. Maybe this is one example, how do we do it the same thing mauka? It would be great if we could have mauka access so that if students are looking and identifying any water diversions, how and what is happening there, how they can visually or physically be mauka to see that. What is happening down here is definitely connected mauka. For the purpose of our projects at Kanuikapono, I think it would be very beneficial to have access mauka and to help be a part of the restoration process."

» Kanoe expresses a positive impact to Hawaiian Cultural education is having a satellite classroom mauka, opening up a loʻi, "Or support for any of the possible residents that are going to be on pastoral land. Right now, we're looking to have a few livestock like puaʻa and moa so that the kids can actually be a part of a 4-H Club to understand farming. How awesome it would be if we participated with a farmer and ranching opportunities!"

- Kanoe also expressed a need for a gym and some type of sports event opportunities that took place in Anahola, "These are perfect grounds for cross-country track. Can you imagine we have a cross-country island event in Anahola? If we had a path and it could be a community path that ends up being utilized by the community for riding bike, walk to and from Kanuikapono, etc. A gym is needed even if it's not here on campus but somewhere that we could take our kids across the street."
- Palala expressed that need for a livestock arena. Kanoe shares, "We have a lot of our kids that are interested in 4-H, ranching, paniolo, and animal husbandry. We have a lot of mākua that do that for a living."

- Are people or groups in Anahola practicing Makahiki ceremonies? Upland?

» As mentioned previously, since 2013, Kanuikapono has had Makahiki events. Palala comments, "It would be nice to start makai at some place down here and then do the closing (Makahiki) mauka or visa-versa."

Recommendations:

Do you have any recommendations or concerns regarding cultural and natural resource management or protection, and land use in the area?

» Kanoe comments, "More access for educational opportunities mauka. It would be nice to have some type of community area that we could eventually see some type of classroom satellite classroom there that we could utilize or access. Also, some type of arena that the community could use to do events in."

» Palala comments, "A cabin/marae-style where we can host different cultural events and cultural groups that come in (cultural exchange with other schools). Also, community garden plots for adults including students that want to do farming on their own. This would give them the opportunity to have a plot of land to farm as they're not old enough to become a beneficiary. It would be a good way for the kids to learn entrepreneurship in having a small lot set aside for them to farm."

Additional Manaʻo:

» Kanoe adds, "If we were able to have a nursery mauka we would have someone with farming as Palala (ʻIke Hawaiʻi) takes the initiative on this. We also have a cultural specialist who comes in and helps with propagation, cuttings, etc. Having a nursery, a garden, we would be able to feed our kids. The opportunities for Makahiki mauka to makai including an opportunity to just have sporting events in Anahola. That would bring positive action and pride into Anahola. Our Vice Principal, he initiated the Kauaʻi charters in the Kauaʻi Interscholastic Federation (KIF). So, we have a seat now on KIF and we are trying to really initiate our own team sports like, golf tennis, canoe paddling, track, cross country. So, as we move into the new school year, we're going to really start our own High School KIF sports teams as much as possible. And our new mascot is the ʻaukuʻu. The kids picked the ʻaukuʻu. All of us did actually. It came out of just reading about Anahola and that's the word that popped up a lot in the stories."

APPENDIX I: COMMUNITY ENGAGEMENT
Interview with Edward Taniguchi, Walter Apana, and Erica Taniguchi

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*Note- Additional information was contributed post-interview, however, due to project time constraints this was not included in this report.

1/30/2020 Interview 1st 1/2 Hand Written notes with[2]
Edited by request 2/27/2020 and 2/29/2020

Erica Taniguchi (Erica)
Edward Taniguchi (ET)
Walter Apana (WA)
Interviewer: Dominique Cordy (DC)

Uncle Walter Apana used to drive truck and pick pinneapple in Anahola, worked for the Kapahi Cannery

Uncle Edward Taniguchi has lived in Anahola since 1995. This year marks his 60th year on the Hawaiian Home Land waitlist for pastoral land, he signed up when he was 24. Used to work cattle in the area long time ago. In the 1960s he used to go up mauka, he said at that time had the M3D loop. . Uncle Ed Taniguchi remembers in the 1950s when had the cannery in Kapa'a

DC: What did it look like in the project area in the past? Was there access? Did people go?

WA: Never used to have any gates before. No more papers for month to months. Month to month [leasees] are not half Hawaiian. What is official policy? They are blocking off access. Get rid of those [month to month leases], it blocsk off access [to mauka]

Erica: When Erica was in High School she remembers the mauka lands being wide open. Didn't have gate then (late 90s, early 2000s).

ET & WA: Both agreed that yes, even during plantation times, access going mauka was never closed. You could drive on all the plantation roads.

WA: The haoles are blocking access, on the billionaire side [Kealia Side]

Erica: On monument road. The main Spalding Monument side. The new owner moved his gate over and blocked off that road. DHHL used to share that road with the plantation, it divides the two properties.

Erica (w/ ET agreeing): But that was the road everyone used to use. It's a straight shot.

WA: Yes, [need to] open up the road right away, not just walking access, driving access. "Hawaiians have a right to the mountain, don't stop *any* kanakas from going."

ET: Right above the airstrip the Keale's had their gate.

DC: What was the water like before? Do you remember the reservoirs and ditches flowing?

WA: Used to get water in the ditches
ET: The land owners [McCloskey, and their subsidiary Kaua'i Ranch] on the Kealia side cut off the ditches, they are pulling water into Kealia and using it for other private property.

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[2] Interview was recorded by shorthand notes because of early reluctance to be recorded. Only when quotations are added is it a for sure direct quote. Otherwise it is summarized note taking of moving conversation between four people.

Erica: They are selling the water yeah?

WA: The haole guy [McCloskey] selling water. The reservoirs used to be all full [of water].

ET: Agreeing. McCloskey, the guy before [the current landowners] diverted water from the reservoir on DHHL land. He had a ditch and pipe dug and diverted the water into his valley.

WA & ET: We know because "we worked for McCloskey making his reservoirs."

DC: When was that water diversion?

ET & WA: [agreeing] 2002 – 2003

ET: The big reservoir, in 2002-2003, McCloskey went divert the water with machines, with backhoe onto his side.

Erica & ET: They told Uncle Ed Taniguchi, they don't have land to give [award] because there is no more water. 20-30 years ago Ed Taniguchi took Hawaiian homes staff up to show them [where water was going]. They [DHHL] told him he has to go ask *McCloskey* to get back water.

ET: DHHL, they have it backwards. "McCloskey Should be asking us if he can have water."

DC: do you remember how or where the water was diverted?

ET & WA: both said they could show someone exactly where. And that they knew what it would take to restore the water.

WA: At the intake, they [Kealia-side big land owners] dug a ditch across the river ≥ 10-years ago and installed a pipe to pipe in [out] water.

WA: On the Kealia side, and part DHHL [Kamalomalo'o side] The forest boundary was below the reservoir before. They [Kealia-side big land owners] bull dozed it and made it a bed and breakfast. They were taking out 'ohi'a from inside the forest reserve.

Erica: Because no one can go up there how can they enforce or even permit clear cutting the forest reserve? If people try to check on what they [Kealia-side big land owners] are doing, they get chased off the land.

All three shared stories they heard about people being chased out by guns, once by helicopter, or by truck.

DC: Do you remember there being heiau or structures up mauka before or during plantation time?

WA: Had heiau up mauka. Plantation work pushed the rock into the ditches.

WA & ET: Still have plenty lo'i along the reservoir. Tony Ries said still get below Waipahe'e, above by the intake.

WA: Hawaiian Homes stops us from going up to the lo'i now.

ET: There was a group clearing to plant kalo. But because of the road [gate access restricted] no body went back after he started clearing.

DC: What is your main concern about the project going in back there?

ET: Water use. For "use by the people and not McCloskey & the [development of] Kealia Kai."

Erica: It's [Kealia Kai & Developer owners] sprinklering Kealia Kai lawns, millionaires and billionaire houses, with water from DHHL lands.
"Maybe it's legal, maybe it's not, perhaps no one has ever questioned it?"

WA: Water restored.

DC: Tell me more about access to the mauka DHHL lands and the study area?

WA & Erica: 2000-1 gates started going up

Erica: I want my kids [Uncle Ed Taniguchi's great-grandchildren] to have access, but now there are so many tourists with Instagram and bloggers. There used to be issues with liability with people drowning.

There has to be some kind of…stewardship.
We need to go back to a stewardship system (like konohiki) with guys like them [Uncle Ed and Uncle Walter] who know how to act and be respectful.

Not everyone in their jeep wrangler should be able to pull up mauka. But to stop mis-use these guys [uncle Ed and uncle Walter] are getting blocked out.

Lots of people dump rubbish, cars. I don't want to see those things happening again up there [project area and mauka]

Erica: The Balance should be governed by the right people and it not be abused. The water shed: is where the health of ahupua'a starts. Our reef is connected to what happens upstream.

School could collaborate. Introduce connectivity of restoration of the soil and water to health. Help kids connect the dots.

We don't have a Waipa [in Anahola] kids don't know their backyard.

*Note: At this point in interview Erica encouraged the use of the recorder, and the following is transcribed and summarized from an audio recording.

Erica: If they were trying to improve these and we're looking at this land that has been depleted, with sugarcane and with pineapple for all these years. But you guys know what, it used to be lehua, it used to be native forest that contributes to a healthy watershed. And that is what comes down here to all the people that live down here. And that's what is going to go through the river and that's what eventually going to end up on that reef. Everything that I hear says that in the last 60 years the reef has died, has changed. The river is not clean anymore like how it used to be. So, in my mind I think, okay, this is a huge problem and maybe we can't fix it all, but if we can do a little bit, anything is better than nothing

Erica: If we create some kind of environment where at least the next generation, the kids, can kind of connect these dots and go,

"Oh, what happens up here affects me. And what happens over here affects the ocean and I eat from that ocean."

So if they connect those dots, even if we cannot fix the whole watershed up there, if they have a place where they can be growing lehua. I know there's different people, I'm working on growing things, Ipo guys have been working on propagating native plants. If they have a space where the kids can go and the kids can make that connection, put things back in the ground, have access to the mauka. If they got, you know, they dance, they're learning about cultural things. They should be able to go up to gather.

DC: Uncle, you remember when the Forest Reserve was low enough to go into ʻōhiʻa and go into gather stuff. Do you remember anybody actually going up and going into the forest for lāʻau?

Erica: She's talking about kids being able to go, if they're dancing hula, to go get ʻōhiʻa or to get wood or to get flowers or maile. Do you remember, how you said when had forest, when it was open, do you remember people going up?

ʻanakala (2): Oh, yeah, things for lei's

DC: So people used to go mauka for lei and stuff?

WA: Well, up there all the ʻopae, ʻoʻopu. But not like now, it's deteriorated.

DC: You remember when had plenty ʻoʻopu and ʻopae?

WA & ET: Still get ʻoʻopu up there

Erica:Pepeiao, we pick pepeiao

DC: It's been so long since I've had pepeiao.

Erica: And that kind of stuff is like sad. My kids don't know what is pepeiao, you know what I mean? Because it's hard to get to these places. Stuff that we took for granted growing up, it's hard to get into the mountains now and that's kind of ridiculous

DC: So one issue is access. The other one is you might not take your kids up because of Albizia. So the safety of the access too, when did the Albizia start like hanging over the roads?

WA: You know these seeds they dropped them inside here.

"Never had Albizia before. Not even one tree was here before."

I guess when they brought them in from plants from the other side, from what I heard, they dropped all over, Kalihiwai and all that, they dropped from a helicopter or something like that. That's how it spread. The Alibizia's back there have been there from 1960.

Erica: 60 years old now. But they grew fast.

ET: When the plantation was just about closing. Once the plantation went out, the Albizia's started growing but never had before.

WA: They should start cleaning the forest from the *bottom* [makai] up.

DC: Green Energy I believe does not have a lease, but it has a contract to go into this area right now and to cut the Albizia. So they're [DHHL] trying to leverage partners. So one of the partnerships is Green Energy goes in, cuts the trees, they get what they want and they have to make the road nice for access.

DC: Are there any other partnerships in the community that you guys could see leveraging? Who does stuff like that or does anyone have expertise? any ideas?

Erica: He [Edward Taniguchi] volunteered 38 years ago to bring the water back for them. He said, I'll do the work. There are guys with machines, there's people that will work. They just don't want to do it for nothing. And then not be able to be on the land

DC: So you know how to bring the water back?

ET & WA: both nodded they know how.

ET: Oh yeah! Right now, Frank's working up there. Cousin Roger is up there with his grader. What's there already at the reservoir, instead of going to McCloskey, bring 'um down. Run the water for that group there instead of going through McCloskey and Kealia Kai.

WA: They got to open up the Palikea one and come through the tunnel, too.

DC: So the tunnels is way mauka? What about the tunnels? What was it used for before? Where does that water come from?

WA: Plantation was bringing water from Palikea side to here. Certain part of the tunnel caved in, the trees growing inside, the ditches broke off from the valleys.

ET & WA: We know where the intake is, where the tunnel is, where the opening is, and where it caved in, and all that.

ET: You [WA] went inside the tunnel.

DC: Who else knows where all that stuff is?

WA & ET: All the old hunters hunting up there, they know.

DC: Can you tell me who are some of them?

WA & ET:

Agreed the Ornellas hunters, Butch Martines, Tony Ries, they all know their country.

WA used to hunt with old man Bereto, his son Frank Bereto would know.

DC: How do you guys feel about the month to month?

WA: It's foolish! Month to month, you can't do nothing

Erica: I haven't been on a wait list for 60-years. I don't have the right to comment

DC: I'd be curious to put in here for you uncles when your relationship with DHHL started? How long have you been waiting for?

ET: 1960, I signed up for pasture.

Erica: So this year makes 60-years. So I went in and testify to DHHL because he has been waiting and waiting and waiting, waiting. And the reality is Hawaiian Homes isn't just going to make leases and call them up and say, 'We're ready to give you a lease.' And I started trying to understand what this process was because I was not understanding why in 55 years *nothing* had happened. And then I realized as I started to read the website and read the way they do things; you're *never* going to get a lease. And he would come over every single day frustrated about it. So we went to a meeting, we waited *all day* to the end of the meeting when you can just comment. And I went up there and showed them a picture of him holding my dad as a baby.

Erica: It's a picture when he was 24 years old.

"So this is what he looked like when he signed up. And you guys promised him a pastoral lease when he worked on the ranch as a young man for Robinson's.' And then for Princeville Ranch. The DHHL awards

offer this dream of being an independent Hawaiian and have his own ranch. Instead of working for Princeville or instead of working for the Robinsons.

'You can have your own, provide for your family and be your own boss.'

At the time he was 24 years old,a new husband, a new father.. So now it's 60 years later.

I wasn't until that day [at the HHC meeting] I said everything I had to say, and this *has to change* because that's crazy. 60 years is crazy! And every time somebody passes away on that wait list, that's *whole* family's disqualified from the benefits. He's a great grandfather. He has four generations after him, we'll all be disqualified. So that is when this process started.

Note: remainder of interview is based on handwritten transcriptions and is a summary/shorthand recordation only.

DC:Do you know some of the names of the people that have passed while on the Anahola the list? I feel like that's something that doesn't get written down. An important part of the cultural history of this place.

Erica, ET & WA all said they knew of people having passed on the list and would like to contribute names to that history. They need to look at the list to remember. In a follow up talk story on 2/29/2020 with WA and ET and their wives, they reminisced about at least four different individuals who had passed while waiting for Anahola DHHL lots, but could not remember 1st and last names of any. To prevent any errors, we have not (yet) included names until we can verify them.

WA:My wife is on the list, she's still on top. [Uncle Walter is a Vietnam vet.] To get a homestead lot "you need to pay for the house, you need to get a loan: to get the lease." I work, but it [dreams of homesteading] stops right there.

*The difficulty for this 'ohana was that his wife's name would be on a DHHL lease as she is a beneficiary. Uncle Walter can get a VA loan, which has some of the most generous rates and lengths available. But VA won't give him a loan without his name on the lease. DHHL won't/can't put his name on the lease. They are married. Yet they cannot meet the financial requirements for DHHL *residential* lots.

DC (to Erica & ET):If you got a pastoral lot tomorrow, what would you do?

ET & Erica have a plan they put together if they ever get a pastoral lease. It has animal and plants incorporated into their plan. They put a lot of their hopes into a pastoral lot. And if they got one Uncle Ed is ready to bring his pipi over and start planting;.

Uncle Ed Taniguchi said he used to work pīpī for Princeville Ranch, but they kept selling the land, and they kept making condos and hotels so he got out.

ET's uncles were paniolo and he grew up ranching.

Erica: Subsistence, traditional and modern is cultural, but it is changing.

The climate [mauka Anahola] is good for planting food. Ulu, Avocado, Bananas.

WA: He wants to grow kalo, not plateau farm. He said there is wetland kalo places in Anahola mauka. Uncle Walter knows how and he used to grow taro. The Keapana lease land [inside Kealia] has and Tonys place has.

WA: if you have a place of your own you can control things [water, soils]

Erica: growing food and being self-sufficient is really important to her, "we cannot afford."

“the way things are going on this island we have to” [be self-sufficient]

ET: currently has a herd of cattle on someone else’s pasture and he has goats.

WA: Uncle Walter’s son wants to grow kalo, but they have no place to do it. Its huge investment in time and money to prepare loʻi and prep soil for kalo. [kalo then takes 12-months to grow!]

WA: there is a place for kalo up mauka Anahola, Waipahee, above the reservoir is a good place for taro planting; a flowing stream, cold water. But he points out that “we’re getting blocked by the land owners” from access.

ET: agreed that that is the best place for taro. The water is cold and that is good for the taro.

ET’s cousin used to grow taro up there.

WA: you can still plant taro on the [proposed DHHL subsistence land] but he pointed out it would be dryland because there is not as much rainfall or flowing water as mauka.

WA: used to get native birds up in the forest. He’s seen the little red native bird up Makale’a side.

WA: wondered why DHHL is only looking at lots in the lower section, why not more mauka, above where leases could grow kalo?

Appendix G

Comment Letters

Barbara Natale

Subject: RE: DOH Clean Air Branch Comments on Draft EA for Anahola Kuleana Homestead Settlement Plan

From: Cab General <Cab.General@doh.hawaii.gov>
Sent: Tuesday, May 26, 2020 11:21 AM
To: Cachola, Julie-Ann <julie-ann.cachola@hawaii.gov>; Kawika McKeague <kawikam@g70.design>
Subject: DOH Clean Air Branch Comments on Draft EA for Anahola Kuleana Homestead Settlement Plan

Aloha

Thank you for the opportunity to provide comments on the subject project.
Please see our standard comments at:
https://health.hawaii.gov/cab/files/2019/04/Standard-Comments-Clean-Air-Branch-2019.pdf

Please let me know if you have any questions.

Barry Ching
Clean Air Branch
Hawaii Department of Health
(808) 586-4200

Standard Comments for Land Use Reviews
Clean Air Branch
Hawaii State Department of Health

If your proposed project:

Requires an Air Pollution Control Permit

You must obtain an air pollution control permit from the Clean Air Branch and comply with all applicable conditions and requirements. If you do not know if you need an air pollution control permit, please contact the Permitting Section of the Clean Air Branch.

s

Includes construction or demolition activities that involve asbestos

You must contact the Asbestos Abatement Office in the Indoor and Radiological Health Branch.

Has the potential to generate fugitive dust

You must control the generation of all airborne, visible fugitive dust. Note that construction activities that occur near to existing residences, business, public areas and major thoroughfares exacerbate potential dust concerns. It is recommended that a dust control management plan be developed which identifies and mitigates all activities that may generate airborne, visible fugitive dust. The plan, which does *not* require Department of Health approval, should help you recognize and minimize potential airborne, visible fugitive dust problems.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust. In addition, for cases involving mixed land use, we strongly recommend that buffer zones be established, wherever possible, in order to alleviate potential nuisance complaints.

You should provide reasonable measures to control airborne, visible fugitive dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

a) Planning the different phases of construction, focusing on minimizing the amount of airborne, visible fugitive dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
b) Providing an adequate water source at the site prior to start-up of construction activities;
c) Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
d) Minimizing airborne, visible fugitive dust from shoulders and access roads;
e) Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
f) Controlling airborne, visible fugitive dust from debris being hauled away from the project site.

If you have questions about fugitive dust, please contact the Enforcement Section of the Clean Air Branch

Clean Air Branch (808) 586-4200 cab@doh.hawaii.gov	Indoor Radiological Health Branch (808) 586-4700

April 1, 2019

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON

BRUCE S. ANDERSON, PH.D.
KAMANA BEAMER, PH.D.
MICHAEL G. BUCK
NEIL J. HANNAHS
WAYNE K. KATAYAMA
PAUL J. MEYER

M. KALEO MANUEL
DEPUTY DIRECTOR

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

June 12, 2020

REF: RFD.5370.2

TO: Kawika McKeague, AICP, Principal
Group 70 International, Inc.

FROM: M. Kaleo Manuel, Deputy Director
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment (DEA) Anahola Kuleana Homestead Settlement Plan, Anahola and Kamalomaloo Ahupuaa, Koolau District, Kauai

FILE NO.: RFD.5370.2
TMK NO.: (4) 4-8-002:001; 003:006; and (4) 4-7-002:004 (por.)

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

Our comments related to water resources are checked off below.

- [X] 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- [X] 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- [ ] 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.
- [X] 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EAP as having high water efficiency can be found at http://www.epa.gov/watersense.
- [X] 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://planning.hawaii.gov/czm/initiatives/low-impact-development/
- [X] 6. We recommend the use of alternative water sources, wherever practicable.
- [ ] 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program.
- [ ] 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at

http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf.

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

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

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

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

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

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

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

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

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

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

☒ OTHER: The projected water demands for the project, both potable and non-potable, should be identified and the calculations used to estimate demands should be provided. Water conservation and efficiency measures to be implemented should also be discussed. The report should discuss the 2017 State Water Projects Plan, which was updated exclusively for DHHL lands and water needs, and the degree to which this proposed project is consistent with the 2017 study.

If you have any questions, please contact Lenore Ohye of the Planning Branch at 587-0216 or Dean Uyeno of the Stream Protection and Management Branch at 587-0234.

DAVID Y. IGE
GOVERNOR

CURT T. OTAGURO
COMPTROLLER

AUDREY HIDANO
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P) 20.073

MAY 15 2020

Mr. Kawika McKeague, AICP, Principal
G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. McKeague:

Subject: Draft Environmental Assessment
Anahola Kuleana Homestead Settlement Plan
Anahola and Kamalomaloo Ahupuaa, Koolau District, Kauai
TMK: (4) 4-8-002:001; 003:006; and (4) 4-7-002:004 (por.)

Thank you for the opportunity to provide comments for the subject project. We have no comments to offer at this time, as the subject project does not appear to directly impact any of the Department of Accounting and General Services' managed facilities or properties.

If you have any questions or require further information, please call Mr. Dennis Chen of the Public Works Division at 586-0491.

Sincerely,

CHRISTINE L. KINIMAKA
Public Works Administrator

DC:mo

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 28, 2020

LD 497

MEMORANDUM

TO: **DLNR Agencies:**
___Division of Aquatic Resources
___Division of Boating & Ocean Recreation
_X_ Engineering Division *(via email: DLNR.Engr@hawaii.gov)*
_X_ Division of Forestry & Wildlife
___Division of State Parks
_X_ Commission on Water Resource Management *(via email: DLNR.CWRM@hawaii.gov)*
___Office of Conservation & Coastal Lands
_X_ Land Division – Kauai District *(via email: DLNR.Land@hawaii.gov)*
_X_ Historic Preservation *(via email: DLNR.Intake.SHPD@hawaii.gov)*

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: **Anahola Kuleana Homestead Settlement Plan, Draft Environmental Assessment (DEA)**
LOCATION: Anahola and Kamalomalo'o Ahupua'a, Ko'olau District, Island of Kauai
TMK: (4) 4-8-002:001 (por.), 4-8-003:006 (por.); and (4) 4-7-002:004 (por.)
APPLICANT: **Group70 International, Inc., on behalf of the State of Hawai'i Department of Hawaiian Home Lands**

Transmitted for your review and comment is information on the above-referenced subject. The DEA was published on May 08, 2020 in the Office of Environmental Quality Control's periodic bulletin, The Environmental Notice, at the following link:

http://oeqc2.doh.hawaii.gov/The_Environmental_Notice/2020-05-08-TEN.pdf

Please submit any comments to the Land Division via email at DLNR.Land@hawaii.gov by **June 04, 2020**. 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 Barbara Lee via email at barbara.j.lee@hawaii.gov. Thank you.

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

Signed: _____
Print Name: Brian J. Neilson
Division: Division of Aquatic Resources
Date: Jun 4, 2020

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

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
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
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 6-3-2020
DAR # LD497

MEMORANDUM

TO: Brian J. Neilson
DAR Administrator

FROM: Heather Ylitalo-Ward, PhD, Aquatic Biologist

SUBJECT: Anahola Kuleana Homestead Settlement Plan Draft Environmental Assessment (DEA)

Request Submitted by: Russell Y. Tsuji, Land Administrator

Location of Project: Anahola and Kamalomalo'o Ahupua'a, Ko'olau District, Island of Kauai

Brief Description of Project:

This Draft Environmental Assessment provides information on the potential impacts of a proposed housing development in Anahola. The Department of Hawaiian Home Land (DHHL) is proposing the Anahola Kuleana Homestead Settlement Plan to offer 110 homestead lots (14 Pastoral and 101 Subsistence Agriculture) on 432 acres on the Island of Kaua'i.

Comments:

☐ No Comments ☒ Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: _____ Date: Jun 4, 2020

Brian J. Neilson
DAR Administrator

DAR# LD497

Brief Description of Project

As a nontraditional program, the Kuleana Homestead Program places responsibility for development of infrastructure in the hands of native Hawaiian beneficiaries. This arrangement provides beneficiaries land within a shorter time frame than the traditional DHHL awarding process, as well as the opportunity to create a new self-sufficient community. The Project is proposing the following DHHL land uses: Subsistence Agriculture, Pastoral, Community Use and Special District. These uses are intended to integrate the Settlement Plan area with the Anahola Town Center to create an intact contemporary ahupua‘a.

DAR# LD497

Comments

The proposed project should not have direct impacts to aquatic resources in the area, as long as Best Management Practices are followed that minimize erosion and surface runoff from construction into neighboring stream systems. DAR would like to suggest erosion control and LBSP barrier measures at all of the proposed project sites where there is the opportunity for sediment discharge into nearby waters (e.g. any site where there will be excavation, grading, sediment/pollutant producing activities). The measures would include any type of barrier (e.g. sediment fences, silt screens, bags, environmental socks, petroleum absorption diapers) that limits the amount of sediment or LBSP to the maximum extent practicable.

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should any changes be made to the project, DAR requests the opportunity to review and comment on the changes.

DAVID Y. IGE
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

LUD – 4 4 8 002 001 etc DEA
Anahola Kuleana Homestead ID 5133

May 27, 2020

Mr. Kawika McKeague, AICP
Principal
G70
111 South King Street Suite 170
Honolulu, Hawaii 96813
Email: DHHLAnahola@g70.design

Dear Mr. McKeague:

Subject: Draft Environmental Assessment (DEA)
Anahola Kuleana Homestead Settlement Plan
Anahola and Kamalomalo'o Ahupua'a, Ko'olau District, Kaua'i
TMK (4) 4-8-002: 001, 003, 006 and (4) 4-7-002: 004 (portion)

Thank you for allowing us the opportunity to provide comments for the subject DEA.

The proposed project is located in the critical wastewater disposal area as determined by the Kauai Hawaii County Wastewater Advisory Committee. As connection to the County of Kauai's sewer system is not available, domestic wastewater generated by the project shall be collected, treated and disposed of in accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, "Wastewater Systems."

The subject DEA, Section 2.1, Description of the Project specifies that: 101, two (2) acres subsistence agriculture lots; 14, ten (10) acres pastoral lots; and, 28 acres for community use will be are presently planned for the proposed project. The DEA, Section 3.10.2, p. 3-27 specified that the proposed project development density will be two (2) acres per dwelling unit and that individual wastewater systems may be utilized. Alternatively, a cluster wastewater treatment system was also mentioned as a possible consideration for wastewater treatment. The DEA also cited that commercial kitchens are being considered in the planned community areas.

In accordance with HAR, Section 11-62-31.1(a)(1)(B), individual wastewater systems may temporarily be used in lieu of wastewater treatment works where the total development of an area exceed fifty single family residential lots or exceed fifty dwelling units provided that the proposed project development density of two (2) acres per dwelling unit is adhered to. However, the reuse of effluent for irrigation from individual wastewater systems is currently not allowed under HAR, Chapter 11-62.

A cluster wastewater treatment system which serves more than two (2) dwellings or more than a total of five (5) bedrooms, shall be required to comply with applicable provisions of HAR, Chapter 11-62, Subchapter 2, Wastewater Treatment Works. A wastewater treatment system which serves a commercial kitchen or kitchens in the planned community areas which treats a design wastewater flow of more than 1,000 gallons per day shall also comply with the requirements under HAR, Chapter 11-62, Subchapter 2, Wastewater Treatment Works. In addition, treated effluent and its' use shall comply with applicable requirements under HAR, Chapter 11-62, Subchapter 2 and the Department of Health's "Reuse Guidelines" Volumes 1 and 2.

Please be informed that the proposed wastewater systems for the subdivision/development may have to include design considerations to address any effects associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices. In addition, all wastewater plans must conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems," and the Department of Health's "Reuse Guidelines" Volumes 1 and 2.

Should you have any questions, please call Mr. Mark Tomomitsu of my staff at 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST:lmj

c: Ms. Lori Vetter, WWB-Kauai, via email

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Director
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

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

IN REPLY REFER TO:
DIR 0443
HWY-PS 2.3037

June 10, 2020

Mr. Mark Kawika McKeague
Principal
Group 70 International, Inc.
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. McKeague:

Subject: Draft Environmental Assessment and Traffic Assessment
Anahola Kuleana Homestead Masterplan – Anahola, Kauai, Hawaii
Tax Map Key Nos.: (4) 4-8-002: 001, 4-8-003: 006, (4) 4-7-002: 004

Thank you for your letter dated May 5, 2020 to review the subject project on the preparation of a Draft Environmental Assessment (DEA) required by Chapter 343 Hawaii Revised Statutes, due to the use of State lands and State funds.

The proposed 462-acre settlement owned by The Department of Hawaiian Home Lands consists of 101 2-acre rural lots with residential dwellings, a total of 14 10-acre Pastoral lots, as well 28 acres to be used as parks, community centers, agricultural uses and farmer markets on the remainder portions of the land. The settlement serves lease beneficiaries for 99 years.

The project site appeared to have 2 access points approximately 1.3 miles from the State Kuhio Highway (Route 56) via Kealia Road, a County roadway.

The Hawaii Department of Transportation has the following comments:

1. A Traffic Assessment or Traffic Impact Analysis Report should be included in the Final Environmental Assessment and should be prepared by a Professional Engineer with State license and traffic expertise.

    1.1. The study should clarify and identify the primary and secondary access points at the site.

    1.2. The study should provide an analysis to identify any project impacts to the State Kuhio Highway, as well as any mitigation measures that may be required.

2. The DEA and the Traffic Study should include a discussion on the anticipated uses of the 23 acres of land set aside for community centers, agricultural and cultural uses opened to the general public, in particularly, the expected days and times or frequency to be used for high-volume public gatherings and events.

If you have any questions, please contact Jeyan Thirugnanam, Systems Planning Engineer, Highways Division, Planning Branch at (808) 587-6336 or by email at jeyan.thirugnanam@hawaii.gov. Please reference file review number PS 2020-073.

Sincerely,

JADE T. BUTAY
Director of Transportation

c: Office of Environmental Quality Control

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

M. KALEO MANUEL
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
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

June 7, 2020

Log No.2660

Kawika McKeague
G70
111 South King Street, Suite 170
Honolulu, HI 94813

Dear Mr. McKeague:

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your notice of availability for the Anahola Kuleana Homestead Settlement Plan Draft Environmental Assessment (DEA) for Hawaiian Home Lands off Keālia Road in Anahola and Kapa'a on the island of Kaua'i, TMKs: (4) 4-8-002:001 (por.), (4) 4-8-003:006 (por.), and (4) 4-7-002:004 (por.). The proposed project consists of the development of 462 acres of former agricultural and unimproved lands into homestead lots for residential and subsistence settlement. Proposed work will vary depending on the individual lessees but may include clearing of invasive vegetation, construction of homes and other structures, installation of utilities, roads, or renewable energy facilities, landscaping, and farming.

We appreciate the inclusion of mitigation measures in the DEA intended to avoid construction and site clearing impacts to the State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*).

The DEA states there will be no night work during the seabird fledgling season from September 15 through December 15, the period when young seabirds take their maiden voyage to the open sea, to avoid grounding of birds disorientated from artificial lighting. We also recommend the Department of Hawaiian Home Lands require all beneficiaries at the site to follow seabird friendly lighting guidelines for the homesites, community centers, and other facilities that may require nighttime lighting. There are known colonies of protected seabirds in the Forest Reserves mauka of the proposed project site. DOFAW recommends that all lights be fully shielded and downward facing to minimize impacts, and streetlights should be full cut-off. For illustrations and guidance related to seabird-friendly light styles that also protect the dark, starry skies of Hawai'i please visit: https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf.

The fauna survey in the DEA notes the occurrence of the Hawaiian Goose or Nēnē (*Branta sandvicensis*) transiting the project site. While the DEA identifies that the Nēnē has been downlisted to threatened under the Federal Endangered Species Act, the species remains listed as endangered under the State of Hawaii endangered species law, codified in Chapter 195D, Hawaii Revised Statutes. A construction barrier should be installed to prevent Nēnē from entering the construction zone.

Although the DEA does not identify any other State listed waterbird species at the project site, the Hawaiian Duck (*Anas wyvilliana*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), and Hawaiian Common Gallinule (*Gallinula chloropus sandvicensis*) have the potential to occur, for instance, if pooled water forms, or the reservoirs or irrigation system were to be improved. It is against State law to harm or harass these species. If any of these species are present during construction activities, then all activities within 100 feet (30 meters) should cease, and the bird should not be approached. Work may continue after the bird leaves the area of its own accord. If a nest is discovered at any point, please contact the Kaua'i DOFAW Office at (808) 274-3433.

DOFAW is concerned about attracting vulnerable birds to areas that may host nonnative predators such as cats and rodents. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents, and provide covered trash receptacles.

To prevent the spread of Rapid 'Ōhi'a Death (ROD), if 'ōhi'a trees are present and 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.

DOFAW recommends minimizing the movement of plant or soil material between worksites, such as in fill. Soil and plant material may contain invasive fungal pathogens, vertebrate and invertebrate pests (e.g. Little Fire Ants), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the Kaua'i Invasive Species Committee at (808) 821-1490 in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water and sprayed with 70% alcohol solution to prevent the spread of Rapid 'Ōhi'a Death and other harmful fungal pathogens.

We recommend that you refer to www.plantpono.org for guidance on selection and evaluation for landscaping plants.

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 Lauren Taylor, Protected Species Habitat Conservation Planning Coordinator at (808) 587-0010 or lauren.taylor@hawaii.gov.

Sincerely,

DGS

DAVID G. SMITH
Administrator

DEPARTMENT OF PLANNING
THE COUNTY OF KAUA'I
DEREK S. K. KAWAKAMI, MAYOR
MICHAEL A. DAHILIG, MANAGING DIRECTOR

KA'ĀINA S. HULL
DIRECTOR

JODI A. HIGUCHI SAYEGUSA
DEPUTY DIRECTOR

G70
111 South King Street, Suite 170
Honolulu, Hl 96813
Attn: Kawika McKeague, AICP, Principal

RE: DHHL Anahola Kuleana Homestead Settlement Plan Draft Environmental Assessment TMK (4)-4-8-002:001, 003:006, and (4)-4-7-002:004 (por.), Ko'olau District on the island of Kaua'i

Dear Mr. McKeague

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for the Anahola Kuleana Homestead Settlement Plan. According to the DEA, the plan aims to establish an Anahola Kuleana Homestead Settlement by subdividing a portion of the land owned the by Department of Hawaiian Home Lands in the Anahola region. The subdivision will include 101 two-acre subsistence agricultural lots, 14 ten-acre pastoral lots, and 28 acres for community use.

Pursuant to the HHCA §206, Hawaiian Home Lands are not subject to County zoning or other land use controls. However, the County encourages the Department of Hawaiian Home Lands to review the County's General Plan and use it as an aid during project development. The General Plan was updated in 2018 and is the County's guiding land use policy.

The Planning Department appreciates the DEA's assessment of consistency with the General Plan, Special Management Area, and Comprehensive Zoning Ordinance. We offer the following comments:

Kaua'i County General Plan (DEA, Section 5.9)
In addition to the five policies mentioned in the Section 5.9 of the DEA, the General Plan includes other objectives and actions that are relevant to the project. They are described below:

Preliminary Community Planning Guidance for East Kauai (General Plan, pg. 82)
The Wailua-Kapa'a Development Plan has not been updated in several decades. However, the General Plan contains preliminary guidance for community planning in East Kaua'i. One of the preliminary goals is to support DHHL's Island General Plan and Anahola Plan.

Housing Sector Objectives and Actions (General Plan, pg. 122)
The Housing Sector includes a "Hawaiian Home Lands" subsection. The subsection's objective is to support the Department of Hawaiian Home Lands in their mission to provide housing to their beneficiaries. The relevant action is to respect and support the mission of DHHL to prioritize planning for their beneficiaries.

Opportunity and Health for All Objectives and Actions (General Plan, pg. 200)
Community access is addressed in the "Improving Access to Subsistence and Recreational Activities" subsection. The subsection's objective is to actively protect, restore, and increase access to the places where recreational and subsistence activity occur. Given the project's proximately to State-owned land within the conservation district, there is an opportunity to further the following actions:

- Inventory and improve hunting access to Forest Reserves and government trails.
- Increase opportunities for access to subsistence hunting, fishing, and gathering.
- Focus trail acquisition in areas with low number of public trails compared to the population, including South Kaua'i, Līhu'e, Anahola, and Hanapēpē-Ele'ele.

East Kaua'i Community Plan (DEA, Section 5.10)
No additional comments.

County of Kaua'i Comprehensive Zoning Ordinance (DEA, Section 5.11)
In addition to being zoned Agriculture District by the County, the settlement area is also zoned Open District.

Special Management Area Rules and Regulations (DEA, Section 5.12)
No additional comments.

We hope these comments are useful as you finalize the environmental assessment for the Anahola Kuleana Homestead Settlement Plan. Should you have any questions, please contact the Planning Department at (808) 241-4050.

Mahalo,

Ka`aina Hull
Ka`aina Hull (Jun 10, 2020 16:39 HST)

Ka'aina A. Hull
Planning Director

DHHL Anahola Kuleana Homestead Settlement Plan DEA_06082020 (002)_MWedit

Final Audit Report 2020-06-11

Created:	2020-06-11
By:	Shelea Blackstad (sblackstad@kauai.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAA4re_JlEzyYF1FGScw0l4zh7_MNhh0lYZ

"DHHL Anahola Kuleana Homestead Settlement Plan DEA_06082020 (002)_MWedit" History

Document created by Shelea Blackstad (sblackstad@kauai.gov)
2020-06-11 - 2:16:24 AM GMT- IP address: 72.235.186.194

Document emailed to Ka`aina Hull (khull@kauai.gov) for signature
2020-06-11 - 2:17:04 AM GMT

Email viewed by Ka`aina Hull (khull@kauai.gov)
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Document e-signed by Ka`aina Hull (khull@kauai.gov)
Signature Date: 2020-06-11 - 2:39:03 AM GMT - Time Source: server- IP address: 64.128.3.74

Signed document emailed to Shelea Blackstad (sblackstad@kauai.gov), Ka`aina Hull (khull@kauai.gov) and mwilliams@kauai.gov
2020-06-11 - 2:39:03 AM GMT

Adobe Sign

ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
THE COUNTY OF KAUA'I
DEREK S. K. KAWAKAMI, MAYOR
MICHAEL A. DAHILIG, MANAGING DIRECTOR

TROY K. TANIGAWA
ACTING COUNTY ENGINEER

MICHAEL H. TRESLER
ACTING DEPUTY COUNTY ENGINEER

May 27, 2020

G70
111 S. King Street, Suite 170
Honolulu, HI 96813
Attention: Kawika McKeague

SUBJECT: Draft Environmental Assessment (DEA) Anahola Kuleana Homestead Settlement Plan, Anahola and Kamalomalo'o Ahupua'a, Ko'olau District, Kaua'i, TMK (4) 4-8-002:001, 003:006, and (4) 4-7-002:004 (por.)
PW 05.20.034

Dear Mr. McKeague:

This is in response to a letter dated May 5, 2020 requesting the Department of Public Works review on the subject Draft Environmental Assessment (DEA). We have the following comments on following sections of the DEA:

1. Section 3.6 Natural Hazards, Floodplain and Tsunami Inundation. Although the settlement area is in Zone X on the FIRM, the project area contains valleys, gullies, and drainage ways that are subject to flooding.

2. Section 3.10.3 Anticipated Impacts and Proposed Mitigation. Amend the first sentence to read as follows: "At a minimum, proposed drainage improvements will be designed in compliance with the **Storm Water Runoff System Manual, July 2001**."

Thank you for providing this opportunity for consultation on this pending project. We look forward to receiving a copy of the DEA. Should you have any questions, please contact Paul Togioka at (808) 241-4889.

Sincerely,

Michael Moule, P.E.
Chief, Engineering Division

MM/SI/PT
cc: Design and Permitting Section

Barbara Natale

From: Daryl Date <DDate@kauai.gov>
Sent: Tuesday, May 12, 2020 7:57 AM
To: Anahola Project
Cc: Solomon Kanoho
Subject: Anahola Kuleana Homestead

Aloha Kawika

The Kauai Fire Department's main concerns for the Anahola Kuleana Homestead Settlement Plan is: Access and Water Supply.

After reading through the DEA, the mitigation measures proposed for wildfires sound reasonable. But, where will the water to fill the cisterns come from?
The issue of structure fires need more attention. It is imperative that water be made available.
Different options could be acceptable, such as standpipes from catchment tanks, residential sprinklers, water tenders.

The other concern is access. It sounds as if some roadways may be suited for only four wheeled drive vehicles.

Further discussions will need to be made with the Fire Deparment to resolve these life safety issues.

Mahalo,

Daryl Date
Fire Prevention Captain
County of Kauai
Piikoi Building
4444 Rice Street, Suite 315
Lihue, HI 96766
Phone: O:808-241-4982 C:808-645-6353
Fax: 808-241-6508

SOVEREIGN COUNCIL OF HAWAIIAN HOMESTEAD ASSOCIATIONS

1481 South King St #448
Honolulu, HI 96814
PO Box 646
Anahola, HI 96703
151 North Carolina Ave SE
Washington DC 20020
info@hawaiianhomesteads.org

Date: June 5, 2020

To: Julie Cachola, Department of Hawaiian Home Lands

Fr: Robin Puanani Danner, SCHHA Chair & Kauai Elected Councilmember

Re: Anahola Kuleana Homestead Development Comments

The Sovereign Council of Hawaiian Homestead Associations (SCHHA), founded in 1987, is the largest and oldest national beneficiary organization dedicated to the Hawaiian Homes Commission Act. Our enrolled members of the SCHHA are HHCA beneficiaries on the waitlist residing in Hawaii and other states in the country, as well as lessees and successors of trust land awards located in all counties of Hawaii. We are registered with the federal Department of Interior as a Beneficiary Organization and Homestead Association, as defined by 43 CFR Part 47/48.

The SCHHA elects a governing council serving 4-year terms, with each councilmember elected by an island mokupuni. Our SCHHA governing council with a term of 2019 – 2023 is as follows:

Robin Puanani Danner, SCHHA Councilmember for **Kauai**
Sybil Lopez, SCHHA Councilmember for **Molokai**
Kekoa Enomoto, SCHHA Councilmember for **Maui/Lanai**
Richard Soo, SCHHA Councilmember for **Oahu**
Ron Kodani, SCHHA Councilmember for **Hawaii Island**

Mahalo for the invitation to comment on the Anahola Kuleana Homestead Development under consideration by the state of Hawaii, DHHL, on the island of Kauai, in the homestead region of Anahola. Please consider the following:

A. DHHL has not awarded any meaningful farming or ranching awards on Kauai since 1986, 34 years ago. We would like the current decision makers at DHHL to consider this sobering reality, that beneficiaries on the Kauai waitlist, have waited 34 years, and so many that have died waiting.

B. We request that DHHL consider the reality that those on the farming and ranching waitlist signed up as young adults, and many are now in their 50's, 60's, 70's and evening 80's. As such, we support every effort of DHHL that leads to the issuance of farming and ranching homestead leases to HHCA beneficiaries on the Kauai list, in an expedited manner.

C. The Kuleana award approach is novel, as its only been executed one time in the history of the trust, at Kahikinui, Maui, over 20 years ago. DHHL staff, and HHCA beneficiaries in the Kahikinui project have been transparent about the pros and cons of the approach, and we mahalo the sharing SCHHA leaders have facilitated through virtual meetings with Anahola and Molokai leaders, directly with Kahikinui beneficiaries.

With these three important and sobering realities as the basis of our comments, we offer the following:

1. **No Delay – Expedite Awards.** The Kuleana award approach is but one option to issue lease awards. We request that DHHL consider issuing lease awards for the Anahola Kuleana Homestead Development either under the Kuleana administrative rules, or to issue through the decades practice of Undivided Interest awards, whichever will expedite awards to waitlist beneficiaries.

This comment is grounded in the SCHHA priority to immediately protect the rights of our waitlist beneficiaries and their legitimate successors, given the more than three decades lost to these beneficiaries in waiting for a farm or ranch award.

2. **Full Disclosure to Waitlist.** DHHL should fully disclose the condition of a "Kuleana" lot award, in plain language in notifications to the Kauai waitlist, leaving legalese for the actual lease document.

   This comment is grounded in the SCHHA priority to ensure every waitlist beneficiary has every opportunity to freely exercise their choice to take an award under the "no infrastructure" approach of the DHHL Kuleana program.

3. **No Predetermined Kanawai.** DHHL should NOT predetermine, nor require any "kanawai" (DCC&Rs of a homeowners association), versus a homestead association. We recommend instead, that language be included in any lease instrument, a requirement of the lessee to be a member in good standing of a homestead association as defined by 43 CFR part 47/48 that has a direct kuleana to represent, govern and implement the priorities of the lessees in the Anahola Kuleana Homestead Development. Moreover, that a minimum set of responsibilities be identified and included in the lease instrument for the homestead association.

   This comment is grounded in the tenets of the HHCA itself, which is purposed to advance self-determination by HHCA beneficiaries. Requiring every lessee awarded in this development to be a member in good standing, mandates a homestead association by and for HHCA beneficiaries, which is very different from a homeowners association with historically, DHHL has predetermined the criteria through staff or a consultant even before a single HHCA beneficiary is awarded a lot.

   This comment also ensures that the lessees in this new project, are organized together in an organizational vehicle that achieves the goals of DHHL when it created the Kuleana award program some 20 years ago.

4. **No Predetermined Approval of Land Access**. We recommend that DHHL NOT predetermine State agency approval for access through our trust lands by anyone to access adjacent, non-trust lands, and instead include in the planning functions of the project, gated access points for such access. We recommend DHHL leave the kuleana and administration of any access to the governing homestead association to establish rules subject to the approval of the Hawaiian Homes Commission.

   For example, it would be prudent for any access to these trust lands by hunters, to require registration with the homestead association described under item #3 above. Historically, misbehavior and disrespect of our trust lands and our beneficiaries stems from an evolved entitlement, especially by non-HHCA beneficiaries, that has led to terrorizing our lands with illegal trash dumping, race track motor cross and vehicle driving on our beach lands – all wholly unacceptable on our trust lands. Kuleana by the lessees of the development via a homestead association is a prudent approach to helping DHHL to steward and oversee abuses of our lands.

   In short, while we support hunting in the example, we do not support unregulated and unfettered access through our lands to hunting areas by anyone claiming to be a hunter. There must be gates for the homestead association to control, if DHHL is to include or expend our HHCA beneficiary trust dollars to create access through our lands.

   Moreover, once a homestead association for the project is identified, SCHHA will suggest to the leaders of that homestead association, to deny access to any hunter that is not a member of a "Kauai hunters organization" that is duly incorporated in the State of Hawaii, to further ensure that hunters hold themselves accountable for the behavior of their members.

Should you have any questions or require elaboration, please contact SCHHA at info@hawaiianhomesteads.org.

Barbara Natale

From: gerald gonsalves
Sent: Tuesday, May 12, 2020 7:51 PM
To: Anahola Project
Subject: Re: ATTN; Bob Freitas / Those concerned:

Thank you for the information!
I'll check out the Environmental Assessment and the link that you sent.

Thanks,

On Tue, May 12, 2020 at 12:21 PM Anahola Project <DHHLAnahola@g70.design> wrote:

> Aloha Gerald,
>
> Yes, we are starting to get more calls and emails!
>
> Have you had a chance to review the Environmental Assessment? It may be able to answer some of your questions, although there are still many that need to be answered, and won't be until later on in the process. Here is a link to the report: http://oeqc2.doh.hawaii.gov/Doc_Library/2020-05-08-KA-DEA-Anahola-Kuleana-Homestead-Settlement-Plan.pdf
>
> There are some initial cost projections on page 2-14, Section 2.4. I don't know whether the roads outside the project area will be fixed – I believe those are county roads. But more on the interior roads is on page 3-29, Section 3.10.5.
>
> Although you are right, a lot depends on the removal of the albizia trees, but DHHL could be awarding lots as early at 2022. Just a few more years! You can hang in there! Lol!
>
> Thank you for all the questions, please let me know if you think of anything else.
>
> Mahalo,
>
> Barbara

G70

Barbara Natale, AICP
Senior Planner

t 808.441.2117
e barbaran@g70.design

From: gerald gonsalves
Sent: Monday, May 11, 2020 10:03 PM
To: Anahola Project <DHHLAnahola@g70.design>
Subject: Re: ATTN; Bob Freitas / Those concerned:

Those are all good questions. Have there been anyone else who are interested as I am?

It would be nice if other Hawaiian homesteaders are excited as I am. There were lots of homesteaders that attended the meeting for this project. Do you have any idea what the installation costs for water? electric? up by the Spalding Monument could be?

Will the road be fixed, talking about the pukas from Anahola to the project areas and the road from the Spalding Monument to the project

areas?

I guess nothing can be done until KIUC is completed with the removal of the albeza trees in the kuleana project areas. Do you have a future

date when you will be awarding lots up there? I'm not getting younger and I still got a gas in my tank to make it a go or not! So any pertinent

information from you will be greatly appreciated!

Thank you Barbara,

On Mon, May 11, 2020 at 3:12 PM Anahola Project <DHHLAnahola@g70.design> wrote:

> Aloha Gerald,
>
> Yes, thank you for your call, and I'm glad you were able to speak with Erna as well. From our conversation today, I wanted to add on a few more things that I will be looking into for you (so that I don't forget!):
>
> - Is there a time limit for doing what you want to do on the property?
> - How many buildings are allowed on the property, and what size?
>
> Have a good day!

Mahalo,

Barbara

Barbara Natale, AICP
Senior Planner

t 808.441.2117
e barbaran@g70.design

From: gerald gonsalves
Sent: Monday, May 11, 2020 2:56 PM
To: Anahola Project <DHHLAnahola@g70.design>
Subject: Re: ATTN; Bob Freitas / Those concerned:

Aloha Barbara,

I spoke to Erna Kamibayashi and she gave me what she knew about the Kuleana project in Kealia up Spalding Monument.

Thank you for answering some questions that I had on that kuleana homestead lot plan in Kealia and I look forward on your correspondence back to me.

A hui hou,

Pa'aluhi Gonsalves

On Mon, May 11, 2020 at 9:51 AM Anahola Project <DHHLAnahola@g70.design> wrote:

> Aloha Gerald,
>
> Mahalo for your comments. This email is to acknowledge your correspondence. We'll have a letter for you soon that will better address your concerns.
>
> Thank you for your participation in the meetings as well as the Environmental Assessment process.
>
> Mahalo,

Barbara

Barbara Natale, AICP
Senior Planner

t 808.441.2117
e barbaran@g70.design

From: gerald gonsalves
Sent: Friday, May 8, 2020 5:14 AM
To: Anahola Project <DHHLAnahola@g70.design>
Subject: ATTN; Bob Freitas / Those concerned:

Anahola: Kuleana Homestead Lot Plan on Kaua'i Island

So it;s just for agriculture or pastoral. Plant a garden or raise sheep or cows.

Not for houses but I would like to look further about this plan.

How will the lots be assigned? Will there be access to any of the streams/resevoirs in that area to pump water? Will occupants be allowed to put

a fence and a garden shed?

But you cannot live up in the area specified as kuleana lands. Being so far away you are faced with thieves, animals since you're not there to monitor what you are planning to do

I did attend both meetings that were presented about this plan but nothing really rejuvenated me to jump up and do what I want to do. I am a lesse of Anahola

Barbara Natale

From: John Kaohelaulii
Sent: Monday, June 1, 2020 2:27 PM
To: Anahola Project
Subject: Anahola Kuleana Homestead Settlement Plan Draft Environmental Assessment

6-1-2020

Subject: Commets Anahola Kuleana Homestead Settlement Plan Draft Environmental Assessment

Aloha Kawika,
Sorry, I was not able to make the January 2020 meeting due to a business trip, so I don't know if these items I'm about to comment on came up. I don't see it in the draft so I will submit my comments which I would have if I was able to make the meeting.

Other than my concerns, to me, this is a good Draft Environmental Assessment. I do like the cultural information included in this draft. Many I haven't seen before, so Mahalo.

A few things I believe that are missing from this Draft Environmental Assessment that I wish should have been included and would have made a big difference in the long term success of this project if that was its goal.

1). All the resources needed for the development of a homestead organization(s) to manage the area to insure long term success.

This draft talks about a homestead organization, but as an after thought. After the project is over. These should have been the first two questions that the DHHL staff and Group 70 should have asked in their meeting rooms in Honolulu.

- How can we provide the homestead organization(s) a realistic path for success.
- What resources does this area have that can support them to achieve sustainability for long term success.

For this project to be successful, it needs to start organizing a homestead organization(s) now while the beneficiaries are here in the room and not in 2022 after the fact.

There are questions, situations or issues that will pop up in the early stages of the project that would be good for the homestead organization to consult with before DHHL makes a final decision.

2). The impact of eco-tourism or small scale economic development to supplement the needed revenue to support the Homestead organization(s) and or Beneficiaries.

Anahola is the gateway to the North Shore of Kaua`i. A large percentage of the visitor population will pass through Anahola to get to that side of the island. This is a golden opportunity to take advantage of location, location location that is not in the Draft Environmental Assessment and is a huge asset for the beneficiaries.

During the Anahola Town Center meetings, the community I believe recognized the importance of this location and the opportunity to tap into the visitor industry, so I'm not sure why real eco-tourism was not addressed during the meetings or in this Draft Environmental Assessment.

Here are some of the eco-tourism activities I believe could happen and would have an impact to the environment.

- Zip line
- ATV
- Tubing (?)
- Hiking
- Biking
- Horseback riding
- Hawaiian based education
- Event hosting
- Kayaking
- Others I can't think of now

A homestead organization(s) could lease out these areas for these activities to beneficiary or Native Hawaiian small businesses thus creating opportunities for homesteaders in the area.

The revenues from these activities would go to help fund the homestead organization(s). This steady steam of revenue would help drive the long term success of this project and I believe lessen the financial burden for both DHHL and the lessees involved this project.

This is what I'm guessing for a volunteer organization is going to need to staff and manage the operation:

Association personal

Executive Director	Salary & benefits 75k
Executive Assistant	Salary & benefits 50k
Secretary	Salary & benefits 40k
Maintenance Supervisor	Salary & benefits 50k
Maintenance crew 1	Salary & benefits 40k
Maintenance crew 2	Salary & benefits 40k

Total estimate **$ 395k a year**

We will need seed money for bulk buying, matching funds for grants, insurance, education and others things. Estimate **$400k a year.**

Based on a million dollar yearly operating budget, where is this money going to come from?

But with a little more planning and adding a true economic develop plan, this project has a real shot of being super successful.

3). The probability of drilling a well and building water storage for both the project area and the Anahola Town Center.

We are going to need a new source of drinking water for both lessees in this project, the Anahola Town Center and to support the current water system feeding the future homesteaders in Anahola.

I understand that the lessees involved in this project would have to get their own portable water, but that can be taxing and a challenge for many homesteaders. According to my research the average age for a agricultural lessee on the 2018 wait list will be about 53 and up and the age for a pastoral lessee will be about 62 and up. Not their fault for being in the Kupuna category its the department's fault.

But expecting Kupuna to haul drinking water when there are alternative resources that are available is not only cruel, but unrealistic.

Having an alternative source and delivery of drinking water not only eases the burden on lessees, but supports the eco-tourism opportunity I talked about earlier. I believe that this Draft Environmental Assessment is not addressing that challenge, but it should.

On page 1-15 of the draft. Figure 1-7 shows "Well & Tank site" (77) on the 1987 Anahola-Kamalomalo`o and Moloa`a Plan Use map This well site is already recognized as a posable source of water and should have been investigated in the draft.

I also had a concern about the decommission of Keālia number 2 & Lower Anahola reservoirs at this time and should not take place until the newly organized Homestead organization(s) has determined that they will not need this reservoirs for irrigation or commercial use. But I just found out via The Garden Island Newspaper that work is beginning on the removal of those reservoirs. The Department should have waited.

I wish Group 70 designs would have consulted with the participants of the Anahola Town Center plan first before they went into the community. There still is a lot of good information in those brains.

Because the success for the future homestead organization(s) hasn't been fully addressed in this Draft Environmental Assessment, decommissioning these reservoirs has eliminated a posable vital revenue source not only for raising funding for the homestead organization(s) but the adequate delivery of irrigation to the lessees of this project.

I also understand that historic rainfall in the area should be enough, but the effects of global warming is right around the corner.

I believe that the key to the long term success for the beneficiaries and our families is the strength of the new Homestead Association(s).

For years I have been advocating to the Department about education and training for the community to develop a non profit(s) or Co-op(s) targeted for this area to help alleviate the funding and management of these lands knowing that this day would come. But my voice was never loud enough.

Now with Covid-19 sucking up the State funding and Hawai`i being way behind on the 2020 Census. Goverment funding is going to be challenging for the next few years, so outside funding for this project in 2022 is going to be critical for success.

DHHL has an opportunity to make something great happen here in Anahola that could be a model for future Homesteads. Not all homestead areas have this type of opportunity. The success of the Anahola Kuleana Homestead Settlement Plan could trickle down to the Anahola Town Center and open up the Makai lands for better community use.

The key will always be a strong sustainable homestead organization and in my opinion this kind of organization is missing in Anahola at this moment.

Please except my comments to the Anahola Kuleana Homestead Settlement Plan Draft Environmental Assessment

My name is John W. Kaohelaulii
Residential Lessee Anahola Hawaiian Homes since 1991
Participant in the Anahola Town Center process
Participant in the Kealia Water Study process
Participant in regional and island planning process
Applicant number 79 on the 2018 agricultural waitlist

Public comment to DHHL c/o Julie Cachola at julie-ann.cachola@hawaii.gov and CC the consultant c/o Kawika McKeague at kawikam@g70.design

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From Nicolai Barca

Kapaa, HI 96746

To the Department of Hawaiian Home Lands, State of Hawai'i

This letter is my "public comment" regarding the Anahola Kuleana Homestead Settlement Plan--Draft EA (AFNSI). I am pleased to see this project proceed and have ideas which could improve either this project or future projects within the Kamalomaloʻo-Anahola area. My comments are regarding mauka access by the community, particularly in regard to hunting.

The Kealia Forest Reserve (adjacent State land, Hunting unit-C) used to be a popular pig hunting area but was blocked about 10 or 15 years ago when the department locked the gates (see maps). I am not completely familiar with why the gates were locked but understand the need to prevent theft, vandalism, rubbish dumping and trespassing as well as protect people from falling albizia; however the gates had the negative affect of disrupted community access to important hunting grounds. There used to be open access via the dirt roads through DHHL's lands (See maps I've made: 1. Former Hunter Access Through DHHL Land and 2. Access to Important Community Hunting Grounds). The State even maintained a *hunter checking station* at the bottom which documented over 300 hunting trips per year, showing it to be a popular hunting area. Road access made for an enjoyable hunting experience and allowed hunters to access all parts of the adjacent State forest reserve, including overnight trips to the most remote portions. After gates went up, they served to landlock large portions of the State hunting unit which are inaccessible via any other practical or legal route. The number of recorded hunter trips dwindled to just 30 trips per year. Most local hunters now had to know somebody to get access, even to the public hunting areas on State land, and most hunters decided to go elsewhere or perhaps even hunt less.

To be fair, I am told that about 20 hunters do in fact utilize the DHHL lands today. I do not mean to cause conflict or otherwise step on their toes, but rather to improve access to the neighbor State lands and provide opportunities for future generations of hunters.

The plan could be improved if it addressed mauka access to the neighboring State land, which lays adjacent and mauka to the proposed development. I see that "creating a mauka access plan design" was even a recommendation of the Cultural Impact Assessment (p.71).

To help, I have done my best to draft maps of some of the more important access routes to the State land using my own memory, GPS hunting tracks, road maps, old aerial imagery (1950s to present), and a little bit of my own intuition. These should be cross-checked with others who are more familiar with these lands. While the proposed plan does not involve these mauka access points directly (except in controlling access through the bottom), future lease boundaries further mauka could be drawn to allow vehicular access routes to as many of these access points as possible. Hunters generally like to have some space between each other, and the various access points would provide for this space.

I have been in contact with some from the Anahola and West Kauai Hawaiian Homesteader Associations and it has been mentioned that a possible solution could be for hunters to register with the kuleana homesteader association which would result from this project. This could allow for streamlined access by legitimate hunters while keeping out undesirables such as thieves, dumpers, tourists, and even hunters whose dogs are not trained to ignore livestock.

I respectfully ask that as part of the development, hunter access routes be considered so that hunters, fishermen and other mauka users can once again drive through the DHHL property in order to access the neighbor State parcel. To be clear, this is NOT a request to hunt on DHHL itself but simply to pass through this property to hunt on the landlocked State lands adjacent and mauka of the DHHL parcels. There are no other practical access points to legally get to these lands.

Although all potential mauka access points are mauka of the proposed project, one access point is very close to the project area and could serve as an easy throughway for hunters to access some makai portions of the state land (See map: Mauka Access Suggestion). No extra development would be needed on the part of DHHL. The existing dirt road already has an existing parking room on a shoulder. All that would be needed is there to be no closed gates up until that point.

There are benefits to having better hunter access:

Lessees will be farming and the ability to efficiently control pigs is very important to farmers. All around Hawaii, people are struggling with pig damage. In many areas of Hawaii there is a shortage of wild forage from about Jan to May. Consequently, hungry pigs try their luck in adjacent farmlands and residential neighborhoods causing great damage. Hunting can pressure pigs to stay more in the forest, but there needs to be enough hunting pressure to effectively do so. When hunters chase or kill a pig, the rest of the pigs tend to stay away for a while, and when pigs return, the hunting effort can be repeated. It becomes very difficult to apply enough hunting pressure when there exists barriers-to-entry, such as required permission to enter through gates. When wild guava starts to drop its fruit (usually in summer through December) pigs prefer eating these sweet fruits so much that they hardly touch any other food except earthworms which they also eat daily for protein. But the pigs return each spring when hunters are again needed.

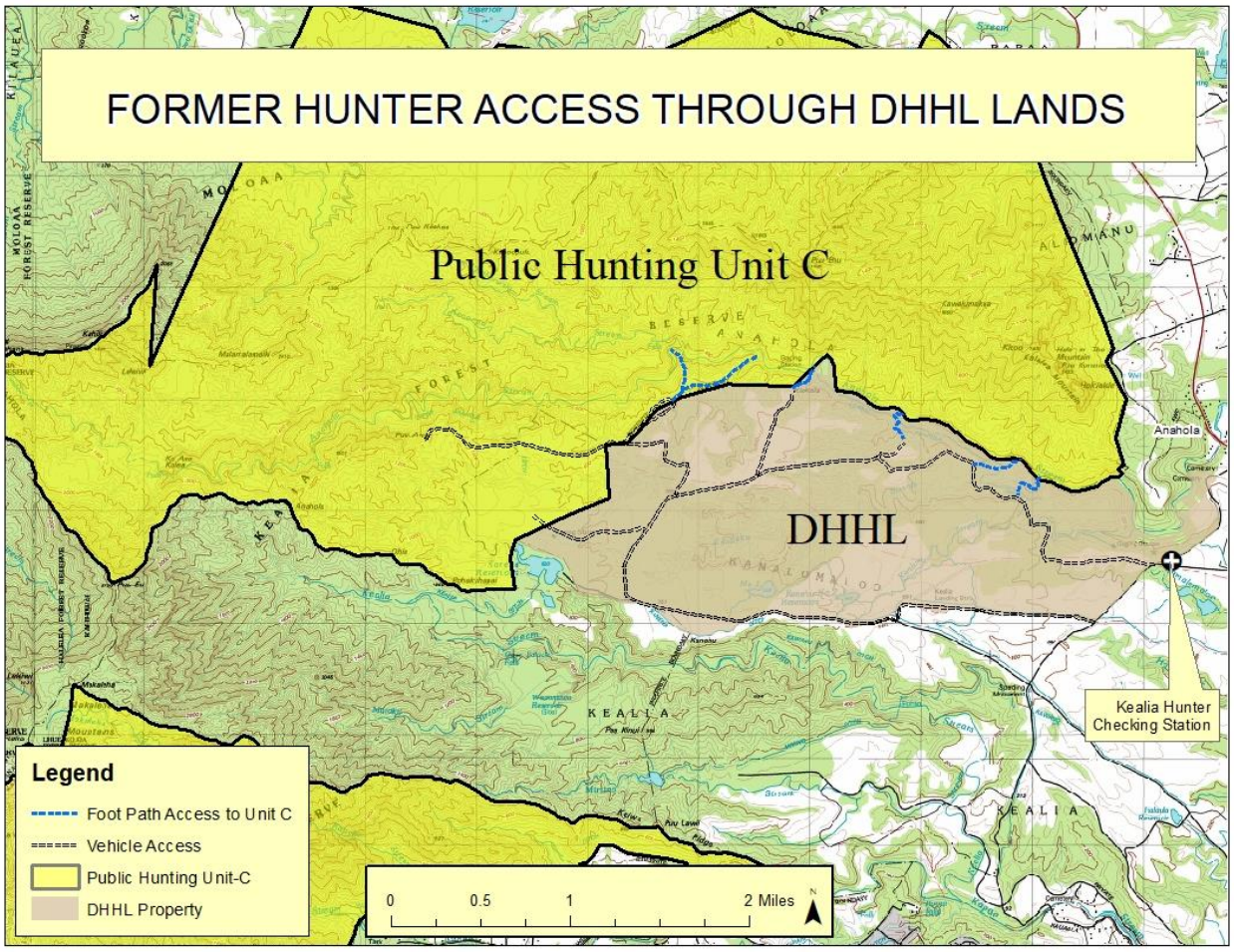
There are also benefits to the environment by having adequate hunter access. While pigs are fun game to hunt and are a resource as meat for the table, it must also be acknowledged that too high of a pig population can be a problematic source of erosion onto reefs and can harm native plants and animals. Too low a pig population and a valued resource becomes scarce. State hunting restrictions prevent this with bag limits and closed days. Hunters are crucial to managing these populations to a level which, ideally, maximizes the benefits while minimizing any drawbacks. Without enough hunters, problems commonly occur.

Mahalo for receiving my comments and I hope that these suggestions provide win-win solutions so that future generation of hunters will be able to enjoy these mauka resources the way we were able to.

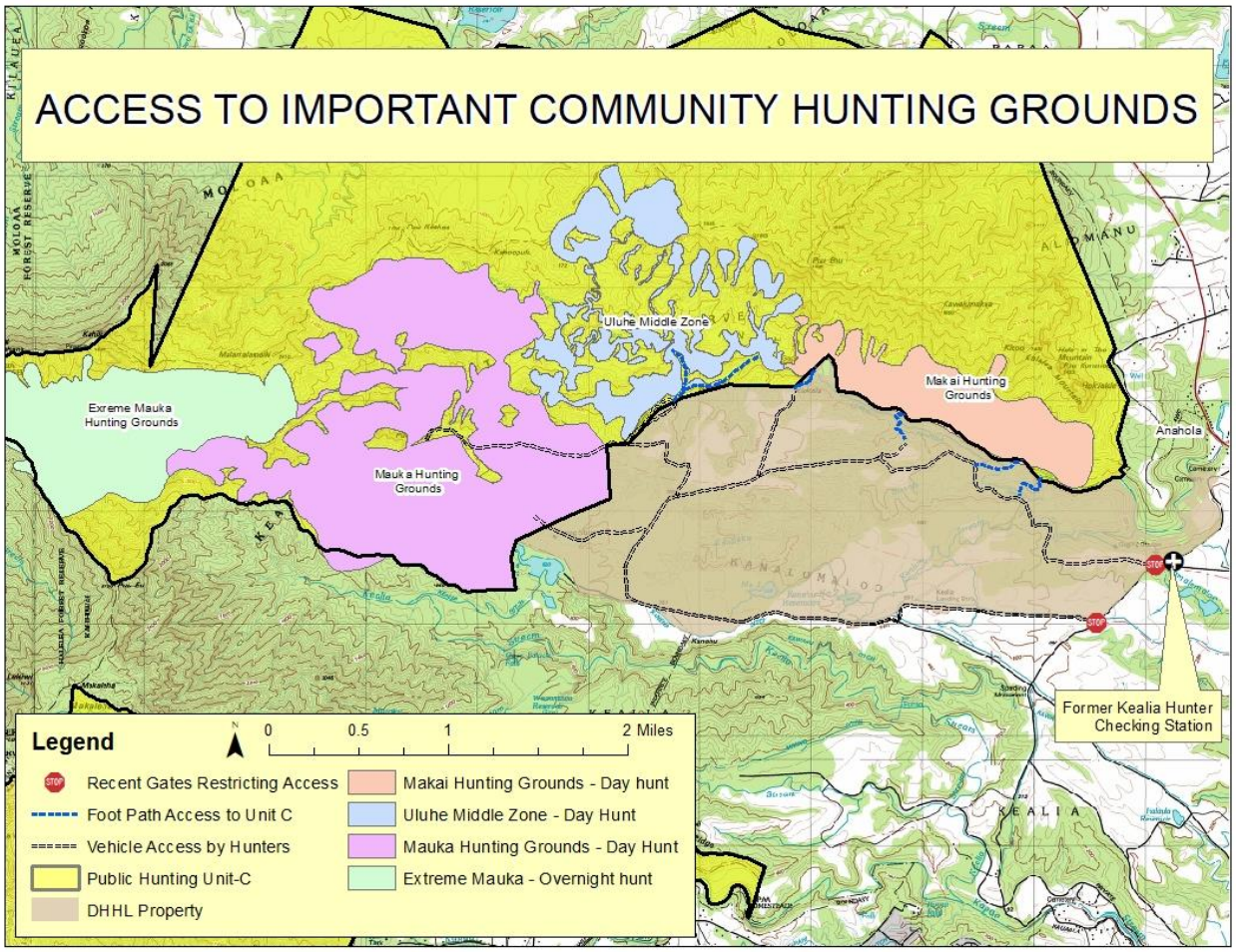
Aloha,

Nicolai Barca
Kaua‘i Hunter, Fisherman, and Conservationist.

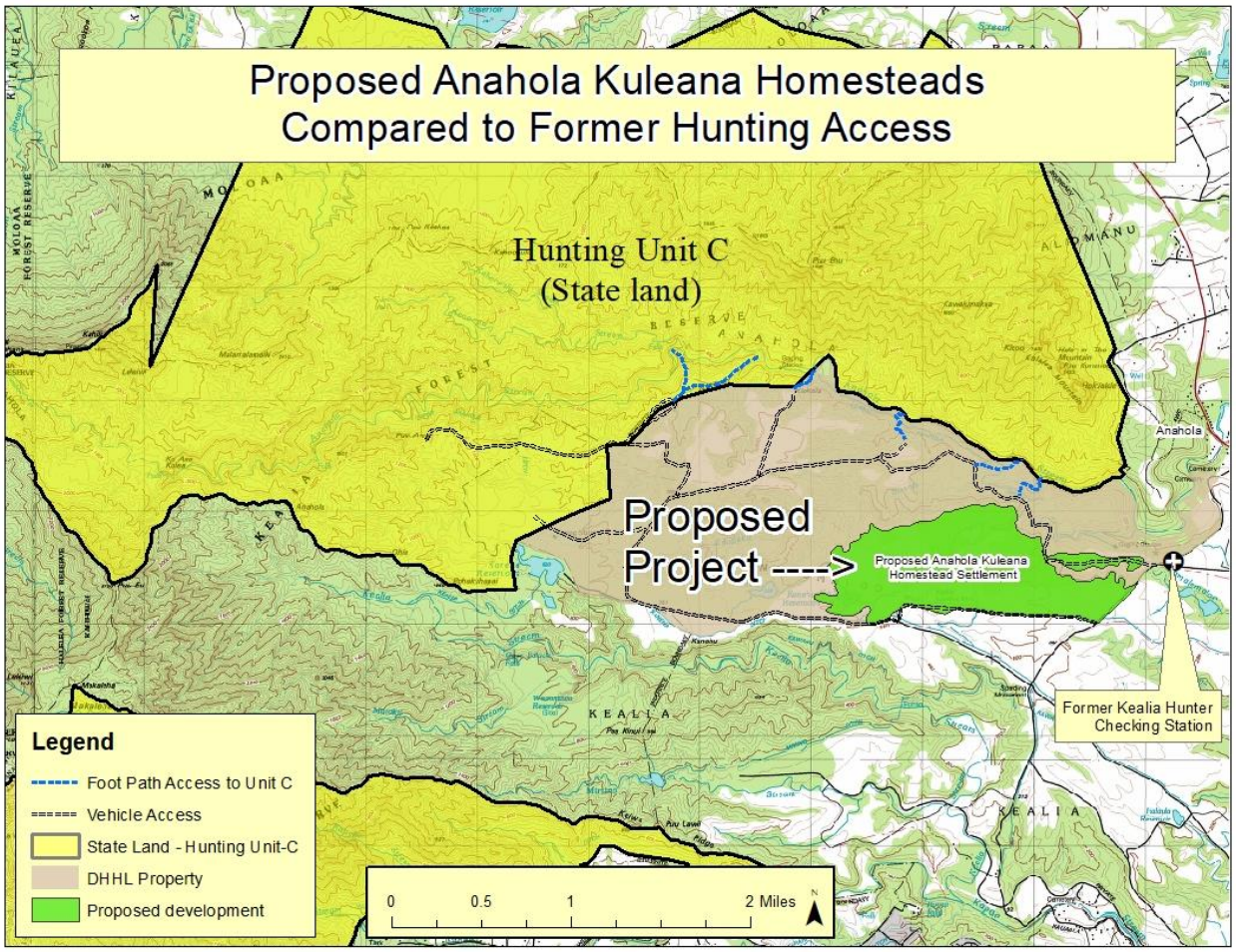
See attached maps:



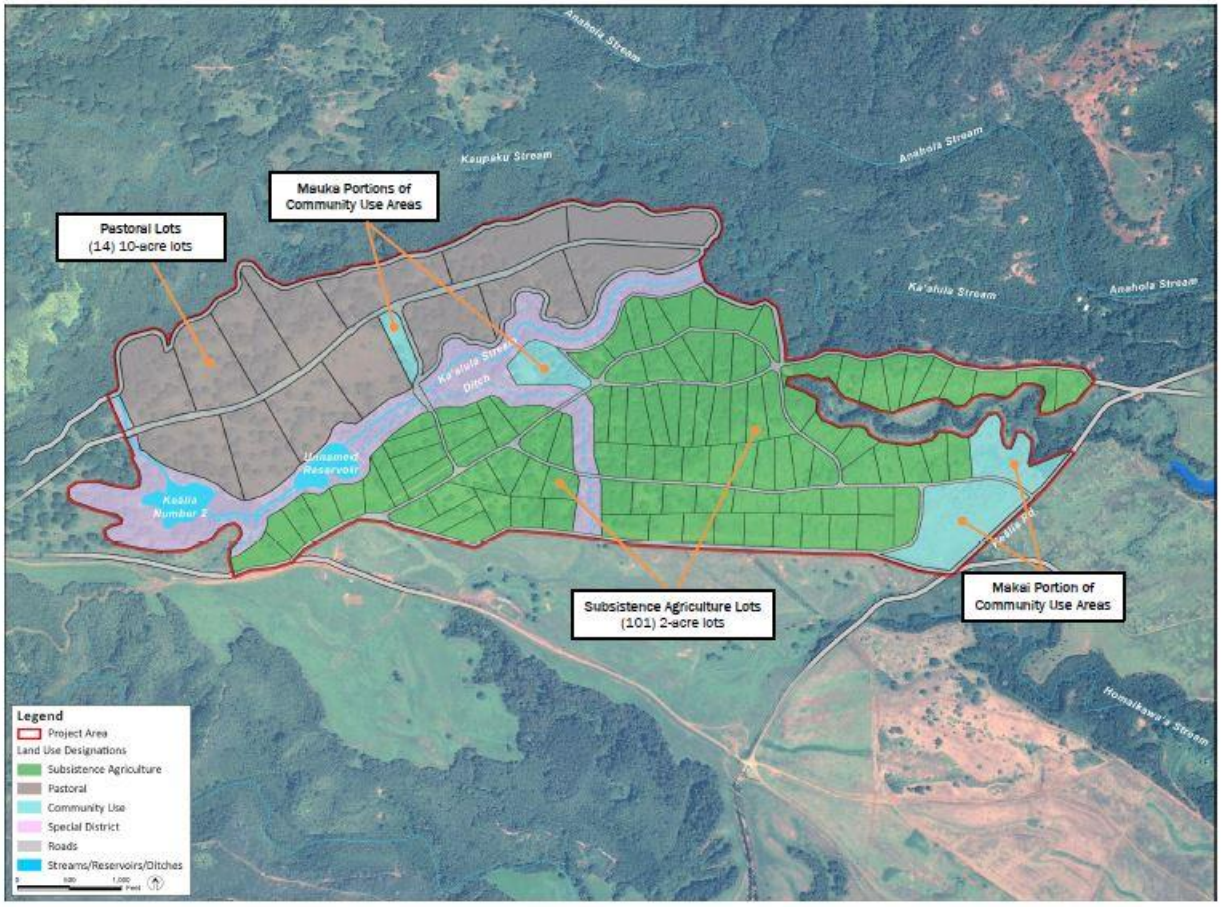
1. former hunter access through DHHL lands before gates were put up.



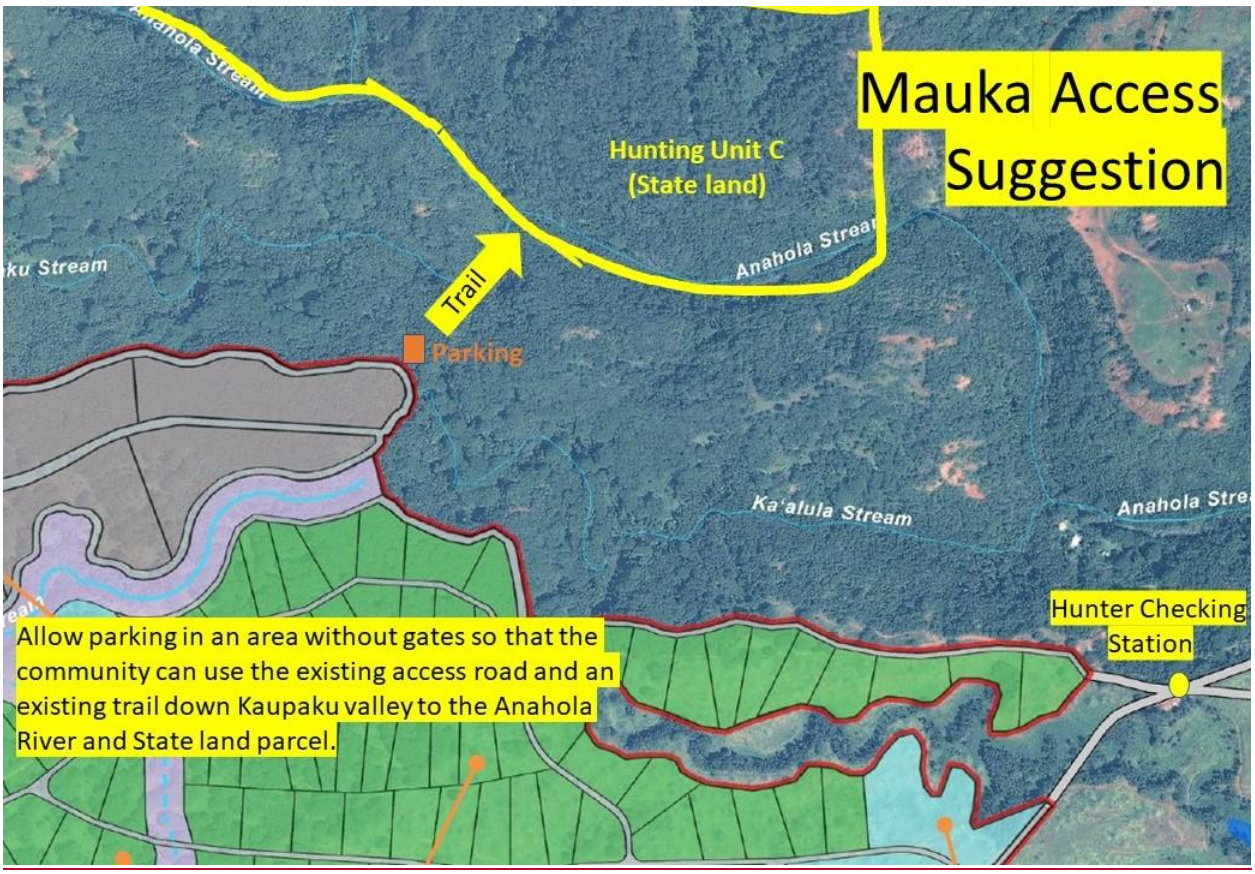
2. I made this map to show important hunting grounds. This is not meant to give out spots but rather to demonstrate why driving access to the top of the DHHL property was so important to hunters. Areas which are cut out from “important hunting grounds” are either very steep or solid uluhe fern which makes for poor pig habitat, or portions of unit-C which are simply not accessed from these routes.



3. Location of proposed Anahola Kuleana Homestead Settlement (green). Access routes both run trough the proposed project area but no access points are directly within the proposed project. However, one access point is very close to it. See map 5 below.



4. Detailed map of the Settlement Plan



5. A suggested location for a parking and trail route to access the lowest part of hunting unit-C (State lands). There would need to be no gates up until at least the parking spot. It's only about 300 yards to the river. Consider a State easement.

Barbara Natale

From: Alston, Paul
Sent: Wednesday, May 13, 2020 10:53 AM
To: Anahola Project
Cc: Tom McCloskey
Subject: Anahola Kuleana Homestead Settlement Plan

Attention: Kawika McKeague

Sir:

In Section 3 of your draft Environmental Assessment, you identify Cornerstone Holdings and the McCloskey family as the owners of the adjacent property in Kealia.

They sold the property more than two years ago. The new owner is an entity owned by Frank Vandersloot.

DENTONS

Paul Alston
Hawai`i Managing Partner

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