

NEIL ABERCROMBIE
Governor



ALFREDO A. LEE
Executive Director

STATE OF HAWAII
AGRIBUSINESS DEVELOPMENT CORPORATION

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February 24, 2011

REC. OF ENVIRONMENTAL
QUALITY CONTROL

Mr. Gary Hooser, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Hooser:

Subject: Draft Environmental Assessment
Pohaku 'O Kauai Materials LLC
TMK, [4] 1-2-002:001,331,322 Kauai, Hawaii

The State of Hawaii Agribusiness Development Corporation has reviewed the Draft Environmental Assessment (DEA) for the subject project, and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the next available OEQC Environmental Notice.

Enclosed is a completed OEQC Publication Form and one (1) copy of the DEA document in pdf format on a CD; and one (1) hardcopy of the DEA. The point of contact for this issue is the applicant's consultant, Land Strategies Hawaii LLC, Mr. Sean Combs, by phone at (808)212-4006 or e-mail at seanls@hawaii.rr.com. Please forward written comments to Mr. Combs at Land Strategies Hawaii LLC, 4200 Waileia Place, Princeville, Hawaii, 96722.

Sincerely,

Alfredo A. Lee
Executive Director

Draft Environmental Assessment

Rock Aggregate & Borrow Site

(Field Rock Collection & Crushing)

Kekaha, Kauai

February 2011



Prepared for:

Pohaku O'Kauai Materials LLC
3-1480 Kaunaulii Hwy
Lihue, HI. 96766-9579

Prepared By:

Land Strategies Hawaii, LLC
4200 Waileia place
Princeville, HI. 96722

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- Figure 10: Site Pictures

SOURCE REFERENCE

1. Stone Quarries & Beyond
2. Pohaku O' Kauai Materials project outline
3. Honolulu Advertiser
4. State of Hawaii Division of Forestry and Wildlife
5. Hawaii Department of Environmental Management
6. Tribune Herald
7. Marketresearch.com
8. Kekaha Agricultural Association
9. Cultural Surveys Hawaii

DEA Documentation Page

Project Name: Rock Aggregate & Borrow Site
Field Rock Collection & Crushing

Applicant: Pohaku O'Kauai Materials, LLC

Consultant: Land Strategies Hawaii, LLC
Cultural Surveys Hawaii LLC

Landowner: Agricultural Development Corporation (ADC)

Location: North off Kaumualii Highway below the ditch
Kekaha, Kauai, Hawaii 96796

Tax Map Key: (4th) 1-2-02: 01, 331,322

Existing Use: Agriculture

Proposed Action: Rock collection & crushing

Project Area: Kekaha, Waimea, Kauai

Land Use Designations: State Land Use District: Agriculture
County Zoning District: Agricultural
County General Plan: Agriculture

Action Triggered: Use of Government Lands HRS 343

Approving Agency: Agricultural Development Corporation

Required Permits: None

Anticipated Determination: Finding of No Significant Impact (FONSI)

Estimated
Cost of Project: \$110,000.00

Time Frame: Commencement of project upon completion of Chapter 343
environmental review

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 1

Overview and Technical Description

OVERVIEW

PROJECT PURPOSE & NEED

There is a severe shortage of rock and rock aggregate throughout the State, including Kauai, and this project will serve to address this current shortage. Rock aggregate is necessary to make products such as concrete and for asphaltic concrete for the paving of our roads and highways. The shortage is so severe that the larger companies have turned to the importing of rock from across the Pacific (China, Washington, Alaska, Canada). Pohaku O’Kauai Materials (POKM) is proposing to collect field stones and sand left behind from agriculture activities (sugar, seed corn) since the early 1800’s. The project area is limited only to land that was previously disturbed by the agricultural activities indicated above. Collection of these rocks will be done with a small loader and the rock would be stockpiled and crushed on or off-site at a later date. Sand and gravel resources are large, however, because of environmental restrictions, geographic distribution, and quality requirements for some uses, sand and gravel extraction is uneconomic in some cases. The most important commercial sources of sand and gravel have been river channels, and flood plains similar to the proposed Kekaha site. The equipment that will be used for this project include; a 621 loader, D7 dozer, a 960 excavator, and a simple screening tray. The equipment listed is similar to that which is used by the agribusiness companies operating in the area, and potential effects on air quality and noise are nominal, as the site is more than 0.5 miles from the nearest residential area, the hours of operation are consistent with the current agricultural activities. The air quality impact is also on par with that produced by those agricultural projects in the area.

The Rock Aggregate and Borrow Site (RABS) project is necessary to insure the availability of quality, clean, and affordable aggregate & sand. Once the business is in place, it is expected to reduce the cost to produce asphaltic concrete and in turn reduce the cost of paving our roads. In addition, when completed, this project will improve field conditions for the agricultural tenants, and reduce the costs associated with field

preparation, as well as providing potential employment opportunities for the west side community.

ENVIRONMENTAL REQUIREMENTS

This Draft Environmental Assessment (DEA) has been prepared in accordance with the State of Hawaii, Office of Environmental Quality Control (OEQC) rules and regulations, including Chapter 343, Hawaii Revised Statutes (HRS), and Chapter 200 of Title 11, Hawaii Administrative Rules (HAR) Department of Health.

The Preparation of a DEA is a statutory requirement prior to, or in anticipation of the construction of a project where “significant environmental effects” will result from the proposed activity. There are total of nine (9) actions constituting Chapter 343, HRS, with one trigger specifically affecting this project. The purpose of a DEA is to assess the environmental impacts that a project may have, should the action be implemented, and to serve as a clearinghouse for collection and dissemination of information. This review process is also a mechanism to evaluate a project’s consistency and compliance with state and federal environmental programs and to propose, where possible, appropriate mitigation measures. If significant environmental effects are not identified through the environmental assessment, preparation of a full environmental impact statement is not required, and a “finding of no significant impact” may be issued by the approving authority.

The environmental review for the proposed rock collection and crushing operation consists of a DEA, followed by a Final Environment Assessment (FEA). A Finding of No Significant Impact (FONSI) declaration will be included with the issuance of the FEA. Upon release of the DEA for public and agency review, a notice is published in “The Environmental Notice”, which is a semi-monthly bulletin of the OEQC. Comments received during the course of the 30-day review and comment period will be incorporated into the FEA report along with agency correspondence and proposed mitigation measures.

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 2

Affected Environment: Physical

PROJECT SETTING

RABS will be located in Kekaha, District of Waimea, Kauai. It's far removed from existing residential settlements and other urban activities. The nearest project is the Pacific Missile Range Facility (PMRF) which could benefit from the availability for crushed aggregate for facility maintenance (roads and for aircraft runway). PMRF is ranked up as one of the larger employers on the island. The parcel is bound by Kaumualii Highway and the Pacific Ocean to the east, Agribusiness Development Corporation (ADC) agriculture tenants like Syngenta and Pioneer Seed facilities to the south, Polihale State Beach Park to the north, and Department of Hawaiian Home Lands (DHHL) to the west. Only a portion of the total land area of the parcel of record is affected by the proposed project.

RABS is recognized as a necessary element to Kauai County's infrastructure picture. It is as important as is wastewater, potable water, and solid waste.

A. TOPOGRAPHY AND SOILS

The project area is comprised of flat, sandy soil. Necessary activities will include an equipment storage base yard, an aggregate stockpile area, and a rock crusher. To address National Pollution Discharge Elimination System (NPDES) standards, a perimeter berm and screen will be erected which restricts runoff during storm-level events.

Impacts and Mitigation Measures

No negative impacts to the natural environment are expected to result from the proposed action. Construction activities will only include a perimeter berm and screen fence. It will be completed in compliance with State Department of Health requirements.

B. FLORA AND FAUNA

There are no known endangered or threatened species of plant or animal life or significant habitats within the project area. Within the project area, no endangered or indigenous flora or fauna will be affected. While native fauna are present in the project area, surveys have indicated that the scope and scale of the Project will have no detrimental impact on their populations. Forest bird species noted in the project area include Kaua'i 'Amakihi (*Hemignathus kauaiensis*), 'Apapane (*Himatione sanguinea*), and 'Elepaio (*Chasiempis sandwichensis*).

Impacts and Mitigation Measures

No impacts to flora or fauna are anticipated to result from the proposed action. The lands were highly disturbed during the cultivation of sugar and the existence of endangered plant and animal species are unlikely and threatened or endangered birds would not be expected. Point-in-fact this property had been in continuous use as a sugar plantation since the 1890's, until the closure of Kekaha Sugar Company in 2001.

C. AIR AND NOISE QUALITY

RABS is located in an Agricultural area, absent of urban development's and air source contaminants. The area is consistently exposed to trade winds that contribute to the excellent air quality in the vicinity of the proposed action. Noise levels near the vicinity of the project area are expected to be minimal, and similar to other agriculture activities. Ambient air emission is from equipment use along Kaumualii Highway that yields ambient air quality levels typical of the islands rural setting. The air quality impact is also on par with that produced by those agricultural projects operating in the area. The average noise levels during operation would be less than 85-90 dBA at a range of 50 feet from any of the listed pieces of equipment.

Impacts and Mitigation Measures

There are no adverse long-term impacts to air and noise anticipated beyond short-term impacts attributable to construction related activities. Appropriate Best Management Practices will be employed to ensure that short-term construction-related noise and temporary fugitive dust are mitigated. Should noise levels exceed permissible sound levels, a noise permit will be obtained from the Department of Health, as stated in Title 11, HAR, Chapter 11-46, entitled "Community Noise Control."

D. FLOOD AND COASTAL HAZARDS

The Federal Insurance and Mitigation Administration make flood insurance available through the National Flood Insurance Program. According to Community Panel Number 150002 0140 E of the Federal Flood Insurance Rate Map (FIRM), the project area is within Zone X, 500 year flood with average depths of less than one foot. The area does fall within the Tsunami Inundation Zone, or area where flooding is by wave velocity. The proposed action is not anticipated to increase storm water runoff by significantly altering current ground drainage characteristics or changing existing drainage patterns.

Impacts and Mitigation Measures

No adverse effects from flood and tsunami hazards are anticipated to result from the proposed action. The project will not increase storm water runoff by significantly altering ground drainage characteristics or change drainage patterns.

HISTORIC, ARCHEOLOGICAL AND CULTURAL RESOURCES

A Cultural Impact Assessment (CIA) & Archaeological Inventory Survey (AIS) have been completed for the project in October 2010, by Hal Hammett, Ph.D., Principal of Cultural Surveys Hawaii. A copy of the CIA is included as part of the supporting documents for the Environmental Assessment. The Executive

Summary is as follows: "The project involves the collecting and removal of previously displaced rocks, boulders, dirt and debris from areas bordering former agricultural fields. These materials will be hauled to designated areas, where they will be stockpiled, and crushing into gravel. Therefore, the main activities for this Project will include the following":

- The placement of small portable crushing operation on a designated storage site within the project area;
- The collection and transportation of rock, boulders, sand, dirt, and debris to storage site;
- The operation of a rock crusher to convert rock and boulders to marketable aggregate sizes;
- The transportation of the product (sand & gravel) away from the project area for delivery to west side communities, businesses , and / or federal, state and county agencies for road and culvert repairs.

"The proposed project will also include improvements to an existing road approximately five miles long which provides access to the Project area. Improvements will involve the laying of gravel on an existing dirt road. This road was once functional prior to World War II, and will be connected to Kaunaulii Hwy because of Project improvements. This road, or portion of it, has been alternatively called the "Old Government," New Government," or "Mana" Road. The defined project area will not include any portion of the Kekaha Ditch nor will it require the establishment of any supporting infrastructure".

Impacts and Mitigation Measures

Based on location of proposed improvements, no adverse impact to historic or archeological resources is anticipated. However, in the event that cultural material, including inadvertent human burials, is uncovered during construction of the new facilities, all work in the construction area shall be suspended and the Kauai Police Department and the State of Hawaii, Historic Preservation Division notified.

F. SCENIC AND OPEN SPACE RESOURCES

RABS project will be conducted on lands without scenic or open space planned by the state or county. The used of these lands has been historically for the agricultural industry, sugar cane until 2001, and once the industry collapsed, the lands have been used for growing hi-bred corn.

Impacts and Mitigation Measures

The owners of POKM have agreed to all of the conditions proposed in the Cultural Impact assessment & Archaeological Inventory Survey which are listed below:

CIA 10.3 Recommendations

Based on the information gathered from the community consulting effort as well as archaeological and archival research presented in this report, the evidence indicates that the proposed project may have a significant negative impact on access to areas mauka of the proposed project area. These areas include family burial sites of consultants interviewed for this CIA as well as Hawaiian cultural sites such as *Heiau* and birthing stones in proximity if the mitigate potentially adverse effects the proposed project may have on Hawaiian cultural practices, beliefs and resources in and near the project area:

1. Personnel involved in development activities in the project area should be informed of possibility of inadvertent cultural finds, including human remains. Should cultural or burial sites be identified during ground disturbance, all work should immediately cease, and the appropriate agencies notified pursuant to applicable law.

2. Any fencing or gates that would further restrict access to the mauka regions of the proposed project area should not be constructed during the tenure or life-cycle of the proposed rock crusher and its associated operations. Access to mauka areas above the project area should be kept open.
3. No rock or other materials should be taken from Hawaiian cultural sites mauka or in the vicinity of the proposed project area to be used for gravel or road-paving materials. These include Heiau and birthing stones or any other Hawaiian cultural site.
4. Cultural or archaeological monitoring should be conducted during all phases of construction.

AIS 7.2 Mitigation Recommendations

Because the boundaries of the project area for proposed rock collecting and crushing activities was flexible, a survey area was established, archaeological sites were identified and recorded, and the project area was placed to avoid those sites. Of the eight sites recorded as part of the inventory survey, all but one will be avoided by the current project. Portions of SIHP # 50-30- 05-2107 will be impacted by the proposed project, however sufficient information regarding the location, function, age, and construction methods of the roads and associated features has been generated by the current inventory survey investigation to mitigate any adverse effect caused by proposed project activities.

7.2.1 Preservation Program

Though the current project will not impact SIHP # 50-30-05-2114, a heiau, it is recommended that a clearly marked buffer zone be established around the heiau to ensure that project activities remain well away from this historic property. In addition, all sites in proximity to the project area should be flagged to ensure they are avoided by project related activities. The details of the buffer zones and flagging should be outlined in a preservation plan to be submitted for review and approval by the SHPD.

7.2.2 Monitoring Program

A monitoring program consisting of a periodic inspection of project related activities is

recommended for this project. A monitoring plan should be submitted to the SHPD for review and approval before any ground disturbing activities begin, and a report detailing monitoring activities should be generated after archaeological monitoring is complete. In summary, all sites documented as part of this inventory survey are recommended eligible to the Hawai'i Register of Historic Places. A preservation program is recommended for all sites in proximity to the project area, including the heiau, to ensure that project related activities do not impact these historic properties. In addition a monitoring program consisting of a periodic inspection of project related activities is recommended for this project. The recommended preservation and monitoring programs should alleviate any adverse impacts to significant historic properties resulting from project related activities.

Based on location of proposed project, no adverse impact to scenic or open space resources will be imposed. If a plan is generated for those lands during the proposed operation timeline by the state or county, POKM will work with that entity to accommodate their needs and potentially modify or replace the proposed site area.

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 3

Affected Environment: Socio-Economic

A. POPULATION AND ECONOMY

The resident and the de-facto population continue to grow on Kauai, a condition also experienced in west Kauai. West Kauai can be an economic center of the island (as was recognized by the early Hawaiians), with PMRF, KVMH Hospital, NASA, and Waimea Plantation Cottages as major employers on the island. In addition to having one of three hospitals on the island, Waimea boasts having one of three high schools, and one of four small boat harbors. The more recent Federal Census placed Waimea within the Slum/Blight areas of the island. The present resident population is approximately 68,000.

The benefits of rock & sand collection include:

1. The production of a very valuable and useful commodity for the construction and agricultural industries.
2. Jobs result in the proposed action.
3. Local infrastructure benefits - improved access routes, possibly new power lines, possibly a new rail line.
4. Local communities benefit from both jobs and money spent locally
5. At the completion of rock & sand removal, the site may have new use for agriculture.
6. Rock & sand is plentiful on the surface of the earth and quite useful.
7. Construction of houses, buildings, and roads (concrete, sand, crushed stone for foundations and utilities; mineral components are contained in tile, brick, wallboard, paint and many other household materials).
8. Industry use (as abrasives, binders, additives, in water and air treatment systems)
9. Agriculture use for berms, access deterrents, and boundaries.
10. Key component for building roads, foundations and transportation structures with cement, and crushed stone.

Impacts and Mitigation Measures

The project will not have any negative impact upon population or change to demographic characteristics. During the construction phase, benefits will accrue to the local economy as a direct result of construction expenditures. Some beneficial impact will accrue from contributions made in the form of wages, salaries, and sales taxes, as well as goods and services purchased from local vendors.

B. TRADITIONAL BEACH AND MOUNTAIN ACCESS

RABS does not front a beach. Shoreline access is currently available from Polihale Beach Park and through beach access at the PMRF.

Impacts and Mitigation Measures

The proposed action will not adversely impact traditional beach or mountain access, or other recreation activities along coastline frontage, as the site has no direct beach access, and is located across the highway from the beach. There is no impediment to the mountain access road which is located on the perimeter of the project site location.

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 4

Affected Environment: Infrastructure

A. ROADWAYS

Kaumualii Highway, under jurisdiction of the State, is classified as a major thoroughfare and main arterial road connecting Kekaha with Lihue, the seat of the County of Kauai. Public access to the RABS is via a cane haul road off of Kaumualii Highway, and is restricted to the owners, and those entities with land lease rights.

Potential impacts and Mitigation Measures

Vehicular access is adequate to support the proposed activity with no appreciable impact of vehicles or roadway traffic near the project corridor. During the construction phase, contractors will work during normal business hours of the day, 7:30 AM to 5:30 PM.

B. WATER AND INFRASTRUCTURE

The County's Department of Water provides municipal water service for the island. Water lines are generally located in streets and distribute potable water for domestic, industrial and commercial consumption.

Potential Impacts and Mitigation Measures

The proposed action is not expected to generate a significant demand for water. The Department of Water will be consulted during project design and prior to building permit approval, if required.

C. DRAINAGE

The proposed activities will not appreciably increase the impervious area of the site, and is relatively flat. The existing soil provides a good permeability surface area, thus making for slow storm run offs.

Potential Impacts and Mitigation Measures

Although the site is located at the highest elevation of the parcel, BPM's will be used during the collection process which does not require water or a drainage solution.

D. COMMUNICATIONS AND POWER

The Kauai Island Utility Cooperative (KIUC) is the local utility providing electrical power to service residential and commercial customers on the island. The project area is serviced by major overhead pole line system runs along Kaumualii Highway. Hawaiian Telecom is the company that currently provides land line telephone service to customers on the island. Several carriers provide wireless telephone services.

Potential Impacts and Mitigation Measures

The proposed action will have no impact on communication or power service. Electric capacity for the project site is adequate to support maintenance operations.

E. WASTEWATER

POKM is not located in the Waimea Waste Water Treatment Plant service area. In addition, the Waimea Waste Water Treatment Plant is at capacity and is unable to handle additional capacities.

Potential Impacts and Mitigation Measures

This project does not require permanent waste water service at any of the site locations. The lands identified as the project area will be used as a collection and storage area with no full time manned position required. If there is a time in the future where an on-site manager is required, a portable restroom will be located on site and will be maintained per a portable toilet rental companies service agreement.

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 5

**Relationship to Governmental
Plans, Policies, and Controls**

CHAPTER 5 RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

STATE LAND USE DISTRICT

The State Land Use Commission (LUC), established by Chapter 205-18, HRS, gives the Office of State Planning authority to designate all lands in the State into one of four districts: Urban, Rural, Agricultural, or Conservation. RABS project site is classified as “Agriculture District” by the State Land Use Commission.

COUNTY ZONING DISTRICT

County zoning provides a detailed set of regulations affecting land development, prior to actual construction. Zoning is typically limited to land classified as Urban within the State land use system. The project site is zoned Agricultural by the County of Kauai. The proposed action is consistent with the zoning.

GENERAL PLAN

The County of Kauai General Plan was revised and adopted in November 2000. The General Plan is a community-driven plan that establishes policy for long-range development, conservation, use and allocation of land, water, and other resources in the County. The Kauai General Plan includes numerous vision statements and policies for the Waimea District to achieve specific implementing actions. The following General Plan policy statements are applicable to the proposed action:

Policy

2.2 VISION FOR KAUAI 2020

The Vision describes conditions on Kauai in the year 2020 and is written from the standpoint of that point in time. It reflects not only the Community values, but also the issues and opportunities foreseen by community members. The Vision expresses what Kauai should strive for, in the context of realistic conditions as they are understood in 1999. The Vision is presented first in summary, then in a longer narrative.

a community which cares for its land and waters, leading the way with best management practices in the development of roads and other public facilities and in its land development and environmental regulations;

Response

POKM supports the community values through excellent stewardship of the natural resources, caring for the land and water, in part through the implementation of best management practices.

Policy

A Strong, Diverse Economy

“Kauai’s economy is strong, stable and diversified. While the visitor industry still provides the largest number of jobs (30-35 percent of total jobs), new businesses in diversified agriculture, aquaculture and high technology provide an increasing proportion of total jobs. Job opportunities are many and varied, with wages that allow people to comfortably support their families”;

Response

POKM is a small family owned business that will provide needed agricultural employment opportunities for members of our local Kauai community.

Policy

“Perform essential physical and ecological functions important to the welfare of surrounding lands, waters, and biological resources”.

Response

POKM will be carefully clearing the debris off the AG lands making them more suitable for continued productive agricultural uses. The project involves debris, sand, and rock removal that do not require water or biological resources to operate, and therefore does support, and is consistent with the county policy.

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 6

Alternatives to the Proposed Action

CHAPTER 6

ALTERNATIVES TO THE PROPOSED ACTION

PREFERRED ALTERNATIVE

In our assessment, the POKM project does represent a preferred alternative. In compliance, and consistent with federal, state and local laws, the proposed actions will provide an enhancement in the life quality and environment of our county of Kauai.

NO ACTION ALTERNATIVE

Without completion of the proposed action, there will be a significant amount of natural rock & waste which will render the lands less useable. Due to the fact that this is an above ground process that does not drain the soil of nutrients; it provides the least evasive use of the land. Without the proposed action, there is no supervision of the property which may allow illegal dumping to occur, and potential contamination of the land.

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 7

**Anticipated Determination –
Findings and Reasons**

CHAPTER 7

ANTICIPATED DETERMINATION – FINDINGS AND REASONS

The “Significance Criteria” as set forth in Section 12, Chapter 200, Title 11 of the Hawaii Administrative Rules regarding Environmental Impact Statement Rules, were reviewed and analyzed to determine whether the project would have significant impacts on the environment. The following analysis is provided:

1. *No irrevocable commitment to loss or destruction of any natural or cultural resource.*

The purpose of this project is to collect rock and sand otherwise in the way of productive agricultural activities, while eliminating invasive plants when possible. This project will be monitored by Kekaha Agricultural Association (KAA). KAA has a MOU with ADC, and under this agreement KAA is responsible for managing the common areas of the Kekaha Agricultural Lands. KAA is a non-profit organization established in 2002 to manage, operate and maintain a vast network of roads, agricultural irrigation waters, and the use of lands totaling approximately 12,500 acres.

2. *The proposed action will not curtail the range of beneficial uses of the environment.*

This project will strengthen rather than curtail these functions. With the elimination of loose rock from the fields and dirt roads, the proposed action leaves more productive agricultural lands available, rather than reducing the amount of useable area, and eliminates the requirement to push the loose rock to the sides of the fields and ditch.

3. *Does not conflict with the State's long-term environmental policies or goals or guidelines as expressed in Chapter 344, HRS.*

This project is consistent with Chapter 344 in that the aim is to preserve the natural resources “by safeguarding the State’s unique natural environmental characteristics”. Therefore, the protection of historically used agricultural lands will, in effect, reduce the destruction of nonrenewable resources and is in line with the state’s long-term environmental policies.

4. *Does not substantially affect the economic or social welfare of the community or State.*

The project will not negatively impact either the economics, social welfare, or the cultural practices of the community or state due to the fact that the Project area will support the consistent use of those lands, and the limited area of the project does not put at risk any social welfare of the community or state.

5. *Does not substantially affect public health.*

The project will not affect public health. Potential positive impacts to public health are: Improved soil quality, and reduced potential for destructive grading while reducing debris which has accumulated on the perimeter of the project area. The project land use is consistent with the activities in terms of, vehicles, and hours of operation of those of the “agribusinesses” currently operating on the parcel.

6. Does not involve substantial secondary impacts, such as population changes or effects on public facilities.

The project area is located on state lands that are managed by private companies and are over seen by a state agency, Agribusiness Development Corporation, additionally, the area is gated and locked during off business hours, as it has been for the past decades, which eliminates the possibility of any impact on population or public facilities.

7. Does not involve a substantial degradation of environmental quality.

The purpose of this project is clearing above-ground rocks from the for the northern most mauka side of the agricultural fields just below the ditch, thereby improving the environmental quality of the lands and improving the existing easement path used by the Kauai Island Utility Cooperative for their power lines.

8. The proposed action does not involve a commitment to larger actions.

The project supports ongoing and future management to benefit the project area but does not involve a commitment for larger actions. The area for collection is specific, and there are no plans to expand the scope of work or the site identified in this DEA. This project, over time, may prevent a greater need for more grading and clearing efforts in order to better utilize those agricultural lands.

9. Does not substantially affect rare, threatened, or endangered species or their habitats.

The project will have a beneficial effect on the rare, threatened and endangered species

and the ecosystem that exist within the project area by clearing rocks which have been precariously piled along the perimeter of the project area which was not there prior to sugar industries efforts to develop useable farm fields.

10. *Does not detrimentally affect air quality, water quality, or ambient noise levels.*

Air, water quality, and ambient noise will not be adversely affected, as this is a surface ground rock removal project. The project perimeter has been identified so as to not disturb the ditch water system; additionally the distance to the nearest residence is approximately 1 mile.

11. *Would not affect environmentally sensitive area such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters, or coastal waters.*

The project will not negatively affect an environmentally sensitive area nor suffer damage due to the fact that the project location is at the base of the ditch, and along the existing agricultural vehicle dirt access roads. The best management practices will be used to prevent and minimize any anticipated short-term impacts, and are not anticipated to result in long-term damage to any of the lands. The project area is limited only to those lands that were previously disturbed by agricultural activities.

12. *Would not substantially affect scenic vistas and view planes identified in county or state plans or studies.*

The project will not have any substantial effect on any scenic vistas or view planes. The project area is located in a gated portion of the Kekaha agricultural land, and there are no plans identified by the state or by the county to create vistas or view planes on this parcel.

13. *Does not require substantial energy consumption.*

Energy consumption for this project will be of a short duration and not substantial. Direct energy requirements/consumption will be restricted to the fuel required for helicopter flights and fence construction.

Based on the foregoing findings, the proposed activity is not anticipated to result in any significant impacts on the environment, as defined by Section 11-200-12, Hawaii Administrative Rules, Department of Health.

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 8

List of Permits and Approvals

CHAPTER 8

LIST OF PERMITS AND APPROVALS

Permits and approvals will be required prior to the implementation of the project:

State of Hawaii

- 1) An Environmental Review and Determination per Chapter 343, HRS is required and has not been issued. Agricultural Development Corporation is the agency of authority, and the determination is pending.

County of Kauai

No permits

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 9

Parties Consulted during the Review of the Environmental Assessment

Consultation List

Department of Transportation

1720 Haleukana Street
Lihue, HI 96766

Department of Health

4444 Rice St # 275
Lihue, HI 96766-1340

Kekaha Agricultural Association

PO Box 811
Waimea, HI 96796

Pacific Missile Range Facility

Natural Resource Manager
P.O. Box 128
Kekaha, Kauai, Hawaii
96752-0128
(877) 628-9233

Consultation List for CIA & AIS

Section 6 Community Consultation

Throughout the course of this assessment, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the Project area. This effort was made by letter, email, telephone and in person contact. The initial outreach effort was started in February 2010. Community consultation was completed in June 2010. In the majority of cases, a letter (Appendix D), map, and an aerial photograph of the Project area were mailed.

In most cases, two to three attempts were made to contact individuals, organizations, and agencies apposite to the CIA for the Project. The results of the community consultation process are presented in Table 3. Written statements from organizations and agencies are presented in Appendix E and F, and summaries of interviews with individuals are presented in Section 8.

Table 3: Community Contact Table

Name/Affiliation, Background	Affiliation/Background	Comments
Aha Pūnana Leo o Kaua'i,	Hawaiian Immersion School	CSH sent community outreach letter and figures on February 19 and March 1, 2010. CSH phoned on March 15, 2010.
Aipoalani, Clisson (Kunane)	Chairman, Kaua'i/Ni'ihau Islands Burial Council (KNIBC)	CSH sent community outreach letter and figures on February 19 and March 1, 2010. See complete interview in Section 8 below.
Akana, Kaipo	Waimea <i>kupuna</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010. Mr. Akana provided CSH permission to use a previous interview (See Section 7 below).
Arashiro, Osamu	Retired Kekaha Plantation worker	CSH sent community outreach letter and figures on February 19 and March 1, 2010. See complete interview in Section 8 below.
Ayau, Halealoha	Hui Mālama I Na Kupuna 'O Hawai'i Nei	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Ceballos, Clem	Waimea <i>kama'āina</i> , retired plantation worker	CSH sent community outreach letter and figures on February 19 and March 15, 2010.
Cayan, Phyllis "Coochie"	SHPD History & Culture Branch Chief	See Section 6.2 below for SHPD response. See SHPD response letter in Appendix F.

CIA for a proposed Rock Crushing Establishment along the New and Old Government Roads, Waimea Ahupua'a, Waimea District, Island of Kaua'i

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Name/Affiliation, Background	Affiliation/Background	Comments
Crowell, Dee	KNIBC	CSH sent community outreach letter and figures on March 1 and March 15, 2010.
De La Torre, Daniel	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
De La Torre, Jody	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Erickson, Marsha	Executive Director, Hui o Laka (Kōke'e Ecological Education Group, Waimea Valley Association)	CSH sent community outreach letter and figures on February 19 and March 15, 2010.
Faye Museum	Family museum of the H. P. Faye	CSH sent community outreach letter and figures on February 19 and March 13, 2010.
Goodwin-Kaohi, Aletha	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 15, 2010. See complete interview in Section 8 below.
Kaiaokamalie, Leanora	Mānā <i>kama'āina</i>	CSH sent community outreach letter and figures on February 24, 2010.
Kealoha, Keone	Executive Director, Mālama Kaua'i	CSH sent community outreach letter and figures on March 1, 2010.
Kekua, Kehaulani,	Director, Ka'ie'ie Foundation, <i>Kumu hula</i>	CSH sent community outreach letter and figures on February 19 and March 15, 2010.
Kilauano, Carolyn	Pōki'i <i>kupuna</i>	CSH sent community outreach letter and figures on February 19 and March 15, 2010. See complete interview in Section 8 below.
Kupo, Alfred J.	Kekaha <i>kama'āina</i>	CSH sent community outreach letter and figures on March 1, 2010.
Martin, William	Retired Kekaha Plantation worker	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
McMahon, Nancy	SHPD - Deputy State Historic Preservation Officer	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Mitchell, Auli'i	Director, CSH Hawai'i Office. <i>Kumu Hula</i>	CSH sent community outreach letter and figures on February 19, 2010.

CIA for a proposed Rock Crushing Establishment along the New and Old Government Roads, Waimea Ahupua'a, Waimea District, Island of Kaua'i

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TMK: [4] 1-2-002:001

Name/Affiliation, Background	Affiliation/Background	Comments
Nāmu'o, Clyde	Administrator, OHA	CSH sent community outreach letter and figures on February 19, 2010. See OHA response below in Appendix E.
Parraga, Franklin	Kekaha <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Parraga, Louis, III	Retired Kekaha Plantation worker	CSH sent community outreach letter and figures on February 19 and March 1, 2010. See complete interview in Section 8 below.
Pereira, Leah and Patrick A.	Member - <i>E Ola Mau Nā Leo O Kekaha</i>	CSH sent community outreach letter and figures on March 1, 2010.
Ruiz, Debra	KNIBC	CSH sent community outreach letter and figures on March 1, 2010.
Say, Barbara	KNIBC	CSH sent community outreach letter and figures on March 1, 2010.
Sproat, Linda,	Former Resident	CSH sent community outreach letter and figures on March 15, 2010. Referred Hedy Sullivan.
Sullivan, Hedy	Director of <i>Kula Aupuni Ni'ihau</i>	CSH sent community outreach letter and figures on March 15, 2010.
Takekawa, Isabel,	Pōki'i <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19, 2010. See complete interview in Section 8 below.
Wichman, Frederick "Bruce"	Historian, author and <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Wichman, Randy	President, Kaua'i Historical Society	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Wichman, Victoria	Waimea <i>kama'āina</i>	On February 20, 2010, CSH received an email from Mrs. Wichman, referring Mr. Halealoha Ayau to CSH.
Wong, Antonio	Retired Kekaha plantation worker, <i>paniolo</i> , hunter	CSH sent community outreach letter and figures on February 19 and March 15, 2010. See complete interview in Section 8 below.
Wooten, Anne	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 24, 2010. Ms. Wooten responded on February 25, 2010 via email to CSH referring Kunane Aipoalani and Uluwehi Kilauano.

CIA for a proposed Rock Crushing Establishment along the New and Old Government Roads,
Waimea Ahupua'a, Waimea District, Island of Kaua'i

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6.1 Office of Hawaiian Affairs

CHS contacted Clyde Nāmu'o, Administrator of OHA on February 19, 2010. In a written response sent to CSH on April 1, 2010 (see Appendix E), Mr. Nāmu'o states that:

OHA is aware that at one time the Kekaha Sugar Company lands were once crown lands. Irrigation ditches flowed through these lands and in 1856 these crown lands were leased for agriculture and ultimately to produce sugar. The Irrigation ditches that once flowed for miles were drained and sugar was planted.

OHA applauds your efforts to perform an archaeological study in connection with the Project and to ensure that any identified cultural and/or archaeological sites are not disturbed. We also recommend consultation be initiated with Kaua'i's Hawaiian community and organizations who may have information or documentation on family history in Waimea and Kekaha dating back pre-Kekaha Sugar plantation days, cultural history, cultural resources, historic sites or legends. These community resources may be willing to share their *mana'o* regarding this assessment.

Specifically, Mr. Nāmu'o suggests contacting the Kaua'i County Historic Preservation Commission, Kaua'i Historical Society, Kaua'i Museum, and the Faye Museum.

6.2 State Historic Preservation Division

CSH contacted Phyllis "Coochie" Cayan, History and Culture Branch Chief of SHPD on February 19, 2010. In a written response sent to CSH on February 26, 2010 (see Appendix F), Ms. Cayan states that:

While the Project area may have been under previous heavy agricultural use by private land owners there is always a general probability that some cultural resources remain known or unseen. There are significant cultural and historical features in the general area which include but are not limited to the use of the Kekaha Ditch as you so note.

SHPD is also concerned with any ground disturbance work which may uncover burials or burial sites such as the moving of disturbed boulders and rocks. The department is mindful that traditional cultural access to the cultural places and/or resources in the general ahupua'a should also be considered in your study as related to the proposed Project area.

Specifically, Ms. Cayan suggests contacting Mr. C. Kunane Aipoalani, Auntie Barbara Say, Ms. Debra Ruiz, and Ms. Dee Crowell, all of the KNIBC.

Office of Environmental Quality Control

235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Hawai'i Department of Agriculture

1428 S. King Street
Honolulu, HI 96814
Ph: 808 973-9560

Department of Accounting & General Services

Kalanimoku Building
1151 Punchbowl Street
Honolulu, HI 96813
(808) 586-0400

Department of Business, Economic Development, and Tourism

P.O. Box 2359
Honolulu, Hawaii 96804
No. 1 Capitol District Building
250 S. Hotel Street
Honolulu, Hawaii 96813
(808) 587-2784

Department of Business, Economic Development & Tourism

Energy Division
P.O. Box 2359
Honolulu, HI 96804
No. 1 Capitol district Building
250 South Hotel Street
Honolulu, HI 96803

Department of Business, Economic Development & Tourism**Office of Planning**

P.O. Box 2359, Honolulu, HI 96804
(808) 587-2895

Department of Defense

3949 Diamond Head Road
Honolulu, HI 96816-4495
(808) 672-1207

Department of Education

Hawaii State Department of Education
P.O. Box 2360, Honolulu, HI 96804
(808) 586-3230

Department of Hawaiian Home lands

Hale Kalaniana'ole, 91-5420 Kapolei Parkway
Kapolei, HI 96707
(808) 620-9500

Department of Health

Kinau Hale
1250 Punchbowl Street
Honolulu, HI 96813
(808) 586-4400

Department of Human Services

1390 Miller Street, Room 209
Honolulu, HI 96813
(808) 586-4999

Department of Labor & Industrial Relations

830 Punchbowl Street
Honolulu, HI 96813
(808) 586-8844

Department of Land and Natural Resources

Kalanimoku Building
1151 Punchbowl Street
Honolulu, HI 96813
(808) 587-0400

Department of Land and Natural Resources

Historic Preservation Office

Suite 555 of the Kakuhihewa Building
601 Kamokila Blvd., Kapolei, Hawai'i, 96707
(808) 692-8015

Department of Transportation

Office of the Director
AliiAIMoku Building
Room 509
869 Punchbowl Street
Honolulu, HI 96813
(808) 587-2150

Hawaiian Housing Finance & Development Corporation

677 Queen Street
Honolulu, Hawaii 96813
(808) 587-0597

Office of Hawaiian Affairs
711 Kapi'olani Blvd., Suite 500
Honolulu, HI 96813
Phone: (808) 594-1835

University of Hawaii Environmental Center
University of Hawaii
Environmental Center
Krauss Annex 19
2500 Dole Street
Honolulu, HI 96822
(808) 956-7361

US Fish & Wildlife Services
300 Ala Moana Boulevard, BOX 50088
Honolulu, Hawaii 96850-5000
(808) 792-9400

County of Kauai

Department of Parks & Recreation
4444 Rice Street # 105
Lihue, HI 96766-1340
(808) 241-4463

Department of Planning
4444 Rice Street # 473
Lihue, HI 96766-1326
(808) 241-4050

Department of Public Works
4444 Rice St # 275
Lihue, HI 96766-1340
(808) 241-4854

Department of Water
4398 Pua Loke Street
Lihue, HI 96766-1600
(808) 245-5442

Fire Department

4444 Rice Street
Lihue, HI 96766
(808) 241-6515

Police Department

3990 Kaana Street # 200
Lihue, HI 96766
(808) 241-1711

County of Kauai, Lihue Public Library

4344 Hardy Street
Lihue, Kauai, HI 96766-1251
(808) 241-3222

Kekaha Agricultural Association

8315 Kekaha Rd # E
Kekaha, HI 96752
(808) 337-9262

Department of Transportation

1720 Haleukana Street
Lihue, HI 96766

***Pohaku O’Kauai, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Chapter 10

Agricultural Development Corporation (Approving / Lead Agency)

Certification

_____ **Finding of No Significant Impact (FONSI)**
The project will not result in a significant negative impact on the quality of the human environment.

_____ **Finding of Significant Impact.**
The project may significantly affect the quality of the human environment.

Preparer Signature:

Stan Morinaka / Owner
Pohaku O Kauai Materials LLC

Date _____

Responsible Entity, Agricultural Development Corporation Approving Official Signature:

Alfredo A. Lee / Executive Director
Agricultural Development Corporation

Date _____

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

CHAPTER 11

Agency Comments and Proposed Mitigation Measures

(Attached when and if required)

***Pohaku O’Kauai Materials, LLC
Rock Aggregate & Borrow Site
Field Rock Collection & Crushing***

Addenda

List of Figures

- Figure 1: Tax Map
- Figure 2: Google Earth 2009 imagery showing project area
- Figure 3: General Location Map / Project Area
- Figure 4: Project & Survey Area Map
- Figure 5: Proposed Activity
- Figure 6: Kekaha Flood Zone Map
- Figure 7: Zoning & Land Use Map
- Figure 8: Soil Map
- Figure 9: ADC Communication / Documentation
- Figure 10: Site Pictures

Appendices

1. Cultural Impact Assessment (CIA) Prepared by Hallett H. Hammett, Ph.D.
2. Archaeological Inventory Survey (CIA) Prepared by Hallett H. Hammett, Ph.D.

Source References

1. Stone Quarries & Beyond, <http://quarriesandbeyond.org/states/hi/hawaii.html>
2. Pohaku O’ Kauai Materials business Plan
3. Honolulu Advertiser
<http://the.honoluluadvertiser.com/article/2008/Jun/03/In/hawaii806030323.html>
4. State of Hawaii Division of Forestry and Wildlife
<http://www.state.hi.us/dlnr/dofaw/nars/narsfr.html>
5. Hawaii Department of Environmental Management www.hawaiiizerowaste.org

6. Tribune Herald
http://www.hawaiitribuneherald.com/articles/2011/01/07/local_news/local03.txt
7. Marketresearch.com,
<http://www.marketresearch.com/search/results.asp?&qtype=2&bquery=Quarry+or+Quarrying&datepub=24&xs=r>
8. Kekaha Agriculturel Association,
9. Cultural Surveys Hawaii <http://www.culturalsurveys.com/>

Figures & Exhibits

Figure 1: Tax Map Key

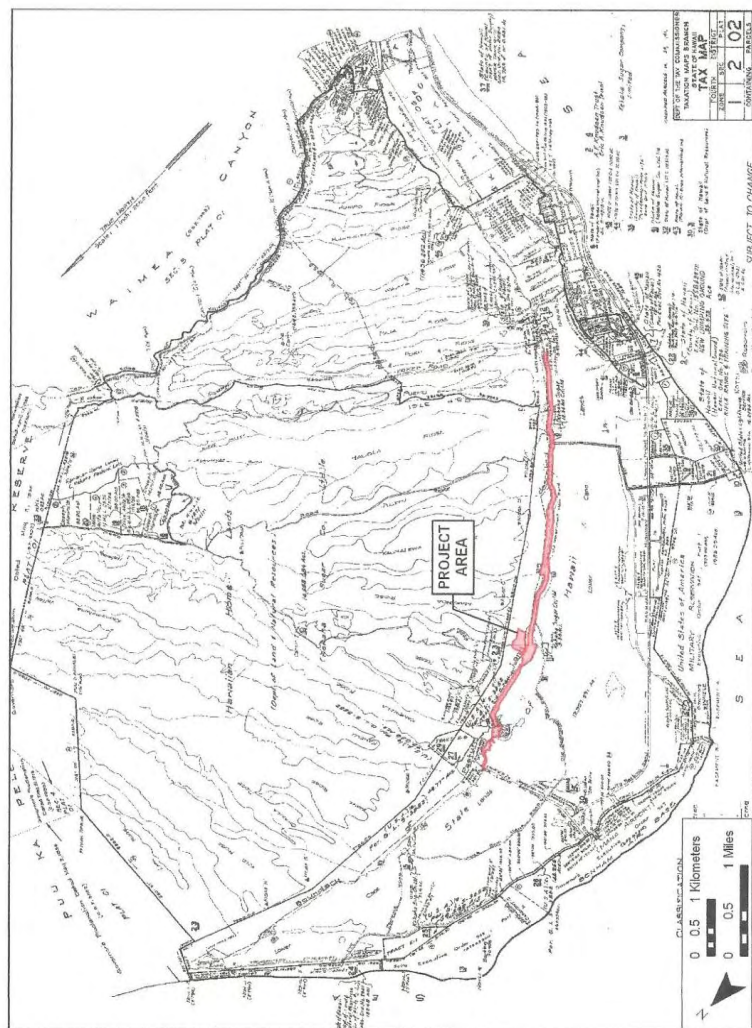


Figure 2. Tax Map Key (TMK) [4] 1-2-02, showing Project area

CIA for a proposed Rock Crushing Establishment along the New and Old Government Roads, Waimea Ahupua'a, Waimea District, Island of Kauai

TMK: [4] 1-2-002:001



Figure 3. Google Earth 2009 imagery showing the Project area

CIA for a proposed Rock Crushing Establishment along the New and Old Government Roads,
Waimea Ahupua'a, Waimea District, Island of Kauai
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Figure 2: Google Earth 2009 imagery showing project area



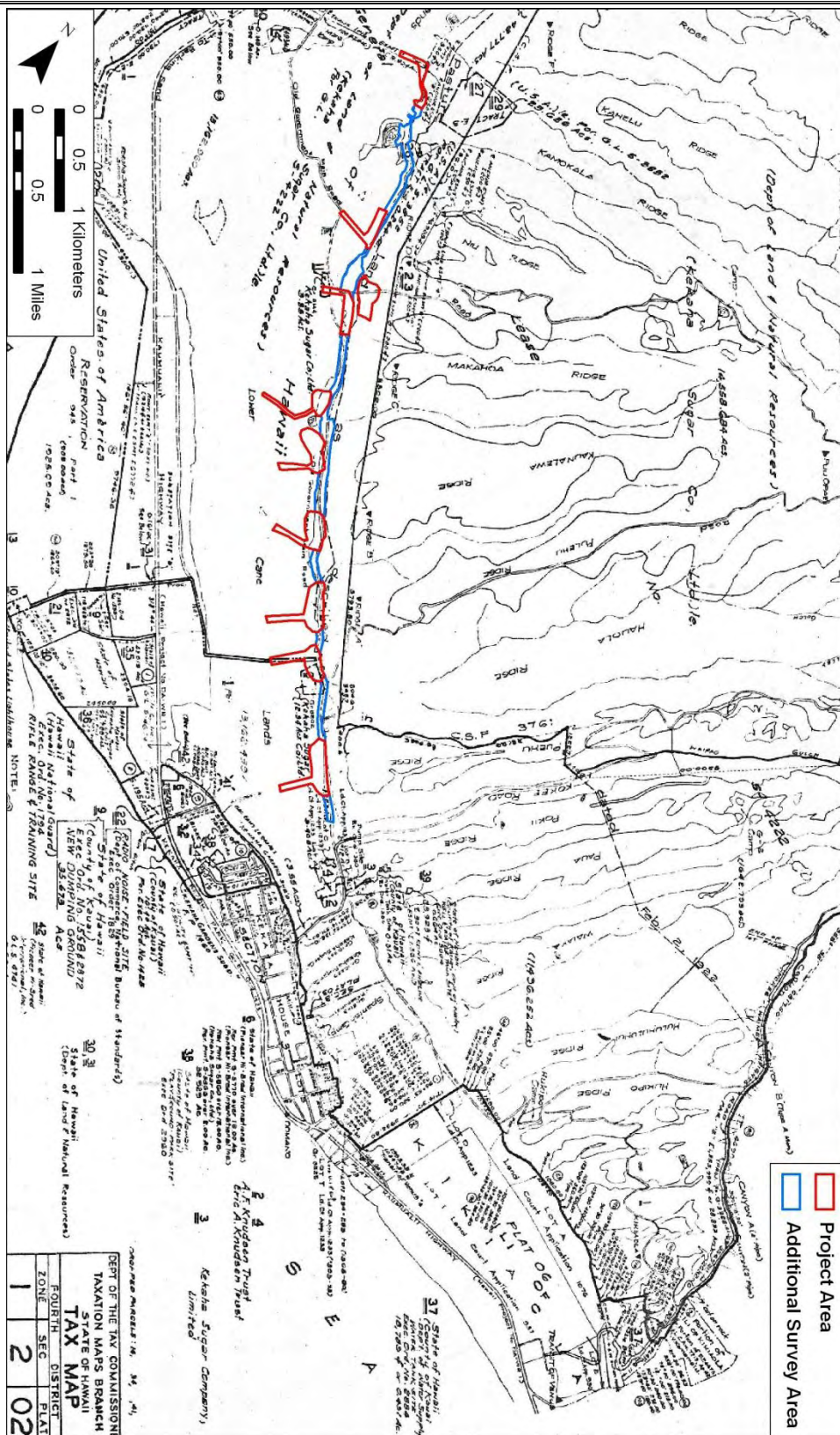




Figure 5: Proposed Activity Location

[illegible]

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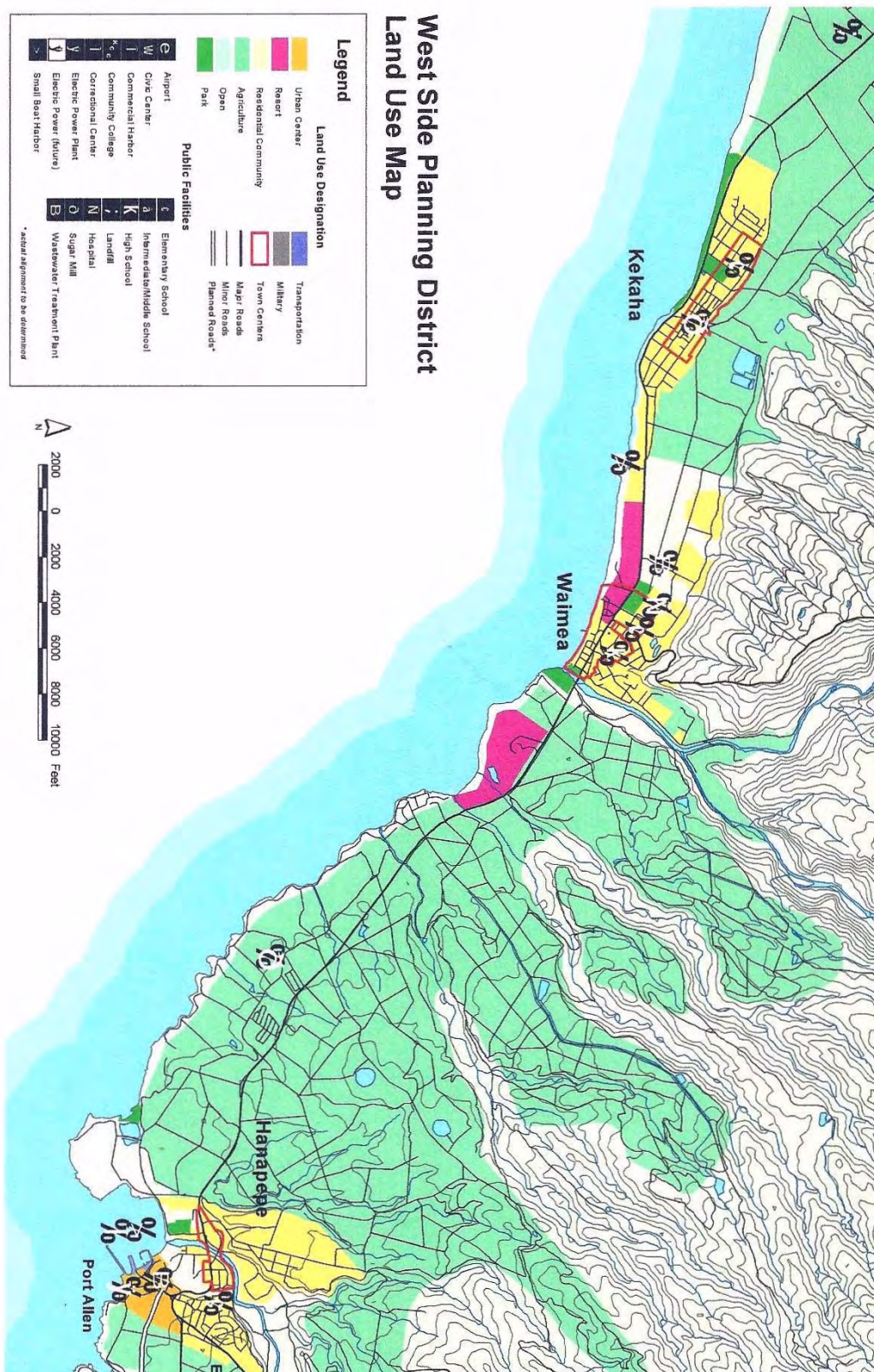


Figure 7: Zoning & Land Use Map

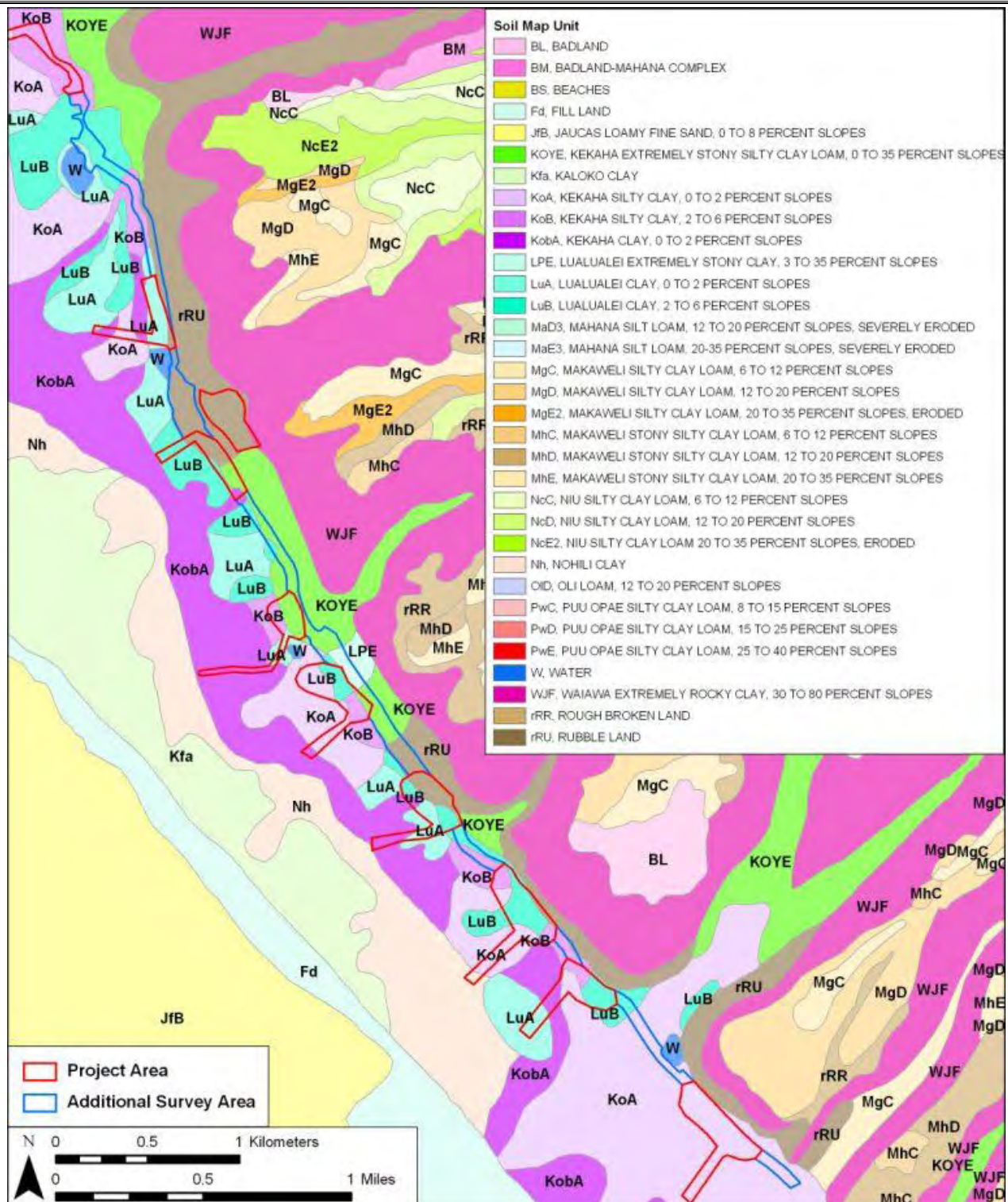


Figure 8: Soils Map



LINDA INGOLE
Governor



ALFREDO A. LEE
Executive Director

STATE OF HAWAII
AORIBUSINESS DEVELOPMENT CORPORATION
235 S. Beretania Street, Room 208
Honolulu, HI 96813
Phone: (808) 586-0188 Fax: (808) 586-0189

August 24, 2009

Mr. Stanley Morinaka, Sr.
Pohaku 'O Kaua'i Materials, LLC
P.O. Box 3328
Lihue, HI 96766

Dear Mr. Morinaka:

Re: Environmental Assessment

When the documents relating to the Right of Entry and Revocable Permit approved for your company at the April 8, 2009 ADC Kekaha Committee meeting were forwarded to the Attorney General's office for review, we were informed that since these permits are related to the use of state land an environmental assessment is required.

Please prepare an environmental assessment according to Chapter 343 for the affected areas. If you have any questions relating to environmental assessment, please contact Matthew Rose from my office at 586-0181.


Sincerely,



Alfredo Lee
Executive Director

Cc: Landis Ignacio, KAA

Figure 9: ADC Communications



LINDA LINGLE
Governor



ALFREDO A. LEE
Executive Director

STATE OF HAWAII
AGRIBUSINESS DEVELOPMENT CORPORATION
235 S. Kalia Avenue, Room 205
Honolulu, HI 96813
Phone: (808) 586-0186 Fax: (808) 586-0189

March 18, 2009

RECEIVED MAR 20 2009

Mr. Stanley Morinaka, Sr.
Pohaku 'O Kaua'i Materials, LLC
P.O. Box 3329
Lihue, HI 96766

Dear Mr. Morinaka:

Re: Old Mana Makahoa Quarry, Kekaha Ag Lands, TMK: (4) 1-2-02:1

We have reviewed your letter dated February 14, 2009 requesting use of the Old Mana Makahoa Quarry (old quarry) and permission to remove rock and boulders from the existing disturbed field boundaries. Our understanding is that you are currently working with the Department of Hawaiian Homelands (DHHL) to establish a quarry directly above the old quarry.

After doing some initial investigation we would like to have an understanding with you on the following issues before submitting our recommendations to the ADC Kekaha Committee for consideration:

1. At this time ADC could issue a 30-day revocable permit to Pohaku for about 10 acres of land at the old quarry site as a storage area for rocks and as a staging area for equipment only. No crushing and processing shall be done on this site until an environmental assessment is completed. You may request the issuance of a license to Pohaku later on when the project on DHHL land is approved. The rent for the site will be determined at the ADC Kekaha Committee meeting.
2. Our understanding is that there is a heiau in the old quarry site. The heiau and the buffer zone will not be permitted. Pohaku shall keep clear of the area and notify ADC and stop work immediately if items of archeological significance are discovered on this site or anywhere else on the property.
3. ADC will issue Pohaku a right-of-entry permit to collect rocks and boulders on the disturbed or previously farmed areas. These areas will be defined on a map or identified on location. A royalty fee based on

Page 2 of 2
Mr. Morinaka

tonnage of rocks collected will be determined by the ADC board. Pohaku will negotiate a separate agreement with the Kekaha Agriculture Association regarding access and road maintenance.

4. Pohaku will collect rocks in assigned areas only. Undisturbed area shall not be touched. Moss rocks useable for landscaping purposes are not to be harvested.
5. Pohaku agrees to install or make operational a scale on the property to weigh the rocks taken. Proper records and payments shall be submitted to ADC monthly.
6. If there are competing requests to the ADC before a permit is issued to Pohaku, ADC may have to evaluate merits of the other proposals before making a decision.

Please be informed that the next ADC Kekaha Committee meeting is tentatively scheduled for April 8 in the morning. Please check with us if this item is going to be on the agenda the week before and have a representative from your company attend the meeting.

If you agree to the above conditions, please sign below and mail back to our address or fax back to my attention at 586-0188.

Sincerely,



Alfredo Lee
Executive Director

AGREED AND ACCEPTED:

Pohaku 'O Kauai Materials, LLC

Its 


Date

POHAKU 'O KAUAI MATERIALS, LLC
3-1480 KAUMUALII HIGHWAY
P. O. BOX 3329
LIHUE, HI 96766

February 14, 2009

To: Mr. Alfredo Lee, Executive Director
AGRIBUSINESS DEVELOPMENT CORPORATION
235 S. Beretania Street, Room 205, Honolulu, Hawaii, 96813

SUBJECT: REQUEST FOR STATE LAND LICENSE
Kekaha Ag Lands. TMK :(4) 1-2-02-1
Kekaha, Kauai, Hawaii

PROPOSAL:

Pohaku 'O Kauai is requesting a Land License for the Old Mana Makahoa Quarry. (Former Grove Farm Quarry Site) TMK: (4)1-2-02:1, Kekaha Ag Lands, Kauai, Hawaii.

The purpose of this request is to utilize the identified area initially for the stockpiling of loose boulders and other reusable materials. We are also looking into bringing in a portable crushing plant to process these boulders and other materials at some point in time. The site also contains an abandoned scale house which we intend to refurbish for our scaling requirements.

As you know, Pohaku 'O Kauai is presently working with the Department of Hawaiian Home Lands in establishing a rock quarry directly above this site. The proposed Hawaiian Home Land quarry site does not have a suitable level area for staging and processing. Therefore, it is extremely critical in moving this project forward that we immediately secure a Land License for this purpose. The area that is required is approximately 18 to 25 acres. (See attached map)


On another similar note, Pohaku 'O Kauai was approached by Mr. Landis Ignacio, of the Kekaha Agriculture Association to see if we were interested in performing work that could be mutually beneficial to all parties, including the ADC. The work proposed would primarily consist of removing rock and boulders from within existing disturbed field boundaries. Mr. Ignacio indicated that these rocks and boulders were pushed out of the fields and piled along the edges by Kekaha Sugar Company, and in many areas these boulders lay directly in the pathway of planned infrastructure improvements.

Mr. Ignacio also indicated that if Pohaku 'O Kauai were interested, that we would need to negotiate and seek approval from the ADC. Let me assure you that we are excited about this proposal as it provides mutual benefits.

Pohaku 'O Kauai respectfully requests the ADC's consideration to the issuance of a Land License for the Old Mana Makahoa quarry site, along with the necessary approvals to remove rocks and boulders from disturbed areas of the Kekaha Ag Lands.

If there are any questions in regards to this matter, or if I can be of any further assistance, please don't hesitate to call me at (808) 645-7166.

Sincerely Yours


Stanley H. Morinaka, Sr.
Partner
Pohaku'O Kauai





Piled rock and debris along the cane road



Rock moved by early cane farmers



Example of rock & sand pile



Mauka view of distant project site



Existing earth and rock pile



Loose rock on proposed project site

Figure 10: Site Pictures

**Cultural Impact Assessment for a Proposed Rock
Crushing Establishment Along Portions of the New and Old
Government Roads, Waimea Ahupua‘a, Waimea District,
Island of Kaua‘i
TMK: [4] 1-2-002:001**

**Prepared for
Pōhaku ‘O Kaua‘i Materials, LLC**

**Prepared by
Malia Luika Fernandes-Farias, B. A.
Aulii Mitchell, B. A.
and
Hallett H. Hammatt, Ph. D.**

**Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(KEKAHA 2)**

October 2010

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

www.culturalsurveys.com

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

Prefatory Remarks on Language and Style

A Note about Hawaiian and other non-English Words:

Cultural Surveys Hawai‘i (CSH) recognizes that the Hawaiian language is an official language of the State of Hawai‘i, it is important to daily life, and using it is essential to conveying a sense of place and identity. In consideration of a broad range of readers, CSH follows the conventional use of italics to identify and highlight all non-English (i.e., Hawaiian and foreign language) words in this report unless citing from a previous document that does not italicize them. CSH parenthetically translates or defines in the text the non-English words at first mention, and the commonly-used non-English words and their translations are also listed in the *Glossary of Hawaiian Words* (Appendix A) for reference. However, translations of Hawaiian and other non-English words for plants and animals mentioned by community participants are referenced separately (see explanation below).

A Note about Plant and Animal Names:

When community participants mention specific plants and animals by Hawaiian, other non-English, or common names, CSH provides their possible scientific names (Genus and species) in the *Common and Scientific Names of Plants and Animals Mentioned by Community Participants* (Appendix B). CSH derives these possible names from authoritative sources, but since the community participants only name the organisms and do not taxonomically identify them, CSH cannot positively ascertain their scientific identifications. CSH does not attempt in this report to verify the possible scientific names of plants and animals in previously published documents; however, citations of previously published works that include both common and scientific names of plants and animals appear as in the original texts.

Management Summary

Reference	Cultural Impact Assessment (CIA) for a proposed Rock Crushing Establishment along portions of the New and Old Government Roads, Waimea Ahupua'a, Waimea District, Island of Kaua'i, TMK: [4] 1 2-002:001
Date	October 2010
Project Number	Cultural Surveys Hawai'i (CSH) Job Code: KEKAHA 2
Project Location	The proposed Project is located along access roads from Mānā Road northeast through agricultural fields and encompasses portions of the New and Old Government Roads. The Project and survey areas are depicted on a portion of the 1983 U. S. Geological Survey, Kekaha Quadrangle, 7.5-minute series map (Figure 1) and is present on Tax Map Key (TMK) [4] 1-2-002:001 (Figure 2).
Land Jurisdiction	State of Hawai'i
Project Description	<p>The Project involves collection and removal of previously displaced rocks, boulders, dirt, and debris from former agricultural fields. These materials will be hauled to designated areas where they will be stockpiled and crushed into gravel. The main activities for this Project will include the following:</p> <ul style="list-style-type: none"> • the placement of a small portable crushing operation on a designated storage site within the Project area; • the collection and transportation of rocks, boulders, dirt, and debris to the storage site; • the operation of a rock crusher to convert rocks and boulders to sellable aggregate sizes; and • the transportation of the product (gravel) away from the Project area for delivery to west side communities, businesses, and/or federal, state and county agencies for road and culvert repairs. <p>The proposed Project will also include improvements to portions of the New and Old Government Roads, as well as existing roads through agricultural fields, which will provide access to the Project area. Improvements will involve the laying of gravel on the existing dirt roads.</p>
Project Acreage	Approximately five-acres

Area of Potential Effect (APE)	The Area of Potential Effect (APE) for this CIA includes the approximately five-linear-mile Project area in the context <i>ahupua‘a</i> (land division usually extending from the uplands to the sea) of Waimea, and other places on Kaua‘i and beyond that are traditionally associated with or connected to the Project area.
Document Purpose	The Project requires compliance with the State of Hawai‘i environmental review process (Hawai‘i Revised Statutes [HRS] Chapter 343), which requires consideration of a proposed Project’s effect on cultural practices and resources. At the request of Pōhaku ‘O Kaua‘i Materials, LLC, CSH is conducting this CIA. Through document research and ongoing cultural consultation efforts, this report provides preliminary information pertinent to the assessment of the proposed Projects’ impacts to cultural practices and resources (per the <i>Office of Environmental Quality Control’s Guidelines for Assessing Cultural Impacts</i>) which may include Traditional Cultural Properties (TCP) of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places, in accordance with Hawai‘i State Historic Preservation Statute (Chapter 6E) guidelines for significance criteria (Hawai‘i Administrative Rules [HAR] §13-275) under Criterion E. The document is intended to support the Project’s environmental review and may also serve to support the Project’s historic preservation review under HRS Chapter 6E-42 and HAR §13-275.
Community Consultation	CSH attempted to contact Hawaiian organizations, agencies, and community members in order to identify individuals with cultural expertise and/or knowledge of the Project area and the vicinity. The organizations consulted include the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), Kaua‘i County Planning Department, Kaua‘i Historic Preservation Review Commission, Kaua‘i Westside Watershed Council, and the Kaua‘i-Ni‘ihau Island Burial Council (KNIBC) in addition to community groups such as Aha Pūnana Leo o Kaua‘i, Hui Mālama O Nā Kūpuna O Hawai‘i Nei, Kula Aupuni Ni‘ihau, Hui O Laka (Kōke‘e Ecological Education Group), Waimea Valley Association, Mālama Kaua‘i, Ka‘ie‘ie Foundation, Kaua‘i Heritage Center, Kaua‘i Historical Society, the Kaua‘i and Faye Museums.
Result of Background Research	Background research conducted for this Project yielded the following results: <ol style="list-style-type: none"> 1. The Project area is located in the <i>ahupua‘a</i> of Waimea in the Waimea District on the southwest side of the island of Kaua‘i. 2. Kekaha, an <i>‘ili</i> (land section, next in importance to <i>ahupua‘a</i> and usually a subdivision of an <i>ahupua‘a</i>) within the <i>ahupua‘a</i> of Waimea, and other settlements on the Mānā plain suffered from a

	<p>definite lack of fresh surface water and variable rainfall. <i>Mauka</i> (towards the mountain) gulches had only intermittent stream flows, and water sources were primarily springs along the base of the cliffs.</p> <ol style="list-style-type: none"> 3. The sacred <i>heiau</i> (place of worship, shrine) of Makahoa is located <i>mauka</i> of the current Project area and literally translates as “friendly point” (Pukui et al 1974:140). 4. Rainfall on the Mānā Plain averages less than 20 inches annually, with areas located at the base of ridges (within the Project area) averaging 40 inches per year, occurring primarily in the fall and winter months (September to March) (Giambelluca et al. 1986). 5. The well-watered valley and delta of the Waimea River were ingeniously developed and engineered for wetland agriculture, and represents the epitome of the typical Hawaiian and Kaua‘i-type valley settlement (Handy and Handy 1972:393–397). 6. The Kekaha ditch, constructed in 1907, intercepted water in the Waimea River at 550-foot elevation and originally extended through 16 miles of <i>mauka</i> lands and four miles through the lowlands (Wilcox 1996:93). 7. Rice cultivation by Chinese farmers began in Waimea Valley in the 1860s as evidenced by the conversion of taro <i>lo‘i</i> (irrigated terraces) to rice fields in the second half of the nineteenth century. These Chinese farmers had come to the islands to work on the sugar plantations. As the commercial sugar industry expanded throughout the Hawaiian Kingdom, the need for increased numbers of field laborers prompted passage of contract labor laws. The area’s most prolific planter was Leong Pah On, a Chinese immigrant (Joesting 1984:206). 8. In the 1900s, Kekaha Sugar Co. employed about 1,000 people, of which approximately 300 families lived in plantation houses. By 1910 the plantation had 15 miles of permanent railroad track transporting cane from collection points to the mill and then transporting bags of sugar to the steamship landing at Waimea. 9. In 1922, Kekaha Sugar Co. began to drain the Mānā swamps to produce more sugar cane land. The project took 60 years to complete. By 1938 a <i>Honolulu Advertiser</i> article stated that Kekaha Sugar Co. was the most valuable single piece of property in the Territory. 10. By 1983 Kekaha Sugar employed about 400 people and produced 54,819 tons of sugar. However, in 1988 the Kekaha Sugar Co. was sold to JMB Realty as part of the buyout of Amfac Hawai‘i. By
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	<p>1992, the company officially became part of Amfac Sugar Kaua'i West, and in 1995, the last sugar cane was harvested by this company on their Waimea lands. In 2000, Amfac Hawai'i closed its last sugar operations at the Kekaha mill.</p>
Results of Community Consultation	<p>CSH attempted to contact 35 community members (government agency or community organization representatives and individual cultural practitioners) for this CIA (see Table 3); 12 individuals responded and seven of these <i>kūpuna</i> (elders) and/or <i>kama'āina</i> (Native born) participated in interviews for more in-depth contributions to the CIA. CSH initiated the semi-structured interviews with questions from the following five broad categories: Traditional and Customary Resources and Practices; Religious and Spiritual Resources and Practices; Freshwater and Marine Resources and Practices; Burials; Trails and Cultural and Historic Properties. Brief biographical backgrounds of participants and their comments and concerns about the proposed Project area are presented below:</p> <ol style="list-style-type: none"> 1. Kupuna (elder) Louis Parraga knows of an adze tool making site where he found a chisel tool <i>mauka</i> of the current Project area. He also notes many small chips of adze in this area that may have been an ancient canoe-making site. 2. Kupuna Tony Wong describes the abundance of 'o'opu (see Appendix B for common and scientific plant and animal names mentioned by community participants) in Kekaha area streams. He explains how the 'o'opu come downstream to give birth before dying and then the offspring travel back upstream until they are ready to give birth. 3. Kupuna Wong gathers <i>maile</i> and <i>mokihana</i> in the mountainous regions <i>mauka</i> from the Project area. He states that both plants would only flourish in the elevated <i>mauka</i> regions and would not grow in the lower areas where the current Project is located. 4. Kupuna Wong states that <i>mauka</i> of the current Project, the upper regions of Waiawa have several <i>heiau</i> and an oven, possibly a Portuguese oven, built into a natural recess in the mountain wall. 5. Several <i>kūpuna</i> mention the valued <i>makaloa</i> plant that mainly grows in the Mānā region and on Ni'ihau Island. The reeds or stalks of the <i>makaloa</i> are used to make Ni'ihau mats. 6. Kupuna Kunane Aipoalani affirms the existence of several sugar worker plantation camps once located in Kekaha: the Spanish camp, Filipino Camp and Hawaiian camp. 7. Several <i>kūpuna</i> confirm the existence of a birthing stone and <i>heiau</i>

	<p><i>mauka</i> of the Project area. They state that the birthing stones are naturally shaped with stirrups to aid in natural gravity-assisted birth by ancient Hawaiian royalty.</p> <ol style="list-style-type: none"> 8. Several <i>kūpuna</i> confirm that the State of Hawai'i put up gates that block access to many of the <i>mauka</i> cultural sites and <i>wahi pana</i> (storied place). These blocked sites include family burial sites, <i>heiau</i> and other areas <i>mauka</i> of the Project area. 9. If this Project encounters <i>iwi kūpuna</i> (ancestral remains), Kupuna Aletha Goodwin-Kaohi recommends that Project proponents treat the <i>iwi kūpuna</i> with care and respect and that the burial council be notified. 10. Kupuna Goodwin-Kaohi mentions a song written about the '<i>ūlili</i> birds in the Kekaha area. The '<i>ūlili</i> bird is a plover that would gather on the beaches in Kekaha.
Recommendations	<p>Based on information gathered from the community consultation effort as well as archaeological and archival research presented in this report, the evidence indicates that the proposed Project may have a significant negative impact on access to areas <i>mauka</i> of the proposed Project area. These areas include family burial sites of people interviewed for this CIA as well as Hawaiian cultural sites such as <i>heiau</i> and birthing stones in proximity to the proposed Project area. A good faith effort to address the following recommendations would help mitigate potentially adverse effects the proposed Project may have on Hawaiian cultural practices, beliefs and resources in and near the Project area:</p> <ol style="list-style-type: none"> 1. Personnel involved in development activities in the Project area should be informed of the possibility of inadvertent cultural finds, including human remains. Should cultural or burial sites be identified during ground disturbance, all work should immediately cease, and the appropriate agencies notified pursuant to applicable law. 1. Any fencing or gates that would further restrict access to the <i>mauka</i> regions of the proposed Project area should not be constructed during the tenure or life-cycle of the proposed Rock Crusher and its associated operations. Access to <i>mauka</i> areas above the Project area should be kept open. 2. No rock or other materials should be taken from Hawaiian cultural sites <i>mauka</i> or in the vicinity of the proposed Project area to be used for gravel or road-paving materials. These include <i>heiau</i> and birthing stones or any other Hawaiian cultural site. 3. Cultural or archaeological monitoring should be conducted during

	all phases of construction.
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Section 1 Section 1 Introduction

1.1 Project Background

At the request of Pōhaku ‘O Kaua‘i Materials, LLC, Cultural Surveys Hawai‘i Inc. (CSH) is conducting a Cultural Impact Assessment (CIA) for the proposed Rock Crushing Establishment Project along portions of the New and Old Government Roads, Waimea Ahupua‘a (land division usually extending from the uplands to the sea), Waimea District, Island of Kaua‘i, TMK: [4] 1 2-002:001. The Project area is depicted on a U.S. Geological Survey (USGS) topographic map (Figure 1), a TMK (Tax Map Key) map (Figure 2), and an aerial photograph (Figure 3). Kekaha, Pōki‘i, Waiawa and Mānā are *ahupua‘a* in the ancient district of Kona. All of these *ahupua‘a* are now ‘*ili*’ (land section, next in importance to an *ahupua‘a* and usually a subdivision of an *ahupua‘a*) of the *ahupua‘a* of Waimea.

The Project involves the collecting and removal of previously displaced rocks, boulders, dirt, and debris from areas bordering former agricultural fields. These materials will be hauled to designated areas, where they will be stockpiled, and crushed into gravel. Therefore, the main activities for this Project will include the following:

- the placement of a small portable crushing operation on a designated storage site within the Project area;
- the collection and transportation of rocks, boulders, dirt, and debris to the storage site;
- the operation of a rock crusher to convert rocks and boulders to sellable aggregate sizes; and
- the transportation of the product (gravel) away from the Project area for delivery to west side communities, businesses, and/or federal, state and county agencies for road and culvert repairs.

The proposed Project will also include improvements to an existing road approximately five miles long which provides access to the Project area. Improvements will involve the laying of gravel on an existing dirt road. This road was once functional prior to World War II, and will be connected to Kaumuali‘i Highway because of Project improvements. This road, or portions of it, has been alternatively called the “Old Government,” “New Government,” or “Mānā” Road.

The defined Project area will not include any portion of the Kekaha Ditch nor will it require the establishment of any supporting infrastructure.

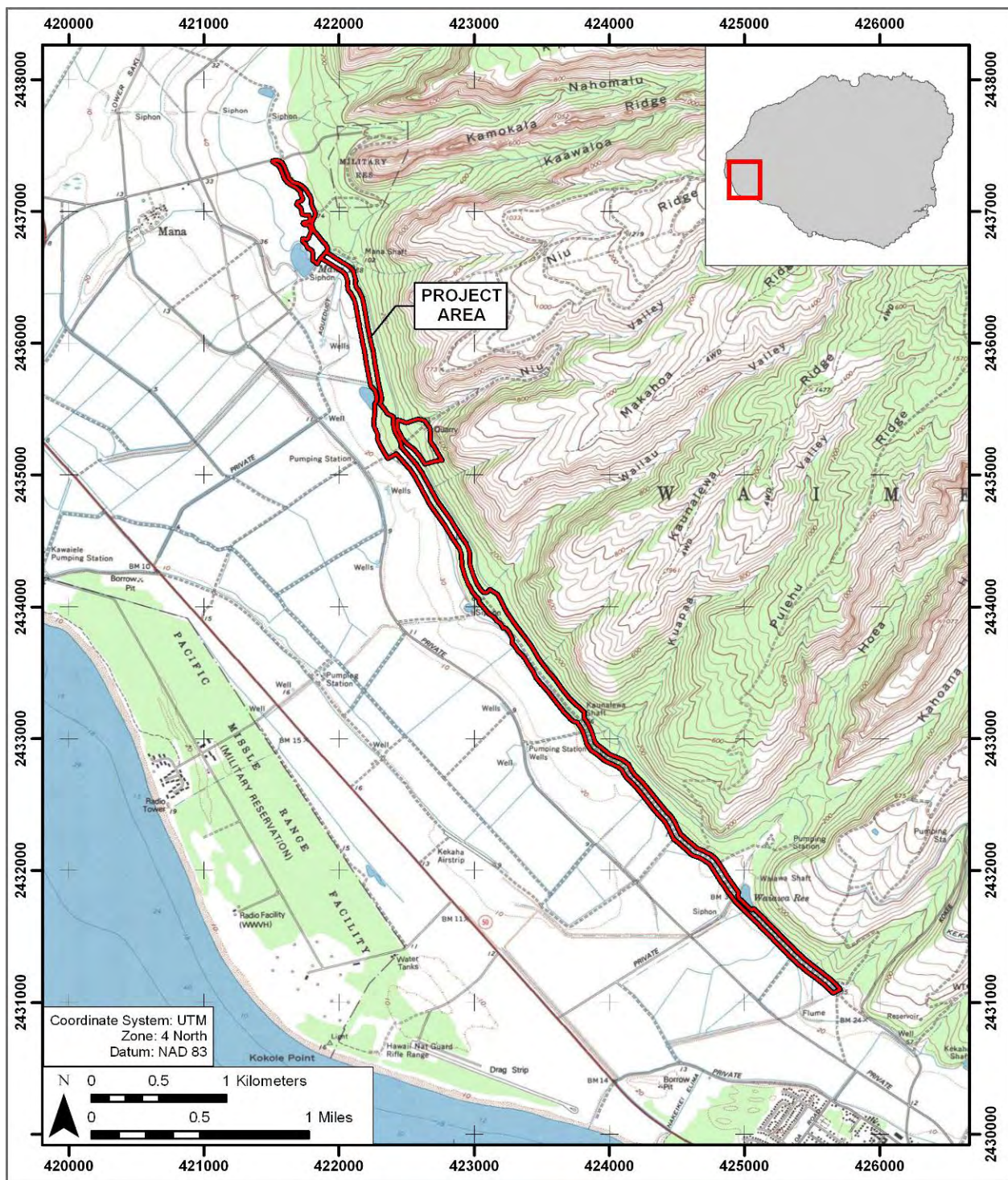


Figure 1. Portion of the 1983 U.S. Geological Survey, Kekaha Quadrangle, and 7.5-minute Series Map showing the Project area

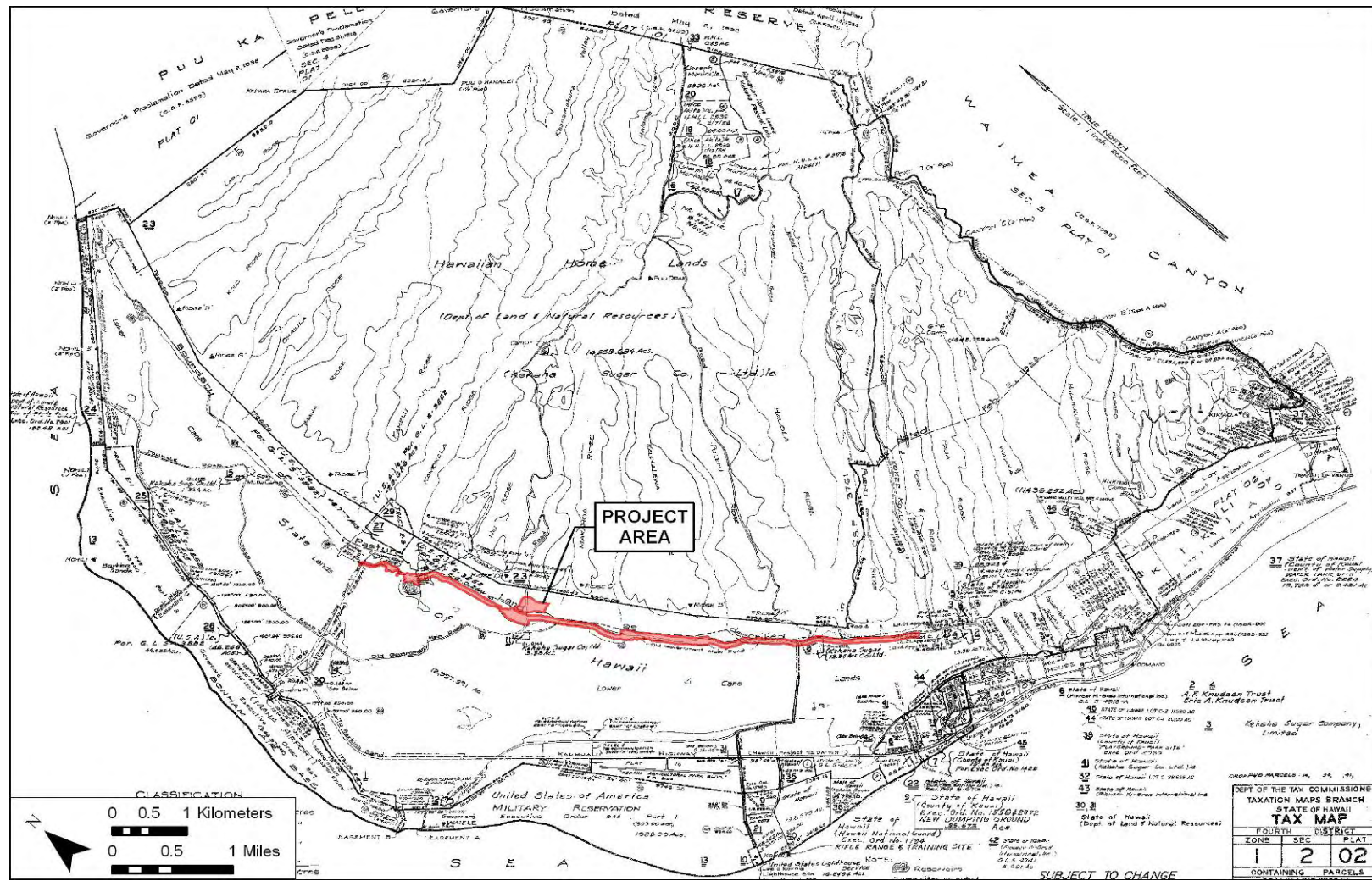


Figure 2. Tax Map Key (TMK) [4] 1-2-02, showing Project area

CIA for a proposed Rock Crushing Establishment along the New and Old Government Roads,
Waimea Ahupua'a, Waimea District, Island of Kaua'i

TMK: [4] 1-2-002:001



Figure 3. Google Earth 2009 imagery showing the Project area

1.2 Document Purpose

The Project requires compliance with the State of Hawai'i environmental review process (Hawai'i Revised Statutes [HRS] Chapter 343), which requires consideration of a proposed Project's effects on cultural practices. CSH is conducting this CIA at the request of Pōhaku 'O Kaua'i Materials, LLC. Through document research and ongoing cultural consultation efforts this draft report provides preliminary information pertinent to the assessment of the proposed Project's impacts to cultural practices and resources (per the *Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts*), which may include Traditional Cultural Properties (TCP) of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places, in accordance with Hawai'i State Historic Preservation Statute (Chapter 6E) guidelines for significance criteria (HAR §13-275-6) under Criterion E which states that to be significant an historic property shall:

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.

The document is intended to support the Project's environmental review and may also serve to support the Project's historic preservation review under HRS Chapter 6E-42 and Hawai'i Administrative Rules Chapter 13-275.

1.3 Scope of Work

The scope of work for this CIA includes:

1. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
2. Review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.
3. Consultation and interviews with knowledgeable parties regarding cultural and natural resources and practices at or near the parcel; present and past uses of the parcel; and/or other practices, uses, or traditions associated with the parcel and environs.
4. Preparation of a report that summarizes the results of these research activities and provides recommendations based on findings.

1.4 Environmental Setting

1.4.1 Natural Environment

Kekaha is in the *ahupua'a* of Waimea on the southwest side of the island of Kaua'i, part of the old *moku* (district) of Kona and current district of Waimea. The Waimea Ahupua'a is by far the largest on the island, comprising 92,646 acres and accounting for more than a quarter of the total land area of Kaua'i. It encompasses all of the Waimea River Canyon area, the uplands of Kōke'e, the high swampy plateau of Alaka'i, and the northwestern coastal valleys of Nu'alolo and Miloli'i (Gray 1875:140–146).

Located on the drier leeward coast of Kaua'i, annual rainfall in the Project area averages less than 20 inches (500 millimeters) and occurs primarily in the fall and winter months (September to March) (Giambelluca et al. 1986). Soil types present in the Project area include Kekaha and Lualualei Series as well as Rubble Lands. Foote et al. (1972:68) describe the Kekaha Series of soils as "well-drained soils on alluvial fans and flood plains...developed in alluvium washed from upland soils. They are nearly level to steep...These soils are used for irrigated sugar cane, pasture, and wildlife habitat. The natural vegetation consists of *koa haole*, *kiawe*, and fingergrass." The Lualualei Series is described as "well-drained soils on the coastal plains, alluvial fans, and on talus slopes...they are nearly level and gently sloping. These soils are used for sugarcane, truck crops, pasture, wildlife habitat, urban development, and military installations" (Foote et al 1972: 84). Rubble Land is described as "areas where 90 percent of the surface is covered by stones or boulders. This land type is used for wildlife habitat. The natural vegetation is mainly *koa haole*" (Foote et al. 1972:119).

1.4.1 Built Environment

The Project area is located on the eastern extent of former Kekaha Sugar Plantation lands and is adjacent to pasture lands. The area is still rural and the fields were mainly fallow at the time of fieldwork with the exception of corn and truck produce outside of the Project area toward Mānā Road. Kekaha Ditch lies to the east and Mānā Road is present to the west, providing access to the Project area.

Section 2 Methods

2.1 Archival Research

Historical documents, maps and existing archaeological information pertaining to Waimea Ahupua'a, Waimea District and the Project area vicinity were researched at the CSH library and other archives including the University of Hawai'i at Mānoa's Hamilton Library, the State Historic Preservation Division (SHPD) library, the Hawai'i State Archives, the State Land Survey Division, and the archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and photographs and primary and secondary historical sources. Information on Land Commission Awards (LCAs) was accessed through Waihona 'Aina Corporation's Māhele Data Base (www.waihona.com) as well as a selection of CSH library references.

The definitive source for Hawaiian place names is Pukui et al.'s (1974) *Place Names of Hawai'i*, but additional place-name translations and interpretations were also gleaned from Soehren's "Hawaiian Place Names" database on the internet (<http://www.ulukau.org>), historical maps, Land Commission documents available at the Hawai'i State Archives or on the internet at www.waihona.com, and from other place-name texts such as Clark (1977) and Thrum (1922). Some place names in this report—discussed in the next section—were also gathered from U. S. Geological Survey 7.5-Minute Series topographic maps.

For cultural studies, research for the Traditional Background section centered on Hawaiian activities including: religious and ceremonial knowledge and practices; traditional subsistence land use and settlement patterns; gathering practices and agricultural pursuits; as well as Hawaiian place names and *mo'olelo* (story, tale), *mele* (songs), *oli* (chants), *'ōlelo no'eau* (proverbs) and more. For the Historic Background section research focused on land transformation, development and population changes beginning in the early post-Contact era to the present day (see Scope of Work above).

2.2 Community Consultation

2.2.1 Sampling and Recruitment

A combination of qualitative methods, including purposive, snowball, and expert (or judgment) sampling, were used to identify and invite potential participants to the study. These methods are used for intensive case studies, such as CIAs, to recruit people that are hard to identify, or are members of elite groups (Bernard 2006:190). Our purpose is not to establish a representative or random sample. It is to "identify specific groups of people who either possess characteristics or live in circumstances relevant to the social phenomenon being studied. This approach to sampling allows the researcher deliberately to include a wide range of types of informants and also to select key informants with access to important sources of knowledge" (Mays and Pope 1995:110).

We began with purposive sampling informed by referrals from known specialists and relevant agencies. For example, we contacted the SHPD, the Office of Hawaiian Affairs (OHA),

Kaua'i/Ni'ihau Island Burial Council (KNIBC), and community and cultural organizations in and around Waimea for their brief response/review of the Project and to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the Project area and vicinity, cultural and lineal descendants, and other appropriate community representatives and members. Based on their in-depth knowledge and experiences, these key respondents then referred CSH to additional potential participants who were added to the pool of invited participants. This is snowball sampling, a chain referral method that entails asking a few key individuals (including agency and organization representatives) to provide their comments and referrals to other locally recognized experts or stakeholders who would be likely candidates for the study (Bernard 2006:192). CSH also employs expert or judgment sampling which involves assembling a group of people with recognized experience and expertise in a specific area (Bernard 2006:189–191). CSH maintains a database that draws on over two decades of established relationships with community consultants: cultural practitioners and specialists, community representatives and cultural and lineal descendants. The names of new potential contacts were also provided by colleagues at CSH and from the researchers' familiarity with people who live in or around the Project area. Researchers often attend public forums (e. g., Neighborhood Board, Burial Council and Civic Club meetings) in or near the Project area to scope for participants. Please refer to Table 3, Section 6, for a complete list of individuals and organizations contacted for this CIA.

CSH focuses on obtaining in-depth information with a high level of validity from a targeted group of relevant stakeholders and local experts. Our qualitative methods do not aim to survey an entire population or subgroup. A depth of understanding about complex issues cannot be gained through comprehensive surveying. Our qualitative methodologies do not include quantitative (statistical) analyses, yet they are recognized as rigorous and thorough. Bernard (2006:25) describes the qualitative methods as “a kind of measurement, an integral part of the complex whole that comprises scientific research.” Depending on the size and complexity of the Project, CSH reports include in-depth contributions from about one-third of all participating respondents. Typically this means three to 12 interviews.

2.2.2 Informed Consent Protocol

An informed consent process was conducted as follows: (1) before beginning the interview the CSH researcher explained to the participant how the consent process works, the Project purpose, the intent of the study and how his/her information will be used; (2) the researcher gave him/her a copy of the Authorization and Release Form to read and sign (Appendix C); (3) if the person agreed to participate by way of signing the consent form *or* by providing oral consent, the researcher started the interview; (4) the interviewee received a copy of the Authorization and Release Form for his/her records, while the original is stored at CSH; (5) after the interview was summarized at CSH (and possibly transcribed in full), the study participant was afforded an opportunity to review the interview notes (or transcription) and summary and to make any corrections, deletions or additions to the substance of their testimony/oral history interview; this was accomplished primarily via phone, post or email follow-up and secondarily by in-person visits; (6) participants received the final approved interview, photographs and the audio-recording and/or transcripts their interview if it was recorded. They were also given information

on how to view the draft report on the OEQC website and offered a hardcopy of the report once the report is a public document.

2.2.3 Interview Techniques

To assist in discussion of natural and cultural resources and cultural practices specific to the Project area, CSH initiated semi-structured interviews (as described by Bernard 2006) asking questions from the following broad categories: gathering practices and resources, burials, trails, historic properties and *wahi pana* (storied place). The interview protocol is tailored to the specific natural and cultural features of the landscape in the Project area identified through archival research and community consultation. These interviews and oral histories supplement and provide depth to consultations from government agencies and community organizations that may provide brief responses, reviews and/or referrals gathered via phone, email and occasionally face-to-face commentary.

2.2.3.1 In-depth Interviews and Oral Histories

Interviews were conducted initially at a place of the study participant's choosing (usually at the participant's home or at a public meeting place) and/or—whenever feasible—during site visits to the Project area. Generally, CSH's preference is to interview a participant individually or in small groups (two–four); occasionally participants are interviewed in focus groups (six–eight). Following the consent protocol outlined above, interviews may be recorded on tape or a digital audio device and in handwritten notes, and the participant photographed. The interview typically lasts one to four hours, and records the “who, what, when and where” of the interview. In addition to questions outlined above, the interviewee is asked to provide biographical information (e.g., connection to the Project area, genealogy, professional and volunteer affiliations, etc.).

2.2.3.2 Field Interviews

Field interviews are conducted with individuals or in focus groups comprised of *kūpuna* (elders) and *kama'āina* (Native born) who have a similar experience or background (e. g., the members of an area club, elders, fishermen, *hula* [Hawaiian traditional dance] dancers) who are physically able and interested in visiting the Project area. In some cases, field visits are preceded by an off-site interview to gather basic biographical, affiliation and other information about the participant. Initially, CSH researchers try to visit the Project area to become familiar with the land and recognized (or potential) cultural places and historic properties in preparation for field interviews. All field activities are performed in a manner so as to minimize impact to the natural and cultural environment in the Project area. Where appropriate, Hawaiian protocol may be used before going on to the Project area and may include the offering of *ho'okupu* (offering, gift), *pule* (prayer) and *oli*. All participants on field visits are asked to respect the integrity of natural and cultural features of the landscape and not remove any cultural artifacts or other resources from the area.

2.3 Compensation and Contributions to Community

Many individuals and communities have generously worked with CSH over the years to identify and document the rich natural and cultural resources of these islands for cultural impact, ethno–historical and, more recently, TCP studies. CSH makes every effort to provide some form of compensation to individuals and communities who contribute to cultural studies. This is done in a variety of ways: individual interview participants are compensated for their time in the form of a small honorarium and/or other *makana* (gift); community organization representatives (who may not be allowed to receive a gift) are asked if they would like a donation to a Hawaiian charter school or nonprofit of their choice to be made anonymously or in the name of the individual or organization participating in the study; contributors are provided their transcripts, interview summaries, photographs and—when possible—a copy of the CIA report; CSH is working to identify a public repository for all cultural studies that will allow easy access to current and past reports; CSH staff do volunteer work for community initiatives that serve to preserve and protect historic and cultural resources (for example in, Lānaʻi, Waimānalo, and Kahoʻolawe). Generally our goal is to provide educational opportunities to students through internships, share our knowledge of historic preservation and cultural resources and the State and Federal laws that guide the historic preservation process, and through involvement in an ongoing working group of public and private stakeholders collaborating to improve and strengthen the Chapter 343 environmental review process.

Section 3 Traditional Background

3.1 Overview

This section contains a summary of the traditional background associated within the *ahupua'a* of Waimea. Waimea Ahupua'a is by far the largest on the island, comprising 92,646 acres and accounting for more than a quarter of the total land area of Kaua'i. It encompasses all of the Waimea River Canyon area, the uplands of Kōke'e, the high swampy plateau of Alaka'i, and the northwestern coastal valleys of Nu'alolo and Miloli'i (Gray 1875:140–146).

3.1 Wahi Pana (Sacred Places and Landscapes)

A Hawaiian *wahi pana*, also referred to as a place name, “physically and poetically describes an area while revealing its historical or legendary significance” (Landgraf 1994:v). *Wahi pana* can refer to natural geographic locations, such as streams, peaks, rock formations, ridges, and offshore islands and reefs, or they can refer to Hawaiian divisions, such as *ahupua'a* and *'ili*, and man-made structures, such as fishponds. In this way, the *wahi pana* of Waimea Ahupua'a, and the specific Project area tangibly link the *kama'āina* of Waimea to their past. All *wahi pana* meanings are cited from Pukui et al. (1974) unless otherwise noted.

Waimea, of southwest Kaua'i, is the name of the canyon, land division and *ahupua'a*. Waimea is literally translated as “reddish water” and is where Captain Cook first landed in Hawai'i in 1778. **Kekaha**, an *'ili* within the *ahupua'a* of Waimea, is literally translated as “the place.” **Mānā**, also in *'ili* in the *ahupua'a* of Waimea, literally translates as “arid.” **Pōki'i**, the name of the ridge and *'ili* within Waimea Ahupua'a, literally translates as “youngest brother or sister.” **Kaunalewa** is the land section and ridge in the Waimea District and literally translates as “swaying place” perhaps referring to coconut grove that was once there.

The sacred *heiau* (place of worship, shrine) of **Makahoa** is located *mauka* (towards the mountain) of the current Project area and literally translates as “friendly point.” According to a community member who was interviewed for this report, Kupuna (elder) Aletha Goodwin-Kaohi, this *wahi pana* was used for astronomy purposes such as ceremonies during the solstices (see Section 7.2 below for complete interview). Kupuna Goodwin-Kaohi describes Makahoa Heiau as destroyed. Bennett describes the *heiau* as Makahoe and marking its location on Niu Ridge in Kaunalewa (Bennett 1931:102).

Kahelu Heiau was once located in the Mānā area and is literally translated as “the number” or “the scratch.” Thrum describes the *heiau* as “A heiau of platform character at the base of the hill, about 6 feet high in front, not of large size” (Bennett 1931:102).

Ho'one'enu'u Heiau is located *mauka* of the current Project area on Kaunalewa Ridge. According to Pukui and Elbert (1986), “*ho'one'e*” literally translates as “to move along” (Pukui and Elbert 1986:82) and “*nu'u*” translates as “high place” (Pukui and Elbert 1986:273). The literal translation for Ho'one'enu'u may therefore be “to move along to the high place.”

3.2 Traditional Mo'olelo, 'Ōlelo No'eau, Mele and Oli

The documenting and research of traditional *mo'olelo*, *'ōlelo no'eau*, *mele* and *oli* not only inform us of the place names associated with certain regions, but we become privy to some of the *kaona* or hidden meanings left behind by the ancestors of modern day Hawaiians, and gain insight into how they viewed the world around them.

Place names provided by these sources can also be mirrored in the names of people mentioned in the *mo'olelo*, *'ōlelo no'eau*, *mele* and *oli*. The practice of naming places after people, and vice versa alludes to larger spiritual, cultural, or genealogical connections between people and places within the text and indicates the greater importance of these places as ancestral *wahi pana*. It is also a mnemonic device, used via oration to remember important places and people and their relationship to each other through time, in the absence of written text. In this way, the story may be retold throughout several generations and, in different ways, and while the story may go through minor changes through time, the place names, the people, and their connections to each other, together with their actions, are retained through time and remembered as important in some way.

In this way, names in general, can be either commemorative to remember an event, person or entity; and can also be instructive in the way the story plays out over time and space. These place names, and the people and places they represent, may also point to a larger cosmology and highlight genealogical (sometimes geological in the case of certain creation chants) connections to other districts, islands and regions outside of the current project area.

3.2.1 The True Story of Ko'olau and Pi'ilani

In 1987, the *Hawaiian Journal of History* printed a translated story based on a true account, entitled "Ko'olau the Leper," which recounts the story of a Hawaiian man in 1893 who, after being diagnosed with Leprosy, refused to be evacuated to Molokai without his wife and child (Frazier 1947:1–41). While the majority of the story takes place in the uplands of Kalalau Valley on Kaua'i, Ko'olau, his wife Pi'ilani and their son Kaleimanu were in fact from Kekaha, Kaua'i. Both Ko'olau and Kaleimanu eventually died of leprosy, and were buried in the valley of Kalalau after years of evading the authorities. His fervent wish to remain with his wife until he died fulfilled. Both Ko'olau and his family were well loved by the people of Kekaha to Mānā and Kalalau.

3.2.2 Mo'olelo no nā Mū (The story of the Mū people)

Ola is the son of Kualu-nui-pauku-mokumoku (a chief of the Mu people) and the chieftess Kuhapu-ola from Pe'ape'a on the Waimea side above Hanapepe, whom the chief meets clandestinely. His name Ola is given when he is recognized by his father and thus "saved from death" for breaking the chief's tabu. He succeeds his father in the rule over the Waimea district. Desiring to bring water to the taro patches of the Waimea flats, he is advised by his *kahuna* (priest) Pi to proclaim a tabu and summon the Menhune people to his aid. Each brings a stone and the watercourse (Kiki-a-Ola) is laid in a single night. These people also build the *heiau* of Hauola named "after the famous city of refuge of his father at Kekaha." They camp on the flats above called Kanaloa-huluhulu, plant taro (which is still growing on the cliffs of Kalalau), and

build a big oven (Kapuahi-a-Ola) between Kalalau and Waimea. They also make a road of sticks (Kiki papa a Ola) through the swamps of Alaka'i to the height above Wainiha (Beckwith 1940).

3.2.3 He mo'olelo no Kalelealuaka (The tradition of Kalelealuaka)

The father of Ka-lele-a-luaka is 'Ōpele-the-sleeper (Ka-Opele-moemoe) whose nature is such that he passes into a trance every six months and lies for six months as if dead, after which there comes a storm with thunder and lightning and he awakens. During this trance his spirit "floats away into the upper air with Poliahu" and compasses the whole group in a day. 'Ōpele is born in Waypoint valley on Hawaii in such a trance and his body is laid away in a cave. He awakens and calls to his parents in a chant and when they come to the spot they find him sitting in a tree braiding scarlet *lehua* flowers into a wreath. Cultivating the land is a passion with him and he plants crops at Kula on Maui, at Kapapakolea in Moanalua on O'ahu, in Lihue on Oahu, but each time his trance seizes him just as he is about to enjoy his crop, and others consume it.

In one such sleep his body is floated downstream and is found on the beach of Māeaea in Wailua by some men from Kaua'i who were looking for a human sacrifice for their temple of Lolomauna at Pōki'i. For six months he lies on the altar without his flesh decomposing, then there comes thunder and an earthquake and he awakens.

The old man at whose house he receives hospitality thinks he will make a fine husband for his daughter Maka-lani (or Kalikookalauae). 'Ōpele wastes no time in love making but goes to work at once cultivating a huge tract of land and bringing in a great catch of fish. When his wife is about to have a child, he warns her of his habit of trance, but her family (or the wife herself) cannot believe that he is not dead and they bind stones to his feet and throw him into the sea, where within six months he awakens during a thunderstorm and returns to his wife (Beckwith 1940).

3.2.4 The underwater springs of Mānā

An interesting story regarding Mānā was told by Knudsen and Noble (1944) regarding water sources in the Mānā region:

A fisherman sat mending a net near several canoes which were pulled up on the sand. Valdemar [Knudsen] asked if he would take them out to the rock' [referred to in the legend told previously by Knudsen]. The Hawaiian agreed willingly, and all three pulled a canoe down to the water's edge. "Wait a minute" said the fisherman, and ran back to a boathouse several yards up the beach, returning with a large, empty bottle. "What is that for?" Valdemar asked. "You may get thirsty" the man replied. At this cryptic answer, both Valdemar and James [Sinclair] looked askance at the empty bottle, but said nothing.

They paddled out into the flashing water, rounded the point of Nohili, and presently, just outside the breakers, the native stopped paddling. There, far below, lying in the clear water, was a large rock with a cross on it. "Perhaps you are getting thirsty" said the fisherman. "I will get you a drink."

He paddled a short way further out, and showing the men how to hold a paddle in the water so the canoe would not drift, he picked up the empty bottle, put a cork into it, and dropped overboard. Valdemar and James watched him swim through the transparent water down, down toward the bottom of the sea. He appeared to be standing on the bottom, and they thought he would never come up. But, finally he turned, his bottle in one hand, moving the other and kicking his feet. Slowly he rose to the surface. "There is a spring down there of good, fresh water" he said, as he climbed into the canoe. "We fishermen often quench our thirst there. The water was delicious, sweet and cool, and both James and Valdemar drank deep of it." (Knudsen and Noble 1944:86–87)

3.2.5 Oli and Mele

There is an *oli* written about Pōki'i, regarding the name of the area, and its relationship to the traditional art of *hula ki'i* (dancing image) style of traditional Hawaiian dancing (*hula*). This chant uses Pōki'i, as a play on words, in the breaking down of the word into the two: *pō*, using one meaning of the word that implies "being in a state of," and *ki'i*, meaning "image," therefore, for this *hula*, Pōki'i implies the notion of the person "being in the state of an image." It is used here in a dance where the body is used to represent an image of something else; it is also performed through the use of Hawaiian puppetry, in the place of a human dancer:

I Pōki'i ke ki'i	The image is at Pōki'i
ho'okiki'i ke ki'i	The image leans back
ho'ona'ana'a ke ki'i	The image protrudes is belly

(Pukui and Ebert 1986:257)

3.3 Subsistence and Settlement

Waimea Ahupua'a is composed of several regions which are very different in climate and terrain. These differences essentially dictated the kinds of resources that were available, and hence had much to do with the way the *ahupua'a* was settled by prehistoric Hawaiians. The well-watered valleys and deltas of the Waimea River were ingeniously developed and engineered for wetland agriculture, and represents the epitome of the typical Hawaiian and Kaua'i-type valley settlement (Handy and Handy 1972:393–397).

On the southwestern leeward coast, about three miles from Waimea Bay, a broad, flat plain stretches between the Waimea River delta and Polihale to the west. (Handy and Handy 1972) It is here that Kekaha, Pōki'i, Waiawa and Mānā is located, backed on the *mauka* side by steep low cliffs and a series of small valleys and gulches. Permanent habitation areas were mainly among the *mauka* foothills, at the bases of the shore-facing cliffs (Bennett 1931:103).

Makai (towards the sea) of the foothills were fishponds and cultivated wetlands fed by springs. Beyond this was the great swamp, then the broad stretch of the sand lands which continued to the shoreline. Fishing camps and other temporary habitation areas existed on the beach, and in the inland stretches of the sand there were burials. This scenario was likely in place

at the time of first western Contact and remained relatively undisturbed throughout most of the 1800s.

Just below the *mauka* ridges lies the Kekaha Ditch, which winds its way down from the Waimea River in the mountains. From the edge of Kekaha Ditch to the ocean lie the former swamp lands of the Kekaha-Mānā plains, now planted in corn, previously in sugar cane. Between these former swamp lands and Kekaha Ditch is a strip of land that once housed many people in the villages of Pōki'i, Waiawa, Kaunalewa, Mānā, and others. Between the villages were intermittent homes, with the Old and New Government Roads to Mānā (also called the Mānā Road) linking each community between Mānā and Kekaha.

Since then, much physical evidence of this settlement pattern has been obliterated by commercial agriculture and other operations. The foothills and wetland areas have been extensively planted in cane, livestock has been run up the gulches, and even the beach areas have been much disturbed by massive shoreline stabilization projects.

3.4 Burials

According to Mackenzie (1991:248), the Westside of all of the islands is significant in the selection for a site to bury your loved ones, especially the area of Kekaha to Mānā:

Hawaiians often chose burial sites for symbolic purposes. The western side of each island, symbolizing the sunset of life-death, often became a significant burial site. Thus, the sand dune areas at Honokahua on Maui, Mo'omomi on Moloka'i, Ka'ena on O'ahu, and Mānā on Kaua'i were considered desirable areas for internment. Burial sites were chosen as places of safekeeping for the *iwi* [ancestral remains]. In addition to sand dunes, bones were hidden in caves & diffs, buried in the earth & under rock mounds, or deposited in the ocean. Burials were usually *hūnākele* [to hide in secret] to keep the *iwi* [bones] from being abused or disturbed. '*Ohana* [family] members were often buried near the home, to be near the family so proper care and participation in family affairs could continue (MacKenzie 1991:248).

The location of burials in relationship to places where spirits can enter the spiritual world is also apparent in Hawaiian culture, as evidenced in the case of Polihale, where a *heiau* and a small settlement was located in the past:

Likewise, interments would occasionally be situated near *leina a ka 'uhane* or spirit leaping-off precipices to assist the departed family member's journey into the next realms. (MacKenzie 1991:248)

A number of pre-Contact burials have been located in the general area of Kekaha over the years. These finds were associated with construction activities (Hammatt 2004, Stein and Hammatt 2006).

Section 4 Historic Background

4.1 Overview

This section contains a summary of the historical background associated with the *ahupua'a* of Waimea. Historical information regarding the traditional *ahupua'a* of Kekaha, Pōki'i, Waiawa and Mānā, located in the ancient district of Kona, are also included in this section.

4.2 Early Historic Period

By the time the sailing ships *Discovery* and *Resolution*, under the command of Captain James Cook, anchored at Waimea Bay on January 20, 1778, the *ahupua'a* of Waimea had long been a focus of settlement, agriculture, and *ali'i* residence on Kaua'i. The well-watered valley and delta of the Waimea River were ingeniously developed and engineered for wetland agriculture, and represent the full flowering of the typical Hawaiian and Kaua'i-type valley settlement (Handy and Handy 1972:393–397).

James King, a lieutenant serving under Cook, estimated about sixty houses along the shoreline at Waimea Bay and forty more extending inland over three-quarters of a mile (Cook 1784:205).

Following Cook's visit, other foreign explorers and traders would make Waimea a port-of-call during the remainder of the eighteenth century. In 1786, Captain Nathaniel Portlock, after exploring the southwest shore of Kaua'i, was "well assured that Atoui [Kaua'i] afforded no place for the ships to ride in equal to Wymoa [Waimea] Bay" (Portlock 1968:173). As a result, numerous ships made Waimea Bay the primary port of call for revictualling and refurbishing on Kaua'i during the early historic period prior to the 1800s.

4.3 Waimea: Early 1800s

4.3.1 The Russian presence (Early 1800s)

On January 31, 1815, the *Behring*, a 210-ton three-master owned by the Russian-American Company, was beached at Waimea Bay on the south coast of Kaua'i. Kaumuali'i, the king of Kaua'i, took possession of the vessel and its cargo, maintaining that anything brought to land upon Kaua'i became the king's property. In May 1816, Georg Anton Schäffer arrived in Waimea to recover it for the Russian-American Company. Schäffer, expecting to be met with some resistance from the island's high chief, instead found Kaumuali'i willing to return the *Behring's* cargo and eager for an alliance with the Russian Empire. Over the next several years, Schäffer established the Russian presence on Kaua'i (Fort Elizabeth at Waimea Bay, and two forts at Hanalei), mostly due to Kaumuali'i's desire to return Kaua'i island to independence from Kamehameha's reign of the rest of the island group.

By the spring of 1817, Kaumuali'i had lost confidence in Schäffer and on May 8, 1817 Kaumuali'i, accompanied by "a thousand men" (according to Schäffer) at Waimea, ordered Schäffer and his compatriots off the island immediately. For a brief period Schäffer and his men

occupied Hanalei Valley (previously given to him by the high chief) in Northern Kaua'i, however by June 6, 1817 Schäffer sailed away from Hanalei Bay, never to return.

By the following year, 1818, the fort had become the residence of Kaumuali'i, king of Kaua'i. Peter Corney, the chief officer on Kamehameha's schooner *Columbia*, reported a voyage to Waimea in March, 1818, where he observed the "king [Kaumuali'i], chiefs, and about 150 warriors live within [the fort], and keep a regular guard; they have a number of white men for the purpose of working the guns" (Corney 1896:89). Corney also described the extent of the sandalwood operations at Waimea controlled by Kamehameha. On March 17, 1818, the *Columbia*, then anchored at Honolulu, was ordered to Waimea by Kamehameha to collect a cargo of the wood:

Teymotoo [Ke'eaumoku], or Cox, with several other chiefs, came on board. We made sail, and on the following day came too in Whymea Roads. . . .

Our chiefs landed, and were well received by Tamoree [Kaumuali'i]; and the next morning they commenced sending wood on board. About 500 canoes were employed in bringing it off, and by the 25th of March we had the ship quite full. (Corney 1896:88–89)

4.3.2 The arrival of Missionaries (Early 1800s)

The American Board of Commissioners for Foreign Missions, headquartered in Boston, sent its first company of missionaries to the Hawaiian Islands in 1819, leaving Boston on October 23rd aboard the brig "Thaddeus." The vessel came in sight of Mauna Kea on March 30, 1820 and anchored at Kawaihae Bay a couple of days later. There they learned of Kamehameha's death in May 1819 and of the recent overturning of the *kapu* (taboo) system. In May 1820, two missionary couples – American Protestant missionaries – landed at Waimea in July 1820 with the intention of establishing a station there. Their party consisted of two couples; Samuel and Mercy Whitney and Samuel and Nancy Ruggles (Damon 1931:284).

The missionaries were accompanied by Kaumuali'i's son, Prince George, who had been sent away to school in New England. Kaumuali'i granted Waimea Ahupua'a to his son, George, along with the fort and houses. In July 1820, the two missionary couples were established in a house *makai* of the fort. The house's *lānai* (porch) served as the school room and meeting house.

By the mid-1820s, the Ruggles had left Kaua'i and the Whitney's had moved to a new house at Mahaihai on the east side of the Waimea River. The Whitneys were visited in 1824 by another missionary, Hiram Bingham, who described the idyllic Waimea landscape he encountered:

The valley contains about four hundred habitations, including those on the sea-shore. The numerous patches of the nutritious arum, and the huts or cottages of the people, were beautifully interspersed with the bread-fruit, the cocoanut, and the furniture *kou*, the medicinal Palma Christi, and oleaginous candlenut, the luscious banana, and sugar-cane. (Bingham 1847:217–218)

If Bingham is accurate, life in Waimea retained much of its pre-Contact character well into the nineteenth century. However, in August 1824 the peace of Waimea was shattered during a rebellion of Kaua'i chiefs led by Prince George.

4.3.3 King George's Rebellion

Kaumuali'i, George's father and the last King of Kaua'i, had died in Honolulu on May 26, 1824. On August 8, George and a band of rebellious Kaua'i chiefs and their followers attacked the garrison at the Waimea fort, outpost of the Hawaiian Kingdom ruled by Liholiho:

Ten rebels [were] killed, including one of the leading chiefs. Six of the defenders of the fort were killed, including two Englishmen. George and his followers retreated southeast to Hanapepe Valley. (Joesting 1984:106)

The rebellion was crushed; George was taken captive and sent to Honolulu, and, according to the pioneering nineteenth century historian Samuel Kamakau:

Ka-lani-moku [prime minister of the Hawaiian kingdom] redistributed the lands of Kaua'i. . . The last will of Ka-umu-ali'i, who had the real title to the lands, was not respected. . . The lands were again divided. Soldiers who had been given lands but had returned to Oahu had their lands taken away, chiefs who had large lands were deprived of them, and the loafers and hangers-on (*palaualelo*) of Oahu and Maui obtained the rich lands of Kaua'i. (Kamakau 1992:268–269)

This event is key in the history of Kaua'i. By the time of the Great Māhele, 24 years later, lands formerly called *ahupua'a*, were now called *'ili*, and the great District of Waimea (formerly comprised of nine crown lands) was redefined as an *ahupua'a*, making it the largest *ahupua'a* in Hawai'i.

4.4 Waimea: Mid to Late 1800s

4.4.1 The Great Māhele

A thorough examination of Māhele records as it pertains specifically to the *ahupua'a* of Waimea reveals there are some discrepancies in the way that these land areas are referred to/referenced in documented testimony in 1848–49. Discrepancies in these historic documents may exist due to the differences between the Hawaiian government's method of documentation, and what was widely held as true within specific communities, or the Māhele period of history may represent a transition period between traditional and modern representations of the landscape after the Kamehameha dynasty reapportioned the lands of Kaua'i. Finally, some scholars believe that the *ahupua'a* system of land division was only in effect after Kamehameha became king and instituted it throughout Hawai'i nei, however, it is apparent that in West Kaua'i, prior to Kamehameha's subsuming of the lands, a method of land division was already in place, and in use, that in many ways reflects the Kamehameha system, with some changes in whose names after the lands were transferred into the new system.

4.4.1.1 Naumu; 'ili of Kekaha; Claim No: 05362

Claim Number: 05362 (listed erroneously in places as 05372). Claimant Name: Naumu, Waimea, Kaua'i, January 19, 1848. Native Register Volume 9, page 146.

Claim for land and house lot at Kekaha: Kapaeli, and Kapenu, a muliwai. It is a square 150 by 150. Also, Huluhulunui, and Aliapaakai are square, 150 by 150,

and Ulunui. These claims are alike, square. These claims were acquired when Kapaeli was an overgrown land at the time I got it. I paid 32 Dollars to improve the land and the taro is growing at this time but has not been harvested. 1844. I received this land from Kaumualii. Name of claimant: B. NAUMU. No. 5362, B. Naumu. Foreign Testimony Volume 11, page 158 supp.

The testimony of Poipu, supports Pehu's testimony. Pehu describes Naumu's lands and holdings in Kekaha, as follows:

Pehu, sworn, says I know the Claimant's land. He had the following land, but the Claimant died in 1848 and then it returned to Kapuniai, the Konohiki.

He had also the following land in Kekaha Kauai. No. 1 a loi & kula [plain, pasture] called "Kapaele." No. 2 is a salt patch called "Huluhulunui." No. 3 is cocoanut Grove called "Huluhulunui." They are all in the ili of "Hakila."

No. 1 (Kapaele) is bounded: Mauka by the marsh of bulrushes. Hanapepe by marsh of Kiki." Makai by the sea beach. Mana by kula of Hakila.

No. 2 (Huluhulunui) is bounded: Mauka by an alanui Aupuni [government road]. Hanapepe by the kula of Heleloa. Makai by sea beach. Mana by the kula of "Hakila."

No. 3 (Huluhulunui) is bounded: Mauka by the pali of Pokii. Hanapepe by kula of Heleloa. Makai by Alanui Aupuni. Mana by kula of Hakila. The claimant received this land from Kaumualii III and when he died returned them to the donor who is his heir.

Poipu, sworn, says the testimony of Pehu is true.

Ulu, sworn, he has seen Naumu's land.

Section 1 - Loi of Kapaele surrounded by a pasture in Kekaha ahupuaa. Mauka by Hakila bulrush. Hanapepe by Kiki bulrush. Makai by beach. Mana by Hakila pasture.

Section 2 - Huluhulunui, salt bed in Kekaha ahupuaa. Mauka by Government road. Hanapepe by Heleloa pasture. Makai by Government road. Mana by Hakila pasture.

Section 3 - Huluhulunui, Niu's land in Hakila ili, Kekaha ahupuaa. Mauka by Pokii pali. Hanapepe by Heleloa pasture. Makai by Government road. Mana by Hakila pasture.

Land from Kaumualii 3, upon Naumu's death, land returned to Kaumualii 3. No objections to the present time.

[Award 5362; Land Patent 8137; Waimea Kona; 4 ap.; 21 Acs 1 rood 33 rods; No. 6731 not awarded]

4.4.1.2 Māhele Records: Keona, Ahupua'a and 'ili of Poki'i, Claim Number 08841

Claim Number: 08841. Claimant Name: Keona. Ahupua'a (Division): 'Ili (Section): Pokii. Royal Patent: No. 8841, Keaone. Native Register Volume 9, page 397.

I, Keaona, a subject of the Hawaiian Islands living at Pokii on the island of Kauai, hereby state to you, the Land commissioners, my own claim. It is 60 fathoms long by 30 fathoms wide and is my house lot. There are six lo'i and their kula, 90 fathoms long by 40 fathoms wide. my occupancy has been from the year 1834. I am, respectfully, KEAONA. Witness: Kaaua Makua, 19 January 1848.

No. 8841, Keaona. Foreign Testimony Volume 13, page 214. Claim not lost but returned to Mr. Lee in consequence of Claimant not presenting his evidence before Sub Commission, Number forgotten.

Kaaua, sworn, says I know this land. It is in Apana 1, Ahupuaa & ili of Pokii, Kalana [division of land smaller than a *moku* or district; county] of Kona, Kauai & is bounded: Mauka by pali of Pokii. Waimea by a ditch dug to serve as a fence. Makai by auwai. Mana by moo called Kaumeke. Claimant holds this land from his ancestors from the time of Kailinaoa ma to the present time & his title is not disputed.

Apana 2 Four taro patches in the Ahupuaa & ili of Pokii Kalana, of Kona Kauai. [They] are bounded: Mauka by Uruu a taro land. Waimea by Keawe's taro land. Makai by Swamp of rushes. Mana by Kaainui, a taro land. Claimant has held this land from the time of Kinau & his title to it is not disputed.

[Award 8841; Pokii Waimea Kona; 3 ap.; 4.5 Acs 38 rods]

4.4.1.3 Elia Lihau, 'ili of Wai'awa, Claim Number 06698

Claim Number: 06698. Claimant Name: Lihau, Elia. 'Ili (Section): Waiawa. Royal Patent: No. 6698, Elia Lihau, Waimea, Kauai, Jan. 18, 1848. Native Register Volume 9, page 244

Greetings to the Land Commissioners: There is an Ahupua'a named Waimea on the island of Kauai. Kaikioewa and Keaweamahi gave me Waiawa I was occupied as fisherman for Moses Kekuaiwa. Here is where I live, and the things which give sustenance most of it is unused kula, and a restricted fishery and also a mountain area. There are also other people who are occupants within this area. It is bounded on the north by Puukapele, on the east by Pokii and one side of Kekaha, on the south is the ocean, on the west is Kaunalewa. The boundaries have not been measured because of being so large. There is no transit to enable the proper survey, also, there are some gulches which lie there. I am, with aloha, ELIA LIHAU.

No. 6698, Elia Lihau, Claimant. Foreign Testimony Volume 11, page 155 supp.

This claim was withdrawn See Page 11 [Native Testimony Volume 11, page 11].

No. 2290 6698, Lihau E., Claimant Feb. 4th 1854. Foreign Testimony Volume 13, page 215. Claim for Waiawa which was disallowed but Claimant being satisfied of the justness of his claim presents this further evidence.

Jona Kamoopohaku, sworn, says, I know this land. It is a sub Ahupuaa or ili in Waimea or Kona, Kauai & is bounded: Mauka by Kuahiwi of Waimea. Waimea by Paka. Makai by Kahakai. Mana by Kaunalewa. Claimant received this land from Kaikioewa in the early part of his administration as governor of Kauai, the gift was made at the same time & with precisely the same condition & made as that of the other land of Claimant which have been awarded him by the Land Commission, & his right to this land is the same as his right to those, & has never been disputed till quite recently & I do not know that it is now disputed.

Ehuiki, sworn, says I am well acquainted with this land & know that for many years Claimant has had undisputed possession of Waiawa though I was not present when the original gift was made. I am sure that Jona's testimony is true.

No. 6698, Lihau. Native Testimony Volume 11, page 11. This claim in Waiawa has been terminated, Lihau has no interest there and it has been returned. [No. 6698 not awarded; See Award 2290]

4.4.2 Population decline

Missionary journals and documents recount the events shaping Waimea from the 1820s onwards. The area was struck, in May of 1826, by an influenza epidemic and a great flood that wreaked havoc upon taro *lo'i* (irrigated terraces) and damaged structures built by the missionaries.

Beginning in 1831, censuses taken by Protestant missionaries throughout the Hawaiian Islands provide the earliest documentation of the size of the native population after the first decades of western Contact. In 1833, Rev. Samuel Whitney estimated a population of 3,883 persons within six miles of the Waimea station. More ominously, he also estimated ten deaths were occurring for every birth (Kaua'i Bicentennial Committee 1977).

Subsequent missionary station reports from Waimea recorded the continuing diminishment of the area's population: in 1838, the total population was 3,272, in 1840, it was 2,819, and in 1841, it was 2,779 (in Schmitt 1973:14). Whitney himself died in 1845 and was replaced by Reverend George Rowell who, with his family, moved to Waimea from Waioli in 1846.

Censuses taken during the second half of the nineteenth century record the dwindling population of the Waimea area. While, as noted above, in 1838 there were 3,272 persons living in the district, by 1853 a total of 2,872 persons were recorded in Waimea. Twenty-five years later, in 1878, the total population had diminished further to 1,374 (Schmitt 1977:12–13).

4.4.3 The Port of Waimea

In 1850, Waimea was designated a government port, opening it to foreign commerce. At the time, Waimea was exporting a respectable variety of agricultural goods and livestock. A report

of the Royal Hawaiian Agricultural Society noted the following exports from the port of Waimea between July 1, 1850 and June 30, 1851 (in Damon 1931:291):

Table 1 Waimea Port Exports between 1850 and 1851

Item	Quantity		Item	Number
Sweet Potatoes	3,009 bbls.		Oranges	4,000
Yams	9 bbls.		Squashes	100
Onions	568½ bbls.		Cattle	4
Sugar	5,000 lbs.		Sheep	108
Salt	50 lbs.		Swine	110
Pineapples	2,000		Turkeys	110
Cocoanuts	1,400		Fowls	1,202
Bananas	20 bunches		Ducks	12
Dried Pork	1,200 lbs.		Total Value	\$9,030. 62

Most of these goods, apparently, were brought to the port of Waimea for shipment off the island; they were not products of the *ahupua'a* itself. Within a few years, the government port facility was moved to Koloa.

4.4.4 From Taro to Rice to Sugar in Waimea

Among the first Entrepreneurs to the Waimea area was American, William French. He had settled in Honolulu in 1826, becoming involved in business enterprises throughout the islands. In the early 1830s, French obtained permission to establish a sugar mill on Kaua'i.

In 1835, he brought from China a number of Chinese with a mill and apparatus for manufacturing sugar. After a fruitless endeavor to obtain land for a plantation (on O'ahu) he at length engaged with Governor (of Kaua'i) Kaikioewa to take his men and machinery to Kaua'i and there grind cane and manufacture sugar on shares, the governor supplying the cane and furnishing horses to turn the mill. The business was carried on for about two years at Waimea and French at one time had hopes of getting a tract of land for a plantation. But the hope proved elusive; French found himself in hopeless competition with the Koloa enterprise of Ladd and Company, and in 1838, carried his mill back to O'ahu. He is said to have lost over \$3000 through the failure of the undertaking (Kuykendall 1966:175).

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-nineteenth century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

Rice cultivation by Chinese farmers began in Waimea Valley in the 1860s as evidenced by the conversion of taro *lo'i* to rice fields in the second half of the nineteenth century. These Chinese farmers had come to the islands to work on the sugar plantations. As the commercial sugar industry expanded throughout the Hawaiian Kingdom, the need for increased numbers of field laborers prompted passage of contract labor laws.

In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five years, and pay was \$3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the Hawaiian kingdom, many becoming merchants or rice farmers.

At Waimea, as in other locales, groups of Chinese began leasing former taro lands for conversion to rice farming. Sadly, the taro lands' availability throughout the islands in the later 1800s reflected the declining demand for taro as the native Hawaiian population diminished.

4.5 Rice Cultivation in West Kaua'i

Commercial rice growing came to the Kekaha-Mānā plain in the 1860s. The area's most prolific planter was Leong Pah On, a Chinese immigrant (Joesting 1984:206).

Leong Pah On started farming in Waimea Valley and eventually met Valdemar Knudsen who allowed him to cultivate the swamplands. He imported Chinese laborers, drained the swamps with ditches, brought in water buffaloes, and eventually acquired more land. At its peak, Pah On's rice lands totaled about 600 acres throughout Mānā, Kekaha and Waimea (Char and Char 1979:21).

Pah On's enterprise ended suddenly in 1922. The leases on government lands were expiring and H. P. Faye, manager of the Kekaha Sugar Co., convinced Pah On not to bid on new leases and let the sugar company take over control of the land. In return Kekaha Sugar would sub-lease the rice fields back to Pah On. The successful rice grower could have easily out-bid the sugar concern, but agreed to the plan. When Kekaha Sugar secured the leases its board of directors overruled Faye and denied any subleases to Pah On (Char and Char 1979:22).

Rice farming declined sharply throughout the Hawaiian Islands after the first decade of the twentieth century: total acreage dropped from a high of 9,425 acres in 1909 to 1,130 acres in 1935. By the 1930s, the rice industry had ceased entirely on the islands of Hawaii, Maui and Moloka'i (Coulter and Chun 1937:62). Though rice continued to be grown at Waimea into the 1930s, many of the rice fields were being reclaimed for sugar planting. Population figures up to World War II reflect the continued growth of the Waimea District as the sugar industry prospered: in 1910, the population total was 8,195 and by 1940, it had grown to 10,852 (Schmitt 1970:13–14).

4.6 Sugar

The Reciprocity Treaty of 1876 between the United States and Hawai'i gave impetus for the expansion of the sugar industry throughout the islands. The first commercial cane in the Kekaha area was planted in 1878, near Pōki'i, by Knudsen and a partner, Christian L'Orange. Hans P. Faye, Knudsen's nephew, was brought in as another grower, and it was he who dug the first artesian wells in the islands at Kekaha. With a steady, but still small water source, investors showed interest, and the Kekaha Sugar Co. was incorporated in 1898 (Joesting 1984:216–217) (Figure 4). The mill was set up on the sand lands of Kekaha at the *makai* edge of the swamp, its foundations set deep into the underlying coral (Knudsen and Noble 1944:161–162).

The Kekaha Sugar Co. was developed on the lands of the Meier and Kruse sugar plantation (1886–1898), H. P. Faye & Company sugar plantation (1886–1898), and Kekaha Mill Company sugar plantation (1880–1898) and was organized under the auspices of the major sugar factor H. Hackfield & Company (Dorrance and Morgan 2000:35).

In the 1900s, Kekaha Sugar Co. employed about 1000 people, of which approximately 300 families lived in plantation houses. The Kekaha Sugar Co. saw expansion after 1907 under the management of Hans Peter Faye when the construction of the plantation's major irrigation ditch was completed. Most of the cane was initially transported by flume. The engineering feat brought water to the area from eight miles up the Waimea River via a series of ditches, flumes, tunnels, and siphons (Thrum 1908:158–159). In 1910, the Waimea Sugar Mill Company was bought by H. P. Faye, Ltd., operator of the neighboring Kekaha Sugar Company.

By 1910 the plantation had 15 miles of permanent railroad track transporting cane from collection points to the mill and then transporting bags of sugar to the steamship landing at Waimea. By 1938 a *Honolulu Advertiser* article stated that Kekaha Sugar Co. was the most valuable single piece of property in the Territory. According to Hawaiian Sugar Planters Association's (HSPA) Plantation Archives:

The nine-roller mill at the factory produced 80 tons of sugar a day and the sugar bags were sent by rail to the steamship landing at Waimea. KSC used the cultivation contract system or piecework system whereby individuals or "gangs" cultivated certain fields and were paid according to the amount of cane harvested. Kekaha Sugar employed about 1000 people in the early 1900s and approximately 300 families lived in plantation houses. Serving the plantation population were four independent stores, Waimea Hospital, public schools, and the Foreign Church. (HSPA Plantation Archives)

In 1922, Kekaha Sugar Co. (KSC) began to drain the Mānā swamps to produce more sugar cane land. The project took 60 years to complete. By the early 1930s, about 670 acres of land was cultivated by the Waimea Sugar Mill Company. Most of Waimea Town's commercial buildings were constructed during this period of the sugar industry's growth.

According to HSPA Plantation Archives:

Kekaha was well known in its pursuit of diversified farming efforts. The plantation helped support a large community garden in Mānā. During the 1930s a 16-acre vegetable garden was started at an elevation of 1600 feet. One year later the garden produced approximately 95 tons of vegetables and was expanded to 24 acres, helping to make KSC self-sufficient in food supply. Currently, farming of vegetables is not done at KSC. (HSPA Plantation Archives)



Figure 4. Kekaha Sugar Mill (CSH 2010)

Following World War II, the fortunes of the Waimea Company changed. By 1940 fields were harvested mechanically (due in part to a labor strike which took 300 men out of the work force), and by 1947 trucks took over the transport of cane from the flume system and railroad completely. The Waimea mill stopped operating in 1945, though the Waimea Sugar Company continued to cultivate cane on its lands until 1969. After the company closed, its fields were leased to the Kekaha Sugar Company. During recent decades, growth in Waimea has focused on development of the former sugar plantation lands and structures into tourist-oriented facilities.

In 1950, the Kekaha Sugar Co. rebuilt their factory. The Kekaha Sugar Co. also continued the use of land owned by them for cattle grazing. In 1951, they had a herd of 1,427 head on 10,816 acres of pasture. According to HSPA Plantation Archives:

In 1951, KSC management changed from a system of three division; Mānā, Mauka, and Kekaha, to a functional system with one superintendent for a particular function covering the entire plantation. In 1954, Honolulu Iron Works built for KSC the longest and heaviest mill train in Hawaii; a 100 foot long series of 17 rollers, capable of crushing 125 tons of cane per hour. That year a four-phase improvement plan was completed; the new crushing plant, a hydro-electric plant in Waimea Valley, a low-grade centrifugal station in the factory, and a new steam generator that replaced seven old type boilers. (HSPA Plantation Archives)

In 1969, the company again expanded, leasing the lands of the newly closed Waimea Sugar Mill Company. By 1983 Kekaha Sugar employed about 400 people and produced 54,819 tons of sugar. In 1994 Amfac/JMB consolidated many functions of Kekaha Sugar and Lihue Plantation

as a cost-cutting measure (Wilcox 1996:97). By 1987, the company had a record crop of 56,618 tons of sugar.

However, in 1988 the Kekaha Sugar Co. was sold to JMB Realty as part of the buyout of Amfac Hawaii. By 1992, the company officially became part of Amfac Sugar Kaua'i West, and in 1995, the last sugar cane was harvested by this company on their Waimea lands. In 2000, Amfac Hawaii closed its last sugar operations at the Kekaha mill.

4.6.1 The Kekaha Ditch

Valdemar Knudsen looked to the Waimea River as a source of sugar cane irrigation water. Initial engineering studies in 1881, 1892 and 1893 were not favorable to the project citing exorbitant costs (Wilcox 1996:92). The high cost estimates for the proposed ditch lead to intensified efforts at groundwater extraction in 1898 but drought and over use lead to skyrocketing salt content and a major drop in well levels. The fate of the plantation hinged on water supply development. H. P. Faye was impressed with the success of the Waimea (Kikiaola) Ditch in supplying irrigation water to the Waimea Sugar Mill Plantation and pushed forward with the Kekaha Ditch.

Construction started in May 1906 and was completed in September 1907 (Wilcox 1996:93). The Kekaha Ditch (Figure 5) has also been known as the Waimea Ditch and as the Waimea-Kekaha Ditch. J.S. Malony was contracted and James L. Robertson was the project supervisor. The ditch intercepted water in the Waimea River at 550-foot elevation and originally extended through 16 miles of *mauka* lands and four miles through the lowlands (Wilcox 1996:93).



Figure 5. Map of Kekaha Ditch Irrigation System (courtesy Hawai'i State Department of Agriculture)

Section 5 Archaeological Research

A general archaeological background for Kekaha is presented, followed by a discussion of archaeological studies that have been conducted within and in proximity the current Project area. Table 2 presents a list of previous archaeological research and Figure 6 shows previous study area locations.

Table 2. Previous Archaeological Studies in the Kekaha Area

Study	Location	Type	Findings
Bennett 1931	Island wide survey including Kekaha	Documentation of major pre- Contact sites	Described 7 sites in the Kekaha area including <i>heiau</i> , burial caves, habitation, and agricultural features
Ching et al. 1974	Kekaha	Hawaii Register of Historic Places nomination form	Ho'one'enu'u Heiau (SIHP #50-30-05-12)
Bordner 1977	Kekaha Beach Park	Reconnaissance survey	No cultural material observed
Sinoto 1978	Valleys <i>mauka</i> of Kekaha Town	Reconnaissance survey	Sites located in valleys of Waiakea, Pawa, Waipoao, Waiawa, Kahoana, and Hō'ea
Ching 1982	Proposed landfill near Barking Sands	Reconnaissance survey	No cultural material observed
McMahon 1988	Mānā near the land fill	Field inspection	No historic properties observed
Ida and Hammatt 1992	Kekaha Town TMK [4] 1-3-002:002	Inventory survey w/ subsurface testing	No historic properties or cultural deposits observed
Spear 1992	west of Kekaha Town; TMK [4] 1-2-002:022	Archaeological monitoring	No historic properties observed
Yent 1992	Polihale State Park	Subsurface testing	Cultural deposits associated with SIHP #50-30-05-1818
McEldowney 1993	Mānā Quarry	Archaeological survey	Partial recording of <i>heiau</i> on the <i>mauka</i> bank of Kekaha Ditch near Mānā Quarry
Folk and Hammatt 1993	Proposed landfill expansion near Barking Sands; TMK [4] 1-2-02:009	Inventory survey w/ subsurface testing	No historic properties observed

Study	Location	Type	Findings
Folk and Hammatt 1994a	National Guard Rifle Range, Barking Sands	Inventory survey w/ subsurface testing	No historic properties observed
Folk and Hammatt 1994b	Kekaha Town	Inventory survey w/ subsurface testing	No historic properties observed
Masterson et al. 1994a	Kekaha Town; TMK [4] 1-2-12:038 and [4] 1-2-02:032, 034, and 038	Inventory survey w/ subsurface testing	2 Cultural layers (SIHP #50-30-05-700, and -703), 2 human burials (SIHP #50-30-05-701 and -702)
Masterson et al. 1994b	Proposed agricultural park near Barking Sands	Inventory survey w/ subsurface testing	2 human burials at Limaloa (SIHP #50-30-05-3650)
Hammatt 1996	Kekaha Town	Subsurface Testing	No historic properties observed
Yent 1997	Kekaha Game Management Area; TMK [4] 1-2-002	Reconnaissance Survey	No historic properties observed
Heidel et al. 1997	Kekaha Town; TMK [4] 1-3-003:015, 019, and 023	Inventory survey w/ subsurface testing	4 human burials (SIHP #50-30-05-619)
McGerty and Spear 1997a	Mānā Plain	Inventory Survey	No historic properties observed
McGerty and Spear 1997b	Parcel of land north of Mānā Reservoir; TMK [4] 1-2-002:001	Inventory Survey	SIHP #50-30-05-652 thru 658 including rock mounds, terraces, and historic refuse dumps
Hammatt and Shideler 1999	Kekaha Town; TMK [4] 1-3-005:015, 019, and 023	Archaeological monitoring	No cultural material observed
Tulchin and Hammatt 2003	‘Akialoa Road and Kaumuali‘i Highway; TMK [4] 1-3-001:999	Inventory survey w/ subsurface testing	No cultural material observed
Hammatt 2004	Aloha Kaua‘i Villas, Kikiaola; TMK [4] 1-2-013:031	Inadvertent burial discovery and treatment report	3–5 individuals discovered during the excavation of a pool and designated as SIHP #50-30-05-3911
Stein and Hammatt 2006	0. 23-Acre Parcel within the Kekaha House Lots; TMK: [4] 1-3-005:045	Archaeological monitoring and inadvertent burial recovery report	2 burials designated SIHP #50-30-05-3941

Study	Location	Type	Findings
Hazlett and Hammatt 2008	Kekaha Town, Lot B Kekaha Housing; TMK [4] 1-2-002:032	Archaeological monitoring	1 burial designated SIHP #50-30-05-3937
Wilkinson and Hammatt 2010	Kekaha Elementary School; TMK [4] 1-3- 002:001 and 057	Archaeological monitoring	No cultural material observed

The first comprehensive study of the archaeology of Kaua'i was undertaken by Wendell C. Bennett (1931) based on field work conducted in 1928–29. Bennett recorded seven major pre-Contact sites in the vicinity of Kekaha (Sites 10–16). These are listed by Bennett as:

Site 10-Kahelu heiau, at Kahelu near Mānā and described by Thrum as, “A heiau of platform character at the base of the hill, about 6 feet in front, not of large size.”

Site 11—Makahoe heiau and village site, on Niu ridge, Kaunalewa. A small, platform village shrine. Thrum describes the village as “Four and one-half miles from the coast and at an altitude of 1200 feet. This village had about 0.5 acres of taro land besides the dry crops to depend on.” On the inland side of Niu ridge, small valleys are found with small streams and a few taro terraces. Petroglyphs were reported for this area.

Site 12—Hooneenuu heiau, along the ditch line inland from the government road near the center of Kaunalewa ridge.

Site 13—Burial caves, on Kaunalewa ridge.

Site 14—Two small heiau, near Waiawa, described by Thrum as a 12 by 20-foot shrine, and an 18 by 28-foot shrine

Site 15—House sites and taro terraces, in Waiawa valley. Some taro lines may still be seen in lower Waiawa valley. Many house sites are in evidence. They consist for the most part of leveled ground, faced in front with stone, or merely outlined with stone.

Site 16—Hauola heiau, in Hoes valley at the base of Hauola ridge.

Site 17—Burial caves, on Pokii ridge.

Bennett's Site 12, Ho'one'enu'u Heiau (SIHP #50-30-05-12), is present in close proximity to the current survey area but will not be impacted by proposed activities.

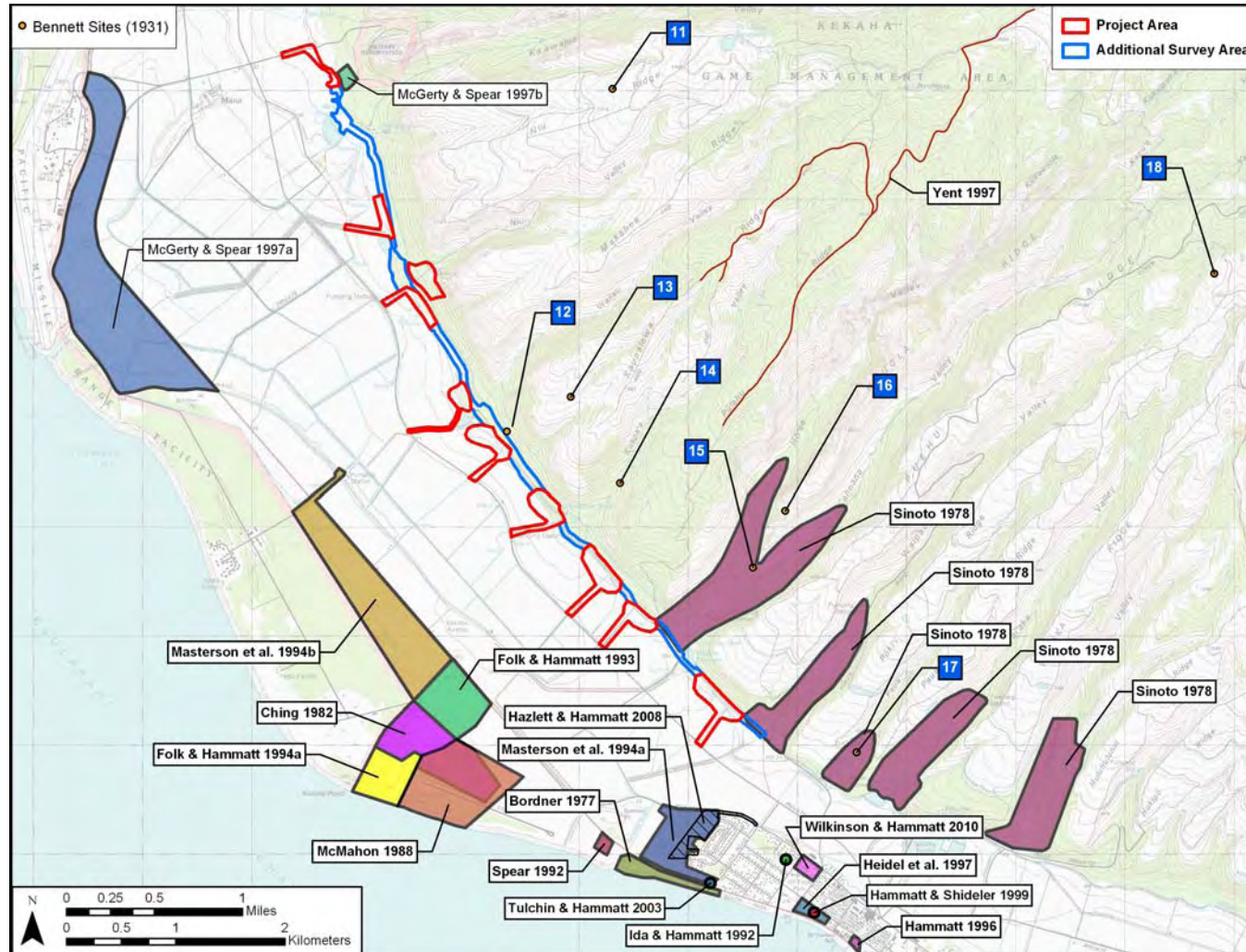


Figure 6. Previous archaeological studies in the Kekaha area

Ching et al. (1974) conducted fieldwork in support of a Hawaii Register of Historic Places Nomination form for SIHP #50-30-05-12. A partial scale drawing of the site was produced along with documentation for form submittal. The site was recommended as "Reserve local because of the scarcity of enclosed heiau on Kaua'i" (Coversheet Hawaii Register of Historic Places 1974).

The Bishop Museum returned to the bases of the narrow valleys overlooking present day Kekaha Town during a study for potential "rock borrow" areas for the Corps of Engineers (Sinoto 1978). Archaeological sites were noted in Waiākea, Pawa, Waipao, Waiawa, Kahoana and Hō'ea. Sinoto's (1978) Waipao study area was bracketed on the east side by the Kōke'e Road and on the north and east sides by the Kekaha Ditch at the east end of the present study corridor. Sinoto (1978:4) notes: "A few sites, including crude terracing, stone piles, and an apparent cattle wall" Sinoto (1978:4) recommended: "The area immediately south of the pumping station, comprising about a third of the [Sinoto 1978 Waipao] survey area, is restricted from borrowing activities." This area of study lies farther inland of the present Project area.

ARCH (Bordner 1977) conducted an archaeological reconnaissance survey of Kekaha Beach Park for the Army Corp of Engineers. Charcoal flecking was observed in a sand dune; however because no cultural material was observed, the flecking was attributed to the nearby sugar mill.

In 1982, ARCH conducted an archaeological reconnaissance survey for a proposed landfill site on a parcel adjacent to the south side of Barking Sands military installation. The land was previously under sugar cane cultivation, and no cultural material or historic properties were observed.

McMahon (1988) conducted a field inspection of land in Mānā adjacent to the landfill, in response to a request for a land use permit. Impacts from the landfill were observed; however no historic properties or cultural material was observed.

CSH (Ida and Hammatt 1992) conducted an inventory survey with subsurface testing in support of the consolidation and re-subdivision of house lots in Kekaha Town. No historic properties or cultural deposits were observed.

SCS (Spear 1992) conducted archaeological monitoring on a parcel west of Kekaha Town in support of vegetation clearing and excavation for a well. No historic properties or cultural deposits were observed.

Yent (1992) conducted subsurface testing in support of a proposed road swale at Polihale State Park. The purpose of testing was to further define the extent of SIHP #50-30-05-1818, a cultural deposit containing charcoal, basalt flakes, and shell midden, located in the sand dunes. Other goals included determining impacts to the site as a result of the project, and recommending treatment during construction. Remnants of the deposit were observed and documented as a result of subsurface testing.

McEldowney (1993) conducted a field inspection in support of the proposed expansion of Mānā Quarry, which is located within the current survey area. Remnants of a *heiau* were partially documented near the southwestern extent of the quarry. These remnants were conclusively identified as a previously undocumented *heiau* and not Bennett's Site 12; however the site was mislabeled during subsequent administrative tasks. The current document rectifies this administrative error.

In 1993, CSH (Folk and Hammatt 1993) conducted an inventory survey with subsurface testing in support of proposed landfill expansion near Barking Sands military installation. No historic properties or cultural deposits were observed.

CSH (Folk and Hammatt 1994a) conducted an inventory survey with subsurface testing at the National Guard Rifle Range at Barking Sands military installation. No historic properties or cultural deposits were observed.

In 1994, CSH (Folk and Hammatt 1994b) conducted an inventory survey with subsurface testing in support of a proposed parcel subdivision in Kekaha Town. No historic properties or cultural deposits were observed.

CSH (Masterson et al 1994a) conducted an inventory survey and subsurface testing in support of an 89-acre parcel being considered for development in Kekaha. A total of 100 trenches were excavated by backhoe to probe for possible subsurface cultural material. As a result, two Cultural layers (SIHP #50-30-05-700, and -703), and two human burials (SIHP #50-30-05-701 and -702) were documented. The cultural layers consisted predominantly of layers of charcoal flecking and radio carbon dating yielded a date range of AD 1645 to 1950. A small quantity of artifacts were recovered from SIHP #50-30-05-703, including basalt flakes and a basalt plummet sinker (Masterson et al. 1994a:37–39).

Also in 1994, CSH (Masterson et al. 1994b) conducted an inventory survey with subsurface testing on a parcel of land located on the east side of Barking Sands military installation. This parcel was proposed for an agricultural park. As a result of subsurface testing, two burials were discovered and designated SIHP #50-30-05-3650.

CSH (Hammatt 1996) conducted subsurface testing in Kekaha Town adjacent to St. Theresa's Church. No historic properties or cultural deposits were observed.

Yent (1997) conducted of a reconnaissance survey of Kekaha Game Management Area in advance of limited vegetation clearing. No historic properties or cultural deposits were observed.

CSH (Heidel et al. 1997) conducted an inventory survey with subsurface testing of a six-acre parcel of land in Kekaha being considered for re-subdivision. Most of the stratigraphy observed had been previously disturbed by past land use. Informal interviews with nearby residents indicated the possibility of burials along 'Elepaio Road and subsequent testing recovered the remains of four individuals and a horse. These burials were designated SIHP #50-30-05-619.

In 1997, SCS (McGerty and Spear 1997a) conducted field reconnaissance and interviews with local residents in support of a proposed change of land use for a parcel on Mānā Plain adjacent to the north side of Barking Sands military installation. Reconnaissance confirmed the parcel was previously under sugar cane cultivation. Historical background research indicated the area was a wetland marsh until it was filled for use by the sugar plantation. SCS concluded that the nearby sand dunes were likely used as fill material and any cultural material present in the parcel would likely be in secondary deposition (McGerty and Spear 1997:20).

Also in 1997, SCS conducted an archaeological inventory survey of a parcel of land adjacent to the northern portion of the current survey area (McGerty and Spear 1997b). Seven sites were documented as a result of the survey and included terraces, rock mounds, two dirt roads, and

historic artifacts. The terraces, mounds, and dirt roads were interpreted as associated with late pre-Contact to early plantation era activities, while the historic artifacts were associated with later plantation era activities. These sites were designated SIHP #50-30-05-652 through -658.

CSH conducted archaeological monitoring in support of the Kekaha Sunset Subdivision (Hammatt and Shideler 1999). A previous inventory survey documented 4 coffin burials (Heidel et al. 1997); however no additional historic properties or cultural deposits were observed as a result of monitoring activities.

In 2003, CSH conducted archaeological monitoring in support of the Sandwich Isles Fiber Optic Cable Landing at 'Akiola Road in Kekaha (Tulchin and Hammatt 2003). Subsurface directional drilling was conducted to a point approximately 3,700 ft. off shore. No historic properties or cultural deposits were observed.

CSH responded to an inadvertent discovery of human remains at the Aloha Kaua'i Villas (Hammatt 2004). The remains of at least 3 individuals were discovered during pool excavations. The flexed position of one of the skeletons, as well as the absence of coffin fragments or grave goods, indicated the burials were likely pre-Contact traditional Hawaiian. In consultation with the SHPD and the KNIBC, the remains were disinterred and reinterred at a suitable location on-site away from the pool area. The remains were designated SIHP #50-30-05-3911.

In 2006, CSH responded to an inadvertent discovery of human remains at Kekaha House Lots during excavation of a septic tank (Stein and Hammatt 2006). CSH archaeologists monitored the remainder of excavations to ensure the proper treatment of any additional burials. A total of two individuals were recovered and relocated as a result of the discovery. They were thought to be likely pre-Contact traditional Hawaiian because of their flexed position and the absence of coffin fragments or grave goods.

CSH conducted monitoring for Lot B of Kekaha House Lots in support of construction activities and to assist the land owner in complying with the SHPD determination that an archaeological monitor be on site for all ground disturbing activities within this lot because of the presence of a previously identified cultural layer (SIHP #50-30-05-702) in close proximity to its southern boundary. One inadvertently discovered burial was documented during trenching associated with a fiber optic cable line present in the northern portion of the Project area. The burial was designated SIHP #50-30-05-3937 and was reinterred in close proximity to its original interment area (Hazlett and Hammatt 2008).

In 2010, CSH monitored wastewater system improvements at Kekaha Elementary School (Wilkinson and Hammatt 2010). No historic properties or cultural deposits were observed.

Section 6 Community Consultation

Throughout the course of this assessment, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the Project area. This effort was made by letter, email, telephone and in person contact. The initial outreach effort was started in February 2010. Community consultation was completed in June 2010. In the majority of cases, a letter (Appendix D), map, and an aerial photograph of the Project area were mailed.

In most cases, two to three attempts were made to contact individuals, organizations, and agencies apposite to the CIA for the Project. The results of the community consultation process are presented in Table 3. Written statements from organizations and agencies are presented in Appendix E and F, and summaries of interviews with individuals are presented in Section 8.

Table 3: Community Contact Table

Name/Affiliation, Background	Affiliation/Background	Comments
Aha Pūnana Leo o Kaua'i,	Hawaiian Immersion School	CSH sent community outreach letter and figures on February 19 and March 1, 2010. CSH phoned on March 15, 2010.
Aipoalani, Clisson (Kunane)	Chairman, Kaua'i/Ni'ihau Islands Burial Council (KNIBC)	CSH sent community outreach letter and figures on February 19 and March 1, 2010. See complete interview in Section 8 below.
Akana, Kaipo	Waimea <i>kupuna</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010. Mr. Akana provided CSH permission to use a previous interview (See Section 7 below).
Arashiro, Osamu	Retired Kekaha Plantation worker	CSH sent community outreach letter and figures on February 19 and March 1, 2010. See complete interview in Section 8 below.
Ayau, Halealoha	Hui Mālama I Na Kupuna 'O Hawai'i Nei	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Ceballos, Clem	Waimea <i>kama'āina</i> , retired plantation worker	CSH sent community outreach letter and figures on February 19 and March 15, 2010.
Cayan, Phyllis "Coochie"	SHPD History & Culture Branch Chief	See Section 6.2 below for SHPD response. See SHPD response letter in Appendix F.

Name/Affiliation, Background	Affiliation/Background	Comments
Crowell, Dee	KNIBC	CSH sent community outreach letter and figures on March 1 and March 15, 2010.
De La Torre, Daniel	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
De La Torre, Jody	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Erickson, Marsha	Executive Director, Hui o Laka (Kōke'e Ecological Education Group, Waimea Valley Association)	CSH sent community outreach letter and figures on February 19 and March 15, 2010.
Faye Museum	Family museum of the H. P. Faye	CSH sent community outreach letter and figures on February 19 and March 13, 2010.
Goodwin-Kaohi, Aletha	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 15, 2010. See complete interview in Section 8 below.
Kaiaokamalie, Leanora	Mānā <i>kama'āina</i>	CSH sent community outreach letter and figures on February 24, 2010.
Kealoha, Keone	Executive Director, Mālama Kaua'i	CSH sent community outreach letter and figures on March 1, 2010.
Kekua, Kehaulani,	Director, Ka'ie'ie Foundation, <i>Kumu hula</i>	CSH sent community outreach letter and figures on February 19 and March 15, 2010.
Kilauano, Carolyn	Pōki'i <i>kupuna</i>	CSH sent community outreach letter and figures on February 19 and March 15, 2010. See complete interview in Section 8 below.
Kupo, Alfred J.	Kekaha <i>kama'āina</i>	CSH sent community outreach letter and figures on March 1, 2010.
Martin, William	Retired Kekaha Plantation worker	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
McMahon, Nancy	SHPD - Deputy State Historic Preservation Officer	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Mitchell, Auli'i	Director, CSH Hawai'i Office. <i>Kumu Hula</i>	CSH sent community outreach letter and figures on February 19, 2010.

Name/Affiliation, Background	Affiliation/Background	Comments
Nāmu'o, Clyde	Administrator, OHA	CSH sent community outreach letter and figures on February 19, 2010. See OHA response below in Appendix E.
Parraga, Franklin	Kekaha <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Parraga, Louis, III	Retired Kekaha Plantation worker	CSH sent community outreach letter and figures on February 19 and March 1, 2010. See complete interview in Section 8 below.
Pereira, Leah and Patrick A.	Member - <i>E Ola Mau Nā Leo O Kekaha</i>	CSH sent community outreach letter and figures on March 1, 2010.
Ruiz, Debra	KNIBC	CSH sent community outreach letter and figures on March 1, 2010.
Say , Barbara	KNIBC	CSH sent community outreach letter and figures on March 1, 2010.
Sproat, Linda,	Former Resident	CSH sent community outreach letter and figures on March 15, 2010. Referred Hedy Sullivan.
Sullivan, Hedy	Director of <i>Kula Aupuni Ni'ihau</i>	CSH sent community outreach letter and figures on March 15, 2010.
Takekawa, Isabel,	Pōki'i <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19, 2010. See complete interview in Section 8 below.
Wichman, Frederick "Bruce"	Historian, author and <i>kama'āina</i>	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Wichman, Randy	President, Kaua'i Historical Society	CSH sent community outreach letter and figures on February 19 and March 1, 2010.
Wichman, Victoria	Waimea <i>kama'āina</i>	On February 20, 2010, CSH received an email from Mrs. Wichman, referring Mr. Halealoha Ayau to CSH.
Wong, Antonio	Retired Kekaha plantation worker, <i>paniolo</i> , hunter	CSH sent community outreach letter and figures on February 19 and March 15, 2010. See complete interview in Section 8 below.
Wooten, Anne	Waimea <i>kama'āina</i>	CSH sent community outreach letter and figures on February 24, 2010. Ms. Wooten responded on February 25, 2010 via email to CSH referring Kunane Aipoalani and Uluwehi Kilauano.

6.1 Office of Hawaiian Affairs

CHS contacted Clyde Nāmu‘o, Administrator of OHA on February 19, 2010. In a written response sent to CSH on April 1, 2010 (see Appendix E), Mr. Nāmu‘o states that:

OHA is aware that at one time the Kekaha Sugar Company lands were once crown lands. Irrigation ditches flowed through these lands and in 1856 these crown lands were leased for agriculture and ultimately to produce sugar. The Irrigation ditches that once flowed for miles were drained and sugar was planted.

OHA applauds your efforts to perform an archaeological study in connection with the Project and to ensure that any identified cultural and/or archaeological sites are not disturbed. We also recommend consultation be initiated with Kaua'i's Hawaiian community and organizations who may have information or documentation on family history in Waimea and Kekaha dating back pre-Kekaha Sugar plantation days, cultural history, cultural resources, historic sites or legends. These community resources may be willing to share their *mana‘o* regarding this assessment.

Specifically, Mr. Nāmu‘o suggests contacting the Kaua‘i County Historic Preservation Commission, Kaua‘i Historical Society, Kaua‘i Museum, and the Faye Museum.

6.2 State Historic Preservation Division

CSH contacted Phyllis “Coochie” Cayan, History and Culture Branch Chief of SHPD on February 19, 2010. In a written response sent to CSH on February 26, 2010 (see Appendix F), Ms. Cayan states that:

While the Project area may have been under previous heavy agricultural use by private land owners there is always a general probability that some cultural resources remain known or unseen. There are significant cultural and historical features in the general area which include but are not limited to the use of the Kekaha Ditch as you so note.

SHPD is also concerned with any ground disturbance work which may uncover burials or burial sites such as the moving of disturbed boulders and rocks. The department is mindful that traditional cultural access to the cultural places and/or resources in the general ahupua'a should also be considered in your study as related to the proposed Project area.

Specifically, Ms. Cayan suggests contacting Mr. C. Kunane Aipoalani, Aunty Barbara Say, Ms. Debra Ruiz, and Ms. Dee Crowell, all of the KNIBC.

Section 7 Summaries of Previously Conducted Interviews

7.1 Kupuna Kaipo Akana

The following is a summary of an interview provided by Mr. Kaipo Akana for the Kekaha Cable Landing project in Kekaha in 2003. While the current Project area is *mauka* and down the coast from this prior project area, some of what is discussed here is included in the current report as observations from others.

Mr. Akana was born in Waimea, Kaua'i in 1934. During the 1940s, his family resided in Kekaha. A lifelong West Kaua'i resident, Mr. Akana's involvement in Hawaiian cultural affairs includes service on the KNIBC. In 1994, he participated in CSH's inventory survey of a parcel that included the current Project area (Masterson et al. 1994a). Mr. Akana was interviewed at his home on Kaua'i on May 19, 2003.

Mr. Akana's family moved to Kekaha "about 1942" and lived there until 1946 or '47:

We moved to the outskirts of Kekaha which is referred to as the Hawaiian Camp area. We moved to Kekaha right where the St. Theresa's School is. We lived right there on the beach about a mile and a half from where the actual project area is going to be.

Most Hawaiians lived in that camp. There were other nationalities too...mixed. But it was referred to as Hawaiian Camp because mostly Hawaiians lived in that camp.

Some of the houses were plantation and others were privately-owned homes in that camp area. It was on the west side of Kekaha School. Right on the end of Kekaha School, west of that, from there on to the end of the road was considered Hawaiian Camp. Behind the Hawaiian Camp, during the war, was all a military camp...all the way out to where the beach is. And all the way to this Project area on Akiola Road was all military.

All the time there was non-plantation people [living in Hawaiian Camp]. But most of the people that lived in that area worked for the plantation. A few families worked for the county. Like my dad did. Or worked on the base, for the military base during the war. But I would say, from the beginning, most of the people worked for the sugar plantation.

Asked to estimate the size of Hawaiian Camp, Mr. Akana remembers:

It extended west from the Hawaiian Cemetery to the present Akialoa Road. Beyond Akialoa there was nothing. There was no housing beyond here [Akialoa Road]. This is where the sugar plantation used as a dumping ground for their bagasse [fibrous residue from crushed sugar cane] and sugar cane waste. And right around here on Akialoa used to be the county dump. And all this area behind the cemetery there was no housing. It used to be military, when I was growing up,

all the way out to the Catholic school. Just past the Hawaiian Camp was Kekaha School. All the beachfront area, there was nothing.

Mr. Akana further described the beachfront area outside the Hawaiian Camp:

There were no homes. Things that grew there was the hau. All along the beach area, all the way down to Akialoa [Road]. Beyond Akialoa there was nothing. After the military left, after 1945, all the military buildings that were there were absorbed by the plantation people. The plantation people took [the military buildings] and they built more homes and camps. I guess the military gave [the buildings] to the community, the residents who wanted to take the wood and [other materials].

Mr. Akana states that the sand beach was much wider in the 1940s:

As I remember there was no highway in the front around the beach at that time [in the early 1940s]. There was no highway. The sand extended, the beach extended, about a quarter- to a half-a-mile out from our house. There was a small dune and on the dune there were hau trees along the beach line. Actually, where you see the waves breaking right now, that's where the beach used to be. . . [T]he military put a road from just outside of Waimea, alongside the beach, headed for Barking Sands. Before that the road went up toward the *pali* side – Waiawa and Kaunalewa – and then ended up in Mānā itself.

At that time, most of the places that are considered fishing areas now actually were sand. Where we lived, before they put the road in, from my house we had to walk about a quarter- to a half-a-mile out before we got to the shoreline. Over a small dune. So what you see today is actually not what was there when I was growing up. It's completely different.

As my memory tells me, the sand extended way out there [close to the reef] and there was hau bushes in the front. Actually the hau bushes grew up on this dune and the beach was after that.

He dates the erosion of the beach to the late 1950s with the construction of the Kikiaola Small Boat Harbor:

Most of the sand that was [eroded] from there happened after they made that boat harbor. I'm trying to think now, they have a point over there, Romano Point, which is just down the road from St. Theresa's School. Then the Kikiaola Boat harbor. My guess is [the erosion] started when that boat harbor was constructed. The beach area started changing. Oftentimes, it will bring a lot of sand back. And then, after stormy weather, it will take all the sand away again. But that was what I remember, living on the beach over there.

Mr. Akana remembers people fishing off the beach fronting his family home and in the vicinity of the current Project area during the 1940s. Fishing continues into the present day:

They still fish...mostly shoreline fishing...casting from the shoreline. You always see people all along this beach here...everyday...weekdays and weekends. You'll

see people parked there and casting lines out there. So I would say, because of the reefs out there, that there's still good fishing in the area.

A family member told Mr. Akana what Kekaha was like in traditional Hawaiian times before the plantation:

From what I learned from my great-grandmother, on my father's side of the family, she told me that in old Hawaiian times that was all beach land before, where Kekaha is now, and people used to live [more *mauka*] around Pōki'i, Kaunalewa, and Waiawa. But below [*makai* of these areas] nobody lived there because it was all beach. And toward Mānā it was all swamp land.

Mr. Akana has not heard any traditions or legends focused specifically on Kekaha. He does not recall seeing any surface archaeological sites in Kekaha in the vicinity of the (2003) project area:

If there were any they probably were disturbed previously to us moving to Kekaha. But I hardly think there would be any because, as I can remember from way back, I was told this was all beach land before [the twentieth century].

However, there is a possibility that burials are present in the area:

They might [be present]. You know we did the survey of this whole back area. I think we found three burials, two or three burials in the sand.

7.2 Kupuna Aletha Goodwin-Kaohi

Kupuna Aletha Kawelukawahinehololoolimaloa Goodwin-Kaohi was born and raised in Waimea, Kaua'i in 1930. She is the manager and Hawaiian culture resource advisor at the West Kaua'i Visitor Center in Waimea. Mrs. Goodwin-Kaohi was interviewed at the visitor center on May 21, 2003. Mrs. Goodwin-Kaohi's first recollections of Kekaha date to her childhood:

Because I grew up in Waimea, Kekaha is very much a part of Waimea. They did everything together. I don't recall that they had any large stores, when I grew up, in Kekaha. Maybe Kuramoto Store was the only store that I could think of. And maybe some small Chinese shop. But other than that, most of the [Kekaha] people came to Waimea. There were no banks. There was no financial institution in Kekaha. It was mainly a plantation town. So Waimea was really the hub and this outlying community [at Kekaha] still came to Waimea for the essentials. There are families in Kekaha like the Kilauano family, Aipoalani family that originally lived out in Mānā. And when they were displaced from the properties there because of Knudsen's becoming the *konohiki*, they had to move to Kekaha. They were very active in Hawaiian affairs like Kamehameha Day. My family was, too, so we had a lot of interaction with them. So Kekaha was like an extended part of Waimea.

Mrs. Goodwin-Kaohi spoke of the "Hawaiian Camp" at Kekaha:

The plantation set up these camps [where] mostly Hawaiians lived. That's where the Kilauano's lived. They're probably one of the old-time families of Kekaha,

Kilauano, Aipolani. And they're all related. These people all came from Mānā. The Kaiwas – they all came from Mānā. So they all lived within the same block right where the school is...where Kekaha School is...west of Kekaha School. And then across the road there were more Hawaiians. So now Hawaiian Homes has extended back toward the ocean side.

Asked to estimate the number of Hawaiian people in Kekaha in the 1930s and 40s, Mrs. Goodwin-Kaohi noted:

I cannot guess because they're all related. So you have Kaiwa's. You have Kilauano's. You have Aipolani's. And these, again, have plenty offspring. Akita is part of that. You have the Moore [family]. His last name was Moore but they're Hawaiians. It took up almost an entire [block] from the school to Kekaha Gardens. So if you go back there now you see tracts of land. There was Kaiwa, Kilauano...maybe about twelve, thirteen families. I'm just guessing. But you've got to remember that each family has multiplied. And the Hawaiian cemetery is right there too. And they're all buried in there. There was one parent family and then you've got all these others...so thirteen, fourteen. I don't know. To me there were plenty. You have to remember: to the eyes of a young child, everything looks so big.

Mrs. Goodwin-Kaohi recalled the subsistence activities of Kekaha folks and the environmental constraints they had to deal with:

They did a lot of fishing. . . there was not a lot of water. Kekaha is a very arid area. You have to remember it's a plantation. So they go in and they drain the land so that they can cultivate it. So then there's no water for [the Hawaiians] to plant taro. And they were accustomed to planting taro out in Mānā, close to the *pali* and also on these little rafts. So they leased some properties further out into the Mānā area because Kekaha could not [provide] that kind of resource. The families still went out to Mānā because they had burial grounds in the sand dunes there, which they now call Queen's Pond, toward the base. South of Queen's Pond, the families still had [burial grounds] and they maintained them. And family buried up in the caves. So Kekaha didn't have, what we would call, all the resources...very little water...unless you went up to Waiawa. Now Waiawa, Knudsen had the lease on that. So you didn't have many resources. I don't know about other gathering. Mostly it was fishing.

While Mrs. Goodwin-Kaohi does not know if people were fishing off the beach specifically in the location of the present Project area, she described general fishing practices in Kekaha:

But I know they did fishing [in Kekaha] and part of it, they could have gone out on canoes and do deep-sea fishing. But [shoreline fishing] was throw net. They didn't do pole [fishing]. Mostly, it was throw net or go out and *hukilau*.

Mrs. Goodwin-Kaohi does not remember any surface archaeological sites or historical sites in the vicinity of the Project area. She recalls that portion of Kekaha as "being real sandy, covered with *kiawe* trees." She also does not recall any legends, stories or traditions associated with

Kekaha. However, Mrs. Goodwin-Kaohi did note that songs have been written about the area, including one about the *'ūlili* bird. That's about the plovers and that refers to Kekaha. Because that's where the *'ūlili* birds would come – on the beach there, in that area. Of course, you know, it was not developed, like now, so there used to be flocks of *'ūlili* birds."

Mrs. Goodwin-Kaohi commented on burial concerns related to Kekaha::

There must have been families that lived there because I know when they did the Kekaha Gardens, they did come across some skeletal remains. But, you know, at that time the laws were not that stringent as today – that you have to call an archaeologist, right? So I don't even know what happened after that.

Hawaiian Homes went in during the 50s, I believe. That's west of where this Project area is. I don't recall, when Hawaiian Homes went in, that [burials were encountered]. This was all kiawe trees, at that time. So, as long as you're not disturbing it, there's nothing going to be said about [burials]. But when the Kekaha Gardens went in, that's when I heard that [burials were encountered].

I've just heard that Hawaiian Homes is going to be expanding. They're going to open up more Hawaiian Home Lands and it's toward the Mānā area. And I know that this Project is mainly going to enhance the Hawaiian Homes communities there. So the expansion is great but I just have a gut feeling that they're going to come across a lot of burials in that area. Because it's sandy and I believe it had a fairly large population there. It might have been a fishing village. Because, on the outskirts, as they were doing the Kekaha Gardens they began to come across some skeletal remains. I just think that expanding the area for the Hawaiians would be great and they just have to be sensitive.

If they come across [burials] just treat them with respect and the Burial Council needs to come in and take care of it. Some people get very upset and want to leave it there. If the Hawaiians knew that this was going to be developed they would have buried everybody in one place. But it was very common to bury them on your property. And now that the property is being developed, take [a burial] out respectfully – to me that's okay. You just have to treat the *iwi* with great respect.

Section 8 Interviews

Kama'āina and *kūpuna* with knowledge of the proposed Project and Project area participated in interviews for this CIA. Interviews for this study were conducted in March/June, 2010. CSH attempted to contact 35 community members (government agency or community organization representatives and individual cultural practitioners) for this CIA (see Table 3); 12 individuals responded and seven of these *kūpuna* and/or *kama'āina* participated in formal “talk-story” interviews for more in-depth contributions to the CIA. CSH initiated the “talk-story” sessions with questions from the following five broad categories: Traditional and Customary Resources and Practices; Religious and Spiritual Resources and Practices; Freshwater and Marine Resources and Practices; Burials; Trails and Cultural and Historic Properties. Brief biographical backgrounds of participants and their comments and concerns about the proposed Project area are presented below.

8.1 Acknowledgements

The authors and researchers of this report extend our deep appreciation to everyone who took time to speak and share their *mana'o* with CSH whether in “talk-story” interviews or brief consultations, including contacts who opted *not* to contribute to the current CIA, but nevertheless spent time explaining their position on the proposed projects. We request that if these interviews are used in future documents, the words of contributors are reproduced accurately and not in any way altered, and that if large excerpts from interviews are used, report preparers obtain the express written consent of the interviewee/s.

8.2 Kupuna Louis Parraga III

Kupuna Louis Parraga III (Figure 7) was born in Kalaheo, Kaua'i on October 31, 1927 to Mary Correia, originally from Pūhi, Kaua'i, and Louis Parraga Sr., originally from Spain. He lived in Kalaheo until he was ten years old, and then moved to Kekaha. He was a Heavy Equipment operator for 45 and 1/2 years for Kekaha Plantation making roads and working the *mauka* fields of the Kekaha to Mānā area. He served during the Korean war for three years, and when he returned to Kekaha town there were no vacancies in housing, so he and his wife moved to Pōki'i camp. He resided there until he returned to Kekaha many years later. He retired at age 62 and now resides in Kekaha town with his wife. On March 18, 2010, CSH interviewed Mr. Parraga at his home in Kekaha, Kaua'i.

When asked about his connection to the Project area and the regions surrounding it, he shared:

After the war I came back to Kekaha town and there was no vacancy in Kekaha. So we had to go to live in Pōki'i Camp for many years. And then we moved to one house over here in Kekaha. Our house, we could see the shop. Was on Kala Road, right by the corner, we lived there. And from there, then they were selling the houses before they closed [the plantation], so then we had chance to buy this house.

I worked all that—over that area. I know that area real well. In my time had cane all over there. And before that I used to work in the plow field, I plowed all the fields around that area. I harvest them fields. I heard of the old Hawaiians tell me, at one time that was all swamps. When I started to work plantation, I was about 17, I think, or 18, had lots of swamps around Mānā, even where was Mānā Camp.

Regarding the roads and rocks in the region:

That road going up to Pu'u 'Ōpae? I used to fix that road all the time. We never push the rocks to the side of the road over there, already had the road [the old government road]. Well, it...ah, before they...just grade the road.

The rocks over there? Well they never take out from the field, the field no had rocks. The only field that some rocks—not in the field, but they had—not the field, against the mountainside. But that they wouldn't bother, because that's on the side, it don't bother the cane field. Never had rocks out in the fields. *Mauka* had plenty of rocks, but not *makai*.

Regarding the “drying up” of the salt water in the marshes and swamps:

And you know what they would do? Some scientist guys would come around, and we'd go with them, dig trenches, and put one kind crystals in the trench and cover it up, to drain the salt water out of the flats. And then finally, slowly, slowly, the cane started to grow. One kind crystal, looked like pieces of glass. And you would see, by the edge way, going to the big beach, you would see kind of all oozing out, sort of like mucus. Because of the crystal stuff I think. It would draw out all the salt and slowly by slowly, the cane started to grow. Before that nothing would grow except purslane...pig grass...unreal pig grass. That's the only thing would grow. And you know lately I read, the Portuguese—when I heard about that when I was young boy—the Portuguese used to eat purslane. And now they make purslane pills, I get da kine at the health food store. Pig grass. Da kine, herb kine pills, yeah? I always get catalogues to order because I order some. The Portuguese used to put that in Portuguese soup. Yeah, purslane.

The pigs, I tell you, when I was young boy, my father had, during the war, about 250 pigs. And we used to go there. It was just on the right side [east] of the Waiawa Reservoir. One vine cover one big place, you fill up one barley bag. One vine, now! That grow like a vine, you know. And it's kind of red. And sometime it green, sometime it turns kind of red.

Regarding the wildlife in the reservoirs:

In the reservoirs used to have a lot of ducks. White ducks would come. Some kind they call foreign duck, grey and—but a, but a wing would be blue. I don't know, they used to call them foreign ducks, I don't know where. Only winter time would come. They were bigger than the Hawaiian ducks, and kind of gray, with kind of blue, by the—by the wing. I don't know exactly what they called that. Sometimes they would land in the ocean, right out here. I think they'd take a rest, yeah? Because they tired and they're coming too far. They would be bubbling up in the

water and then they'd go, go look for the swamps, and by the swamps we'd get plenty. We'd go with slingshot, and when they'd fly—the flock fly over, we shoot in the flock, and we would hit one or one, or so...that's how we get for eat 'em. Just...just cook 'em! Ah, fry 'em or boil 'em, I don't really remember. Not greasy like the Peking duck, but tough! I don't know where they come from, maybe Alaska like the plovers. I dunno, maybe Canada.

And then, used to get the Hawaiian duck, too. But this—every winter used to come, that ducks. And the plovers, come from Alaska. And after that, the plovers, they go back to Alaska. But some they stay around. They forget go back.

Regarding any archaeology and history in the region:

The only thing I found, ah...what, ah, Hawaiian da kine, implements, like chisel. When I would go hunting...adze, yeah...but mostly up on the ridge. Not down low...on the ridge. They'd just be lying on the ground over there. Yeah. Was bluish-gray. And hard, that stone is hard! A lot of them would be broken but some of them would be perfect. And I think I get one or two yet, maybe. I'm not sure. Oh, you know where had a lot too? Up in Pu'u 'Ōpae.

Had one place that had *wiliwili* trees, on like a slope like that. And inside there, had big, plenty stones, big stones over there. But that was on the side of the cane fields, now. And over there I would find quite a bit of that kind. Because that's the same ridge—at the edge of the ridge, dropping down to the cane fields, that's where I would see the fireplaces. No rock wall, no sign of a...a *heiau*. But *heiau* would be down here, on the flat. By...when you going to ah...Pōki'i, Waiawa.

Waiawa, we had a house, the poison house, in the back there, had a big *heiau*. I think it's still—do they still get the remains of the poison house, eh, there? Yeah. In the back there, that's where they had one big *heiau*, the remains of a *heiau*...Waiawa. The poison house was to store the pesticides to spray the weeds. This *heiau* is miles away from the road though the Project area.

Oh! And one side...one or two ridges I remember, had a fireplace where the Hawaiians would heat up the stones, to make the adze, and they would make...the Hawaiians say that's where they used to make canoes, up on the ridge. Tony Wong can tell you, because he and I used to go hunt all through there too. I used to see the fireplace, with all small chips...yeah.

Cause see this one... 'cause it starts right...right *mauka* of Kekaha, yeah [pointing at the ridges on the map]? Then get Pōki'i right here...and then Waiawa...and then all to Mānā. So it starts around the beginning of Waiawa starts around like Pōki'i, yeah? I think it would be right about here, the *heiau*. I think so [pointing at Waiawa ridge, *mauka*]. That's the only thing I saw of *heiau*...nothing else...all through that place that I used to go...ah, hunt, whatever. By the *heiau* up there get plenty obake [spooky] stories...by the *heiau* at Waiawa. And you know when I used to go through there...thinking about it I'd get a feeling. Hard to explain...like...some kind of energy. Because you know the *heiau* was so big,

and it's right in the bottom of that valley, and, when I walked—the cow trail used to be right through. The *heiau* all broken, eh, you know? Ho, that thing is big! like one big enclosure. I would say, maybe from here to that house I think! And had a trail right through the *heiau*. But like I say, if you don't know it, you know...cannot tell, because all the stones all scattered, eh? Oh! In the *heiau*, ah...Kimo...ah, what's their last name now...they claim because I used to see flowers, once in a while and *tī* leaf one place. That was one of their families or what, had something to do with that. Ah...Michael and Kimo Nakahiki. Had something to do with that *heiau*. But let me see who was the other, ah...Benny was the last one I think and he just died some years, not too long ago. So, they said, one of their families or what? Was something to do with that, so they used to go put *tī* leaf and flowers sometimes. The Nakahiki family is still around, the girls I think is. That you gotta ask some Hawaiians I think.

Pu'u 'Ōpae, it's up in here, like I said, I used to find some adze, but no sign of *heiau*. But, at the ridge, where the ridge drop down, that where we used to get the fireplace. Only on that ridge. Yeah, Pu'u 'Ōpae ridge. Only the fireplace. That's why when I see it I say, "How come get plenty small chips?" So I asked the old Hawaiians, eh, they said, "Oh, that was one canoe factory up there! That's where the Hawaiians used to make the canoes." I said, "Up in the hill?" Yeah.

Regarding hunting:

Been hunting up *mauka* most of my life. Nobody goes now to the old hunting places because now the cornfield takes over, and they get gates all over the place. Sometimes I used to go hunting mostly alone, sometimes with some other people, and with my father. With my father for pheasant, sometimes pig, but mostly pheasant, we do in pheasant season. My father taught me how to hunt. Then I taught my cousin to hunt and I taught my sons to hunt. I had two sons, but one son died. He was gonna be 54 years old, my oldest son, Wayne. But people not hunting those areas now, too many gates, they hunt up in Kōke'e now...gotta be Kōke'e.

But when Robinson took over here, he would let the workers hunt around there...only the workers that were working for Robinson. Was Robinson that took over the cane field after the plantation had shut down, eh?

You know what Tony Wong used to do? Yeah, he goes hunting in that area but he circled around. He never comes back the same place. You know Tony Wong, he's the only guy I think could make one horse go down the ridge. Riding the horse! He never goes down from the horse! Straight down the ridge not sideways, front ways. His horses was unreal I tell you! Go down the ridge, the horse gonna fall down, or you gonna fall down! But his horse was so trained, he never, he never walk!

Regarding the Knudsen's:

I know Knudsen, Knudsen had something to do with area, Waiawa. They even have one big swimming pool. And even they make one movie. "White Heat" was the name. I remember seeing the movie. The cane was burning and they was running through, onto that like the beach...yeah, "White Heat." I remember I was a small kid when I saw that movie. They filmed it up there...over there, Knudsen. That's why they call the place Knudsen. Some people used to call that place Knudsen, Waiawa. Yeah. Used to get one big old, like one plantation house, but was all falling down. Knudsen lived there.

Regarding the Project recommendations:

Well...if it's the same site over there [where the old crusher used to be], I don't think would be any harm. I don't think so going get any concern from the community. Except for the *heiau* and the canoe site, but that is far away from that site. If that's the same site I think it's a good idea. And good because then they can get some workers.



Figure 7. Photograph of Kupuna Louis Parraga III (CSH 2010)

8.3 Kupuna Antonio (Tony) Wong

Antonio (Tony) Moreno (Figure 8), was born on May 17, 1927 to his mother, Juana Moreno Wong, and his father, Ah Chin Wong on McBride's property in Po'ipū, at home via a midwife. His father fled Canton, China during the war (World War I), stowed away on a ship, and arrived in Kaua'i when he was 13 years old. Upon arriving he bought tools and became a carpenter, eventually using his skills and tools to make shoes and other items. His mother came from Madrid, Spain. They met in Kaua'i.

Antonio moved to Kekaha in 1943, after applying for a job on his birthday that year, and getting hired by the plantation ten days later. A self acclaimed "jack of all trades," Tony used to work for Kekaha Plantation for 46 years as a cowboy, heavy equipment operator, truck driver, etc. According to Tony, he worked whatever job that they put him on, where ever they sent him. Over the years he became well known for his work ethic, in which he says he is "gonna be the best. I might not be the best, but I sure as hell gonna try." He is currently retired and living in Kekaha, Kaua'i. CSH interviewed Mr. Wong at his home in Kekaha, Kaua'i, on March 17, 2010.

When asked about the kind of work he did for the plantation he shared:

You know I was cowboy ten years, yeah, I was driving Caterpillar. I used to work outside. The boss, the ranch boss, because he the boss, tell the boss, that he like me go work on the ranch. So the boss would come see me, tell me the ranch boss like me go work. I tell, "I not gonna just go, I gotta talk to my wife my wife, you know." He tell, "Why you gotta talk to your wife?" cause, you know. If I get hurt, she gonna suffer with all our kids. So, I come see her, and tell her about what the boss said I can be cowboy, but, the boss went come see me. And I said "Ahh!" I used to drive cattle for Robinson for two years after I retired.

Regarding the size of the pasture lands:

At the old coffee road, By Kekaha ditch side, all that side was where our old pasture was. Our pasture from here to Polihale is 40,000 acres. It was from Kōke'e Road up *mauka* to the reservoir, to the Ha'alele waterfall on Hawaiian Home Lands. And we no can drive the cattle so we go catch the ones we want.

Regarding seeing spirits, or ghosts:

So my friend Gorio used to go through there by Camp 10. So he went to sleep one time over there, at Camp 10, the end of the road. And, just before the end of the road, he would go by the end to sleep. So, that road over there, that you could go Kawaihai, you know, when you sleep over there, get some cement tile? You know the cement tile be kind of high, eh? And the door stay cut through that? He was in the front, and the dogs were behind him. Late in the night, he heard the dogs growling. So he tells the dogs, "Shut up!" From sitting [position], you no can see the behind, eh? Two or three times he tell them to stop. When he went stand up and look, had one Hawaiian, with his elbow on top the cement tile, looking inside. He never sleep up there no more. But you see, the thing is, that if you're not

forgiven, your soul no rest, your spirit no rest. That's why you gotta be forgiven, you know.

I hunt all the time when I was 27 years old or so, I used to go nighttime, late, about ten, eleven o'clock in the night. And you go through inside the valley, inside the place, you go up to the ridge, you know, but they don't humbug me one time, you know. Not one time they make *kolohe* [mischievous] me. Funny, eh? But when I was small kid, I went see McBride, I see one white ghost in front of me. It would come out, walking in front of the road when I was small kid. Because nobody tells they see one all white ghost before. And from that time, until today I get good luck.

Regarding ocean fishing:

I used to fish, from McBride, I'd fish all the way from Ni'ihau Island. Fish, lobster, you know. I catch fish every week.

Before time, right there by the office, at McBride, we'd go straight out, over there had one boat house over there. But wasn't Hawaiians, one Korean, he had one, a boat over there. When they made the boat harbor, that's when they had to make the wall, the current would change and beat up on the road before. You see it now, no more sand.

Before, I would cast-net over there, that's where I learn to cast-net, I stay learning all the other kind [fishing styles]. You know I can do any kind, because I learn.

Regarding stream resources:

The 'o'opu was there, it's just that, because now they get da kine, the 'o'opu no can go back anymore up there. You see, they're raised up there, they like the cold water.

And when they gonna *hānau* [give birth] they come down, and then they *make* [die] down here. And then they—the small ones go back up, you know? But now get plenty things going, so, the 'o'opu no go. Used to get plenty back then, but, now get water in control. Before there was plenty more water coming over. They gather the 'a'a now. Because, when get big water, like, I was up there in 1949, right, had a big flood in Waimea. And, what happened was, when the stones would move, and the 'o'opu, he get the suction, but he no like stay on the stones because they move, so he go by the side, so when the water flows really hard, they no can hold on. When the big water come and they stay *hānau*, or *hāpai* [pregnant], is when they end up *hānau* in *makai*. And then the *hinana* [the offspring of the 'o'opu] go back up. That's how see, the 'o'opu no come down because the stones shake, and they no like go in the stone. So they go by the side and the water bring 'em down.

Regarding the *mauka* lands and water rights:

It's all Hawaiian Homestead lands [the *mauka* areas]. The plantation was leasing the land from the Hawaiian Homes. You see, they went lease all the land, the

good land they were raising sugar cane, from on top, all the way was the good land. And then the bad land in the valleys was...ours [the cowboys]. So, the price they were getting, they get two things. They can—they use all, everything, you know. So all that land, they were using them for that kind. That's why smooth, they been...they make one road all around, take aerial picture, 'cause they gonna plant cane. But they no have enough water, because the water stay too down, eh?

So, on top from Camp 6 and Camp 8, Okay? That waters not enough. So they went make one road by the *pali* to catch Koai'e River water, but the bank went broke, so, they no could get the water. They was getting the water from Koai'e, yeah? It would flow to Camp 8, and at the tunnel go inside, go into Koai'e Stream, and then come underneath, out by the *pali*, and come underneath the da kine and come behind by Julia Nataya's house, and then go inside the reservoir. That's how the thing go. Not enough water, see, from Alakai and, ah, Waipahoe Stream. They leased the water rights for the plantation to use. The *mauka* hydroplant was where the tunnel comes in to Waiawa *mauka*, in Waihulu.

So Camp 8, they went make one ditch along the *pali* but the bank broke, the ditch was broke. That ditch never had name. They was taking water from the other river, Koai'e River.

Regarding the growing of vegetables:

But that's where the Hawaiian Homes stay, they used to make garden before that. They raise vegetables up there for the store, or they raise 'em for the people, for the market. So, Masao Okamoto the supervisor for the garden was there when I came in 1943. He was up there.

Regarding upland plant resources:

Maile stay more up, on top the mountain. Stay loaded on top Wai'alae. We go with the horse and gather *mokihana* in the uplands, it is loaded in *mokihana*, because, you know how you see the coffee? That's how the *mokihana* stay, up there, not along the ridges. Each plant has its certain level of elevation where you can find them. *Mokihana* cannot grow any kind place, just like the *maile*. No can grow down here, 'cause would die.

Regarding any cultural, archaeological, historic, and/or burials sites in or around the proposed Project area:

On top, top of Niu get one *heiau*, you know, on top there. Inside Waiawa get plenty *heiau*. And Waiawa Valley get the—the oven, and all da kine inside there. That the people used to bake in. None by the road, but up inside the valley *mauka* side. Robinson put in a lot of roads up *mauka*, with plenty gates. Some of the roads go by the *heiau*. So, I not sure about that.

When I was up, ah, *mauka* hunting and whatever, and then coming down closer to the road and stuff like that...get stuff, *heiau* and all. I seen—I seen where the

grave and all, but, I no touch 'em because...I no like get nothing to do with that. But no more on the road side where you going make this thing.

It's gated along that road [the Old Government Road]. But I used to go on horseback from on top Pu'u 'Ōpae [Figure 9], and I cross Ka'awaloa and I go inside Nahomalu, I cross Nahomalu, I go Kahelu, I go up Papa'alai...I go and I hunt all on top there, then I come through the back. But then if I like go short I bring my car there and I climb up the hill.

Regarding the canoe making areas and debris found:

You know, you go Kōke'e Road? Okay the first—it's that first trail—just above that, that's where they used to make canoes, factory over there. Because my friend used to go find Hawaiian kind stuff, he tell me, "Oh, we see all the shavings and all inside that ridge over there." By the *pāhoehoe*, you know you get one *pāhoehoe* flow, before you reach the *pu'u*. So, that's where used to get canoe factory, but this was way back in the old days.

Regarding water sources:

You know Waiawa? There's the mango trees over there. Knudsen has the mango trees. The Navy—the Army used to get their water over there, across that old swimming pool, because the county no like us use the water, use water from Waiawa, and the water over here from Wailua. The water tank. The county went dig one well over there, and Mānā water come from Ka'awaloa. They tell the water no good, they don't want to use the Mānā water. They just close 'em up, and they sell us our water. The water they sell us is more sour, more lousy than the water we were drinking before.

Regarding the making of charcoal

This guy used to make charcoal by the first road, you know, go up, right? You see when you come inside there, get one first road, eh? Comes inside, go to the main road. That house over there had one—used to make charcoal in the—in the sand. He used to cut the kiawe and make charcoal. The wife was from Ni'ihau, he come from Maui. He makes charcoal over there. Then when they made the road, then after that the old man died, so the old lady did it. But, that was his land.

Regarding how he feels about this Project:

If you guys open 'em, go...that's the old Mānā road, you know.



Figure 8. Photograph of Kupuna Antonio Wong (CSH 2010)



Figure 9. View of Ni'ihau Island from Pu'u 'Ōpae (Group 70, 2004)

8.4 Kupuna Isabel Takekawa

Kupuna Isabel Takekawa, was born in Hukipo Camp, Kekaha on December 4, 1920 to Mary Waimea Namu, and Manuel Arruda, from Portugal. A former teacher, she has lived in Kekaha her entire life. On March 18, 2010, Malia Farias and Missy Kamai from CSH interviewed Ms. Takekawa between Kekaha town and Mānā, on a site visit to the Project area. Kupuna Takekawa declined to be photographed.

When asked about her recollections of the Project area, she shared:

Well, growing up as a child we used to go and swim over there in Waiawa. There used to be a swimming pool. Two managers used to live in there...the Faye and the Knudsen families. They had a swimming pool. Only the bosses lived in that area.

Regarding the Old Government/Mānā Road:

This road used to go all the way to Mānā. There was Mānā camp, with the old Mānā store and movies. But it's gone now. All the workers used this road. The surrounding areas were all in sugar cane. There was no other agriculture out here, no *lo'i*, gardens...just sugar cane. There used to be lots of plum trees along the road too. I don't see too many of them growing now. We used to walk all the way from Kekaha, to get the plums.

Regarding the power plant, reservoirs and ditches:

There was a power plant located there that powered the plantation. But I don't know whether it's still there or not. My husband was the head electrician at the plant. He used to use the road to go to work from Kekaha town. There was a hydro-electric plant at Waiawa reservoir to generate electricity for the power plant. I don't know if the reservoir is still in use. I am sure they need to pump water for the corn fields. I notice that there is a pipeline now, that wasn't there before. The Kekaha Ditch is way up on the ridge. That is a small ditch for draining from the main ditch over there, and over here is an irrigation ditch running next to the road near the fields.

Regarding the camps, cowboys and houses:

But then, there was a camp too, over here for the workers that worked out here. There used to be several camps for the plantation workers out here. Chinese camp, Japanese camp, one for single men, Filipino Camp... There were also cowboys out here. Those days, people raised their own cows, they had to milk their own cows, and...But most of the people that lived here took care of the cane fields. The watering and things like that. That's why they lived in camps out here. Because this was all cane fields as far as the eye could see.

Regarding hunting:

My husband and I used to come pheasant hunting in this area, though. But, I don't know if they still use this area for that. I know that some people used to do some hunting, around here.

Regarding archaeological sites:

You know back there [in Waiawa] I think there was a *heiau*. But I don't see any rocks around there now

8.5 West Kaua'i Technology and Visitor Center in Waimea, Kaua'i

On March 18, 2010, Malia Farias and Missy Kamae of CSH met with Kupuna Clisson Kunane Aipoalani, Kupuna Aletha Kawelukawahineholiolimaloa Goodwin-Kaohi, Kupuna Osamu Arashiro and Kupuna Carolyn Uluwehi Kilauano (Figure 10) at the West Kaua'i Technology and Visitor Center in Waimea, Kaua'i for a group interview about the Project area, and the region of Mānā to Kekaha. A short biographical section is included below about each individual *kupuna*, followed by an edited transcription of the group interview. Bracketed abbreviations following their names (in biographical headings) are reflected in the transcript below and indicates who is speaking at time of the interview.



Figure 10. Pictured left to right: Kupuna Carolyn Uluwehi Kilauano, Kupuna Osamu Arashiro (Kupuna Kilauano's brother-in-law), Kupuna Aletha Goodwin-Kaohi, and Kupuna Clisson Kunane Aipoalani (CSH 2010)

8.5.1 Kupuna Carolyn Uluwehi Kilauano (UK)

Kupuna Carolyn Uluwehi Kilauano, affectionately called Aunty Ulu, was born on August 14, 1926 in Makaweli, Kaua'i to Kawehiwa Kaholoiki from Mānā, Kaua'i, and Louis Kilauano from Pōki'i, Kaua'i. She has lived in the Kekaha to Mānā region since birth and now retired, she resides in Kekaha, Kaua'i. Her personal, familial and genealogical connection to the 'ahupua'a or district where the Project is taking place is through her 'ohana who comes from this area. When asked how and why she feels connected to the *ahupua'a* or district where the Project is taking place, she related "My genealogy connects me to this area as the place that my ancestors originated from." She provided the name of Antonio Wong of Kekaha for CSH to contact.

8.5.2 Kupuna Osamu Arashiro (OA)

Kupuna Osamu Arashiro was born on March 29, 1926 in Wahiawa, Kaua'i to Matsu Miyashiro and Kamekichi Arashiro from Okinawa. Currently he is retired from the Kekaha Sugar Plantation and resides in Kekaha town. He has lived in the Kekaha to Mānā region since birth. His personal and familial connection to the *ahupua'a* or district where the Project is taking place is via his wife, who is Hawaiian and is genealogically connection to the Kanakaole-Aipoalani line, who is genealogically connected to the *ahupua'a* where the Project is taking place. He is kupuna Carolyn Uluwehi Kilauano's brother-in-law. Although he provided CSH with biographical information, he declined to provide comment during the interview, preferring to remain silent in the background.

8.5.3 Kupuna Aletha Goodwin-Kaohi (AK)

Kupuna Aletha Kawelukawahineholoolimaloa Goodwin-Kaohi was born on June 19, 1930 in Waimea, Kaua'i to Margaret Kamala Kamai from Makaweli, Kaua'i, and William Kapahukaniolonookainoahou Goodwin from Paliuli, Waimea, Kaua'i. She is a retired public Librarian who is currently the Hawaiian cultural consultant and Manager of the West Kaua'i Technology and Visitor Center in Waimea, Kaua'i. She currently resides in Waimea, Kaua'i. She has a personal, familial and genealogical connection to the Waimea District, especially Kaunalewa (in Mānā Ahupua'a), where her *kūpuna* is buried. She has lived in the Kekaha to Mānā region since birth. She is also the co-author of a report, "Hawaiian Cultural and Historical Survey of Nohili, Mānā." She referred Mr. Alan Smith of the Nature Conservancy.

8.5.4 Kupuna Clisson Kunane Aipoalani (KA)

Kupuna Clisson Kunane Aipoalani was born on January 4, 1949 in Waimea, Kaua'i to Margaret Kilauano and Samuel Kahiki Aipoalani from Kekaha, Kaua'i. He is currently working at the Pacific Missile Range Facility in Kekaha, Kaua'i as a government contractor, and resides in Kekaha town. He has a personal, familial and genealogical connection to the *ahupua'a* of Pōki'i and Waiawa, and Niu Valley (in Mānā Ahupua'a). In the past, his *kūpuna* has worked in the area of Pōki'i, Waiawa and Niu Valleys, and he has lived in the Kekaha to Mānā region for fifty-five years. When asked how and why he feels connected to the 'ahupua'a or district where the Project is taking place, he related "The legacy of my *kūpuna* and the cultural significance of

the area—and family burials located in Pōki'i. I am also genealogically connection to the *ahupua'a* in question.” He arranged and organized this meeting of *kūpuna* in Waimea, for the purposes of this CIA: “They are all here today because of their genealogical, cultural and historical connection to the *ahupua'a* within the Project area.”

When the group was asked about the past or present use of Project area, they responded:

AK: I would say that the early use of the property, that area, was probably heavily populated by native Hawaiians, many of them were related to one another, they were family, and it was a community related by *koko* [blood, common – Hawaiian blood]. And then Knudsen got the lease and moved a lot of the people out of the Mānā area. Later sugar plantation, which Knudsen is an uncle to H. P. Faye and so then the sugar plantation began to drain the entire area, cause it had a lot of water in the area so they drained it cause you can't plant cane in wetland, and so much prior to what there is there now was pretty much sugar, and then there was, maybe not in the area that you're looking at, but Mānā as a whole, there was prawn at one time, they had prawn patches in that area. Today it's pretty much corn, but then sugar was king, and it is getting to be that corn is king. Pretty much that's how it was. They drained the wetlands. You see Nohili ditch, it was built to drain. So, lots of pumps along the shoreline to drain the wetland.

KA: The whole area was swamp.

AK: Was swamp, was a whole swamp. If it rained very hard you could get on a canoe from Waimea and go all the way out to Polihale. Before they drained the swamp, towards Kekaha side they had *lo'i*.

UK: Kaunalewa was all *lo'i*. We planted our *lo'i* in taro and watercress.

AK: Mānā swamps were the only place in all of Hawai'i that we planted our taro on rafts. They built them because the *huli* [taro top] would drown, and so they built these wooden rafts and they put the mud inside and they planted. They floated on the water.

KA: The Hawaiians were the first to come up with hydroponics.

AK: They would attach it so maybe it was close to the shoreline so it's floating, take the mud and fill up these rafts, because they put sides, and plant the *huli*. Cause you have enough water, but you can't plant in the swap 'cause it was too deep yeah. They used the swamp for fish, mullet and ducks too.

KA: And had ducks too.

UK: Fish, white with the red spot, like big goldfish. And then ducks.

AK: We have a picture on the wall on the visitor's center and there is a boat, one is with a stick to move the boat, the other is with a rifle so I'm sure he is shooting a duck, and the last one is fishing on the swamp, all three in the same boat. We wanted to find a picture of the swamp showing the flooded areas and so forth, and so we looked through all of the old archives, but that was the only picture we found in the Kaua'i Historical Society archives. It's on the wall.

UK: And the *makaloa*, I think it was *makaloa* reeds [stalks] were used to make mats. They used to dry them, and our Tutu used to make mats. Ni'ihau is the home of the *makaloa*.

AK: Because *makaloa* grew in the Mānā area and Ni'ihau. Ni'ihau was where they had the most *makaloa*, so our mats, many of our mats came from Ni'ihau. The *makaloa* mats. So it was probably *makaloa* that grew in the swamp. It's an interesting area.

When asked about the locations of houses in the region, they shared:

AK: The houses were always close to the cliff side.

UK: Built *mauka* by the cliff, above the water, cause of the swamp and the water from *mauka* that came down the hills, so the houses were built up high, so the water could flow underneath.

KA: Some were on stilts.

UK: Our Tutu house was built right on the sand dune, right by the end, right where the monkey pod tree is, that is the marker, our house was there.

AK: By the step.

KA: At Polihale.

UK: The monkey pod tree is still a marker, that's where we lived. It's our Tutu's house.

AK: There is a cemetery in the sand dunes and they maintain it.

UK: A cemetery behind the house that we maintain. Still maintain.

KA: Cause during those days when you *hala*, you just go in the backyard and bury your loved one. This made it convenient to visit the gravesite. So the *iwi* was placed in the sand dunes.

AK: Right in the yard. But the high seas have never come up that high, yeah.

UK: Never did.

AK: You know Hawaiians knew where to build. They knew the terrain, they watched the waves. The sand dunes are important you know, to keep the water out of the low lands. The swamp water is separated from the ocean by sand.

UK: Separated by sand dunes. Now they make ditch to drain the swamp, so it's not separated anymore.

AK: It drains to the ocean now because the plantation put in ditches. If you see Nohili ditch, and other ditches, that is not ancient, that man made by Kekaha Sugar.

KA: The plantation set all of these various pumps to pump the water out, and so that's how the land was drained. And until today, I believe they still have to maintain those pumps. The reservoirs were made as well.

AK: Pumps yes. All the reservoirs were made also.

UK: Yeah. They made the reservoirs.

AK: Cause you have water all around, and you have a bank. So they contain the water.

When asked about the history of the plantation camps in the region, they related:

AK: We had camps.

UK: Yeah we had Japanese camp, Hawaiian camp. Hawaiian camp was all on this side, by Pōki'i Ridge. Pōki'i was *mauka* Kekaha.

KA: I know in the Kekaha area they had Spanish camp, Filipino camp, Hawaiian camp. They had all these.

UK: Our house by the monkey pod tree in Polihale was moved, and brought to Kekaha because of the sugar cane. They were going to raise sugarcane.

KA: So all the families had to move.

UK: My Tutu-man worked for Knudsen, we was a supervisor, and also for HP Faye and they offered to bring cause they had to move out, so they put their house on the bed of the cane truck and brought it to Kekaha and set it up there. They were told to get out.

AK: Yeah they moved everybody out of Mānā. All the native Hawaiians were told to move out. Later they moved and established Saki Mana camp. That had Filipino, Japanese, and all kinds of mixed people there.

KA: They wanted to plant cane, so they moved everyone out of Mānā.

UK: So, Knudsen took over, yeah.

AK: He was the *konohiki*.

UK: He was the *konohiki*.

When asked about the history of transportation (modes, roads and trails) in the region, especially the Old Government/Mānā Road within the Project area, they responded:

UK: From Kekaha all the way along this road from Pōki'i we traveled on that road, a one way lane. All along the ditch all the way we go till Limaloa, and then we follow the ditch and go to the beach. That's the road you folks are using for this Project. That's the old road. We go that road all the way, to Mānā, Limaloa, Kaunalewa. Because never have that highway. That highway is 1945. So before that we used this road, along the ditch.

AK and UK and KA: They call it the Old Government Road and the Mānā Road, same difference, same thing.

AK: It's the old road is along the cliff-side, along the foot of the hill. The new road is different. From Waiawa you go all

UK: That was the ditch right there. The road followed the ditch.

KA: The original road. That was the drag. The plantation people built it up to reinforce the road, where it is higher in places, or whatever.

AK: They had to, cause of the swamp. The ditch probably, cause the ditch is close by, yeah.

UK: That's the only road we use, going to Mānā. We go up to a certain point, if you like go Polihale, you go a little bit more and you walk to Polihale. You park the car and you walk.

AK: Only a few families had cars.

UK: We use the crank kind, that's the kind car we had.

AK: Model T, or Model A.

UK: No more windows, just the roof open. But we use that road all time to go fishing. That was the main road for us to go fishing because that was our main foods, you know, going to look for fish. No horse or cart, just car we use. We went to Kekaha School. But Mānā had a school, on top of a hill, but that's for the people who live there yeah.

When asked about their personal, familial or genealogical connection to the Project area, they shared:

AK: No personal or family connection to the areas where they are collecting the stones, ours is above the ditch where there are burials that we *mālama*. That's where my family in Kaunalewa is buried.

UK: Yeah above the ditch.

KA: You know, your *'ohana* is in Kaunalewa, ours is in Pōki'i.

AK: Site number 12 and 13 in Bennett's book shows the sites in Bishop Museum right now has two *kāhili* [feather standard], two hand *kāhili*.

When asked about their knowledge of any cultural, historical or archaeological features, especially any features located near or within the Project area, they responded:

KA: There was one site, one *heiau*, the birthing *heiau*, and we went on site and our Auntie took us there and she found it and she found the birthing rock. The birthing rock is like a chair, it's carved, no not carved, it's a natural rock.

UK: It's a naturally shaped stone

AK: You have a stirrup on it where you put your feet.

KA: It's a natural stone with a stirrup on it where you put your feet, the whole thing. And one my cousins had go sit on there, humbug, you know *kolohe* right? She when go humbug she when go sit on top there and say "look at me!" "look at me!" Ah, three months later, *hāpai*.

UK: There's also a flat for lay the baby when born, right there. Yes it's right by the road.

AK: This is unusual, cause Hawaiians as a whole they squat yeah when they give birth. But this is kind of an inclined because it's the gravitation yeah that you want. Gravity that the baby comes naturally, that's why they squat when they deliver. But this one is natural. I went there years and years ago, but I cannot remember where it is.

UK: It's a big big *heiau*, with all the big stones. That *heiau* is where they offer food instead of sacrifices, not human, they bring all their food that they harvest from the fields, a Lono Heiau. They bring and they lay over there. Get that baby place, and there's an image of a dog, and that dog is the *nakoa*, the watch person over there.

AK: I cannot remember what valley it is in.

UK: It has a stone like that and that stone tells the story of the island. It doesn't have writing or petroglyphs, it has like a river... it's... um...It's...It's a stone this high, and she says this water comes from Hā'ena

AK: Like a groove. It has like a groove, right. It's a groove on the stone.

UK: Yeah. And she says the water came water from Hā'ena. She says this... the water comes and was bringing the water to this land. This water came from Hā'ena, Wai'ale'ale, goes to all this land in Mānā, to raise their food.

AK: That's not a legend you know, that's true. And so sometimes you got to...

UK: Yeah, and so you go on... it's flat...Big stones all set, but flat. And you walk on.

AK: I can see it but I forget where it was... you know where? You can remember?

UK: Well the car no can go... it's hard now.

KA: Well, I'm not sure how the roads are. I know it's all blocked by gates.

UK: If you go in the corn field.

KA: When we went got the keys from his nephew... [pointing to Kupuna Osamu Arashiro] who works for the corn seed company. We were able to unlock some of the gates and he took us in and was able to go and look at some of the cultural sites.

KA: It is *mauka* of the road. The road is there and it is right there. So, that was a concern since they are going to be removing rocks and we don't want them to remove stones from the site there.

UK: It's by Saki Mana. The plantation called "Second," but it's Saki. It is a place. Our Tutu man lived there because he married Kilauano, they lived there and he had. . his brother, he had kinky hair and dark skin. The story is the people from

Saki Mana are dark with kinky curly hair and they live by Saki Mana. And so, maybe his mother got *hāpai* from one of them, and that's why my Tutu man's brother had dark skin and kinky hair. That's where they lived.

AK: We think it's outside of the Project area, based on this map. Your Project ends at Niu valley.

KA: It is along the road though, and if they extend the Project area it will be right next to the road. Saki Mana is past Mānā Camp. If they are going to expand it... then there is a problem.

AK: It's all interrelated. Nothing is by itself, the whole area is interrelated to one another, and without one the other one doesn't exist. If you understand *heiau*, the *heiau* can line up from Ni'ihau to Makahoa, Makahoa to Hā'ena, so there's always this triangular on the *heiau*. Yeah? So, but Makahoa is a very important, that's where the Hawaiians used to go for summer solstice. That's why I told you, you can stand up there and you can see for 90 degrees around. Summer solstice that's where they would go at that time... the road to Kāne, but all of that is so. If they are interrelated you cannot say this stands alone. That particular birthing area took care of all these areas. Something that was over here, again everybody was interrelated. There is no just one thing by itself so when you start saying you going to do this one thing over here, it affects other areas you know, that's how I found when I was doing my research. You look at the *mele* of the Mānā area they don't tell only about Kaunalewa, they talk about Papiohuli everything all over they talk about. So it's all inter-related. Hard to say, this is the area that's all we going stay in but what is here affects elsewhere, yeah...

When asked about *wahi pana* (sacred places) in the region, and the removal of stones from the area for this Project, they said:

UK: If they find business good, who knows they might stay and get more stones.

AK: Laughs, we don't want. It's only loose stones right. They need to stick to loose stones. Of all of these loose stones, how many cubic yards of stones are they expecting take out? Because somebody that knows stones, knows how many cubic yards they are planning to take out. it should be temporary and then *pau* [finish].

KA: And when it is done, according to what we are reading here they are only going to do the loose rocks that were moved by the plantation and *pau*, so no go *nīele* [curious] across the street. There is a concern that as they move rocks and overturn them, there should be some kind on monitoring plan if they uncover something significant so that is it not destroyed.

AK: That is why they need to have monitors watching for that. Cause you know why, I have a rock out here that came from someplace in Nohili, uh... when Gay Robinson was harvesting after Kekaha Sugar went out, Robinson went to go and try get the cane. Well when they picked up the cane, they picked up a boulder unknowingly, and it got into the mill and it almost broke the mill, and so they

brought me this piece and so what they were able to same has marking son it. When I look at it I said it could have been a cornerstone of a property. But that's the kind of thing you know, you don't know what they could find accidentally over there. That is why we are recommending monitoring, both cultural and archaeology. On site, everyday as they are going to a certain place, somebody is there to watch all their work.

When asked about Traditional Cultural Practices taking place currently within the Project area, they shared:

KA: For others hunting, for us it is about our spiritual purposes regarding our *iwi kūpuna* and our burials up there on the ridges and in the valleys, and in the caves that we *mālama*. We need to be able to access the ridges and valleys behind the old Government road and Kekaha ditch. It is our right and a part of our cultural practices for generations...before 1700s. Even though they are gone they are still part of the family.

UK: They put gates so we cannot go to see or visit our *wahi pana*. Like at Waiawa.

AK: Makahoa to me is a *wahi pana*.

UK: Hunters must have access to *mauka* via that road. Someone leased all the lands to Pu'u 'Ōpae through Munechika. Who controls all the leases. Ali'i Aipoalani, [Dane Gonsalves] he calls himself wanted to take over Pōki'i and told Munechika that, and Munechika told him he had to pay the lease, 30,000 dollars or something. He said no, I'm entitled to all of that. Munechika said no I'm in charge now for the State of Hawai'i lands and you have to pay. And so, they put a TRO on him [Dane Gonsalves] and so he cannot go Pōki'i, he is trespassing if he goes there. So got a lease now. It's the state. The state leases it.

When asked if they knew of any legends, stories, *mele* or *oli* relating to the Project area, they responded:

UK: Kaunalewa has some stories and legends.

AK: Yeah, but it's outside of the Project area. The Project area is *makai* of the ditch yeah. Most of the legend is *mauka* of that ditch area yeah.

KA: Yeah, like Auntie say it's all connected.

UK: Pōki'i get one too, but it's away from the Project yeah. Pōki'i-kaona. Pōki'i - kaona is the old name, and they dropped the kaona part. Pōki'i-kaona means yearning for the little one, that's the whole meaning of that word. But, now they just call it Pōki'i cause they drop the kaona.

The interview ended here because of time constraints. Prior to the start of the interview a large period of time was spent answering questions and voicing concerns regarding the Project area. That portion of the interview was not recorded or documented due to the *kūpuna*'s unwillingness

to be taped or documented. Within that unrecorded and undocumented time frame, Kupuna Goodwin-Kaohi shared some of the *mo'olelo*, significance, and sadness regarding Makahoa, the area along the Old Government/Mānā Road where the staging area is to be located for this Project, and where the old rock crusher was located in the past.

At the time of the previous project at Makahoa, Kupuna Goodwin-Kaohi tried to explain to others that Makahoa was a significant area culturally and archaeologically prior to work taking place there, to no avail. As a result, the cliff-side of Makahoa (and that *wahi pana*) was demolished to obtain rocks and gravel for other construction projects in the district under the auspices of the previous rock crusher company that used Makahoa for those activities. Her current concern is that Makahoa and other *wahi pana* in the region will be impacted by this Project as Makahoa was in the past. She refuses to discuss the Makahoa incident further with CSH, except to voice her concern that this Project's rock crusher will be placed in the same area that she fought so hard to prevent the use of in the past due to its status as a *wahi pana*.

Section 9 Cultural Landscape

9.1 Overview

Discussions of specific aspects of traditional Hawaiian culture as they may relate to the Project area are presented below. This section examines cultural resources and practices identified within or in proximity to the subject Project area in the broader context of the encompassing Waimea Ahupua'a landscape. Excerpts from "talk-story" sessions from past and the present cultural studies are incorporated throughout this section where applicable.

9.2 Stream and Freshwater Resources

Several *kama'āina* interviewees continue the practice of gathering resources from the freshwater tributaries and streams within the vicinities of the uplands. Kupuna Aletha Goodwin-Kaohi found in her research about Wai'ale'ale that all the tributaries that flow into the rivers of Kaua'i are from Wai'ale'ale and all waters are sacred to Kāne. According to Kupuna Wong, fresh water resources are available and still gathered. These resources are a part of a cycle of life and are dependent on the availability of water over time:

The 'o'opu was there, it's just that, because now they get da kine, the 'o'opu no can go back anymore up there. You see, they're raised up there, they like the cold water.

And when they gonna *hānau* [to give birth] they come down, and then they *make* [die] down here. And then they—the small ones go back up, you know? But now get plenty things going, so, the 'o'opu no go. Used to get plenty back then, but, now get water in control. Before there was plenty more water coming over. They gather the 'a'a now. Because, when get big water, like, I was up there in 1949, right, had a big flood in Waimea. And, what happened was, when the stones would move, and the 'o'opu, he get the suction, but he no like stay on the stones because they move, so he go by the side, so when the water flows really hard, they no can hold on. When the big water come and they stay *hānau*, or *hāpai* [pregnant], is when they end up *hānau* in *makai*. And then the *hinana* [the offspring of the 'o'opu] go back up. That's how see, the 'o'opu no come down because the stones shake, and they no like go in the stone. So they go by the side and the water bring 'em down.

9.3 Subsistence and Settlement

On the southwestern leeward coast, about three miles from Waimea Bay, a broad, flat plain stretches between the Waimea River delta and Polihale to the west. (Handy and Handy 1972) It is here that Kekaha, Pōki'i, Waiawa and Mānā is located, backed on the *mauka* side by steep low cliffs and a series of small valleys and gulches. Permanent habitation areas were mainly among the *mauka* foothills, at the bases of the shore-facing cliffs (Bennett 1931:103).

Makai of the foothills were fishponds and cultivated wetlands fed by springs. Beyond this was the great swamp, then the broad stretch of the sand lands which continued to the shoreline. Fishing camps and other temporary habitation areas existed on the beach, and in the inland stretches of the sand there were burials. This scenario was likely in place at the time of first western contact and remained relatively undisturbed throughout most of the 1800s.

Just below the *mauka* ridges lies the Kekaha Ditch, which winds its way down from the Waimea River in the mountains. From the edge of Kekaha Ditch to the ocean lie the former swamp lands of the Kekaha-Mānā plains, now planted in corn, previously in sugar cane. Between these former swamp lands and Kekaha Ditch is a strip of land that once housed many people in the villages of Pōki'i, Waiawa, Kaunalewa, Mānā, and others. Between the villages were intermittent homes, with the Old and New Government Roads to Mānā (also called the Mānā Road) linking each community between Mānā and Kekaha.

Since then, much physical evidence of this settlement pattern has been obliterated by commercial agriculture and other operations. The foothills and wetland areas have been extensively planted in cane, livestock has been run up the gulches, and even the beach areas have been much disturbed by massive shoreline stabilization projects.

When the group from the West Kaua'i Technology and Visitor Center in Waimea was asked about the past or present use of Project area, Kupuna Goodwin-Kaohi responded:

I would say that the early use of the property, that area, was probably heavily populated by native Hawaiians, many of them were related to one another, they were family, and it was a community related by *koko*. And then Knudsen got the lease and moved a lot of the people out of the Mānā area. Later sugar plantation, which Knudsen is an uncle to H. P. Faye and so then the sugar plantation began to drain the entire area, cause it was t had a lot of water in the area so they drained it cause you can't plant cane in wetland, and so much prior to what there is there now was pretty much sugar, and then there was, maybe not in the area that you're looking at, but Mānā as a whole, there was prawn at one time, they had prawn patches in that area. Today it's pretty much corn, but then sugar was king, and it is getting to be that corn is king. Pretty much that's how it was. They drained the wetlands. You see Nohili ditch, it was built to drain. So, lots of pumps along the shoreline to drain the wetland.

9.4 Plant Gathering and Cultivation

In traditional Hawaiian times, mountain habitats like the present Kōke'e and Waimea Canyon areas, located in the *mauka* regions of the current Project area, were sources of a variety of plants that were used for ceremonial, medicinal or adornment purposes. These areas continue to be accessed by gatherers of *maile* and *mokihana* used for ceremonial purposes, including graduations and *hula* performances.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-nineteenth century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

Rice cultivation by Chinese farmers began in Waimea Valley in the 1860s as evidenced by the conversion of taro *lo'i* to rice fields in the second half of the nineteenth century. These Chinese farmers had come to the islands to work on the sugar plantations. As the commercial sugar industry expanded throughout the Hawaiian Kingdom, the need for increased numbers of field laborers prompted passage of contract labor laws.

In the past, these upland regions would have been accessed by the use of *mauka* to *makai* trails originating in the lowlands of the Waimea District, which includes the Kekaha to Mānā Plains. Currently, access to these areas may be obtained by using existing roadways originating in Waimea and Kekaha towns respectively. According to Kupuna Wong, there are many upland resources still available for gathering purposes:

Maile stay more up, on top the mountain. Stay loaded on top Wai'alaē. We go with the horse and gather *mokihana* in the uplands, it is loaded in *mokihana*, because, you know how you see the coffee? That's how the *mokihana* stay, up there, not along the ridges. Each plant has its certain level of elevation where you can find them. *Mokihana* cannot grow any kind place, just like the *maile*. No can grow down here, 'cause would die.

9.5 Wahi Pana (Sacred Places)

Wahi pana currently in the Project area and its surroundings are honored by local Hawaiians in different ways, ranging from complete non-use of the area, to continued use of the area through ongoing cultural programs or familial monitoring and care of burials in the uplands. Every consultant in this CIA expressed their connection to a number of *wahi pana* in the Kekaha to Mānā region, especially as it relates to areas in the uplands, such as familial burial grounds, archaeological sites, historical home sites, stones of cultural significance, and other features. This area is often viewed as a stopping off point from other places, such as Kalalau Valley, and Ni'ihau Island. Over time, as these areas were altered as a result of historic plantation activities, they were moved elsewhere, many into the current town of Kekaha.

According to Pukui et al (1974), the sacred *heiau* of **Makahoa** was located *mauka* of the current Project area and literally translates as “friendly point” (Pukui et al 1974:140). According to Kupuna Aletha Goodwin-Kaohi, this *wahi pana* was used for astronomy purposes such as ceremonies during the solstices. Kupuna Goodwin-Kaohi describes Makahoa Heiau as destroyed. Bennett describes the *heiau* as Makahoe and marking its location on Niu Ridge in Kaunalewa (Bennett 1931:102).

Kahelu Heiau was once located in the Mānā area and is literally translated as “the number” or “the scratch” (Pukui et al 1974:64). Thrum describes the *heiau* as “A heiau of platform character at the base of the hill, about 6 feet high in front, not of large size” (Bennett 1931:102).

Ho'one'enu'u Heiau is located *mauka* of the current Project area on Kaunalewa Ridge. According to Pukui and Elbert (1986), “*ho'one'e*” literally translates as “to move along” (Pukui and Elbert 1986:82) and “*nu'u*” translates as “high place” (Pukui and Elbert 1986:273). The literal translation for Ho'one'enu'u may therefore be “to move along to the high place.”

There are numerous families still residing in nearby areas such as Kekaha town and Waimea, many of whom still access the uplands for traditional purposes. One of these purposes is the honoring and the care of *wahi pana* that are part of their spiritual and cultural milieu and ancestral connection to the places and practices of the past in the uplands, along the coastline, and in between.

Regarding burials as *wahi pana*, Kupuna Aipolani informed CSH that while others may want to access the uplands above the Project area for other purposes, for him and his family, continued access to the uplands is important for different reasons:

For others hunting, for us it is about our spiritual purposes regarding our *iwi kūpuna* and our burials up there on the ridges and in the valleys, and in the caves that we *mālama*. We need to be able to access the ridges and valleys behind the old Government road and Kekaha ditch. It is our right and a part of our cultural practices for generations...before 1700s. Even though they are gone they are still part of the family.

Access to the uplands is a frustration and concern for Kupuna Kilauano as well, who states that with ongoing restrictions on access to upland areas, many of the families cannot visit the burials of their ancestors, which are *wahi pana* to them.

Accordingly, Kupuna Goodwin-Kaohi expressed frustration with former rock crushing activities in the past that, in the end destroyed some place sacred to her and the Hawaiian people, specifically, the destruction of Makahoa Heiau.

Finally, access to the uplands where many *wahi pana* are located is essential to maintain the traditional cultural practice of *mālama* of the ancestors and the things and places pertaining to the ancestors.

9.6 Cultural and Historical Properties

According to Kupuna Goodwin-Kaohi, the landscape of Kekaha to Mānā all the way to Ni'ihau and outwards is all interrelated, archaeological sites, environments, religious areas, spiritual places, *wahi pana*, birthing and burial, a cycle, and an interrelated landscape of how her ancestors viewed their world and lived in it. If one area is affected, all areas feel the impact:

It's all interrelated. Nothing is by itself, the whole area is interrelated to one another, and without one the other one doesn't exist. If you understand *heiau*, the *heiau* can line up from Ni'ihau to Makahoa, Makahoa to Hā'ena, so there's always this triangular on the *heiau*. Yeah? So, but Makahoa is a very important, that's where the Hawaiians used to go for summer solstice. That's why I told you, you can stand up there and you can see for 90 degrees around. Summer solstice that's where they would go at that time... the road to Kāne, but all of that is so. If they are interrelated you cannot say this stands alone. That particular birthing area took care of all these areas.

According to Kupuna Aipoalani:

There was one site, one *heiau*, the birthing *heiau*, and we went on site and our Aunty took us there and she found it and she found the birthing rock. The birthing rock is like a chair, it's carved, no not carved, it's a natural rock. It's a natural stone with a stirrup on it where you put your feet, the whole thing... It is *mauka* of the road. The road is there and it is right there. So, that was a concern since they are going to be removing rocks and we don't want them to remove stones from the site there. It is along the road though, and if they extend the Project area it will be right next to the road. Saki Mana is past Mānā Camp. If they are going to expand it... then there is a problem.

9.7 Burials

According to Mackenzie (1991:248), the Westside of all of the islands is significant in the selection for a site to bury your loved ones, especially the area of Kekaha to Mānā:

Hawaiians often chose burial sites for symbolic purposes. The western side of each island, symbolizing the sunset of life--death, often became a significant burial site. Thus, the sand dune areas at Honokahua on Maui, Mo'omomi on Moloka'i, Ka'ena on O'ahu, and Mānā on Kaua'i were considered desirable areas for internment. Burial sites were chosen as places of safekeeping for the *iwi*. In addition to sand dunes, bones were hidden in caves & diffs, buried in the earth & under rock mounds, or deposited in the ocean. Burials were usually *hūnākele* to keep the *iwi* from being abused or disturbed. 'Ohana members were often buried near the home, to be near the family so proper care and participation in family affairs could continue. (MacKenzie 1991:248)

The location of burials in relationship to places where spirits can enter the spiritual world is also apparent in Hawaiian culture, as evidenced in the case of Polihale, where a *heiau* and a small settlement was located in the past:

Likewise, interments would occasionally be situated near *leina a ka 'uhane* or spirit leaping-off precipices to assist the departed family members journey into the next realms. (MacKenzie 1991:248)

In the 1930s and 1940s, when Kupuna Goodwin-Kaohi was a child, families from Mānā who had moved to Kekaha town by then, still frequented the uplands to care for their ancestors:

The families still went out to Mānā because they had burial grounds in the sand dunes there, which they now call Queen's Pond, toward the base. South of Queen's Pond, the families still had [burial grounds] and they maintained them. And family buried up in the caves.

A number of pre-Contact burials have been located in the general area of Kekaha over the years. These finds were associated with construction activities (Hammatt 2004, Stein and Hammatt 2006).

Section 10 Summary and Recommendations

At the request of Pōhaku 'O Kaua'i Materials, LLC, CSH undertook this CIA for the proposed Rock Crushing Establishment Project along portions of the New and Old Government Roads, Waimea Ahupua'a (land division usually extending from the uplands to the sea), Waimea District, Island of Kaua'i, TMK: [4] 1 2-002:001.

The Project involves the collecting and removal of previously displaced rocks, boulders, dirt, and debris from areas bordering former agricultural fields. These materials will be hauled to designated areas, where they will be stockpiled, and crushed into gravel.

10.1 Results of Background Research

Background research on the Project area and the surrounding district indicates:

1. The Project area is located in the *ahupua'a* of Waimea in the Waimea District on the southwest side of the island of Kaua'i.
2. Kekaha, an *'ili* within the *ahupua'a* of Waimea, and other settlements on the Mānā plain suffered from a definite lack of fresh surface water and variable rainfall. *Mauka* gulches had only intermittent stream flows, and water sources were primarily springs along the base of the cliffs.
3. According to Pukui et al (1974), the sacred *heiau* of Makahoa is located *mauka* of the current Project area and literally translates as "friendly point" (Pukui et al 1974:140).
4. Rainfall on the Mānā Plain averages less than 20 inches annually, with areas located at the base of ridges (within the Project area) averaging 40 inches per year, occurring primarily in the fall and winter months (September to March) (Giambelluca et al. 1986)
5. The well-watered valley and delta of the Waimea River were ingeniously developed and engineered for wetland agriculture, and represents the epitome of the typical Hawaiian and Kaua'i-type valley settlement (Handy and Handy 1972:393–397).
6. The Kekaha ditch, constructed in 1907, intercepted water in the Waimea River at 550-foot elevation and originally extended through 16 miles of *mauka* lands and four miles through the lowlands (Wilcox 1996:93).
7. Rice cultivation by Chinese farmers began in Waimea Valley in the 1860s as evidenced by the conversion of taro *lo'i* to rice fields in the second half of the nineteenth century. These Chinese farmers had come to the islands to work on the sugar plantations. As the commercial sugar industry expanded throughout the Hawaiian Kingdom, the need for increased numbers of field laborers prompted passage of contract labor laws. The area's most prolific planter was Leong Pah On, a Chinese immigrant (Joesting 1984:206).
8. In the 1900s, Kekaha Sugar Co. employed about 1,000 people, of which approximately 300 families lived in plantation houses. By 1910 the plantation had 15 miles of permanent railroad track transporting cane from collection points to the mill and then transporting bags of sugar to the steamship landing at Waimea.

9. In 1922, Kekaha Sugar Co. began to drain the Mānā swamps to produce more sugar cane land. The project took 60 years to complete. By 1938 a *Honolulu Advertiser* article stated that Kekaha Sugar Co. was the most valuable single piece of property in the Territory.
10. By 1983 Kekaha Sugar employed about 400 people and produced 54,819 tons of sugar. However, in 1988 the Kekaha Sugar Co. was sold to JMB Realty as part of the buyout of Amfac Hawai'i. By 1992, the company officially became part of Amfac Sugar Kaua'i West, and in 1995, the last sugar cane was harvested by this company on their Waimea lands. In 2000, Amfac Hawai'i closed its last sugar operations at the Kekaha mill.

10.2 Results of Community Consultation

CSH attempted to contact 35 community members (government agency or community organization representatives and individual cultural practitioners) for this CIA (see Table 3); 12 individuals responded and seven of these *kūpuna* and/or *kama'āina* participated in formal “talk-story” interviews for more in-depth contributions to the CIA. CSH initiated the “talk-story” sessions with questions from the following five broad categories: Traditional and Customary Resources and Practices, Religious and Spiritual Resources and Practices, Freshwater and Marine Resources and Practices, Burials, Trails and Cultural and Historic Properties. Brief backgrounds of participants’ “talk-story” sessions and their comments and concerns about the proposed Project area are presented below:

1. Kupuna Louis Parraga states the existence of an adze tool making site *mauka* of the current Project area. He states finding a chisel tool made from adze and also notes many small chips of adze in this area that may have been an ancient canoe-making site.
2. Kupuna Tony Wong states the abundance of ‘*o‘opu* in the streams in the Kekaha area. He continues that the ‘*o‘opu* would come downstream to give birth then die. The offspring would then travel back upstream until they were ready to give birth.
3. Kupuna Wong also expresses gathering *maile* and *mokihana* in the mountainous regions *mauka* from the Project area. He continues that both plants would only flourish in the elevated mauka regions and would not grow in the lower areas where the current project is located.
4. Kupuna Wong states that the upper regions of Waiawa have several *heiau* still in existence and an oven, possibly a Portuguese oven built into a natural recess in the mountain wall, in the area *mauka* of the current Project.
5. Several *kūpuna* mention the valued *makaloa* plant that mainly grows in the Mānā region and on Ni‘ihau Island. The reeds or stalks of the *makaloa* are used to make Ni‘ihau mats.
6. Kupuna Kunane Aipoalani affirms the existence of several plantation camps in Kekaha for the sugar workers. In Kekaha, the Spanish camp, Filipino Camp and Hawaiian camp were once located there.
7. Several *kūpuna* confirm the existence of a birthing stone and *heiau* mauka of the Project area. They state that the birthing stones are naturally shaped with stirrups to aid in natural gravity-assisted birth by ancient Hawaiian royalty.

8. Several *kūpuna* expressed that the State of Hawai'i put up gates that block access to many of the *mauka* cultural sites and *wahi pana*. These blocked sites include family burial sites, *heiau* and other areas mauka of the Project area.
9. If this Project encounters *iwi kūpuna*, Kupuna Aletha Goodwin-Kaohi recommends that Project proponents treat the *iwi kūpuna* with care and respect and that the burial council be notified.
10. Kupuna Goodwin-Kaohi mentions a song written about the *'ūlili* birds in the Kekaha area. The *'ūlili* bird is a plover that would gather on the beaches in Kekaha.

10.3 Recommendations

Based on information gathered from the community consultation effort as well as archaeological and archival research presented in this report, the evidence indicates that the proposed Project may have a significant negative impact on access to areas mauka of the proposed Project area. These areas include family burial sites of consultants interviewed for this CIA as well as Hawaiian cultural sites such as *heiau* and birthing stones in proximity if the proposed Project area. A good faith effort to address the following recommendations would help mitigate potentially adverse effects the proposed Project may have on Hawaiian cultural practices, beliefs and resources in and near the Project area:

2. Personnel involved in development activities in the Project area should be informed of the possibility of inadvertent cultural finds, including human remains. Should cultural or burial sites be identified during ground disturbance, all work should immediately cease, and the appropriate agencies notified pursuant to applicable law.
3. Any fencing or gates that would further restrict access to the *mauka* regions of the proposed Project area should not be constructed during the tenure or life-cycle of the proposed Rock Crusher and its associated operations. Access to *mauka* areas above the Project area should be kept open.
4. No rock or other materials should be taken from Hawaiian cultural sites *mauka* or in the vicinity of the proposed Project area to be used for gravel or road-paving materials. These include *heiau* and birthing stones or any other Hawaiian cultural site.
5. Cultural or archaeological monitoring should be conducted during all phases of construction.

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Appendix A Glossary of Hawaiian Words

To highlight the various and complex meanings of Hawaiian words, the complete translations from Pukui and Elbert (1986) are used unless otherwise noted. In some cases, alternate translations may resonate stronger with Hawaiians today; these are placed prior to the Pukui and Elbert (1986) translations and marked with “(common).”

Diacritical markings used in the Hawaiian words are the *‘okina* and the *kahakō*. The *‘okina*, or glottal stop, is only found between two vowels or at the beginning of a word that starts with a vowel. A break in speech is created between the sounds of the two vowels. The pronunciation of the *‘okina* is similar to saying “oh-oh.” The *‘okina* is written as a backwards apostrophe. The *kahakō* is only found above a vowel. It stresses or elongates a vowel sound from one beat to two beats. The *kahakō* is written as a line above a vowel.

Hawaiian Word	English Translation
<i>ahupua‘a</i>	Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (<i>ahu</i>) of stones surmounted by an image of a pig (<i>pua‘a</i>), or because a pig or other tribute was laid on the altar as tax to the chief.
<i>ali‘i</i>	Chief, chieftess, officer, ruler, monarch, peer, headman, noble, aristocrat, king, queen, commander.
<i>heiau</i>	Pre-Christian place of worship, shrine; some <i>heiau</i> were elaborately constructed stone platforms, others simple earth terraces. Many are preserved today.
<i>hula</i>	Hawaiian traditional dance.
<i>hula ki‘i</i>	Dancing images, puppet dance.
<i>hūnākele</i>	To hide in secret.
<i>‘ili</i>	Land section, next in importance to an <i>ahupua‘a</i> and usually a subdivision of an <i>ahupua‘a</i> .
<i>ilina</i>	Grave, tomb, sepulcher, cemetery, mausoleum, plot in a cemetery.
<i>iwi kūpuna</i>	Ancestral bone remains (common).
<i>kahuna</i>	Priest, sorcerer, magician, wizard, minister, expert in any profession. <i>Kāhuna</i> —plural of <i>kahuna</i> .
<i>kalana</i>	Division of land smaller than a <i>moku</i> or district; county.
<i>kama‘āina</i>	Native-born, one born in a place, host; native plant; acquainted, familiar, Lit., land child.

<i>kapu</i>	Taboo, prohibition; special privilege or exemption from ordinary taboo; sacredness; prohibited, forbidden; sacred, holy, consecrated; no trespassing, keep out.
<i>kula</i>	Plain, field, open country, pasture. An act of 1884 distinguished dry or <i>kula</i> land from wet or taro land.
<i>kupuna</i>	Elders (common). Grandparent, ancestor, relative or close friend of the grandparent's generation, grandaunt, granduncle. <i>Kūpuna</i> —plural of <i>kupuna</i> .
<i>lānai</i>	Porch.
<i>lo'i</i>	Irrigated terrace, especially for taro, but also for rice; paddy.
<i>makai</i>	Towards the sea.
<i>mauka</i>	Towards the mountain.
<i>mele</i>	Song.
<i>moku</i>	District, island, islet, section.
<i>mo'olelo</i>	Story, tale, myth, history, tradition, literature, legend, journal, log, yarn, fable, essay, chronicle, record, article; minutes, as of a meeting. (From <i>mo'o</i> , <i>'ōlelo</i> , succession of talk; all stories were oral, not written).
<i>nīele</i>	Curious.
<i>'ohana</i>	Family.
<i>'ōlelo no'eau</i>	Proverb, wise saying, traditional saying.
<i>oli</i>	Chant that was not danced to, especially with prolonged phrases chanted in one breath, often with a trill at the end of each phrase; to chant thus.
<i>pau</i>	Finish
<i>wahi pana</i>	Storied place (common). Legendary place.

Appendix B Common and Scientific Names for Hawaiian Plants and Animals

Common Names		Possible Scientific Names		Source
Hawaiian	Other	Genus	Species	
<i>‘ākulikuli kula</i>	Purslane, pig grass	<i>Portulaca</i>	<i>oleracea</i>	Pukui and Elbert 1986
<i>‘anae</i>	mullet	<i>Mugil</i>	<i>cephalus</i>	Hoover 1993
<i>kalo</i>	taro	<i>Colocasia</i>	<i>esculenta</i>	Wagner et al. 1999
<i>kī</i>	tī	<i>Cordyline</i>	<i>fruticosa</i>	Wagner et al. 1999
<i>kiawe</i>	mesquite	<i>Prosopis</i>	<i>pallida</i>	Wagner et al. 1999
<i>koloa maoli</i>	Hawaiian duck	<i>Anas</i>	<i>wyvilliana</i>	Wagner et al. 1999
<i>lēkō</i>	watercress	<i>Nasturtium</i>	<i>microphyllum</i>	Pukui and Elbert 1986
<i>maile</i>	shrub, vine	<i>Alyxia</i>	<i>oliviformis</i>	Wagner et al. 1999
<i>makaloa</i>	perennial sedge	<i>Cyperus</i>	<i>laevigatus</i>	Pukui and Elbert 1986
<i>mokihana</i>	citrus tree, anise-scented	<i>Pelea</i>	<i>anisata</i>	Pukui and Elbert 1986
<i>‘o‘opu</i>	goby, blennie	<i>general name for fresh and salt water fishes included in the families Eleotridae, Gobiidae, Blennidae, Microdesmidae</i>		Hoover 1993
<i>‘ūlili</i>	wandering tattler	<i>Heteroscelus</i>	<i>incanum</i>	Pukui and Elbert 1986
<i>wiliwili</i>	flowering tree – pea family	<i>Erythrina</i>	<i>sandwicensis</i>	Wagner et al. 1999

* spp. = multiple species

Appendix C Authorization and Release Form

Cultural Surveys Hawai'i, Inc.
Archaeological and Cultural Impact Studies
Hallett H. Hammatt, Ph.D., President



P.O. Box 1114

Kailua, Hawai'i 96734

Ph: (808) 262-9972

Fax: (808) 262-4950

Job code: Kakaako 25

jgenz@culturalsurveys.comwww.culturalsurveys.com

AUTHORIZATION AND RELEASE FORM

Cultural Surveys Hawai'i (CSH) appreciates the generosity of the *kūpuna* and *kama'āina* who are sharing their knowledge of cultural and historic properties, and experiences of past and present cultural practices for the Cultural Impact Assessment for the *ahupua'a* of Kaka'ako.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our study. Here are the procedures we promise to follow:

1. The interview will not be tape-recorded without your knowledge and explicit permission.
2. If recorded, you will have the opportunity to review the written transcript of our interview with you. At that time you may make any additions, deletions or corrections you wish.
3. If recorded, you will be given a copy of the interview notes for your records.
4. You will be given a copy of this release form for your records.
5. You will be given any photographs taken of you during the interview.

For your protection, we need your written confirmation that:

1. You consent to the use of the complete transcript and/or interview quotes for reports on cultural sites and practices, historic documentation, and/or academic purposes.
2. You agree that the interview shall be made available to the public.
3. If a photograph is taken during the interview, you consent to the photograph being included in any report/s or publication/s generated by this cultural study.

I, _____, agree to the procedures outlined above and, by my
(Please print your name here)
signature, give my consent and release for this interview to be used as specified.

(Signature)

(Date)

Appendix D Community Consultation Letter

Cultural Surveys Hawai'i, Inc.
Archaeological and Cultural Impact Studies
Hallett H. Hammatt, Ph.D., President



Hawai'i Island Office: P.O. Box 393

Pāhoa, Hawai'i 96778

Ph: (808) 965-6478

Fax: (808) 965-6582

Job code: KEKAHA 2

mfarias@culturalsurveys.com

www.culturalsurveys.com

February 11, 2010

Aloha mai kāua,

At the request of PŌHAKU 'O KAUA'I MATERIALS, LLC., Cultural Surveys Hawai'i Inc. (CSH) is conducting a Cultural Impact Assessment (CIA) for a proposed rock-crushing establishment along an approximately 5-mile section of 50 acres, on the lower side of the Kekaha Ditch, Poki'i Ahupua'a, Waimea District, Kaua'i Island, Hawai'i, TMK: [4]1-2-002-001.

The Project involves the collecting and removal of previously displaced rocks, boulders, dirt, and debris from areas bordering former agricultural fields, and within these fields, on previously farmed Kekaha Sugar Plantation lands. These materials will be hauled to designated areas, where they will be stockpiled, and crushed into gravel. Therefore, the main activities for this Project will include the following:

- the placement of a small portable crushing operation on a designated storage site within the Project area;
- the collection and transportation of rocks, boulders, dirt and debris to the storage site;
- the operation of a rock crusher to transform rocks and boulders to saleable aggregate sizes;
- and the transportation of the product (gravel) away from the Project area for delivery to west side communities, businesses, KAA, and/or federal, state and county agencies for road and culvert repairs.

The proposed Project will also include improvements to an existing road approximately 5 miles long which provides access to the Project area. Improvements will involve the laying of gravel on an existing dirt-road. This road was once functional prior to World War II, and will be connected to Kaumuali'i Highway as a result of Project improvements.

The defined Project area will not include any portion of the Kekaha Ditch nor will it require the establishment of any supporting infrastructure.

All Project related work will be conducted in areas that have been previously modified by historic plantation activities. A companion archaeological study is being performed in connection with this Project to ensure that archaeological sites are not disturbed.

The purpose of the CIA is to assess potential impacts to cultural practices as a result of the planned Project. We are seeking your *kōkua* and guidance regarding the following aspects of our study:

- **General history and present and past land use of the Project area.**
- **Knowledge of cultural sites which may be impacted by future development of the Project area - for example, historic sites, archaeological sites, and burials.**

KEKAHA2 CIA

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- **Knowledge of traditional gathering practices in the Project area, both past and ongoing.**
- **Cultural associations of the Project area, such as legends and traditional uses.**
- **Referrals of *kūpuna* or elders and *kama'āina* who might be willing to share their cultural knowledge of the Project area and the surrounding *ahupua'a* lands.**
- **Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the Project area.**

I invite you to contact me, Malia Farias at (808) 769-4672, or mail me a letter at 68-1783 Ho'oko Street, Waikoloa, HI 96738, or send me an e-mail at mfarias@culturalsurveys.com if you have any information or knowledge you would like to share.

‘O wau iho no,

Malia Luika Farias
Cultural Researcher
Cultural Surveys Hawai'i
Hawai'i Island Office


Attachments (4)

Appendix E OHA Response Letter

PHONE (808) 594-1888

FAX (808) 594-1865

postmarked: 3/24/2010
rwd: 4/1/2010 (fwd from Pāhoa)



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

HRD10/4844

March 8, 2010

Malia Luika Farias, Cultural Researcher
Cultural Surveys Hawai'i
P.O. Box 393
Pāhoa, Hawai'i 96778

**RE: Cultural Impact Assessment consultation
Rock Crushing Establishment at Kekaha Ditch
Poki'i Ahupua'a, Kaua'i
Tax Map Key: (4) 1-2-002:001**

Aloha e Ms. Farias:

The Office of Hawaiian Affairs (OHA) is in receipt of your February 11, 2010 letter initiating consultation and seeking comments ahead of a cultural impact assessment (assessment) for the proposed rock crushing project located on a 5-mile section of 50 acres owned by the State of Hawai'i. According to the information in your letter, the area of interest is along the lower side of the Kekaha ditch on the above mentioned tax map key parcel located within the Poki'i Ahupua'a.

Your letter details that this project proposes to collect and remove displaced rocks, boulders, dirt, and debris from the previous Kekaha Sugar Company lands. These materials will be hauled to a designated area where they will be stockpiled and crushed into gravel. OHA is aware that at one time the Kekaha Sugar Company lands were crown lands. Irrigation ditches flowed through these lands and in 1856 these crown lands were leased for agriculture and ultimately to produce sugar. The Irrigation ditches that once flowed for miles were drained and sugar was planted.

OHA applauds your efforts to perform an archaeological study in connection with this project and to ensure that any identified cultural and/or archaeological sites are not disturbed. We also recommend consultation be initiated with Kaua'i's Hawaiian community and

Malia Luika Farias, Cultural Researcher
Cultural Surveys Hawai'i
March 8, 2010
Page 2 of 2

organizations, who may have information or documentation on family history in Waimea and Kekaha dating back pre-Kekaha Sugar plantation days, cultural history, cultural resources, historic sites or legends. These community resources may be willing to share their mana'o regarding this assessment. In addition, OHA recommends that you contact the Kaua'i County Historic Preservation Commission, Kaua'i Historical Society, Kaua'i Museum, and the Faye Museum. Please remember that this list is not all encompassing and we are sure additional individuals and/or organizations will be identified as you move forward with your consultation effort.

Thank you for initiating consultation at this early stage and we look forward to the opportunity to review the completed assessment. Should you have any questions, please contact Kathy Keala at 594-1848 or kathyk@oha.org.


'O wau iho nō me ka 'oia'i'o,


Clyde W. Nāmu'o
Chief Executive Officer

C: OHA- Kaua'i Community Resource Coordinator

Appendix F SHPD Response Letter

LINDA LINGLE
GOVERNOR OF HAWAII





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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

February 25, 2010

LOG NO: 2010.0551
DOC. NO: 1002PC010

MEMORANDUM

TO: Malia Luika Farias
Cultural Surveys Hawai'i-Hawai'i Office, 68-1783 Ho'oko Street, Waikoloa, HI 96738

FROM: Phyllis Coochie Cayan, History and Culture Branch Chief
P. Coochie Cayan

Subject: **KEKAHA 2: A Cultural Impact Assessment (CIA) for a proposed rock-crushing equipment along an approximately 5-mile section of 50 acres, on the lower side of the Kekaha Ditch, Poki'i Ahupua'a, Waimea District, Kaua'i Island, Hawai'i.**
TMK: [4] 1-2-002-001.

Mahalo for the opportunity to comment on a CIA for a proposed rock-crushing equipment along an approximately 5-mile section of 50 acres, on the lower side of the Kekaha Ditch, Poki'i Ahupua'a, Waimea District, Kaua'i Island.

While the project area may have been under previous heavy agricultural use by private land owners there is always a general probability that some cultural resources remain known or unseen. There are significant cultural and historical features **in the general area** which include but are not limited to the use of the Kekaha Ditch as you so note.

SHPD is also concerned with any ground disturbance work which may uncover burials or burial sites such as the moving of disturbed boulders and rocks. The department is mindful that traditional cultural access to the cultural places and/or resources in the general ahupua'a should also be considered in your study as related to the proposed project area.

The folks listed are current Kauai-Niihau Island Burials Council commissioners who know of or come from the project area that you may want to contact regarding any impacts on cultural resources in the proposed area are:

- C. Kunane Aipoalani P.O.Box 433 Kekaha 96752 email: ckaipoalani@hawaiiintel.net
- Aunty Barbara Say 296 Makani Rd. Kapaa 96746 Phone: 808-821-0430
- Debra Ruiz P.O. Box 982 Waimea 96796 email: vboyz@hawaii.rr.com
- Dee Crowell P.O. Box 598 Waimea 96796 email: dcrowell@theresortgroup.com

Please do talk story with these folks and get information or referrals of any traditional or cultural practices in the project area. Any questions, please call me at 808-692-8015 or via email at Phyllis.L.Cayan@hawaii.gov

C: Nancy McMahon, Deputy SHPO/State Archaeologist
C. Kunane Aipoalani, Chairman, Kauai-Niihau Island Burial Council (KNIBC)
Barbara Say, KNIBC Hanalei District Representative
Debra Ruiz, KNIBC Waimea District Representative
Dee Crowell, KNIBC Landowner Representative

**An Archaeological Inventory Survey for a Proposed Rock
Crushing Project Along Portions of the New and Old
Government Roads, Waimea Ahupua‘a, District of Waimea,
Island of Kaua‘i
TMK: [4] 1-2-002:001**

**Prepared for
Pōhaku O Kaua‘i Materials, LLC**

**Prepared by
Kendy Altizer, B.A.
and
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: KEKAHA 1)**

September 2010

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Management Summary

Reference	An Archaeological Inventory Survey for a Rock Crushing Project Along Portions of the New and Old Government Roads, Waimea Ahupua'a, District of Waimea, Island of Kaua'i, TMK: [4] 1-2-002:001 (Altizer and Hammatt 2010)
Date	September 2010
Project Number	Cultural Surveys Hawai'i (CSH) Job Code: KEKAHA 1
Project Location	The proposed project is located along access roads from Mānā Road northeast through agricultural fields and encompasses portions of the New and Old Government Roads. The project and survey areas are depicted on a portion of the 1983 U.S. Geological Survey, Kekaha Quadrangle, 7.5-minute series map and is present on Tax Map Key (TMK) [4] 1-2-002:001.
Project Funding and Jurisdiction	State of Hawai'i
Permit Number	CSH completed the fieldwork under state archaeological fieldwork permit No. 10-10 issued by the State Historical Preservation Division/ Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-282.
Agencies	SHPD/DLNR
Project Description	<p>The project involves collection and removal of previously displaced rocks, boulders, dirt, and debris from former agricultural fields, and adjacent areas, of former Kekaha Sugar Plantation lands. These materials will be hauled to designated areas where they will be stockpiled and crushed into gravel. The main activities for this project will include the following:</p> <ul style="list-style-type: none"> • the placement of a small portable crushing operation on a designated storage site within the project area; • the collection and transportation of rocks, boulders, dirt, and debris to the storage site; • the operation of a rock crusher to convert rocks and boulders to sellable aggregate sizes; and • the transportation of the product (gravel) away from the project area for delivery to west side communities, businesses, and/or federal, state and county agencies for road and culvert repairs. <p>The proposed project will also include improvements to portions of the New and Old Government Roads, as well as existing roads through agricultural fields, which will provide access to the project area. Improvements will involve the laying of gravel on the existing dirt roads.</p>
Project Acreage	Approximately 5 acres
Project area and Area of Potential Effect (APE)	The proposed project area is the same as the APE and consists of access roads from Mānā Road northeast through agricultural fields and encompasses portions of the New and Old Government Roads (SIHP #

	<p>50-30-05-2107).</p> <p>The survey area for this project also includes additional areas surveyed in order to route the project area to avoid historic properties. Therefore, the project area consists of nine access roads and portions of the New and Old Government Roads and the Mānā Quarry while the survey area consists of additional portions of the New and Old Government Roads, which connect the project area portions.</p>
Historic Preservation Regulatory Context	This document was prepared to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and Hawai'i Administrative Rules (HAR) Chapter 13-284.
Fieldwork Effort	Fieldwork was conducted on April 12, 29, May 26, 27, 31, and August 3, 2010 by CSH archaeologists Hallett Hammatt, Ph.D. (Principal Investigator), Rosanna Runyon, B.A., Douglas Thurman, B.A., Nancine "Missy" Kamai, B.A., Gerald Ida, B.A, and Kendy Altizer, B.A.
Number of Historic Properties Identified	A total of eight historic properties were identified as a result of the inventory survey.
Historic Properties Recommended Eligible to the Hawai'i Register of Historic Places (Hawai'i Register)	<p>SIHP # 50-30-05-2107, portions of the New and Old Government Road and associated structural remnants, is recommended eligible to the Hawai'i Register under Criterion D.</p> <p>SIHP # 50-30-05-2108, a pre-contact habitation terrace, is recommended eligible to the Hawai'i Register under Criterion D.</p> <p>SIHP # 50-30-05-2109, a plantation-era stacked wall, is recommended eligible to the Hawai'i Register under Criterion D.</p> <p>SIHP # 50-30-05-2110, a mound of unknown function, is recommended eligible to the Hawai'i Register under Criteria D.</p> <p>SIHP # 50-30-05-2111, a series of agricultural or clearing mounds, is recommended eligible to the Hawai'i Register under Criterion D.</p> <p>SIHP # 50-30-05-2112, a terrace, is recommended eligible to the Hawai'i Register under Criterion D.</p> <p>SIHP # 50-30-1113, a historic house site, is recommended eligible to the Hawai'i Register under Criterion D.</p> <p>SIHP # 50-30-05-2114, a heiau, is recommended eligible to the Hawai'i Register under Criteria D and E.</p>
Historic Properties Recommended Ineligible to the Hawai'i Register	None
Effect Recommendation	CSH's project specific effect recommendation is "effect, with agreed upon mitigation measures." The recommended mitigation measures will reduce the project's potentially adverse effect on significant historic properties.

Mitigation Recommendation	<p>The recommended mitigation measures listed below are intended to alleviate this adverse effect.</p> <p>SIHP # 50-30-05-2107, portions of the Old and New Government Road and associated structural remnants, will be impacted by the proposed project; however sufficient information regarding the location, function, age, and construction methods of the roads has been generated by the current inventory survey investigation to mitigate any adverse effect caused by proposed project activities.</p> <p>Though the current project activities will not impact SIHP # 50-30-05-2114, the heiau, a clearly marked buffer zone should be established around the site to ensure that project activities remain well away from this historic property. In addition, all sites in proximity to the project area should be flagged to ensure they are avoided by project related activities. A preservation program should be implemented to address the specifics of buffer zones and flagging.</p> <p>A monitoring program is recommended including periodic site inspections to alleviate any possible adverse effect to historic properties. The preservation plan and the monitoring program should be submitted to the SHPD, for their review and approval, prior to any project related ground disturbing activities.</p>
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Section 1 Introduction

1.1 Project Background

At the request of Pōhaku 'O Kaua'i Materials, LLC, Cultural Surveys Hawai'i (CSH) conducted an archaeological inventory survey for a proposed rock crushing project along access roads from Mānā Road northeast through agricultural fields and portions of the New and Old Government Roads. This area is depicted on a portion of the 1983 U.S. Geological Survey, Kekaha Quadrangle, 7.5-minute series map, tax map key (TMK): [4] 1-2-002:001, and an aerial photo (Figure 1, Figure 2, and Figure 3).

The project involves collection and removal of previously displaced rocks, boulders, dirt, and debris from former agricultural fields, and adjacent areas, of Kekaha Sugar Plantation lands. These materials will be hauled to designated areas where they will be stockpiled and crushed into gravel. The main activities for this project will include the following:

- the placement of a small portable crushing operation on a designated storage site within the project area;
- the collection and transportation of rocks, boulders, dirt and debris to the storage site;
- the operation of a rock crusher to convert rocks and boulders to sellable aggregate sizes;
- and the transportation of the product (gravel) away from the project area for delivery to west side communities, businesses, and/or federal, state and county agencies for road and culvert repairs.

The proposed project will also include improvements to portions of the New and Old Government Road, as well as existing roads through agricultural fields, which will provide access to the project area. Improvements will be limited to the laying of gravel on the existing dirt roads. The defined project area will not include any portion of Kekaha Ditch nor will it require the construction of any supporting infrastructure.

This document was prepared to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and Hawai'i Administrative Rules (HAR) Chapter 13-284. Under Hawai'i state historic preservation legislation, archaeological inventory surveys are designed to identify, document, and provide significance and mitigation recommendations for historic properties. Under this legislation, historic properties are defined as any "building, structure, object, district, area, or site, including *heiau* and underwater site, which is over fifty years old." A project's effect and potential mitigation measures are evaluated based on the project's potential impact to "significant" historic properties (those historic properties determined eligible, based on established significance criteria, for inclusion in the Hawai'i Register of Historic Places [Hawai'i Register]). Determinations of eligibility to the Hawai'i Register result when a state agency official's historic property "significance assessment" is approved by the State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), or when SHPD/DLNR itself makes an eligibility determination for an historic property (HAR Chapter 13-284). In consultation with SHPD, this inventory survey investigation was designed to fulfill the state requirements for archaeological inventory surveys (HAR Chapter 13-276).

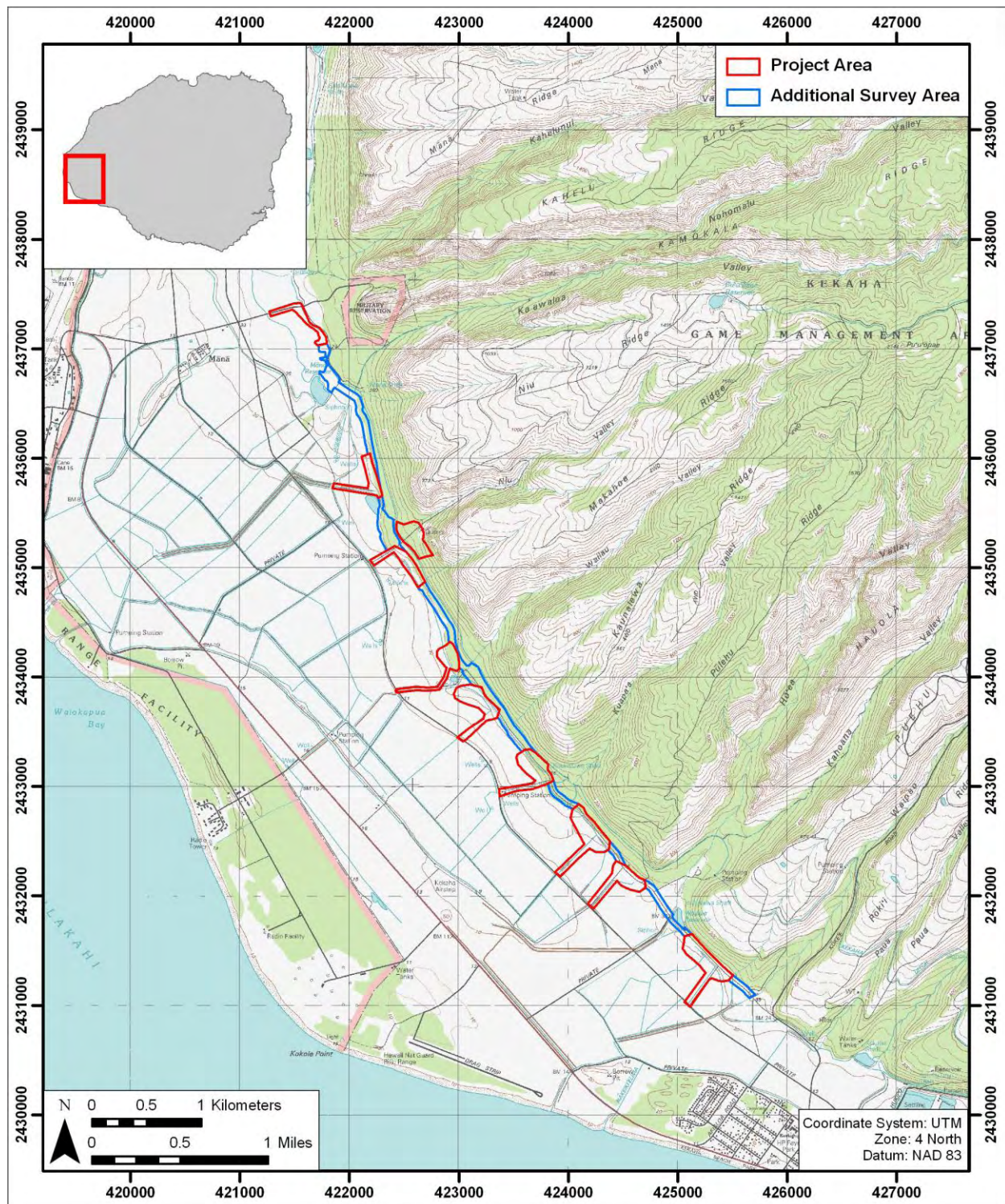


Figure 1. Portion of the 1983 U.S. Geological Survey, Kekaha Quadrangle, 7.5-minute series map showing the project area.

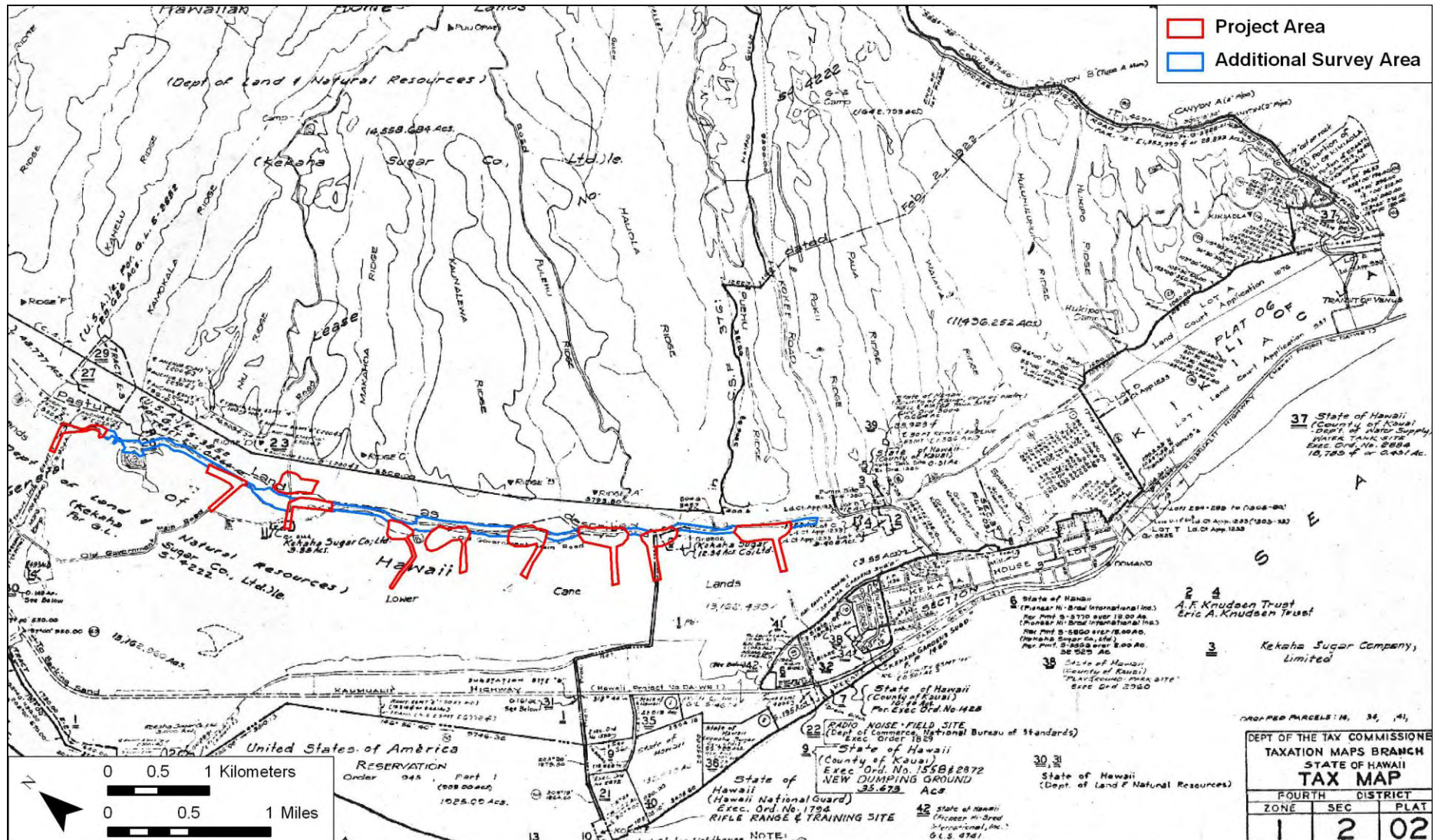


Figure 2. TMK [4] 1-2-02 showing the project area



Figure 3. Google Earth 2009 imagery showing the project area

CSH identified archaeological sites within the survey area and the project area was placed to avoid them. For purposes of the proposed project, the project area is the same as the area of potential effect (APE) and defined as 9 portions of land including access roads from Mānā Road northeast through agricultural fields, portions of a 5 mile section of the Old Government Road, and Mānā Quarry. Additional survey area for this project includes the area surveyed in order to route the project area to avoid historic properties. Therefore, the project area consists of portions of nine access roads, portions of the New and Old Government Road, and Mānā Quarry, while additional survey areas consist of portions of the New and Old Government Roads that connect the project area portions (see Figure 1).

1.2 Scope of Work

The scope of work was designed to satisfy the Hawai'i Administrative Rules Title 13 (Department of Land and Natural Resources), Subtitle 13 (State Historic Preservation Division), Chapter 276 (Rules Governing Standards for Archaeological Inventory Surveys and Reports). The scope of work includes:

1. Historic and archaeological background research, including a search of historic maps, written records, Land Commission Award documents, and the reports from prior archaeological investigations. This research will focus on the specific project area's past land use, with general background on the pre-contact and historic settlement patterns of the *ahupua'a* and district. This background information will be used to compile a predictive model for the types and locations of historic properties that could be expected within the project area.
2. A complete (100%) systematic pedestrian inspection of the APE to identify any potential surface historic properties. The project area will be routed to avoid historic properties. Surface historic properties will be recorded with an evaluation of age, function, interrelationships, and significance. Documentation will include photographs, scale drawings, and, if warranted, limited controlled excavation of select sites and/or features.
3. Based on the project area's environment and the results of the background research, subsurface testing with a combination of hand and backhoe excavation to identify and document subsurface historic properties that would not be located by surface pedestrian inspection may be appropriate. Appropriate samples from these excavations will be analyzed for cultural and chronological information. All subsurface historic properties identified will be documented to the extent possible, including geographic extent, content, function/derivation, age, interrelationships, and significance.
4. As appropriate, consultation with knowledgeable individuals regarding the project area's history, past land use, and the function and age of the historic properties documented within the project area. A companion Cultural Impact Assessment, which includes extensive community consultation.
5. As appropriate, laboratory work to process and gather relevant environmental and/or archaeological information from collected samples.
6. Preparation of an inventory survey report, which includes the following:

- a. A project description;
- b. A section of a U.S. Geological Survey topographic map showing the project area boundaries and the location of all recorded historic properties;
- c. Historical and archaeological background sections summarizing pre-Contact and historic land use of the project area and its vicinity;
- d. Descriptions of all historic properties, including selected photographs, scale drawings, and discussions of age, function, laboratory results, and significance, per the requirements of HAR 13-276. Each historic property will be assigned a Hawai'i State Inventory of Historic Properties number;
- e. If appropriate, a section concerning cultural consultations [per the requirements of HAR 13-276-5(g) and HAR 13-275/284-8(a)(2)].
- f. A summary of historic property categories, integrity, and significance based upon the Hawai'i Register of Historic Places criteria;
- g. A project effect recommendation;
- h. Treatment recommendations to mitigate the project's adverse effect on any historic properties identified in the project area that are recommended eligible to the Hawai'i Register of Historic Places.

1.3 Environmental Setting

1.3.1 Natural Environment

Kekaha is in the *ahupua'a* of Waimea on the southwest side of the island of Kaua'i, part of the old district or *moku* of Kona and current district of Waimea. The Waimea *Ahupua'a* is by far the largest on the island, comprising 92,646 acres and accounting for more than a quarter of the total land area of Kaua'i. It encompasses all of the Waimea River Canyon area, the uplands of Kōke'e, the high swampy plateau of Alaka'i, and the northwestern coastal valleys of Nu'alolo and Miloli'i (Gray 1875: 140-146).

Located on the drier leeward coast of Kaua'i, annual rainfall in the project area averages less than 20 inches (500 millimeters) and occurs primarily in the fall and winter months (September to March) (Giambelluca et al. 1986). Soil types present in the project area include Kekaha and Lualualei Series as well as Rubble Lands. Foote et al. (1972: 68) describe the Kekaha Series of soils as "...well-drained soils on alluvial fans and flood plains...developed in alluvium washed from upland soils. They are nearly level to steep...These soils are used for irrigated sugar cane, pasture, and wildlife habitat. The natural vegetation consists of koa haole, kiawe, klu, and fingergrass." The Lualualei Series is described as "...well-drained soils on the coastal plains, alluvial fans, and on talus slopes...they are nearly level and gently sloping...These soils are used for sugarcane, truck crops, pasture, wildlife habitat, urban development, and military installations" (Foote et al 1972: 84). Rubble Land is described as "...areas where 90 percent of the surface is covered by stones or bou"...areas where 90 percent of the surface is covered by stones or boulders...This land type is used for wildlife habitat. The natural vegetation is mainly koa haole" (Foote et al. 1972: 119).

1.3.2 Built Environment

The project area is located on the eastern extent of former Kekaha Sugar Plantation lands and is adjacent to pasture lands (see Figure 2). The area is still rural and the fields were mainly fallow at the time of fieldwork with the exception of corn and truck produce outside of the project area toward Mānā Road. Kekaha Ditch lies to the east and Mānā Road is present to the west, providing access to the project area.

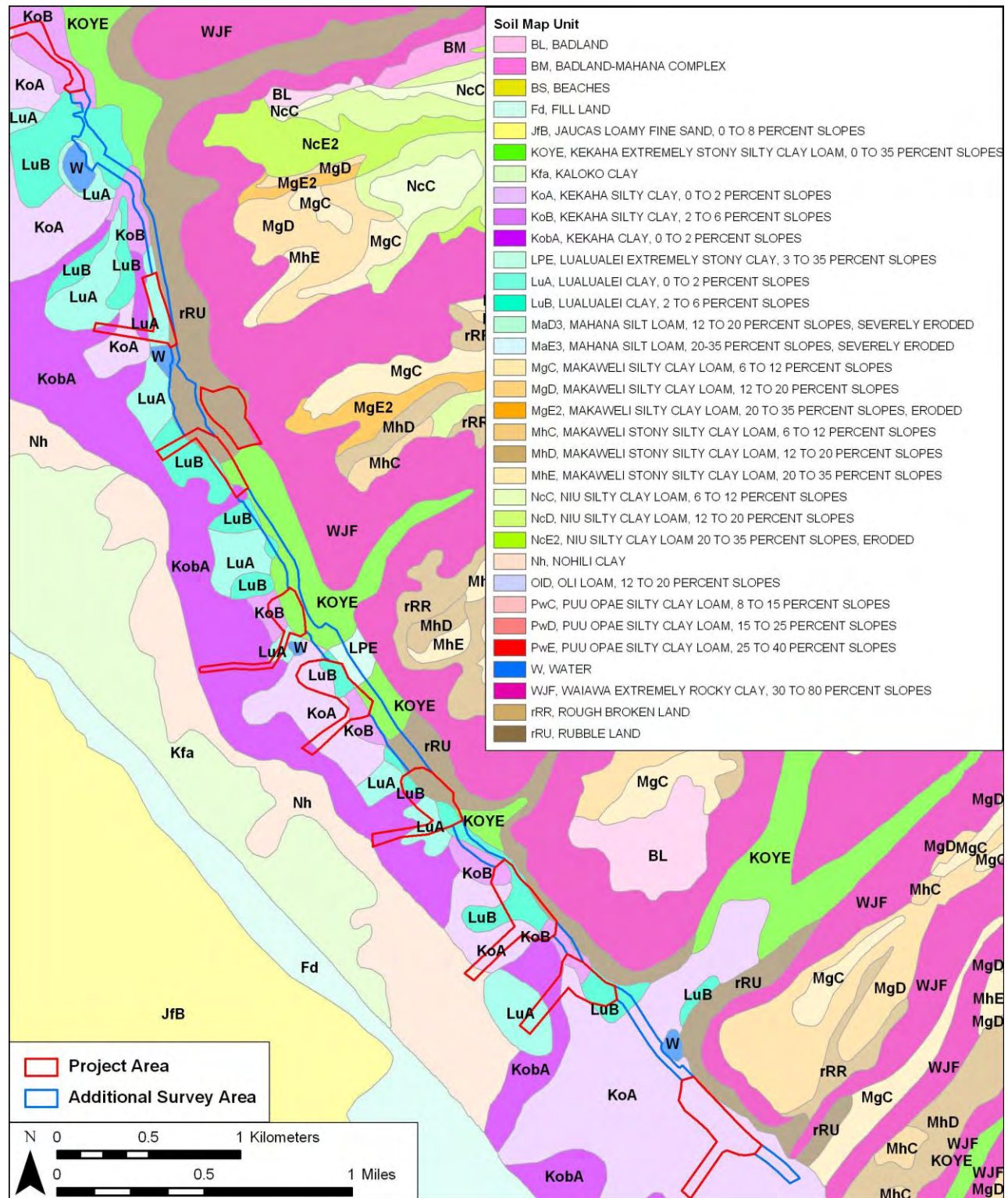


Figure 4. Portion of the 1983 Kekaha Quadrangle with overlay showing soils in within the project area (Foote et al. 1972; U.S. Department of Agriculture 2001)

Section 2 Methods

2.1 Field Methods

Fieldwork was conducted on April 12, 29, May 26, 27, 31, and August 3, 2010 by CSH archaeologists Hallett Hammatt, Ph.D. (Principal Investigator), Rosanna Runyon, B.A., Douglas Thurman, B.A., Nancine “Missy” Kamai, B.A., and Gerald Ida, B.A., and Kendy Altizer, B.A. Fieldwork required approximately 12 person days to complete.

Fieldwork consisted of a 100% coverage pedestrian inspection of the project survey area. The pedestrian inspection was accomplished through systematic sweeps. The interval between archaeologists was generally 2-5 m. Ground visibility varied in the survey area between 50% and 100% depending on vegetation. Historic properties present in the survey area were documented with a written field description, photographs, scale drawings, and geo-referenced using Garmin GPS map 60CSx GPS survey technology (accuracy 5-10 m). Because all but one historic property (SIHP # 50-30-05-2107) will be avoided by the project, no subsurface testing was conducted.

2.2 Document Review

Background research included a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources; review of documents at Hamilton Library of the University of Hawai'i, the Hawai'i State Archives, the Mission Houses Museum Library, the Hawai'i Public Library, and the Archives of the Bishop Museum; study of historic photographs at the Hawai'i State Archives and the Archives of the Bishop Museum; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Information on Land Commission Awards was accessed through Waihona Aina Corporation's Māhele Data Base (www.waihona.com).

2.3 Consultation

A companion Cultural Impact Assessment (CIA) was prepared in support of the current project. This section is a summary of community consultation conducted as a part of the CIA. For more in-depth discussion of traditional cultural practices and individual interviews, the reader is referred to the CIA document (Fernandes-Farias et al. 2010).

In terms of impacts to cultural and natural resources and associated beliefs and practices as result of the proposed development, most people were concerned that the project proponents respect traditional *wahi pana* in the region, and not damage, harm, or otherwise alter these areas while conducting project-related activities, especially in relation to sacred stones related to their ancestors.

Many of the respondents were concerned about modifications to nearby lands in the future as a result of this project's activities, while also agreeing that much of the actual project corridor is not used for traditional cultural practices, such as gathering, fishing, plant and resource use, etc. However, there is a general concern that the removal of trees and shrubs along the roadway will

expose existing cultural sites and *wahi pana* located just outside of the project area to adverse effects.

Another concern is that project activity will further inhibit the ability of local people with geological and familial ties to the region from accessing valley and peak areas nearby for cultural, religious, spiritual and genealogical activities. These activities include what local families and practitioners see as their familial responsibility associated with the caring of their ancestor's *iwi*, and places or sites of cultural or genealogical importance. Other activities, such as hunting taking place in the uplands also require that continued access be granted to the uplands through the project area.

There is overall community concern that project personnel will not be able to recognize and preserve areas, *wahi pana*, burials, and stones of cultural importance. Hence, most of the respondents requested cultural and archaeological monitoring by persons they trust and can rely on to know what is important culturally, what should be preserved, and be able to identify these resources through Hawaiian cultural religious and spiritual practices. Many of the respondents felt as though it was their community and cultural duty to protect their cultural and traditional places, resources, and historical points of importance in their homelands.

In sum, the interviews show the following concerns regarding this project:

- That the project not expand beyond current project boundaries and thereby affect archaeological and cultural sites nearby
- That access to upland sites and burial areas be maintained
- That cultural monitors be present during all phases of work so as not to disturb special stones and places of importance (*wahi pana*).
- That they would like to select the monitors from their community
- That community informational meetings in Kekaha, not Waimea due to distance for elders and *kūpuna*, be held by the developer to answer community questions regarding the project goals and plans for the future.
- Respect Hawaiian cultural values related to stones.

Section 3 Background Research

Following is a brief discussion of historical background research pertaining to the current project area. For a broader analysis of traditional and pre-Contact uses of the Waimea District, the reader is referred to the companion CIA document for this project (Fernandes-Farias et al. 2010).

3.1 Traditional and Historical Background

3.1.1 Traditional Land Settlement Patterns

Kekaha, Pōki'i, Wai'awa and Mānā are *ahupua'a* in the ancient district of Kona, Waimea 'okana, on the southwest side of the island of Kaua'i. All of these *ahupua'a* are now 'ili 'āina of the *ahupua'a* of Waimea. Waimea Ahupua'a is by far the largest on the island, comprising 92,646 acres and accounting for more than a quarter of the total land area of Kaua'i. It encompasses all of the Waimea River Canyon area, the uplands of Kōke'e, the high swampy plateau of Alaka'i, and the northwestern coastal valleys of Nu'alolo and Miloli'i (Gray 1875: 140-146).

Waimea *ahupua'a* is composed of several regions which are very different in climate and terrain. These differences essentially dictated the kinds of resources that were available, and hence had much to do with the way the *ahupua'a* was settled by pre-Contact Hawaiians. The well-watered valley and delta of the Waimea River were ingeniously developed and engineered for wetland agriculture, and represents the epitome of the typical Hawaiian and Kaua'i-type valley settlement (Handy and Handy 1972:393-397).

On the southwestern leeward coast, about three miles from Waimea Bay, a broad, flat plain stretches between the Waimea River delta and Polihale to the west (Handy and Handy 1972). It is here that Kekaha, Pōki'i, Wai'awa and Mānā are located, backed on the *mauka* side by steep low cliffs and a series of small valleys and gulches.

Just below, *makai* of the ridges and valleys, lies the Kekaha Ditch, which winds its way down from the Waimea River in the mountains. From the edge of Kekaha Ditch to the ocean lie the former swamp lands of the Kekaha-Mānā plains, now planted in corn and truck produce, and previously in sugar cane. Between these former swamp lands and Kekaha Ditch is a strip of land that once housed many people in the villages of Pōki'i, Wai'awa, Kaunalewa, Mānā, and others. Between the villages were intermittent homes, with the Old and New Government Roads to Mānā (also called the Mānā Road) linking each community between Mānā and Kekaha.

3.1.2 Kekaha Ahupua'a

Pukui et al. (1974:106) gives the literal translation of Kekaha as "the place." However, Handy and Handy's (1972:54) definition gives more insight into the place name.

Kaha was a special term applied to areas facing the shore but not favorable for planting. Kekaha in Kona, Hawaii, was one so named, and Kekaha on Kauai another.

Kelly (1971:2) describes Kekaha on the island of Hawai'i as *'āina malo 'o* or “dry land,” and indeed the same could be said of Kekaha, Kaua'i if one considers the area's low annual rainfall and lack of permanent streams. Kekaha, however, was neither void of water nor a pre-Contact population that made use of the local resources.

The Boundary Commission officially surveyed and set the bounds of the *ahupua'a* of Waimea in 1875; there are a few sources that contradict this, maintaining that Kekaha was a separate *ahupua'a*.

Testimony in the mid-1800s that supports the native land claim of R. Naumu refers to the “Kekaha *ahupua'a*” in describing the properties (Board of Commissioners 1929: Native Testimony, n.d. Vol. 11:15).

Valdemar Knudsen, an early *haole* (non-native) settler in the area, also refers to the “*ahupua'a* of Ketaha” in a letter to John Dominis, Commissioner of Crown Lands (Knudsen 1866:3). A late nineteenth century map (Imlay 1891) shows a pie-shaped land section that is labeled “Kekaha,” indicated by a dotted line boundary that encompasses the area from the top of Waiaka ridge to the shoreline (Figure 5).

Handy and Handy (1972:427) imply that Kekaha, as well as Polihale and Mānā, were individual *ahupua'a* of Waimea, though the reasoning for this is not given. However, the native land claim of Elia Lihau for the land of Wai'awa, just west of Kekaha, records this area as part of the *ahupua'a* of Waimea (Board of Commissioners 1929: Native Register 1848; Vol. 9:244).

It is unusual for a single *ahupua'a* to occupy such a large percentage of the land area of a major Hawaiian island. It could easily be argued that the comparatively low agricultural productivity of the Mānā plain, due to the scarcity of water, is the basis for its inclusion into Waimea. However, the same cannot be said for the well-watered valleys of Nu'alolo and Miloli'i, both of which could easily support typical and self-contained valley settlements of small but stable populations.

It could also be speculated that Waimea, being one of the two areas of the island that traditionally was the domain of the high chiefs (the other being Wailua), commanded the resources of the large upland region of Kōke'e and Alaka'i, among them the large *koa* trees out of which the hulls of canoes were hewn, and forest birds which supplied the feathers for cloaks, capes, and other items associated with the *ali'i* (chiefly class). It is quite possible that at one time, Waimea was divided into several smaller *ahupua'a*, perhaps before the *Māhele*, or even in pre-Contact times.

The *ahupua'a* of Kekaha is located outside of the project area, but is located between Waimea proper and Pōki'i *Ahupua'a*, it is included here due to its location, and its relationship to the project area over time, as demonstrated by historical research. Kekaha *Ahupua'a*, according to the Ulukau database (www.ulukau.com), is “One of 9 Crown lands, formerly an *ahupua'a* in the *'okana* of Waimea. Not named in Mahele Book” (Pukui et. al. 1974, Kelly (1971:2).

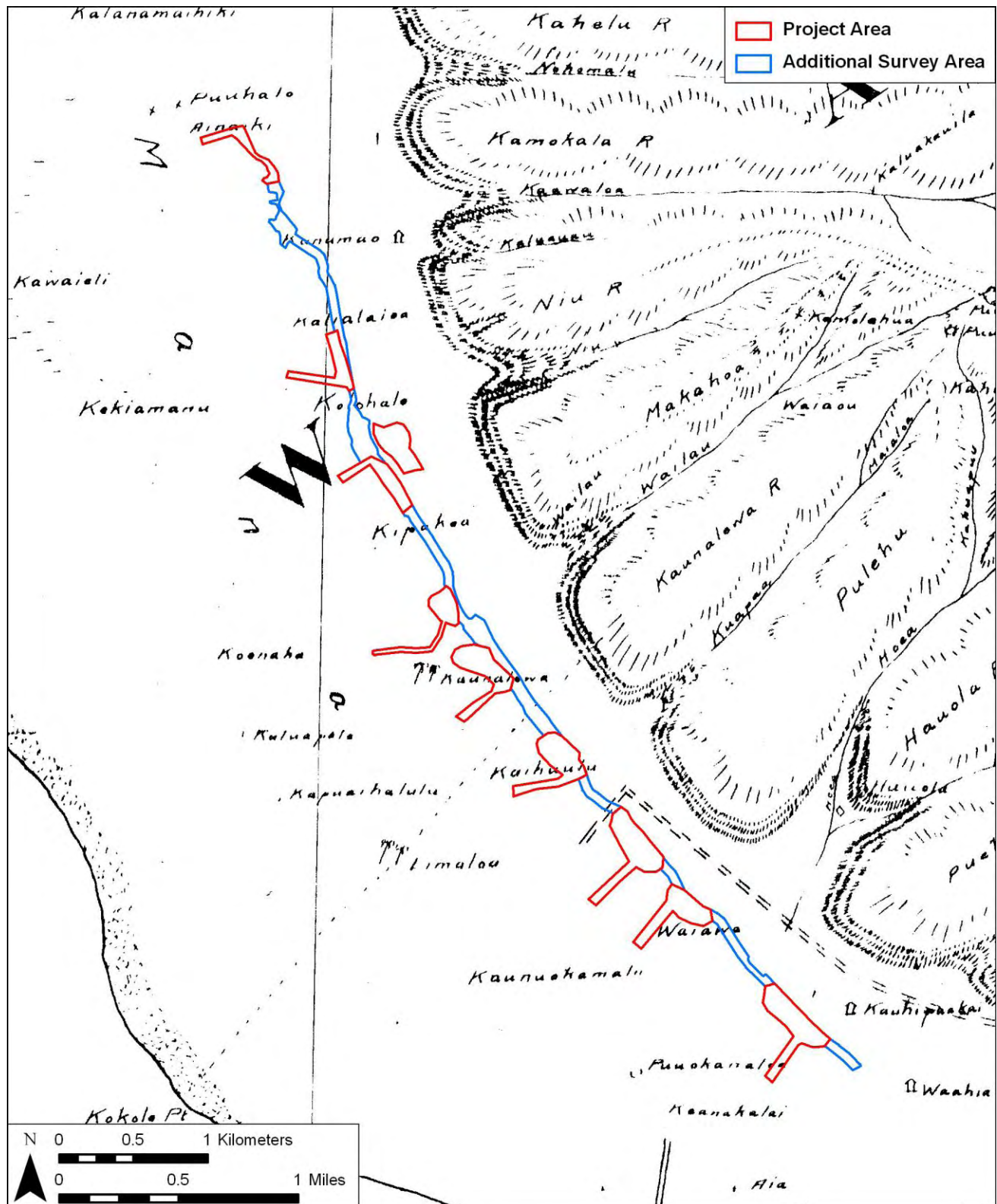


Figure 5. 1891 map by L.E. Imlay of Gay and Robinson lands, Kekaha area

According to Ms. Christina Faye of the Kaua'i Museum, Kekaha did not exist prior to the plantation which was established prior to the *mahele*. (Pers. Comm. 6/9/2010, Lihue, Kaua'i). As stated above, Pukui et al. (1974:106) provides the literal translation of Kekaha (Ke-kaha) as "the place" and, according to Ms. Faye, "the place" refers to location of the sugar mill (Pers. Comm. 6/9/2010, Lihue, Kaua'i). According to Faye, the name Kekaha was used for the region because it was "the place" where the plantation was located. All mention of a village at Kekaha dates to after the establishment of the plantation, with the exception of the village of "A-Tappa" in the 1798 Beresford account.

3.2 Early Historic Period

A thorough search of major Hawaiian myths and legends found no mention of Kekaha, but the first western description of the place comes only nine years into the post-Contact era. William Beresford was the supercargo on board the British ship *Queen Charlotte* under Captain George Dixon, which along with the *King George*, captained by Nathaniel Portlock, sailed on an exploratory voyage to the northwest coast of America. In 1798, both ships wintered in Hawai'i, spending much time off Waimea, Kaua'i. On one of the several shore outings, Beresford visited nearby Kekaha, which he called "A Tappa."

Having frequently heard our people who had been on shore speak of a village, called by the natives A Tappa, where a great number of people were commonly employed in manufacturing cloth, curiosity prompted me to walk to that place first, as I found it was not more than three miles distant, so that I could easily get back by Tyheira's dinner time.

The country, from the place where we landed to A Tappa is tolerably level, and for the space of two miles, very dry. The soil here is a light red earth, and with proper cultivation, would produce excellent potatoes, or any thing that suits a dry soil; but at present, it is entirely covered with long coarse grass: the inhabitants, I suppose, finding plenty of ground near their habitations, more conveniently situated for their various purposes. So far, the space from the beach to the foot of the mountains is about two miles in breadth; but from hence to A Tappa, it grows gradually narrower, till it terminates in a long sandy point, which I have already observed, is the West extreme of Wymea Bay.

A Tappa is a pretty large village, situated behind a long row of cocoanut trees, which afford the inhabitants a most excellent shelter from the scorching heat of the noonday sun. Amongst these cocoa-trees is a good deal of wet swampy ground, which is well laid out in plantations of taro and sugar cane.

I had laid my account in seeing their method of manufacturing cloth; but here I was mistaken. A number of our people, prompted by the same curiosity as myself, were got to A Tappa before, where "Labour stood suspended as we passed." The people flocked eagerly about us; some asking us to repose ourselves under the shady branches of trees planted about their doors; other running to the trees for cocoa-nuts and presenting them to us with every mark of kindness and good

nature; in short, every inhabitant of the village was fully employed, either in relieving our wants, or gratifying their curiosity in looking at us.

The day being very sultry, we walked leisurely back, and I returned by a different path from that I had taken, in going to A Tappa. On examining the grass, which in most places is higher than the knee, I found it no altogether of a rough coarse sort, but intermixed with various sorts of flowers, together with different grasses, of the meadow kind; so that I have no doubt, with proper management, it would make excellent hay (Dixon 1968:124-126).

Beresford's remark that the dry soil conditions in the area would be most suitable for potatoes is in line with Handy and Handy's (1972:410) assertion that the sweet potato was probably the prime staple of the village, rather than taro, because of the limited water resources.

While Beresford described taro, sugarcane, and coconut being cultivated in Kekaha, no mention is made of *wauke*, the inner bark of the mulberry tree, used as the raw material for making *kapa* or bark cloth. This seems curious in light of his statement that cloth making was a major activity of the village and the main purpose of his trek there was to observe this process.

Due to climatic conditions, the Mānā plain was probably not a prime *wauke* growing area (Handy and Handy 1972:209). However, Beresford did note on a later excursion through the lower Waimea Valley that "cloth mulberry" trees were numerous around the house sites there (Dixon 1968:131). It is possible that there was some sort of trade going on between the residents of Waimea and Kekaha, for raw material and the labor that turned it into cloth.

Native claims for land made to the Board of Commissioners to Quiet Land titles in 1848 also shed some light on to settlement and land use in the area during the early historic period. Only three claims were made in and nearby Kekaha.

Keaona (No. 8841) claimed a house lot, six *lo'i* (irrigated plots) and some *kula* (land used for dryland agriculture or pasture) near the base of the *pali* (cliff) at Pōki'i, about a mile north of Kekaha (Board of Commissioners 1929: Native Register 1848; Vol. 9:397). Elia Lihau (No. 6698) claimed all the land of Wai'awa (just west of Pōki'i), most of which was unused *kula*, but included a restricted fishery. This claim was never awarded (Board of Commissioners 1929: Native Testimony, Vol 11:155).

The only one to claim land actually in Kekaha was B. Naumu (No. 5386). Mentioned in this claim are *lo'i*, a house lot, a salt bed (*aliapa'akai*) and a *muliwai* (a pool near the mouth of a stream or an estuary) called Kapenu. Naumu developed the *lo'i* in 1844, stating that it was previously overgrown land (Board of Commissioners 1929: Native Testimony, Vol 11:146).

The 1891 map of West Kaua'i by L.E. Imlay (see Figure 5) shows Kapenu as a stream that entered the ocean just east of Ō'ōmanō Point. A later 1921 map by Evans does not show the stream, but places one of Naumu's awarded lots in the same area near the shore (Figure 6). Naumu was also awarded a parcel in Kekaha at the base of the *makai* (towards the sea)-facing *pali* of Hululunui Ridge.

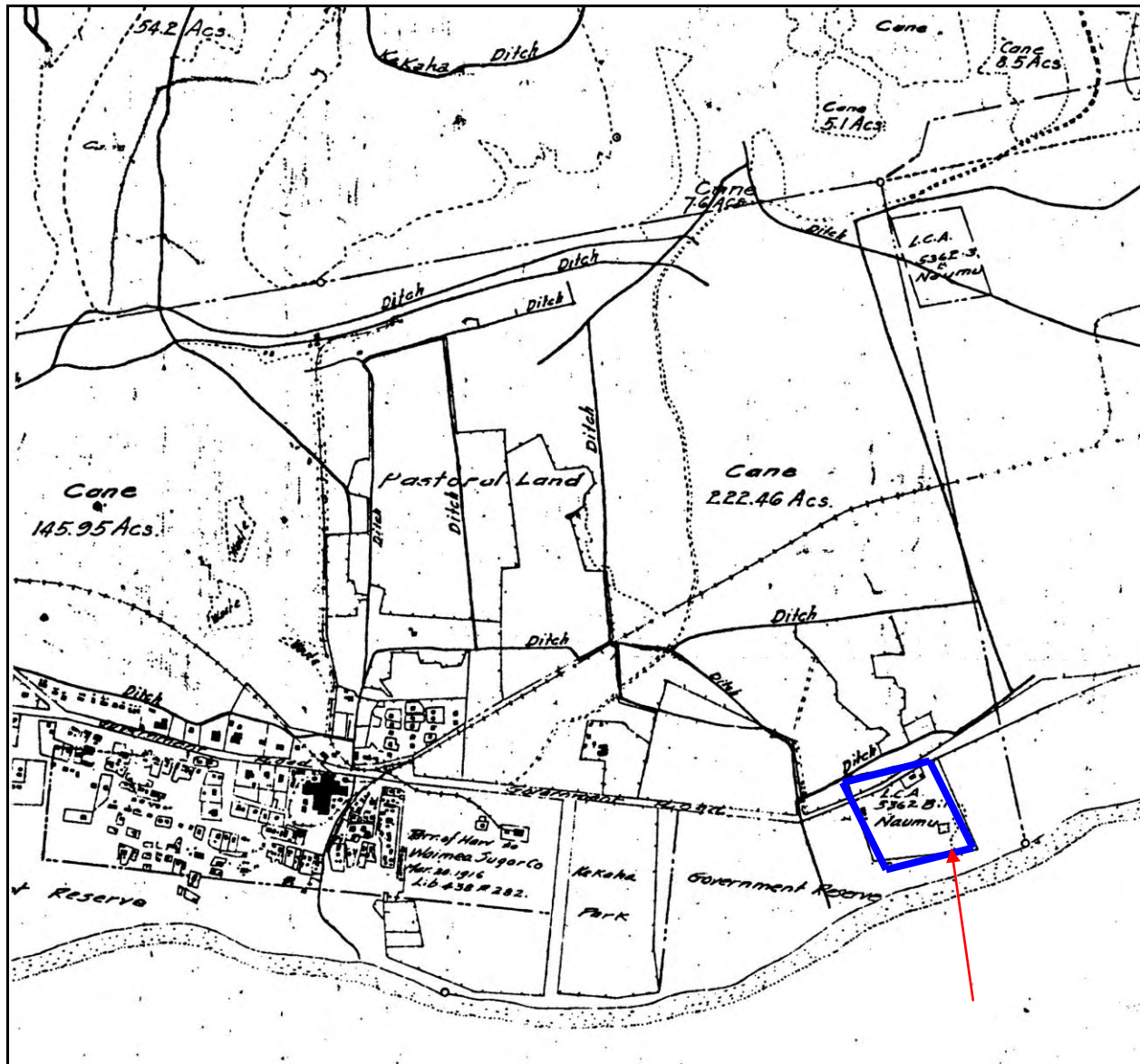


Figure 6. 1921 map by T. J. Evans of Kekaha Cane and Pasture Lands, Naumu's LCA outlined in blue, the depression is marked by the red arrow

3.3 Mid-1800s to Early-1900s

Most of the historical accounts of Kekaha during this period are found in letters, papers, and books authored by Valdemar Knudsen and his immediate offspring, Eric A. Knudsen and Ida Elizabeth Knudsen Von Holt. Knudsen came to Hawai'i from Norway via the continental United States where he had business dealings. He settled at Wai'awa in 1854 as a rancher, agriculturalist and later, sugar planter.

Knudsen took over the lease of government land from Archibald Archer and a Mr. Gruben. The two men were involved in a failing tobacco farming enterprise. Associated with them was a Mr. Clifford, who made cigars (Lydgate 1991:92).

Eventually Knudsen controlled the entire district, excluding *kuleana* [tenant] lands, from Nu'alolo to Waimea, including all the *mauka* area (Knudsen and Noble 1945:35). In this post-Māhele era, he held the title of *konohiki* (overseer), and Hawaiians with no *kuleana* of their own who lived in the district, reportedly numbering three to four hundred people, worked for Knudsen three days out of the month as "rental" payment" (Von Holt 1985:61).

Knudsen described Kekaha as "a low marsh land, full of fish ponds and cocoanut-trees, but the ponds are overgrown with bullrushes and would cost more than they are worth to bring in order. I tried once and it cost me circa \$200.00. - There is not much grazing lands belonging to Ketaha and it is chiefly pili grass" (Knudsen 1866:304).

Valdemar's son Eric, later made this observation:

From Waimea towards Mana there were no trees, no fences, no cane, all was open country; along the taro patches of Kekaha and Pokii grew quite a number of cocoanuts. The mango trees were planted by my father. Numbers of Hawaiians lived about Kekaha and Pokii, where there were springs and taro land. Then the land was bare again until you reached Waiawa. Above the road in Pokii, where the cane loaders now stand, was a row of thatched houses and the natives planted a lot of tobacco (Knudsen 1991:98).

The perpetual swamplands of the plain apparently were greatly enlarged during periods of heavy winter rains. It was possible on these occasions to paddle a canoe from Mānā to Waimea on this inland waterway (Figure 7; Knudsen 1991:99, Von Holt 1985:77-78). Waterfowl present in the wetlands provided a food resource for the area residents. Among them the *koloa* (Hawaiian duck) and especially the *'alae* (Hawaiian gallinule) and *āe'o* (*kukuluāe'o*; Hawaiian stilts) were numerous (Von Holt 1985:78). All three were traditionally caught and consumed by Hawaiians (Malo 1951:39).

Kekaha was watered by a spring called Kauhika located at the base of the *pali*. The spring had a fishpond, then taro *lo'i* and rice fields before flowing into the swamp (Knudsen and Noble 1945:62).

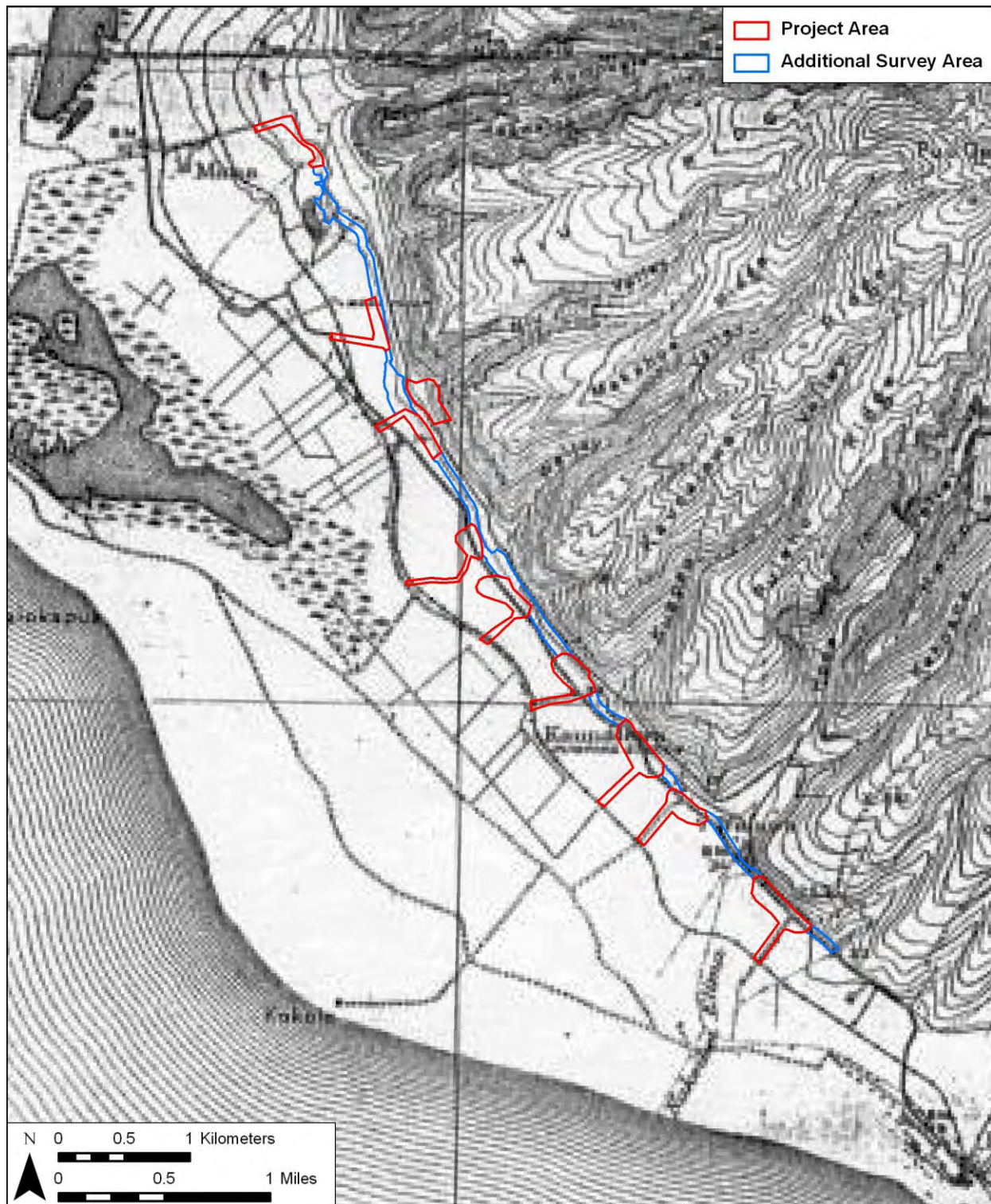


Figure 7. 1912 U.S Geological Survey map of the Island of Kaua'i, showing the Mānā Plain and its swamplands.

Most of the residents also lived in this area, near the water source and cultivatable lands. Eric Knudsen gives an anecdotal description:

A row of grass houses extended all the way along the foothills from Waimea to Mana. Every house site had a name. To find a man you had to find his house name. The natives seemed to know every name and would keep sending you along until you finally came to the spot you were looking for.

At certain hours all the women sat in their houses and beat tapa cloth and as they beat they talked to one another in a tapa beater's code. They could send a message with great speed from Waimea to Mana. When the men returned from the mountains with fire wood or canoes, the woman that saw them at once tapped out the news and it flew from house to house with the result that every man, when he came home, found his house in order and no surprised visitors hanging around. The men tried to learn this secret code but never did, though an old man at Mana told my father that the men had tried for years to learn the secrets of the tapa code but were never able to do so.

The grass houses were all built in one general design - one big living room and two doors - one on each side and opposite to one another. One day my father noticed that all were built with their gable-ends east and west and the doors facing the ocean and the hills. He asked one of the men why that was so and he replied, "Why, you know that Po, the abode of the dead, lies under the ocean just outside Polihale, where the cliffs and the ocean meet, and the spirits of the dead must go there. As the spirits wander along their way to Po, they will go around the gable-end of a house but if the house stood facing the other way, the spirits would walk straight through and it would be very disagreeable to have a spirit walk past you as you were eating your meal. "In fact," he continued, "we can always tell when a battle has been fought by the number of spirits passing at the same time" (Knudsen 1991:101-102).

3.3.1 Rice Cultivation

Commercial rice growing came to the Kekaha-Mānā plain in the 1860s. The area's most prolific planter was Leong Pah On, a Chinese immigrant (Joesting 1984:206).

Pah On started farming in Waimea Valley and eventually met Valdemar Knudsen who allowed him to cultivate the swamplands. He imported Chinese laborers, drained the swamps with ditches, brought in water buffaloes, and eventually acquired more land. At its peak, Pah On's rice lands totaled approximately 600 acres throughout Mānā, Kekaha, and Waimea (Char and Char 1979:21).

Pah On's enterprise ended suddenly in 1922. The leases on government lands were expiring and H. P. Faye, manager of the Kekaha Sugar Co., convinced Pah On not to bid on new leases and let the sugar company take over control of the land. In return Kekaha Sugar would sub-lease the rice fields back to Pah On. The successful rice grower could have easily out-bid the sugar

company, but agreed to the plan. When Kekaha Sugar secured the leases its board of directors overruled Faye and denied any subleases to Pah On (Char and Char 1979:22).

3.3.2 Sugar

The Reciprocity Treaty of 1876 between the United States and Hawai'i gave impetus for the expansion of the sugar industry throughout the islands. Valdemar Knudsen and a partner, Christian L'Orange, planted the first commercial cane in the Kekaha area in 1878 near Pōki'i. Hans P. Faye, Knudsen's nephew, was brought in as another grower, and it was he who dug the first artesian wells in the Hawaiian Islands at Kekaha. A steady but still small water source impelled investor interest, and the Kekaha Sugar Co. was incorporated in 1898 (Wenkam 1977:63; Joesting 1984:216-217). The Kekaha Sugar Co. was developed on the lands of the Meier and Kruse sugar plantation (1886-1898), H. P. Faye & Company sugar plantation (1886-1898), and Kekaha Mill Company sugar plantation (1880-1898) and was organized under the auspices of the major sugar factor H. Hackfield & Company (Dorrance and Morgan 2000:35). The mill was set up on the sand lands of Kekaha at the *makai* edge of the swamp, its foundations set deep into the underlying coral (Knudsen and Noble 1945:161-162). The Kekaha Sugar Co. saw expansion after 1907 under the management of Hans Peter Faye when the construction of the plantation's major irrigation ditch was completed. Most of the cane was initially transported by flume. By 1910 the plantation had 15 miles of permanent railroad track transporting cane from collection points to the mill and then transporting bags of sugar to the steamship landing at Waimea. In this timeframe the plantation employed approximately 1,000 people. In 1938 a *Honolulu Advertiser* article stated that Kekaha Sugar Co. was the most valuable single piece of property in the Territory. In the 1940s trucks took over the transport of cane from the flume system and railroad. In 1983 Kekaha Sugar employed about 400 people and produced 54,819 tons of sugar. In 1994 Amfac/JMB consolidated many functions of Kekaha Sugar and Lihue Plantation as a cost-cutting measure (Wilcox 1996:97). The Kekaha Sugar mill closed in 2000.

3.3.3 The Kekaha Ditch

Valdemar Knudsen looked to the Waimea River as a source of sugar cane irrigation water. Initial engineering studies in 1881, 1892 and 1893 were not favorable to the project citing exorbitant costs (Wilcox 1996:92). The high cost estimates for the proposed ditch lead to intensified efforts at groundwater extraction in 1898 but drought and over use lead to skyrocketing salt content and a major drop in well levels. The fate of the plantation hinged on water supply development. H. P. Faye was impressed with the success of the Waimea (Kikiaola) Ditch in supplying irrigation water to the Waimea Sugar Mill Plantation and pushed forward with the Kekaha Ditch. Construction started in May 1906 and was completed in September 1907 (Wilcox 1996:93). The Kekaha Ditch has also been known as the Waimea Ditch and as the Waimea-Kekaha Ditch. J. S. Malony was contracted and James L. Robertson was the project supervisor. The ditch intercepted water in the Waimea River at 550-foot elevation and originally extended through 16 miles of *mauka* lands and 4 miles through the lowlands (Wilcox 1996:93).

It was later extended another eight miles. Most of the ditch was driven through hard rock by teams of Japanese workers. In some areas the sides were reinforced with cemented cut stone to minimize erosion but the ditch bottom was typically unlined.

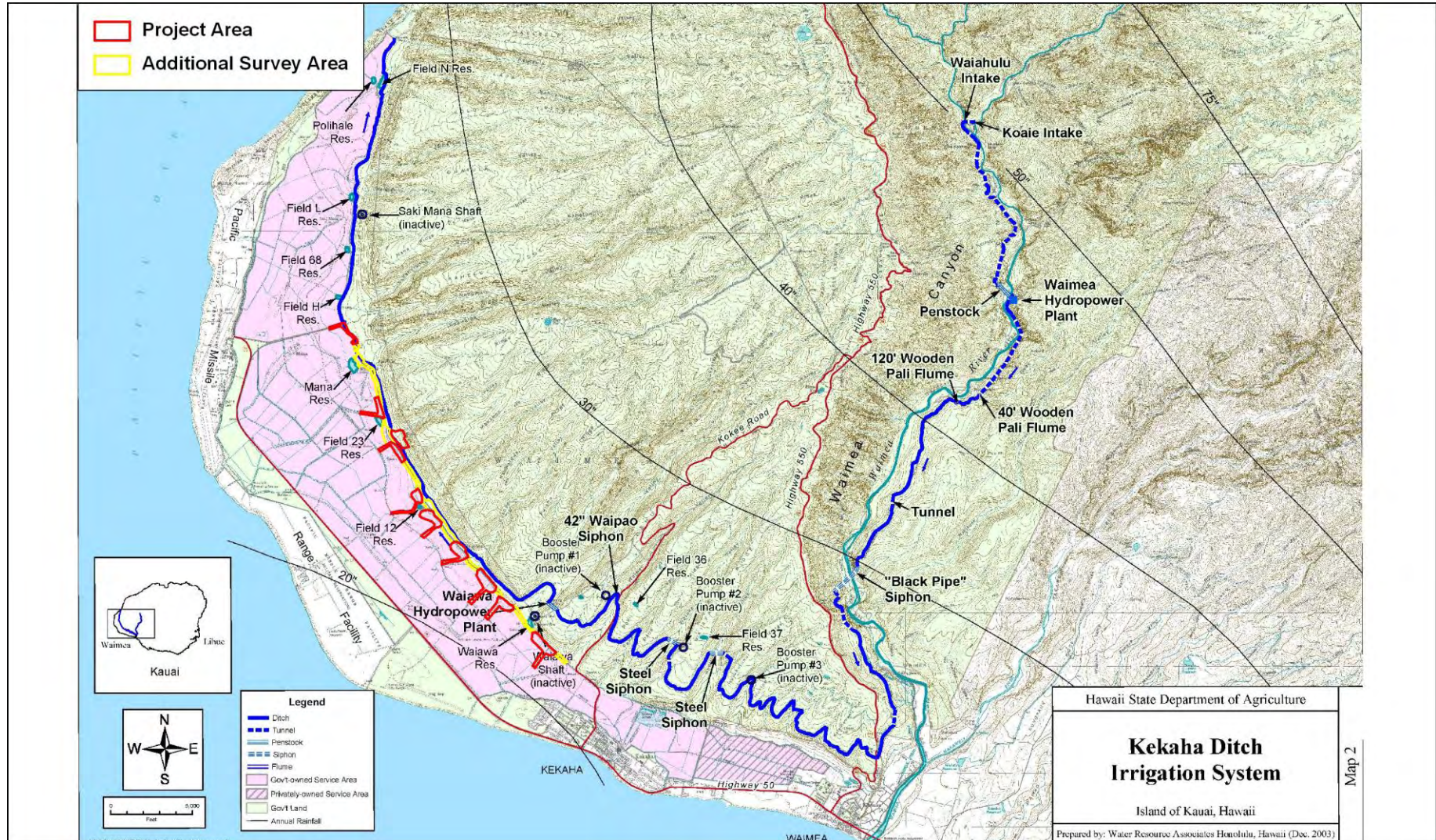


Figure 8. Map of Kekaha Ditch Irrigation System



Figure 9. Historic photo of the upper reaches of Kekaha Ditch showing the general nature of ditch (Wilcox 1996:94)

“A 2190-foot steel inverted siphon, since replaced, crossed the Waimea River” (Wilcox 1996:93). Hydro-electric power was used to pump water to higher elevations watering an additional 400 to 500 acres. The initial average flow was about 30 million gallons a day. By 1912 the Kekaha Ditch water production had dropped due to seepage and it was decided to extend the upper portion of the ditch another 280 feet above the prior intake and to build a second hydro-electric powerhouse. In 1923 the Kekaha Sugar Co. carried out extensive improvements expanding the average capacity to 35 million gallons a day and also began work on the Kokee Ditch.

3.3.4 Railroad

A railroad was constructed for the Kekaha Sugar Company in 1884, which was present from Waimea to the sugar mill at Kekaha. A visitor in 1965 described the main track:

. . . They have engineers only – no firemen – no brakemen. No brakes on cars. Roads are dead level. We passed cane fields and grazing pastures all in sight of ocean – as our course was parallel to beach and one mile from it (cited in Conde and Best 1973:141).

This railroad generated a deal of excitement in 1920, when it became site of the first and only train robbery to take place in the Hawaiian Islands. At the western most section of the Kekaha Sugar Co. were the fields in the Mānā area, which extended to the current location of the airfield at Barking Sands. The families working on these fields lived at Mānā Camp. Due to the distance of this camp from the main office at Kekaha, a paymaster, Mr. Asser, was sent to the camp each month.

On February 11, 1920, the pay for all of the workers, \$11,000, was carried in individual envelopes by the paymaster, who rode on the plantation train. The tale of “The Great Train Robbery” was told by Philip Rice in the February 28, 1968 issue of the Garden Island.

The locomotive proceeded towards the camp, passing through the high cane. At a place where a sharp curve or poor condition of the track necessitated a reduction in speed to about that at which a man could walk, a person completely clothed in the garb of a cane loader stepped forth from the tall cane. Over his face was a part of an old towel with eye holes cut in it. . . .

He pointed a revolver at Mr. Asser and the locomotive engineer, ordered the locomotive stopped and that they dismount. The two complied, and the holdup man boarded the locomotive, started it, and proceeded toward Mana Camp, quite a distance beyond and out of sight of the holdup point...

When the robbery was discovered, a search was made where the locomotive had been abandoned. A trail of tabi (footwear of heavy blue denim) prints extended makai toward the swamp near the coast at Kekaha. A helpful local fisherman named Kaimiola Hali, who sold his fish to the workers at Mānā camp on their paydays, helped in the search. When the tabi prints led into the peninsula swamp near Hali's house, he cautioned the men not to go into the swamp since it was too

deep. The sheriff became suspicious of the man when he saw him try to obliterate one of the prints. The sheriff returned to the area and entered the swamp. A few feet from the end of the peninsula, he found a large lard can with several pay envelopes, containing all but \$250 of the stolen money. The sheriff then went to Hali's house and collected evidence and testimony pointing to Hali as the robber, including wet tabis hanging up to dry that exactly matched the tabi prints in the swamp. An exhausting trial was then conducted, and Hali was found guilty...

In the trial, it came out that Hali often went to the theater at Mānā, which showed westerns, especially those that depicted outlaws and train robberies. It has been suggested that these films inspired Mr. Hali to commit the crime (Rice 1968 – cited in Conde and Best 1973: 143-144).

By 1910, a railroad system was laid from Kekaha sugar mill to Polihale for transporting sugarcane, labor, and freight. The steam locomotives acquired for this purpose were named "Poli Hale", "Mana", "Kolo", "Nohili", and "Pokii" after places of the area. They were eventually replaced with diesel locomotives in 1928. The railroad system was eliminated in 1947 when trucks were utilized for hauling sugarcane to the mill (Conde and Best 1973:141-146).

3.4 Modern Land Use

Up until 2001, Kekaha Sugar Plantation lands on the Mānā Plain were managed by the State of Hawaii Department of Land and Natural Resources (DLNR). Between 2001 and 2003 Agribusiness Development Corporation (ADC) held a right of entry to manage the lands from the Board of Land and Natural Resources. In 2003, an Executive Order was awarded to ADC for the land. The land is classified as "Agricultural" by the State of Hawaii.

According to the ADC, approximately 5,090 acres of sugarcane plantation land were located in coastal Kekaha-Mānā Plain. Immediately adjacent to the project area, and in the uplands, about 14,500 ac (5,868 ha) of land is listed as Hawaiian Homestead Lands (Bow 2000). A portion of this area (26 ac, 11 ha) is leased to the United States Department of the Navy, with about 500 acres (202 ha) being leased to others for grazing purposes. Up until 2001, DLNR managed 2,668 acres of former sugarcane plantation fields in the uplands after the closure of Kekaha Plantation.

Since 2001 these lands have been managed by ADC. Gay and Robinson, the owners of the Kekaha Plantation, initially held on to approximately 3,500 acres after the closure of the plantation; however their holdings have decreased over time, dropping to 1,750 acres in 2005. Since the plantation closure in 2001, lands on the Kekaha-to-Mānā plain have "supported besides sugarcane, the production of seed corn, sweet corn, melons, tropical fruits, and various vegetable crops" (Southichack 2005:2).

Currently, located to the south and southeast of the project area, a short distance away is the town of Kekaha, it has become the "4th largest community on the island of Kaua'i with about 1, 2000 residents currently living there. It is also the hometown of the largest group of "transplanted" Hawaiians from Ni'ihau Island in the state. Within its bounds are old neighborhoods that were once part of the original camp, Hawaiian Homelands Housing, vacation

rental properties along Kaumuali'i Highway facing the beach, and a variety of buildings related to plantation times, which includes the old Kekaha Sugar Mill.

3.5 Previous Archaeological Research

A general archaeological background for Kekaha is presented, followed by a discussion of archaeological studies that have been conducted within and immediately adjacent to the current project area. Table 1 presents a list of previous archaeological research and Figure 10 shows previous study area locations.

Table 1. Previous Archaeological Studies in the Kekaha Area

Study	Location	Type	Findings
Bennett 1931	Island wide survey including Kekaha	Documentation of major pre-contact sites	Described 7 sites in the Kekaha area including <i>heiau</i> , burial caves, habitation, and agricultural features
Ching 1974	Kekaha	Hawaii Register of Historic Places nomination form	Ho'one'enu'u Heiau (SIHP # 50-30-05-12)
Bordner 1977	Kekaha Beach Park	Reconnaissance survey	No cultural material observed
Sinoto 1978	Valleys <i>mauka</i> of Kekaha Town	Reconnaissance survey	Sites located in valleys of Waiakea, Pawa, Waipoao, Waiawa, Kahoana, and Hō'ea
Ching 1982	Proposed landfill near Barking Sands	Reconnaissance survey	No cultural material observed
McMahon 1988	Mānā near the land fill	Field inspection	No historic properties observed
Ida and Hammatt 1992	Kekaha Town TMK 1-3-02:2	Inventory survey w/ subsurface testing	No historic properties or cultural deposits observed
Spear 1992	west of Kekaha Town; TMK 1-2-02: 22	Archaeological monitoring	No historic properties observed
Yent 1992	Polihale State Park	Subsurface testing	Cultural deposits associated with SIHP # 50-30-05-1818
McEldowney 1993	Mānā Quarry	Archaeological survey	Partial recording of <i>heiau</i> on the <i>mauka</i> bank of Kekaha Ditch near Mānā Quarry
Folk and Hammatt 1993	Proposed landfill expansion near Barking Sands; TMK	Inventory survey w/ subsurface testing	No historic properties observed

Study	Location	Type	Findings
	1-2-02: 9		
Folk and Hammatt 1994a	National Guard Rifle Range, Barking Sands	Inventory survey w/ subsurface testing	No historic properties observed
Folk and Hammatt 1994b	Kekaha Town	Inventory survey w/ subsurface testing	No historic properties observed
Masterson et al. 1994a	Kekaha Town; TMK 1-2-12: 38 and 1-2-02: 32, 34, and 38	Inventory survey w/ subsurface testing	2 Cultural layers (SIHP # 50-30-05-700, and -703), 2 human burials (SIHP # 50-30-05-701 and -702)
Masterson et al. 1994b	Proposed agricultural park near Barking Sands	Inventory survey w/ subsurface testing	2 human burials at Limaloa (SIHP # 50-30-05-3650)
Hammatt 1996	Kekaha Town	Subsurface Testing	No historic properties observed
Yent 1997	Kekaha Game Management Area; TMK 1-2-02	Reconnaissance Survey	No historic properties observed
Heidel et al. 1997	Kekaha Town; TMK 1-3-03-15, 19, and 23	Inventory survey w/ subsurface testing	4 human burials (SIHP # 50-30-05-619)
McGerty and Spear 1997a	Mānā Plain	Inventory Survey	No historic properties observed
McGerty and Spear 1997b	Parcel of land north of Mānā Reservoir; TMK 1-2-02: 001	Inventory Survey	SIHP #s 50-30-05-652 thru 658 including rock mounds ,terraces, and historic refuse dumps
Hammatt and Shideler 1999	Kekaha Town; TMK 1-3-05: 15, 19, and 23	Archaeological monitoring	No cultural material observed
Tulchin and Hammatt 2003	‘Akialoa Road and Kaumuali‘i Highway; TMK 1-3-001: 999	Inventory survey w/ subsurface testing	No cultural material observed
Hammatt 2004	Aloha Kaua‘i Villas, Kikiaola; TMK 1-2-13: 31	Inadvertent burial discovery and treatment report	3-5 individuals discovered during the excavation of a pool and designated as SIHP # 50-30-05-3911
Stein and Hammatt 2006	0.23-Acre Parcel within the Kekaha House Lots; TMK: (4) 1-3-05:45	Archaeological monitoring and inadvertent burial recovery report	2 burials designated SIHP # 50-30-05-3941
Hazlett and Hammatt 2008	Kekaha Town, Lot B Kekaha Housing;	Archaeological monitoring	1 burial designated SIHP # 50-30-05-3937

Study	Location	Type	Findings
	TMK 1-2-002: 032		
Wilkinson and Hammatt 2010	Kekaha Elementary School; TMK 1-3-002: 001 and 057	Archaeological monitoring	No cultural material observed

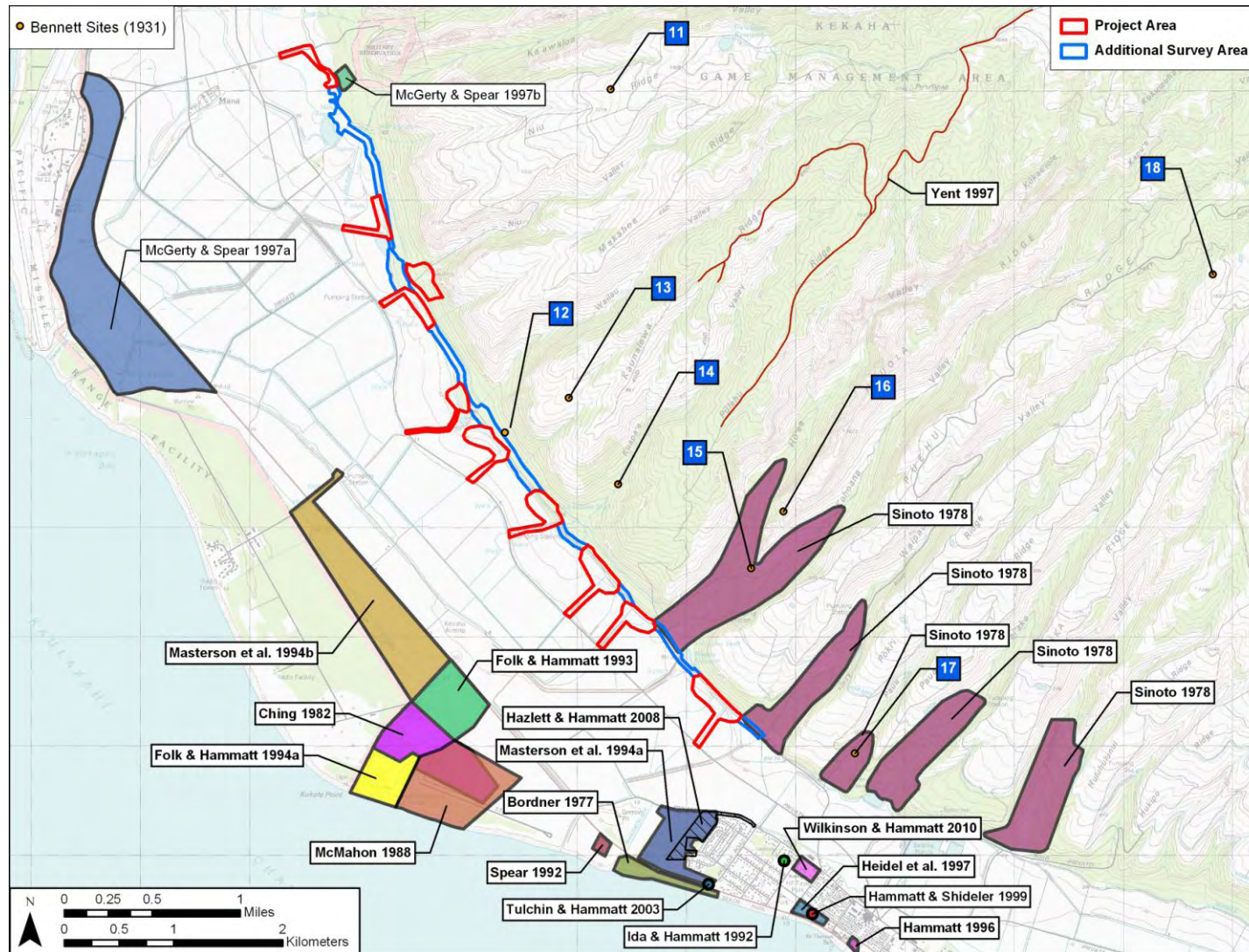


Figure 10. Previous archaeological studies in the Kekaha area

The first comprehensive study of the archaeology of Kaua'i was undertaken by Wendell C. Bennett (1931) based on field work conducted in 1928-29. Bennett recorded seven major pre-Contact sites in the vicinity of Kekaha (Sites 10-16). These are listed by Bennett as:

Site 10-Kahelu heiau, at Kahelu near Mana and described by Thrum as, "A heiau of platform character at the base of the hill, about 6 feet in front, not of large size."

Site 11-Makahoe heiau and village site, on Niu ridge, Kaunalewa. A small, platform village shrine. Thrum describes the village as "Four and one-half miles from the coast and at an altitude of 1200 feet. This village had about 0.5 acres of taro land besides the dry crops to depend on." On the inland side of Niu ridge, small valleys are found with small streams and a few taro terraces. Petroglyphs were reported for this area.

Site 12-Hooneenuu heiau, along the ditch line inland from the government road near the center of Kaunalewa ridge.

Site 13-Burial caves, on Kaunalewa ridge.

Site 14-Two small heiau, near Waiawa, described by Thrum as a 12 by 20-foot shrine, and an 18 by 28-foot shrine

Site 15-House sites and taro terraces, in Waiawa valley. Some taro lines may still be seen in lower Waiawa valley. Many house sites are in evidence. They consist for the most part of leveled ground, faced in front with stone, or merely outlined with stone.

Site 16-Hauola heiau, in Hoesa valley at the base of Hauola ridge.

Site 17-Burial caves, on Pokii ridge.

Bennett's Site 12, Ho'one'enu'u Heiau (SIHP # 50-30-05-12), is present in close proximity to the current survey area but will not be impacted by proposed activities.

Ching (1974) conducted fieldwork in support of a Hawaii Register of Historic Places Nomination form for SIHP # 50-30-05-12. A partial scale drawing of the site was produced along with documentation for form submittal. The site was recommended as "Reserve local...because of the scarcity of enclosed heiau on Kaua'i" (Coversheet Hawaii Register of Historic Places 1974).

The Bishop Museum returned to the bases of the narrow valleys overlooking present day Kekaha Town (Figure 10) during a study for potential rock borrow areas for the Corps of Engineers (Sinoto 1978). Archaeological sites were noted in Waiākea, Pawa, Waipao, Waiawa, Kahoana and Hō'ea. Sinoto's (1978) Waipao study area was bracketed on the east side by the Kōke'e Road and on the north and east sides by the Kekaha Ditch at the east end of the present study corridor. Sinoto (1978:4) notes: "A few sites, including crude terracing, stone piles, and an apparent cattle wall..." Sinoto (1978:4) recommended: "The area immediately south of the

pumping station, comprising about a third of the [Sinoto 1978 Waipao] survey area, is restricted from borrowing activities.” This area of study lies farther inland of the present project area.

ARCH (Bordner 1977) conducted an archaeological reconnaissance survey of Kekaha Beach Park for the Army Corp of Engineers. Charcoal flecking was observed in a sand dune; however because no cultural material was observed, the flecking was attributed to the nearby sugar mill.

In 1982, ARCH conducted an archaeological reconnaissance survey for a proposed landfill site on a parcel adjacent to the south side of Barking Sands military installation. The land was previously under sugar cane cultivation and no cultural material or historic properties were observed.

McMahon (1988) conducted a field inspection of land in Mānā adjacent to the landfill, in response to a request for a land use permit. Impacts from the landfill were observed; however no historic properties or cultural material was observed.

CSH (Ida and Hammatt 1992) conducted an inventory survey with subsurface testing in support of the consolidation and re-subdivision of house lots in Kekaha Town. No historic properties or cultural deposits were observed.

SCS (Spear 1992) conducted archaeological monitoring on a parcel west of Kekaha Town in support of vegetation clearing and excavation for a well. No historic properties or cultural deposits were observed.

Yent (1992) conducted subsurface testing in support of a proposed road swale at Polihale State Park. The purpose of testing was to further define the extent of SIHP # 50-30-05-1818, a cultural deposit containing charcoal, basalt flakes, and shell midden, located in the sand dunes. Other goals included determining impacts to the site as a result of the project, and recommending treatment during construction. Remnants of the deposit were observed and documented as a result of subsurface testing.

McEldowney (1993) conducted a field inspection in support of the proposed expansion of Mānā Quarry, which is located within the current survey area. Remnants of a heiau were partially documented near the southwestern extent of the quarry. These remnants were conclusively identified as a previously undocumented heiau and not Bennett’s Site 12; however the site was mislabeled during subsequent administrative tasks. The current document rectifies this administrative error (see Section 4.1.8).

In 1993, CSH (Folk et al.) conducted an inventory survey with subsurface testing in support of proposed landfill expansion near Barking Sands military installation. No historic properties or cultural deposits were observed.

CSH (Folk and Hammatt 1994a) conducted an inventory survey with subsurface testing at the National Guard Rifle Range at Barking Sands military installation. No historic properties or cultural deposits were observed.

In 1994, CSH (Folk and Hammatt 1994b) conducted an inventory survey with subsurface testing in support of a proposed parcel subdivision in Kekaha Town. No historic properties or cultural deposits were observed.

CSH (Masterson et al 1994) conducted an inventory survey and subsurface testing in support of an 89-acre parcel being considered for development in Kekaha. A total of 100 trenches were excavated by backhoe to probe for possible subsurface cultural material. As a result, 2 Cultural layers (SIHP # 50-30-05-700, and -703), 2 human burials (SIHP # 50-30-05-701 and -702) were documented. The cultural layers consisted predominantly of layers of charcoal flecking and radio carbon dating yielded a date range of AD 1645 to 1950. A small quantity of artifacts were recovered from SIHP # 50-30-05-703 including basalt flakes and a basalt plummet sinker (Masterson et al. 1994: 37-39).

Also in 1994, CSH (Masterson et al. 1994b) conducted an inventory survey with subsurface testing on a parcel of land located on the east side of Barking Sands military installation. This parcel was proposed for an agricultural park. As a result of subsurface testing, 2 burials were discovered and designated SIHP # 50-30-05-3650.

CSH (Hammatt 1996) conducted subsurface testing in Kekaha Town in support of XXX. No historic properties or cultural deposits were observed.

Yent (1997) conducted of a reconnaissance survey of Kekaha Game Management Area in advance of limited vegetation clearing. No historic properties or cultural deposits were observed.

CSH (Heidel et al. 1997) conducted an inventory survey with subsurface testing of a 6-acre parcel of land in Kekaha being considered for re-subdivision. Most of the stratigraphy observed had been previously disturbed by past land use. Informal interviews with nearby residents indicated the possibility of burials along Elepaio Road and subsequent testing recovered the remains of four individuals and a horse. These burials were designated SIHP # 50-30-05-619.

In 1997, SCS (McGerty and Spear 1997a) conducted field reconnaissance and interviews with local residents in support of a proposed change of land use for a parcel on Mānā Plain adjacent to the north side of Barking Sands military installation. Reconnaissance confirmed the parcel was previously under sugar cane cultivation. Historical background research indicated the area was a wetland marsh until it was filled for use by the sugar plantation. SCS concluded that the nearby sand dunes were likely used as fill material and any cultural material present in the parcel would likely be in secondary deposition (McGerty and Spear 1997: 20).

Also in 1997, SCS conducted an archaeological inventory survey of a parcel of land adjacent to the northern portion of the current survey area (McGerty and Spear 1997b). Seven sites were documented as a result of the survey and included terraces, rock mounds, two dirt roads, and historic artifacts. The terraces, mounds, and dirt roads were interpreted as associated with late pre-Contact to early plantation era activities, while the historic artifacts were associated with later plantation era activities. These sites were designated SIHP #s 50-30-05-652 through -658.

CSH conducted archaeological monitoring in support of the Kekaha Sunset Subdivision (Hammatt and Shideler 1999). A previous inventory survey documented 4 coffin burials (Heidel et al. 1997); however no additional historic properties or cultural deposits were observed as a result of monitoring activities.

In 2003, CSH conducted archaeological monitoring in support of the Sandwich Isles Fiber Optic Cable Landing at 'Akiola Road in Kekaha (Tulchin and Hammatt 2003). Subsurface

directional drilling was conducted to a point approximately 3,700 ft. off shore. No historic properties or cultural deposits were observed.

CSH responded to an inadvertent discovery of human remains at the Aloha Kaua'i Villas (Hammatt 2004). The remains of at least 3 individuals were discovered during pool excavations. The flexed position of one of the skeletons, as well as the absence of coffin fragments or grave goods, indicated the burials were likely pre-Contact traditional Hawaiian. In consultation with the SHPD and the Kaua'i Island Burial Council, the remains were disinterred and reinterred at a suitable location on-site away from the pool area. The remains were designated SIHP # 50-30-05-3911.

In 2006, CSH responded to an inadvertent discovery of human remains at Kekaha House Lots during excavation of a septic tank (Stein and Hammatt 2006). CSH archaeologists monitored the remainder of excavations to ensure the proper treatment of any additional burials. A total of two individuals were recovered and relocated as a result of the discovery. They were thought to be likely pre-Contact traditional Hawaiian because of their flexed position and the absence of coffin fragments or grave goods.

CSH conducted monitoring for Lot B of Kekaha House Lots in support of construction activities and to assist the land owner in complying with the SHPD determination that an archaeological monitor be on site for all ground disturbing activities within this lot because of the presence of a previously identified cultural layer (SIHP # 50-30-05-702) in close proximity to its southern boundary. One inadvertently discovered burial was documented during trenching associated with a fiber optic cable line present in the northern portion of the project area. The burial was designated SIHP # 50-30-05-3937 and was reinterred in close proximity to its original interment area (Hazlett and Hammatt 2008).

In 2010, CSH monitored wastewater system improvements at Kekaha Elementary School (Wilkinson and Hammatt 2010). No historic properties or cultural deposits were observed.

3.6 Background Summary and Predictive Model

3.6.1 Background Summary

The name, "Kekaha," itself can be interpreted to mean "dry land" or an area near the shore that is not favorable for planting. The Kekaha region of Kauai has low annual rainfall and no permanent streams.

Despite the low rainfall, early visitors to Oahu in the late 1700s indicate that the Kekaha area was well-populated. Inhabitants manufactured cloth from *wauke* (Mulberry) and grew taro and sugarcane in the swampy ground. In the mid-1800's, LCA requests show that there was both dry land and irrigated agriculture occurring in the region along with salt beds and at least one fishery.

Valdemar Knudsen settled in Wai'awa in 1854. His agricultural and pastoral lands covered much of the region and eventually he had control over the entire district. Knudsen made use of local labor by requiring residents to work for him three days each month as rental payment.

A Chinese immigrant, Leong Pah On, began growing rice commercially in the 1860s in the drained swamplands of the area, eventually utilizing 600 acres throughout Mānā, Kekaha, and

Waimea for rice production. Pah On imported laborers from China to work the rice fields presumably creating a significant Chinese population in the area. Rice cultivation continued until 1922 when the Kekaha Sugar Co. assumed ownership of the lands.

The Kekaha Sugar mill closed in 2000 and the DLNR managed these lands until ADC was awarded them by the state in 2003. The land including the current project and survey areas is now classified as "Agricultural" by the State of Hawaii.

3.6.1.1 Kekaha Settlement Pattern

The traditional Hawaiian settlement of the Kekaha region can be divided into 5 zones (Table 2):

Table 2. Traditional Hawaiian Settlement Patterns in Kekaha

Zone	Environment	Resources	Type of Sites
Zone 1	Ridges and slopes	Kula land, forest products, dry land cultigens	<i>Heiau</i> , burials on slopes
Zone 2	Narrow valleys and slope base	Intermittent streams, springs, taro, sugar cane	<i>Lo 'i</i> , permanent habitations, <i>heiau</i> , and terraces
Zone 3	Marsh lands	Taro, sugarcane, fowl, fish	Fishponds, taro <i>lo 'i</i> on marsh edges
Zone 4	Sand plain, <i>mauka</i> portion	Coconuts	Clustered burials
Zone 5	Sand plain, <i>makai</i> portion	Coconuts, marine resources, salt	Fishing camps, saltpans, canoe landings, isolated burials

A settlement pattern emerges through the study of historical material concerning the Kekaha area. Permanent habitation areas were mainly among the *mauka* foothills, at the bases of the shore-facing cliffs. Extending up the gulches were agricultural areas watered by rainfall and intermittent streams. This has been confirmed by the archaeological investigations of Bennett (1931:103) and Sinoto (1978:2-6).

Makai of the foothills were fishponds and cultivated wetlands fed by springs. Beyond this was the great swamp, then the broad stretch of the sand lands which continued to the shoreline. Fishing camps and other temporary habitation areas existed on the beach, and in the inland stretches of the sand there were burials. This scenario was likely in place at the time of first western contact and remained relatively undisturbed throughout most of the 1800s.

Since then, much physical evidence of this settlement pattern has been significantly altered by commercial agriculture and other operations. The foothills and wetland areas have been extensively planted in sugar cane, livestock have grazed in the gulches, and even the beach areas have been disturbed by massive shoreline stabilization projects.

3.6.1.2 Ridges, Slopes, and Valleys

Bennett's (1931) study of archaeological sites in Kaua'i shows habitation evidence in small valleys dissecting Niu Ridge, as well as on the ridge itself. Waiawa Valley contains "many" house sites and associated taro *lo'i*, and *heiau* (temples) appear both in valleys and on ridges.

Bennett's survey apparently predated at least some of the land impact associated with sugar growing and was early enough to record sites at the base of the Waimea slope, allowing us to take note of the former importance of this area during pre-contact times.

Sinoto's study (1978) noted archaeological sites in Waiākea, Pawa, Waipao, Waiawa, Kahoana and Hō'ea. These sites survived in spite of the heavy impact of sugar activities and grazing, and provide reinforcement for this particular zone edging on the Kekaha flats as being a focus of permanent Hawaiian habitation, with a steady supply of water from springs.

McGerty and Spear (1997b) also documented the presence of terraces, mounds, and dirt roads associated with late pre-Contact to early plantation era activities. These were observed at the base of Kamōkala Ridge, near the northern portion of the current survey area.

3.6.1.3 Marsh Lands

The swamp lands between the cliffs and the sand flats are now the level agricultural fields of Kekaha. Draining of the once giant swamp for agriculture began in the late 1800s and, due to decades of sugar cane cultivation, archaeological site potential here is minimal. However, this does not mean that the Hawaiians did not use this land. Its fringes would be useful for taro, and waterfowl must have been abundant at times. There are accounts of widespread seasonal flooding of these lands. It is a reminder of the adaptability of Hawaiian planters who employed a unique method of taro growing at Mānā, as related by Pukui:

As the plants grew, the rootlets were allowed to spread undisturbed, because they helped to hold the soil together. When the rainy season came, the whole area was flooded as far as Kalamaihihi, and it took weeks for the water to subside.

The farmers built rafts of sticks and rushes, then dived into the water. They worked the bases of the taro mounds free and lifted them carefully, so as not to disturb the soil, to the rafts where they were secured. The weight of the mounds submerged the rafts but permitted the taro stalks to grow above the water just as they did before the flood came. The rafts were tied together to form a large, floating field of taro (Pukui 1983:232-233).

3.6.1.4 Sandy Plain and Shoreline

The bulk of archaeological studies in Kekaha have been conducted on the flat lands near the coast (Bordner 1977; Ching 1982; McMahon 1988; Folk and Hammatt 1993; Folk and Hammatt 1994a; Masterson et al. 1994 a and b; Spear 1992; McGerty and Spear 1997). Sand deposits between the swamplands (now drained sugar fields) and the ocean have high potential for shoreline occupation and scattered human burials, particularly along the *mauka* fringes of the sand bar.

Human burials have been discovered in sand deposits in Waimea Town to the east of Kekaha (Cox 1975; Kikuchi 1985), and archaeological studies of sand areas have noted the potential for burials, even though none were immediately found (Bordner 1977; Ching 1982; McMahon 1988a, 1988b;). More recent studies have tested larger areas for burials: at the north end of Kekaha Town for the proposed Kekaha Housing Project (Masterson et al. 1994a); in the proposed Kekaha Agricultural Park (Masterson et al. 1994b); the proposed landfill expansion (Folk and Hammatt 1993); the Army National Guard rifle range (Folk and Hammatt 1994a); and in Kekaha Town (Heidel et al. 1997). A total of eight human burials were discovered as a result of archaeological testing: two burials (SIHP # 50-30-05-3650) were discovered at Limaloa in the proposed Kekaha Agricultural Park study area (Masterson et al. 1994b); two burials (SIHP # 50-30-05-701 and -702) were discovered near the shore at the north end of Kekaha Town, where new housing was proposed (Masterson et al. 1994a); and four burials (SIHP # 50-30-05-619) were discovered in Kekaha Town near Elepaio Road (Heidel et al. 1997).

Inadvertent discoveries of human remains have also occurred periodically, as a result of development activities. These include at least 3 individuals (SIHP # 50-30-05-3911) discovered during the excavation of a swimming pool at Alaoha Kaua'i Villas (Hammatt 2004), and three individuals (SIHP #s 50-30-05-3941 and -3937) discovered during monitoring activities associated with the development of Kekaha House Lots (Stein and Hammatt 2006 and Hazlett and Hammatt 2008).

Closer to the shoreline would have been the fishing oriented settlements now represented by cultural layers buried in backshore sand deposits (Yent 1992, Masterson et al. 1994a). Occasional fishponds and saltpans were also likely present. The occurrence of Hawaiian activity along the shoreline would be strongly influenced by the location of suitable canoe landings. For example, *Pu'u pu'u pa'a kai* was a canoe landing *makai* of the sugar mill with a large settlement (Knudsen and Noble 1945:50).

3.6.2 Predictive Model

Based on previous historic documentation and archaeological research, two types of archaeological resources are expected in the survey area. These include remnants of pre-Contact habitation and agricultural activities such as terraces, mounds, and stacked walls. Plantation era infrastructure including water control features, structures, roads, and field dividers are also likely. Other resources that may be encountered include pre-Contact shell midden and artifacts as well as historic era trash deposits.

Section 4 Results of Fieldwork

Fieldwork associated with this project was conducted intermittently between April and August 2010. The goal of the inventory survey was to identify all sites within the survey and project areas, then route the project area to avoid the sites if possible. A total of seven sites were identified during the initial inventory survey including clearance and agricultural mounds, a mound of unknown function, historic road alignments, a historic wall, a historic house site, and a heiau. The heiau (SIHP # 50-30-05-2113) was fully documented, even though it is clearly outside of the survey and project areas, because of its proximity to Mānā Quarry, a portion of the project area which will be used as a temporary base yard for rock crushing activities. Of these sites, only one, SIHP # 50-30-05-2107 portions of the Old and New Government Road, could not be avoided by the proposed project. Following are descriptions, plan maps, and photos of each historic property. A discussion of historical significance can be found in the next section.

4.1.1 SIHP # 50-30-05-2107

SITE TYPE: Historic road alignments
FUNCTION: Transportation
FEATURES: 20
CONDITION: Good
AGE: Plantation era
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2107 consists of 2 road alignments, labeled CSH 1A and CSH 1B, which are known as the New and Old Government Roads. The Old Government Road appears on maps as early as 1891, while the New Government Road first appears on the 1910 Kekaha Sugar Plantation maps. Portions of both roads are present in the current project area. The roads are in overall fair condition and appear to still be in use. A total of 18 (labeled 1-18) sub-features consisting of bridges, culverts, fence lines, and ditches are also present in association with the road alignments. Sub-features 4, 6, 7, and 18 are present in the southern portion of the Old Government Road, while the remaining sub-features are present along the length of the New Government Road. Based on the number of bridges and culverts present on the New Government Road, it is likely that this alignment was constructed to bypass a more poorly constructed portion of the Old Government Road. The dates of 1926 and 1927 on sub-features 4 and 5 respectively, indicates portions of the Old Government Road were maintained in addition to the newer bypass.

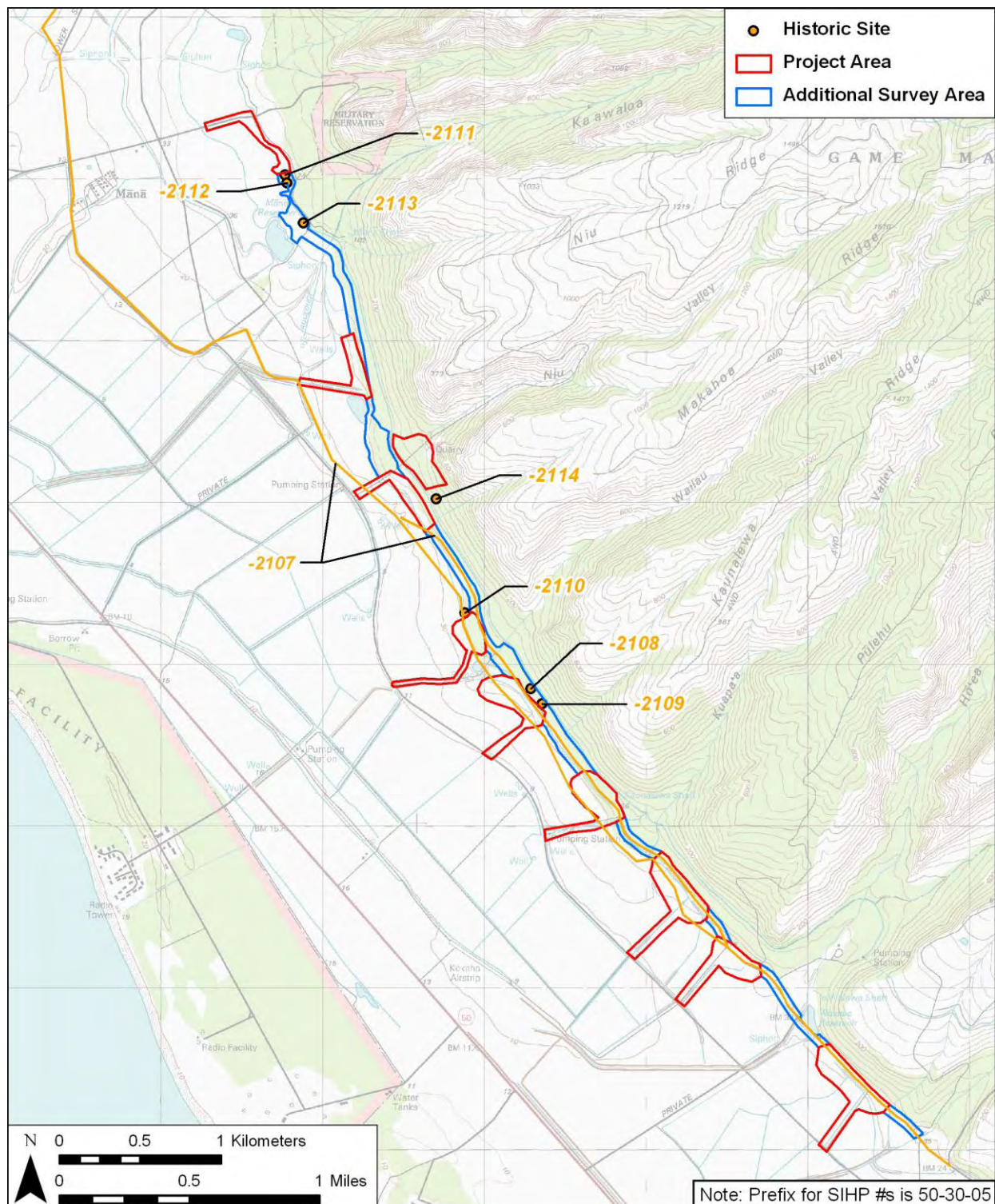


Figure 11 U.S. Geological Survey 7.5-Minute Series Topographic Map, Kekaha Quadrangle (1983), showing the locations of historic properties identified during the inventory survey.

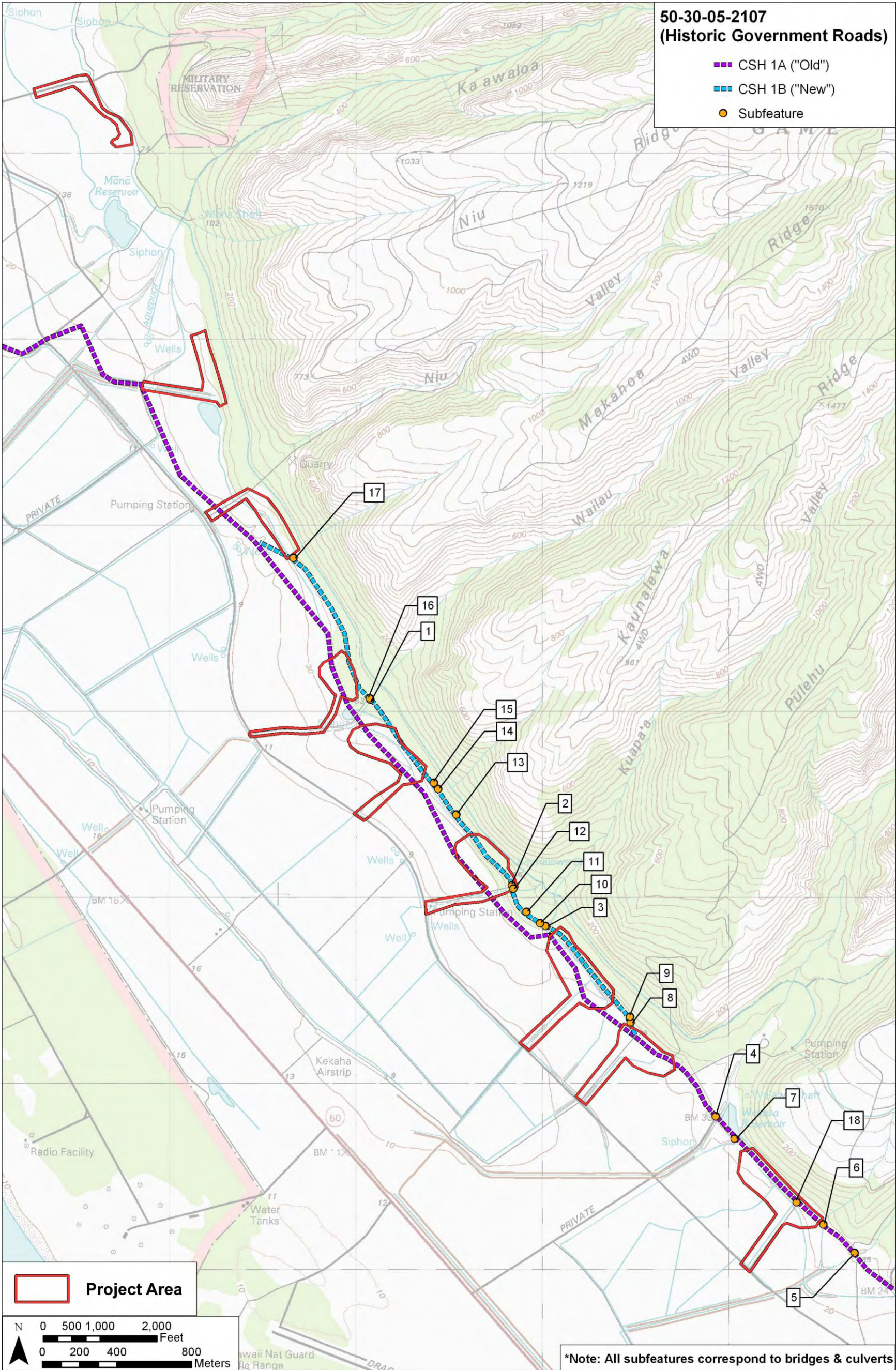


Figure 12. U.S. Geological Survey 7.5-Minute Series Topographic Map, Kekaha Quadrangle (1983), showing the locations of historic properties identified in the project area

Sub-feature	Type	Length (m)	Width (m)	Height (m)	Description
1	Bridge	8.8	6.6	3.4 (exterior) 0.8 (interior)	New Government Road, concrete bridge over Wailau Stream.
2	Culvert	12.0	1.3	0.7	New Government Road, concrete and metal grate culvert on <i>makai</i> side of road. Passes under the cane field road that intersects Old Government Road. Inscribed "12-6-54".
3	Bridge	9.0	6.6	3.2 (exterior) 0.5 (interior)	New Government Road, concrete bridge over Kuapaa Stream.
4	Bridge	12.2	6.5	3.8 (exterior) 0.8 (interior)	Old Government Road, concrete bridge over Hoea Stream. Inscribed "1926".
5	Bridge	12.1	6.7	3.5 (exterior) 0.7 (interior)	New Government Road, concrete bridge at Waipao Stream. Inscribed "1927".
6	Culvert	2.0	9.4	1.7 (exterior) 1.0 (interior)	Old Government Road, concrete culvert over irrigation ditch.
7	Culvert	12.7	1.6	1.2	Old Government Road, mortared boulder ditch culvert under road at Waiawa Reservoir.
8	Bridge	4.4	6.7	1.8 (exterior) 0.7 (interior)	New Government Road, concrete bridge at end of Pulehu Ridge.
9	Fence line				Wire fence with wooded posts, metal posts, and trees, located approx. 20 ft <i>mauka</i> of New Government Road
10	Culvert	4.2	1.0	0.9	New Government Road, stacked boulder ditch culvert under road. Some concrete in ditch above and below road.

Sub-feature	Type	Length (m)	Width (m)	Height (m)	Description
11	Culvert	6.0	0.7	0.9	New Government Road, mortared and stacked boulder ditch culvert under road.
12	Culvert	6.0	0.7	1.6	New Government Road, mortared boulder ditch culvert under road.
13	Ditch				Concrete ditch along <i>makai</i> side of New Government Road
14	Fence line				Remnant barbed-wire fenceline along <i>mauka</i> side of New Government Road
15	Culvert		0.7	0.4	New Government Road, remnant mortared, dressed boulder culvert under road.
16	Culvert	3.2	1.1	0.9	New Government Road, stacked boulder ditch culvert under road. Ditch parallels Wailau Stream
17	Culvert	7.8	1.5	1.3	New Government Road, stacked boulder culvert under road.
18	Culvert	3.6		1 (diameter)	Clay pipe culvert for drainage underneath Old Government Road



Figure 13. Sub-feature 1, concrete bridge over Wailau Stream; view southeast



Figure 14. Sub-feature 1, concrete bridge over Wailau Stream, showing *mauka* wall of bridge; view north



Figure 15. Sub-feature 2, concrete and metal grate culvert on *makai* side of Old Government Rd; view northwest



Figure 16. Sub-feature 3, concrete bridge over Kuapa'a Stream; view east



Figure 17. Sub-feature 3, concrete bridge over Kuapa'a Stream; view northeast



Figure 18. Sub-feature 4, concrete bridge over Hoesa Stream; view east



Figure 19. Sub-feature 4, concrete bridge over Hoesa Stream; view north



Figure 20. Sub-feature 5, concrete bridge over Waipao Stream; view north



Figure 21. Sub-feature 6, south wall of concrete culvert over ditch; view south



Figure 22. Sub-feature 6, irrigation ditch below concrete culvert; view southwest



Figure 23. Sub-feature 7, culvert and ditch on *makai* side of Old Government Rd; view southwest



Figure 24. Sub-feature 7, culvert and ditch on *mauka* side of Old Government Rd; view northeast



Figure 25. Sub-feature 8, concrete bridge at end of Pulehu Ridge; view northwest



Figure 26. Sub-feature 8, concrete bridge at end of Pulehu Ridge, showing *makai* wall of bridge; view south



Figure 27. Sub-feature 9, fence line *mauka* of Old Government Rd; view east



Figure 28. Sub-feature 10, stacked boulder ditch *mauka* of Old Government Rd culvert; view northwest



Figure 29. Sub-feature 11, stacked and mortared boulder ditch culvert; view southwest



Figure 30. Sub-feature 12, mortared boulder ditch culvert on the *mauka* side of Old Government Rd; view south



Figure 31. Sub-feature 14, fence line *mauka* of Old Government Rd; view north



Figure 32. Sub-feature 15, remnant of a mortared and dressed boulder culvert; view south



Figure 33. Sub-feature 16, stacked boulder ditch culvert; view north



Figure 34. Sub-feature 17, stacked boulder culvert; view northwest



Figure 35. Sub-feature 18, concrete pipe for drainage underneath Old Government Road; view northeast

4.1.2 SIHP # 50-30-05-2108

SITE TYPE: Terrace
FUNCTION: Habitation
FEATURES: 1
CONDITION: Fair
AGE: Pre-Contact
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2108 is a habitation terrace located on a west-facing slope approximately 10 m east of New Government Road (SIHP # 50-30-05-2107 Feature B). The terrace is well constructed and appears to have been completely faced at one time however, only the central portion was intact at the time of documentation. The intact portion of facing is 2 to 5 courses high and approximately 1.6 m thick. The terrace floor is completely flat for 2-3 m east of the facing and is overgrown by exotic grasses. The terrace measures 12.5 m north/south and varies in width between 2 and 3 m. The facing is 36 cm high on both the east and west sides. Vegetation observed in the area includes *kiawe*, java plum, and exotic grasses. The site has been impacted by erosion and livestock grazing.

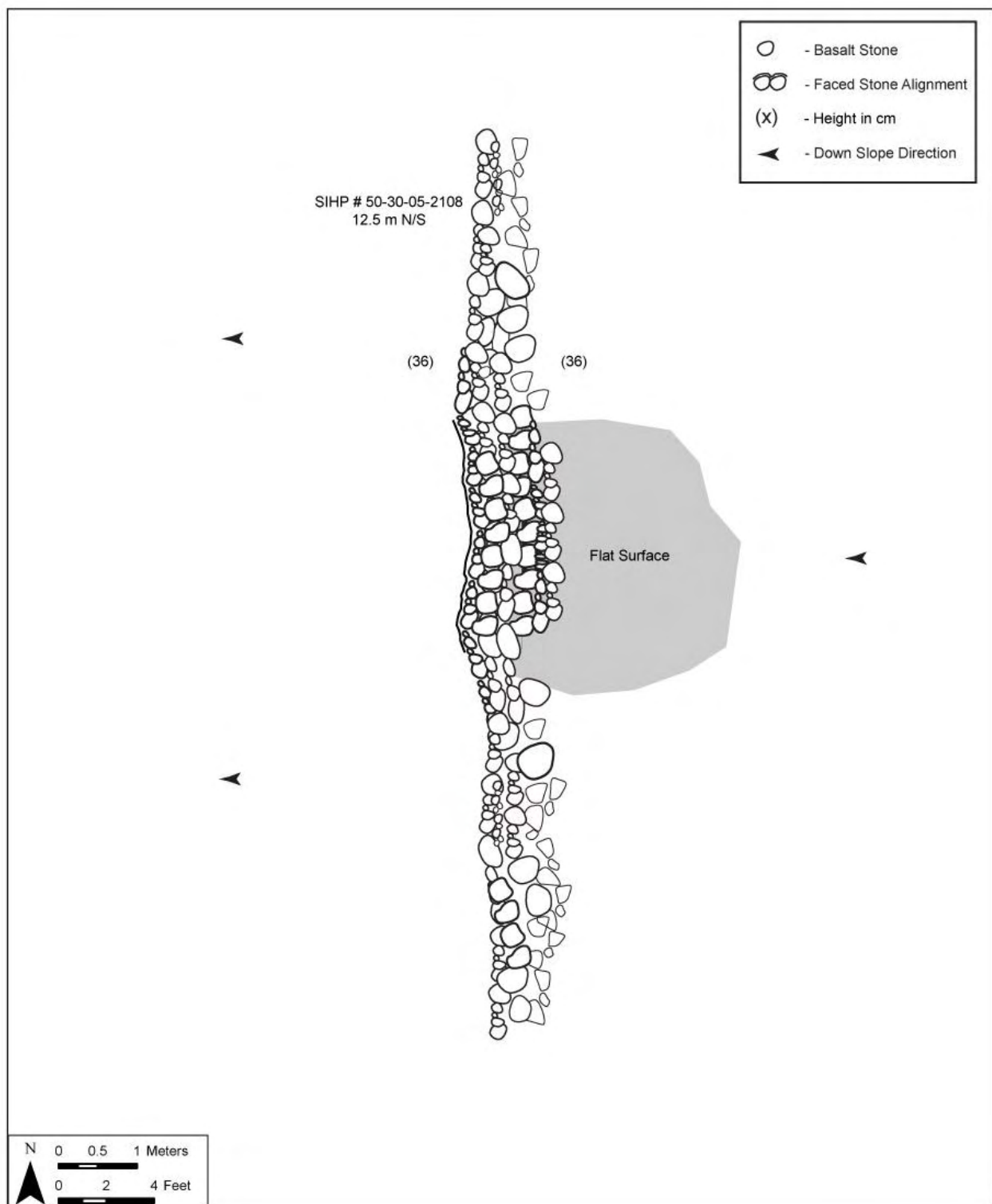


Figure 36. SIHP # 50-30-05-2108, habitation terrace; plan view.



Figure 37. SIHP # 50-30-05-2108, terrace; view north.



Figure 38. SIHP # 50-30-05-2108, terrace; view northeast.

4.1.3 SIHP # 50-30-05-2109

SITE TYPE: Alignment
FUNCTION: Wall
FEATURES: 1
CONDITION: Poor
AGE: Plantation era
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2109 is the remnants of a stacked wall present approximately 15 m east of New Government Road (SIHP # 50-30-05-2107 Feature B). An area of basalt outcrop is present at the southern extent of the wall. The wall stacked 3 to 6 courses high and the central portion is faced, while the northern and southern extents have collapsed. Large boulders are present intermittently along the length of the wall and the northern extent of the wall is overgrown with exotic grasses and *kiawe*. The wall measures 17.4 m north/south, varies in width from 0.75 m to 1.25 m, and is approximately 1 m high at its highest point. No mortar was observed along the wall, however the presence of cut *kiawe* fence posts approximately 10 m southeast indicate the wall is likely historic and related to plantation or ranching activities. Vegetation observed in the area includes java plum, *kiawe*, and exotic grasses. Impacts to the site include erosion and livestock grazing.

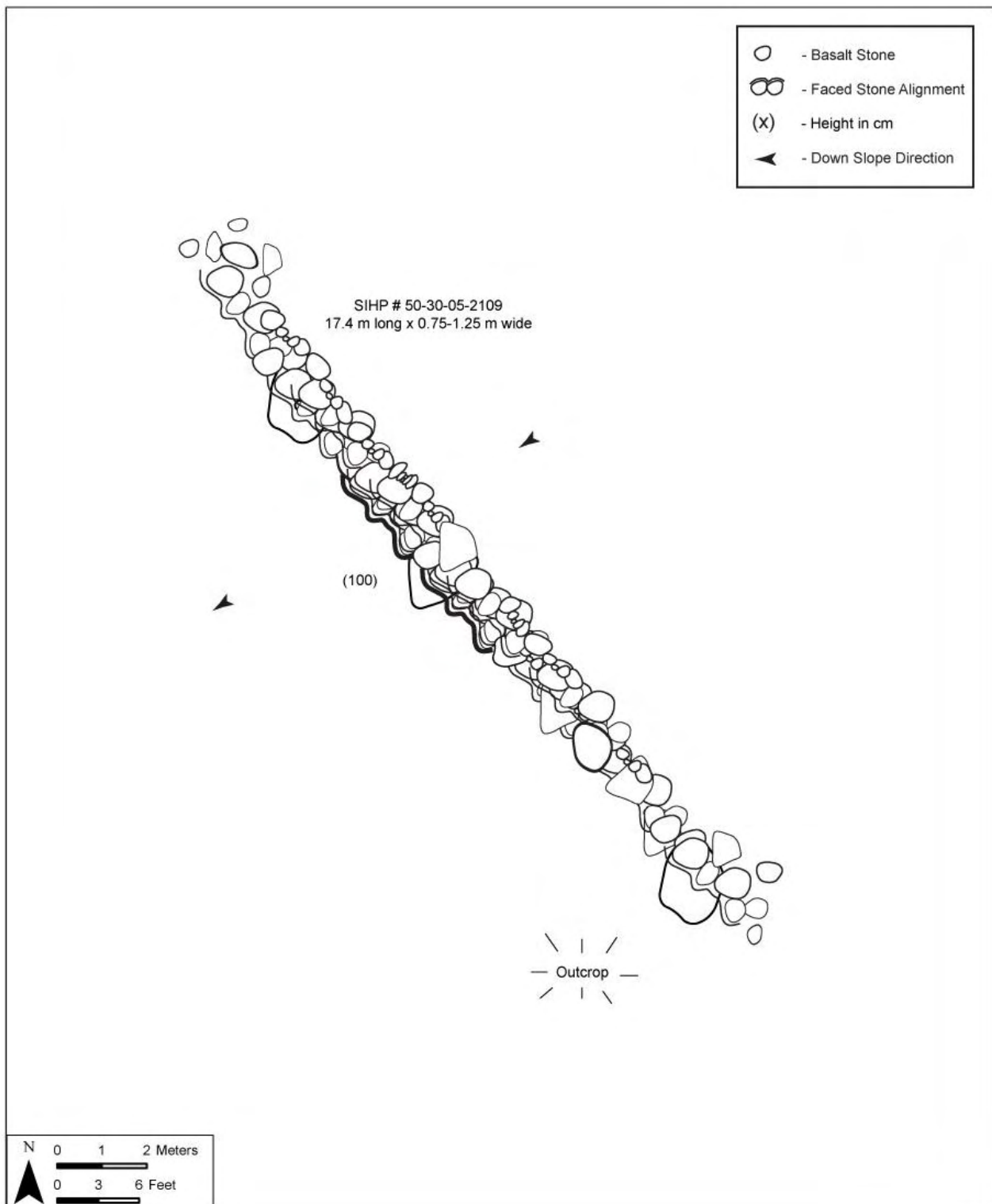


Figure 39. SIHP # 50-30-05-2109, wall alignment; plan view



Figure 40. SIHP # 50-30-05-2109, historic wall; view north.



Figure 41. SIHP # 50-30-05-2109, historic wall; view northwest.

4.1.4 SIHP 50-30-05-2110

SITE TYPE: Mound
FUNCTION: Indeterminate
FEATURES: 1
CONDITION: Good
AGE: Indeterminate
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2110 is a small, low mound located between the Old and New Government Roads (SIHP # 50-30-05-2107 Features A and B). The mound is constructed of small-to-medium sized basalt cobbles and small basalt boulders, and measures 3.2 m north/south by 2.6 m east/west by 0.42 m high. Because it has been excluded from the current project area, the mound was not tested to confirm function. A small modern trash scatter, consisting of brown screw top bottles, a tin can, and clam shells, is present on the east side of the mound. No other features or artifacts were observed. The site has been impacted by erosion and plantation activities. Vegetation observed includes *koa haole*, *kiawe*, and exotic grasses.

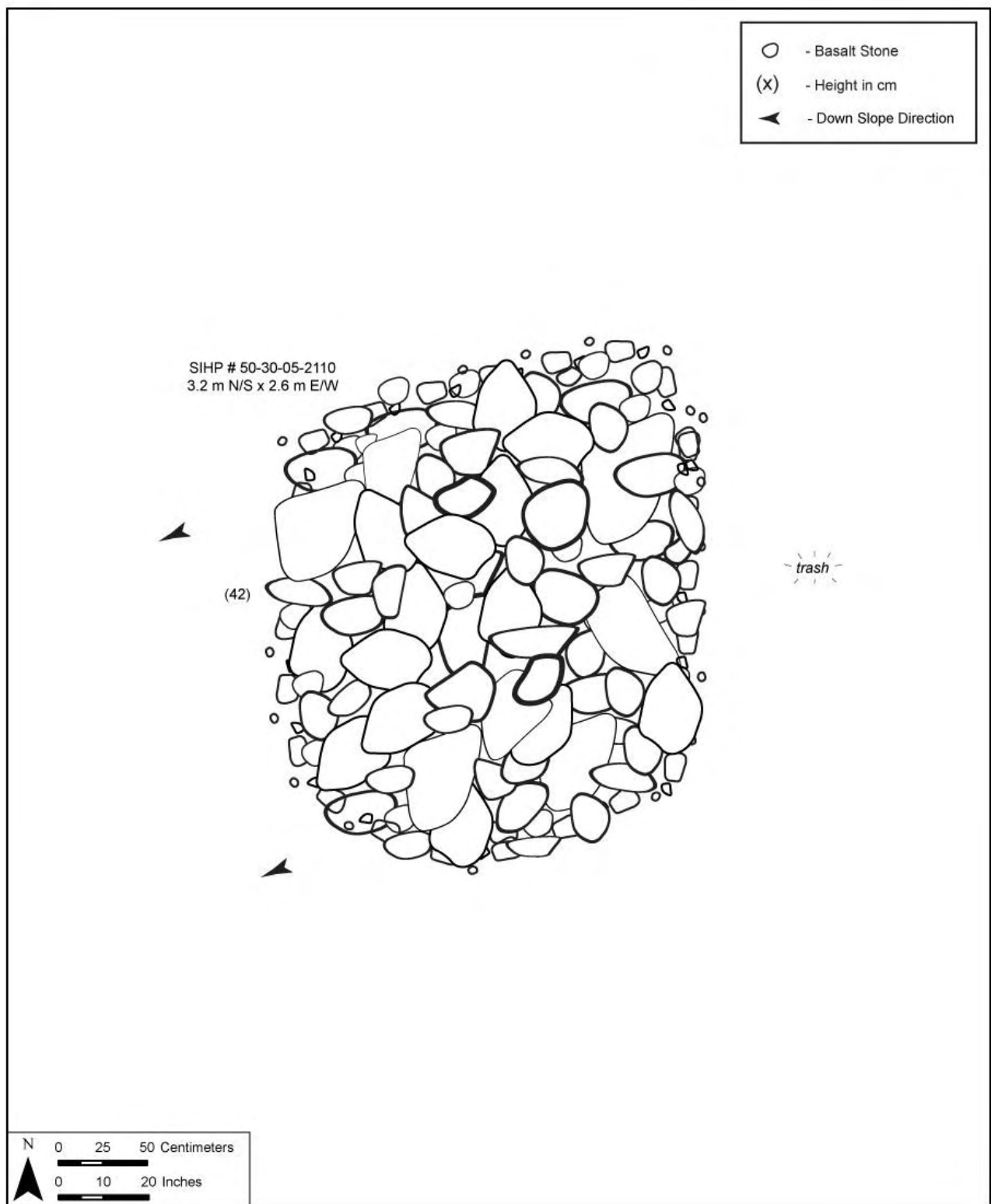


Figure 42. SIHP # 50-30-05-2110, mound of unknown function; plan view



Figure 43. SIHP # 50-30-05-2110, mound of unknown function; view southeast.



Figure 44. SIHP # 50-30-05-2110, mound of unknown function; view north.

4.1.5 SIHP # 50-30-05-2111

SITE TYPE: Mounds
FUNCTION: Agricultural
FEATURES: 11
CONDITION: Good
AGE: Indeterminate
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2111 is a series of small-to-medium sized mounds likely related to agriculture or clearing activities. The mounds are constructed of small, medium, and large basalt cobbles and boulders and are partly overgrown by exotic grasses. The mounds are located just south of a military access road and west of a transmission line corridor in a large stand of *kiawe* trees. Bulldozer push is evident at the eastern extent of the site. Vegetation observed in the area includes *koa haole*, *kiawe*, and exotic grasses. Impacts to the site include erosion, the transmission line corridor, and livestock grazing.

Table 3. SIHP # 50-30-05-2111 List of Features and Their Measurements

Feature	Length (m)	Width (m)	Height (m)
E ₁	2.12 N/S	1.76 E/W	0.39
E ₂	4.7 N/S	1.30 E/W	0.30
E ₃	1.66 N/S	2.0 E/W	0.22
E ₄	2.75 N/S	1.51 E/W	0.24
E ₅	2.34 N/S	1.54 E/W	0.38
E ₆	2.47 N/S	2.46 E/W	0.38
E ₇	1.89 N/S	1.89 E/W	0.27
E ₈	1.82 N/S	1.50 E/W	0.29

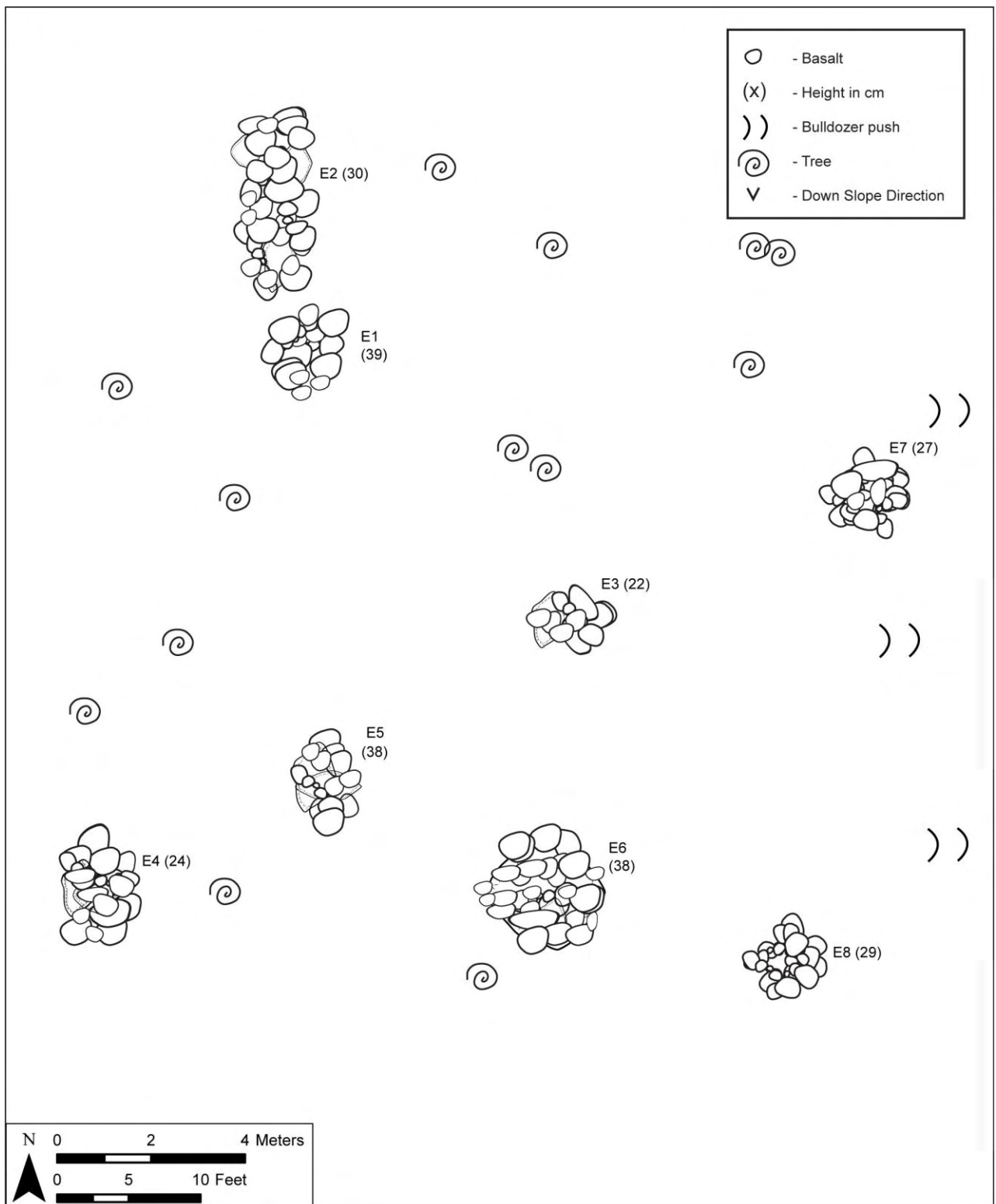


Figure 45. SIHP # 50-30-05-2111, agricultural mounds; plan view



Figure 46. SIHP # 50-30-05-2111 Feature E₁, mound; view south



Figure 47. SIHP # 50-30-05-2111 Feature E₈, mound; view east

4.1.6 SIHP # 50-30-05-2112

SITE TYPE: Terrace
FUNCTION: Habitation
FEATURES: 1
CONDITION: Fair
AGE: Indeterminate
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2112 is a large, oval-shaped terrace located along the southeast edge of an ephemeral drainage. The northwestern portion is constructed of large, loosely stacked basalt boulders and limestone cobbles overlying smaller basalt cobbles and boulders while the southeastern portion is constructed of small-to-medium sized basalt cobbles and boulders. The southeastern portion of the terrace appears to be more formal in construction as the cobbles and boulders are more tightly arranged indicating a habitation feature. The large basalt boulders and limestone cobbles in the northwestern portion have been haphazardly placed and appeared to be a secondary event indicating the terrace has been impacted by clearing activities and has been re-used as a clearing mound. Evidence of bulldozing activities is present in the vicinity of the site. SIHP # 50-30-05-2111, an agricultural complex is present on the northeast side of the drainage, approximately 30 m northeast of the site. The site has been impacted by erosion, bulldozing activities, and livestock grazing. Vegetation observed in the area includes *kiawe*, *koa haole*, and exotic grasses.

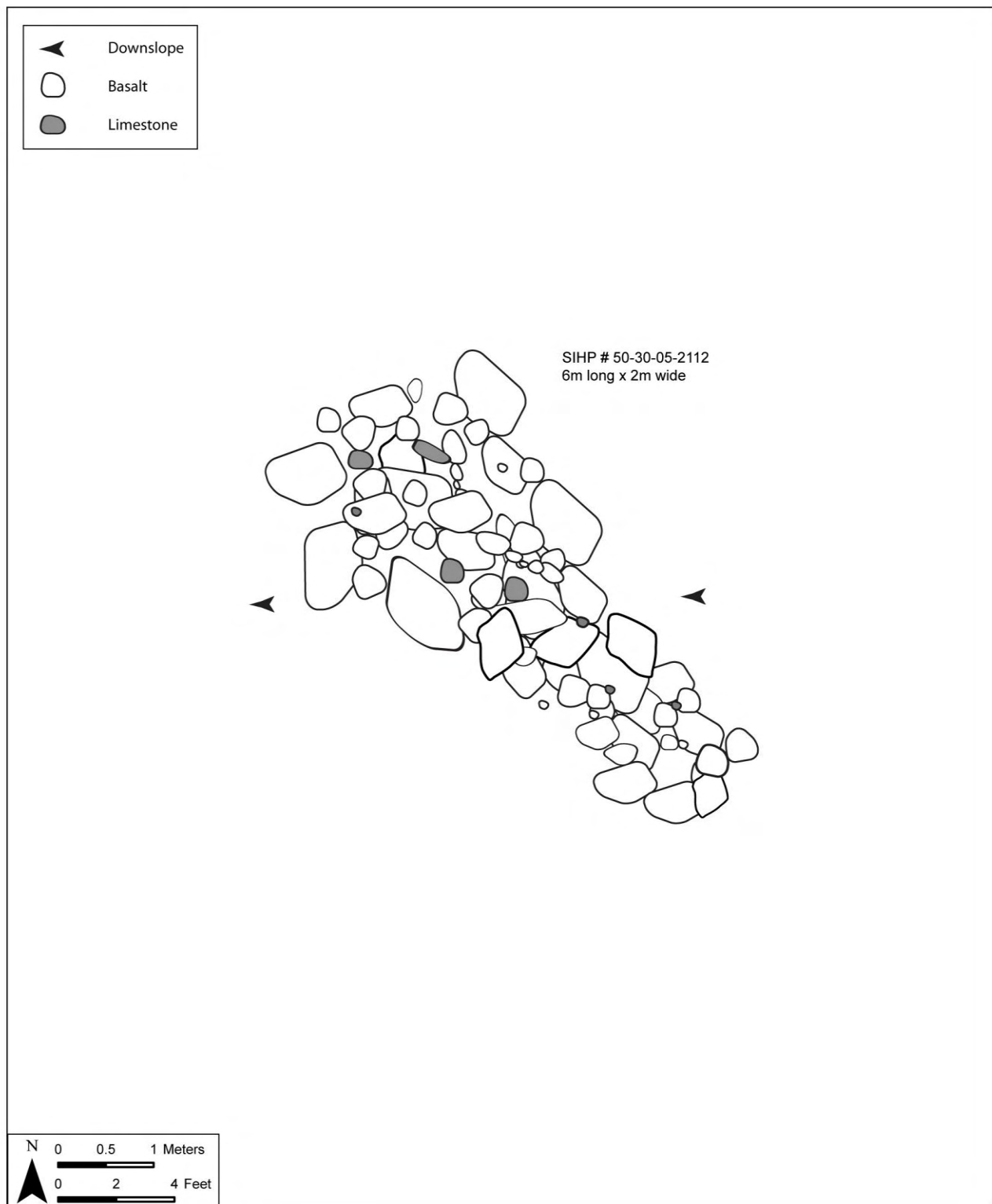


Figure 48. SIHP # 50-30-05-2112, habitation terrace; plan view.



Figure 49. General overview of SIHP # 50-30-05-2112, southeastern portion of the mound; view southeast.

4.1.7 SIHP # 50-30-05-2113

SITE TYPE: House site
FUNCTION: Habitation
FEATURES: 9
CONDITION: Remnant
AGE: Historic
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2113 is the remnants of a historic house site with associated features, present on the west side of Kekaha Ditch in a portion of the survey area that has been dropped from the current project area. The site measures 50 m north/south by 56 m east/west and consists of two terraces (Features 1 and 6); a cesspool and house foundation (Features 3 and 4); a fence line (Feature 3); two ditches (Features 5 and 7); a parking area (Feature 8); and an enclosure (Feature 9). Historic and modern trash refuse are scatter throughout the site, however two main concentrations were observed along Features 1 and 5. Impacts to the site include erosion, livestock grazing, and modern hunting activities. Excavation potential is good on the terraces and in the cesspool (Features 1, 6, and 3). The site is in overall remnant condition.

Feature 1 is a large terrace located around the extent of the house foundation and cesspool, and forms a rough u-shape (Figure 51, Figure 52, and Figure 53). Natural bedrock outcrop is also present along the terrace and has been utilized in its construction. The terrace is constructed of stacked small, medium, and large basalt cobbles and boulders on its northern side. It ranges in height from 0.6 to 1.0 m and is 2-5 courses high. Concrete pieces are also present in the construction, but occur only intermittently in this portion of the terrace. A water pipe was observed on the northeastern side of the terrace. No mortar was observed. Ceramic insulator fragments were observed along the terrace, by the cesspool (Feature 2). The terrace is more formally constructed on the southern side, with facing some portions, and stacked 4-8 courses high. Larger pieces of concrete have been utilized in the terrace construction along its southern and eastern sides. Historic refuse dating from the 1940s to the 1960s is present along this side of the terrace. Large deadfall trees are also present along this portion, between the terrace wall and the secondary ditch (Feature 7) feeding the reservoir and modern trash including beer cans and plastic food wrappers were also observed.

Feature 2 is a basalt-lined cesspool located 5-7m southwest of the house foundation (Feature 4; Figure 54). It appears to be in good condition, though partially filled in by sediment and vegetation. It was 0.75-1.0 m deep at the time of documentation. No concrete or mortar was observed, and the cesspool appears to be at the intersection of two terraces associated with Feature 1. A large, rectangular piece of metal sheeting was observed approximately 3 m south of the cesspool and may have been part of its cover.

Feature 3 is a fence line present south of the main terrace (Feature 1; Figure 55). It is constructed of cut *kiawe*, *koa haole* trees and barbed wire. This fence is similar to the constructed fence around the enclosure (Feature 9), with 9 strands of barbed wire. The fence stretches from the northern terrace wall south across the secondary ditch (Feature 7) and back to the northeast, where it terminates on the northeastern side of Kekaha Ditch.

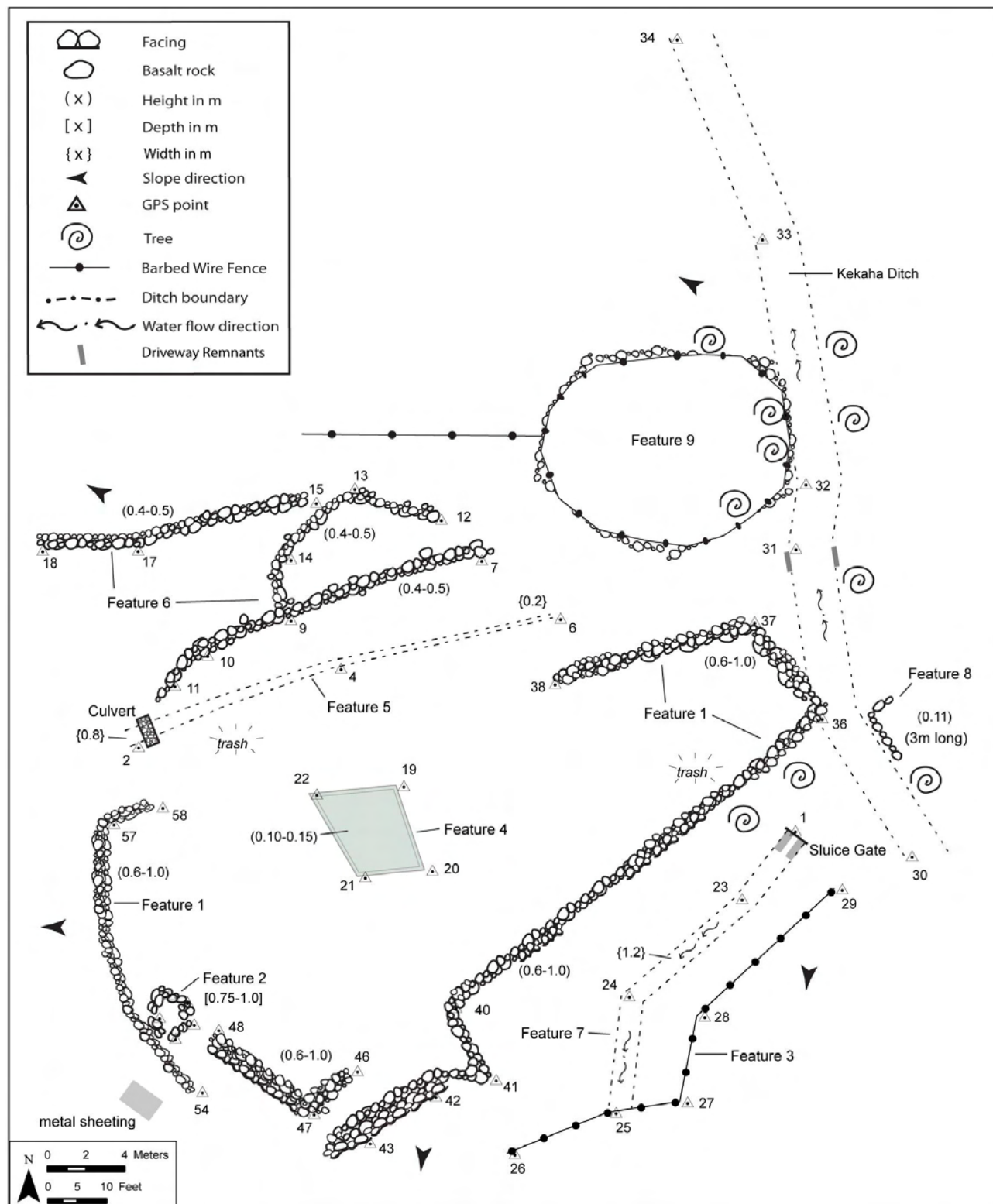


Figure 50. SIHP # 50-30-05-2113, historic house site; plan view.



Figure 51. General overview of SIHP # 50-30-05-2113 Feature 1, terrace; view northwest.



Figure 52. Close up of SIHP # 50-30-05-2113, Feature 1 with water pipe; view west.



Figure 53. Historic refuse scatter present on SIHP # 50-30-05-2113, Feature 1; view east.



Figure 54. SIHP # 50-30-05-2113, Feature 2, cesspool; view southwest.



Figure 55. SIHP # 50-30-05-2113, Feature 3, fence line; view southeast.

Feature 4 is a concrete house foundation present at the summit of a small rise (Figure 56 and Figure 57). Terraces surround the foundation (Features 1 and 6) and a cesspool is present on its southwest corner. The foundation appears to be poured concrete. The remnants are 10-15 cm high and 7.5 cm thick. The house foundation is overgrown with vegetation and a weed mat is present on the interior floor surface. Random pieces of concrete are scattered along the perimeter of the foundation.

Feature 5 is a small secondary ditch that appears to have serviced the house (Figure 58, Figure 59, and Figure 60). It is present between the large terrace (Feature 1) and the enclosure (Feature 9). The ditch has been filled in at its intersection with Kekaha Ditch; however remnants of it are visible beginning approximately 10 southwest of Kekaha Ditch. The ditch varies in width between 20 and 80 cm, getting larger and deeper toward the house foundation. A built culvert of stacked and mortared basalt boulders is present at the southwestern extent of the ditch. Modern trash and miscellaneous metal were observed along the ditch, and a large historic scatter of food and beverage containers, as well as household debris was observed on the southwestern side of the culvert. The refuse observed includes screw top bottles, cold cream jars, cans, and miscellaneous metal and appears to date to the 1950s and 60s (Figure 60). The ditch widens on the southwestern side of the culvert and appears more like a stream than a built feature. The built culvert is constructed of basalt boulders and mortar, and measures 2.6 m long by 1.16 m wide by 1.05 m high. The concrete pipe measures 0.60 m in diameter.



Figure 56. General overview of SIHP # 50-30-05-2113, Feature 4, house foundation; view east.



Figure 57. Close up of northeast corner of SIHP # 50-30-05-2113, Feature 4; view east.



Figure 58. Overview of SIHP # 50-30-05-2113, Feature 5, secondary house ditch; view west.



Figure 59. Culvert associated with SIHP # 50-30-05-2113, Feature 5; view northwest.



Figure 60. Overview of historic refuse scatter present in SIHP # 50-30-05-2113, Feature 5; view northwest.

Feature 6 is a series of three terraces located on the northwest side of the house foundation (Feature 4; Figure 61). The terrace walls vary in height between 40 and 50 cm, and are 2-4 courses high. They are constructed of large basalt cobbles and small boulders with intermittent pieces of concrete. They appear to form flat areas of usable land surface along a north-facing slope.

Feature 7 is a secondary ditch flowing on the southwest side of Kekaha Ditch (Figure 62). A sluice gate is present at the head of the ditch and water was flowing at the time of documentation. The ditch is earthen with areas of concrete reinforcement at its head and in proximity to the sluice gate. Intermittent sections of stone lining are also present along the ditch, near the terrace (Feature 1) and house foundation (Feature 4). The ditch measures 1.2 m wide and flows in a meandering southwest direction to a nearby reservoir.

Feature 8 is a limestone, blue rock, and basalt alignment, L-shaped, and located on the northeast side of Kekaha Ditch (Figure 63). The alignment may have once functioned as a parking area or driveway. A paved access road is present approximately 20 m northeast of the alignment. The maximum height of the alignment is 11 cm. A few large boulders are present on the southern extent of the alignment, abutting a sluice gate of Kekaha Ditch. Remnants of a concrete driveway and bridge are present approximately 5 m north of the alignment, on the north side of a large mango tree (Figure 64). These remnants appear to have crossed Kekaha Ditch at one time.



Figure 61. General overview of SIHP # 50-30-05-2113, Feature 6 terrace; view east.



Figure 62. Overview of SIHP # 50-30-05-2113, Feature 7 northeastern extent; view southeast.



Figure 63. Overview of SIHP # 50-30-05-2113, Feature 8, parking area; view northwest. Note access road in the background.



Figure 64. SIHP # 50-30-05-2113 Feature 8, bridge remnant crossing Kekaha Ditch; view southwest.

Feature 9 is a large enclosure located on the northwest side of Kekaha Ditch, north of smaller house ditch (Feature 5) and terrace (Feature 6; Figure 65). Large mango trees and basalt boulders form a natural circular enclosure, which has been reinforced with cut lumber 4x4 and 2x8 fence posts, barbed wire, and chicken wire. A total of 11 strands of barbed wire are present in some areas of the fence indicating the enclosure was likely used for smaller livestock such as chickens or pigs. The fence line continues approximately 15 m west, beyond the enclosure. The enclosure measures 12.4 m north/south by 8.0 m east/west.



Figure 65. Overview of SIHP # 50-30-05-2113, Feature 9, enclosure with barbed wire fence; view northwest.

4.1.8 SIHP # 50-30-05-2114

SITE TYPE: Heiau
FUNCTION: Ceremonial
FEATURES: 5
CONDITION: Fair-to-poor
AGE: Indeterminate
TAX MAP KEY: (4) 1-2-002:001

SIHP # 50-30-05-2114 is the remnants of a five-tiered heiau present on the east side of the Old Government Road (SIHP # 50-30-05-2107 Feature B) and the southwest side of Mānā Quarry. Kekaha Ditch passes through the site, bisecting its lower two tiers. McEldowney (1993) partially recorded the site as part of an archaeological inventory survey in support of the expansion of Mānā Quarry. The letter report concluded the site was not Ho'one'enu'u Heiau, originally described by Thrum and later recorded by Bennett. This conclusion was based on a comparison of drawings, descriptions, and locator maps of Ho'one'enu'u Heiau by Thrum, Bennett, and Ching (1974), with the structure located in the southwest corner of the Mānā Quarry Expansion survey area. However, the site partially documented by McEldowney in 1993 is erroneously listed as SIHP # 50-30-05-12 with the SHPD.

CSH concurs with McEldowney's assessment that SIHP # 50-30-05-2114 is not Ho'one'enu'u Heiau. SIHP # 50-30-05-2114 is located at the base of Makahoa Ridge, while SIHP # 50-30-05-12 is documented at the base of Kaunalewa Ridge further south. In addition, previous documentation of Ho'one'enu'u Heiau indicates there were only two platforms and they are described as located, "on the inland side of the second ditch line" (Ching 1974). While Ching's sketch map of Ho'one'enu'u Heiau reflects its presence on the landscape in a similar manner to SIHP # 50-30-05-2114, it is much smaller and the construction styles are noticeably different. During additional documentation of SIHP # 50-30-05-2114, CSH archaeologists relocated SIHP # 50-30-05-12 for clarification purposes. Figure 66 shows the relationship of the two sites, while Figure 67 and Figure 68 show the different forms of construction.

SIHP # 50-30-05-2114 is a large structure consisting of five terraces. The site is located on a steep slope at the base of Makahoa Ridge and is constructed on a large, steep-sloping, bedrock outcrop. The site measures 50 m east/west by 24 m north/south and Kekaha Ditch, a man-made stone and mortar lined irrigation water feature, bisects the site between the bottom two terraces (Terrace 4 and Terrace 5). Vegetation on-site includes *kiawe*, *koa haole*, and exotic grasses. The site has been impacted by the construction of Kekaha Ditch and livestock grazing activities; remnants of a site buffer related to the expansion of Mānā Quarry are also present and include PVC poles along the east side of Kekaha Ditch, as well as a wire strung across the eastern site boundary. Remnants of a fence line are also present along the eastern site boundary.

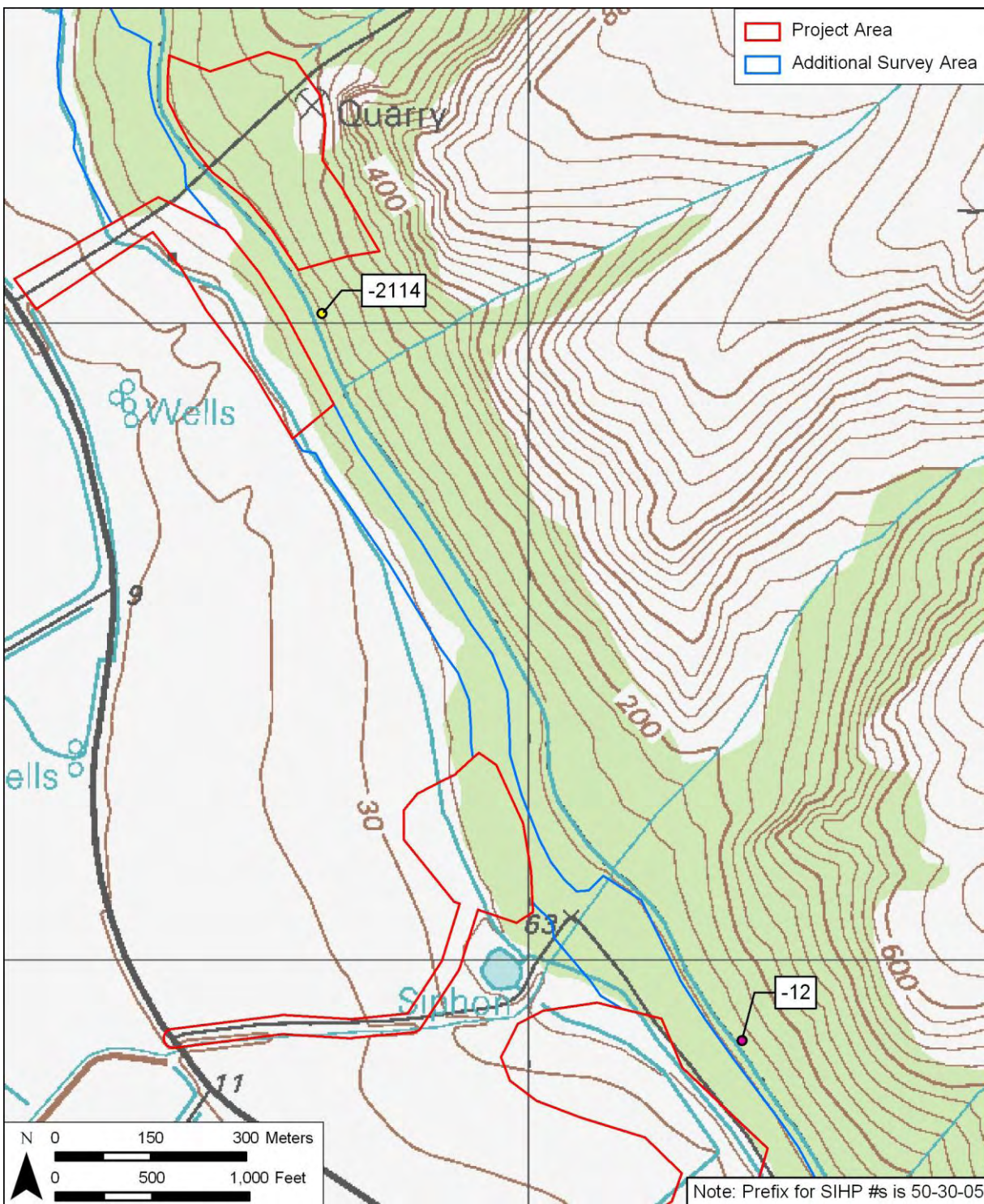


Figure 66. A portion of the 1983 U.S. Geological Survey, Kekaha Quadrangle, 7.5-minute series map showing the project area, survey area, and the locations of SIHP #s 50-30-05-2114 and 50-30-05-12



Figure 67. General overview of SIHP # 50-30-05-2114, showing construction technique; view east.



Figure 68. General overview of SIHP # 50-30-05-12 showing construction technique; view east with Kekaha Ditch the foreground.

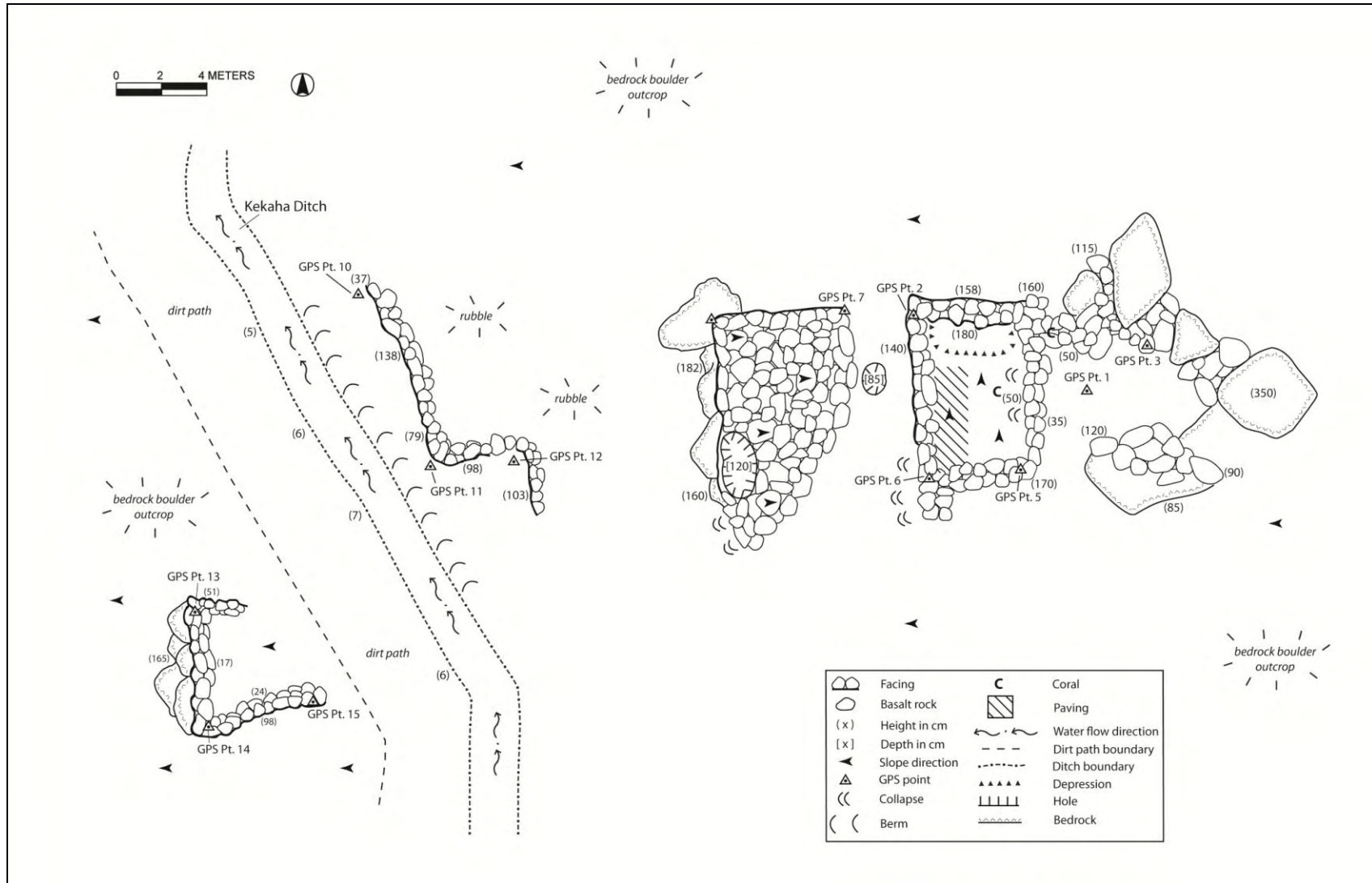


Figure 69. SIHP # 50-30-05-2114, heiau; plan view

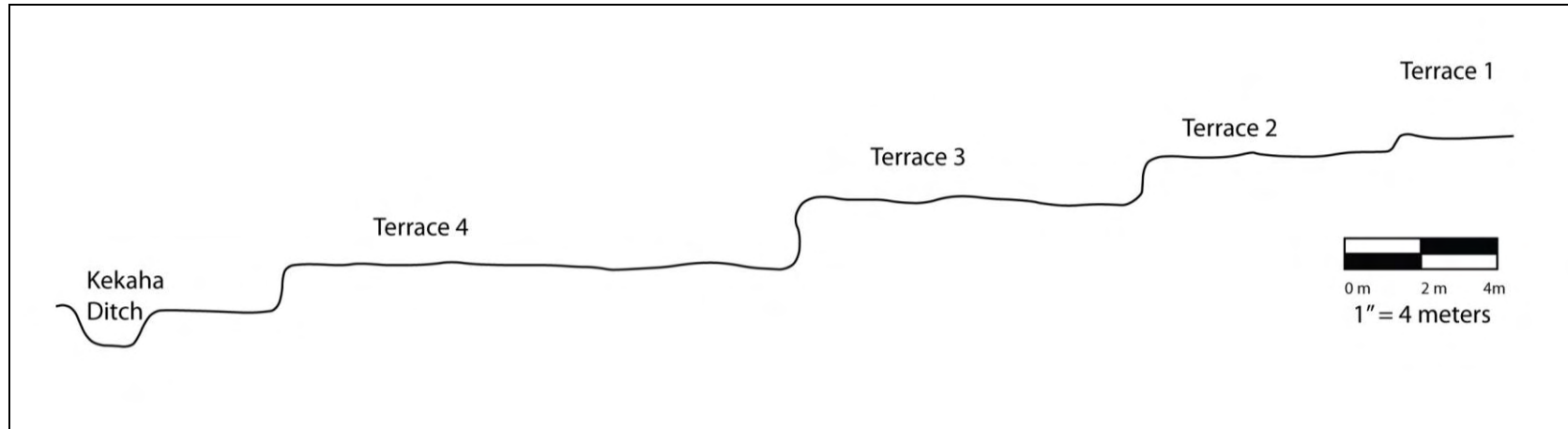


Figure 70. SIHP # 50-30-05-2114, heiau, cross-section of terraces 1-4.

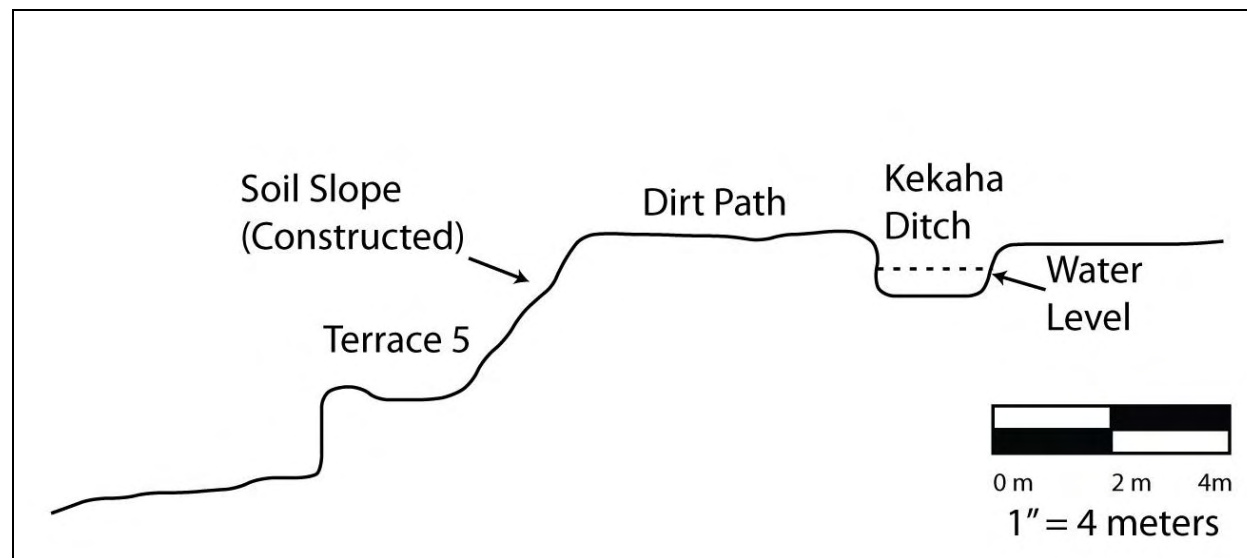


Figure 71. SIHP # 50-30-05-2114, heiau, cross-section of terrace 5.

Terrace 1 is the upper-most terrace of the structure, present on the eastern site boundary. It measures approximately 13 m north/south by 12 m east/west and consists of a natural basalt bedrock outcrop, which has been modified to create an informal enclosure. The enclosure is constructed of a loosely stacked wall on the north side, large natural basalt boulders on the east and south sides, and a partially collapsed wall on the west side. The floor of Terrace 1 consists of large natural basalt boulders and placed small, medium, and large basalt cobbles. A large *kiawe* tree is also present. A piece of branch coral was observed on the north wall; however no other features or artifacts were observed within Terrace 1.



Figure 72. Overview of SIHP # 50-30-05-2114 Terrace 1; view southwest



Figure 73. Branch coral present on the north wall of SIHP # 50-30-05-2114 Terrace 1; view close-up.

Terrace 2 is a formally constructed, walled enclosure measuring 10 m north/south by 8 m east/west. It is 5 courses high at its highest constructed point on the northwest corner and is comprised of stacked small, medium, and large basalt boulders. The north and west walls are faced, while the south and east walls are similarly stacked but utilize the natural bedrock as well. Terrace 2 shares its eastern wall with Terrace 1. The floor of Terrace 2 is partially paved and collapse is evident from the eastern wall. A piece of branch coral was observed in the central portion of the enclosure near the collapsed portion of the east wall. A large depression is present on the northern side, which measures 1.5 m north/south by 4 m east/west. Several small *kiawe* trees were present at the time of documentation.



Figure 74. SIHP # 50-30-05-2114 Terrace 2, overview of north wall; view south.



Figure 75. SIHP # 50-30-05-2114 Terrace 2, overview of west wall; view east.

Terrace 3 is present west, and adjacent to, Terrace 2 and measures 11 m north/south by 9 m east/west. It shares its eastern wall with Terrace 2 and its north and west walls are formally stacked 3-6 courses high. The southern extent of Terrace 3 is not well defined; some collapse is evident, however no clear remnant of construction was observed at the time of documentation. The floor of Terrace 3 consists of small, medium, and large, loosely stacked basalt cobbles and boulders with intermittent natural bedrock outcrop. The western portion of Terrace 3 appears to be formally constructed while the eastern portion, adjacent to the formally constructed eastern wall consists of larger, naturally occurring basalt boulders. Two holes were observed in the floor of Terrace 3; these include a small, 1.0 m in diameter by 0.85 m deep, hole near the base of the eastern wall and a larger, oval shaped hole along the southern portion of the west wall. The larger hole measures 3 m north/south by 1.5 m east/west and is approximately 1.2 m deep. It was partially filled with rubble. No features or artifacts were observed within the holes and their purpose is unknown. No vegetation is present in the northern portion of Terrace 3, however the southern extent contained deadfall and *kiawe* trees are present further south of the feature.



Figure 76. SIHP # 50-30-05-2114 Terrace 3, north wall at its northwest corner; view south.



Figure 77. Floor of SIHP # 50-30-05-2114 Terrace 3; view west.

Terrace 4 is present between Terrace 3 and Kekaha Ditch and measures approximately 10 m north/south by 13.5 m east/west. Terrace 3 is the largest of the terraces and also the most poorly constructed. Remnants of a wall, stacked 2-5 courses high, are present on the west side of the terrace approximately 3 m east of Kekaha Ditch. The wall is 1.38 m high at its highest point in the northern section. No other construction is visible; the floor appears to be natural bedrock outcrop, rubble, and is partially obscured by *kiawe* deadfall and grasses. No other features or artifacts were observed on this terrace.



Figure 78. Overview of SIHP # 50-30-05-2114 Terrace 4; view east.



Figure 79. SIHP # 50-30-05-2114 Terrace 4, west wall; view east

Terrace 5 is located on the west side of Kekaha Ditch, approximately 2.5 m downslope of the dirt path present alongside the ditch. This terrace is smaller than the other 4 terraces, however it is formally constructed of stacked basalt cobbles and boulders, 4-7 courses high, atop a natural bedrock outcrop. Walls are present on the north, west, and south sides and the slope forms the west side of the terrace. The floor of the terrace is soil over medium and large basalt boulders. A 1 m by 1 m hole is present at the base of the west wall, on the north side of a tree, which appears to be an animal den. No other features or artifacts were observed.



Figure 80. Floor of SIHP # 50-30-05-2114 Terrace 5 from the dirt path alongside Kekaha Ditch; view west.



Figure 81. SIHP # 50-30-05-2114 Terrace 4, west wall at the northwest corner; view northeast.

Section 5 Summary and Interpretation

Project related fieldwork consisted of a 100% pedestrian inspection of an approximately 5-mile portion of the New and Old Government Roads along the eastern edge of the Mānā Plain. As a result of this pedestrian inspection, seven historic properties were identified and documented. The project area was adjusted to avoid as many historic properties as possible and the result is only 1 historic property, SIHP # 50-30-07-2107, portions of the New and Old Government Road, will be affected. An eighth site (SIHP # 50-30-05-2113) was documented because of its proximity to the Mānā Quarry, which will be used as a temporary base yard for rock crushing activities. This site was mentioned by community members during consultation for the companion CIA. No subsurface testing was conducted because the project will avoid those sites that have a possibility of containing intact subsurface cultural material.

Historic properties documented as a result of the inventory survey include portions of the New and Old Government Road (SIHP # 50-30-07-2107); two habitation terraces (SIHP #s 50-30-05-2108 and -2112); a wall remnant (SIHP # 50-30-05-2109); a mound of unknown function (SIHP # 50-30-05-2110); agricultural mounds (SIHP # 50-30-05-2111); a historic house site (SIHP # 50-30-05-2113); and a heiau (SIHP # 50-30-05-2114). Each historic property was documented with written field descriptions and photographs, and each site feature was located using Trimble Pro XH Global Positioning System (GPS) survey technology (sub-meter accuracy).

The historic properties documented as part of the current inventory survey represent human use of the eastern edge of the Mānā Plain from pre-Contact to historic times. The findings of this archaeological inventory survey support the predictive model based on background research. Extensive land alteration, including the filling of former marshlands of the Mānā Plain, associated with plantation era sugar cane cultivation has likely destroyed most remnants of pre-Contact and historic era structures that may have been present within the survey area.

Section 6 Significance Assessments

The historic properties identified by the current study were evaluated for significance according to the broad criteria established for the National and Hawai'i Registers of Historic Places. A summary table is present below the criteria, followed by site descriptions and their significance assessments. The five criteria are:

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

Table 4. Summary of Sites Documented as a Result of the Archaeological Inventory Survey

SIHP #	Site Type	Function	Features	Condition	Age	Significance
50-30-05-2107	Historic Road Alignments	Transportation	20	Good	Plantation Era	D
50-30-05-2108	Terrace	Habitation	1	Fair	Pre-contact	D
50-30-05-2109	Alignment	Wall	1	Poor	Plantation Era	D
50-30-05-2110	Mound	Unknown function	1	Good	Indeterminate	D
50-30-05-2111	Mounds	Agricultural	8	Good	Indeterminate	D
50-30-05-2112	Terrace	Habitation	1	Fair	Indeterminate	D
50-30-05-2113	House site	Habitation	1	Fair	Historic	D
50-30-05-2114	Heiau	Ceremonial	5	Fair-to-poor	Indeterminate	D, E

SIHP # 50-30-05-2107 is portions of the New and Old Government Road present on a portion of the 1983 U.S. Geological Survey, Kekaha Quadrangle, 7.5-minute series map (see Figure 1). SIHP # 50-30-05-2107 is interpreted as associated with plantation-era sugar cane and other agricultural cultivation. SIHP # 50-30-05-2107 is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

SIHP # 50-30-05-2108 is a habitation terrace located on a west-facing slope approximately 10 m east of New Government Road (SIHP # 50-30-05-2107 Feature B). SIHP # 50-30-05-2108 is interpreted as associated with pre-contact and/or early post-contact habitation of Kekaha and is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

SIHP # 50-30-05-2109 is the remnants of a stacked wall present approximately 15 m east of New Government Road (SIHP # 50-30-05-2107 Feature B). The wall likely represents the remnants of plantation-era infrastructure associated with livestock and/or agricultural activities. SIHP # 50-30-05-2109 is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

SIHP # 50-30-05-2110 is a small, low mound located between the Old and New Government Roads (SIHP # 50-30-05-2107 Features A and B). The mound is of unknown function; however it does have research potential and is therefore assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

SIHP # 50-30-05-2111 is a series of small-to-medium sized mounds interpreted as related to agriculture or clearing activities. SIHP # 50-30-05-2111 is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

SIHP # 50-30-05-2112 is a large, oval-shaped terrace located along the southeast edge of an ephemeral drainage. The terrace is interpreted as related to habitation activities. SIHP # 50-30-05-2112 is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

SIHP # 50-30-05-2113 is the remnants of a historic house site with associated features, present on the west side of Kekaha Ditch. The site is interpreted as a historic dwelling remnant and is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

SIHP # 50-30-05-2114 is the remnants of a five-tiered heiau present on the east side of the Old Government Road (SIHP # 50-30-05-2107 Feature B) and the southwest side of Mānā Quarry. The site is interpreted as a pre-contact ceremonial structure and is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) National and Hawai'i Registers of Historic Places evaluation criteria and Criterion 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 history accounts – these associations being important to the group's history and cultural identity) of the Hawai'i Registers of Historic Places evaluation criteria.

Section 7 Project Effect and Mitigation Recommendations

The following project effect discussion and cultural resource management recommendations are intended to facilitate project planning and support the proposed project's required historic preservation consultation. This discussion is based on the results of this archaeological inventory survey investigation and CSH's communication with agents for the project proponents regarding the project's potential impacts to the historic properties described in the Results of Fieldwork section, above.

7.1 Project Effect

The proposed project will affect historic properties recommended eligible to the Hawai'i Register. CSH's project specific effect recommendation is "effect, with agreed upon mitigation measures." The mitigation measures described below will help alleviate the project's impact on significant historic properties.

7.2 Mitigation Recommendations

Because the boundaries of the project area for proposed rock collecting and crushing activities was flexible, a survey area was established, archaeological sites were identified and recorded, and the project area was placed to avoid those sites. Of the eight sites recorded as part of the inventory survey, all but one will be avoided by the current project. Portions of SIHP # 50-30-05-2107 will be impacted by the proposed project, however sufficient information regarding the location, function, age, and construction methods of the roads and associated features has been generated by the current inventory survey investigation to mitigate any adverse effect caused by proposed project activities.

7.2.1 Preservation Program

Though the current project will not impact SIHP # 50-30-05-2114, a heiau, it is recommended that a clearly marked buffer zone be established around the heiau to ensure that project activities remain well away from this historic property. In addition, all sites in proximity to the project area should be flagged to ensure they are avoided by project related activities. The details of the buffer zones and flagging should be outlined in a preservation plan to be submitted for review and approval by the SHPD.

7.2.2 Monitoring Program

A monitoring program consisting of a periodic inspection of project related activities is recommended for this project. A monitoring plan should be submitted to the SHPD for review and approval before any ground disturbing activities begin, and a report detailing monitoring activities should be generated after archaeological monitoring is complete.

In summary, all sites documented as part of this inventory survey are recommended eligible to the Hawai'i Register of Historic Places. A preservation program is recommended for all sites in proximity to the project area, including the heiau, to ensure that project related activities do not

impact these historic properties. In addition a monitoring program consisting of a periodic inspection of project related activities is recommended for this project. The recommended preservation and monitoring programs should alleviate any adverse impacts to significant historic properties resulting from project related activities.

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