

CADES SCHUTTE LLP
A Limited Liability Law Partnership

CALVERT G. CHIPCHASE 7757-0
ANDREA K. USHIJIMA 10010-0
1000 Bishop Street, Suite 1200
Honolulu, HI 96813
Telephone: (808) 521-9200

Attorneys for Petitioner
TRUSTEES OF THE ESTATE OF BERNICE PAUAHI
BISHOP dba KAMEHAMEHA SCHOOLS

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAI'I

In the Matter of the Petition of

TRUSTEES OF THE ESTATE OF
BERNICE PAUAHI BISHOP dba
KAMEHAMEHA SCHOOLS

To Amend The Conservation Land Use
District Boundaries Into the Agricultural Land
Use District for approximately 94.107 acres of
land, consisting of a portion of Tax Map Key
No. (3) 1-3-009-005 (por.) at Kauaea, Puna,
Island and County of Hawai'i, State of
Hawai'i.

DOCKET NO. A19-807

PETITION FOR LAND USE DISTRICT
BOUNDARY AMENDMENT

EXHIBITS 1 – 18

VERIFICATION OF PETITIONER

VERIFICATION OF LICENSEE

AFFIDAVIT ATTESTING TO SERVICE
OF PETITION

AFFIDAVIT ATTESTING TO MAILING
OF THE NOTIFICATION OF FILING

CERTIFICATE OF SERVICE

**BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII**

In the Matter of the Petition of

TRUSTEES OF THE ESTATE OF
BERNICE PAUAHI BISHOP dba
KAMEHAMEHA SCHOOLS

To Amend The Conservation Land Use
District Boundaries Into the Agricultural Land
Use District for approximately 94.107 acres of
land, consisting of a portion of Tax Map Key
No. (3) 1-3-009:005 (por.) at Kauaea, Puna,
Island and County of Hawai‘i, State of
Hawai‘i.

DOCKET NO. A19-807

PETITION FOR LAND USE DISTRICT
BOUNDARY AMENDMENT

PETITION FOR LAND USE DISTRICT BOUNDARY AMENDMENT

Petitioner TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP dba KAMEHAMEHA SCHOOLS (“*Kamehameha Schools*”), by and through its attorneys, Cades Schutte LLP, respectfully petition the Land Use Commission of the State of Hawai‘i (the “*Commission*”) to amend the land use district boundaries of certain lands consisting of approximately 94.107 acres of land, consisting of a portion of Tax Map Key No. (3) 1-3-009-005, situated at Kauaea, Puna, Island and County of Hawai‘i, State of Hawai‘i (the “*Petition Area*”).

Specifically, Kamehameha Schools petitions the Commission to amend the land use district boundaries of the Petition Area from the State Land Use Conservation District (“*Conservation District*”) to the State Land Use Agricultural District (“*Agricultural District*”) to allow Sanford’s Service Center, Inc., a Hawai‘i corporation (“*Licensee*”), as licensee of a 73.075-acre portion (the “*License Area*”) of the Petition Area under that certain Cinder Purchase Agreement and License made by Kamehameha Schools, as amended (collectively, the “*License Agreement*”), to expand its cinder mining and quarry operations within the License Area (“*Project*”). A map of the Petition Area is attached hereto as Exhibit 1. If this Petition is granted, Kamehameha Schools may allow Licensee to apply for a Special Permit to conduct the quarry

activities within the License Area, being a 73.075-acre portion of the Petition Area. The remaining 21.032 acres of the Petition Area will be reserved as buffer areas.

Prior to taking action on Kamehameha Schools' request for a Land Use District Boundary Amendment ("***Boundary Amendment***"), concurrent with the filing of this Petition, Kamehameha Schools has filed a Motion Requesting the Land Use Commission to be the Accepting Authority for an Environmental Impact Statement ("***EIS Motion***"). Through the EIS Motion, Kamehameha Schools is respectfully requesting that the Commission agree to be the accepting authority to determine the acceptability of the Environmental Impact Statement ("***EIS***") being prepared by Licensee to assess the environmental effects of the proposed Boundary Amendment.

I. INTRODUCTION

Licensee presently has a Conservation District Use Permit, CDUA - HA 1957 and HA - 1957A, issued on April 7, 2008 (the "***CDUP***") by the State of Hawai'i Board of Land and Natural Resources ("***BLNR***") to conduct mining operations on a thirty-acre portion of the Petition Area. *See Exhibit 2* attached hereto. The portion of the Petition Area subject to the CDUP is designated in the Limited (L) subzone of the Conservation District. Prior to 2011, mining and quarry operations were identified land uses within the Limited (L) subzone, however, in 2011, Chapter 13-5, Hawai'i Administrative Rules ("***HAR***"), was amended such that mining and quarry operations were no longer identified land uses in this subzone. Although Licensee's mining and quarry use under the existing CDUP remains permissible as a legal nonconforming use, Licensee is unable to expand its mining and quarry operations in the Petition Area without either requesting to change the subzone, or amending the State Land Use District boundaries. Because the Petition Area is surrounded by lands designated in the Agricultural District, and because the Licensee is legally allowed to mine and quarry thirty acres of the Petition Area, Kamehameha Schools is requesting a boundary amendment pursuant to Section 205-4(a), Hawaii Revised Statutes ("***HRS***"), and the Land Use Commission Rules of the State of Hawaii, Title 15, Subtitle 3, Chapter 15 of the HAR, to reclassify the Petition Area lands from the Conservation District to the Agricultural District. If the request for Boundary Amendment is granted, Kamehameha Schools may allow Licensee to file an application for a Special Permit to expand its quarry operations within the Petition Area. Licensee estimates that the remaining life of the

existing quarry is six (6) months, whereas the expected life for the expanded quarry will be thirty (30) years.

II. ENVIRONMENTAL REVIEW AND AMENDED PETITION

Due to the requirement to complete the environmental review process, Kamehameha Schools reserves the right to file an Amended Petition with the Commission upon completion of the HRS Chapter 343 environmental review process. The Amended Petition will include more details about the Project and the requirements for the Boundary Amendment. Much of the necessary information will be developed as part of the preparation of the EIS. Kamehameha Schools acknowledges that this Petition does not satisfy the Commission's requirements for an acceptable Petition under the Commission's rules, HAR Title 15, Subtitle 3, *State Land Use Commission*, Chapter 15, and intends to provide all appropriate information regarding the Project and the proposed Boundary Amendment in the Amended Petition.

III. REQUIREMENTS UNDER HAR § 15-15-50(C) FOR PETITION FOR BOUNDARY AMENDMENT

A. PETITIONER INFORMATION

HAR § 15-15-50(c)(1): The exact legal name of each petitioner and the location of the principal place of business and if applicant is a corporation, trust, or association, or other organized group, the state in which the petitioner was organized or incorporated.

Kamehameha Schools is a Hawai'i charitable educational trust. The principal place of business of Kamehameha Schools is at 567 South King Street, Honolulu, Hawai'i 96813.

B. COMMUNICATION AND CORRESPONDENCE

HAR § 15-15-50(c)(2): The name, title, and address of the person to whom correspondence or communications in regard to the application are to be addressed.

Cades Schutte LLP represents Kamehameha Schools in accordance with HAR § 15-15-35(b). All correspondence and communication regarding this Petition shall be addressed to and served upon Calvert G. Chipchase, Cades Schutte LLP, 1000 Bishop Street, Suite 1200, Honolulu, Hawai'i 96813.

C. PROPERTY DESCRIPTION

HAR § 15-15-50(c)(3): Description of the subject property, acreage, and tax map key number, with maps, including the tax map, that identify the area under petition. If the subject property is a portion of one or more lots, or the petition proposes incremental development of the subject property on both increments of development, the petitioner shall include a map and description of the subject property and increments in metes and bounds prepared by a registered professional land surveyor.

The Petition Area is located in Kauaëa, District of Puna, Island and County of Hawai‘i State of Hawai‘i and consists of approximately 94.107 acres, being a portion of the larger 694.50 acre parcel designated as Tax Map Key No. (3) 1-3-009-005 (the “*Tax Parcel*”). Exhibit 3 attached hereto is a copy of the tax map (“*Tax Map*”) with the approximate proposed Petition Area shown with respect to the larger parcel of land, outlined in red. Exhibit 4 attached hereto is a metes and bounds description of the Petition Area prepared by Robert T. Shirai, of Island Survey, Inc., a registered professional land surveyor.

D. BOUNDARY AMENDMENT SOUGHT

HAR § 15-15-50(c)(4): The boundary amendment sought and present use of property, including an assessment of conformity of the boundary amendment to the standards for determining the requested district boundary amendment.

Kamehameha Schools seeks the reclassification of the Petition Area from the Conservation District to the Agricultural District. A thirty-acre portion of the Petition Area is presently being quarried for cinder under the CDUP, and the remainder of the Petition Area is undeveloped. Pursuant to HAR § 15-15-19 setting forth the standards for determining Agricultural District boundaries, such district may include “lands surrounded by or contiguous to agricultural lands or which area not suited to agricultural and ancillary activities by reason of topography, soils, and other related characteristics.” The Boundary Amendment sought in this Petition conforms to this standard. As shown on Exhibit 5 attached hereto, a majority of the Petition Area is surrounded by, and contiguous to, lands classified in the Agricultural District.

E. PETITIONER'S PROPERTY INTEREST IN THE SUBJECT PROPERTY

HAR § 15-15-50(c)(5): The petitioner's property interest in the subject property. The petitioner shall attach as exhibits to the petition the following: (A) a true copy of the deed, lease, option agreement, development, or other document conveying to the petitioner a property interest in the subject property or a certified copy of a nonappealable final judgment of a court of competent jurisdiction quieting title in the petitioner; (B) if the petitioner is not the owner in fee simple of the subject property, or any part thereof, written authorization of all fee owners to file the petition and a true copy of the deed to the subject property; and (C) an affidavit of the petitioner or its agent attesting to its compliance with section 15-15-48.

Kamehameha Schools is the fee owner of the Petition Area, which is entirely within the Tax Parcel. See title report prepared by Title Guaranty of Hawaii, LLC attached hereto as Exhibit 6 (“*Title Report*”).

An affidavit attesting to Kamehameha Schools' compliance with HAR §15-15-48 (Service of Petition) is filed with this Petition. In accordance with HAR § 15-15-48(d), copies of this Petition will also be served upon any potential intervenors upon receipt of a notice of intent to intervene pursuant to HAR § 15-15-52(b).

F. EASEMENTS

HAR § 15-15-50(c)(6): A description of any easements on the subject property, together with identification of the owners of the easements; a description of any other ownership interests shown on the tax maps.

The Tax Map shows a twenty-foot road affecting the Tax Parcel, but not the Petition Area. See Exhibit 6 attached hereto. The Tax Map notes “Kauaea Ranch Inc.” on the Tax Parcel, but a search of the State of Hawai‘i Department of Commerce and Consumer Affairs, Business Registration Division website shows no such entity presently in existence. Kamehameha Schools will review its records on the Tax Parcel and address in the Amended Petition whether “Kauaea Ranch Inc.” or any known successors or assigns have any present interest in the Petition Area. There are no easements affecting the Petition Area.

G. PROPOSED DEVELOPMENT

HAR § 15-15-50(c)(7): Type of use or development being proposed, including without limitation, a description of any planned development, residential, golf course, open space, resort, commercial, or industrial use.

Licensee proposes to expand its quarrying operations in certain areas of the Petition Area. If the Boundary Amendment is granted, Kamehameha Schools may permit Licensee to file an application for a Special Permit to conduct quarry operations and expand the quarry within the Petition Area, for processing with the County of Hawai‘i, and then with the Commission. Except for the proposed quarrying expansion, no other development is planned.

H. DEVELOPMENT TIMETABLE

HAR § 15-15-50(c)(8): A statement of projected number of lots, lot size, number of units, densities, selling price, intended market, and development timetables;

Licensee’s application for a Special Permit to conduct quarry operations and expand the quarry within the Petition Area would likely be filed shortly after any grant of Boundary Amendment, subject to further approval by Kamehameha Schools. Licensee would likely begin its expanded quarrying activity once all applicable permits have been obtained. Except for the proposed quarrying expansion, no other development is planned, and the Project does not entail any subdivision or sale of lots.

I. FINANCIAL CONDITION

HAR § 15-15-50(c)(9): A statement describing the financial condition together with a current certified balance sheet and income statement as of the end of the last calendar year, or if the petitioner is on a fiscal year basis, as of the end of the petitioner’s last fiscal year, and a clear description of the manner in which the petitioner proposes to finance the proposed use or development...

Because the Licensee will finance the Project, the Licensee will provide this financial information in the Amended Petition in satisfaction of this requirement.

J. DESCRIPTION OF PROPERTY AND SURROUNDING PROPERTY AREA
HAR § 15-15-50(c)(10): Description of the subject property and surrounding areas including the use of the property over the past two years, the present use, the soil classification, the agricultural lands of importance to the State of Hawai‘i classification (ALISH), the productivity rating, the flood and drainage conditions, and the topography of the subject property;

The Petition Area is adjacent to Leilani Estates Subdivision in Kauaea, District of Puna, Island and County of Hawai‘i, State of Hawai‘i. The Leilani Estates Subdivision was affected by the Kilauea Volcano Lower East Rift Zone eruption in 2018 (“**2018 Eruption**”). Although the Tax Parcel was slightly lava intruded, the Petition Area was not inundated. Due to the 2018 Eruption, the foliage within the Petition Area was largely destroyed, as was the foliage of the surrounding area. Despite the 2018 Eruption effects, the Petition Area remains suitable for quarrying. Some information about the Petition Area as set forth in this Petition was obtained from sources that have not been updated since the 2018 Eruption, and therefore may have been altered in ways that would make the Petition Area even more suitable for the Project.

1. Soil Classification

Soils located within the Petition Area are classified as: “Malama extremely cobbly highly decomposed plant material, 2 to 40 percent slopes”; “Hakuma highly organic hydrous loam, 2 to 10 percent slopes”; “Opihikao highly decomposed plant material, 2 to 20 percent slopes”; “Iilewa cobbly hydrous highly organic silty clay loam, 30 to 80 percent slopes”; “Panaewa very cobbly hydrous loam, dry, 2 to 10 percent slopes”. See Exhibit 7 attached hereto.

2. Agricultural Lands of Importance to the State of Hawaii Classification

A majority of the Petition Area is classified as “Other Important Agricultural Lands” by ALISH standards, with the remainder of the Petition Area being unclassified. See Exhibit 8 attached hereto.

3. Land Study Bureau

A majority of the Petition Area is rated “D - Poor Overall Productivity Rating” by the Land Study Bureau, with the remainder of the Petition Area rated “C - Fair Overall Productivity Rating”. See Exhibit 9 attached hereto.

4. Flood and Drainage

The Petition Area is located in Flood Zone X, an area determined to be outside the 0.2% annual chance floodplain. See Exhibit 10 attached hereto.

5. Topography

The surface consists of a`a (clinker lava), pahoehoe (ropy lava), spatter, loose cinder and soil. The Petition Area is not located within the tsunami inundation zone and therefore does not lie in an area subject to tsunami evacuation. See Exhibit 11 attached hereto.

K. IMPACT ASSESSMENT

HAR § 15-15-50(c)(11): An assessment of the impacts of the proposed use or development upon the environment, agriculture, recreational, cultural, historic, scenic, flora and fauna, groundwater, or other resources of the area. If required by Chapter 343, HRS, either a finding of no significant impact after a review of an environmental assessment or an environmental impact statement conforming to the requirements of Chapter 343, HRS, must be filed;

As described above, Kamehameha Schools intends to prepare an EIS to assess the potential impacts of the proposed Project and to identify any appropriate mitigation measures. Upon completion of the EIS process, Kamehameha Schools will file an Amended Petition that will fully address any impacts.

1. Environment

Quarrying and mining activities may produce minor impacts to air quality that are not apparent beyond the property boundary. These minor impacts include fugitive dust emissions from excavation and vehicle movement, as well as emissions of vehicle exhaust that include particulates, carbon monoxide (CO) and carbon dioxide (CO₂). According to the Licensee, the existing quarry produces virtually no dust. Further, the generally wet climate reduces dust emissions, and all truck loads removed from the Petition Area are covered.

Noise from industrial activities is normally mitigated through compliance with the State of Hawai'i Department of Health Community Noise Control Rules, which define maximum permissible noise levels for construction equipment and prescribe mitigation measures to achieve these levels.

Potential environmental impacts, and any mitigation measures, will be addressed further in the EIS.

2. Cultural

A Cultural Impact Assessment for the Petition Area was completed in 2015, and updated in 2019, by Maria Orr, MA, of Kaimipono Consulting Services LLC, ("**Orr CIA**"), a copy of which is attached hereto as Exhibit 12. The Orr CIA identifies Pu'u Kali'u as a prominent feature in the vicinity of, but outside of, the Petition Area, and describes Licensee's current quarrying activity as being conducted in a direction away from the Pu'u. The Orr CIA further explains that the License Agreement expressly prohibits Licensee from mining Pu'u Kali'u, and concludes that "cultural impact will be a non-issue for this project since the [quarrying] expansion will not jeopardize the summit of Pu'u Kali'u - the Newell's Shearwater nesting grounds and a USGS triangulation station or access to cultural resource areas."

3. Archaeological Resources

A Final Archaeological Inventory Survey for a 309-acre portion of the Tax Parcel, including the Petition Area, was completed by Alan E. Haun, Ph.D., of Haun & Associates and submitted to the State Historic Preservation Division on October 1, 2013 ("**Haun AIS**"). *See Exhibit 13* attached hereto. The Haun AIS found six (6) sites comprised of ten (10) features. The sites are comprised of four (4) single feature sites and two (2) feature complexes. The features consist of five roads, an enclosure, an enclosure with a ramp, a slab with a vertical metal post supporting a sign, a trail and a railroad grade. All six (6) sites are significant for information content, and assessed as significant under Criterion "d" (indicating that it has yielded, or is likely to yield, information important for research on prehistory or history). The trail was assessed as culturally significant as a main, probably named transportation route. The mapping, written descriptions and photography at five of the six sites adequately documents them and no further work or preservation is recommended. The trail, Site 29723 is recommended for preservation, and is culturally significant under Criterion "e" (indicating that it has an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to association with traditional beliefs, events or oral accounts -- these associations being important to the group's history and cultural identity.)

Four of the six sites discussed in the Haun AIS are within or partially within the Petition Area. Site 29723 may represent the inland extension of the Kauaea Trail or Kaueleau Trail and was depicted south of the Petition Area on a 1895 map. However on a 1927 map, the Kaueleau

Trail appears to extend into the Petition Area. To Kamehameha Schools' knowledge, Licensee has no intention to conduct quarrying activities in the vicinity of Site 29723.

Haun and Associates prepared a Site Preservation Plan (SPP) in 2013, primarily concerning Site 29723 and proposing to preserve the trail segment with implementation of buffers and fencing. *See Exhibit 14* attached hereto. The State Historic Preservation Division expressed acceptance the Haun AIS on September 23, 2013 and approved the SPP on June 24, 2014. *See Exhibit 15* attached hereto. The EIS will document consultation and concurrence with the State Historic Preservation Division and will discuss the SPP in further detail.

4. Recreational and Scenic Resources

Although there are no public parks near the Petition Area, the lower Puna shoreline is located several miles *makai* of the Petition Area. The EIS will discuss any impacts on recreational and scenic resources, and any appropriate mitigation measures.

5. Hazardous Substances, Toxic Waste and Hazardous Conditions

According to the Licensee, a preliminary review of land use history and site reconnaissance reveals no evidence of hazardous materials, and the proposed quarry expansion is not anticipated to produce material hazardous effects. Construction activities would use small quantities of fuels from portable fuel tanks to power generators and construction equipment, and these fuels would be stored away from equipment and potential sources of ignition. The Licensee uses drip pans to minimize the potential for fluid releases during fueling activities and storage, and services vehicles and equipment off-site while maintaining them in good condition. The EIS will discuss hazardous substances, toxic waste and hazardous conditions, and appropriate mitigation measures.

L. PUBLIC SERVICES

HAR § 15-15-50(C)(12): Availability or adequacy of public services and facilities such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, police and fire protection, civil defense, emergency medical service and medical facilities, and to what extent any public agency would be impacted by the proposed development or boundary amendment;

According to the Licensee, the existing quarry operations are conducted by a single employee, and the proposed quarry expansion will not increase the number of staff at the site.

Based on the foregoing, there will be little to no demand on public services as a result of any boundary amendment.

1. Educational Resources

The following schools operated by the State of Hawai‘i Department of Education are located near the Petition Area: Pahoa Elementary School, Pahoa Intermediate and High School (both of which are approximately 5 miles from the Petition Area), and Keonepoko Elementary School (approximately 8 miles from the Petition Area). In addition, there are three public charter schools within the Pahoa district complex: Hawaii Academy of Arts & Science Public Charter School (approximately 5 miles from the Petition Area), Ke Kula Nawahiokalaniopuu Iki Lab Public Charter School (approximately 15 miles from the Petition Area), and Kua O Ka La Public Charter School (approximately 25 miles from the Petition Area). The Kamehameha Schools Hawai‘i campus is located approximately 18 miles from the Petition Area. The Project is not expected to impact the educational facilities in the region, or increase any need for educational resources.

2. Wastewater Systems

The existing quarry site includes one portable toilet for the Licensee’s employee-operator. The Project is not expected to increase any need or demand for wastewater systems.

3. Solid Waste Disposal

No solid waste is generated by the operation of the existing quarry, as any solid waste generated at the site is transported therefrom. The Project is not expected to increase any need or demand for wastewater systems.

4. Drainage

The Project is not expected to increase any need or demand for drainage improvements.

5. Water

According to the Licensee, a service person visits the existing quarry site daily to provide fuel, oil, and water on an as-needed basis. The Project is not expected to increase any need or demand for water systems or improvements.

6. Transportation Systems

Access to the Petition Area is by a quarry road from the main highway. The quarry road is just over one mile long, with an average width of fifteen feet. Licensee estimates that, on

average, approximately five to six vehicles or trucks use this quarry road. The Project is not expected to increase any need or demand for transportation systems

7. Public Utilities

No public utilities are presently available to the existing quarrying site, and the Project is not expected to increase any need or demand for public utilities.

8. Police, Fire, Emergency Medical Services

The Project is not expected to increase any need or demand for police, fire or emergency medical services.

9. Civil Defense

The County of Hawai'i Civil Defense Agency is responsible for administering and operating various local, state and federal civil defense programs for the County of Hawai'i, including planning, preparing and coordinating civil defense operations for disasters and post-disaster recovery operations. The Project is not expected to increase any need or demand for civil defense measures or improvements.

10. Public Agencies

The Project is not expected to increase any need or demand for public agency action or support.

M. ADJACENT AREA

HAR § 15-15-50(c)(13): Location of the proposed use or development in relation to adjacent land use districts and any centers of trading and employment;

The Petition Area is surrounded on three (3) sides by land designated in the Agricultural District. *See Exhibit 5* attached hereto. The remaining surrounding area is partially in the Conservation District and partially in the Agricultural District. The *makai* side of the Leilani Estates Subdivision abuts the Petition Area, and is presently partially covered by lava. *See Exhibit 16* attached hereto. The Petition Area is approximately nine (9) miles from the Hawai'i Volcanoes National Park, which was once a tourist center for the island.

The Puna Community Development Plan designated an area in the middle of the Leilani Estates Subdivision as a future location of a proposed town and village center. Given the lava inundation, such development is unlikely to happen.

N. ECONOMIC IMPACTS

HAR § 15-15-50(c)(14): Economic impacts of the proposed boundary amendment, use, or development including without limitation, the provision of any impact on employment opportunities, and the potential impact to agricultural production in the vicinity of the subject property, and in the county and State;

The Project is expected to enhance economic activity and agricultural activity in the vicinity of the Petition Area, in the County of Hawai‘i, and the State of Hawai‘i. A thirty-acre portion of the Petition Area is presently being mined by the Licensee under the CDUP as a legal nonconforming use. According to the Licensee, the cinder source is proven, and is a staple of the floral and nursery business.

The cinder mined from the area covered by the CDUP is apparently what the agricultural industry refers to as “popcorn” cinder, due to its light weight, and fluffiness. Nurseries prefer the light weight material, as it is easier to handle when potting, and has reduced shipping costs. It is believed that black popcorn cinder holds water better than heavy red or heavy black cinder. It would be extremely detrimental to the agricultural industry if this material were not available.

During the 2018 Eruption, the Licensee’s quarry operations were disrupted for a period of approximately two weeks. Due to substantial concern of the effect of volcanic activity in the Puna area on black cinder supply by the Hawai‘i Floriculture and Nursery Association, which represents tropical flower growers and nurserymen throughout the State of Hawai‘i, the Association obtained from the State of Hawai‘i Department of Land and Natural Resources (“**DLNR**”) an Emergency Issuance of Right-of-Entry for Cinder Mining Purposes on State lands (the “**Emergency Right-of-Entry**”). See DLNR letter dated June 12, 2018 attached hereto as Exhibit 17. Upon issuing the Emergency Right-of-Entry the DLNR acknowledged that “Black volcanic cinder is one of the primary planting mediums used in the floral and nursery businesses and it is estimated that operations within these industries have a very limited supply. A disruption in the supply of black cinder may result in economic hardship to these businesses.” See *id.*

O. HOUSING NEEDS

HAR § 15-15-50(c)(15): A description of the manner in which the petitioner addresses the housing needs of low income, low-moderate income, and gap groups;

The Project is not expected to increase any need or demand for low income, low-moderate income, or gap group housing.

P. NEED FOR RECLASSIFICATION

HAR § 15-15-50(c)(16): An assessment of need for boundary amendment based upon the relationship between the use or development proposed and other projects existing or proposed for the area and consideration of other similarly designated land in the area;

The majority of the lands surrounding the Petition Area are already designated in the Agricultural District. The 2018 Eruption dramatically changed the area adjacent to the Petition Area, and from an economic standpoint, caused substantial losses for the surrounding community. *See Allison Schaefer, Hawaii Island Eruption-Related Tourism Losses Could Exceed \$200 Million, HONOLULU STAR-ADVERTISER, August 4, 2018, attached hereto as Exhibit 18.* The quarry expansion Project offers a suitable, if not ideal, economic opportunity in this district. Further, the specific type of cinder mined at the Petition Area is necessary to support the agricultural industry, and will continue to be vital to Hawaii tropical flower growers and nurseries. As discussed above, the boundary amendment is needed for the quarry expansion because, pursuant to the 2011 HAR rule change, mining and quarry operations are no longer identified land uses in the Conservation District *Limited* Subzone.

Pursuant to HAR § 15-15-19, the standards for determining Agricultural District boundaries: (1) shall include “lands with a high capacity for agricultural production;” (2) may include “lands with significant potential for grazing or for other agricultural uses;” (3) may include “lands surrounded by or contiguous to agricultural lands or which area not suited to agricultural and ancillary activities by reason of topography, soils, and other related characteristics;” and (4) shall include “all lands designated important agricultural lands pursuant to part III of chapter 205, HRS.”

The boundary amendment sought in this Petition conforms to the standards. Although the Petition Area lands are neither considered to have “high capacity for agricultural production,”

by Land Study Bureau productivity rating standards, nor designated as “important agricultural lands,” the lands meet standards (2) and (3) above. As more particularly described in Section III.N above, there is strong demand by the floricultural industry in the State of Hawai‘i for the type of cinder to be extracted from the Petition Area. And, as shown on Exhibit 5 attached hereto, a majority of the Petition Area is “surrounded by or contiguous to agricultural lands or which area not suited to agricultural and ancillary activities by reason of topography, soils, and other related characteristics.” Based on the foregoing, the Petition Area lands conform to the standards for determining Agricultural District boundaries.

Q. HAWAI‘I STATE PLAN

HAR § 15-15-50(c)(17): An assessment of conformity of the boundary amendment to applicable goals, objectives, and policies of the Hawai‘i state plan, chapter 226, HRS, and applicable priority guidelines and functional plan policies;

The Hawai‘i State Planning Act, HRS Chapter 226, is a comprehensive guide for the future long-range development of the State of Hawai‘i. One purpose of the Act, among others, is to identify the goals, objectives, policies, and priorities for the State of Hawai‘i, provide a basis for allocating limited resources, and improve coordination between Federal, State and County agencies.

The following principles or values are established as the overall theme of the Hawai‘i state plan: (1) individual and family self-sufficiency; (2) social and economic mobility; and (3) community or social well-being. *See* HRS §§226-3 and 226-4. A more detailed analysis of the Project’s conformance with the numerous objectives, policies, priority guidelines and functional plans of the Hawai‘i state plan will be provided in the forthcoming draft EIS. A preliminary analysis of the Project’s conformance with specific Hawai‘i state plan objectives and policies is provided below:

1. HRS §226-5 - Objectives and Policies for Population

(b)(1) Manage population growth statewide in a manner that provides increased opportunities for Hawaii’s people to pursue their physical, social, and economic aspirations while rezoning the unique needs of each County.

(b)(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.

(b)(3) Promote increased opportunities for Hawaii’s people to pursue their socio-economic aspirations throughout the islands.

The district of Puna on the Island has been severely affected by the 2018 Eruption, and this opportunity to expand quarrying operations in Puna will help to ensure the continuity of this economic activity in this district. Further, allowing Kamehameha Schools and the Licensee to expand quarrying operations within the Petition Area will contribute to the maintenance, support and viability of the horticultural and agricultural communities. As mentioned previously, the black “popcorn” cinder is crucial to the agricultural industry as it is one of the primary planting mediums used in the floral and nursery businesses. A disruption in the supply of black popcorn cinder may result in economic hardship to these businesses.

2. HRS §226-7 Objectives and policies for the economy -- Agriculture

(a) Planning of the State’s economy with regard to agriculture shall be directed towards achievement of the following objectives:

...

(2) growth and development of diversified agriculture throughout the State.

(3) an agriculture industry that continues to constitute a dynamic and essential component of Hawaii’s strategic, economic, and social well-being.

(b) To achieve the agriculture objectives, it shall be the policy of this State to:

...

(2) Encourage agriculture by making the best use of natural resources.

...

(12) In addition to the State’s priority on food, expand Hawaii’s agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises;

...

(16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.

As noted above, the expanded quarrying and cinder production activity in the Petition Area will continue to provide an essential product for the floriculture and plant nursery community in the County of Hawai‘i and throughout the State of Hawai‘i.

R. CONFORMITY WITH CZMP

HAR § 15-15-50(c)(18): An assessment of the conformity of the boundary amendment to objectives and policies to the coastal zone management program, Chapter 205A, HRS;

Hawai‘i’s Coastal Zone Management Program (“**CZMP**”), HRS Chapter 205A, establishes numerous objectives, policies, and standards to guide and regulate public and private uses in the coastal zone management area. The Petition Area is not within the County of Hawai‘i Special Management Area. However, the Project’s relationship to CZMP objectives and policies will be reviewed and assessed in the EIS.

S. CONFORMITY WITH GENERAL PLAN, COMMUNITY PLAN AND ZONING

HAR § 15-15-50(c)(19): An assessment of conformity of the boundary amendment to the applicable county general plans, development or community plans, zoning designations and policies, and proposed amendments required;

(1) County of Hawai‘i General Plan

The Project is consistent with the County of Hawai‘i General Plan (the “**County General Plan**”). The County General Plan was developed on the assumption that “Agricultural employment will increase significantly as former sugarcane lands are brought into production with import replacement, export and value added crops and products. Additional employment will be derived from expanding agrotourism enterprises.” *See* 2005 County General Plan § 1.6. Further, the County General Plan provides,

The opportunities for the expansion of agriculture on the Big Island seem to be immense. . . Export products grown mostly on the Big Island, such as coffee, papaya, macadamia nuts, and flowers, also continue to expand. These commodities and others, such as ginger, guava and other tropical fruits, have potential for growth.

See id. at § 2.1. The Puna district profile within the County General Plan states, “Agriculture in the form of . . . flowers, principally anthuriums and orchids, in the Mountain View, Pahoa and Kapoho areas are important.” As earlier discussed, the Licensee’s quarrying operations and cinder product are a vital contributor to the success of growers of flowers in the

surrounding area. The County General Plan's stated course of action for the Puna district is to "Assist in the further development of agriculture." *See id.* at § 14.2.4.1.2.

(2) The Puna Community Development Plan

The Project is consistent with the Puna Community Development Plan ("***Puna Community Plan***"). The Puna Community Plan states that about 56% of the Puna District lands are within the Agricultural District, and "Puna is primarily an agriculture district with high diversification of production. Even with the demise of sugar cane production in Puna, agriculture remains a viable economic land use, both for commercial export of products and for local consumption." *See* Puna Community Plan §§ 2, 3.2. The requested Boundary Amendment reclassifying the Petition Area to the Agricultural District will be largely consistent, and in furtherance of, the predominant use of Puna district lands.

The Project is outside of the proposed Biosphere Reserve Buffer Zone which borders the Hawai'i Volcanoes National Park, intended to foster connection between the intact native forests in the National Park and nearby State forest reserves and natural area reserves, all of which allowed for limited orderly development of the residential and agricultural area in between. *See id.* at § 2.2.1.

(3) Zoning

The Petition Area is zoned in the Agricultural A-20a zoning district, and the Project is consistent with this zoning designation. The A (agricultural) district provides for agricultural and very low density agriculturally-based residential uses, encompassing rural areas of good to marginal agricultural and grazing land, forest land, game habitats, and areas where urbanization is not found to be appropriate. Hawai'i County Code § 25-5-70. This district permits "excavation or removal of natural building materials or minerals, for commercial use" so long as a special use permit is obtained for a site located within the State land use agricultural district. Hawai'i County Code § 25-5-72(c).

T. HAWAIIAN TRADITIONAL AND CUSTOMARY RIGHTS

HAR § 15-15-50(c)(21): A statement addressing Hawaiian customary and traditional rights under Article XII, Section 7 of the Hawai'i State Constitution;

Kamehameha Schools is aware of, and sensitive to, the protections afforded to Native Hawaiian customary and traditional rights under Article XII, section 7 of the Hawai'i State Constitution. As discussed above, the License Agreement expressly prohibits Licensee from

mining the nearby and culturally significant Pu‘u Kali‘u, and the Orr CIA concludes that “cultural impact will be a non-issue for this project since the [quarrying] expansion will not jeopardize the summit of Pu‘u Kali‘u - the Newell’s Shearwater nesting grounds and a USGS triangulation station or access to cultural resource areas.”

U. COMMENTS

HAR § 15-15-50(c)(22) Any written comments received by the petitioner from governmental and nongovernmental agencies, organizations, or individuals in regards to the proposed boundary amendment;

Written comments from agencies and organizations will be included in the Draft EIS.

V. NOTIFICATION

HAR § 15-15-50(c)(23) a copy of the notification of petition filing pursuant to subsection (d).

Attached hereto as and incorporated herein by reference, is a true and correct copy of the Notification of Petition Filing of this Petition, required under HAR § 15-15-50(d). Copies of said Notification were sent to all persons included on the mailing list provided by the Commission’s Chief Clerk.

IV. CONCLUSION

Based on the foregoing, Kamehameha Schools respectfully requests that at the appropriate time, upon completion of the environmental review process and Kamehameha Schools’ filing of an Amended Petition, this Commission find that the Amended Petition complies with the necessary requirements of a Petition for District Boundary Amendment pursuant to HAR § 15-15-50. At that time, Kamehameha Schools shall also respectfully request that the Commission find that the proposed development of the Petition Area meets the standards for the Agricultural District pursuant to HAR §15-15-19 and therefore grant the reclassification of approximately 94.107 acres, with the understanding that Kamehameha Schools may consent to Licensee’s filing of an application for a Special Permit to continue its quarrying activities within the 73.075-acre portion of the License Area.

DATED: Honolulu, Hawai'i, June 21, 2019.

CADES SCHUTTE
A Limited Liability Law Partnership

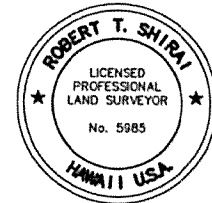


CALVERT G. CHIPCHASE
ANDREA K. USHIJIMA

Attorney for Petitioner
KAMEHAMEHA SCHOOLS

PLAN SHOWING
FOR SLU-DBA

Plan by Island Survey, Inc.
P.O. Box 4215, Hilo, Hawaii 96720
April 24, 2013
Revised September 11, 2014
Revised November 7, 2014
Revised March 30, 2018
Revised October 1, 2018
Revised October 9, 2018
Revised January 8, 2019



This work was prepared by me
or under my supervision.

Robert T. Shirai
ROBERT T. SHIRAI, PLS
State of Hawaii Cert. No. LS-5985
License Expires April 30, 2020

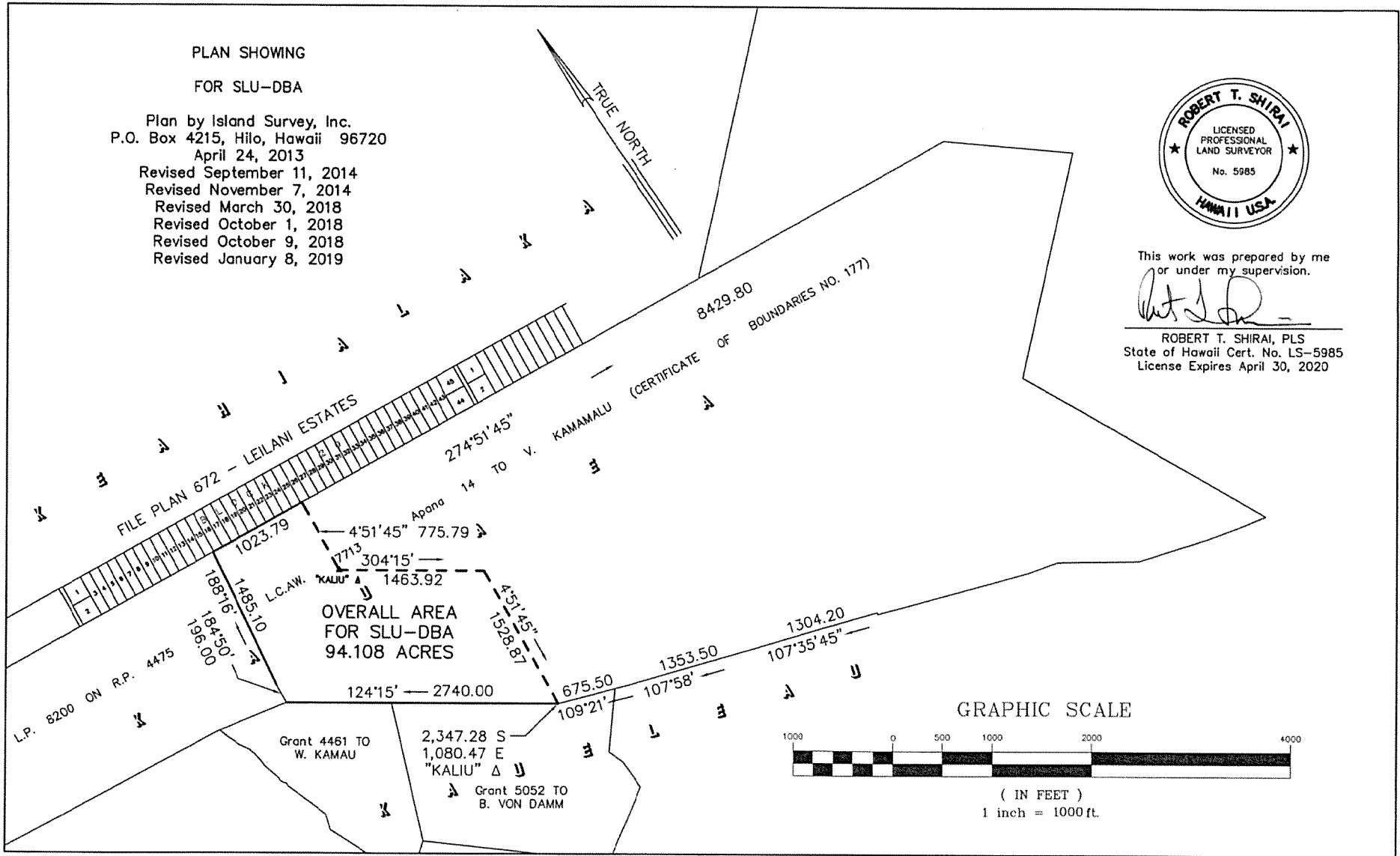
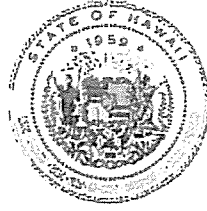


EXHIBIT 1

LINDA LINGLE
GOVERNOR OF HAWAII



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

LAURA H. THIELER
TREASURER
DEPARTMENT OF LAND AND NATURAL RESOURCES
CONSERVATION WATER RESOURCES MANAGEMENT
RUSSELL Y. TSUBOI
FIRST DEPUTY
KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER
SCOTT R. BISHOP
DEPUTY DIRECTOR - PERMITS AND INVESTIGATION
EDWARD W. CROFT
DEPUTY DIRECTOR - CONSERVATION WATER RESOURCES MANAGEMENT
CONSERVATION AND RESEARCH DEPARTMENT
ENGINEERING
SCOTT W. ANDERSON
DEPUTY DIRECTOR - CONSERVATION
LARRY H. BROWN
DEPUTY DIRECTOR - CONSERVATION
LAND
STAFF PARKS

REF:OCCL:DH

REF: CDUA HA-1957 and 1957A

Mr. Tim Lui-Kwan
Carlsmith Ball LLP
ASB Tower, Suite 2200
1001 Bishop Street
Honolulu, Hawaii, 96813

APR - 7 2008

SUBJECT: Continuation of Sanford's Service Center, Inc. to Remove Cinder at Puu Kaliu, District of Keahiala & Kauaea, Puna District, Island of Hawaii, Subject Parcel TMK: (3) 1-3-009:005

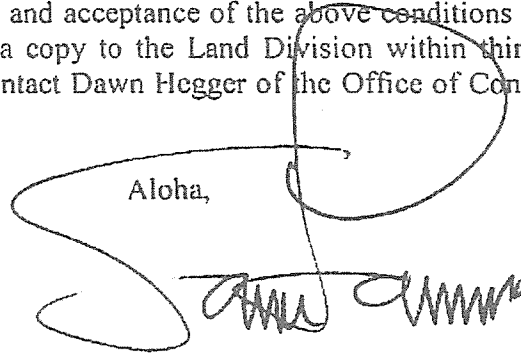
This letter is to inform you that on April 4, 2008, the Chairperson of the Board of Land and Natural Resources, pursuant to Chapter 13-5, Hawaii Administrative Rules, APPROVED a continuation of Sanford Cinder's request to mine cinder and cinder soil from Increment I and II, subject to CDUA HA-1957 and HA-1957A terms and conditions, in addition to the following terms and conditions:

- 1) The applicant shall comply with all applicable statutes, ordinances, rules, regulations, and conditions of the Federal, State and County governments;
- 2) The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury or death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit;
- 3) The applicant shall comply with all applicable Department of Health administrative rules. Particular attention should be paid to Hawaii Administrative Rules (HAR) Section 11-60.1-33, "Fugitive Dust" and to Chapter 11-46, "Community Noise Control; if applicable"

- 4) That when Sanford Cinder ceases to mine cinder on the subject parcel they will restore the mined area within six months of the date of termination. Sanford Cinder will submit to the OCCL a Landscape Plan, comprised of native tree and shrub species related to the subject area;
- 5) That the hours of operation are restricted to 7 a.m. to 6 p.m. or less, Monday through Friday, excluding State and Federal holidays;
- 6) That the applicant will provide the department with a status report of the mining operation as well as an expectation of completion date within two years of this approval;
- 7) That the applicant shall provide documentation (i.e. book and page or document number) that this approval has been placed in recordable form as a part of the deed instrument, prior to submission for approval of subsequent construction plans;
- 8) The applicant understands and agrees that this letter does not convey any vested rights or exclusive privilege;
- 9) In issuing this letter, the Department and Board have relied on the information and data that the applicant has provided in connection with this letter application. If, subsequent to the issuance of this letter, such information and data prove to be false, incomplete or inaccurate, this letter may be modified, suspended or revoked, in whole or in part, and/or the Department may, in addition, institute appropriate legal proceedings;
- 10) Where any interference, nuisance, or harm may be caused, or hazard established by the use, the applicant shall be required to take the measures to minimize or eliminate the interference, nuisance, harm, or hazard;
- 11) The applicant acknowledges that the approved work shall not hamper, impede or otherwise limit the exercise of traditional, customary or religious practices in the immediate area, to the extent such practices are provided by the Constitution of the State of Hawaii, and by Hawaii statutory and case law;
- 12) Other terms and conditions as may be prescribed by the Chairperson; and
- 13) Failure to comply with any of these conditions shall render this approval null and void.

Please acknowledge receipt of this permit and acceptance of the above conditions by signing in the space provided below and returning a copy to the Land Division within thirty (30) days. Should you have any questions, please contact Dawn Hegger of the Office of Conservation and Coastal Lands at 587-0380.

Aloha,



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

Receipt acknowledged:

S. J. Lemmo

Date:

4/7/08

C: Hawaii Board Member
HDLO
Hawaii County Planning Department
Department of Health

**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS**

REF:OCCL:DH

CDUA HA-1957 and HA-1957A

April 1, 2008

TO: Chairperson's Office, Department of Land and Natural Resources
(DLNR)

REGARDING: Sanford's Service Center, Inc. to Continue to Remove Cinder at
Puu Kaliu under Conservation District Use Permit (CDUP) HA-
1957 and HA-1957A, Puna District, Island of Hawaii, Subject
Parcel TMK: (3) 1-3-009:005

OWNERSHIP: Kamehameha Schools, 567 South King Street, Suite 200,
Honolulu, Hawaii, 96813

TMK: (3) 1-3-009:005

AREA: 694.5 Acres

AREA OF USE: 30 Acres

LOCATION: Puu Kaliu, Kauaea, Puna District, Island of Hawaii

SUBZONE: Limited

PRIOR CONSERVATION DISTRICT USE PERMITS (CDUP):

On February 27, 1987, the Board of Land and Natural Resources (BLNR) approved Conservation District Use Application (CDUA) Permit HA-1957, so the Kamehameha Schools lessee Bryson's Cinder (Bryson Kuwahara) could excavate cinder on Increment I on the subject parcel; subject to sixteen terms and conditions. On January 26, 1990, the BLNR amended HA-1957, so cinder mining could occur at Increment II on the subject parcel; subject to twenty-one terms and conditions; a total of thirty (30) acres of cinder could be removed (Exhibit 1).

ENFORCEMENT ACTION HA-04-09:

On January 23, 2004, the BLNR found then Kamehameha lessee Bryson's Cinder to be in violation of Title 13-5 HAR, and Chapter 183C, HRS by failing to obtain the appropriate approvals for unauthorized excavation of cinder in a already mined area on 9.23 acres (total volume is 155,135 cubic yards), and unauthorized grubbing and grading within the Conservation District in two separate areas on subject parcel TMK's: (3) 1-3-009:005; a total fine of \$6,000 was levied.

The BLNR required Mr. Kuwahara to, at his own expense, use the existing restoration plan detailed in CDUP HA-1957 and CDUP HA-1957A to restore the land. Restoration efforts included the planting of 4,000 ironwood trees in the two areas of the unauthorized cinder excavation. A site inspection verified the restoration plan was completed and the enforcement case was closed.

DESCRIPTION OF AREA / CURRENT USE:

Of the proposed project site - approximately 60 to 65 % of the proposed project site has been quarried, and a strip of native forest covers 35 to 40 % of the project site. Soils located within the project site are classified as "rPAE" or "Papai extremely stony mulch series, 3 to 25 percent slopes" with a small portion classified "rMAID" or Malama extremely stony muck, 3 to 15 percent slopes."

The 694.5 acre subject parcel TMK: (3) 1-3-009:005 is located 7,000 feet off of the Paho-Kalapana Government Road (Highway 130), in the land of Kauaea, District of Puna, Island of Hawaii, and is owned by the Kamehameha Schools. Private landowners and communities abut the subject parcel to the north (Leilani Estates), south (Opihikao Homesteads), and partially to the west (Malama Homesteads). The State of Hawaii is also a landowner to the west. Access to the subject parcel is through TMK: (3) 1-3-009:001 which is also owned by Kamehameha Estate.

Flora consists of, in the previously quarried area, ephemeral and adventive weed species, eucalyptus, and ironwood trees. Flora in the native forest area consists of: ohia (*Metrosideros polymorpha*), lama (*Diospyros sandwicensis*), gunpower tree (*Trema orientalis*), melochia (*Melochia unbellata*), trumpet (*Cecropia obtusifolia*), strawberry guava (*Psidium cattleianum*), native kopiko (*Psychotia hawaiiensis*), mamaki (*Pipturus*

albidus), hapuu ferns (*Cibotium glaucum* and *C. menziesii*), uki (*Machaerina angustifolia*), wawaiiole (*Lycopodium venustum*), ieie vines (*Freycinetia arborea*), puapua moa (*Ophioderma pendulum*), pakahakaha (*Lepisorus thunbergianus*), wahine noho mauna (*Adenophorus tamariscinus*), moa (*Psilotum nudum*), hoe a maui (*Elaphoglossum crassifolium*), ekaha (*Asplenium nidus*), pia (*Dioscorea pentaphylla*), ki or ti (*Cordyline fruticosa*), awapuhi (*Zingiber zerumpei*), nephrolepis (*nephrolepis multiflora*), Hilo grass (*paspalum dilatatum*), basket grass (*Oplismenus hirtellus*), lauac (*Phymatosorus grossus*), thimbleberry (*Rubus rosifolius*), lilikoi (*Passiflora edulis*),

melastoma (*melastoma malabathricum*), palm grass (*Setaria palmifolia*), Philippine ground orchid (*Spathoglottis plicata*), *Christella parasitica*, and Jobe's tears (*Coix lacrima*).

Fauna consists of a mix of native and introduced species: amakihi (*Hemignathus virens*), apapane (*Himatione sanguinea*), elepaio (*Chasiempis sandwichensis*). The io or Hawaiian Hawk (*Buteo solitarius*) is widespread in Puna and forages over forests and opened habitats, including the project site. The ao or Newell's shearwater (*Puffinus newell*) were heard flying over Puu Kaliu at night. Introduced avifauna includes: Japanese white-eye (*Zosterops japonicus*), common mynah (*Paroaria coronata*). Mammal species include: wild pigs, mongoose, feral cats, rats, and dogs,

No rare, or endangered flora and/or fauna species would be affected or impacted by the proposed use(s). An Archaeological Assessment Survey of the subject property was conducted; no archaeological sites or features were identified and there are no Land Commission Awards within the subject area.

PROPOSED USE:

Sanford's Service Center is seeking continue mining cinder and cinder soil from both increments on the 694.5-acre parcel that was previously mined under CDUP HA-1957 and HA-1957A, located south of Puu Kaliu. Approximately 5,000 cubic yards of cinder per month will be removed using a front-end loader and bulldozer. The cinder will be screened on site utilizing a portable screener. Dump trucks and semi-dump trailers will be used for transporting the cinder. Proposed hours of operation are 7 a.m. to 5 p.m., six days a week – Monday through Saturday. The cinder will be utilized for construction and agricultural purposes. Primary access to the project site is from Highway 130 over an existing 10 to 12 foot wide private access road.

PUBLIC HEARING:

A Public Hearing was held for the project on February 25, 2008 in the State Office Building, Conference Room C, 75 Aupuni Street, Hilo, Island of Hawaii. The public meeting was held for the community to identify any concerns and/or questions of the proposed project. A representative of the BLNR and the applicant attended the meeting. A majority of the community came to support the continuation of the cinder mining by Sanford's Cinder on the subject parcel. However, Leilani Estate's community member of the community stated his concern regarding possible noise level of the project.

DISCUSSION:

Staff notes two CDUP's HA-1957 and HA-1957A to remove cinder in a 30 acre area were approved by the BLNR. The proposed use was a conditional use in the Limited subzone in the Conservation District according Title 13, Chapter 2, Administrative Rules. However, Chapter 13-2 HAR, was replaced with Chapter 13-5, HAR, in 1994 thereby changing the "types" of uses allowed in the Limited subzone. Staff notes that the

proposed cinder mining is a continuation of an existing use permitted under CDUA HA-1957 and HA-1957A. Conditions Number 16 and 21 of CDU HA-1957 and HA-1957A respectively allow for the Chairperson to impose other terms and conditions, and this is one of the reasons this matter is pending before the department.

Staff recommends that the Chairperson approve the continuation of the proposed use, subject to CDUA HA-1957 and HA-1957A as well as three additional terms and conditions regarding: 1) a restoration plan; 2) days and hours of operation; and 3) the applicant will provide the department with a status report of the mining operation as well as an expectation of completion date within two years of this approval.

Restoration Plan

Staff notes when Sanford Cinder ceases to mine cinder on the subject parcel they will restore the mined area within six months of the date of termination. Sanford Cinder will submit to the OCCL a Landscape Plan, comprised of native tree and shrub species related to the subject area.

Hours and Days of Operation

Currently CDUA HA-1957A Condition No. 13 notes the hours of operation are from 6 a.m. to 6 p.m. or less, and days are limited Monday through Saturday (excluding State and Federal holidays) for Increment 2; Increment 1 hours were reduced to 7 a.m. to 5 p.m.

Sanford Cinder proposes to use a front-end loader, bulldozer, portable screener, dump trucks, and semi-dump trailers as part of their business operations. Proposed hours of operation will be 7 a.m. to 5 p.m. six days a week – Monday through Saturday.

Because the proposed project is located ¼ mile away from the closest SFR located at Leilani Estates Community, staff notes the quality of life for the current and future residents is of concern. The 1990 BLNR report for HA-1957A tried to reduce the hours and days of the operation as a mitigation measure due to the potential for negative noise impacts. Lastly, staff notes both CDUA's were approved by the BLNR 18 years ago.

Staff notes the adjacent area, which was once rural, has had SFR developments. It is possible future SFR development will occur at the subdivision with the increasing price of land values and SFR development costs. One community member indicated his concern for the potential noise impacts once Sanford's Cinder begins operations.

Therefore, staff recommends to the Chairperson that the hours of operation are restricted to 7 a.m. to 6 p.m. or less, Monday through Friday, excluding State and Federal holidays if the continued cinder mining use is continued; thus replacing Condition # 13 of CDUA HA-1957A. Staff has discussed these conditions with Sanford's Cinders owners and they are in agreement.

Staff concludes that the proposed use will allow Sanford's Cinder to continue to mine cinder and cinder soil from the two increment areas that were previously mined.

However, it is very possible due to the high demand for cinder material in Hawaii that the amount of available cinder will decrease in the very near future; this is a short term fix for the company.

Sanford Cinder will be unable to submit a CDUA to expand mining operations because there is no identified land use for cinder mining in the Limited subzone. The only alternative will be for Sanford Cinder to apply for a subzone boundary amendment to change the subzone from Limited to the Resource or General subzone, which is a lengthy process and includes the submittal, processing, and approval of a CDUA and DEA.

Staff therefore recommends as follows:

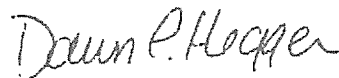
RECOMMENDATION:

Based on the proceeding analysis, staff recommends that the Chairperson of the Department of Land and Natural Resources (DLNR) APPROVE a continuation of Sanford Cinder's request to mine cinder and cinder soil from Increment I and II, subject to CDUA HA-1957 and HA-1957A terms and conditions, in addition to the following terms and conditions:

- 1) The applicant shall comply with all applicable statutes, ordinances, rules, regulations, and conditions of the Federal, State and County governments;
- 2) The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury or death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit;
- 3) The applicant shall comply with all applicable Department of Health administrative rules. Particular attention should be paid to Hawaii Administrative Rules (HAR) Section 11-60.1-33, "Fugitive Dust" and to Chapter 11-46, "Community Noise Control; if applicable"
- 4) That when Sanford Cinder ceases to mine cinder on the subject parcel they will restore the mined area within six months of the date of termination. Sanford Cinder will submit to the OCCL a Landscape Plan, comprised of native tree and shrub species related to the subject area;
- 5) That the hours of operation are restricted to 7 a.m. to 6 p.m. or less, Monday through Friday, excluding State and Federal holidays;
- 6) That the applicant will provide the department with a status report of the mining operation as well as an expectation of completion date within two years of this approval;

- 7) That the applicant shall provide documentation (i.e. book and page or document number) that this approval has been placed in recordable form as a part of the deed instrument, prior to submission for approval of subsequent construction plans;
- 8) The applicant understands and agrees that this letter does not convey any vested rights or exclusive privilege;
- 9) In issuing this letter, the Department and Board have relied on the information and data that the applicant has provided in connection with this letter application. If, subsequent to the issuance of this letter, such information and data prove to be false, incomplete or inaccurate, this letter may be modified, suspended or revoked, in whole or in part, and/or the Department may, in addition, institute appropriate legal proceedings;
- 10) Where any interference, nuisance, or harm may be caused, or hazard established by the use, the applicant shall be required to take the measures to minimize or eliminate the interference, nuisance, harm, or hazard;
- 11) The applicant acknowledges that the approved work shall not hamper, impede or otherwise limit the exercise of traditional, customary or religious practices in the immediate area, to the extent such practices are provided by the Constitution of the State of Hawaii, and by Hawaii statutory and case law;
- 12) Other terms and conditions as may be prescribed by the Chairperson; and
- 13) Failure to comply with any of these conditions shall render this approval null and void.

Respectfully submitted,



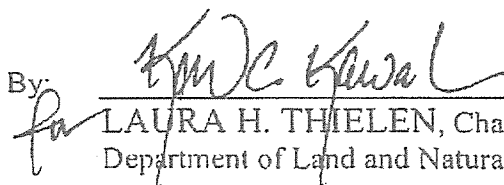
Dawn T. Hegger
Senior Staff Planner

Approved

Disapproved

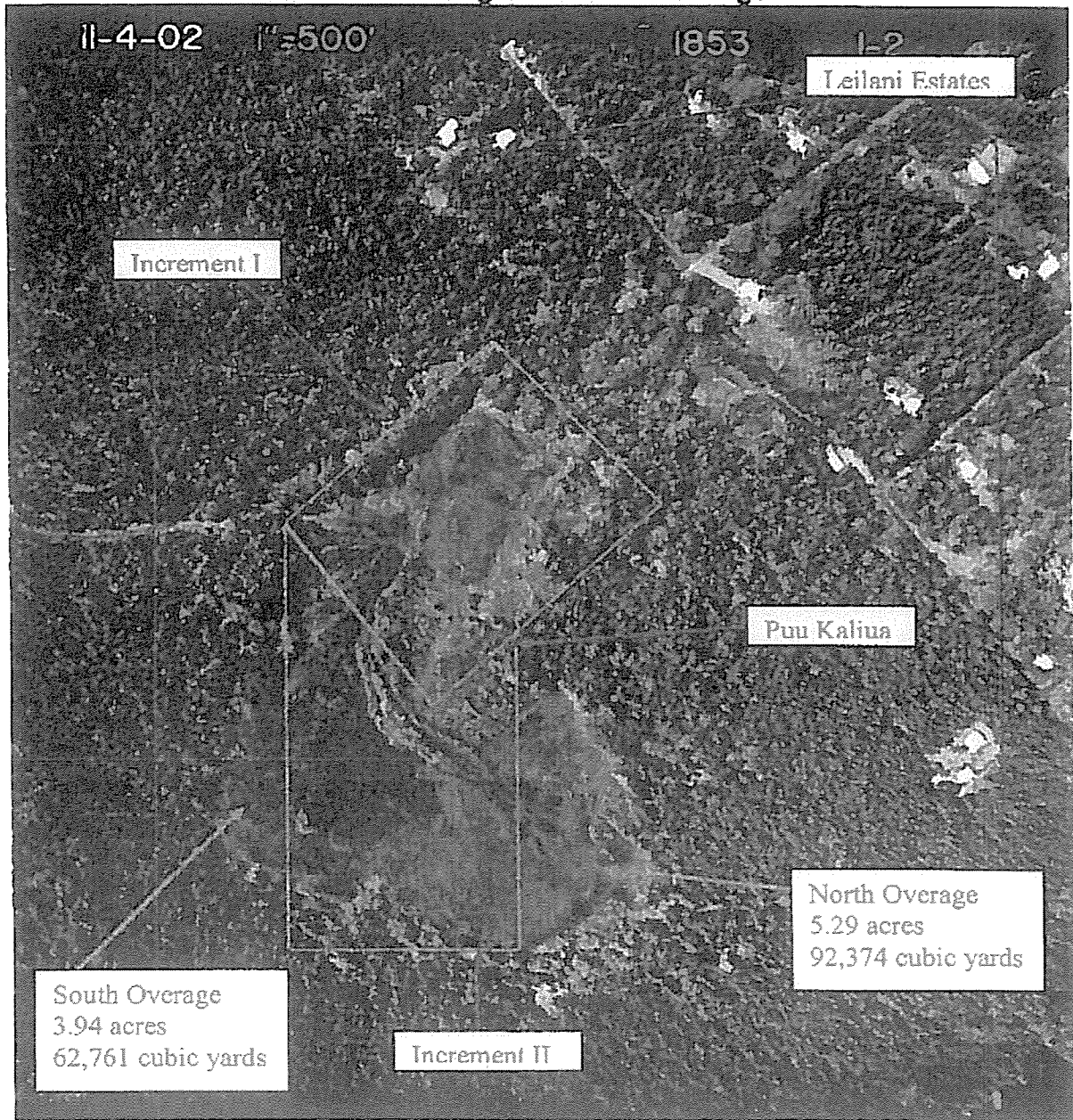
Dated at Honolulu, Hawaii this 4th day of April, 2008.

By:



LAURA H. THIELEN, Chairperson
Department of Land and Natural Resources

**BISHOP ESTATE CDUP HA-1957 (Increment I) & 1957A (Increment II)
and South Overage and North Overage**



EXHIBIT 



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

Keith W. Allen
MANAGING DIRECTOR
LAND AND NATURAL RESOURCES

AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

REF:OCEA-VIN

File: HA-8/7/89-1957A
Doc.: 7523E

FEB 26 1990

Mr. Bryson Kuwahara
P.O. Box 421
Pahoa, Hawaii 96778

Dear Mr. Kuwahara:

SUBJECT: Conservation District Use Application (CDUA)
Amendment, for Expansion of a Commercial Cinder
Mining Operation at Puna, Hawaii; TMK 1-3-09: 5

We are pleased to inform you that your request for an Amendment to your approved Conservation District Use Application was approved by the Board of Land and Natural Resources on January 26, 1990, subject to the following conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules and regulations of the Federal, State and County governments, and applicable parts of Section 13-2-21, Administrative Rules, as amended.
2. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit.
3. If historic remains such as stone platforms or skeletal remains are found during construction, the applicant shall stop work in the immediate area immediately and contact the Historic Preservation Program, at 548-7470; that office will assess the situation and make recommendations for mitigative action if needed.
4. The applicant shall comply with all applicable Department of Health Administrative Rules and recommendations (regarding noise, etc.) implemented before or during the period of his authorized use.

EXHIBIT 1

5. The applicant shall provide documentation (i.e. book and page number) that this approval has been placed in recordable form as a part of the deed instrument, prior to submission for approval of subsequent construction plans for approval (see Condition Number 8, below).
6. Any work or construction to be done on the 15-acre expansion area shall run concurrent with the Bishop Estate Mining Lease; the Board must approve any assignment or sale of your operations or that Mining Lease.
7. The applicant is authorized to use only such landscaping as may be acceptable by this Department and by the County, including the use of large trees, ground covers and retaining walls, to prevent erosion on a long-term basis, to be installed according to a landscaping plan submitted to the Department for approval (see Condition Number 8).
8. Before proceeding with any expansion authorized by the Board, the applicant shall submit four (4) copies of grading and landscaping plans to the Chairperson or his authorized representative for approval, for consistency with the conditions of the permit and the declarations set forth in the permit application; three (3) of the approved copies will be returned to the applicant (plan approval by the Chairperson, or representative, not to imply approval required of other agencies).

That grading plan for the proposed quarry expansion shall be submitted to this Department indicating the length and width of material to be removed; the plan also shall indicate possible successive increments, plans for storage of quarried cinder materials, and parking.
9. The triangulation station on Puu Kaliu shall not be disturbed by any quarrying or exploration activity, and prior approval shall be obtained by the applicant from the Department of Accounting and General Services (DAGS) Survey Division, regarding the area in the vicinity of the station; no grading (earth moving) shall take place within 50 feet of the triangulation station.
10. At the completion of quarrying operations for these two 15-acre sites, the excavation areas shall be graded so as not to present a hazard to persons near or at the site; this precludes leaving vertical or near-vertical sides which can collapse.

11. The applicant shall be responsible for keeping the road intersection (where the access road meets the public highway) clean and clear of all dirt, mud, cinder, rocks and other debris.
12. Trucks hauling cinder material shall have their loads completely covered to prevent dust blowing and cinder spillage onto the highway.
13. The hours of operation shall be 6:00 a.m. to 6:00 p.m. or less; days of operation shall be limited to Monday through Saturday, excluding State and Federal holidays, in both the expansion area and in the existing original "Phase I" area.

The applicant shall reduce the hours of operation in the existing "Phase I" area, to the hours of 7:00 a.m. to 5:00 p.m., within thirty (30) days of the date of the Board's letter of authorization, or within sixty (60) days of the Board's decision, whichever is sooner.

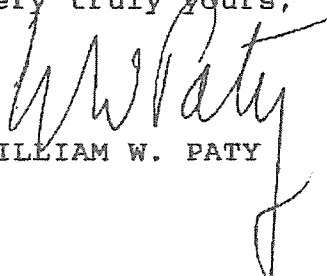
14. Results of this 15-acre extension of excavation/quarrying shall be assessed, and any future expansions or permits shall be based on the results of initial operations and this expansion.
15. Upon termination of the use, the area shall be restored to a suitable condition, satisfactory to this Department; all exposed areas shall be revegetated.
16. Prior to any further alteration of any land surface or vegetation removal for the purpose of vehicular access, a plan indicating the proposed route to be used, and the amount of land surface alteration and vegetation removal shall be submitted to the Department for approval.
17. As indicated in the original submittal approved by the Board, the applicant shall maintain the existing buffer zone of at least one-quarter of a mile between existing and proposed quarry activities and existing dwellings.
18. The applicant shall submit a new CDUA for any other use, including the commercial harvesting of hapu tree ferns or their sale.
19. Any materials resulting from landclearing and/or grading shall be disposed of in a manner and at a site acceptable to the Department of Health; open burning is prohibited.

20. Failure to comply with any of these conditions shall render void the Board's approval of this Conservation District Use Application; and
21. Approval is subject to other terms and conditions as may be prescribed by the Chairperson.

Please acknowledge receipt of this permit, with the above noted conditions, in the space provided below. Please sign two copies; retain one and return the other one within thirty (30) days, please.

Should you have any questions on any of these conditions, please feel free to contact our Office of Conservation and Environmental Affairs staff at 548-7837 (or 1-800-468-4644 x7837).

Very truly yours,


WILLIAM W. PATY

Receipt acknowledged

Bryson T. Kuwahara
Applicant's Signature

cc: Hawaii Board Member
Hawaii Land Agent
Hawaii County Planning Department
OHA/OSP/DOH



LIBERT K. LANDGRAF
DEPUTY

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

MAR 12 1987

FILE NO.: HA-9/29/86-1957
180-Day Exp. Date: 3/28/87
DOCUMENT NO.: 2673B

Mr. Bryson Kuwahara
P.O. Box 421
Pahoa, Hawaii 96778

Dear Mr. Kuwahara:

We are pleased to inform you that your Conservation District Use Application for commercial cinder removal at Puna, Hawaii, TMK: 1-3-09: 5 was approved on February 27, 1987 subject to the following conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules and regulations of the Federal, State and County governments, and applicable parts of Section 13-2-21, Administrative Rules, as amended;
2. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit;
3. The State of Hawaii shall not be responsible for any loss, liability, claim or demand for property damage, property loss, or personal injury including death caused by or resulting from any act or omission of the applicant or its contractor in connection with its exercise of the privileges herein granted;

4. That an archaeological reconnaissance survey be done for areas of the cinder cone that have not been disturbed by prior quarry activity. This shall be done by a professional archaeologist, and a copy of the report should be sent to the Historic Sites Section for review of the findings;

*quest mark
archaeological
& historic sites
proposed
area*

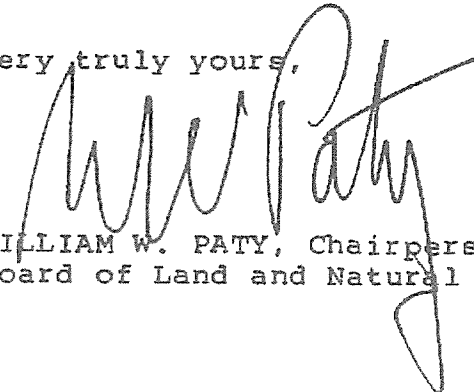
EXHIBIT #

- 14. Prior to the alteration of any land surface or vegetation removal for the purpose of vehicular access, a plan indicating the proposed route to be used, and, the amount of land surface alteration and vegetation removal shall be submitted to the Department for approval;
- 15. That the applicant shall hire a qualified botanist to do a one-day botanical survey of the proposed access road alignments recommending any adjustments in the alignment deemed necessary; and
- 16. Other terms and conditions as prescribed by the Chairperson.

Please acknowledge receipt of this permit, with the above noted conditions, in the space provided below. Please sign two copies. Retain one and return the other.

Should you have any questions on any of these conditions, please feel free to contact our Office of Conservation and Environmental Affairs staff at 548-7837.

Very truly yours,



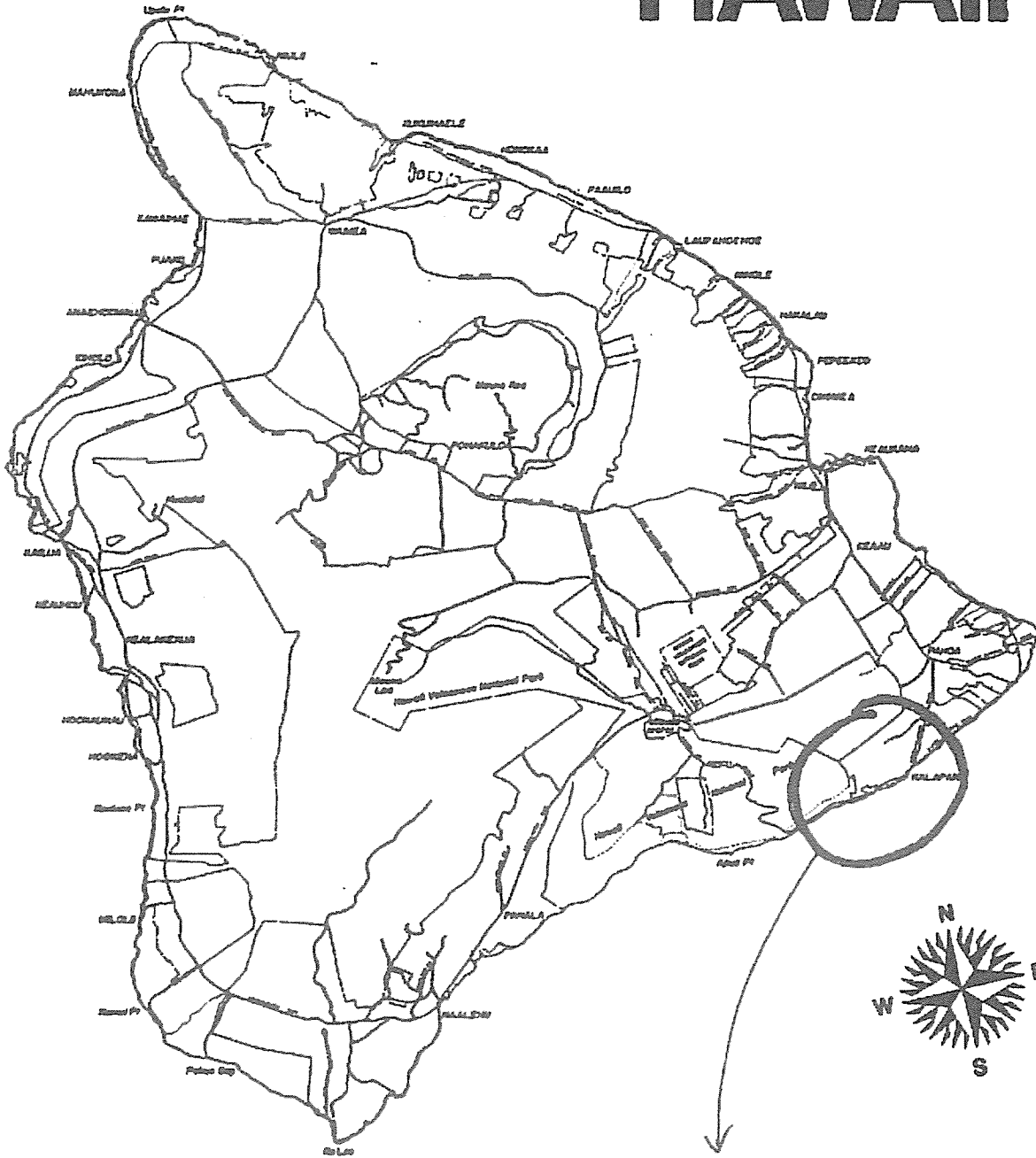
WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources

Receipt acknowledged

Bryson Kuwahara
Applicant's Signature

cc: Hawaii Board Member
Hawaii Land Agent
Hawaii County Planning Department
DOH/OEQC/EC/OHA/DPED

HAWAII



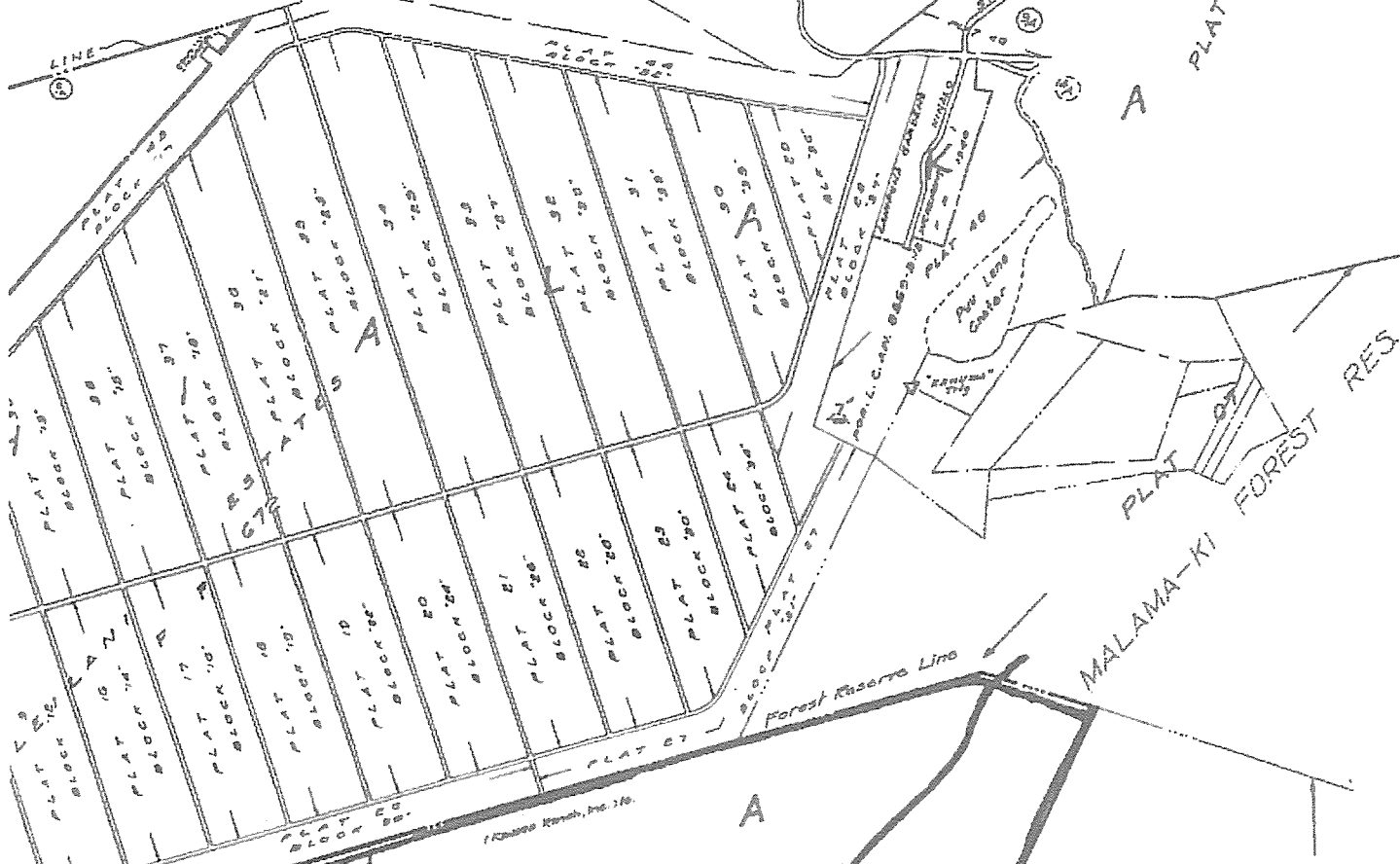
Subject parcel
(3) 1-3-009:005

EXHIBIT 1

U U A

SEC. 4

MAWALE FOREST RESERVE



MALAMA-KI FOREST RES

Bernice P. Bishop Est.

206 17 202
7715:14

Puu Kahu

Puu Kepaka

AUELEAU

PLAT 02
PLAT 06
PLAT 05
OPHIKAO HOMESTEADS
PLAT 03

CHOPPED PARCELS 0, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

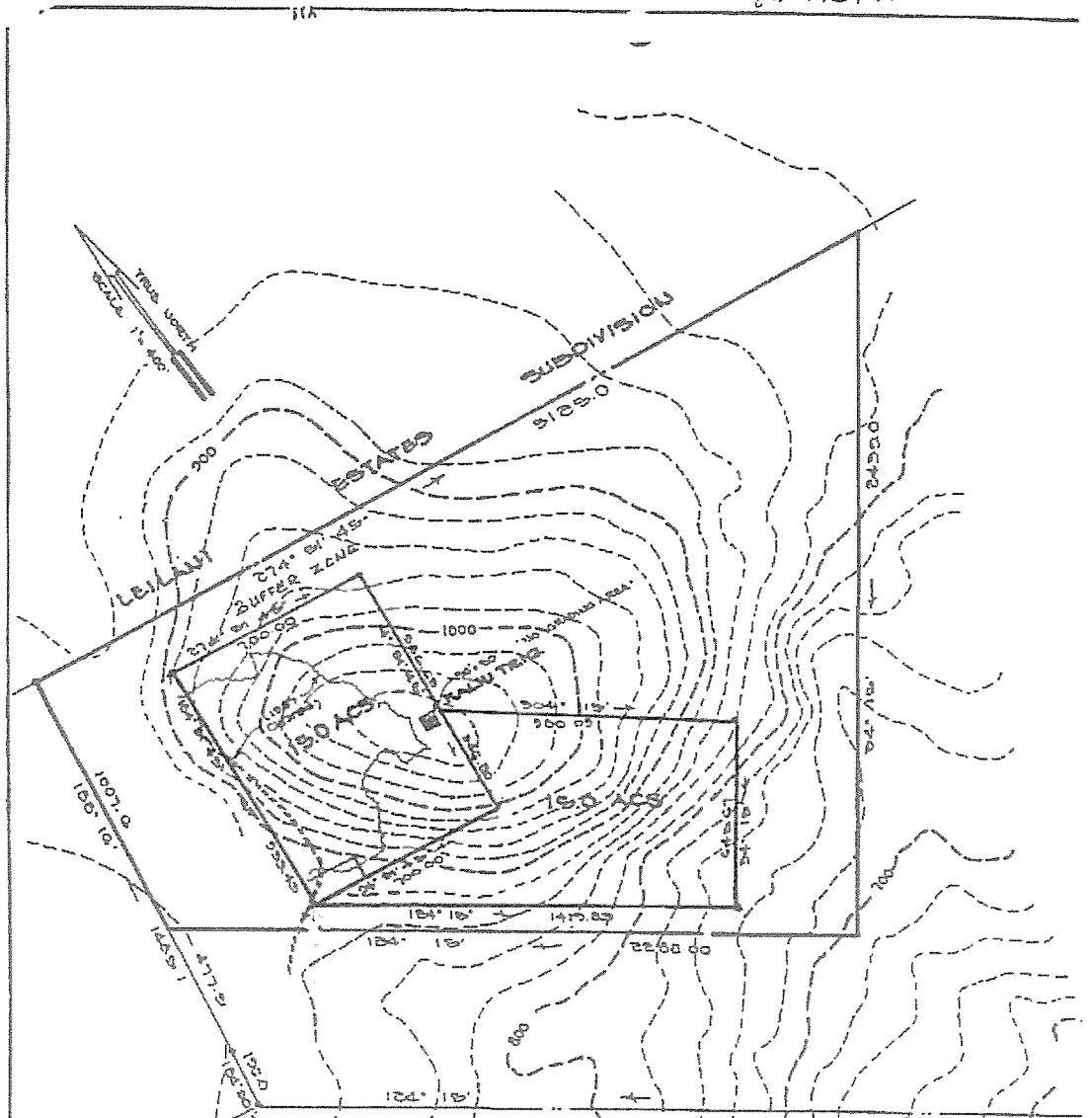
ADVANCE SHEET
SUBJECT TO CHANGE

| THIRD | | DIVISION | |
|----------------------|------|----------|--|
| ZONE | SEC. | PLAT | |
| 1 | 3 | 09 | |
| CONTAINING | | PARCELS | |
| SCALE 1/4" = 1000 FT | | | |

PRINTED

EXHIBIT

HA-1957A
HA-1957A

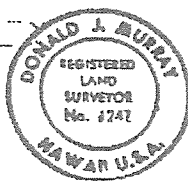


- () 1st INCREMENT
- () 2nd INCREMENT EXPANSION
- () POSSIBLE SUCCESSIVE INCREMENT
- () STORAGE CINDERS MATERIAL & PARKING

Grant 8882 to B. Von Dann

KALIU HILL QUARRY SITE

PORTION OF
 L.P. 8200, R.P. 4475 & 6883 L.C. AW. 7713, AP. 14
 TO V. KAMAMALU
 KAUAAE, PUNA, HAWAII



Survey and Plan by Murray, Smith & Associates, Ltd.
 P. O. Box 863
 Hilo, Hawaii

Exhibit

TMK 1-3-00 &
 August 21, 1901
 September 3, 1951

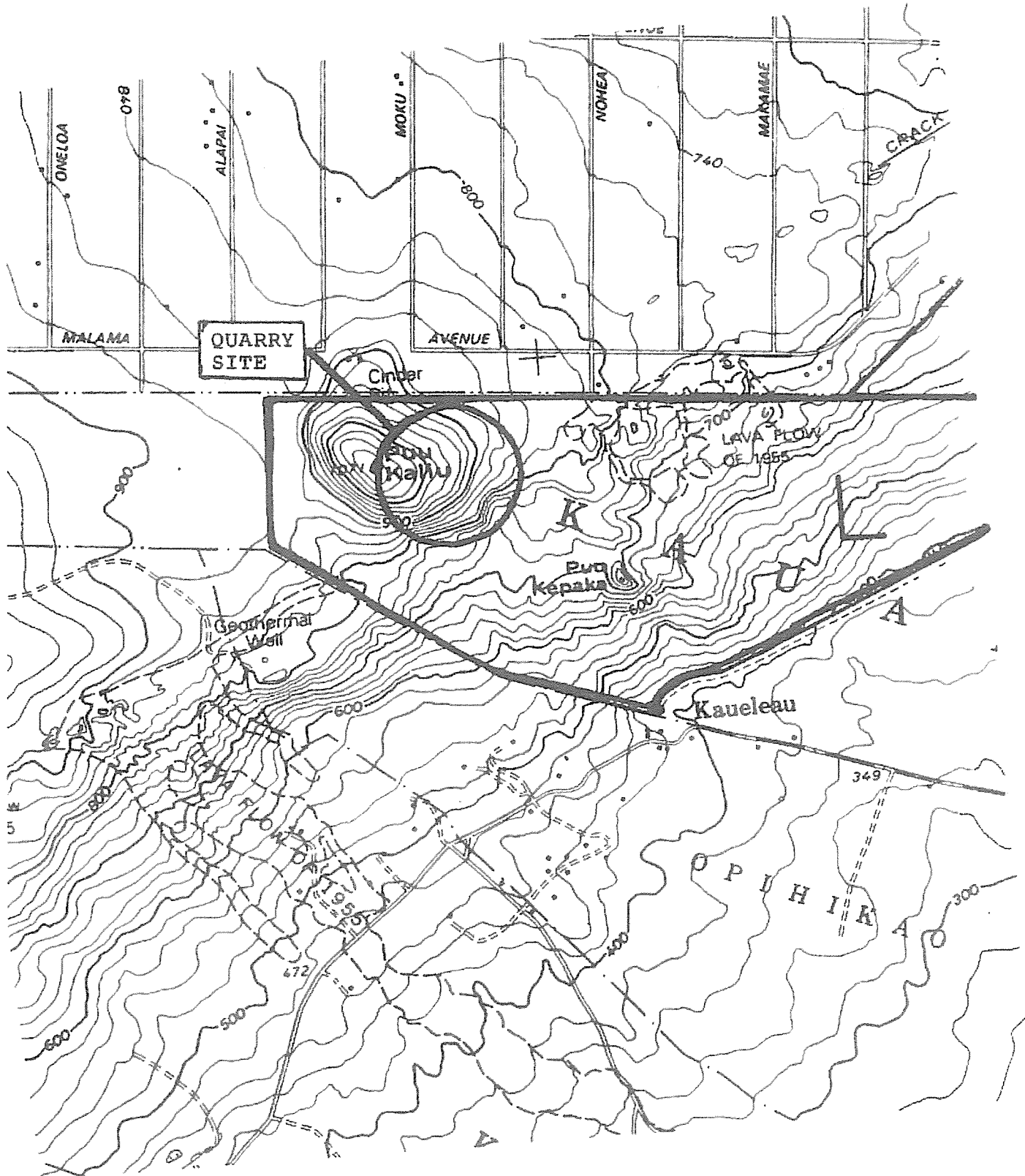
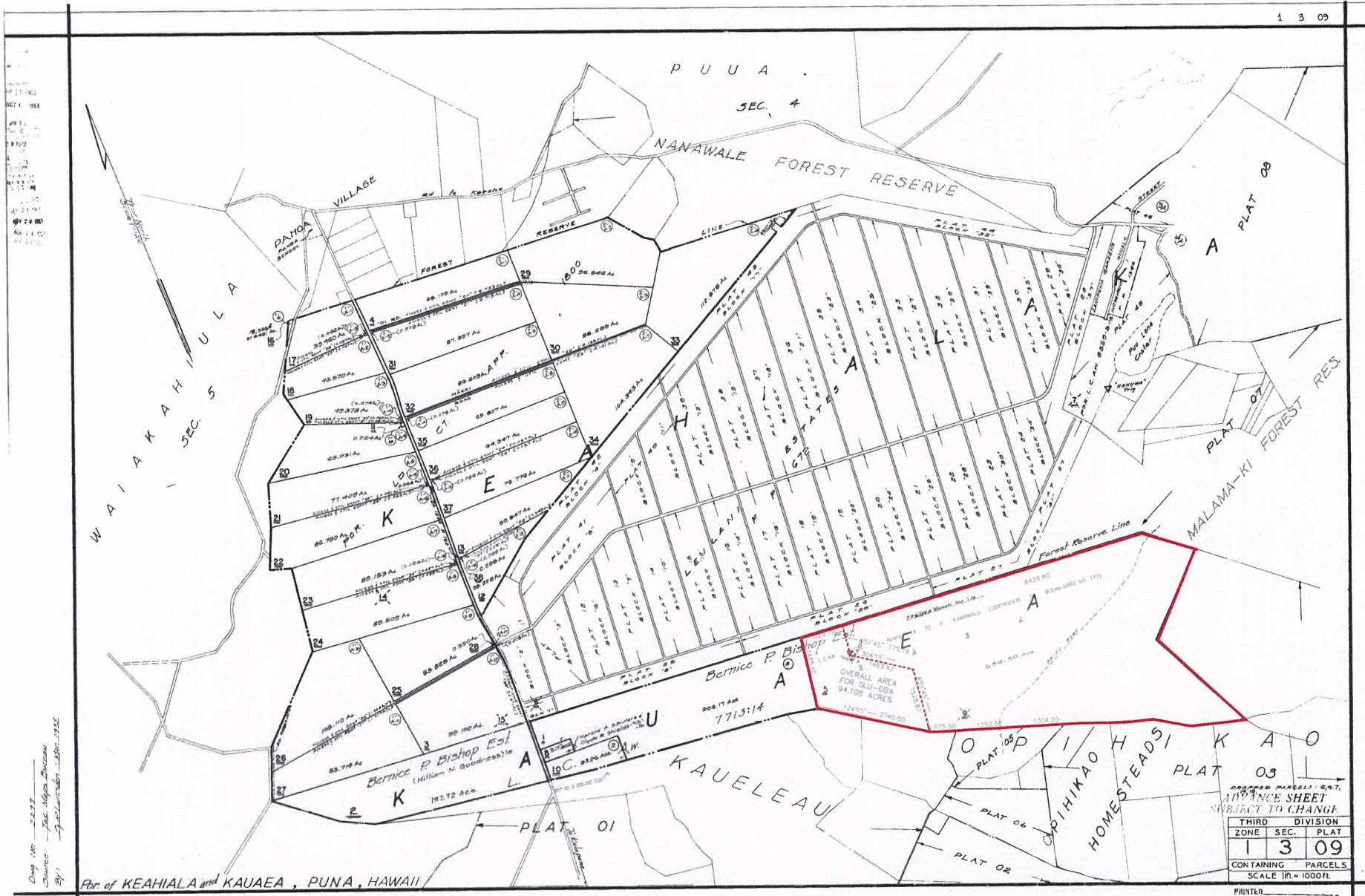


EXHIBIT B



Orig. No. 2232
 Source: The Ngāhā Division
 By: J. J. ... 1954

For of KEAHIALA and KAUEA, PUNA, HAWAII

THESE PARCELS OR
 PORTIONS THEREOF
 SUBJECT TO CHANGE
 THIRD DIVISION
 ZONE SEC. PLAT
 1 3 09
 CONTAINING PARCELS
 SCALE 1/4" = 1000 FT.
 PRINTED

EXHIBIT 3

FOR SLU – DBA PURPOSES ONLY

D E S C R I P T I O N

LOT

Being a Portion of L.P. 8200 on R.P. 4475, L.C. Award 7713,
Apana 14 to V. Kamamalu (Certificate of Boundaries No. 177);

Situated at Kauaea, Puna, Island of Hawaii, Hawaii

Beginning at the southeast corner of this parcel of land, the coordinates of said point of beginning referred to "KALIU" being 2347.28 feet South and 1080.47 feet East and running by azimuth measured clockwise from True South:

1. 124° 15' 2740.00 feet along Grant 5052 to B. Von Damm and Grant 4461 to W. Kamau;
2. 184° 50' 196.00 feet along the remainder of L.P. 8200 on R.P. 4475, L.C. Award 7713, Apana 14 to V. Kamamalu (Certificate of Boundaries No. 177);
3. 188° 16' 1485.10 feet along the remainder of L.P. 8200 on R.P. 4475, L.C. Award 7713, Apana 14 to V. Kamamalu (Certificate of Boundaries No. 177);
4. 274° 51' 45" 1023.79 feet along Lots 15 to 26, Block 20 of File Plan 672 – Leilani Estates;
5. 4° 51' 45" 775.79 feet along the remainder of L.P. 8200 on R.P. 4475, L.C. Award 7713, Apana 14 to V. Kamamalu (Certificate of Boundaries No. 177);
6. 304° 15' 1463.92 feet along the remainder of L.P. 8200 on R.P. 4475, L.C. Award 7713, Apana 14 to V. Kamamalu (Certificate of Boundaries No. 177);
7. 4° 51' 45" 1528.87 feet along the remainder of L.P. 8200 on R.P. 4475, L.C. Award 7713, Apana 14 to V. Kamamalu (Certificate of Boundaries No. 177) to the point of beginning and containing an area of 94.108 acres.



ISLAND SURVEY, INC.
SURVEYORS

EXHIBIT 4

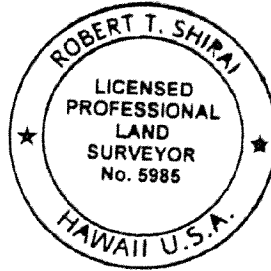
P.O. BOX 4215
HILO, HAWAII 96720-0215

Lot

The above description is for SLU – DBA purposes only and does not represent a legally subdivided lot.

January 8, 2019 (Revised)
October 9, 2018
Hilo, Hawaii

TMK:1-3-009:005 portion



ISLAND SURVEY, INC.

A handwritten signature in black ink, appearing to read "Robert T. Shirai", written over a horizontal line.

ROBERT T. SHIRAI
Licensed Professional
Land Surveyor 5985
License expires 04/30/20



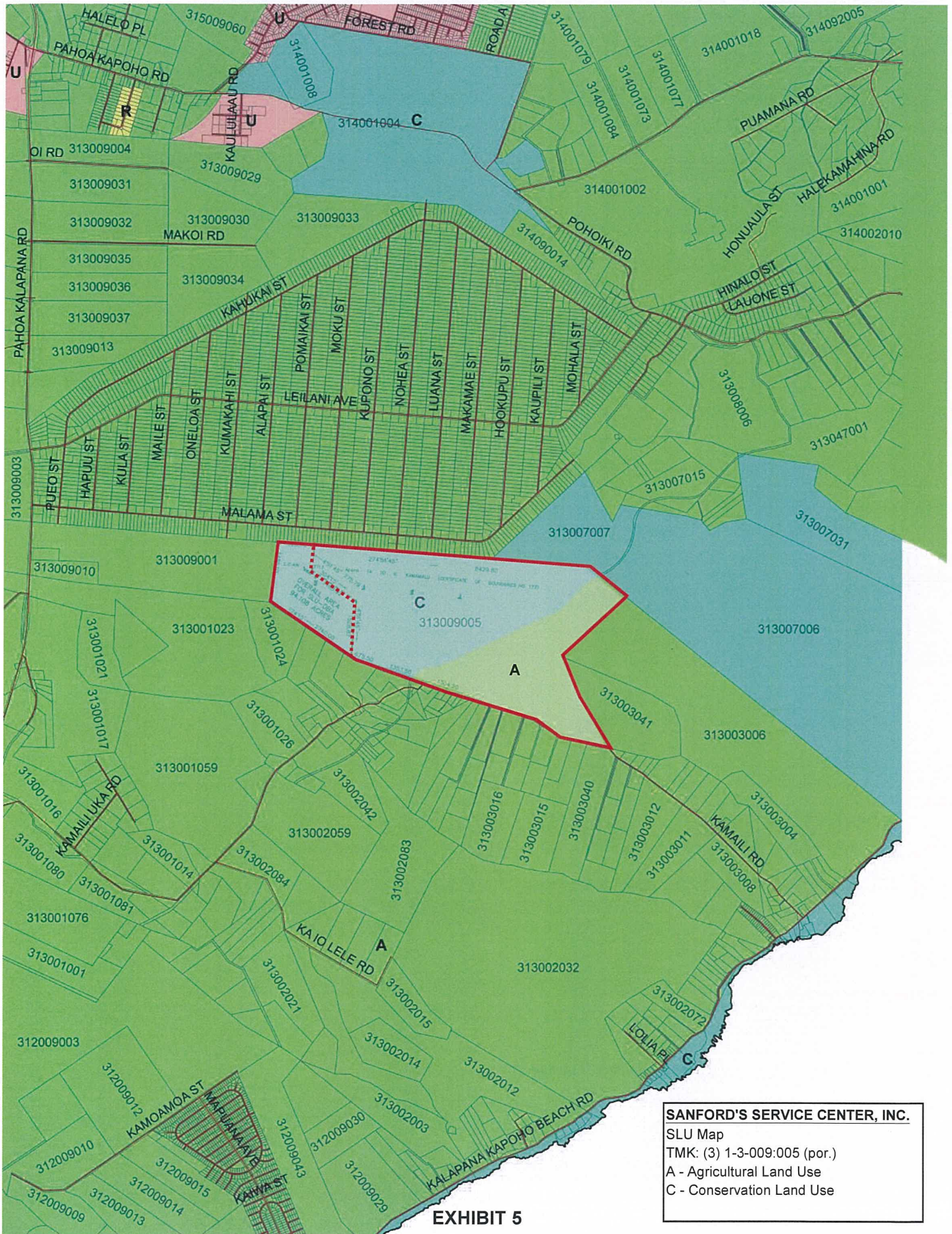


EXHIBIT 5

STATUS REPORT

This Report (and any revisions thereto) is issued for the sole benefit of the Purchaser of this Report identified in the Order No. referenced below. Title Guaranty of Hawaii, LLC's responsibility for any actual loss incurred by reason of any incorrectness herein is limited to the lesser of \$3,500 or two times the amount paid for this Report.

SCHEDULE A

Title Guaranty of Hawaii, LLC (the Company) hereby reports as follows as to the title of the Parties named in Schedule A in and to the title to land described in Schedule C, subject to the matters set forth in Schedule B, based solely upon an abstract and examination of the following Indices in the State of Hawaii: (a) the Office of the Clerks of the Circuit Court of the Judicial Circuit within which the land is located; (b) the Office of the Clerk of the District Court of the United States for the District of Hawaii; (c) the Office of the Registrar of Conveyances; and (d) the Office of the Real Property Tax Assessment Division of the County within which the land is located.

MICAH A. KANE,
LANCE KEAWE WILHELM,
ROBERT K. W. H. NOBRIGA,
CORBETT AARON KAMOHAIKIOKALANI KALAMA, and
ELLIOT K. MILLS,
Trustees under the Will and of the Estate of
Bernice Pauahi Bishop, deceased,
with full powers to sell, mortgage, lease or
otherwise deal with the land,
as Fee Owner

This report is subject to the Conditions and Stipulations set forth in Schedule D and is dated as of September 18, 2018 at 8:00 a.m.

Inquiries concerning this report
should be directed to

SCHEDULE A CONTINUED

RESIDENTIAL TITLE SERVICES.
Email rtscustomerservice@tghawaii.com
Fax (808) 521-0288
Telephone (808) 533-5874.
Refer to Order No. 201839533.

**SCHEDULE B
EXCEPTIONS**

1. Real Property Taxes, if any, that may be due and owing.

Tax Key: (3) 1-3-009-005 Area Assessed: 694.500 acres

Tax Classification: CONSERVATION AND AGRICULTURAL

-Note:- Attention is invited to the fact that the premises covered herein may be subject to possible rollback or retroactive property taxes.

2. Mineral and water rights of any nature.
3. Any and all matters not shown in the Indices described in Schedule A.
4. 20 Ft. Road as referenced on Tax Map.
5. Triangulation Survey Station "KALIUI" located within the land described herein, referenced on the Tax Map. Attention is invited to the provisions of Section 172-13 of the Hawaii Revised Statutes, relative to destruction, defacing or removal of survey monuments.
6. 20 Ft. Roadway, running along the northern boundaries of Grants 5014, 7263 and portion of 6670, as shown on the map attached thereto, AMENDMENT OF LEASE NO. 16,839, dated February 14, 1980, recorded in Liber 14520 at Page 708.

SCHEDULE B CONTINUED

7. UNRECORDED LEASE AND AGREEMENT

SUBLESSOR : TRUSTEES OF THE ESTATE OF BERNICE PAUAAHI BISHOP
SUBLESSEE : THERMAL POWER COMPANY, a California corporation,
and DILLINGHAM CORPORATION, a Hawaii corporation
DATED : March 1, 1981
TERM : Five (5) years commencing from March 1, 1981

A MEMORANDUM OF LEASE AND AGREEMENT is dated March 1, 1981,
recorded in Liber 16267 at Page 456

-Note:- The Company is unable to locate of record an extension
of the term of said Lease.

THE LESSEE'S INTEREST BY MESNE ASSIGNMENTS ASSIGNED

(A) ASSIGNOR : AMOR 16 CORPORATION, a Delaware
corporation
ASSIGNEE : ORPUNA GEOTHERMAL VENTURE, a Hawaii
partnership
DATED : March 23, 1990
RECORDED : Document No. 90-131678

(B) ASSIGNOR : AMOR 15 CORPORATION, a Delaware
corporation
ASSIGNEE : ORPUNA GEOTHERMAL VENTURE, a Hawaii
partnership
DATED : March 23, 1990
RECORDED : Document No. 90-131681

SCHEDULE B CONTINUED

8. Unrecorded GEOTHERMAL RESOURCES MINING LEASE NO. R-1, (dated February 20, 1981), made by and between the STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES and THERMAL POWER COMPANY, a California corporation, and DILLINGHAM CORPORATION, a Hawaii corporation, as set forth in CONSENT TO ASSIGN GEOTHERMAL RESOURCES MINING LEASE NO. R-1 dated May 16, 1983, recorded in Liber 17122 at Page 68.

9. The terms and provisions contained in the following:

INSTRUMENT : DECLARATION OF CONDITIONS IMPOSED BY THE BOARD OF
LAND AND NATURAL RESOURCES

DATED : September 13, 1990
RECORDED : Document No. 90-156413

10. NOTICE OF DEDICATION

DATED : April 8, 2003
RECORDED : Document No. 2003-094686
BY : KAMEHAMEHA SCHOOLS
RE : dedication of land for Agricultural purposes
PERIOD : 10 years, effective as of July 1, 2003

11. The terms and provisions contained in the following:

INSTRUMENT : DECLARATION OF CONDITIONS IMPOSED BY THE BOARD OF
LAND AND NATURAL RESOURCES

DATED : April 2, 2009
RECORDED : Document No. 2009-051075

SCHEDULE B CONTINUED

12. Unrecorded Lease dated and effective on January 1, 2008, by and between DIANE JOYCE PLOTTS, CORBETT AARON KAMOHAIKIOKALANI KALAMA, JAMES DOUGLAS KEAUHOU ING, CHARLES NAINOA THOMPSON, and MICAH A. KANE, Trustees of the Estate of Bernice Pauahi Bishop, "Lessors", and SL FARM, INC., a Hawaii corporation, "Lessee", demising all or a portion of the land described in Schedule C, as set forth in CANCELLATION OF LEASE dated December 23, 2009, recorded as Document No. 2010-005615.

13. Any unrecorded leases and matters arising from or affecting the same.

14. Discrepancies, conflicts in boundary lines, shortage in area, encroachments or any other matters which a correct survey or archaeological study would disclose.

15. The land described herein may not be a lot of record in compliance with the ordinances for the County of Hawaii.

A confirmation letter should be obtained from the Planning Department, County of Hawaii, verifying the land described herein is a pre-existing lot of record.

END OF SCHEDULE B

SCHEDULE C

All of that certain parcel of land (being portion(s) of the land(s) described in and covered by Land Patent Number 8200, Royal Patent Numbers 4475 and 6883, Land Commission Award Number 7713, Apana 14 to V. Kamamalu) situate, lying and being at Kaua'ea, District of Puna, Island and County of Hawaii, State of Hawaii, being a portion of the "PUNA AGRICULTURAL SUBDIVISION" and thus bounded and described:

Beginning at a pipe in concrete and ahu at the northeast corner of this parcel of land and on the Kaua'ea-Malama boundary, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KALI'U" being 673.43 feet south and 8,454.20 feet east, and running thence by azimuths measured clockwise from true South:

- | | | | |
|-----|--------------|---------|---|
| 1. | 46° 35' 00" | 2311.2 | feet along remainder of L.P. 8200, R.P. 4475 and 6883, L.C.Aw. 7713, Ap. 14 to V. Kamamalu to a pipe in concrete and ahu; |
| 2. | 333° 19' 20" | 1204.8 | feet along same to a pipe in concrete and ahu; |
| 3. | 333° 39' 40" | 1599.04 | feet along same to a pipe in concrete and ahu; |
| 4. | 101° 45' 00" | 241.0 | feet along Grant 6670 to J. Heke'ia to a pipe; |
| 5. | 103° 24' 00" | 371.6 | feet along same; |
| 6. | 106° 06' 00" | 735.0 | feet along Grant 7263 to J. K. Moku'a; |
| 7. | 123° 13' 00" | 819.0 | feet along same; |
| 8. | 103° 45' 00" | 300.0 | feet along same; |
| 9. | 108° 35' 00" | 590.0 | feet along same; |
| 10. | 108° 52' 00" | 998.0 | feet along Grant 5014 to H. Kahalo'a to a pipe in concrete and ahu; |

SCHEDULE C CONTINUED

| | | | | | |
|-----|------|-----|-----|--------|---|
| 11. | 199° | 00' | 00" | 20.0 | feet along Grant 3231 to Maluo Naahumakua to a pipe in concrete; |
| 12. | 107° | 35' | 45" | 1304.2 | feet along same to a pipe in concrete; |
| 13. | 107° | 58' | 00" | 1353.5 | feet along same to a "Δ" cut on rock; |
| 14. | 109° | 21' | 00" | 675.5 | feet along Grant 5051 to H. J. Lyman to a pipe in concrete and ahu; |
| 15. | 124° | 15' | 00" | 2740.0 | feet along same and along Grant 5052 to B. Von Damm to a pipe in concrete and ahu; |
| 16. | 184° | 50' | 00" | 196.0 | feet along remainder of L.P. 8200, R.P. 4475 and 6883, L.C.Aw. 7713, Ap. 14 to V. Kamamalu to a pipe in concrete and ahu; |
| 17. | 188° | 16' | 00" | 1485.1 | feet along same to a pipe in concrete and ahu; |
| 18. | 274° | 51' | 45" | 8429.8 | feet along the lands of Keahialaka and Malama to a pipe in concrete and passing over a pipe at 5760.47 feet; |
| 19. | 309° | 05' | 00" | 1300.0 | feet along the land of Malama to the point of beginning and containing an area of 694.50 acres, more or less. |

EXCEPTING AND EXCLUDING from the above described parcel of land, the ancient Opihikao Trail, referenced on Government Survey Registered Map No. 2254, dated May, 1896.

Said parcel(s) of land having been acquired by the TRUSTEES UNDER THE WILL AND OF THE ESTATE OF BERNICE PAUAHI BISHOP, DECEASED, by testate succession had in the matter of the estate of BERNICE PAUAHI BISHOP, deceased, in Probate Number 2425, Circuit Court of the First Circuit, State of Hawaii.

END OF SCHEDULE C

GENERAL NOTES

1. There is hereby omitted from any covenants, conditions and reservations contained herein any covenant or restriction based on race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law. Lawful restrictions under state or federal law on the age of occupants in senior housing or housing for older persons shall not be construed as restrictions based on familial status.

SCHEDULE D

CONDITIONS AND STIPULATIONS

1. This Status Report (which term shall include any revisions thereto) is a report of the record title only, based solely upon an abstract and examination of the Indices described in Schedule A as of the date of the Report. No responsibility is assumed for (a) matters which may affect the title but either were not disclosed or were incorrectly disclosed in said indices at the date hereof; or (b) matters created, suffered, assumed, or agreed to by Purchaser; or (c) matters not shown herein but actually know to Purchaser. Title Guaranty of Hawaii, Inc. (the "Company") makes no representation as to the legal effect, validity or priority of matters shown or referred to herein.
2. If the Report is incorrect in any respect, the responsibility of the Company shall be limited to the resulting actual loss, including any attorney's fees and legal costs, but in no event shall exceed the lesser of \$3,500 or two times the amount paid for the Report. Upon payment of any loss hereunder, the Company shall be subrogated to all rights the Purchaser may have against any person or property as a result of such loss.
3. If the Purchaser of this Report shall suffer an actual loss by reason of the incorrectness of the Report, the Purchaser shall promptly notify the Company in writing. After receipt of such notice, the Company shall be allowed a reasonable time in which to investigate the claim. At its sole option, the Company may litigate the validity of the claim, negotiate a settlement or pay to Purchaser the amount the Company is obligated to pay under this Report. The Company's responsibility hereunder constitutes indemnity only and nothing herein shall obligate the Company to assume the defense of the Purchaser with respect to any claim made hereunder.
4. This report is the entire contract between the Purchaser and the Company and any claim by Purchaser against the Company, arising hereunder, shall be enforceable only in accordance with the provisions herein.
5. Notice required to be given the Company shall include the Order Number of this Report and shall be addressed to Title Guaranty of Hawaii, Inc., P.O. Box 3084, Honolulu, HI 96802, Attention: Legal Department.

DATE PRINTED: 9/27/2018

STATEMENT OF ASSESSED VALUES AND REAL PROPERTY TAXES DUE

TAX MAP KEY

DIVISION ZONE SECTION PLAT PARCEL HPR NO.
(3) 1 3 009 005 0000

CLASS: CONSERVATION & etc AREA ASSESSED: 694.500 AC

ASSESSED VALUES FOR CURRENT YEAR TAXES: 2018

The records of this division show the assessed values and taxes on the property designated by Tax Key shown above are as follows:

| | | |
|-----------------|----|---------|
| BUILDING | \$ | 18,200 |
| EXEMPTION | \$ | 0 |
| NET VALUE | \$ | 18,200 |
| LAND | \$ | 599,800 |
| EXEMPTION | \$ | 0 |
| NET VALUE | \$ | 599,800 |
| TOTAL NET VALUE | \$ | 618,000 |

Installment (1 - due 8/20; 2 - due 2/20) Tax Info As Of - 8/20/2018

| Tax Year | Installment | Tax Amount | Penalty Amount | Interest Amount | Other Amount | Total Amount | |
|----------|-------------|------------|----------------|-----------------|--------------|--------------|---------|
| 2018 | 2 | 1,733.60 | | | | 1,733.60 | PENDING |
| 2018 | 1 | 1,733.61 | | | | 1,733.61 | PENDING |
| 2017 | 2 | 2,850.46 | | | | 2,850.46 | PAID |
| 2017 | 1 | 2,850.47 | | | | 2,850.47 | PAID |
| 2016 | 2 | 2,816.71 | | | | 2,816.71 | PAID |
| 2016 | 1 | 2,816.71 | | | | 2,816.71 | PAID |

Total Amount Due: 3,467.21

Penalty and Interest Computed to: 8/20/2018

The real property tax information provided is based on information furnished by the respective counties, is deemed reliable but not guaranteed, and no warranties are given express or implied. Billing and tax collection details may have changed. Please refer to the appropriate county real property tax offices for any further information or updates for the subject property.

DATE PRINTED: 9/27/2018

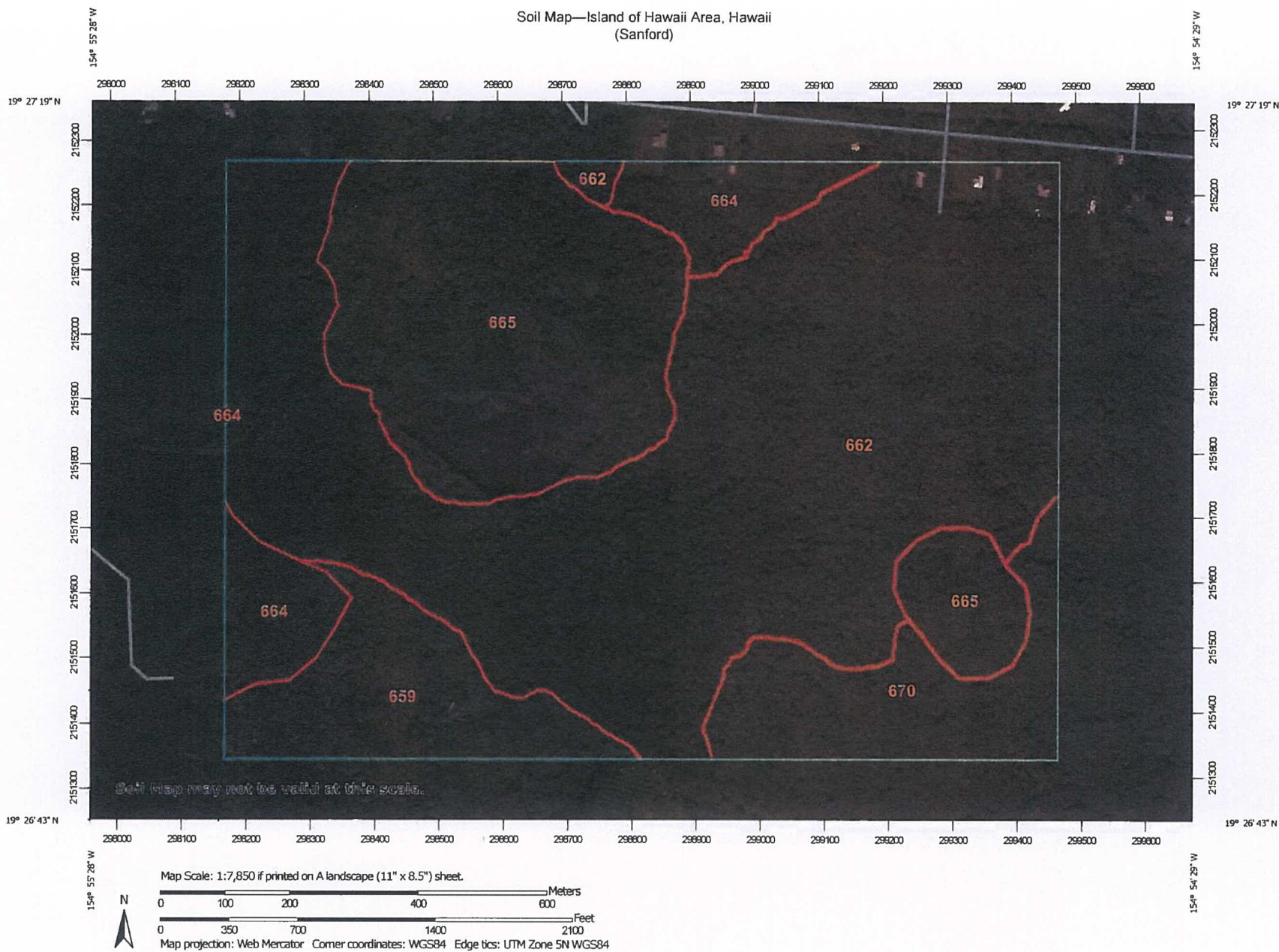
CLASS BREAKDOWN FOR TAX MAP KEY BELOW:

| TAX MAP KEY | | | | | | |
|---------------------|------|---------|------|----------------|---------|------------|
| DIVISION | ZONE | SECTION | PLAT | PARCEL | HPR NO. | |
| (3) | 1 | 3 | 009 | 005 | 0000 | |
| CLASS: CONSERVATION | | | | AREA ASSESSED: | | 413.300 AC |
| BUILDING | | | \$ | | 0 | |
| EXEMPTION | | | \$ | | 0 | |
| NET VALUE | | | \$ | | 0 | |
| LAND | | | \$ | 100 | | |
| EXEMPTION | | | \$ | | 0 | |
| NET VALUE | | | \$ | 100 | | |
| TOTAL NET VALUE | | | \$ | 100 | | |

| TAX MAP KEY | | | | | | |
|---------------------|------|---------|------|----------------|---------|------------|
| DIVISION | ZONE | SECTION | PLAT | PARCEL | HPR NO. | |
| (3) | 1 | 3 | 009 | 005 | 0000 | |
| CLASS: AGRICULTURAL | | | | AREA ASSESSED: | | 281.200 AC |
| BUILDING | | | \$ | 18,200 | | |
| EXEMPTION | | | \$ | 0 | | |
| NET VALUE | | | \$ | 18,200 | | |
| LAND | | | \$ | 599,700 | | |
| EXEMPTION | | | \$ | 0 | | |
| NET VALUE | | | \$ | 599,700 | | |
| TOTAL NET VALUE | | | \$ | 617,900 | | |





































Soil Map—Island of Hawaii Area, Hawaii
(Sanford)

EXHIBIT 7



Soil Map—Island of Hawaii Area, Hawaii
(Sanford)

MAP LEGEND

| | | |
|--|--|---|
| Area of Interest (AOI) | |  Spoil Area |
|  Area of Interest (AOI) | |  Stony Spot |
| Soils | |  Very Stony Spot |
|  Soil Map Unit Polygons | |  Wet Spot |
|  Soil Map Unit Lines | |  Other |
|  Soil Map Unit Points | |  Special Line Features |
| Special Point Features | | Water Features |
|  Blowout | |  Streams and Canals |
|  Borrow Pit | | Transportation |
|  Clay Spot | |  Rails |
|  Closed Depression | |  Interstate Highways |
|  Gravel Pit | |  US Routes |
|  Gravelly Spot | |  Major Roads |
|  Landfill | |  Local Roads |
|  Lava Flow | | Background |
|  Marsh or swamp | |  Aerial Photography |
|  Mine or Quarry | | |
|  Miscellaneous Water | | |
|  Perennial Water | | |
|  Rock Outcrop | | |
|  Saline Spot | | |
|  Sandy Spot | | |
|  Severely Eroded Spot | | |
|  Sinkhole | | |
|  Slide or Slip | | |
|  Sodic Spot | | |

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Hawaii Area, Hawaii
Survey Area Data: Version 10, Oct 3, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Nov 28, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|------------------------------------|--|--------------|----------------|
| 659 | Malama extremely cobbly highly decomposed plant material, 2 to 40 percent slopes | 23.5 | 7.9% |
| 662 | Hakuma highly organic hydrous loam, 2 to 10 percent slopes | 162.7 | 54.8% |
| 664 | Opihikao highly decomposed plant material, 2 to 20 percent slopes | 18.3 | 6.2% |
| 665 | Iilewa cobbly hydrous highly organic silty clay loam, 30 to 80 percent slopes | 68.4 | 23.0% |
| 670 | Panaewa very cobbly hydrous loam, dry, 2 to 10 percent slopes | 24.0 | 8.1% |
| Totals for Area of Interest | | 296.8 | 100.0% |

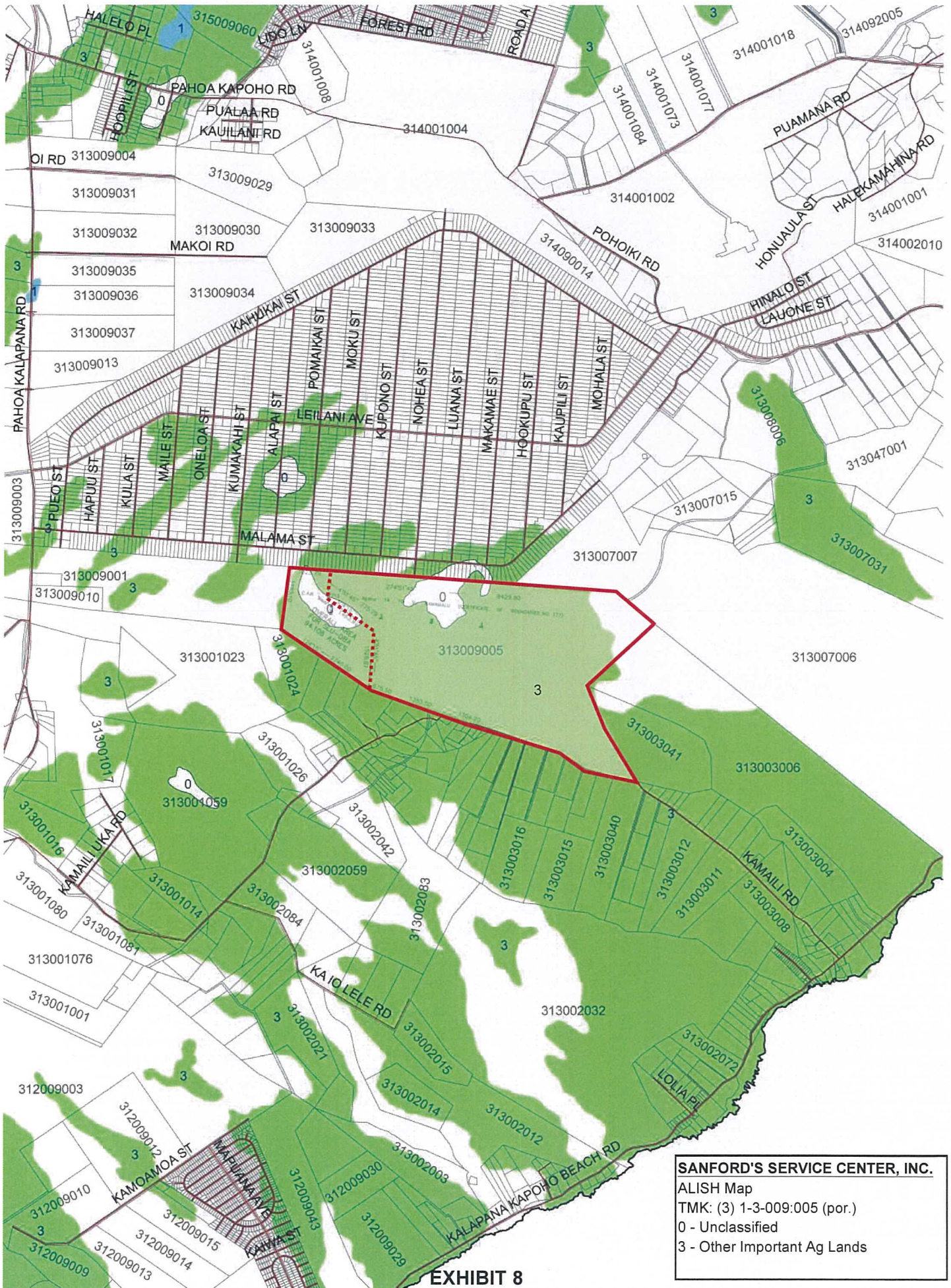
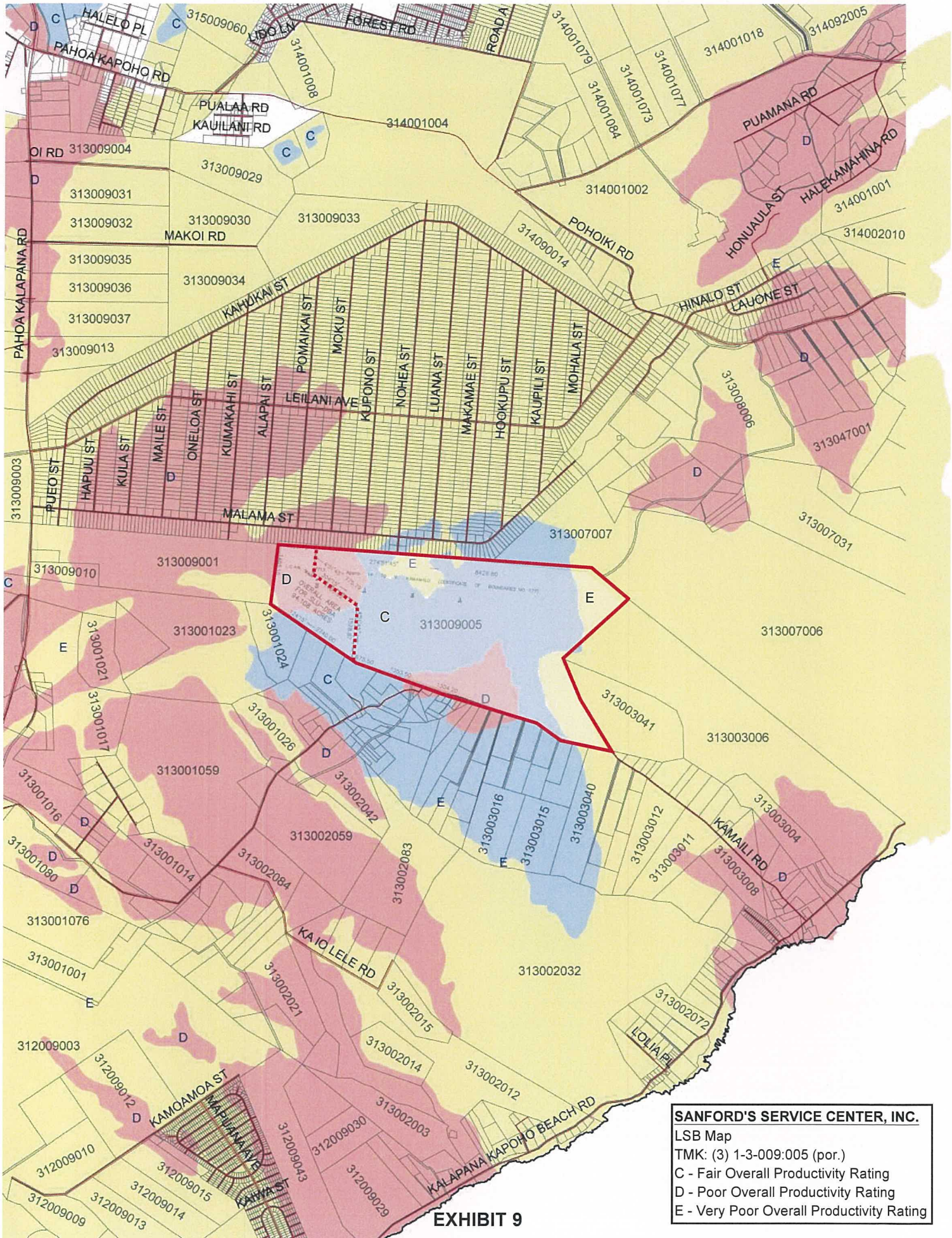
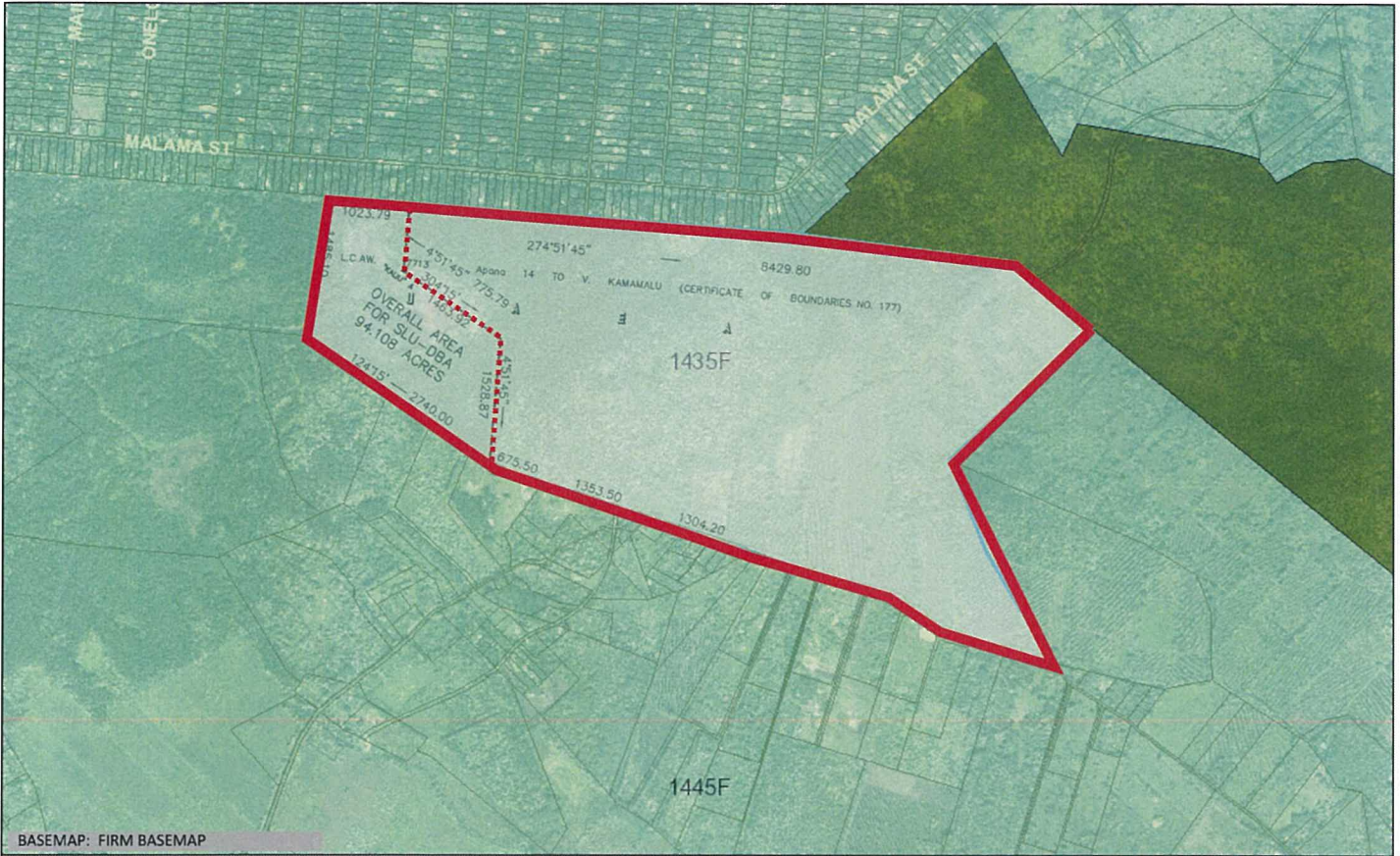


EXHIBIT 8



SANFORD'S SERVICE CENTER, INC.
 LSB Map
 TMK: (3) 1-3-009:005 (por.)
 C - Fair Overall Productivity Rating
 D - Poor Overall Productivity Rating
 E - Very Poor Overall Productivity Rating

EXHIBIT 9



BASEMAP: FIRM BASEMAP



Flood Hazard Assessment Report

www.hawaiiinfip.org

Property Information

COUNTY: HAWAII
 TMK NO: (3) 1-3-009:005
 WATERSHED: KILAUEA
 PARCEL ADDRESS: UNKNOWN ADDRESS
 PAHOA, HI 96778

Notes:

Flood Hazard Information

FIRM INDEX DATE: SEPTEMBER 29, 2017
 LETTER OF MAP CHANGE(S): NONE
 FEMA FIRM PANEL: 1551661435F
 PANEL EFFECTIVE DATE: SEPTEMBER 29, 2017

THIS PROPERTY IS WITHIN A TSUNAMI EVACUATION ZONE: NO
 FOR MORE INFO, VISIT: <http://www.scd.hawaii.gov/>

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
 FOR MORE INFO, VISIT: <http://dlnreg.hawaii.gov/dam/>



Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

EXHIBIT 10

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND

(Note: legend does not correspond with NFHL)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

| | |
|--|---|
| | Zone A: No BFE determined. |
| | Zone AE: BFE determined. |
| | Zone AH: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined. |
| | Zone AO: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. |
| | Zone V: Coastal flood zone with velocity hazard (wave action); no BFE determined. |
| | Zone VE: Coastal flood zone with velocity hazard (wave action); BFE determined. |
| | Zone AEF: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE. |

NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

| | |
|--|--|
| | Zone XS (X shaded): Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. |
| | Zone X: Areas determined to be outside the 0.2% annual chance floodplain. |

OTHER FLOOD AREAS

| | |
|--|---|
| | Zone D: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase applies, but coverage is available in participating communities. |
|--|---|



Leilani Estates

Malama-Ki
Forest Reserve

MacKenzie
State
Recreation
Area



SANFORD'S SERVICE CENTER, INC.
Tsunami Evacuation Zone Map
TMK: (3) 1-3-009:005 (por.)
Property not within Tsunami Zone

EXHIBIT 11

Map Satellite



137

Cultural Impact Assessment for
Sanford's Service Center Leilani Quarry
Ahupua'a of Kaua'ea, Moku of Puna
Hawai'i Island

Prepared for

Sanford's Service Center, Inc.
15-2628 Keaau-Pahoa Rd
Pāhoā, HI 96778

By
Maria Orr, MA
Kaimipono Consulting Services LLC

Contributor
Alan Haun, PhD
Haun & Associates

Updated 2019

EXHIBIT 12

This Page Left Blank

EXECUTIVE SUMMARY

This Cultural Impact Assessment (CIA) was prepared (2015) at the request of Sanford's Service Center, Inc. in conjunction with a proposal to expand cinder mining operations at Sanford's Service Center, Inc. Leilani Quarry in the vicinity of Pu'u Kali'u, on lands leased from Bishop Estate-Kamehameha Schools. The CIA was originally drafted for a 309 acre portion of TMK (3) 1-3-009:005. Currently Sanford's Service Center has a license from KS to perform mining activities in a 73.075-acre portion of the property, termed the "Licensed Area." In 2018 Sanford's Service Center, Inc. amended their original expansion footprint and reduced their petition area. They are seeking to amend the Land Use District boundaries of certain lands consisting of approximately 94.107 acres of TMK (3) 1-3-009:005 situated at Kauaea, Puna, Island and County of Hawai'i, State of Hawai'i ("Petition Area") from the State Land Use Conservation District (Limited Subzone) to the State Land Use Agricultural District. Therefore, this CIA has been updated to reflect this change. The purpose of a CIA is to gather information about traditional cultural practices, ethnic cultural practices, and pre-historic and historic cultural resources that may be affected by the implementation of this project or undertaking in accordance with the State of Hawaii Environmental Council *Guidelines for Assessing Cultural Impacts* (Adopted on November 19, 1997). The original (2015) *level of effort* for this CIA included ethnographic research (oral histories) of people who are connected to these lands in various ways and an archival cultural/historical background review of the literature (including internet research). An archaeological inventory survey (AIS) of the project area was conducted by Haun & Associates (Haun and Henry) in 2013. The archival data (maps and background information) of the AIS is included in this report (maps were updated illustrating the new petition area). The revision phase included a limited site visit (December 5, 2018) where current photos were taken and the CIA report updated and revised (February-March 2019).

Nineteen people were called and thirteen potential ethnographic consultants were identified and contacted; most felt that they did not know anything about the project area which is currently undeveloped, but being mined for cinder in selected areas. However, according to archival research the project area was well utilized in the early historic era. Two people who were familiar with the project area were interviewed. Much of the lands in the vicinity of the project location have been a cultural resource area where hula and medicine plants were gathered. East of the access road is The Pu'u Kali'u Lowland Wet Forest where native species are being protected. The lands in the vicinity were also known hunting grounds for some Puna families. In 1993 a study was conducted (Reynolds and Ritchotte 1995:29) of Puna nesting areas for the endangered Newell shearwater birds; they recorded that these endangered birds were seasonally nesting on Pu'u Kali'u, on the northeastern border of the Petition Area.

The ethnographic consultants would like to be informed and be considered cultural advisors for the mining expansion. They would like to continue cultural gathering practices and ask that something be done about the 'ohi'a fungus situation. It is recommended that the Newell shearwater researchers be contacted to help determine where exactly the birds are nesting so that a protection plan can be developed. An email was sent (2019) to Pacific Fish & Wildlife Service in hopes of contacting either Reynolds or Ritchotte regarding any follow-up surveys. There has been no response likely due to federal furloughs.

The License between Sanford's Service Center, Inc. and Bishop Estate specifically prohibits further mining of the portion of Pu'u Kaliu which includes the summit outside of the "OVERALL AREA" as shown on the map. Sanford's Service Center, Inc. has not mined the summit of the Pu'u and is currently mining in a direction away from the Pu'u. The proposed buffer areas totaling 21.033-acres would minimize impacts to forested areas. Cultural impact will be a non-issue for this project since the expansion will not jeopardize the summit of Pu'u Kali'u - the Newell's Shearwater nesting grounds and a USGS triangulation station or access to cultural resource areas.

ACKNOWLEDGEMENTS

Without the ethnographic consultants this Cultural Impact Assessment (CIA) report could not have been done. Therefore, **Mahalo Nui Loa** goes out to ethnographic consultants Emily Kealoha Naeole and Piilani Kaawaloa. Aunty Emily drove me to the project site, the neighboring Leilani Estates, and her neighborhood Maku'u. And Piilani agreed be interviewed even though she just got out of the hospital. Mahalo also to Aunty Elaine Hauanio and Aunty Felisa Hanohano for taking the time to talk with me, although they deferred to their deceased husbands who were the cultural experts of the project area.

A big mahalo also goes to transcriber Seana Piilani Ah Kee, to Jamie Sing Kawauchi for her contact leads, to Daniel Orr for driving me to the 2018 site visit, and to Kim Iwata for making arrangements.

TABLE OF CONTENTS

| | |
|--|------|
| EXECUTIVE SUMARRY | iii |
| ACKNOWLEDGEMENTS | iv |
| TABLE OF CONTENTS | v |
| LIST OF FIGURES | vi |
| LIST OF TABLES | vi |
| LIST OF PHOTOGRAPHS | vii |
| LIST OF APPENDICES | viii |
| | |
| INTRODUCTION | 1 |
| SCOPE OF WORK | 1 |
| PROJECT AREA DECRPTION AND PHYSICAL ENVIRONMENT | 2 |
| | |
| METHODS | 14 |
| | |
| CULTURAL AND HISTORICAL BACKGROUND REVIEW | 16 |
| Chronology Periods | 16 |
| Historical Documentary Research | 23 |
| Previous Archaeological Surveys (Haun and Henry 2013:30) | 29 |
| Traditional Literature | 34 |
| Genealogies | 34 |
| Hawai'i Island Royal Line | 36 |
| Puna Chiefs | 39 |
| Mo'olelo | 40 |
| Mele and 'Oli | 45 |
| 'Ōlelo No'eau | 46 |
| Place Names | 47 |
| | |
| ETHNOGRAPHIC DATA AND ANALYSIS | 49 |
| Ethnographic Demographics | 50 |
| Ethnographic Consultants and Backgrounds | 50 |
| Piilani Kaawaloa | 50 |
| Emily Kealoha Naeole | 52 |
| Land Resources and Use | 53 |
| Water Resources and Use | 56 |
| Consultant Concerns/Recommendations | 56 |
| | |
| CIA SUMMARIES AND ASSESSMENT | 58 |
| Summary of Findings | 58 |
| Environmental Council Guidelines Criteria in Relation to Project Lands | 64 |
| Cultural Impact Assessment | 65 |
| | |
| REFERENCES CITED | 66 |

LIST OF FIGURES

| | |
|---|----|
| 1. Petition Area Location Map (By GK Environmental LLC 2019) | 3 |
| 2. Petition Area Vicinity and TMK Map (by GK Environmental LLC 2019) | 4 |
| 3. Petition Area Buffer Map (by GK Environmental LLC 2019) | 6 |
| 4. Map by Island Survey, Inc. with Permit Area | 7 |
| 5. Areas of use and terrain types in petition area and vicinity (Haun & Henry 2013:11; updated 2019) | 7 |
| 6. Portion of USGS TOPO Map (2019) of Leilani Estates in relation to Pu'u Kaliu | 8 |
| 7. Fissure 8 Lava Flow USGS (2018) | 8 |
| 8. Loebenstein's 1895 Hawaii Government Survey Map of Puna (Haun and Henry 2013:21; updated 2019) | 24 |
| 9. Portion of Loebenstein's 1895 map showing revised project area vicinity; coffee lands (Haun and Henry 2013:22; updated 2019) | 26 |
| 10. Portion of Wall's 1915 Hawaii Government Survey Map of Puna (Haun and Henry 2013:25) | 28 |
| 11. Portion of Wall's 1915 Hawaii Government Survey Map of Puna (Haun and Henry 2013:25) | 29 |
| 12. Close-up of Wall's 1927 map showing project area vicinity (Haun and Henry 2013:27). | 30 |
| 13. Ahupua'a boundaries and previous archaeological work (Haun and Henry 2013:18) | 32 |

LIST OF TABLES

| | |
|---|----|
| 1. Terrain types in project area (From Haun & Henry 2013:10) | 10 |
| 2. Lava flows in the project area (Haun & Henry 2013:13) | 10 |
| 3. Vegetation in project area based on data from Haun & Henry (2013:5) above | 12 |
| 4. Newell's Shearwater detections in the Puna district in 1993 (Reynolds and Ritchotte 1995:29) | 13 |
| 5. Previous Archaeological Work from Haun and Henry 2013:31). | 33 |
| 6. Hawai'i Island Royal Line [based on McKenzie (1983, 1986), Kamakau (1992) and 'I'i (1959).] | 36 |
| 7. Ethnographic Consultant Demographics | 50 |
| 8. Cultural Resources and Gathering Practices in Project Area | 63 |

LIST OF PHOTOGRAPHS

| | |
|---|----|
| 1. Cinder access road to quarry area | 5 |
| 2. Cinder access road to quarry area | 5 |
| 3. Cinder mining area looking towards Pu'u Kali'u. | 5 |
| 4. Cinder mining area looking towards Pu'u Kali'u. | 5 |
| 5. Leilani Quarry cinder mining south of Leilani Estates | 5 |
| 6. Leilani Quarry cinder mining south of Leilani Estates | 5 |
| 7. Leilani Quarry cinder mining south of Leilani Estates | 5 |
| 8. Leilani Quarry cinder mining south of Leilani Estates | 5 |
| 9. Makamae St Lava Flow (USGS/AP 2018) | 8 |
| 10. View inside of the cone of Fissure 8 on Aug. 5, 2018 (USGS-HVO) | 9 |
| 11. Fissure 8 flowing towards Kapoho June 9, 2018 | 9 |
| 12. Crevices parallel to project access road | 9 |
| 13. Crevices parallel to project access road | 9 |
| 14. Sections of the Pu'u Kali'u Lowland Wet Forest | 9 |
| 15. Sections of the Pu'u Kali'u Lowland Wet Forest | 9 |
| 16. Various lava tree stumps in Lava Tree State Park in Pahoa, Puna | 43 |
| 17. Various lava tree stumps in Lava Tree State Park in Pahoa, Puna | 43 |
| 18. Various lava tree stumps in Lava Tree State Park in Pahoa, Puna | 43 |
| 19. Various lava tree stumps in Lava Tree State Park in Pahoa, Puna | 43 |
| 20. Various lava tree stumps in Lava Tree State Park in Pahoa, Puna | 43 |
| 21. Various lava tree stumps in Lava Tree State Park in Pahoa, Puna | 43 |
| 22. The favorite trees of Puna; <i>'ohia lehua</i> | 47 |
| 23. The favorite trees of Puna; <i>mamaki</i> | 47 |
| 24. The favorite trees of Puna; <i>hala</i> | 47 |
| 25. Albizia tree limbs | 49 |
| 26. Piilani Kaawaloa | 50 |
| 27. Emily Naeole | 52 |
| 28. <i>'le 'ie</i> growing up <i>'ohia</i> tree | 53 |
| 29. Non-natives encroaching on <i>'ohia</i> | 54 |
| 30. Native <i>'ohia lehua</i> forest dying | 54 |
| 31. Cinder mining operation | 55 |
| 32. Cinder mining operation | 55 |

LIST OF APPENDICES

| | |
|--|----|
| A. Act 50 - SLH2000 | 75 |
| B. Guidelines for Assessing Cultural Impacts | 76 |
| C. Agreement to Participate in Ethnographic Survey | 79 |
| D. Basic Ethnographic Instrument | 82 |
| E. Signed Consent Forms | 84 |
| F. Signed Release Forms | 87 |

This Page Left Blank

INTRODUCTION

At the request of *Sanford's Service Center, Inc.* a Cultural Impact Assessment (CIA) (2015) was conducted in two phases: the archival and ethnographic research and analysis from August through October 2015 and the report write-up in October-December 2015. In a new petition (2018-19), Sanford's Service Center, Inc. ("Petitioner") is seeking to amend the Land Use District boundaries of certain lands [Sanford's Service Center, Inc. Leilani Quarry] consisting of approximately 94.107 acres of Tax Map Key No. (3) 1-3-009:005 situated at Kauaea, Puna, Island and County of Hawai'i, State of Hawai'i ("Petition Area") from the State Land Use Conservation District (Limited Subzone) to the State Land Use Agricultural District.

This CIA is in compliance with state requirements to identify and evaluate possible cultural impacts associated with the expansion of the Sanford's Service Center Leilani Quarry. Act 50 SLH 2000 (HB 28 H.D.1) [Appendix A] as it amends the State of Hawai'i Environmental Impact Statement law [Chapter 343, HRS] includes "effects on the cultural practices of the community and State. [It] also amends the definition of 'significant effect' to include adverse effects on cultural practices."

The purpose of a CIA is to gather information about traditional cultural practices, ethnic cultural practices and pre-historic and historic cultural resources that may be affected by the expansion of the quarry, in accordance with the State of Hawaii Environmental Council *Guidelines for Assessing Cultural Impacts* (Adopted on November 19, 1997) [Appendix B]. The *level of effort* for the 2015 CIA included ethnographic research (two oral histories) of people who are connected to these lands in various ways and an archival cultural/historical background review of the literature (including internet research). The *level of effort* for this phase of the CIA (2018-19) included a very limited ground-truthing survey, and updating the original 2015 CIA report.

This report is organized into five chapters. Chapter 1 describes the revised project area in terms of location, in the context of *ahupua'a* (land division), *moku'āina* (district) and *mokupuni* (island), as well as a generalized description of the natural environment (e.g. geology, flora and fauna) and built environment (e.g. any current features). Figures and photos in this chapter have been updated (2019). Chapter 2 explains the methods and constraints of this study. Chapter 3 summarizes a review of the historical and traditional (cultural) literature in the context of the general history of Hawai'i, the island of Hawai'i, the traditional districts or *moku* of Puna and local histories of the *ahupua'a* of Kauaea. Chapter 4 presents the ethnographic analysis based on the supporting raw ethnographic data (oral history transcripts) as it pertains to land, water and cultural resources and use in the project area and vicinity. It also includes background data about the ethnographic consultants. Chapter 5 summarizes the findings of this study based on supporting data from Chapters 1 through 4 and presents a cultural impact assessment and recommendations.

SCOPE OF WORK

The CIA scope-of-work (SOW) is based on the Environmental Council *Guidelines for Assessing Cultural Impacts* (1997) and focuses on three cultural resource areas (traditional, historical and ethnographic), conducted on two levels: archival research (literature/document review) and ethnographic data (oral history). The specific tasks include:

1. Conduct historical and other culturally related documentary research;
2. Identify individuals with knowledge of the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or *ahupua'a*; or with knowledge of the area potentially affected by the proposed action e.g. past/current oral histories;

3. Identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
4. Assess the impact of the proposed action on the cultural resources, practices and beliefs identified.

Traditional resources research entailed a review of Hawaiian *mo'olelo* (stories, legends or oral histories) of late 19th and early 20th century ethnographic works. Historic research focused on the literature compiled. Ethnographic research focused on current interviews with knowledgeable individuals.

Project Area Description and Physical Environment

According to Haun & Associates (2013), the survey area is a parcel located in the inland portion of Kaua'ea Ahupua'a (Figure 1) between approximately 380 ft and 1,070 ft elevation. The lands are owned by Bishop Estate and leased by Sanford's Service Center, Inc. who is petitioning to expand their current cinder mining operation. The survey area is bordered to the north by the Leilani Estates subdivision and Keahialaka Ahupua'a; by Opihikaō Homestead and Kaueleau Ahupua'a to the south; by undeveloped land to the west; and by undeveloped land and a papaya farm to the east. The existing Leilani Quarry is located in the southwestern portion of the petition parcel (Photos 1-18) and the remaining portion is undeveloped. A prominent feature is Pu'u Kali'u a 1,071 ft high hill located in the northeastern portion of the Petition parcel (Figure 2). Leilani Quarry is located on the southwest flank of Pu'u Kali'u and includes 30 permitted acres within the 73.075 acres of the new petition area. Pu'u Kepaka, is approximately 760 ft high and is located south east of the new petition area.

The Project Summary drafted by GK Environmental LLC provides: Petitioner is presently conducting mining and quarrying operations on a 30-acre portion of the Petition Area pursuant to non-conforming Conservation District Use Permits issued by the Board of Land and Natural Resources on April 7, 2008. In 2011, Conservation District Rules were amended such that mining and quarry operations are no longer identified land uses in the Conservation District Limited Subzone. The existing quarry produces a low-density type of black-colored cinder that is highly valued by the nursery industry. If the Land Use District Boundary Amendment is granted the Petitioner's intent is to apply for a Special Permit with the Land Use Commission to expand their quarry operations over a 73.075-acre portion of the Petition Area. The remaining 21.033-acre portion of the Petition Area will be buffer areas." [Figure 3]

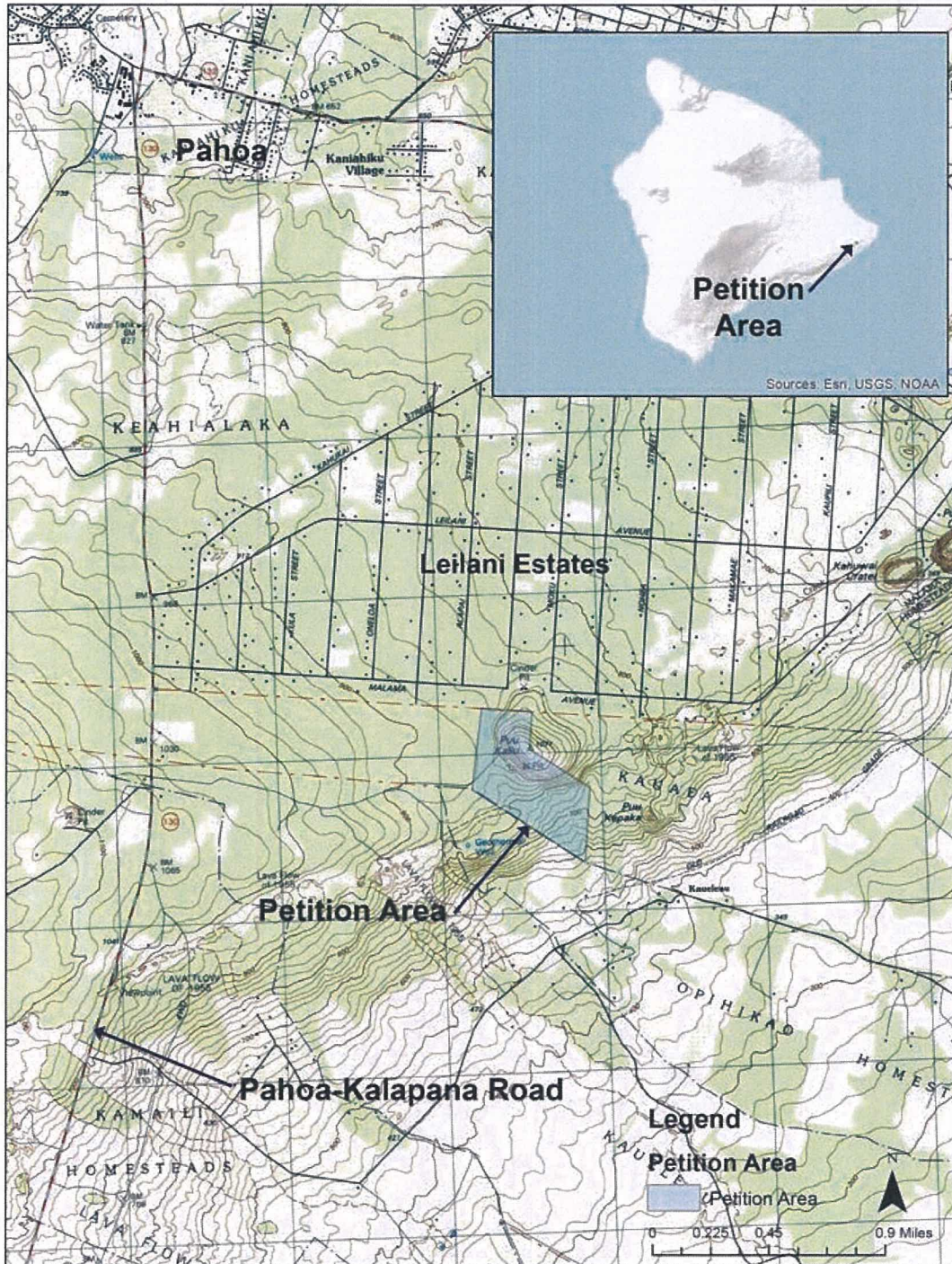


Figure 1. Petition Area Location Map (By GK Environmental LLC 2019)

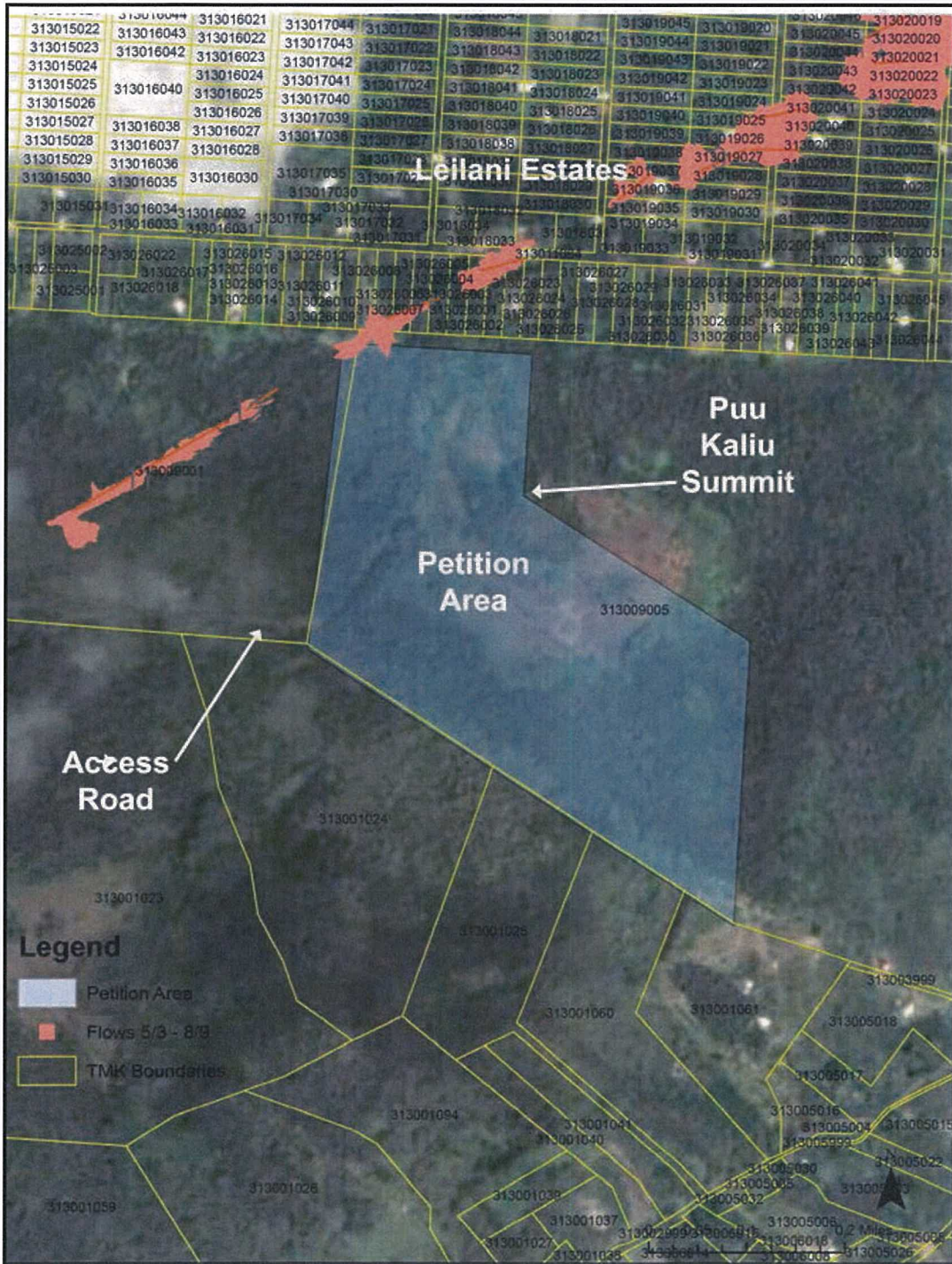


Figure 2. Petition Area Vicinity and TMK Map (by GK Environmental LLC 2019).



Photos 1-2 Cinder access road to quarry area.



Photos 3-4. Cinder mining area looking towards Pu'u Kali'u.



Photos 5-8. Leilani Quarry cinder mining south of Leilani Estates.



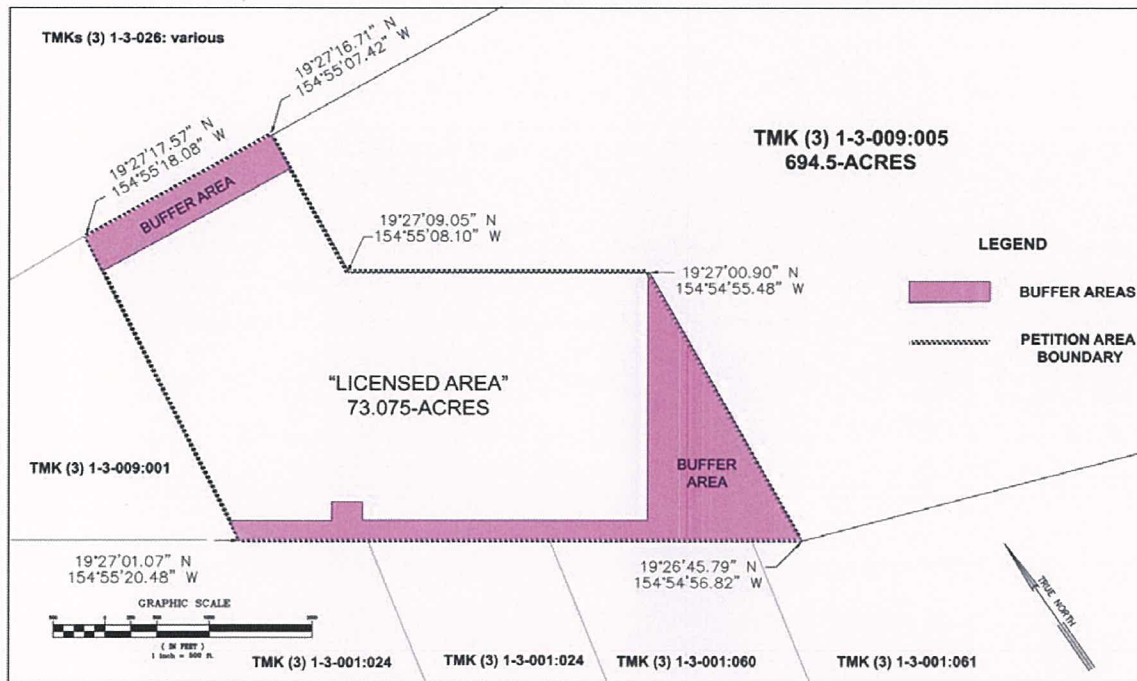


Figure 3. Petition Area Buffer Map (by GK Environmental LLC 2019).

Currently Sanford's Service Center, Inc. has a license from KS to perform mining activities in a 73.075-acre portion of the property, termed the "Licensed Area". This 73.075 acre area also includes the already permitted 30 acre CDUP area. Buffer areas totaling 21.033-acres would minimize impacts to forested areas. Together the 73.075-acre Licensed Area and 21.033-acre buffer areas comprise the 94.107-acre Petition Area. The License specifically prohibits further mining of the portion of Pu'u Kaliu which includes the summit outside of the "OVERALL AREA" as shown on the map attached as Exhibit C to the License (Figure 4). Sanford's Service Center, Inc. has not mined the summit of the Pu'u and is currently mining in a direction away from the Pu'u. If this SLU District Boundary Amendment is granted, Sanford's Service Center, Inc. will be applying for a Special Permit to mine within the 73.075 acre licensed area, but the mining activities will be focused on the area outside of the 30 acre CDUP area, within the remaining 43.075 acres, and will not impact Pu'u Kaliu.

The petition area is within the Lower East Rift Zone of the Kilauea Volcano. Large portions of the area have been disturbed by cinder mining and agricultural activities. This area includes an active cinder quarry and areas that were previously disturbed by cinder mining. Those areas were excavated below the original ground surface and are vegetated with sparse grass, weeds, shrubs and trees. The area (Leilani Quarry or Leilani Pit) is accessed by a dirt/cinder road along the southwestern side off of Hwy 130 (Figure 5).

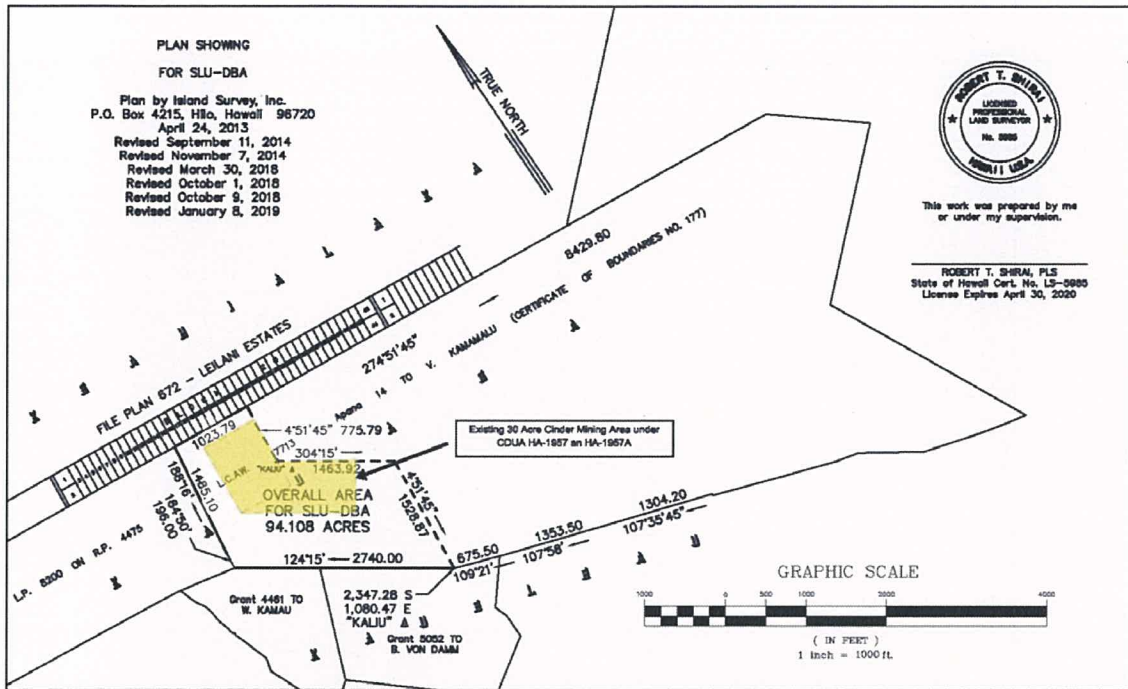


Figure 4. Map by Island Survey, Inc. with Permit Area.

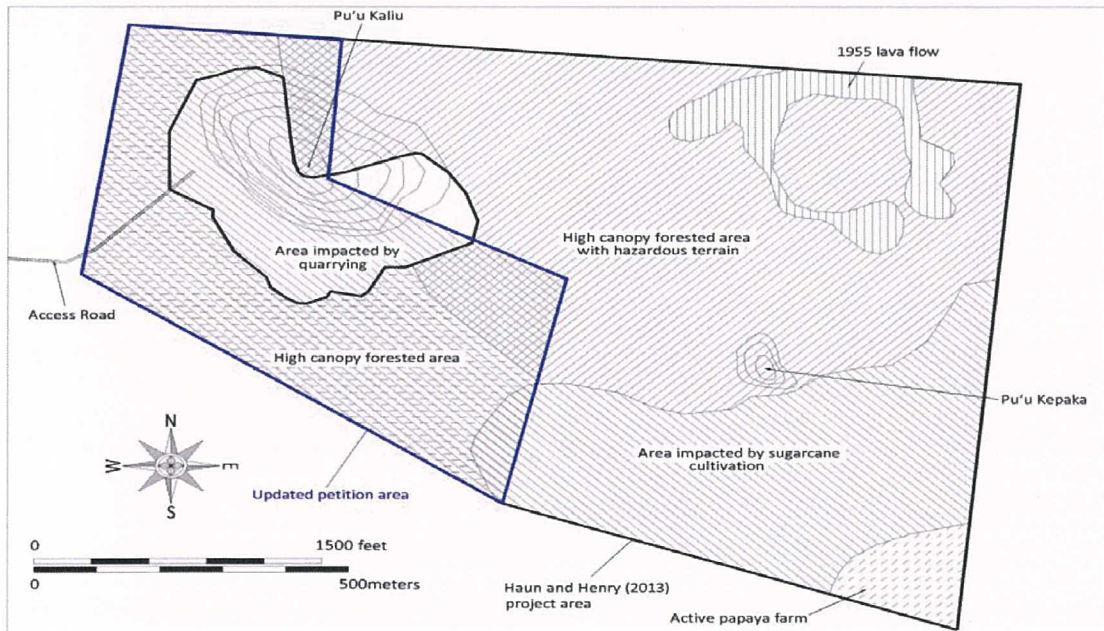


Figure 5. Areas of use and terrain types in petition area and vicinity (Haun & Henry 2013:11; updated 2019).

On May 3, 2018 a volcanic event occurred in the Leilani Estates, a neighborhood developed in the 1960s and located within the Lower East Rift Zone. Leilani Estates is north of the Pu'u Kali'u summit (elevation 1073') and the Leilani Quarry where Sanford's Services Center, Inc. has their mining operation. By May 6, 2018 lava was flowing across Makamae Street (Figure 6) in Leilani Estates (NYT 2018). Of the 24 fissures that erupted throughout Leilani Estates (Figure 7, see also Figure 2) Fissure 8 was the most monumental (108 feet) and the most active because of its volume and longevity. Hundreds of homes and thousands of acres of lands ultimately perished from the lava flows that finally ended on September 6, 2018. Pu'u Kali'u and the current mining area did not appear to be affected by the 2018 lava flows around the area. Pu'u Kali'u has a good vantage point from the Leilani Estates off of Malama Avenue. However, entrance to Leilani Estates was off limits until December 6, 2018, the day after the site visit.

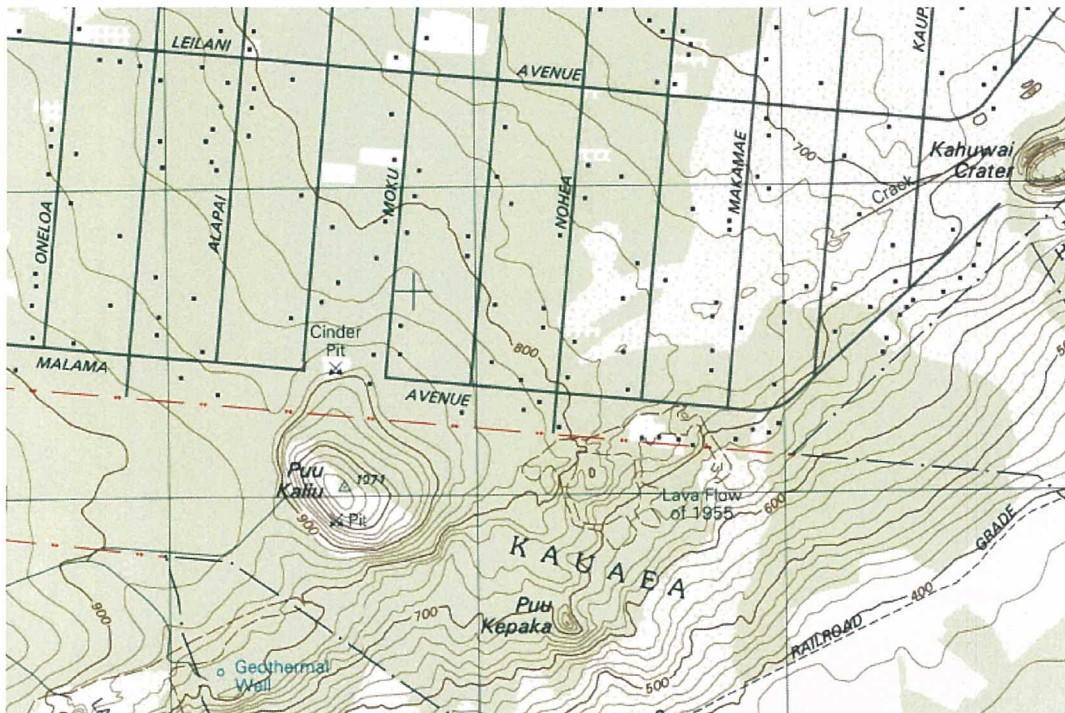


Figure 6. Portion of USGS TOPO Map (2019) of Leilani Estates in relation to Pu'u Kali'u.



Photo 9. Makamae St Lava Flow (USGS/AP 2018)

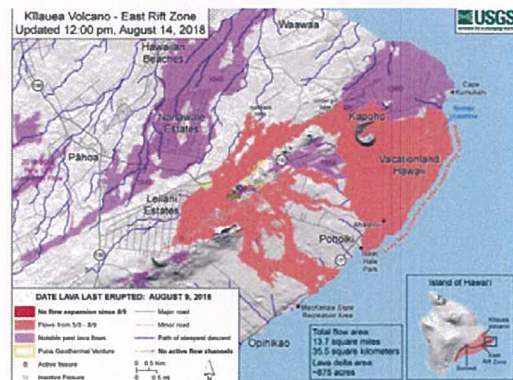


Figure 7. Fissure 8 Lava Flow USGS (2018).



Photo 10. View inside of the cone of Fissure 8 on Aug. 5, 2018 (USGS-HVO)



Photo 11. Fissure 8 flowing towards Kapoho June 9, 2018 (USGS-HVO)



A short distance away from Leilani Quarry, parallel to the access road is a cordoned off area where huge crevices are visible caused by a volcanic event. However it's not clear if this was caused by a pre-2018 or recent event. Part of the crevice was within the fenced area of the nearby Pu'u Kali'u Lowland Wet Forest where 'ohia lehua and other native plants are being identified and protected.

Photos 12 and 13. Crevices parallel to project access road.



Photos 14-15 Sections of the Pu'u Kali'u Lowland Wet Forest

Natural Environment

Table 1. Terrain types in the original survey area (From Haun & Henry 2013:10).

| Area | Acres within | % of project area | Ground surface visibility |
|--|--------------|-------------------|---------------------------|
| Cinder quarry | 31 | 10.0 | Excellent |
| Impacted by sugarcane cultivation | 66 | 21.0 | Fair to good |
| Papaya farm | 7 | 2.0 | Excellent |
| 1955 lava flow | 13 | 4.0 | Fair to good |
| High canopy forest | 53 | 17.0 | Fair to good |
| High canopy forest - Hazardous terrain | 139 | 45.0 | Fair |
| | 309 | 100.0 | |

The following descriptions are from Haun & Henry (2013:13) and includes the original Petition area which has since (2018-19) been revised and downsized:

There are two small lava flows associated with a 1790 eruption, located along the northern boundary in the central portion of the parcel, and along the south boundary in the southwestern portion. The 1790 flow occupies 3 acres or 1% of the project area. The flow along the north boundary corresponds to an area of pahoehoe lava and the flow along the south boundary corresponds to an area of a'a lava.

The majority of the [survey] area is characterized by lava flows that date from 450-750 years ago comprising 272 acres (88%). The Pu'u Kali'u area is designated as "pc4-0" by Wolfe and Morris (2001) and encompasses 62 acres (20%). This flow roughly corresponds to the Papai extremely stony muck soil area.... The remaining 210 acres (68%) are designated as "p40" and correspond to the Malama extremely stony muck soil area.

The oldest flows in the parcel date from 750 to 1,500 years ago (pc3) and are located in two areas. A 12-acre (4%) area corresponds to the Pu'u Kepaka area (see Figure 6) indicating that this smaller hill pre-dates Pu'u Kali'u. The second area is situated in the northeastern corner of the [survey] parcel and is surrounded by the 1955 flow. It is 6 acres in area and comprises 2% of the project area.

In addition to the sites documented during the [2013] survey, 20 caves and three overhangs were identified. These features were carefully examined and no evidence of cultural use or modification was evident resulting in their designation as non-cultural features.

Table 2. Lava flows in the original survey area (Haun & Henry 2013:13). Lava flows of 2018 are not included.

| Lava flow designation* | Lava flow age | Acres within | % project area | Location with project area |
|------------------------|--------------------|--------------|----------------|---|
| p5 | AD 1955 | 15 | 5 | Northeast corner of parcel |
| p5 | AD 1790 | 3 | 1 | North-central area and along south boundary |
| pc40 | 450-750 years old | 62 | 20 | Pu'u Kali'u |
| p40 | 450-750 years old | 210 | 68 | Majority of parcel |
| pc3 | 750-1500 years old | 12 | 4 | Pu'u Kepaka |
| pc3 | 750-1500 years old | 6 | 2 | Northeast corner of parcel |
| Total | | 309 | 100 | |

* - from Wolfe and Morris 2001

The following vegetation descriptions are from Haun and Henry (2013:5) includes the original Petition area. The revised Petition area is illustrated in Figure 5.

The southeastern portion of the [survey] area was disturbed by historic and modern sugarcane cultivation. This area comprises 66-acres or 21% of the total parcel and is characterized by relatively flat, gently sloping terrain with introduced plant species including strawberry guava (*Psidium cattleianum*), Coster's curse (*Clidemia hirta*), lantana (*Lantana camara*), Miconia (*Miconia calvescens*), Hawaiian raspberry (*Rubus hawaiensis*), avocado (*Persea americana*), coconut (*Cocos nucifera*), mango (*Mangifera indica*), red ginger (*Alpinia purpurata*), grasses and vines. The dense vegetation in this area resulted in fair to good ground surface visibility. An active papaya (*Carica papaya*) farm is located in the southeast corner of the parcel, occupying 7-acres or 2% of the parcel. The ground surface visibility in the papaya farm is excellent. This area also was formerly used for sugarcane cultivation.

There is a U-shaped area in the northeastern portion of the [survey] area that was covered by a 1955 lava flow from Kiluaea Volcano (13-acres, 4%). This area is vegetated with young *ohia* (*Metrosideros polymorpha*) trees, ferns and grasses with fair to good ground surface visibility.

The southwestern portion of the [survey] area consists of a high canopy forest comprising 53-acres or 17% of the total [area]. The terrain in this area is relatively level with moderately thick vegetation dominated by strawberry guava and large *ohia* trees. Occasional fissures associated with the East Rift Zone are present in this area (see Figure 4). Ground surface visibility in this area is fair to good.

The remaining 139-acres (45%) are comprised of a high canopy forest with hazardous terrain. This area is characterized by an extremely uneven ground surface that is bisected by narrow ridges and deep fissures and channels. The vegetation in this area consists of strawberry guava, African tulip (*Spathodea campanulata*), albizia (*Falcataria moluccana*), avocado, autograph tree (*Chusia rosea*), bamboo (*Bambusa spp.*), bamboo orchid (*Arundina graminifolia*), Coster's curse, gunpowder tree (*Trema orientalis*), Hawaiian raspberry, kukui (*Aleurites moluccana*), *ohia*, paper mulberry (*Broussonetia papyrifera*), staghorn fern, (*Dicranopteris linearis*), *ti* (*Cordyline fruticosa*), *uluhe* (*Dicranopteris linearis*), grasses and vines. Ground surface visibility in this area is fair.

Table 3. Vegetation in the survey area based on data from Haun & Henry (2013:5) above.

| Area | Common Name | Binomial Nomenclature | Historic |
|----------------------|--------------------|--------------------------------|--|
| Southeastern portion | Strawberry guava | <i>Psidium catteianum</i> | Sugarcane |
| | Coster's curse | <i>Clidemia hirta</i> | |
| | lantana | <i>Lantana camara</i> | |
| | Miconia | <i>Miconia calvescens</i> | |
| | Hawaiian raspberry | <i>Rubus hawaiensis</i> | |
| | avocado | <i>Persea americana</i> | |
| | coconut | <i>Cocos nucifera</i> | |
| | mango | <i>Mangifera indica</i> | |
| | red ginger | <i>Alpinia purpurata</i> | |
| | grasses | | |
| vines | | | |
| Southeastern corner | Papaya farm | <i>Carica papaya</i> | Sugar cane |
| Northeastern portion | Ohia | <i>Metrosideros</i> Sp | 1955 lava flow |
| | ferns | | |
| | grasses | | |
| Southwestern portion | Ohia | <i>Metrosideros</i> Sp | High Canopy forest & East Rift Zone |
| | Strawberry guava | <i>Psidium catteianum</i> | |
| Remaining 139 acres | Strawberry guava | <i>Psidium catteianum</i> | High Canopy forest & Hazardous terrain - Deep fissures & Channels |
| | avocado | <i>Persea americana</i> | |
| | Coster's curse | <i>Clidemia hirta</i> | |
| | African tulip | <i>Spathodea campanulata</i> | |
| | albizia | <i>Falcataria moluccana</i> | |
| | gunpowder tree | <i>Trema orientalis</i> | |
| | Hawaiian raspberry | <i>Rubus hawaiensis</i> | |
| | kukui | <i>Aleurites moluccana</i> | |
| | Ohia | <i>Metrosideros</i> Sp | |
| | paper mulberry | <i>Broussonetia papyrifera</i> | |
| | staghorn fern | <i>Dicranopteris linearis</i> | |
| | ti | <i>Cordyline fruticosa</i> | |
| | uluhe | <i>Dicranopteris linearis</i> | |
| grasses | | | |
| vines | | | |

Revised Petition Area Fauna

In 1993 nocturnal surveys were conducted by Michelle Reynolds and George Ritchotte (1995:26, 29) using auditory cues and night vision equipment during the seabird breeding season to determine the use of the inland areas of the Puna district. The following table lists the detections of the Newell's Shearwater (*Puffinus auricularis newelli*) in three locations in Puna; including Pu'u Kali'u in the petition area.

The Newell's Shearwater, or 'A'o, *Puffinus auricularis newelli*, is a threatened *procellariid* (US Fish and Wildlife Service 1992) known to breed on the Islands of Kauai and Hawaii, and suspected to breed on the other main Hawaiian Islands (Pratt et al. 1987). Newell's Shearwater was thought to be extinct after 1894, but in 1954 a specimen was collected on Oahu (King and Gould 1967) and a breeding colony was found on Kauai in 1967 (Sincock and Swedberg 1969) [Reynolds and Ritchotte 1995:26].

Table 4. Newell's Shearwater detections in the Puna district in 1993 (Reynolds and Ritchotte 1995:29).

| Location | Survey Dates | No. Detections | Detections/h | |
|--------------|----------------|----------------|--------------|-------------|
| Heiheiahulu | August 19 | 32 | 11.64 | |
| | August 23 | 20 | 6.15 | |
| | August 26 | 2 visual | 0.67 | |
| | August 31 | 15 (1 visual) | 4.29 | |
| | September 1 | 3 | 1.53 | |
| | September 2 | 1 | 0.29 | |
| | September 8 | 2 | 0.34 | |
| | September 9 | 2 | 1.00 | |
| | September 10 | 3 | 0.95 | |
| | September 16 | 4 | 1.18 | |
| | September 20 | 6 (1 visual) | 1.69 | |
| | | | Total = 99 | Mean = 1.05 |
| | Puulena Crater | July 23 | 13 | 14.18 |
| July 28 | | 7 | 3.23 | |
| July 29 | | 2 | 1.00 | |
| August 9 | | 5 | 3.16 | |
| August 10 | | 7 | 1.00 | |
| August 25 | | 2 | 0.35 | |
| August 26 | | 19 | 71.25 | |
| September 9 | | 89 | 23.52 | |
| September 10 | | 16 | 14.77 | |
| | | Total = 160 | Mean = 1.26 | |
| Pu'u Kaliu | September 1 | 2 | 0.67 | |
| | | | Mean = 0.04 | |

Pu'u Kali'u (elevation 305 m). The low numbers detected at Pu'u Kali'u may be due to surveys conducted late in the breeding season starting on 31 Aug. 1993. Follow-up surveys conducted on 1 and 3 Jun. 1994 discovered additional Newell's Shearwaters at Pu'u Kali'u and south of Pu'u Kali'u (M. Reynolds, unpubl. data) (Reynolds and Ritchotte 1995:29).

METHODS

The Cultural Impact Assessment (CIA) consisted of three phases: (1) cultural and historical archival literature review; (2) ethnographic survey (oral history interview), analysis of ethnographic data (past and current oral histories) and (3) report writing. The research was conducted June – September 2015; analysis and report writing was done in July to November 2015; with revisions in December 2015.

Personnel. The personnel consisted of the author (ethnographer) who has a master's degree in Anthropology, with a graduate curriculum background in the archaeology track as well as anthropology theory, cultural resource management, ethnographic research methods, and public archaeology; an undergraduate curriculum background that included Hawaiian History, Hawaiian Language, Hawaiian Archaeology, Pacific Islands Religion, Pacific Islands Archaeology, Cultural Anthropology, as well as a core archaeology track, Geology, and Tropical Plant Botany; and ethnographic field experience that includes over 400 interviews to date.

Level of Effort. The level of effort for this study included a broad archival research literature review and an ethnographic review and analysis [two oral histories].

Theoretical Approach. This CIA is loosely based on *Grounded Theory*, a qualitative research approach in which “raw data” [transcripts and literature] are analyzed for concepts, categories and propositions. Categories were pre-selected as part of the overall research design. However, it is not always the case that these research categories are supported in the data. Categories were generated by forming general groupings such as “Land Resources and Use,” “Water Resources and Use,” and “Cultural Resources and Use.” Conceptual labels or codes are generated by topic indicators [i.e., flora, fauna]. In the *Grounded Theory* approach, theories about the social process are developed from the data analysis and interpretation process (Haig 1995; Pandit 1996). This step was not part of this cultural impact assessment as the research sample was too small.

Archival Research. The majority of the archival research was based on a report by Haun & Associates (2013) and research by the principal investigator that included a broad but limited background literature review. Secondary source material included translations of 19th century ethnographic works, Hawaiian language resources (i.e., proverbs, place names and dictionary) and internet research. [NOTE: *Alan Haun is listed as co-author]

Consultant Selection (Oral Histories). The selection of the ethnographic consultant was based on the following criteria:

- ❖ Had/has Ties to Project Location(s)
- ❖ Known Hawaiian Cultural Resource Person
- ❖ Known Hawaiian Traditional Practitioner
- ❖ Referred By Another Cultural Practitioner

Interview Processes. The formal interview process included a brief verbal overview of the study. Then the ethnographic consultant was provided with a consent or ‘agreement to participate’ form to review and sign [Appendix C]. An ethnographic research instrument [Appendix D] was designed to facilitate the interview; a semi-structured and open-ended method of questioning based on the person’s response (‘talk-story’ style). Each interview was conducted at the convenience (date, place and time) of each consultant. The interview was conducted using a cassette tape recorder or a digital recorder. The interviewees were allowed to choose where they wanted to have their interview conducted. A *makana* or gift was given to the consultant in keeping with traditional reciprocal protocol.

Transcribing-Editing Process. The taped interview was transcribed by a hired transcriber. After the interviews were transcribed, each transcript was edited and corrected by the principal investigator before mailing. Each ethnographic consultant was sent a *mahalo* letter that explained the transcript review process, along with two hard copies of the interview transcripts, two *Release of Information* forms, and a self-addressed, stamped envelope for return of a signed release form and a copy of the revised transcripts. This process allows each consultant to make corrections (i.e., spelling of names, places), as well as have a chance to delete any part of the information if so desired or to make any stipulations if desired. The consultants were also informed of the two-week time limit for their review and return revised transcripts and signed release forms after which it will be assumed that the raw data can be selectively used.

Ethnographic Analysis Process. The analysis process followed a more traditional method, as a qualitative analysis software program (i.e., TALLY) was not necessary. Each interview was considered a separate file, and the first name was used to identify the consultant (s). Each transcript was electronically coded for research thematic indicators or categories (e. g., personal information; land, water resources and use; site information-traditional and/or historical; and anecdotal stories). For the purpose of this CIA, it was also not necessary to go beyond the first level of content and thematic analysis, as this was a more focused study. However, sub-themes or sub-categories were developed from the content or threads of each interview [e. g., cinder mining or Pu'u Kali'u].

Summary of Findings and Cultural Impact Assessment. The Summary of Findings section is based on both archival and ethnographic data: Summary of Significant People and Events (e.g. Legendary Entities, *Ali'i Nui*), Summary of Historic People and Events, and Significant Practices Pre-Contact and Post-Contact. This section also includes 'Environmental Council Guidelines Criteria in Relation to Project Lands' and the Cultural Impact Assessment and recommendations or mitigation if any are made.

Report. The report includes the description of the project area; the explanation of methods; a review of the historical and traditional (cultural) literature; the ethnographic analysis; summary of findings and cultural impact assessment.

Site Visits. One site visit was made by the principal investigator with an ethnographic consultant on July 10, 2015. Another site visit was made on December 5, 2018.

Ethnographic Research Constraints:

- It was difficult making initial contact with people; several methods were utilized (e.g. telephone, email; Facebook message; in person). Several messages were left explaining the project before finally making contact with eleven people. Four people asked for a preview of questions and project maps-only one agreed to an interview;
- Two people immediately declined during the initial telephone conversation;
- Two people declined after several telephone conversations – they decided they did not know the Pu'u Kali'u area at all;
- One consultant had to be re-interviewed because of cassette tape recorder issues while on site visit;
- Two potential consultants were visited and after talking story for a while decided their husbands who are deceased were the real cultural experts not them, and declined. Their husbands hunted and gathered in the Pu'u Kali'u area and were very culturally involved in the Pahoia community;
- One consultant who agreed to be interviewed wanted to postpone the interview for a later date;
- One potential consultant conducted cultural projects in the project area was very interested in doing a site visit and interview but needed to get employer permission and asked me to "stand by" but it never came to pass.

CULTURAL AND HISTORICAL BACKGROUND REVIEW

The Cultural and Historical Background Review of selected archival material that includes translations of 19th and 20th century ethnographic works, historical texts, indexes, archaeological reports, internet research and Hawaiian language resources (i.e., proverbs, place names and Hawaiian language dictionary). Several sections are extracted with permission from Haun & Henry (2013).

Chronology of Human Impact, Settlement and Development in Greater Hawai'i – an overview.

Colonization Period. First voyager dating is scanty at best, however, based on early site dates from Bellows, O'ahu and Ka Lae/South Point, Hawaii, Kirch (1985) estimated that the Colonization Period of the Hawaiian Islands by Polynesians from the south, was somewhere between AD 300-600 [this has been recently refuted with a new estimated settlement period beginning ca 1100AD (SAA 2013)]. A couple of *mo'olelo* about Hawai'i Loa the navigator, have the islands being settled much earlier than this. It is believed that the first Polynesian voyagers to Hawaii followed the flight paths of migratory birds, and navigated by the stars. A voyage of migration would have included sixty to a hundred persons who could exist for weeks on a large canoe, which may have been a hundred feet in length (Day 1992:3). This feat was remarkable in that it was done in canoes carved with tools of stone, bone, and coral; lashed with handmade fiber; and navigated without instruments.

Reconstructing the cultural sequence for the Puna district and other places in Hawai'i during the colonization period would involve the 'founder effect' and time necessary to adjust and adapt to a new environment. The colonizers were not able to bring all of the gene pool or crop plants from their homeland, so their new culture consisted of what survived the journey, what was remembered and what could be applied to the new environment (Kirch 1985:285-6). Although early Hawaiians were farmers and felt spiritually tied to the *'āina* (land) in many ways (Waters, n.d.), when they first arrived they had to modify both their subsistence practices and the land. Faunal remains analyses indicate that early Hawaiian subsistence depended on fishing, gathering, bird hunting [extinct fossil remains, see Olson and James, 1982], as it took time to clear the forests, plant their crop cultigens, breed their animals, and construct suitable living quarters. Creation chants such as the *Kumulipo* depict a very deep philosophical bond with the land and nature and "the respectable person was bound affectionately to the land by which he was sustained" (Charlot 1983: 45, 55). Ancient sites of various *ko'a* (fishing and bird shrines) also imply a spiritual respect for their sustenance.

As the founding groups grew, they fissioned into subgroups anthropologists refer to as *ramages*, with the senior male of the original ramage as chief of the conical clan, although hierarchical ranking was not just relegated through the patrilineal line of descent (Kirch 1985:31). Bellwood refers to these groups as tribal and related by blood (Bellwood 1978:31). Chiefly ranking probably did not occur until late in the Developmental Period.

Developmental Period. According to Fornander (1969) certain practices were universal Polynesian customs which the Polynesian-Hawaiians brought from their homeland; such as the major gods *Kāne*, *Ku*, *Kanaloa* and *Lono*; the *kapu* system of law and order; *pu'uhonua* (place of refuge); *'aumakua* (ancestral guardian) concept; and the concept of *mana* (supernatural or divine power) (Fornander 1969:61, 113,118,127-8). The early culture evolved as the population grew, and many of the changes were related to significant socio-economic changes. The evidence indicates that the "ancestral pattern of corporate descent groups" were still in place (Kirch 1985:302-3). However, this was changing as well.

During the Developmental Period, changes occurred bringing about a uniquely Hawaiian culture, documented by the material culture found in archaeological sites. The adze (*ko'i*) evolved from the typical Polynesian variations of plano-convex, trapezoidal and reverse-triangular cross section to a very standard

Hawaiian quadrangular-tanged adze. A few areas in Hawaii produced high quality basalt for adze production. Mauna Kea on the island of Hawai'i was a well-known adze quarry of very high quality basalt. Other areas included Maunaloa, west Molokai, Kapa'a in windward O'ahu, Kaho'olawe and Honolua-Honokohau and Haleakalā on Maui. The two-piece fish hook and the octopus lure breadloaf sinker are also Hawaiian inventions of this period, as are the *'ulu maika* stones and the *lei niho palaoa* (whale-tooth adornment). The latter was a status item worn by those of high rank, indicating a trend toward greater stratification (Kirch 1985:184,204,306).

Expansion Period. The Expansion Period is significant in that most of the "ecologically favorable zones," the windward and coastal areas of all major islands were now settled and the more marginal leeward areas were being developed. This was also the period of the greatest population growth, the development of large irrigation field system projects, and dryland farming. The uniquely Hawaiian invention, the *loko* or fishpond aquaculture, was developed in the fifteenth century or the later half of this period (Kirch 1985: 303).

This was a period of great long voyages from Hawaii and new migrations from Kahiki (F=foreigner) [1. 'Olopana, his wife Lu'ukia and his brother Mo'ikeha; 2. Kaumaili'ula, Kaupe'a; 3. Ho'okamali'i, Haulaninui-ai-ākea, Kila (sons of Mo'ikeha); 4. La'amaikahiki (F), friend of Mo'ikeha - he brought the *kā'eke* hula drum, a new god and the outrigger; 5. Kaha'i-a-Ho'okamali'i - brought back breadfruit; 6. Pa'ao (F) - brought new religion and priesthood, Pili (F) - new ruling system; 7. Kaulu-a-Kalana - brought back edible mud to Kawainui; 8. Paumakua (he brought white men); 9. 'Olopana II, Kahiki'ula; 10. Keānini (F), Ha'inakolo; 11. Kamaunu-a-Niho (F), Humu (F), Kalana-nu'u-nui-kuamaomao (F); 12. Kamapi'ikai who made four voyages, three were 2-way] (Cordy 2000:149-150).

There appears to be some controversy as to the arrival of the priest Pa'ao and Pili who displaced the Hawaii chiefly line of this period. Fornander (1880) states that due to the bad government of Kapawa he was deposed by Pa'ao who went back to Kahiki and brought Pili Ka'aiea to rule. However, others state that Pa'ao (a white man) arrived much later in the reign of Kahoukapu (Ellis 1823 Byron 1826); up to sixteen rulers after Kapawa in the reign of Lonokawai (Malo 1840; Pogue 1858; *Hoku Pakipika* 1862; Kepelino 1868 (Cordy 2000:151-153). Pa'ao was the keeper of the god Kū'ka'ilimoku who had fought bitterly with his older brother the high priest Lonopele. After much tragedy on both sides, Pa'ao escaped Lonopele's wrath by fleeing in a canoe from Kahiki. Kamakau (1991) told the following story in 1866:

Puna on Hawai'i Island was the first land reached by Pa'ao, and here in Puna he built his first *heiau* for his god Aha'ula and named it Aha'ula [Waha'ula]. It was a *luakini*. From Puna, Pa'ao went on to land in Kohala, at Pu'uepa. He built a *heiau* there called Mo'okini, a *luakini*. It is thought that Pa'ao came to Hawaii in the time of the *ali'i* La'au because Pili ruled as *mo'i* after La'au. Pili was in the line of succession in the *mo'o kū'auhau* or genealogy of Hanala'anui. It was said that Hawaii Island was without a chief, and so a chief was brought from Kahiki; this is according to chiefly genealogies. Hawai'i Island had been without a ruling chief for a long time, and the chiefs of Hawai'i were *ali'i maka'āinana* or just commoners (Kamakau 1991:100). There were seventeen generations during which Hawai'i Island was without chiefs--some eight hundred years (Kamakau 1991:101, 102).

Pa'ao brought with him the Kū practice which incorporated human sacrifice [which may not have been a new practice (Cordy 2000:160-163)], used in monumental *luakini heiau* or war temples. Pili started a line of *ali'i nui* that would continue to the Kamehameha "dynasty." The evolution of the *luakini heiau* is difficult to place archaeologically, and although the arrival of Pa'ao may have been a real event; the uniqueness and complexity of *heiau* were most likely a local (Hawaiian) development (Kolb 1989:3). The bones of *kahuna* Pa'ao are said to be deposited in a burial cave in Kohala in Pu'uuepa [possibly Pu'uuepa] (Kamakau 1987:41).

It was during the A.D. 1400s-1500s of this period that descendants of the Pili line consolidated the Hawaii Island polities and unified the island under one kingdom: Pili began (ca. A.D. 1320); Koa (ca. A.D. 1340-1360), 'Ole (ca. A.D. 1360-1380), Kūkohau (ca. A.D. 1380-1400) [the last three may have been siblings or sons of Pili]; Kaniuhi (ca. A.D. 1400-1420); Kanipahu (A.D. 1420-1420) who was usurped by Kama'iole; Kalapana (A.D. 1440-1460) who brought down Kama'iole was the son of Kanipahu; Kaha'imoele'a (A.D. 1460-1480) son of Kalapana; and Kalaunuiohua (A.D. 1480-1500) grandson of Kalapana. Both Kalapana and his son Kaha'imoele'a had their royal residence in Waipi'o. The following were ruling chiefs ca. A.D. 1500-1600: Kūāiwa who appointed his junior son Ehu as chief of Kona and another junior son Hukulani as chief of Kohala and was succeeded by his oldest son Kahoukapu as ruling chief of Hawaii Island (A.D. 1520-1540); his son Kauholanuimahu (A.D. 1540-1560) was the next ruler who sometimes resided on Maui on his wife's lands; his son Kīhanuilūmoku (A.D. 1560-1580) followed - he lived and reigned in Waipi'o as did his son Līloa (A.D. 1580-1600) who ruled next; his junior son 'Umi (A.D. 1600s) usurped Līloa's oldest son Hākau (A.D. 1600-16??) (Cordy 2000:185-192).

During the last 200 years of the Expansion Period, the concept of *ahupua'a* was established, as well as class stratification, territorial groupings, powerful chiefs and "mo'i" or king (Kirch 1985:303-6). The *ali'i* and the *maka'āinana* (those who looked after the land) were not confined to the boundaries of the *ahupua'a*. Not only did the *ma kai* (ocean direction) and *ma uka* (mountain direction) people share seafood and produce by lighting a fire when there was a need, they also shared with their neighbor *ahupua'a ohana* (Hono-ko-hou 1974:14, 15). The *ahupua'a* was further divided into smaller sections such as the *'ili*, *mo'o 'āina*, *paukū 'āina*, *kihapai*, *kō'ele*, *haku one* and *kuakua* (Hommon 1976:15; Pogue 1978:10). The chiefs of these land units gave their allegiance to a territorial chief (*ali'i nui* or *mo'i* - king). One of Hawai'i island's most famous *ali'i nui* during this period was Līloa and his son 'Umi-a-Līloa (ca. Late 1500s to Early 1600s).

Mo'olelo about events that took place in the early to mid 1600s revealed that many of the battles of this period were relatively quickly contained by the opposing *ali'i*. These stories also illustrate the on-going inter-relationships between the people of the various islands. In the *History of Kūali'i*, the exploits of Kūali'i (great-great grandson of Kākūhihewa, *ali'i nui* of O'ahu) take him to every island and he eventually unites all the islands "from Hawai'i to Ni'ihau" (Fornander 1917: IV: II: 406).

Proto-Historic Period. The Proto-Historic Period, A. D. 1650-1795, appears to be marked with both intensification and stress. Lonoikamakahiki was still the ruling chief of Hawai'i Island. And many wars took place during this time between intra-island chiefdoms and inter-island kingdoms. During the early part of this period Maui *ali'i nui* Kama-lala-walu ignored the advice of his counsel and sent his half-brother Ka-uhi-o-ka-lani (both sons of Kiha-a-Pi'ilani) to spy on Hawai'i Island, to see how large the population was. They landed in Kawaihae. The next morning the spies began a circuit of Hawaii; they then returned to Maui and reported to Kama-lala-walu that they saw many houses, but few men (Kamakau 1992:56-57). While most of the prophets and seers supported Kama-lala-walu's war on his cousins of Hawaii Island, children of his father's sister Pi'ikea and 'Umi-a-Līloa, some warned that if he did go, he would die and not return to Maui alive. They landed at Kohala and began the destruction of the people of Kohala. Kanaloa-kua'ana, son of Keawe-nui-a-'Umi was captured and treated cruelly. Kama-lala-walu was advised not to battle in Waimea, to go to Kona instead, but he did not listen (Kamakau 1992:58).

The battle of Pu'u'oa'oaka commenced just outside the Waimea plains. The light-weighted lava rocks here contributed to the defeat of the Maui warriors who were used to heavier water-worn rocks. The Maui warriors retreated; some to Kawaihae, others to Kohala. And because of the lack of canoes, very few escaped alive. Ka-uhi-a-Kama, son of Kama-lala-walu who was killed on the plain of Puako, escaped to Kekaha, found a canoe and fled to Maui. He was saved by Hīnau, the foster son of Lono-i-ka-makahiki. Many of the chiefs of Kona were relatives of Ka-uhi-a-Kama through his mother Kapu-kini-akua

(Kamakau 1992:59-60). Kapukini was the daughter of Līloa and Maui chiefess Haua and a half-sister and wife of 'Umi (Cordy 2000:206).

After the death of Hawai'i Island *ali'i nui* Lono-i-ka-makahiki, his children did not succeed him. Instead Hawai'i Island was divided into smaller divisions. The descendants of Kanaloa-kua'ana [Keakealanikane (ca A.D. 1660-1680), Keawekuikeka'ai, Ke'eaumoku, Kalani'opu'u and Keōua] later ruled Kohala, Kona and Ka'u. The descendants of Keawe-nui-a-'Umi ruled Hilo and Hāmākua. This was not a peaceful period. The chiefs of Kona and Hilo fought each other for the various resources each area had [Hilo's bird feathers, war canoes, fine tapa; Kona's food, drinking water and fish]. These wars lasted for several decades with the Hilo chiefs usually defeating the Kona-Kohala chiefs, especially during the reigns of Kua'ana, Kuahu'ia, Ka-lani-ku-kau-la'ala'a and Moku. Ke-aka-mahana (w) [daughter of Keakealanikane who was raised on Kauai and brought back to reign] was the ruler of Kona (ca A.D. 1680-1700) during the wars with Hilo; her primary residence was Hōlualoa, Kona. The rulers of Kona and Kohala who succeeded Ke-aka-mahana were her daughter Keakealaniwahine (ca A.D. 1700-1720) [it was during her reign that O'ahu's famous ruling chief Kualii raided the coast of Hilo and Puna districts (Wikipedia/Kualii 2010)] and her son, Keawe [Ke-awe-i-kekahi-ali'i-o-ka-moku]. The Mahi clan were the war leaders, but the chiefs of Hilo were always victorious over those of Kona and after they won the battle of Hu'ehu'e the secret places and burial caves in Kona were broken open. In the battle of Mahiki, Ka-lani-ku-kau-la'ala'a and Moku were the chief war leaders of Hilo. After Moku, the Hilo chiefs ceased to reign (Kamakau 1992:61-63; Cordy 2000:239-245).

During Keawe's reign (ca A.D. 1720-1740), unlike his mother Keakealani, his royal court was in Hōnaunau and his district chiefs were Mokulani of the 'Ī family -- son of Kuahu'ia and cousin of Keawe's son's wife (Hilo, Hāmākua except for Waipi'o, and eastern Puna); the Mahi family, Mahi'ololi, then his son Kauaua-a-Mahi (Kohala); Kalaninui'iamamao, eldest son of Keawe (Ka'u and western Puna); and Kalanainuike'eaumoku, another son of Keawe (Kona) (Cordy 2000:260). The battles between the Hawaii Island families, factions and district chiefs continued during the later part of the Proto-Historic period. Keawe's oldest son Kalaninui'iamamao also of the 'Ī family was slain supposedly by his half-brother Kalanainuike'eaumoku (his mother was Keawe's half-sister Kalani-kau-lele-ia-iwi) and when Keawe died he tried to claim island control, but was thwarted by Mokulani (Cordy 2000:243-245; 260-267).

Kohala's Ka-lani-kau-lele-ia-iwi (half-sister of Keawe) was also the mother of Alapa'i-nui-a-Ka-uaua, who went to live on Maui with his half sister, Ke-ku'i-apo-iwa-nui (wife of Ke-kau-like, Maui *ali'i nui*) after his father's (Ka-uaua-nui-a-Mahi) death at the hands of the Hilo chiefs in the battle of Mahiki. When Alapa'i heard of (his uncle) Keawe's death and the unrest between the district chiefs, he went back to Hawai'i Island with plans to make war on all the chiefs. He captured the chiefs of Kohala and Kona, and became ruler of those districts. However, when his brother-in-law Ke-kau-like (Maui Mo'i) heard about Alapa'i's victory, Ke-kau-like made war on Alapa'i in order to return Kohala and Kona to their chiefs. He wasn't successful, however Ke-kau-like's warriors prevented Alapa'i from conquering the Hilo and Ka'u chiefs (Kamakau 1992:64-65). During these battles a lot of damage was done on the landscape.

In retribution, Alapa'i decided to carry the battle to Maui. While Alapa'i and his warriors were encamped in Kohala, Kamehameha was born to Ke-ku'i-apo-iwa (II) in Kapakai ('Ī'i, John Papa 1983:3), in the *ahupua'a* of Kokoiki, in the *moku* of North Kohala [Kamakau (1992:67) says it was AD 1756; however others say it was between AD 1753 and 1758 with more leaning towards AD 1753 (Cahill 1999:56-57)] near the Mo'okini *heiau*. He was quickly taken by Kohala chief Nae'ole and hidden in Halawa (Kamakau 1992:67-69), his ancestral homeland. Ke-ku'i-apo-iwa (II) was the daughter of Kekela and Ha'ae (both grandchildren of Keawe); because of her weakened condition, Ke-ku'i-apo-iwa II did not accompany the Alapa'i expedition to Maui. Kamehameha's father was Keōua, younger brother of Kalani'opu'u. The infant Kamehameha was placed in the charge of Nae'ole and his younger sister Ke-kunui-a-lei-moku until he was five. He was then returned to Alapa'i who placed the child in the care of his

wife, Ke-aka (Kamakau 1992:68-69). [NOTE: Ethnographic consultant Emily Kealoha Naeole does not know if her husband Harold Yet Naeole was related to that Nae'ole.]

However, before Alapa'i reached Maui, a dying Ke-kau-like [Ka-lani-ku'i-hono-i-ka-moku] made his son Kamehameha-nui his successor. Kekaulike died enroute to Kula (Kamakau 1992:69). When Alapa'i heard of his death, he decided not to make war on his sister's son. While visiting them on Maui, Alapa'i heard that the O'ahu chiefs attacked his relatives on Molokai, so he went there to help (Kamakau 1992:70). Alapa'i (ca A.D. 1740-1760) was said to have been a good ruler and loved by the common people, but his rule had come about by the slaying of Keawe's sons, Ka-lani-nui-'i-a-mamao [father of Kalani'opu'u and Keōua] and his brother Ka-lani-nui-ke'e-au-moku, rightful *ali'i nui* of Hawaii island and Mokulani, chief of Hilo, Hāmākua, and Puna. This would later be the cause of several battles between Alapa'i and his nephew, Kalani'opu'u (Kamakau 1992:75-78; Cordy 2000:279).

Alapa'i resided in several places; Kailua (Kona), Kokoiki (Kohala), Waiolama (Hilo), Waipi'o, Waimea and Kawaihae where he died (Cordy 2000:278). In 1754 Alapa'i became ill and moved to Kikiako'i in Kawaihae. As his illness progressed while at Kikiako'i at the *heiau* of Mailekini, Kawaihae, Alapa'i appointed his son Keawe-'opala to be ruler over the island (Kamakau 1992:77). However, this was short-lived due in part to shifting allegiances of Keawe-'opala's chiefs (e.g., his relative Ke'eaumoku) and *kahuna*, siding with Kalani'opu'u. "A canoe arrived from Kekaha and brought word to Ke'eaumoku that Ka-lani-'opu'u was at Kapalilua (in south Kona) and was coming to make war against Keawe-'opala. Ke'eaumoku therefore made up his mind to join forces with Ka-lani-'opu'u" (Kamakau 1992:78). It was that same year that Kalani'opu'u, a lover of war, became *ali'i nui* of Hawai'i Island (Kamakau 1992: 78-79).

In January 1778 Cook landed in Waimea, Kaua'i and the culture of old Hawai'i began its spiraling change (see Day 1992). Cook left Hawai'i for several months, but returned later in the year. Kalani'opu'u was fighting Kahekili's forces in Wailua, Maui on November 19, 1778 when Cook's ship was sighted on his return trip to the islands. Kalani'opu'u visited Cook on the *Resolution*, while Kahekili visited Clerke on the *Discovery* (Kuykendall and Day 1976:16). When Cook sailed into Kealakekua Bay on January 17, 1779, Kalani'opu'u was still fighting Kahekili on Maui. At this time Kaeo, younger brother of Kahekili was the ruling chief of Kaua'i; Ka-hahana, nephew of Kahekili was the ruling chief of O'ahu and Molokai; Kahekili of western Maui, Lāna'i and Kaho'olawe; and Kalani'opu'u of Hawai'i Island and Hāna, Maui (Kamakau, 1992:84-86, 92, 97-98).

Demographic trends during the Proto-Historic Period indicate a population reduction in some areas, yet show increases in others, with relatively little change in material culture. However, there was a continued trend in craft and status material, intensification of agriculture, *ali'i* (chief/land managers) controlled aquaculture, upland residential sites, and oral records that were rich in information. The Kū cult, *luakini heiau*, and the *kapu* (restriction or regulation) system were at their peak, although western influence was already altering the cultural fabric of the islands (Kirch 1985:308, Kent 1983:13). By 1794 at least eleven foreigners were living on the island of Hawai'i, including American, English, Irish, Portuguese, Genoese, and Chinese (Day 1992:23-25) [may have been connected to the sandalwood trade]. When Kamehameha I conquered O'ahu and Maui in 1795 (with western advice and technology), subsequently unifying the Island Kingdom (Kent 1983:16), it marked the end of the Proto-Historic Period.

Early Historic Period. The Early Historic Period (AD 1795-1899) is marked by very significant events. After Kamehameha I conquered Maui in 1795, he went to Moloka'i where the sacred women of Maui (Kalola Pupuka and her daughters Kalanikauiōkikilokalaniakua and Keku'iapoiwa Liliha and her daughter Kalanikauiaka'alaneo), were in hiding. Kamehameha took Keku'iapoiwa Liliha and Kalanikauiaka'alaneo to O'ahu to witness the Battle of Nu'uuanu Pali and the defeat of O'ahu. It was during this trip that Kalanikauiaka'alaneo was given the name Ke'ōpūolani (Kleiger 1998:21).

Hawai'i's culture and economy continued to change radically as capitalism and industry established a firm foothold. In 1810, Kaua'i *ali'i nui* Kaumuali'i ceded under duress, his kingdom of Kaua'i, Ni'ihau, Lehua and Ka'ula to Kamehameha I. At this time the sandalwood trade in Hawai'i was still flourishing; the Fijian and Marquesan supply of sandalwood was exhausted, so Hawai'i became known as the "sandalwood mountains" to entrepreneurs of Southern China. Sandalwood came under the personal control of Kamehameha I, who had become "a fervent consumer of high-priced western goods." The sandalwood industry was thriving to the point where the subsistence levels declined, as farmers and fishermen spent most of their time logging, causing famine to set in (Kent 1983:17-20).

On October 1819, Protestant missionaries set sail from Boston to Hawai'i. Earlier that year, on May 8, 1819, Kamehameha I died. Following his death, his son and heir Liholiho banished the *kapu* system at the advice of his queen mother Ke'ōpūolani and queen regent Ka'ahumanu [the queens were second cousins] (Kamakau, 1992:210, 222). The missionaries arrived in Kailua-Kona on March 30, 1820, to a markedly changed culture; one with a "religious" void, and a growing appetite for western products. They quickly started missions on all of the islands (Day 1992:25).

During this period, "between one hundred and two hundred foreigners lived among the Islands... (Day 1992:25). Hardly a ship touched without leaving a deserter or two behind.... A white man automatically ranked as a chief, although he could not own land in fee simple or build a permanent house...[and] they took Hawaiian wives" (Day 1992:25).

In the 1830's other industries such as whaling, and merchandising crept into Hawai'i. In 1836 the first sugar plantation was established on Kaua'i (Kent 1983:23, 29). According to early historic accounts Puna was well populated and intensively cultivated. Reverend William Ellis (1963) traveled through Puna in 1823 and noted several plantations of various crops including banana and sugar. One of the largest sugar plantations in Hawaii was the Ola'a Sugar Company was founded in 1899 by B.F. Dillingham, Lorrin A. Thurston, Alfred W. Carter, Samuel M. Damon, and Wm. H. Shipman. The cane was transported to the mill primarily by railroad (Haun and Henry 2013:23).

In the 1840s a political act of the Hawaiian Kingdom government would change forever, the land tenure system in Hawai'i and have far-reaching effects. The historic land transformation process was an evolution of concepts brought about by fear, growing concerns of takeovers, and western influence regarding land possession. King Kamehameha III, in his mid-thirties, was persuaded by his *kuhina nui* and other advisors to take a course that would assure personal rights to land. One-third of all lands in the kingdom would be retained by the king; another one-third would go to *ali'i* (chiefs/*konohiki*) as designated by the king; and the last one-third would be set aside for the *maka'āinana* or the people who looked after the land. In 1846 Kamehameha III appointed a Board of Commissioners, commonly known as the Land Commissioners, to "confirm or reject all claims to land arising previously to the 10th day of December, AD 1845." Notices were frequently posted in *The Polynesian* (Moffat and Fitzpatrick, 1995). However, the Legislature did not acknowledge this act until June 7, 1848 (Chinen 1958:16; Moffat and Fitzpatrick 1995:48-49), known today as *The Great Mahele*.

The 1840s also heralded other changes as well. The Hawaiian government, with the aid of the missionaries, encouraged the sugar industry as well as other enterprises such coffee, cotton, rice, potatoes, and silk worms (Speakman 2001: 93), *pulu*, goat skins, fungus, wheat, other vegetables, sugar syrup and molasses (Maclennan 1995:35). The constitutional monarchy was established during this period and in a speech to the legislature in 1847 Kamehameha III promoted the agricultural industry:

I recommend to your most serious consideration, to devise means to promote the agriculture of the islands, and profitable industry.... What my native subjects are greatly in want of, to become

farmers, is capital, with which to buy cattle, fence in the land and cultivate it properly (In Maclennan 1995:34).

Disease had a devastating affect on the population and the landscape, killing *ali'i* and *maka'āinana* alike; measles epidemics in 1848 and 1849, were followed by the horrendous smallpox epidemic in 1853. "Ten thousand [all toll] of the population are said to have died of this disease in Hawaii" (Kamakau, 1992:411, 418). John Papa 'I'i in *Fragments of Hawaiian History* (1984) talks about the impact of this disease and as *kahu* or guardian of several young *ali'i*, he had to take several of them off of O'ahu island. They just kept sailing from island to island and usually were not allowed to land as O'ahu was thought to be the source of the smallpox ('I'i 1984:171).

By 1858 at least 2,119 foreigners now lived in Hawaii. Many were merchants who traded and provided provisions, ranchers and missionaries who lived in various locations throughout the islands. In the 1860s the U. S. Civil War brought about a boost for the sugar industry in Hawai'i as sugar plantations in the South were boycotted or destroyed. The industry brought in tens of thousands of laborers from Asia, Europe, the Americas, Oceania, and Africa to work on the many plantations and mills that were being established on all major islands, which had a profound effect on life in Hawaii (Oliver 1961:123). This influx not only radically changed the culture, but also drastically altered ethnobotanical agricultural lands, destroying traditional architectural features in the process as lands were cleared for mono-crops, domestic settlements and large-scale ranching.

Territorial History (AD 1900-1949). Several events, which took place in the early 1900's eventually created a downward spiral effect on the sugar industry. Mainland labor union leaders went into the fields organizing union membership drives. The military began a major drive to install airfields and encampments. And the Federal government imposed quota restrictions on sugar exports (Oliver 1961:147, 148). This period saw much of the lands being sold in fee simple and Native Hawaiians (*kanaka maoli*) running for Congress (Daws 1974 297). In 1920 Hawaii delegate to Congress, Prince Joana Kuhio Kalaniana'ole authored the Hawaiian Homes Act. Lands were set aside on all islands for homesteading by Hawaiians with 50% or more native blood.

Modern History (Post AD 1950). Post World War II brought about an influx of people and industries to Hawai'i, allowing the tourism, offshoot enterprises and military to flourish. Along with the rise of the tourism industry, and competing sugar markets abroad, the sugar companies saw a sharpening decline in business (the Sugar Acts of 1934 and 1937, and ILWU Strike of 1946 didn't help). The 1950s and 1960s were the bleakest years for the sugar industry and it was becoming apparent that the sugar industry was beyond salvage (Kent 1983:107-108). More changes were soon to take place on the landscapes of Hawaii as former sugar lands became subdivisions and new jobs were being created in the tourist industry. Technology and mechanization initiated in the 1950s to 1970s helped to bring about the decline of plantation camps and lifestyles, yet in 1959 "one out of twelve people employed in Hawaii was in the sugar industry" (Vorfeld 2001:1). However, technology could not save the sugar industry, which could not compete with unfavorable sugar markets and higher costs. By the 1990s most of the sugar plantations reluctantly closed down operations. The vacant lands soon gave way to various development projects and the need for more Environmental Impact Studies (EIS).

1950 also marked the introduction of radiocarbon analysis which shifted the focus of study in archaeology from relative dating excavated material or cultural remains to carbon dating; this was followed by a focus on settlement and subsistence patterns, land and marine use. However, the recent Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) and its implementing regulations (43 CFR Part 10), and Hawai'i's Act 50 (2000) has shifted the focus of study to include a greater interaction with indigenous people, and a lesser focus on invasive methods of study.

Historical Documentary Research (Extracted from Haun & Henry 2013:17-28).

The project area is situated in the *ahupua'a* of Kauaea in Puna District. There is little mention of Kauaea in Hawaiian traditional and legendary accounts. Crozier and Barrere (1971) note that in Puna few pre-missionary traditions and legends survived because of intensive mission work by Reverend Titus Coan between 1835 and the 1870s. Emory *et al.* (1959) suggest that Puna's traditional history is difficult to follow because of the dominating influence of the ruling families in the neighboring districts of Hilo and Ka'u. Handy and Handy (1972:542) state that Hawaiian traditions suggest that Puna "was once Hawaii's richest agricultural region and that it is only in relatively recent time that volcanic eruption has destroyed much of its best land".

According to Kamakau (1961), Hua'a was the chief of Puna when it was seized by 'Umi-a-Liloa, unifying his control over the Island of Hawai'i. Hua'a was killed during a battle with one of 'Umi's warrior sons, Pi-i-mai-wa'a, at Kuolo in Kea'au. Kalani'opu'u unified his control over Hawaii Island when he gained control of Ka'u and Puna following Alapa'i's defeat in a battle at Mahinaakaka. During Kalani'opu'u's rule, the Puna chief, I-maka-koloa, attempted a rebellion and seized the valuable products of the district including 'o'o and *mamo* bird features, hogs, fine mats made from pandanus blossoms and from young pandanus leaves, gray tapa cloth, and tapa cloth made from *mamaki* bark.

Following the death of Kalani'opu'u, in 1782, a dispute over ascendancy ensued culminating in the battle of Moku'ohai (Kamakau 1961, Kuykendall 1938). Following the battle, control over the island was divided between Keoua Ku'ahulu'ula, who held Ka'u and a portion of Puna; Keawema'uhili, who controlled the remainder of Puna, Hilo, and southern Hamakua; and Kamehameha, who controlled northern Hamakua, Kohala, and Kona. A feud between Keoua and Keawema'uhili in 1785 resulted in Keawema'uhili's death and the expansion of Keoua's territory, including the unification of Puna. The island was finally re-unified in 1791 when Kamehameha killed Keoua at Kawaihae. In 1790, a lava flow extended diagonally across Kaueleau from the northeast above Opihikaō to the coast at Kamaili (Wolfe and Morris 2001).

Early historic accounts document that Puna was well populated and intensively cultivated. In 1823, Ellis (1963) traveled along the coast to Kaimu, where he reported a sandy beach and village with an estimated 725 occupants. At Kaimu, there were plantations and groves of coconuts and *kou*. Ellis estimated that the population of Kaimu and nearby villages was approximately 2,000. Ellis described a village at Kamaili surrounded by plantations where they were given taro and potatoes. Other crops noted by Ellis in Puna included bananas and sugar cane.

The following summarizes Burchard (1994) discussion of Puna's later history. Prior to the 1870s, foreign influence in Puna primarily was limited to missionaries. In the late 1870s, Robert Rycroft moved to Pohoiki and built a home, wharf, sawmill, jail and courthouse. He later began growing coffee in the area and built a coffee mill. In the mid-1880s, the government began selling land in Puna for homesteads. Most of the homestead land was acquired for coffee cultivation in the 1890s.

The Waihona 'Aina (2000) Mahele Database; which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); indicates that only one Land Commission Award (LCA) was awarded in Kauaea. LCA 7713*H was awarded to Victoria Kamamalu, Kuhina Nui of the Hawaiian Islands between 1855 and 1863. This LCA is depicted on a map of Kauaea Ahupua'a by D.B Lyman.... The original Lyman map, which belonged to Princess Ruth Keelikolani, [was] made by E. Baldwin in February 1882. According to the map, Kauaea encompassed 2,449 and $\frac{3}{4}$ acres.

The Loebenstein's 1895 Hawaii Government Survey map of Puna (Figure 8)...depicts a network of transportation routes that extended through this portion of Puna. Three of the routes were labeled as roads by Loebenstein and the remainder depicted as trails.

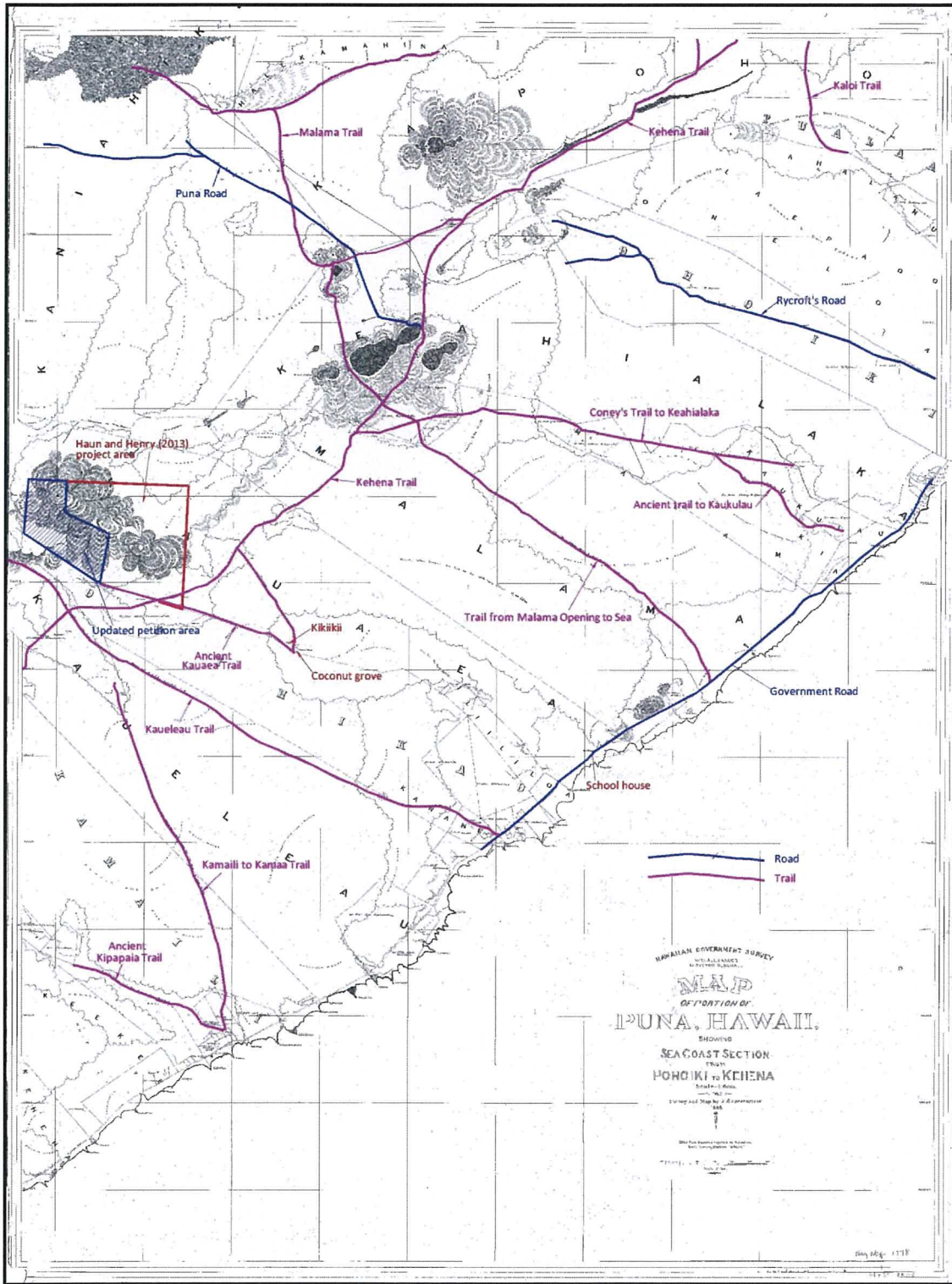


Figure 8. Loebenstein's 1895 Hawaii Government Survey Map of Puna (Haun and Henry 2013:21; updated 2019).

The three roads consist of the Government Road that parallels the shoreline, Puna Road located in Kaiahiku and Keahialaka Ahupua'a, and Rycroft's Road in Pohoiki. The main transportation routes were the Government Road following the coast and the Kehena Trail, located further inland paralleling the shoreline. A series of inland-seaward trails and roads connect the main transportation routes, providing access from mountain communities to the sea. Several of the trails are listed as ancient in origin including the Kipapaia Trail in Kamaili, and the Kauaea Trail located in Kauaea Ahupua'a.

The 1895 Loebenstein map shows the [original] project area vicinity. The Kehena Trail extends through the southwestern corner of the parcel in an east-west direction. A house belonging to "Kaaukai" is located on the north side of the trail and a coconut tree is located to the east of the house.

The ancient Kauaea Trail originates at a coconut grove and community named Kikiikii seaward of the project area. The trail enters the [original] project area at the southeast corner and extends inland, roughly paralleling the southern side of project area on the boundary between Kauaea and Opihikaō. It appears to terminate in the forest at the base of Pu'u Kali'u. Houses owned by "Elia" and "Maluo" are located to the southwest of the Kauaea Trail, just outside the project area.

It also indicates that in 1895, most of the northeastern portion of the project area, on the "Slope of Kaliu" was "Good coffee land". An area listed as "Thin woods on clinkers" is surrounded by the "Good coffee land" along the northern project area boundary (Figure 9). Pu'u Kali'u has been in use as a triangulation station to map the displacement of Kilauea Volcano's south flank from as early as 1896 (Swanson *et al.* 1976). A series of triangulation surveys used Pu'u Kali'u, among other volcanic summits to track the horizontal ground displacement over time, within the Kilauea Rift Zones. These surveys were conducted in 1896 and 1949 by the U.S. Coast and Geodetic Survey, in 1958 and 1961 by the U.S. Geological Survey, and in 1970 and 1971 by personnel from the Hawaiian Volcano Observatory. The data from the earliest study was obtained in 1896, but was not triangulated until 1914. A sign marking the data point is present on the summit of Pu'u Kali'u. The sign was found to be in good condition in 1967 (pers. comm., Robert Shrai, Island Survey). The sign was located during the project and has been designated as Site 29727 (Haun and Henry 2013:47).

A September 30, 1908 article in the Hilo Tribune described the effects of a violent earthquake in the Puna District.

Geritt P. Wider and I (A. Gartley) just came through Puna from the Volcano on horseback, and saw many evidences of the earthquake which were of interest. We left the Volcano on Keauhou trail, passing the line of small craters Panau, Panau-iki, Kapaahu, Kalapana, Pahoā, Kapoho and to Hilo. At the crater of Makaopuhi tons of material have been shaken down from the vertical banks into the mauka pit below. Some smoke was issuing from the bottom of the mauka pali and quite large deposits of sulphur have formed. The shake must have been very heavy in Puna. At Kapaahu a crack about a foot wide opened for about 500 feet, extending mauka from the sea. At Kalapana the old '68 crack, which opened when the Puna coast sunk, opened about twelve inches more, and about a quarter mile back of this crack toward Kau a new crack has opened, extending from pali to pali and several hundred feet long. Some say there was a small crack before one or two inches wide, but it is now twelve to eighteen inches wide. At Kahena it is reported that a strip of the pali (about 100 feet high) along the coast, some 50 feet wide and half a mile long, split off and dropped into the sea, and a new crack has opened parallel with the front of the pali 50 feet back and over two miles long. Three houses and many water tanks were overturned in Kalapana and nearly every stone wall was thrown down. On the trail from Kalapana to Kahena the walls on the mauka side of the road suffered, those on the makai side being left intact. The schoolhouse at Kauaea was either overturned or badly set off its foundation (USGS.gov website).

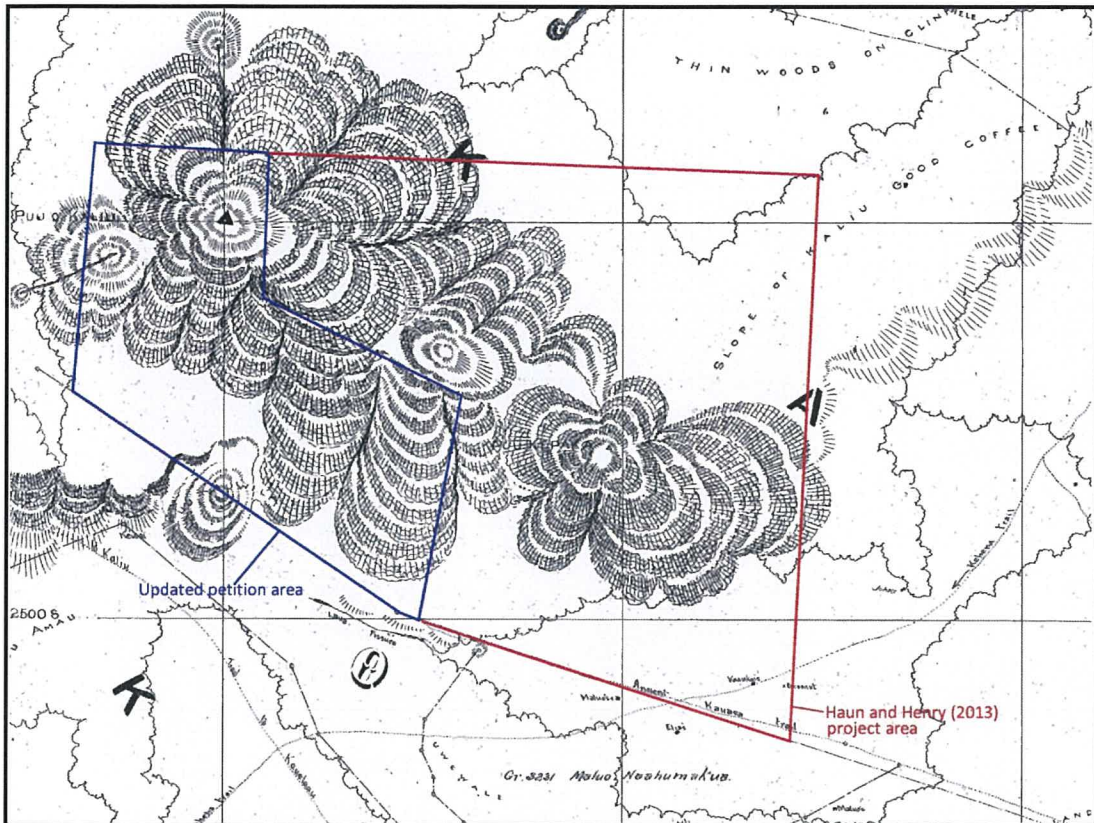


Figure 9. Portion of Loebenstein's 1895 map showing revised project area vicinity; coffee lands (Haun and Henry 2013:22; updated 2019)

The Ola'a Sugar Company was founded in 1899 by B.F. Dillingham, Lorrin A. Thurston, Alfred W. Carter, Samuel M. Damon, and Wm. H. Shipman. The plantation was to become one of the largest in the state. According to the Hawaii Sugarcane Plantation Archives:

With a \$5,000,000 investment, the promoters purchased 16,000 acres in fee simple land and nearly 7,000 acres in long leasehold from W.H. Shipman. They also purchased 90% of the stock in the adjacent Puna Plantation, adding another 11,000 acres to the holdings. Ola'a Sugar Company began as one of Hawaii's largest sugar plantations with much of its acreage covered in trees.

The task of setting up the plantation was enormous. Before 1900, coffee was the chief agricultural crop in the area. Over 6,000 acres of coffee trees were owned by approximately 200 independent coffee planters and 6 incorporated companies. The coffee trees were uprooted to make way for cane. Ohia forests had to be cleared, field rock piled, land plowed by mules or dug up by hand with a pick, quarters for laborers and staff had to be built, the mill constructed, and the first cane planted.

The cane was transported to the mill by fluming and by railroad. Although Ola'a Sugar Company had 72 miles of flumes, it had no dependable water source for their operation. The railroad was relied upon for delivery of 60% of the cane. In addition to its own standard gauge 35 miles of railway track, the company ran cars over the Consolidated Railway tracks to bring its cane in from more distant fields. The history of Ola'a Sugar Company is closely

connected with the southern branches of the Hawaii Consolidated Railway Co. because they were interdependent from the start. The cane fields were in four widely separated areas cut off from each other by stretches of barren lava. The railroad was therefore vital to the plantation, which in turn helped support the railroad. When a tidal wave on April 1, 1946 destroyed much of the Hawaii Consolidated Railway Company's tracks, it ceased operations. The plantation was then forced to convert to trucks in order to transport sugar and molasses to the Hilo wharf.

Fortunately, under the management of Wm. L.S. Williams, a major road-building program had been started in 1939 for the purpose of eliminating the portable track. He started the plantation on its way to modernization by laying a network of 500 miles of roads for hauling cane. Since 1948, all the cane hauling has been by truck (Hawaii Sugarcane Plantation Archives).

By the end of the 1940s, Ola'a Sugar Company was deeply in debt, owing American Factors, Ltd (AMFAC) \$2,000,000. The debt was the result of insect epidemics, volcanic eruptions and drop in sugar prices. By 1953, the company was \$4,100,000 in debt and in 1959 it was decided that the plantation would sell some of its 35,700-acres to offset the debt. In 1960, the company changed its name to the Puna Sugar Company, primarily because it was thought a name change would give the company a new start. Apparently this strategy worked because in 1963 the company had its best year ever with a 36% increase in profits. The company was debt free for the first time in its history by 1966, and in 1969 the Puna Sugar Company was purchased outright by AMFAC. The company closed in 1982 following cancelation of government subsidies and tax breaks and the introduction of high fructose corn syrup, a cheap low-cost substitute for sugar.

The Walter E. Wall's 1915 Hawaii Territory Survey Map of Puna Homestead Subdivisions and Government Tracts (Figure 10)... indicates that formal roads in the area had been expanded since 1895, connecting the town of Pahoa with coastal communities. Despite this expansion, many of the trails depicted on the 1895 map appear to have still been in use in 1915. This map also depicts the Hilo Railroad lines to the east of Pahoa with a line extending as far south as Kapoho Ahupua'a.

By the late 1920s, concern over forest depletion and watershed maintenance lead to the creation of forest reserves in the Puna District. The Wall's 1927 Hawaii Territory Survey Map of Puna, Keauohana and Malama-Iki Forest Reserves (Figure 11) ... indicates that few new roads had been built since the 1915 map. It also shows that fewer trails were being utilized in 1927.

The railroad lines, used to transport sugar cane were expanded since 1915. One line extended from Pahoa town into the *ahupua'a* of Waiakahiula and Keahialaka. The rail line that formerly terminated in Kapoho was expanded to the east as far as Kaueleau Ahupua'a. This section of track passed through the southeastern corner of the present project area.

A close-up of Wall's 1927 (Figure 12) map shows the project area vicinity. As discussed above, a portion of the railroad line extended into the [original] project area. This rail line roughly follows the path of the Kehena Trail, suggesting that railroad utilized the pre-existing transportation route. The rail line was identified during the present project and was documented as Site 29728 that is discussed the Findings section. A trail enters the project area along its southern side, roughly paralleling the inland portion of this boundary. This trail may represent an inland extension of the Kaueleau Trail. The Kauaea School discussed above is also depicted on Wall's 1915 and 1927 maps of the area. This indicates that the school was re-built following the 1908 earthquake and used until at least 1927.

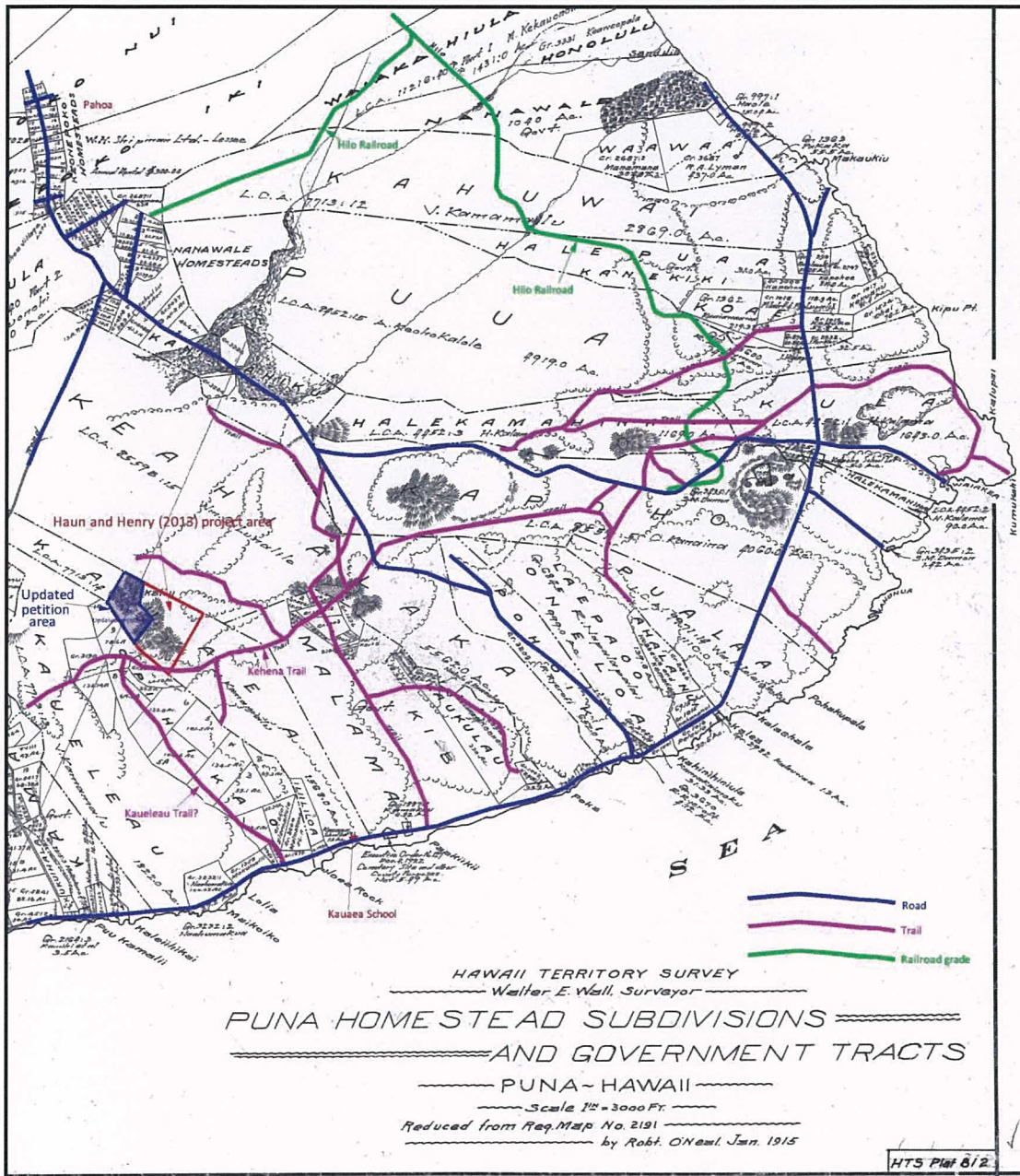


Figure 10. Portion of Wall's 1915 Hawaii Government Survey Map of Puna (Haun and Henry 2013:25; updated 2019)

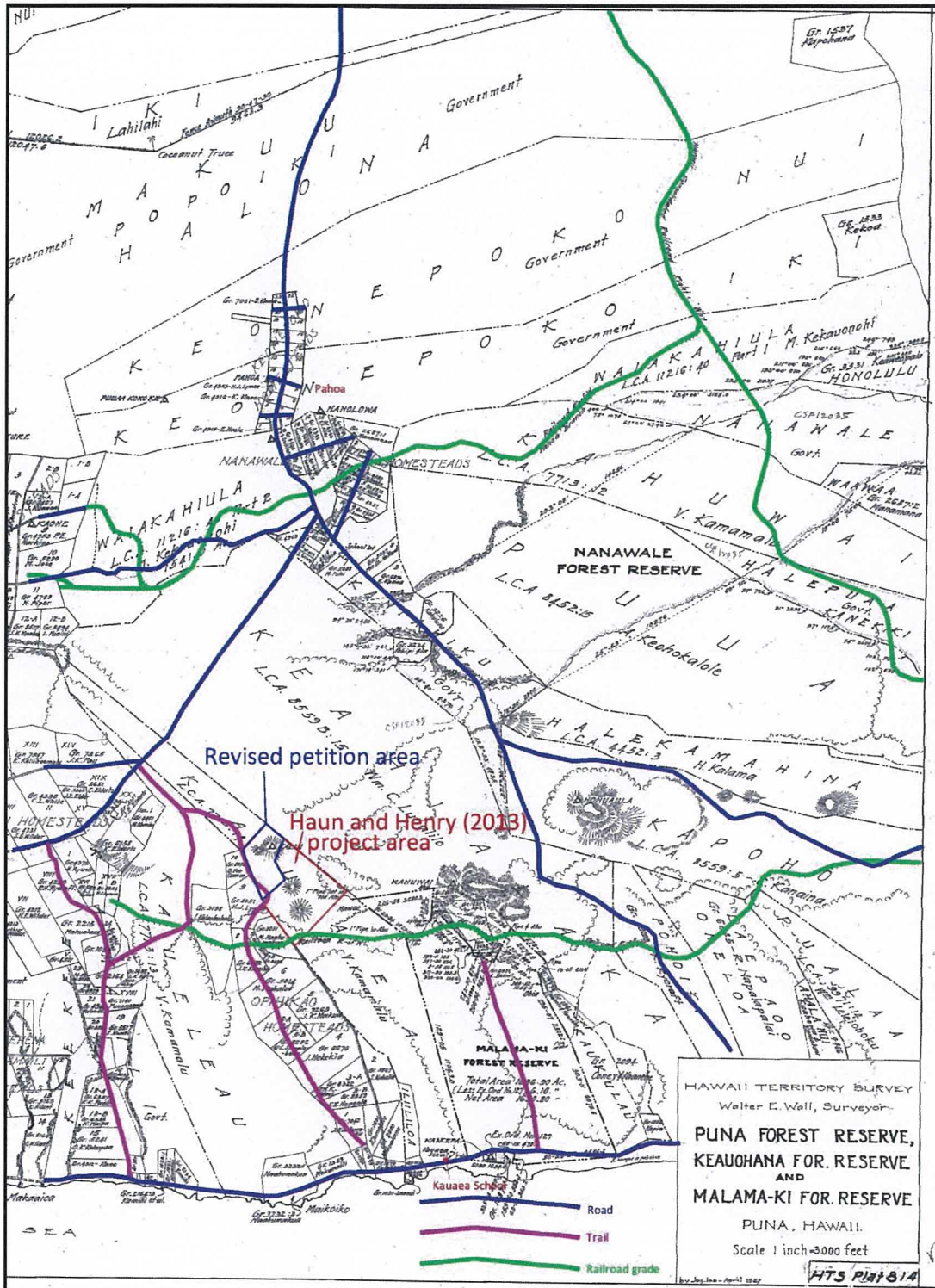


Figure 11. Portion of Wall's 1927 Map of Puna (Haun and Henry 2013:26; updated 2019).

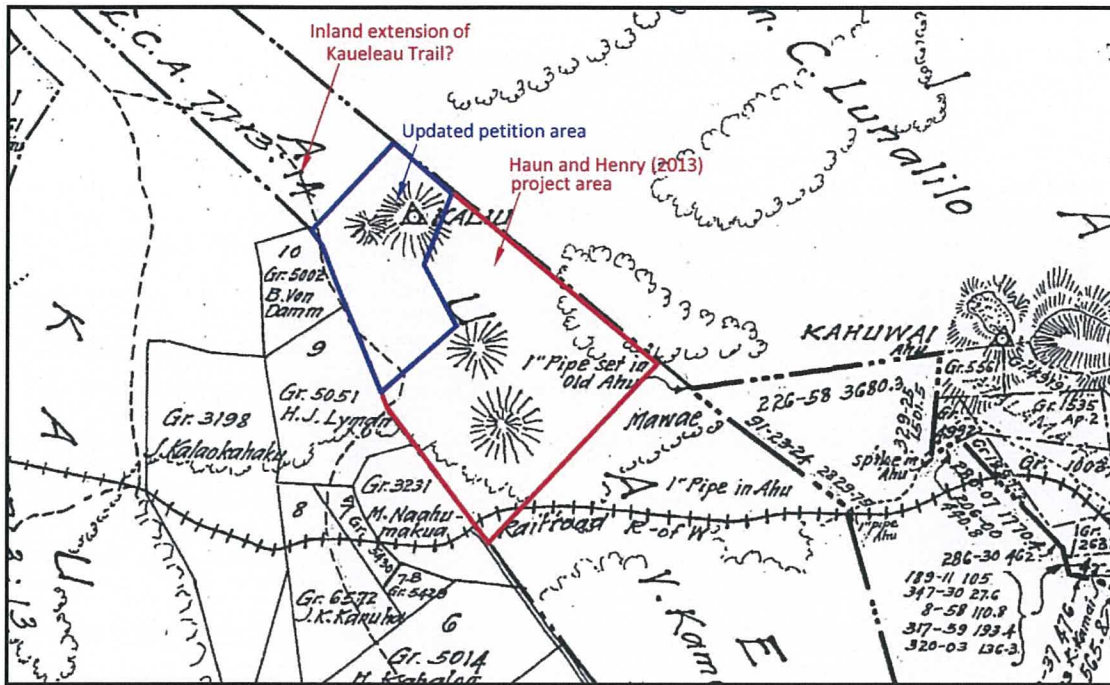


Figure 12. Close-up of Wall's 1927 map showing project area vicinity (Haun and Henry 2013:27; updated 2019).

Handy and Handy (1972) citing oral historical sources, indicate that in the 1930s there were homesteading areas in the *ahupua'a* of 'Opihikaō, Kaueleau, Kamaili, Ke'eke'e, Kehena, and Keauohana, in the general vicinity of the project area. Dry land taro was grown throughout the inland portions of these *ahupua'a*. A particular taro cultivation method, *pa-hala*, is described for the area from Kalapana to Kamaili.

The method involved excavating a hole in a'a lava in a pandanus grove. The hole was then filled with weeds, which were allowed to rot for six weeks or more. A taro cutting (*huli*) was wrapped in pandanus leaves and planted in the hole. After the cutting produced three or four leaves, the pandanus branches were cut to provide sunlight and the taro plant was covered with pandanus leaves. After the pandanus leaves were sufficiently dry, the leaves were burned reducing them to ash that provided nourishment for the taro plant, which grew tall enough to hide a man beneath the leaves.

A 1965 aerial photograph of the project area vicinity depicts the Site 29728 railroad grade that extends through the southeastern corner of the parcel. The area to the south of the railroad line appears to be cultivated in formal fields, and the area to the north has been cleared of trees. A linear cleared swath extends through the central portion of the parcel in a northeast by southwest direction.

Portions of the present project area have been used as a cinder mine. The cinder mining activity has been in operation by Sanford's Service Center since 1987. Cinder mining was also undertaken along the northern slopes of Pu'u Kali'u, outside the project area to the north. Cinders mined from this area were used to create the Leilani Estates subdivision, founded in 1964 (lelaniestates.org).

An interview with a local resident of the project area vicinity was conducted by Haun & Associates Project Supervisor Shawn Fackler during the project. Mr. Kahaloa was born in 1959 and raised near the project area. During the interview he stated, “I used all that area [from his house up to Pu‘u Kali‘u and Kepaka] as my playground as a kid”. He explained that the vegetation used to be mainly guava and it was easy to venture all the way up to either *pu‘u*. The only cultural resource in the project area that he could remember is the Site 29726, Feature A enclosure. He originally thought the structure might have been a World War II era feature, but now thinks it is related to sugarcane cultivation in the area.

Mr. Kahaloa began leasing land and running his papaya farm in the southeastern portion of the project area approximately 25 years ago. He explained that a cherry orchid previously grew on the land where his papaya farm is now, but that he could not remember who ran it. He did indicate that a ranch [name unknown] grazed cattle in the area *mauka* of his farm up to the Leilani Estates area for at least 30 years before he began growing papaya. He also indicated that the ranch routinely used tractors in its later years to clear vegetation for grazing cattle and also confirmed that the wooden posts observed during the survey along the old sugar cane railroad grade were part of a cattle chute built within the past 50 years.

Mr. Kahaloa recalled that, “the land *mauka* of the road used to be sugarcane fields all the way up to the tops of the *pu‘us*. They [field workers] used donkeys and carts to harvest the cane but then stopped all together when the railroad stopped running.” Kahaloa also mentioned that his grandmother told him that taro used to grow in the fields before the introduction of sugar cane.

Another informant interview was conducted with Emily Naeole-Beason by telephone on February 4, 2013. She is 56 years old and has lived in Opihikaō her entire life. Her parents and grandparents also lived in Opihikaō. She is very familiar with the project area. Her granddaughter is named after the cinder cone Pu‘u Kali‘u that dominates the western half of the area and is referenced in a *hula* performed by her daughter. She was not aware of any traditional activities or resources in the area. She recalled that sugar cane was once grown in the vicinity.

Previous Archaeological Surveys (Haun and Henry 2013:30)

A search of the DLNR-SHPD archaeological report database and other sources identified 16 archaeological projects between Kauaea and Kehena (Figure 13). Not included in [this report] are the studies by Stokes (Stokes and Dye 1991), which focused on major sites, primarily *heiau* throughout Hawaii Island and a survey of east Hawaii by Hudson (1932). Stokes (Stokes and Dye 1991), relying in part on the earlier observations of Thrum, reported fourteen *heiau* in Puna of which three were destroyed at the time of Stokes fieldwork in 1906. Several of the *heiau* were reported to be agricultural temples. Hudson (1932) reported 32 sites along the coast between Kapoho and Kaimu including the Hilo-Puna Trail, habitation platforms and enclosures, water sources (cave and well), windbreak shelters, and four *heiau*: Mahina‘akaka Heiau at Keahialaka, Kalepa at Kalepa Point, “Old” Wahaula Heiau at Kamaili, and Kumakaula at Ke‘eke‘e.

The surveys in Table 5 cover more than 650 acres of Puna between sea level and 1,540 ft elevation. Cultural remains identified by the surveys consist of 113 sites with nearly 940 features. To aid in reconstructing settlement patterns, features were quantified by probable age and function, and the studies are ordered by elevation. Traditional Hawaiian features were categorized as habitation, agricultural, burial (including possible burials), ritual, and trail. Features not assignable to these categories were categorized as miscellaneous. Traditional sites in this category include petroglyphs, *holua* slides, water sources, and *ahu*. Density values are given for sites, features, and habitation and agricultural features. Overall, the studies have identified more than 76 habitation features, 314 agricultural features, 269 burials, 7 ritual features, and 18 trails. The large number of burials includes several historic cemeteries. Other historic features were not segregated by function. The majority of the historic features are walls and roads. None of the studies processed radiocarbon dates.

A 15-acre portion of the present 309-acre project area was previously examined by Haun and Henry (2006). The majority of the Haun and Henry (2006) study area (c. 95%) was comprised of the cinder quarry area, with a narrow (10-30 m wide) disturbed vegetated band present around the southwest and west sides. No sites or features were present.

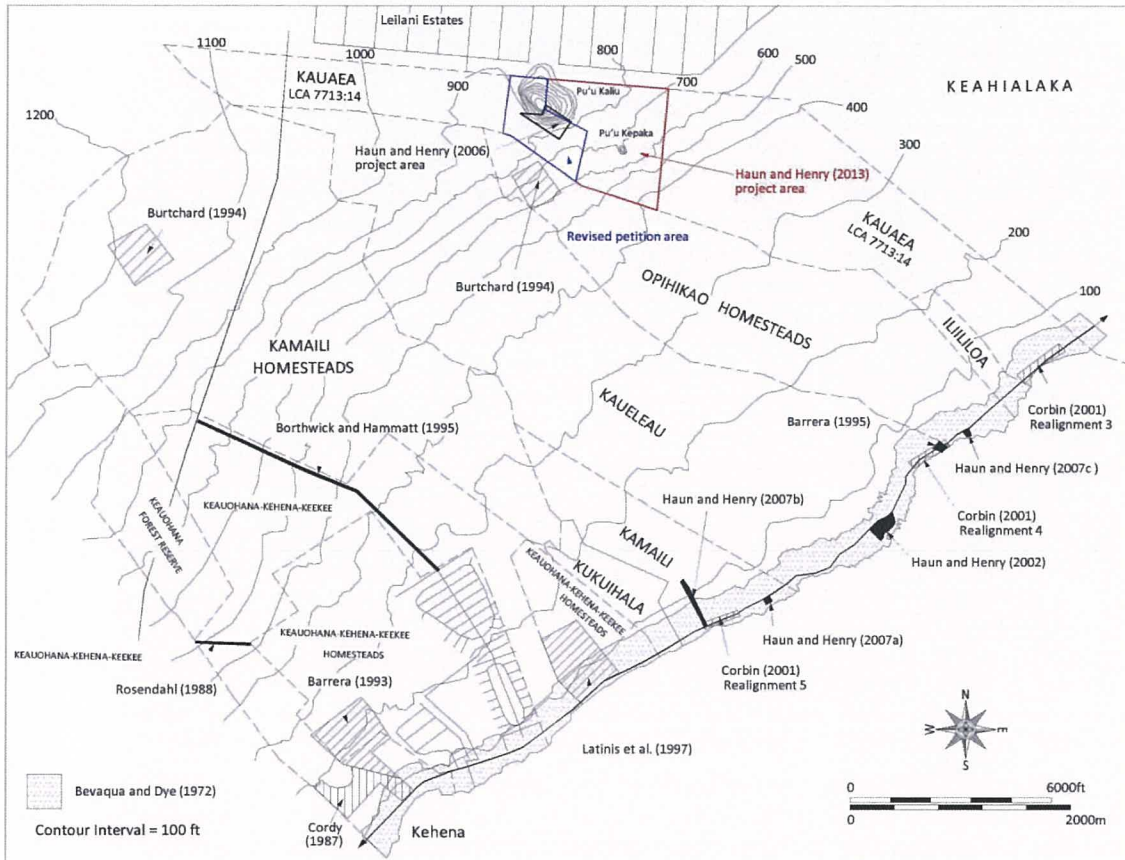


Figure 13. Ahupua'a boundaries and previous archaeological work (Haun and Henry 2013:18; updated 2019).

Table 5. Previous Archaeological Work from Haun and Henry 2013:31).

| Author | Land | Study Type* | Elev | Sites | Feas. | Hab Feas | Ag Feas | Burial Feas | Trail | Misc | Historic Feas |
|-----------------------------------|---------------------------------------|-------------|-----------|------------|------------|-----------|------------|-------------|-----------|------------|---------------|
| Haun and Henry | Opihikaō | IN | 10-25 | 2 | 2 | | | | | | 2 |
| Corbin (2001) | Kamaili, Kaua Kaueleau | IN | 20-40 | 1 | 40 | | 40 | 1 | | | |
| Bevaqua and Dye (1972) | Kapoho- Kalapana | RN | 20-40 | 48 | 426 | 61 | many | 156 | 5 | 188 | 7 |
| Haun and Henry (2007a) | Kamaili | IN | 20-38 | * | * | | | | | | |
| Haun and Henry (2007b) | Kamaili | IN | 30-115 | 5 | 10 | | | | | | 10 |
| Barrera (1995) | Kaueleau | DR | 35-40 | 3 | 9 | 2 | | | | | 7 |
| Haun and Henry (2002) | Kaueleau | IN | 80-100 | 0 | | | | | | | |
| Cordy (1987) | Keauohana | RN | 80-250 | 15 | 92 | | 20 | 63 | 4 | | 5 |
| Latinis, Moore and Kennedy (1997) | Keekee | IN | 100-300 | 6 | 128 | 3 | 88 | 24 | 4 | 2 | 4 |
| Barrera (1993) | Keauohana | RN | 120-300 | 1 | 167 | 5 | 150 | 3 | | | 9 |
| Borthwick and Hammatt (1995) | Kamaili, Keekee, Kehena. | AS | 280-860 | 0 | | | | | | | |
| MLK Rosendahl (1988) | Keauohana Kehena | FI | 540-620 | 0 | | | | | | | |
| Burchard (1994) | various | RN | 650-1200 | 34 | 65 | 5 | 16 | 22 | 5 | 8 | 11 |
| Haun and Henry (2006) | Kauaea | AS | 780-1050 | 0 | | | | | | | |
| Bonk (1989, 1990) | Kaimu, Makuu, Kaohe, Kehena. | RN/ MON | 1480-1540 | 0 | | | | | | | |
| Total/Average | | | | 113 | 939 | 76 | 314 | 269 | 18 | 198 | 55 |

IN = Inventory Survey, RN = Reconnaissance Survey, DR = Data Recovery, AS = Archaeological Assessment

Traditional Literature

The ethnographic works of the late 19th and early 20th century contribute a wealth of information that comprise the traditional literature - the *mo'olelo*, *oli*, and *mele* - as well as glimpses into snippets of time, and a part of the Hawaiian culture relatively forgotten. The genealogies handed down by oral tradition and later recorded for posterity, not only give a glimpse into the depth of the Hawaiian culture of old, they provide a permanent record of the links of notable Hawaiian family lines. The *mo'olelo* or legends allow *ka po'e kahiko*, the people of old, the *kupuna* or ancestor, to come alive, as their personalities, loves, and struggles are revealed. The *oli* (chants) and the *mele* (songs) not only give clues about the past, special people, and *wahi pana* or legendary places, they substantiate the magnitude of the language skills of *na kupuna kahiko* (the people of old). Several excerpts of the *mo'olelo* and *mele* have already been used as references or chronology markers in the 'Overview of Human Impact, Settlement and Socio-economic Development...' above. The following sections give a little more detail and explanation of the traditional literature.

Genealogies

Po'e kū'auhau or genealogy *kahuna* were very important people in the days of old. They not only kept the genealogical histories of chiefs "but of *kahunas*, seers, land experts, diviners, and the ancestry of commoners and slaves...an expert genealogist was a favorite with a chief" (Kamakau 1992:242). During the time of 'Umi genealogies became *kapu* to commoners, which is why there "were few who understood the art; but some genealogists survived to the time of Kamehameha I and even down to the arrival of the missionaries" (ibid).

Surviving genealogies illustrate that the ruling families of each island were interrelated quite extensively. The chiefs of O'ahu, Kaua'i, Hawai'i, Maui and Moloka'i had one common ancestry. Families branched out, but conjoined several times in succeeding generations. O'ahu and Hawai'i's chiefs were linked as are Hawai'i and Maui chiefs, and Hawai'i's chiefs were linked to Kaua'i chiefs (Kamakau, 1991:101; McKenzie, 1983: xxv). Not only were the chiefs or *ali'i* related to each other, they were also related to the commoners. In *Ruling Chiefs*, Kamakau states that "there is no country person who did not have a chiefly ancestor" Kamakau (1992:4).

Malo (1971) wrote about the connection between the *maka'āinana* and the chiefs; "Commoners and *alii* were all descended from the same ancestor, Wākea and Papa" (Malo, 1971:52). This is evident in the genealogies. Genealogies were very important to the chiefs, because ranking was very important. The genealogies not only indicated rank, they ascertained a link to the gods. The following excerpt explains the idea and importance of rank and the role of genealogies:

Position in old Hawaii, both social and political, depended in the first instance upon rank, and rank upon blood descent—hence the importance of genealogy as proof of high ancestry. Grades of rank were distinguished and divine honors paid to those chiefs alone who could show such an accumulation of inherited sacredness as to class with the gods among men...a child inherited from both parents.... The stories of usurping chiefs show how a successful inferior might seek inter-marriage with a chiefess of rank in order that his heir might be in a better position to succeed his parent as ruling chief...a virgin wife must be taken in order to be sure of child's paternity—hence the careful guarding of a highborn girl's virginity (Beckwith 1990: 11).

One could defend and/or prove their rank by knowing or having one's genealogist recite one's genealogy. "To the Hawaiians, genealogies were the indispensable proof of personal status. Chiefs traced their genealogies through the main lines of 'Ulu, Nana'ulu, and Pili, which all converged at Wākea and Papa (Barrere, 1969:24). Two well-known genealogy chants are the *Kumuhonua* and the *Kumulipo*.

Kumuhonua. The *Kumuhonua*, first published by Fornander in 1878, in *The Polynesian Race* Vol. I was based on information from Kamakau and Kepelino. Kumuhonua, the man, was of the Nanaulu line, and the older brother of Olopana and Moikeha (McKenzie 1986:14-15). However, the birth chant *Kumuhonua* has been a subject of controversy as noted in following *Preface* by Kenneth P. Emory:

We have become painfully aware that the Kumuhonua 'legends' are not ancient Hawaiian legends, nor is the genealogy which accompanies them a totally authentic genealogy.... In his second volume (1880) when he relates events from the period of the arrival in Hawaii of migrant chiefs from Tahiti to the time of Kamehameha, in these writings he is dealing with relatively untampered, authentic Hawaiian traditions and genealogies.... We must ever be on guard against the effects of this impact in what was recorded subsequently about the pre-contact period.... The world of the Polynesian began to be transformed overnight by Western influence." (Barrere, 1969: i)

Barrere (1969) explains that some of the *Kumuhonua* legends were recorded by Kamakau and Kepelino between the years 1865 and 1869, however, the 'genealogy' of the *Kumuhonua*, published by Fornander, was given to him "to provide credibility to the legends...this 'genealogy' [was] constructed from previously existing genealogies--the *Ololo* (*Kumuhonua*) and the *Paliku* (*Hulihonua*) which are found in the *Kumulipo* chant (see Beckwith 1951:230-234) and interpolations of their own invention" (Barrere, 1969:1).

Kumulipo. A better example is the famous Creation Chant *The Kumulipo*. Feher (1969) had several notable Hawaiian scholars write passages in his *Kumulipo: Hawaiian Hymn of Creation-Visual Perspectives by Joseph Feher*. In the *Introduction* Momi Naughton states "The *Kumulipo* belongs to a category of sacred chants known as *pule ho'ola'a ali'i*, 'prayer to sanctify the chief,' which was recited to honor a new-born chief (Feher, 1969:1). In her passage, Edith McKenzie states:

"The *Kumulipo* is a historical genealogical chant that was composed by the court historians of King Keaweikekahiali'iokamoku of the island of Hawai'i about 1700 AD in honor of his first born son Ka-lani-nui-'I-a-mamao. This important chant honors his birth and shows the genealogical descent of both the *ali'i* (chiefs) and the *maka'ainana* (commoners) from the gods, in particular Wākea..." (Feher, 1969:1).

The Kumulipo was an *inoa* or name chant for Ka-lani-nui-'I-a-mamao, first born son of Keawe, who later became the father of Kalaiope'u [Kalani'ope'u], ruling chief of Hawai'i (Beckwith, 1990:9). However, Johnson comments that "Malo remarks that the *Kumulipo* is important to both *ali'i* (chiefly) and *maka'ainana* (commoner) groups. It is also a means by which Polynesians as a whole may corroborate lineal ties to the Hawaiian people" (Feher, 1969:2).

In a passage by Roger T. Ames, he corroborates this idea and states, "what is of particular humanistic interest is the way in which the *Kumulipo* as a repository of cultural authority served Hawaiian society in transmitting its cultural legacy and organizing its community. In doing so it combines both a linear sense of temporal development and the richness of one particular moment in time" (Feher, 1969:3).

Youngblood (1992) found that he could draw on both Fornander and Beckwith's translations of *The Kumulipo* to sketch a socio-political history of Hawai'i (Youngblood, 1992:34). In his re-creation he found that stemming from Wākea and Papa are two major Hawaiian genealogies: the *Nana'ulu* and the 'Ulu [brothers]. The *Nana'ulu* was the wellspring for the *ali'i* of O'ahu and Kaua'i, while the 'Ulu line supplied the chiefs of Maui and Hawai'i Island.

Hawaiian Genealogies. In 1983 Edith McKenzie completed the first volume of *Hawaiian Genealogies*, translated from genealogy articles in 19th Century Hawaiian newspapers; these articles were in response to

a call to preserve the Hawaiian heritage. The descent of Hāna’s *ali’i nui* and their connection to other ruling families can be illustrated by piecing these genealogies together. Some of McKenzie’s genealogies were from feature articles published in Hawaiian newspapers such as *Ka Nonanona* and *Ka Nupepe Kuokoa* in the late 19th century and early 20th century. Some of the information was also in Malo’s (1838) *Hawaiian History*, and in Fornander’s (1880), *The Polynesian Race* (Book I) (McKenzie, 1983:1).

The following excerpt is from Kamakau’s article in *Ka Nupepe Kuokoa* October 7, 1865, and was translated by McKenzie (1986). It illustrates some of the mid-19th century sentiment regarding genealogies:

I na makaainana, he mea waiwai ole, no ka mea ua papa ko lakou mau makua o hoohalikelike, a hoohanau keiki o ke kuaaina a pii aku i na li’i. Nolaila ia ao ole ia ai na keili a na makaainana, ma kahi makuakane a makuahine, a kupuna aku no.... Ia kakou i ka poe o keia wa, aole waiwai o keia mea he moaalii aole a kakou mau kuleana nui iloko. Aka, ma ko kakou noonoo iho he waiwai nui. Ua komo kakaou iloko, ua waiwai na’lii i na kupuna; a ua waiwai pu kakou i koo kakou ike ana. No ka mea, ua kapu i ka makaainana aole e ike i keai mea. Aka, no ka pii ana i ka naauao a me ke akamai o na keiki a na makaainana; nolali, ua noa na wahi kapu, ua pii waleia. O ke koeana mai o na kupuna oia kahi waiwai.

To the commoners, a genealogy was of no value because their parents forbade (sic) it lest comparisons should occur and country children be born and rise up as chiefs. Therefore, the children of the commoners were not taught beyond father, mother, and perhaps grandparents.... To us, the people of this time, there is no value of this thing of a chiefly lineage; we have no great interest in it. But in our thoughts it is of great value. We have entered into discussion of it; the chiefs valued the chiefs and ancestors; and we also value our knowledge of it. Because it was forbidden to the commoners, they were not to know this. However, due to the rise of wisdom and skill of the children of the commoners, therefore, all of the ranking privileges were no longer restricted; it was only lifted. What remains of the ancestors is something of value (McKenzie 1986:18-19).

Using thirty years to account for one generation, McKenzie determined that Wākea was born in AD 190; Umi-a-Liloa in 1450; Keawekehahialiiokamoku in 1650, Kalanihuiikupuapaikalanui Keoua in 1710; and Kamehameha I in 1740” (McKenzie, 1983:12). Volume Two of *Hawaiian Genealogies* was published in 1986 and consists of information extracted from genealogical lists published in thirteen newspapers from 1858 to 1920. It complements genealogies found in other works, such as Fornander’s (1880) *An Account of the Polynesian Race...* and David Malo’s *Hawaiian Antiquities* (McKenzie, 1986: v).

Hawai’i Island Royal Line. In the following list of Hawai’i Island *ali’i* or chiefs (Table 6) most of the people are in a loose chronological order with multiple unions and is not inclusive as many lesser unions were not listed or recorded in official genealogies. This annotated list illustrates how interconnected the chiefly lines were with unions between island polities and families. [Macrons are not inserted because there were not in the records.]

Table 6. Hawai’i Island Royal Line [based on McKenzie (1983, 1986), Kamakau (1992) and ‘I’i (1959).]

| Kane | Wahine | Keiki |
|---|----------------------------------|---|
| *Hanala’anui | Mahuia | Lanakawai [14 generations before the following] |
| [*twin of Hanala’aiki progenitor of the Maui Pi’ilani Lines – both born at Mokae, Hana, Maui] | | |
| Kauholanuiimahu | Neula | Kihanuilulumoku [Kiha 1] |
| Kiha 1 | Waoilea [Ewa, Oahu Chfs] | Liloa-a-Kiha |
| Liloa | Pinea 1 [younger sib of Waoilea] | Hakau [later killed by Umi] |
| “ | Haua [Maui Chfs] | Kapukini” |
| “ | Akahiakuleana [←Hana] | Umi-a-Liloa 1 |
| Hakau | KukukalaniaPae | Pinea 2 |

| | | |
|---|---|---|
| Umi | Ohenahena/Hehena | Kamolaniaumi |
| “ | “ | Kahakilinuiialokapu |
| “ | Kulamea | Kapunahahuanuiaumi |
| “ | Makaalua | Nohowaumi |
| “ | Kapukini /Kapulani | Kealiiokaloa→Kalanio ^u /Kamehameha I |
| “ | “ | Kapulani |
| “ | “ | Keawenuiaumi |
| “ | Piikea-a-Pi ^u ilani | Aihakoko |
| “ | “ | Kumalae→ Aikanaka/Lili ^u |
| “ | Kuihewamakawalu | Papaikaneau |
| “ | “ | Kuimeheua (k) |
| “ | “ | Uluehu |
| “ | Mokuahualeiaka | Akahiilikapu→ Liholiho/Kamamalu |
| Keawenuiaumi | Koihalawai [Kauai Chfs] | Kanaloakua ^a na |
| “ | Hoopiliahae | Umiokalani |
| “ | “ | Keaweapaikana |
| “ | Hoopiliahae | Lililoa 2 |
| “ | “ | Hoolaaikaiwi |
| Keawe [Hawaii king] | Kalanikauleleaiwi [sib of Keawe] | Kalani-Keeaumoku |
| “ | “ | Kekelakeke oakalani |
| Kauaunimahioloii | “ | Alapainui [Hawaii king] |
| Lonoikahapu [Kauai king] | “ | Keawepeopoe [Chief-Hawaii/Maui/Oahu/Kauai] |
| Kaulahea [Maui king] | “ | Kekuiapoiva Nui |
| Kaulaheanu iokamoku | Papaikaniau | Kalaninui ^u ihonoikamoku Kekaulike |
| Haae | Kalelemauli | Kamakaehikuli |
| “ | “ | Haalou |
| Haae | Kekela oakalani [dau/Keawenuiaumi] | Kekuiapoiva 2 [Oahu/Maui Chiefess] |
| Kekaulike [Maui Rul chf] | Kahawalu | Kauhiaimokuakama |
| “ | Holau | Manuhaaipo |
| “ | “ | Kekauhiwamoku |
| “ | “ | Kaeokulani [Kauai Rul Ch/father of Kaumualii] |
| “ | Kekuiapoiva Nui [half-sister] | Kamehameha Nui [Maui Ruling Chf] |
| “ | “ | Kalola |
| “ | “ | Kahakilinui humanu 2 [Iron king of Maui] |
| “ | “ | Kuhoohaiheipahu (w) |
| “ | “ | Naaiaakalani |
| “ | “ | Manuailehua |
| “ | Ha ^u alo ^u [chiefess of Waihe ^e e] | Namahana kaleleokalani [→ Ka ^u ahumau] |
| “ | “ | Kekuamanoha (k) [father of Kalanimoku, Boki, Manono] |
| “ | Kane ^u alae (Molokai-also wife of Keawe) | ? |
| Kalaninui-i-mamao [Ka ^u] | Kamakaimoku [Oahu, Waianae cfs] | Kalanio^u *[Hawaii king] |
| “ | “ | Keōua kalanikupuapaikalani→K-I |
| *[Two fathers: also Begotten by Pele-io-holani, ruling chief of Oahu and Kamakaimoku] | | |
| Kalaniopu^u | Kalola [Maui High Chfs] | Kiwalao |
| “ | Kaneikapolei [Kaupo, Maui line] | Keōua Kuahu ^u [Ka ^u] |
| “ | “ | Keōua Pe ^e eale |
| “ | Mu ^u olehu | Manoua→ Peter Kaeo of Kauai |
| “ | Halau | Kawelaokalani |
| Kalaniopu^u | Manoua [daughter/Ka ^u] | Manono [Died in battle/placed on Mookini altar] |
| “ | Kamakolunuikalani | Pualinui [→a Lahaina line] |
| “ | “ | Kukanaloa [mo ^u opuna of 3 kings] |
| Keōua | Kahikikalaokalani | Kalokuokamalie |
| “ | Kekuiapoiva 2 [cousin] | Kamehameha I |
| “ | “ | Keliimaikai [Kalanimalokuloku-Kepookalani] |
| “ | Kamakaehikuli | Kalaimamahu [grandfather of Lunalilo] |
| “ | Kalola [→Keopulani] | Kekuiapoiva Liliha II [wife of Kiwalao] |
| “ | Manononui [daughter of Alapa ^u inui] | Kiilaweau [wife of Keliimaikai/mother of Kekuaokalani cousin of Liholiho] |

| | | |
|--|--|---|
| “ | Akahinui | Kaleiwahi |
| Keawemauhili [Hilo cf] | Kekikipa‘a [dau of Kame‘eikamoku] | Kapiolani [cfs of Ka‘awaloa/Kealakekua] |
| [half brother of Kalaniopu‘u; | m Ululani; killed by nephew Keōua Kuahu‘ula] | [cousin of Kiwala‘o and Kamehameha I] |
| Kiwalao [Hawaii Chf] [Sibs] | Kekuiapoīwa Liliha | Kalanikauika‘alaneo Keopuolani [Wailuku] |
| “ | Manoua | Kaaimalolo → Kaeo of Kauai |
| Kauhi‘aimoku-a-Kama | Kaho‘oma‘eha | Koli‘i [Kailua-Kona cf] |
| “ | “ | Ka‘iwi [Hilo/Waipī‘o cf] |
| “ | “ | Kaleohano [Kona cf/Navigator for Boki] |
| “ | “ | Keahemakani (w) |
| “ | Lu‘ukia | Kalolowahilani (w) <u>m</u> Ke‘eumoku |
| Kamehameha Nui [sibs] | Kalola [Maui] | Kalaniakuaiokikilo/Kalaniiwaikua [Kapu] |
| “ [half sibs] | Namahana kaleleonalani | Pele-io-holani 2 |
| “ | “ | Kuakini okalani |
| Ke‘eumoku | Kalolowahilani | Ke-aka-kilohi (k) |
| Keeaumoku Papaiahiahi | Namahana | Ka‘ahumanu (w) |
| “ | “ | Kaheihimalie/Hoapiliwahine (w) |
| “ | “ | Kahekali III/Ke‘eumoku 2 (k) |
| “ | “ | Kekuaipiia/Namahana II (w) |
| “ | “ | Kaluaikonahale/Kuakini (k) |
| Kekumanoha | Kamakahukilani | Kalanimoku (k) |
| “ | “ | Wahinepi‘o (w) |
| “ | “ | Boki (k) |
| Kalaimamahu [K1 sib] | Kalakua Kaheihimalie | Kahahaika‘ao‘aokapuoka/Kekauluohi |
| Kamehameha I | Kalola -a-Kumuko‘a | ? |
| “ | Kanekapolei | Pauli Kaoleioku |
| “ | Kekikipa‘a [dau of Kame‘eikamoku/mother of Chiefess Kapiolani] | ? |
| “ | Peleuli Kekela <u>m</u> Kawelolani [K-I brother] | Maheha Kapulikoliko (w) |
| “ | “ | Kahoanoku Kinau (k) |
| “ | “ | Kaiko‘olani (k) |
| “ | “ | Kiliwehi (w) |
| “ | Kauhilanimaka | Kahiwa Kanekapolei [mother of Kepelino] |
| “ [niece] | Ka‘ahumanu | NI |
| Kamehameha I | Kaheihimalie Kanui | Kamehameha Iwi |
| “ | “ | Kamehamalu (w) |
| “ | “ | Kaho‘anoku Kinau (w) |
| “ | Kalanikauika‘alaneo Keopuolani [Kapu chiefess] | Kalani Kua- Liholiho [b Hilo] |
| “ | “ | Kalani Kauikeaouli Kiwala‘o [b Keauhou] |
| “ | “ | Harriet Nahi‘ena‘ena |
| “ [niece] | Kekauluohi [<u>m</u> Kanaina → Lunalilo] | NI |
| “ | Manono | ? Kapua‘ai (w) |
| Liholiho [cousins] | Kekāuluohi [<u>m</u> Kana‘ina → Lunalilo] | NI |
| “ | Kamāmalu [half sister] | NI |
| “ | Kekāuluohi [mom of Lunalilo] | NI |
| “ | Kalanipauahi | NI |
| “ | Kekau‘onohi | NI |
| “ | Kīna‘u | NI |
| Kalani Kauikeaouli Kiwala‘o | Kapakuhaili | Keawe‘a‘ula II |
| “ | Hakalelponi Kalama [b Kailua-Kona | NI. |
| Leleiohoku [Wm Pitt I] | Nahi‘ena‘ena | (k) stillborn |
| [son of Kalanimoku, great-grandson of Kekaulike, hanai of Kuakini-son of Ke‘eumoku, husband of Princess Ruth Ke‘elikolani] | | |
| M. Kekuanaoa | Kinau | Lot Kamehameha [Kamehameha V] |
| “ | “ | Alexander Liholiho [Kamehameha IV] |
| “ | “ | Victoria Kamamalu |
| Charles Kana‘ina | Kekāuluohi | Wm Charles Lunalilo |
| Lunalilo | N | |
| Kepo‘okalani [s/Kame‘eiamoku] Keohohiwa | | ‘Aikanaka |

| | | |
|----------------------------|----------------------------------|--|
| ‘Aikanaka | Kamaeokalan | Analea/Ane Keohokalole |
| John Adams Kuakini | Analea/Ane Keohokalole | NI |
| Cesear Kapa‘akea [cousins] | Analea Keohokalole | Moses |
| “ | “ | James |
| “ | “ | David Kalākaua |
| “ | “ | Lydia/ Lili‘uokalani |
| “ | “ | Anna |
| “ | “ | Kaimina‘auao |
| “ | “ | Kinini |
| “ | “ | Miriam Likelike [mother of Princess Ka‘iulani] |
| “ | “ | Leleiohoku |
| Alexander Liholiho | Emma Kaleleonalani | Albert Edward Kauikeaouli |
| Charles Kanaina | Kekāuluohi | William Charles Lunalilo |
| Kalākaua | Kapiolani [grd dau of Kaumualii] | NI |
| Kaeokalani | Kamakāhelei [queen of Kauai] | Kaumu‘ali‘i |
| John Owen Dominus | Liliuokalani | NI |
| Archibald Cleghorn | Miriam Likelike | Victoria Kawekiu Ka‘iulani Lunalilo.... |

Puna Chiefs

The following are excerpts from *Nā Kua‘āina: Living Hawaiian Culture* by Daviana McGregor (2007) about the ruling chiefs of Puna and the first missionary in Puna (Chapter 4; 152-154).

“*Hilina‘i Puna, kālele iā Ka‘ū*” (Puna leans and reclines on Ka‘ū) refers to the common origin of the people of Puna and Ka‘ū. The ancestors of these two districts were originally of one extended family....those in Ka‘ū referred to themselves as the Mākaha, meaning fierce, savage, ferocious. Those in Puna called themselves Kūmākaha, or standing fierce, savage, ferocious.

There were two notable Puna chiefs...Hua‘a and ‘Imaikalani (primarily Ka‘ū) who were identified as enemies of High Chief ‘Umialīloa and were killed by he and his warriors. During the time of High Chief Līloa, approximately 1475 CE, the chiefs of the six districts of Hawai‘i, including Puna, were autonomous within their own districts, but they acknowledged Līloa as their paramount chief.... Hua‘a was killed on the battlefield in Kuolo, Kea‘au.... From the time of Keawenuiaumi Ka‘u was ruled by the Kona chiefs (his descendants)...Puna is linked with Ka‘u until the time of Keaweikekāhiali‘iokamoku, when ‘I family of Hilo controlled parts of Puna (152-153).

In the time of Kalaniopuu, the chief ‘Imakakoloa of Puna became powerful...was probably a descendant of ‘Imaikalani through the ‘I family.... He seized the valuable products of his district which consisted of hogs, gray tapa cloth (*‘eleuli*), tapas made of *mamaki* bark, fine mats made of young pandanus blossoms (*‘ahu hinano*), mats made of young pandanus leaves (*‘ahuau*), and feathers of the ‘o‘o and mamo birds of Puna (154).

The first missionary to journey through Puna was William Ellis in 1823. In his published journal he described the natural resources available to the residents of the district and some of their living conditions and subsistence and exchange practices. He estimated that there were approximately 725 inhabitants at Kaimu and another 2,000 Hawaiians in the immediate vicinity along the coast. At Kauaea, about three and a half miles from Kaimu, he reported, 300 people gathered to hear him preach (155-156).

Mo'olelo

Legends or *mo'olelo* are a great resource as well as entertaining. Leib and Day (1979) state in their annotated bibliography of Hawaiian legends, that legends “are a kind of rough history.” They noted “Luomala’s idea of the value of myth and legend in the serious study of a culture” and her following quote. “To a specialist in mythology, a myth incident or episode is as objective a unit as an axe, and the differences and similarities of these units can be observed equally clearly and scientifically.” They also expressed concern about authenticity, and sometimes found it difficult to determine if a legend was a primary or secondary source. The following definitions of terminology, including the Hawaiian classification of prose tales--*mo'olelo* or *ka'ao*, come from their work (Leib and Day 1979: xii, 1):

| | |
|------------------|---|
| <i>Tradition</i> | used to refer to that which is handed down orally in the way of folklore |
| <i>Folklore</i> | a rather inclusive term, covering the beliefs, proverbs, customs, and literature (both prose and poetry) of a people |
| <i>Myth</i> | a story of the doings of godlike beings |
| <i>Legend</i> | deals with human beings and used interchangeably with ‘myth’ ... because the collectors and translators of the tales often failed to make the strict distinction themselves |
| <i>Ka'ao</i> | “pure fiction” |
| <i>Mo'olelo</i> | deals with historical matters and somewhat didactic in purpose... included tales of the gods, as well as tales of historical personages... many have recurring patterns, plots, and types of characters |

History of *Mo'olelo* Collecting. According to Leib and Day (1979) a substantial number of legends were collected and written in Hawaiian during the century following Cook’s arrival in Hawai‘i. A few accounts of the mythology were printed in the journals of missionaries and travelers, and a few of the Hawaiian lore were printed in languages other than English. The following synopses are excerpts from the works of Leib and Day’s (1979) and give an overview of the first collectors and compilers of Hawaiian myths and legends.

About 1836 a movement was started under the influence of Reverend Sheldon Dibble, to write down in Hawaiian some of the material dealing with the native legendary history, customs, and other lore. Results of the research were published at the Lahainaluna press in 1838. A partial translation made by Rev. Reuben Tinker was issued serially in 1839 and 1840---the first four installments appearing in *The Hawaiian Spectator* and the last four in *The Polynesian*. In 1841 the Royal Hawaiian Historical Society was formed at Lahainaluna. Some of their research and the earlier *Ka Moolelo Hawaii* were incorporated into Dibble’s *History of the Sandwich Islands* (1843). After his death in 1843 his work was carried on principally by two of his outstanding native pupils, David Malo and Samuel M. Kamakau. Malo wrote his own *Moolelo Hawaii* about 1840 at the request of Rev. Lorrin Andrews, which was later translated by Emerson as *Hawaiian Antiquities*. In 1858 the Rev. John F. Pogue of Lahainaluna printed a third *Moolelo Hawaii*, based on the 1838 history, but including additional material. Kamakau did not print any of his material for thirty years (Leib and Day 1979:7, 8, 9).

The increase in the amount of Hawaiian lore appearing in the native press in the 1860’s and thereafter was at least in part the result of an organized effort to collect and preserve such material. At Kamakau’s instigation a Hawaiian society was formed in 1863 to collect material for publication in the native press at the time, and also to aid Fornander’s research. Fornander was the greatest collector of Hawaiian lore. He credits as sources, several natives whom he sent on tours of the Hawaiian Islands to collect all available Hawaiian lore, as well as Kalakaua, Lorrin Andrews, Malo, Dibble, Dr. John Rae, Kamakau, Naihe, S.N. Hakuole [Haleole], Kepelino, and Remy. The culmination of this effort was Fornander’s (1880) *An Account of the Polynesian Race: Its Origin and Migrations and the Ancient History of the Hawaiian People to the Times of*

Kamehameha I. Fornander's collection remains the most important single source of Hawaiian legends (Leib and Day 1979:9-13).

In June 1865 Kamakau began publishing in *Ka Nupepa Kuokoa*, articles on traditions and legends. His series of articles dealing with Hawaiian history, particularly from the late eighteenth century on, and especially of Kamehameha, appeared weekly in the same publication in October 1866. When the newspaper ceased in 1869, this series continued in *Ke Au Okoa* for nine months. Kamakau then wrote a series on ancient Hawaiian religion, customs, and legendary history in *Ke Au Okoa* until February 1871. All of his writings were in Hawaiian (Leib and Day 1979:8, 9).

Very little work was done in translating Hawaiian mythology into English until late in the nineteenth century. It wasn't until 1888, over a hundred years after the discovery of the Hawaiian Islands, that the first book in English dealing exclusively with Hawaiian mythology was printed; *The Legends and Myths of Hawaii* by King Kalākaua. However, it was more likely authored by former United States Minister to the Hawaiian Islands, R.M. Daggett (Leib and Day 1979:5, 7).

Thrum is one of the most frequently cited authorities on Hawaiian lore. He was born in Australia in 1842 and arrived in Honolulu in 1853. In 1875 he began publication of the *Hawaiian Almanac and Annual*, later known as *The Hawaiian Annual* or *Thrum's Annual*, which appeared yearly under his editorship until his death in 1932. Thrum's contribution is as editor, compiler, and publisher of translations, not translator. By providing in his *Annual* a place for the publication of such material, and perhaps by persuading authors to provide him with translations, he was instrumental in much legendary matter appearing in printed form. Thrum wrote or rewrote a large portion of his own material (Leib and Day 1979: 17).

Thrum's first book *Hawaiian Folk Tales* was published in 1907 and consisted largely of tales that had previously been published in *Thrum's Annual*. Only 35 of the 260 pages were translated by Thrum, the rest were credited to Rev. A.O. Forbes, Rev. C.M. Hyde, William Ellis, J.S. Emerson, Mrs. E.N. Haley, N.B. Emerson, Mrs. E.M. Nakuina, Walter M. Gibson, Joseph M. Poepoe, and M.K. Nakuina. His second book *More Hawaiian Folk Tales*, published in 1923 was similar. A number were translations from Hawaiian language newspapers of half a century earlier, often with no translator cited. Translators credited were A. F. Knudsen, Henry M. Lyman, W. D. Westervelt, J. H. Boyd, and Lahilahi Webb. Some of the chapters were reprinted or abridged from the Bishop Museum translations of the *Fornander Collection*, of which Thrum was editor. His greatest work, *Fornander's Collection of Hawaiian Antiquities and Folklore*, was published by Bishop Museum in 1916 and 1920 in three volumes. The original editor was W. D. Alexander and most of the work completed under his supervision. However, he died in 1913 and Thrum was appointed to complete the production. Beckwith credits John Wise with the original translation of that work. In 1920 or 1921 Thrum completed another work "Ancient Hawaiian Mythology" which was never published (Leib and Day 1979: 18-19).

A great resurgence of interest in Hawaiian folklore began in the early twentieth century, in part caused by the annexation to the United States. People on the mainland wanted to know more about 'their new island possessions.' The funds of the Bureau of American Ethnology were made available for Hawaiian studies i.e., Emerson's *Unwritten Literature* and Beckwith's *Laielikawai*. The most important twentieth-century translators of Hawaiian legends have been N. B. Emerson, Thomas G. Thrum, William D. Westervelt, William Hyde Rice, Laura C. S. Green, Martha Warren Beckwith, and Mary Kawena Wiggins Pukui. Emerson's extensive notes were a major contribution to Hawaiian scholarship. Most of them explain the meanings of Hawaiian words. In many, Emerson alludes to legends, giving a number of them briefly and relating a few in some detail. Some of these probably do not exist anywhere else in print (Leib and Day 1979:14).

Mo'olelo of Pele and Puna Chiefs. From the legends or *mo'olelo* collected by Fornander, Kamakau, Westervelt and others, we can get a glimpse into the lives of some of these people listed in the genealogies. To reproduce any legend completely would take too long, therefore only excerpts are

generally used. The following legends are from Westervelt's *Hawaiian Legends of Volcanoes* Chapter V, 'Pele and the Chiefs of Puna,' and Chapter VI 'Pele's Tree.'

Pele and the Chiefs of Puna

Kumu-Kahi. According to the legends, Pele was very quickly angered. Her passions were as turbulent as the lake of fire in her crater home. Her love burned, but her anger devoured. She was not safe. Kumu-kahi was a chief who pleased Pele. According to the legends he was tall, well built, and handsome, and a great lover of the ancient games. Apparently he had known Pele only as a beautiful young chiefess; for one day, when he was playing with the people, an old woman with fiery eyes came to him demanding a share in the sports. He ridiculed her. She was very persistent. He treated her with contempt. In a moment her anger flashed out in a great fountain (p. 28) of volcanic fire. She chased the chief to the sea, caught him on the beach, heaped up a great mound of broken lava over him, and poured her lava flood around him and beyond him far out into the ocean.

Thus the traditions say Cape Kumu-kahi, the southeast point of the island Hawaii, was formed. Here kings, chiefs, and priests have come for ages to build great piles of lava rock with many ceremonies. The natives call these "funeral mounds" and name them after the builders, although the persons themselves were seldom placed underneath in burial.

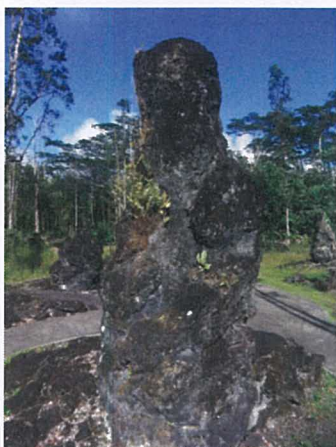
When Hawaiians, who had been ill, recovered, they frequently vowed to make a "journey of health." This meant that they came to the place now known as Hilo Bay. There they bathed by the beautiful little Coconut Island, fished up by the demi-god Maui. There they swam around a stone known as Moku-ola (The-island-of-life). Then they walked along the seashore day after day until they were below the volcano of Kilauea. They went up to the pit of Pele, offered sacrifices, and then followed an overland path back to Hilo. It was an ill omen if for any reason they went back by the same path. They must make the "journey of health" with the face forward. Hopoe (The dancing stone), Kapoho (The green lake), and Kumu-kahi were among the places which must be visited. They all have their Pele legends.

On the shortest path from Kumu-kahi to Kilauea is a great field of many acres of lava stumps. These, according to the best theories, were made by immense floods of lava pouring down upon large forests of living trees. Lava always cools rapidly on the surface therefore, as the lava spread out through the forest, very soon there was a great floor of hot black stone pierced by a multitude of trees. Some of these burned very slowly. The flowing lava would easily push itself up through the small opening around a burning tree and would keep on pushing and building up a higher and higher cone of lava as the tree burned away, until the tree was destroyed. These cones rise sometimes ten to fifteen feet above the lava floor. They frequently have well-preserved masses of charcoal as their core. This is nature's method of making lava stumps. This field of hundreds of lava stumps has a different origin according to the legends.

Papa-lau-ahi (The-fire-leaf-smothered-out) was a chief who at one time ruled the district of Puna. He excelled in the sports of the people. It was his great delight to gather all the families together and have feasts and games. He challenged the neighboring chiefs to personal contests of many kinds and almost always was the victor. One day the chiefs were sporting on the hillsides around a plain where a multitude of people could see and applaud. Pele heard a great noise of shouting and clapping hands and desired to see the sport. In the form of a beautiful woman she suddenly appeared on the crest of one of the hills down which Papa-lau-ahi had been coasting. Borrowing a sled from one of the chiefs she prepared to race with him. He was the more skilful and soon proved to her that she was beaten. Then followed taunts and angry words and the sudden absolute loss of all self-control on the part of Pele. She stamped on the ground and floods of lava broke out, destroying many of the chiefs as they fled in every direction.

The watching people, overcome with wonder and fear, were turned into a multitude of pillars of lava, never changing, never moving through all the ages. Papa-lau-ahi fled from his antagonist, but she rode on her fiery surf waves, urging them on faster and faster until she swept him up in the

flames of fire, destroying him and all his possessions. (1. These are the lava stumps easily visited by any lover of the curious who journeys to Kilauea.)



Photos 16-21. Various lava tree stumps in Lava Tree State Park in Pahoa, Puna.



Ke-lii-kuku. Another chief who was called in Hawaiian legends, Ke-lii-kuku (The-Puna-chief-who-boasted). He was proud of Puna, celebrated as it was in song and legend.

*"Beautiful Puna!
Clear and beautiful,
Like a mat spread out.
Shining like sunshine
Edged by the forest of Malio."
--Ancient Chant.*

Ke-lii-kuku visited the island Oahu. He always boasted that nothing could be compared with Puna and its sweet-scented trees and vines. He met a prophet of Pele, Kane-a-ka-lau, whose home was on the island Kauai. The prophet asked Ke-lii-kuku about his home land. The chief was glad of an opportunity to boast. According to the "Tales of a Venerable Savage" the chief said: "I am Ke-lii-kuku of Puna. My country is charming. Abundance is found there. Rich sandy plains are there, where everything grows wonderfully." The prophet ridiculed him, saying: "Return to your beautiful country. You will find it desolate. Pele has made it a heap of ruins. The trees have descended from the mountains to the sea. The *ohia* and *puhala* are on the shore. The houses of your people are burned. Your land is unproductive. You have no people. You cannot live in your country anymore."

The chief was angry and yet was frightened, so he told the prophet that he would go back to his own land and see if that word were true or false. If false, he would return and kill the prophet for speaking in contempt of his beautiful land. Swiftly the oarsmen and the mat sails took the chief back to his island. As he came around the eastern side of Hawaii he landed and climbed to the highest point from which he could have a glimpse of his loved Puna. There in the distance it lay under heavy clouds of smoke covering all the land. When the winds lifted the clouds, rolling them away, he saw that all his fertile plain was black with lava, still burning and pouring out constantly volumes of dense smoke. The remnants of forests were also covered with clouds of smoke through which darted the flashing flames which climbed to the tops of the tallest trees.

Pele had heard the boasting chief and had shown that no land around her pit of fire was secure against her will. Ke-lii-kuku caught a long vine, hurled it over a tree, and hung himself. [1. Ohia ha or Paihi = Syzygium. Ohia-lehua = Metrosideros polymorpha sandwicense. 2. Hala or Lahala = Pandanus adoratissimus.]

Ka-Pa-Pala. Another chief by the name of Ka-pa-pala heard of Pele. He went to the edge of the crater and there found a group of beautiful women. He was welcomed by Pele. They delighted in each other. Many were the games and contests. The chief was so frequently the victor that at last he boasted that he could ride his surfboard on the waves of her lake of fire. She was angry at the thought that he dared to desecrate her sacred home. He defied her, caught his surf-board, threw it on a wave as it struck the encircling wall, then leaped on his board and launched out on the fire-waves. It is said that, to show his contempt for the power of Pele, he even stood on his head and was carried safely for a time on the crest of the red rolling surf.

Pele became very angry as she saw him fleeing from her over the lake of fire, so she called to her fire-servants, the aumakuas, or ghost-gods, of the crater, and they hurled other fire-waves across the lake against the one the chief was riding. They twisted and turned that wave. They broke its crest. The chief and his surf-board were tossed up in a whirlpool of fire. Then he dropped into the heart of the flame and was lost.

Pele's Tree

Ohia Lehua is the native name for a tree which abounds in Puna, the region of the volcanic home of the goddess Pele. It has a continual growth of delicately shaded leaves. The young leaf, pink tinted, comes as the old leaf shading into gray falls from the tree. Flowers which are like beautiful red fringed balls are always found glorifying the varicolored foliage. Here honey-loving birds and bees find their best feeding-places. The ohia forests grow abundantly and rapidly on lava even recently thrown out by the eruptions from Pele's lake of fire. The ohia roots seem [1. Metrosideros polymorpha.] to find food and drink, where the numerous cracks of a lava field open in every direction, and vie with the tree ferns in making life take the place of the desolation caused by the volcanic floods.

About half way between the city of Hilo and the volcano Kilauea, there stood for many, many years an old ohia tree. It was so old that it had become legendary and was known as "Ka laau o Pele" (The tree of Pele). Whenever a native came near this tree, he began to search for certain leaves or fruits which he could lay beneath the tree as an offering before he dared to try to pass beyond. These sacrifices were supposed to appease the wrath of the goddess and assure the traveler safe passage through Pele's dominions.

Three *mo'olelo* were cited in *Hawaiian Legends Index* (Vol II – K) that mention 'Kali'u' and are listed in the following:

- | | | |
|------------------------|--|----------|
| Colum, Padric | 'The fire-goddess' <i>In Legends of Hawaii</i> | pp 25-37 |
| Emerson, Nathaniel | <i>Pele and Hiiaka</i> | |
| Westervelt, William D. | 'Hopoe, the dancing stone' <i>In Hawaiian Legends of Volcanoes</i> | pp 87-95 |

"Kaliu" is mentioned several times in chants in the story 'Hopoe, the dancing stone' (Westervelt 1916: 91 and 93) where Pele ordered her sister Hiiaka to go to Kauai to fetch her lover Lohiau. Hiiaka had her conditions - that Pele not damage her beautiful 'ohia lehua forests of Kaliu and her friend Hopoe. As

Hiiaka prepared to leave she climbed up the walls of the Kilauea crater where Pele resided. She looked down on her sisters and chanted:

“The traveler is ready to go for the loved one.
The husband of the dream.
I stand, I journey while you remain,
O women with bowed heads.
Oh my lehua forest – inland at Kaliu,
The longing traveler journeys many days
For the lover of the sweet dreams.
For Lohiau ipo.” - Ancient Hiiaka Chant

Hiiaka found Lohiau but had visions of Puna and the unfaithfulness of Pele; the impatient Pele was throwing lava from the pit crater to the forests which she had promised to protect. Hiiaka chanted:

“The smoke bends over Kaliu.
I thought my lehuas were tabu.
The birds of fire are eating them up.
They are picking my lehuas
Until they are gone.”

“O my friend of the steep ridges above Keaau,
My friend who made garlands
Of the lehua blossoms of Kaliu,
Hopoe is driven away to the sea –
The sea of Lanahiku.”

Mele and Oli

Aside from the *mo'olelo*, legends or stories of these famous and infamous *ali'i*, the songs and chants also give glimpses into the lives of the ancient people and places as depicted above. Research revealed that there are literally thousands of *mele* and *oli* that have been recorded and/or written over the last 170 years or more. There are several indexes of songs and chants in the Hawaiian Collections at the University of Hawai'i Hamilton Library (i.e., Horie 1990; Stillman 1988; 1990; 1993; 1995; 1996). Pukui explained that it was common, for chants not to have a title, as it was the composer's role to create the *mele*, which was then given away. When formal titles were not specified, the first line of verse served as the title (Pukui, 1995:xvii). There are texts of songs and chants compiled and translated by Roberts (1967), Pukui (1995), and Emerson (1997), as well as chants in legends compiled by Fornander (1969).

The Hawaiian word *mele* included all forms of poetical composition and sometimes overlap *oli* or chant, the lyric utterance (Emerson, 1997: 254). In regards to Hawaiian poetry or *mele*, “they had no exact word for so abstract a term as our ‘poetry.’” The English equivalent to the Hawaiian *mele* means a song. All *meles* were “sung, or rather chanted, or cantillated.... The *mele* is interwoven in Hawaiian culture with the *hula* and the *kaao*--that is, poetry is interwoven with the dance and with mythology.... *Haku mele*, is one who arranges words into song (Plews, 1981:176).

Pukui (1995) classifies chants into three groups: (1) chants for the gods (*pule*); (2) chants for the *ali'i*, descendants of the gods; and (3) chants of activities that involved secular things. In Pukui's (1995) *Na Mele 'Welo* she points out that some *oli* are non-dance chants, but many of the *mele* and *oli* were expressed in dance or *hula* (Pukui, 1995:xvii). Emmerson explains that the *hula* was a religious service, in which poetry, music, pantomime, and the dance lent themselves, under the forms of dramatic art, to the refreshment of men's minds. Its view of life was idyllic and it gave itself to the celebration of those

mythical times when gods and goddesses moved on the earth as men and women and when men and women were as gods (Emerson, 1997:11, 12). Helen Cadwell quotes Alexander, but does not name the publication, as classifying *mele* into 4 divisions: (1) religious chants, prayers, and prophesies; (2) *inoa*, or name songs, composed at the birth of a chief in his honor, recounting the heroic deeds of his ancestors; (3) *kani kau*, the dirges or lamentations for the dead; and (4) *ipo*, or love songs which includes topical *mele* of a more secular character, now surpassing the others in number, and have survived in better condition “on the lips of the country folk (Roberts, 1967:67, 72).

‘Ōlelo No‘eau

‘Ōlelo No‘eau. ‘*Ōlelo no‘eau* or proverbial/traditional sayings usually had several layers of meanings. They reflected the wisdom, observations, poetry and humor of old Hawai‘i. Some of them referenced people, events or places. The following ‘*Ōlelo no‘eau* were compiled by Pukui between 1910 and 1960 with both translations and an explanation of their meaning (Williamson, et al. in Pukui, 1983:vii), which are often more *kaona* (hidden or double meaning) than obvious. The following selected proverbs reference place names of the project area: Kali‘u, Pāhoa and Puna [Kauaea was not mentioned].

| | |
|-------------------------|---|
| ‘ <i>Ōlelo no‘eau</i> : | <i>Ka‘awa lena o Kali‘u</i> |
| Translation: | The yellowed ‘ <i>awa</i> of Kali‘u. |
| Meaning: | Refers to Kali‘u, Kilohana, Kaua‘i. People noticed drunken rats in the forest and discovered some very potent ‘ <i>awa</i> there. There is a Kali‘u in Puna, Hawai‘i, where good ‘ <i>awa</i> is also grown (Pukui 1983:140, #1281). |
| ‘ <i>Ōlelo no‘eau</i> : | <i>‘Āina i ka houpo o Kāne.</i> |
| Translation: | Land on the bosom of Kāne. |
| Meaning: | Puna, Hawai‘i. It is said that before Pele migrated there from Kahiki, no place in the islands was more beautiful than Puna (Pukui 1983:11 #79). |
| ‘ <i>Ōlelo no‘eau</i> : | <i>‘Apiki Puna i Lele‘apiki, ke nānā la i Nānāwale.</i> |
| Translation: | Puna is concerned at Lele‘apiki and looks about at Nānāwale. |
| Meaning: | The people are but followers and obedient to their rulers. The people of Puna were not anxious to go to war when a battle was declared between Kiwala‘o and Kamehameha; it was the will of their chief. Lele‘apiki (Tricky-leap) and Nānāwale (Just-looking) are places in Puna (Pukui 1983:27 #233). |
| ‘ <i>Ōlelo no‘eau</i> : | <i>E ala e Ka‘ū, kahiko o Mākaha; e ala e Puna, Puna Kumākaha; e ala e Hilo na‘au kele!.</i> |
| Translation: | Arise o Ka‘ū of ancient descent; arise O Puna of the Kumākaha group; arise O Hilo of the water-soaked foundation. |
| Meaning: | A rallying call. The names are found in Ka‘ū and Puna chants of the chiefs. The Mākaha and Ku-mākaha were originally one [group]. Some moved to Puna and took the name Kumākaha (Pukui 1983:32, #260). |
| ‘ <i>Ōlelo no‘eau</i> : | <i>Ka makani hali ‘ala o Puna.</i> |
| Translation: | The fragrance-bearing wind of Puna. |
| Meaning: | Puna, Hawai‘i, was famed for the fragrance of <i>maile</i> , <i>lehua</i> , and <i>hala</i> . It was said that when the wind blew from the land, fishermen at sea could smell the fragrance of these leaves and flowers (Pukui 1983:158, #1458). |

| | |
|-------------------------|--|
| ' <i>Ōlelo no 'eau:</i> | <i>Pō'ele ka 'āina o Puna.</i> |
| Translation: | The land of Puna is blackened [by lava flows]. |
| Meaning: | (Pukui 1983:292, #2665). |
| ' <i>Ōlelo no 'eau:</i> | <i>Puna, mai 'Oki'okiaho a Mawae.</i> |
| Translation: | Puna, from Ko'olau to Kaupō. |
| Meaning: | The extent of Puna is from 'Oki'okiaho on the Ka'ū side to Mawae on the Hilo side (Pukui 1983:301, #2747). |
| ' <i>Ōlelo no 'eau:</i> | <i>Ka us Līhau o Pāhoa</i> |
| Translation: | The Līhau rain of Pāhoa. |
| Meaning: | The icy cold rain of Pāhoa, Puna, Hawai'i (Pukui 1983:170, #1582). |



Photos 22-24. The favorite trees of Puna; '*ohia lehua, mamaki and hala.*

Place Names

Hawaiians of old generally named everything; from winds and mountains, to rocks, canoes, taro *lo'i*, fishing stations, and “the tiniest spots where miraculous or interesting events are believed to have taken place” (Elbert in Pukui et al., 1974:x). They all represented a story, some known only locally, while others became legendary.

Place names in project area and vicinity

| | |
|--------------|---|
| Kali'u | Hill, Kalapana qd. Hawaii (<i>Pele and Hiiaka</i> Emerson 22), <i>Lit.</i> 'the well salted' (Pukui et al., 1974:77). |
| Kauaea | Ahupua'a in Puna. Not listed in Pukui et al 1974; Found on maps. |
| Kauaea Trail | Named after the ahupua'a, in sections of the Kauaea Ahupua'a; on maps. |
| Kea'au | Land sections, Hilo Maku'u and Puna qds., Hawai'i; village, (Pukui et al., 1974:100). |
| Kepaka | Cinder cone in project area; not listed in Pukui et al 1974. |
| Kilauea | Active volcano on the flank of Mauna Loa; Kilauea and Puna qds. (Pukui et al., 1974:111). |
| Kuolo | Area near Keaau, Puna, Hawai'i where Puna chief Hua'a was defeated, thus giving control of Puna to 'Umi; <i>Lit.</i> 'to rub' (Pukui et al., 1974:125). |

| | |
|-----------|---|
| Malama-ki | Forest area, Kalapana qd., Hawai‘i. <i>Lit.</i> ‘bright ti plant’ (It is said that the game <i>ho‘olele ki</i> was played here. A leaf was held in the hand while the player chanted ‘ <i>O kelā kī, ‘o kela kī, na Ka-moho-ali‘i ka‘u kī, lele!</i> that ti, this ti, my ti is for Ka-moho-ali‘i, fly! Then the leaf was hurled, and if the chant had been said correctly and the wind was right, it returned to the sender. This game was played only here. Ka-moho-ali‘i, a celebrated shark entity, was Pele’s older and favorite brother.) (Pukui et al., 1974:143). |
| ‘Opihikaō | Village, Kalapana qd. Puna, Hawai‘i. Formerly ‘Opihi-kāō. <i>Lit.</i> ‘crowd (gathering) limpets’ – because of robbers, people were afraid to gather ‘opihi alone (Pukui et al., 1974:171). |
| Pāhoa | Village. Kalapana and Maku‘u qds. Hawaii (Pukui et al., 1974:174). |
| Pohoiki | Coastal land section Kalapana qd. Hawai‘i. <i>Lit.</i> ‘small depression’ – Pele is said to have dug a crater here (Pukui et al., 1974:187). |
| Puna | Quadrangle and district, southeast Hawai‘i land section and sugar mill, Kalapana qd.; forest reserves, Kalapana and Puna qds.; road, Hilo qd., Hawai‘i. Poetic (Hawai‘i): <i>paia ‘ala i ka hala</i> , bowers fragrant with pandanus; <i>ka ‘āina i ka houpo o Kāne (Pele and Hiiaka</i> , Emerson 218), the land in the heart of Kāne (Pukui et al., 1974:193-194). |

ETHNOGRAPHIC DATA AND ANALYSIS

The Ethnographic Survey (oral history interview) is an essential part of the Cultural Impact Assessment (CIA) because the ethnographic data helps in the process of determining if an undertaking or development project will have an adverse impact on cultural properties and practices or access to cultural properties and practices. The following are initial selection criteria:

- ❖ Had/has Ties to Project Location(s)
- ❖ Known Hawaiian Cultural Resource Person
- ❖ Known Hawaiian Traditional Practitioner
- ❖ Referred By Other People

The consultants for this Cultural Impact Assessment were selected because they met the following criteria: (1) grew up, lives or lived in Pāhoa and/or Puna; (2) consultant is familiar with the history and *mo'olelo* of Kauaea, Pāhoa and/or Puna and vicinity; (3) consultant is a cultural practitioner of the area; (4) consultant was referred by other people. Copies of signed “Consent/Release” forms are provided [Appendix E and F].

In order to comply with the scope of work for this cultural impact assessment (CIA), the ethnographic survey was designed so that information from the ethnographic consultants would facilitate in determining if any cultural resources or practices or access to them would be impacted by the implementation of the Sanford’s Services Center, Inc. mining expansion activities. To this end the following basic research categories or themes were incorporated into the ethnographic instrument: Consultant Background, Land Resources and Use, Water Resources and Use, Cultural Resources and Use; Anecdotal Stories and Project Concerns. Except for the ‘Consultant Background’ category, all the other research categories have sub-categories or sub-themes that were developed based on the ethnographic raw data (oral histories) or responses of the ethnographic consultants. These responses or clusters of information then become supporting evidence for any determinations made regarding impacts on cultural resources and/or practices including access.

Each person interviewed is asked to talk about their background; where they were born and raised, where they went to school and worked, and a little about their parents and grandparents. This category helps to establish their connection to the project area, their area and extent of expertise, and how they acquired their proficiency. In other words, how they meet the selection criteria. Ethnographic consultants either have family or personal ties to the project area/vicinity and/or are familiar with the history of the area.

There is always a danger of not allowing the consultant’s “voice” to be heard; of making interpretations that are not theirs; and of asking leading questions. To remedy this, the “talk story” method is used and allows for a dialogue to take place, thereby allowing the consultant to talk about a general topic in their own specific way, with their own specific words. All of the excerpts used are in the exact words of each consultant or paraphrased to insert words that are “understood” or to link sentences that were brought up as connected afterthoughts or related additions spoken elsewhere in the interview.

There were extenuating circumstances regarding this project. The period between June and September 2015 was a particularly wary time with at least nine named hurricanes/tropical storms. The previous year one of the strongest tropical cyclones, Hurricane Iselle made landfall on August 7, 2014. “Public damage and the cost to remove debris was estimated at \$13.2 million” (Stewart 2014). Pahoia was one of the Hawaii Island communities to have suffered the most with huge Albizia trees blocking main roadways. Stacks of tree trunks are still visible today.



Photo 25. Albizia tree limbs.

Many crops were damaged as well as private properties. So it was understandable that many Pahoia residents had much on their minds with the media and civil defense asking people to be prepared for this hurricane season. Agreeing to be interviewed for a CIA project was farthest from their thoughts.

Attempts were made to contact sixteen people. Three people were contacts from a previous (2013) archaeology survey. Two had telephone numbers that were no longer working and no new listings were available. One was interested and asked for maps and survey questions which were emailed to him. He later declined to be interviewed because he was from a neighboring ahupua'a and felt he did not know the project area.

Thirteen "new" potential ethnographic consultants were contacted; two did not respond to phone calls, but later were visited in person. After talking with them for a while they both declined saying their deceased husbands were the cultural experts, not them. Two people did not respond to Facebook messaging. Six people declined to be interviewed saying they did not really know the project area specifically. Three people agreed to be interview, but one had to "get permission" and one could not be interviewed until September 13. The one person who needed permission never got back to me. One person was interviewed twice because of recorder issues while we were driving around the project area.

The following Table (7) is designed to provide a demographic view of the ethnographic consultants and how they met the selection criteria.

Table 7. Ethnographic Consultant Demographics.

| Interviewee | YoB | Ethnicity | Connection to Project Area | Birthplace | Reside | Cultural Expertise |
|-------------------------|-------|-----------|----------------------------|-----------------|--------|-----------------------------|
| Piilani Kaawaloa | 1965? | Hawaiian | Cultural Practitioner | Lower Puna | Pahoia | Hula/Lei/Gatherer/Historian |
| Emily Naeole | 1956 | Hawaiian | Cultural Practitioner | Pahoia/Opihikaō | Maku'u | Lei/Gatherer |
| YoB=year of birth | | | | | | |

Consultant Background. The following "Consultant Background" section provides an overview of the ethnographic consultant, as well as information about their families and their connection to the project area Kaua'ea/Kali'u or Pāhoia/Puna. These vignettes are presented in alphabetical order of interviewee last names.

Piilani Kaawaloa. My name is Piilani Kaawaloa, I was born and raised in lower Puna, my parents are William and Minnie Ka'awaloa. My parents have several properties throughout the lower Puna area that was given to them by Ali'i. My grandmother's side, Minnie Ka'awaloa, her family has property within the Kilohana area, so that would be the Pe'a, Elderts, the Kaheiki, Lonokapu, and so we have a house in Pahoia, in Nanawale, a house down at Kalapana, my grandmother has property down Koa'e, near Kapoho. We have property where people call Royal Gardens, we call it Pulama, and we also have property in Kalapana Gardens. My grandfather was an all-around kind of person, he loved to fish, he loved to hunt, and he would go to all these areas for specific items not just to go. My grandfather was also a bulldozer operator and he would help people clear their property and that's how he knew about all these different places in the area because people would ask him to clear the land.



His name was William Kaawaloa. I was very fortunate to have been able to go with him during that time, watch how he bulldozed, the type of tree that he tried to preserve even when the landowner would tell him

to bulldoze the whole property. He would look at specific trees and bulldoze around specific trees and later on tell them how and why he saved those trees and how important. The landowner would not argue with him and later on they'd say, "I remember your grandfather, he came and he bulldozed our property and told us this and this and he was right". When I hear people come and share stories, not knowing that he had passed, is really moving and touching because you can see the wealth and knowledge of trying to save these plants.

I was raised by my grandparents. So they were my parents, they raised me like my parents and legally adopted me when I was a baby. Mary Jane Kamoku is my birth mother. Kaawaloa, everybody gets it mixed up, it comes from the bay, "the longest harbor" that's what our name means. A lot of people think because it's pronounced with the 'okina that it's "the longest awa drink" but it's the harbor. My grandmother was Minnie Elderts (Nahakuelua Elderts) Kaawaloa.

I went to Pahoa High and Intermediate and then I went the University of Hawaii at Hilo. My major was Hawaiian Studies and Education. I teach in Keaau, I use to teach at Honoka'a High School, the Hawaiian Emersion schools, Pahoa High and Intermediate. I did some classes at the University, and now I'm currently employed by Kamehameha Schools at Ke'eaau, their campus. I took hula from my grandmother [Minnie Kaawaloa], I danced for George Na'ope when I was little and as I grew up, I also danced *hula* with Auntie Edith Kanaka'ole when she used to come down to Kalapana for Summer Fun, I took a lot from Auntie Pua Kanaka'ole Kanahale's classes at the University when she was teaching and I also danced for Uncle Johnny Lum Ho. I was little at that time but I used to see her [Auntie Iolani Luahine] when she used to come to the Puna area. I saw her dance, my favorite song was '*O Kona Kai 'Opua I ka La'i*, with the *kala au*. She was always smiling; she looked like she was always in another world. I never felt, like some *kupuna* you have that sense of fear, not her, she was soft spoken, very aloha.

I used to [have my own *halau*], when I taught at Pahoa High and Intermediate we had a group called *Napua Mai Ole* and it was a Hawaiian ensemble, I took them all over to various parts of the mainland, we toured in Tahiti. I had several different school groups and took them to several different places, when I was teaching out of the University with Napua Noeau we took them to Samoa and New Zealand. We went to the North Island, it's so beautiful. I went when we had to do research on the Puna Geothermal Adventure in 1980s, and I was sixteen at the time, I was one of those who were chosen to go down and study the effects of the geothermal on the native community and bring back information for our Puna community.

We went all over, Rotorua, Wellington, Taupo, everywhere place that had geothermal, we saw various sites where the different *marae* was displaced, we saw where the community just thrived from having the geothermal within their community. These were places where the steam, you are just driving and the steam is all over, not where they had to drill. So where the communities were thriving and the places where they had to drill, that were displaced. It was really interesting, and we went down to exchange cultures at the same time. My fondest memory was Papa John Rangihau, he was an elder at that time, and Timoti Kāritu, and he was a well-known professor for bringing back the language and the establishment of the Te Kohanga Reo. They came here to Hawai'i and that's how they met with Pila Wilson and started the Punanaleo, was through that.

It was quite an adventure, amazing experience, life changing experiences and it's not until you travel and you see how other people are steadfast, *pa'a*, in their culture. You know I thought I knew a lot about my culture and I better get to know more about my culture and that was one of those things that really taught me to appreciate about my grandparents and the knowledge that they had and to really pay attention. I was very fortunate to have learned from them and to be raised by them.

My grandmother would always say, “Don’t fight for the land because the land will consume you”. I used to wonder about that and I saw firsthand, my aunty went and fought for the land and a year later she died. You can pursue and once you come to a block, it’s like they telling you don’t go any further, enough. You said your piece, people know what and don’t push it because then the land is going to consume you and that means you going be underneath.

Don’t fight it because the land is going to eat you. To me the beauty of that ‘Ōlelo No’eau, He ali’i ka ‘āina, he kau‘a ke kanaka, the land is the chief, the people are its servants. They’re going be here long after we die and all we can do is maintain - take care of the land, use it for our needs and then the land going take care of us. If we take care of the land, the land is going to take care of us; if all us humans leave the land alone, it’s going to revitalize itself but every time we try to tamper, we do this we do that, we the losers because now look we don’t have food to eat, the rain is not coming back. You hear all the complaints but whose fault, we are not being responsible to the chief.

###

Emily Kealoha Naeole. Aloha! My name is Emily Naeole, I’m going to be fifty-nine years old on September 23rd; I was born here in Pahoa, raised in Opihikaō. My parents were Gabriel and Mary (Makuakane) Kealoha. My father was from Kalapana, born and raised. My mom is Mary Makuakane and she was born and raised in Opihikaō, where we were brought up.



I went Pahoa School from Kindergarten to Twelfth Grade, I was eighteen when I got married and moved back to Pahoa and lived in the Pahoa area since I was nineteen years old. I have seven siblings, lost two brothers; I have five other siblings, six of us left. I live in Maku’u Hawaiian Homes, I have three daughters and one son and my late husband is Harold Yet Naeole.

Since I was ten years old I was a *maile* gatherer, I picked *maile* because was plentiful down in Opihikaō, and when I was in my later twenties I learned how to *haku* and made *lei po’o*. So that’s two of the ways I was connected to our culture, making *lei po’o* and making *maile leis* and that’s why I went to the forest a lot, to gather my materials and the *maile* vines. That’s why I know about the Pu’u Kali’u, I think the area is Kilohana, according to what I know of the olden names of Puna, I think that areas was called Kilohana.

I have a granddaughter that is named Kali’u, she just made eleven years old, my daughter Heidi Batalo, as a young person dancing *hula* she learned a *hula* called Pu’u Kali’u and that’s why she named her daughter that. My daughter danced for the Kanakaole’s, that’s where she learned that dance about Pu’u Kali’u. That’s why when I heard Sanford acquired that place, I told him that I have a granddaughter named after that Pu’u, so I wanted him to make sure to take care of that place because Hawaiian style, when get names it’s very, very important when you name after something. So that was my *mana’o* to Sanford.

The reason why I know Sanford is because I attended Pahoa School from Kindergarten to Twelfth Grade. I graduated from Pahoa High School in 1974, Sanford was my classmate, and we were classmates from Kindergarten to Twelfth Grade, for thirteen years and that’s how I know Sanford. Throughout my adult life, because Sanford owns – he sells cinder and dirt; I’ve acquired those things from him to take care of my homestead land in Maku’u.

If Sanford never give me those breaks, where he would bulldozer and then I was able to pay so much until I paid my bill. When I buy cinder, I could make a loan of \$1,000 to \$2,000, and I would pay so much every month until I could finish paying. I’m glad that I have these kind of connections that I’ve known

since I was a kid, because I wouldn't be able to *malama* my homestead if I didn't get such breaks from certain people in my community and that's how I know Sanford from Kindergarten.

We didn't have much. We are in the middle of all these houses but didn't have jobs, the farmers, tourist and a lot of Filipinos on the Papaya Farm. I remember my Dad they were also papaya farmers, a lot of times in the early days the children was the work force, we were out in the fields picking papaya and weeds and doing all kinds of that stuff. I grew up as a farmer's daughter; actually our father was a fisherman. He went out fishing, that was another thing my dad did, and he used to work at the Maxwell Park picking up stuff, and I remember him on the side of the road, he used to work at a construction company, I think they were putting in water lines but I remember him with a jack-hammer. Raising eight children is a lot of work and you had a lot to do, so my dad - we used to gather a lot of stuff, guava, *lilikoi* - my parents actually gathered *opihi* as a means of survival, go down the beach. That was life in Puna.

In 2006 I ran for City Council, District 5 that was lower Puna consisting of 'Āinaloa, the old Paradise Park, from Shower Drive all the way down to Kalapana. From 2007 and 2010, I was the City Council for this area and I really love my District.

###

Land Resources and Use. Land resources and use changes over time. Evidence of these changes is often documented in archival records. Cultural remains are also often evident on the landscape and/or beneath the surface and provide information regarding land resources and use. However, oral histories can give personal glimpses of how the land was utilized over time and where the resources are or may have been. The sub-categories below are developed based on the responses of people interviewed.

Project Vicinity and Resources

Leilani Estates is before Kilohana. Leilani Estates is in a part of Malama, it goes like this, Malama, Keahialaka [Piilani].

Pu'u Pilau, some people call it Honu'ula [Piilani].

All up in this area is all Ohi'a forest, before the reason why they called this place Kilohana, the people that lived in this area made the best *kapa*. So Kilohana means 'the choicest', 'the most beautiful.' When they made *kapa*, and the *wauke* grew up in there, grew so tall the nodes were so far apart that when you made *kapa* you wouldn't have to join, or cut off by the node and still be able to mesh together and continue making *kapa*. As a little girl I use to drive up with my grandfather and you could see *wauke*, today there are several houses up in that area - going Kilohana - going Mauka and Makai side...I don't know if they still have *wauke*, I never been there in a long time [Piilani].

The other thing that is prominent in this area is the 'ie'ie, and right now because of the 'ie'ie really needs the *ohi'a lehua* to climb, the part that is used, all of the plant is used but the part that is familiar to people is the root of the 'ie'ie, that is used to make the helmet for the *ali'i*. They would gather that to make baskets for fishing. Very seldom you hear people weaving the leaves, but some people would use it in their *lei* for adornment. The flower is a beautiful orange. Lei makers will gather the flowers but it doesn't last as long; similar to *lehua*, it's very fragile but very beautiful. Right now the *ohi'a* trees in the Puna area are suffering from that fungus disease, so it would be nice if they could be sprayed or some way to save the *Ohi'a* forest [Piilani].



Photo 28. 'ie'ie growing up 'ohia tree.

Even though, like the property now, they have that gate, and when I go to gather 'ie 'ie I got to park my car right by the gate and walk all the way in to the 'ie 'ie. But the gate that they have right now. Right by the steam vent there is a big black double gate [Piilani].

If you look, when you come down Opihikaō, heading to Kaimu towards Kikala, those areas, Keokea, you'll notice that the 'ohi'a trees are being overgrown by the false *kamani*, *albizia*, the *albizia* is just growing rampant and the 'ohi'a forest is dying. It's really sad to see this particular area [Piilani].



Photo 29. Non-natives encroaching on 'ohia.



Photo 30. Native 'ohia lehua forest dying.

Pu'u Kali'u Resources and Cinder Mining

Pu'u Kali'u, if you live in Opihikaō, you could look up the hill and see Pu'u Kali'u, because it was a pretty tall mountain, so the mountain has subsided during the years Bryson had the place and now over to Sanford Iwata, and Bryson's last name was Kuwahara and Bryson had that for ten years and it was turned over to Sanford. Bryson was mining the Pu'u Kali'u; he was taking out and selling it to people throughout the community and island. So Bryson was already mining Pu'u Kali'u before Sanford came and Bryson had some *pilikia*, and that's why his contract stopped and that's why Sanford took over from the Bishop Estates [Kamehameha Schools Estate] [Emily].

You got to go by Pahoa intersection by Pahoa High School, take a right, you got to go pass the site where Pu'u Kali'u is at, go to the Opihikaō Junction and go down the hill. As you are going down to the middle of or the bottom part of Opihikaō Junction then that's where you can look up and see the area of Pu'u Kali'u. The difference from when I was a child to now is that the hill has shrunk because they've been mining the cinders of the Pu'u for many years. I don't think there is a mountain anymore because it dissolved [Emily].

I know that they've been mining a lot of cinder and gravel, if they are planning on expanding towards Kilohana, then they'd be expanding into some beautiful forest.... They are getting really close to Kali'u, and Kali'u is a little up [Piilani].

[Pu'u Kali'u] Lots of forest, you got to be real careful when you are going into that area, and like I said I would only go with my grandfather and he was the navigator into those kinds of places, and what we would go for was to look for *ohi'a* logs to make *ulu*a poles, so certain types of *ohi'a* logs would be gathered but not a lot [Piilani].

Lots of uneven ground, plenty of *uluhe*, false staghorn ferns, so you cannot see underneath and you could fall, there's plenty area that is unsafe and unpredictable, you would think the *ohi'a* tree is short but it's in a crevice or *mā wae*. You have a lot of native plants in that area, like

everywhere there is invasive species. Certain *la'au lapa'au* was gathered in that area, the medicinal plants [Piilani].

Because when you go up the road, the road turns this way and you can get red cinder or red rock and then you go up, if you go straight, you can go to the quarry area to get your different size gravel. Then you can go further up and go left or continue to go straight and that where they were grading and opening up for new cinder, like black cinder, gravel, sort of like sand but more fine grade to make cement. If you are talking about that area, on weekends they are closed and there is a big black gate, right over there is a nice spot to gather *'ie'ie*. When you go there, get *hāpu'u*, beautiful, beautiful *hāpu'u* all inside there, and on the backside of Kali'u, families were living up inside, they planted anthurium, get *'awa* plants [Piilani].

There are a lot of native plants in that area, plenty *ohi'a*, *'ie'ie*, *uluhe*, *maile*. I never saw *māmane* but *māmaki*, yes. *Maile hohonu*. *Maile hohonu* was use for chicken pox and rash, you would think that's rubbish plant, you'd go poison but. A lot of times we'd go and gather medicinal plants we go up and stay off the highway because that's where nobody touched, nobody poisoned, nobody do nothing [Piilani].

When I went with my grandfather, we went looking for *ohi'a* so I really cannot say if I noticed any native birds up in that area. I was told to watch out for wild pig and watch out where I'm stepping. *Maile*, I definitely know, *ohi'a lehua*, *waiwai'ole*, those underbrush plants, plenty *a'a*.

We are coming to the forest...there's a lot of *ohia* trees - something is killing our *'ohia* trees. I see some *kukui* nut, a lot of these trees look like they are dying...when we were coming in I saw *mamaki*, right there, see that bush right up there near that other plant. So there's a lot of vibrant bush up here, a lot of the *'ohia* seems like its dying, all the leaves are falling off [Emily].



Photos 31 and 32. Cinder mining operation

I know a few hunters that would go up there, I don't know if my cousin Rocko and his kids still go...mainly [for] pigs. Who else do I know that would go *holo holo* in that area? I'm not sure if the Aiona family or the Kuhiwinui's, my cousin Alan Kaho'okaulana, he presently lives in Kikala and that's right above, in the Black Sands Subdivision area [Piilani].

I know there are a few legends that talk about Kali'u, Pu'u Kali'u but I can't recall some of these legends. There are some reference in the old newspaper, I think there is mention in David Malo, I'm not sure if Fornander in his collection has Pu'u Kali'u, it just stands out in my head, Fornander [Piilani].

About a month ago we took a drive up to the site where Pu'u Kali'u exists and then we went down the road down into a ditch [pit area] where they are mining cinders and there was a guy with a truck, I think he's a grader and he loads up the people that goes down there to get cinder. I think some of the things that we've seen was a *lama* tree, *mamaki* tea plant, *'ohi'a* trees, a lot of those *'ohi'a* looks like it's a kind of sickness where it kind of drying up and dying. I think it's a

problem with the 'ohi'a in the State of Hawaii, right now are having an issue with some kind of bug. We saw 'ie'ie climbing up the 'ohi'a trees, what else did we see? We took a drive in [the area] and were looking at the various plants and things that existed throughout the area [Emily].

Ohana Lands.

I'm not really sure on the acreage but it's a huge amount of land and it's all subdivided by the family, you have the Kaheiki, the Pe'a, the Elderts, all those are family names that are on the property. Young is another name, because I remember the family still is in the house that's there, like some of the other family like my cousin Rocko Kaheiki still farms on some of the property. There's a side road from Kilohana that goes down into that area but it doesn't meet another street it just goes down to a dead end, and there's the steam vents [Piilani].

Lava Tubes

There are just craters that go underneath, lava tubes that go underground to this area over here. A lot of places in Leilani Estates have lava tubes, because I've been to many properties that the property sink, like a few of my Tahitian friends. One of them lives on Pomaika'i Street, in Leilani Estate, after she bulldozed and put cinder, certain areas sank because of the underground lava tubes [Piilani].

Water Resources and Use. The Hawaiian word for fresh water is *wai*; the Hawaiian word for wealth is *wai wai*. This is because of the value the ancient Hawaiians placed on fresh water, which was crucial for growing taro, the staple of the Hawaiian people using the 'auwai or irrigation system. 'Steam' has been included in this category because there are steam vents in the vicinity.

Steam Vents

You wouldn't know that it's steam vents anymore because of the bushes, but right on the main highway when you get to that place, right before you go down to Opihikaō, that use to be in the area that families would go if you were sick. You'd sit in the cave and inhale the steam, so if you had asthma or caught a cold. You wouldn't just go, just to go, it's a place of healing, a lot of outsiders found out about the place and go do all kinds of stuff and it became desecrated. There's not as much steam as before and of course the activity of them wanting to build the geothermal plant, so you lose the steam somewhere along the line [Piilani].

So Leilani Estates starts from the top and it goes all the way by Pu'ulena and you come out by the bottom right where the geothermal plant is [Piilani] (see Figure 2).

Consultant Concerns/Recommendations. This special section is included when ethnographic consultants share their concerns and/or recommendations about the project in general. The interviewees shared many concerns. The sub-categories were developed based on responses of the interviewees.

Cultural Sites

I think what we would really appreciate is, if they came across an area and immediately stopped and called somebody who lived within the area and not just people that would side with them but get everybody's input and make a determination and say, okay we are going to save this as historical value. What happens a lot of the times they think it is not important anymore, they don't practice it, but even though you don't practice it in your everyday life it could be an educational component to the next generation. They can make it accessible and safe and these different educational groups can come and relate stories and the history and practice so these area but if they are going to continue to bulldoze it, eliminate it, you can never rebuild it again, you can never study it and look back to what our *kupuna* did, you can never value it anymore, it's gone forever.

That's the sad part of development and progress, a site is different from bones to me, bones you can relocate, you can still go to a place and visit them, re-bury them, reinter them but once you bulldoze a *heiau*, once you bulldoze the *pu'u*, you can never rebuild that *pu'u*. When you tell the *mo'opuna*, before it used to be Pu'u Kali'u over here, and they look at you like and what did they *pu'u* look like and what about this *pu'u* and that it was so significant to this community. It's like the lava flow, the lava flow makes a crater and it is given a name, it's like birth, you give a child that name and that name has a relationship to that activity or event and at a particular time and so it reference what the people went through at that particular time [Piilani].

I'm not against development if it's done in a respectful way that includes the entire community, the input from the different families in the community and certain things can be incorporated within the development. If there can be a collaboration in utilizing the place for the people trying to make money, by all means, but if the corporation or the developer is just there to develop and never mind about the purpose or the community then no [Piilani].

Community Needs

The land here in Hawaii has a lot of *pohaku*, you need to get cinder, you need to get dirt and without that you can't grow. I have an example; I have a five acre lot in Maku'u and I had it in July 2015, for thirty years, and planting all those things on my land, I have acquired thirty plus semi-trucks of cinder and dirt, I think more, between thirty and fifty semi-trucks of dirt and cinder because I wouldn't be able to cultivate what I'm growing on my land. So a lot of people in this community, Puna area, even Volcano and Hilo, people get cinder and dirt to plant on their land. We are not like Hāmākua where they get a lot of dirt; over here in Puna we have a lot of rocks. A lot of our land requires a lot of cinder and a lot of dirt; I'm just talking about experience of what kinds of things we need on our *'āina* to just try to grow something. There is not a lot of companies now in the Puna area that do sell cinder and stuff, because what is happening is that the resources are thinning out, they've been mining different Pu'u's for quite a while and I don't think the resources is that much plentiful anymore, but we still need to plant and if we are going to plant we still need the cinder and dirt [Emily].

To me, if we were mining it for ten years, I don't see it as being a problem. It's something that we do need here in our Puna area. I just want to say that for whoever makes the final decision is that just to survive here is kind of rough and I'm just speaking through experience of my life living in Puna. My planting is now a really big thing for me, it's kind of like my therapy for recovery [Emily].

CIA SUMMARIES

This cultural impact assessment (CIA) is based on two guiding documents: Act 50 and Environmental Council Guidelines (1997) [see Appendices A & C]. H.B. NO. 2895 H.D.1 was passed by the 20th Legislature and approved by the Governor on April 26, 2000 as *Act 50*. The following excerpts illustrate the intent and mandates of this Act:

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the “aloha spirit” in Hawai‘i. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of “significant effect” to include adverse effects on cultural practices.

Summary of Findings

The following summaries are based on the information presented in the previous sections: the traditional (cultural) and historical literature background review and the ethnographic data and analyses. References are not cited unless it is new information and not already cited in the text above. These summaries condense the information above, but also serve to focus on a few significant individuals and events in history in relation to the project lands in the *ahupua‘a* of Kaua‘ea, Pāho‘a, Puna District, Hawaii Island. It will give a broad overview of land, water and cultural resources and uses in the general area, as they reflect cultural resources (properties) and practices and access to them, as well as share the concerns and recommendations of the interviewees.

Summary of Significant People and Events. According to traditional and historical material, most of the land in Hawai‘i has gone through land modifications over time, including the lands of Kaua‘ea Ahupua‘a, and have witnessed the comings and goings of many significant people. Some of these people may have contributed substantially not only to the history of this area, but of the Puna District and the rest of the Hawaii Island as well. There were several people and events noted in the oral histories. Some of these significant entities traversed these lands or vicinity.

Legendary Entities. The mythical residents of Puna were:

- Kane. Before Pele arrived in Puna, it was known as the ‘Land in the bosom of Kane’ as there was no place in the islands more beautiful than Puna.
- Pele. Volcano or fire goddess Pele left evidence of her visits in the form of *pu‘u* which dot the landscape, as well as legends connected to these *pu‘u* or volcanic cinder cone vents.
- Hi‘iaka. Sister of Pele; Puna was her beloved forest lands where forests of ‘*ohia lehua*, *maile*, ‘*ie‘ie* and *hala* thrived. Hi‘iaka specifically mentioned her *lehua* forest of Kali‘u.
- Hopoe. The beloved friend of Hi‘iaka who made garlands of the lehua blossoms of Kaliu, whom Pele in a fit of anger changed into a ‘dancing stone’ in the sea of Lanahiku.

Legendary Ali'i Nui. The following were ancient Puna chiefs in legends. Ancient ruling Puna families (Kūmākaha and later I) were connected or related to ancient Ka'ū families (Mākaha).

- Kumu-Kahi a chief who competed with Pele in ancient games but one day when she appeared as an old woman he insulted her. In her anger she transformed into a fountain of lava and chased him to the sea where she covered him and beyond with lava.
- Papa-lau-ahi was a chief who at one time ruled the district of Puna. He excelled in the sports of the people. He challenged the neighboring chiefs to personal contests of many kinds and almost always was the victor. Pele appeared one day and challenged him in a sled race. He beat her then taunted her. She became angry and stamped on the ground and floods of lava broke out, destroying many of the chiefs as they fled in every direction. She swept Papa-lau-ahi up in the flames of fire, destroying him and all his possessions.
- Ke-lii-kuku of Puna visited Oahu and bragged to Kane-a-ka-lau of Kauai, who was a prophet of Pele, that his country is charming, abundant with rich sandy plains, where everything grows wonderfully. The prophet ridiculed him, saying: "Return to your beautiful country. You will find it desolate. Pele has made it a heap of ruins. The trees have descended from the mountains to the sea. The *ohia* and *puhala* are on the shore. The houses of your people are burned. Your land is unproductive. You have no people. You cannot live in your country anymore." He hurried back home. There in the distance it lay under heavy clouds of smoke covering all the land. When the winds lifted the clouds, rolling them away, he saw that all his fertile plain was black with lava, still burning and pouring out constantly volumes of dense smoke. The remnants of forests were also covered with clouds of smoke through which darted the flashing flames which climbed to the tops of the tallest trees. He hung himself in despair.
- Ka-Pa-Pala was another chief who heard of Pele. He went to the edge of the crater and there found a group of beautiful women. He was welcomed by Pele and played many games and contests. The chief was so frequently the victor that at last he boasted that he could ride his surfboard on the waves of her lake of fire. She was angry at the thought that he dared to desecrate her sacred home. Pele became very angry as she saw him fleeing from her over the lake of fire, so she called to her fire-servants, the *au-makuas*, or ghost-gods, of the crater, and they hurled other fire-waves across the lake against the one the chief was riding. The chief and his surf-board were tossed up in a whirlpool of fire. Then he dropped into the heart of the flame and was lost.
- Hua'a and 'Imaikalani – were noted chiefs of Puna who were killed by 'Umi-a-Līloa
- 'Imakakoloa was a Puna chief who became powerful during the time of Kalaniopu'u; was a descendant of 'Imaikalani through the I family of Hilo who controlled parts of Puna

Legendary Ohana and Ali'i Nui. One of the first legendary people or families who impacted the history of Hawai'i was the Nanaula family who settled the southern Hawai'i islands around the 6th century along with other families from Tahiti and/or Samoa and brought their Polynesian traditions. They peopled all the islands for thirteen or fourteen generations, but acknowledged that another group had come before them. During the 10th century the Paumakua family arrived from Tahiti; they are tied to the Hua family from Lāhainā, Honokahua and Hāna, who were on Maui at least a century before. These people are the ancestors of many of the families of all the islands. During the 11th century the Nanamaoa family from the Society Islands established families on the islands of Hawai'i, Maui and O'ahu. During this period the descendants of Paumakua were Haho (who started the *Aha-ali'i*), Palena, Hua, Hanala'anui, Hanala'aiki (twins and progenitors of Maui and Hawai'i Island *ali'i nui*), and Mauiloa, were well established on Maui and Hawai'i Island. The Nanamaoa families were shortly followed by Pa'ao and Pili who came (some say from Society Islands, others say Samoa) after Kapawa, grandson of Nanamaoa, and appear to have changed the religious and social structures of the island chiefdoms, bringing with them the concept of *ali'i nui*, and the Kū cult which included human sacrifice. Around the beginning of the 12th century great voyages took place to and from the southern islands, but stopped abruptly around the end of that century, during the time of Wakalana around AD 1175, right after the arrival of white foreigners, possibly from Japan. Most of the islands were ruled by the southern families who were descendants of the ancient Nana'ulu - Ulu lines, with the exception of Molokai (Kamaouua family) and parts of O'ahu (Maweke family).

The Hāmākua polity was dominated by Waipi‘o until about early to mid-A.D. 1300s and held the political power on Hawai‘i Island. The Waipi‘o rulers of that period include ‘Olopana, son of Maweke (O‘ahu ruling chief) – ‘Olopana left Waipi‘o after a severe flood and went to Kahiki; Kunaka (he adopted Kila, son of Mo‘ikeha, ruling chief of Kauai and younger brother of ‘Olopana); and Kapawa who was the first to be born at Kūkaniloko, royal birthplace on O‘ahu. Kapawa was the grandson of Nanamaoa [line] who’s son Nanakaoko and his wife Kahihokalani built Kūkaniloko; chiefs born there were considered to be “born in the purple” and entitled to all the distinction, privileges and *kapu* it conferred. However, the oral histories also illustrate a continued interaction and relationships between the island polities: the granddaughter of Kohala’s *ali‘i nui* married the son of O‘ahu’s *ali‘i nui*; Kunaka of Waipi‘o adopted Kila, the son of Mo‘ikeha *ali‘i nui* of Kauai. It is in the Kila *mo‘olelo* that the Waipi‘o heiau Pāka‘alana is first mentioned – it is claimed to be both a *pu‘uhonua* (place of refuge) and a *luakini* (human sacrifice) *heiau*; Kila is also credited with establishing the *ko‘ele* tax (working in the taro fields for the *ali‘i* one day a week) for his father *ali‘i nui* Kunaka.

Famous chiefs and long voyagers were (1) ‘Olopana, his wife Lu‘ukia and his brother Mo‘ikeha; (2) Kaumaili‘ula, Kaupe‘a; (3) Ho‘okamali‘i, Haulaninui-ai-ākea, Kila (sons of Mo‘ikeha); (4) La‘amaikahiki, friend of Mo‘ikeha - he brought the *kā‘eke hula* drum, a new god and the outrigger; (5) Kaha‘i-a-Ho‘okamali‘i – brought back breadfruit; (6) Pa‘ao – who brought new religion and priesthood and became the keeper of Kūka‘ilimoku. Pa‘ao first landed in Puna and here in Puna he built his first *heiau* for his god Aha‘ula and named it Aha‘ula [Waha‘ula]. It was a *luakini*. Pili – was the first *ali‘i* of the new ruling system; (7) Kaulu-a-Kalana – brought back edible mud to Kawainui; (8) Paumakua (he brought white men); (9) ‘Olopana II, Kahiki‘ula; (10) Keānini, Ha‘inakolo; (11) Kamaunu-a-Niho, Humu, Kalana-nu‘u-nui-kuamaomao; and (12) Kamapi‘ikai who made four voyages, three were two-way.

It was during the A.D. 1400s-1500s of this period that descendants of the Pili line consolidated the Hawaii Island polities and unified the island under one kingdom. Pili (ca. A.D. 1320); Koa (ca A.D. 1340-1360), ‘Ole (ca A.D. 1360-1380), Kūkohau (ca A.D. 1380-1400) [the last three may have been siblings or sons of Pili]; Kaniuhi (ca A.D. 1400-1420); Kanipahu (A.D. 1420-1420) who was usurped by Kama‘iole; Kalapana (A.D. 1440-1460) who brought down Kama‘iole the son of Kanipahu; Kaha‘imoele‘a (A.D. 1460-1480) son of Kalapana; and Kalaunuiohua (A.D. 1480-1500) grandson of Kalapana. Both Kalapana and his son Kaha‘imoele‘a had their royal residence in Waipi‘o.

The following were ruling chiefs ca A.D. 1500-1600: Kūāiwa who appointed his junior son Ehu as chief of Kona and another junior son Hukulani as chief of Kohala and was succeeded by his oldest son Kahoukapu as ruling chief of Hawaii Island (A.D. 1520-1540); his son Kauholanuiamahu (A.D. 1540-1560) was the next ruler who sometimes resided on Maui on his wife’s lands; his son Kihanuilūlūmoku (A.D. 1560-1580) followed [The *mo‘olelo* ‘Kiha Pu’ is about this Kiha, not Kiha-a-Pi‘ilani of Maui who may have been related through Kihanui’s wife] - he lived and reigned in Waipi‘o as did his son Līloa (A.D. 1580-1600) who ruled next; his junior son ‘Umi (A.D. 1600s) usurped Līloa’s oldest son Hākau (A.D. 1600-16??).

During the reign of Hawaii Island ruling chief Līloa, high chiefs were appointed by him to the districts of Hilo, Puna, Ka‘u, and Kona. Līloa also made regular journeys around the island checking on his people, farmlands and *heiau* - rededicating many of them (e.g. Kūkuihaele, Waikoekoe, Kapulena, Kawela and Pā‘auhau in the Hāmākua District; Paka‘alana in Waipi‘o was the main *heiau*, ancient even in his time, and under the care of the Pa‘ao line of *kahuna pule* who looked after Līloa’s major god Kūka‘ilimoku and Lono during Makahiki. His royal residence was called Kahaunokama‘ahala, located just behind the sand dunes along Wailoa Stream and adjacent to his heiau Pāka‘alana. Līloa’s highest ranking wife Pinea was his mother’s youngest sister from the O‘ahu line with whom he had Hākau his successor; another wife Haua was a Maui chiefess; and from his union with Akahiakuleana of Hāmākua, he had ‘Umi-a-Līloa, who inherited Kūka‘ilimoku upon Līloa’s death. Hākau’s reign was short-lived due to his supposed abuse

of his priests; 'Umi and others plotted and executed his death.

'Umi had several wives including Pi'ikea, daughter of Maui ruling chief Pi'ilani. The end of this period ends in the death of 'Umi followed by the death of his successor son Keali'iokāloa. Warfare broke out between the chiefs because one group of chiefs favored 'Umi's younger son Keawenui-a-'Umi and another group of chiefs favored Kūka'ilani, the son of Keali'iokāloa, who was still a child. Keawenui-a-'Umi defeated the opposing chiefs who either died in battle or were later executed. Keawenui-a-'Umi had many residences; his primary court was in Hilo, but he had a major residence in Nāpo'opo'o at Kealakekua Bay where his son Lonoikamakahiki was born to Haokalani (O'ahu chiefess – Kalona-iki or Ehu line); another residence was in Waipi'o, Hāmākua District. Upon the death of Keawenui, his eldest son Kanaloakua'ana became regent/king until his younger brother and Keawenui's heir, Lonoikamakahiki had passed certain tests. Lono and his wife Kaikilani-Ali'i-Wahine-o-Puna (daughter of Keali'iokāloa, oldest son of Keawenui) traveled throughout the islands and were subjects of epic *mo'olelo*. After the death of Hawai'i Island *ali'i nui* Lono-i-ka-makahiki, his children did not succeed him. Instead Hawai'i Island was divided into smaller divisions. This was not a peaceful period. The battles between the Hawaii Island families, factions and district chiefs continued during the later part of the Proto-Historic/Historic Period (A. D. 1650-1795) up to the time of Keawe, Alapa'inui, Kalaniopu'u and Kamehameha I.

Ali'i nui of Hawai'i Island (Wiki Ali'i 2015)

- [Kapawa](#)
- [Pilika'aeia](#), 1125-1155
- [Kukohou](#), 1155-1185
- [Kaniuhu](#), 1185-1215
- [Kanipahu](#), 1215-1245
- [Kama'iole](#), usurper of Kanipahu, deposed by Kalapana, 1245-1255
- [Kalapana](#), 1255-1285
- [Kaha'imaoele'a](#), 1285-1315
- [Kalaunuiohua](#), 1315-1345
- [Kū'aiwa](#), 1345-1375
- [Kahoukapu](#), 1375-1405
- [Kauholanuimahu](#), 1405-1435
- [Kihanuilulumoku](#), 1435-1465
- [Līloa](#), 1465-1495
- [Hākau](#), 1495-1510

Unbroken line of rule to this point. Hakau, Liloa's first born and named heir was overthrown by Liloa's second son Umi-a-Liloa, however, the hereditary line of Liloa is unbroken and continues.

- ['Umi-a-Līloa](#), 1510-1525
- [Keali'iokāloa](#), 1525-1545
- [Keawenuia'umi](#), 1545-1575
- [Kaikilani](#) (female), 1575-1605
- [Keakealanikāne](#), 1605-1635
- [Keakamāhana](#) (female), 1635-1665
- [Keakealaniwahine](#) (female), 1665-1695
- [Keawe'īkekahiali'iokamoku](#), 1695-1725, co-ruler with his half-sister wife [Kalanikauleleiaiwi](#)

Hereditary line of Liloa is broken by the usurping rule of Alapainui.

- [Alapa'inui](#), nephew of Keawe'īkekahiali'iokamoku and usurper of his son; 1725-1754.
- [Keawe'opala](#)

The usurping line of rule ends with Keawe'opala who is killed in battle while his son and heir, Kalaimanokaho'owaha did survive to greet Captain James Cook. The hereditary line of Liloa resumes through the grandson of Keawe'ikekahiali'iokamoku, Kalani'ōpu'u.

- Kalani'ōpu'u [Kalani'ōpu'u unified his control over Hawaii Island when he gained control of Ka'u and Puna following Alapa'i's defeat in a battle at Mahinaakaka. During Kalani'ōpu'u's rule, the Puna chief, I-maka-koloa, attempted a rebellion and seized the valuable products of the district including 'o'o and *mamo* bird features, hogs, fine mats made from pandanus blossoms and from young pandanus leaves, gray tapa cloth, and tapa cloth made from *mamaki* bark.]
- Kīwala'ō, April 1782-July 1782, *Ali'i* of Ka'ū

Kalani'ōpu'u's line ends with the death of Kīwala'ō by Kamehameha's forces.

- Kamehameha I

Noted Puna Chiefs:

- Hua'a
- 'Imaikalani
- 'Imakakoloa

Significant Ancient Events and Practices. Hawai'i Island and then Maui Island were the first two Hawaiian islands born to Papa, the earth mother, and Wākea, the great sky god. The first human settlement (ca AD 300-600) [this date has been challenged] on Hawai'i Island occurred on the windward side - Hāmākua District (Waipi'o, Waimanu). For over 500 years after the initial settlement, permanent settlement spread out from Waipi'o and Waimanu into the wet areas of Kohala, eastern Hāmākua to Hilo Bay and into the wet areas of Puna with Waipi'o and Hilo becoming the dominant polities during this early phase.

Certain practices were universal Polynesian customs which the 'Hawaiians' brought from their homeland; such as the major gods *Kane*, *Ku* and *Lono*; the *kapu* system of law and order; *pu'uhonua* (place of refuge); 'aumakua (ancestral guardian) concept; and the concept of *mana* (supernatural or divine power). The distinct natural phenomenon of Hawai'i Island were most likely obvious to early settlers – the snows of Mauna Kea and Mauna Loa, the lava flows of Mauna Loa, Kīlauea and Hualālai and the probable earthquakes and tsunamis. Ceremonies were likely developed to appease the deities connected to these places and events; oral traditions mention volcano gods prior to the arrival of Pele and her family. Other than ceremonials sites (for bird-snarers, adze-making, *heiau* and smaller *ahu* or small shrines; often cairns or single or multiple uprights, sometimes platforms or pavings), burials were a very significant practice in ancient times.

During the Developmental Period (AD 600-1100), changes occurred bringing about a uniquely Hawaiian culture, documented by the material culture found in archaeological sites. The adze (*ko'i*) evolved from the typical Polynesian variations of plano-convex, trapezoidal and reverse-triangular cross section to a very standard Hawaiian quadrangular-tanged adze. A few areas in Hawaii produced quality basalt for adz production. Mauna Kea on the island of Hawaii was a well-known adze quarry. The two-piece fish hook and the octopus lure bread-loaf sinker are Hawaiian inventions of this period, as are the 'ulu *maika* stones and the *lei niho palaoa*. The later was a status item worn by those of high rank, indicating a trend toward greater stratification, although evidence also indicates that the "ancestral pattern of corporate descent groups" were still in place.

Contact/Historic People of Puna/Pāhoa. The first missionary to journey through Puna was William Ellis in 1823. In his published journal he described the natural resources available to the residents of the district and some of their living conditions and subsistence and exchange practices. He estimated that there were approximately 725 inhabitants at Kaimu and another 2,000 Hawaiians in the immediate vicinity along the coast. At Kauaea, about three and a half miles from Kaimu, he reported, 300 people gathered to hear him preach.

Only one Land Commission Award (LCA) was awarded in Kauaea. LCA 7713*H was awarded to Victoria Kamamalu, Kuhina Nui of the Hawaiian Islands between 1855 and 1863. This LCA is depicted on a map of Kauaea Ahupua‘a by D.B Lyman.... The original Lyman map, which belonged to Princess Ruth Keelikolani, [was] made by E. Baldwin in February 1882. According to the map, Kauaea encompassed 2,449 and ¾ acres.

Summary of Land, Water and Cultural Resources and Use of Project Area

Various resource use patterns are physically evident as well as recounted in the literature. The physical evidence remains in the form of landmarks, stone ruins that are fortunate to have been preserved relatively intact and cultural material remains (surface and sub-surface). Clues regarding function and use can sometimes be extrapolated from the stories, songs, chants and ethno-historical observations that were also fortunately recorded or passed on; and the continuing cultural practices of today’s people of Pāhoa/Puna.

Gathering Practice. Based on the archival literature and ethnographic data the project area (Table 8) has an abundance of flora that has been and is considered cultural resources and gathered and used in cultural practices, both traditionally and currently.

Table 8. Cultural Resources and Gathering Practices in Project Area

| Common Name | Hawaiian Name | Binomial Nomenclature | Cultural Uses |
|---------------------|----------------------|--------------------------------|---|
| candlenut | <i>kukui</i> | <i>Aleurites moluccana</i> | food, oil, lei, tattoo ink, kapa dye, canoe parts |
| coconut | <i>niu</i> | <i>Cocos nucifera</i> | food, drink, container, oil, fiber, drums, thatch |
| fern-bird nest | <i>‘ākaha/‘ēkaha</i> | <i>Asplenium nidus</i> | medicine, used in hala mats, ceremony |
| fern | <i>hāpu‘u</i> | <i>Cibotium Sp.</i> | food, pillow stuffing, gardens |
| fern | <i>laua‘e</i> | <i>Microsorium grossum</i> | hula altars, adornment, scenting kapa, lei |
| fern | <i>palapalai</i> | <i>Microlepia strigosa</i> | lei, hula altars |
| fern-false staghorn | <i>uluhe</i> | <i>Dicranopteris linearis</i> | medicine |
| Hawaiian raspberry | <i>‘ākala</i> | <i>Rubus hawaiiensis</i> | food |
| Hawaiian raspberry | --- | <i>Rubus macraei</i> | food |
| <i>maile</i> | <i>maile</i> | <i>Alyxia oliviformis</i> | medicine, lei, fragrance |
| <i>māmaki</i> | <i>māmaki/māmake</i> | <i>Pipturus albidus</i> | medicine, tea |
| <i>‘ōhi‘a lehua</i> | <i>‘ōhi‘a lehua</i> | <i>Metrosideros polymorpha</i> | house & <i>heiau</i> , fishing pole, canoe parts, lei |
| screw pine | <i>hala</i> | <i>Pandanus tectorius</i> | medicine, mats, hats, cordage, brush, lei, scent |
| screw pine vine | <i>‘ie‘ie</i> | <i>Freyinetia arborea</i> | lei, fish traps, basket, cordage, medicine |
| <i>ti</i> | <i>ti</i> | <i>Cordyline sp</i> | medicine, liquor, hula, ceremony, cooking |

Two other practices in the project area include pig hunting and getting cinder for gardens. While there are remnants of traditional trails within the project area they are not in the impact area.

General Concerns and Recommendations of Interviewees Regarding the Proposed Project:

- Cultural Sites Protocol: if previously unidentified sites are discovered, stop, call someone from the area for input and determination (record info or preserve site);
- Make sites and/or gathering resource areas accessible and safe for educational/cultural groups or individuals [The summit of Pu'u Kali'u is culturally sensitive];
- Be aware and avoid the Newell's Shearwater birds nesting grounds;
- I'm not against development if it's done in a respectful way that includes the entire community, the input from the different families in the community and certain things can be incorporated within the development. If there can be a collaboration in utilizing the place for the people trying to make money, by all means, but if the corporation or the developer is just there to develop and never mind about the purpose or the community then no;
- There is not a lot of companies now in the Puna area that do sell cinder and stuff, because what is happening is that the resources are thinning out, they've been mining different Pu'u's for quite a while and I don't think the resources is that much plentiful anymore;
- To me, if we were mining it for ten years, I don't see it as being a problem. It's something that we do need here in our Puna area.

Environmental Council Guidelines Criteria in Relation to Project Lands:

According to the Environmental Council Guidelines, the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, religious and spiritual customs. The following actions were taken to meet the EC Guidelines Criteria for conducting this cultural impact assessment based on the SOW:

- 1) *conduct historical and other culturally related documentary research;*

Documentary research, particularly on identifying traditional and cultural uses of the area, was completed. Much of what is known about the traditional and cultural uses of the area comes from written records that tell of its prehistory (e.g. *mo'olelo*; 19th century ethnographic works; and missionary journals); the stories associated with area uses by early Hawaiians; and scientific studies (i.e., archaeological, botanical, geological, biological).

- 2) *identify individuals with knowledge of the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a; or with knowledge of the area potentially affected by the proposed action [e.g. past/current oral histories];*

The project lands have been in continual use since ancient times, however, not in exclusive *kanaka maoli* use since Contact. The interviewees were selected because of their use and knowledge of the project area.

- 3) *identify and describe the cultural resources, practices and beliefs located within the potentially affected area;*

Archival research in Cultural and Historical Background Review and ethnographic research (Ethnographic Data Review and Analysis) produced the data utilized to identify and describe the cultural resources, practices and beliefs located within the potentially affected area in the *Summary of Findings* above. The cultural resources, practices and beliefs were also illustrated in Table 8 above.

- 4) *and assess the impact of the proposed action on the cultural resources, practices and beliefs identified.*

Cultural Impact Assessment

The undertaking or proposed action - the expansion of the Sanford's Service Center, Inc. cinder mining operation, includes the western and southern flank of Pu'u Kali'u. The ethnographic consultants would like to see that the cultural resources of this area are protected and that access will be allowed for gathering practices and pig hunting; project concerns are listed above. The License between Sanford's Service Center, Inc. and Bishop Estate specifically prohibits further mining of the portion of Pu'u Kaliu which includes the summit outside of the "OVERALL AREA" as shown on the map. Sanford's Service Center, Inc. has not mined the summit of the Pu'u and is currently mining in a direction away from the Pu'u. The proposed buffer areas totaling 21.033-acres would minimize impacts to forested areas. Cultural impact will be a non-issue for this project since the expansion will not jeopardize the summit of Pu'u Kali'u - the Newell's Shearwater nesting grounds and a USGS triangulation station or access to cultural resource areas.

It is recommended that Sanford's Service Center Inc. develop a Cultural Advisory Group to include the Puna Aha Council representative, a member of the Kaawaloa Ohana who borders the project area and a member of the pig hunting association or group if one is available. It is also recommended that Pono Pacific and/or Fish & Wildlife Service be contacted to help determine where the Newell's Shearwater birds are nesting on Pu'u Kali'u; as well as follow up with the managers of the Lowland Wet Forest.

REFERENCES CITED/REVIEWED

- Alexander, W. D.
 1891 *A Brief History of Land Titles in the Hawaiian Kingdom* [Alexander] Superintendent of Government Survey. [On-line] <http://www.hawaiiankingdom.org/land-system.shtml>
- Alii Mahele Indices (p 222)
 n.d. KAMAMALU, VICTORIA (w) Ali'i Award LCA 7713, 50 apana
<https://kanakagenealogy.files.wordpress.com/2010/05/kamamalu-victoria-w-alii-award-lca-771350-apan.pdf>
- Ames, Roger T.
 1969 *In Hawaii: A Pictorial History*. (Feher 1969) Bishop Museum Special Publication No. 58. Bishop Museum Press, Honolulu (pg 3).
- Baker, Kekaulike and Haunani Baker
 1989 'The Great Mahele 1849.' *Ke 'opi'o O Puna*, Pahoā.
- Barrera, W.
 1993 Keauohana, Puna, Hawaii Island. Archaeological Reconnaissance of TMK: 1-2-09:6 & 8. CHINAGO INC. Report prepared for Harriet M. Wedeman.
 1995 Kaueleau, Puna, Hawaii Island: Archaeological Data Recovery of HRHP 15312 (TMK: 1-3-04:13). Comstock Cultural Resource Management, Inc. Report prepared for Bernard Garner.
- Barrère, Dorothy B.
 1969/1971 *The Kumuhonua Legends: A Study of Late 19th Century Hawaiian Stories of Creation and Origins*. Pacific Anthropological Records No. 3, Bishop Museum. [First published in 1878 by Abraham Fornander in *The Polynesian Race*] [Barrère Original 1969]
- Beckwith, Martha Warren [Edited By]
 1970/1976 *Hawaiian Mythology*. University of Hawaii Press, Honolulu. [Original 1940 Yale University Press]
 1978 *Kepelino's Traditions of Hawaii*. Bernice P. Bishop Museum Bulletin 95. Krauss Reprint Co., Millwood. [Bishop Museum 1932].
 1951/1990 *The Kumulipo: A Hawaiian Creation Chant*. University of Hawaii Press, Honolulu. [
- Bellwood, Peter
 1978 *The Polynesians: Prehistory of an Island People*. Thames and Hudson Ltd., London.
- Berger, Andrew J.
 1972 *Hawaiian Birdlife*. The University Press of Hawaii, Honolulu.
- Bonk, W.
 1989 An Archaeological Reconnaissance Survey in the Geothermal Resource Subzone of Upper Kamaili, Kehena and Kikala, Puna, Hawaii. Prepared for Hawaii Natural Energy Institute.
 1990 An Archaeological Reconnaissance Survey in the Geothermal Resource Subzone of Upper Kaimu, Makuu, Kaohe, Kehena, Kaapahu and Kamili, Puna, Hawaii. Prepared for Mid-Pacific Geothermal, Inc.
- Byron, Captain the Right Hon. Lord Commander

- 1826 Voyage of H. M. S. Blonde to the Sandwich islands, in the years 1824-1825. J. Murray, London.
- Cahill, Emmett.
1996 The Shipmans of East Hawai'i. University of Hawai'i Press, Honolulu, Hawai'i.
- 1999 The life and times of John Young: confidant and advisor to Kamehameha the Great [illustrated by Herb Kawainui Kane; edited by Virginia Wageman]. Island Heritage Pub., Aiea, Hawai'i.
- Campbell, Kimo
1997 *The Kumulipo: An Hawaiian Creation Chant*. [Re-issue of 1978] Pueo Press, Kentfield. [Original version translated in 1897 by Queen Lili'uokalani]
- Carlquist, Sherwin
1980 *Hawaii A Natural History: Geology, Climate, Native Flora and Fauna Above the Shoreline*. SB Printers, Honolulu.
- Charlot, John
1983 *Chanting the Universe: Hawaiian Religious Culture*. Emphasis International, Honolulu.
- Cheever, Henry T. Rev
1836 *The Life in the Sandwich Islands: or The Heart of the Pacific, as it was and is*. A. S. Barnes & Co., New York
- Chinen, Jon J.
1958 *The Great Mahele: Hawaii's Land Division of 1848*. University of Hawaii Press, Honolulu.
- Cordy, Ross H.
1974 "Cultural Adaptation and Evolution in Hawai'i: A Suggested New Sequence." In *Journal of the Polynesian Society* 83:180-191.
1995 "Central Kona Archaeological Settlement Patterns." Ms on File at DLNR/SHPD, Kapolei.
1996 "The Rise and Fall of the O'ahu Kingdom: A Brief Overview of O'ahu's History." In *Oceanic Culture History: Essays in Honour of Roger Green*. Davidson, J.M., Irwin, G., Leach, B.F., Pawley, A. and Brown, D. (eds.). New Zealand Journal of Archaeology Special Publication, pp. 591-613.
2000 *Exalted sits the chief: the ancient history of Hawai'i Island*. Mutual Publishing, Honolulu, Hawaii
- Coulter, John Wesley
1931/1971 *Population and Utilization of Land and Sea in Hawaii, 1853*. Bernice P. Bishop Museum Bulletin 88, Krauss Reprint Co., New York. [Originally published by BPB Museum, Honolulu]
- Daws, Gavin
1974 *Shoal of Time: History of the Hawaiian Islands*. University of Hawaii Press, Honolulu.
- Day, A. Grove
1992 *Hawaii and Points South: True Island Tales*. Mutual Publishing, Honolulu.
- Ellis, William
1963 1823 Journal of William Ellis, Narrative of a Tour of Hawaii, or Owhyee...Honolulu: Advertiser Publishing Company.
- Emerson, Nathaniel B.

- 1997 *Pele and Hi'iaka: A Myth from Hawaii*. 'Ai Pohaku Press, Honolulu. [Original 1915 Honolulu Star Bulletin Limited]
- Feher, Joseph [Compiled By], Edward Joesting (Part I) and O. A. Bushnell (Part II) [Text By]
1969 *Hawaii: A Pictorial History*. Bishop Museum Special Publication No. 58. Bishop Museum Press, Honolulu.
- Fornander, Abraham
1880 *An Account of the Polynesian Race: Its Origins and Migrations and the Ancient History of the Hawaiian People to the Times of Kamehameha I*. (v. II) Trüber and Company, Ludgate Hill.
- 1917 *Fornander collection of Hawaiian antiquities and folk-lore*. [with translations revised and illustrated with notes by Thomas G. Thrum.] Honolulu, H.I., Bishop Museum Press, Memoirs of the Bernice Pauahi Bishop Museum, v. 4, 5, 6
- 1918 *Fornander collection of Hawaiian antiquities and folk-lore*. [with translations revised and illustrated with notes by Thomas G. Thrum.] Honolulu, H.I., Bishop Museum Press, Memoirs of the Bernice Pauahi Bishop Museum, v. 5 [pp 507-510]
- 1969 *An Account of the Polynesian Race: Its Origins and Migrations* Charles E. Tuttle Company Tokyo, Japan.
- GK Environmental LLC
2019 Graham Paul Knopp, PhD, Honoka'a, HI
- Haig, Brian D.
1995 "Grounded Theory as Scientific Method" *Philosophy of Education Society* [1996-2001], University of Cambridge. http://www.ed.uiuc.edu/EPS/PES-Yearbook/95_docs/haig.html
- Handy, E.S. Craighill
1940 *The Hawaiian Planter, Volume I: His Plants, Methods and Areas of Cultivation*. Bernice P. Bishop Museum Bulletin 161. Bishop Museum, Honolulu. [In Williams et.al. 1993]
- Handy, E.S. Craighill and Elizabeth G. Handy
1978 *Native Planters of Old Hawaii*. Bishop Museum Press, Honolulu. [1940]
- Haun, Alan and David Henry (No. 901-10113)
2013 Archaeological Inventory Survey TMK: (3) 1-3-09: Por. 005 Kauaea Ahupua'a Puna District Island of Hawai'i. Kailua-Kona, Hawai'i. Prepared for Sanford's Service Center, Paho, Hawai'i.
- HSPLS (Hawaii State Public Library System)
1989 *Hawaiian Legends Index Vol II & III*. Published by Hawaii State Library System, Honolulu.
- Hawaii Sugarcane Planters Association website - http://www2.hawaii.edu/~speccoll/p_puna.html
- HEN (Hawaiian Ethnological Notes)
n.d. Cited in Sterling (1998)
- Hommon, Robert J.
1976 *Use and Control of Hawaiian Channel System*. Office of the Governor, Honolulu.
- 1986 "Social Evolution in Ancient Hawaii" In *Island Societies* [ed.] Patrick Vinton Kirch. Cambridge University Press, New York
- Horie, Ruth [Compiled By]
1990 *Mele Index* [From Sources in Bishop Museum Library]

- Ii, John Papa
1959 *Fragments of Hawaiian History*. Bishop Museum Press, Honolulu.
- Juvik, Sonia P. and James O. Juvik (editors)
1998 *Atlas of Hawaii, 3rd ed.* University of Hawai'i Press, Honolulu
- Kamakau, Samuel Manaiakalani [Translated By Mary Kawena Pukui, Edited By Dorothy B, Barrère
1961/1992 *Ruling Chiefs of Hawai'i* [Revised Edition] The Kamehameha Schools Press, Honolulu.
[also On-line version]
- 1964/1987 *Ka Po'e Kahiko: The People of Old*. Bishop Museum Press, Honolulu.
- 1976 *The Works of the People of Old: Na hana a ka po'e kahiko*. Bishop Museum Press, Honolulu.
- 1991 *Na Mo'olelo a ka Po'e Kahiko*. Bishop Museum Press, Honolulu.[translated from Newspapers *Ka Nupepa Kuokoa* and *Ke Au Okoa* by Mary Kawena Pukui and edited by Dorothy B. Barrere]
- Kekoolani, Dean
2010 Genealogy by S.K. Peleioholani.
[http://www.kekoolani.org/pages/kekoolani%20genealogy%20database%20\(paf\)/paf%2013.htm#185](http://www.kekoolani.org/pages/kekoolani%20genealogy%20database%20(paf)/paf%2013.htm#185)
- Kelsey, Theodore
n.d. Place Names. Hawaiian Ethnological Notes, 1:818
- Kent, Noel J.
1983/1993 *Hawaii: Islands Under the Influence*. University of Hawaii Press, Honolulu.
- Kepelino
1858 "Hooiilili Hawaii: Hawaiian Collection" Pepa I. [Translated and annotated by Bacil F. Kirtley and Esther T. Mookini] In *The Hawaiian Journal of History Vol XI*, Honolulu.
- Kirch, Patrick Vinton
1985 *Feathered Gods and Fishhooks* University of Hawaii Press, Honolulu.
- Kirtley, Bacil F. and Mookini, Esther T. [Translated By]
1858 "Kepelino's Hawaiian Collection" – His "Hooiilili Hawaii," Pepa I. In *The Hawaiian Journal of History Vol XI*, Honolulu. Pp 39-68.
- Klieger, P. Christian
1998 *Moku'ula: Maui's Sacred Island*. Bishop Museum Press, Honolulu.
- Kuykendall, Ralph and A. Grove Day
1976 *Hawaii: A History from Polynesian Kingdom to American State*. Prentice-Hall, Englewood.
- Leib, Amos P. and A. Grove Day
1979 *Hawaiian Legends in English: An Annotated Bibliography*. Second Edition. The University Press of Hawaii, Honolulu.
- Leilani Estates Subdivision website – <http://www.leilaniestates.org>
- Loebenstein
1895 Hawaii Government Survey map of Puna from Pohoiki to Kehena
- Lyman, C. S.

- 1882 Map of Kauaēa Ahupua'a
- Macdonald, Gordon A., Agatin T. Abbot and Frank L. Peterson
1983 *Volcanoes in the Sea: The Geology of Hawaii*. 2nd Ed. University of Hawaii Press,
- MacIennan, Carol A.
1995 "Foundations of Sugar's Power: Early Maui Plantations, 1840-1860." *The Hawaiian Journal of History*, vol 29:33-56. Honolulu.
- Malo, David
1971 *Hawaiian antiquities*. Translated from the Hawaiian by Dr. N. B. Emerson. Bishop Museum Press, Honolulu. [1951]
- McGregor, Daviana
1989 "Ho'omaueka ea o ka lahui Hawai'i : the perpetuation of the Hawaiian people." Thesis for the degree of Doctor of Philosophy (University of Hawaii at Manoa). History ; no. 2444.

2007 *Nā Kua'āina: Living Hawaiian Culture*. University of Hawaii Press, Honolulu
- McKenzie, Edith Kawelohea
1983 *Hawaiian Genealogies I*. University of Hawaii Press, Honolulu.

1986 *Hawaiian Genealogies II*. University of Hawaii Press, Honolulu.
- Minerbi, Luciano
1999 Ahupua'a Model. Modified by Ahupua'a – Hawaiian Land Management System - Mueller-Dombois (2012) <http://totakeresponsibility.blogspot.com/2012/06/ahupuaa-hawaiian-land-management-system.html>
- Moffat, Riley M. and Gary L. Fitzpatrick
1995 *Surveying the Mahele*. Editions Limited, Honolulu.
- Moo, John
1918 "Bones of Pele." In *Fornander collection of Hawaiian antiquities and folk-lore*. [with translations revised and illustrated with notes by Thomas G. Thrum.] Honolulu, H.I., Bishop Museum Press, v. 5 [pp 507-510].
- Neal, Marie C.
1965 *In Gardens of Hawaii*. Bernice P. Bishop Museum, Special Publication 50, Bishop Museum Press, Honolulu.
- NYT (*The New York Times*)
2018 'Shell-Shocked' in Hawaii: How Lava Overran a Neighborhood' May 12, 2018
<https://www.nytimes.com/interactive/2018/05/12/us/kilauea-volcano-lava-leilani-estates-hawaii.html>
- Oliver, Douglas L.
1961 *The Pacific Islands*. Illustrated by Sheila Mitchell Oliver; foreword by Harry L. Shapiro. Rev. ed. University Press of Hawaii, Honolulu
- Olson, Storrs L. and Helen F. James
1982 "Fossil Birds from the Hawaiian Islands: Evidence for Wholesale Extinction by Man Before Western Contact" *Science* Vol. 217.
- Pandit, Naresh R.
1995 "The Creation of Theory: A Recent Application of the Grounded Theory Method." *The Qualitative Report*, Volume 2, Number 4, December.

<http://www.nova.edu/ssss/QT/QR2-4/pandit.html>

Peleioholani, S.K.

n.d. [Historian/Genealogist in 1800-1900s] See Kekoolani.
<http://www.geni.com/people/Solomon-Peleioholani/6000000021467377206>

Plews, Edith Rice

1981 "Poetry" In *Ancient Hawaiian Civilization*. E. S. Craighill Handy, et al. [eds.] Charles E. Tuttle Company, Rutland.

Pogue, John Fawcett. 1814-1877.

1858 Ka moolelo Hawaii, i kakauia e Rev. J.F. Pokuea, mamuli o Ka moolelo Hawaii i paiia ma Lahainaluna i ka m.h. 1838, oia ke kumu o keia, a ua hoohuiia no na e. *Moolelo Hawaii* Hale paipalapala aupuni, Honolulu.

1978. Moolelo of ancient Hawaii / by John F. Pogue ; translated from Hawaiian by Charles W. Kenn. Topgallant Pub. Co., Honolulu

PVS (Polynesian Voyaging Society)

2013 "Voyaging: 1976-2003." (<http://pvs.hawaii.org/>)

Pratt, Linda and Gon, Sam III

1998 "Terrestrial Ecosystems." In Juvik and Juvik (pp 121-129).

Pukui, Mary Kawena

1983 *Olelo No'eau: Hawaiian Proverbs & Poetical Sayings*. Bernice P. Bishop Museum Special Publication No. 71. Bishop Museum Press, Honolulu.

1995 *Na Mele Welo: Songs of Our Heritage*. [Selections from The Roberts Mele Collection] Bishop Museum Special Publication 88. Bishop Museum, Honolulu.

Pukui, Mary Kawena, Samuel H. Elbert, Esther T. Mookini

1974 *Place Names of Hawaii*. University of Hawaii Press, Honolulu.

Reynolds, Michelle and George Ritchotte

1995 Evidence Of Newell's Shearwater Breeding In Puna District, Hawaii. U.S. Geologic Survey Biological Research Division, Hawai'i National Park.

Roberts, Helen H.

1967 *Ancient Hawaiian Music*. Dover Publications, Inc., New York. [Original 1926]

Rolett, Barry V.

1989 "University of Hawaii Archaeological Research on Bellows Air Force Station: Report of the 1989 Field School and a Proposal for Further Research in 1990." Dept of Anthropology-University of Hawai'i, Honolulu

Rose, Roger G.

1992 *Reconciling the Past: Two Basketry Kā'ai and the Legendary Līloa and Lonoikamakahiki*, Bishop Museum Bulletin in Anthropology 5. Bishop Museum Press, Honolulu.

Silverman, Jane

1987 *Kaahumanu, Molder of Change*. Friends of the Judiciary History Center, Honolulu.

Sincock, L. and G. E. Swedberg

1969 Rediscovery of the nesting grounds of Newell's Manx Shearwater (*Puffinus puffinus newelli*), with initial observations. Condor 71:69-71.

- SAA (Society for American Archaeology)
2013 Conference in Hawai'i.
- Speakman, Cummins E., Jr.
1978 *Mowee*. Peabody Museum of Salem, Salem.
- Spoehr, Anne Harding
1989 *The Royal Lineages of Hawaii*. Bishop Museum Special Publication 84. Bishop Museum Press,
- Stillman, Amy [Compiled By]
1990 *Hawaiian Chants: An Index of Published Sources and Audio Recordings*. Reference, on file at Hawaiian Collections, Hamilton Library, University of Hawaii, Honolulu.
1995 *Hawaiian Chants: An Index of Published Sources and Audio Recordings (Supplement)*. Reference on file at Hawaiian Collections, Hamilton Library, University of Hawaii, Honolulu.
- Stokes and Dye
1991 Heiaus of the Island of Hawai'i. *Bishop Museum Bulletin in Anthropology* 2. Bishop Museum Press, Honolulu.
- Thrum, Thomas G.
1895, 1901, 1910, 1911, 1917, 1918, 1921, 1938. *Hawaiian Almanac and Annual— Excerpts*
1906 "Tales of the Temples" In *Hawaiian Almanac and Annual for 1907* Thos. G. Thrum, Honolulu.
1909 "Heiaus: Their Kinds, Construction, Ceremonies, Etc." In *Hawaiian Almanac and Annual for 1910*. Thos. G. Thrum, Honolulu.
1922 "More Hawaiian Folk Tales" In *Hawaiian Almanac and Annual for 1923*
1922 'Hawaiian Folk Tales' *Hawaiian Annual for 1923* [68-69]
1937 "Complete List of Heiaus (Temples) and Sites" In *The Hawaiian Annual for 1938*. The Printshop Company, Honolulu.
- Thurston, Lorrin A
1916 (Bishop Bibliography) In "Reminiscences of Old Hawaii" *Hawaiian Gazette Company, Ltd.* Honolulu. [Preface for Rev Sereno E. Bishop]
- TMK
n.d. Map. 1-03-09
- Tuggle, H. David and Spriggs, Matthew
2000 "The Age of the Bellows Dune Site 018, Oahu, Hawai'i, and the Antiquity of Hawaiian Colonization." In *Asian Perspectives*, Vol 39, No. 11-2. Pp. 165-188. University of Hawai'i Press, Honolulu.
- USGS
1994 Pahoa South Quadrangle Map
- USGS
2019 TOPO Map
- USGS-HAVO (Hawaii Volcano Observatory)
2018 Internet Fissure 8 photo research

- Vorfeld, Judy
2001 'Hawaii's Sugar Industry' <http://judyvorfeld.com/sugarindustry.html> [Information from *The Hawaii Book* (1961) by J. G. Ferguson Publishing Company, Chicago, and *Cane Sugar and Hawaii* (1962) by C&H Sugar Refining Corp., Ltd., San Francisco]
- Waihona
2015 Waihona Aina Corporation, 1998, Mahele Database, Honolulu, HI.
www.waihona.com
- Waters, Lynne [produced by]
n.d. "The Hawaiians Part I" [Video]
- Westervelt, W.D.
1916 *Hawaiian Legends of Volcanoes*. G.H. Ellis Press, Boston. [sacredtexts.com 2002]
<http://www.sacred-texts.com/pac/hlov/hlov15.htm>
- Williamson, Eleanor et al.
1983 "Preface" In *Olelo No 'eau*. Bishop Museum Publication No. 71. Bishop Museum Press, Honolulu.
- Wolfe, E., and J. Morris
2001 Geological Map of the Island of Hawaii. U.S. Department of the Interior. U.S Geological Survey

This Page Left Blank

APPENDIX A
Act 50 SLH 2000
A BILL FOR AN ACT RELATING TO
ENVIRONMENTAL IMPACT STATEMENTS
[UNOFFICIAL VERSION]
HOUSE OF REPRESENTATIVES H.B. NO. 2895 H.D.1
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII
A BILL FOR AN ACT
RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.
BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawai'i's culture, and traditional and customary rights.

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit" in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawai'i Revised Statutes, is amended by amending the definitions of "environmental impact statement" or "statement" and "significant effect", to read as follows:

"Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic [or] welfare, social welfare[.], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

Approved by the Governor as Act 50 on April 26, 2000

APPENDIX B
Guidelines for Assessing Cultural Impacts
Adopted by the Environmental Council, State of Hawaii
November 19, 1997

I. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

II. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, including submerged cultural resources, which support such cultural practices and beliefs.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or *ahupua'a*;
2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

III. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and

features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.

2.A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.

3.Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

4.Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.

5.A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.

6.A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

7.A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8.An explanation of confidential information that has been withheld from public disclosure in the assessment.

9.A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10.An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11.A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

APPENDIX C
Agreement to Participate in this Ethnographic Survey

Project Title: Sanford's Service Center, Inc. - Expansion Project
Pahoa

Investigator: Maria Orr, M.A.
Kaimipono Consulting Services LLC

You are being asked to participate in an ethnographic survey conducted by *Kaimipono Consulting Services LLC* (KCS) contracted by *Haum & Associates* to prepare a Cultural Impact Assessment (CIA) as part of an environmental compliance document prepared by **GK Environmental LLC** for the Sanford Service Center, Inc. expansion project. This Ethnographic Survey is part of the Cultural Impact Assessment, which is mandated by an amendment (Yr 2000) to the Environmental Impact Statement law. The investigator will explain the purpose of the study, the procedures to be used, the potential benefits and possible risks of participating. You may ask the investigator any question(s) in order to help you to understand the study or procedures. A basic explanation of the study is written below. If you then decide to participate in the study, please sign on the second page of this form. You will be given a copy of this form to keep.

I. Nature and Purpose of the Study

The purpose of this ethnographic survey is to gather information about the project lands and vicinity through interviews with individuals who are knowledgeable about these areas, and/or about traditional and historic information such as cultural practices, legends, songs, chants or other information. The objective of this study is to facilitate in the identification and location of any possible pre-historic and/or historic cultural resources, or traditional cultural practices in the area mentioned above, in accordance with the definitions and guidelines in National Register (NR) Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (U.S. Department of Interior, National Park Service; Parker and King 1990).

II. Explanation of Procedures

After you have voluntarily agreed to participate and have signed the consent page, the investigator will tape record your interview and have it transcribed later. Data from the interview [ethnographic research/oral history] will be used as part of the background historical summary for this project report. The investigator may also need to take notes and/or ask you to spell or clarify terms or names that are unclear.

III. Discomforts and Risks

Foreseeable discomforts and/or risks may include, but are not limited to the following: having to talk loudly for the recorder; being recorded and/or interviewed; providing information that may be used in reports which may be used in the future as a public reference; knowing that the information you give may conflict with information from others; your uncompensated dedication of time; possible miscommunication or misunderstanding in the transcribing of information; loss of privacy; and worry that your comment(s) may not be understood in the same way you understand them. It is not possible to identify all potential risks, however reasonable safeguards have been taken to minimize risks.

IV. Benefits

This study will give you the opportunity to express your thoughts (mana'o), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant cultural resources, practices and information.

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected **if you so desire**. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" **and not be recorded in any way**. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, _____, understand that Maria Orr, an independent investigator contracted by Haun & Associates will be conducting oral history interviews with individuals knowledgeable about the project lands and vicinity. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historic cultural resources associated with these lands, as well as traditional cultural practices and access to these resources and practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say. **I also understand that if I don't return the revised transcripts after two weeks from date of receipt, my signature below will indicate my release of information for the draft report. I also understand that I will still have the opportunity to make revisions during the draft review process.**

_____ I am willing to participate.

_____ I am willing to participate, under the following conditions:

Consultant Signature

Date

Print Name

Phone

Address

Zipcode

MAHALO NUI LOA

Part II: Personal Release of Interview Records

I, _____, have been interviewed by Maria Orr of Kaimipono Consulting Services LLC, an independent investigator contracted by Haun & Associates. I have reviewed the written transcripts of tape recordings of the interview, and agree that said documentation is complete and accurate except for those matters specifically set forth below the heading “CLARIFICATION OR CORRECTIONS.”

I further agree that Ms. Orr, Haun & Associates and GK Environmental LLC may use and release my identity and other interview information, both oral and written, for the purpose of using such information in a report, subject to my specific objections, to release as set forth below under the heading “SPECIFIC OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS.”

CLARIFICATION OR CORRECTIONS:

SPECIFIC OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS:

| | |
|-----------------------------|----------------|
| Consultant Signature | Date |
| Print Name | Phone |
| Address | Zipcode |
| Email | |

MAHALO NUI LOA

APPENDIX D
Ethnographic Basic Research Instrument for Oral History Interviews

This research instrument includes basic information as well as research categories which will be asked in the form of open primary questions which allow the individual interviewed (Consultant) to answer in the manner he/she is most comfortable. Secondary or follow-up questions are asked based on what the Consultant has said and/or to clarify what was said. The idea is to have an interview based on a “talk-story” form of sharing information. Questions will NOT be asked in an interrogation style/method, NOR will they necessarily be asked in the order presented below. This research instrument is merely a *guide* for the investigator and simply reflects general categories of information sought in a semi-structured format. Questions will be asked more directly when necessary.

The Consultants were selected because they met one or more of the following criteria:

- ❖ Referred By Other Cultural Resource People
- ❖ Had/has Ties to Project Area/Vicinity
- ❖ Known Hawaiian Cultural Resource Person
- ❖ Known Hawaiian Traditional Practitioner
- ❖ Referred By Other Cultural Resource People

[NOTE: This part of the interview, #1-4 is mutual sharing and rapport building. Most of the information for research categories “Consultant Background” and “Consultant Demographics” come from this section, but not exclusively.]

1. *To start please tell me about yourself...Name? Where/When you were born?*

[This information can be addressed in a couple of ways. After the investigator first turns on the tape recorder, the following information will be recorded: Day/Date/Time/Place of Interview/Name of Consultant (if authorized by Consultant)/Name of Investigator/Questions: Have you read the Agreement To Participate?/Do you have any questions before we begin?/Will you please sign the Consent page. The investigator will explain again the purpose of the interview.

The investigator will then ask the Consultant to “Please tell me about yourself--when/where were you born? where did you grow up? where did you go to school?” This general compound question allows the Consultant to share as much or as little as he/she wants without any pressure. Most of the information for #1 may already be known to the investigator.]

2. *History: Your ‘ohana/family background; Hawaiian connection (if any)?*

[Much of the information for questions #2, 3, and 4 usually comes from the “monologue” answer to Question #1. If it does not, then these questions will be asked. The answers in this section usually establish how the Consultant meets the criteria; how the Consultant developed his/her information base, etc.]

3. *Youth: Where lived? Grew up?* [This may have been answered in #1]

4. *Schooling? Where? When?* [This may have been answered in #1]

[NOTE: The next part of the interview, #5-7 reflects information sought for the following research categories: Land, Water, Marine, Cultural Resources and Use as well as Significant People, and Events. The questions are open-ended so as NOT to “put words in the mouths” of the Consultants. The answers will help in assessing if any cultural properties or practices will be impacted by the proposed project.]

5. *Can you tell me what you know about the lands of Kaua'ea? Pu'u Kali'u?*

[NOTE: Generally when people share information about a specific topic/place, they usually state where their information came from. If it isn't volunteered, it is asked as a follow-up question(s). A map of the project area should be available to confirm that investigator and consultant are talking about the same place. Photos would also help if a field trip is not possible. The best scenario would be to be “on-site” at some part of the interview...although this is not always practical.]

6. *What are your recollections and/or personal experiences of this area?*

7. *Do you know any stories/legends/songs/chants associated with these areas?*

[NOTE: Possible follow-up questions:

- How are you or your family connected to the project area?
- What year(s) were you and/or your family associated with these lands?
- What was this place/area called when you were growing up? When you were working here?
- Can you describe what the area looked like--what kinds of natural and/or man made things?
- To your knowledge what kind of activities took place in this location?
- Do you know of any traditional gathering of plants, etc in the area?
- Please describe any other land/water use? Resources?
- What was the historic land use? Agriculture? Habitation? Dwellings? Ranching?
- [Have map ready for marking.]
- Do you know about any burials in the project area?
- Do you know of any cultural sites in the project area or vicinity?

8. *Is there anyone you know who can also tell me about the project area?*

[NOTE: Usually in the course of the interview, Consultants suggest other people to interview.]

9. *As soon as the tape of this interview is transcribed I will send you two sets. Please review your transcripts and make any corrections and/or additions, then sign both copies of the Release Forms thereby allowing the information to be used by the investigator and Haun & Associates. Then mail one set back in the enclosed stamped-addressed envelope.*

10. *If your revised transcript is not returned within two weeks of date of receipt, it will be assumed that you are in concurrence with the transcript material and your information will then be incorporated into any draft reports. However, you can still make changes during the draft review process.*

MAHALO NUI LOA

APPENDIX E
SIGNED CONSENT FORMS

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, Piilani Kaawaloa understand that Maria Orr, an independent investigator contracted by Haun & Associates will be conducting oral history interviews with individuals knowledgeable about the project lands and vicinity. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historic cultural resources associated with these lands, as well as traditional cultural practices and access to these resources and practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say. I also understand that if I don't return the revised transcripts after two weeks from date of receipt, my signature below will indicate my release of information for the draft report. I also understand that I will still have the opportunity to make revisions during the draft review process.

- I am willing to participate.
- I am willing to participate, under the following conditions:

Piilani Kaawaloa 9/13/2015
 Consultant Signature Date
Piilani Kaawaloa 808-896-4178
 Print Name Phone
P.O. Box 688 Pahoa HI 96778
 Address Zipcode

MAHALO NUI LOA

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, Emily I. Naeole understand that Maria Orr, an independent investigator contracted by Haun & Associates will be conducting oral history interviews with individuals knowledgeable about the project lands and vicinity. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historic cultural resources associated with these lands, as well as traditional cultural practices and access to these resources and practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say. I also understand that if I don't return the revised transcripts after two weeks from date of receipt, my signature below will indicate my release of information for the draft report. I also understand that I will still have the opportunity to make revisions during the draft review process.

- I am willing to participate.
- I am willing to participate, under the following conditions:

Emily I. Naeole 7/10/15
 Consultant Signature Date
Emily I. Naeole 808 965-5650
 Print Name Phone
15-2237 Kaohunualu St, Pahoa HI 96718
 Address Zipcode

MAHALO NUI LOA

APPENDIX F

SIGNED RELEASE FORMS

[NOTE: 'J Carlsmith Ball LLP' should be GK Environmental LLC]

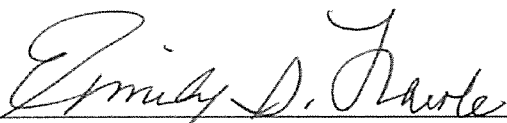
Part II: Personal Release of Interview Records

I, _____, have been interviewed by Maria Orr of Kaimipono Consulting Services LLC, an independent investigator contracted by Haun & Associates. I have reviewed the written transcripts of tape recordings of the interview, and agree that said documentation is complete and accurate except for those matters specifically set forth below the heading "CLARIFICATION OR CORRECTIONS."

I further agree that Ms. Orr, Haun & Associates and J Carlsmith Ball LLP may use and release my identity and other interview information, both oral and written, for the purpose of using such information in a report, subject to my specific objections, to release as set forth below under the heading "SPECIFIC OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS."

CLARIFICATION OR CORRECTIONS:

SPECIFIC OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS:

| | |
|---|------------------------|
|  | <u>10-13-2015</u> |
| Consultant Signature | Date |
| <u>Emily I. Naeole</u> | <u>965-5650</u> |
| Print Name | Phone |
| <u>15-2237 Kaohuwahy St.</u> | <u>Pahoa, HI 96778</u> |
| Address | Zipcode |
| _____ | |
| Email | |

MAHALO NUI LOA

This Page is Blank

FINAL
ARCHAEOLOGICAL INVENTORY SURVEY
TMK: (3) 1-3-09:POR. 005



KAUAEA AHUPUA'A, PUNA DISTRICT
ISLAND OF HAWAI'I

Haun & Associates

Archaeological, Cultural, and Historical Resources Management Services
73-1168 Kahuna A'o Road, Kailua-Kona HI 96740 Phone: (808) 325-2402 Fax: (808)325-1520

FINAL
ARCHAEOLOGICAL INVENTORY SURVEY
TMK: (3) 1-3-09: POR. 005
KAUAEA AHUPUA'A
PUNA DISTRICT
ISLAND OF HAWAI'I

By:

Alan E. Haun, Ph.D.

and

Dave Henry, B.S.

Prepared for:
Sanford Service Center
15-2628 Keaau-Pahoa Road
Pahoa, HI
96778

August 2013

Haun & Associates

Archaeological, Cultural, and Historical Resources Management Services
73-1168 Kahuna A'o Road, Kailua-Kona HI 96740 Phone: (808) 325-2402 Fax: (808) 325-1520

ERROR: undefined
OFFENDING COMMAND: !

STACK:

**FINAL
ARCHAEOLOGICAL SITE PRESERVATION PLAN
SITE 50-10-55-29723**



**KAUAEA AHUPUA'A
PUNA DISTRICT, ISLAND OF HAWAI'I
TMK: (3) 1-3-09:POR. 005**

HAUN & ASSOCIATES
ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL RESOURCE MANAGEMENT SERVICES
73-1 168 KAHUNA A'O ROAD, KAILUA-KONA HI 96740
PHONE: 808-325-2402 FAX: 808-325-1520

FINAL

ARCHAEOLOGICAL SITE PRESERVATION PLAN

SITE 50-10-55-29723

KAUAEA AHUPUA'A

PUNA DISTRICT, ISLAND OF HAWAI'I

TMK: (3) 1-3-09:POR. 005

By:

Alan E. Haun, Ph.D.
and
Dave Henry, B.S.

Prepared for:

Sanford Service Center
15-2628 Keaau-Pahoa Road
Pahoa, HI
96778

May 2013

HAUN & ASSOCIATES
ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL RESOURCE MANAGEMENT SERVICES
73-1 168 KAHUNA A'O ROAD, KAILUA-KONA HI 96740
PHONE: 808-325-2402 FAX: 808-325-1520

MANAGEMENT SUMMARY

This Archaeological Site Preservation Plan addresses provisions for the preservation of one site located in Kauaea Ahupua'a, Puna District, Island of Hawai'i. The site consists of a 91.0 m long segment of a single file foot trail located at approximately 845 to 855 ft elevation (Site 50-10-55-29723).

Project Proponent: Sanford Service Center

Project Description: Preservation protocols for one historic property

Project Location: TMK: (3) 1-3-09:Por. 005, Kauaea Ahupua'a, Puna District, Island of Hawai'i

Project Acreage: 309 acres

Land Jurisdiction: owned in fee simple by Kamehameha Schools

Plan Proposal: Identification of preservation site, appropriate form of preservation, and conservation measures

Preservation Site: Site 29723 Trail

Table of Contents

Management Summary i

Introduction 1

Project Identification..... 1

Plan Purpose 1

Background 1

Environmental Setting..... 1

Previous Archaeological Work in Project Area..... 15

Archaeological and Historical Background..... 17

Historic Documentary Research 17

Previous Archaeological Research 29

2012 Consultation 31

Identification of Preservation Site..... 32

Preservation Plan 34

Forms of Preservation 34

Avoidance and Protection (Conservation) 34

Conservation Measures..... 34

Preservation Buffers..... 35

Immediate Conservation Measures..... 35

Short-Term Conservation Measures 35

Long-Term Conservation Measures 35

Access 37

References 38

Appendix A –SHPD AIS Report Acceptance Letter..... 42

Appendix B – Haun & Associates to Na Ala Hele Consultation Letter 43

List of Figures

FIGURE 1. PORTION OF 1994 USGS PAHOA SOUTH QUADRANGLE SHOWING PROJECT AREA2

FIGURE 2. TAX MAP KEY 1-3-09 SHOWING PROJECT AREA3

FIGURE 3. AERIAL VIEW OF PROJECT AREA4

FIGURE 4. AREAS OF DISTURBANCE AND TERRAIN TYPES WITHIN PROJECT AREA5

FIGURE 5. ACTIVE CINDER QUARRY7

FIGURE 6. ABANDONED CINDER QUARRY7

FIGURE 7. AREA IMPACTED BY SUGARCANE CULTIVATION8

FIGURE 8. PAPAYA FARM8

FIGURE 9. 1955 LAVA FLOW AREA9

FIGURE 10. FISSURE WITHIN HIGH CANOPY FOREST AREA9

FIGURE 11. DEEP FISSURE WITHIN HIGH CANOPY FOREST WITH HAZARDOUS TERRAIN.....10

FIGURE 12. TERRAIN WITHIN HIGH CANOPY FOREST WITH HAZARDOUS TERRAIN.....10

FIGURE 13. SOIL TYPES PRESENT WITHIN THE PROJECT AREA12

FIGURE 14. LAVA FLOWS PRESENT WITHIN THE PROJECT AREA.....14

FIGURE 15. HAUN AND HENRY (2012) SITE LOCATION MAP16

FIGURE 16. AHUPUA'A BOUNDARIES AND PREVIOUS ARCHAEOLOGICAL WORK.....18

FIGURE 17. 1882 TRACING OF LYMAN'S MAP OF KAUAEA AHUPUA'A SHOWING LCA 771320

FIGURE 18. LOEBENSTEIN'S 1895 HAWAII GOVERNMENT SURVEY MAP OF PUNA FROM POHOIKI TO KEHENA.....21

FIGURE 19. PORTION OF LOEBENSTEIN'S 1895 MAP SHOWING PROJECT AREA VICINITY22

FIGURE 20. PORTION OF WALL'S 1915 HAWAII GOVERNMENT SURVEY MAP OF PUNA HOMESTEAD SUBDIVISION AND GOVERNMENT TRACTS26

FIGURE 21. PORTION OF WALL'S 1927 HAWAII GOVERNMENT SURVEY MAP OF PUNA, KEAUOHANA AND MALAMA-IKI FOREST RESERVES27

FIGURE 22. CLOSE-UP OF WALL'S 1927 MAP SHOWING PROJECT AREA VICINITY28

FIGURE 23. SITE 29723 PLAN MAP AND PHOTOGRAPH VICINITY33

FIGURE 24. PRESERVATION BUFFERS AT SITE 2972336

List of Tables

TABLE 1. AREAS OF DISTURBANCE AND TERRAIN TYPES IN PROJECT AREA.....7

TABLE 2. SOIL TYPES IN THE PROJECT AREA 11

TABLE 3. LAVA FLOWS IN PROJECT AREA 13

TABLE 4. PREVIOUS ARCHAEOLOGICAL WORK29

INTRODUCTION

Project Identification

Haun & Associates prepared this Archaeological Site Preservation Plan at the request of the property owner, Kamehameha Schools. The preservation site is located in a 309 acre portion of the 694.5 acre TMK: (3) 1-3-09: Por. 005 in Kauaea Ahupua'a, Puna District, Island of Hawai'i (Figures 1 and 2). This preservation plan was prepared in accordance with the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) *Rules Governing Requirements for Archaeological Site Preservation and Development* in Hawai'i Administrative Rules (HAR) Title 13, Subtitle 13, Chapter 277 (DLNR 2003).

The project area is a trapezoidal-shaped parcel located in the inland portion of Kauaea Ahupua'a at elevations that range from 380 to 1,070 feet. The project area is bordered to the north by the Leilani Estates subdivision and Keahialaka Ahupua'a, by Opihikao and Kaueleau Ahupua'a to the south, by undeveloped land to the west and by undeveloped land and a papaya farm to the east. An existing cinder quarry is located in the western portion of the parcel and the remaining portion is undeveloped. An aerial view of the project area is presented in Figure 3.

Plan Purpose

The purpose of this plan is to describe measures to preserve Site 29723 during and after planned development. The proposed development of the parcel consists of the expansion of the cinder quarrying activities that are currently being conducted within the project area. This plan explains the timing of the protection measures required to ensure the physical integrity of the site, describes the site, and identifies the form of preservation.

BACKGROUND

Environmental Setting

There are two hills (*pu'u*) in the project area. Pu'u Kaliu is a 1,071 ft high hill located in the northwestern portion of the parcel. The cinder quarry is located on the slope flank of Pu'u Kaliu. The second *pu'u*, Pu'u Kepaka, is approximately 760 ft high and is located in the eastern portion of the parcel. The entire project area spans the East Rift Zone of the Kiluaea Volcano. Large portions of the project area have been disturbed by cinder mining and agricultural activities (Figure 4). Table 1 summarizes the disturbed areas and terrain types in the project area. The cinder quarry area comprises approximately 31-acres or 10% of the project area. This area includes an active cinder quarry (Figure 5) and areas that were previously disturbed by cinder mining (Figure 6). These areas have been excavated below the original ground surface and are vegetated with sparse grass and weeds.

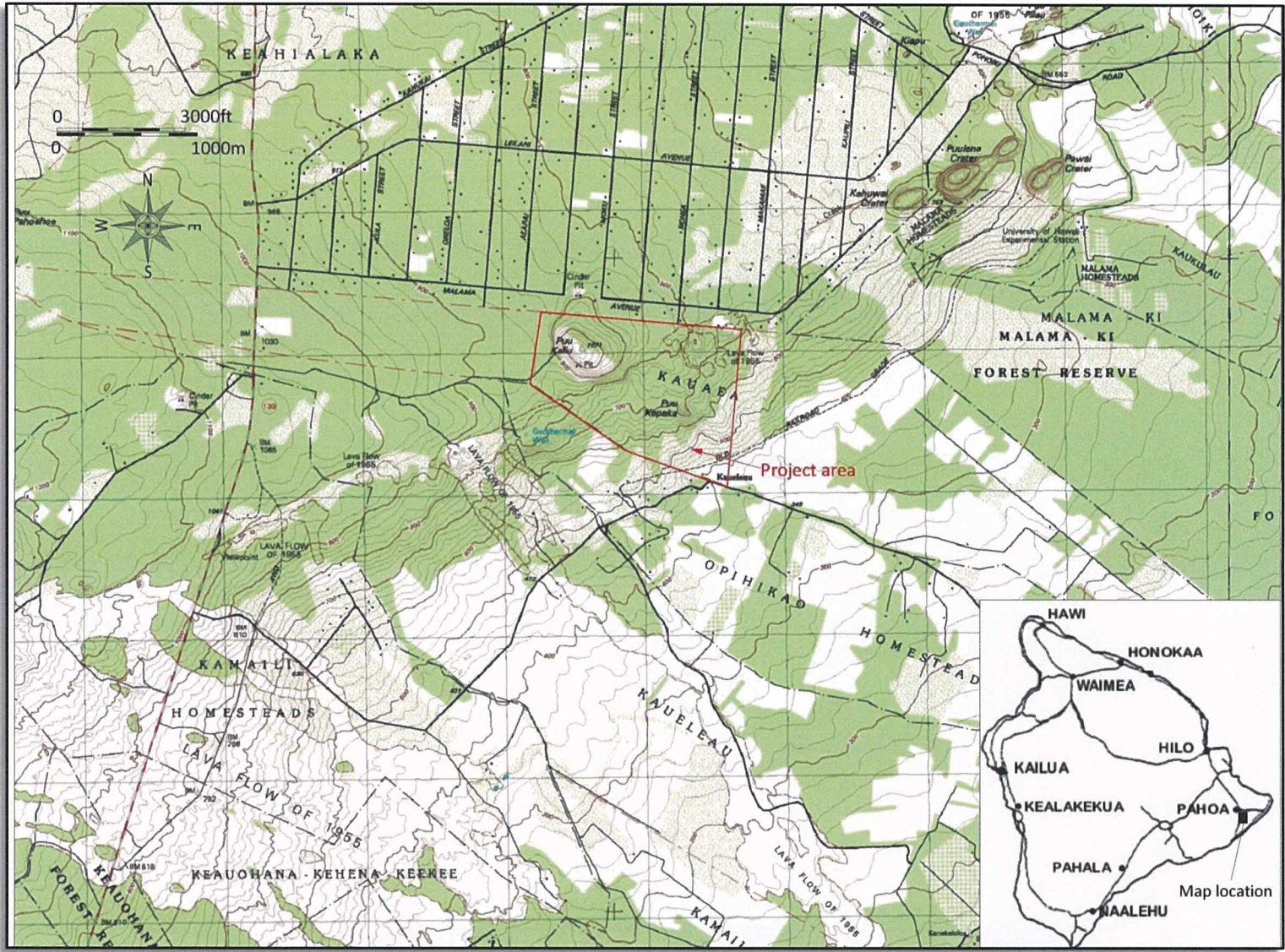


Figure 1. Portion of 1994 USGS Pahoehoe South Quadrangle showing project area

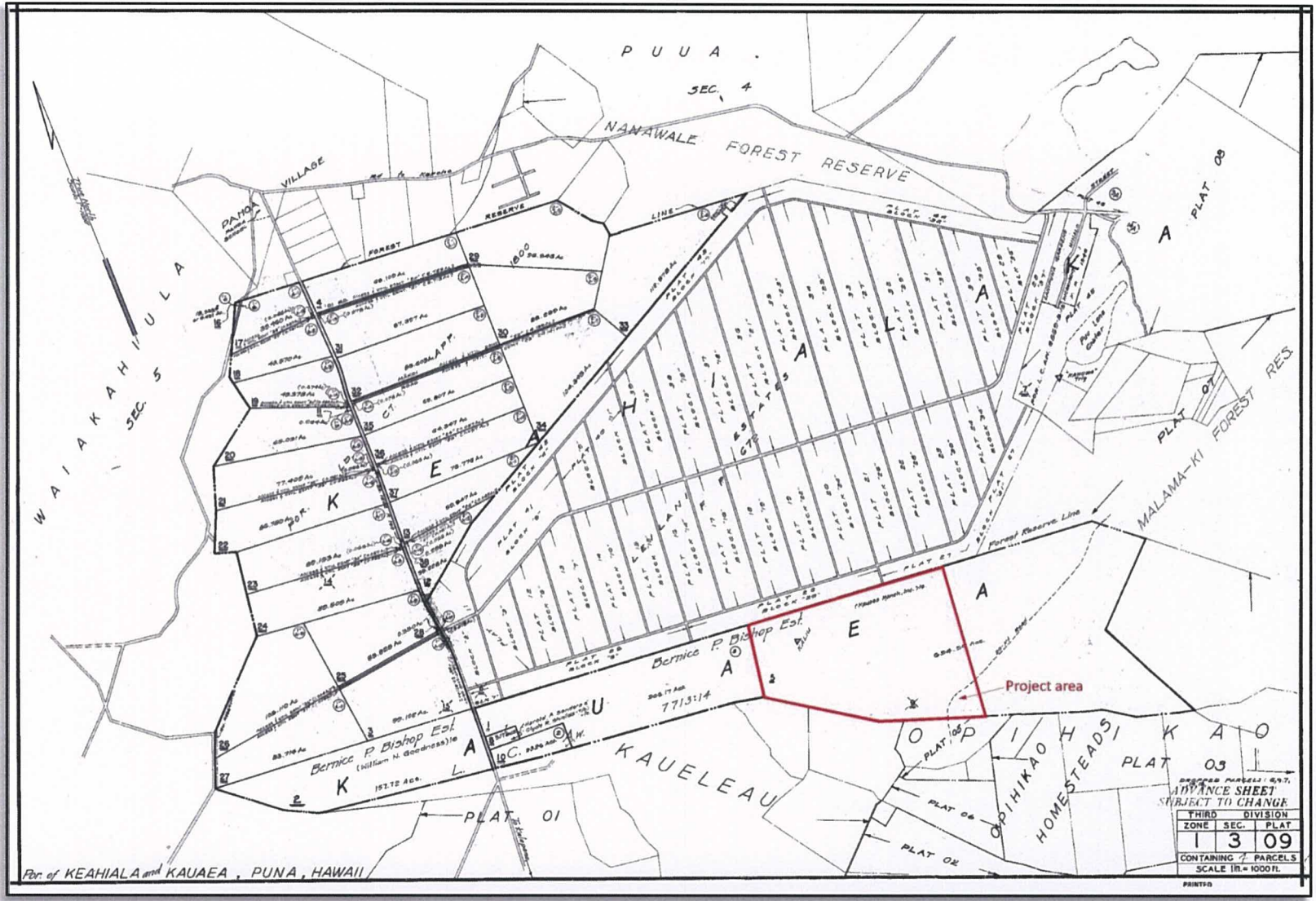


Figure 2. Tax Map Key (3) 1-3-09 showing project area



Figure 3. Aerial view of project area (from Google earth)

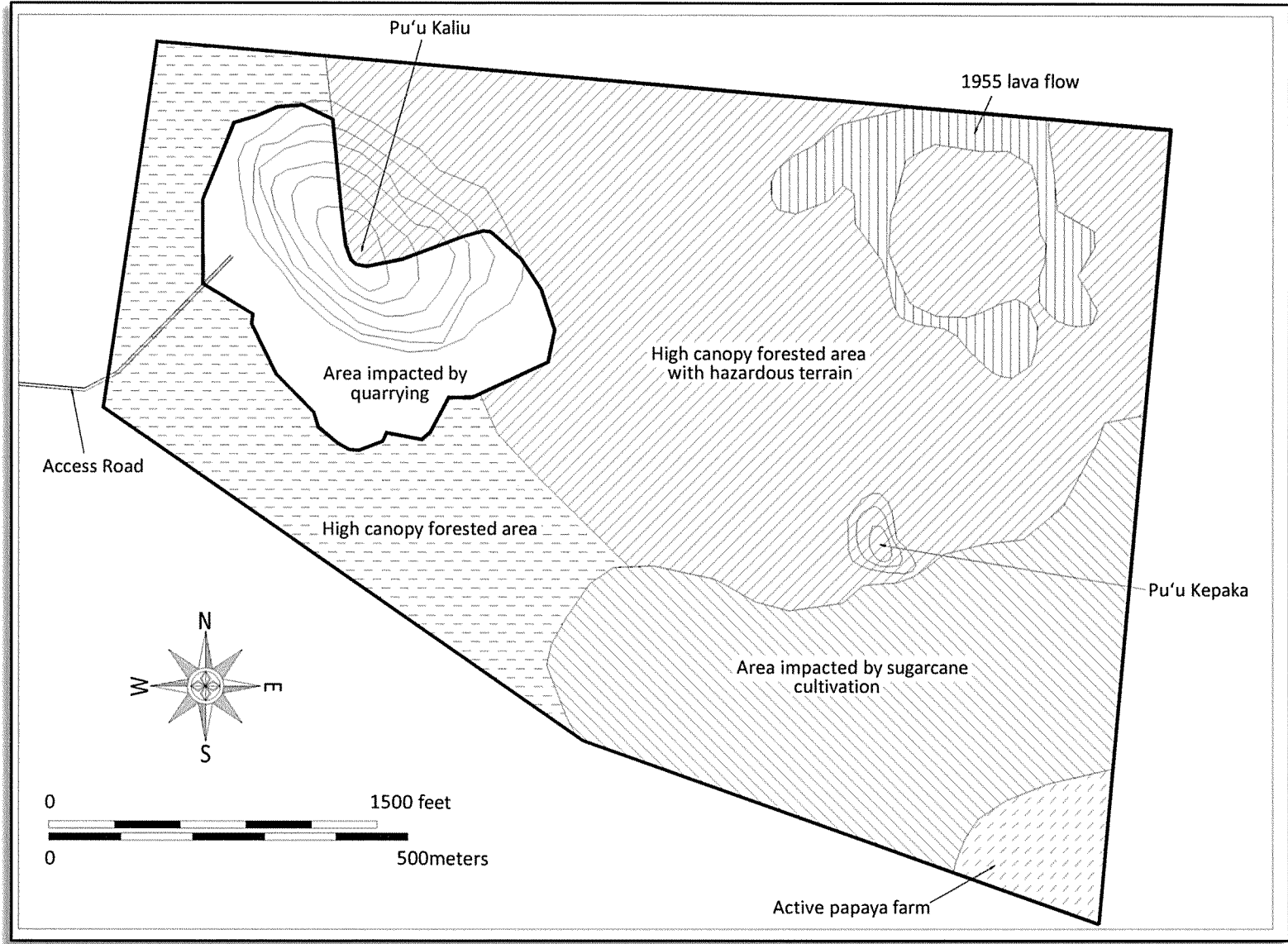


Figure 4. Areas of disturbance and terrain types within project area



Figure 5. Active cinder quarry, view to northwest



Figure 6. Abandoned cinder quarry, view to east-southeast

Table 1. Areas of disturbance and terrain types in project area

| Area | Acres within project area | % of project area | Ground surface visibility |
|--|---------------------------|-------------------|---------------------------|
| Cinder quarry | 31 | 10.0 | Excellent |
| Impacted by sugarcane cultivation | 66 | 21.0 | Fair to good |
| Papaya farm | 7 | 2.0 | Excellent |
| 1955 lava flow | 13 | 4.0 | Fair to good |
| High canopy forest | 53 | 17.0 | Fair to good |
| High canopy forest - Hazardous terrain | 139 | 45.0 | Fair |
| | 309 | 100.0 | |

The southeastern portion of the project area was disturbed by historic and modern sugarcane cultivation. This area comprises 66-acres or 21% of the total parcel and is characterized by relatively flat, gently sloping terrain with introduced plant species including strawberry guava (*Psidium cattleianum*), Coster's curse (*Clidemia hirta*), lantana (*Lantana camara*), Miconia (*Miconia calvescens*), Hawaiian raspberry (*Rubus hawaiensis*), avocado (*Persea americana*), coconut (*Cocos nucifera*), mango (*Mangifera indica*), red ginger (*Alpinia purpurata*), grasses and vines (**Figure 7**). The dense vegetation in this area resulted in fair to good ground surface visibility.

An active papaya (*Carica papaya*) farm is located in the southeast corner of the parcel, occupying 7-acres or 2% of the parcel (**Figure 8**). The ground surface visibility in the papaya farm is excellent. This area also was formerly used for sugarcane cultivation.

There is a U-shaped area in the northeastern portion of the project area that was covered by a 1955 lava flow from Kiluaea Volcano (13-acres, 4%). This area is vegetated with young ohia (*Metrosideros polymorpha*) trees, ferns and grasses with fair to good ground surface visibility (**Figure 9**).

The southwestern portion of the project area consists of a high canopy forest comprising 53-acres or 17% of the total project. The terrain in this area is relatively level with moderately thick vegetation dominated by strawberry guava and large ohia trees. Occasional fissures associated with the East Rift Zone are present in this area (**Figure 10**). Ground surface visibility in this area is fair to good.

The remaining 139-acres (45%) are comprised of a high canopy forest with hazardous terrain. This area is characterized by an extremely uneven ground surface that is bisected by narrow ridges and deep fissures and channels. Examples of the terrain are presented in **Figures 11** and **12**. The vegetation in this area consists of strawberry guava, African tulip (*Spathodea campanulata*), albizia (*Falcataria moluccana*), avocado, autograph tree (*Clusia rosea*), bamboo (*Bambusa spp.*), bamboo orchid (*Arundina graminifolia*), Coster's curse, gunpowder tree (*Trema orientalis*), Hawaiian raspberry, kukui (*Aleurites moluccana*), ohia, paper mulberry (*Broussonetia*



Figure 7. Area impacted by sugarcane cultivation



Figure 8. Papaya farm, view to northeast



Figure 9. 1955 lava flow area, view to east



Figure 10. Fissure within High Canopy Forest area, view to east



Figure 11. Deep fissure within High Canopy Forest with hazardous terrain, view to north



Figure 12. Terrain with High Canopy Forest with hazardous terrain, view to northeast

papyrifera), staghorn fern, (*Dicranopteris linearis*), *ti* (*Cordyline fruticosa*), *uluhe* (*Dicranopteris linearis*), grasses and vines. Ground surface visibility in this area is fair.

Sato *et al.* (1973) indicates that there are six soil types present within the project area (Table 2 and Figure 13) These are either comprised of surface lava flows or thin rocky and stony muck soils over lava substrates. These soils are typically suitable for watershed, woodlands and native forest, with none particularly suited for cultivation.

Table 2. Soil Types in the project area

| Soil designation* | Soil name | Acres within project area | % of project area | Location with project area | Soil use |
|-------------------|--|---------------------------|-------------------|--------------------------------|--------------------------------|
| rMAD | Malama extremely stony muck (3-15% slopes) | 175 | 56.7 | Majority of eastern two-thirds | Woodland, pasture and orchards |
| rPAE | Papai extremely stony muck (3-25% slopes) | 91 | 29.4 | Majority of western one-third | Woodland |
| rLV | Aa lava | 33 | 10.6 | NE and SW corners | Watershed |
| rOPE | Opihikao extremely rocky muck (3-25% slopes) | 6 | 1.8 | SE corner | Native forest or pasture |
| rKFD | Keaukaha extremely rocky muck (6-20% slopes) | 4 | 1.2 | NW corner | Native forest or pasture |
| rLW | Pahoehoe lava | 1 | 0.3 | SE corner and north-central | Watershed |
| Total | | 309 | 100.0 | | |

* - from Sato *et al.* (1973)

The majority of the parcel is comprised of Malama extremely stony muck on 3-15% slopes (rMAD), occupying most of the eastern two-thirds of the project, or 175-acres (56.7%). According to Sato *et al.*, “This soil overlies relatively young a’a lava flows on the windward side of Kiluaea Crater” (1973:37). This soil is characterized by a 3” thick layer of very dark brown extremely stony muck over the a’a lava substrate. It evidences a rapid permeability, a very slow runoff and a slight erosion hazard and is classified as suitable primarily for woodlands with smaller areas in pasture and orchards.

Papai extremely stony muck on 3-25% slopes (rPAE) occupies most of the western one-third of the project area (91 acres, 29.4%). This soil is similar to the Malama soil consisting of an 8 inch thick layer of very dark brown extremely stony muck over a fragmental a’a lava substrate (*ibid* 1973:46). This soil has a rapid permeability, a slow runoff and a slight erosion hazard and is classified as suitable primarily for woodlands.

There are isolated areas of surface lava (rLV) located in the northeast and southwest portion of the parcel (33 acres, 10.6%). The lava is a miscellaneous land type with little vegetation, “except for mosses, lichens, ferns and a few small ohia trees” (*ibid* 1973:34). The area of a’a lava in the northeastern portion of the parcel corresponds to the 1955 lava flow from Kiluaea Volcano. It is

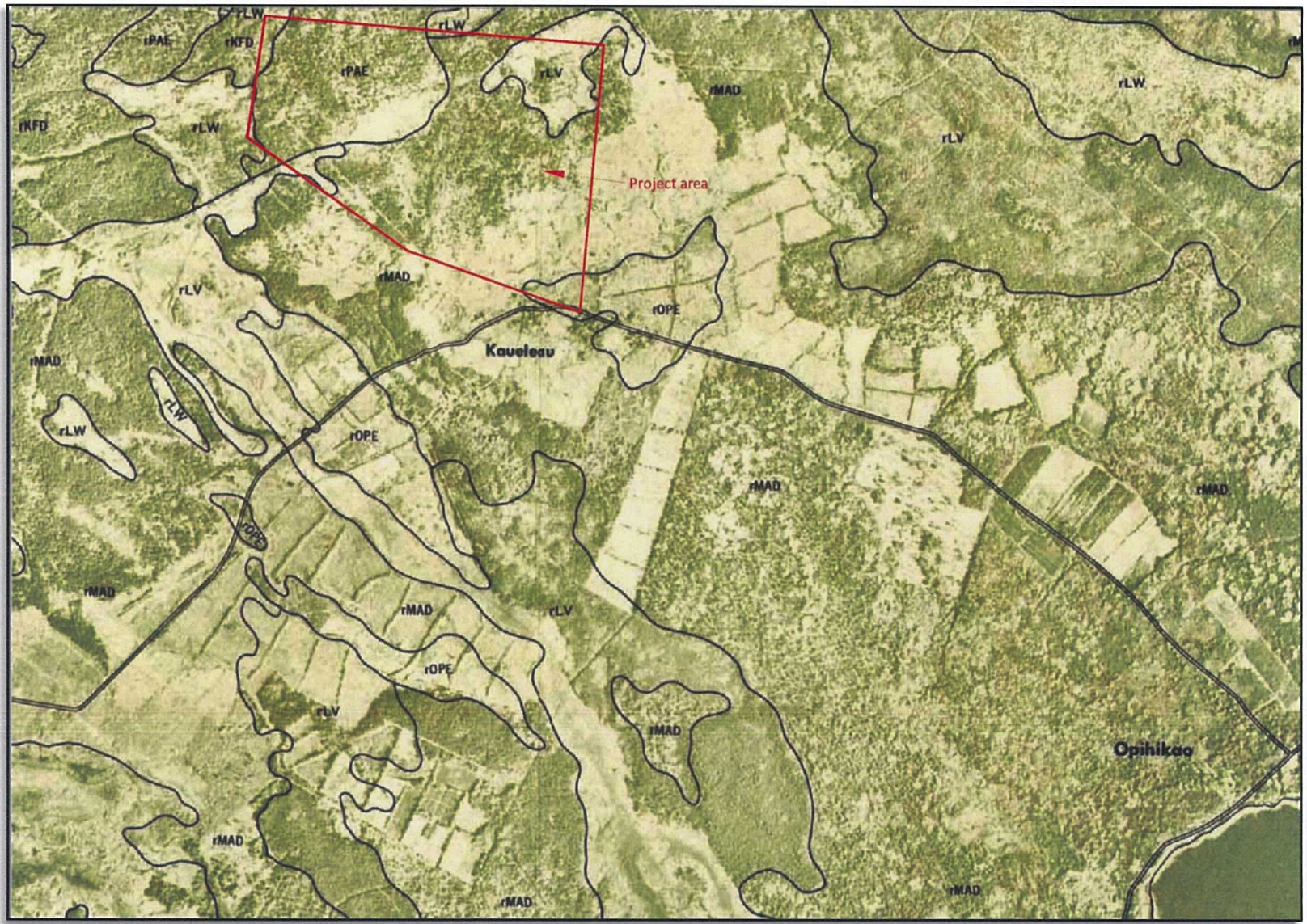


Figure 13. Soil types present within the project area

characterized as a “mass of clinkery, hard, glassy, sharp pieces piled in tumbled heaps” (*ibid* 1973:34) and is classified as suitable for watershed.

A small area of Opihikao extremely rocky muck on 3-25% slopes (rPOE) is located in the southeastern corner of the parcel (6 acres, 1.8%). This area roughly corresponds to the location of the papaya farm discussed above. This soil consists of a 3” thick layer of very dark brown muck over a pahoehoe lava substrate (*ibid* 1973:43). It evidences a rapid permeability, slow runoff and slight erosion hazard with rock outcrops present over 30-50% of the area. It primarily is vegetated with native forest with cleared areas suitable for pasture.

There is a small area of Keaukaha extremely rocky muck on 6-20% slopes (rKFD) in the northwestern corner of the project area. This soil is similar to the Opihikao soil and consists of a surface layer of dark brown muck (8”) over pahoehoe bedrock (*ibid* 1973:27). The Keaukaha soil has rock outcrops over 25% of the surface, has a rapid permeability, a medium runoff and a slight erosion hazard. It also is primarily in native forest with cleared areas suitable for pasture.

There are two small areas of pahoehoe lava (rLW, 1-acre, 0.3%) located in the southeastern corner of the parcel and along the northern project area boundary in the center of the parcel. This is also a miscellaneous land type with little or no soil or vegetation with the exception of mosses and lichens. According to Sato *et al.*, “This lava has a billowy, glassy surface that is relatively smooth. In some areas however, the surface is rough and broken, and there are hummocks and pressure domes” (1973:34). It is classified as suitable for watershed.

The project area has been inundated by lava flows from Kiluaea Volcano that date to as early as 1,500 years ago (**Figure 14** and **Table 3**). The most recent flow was deposited in 1955 and comprises 15 acres of the project area (5%). The flow is located in the northeastern portion of the parcel (designated as a “p5” flow by Wolfe and Morris 2001). This flow is U-shaped and surrounds an area of lava deposited 750-1500 years ago. The current condition of this flow is depicted in **Figure 9**.

Table 3. Lava flows in the project area

| Lava flow designation* | Lava flow age | Acres within project area | % of project area | Location with project area |
|------------------------|--------------------|---------------------------|-------------------|---|
| p5 | AD 1955 | 15 | 5 | Northeast corner of parcel |
| p5 | AD 1790 | 3 | 1 | North-central area and along south boundary |
| pc40 | 450-750 years old | 62 | 20 | Pu’u Kaliu |
| p40 | 450-750 years old | 210 | 68 | Majority of parcel |
| pc3 | 750-1500 years old | 12 | 4 | Pu’u Kepaka |
| pc3 | 750-1500 years old | 6 | 2 | Northeast corner of parcel |
| Total | | 309 | 100 | |

* - from Wolfe and Morris 2001

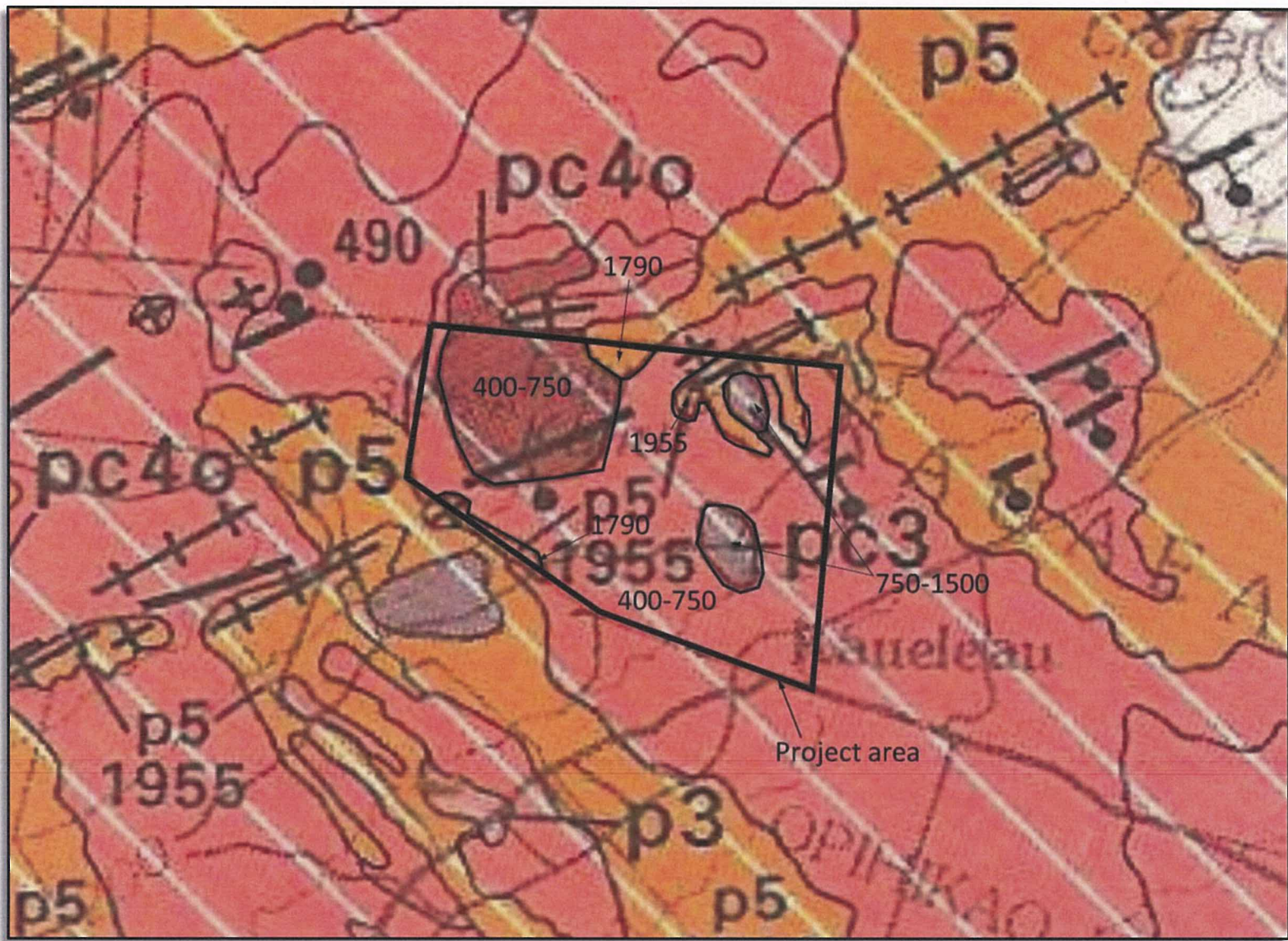


Figure 14. Lava flows present within the project area

There are two small lava flows associated with a 1790 eruption (p5), located along the northern boundary in the central portion of the parcel, and along the south boundary in the southwestern portion. The 1790 flow occupies 3 acres or 1% of the project area. The flow along the north boundary corresponds to an area of pahoehoe lava (see **Figure 13**) and the flow along the south boundary corresponds to an area of a'a lava.

The majority of the project area is characterized by lava flows that date from 450-750 years ago comprising 272 acres (88%). The Pu'u Kaliu area is designated as "pc4-0" by Wolfe and Morris (2001) and encompasses 62 acres (20%). This flow roughly corresponds to the Papai extremely stony muck soil area discussed above. The remaining 210 acres (68%) are designated as "p40" and correspond to the Malama extremely stony muck soil area.

The oldest flows in the parcel date from 750 to 1,500 years ago (pc3) and are located in two areas. A 12-acre (4%) area corresponds to the Pu'u Kepaka area (see **Figure 1**) indicating that this smaller hill pre-dates Pu'u Kaliu. The second area is situated in the northeastern corner of the parcel and is surrounded by the 1955 flow. It is 6 acres in area and comprises 2% of the project area.

Previous archaeological work in project area

Haun & Associates conducted an archaeological inventory survey (AIS) of the 309 acre project area in November and December 2012 (Haun and Henry 2012). The survey identified six sites with ten features (**Figure 15**). The sites consist of a portion of a prehistoric trail (Site 29723), a complex of four historic roads (Site 29724), an historic survey marker (Site 29725), a complex comprised of a historic loading ramp and adjacent road (Site 29726), an historic triangulation station (Site 29727) and an historic railroad grade.

In addition to the six sites, 20 caves and three overhangs were identified during the project (see **Figure 15**). The 20 caves consist of 8 vertical shafts with chambers at the base, 8 caves at the base of deep depressions, and 4 caves at the base of fissures. These natural features were thoroughly inspected by Haun and Henry (2012) and no evidence of cultural use or modification was present, resulting in their designation as non-cultural features.

All six sites were assessed as significant for information content. The sites have yielded information important for understanding historic and prehistoric activity in the Puna District. The Site 29723 trail was additionally assessed as culturally significant as a main, probably named trail. With minor revisions, DLNR-SHPD concurred with these assessments and recommendations in a September 23, 2013 letter from DLNR-SHPD Archaeology Branch Chief Theresa Donham to Dr. Haun (LOG NO: 2013:4598; DOC NO: 1309SN12; **Appendix A**).

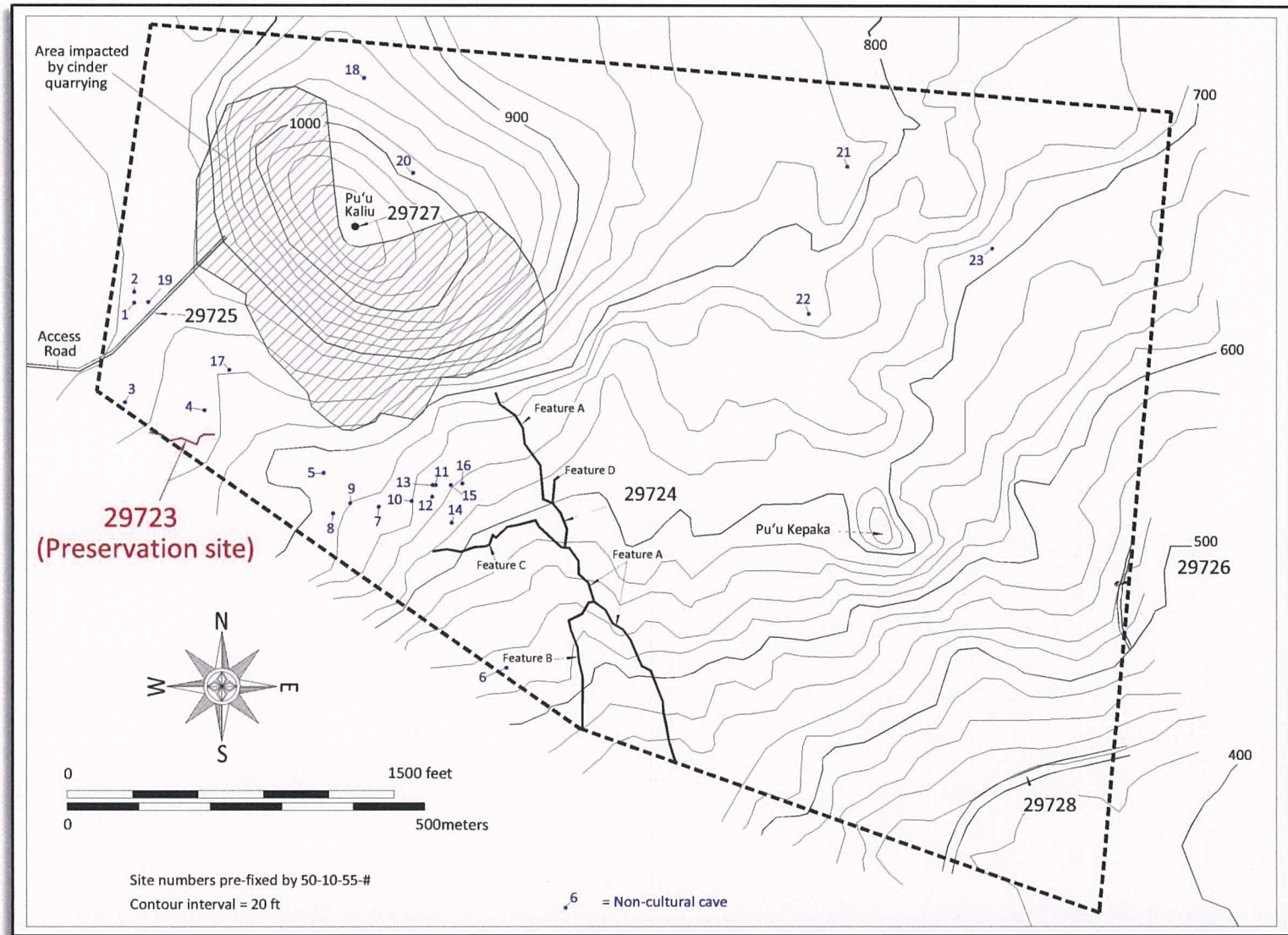


Figure 15. Haun and Henry (2012) Site Location Map

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Historic Documentary Research

The project area is situated in the *ahupua'a* of Kauaea in Puna District (**Figure 16**). There is little mention of Kauaea in Hawaiian traditional and legendary accounts. Crozier and Barrere (1971) note that in Puna few pre-missionary traditions and legends survived because of intensive mission work by Reverend Titus Coan between 1835 and the 1870s. Emory *et al.* (1959) suggest that Puna's traditional history is difficult to follow because of the dominating influence of the ruling families in the neighboring districts of Hilo and Ka'u. Handy and Handy (1972:542) state that Hawaiian traditions suggest that Puna "was once Hawaii's richest agricultural region and that it is only in relatively recent time that volcanic eruption has destroyed much of its best land".

According to Kamakau (1961), Hua'a was the chief of Puna when it was seized by 'Umi-a-Liloa, unifying his control over the Island of Hawai'i. Hua'a was killed during a battle with one of 'Umi's warrior sons, Pi'i-mai-wa'a, at Kuolo in Kea'au. Kalani'opu'u unified his control over Hawaii Island when he gained control of Ka'u and Puna following Alapa'i's defeat in a battle at Mahinaakaka. During Kalani'opu'u's rule, the Puna chief, I-maka-koloa, attempted a rebellion and seized the valuable products of the district including 'o'o and *mamo* bird features, hogs, fine mats made from pandanus blossoms and from young pandanus leaves, gray tapa cloth, and tapa cloth made from *mamaki* bark.

Following the death of Kalani'opu'u, in 1782, a dispute over ascendancy ensued culminating in the battle of Moku'ohai (Kamakau 1961, Kuykendall 1938). Following the battle, control over the island was divided between Keoua Ku'ahulu'ula, who held Ka'u and a portion of Puna; Keawema'uhili, who controlled the remainder of Puna, Hilo, and southern Hamakua; and Kamehameha, who controlled northern Hamakua, Kohala, and Kona. A feud between Keoua and Keawema'uhili in 1785 resulted in Keawema'uhili's death and the expansion of Keoua's territory, including the unification of Puna. The island was finally re-unified in 1791 when Kamehameha killed Keoua at Kawaihae. In 1790, a lava flow extended diagonally across Kaeuleau from the northeast above Opihikao to the coast at Kamaili (Wolfe and Morris 2001).

Early historic accounts document that Puna was well populated and intensively cultivated. In 1823, Ellis (1963) traveled along the coast to Kaimu, where he reported a sandy beach and village with an estimated 725 occupants. At Kaimu, there were plantations and groves of coconuts and *kou*. Ellis estimated that the population of Kaimu and nearby villages was approximately 2,000. Ellis described a village at Kamaili surrounded by plantations where they were given taro and potatoes. Other crops noted by Ellis in Puna included bananas and sugar cane.

The following summarizes Burtchard (1994) discussion of Puna's later history. Prior to the 1870s, foreign influence in Puna primarily was limited to missionaries. In the late 1870s, Robert Rycroft moved to Pohoiki and built a home, wharf, sawmill, jail and courthouse. He later began growing coffee in the area and built a coffee mill. In the mid-1880s, the government began selling land in Puna for homesteads. Most of the homestead land was acquired for coffee cultivation in the 1890s.

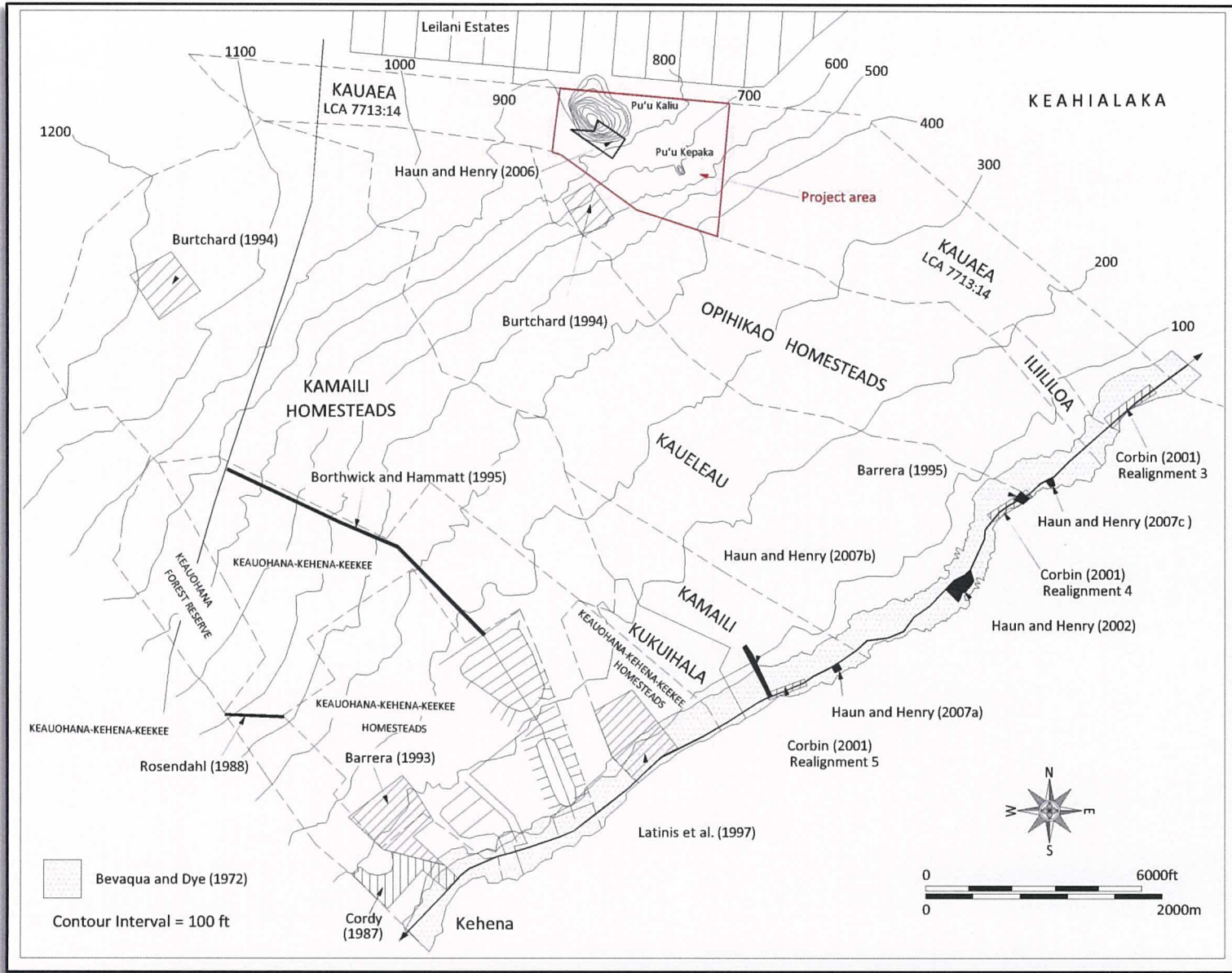


Figure 16. Ahupua'a boundaries and previous archaeological work

The Waihona 'Aina (2000) Mahele Database; which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); indicates that only one Land Commission Award (LCA) was awarded in Kauaea. LCA 7713*H was awarded to Victoria Kamamalu, Kuhina Nui of the Hawaiian Islands between 1855 and 1863. This LCA is depicted on **Figure 17**, a map of Kauaea Ahupua'a by D.B Lyman. This figure is a tracing of the original Lyman map, which belonged to Princess Ruth Keelikolani, made by E. Baldwin in February 1882. According to the map, Kauaea encompassed 2,449 and $\frac{3}{4}$ acres.

Figure 18 is a portion of Loebenstein's 1895 Hawaii Government Survey map of Puna from Pohoiki to Kehena. The boundary of Kauaea Ahupua'a on this map appears to be inaccurate, depicting it as slightly wider in the project area vicinity than it appears on later maps. This map depicts a network of transportation routes that extended through this portion of Puna. Three of the routes were labeled as roads by Loebenstein and the remainder depicted as trails. The three roads consist of the Government Road that parallels the shoreline, Puna Road located in Kaiahiku and Keahialaka Ahupua'a, and Rycroft's Road in Pohoiki.

The main transportation routes were the Government Road following the coast and the Kehena Trail, located further inland paralleling the shoreline. A series of inland-seaward trails and roads connect the main transportation routes, providing access from mountain communities to the sea. Several of the trails are listed as ancient in origin including the Kipapaia Trail in Kamaili, and the Kauaea Trail located in Kauaea Ahupua'a.

Figure 19 is a close-up of the 1895 Loebenstein map showing the project area vicinity. The Kehena Trail extends through the southwestern corner of the parcel in an east-west direction. A house belonging to "Kaaukai" is located on the north side of the trail and a coconut tree is located to the east of the house.

The ancient Kauaea Trail originates at a coconut grove and community named Kikiikii seaward of the project area (see **Figure 18**). The trail enters the project area at the southeast corner and extends inland, roughly paralleling the southern side of project area on the boundary between Kauaea and Opihikao. It appears to terminate in the forest at the base of Pu'u Kaliu. Houses owned by "Elia" and "Maluo" are located to the southwest of the Kauaea Trail, just outside the project area.

Figure 19 also indicates that in 1895, most of the northeastern portion of the project area, on the "Slope of Kaliu" was "Good coffee land". An area listed as "Thin woods on clinkers" is surrounded by the "Good coffee land" along the northern project area boundary.

Pu'u Kaliu has been in use as a triangulation station to map the displacement of Kilauea Volcano's south flank from as early as 1896 (Swanson *et al.* 1976). A series of triangulation surveys used Pu'u Kaliu, among other volcanic summits to track the horizontal ground

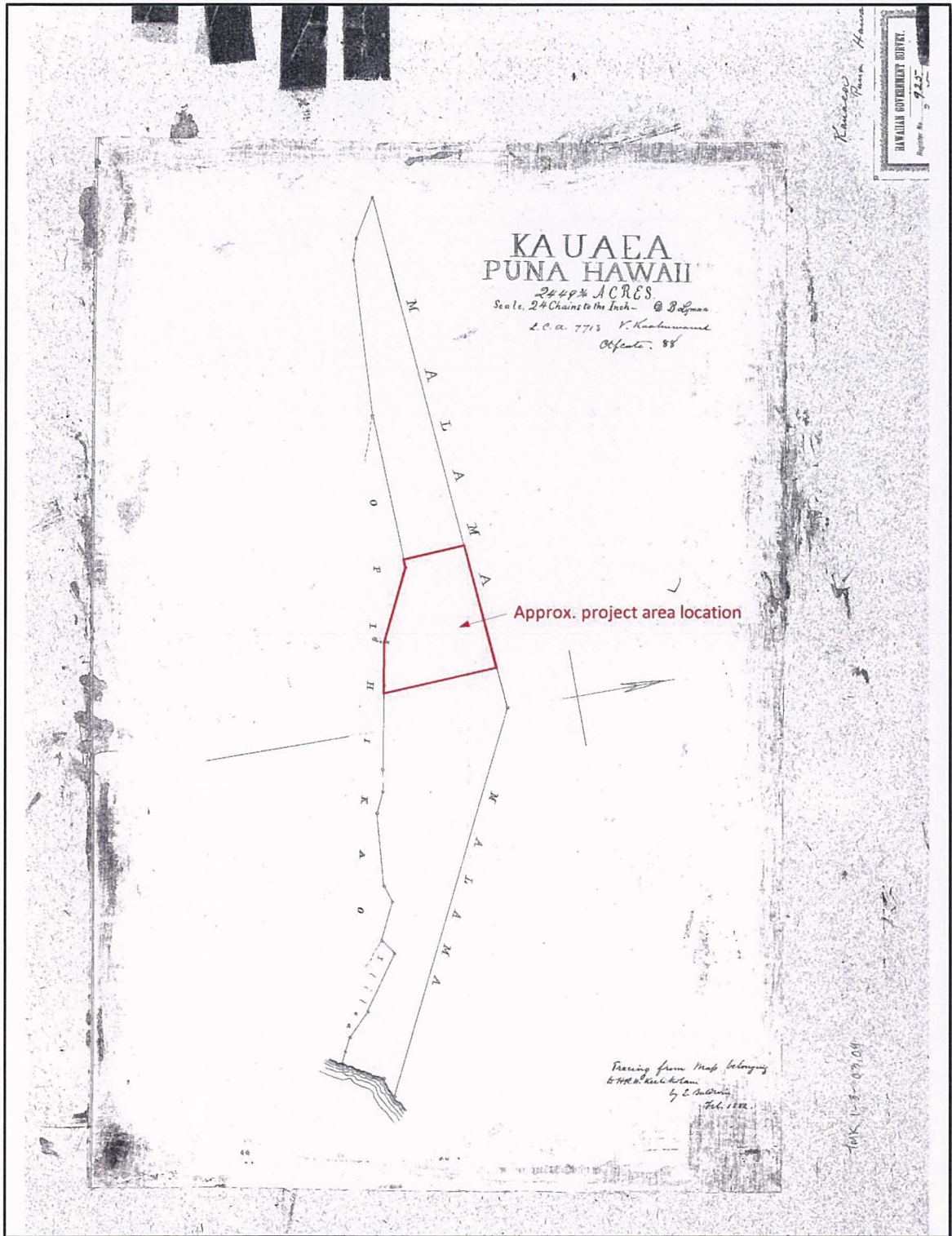


Figure 17. 1882 tracing of Lyman's Map of Kauaea Ahupua'a showing LCA 7713.

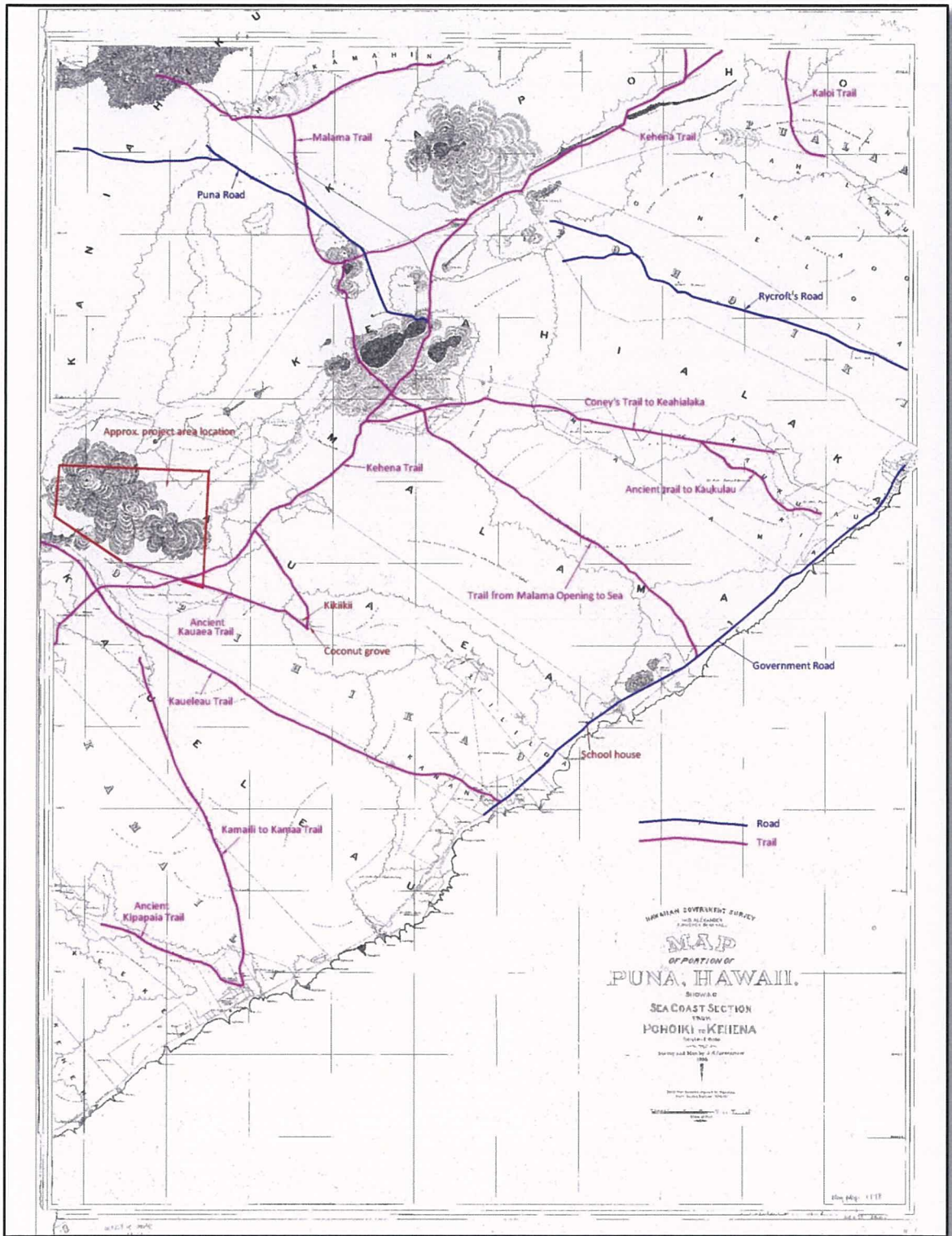


Figure 18. Loebenstein's 1895 Hawaii Government Survey Map of Puna from Pohoiki to Kehena

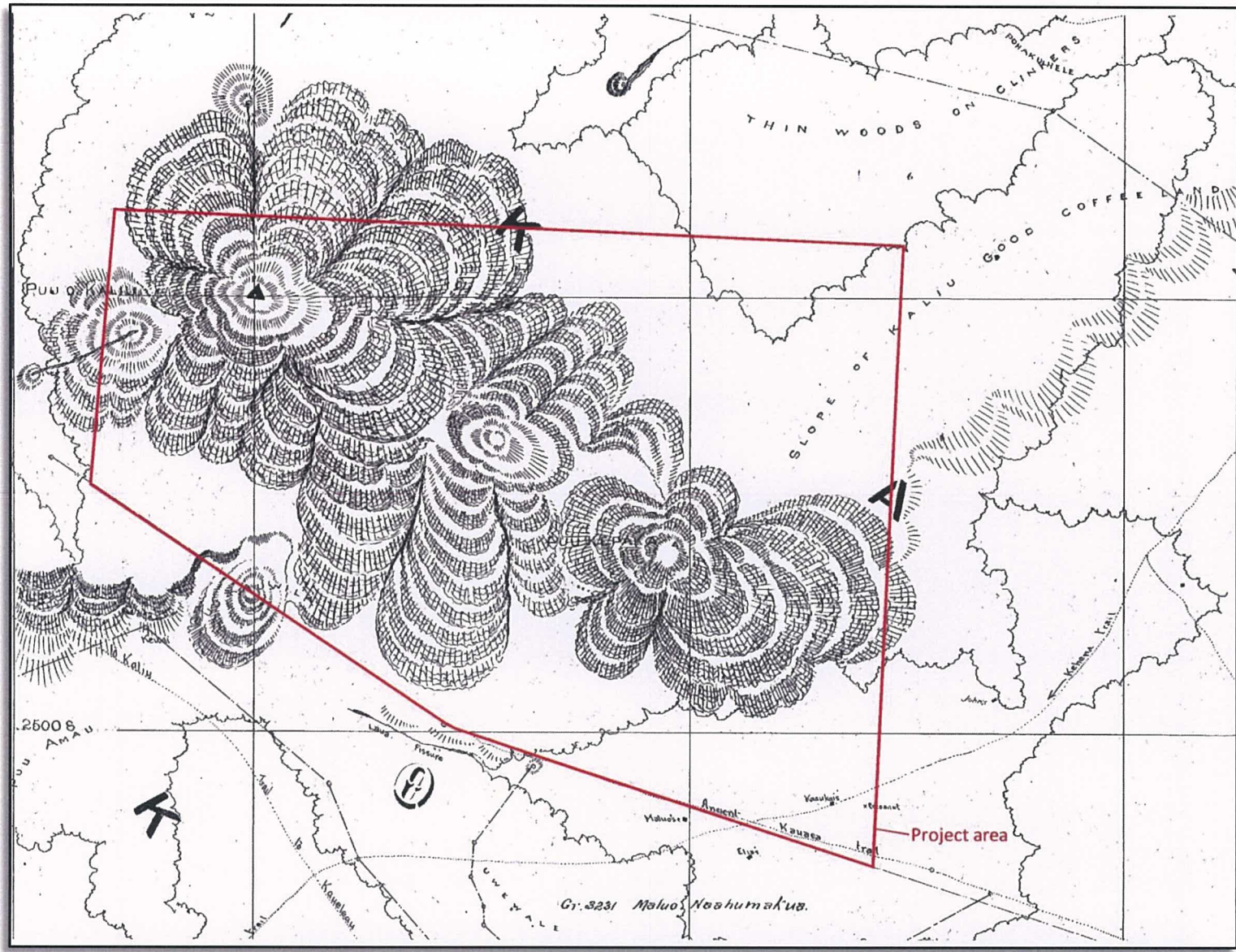


Figure 19. Portion of Loebenstein's 1895 map showing project area

displacement over time, within the Kilauea Rift Zones (*ibid.*:8). These surveys were conducted in 1896 and 1949 by the U.S Coast and Geodetic Survey, in 1958 and 1961 by the U.S. Geological Survey, and in 1970 and 1971 by personnel from the Hawaiian Volcano Observatory. The data from the earliest study was obtained in 1896, but was not triangulated until 1914. A sign marking the data point is present on the summit of Pu'u Kaliu. The sign was found to be in good condition in 1967 (pers. comm., Robert Shrai, Island Survey). The sign was located during the project and has been designated as Site 29727.

A September 30, 1908 article in the Hilo Tribune described the effects of a violent earthquake in the Puna District that opened cracks throughout the region, destroyed homes and stone walls, and damaged a school house in coastal Kauaea. This school house is depicted in **Figure 18**.

Gerritt P. Wider and I (A. Gartley) just came through Puna from the Volcano on horseback, and saw many evidences of the earthquake which were of interest. We left the Volcano on Keauhou trail, passing the line of small craters Panau, Panau-iki, Kapaahu, Kalapana, Pahoa, Kapoho and to Hilo. At the crater of Makaopuhi tons of material have been shaken down from the vertical banks into the mauka pit below. Some smoke was issuing from the bottom of the mauka pali and quite large deposits of sulphur have formed. The shake must have been very heavy in Puna. At Kapaahu a crack about a foot wide opened for about 500 feet, extending mauka from the sea. At Kalapana the old '68 crack, which opened when the Puna coast sunk, opened about twelve inches more, and about a quarter mile back of this crack toward Kau a new crack has opened, extending from pali to pali and several hundred feet long. Some say there was a small crack before one or two inches wide, but it is now twelve to eighteen inches wide. At Kahena it is reported that a strip of the pali (about 100 feet high) along the coast, some 50 feet wide and half a mile long, split off and dropped into the sea, and a new crack has opened parallel with the front of the pali 50 feet back and over two miles long. Three houses and many water tanks were overturned in Kalapana and nearly every stone wall was thrown down. On the trail from Kalapana to Kahena the walls on the mauka side of the road suffered, those on the makai side being left intact. The schoolhouse at Kauaea was either overturned or badly set off its foundation (USGS.gov website).

The Ola'a Sugar Company was founded in 1899 by B.F. Dillingham, Lorrin A. Thurston, Alfred W. Carter, Samuel M. Damon, and Wm. H. Shipman. The plantation was to become one of the largest in the state. According to the Hawaii Sugarcane Plantation Archives:

With a \$5,000,000 investment, the promoters purchased 16,000 acres in fee simple land and nearly 7,000 acres in long leasehold from W.H. Shipman. They also purchased 90% of the stock in the adjacent Puna Plantation, adding another

11,000 acres to the holdings. Ola'a Sugar Company began as one of Hawaii's largest sugar plantations with much of its acreage covered in trees.

The task of setting up the plantation was enormous. Before 1900, coffee was the chief agricultural crop in the area. Over 6,000 acres of coffee trees were owned by approximately 200 independent coffee planters and 6 incorporated companies. The coffee trees were uprooted to make way for cane. Ohia forests had to be cleared, field rock piled, land plowed by mules or dug up by hand with a pick, quarters for laborers and staff had to be built, the mill constructed, and the first cane planted.

The cane was transported to the mill by fluming and by railroad. Although Ola'a Sugar Company had 72 miles of flumes, it had no dependable water source for their operation. The railroad was relied upon for delivery of 60% of the cane. In addition to its own standard gauge 35 miles of railway track, the company ran cars over the Consolidated Railway tracks to bring its cane in from more distant fields. The history of Ola'a Sugar Company is closely connected with the southern branches of the Hawaii Consolidated Railway Co. because they were interdependent from the start. The cane fields were in four widely separated areas cut off from each other by stretches of barren lava. The railroad was therefore vital to the plantation, which in turn helped support the railroad. When a tidal wave on April 1, 1946 destroyed much of the Hawaii Consolidated Railway Company's tracks, it ceased operations. The plantation was then forced to convert to trucks in order to transport sugar and molasses to the Hilo wharf.

Fortunately, under the management of Wm. L.S. Williams, a major road-building program had been started in 1939 for the purpose of eliminating the portable track. He started the plantation on its way to modernization by laying a network of 500 miles of roads for hauling cane. Since 1948, all the cane hauling has been by truck (Hawaii Sugarcane Plantation Archives).

By the end of the 1940s, Ola'a Sugar Company was deeply in debt, owing American Factors, Ltd (AMFAC) \$2,000,000. The debt was the result of insect epidemics, volcanic eruptions and drop in sugar prices. By 1953, the company was \$4,100,000 in debt and in 1959 it was decided that the plantation would sell some of its 35,700-acres to offset the debt. In 1960, the company changed its name to the Puna Sugar Company, primarily because it was thought a name change would give the company a new start. Apparently this strategy worked because in 1963 the company had its best year ever with a 36% increase in profits. The company was debt free for the first time in its history by 1966, and in 1969 the Puna Sugar Company was purchased outright by AMFAC. The company closed in 1982 following cancelation of government subsidies and tax breaks and the introduction of high fructose corn syrup, a cheap low-cost substitute for sugar.

Figure 20 is a portion of Walter E. Wall's 1915 Hawaii Territory Survey Map of Puna Homestead Subdivisions and Government Tracts. This map indicates that formal roads in the area had been expanded since 1895, connecting the town of Pahoa with coastal communities. Despite this expansion, many of the trails depicted on the 1895 map appear to have still been in use in 1915. This map also depicts the Hilo Railroad lines to the east of Pahoa with a line extending as far south as Kapoho Ahupua'a.

By the late 1920s, concern over forest depletion and watershed maintenance lead to the creation of forest reserves in the Puna District. **Figure 21** is portion of Wall's 1927 Hawaii Territory Survey Map of Puna, Keauohana and Malama-Iki Forest Reserves. This map indicates that few new roads had been built since the 1915 map. It also shows that fewer trails were being utilized in 1927.

Figure 21 also indicates that the railroad lines, used to transport sugar cane were expanded since 1915. One line extended from Pahoa town into the *ahupua'a* of Waiakahiula and Keahialaka. The rail line that formerly terminated in Kapoho (see *Figure 21*) was expanded to the east as far as Kaueleau Ahupua'a. This section of track passed through the southeastern corner of the present project area.

Figure 22 is a close-up of Wall's 1927 map showing the project area vicinity. As discussed above, a portion of the railroad line extended into the project area. This rail line roughly follows the path of the Kehena Trail depicted on **Figures 18-20**, suggesting that railroad utilized the pre-existing transportation route. The rail line was identified during the present project and was documented as Site 29728 that is discussed the Findings section. *Figure 22* also depicts a trail that enters the project area along its southern side, roughly paralleling the inland portion of this boundary. This trail may represent an inland extension of the Kaueleau Trail as depicted on **Figure 18** and **Figure 20**.

The Kauaea School discussed above is also depicted on Wall's 1915 (see *Figure 20*) and 1927 maps of the area (see **Figure 21**). This indicates that the school was re-built following the 1908 earthquake and used until at least 1927.

Handy and Handy (1972) citing oral historical sources, indicate that in the 1930s there were homesteading areas in the *ahupua'a* of 'Opihikao, Kaueleau, Kamaili, Ke'eke'e, Kehena, and Keauohana, in the general vicinity of the project area. Dry land taro was grown throughout the inland portions of these *ahupua'a*. A particular taro cultivation method, *pa-hala*, is described for the area from Kalapana to Kamaili.

The method involved excavating a hole in a'a lava in a pandanus grove. The hole was then filled with weeds, which were allowed to rot for six weeks or more. A taro cutting (*huli*) was wrapped in pandanus leaves and planted in the hole. After the cutting produced three or four leaves, the pandanus branches were cut to provide sunlight and the taro plant was covered with pandanus

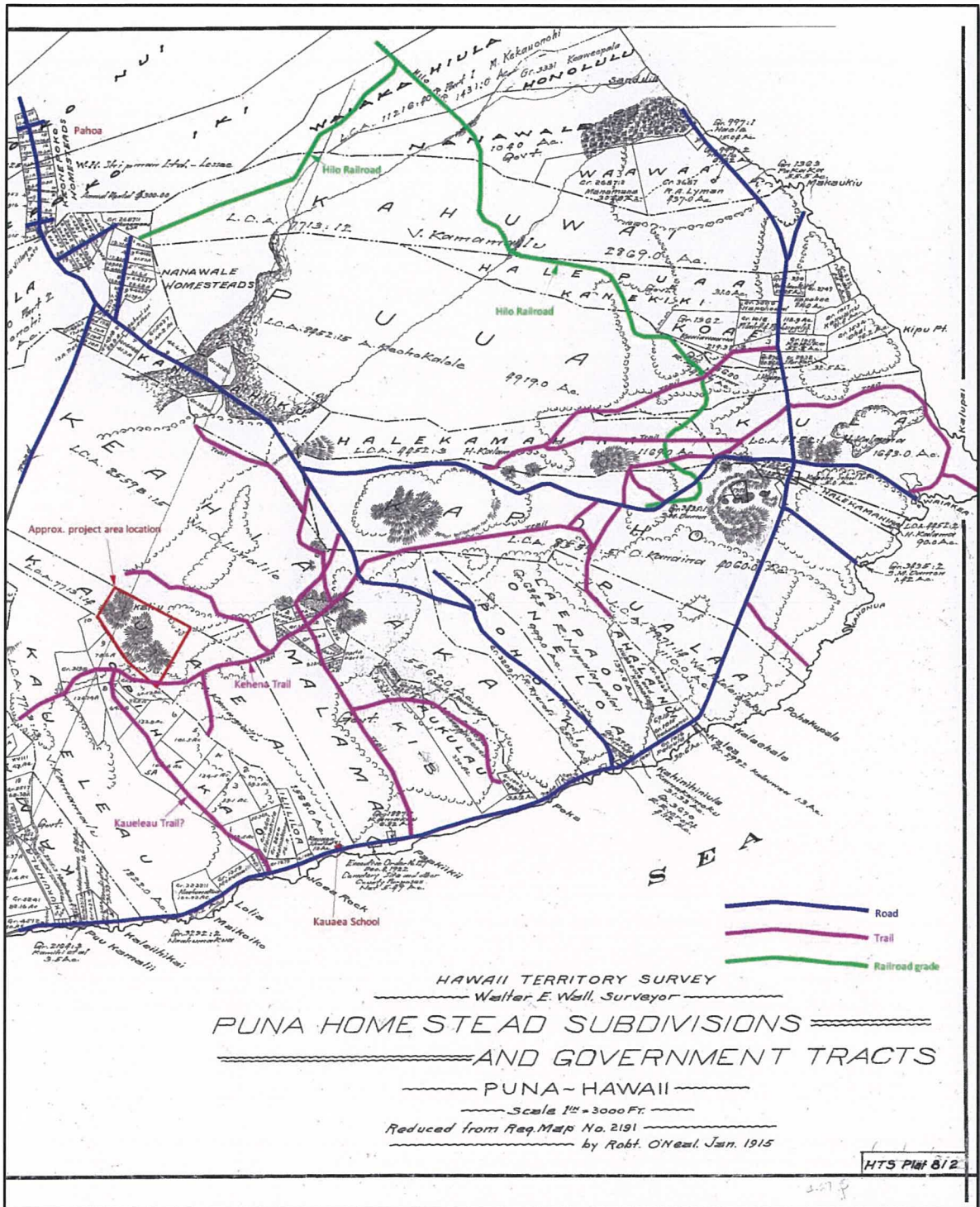


Figure 20. Portion of Wall's 1915 Hawaii Government Survey Map of Puna Homestead Subdivision and Government Tracts

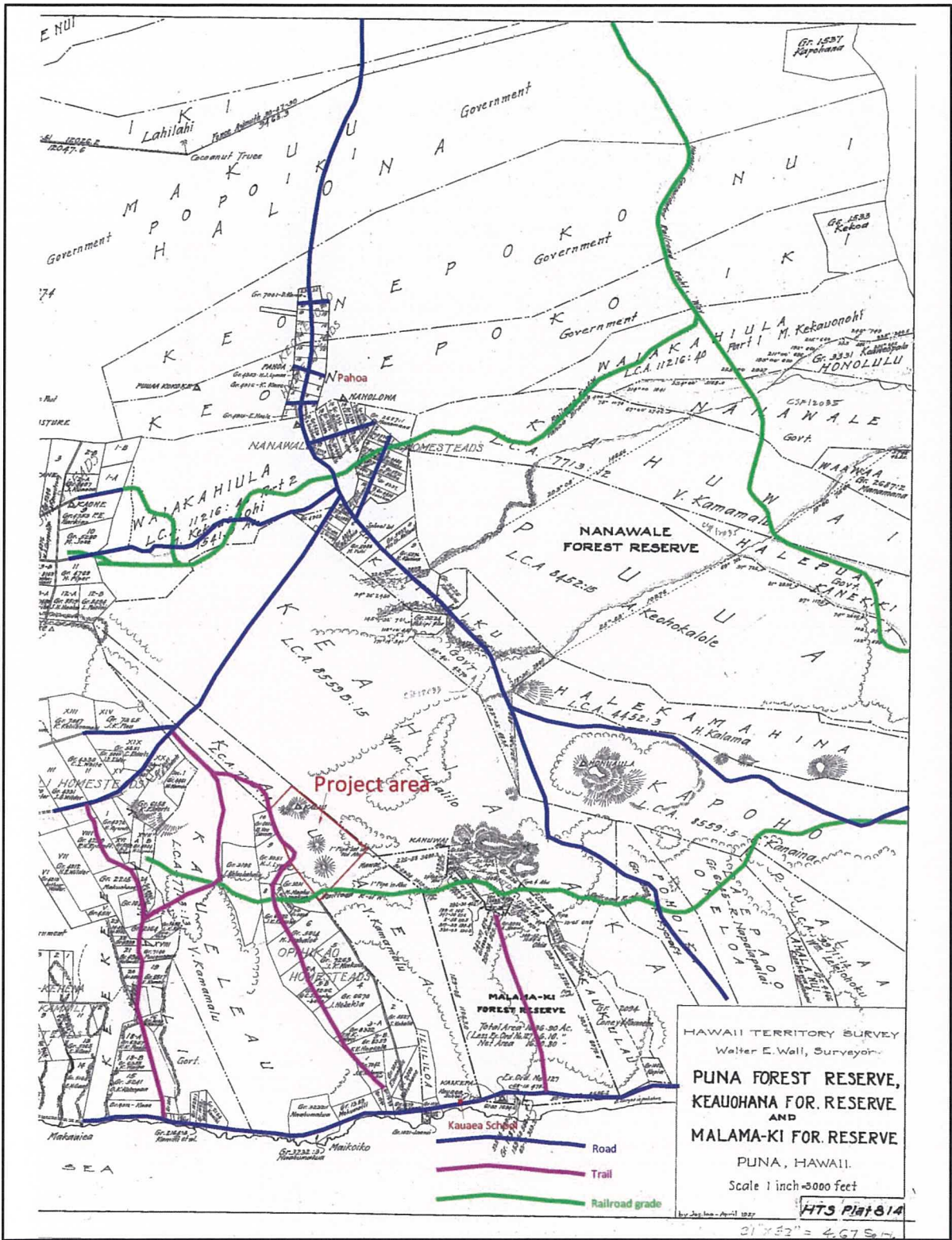


Figure 21. Portion of Wall's 1927 Hawaii Government Survey Map of Puna, Keauohana and Malama-iki Forest Reserve

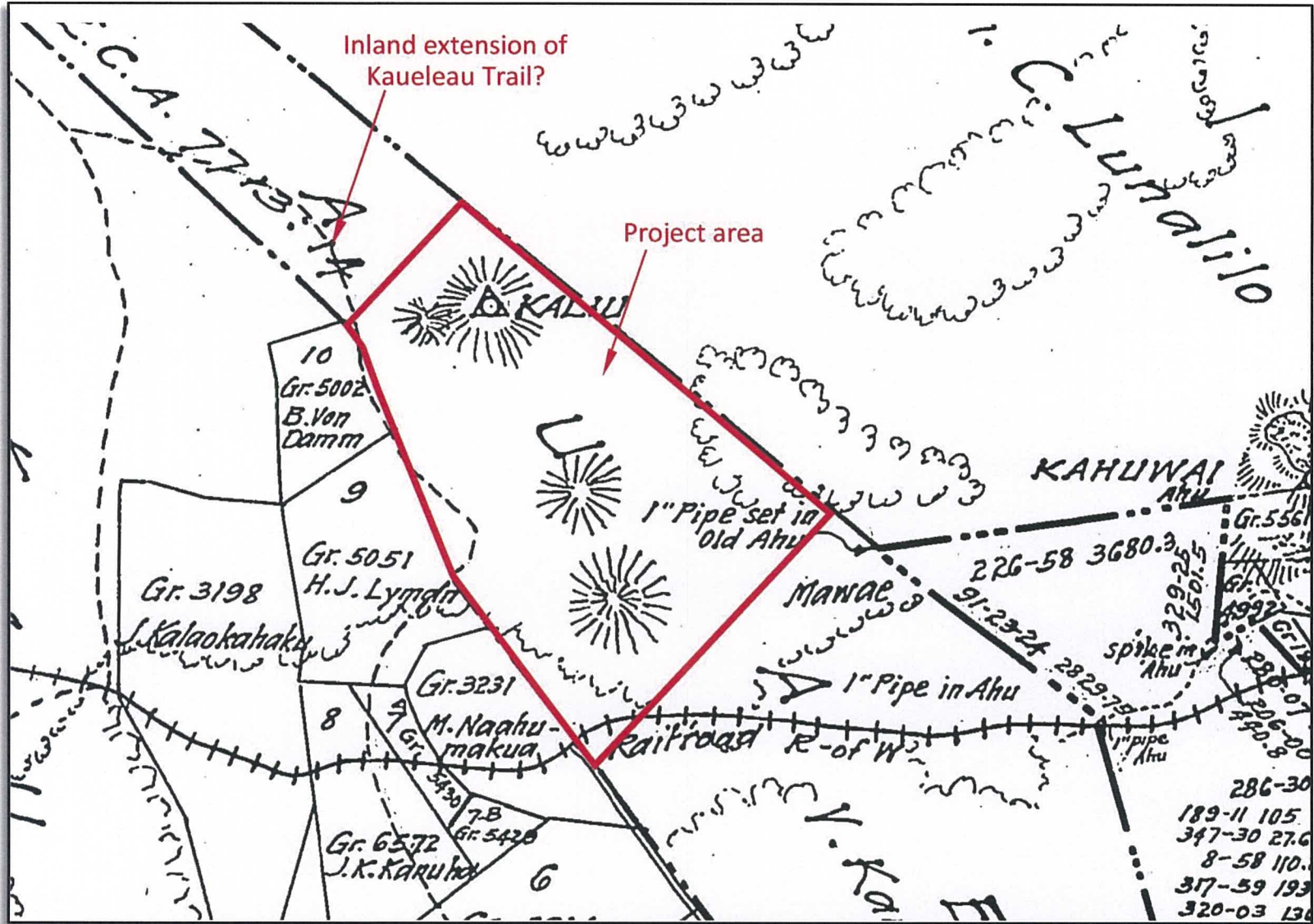


Figure 22. Close-up of Wall's 1927 map showing project area vicinity

leaves. After the pandanus leaves were sufficiently dry, the leaves were burned reducing them ash that provided nourishment to the taro plant, which grew tall enough to hide a man beneath the leaves.

Portions of the present project area have been used as a cinder mine. The cinder mining activity has been in operation by Sanford Service Center since 1987. Cinder mining was also undertaken along the northern slopes of Pu’u Kaliu, outside the project area to the north. Cinders mined from this area were used to create the Leilani Estates subdivision, founded in 1964 (lelaniestates.org).

Previous Archaeological Research

A search of the DLNR-SHPD archaeological report database and other sources identified 16 archaeological projects between Kauaea and Kehena. *Figure 16* shows the project locations and **Table 4** summarizes the projects. Not included in the figure or table are the studies by Stokes (Stokes and Dye 1991), which focused on major sites, primarily *heiau* throughout Hawaii Island and a survey of east Hawaii by Hudson (1932).

Table 4. Previous archaeological work

| Author | Land | Study Type* | Elevation | Acreage | No. of sites | Sites/ acre | No. of Feas. | Feas/ acre | Hab Feas | Hab Feas/ acre | Ag Feas | Ag Feas/ acre | Burial Feas | Ritual Feas | Trail | Misc | Historic Feas | Comment |
|-----------------------------------|--|-------------|-----------|---------------|--------------|-------------|--------------|-------------|-----------|----------------|------------|---------------|-------------|-------------|-----------|------------|---------------|--|
| Haun and Henry (2007c) | Opihikao | IN | 10-25 | 1 | 2 | 2.00 | 2 | 2.00 | | | | | | | | | 2 | |
| Corbin (2001) | Kamaili, Kauaea, Kauaeau | IN | 20-40 | 5.3 | 1 | 0.19 | 40 | 7.55 | | | 40 | 7.55 | 1 | | | | | |
| Bevaqua and Dye (1972) | Kapoho-Kalapana | RN | 20-40 | 151 | 48 | 0.32 | 426 | 2.82 | 61 | 0.40 | many | | 156 | 3 | 5 | 188 | 7 | Feature totals estimated, most not quantified in report; misc. incl. 165 petroglyphs |
| Haun and Henry (2007a) | Kamaili | IN | 20-38 | 1 | * | | * | | | | | | | | | | | * = identified portion of trail initially identified by Bevaqua and Dye (1972) |
| Haun and Henry (2007b) | Kamaili | IN | 30-115 | 4.274 | 5 | 1.17 | 10 | 2.34 | | | | | | | | | 10 | |
| Barrera (1995) | Kauaeau | DR | 35-40 | 3 | 3 | 1.00 | 9 | 3.00 | 2 | 0.67 | | | | | | | | 7 |
| Haun and Henry (2002) | Kauaeau | IN | 80-100 | 7 | 0 | 0.00 | | | | | | | | | | | | |
| Cordy (1987) | Keauohana | RN | 80-250 | 39 | 15 | 0.38 | 92 | 2.36 | | 0.00 | 20 | 0.51 | 63 | | 4 | | 5 | |
| Latinis, Moore and Kennedy (1997) | Keekee | IN | 100-300 | 94 | 6 | 0.06 | 128 | 1.36 | 3 | 0.03 | 88 | 0.94 | 24 | 3 | 4 | 2 | 4 | |
| Barrera (1993) | Keauohana | RN | 120-300 | 66 | 1 | 0.02 | 167 | 2.53 | 5 | 0.08 | 150 | 2.27 | 3 | | | | 9 | |
| Borthwick and Hammatt (1995) | Kamaili, Keekee, Kehena, Keauohana | AS | 280-860 | 9.99 | 0 | | | | | | | | | | | | | |
| MUX Rosendahl (1988) | Keauohana and Kehena | FI | 540-620 | 1.7 | 0 | | | | | | | | | | | | | |
| Burtchard (1994) | various | RN | 650-1200 | 247 | 34 | 0.14 | 65 | 0.26 | 5 | 0.02 | 16 | 0.06 | 22 | 1 | 5 | 8 | 11 | |
| Haun and Henry (2006) | Kauaea | AS | 780-1050 | 15 | 0 | | | | | | | | | | | | | |
| Bonk (1989, 1990) | Kaimu, Makuu, Kaoho, Kehena, Kaapahu and Mamaili | RN/ MON | 1480-1540 | 10 | 0 | | | | | | | | | | | | | |
| Total/Average | | | | 655.26 | 113 | 0.53 | 939 | 2.69 | 76 | 0.20 | 314 | 2.27 | 269 | 7 | 18 | 198 | 55 | |

IN = Inventory Survey, RN = Reconnaissance Survey, DR = Data Recovery, AS = Archaeological Assessment

Stokes (Stokes and Dye 1991), relying in part on the earlier observations of Thrum, reported fourteen *heiau* in Puna of which three were destroyed at the time of Stokes fieldwork in 1906. Several of the *heiau* were reported to be agricultural temples. Hudson (1932) reported 32 sites along the coast between Kapoho and Kaimu including the Hilo-Puna Trail, habitation platforms and enclosures, water sources (cave and well), windbreak shelters, and four *heiau*: Mahina'akaka Heiau at Keahialaka, Kalepa at Kalepa Point, "Old" Wahaula Heiau at Kamaili, and Kumakaula at Ke'eke'e.

The surveys in **Table 4** cover more than 650 acres of Puna between sea level and 1,540 ft elevation. Cultural remains identified by the surveys consist of 113 sites with nearly 940 features. To aid in reconstructing settlement patterns, features were quantified by probable age and function, and the studies are ordered by elevation. Traditional Hawaiian features were categorized as habitation, agricultural, burial (including possible burials), ritual, and trail. Features not assignable to these categories were categorized as miscellaneous. Traditional sites in this category include petroglyphs, *holua* slides, water sources, and *ahu*. Density values are given for sites, features, and habitation and agricultural features.

Overall, the studies have identified more than 76 habitation features, 314 agricultural features, 269 burials, 7 ritual features, and 18 trails. The large number of burials includes several historic cemeteries. Other historic features were not segregated by function. The majority of the historic features are walls and roads. None of the studies processed radiocarbon dates.

A 15-acre portion of the present 309-acre project area was previously examined by Haun and Henry (2006). The majority of the Haun and Henry (2006) study area (c. 95%) was comprised of the cinder quarry area, with a narrow (10-30 m wide) disturbed vegetated band present around the southwest and west sides. No sites or features were present.

McEldowney (1979) primarily used historic documentary evidence to develop a land use and settlement pattern model for the windward Hilo area that is probably applicable to most of Puna. The model consists of five elevation-defined zones: Coastal Settlement, Upland Agricultural, Lower Forest, Rainforest, and Sub-Alpine or Montane. The Coastal Settlement Zone extended approximately 0.5 miles inland from the shoreline between sea level and 50 ft elevation. The zone was the most densely populated with both permanent and temporary habitations, high status chiefly residences, and *heiau*. Settlements were concentrated at Hilo Bay and sheltered bays and coves. Also present were fishponds and gardens where breadfruit, coconut, *kukui*, banana, *wauke*, sugar cane, sweet potato, and wet and dryland taro were cultivated. The ocean provided fish and other marine resources.

The Upland Agricultural Zone was situated between approximately 50 ft and 1,500 ft elevation. Settlement in the zone consisted of scattered residences among economically beneficial trees and agricultural plots of dryland taro and bananas. Lava tubes were utilized for shelter. A pattern of shifting cultivation is believed to have converted the original forest cover to parkland of grass and scattered groves of trees. Wetland cultivation of taro occurred along streams.

The Lower Forest Zone ranged from 1,500 ft to 2,500 ft elevation. Timber and other forest resources such as medicinal plants, *olona*, and birds were gathered from the zone. Site types consisted of temporary habitations, trails, shrines, and minor agricultural features in forest clearings and along streams. Sites in the Rainforest Zone (2,500-5,000 ft elevation) and Subalpine or Montane Zone (5,000-9,000 ft) were limited to trails and associated temporary habitations. These zones were used for intra-island travel and gathering of valued resources including hardwoods, birds, and stone for tool making.

2012 Consultation

An interview with a local resident of the project area vicinity was conducted by Haun & Associates Project Supervisor Shawn Fackler during the 2012 fieldwork. Mr. Kahaloa was born in 1959 and raised near the project area. During the interview he stated, "I used all that area [from his house up to Pu'u Kaliu and Kepaka] as my playground as a kid". He explained that the vegetation used to be mainly guava and it was easy to venture all the way up to either *pu'u*. The only cultural resource in the project area that he could remember is the Site 29726, Feature A enclosure (discussed in Findings section). He originally thought the structure might have been a World War II era feature, but now thinks it is related to sugarcane cultivation in the area.

Mr. Kahaloa began leasing land and running his papaya farm in the southeastern portion of the project area approximately 25 years ago. He explained that a cherry orchid previously grew on the land where his papaya farm is now, but that he could not remember who ran it. He did indicate that a ranch [name unknown] grazed cattle in the area *mauka* of his farm up to the Leilani Estates area for at least 30 years before he began growing papaya. He also indicated that the ranch routinely used tractors in its later years to clear vegetation for grazing cattle and also confirmed that the wooden posts observed during the survey along the old sugar cane railroad grade were part of a cattle chute built within the past 50 years.

Mr. Kahaloa recalled that, "the land *mauka* of the road used to be sugarcane fields all the way up to the tops of the *pu'us*. They [field workers] used donkeys and carts to harvest the cane but then stopped all together when the railroad stopped running." Kahaloa also mentioned that his grandmother told him that taro used to grow in the fields before the introduction of sugar cane.

Another informant interview was conducted with Emily Naeole-Beason by telephone on February 4, 2013. She is 56 years old and has lived in Opihikao her entire life. Her parents and grandparents also lived in Opihikao. She is very familiar with the project area. Her granddaughter is named after the cinder cone Pu'u Kaliu that dominates the western half of the area and is referenced in a *hula* performed by her daughter. She was not aware of any traditional activities or resources in the area. She recalled that sugar cane was once grown in the vicinity.

IDENTIFICATION OF THE PRESERVATION SITE

Site 29723 is a trail located in the southwestern corner of the project area. The trail is comprised of a cleared path through an area of uneven rocky terrain. The trail originates along the southwestern project boundary at approximately 855 ft elevation. It extends downhill in an easterly direction for 91 m where it becomes indiscernible at approximately 845 ft elevation. The area outside the parcel to the west has been disturbed and no evidence of the trail was observed there.

A 4.5 m long section of the trail was mapped (**Figure 23**). The cleared area varies in width from 0.55 to 1.0 m. Linear piles of cobbles and small boulders, cleared from the trail have been placed along each side. These linear piles are 0.4 to 0.6 m wide and 0.15 to 0.4 m in height. The stones are moss-covered and logs have fallen over the trail in several locations. No cultural remains were observed at the site.

It is possible that the Site 29723 trail may represent a portion of the Kauaea Trail, listed as an ancient trail on the Loebenstein's 1895 map of the area (see **Figure 18**). The Kauaea Trail originated seaward of the project area at a coconut grove and community labeled Kikiikii. It extended inland and entered the project area at its southeast corner, roughly paralleling the southern boundary on the land division between Kauaea and Opihikao. According to **Figure 18**, trail terminates at the edge of the forest at the base of Pu'u Kaliu. It is possible that the portion of the trail within the forest was not mapped and Site 29723 is an inland extension of it.

Site 29723 is interpreted as a prehistoric and historic transportation route based on its formal type, appearance and its possible association with trails on historic maps of the area. The trail is interpreted as a Type A, single file foot trail using Apples (1965) typology of trails for Honaunau. According to Apple, a Type A trail was used during the pre-Contact to early Historic period prior to the abolishment of the *kapu* system, from prehistory to AD 1819. The portion of the trail within the project area is in fair condition and is unaltered, although the portion on the adjacent parcel, to the west of the project area apparently has been destroyed. It is assessed as significant for its information content and for its cultural value.

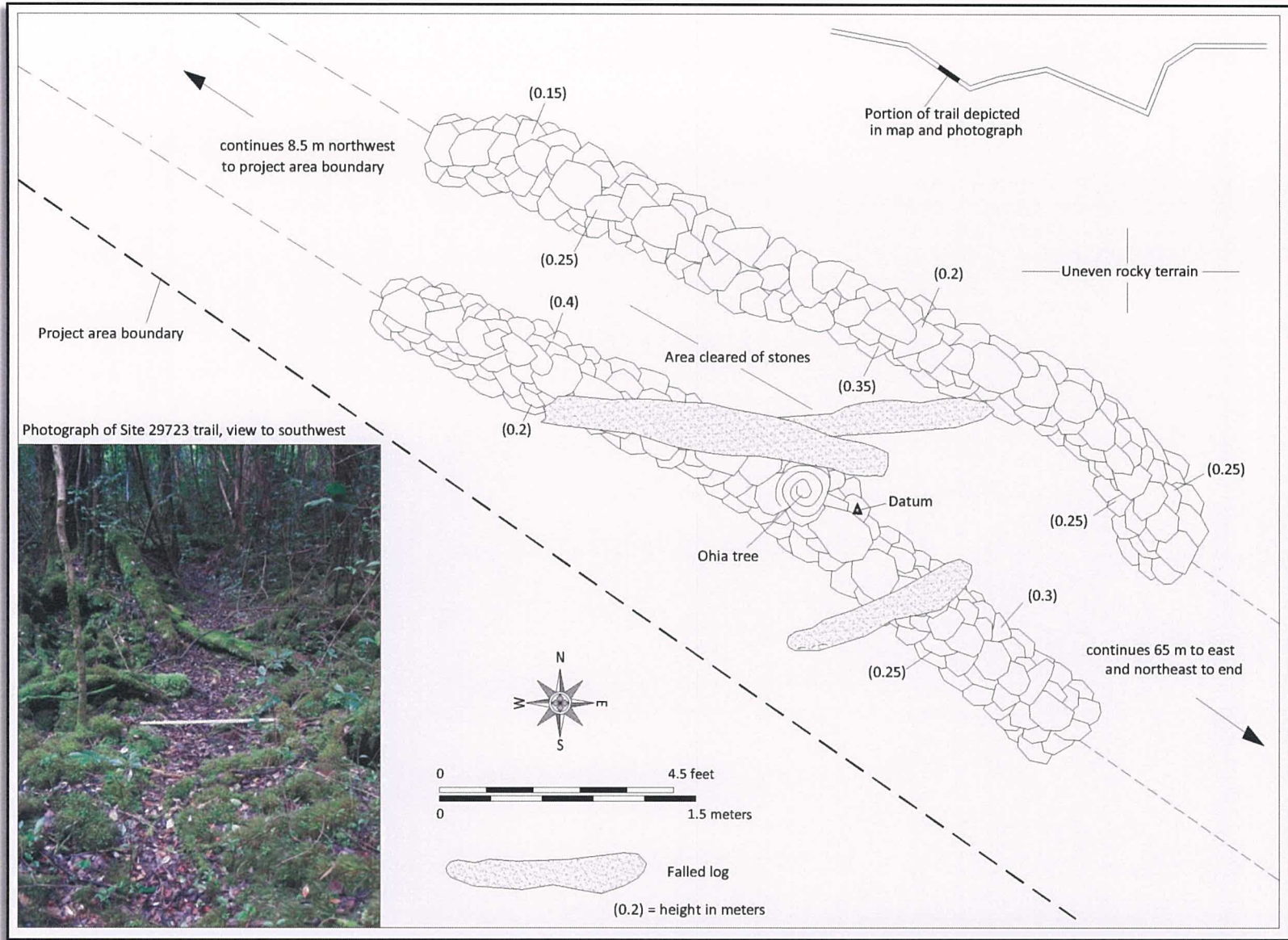


Figure 23. Site 29723 plan map and photograph

PRESERVATION PLAN

This Preservation Plan provides specific protective measures for Site 29723. The site will be protected and preserved during and after the development of the project area. This plan will address the preservation areas, specifications for protective measures during and after construction, access, and consultation.

Forms of Preservation

Preservation is a mitigation strategy in which a historic property and the qualities that contribute to its significance are preserved. Mitigation consists of specific measures to avoid, limit or minimize adverse effects resulting from development activity. Specific mitigation measures can consist of documentation and archaeological excavation (data recovery) and preservation, among others. DLNR-SHPD rules recognize several forms of preservation (HAR §13-13-277). These consist of avoidance and protection (conservation), stabilization, rehabilitation, restoration, reconstruction, interpretation and appropriate cultural use.

Avoidance and Protection (Conservation)

The form of preservation selected for Site 29723 is avoidance and protection (conservation). This form of preservation is the most appropriate manner of mitigating the effects of development within the parcel because the site can be easily avoided. Conservation in this plan means preserving a site in place and ensuring that the site's physical integrity is not compromised by means of avoidance and protection. The site will be protected in perpetuity. This means that the site will be avoided during development and protected during and after development. There are penalties for damage to a historic property on state or private land, including the imposition of monetary fines (Hawai'i Revised Statutes § 6E-11).

Conservation is recommended for 29723. Site protection will require an active effort on the part of the landowner to ensure development does not inadvertently cause impacts to this historic property. This plan formalizes the long-term commitment site preservation will entail. The location of the site will not be available for public access and no additional forms of preservation are proposed.

Conservation Measures

Conservation for Site 29723 will require immediate, short-term and long-term protection measures. These measures provide for actions to ensure the site is protected in perpetuity and that damage does not occur through negligent or unintentional means and can be implemented as soon as feasible. The landowner will be responsible for implementing the preservation measures contained in this plan.

The immediate conservation measures include establishing the location of a permanent buffer boundary around Site 29723 at a distance of 10 ft from the sides of the site by a legal land surveyor and registering the metes and bounds descriptions as a preservation area with the Bureau of Conveyances. Short-term

conservation measures include construction of a physical barrier 15 feet from the sides and ends of the trail to mark a temporary buffer zone to control site accessibility during development. The western end of the trail terminates at the project area boundary. Long-term conservation measures will consist of maintaining the current condition of the site with the provision that the landowner will notify DLNR-SHPD of any degradation or change of site condition. No physical barriers will mark the preservation buffer.

Preservation buffers

A permanent buffer zone is stipulated in this plan. The buffer zone will be established around Site 29723 by a legal land surveyor and will be registered as a preservation area with the Bureau of Conveyances. A proposed buffer of 10 ft is to be established along the north and south sides of the trail and at the eastern end (**Figure 24**). The western end of the trail terminates at the project area boundary. No physical barriers will mark the boundaries of the preservation area. The proposed buffer is depicted on **Figure 24**.

Immediate Conservation Measures

Two conservation measures can be implemented as soon as feasible upon approval of this Archaeological Site Preservation Plan. A licensed land surveyor is required to establish the metes and bounds description of the Site 29723 preservation buffer. All requirements and restrictions of this preservation plan, including a metes and bounds description of the permanent buffer will be incorporated into the property deed as a restrictive covenant and will be recorded with the Bureau of Conveyances with a copy sent to SHPD. Registration with the Bureau of Conveyances normally includes a copy of the Archaeological Site Preservation Plan.

Short-Term Conservation Measures

Short-term conservation measures will be implemented both prior to and during all phases of development. The measure will consist of erecting a temporary buffer fence set 15 feet from the north and south sides of the trail and from the eastern end see **Figure 24**). The temporary buffer wall also extend along the project area boundary at the west end of the trail The fencing will be installed prior to the commencement of any ground altering activity. The fencing will consist of orange safety fence that is ultraviolet ray resistant high-density polyethylene with diamond or square mesh, with a minimum weight of 20 lbs per 100 ft by 4 ft wide. The fencing will be removed following the development of the parcel.

Long-Term Conservation Measures

Long-term conservation measures include maintaining the current condition of the site with the provision that the landowner will notify DLNR-SHPD of any degradation or change of site condition. No physical barriers will be located along the boundaries of the Site 29723 permanent buffer.

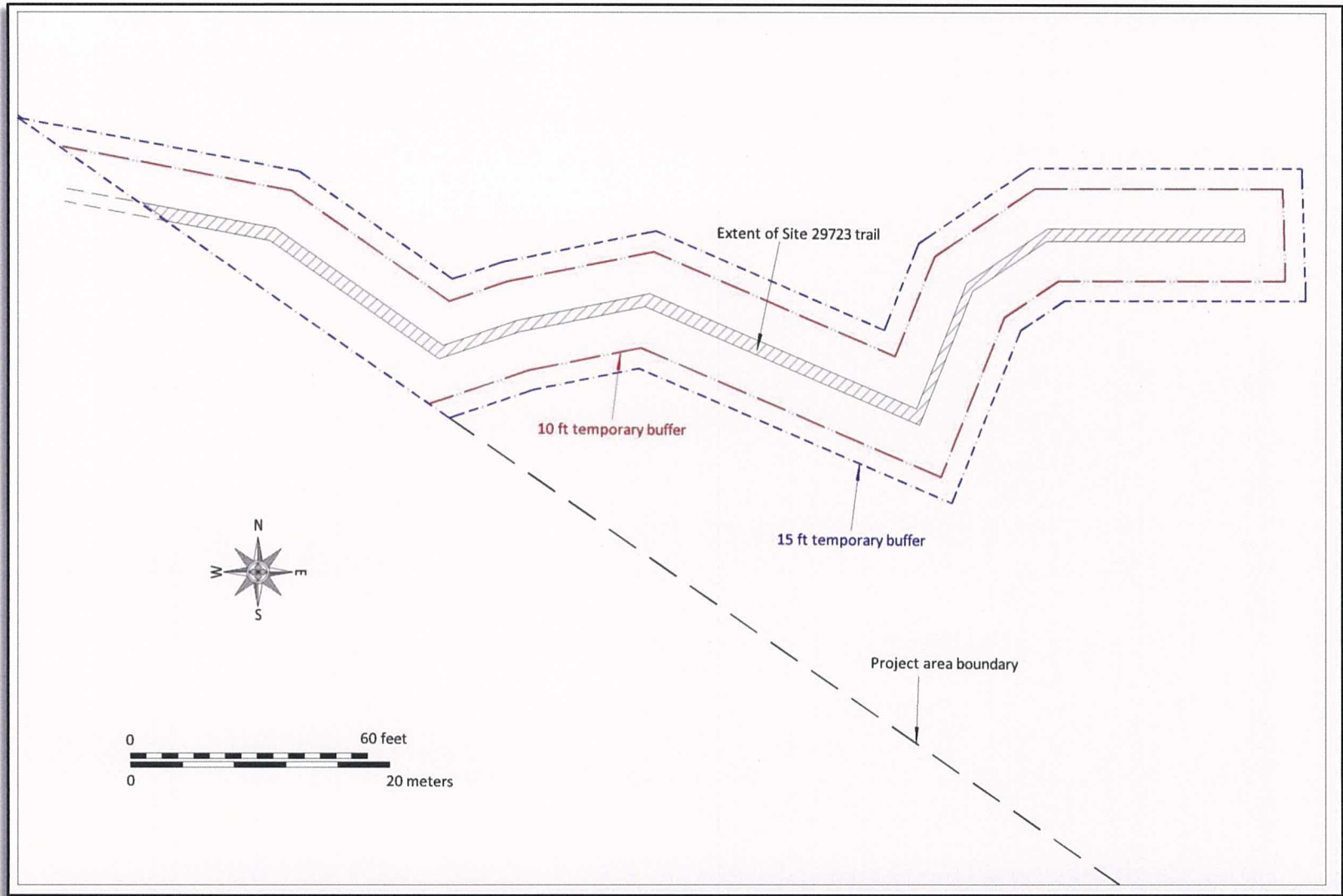


Figure 24. Preservation buffers at Site 29723

The terrain and vegetation within the preservation buffer will be left in its current condition. No vegetation clearing or landscaping will be conducted. All use of the interior of the permanent buffer zone is prohibited.

Access

The landowner will have unlimited access to the site, but no provision is made for public access. SHPD personnel will also have access to the site with prior notice and landowner permission.

Site Preservation Plan Consultation

Haun & Associates submitted the draft plan to the DLNR Nā Ala Hele Program, Hilo Office for consultation on March 3, 2014 (**Appendix B**)., No response was received as of May 14, 2014.

REFERENCES

Apple, R.A.

1965 *Hawaiian Archaeology: Trails*. B.P. Bishop Museum Special Publication 53. Honolulu.

Barrera, W.

1993 Keauohana, Puna, Hawaii Island. Archaeological Reconnaissance of TMK: 1-2-09:6 & 8. CHINAGO INC. Report prepared for Harriet M. Wedeman.

1995 Kaueleau, Puna, Hawaii Island: Archaeological Data Recovery of HRHP 15312 (TMK: 1-3-04:13). Comstock Cultural Resource Management, Inc. Report prepared for Bernard Garner.

Bevacqua, R., and T. Dye

1972 Archaeological Reconnaissance of Proposed Kapoho-Kalapana Highway, District of Puna, Island of Hawaii. Dept. of Anthropology, B.P.B.M. Prepared for Sam Hirota, Inc. and Dept. of Public Works.

Bonk, W.

1989 An Archaeological Reconnaissance Survey in the Geothermal Resource Subzone of Upper Kamaili, Kehena and Kikala, Puna, Hawaii. Prepared for Hawaii Natural Energy Institute.

1990 An Archaeological Reconnaissance Survey in the Geothermal Resource Subzone of Upper Kaimu, Makuu, Kaohe, Kehena, Kaapahu and Kamili, Puna, Hawaii. Prepared for Mid-Pacific Geothermal, Inc.

Borthwick, D., and H. Hammatt

1995 An Archaeological Assessment for the Proposed Hawaii Electric Light Company, Inc. (HELCO) Electric Distribution System in the District of Puna, Hawaii Island (TMK: 1-2-09; Por 2, 1-2-30; 1-2-31).; Cultural Surveys Hawaii, Inc. Report prepared for R.M Towill Corp.

Burtchard, G.C.

1994 Archaeological in the Kilauea East Rift Zone. Part 1: Land Use Model and Research Design and Part II. A Preliminary Sample survey. Kapoho, Kamaili and Kilauea Geothermal Subzones.

Crozier, S. and D. Barrere

1971 Archaeological and Historical Survey of the Ahupua'a of Puulaa, Puna, Hawaii. Bishop Museum Department of Anthropology Report 71-1.

Corbin, A.

2001 Archaeological Inventory Survey, Kalapana Road Realignment Project, Lands of Kamaili, Kauaea and Kaueleau, District of Puna, Island of Hawaii (TMK: 3-1-3-02; 03, 04). PHRI Report 1999 prepared for Ronald Sato.

Cordy, R.

- 1987 Archaeological Reconnaissance, Keauohana Ahupua`a, Puna, Hawaii Island. Historic Sites Section, Division of State Parks, Dept. of Land and Natural Resources, State of Hawaii.

DLNR (Department of Land and Natural Resources)

- 2003 Hawaii Administrative Rules, Title 13, Department of Land and Natural Resources, State Historic Preservation Division.

Ellis, W.

- 1963 Journal of William Ellis, Narrative of a Tour of Hawaii, or Owhyee...Honolulu: Advertiser Publishing Company.

Emory, K., W. Bonk and Y. Sinoto

- 1959 Hawaiian Archaeology: Fishhooks. Bernice P. Bishop Museum Special Publication 47, Honolulu.

FR

- n.d. Foreign Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

FT

- n.d. Foreign Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

Handy, E.S.C., and E.G. Handy

- 1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. B.P. Bishop Museum Bulletin 233. Bishop Museum Press. Honolulu.

Hawaii Sugarcane Planters Association website - http://www2.hawaii.edu/~speccoll/p_puna.html

Haun, A., and D. Henry

- 2002 Archaeological Inventory Survey of TMK: (3) 1-3-2:71, Land of Kaueleau, Puna District, Island of Hawaii. Haun & Associates Report 172 prepared for Mr. Edward Utyro, Washington D.C.
- 2006 Archaeological Assessment of TMK: (3) 1-3-09:Por. 005, Land of Kauaea, Puna District, Island of Hawaii. Haun & Associates Report 440 prepared for Mr. Tim Lui-Kwan.
- 2007a Archaeological Inventory Survey of TMK: (3) 1-3-2:50, Land of Kamaili, Puna District, Island of Hawaii. Haun & Associates Report 467 prepared for Ms. Yukie Ohashi.
- 2007b Archaeological Inventory Survey of TMK: (3) 1-3-2:78, Land of Kamaili, Puna District, Island of Hawaii. Haun & Associates Report 536 prepared for Paho Realty.
- 2007c Archaeological Inventory Survey of TMK: (3) 1-3-4:08, Land of Opihikao, Puna District, Island of Hawaii. Haun & Associates Report 556 prepared for Robert Silacci.

- 2012 Archaeological Inventory Survey of TMK: (3) 1-3-09:Por. 005, Kauaea Ahupua'a, Puna District, Island of Hawaii. Haun & Associates Report 901 prepared for Sanford Service Center.
- Hudson, A.
1932 Archaeology of East Hawaii. Bernice P. Bishop Museum.
- Indices
1929 *Indices of Awards Made by the Board of Land Commissioners to Quiet Land Titles in the Hawaiian Islands*. Territory of Hawaii, Honolulu.
- Kamakau, S.M.
1961 *Ruling Chiefs of Hawaii*. Kamehameha Schools Press. Honolulu.
- Kuykendall, R.S.
1938 *The Hawaiian Kingdom 1778-1854. Foundation and Transformation*. Honolulu: University Press of Hawaii.
- Latinis, D., J. Moore and J. Kennedy
1997 An Archaeological Inventory Survey Including Subsurface Testing for a portion of the Ahupua'a of Keekee Located at TMK: 1-2-09:29 (The Kalani Kai Subdivision), Puna District, Island of Hawaii. Archaeological Consultants of the Pacific, Inc. Report prepared for Mr. Richard Koob.
- Leilani Estates Subdivision website – <http://www.leilaniestates.org>
- McEldowney, H.
1979 Archaeological and Historical Literature Search and Research Design, Lava Flow Control Study, Hilo Hawaii. Prepared for US Army Engineer Division. Department of Anthropology B.P. Bishop Museum.
- NR
n.d. Native Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.
- NT
n.d. Native Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.
- Rosendahl, M.
1988 Archaeological Field Inspection, Access Road Corridor, Lands of Keauohana and Kehena, Puna District, Island of Hawaii (TMK: 1-2-09:03). PHRI Report 480 prepared for Mr. Glen Taguchi.

Sato, H.H., E.W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro Jr.

1973 *Soil Survey of the Island of Hawaii*. U.S. Dept. of Agriculture, Soil Conservation Service and University of Hawaii Agricultural Experiment Station. Washington D.C. Government Printing Office.

Sterns, H. and G. Macdonald

1946 Geology and groundwater resources of the Island of Hawaii: Hawaii Division of Hydrology, Bulletin 9, p. 363.

Stokes and Dye

1991 Heiau of the Island of Hawai'i. *Bishop Museum Bulletin in Anthropology* 2. Bishop Museum Press, Honolulu.

Swanson, D., W. Duffield and R. Fiske

1976 Displacement of the South Flank of Kilauea Volcano: The Result of Forceful Intrusion of Magma into the Rift Zones. Geologic Survey Professional Paper 963.

USGS.gov website - <http://pubs.usgs.gov/pp/pp1623/bib/eqbib.txt>

Waihona`Aina Corporation

2000 The Mahele Database, Waihona.com

Wolfe, E., and J. Morris

2001 Geological Map of the Island of Hawaii. U.S. Department of the Interior. U.S Geological Survey

APPENDIX A: SHPD Acceptance Letter



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

601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

901 Rec'd 9/30/13
WILLIAM J. ALA, JR.
COMMISSIONER
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT
ESTHER KAI'AINA
FIRST DEPUTY
WILLIAM M. TANI
DEPUTY DIRECTOR - WATER
STATE RESOURCES
BOATING AND OCEAN RECREATION
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAOIULANI ISLAND RESERVE COMMISSION
LAND
STATE PARKS

September 23, 2013

Alan E. Haun, Ph. D.
Haun & Associates
73-1168 Kahuna A'o Road
Kailua-Kona, Hawai'i 96740

LOG NO: 2013.4598
DOC NO: 1309SN12
Archaeology

Dear Dr. Haun:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Archaeological Inventory Survey of 309 Acres
Kauaea Ahupua'a, Puna District, Island of Hawai'i
TMK: (3) 1-3-009:005 (por)**

Thank you for submitting the report titled *Archaeological Inventory Survey TMK (3) 1-3-009:005 (por) Kauaea Nui Ahupua'a, Puna District, Island of Hawaii* (A. Haun and D. Henry, August, 2013). We received your submittal on August 22, 2013. The surveyed area described in the report consists of a 309-acre portion of the 694.5-acre parcel. The fieldwork portion of this survey consisted of a 100% variable intensity survey method dependent upon the area in the project area being surveyed. The report indicates that 146-acres or 47% of the project area was subjected to a high intensity survey using 10 m intervals. 132-acres or 43% employed a moderate intensity survey spaced at 30-50 m and 31-acres or 10% of the project area utilized a low intensity survey. The low intensity survey consisted of a 100% non-systematic vehicular and pedestrian examination of the previously disturbed cinder quarry.

The survey identified six (6) sites comprised of ten (10) features, all of which are newly identified (SIHP Site 50-10-55-29723 through 29728). One of the sites, a portion of the Kauaea Trail (Site 29723) is determined to be Precontact; the remaining sites are historic in age and include roads (Site 29724), a survey marker (Site 29725), a sugarcane loading amp (Site 29726), a trig station (Site 29727), and a railroad grade (Site 29728). A 4.5 meter section of the approximately 91 meter long Kauaea Trail within the project area was mapped. The survey also included and documented 20 caves and three overhangs. All of these natural features were thoroughly inspected and determined to have no evidence of cultural use or modification. SHPD believes that the survey has adequately covered the project area.

SHPD concurs with significance assessments for all six sites as being significant under HAR 13-284-6 Criterion "d". Site 29723 has also been assessed as being culturally significant under Criterion "e" as a named trail. SHPD concurs with this assessment as well. SHPD concurs with the recommended treatments that no further work or preservation is necessary for Sites 29724-29728. We believe these to have been adequately documented. We look forward for the opportunity to review and approve the recommended preservation plan for Site 29723 and also concur with the recommended consultation with the DLNR Nā Ala Hele program regarding this trail.

With a few minor revisions as outlined in the attachment, SHPD believes that this report meets the requirements of HAR 13-276-5 and it is accepted by SHPD. Please send one hardcopy of the document with the revisions listed below, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library. Please contact Sean Naleimaile at (808) 933-7651 or Sean.P.Naleimaile@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham
Archaeology Branch Chief

APPENDIX B: Haun & Associates to Na Ala Hele Consultation Letter**HAUN & ASSOCIATES**

ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL RESOURCE MANAGEMENT SERVICES
PHONE: 808.325.2402 | FAX: 808.325.1520 | WEB: haunandassociates.com
73-1168 KAHUNA A'O ROAD | KAILUA-KONA | HI 96740

March 3, 2014

Project 990

Nelson Ayers
Division of Forestry and Wildlife
Na Ala Hele Trail and Access Program
Department of Land and Natural Resources
1151 Punchbowl Street
Room 325, Kalanimoku Building
Honolulu, Hawaii 96813

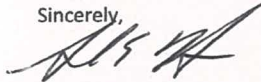
Subject: Draft Archaeological Site Preservation Plan,
Site 50-10-55-29723, Kauaee Ahupua'a, Puna District,
Island of Hawai'i, TMK: (3) 1-3-09: Por.005

Dear Mr. Ayers:

As part of on-going consultation, Haun & Associates is submitting the enclosed draft archaeological site preservation plan to the Department of Land and Natural Resources (DLNR) *Na Ala Hele Trail and Access Program*. Please review the plan to determine if the DLNR is interested incorporating Site 50-10-55-29723 into the *Na Ala Hele Trail and Access Program*.

If you have any questions, or require additional information, please contact me at (808) 325-2402.

Sincerely,



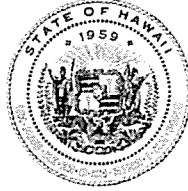
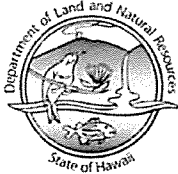
Alan E. Haun, Ph.D.
Principal Investigator

Enclosure: Draft Archaeological Site Preservation Plan

cc: Clement Chang, Trail and Access Specialist, DLNR, 19 E. Kawili St., Hilo, HI, 96720 w/enclosure
Sanford Service Center, 15-2628 Keaau-Pahoa Rd., Pahoa, HI, 96778 w/enclosure
Tim Lui-Kwan, Carlsmith Ball LLP, 1001 Bishop St., Suite 2200, Honolulu, HI, 96813 w/enclosure

Rec'd 6/30/14 990

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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

JESSE K. SOUKI
BEST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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

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

601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

June 24, 2014

Dr. Alan Haun
Haun and Associates
73-1168 Kahuna A'o Road
Kailua Kona, Hawaii'i 96740

LOG NO: 2014.02243
DOC NO: I406SN18
Archaeology

Dear Dr. Haun:

**SUBJECT: Chapter 6E-42 Historic Preservation Review -
Archaeological Site Preservation Plan for the Kauaea Trail (SIHP Site 50-10-55-29723)
Kauaea Ahupua'a, Puna District, Island of Hawai'i
TMK (3) 1-3-009:005 por**

Thank you for the opportunity to review the revised draft plan titled *Archaeological Site Preservation Plan, Site 29723 Kauaea Ahupua'a, Puna District, Island of Hawai'i TMK (3) 1-3-009:005* by Haun and Henry 2013. This document was received by our office on May 16, 2014. The plan outlines the preservation measures that will be used to insure the conservation and perpetual preservation of Kauaea Trail that was recommended for preservation in the accepted archaeological inventory survey (AIS) report for this property (Haun and Henry 2013, *Log No. 2013.4598 Doc. No. 1309SN12*). A section of the trail approximately 91 meter long is within the southeastern corner of the subject parcel; it once continued mauka and makai along the along the southern boundary of Kauaea Ahupua'a.

The plan indicates that the permanent buffer for SIHP 29723 will be 10 feet with a 15 foot temporary buffer zone during construction. The permanent buffer for Site 29723 will be subjected to a meets and bounds survey and will be recorded with the Bureau of Conveyances. The land owner will be responsible for the maintenance of the site, and no public access will be provided. We believe that this plan meets the requirements of Hawaii Administrative Rule 13-277 and is accepted by SHPD. Please send one hardcopy of the document, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF version on CD, to the Kapolei SHPD office, attention SHPD Library.

Please contact Sean Nāleimaile at (808) 933-7651 or Sean.P.Naleimaile@Hawaii.gov if you have any questions or concerns regarding this letter.

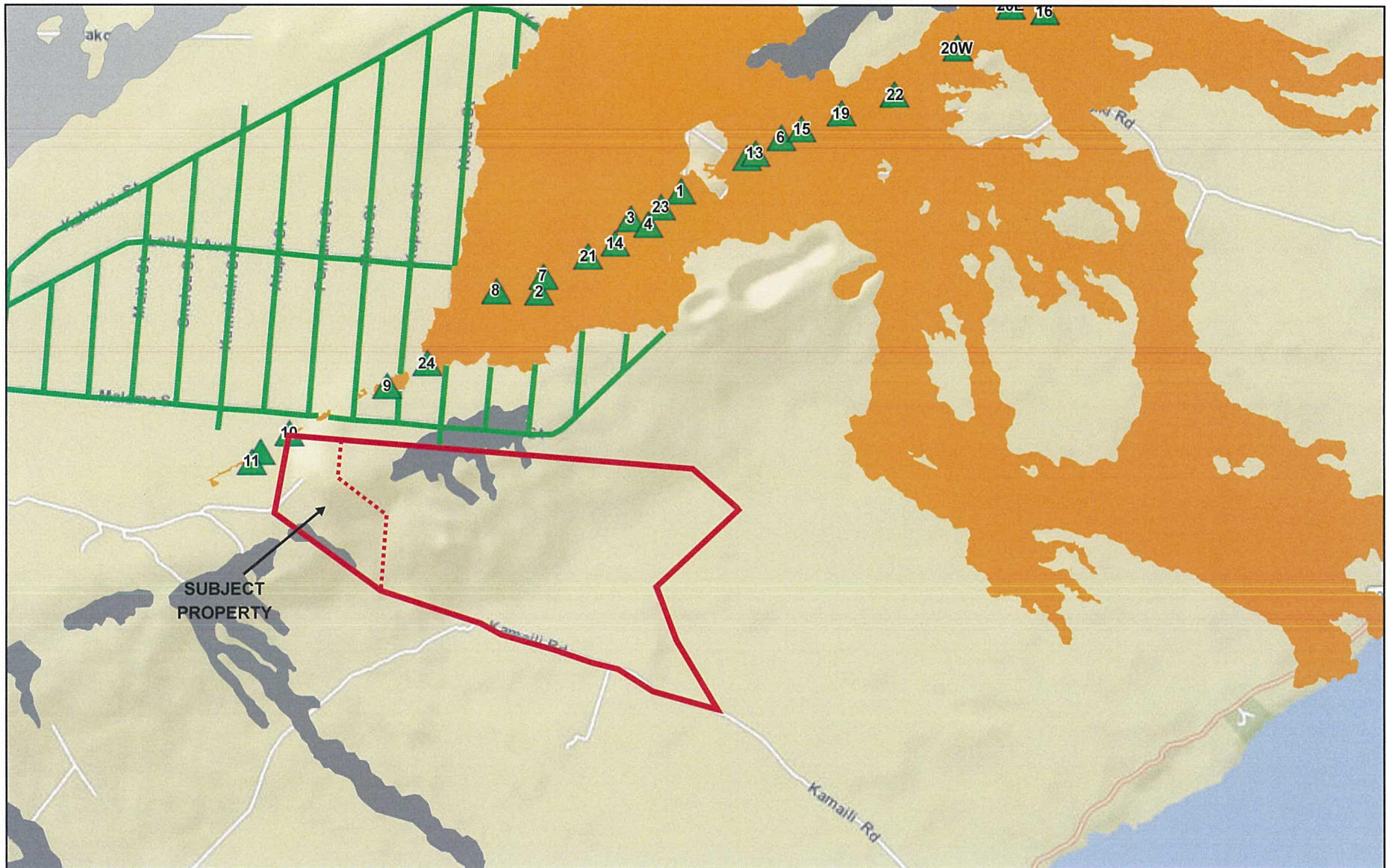
Aloha.

A handwritten signature in black ink, appearing to read "Theresa K. Donham".

Theresa K. Donham
Archaeology Branch Chief

EXHIBIT 15

ArcGIS Web Map



1/14/2019 1:13:42 PM

Fissures

▲ Not Active

— Residents/Authorized Personnel Only

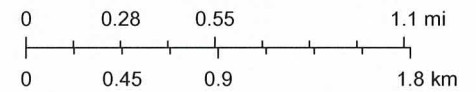
Previous Flow Historic Flows

Flow Expansion

1840

1955

1:36,112



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan,

Web AppBuilder for ArcGIS
Esri, HERE, Garmin, NGA, USGS | USGS, Esri |

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 12, 2018

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

ROBERT K. MASUDA
FIRST DEPUTY

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

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

Mr. Eric Tanouye
Hawaii Floriculture and Nursery Association
P.O. Box 5640
Hilo, HI 96720

Subject: Emergency Issuance of Right-of-Entry to the Hawaii Floriculture and Nursery Association. for Cinder Mining Purposes on State Lands Encumbered under Executive Order No. 1288 to the Division of Forestry and Wildlife as Part of the Mauna Loa Forest Reserve, Located at Humuula, North Hilo, Hawaii, TMKs: (3) 3-8-001: portion of 001.

Dear Mr. Tanouye:

The Hawaii Floriculture and Nursery Association (HFNA) is requesting an emergency right-of-entry onto the above-referenced State Lands encumbered under Executive Order No. 1288 (EO1288) to the Division of Forestry and Wildlife (DOFAW) for the purpose of mining black cinders to fulfill the needs of the floral and nursery associations. As a result of the current ongoing volcanic activity in lower Puna, the primary source of black cinder suitable for the requirements of these industries became unavailable. Black volcanic cinder is one of the primary planting mediums used in the floral and nursery businesses and it is estimated that operations within these industries have a very limited supply. A disruption in the supply of black cinder may result in economic hardship to these businesses.

HFNA has identified the Pu'unene Cinder Pit as a potential source of black cinder planting material. The cinder pit is located at the northwest corner of the Mauna Loa Forest Reserve and is only accessible from the old Saddle road and through a locked gate located on Department of Hawaiian Home Lands (DHHL) property and identified by TMK: (3) 3-8-001:001. Entry through the gate will to be coordinated with DOFAW and DHHL personnel.

This request is in response to a Proclamation from the Office of the Governor of the State of Hawaii dated May 3, 2018 and the Supplemental Proclamations dated May 9, and June 5, 2018 (together, the Proclamations). The Proclamations are a result of the current lava flow and the potential disruption of access and services to the lower Puna district.

Based on the information you have provided, and pursuant to the Proclamations and the authority delegated to the Chairperson by the Board of Land and Natural Resources at its meeting of June 8, 2018, under agenda Item D-10, HFNA, its consultants, contractors, and/or persons acting for or on its behalf, is hereby granted a right-of-entry permit onto portions of State lands for the purpose of mining and hauling cinders from the areas indicated on the attached map designated as Exhibit A, subject to the following terms and conditions:

EXHIBIT 17

1. This right-of-entry is effective upon our receipt of: (i) a copy of this letter countersigned by a duly authorized agent of HFNA, and (ii) receipt of an acceptable certificate of liability insurance; and shall be effective only for the duration of the Proclamations.
2. This right-of-entry extends only to the subject public lands under the control and ownership Department of Land and Natural Resources (Department). HFNA is solely responsible for obtaining the consent of the owners of adjacent parcels for access over, and any work on, lands not under the Department's control or ownership, including private lands and public lands under the management control of a County, Federal or State agency other than Department.
3. Royalty rate of \$2.50 per cubic yard will be assessed on black cinder material excavated from the site. Monthly payments shall be made to Department of Land and Natural Resources, Division of Forestry and Wildlife, P.O. Box 621, Honolulu, HI 96809. An accurate accounting of black cinder material excavated from the site along with any other conditions as determined by DOFAW, will be provided by the designated operator contracted by HFNA.
4. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall procure at its own expense, and maintain during the entire period of this right-of-entry, from an insurance company or companies licensed or authorized to do business in the State of Hawaii with an AM Best rating of not less than "A- VIII" or other comparable and equivalent industry rating, a policy or policies of comprehensive public liability insurance or its equivalent, in an amount of at least \$1,000,000 for each occurrence and \$2,000,000 aggregate, and with coverage terms acceptable to the Chairperson of the Board. The policy or policies of insurance shall name the State of Hawaii as an additional insured and a copy shall be filed with the Department. The insurance shall cover the entire premises, including all buildings, improvements, and grounds and all roadways or sidewalks on or adjacent to the premises in the use or control of HFNA, its consultants, contractors and/or persons acting for or on its behalf. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall furnish the Department with a certificate(s) showing the policy(s) to be initially in force, keep certificate(s) on deposit during the entire period and furnish a like certificate(s) upon each renewal of the policy(s). This insurance shall not be cancelled, limited to scope of coverage, or non-renewed until written notice has been given to the Department. The Department shall retain the right at any time to review the coverage, form, and amount of the insurance required. If, in the opinion of the Department, the insurance provisions in this right-of-entry do not provide adequate protection for the Department, the Department may require HFNA, its consultants, contractors and/or persons acting for or on its behalf to obtain insurance sufficient in coverage, form, and amount to provide adequate protection. The Department's requirements shall be reasonable but be designed to assure protection for and against the kind and extent of the risks which exist at the time a change in insurance is required. The Department shall notify HFNA, its consultants, contractors and/or persons acting for or on its behalf in writing of changes in the insurance requirements and HFNA, its consultants, contractors and/or persons acting for or on its behalf shall deposit copies of acceptable insurance policy(s) or certificate(s) thereof, with the Department incorporating the changes within receipt of the notice. The procuring of the required policy(s) of insurance shall not be construed to limit HFNA, its consultants, contractors and/or persons acting for or on its behalf, liability under this right-of-entry nor to release or relieve HFNA, its consultants, contractors and/or persons acting for or on its behalf of the indemnification provisions and

requirements of this right-of-entry. Notwithstanding the policy(s) of insurance, HFNA, its consultants, contractors and/or persons acting for or on its behalf shall be obligated for the full and total amount of any damage, injury, or loss caused by HFNA, its consultants, contractors and/or persons acting for or on its behalf negligence or neglect connected with this right-of-entry.

5. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall indemnify, defend, and hold the State of Hawaii, Department of Land and Natural Resources harmless from and against any claim or demand for loss, liability, or damage, including claims for bodily injury, wrongful death, or property damage, arising out of or resulting from: (1) any act or omission on the part of HFNA, its consultants, contractors and/or persons acting for or on its behalf relating to the use, occupancy, maintenance, or enjoyment of the right-of-entry area or premises by HFNA, its consultants, contractors and/or persons acting for or on its behalf; (2) any failure on the part of HFNA, its consultants, contractors and/or persons acting for or on its behalf to maintain the right-of-entry area or premises and areas adjacent thereto in the use or control of HELCO, its consultants, contractors and/or persons acting for or on its behalf, and including any accident, fire or nuisance, growing out of or caused by any failure on the part of HFNA, its consultants, contractors and/or persons acting for or on its behalf to maintain the area or premises in a safe condition; and (3) from and against all actions, suits, damages, and claims by whomsoever brought or made by reason of the non-observance or non-performance of any of the terms, covenants, and conditions of this right-of-entry or the rules, regulations, ordinances, and laws of the federal, state, municipal or county governments by HFNA, its consultants, contractors and/or persons acting for or on its behalf.
6. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall not cause or permit the escape, disposal or release of any hazardous materials except as permitted by law. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall not allow the storage or use of such materials in any manner not sanctioned by law or by the highest standards prevailing in the industry for the storage and use of such materials, nor allow to be brought onto the right-of-entry area or premises any such materials except to use in the ordinary course of business of HFNA, its consultants, contractors and/or persons acting for or on its behalf, and then only after written notice is given to the State of Hawaii, Department of Land and Natural Resources of the identity of such materials and upon the Department's consent which consent may be withheld at the Department's sole and absolute discretion. If any lender or governmental agency shall ever require testing to ascertain whether or not there has been any release of hazardous materials by HFNA, its consultants, contractors and/or persons acting for or on its behalf, then HFNA, its consultants, contractors and/or persons acting for or on its behalf shall be responsible for the cost thereof. In addition, HFNA, its consultants, contractors and/or persons acting for or on its behalf shall execute affidavits, representations and the like from time to time at the Department's request concerning HFNA, its consultants, contractors and/or persons acting for or on its behalf best knowledge and belief regarding the presence of hazardous materials on the right-of-entry area or premises placed or released by HFNA, its consultants, contractors and/or persons acting for or on its behalf.
7. HFNA, its consultants, contractors and/or persons acting for or on its behalf agree to indemnify, defend and hold the State of Hawaii, Department of Land and Natural Resources harmless, from any damages and claims resulting from the release of

hazardous materials on the right-of-entry area or premises occurring while HFNA, its consultants, contractors and/or persons acting for or on its behalf is/are in possession, or elsewhere if caused by HFNA, its consultants, contractors and/or persons acting for or on its behalf. These covenants shall survive the expiration or earlier termination of this right-of-entry.

For purposes of this right-of-entry, "hazardous material" shall mean any pollutant, toxic substance, hazardous waste, hazardous material, hazardous substance, or oil as defined in or pursuant to the Resource Conservation and Recovery Act, as amended, the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, the Federal Clean Water Act, or any other federal, state, or local environmental law, regulation, ordinance, rule, or by-law, whether existing as of the date hereof, previously enforced, or subsequently enacted.

8. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall comply with all of the requirements of all municipal, state, and federal authorities and observe all municipal, state and federal laws applicable to the right-of-entry area or premises, now in force or which may be in force.
9. HFNA, its consultants, contractors and/or persons acting for or on its behalf in the exercise of this right-of-entry shall use appropriate precautions and measures to minimize inconveniences to surrounding residents, landowners, and the public in general.
10. At all times herein, HFNA, its consultants, contractors and/or persons acting for or on its behalf shall keep the right-of-entry area or premises in a strictly clean, sanitary and orderly condition.
11. HFNA, its consultants, contractors and/or persons acting for or on its behalf in the exercise of this right-of-entry, shall be responsible for all expenses, costs and /or fees associated with the work.
12. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall exercise due care to prevent fires. No open burning of any type shall be permitted on the right-of-entry area and/or the surrounding State lands.
13. HFNA, its consultants, contractors and/or persons acting for or on its behalf, is aware that there are no public restroom facilities available at the subject locations and should make appropriate arrangements as required.
14. HFNA, its consultants, contractors and/or persons acting for or on its behalf shall supply to Land Division a name and local telephone number of the contact person who can be reached at any time around the clock during the work.
15. In the event any unanticipated sites, historic properties, burial sites as defined in section 6E-2, Hawaii Revised Statutes, or remains such as bone or charcoal deposits, rock or coral alignments, pavings or walls are encountered, HFNA, its consultants, contractors and/or persons acting for or on its behalf in the exercise of this right-of-entry shall stop work and contact the State Historic Preservation Division in Kapolei at (808) 692-8015 immediately.

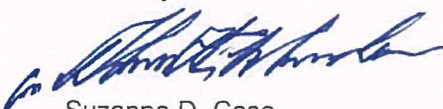
Eric Tanouye
Hawaii Floriculture and Nursery Assoc.
June 12, 2018
Page 5

16. This right-of-entry or any rights hereunder shall not be sold, assigned, conveyed, leased, let, mortgaged or otherwise transferred or disposed.
17. This right-of-entry is revocable and terminable at any time for any reason in the sole and absolute discretion of the Chairperson.
18. All disputes or questions arising under this right-of-entry shall be referred to the Chairperson of the Board of Land and Natural Resources for a determination and resolution of the dispute or question. The Chairperson's decision shall be final and binding on the parties herein.
19. This right-of-entry is revocable and terminable at any time for any reason in the sole and absolute discretion of the Chairperson. As long as the revocation or termination is not as a result of any fault of, or default by HFNA of any provision of this right-of-entry, then HFNA may apply for a refund of any advanced rental payment made based upon the percentage of use denied by the revocation or termination.
20. The Department of Land and Natural Resources, Land Division, reserves the right to impose additional terms and conditions, if deemed necessary while this right-of-entry is in force.

Should you concur with the foregoing terms and conditions, please have an authorized agent of HFNA acknowledge and return a signed copy of this letter to the Hawaii District Land Office, at 75 Aupuni Street, Room 204, Hilo, Hawaii 96720.

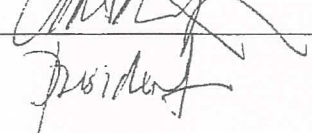
If you have any questions, please feel free to call Steve Bergfeld of our Division of Forestry and Wildlife, Hawaii Branch Office at (808) 974-4221, or Gordon Heit, Hawaii District Land Office at (808) 961-9590.

Sincerely,


Suzanne D. Case
Chairperson

WE CONCUR:

Hawaii Floriculture and Nursery Association

By: 
Its: President

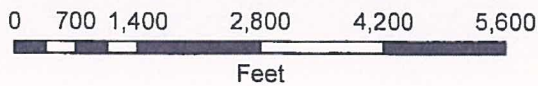
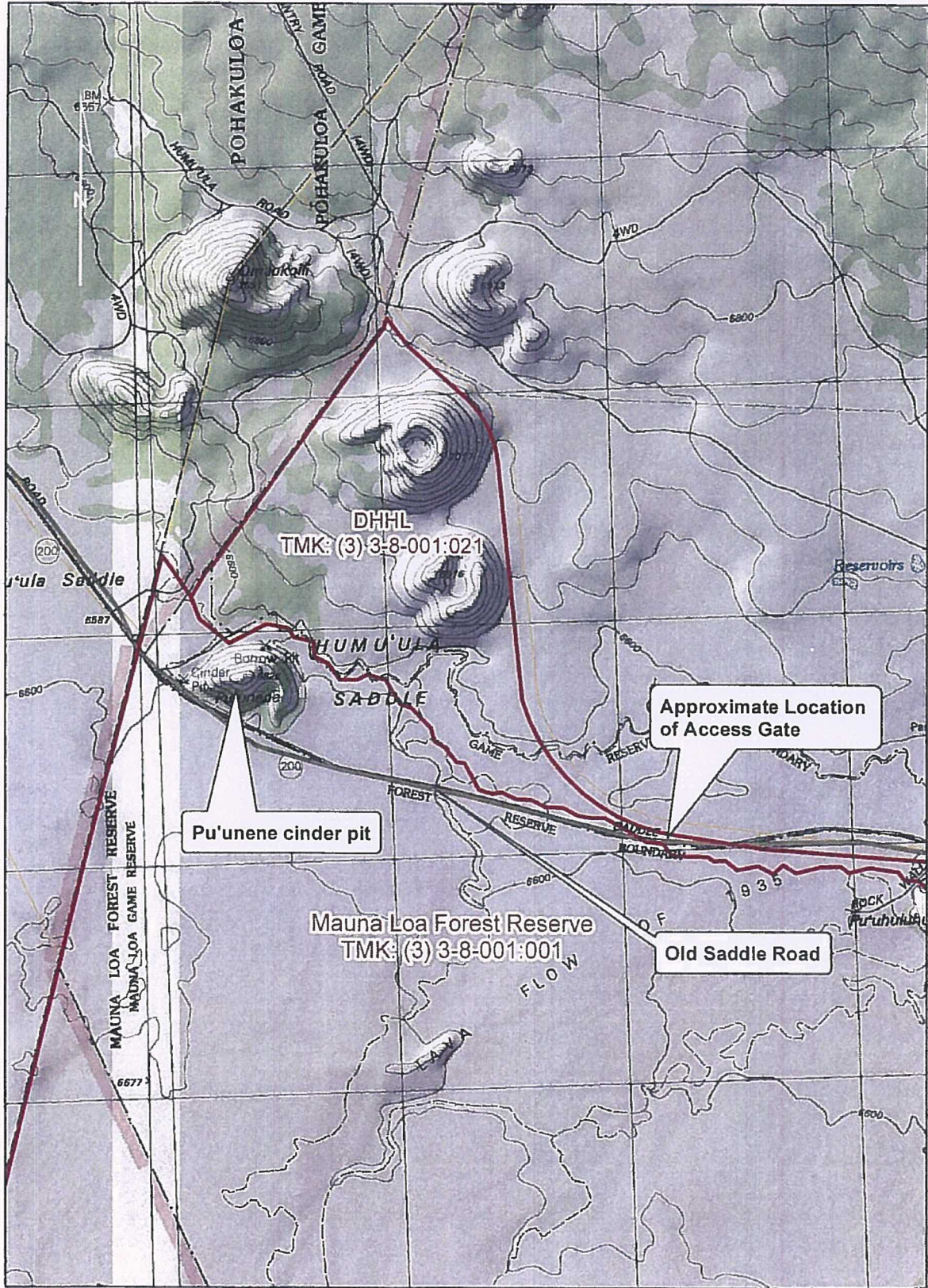
6/20/18
Date

Cc: Land Board Member
Central File
District File
DOFAW

2018 JUN 21 A 8:48
RECEIVED
LAND DIVISION
HILO, HAWAII

Mauna Loa Forest Reserve

EXHIBIT A



RIGHT-OF-ENTRY TO THE HAWAII FLORAL AND NURSERY ASSOCIATION



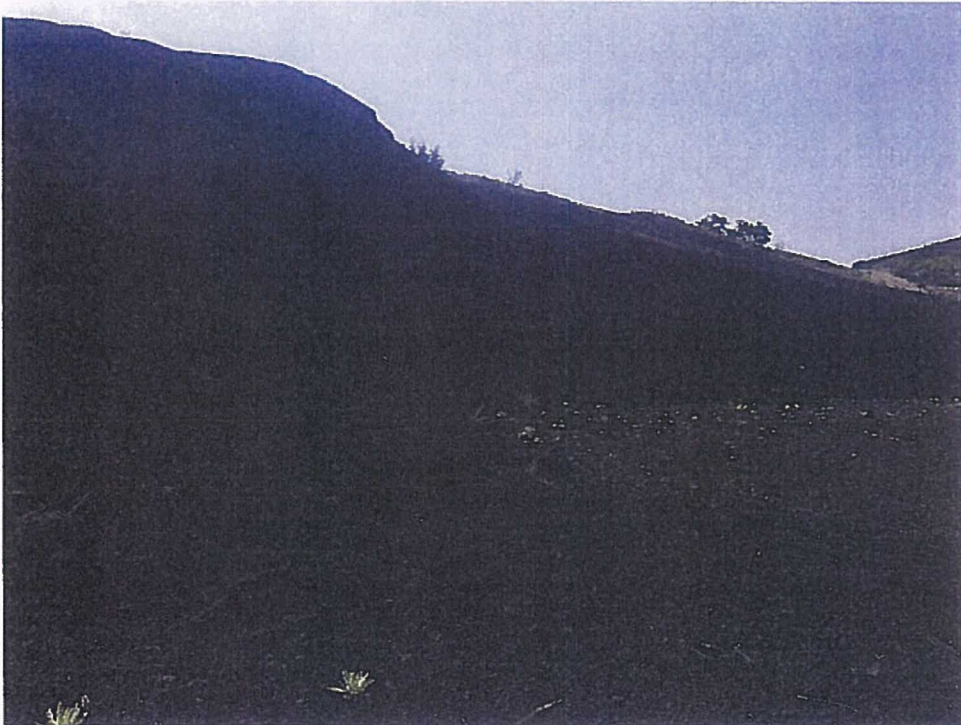
COLLECTING SAMPLES FOR NEMATODE TESTING



RIGHT-OF-ENTRY TO THE HAWAII FLORAL AND NURSERY ASSOCIATION



PU'UNENE CINDER CONE



Hawaii News

Hawaii island eruption-related tourism losses could exceed \$200 million

By [Allison Schaefer](#)

August 4, 2018



JAMM AQUINO /
JAQUINO@STARADVERTISER.COM

The night sky is illuminated by lava in Pahoa, Hawaii Island. Before Kilauea began erupting May 3, Big Island tourism officials were predicting arrivals would grow year over year in May and June. Instead arrivals dropped.

The groundbreaking fissures from Kilauea Volcano that created a molten lava river three months ago have cast a chill over the Big Island's tourism that could potentially cost \$200 million in lost visitor spending.

That's the opinion of Mark Kimura, an affiliate faculty member of the Department of Geography and Environmental Science at the University of Hawaii at Hilo, who released a new economic impact survey Friday on the latest Kilauea eruption.

Kimura said the economic impact of the event in May and June had already cost Hawaii island an estimated 38,000 in potential visitors and \$50 million in potential tourism spending.

Based on predicted growth trends, Kimura estimated that the island should have welcomed 320,092 visitors in May and June but instead only drew 281,681 visitors. That's actually a seasonally adjusted 12 percent loss, which is more significant than the results reported by the Hawaii Tourism Authority in May and June.

HTA reported that visitors to Hawaii island dropped nearly 2 percent in May from the previous year as Norwegian Cruise Lines canceled Pride of America's port calls to Hilo and Kona during three voyages in May. While NCL had re-entered the Hawaii island market by June, HTA still reported a nearly 5 percent visitor decrease that month.

Kimura compared the current eruption to Hurricane Iniki, which he said is the closest natural disaster to the eruption for which isle data is available. Assuming that tourists' reaction to the eruption would be similar to Hurricane Iniki, Kimura said it would take Hawaii island at least 4.8 months to recover. Losses would hit \$200 million if the eruption would stop today, he said.

"We know there will be a significant cost — \$200 million just gives us some rough idea," Kimura said. "The total is still hard to tell since we only have two months of actual data from when it started."

Kimura also estimated that the impact of the Kilauea eruption on the Pahoa area would be about \$25 million annually if all the residents and businesses in the affected portion had to leave.

Kimura's calculations might understate the loss.

Hawai'i Volcanoes National Park estimated spending losses of more than \$38 million since most of the park has been closed for 85 days.

And resorts as far away as the west side of Hawaii island are reporting significant losses.

Stephanie Donoho, administrative director of the Kohala Coast Resort Association said Kohala Coast properties lost more than \$25 million in hotel room revenue in May and June alone. That's the equivalent to a loss of \$1.05 million in general excise tax and \$2.56 million in the transient accommodations tax, Donoho said.

Paul Brewbaker, principal economist at TZ Economics, said, "The sad fact is that this year the Big Island was probably reaching its highest levels of occupancy ever before May (on a seasonally adjusted basis)."

Jack Richards, president and CEO of Hawaii's largest travel wholesaler, Pleasant Holidays LLC, kicked off 2018 anticipating the state would break a benchmark 10 million arrivals by year's end. But Richards has been less bullish since May when signs of dampening began to emerge in the Big Island tourism's performance.

"We have seen no significant improvement in bookings for 2018 and 2019 travel since the May 3 volcano eruption. Island of Hawaii bookings are down year over year," Richards said.

Occupancy at Big Isle hotels fell 6 percentage points to nearly 69 percent in June, according to data released by Tennessee-based STR, which tracks hotel performance across the state. It was the island's largest monthly occupancy decline since November 2013, when occupancy fell 11 percent to just over 54 percent.

In June the island's average daily rate fell 0.3 percent from June 2017 to just over \$239, and the revenue per available room, or RevPAR, dropped more than 8 percent to almost \$164. RevPAR is the amount each property gets nightly for each room regardless of the room's occupancy status.

Jan Freitag, STR senior vice president, cautioned that "one month does not a trend make" and said historically, "the hotel industry is very, very resilient. Travel always bounces back. When things are dire, people are saying that they need to travel."

**BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAI'I**

In the Matter of the Petition of

TRUSTEES OF THE ESTATE OF
BERNICE PAUAHI BISHOP dba
KAMEHAMEHA SCHOOLS

To Amend The Conservation Land Use
District Boundaries Into the Agricultural Land
Use District for approximately 94.107 acres of
land, consisting of a portion of Tax Map Key
No. (3) 1-3-009-005 (por.) at Kauaea, Puna,
Island and County of Hawai'i, State of
Hawai'i.

DOCKET NO. A19-807

VERIFICATION OF PETITIONER

VERIFICATION

CALVERT G. CHIPCHASE, being first duly sworn, on oath, deposes and says that he is the attorney for TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP dba KAMEHAMEHA SCHOOLS and, as such, is authorized to make this verification on behalf of said entity; that he has read the foregoing Petition and knows the contents thereof; and that the same are true to the best of his knowledge and belief.

/

/

/

/

/

/

DATED: Honolulu, Hawai'i _____ June 21 _____, 2019.

Calvert Chipchase
CALVERT G. CHIPCHASE

Subscribed and sworn before me
This 21st day of JUNE, 2019.

Catherine Villegas
Print Name: Catherine Villegas
Notary Public, State of Hawaii

My commission expires: 8/7/2021



NOTARY CERTIFICATION STATEMENT

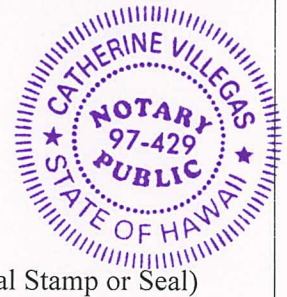
Document Identification or Description: Verification of Petition for Land
Use Commission District Boundary Amendment

Doc. Date: JUN 21 2019 or Undated at time of notarization

No. of Pages: 2 Jurisdiction: First Circuit
(in which notarial act is performed)

Catherine Villegas JUN 21 2019
Signature of Notary Date of Notarization and
Catherine Villegas Certification Statement

Printed Name of Notary



(Official Stamp or Seal)

**BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII**

In the Matter of the Petition of

TRUSTEES OF THE ESTATE OF
BERNICE PAUAHI BISHOP dba
KAMEHAMEHA SCHOOLS

To Amend The Conservation Land Use
District Boundaries Into the Agricultural Land
Use District for approximately 94.107 acres of
land, consisting of a portion of Tax Map Key
No. (3) 1-3-009:005 (por.) at Kauaea, Puna,
Island and County of Hawai'i, State of
Hawai'i.

DOCKET NO. A19-807

VERIFICATION OF LICENSEE

VERIFICATION OF LICENSEE

SANFORD IWATA, being first duly sworn, on oath, deposes and says he is the President of Sanford's Service Center, Inc. and, as such, is authorized to make this verification on behalf of said entity; that he/she has read the foregoing Petition and knows the contents thereof; and that the same are true to the best of his/her knowledge and belief.

/

/

/

/

/

/

/

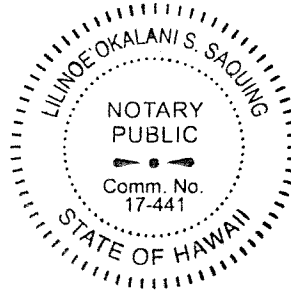
DATED: Hilo, Hawai'i June 17, 2019.

Sanford Iwata

Sanford Iwata
SANFORD'S SERVICE CENTER, INC.
Its President

Subscribed and sworn before me
This 17 day of June, 2019.

Lilinoe Okalani S. Saquing
Print Name: Lilinoe Okalani S. Saquing
Notary Public, State of Hawaii



My commission expires: 10.29.2021

NOTARY CERTIFICATION STATEMENT

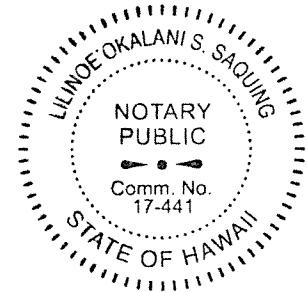
Document Identification or Description: Verification of Petition for Land Use Commission District Boundary Amendment

Doc. Date: June 17, 2019 or Undated at time of notarization

No. of Pages: 2 Jurisdiction: Third Circuit
(in which notarial act is performed)

Lilinoe Okalani S. Saquing 06.17.19
Signature of Notary Date of Notarization and

Certification Statement
Lilinoe Okalani S. Saquing
Printed Name of Notary



(Official Stamp or Seal)

**BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII**

In the Matter of the Petition of

TRUSTEES OF THE ESTATE OF
BERNICE PAUAHI BISHOP dba
KAMEHAMEHA SCHOOLS

To Amend The Conservation Land Use
District Boundaries Into the Agricultural Land
Use District for approximately 94.107 acres of
land, consisting of a portion of Tax Map Key
No. (3) 1-3-009:005 (por.) at Kauaea, Puna,
Island and County of Hawai'i, State of
Hawai'i.

DOCKET NO. A19-807

AFFIDAVIT ATTESTING TO SERVICE
OF PETITION

AFFIDAVIT ATTESTING TO SERVICE OF PETITION

STATE OF HAWAI'I)
) SS:
CITY AND COUNTY OF HONOLULU)

CALVERT G. CHIPCHASE, being first duly sworn on oath, deposes and says:

1. Affiant is one of the attorneys for Petitioner, TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP dba KAMEHAMEHA SCHOOLS, is licensed to practice law in the State of Hawai'i, is duly authorized to make this affidavit, and does so upon personal knowledge and belief.

2. In compliance with §15-15-48(a), Hawai'i Administrative Rules, Affiant has, on June 21, 2019 served a copy of the attached Petition for Land Use District Boundary Amendment by depositing the same in the United States mail, postage prepaid, or by hand delivery as indicated, to each of the following persons, addressed as follows:

Michael Yee, Planning Director
Planning Department
County of Hawai'i
Aupuni Center
101 Pauahi Street, Suite 3
Hilo, Hawaii 96720

VIA U.S. MAIL

Windward Planning Commission
County of Hawai'i
Aupuni Center
101 Pauahi Street, Suite 3
Hilo, Hawaii 96720

VIA U.S. MAIL

Director
Office of Planning, State of Hawai'i
235 South Beretania Street, 6th Floor
Honolulu, Hawaii 96813

VIA U.S. MAIL

Office of the Corporation Counsel
County of Hawai'i
101 Aupuni Street, Suite 325
Hilo, Hawaii 96720

VIA U.S. MAIL

Sanford's Service Center, Inc.
P. O. Box 1321
Pahoa, Hawai'i 96778

VIA U.S. MAIL

3. This Affidavit is provided in compliance with Hawai'i Administrative Rules §15-15-50(c)(5)(C).

/

/

/

/

/

/

/

/


Further Affiant sayeth naught.

DATED: Honolulu, Hawaii, June 21, 2019.


CALVERT G. CHIPCHASE

Attorney for Petitioner
KAMEHAMEHA SCHOOLS

Subscribed and sworn before me
This 21st day of JUNE, 2019.


Print Name: Catherine Villegas
Notary Public, State of Hawaii



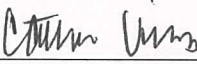
My commission expires: 8/7/2021

NOTARY CERTIFICATION STATEMENT

Document Identification or Description: AFFIDAVIT ATTESTING TO
SERVICE OF PETITION

Doc. Date: JUN 21 2019 or Undated at time of notarization

No. of Pages: 3 Jurisdiction: FIDELITY Circuit
(in which notarial act is performed)

 JUN 21 2019
Signature of Notary Date of Notarization and
Catherine Villegas Certification Statement

Printed Name of Notary



(Official Stamp or Seal)

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of

TRUSTEES OF THE ESTATE OF
BERNICE PAUAHI BISHOP dba
KAMEHAMEHA SCHOOLS

To Amend The Conservation Land Use
District Boundaries Into the Agricultural Land
Use District for approximately 94.107 acres of
land, consisting of a portion of Tax Map Key
No. (3) 1-3-009:005 (por.) at Kauaea, Puna,
Island and County of Hawai'i, State of
Hawai'i.

DOCKET NO. A19-807

AFFIDAVIT OF ATTESTING TO
MAILING OF THE NOTIFICATION OF
FILING; EXHIBITS "A" AND "B"

AFFIDAVIT ATTESTING TO MAILING OF THE NOTIFICATION OF FILING

STATE OF HAWAI'I)
) SS:
CITY AND COUNTY OF HONOLULU)

CALVERT G. CHIPCHASE, being first duly sworn on oath, deposes and says:

1. Affiant is one of the attorneys for Petitioner, TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP dba KAMEHAMEHA SCHOOLS, is licensed to practice law in the State of Hawai'i, is duly authorized to make this affidavit, and does so upon personal knowledge and belief.

2. On June 21, 2019 in compliance with Section 15-15-50(d), Hawai'i Administrative Rules, affiant sent a Notification of Petition Filing to persons included on the Statewide and Hawai'i County mailing lists provided to affiant by the Chief Clerk of the Land Use Commission, copies of which are attached hereto as Exhibits A and B respectively.

Further Affiant sayeth naught.

DATED: Honolulu, Hawaii, June 21, 2019.

Calvert G. Chipchase

CALVERT G. CHIPCHASE

Attorney for Petitioner
KAMEHAMEHA SCHOOLS

Subscribed and sworn before me
This 21st day of JUNE, 2019.

Catherine Villegas

Print Name: Catherine Villegas

Notary Public, State of Hawaii

My commission expires: 9/7/2021



NOTARY CERTIFICATION STATEMENT

Document Identification or Description: AFFIDAVIT ATTESTING TO MAILING OF THE NOTIFICATION OF FILING

Doc. Date: JUN 21 2019 or Undated at time of notarization

No. of Pages: 2 Jurisdiction: _____ Circuit
(in which notarial act is performed)

Catherine Villegas

JUN 21 2019

Signature of Notary Date of Notarization and

Catherine Villegas

Certification Statement

Printed Name of Notary



(Official Stamp or Seal)

June 21, 2019
Notification of Petition Filing

This is to advise you that a petition to amend the State Land Use District Boundaries with the following general information has been submitted to the State of Hawai'i Land Use Commission ("Commission"):

Docket No. A19-807

Petitioner/Landowner: Trustees of the Estate of Bernice Pauahi Bishop
dba Kamehameha Schools

Mailing Address: c/o Cades Schutte LLP
Attention: Calvert G. Chipchase
1000 Bishop Street, Suite 1200
Honolulu, Hawai'i 96813

Tax Map Key No.: (3) 1-3-009-005 (portion)

Location: Kauaea, District of Puna, Island and County of Hawai'i

**Requested
Reclassification:** Conservation to Agricultural

Acreeage: Approximately 94.107 acres

Proposed Use: Expansion of an existing cinder quarry for Sanford's Service Center, Inc., the licensee of a 73.075-acre portion of the petition area, with the remaining 21.032 acres to be reserved as buffer areas.

You may review detailed information regarding the petition at the Commission's office, on the Commission's website (luc.hawaii.gov), or at the County of Hawai'i Planning Department's Hilo office. The Commission's office is located at 235 S. Beretania Street, Room 406, Honolulu, Hawai'i 96813. Office hours are from 7:45 a.m. to 4:30 p.m., Mondays through Fridays. The County of Hawai'i Planning Department is located at the Aupuni Center, 101 Pauahi Street, Suite 3, Hilo, Hawai'i 96720. Office hours are from 7:45 a.m. to 4:30 p.m., Monday through Friday.

A hearing on this petition will be scheduled at a future date. If you are interested in participating in the hearing as a public witness, please write or call the Commission office at P. O. Box 2359, Honolulu, Hawai'i 96804-2359; Phone (808) 587-3822.

If you intend to participate in the hearing as an intervenor, pursuant to Section 15-15-52(b), Hawai'i Administrative Rules, you should file a Notice of Intent to Intervene with the Commission within 30 days of the date of this notice. Please contact the Commission's office for further information.

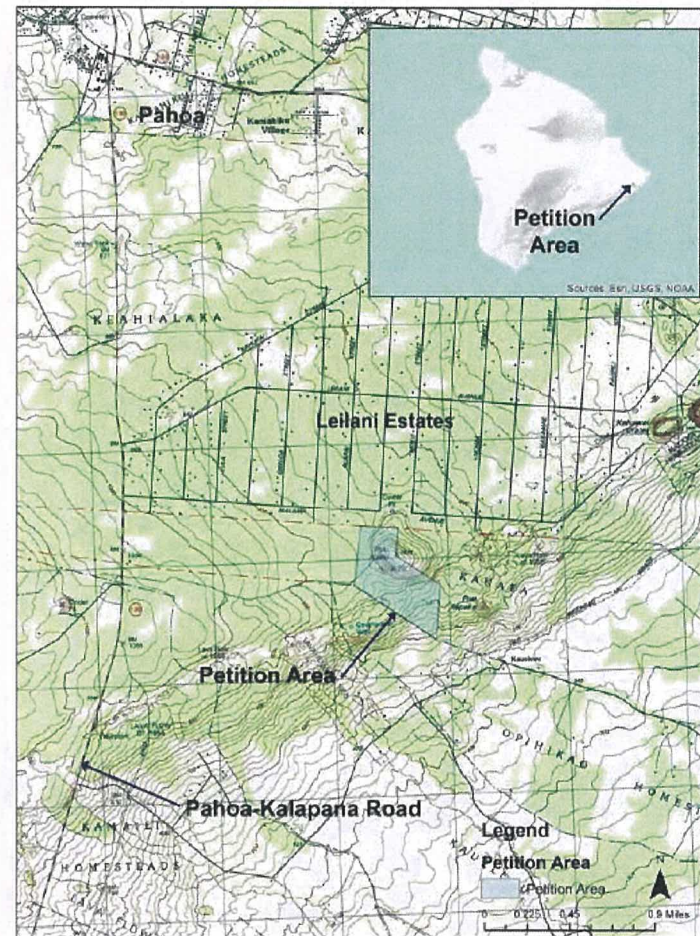


EXHIBIT A

UH Director of Capital Improvements
1960 East West Road, Rm B102
Honolulu, HI 96822

Derek Simon
Carlsmith Ball LLP
1001 Bishop St., Suite 2100
Honolulu, HI 96813

STATEWIDE MAILING LIST
Last Updated: 05/14/2019
Est 130

Director of Planning
County of Maui
2200 Main Street, Suite 315
Wailuku, HI 96793

Hawaii Operating Engineers
2181 Lauwilwili Street Ste 102
Kapolei, HI 96707

Ashford & Wriston Library
P. O. Box 131
Honolulu, HI 96810

Associated Press
500 Ala Moana Boulevard, Suite 7-590
Honolulu, HI 96813

Jennifer Darrah
102 Prospect Street
Honolulu, HI 96813

Alden Alayvilla
PO Box 33
Kalaheo, HI 96741

Michael J. Belles, Esq.
Belles Graham Proudfoot Wilson & Chun
4334 Rice Street, Suite 202
Lihue, HI 96766

Gene Zarro
22 Ulunui Place
Pukalani, HI 96768

Dawn T. Hegger-Nordblom
Hawaii Army National Guard – NEPA
Coordinator
P.O. Box 1057
Kihei, HI 96753

Mr. James Garrigan
P O Box 3143
Kailua-Kona, HI 96745

Mr. Kenneth Okamura
641 Polipoli Road
Kula, HI 96790

James S. Greenwell
Lanihau Properties LLC
P.O. Box 9032
Kailua-Kona, HI 96745

Patrick Borge, Sr.
536 Haawina Street
Paia, HI 96779-9609

U.S. Pacific Command
Commander in Chief
Box 64028
Camp H.M. Smith, HI 96861-4028

Building Industry Association of Hawaii
94-487 Akoki Street
Waipahu, HI 96797

Kika Bukoski
HI Building and Construction
Trade Council
735 Bishop Street, Suite 412
Honolulu, HI 96813

Roy A. Vitousek III
Cades Schutte LLP
75-170 Hualalai Road, Suite B-303
Kaulua-Kona, HI 96740

Mr. Greg Apa, President
Leeward Land LLC
87 2020 Farrington Hwy
Waianae, HI 96792-3749

Mr. Charles Trembath
4152 Palaumahu
Lihue, HI 96766

DOT Highways / Maui District Office
Engineer Program Manager
650 Palapala Drive
Kahului, HI 96732

Dwight Vicente
2608 Ainaloa Dr.
Hilo, HI 96720

Wendy Cortez-Botelho
Governor's Rep. East-Hawaii
75 Aupuni Street,
Hilo, HI 96720

Walter Mensching
RSS Ltd.
1658 Liholiho Street, Suite 306
Honolulu, HI 96822

Ms. K. Chun
P. O. Box 3705
Honolulu, HI 96811

City Desk Clerk-Public Hearings
Honolulu Star Advertiser
500 Ala Moana Boulevard, Unit 210
Honolulu, HI 96813-4914

Ms. Eleanor Mirikitani
c/o Waikoloa Land Co.
150 Waikoloa Beach Drive
Waikoloa, HI 96738

Mr. Robert J. Smolenski
841 Bishop Street, Ste. 1628
Honolulu, HI 96813-3921

EXHIBIT B

Castle & Cooke Hawaii
Dole Office Building Suite 510
680 Iwilei Road
Honolulu, HI 96817

Honglong Li
1001 Bishop Street, Suite 2400
American Savings Bank Tower
Honolulu, HI 96813

Irene Anzai
Rush Moore LLP
737 Bishop Street, Suite 2400
Honolulu, HI 96813

Karen Piltz
Chun Kerr Dodd Beaman & Wong
999 Bishop Street Suite 2100
Honolulu, HI 96813

Mr. Steve Kelly
James Campbell Company, LLC
1001 Kamokila Boulevard, Suite 200
Kapolei, HI 96707

United States Marine Corps
Commander, Marine Forces Pacific
Attn: G4. Box 64118
Camp H.M. Smith, HI 96861-4118

Ms. Iris Nakagawa
Carlsmith Ball LLP
1001 Bishop St., Ste 2200
Honolulu, HI 96813

U.S. Fish and Wildlife Service
300 Ala Moana Blvd., Rm. 3-122
Honolulu, HI 96850

Department of the Army
Directorate of Public Works
Attn: Planning Division
Schofield Barracks, HI 96857-5013

Mr. Albert K. Fukushima
1841 Palamoi Street
Pearl City, HI 96782

Mr. Michael A. Dahilig, Director
Planning Department - Kauai
4444 Rice Street, Suite 473
Lihue, HI 96766

J. Gillmar
P. O. Box 2902
Honolulu, HI 96802

Chairman - Planning Commission
County of Kauai
4444 Rice Street, Suite 473
Lihue, HI 96766

Isaac Hall, Esq.
2087 Wells Street
Wailuku, HI 96793

CBRE, Inc
The Hallstrom Group Team
1003 Bishop Street Ste 1800
Honolulu, HI 96813

Mr. Richard Poirier
95-584 Naholoholo
Mililani, HI 96789

Emi L.M. Kaimulua, Esq.
Watanabe Ing LLP
999 Bishop Street, 23rd Floor
Honolulu, HI 96813

Department of Transportation
Highways Division, Kauai District Office
1720 Haleukana Street
Lihue, HI 96766

Outdoor Circle- Bob Loy
1314 S. King St. Suite 306
Honolulu, HI 96814

Matthew Ragasa
94-1124 Awalua Street
Waipahu, HI 96797

Honolulu Star Advertiser
Mr. Gordon Pang
500 Ala Moana Blvd # 7-500
Honolulu, HI 96813

The Pele Defense Fund
P. O. Box 4969
Hilo, HI 96720

Beverly Pauole-Moore
Volunteer Governor's Rep., Molokai
P. O. Box 88.
Kaunakakai, HI 96748

Department of the Navy
Commander in Chief, U.S. Pacific Fleet
Commander in Chief
250 Makalapa Drive
Pearl Harbor, HI 96860-3131

U.S. Pacific Command
Commander in Chief
Box 64028
Camp H.M. Smith, HI 96861-4028

Navy Region Hawaii
Commander
850 Ticonderoga Street, Suite 110
Pearl Harbor, HI 96860-5101

Lawrence Ing, Esq.
Ing, Horikawa & Jorgensen
2145 Wells Street, Suite 204
Wailuku, HI 96793-2222

DOT Highways / Hawaii District Office
Engineer Program Manager
50 Makaala Street
Hilo, HI 96720

Law Offices of Kyong-Su Im LLLC
1608 Laukahi St.
Honolulu, HI 96821

Bill Mills, Chairman
The Mills Group
1100 Alakea Street, Suite 2200
Honolulu, HI 96813

Brenda Luana Machado Lee
P. O. Box 133
Captain Cook, Kona, HI 96704

Mr. John M. White
Hawaii Land Company
P. O. Box 10
Honolulu, HI 96810

Jean McManus
47-314 Lulani St.
Kaneohe, HI 96744

Major General Arthur J. Logan
Adjutant General-State of Hawaii
Department of Defense
3949 Diamond Hear Road
Honolulu, HI 96816

West Hawaii Today
Attn: Tom Hasslinger
P. O. Box 789
Kailua-Kona, HI 96745-0789

John White
Executive Director
The Pacific Resource Partnership
1100 Alakea St. 4th Floor
Honolulu, HI 96813

Dain P. Kane
Maui County Council
200 South High Street
Wailuku, HI 96793

Dickson C. H. Lee, Esq.
Takushi Wong Lee & Yee
841 Bishop Street, Suite 925
Honolulu, HI 96813

Sierra Club, Kauai Group
P. O. Box 3412
Lihue, HI 96766

Matsubara, Kotake & Tabata
ATTN: Benjamin M. Matsubara, Esq.
888 Mililani Street, Suite 308
Honolulu, HI 96813

Julie Ann Miyashiro
3247 Catherine St.
Honolulu, HI 96815

Peter Yukimura
P. O. Box 1031
Lihue, HI 96766

Claudia Rohr
369 Nene St.
Hilo, HI 96720

Steven Lee Montgomery, Ph.D.
94-610 Palai Street
Waipahu, HI 96797-4535

Shannon Wood
Koolau News
P.O. Box 6366
Kaneohe, HI 96744

Burt Lau, Esq.
999 Bishop St., Ste. 2600
Honolulu, HI 96813

Pat Lee & Associates, Inc.
45-248A Pahikaua Place
Kaneohe HI 96744

Wilson Okamoto & Associates
Attn: Earl Matsukawa
1907 S. Beretania Street
Honolulu, HI 96826

Crockett & Nakamura
38 S. Market Street
Wailuku, HI 96793

Sue White
1118 Maunawili Road
Kailua, HI 96734

Randall Sakumoto, Esq.
McCorriston Miller Mukai MacKinnon LLP
P. O. Box 2800
Honolulu, HI 96803-2800

Stanford S. Carr, President
Stanford Carr Development LLC
1100 Alakea Street, 27th Floor
Honolulu, HI 96813

Hawaiian Telcom Inc.
1177 Bishop Street Suite 50
Honolulu, HI 96813

KITV News 4
Attn.: Assignment Desk
801 S. King Street
Honolulu, HI 96813

Mr. Bruce A. Coppa
Communications Pacific
600 Queen St., Unit 2808
Honolulu, HI 96813

Land Use Research Foundation of Hawaii
1100 Alakea Street, Suite 408
Honolulu, HI 96813

League of Women Voters
49 South Hotel Street, Rm. 314
Honolulu, HI 96813

Life of the Land
P.O. Box 37158
Honolulu, HI 96837

Wesley R. Segawa & Associates
736 South St. #206
Honolulu, HI 96813

Mr. Gregory Kugle
Damon Key Bocken Leong & Kupchak
1003 Bishop Street, #1600
Honolulu, HI 96813

William W.L. Yuen, Esq.
1001 Bishop Street, Suite 1800
Alston, Hunt, Floyd and Ing
Honolulu, HI 96813-7984

Sierra Club, Hawai'i Chapter
P. O. Box 2577
Honolulu, HI 96803

Mr. Steven Strauss
P. O. Box 11517
Hilo, HI 96720

Canen Hookano
PO Box 160
Koloa, Kaua'i, HI 96756

Elaine Wender
2180 W, Vineyard St # 305
Wailuku, HI 96793

Ms. Donna Ann Kamehaiku Ono
He'e'ia Historical Society
46-522 Haiku Plantations Drive
Kaneohe, HI 96744

Papakipuka
ATTN: Donna Camvel
46-522 Haiku Plantations Drive
Kaneohe, HI 96744

Franklin Mukai, Esq.
McCorriston Miller Mukai MacKinnon
P. O. Box 2800
Honolulu, HI 96803-2800

National Resources Conservation Svc.
Pacific Islands Area (PIA) State Office
Attn: PIA Soil Scientist
P. O. Box 50004
Honolulu, HI 96850-0050

Leticia "Letty" Castillo
Volunteer Governor's Rep. Lanai
P. O. Box 630806.
Lanai City HI 96763

Native Hawaiian Legal Corporation
1164 Bishop Street, #1205
Honolulu, HI 96813

Nathan Natori, Esq.
1003 Bishop Street, Suite #1360
Honolulu, HI 96813

Shannon Alivado
Director of Government Relations
General Contractors Association of Hawaii
1065 Ahua Street,
Honolulu, HI 96819

County of Hawaii, Planning Department
ATTN: Duane Kanuha
101 Pauahi Street, Suite 3
Hilo, HI 96720

Councilman Ikaika Anderson
530 S. King St. Rm 202
Honolulu, HI 96813

Dept. of Land & Natural Resources
Chairperson's Office
1151 Punchbowl Street, Room 130
Honolulu, HI 96813

Land Management Division
Dept. of Land & Natural Resources
1151 Punchbowl Street, Room 131
Honolulu, HI 96813

Department of the Corporation Counsel
City and County of Honolulu
530 S. King Street, Rm. 110
Honolulu, HI 96813

Mr. Eugene Takahashi
C&C Department of Planning & Permitting
650 South King Street
Honolulu, HI 96813

Deputy Director
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

DOT Highways / Oahu District Office
Engineer Program Manager
727 Kakoi Street
Honolulu, HI 96819

The Honorable David Ige
Governor, State of Hawaii
State Capitol
Honolulu, HI 96813

Darrell T. Young, Deputy Director
DOT Harbors Division
79 S. Nimitz Highway
Honolulu, HI 96813-4898

Department of Transportation
Harbors Division
79 South Nimitz Highway
Honolulu, HI 96813

Mr. Gordon Matsuoka
DAGS - Public Works Division
P. O. Box 119
Honolulu, HI 96810

Laura McIntyre, AICP
DOH-Environmental Planning Office
Mgr, Rm. 312
919 Ala Moana Boulevard
Honolulu, HI 96814

Commission on Resource Management
Dept. of Land & Natural Resources
1151 Punchbowl Street, Room 227
Honolulu, HI 96813

Ms. Sara Collins
DLNR - Historical Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, HI 96707

Senator Donovan M. Dela Cruz
Hawaii Capitol Room 202
415 South Beretania Street
Honolulu, HI 96813

DAGS- Automotive Management Division
Parking Control Office-Attn: Brian Saito
PO Box 119
Honolulu, HI 96819-0119

**Representative Ryan I. Yamane
Hawaii State Capitol Room 420
415 South Beretania Street
Honolulu, HI 96813**

**Department of Land and Natural Resources
Land Division, Coastal Lands Program
PO Box 621
Honolulu, HI 96809-0621**

**Dept. of Hawaiian Home Lands
P. O. Box 1879
Honolulu, HI 96805**

**DOT Transportation Planning Office
869 Punchbowl Street
Honolulu, HI 96813**

**Deputy Director
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813**

**Mr. Ronald F. Tsuzuki
Highways Division, Planning Branch
869 Punchbowl Street
Honolulu, HI 96813**

**Director
DBEDT
P. O. Box 2359
Honolulu, HI 96804-2359**

**Director
Office of Planning
P. O. Box 2359
Honolulu, HI 96804-2359**

**Representative David Tarnas
7th District
State Capitol, Room 328
Honolulu, HI 96813**

**Dawn T. Apuna, Esq.
Deputy Attorney General
Hale Auhau
425 Queen Street
Honolulu, Hawaii 96813**

**Ke'ala Nichols-Administrative Assistant
Public Policy-Office of Hawaiian Affairs
737 Iwilei Rd. Suite 200
Honolulu, HI 96817**

Mr. John Bansemer
Bansemer Realty
P O Box 391172
Kailua-Kona, HI 96740

William Thompson, Superintendent
c/o Jeff Zimpfer
Kaloko-Honokōhau National Historical Park
73-4786 Kanalani St., #14
Kailua Kona, HI 96740

HAWAII MAILING LIST
Last Updated: 04/11/19
Est 46

Scott Carter
P. O. Box 384031
Waikoloa, HI 96738

Anthony Ching Ako
PO Box 943
Kapaau, HI 96755

Ms. Margaret Johnson
P.O. Box 551
Papaikou, HI 96881

Albert A. Nakaji
27-319 Kaieie Homestead Rd.
Papaikou, HI 96781

Ms. Phyllis Fujimoto
224 Haili Street
Hilo, HI 96720

Sam Walker, Sr.
P O Box 9031
Kailua-Kona, HI 96745

Mr. Kulike Chong
P O Box 6173
Kamuela, HI 96743

Mr. Keith K. Okamoto, Mgr-Chief Engr.
Hawai'i County Dept. of Water Supply
345 Kekūānaō'a Street, Suite 20
Hilo, HI 96720-4388

Virginia Isbell
P O Box 926
Kealahou, HI 96750

George Robertson
Puako Community Association
P. O. Box 44490
Kawaihae, HI 96743

Dwight Vicente
2608 Ainaola Drive
Hilo, HI 96720

Hawaii County Civil Defense Agency
920 Ululani Street
Hilo, HI 96720

Hawaii Tribune-Herald
P. O. Box 767
Hilo, HI 96721

Ruth Bass
P. O. Box 690
Naalehu, HI 96772

Mr. Mahealani Pai
Pai 'Ohana
P. O. Box 251
Kailua-Kona, HI 96745

Ms. Ku'ulei Keakealani
P. O. Box 6043
Kamuela, HI 96743

Jerry F. Halverson
78-7206 Puuloa Road
Kailua-Kona, HI 96740

Howard Kihune
2010 Honoapiilani Hwy. Suite C-1
Lahaina, HI 96761

Janice Palma-Glennie
P O Box 4849
Kailua-Kona, HI 96745

Gene Paul Rivera
74-4932 D Mamalahou Hwy
Holualoa, HI 96725

Kona Kohala Chamber of
Commerce
75-5737 Kuakini Highway, #208
Kailua-Kona, HI 96740

Bobby Jean Leithead-Todd
HCCPH Community Assn.
118 Lukia Street
Hilo, HI 96720

Ms. Leina'ala Lightner
P. O. Box 684
Kailua-Kona, HI 96745

Mr. Myles Miyasato
c/o H.O.E.I.S.F.
99 Aupuni Street- Suite #101
Hilo, HI 96720

Ross Engineering, Inc.
PO Box #1191
Kailua-Kona, HI 96745

Deputy Corporation Counsel J Yoshimoto
Office of the Corporation Counsel
101 Aupuni Street, Suite 325
Hilo, HI 96720

George Robertson
P O Box 44490
Kamuela, HI 96743

Derek Fondy
74-5044 Ane Keohokalole
BLDG D 2nd floor
Kailua-Kona, HI 96740

Lukela Ruddle
Office of Hawaiian Affairs
399 Hualani St. Ste. 20 CDE
Hilo, HI 96720

Lesley Tyler
73-1305 Hiolani Street
Kailua-Kona, HI 96740-9344

Aaron Ueno
Hawaii District Health Office
P O Box 916
Hilo, HI 96721

Jack Branco
133 Awa Steet
Hilo, HI 96720

Roger Wehrsig
Waikoloa Village Association
68-1792 Melia Street
Waikoloa Village, HI 96738

Ronny Repplinger
77-106 Kalaniuka Street
Holualoa, HI 96725

Tsukazaki Yeh & Moore
10 Kamehameha Avenue
Hilo, HI 96720-2830

Kahua Ranch, Ltd./Ponoholo Ranch, Ltd.
P O Box 1879
Kamuela, HI 96743

Ms. Barbara McDonnell
Palamanui, LLC
P.O. Box 9007
Kailua Kona, HI 96745

Sharon Weisner
Brooks Tom Porter & Quitquait, LLP
75-1000 Henry Street , Suite 208
Kailua-Kona, Hawaii 96740

Office of Hawaiian Affairs
75-1000 Henry St Ste 205
Kailua-Kona, HI 96740

Email List for Statewide Distribution
As of 05/14/19

joy@joygoldunlimited.com; tschnell@pbrhawaii.com; dsimon@carlsmith.com;
dockline3@yahoo.ca; ptummons@gmail.com; cindy13850@gmail.com;
dbedt.director@hawaii.gov; dawn.t.apuna@hawaii.gov; jngghi@hawaii.rr.com;
vshigekuni@pbrhawaii.com; tschnell@pbrhawaii.com; twitten@pbrhawaii.com;
krk@hawaiilawyer.com; anitam@oha.org; zuria@oha.org; bryan.c.yee@hawaii.gov;
bkudo@awlaw.com; stanaka@awlaw.com; dyasui@abhi.com; ds@avalonhi.com;
cokcouncil@kauai.gov; lucy@hawaii.edu; agomes@staradvertiser.com; tlane@wik.com;
janice.n.takahashi@hawaii.gov; karlynn@munekiyohiraga.com; jlim@carlsmith.com;
slim@carlsmith.com; Esther09@hawaiiantel.net; adrienne.sato@cbre.com;
lkodama@castlecooke.com; rbiffle@castlecooke.com; Jeffrey.Hallstrom@cbre.com;
llum@wik.com; jmagin@bizjournals.com; jveles@moriharagroup.com; lincolnmichele@yahoo.com;
scombs@princeville.com; lromas@princeville.com; rezentesc@aol.com; dlNr.cwrM@hawaii.gov;
nlee7@hawaii.edu; wyamamoto@lurf.org; punab4@gmail.com; senthielen@capitol.hawaii.gov;
pennlawcenter@gmail.com; jbaptist@prp-hawaii.com; pifwo_admin@fws.gov;
ksokugawa@honolulu.gov; bchong2@honolulu.gov; peter.k.albinio.jr@hawaii.gov;
peter.k.albinio.jr@hawaii.gov; dws@hawaiidws.org; allison.au-iniba@hawaiiantel.com;
julianne.hughes@hawaiiantel.com; htf3000@gmail.com; hphw@hawaiiantel.net;
gpknopp@gkenvllc.com; bruce@townscapeinc.com; laluzmaui@gmail.com; mching@abhi.com;
Robyn_Loudermilk@notes.k12.hi.us; blau@ksglaw.com; heidi_meeker@notes.k12.hi.us;
cdelaunay@prp-hawaii.com; jkimura@hawaiilecet.org; wgreig@oe3.org; skchawaii@gmail.com;
khester@kauai.gov; mhubbard@kauai.gov; r.crall@capitol.hawaii.gov;
Earl.J.Yamamoto@hawaii.gov; bsalgado@hawaiinewsnow.com; hsk@landtecinc.com;
wmatsubara@nanhawaii.com; jkimura@hawaiilecet.org; Randall.S.Nishiyama@hawaii.gov;
pmigliorato@prp-hawaii.com; rspacer@yahoo.com; ctabata@m-klawyers.com;
jennie.ym.kobayashi@hawaii.gov; legacyland@hawaii.gov; shaoyu.l.lee@hawaii.gov;
cmkido@awlaw.com; kwager@earthjustice.org; kaishik@nhlchi.org; jdk@stratlaw.com;
faith.caplan@hartcrowser.com; mpoffice@earthjustice.org; NancyC@daylum.com;
jane.e.f.tam@hawaii.gov; cyjohnas@ksbe.edu; petyoung@hookuleana.com; souki@hawaii.edu;
savekaiwaridge@hotmail.com; shannon.alivado@hawaiianelectric.com; tdean@pbrhawaii.com;
gladys@gcahawaii.org; pane@hoeisf.com; kgarson@carlsmith.com; kmorse@dmlhawaii.com;
alsalave@ksbe.edu; jimmarquez@att.net; miswartm@ksbe.edu; Kaione.Crabb@colliers.com;
annehugginswalton@gmail.com; kdruidas@gmail.com; mpoffice@earthjustice.org;
cmsakoda@gmail.com; craig.k.hirai@hawaii.gov; ahofschneider@civilbeat.com;
robyn_loudermilk@notes.k12.hi.us; heidi_meeker@notes.k12.hi.us; stifel@m4law.com;
libalia@gmail.com; jennie.ym.kobayashi@hawaii.gov; oeqchawaii@doh.hawaii.gov;
dianeerickso@gmail.com; DBM2DBM@AOL.COM; kentm@jamescampbell.com;
makakilovsc@gmail.com; kameaaloha40@gmail.com; ghiraga@munekiyohiraga.com;
kealan@oha.org; papakipuka@gmail.com; mike@kiheiice.com; governmentrelations@ksbe.edu;
jason.bradshaw@ilwulocal142.org; matgeneric@gmail.com; stifel@m4law.com;

duane.kanuha@hawaiicounty.gov; rsmith@lanihau.net

**BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII**

In the Matter of the Petition of

TRUSTEES OF THE ESTATE OF
BERNICE PAUAHI BISHOP dba
KAMEHAMEHA SCHOOLS

To Amend The Conservation Land Use
District Boundaries Into the Agricultural Land
Use District for approximately 94.107 acres of
land, consisting of a portion of Tax Map Key
No. (3) 1-3-009:005 (por.) at Kauaea, Puna,
Island and County of Hawai'i, State of
Hawai'i.

DOCKET NO. A19-807

CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this date, a true and correct copy of the foregoing document was served upon the following by depositing the same in the United States mail, postage prepaid, or by hand delivery as indicated, to each of the following persons, addressed as follows:

Michael Yee, Planning Director
Planning Department
County of Hawai'i
Aupuni Center
101 Pauahi Street, Suite 3
Hilo, Hawaii 96720

VIA U.S. MAIL

Windward Planning Commission
County of Hawai'i
Aupuni Center
101 Pauahi Street, Suite 3
Hilo, Hawaii 96720

VIA U.S. MAIL

Director
Office of Planning, State of Hawai'i
235 South Beretania Street, 6th Floor
Honolulu, Hawaii 96813

VIA U.S. MAIL

Office of the Corporation Counsel
County of Hawai'i
101 Aupuni Street, Suite 325
Hilo, Hawaii 96720

VIA U.S. MAIL

Sanford's Service Center, Inc.
P. O. Box 1321
Pahoa, Hawai'i 96778

VIA U.S. MAIL

/

/

/

/

/

/

/

/

/

/

/

/

/

/

/

/

/

/

/

/

/

DATED: Honolulu, Hawai'i, June 21, 2019.

CADES SCHUTTE
A Limited Liability Law Partnership

A handwritten signature in black ink, appearing to read "Calvert G. Chipchase", written over a horizontal line.

CALVERT G. CHIPCHASE
Attorneys for Petitioner
KAMEHAMEHA SCHOOLS