EXHIBIT B

Haʻa Nā ʻUala o Pahua i Ke Kula o Kamauwai

The Potatoes of Pahua Danced in the Plains of Kamauwai

DRAFT Archaeological Preservation Plan Pahua Heiau

Waimānalo Ahupuaʻa, Koʻolaupoko Moku, Oʻahu Mokupuni
TMK 3-9-056: 038

Prepared for:

OHA

Prepared by:

NOHOPAPA HAWAIʻI

Pūlama Lima, M.A.
Kelley Uyeoka, M.A., Momi Wheeler, B.A.
Liʻi Bitler, B.A., Deandra Castro, B.A.
Kekuewa Kikiloi, Ph.D.

September 2017

MANAGEMENT SUMMARY

Management Summary	
Project Location	Pahua Heiau, Waimānalo Ahupuaʻa, Koʻolaupoko Moku, Island of Oʻahu, TMK: 3-9-056: 038
Land Owner	The Office of Hawaiian Affairs (OHA)
Project Area Size	1.15 acres
Historic Preservation Compliance	Prepared in consultation with OHA and the Department of Land and Natural Resources (DLNR) - State Historic Preservation Division (SHPD), this preservation plan is designed to fulfill State requirements for preservation plans per Chapter 13-277 of the Hawaiʻi Administrative Rules (HAR). This document was prepared to support the proposed project's historic preservation review under Hawaiʻi Revised Statutes (HRS) Chapter 6E-8 and HAR Chapter 13-275 and is intended for review and approval by the SHPD. As recommended by OHA, this preservation plan should also be viewed as a "living document" that can be revised, adapted, and changed subject to the approval of SHPD.
Justification of Work	OHA is carrying out this Preservation Plan for Pahua Heiau complex to: 1) Ensure the preservation of this cultural site. 2) Collect existing background site information. 3) Gather ethnohistorical and other community input. 4) Guide appropriate use and management of the site by OHA, its stewards, and visitors. 5) Follow the recommendations of SHPD to prepare a Preservation Plan. 6) Strive towards exemplary stewardship of a cultural site that can be a model for other landowners and managers.
Scope of Work	This Plan consisted of four primary tasks: 1) Ethnohistorical research and review 2) Community ethnographic interviews, summaries, and recommendations 3) Archaeological field work 4) Final report compilation
Cultural Resources Identified in the Project Area	SIHP# 50-80-15-0039: Pahua Heiau Complex
Consultation Efforts	Community consultation was conducted from April - August 2016. The consultation process consisted of identifying appropriate and knowledgeable individuals, conducting ethnographic interviews, summarizing the digitally recorded interviews, analyzing the ethnographic data, and preparing the report. Twenty individuals were contacted in regards to this Preservation Plan. Eight individuals participated in ethnographic interviews, two completed a questionnaire, two individuals provided references, and eight did not respond or participate for various reasons.

Summary of Preservation Actions for Pahua Heiau		
	Preservation Issue	**Preservation Action**
Preservation Actions to Comply with HAR § 13-277:	§13-277-3(1) – Preservation forms to be implemented	• Avoidance & Protection (Conservation), Interpretation, and Appropriate Cultural Use
	§13-277-3(2) & 4 – Buffer Zones	• A single buffer zone will be designated 50 feet away from all sites, where possible. The property boundary shall also serve as the buffer zone boundary where the historic sites are closer to the property boundary than 50 feet (see Figure 83).
	§13-277-3(3) & 5 – Short-term & Interim protection measures	• Generally not applicable as there are no proposed development plans, and the entire project site is to be preserved
	§13-277-3(4) – Community consultation	• SHPD was consulted. • Individual ethnohistorical interviews were conducted. Where interviews were not possible, information was gathered through a written survey. Individuals consulted and input collected is listed in the body of the plan. Such input has been considered in generating these actions.
	§13-277-3(5) – Long-term preservation measures	• Covered under §13-277-6, discussed below
	§13-277-6(1) – Maintenance measures	• Develop procedures and a regular schedule (i.e. quarterly, monthly. etc.) for site maintenance
	§13-277-6(2) – Methods for vegetation clearing	• Develop procedures and a regular schedule (i.e. quarterly, monthly. etc.) for vegetation clearing. • For grass cutting, no weed whackers will be used within three feet of the stones. • No pulling of vegetation will occur within a minimum of two feet from any sites/features. • For the removal or trimming of trees that pose a risk to safety or site, caution shall be exercised to protect the historic sites from damage. • SHPD will be consulted on appropriate protocols for site protection in the event of engaging in any tree-removal activities. • Green waste shall not be deposited on the historic sites/features
	§13-277-6(3) – Litter control	• Develop procedures and a regular schedule (i.e. quarterly, monthly. etc.) for litter control
	§13-277-6(4) – Access and cultural use	• Manage public access to the project site utilizing warning and regulatory signage. • Establish a Public Viewing Area (see Figure 83)

		• Establish a process to facilitate access for Native Hawaiian traditional & customary practitioners (as protected by the State constitution) and other individuals to enter the project site
	§13-277-6(5) & 7 – Interpretation and public information	• Develop & install educational, interpretive signage at appropriate locations in compliance with HAR 13-277-7 • Continue community consultation to determine appropriate site interpretation and public education • Provide site information on the OHA website
	§13-277-6(6) – Permanent marked markers	• Currently not applicable but may consider in the future
	§13-277-6(7) – Potential future impacts and site stability	• The only anticipated future impacts are due to people and vegetation growth, which will be addressed by managing access and appropriate vegetation clearing. • A change in site stability is not anticipated and, therefore, provisions to address such a change are not applicable.
	§13-277-6(8) – Monitoring of site integrity and SHPD inspection	• Regular site visits will be conducted by OHA staff or its designee to monitor site conditions. • OHA will coordinate with SHPD for compliance inspections as needed.
Additional Preservation Measures OHA may Consider	§13-277-3(1) – Preservation forms to be implemented	• Avoidance and Protection, Interpretation, Appropriate Cultural Use, Stabilization, Rehabilitation, and Restoration
	§13-277-6(1) – Maintenance measures	• See Table 11 Preservation Treatment Recommendations for Individual Features at Pahua Heiau. • Develop and implement a Design Proposal for the Preservation, Stabilization, and/or Rehabilitation of the work that is being proposed in Table 11 • Develop and implement a Cultural Landscape Plan to restore the cultural and natural landscape of the project area. See Table 12 and Figure 78 for recommendations. • Work with a selected site steward to conduct day-to-day maintenance
	§13-277-6(2) – Methods for vegetation clearing	• See Cultural Landscape Plan Recommendations in Table 12 and Figure 78. Includes vegetation removal from identified portions of the property.

	§13-277-6(4) – Access and cultural use	• Work with a selected site steward to facilitate appropriate community and cultural access • Build a physical barrier around the Public Viewing Area with a gate for authorized access • Designate and initiate a subsistence garden area • Revegetate with native and Polynesian introduced plants. Install supportive water infrastructure.
	§13-277-6(5) – Interpretation and public information	• Develop interpretive signage as recommended in Table 14 • Work with a selected site steward to conduct community engagement and education, including developing educational curriculum • Conduct additional historic and archaeological work
	§13-277-6(8) – Monitoring of site integrity	• Develop and implement an Archaeological Monitoring Program for work associated with the Design Proposal • Develop and implement a Conditions Assessment Program that assesses and documents the sites/features every two years or more frequently

At the request of the Office of Hawaii Affairs (OHA), Nohopapa Hawai'i, LLC. has prepared this Archaeological Preservation Plan detailing protection measures for the Pahua Heiau Complex (SIHP# 50-80-15-0039) located within the Waimānalo Ahupua'a, Ko'olaupoko Moku, Island of O'ahu, TMK: 3-9-056: 038. This preservation plan was developed for the site to ensure its long-term protection and preservation; to research, identify, and collect relevant background information and data; and to obtain appropriate ethnohistorical and other community input. This information is to be used to guide the appropriate use of this site and to assist with the long term, responsible management of the site by OHA, relevant stewards, and visitors. A program of exemplary stewardship for this treasured and sacred cultural site can be utilized as a practical and workable model that can be replicated and tailored for use by other landowners and managers. The project area parcel was originally held by the Bishop Estate until it was transferred to OHA in 1988. Following the acquisition of Pahua Heiau by OHA, the project area has been maintained by OHA and community stewardship organizations.

Prepared in consultation with OHA and the Department of Land and Natural Resources (DLNR) - State Historic Preservation Division (SHPD), this long-term preservation plan is designed to fulfill State requirements for preservation plans per Chapter 13-277 of the Hawai'i Administrative Rules (HAR). As recommended by OHA, this preservation plan should be viewed as a "living document" that can be revised, adapted, and changed subject to the approval of SHPD.

This Preservation Plan consisted of four primary tasks: (1) ethnohistorical research and review; (2) community ethnographic interviews, summaries, and recommendations; (3) archaeological field work, and (4) final report compilation. The study spanned a nine-month period from January through September 2016.

A variety of repositories and resources were examined to develop a general description of the natural, cultural, historical, and archaeological background of Pahua Heiau and the surrounding area. The extensive review of the available ethnohistorical data, inoa 'āina, mo'olelo, oli, and 'ōlelo no'eau

pertaining to Pahua Heiau and the greater Maunalua Ahupuaʻa has contributed significantly to our understanding of Pahua Heiau and the historical context of its construction and function.

The ethnohistoric and Māhele data, gathered from the State survey register map database and other online databases such as Papakilo, confirmed that the lands of Maunalua were once held as chiefly assets. The lands were originally owned by Kahekili the aliʻinui of Oʻahu but were eventually acquired by Kamehameha I during his conquest of the island. During the 1848 Māhele, the lands of Maunalua were passed down to Princess Victoria Kamāmalu and eventually given to Princess Bernice Pauahi Bishop. The significance of the area stems, in part, from Maunalua's history as a land base reserved for the aliʻi. The name Pahua was also used in a number of mele wānana and mele kanikau to reference ʻuala production and chiefly connections to this place. Maunalua, rich in aqua cultural resources like Keahupua o Maunalua Fishpond and dry-land agricultural areas like that of the project area, was traditionally and historically known for its husbandry, food production, fertile plains, and chiefly connections.

On March 21-24, 2016, archaeological investigations were conducted at 7142 Makahuʻena Place, Honolulu HI 96825 by Nohopapa Hawaiʻi, in part, to fulfill the outlined Scope of Work for the Pahua Heiau Preservation Plan. A daily crew of 4-5 workers were in the field from 7:00am-3:30pm to complete the archaeological fieldwork. A systematic pedestrian survey was conducted throughout the 1.15 acre project area, and a total of five sites, composed of 24 features, were identified/re-identified during the survey. Ten of the 24 features were found within the heiau complex while the remaining features were found in the outlying areas of the heiau proper. The features included an upright stone, rock alignments, a partial enclosure, retaining walls, terraces, rock piles, filled crevices, mounds, and a modified outcrop.

To better evaluate preservation treatment options for the Pahua Heiau site complex, a condition assessment was also conducted by Nohopapa crew members to assess the physical stability and degree of degradation of the project area sites. The condition assessment criteria was based on the evaluation of five main categories: Context Integrity, Site Condition and Function, Site Disturbance Level, Effects on Resource, and Human Hazards/Safety.

Overall, the project area has a modest-medium context integrity, and the main heiau retains an expressive artistic value. However, the formal design and re-construction of the heiau, as well as the location and informal physical disposition of the surrounding sites and features, make it difficult to interpret its original function. The site's overall condition and function is in relatively fair-good condition with areas of collapsing and disrepair. The prevailing threat and disturbance to the stability and integrity of Pahua Heiau, as well as its surrounding sites and features, is the presence of human activity and access to the site. The disturbance level of human impacts and activities are moderate but could develop into severe impacts if not addressed immediately and properly managed. The effects of the threats and disturbances on the resources found within the project area has caused these resources to suffer repairable partial loss. The general hazards presented in the project area were mainly in NP-1 and NP-3. Although the concerns were considered low in both areas, the primary threat to safety was found at NP-3 with the presence of old metal fencing material (old rusted barbed wire and protruding rusty metal fence poles) scattered throughout the site. Generally, the main hazard found at NP-1 consisted of rock fall and erosion from the ridge top.

Ethnographic work was conducted from April through August 2016. As a multi-phase study, the ethnographic process consisted of identifying appropriate and knowledgeable individuals, conducting interviews, summarizing the digitally recorded interviews, analyzing the ethnographic data, and preparing the report. Twenty-one individuals were contacted in regards to this Preservation Plan. Eight individuals participated in ethnographic interviews, two completed a questionnaire, three individuals provided references, and eight did not respond or participate for various reasons. All of

the community participants expressed that cultural and ʻāina based education should be an integral part of the preservation and interpretation of the Pahua Heiau Complex. Additionally, participants agreed that increasing and promoting the cultural knowledge and sanctity of this wahi kupuna would bring about an improved and positive awareness of this sacred site and compel individuals to better care for and steward Pahua Heiau. A number of interpretive/educational recommendations were made including passive (signage, educational materials, interactive kiosks, smart phone apps, and brochures) and active interpretation methods (service learning projects, tours, events like the makahiki, and future research programs) to better understand and appreciate the context, special nature, and significance of the Pahua Heiau complex.

Based on the results of the three primary tasks, preservation actions and considerations were developed. The preservation actions that comply with HAR §13-277 focused on buffer zones, consultation, site maintenance schedules, vegetation clearing methods, litter control, managing public access and cultural use, developing interpretive signage and information, monitoring of the heiau complex, and specific preservation forms to be implemented at the site. The additional preservation measures that OHA may consider include such actions as developing a Design Proposal and Archaeological Monitoring Plan to guide preservation treatment options for the specific heiau features, developing a Cultural Landscape Plan to assist with restoring the natural and cultural landscape of the project area, working with a selected site steward to help with public access, community engagement, and education, revegetating native and Polynesian introduced plants, building a physical buffer around the public viewing area, creating interpretive signage, conducting more historic and archaeological research, and developing a Conditions Assessment Program to monitor the site.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

AMP	Archaeological Monitoring Plan
DEM	Digital Elevation Model
DLNR	Department of Land and Natural Resources
HAR	Hawai'i Administrative Rules
LHHK	Livable Hawai'i Kai Hui
NPS	National Park Service
OHA	Office of Hawaiian Affairs
SHPD	State Historic Preservation Division
USGS	United States Geological Survey

INTRODUCTION

Project Background

At the request of the Office of Hawaii Affairs (OHA), Nohopapa Hawai'i, LLC. has prepared this preservation plan detailing protection measures for the Pahua Heiau complex (SIHP# 50-80-15-0039) in the Waimānalo Ahupua'a, Ko'olaupoko Moku, Island of O'ahu, TMK: 3-9-056: 038. The project area is located at 7142 Makahu'ena Place, Honolulu, Hawai'i 96825. The project area is shown on a (2010) U.S. Geological Survey (USGS) 7.5-Minute Series Topographic Map (Figure 3), on a Hawai'i Tax Map Key (TMK) section map (Figure 5), and on an aerial photograph (Figure 6). Pahua Heiau was assigned to the State Inventory of Historic Places in 1985.

Originally owned by the Bishop Estate, the project area parcel was transferred to OHA in 1988 as its first landholding. Foregoing the acquirement of the property by OHA, and by right of entry, attempts to restore Pahua Heiau and its surrounding vicinity were made by the Hawai'i Kai Outdoor Circle group (Quitevis n.d.:3). Following the acquisition of Pahua Heiau by OHA, the project area has been maintained by the Office of Hawaiian Affairs and community stewardship organizations.

Justification and Scope of Work

OHA is carrying out this Preservation Plan for Pahua Heiau complex to:

* Ensure the preservation of this cultural site.
* Collect existing background site information.
* Gather ethnohistorical and other community input.
* Guide appropriate use and management of the site by OHA, its stewards, and visitors.
* Follow the recommendations of SHPD to prepare a Preservation Plan.
* Strive towards exemplary stewardship of a cultural site that can be a model for other landowners and managers.

Prepared in consultation with OHA and the Department of Land and Natural Resources (DLNR) - State Historic Preservation Division (SHPD), this long-term preservation plan is designed to fulfill State requirements for Preservation Plans per Chapter 13-277 of the Hawai'i Administrative Rules (HAR). The scope of work for Preservation Plans is detailed in HAR §13-277 and was used as a guide for this preservation plan.

Methods

This Preservation Plan consisted of four primary tasks: (1) ethnohistorical research and review; (2) community ethnographic interviews, summaries, and recommendations; (3) archaeological field work, and (4) final report compilation. The study spanned a nine-month period from January through September 2016. Project personnel included: Kelley L. Uyeoka, MA and Kekuewa Kikiloi, PhD, principals; Pulama Lima, MA, project manager; Li'i Bitler, BA, ethnographer; Dominique Cordy, MA, and Deandra Castro, BA, researchers; and Chris Monahan, PhD, Doug Thurman, MA, Momi Wheeler, BS, Iolani Ka'uhane, BA, Todd Tulchin, MS, field technians. While conducting this study, Nohopapa Hawai'i's research team incorporated a set of values and beliefs to help guide our research, analysis, behavior, perspective, and overall frame of reference. The core values directing our hui included:

* **Aloha 'Āina**- to have a deep and cherished love for the land which created and sustains us
* **Ha'aha'a**- to be humble, modest, unassuming, unobtrusive, and maintain humility

* **Hoʻomau**- to recognize, appreciate, and encourage the preservation, perpetuation, and continuity of our wahi pana and lāhui (nation)
* **ʻIke Pono**- to recognize, feel, and understand righteousness, properness, and goodness in all we do
* **ʻImi Naʻauao**- to seek knowledge or education; be ambitious to learn
* **Kuleana**- to view our work as both a privilege and responsibility
* **Pule**- to open the connection and communication lines to a higher source of power to help guide our work

These values represent the underlying foundation, spirit, and structure for this study. It was our hope that by providing a frame of reference and guiding values, the team's efforts would be better understood in the context of our being indigenous researchers genuinely believing in and practicing aloha ʻāina and aloha lāhui.

Data collection for this plan was divided into three parts – ethnohistorical, archaeological, and ethnographic.

Ethnohistorical Review

A variety of repositories and resources were examined to develop a general description of the natural, cultural, historical, and archaeological background of Pahua Heiau and the surrounding area. Information on the natural landscape of Pahua was gathered primarily through reviewing atlases, archaeological investigations, various books, environmental impact statements, and other reports. Inoa ʻāina, moʻolelo, oli, and ʻōlelo noʻeau were compiled from Hawaiian language and English sources in books, newspapers, and online databases. Historical accounts of Pahua were collected from primary and secondary documents including records, journals, newspapers, and previous reports. Historic maps and Māhele data were gathered from the state survey register map database and other online databases such as Papakilo. Archaeological information was complied from previous archaeological reports and studies dating back to the early 1900s.

Repositories Visited

For the purpose of this project, the following repositories were contacted and/or visited by Nohopapa Hawaiʻi personnel to gather information about the project area: The Hawaiʻi State Historic Preservation Division, Bishop Museum, University of Hawaiʻi - Hamilton Library, University of Hawaiʻi - Anthropology Department, the Kamehameha Schools, and the Office of Hawaiian Affairs.

Data Gaps

One data gap was identified during the research portion of this project. The Davis (1985d) report entitled, "Pahua Heiau Restoration-Continuation: Scope of Work for the West Platforms" was not found in the repositories visited by Nohopapa personnel.

Archaeological Field Methods

On March 21-24, 2016 archaeological investigations were conducted at 7142 Makahuʻena Place, Honolulu Hawaiʻi 96825 by Nohopapa Hawaiʻi, in fulfillment of the outlined Scope of Work for the Pahua Heiau Preservation Plan. A daily crew of 4-5 people were in the field during the hours of 7:00 am-3:30 pm to complete the archaeological fieldwork.

Pedestrian Survey and Vegetation Clearance

A systematic pedestrian survey was conducted throughout the 1.15-acre project area. A total of five sites, composed of 24 features, were identified/ re-identified during the survey. Ten of the 24 features were found within the heiau complex, while the remaining features were found in the outlying areas of the heiau proper. The features included an upright stone, rock alignments, a partial enclosure, retaining walls/ terraces/ rock piles, filled crevices, mounds, and modified outcrop.

Newly identified features were cleared of overgrown vegetation.

Documentation of Historic Properties

Using a methodology developed by TCP Hawai'i—a laser-distance rangefinder mounted to a tripod that corrects for non-level line-of-sight measurements (i.e., it is programmed to automatically calculate trigonometric function) was used to create highly-detailed plan view maps of the project area including the current restored condition of the heiau and any new outlying features identified during the survey. In addition to the plan view maps, detailed written narrative descriptions and site condition forms were also completed for each feature identified during the survey. Professional photographs, and GPS points were taken of the main features as well.

Ethnographic Interviews

Ethnographic research involves gathering oral histories and conducting interviews with living communities to record and acknowledge historical connections individuals have to place as well as document the visions communities have for their wahi pana. Ethnographic work provides a "voice" for a community's history, traditions, and concerns and is used to capture and understand the indigenous viewpoint (past and present) associated with cultural places. Hawaiians have always maintained intimate relationships with their environments and by generating detailed stories about places, knowledge is passed on to future generations.

Ethnographic work for this project was conducted from April 2016 through August 2016. As a multi-phase study, the ethnographic process consisted of identifying appropriate and knowledgeable individuals, conducting oral history interviews, summarizing the digitally recorded interviews, analyzing the ethnographic data, and preparing the report. The data gathering methodology utilized for this study included scoping via word of mouth sampling, semi-structured interviews, site visits, and personal observations.

Scoping for this project began by contacting interested and knowledgeable individuals, organizations, and groups recognized as having genealogical, cultural, historical, or managerial connections to the project area. Initial scoping methods included emailing and mailing letters to inform individuals of the project, contacting individuals by telephone, and/or meeting with individuals in person to discuss the project (Appendix A).

Knowledgeable consultants were selected if they met one or more of the following criteria: 1) were referred by OHA, Nohopapa Hawai'i, or other cultural resource individuals; 2) possessed genealogical ties to the project area or vicinity; and/or 3) were considered Hawaiian cultural practitioners. Participants were selected based on their familiarity with or knowledge of the project area. Participants explained that a number of kūpuna familiar with the project area were no longer alive. Consequently, project staff had to rely heavily on interviewed resource persons as well as on secondary information sources such as reports, newspapers, and other written documents and

materials. A number of organizations and individuals were eventually contacted, and ten community members participated in more formal interviews.

During the study, project staff learned that interview participants obtained their knowledge about the project ahupuaʻa from four primary sources:

1. ʻOhana knowledge or knowledge and information passed on within the ʻohana from one generation to the next.
2. Knowledge obtained from individuals outside their ʻohana such as teachers, cultural practitioners, and kūpuna.
3. Knowledge obtained through written sources such as books, documents, newspapers, reports, and studies.
4. Knowledge gathered through personal observations and practices (such as knowledge acquired through cultural practices within the project area).

Through a great extent, Nohopapa staff attempted to identify and document the specific source or basis of an individual's specific knowledge and/or experience. By so doing, project staff was able to identify: additional written sources and materials referencing Pahua; other families having personal information or experiences regarding Pahua; other knowledgeable individuals with information or experiences to share; and existing cultural practices enabling people to learn more about or to better understand the project area.

Generally, most of the individuals interviewed acquired their knowledge about Pahua through personal experience or knowledge from written sources. Some individuals acquired their knowledge from older family members who shared personal, historical, and/or genealogical information or from other individuals outside their family. A few cultural practitioners obtained their knowledge about the project area by spending time in the area and through first hand observations.

The study utilized semi-structured interviews because they are open ended yet follow a general script covering a pre-determined list of topics. The interviews were conducted in a "talk story" format to allow for a more informal dialogue and free-flowing conversation. This interview style is typically more comfortable for interview participants because of its more natural flow and less rigid structure. The open-ended interview questions allowed for greater leeway in responses but maintained interview focus on the desired research outcomes. Information gathered during the initial phases of archival research and scoping for this project was utilized to construct the open-ended questions. The interview questions were derived from those primary themes identified as being crucial for obtaining a comprehensive understanding of the historical and contemporary significance of Pahua and for preservation planning for future site management (Appendix B). The primary themes guiding the interviews included:

* Moʻokūʻauhau
* Cultural Landscape
* Access
* Site Boundaries and Buffers
* Vegetation
* Preservation & Restoration
* Management
* Interpretation and Use
* Contact Information and Referrals

Each interview was audio recorded, and portions were then transcribed and summarized. The summaries were then sent to the interviewee for review, an accuracy check, and to confirm they were comfortable with the thoughts, information, and comments being shared. A great amount of scrutiny and care was used to ensure that all of the collected data, information, and transcriptions were presented as accurately as possible. Throughout the study, project staff remained keenly aware of the critical importance of ensuring that the voices of the community were honored and respected, correctly heard, and properly conveyed.

Throughout the study, and particularly before any type of meeting or interview, it was explicitly and carefully explained to all participants that their involvement in the study was strictly voluntary. A comprehensive and detailed informed consent process was initiated and completed including providing ample project background information prior to their study participation. The informed consent forms (Appendix C) included specific participant rights including the right of participants to remain anonymous. Project background information included explaining the focus, purpose, significance, and importance of the study. After proper notification and discussion, some interview participants voluntarily provided verbal consent for researchers to use their mana‘o for the study while others signed the informed consent forms. Throughout the project period, all participants had open and regular access to the researchers. All of the interviews were scheduled and arranged for the participant’s convenience, and none of the interviews or meetings was initiated until participants felt completely satisfied with the process.

NATURAL LANDSCAPE AND RESOURCES

This section provides a brief overview of the natural and built environments of the current project area and discusses its location, geology, climate, hydrology, soils, and vegetation.

Location & Geology

The project area consists of approximately 1.15 acres located in the ʻilikūpono of Maunalua and the ahupuaʻa of Waimānalo (Figure 1). The ʻilikūpono of Maunalua is triangular shaped and measures approximately 5 miles (8km) along the southeast coast, 4.5 miles (7.2km) along the west border, and 4.7 (7.6km) along the Koʻolau Mountain Range. More information regarding Waimānalo ahupuaʻa and Maunalua ilikūpono is provided in the Cultural and Historical Context Section of this report. In general, the project area lies in the area that is currently known as Hawaiʻi Kai.

The Hawaiian archipelago was formed over a period of about 20 million years through a lengthy process where magma emitted through a portion of the Pacific Plate known as the "Hawaiian Hot Spot." Volcanoes formed over the hot spot as lava built up and spewed through the ocean surface. As the Pacific Plate slowly shifted to the northwest, the Hawaiian hot spot remained stationary and continued to extrude magma at different rates which resulted in the production of a line of discrete volcanic islands rather than a continuous ridge. (Ziegler 2002:19) The island of Oʻahu in particular was formed by two shield volcanoes: Koʻolau and Waiʻanae, which erupted 1.3 and 2.2 million years ago (Juvik 1998:7).

The Waiʻanae volcano is the older of the two volcanoes and makes up the western (one-third) half of the island while the younger volcano, Koʻolau, comprises of the eastern (two-thirds) portion of the island (Geolabs 2012:2). The current project area was formed during the Koʻolau volcanic series. Subsequent to the Koʻolau Volcanic Series, there was a period of inactive volcanic activity (Macdonald and Abbott 1974). It was during this period of idleness that erosion, mass wasting, alluviation, and other natural processes that caused the formation of the land surrounding the current project area including the deeper valleys and ridges along the Koʻolau Mountain Range. Macdonald and Abbott note:

> The end of the Koolau volcano was followed by a period of erosion during which much of the eastern flank of the shield was removed, great valleys more than 2,000 feet deep were cut into the rest of the range, the Nuuanu Pali was formed, and alluvium accumulated in the valleys as the island slowly sank at least 1,200 feet. (Macdonald and Abbott 1974:366)

Following the period of volcanic inactivity, a resurgence of volcanism occurred in geological history known as the Honolulu Volcanic series. This series consisted of more than 30 eruptions, resulting in the dramatic alteration of the eastern portion of the island of Oʻahu, including the vicinity of the project area. The development of Koko Head (also known as Moʻokua o Kāneʻāpua), Koko Crater, (also known as Kohelepelepe), and Hanauma bay are the results of this volcanic series. Figure 7 depicts the occurrence of these events in relation to the current project area. Figure 7 also depicts that the project area straddles the "shoreline" of where the two volcanic events meet, and that the project area is backed by the Koʻolau mountain range, where it is sheltered from the trade winds and the rains. (Maly and Smith 1998).

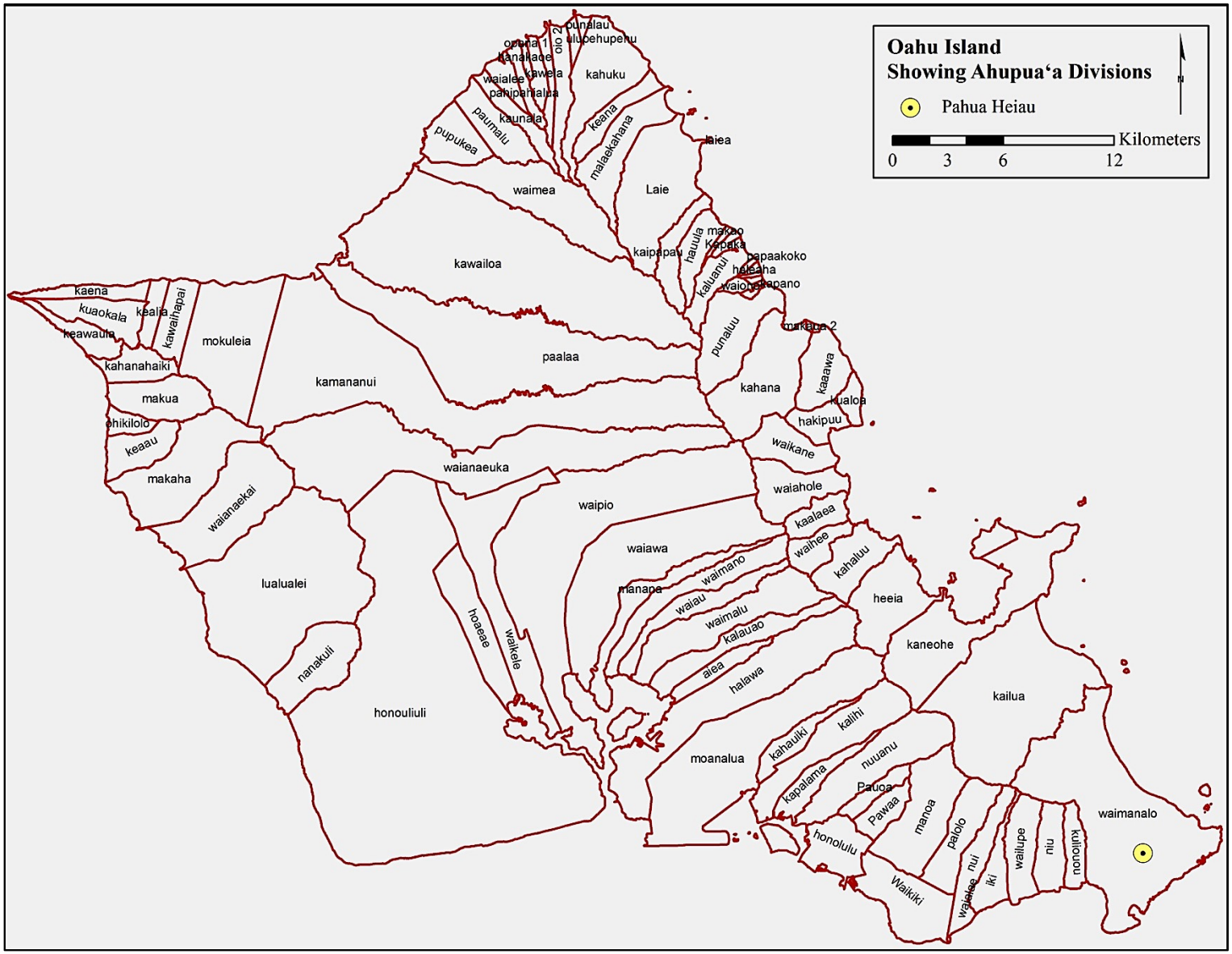


Figure 1. The island of Oʻahu divided into ahupuaʻa with the project area identified by a yellow dot in the ahupuaʻa of Waimānalo (USGS, Cordy 2016).

Figure 2. Aerial view of project area, including Kohelepelepe (Koko Crater), a portion of Loko Kuapā, and surrounding valleys (ESRI i-cubed GeoEye 2016).

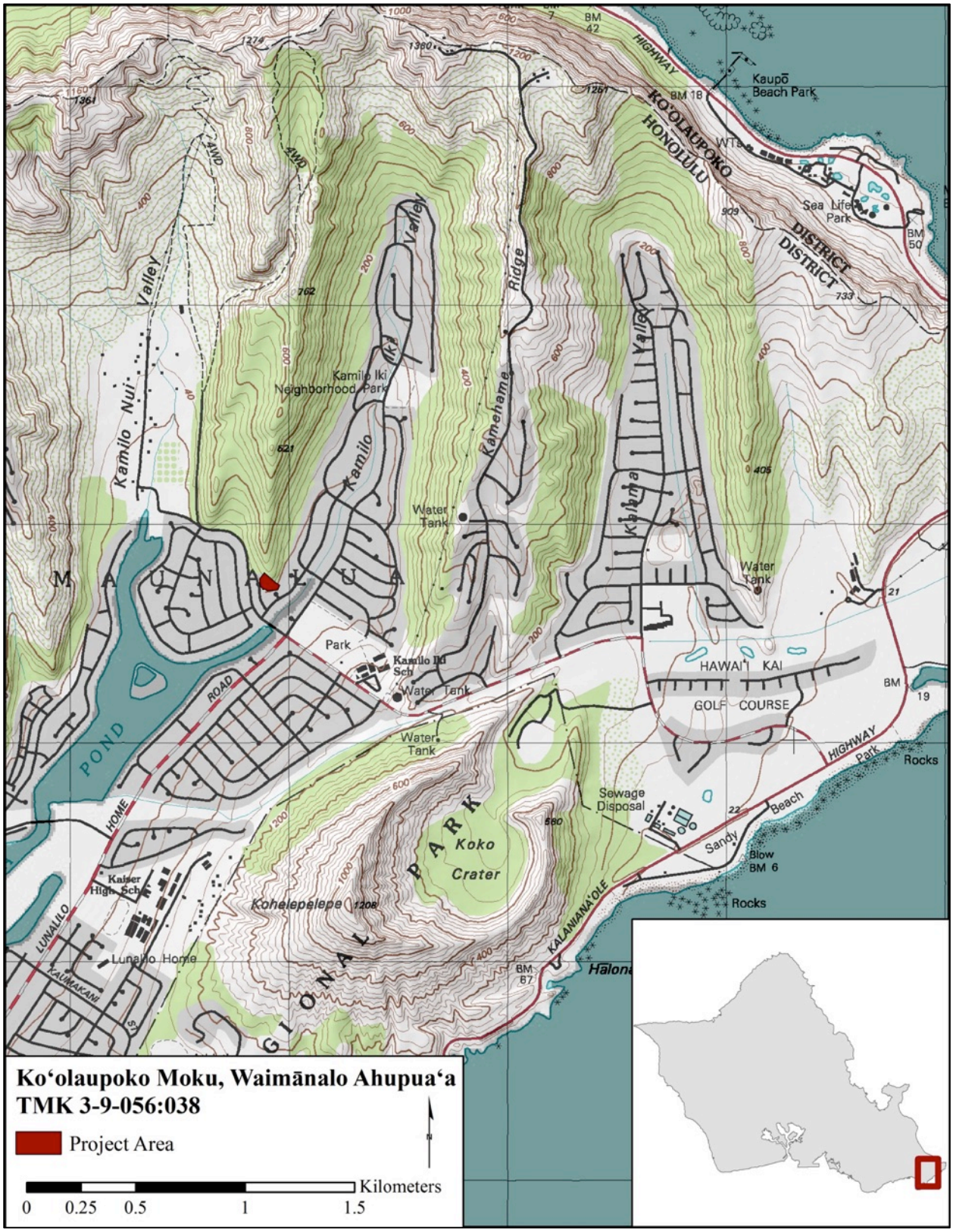


Figure 3. U.S. Geological Survey 7.5-Minute Series Topographic Map (2010), Koko Head Quadrangle, showing the location of the project area.

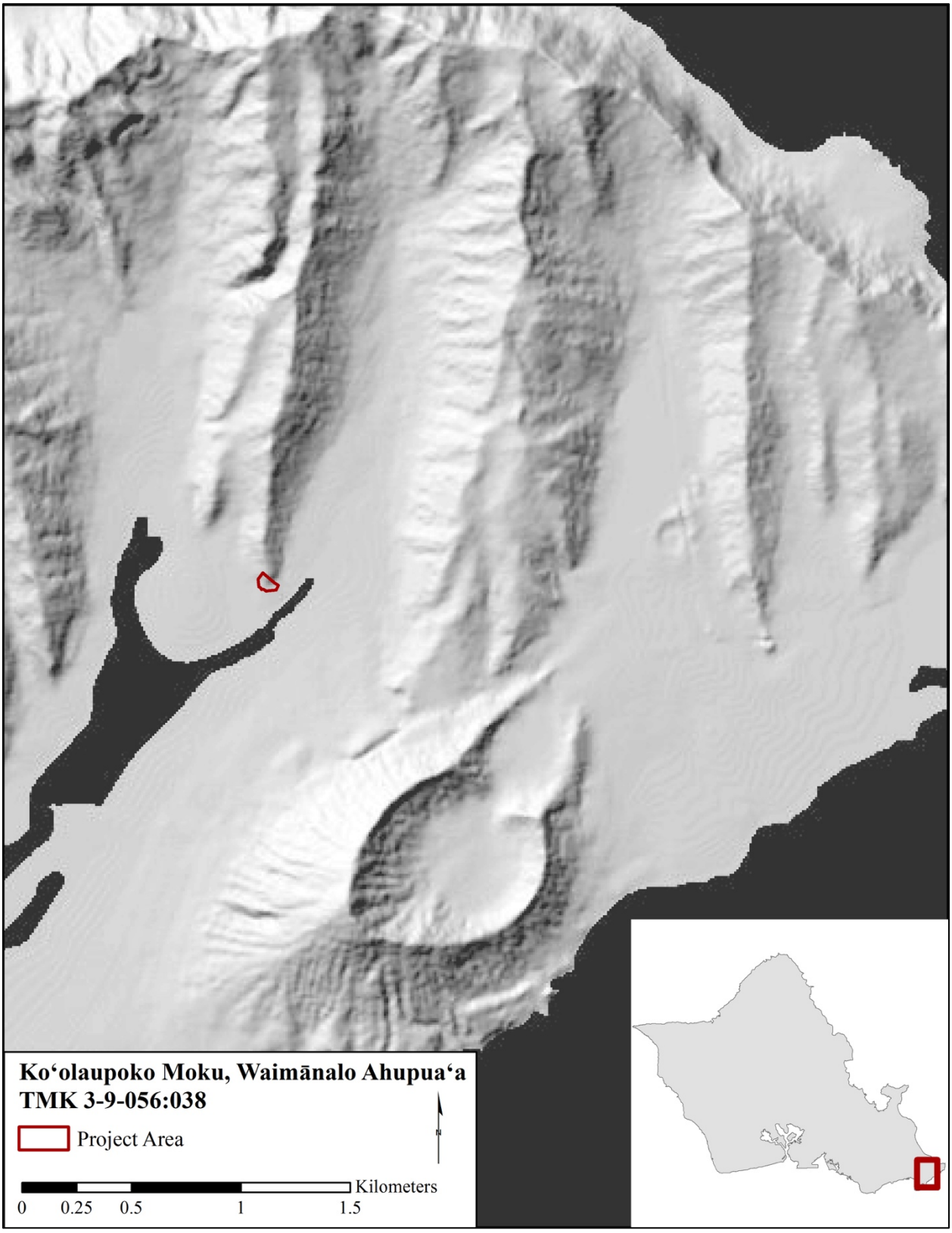


Figure 4. Digital Elevation Map (DEM) highlighting the location of Pahua Heiau (USGS 2010).

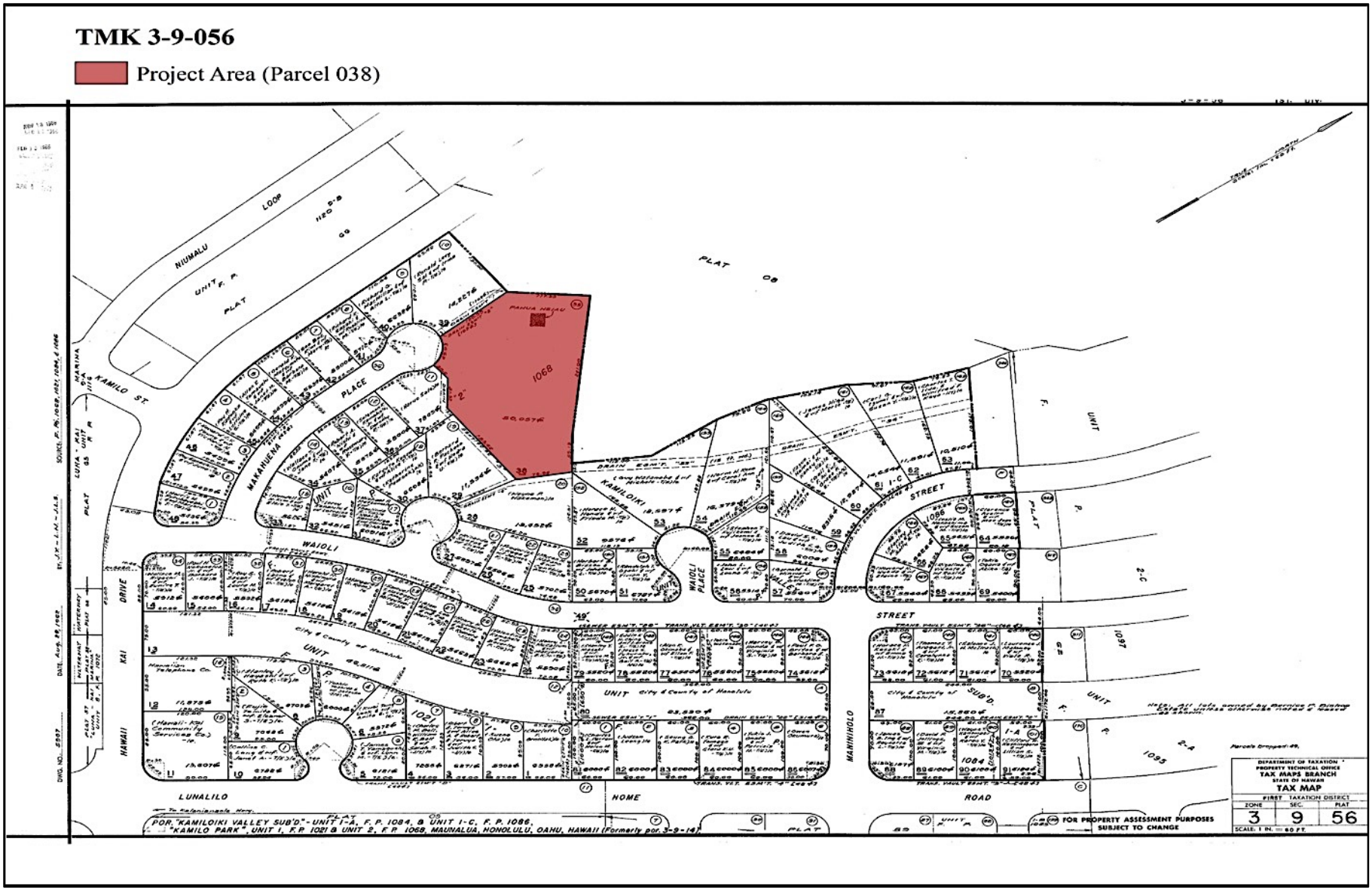


Figure 5. Tax Map Key (3)-9-056, showing the location of the project area.

Figure 6. 2016 aerial image of the project area situated along the talus of Kamilo‘iki Ridge (ESRI 2013).

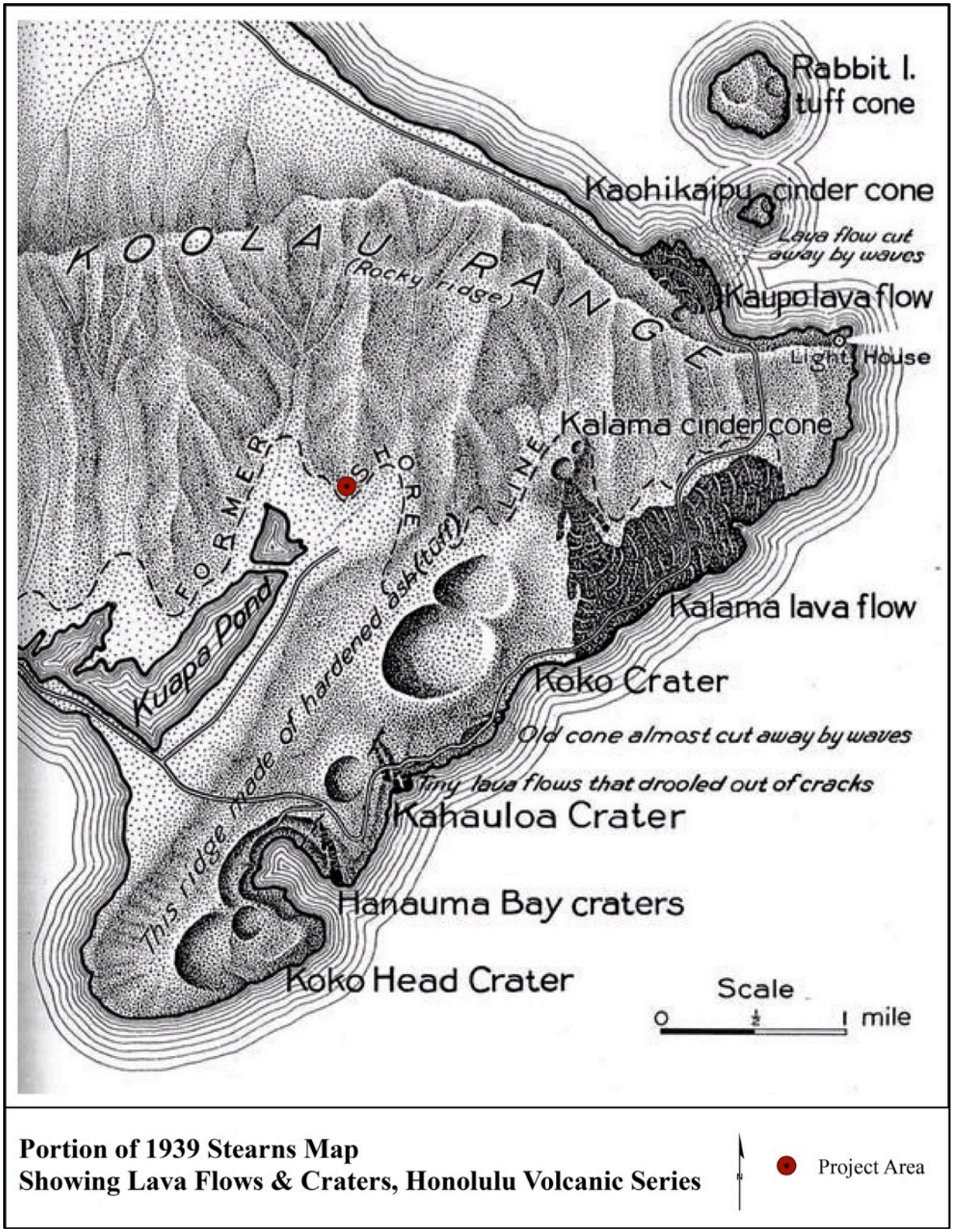


Figure 7. Map depicting lava flows and craters of the Honolulu Volcanic Series in the vicinity of the project area (adapted from Stearns 1939).

Other geological features found on the parcel during archaeological surveys were waterworn basalt pebbles, volcanic glass (opaque from high iron content), and large amounts of coral (made up of limestone material derived from coralline algae) (Davis 1985). The site also consists of taluses, colluviums, and saprolites that can be seen when walking through the land parcel (Davis 1985).

Topography

Pahua heiau is located at the end of a cul-de-sac at address 7142 Makahu‘ena Place and is the only heiau with an actual street address (Quitevis n.d.:3) (Figure 8). It is bordered by residential housing along the southeastern, south and western boundaries of the property with undeveloped lands along the northern and northeastern sides of the property (Geolabs 2012:3). The base of the site measures at 20 feet above sea level and 135 feet at the highest point of the ridge above the heiau (Quitevis n.d.:7) and the topography of the parcel ranges from gentle to steep slopes (Geolabs 2012:4).

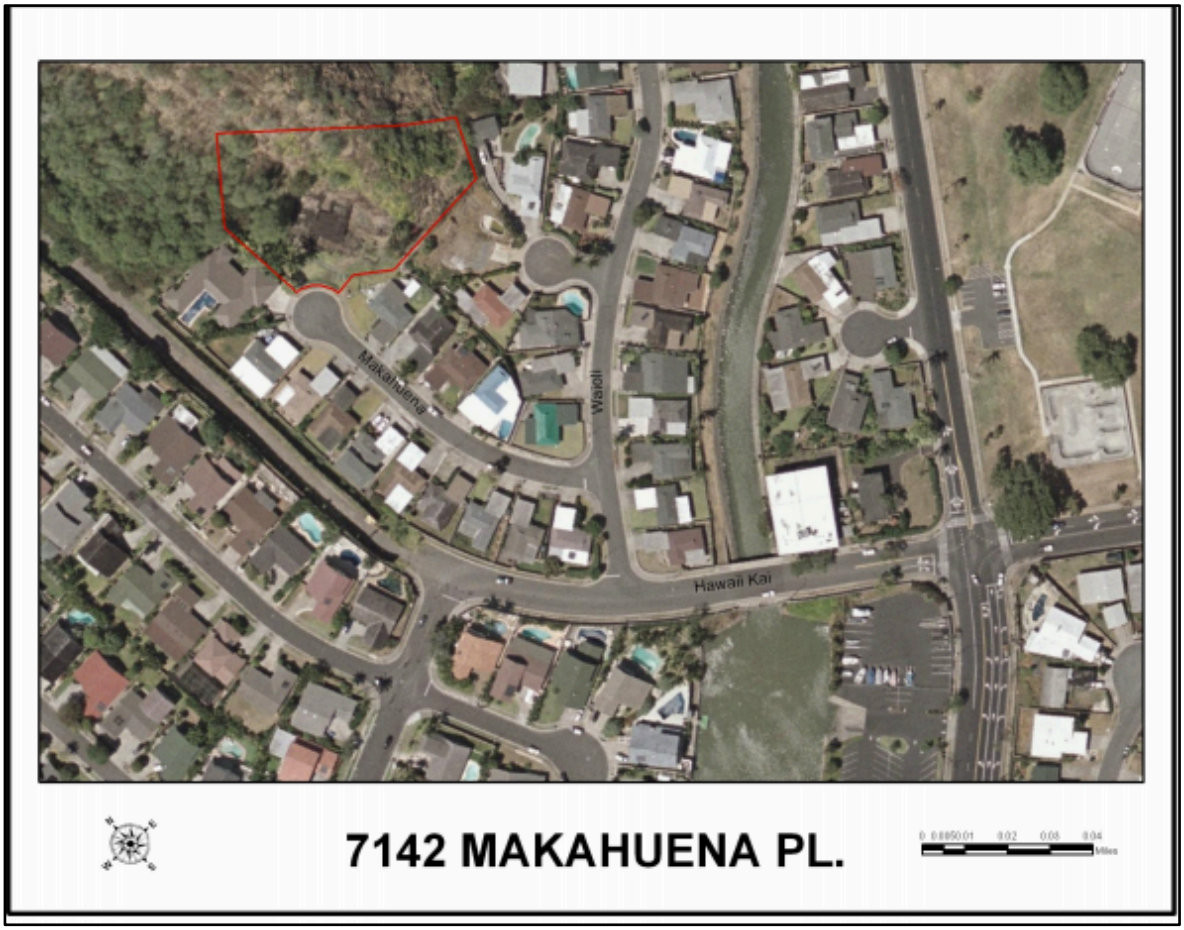


Figure 8. Pahua heiau 1.15 acres parcel with surrounding subdivision (Quitevis n.d.:4).

Pahua can be broken down into two sections: the lower elevation region and the ridge portion of the heiau. The ridge portion consists of moderately to steeply inclined natural rock slopes ranging between 0.5H:1V and 1.5H:1V. The lower elevation portion where the heiau platforms are located includes gentle graded slopes, low relief rock outcrops, and scattered basaltic boulders with inclines of approximately 4H:1V (Geolabs 2012:4).

Climate

An interesting feature, due to location in the middle of the Pacific Ocean is an equitable year-round climate. Because of the ocean water's transparency, high heat storage capacity, and abilities to diffuse and dissipate heat through mixing and evaporation, ocean temperatures fluctuate much less than land surface temperatures (Juvik 1998:51). The island of Oʻahu is aligned perpendicular to the prevailing northeast trade winds which allow the mountains to produce distinctive windward and leeward climate regimes (Juvik 1998:7).

On the crest of the Koʻolau Mountain Range, annual rainfall is greater than 250 inches (6,350 mm) per year while ahupuaʻa on the leeward side of Oʻahu such as Nānākuli and Mākaha receive less than 20 inches (500 mm) of rainfall annually (Juvik 1998:7). Pahua heiau sits lower on Kamiloʻiki Ridge resulting in a low annual rainfall average. Maunalua in particular has an arid climate that produces only 35.4 inches of annual rainfall (Quitevis n.d.:7).

Hydrology

Maunalua was home to the largest loko iʻa (fishpond) ever constructed in the Pacific; it covered 523 acres (Coleman 2014, Adapted from: Thrum 1906). The name of this loko iʻa was Keahupua o Maunalua (the shrine of the baby mullet) and is now known as Kuapā or Maunalua Pond (Coleman 2014:25, Adapted from: Sterling & Summers 1978). Keahupua o Maunalua was renowned for its awa (milkfish) and ʻamaʻama (mullet) along with a diversity of sea life (Coleman 2014:26). Maunalua valleys were known for the freshwater springs that were home to ʻōpae (shrimp) and a variety of iʻa (fish) important for sustaining the population (Coleman 2014:25, Adapted from Goss 1962).

Soils

Hawaiʻi soils are known to be among the best in the world. Just as there are many different plant and animal species, there are a variety of soils. This variance of soils is based on: the length of time they have been exposed to weathering, the materials from which they have been formed, drainage conditions, the kinds and number of plants and animals that live in and on them, and temperature and rainfall conditions to which the soils are exposed (Kay 1994:115). The ʻEwa Silty Clay Loam (EaB) is the type of soil classified for Pahua and is considered prime farmland if irrigated because it is not highly erodible (Quitevis n.d.:7).

The U.S. Department of Agriculture (USDA) Soil Survey (Foote et al. 1972) suggests that the project area is composed of two types of soil sediment: Rock Land (Rk), and ʻEwa silty clay loam (EaB) (Figure 9). According to Foote et al. (1972), the Rock Land sediment is usually found in areas in which exposed rock covers 25 to 90 percent of the surface. The rock outcrops are generally made up of basalt and andesite and can be found on the north portion of the project area, just above Pahua Heiau. The ʻEwa silty clay loam soil sediment is typically found in areas with a 0 to 3 percent slope, like that of the project area. This soil is also found in alluvial fans and terraces and are typically productive for pastures, cultivating sugarcane, and truck crops (Foote et al. 1972: 30; Quitevis n.d.:7).

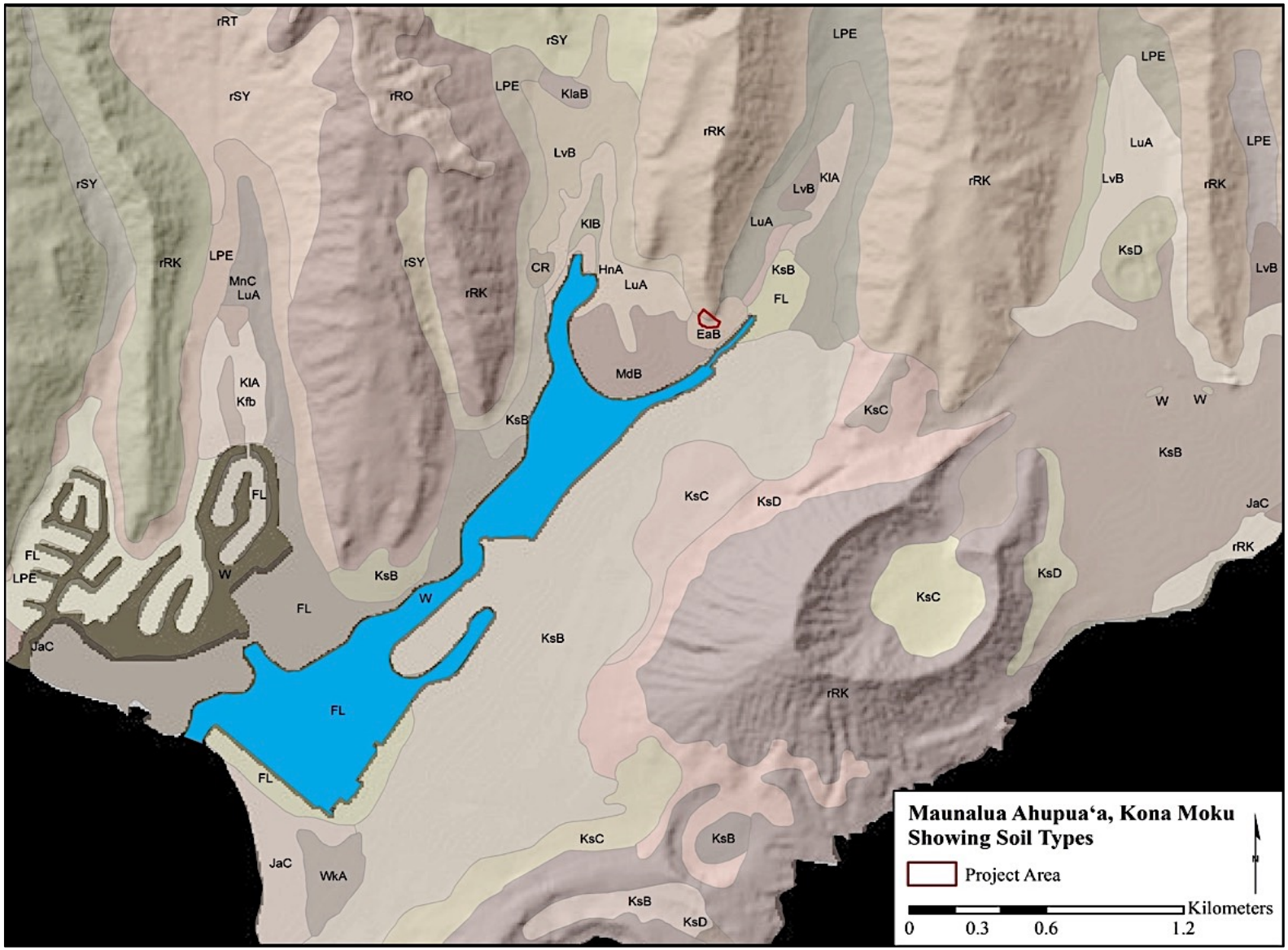


Figure 9. Overlay of Soil Survey of the State of Hawai‘i (Foote et al. 1972), indicating sediment types within and surrounding the current project area.

Vegetation

The current vegetation at Pahua Heiau is composed of predominantly nonnative species, which include kiawe (*Prosopis juliflora*) and koa haole (*Leucaena leucocephala*) (Quitevis n.d:7). The Office of Hawaiian Affairs conducted a plant survey and concluded that although much of project area is made up of invasive vegetation, there are five native, eight indigenous, and four Polynesian introduced species existing (Quitevis n.d.:7).

The native species identified were ʻalaʻala wai nui (*Peperomia macraeana*), ʻiliahi (*Santalum freycinetianum*), koaʻia (*Acacia koaia*), koʻokoʻolau (*Bidens menziesii*), and koʻoloaʻula (*Abutilon menziesii*). The indigenous plants recognized were haʻuōwī (*Verbanum litoralis*), ʻilima (*Sida fallax*), ilieʻe (*Plumbago zeylanica*), koali ʻawa (*Ipomoea indica*), moa nahele (*Psilotum complanatum*), pōhinahina (*Vitex rotundifolia*), ʻuhaloa (*Waltheria indica*), and ʻilima pua kea (*Abutilon incanum*). The four canoe plants at Pahua that can be seen as soon as you drive up to the property are: lāʻī (*Cordyline terminalis*), milo (*Thespesia populnea*), niu (*Cocos nucifera*), and kukui (*Aleurites moluccana*) (Quitevis n.d.:16).

CULTURAL AND HISTORICAL CONTEXT

Cultural traditions such a inoa ʻāina, moʻolelo, ʻōlelo noʻeau, and mele offer a direct link to experience Hawaiʻi through a timeless bridge of cultural insights that have guided Hawaiians for many generations. The following cultural traditions tell of the akua (gods), kupua (supernatural deities), ʻaumākua (familial guardians), aliʻi (chiefs), and ka poʻe kānaka (the Hawaiian people) whose stories weave a unique and treasured history of this ʻāina.

Nā Inoa ʻĀina

Every place that has a name, has a story. The names of places may tell of a historical event, an important person, an akua, or a historical figure. They may describe the physical environment of a place or reveal the spiritual function of a particular wahi pana. Ancestral place names, in some cases, may be all that remain of the cultural and historical landscape in places, and they can serve as important resources for remembering and reconnecting to the ancestral knowledge and mālama ʻāina practices of specific places. These ancestral place names carry the mana of the ʻāina and the kūpuna of places, as Pukui wrote, "Once spoke, an inoa took on an existence, invisible, intangible, but real. An inoa could be a causative agent, capable of marshaling mystic elements to help or hurt the bearer of the name. And, so went the belief, the more an inoa was spoken, the stronger became this name-force and its potential to benefit or harm" (Pukui et al. 1974:94). Thus, cultural resource management in Hawaiʻi must encompass the perpetuation, remembering, and in some cases, the restoration and re-education of ancestral place names and stories in their proper places.

The following is a list of place names and features of Maunalua (Table 1) complied from *A Catalog of Hawaiian Place Names: Compiled from the Records of the Boundary Commission and The Board of Commissioners to Quiet Land Titles of the Kingdom of Hawaii* (Soehren 2010). There are no ʻokina (glottal stops) or kahakō (macrons) used in the list of place names as documented by Soehren (2010). The literal (Lit.) or interpretive (Int.) translations of these place names and features were compiled from the works of Kepā Maly and Helen Wong Smith (1998:5-6) and the database compiled by Soehren (2010) who relied on sources like Pukui et al. (1972), Handy et al. (1972) and Pukui and Elbert (1957). In instances where translations were not provided by the aforementioned sources, the abbreviation "N/A" is applied.

Table 1. Place Names of Maunalua

Hawaiian Place Name	Land Area	Translation
Hahaione Valley	Awāwa (valley)	Lit., sand-broken
Halona Point	Lae (point)	Lit., Peering place
Hanauma Bay	Bay, Lua (crater)	Int., Curved-bar or Hand-wrestling-bay
Hawea	Heiau (place of worship)	Int., Name for the famous drum brought by Laʻamaikahiki from Kahiki
Hina	Kūʻula (stone god used to attract fish)	N/A
Huanui	Kūʻula	Lit., Large-fruit, or to be fruitful, or to be productive
Ihiihilauakea	Lua	Lit., Wide-leafed-ʻihiʻihi

Kaalakei Valley	Awāwa between Kuliouou and Hahaione Valleys	Lit, The proud water-worn stone
Kahauloa	Lua	Lit., The-tall-hau-tree
Kaiama	Awāwa	Lit., mullet sea
Kaihuokapuaa	Lae (point)	Lit., the snout of the pig
Kailiili	Land area on the Maka-puʻu side of the beach park at Sandy Beach, Oʻahu	N/A
Kalama Valley	Awāwa	Int., The-torch, or the-Lama-tree
Kaluanui Ridge	Ridge between Hahaione Valley and Kamilonui Valley	Lit., the big pit
Kamehame Ridge	Ridge	N/A
Kamiloiki Valley	Awāwa	Int., Ka-milo may be literally translated as “The-milo-tree”-iki means the little land section
Kamilonui Valley	Awāwa	Int., Ka-milo may be literally translated as “The-milo-tree”-nui means the larger land section
Kawaaapele	Pōhaku (rock/stone)	N/A
Kawaihoa Pt	Lae	Lit., The-companion’s-water
Keahupua o Maunalua	Loko iʻa (fishpond)	Lit., The-shrine-of-the-baby-mullet-of -Maunalua
Kealakipapa	Trail, and a small awāwa east of Mauuwai Valley, through which passed a paved trail from Wawamalu to Makapuu	Lit., The-paved-road
Keawaawa	Place	Lit., The-valley
Kohelepelepe	Cone	Lit., Vagina-labia-minor (descriptive of the natural shape of the inland side of the crater; named for a goddess)
Koko	Pane waʻa (canoe landing)	Int., Blood (for the red earth of the area)
Koko Crater	Lua	(see Koko)
Koko Head Park	Park	(see Koko)
Kuamookane	Ridge	(see Mookua o Kaneapua)
Kuapa Pond	Loko iʻa	Lit., Wall of a fish pond
Kui Channel	Channel	N/A

Makapuu Head	Cape	Lit., Hill beginning or bulging eye
Malei	Pōhaku	N/A
Mauna o Ahi Ridge	Ridge between Kaalakei Valley and Hahaione Valley	Lit., fire-hurling hill
Mauuwai	Kūʻula, and a small awāwa between Kalama Valley and Kealakipapa Valley	N/A
Moeau	Lae	Lit., resting current
Mookua o Kaneapua	Puʻu	Lit., Backbone-of-Kane (see moʻolelo below)
Nalowale	Kūʻula	Lit., lost, forgotten
Namaka o Kahai	Stone	Lit., the eyes of Kahaʻi
Nonoula	Lua	Lit., red sunburned
Okuu	Beach, Stone	Lit., crouch ; Int., people crouched by this stone
Pahua	Heiau	N/A
Paioluolu	Lae	Lit., lift gently
Palialaea	Kūʻula	Int., Ocheorus earth-cliff
Puu Mai	Cone	Lit., Genetalia-hill (see Kohelepelepe above)
Puu o Kipahulu	Puʻu	N/A
Wawamalu	Place	Lit., Shady valley

Keahupua o Maunalua

Keahupua o Maunalua, also called Loko Kuapuā (Figure 10), was known as the largest fishpond in the Pacific (Thrum 1906). Home to a variety of marine species, this fishpond was especially known for its ʻamaʻama (mullet), and awa (milkfish). Keahupua o Maunalua is considered a loko kuapā, a fishpond made of stacked wall construction, and covers approximately 523 acres. In 1821, an account from Mathison was provided describing the fishpond. Mathison writes, "here is a large-saltwater lake...It was divided from the sea by a large embankment of sand, which on extraordinary occasions is probably overflowed by the tide (Mathison 1821:386). According to Kamakau (1976) and McAllister (1933) the name of the moʻo, water spirit guardian, of Keahupua o Maunalua was Laukupu.

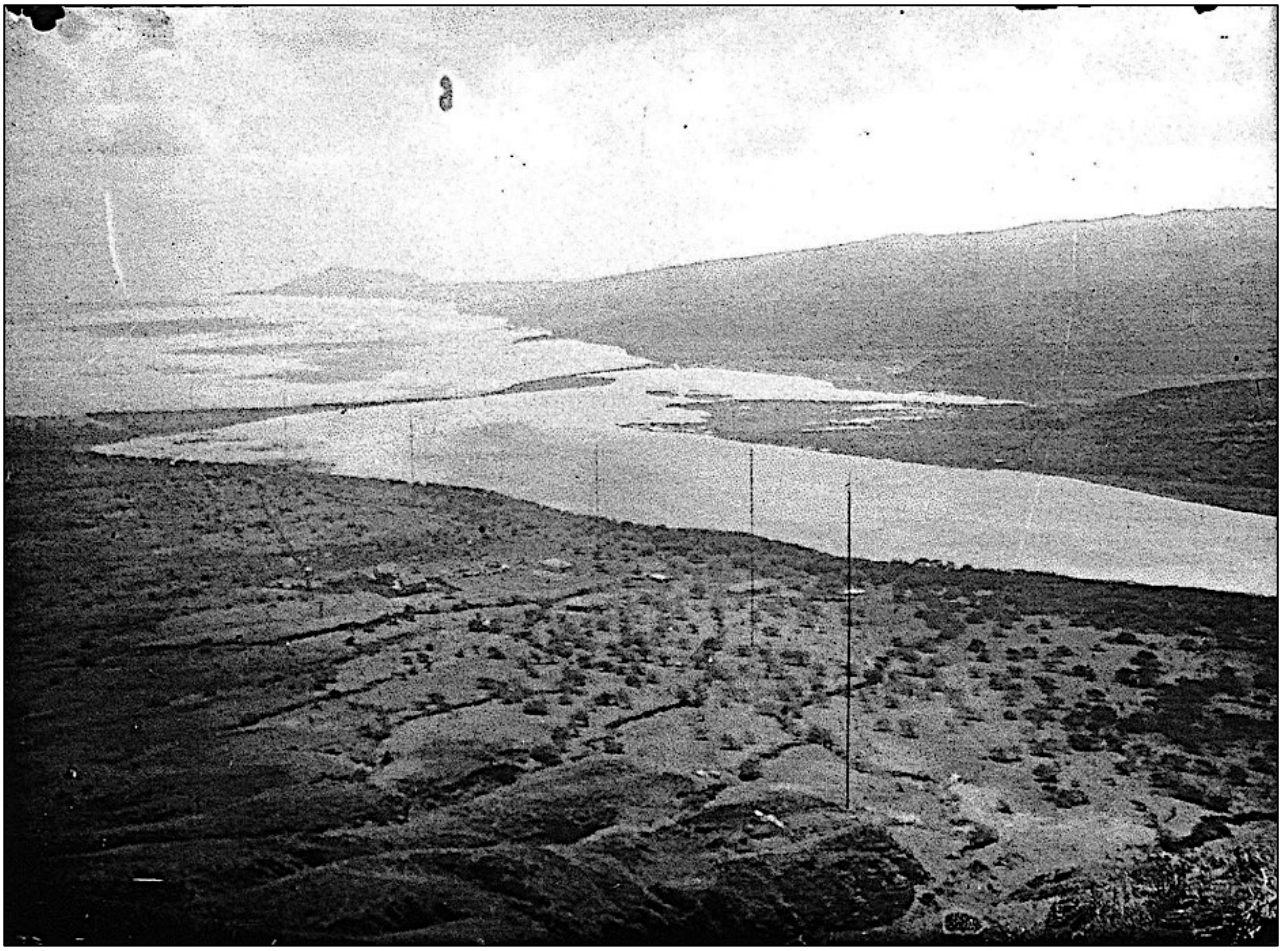


Figure 10. 1915 photograph of Loko Kuapā (Bishop Museum Archives).

Moʻokua o Kāneʻāpua

Koko Head is located southeast of Pahua Heiau and forms the eastern rim of Maunalua Bay. The traditional name for Koko Head is Moʻokua o Kāneʻāpua (Figure 11) which literally means the, "backbone of Kāneʻāpua". The moʻolelo of Kāneʻāpua is found in the Hawaiian language newspaper *Ka Nupepa Kuʻokoʻa*, and was written in an article entitled, "Ka Aekai o Maunalua ame Kona Mau Kuhina," by J.K. Mokumaia on March 4, 1921 (Appendix D). According to the moʻolelo, Kaneʻapua was the younger brother of two major deities, Kāne and Kanaloa. While Kāne and Kanaloa were visiting the Maunalua area, they sent Kāneʻāpua to fetch some water from the spring named Waiakaʻaiea. They gave him specific instructions, and warned him not to urinate while on his way, lest urine enter the water. Despite these instructions, Kāneʻāpua relieved himself, disobeying the orders of his older brothers. His actions caused the spring to dry up. Kāne and Kanaloa saw that Kāneʻāpua did not obey their instructions and left to return home. As for Kaneʻapua, he knew that he was in the wrong for disobeying his older brothers and was turned into the mountain scape known as Moʻokua o Kāneʻāpua (Ka Nupepa Kuʻokoʻa, March 4, 1921).

Figure 11. Photograph of Moʻokua o Kāneʻāpua (www.maunalua.net).

Kohelepelepe

Also located southeast of Pahua Heiau is Koko Crater, traditionally known as Kohelepelepe (Figure 12), which literally translates as, "vagina labia minor" (Pukui et al. 1974:115). According to moʻolelo, there are three stories associated with the volcano goddess, Pele, in Maunalua. The formation of Kohelepelepe crater is one of the three stories. In one account, the epic moʻolelo tells of Pele's attack by the infamous pig-god Kamapuaʻa near Kalapana, on the island of Hawaiʻi (Beckwith 1970:187). Pele had been seduced by Kamapuaʻa, and his excessive "rooting" of her would lead to her eventual death. Concerned for Pele's life, her sister Kapo, sent her famous flying maʻi (genital) to distract the pig-god and lure him away from Pele. The flying maʻi eventually caught the attention of the mischievous Kamapuaʻa, and teased him away from Pele all the way to Puʻumaʻi, a ravine on Oʻahu, where it rested upon a hill (Kameʻeleihiwa 1996:116). Its impression to this day remains on the Makapuʻu side of this hill, where it was then referred to as Kohelepelepe (Beckwith 1970:187).

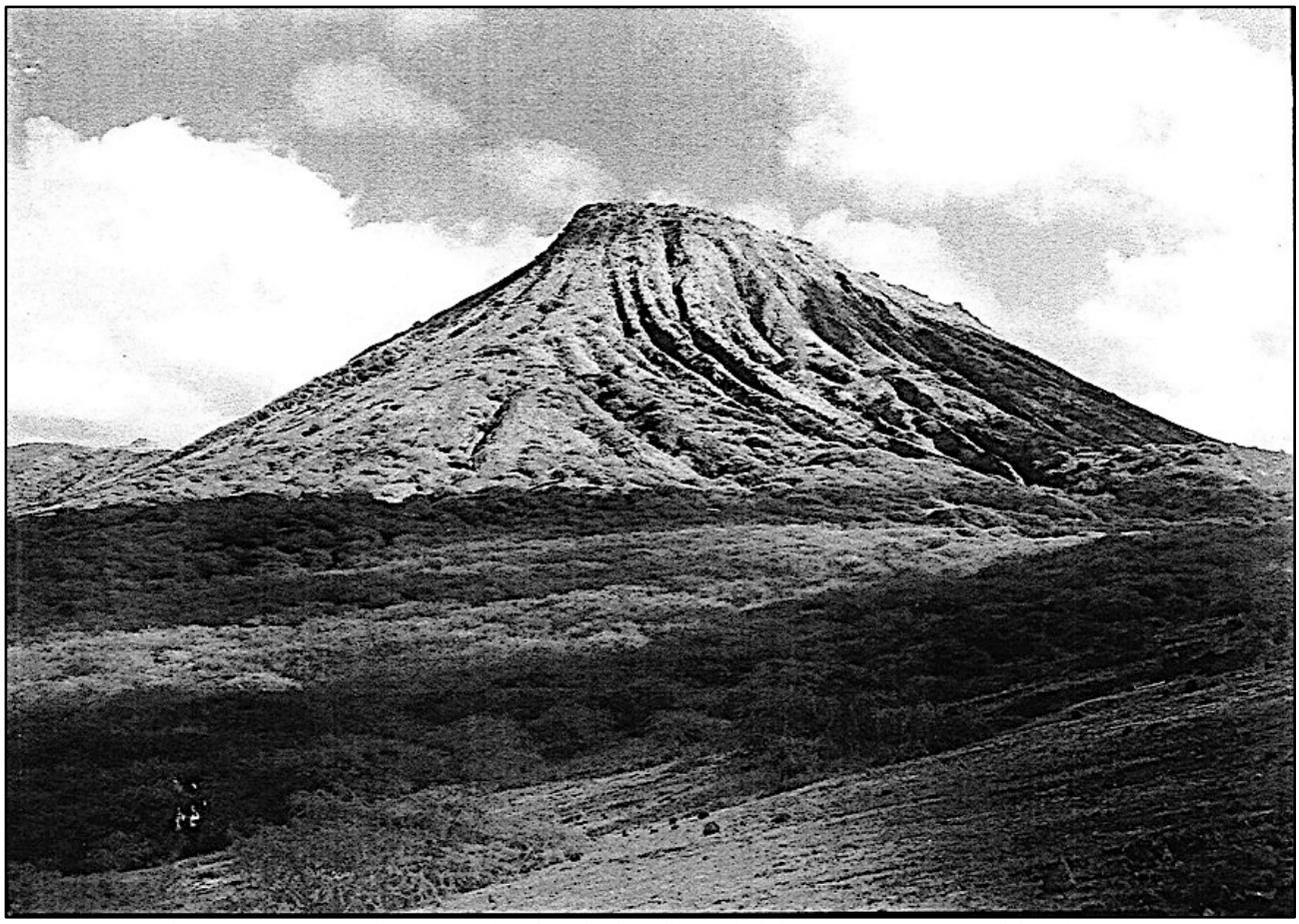


Figure 12. 1937 Photograph of Kohelepelepe (Bishop Museum Archives).

Pahua Heiau

The Pahua Heiau complex (Figure 13) originates from a history of important architectural structures, proving significant in the sociopolitical and religious economies of ancient Hawai'i. The term "heiau", though used loosely in today's society, refers to "a simple natural object or to an element in a landscape where the god manifests himself " (Valeri 1985:173). According to Native Hawaiian scholar Samuel M. Kamakau, "Heiaus were not alike; they were of different kinds [of structures] according to the purpose for which they were made" (1976: 129).

Figure 13. 2016 photograph of Pahua Heiau in the foreground with Kohelepelepe in the background to the left, Moʻokua o Kāneʻāpua in the center, and Loko Kuapā to the right.

In the early 1900s, B.P. Bishop Museum archaeologist, John F. G. Stokes, reported on these different structural types by stating that, "After examining about 150 heiau sites on the island of Hawaiʻi, about 70 on Molokaʻi, and several on the islands of Kauaʻi, Oʻahu, and Kahoʻolawe, it seems to me that a man would be very unwise to attempt to draw a plan of the Hawaiian heiau. The endless variety in size, shape, and form puzzled me exceedingly…" (Stokes and Dye 1991: 21). Though Stokes' research indicated that there are a wide variety of heiau types, classification of these heiau were narrowed down to represent seven general heiau types (Bennett 1930). These types are listed below:

1. Sacrificial Heiau
2. Agricultural Heiau
3. King's Private Heiau
4. Priest's Heiau
5. Fishing Heiau
6. Miscellaneous Heiau
7. Pōhaku o Kāne Heiau

In 1996, Native Hawaiian archaeologist, Kehaunani Cachola-Abad, published an article emphasizing the significance of heiau diversity (Cachola-Abad 1996). In the article, Cachola-Abad discusses issues related to heiau classification and argues that there are no boundaries separating heiau functional classes. Cachola-Abad asserts that heiau uniformity does not exist, and no two heiau are alike (Cachola-Abad 1996). Furthermore, she discusses stereotypical ethnographic analogies of heiau, like those provided by Stokes and Dye (1991), and how they are problematic in determining specific religious functions of heiau. Although there are many religious sites that fall into these stereotypical categories, these functional class boundaries and descriptions limit identifying sites that do not fall

within the same physical uniformity. Ultimately, Cachola-Abad (1996) maintains that religious sites and heiau should be classified based on their cultural significance, and not just their physical traits.

In addition to the challenges in heiau identification, it is also important to understand that heiau function was not continuous. According to Rubellite Johnson (1983), heiau were often times dedicated, and then rededicated again, based on religious and ceremonial seasons. Buck (1957) also argued that heiau were also repurposed and/or reconditioned after being abandoned for a long period of time.

Based on location, construction style, and orientation, Pahua Heiau has been previously referenced to as an agricultural or husbandry heiau (McAllister 1933 and Davis 1985). In 1940 E.S. Craighill Handy wrote the following passage describing the project area:

> According to the last surviving kamaaina of Maunalua, sweet potatoes were grown in the small valleys, such as Kamilonui, as well as on the coastal plain. The plain below Kamiloiki and Kealakipapa was known as K[e]-kula-o-Kamauwai. This was the famous potato-planting place from which came the potatoes traded to ships that anchored off Hahaione in whaling days. The village at this place, traces of which may still be seen, was called Wawamalu. (Handy 1940: 155)

Reference to the project area as a place associated with agriculture and the cultivation of ʻuala, sweet potato, was also mentioned in traditional mele, or chants. In 1868, Pahua was mentioned in a traditional mele wānana, prophecy chant, for Kualiʻi the King of Oʻahu during the early eighteenth century. The mele wānana was recorded by Hawaiian historian S.M. Kamakau, and was published in the Hawaiian Newspaper, *Kuokoa* in May, 1868 [APPENDIX A]. Since its publication in *Kuokoa*, it has been republished and translated several times.

The first republishing of this chant was done by Abraham Fornander in 1878-1885 in his work, "*An Account of the Polynesian Race"* (Fornander 1969:284). The chant was then republished by Thomas G. Thrum in 1916-1917 as an edited addition to Fornander's "*Hawaiian Antiquities and Folk-Lore*" (Fornander 1916-1917:394-397). Thrum wrote:

> The following is found as a conclusion of the foregoing Chant, contributed by S.M. Kamakau to the Ka Nupepa Kuokoa in May 1868, and is the 'unwritten portion' referred to by C.J. Lyons in his published translation (with Judge L. Andrews) of the Song of Kualiʻi. Fornander refers to it in his Polynesian Race, Vol. II, p. 284, but does not append it in his republication of the song, with a somewhat different interpretation as an Appendix in said Volume II, from the fact that he questioned its genuineness. (Fornander 1916-1917: 394)

According to Thrum, the following lines of the Chant for Kualiʻi was translated in 1875 by C.J. Lyons in *The Islander* (Kamakau 1991:83):

…Ka makakaua u aka o Ewa	…The first drawing of Ewa's net
Ua puni ka ia o Mokumoa,	Entrapped the fish of Mokumoa;
Ua kau ia ka nene;	They are strewn on the grass.
Ua haa kalo haa nu;	The kalo danced, danced noisly,
Haa ka ia o kewalo,	The fish at Kawelo danced,
Haa na uala o Pahua,	**The potatoes of Pahua danced,**
Haa ka mahiki i Puukea,	The mahiki grass at Puukea danced,
Haa ka ununu i Peleula	The ununu danced at Peleula

Haa Makaaho i kea la.	Makaaho danced on the way
E Ku e, ma ke kaha ka ua, e Ku,	Say, Ku, the rain comes by way of Kekaha, Ku
I ai na ka ia o Maunalua…	Bringing food for the fish of Maunalua…

Another interpretation and translation of this chant was published in 1991 in "*Nā Moʻolelo a ka Poʻe Kahiko*" (Kamakau 1991). This book is a compilation of Hawaiian language newspaper articles written by S.M. Kamakau, translated from Hawaiian to English by Mary Kawena Pukui, and edited by Dorothy B. Barrere. In this account, the chant is referenced in the story of chief Huanuikalālaʻilaʻi. Huanuikalālaʻilaʻi was known as a good chief that loved his people and cultivating the land (Kamakau 1991:24-25). Pukui's translation of the chant is provided below:

[Ka makakaua u aka o ʻEwa]	[The increasing "first rain" of ʻEwa]
Ua puni ka iʻa o Mokumoa,	Overcomes the fish of Mokumoa,
Ua kau iʻa ka nene;	Washes up fish to the nene plants;
Ua haʻa kalo haʻa nu;	Lays low the taro as it patters down;
Haʻa ka iʻa o kewalo,	Lays low the fish of Kewalo
Haʻa na ʻuala o Pahua,	**Lays low the sweet potatoes of Pahua**,
Haʻa ka mahiki i Puʻukea,	Lays low the mahiki grass at Puʻukea,
Haʻa ka unuunu i Peleʻula	Lays low the growing things at Peleʻula
Haʻa Makaaho i kea la.	Lays low Makaaho [Makāho] in its path
E Kū e, ma ke kaha ka ua, e Kū,	O Kū, the rain goes along the edge [of the island], O Kū
[I ʻai ʻna ka iʻa o Maunalua]…	[Eating the fish of Maunalua]…

It is argued that Kamakau used this particular section of the Chant for Kualiʻi as part of the story of Huanuikalālaʻilaʻi to bolster its authenticity (Kamakau 1991:85). This is referred to as a classic Hawaiian literary style, in which an author takes fragments from one story and places it within the context of another to strengthen its content. Whether or not this is the case here, it is transparent why Kamakau paired Huanuikalālaʻilaʻi (a chief who loved cultivation) with this section of the mele that depicts specific areas of intensified cultivation on Oʻahu, Pahua being one of them. Another possible interpretation could be that Pahua Heiau was erected during the time of Huanuikalālaʻilaʻi.

Other examples of this classic Hawaiian literary style include the reference to Pahua as a place in kanikau, or chants of mourning, for Queen Kaʻahumanu and Chief Abner Kahelili. The kanikau composed for Queen Kaʻahumanu was written by David Malo, and was first printed in the August 8, 1834 issue of *Ka Lama Hawaiʻi*. Malo writes, "**noho anea kula wela la o Pahua**". This line has been previously translated in the "*Cultural and Historical Significance of Pahua Heiau, Maunalua, Oʻahu*" report written by Holley Coleman (2014) as, "tarrying in the vibrating heat of the hot plains of Pahua". Although this translation is very beautiful and depicts the natural environment of Pahua, another interpretation of this line could also mean, "the sweet potato plains of Pahua sits bare and leafless". Considering the context that this is a chant of mourning, it seems as if Malo used Pahua, this place of cultivation and life, as a metaphor to reflect the grief and sadness this particular area reflected after the passing of their beloved queen. Metaphorically, the sweet potato plains of Pahua is used to reference the people of the area, that sit bare and leafless, without life after the passing of their queen. It is also pertinent to mention that Pahua, and the entire Maunalua ahupuaʻa that it is situated in, belonged to Kaʻahumanu as a gift from her husband, Kamehameha I, during the time of her passing.

Pahua was also referenced to in another kanikau for Princess Harrieta Nāhiʻenaʻena, who sadly passed away four years after her step-mother, Kaʻahumanu (Fornander 1919-1920: 442). Interestingly enough, Nāhiʻenaʻena was the daughter of Kamehameha I who was the previous land owner of the

Pahua area, before transferring his ownership of the landholding to Kaʻahumanu. The mele was composed by Kini, and appears to have utilized the same poetic and literary techniques as Kamakau (1991) during its composition. Like the aforementioned chants for Kualiʻi and Huanuikalālaʻilaʻi, this kankikau listed similar places like Kewalo, and area rich in fish resources and areas that were well watered, like Mānoa to paint this picture of significant places on Oʻahu that were either rich in resources or areas that were frequented by the Princess or chiefly landholdings. An excerpt and translation of this kanikau is provided below as documented in Fornander 1919-1920:

Aole ka, e haalele an aka wau,	Not so! I am to leave thee,
E pau aho ana aka wau ia oe,	I have no longer patience for thee.
Auwe kuʻu hoa, kuʻu hoa i ka	Alas my companion: my companion in the
Makani heaeloa o Honolulu	northeast trades of Honolulu.
Auwe kuʻu hoa i ka waahia o Manoa	Alas my companion in the litter rain of Manoa
Auwe kuʻu hoa i ke kula o Kewalo	Alas my companion on the plain of Kewalo
Ame Koula ame Pahua	**And of Koula, and Pahua**
Auwe kuʻu hoa i ka la wela o	Alas my companion in the permeating heat of
Haliimaile	Haliimaile
Auwe kuʻu ipo, lei he [a]ʻloha…	Alas my endeared wreath, ʻtis a farewell…

In any case, if there is one clear theme, it is that Pahua was well known for its ʻuala production, was a focal location in Maunalua, and had significant ties to chiefly lineages. Although the literal translations of this mele references Pahua as a place or an area, the kaona or the concealed reference, may also be commenting specifically on the construction and representation of Pahua Heiau, not just as a place of agricultural worship, but also as a place of political stability. Malo (1951) writes:

> When the people and priests saw that the services of the *luakini* were well-conducted, they began to have confidence in the stability of the government, and they put up other places of worship, such as the *mapele*, the *kukoea*, and the *hale o Lono*. These heiau were of the kind known as *hoouluulu* (*hooululului ai*, to make food grow) and were to bring rain from heaven and make the crops abundant, bringing wealth to the people, blessing to the government, prosperity to the land. (Malo 1951:176)

Heiau ipu o Lono, or agricultural heiau, was dedicated to Lono, the Hawaiian god of growth, fertility, horticulture, and rain (Valeri 1985:177). Unlike the human sacrificial class of luakini heiau, these heiau were typically smaller and used only for cultivation pursuits. Other common names for this class of heiau include Hale o Lono, Unu o Lono, Mapele, Waihau, and Kukoae (Malo 1951:160-189). Although the names differ, the main purposes of these heiau were to secure abundant harvests, or rain (Stokes 1919).

According to Malo (1951), there were typically two main rituals that the King participated in throughout the year, the ritual of Kū in which a luakini was constructed, and the ritual of Lono, in which husbandry heiau were constructed. Malo (1951) accounts:

> If the king worshipped after the rite of Lono, the *heiau* erected would be a *mapele*; or another kind was the *unu o Lono*. The timber used in the construction of the house, the fence about the grounds, and in constructing the *lananuu-mamao* was lama; and it was thatched with the leaves of the *ti* plant (*Cordyline terminalis*). There were also idols. The tabu lasted for three days, after which the place would be *noa*, provided, however, that the *aha* was found. If the aha were not found, the same course was taken as in the case of the *luakini*.

The ritual ceremonies of these heiau were also mentioned by Malo (1951) in his discussion concerning the makahiki, the period of religious ceremonies in the rite of Lono (Malo 1951:141-159). In his discussion Malo mentions the transition of the rite of Kū, into the rite of Lono, which alludes to the possible transition of a luakini class heiau to that of a mapele (Malo 1951:141-159).

> After the alii resumed their religious services, the king must build a luakini, that is a large heiau. It was a common saying that this caused a famine in the land, due to the fact that the inner bark of the ohia was red. For that reason the king built a mapele after that, it being believed that this sort of a heiau would bring prosperity to the land because the bark of the lama, which was the wood used in building every mapele heiau, was black. (Malo 1951:189)

Aside from the purpose and rituals of the husbandry heiau, the physical characteristics of these heiau types varied individually, and differed from that of the luakini heiau. The following is a physical description of a Hale o Lono, as provided by John Papa Ii (1959):

> He recalled this place he came to, a short distance from where the Hale Hookololokolo, or court house, later stood. There was a beach there, and heiau houses, each one enclosed with a fence. Wooden female images stood outside each enclosure, with iholena and popoʻulu bananas in front of them. There were maoli bananas befor the male images at the lele altar inside of the enclosure of lama wood. Back of the male images of wood was an ʻanuʻu tower about 8 yards (iwilei) high and 6 yards wide. It stood on the right side of the house, and was covered with strips of white ʻoloa tapa attached to the sticks resembling thatching sticks. The opu tower was just as tall and broad as the ʻanuʻu, and was wrapped in an ʻaeokahaloa tapa that resembled a moelola tapa. The small lama branches at its top were like unruly hair, going every which way. The opu stood on the left side of the house, facing the images and the ʻanuʻu. Between the two towers and extending from one to the other was a fine pavement of stones. In line with the middle of the pavement were the gate and the house which was called the Hale-O-Lono, where Liholiho was staying. It was thatched with dry ti leaves, just as Hale o Keawe in Honaunau, Hawaii was thatched. Houses of this kind were all thatched with ti leaves, and all the posts and beams were of lama wood. The Hale o Lono was like a heiau. There were two others like it in the vicinity, one called the Hale Hui and the other, Hale o Kaili. The Hale Hui was the dwelling for miscellaneous gods and Hale o Kaili was for the god Kaili, or Kukailimoku. (Ii 1959:56-58)

Figure 14 is an illustration of a Hale o Lono based off of this description. In addition, according to Kamakau, the Hale o Lono "was erected on the site of the altar in an old heiau [possibly a luakini]" (Kamakau 1961:200). The following is a physical description of a Mapele, as provided by Malo (1951):

> The *mapele* was a thatched *heiau* in which to ask the god's blessing on the crops. Human sacrifices were not made at this *heiau*; pigs only were used as offerings. Any chief below the king in rank was at the liberty to construct a *mapele heiau*, an *unu o Lono*, or and *aka*, but not a *luakini*. The right to build a luakini belonged to the king alone. The *mapele*, however, was a kind of *heiau* in which the chiefs and the king himself prayed most frequently. (Malo 1951:160)

The following is a physical description of a Ipu o Lono Heiau, as provided by Thrum (1909):

> These temples, or more properly household shrines, were to foster food. They were of different sizes [...] The ipu olono temple that is always maintained by the people is the mua house, the first of the group of several of this and that householder, and in that first house of every man is a calabash (ipu hulilau) suspended by foud cords, inside of which is placed food and meat, and on the outside is attached (tied on) a piece of awa. That gourd is termed the gourd of Kuaaha, or the gourd of Lono, and sometimes the gourd of guardian spirits (Aumakua). Every morning and evening the people paid devotional exercises to the god and offered prayer thereto; then the man would take the gourd which would be hanging up at the notched post, or at the side or end of the house, and bringing it to the threshold would take the piece of awa attached thereto and pray to the god for good or ill; for the peace or prosperity of the government; the king; the chiefs; the middle class (hu); the people and the family and also for his own welfare, ending with amen; then would suck the piece of awa, open the gourd and eat a portion of the food therein. That calabash is termed a poi and meat calabash; it is holy and sacred to the god. (Thrum 1909:56)

Although the physical remnants of a mapele, hale o lono, and ipu o lono are not present today at Pahua heiau, that does not discredit Pahua as a possible husbandry heiau, as it is likely that these features were once present on the rock foundation.

Besides the analyses of location, construction style, and orientation of Pahua Heiau, academic study has also considered the analysis of the name Pahua (Coleman 2014). The following are possible literal translations of the word Pahua, as provided in Pukui and Elbert (1986):

Pahua

1. Pas/imp of pahu. To push or thrust.
2. Downtrodden, as grass where cattle have stamped

Pahuʻa

1. Unsuccessful, ineffective, ruined, spoiled, lack of success

Pāhuʻa

1. Similar to kīpuka, said especially of clear areas in pastures where it is easy to rope cattle.

The word Pahua, can also be linguistically broken down into a number of different component words resulting in different literal and interpretive translations. For example, the term pā has many different meanings including: fence, wall, enclosure, arena, a sound, beat, rhythm, etc. (Pukui and Elbert 1986). The term hua translates to mean: fruit, tuber, egg, produce, result, etc. (Pukui and Elbert 1986). When combining the two component words pā + hua, it can literally translate to mean, “an enclosure of fruits”. This definition, has been used the most to support the theory that Pahua Heiau was once used as an agricultural heiau (Coleman 2014). Other interpretations of the name Pahua vary with references to drums, ranching, water characteristics, hula, Gods, and People (Coleman 2014). A summary of these references is provided in Coleman (2014).

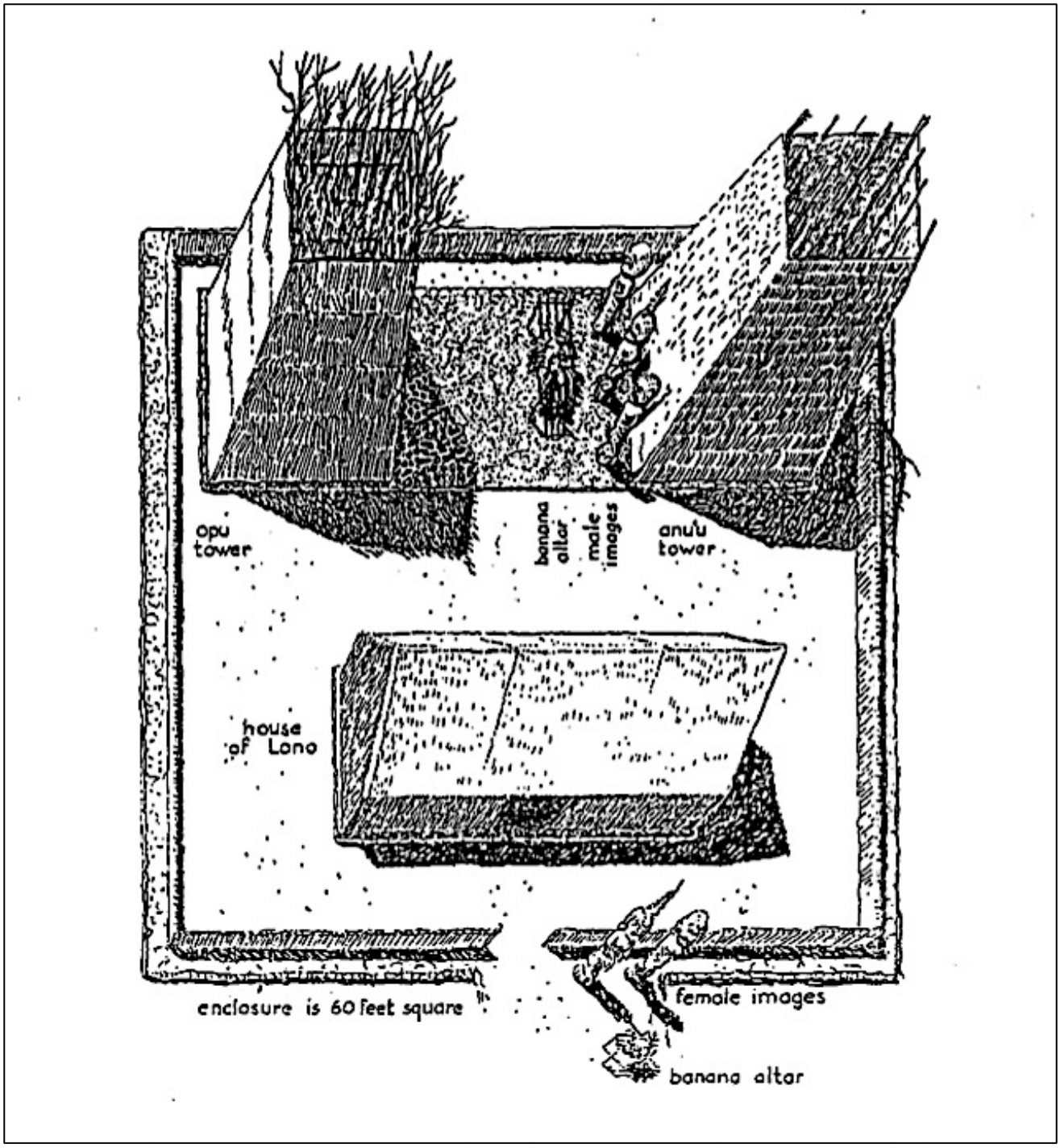


Figure 14. Hale o Lono drawing by Paul Rockwood. Drawing is based on John Papa Ii's description of a typical Hale o Lono type heiau (I'i 1959).

Traditional Use and Occupation of Maunalua

The current project area is located at the base of Kamiloʻiki Ridge in the Maunalua Ahupuaʻa, bounded to the east by Kamiloʻiki Valley, and to the west by Kamilonui Valley. Traditionally, Maunalua Valley was considered an ʻilikūpono (land section) of Waimānalo Ahupuaʻa (Figure 15) in the Koʻolaupoko District (Figure 16). Following the island's conquest by Kamehameha in 1795, the

lands of Maunalua remained within the Kamehameha ʻohana (family), and were ultimately awarded to Victoria Kamāmalu in 1858, during the Māhele. In 1859, the Kona District was renamed Honolulu District and its boundaries extended from Maunalua to Moanalua, repositioning the Maunalua lands within the Honolulu District as an ʻili of Waikīkī Ahupuaʻa (Figure 17 through Figure 18) (Takemoto et al. 1975). The following ʻōlelo noʻeau was used to depict this land distinction:

> ***Kona, mai ka puʻu o Kapūkakī a ka puʻu o Kawailoa.***
> Kona, from Kapūkakī to Kawaihoa.
> The extent of the Kona district of Oʻahu is from Kapūkakī (now Red Hill) to Kawaihoa (now Koko Head).

Despite the land re-designation, maps that were made up until 1902 continued to place Maunalua within the Koʻolaupoko District (Figure 19). This eventually initiated the 1932 amendment of the Revised Laws of Hawaiʻi 1925, which officially placed the jurisdiction of Maunalua lands under the Honolulu District as its own ahupuaʻa (Sterling & Summers 1978: 257). Although the designation of these lands have changed over time, the boundaries of Maunalua generally consisted of the mauka (inland) valleys of Kuliʻouʻou, Hahaʻione, Kamilonui, Kamiloiki, and Kalama, as well as the makai (coastal) areas of Koko, Hanauma, Wāwāmalu, Kaiwi, and Makapuʻu (Coleman 2014). This section attempts to contextualize the topographic features of the Maunalua landscape, to offer a better holistic understanding of the traditional use and occupation of the project area and its surroundings.

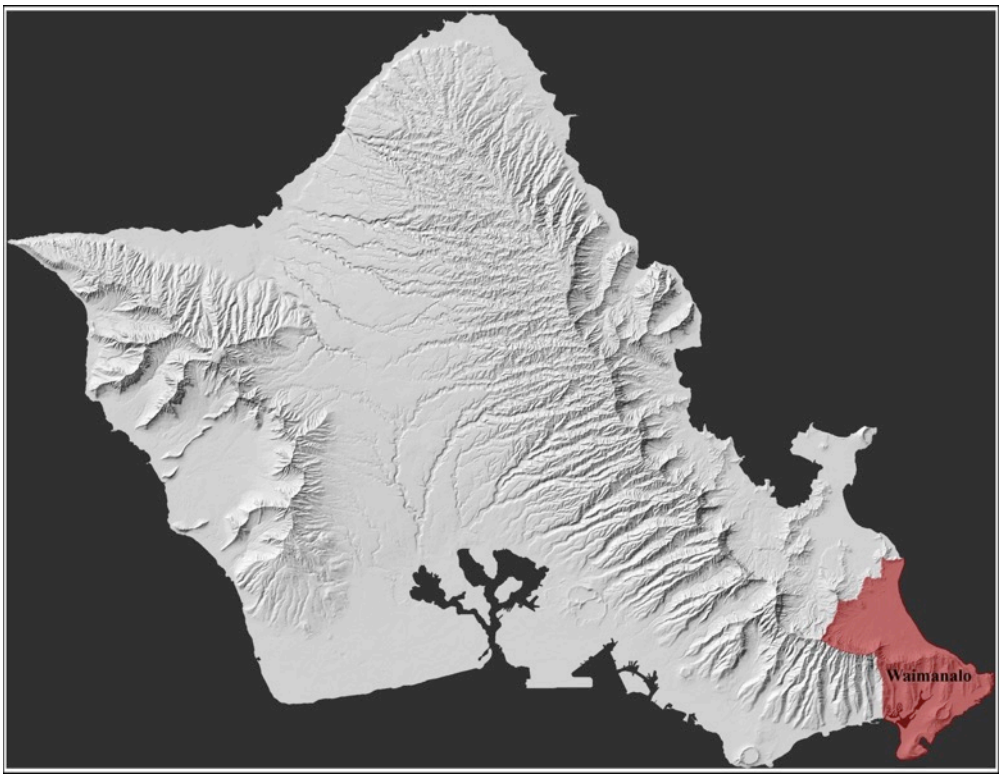


Figure 15. Ahupua‘a land division of Waimānalo before 1859.

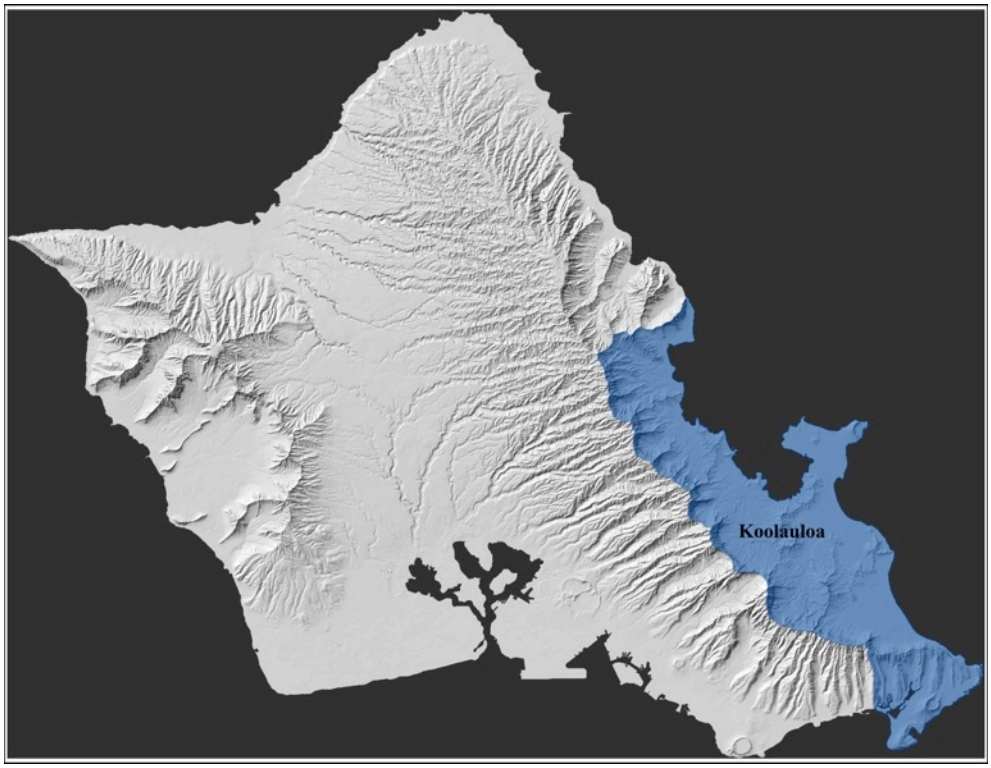


Figure 16. Ko‘olauloa land division before 1859.

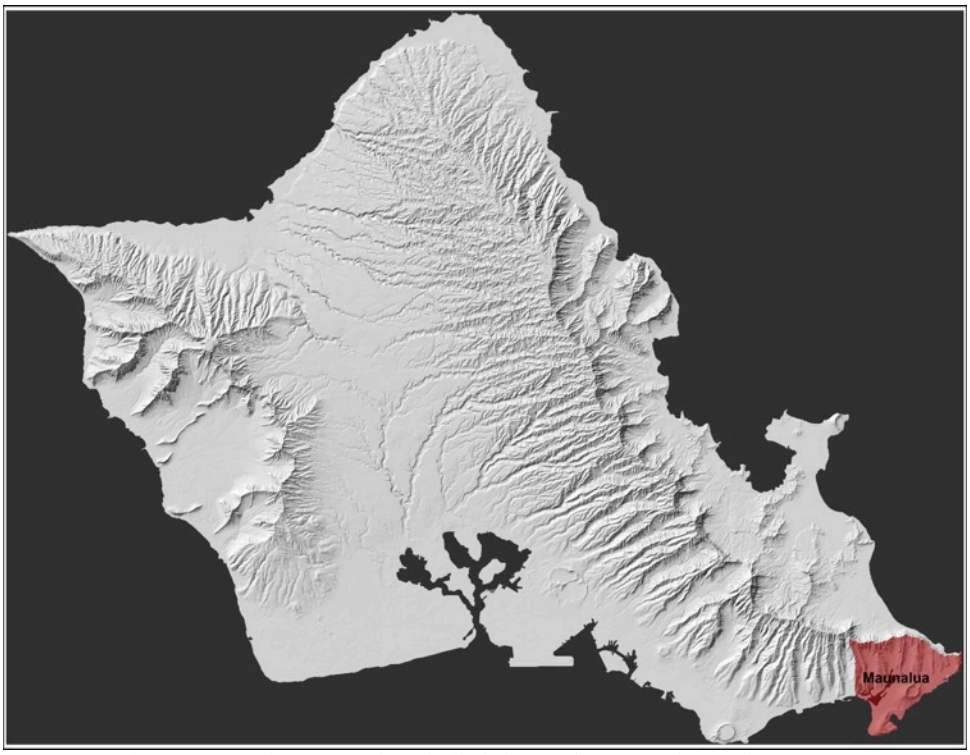


Figure 17. Ahupua‘a land division of Maunalua after 1859.

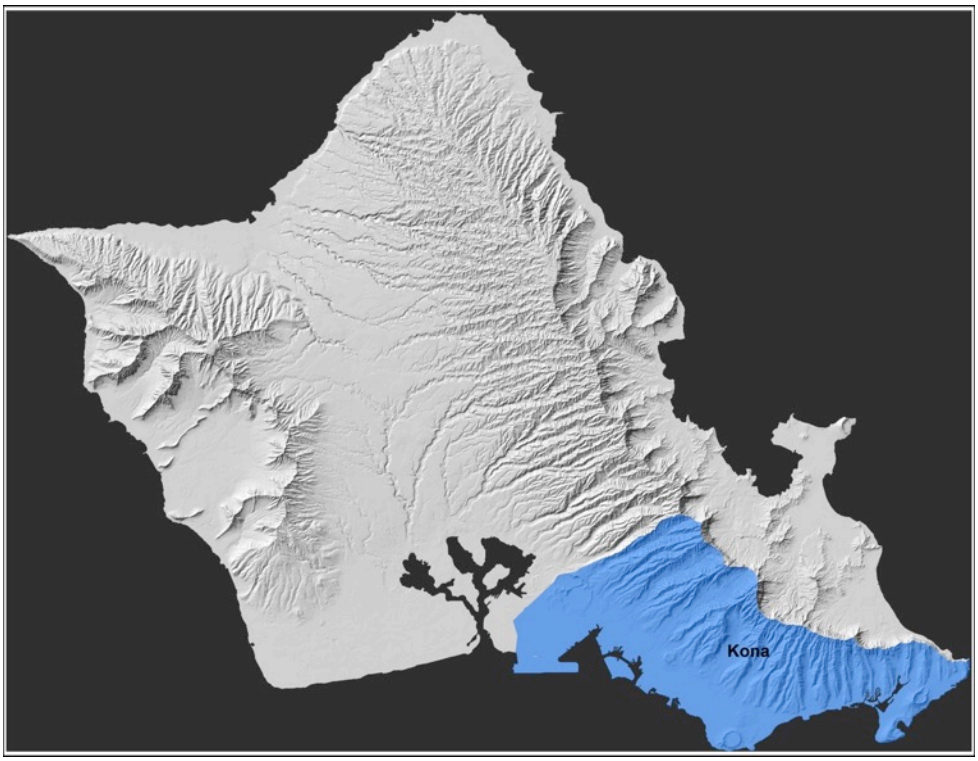


Figure 18. Moku land division of Kona after 1859.

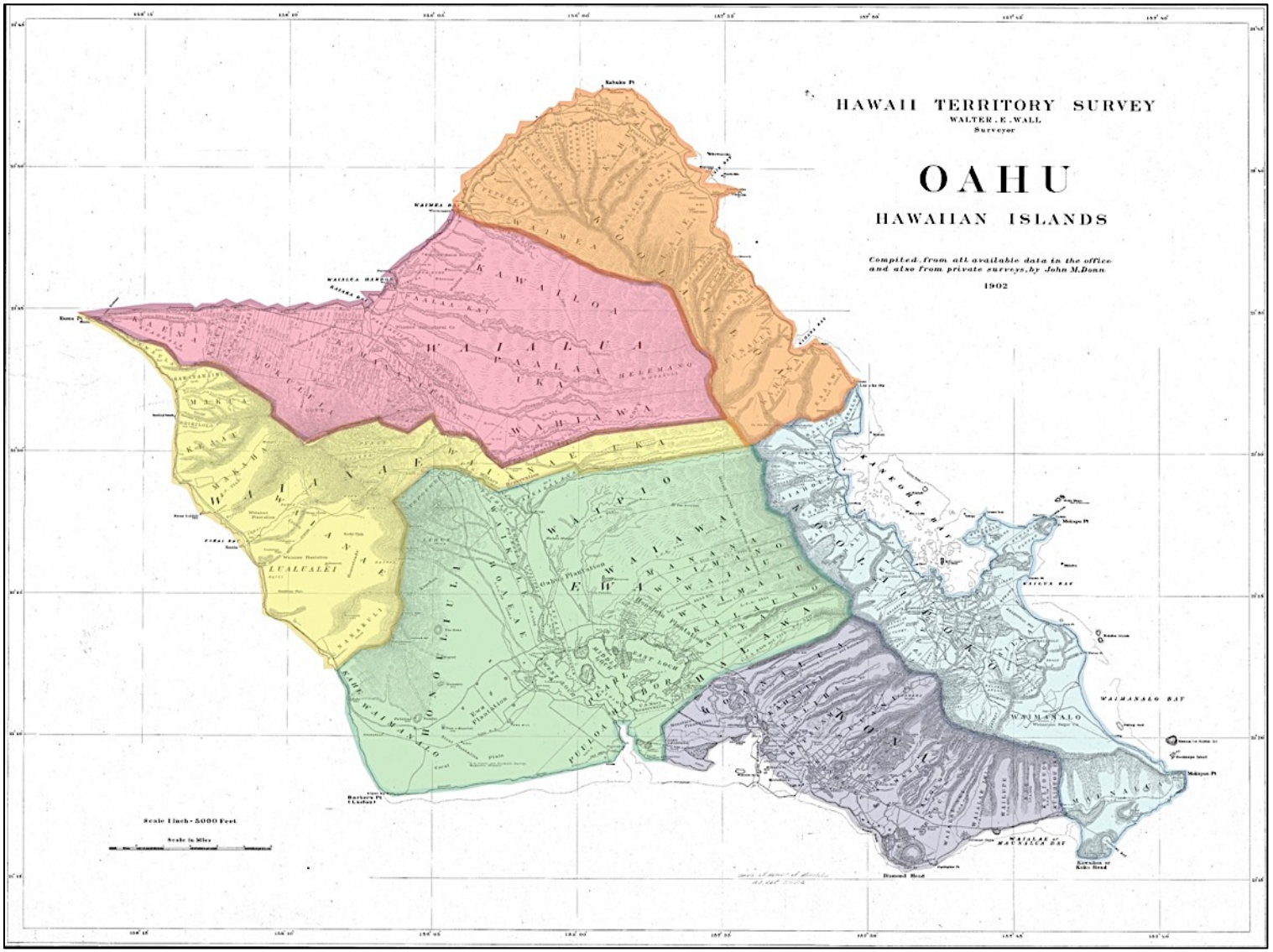


Figure 19. 1902 Hawai‘i Territory Survey of the Island of O‘ahu; note the designation of the Maunalua Ahupua‘a within the Ko‘olaupoko District (Wall 1902).

Traditional use and occupation of a particular place is often referred to in moʻolelo (stories/legends), ʻōlelo noʻeau (Hawaiian proverbs), and mele (song). Other sources that have documented traditional use and occupation include historic maps, ethnohistoric accounts, ethnographic surveys, and early historic land claim records, such as Land Commission Award (LCA) Claims, Grant Claims, and Boundary Commission Testimonies (BCT). Additionally, traditional place names and their interpretation yields the potential to tell a lot about an area. In ancient Hawaiʻi, it was common to name places based on the environment, the resources found in the area, the people that lived there, events that happened in the area, and religious or spiritual associations.

The name Maunalua literally translates to mean, "two mountains," referencing two major prominences of the ahupuaʻa, Koko Head and Koko Crater (Handy et al. 1974: 483). In addition to these mountains, Maunalua is also known for its significant coastal features, Maunalua Bay and Loko Kuapā Fishpond. Handy et al. (1972) describes these topographic attributes in the following text:

> Maunalua, the land area at the southeastern most tip of Oahu, marked by the two great barren mountain masses, Koko Head jutting seaward and Koko Crater... Maunalua (Two–Mountains) was notable for its great fishpond (loko kuapa) covering 523 acres. Actually this great pond, named Ke-ahu-pua-o Maunalua (The-shrine-of-the-baby-mullet-of-Maunalua) was a broad shallow bay, walled off at its seaward side, with an inlet and a gate which was opened to let fish in as the tide came in and was closed when the tide began to run out. Chamberlain (1957,p. 29) crossed the causeway in 1828. There was evidently a sizable village in the vicinity because there was a school in which he addressed thirty people, although most of the men were away cutting sandalwood. Before that, and since the time of the chiefess Mahoe for whom the Menehune built the kuapa, Maunalua valley was said to have been amply inhabited, and in the hinterland of Maunalua and beyond [to the southeast] there are many evidences of former sweet potato culture. (Handy et al. 1972:483-484)

Aside from its mauka and makai land distinctions, Maunalua is generally divided into two topographical land divisions, Southwestern Maunalua and Southeastern Maunalua (Maly and Smith 1998). The project area falls within the southwestern portion of Maunalua. According to Maly and Smith (1998), Southwestern Maunalua was famed for its impressive reef system and its fertile inland areas that were sheltered by the Koʻolau mountain range. In particular, this portion of the ahupuaʻa was well known for its traditional aquacultural system, known as Keahupuaomaunalua or Loko Kuapā, the largest fishpond in the Pacific. The project area, coincidentally, is located directly north of this fishpond.

Figure 20. 2016 photograph taken from the top of Kamiloiki Rigde looking to the south; note Koko Crater on the far left, Koko Head in the center, and Loko Kuapā on the right in the photo.

Southeastern Maunalua is bordered to the east by the Pacific Ocean, and receives no mountain shelter. Essentially, this area is subject to kona (southerly) storms which bring strong winds and high surf (Maly and Smith 1998:10). Despite the arid environment of Southeastern Maunalua, this area was known for its agricultural field systems across the kula, land flats (Maly and Smith 1998). The following ʻōlelo noʻeau, depicts the nature of the southeast coastline of Maunalua:

> ***Kai pakī o Maunalua***
> The spraying sea of Maunalua
> (Pukui 1983:199 No. 1413)

Rich in agricultural and aquacultural environmental resources, it is thought that Maunalua was once a place of a thriving Native Hawaiian community. In 1940 Handy described agricultural farming of ʻuala, sweet potato, in the Maunalua ahupuaʻa. Handy wrote:

> Sweet potatoes were cultivated on Oahu on the coastal plain and in sand soil...The *kula* lands below the cliffs of Waimanalo also supported sweet potato plantations... On the south side of the ridge at this end of the island, Maunalua and Hahahione districts were famous for their sweet potatoes. In this section there are various enclosures and walls which were thrown up around the old plantations before Hawaiians abandoned the land and it was utilized for ranching. The following observations were made by McAllister...
>
> From the Lighthouse road to the small old crater in Kaiama [sic- Kalama] Valley are to be found traces of old Hawaiian sweet potato patches. Located on the crest

> of the old (red) lava flow are small piles of rocks, a foot or more high and a few feet apart, with comparatively clear spaces between them. It is said that sweet potatoes were planted between these rock piles in the rich red soil that covers this region. The distance from the road to the crater is about 800 feet, and the top of the flow, which was used for cultivation is between 250 and 350 feet wide...Throughout this 5.5 acres tract are a number of irregular walls from a few feet to 50 or 100 feet in length. There is nothing in the location of these walls to indicate a pattern' ...For many years this site was used as a cattle range. (McAllister 1933:64 IN Handy 1940:155)

Handy further described the traditional use of the area, stating:

> According to the last surviving *Kamaaina* of Maunalua, sweet potatoes were grown in the small valleys, such as Kamilonui, as well as on the coastal plain. The plain below Kamiloiki and Kealakipapa was known as Ke-Kula-o-Kamauwai. This was the famous potato-planting place from which came the potatoes traded to ships that anchored off Hahaione in whaling days. The village at this place, traces of which may still be seen, was called Wawamalu. (Handy 1940:155).

Historic Land Use & Ownership

Early Historic Land Use 1786-1850

In 1786 during the rule of Kahekili two English ships, the *H.M.S. King George* and the *H.M.S, Queen Charlotte*, landed at Maunalua making this the first arrival of Europeans to the area (Putzi et al. 1998). The vessels were under the command of Captains Nathaniel Portlock and George Dixon (Takemoto 1975: 13). Upon anchorage at Maunalua Bay, Captain Portlock dubbed the natural harbor, "King George's Bay" and Koko Head, "Point Dick" (Takemoto 1975: 13). Portlock (1968) noted that an extensive trade took place between the kamaʻāina of the area and the foreigners. He wrote, "several canoes came off and brought a few cocoa-nuts and plantains, some sugar-cane and sweet root, in return for which we gave them small pieces of iron and a few trinkets" (1968:69).

The next day Portlock and Dixon rowed to shore at Maunalua Beach in search of water (Takemoto 1975). According to Portlock (1968) they, "landed on some rocks just round Point Dick [Koko Head/ Kohelepelepe], quite dry, and met with no opposition from the inhabitants...[who] answered every question" (Portlock, 1968:70 cited in Takemoto 1975:13). Portlock noted that the natives of the area then led the Europeans to a spring to collect fresh water, "but the quantity was so small, that it would not afford even a temporary supply...and were informed that there was no fresh water to be met with but at a considerable distance to the Westward" (Portlock, 1968:70 cited in Takemoto 1975:13). In desperate search for water, Portlock and his men returned to their ships and sailed off to the west, towards Diamond Head. Though Portlock's visit to Maunalua was short and unproductive, it was not his last visit there.

During Portlock's second visit to Maunalua, it is said the people of the area were less hospitable (Takemoto 1975: 14). The Europeans were warned by a priest that Kahekili had placed a kapu or a taboo on the area and "hinted that Taheeterre [Kahekili] and his principal warriors were meditating some mischief...he [the priest] pointed to a large house on the top of a hill over the Eastern point of the bay which ascends from Point Dick: this house the old man assured me was a building for an Eatooa [Akua], or God's house [heiau], wherein they were going to make great offerings to their different Eatooas (for almost every chief has his separate one), and to consult them on the event of an attack, which he assured me they intended to make on us if their oracles gave them

encouragement" (Portlock 1968:161). Concerned with the information shared by the old priest, Portlock and Dixon took defensive measures and ordered their men to display their firearms, as a means to intimidate and deter Kahekili from attacking them. When Kahekili boarded their ships, a pig was shot dead, alarming the Kahekili and his men. Startled, Kahekili and his men disembarked the ship and later left Maunalua and returned to Waikīkī (Takemoto 1975:14). However before leaving Maunalua, Portlock observed the dismantling of a heiau, and houses along the shore were burned (Putzi et al 1998:19).

Following the death of Kahekili in 1794, the island of Oʻahu was given to his son Kalanikupule, whose reign ended with the invasion of Kamehameha and his armies in 1795 during the battle of Nuʻuanu. Soon after Kamehameha'a conquest of Oʻahu he ordered that all agricultural fields and fishponds of the island be restored, including those of Maunalua (Kamakau 1961:192).

Under the command of Kamehameha, Maunalua was mainly used as a harbor for travelers. Hawaiian historian, John Papa ʻĪʻī wrote the following passage while traveling with the Kamehameha court stating, "The Hawaiian and foreign-built ships that had waited at Kawaihoa [Maunalua] on Oahu were all hauled ashore, as was the custom with canoes. Perhaps it was necessary because of the lack of brass in their building. Two of the ships had been blown by the wind all the way to Kauai, perhaps because their captains lacked skilled" (ʻĪʻī 1959:113). During his visit to Maunalua in 1810, ʻĪʻī also noted the ancient trail system of Oʻahu and its connection to Maunalua. He wrote, "go along Keahia and so on to Maunalua, to the sea of Koko, to Makapuu, and so on" (ʻĪʻī 1959:94). This mention of the trail indicates that this route extended through Maunalua, continued on to Kealakipapa Valley, and ended at Waimānalo.

According to Kamakau (1961) Kamehameha later distributed the lands of Oʻahu amongst his faithful warriors, giving the ʻili of Maunalua to Kuihelani (Kamakau 1961:173). ʻĪʻī wrote, "the king's faith in him [Kuihelani] never changed, for the king's lands in his charge were cared for by his kinsmen, and they were obedient to Kuihelani's commands" (ʻĪʻī 1959:94). Though Kamehameha held Kuihelani in high esteem, Kuihelani was later forced to forfeit the lands of Maunalua because of an offense made against Queen Kaʻahumanu, Kamehameha's favorite wife. The lands of Maunalua were then given to Keʻeaumoku, the father of Kaʻahumanu.

Following the death of Keʻeaumoku in 1804, the lands were retained by Kaʻahumanu who later bequeathed them to Chiefess Kīnaʻu, daughter of Kamehameha and Kaheiheimālie. Kamakau 1961: 173, 389). It wasn't until 1826 that the next record of ownership for Maunalua was documented, by missionary Levi Chamberlain. Chamberlain visited the area in 1826 and reported that the ʻili of Maunalua fell under the stewardship of Kalola, the grandmother of Kamehameha's most sacred wife, Keōpūolani (Chamberlain 1826). He wrote the following passage upon arrival at Maunalua Bay:

> Thence I walked on by the side of the pond in a southerly direction about a mile, having the eminences Moaualua [sic] on my left—I then came to a narrow strip of land resembling a causeway partly natural and partly constructed extending in a North west direction across what appeared to be considerable of a bay forming a barrier between the sea and the pond. At the further end of this causeway sluices are constructed and the waters of the sea unite with the pond and at every flood tide replenish it with a fresh supply of water. (Chamberlain 1828: 26)

Chamberlain counted about 18 houses along this causeway in the Keahupua o Maunalua Fishpond area, estimating a population of about 90 to 100 people in that area (Yucha and McDermott 2011:25). Five years prior to Chamberlain's visit, English traveler, Gilbert Mathison (1825) stopped over in an unnamed village in Maunalua, and counted about 100 houses. Although the exact location of the

village that Mathison visited is unknown, he did note that several of the houses were located within a grove of coconut trees, that can be seen on an 1883 Hawaiian Government Survey Map of Maunalua Bay (Figure 23) and that the village was mostly inhabited by fishermen (Mathison 1825: 387).

Though Maunalua was known for its fishing resources, it was also associated with agricultural productivity and economic activities. From the 1820s-1840s, Maunalua was overflowing with travelers from both near and far, that used Maunalua Bay as a convenient docking area (Figure 21). The influx of visitors to Maunalua ultimately stimulated an exchange system between kamaʻāina and travelers. Foreign goods were traded for food and water, which resulted in the increase of sweet potato production in the area. Maunalua (especially the area just below Pahua Heiau) was known as, "Ke kula o Kamauwai…the famous potato planting place from which the potatoes traded to ships that anchored off Hahaione in whaling days" (Summers and Sterling 1933:2a). By the end of the 1840s, sweet potato sales had decreased with the disappearance of the whaling ships in Hawaiʻi, and the village of Hahaione was abandoned (Takemoto 1975:19).

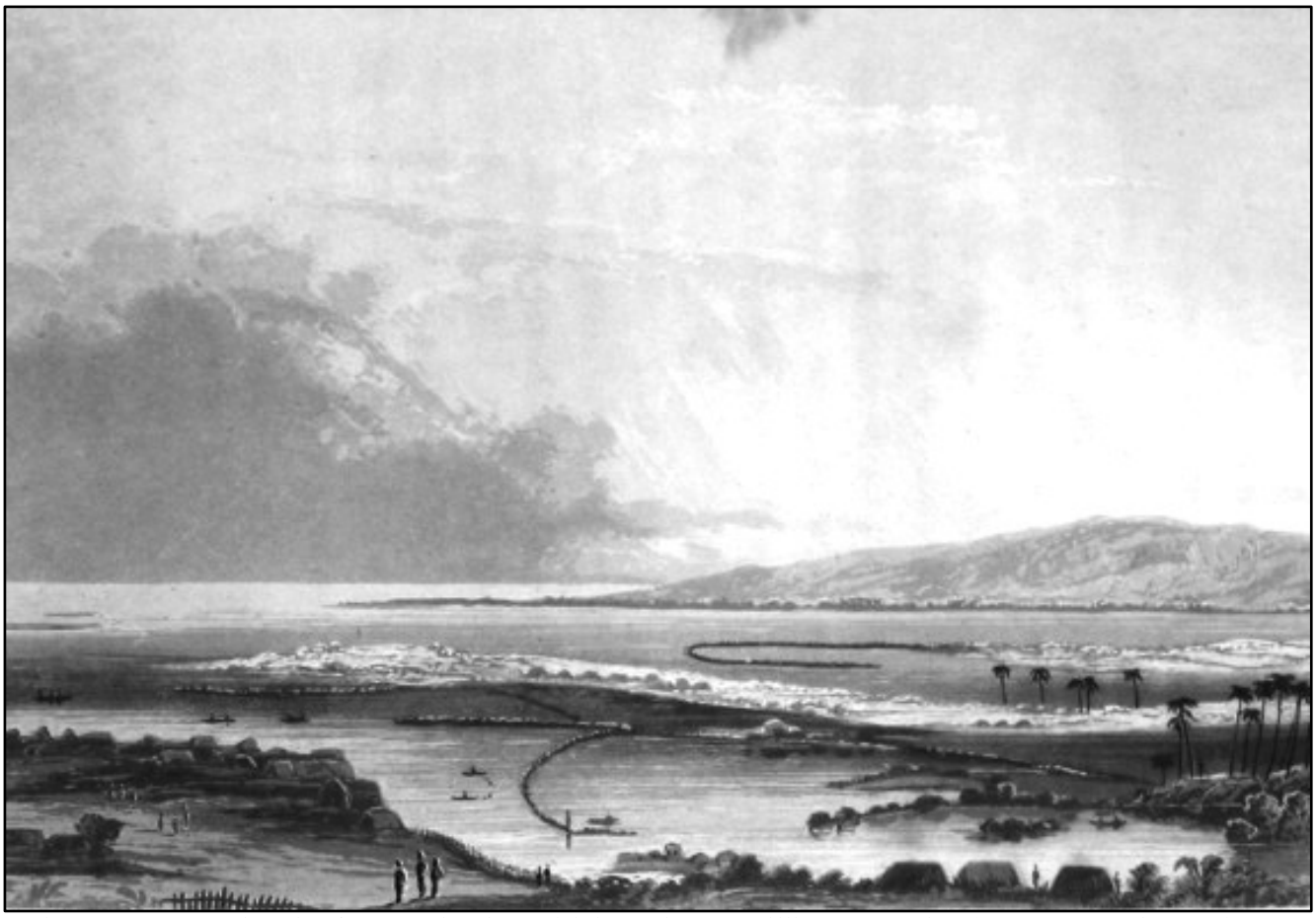


Figure 21. 1826 sketch of Maunalua by British explorer, William Dampier (www.maunalua.net), sketch is believed to have been done from the same vicinity as Pahua Heiau.

The Māhele of 1848

The 1848 Māhele was established to guide Hawaiʻi in its transition from a traditional system of land use to a western model of privatization of property during the reign of King Kamehameha III Kauikeaouli. The traditional Hawaiian land system previously existed within the context of a highly

stratified hierarchy and social order, a self-sustaining model of ahupuaʻa management and use, and a communal and subsistence based economy which worked effectively for the people for generations. The traditional land tenure system was based on a reciprocal relationship which derives from the lesson of mālama ʻāina (to care for the land). It is derived from a cosmological worldview that Hawaiians have a genealogical connection to the land. This relationship is defined by the kaikaina-kuaʻana (younger sibling-older sibling) reciprocal relationship (Kameʻeleihiwa 1992:25). The land and water was not owned in any legal sense, but revocable rights to its use were allocated and reallocated from the mōʻī (king or paramount chief) down through the ranked system of aliʻi (lower chiefs) and finally to the makaʻāinana (commoners). Therefore, this historical event introduced the foreign concept of private property and fundamentally changed people's relationship to land. During this process tenants of the land were required to document their claims to specific parcels in order to gain permanent title. The application process required claimants to provide a native testimony, foreign testimony, and native or foreign registrar. These records of the historical Land Commission Award (LCA) documents provide firsthand accounts of residency, resources, land use, access, traditional and customary practices of the lands they lived and actively cultivated from late pre-contact history into the period of the Kingdom of Hawaiʻi.

Historical land documents from the Māhele contain useful and relevant information to better understand traditional Hawaiian land tenure and its transformation to a system based on land privatization. The Land Commission Awards (LCA) documented the size of the land, the sale of the land, award number, and royal patent number. The native and foreign registers were written by the claimant and provided information about the claims to their land. The native and foreign testimonies were written by other people who acted as witnesses to the claimant. The section below provides information on the Māhele proceedings specifically for Maunalua Ahupuaʻa.

Land Commission Awards

Prior to the Māhele the lands of Maunalua were held in the possession of Chiefess Kīnaʻu. Subsequent to her holding, Maunalua was passed to her mother, Victoria Kamāmalu (Takemoto 1975). Following the Māhele, Kāmamalu filed a claim to her property and on April 7, 1854, she was granted land title to Maunalua (Land Commission Award 7713 and Royal Patent Grant 4475) (Figure 22). No other kuleana land grants were awarded for this area.

Historic Land Use 1850-1950

In 1851, William Webster, a land agent of the Hawaiian Kingdom, produced the earliest map of Maunalua (Figure 24). The map illustrates the 6,491-acre land area, and 523-acre fishpond area that comprises the Maunalua ahupuaʻa. The map also depicts a road extending from the cliff of Makapuʻu Bay to Kealakīpapa Valley, which might be the ancient trail previously mentioned by ʻĪʻī (1959). By 1856, two years after the ahupuaʻa was granted to Kamāmalu, all 6,491-acres of Maunalua, with the exception of Loko Kuapā, was leased to William Webster for ranching purposes, for a term of thirty years (Takemoto 1975). Following the death of William Webster in 1864, the remainder of his lease on the Maunalua property was taken over by Manuel Paiko, who subsequently leased the adjacent ahupuaʻa of Kuliʻouʻou. During this lease Maunalua was used primarily for ranching purposes, until the passing of Victoria Kamāmalu in 1866 (Yucha and McDermott 2011: 27).

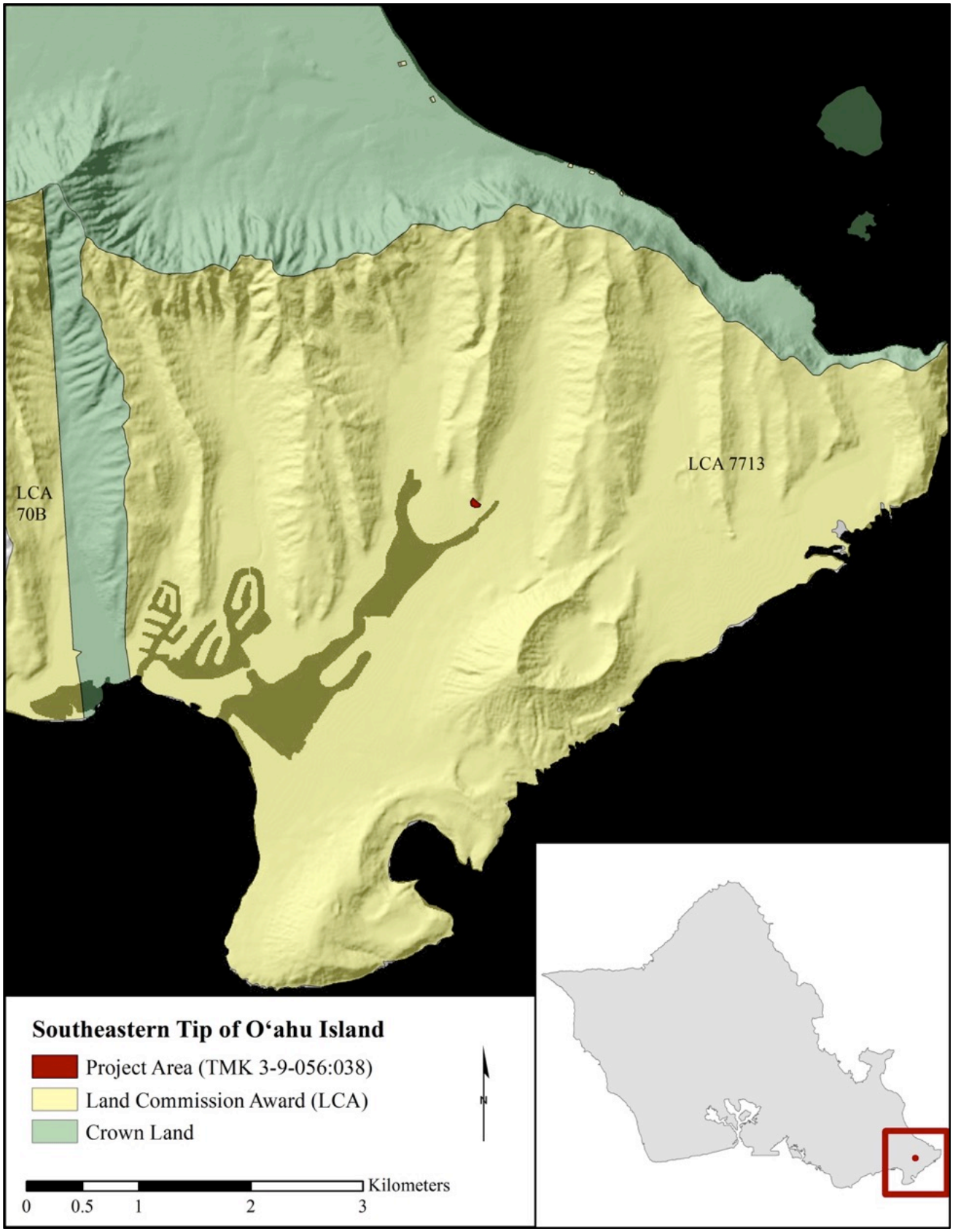


Figure 22. Land commission awards around the project area (USGS, Cordy 2016).

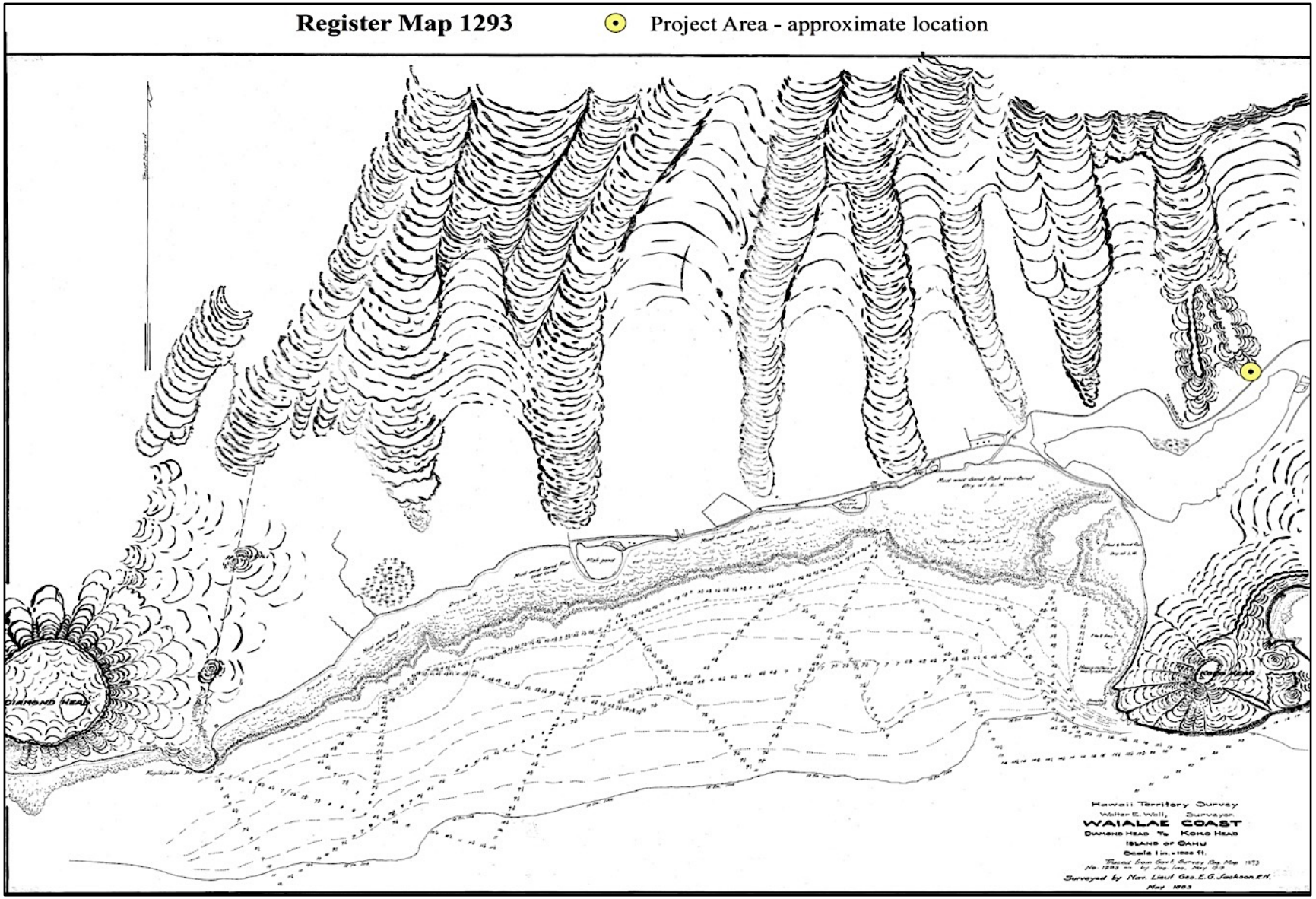


Figure 23. 1883 Hawaiian Government Survey Map of Maunalua Bay. Note the coconut grove described by Mathison to the west of the project area (Register Map 1293).

Following the death of Kamāmalu, the lands of Maunalua fell into the hands of her father, Mataio Kekūanaōʻa, until his untimely death, two years later, in 1868 (Takemoto 1975). Subsequent to the death of Kekūanaōʻa, Maunalua was then passed down to his son, Lot Kapuāiwa, also known as Kamehameha V. When Lot died in 1874, he left no will or heir to claim his possessions, and so the probate court declared that his half-sister Ruth Keʻelikōlani would inherit all his land holdings, including Maunalua. With the passing of Ruth Keʻelikōlani in 1883 Maunalua was then passed to her cousin Bernice Pauahi Bishop. A year after acquiring the ahupuaʻa, Bernice Pauahi Bishop also passed away, and instead of naming an heir to her holdings, the Bishop Estate Trust was established to manage her assets. During this time period, in the later half of the 1800's, Maunalua continued to be utilized for ranching purposes (Yucha and McDermott 2011: 27).

By 1880 the population of Maunalua began to decline rapidly as indicated by tax records (Takemoto 1975). Yucha and McDermott write, "this depopulation is undoubtedly the result, at least in part, of resettlement of inhabitants in more economically viable areas" (2011:28). Bishop Estate continued to lease out the Maunalua ahupuaʻa for ranching purposes, and by the early 1900s, the original settlement and primary traditional land use had been completely replaced by ranching and other commercial fishing activities (Takemoto 1975:24-25) (Figure 25). Takemoto writes:

> By 1890, Maunalua Ranch and Yit Lee Company, who owned a big fishing complex, employed most of the inhabitants. Maunalua Ranch had over 1500 head of cattle, ten oxen, sixty-four horses, thirteen mules and six pigs roaming throughout Maunalua. Five Chinese families were working for the Damons, probably as ranch hands. Five other Chinese families worked for Yit Lee. The eight Hawaiian families on the land, including one blind man, were truck farmers of some sort since all but two owned carts used for bringing goods to Honolulu…Thus by the turn of the century most families in the ili were ranch hands, fishermen, or truck farmers living a relatively quiet life in an area which would be considered the country. (Takemoto 1975:25)

Up until 1926 the lands of Maunalua were controlled by the Maunalua Ranch Company, owned by S.M. Damon and G.L. Campbell, who sub-leased portions of Maunalua to different tenants including the Honolulu Honey Company, Ltd. and charcoal makers (Henry 1959:44). A 1927-1928 topographic map, indicates that the area just west of the current project area was designated and utilized for apiary purposes (Figure 27).

Following the exit of Maunalua Ranch in 1926, another ranching lease was granted directly from the Bishop Estate to Alan S. Davis, who established the Wawamalu Ranch in 1932 (Yucha and McDermott 2011). From 1932 to 1946, the ranching industry began to decline in Maunalua with the expansion of people eastward of Honolulu, forcing the Wawamalu Ranch to sublease their lands to truck farmers working in pig farms, chicken farms, and flower farms (Kelly 1984). A 1934 topographic map, depicts the undeveloped lands that surrounded the project area in Maunalua prior to the 1950s (Figure 28). At this time, the surrounding areas consisted of marshland, and open fields (Figure 26).

By 1952, with the expansion of people eastward of Honolulu, major development began to increase in the Maunalua ahupuaʻa. A 1952 topographic map of Maunalua depicts this increase illustrating the establishment of building structures and roadways (Figure 29). In 1959, there were only 178 original families left in the areas surrounding Kohelepelepe that continued agricultural production (Yucha and McDermott 2011:34). By the end of the 1950s, there was a major decrease in ranching and agricultural production in Maunalua, and an increase in modern development.

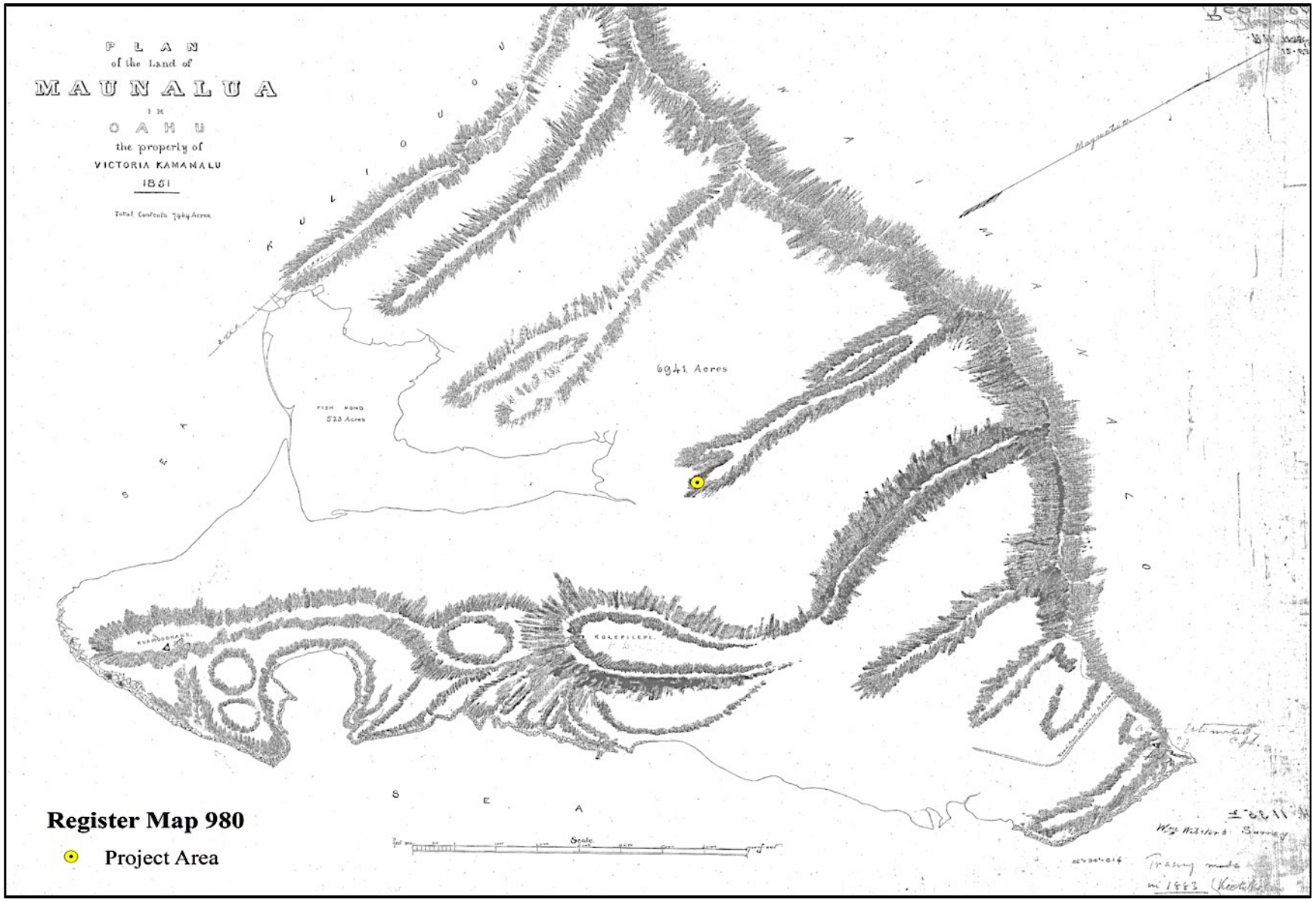


Figure 24. 1851 map depicting the 6,491-acre land area, and 523-acre fishpond area of Maunalua (Register Map 980).

The increase of modern development was spearheaded by business man Henry Kaiser (Figure 30) who personally chose the Maunalua lands to be developed into a low density resort known as "Hawai'i Kai" (Yucha and McDermott 2011). The goal of Kaiser's development initiative was to, "bring attractions including Trader Vic's Restaurant, Ulu Mau Village, and a tram line that would extend to the top of the Ko'olau Ridge" to Maunalua (Yucha and McDermott 2011: 34).

By the early 1960s, the Hawai'i Kai Development Corporation, of Kaiser Industries, received rights from the Bishop Estate to develop a planned community for the Maunalua ahupua'a (Kelly et. al 1984). This major shift significantly altered the Maunalua landscape as well as its original community. During the early 1960s, the dredging and filling of Kuapā Fishpond and marshy areas began to make way for new residential areas (Figure 31). A 1963 Army Air Corps aerial photograph depicts the dredging of Kuapā Fishpond in the early 1960s and the development of residential subdivisions surrounding the project area (Figure 32). The heavy modification of the Maunalua ahupua'a continued throughout the 1960s and into the 1980s, changing the environment, dynamics, and characteristics of Maunalua forever.

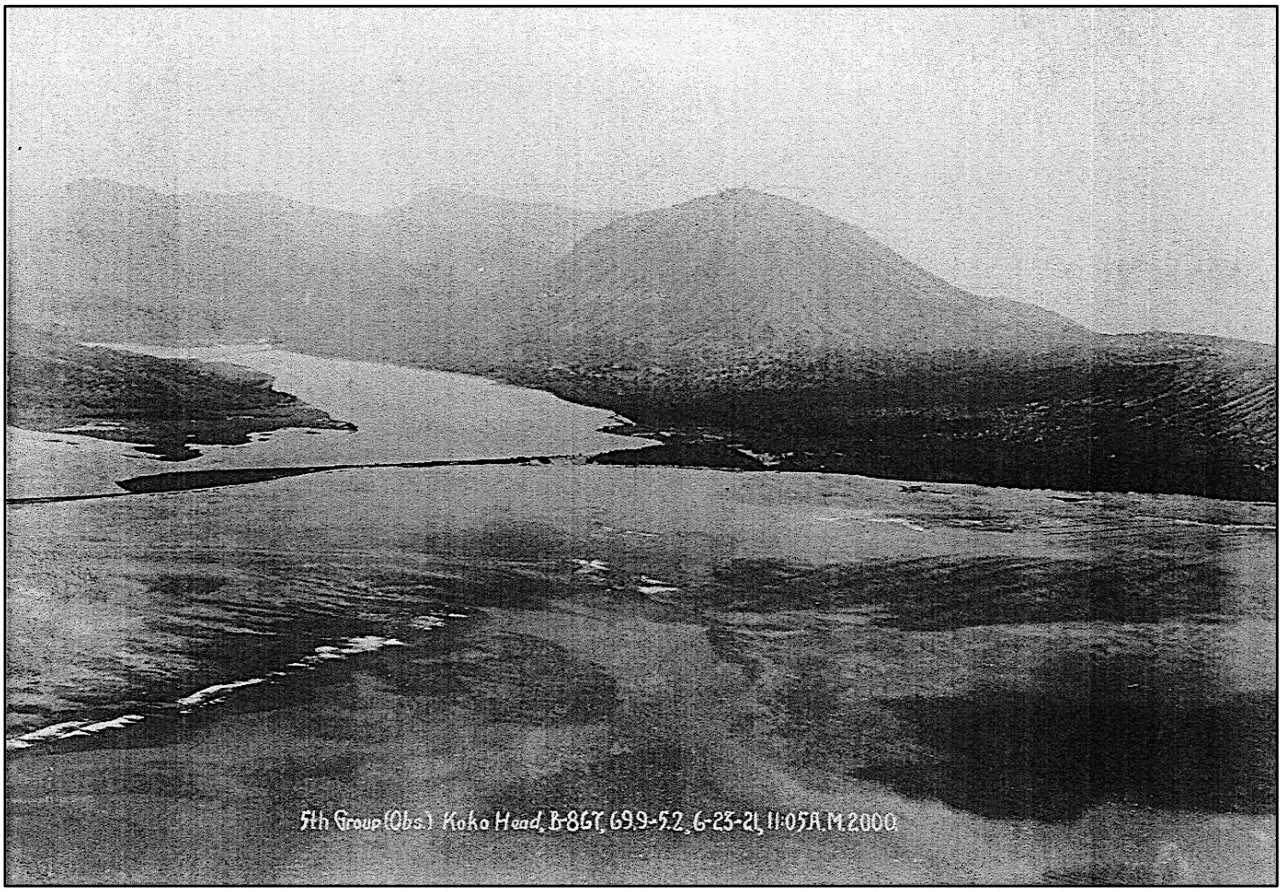


Figure 25. 1921 aerial photograph of Maunalua, with Kuapā Fishpond to the left and Kohelepelepe to the right of the photo (Bishop Museum Archives).

Figure 26. 1930s sketch of Maunalua, overlooking Kuapā Fishpond (www.maunalua.net).

Contemporary Land Use 1980-Present

In 1980, the Hawai'i Kai Lions Club proposed a plan to restore Pahua Heiau and began the initial clearing of the dense vegetation surrounding the complex. In 1984, the Hawai'i Kai Outdoor Circle community organization took over the heiau restoration project and Earl Neller, from the State Historic Preservation Division, and Bertell Davis, from the University of Hawai'i at Mānoa, volunteered to conduct the required preliminary archaeological investigations to assist in the restoration of the heiau. By 1985, an archaeological research design for the project was formulated (Davis 1985a), and in February and March of that same year an archaeological field team completed excavations in the eastern half of the main heiau structure (Davis 1985b). Restoration of the eastern half of the heiau complex was completed in June 1985. The restoration included the reconstruction of four large, dry mason platforms in the eastern half of the heiau (Davis 1985c). In 1988, Pahua Heiau, as well as the 1.1-acre area that it sits upon was donated by the Bishop Estate to the Office of Hawaiian Affairs to help with the stewardship of the significant area. Since 1988, there has been no other major land use or modifications in the area. Although the care and jurisdiction of Pahua falls mainly on OHA, there have been numerous community organizations helping to maintain the site.

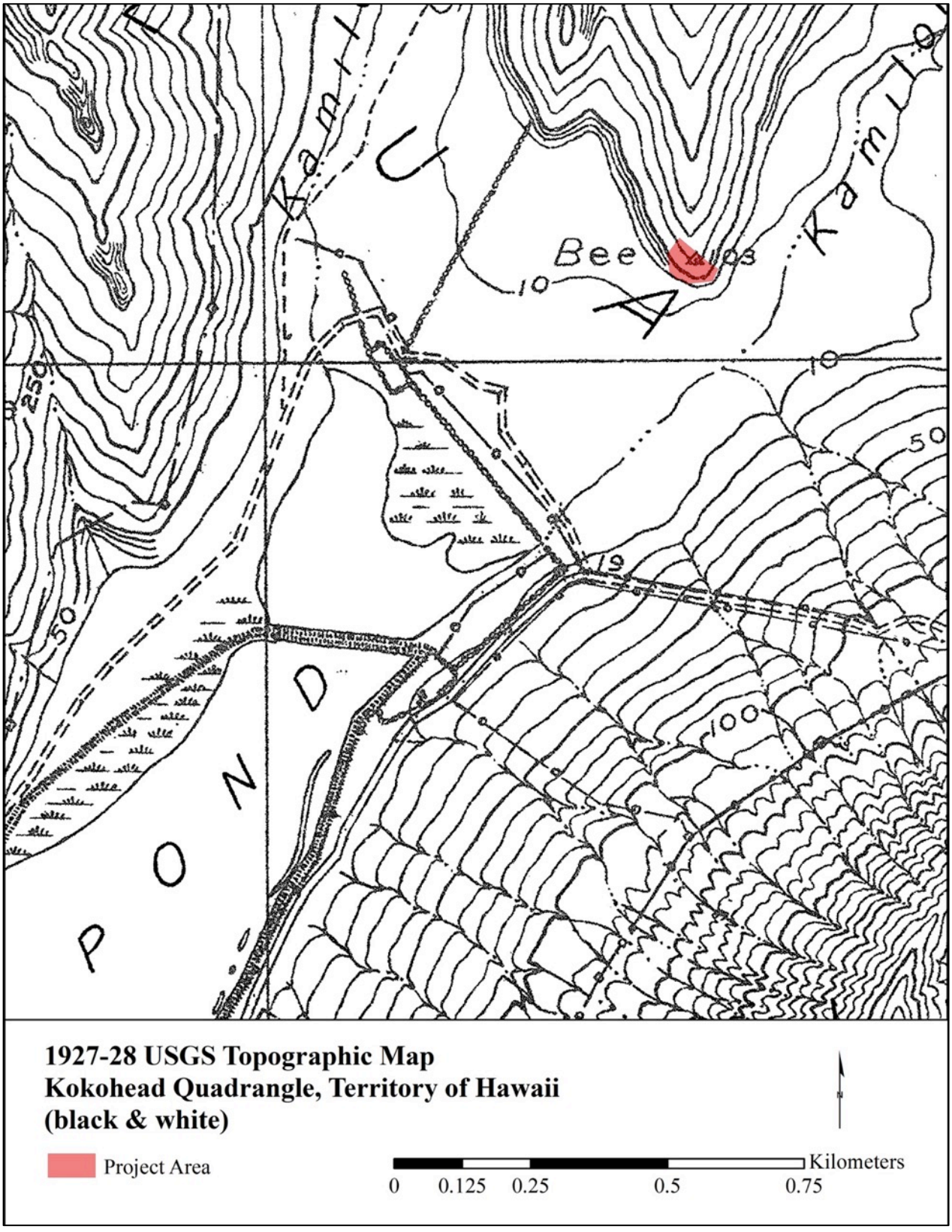


Figure 27. 1927-28 USGS topographic map showing the project area.

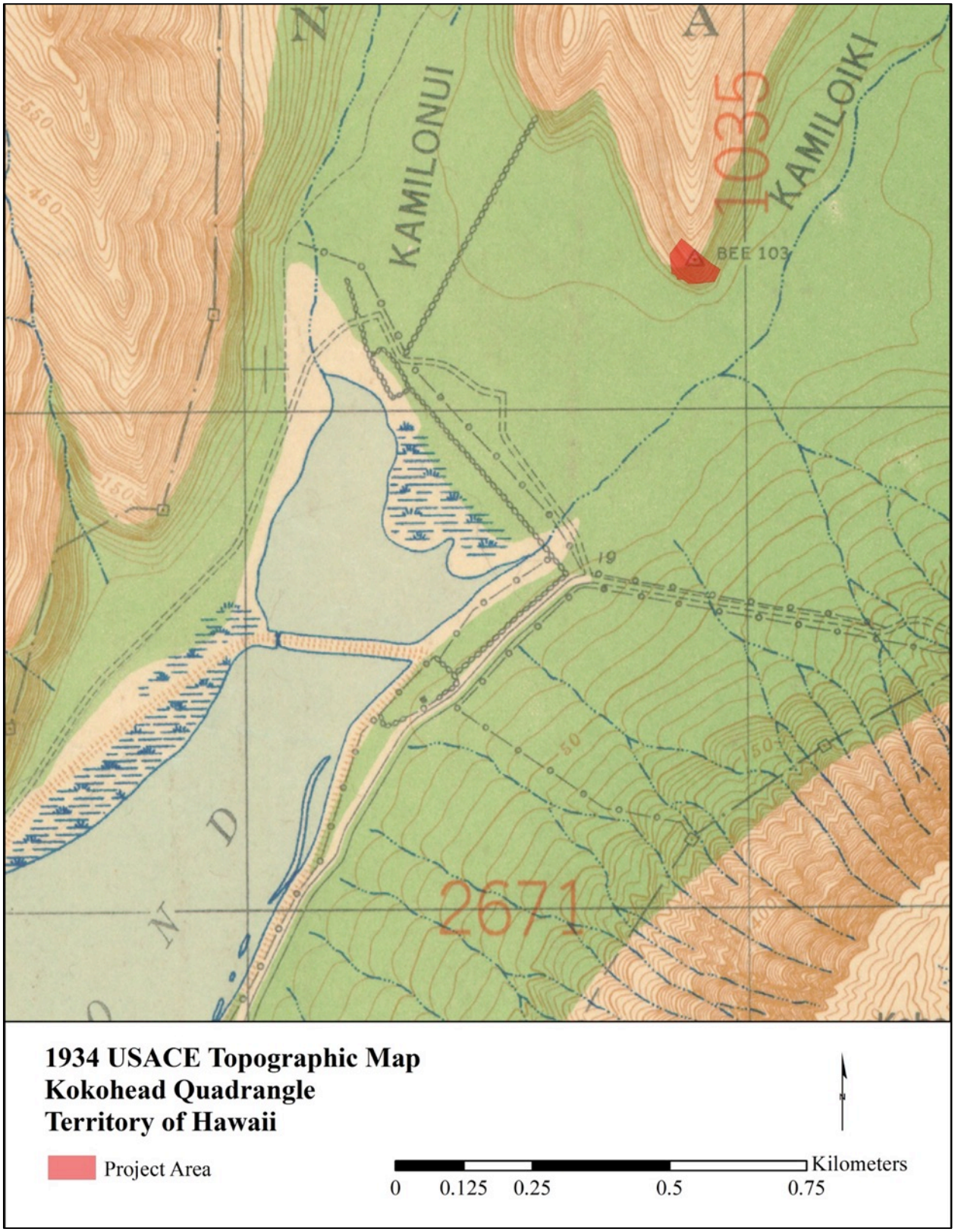


Figure 28. 1934 USACE topographic map showing the project area.

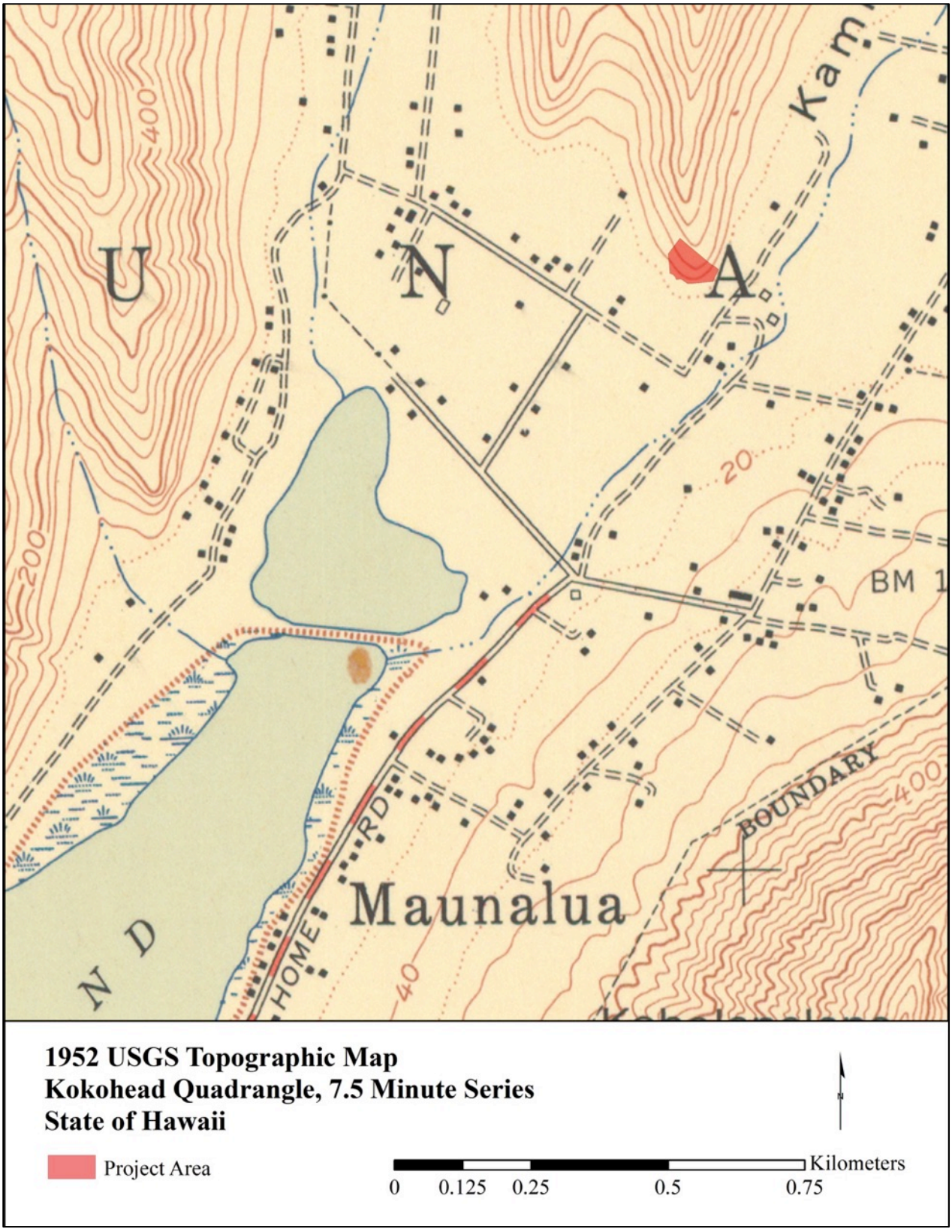


Figure 29. 1952 USGS topographic map showing an increase in development surrounding Pahua Heiau.

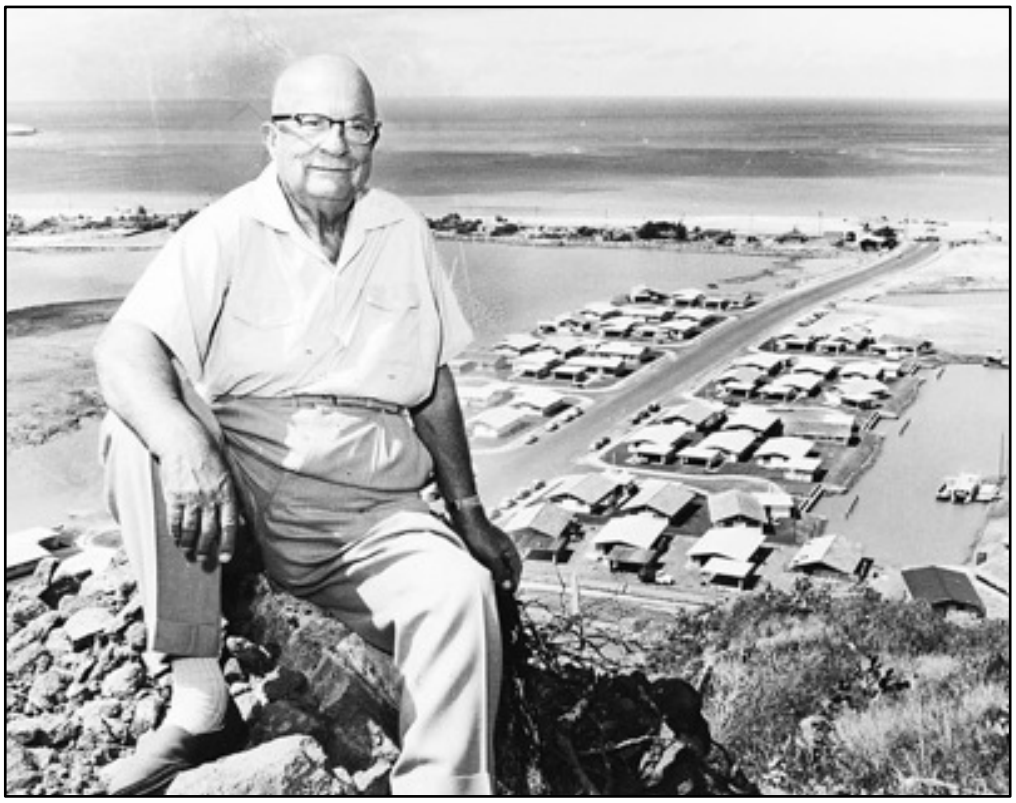


Figure 30. Photo of Henry Kaiser above Hawai‘i Kai in the early 1960s.

Figure 31. 1960 construction of "Hawai‘i Kai" (Honolulu Advertiser Archives).

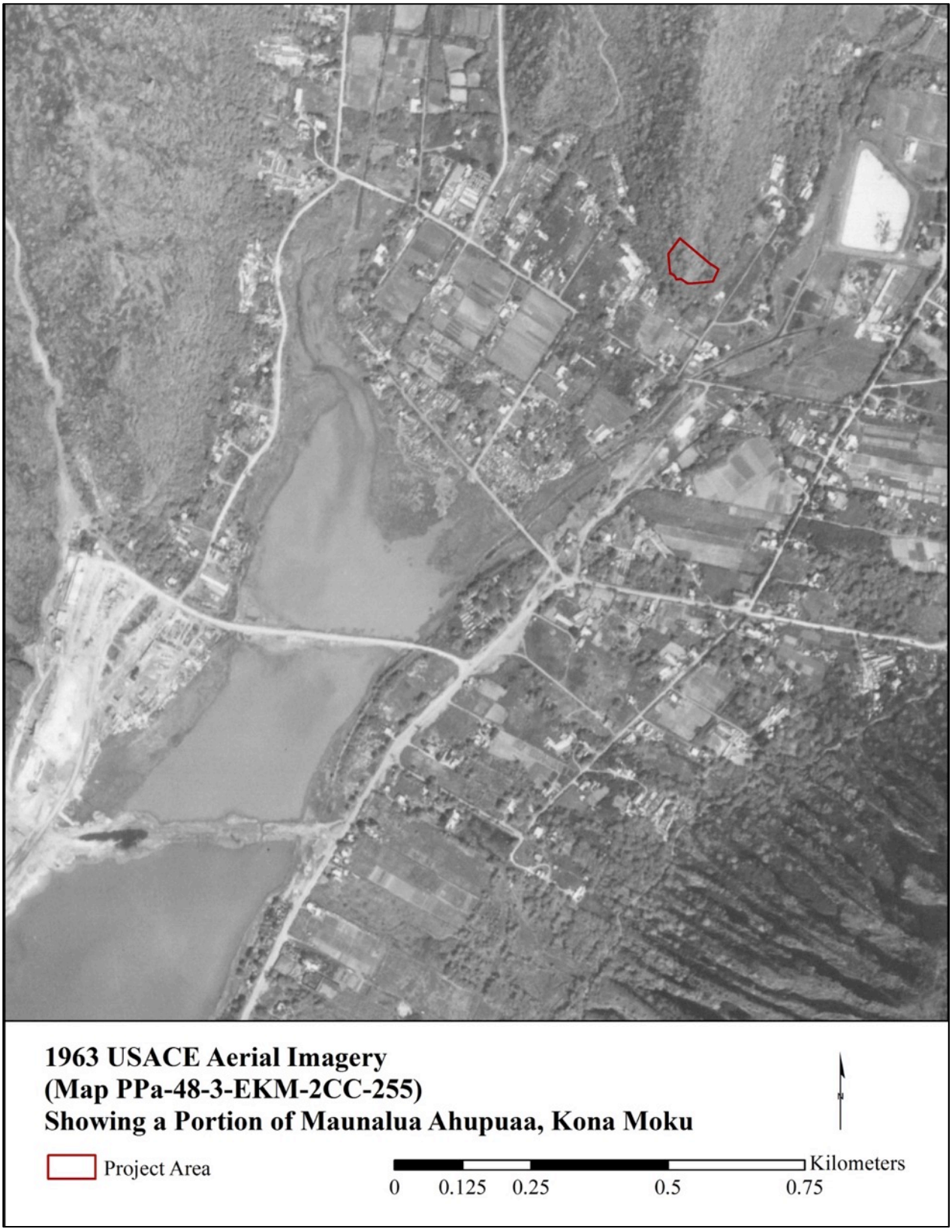


Figure 32. 1963 USACE Aerial image showing the dredging of Kuapā Fishpond as well as the construction of subdivisions around Pahua Heiau.

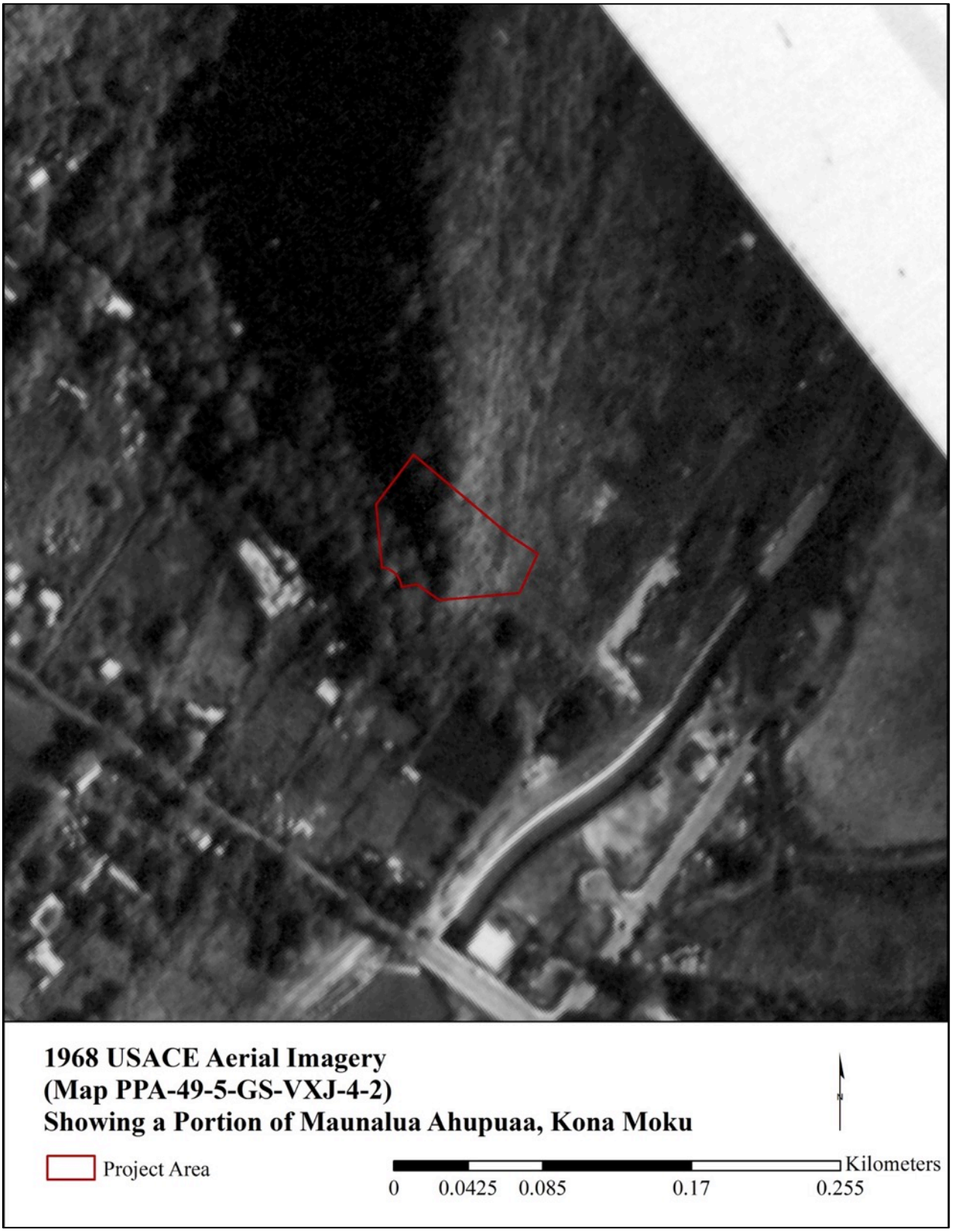


Figure 33. Zoom in of 1968 USACE aerial photo showing development around Pahua Heiau.

Figure 34. 1969 USACE aerial photo showing development around Pahua Heiau.

Table 2. Land ownership history of Maunalua and Pahua Heiau (adapted from Jordan and Allen 2010).

Owner	Lessee	Description of Person	Duration	Known Uses of Land & Other Notes
Kahekili		Aliʻi nui of Oʻahu		
Kalanikupule		Aliʻi nui of Oʻahu, son of Kahekili	1794-1795	
Kamehameha I		Mōʻī of Hawaiʻi, acquired Maunalua after defeating Kalanikupule	1795- ?	
	Ku-i-helani	Favored warrior of Kamehameha I	?	Caretaker of Oʻahu and Molokaʻi
Keʻeaumoku		Father of Kaʻahumanu, Kamehameha I's wife	? -1804	
Kaʻahumanu		Favored wife of Kamehameha I, and the daughter of Keʻeaumoku	1804-1826	
Kalola		Kamehameha's wife while he lived in Kohala	1826- ?	Appointed her nephew, Abner Pakī, konohiki of the fishpond.
Kaʻahumanu			? -1832	Land possibly transferred back to Kaʻahumanu after the passing of Kalola.
Kīnaʻu		Daughter of Kamehameha I and Kaheiheimālie. Wife of Mataio Kekūanaōʻa	1832-1854	
Victoria Kamāmalu		Daughter of Kīnaʻu and Mataiao Kekūanaōʻa	1854-1866	Full title (RP) 4475/ (LCA) 7713:30 in 1854 (confirming the RP) 7464
	William Webster		1856-1864	Grazing and agriculture
	Manuel Paiko		1864-1866	
Mataio Kekūanaōʻa		Father of Victoria Kamāmalu	1866-1868	First Circuit Court, Probate 2409
Lot Kapuāiwa		Son of Mataio Kekūanaōʻa	1868-1872	
Ruth Keʻelikōlani		Half-sister of Lot Kapuāiwa	1872-1883	Awarded through Probate 2412

Owner	Lessee	Description of Person	Duration	Known Uses of Land & Other Notes
Bernice Pauahi Bishop		Kalola's daughter/ Ruth's cousin	1883-1884	First Circuit Court, Probate 2009/ Lease number 7920/ Last in the Kamehameha line
Bishop Estate Trust		Bernice Pauahi Bishop trustees	1884-1988	Including Kamehameha Agricultural School
	S.M. Damon and G.L. Campbell		1888-1926	Established Maunalua Ranching Co. and Leased land for ranching.
	Honolulu Honey Company		1920-1926	Apiary & Ranching
	Alan S. Davis		1932-1946	Wawamalu Ranch
	Kaiser-Aetna		1964-1984	Development of "Hawai'i Kai"
Office of Hawaiian Affairs			1988-Present	Transfer of the current project area from Bishop Estate Trust to the Office of Hawaiian Affairs

PREVIOUS SITE DESCRIPTIONS

Historical Site Descriptions

McAllister, J.G. (1933): Archaeology of Oʻahu

In 1930, archaeologist Gilbert McAllister visited the Pahua Heiau complex and provided the first documented description of the heiau (McAllister 1933). McAllister referred to Pahua Heiau as "Site 39" and stated, "The heiau is 68 by 40 feet in extent and is primarily a built-up rock terrace with several low division walls. It was one of the smaller heiaus, probably of the husbandry type" (McAllister 1933: 65-66). In addition to this very brief description, McAllister also provided a prospective sketch of the heiau along with its measurements (Figure 35) (McAllister 1933: 66).

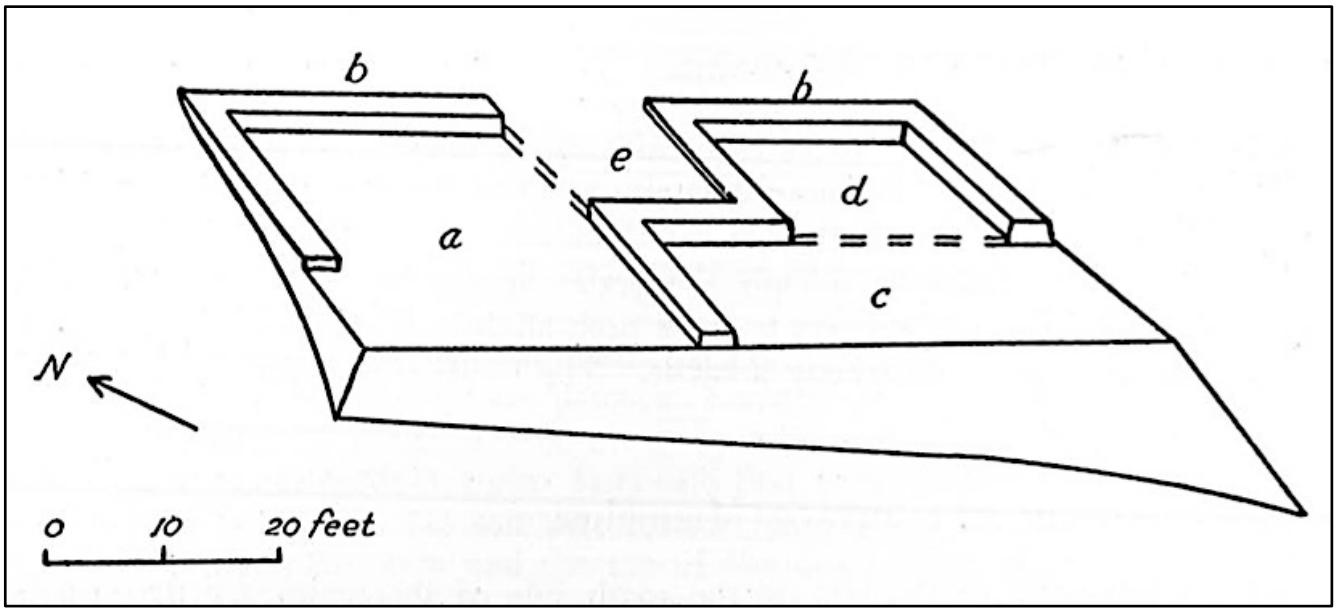


Figure 35. Sketch done by McAllister (1933) of Pahua Heiau "Site 39". McAllister provided the following annotations for this illustration: Site 39: *a*, area 28 by 36 feet, partially inclosed (sic) with walls, open at front; *b*, back facing 2 feet high and 3 feet wide, part destroyed or never present; *c*, rock-paved terrace 37 by 15 feet separated from area *a* by a low 3 feet wide and 1 to 2.5 feet high; *d*, terrace 12.5 by 18 feet with walls 4 feet wide and 2 feet high on three sides, open toward, and 1 foot higher than terrace *c*; *e*, area with rocks in confusion, 1 foot lower than walls, open toward, and slightly higher than area *a*, open to the back.

Sterling, E.P. and C.C. Summers (1978): Sites of Oʻahu

In 1978, 45 years following the work done by McAllister (1933), the Bishop Museum published a book describing the different cultural sites on the island of Oʻahu (Sterling and Summers 1978). Though this publication was a compilation of different archaeological endeavors across the island, it provided very little information on Pahua Heiau. In addition to McAllister's description of the heiau, Sterling and Summers (1978) added that the heiau was, "located at the foot of the end of the ridge slightly to the west. In back of the pigpens, first house east of Pahua Road. 1954. C.C.S." (Sterling and Summers 1978: 265).

Previous Archaeological Studies and Restoration Reports

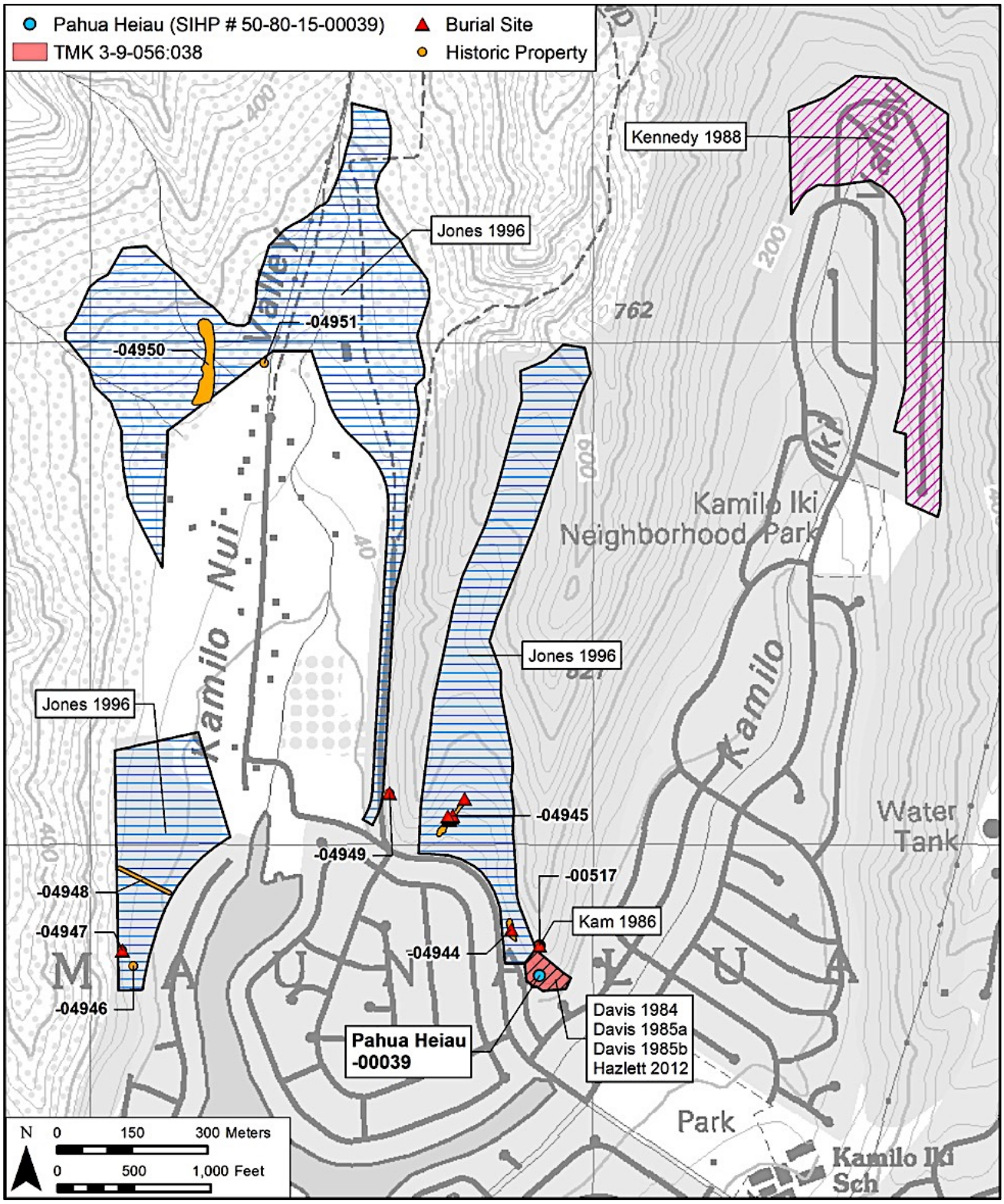


Figure 36. Previous archaeological studies in and around the project area.

Davis, Bertell (1985a): Research Design for Pahua Heiau

In 1985, Bertell D. Davis, an archaeologist from the University of Hawai'i at Mānoa's Department of Anthropology, prepared an archaeological research design for the Pahua Heiau complex in an effort to assist in a larger restoration[1] project of the heiau, led by the Hawai'i Kai Outdoor Circle community organization, and other community stakeholders. Davis (1985a) writes:

> The immediate framework for the Pahua study is a community oriented volunteer project initiated by the Hawaii Kai Outdoor Circle and is scheduled for completion by May of 1985. The community goal is to halt the continuing deterioration of an important cultural/historical property and thereby ensure the preservation of existing open space within an urban residential area that could eventually be lost through neglect. (Davis 1985a:3)

Prior to the research design (Davis 1985a), Davis noted that fieldwork and vegetation clearing had already begun at the heiau, including the completion of a detailed plane-table map of the site in 1984 (Figure 37). To add to this data, Davis proposed that the next phase of archaeological fieldwork include sub-surface excavations (Figure 38), to answer the following questions:

> 1. What was the time, duration, and intensity of occupation at the site, and how does that tie into the regional chronology?
> 2. What was the nature of this occupation; does the heiau represent the only use of the site or is the present structure built atop an earlier habitation deposit?
> 3. If the site had been previously occupied, what then was the range of activities carried out there: i.e. cooking, tool manufacture, gardening, and so on?
> 4. What resources were available to and exploited by the people who used this site, either as a heiau or possibly other earlier purposes, and is there any evidence for trade or exchange between the coastal and inland areas, or with settlements beyond Maunalua?
> 5. And finally, what is the foundation plan of the existing structure and is there evidence of previous construction, either the replacement of entire structure or as a series of incremental additions attached to or superimposed over the original structure? (Davis 1985a: 14)

Davis (1985a) proposed the following four tasks to answer the aforementioned research questions. This proposed outline was designed to confirm the results of the initial plan-view map completed by Davis in 1984 (Davis 1985a), and to relocate any possible unidentified structural features:

> Task 1: excavate a series of trenches through the paved floors of the east end of the heiau.
> Task 2: excavate a series of trenches through the earthen floors of the west end of the heiau.
> Task 3: excavate a series of secondary trenches to cross-cut portions of three principal walls of the structure.
> Task 4. Identify the structural components of Pahua Heiau for restoration purposes.

[1] Davis did not define the terms restoration and reconstruction in his reports, and does not state if he followed the Department of Interior's standards for restoration and reconstruction.

Davis, Bertell (1985b): Preliminary Report on the Excavations at Pahua Heiau

Following the completion of the archaeological research design for the Pahua Heiau restoration project (Davis 1985a), a series of archaeological excavations were conducted at the site (Davis 1985b). Although the research designed proposed excavation in both the eastern and western portions of the heiau (Davis 1985a), excavations were only conducted within the eastern half (Davis 1985b). A total of 46 squared meters were excavated in 1985, representing a 17% sample of the structured area of the heiau (Figure 39). Overall, fifteen artifacts were recovered during the excavation (Figure 40), and a possible construction sequence of the heiau was proposed by Davis (1985b).

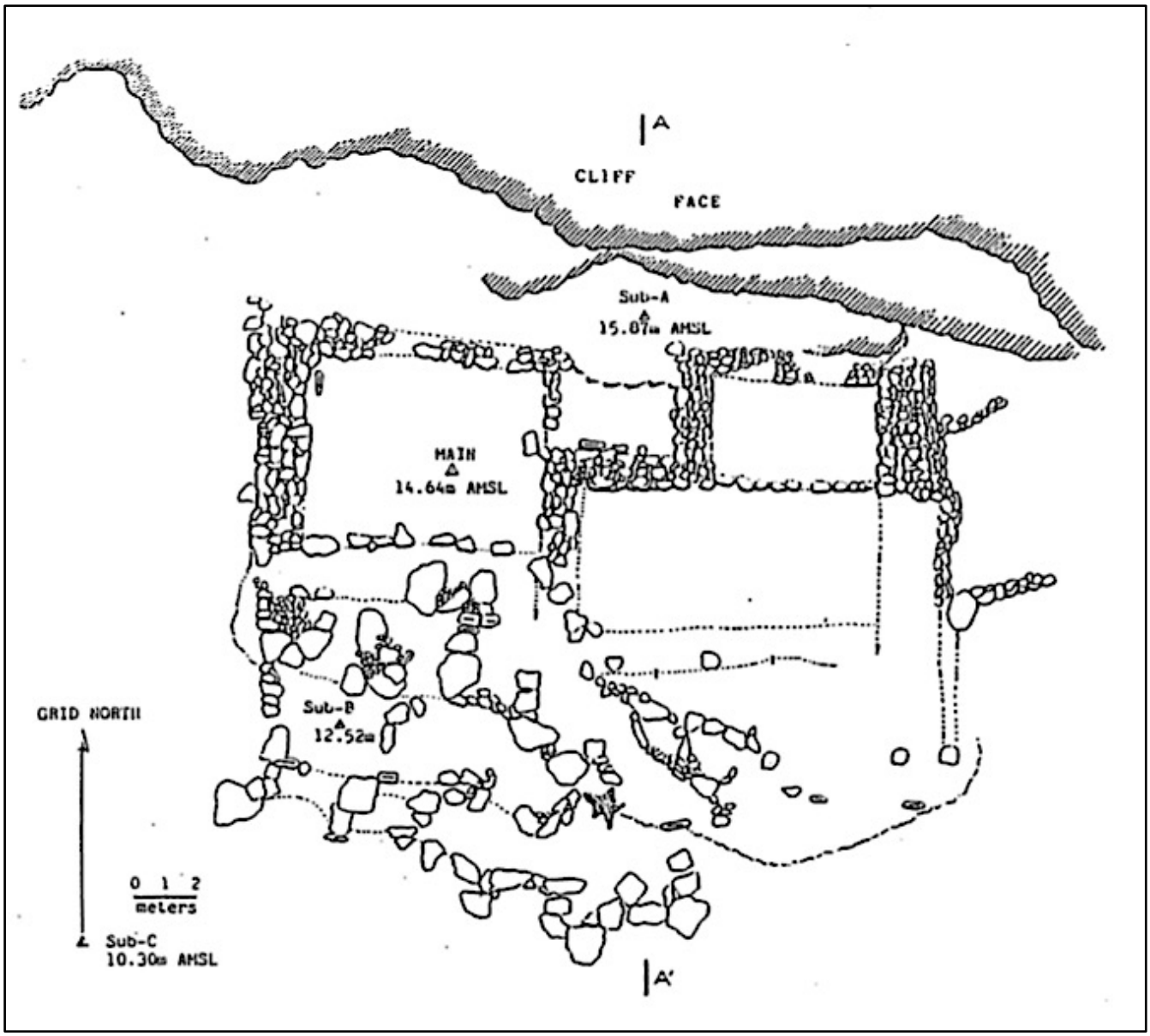


Figure 37. 1984 Plan-view map of Pahua Heiau (Davis 1985a).

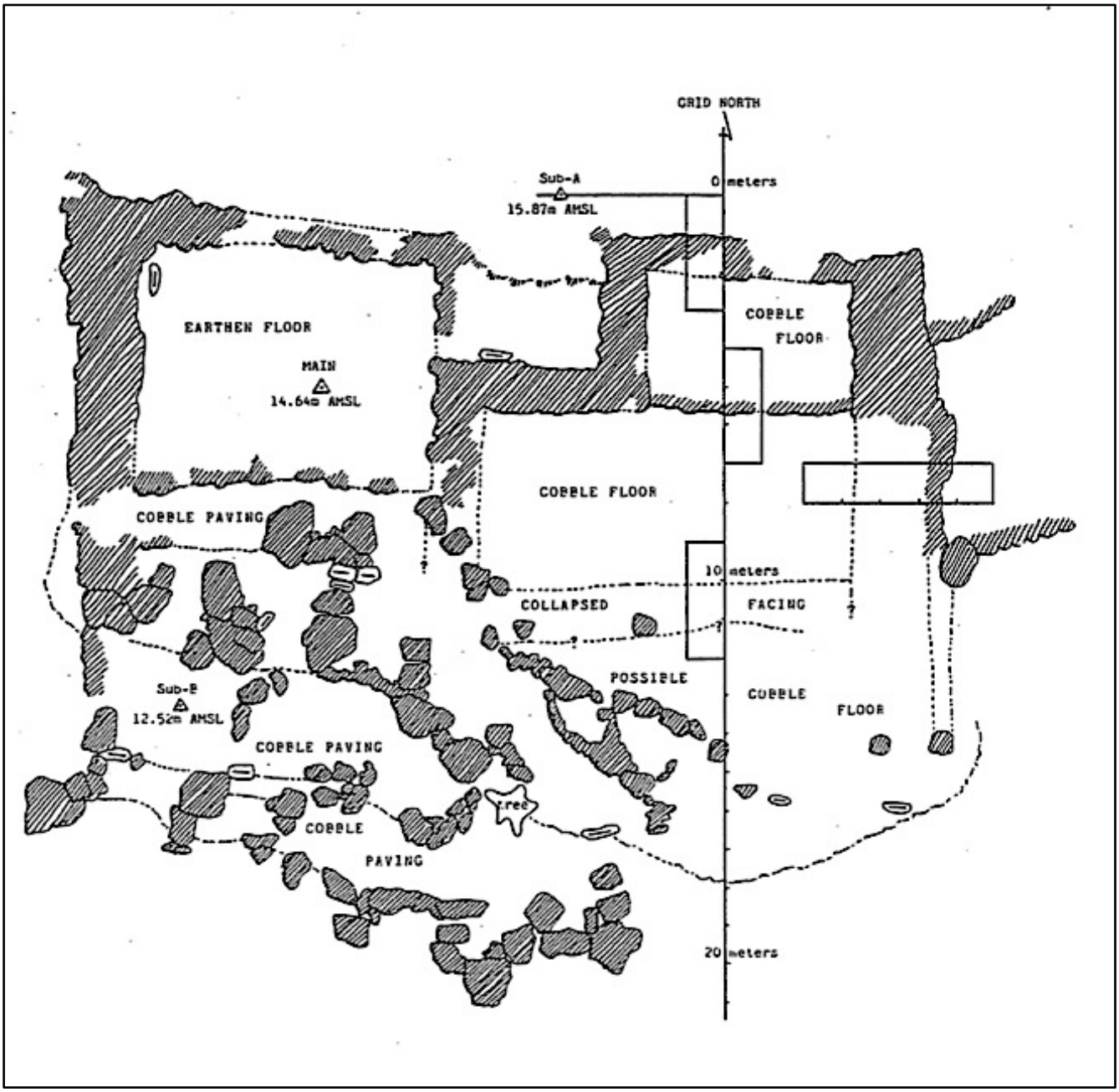


Figure 38. Location of proposed excavation units at Pahua Heiau (Davis 1985a).

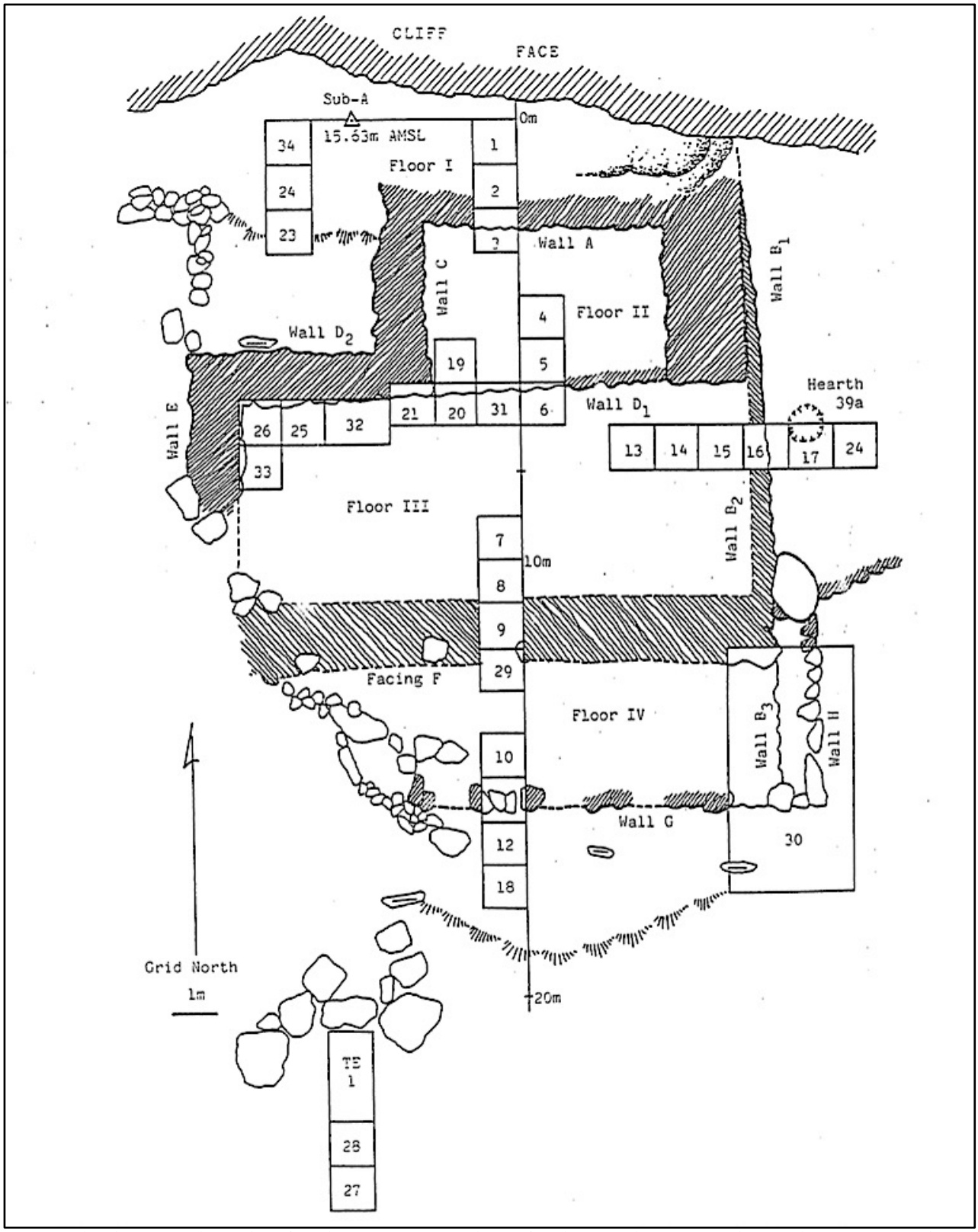


Figure 39. Final excavation plan for the eastern portion of Pahua Heiau. Note that units 13, 19, and 24 were not excavated (Davis 1985b).

According to Davis, Pahua Heiau was comprised of four platforms that were constructed sequentially from top to bottom (1985b:19). Davis stated:

> The four platforms comprising the east half of Pahua Heiau were built sequentially from top to bottom, Floor I followed by Floor II and so on down the hillside. This much is apparent from the way that each successively lower floor abuts and partially buries the front wall of the adjacent higher platform. Given the similarity of construction observed in Floors I and II compared to the very different mode of construction in the lower platforms, it seems probable that Floors I and II represent a single building phase. A separate and later period or building is in turn suggested not only by the aforementioned contrast in construction style, but also by the "additive" aspect of the standing walls on Floor III. Finally, the extension of Floor IV which ultimately buried wall B3 suggests a third, albeit perhaps rather small-scale, building phase. (Davis 1985b:19)

PORTABLE REMAINS COLLECTED FROM PAHUA HEIAU, MAUNALUA, OAHU, AS OF 31 MARCH 1985

Field No.	Description	Provenience
1	Scoriaceous lava abrader	Surface, east of structure
2	Probable basalt core	" , west end Facing F
3	Probable basalt core	" , east end Wall G
4	Quartzite nodule	" , Floor I
5	Shell button, two-hole	" , base of Wall A
6	Gaming die, plastic	" , east end Wall G
7	Shell bead, Morula granulata	Grid Unit 31, Floor III
8	Modern machine made bottle fragment, clear glass, Pyrex	Test Excavation 1
9	Glass sherd, clear, tubular, oval cross-section	"
10	Bottle glass, olive green, shoulder sherd	"
11	Bottle glass, very dark green, body sherd	"
12	Bottle glass, blue, body sherd	"
13	Bottle glass, green, body sherd	"
14	Glass sherd, clear	"
15	Ceramic sherd, probably from a plate or shallow bowl, stoneware with clear crackle glaze over white	"
16	Midden: chicken-tarsometatarsus (1); cat-mandible (1); unidentified bird bone (1); large unidentified fish vertebra (1); and kukui nut-Aleurites moluccana-endocarp (1)	Test Excavation 1
17	Midden: Tellina palatam (1)	Grid Unit 31, Floor III
18	Midden: Tellina palatam (2)	Grid Units 25/26, Floor III
19	Midden: pig-tibia; several fragments of wood charcoal*	Grid Unit 7, Floor III
20	Midden: mammal bone-unidentified cranial fragment (1); Turbo sandwicensis (1); and a few small fragments of wood charcoal**	Grid Unit 18, beyond Wall G
21	Midden: Tellina palatam (2); unidentified mammal bone (1); unidentified fish vertebra (1)	Grid Units 5/6, Wall D_1 and Floor III
22a	Wood charcoal; 30 grams wet, submitted to Beta Analytic for C_{14} analysis	Grid Unit 17, Hearth 39a, lower fill, 25-40cm BS.
22b	Wood charcoal; 23 grams wet, large pieces retained for possible botanical identification	"
22c	Wood charcoal; 5.7 grams dry, retained for possible botanical identification	Grid Unit 17, Hearth 39a, upper fill, ca. 20cm BS.

* Wood charcoal retained for possible botanical identification;
** Wood charcoal very fragmented, finally discarded.

Figure 40. List of artifacts collected during 1985 excavation at Pahua Heiau (Davis 1985c).

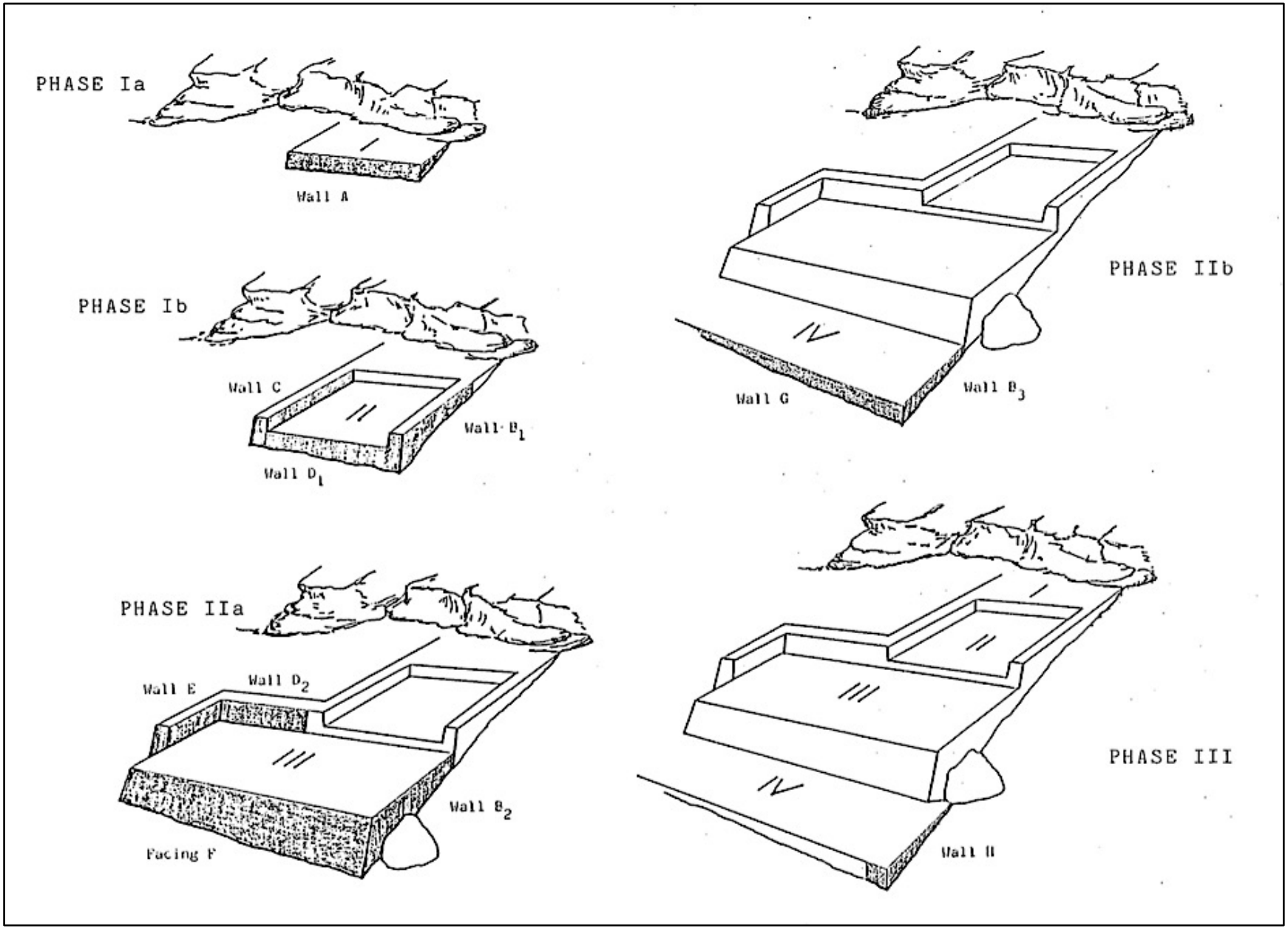


Figure 41. Construction sequence of the four platforms comprising Pahua Heiau; shading indicates the features built during each of the four stages that comprise Phases I, II, and III (adapted from Davis 1985b).

The excavations at Pahua Heiau confirmed the structural layout and construction of the original heiau, as identified by McAllister, in 1933. There was also no evidence of prior cultural activity beneath the eastern heiau platform, indicating that the structure was likely the first significant use of this portion of the project area. Though the construction of the eastern platform appeared to be the first utilization of the area, a cultural deposit was found along the east wall of the heiau which yielded charcoal samples from a possible hearth (Davis 1985b). The charcoal was collected and submitted for a radiocarbon age determination, and the results were later published in Davis (1985c). The finding of charcoal however, was not linked stratigraphically to the heiau structure, and was therefore difficult to relate the two features.

Davis, Bertell (1985c): A Report on the Stabilization and Partial Restoration of Pahua Heiau

The results of the excavation report (Davis 1985b) were used as the basis for the restoration phase of Pahua Heiau. From May through June of 1985, stabilization and restoration of the eastern half of Pahua Heiau was completed by volunteers from the community, the University of Hawai'i, and the Bishop Museum (Davis 1985c). The restoration included the reconstruction of four large, dry mason platforms in the eastern half of the heiau, and the reconstruction of four free-standing rock walls[2]. The reconstruction of the platform and the walls were rebuilt to their approximate original size (Davis 1985c).

Based on the archaeological evidence the re-configuration of the east heiau platforms underwent three building phases (Figure 41) (Davis 1985c):

- Phase I concerned the construction of Floors I and II. Floor I is primarily an earthen platform that extends out from the base of the cliff face. The front of Floor I is rock-filled and the area is paved with small basalt pebbles. Floor II is bounded by free-standing rock walls that abut the front of Floor I.
- Phase II concerned the enlargement of the heiau with the construction of Floors III and IV. Floor III is a platform constructed with boulders and cobbles, and is about 40 cm lower than the surface of Floor II. Floor IV extends from the foundation of Floor III and consisted of cobbles.
- Phase III concerned the final addition to the eastern half of Pahua Heiau with the construction of the Floor IV extension. The addition extended Floor IV about 1 to 2 meters to the east, covering "wall H".

In addition to the reconstruction of the eastern platforms, Davis (1985c) also mentioned that the charcoal recovered during the excavations (Davis 1985b) yielded a radiocarbon date of 270 +/- 50 years B.P., calibrating two different calendrical periods: A.D. 1485-1665, and A.D. 1769-1795 (Davis 1985c: 16). The report however, did not specify the identified wood specie used to calibrate the radiocarbon date. Aside from the restoration process of the heiau, and the radiocarbon age determination, of particular interest was the mention of the construction materials identified during field work at Pahua Heiau. According to Davis, ko'a, or coral bits, were found scattered throughout the heiau. Davis wrote:

> However, in moving so much of the wall and platform rock around during the restoration phase, we found that there was in fact a considerable quantity of coral buried in the structure. Most of this was in the form of small pieces of branch coral, and chunks of what appear to be a soft subgrade limestone material derived chiefly from the margins of Kuapā Pond, but the branch coral had to come from further away towards the coast.

[2] Davis did not note whether or not the rocks that were used in the reconstruction were from the site or were imported. He did however mention that the work required moving approximately 10m (to the third power) of rock; that amounts to about 105 metric tons.

> Coral is most often used as a construction material in fishing shrines and other coastal platforms and floors. The usual popular explanation for the use of coral in these sites is that it has a ritual significance associated with purification and fishing. (Davis 1985c: 14)

Koʻa were also identified throughout the heiau during the current archaeological investigation for this project. A high concentration of koʻa was also observed at NP-2, within the foundation surrounding an upright stone. A more detailed description of this site is provided in the Current Site Conditions section of this report.

Davis, Bertell (1985d): Pahua Heiau Restoration-Continuation: Scope of Work for the West Platforms

Subsequent to the completion of the partial restoration of Pahua Heiau (Davis 1985c), a Scope of Work for the continued restoration for the west platforms was published. Unfortunately, we were unable to find a copy of this report from the following repositories: Bishop Museum Archives, State Historic Preservation Division, Office of Hawaiian Affairs, and the University of Hawaiʻi at Mānoa's Library and Anthropology Laboratory.

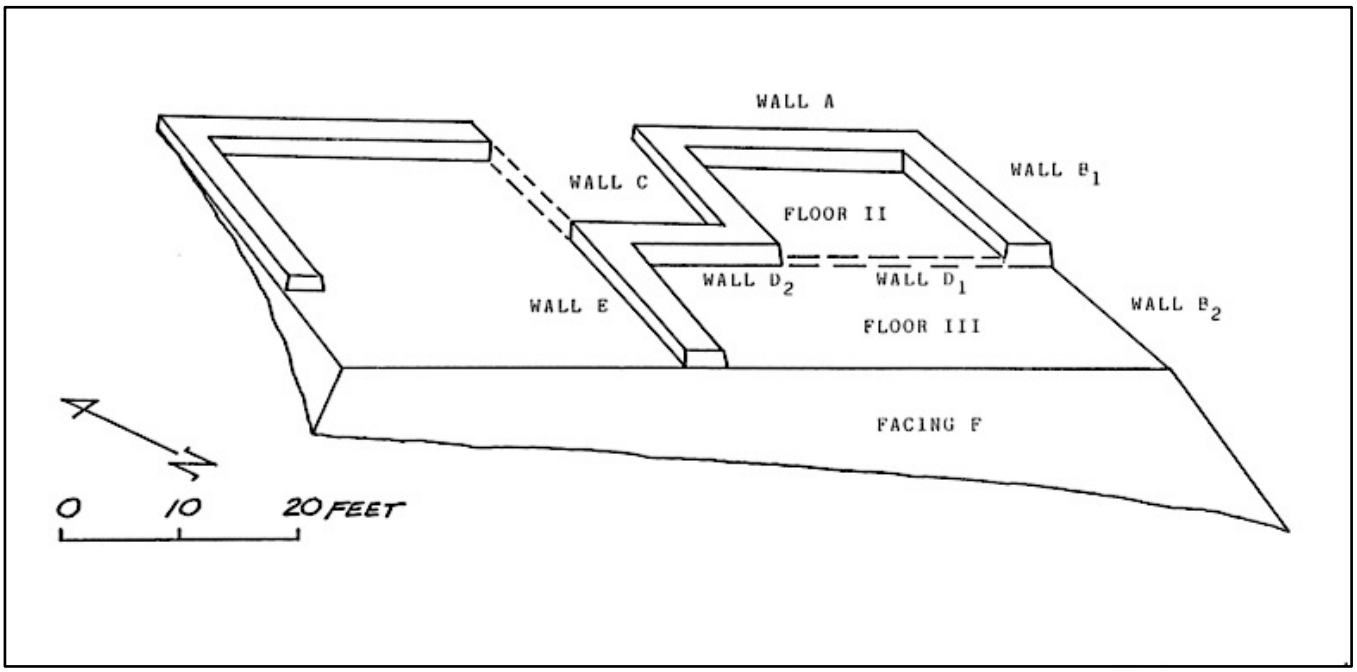


Figure 42. A sketch of Pahua Heiau based on McAllister's 1933 drawing, illustrating the structural components of the eastern half of the site during excavation and restoration of the heiau (adapted from Davis 1985c).

Hazlett (2011):

In 2011, archaeological montioring was conducted by Scientific Consultant Services for The Emergency Rockfall Mitigation Project that took place within the current project area. The rockfall mitigation work included the removal of eight large rock outcrops and boulders that were previously identivied as potential rocakfall hazards. No archaeological sites or features were reported identified or impacted during the course of the archaeological monitoring of this project (Hazlett 2011).

CULTURAL AND HISTORICAL SIGNIFICANCE SUMMARY

A variety of repositories and resources were examined to develop a general description of the natural, cultural, historical, and archaeological background of Pahua Heiau and the surrounding area. The extensive review of the available ethnohistorical data, inoa ʻāina, moʻolelo, oli, and ʻōlelo noʻeau pertaining to Pahua Heiau and the greater Maunalua Ahupuaʻa has contributed significantly to our understanding of Pahua Heiau and the historical context of its construction and function. As previously mentioned, the Pahua Heiau complex is located at the base of Kamiloʻiki Ridge in the Maunalua Ahupuaʻa, bounded to the east by Kamiloʻiki Valley, and to the west by Kamilonui Valley, in an area traditionally known as Ke Kula o Kamauwai, a place that was once famous for its historic ʻuala production and trade.

The ethnohistoric and Māhele data, gathered from the state survey register map database and other online databases such as Papakilo, confirmed that the lands of Maunalua were once held as chiefly assets. The lands were originally owned by Kahekili the aliʻinui of Oʻahu but were eventually acquired by Kamehameha I during his conquest of the island. During the 1848 Māhele, the lands of Maunalua were passed down to Princess Victoria Kamāmalu and eventually given to Princess Bernice Pauahi Bishop. The significance of area stems, in part, from Maunalua's history as a land base reserved for the aliʻi. The name Pahua was also used in a number mele wānana and mele kanikau to reference ʻuala production and chiefly connections to this place. Maunalua, rich in aquacultural resources like Keahupua o Maunalua Fishpond and dry-land agricultural areas like the project area, was known traditionally and historically for its husbandry, food production, fertile plains, and chiefly connections. Ultimately, the cultural and historical information compiled for this plan attests to the significance of Pahua Heiau and the Maunalua area from traditional to historical times.

CURRENT SITE DESCRIPTIONS AND CONDITIONS

Archaeological Field Work

On March 21-24, 2016, archaeological investigations were conducted at 7142 Makahu'ena Place, Honolulu HI 96825 by Nohopapa Hawai'i to document the nature and current condition of Pahua Heiau and surrounding sites and features (Figure 43). The purpose of the investigations was to assist in the planning process of the Pahua Heiau preservation project. The archaeological fieldwork component for this project included: 1) conducting a systematic pedestrian survey to identify/re-identify any sites or features within the project area; 2) create detailed plan view maps of the identified archaeological sites and features; 3) complete documentation of each site and feature, including site/feature descriptions, GPS locations, and photography; and 4) carry out a condition assessment for each site to determine its current status and integrity.

Figure 43. Archaeologists working at Pahua Heiau with Kohelepelepe in the background.

Results

The pedestrian survey conducted throughout the 1.15-acre project area resulted in the identification/re-identification of a total of five sites, composed of 24 features (Figure 44, Figure 46). Ten of the 24 features identified were part of the main heiau structure, while the remaining features were discovered in the outlying areas of the heiau proper. Site/feature types included the heiau proper, an upright stone, rock alignments, a partial enclosure, retaining walls, terraces, rock piles, a re-internment site, filled crevices, mounds, and a modified outcrop.

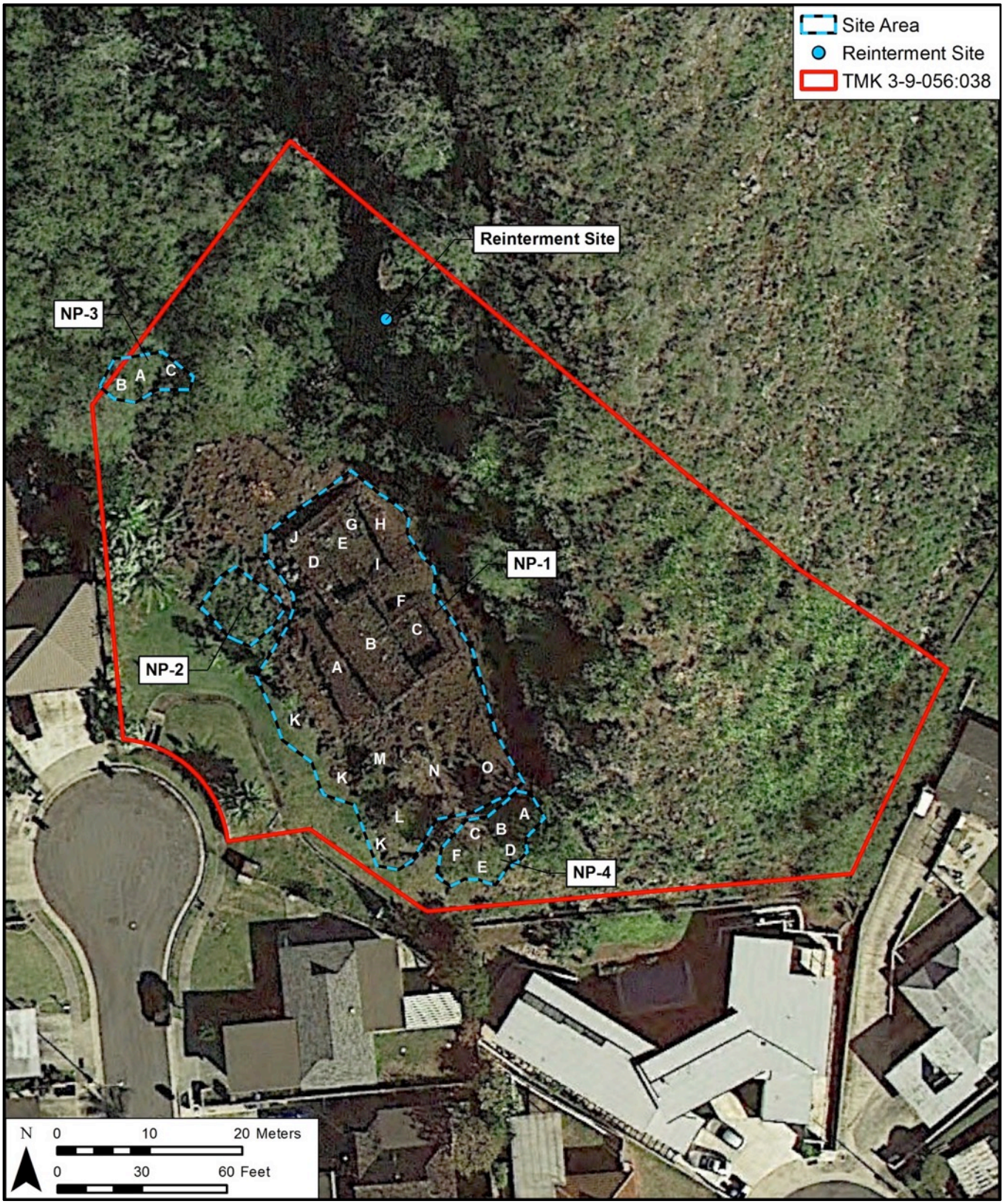


Figure 44. GPS locations of sites and features identified and documented within the project area.

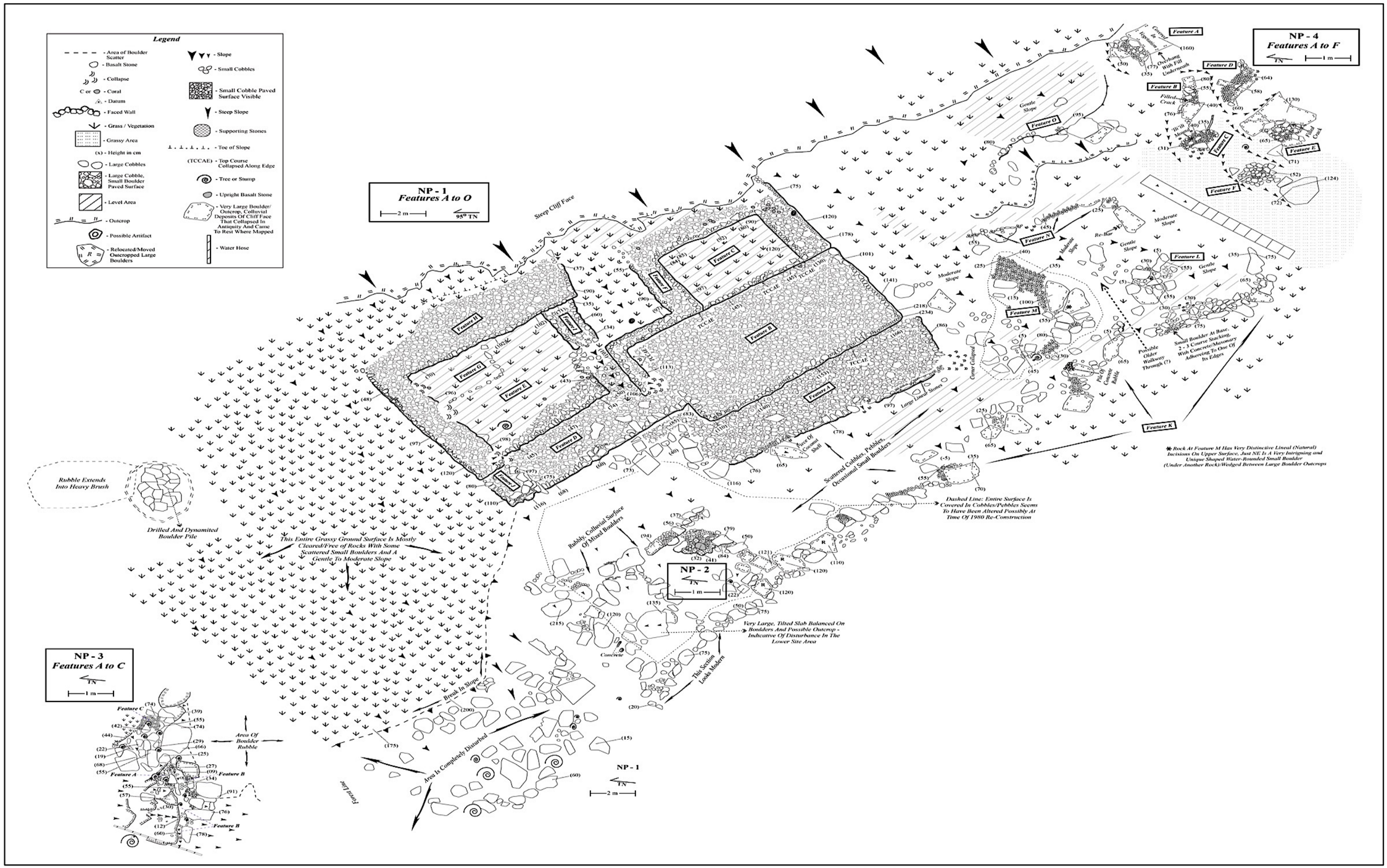


Figure 45. Plan view map of sites and features identified and documented within the project area.

Figure 46. Overlay of plan view map on top of an aerial photograph, depicting the exact location of sites and features identified, and documented within the project area.

Site/Feature Descriptions

Site and feature descriptions included the following information: 1) the current physical state of the site/feature by recording its location, dimensions, formal type, functional interpretation, temporal interpretation, physical condition, integrity, disturbance, constituent material, and construction methods; 2) a comparison of the current state of the heiau proper (NP-1) to baseline information provided for the heiau's reconstruction in Davis (1985c) (Figure 47); and 3) how outlying sites/features relate to the functions of the main heiau. This approach, it was hoped, would help to determine proper functional and practical preservation efforts for Pahua Heiau, a significant cultural and historical site.

Site NP-1: Pahua Heiau (SIHP # 50-80-15-0039)

Site NP-1 includes the main heiau structure (Features A-J), and five newly identified features just east of the heiau proper (Features K-O) (Figure 48). The main heiau was reconstructed in 1985 (Davis 1985c) to reflect its original structure (Figure 47), and is located along the western talus of Kamiloʻiki Ridge. The heiau complex consists of two series of terraces, the western terrace (Figure 49) and the eastern terrace (Figure 50), and contains 10 distinct features. Brief descriptions of the composing features are provided below:

Feature A- Terrace

Feature A is the lowest eastern terrace of the site (Figure 51). It is composed of a front retaining wall and a platform consisting of large basalt boulders and angular basalt cobbles ranging in size from 0.53-1.29m. The front face of the terrace measured about 76cm in height on the western end of the terrace and about 30-80cm in height on the eastern end of the terrace. The platform extends out from Feature B about 4 meters. According to Davis (1985c), this portion of the heiau was designated as Floor IV and was the final addition, during restoration, to the eastern half of Pahua Heiau. Davis also noted that the front retaining wall of Floor IV measured about 8 to 10m long.

Feature B- Terrace

Feature B is the second eastern terrace level of the heiau structure (Figure 52). It is composed of a front retaining wall and a platform composed of angular basalt cobbles and large boulders ranging in size from 0.22-0.49m. The front face of the terrace measured about 1.10m in height on the western end and 1.16m in height on the eastern end of the platform. Feature B platform abuts Feature D where it reveals a clear demarcation in construction of two separate phases. According to Davis (1985c), this portion of the heiau was designated as Floor III and extended out 6-8m from Floor II. Davis also noted that the front retaining wall measured 12.4m.

Feature C- Terrace

Feature C is the third and highest terrace level on the eastern half of the heiau structure (Figure 53). It is composed of a front retaining wall and a platform consisting of angular basalt cobbles ranging in size from 0.20-0.28m. The front face of the terrace measured about 0.45m in height and the core of the platform was filled with small rough coarse stones measuring about 0.10-0.18m in size. According to Davis (1985c), this portion of the heiau was designated as Floor II and extended out about 4m from Floor I.

Feature D- Terrace

Feature D is the first and lowest terrace on the western half of the heiau structure (Figure 54). It is composed of a front retaining wall and a platform consisting of angular basalt cobbles ranging in size from 0.24-0.38m and approximately 0.60-0.85m in height. The core of the platform is filled with small rough stones measuring about 0.09-0.220m in size. Several large natural boulders were also embedded in parts of the platform pavement. Additionally, Feature D was not mentioned in Davis (1985c).

Feature E- Terrace

Feature E is the second and highest terrace on the western half of the heiau structure (Figure 55). It is composed of a front retaining wall and a platform consisting of angular basalt cobbles ranging in size from 0.18-0.22m and 2-3 courses high. The core of the platform is filled with small coarse stones measuring about 0.04-0.10m in size as paving. Feature E was also not mentioned in Davis (1985c).

Feature F- Rock Wall

Feature F is a rock wall that surrounds Features B & C, spanning two different terrace levels (Figure 56). The wall section surrounding Feature B is made up of 6-7 courses of angular basalt cobbles about 0.16-0.39m in size and its core is filled with coarse stones measuring 0.03-0.10m in size. This wall section is about 1.13-1.27m in height and is approximately 0.23-0.32m wide. The wall section surrounding Feature C consists of 4-6 courses of angular basalt cobbles and boulders about 0.20-0.34m in size, and its core is filled with small coarse stones measuring about 0.10m in size. This wall section is about 0.85-1.20m in height and is approximately 0.42-0.56m wide. This feature was designated as Walls A, B1, C, D2, and E in Davis (1985c).

Feature G- Enclosed Platform

Feature G is a small enclosed platform located in the northwest corner of Feature E (Figure 57). Feature G is composed of one course of rough angular stones about 0.17-0.44m in size, and its core is filled with basalt cobbles measuring about 0.10-0.20m. Feature G was not mentioned in Davis (1985c).

Feature H- Rock Wall

Feature H is a rock wall that surrounds Features E & G (Figure 58). The northeast portion of Feature H consists of 5-6 courses of angular basalt cobbles and boulders about 0.20-0.50m in size, and its core is filled with coarse stones measuring 0.03-0.10m. This wall section of Feature H measures approximately 0.18-1.02 m in height and is about 2.55m wide. The northwest portion of Feature H consists of 5-6 courses of angular basalt cobbles about 0.15-0.25m in size, and its core is filled with smaller stones measuring 0.10-0.15m. This wall section of Feature H measures approximately 0.1-1.02 m in height and is about 2.55m wide. This feature was not mentioned in Davis (1985c).

Feature I- Rock Wall Segment

Feature I is a short wall segment extending from the northeast end of Feature H (Figure 59). Feature I encloses feature E to the east and appears to be a separate construction phase from Features H & E. Feature I consists of 2-3 courses of angular basalt cobbles and stones and measures 0.60m high and 0.48m wide. Feature I was not mentioned in Davis (1985c).

Feature J- Rock Wall Segment

Feature J is another short wall segment extending from the southwest end of Feature H and enclosing Feature D to the west (Figure 60). Feature J also appears to be a separate construction phase from Features H & D, and measures 0.57-0.78m high and 0.62m wide, with 2-3 courses of angular basalt stones and cobbles. Feature J was not mentioned in Davis (1985c).

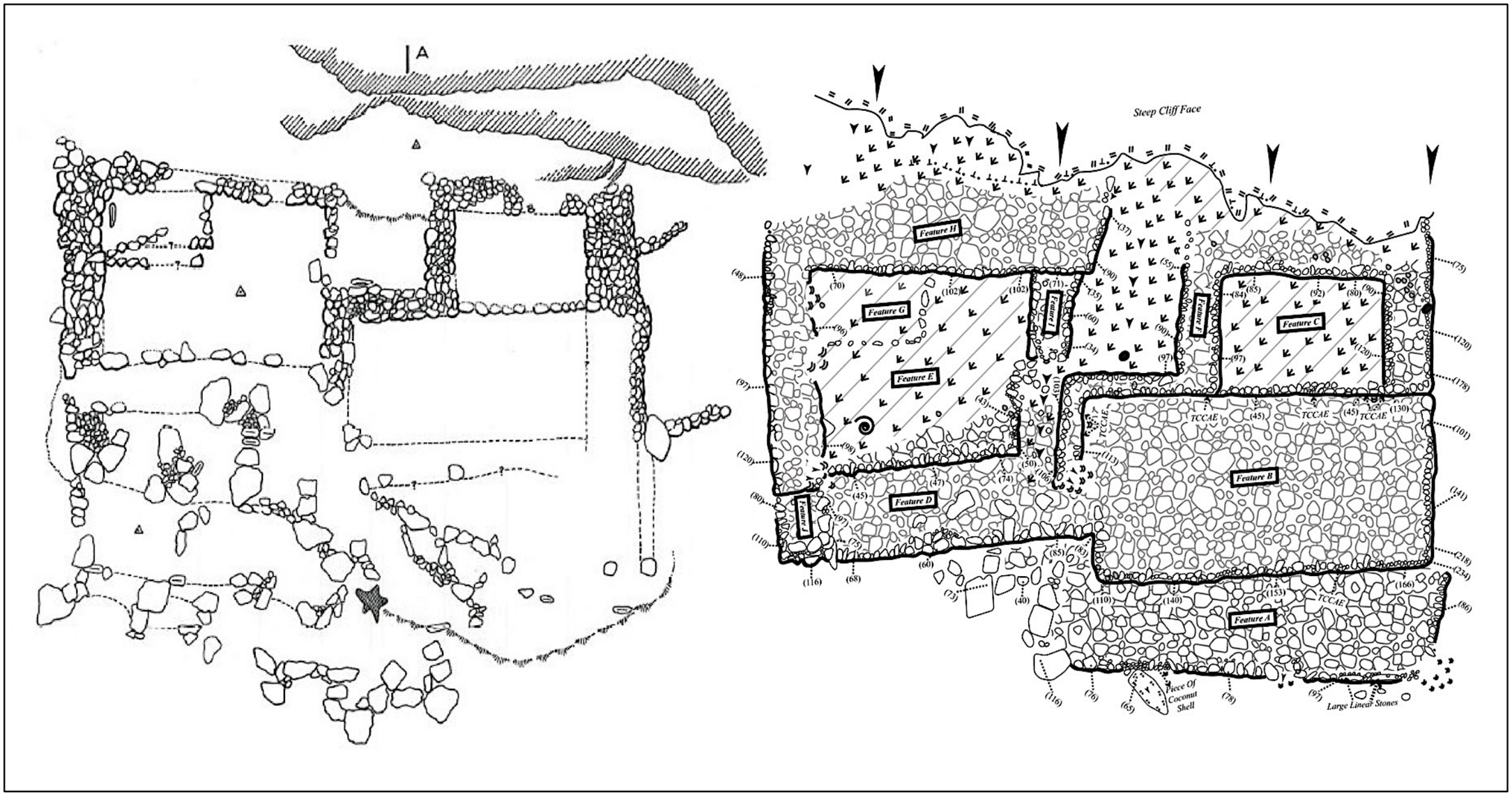


Figure 47. Plan view maps of Pahua Heiau, before (left) (from Davis 1985a) and after (right) 1985 restoration.

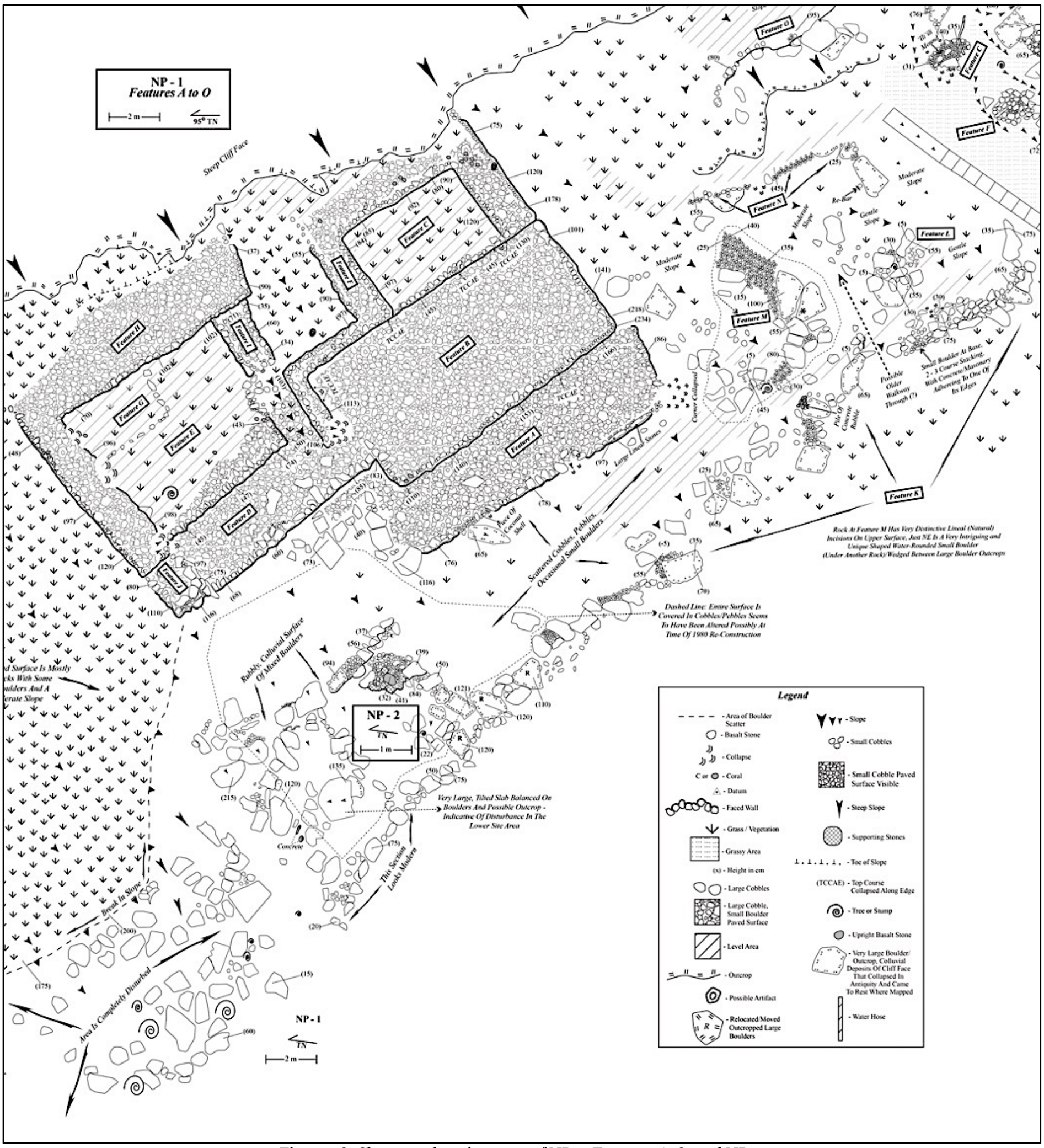


Figure 48. Close-up plan view map of NP-1, Features A-O, and NP-2.

Figure 49. Western heiau terrace; view to south.

Figure 50. Eastern heiau terrace; view to northwest.

Figure 51. NP-1 (Feature A) south face of terrace (arrows indicate collapsed areas); view to northwest.

Figure 52. NP-1 (Feature B) platform, view to northwest.

Figure 53. NP-1 (Feature C) south face and platform; view to northeast.

Figure 54. NP-1 (Feature D) south face and platform; view to east.

Figure 55. NP-1 (Feature E) platform with (Features G & H) in the background; view to the northwest.

Figure 56. NP-1 (Feature F) west face of eastern standing wall segment (arrow indicates collapsed area); view to the southeast.

Figure 57. NP-1 (Feature G) enclosed platform; view to the northeast.

Figure 58. NP-1 (Feature H) east face (arrows indicate three collapsed areas); view to the northwest.

Figure 59. NP-1 (Feature I) extension off the eastern section of Feature H; view to southeast.

Figure 60. NP-1 (Feature J) east face of extension off the western section of Feature H; view to southeast.

Feature K- Discontinuous Retaining Wall/ Terrace

Feature K is a discontinuous boulder outcrop retaining wall/ terrace, located near the lower site boundary outlying the heiau proper (Figure 61). Feature K was interpreted to have functioned as a retaining wall for the lower slope beneath the formal heiau platforms. Feature K appeared to have been part of the original construction of the heiau; however, the presence of modern materials (i.e., chunks of concrete) found atop parts of the wall and within cracks and crevices indicates that this feature has been modified within recent history. Though the current appearance of Feature K is not very formal, it was generally constructed with angular and sub-angular basalt boulders and measures about 0.65- 1.20m in height. Feature K was not recorded or documented prior to this study.

Feature L- Informal Clearing Mound

Feature L is an elongated rectangular shaped informal clearing mound, atop large boulder outcrops (Figure 62). The location of Feature L suggests that its possible function was to better organize the eastern slope of Site NP-1. Though Feature L is informal, it was generally constructed using angular and sub-angular basalt boulders built atop large boulder outcrops and low outcrops, and measures about 0.05- 0.55m in height. Backhoe spalling was observed on a few of the rocks indicating that the feature was previously impacted and/or disturbed. On the eastern portion of the feature, two natural outcrops formed a perfectly squared leveled soil area.

Feature M- Possible Enclosure

Feature M is a possible enclosure found off the southeast corner of the heiau enclosure (Figure 63). Though very degraded, the L-shaped feature appears to have possibly been an extended enclosure off of the main heiau structure. There were some additions of modern materials (i.e., chunks of concrete) found in some areas of the feature; however, the majority of the feature was constructed by stacking small boulders, stones, cobbles, and pebbles on top and within cracks of large natural boulder outcrops. Although the construction of the feature was informal and "piled," particular sections of this feature did exhibit 1-2 courses of stacked boulders that measured about 0.5-1.0m in height. There was also a very distinct lineal incision observed on the upper surface of a rock; just NE of that rock was a unique shaped water-rounded small boulder wedged between the boulder outcrops. It is recommended that this area be investigated further.

Feature N- Retaining Terrace

Feature N is a low piled/ stacked rock retaining terrace wall, located approximately 5 meters southeast of the main heiau structure (Figure 64). The retaining terrace wall runs east to west, and connects to a large boulder outcrop forming a leveled surface or trail to the northeast corner of the heiau. Feature N was constructed by stacking/ piling cobbles and small boulders in a linear fashion to retain the northeastern slope of site NP-1. The temporal interpretation of this feature was difficult to determine, however it is speculated that it was possibly constructed/ altered during the 1985 reconstruction of the heiau.

Feature O- Informal Retaining Wall

Feature O is an informal discontinuous retaining wall built up against and just below the northeast cliff face (Figure 65). The feature is composed of small boulders and subangular basalt cobbles built upon large boulder outcrops. Feature O was possibly used to retain upper soil/ sediment at the top of the complex.

Figure 61. NP-1 (Feature K) overview of rock alignment; large boulder in the foreground has an interesting depression on its surface; view to northwest.

Figure 62. NP-1 (Feature L) overview of informal clearing mound (arrow indicates evidence of spalling); view to northwest.

Figure 63. NP-1 (Feature M) possible enclosure extending from the eastern section of the heiau (red dashed line illustrates the “L”-shaped enclosure); view to the south.

Figure 64. NP-1 (Feature N) retaining terrace forming pathway above the heiau; view to the northwest.

Figure 65. NP-1 (Feature O) informal retaining wall; view to the north east.

Site NP-2: Upright Stone

Site NP-2 (Figure 66) is a single upright stone located just south of the western portion of NP-1. The western half of the feature is composed of strategically placed angular basalt stones used to prop up the main upright, while the eastern portion of the feature is made up of loosely filled smaller basalt cobbles and pebbles. North of the upright is a linear retaining wall composed of stacked angular basalt cobbles and pebbles, and natural boulder outcrop. The upright measured about 0.32m in height, and about 0.15-0.20m in width. Pieces of branch coral were also observed surrounding the upright stone, suggesting that the functional use of this site was for ceremonial or religious purposes. The upright stone was also interpreted as a possible Pōhaku o Kāne, or Koʻa, fishing shrine. Overall, NP-2 is in good condition and was not recorded or documented prior to this study.

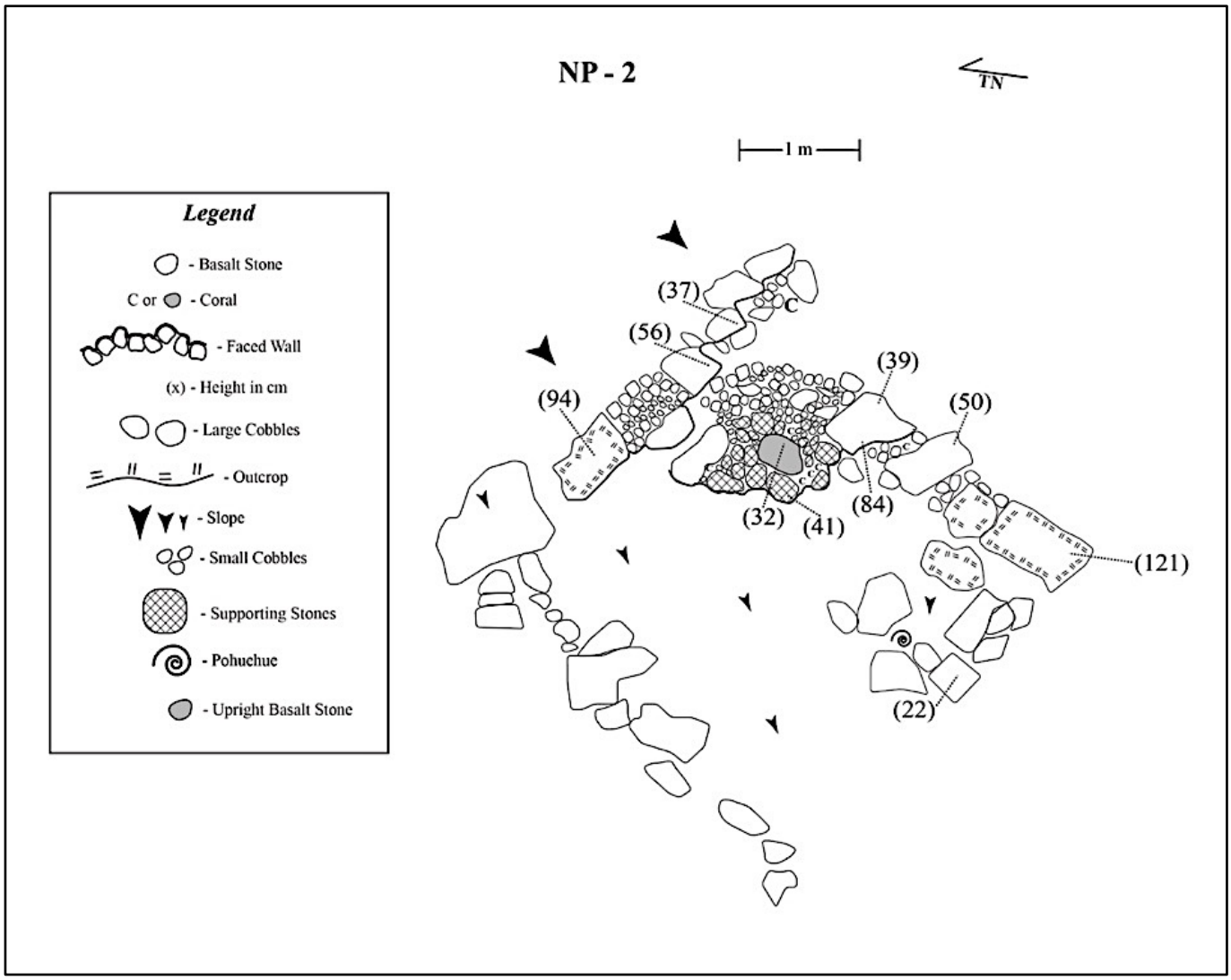


Figure 66. Plan view map of NP-2: Upright Stone.

Site NP-3: Natural Outcrop with Filled Crevices

Site NP-3 (Figure 67) is a series of modified outcrops with filled cracks and crevices found along the western slope of the project area abutting the property boundary. The function of the site has not been determined and is possibly related to clearing/access along the slope or possibly retaining the western slope from further erosion. The site is composed of three distinct features (Features A-C). Brief descriptions of these features are provided below.

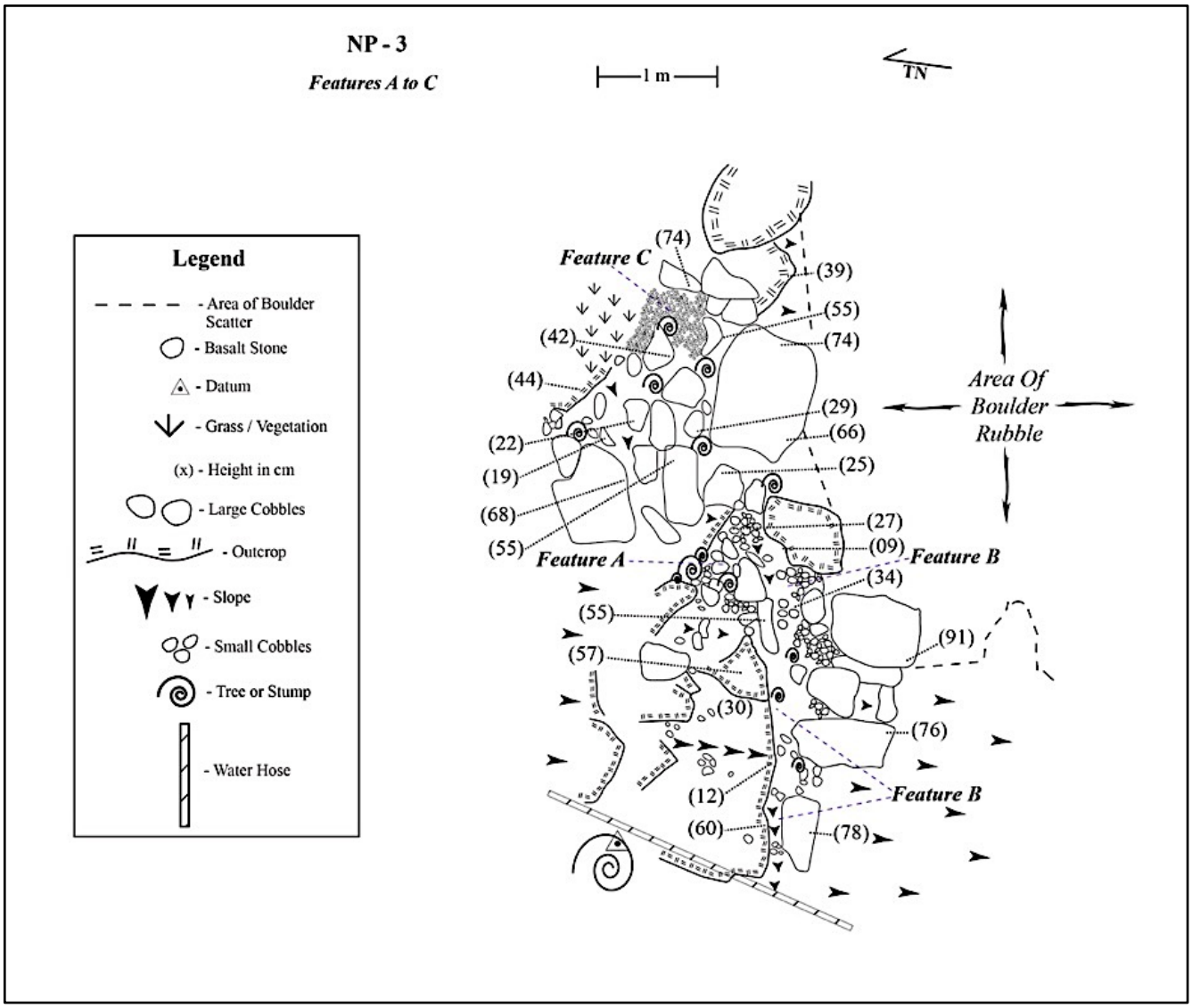


Figure 67. Plan view map of NP-3: Natural Outcrop with Filled Crevices.

Feature A- Filled Crevice

Feature A was identified as a filled depression between a large boulder and natural outcrop (Figure 69). The depression was filled with subangular and subrounded cobbles, and the filled in area measured approximately 0.2m in length and 0.5m in width. The eastern portion of the feature consisted of basalt cobbles placed on bedrock.

Feature B- Filled Crevice

Feature B is another filled crevice found along the western slope of the project area. The filled crevice is approximately 0.7m wide, and runs at an angle along the slope for approximately 5m, creating a fairly leveled area.

Feature C- Filled Outcrop

Feature C consists of subangular, and angular cobbles with some subrounded, and rounded cobbles placed in the middle of a cluster of raised outcrops and boulders creating a leveled surface area measuring 1m in length and 0.7m in width (Figure 70). The cobble fill of this feature continues upslope filling in another crevice between an outcrop and a boulder. This upper filled area measures 0.8m in length and 0.3m in width.

Figure 68. NP-3 general site area from the bottom of the slope; view to northeast.

Figure 69. NP-3 (Feature A) filled crevice; view to southeast.

Figure 70. NP-3 (Feature C) filled leveled area, lower part of feature; view to the north.

Site NP-4: Natural Outcrop with Filled Crevices

Site NP-4 (Figure 71) is a terraced series of filled crevices and outcrop found along the eastern slope of the project area abutting the east property boundary. The function of the site has not been determined and is likely that these cracks and crevices were filled with smaller cobbles to level out and retain the eastern slope of Kamiloʻiki Ridge. The informal filling of the crevices possibly means the original inhabitants of the area used the natural environment and modified it slightly to better stabilize the eastern toe of slope. It is also possible that these areas were filled with cobbles to create level terraces for agricultural production. The site is composed of six distinct features (Features A-F) and brief descriptions are provided below.

Feature A- Filled Crevice

Feature A is composed of two large boulders surrounded by medium sized boulders to prevent additional rolling down the slope. Small to medium sized cobbles were also placed between the large and medium boulders to further strengthen and stabilize the upper portion of the slope from continued erosion. The height of the largest boulder measured 1.60m creating an overhang along the southern half of the feature.

Features B, D, & E- Filled Outcrop

Features B. D, and E (Figure 72) are outcrops with filled crevices located just below Feature A. These features are a little more formal than Feature A and consist of cobble and pebble sized fill between natural outcrops. Unlike Feature A, these features form level areas further stabilizing the greater slope.

Feature C & F - Surface Fill

Features C and F (Figure 73) are smaller surface filled areas along the eastern slope. Unlike Features B, D, & E, Features C and F were not filled crevices. Instead these features consisted of small- medium sized cobbles used to fill in gapped areas along the talus to further retain the integrity of the slope.

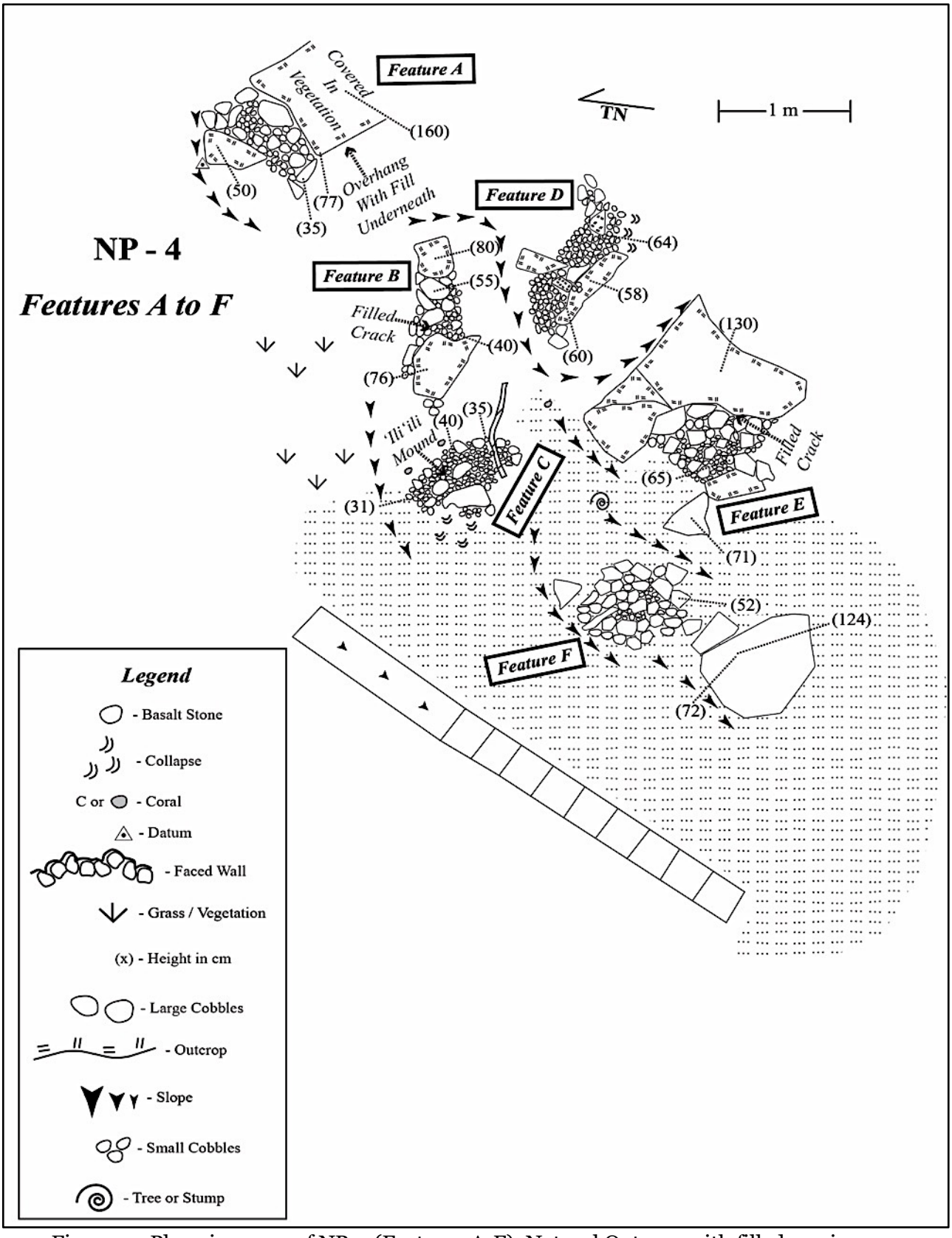


Figure 71. Plan view map of NP-4 (Features A-F): Natural Outcrop with filled crevices.

Figure 72. NP-4 (Feature E) filled outcrop to stabilize toe of slope; view to northeast.

Figure 73. NP- 4 (Feature F) surface filled rock mound; view to east.

Re-internment Site

In 1992, 1997, and 1999 three separate re-internments of iwi kūpuna were conducted in the project area. The re-internment site is said to house 16 sets of fragmented human skeletal remains, nine sets of fragments from the sand dunes of Kaloko and Wāwāmalu, and seven fragmented remains from Pahua Heiau that were repatriated to the site in 1999 from the Bernice Pauahi Bishop Museum, per the requirements of the Native American Graves Repatriation Act (NAGPRA) (Kikiloi 2009) (Figure 74). There was no mention in Kikiloi (2009) of where the rocks used for the reinternment came from. Furthermore, the site shall be maintained as it was reinterred, and any proposed stabilization of the re-internment site should not include the importation of rocks from a different area.

Figure 74. Re-internment site, notice the collapsed and rubble wall; view to the east.

Conditions Assessment Criteria

To better evaluate preservation treatment options for the Pahua Heiau site complex, a condition assessment criterion was developed using a hybrid of methodologies from Monahan's (2014) report prepared for Kamehameha Schools entitled, "Condition Assessment for Archaeological Resources in Anahulu Valley, Kawailoa Ahupua'a, Waialua District, O'ahu Island, Hawai'i," and the National Parks Service's Cultural Resources Condition Assessment Guidelines presented in the Archeological Sites Management Information System Data Dictionary (National Park Service 2013) to evaluate the physical stability and degree of degradation of sites within the project area. The results of these condition assessments will help identify initial recommendations involving possible stabilization and/or removal of potential threats possibly impacting the cultural and archaeological integrity of the overall site. The criteria and condition values evaluated to determine the condition of the sites are provided below:

Context Integrity

This category subjectively evaluates the site's overall and relative aesthetic or visual value. The aesthetic value and context integrity of a site is *not* the same as the physical condition of a site. The evaluation of the aesthetic values takes into consideration the site's formal design, quality of construction, and it's setting and/or location on the landscape rather than the constructed material integrity of a site. This category subsequently has five condition values: low, modest, medium, high, and exceptional.

Table 3. Context Integrity Value Definitions

Value	Definition
Low	The site is evaluated as having very little artistic value, and the formal design of the site is not very pleasing to the eye. The quality of the construction is not concerned with artistry, and it's setting/location on the landscape is not visually appealing.
Modest	The site is evaluated as having substantial artistic value, but the formal design of the site is not concerned with complex artistry. The quality of the construction is not concerned with artistry, and it's setting/ location on the landscape is not visually appealing.
Medium	The site is evaluated as having expressive artistic value. The formal design of the site is concerned with complex artistry. The quality of the construction is not concerned with artistry, and it's setting/ location on the landscape is not visually appealing.
High	The site is evaluated as having significant artistic value. The formal design of the site is concerned with complex artistry. The quality of the construction is visually pleasing, however it's setting/ location on the landscape is not appealing.
Exceptional	The site is evaluated as having exceptional artistic value. The formal design of the site is concerned with complex artistry. The quality of the construction is visually pleasing, and it's setting/ location on the landscape is very appealing.

Site Condition and Functional Value Assessment

This category evaluates the overall physical integrity and stability of a site that is necessary to carry out its functional purpose. This category has three condition values: poor, fair, and good.

Table 4. Site Condition and Functional Value Assessment

Value	Definition
Poor	The site shows evidence of severe deterioration resulting from human activities or natural forces. If the identified impacts continue without appropriate treatment, the site will likely continue to degrade and the site's data potential for historical or scientific research and cultural significance will be lost.
Fair	The site shows evidence of some deterioration resulting from human activities or natural forces. If the identified impacts continue without appropriate treatment, the site will likely degrade to a poor condition, and the site's data potential for historical or scientific research and cultural significance will be lowered.
Good	The site shows no evidence of noticeable deterioration resulting from human activities or natural forces. The site is currently stable, and its present archaeological and cultural values are not threatened.

Site Disturbance Severity Level

This category evaluates the relative severity of disturbances and threats to a site. Disturbances are defined as *detectable* negative impacts on a site caused by natural forces or intentional activities. Threats are defined as *predicted* or expected disturbances that will later cause negative impacts on a site. The identified primary threats and disturbances to the sites were: a) weathering and decay; b) natural forces (i.e., hurricanes, storms, earthquakes); c) natural rock fall; d) soil erosion; and e) human impacts. A more detailed discussion of site impacts will be presented later in this report. This category has three site disturbance severity level values: low, moderate, and severe.

Table 5. Site Disturbance Severity Level

Value	Definition
Low	The negative effect is minimal and the site is in the beginning stages of disrepair.
Moderate	The negative effect is significant and the site is now in the intermediate stages of disrepair. The majority of the site remains intact.
Severe	The negative effect is so great that the site is in complete disrepair, and may be in the preliminary stages of being destroyed. A limited portion of the site remains intact.

Effect on Resource

This category evaluates the overall effects of threats or disturbances on the condition of the resource.

Table 6. Effect on Resource Value Definition

Value	Definition
Negligible Effect	The current effect is or is predicted to be minimal.
Partial Loss: Irretrievable	The effect has caused the resource to suffer irreparable partial loss.
Partial Loss: Repairable	The effect has caused the resource to suffer repairable partial loss.
Total Loss: Irretrievable	The effect has caused the resource to suffer irretrievable total loss.
Not Applicable	There are no identifiable threats or disturbances.

Human Hazards/ Safety Concerns

This category evaluates any project area hazards that could affect human health.

Table 7. Human Hazards/ Safety Concerns Value Definition

Value	Definition
Severe	Human hazards are present throughout the majority of the area.
Moderate	Human hazards are present throughout 40% of the area.
Low	Minimal to no safety concerns
Not Applicable	There are no identifiable human hazards and safety concerns.

In addition, a site map of the heiau proper was illustrated and annotated using a color-coded system to distinguish the current overall condition of the intactness of the features that comprise Pahua Heiau (NP-1) (Figure 75):

- **Green** represents portions of features within the heiau proper that are in "good" condition meaning that the feature doesn't need stabilization, rehabilitation, restoration, reconstruction, and has little or no disturbances or threats.
- **Yellow** denotes portions of features within the main heiau structure that are in "fair" condition meaning that portions of features need some stabilization, rehabilitation, or restoration for a full return to functional condition and/or aesthetic value.
- **Red** means portions of Pahua Heiau features are in "poor" condition, dire disrepair, or completely destroyed. These portions require heavy stabilization, rehabilitation, or restoration to return to full functional use and/or aesthetic value.

Figure 75. Color-coded condition assessment of NP-1: Pahua Heiau, Features A to J.

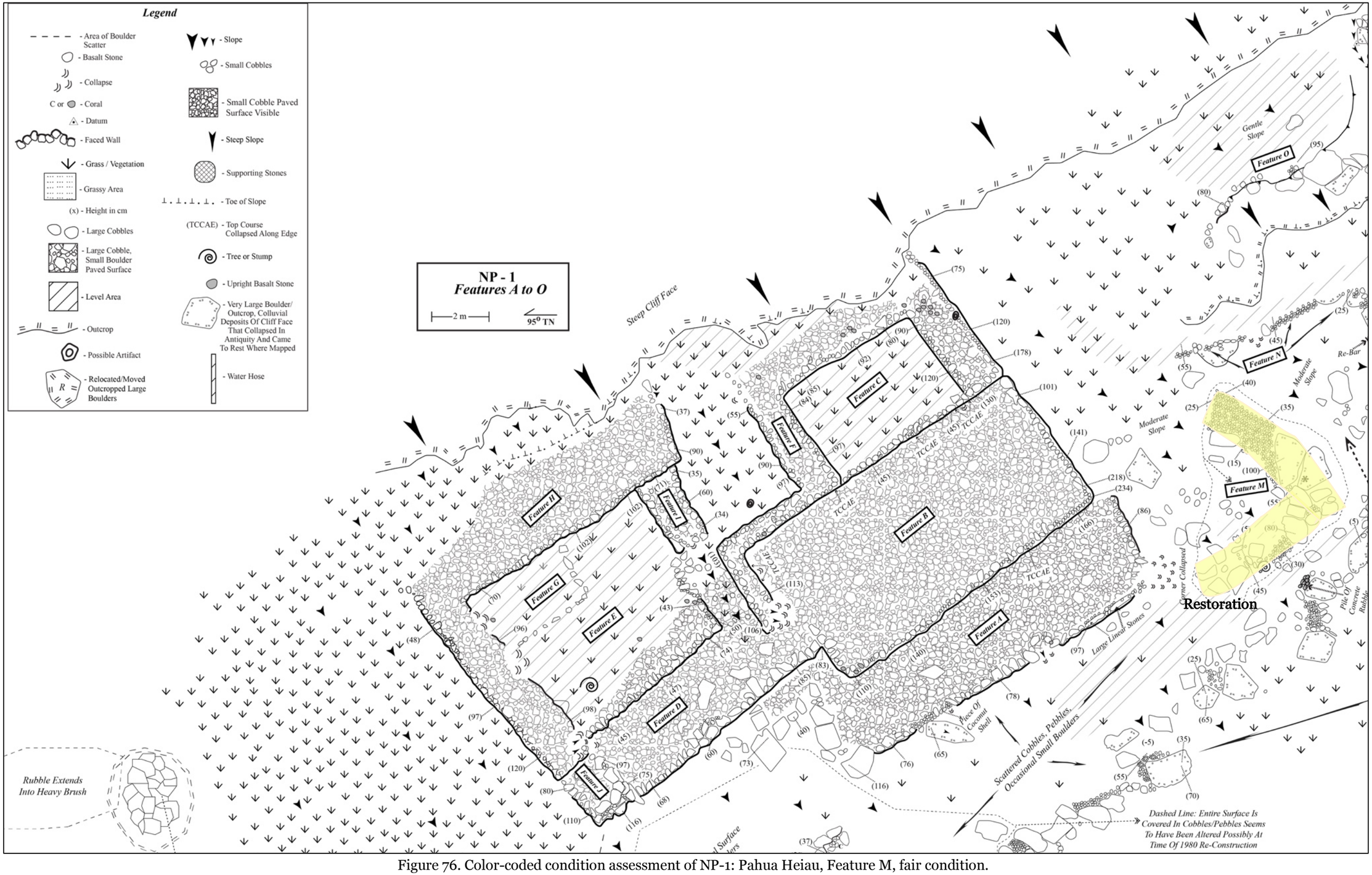


Figure 76. Color-coded condition assessment of NP-1: Pahua Heiau, Feature M, fair condition.

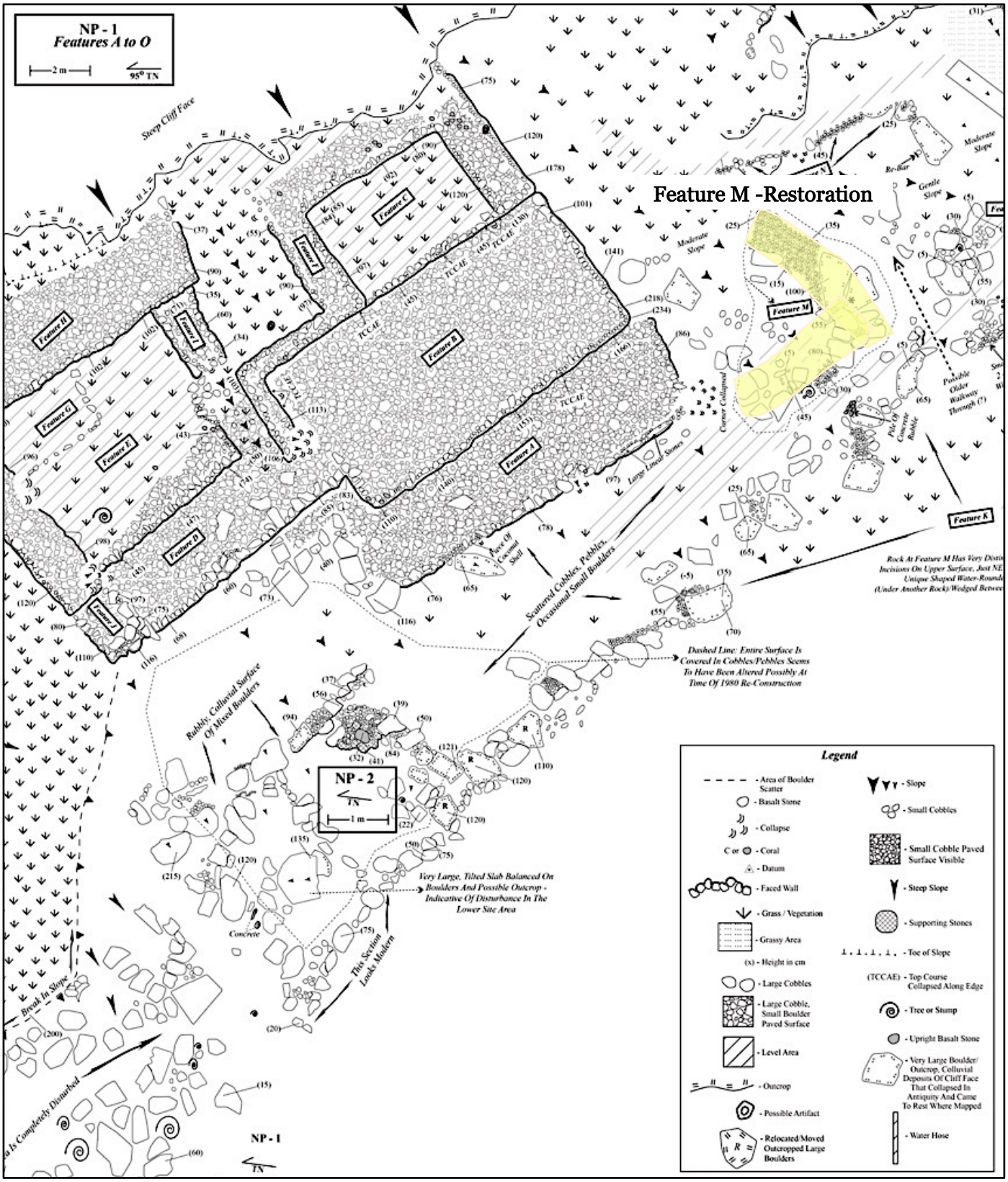


Figure 77. Color-coded condition assessment of NP-1m Feature M in fair condition.

Overall Condition and Current Status of Pahua Heiau

Brief summaries of the overall condition of Pahua Heiau, as well as an assessment table of individual features within the project area (Table 8) is provided below to offer a baseline of the current state of the heiau and its surrounding environs.

Table 8. Condition Assessment of Individual Features within the Project Area

Site/ Feature Number	Context Integrity	Site Condition and Functional Value Assessment	Site Disturbance Level & Threats/ Disturbances	Effect on Resource	Human Hazards/ Safety Concerns
NP-1/ A	*Medium*:	*Fair:* Feature A is mostly in fair condition with three areas of severe collapsing, and one area of moderate collapsing. The severe collapsing occurred at the southeast corner of the terrace, where a good portion of the retaining wall remains in disrepair.	*Moderate- Severe*: Rock Collapse	*Partial Loss: Repairable*	*Low:* Rock Fall
NP-1/ B	*Medium*	*Good:* Feature B is in good condition with no noticeable collapsing.	*Low*	*Negligible Effect*	*Low:* Rock Fall
NP-1/ C	*Medium*	*Good:* Feature C is also in good condition with no noticeable collapsing.	*Low*	*Negligible Effect*	*Low:* Rock Fall
NP-1/ D	*Medium*	*Good:* Feature D is also in good condition with no noticeable collapsing	*Low*	*Negligible Effect*	*Low:* Rock Fall
NP-1/ E	*Medium*	*Good:* Feature E is also in good condition with no noticeable collapsing	*Low*	*Negligible Effect*	*Low:* Rock Fall
NP-1/ F	*Medium*	*Fair*: Feature F is in fair condition with one area of severe collapsing, and two areas of moderate disrepair. Severe collapsing occurred along the eastern face of the west portion of the wall that surrounds the west end of Feature B. Though severe, the collapse is repairable. The other two areas of moderate disrepair occurred along the north and west interior face of the wall segment surrounding Feature C.	*Moderate- Severe*: Rock Collapse, human activity	*Partial Loss: Repairable*	*Low:* Rock Fall
NP-1/ G	*Medium*	*Good:* Feature G is also in good condition with no noticeable collapsing	*Low*	*Negligible Effect*	*Low:* Rock Fall
NP-1/ H	*Medium*	*Fair*: Feature H is in fair condition with two areas of severe collapsing along the east face of the northwest wall, and two areas of modest collapsing at the end of the northwest wall section, where it abuts Features E, D, and J, and along the north east end of the feature along the top of the heiau.	*Moderate- Severe*: Rock Collapse, human activity	*Partial Loss: Repairable*	*Low:* Rock Fall
NP-1/ I	*Medium*	*Good:* Feature I is also in good condition with no noticeable collapsing	*Low*	*Negligible Effect*	*Low:* Rock Fall
NP-1/ J	*Medium*	*Good*: Feature J appeared to be in good condition with no noticeable collapsing	*Low*	*Negligible Effect*	*Low:* Rock Fall

Site/ Feature Number	Context Integrity	Site Condition and Functional Value Assessment	Site Disturbance Level & Threats/ Disturbances	Effect on Resource	Human Hazards/ Safety Concerns
NP-1/ K	*Modest*	*Fair*: Feature K is in fair condition with some areas of prior disturbance. It appears as if some areas of Feature K were moved.	*Moderate*	*Partial Loss: Repairable*	*Not Applicable*
NP-1/ L	*Modest*	*Fair:* Feature L is in fair condition as some of the large boulders show evidence of spalling (grayish markings on some of the boulders indicating that they were impacted by something heavy or powerful). There were also chunks of concrete within cracks and crevices postulating a recent or historic modification of the feature.	*Moderate*: Heavy machine spalling	*Partial Loss: Repairable*	*Not Applicable*
NP-1/ M	*Modest*	*Fair*: Feature M is in fair condition as the intactness and integrity of the feature is somewhat dilapidated.	*Moderate*	*Partial Loss: Repairable*	*Not Applicable*
NP-1/ N	*Medium*	*Fair*: Feature N is in fair condition with moderate collapsing at the center of the terrace wall.	*Moderate*: Feature serves as a pedestrian access route to the northern entrance of the heiau	*Partial Loss: Repairable*	*Not Applicable*
NP-1/ O	*Modest*	*Fair*: Feature O is in fair condition because the north end of the retaining wall is crumbled.	*Moderate*	*Partial Loss: Repairable*	*Not Applicable*
NP-2	*Medium*	*Good:* Integrity of the site appears to be in good condition.	*Low*	*Not Applicable*	*Not Applicable*
NP-3/A	*Low*: Informal disposition	*Fair:* Feature A is heavily overgrown in vegetation, as well as modern debris.	*Moderate-Severe*: Vegetation growth	*Partial Loss: Repairable*	*Low:* barbed wire and metal scraps
NP-3/B	*Low*: Informal disposition	*Fair:* Feature B is heavily overgrown in vegetation, as well as modern debris.	*Moderate-Severe*: Vegetation growth	*Partial Loss: Repairable*	*Low:* barbed wire and metal scraps
NP-3/C	*Low*: Informal disposition	*Fair:* Feature C is heavily overgrown in vegetation, as well as modern debris.	*Moderate-Severe*: Vegetation growth	*Partial Loss: Repairable*	*Low:* barbed wire and metal scraps
NP-4/A	*Low*: Informal disposition	*Fair*: Feature A is overgrown in vegetation.	*Moderate-Severe*: Vegetation growth	*Partial Loss: Repairable*	*Not Applicable* : Thorny vegetation
NP-4/B	*Low*: Informal disposition	*Good:* Integrity of the feature appears to be in good condition.	*Moderate*: Erosion	*Negligible Effect*	*Not Applicable*
NP-4/C	*Low*: Informal disposition	*Good:* Integrity of the feature appears to be in good condition.	*Moderate*: Erosion	*Negligible Effect*	*Not Applicable*

Site/ Feature Number	Context Integrity	Site Condition and Functional Value Assessment	Site Disturbance Level & Threats/ Disturbances	Effect on Resource	Human Hazards/ Safety Concerns
NP-4/D	*Low*: Informal disposition	*Good:* Integrity of the feature appears to be in good condition.	*Moderate*: Erosion	*Negligible Effect*	*Not Applicable*
NP-4/E	*Low*: Informal disposition	*Good:* Integrity of the feature appears to be in good condition.	*Moderate*: Erosion	*Negligible Effect*	*Not Applicable*
NP-4/F	*Low*: Informal disposition	*Good:* Integrity of the feature appears to be in good condition.	*Moderate*: Erosion	*Negligible Effect*	*Not Applicable*
RE-INTERNMENT SITE	*Medium*	*Fair-Poor:* Stacked wall sealing the re-internment site has collapsed and is in disrepair.	*Moderate-Severe*: Rock Collapse, human activity and access	*Partial Loss: Repairable*	*Not Applicable*

Context Integrity

Project area sites and features are part of a larger religious and ceremonial complex located along the western talus of Kamiloʻiki Ridge, just north of the Keahupua o Maunalua fishery. Today, the complex is located in the middle of a housing sub-division and is surrounded by recent development. The heiau proper, sitting high along the slope, at one time was used for traditional ceremonial purposes and provided a magnificent overview of the fishery and ocean. Today, however, this majestic view no longer exists -- the view plane remains marred by numerous residential homes, streets, and highways. The Keahupua o Maunalua Fishery can only be seen now by climbing along the steep Kamiloʻiki Ridge above the heiau. Although cultural practices and protocols are still observed at the heiau, they are no longer as organized or as extensive as in the past. Instead, most cultural practices are now connected to some avenue of cultural education and history. Overall, the project area has ***modest-medium*** context integrity. The main heiau retains an expressive artistic value, but its formal design and re-construction, as well as the location and informal physical disposition of the surrounding sites and features, make it difficult to interpret the site's original function. Additionally, the modern landscape surrounding the project area is not visually appealing and yields few clues regarding the context of its original purpose.

Site Condition and Functional Value Assessment

Overall, NP-1 and its accompanying features are preserved in ***fair-good*** condition with six areas of severe collapsing and five areas of moderate collapsing or physical deterioration (Figure 75). Collapsing is probably due either to natural forces or substandard construction during reconstruction of the heiau in 1985 (Davis 1985c). NP-2 is preserved in relatively ***good*** condition. The upright and its supporting foundation appear to be intact with the exception of some scattered coral pieces. Given the overgrown nature of the surrounding vegetation, the physical jumbled and informal disposition of the site, as well as the presence of hazardous modern debris (i.e., PVC waterline, metal fencing material) scattered throughout the site, NP-3 is considered to be in overall ***fair*** condition. Np-4 is in ***fair-good*** condition as human and natural impacts have caused small-large sized cobbles to roll down the slope. The re-internment site is in ***fair-poor*** condition as the stacked wall sealing the re-internment site has collapsed and is in disrepair.

Site Disturbance Level and Threats/Disturbances

The prevailing threat and disturbance to the stability and integrity of Pahua Heiau, as well as its surrounding sites and features, is the presence of human activity and access to the site. The disturbance level of human impacts and activities are ***moderate*** but could develop into ***severe*** impacts if not addressed immediately and properly managed. The heiau is located below an unofficial trail that hikers illegally access. Hikers usually walk along the sides or above the heiau to get to the main trail that ascends up to the top of Kamiloʻiki Ridge. This represents potential threats and disturbances because the trail is not actively monitored or managed and leaves the heiau vulnerable to trampling and possible alteration. In addition, during the field work several small plastic bags of human and animal excrement were found along the sides of the trail just below the re-internment site and just above NP-1 (main heiau) and NP-3. This irresponsibility is disrespectful and desecrates a significant and sacred site, and the discarded plastic is environmentally harmful. Natural occurrences and rock falls/collapses pose another threat to the heiau and its surroundings. Such natural occurrences are already prevalent in portions of the heiau where walls have already collapsed. The disturbance level of this type is also ***moderate-severe***. Vegetation represents a final threat and disturbance to the project area. Invasive vegetation cover and surround NP-3 and is encroaching on NP-4. Fortunately, the main heiau, NP-1, was not threatened by vegetation while we were in the field. However, if current site maintenance is not maintained, grass, weeds, and shrubs growing around and within the heiau have the potential to disturb the site. The disturbance level for vegetation growth is ***moderate***.

Effect on Resource

The impact of the preceding threats and disturbances affecting the project area has resulted in resources suffering ***repairable partial loss***. Although the sites are in fair-good condition, the effects caused by human and natural threats and disturbances have impacted these resources and caused considerable damage to all sites with the exception of NP-2. There is, consequently, a pressing need for management action.

Human Hazards/Safety Concerns

The general hazards presented in the project area were mainly in NP-1 and NP-3. Although the concerns were considered ***low*** in both areas, the primary threat to safety was found at NP-3 with the presence of old metal fencing material (old rusted barbed wire and protruding rusty metal fence poles) scattered throughout the site. The main hazard presented at NP-1 generally consisted of rock falls and erosion from the ridge top.

COMMUNITY VISION FOR PAHUA HEIAU

Ethnographic work for this study was conducted from April through August 2016. As a multi-phase study, the ethnographic process consisted of identifying appropriate and knowledgeable individuals, conducting ethnographic interviews, summarizing the digitally recorded interviews, analyzing the ethnographic data, and preparing the report. Twenty-one individuals were contacted in regards to this Preservation Plan. Eight individuals participated in ethnographic interviews, two completed a questionnaire, three individuals provided references, and eight did not respond or participate for various reasons. The table below lists the names, background information and the dates of individuals that were contacted for this project, whether they participated in this study or not.

Table 9. Community Participants

Community Participant	Background	Notes
Anonymous participant	Active member of Maunalua community	Interviewed on 4/29/16. Manaʻo is included below.
Correa-Pei, Angela	Kamaʻāina from Kuliʻouʻou	Could not get ahold of during project timeframe.
Decoito, Rae	Former director of Mālama Maunalua	Provided referrals.
Franklin, Kimo	Kamaʻāina of Niu Valley, Farmer at Kamilo Nui	Interviewed on 8/11/16. Manaʻo is included below.
James, Van	Lives in neighborhood surrounding Pahua Heiau	Completed questionnaire on 8/15/16. Manaʻo is included below.
Johnson, Jeannine	Livable Hawaiʻi Kai Hui	Interviewed on 6/9/16. Manaʻo is included below.
Kirk, Anne-Marie	Kamaʻāina Livable Hawaiʻi Kai Hui Founder of maunalua.net	Interviewed on 4/28/16. Manaʻo is included below.
La Pierre, Mahi	Kamaʻāina Works at OHA	Completed questionnaire on 8/8/16. Manaʻo is included below.
Lebo, Susan	State Historic Preservation Division, Archaeology Branch Chief	Phone meeting on 10/1/15 to clarify the scope of work for this plan. Recommended OHA look at doing a Preservation Agreement after the Preservation Plan is complete.
Lukela ʻOhana	ʻOhana from Kuliʻouʻou	Could not schedule interview during project timeframe.
Lunalilo Homes	Kūpuna living in care home in Maunalua	Did not receive a response.

Mejia, Manuel	Active member of Maunalua community	Could not get ahold of during project timeframe.
Niʻi, Richard	R & S Niʻi Nursery Kamilo Nui Valley farmers	Could not get ahold of during project timeframe.
Paik, Kaleo	Livable Hawaiʻi Kai Hui	Interviewed on 5/28/16. Manaʻo is included below.
Pavao, Ben	Resident of Maunalua	Could not get ahold of during project timeframe.
Raser, Jean	Livable Hawaiʻi Kai Hui	Interviewed on 7/27/16. Manaʻo is included below.
Reilly, Elizabeth	Livable Hawaiʻi Kai Hui	Could not get ahold of during project timeframe.
Sai, Dennis	Kamaʻāina from Kuliʻouʻou	Declined to complete questionnaire because his family is from Kuliʻouʻou, not Pahua. Offered referrals and suggestion to educate community.
Sai, Mike	Lived next to Pahua Heiau for 19 years. Continues to reside in the Maunalua area.	Interviewed on 7/27/16. Manaʻo is included below.
Sai-Dudoit, Kauʻi	Lived next to Pahua Heiau for 19 years.	Interviewed on 7/18/16. Manaʻo is included below.
Thompson, Laura	Kamaʻāina from Niu Valley	Could not schedule interview during project timeframe.

Acknowledgements

Nohopapa Hawaiʻi would like to mahalo the individuals who shared their precious time, memories, and recommendations with us. Without their willingness to share personal recollections and manaʻo, this important study would not have been possible. The manaʻo that was shared will keep the stories of Pahua and the surrounding areas alive and enable future generations to better understand, appreciate, and cherish the very special beauty and uniqueness of this place.

Summary of Community Manaʻo

Cultural Landscape of Pahua and Surrounding area

Participants noted the limited amount of literature directly referencing Pahua Heiau. One interviewee explained that the Maunalua uplands were known as Kamilo Kapu. The same participant shared a moʻolelo that was originally obtained from neighbors. The moʻolelo, prevalent during the time of Kakuhihewa, was about Kūmauna, a demi-god from Maui who came to live in this area with 50 to 60 of his followers - rain servants; the Mānoa rains are Kūmauna's rain servants. Kūmauna lived by trickery

and deceit and would go to Pālolo to steal taro. Supposedly, he also drowned his favorite son, Maunalua, in the fishpond. One participant explained that the name Maunalua not only references two mountains, it also refers to Kūmauna's favorite son, Maunalua.

According to one participant, there is a reference to "'uala dancing at Pahua" in the Kualiʻi chant … *the special rains that came from Kekaha* (today, known as Wailupe) *bringing food for the fish of Maunalua; the ʻuala dancing at Pahua*. Kimo Franklin and Mahi La Pierre also spoke of ʻuala māla/sweet potato farming in Kamilo Nui, Kamilo Iki, and all the way to Kealakīpapa -- the road to Makapuʻu. This area was also known for its famous sweet potato planting site -- Ke Kula Kaumauwai.

Franklin shared that the geographical area is known for much more than its residences and homes. There has been a traditional relationship between Pahua and Kuapā or Keahupuaomaunalua Fishpond (located just makai of Pahua); the area was also known for its animal husbandry. Farming also occurred in Kamilo Nui, located mauka of Pahua. Its location, during ancestral times and even today, is considered quite ideal.

Kaleokalani Paik, another interviewee, explained that previously she would bring cultural practitioners to Pahua Heiau (considered an agricultural heiau). A visiting cultural practitioner pointed out that place names were given for specific reasons – e.g., Pā for enclosure and Hua for eggs. Possibly, the site once served as an "enclosure for eggs" a hatchery. Pahua Heiau at one time was located adjacent to the large fishpond, Kuapā/Keahupuaomaunalua. The safest area for keiki usually is not close to the entering ocean water; it's at the point furthest away from the oncoming rush of ocean water; the fishpond that may have served as an educational center for Kuapā/Keahupuaomaunalua.

Working at loko iʻa Kuapā/ Keahupuaomaunalua, one interviewee noticed that if you plot out the heiau from the Maunalua ridges they are both in visual distance and aligned. Consequently, one can see Hāwea and also punawai at the base of these ridges.

Interviewees referenced the connections between Pahua and Hāwea Heiau. Interestingly, these individuals used some of the traditional Hawaiian place names for these areas (e.g., Maunalua, Kamilo Nui, Kuapā/Keahupuaomaunalua, Ke Kula Kaumauwai) instead of the Henry Kaiser development names from the late 1960's to 1980's. Using these traditional Hawaiian place names brings life to Maunalua's rich cultural history and educates the community by providing kuleana/ownership to mālama ʻāina.

La Pierre recalls when he was growing up in Maunalua, there would be 50 to 100 ʻiwa birds flying overhead every morning and afternoon. He noted that he only witnesses around three to five ʻiwa birds in the skies now.

The encroachment and rapid urban development of the 1950s and 1960s significantly and permanently changed the face of Maunalua. Many regional cultural sites were destroyed, local families were evicted and forced to leave their homes, and the resulting deterioration of near-shore ocean life negatively affected the region's rich cultural history and traditions. Understandably, local residents and others were disappointed, frustrated, and distressed by these developments.

Access and Accessibility

There was general consensus among the participants that Pahua Heiau should not be turned into a large tourist site attracting tour buses and extensive traffic. The heiau is located at the end of a cul-de-sac with very limited parking, and everyone should be respectful of those living in the area.

Additionally, many participants recommend restricting heiau access and accessibility for cultural and educational purposes. They emphasize that Pahua Heiau is a cultural and historical site -- not a place for recreation or play, and further degradation and damage to the site should be avoided. Discussions regarding access and accessibility should involve community members, Livable Hawai'i Kai Hui, cultural practitioners, OHA and other relevant interested, knowledgeable, and involved individuals and groups. One overriding criterion would be a genuine concern and interest in preserving and safeguarding the long-term well-being of Pahua Heiau.

Paik explained that Pahua Heiau does not provide for a kahu or an ahu; consequently, it makes sense that there should be no offerings. Hawaiian culture did not allow for offerings to spoil or rot – someone had to care for these kinds of offerings. If offerings are allowed, they must be cared for in a certain way. If there's an ahu at Pahua Heiau, who is going to be responsible for taking care of it? It's an unreasonable request.

A few participants favored opening access to the public; they believe it renews the spirit of Pahua Heiau and once people learn more about they site, they would want to mālama the area. Limiting heiau access to those involved in "cultural practices" would be like having a "hierarchy" -- that would be unfair and run counter to efforts to educate the community about culture. Possibly, scheduled, guided, and educational visits to Pahua Heiau should be instituted. When there's no structure, guidelines, or restrictions, problems can emerge and things can easily get out of hand (e.g., eco-tourism).

Franklin urged that another access or entry point to Pahua Heiau should be considered. He suggested an access from Kamilo Nui valley access road to Pahua Heiau – this would keep people out of the residential area, create a different perspective, and re-connect Kamilo Nui mauka with Pahua Heiau. Another benefit would include strengthening partnerships with OHA, Kamilo Nui farmers, private landowners, and Kamehameha Schools. A renewed cultural and educational accesses would demonstrate the potential relationship between Pahua Heiau as an agricultural-animal husbandry type heiau and the existing adjacent farmlands.

Safety and Security

Participants mentioned a few safety and security concerns including the uneven terrain, potential rock falls, and inappropriate and disrespectful behavior such as individuals standing on Pahua Heiau. It's important that appropriate signage and educational efforts be implemented or maintained to ensure the sacred site is properly respected and correct protocols are used. Efforts must be made to protect and enhance the true meaning and representation of the Pahua Heiau.

Boundaries and Buffers

Most participants agreed that there already is a buffer and signage at Pahua Heiau, a site that is landlocked and situated at the end of a cul-de-sac. Educating people to respect these sites should not be difficult. There were concerns, however, that if Pahua Heiau is enclosed, this may create even more challenging problems.

A few participants would like to see a buffer zone erected around the entire area including undocumented sites adjacent to Pahua Heiau. There was some reluctance to this because of possible intrusion and interference with the neighborhood. Barriers are often necessary to restrict access and to properly safeguard and protect a site. They do not necessarily detract from the site experience. For example, Hāwea Heiau currently has a fence that for the most part controls access. It doesn't seem too intrusive; it works to keep people out during off hours, and the fence doesn't detract from the visitor's experience. Fences and signage definitely reduce OHA liability, and a small space/area maybe 10-15 feet

would be sufficient to serve as a buffer. Suggested buffer materials to consider are native/Polynesian plants, pōhaku, ʻiliʻili, or coral.

Preservation Problems

Participants mentioned the existing heiau structure itself has preservation problems as stonewalls have been compromised and are collapsing. It was hinted that the 1980's restoration wasn't done properly.

Vegetation Impacts

Participants agreed that all invasive weeds and plants such as kiawe should be removed in and around Pahua Heiau and replaced with environmentally friendly herbicides. Providing native plants known to grow in Maunalua is recommended – e.g. wiliwili, ʻuala, ahuhu, naio, niu, ti leaf, and other lāʻau used for a specific purpose such as lāʻau lapaʻau. Removing these invasive plants and restoring them with native plants should be coordinated with the community and Livable Hawaiʻi Kai Hui. One participant, Mahi La Pierre, also suggested removing diseased or defected plants from the area.

Natural Landscape Restoration Recommendations

Participants emphasized the importance of developing partnerships with the community, OHA, and Kamehameha Schools to bring mana back to Pahua Heiau (e.g., education, Makahiki, farming, fishing, etc.). Participants also recognized the need to restore the natural landscape with Maunalua native plants such as wiliwili and ʻuala. Franklin and others mentioned the farms in Kamilo Nui have been growing, harvesting, and distributing ʻuala to the community including the kūpuna at Lunalilo Home. Reintroducing ʻuala and educating the community of this rich heritage including the famous sweet potato planting place – Ke Kula O Kaumauwai – remains an appropriate way to perpetuate and honor our culture.

Preservation Recommendations

Participants encouraged and welcomed the proper restoration, stabilization, and preservation of the site with good planning, documentation, inclusion of new and useful data/information, and the continued stewardship of Livable Hawaiʻi Kai Hui. Their support also included meaningful and viable partnerships with the community, OHA, and Kamehameha Schools. Additionally, as much as possible the work should reflect what the entire site used to be (i.e., are there more undocumented sites in adjacent properties to be preserved), and how the community can properly maintain, preserve, and mālama Pahua Heiau for the next generations. La Pierre shared that as people connect with nā akua, ka ʻāina, and themselves, these places become even more important to mālama, learn, share, and practice the Hawaiian culture with purposeful intent so it will not be lost.

If there is a need, some participants would consider additional cultural features with the clear understanding that OHA would consult with the community first, properly document and plan these additional features, communicate openly with the community, and keep the community informed and up-to-date regarding this restoration/stabilization work. Ann Marie Kirk mentioned creating a small, temporary, but appropriate ahu at the bottom of the hillside, separate from Pahua Heiau, that could be used for any ceremonies or if someone wanted to give thanks.

Appropriate Uses

Cultural practice and protocols remain critically important. Participants noted that when Livable Hawai'i Kai Hui members visit Pahua Heiau, they incorporate a standard protocol to acknowledge all relevant place names and ask for kōkua and the unity and strength to properly address the kuleana at hand. Other relevant and appropriate protocols can also be included. For example, Paik suggested celebrating the changes of season -- Makahiki, the solstice, the equinox, the dry to the wet season. All that's needed is a simple ceremony to help release the positive energy and special mana of the site.

Education and cultural and historical learning should be an integral part of the heiau. Participants agreed that teaching in schools and other Maunalua sites about the cultural significance, history, and traditions of Pahua Heiau would be beneficial on a number of levels. In addition to increasing the cultural knowledge and sensitivity of the students, this positive awareness would likely compel individuals to better care for and steward the heiau. Paik suggested developing a community cultural center in Maunalua. Individuals would be able to stroll through the center, see pictures and visual/audio presentations of the special sites and places in Maunalua, ask questions, and hopefully actually visit these special sites. Kanaka Maoli are eager to learn about their history and culture both academically and through a "hands on" approach incorporating all of their senses. Kirk mentioned that Livable Hawai'i Kai Hui's work at Hāwea Heiau is very similar to the Hui's work at Pahua Heiau. Franklin emphasized the importance of identifying and recognizing existing Maunalua resources. This is a necessary first step to protect these resources and to ensure they are not lost. These natural resources remain under constant threat – we are in danger of losing our agricultural lands, fishponds, and beaches. With OHA's leadership and willingness to work with kūpuna, farmers, schools, and the community generally, the opportunity exists to protect and sustain many of our resources.

Technology can also be incorporated to help safeguard and protect the Pahua Heiau. Some participants suggested developing an interactive kiosk; also, a smart phone scan could be placed on an updated Pahua Heiau sign to make it easier for individuals to learn about this special site. People need to learn and use the traditional Hawaiian names of places in this area. People need to know that Maunalua was here long before Henry Kaiser.

Inappropriate Uses

Participants believe that dogs and other animals should be prohibited from Pahua Heiau. Efforts should also be made to respect the neighborhood and the residents by ensuring there is not a flood of foot or car traffic. Residents should be kept informed of and involved with relevant planning or decision-making.

Paik suggested marking pathways with appropriate signs on either side of site explaining the very fragile nature of the Pahua Heiau site.

Interpretive Signage

Participants suggested that Livable Hawai'i Kai Hui work closely with OHA to develop appropriate signage explaining the significance of the Maunalua cultural sites and their relationship. All interpretive signage must follow and be in compliance with HAR 13-222-7. Possibly, the signs could be shaped like a drum, a pahu. Educational signs should be similar to those used in the National Parks -- unobtrusive and placed to the side so as not to block anyone's view or to divert attention from Pahua Heiau. Signage should clearly and explicitly explain that Pahua Heiau is a sacred site and violators will be prosecuted.

Paik suggested possible signage language: *we would appreciate your kōkua in helping us preserve this sight for our future generations, therefore, we are asking no one climb on the structure or litter in anyway or leave any offerings*. The current sign says "Kapu" which may not be clearly understood and invites mischief.

Management Recommendations

Participants encouraged OHA to play a more active role in the Maunalua community by attending all the monthly community days. Such regular interaction allows the community to get to know, understand, and appreciate the stewards and the work that they do. OHA must recognize and accept its responsibility to preserve and protect Pahua Heiau – it remains an important part of their kuleana. Paik explained: *The Trustees are the poʻo of OHA, who need to see, feel, and behave to understand that this is a site worthy of their respect. In my family, when I raise my children, I can't expect my children or other people to do what I'm not willing to do. That's what OHA needs to start looking in to*.

Participants also expressed the need to keep someone or an organization actively involved in the management of Pahua Heiau. Livable Hawaiʻi Kai Hui has been a concerned and involved organization; if this Hui is unable to continue their active involvement, another organization with similar values and interests should be identified and recruited to take its place.

Additionally, participants would like to see more educational focus regarding the history, importance, and significance of Pahua Heiau incorporated in the school curriculum, at community board meetings, and at various civic activities. These will help to strengthen and enhance the Maunalua community's, respect, knowledge, and ownership of this special heiau and encourage mālama ʻāina.

La Pierre suggested developing a questionnaire or list of criteria to determine if someone is "eligible" and/or coming with pono intentions to interact or mālama Pahua Heiau. He also suggested developing a second list to identify available and needed resources. La Pierre also suggested identifying additional ways to involve individuals or organizations to mālama and aloha Pahua Heiau even if it requires paying the individuals or organization or the organization doesn't meet the non-profit criteria.

Cultural Advisory Council

Participants generally agree with the concept of creating a cultural advisory council. They believe, however, that the council be developed with Maunalua community involvement and with members possessing an intimate knowledge of Pahua Heiau and a Hawaiian perspective. Livable Hawaiʻi Kai Hui is already viewed as fulfilling this kind of role and has always been inclusive of the Maunalua community. Any newly created council should represent the heiau and the community in a pono fashion and should recognize and advocate for the needs of both.

One participant saw no need for a cultural advisory council.

PRESERVATION ACTIONS

There is a common misconception that Preservation Plans are fundamentally about putting a fence around something and leaving it alone in order to "preserve" it. This outdated concept does not apply very well to many traditional Hawaiian sites, which have increasingly become integral to the resurgence of cultural and spiritual practices in Hawai'i; and, it certainly does not apply to Pahua Heiau, which is an active place visited by cultural practitioners, educational groups, and tourists. In fact, the preservation rule (HAR § 13-277) is formally entitled, "Archaeological Site Preservation and Development Plan," because there are many possible actions one can take in the name of preservation besides simply leaving it alone.

This section describes the preservation actions for Pahua Heiau and is divided into three sub-sections: First, we detail the actions OHA shall do to preserve the site in compliance with the requirements of a Preservation Plan under HAR § 13-277. Next, we describe additional recommended preservation measures that OHA may consider that we believe are also needed to help OHA restore the sanctity of this wahi kapu and ensure its long-term protection. Lastly, all preservation actions and additional recommendations, with their corresponding regulatory sections, are summarized at the end of this section in Table 6. The implementation of all actions and other recommendations in this plan is subject to the availability of funding and other limitations.

HAR § 13-277 Preservation Measures

This sub-section lists and describes the actions OHA shall do to preserve the site in compliance with the requirements of a Preservation Plan under HAR § 13-277. The preservation actions are discussed by topic in the order by which they appear in HAR § 13-277.

Forms of Preservation (HAR § 13-277-3(1))

A Preservation Plan shall identify for each significant historic property which forms of preservation will be implemented. Seven forms of preservation are listed in the rule: "avoidance and protection (conservation), stabilization, rehabilitation, restoration, reconstruction, interpretation, *or* appropriate cultural use" (italics added for emphasis). The rule (HAR § 13-277-2) defines only one of these terms, interpretation, as "the presentation of information about a historic property to the public." The remaining terms are not discussed in any further detail or defined in the HAR.

With this in mind, OHA shall preserve the Pahua Heiau sites/features through: (1) *avoidance and protection (conservation)*, (2) *interpretation*, and (3) *appropriate cultural use* (*restoration* or *reconstruction* is discussed further below as additional actions OHA may consider). These preservation measures will be applied to all historic sites/features on the entire site. In the context of Pahua Heiau, "appropriate cultural use" will be interpreted through a Hawaiian cultural lens. How these preservation forms will be implemented is explained below.

Buffer Zones (HAR § 13-277-3(2) & 4)

Due to the proximity of the five known sites to one another, a single buffer zone will be designated for the Property. The boundaries of the buffer zone will be located at least 50 feet from the five known sites. In some areas, the buffer cannot extend 50 feet beyond the sites due to the limits of the property's boundaries. In these areas, the property boundary will also serve as the buffer zone boundary. See Figure 83 at the end of the Actions and Recommendations section for a visual depiction of the buffer zone.

Interim Protection Measures (HAR § 13-277-3(3) & 5)

Interim (short-term) preservation measures are typically implemented to protect significant historic properties and their buffer zones during construction activities. These sections are, therefore, not applicable as there are no proposed development plans, and the entire project site is to be preserved.

Consultation (HAR § 13-277-3(4))

On October 1, 2015, Kelley Uyeoka spoke on the phone with Susan Lebo, Ph.D., Archaeology Branch Chief (SHPD), discussing and clarifying the scope of work for this preservation plan. One of the topics discussed with Dr. Lebo was the appropriate consultation with Native Hawaiian organizations and other Native Hawaiian individuals connected to the project area. Dr. Lebo expressed her support and assistance with the project, if needed.

Extensive community consultation was conducted during the research gathering, analysis and outreach components of this study, including soliciting peoples' mana'o about the preservation and development of Pahua Heiau. A list of individuals and organizations consulted and their input can be reviewed in the Community Vision section above. In addition, OHA shall continue community consultation and collaboration throughout the implementation of this Preservation Plan. Participants may include members from the Livable Hawai'i Kai Hui, residents of Maunalua and Kuli'ou'ou, lineal and cultural descendants, cultural practitioners from around the pae 'āina who have an on-going relationship and commitment to Pahua Heiau, and others.

Long Term Preservation Measures (HAR § 13-277-3(5) & 6)

Maintenance measures - HAR §13-277-6(1)

OHA shall develop procedures and a regular schedule for site maintenance. Maintenance will be conducted by OHA or through its contractors or stewards. Actions may include vegetation clearing, as discussed below, and the upkeep of any signs or other fixtures installed on site.

Methods for vegetation clearing - HAR §13-277-6(2)

OHA shall implement new rules and procedures regarding vegetation clearing and maintenance at the Pahua Heiau. In general, no weed whackers or other mechanical devices that can damage the stones are to be used for grass cutting, weed removal or cutting, and vegetation maintenance of any kind within three feet of the sites/features. Likewise, no hand tools that can cause damage, such as metal rakes, should be used within three feet of any sites/features. These tools and machines can be used elsewhere on site where they do not pose a risk. Lastly, no pulling of vegetation will occur within a minimum of two feet from any of sites/features.

For the removal of trees that pose a risk to safety or site, caution shall be exercised to protect the site/features from damage. OHA shall obtain a report on the proper care of the trees on site from a certified arborist and will follow such report in the maintenance or removal of any trees. SHPD will be consulted on appropriate protocols for site protection in the event of engaging in any tree-removal activities.

All green waste from vegetation maintenance will be appropriately deposited off site. If changes to this process are required, OHA shall consult with SHPD to attain approval first.

Litter control - HAR §13-277-6(3)

OHA shall develop procedures and a regular schedule for litter control. Litter control will be conducted by OHA or through its contractors or stewards. This may include installing a trash receptacle at an appropriate location on site.

Access and cultural use - HAR §13-277-6(4)

As noted above, OHA shall implement the preservation form "avoidance and protection (conservation)" to limit illegal access to Pahua Heiau. Specifically, OHA shall deter tourists, commercial operators, and other visitors conducting any incompatable actions that may physcially or cuturally impact the site (e.g. damaging the cultural features, disrupting the sanctity of the site). OHA shall do this by installing warning and regulatory signage that informs visitors of inappropriate activities at the site (see Figure 83). The signs shall identify OHA, and/or other site stewards if applicable, as the appropriate contacts to inquire about site access and other information. OHA shall also monitor the site to see if and where illegal access is being conducted and take action to prevent it.

OHA shall also designate an area within the buffer zone as a "Public Viewing Area" (See Figure 2 for the potential location). This will allow visitors to access the property freely but view the cultural features from a safe distance. OHA may also consider creating a physical barrier around the Public Viewing Area to prevent unwanted access, which is discussed below as an additional recommendation in Table 15.

To ensure appropriate cultural and other access is still allowed, OHA shall establish a process, through community consultation and under applicable law, to facilitate the entry of Native Hawaiian traditional and customary practitioners and other individuals to Pahua Heiau. One option is to work with a site steward that provides escorted access and site education to those who request it. 'Appropriate Cultural Use' is a critical component of this plan because it will ensure that Native Hawaiians are allowed to continue conducting their (State) constitutionally-guaranteed traditional and customary practices.

OHA shall also establish protocols, with community consultation, on hoʻokupu (offerings) and other makana (gifts) that can be left at the site, and other uses. The new protocols for hoʻokupu may include allowing only organic, biodegradable materials to be left at the site. These common sense restrictions are intended to safeguard Pahua Heiau from excessive alteration rather than to restrict anyone's rights to worship or conduct cultural practices.

Interpretation and public information - HAR §13-277-6(5)

OHA shall conduct site interpretation through educational, interpretive signs.

Interpretive signs will include basic cultural, historical, and archaeological information about Pahua Heiau. Additional recommended content for the interpretive signage is provided in Table 14. OHA shall follow the general guidelines listed in HAR § 13-277-7, including review and approval by SHPD, in the creation of all interpretive signage. OHA shall work with community members to determine appropriate site interpretation and public education. OHA may include warning, regulatory, and interpretive information on the same signs if necessary. The interpretive signs may be placed within the Public Viewing Area or in other locations as determined appropriate by OHA (see Figure 83).

Site interpretation and other information about Pahua Heiau will also be made available on the OHA website.

Permanent marked markers - HAR §13-277-6(6)

No permanent markers are currently contemplated for this site.

Potential future impacts and site stability - HAR §13-277-6(7)

The only anticipated future impacts on the Pahua Heiau sites/features are those caused by excessive visitation and vegetation growth. These impacts will be addressed by the measures previously discussed above, including managing access and appropriate vegetation clearing.

A change in site stability is not anticipated and, therefore, provisions to address such a change are not applicable.

Drainage and ponding have not historically been an issue at the site but OHA shall address this issue through appropriate maintenance measures if it becomes a problem. In addition, the maintenance measures will be assessed in written consultation with SHPD.

Monitoring of site integrity and SHPD inspection - HAR §13-277-6(8)

OHA shall monitor the site through regular visits conducted by OHA staff, contractors, or stewards. An archaeological monitor(s) will be on site for all actions that may require one (such as rehabilitation/stabilization/restoration efforts). OHA shall coordinate with SHPD for preservation compliance inspections as needed.

Additional Recommended Preservation Measures at Pahua Heiau

This sub-section describes additional preservation recommendations that OHA will consider and may implement at Pahua Heiau. These additional recommendations are subject to OHA's discretion and available funding. Prior to implementing any of these additional measures, OHA will consult with SHPD to seek their input and attain any necessary approvals.

Forms of Preservation (HAR § 13-277-3(1))

In addition to the preservation measures for Avoidance and Protection, Interpretation, and Appropriate Cultural Use described above, OHA may consider the following Stabilization, Rehabilitation, and Restoration measures. These forms of preservation are defined in Table 10 in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Secretary of the Interior 1995), as required by HAR §13-277-6, and a brief statement of how each preservation form is recommended is also provided. It is also important to note that these definitions are different from those more "loosely" used in the community interviews presented in the Community Vision section of this report.

Table 10. Secretary of the Interior's Standards & Guidelines for Archaeology & Historic Preservation Definitions

Value	Definition
Stabilization	The act or process needed to ensure adequate protection of the historical integrity of a site to maintain its current condition. Stabilizing may include structural reinforcement, weatherization, or correcting unsafe conditions (Secretary of the Interior 1995:19). For this project, Stabilization recommendations include vegetation and modern debris removal and erosion control to maintain the features current condition.
Rehabilitation	The act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values (Secretary of the Interior 1995:60). For this project, Rehabilitation recommendations include restacking or filling in gaps to repair the function of a wall and/or terrace. Rehabilitation actions were selected for a number of the sites features because it involves minimal repair work to allow for active re-use of the heiau for educational and cultural purposes. Specific details for carrying out the rehabilitation work can be generated in a Design Proposal in collaboration with a dry stack mason and the community.
Restoration	The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project (Secretary of the Interior 1995:22). We are only recommending that one feature undergo restoration activities at the site at this time. It should also be noted that many of the community participants use the term "restoration" to refer to actions that are more closely defined as "rehabilitation" according to the Secretary of Interiors definition above. The Secretary of Interior's definition of "restoration" involves the "removal of features from other periods and reconstruction of missing features," which is not what the community expressed for the site.

Long Term Preservation Measures (HAR § 13-277-3(5) & 6(1))

Based on the current condition assessments and recently completed archaeological field work, the following Preservation Treatment Recommendations for each individual feature within the complex are provided below in Table 11. These recommendations are proposed to address the physical and structural needs of the Pahua Heiau Complex.

Table 11. Preservation Treatment Recommendations for Individual Features at Pahua Heiau

Site/ Feature Number	Description	Estimated Age	Preservation Treatment Recommendation & Level of Intervention
NP-1/ A	Terrace	Pre-Contact	*Rehabilitation*: Re-stacking of rock wall to fix collapsed areas
NP-1/ F	Wall	Pre-Contact	*Rehabilitation*: Re-stacking of rock wall to fix collapsed areas
NP-1/ H	Wall	Pre-Contact	*Rehabilitation*: Re-stacking of rock wall to fix collapsed areas
NP-1/ M	Possible Enclosure	Pre-Contact	*Restoration*: Partial-restoration of rock wall to re-distinguish the extension
NP-1/ N	Retaining Terrace	Pre-Contact	*Stabilization*: Stabilize foundation as to prevent erosion or collapse
NP-3/A	Filled Crevice	Pre-Contact	*Stabilization*: Vegetation and modern debris removal
NP-3/B	Filled Crevice	Pre-Contact	*Stabilization*: Vegetation and modern debris removal
NP-3/C	Filled Outcrop	Pre-Contact	*Stabilization*: Vegetation and modern debris removal
NP-4/A	Filled Crevice	Pre-Contact	*Stabilization*: Vegetation removal and modern debris removal
RE-INTERNMENT SITE	Burial	Modern	*Rehabilitation/Stabilization*: Re-stacking and stabilization of the collapsed wall that seals the location of the re-internment site using dry-stacked methods & angular/sub-angular rocks

Design Proposal - HAR §13-277-6(1)

To implement the Preservation Treatment Recommendations in Table 11, OHA will develop and implement a Design Proposal in partnership with the selected site steward and an experienced dry-stack mason. The Design Proposal should detail the maintenance measures to be followed, including:

- Who will carry out the work;
- Guidelines for the rehabilitation, stabilization, and/or restoration work that is being proposed;
- Where the materials will come from for any rehabilitation or restoration work;
- An Archaeological Monitoring Program Plan; and
- A Conditions Assessment Program Plan.

Archaeological Monitoring Program - HAR §13-277-6(8)

OHA will initiate an Archaeological Monitoring Program to assist in the implementation of the Design Proposal, which should outline a plan for the monitoring program therein. The Archaeological Monitoring Program Plan should include notifying SHPD of the archaeological monitoring and rehabilitation/stabilization/restoration efforts within the project area and having an archaeological monitor present during all such efforts. All rehabilitation stabilization/restoration efforts will be conducted by a qualified professional meeting the Secretary of Interior's standards.

Conditions Assessment Program - HAR §13-277-6(8)

OHA may include a Conditions Assessment Program Plan in the Design Proposal. This plan may include OHA, its contractors, and/or the selected site stewards conducting a condition assessment of the sites/features every two years or more frequently to track any new or ongoing preservation issues. A Conditions Assessment log should be created to keep a record of preservation issues over time and any rehabilitation/stabilization/rehabilitation efforts that help to address them.

Cultural Landscape Plan - HAR §13-277-6

Both the ethnohistorical and ethnographic components of this study suggest that the cultural and natural landscape of the project area was once part of a larger traditional husbandry corridor within the Maunalua ahupuaʻa. It is clear that one of the primary strengths of this site is its association with dry land agricultural practices, in particular ʻuala production. Consequently, we recommend developing and implementing a Cultural Landscape Plan (CLP) to restore the cultural and natural landscape of the project area. Restoring Pahua Heiau's historical cultural and natural landscape can only add value to the site's context and historical significance. Based on the information collected during the community interviews and the observed needs of the complex, a list of recommendations to develop and implement a CLP is provided in Table 12.

Table 12. Cultural Landscape Plan Recommendations

Cultural Landscape Plan Recommendations	
Activity	**Recommendations**
Community Consultation HAR §13-277-3(4)	• Work with a selected site steward to develop the cultural landscape plan • Possibly involve other Native Hawaiian organizations specializing in cultural landscape maintenance (e.g. Hui Kū Maoli Ola and Pono Pacific Land Management, LLC.) to assist in developing a plan
Maintenance HAR §13-277-6(1)	• Remove dynamited boulder pile to the west of the heiau, (identified in Figure 78) then determine the potential of re-using these boulders for rehabilitation work at the site in the future • Install water lines/sprinkler system for the subsistence garden area and vegetation restoration efforts discussed below. When these plans are designed, OHA shall seek SHPDs approval prior to installation. • Remove cemented path east of heiau (identified in Figure 78)
Vegetation Clearing HAR §13-277-6(2)	• Invasive vegetation should be removed using hand tools (e.g., hand saws, chainsaws, sickles, loppers, clippers, mowers, trimmers, etc.). • No heavy machinery should be used to remove invasive vegetation. • Do not uproot large vegetation, like tree stumps or bushes. These should be cut to the ground and maintained. • Avoid the use of herbicides directly on and within three meters of the sites/ features • Initiate removal of alien trees and other invasive vegetation in the western portion of the project area with appropriate herbicides (identified in Figure 78) • Initiate removal of diseased or defected plants from the area with appropriate herbicides

	• Remove recent debris found within the western portion of the project area (identified in Figure 78) • Remove vegetation above site NP-4, east of the project area (identified in Figure 78) • Work with site steward to develop and implement a vegetation maintenance schedule
Native and Polynesian Vegetation Restoration	• Initiate vegetation restoration with plants native to Maunalua and other Polynesian-introduced species • Some potential species include wiliwili, ʻuala, ahuhu, naio, niu, ti leaf, and other lāʻau used for a specific purpose such as lāʻau lapaʻau.
Access and Cultural Use HAR §13-277-6(4)	• Install a physical buffer around the Public Viewing Area to prevent unauthorized or inappropriate public access to the site. Possible options for the buffer include a low fence or hedge with a lockable gate. • Designate and initiate a subsistence garden area • Re-introduce ʻuala cultivation for subsistence in the area • Incorporate educational opportunities to publicize this renowned sweet potato planting site – Ke Kula o Kaumauwai • Develop a program to harvest and distribute ʻuala to the community including the kūpuna at Lunalilo Home and neighboring schools • Install small benches or seating areas inside of the Public Viewing Area for visiting kūpuna and others • Designate specific gathering areas, removed from sensitive features and places, for cultural activities
Interpretation and public information HAR §13-277-6(5)	• Develop signage for the native vegetation to educate visitors of the names, significance, and use of the plants, along with other interpretive signage

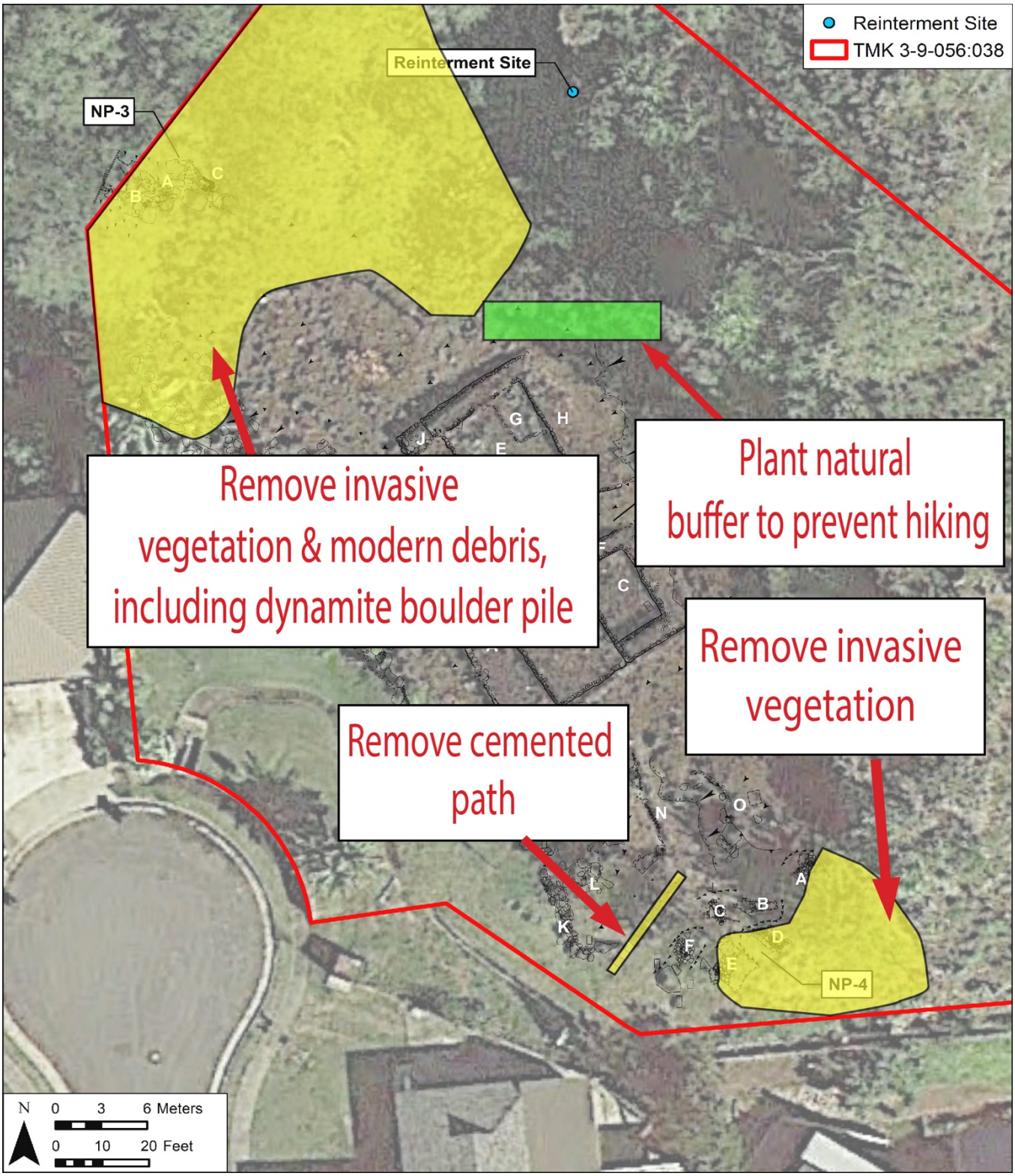


Figure 78. Cultural Landscape Plan Recommendations.

Stewardship

To implement the long-term preservation measures for Pahua Heiau outlined in this plan, OHA will work with a selected site steward to carry out or facilitate community engagement, education, appropriate community and cultural access, and day-to-day maintenance. Currently, OHA has an existing contract (Contract No. 2982.02) with the Livable Hawai‘i Kai Hui (LHKH) to act as the site stewards. As part of a contract or other stewardship agreement, we recommend the stewardship responsibilities outlined in Table 13 be considered. Some of these responsibilities are a part of LHKH's existing contract and others are additional.

Table 13. Recommended Stewardship Responsibilities

Stewardship Responsibilities	
Service	**Responsibilities**
Maintenance HAR §13-277-6(1)	• Provide general cleaning services • Develop and implement a Cultural Landscape Plan • Fertilize grass, plant hedges, trees, and ground cover • Apply chemicals approved by the EPA if necessary • Maintain sprinkler and drip line systems to ensure that plants receive sufficient water • Provide OHA with a service schedule to support manicured grounds
Vegetation Clearing HAR §13-277-6(2)	• Mow and weed whack outside the heiau and hand cut weeds within or on the heiau • Trim, prune and shape hedges
Litter control HAR §13-277-6(3)	• Remove and dispose of all trash and debris from site
Appropriate Access and Cultural Use HAR §13-277-6(4)	• Work with OHA to minimize and mitigate unauthorized public access through the site to Kamilo‘iki Ridge • Facilitate appropriate access for community members and cultural practitioners, including community workdays and appropriate cultural events if there is community desire • Work with OHA and its contractors to design, construct, and install appropriate warning and regulatory signage • Develop and execute protocols for ho‘okupu, including appropriate types of ho‘okupu, where ho‘okupu should be left, and how they will eventually be disposed of • Collaborate with similar stewardship organizations to assist in community workdays, event planning, preservation efforts, etc.
Interpretation and public information HAR §13-277-6(5)	• Develop an interpretive and educational plan that includes all of the following: • Increase public awareness of the site • Engage with the public through connection with the land • Extend stewardship and educational opportunities to schools • Develop educational curriculum to align with OHA's vision and long-term stewardship of the site • Develop educational materials about the site's (e.g., website, books, curriculum, brochures, videos, etc.)

	• Work with OHA and its contractors to design, construct, and install appropriate interpretive signage • Conduct tours of Pahua with appropriate cultural and historical information sharing
Address Future Impacts and Site Stability HAR §13-277-6(7)	• Conduct site maintenance tailored to address future impacts and site stability • Work with OHA to develop and implement a Design Proposal to address any potential future impacts and site stability through rehabilitation, stabilization, and/or restoration
Monitoring HAR §13-277-6(8)	• Provide an on-site presence • Record any issues, such as unauthorized access, site erosion, vandalism, dumping, etc. • Meet with OHA on a regular basis, including its Board of Trustees, CEO, and Executive Team if needed, to report and advise on any site issues, along with any other updates • Provide OHA with quarterly, annual, and final reports outlining the monitoring findings and other progress • Immediately report any emergencies to OHA and 911 when appropriate • Train interested community members and stakeholders on how to conduct condition assessments for the sites and features within the project area with assistance of cultural resource managers familiar with the site

Interpretation and Public Information (HAR §13-277-6(5))

As expressed by community participants, education and cultural historic learning should be an integral part of preservation efforts and current activities at Pahua Heiau Complex. Participants agreed that increasing and promoting the cultural knowledge and sanctity of this wahi kupuna results in a more positive awareness of this sacred site; additionally, visitors and locals alike might be more compelled to better care for and steward Pahua Heiau. A number of interpretive/educational suggestions were offered including passive (signage, educational materials, interactive kiosks, smart phone apps, and brochures) and active interpretation methods (service learning projects, tours, cultural events, and future research programs) to better understand the context and significance of the heiau. All of these recommendations may be considered. Based on information compiled during community interviews, discussions with OHA land management staff, and the observed needs of the complex, a list of recommendations for interpretation and public information at the site is provided in Table 14.

Table 14. Interpretation and Public Information Options

Interpretation and Public Information	
Activity	**Recommendations**

Signage	• Signage design and location
	  ○ Signs could be similar to those used in National Parks -- unobtrusive and placed to the side so as not to block anyone's view or to divert attention from Pahua Heiau
	  ○ Possibly design signs in the shape of a pahu (drum) as to match signs at Hāwea Heiau
	• Interpretive Signage
	  ○ Recommended to have 1-2 interpretive signs

	○ Must follow and be in compliance with HAR 13-222-7 ○ Include general information about Pahua Heiau's contextual relationship with the ahuapua'a of Maunalua, the proximity to Kuapā fishpond, and hypotheses of the heiau's historic function. ○ Include the traditional and historical significance of the complex as an agricultural landscape and an area with royal connections. ○ Include a map of the heiau complex, guidelines for visitation, including native vegetation and cultural practitioner garden areas ○ Include historic and modern photographs of the heiau ○ Write sign content in English and ʻŌlelo Hawaiʻi (Hawaiian) • Warning/Regulatory Signage ○ Recommended to have 1-2 warning/regulatory signs ○ Include explicit warnings that Pahua Heiau is a sacred site, and violators will be prosecuted ○ Include information regarding hoʻokupu ○ Include the fragile nature of the heiau and that no one should walk on top of it ○ Include no hiking access, no littering, and no animals on the property • Plant Identification Signs ○ Develop educational signage for the area's diverse native and Polynesian introduced vegetation ○ Place plant ID signs in the vicinity of specimen plants ○ Recommended that signs be small and placed low to the ground, include a photo or drawing of the plant, the Hawaiian name of the plant, its significance, and traditional uses
Interpretive Facilities	• Consider developing physical interpretive facilities (at a location off-site) to support interpretive programs, cultural activities, and educational groups
Future Research	• Conduct additional research regarding the dating of the heiau complex to determine a refined chronology of construction and use of heiau and outlying sites • Conduct additional research to determine the function of NP-2 and its relationship to the heiau • Conduct additional research to further distinguish the extension of NP-1/M

Figure 79. Location of the “Kapu” sign at the entrance of Pahua Heiau.

Figure 80. Close up of the “Kapu” sign which is written in Hawaiian and English.

Figure 81. Location of the “Falling Rocks” warning sign at Pahua Heiau.

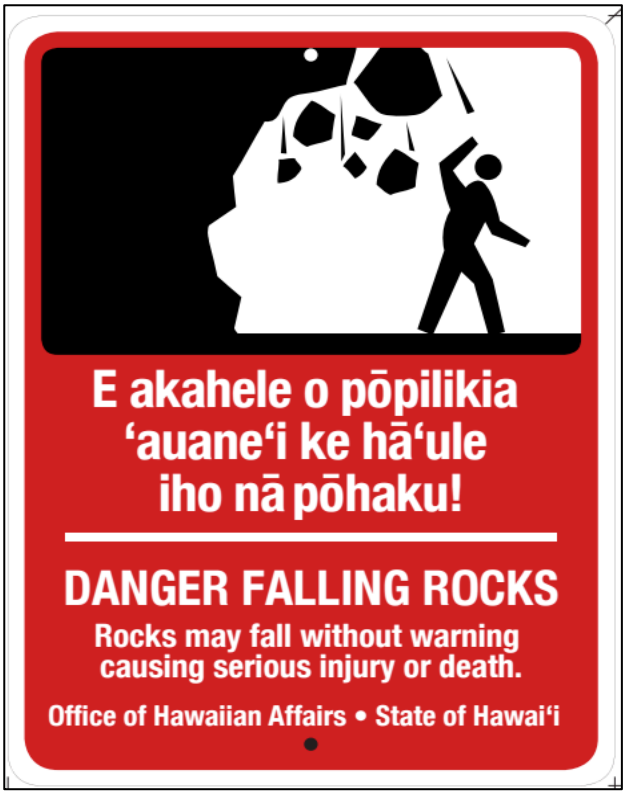


Figure 82. Close up of the “Falling Rocks” warning sign at Pahua Heiau.

Summary of Preservation Actions and Additional Preservation Measures

Table 15. Summary of Preservation Actions and Additional Preservation Measures for Pahua Heiau

Summary of Preservation Actions for Pahua Heiau		
	Preservation Issue	**Preservation Action**
Preservation Actions to Comply with HAR § 13-277:	§13-277-3(1) – Preservation forms to be implemented	• Avoidance & Protection (Conservation), Interpretation, and Appropriate Cultural Use
	§13-277-3(2) & 4 – Buffer Zones	• A single buffer zone will be designated 50 feet away from all sites, where possible. The property boundary shall also serve as the buffer zone boundary where the historic sites are closer to the property boundary than 50 feet (see Figure 83).
	§13-277-3(3) & 5 – Short-term & Interim protection measures	• Generally not applicable as there are no proposed development plans, and the entire project site is to be preserved
	§13-277-3(4) – Community consultation	• SHPD was consulted. • Individual ethnohistorical interviews were conducted. Where interviews were not possible, information was gathered through a written survey. Individuals consulted and input collected is listed in the body of the plan. Such input has been considered in generating these actions.
	§13-277-3(5) – Long-term preservation measures	• Covered under §13-277-6, discussed below
	§13-277-6(1) – Maintenance measures	• Develop procedures and a regular schedule (i.e. quarterly, monthly. etc.) for site maintenance
	§13-277-6(2) – Methods for vegetation clearing	• Develop procedures and a regular schedule (i.e. quarterly, monthly. etc.) for vegetation clearing. • For grass cutting, no weed whackers will be used within three feet of the stones. • No pulling of vegetation will occur within a minimum of two feet from any sites/features. • For the removal or trimming of trees that pose a risk to safety or site, caution shall be exercised to protect the historic sites from damage. • SHPD will be consulted on appropriate protocols for site protection in the event of engaging in any tree-removal activities. • Green waste shall not be deposited on the historic sites/features
	§13-277-6(3) – Litter control	• Develop procedures and a regular schedule (i.e. quarterly, monthly. etc.) for litter control
	§13-277-6(4) – Access and cultural use	• Manage public access to the project site utilizing warning and regulatory signage.

		• Establish a Public Viewing Area (see Figure 83) • Establish a process to facilitate access for Native Hawaiian traditional & customary practitioners (as protected by the State constitution) and other individuals to enter the project site
	§13-277-6(5) & 7 – Interpretation and public information	• Develop & install educational, interpretive signage at appropriate locations in compliance with HAR 13-277-7 • Continue community consultation to determine appropriate site interpretation and public education • Provide site information on the OHA website
	§13-277-6(6) – Permanent marked markers	• Currently not applicable but may consider in the future
	§13-277-6(7) – Potential future impacts and site stability	• The only anticipated future impacts are due to people and vegetation growth, which will be addressed by managing access and appropriate vegetation clearing. • A change in site stability is not anticipated and, therefore, provisions to address such a change are not applicable.
	§13-277-6(8) – Monitoring of site integrity and SHPD inspection	• Regular site visits will be conducted by OHA staff or its designee to monitor site conditions. • OHA will coordinate with SHPD for compliance inspections as needed.
Additional Preservation Measures OHA may Consider	§13-277-3(1) – Preservation forms to be implemented	• Avoidance and Protection, Interpretation, Appropriate Cultural Use, Stabilization, Rehabilitation, and Restoration
	§13-277-6(1) – Maintenance measures	• See Table 11 Preservation Treatment Recommendations for Individual Features at Pahua Heiau. • Develop and implement a Design Proposal for the Preservation, Stabilization, and/or Rehabilitation of the work that is being proposed in Table 11 • Develop and implement a Cultural Landscape Plan to restore the cultural and natural landscape of the project area. See Table 12 and Figure 78 for recommendations. • Work with a selected site steward to conduct day-to-day maintenance
	§13-277-6(2) – Methods for vegetation clearing	• See Cultural Landscape Plan Recommendations in Table 12 and Figure 78. Includes vegetation removal from identified portions of the property.

	§13-277-6(4) – Access and cultural use	• Work with a selected site steward to facilitate appropriate community and cultural access • Build a physical barrier around the Public Viewing Area with a gate for authorized access • Designate and initiate a subsistence garden area • Revegetate with native and Polynesian introduced plants. Install supportive water infrastructure.
	§13-277-6(5) – Interpretation and public information	• Develop interpretive signage as recommended in Table 14 • Work with a selected site steward to conduct community engagement and education, including developing educational curriculum • Conduct additional historic and archaeological work
	§13-277-6(8) – Monitoring of site integrity	• Develop and implement an Archaeological Monitoring Program for work associated with the Design Proposal • Develop and implement a Conditions Assessment Program that assesses and documents the sites/features every two years or more frequently

Figure 83. Buffer zone and public viewing area for Pahua Heiau.

CONCLUSION

This preservation plan was initiated to guide appropriate use and management of the Pahua Heiau Complex by OHA, its stewards, and visitors to ensure the proper and responsible preservation of this wahi kupuna. Prepared in consultation with OHA and the SHPD, the long-term preservation plan is designed to fulfill State requirements for preservation plans per Chapter 13-277 of the Hawai‘i Administrative Rules (HAR). The preservation plan should be viewed as a "living document" that can be revised, adapted, and amended subject to the approval of SHPD, and the required approval of OHA. Four primary tasks comprised the preservation plan: (1) completing the ethnohistorical research and review; (2) conducting archaeological field work and condition assessments of the complex; (3) completing community ethnographic interviews, summaries, and recommendations; (4) and producing a Final Report. Based on the results of the four primary tasks, short term and long term preservation recommendations were developed identifying specific protection measures for the Pahua Heiau complex and detailed recommendations to implement those measures.

The short-term preservation recommendations focused on buffer zones and monitoring of the heiau complex. It was determined that there was no need to establish an interim or short term buffer zone because there was no immediate site disturbance and no anticipated development was planned for the site. Additionally, the 1.15 project area parcel was considered an adequate buffer zone helping to ensure that there would be no significant site infringement. It was also recommended that site monitoring and assessment (by OHA, its contractors, or community partners) occur periodically (twice a year) to document, collect, or update data related to site condition and to assess threats or impacts that might individually or cumulatively degrade site integrity. The long-term preservation treatment options focused on recommendations to address the concerns mentioned in the community interviews, in discussions with OHA land management staff, and the needs observed during the archaeological field component. They include continuing to work with a selected site steward (currently Livable Hawai‘i Kai Hui), developing and implementing a cultural landscape plan, developing and implementing a design proposal for features in need of repair, and developing and implementing interpretation and education actions.

Community interviews indicated strong support for a Pahua Heiau complex cultural working group or site stewards. Consequently, a priority recommendation included continued collaboration with a selected site steward, i.e. Livable Hawai‘i Kai Hui, to help provide improved direction, care, and capacity for the long-term preservation and stewardship of this wahi kupuna. In addition to continuing to work with LHKH as stewards, it was clear that one of the primary strengths of this site has been its association with dry land agricultural practices, particularly ‘uala production. Consequently, restoring the cultural and natural landscape of the project area, emphasizing the reintroduction of ‘uala cultivation, was strongly recommended. The primary goal of the landscape restoration plan was to reconstruct a historically appropriate physical setting for the heiau complex befitting its original area and complementing its original construction and use.

Based on current condition assessments and recently completed archaeological field work, specific treatment recommendations were also developed to address the physical and structural needs of the Pahua heiau proper and its surrounding sites and features. A color-coded plan view map, with narrative descriptions depicting structural and contextual site damage, was also provided to detail proposed stabilization, rehabilitation, and restoration recommendations. A design proposal could be put together in collaboration with a dry stack mason to initiate the necessary repair and restorative work for these features.

All of the community participants expressed that cultural and ‘āina based education should be an integral part of the preservation and interpretation of the Pahua Heiau Complex. Additionally,

participants agreed that increasing and promoting the cultural knowledge and sanctity of this wahi kupuna would bring about an improved and positive awareness of this sacred site and compel individuals to better care for and steward Pahua Heiau. A number of interpretive/educational recommendations were made including passive (signage, educational materials, interactive kiosks, smart phone apps, and brochures) and active interpretation methods (service learning projects, tours, events like the makahiki, and future research programs) to better understand and appreciate the context, special nature, and significance of the Pahua Heiau complex.

REFERENCES CITED

Beckwith, M. W.
1970 Hawaiian Mythology. Honolulu, HI: University of Hawaii Press.

Buck, Peter H. (Te Rangi Hiroa)
1957 Arts and Crafts of Hawaii. Section XI (religion). Honolulu: Bishop Museum Press, reprinted in separate sections in 1964.

Bennett, Wendell
1930 Hawaiian Heiaus. Ph.D. dissertation, Department of Anthropology, The University of Chicago.

Cachola-Abad, C. Kehaunani
1996 The Significance of Heiau Diversity in Site Evaluations. Cultural Resources Management 19(8):11-14, U.S. Department of the Interior, National Park Service, Washington D.C.

Chamberlain, Levi.
1828 Tour Around Oahu. In Judd, B. ed. (1957). Sixty-Fifth Annual Report of the Hawaiian Historical Society, for the year 1956. Honolulu, HI: Hawaiian Historical Society.

Coleman, Holly
2014 Ke Kula Wela La o Pahua: The Cultural and Historical Significance of Pahua Heiau, Maunalua, Oʻahu. The Office of Hawaiian Affairs.

Davis, Bertell D.
1985a Preliminary Report on the Excavations at Pahua Heiau, Maunalua (Hawaii Kai), Southeastern Oʻahu. Honolulu, HI: Department of Anthropology, Bishop Museum.
1985b A Report on the Stabilization and Partial Restoration of Pahua Heiau, Maunalua, Oʻahu. Honolulu: Department of Anthropology. Bernice Pauahi Bishop Museum.
1985c Pahua Heiau Restoration- Continuation: Scope of Work for the West Platforms. Honolulu, HI: Department of Anthropology, Bishop Museum.

Fornander, Abraham
1969 An Account of the Polynesian Race, Its Origin and Migrations, and the Ancient History of the Hawaiian People to the Times of Kamehameha I. Rutland, Vt: Charles E. Tuttle Co.
1916-1917 Fornander Collection of Hawaiian Antiquities and Folk-Lore, Vol. IV. Bishop Museum Press, Honolulu.
1919-1920 Fornander Collection of Hawaiian Antiquities and Folk-Lore, Vol. V. Bishop Museum Press, Honolulu.

Geotechnical Engineering and Drilling Services
2012 Geotechnical Engineering Consultation Services Preliminary Rockfall Potential Hazard Evaluation Pahua Heiau, TMK: 3-9-056:38, Maunalua, Oahu, Hawaii. Geolabs, Inc.

Hawaiian Government Survey
1883 Hawaiian Government Survey Map of Maunalua Bay, Registered Map 1293.

Handy, E.S. Craighill
1940 The Hawaiian Planter. Volume I. His Plants, Methods and Areas of Cultivation. Bernice P. Bishop Museum Bulletin 161, Honolulu, HI.

Handy, E. S. C., Handy E. G. & Pukui, M. K.
1972 Native Planters in Old Hawaii: Their Life, Lore, and Environment. Honolulu, HI: Bishop Museum Press.

Hazlett, Alexander
2011 An Archaeological Monitoring Report for the Emergency Rockfall Mitigation Project, Maunalua Ahupuaʻa, Kona District, Island of Oʻahu, Hawaiʻi, TMK: [1] 3-9-056:38 Final. Scientific Consultant Services, Inc. Honolulu, Hawaiʻi.

Henry, Lehman L.
1959 A Geographical Study of the Central Maunalua region, Island of Oahu, State of Hawaii. Unpublished M.A. Thesis, University of Hawaii.

ʻĪʻī, John Papa
1959 Fragments of Hawaiian History. Honolulu: Bishop Museum Press.

Johnson, Rubellite Kawena
1983 Kumulipo, the Hawaiian hymn of creation. Topgallant Pub. Co.

Jordan, Nichole, and Jane Allen
2010 Archaeological Assessment and Section 106 Review, Hawaiʻi Kai Marina and Channel Maintenance Dredging, Maunalua Ahupuaʻa, Kona District, Oʻahu, Hawaiʻi. TMK: [1] 3-9-3:37. 7:11, 8:11, 17:33, 29:75, 32:61, 34:62, 50:27, 52:56, 52:57, 58:59, 68:15. International Archaeological Research Institute, Inc. Honolulu, Hawaiʻi.

Juvik, Sonia P., James O. Juvik, and Thomas R. Paradise
1998 Atlas of Hawai'i. [Hawaii]: University of Hawaii.

Kay, E. Alison
1994 A Natural History of the Hawaiian Islands: Selected Readings II. Honolulu: University of Hawaii.

Kamakau, Samuel
1868 He Mele no Kualii, Kulanipipili, Kulanioaka, Kunuiakea. *Ka Nupepa Kuokoa*, Buke VII, Helu 18, Honolulu, Mei 2, 1868.
1976 Nā Hana a ka Poʻe Kahiko: The Works of the People of Old. Honolulu, Hawaiʻi: Bishop Museum Press.
1991 Ka Poe Kahiko: The People of Old. Honolulu: Bishop Museum.
1992 Ruling Chiefs of Hawaiʻi (rev. ed., 1961). Honolulu: The Kamehameha Schools Press.

Kameʻeleihiwa, L.
1992 Native Land and Foreign Desires: Pehea Lä E Pono Ai. Honolulu, HI: Bishop Museum Press.

Kelly, Marion
1984 Cultural Resources Overview for the Queen's Beach Park feasibility Study, Maunalua, Kona, Oʻahu, Part I: Legends of Maunalua, Oʻahu and Part III: Historical Notes on Queen's Beach and Other Places in Maunalua, Oʻahu, Department of Anthropology, Bishop Museum, Honolulu, Hawaiʻi.

Kikiloi, Kekuewa
2009 *Approval for the Re-internment of iwi kūpuna at Pāhua Heiau, Maunalua, Oʻahu.* Kamehameha Schools Internal Request for Action letter, RFA No. LAD/061609/N/003, dated June 18, 2009.

Lyons, C. J.
1875 The Islander: A weekly journal devoted to Hawaiian Interests, Scientific Researches, Literature, Home and Foreign Affairs. October 29, 1875 1(35): 237-242.

Macdonald, Gordon A., and Agatin T. Abbott
1974 Volcanoes in the Sea, The Geology of Hawaii, The University Press of Hawaii, Honolulu, Hi.

Malo, David
1951 Hawaiian Antiquities. Honolulu, Hi: Bishop Museum Press.

Maly, Kepā, and Helen Wong-Smith
1998 Historical Documentary Research Kawaihoa-Kuamoʻokāne, Hanauma, and Kohelepelepe- The Koko Head Regional Park and Nature Preserve, Ahupuaʻa of Maunalua, District of Kona, Island of Oʻahu, TMK: 3-6-12, por. 1,2,4,6,8,10,12,13,14 & 16. Kumu Pono Associates, Hilo, Hawaiʻi.

Mathison, Gilbert Farquhar
1825 Narrative of a Visit to Brazil, Chile, Peru, and the Sandwich Islands during the Years 1821 and 1822 with Miscellaneous Remarks on the Past and Present, and Political Prospects of those Countries. London: Charles Knight.

McAllister, J. Gilbert
1933 Archaeology of Oahu. Bishop Museum Bulletin 104. Bishop Museum Press, Honolulu, HI.

Mokumaia, J.K.
1921 Ka Aekai o Maunalua ame Kona Mau Kuhina. Ka Nupepea Kuokoa, 4 March 1921.

Monahan, Christopher, D. Thurman, M. Evans
2014 Condition Assessment for Archaeological Resources in Anahulu Valley Kawailoa Ahupuaʻa, Waialua District, Oʻahu Island, Hawaiʻi. TCP Hawaiʻi, LLC, Kailua, Hawaiʻi.

National Park Service
1983 Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines [As Amended and Annotated]. National Park Service, Department of the Interior, Washington, D.C.
2013 Archaeological Sites Management Information System, Version 4.01, Data Dictionary. Archaeology Program, Park Cultural Resources Programs, National Park Service, U.S. Department of the Interior, Washington, D.C.

Portlock, Nathaniel
1968 A Voyage Round the World. New York: De Capo Press.

Pukui, Mary Kawena
1983 ʻŌlelo Noʻeau: Hawaiian Proverbs and Poetical Sayings. Honolulu, HI: Bishop Museum Press.

Pukui, Mary Kawena & Elbert, S. H.
1986 Hawaiian Dictionary (rev. ed 1957). Honolulu, Hi: University of Hawaiʻi press.

Pukui, Mary Kawena, Samuel H. Elbert, and Esther T. Mookini
1974 Place Names of Hawaii. University of Hawaiʻi Press, Honolulu, HI.

Putzi, Jeffrey L., Tim Denham, Francis J. Eblé, and Jeffrey Pantaleo
1998 Archaeological Monitoring Report for the Phase II Widening of Kalanianaʻole Highway, East Halemaʻumaʻu Road to Keahole Street, East Honolulu, Oʻahu Island (TMK: 3-07-10:6; 3-08-01:62; 3-08-02:79; 3-08-03:21; 3-08-03:29; 3-08-03:40; 3-08-04:11; 3-08-07:26). Prepared for Engineer Surveyors Hawaiʻi, Inc. Garcia and Associates, Honolulu, Hawaiʻi.

Secretary of the Interior
1995 *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. U.S. Department of the Interior National Park Service Cultural Resource Stewardship and Partnerships Heritage Preservation Services, Washington, D.C.

Soehren, Lloyd.
2010 *A Catalog of Hawaiian Place Names: Compiled from the Records of the Boundary Commission and The Board of Commissioners to Quiet Land Titles of the Kingdom of Hawaii*. Ulukau Database

Sterling, E. P., and C. C. Summers.
1978 Sites of Oahu. Department of Anthro-pology and Education, Bernice Pauahi Bishop Museum.

Stokes, J.F.G. and T.S. Dye (ed.)
1991 Heiau of the Island of Hawaiʻi A Historic Survey of Native Hawaiian Temple Sites. Bishop Museum Bulletin in Anthropology 2. Bishop Museum Press, Honolulu.

Takemoto, Anne H., P. Joerger, M. Mitchell, C. Bareng
1975 Historical/Cultural Essay Report on the Kuapa Pond Area. Honolulu, Hawaiʻi.

Thrum, T. G.
1906 Heiaus, Heiau sites throughout the Hawaiian Islands. Hawaiian Almanac and Annual for 1907, 36-48.
1909 Tales from the temples, part III. Hawaiian Annual for 1909

Valeri, V.
1985 Kingship and Sacrifice: Ritual and Society in Ancient Hawaii. Chicago, IL: University of Chicago Press.

Wall, W.E.
1902 Oahu Hawaiian Islands. Registered Map 2374. Hawaii Territory Survey.

Webster, William
1851 Plan of the Land of Maunalua in Oahu Map. Registered Map 980.

Quitevis, Kamoa.
n.d. Pahua Heiau Field Study: Reconnaissance Survey. The Office of Hawaiian Affairs.

Yucha, Trevor, and Matt McDermott
2011 Final Archaeological Inventory Survey Report for the Hale Ka Lae Development Project, Maunalua Ahupuaʻa, Honolulu (Kona) District, Oʻahu Island, TMK:[1] 3-9-008:039,043,044,045, and 067. Cultural Surveys Hawaiʻi, Inc., Kailua, Hawaiʻi.

Ziegler, Alan C.
2002 Hawaiian Natural History, Ecology, and Evolution. Honolulu: University of Hawai'i.

APPENDIX A: PROJECT PARTICIPATION LETTER

Nohopapa Hawai'i, LLC
Native Hawaiian Owned and Operated
Striving to preserve and perpetuate our cultural stories, sites, and practices

March 31, 2016

Welina mai me ke aloha e _____,

On behalf of the Office of Hawaiian Affairs (OHA), Nohopapa Hawai'i, LLC, is gathering community mana'o and input in support of a Preservation Plan for Pahua Heiau. The preservation plan will inform long term management programs, plans, and strategies for this most sacred and revered place in Hawai'i Nei.

The project area for this preservation plan includes Pahua Heiau and the surrounding 1.15-acre parcel. The study will consist primarily of cultural-historical research and community consultation and interviews. The final report will be submitted to the State Historic Preservation Division (SHPD) for review. Our goal is to help the OHA and SHPD better understand, preserve, and steward the cultural and natural resources of Pahua.

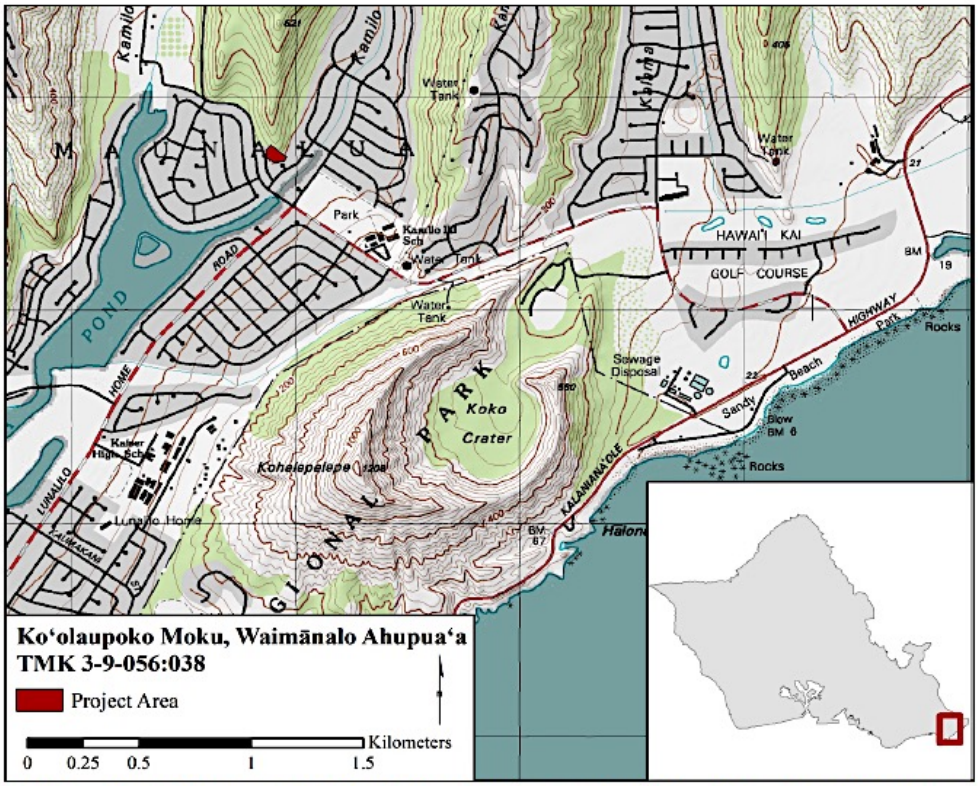
We would like to engage with you; the individuals, 'ohana and organizations that have built relationships to this wahi pana, and have knowledge and ideas of how best to protect and preserve Pahua, now and for generations to come. In particular, we would like to gather information relating to:

- **The cultural landscape of Pahua Heiau and the surrounding area**
- **Appropriate protocols and practices specific to this place**
- **Suggestions and concerns regarding future management of Pahua Heiau**
- **Preservation recommendations for the heiau and the surrounding natural landscape (i.e. stabilization, rehabilitation, and/or restoration)**
- **Access, security, and safety issues**
- **Buffer zones and appropriate protective barriers**
- **Interpretation and usage suggestions**
- **Referrals of kūpuna and kama'āina who would be willing to share their mana'o**

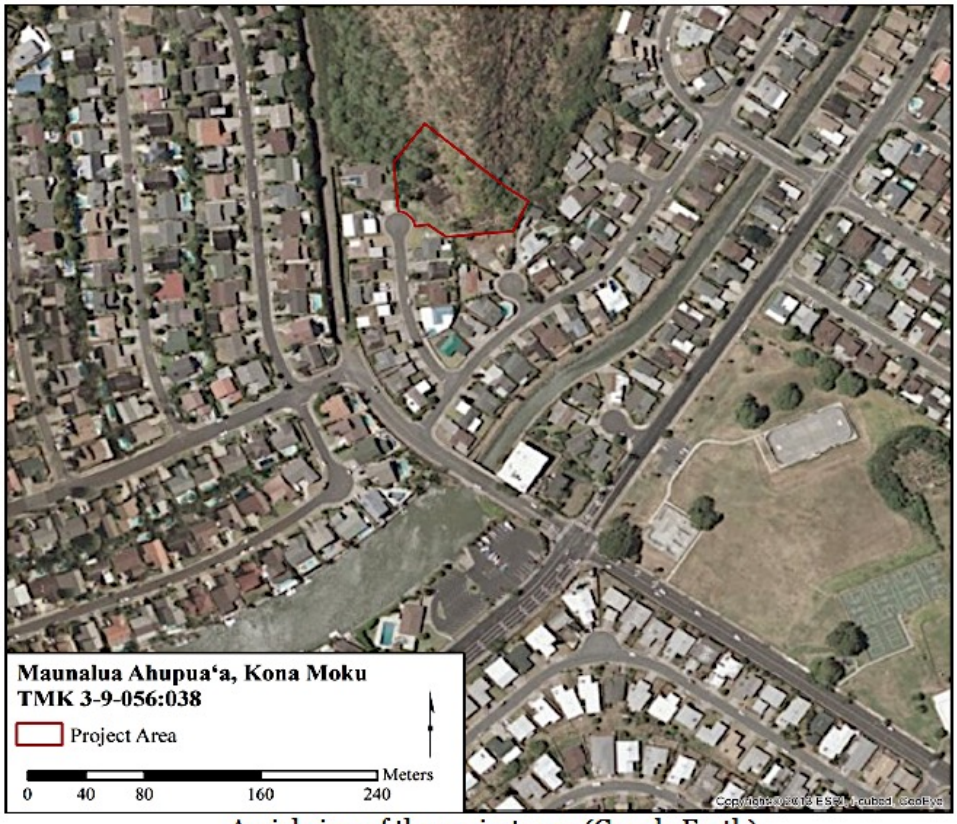
Our community consultation team members Li'i Bitler and Pūlama Lima will be contacting you shortly. We look forward to collaborating with you to document your mana'o for the long-term preservation and management of Pahua Heiau.

Li'i Bitler	808-372-1300	liibitler@gmail.com
Pūlama Lima	808-728-7676	calima@hawaii.edu

Me ka ha'aha'a,
Nohopapa Hawai'i, LLC



U.S. Geological Survey 7.5-Minute Series Topographic Map, Koko Head Quadrangle



Aerial view of the project area (Google Earth)

APPENDIX B: INTERIVEW QUESTIONS

Pahua Heiau Preservation Planning Questionnaire

Interviewer:_____ Date:_____ Location/Time:_____

Moʻokūʻauhau

Full Name:	
Where did you grow up & where do you live today?	
Is your ʻohana from the Waimanalo/Maunalua areas? o If yes, how far back? o Are older family members still alive? o Do they have any stories about the area? o What activities or cultural practices did they practice/do?	

Cultural Landscape

What changes in the landscape, practices and uses of natural and cultural resources have you observed in your lifetime? (Pahua & Maunalua)	
Are there any other cultural sites around or connected to Pahua Heiau? o What's the significance of these areas?	

Preservation Issues

Access

Should Pahua Heiau be open to the public, or should access be restricted to more culturally appropriate activities?	
Any concerns/suggestions about tourism impacts?	
Are there any safety or security issues? o If so, what should be done to secure the site better?	

Site Boundaries and Buffers

Should there be a buffer zone around the heiau?	
If so, what should that look like? How large should it be?	

Vegetation

Any impacts from current trees/vegetation? o If so, should they be removed?	

General

Are there any other major preservation problems at Pahua?	

Preservation Recommendations

Preservation/Restoration

What are your thoughts on the preservation (restoration, reuse, etc.) of Pahua?	
How do you feel about the addition of new cultural features? o Are there places where new cultural features are appropriate?	
How should the natural landscape be restored?	

Management

Now that the OHA is the landowner, how should Pahua be managed? o Who should these users be? o Are there other people/hui that should be involved in the management?	
Should there be an advisory council? o If so, who should serve on the council?	

Interpretation & Use

What types of interpretation and uses are appropriate for Pahua? o Cultural practices & protocols o Education o Events/gatherings o Tourism/tours o Technology	
Should there be interpretive signs? o What should the signs say/show? o What would be appropriate material for the sign(s)?	
Are there inappropriate practices/protocols/uses for Pahua?	

Contact Information & Referrals

May we contact you in the future to talk more about Pahua?	
Phone number or email to reach you:	
Can you refer us to any other individuals or organizations we should talk to?	
Are there any parts of this interview that you wish not to disclose publically?	

APPNEDIX C: INFORMED CONSENT FORM

INFORMED CONSENT FORM

Aloha mai, Nohopapa Hawai'i appreciates the generosity of individuals who are willing to share their knowledge of the wahi pana of Pahua Heiau and its surrounding areas. This mana'o will be used to guide and inform the Office of Hawaiian Affairs (OHA) in creating a long term Preservation Plan for Pahua Heiau. The primary purpose of this project is to help fulfill the OHA's mission of protecting and preserving the features at Pahua Heiau today, and exploring long term management strategies and plans for the future.

Nohopapa Hawai'i understands our responsibility in respecting the wishes and concerns of the interviewees participating in this study. Here are the procedures we promise to follow:

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

For your protection, we need your written confirmation that (circle yes or no):

1. You consent to the use of the complete transcript and/or interview quotes for the purposes of this study. Yes No
2. If a photograph is taken during the interview, you consent to the photograph being included in this study. Yes No

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

_____
(Signature)

_____
(Date)

Nohopapa Hawai'i, LLC * nohopapa.hawaii@gmail.com *

Appendix D: Hawaiian Newspaper Articles

Kuu Solomona Hanohano, Aloha kaua. —Eia mai no kou kiu hana menehune ke hoolahi aku nei ia oe, manao no au e olioli mai ana no oe no keia mau wahi pua ahulikuli e kau ae la maluna.

Ma ke kakahiaka poniponi o ka la Sabati, Feb. 15, i hiki aku ai au me kuu mokoka i ka hora 7:30 ma ka home o Mr. H. Kahalewai Ke, e kali mai ana oia ame kona ohana, oiai ua makaukau mua na wahi puolo, o ke kau mai ia ae la o na mea apau, a o ka oni mai la no ia o na huila o na moku nei.

He la maikai keia, waiho wale na pae mauna, a oiai na moku nei e auku ana ka ihu i ka makani, kaalo ana o Kamoiliili, kapalulu ana i Kaimuki, iho ana i Wailupe, puehu lilili ka lepo, makapi hoohoo ili, kaomi ana ka hanu o Hanauma inini inini malie, honihoni ana me Maunalua, palua, pakolu i ke sekona, i Ka, hoi i ka akau, wili i ka hema, a kau iho oia i kahi i ha'iia ae la maluna, a hui me na kamaaina, me ka pimeahiehie no hoi, ke nana aku.

Ke nana la kou kiu i na hana a na makamaka, o la kaha, e pahouohono ana i na upena, a e kilo i'a ana no hoi kekahi, e kapi i'a ana no hoi kekahi, ma ka nana aku ua paa maoli na manawa ma ka hana, a hui iho la au me ia makuahine maikai, oiai na manao ka meakehau nei ua hoi aku i ka home o na mea apau, a i ke mau hoi ana, ua hoihoi hou ia mai no la i hala aku, a'u no e hele wale ana kahi mawae, a hoomanao ae la au i ko'u wahi hulu makuahine i hala aku; oiai ua pili like laua ia mau la, oiai oia e noho ana ma kona home aloha ma Kalihi-kai.

Oiai maua e lulelima ana me ka pumehana ua haku'i mai la ko'u puuwai, oiai kona waimaka e hookahe mai ana ame kana olelo, auwe no hoi oe e ke keiki e Kulia, nei no hoi oe, a maikai no hoi kou ola kino, aole loa au i manao e hui ana kaua: ae aku la no hoi au, aole loa au i manao e ia no oe ke ola nei, i kuu maalo ana ae nei ma kou kahuahale nei, hoopuu ae la au, o oe no paha ia, no ka mea, ua hele oluna ou a o Maunakea ka hoa e like ai.

He u'i no hoi ke nana aku, o ia mau no kou helehelena o kou wahine u'i no, o ia mau no, ke ola paha ia la ua nalowale, a puka hou mai la ma keia aoao o ka honua, oiai he kamaaina oe no Kalihi ahiki aku i Moanalua, e poina ole ai i neia mau kaha kou inoa i walewaha i na mea apau, e ola nei, Mrs. Kalala Pipi Kaiapa, he kupa no na wahi i oleloia ae nei, a he nenu i makaleheia ia mau la, a'u no e hoomanao nei no'u ame na lede o ia mau la, a'u e holoholo pu ana, i hoi aku i ka home o na mea apau, oiai no nae ma ka olelo ana ae aole no i piha kou kiaha a hu, a'u no e ike aku nei e hala ana no he mau makahiki hou au e honi ai i na ea oluolu o keia kaha malihini, a no i hoolilo ai i home noii e noho ai, me ka oluolu ame ka maha.

Ma o keia lohi ana o maua, ua hoihoi hou ia mai na mea i hala, a ninau aku la au i kana mea i luhi ai he keiki, oiai nana i hana i na mea apau i pili i keia ola honua ana, a lilo oia i kanaka Koolauloa, i kanaka hanohano ma o kona a'o ana i na mea maikai, o ka aku i ukuia aku, a la ka hele ana mai kahi ana i noho ai a kamaaina, a noho i keia kaha i oleloia ae la, me ka hoomanawanui kina wahine, a na kahi lawai'a no ame na wahi kinana mau e holoholo mai ana, ma ko'u nana aku, ua ko'iko'i maoli na hana i kau aku maluna ona, o kana i olelo mai ai aole hoi e kona kaawale ana mai, a he mea ia e komo ai e ke aloha, a kiei aku iala, he oki loa no.

Nolaila, e Mokumaia, ma ka Nupepa Kuokoa mau no e ike ai ia oe, ahiki i ko kana lohi ana, a e ike mai oe i ko'u noho ana o keia kaha, o kahi ola, o ia no ka mea a'u i ha'i aku la ia oe, a o ka'u mea i lohi ai, ua ike oe, ua holoholo pu, a ua loaa inia ka hanohano, aka e mahalo aku i ka Makua Lani, no ka hooni ana ia kana i keia la maikai; oiai aia mamua o kona alo kekahi oke huluhulu, ua hele a hapalua like i ka anaeholo, o kona huki mai la no ia okoia anae, a olelo mai la ia'u, eia mai kau mau i'a oiai e kopi ana oia i na i'a a kaula'i aku.

Ma ko'u noho ana, aole kaua e pono pela, e lawe mai au i kau a e lawe aku oe i ka'u, alaila like pu kaua, oiai i ko'u noho a uwe ana maloko, no ka nana aku i ka makuahine maikai, i ka hana mai i na mea e pono ai, a mea aku la au, i ko'u noho ana ma keia kaha, a hala ae la na makahiki he 15, ua ku a kamaaina maoli oe i na poopoo o ka aina, a pela no hoi me na kauna i'a, a mea aku la au he kaua paha ka keia ahua pohaku keokeo e waiho mai nei; ae mai la keia, o ia hoi, ua kekahi ano he ko'a i'a, he mea hoouia i'a ma kekahi ano, a he kuula ma kekahi ano; ua kapaia keia ahua pohaku, o Ku, he kane keia, a o keia ahua pohaku no hoi o Hina la, he wahine keia, no laua nei na moolelo kupaianaha, o ia ka olelo ia mai e ko'u mau kamaaina i noho mai ai, a e ike mai oe e ke keiki, ke ake nei oe e lohe.

Nolaila e ike mai oe o Ku ame Hina, oia laua i Laie kahi e noho ai, he kino kanaka no o ke ano eepa, i ka ono ana o Hina i ku amaama, hoouna mai ai ia Ku e kii mai i ka i'a iloko o Honouliuli, no ka mea, aia ilaila ia kaikunane, oia o Kapapaapuhi, i ka hele ana mai a Ku a hui me ke kaikoeke, ua loaa mai la ka mea i ounia ai, i ka hoi'ele ana a Ku ia Honouliuli, a hele ma ka pina, aia no ka anae ke nee ae la me ke kai, hele no o Ku a noho i Waikiki, oiai ua makaleho mai la i na u'i o ia kaha, e hala ana he mau la, pela no ka i'a e ku ai, aia no ka wahine ke ike mai la i keia mau hana a ke kane.

I ka pau ana o kona le'ale'a, o kona hele aku la no ia no kahi i oleloia, oiai he kanaka ke noho ana ma keia wahi, o kana hana, o ia no ka inu awa, o kana ai wale no ia, a e ku ana kona wahi papaahale maluna o ia kahua a e ku ae la i keia manawa, he ahua pohaku a pili mai ana keia kanaka loihi eleele no hoi ke nana aku, oiai he ano papalua no keia kanaka e noho aku ana oia o Kahepa, a kahea aku la, komo mai e paina, a komo mai la ua kanaka nei, o Ku no keia, a ku iho la no hoi ka anae ma ia wahi, ahiki no i keia manawa.

Aloha no hoi laua, a ua makaukau mai ka awa o ka pupu aole i loaa, alaila olelo aku la o Ku e kali malie oe, a o kii ae au i pupu no ka awa o kaua, o ka nalo aku la no ia, aole no i loihi aku, a ke olii mai la no ia me na anae elua, eia mai ka pupu o ka awa o kaua, a inu ae la no hoi laua,

I haku ia e Kumahukia a me Kaiwiokaekaha, na kahu ponoi o Kualii; ma ke kaua i Kunia, ma Keahumoa i Lihue.

Ua hanau ia o Kualii ma Kalapawai, ma kailua, Koolaupoko, i ka A. D. 1555. O Mahuluanuiokalani ka makuahine, a o Kauakahi a Kahoowahaokalani ka makuakane. Ua waiho aku au i ke Kumuuli me Kumulipo no ka mohai ole ka! Pela paha oukou.

—— S. M. KAMAKAU.

17. Akahi Kalani, alua Kalani,
Akolu Kalani, aha Kalani,
Alima Kalani, aono Kalani,
Ahiku Kalani, awalu Kalani,
Aiwa Kalani, umi Kalani ia Ku,
Ia Kukealaikauaokalani, a puni—

18. Akahi koa, alua koa, akolu koa,
Aha koa, alima koa, aono koa,
Ahiku koa, awalu koa,
Aiwa koa, umi koa,
Ia Kalanikahimakaialii,
I ke keiki koa o Maui, a puni,

19. Owa Kauakahi—akahi,
Kuihewa i ka lua–alua–
He kolu Kaihikapu–akolu–
He ha Kukawelo–aha–
Lononuiakea i ka lima–alima,
He ono Kahoowaha–aono–
He hiku ai Kapua–ahiku–
He like Hoalani–a like–
He iwa kahakai o Hua,
Kuu kahakai e paiai a puni—

20. Puni kahiki ia Kalani–
I ka lele a ke koae nui–
A ke koae lele kau maluna–
O Kapiiohookala–ni—
Ua ai oe i ka aina–
O Waialua, o Waimea–
O na wai aloha a Kalani–
Ua hee Kupihea–
Ain i kai i ka moana–
Nana ka maka i Oahu–
Me he ipuka no ka hale la–
Ke kowa o Pohakea–
Ke ku a Maunalahilahi–
Ka holo ana i Kaneilio–
Panee la–e–panee–
Panee aku a Waihee–
Pae no i Kapahukukui–
Hopu no pahu i ka laau a puni—

21. Hookaa–la–e–hookaa–
Hookaa na waa makai–
Kau oe i Maeaea,
Haawi o Kaweloiki a Aila,
O na ai o Kamananui,
O na ia o Palaau,
Kani ko pihe i Nahuina,
Kihewa a Kanealala,
O keiki a Kaiao nui,
O ka puaa i ka Moi,
O ka haku-ne i ka nene,
U o ka uau, li-o o ka li-o-
A o ka ao, hou ka houhou,
Ke anunu, ka ekekekeinu–e,
Awihi ka iole, heo ka pueo,
Owa ka aukuu, aeae koloa,
O Waikoloa ia Keawawaihe,
Pohakulepo, pae mai ka manu,
Iloko o ka poopoo,
Ka ao ka ao-e-ka li-o- ka lio–e—
Kakakai honua, puaoao,
Ai nui, pale kahawai kaakiko e,
Ka makauakahi o Ewa,
Ua puni ka ia o Mokumoa,
Ua kau ia i ka nene,
Ua haa kalo, haa nu,
Haa ka ia o Kewalo,
Haa na uala o Pahua,
Haa ka mahiki i Puukea,
Haa ka ununu i Pileula,
Haa Makaaho i ke ala,
E Ku–e–ma kekaha ka ua e Ku.

22. I ai na ka ia o Maunalua,
Ua nana ia Kekuapololi,
Hoae ia i Puuokalalau–
Naueue Koolau–
E Ku e Kalamahaaiakea,
No Kalama no ia aina,
He aina noho mau i Kailua,
Hoomaka lealea aku Waimanalo,
E kii e peku o Kaneohe,
Mai Mahinui a Haakolo–e—
A ai o Kuikeolaikauaokalani,
Ma ke kua, ma ke alo–apuni—

23. A Kahiki ia Paumakuakalani,
A Kohiki i keakeaau o ka lani,
Ia Wakea ka lani, a malu Kahiki,
Malumalu Kahiki,