

# Archaeological Study in Compliance with Section 106 of the National Historic Preservation Act for the Māmalahoa Highway Drainage Improvement Project

TMK: (3) 7-1-002:013 por. and (3) 7-2-1-004:18 por.

Pu'uanahulu and Pu'uwa'awa'a *ahupua'a*  
North Kona District  
Island of Hawai'i

FINAL VERSION



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June 2014



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ASM Project Number 21360



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## EXECUTIVE SUMMARY

On behalf of the State of Hawai'i Department of Transportation (HDOT) and the Federal Highway Administration (FHWA), ASM Associates, Inc. conducted an archaeological study of a roughly 1.15 acre portion of state land being a section of the North Kona Belt Road (Māmalahoa Highway) in Pu'uānāhulu Ahupua'a (TMK: (3) 7-1-004:018 por.) and an adjacent portion of land on TMK: (3) 7-1-002:013 in Pu'uwa'awa'a Ahupua'a, North Kona District, Island of Hawai'i (Figures 1, 2 and 3). HDOT anticipates federal funding from FHWA for the construction of Māmalahoa Highway Drainage Improvement Project (undertaking). The potential use of federal funds necessitates compliance with Section 106 of the National Historic Preservation Act and its implementing regulation (36 CFR 800). This undertaking will involve the demolition of the existing northbound shoulder and construction of an asphalt concrete swale, installation of under-roadway drainage pipes and inlets within the new shoulder swale, reconstruction of the widened shoulder, construction of retaining walls adjacent to the shoulder, and regrassing/reinforcing any newly exposed cut slope to control erosion. In addition, the storm water runoff will be directed offsite into a drywell within a one-acre portion of adjacent State land (TMK (3) 7-1-002:013) in Pu'uwa'awa'a Ahupua'a that is planned to be converted to State highway right-of-way. The area of direct impact will be roughly 7,600 square feet, but a larger roughly 1.15 acre right-of way acquisition area was studied; it is this larger area that we believe constitutes the Area of Potential Effects (APE) for the proposed undertaking.

Systematic archaeological fieldwork within the APE resulted in the identification of features associated with the old Waimea-Kona Belt Road (SIHP Site 20855). Site 20855 consists of remnant sections of the former Waimea-Kona Belt Road, and later Māmalahoa Highway and associated walls. The roadway was constructed between 1916 and 1922, and it served as the main Kona-Waimea connector for 11 years until it was superseded by construction of the Māmalahoa Highway (now Highway 190) in 1933.

Consultation for this Section 106 study was comprehensive and included Pu'uānāhulu/Pu'uwa'awa'a community members, as well several other individuals and Native Hawaiian Organizations. The Pu'uānāhulu/Pu'uwa'awa'a community members related their feelings about the significance of the walls and roadway features of the old Waimea-Kona Belt Road constructed by their grandparents and great grandparents. Seeing these features along the current roadside is a daily reminder of their connections to this land and is a contributing element to their sense of place and belonging.

Site 20855 is considered significant under Criterion a for the important contribution that it made with respect to transportation and settlement patterns during the early twentieth century in the west Hawai'i area; and under Criterion d for its historical research value, and its historical importance as a visual reminder of the early twentieth century cultural landscape of North Kona. The features of the site within the current APE can be avoided during the proposed drainage improvement project, and given the cultural significance that this portion of Site 20855 holds for the traditional families of the Nāpu'u area, it is recommended that these features be protected during the undertaking. It is the conclusion of the current study that, given adherence to the above recommendation, the proposed drainage improvements will have no adverse effect on historic properties.



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# 1. INTRODUCTION

At the request of Ron Terry Ph.D. of Geometrician Associates, LLC and Lennie Okano-Kendrick of Okahara & Associates, Inc., on behalf of the State of Hawai'i Department of Transportation (HDOT) and the Federal Highway Administration (FHWA), ASM Affiliates, Inc. conducted an archaeological study of a roughly 1.15 acre portion of state land being a section of the North Kona Belt Road (Māmalahoa Highway) in Pu'uānāhulu Ahupua'a (TMK: (3) 7-1-004:018 por.) and an adjacent portion of land on TMK: (3) 7-1-002:013 in Pu'uwa'awa'a Ahupua'a, North Kona District, Island of Hawai'i (Figures 1, 2 and 3). HDOT anticipates federal funding from FHWA for the construction of Māmalahoa Highway Drainage Improvement Project (the undertaking). The potential use of federal funds necessitates compliance with Section 106 of the National Historic Preservation Act and its implementing regulation (36 CFR 800).

This report contains summary background information concerning the project area's physical setting, cultural contexts, previous archaeological work, and current survey expectations based on the previous work. Also presented is an explanation of the project's methods, descriptions of the archaeological features encountered, interpretation and evaluation of those resources, and treatment recommendations for the site documented within the proposed development area. Consultation was carried out as part of this study and is also being carried out as part of the overall National Environmental Policy Act (NEPA) compliance. Section 106 provides for concurrent compliance with NEPA as outlined in 36 CFR § 800.3(b).

## THE PROPOSED UNDERTAKING, PROJECT AREA DESCRIPTION, AND AREA OF POTENTIAL EFFECT (APE)

The proposed undertaking is located in Pu'uānāhulu and Pu'uwa'awa'a *ahupua'a*, North Kona District, Island of Hawai'i and involves drainage improvement within the existing Highway 190 (Māmalahoa Highway) right-of-way in the vicinity of Mile Marker 21 along the steep grade that descends the bluff near the Pu'uānāhulu/Pu'uwa'awa'a *ahupua'a* boundary (see Figure 1). During heavy rainfall, runoff sheets down this grade and because portions of the roadway in this area are banked toward the uphill side, water builds up against the cliff then channelizes on the narrow uphill shoulder. As it flows downhill, the water then begins to sheet flow across the travel lanes as the banking reverses, causing a potentially hazardous condition.

To remedy this problem, the project will involve the demolition of the existing northbound shoulder and construction of an asphalt concrete swale, installation of under-roadway drainage pipes and inlets within the new shoulder swale, reconstruction of a part of the north cut slope to accommodate the widened shoulder, construction of retaining walls adjacent to the shoulder, and regrassing/reinforcing any newly exposed cut slope to control erosion. In addition, the storm water runoff will be directed offsite into a drywell within a one-acre portion of adjacent State land (TMK (3) 7-1-002:013) in Pu'uwa'awa'a Ahupua'a that is planned to be converted to State highway right-of-way. Figure 4 show the locations of proposed improvements. The area of direct impact will be roughly 7,600 square feet, but a larger roughly 1.15 acre right-of way acquisition area was studied. In consultation with Michael Vitousek, M.A. Hawai'i Island archaeologist with DLNR-SHPD, it is this area that we believe constitutes the Area of Potential Effects (APE) for the proposed undertaking.

Elevation within the APE ranges from 2,200 feet above sea level on the roadway grade to 2,150 feet above sea level on the weathered 'a'ā flats below the roadway grade. The highway corridor portion of the study area in Pu'uānāhulu is a built environment (Figure 5) and has been so since before 1920 when the original Waimea-Kona Belt road was built. The adjacent area in Pu'uwa'awa'a Ahupua'a where the drywell will be excavated is weathered 'a'ā with a sparse covering of jacaranda, silky oak, and 'ōhi'a and various grasses (Figure 6). Soil within the project area is classified as rock land (rRO), which can possess a thin (6 to 8 inches) soil (Sato et al. 1973) layer formed over slightly weathered lava (h2) that originating from Hualālai between 1,500 to 3,000 years ago; and the Pu'uānāhulu bluff area is classified as a Waawaa trachyte flow (w) that contains a substantial volcanic glass component (Wolfe and Morris 1996). Precipitation recorded at the Pu'uwa'awa'a Weather Station located at an elevation of 2,326 feet has recorded an annual average rainfall of 28 inches.

# 1. Introduction

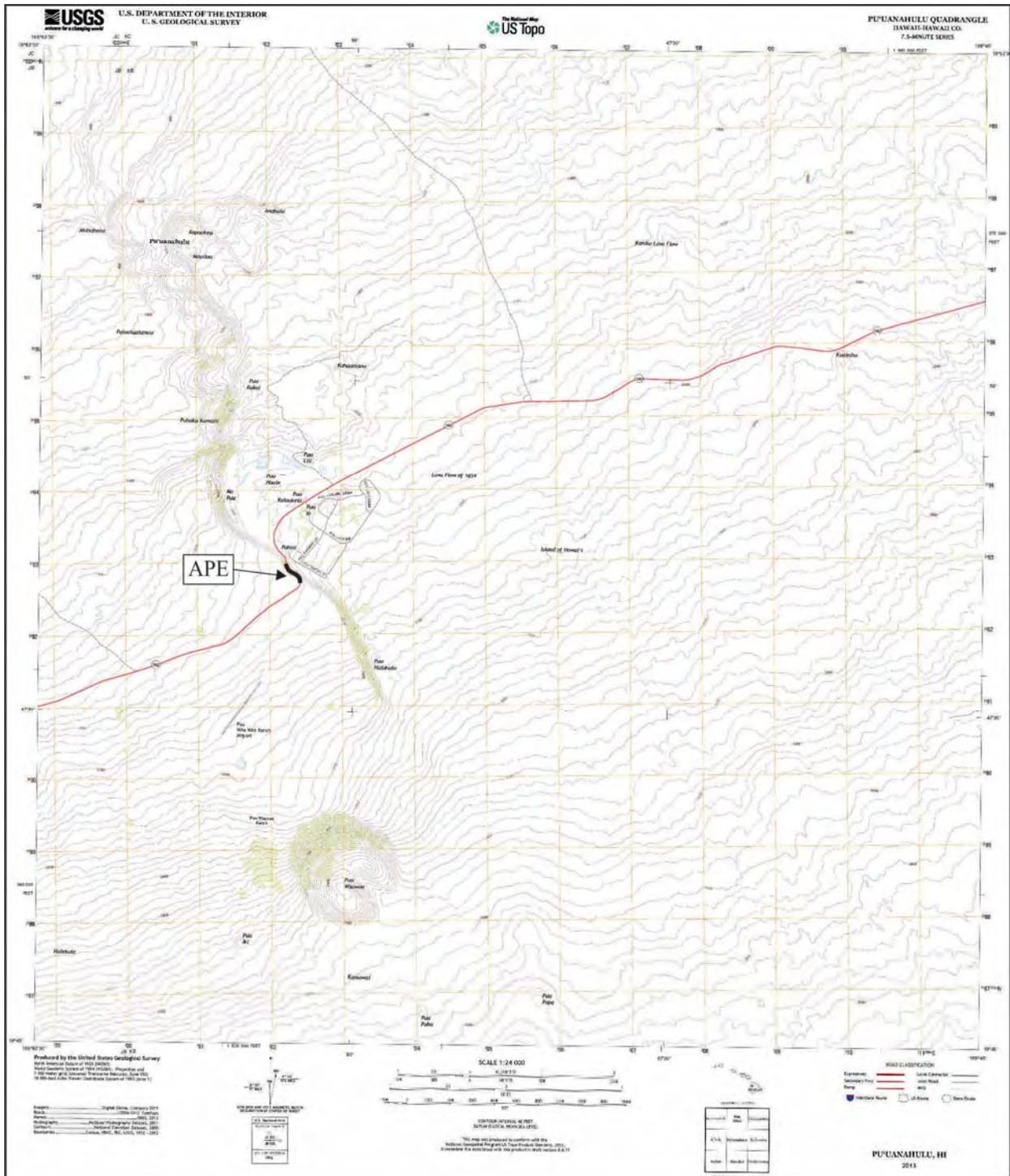


Figure 1. Project area location.

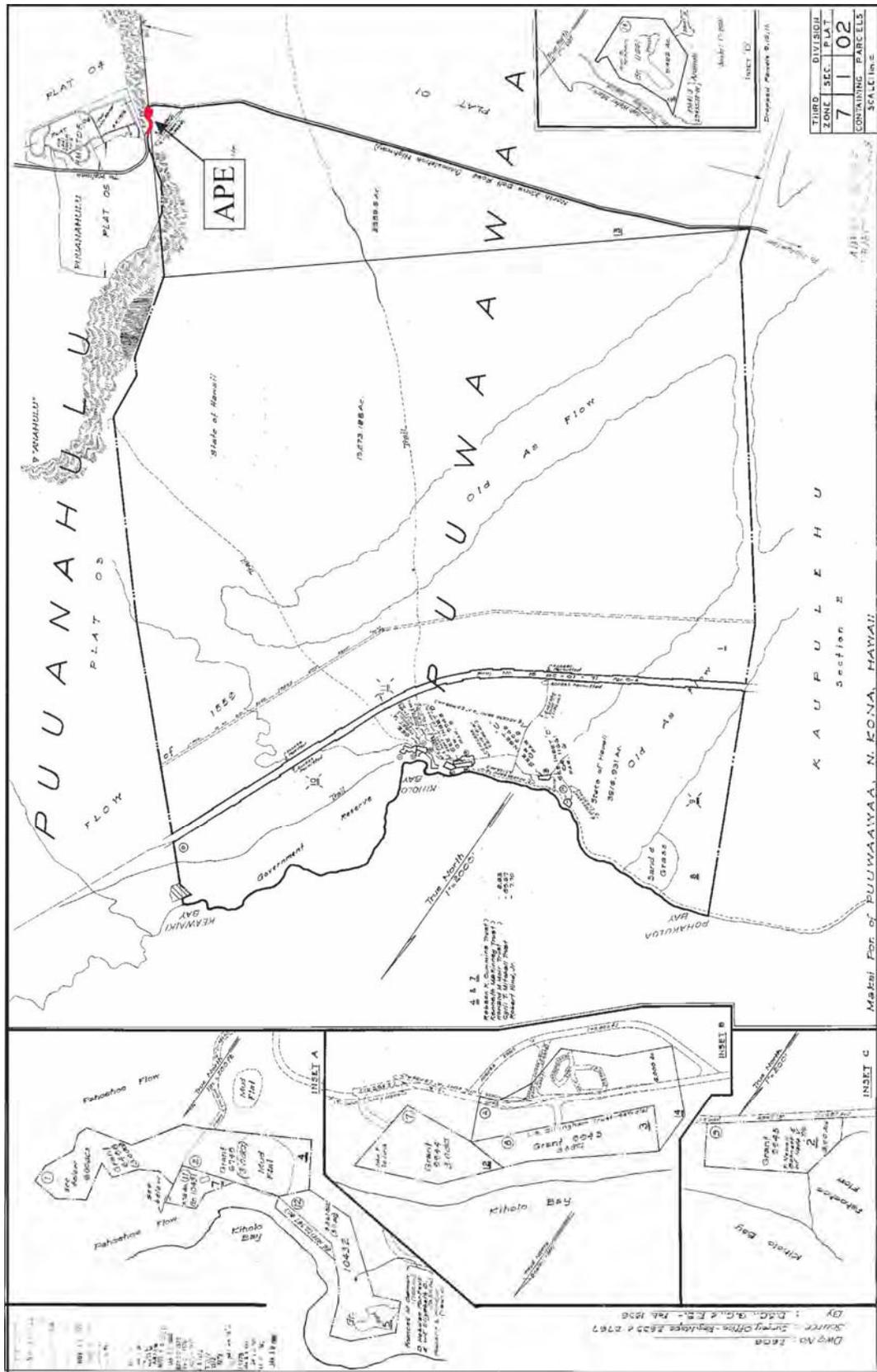


Figure 2. Tax map showing current project area in red.

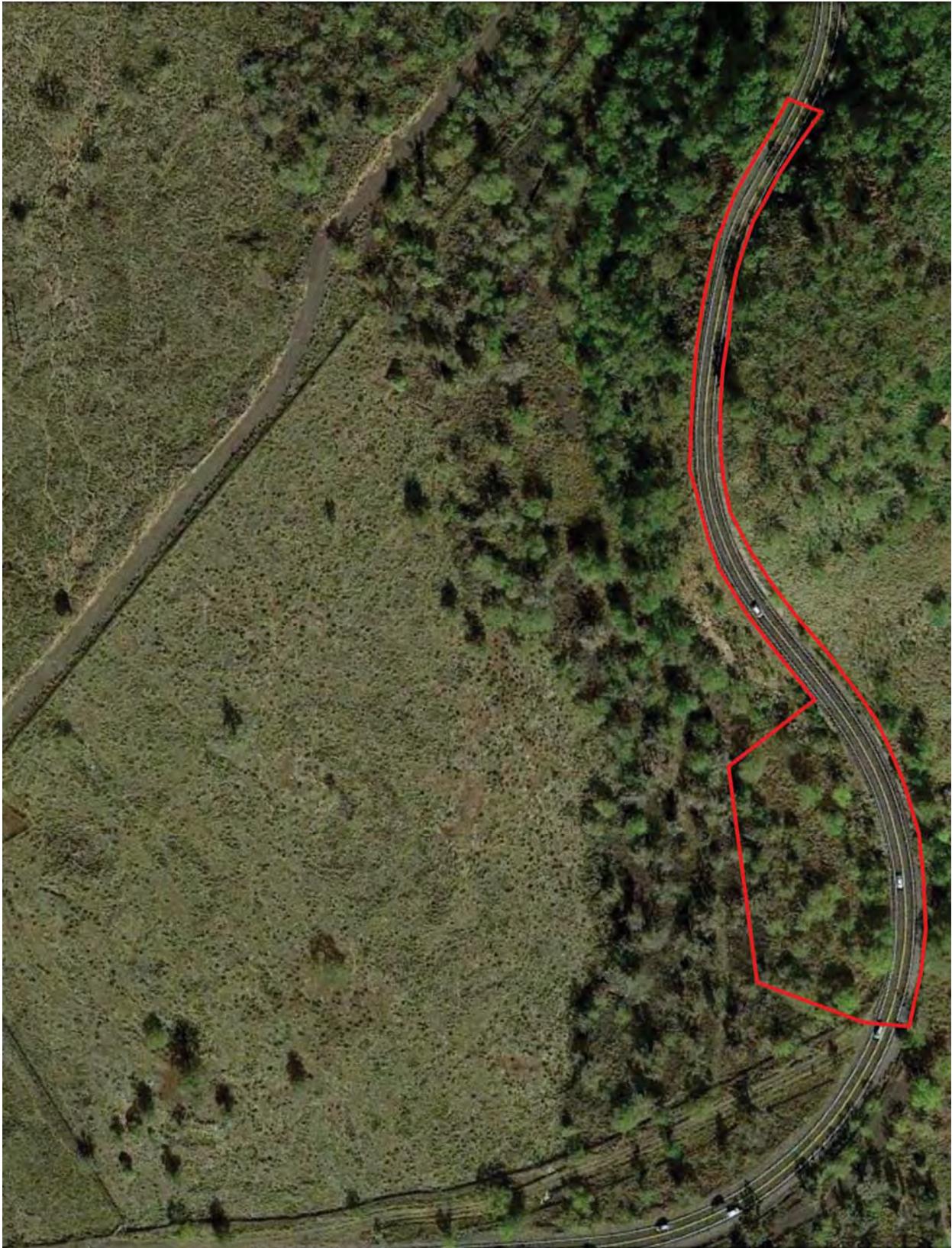


Figure 3. Current Google Satellite™ image showing the APE outlined in red.





Figure 5. Roadway portion of the project area, view to the northwest.



Figure 6. Drywell portion of the project area, view to the north.

## 2. BACKGROUND

To generate a set of expectations regarding the nature of the archaeological resources that might be encountered within the project area, and to establish an environment within which to access the significance of any such resources, a presentation of previous archaeological studies conducted in the vicinity of the project area follows a discussion of the cultural-historical background for the region. An effort is made to provide a comprehensive and holistic understanding of Pu‘uanahulu and Pu‘uwa‘awa‘a *ahupua‘a*. This section of the report examines the *ahupua‘a* and their relationship to neighboring lands. In 2006, Kumu Pono Associates prepared a *Collection of Cultural and Historical Accounts of Pu‘u Wa‘awa‘a and the Nāpu‘u Region* (Maly and Maly 2006). Extensive research for that study included a review of archival-historical literature from both Hawaiian and English language sources, survey records of the Kingdom and Territory of Hawai‘i; and historical texts authored or compiled by Malo (1951), I‘i (1959), Kamakau (1961, 1964, 1976, and 1991), Ellis (1963), Fornander (1916-1919 and 1996), Thrum (1908), Beckwith (1970), Reinecke (n.d.); and Handy et al. (1991). That study also included several native accounts from Hawaiian language newspapers (compiled and translated from Hawaiian to English, by Kepā Maly), and historical narratives authored by eighteenth and nineteenth century visitors to the region. The information was presented within thematic categories and ordered chronological by the date of publication.

Over the last ten years, Kepā Maly of Kumu Pono Associates has researched and prepared several detailed studies in the form of review and translation of accounts from Hawaiian language newspapers, historical accounts recorded by Hawaiian and non-Hawaiian residents, and government land use records for lands in the Kekaha region of which Pu‘uanahulu and Pu‘uwa‘awa‘a are a part. Kepā Maly has also conducted a number of detailed oral history interviews with elder *kama‘āina* documenting their knowledge of the Kekaha region (including Pu‘uanahulu and Pu‘uwa‘awa‘a).

As the information collected by Kumu Pono Associates (Maly and Maly 2006) was so complete, this report presents a condensed and only a slightly modified version of the cultural and historical background for the study *ahupua‘a* and the Kekaha Region that was previously prepared. It is a comprehension of this background information that facilitates a more complete understanding of the potential significance of the resources that exist within the current study area.

### CULTURE-HISTORICAL CONTEXT

The project area is located on the Island of Hawai‘i within the District of North Kona in the *ahupua‘a* of Puluuanahulu and Pu‘uwa‘awa‘a (Figure 7). Kona is one of six major *moku-o-loko* (districts), and extends from the shore across the entire volcanic mountain of Hualālai, and continues to the summit of Mauna Loa. Like other large districts on Hawai‘i, Kona was further divided into *‘okana* or *kalana* (regions of land smaller than the *moku-o-loko*, yet comprising a number of smaller units of land). In the region now known as Kona *‘akau* (North Kona), there are several ancient regions (*kalana*) as well. The southern portion of North Kona was known as “Kona *kai ‘ōpua*” (interpretively translated as: Kona of the distant horizon clouds above the ocean), and included the area extending from Lanihau (the present-day vicinity of Kailua Town) to Pu‘uohau (now known as Red Hill). The northern-most portion of North Kona was called “Kekaha” (descriptive of an arid coastal place). Native residents of the region affectionately referred to their home as *Kekaha-wai-‘ole o nā Kona* (Waterless Kekaha of the Kona District), or simply as the *āina kaha*. Pu‘uanahulu and Pu‘uwa‘awa‘a *ahupua‘a* are located within a smaller district of Kekaha known as Nāpu‘u, literally translated as “the hills” (Pukui et al. 1974).

With respect to the Precontact use of the general project area, Clark (1987) offered a regional settlement pattern model that includes four elevationally delimited environmental zones: Coastal Zone, Intermediate Zone, Kula Zone, and Wilderness Zone. The Coastal Zone extends up to about 150 feet elevation, and was used for permanent and temporary habitation, coastal resource exploitation, and limited agriculture. The Intermediate Zone extends from the Coastal Zone to about 1,900 feet elevation. This zone was used primarily for seasonal agriculture with associated short-term occupation, typically situated near intermittent drainages. The Kula Zone extends from the Intermediate Zone to about 2,700 feet elevation (and to 3,200 feet in certain areas). This was the primary agricultural and residential area, with extensive formal fields and clustered residential complexes. The Wilderness Zone extends above the Kula Zone to the mountaintops, and was a locus for the collection of wild floral and faunal resources. Pu‘uanahulu and Pu‘uwa‘awa‘a cross several environmental zones that are generally referred to as *wao* in the Hawaiian language. These environmental zones include the near-shore fisheries and shoreline strand (*kahakai*) and the *kula kai/kula uka* (shoreward/inland plains). These regional zones were greatly desired as places of residence by the natives of the land.

2. Background

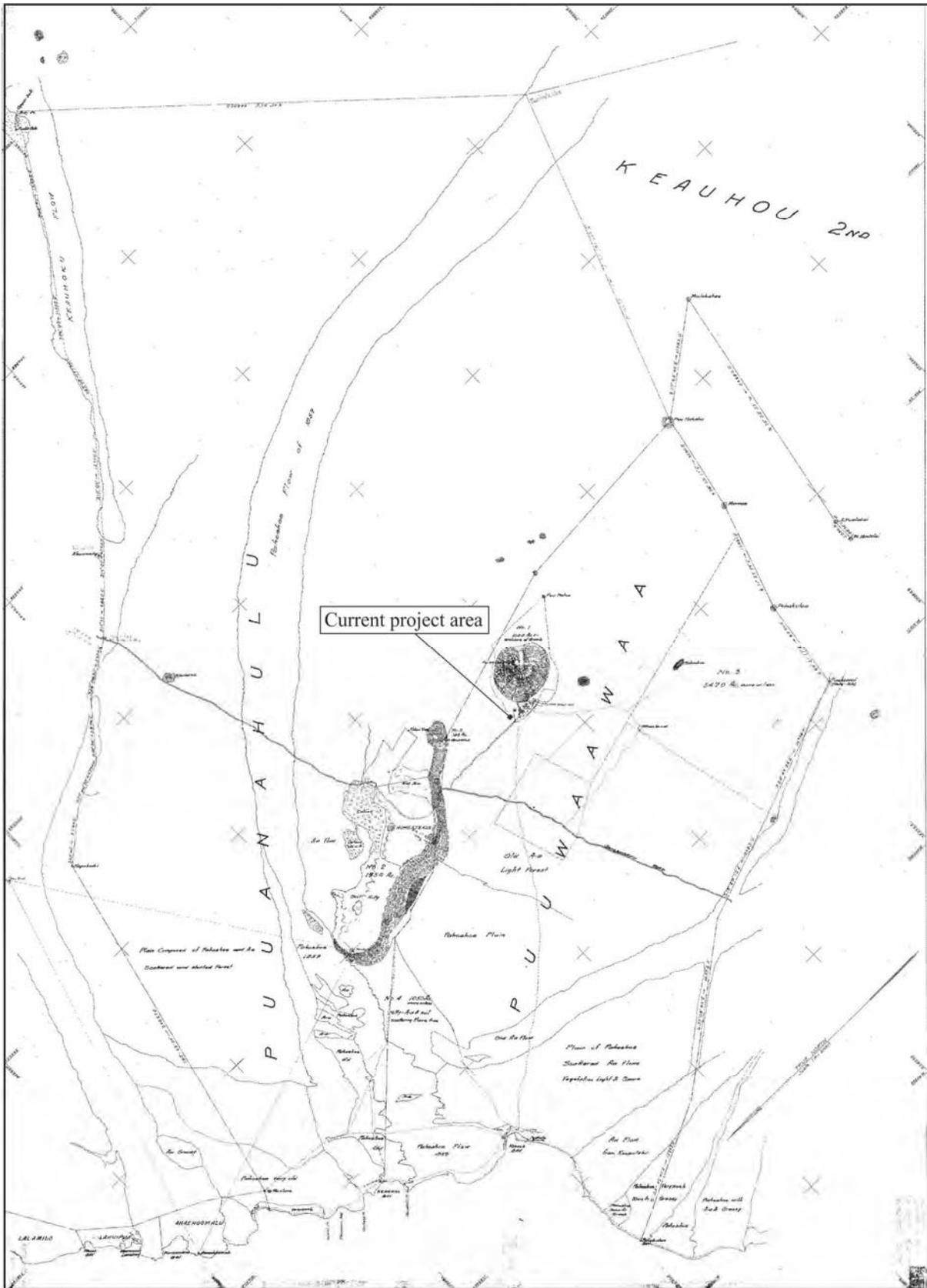


Figure 7. Hawai'i Registered Map No. 2633 (showing Pu'uanaulu and Pu'uwa'awa'ā ahupua'a).

Continuing into the *kula uka* (inland slopes), the environment changes as elevation increases. The zones called the *wao kanaka* (region of man) and *wao nahele* (forest region) in Pu‘uanahulu and Pu‘uwa‘awa‘a are generally situated between the 1,800 to 2,400 foot elevations, and are crossed by the present-day Māmalahoa Highway (which also generally follows portions of an ancient *ala loa*, or foot trail that was part of a regional trail system). The highway is situated not far below the ancient *ala loa*, or foot trail, also known as Ke-ala‘ehu, and was part of a regional trail system passing through Kona from Ka‘ū to Kohala. Within the forest region, rainfall increases to 30 or 40 inches annually, and taller forest growth occurred. This region provided native residents with shelter for residential and agricultural uses, and a wide range of natural resources that were of importance for religious, domestic, and economic purposes.

Within a traditional Hawaiian context all things within the environment are interrelated. That which was in the uplands shared relationships with that which was in the lowlands, coastal region, and even in the sea; and the *ahupua‘a* as a land unit was the thread that bound all things together. In an early account written by Kihe (in *Ka Hōkū o Hawai‘i*, 1914-1917), with contributions by John Wise and Steven Desha Sr., the significance of the dry season in Kekaha and the custom of the people departing from the uplands for the coastal region is further described:

...‘Oia ka wā e ne‘e ana ka lā iā Kona, hele a malo‘o ka ‘āina i ka ‘ai kupakupa ‘ia e ka lā, a o nā kānaka, nā li‘i o Kona, pūhe‘e aku la a noho i kahakai kāhi o ka wai e ola ai nā kānaka – It was during the season, when the sun moved over Kona, drying and devouring the land, that the chiefs and people fled from the uplands to dwell along the shore where water could be found to give life to the people. (*Ka Hōkū o Hawai‘i*, April 5, 1917)

“Ola aku la ka ‘āina kaha, ua pua ka lehua i ke kai — The natives of the Kaha lands have life, the lehua blossoms are upon the sea!” (*Ka Hoku o Hawaii*, February 21, 1928)

In this case the poetic reference to *lehua* blossoms likens them to canoes returning to the sea. The coastal area of Pu‘uwa‘awa‘a contains the protected bay at Kīholo and was the location of a significant fishpond; as well as numerous springs and water caves. The coast of Pu‘uanahulu claims Keawaiki Bay, Kapalaoa village, and several water sources as well. These lands provided sheltered canoe landings, deepsea and near-shore fisheries, and important salt making resources. The inland agricultural field systems and diverse forest and mountain resources, also attracted native residents to the area. Through these diverse resources, the native families were sustained on the land.

It is within the context of both *kula* regions of the study *ahupua‘a* and the political divisions of the District of North Kona that the following discussion of the history and culture of the study area is framed. The chronological summary presented below begins with the peopling of the Hawaiian Islands and the presentation of a generalized model of Hawaiian Prehistory that includes legendary references to the study area lands and a discussion of the widely accepted settlement patterns for North Kona. The discussion of Prehistory is followed by a summary of Historic events in the islands that begins with the arrival of foreigners and then presents a history of land use after contact. The summary includes a discussion of the changing life ways and population decline of the early Historic Period, a review of land tenure in the study *ahupua‘a* during the *Māhele ‘Āina* of 1848 and the subsequent division of Land Grants. A synthesis of the Precontact settlement patterns and the Historic documentation of land use will then be used to predict the type, location, and likelihood of Historic properties that may be present within the project area.

## A Generalized Model of Hawaiian Prehistory

The generalized cultural sequence that follows is based on Kirch’s (1985) model, and is amended to include recent revisions offered by Kirch (2011). The conventional wisdom has been that first inhabitants of Hawai‘i Island probably arrived by at least A.D. 300, and focused habitation and subsistence activity on the windward side of the island (Burtchard 1995; Kirch 1985; Hommon 1986). However, there is no archaeological evidence for occupation of Hawai‘i Island (or perhaps anywhere in Hawai‘i) during this initial settlement, or colonization stage of island occupation (A.D. 300 to 600). More recently, Kirch (2011) has convincingly argued that Polynesians may not have arrived to the Hawaiian Islands until at least A.D. 1000, but expanded rapidly thereafter. The implications of this on the currently accepted chronology would alter the timing of the Settlement, Developmental, and Expansion Periods, possibly shifting the Settlement Period to A.D. 1000 to 1100, the Developmental Period to A.D. 1100 to 1350, and the Expansion Period to A.D. 1350 to 1650.

The initial settlement in Hawai‘i is believed to have occurred from the southern Marquesas Islands. This was a period of great exploitation and environmental modification, when early Hawaiian farmers developed new subsistence strategies by adapting their familiar patterns and traditional tools to their new environment (Kirch 1985; Pogue 1978). Their ancient and ingrained philosophy of life tied them to their environment and kept order. Order was further assured by the conical clan principle of genealogical seniority (Kirch 1984). According to Fornander (1969), the Hawaiians

brought from their homeland certain universal Polynesian customs: the major gods Kāne, Kū, and Lono; the *kapu* system of law and order; cities of refuge; the *'aumakua* concept; various epiphenomenal beliefs; and the concept of *mana*. Initial permanent settlements in the islands were established at sheltered bays with access to fresh water and marine resources. Communities shared extended familial relations and there was an occupational focus on the collection of marine resources. Over a period of several centuries the areas with the richest natural resources became populated and perhaps even crowded, and there was an increasing separation of the chiefly class from the common people. As the environment reached its maximum carrying capacity, the result was social stress, hostility, and war between neighboring groups (Kirch 1985). Soon, large areas of Hawai'i were controlled by a few powerful chiefs.

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

The Expansion Period is characterized by the greatest social stratification, major socioeconomic changes, and intensive land modification. Most of the ecologically favorable zones of the windward and coastal regions of all major islands were settled and the more marginal leeward areas were being developed. The greatest population growth occurred during the Expansion Period. It was during the Expansion Period that a second major migration settled in Hawai'i, this time from Tahiti in the Society Islands. According to Kamakau (1976), the *kahuna* Pā'ao settled in the islands during the 13<sup>th</sup> century. Pā'ao was the keeper of the god Kū'kā'ilimoku, who had fought bitterly with his older brother, the high priest Lonopele. After much tragedy on both sides, Pā'ao was expelled from his homeland by Lonopele. He prepared for a long voyage, and set out across the ocean in search of a new land. On board Pā'ao's canoes were thirty-eight men (*kānaka*), two stewards (*kānaka 'ā'īpu'upu'u*), the chief Pilika'aiea (Pili) and his wife Hina'aukekele, Nāmau'u o Malaiia, the sister of Pā'ao, and the prophet Makuaka'ūmana (Kamakau 1991). In 1866, Kamakau told the following story of their arrival in Hawai'i:

Puna on Hawai'i Island was the first land reached by Pā'ao, and here in Puna he built his first *heiau* for his god Aha'ula and named it Aha'ula [Waha'ula]. It was a *luakini*. From Puna, Pā'ao went on to land in Kohala, at Pu'uēpa. He built a *heiau* there called Mo'okini, a *luakini*.

It is thought that Pā'ao came to Hawai'i in the time of the *ali'i* La'au because Pili ruled as *mo'i* after La'au. You will see Pili there in the line of succession, the *mo'o kū'auhau*, of Hanala'anui. It was said that Hawai'i Island was without a chief, and so a chief was brought from Kahiki; this is according to chiefly genealogies. Hawai'i Island had been without a chief for a long time, and the chiefs of Hawai'i were *ali'i maka'āinana* or just commoners, *maka'āinana*, during this time.

. . . There were seventeen generations during which Hawai'i Island was without chiefs—some eight hundred years. . . . The lack of a high chief was the reason for seeking a chief in Kahiki, and that is perhaps how Pili became the chief of Hawai'i. He was a chief from Kahiki and became the ancestor of chiefs and people of Hawai'i Island. (1991:100–102)

There are several versions of this story that are discussed by Beckwith (1970), including the version where Mo'okini and Kaluawilinau, two *kāhuna* of Moikeha, decide to stay on at Kohala. The bones of the *kahuna* Pā'ao are said to be deposited in a burial cave in Kohala in Pu'uēpa [possibly Pu'uēpa?] (Kamakau 1964:41). The Pili line's initial ruling center was likely in Kohala too, but Cartwright (1933) suggests that Pili later resided in and ruled from Waipi'o Valley in the Hāmākua District.

The Expansion Period was characterized by population growth and efforts to increase upland agriculture. Rosendahl (1972) has proposed that settlement at this time was related to seasonal, recurrent occupation in which coastal sites were occupied in the summer to exploit marine resources, and upland sites were occupied during the winter months, with a focus on agriculture. An increasing reliance on agricultural products may have caused a shift in social networks as well, according to Hommon (1976). Hommon argues that kinship links between coastal settlements disintegrated as those links within the *mauka-makai* settlements expanded to accommodate exchange of agricultural products for marine resources. This shift is believed to have resulted in the establishment of the *ahupua'a* system. The implications of this model include a shift in residential patterns from seasonal, temporary occupation, to permanent dispersed occupation of both coastal and upland areas.

According to Kirch's (1985) model, the concept of the *ahupua'a* was established sometime during the A.D. 1400s, adding another component to a then well-stratified society. This land unit became the equivalent of a local community, with its own social, economic, and political significance. *Ahupua'a* were ruled by *ali'i 'ai ahupua'a* or lesser chiefs; who, for the most part, had complete autonomy over this generally economically self-supporting piece of land, which was managed by a *konohiki*. *Ahupua'a* were usually wedge or pie-shaped, incorporating all of the eco-zones from the mountains to the sea and for several hundred yards beyond the shore, assuring a diverse subsistence resource base (Hommon 1986). This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resource management planning. In this system, the land provided fruits and vegetables and some meat for the diet, and the ocean provided a wealth of protein resources (Rechtman and Maly 2003).

The name of an *ahupua'a* sometimes indicates its importance, records its history, or reveals something about its resources or population. The *ahupua'a* of Pu'uana'hulu and Pu'uwa'awa'a are two of some twenty ancient *ahupua'a* within the *'okana* of Kekaha-wai-'ole. The place name Pu'uana'hulu can be literally translated as "ten-day hill" and Pu'uwa'awa'a as "furrowed hill" (Pukui et al 1974). Pu'uana'hulu and Pu'uwa'awa'a are located in the region that was commonly known as Nāpu'u (literally "the hills"); and it wasn't until the priestess/chieftess Anahulu, her husband Wa'awa'a, and their family moved to the area from Pū'āla'a, a hill near the Ka'ū and Puna border, that Pu'uana'hulu and Pu'uwa'awa'a were so named (Kihe in Maly and Maly 2006).

The *ali'i* and the *maka'āinana* (commoners) were not confined to the boundaries of the *ahupua'a*; when there was a perceived need, they also shared with their neighbor *ahupua'a ohana* (Hono-ko-hau 1974). The *ahupua'a* were further divided into smaller sections such as the *'ili*, *mo'o'aina*, *pauku'aina*, *kihapai*, *koele*, *hakuone*, and *kuakua* (Hommon 1986, Pogue 1978). The chiefs of these land units gave their allegiance to a territorial chief or *mo'i* (king). *Heiau* building flourished during this period as religion became more complex and embedded in a sociopolitical climate of territorial competition. Monumental architecture, such as *heiau*, "played a key role as visual markers of chiefly dominance" (Kirch 1990:206). This pattern continued to intensify from A.D. 1500 to Contact (A.D. 1778), and there is evidence that suggests that there were substantial changes to the political system as well (Griffin et al. 1971).

By the seventeenth century, large areas of Hawai'i Island (*moku 'aina* – districts) were controlled by a few powerful *ali'i 'ai moku*. There is island-wide evidence to suggest that growing conflicts between independent chiefdoms were resolved through warfare, culminating in a unified political structure at the district level. The legend of Kapunohu (set about A.D. 1600), relates that in North Kohala, the chiefs of Kukuipahu ruled the leeward *ahupua'a* of the district, and the chiefs of Niuli'i ruled the windward *ahupua'a* of the district, and that Wainai'a Gulch was the boundary between the two domains (Erkelens and Athens 1994). In about A.D. 1600, the armies of the two polities met on the battlefield of Hinakahua at Kapa'au (east of the present day town of Kapa'au), and the forces of Kukuipahu were defeated, thus control of the district was united under the chiefs of Niuli'i (Fornander 1916:215-220).

'Umi-a-Līloa was a renowned Pili line *ali'i* who ruled from Waipi'o Valley, son of high ranking *ali'i* Līloa. 'Umi's fame stemmed from his successful unification of all the districts of Hawai'i Island (Kamakau 1992), and his reign lasted until around ca. A.D. 1620 (Cordy 1994). It has been suggested that the unification of the island resulted in a partial abandonment of portions of leeward Hawai'i, with people moving to more favorable agricultural areas (Barrera 1971; Schilt and Sinoto 1980). Near the end of 'Umi's rule, he relocated to Kona where the weather was more favorable (Kamakau 1992).

One of 'Umi-a-Līloa's heirs to the Hawaiian kingdom was his son, Keawe-nui-a-'Umi, who presided over Hilo. Lono-i-ka-makahiki was Keawe-nui-a-'Umi's son, and was a ruler of Ka'ū and Puna (Kamakau 1992). Following the death of his father, Lono-i-ka-makahiki waged a war for the supremacy of Hawai'i Island against rebel forces in Kohala. After a battle in leeward North Kohala, Lono-i-ka-makahiki pursued his rivals to Hinakahua at Kapa'au, where they prepared to fight once again before retreating to the east and being defeated at Pololū Valley in windward North Kohala (Erkelens and Athens 1994). Upon achieving this final victory, Lono-i-ka-makahiki celebrated at the *heiau* of Mulei'ula at Apuakaohau (Fornander 1916:324). Neither of Lono-i-ka-makahiki's two sons were heirs to the government, and in the wake of his death, rule of Kohala, Kona, and Ka'ū was instead split between the descendants of his brother, Kanaloa-kua'ana.

The Proto-Historic Period was marked by both political intensification and stress. Wars occurred regularly between intra-island and inter-island polities, and this period was one of continual conquest by the reigning *ali'i*. At the beginning of this period, Hawai'i Island was not united under one rule, but was split amongst the chiefs of Kona and Hilo (Kamakau 1992). Keawe, the son of Keakealani (w) and Kanaloakapulehu (k), was the ruler of Kohala, Kona, and Ka'ū. When Keawe died he split the rule of his lands between two of his sons; Kalaninui'iamamao became the ruling chief of Ka'ū, and Ke'eaumoku became the ruling chief of Kona and Kohala (Kamakau 1992). Wars between the *ali'i* continued unabated through this transition.

## 2. Background

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After Keawe's death, Alapa'inui, the son of former Kona war chief Kauauanui a Mahi, a former war chief of Kona, desired to wrest control of Hawai'i Island from the other chiefs (Kamakau 1992). Alapa'inui, who had been living on Maui since the death of his father, returned to Hawai'i Island and waged war against the chiefs of Kona and Kohala. Alapa'inui was eventually victorious and took the chiefs of those districts captive, proclaiming Kona and Kohala his own. Kekaulike, the ruler of Maui, however, preferred the former chiefs and wished to help them reclaim their lands. The Maui forces attacked Alapa'inui, but were unable to defeat him. Although Alapa'inui's forces were never beaten, the frequent attacks by Kekaulike did prevent him from taking the chiefs of Hilo and Ka'ū captive (Alapa'inui did eventually take control of these districts however). Alapa'inui later fought and defeated the forces of O'ahu on Moloka'i, and after Kekaulike's death he fought Kauhi, his rival's oldest son, on Maui where he was also victorious. Alapa'inui ruled for many years, but at the end of his reign, after moving to Kikiako'i in Kawaihae, he became seriously ill, and there at the *heiau* of Mailekini, he appointed his son Keawe'opala ruler of the island (Kamakau 1992).

It was during this time of warfare, following the death of Keawe, that Kamehameha was born in North Kohala in the *ahupua'a* of Kokoiki, near the Mo'okini Heiau (Kamakau 1992). There is some controversy about the year of his birth, but Kamakau (1992:66–68 footnotes) places the birth event sometime between A.D. 1736 and 1758, and probably nearer to the later date. The birth event is said to have occurred on a stormy night of rain, thunder, and lightning, signified the night before by a very bright, ominous star, thought by some to be Halley's Comet (this is also controversial). Kamehameha's ancestral homeland was in Halawa, North Kohala (Williams 1919).

It was in 1754 that Keawe'opala became the ruler of Hawai'i, but many of the chiefs who were deprived of their lands fought against him. Keawe'opala was soon defeated in South Kona by Kalani'ōpu'u, who then became the ruler of Hawai'i Island (Kamakau 1992). Kalani'ōpu'u was a clever and able chief, and a famous athlete in all games of strength, but according to Kamakau (1992), he possessed one great fault: he loved war and had no regard for others' land rights. Although Kalani'ōpu'u would maintain his rule over the island for nearly thirty years, his reign was not free of turmoil and strife.

About A.D. 1759, Kalani'ōpu'u conquered East Maui, defeating his wife's brother, the Maui king Kamehamehanui, by using Hāna's prominent Pu'u Kau'iki as his fortress. He appointed one of his Hawai'i chiefs, Puna, as governor of Hāna and Kīpahulu. Following this victory, Ke'eaumoku, the son of Keawepoepoe who had originally supported Kalani'ōpu'u against Keawe'opala, rebelled against the Hawai'i chief. He set up a fort on a hill between Pololū and Honokāne Valleys in windward North Kohala, but Kalani'ōpu'u attacked him there and was victorious. Using ropes, Ke'eaumoku escaped to the sea and fled in a canoe to Maui where he lived under the protection of the Maui chiefs.

In A.D. 1766, Kamehamehanui, the king of Maui, died following an illness and Kahekili became the new ruler of that island. Ke'eaumoku took Kamehamehanui's widow, Namahana, a cousin of Kamehameha I, as his wife, and their daughter, Ka'ahumanu, the future favorite wife of Kamehameha I, was born in a cave at the base of Pu'u Kau'iki, Hāna, Maui in A.D. 1768 (Kamakau 1992). In A.D. 1775, Kalani'ōpu'u and his Hāna forces raided and destroyed the neighboring district of Kaupō in Maui, and then launched several more raids on Moloka'i, Lāna'i, Kaho'olawe, and parts of West Maui. It was at the battle of Kalaeoka'ilio that Kamehameha, a favorite of Kalani'ōpu'u, was first recognized as a great warrior and given the name of Pai'ea (hard-shelled crab) by the Maui chiefs and warriors (Kamakau 1992). During the battles between Kalani'ōpu'u and Kahekili (1777–1779), Ka'ahumanu and her parents left Maui to live on the island of Hawai'i (Kamakau 1992). Kalani'ōpu'u was fighting on Maui when the British explorer Captain James Cook first arrived in the islands.

With the arrival of foreigners in the islands, Hawai'i's culture and economy underwent drastic changes. Demographic trends during the early part of the nineteenth century indicate population reduction in some areas, due to war and disease, yet increase in others, with relatively little change in material culture. At first there was a continued trend toward craft and status specialization, intensification of agriculture, *ali'i* controlled aquaculture, upland residential sites, and the enhancement of traditional oral history (Kirch 1985; Kent 1983). Later, as the Historic Period progressed, Kamehameha I died, the *kapu* system was abolished, Christianity established a firm foothold in the islands, and introduced diseases and global economic forces had a devastating impact on traditional life-ways. Some of the work of the commoners shifted from subsistence agriculture to the production of foods and goods that they could trade with early Western visitors. Introduced foods often grown for trade with Westerners included yams, coffee, melons, Irish potatoes, Indian corn, beans, figs, oranges, guavas, and grapes (Wilkes 1845). The arrival of foreigners in Hawai'i signified the end of the Precontact Period, and the beginning of the Historic Period.

## History After Contact

Captain James Cook and his crew on board the ships the H.M.S. *Resolution* and *Discovery* first arrived in the Hawaiian Islands on January 18, 1778. Ten months later, on a return trip to Hawaiian waters, Kalani'ōpu'u, who was still at war with Kahekili, visited Cook on board the *Resolution* off the East coast of Maui. Kamehameha observed this meeting, but chose not to participate. It was during this visit to the islands that Lt. King of the Cook expedition explored the North Kohala countryside and reported:

As far as the eye could reach, seemed fruitful and well inhabited. [Three and four miles inland, plantations of taro and potatoes and *wauke*] neatly set out in rows. The walls that separate them are made of the loose burnt stone, which are got in clearing the ground; and being entirely concealed by sugar-canecan planted close on each side, make the most beautiful fences that can be conceived. [The exploring party stopped six or seven miles from the sea.] To the left a continuous range of villages, interspersed with groves of coconut trees spreading along the sea-shore; a thick wood behind this; and to the right, an extent of ground laid out in regular and well-cultivated plantations . . . as they passed, they did not observe a single foot of ground, that was capable of improvement, left unplanted. (Handy and Handy 1972:528)

In January [1779], Cook and Kalani'ōpu'u met again at Kealakekua Bay and exchanged gifts. The following month, Cook set sail for Maui; however, a severe storm off the coast of Kohala damaged a mast of one of the ships and they were forced to return to Kealakekua Bay. While back at the bay a skirmish broke out on the shores of Ka'awaloa over a stolen skiff and Captain Cook was killed (Kuykendall and Day 1976; Sahlins 1985).

After the death of Captain Cook and the departure of H.M.S. *Resolution* and *Discovery*, Kalani'ōpu'u moved to Kona, where he surfed and amused himself with the pleasures of dance (Kamakau 1992). While he was living in Kona, famine struck the district. Kalani'ōpu'u ordered that all the cultivated products of that district be seized, before setting out on a circuit of the island. Kalani'ōpu'u then went to Hinakahua in Kapa'au where he amused himself with "sports and games such as hula dancing, *kilu* spinning, *maika* rolling, and sliding sticks" (Kamakau 1991:106). During his stay in Kohala, Kalani'ōpu'u proclaimed that his son Kiwala'ō would be his successor, and he gave the guardianship of the war god Kūka'ilimoku to Kamehameha. However, Kamehameha and a few other chiefs were concerned about their land claims, which Kiwala'ō did not seem to honor (Fornander 1996; Kamakau 1992). The *heiau* of Moa'ula was erected in Waipi'o at this time (ca. A.D. 1781), and after its dedication, Kalani'ōpu'u set out for Hilo to quell a rebellion by a Puna chief named Imakakolo'a.

Imakakolo'a was defeated in Puna by Kalani'ōpu'u's superior forces, but he managed to avoid capture and hide from detection for the better part of a year. While the rebel chief was sought, Kalani'ōpu'u "went to Ka'u and stayed first at Punalu'u, then at Waiohinu, then at Kama'oa in the southern part of Ka'u, and erected a *heiau* called Pakini, or Halauwailua, near Kama'oa" (Kamakau 1992:108). Imakakolo'a was eventually captured and brought to the *heiau*, where Kiwala'ō was to sacrifice him as an offering. "The routine of the sacrifice required that the presiding chief should first offer up the pigs prepared for the occasion, then bananas, fruit, and lastly the captive chief" (Fornander 1996:202). However, before Kiwala'ō could finish the first offerings, Kamehameha, "grasped the body of Imakakolo'a and offered it up to the god, and the freeing of the tabu for the *heiau* was completed" (Kamakau 1992:109). Upon observing this single act of insubordination, many of the chiefs believed that Kamehameha would eventually rule over all of Hawai'i. After usurping Kiwala'ō's authority with a sacrificial ritual in Ka'u, Kamehameha retreated to his home district of Kohala. While in Kohala, Kamehameha farmed the land, growing taro and sweet potatoes (Handy and Handy 1972). Kalani'ōpu'u died in April of 1782 and was succeeded by his son Kiwala'ō.

### *The Rule of Kamehameha I (1782-1819)*

After Kalani'ōpu'u died, several chiefs were unhappy with Kiwala'ō's division of the island's lands, and civil war broke out. Kiwala'ō, Kalani'ōpu'u's son and appointed heir, was killed at the battle of Moku'ōhai, South Kona in July of 1782. Supporters of Kiwala'ō, including his half-brother Keōua and his uncle Keawemauhili, escaped the battle of Moku'ōhai with their lives and laid claim to the Hilo, Puna, and Ka'u Districts. According to I'i (1963), nearly ten years of almost continuous warfare followed the death of Kiwala'ō, as Kamehameha endeavored to unite the island of Hawai'i under one rule and conquer the islands of Maui and O'ahu. Keōua became Kamehameha's main rival on the island of Hawai'i, and he proved difficult to defeat (Kamakau 1992). Keawemauhili would eventually give his support to Kamehameha, but Keōua never stopped resisting. Around 1790, in an effort to secure his rule, Kamehameha began building the *heiau* of Pu'ukohola in Kawaihae, which was to be dedicated to the war god Kūka'ilimoku (Fornander 1996).

When Pu'ukoholā Heiau was completed in the summer of 1791, Kamehameha sent his two counselors, Keaweaheulu and Kamanawa, to Keōua to offer peace. Keōua was enticed to the dedication of the Pu'ukoholā Heiau by this ruse, and when he arrived at Kawaihae, he and his party were sacrificed to complete the dedication (Kamakau 1992). The assassination of Keōua gave Kamehameha undisputed control of Hawai'i Island by A.D. 1792 (Greene 1993).

In 1790, two Western ships, the *Eleanora* and *Fair American*, were trading in Hawaiian waters. As retribution for the theft of a skiff and the murder of one of the sailors, the crew of the *Eleanora* massacred more than 100 natives at Olowalu [Maui]. The *Eleanora* then sailed to Hawai'i Island, and one of its crew, John Young, went ashore where he was detained by Kamehameha. The other vessel, the *Fair American*, was captured by the forces of Kamehameha off the Kekaha coast and its crew was killed except for one member, Isaac Davis. Guns, and a cannon later named "Lopaka," were recovered from the *Fair American*, which Kamehameha kept as part of his fleet (Kamakau 1992). Kamehameha made Young and Davis his advisors, and aided by them and his newly acquired ships and foreign arms, had succeeded in conquering all the island kingdoms except Kaua'i by 1796. It wasn't until 1810, when Kaumuali'i of Kaua'i gave his allegiance to Kamehameha, that the Hawaiian Islands were unified under one ruler (Kuykendall and Day 1976).

Demographic trends during this period indicate population reduction in some areas due to war and disease, yet increases in others, with relatively little change in material culture. However, there was a continued trend toward craft and status specialization, intensification of agriculture, *ali'i* controlled aquaculture, upland residential sites, and the enhancement of traditional oral history. The Kū cult, *luakini heiau*, and the *kapu* system were at their peaks, although western influence was already altering the cultural fabric of the Islands (Kirch 1985; Kent 1983). Foreigners had introduced the concept of trade for profit, and by the time Kamehameha I had conquered O'ahu, Maui and Moloka'i in 1795, Hawai'i saw the beginnings of a market system economy (Kent 1983). This marked the end of the Proto-Historic Period and the end of an era of uniquely Hawaiian culture.

Hawai'i's culture and economy continued to change drastically as capitalism and industry established a firm foothold. The sandalwood (*Santalum ellipticum*) trade, established by Euro-Americans in 1790 and turned into a viable commercial enterprise by 1805 (Oliver 1961), was flourishing by 1810. This added to the breakdown of the traditional subsistence system, as farmers and fishermen were ordered to spend most of their time logging, resulting in food shortages and famine that led to a population decline. Kamehameha, who resided on the Island of O'ahu at this time, did manage to maintain some control over the trade (Kuykendall and Day 1976; Kent 1983).

Upon returning to Kailua in 1812, Kamehameha ordered men into the mountains of Kona to cut sandalwood and carry it to the coast, paying them in cloth, *tapa* material, food and fish (Kamakau 1992). This new burden added to the breakdown of the traditional subsistence system. Farmers and fishermen were ordered to spend most of their time logging, resulting in food shortages and famine that led to a population decline. Kamakau indicates that, "this rush of labor to the mountains brought about a scarcity of cultivated food . . . The people were forced to eat herbs and tree ferns, thus the famine [was] called Hi-laulele, Haha-pilau, Laulele, Pualele, 'Ama'u, or Hapu'u, from the wild plants resorted to" (1992:204). Once Kamehameha realized that his people were suffering, he "declared all the sandalwood the property of the government and ordered the people to devote only part of their time to its cutting and return to the cultivation of the land" (ibid.:204). In the uplands of Kailua, a vast plantation named Kuahewa was established where Kamehameha himself worked as a farmer. Kamehameha enacted the law that anyone who took one taro or one stalk of sugarcane must plant one cutting of the same in its place (Handy et al. 1991). While in Kailua, Kamehameha resided at Kamakahonu, from where he continued to rule the islands for another nine years. He and his high chiefs participated in foreign trade, but also continued to enforce the rigid *kapu* system.

### *The Death of Kamehameha I and the Abolition of the Kapu System*

Kamehameha I died on May 8, 1819 at Kamakahonu in Kailua-Kona, and the changes that had been affecting the Hawaiian culture since the arrival of Captain Cook in the Islands began to accelerate. Following the death of a prominent chief, it was customary to remove all of the regular *kapu* that maintained social order and the separation of men and women and elite and commoner. Thus, following Kamehameha's death, a period of *'ai noa* (free eating) was observed, along with the relaxation of other traditional *kapu*. It was for the new ruler and *kahuna* to re-establish *kapu* and restore social order, but at this point in history traditional customs were altered:

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

Immediately upon the death of Kamehameha I, Liholiho (his son and to be successor) was sent away to Kawaihae to keep him safe from the impurities of Kamakahonu brought about from the death of Kamehameha. After the purification ceremonies, Liholiho returned to Kamakahonu:

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

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

With an indefinite period of free-eating and the lack of the reinstatement of other *kapu* extending from Hawai'i to Kaula'i, and the arrival of the Christian missionaries shortly thereafter, the traditional religion had been officially replaced by Christianity within a year following the death of Kamehameha I. By December of 1819, Kamehameha II had sent edicts throughout the kingdom renouncing the ancient state religion, ordering the destruction of the *heiau* images, and ordering that the *heiau* structures be destroyed or abandoned and left to deteriorate. He did, however, allow the personal family religion, the '*aumakua* worship, to continue (Oliver 1961; Kamakau 1992).

With the end of the *kapu* system, changes in the social and economic patterns began to affect the lives of the common people. Liholiho moved his court to O'ahu, lessening the burden of resource procurement for the chiefly class on the residents of Hawai'i Island. Some of the work of the commoners shifted from subsistence agriculture to the production of foods and goods that they could trade with early Western visitors. Introduced foods grown for trade included yams, coffee, melons, Irish potatoes, corn, beans, figs, oranges, guavas, and grapes (Wilkes 1845).

### **Native Traditions and Historical Accounts of the Nāpu'u Region**

This section of the study presents *mo'olelo*—native traditions and historical accounts (some translated from the original Hawaiian by Kepā Maly)—of the Kekaha region that span several centuries. Nāpu'u was a favorable place to live in North Kona because of the freshwater springs and brackish pools along the coast and the more favorable agricultural land in the uplands. There are numerous native and historical accounts that mention Pu'uuanahulu and Pu'uwa'awa'a specifically, and even more that encompass the greater Kehaha region.

Perhaps one of the earliest datable traditions that reference the Nāpu'u-Kekaha region was collected by Abraham Fornander (1916-1917) titled "*The Legend of Kaulanapokii*". The legend speaks of traveling through the uplands, viewing Kīholo and Kapalaoa from Hu'ehu'e, and describes the practice of salt making at Puakō (a practice that was also very important in the coastal lands of Pu'uuanahulu and Pu'uwa'awa'a). By association with Hīkapōloa, chief of Kohala at the time of the events described in this story, the *mo'olelo* dates to around the thirteenth century.

## 2. Background

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Native historian, Samuel Kamakau (1961) recorded that during the reign of Lono-i-ka-makahiki, Kamalālāwalu (the king of Maui), made plans to invade the island of Hawai‘i. Kamalālāwalu (Kama) sent spies to determine how many people lived on the island. The spies “landed at Kawaihae,” and one of them, Ka-uhi-o-ka-lani, traveled the trail between Kawaihae to Kanikū (Kamakau 1961:56). Returning to his companions, Ka-uhi-o-ka-lani reported “I went visiting from here to the lava bed and pond that lies along the length of the land.” He was told, “Kaniku is the lava bed and Kiholo, the pond” (Kamakau 1961:56).

In another historical account, Kamakau describes eighteenth century events in the Kekaha region, with particular emphasis on the lands of Pu‘uwa‘awa‘a and Ka‘ūpūlehu, when Alapa‘i-nui—ruler of Hawai‘i—died in 1754, and his son Keawe‘ōpala was chosen as his successor (Kamakau 1961:78). In the years preceding that time, the young chief Kalani‘ōpu‘u, had been challenging Alapa‘i’s rule. The challenge continued after Alapa‘i’s death, and following a short reign, Kalani‘ōpu‘u killed Keawe‘ōpala and secured his rule over Hawai‘i. Kamakau also reports that in ca. 1780, as a result of their valor and counsel Kalani‘ōpu‘u granted “estate lands” in Kekaha to the twin chiefs Kame‘eiamoku and Kamanawa (ibid. 310). Kamakau also records, that at the time of Kalani‘ōpu‘u’s death, Kame‘eiamoku was living at Ka‘ūpūlehu, and his twin, Kamanawa was living at Kīhōlo, in Pu‘uwa‘awa‘a (ibid. 118). Kamakau also states, “the land of Kekaha was held by the *kahuna* [priestly] class of Ka-uahi and Nahulu” (ibid. 231); to which the twin chiefs are believed to have belonged.

Shortly after Kalani‘ōpu‘u’s death, Kamehameha I came into power. During his conquest of Kauai Island, he commissioned the building of war canoes. Waipa, a lesser chief of Hawai‘i island, built Kamehameha I a ship that was described as:

The ribs were *koa* and *hau* wood, the flooring *wiliwili* wood, the nails of *kauila* wood from Napu‘u (Kamakau 1961:187).

David Malo (born ca. 1793), a native historian and prolific writer of tradition Hawaiian customs and lore wrote that the wood of the *kauila* tree was prized because it “is a hard wood, excellent for spears, *tapa* beaters and a variety of other similar purposes” and was made into spears for the army of Kamehameha I (Malo 1951:21 and 25). Kamehameha I retained Pu‘uwa‘awa‘a Ahupua‘a, among other reasons because it was “a wise thing for the king to keep as his own the *ahupua‘a* or districts in which the *kauila*, the *aala*, or the *auau* is plentiful...” (ibid.:194)

One of the most significant natural events on the island of Hawai‘i, which occurred during the reign of Kamehameha I, was the eruption of Hualālai in 1800-1801. Kamakau (1961) provides a written description of the eruptions and their effect on the land and impact on the people of the region between Kīhōlo and Kalaoa:

One of the amazing things that happened after the battle called Kaipalaoa, in the fourth year of Kamehameha’s rule, was the lava flow which started at Hu‘ehu‘e in North Kona and flowed to Mahai‘ula, Ka‘upulehu, and Kiholo. The people believed that this earthconsuming flame came because of Pele’s desire for *awa* fish from the fishponds of Kiholo and Ka‘upulehu and *aku* fish from Ka‘elehuluhulu; or because of her jealousy of Kamehameha’s assuming wealth and honor for himself and giving her only those things which were worthless; or because of his refusing her the *tabu* breadfruit (‘*ulu*) of Kameha‘ikana which grew in the uplands of Hu‘ehu‘e where the flow started . . . The reasons given for the flow may be summed up as: first, Pele’s wanting the *aku* of Hale‘ohi‘u and the *awa* fish of Kiholo; second, her anger at being denied the ‘*ulu* (breadfruit) of Kameha‘ikana in upper Hu‘ehu‘e; third, her wrath because Kamehameha was devoting himself to Ka-heihei-malie and neglecting Ka-‘ahu-manu. [Kamakau in *Kuokoa*, July 13-20, 1867 and 1961:184-186]

There is no information pertaining to the original date of the Kīhōlo fishpond construction, but Kamehameha I was responsible for having it rebuilt between the mid 1790s and 1810 (Kelly 1996).

John Papa I‘i, a native historian and companion to the Kamehameha family, adds to the historical record of the fishpond Pa‘aiea that extended from the Mahai‘ula vicinity to Kalaoa, and was destroyed by the 1801 lava flows. I‘i reports that in the 1790s, as a result of his exceptional abilities at canoe racing, Kepa‘alani “became a favorite of the king, and it was thus that he received [stewardship of] the whole of Puuwaawaa and the fishponds Paaiea in Makaula and Kaulana in Kekaha” (I‘i 1959:132). In 1853, I‘i traveled to the Island of Hawai‘i to escape the smallpox epidemic spreading on O‘ahu. During his sail around Hawai‘i Island he stopped at Luahinewai (at the south end of Kīhōlo Bay in Pu‘uwa‘awa‘a) to “bathe and visit that strange water in the lava” (1959:171).

Hawaiian traditions document land use practices and features of the cultural landscape. The narratives also convey values and expressions of the relationship between ancient Hawaiians and their environment. One of the most prolific native writers of the late nineteenth and early twentieth centuries, lived on the island of Hawai‘i at Pu‘uanahulu. His name was John Whalley Hermosa Isaac Kihe, who also wrote under the penname Ka‘ohuha‘aheoinākuahiwi‘ekolu

(The proud mist on the three mountains). Born in 1853, Kihe's parents came from Honokōhau and Kaloko. During his life, Kihe taught at various schools in the Kekaha region, served as legal counsel to native residents applying for homestead lands, and worked as a translator on the Hawaiian Antiquities collections of A. Fornander. In the later years of his life, Kihe lived at Pu'uanahulu with his wife, Kaimu (Pu'uanahulu Homestead Grant No. 7540), and served as the postman of Nāpu'u. Kihe, who died in 1929, was also one of the primary informants to Eliza Maguire, who translated some of Kihe's writings, publishing them in abbreviated form in her book "*Kona Legends*" (Maguire 1926).

During his career, Kihe collaborated with several other noted Hawaiian authors, among them were John Ka'elemakule of Mahai'ula, John Wise (who also worked with Kihe on translations of the Fornander Collection), and Reverend Steven Desha, Sr., editor of the Hawaiian newspaper, *Ka Hoku o Hawaii*. Kihe was the preeminent historian of Nāpu'u and Kekaha, and from his pen (with contributions from his peers), came a rich collection of native traditions. His narratives ranged from native traditions to historical commentary and include historical accounts that were place-based. Readers are directed to Maly and Maly (2006) for translations of some of Kihe's contributions to the history, traditions, beliefs, customs, and practices of Nāpu'u and the Kekaha region.

In the series of articles entitled "*Na Hoonanea o ka Manawa, Kekahi mau Wahi Pana o Kekaha ma Kona*" (Pleasant Passing of Time [Stories] About Some of the Famous Places of Kekaha at Kona), Kihe presented detailed narratives of native traditions of Nāpu'u and Kekaha (*Ka Hoku o Hawaii*; Dec. 6th 1923 to Feb. 21st 1924). Kihe described some of the famous places (*wahi pana*), and how they came to be named. He also identified some of the early residents of the region, and practices associated with water catchment and agriculture. The account of the priest Moemoe, and the shark-man, 'Īwaha'ou'ou from *Ka Hoku o Hawaii*; January 3, 1924 includes in it several important place names in the lowlands of Pu'uwa'awa'a. Significantly, there are named caves and sites, and descriptions of cultivating practices in the uplands of Nāpu'u. The former residence of sharkman, 'Īwaha'ou'ou, situated near the Pu'uwa'awa'a/Pu'uanahulu boundary, overlooking the *kula* (plains) is still pointed out by elder *kama'āina* of the land. The locality bears the name, 'Īwaha'ou'ou.

Later in 1924, Kihe, described the changes which had occurred in the Kekaha region since his youth. In the article titled *Na Ho'omanao o ka Manawa* (in *Ka Hōkū o Hawai'i* June 5<sup>th</sup> & 12<sup>th</sup> 1924), Kihe wrote about the villages that were once inhabited throughout Kekaha, identifying families, practices, and schools of the Historic Period (ca. 1860-1924). In this two part series he also shared his personal feelings about the changes that had occurred, including the demise of the families and the abandonment of the coastal lands of Kekaha.

### **Kekaha and Nāpu'u Described in the Missionary and Explorer Journals**

The writings of early visitors (explorers, missionaries, and local travelers) to Hawai'i provide descriptions of the environment, villages, land use and cultural practices that occurred during the time of their visit. Narratives recorded by early visitors to the Kekaha-Nāpu'u region with specific references to localities such as Kīholo and Lae Manō, which are situated in Pu'uwa'awa'a are provided below. The travelers who came from afar, the foreigners, looked at the land very differently than the natives, who had developed spiritual and kinship attachments to it. The themes common to most of the narratives of the foreign visitors include descriptions of an arid and desolate land that was only sparsely inhabited by the time of recording the various accounts.

#### *The Journal of William Ellis (1823)*

Less than a year after Kamehameha's death in 1819, Protestant missionaries arrived from America (cf. I'i 1959 and Kamakau 1961). In 1823, British missionary William Ellis and members of the American Board of Commissioners for Foreign Missions (ABCFM) toured the island of Hawai'i seeking out communities in which to establish church centers and schools for the Calvinist mission. Ellis' writings (1963) offer important glimpses into the nature of native communities and history as spoken at the time. Following his last visit to Kawaihae, Ellis visited several of the coastal villages along the way. In coastal Pu'uanahulu and Pu'uwa'awa'a, Ellis stopped at Kapalaoa, Wainānāli'i, and Kīholo.

About four in the afternoon I landed at Kihoro, a straggling village, inhabited principally by fishermen. A number of people collected, to who I addressed a short discourse... ..This village exhibits another monument of the genius of Tamehameha. A small bay, perhaps half a mile across, runs inland a considerable distance. From one side of this bay, Tamehameha built a strong stone wall, six feet high in some places, and twenty feet wide, by which he had an excellent fish-pond, not less than two miles in circumference. There were several arches in the wall, which were guarded by strong stakes driven into the ground so far apart as to admit the water of the sea; yet sufficiently close to prevent the fish from escaping. It was well stocked with fish, and water-fowl were seen swimming on its surface. (Ellis 1963:294-5)

### *The Journals of Lorenzo Lyons and Cochran Forbes (ca. 1835-1859)*

On July 16 1832, Lorenzo Lyons (*Makua Laiana*), replaced Reverend Dwight Baldwin as minister at Waimea, Hawai‘i. Lyons’ “Church Field” was centered in Waimea, at what is now the historic church ‘Imiola and included both Kohala and Hāmākua (Doyle 1953:40 & 57).

Lyons described his walk on the *ala loa* (main trail) along the coast from Kohala through Pu‘uwa‘awa‘a, and described Kīholo Fishpond, while on his way to Kailua:

Aug. 8, 1843. Took the road from Kapalaoa to Kailua on foot. Passed the great fish pond at Kiholo, one of the artificial wonders of Hawaii; an immense work! A prodigious wall runs through a portion of the ocean, a channel for the water, etc. Half of Hawaii worked on it in the days of Kamehameha... [Doyle 1953:137]

During the time that Lyons was tending to his mission in South Kohala, Cochran Forbes (his South Kona counterpart), visited him and reports having walked to Kīholo from Kailua where he stayed a short while prior to continuing on to Wainānālī‘i and Kohala. Forbes (1984) described the 1841 journey with the following narratives:

Jany. 1. On the 29th left home for Kohala... [On Dec. 31] ...had a long & tedious journey by land to Kiholo. Arrived there at dark. Our canoe with baggage had not got along in the bad sea & head wind, *mumuku* & *hoolua* blowing. Spent the night at Kiholo & preached. Next morning our canoe got along as far as Wainanalii where we took breakfast and leaving the canoe, a strong *mumuku* blowing, we came by land over the lava to Puako, arrived there about 3 o'clock and encamped with Daniela (Loli) one of Bro Lyons' deacons. Here we spent the night and early this mornng. The men returned for the baggage & brought it by land as the sea is rough & strong winds blowing... [Forbes 1984:91]

### *The Wilkes Expedition (1840-41)*

In 1840-41, Charles Wilkes of the United States Exploring Expedition traveled through the Kekaha region. Wilkes' narratives offer readers a brief description of agricultural activities in coastal communities and also document the continued importance of fishing and salt making to the people who dwelt in Kekaha:

...A considerable trade is kept up between the south and north end of the district. The inhabitants of the barren portion of the latter [i.e., Kekaha] are principally occupied in fishing and the manufacture of salt, which articles are bartered with those who live in the more fertile regions of the south [i.e. Kailua-Keauhou], for food and clothing... (Wilkes 1845, 4:95-97)

The practice of inter-regional trade of salt and other articles described by Wilkes above, was based on traditional customs (cf. Malo 1951 & Kamakau 1961), and remained important to the livelihood of residents in the Nāpu‘u-Kekaha region through the ca. 1930s (see oral history interviews in Maly and Maly (2006).

## **Land Tenure in Nāpu‘u and Vicinity**

Through the traditions and early historical accounts cited above, we see that there are descriptions of early residences and practices of the native families on the lands of Pu‘uwa‘awa‘a and within greater Kekaha. Kalani‘ōpu‘u gave Kame‘eiamoku and Kamanawa various lands of the Kekaha region, as their personal properties (Kamakau 1961). Kamehameha I rose to power with the help of Kame‘eiamoku and Kamanawa, and their rights to the lands were retained, and handed down to their descendants (ibid. 1961). Among the best government records documenting residency in Pu‘uwa‘awa‘a are those of the *Māhele ‘Āina*, the Boundary Commission, the Government Survey Division, and the Government lease and homesteading programs.

### *The Māhele ‘Āina*

By the middle of the nineteenth century the ever-growing population of Westerners forced socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership in Hawai‘i, and the *Māhele* became the vehicle for determining ownership of native lands. During the *Māhele*, land interests of the King (Kamehameha III), the high-ranking chiefs, and the low-ranking chiefs, the *konohiki*, were defined. The chiefs and *konohiki* were required to present their claims to the Land Commission to receive awards for lands provided to them by Kamehameha III. They were also required to provide commutations to the government in order to receive royal patents on their awards. The lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This process expedited the work of the Land Commission (Chinen 1961).

During the *Māhele* all lands were placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and *Konohiki* Lands. All three types of land were subject to the rights of the native tenants therein. In 1862, the Commission of Boundaries (Boundary Commission) was established to legally set the boundaries of all the *ahupua'a* that had been awarded as a part of the *Māhele*. Subsequently, in 1874, the Commissioners of Boundaries were authorized to certify the boundaries for lands brought before them. The primary informants for the boundary descriptions were old native residents of the lands, many of which had also been claimants for *kuleana* during the *Māhele*. This information was collected primarily between A.D. 1873 and 1885 and was usually given in Hawaiian and transcribed in English as they occurred. Boundary descriptions were not collected for all *ahupua'a*.

Mikahela Kekauonohi (a granddaughter of Kamehameha I) claimed Pu'uwa'awa'a Ahupua'a during the *Māhele*; however, the *ahupua'a* was relinquished to the government perhaps in lieu of commutations for other lands awarded. Five *kuleana* claims, all in the coastal portion of the *ahupua'a* near Kiholo Bay, were made, but none were granted (Maly and Maly 2006). The *ahupua'a* of Pu'u'anahulu was claimed by Waipa, through his father's line back three generations to Lonoakai, who fought alongside Kamehameha I at the battle of Mokuohai. The claim was not awarded and the *ahupua'a* was granted by Kamehameha III to the government. One *kuleana* was claimed in Pu'u'anahulu presumably near the shore, by J.A. Kuakini who claimed fifteen salt ponds, three fish ponds, one *mo'o* of *lauhala* trees and one coconut grove are at Wainānālī'i. This claim was not awarded as seems to have been relinquished to settle a claim for land at Ma'ulili, in the *ahupua'a* of Kīpahulu on Maui.

#### *Boundary Commission Proceedings*

As Pu'u'anahulu was government land it was not subject to a formal boundary determination; and as Pu'uwa'awa'a was retained as crown land during the *Māhele*, it was not until 1873 that its boundaries were surveyed. The boundary testimonies and survey records provide a good summary of traditional knowledge of places, and identify localities ranging from the shore to the upper most boundaries of the *ahupua'a*. The narratives describe: trails and forest resources of Pu'uwa'awa'a; the occurrence of historical features, including residences and agricultural fields; the practice of salt making; and name many localities on the land:

#### **Volume B**

#### ***Puawaa [Pu'u Wa'awa'a]***

***August 13, 1873***

***Aoa K. Sworn:***

I was born at Puawaa North Kona Hawaii at the time of Keoua 1st [ca. 1791] lived there till a few months ago when I moved to the adjoining land of Puanahulu [Puuanahulu]. I am kamaaina and know the boundaries. Lono an older cousin of mine, now dead, pointed out the boundaries to me; as the different lands had different Konohiki and different Koele [agricultural fields] &c. The land of Puawaa is bounded on the south side by Kaupulehu and mauka by the same. On the North by the land of Puanahulu, and makai by the sea. The ancient fishing rights of the land extend out to sea.

The boundary at sea shore between this land and Kaupulehu, is at Pohakuokahai, a rocky point in the aa on the lava flow of 1801; the flow from Hualalai to sea. I think it is the third point from Kiholo, in the flow as you go toward Kona. Thence the boundary between these lands runs mauka on aa to Keahupuaa, a pile of stones, a short distance makai of the Government road, on a spot of old lava in the new flow. Thence mauka to Oweowe, a hill covered with trees said hill being surrounded by the flow, the kipuka pili [an area of pili grass growth] to the south is on Kaupulehu. Thence mauka to mawae [fissure] on a narrow strip of aa in the middle of the flow with smaller branches of the flow on each side of this strip, thence [page 253] mauka to where the aa turns toward Kona, as you go up Hualalai; thence the boundary follows up the East side of the flow to Puuako [Puuakowai], a water hole in the Pukiiawe trees on the old trail from Kainaliu to Puanahulu above the woods.

There the boundary of these lands turns toward Kohala, along the old trail to Waikulukulu, a cave with water dripping from the sides, a little above the woods. Thence along the trail to Punahaha, a hill with cracks running along the top; this is above the large hill at the base of Hualalai; mauka of here, it can be seen from here when the mountain is clear. This hill is the corner of Puawaa where Kaupulehu and Puanahulu unite and cut it off. From this boundary point the boundary between Puawaa and Puanahulu runs makai to Iana o Maui [Ana-o-Maui], a large cave in the Pahoehoe, thence makai along the edge of the aa (the pahoehoe being on Puanahulu, to Kapohakahiuli a large cave with water in it). Thence makai and running along edge of aa, on south side of Haahaa, a place

with old cultivating ground at the foot, thence to Kaluakauwila, a pali running towards the sea and along the Northern edge of the aa near the foot of the pali. Thence the boundary runs to Kukuihakau, a place where people used to live, along the edge of aa. Thence to Kalanikamoa and along an old iwi aina [boundary or planting field wall] through this place. Thence the boundary runs to Ahuakamalii; a pile of stones, built in olden times on soil. Thence along old trail to Ahinahina running through the middle of the old cultivating ground; thence makai along the road to Uliulihiaka, a Kahawai [stream channel] now covered by lava flow of 1859; thence makai on the flow of 1859 to Kuanahu, an ahua in lava; thence makai to Mimiokauahi, an *ahua* covered by flow of 1859. Thence *makai* between Puuoa Lonoakai on Puawaa, and Puuoa Kaualii on Puanahulu, now covered with lava, except small portions of the one on this land. Thence to Kalaiokekai a point on old lava, on the edge of the flow of 1859 near Keawaiki. *I used to go on the mountain after sandal wood, and know these boundaries.* C.X.d. A hill called Mailihahei is the corner of Keauhou and Kaupulehu. I do not know the boundaries of Keauhou beyond this point. Keauhou does not reach Puawaa. [page 254]

### ***Nahinalii K. Sworn:***

I was born here [Pu'u Wa'awa'a] at the time of the building of Kiholo [ca. 1810], and lived here till 1865 when I moved to Kawaihae. Keopu an old Kamaaina, now dead, told me some of the boundaries, and afterwards I went and saw them. Pohakuokahai is the boundary on the shore, between this land and Kaupulehu. From this point the boundaries between these two lands, runs mauka to Keahukaupuaa. Paniau is the name of the place where the ahu stands, thence mauka to Oweowe; which is as far as I know the boundaries on that side.

The kamaaina of this land told me that the boundary at shore between Puawaa and Puanahulu, is between Lonokai on Puawaa and Puuokaualii on Puanahulu, they are very close to the shore.

The kamaaina of Puanahulu, told me that the boundary is at Laeokaaukai, on the Kona side of the house at Kaawaiki.

I do not know the boundaries mauka of this point, until you come to Ahuaokamalii, an ahua on the Kona side of the pali some distance from the base; from thence the boundary runs mauka to Puuloa, a pali in the woods which runs mauka toward Hualalai. Thence the boundary runs mauka to Kaluakauila, a long iwi aina [usually a boundary- or planting field-wall] through a cultivating ground

This is as far as I know the boundaries and have not heard what the other boundaries are. Have heard that Kaupulehu cuts Puawaa off, above the woods and joins Puanahulu C.X.d. [page 255]

### ***Volume B:428***

#### ***Puawaa, No. Kona, Hawaii. June 14, 1876***

#### **D.H. Hitchcock filed a map & notes of survey.**

#### **D.H. Hitchcock K. Sworn:**

I surveyed Puawaa taking Aoa for my Kamaaina. I found no dispute as to boundary between Puawaa and Puanahulu. On the boundary between Kaupulehu and Puawaa there is a dispute. The witness Kahueai of Kaupulehu, I found was dead. Commencing on the beach at place called Laemano, old salt works, I took it at an old wall with sand at each side, and old salt works on the south side, and salt works some distance off on the north side. Thence, we surveyed to Ahu at Mawae a short distance below road, as Aoa pointed out to me. The other kamaaina pointed out towards Kona, taking old cultivating ground Oweowe, that Aoa said always belonged to Kaupulehu. The Ahu Aoa pointed out is near a cave. Thence I ran mauka to a point of aa running down into a kipuka, thence I ran a straight line to Puuakowai. I found the witness of Puawaa & Kaupulehu all meet at Puuakowai, but Keliihanapule's evidence cropped the land of Puawaa to Puuiki and then back to Puuakowai.

From Puuakowai I ran a straight line to Pohakunahaha. It is a prominent mark on the side of mountain, an old crater with three divisions in it, middle division belongs to this land. One of the other divisions belongs to Kaupulehu and another to Puuanahulu. Punihaole was with me when I surveyed Puawaa on the Puuanahulu side, and said he was satisfied with the survey. He is the lessee of Puawaa. C.X.d... [page 428]

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*Hawaiian Government Survey Records*

Another significant collection of Historic government records, are the field notebooks of Kingdom Surveyor, Joseph S. Emerson. Born on O‘ahu, J.S. Emerson (like his brother, Nathaniel Emerson, a compiler of Hawaiian traditions) had the ability to converse in Hawaiian, and was greatly interested in Hawaiian beliefs, traditions, and customs. As a result of this interest, his survey notebooks record more than coordinates for developing maps. While in the field, Emerson sought out knowledgeable native residents of the lands he surveyed to use as guides. While he was in the field, he recorded their traditions of place names, residences, trails, and various features of the cultural and natural landscape (including the extent of the forest and areas impacted by grazing). Emerson worked extensively in the Nāpu‘u and the greater Kekaha regions of North Kona and South Kohala.

Another unique facet of the Emerson’s field notebooks is that his assistant, J. Perryman, was a talented artist. While in the field, Perryman prepared detailed sketches that now help to bring the landscape of that period to life. In a letter to W.D. Alexander, Surveyor General, Emerson described his methods and wrote that he took readings off of:

...every visible hill, cape, bay, or point of interest in the district, recording its local name, and the name of the Ahupuaa in which it is situated. Every item of local historical, mythological or geological interest has been carefully sought & noted. Perryman has embellished the pages of the field book with twenty four neatly executed views & sketches from the various trig stations we have occupied... [Emerson to Alexander, May 21, 1882; Hawai‘i State Archives – DAGS 6, Box 1]

In his field communications (letter series to W.D. Alexander), Emerson comments on, and identifies some of his native informants and field guides. While describing the process of setting up triangulation stations from Puakō to Kaloko, Emerson reported that the “two native men are extra good. I could not have found two better men by searching the island a year.” (State Archives, HGS DAGS 6, Box 1; February 15, 1882). We learn later, that the primary native guides were Iakopa and Ka‘ililiwa—*kūpuna* of the Keākealani family of Nāpu‘u (State Archives, HGS DAGS 6, Box 1; May 5, and August 30, 1882). Selected sketches, cited in the following section of the study, provide readers with a glimpse of the countryside of Pu‘uwa‘awa‘a and vicinity, of more than 125 years ago.

J.S. Emerson Field Notebook Vol. 1 Reg. No. 251

West Hawaii Primary Triangulation, Kona District

Nohonaohae; March 23 & 29, 1882 (Figure 8)

*Site # and Comment (Map Section 2)*

- 1 – Lae o Mano.
- 2 – Kiholo Bay.
- 3 – Lae Hou.
- 4 – Lae o Kaiwi.
- 5 – Keawaiki Bay.
- 6 – Lae o Lelewi.
- 7 – Kapalaoa Sch. H.

*Site # and Comment (Map Section 1)*

- 1 – Lae o Kawaihae.
- 2 – Lae o Honokoa.
- 3 – Lae o Waiakailio.
- 4 – Lae o Puulaula.
- 5 – Lae o Waima. [Book 251:93]



J.S. Emerson Field Notebook Vol. II Reg. No. 252

West Hawaii Primary Triangulation, Kona District  
Puu Anahulu; April 29-30, 1882 (Figure 9)

*Site # and Comment:*

- 1 – Lae o Kawili. In Makalawena.
  - 2 – Lae o Awakee. In Kukio.
  - 3 – Bay this side of cape.
  - 4 – Lae o Kukio iki.
  - 5 – Large rock in sea.
  - 6 – Kukio iki Bay.
  - 7 – Lae o Kukio nui.
  - 8 – End of reef
  - 9 – Kukio nui Bay.
  - 10 – Kaoahu’s house in Kaupulehu Village.
  - 11 – “ “ this side of house.
  - 12 – Bay; tangent to head.
  - 13 – Lae o Kolomuo (extremity in Kaupulehu).
  - 14 – Nukumeomeo rock (opposite cape).
  - 15 – Pohakuokahae. By authority of Kailihiwa – Boundary point between the ilis of Kaupulehu and Kiholo.
  - 16 – small inlet.
  - 17 – small cape.
  - 18 – small bay.
  - 19 – Lae o Nawaikulua.
  - 20 – Small inlet.
  - 21 – Keawawamano.
  - 22 – Waiaelepi.
  - 23 – *Lauhala* Grove.
  - 24 – Keanini’s Grass house.
  - 25 – Kauai’s Grass house.
  - 26 – Kiholo meeting house. [church and school house]
- Puu Waawaa.**
- 27 – Lae o Keawaiki.
  - 28 – Honuakaha.
  - 29 – Lae Iiili.
  - 30 – inside bay [Book 252:69-71]

While conducting the Pu‘uanahulu survey, Perryman prepared a sketch of the region depicting the area from Pu‘uanahulu upland to Pu‘uwa‘awa‘a and the southeastern slope of Hualālai. Though Perryman’s sketch is not keyed, it includes important visual references and is included here as Figure 10.

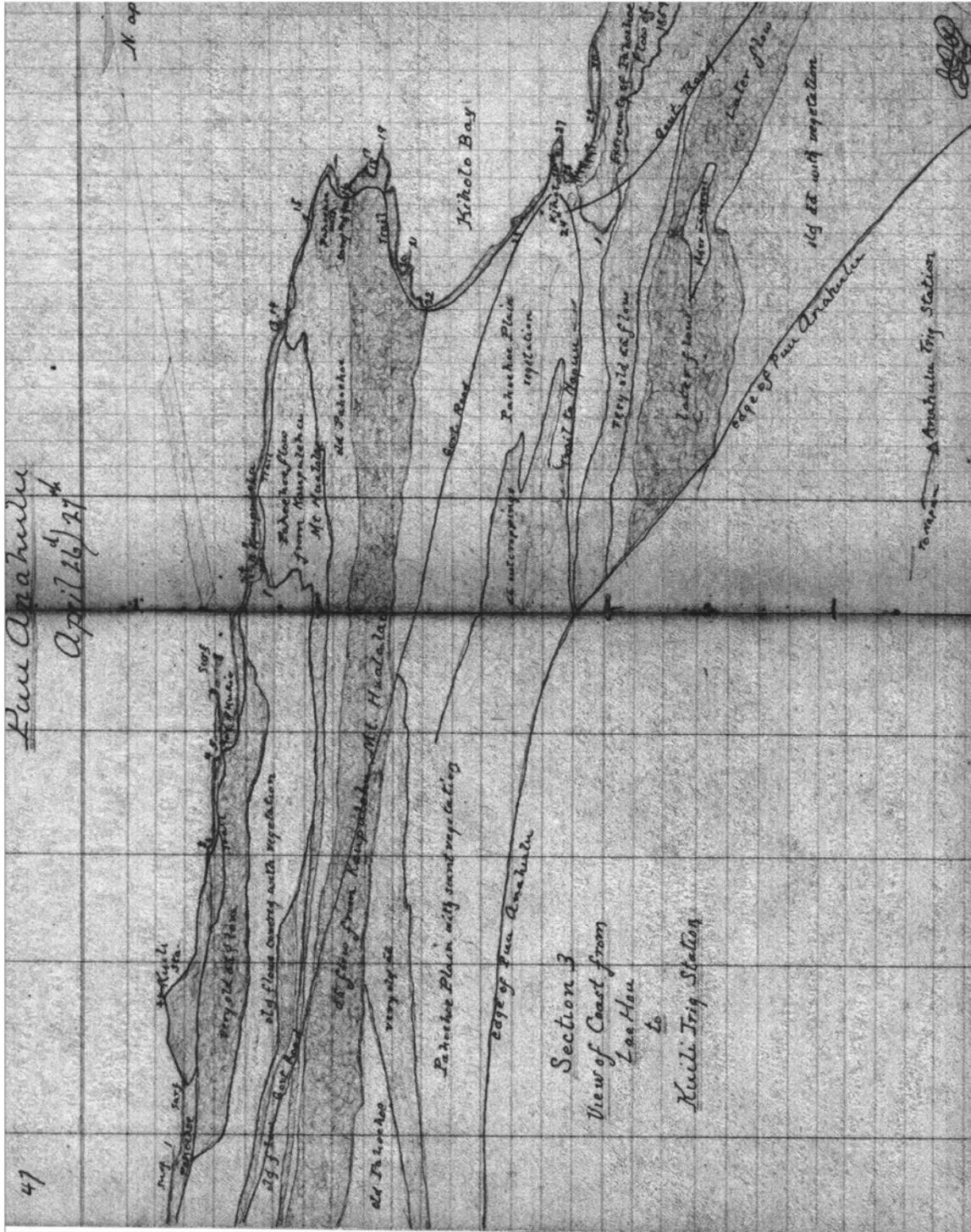


Figure 9. J.S. Emerson, Field Note Book Map – Book 252:47 (State Survey Division).

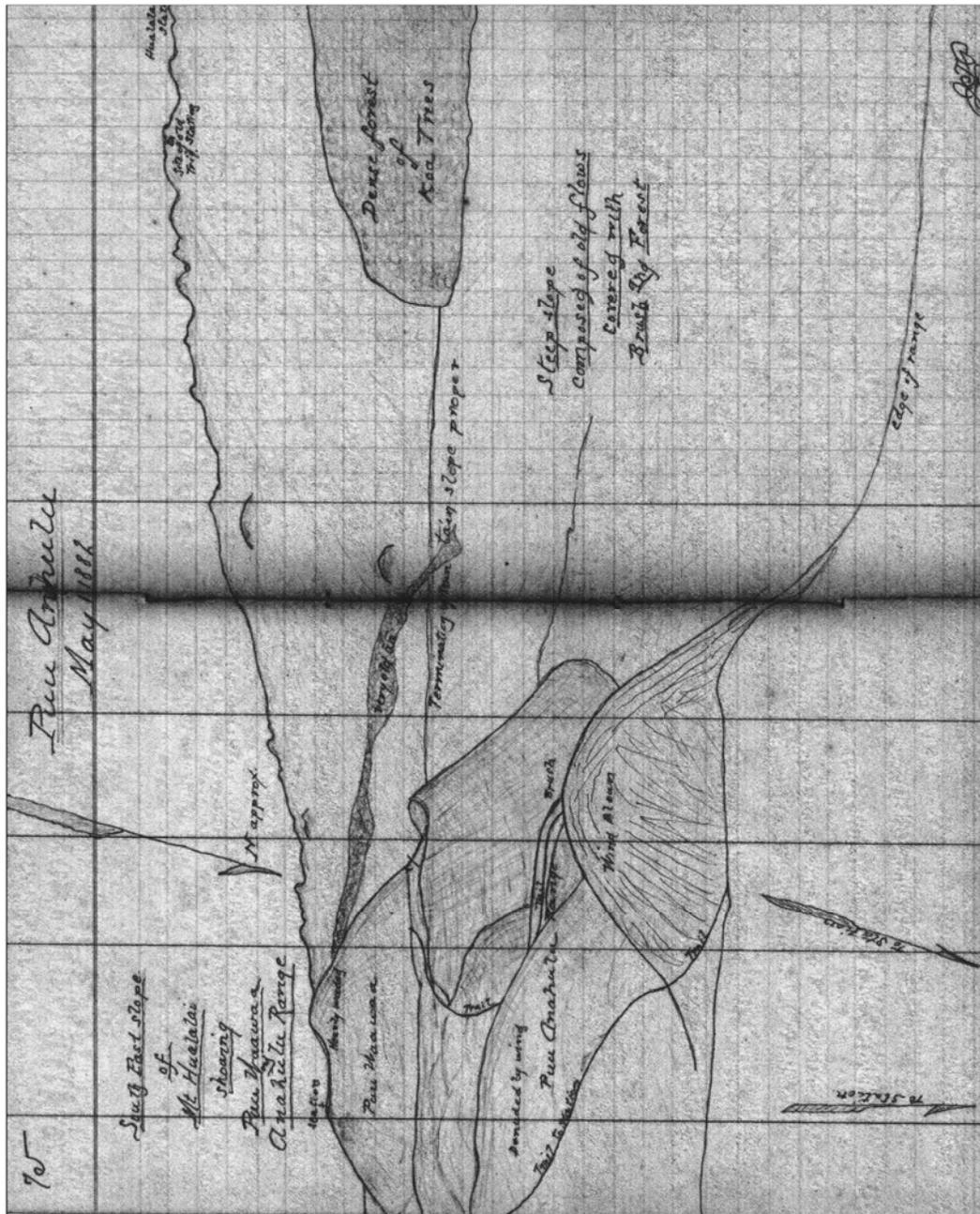


Figure 10. J.S. Emerson, Field Note Book Map – Book 252:75 (State Survey Division).

2. Background

J.S. Emerson Field Notebook Vol. II Reg. No. 252  
West Hawaii Primary Triangulation, Kona District  
Puu Waawaa; May 16th, 1882 (Figure 11)

Site # and Comment:

Puu Waawaa.

- 1 – Aea’s grass house. On Puu Huluhulu.
- 2 – School house, framed. On Kaipohaku.
- 3 – Jacob’s [Iakopa’s] house, grass. On Pawaa. Kapalaoa Sch. House.
- 4 – Puu Kuahiku. Anahulu range.
- 5 – Puu Pohakau.
- 6 – Puu o Lili.
- 7 – Kumua o iwi Kau.
- 8 – Mauiloa
- 9 – Puu Anahulu.
- Puu Iki. In Puu Anahulu – Boundary of P.A. and Waawaa Ahupuaa, half way between this station and Puu Iki according to the “boy.”
- Ana o Maui. In Anahulu covered with rock. [Book 252:116]

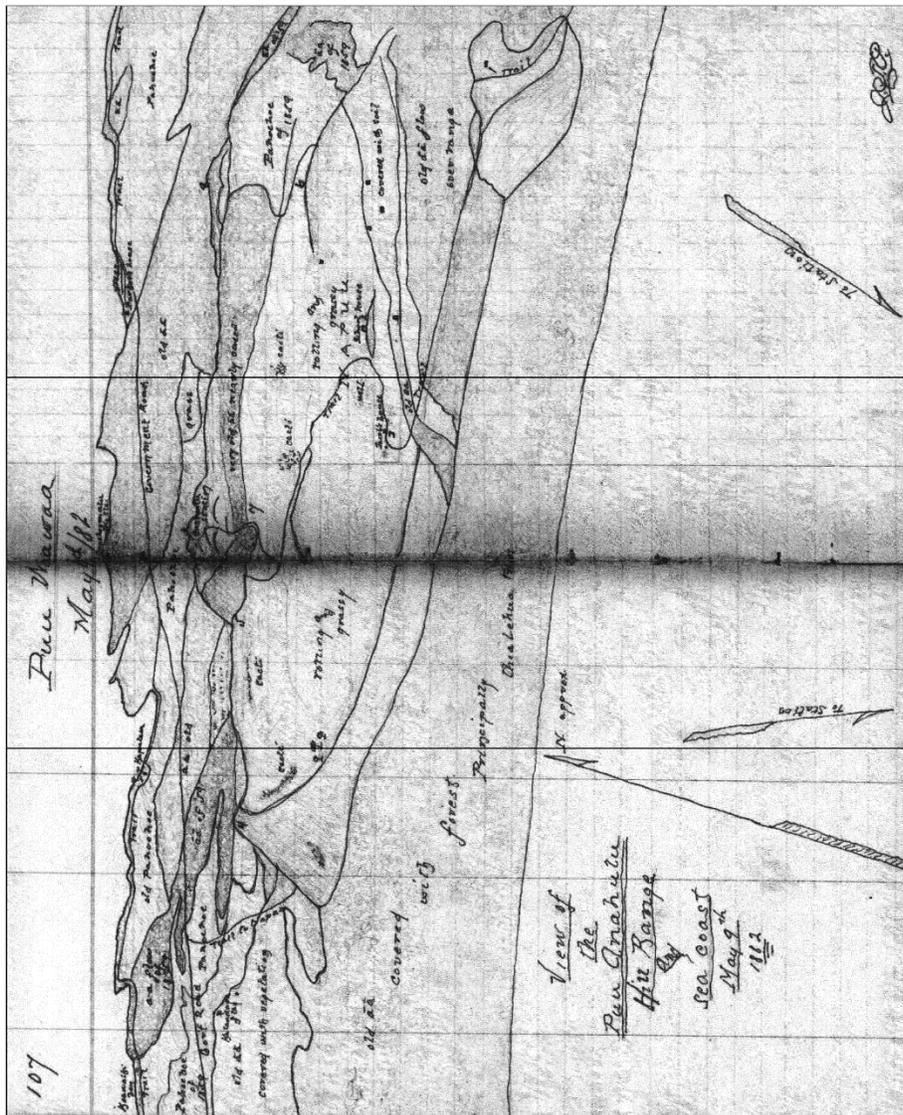


Figure 11. J.S. Emerson, Field Note Book Map – Book 252:107 (State Survey Division).

J.S. Emerson Field Notebook Vol. II Reg. No. 252  
 West Hawaii Primary Triangulation, Kona District  
 Kuili Station; May 19-20, 1882 (Figure 12)

*Site # and Comment:*

- 34 – Keonenui Bay; long black sand beach.
- 35 – Lae o Nukumeomeo.
- 36 – Kiholo Bay; site on surf – indefinite.
- 37 – Lae Hou – extremity.
- 38 – Ohiki Bay.
- 39 – Lae o Kaiwi, needle shaped.
- 40 – Akina kahi Bay.
- 41 – Lae o Naubaka, Puu Anahulu.
- 42 – Kahamoi Bay. “Ha” = outlet to fishpond. “Moi” = a choice fish.
- 43 – Pohakuloa rock. On cape of same name, P. Anahulu.
- 44 – Lae o Pohakuloa.
- 45 – Akahukaumu. Indefinite, head of bay.  
 The lighting – “Akahu” of the oven “Kaumu.”  
 [now written as Akahu Kaimu]
- 46 – Lae o Leleiwi, bone cape on a/c of sharpness.
- 47 – Kapalaoa bay.  
 Anaehoomalu Station
- 48 – Kuaiwa rock. Name from “Kuaiwa” chief of Anahulu Ahupuaa who in the time of Kaahumanu raised a revolt in favor of heathenism and being bound hand and foot, was thrown into the sea at Kailua.  
 Lae Makaha. Outlet of fishpond [Book 252:131-132]  
 Hale o Mihi rock. Mihi an ancient demigod or *Kupua*.  
 Koukealii Bay, sight on surf at head.  
 Lae o ka Auau. Anaehoomalu.  
 Waiulua inlet, abounding in “*ulua*” fish.  
 Waiulua Cape, nearly on level with sea.  
 Anaehoomalu Bay. Head of bay. [Book 252:131]

J.S. Emerson Field Notebook Vol. 111 Reg. No. 253  
 West Hawaii Primary Triangulation, Kona District  
 Akahipuu; May 29, 1882 (Figure 13)

*Site # and Comment:*

- 1 – Kiholo meeting house. Puu Waawaa.
- 2 – Kauai’s frame house. Puu Waawaa, Kiholo village.
- 3 – Keanini’s frame house. Puu Waawaa, Kiholo village.
- 4 – Honuakaha Bay. Puu Waawaa.
- 5 – Keawaiki Cape. Puu Waawaa.
- 6 – Kiholo Bay. Puu Waawaa.
- 7 – Lae Iiili. Cape of lava stones.
- 8 – Inside bay.
- 9 – Lae Hou. [Book 253:39]

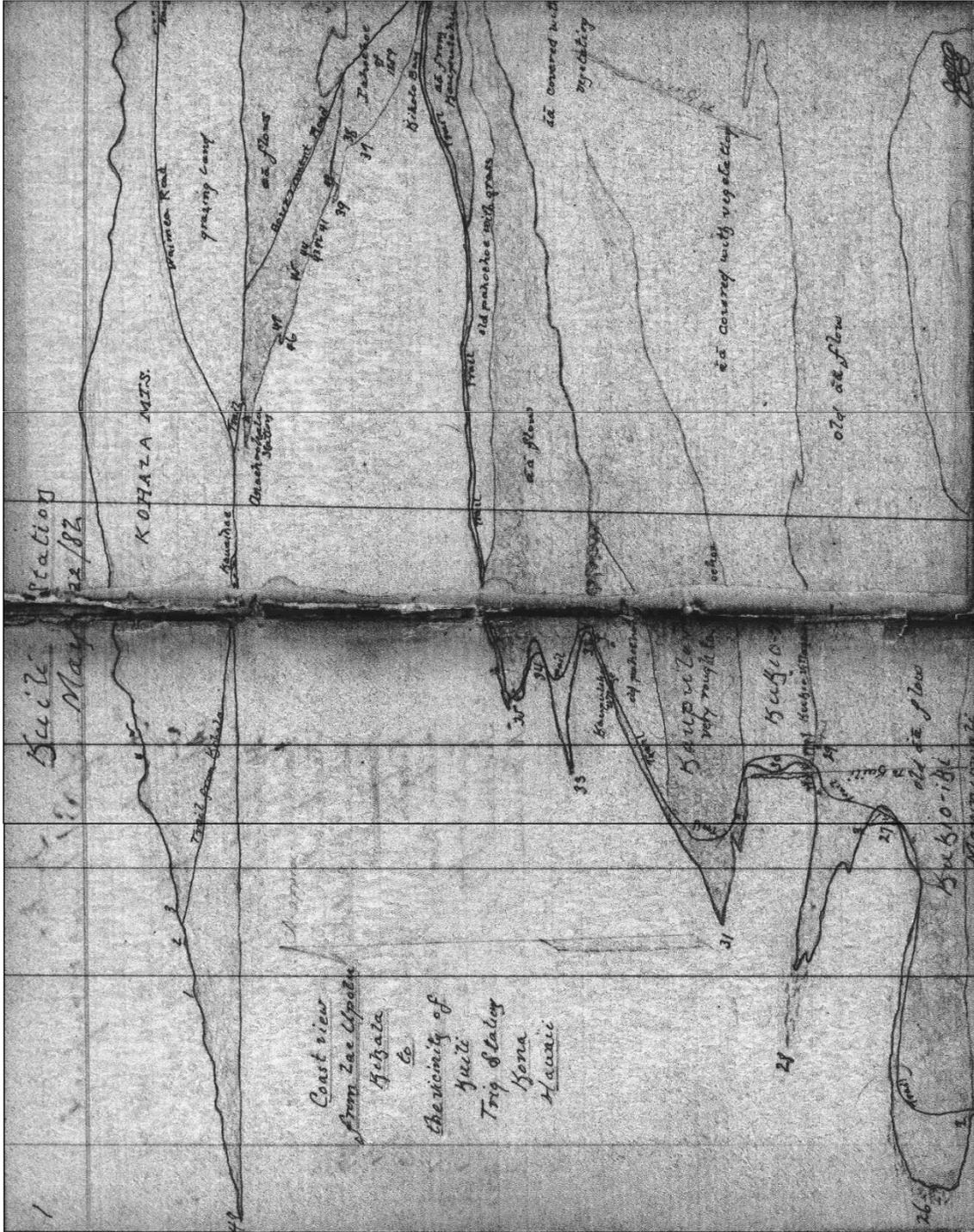


Figure 12. J.S. Emerson, Field Note Book Map – Book 253:1 (State Survey Division).



## 2. Background

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Akahipuu – May 31, 1882

10 – Ohiki Bay. In Puu Waawaa.

11 – Lae Ohiki. “

12 – Koholapilau bay. “

13 – Konalimu. “

14 – Keawakeekee bay. “

15 – Keawakeekee cape. “

16 – Keawaiki bay. “

17 – Lae Akinakahi. In Puu Waawaa.

18 – Akinakahi Bay. [Book 253:49]

19 – Lae o Naubaka. In Puu Anahulu.

20 – Kaluaouou Bay. “

21 – Lae o Namahana... “ [Book 253:51]

J.S. Emerson Field Notebook Vol. 4 Reg. No. 254

Primary Triangulation, West Hawaii, Kona District

Station Descriptions – August 1882

Puu Waawaa

Is too prominent not to be easily found without a description.

A copper triangle and marked stone show the position of the point under ground. The stones above ground are close to the signal. There is a quantity of the cans underground also.

The rocks for the marking purposes had to be brought from the plains below on jackasses as there were none to be found on the hill. *The soil is very soft and rich, and the summit is covered with a dense forest.* [Field Book 254:123]

### *Government Leases and the Homesteading Program*

It appears that the first formal lease (issued in 1863) for lands in the Nāpu‘u region was for ranching operations. On March 20, 1863, the entire *ahupua‘a* of Pu‘uanahulu (“*with the exception of the land rights of the native tenants upon the land*”) was leased to three Hawaiian lessees—G. Kaukuna, M. Maeha, and S. Kanakaole, listed as residents of Honolulu, O‘ahu (State Archives files – General Lease No. 106; DLNR2- Vol. 15). Two years after Kaukuna, Maeha and Kanaka‘ole acquired the lease, they sold their interest to Francis Spencer for incorporation into the holdings of the Waimea Grazing and Agricultural Company. From the 1860s until the 1970s, ranching was the primary, large-scale land use operation in the region. Over time, the land area under lease, ranged from approximately 4,000 acres to more than 120,000 acres of Pu‘uwa‘awa‘a and Pu‘uanahulu. A 1902 map of the Pu‘uwa‘awa‘a-Pu‘uanahulu lease lands depicts the lands described in various lease documents (Figure 14).

In 1893, with the lease of Pu‘uanahulu (Government Land) and Pu‘uwa‘awa‘a (Crown Land), held by Francis Spencer drawing to a close, new applications for the lands were tendered by native residents, Francis Spencer, and the party of Eben Low and Robert Hind. The Crown Land of Pu‘uwa‘awa‘a, was brought before the Commissioners of Crown Lands, where discussion ensued. On June 27, 1893, it was noted that the native Hawaiian residents had applied for an interest in the land, but that the land agent had determined the land was inadequate for residency needs (though the families had resided there for generations). Governor Sanford Dole (also the father-in-law of Eben Low), observed that the forest on the land was an “important matter;” and also that a lease of the land should go to a “reliable tenant”. What follows are communications regarding the lease agreement of Pu‘uwa‘awa‘a Ahupua‘a.

Executive Building

Honolulu June 27, 1893

Meeting of the Commissioners of Crown Lands:

...The special matter for consideration was an application from Mr. Low for the lease of the Crown Land known as Puuwaawaa in Kona Hawaii.

Mr. Dole in referring to the general land policy of the Government, stated that special care be taken, when leasing lands, to reserve all such as may be adapted for settlement and homestead purposes. When any land is available for lease, he would favor leasing the same to a good and reliable tenant who will make extensive improvements and could be relied upon to carry out certain requisite conditions more especially that in reference to the care of the forest, now a most important matter.

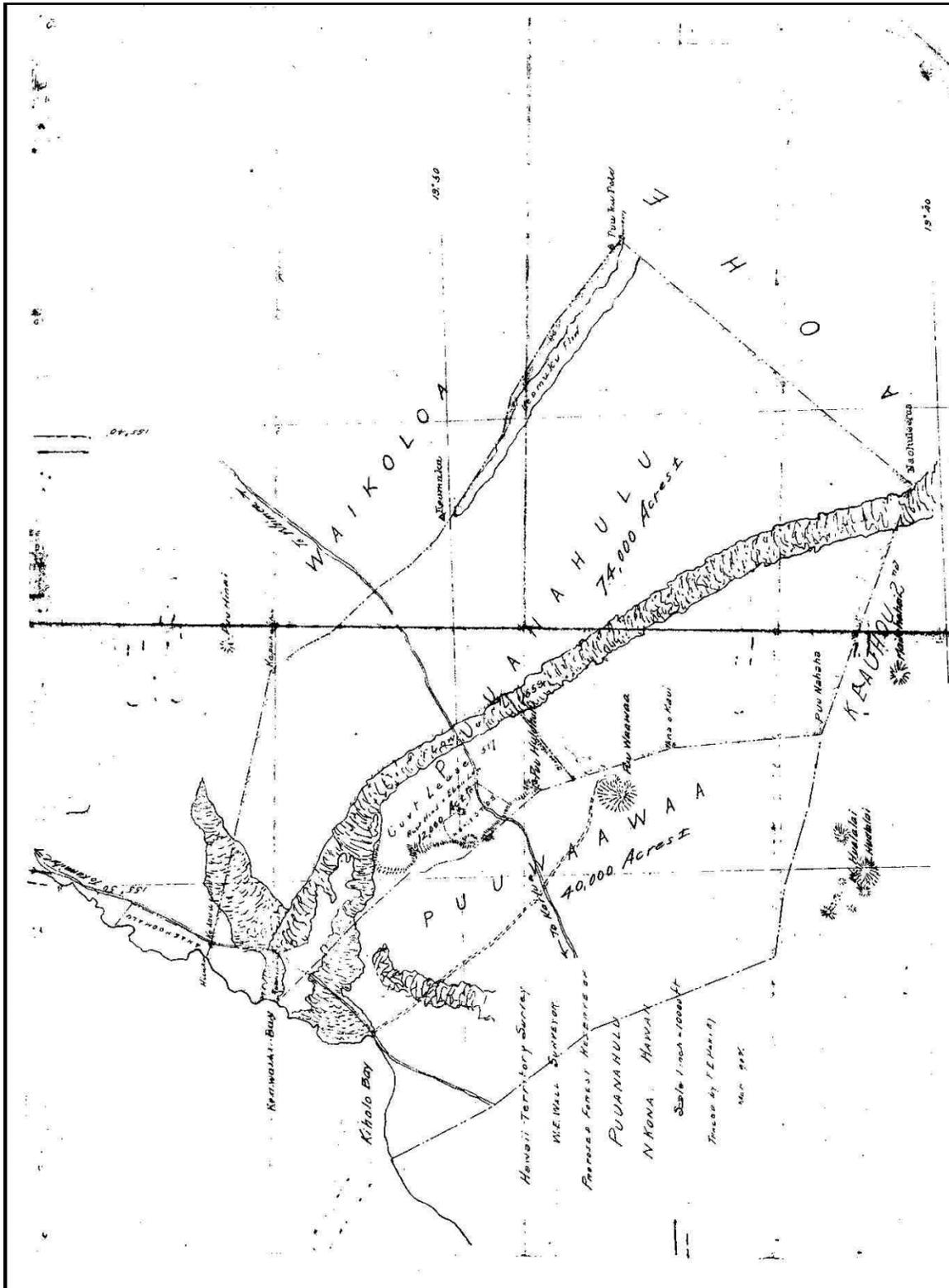


Figure 14. Pu'uana'hulu and Pu'uwa'awa'ava Lease lands (1902). (Lease 971) State Survey Division.

The Agent states that the land of Puuwaawaa, though covering a very large area, between 30 and 40 thousand acres, is mostly comprised of aa and pahoehoe. At the request of certain native Hawaiians who claimed to be residents, he had visited Kiholo where they were living, and found that the land was not suitable for homesteading. In support of his observations, the Agent read the report of the Special Commission appointed at the Extra Session of the Legislature of 1887, which stated that this land offered no inducements to settlers.

The application of Mr. Low was then read, making the following propositions, viz.

together with free liberty of ingress, egress and regress, to and for the said parties of the first part [i.e., the Commissioners of Crown Lands] and their successors in office... ..For and during the term of Twenty five (25) YEARS, to commence from the fifteenth day of August A.D. 1893...paying...the yearly rent of Twelve Hundred & Ten Dollars...

[handwritten amendments]:

Provided that they may take such timber and other trees for their own use as fire wood or for mechanical, fencing or building purposes, to be used only on the demised premises... And also that they will and shall during the term of the present demised keep up and maintain the forest substantially according to the description hereinafter set forth; And also keep the Lantana from spreading or making any further headway on said demised premises; And further that they will within three years from commencement of the terms hereof, put and erect upon the premises hereby demised substantial improvements of a permanent character to the value of three thousand (\$3000.) dollars, and the same to keep and maintain in good repair during the full term hereof...

Signed J.A. King  
William O. Smith Interior Department  
C.P. Iaukea  
Robert Hind, Jr.  
Eben P. Low Lessees

Kohala, July 20/94  
Messrs. P.C. Jones, C.P. Iaukea,  
Commissioners of Crown Lands:

Dear Sirs;

We respectfully beg to make application for a reduction of \$710.00 on the rental of the land of Puuwaawaa, making the rental to \$500.00 per annum. We find it strictly necessary to ask for the reduction so that we will be in a position to keep up the strict conditions that are stipulated in the lease.

The writer goes to Honolulu by the “*Kinau*” and will give every detail, in person, to you, and will also be happy to give any information that you may require.

We remain, Dear Sirs,  
Your obedient servants,  
Eben P. Low,  
Robert Hind, Jr.

(Attachment)

Statement of a few facts in regards to Improvements, Situation, Roads etc. etc., on the Land of *Puuwaawaa*, North Kona, Island of Hawaii.

Improvements. There are on the Premises, improvements in the way of Buildings, fences to the extent of \$3000--- viz. Watersheds, Dairy Building, Stables, Dwelling quarters Six—5000 Gal. Tanks, 1—1200 gal. tank and over 30,000 gal. Cistern not quite completed.

Roads and Trails. The land of Puuwaawaa has only 4 outlet or trails, one by way of the mountain, one by land of Puuanahulu, one by Kapalaoa and one by Kiholo, none of these are Government trails, it is impossible to go by any other way without inconvenience and trouble. The distance of road from Kohala via Waimea to Puuwaawaa is 47 miles. The distance via Kawaihae is 36 miles.

It takes an average going with cattle from P'waa [Puuwaawaa] to Waimea 12 hours, Waimea to Kohala 9 hours, Puuwaawaa to Kawaihae, distance of twenty-one miles 13 hours. No way of making a wagon road under a cost of \$1,000.00 per mile.

Land. There are 40,000 Acres in this piece of property to be divided namely:

20,000 Acres Worthless

10,000 Acres Good for only 6 mos. in the year or when it rains.

1,000 Acres Very rich soil suitable for cultivation.

9,000 Acres Good for grazing only.

Rainfall. October to March plentiful.

March to May very slight, drizzily.

May to October hardly any, very dry.

No water holes or springs of any nature on the land.

Trees and Plants.

- Out of 1200 *kiawe* trees planted, about 209 growing.
- 50 Ironwood, none growing.
- 300 Eucalyptus, 2 growing.
- 100 Coffee Trees (for experiment), none growing.
- 150 Silk Oak, all growing.
- 50 Peach Trees, all growing.
- 50 Cheramois Trees, all growing.
- 12 Mangoes, Apricots, Lemons, all growing.

The great portion of the trees that died was from want of moisture, we could not save them, for no water could be spared.

We have rooted up every *lantana* visible, this will be our worst enemy on a count of the numerous quails that carry the berries from John Maguire's property [Kaupulehu], adjoining ours which is largely covered with this weed.

The cactus or the *Papipi* is also spreading fast, and so is the Scotch Thistle; We are trying to keep them from spreading any further.

Hawaiian trees and shrubs of numerous kinds abound luxuriantly on this land. Viz; the koa, pua, mamane, koko, naio, iliahi, opiko, kolea, kou, kukui, lama & etc. etc.

Stock. Cattle, Hind & Low, 1,000 head.

Horses 7, mules, Hind & Low 135 head.

Cattle & Horses, Spencer, 400 head.

Cattle & Horses, Natives, 150 head.

We have lost 3 mules and 2 horses from packing lumber from Kiholo, 70 head of cattle from want of water during summer of last year, and equivalent of 7% of our herd of 1,000.

Expenses. The expense of looking after this place is very large, our shoeing account alone is \$37.50 per month, and that is done right on the ranch by our men.

It takes 5 men, and no less, to look after this property, 10 miles of fences, and also fighting against *lantana*, cactus, thistle and keeping sundry trails in order – \$1500.00.

We pay freight per ton per S.S. to Kawaihae, \$5.00. We pay freight per ton per sloop to Kiholo, \$5.00. From Kiholo to P'waa Hill a distance of 9 miles by road, by pack mules and horses ½ cent per lb., on ordinary mds, as rice, flour & etc.-- \$10.00. 1 ½ cents per foot on lumber, \$15.00. My personal overseeing is not counted.

We intend to put in a large area under coffee, but we cannot see our way to it on account of the heavy rent we are bound under, especially when you have to lay out money besides rent and then wait for 3 years to get any returns.

Honolulu, July 24, 1894.  
Eben P. Low.  
General Lease No. 1039  
(Replacing previous Lease Agreements)  
Commissioner of Public Lands to Robert Hind  
Sept. 27, 1917

Puuwaawaa – Lease of 40,000 acres for the period of 21 years, commencing August 15th, 1918.  
(Hawaii State Land Division Files)

April 5th and 8th, 1919  
Governor McCarthy; to Commissioner Bailey:

Communications noting the request of Mr. Muller for a lease of a portion of the Puuwaawaa Beach Lots from the lease of Robert Hind, to be used as a salt works. Commissioner urged Governor to have Muller develop lease arrangement personally with Hind<sup>23</sup>. (Hawaii State Archives – Ex. & C.P.L. Files)

In the 1880s, the Hawaiian Kingdom undertook a program to form Homestead lots on Government lands as a way to get more Hawaiian tenants in possession of fee-simple property (Homestead Act of 1884). On Hawai‘i, several lands in the Kekaha region of North Kona were selected, and a surveying program initiated to open up the lands. Because it was the intent of the Homestead Act to provide residents with land upon which they could cultivate crops or graze animals, most of the lots were situated near the *mauka* road that ran through North Kona. Native tenants of Nāpu‘u requested Homestead lands as early as 1894, but the granting process was slow, and homesteaders competed for land that was also desirable for grazing use by Pu‘u Wa‘awa‘a Ranch. Indeed, the first applicants and recipients of fee simple title to land in Pu‘uanahulu were James Hind (brother of the primary lessee), Eben Parker Low, Elizabeth Napoleon-Low (wife of Eben P. Low), and Sanford Dole (the adoptive father of Elizabeth Napoleon-Low). Subsequently, by 1914, only a short time after native families began receiving title to their homestead lots in Pu‘uanahulu, Robert Hind began acquiring title to homestead lots from the native residents (Maly and Maly 2006). Generally speaking, the people who applied for homestead lots in a given land were long-time residents of the *ahupua‘a* or of neighboring lands. The documentation associated with the applications, also reveals that as a result of the conditions of the homesteading application process, the applicants had to live on the land requested, and had to prove that they had jobs and a secure income. Pu‘u Wa‘awa‘a Ranch (Maly and Maly 2006) offered the only available jobs in the remote Nāpu‘u Region. Because of this the native tenants had to maintain good relations with the ranch.

Robert Hind was clearly a significant individual with respect to the emerging sociopolitical economy of Hawai‘i and in 1916 became a significant political figure both regionally and nationally as he was appointed Hawai‘i Territorial Senator. A position he held for several years. It was during this tenure the Pu‘u Wa‘awa‘a Ranch, and the primary residence that was built there between 1905-1910 (named Pihanakalani), was visited by dignitaries from around the world. Pukui and Elbert (1986: 326) translate Pihanakalani as “gathering place [of] high supernatural beings.”

By the late 1920s, Hind began consolidating his interests in Pu‘uwa‘awa‘a Ranch (including the lease lands of Pu‘uanahulu and Pu‘uwa‘awa‘a and the various homestead parcels he acquired) under the corporation name “Robert Hind, Limited.” The following transaction was recorded in the Bureau of Conveyances Liber No. 911:1-4—

Mortgage – Robert Hind To Robert Hind, Limited, a Hawaiian Corporation Transferring General Leases of Puuanahulu and Puuwaawaa, and Grant No.’s — 4862 to Robert Hind, 25.38 acres; 5344 to Robert Hind, 4.16 acres; 6266 to Robert Hind, 3 acres; 6498 to Robert Hind, 3 acres; 6748 to Robert Hind, 3 acres; 5038 to Nipoa Pahia, 18.8 acres; 4594 to Eben P. Lowe, 116.1 acres, except 8.16 acres sold by the grantor to Margaret Mitchell by deed dated May 10, 1927; 5914 to Kinihaa Amona, 13.5 acres; 6147 to Kalani Nakupuna, 23.74 acres; 6148 to Kailihiwa Kuehu, Jr., 13.67 acres; 6156 to Keakealani Kuehu, 31.93 acres; 6159 to J.P. Cundell, Administrator of the Estate of J.W. Kaumelelau, 15.16 acres; 6149 to Joe Keoho, 7.30 acres, except for 2.33 acres sold by the grantor to D.H. Kahuila by deed dated May 31, 1927; and all livestock, improvements and equipment thereon comprising the PUUWAAWAA RANCH. (October 20, 1927)

In 1929, L.A. Henke, published a “Survey of Livestock in Hawaii,” University of Hawaii Research Publication No. 5. The publication included historical narratives of ranches throughout the Hawaiian Islands. Henke reported the following description of Pu’uwa’awa’a Ranch, including land tenure, source of livestock, and feed sources:

Puuwaawaa Ranch in North Kona, with the ranch headquarters beautifully located three miles above the government road, consists of a total of about 128,000 acres, but about 100,000 are waste lands covered with lava flows. Of the remaining 28,000 acres only 1,500 are really good grazing lands. About 100 acres are planted to cultivated crops. All but 300 acres held in fee simple are government leased lands. These lands run from sea level to an elevation of 6,000 feet. Some of the best grazing lands are found at 5,000 feet elevation.

For many years there was practically no water on the ranch other than what the cattle could get from the dew and succulent vegetation. However, as the vegetation became scarcer water was required in all but a few paddocks well supplied with cactus where the cattle still grow to maturity without ever having access to free water. The limited water now available is secured from roofs, and a pipe line from Huehue Ranch.

A total of about thirty miles of fences, half stone and half wire, are found on the ranch. At present, the ranch carries about 2,000 Herefords. All the bulls and thirty of the females are purebred. About 500 head, ranging between two and three years of age and dressing out at 500 pounds are marketed annually,—practically all are sent to Honolulu, being loaded on the steamers at Kailua.

Only rarely are the bulls left with the breeding herd throughout the year. Usually they are turned out only during the seasons when grazing conditions are good, for the owner does not like to risk losing valuable bulls during adverse seasons. The good and bad seasons do not follow the same schedule year after year, so a definite pre-arranged breeding schedule, which would be preferable to get calves at the same time, is impossible.

Calves are weaned at about six months of age, depending on the season. In bad seasons they are weaned earlier and taken to the best paddocks, which helps both the calf and the cow. An 85% calf crop was secured in 1928, but such a good percentage is not always secured.

When bulls range with the cows throughout the year they average about one bull to thirty cows. For restricted breeding seasons more bulls are needed. The ranch carries about sixty light horses and raises about ten mules per year. Practically no swine and no sheep are kept.

About two hundred dairy cattle of the Holstein and Guernsey breeds, ranging in age from four months to about two years can be found on the ranch at all times. These are the young calves from the Hind-Clarke dairy in Honolulu which are carried to the calving age at Puuwaawaa Ranch and then sent back to the dairy in Honolulu again.

Bermuda grass (*Cynodon dactylon*) is considered one of the best grasses. Other grasses that do well are *Kukaipuaa* or crab grass (*Panicum pruriens*), Kentucky blue grass (*Poa priatensis*), Spanish needles (*Bidens pilosa*), Rhodes grass (*Chloris gayana*), Mesquite or Yorkshire fog (*Holcus lanatus*) on high elevations, orchard grass or cocksfoot (*Dactylis glomerata*), *Paspalum compressum*, bur clover (*Medicago denticulata*) and red top (*Agrostis stolonifera*). Native weeds supply some forage and in droughty seasons the cactus (*Opuntia* spp.) is a great asset for the cattle eat not only the young leaves but also manage to break off the spines with their feet and survive. Rat tail or New Zealand Timothy (*Sporobolus elongatus*) has also been introduced and seems to be spreading.

The real beginning of Puuwaawaa Ranch was about 1892 when Robert Hind and Eben Low leased about 45,000 acres from the government and purchased about 2,000 head of cattle, —a mixture of Shorthorned, Angus and Devon breeds, from Frank Spencer, who had previously leased the lands of Puuanahulu, consisting of approximately 83,000 acres from the government. In 1893 Hind and Low acquired the lease on 12,000 acres of this area and in about 1917 Hind acquired the lease on the other 71,000 acres formerly in the Spencer lease. No cattle were carried on these 71,000 acres during the period 1893- 1917, but the land was pretty well overrun with goats... Since 1902 Robert Hind has been the sole owner of Puuwaawaa Ranch and he is still general manager of the ranch. (Henke 1929:43-44)

## 2. Background

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One of the significant problems faced by Hind in his ranching operation was competition that his herd faced from wild goats. By the turn of the century, the impact of goats on Hawaiian forests and lands valued by ranchers for economic purposes was causing alarm among land officials. On October 12, 1922, Charles Judd, Superintendent of Forestry in the Territory of Hawaii forwarded a communication to Governor Farrington describing conditions in the Nāpu‘u – Kekaha region. He observed:

Not only are thousands of acres robbed of valuable forage grasses which should properly go to cattle for the meat supply of this Territory but the undergrowth of bushes, ferns, and herbaceous plants which form valuable ground cover is being consumed or destroyed by goats and the trees which form the complement in the scheme of water conservation are being barked and killed by this voracious pest. At Kiholo in North Kona almost every *algaroba* tree, established in this dry region with great difficulty and most valuable here for the production of forage beans has been girdled by the wild goats... Senator R. Hind of Puuwaawaa, North Kona, Hawaii, is one who has felt, probably the most seriously, losses from an over-population of wild goats and in addition has suffered much loss of forage for cattle from wild sheep...

He has, therefore, undertaken, on his own initiative, active measures to relieve his ranch of this pest and on June 26 and 27, 1922 conducted a drive which resulted in ridding his ranch of 7,000 wild goats... [Hawaii State Archives Territorial Fish and Game Commission; Com-2, Box 15]

It was estimated in the 1920s that there was one goat on every five acres of land, and Judd reported that in the ranch lands of Pu‘uwa‘awa‘a and Pu‘uanahulu, which comprised 105,000 acres, there were 21,000 wild goats. The lands of Ka‘ūpūlehu and Kealakekua were combined, totaling 40,000 acres, meaning the goat population was estimated at 8,000 head (Hawaii State Archives Territorial Fish and Game Commission; Com-2, Box 15).

Following the development of the Pu‘uwa‘awa‘a Ranch leases and operations, Robert Hind and several business associates applied for, and were granted fee simple title to parcels of land on the coast of Pu‘uanahulu and Pu‘uwa‘awa‘a. Those include the following parcels:

Land Patent Grant No. 6498 to Robert Hind; Nov. 26, 1915.  
Kiholo Beach Lot 1 – 3.0 acres; Puuwaawaa.  
Land Patent Grant No. 6748 to Robert Hind; Jan. 4, 1917.  
Kiholo Beach Lot 2 – 3.0 acres; Puuwaawaa.  
Land Patent Grants No.’s 9943, 9944, and 9945 to Robert Hind; Dec. 22, 1930.  
Kiholo Beach Lots 8, 7 and 9 – three parcels at 3.0 acres each; Puuwaawaa.  
Land Patent Grant No. 10,433 to Dorothy Von Holt; Aug. 28, 1936.  
Weliweli Beach Lot 13 – 2.70 acres; Puuanahulu-Puuwaawaa Beach Lots.  
Land Patent Grant No. 10,431 to Robert Hind; Aug. 19, 1936.  
Kiholo Beach Lot 11 – 0.71 acres; Puuwaawaa.  
Land Patent Grant No. 10,432 to R. Leighton Hind; Aug. 15, 1936.  
Kiholo Beach Lot 12 – 3.0 acres; Puuwaawaa.  
Land Patent Grant No. 9071 to Frances H.I. Brown; July 15, 1926.  
Keawaiki Beach Lot 4 – 3.0 acres; Puuwaawaa-Puuanahulu.  
S.S.A. 1612 to Sanji Abe; February 24, 1937.  
Kiholo Beach Lot 14 (Luahinewai Lot) – 2.65 acres; Puuwaawaa.  
(Transferred to Marjorie C. Hind, March 16, 1937)

Several changes were occurring between the years of 1936 and 1937 with the land leases held by Robert Hind Limited. In October 1936, leases were surrendered for consolidation into one lease (covering an area of approximately 126,000 acres), in an effort to remove private parcels from the existing lease language. By this time, Hind and several friends and associates had acquired fee simple title to beach lots along the shore of Pu‘uanahulu and Pu‘uwa‘awa‘a. On April 19, 1937, Robert Hind, Limited and the Commissioner of Public Lands entered into an agreement modifying Puuanahulu-Puuwaawaa leases (No.’s 1038 and 1039), in which beach lots were removed from Lease No.’s 1038 and 1039 (Land Division Files).

In the same time period, the Commissioner announced that bidding for the leases would be opened, and for the first time, there was active competition against Hind’s interests. On October 12, 1937, the bidding closed with Hind retaining the lease, paying almost three times the original asking price, for the period of twenty-one years (effective August 15, 1939). The Commissioner of Public lands subsequently issued a new General Lease, No. 2621 (boundaries described in C.S.F. 8592), with descriptions of the boundaries and consolidation of all lands from General Lease No.’s

971, 1038 and 1039. (see General Leases in Land Division and State Survey Division Files; and Honolulu Advertiser and Star Bulletin articles of October 12 & 13, 1937).

C.S.F. 8592 (Figure 15) dated March 24, 1938, provides the survey coordinates for the revised and combined lease, containing a total area of 125,000 acres. The lease excluded the following —

Puuanahulu Homesteads (Lots 1 to 40 inclusive and roads.....)	853.41 Acres
Puuanahulu-Puuwaawaa Beach Lots 1 to 14 inclusive .....	39.06 “
Grant 4862 to Robert H. Hind .....	25.28 “
Grant 5344 to Robert H. Hind .....	4.16 “
Grant 6266 to Robert H. Hind .....	3.00 “
Grant 9513 to S.L. Desha, Sr.....	1.22 “
Grant 10286 to A.W. Carter, Trustee .....	25.09 “
Grant 10290 to A.W. Carter Trustee .....	20.72 “
North Kona Belt Road (F.A.P. 10-A and F.A.P. E-10-B) .....	79.67 “
	1051.71 Acres

Leaving a Net Area of 123,948.29 Acres.

...Also excepting and reserving there from all existing roads and trails within this tract and such other roads, trails and other rights-of-way that may be required for public purposes, said rights-of-way to be designated by the Commissioner of Public Lands. (C.S.F. 8592)

Robert Hind died in December 1938. Robert Hind, Limited, under the direction of Trustee John K. Clarke (who oversaw the trust until his death in 1951), continued operation of the Pu‘uwa‘awa‘a Ranch holdings, and various interests both on Hawai‘i (Pu‘uwa‘awa‘a, Captain Cook, and Honomalino) and O‘ahu (Aina Haina). Paddocks of the ranch (both older walled pastures and newer fenced pastures) as they exist in the present-day were basically in place by the 1940s. The paddocks range from approximately the 1,000 foot elevation, through the forest lands, to the upper boundary of Pu‘uwa‘awa‘a, and also take in the rich *kula* lands of Pu‘uanahulu (that surround the historic homestead lots). In 1948, the ranch contracted surveyor, Charles Murray to prepare a map of the ranch paddocks and fencing projects that were underway. The map (Figure 16) also identifies the names of the paddocks, as they were remembered by the *kama‘āina* cowboys. The current project area falls within the “Ohia Paddock.”

According to Escott (2009), the Old Waimea-Kona Belt Road was constructed between 1916 and 1922. Due to the tough road conditions on the driver and automobile the use of the Old Waimea-Kona Belt Road was short lived and the Government decided to begin construction on a wider more improved road. The new belt road was finished in 1933 and as seen on the 1938 Territory of Hawaii map (see Figure 15). A description of the new belt road is provided in an article in the July 1933 edition of *The Friend* newspaper, below is an excerpt from the article about the road finishing ceremony:

“The formal opening of the new belt road on the island of Hawai‘i, July 22, 1933, was an important occasion, attended by the Governor and his party from Honolulu and may excursionists.

The proposal has been made that the new road be named “Mamalahoe,” commemorating the famous edict by King Kamehameha I, “the Law of the Splintered Paddle” making Hawaii’s highways safe for the traveler.

A colorful celebration on Saturday was followed by a unique service of worship in the historic Kailua Church the following day. A sermon by the Rev H. P. Judd, broadcast by radio throughout the islands, was a feature of this service.....” (*The Friend* Vol.CIII, No.7, July 1933:147)



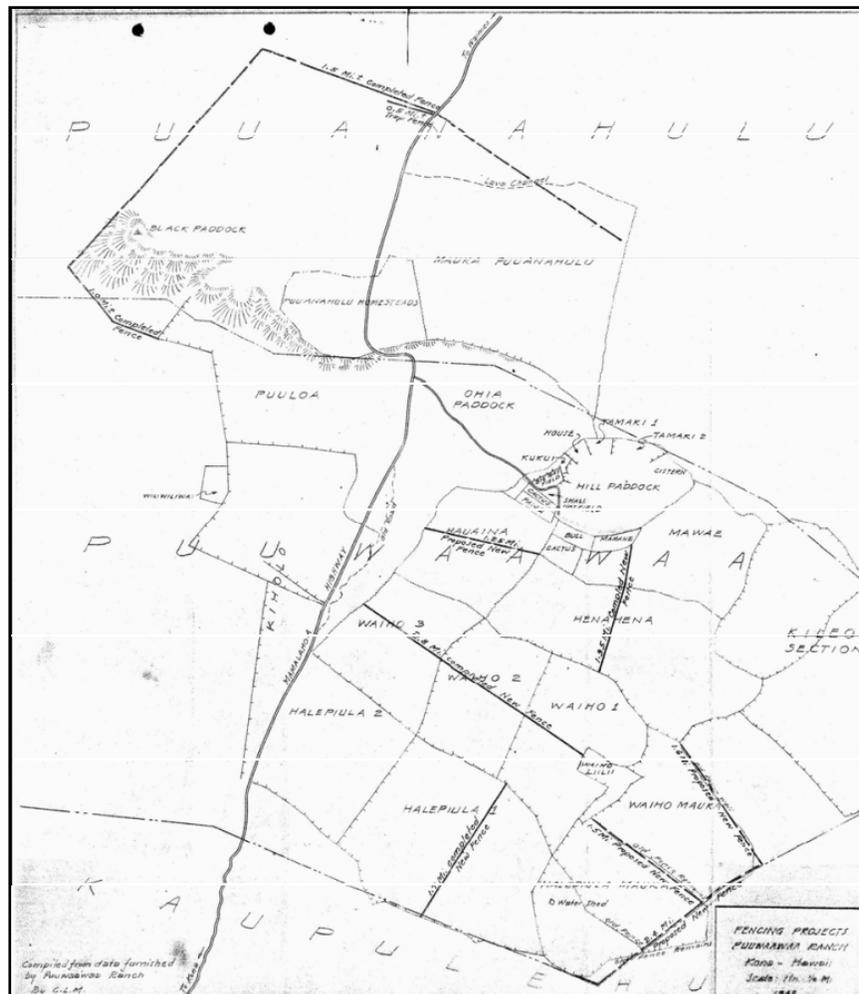


Figure 16. Paddocks of Pu'u Wa'awa'a Ranch (reduction of map compiled by Chas. L. Murray, 1948).

By the late 1950s, officers of R. Hind, Ltd., had decided to end their relationship with the lease-hold properties of Pu'u'anahulu and Pu'uwa'awa'a. General Lease No. 2621 would end June 30, 1958, and the family could not justify the continuation of a negligible business endeavor. General Lease No. 2621 includes background documentation on the lease history, and also provides an "assets" statement detailing the varied resources of the ranch. Summing up the termination of the lease agreement between R. Hind, Ltd and the Territory of Hawai'i, the Commissioner of Public Lands reported:

Robert Hind, Limited, the lessee of these lands up to June 30, 1958, was able to operate a reasonably successful cattle operation on the Puuanahulu and Puuwaawaa lands prior to and including 1949. Due to periodic drought to which the area is subject and to increased operating costs the company suffered losses on cattle operations each year thereafter. Recognitions that only by greater beef production could the company meet increased operating costs and only by a large investment in water systems and range improvements could a greater production be achieved, were compelling factors in Robert Hind, Limited's decision to sell its Kona interests to Dillingham Investment Corporation and its wholly owned subsidiaries.

Robert Hind, Limited was not in financial position to undertake the heavy investments necessary to effect more intensive use of its Kona lands. There being no prospect of either the County of Hawaii or the Territory of Hawaii being able to provide water supply for the widespread grazing areas, the only out for the owners of Robert Hind, Limited was sale to companies better able to finance extensive improvements. (G.L. No. 2621; State of Hawai'i Land Division)

On July 1, 1958, R. Hind, Ltd., sold its fee-simple holding in North and South Kona (including properties in Pu‘uwa‘awa‘a Ranch and the Pu‘uanahulu Homesteads) to Dillingham Ranch, Inc. (Bureau of Conveyances Liber 3469:478-485). In public bidding, Dillingham Ranch, Inc. was the highest bidder at an auction on March 4, 1960, and secured State Lease No. 3589 for the period of forty years, expiring August 14, 2000 (Maly and Maly 2006). On September 15, 1972, State Lease No. 3589 was assigned to F.N. Bohnett. Upon termination of Bohnetts’ lease (August 14, 2000), the State of Hawai‘i entered into short-term leases for sections of Pu‘uwa‘awa‘a, while it worked with an Advisory Committee made up of native families of Nāpu‘u, and various parties including neighboring land owners, and others with interests in conservation, hunting, recreation, and business. The fee-simple lands at the core of Pu‘u Wa‘awa‘a Ranch remain in private ownership, and several of the grant parcels in Pu‘uanahulu remain in the ownership of the Hawaiian families that either received an early twentieth century grant or received that land from the Ranch.

### PREVIOUS ARCHAEOLOGICAL STUDIES

John Reinecke (n.d.) conducted the first archaeological survey of Hawaiian sites in the Kekaha region in 1929-1930 on behalf of the Bishop Museum. Reinecke’s recorded six sites along the Pu‘uwa‘awa‘a shoreline:

**Site 129.** Luahinawai [Luahinewai] is a pond behind a black sand beach; no ruins. Waiaiepi is a shallow pond of practically fresh water. From the Kaupulehu Flow on is a grove of *kiawe* and the cattle pasturing under it have undoubtedly destroyed several sites. There is a pen behind Waiaiepi, where there has been a house or a cowboys’ camp. Then come concrete salt pans and a fine terraced platform of stones [Muller’s salt works]. There are traces of shelters at the foot of the dune of black pebbles. Remains of a pen with very thick, low walls on three sides. From here on is a continuous row of traces at the foot of the beach and under the *kiawe*. Especially noticeable are the large boulders at the back of the platforms, pens, or enclosed house sites—now it cannot be said which. Toward the north end of this area is a pen and a recent house site.

**Site 130.** Many shelters on the reddish lava block of the *kiawe*.

**Site 131.** Large cave [Keanalele] with three feet of almost fresh water.

**Site 132.** Two narrow pens extend north, enclosing the *kiawe* and stagnant pools. Behind them are two yards, with three house sites between them. Between the cave and the pens is a lot containing a house platform. There are two other very ruinous platforms outside, and a bordered, coral-strewn path running a short distance *mauka* through a few shelters. Back of the pens a considerable distance are many small hut sites or shelters. They may have been temporary structures. There is also a hollow fenced on all but the perpendicular side, recent. Several waterholes, one walled up.

**Site 133.** Ruins of five modern houses at the south end of Kiholo Bay. There are many walls in this area. The area back of the ponds is difficult to penetrate due to the *kiawe*. I found only two ruins, a platform c. 75x25x0-1 and a rough heap that had been a medium-sized platform.

**Site 134.** Excellent stone platform at the south-end of the long lagoon, probably quite modern.

Traveling northward Reinecke (n.d.) discusses an additional five sites in along the shore in Pu‘uanahulu:

**Site 135.** The vitreous pahoehoe of the 1859 lava flow bears no ruins at all.

Keawaiki: At the south end of the *kiawe* grove are the ruins of several platforms, all very small. Two or three house sites can be distinguished. For most of the way the *kiawe* hides possible ruins. I thought that two platforms could be distinguished just south of a three-sided pen for shelter-dwelling.

I did not see the heiau “a little *mauka* of the house”; it is named KAUALII, after a chief of the place.

The pond should be shown on the map at the extreme north end of Keawaiki, it is slightly brackish water. About 200 yards farther is a large, deep brackish pool.

**Site 136.** At a spot about one-eighth mile inland, Kaluoo, is an oasis of *lauhala* and *kiawe*, which I did not visit. At Akuko are three stagnant brackish pools. Here are a dwelling site, walls that probably surround two shelters, and three other shelters.

**Site 137.** Wiliwili is a beach with *kiawe* and a few pools, there are traces of a few platforms.

**Site 138.** Kapalaoa. On the a-a where it gives place to the pahoehoe are five or more rude shelters. The oasis is bounded at the south with a wall. By the gate is a small pen. On the beach just *makai* is some sort of site. The little headland within the line of the wall is a complex of small enclosures for

salt-making. There are two small platforms, one or both being the kuula named PUAKO. The oasis as far as Desha's house is cut up by stone walls, within them palms, a few wells now dry, platforms—at least five modern house platforms—and a shelter.

On the brittle, easily chipped pahoehoe by the southern gate are many petroglyphs. From the names found in connection with them and the carvings of sailing ships, one can see that they belong to a period after 1830, but old Alapai, who has lived at Kapalaoa since about 1860, says that they were there when he came. Points peculiar to these petroglyphs, when compared to the older ones found near Kailua, are: (1) the variety of forms; (2) the attempt at realism; (3) especially the attention paid to toes, fingers, neck and head—usually three fingers but in one case five—; (4) rotundity of figures; (5) carelessness and erraticity of many drawings.

On the pahoehoe about 500' past Desha's house is a fairly well-carved figure of a Hawaiian man from the waist up, with this legend:

D. Kahele  
Kapoka L. 20  
M.H. 1882  
13 (or 18) M.H. Hawai'i nei

There are other names and a few petroglyphs which I take to be modern. Farther on is a lone petroglyph, apparently old.

By the first petroglyphs are several papamu, most of which were so damaged that they could not be traced. Those which I attempted to count are:

7x6, rude  
9x7, rude  
14x11 (??)  
9x7 (??)  
9x8 (??)  
10x8 (??)

By the other petroglyphs are three papamu: 14x11, but lines skewed, 13x12, and 9x8.

The local legend connected with Kapalaoa is well known on this coast. The principal stone in the harbor is named Kuewa, after a chief of the place. Pele asked him for fish, not even fresh fish, but fish from the Ipukahi or fish calabash would do. This he refused her; she pursued him, and he was changed into an islet. But first he flung away his palaoa, which was transformed into a chain of rocks in the harbor, and a hollow stone Ipukahi far out is the calabash.

Kapalaoa is inhabited only by the family of Alapai, the stories about whom and his family have been secured from Mrs. Yanagi.

**Site 139.** The first stone wall, at the north of Kapalaoa land, has a house platform just south of it. North is a large papamu, (?). 15x15, two others worn smooth, an unfinished papamu and three petroglyphs. A few pools and marshes, one partially surrounded by a wall. A clump of lauhala in the a-a 100 yards mauka shows a spring there.

Another stone wall marks the Kona-Kohala boundary.

There have been several, more recent archaeological studies conducted within Pu'uwa'awa'a Ahupua'a (Ching 1971; Rosendahl 1973; Ahlo 1982; Rechtman and Wolforth 1999; McGerty and Spear 2000; Ketner et al. 2008; Rechtman 2014) (Figure 17; Table 1). The report by McGerty and Spear (2000) also includes Pu'uana'hulu Ahupua'a and is the only one that encompassed the current project area. Additional archaeological reports prepared for the *ahupua'a* of Pu'uana'hulu (Barrera 1997; Dye et al. 2002; Walker et al. 1990) provide additional information on the existence of archaeological resources of the Nāpu'u region. Relevant findings from these archaeological studies are presented in chronological order below.

2. Background

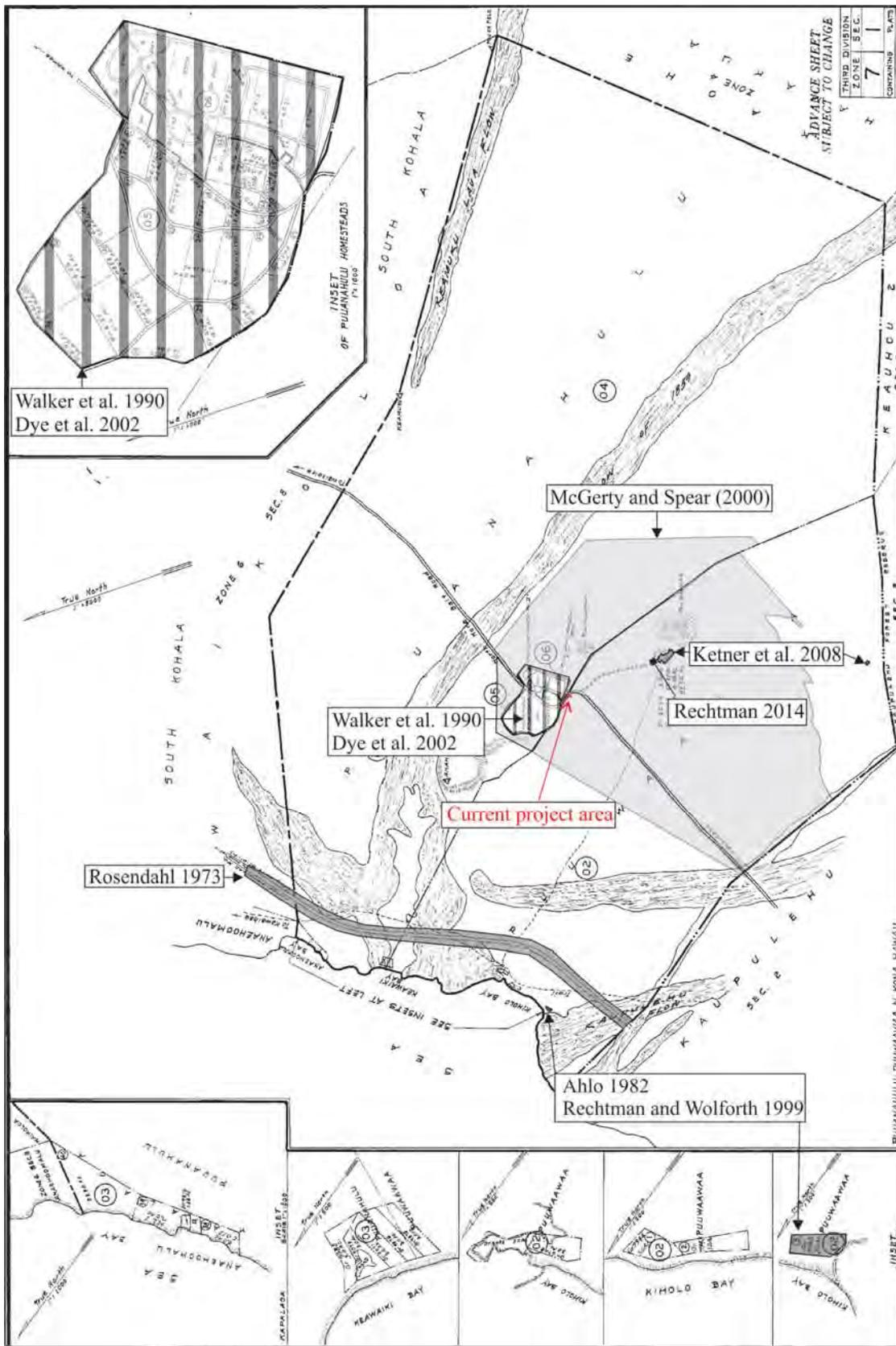


Figure 17. Previous archaeological studies conducted in the vicinity of the current project area.

**Table 1. Previous archaeological studies conducted within the vicinity of the project area.**

<i>Year</i>	<i>Author</i>	<i>Area</i>	<i>Type of Study</i>
n.d	Reinecke	Various	Survey
1971	Ching	Lalamilo to Hamanamana	Survey and Testing
1973	Rosendahl	Keāhole-Anaeho‘omalū	Salvage Operations
1982	Ahlo	Pu‘uwa‘awa‘a	Reconnaissance Survey
1990	Walker et al.	Pu‘uahahulu	Inventory Survey
1997	Barrera	Pu‘uanahulu	Inventory Survey
1999	Rechtman and Wolforth	Pu‘uwa‘awa‘a	Inventory Survey
2000	McGerty and Spear	Pu‘uanahulu/Pu‘uwa‘awa‘a	Reconnaissance Survey
2002	Dye et al.	Pu‘uanahulu	Supplemental Inventory Survey
2008	Ketner et al.	Pu‘uwa‘awa‘a	Inventory Survey
2014	Rechtman	Pu‘uwa‘awa‘a	Assessment Survey

As part of the planning of the Queen Ka‘ahumanu Highway, extensive archeological survey and testing work (Ching 1971) was conducted in the right-of-way corridor of the then-proposed highway (see Figure 18). The road corridor crossed lava fields that contain little to no soil. Within the section of road corridor that crossed the *ahupua‘a* of Pu‘uanahulu and Pu‘uwa‘awa‘a, many features that span from Precontact times to the Historic Period were recorded, and include a portion of the Kīholo-Ka‘ūpūlehu trail, enclosures, caves (burials, habitation, shelter, or refuge), cairns, petroglyphs, walls and areas containing surface midden. All of these features are similar to those found at other places along the road corridor and provide important information to the overall use of barren lava landscapes and the relationship of these places to the coastal and upland portions of the *ahupua‘a*. In 1972, archaeologists from the Bishop Museum performed archaeological salvage operations (Rosendahl 1973) within and adjacent to the Keāhole-Anaeho‘omalū section of the highway corridor. A total of 284 features were slated for salvage investigations within the Keāhole-Anaeho‘omalū section of the alignment corridor, none of which were within Pu‘uanahulu or Pu‘uwa‘awa‘a.

In 1982, Science Management, Inc. conducted an archaeological reconnaissance survey (Ahlo 1982) of a three-acre parcel at Kīholo Bay in Pu‘uwa‘awa‘a Ahupua‘a (see Figure 18). Their study area extended northeasterly from the Ka‘ūpūlehu lava flow (1800-1801) approximately 600 feet, paralleling the shore on the southwestern end of Kīholo Bay. The entire study parcel appeared to have been previously bulldozed. As a result of their survey, two sites were recorded; a cattle enclosure and evaporating ponds used for salt making during the 1920s and 1930s with associated cobble platforms. The platforms were interpreted as supporting either a sleeping house for the caretaker of the salt ponds or possibly as a shed used to store salt or tools.

In 1990, Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological inventory survey (Walker et al. 1990) of approximately 400 acres within Pu‘uanahulu Ahupua‘a (see Figure 18). As a result of their survey, eleven sites were identified, and included feature types such as; terraces, mounds, enclosures, modified outcrops, cairns, c-shapes, alignments, cultural deposits and a possible cistern. No Precontact features were identified during the survey and many of the features were interpreted as related to Historic ranching or homesteading.

In 1999, PHRI conducted an archaeological survey of a nine-acre area at Kīholo Bay in Pu‘uwa‘awa‘a Ahupua‘a (Rechtman and Wolforth 1999) (see Figure 21). As a result of that survey, thirteen sites were recorded, seven of which were within their study parcel and six were off. The six that were off were recorded in an effort to mitigate the re-routing of the access road. All of the sites encountered were interpreted as temporary habitations that were used during the procurement of coastal resources. The sites contained fifty-one features comprised of; c-shapes, u-shapes, enclosures, possible quarries, rock piles, shelters (blister and/or lava tubes), and a habitation platform.

In 1999, Scientific Consultant Services, Inc. conducted a reconnaissance of 22,000 acres within both Pu‘uanahulu and Pu‘uwa‘awa‘a Ahupua‘a, a portion of which included the current project area (McGerty and Spear 2000) (see Figure 18). As a result of the reconnaissance four previously recorded sites and thirty-two new sites were encountered. Site types included temporary habitation caves, burial caves, agricultural sites (mounds, terraces, and enclosures), cairns, and nineteenth and early twentieth century ranching features (enclosures, rock and mortar building with water tank). McGerty and Spear (2000) did not report any sites within the current project area.

In 2002, International Archaeological Research Institute, Inc. produced supplemental research to support an archaeological inventory survey done by William Barrera in 1997 of approximately 150 acres at Puu Lani Ranch within Pu'uanaulu Ahupua'a (Dye et al. 2002) (see Figure 18). This report was conducted in order to bring the original inventory report up to State Historic Preservation Division (SHPD) archaeological inventory survey standards. As a result, most of the twenty-two sites originally recorded by Barrera (1997) were relocated. In addition to the twenty-two previously recorded sites, International Archaeological Research Institute, Inc. identified and recorded eleven new sites and many additional features present at Barrera's previously recorded sites. The sites consisted of Historic Period features comprised mainly of core-filled walls, agricultural mounds, house platforms, burials (platform, mound, and soil), overhang shelters, temporary habitation caves, modified outcrops, Historic petroglyphs, enclosures, and a road bed. All of the features were interpreted as relating to Historic ranching or homesteading.

In 2008, Rechtman Consulting, LLC conducted an archaeological inventory survey of TMK: (3) 7-1-01:002 por. and 006 por. comprising roughly 32.5 acres and TMK: (3) 7-1-001:003 which was comprised of roughly 2.7 acres, located in Pu'uwa'awa'a Ahupua'a (Ketner et al. 2008) (see Figure 19). As a result of their inventory survey two historic properties were identified: SIHP Site 26170, the historic Pu'u Wa'awa'a Ranch; and SIHP Site 26171, the Hale Piula water catchment area. Both of these resources date from no earlier than the late nineteenth century and contain mostly architectural elements. There were no Precontact resources observed during that study.

In 2014, ASM Affiliates, Inc. completed an archaeological assessment survey (Rechtman 2014) of a roughly two acre portion of state land (TMK: (3) 7-1-001:006 por.) located adjacent to Pu'u Wa'awa'a Ranch in Pu'uwa'awa'a Ahupua'a. As a result of that study, there were no archaeological features observed; and given the nature of the substrate, it was concluded that there was virtually no likelihood of encountering subsurface remains.

## 3. CONSULTATION

As an integral part of the overall Section 106 study, Pu'uanaulu/Pu'uwa'awa'a community members, whose Hawaiian ancestors have lived, worked, and died in Pu'uanaulu/Pu'uwa'awa'a for generations, were contacted and asked if they wanted to participate in the consultation process. On February 6, 2013 a consultation meeting was held at the Pu'uanaulu Community Center with the following individuals in attendance: Robert Mitchell Sr., Albert Hooper, Emmaline Hooper, Leina'ala Lightner, Shirley Keakealani, Ku'ulei Keakealani, Bart Wilcox, Nana Wilcox, Daylon Kailiwai, and Alika Alapai. Ralph Alapai was also consulted with on an individual basis on March 5, 2014.

This was an extremely effective and productive Section 106 consultation. As a collective, these individuals related their feelings about the significance of the walls and roadway features of the old Waimea-Kona Belt Road constructed between 1916–1922 by the grandparents and great grandparents of many of those in attendance. Seeing these features along the current roadside is a daily reminder of their connections to this land and is a contributing element to their sense of place and belonging. One of these walls is particularly prominent on the *mauka* side of the road just beyond the southern termination of the construction area. When rocks of this dry-stacked wall fall into the shoulder and roadway, community members take the time to restack these rocks and they keep this wall in a good state of repair. Collectively, these individuals indicated that they felt the project would have no effect on historic properties so long as the roadside features of the old Waimea-Kona Belt Road were avoided during the proposed drainage improvement work.

On March 5, 2014 an in-person consultation was conducted with Miki Kato, who has lived in the Pu'uwa'awa'a Ahupua'a since about 1962 and worked at Pu'u Wa'awa'a Ranch since 1956; he currently lives about 2 miles to the south of the current project area. Miki is familiar with and very knowledgeable about the general area and indicated that aside from the old road, he did not know of any archaeological sites within the current APE.

Consultation notices (Figure 18) were published in West Hawai'i Today, Hawai'i Tribune Herald, Honolulu Star Advertiser, and *Ka Wai Ola o OHA*; and consultation letters were sent to several Native Hawaiian organizations (Office of Hawaiian Affairs; Association of Hawaiian Civic Clubs; Hui Mālama I Na Kūpuna O Hawai'i Nei, Kona Hawaiian Civic Club, La'i'ōpua 2020; KAHEA) and individuals and families (Paulette Ka'anohi Kaleikini; 'Ohana Medeiros, 'Ohana Kapu; 'Ohana Naihe; 'Ohana Keliinoi; 'Ohana Huihui; 'Ohana Kaleikini; 'Ohana Kawainui). None of the organizations responded and one individual (Paulette Ka'anohi Kaleikini) responded on behalf of herself and the several 'ohana. Ka'anohi Kaleikini was provided with a PowerPoint presentation via email and she explained that she would share that information with the various 'ohana. In a follow-up phone conversation, Ka'anohi expressed that the only concern raised was that of protection of any identified historic properties during construction activity. They recommended that appropriate monitoring be a part of the development plan. Additionally, notice for a public/Section 106 consultation meeting held on December 4, 2013 at the Kona Civic Center was published in the newspapers. No one from the public showed up.

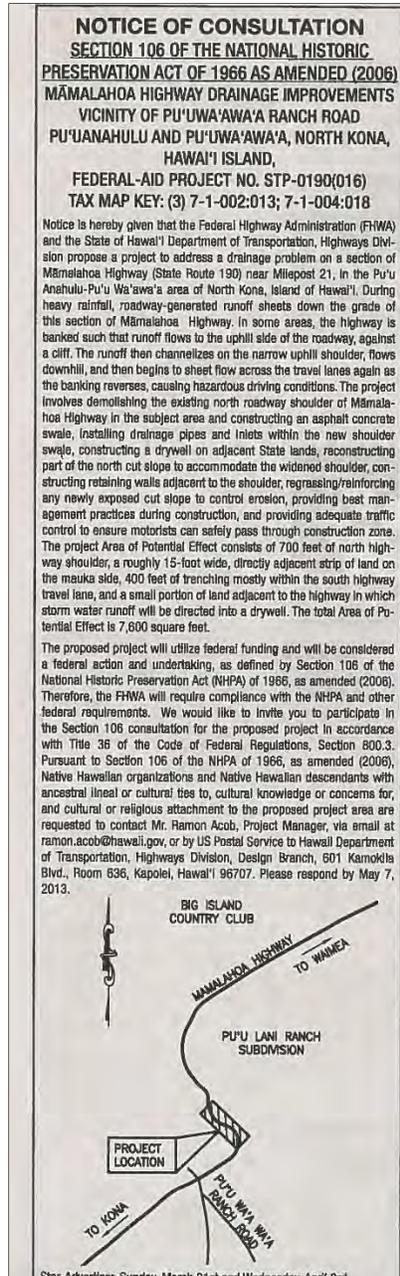


Figure 18. Example of published notice.

## 4. PROJECT AREA EXPECTATIONS

Based on consultation, a review of historical information collected by Maly and Maly (2006), the findings of previous archaeological research within the current APE (McGerty and Spear 2000), historical documentary research, and settlement patterns for the North Kona District, prior to conducting the fieldwork, the archaeological expectations for the APE were limited to the known built environment associated with the old Waimea-Kona Belt road and later Māmalahoa Highway improvements (SIHP Site 20855). The area at the Pu'uanahulu/Pu'uwa'awa'a boundary where the drywell will be constructed was actively used as pasture beginning in the late nineteenth century until the present, and within this area there was the possibility of ranching features such as rock walls and fence lines to be present, with a remote possibility of lava tube and blister features reflective of early Historic/Late Precontact habitation and burial activities.

## 5. ARCHAEOLOGICAL FIELDWORK

The archaeological fieldwork for the current study involved walking both shoulders of the existing highway along the length of the APE as well as transect survey (with a 10 meter spacing interval) over the entire one acre right-of-way acquisition portion of TMK: (3) 7-1-002:013 in which the drywell will be sited. Ground visibility was excellent throughout the entire APE. The current roadway is the most recent (modern) version of a roadway alignment (SIHP Site 20855) that dates back to at least 1916; and as a result of the field investigation, three features of the old Waimea-Kona Belt Road (SIHP Site 20855) were identified within the APE (see Figure 4). The first of these features is a 44 meter length of dry-stacked rock retaining wall that is 1.2 meters thick and reaches a maximum height of 2.25 meters above current roadway surface (Figure 19). In cross-section this wall is a right trapezoid, with the straight angle against the bluff face. According to oral information provided during consultation, this wall is associated with the earliest version of the built roadway (ca. 1916-1922).

Also likely associated with the earliest version of the roadway is a 33.5 meter long core-filled wall remnant (Figure 20) on the downslope side of the roadway beginning roughly 10 meters south of the southern termination of the retaining wall feature (see Figure 4). This rock wall remnant is roughly 1 meter wide and measure 40 centimeters high on the roadway surface side and 70 centimeters high on the downslope side. This wall was once continuous with an extant wall further to the south, but there is now an 18.3 meter gap (Figure 21) between the intact wall segments. This wall begins again in the southeastern corner of the one acre right-of-way acquisition area (see Figure 4) at the base of the grade where the historic roadway alignment of Site 20855 can be seen deviating from the current road alignment (Figure 22 and Figure 23). The old roadway alignment is slightly elevated (Figure 24) as was a segment of the old Waimea-Kona Belt Road. The wall paralleling the roadway appears to have functioned as a barrier wall, to perhaps keep grazing animals separated from roadway traffic.

Just south of the APE along the Highway 190 grade on the bluff side of the road (see Figure 4) is a formerly gated stone wall segment (Figure 25) that appears to be associated with former Pu'u Wa'awa'a Ranch pasture boundaries and the more recent of the historic roadway alignments (Māmalahoa Highway). As this wall segment is outside of the APE it will not be affected by the proposed drainage improvement project.



Figure 19. SIHP Site 20855 retaining wall feature, view to the north.



Figure 20. SIHP Site 20855 wall feature along *makai* side of former roadway, view to the north.



Figure 21. Destroyed section of wall feature along makai side of former roadway, view to the south.



Figure 22. SIHP Site 20855 roadway as it deviates from current roadway, view to the southwest.

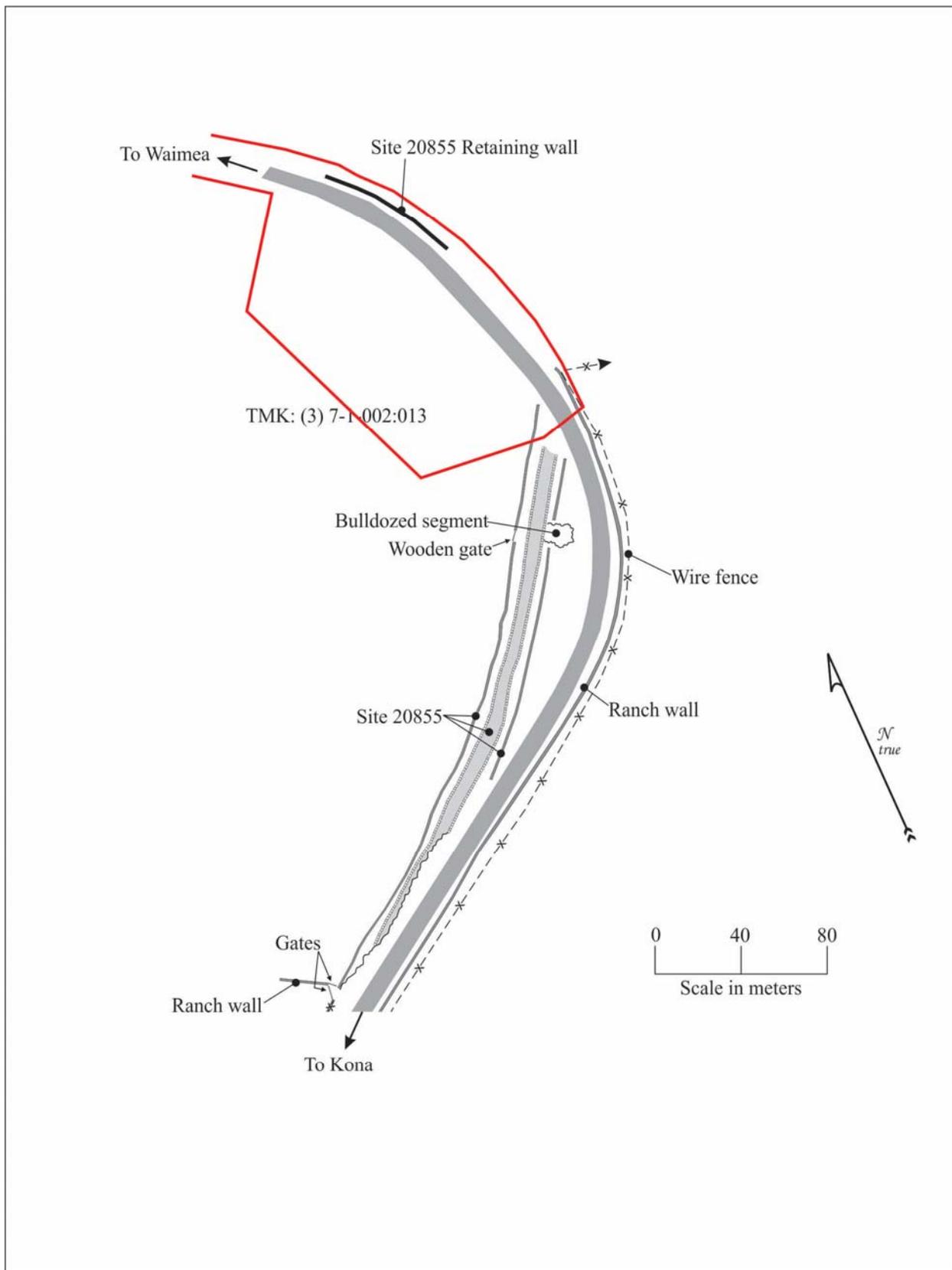


Figure 23. SIHP Site 20855 plan view of features at base of Pu'uanahulu Grade, southern part of APE shown in red.



Figure 24. SIHP Site 20855 elevated roadway and barrier wall (outside of APE), view to the south.



Figure 25. Pu'u Wa'awa'a Ranch wall just outside of APE, view to the northeast.

## 6. SIGNIFICANCE EVALUATION AND DETERMINATION OF EFFECTS

To determine the effects that the proposed undertaking will have on historic properties, the site recorded during the current study was assessed for its eligibility for listing in the National Register of Historic Places (NRHP). The criteria for NRHP evaluation are contained in 36 CFR 60.4, and are presented below. For a resource to be considered significant, and thus a historic property, it must possess integrity of location, design, setting, materials, workmanship, feeling, and association and must be characterized by one or more of the following criteria:

- a It must be associated with events that have made a significant contribution to the broad patterns of our history;
- b It must be associated with the lives of persons significant in our past;
- c It must embody distinctive characteristics of a type, period, or method of construction; or represent the work of a master; or possess high artistic value or represent a significant and distinguishable entity whose components may lack individual distinction; or
- d It must have yielded, or may be likely to yield, information important in prehistory or history.

The significance and effect on the site (SIHP Site 20855) recorded during the current study is discussed below and listed in Table 2.

**Table 2. Site significance and effect.**

<i>Site No.</i>	<i>Site Type</i>	<i>Temporal Affiliation</i>	<i>Significance</i>	<i>Effects</i>
20855	Roadway	Historic	a, d	No adverse effect

Site 20855 was first recorded by Langlas (1999) during the survey of the Saddle Road corridor, and its record has been added to by other studies (i.e., Escott and Keris 2009; Rechtman et al. in prep.). This site consists of remnant sections of the former Waimea-Kona Belt Road, and later Māmalahoa Highway and associated walls. The roadway was constructed between 1916 and 1922, and it served as the main Kona-Waimea connector for 11 years until it was superseded by construction of the Māmalahoa Highway (now Highway 190) in 1933. Features of this site are visible along much of the distance between Kona and Waimea.

Within the current APE, in addition to the former roadway alignments, which have been built upon and paved over, are two wall features of Site 20855, a retaining wall and a barrier wall. Site 20855 is considered significant under Criterion a for the important contribution that it made with respect to transportation and settlement patterns during the early twentieth century in the west Hawai'i area; and under Criterion d for its historical research value, and its historical importance as a visual reminder of the early twentieth century cultural landscape of North Kona.

The features of the site within the current APE can be avoided during the proposed drainage improvement project, and given the cultural significance that this portion of Site 20855 holds for the traditional families of the Nāpu'u area, it is recommended that these features be protected during the proposed construction activity. It is the conclusion of the current study that, given adherence to the above recommendation, the proposed drainage improvements will have no adverse effect on historic properties. It is further recommended that HDOT develop a written protocol for future maintenance and improvement activities within the Highway 190 right-of-way so as to avoid impacts to the extant features of SIHP Site 20855.

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