
**Literature Review and Field Inspection for the
Kailua Park Master Planning Project
Keahuolū and Lanihau Ahupua‘a
North Kona, Hawai‘i
TMK: [3] 7-5-005:007 & 083**

**Prepared for
Kimura International, Inc.**

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January 2010

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Management Summary

Reference	Literature Review and Field Inspection for the Kailua Park Master Planning Project Keahuolū and Lanihau Ahupua'a, North Kona, Hawai'i, TMK: [3] 7-5-005:007 & 083 (Simonson et al 2009)
Date	January 2010
Project Number (s)	Cultural Surveys Hawai'i Inc. (CSH) Job Code: KEAHUOLU 3
Investigation Permit Number	Fieldwork in this report has been performed under CSH's annual archaeological research permit, number 09-20, issued by the Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-13-282.
Project Location	The 117-acre project area is located in Keahuolū and Lanihau Ahupua'a, North Kona District, Hawai'i Island (TMK: [3] 7-5-005:007 & 083). The southeast end of the project area is bounded by Kuakini Highway on the northeast, Kaiwi Street on the southeast, and Kona Bay Drive on the southwest. The project area consists of the grounds the Old Kona Airport State Recreation Area, formerly the Kailua Airport. The project area is depicted on the 1996 USGS 7.5-Minute Series Topographic Map, Keahole Point Quadrangle.
Land Jurisdiction	Public, County of Hawai'i
Agencies	Hawai'i State Historic Preservation Division / Department of Land and Natural Resources (SHPD/DLNR); County of Hawai'i
Project Description	As of January 1 st , 2009, the ownership of the project area lands transferred from the State of Hawai'i to the County of Hawai'i. The present project is the development of a master plan for the existing County-managed Kailua Park and the former Old Kona State Recreation Area that comprise the 117-acre project area.
Project Acreage	Approximately 117 acres
Area of Potential Effect (APE)	For the purposes of this archaeological literature review and field inspection, the area of potential effect is considered to be the entire approximately 117 acres
Historic Preservation Regulatory Context	This study is intended as a planning document to facilitate good stewardship of historic properties, and to streamline compliance with SHPD requirements as may attend future development.
Document Purpose	The purpose of the archaeological study was to determine the major archaeological concerns within the project area. The report and recommendations are designed for use as a due diligence document and to explain the State historic preservation requirements that would need to be fulfilled prior to land alteration within the project area.

Fieldwork Effort	The fieldwork component of the archaeological literature review and field inspection was accomplished on February 9 th and 10 th , May 28 th , and June 17 th 2009 by Mindy Simonson, M. A., Sarah Wilkinson, B.A., and Margaret Magat, Ph.D. under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator). The fieldwork required approximately 7 person-days to complete and consisted of a pedestrian inspection of the area of the proposed Kailua Park Master Planning Project.
Results Summary	Limited pedestrian inspection of the project area confirmed the location of numerous previously identified historic properties and identified four sites not previously designated as historic properties. Archaeological features representing both pre- and post-contact land use were observed. A number of previously identified historic properties were found to no longer exist, being either destroyed or removed. A few previously designated sites were revisited and were evaluated as not meeting the requirements to qualify as historic properties and therefore are no longer considered archaeological sites.
Recommendations	Consultation with the SHPD is recommended to better define the scope of any further cultural resource management work as may be indicated to comply with all applicable historic preservation regulations.

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Section 1 Introduction

1.1 Project Background

At the request of Kimura International Inc, Cultural Surveys Hawai'i, Inc. (CSH) completed an archaeological literature review and field inspection for an approximately 117-acre project area in Keahuolū and Lanihau Ahupua'a, North Kona District, Hawai'i Island (TMK: [3] 7-5-005:007 & 083). The project area encompasses the coastal area immediately west of the main business district on the north side of Kailua-Kona town. The southeast end of the project area is bounded by Kuakini Highway on the northeast, Kaiwi Street on the southeast, and Kona Bay Drive on the southwest (Figure 1 through Figure 3). The project area consists of the grounds the Old Kona Airport State Recreation Area, formerly Kona Airport. The project area is depicted on the 1996 USGS 7.5-Minute Series Topographic Map, Keāhole Point Quadrangle.

As of January 1st, 2009, the ownership of the project area lands transferred from the State of Hawai'i to the County of Hawai'i. The present project is the development of a master plan for the existing County-managed Kailua Park and the former Old Kona State Recreation Area that comprise the 117-acre project area.

For the purposes of this archaeological literature review and field inspection, the area of potential effect (APE) is considered to be the entire approximately 117-acre project area. The fieldwork component of the archaeological literature review and field inspection study was carried out under archaeological permit number 09-20 issued by the Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-282.

The purpose of the archaeological study was to determine the major archaeological concerns within the project area. The report and recommendations are designed for use as a due diligence document and explain the State historic preservation requirements that would need to be fulfilled prior to land alteration within the project area.

1.2 Scope of Work

The agreed upon scope of work for this archaeological literature review and field inspection was as follows:

1. Historical research including study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to chronicle the history of land use and to identify areas of cultural significance within the project area.
2. Limited field inspection of the project area to confirm locations of previously identified sites and aid in demarcating non-development areas. This assessment identified sensitive areas that may require further investigation or mitigation prior to land alteration within the project area.

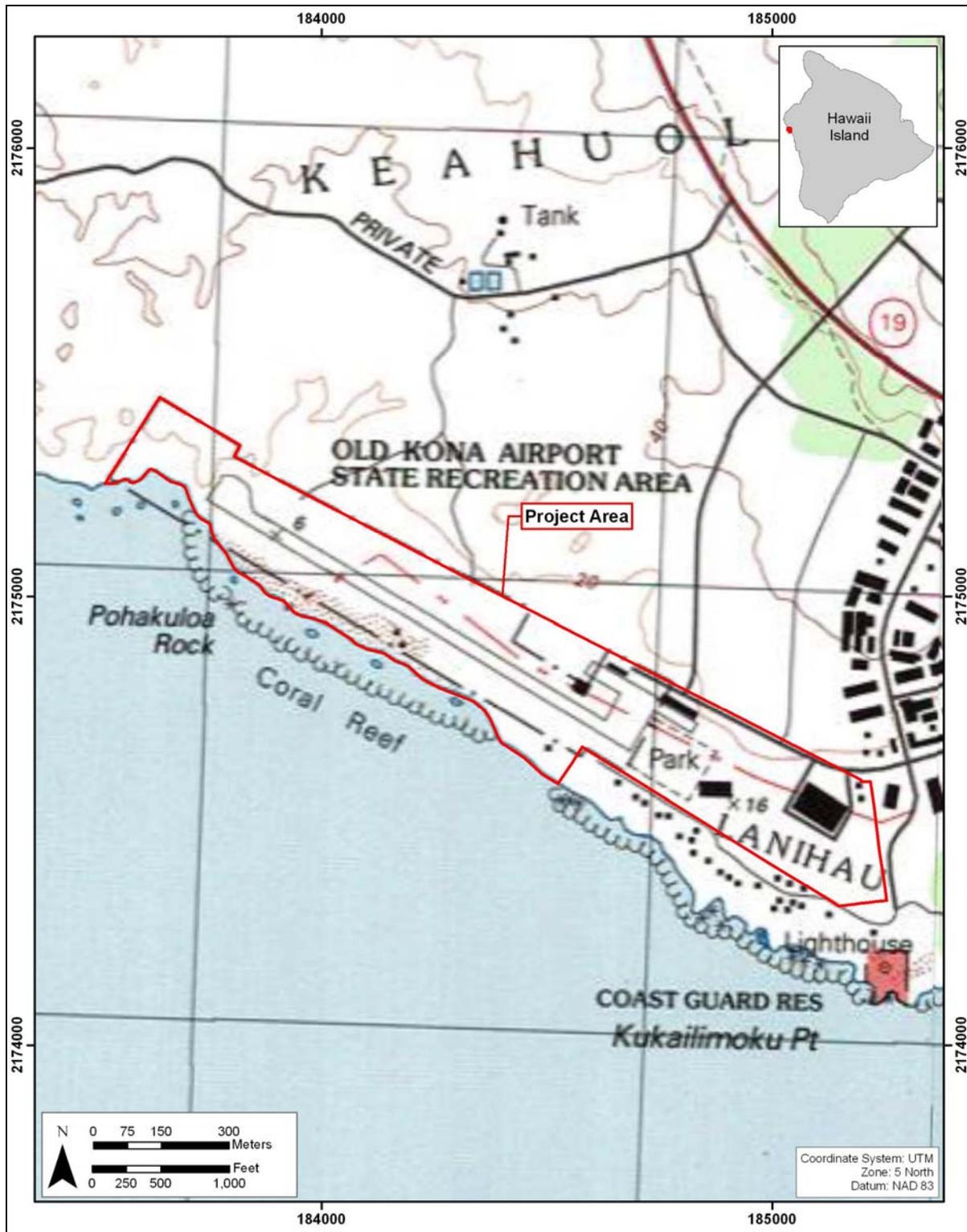


Figure 1. U.S. Geological Survey 7.5-Minute Series Topographic Map, Keāhole Point Quadrangle (1996), showing the location of the project area

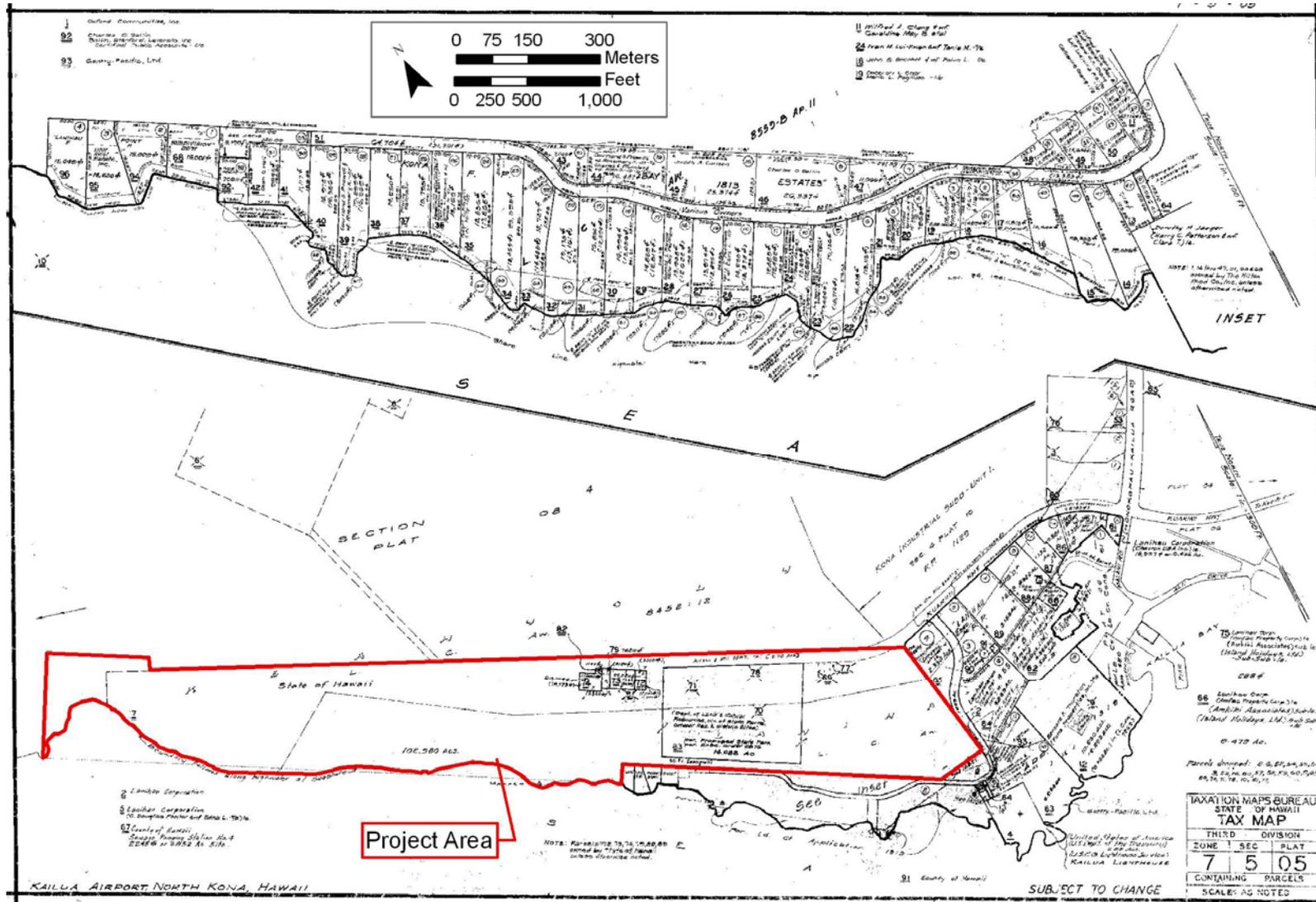


Figure 2. Tax Map Key [3] 7-9-05, showing the location of the project area

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Figure 3. Aerial photograph showing the location of the project area (source: NOAA Biogeography Program 2000)

3. Preparation of this report, including the results of the historical research and the limited field inspection, with an assessment of existing archaeological research. The report also provides mitigation recommendations for archaeologically sensitive areas that need to be taken into consideration.

The archaeological literature review and field inspection study does not meet the requirements of an inventory-level survey, per HAR Chapter 13-276. However, the level of work is sufficient to address site types and locations, and to formulate future work recommendations.

1.3 Environmental Setting

1.3.1 Natural Environment

The project area is located within one mile of the main business district of Kailua-Kona Town in Keahuolū and Lanihau Ahupua'a immediately northwest of town. The elevations of the project area range from approximately 2-10 ft. above mean sea level (AMSL). The project area is located on the western slope of Hualālai Volcano, on Pleistocene lava flows (Macdonald et al. 1983:366) of undulating *pāhoehoe* lava with sections of coralline sand beaches (Figure 4). The project area is indicated to receive approximately 20 in. of annual rainfall with the mean annual temperature of 75° - to 80° Fahrenheit. (Giambelluca et al 1986). This rainfall is insufficient for most non-irrigated agriculture. Vegetation in the project area is characterized by stands of *koa haole* (*Leucaena leucocephala*), *kiawe* (*Prosopis pallida*), clumps of Christmas-berry (*Schinus terebinthifolius*), mainly in *pāhoehoe* sinks, *noni* (*Morinda citrifolia*), scattered fountain grass (*Pennisetum setaceum*) and *naupaka* (*Scaevola sp.*).

The old airport runway runs roughly southeast-northwest through the northwestern majority of the project area. The *mauka* portion of the project area, northeast, and northwest of the runway the terrain is *pāhoehoe* lava with numerous predominantly small pit caves and a few brackish ponds. The project lands southwest, or *makai* of the runway beach sand, including dunes overlying the *pāhoehoe*.

1.3.2 Built Environment

The Kona Airport was constructed in 1948, impacting much of the current project area. The southeast portion of the project area was developed into Kailua Park. The existing Kailua Park includes several multi-purpose ball fields, four tennis courts, a gymnasium and swimming pool complex. The former airport property includes the old runway and condemned terminal, an events pavilion, two partially completed canoe *hale*, and a landscaped walking/jogging path *mauka* of the old runway. Several beach pavilions and picnic areas are located along the shoreline (see Figure 3) A large area of bulldozer push is located at the west end of the old runway, created during the runway construction.

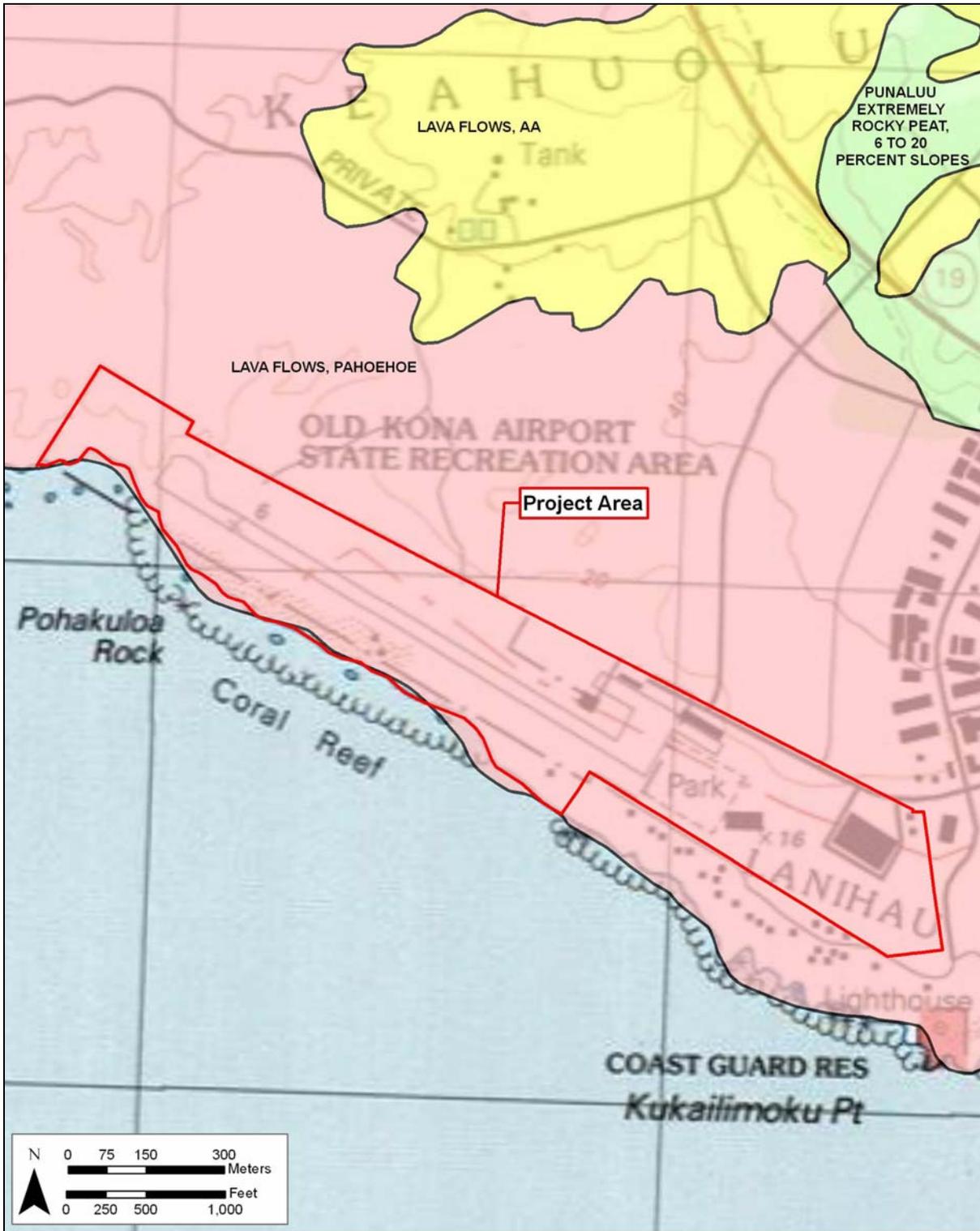


Figure 4. Overlay of the Soil Survey of the Island of Hawai'i (Sato et al. 1973), indicating soil types within the project area

Section 2 Methods

2.1 Field Methods

The fieldwork component of the archaeological literature review and field inspection was conducted on February 9th and 10th, 2009 by Mindy Simonson, M. A., Sarah Wilkinson, B.A., and Margaret Magat, Ph.D., under the general supervision of Hallett H. Hammatt, Ph.D. The fieldwork required 5 person-days to complete. In general, the purpose of the field inspection was to confirm and assess the location and present condition of documented archaeological sites within the project area, as well as minimally document any previously unrecorded sites encountered. Archaeological sites or site areas were documented with brief written descriptions, photographs, and were located with Garmin GPS V survey technology (accuracy 3-5 m).

The field inspection generally consisted of a walk-through reconnaissance of the entire project area with a specific effort to re-identify previously identified sites. A brief one-person walk through of the southeastern portion of the project area, currently the developed Kailua Park, was conducted to confirm that no historic properties were still present. Project area site maps and descriptions from previous archaeological studies of the project area were utilized for locational information for previously identified sites. The designated location of sites were swept in two-person transects extending out a radius of approximately 25 meters from the supposed site location. This radius was extended to approximately 50 meters and the sweeping process repeated when previously identified sites were not observed.

2.2 Document Review

Historic and archival research included information obtained from the UH Hamilton Library, the State Historic Preservation Division Library, the Hawai'i State Archives, the State Land Survey Division, and the Archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. Information on Land Commission Awards was accessed through Waihona Aina Corporation's Māhele Database (<www.waihona.com>).

2.3 Consultation

Following the field inspection of the project area, numerous area *kūpuna*, members of the Kaelemakule, Kaua, Mioi and Kailiwai families, were consulted regarding archaeological sites within the project area. These families have long familial ties in the area and still tend to their family burial sites within the project area. Three generations of Agnes Mary Kaelemakule Lui's family are from Maka'eō (the area located between Kūkā'ilimoku Point and Pawai Bay). These *kūpuna* confirmed the location and function of several previously documented sites within the project area as well as indicated previously undocumented sites.

Section 3 Background Research

3.1 Traditional and Historical Background

3.1.1 Mythological and Traditional Accounts

Keahuolū and Lanihau Ahupua‘a are located within a transitional area between two distinct ecological zones. Lands to the south of Lanihau, known as *Kona kai ‘opua* (Kona of the distant horizon clouds above the ocean), between Kailua Bay and Keauhou Bay, are generally recognized as the fertile agricultural district and population center of North Kona (Kirch 1985:166, Kelly 1983). The relatively dry *Kekaha-wai-‘ole* (the waterless place) area of North Kona to the northeast is characterized by coastal fishponds and relatively barren lava inlands.

The name of the *ahupua‘a*, Ke-ahu-o-lū, has been translated in two ways. The first is as “the *ahu* [cairn or altar] of Lū” (Pukui et al 1974:101). There are no legendary accounts of a Hawaiian named Lū, but an *ahu* is a mound, often used as an altar, so the name could refer to “the altar of Lū.” The name of the land has also been written as Ke‘ohu‘olu (Maly 1994:A-3), which means “the refreshing mists.” Appropriately similar in meaning given the proximity of the *ahupua‘a*, Lanihau has been translated as “cool heaven” (Pukui et al 1974:128).

There is mound-hill at Keahuolū and Kealakehe, the *ahupua‘a* to the north, that is also associated with mists. According to the Legend of Ka-Miki, a series of stories about a supernatural hero who traveled around the Hawaiian Islands in the 13th century:

Ka-noenoe (The mist, fogginess) The mound-hill called Pu‘u-o-Kaloa sits upon the plain of Kanoenoe which is associated with both Keahuolu and Kealakehe. The settling of mists upon Pu‘u-o-Kaloa was a sign of pending rains; thus the traditional farmers of this area would prepare their fields. This plain was referenced by Pili when he described to Ka-Miki the extent of the lands which Ka-Miki would over see upon marrying the scared chiefess Paehala of Honokōhau. The inheritance lands included everything from the uplands of Hikuhia above Nāpu‘u and the lands of the waterless Kekaha, which spanned from the rocky plain of Kanikū (Keahualono) to the plain of Kanoenoe at Pu‘ukaloa (*Ka Hoku o Hawai‘i* 10/25/1917, as translated by Maly 1994:A-4).

Another legendary account discusses the hill called Pu‘u-o-kaloa:

Pu‘u-o-kaloa is a mound-hill site in the lands of Keahuolu-Kealakehe, not far from the shore of Kaiwi and Hi-iakanoholae. During periods of dry weather (*Ka lā malo‘o*) when planted crops, from the grassy plains to the ‘ama‘uma‘u (fern forest zone), and even the ponds (*ki‘o wai*) were dry, people would watch this hill for signs of coming rains. When the *līhau* (light dew mists) sat atop the hill of Pu‘u-o-kaloa, rains were on the way. Planters of the districts agricultural fields watched for omens at Pu‘uokaloa, and it was from keen observation and diligent work that people prospered on the land. If a native of the land was hungry and came asking for food, the person would be asked:

Ua ka ua i Pu'ukaloa, ihea 'oe?

When rains fell at Pu'ukaloa, where were you? (If the answer was...)

I Kona nei no!

In Kona (there would be no sweet potatoes for this person)

But if the answer was:

I Kohala nei no!

In Kohala! (The person would be given food to eat for they had been away, thus unable to accomplish the planting.) (*Ka Hōkū o Hawai'i* 3/19/1914, as translated by Maly 1994:A-5)

These legendary accounts emphasize the importance of rainfall in this relatively dry region for farmers, who were cultivating sweet potatoes and other crops on the plains of Keahuolū and Lanihau.

Other place names given to the lands within the present project area are Maka'eo, Pawai Bay and Pōhakuloa (Figure 5). Maka'eo, often translated as “piercing eye” (Stromberg and Dierenfield 2002), is the area located between Kūkā'ilimoku Point and Pawai Bay. Though mythic or traditional references to Maka'eo are few, it is mentioned in accounts of *ali'i* 'Umi-a-Līloa. Samuel Kamakau relates 'Umi-a-Līloa's death and his adopted son, Ko'i's, subsequent actions as follows:

They sailed from Kipahulu and landed at Kohala, and there he heard more of 'Umi-a-Līloa's death. From there they continued to Kekaha, and there darkness fell. There was a man there who strongly resembled 'Umi-a-Līloa, and Ko'i went to kill him and laid him in the canoe. Ko'i and his companions set sail from Kekaha and beached their canoe at the lava bed below Maka'eo. It was then late at night. He went up and found the guards of the cave asleep except Pi'i-mai-wa'a who guarded the inside. Ko'i entered with the substitute. Pi'i-mai-wa'a knew that the body had long been promised to Ko'i. Ko'i laid the man down and took 'Umi-a-Līloa's body by way of the lava bed to the sea of Maka'eo and boarded the canoe. (Kamakau 1992:32)

Kamakau also tells of another *ali'i* Kiha-a-Pi'i-lani, brother-in-law of 'Umi-a-Līloa, and his wife Kumaka, sailing to visit 'Umi-a-Līloa and landing in Maka'eo in Kailua (Kamakau 1992:27).

3.1.2 Early Historic Period

Early missionary residents made the first estimates of the population of the North Kona District. Asa Thurston estimated a population of not less than 20,000 people along a 30-mile stretch of the Kona coast. These residents were clustered on the coast, but some families also lived in a habitation belt about 2 miles inland (Kelly 1983:14). A formal census was conducted

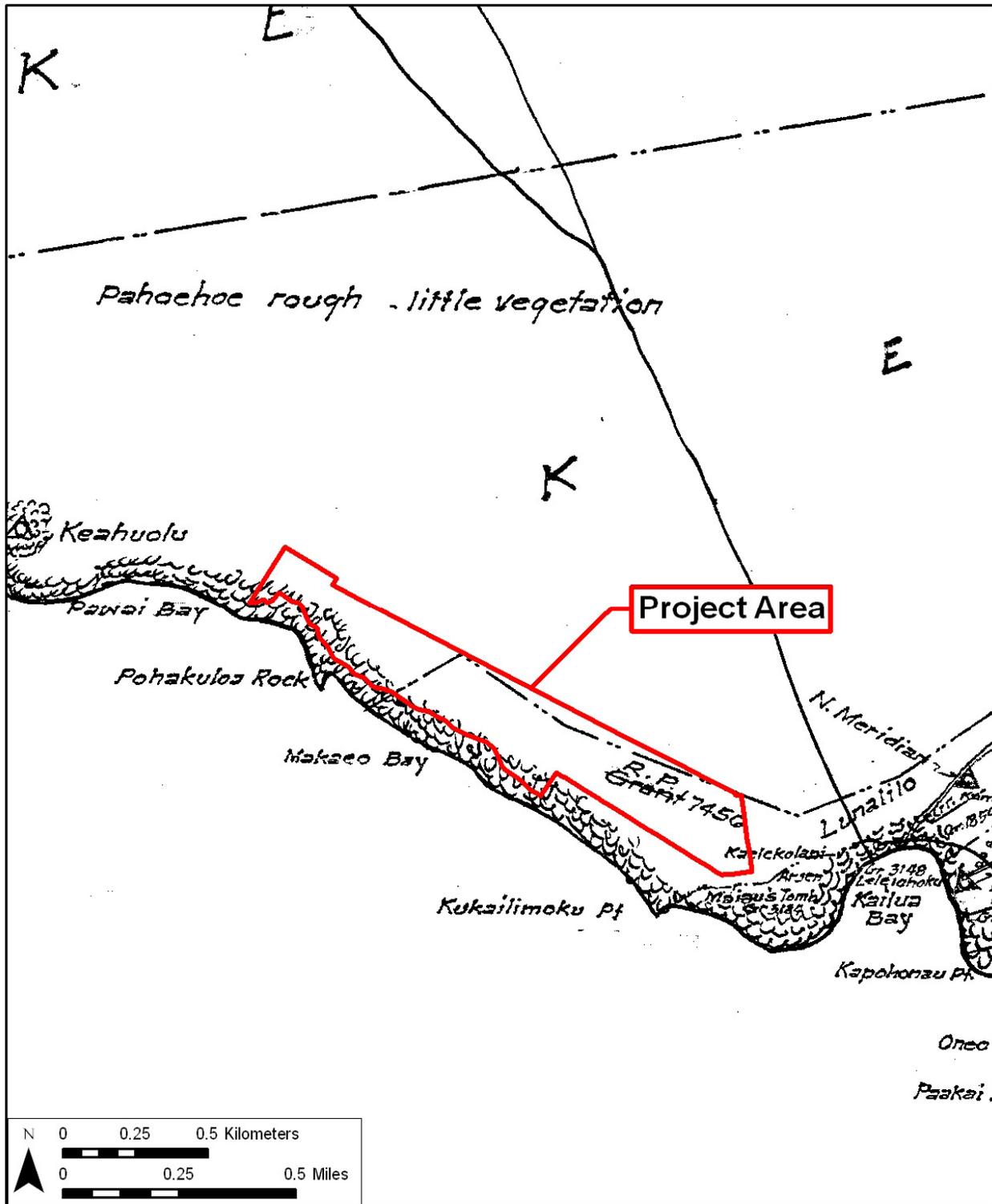


Figure 5. Registered Map 1280 showing place names Maka'eo, Pōhakuloa, and Pawai Bay

in 1832, and 12,432 people were recorded for the district of Kona. By 1835, this number had declined to 5,957. By 1853, the number had dropped to 2,210 (Schmitt 1973:21, 29, 31). The missionary, William Ellis (1976:32), visited the Kona area in 1822 and noted deserted villages and abandoned fields “everywhere to be met with.”

William Ellis also described Kailua Bay, the coastal area to the south of the current project area as follows:

The houses which are neat, are generally erected on the sea-shore, shaded with cocoa-nut and kou trees, which greatly enliven the scene. The environs were cultivated to a considerable extent: small gardens were seen among the barren rocks on which the houses were built, wherever soil could be found sufficient to nourish the sweet potato, the watermelon, or even a few plants of tobacco, and in many places they seemed to be growing literally in the fragments of lava, collected in small heaps around their roots (Ellis 1976:31).

Few historical records can be found about the early history of Keahuolū. However, in 1869, the land was described thus by David Kalākaua:

This land is situated in the District of North Kona, bounded by the *ahupua'a* of Lanihau (in Kailua) belonging to Prince Lunalilo on the Ka'u side, and on the Kohala side, by Kealakehe, a government land and Honokohaniki belonging to Keelikolani. Keahuolu runs clear up to the mountains and includes a portion of nearly one half of Hualalai mountains. On the mountains the *koa*, *kukui* and *ohia* abounds in vast quantities. The upper land or inland is arable, and suitable for growing coffee, oranges, taro, potatoes bananas &c. Breadfruit trees grow wild as well as the *Koli* [kolī, castor-oil plant] oil seed. The lower land is adopted for grazing cattle, sheep, goats, &c. The fishery is very extensive and a fine grove of coconut trees of about 200 to 300 grows on the beach. The flat land near the sea beach is composed chiefly of lava, but herbs and shrubbery grows on it and [it is] suitable for feed of sheep and goats. It is estimated at 15,000 to 20,000 acres or more. (cited in Donham 1990a B-4)

3.1.3 Mid to Late 1800s

In 1848, Kamehameha III authorized the Māhele (*lit.* division), which defined the land interests of the king, the high-ranking chiefs, and the *konohiki* (landlords for the chiefs). The lands awarded to the chiefs and their *konohiki* were known as Konohiki Lands. In 1848, four resolutions were passed to protect the rights of the *kama'āina*, the native tenants. The resolutions authorized the Land Commission to award fee simple title to native tenants for habitation and agricultural lands that were part of Crown Lands (lands reserved for the royal family), Government Lands (lands held by the government), or Konohiki Lands. The lands for the common people became known as *kuleana* (tenant) awards (Chinen 1958, 1961).

At the time of the Māhele of 1848, the *ahupua'a* of Lanihau was awarded to Lunalilo and the entire *ahupua'a* of Keahuolū was awarded to Ane Keohokālōle. Ane Keohokālōle had held two walled houselots “from very ancient times” along the shore. Keohokālōle was the granddaughter

of Kame'eiamoku, an important chief that supported Kamehameha I. She was also the mother of the future King David Kalākaua, the future Queen Kamaka'eha Lydia Lili'uokalani, William Pitt Leleiōhoku, and Miriam Likelike. Ane Keohokālole later sold portions of her 15,000-20,000-acre grant to the government and other parties, with the remainder being passed on to her heir, Lili'uokalani. Emerson, a 19th century government surveyor, described the inland portion of Keahuolū (Reg. Map 1280) as "rough pahoehoe, little vegetation," similar to descriptions of the dry and barren lands of Kekaha. David Kalākaua further described these *kula* (plains used for dryland agriculture) lands as suitable for livestock grazing (Donham 1990a). No *kuleana* grants were awarded in the inland portion (lower *kula* zone) of Keahuolū, and there is little historic information concerning traditional Hawaiian land use in the area. However, the archaeological record suggests that dry land agriculture in areas designated grazing land was once relatively intensive.

The upper *kula* zone was historically the primary agricultural zone of the two *ahupua'a*. Many *kuleana* awards were claimed for this area, indicating that dry land crops were grown here. The most common crop described in the claims was taro, with coffee and potatoes also mentioned. During the Māhele, few of these *kuleana* awards were granted; instead, these lands were generally awarded to the *konohiki* (lower chiefs and landlords), who used the lands for livestock grazing (Kelly 1983:67).

Emerson described the boundary between the inland and upland forested areas in this transitional region as "lava covered with scattering forest and dense masses of *ki* [ti; *Cordyline terminalis*] root" (Kelly 1983:58). Lands below the forest edge were described as "rocks covered with grass" (Kelly 1983:58). Emerson estimated the forest edge boundary to be at a 750-800 ft (228-244 m) elevation above sea level in Keahuolū and Lanihau.

3.1.4 1900s to Present

The population of the region continued to decline until around A.D. 1890, when the population of North Kona dropped to 1,754 people. By 1900, the population had increased to 3,189 and continued to increase as people moved into the urban and suburban lands around Kailua-Kona.

A sisal (*Agave sisilana*) mill was constructed in Keahuolū sometime during the late 1890s; sisal was grown to make ropes and other fibers. The mill was located along the southern portion of the old Palani Road corridor at 130 m (428 ft) AMSL. Operating until 1924, the mill was surrounded by sisal fields that covered an area of up to 1000 acres in Keahuolū and Kealakehe *ahupua'a* (Jensen 1990).

In the late 1890s and 1900s the area around Pawai Bay, at the northwest end of the current project area, was a fishing village with a canoe landing (Yent 1993:4) but in large part, before the construction of the airport, the coastal region of Lanihau and Keahuolū *Ahupua'a* remained undeveloped (Figure 6). A large brackish pond was present *mauka* of the bay and in addition to several planting pits utilized for the cultivation of primarily pineapple, multiple housesites were present around Pawai Bay (Neighbor Island Consultants 1973:45,52). This area was inhabited by the Kau'a family until the construction of the airport in 1948.

The coastal area of Maka'eō was marked by a large coconut grove (Yent 1993:4) and the coastal trail that ran through Kailua Town turned to head *mauka* at Maka'eō to join with the Māmalahoa Trail (Springer 1987:42).

In 1909, the Lili'uokalani Trust was established to provide for children, especially orphans, of Hawaiian descent (Queen Lili'uokalani Children's Center 2004). Income was derived from real estate owned by Queen Lili'uokalani. As a result of the will of Queen Lili'uokalani, the lands of Keahuolū were placed in a trust. In the last twenty years, the trustees have begun to develop the Keahuolū lands to generate revenue for their programs. The area around Palani Road is now occupied with shopping malls, bookstores, business offices, and residential subdivisions.

Prior to the area's use as a formal airport, an area parallel to the beach within the project area, Kailua Airstrip was used for small aircraft operations. The construction of Kona Airport began on June 10th, 1948 (Figure 7) and opening ceremonies for the new airport were held on July 10th, 1949 (Figure 8 and Figure 9) (<http://hawaii.gov/hawaiiaviation>). Developments to the airport continued with the construction of the boundary fence in 1950 and various runway extensions completed over the years, with the last extension completed in 1967 (Neighbor Island Consultants). The airport development included a passenger terminal, an access road, a parking lot, the runway and parking apron and an airplane hangar. The commercial operations of Kona Airport ended with the opening of the new Keāhole Airport on July 1st, 1970. Following the Kona Airport closure, the County of Hawai'i took over management of the area for development as a park. In 1976, ownership of the Kona Airport lands was transferred to the Hawai'i Island State Parks.

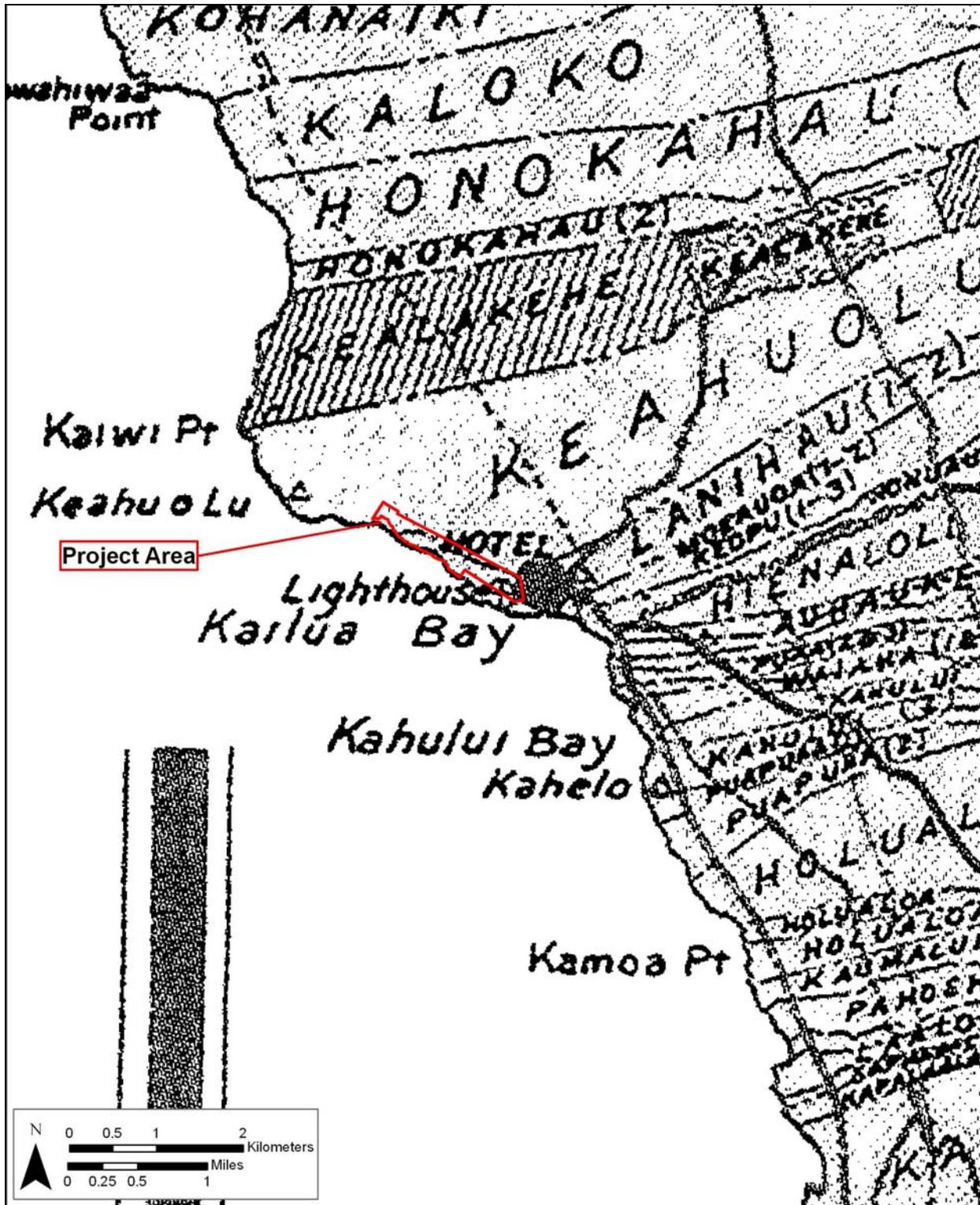


Figure 6. 1928 Hawai'i Territory Survey map showing no significant development in the area immediately northwest of Kailua Town

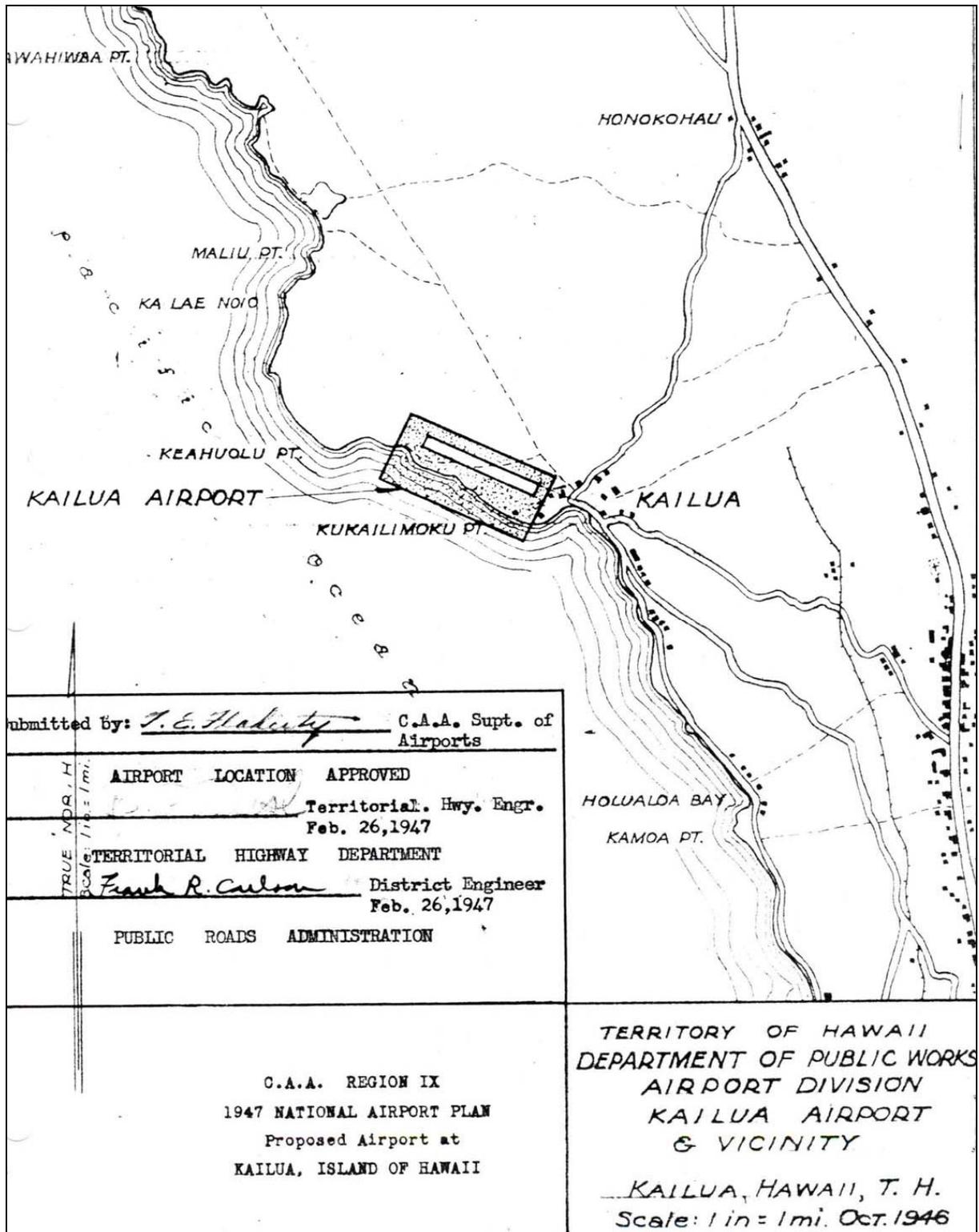


Figure 7. 1947 planning map for the future Kona Airport (<http://hawaii.gov/hawaiiaviation>)

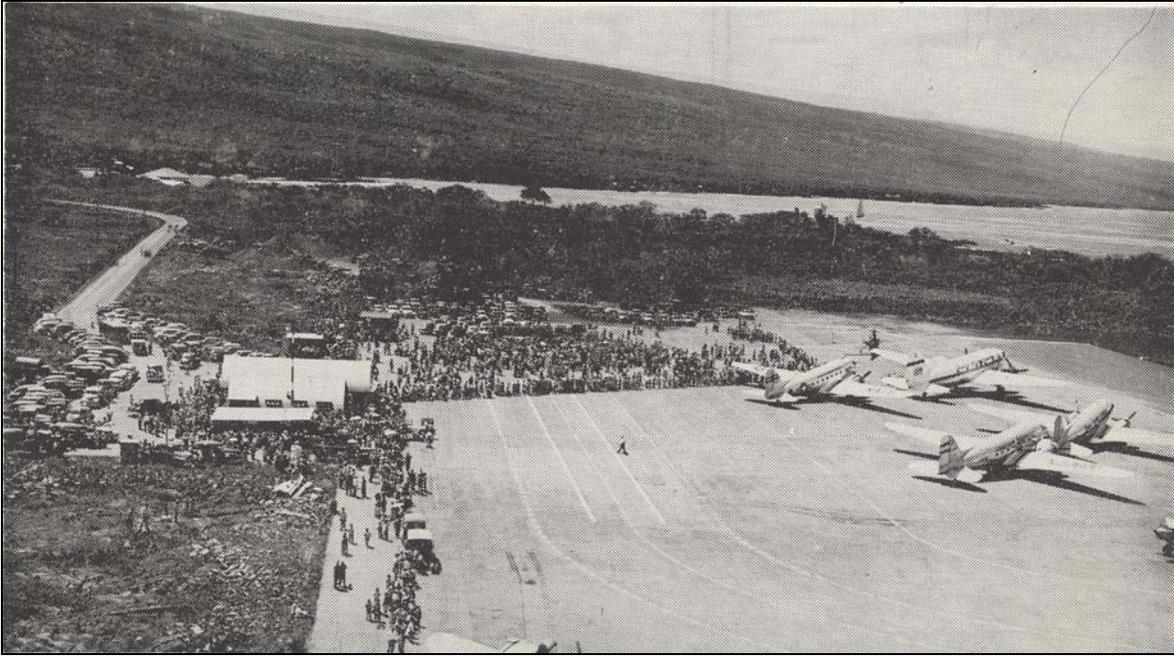


Figure 8. Opening ceremonies for Kona Airport June 10th, 1949; nearly 4,000 people were present for the day's events (<http://hawaii.gov/hawaiiaviation>)



Figure 9. One of the first Hawaiian Airlines flights to arrive at Kona Airport on June 10th, 1949 (<http://hawaii.gov/hawaiiaviation>)

3.2 Previous Archaeological Research

Early archaeological investigations in the *ahupua'a* of Keahuolū and Lanihau were focused on coastal ceremonial and habitation sites (Stokes 1991; Reinecke 1930; Emory 1970). Later surveys also noted agricultural, marine resource collection areas, burials, and other types of features along the Keahuolū and Lanihau Coast (Newman 1970; Bevaqua 1972; Neighbor Island Consultants 1973; Sinoto 1975; Ching 1978; Fuke and Goldstein 1980; Estioko-Griffin and Lovelace 1980; Folk 1980; and, Neller 1980). Projects conducted in the seaward areas of Keahuolū and Lanihau Ahupua'a are located on Figure 10 and summarized in Table 1.

In 1978, Ching surveyed most of the coastal area of Keahuolū from the shore *mauka* to Queen Ka'ahumanu Highway. He recorded 59 sites with 140 component features, including many salt pans along the coast, and rock shelters, pavements and cairns in the barren zone inland of the coast.

In 1979, PHRI (Paul H. Rosendahl, Ph.D., Inc.) conducted a reconnaissance survey of three parcels in coastal and inland Keahuolū (Rosendahl 1979). Area 1 consisted of a 100-acre parcel west (*makai*) of Queen Ka'ahumanu Highway, near the coast, northwest of the current project area. Area 2 was a 100-acre parcel, east (*mauka*) of the highway, along the west side of Palani Road. Area 3 was a 12-acre parcel *mauka* of the highway on the east side of Palani Road. Thirteen sites/site complexes were recorded. Two large complexes and five additional sites were recorded in Area 2, and one large complex was recorded in Area 3.

An archaeological inventory survey for the Kuakini Highway Realignment Corridor was conducted by the Bishop Museum between 1980 and 1983 (Schilt 1984). The 4.96 km corridor crossed 26 *ahupua'a*, including Keahuolū at the northern end. A total of 134 sites, comprising 455 features, was recorded. Two sites were located in Keahuolū Ahupua'a (D10-23, D10-24), a cairn and a modified outcrop. Both of these sites are located 25 m west of the current project area. Schilt also noted that this area had been extensively bulldozed. Information generated from this report, along with documentary research presented by Kelly (1983), was used to generate models for the chronology and type of land use in North Kona in pre-contact through historic times.

The first archaeological study to focus on the upland area of Keahuolū was conducted by Soehren in 1983. Soehren (1983) surveyed a 10-acre parcel near Queen Lili'uokalani Villages, located at elevations ranging from 240-300 m (800 to 1,000 ft) AMSL. No archaeological features were found.

In 1989, an archaeological inventory survey was conducted for the proposed 950-acre Kealakehe Planned Community (Donham 1990a). The project area was comprised of two parcels, which included all undeveloped land in Kealakehe Ahupua'a between Queen Ka'ahumanu Highway and Kealakaha Road and an adjacent 150-acre parcel in Keahuolū Ahupua'a, bounded by Palani Road to the east. A total of 53 sites, comprised of 840 features, was located within the entire project area, but only a single platform and six terraces were recorded in the Keahuolū parcel. The most common feature types in the project area were rock mounds and *pāhoehoe* excavations. Other common features included low-mounded walls, modified outcrops, small enclosures, and terraces. These types of features indicated that the area

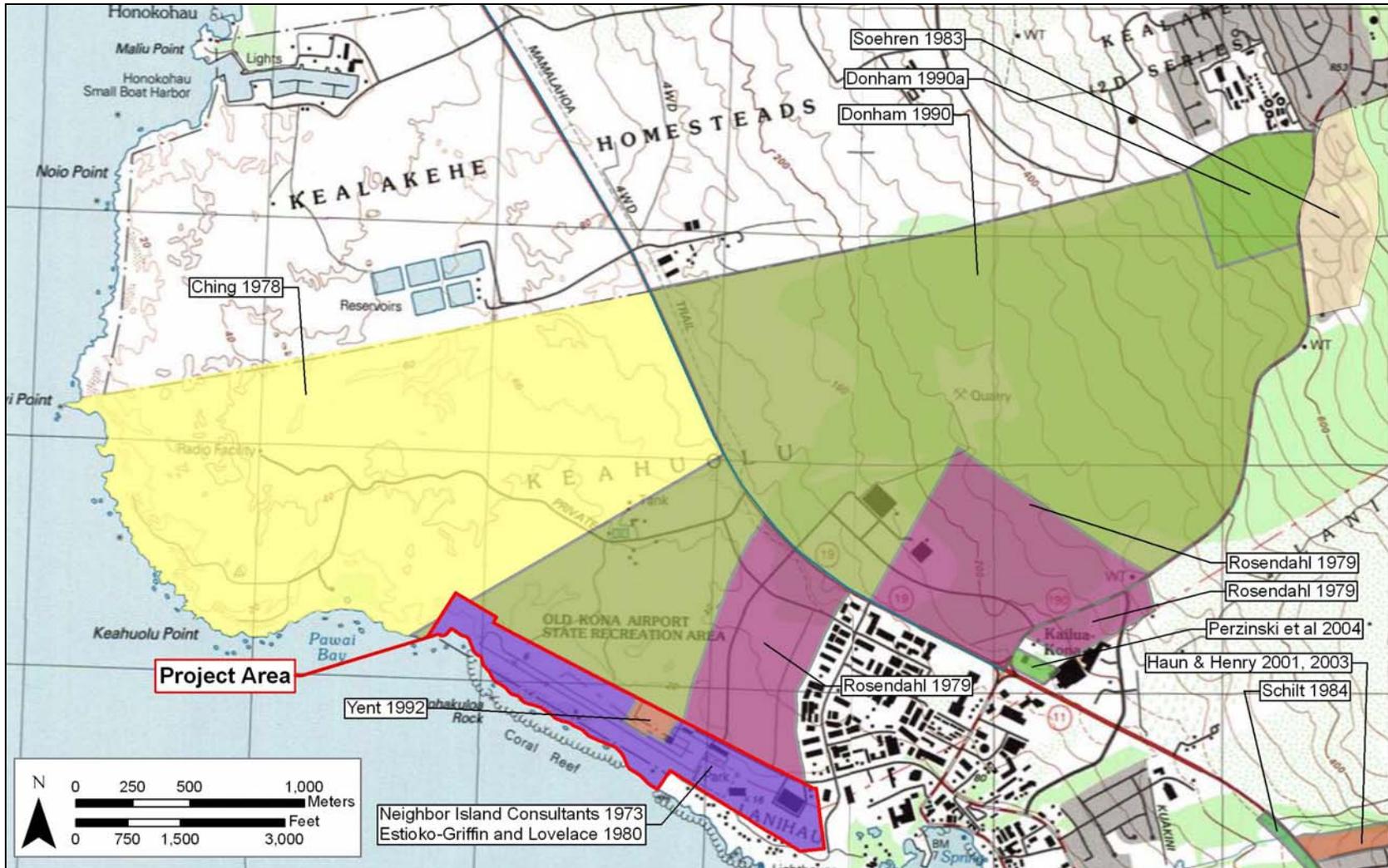


Figure 10. Previous archaeological work in Keahuolu and Lanikai Ahupua'a

Table 1 Previous Archaeological Investigations in Keahuolū and Lanihau Ahupua'a

Reference	Project Location	Report Type And Results
Stokes 1906	coastal Kona	Survey: Identified two <i>heiau</i> and two <i>ko'a</i> in the current project area
Reinecke 1930	West Hawaii	Reconnaissance Survey: Identified 7 sites within the current project area
Emory 1970	Ka'u, Kona Districts and Anaehoomalu	Inventory of Sites: Named 4 sites in the current project area, two <i>heiau</i> , one <i>ko'a</i> and a cluster of petroglyphs
Newman 1970	<i>Makai</i> portion of Kona Airport	Field Inspection: observed several sites in the current project area, assigning 3 sites State numbers
Neighbor Island Consultants 1973	Old Kona Airport	Reconnaissance Survey: Identified 19 sites including planting pits, housesites, burials, and petroglyphs
Ching 1978	987 parcel from the shore to Ka'ahumanu Hwy., Keahuolū Ahupua'a	Reconnaissance Survey: 59 sites were recorded with 140 component features, dominated by salt pans, rock shelters, pavements and cairns.
Rosendahl 1979	Three parcels adjacent to Queen Ka'ahumanu Hwy and/or Palani Rd., Keahuolū Ahupua'a	Reconnaissance Survey: Thirteen features or feature complexes were recorded in the three parcels. Parcel 1 was later surveyed as the QLT 100-Acre KIS parcel (O'Hare & Rosendahl 1993); Parcel 2 is a section of the 1,100 acre QLT inventory survey parcel (Donham 1990b and others), and Parcel 3 covers the area between Palani Road and the Henry St. Extension area (Rosendahl 1993b and others)
Estioko-Griffin & Lovelace 1980	Old Kona Airport	Reconnaissance Survey: Identified 35 sites in current project area including house sites, petroglyphs, burials, and multiple lava shelters and sinkholes
Schilt 1984	Kuakini Highway Realignment Project - 26 <i>ahupua'a</i> in Kona	Archaeological Study: 134 sites were found in the road corridor; two sites, a cairn and a modified outcrop, were recorded in Keahuolū.

Reference	Project Location	Report Type And Results
Soehren 1983	Ten-acre parcel near the Queen Lili'uokalani Village, Lanihau and Keahuolū Ahupua'a	Reconnaissance Survey of parcel; no sites were recorded in a 10-acre parcel at elevations of 240-300 m (800-1000 ft).
Donham 1990a	Kealakehe Planned Community, Kealakehe and Keahuolū Ahupua'a	Inventory Survey: 840 features were recorded; density and type of features were noted in three elevation intervals.
Donham 1990b	QLT Lands 1,100 acre parcel, Keahuolū Ahupua'a	Inventory Survey: 239 sites, comprising 1,810 features were recorded. Distributional patterns similar to those found at the Kealakehe Planned Community area were noted.
Jensen 1990	Palani Road Improvement Project, Keahuolū Ahupua'a	Inventory Survey: 32 sites were recorded and four radiocarbon dates ranging from A.D. 1400-1790 were determined
Smith & Yent 1990	Old Kona Airport	Data Recovery: Identified 4 new sites within the current project area, including walls, paving and filled crevices
Yent 1992	Old Kona Airport	Field Inspection: Identified 1 new sites, a petroglyph, within the current project area
Goodfellow and Walker 1993 O'Hare & Franklin 1994	QLT Lands Palani Road Turning Lane, Keahuolū Ahupua'a	Field Inspection: Seventeen sites were recorded. Data Recovery: Two sites, which were in danger of damage during construction of the Palani Turning Lane were tested. A human burial was found in one feature. Two radiocarbon dates, both ranging from about A.D. 1410-1955, were determined for an agricultural terrace.
O'Hare & Rosendahl 1993	QLT 100-acre KIS parcel from shore to Queen Ka'ahumanu Hwy., Keahuolū Ahupua'a	Inventory Survey: Eighteen sites with 38 component features were recorded, including a section of the Māmalahoa Trail and one burial.

Reference	Project Location	Report Type And Results
Rosendahl 1993a Walker 1994 Jensen & Head 1995	Keahuolū Reservoir Site, Keahuolū Ahupua‘a	Field Inspections (two) and a subsequent Inventory Survey: Five sites with 31 component features were recorded in two parcels in elevations from 509-524 m AMSL. The majority of the sites were determined to be agricultural features associated with the Kona Field System.
Rosendahl 1993b Wulzen et al. 1996 Wulzen & Wolforth 1997	Henry Street Extension, Keahuolū and Lanihau Ahupua‘a	Field Inspection, Archaeological Inventory Survey, and Additional Subsurface Testing were conducted along a proposed road corridor. Seven sites were identified; four were connected and were related to cattle ranching in the historic period. One tested temporary habitation platform at Site 50-10-28-19486 was dated to A.D. 1650-1955.
Walsh & Hammatt 1995	New Queen Ka‘ahumanu Right-of-Way	Inventory Survey: A corridor along the Queen Ka‘ahumanu Hwy. was surveyed from the <i>ahupua‘a</i> of Kalaoa to the northern portion of Keahuolū; the only site recorded in Keahuolū was a portion of the Māmalahoa Trail (Site 00002).
Henry et al. 1998	Palani Road Corridor, Keahuolū Ahupua‘a	Inventory Survey: Thirty-five sites were relocated or newly identified. Radiocarbon dates for five features were determined, which suggested an initial use of the area for agriculture in A.D. 1410 to 1665.
Corbin 2001	QLT Lands Block C, Keahuolū Ahupua‘a	Data Recovery at two sites first identified by Donham (1990a): 188 features were identified at the two sites and 16 test units were excavated. Three radiocarbon dates of A.D. 1400-1640, A.D. 1490-1900, and A.D. 1660-1950 were determined for the sites.
Tulchin & Hammatt 2002	Kealaka‘a Street Realignment Project, Keahuolū Ahupua‘a	Archaeological Assessment: Three sites, previously identified by Donham (1990a, b) were relocated.
Perzinski, Rohrer, O’Hare and Hammatt 2004	Verizon Office Subdivision Project, Keahuolū Ahupua‘a, (TMK 3-7-4-8:20)	Archaeological Inventory Survey: One habitation site (50-10-28-23,798) with three features a platform with an adjoining terrace and two modified outcrops

was a relatively intensive agriculture zone. Two radiocarbon dates, one for a habitation cave on the coast and one from an inland cave, were both dated to ca. A.D. 1430-1650.

In 1989, an archaeological inventory survey was conducted for the Queen Lili'uokalani Trust Property (Donham 1990b). The project area of this study was comprised of six adjoining parcels in Keahuolū Ahupua'a adjacent to the present project area. The approximately 1,100-acre parcel was located on the east side of Queen Ka'ahumanu Highway and included all lands between Palani Road to the south and the Keahuolū/Kealakehe boundary to the north. The eastern boundary of the inventory survey was on the western boundary of the proposed Kealakehe Planned Community project. The southeast corner of this survey area is on the opposite side of Palani Road to the current project area. A total of 239 sites, including 1,810 features, were located within the project area. The most common features types were modified blisters, modified outcrops, and *pāhoehoe* excavation features. Other common features included terraces, platforms, and small enclosures. Agricultural features accounted for 90% of all identified features.

In 1990, an archaeological inventory survey was conducted by PHRI for the proposed Palani Road Improvement Project (Jensen 1990). The project area was a linear corridor, 15 m (50 ft) wide, extending from elevations of 50 to 195 m (160 to 580 ft) AMSL. The corridor is adjacent to the eastern side of Palani Road. A total of 32 sites, with 44 features, were located within the project area. The most common feature types were walls, mounds, and modified outcrops. Other common features included terraces, caves, and enclosures. Four radiocarbon samples were assessed for one feature within a single site. The dates indicated occupation between A.D. 1400 and 1790.

In 1993, PHRI (Goodfellow and Walker 1993) conducted a field inspection of a corridor for the Palani Road Turning Lane. Seventeen sites were recorded in the project area. Two of these sites were close to an area of construction impact, and it was decided to test the features to determine their significance (O'Hare and Franklin 1994). One feature contained a burial; it was left in place and a buffer zone was placed around the feature. Two radiocarbon dates were determined, A.D. 1410-1955 and AD 1440-1955, for two agricultural features.

In 1993 PHRI (O'Hare and Rosendahl) surveyed a 100-acre parcel between the coast and Queen Ka'ahumanu Highway. This parcel was adjacent to the southern boundary of the Keahuolū coastal QLT parcel surveyed by Donham (1990b). Eighteen sites with 38 component features were recorded, including a section of the Māmalahoa Trail and one burial.

In 1994, PHRI (Jensen and Head 1995) surveyed two 2.45-acre parcels for the proposed Keahuolū Reservoir. Two field inspections had been carried out in the project area previously (Rosendahl 1993a; Walker 1994). The project area ranged in elevation from 509 to 524 m (1,670 to 1,720) ft AMSL. Five sites with 31 component features were recorded. The majority of the features was determined to part of the Kona Field System and represented agricultural features or temporary field shelters adjacent to agricultural areas.

In 1994, PHRI (Wulzen et al. 1996) conducted an archaeological inventory survey of the Henry Street Extension, a road corridor on the south side of Palani Road at elevations of 70 to 85 m (230 to 280 ft) AMSL. Six sites previously identified during a field inspection of the project area (Rosendahl 1993b) and one newly identified site were recorded. Three of the sites were walls, not built at the same time, but ultimately connected with the Great Wall of Kuakini to form a polygon, which was probably used to enclose cattle. Additional subsurface excavations

were conducted at one platform in the project area in 1994 by PHRI (Wulzen and Wolforth 1997). The platform was determined to have been used for temporary habitation. A radiocarbon date of A.D. 1650-1955 was determined for the feature.

In 1995, Cultural Surveys Hawai'i (Walsh and Hammatt 1995) surveyed a corridor along the Queen Ka'ahumanu Highway from Kalaoa Ahupua'a on the north to the northern portion of Keahuolu Ahupua'a on the south. Seventeen sites were located along the corridor, including the Mamalahoa Trail (Site 00002), which was recorded in Honokōhau, Kealakehe, and Keahuolu ahupua'a.

In 1997 and 1998, PHRI (Henry et al. 1998) conducted an archaeological inventory survey of a 60-acre parcel, adjacent to the south side of Palani Road, from elevations of 48 to 134 m (160 to 440 ft) AMSL. The west end of the corridor is just 100 m northeast of the current project area. The project area encompassed portions of previous PHRI project areas (Jensen 1990; Wulzen et al. 1996). Thirty-five sites were relocated or newly identified in the parcel. One agricultural feature was radiocarbon dated to A.D. 1410-1665, indicating the first use of this area during the pre-contact period. Two agricultural and two habitation features were dated to between A.D. 1635 and 1935.

Data recovery was conducted by PHRI (Corbin 2001) in Block C in 1994, a 400 by 400 ft study block located within the Queen Lili'uokalani Trust Lands first surveyed in 1989 (Donham 1990b). Sixteen test units were excavated at two sites. Three features were dated to A.D. 1400-1600, A.D. 1490-1900, and A.D. 1660-1950.

In 2002 an archaeological assessment was conducted for the proposed Kealaka'a Street Realignment Project (Tulchin and Hammatt 2002). The project area of this study consisted of a 213 m long by 31 m wide proposed extension to Kealaka'a Street on the northern boundary of Keahuolu Ahupua'a. The project area is 1.22 km (0.76 mi) north of the present project area. Three sites originally identified by Donham (1990a), consisting of a kerbstone trail, an historic roadbed, and a wall, were relocated.

3.2.1 Previous Archaeological Research within the Current Project Area

There have been several previous archaeological studies within the bounds of the current project area. The majority of this work has been reconnaissance level studies.

The first documentation of sites within the project area was Stokes' 1906 survey (Stokes 1991) which documented two *heiau*, Kawaluna Heiau and Palihilo Heiau, and two *ko'a*, Halepa'u Ko'a and Maka'eo Ko'a (Figure 11). There has been difficulty positively re-identifying these sites in later studies and they may have been damaged or destroyed by the 1946 tsunami or the 1948-1950 runway construction.

John Reinecke (1930) described seven sites, Sites 8-14 (Figure 12), including house platforms, small complexes encompassing enclosures and platforms, petroglyphs, and a possible fishing *heiau*.

In 1970 Kenneth Emory carried out an inventory of sites in the Ka'u and Kona Districts for the Bishop Museum. This work consisted of a compilation previously documented sites. No fieldwork was conducted as part of this inventory to assess the continued existence or condition of the sites. Emory specified 4 previously documented sites within the current project area. These sites included Palihilo and Kawaluna Heiau, Halepa'u Ko'a and a cluster of petroglyphs.

Also in 1970 T. Stell Newman conducted an archaeological field inspection of the portion of the project area *makai* of the runway. In a brief letter report, Newman reported finding several historic places, including housesites, bait cups, petroglyphs and *papamū* (Figure 12). Newman designated three sites with State site numbers, 50-10-27-2000, -2001, -2002, and noted a “modern burial area” or “recent graveyard” (Newman 1970: 1-2) off the west end of the runway.

In 1973 Neighbor Island Consultants carried out a reconnaissance survey and identified 19 sites, KA-01 through KA-19 (Figure 13). These 19 sites were comprised of house sites, including a historic habitation complex, bait mortars, planting pits, lava cave shelters, enclosures, petroglyphs, and a number of burial sites.

In 1980 State Parks archaeologists conducted a reconnaissance survey of the current project area (Estioko-Griffin and Lovelace 1980). This survey identified 35 sites within five designated subareas (Figure 14 and Figure 15).

State Parks archaeologists also carried out surveys related to the development of the current Kailua Park and canoe *hālau* in 1989 (Smith and Yent 1990) and 1992 (Yent 1992). These studies identified an additional five new sites, 1989-36 through 1989-39 and 1992-40 (Figure 15).

Numerous burial finds have been made since the first documented isolated burial find by Earl Neller in 1980. These burial finds have been the result predominantly of beach erosion in the sandy portion of the project area *makai* of the runway. The natural erosion has been exacerbated by numerous events of high surf, including two hurricanes. The majority of the unearthened burials were determined to have originated from two main loci in the *makai* portion of the project lands. These two areas have been designated Western Burial Area and Eastern Burial Area (Figure 16). Most of the burial remains have been reinterred elsewhere within the project area.

3.3 Background Summary and Predictive Model

Based on background research, the project area along the coastal area of Keahuolū and Lanihau has been subject to numerous archaeological studies. During pre-contact times this coastal zone, ranging from 2 to 10 ft AMSL, was the location of scattered small settlements congregated near alchialine ponds and along the shoreline. Frequently documented sites in this zone include housesites, lava shelters, planting pits, petroglyphs, *ko‘a* and burials. In post-contact times, this zone was often utilized for small settlements and fishing activities (Yent 1993).

The previous archaeological studies within the current project area confirm this coastal area to be consistent with the trend of small settlements, shelters, fishing related activities and burials in both pre- and early post-contact times.

In more modern times, large portions of the project area have been subject to development. This development, in particular the 1948-1950 construction of Kona Airport and the 1990s development on Kailua Park, has resulted in the destruction or relocation of a number of previously documented sites. Multiple events of high surf action, including the 1946 tsunami and two major hurricanes have not only uncovered several burials but also likely destroyed or buried a number of the coastal sites. The former Old Kona Airport State Recreation Area’s active modern use is likely also to have disturbed numerous sites throughout the project area.

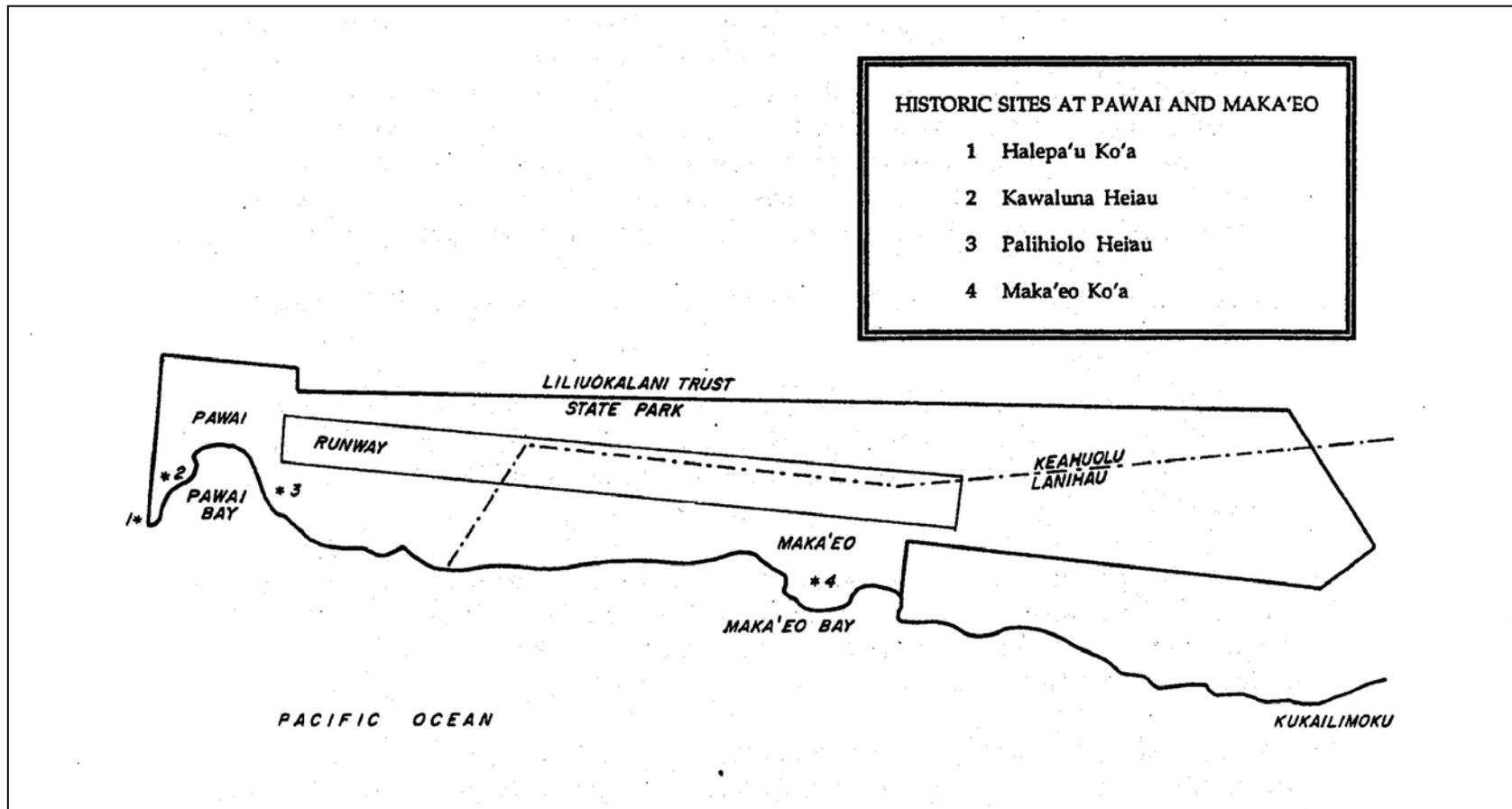


Figure 11. Sites as documented by John Stokes in 1906

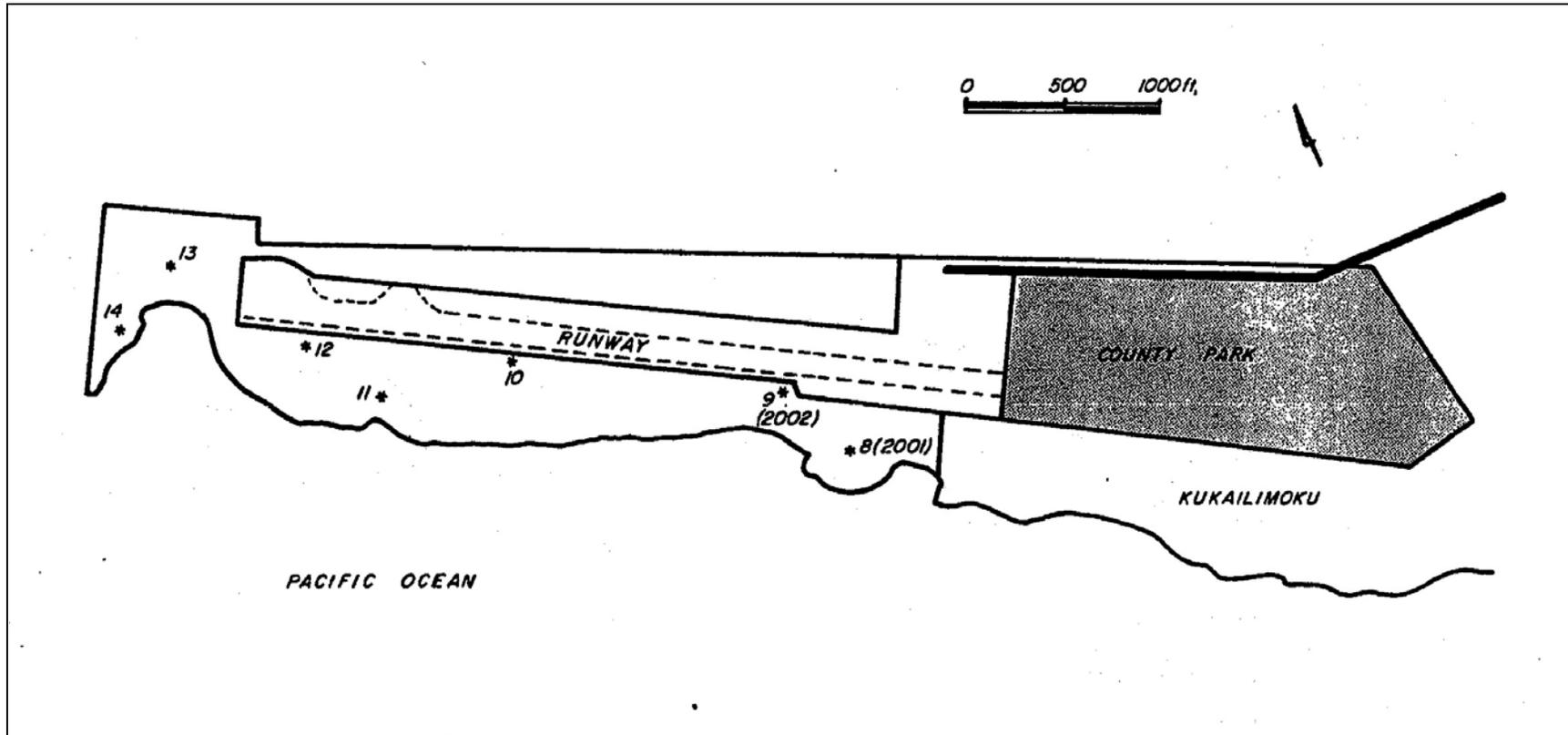


Figure 12. Sites recorded by Reinecke (1930) and Newman (1970)

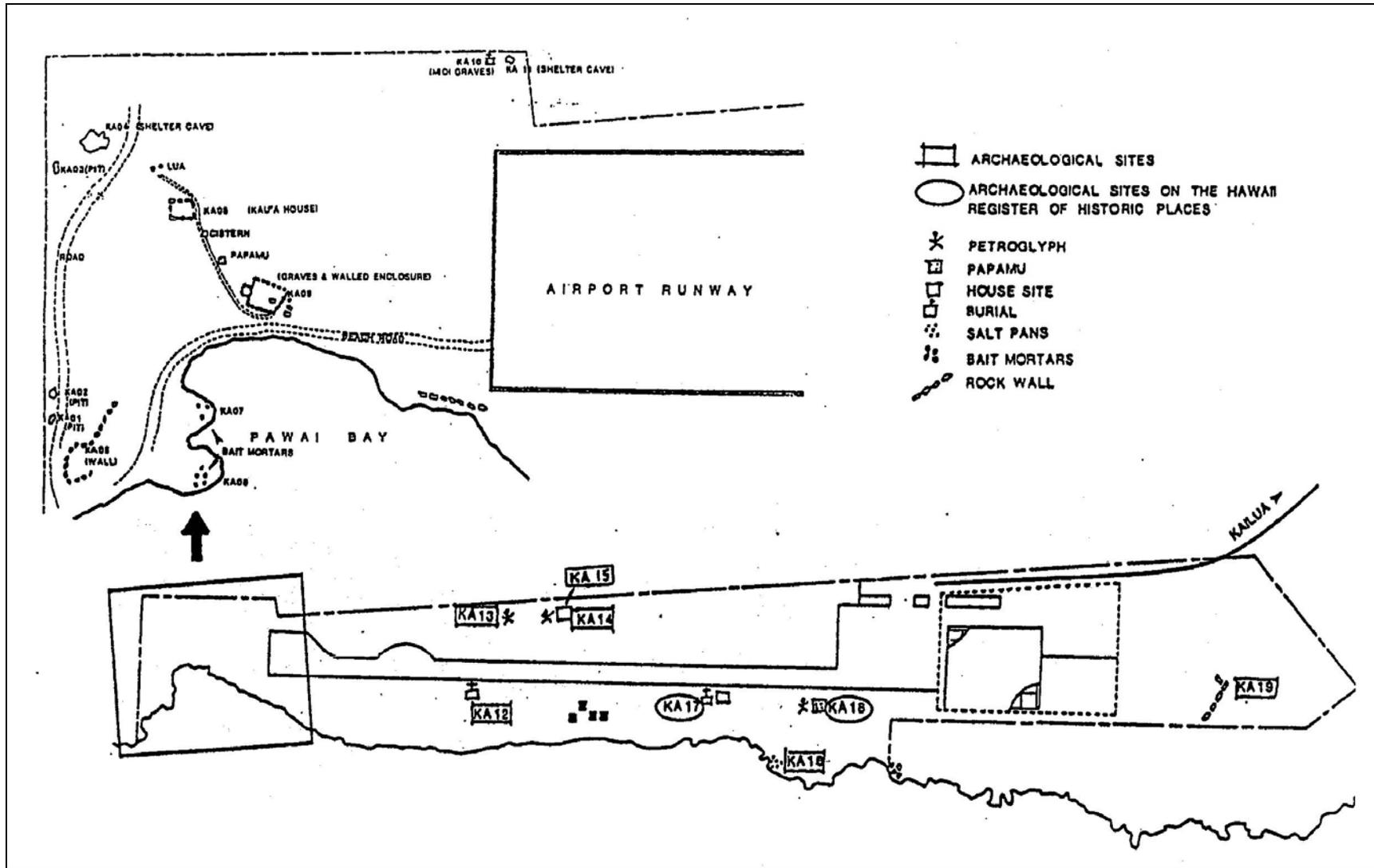


Figure 13. Sites recorded by Neighbor Island Consultants in 1973

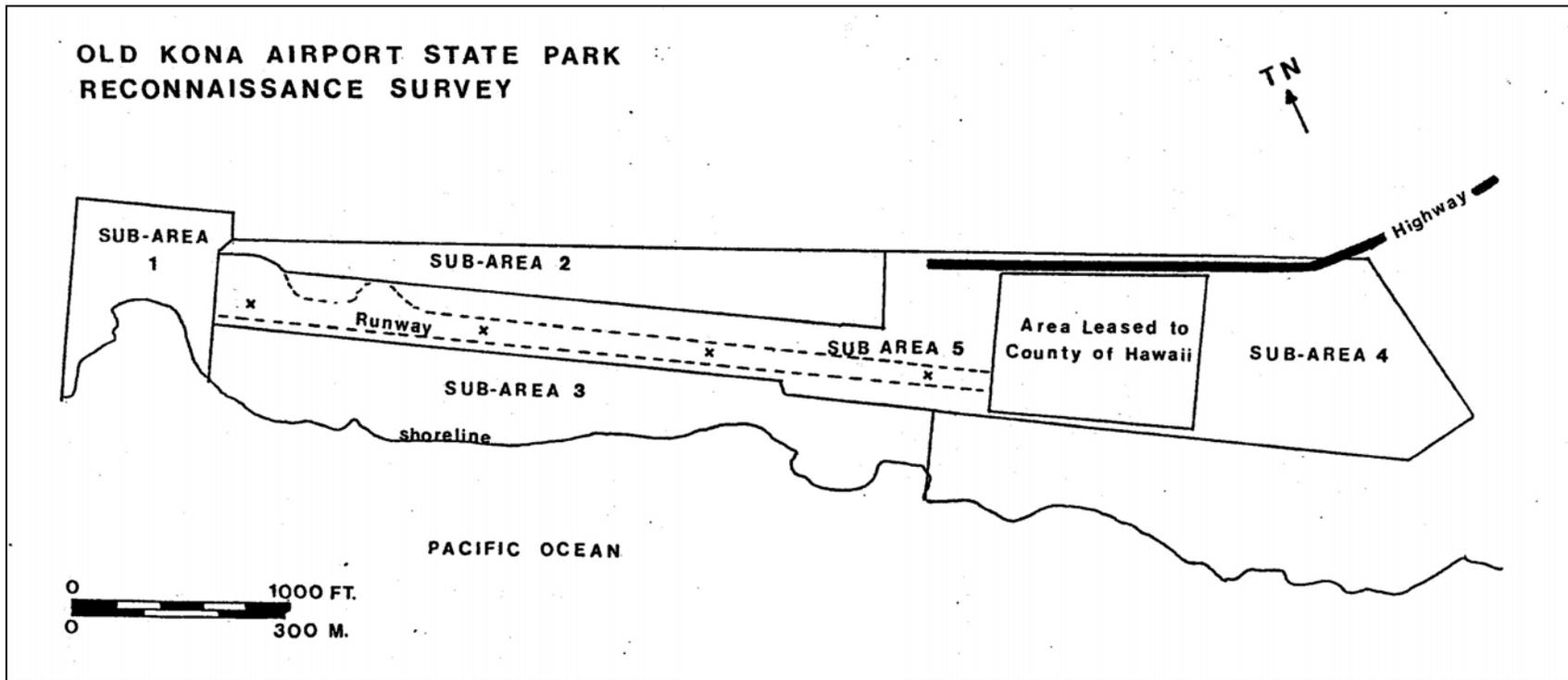


Figure 14. Subareas of project area as designated by Estioko-Griffin and Lovelace 1980

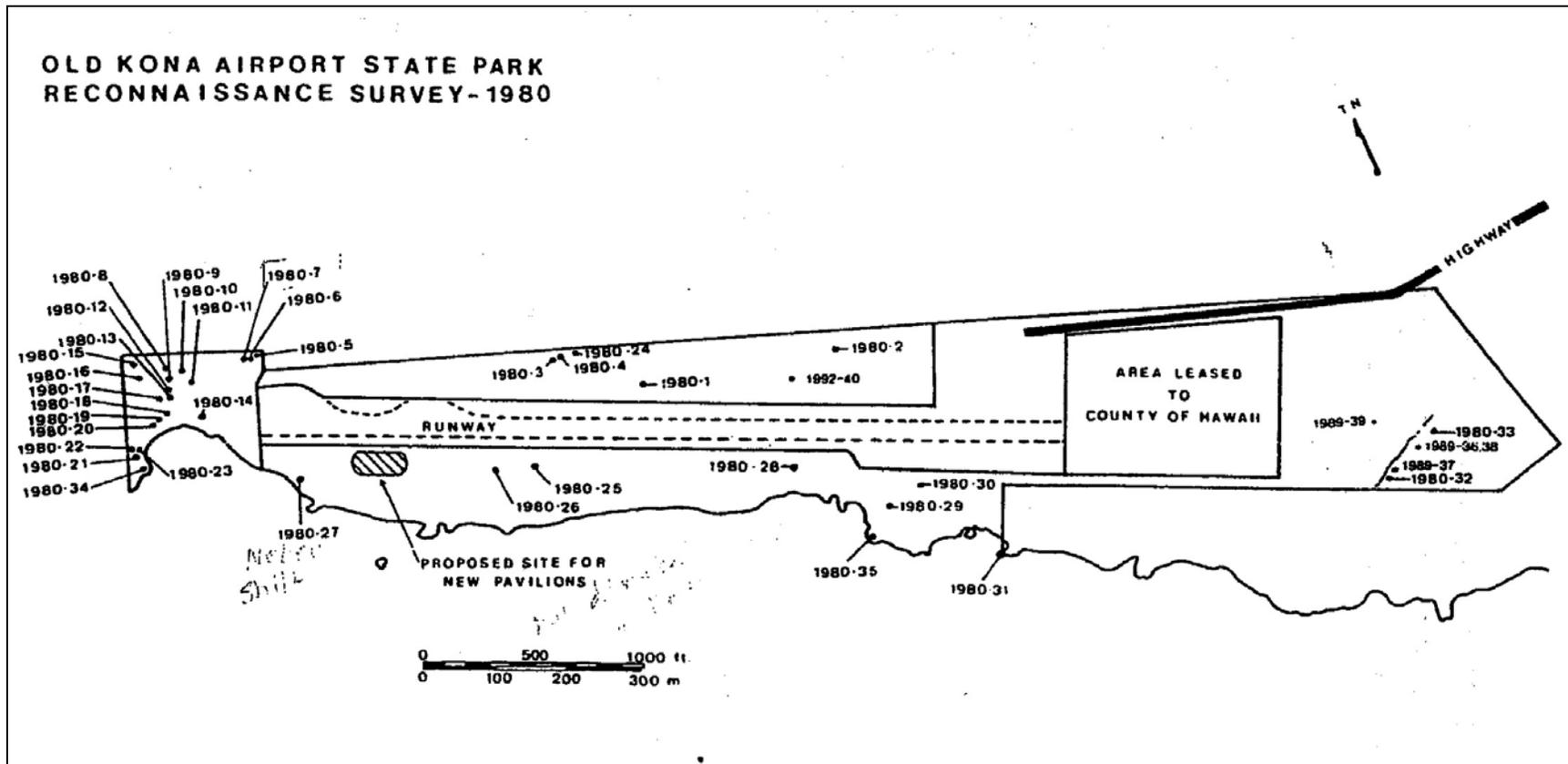


Figure 15. Sites recorded by Estioko-Griffin and Lovelace 1980

Section 4 Results of Fieldwork

4.1 Survey Findings

Limited pedestrian inspection of the project area confirmed the location of numerous previously identified historic properties and identified four sites not previously designated as historic properties. Archaeological features representing both Pre- and Post-contact land use were observed. A number of previously identified historic properties were found to no longer exist, being either destroyed or removed. A few of the previously designated sites were revisited and determined to not meet the requirements to qualify as possible historic properties and therefore are no longer considered archaeological sites.

Nineteen archaeological sites were re-identified during the current field inspection (Table 2, Figure 16) and four new sites were documented. An additional nine sites were not re-identified but are believed to be still present within the project area, merely covered by sand, vegetation, or mulch. In total, therefore, 32 sites are believed present within the project area.

Forty archaeological sites were identified by Estioko-Griffin and Lovelace. (1980), Smith and Yent (1990) and Yent (1992) during previous archaeological studies of the Old Kona Airport State Park. Eleven of these sites were not re-identified or removed as sites during the current field inspection effort. These eleven sites were either previously destroyed or determined not to qualify as archaeological sites (Table 3). One additional site documented by Estioko-Griffin and Lovelace (1980), Site 1980-31, was found to be outside of the current project area and therefore removed from the current project.

Table 2. Archaeological Sites Observed within the Project Area

Site #	Type	Function	Probable Age	Notes
50-10-27-2001	Petroglyphs	Rock Art	Pre-contact	Previously identified and documented but not re-identified during current project; believed still present but buried
50-10-27-2002	Burial	Burial	Post-contact	Previously identified and documented but not re-identified during current project; believed still present but buried
50-10-27-19796	Enclosure	Burial	Post-contact	Previously identified and documented
50-10-27-19797	Lava Shelter	Burial, Reinterment	Post-contact	Previously identified and documented

Site #	Type	Function	Probable Age	Notes
1980-03	Lava Shelter	Shelter	Pre-contact	Previously identified and documented but not re-identified during current project; believed still present but buried
1980-04	Lava Shelter	Shelter, Possible Burial	Pre-contact	Previously identified and documented but not re-identified during current project; believed still present but buried
1980-06	Lava Shelter	Shelter	Pre-contact	Previously identified and documented
1980-08	Pit	Permanent Habitation	Post-contact	Previously identified and documented
1980-09	Modified Outcrop	Temporary Habitation	Post-contact	Previously identified and documented
1980-10	Modified Outcrop	Temporary Habitation	Post-contact	Previously identified and documented
1980-11	Brackish Pond, Petroglyphs	Activity Area, Rock Art	Post-contact	Previously identified and documented
1980-12	Platform	Permanent Habitation	Post-contact	Previously identified and documented
1980-13	Pit	Permanent Habitation	Post-contact	Previously identified and documented
1980-15	Lava Shelter	Shelter, Reinterment	Post-contact	Previously identified and documented
1980-17	Lava Shelter	Shelter	Pre-contact	Previously identified and documented
1980-18	Pit	Agriculture, Activity Area	Pre- and Post-contact	Previously identified and documented
1980-19	Clearing	Activity Area	Post-contact	Previously identified and documented
1980-20	Clearing	Activity Area	Post-contact	Previously identified and documented
1980-21	Enclosure	Possible <i>Heiau</i>	Pre-contact	Previously identified and documented
1980-22	Pits	Agriculture	Pre-contact	Previously identified and documented

Site #	Type	Function	Probable Age	Notes
1980-23	Subsurface Deposit	Cultural Deposit	Pre-contact	Previously identified and documented but not re-identified during current project; still believed present
1980-24	Petroglyph	Rock Art	Pre-contact	Previously identified and documented but not re-identified during current project; believed still present but buried
1980-25	Petroglyph	Rock Art	Pre-contact	Previously identified and documented but not re-identified during current project; believed still present but buried
1980-26	Subsurface Burial	Burial	Pre-contact	Previously identified and documented but not re-identified during current project; still believed present
1980-27	Subsurface Deposit, Burial	Cultural Deposit, Burial	Pre-contact	Previously identified and documented but not re-identified during current project; still believed present
1980-29	Enclosure, Petroglyphs	Temporary Habitation, Rock Art	Pre-contact	Previously identified and documented
1980-34	Bait Mortars	Activity Area	Pre-contact	Previously identified and documented
1980-35	Salt Pans	Activity Area	Pre-contact	Previously identified and documented
2009-41	Brackish Pond	Activity Area	Post-contact	Not previously reported
2009-42	Enclosure	Activity Area	Post-contact	Not previously reported
2009-43	Lava Shelter	Shelter	Indeterminate	Not previously reported
2009-44	Enclsoure	Possible Burial	Indeterminate	Not previously reported



Figure 16. Overview of project area showing location and function of all sites



Figure 17. Aerial photograph of the project area showing location and function of all sites

Table 3. Archaeological Sites Not Re-Identified or Removed within the Project Area

Site #	Type	Status	Notes
1980-01	Concrete Foundation	Not Re-Identified	Destroyed post-1980
1980-02	Lava Shelter	Not Re-Identified	Destroyed; not re-identified as of 1992
1980-05	Lava Shelter	Removed	No cultural material or modification present to warrant site designation
1980-16	Lava Shelter	Removed	No cultural material or modification present to warrant site designation
1980-31	Bait Mortars	Removed	Outside of current project area
1980-32	Wall	Not Re-Identified	Destroyed during development of Kailua Park in 1990s
1980-33	Cairns	Not Re-Identified	Destroyed during development of Kailua Park in 1990s
1989-36	Platform	Not Re-Identified	Destroyed during development of Kailua Park in 1990s
1989-37	Filled Crevice	Not Re-Identified	Destroyed during development of Kailua Park in 1990s
1989-38	Paved Area	Not Re-Identified	Destroyed during development of Kailua Park in 1990s
1989-39	Wall	Not Re-Identified	Destroyed during development of Kailua Park in 1990s
1992-40	Petroglyph	Not Re-Identified	Believed to have been removed prior to canoe <i>halau</i> construction in 1993

4.1.1 Kona Airport

The Kona Airport was initially constructed between 1948 and 1950. Given this age, remnants of the airport could qualify as historic properties within the project area. The condition and integrity of these remnant structures (which include the runway and terminal building), however, preclude them from being considered as significant historic properties.

The terminal building was last modified during airport operation in 1966 (Neighbor Island Consultants 1973:59). Currently this structure is condemned (MaryAnne Maigret, personal communication 2009) and serves as a base yard for a construction company (Figure 18).

The runway underwent several phases of modification while the airport was still in operation. These modifications consisted of extensions and repavings, the last phase of which was completed in 1967 (Neighbor Island Consultants 1973:58). Since the closure of Kona Airport in 1970, the runway shows significant evidence of various episodes of damage, repair, and



Figure 18. View of the Kona Airport passenger terminal building in its present condition

extension (Figure 19 and Figure 20). Modern modifications of the runway include recent paving of an extension of the northwest end of the runway by a community hobbyist group (Deac deCamp, West Hawaii Parks and Recreation Superintendent, personal communication 2009).



Figure 19. Overview of damage and area of repaving at northwest end of runway



Figure 20. View of damage and lost integrity of Kona Airport runway

4.2 Site Descriptions

4.2.1 SIHP # 50-10-27-2001

FORMAL TYPE(S): Petroglyphs
PROBABLE AGE: Pre-contact
FUNCTION: Rock Art

DESCRIPTION: SIHP # 50-10-27-2001 (see Figure 16 and Figure 17) was originally recorded by Newman (1970) (see Figure 12) and designated as Site 1980-30 by Estioko-Griffin and Lovelace (1980) archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-30 is a series of petroglyphs located in the eastern portion of Subarea 3 (see Figure 14) approximately 52 meters northeast and *mauka* of Site 1980-29. This site has been previously reported (Newman 1970: Site 50-10-27-2001 “Lanihau Papamū;” Neighbor Island Consultants 1973: KA-18; and possibly part of Reinecke’s Site 8).

The petroglyphs consist of two *papamū* (one large *papamū*, 11 by 12 rows, measuring 0.53 x 0.53 meters and a small *papamu*, 3 x 4 rows measuring 0.2 x 0.2 meters) and several stick figures. The largest stick figure is located approximately 0.7 meters west of the large *papamū* and measures 0.3 x 0.65 meters. This figure appears to be holding some sort of an object in its right hand. Two additional stick figures also appear to be super-imposed on the surface of the large *papamū*. While these additional stick figures have not been previously mentioned in the reports, at least one of them is indicated on one of Newman’s photographs. These petroglyphs are in good condition and are probably prehistoric.

An additional, partially completed, *papamū* toward the runway was also reported by the 1973 survey. No size of row information is available. Our survey did not locate this petroglyph.

Upon conducting the field inspection for the current project, the location previously specified for Site 1980-30 was found to be covered by sand, vegetation and in some spots bulldozer push and the site was not re-identified. No attempt at subsurface testing for the site was undertaken.

The continued existence of Site 1980-30, albeit covered by sand, vegetation, or bulldozer push, was confirmed by Hawai‘i Island State Parks archaeologist MaryAnne Maigret (MaryAnne Maigret, personal communication 2009).

4.2.2 SIHP # 50-10-27-2002

FORMAL TYPE(S): Burial
PROBABLE AGE: Post-contact
FUNCTION: Burial

DESCRIPTION: SIHP # 50-10-27-2002 (see Figure 16 and Figure 17) was originally recorded by Newman (1970) (see Figure 12) and designated as Site 1980-28 by Estioko-Griffin and Lovelace (1980) archaeological reconnaissance (see Figure 15) as an enclosure with burials. No surface evidence of this site remains and the enclosure is believed to have been washed out by one of the several high surf action events (MaryAnne Maigret, personal communication 2009). Despite the destruction of the surface enclosure, it is possible that the subsurface burials remain. These graves were recorded by Newman (1970) and recounted by Estioko-Griffin and Lovelace (1980) as follows:

Newman reported that two and possibly three graves were associated with the house foundation.

About 10 meters north of the house foundation are two graves. The graves are evidently slab-lined crypts because the top edges of elongated stones are just visible on top of the ground, comprising a rectangle that measures 2 by 4 meters. One end is not lined (at least visibly) and may be an empty or unfinished grave. The other definite grave is about two meters toward the runway in the center of a very rocky area. It too is slab-lined. The central area of both grave area is filled with small rubble.

The Neighbor Island Consultants survey relocated the first set of graves; no mention was made of the third grave. They, as did our survey, noted a possible wall extension just *mauka* of the main structure. Possibly a grave structure was visible at this location at the time of Newman's visit to the area (1970).

Given the repeated high surf action and hurricanes that likely destroyed the surface enclosure and have uncovered numerous burials in this area, it is possible that these burials have been naturally disinterred. However, as it is impossible to confirm this theory, the location previously documented for this site should still be considered a burial site.

4.2.3 SIHP # 50-10-27-19796

FORMAL TYPE(S): Enclosure
PROBABLE AGE: Post-contact
FUNCTION: Burial

DESCRIPTION: SIHP # 50-10-27-19796, was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance as Site 1980-14 (see Figure 15, Figure 16 and Figure 17) and described as follows:

Site 1980-14 is a large well-built, walled enclosure with associated rock lined graves located on the beach at a point approximately 95-100 meters west of the end of the runway. The enclosure consists of two parts, the main enclosure measuring c. 15 x 15 meters with a wall height of 1.2-1.3 meters, and a small apparently later extension, roughly 4 x 5 meters, on the northwest wall of the main enclosure (Figure 21).

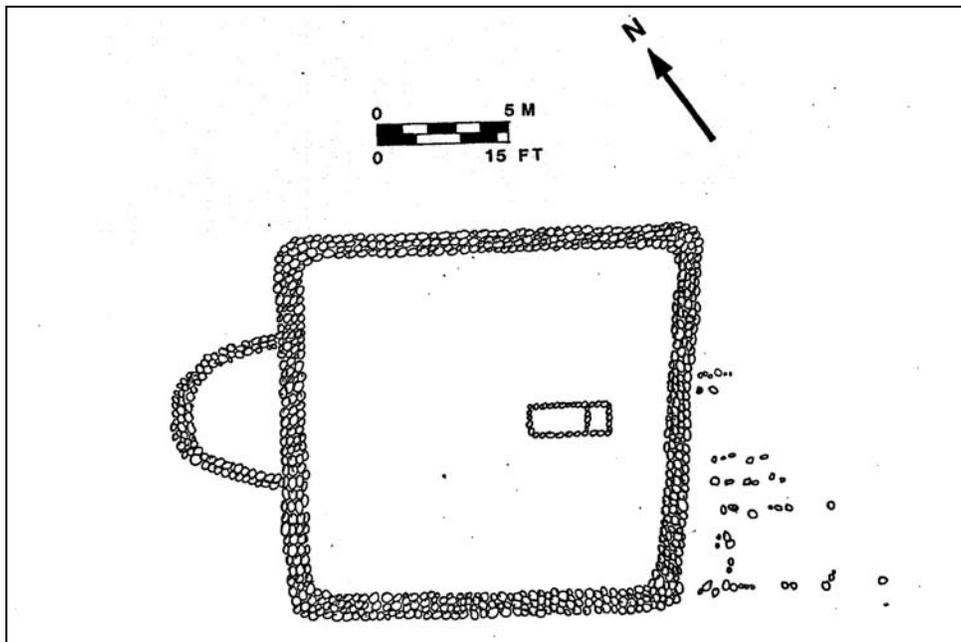


Figure 21. Plan view of SIHP # 50-10-27-19796 enclosure (Estioko-Griffin and Lovelace 1980)

At least four graves are currently indicated, one inside the main enclosure and three just outside the southeast wall. It has been previously suggested (Neighbor Island Consultants 1973:49) that the presence of scattered stones within the main enclosure may possibly mark additional graves.

This site was previously reported by the 1973 survey (Site KA 09, see Figure 13) and assigned a “historic status”:

Since the area is situated within the visible limits or wave runup, it is probable that the main and extending wall enclosure post-date the 1868 tsunami.

...the graves are relative of Mrs. Margaret Kaelemakule who currently tends the graves.

Neighbor Island Consultants 1937:49

It is further possible that the walled enclosure itself corresponds to a structure described by Stokes 1919 as the “Heiau of Kawaluna” (see Figure 11):

...on the beach, a quarter mile from the boundary of Lanihau, in a section (*ili*) called Pawai. An enclosure, the walls of which have been carefully rebuilt without opening. The interior was filled with loose stones piled without arrangement.

If this is the same site Stokes was referring to, then the graves would appear to be later additions.

As part of the current field inspection effort, SIHP # 50-10-27-19796 was re-identified. The site is in decent condition though the structure shows some collapse (Figure 22). The southwest wall of the enclosure is disturbed, presumably by high surf action and the stones marking the interior grave were not re-identified. Near the south interior corner of the enclosure is a modern firepit constructed of small boulders (Figure 23). These stone may have been those that were previously marking the interior grave. The stones marking the exterior graves are still present (Figure 24). As is evident by the firepit, this site is affected by active modern use.



Figure 22. Overview of interior of SIHP # 50-10-27-19796 enclosure



Figure 23. SIHP # 50-10-27-19796, modern firepit possibly constructed from boulders looted from interior grave or collapsed walls



Figure 24. SIHP # 50-10-27-19796, view of remnant external graves

4.2.4 SIHP # 50-10-27-19797

FORMAL TYPE(S): Lava Shelter
PROBABLE AGE: Post-contact
FUNCTION: Burial, Reinterment

DESCRIPTION: SIHP # 50-10-27-19797 was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance as Site 1980-07 (see Figure 15, Figure 16 and Figure 17) and described as follows:

Site 1980-7 consists of historic graves (two structures, at least four individuals) and adjacent shelter caves, located in the northeast corner of Subarea 1 (see Figure 14) (25 meters west of the northeast fence corner and 10 meters *makai* of the north fence line). This site is also located approximately 5 meters west of Site 1980-6.

One of the grave structures is marked by a concrete slab (1.5 x 3 meters) and polished granite headstone with the following inscription:

SIMION K. MIOI
 MARIA K. MIOI
 LUCY MIOI AIU AND INFANT

Adjacent to the concrete slab is another grave (2 x 2 meters) which is marked by lava rock, sand and coral. It is unclear whether or not any of the individuals listed on the granite headstone are buried in this second grave.

These presumably modern or historic graves are located within a large lava cave which has two shelters containing cultural materials (shell midden and coral were observed). One of the shelters is located *makai* of the graves, the other is to the northeast. The time period in which the shelter was utilized is unknown.

While the graves were previously reported by the Neighbor Island Consultants survey (see Figure 13, Site KA-10), the shelter caves were not.

A portion of SIHP # 50-10-27-19797 was designated as utilized as a reinterment site and designated Burial Site # 50-10-27-HAR-2. The reinterment contains scattered remains from throughout the former Old Kona Airport SRA, burials exposed by Hurricane Iwa and remains from Kūkā'ilimoku, outside of the project area. These numerous remains were reinterred in 1984. In 1989 additional remains recovered following a period of high surf were also reinterred at this site (Yent 1993).

As part of the current field inspection effort, SIHP # 50-10-27-19797 was re-identified and the 1980 description was relatively accurate for the site's current condition (Figure 25).



Figure 25. Overview of the SIHP # 50-10-27-19797 lava shelter cave and associated grave with granite headstone

4.2.5 Site 1980-03

FORMAL TYPE(S): Lava Shelter
PROBABLE AGE: Post-contact
FUNCTION: Shelter

DESCRIPTION: Site 1980-03 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-3 is a small lava cave shelter located in the western half of Subarea 2 (see Figure 14), at a point approximately 125 meters northwest of the telephone pole closest to the runway. The site is also located 9.5 meters *makai* of the northern fence line.

The cave has a small opening (0.5 x 0.7 meters) which extends inward approximately 0.9 – 1.0 meters. There is also a narrow tube extending 4 meters *makai* from the cave shelter's opening. One small bone fragment and several pieces of broken ceramics were observed. This site would appear to be historic and was not previously reported.

Upon conducting the field inspection for the current project, the location previously specified for Site 1980-03 was found to be recently covered with mulch (Figure 26). The thickness of the mulch in this area, based upon limited inspection, appeared to range between 5 and at least 30 cm. No significant attempt at subsurface testing for the site was undertaken.

Site 1980-03 had last been relocated as of 2002 by Hawai'i Island State Parks archaeologist MaryAnne Maigret (MaryAnne Maigret, personal communication 2009). The mulching of the area likely resulted in the filling in of the small lava shelter.



Figure 26. Overview of area of mulching covering Sites 1980-03, 1980-04 and 1980-24

4.2.6 Site 1980-04

FORMAL TYPE(S): Lava Shelter
PROBABLE AGE: Pre-contact
FUNCTION: Shelter, Possible Burial

DESCRIPTION: Site 1980-04 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-4 is another small lava shelter, located 5.8 meters *makai* of the fence line and 21.5 meters east of Site 1980-3. The opening to the cave has a height of 1.25 meters and extends backward to a maximum of 2.5 meters. There is also an extension of about 1.5 meters to the east. This small cave appears to have been used for burial. A number of long bone fragments which are presumably human, as well as bits of a heavy burlap type cloth were observed. A large rock appears to have fallen from the roof of the cave and crushed several bones. A coconut shell was also observed on a ledge inside the cave.

This site was not previously reported.

Upon conducting the field inspection for the current project, the location previously specified for Site 1980-04 was found to be recently covered with mulch (see Figure 26). The thickness of the mulch in this area, based upon limited inspection, appeared to range between 5 and at least 30 cm. No significant attempt at subsurface testing for the site was undertaken.

Site 1980-04 had last been relocated as of 2002 by Hawai'i Island State Parks archaeologist MaryAnne Maigret. At that time, no evidence of human remains was observed (MaryAnne Maigret, personal communication 2009). The mulching of the area likely resulted in the filling in of the small lava shelter.

4.2.7 Site 1980-06

FORMAL TYPE(S): Lava Shelter
PROBABLE AGE: Pre-contact
FUNCTION: Shelter

DESCRIPTION: Site 1980-06 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-6 is a collapsed lava bubble located in the northeast corner of Subarea 1 (see Figure 14) (21 meters west of the northeast fence corner and 10 meters *makai* of the northern fence line). The opening is approximately 2.5 meters across and the depth, 1.7 meters. The bubble extends approximately 1.5 meters backward from the opening (all sides). Limited quantities of shell midden, primarily *Cypraea* and *Conus*, were observed.

This site is marked by *noni* and Christmas berry plants and was previously reported (Neighbor Island Consultants 1973: Site KA-11). The age of this site is unknown.

As part of the current field inspection effort, Site 1980-06 was re-identified. Modern trash and clothing are present and the shelter appears to be slightly more collapsed that indicated in the 1980 description. Large boulders partially block the entrance (Figure 27).



Figure 27. Overview of entrance to Site 1980-06 showing boulders partially blocking the entrance

4.2.8 Site 1980-08

FORMAL TYPE(S): Pit
PROBABLE AGE: Post-contact
FUNCTION: Permanent Habitation

DESCRIPTION: Site 1980-08 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-8 consists of wood and concrete remains previously identified as an historic *lua* by Neighbor Island Consultants (part of Site KA-08, see Figure 13). Their information came from an informant who was familiar with the area. This site is located approximately 162 meters west of the northeast fence corner and 24 meters *makai* of the northern fence line. The remains currently cover an area approximately 1.7 x 2 meters.

As part of the current field inspection effort, Site 1980-08 was re-identified. The site was found to be very remnant. The *lua* measures approximately 1 x 1 meter with stacked small boulders along the south side in this naturally depressed area (Figure 28). Coral and shell midden were observed on the surface immediately south of the *lua*.



Figure 28. Overview of remnant Site 1980-08 *lua* showing stacked boulders and coral and shell midden on the surface

4.2.9 Site 1980-09

FORMAL TYPE(S): Modified Outcrop
PROBABLE AGE: Post-contact
FUNCTION: Temporary Habitation

DESCRIPTION: Site 1980-09 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-9 is a rock ledge facing southeast which is partially enclosed by a small deteriorated rock wall. This site is located approximately 160 meters westward along the northern fence line and 30 meters *makai* of that boundary.

The enclosed area measures approximately 2 x 2.7 meters. Associated with this archaeological feature are shell midden and historic cultural debris. A possible fire hearth is suggested by a small circle of stones. The shell midden primarily consists of *Cellana exarata* and *Cypraea* with smaller amounts of *Conus* and *Nerita*. Pieces of coconut shell and mammal bone (possibly bovine) were observed in the general area.

This archaeological feature was not previously reported.

As part of the current field inspection effort, Site 1980-09 was re-identified. The small circle of stones, described in 1980 as a possible hearth, currently has a tree growing in its center (Figure 29).



Figure 29. Overview of Site 1980-09 the modified outcrop area and *kiawe* tree growing from possible hearth

4.2.10 Site 1980-10

FORMAL TYPE(S): Modified Outcrop
PROBABLE AGE: Post-contact
FUNCTION: Temporary Habitation

DESCRIPTION: Site 1980-10 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-10 is a small rock ledge facing east and associated with shell and historic cultural materials. The site is located 140 meters west of the northeast corner of Subarea 1 and 30 meters *makai* of the northern fence line. The rock ledge is approximately 4.5 meters long. Bulldozed boulders form a wall just northeast of the ledge. There are pebbles extending out from the ledge which suggest possible paving.

Bottles, glass, and metal occur and indicate a historic utilization. Shell midden (*Nerita polita*, *Cellana* and *Cypraea*) and coral were also observed.

This site was not previously reported.

As part of the current field inspection effort, Site 1980-10 was re-identified. The site is located atop a high outcrop overlooking the large area of bulldozer push from the runway construction (Figure 30). Several broken historic bottles were observed.



Figure 30. Overview of Site 1980-10 modified outcrop with the bulldozer push area visible in the background

4.2.11 Site 1980-11

FORMAL TYPE(S): Brackish Pond
PROBABLE AGE: Post-contact
FUNCTION: Activity Area

DESCRIPTION: Site 1980-11 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-11 is a small brackish water pond within a lava cave (opening to the east) located approximately 130 meters west of the northeast corner of Subarea 1 (see Figure 14) and 35 meters *makai* of the northern fence line. The cave is found immediately below the edge of the lava flow and across from the western extent of the boulder area bulldozed during construction of the airport runway.

Small quantities of historic/modern bottles and shell were found inside the cave itself. Larger quantities of shell (*Cellana*, *Cypraea*, etc.) occur on the ledge above the cave. Historic metal, including corrugated roofing material, was found in the general vicinity.

This site was not previously reported. It may be associated with the historic occupation of the knoll area.

It should be noted that another pond area occurs closer to the northern fence line. In the case of this latter pond, however, no cultural material was observed.

As part of the current field inspection effort, Site 1980-11 was re-identified and while the 1980 description of the site was found to be accurate for the site's current condition (Figure 31), two sets of previously unreported petroglyphs were identified.



Figure 31. Site 1980-11 brackish pond activity area

The first set of petroglyphs consisted of two words located in the *pāhoehoe* outcrop directly atop the brackish pond. One word reads “KAUA,” the name of one of the families that used to live in the project area and utilize this brackish pond. The second word reads appears to read “KAHE” (Figure 32). The second set of the petroglyphs is located approximately 7-8 m away from the first set and consists of two parallel lines with a single line intersecting them perpendicularly (Figure 33). Based on the use of the letters, the first set of petroglyphs is clearly Post-contact.



Figure 32. Site 1980-11 petroglyphs showing wording “KAUA” and “KAHE”



Figure 33. Site 1980-11 petroglyph

4.2.12 Site 1980-12

FORMAL TYPE(S):	Platform
PROBABLE AGE:	Post-contact
FUNCTION:	Permanent Habitation

DESCRIPTION: Site 1980-12 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-12 is a rectangular lava rock house foundation located approximately 45 meters *makai* of the northern fence line and 50 meters east of the northwest corner of Subarea 1 (see Figure 14). Site 1980-12 is also located approximately 5 meters *makai* of Site 1980-9.

The house foundation measures 6.5-7.5 x 5 meters. The remaining walls have a maximum height of 0.5 meters. On the floor of the structure pebble and coral concentrations suggest paving. In the vicinity of the structure glass, porcelain, wood, nails and tin roofing materials occur, which if associated suggest a historic, possibly late historic occupation. Substantial quantities of shell midden were observed throughout the general area.

This site was previously reported by the Neighbor Island Consultants survey (1973). In their report, the house foundation is designated “Site KA 08” and referred to as the “Kau‘a House,” “Kau‘a” being the name of the family which according to informants lived in the house (see Figure 13). Their report further implies that the house structure, the *lua* and the concrete cistern (described below) were associated and presumably contemporaneous. This association, however, may be questioned on the basis of building materials. In the case of the cistern and possibly the *lua*, concrete appears to have been used. No concrete, however, was observed in connection with the house foundation. This raises the possibility that the house foundation represents an earlier occupation which preceded or overlapped with the possible later construction of the cistern and *lua*. The scattered pieces of wood and tin roofing material suggest, on the other hand, that an associated structure of some sort was present in the immediate area. While these remains may be associated with the occupation of Site 1980-12, they may also be remains of an additional structure which was torn down or destroyed during activities in connection with the construction of the airport. Further intensive survey and subsurface testing would help to sort out association and contemporaneity of these varied historic features.

As part of the current field inspection effort, Site 1980-12 was re-identified. The site was found to be extremely remnant, consisting primarily of scattered boulders, coral, water-worn pebbles and broken glass (Figure 34). No defined alignments were visible.



Figure 34. Overview of the remnants of Site 1980-12 permanent habitation platform

4.2.13 Site 1980-13

FORMAL TYPE(S): Pit
PROBABLE AGE: Post-contact
FUNCTION: Permanent Habitation

DESCRIPTION: Site 1980-13 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-13 is a concrete-lined circular cistern located approximately 160 meters west of the northeastern corner of Subarea 1 and 55 meters *makai* of the fence line which forms the northern boundary of Subarea 1 (see Figure 14). The structure has a diameter of 2.5 meters. It is associated with the historic occupation of the area.

One artifact, a large piece of cut pearl shell (Artifact # 1980-13-5) was found at a point 11.8 meters east of the cistern among shell midden. The artifact was collected.

The site was previously reported by Neighbor Island Consultants and is one of a number of features included under Site KA 08 (see Figure 13).

As part of the current field inspection effort, Site 1980-13 was re-identified. The cistern was found to be, compared to its 1980 condition, fairly collapsed and filled in (Figure 35).



Figure 35. Overview of collapsed Site 1980-13 cistern

4.2.14 Site 1980-15

FORMAL TYPE(S): Lava Shelter
PROBABLE AGE: Post-contact
FUNCTION: Shelter, Reinterment

DESCRIPTION: Site 1980-15 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-15 is a large lava shelter (main opening oriented north and northwest) located in the northwest corner of Subarea 1 (see Figure 14) at a point 10-15 meters east of the western fence line and 12-18 meters *makai* of the *mauka* (northern) fence line.

The main opening of the cave shelter has a height of 2 meters and extends inward approximately 2.5 meters. Shelter contents include small quantities of shell midden (*Cellana*, *Conus*, *Cypraea* and *Drupa* were observed), *kukui* and two water-worn cobbles, one of which has a possible grinding surface. These materials suggest a pre-modern utilization of the site. There are also indications of more recent use (small pieces of lumber, a plastic bowl and fragments of canvas).

The site was previously reported (Neighbor Island Consultants 1973:Site KA-04, see Figure 13).

As part of the current field inspection effort, Site 1980-15 was re-identified. This site was utilized as a reinterment location for the numerous human remains that have been recovered in the years since the 1980s that were exposed by high surf and storm activity as well as beach erosion in the *makai* portion of the project area. The site was then given the designation Burial Site # 50-10-27-HAR-1. The stone masonry used to seal the reinterment area of the cave is still in place though modern squatter activity is evident by clothing and sleeping pad (Figure 36).



Figure 36. Site 1980-15 showing shelter area with modern trash and sealed reinterment area

4.2.15 Site 1980-17

FORMAL TYPE(S): Lava Shelter
PROBABLE AGE: Pre-contact
FUNCTION: Shelter

DESCRIPTION: Site 1980-17 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-17 is a lava shelter oriented south with an overall length of 8 meters. The shelter has a depth of 1-1.5 meters. This site is located approximately 60 meters *makai* of the northern fence line and 38-46 meters east of the western fence line. Coral, sea urchin spine, and a few water-worn pebbles were observed, primarily on the western side of the shallow shelter. This site was not previously reported.

As part of the current field inspection effort, Site 1980-17 was re-identified and the 1980 description of the site remains accurate for the site's current condition (Figure 37).



Figure 37. Overview of Site 1980-17 lava shelter

4.2.16 Site 1980-18

FORMAL TYPE(S): Pit
PROBABLE AGE: Pre- and Post-contact
FUNCTION: Agriculture, Activity Area

DESCRIPTION: Site 1980-18 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-18 consists of a roughly triangular lava pit, measuring 1.5-1.7 meters on each side, containing a deposit of shell (*Cypraea* and *Nerita polita* were observed) and grass litter. This site is located approximately 80 meters *makai* of the northern fence line and 53 meters east of the western fence line.

The pit was probably used as a refuse disposal area. Its time of utilization is unknown. This site was not previously reported.

As part of the current field inspection effort, Site 1980-18 was re-identified and the 1980 description was found to be accurate of the site's current condition (Figure 38). It is likely that this site may have functioned in pre-contact time as a planting pit given the advantages such a contained pit would have presented in such a dry environment.



Figure 38. Overview of Site 1980-18 planting and refuse pit

4.2.17 Sites 1980-19 and 1980-20

FORMAL TYPE(S): Clearing
PROBABLE AGE: Post-contact
FUNCTION: Activity Area

DESCRIPTION: Sites 1980-19 and 1980-20 (see Figure 16 and Figure 17) were recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Sites 1980-19 and 1980-20 are two low-lying areas measuring approximately 3 x 4 meters from which vegetation has been removed. These areas are located approximately 85-95 meters *makai* of the northern fence line and 25-45 meters east of the western fence line. While shell and coral were observed, these may be the result of natural deposition as this area is probably affected by high surf conditions. We suspect that these areas are the result of recent camping.

As part of the current field inspection effort, Sites 1980-19 and 1980-20 were re-identified and are in the same condition which was documented in 1980 (Figure 39 and Figure 40). As the 1980 description states, there are no cultural materials to confirm the age of these possible sites. The clearing activity could be modern. Subsurface testing would be helpful to determine if these sites might qualify as historic properties.



Figure 39. Overview of Site 1980-19 clearing



Figure 40. Overview of Site 1980-20 clearing

4.2.18 Site 1980-21

FORMAL TYPE(S): Enclosure
PROBABLE AGE: Pre-contact
FUNCTION: Possible Heiau

DESCRIPTION: Site 1980-21 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-21 consists of the remnants of a large structure or series of smaller structures which had previously existed above the shore on the western side of the cove. This site is located approximately 110-115 meters *makai* of Subarea 1's northern fence line (see Figure 14) and 20-30 meters east of the area's western fence line.

The structural remains appear to have been heavily disturbed, possibly in connection with bulldozing of a beach road and another road which was bulldozed when the fence line was put in.

The site was previously recorded by the Neighbor Island Consultants survey which designated it “Site KA-05, a walled enclosure” (see Figure 13) The site may also correspond to part of Reinecke’s Site 14 which is suggested to have been located in the same area (see Figure 12):

Site 14. Three small old house platforms; canoe landing; a modern house platform with a dim old house site in the same lot; a pen c. 50 x 35 containing a platform, chiefly a mass of rough large stones—uses unknown.

Site 1980-21 is also located in the general area where Stokes (1919)’s Koa of Halepa‘u and the Heiau of Kawaluna were located (see Figure 11).

As part of the current field inspection effort, Site 1980-21 was re-identified. The 1980 description of the site is still applicable, though the site is in poor condition (Figure 41). Some modern modification is evident in the form of a small constructed shelter in the southeast corner of the site under a large *kiawe* tree. Numerous water-worn boulders were used in the construction of this site. Based upon the location and large, extensive nature of the site, it is likely that Site 1980-21 is the site recorded in 1906 by Stokes as the “Heiau of Kawaluna.”



Figure 41. Overview of Site 1980-21, collapsed possible *heiau*

4.2.19 Site 1980-22

FORMAL TYPE(S): Pits
PROBABLE AGE: Pre-contact
FUNCTION: Agriculture

DESCRIPTION: Site 1980-22 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-22 consists of two large lava pits, previously identified as “planting pits” based on informants by the Neighbor Island Consultants survey (Sites KA-01 and KA-02, see Figure 13). These features are located adjacent to the western fence line at a point 135-140 meters *makai* of Subarea 1’s northern boundary (see Figure 14). The pits are generally 3 x 4 meters across and have a depth of 1-2 meters. The most *mauka* pit appears to have been recently occupied (a plastic tarp has been erected over the top of the pit) and substantial quantities of modern litter occur within and adjacent to the pit. This pit was quickly abandoned, judging by the number of personal and cooking items left behind. A sailor suit with the name “J.R. Holsey” and a recent Royal Hawaiian Air Service time table were also observed.

As part of the current field inspection effort, Site 1980-22 was re-identified. One of the planting pits (Figure 42) is located between and slightly west of a curving, almost vertical, uplifted *pāhoehoe* outcrop, while the second pit is approximately 5 meters to the north.



Figure 42. Overview of Site 1980-22 planting pit

4.2.20 Site 1980-23

FORMAL TYPE(S): Subsurface Deposit
PROBABLE AGE: Pre-contact
FUNCTION: Cultural Deposit

DESCRIPTION: Site 1980-23 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-23 consists of a dark, possibly cultural, subsurface deposit located along the shore of Subarea 1's cove area (see Figure 14). The deposit is also located immediately east of, and may be associated with, the structural remains designated "1980-21."

The subsurface deposit is most visible along an eroding beach face where it is marked by a darkly stained layer intermixed with natural beach materials, between 0-20 cm below surface. As no "cultural" materials were observed, this staining may be due to other factors (e.g. vegetation).

Subsurface testing was conducted with an auger at this site. While no artifactual materials were recovered from this dark layer, a second layer below 40 cm with cultural materials was indicated.

As part of the current field inspection effort, Site 1980-23 was not re-identified as it is a subsurface cultural deposit. No evidence of the site was visible on the surface at the time of the current project but the site is still present as there is no documentation of its destruction.

4.2.21 Site 1980-24

FORMAL TYPE(S): Petroglyph
PROBABLE AGE: Pre-contact
FUNCTION: Rock Art

DESCRIPTION: Site 1980-24 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-24 consists of a cluster of petroglyphs which are located adjacent to the northern fence line of Subarea 2 (see Figure 14) at a point roughly 475 meters west of the northeastern corner of the subarea. This site also occurs approximately 85 meters west of the most western, *mauka* telephone pole.

This site appears to correspond to Neighbor Island Consultants' Site KA-14 (see Figure 13) which was described as follows:

“These figures are in two groups on one slab of smooth pahoehoe and include at least the following:

- 1) Stick figure with down-curved arms (possibly a birdman), Height 32 cm.
- 2) A group of interlocked stick figures.
- 3) Two figures separated from several stick figures.”

(1973:54)

Though a number of bulldozer scars were observed on nearby pahoehoe during our reconnaissance, this series of petroglyphs appear to be in fairly good condition.

Upon conducting the field inspection for the current project, the location previously specified for Site 1980-24 was found to be recently covered with mulch (see Figure 26). The thickness of the mulch in this area, based upon limited inspection, appeared to range between 5 and at least 30 cm. No significant attempt at subsurface testing for the site was undertaken.

Site 1980-24 had last been relocated as of 2002 by Hawai'i Island State Parks archaeologist MaryAnne Maigret (MaryAnne Maigret, personal communication 2009) and is believed to be present and undamaged, merely buried.

4.2.22 Site 1980-25

FORMAL TYPE(S): Petroglyph
PROBABLE AGE: Pre-contact
FUNCTION: Rock Art

DESCRIPTION: Site 1980-25 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-25 consists of two petroglyph stick figures occurring together and located approximately 135 meters west of the present pavilions and 27.5 meters *makai* of the runway (10.8 meters *makai* of the present rock berm). These petroglyphs are approximately 35 cm x 30 cm in size.

Upon conducting the field inspection for the current project, the location previously specified for Site 1980-25 was found to be covered by sand and *naupaka* and the site was not re-identified. No attempt at subsurface testing for the site was undertaken.

The continued existence of Site 1980-25, albeit buried, was confirmed by Hawai'i Island State Parks archaeologist MaryAnne Maigret (MaryAnne Maigret, personal communication 2009).

4.2.23 Site 1980-26

FORMAL TYPE(S): Subsurface Burial
PROBABLE AGE: Pre-contact
FUNCTION: Burial

DESCRIPTION: Site 1980-26 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-26 is a possible burial area located approximately 200 meters west of the present pavilions and 28 meters *makai* of the runway (14.5-16.5 meters *makai* of the rock berm). The area is marked by a somewhat rectangular depression (3 x 2 meters, c. 20 cm maximum depth) with a slight mound inside the depression. The vegetation (probably *Sesuvium portulacastrum*) covering the depression, mound and immediate vicinity help distinguish this area.

This possible burial area has apparently not been previously reported. It is, however, located near a burial area reported by Neighbor Island Consultants (KA-12, see Figure 13) which was not observed during our reconnaissance.

As part of the current field inspection effort, Site 1980-26 was not re-identified. There are no surface remnants to indicate the site and it is unclear based upon the 1980 description as to whether there was ever any surface construction. Given the repeated high surf action and hurricanes that have uncovered numerous burials in this area, it is possible that this burial has been naturally disinterred. As it is impossible to confirm this theory, the location previously documented for this site should still be considered a burial site.

4.2.24 Site 1980-27

FORMAL TYPE(S): Subsurface Deposit, Burial
PROBABLE AGE: Pre-contact
FUNCTION: Cultural Deposit, Burial

DESCRIPTION: Site 1980-27 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-27 consists of a small exposed subsurface deposit and adjacent burial located at the western end of Subarea 3 (see Figure 14), approximately 5 meters *mauka* of the lava rock shoreline and 67-70 meters *makai* of the runway. The deposit has been exposed by wave action and appears related to a subsurface deposit previously reported (Neller 1980: Area D). Much of this site appears to have been destroyed by wave action.

Judging from the exposure, the subsurface deposit appears to be fairly thin (5-8 cm thick) and approximately 2.5 meters long. A pit and a small ash lens were noticed on the eastern end of the exposure. On the western end, a small number of

human bones were exposed. These bones appeared to be mixed and are probably the result of secondary burial. It should be noted that this is an area where numerous human bones have been washed up and re-buried by park workers.

The subsurface deposit was later tested and indicated to be localized and probably historic.

As part of the current field inspection effort, Site 1980-27 was not re-identified as it is a subsurface deposit. No evidence of the site, either human remains or the cultural deposit, was visible on the surface at the time of the current project but the site is still present as there is no documentation of its destruction.

4.2.25 Site 1980-29

FORMAL TYPE(S): Enclosure, Petroglyphs
PROBABLE AGE: Pre-contact
FUNCTION: Temporary Habitation, Rock Art

DESCRIPTION: Site 1980-29 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-29 consists of the remains of a medium-sized enclosure and a later semi-circular wall which are associated with subsurface deposits. Adjacent to the structural remains are three petroglyphs, designated 1980-29A, B and C (Figure 43). This site is located in the eastern portion of Subarea 3 (see Figure 14) at a point approximately 170 meters west of the fence line which marks the eastern boundary of Subarea 3 and 85-90 meters *makai* of the runway.

The remaining walls (*makai* and east walls) of the enclosure suggest an approximate original size of 8 x 10 meters with a height of 1 meter. When first encountered during our reconnaissance, this structure was believed to be a platform. Later subsurface testing suggested that the interior fill is the result of a series of prehistoric and historic occupations and natural deposition, rather than actual construction. A semi-circular ("C-shape") appears to have been constructed on top of this structure once it had been filled or partially filled in.

Makai of the structures, three petroglyphs have been located. The first, designated 1980-29A, is a single stick figure, measuring 30 x 25 cm, which appears to be holding something in its left hand. This petroglyph is located on *pāhoehoe* approximately 22 meters *makai* (south) on the edge of the enclosure.

A third petroglyph, 1980-29C, lying approximately 5-7 meters southwest of the enclosure, has also been reported. This petroglyph is found on the *makai* side of a large rock and consists of three figures. The orientations of the rock and petroglyphs suggest that the rock may have been moved from its original position (Neller, personal communication).

While this site was not recorded by the Neighbor Island Consultants survey in 1973, we believe that it corresponds to Reinecke's Site 8. Reinecke's map places Site 8 (see Figure 12) in the general location of Site 1980-29 and his description indicates a number of similar characteristics"

Site 8. Remains of a medium sized platform, sand covered. From its position, it may be a fishing *heiau*. By it is an old *papamu*, 9x7 [rows].

On the pahoehoe behind it is a fine *papamu*. 12x11.

As Reinecke did not conduct subsurface testing, his "sand covered" platform may actually represent a filled in enclosure. The "old *papamū*" by it may be 1980-29B

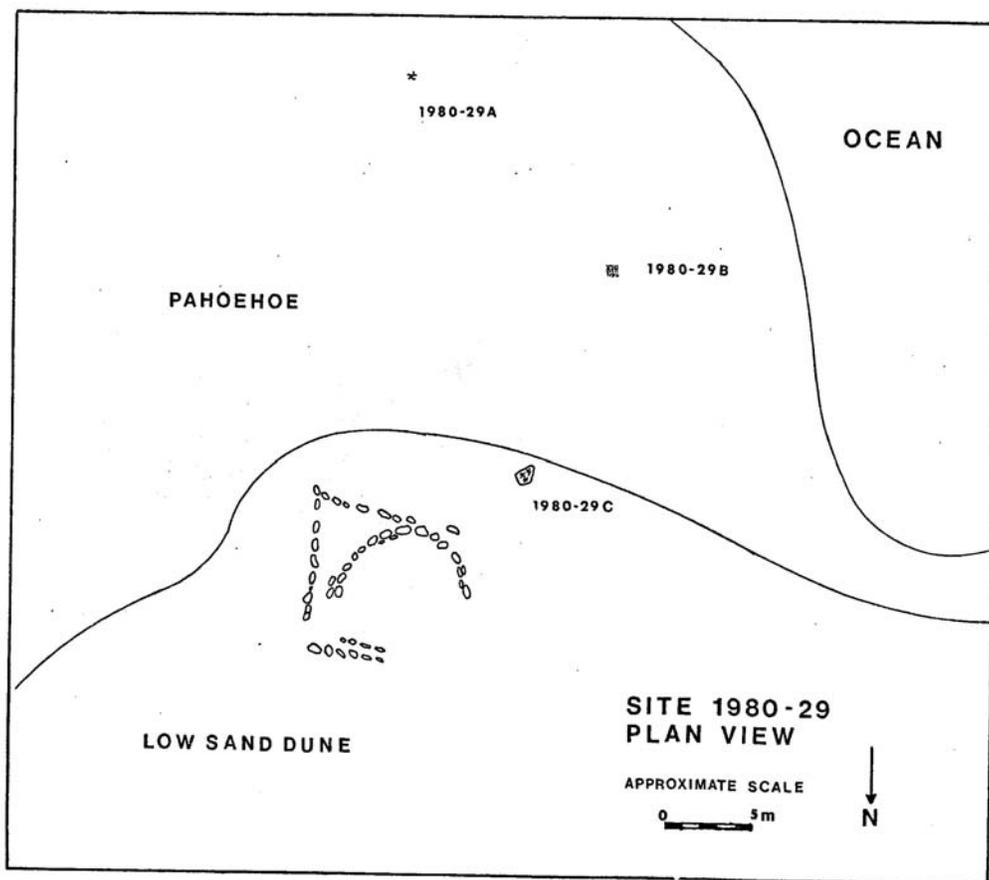


Figure 43. Plan view of Site 1980-29, Features A, B and C (Estioko-Griffin and Lovelace 1980)

which, as in Reinecke's description, has 9 x 7 rows. The "fine *papamū*" would then appear to correspond to that included in Site 1980-30 which has 11 x 12 rows.

If our correlation of Site 1980-29 with Reinecke's Site 8 is correct, the presence of the semi-circular feature raises several questions. The omission suggests two possibilities: 1) the semi-circular feature was present but considered a part of the enclosure, or 2) the semi-circular structure is a post-1930 addition. Further excavation would be useful in considering this problem.

In addition to this site's correspondence to one of Reinecke's sites, it is further possible that the structure may correspond to the "*Ko'a* of Maka'e'o" mentioned by Stokes 1919 (see Figure 11). He describes the *ko'a* as

a small pen, 200 feet from the sea and about half a mile southeast of Palihilo.

While a half a mile distance would seemingly place the *Ko'a* of Maka'e'o in privately owned land southeast of the park boundary, that portion of the beach which Site 1980-29 is located is referred to as "Maka'e'o."

As part of the current field inspection effort, Site 1980-29 was re-identified. The enclosure is in remnant condition, though alignments, including one faced single-course wall are still evident (Figure 44). Only two of the three features, Feature A petroglyph (Figure 45) and Feature B *papamū* (Figure 46) were re-identified. The Feature C petroglyph, carved onto a loose boulder, was likely washed away by high surf action.



Figure 44. Overview of Site 1980-29 enclosure



Figure 45. Site 1980-29 Feature A petroglyph



Figure 46. Site 1980-29, Feature B *papamū*

4.2.26 Site 1980-34

FORMAL TYPE(S): Bait Mortars
PROBABLE AGE: Pre-contact
FUNCTION: Activity Area

DESCRIPTION: Site 1980-34 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-34 consists of a cluster of bait mortars (bait cups) located on two *pahoehoe* formations in the shore zone near the southwest corner of Subarea 1 at a point approximately 40 meters east of the western fence line (see Figure 14).

These features, which number approximately 7, are usually 20-30 cm across and vary in depth. The site has been previously reported (Neighbor Island Consultants 1973: KA-06 and KA-07, see Figure 13).

As part of the current field inspection effort, Site 1980-34 was re-identified and the 1980 description of the site was found to be accurate (Figure 47).



Figure 47. Overview of Site 1980-34 bait mortars

4.2.27 Site 1980-35

FORMAL TYPE(S): Salt Pans
PROBABLE AGE: Pre-contact
FUNCTION: Activity Area

DESCRIPTION: Site 1980-35 (see Figure 16 and Figure 17) was recorded by a 1980 Estioko-Griffin and Lovelace archaeological reconnaissance (see Figure 15) and described as follows:

Site 1980-35 is a series of natural salt pans (four counted) located *makai* of Site 1980-29 and approximately 180 meters west of the fence line which marks the eastern boundary of Subarea 3 (see Figure 14). This site has been previously recorded (Neighbor Island Consultants 1973: KA-16, see Figure 13).

As part of the current field inspection effort, Site 1980-35 was re-identified. The site, at the very edge of the shoreline maintains the condition as described in 1980 (Figure 48).



Figure 48. Overview of Site 1980-35 salt pans

4.2.28 Site 2009-41

FORMAL TYPE(S): Brackish Pond
PROBABLE AGE: Post-contact
FUNCTION: Activity Area

DESCRIPTION: Site 2009-41 is a small brackish water pond located directly adjacent to the north edge of the large bulldozed area associated with the runway construction (see Figure 16 and Figure 17). The pond is approximately 5-7 meters south of the northern boundary fence. The pond is irregular in shape, approximately 3 meters long by 2 meters wide, and presently 0.5 meters deep. The northernmost end of the pond has been modified. Cobble to small boulder-sized angular *pāhoehoe* stones have been loosely stacked to an approximate height of 1.5 meters, presumably to retain or define the pond (Figure 49). The area is covered in *kiawe*, *noni*, grasses and ground-covering vegetation.

The nature of the modification seems most likely to be post-contact rather than pre-contact based upon its loose and informal character.



Figure 49. Site 2009-41 modified brackish pond

4.2.29 2009-42

FORMAL TYPE(S): Enclosure
PROBABLE AGE: Post-contact
FUNCTION: Activity Area

DESCRIPTION: Site 2009-42 is a remnant enclosure located a few meters from the waterline along the west side of Pawai Bay at the northwest end of the project area (see Figure 16 and Figure 17). In its current condition, given the sand and vegetation cover, only *makai* portions of the boulder enclosure are visible. The mounded boulder wall averages approximately 50 to 75 cm in height and approximately 1 m in width (Figure 50). The interior of the enclosure has been filled in by sand. According to area *kūpuna*, this structure served to house the canoes as a component of the canoe landing.



Figure 50. Site 2009-42 enclosure for housing canoes

4.2.30 2009-43

FORMAL TYPE(S): Lava Shelter
PROBABLE AGE: Indeterminate
FUNCTION: Shelter

DESCRIPTION: Site 2009-43 is a lava shelter located adjacent to the fenceline along the northwest boundary of the project area (see Figure 16 and Figure 17). The entrance to the lava shelter measures approximately 2 m across and has a Christmas berry tree growing out its center. There is modern trash and remnants of squatter activity in the shelter.

The modification in the shelter appears minimal and inconclusive of time of utilization but further exploration during an inventory survey investigation could serve to clarify the age of the shelter.

4.2.31 2009-44

FORMAL TYPE(S): Enclosure
PROBABLE AGE: Indeterminate
FUNCTION: Possible Burial

DESCRIPTION: Site 2009-44 is a remnant of an enclosure located in the southeast end of the *makai* portion of the project area (see Figure 16 and Figure 17). All that remains of the structure is a few *pāhoehoe* boulders that would have likely formed the corner of the enclosure. According to area *kūpuna*, the site was composed of a large enclosure that they were told to not enter. Given the large number of burials in this area *makai* of the runway, and informant information about avoiding this structure, it is possible that it served as a burial site.

There is no conclusive evidence at this time regarding the chronology of the site's use.

The description of this site by *kūpuna* and its relative location is similar to SIHP # 50-10-27-2002, a burial enclosure that was not relocated during the present study. The location of Site 2009-44 when plotted against the location of SIHP # 50-10-27-2002 as previously mapped however, was sufficiently divergent to warrant assigning this site its own site number.

4.3 Trails

There are two trails running through the project area that have been confirmed during a site visit with area *kūpuna* to have been in use at least as early as the 1930s and 40s. One trail is still in use today and runs parallel to the shoreline while the second is a possible remnant trail that was oriented *mauka/makai* and extended out of the project area (see Figure 16).

The coastal trail traverses the beach sand for the majority of the length of project area. It averages approximately 80 cm wide and is characterized primarily by a relatively level walking surface and an absence of vegetation (Figure 51). The trail is easily discernable and is visible in aerial photographs of the project area (see Figure 17). At a few intermittent locations along the length of the coastal trail there are small boulders placed to line the trail or, in some places, serve as small retaining walls to keep the trail surface level. Community consultation confirms the existence of this trail prior to the airport construction in 1948, however, given the continuous use of the trail, the age and integrity of the modifications of the trail are unclear. While we have no doubt that Hawaiians in both Pre- and Post-contact times utilized coastal trails in the project area, the lack of specificity and certainty of the antiquity of the modifications prevents the classification, at the present time, of this coastal trail as a historic property eligible to the Hawai'i Register of Historic Places.

The possible *mauka/makai* trail is located in the northwest portion of the project area and extends *mauka* from the northeast side of Site 1980-09, a habitation site. This possible trail is extremely remnant, its location only being indicated by one of the *kūpuna* who used to live in the area. It is, at present, marked only by scattered small coral cobbles that during its utilization would have enabled the following of the trail after dark. Given the very ephemeral nature of this possible trail remnant, it is not, at the present time, considered a historic property eligible to the Hawai'i Register of Historic Places. This possible *mauka/makai* trail, like the coastal trail, would benefit from further exploration in an attempt to clarify modification and age, as would be facilitated by an inventory survey.



Figure 51. View of the coastal trail

4.4 Burials

A total of six areas within the project area are documented to contain human remains (Figure 52). These six areas consist of:

- 1) Site 1980-26. Site 1980-26 was recorded in 1980 as a subsurface burial located in the northwest-central *makai* portion of the project area, between the Western and Eastern Burial Areas. This burial was never documented as having been disinterred and is believed to likely still be present.
- 2) Site 1980-27 and the Western Burial Area. This burial area, designated the Western Burial Area located in the northwest *makai* portion of the project area was first documented by Neighbor Island Consultants in 1973 in the sand near the western beach pavilions. Site 1980-27 was recorded as a subsurface cultural deposit and exposed burial by Estioko-Griffin and Lovelace in 1980. This burial area was highly disturbed and numerous burials were exposed and disinterred by Hurricane Iwa in 1982. The disturbed remains recovered following Hurricane Iwa were reinterred in 1984 in SIHP # 50-10-27-19797, Burial Site # 50-10-27-HAR-2 (Carpenter et al 2007).
- 3) SIHP # 50-10-27-2002 and the Eastern Burial Area. Intact graves were identified by Newman (1970) at SIHP # 50-10-27-2002 in the central *makai* portion of the project area. Intact burials were exposed by high surf action, in particular Hurricane Iniki in 1992 and a June 1995 storm, in the area surrounding SIHP # 50-10-27-2002 and the existing eastern beach pavilions (Carpenter et al 2007). Given the number of identifications of *iwi* this area has been designated the Eastern Burial Area. The remains disinterred from this area have been reinterred at Site 1980-15, Burial Site # 50-10-27-HAR-1.
- 4) SIHP # 50-10-27-19796, the Kaua Family Burial Site. This site in the northwest portion of the project area was recorded in 1973 and 1980 as an enclosure with four marked graves. Modern disturbance within the enclosure has scattered the stones that once marked one of the graves. More burials may be present though surface markers are no longer present. This burial area is associated with the Kaua family (Estioko-Griffin and Lovelace 1980).
- 5) SIHP # 50-10-27-19797, the Mioi Family Burial Site and Burial Site # 50-10-27-HAR-2. SIHP # 50-10-27-19797 in the northwest portion of the project area contains two marked graves containing at least four individuals of the Mioi family. Burial Site # 50-10-27-HAR-2 is located adjacent to the Mioi Family Burial Site and contains scattered remains from throughout the former Old Kona Airport SRA, burials exposed by Hurricane Iwa and remains from Kūkā'ilimoku, outside of the project area. These numerous remains were reinterred in 1984. In 1989 additional remains recovered following a period of high surf were also reinterred at this site (Yent 1993).
- 6) Site 1980-15, Burial Site # 50-10-27-HAR-1. Site 1980-15 in the extreme north corner of the project area was selected as a reinterment location as part of Yent's 1993 *Burial Treatment Plan and Reinterment Report*. This site contains remains reinterred following Hurricane Iniki in 1993, storm activity in 1995, and eroding from the sand in the *makai* portion of the project area since 1995 that were reinterred in January Of 2008 (Carpenter et al 2007).

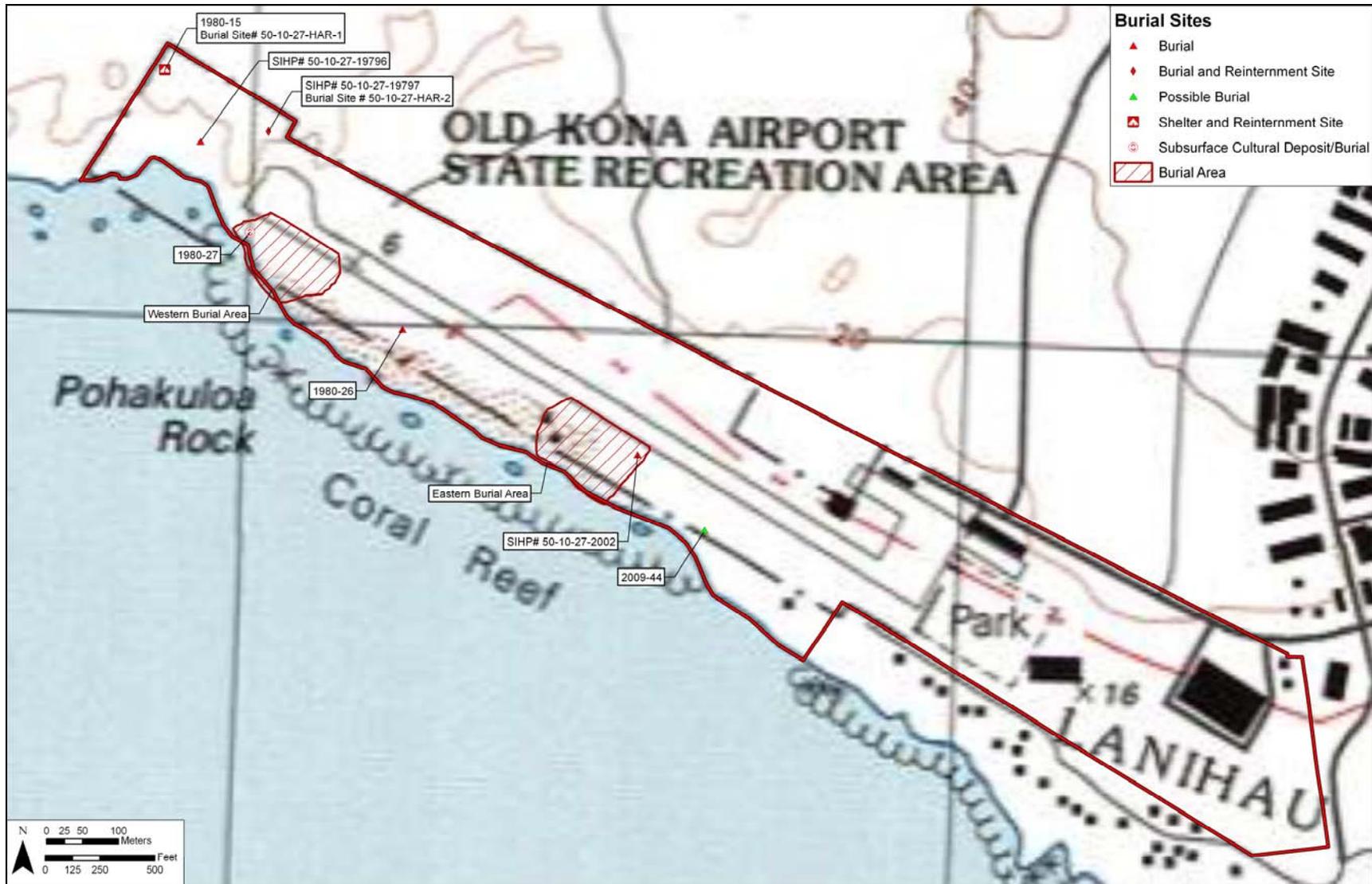


Figure 52. Overview of the project area showing the locations of burial and reinterment sites

Site 2009-44 is proposed to be a remnant possible burial enclosure based in large part on information provided by area *kūpuna*. No human remains however have been documented at this site.

Several sets of human remains as well as an extremely large quantity of disarticulated scattered, fragmentary remains have been exposed and later reinterred within the project area over the last three decades. Scattered remains have rarely been quantified into numbers of individuals represented, though the scattered remains from Hurricane Iniki are believed to represent 55 individuals (Yent 1993: 24). Based on various burial recovery and reinterment reports however, an estimated minimum of 158 individuals have been reinterred within the project area. Fifty-four of these individuals were recovered from Kūkailimoku, outside the project area, leaving an estimated minimum total of 104 individuals recovered from within the project area.

The various reinterments were carried out as specified in State Park's Archaeologist Martha Yent's 1993 *Burial Treatment Plan and Reinterment Report* and more recent, approved *Reinterment Plan and Supplemental Burial Treatment Plan for Native Hawaiian Burials Inadvertently Discovered at the Old Kona Airport State Recreation Area* completed in February 2007. This latest supplemental burial treatment and reinterment plan is applicable to all burial areas within the project area and provides a "decision making template" (Carpenter et al 2007: 13) for any possible future inadvertent burial discoveries and reinterments.

Section 5 Summary and Recommendations

The Kailua Park project area located along the coast of Keahuolū and Lanihau *ahupua'a*, is rich in archaeological remains that have been the subject of numerous archaeological studies. During pre-contact times this coastal zone, ranging from 2 to 10 ft AMSL, was the location of scattered small settlements congregated near anchialine ponds and along the shoreline. Frequently documented sites in this zone include house sites, lava shelters, planting pits, petroglyphs, *ko'a* and burials. In post-contact times, this zone was often utilized for small settlements and fishing activities (Yent 1993).

The previous archaeological studies within the project area, as well as the current field inspection effort, confirm this coastal area to be consistent with surrounding areas containing sites predominantly of small settlements, shelters, fishing related activities and burials in both pre- and early post-contact times.

The limited pedestrian inspection of the project area confirmed the location of 19 previously identified archaeological sites and identified four sites not previously designated as historic properties. An additional nine sites were not re-identified but are believed to be still present within the project area, and are understood to be merely covered by sand, vegetation, or mulch. In total, therefore, 32 sites are believed present within the project area.

Eleven previously identified historic properties were found to no longer exist, being either destroyed or removed. A few of these previously designated sites were revisited and determined to not meet the requirements to qualify as possible historic properties and therefore are no longer considered archaeological sites. One previously identified site was determined to be outside of the current project area.

In modern times, large portions of the project area have been subject to development. This development, in particular the 1948-1950 construction of Kona Airport and the 1990s development of Kailua Park, has resulted in the destruction or relocation of a number of previously documented sites. Multiple events of high surf action, including the 1946 tsunami and two major hurricanes have not only uncovered several burials but also likely destroyed or buried a number of the coastal sites.

The lack of remaining integrity of the Kona Airport structures, in particular the runway and terminal building, preclude them from being considered significant historic properties. The Kona Airport's place in Hawai'i Island's aviation history is mitigated by the fact that three of the five airports on Hawai'i Island are older than the Kona Airport. While Kona Airport was built between 1948 and 1950, Hilo Airport and 'Upolo Airport were both constructed in 1928 and construction of South Cape Airport began in 1941. The Kamuela Airport post-dates the Kona Airport, with building commencing in February of 1952 (<http://hawaii.gov/hawaiiaviation>).

Based on the results of the literature review and field inspection, consultation with the SHPD is recommended to better define the scope of any further cultural resource management work as may be indicated to comply with all applicable historic preservation regulations. The most recent study providing complete coverage of the project area was conducted in 1980, almost thirty years ago. Loss of sites and modification to the condition of sites is partially documented in this report,

however, more thorough documentation including descriptions and mapping may be indicated prior to any disruptive construction activities in sensitive areas.

Should an inventory survey be indicated for this project area, the focus should be on mapping and possible testing of sites to determine significance and confirm function as it is unlikely that any new sites would be encountered given the previous extensive field inspection and reconnaissance coverage of the project area.

5.1 General Recommendations for Development

The findings of this archaeological literature review and field inspection indicate several opportunities and constraints for the development of the project area.

5.1.1 Developed Southeast portion of the Project Area

The southeastern portion of the project area was developed into the existing ball fields and recreational facilities in the 1990s. Prior to this development, six archaeological sites were adequately documented in this area and determined to require no further work. These sites were destroyed by the development of these existing recreational facilities. No other known archaeological concerns are present in this southeastern portion of the project area that would prohibit or restrict further development.

5.1.2 Old Kona Airport Structures

The remaining Kona Airport structures within the project area include the terminal building and the runway. As the integrity of both of these structures is compromised they are not likely to require preservation. The initial runway construction, in 1948-1950, would have destroyed any surface archaeological remains that previously existed in that area. According to Holly McEldowney's account of previous construction activity on a portion of the runway, beneath the existing pavement of the runway is approximately 3 ft of macadam atop basalt blue rock bedrock (MaryAnne Maigret, personal communication 2009). This depth of previous disturbance (approximately 3 ft) atop of bedrock (as opposed to jaucas sand) provides opportunities for the development of the runway area as it is unlikely that any subsurface cultural deposits or features remain.

5.1.3 *Mauka* portion of Project Area

The *mauka* portion of the project area is currently the location of the walking/jogging track developed and maintained by the non-profit group Friends for Fitness. Three archaeological sites have been documented in close proximity of each other along the northern fence line of this portion of the project. Only one of these sites, Site 1980-24, a petroglyph, is likely to represent a preservation concern.

5.1.4 *Makai* portion of Project Area

The *makai* portion of the project lands is the location of several archaeological sites including petroglyphs, bait mortar activity areas, an enclosure, a subsurface cultural deposit and numerous burials and designated burial areas. The development of this area should be restricted to passive

recreation. Any potential development should be limited to minimally invasive infrastructure such as additional picnic areas. Any subsurface development presents a significant probability of disturbing burials and should be minimized. There are several areas of ground covering vegetation that currently serve to partially limit pedestrian access and prevent erosion of sand dunes likely containing burials. Maintenance of these vegetative areas should be considered as a protective measure.

5.1.5 Northwest end of Project Area

The northwest portion of the project area has been treated as a historic preserve by the State Parks. The area has several archaeological sites including historic house sites, activity areas, and multiple burial and reinterment sites. It is recommended that this area retain its undeveloped character given the sensitivity of a number of the sites present. Maintaining the rugged nature of the landscape would help discourage access to sensitive sites and well as maintain the integrity of the area. Potential development of this portion of the project area could include a short interpretative walking trail along the shore near Site 1980-34, a bait mortar activity area, and Site 1980-21, a large walled structure. Proximity to the burial site, SIHP # 50-10-27-19796, near the shore should be avoided. Interpretative signage could be posted for such a trail, focusing on the pre- and post-contact use of the area. Descendant families with ties to the burial sites in the area should be consulted in regards to any potential development of this area (State of Hawaii, Department of Land and Natural Resources 2008:5).

5.1.6 Interpretative Signage

Interpretative signage was recommended by State Parks in Carpenter et al's (2007) burial treatment plan (present Figure 53). The posting of such signage in various areas of the project area, most notably in the *makai* and northwestern portions of the project area, would serve to educate park patrons as well as help protect the archaeological resources in the project area. It is recommended that such signage be in both Hawaiian and English.

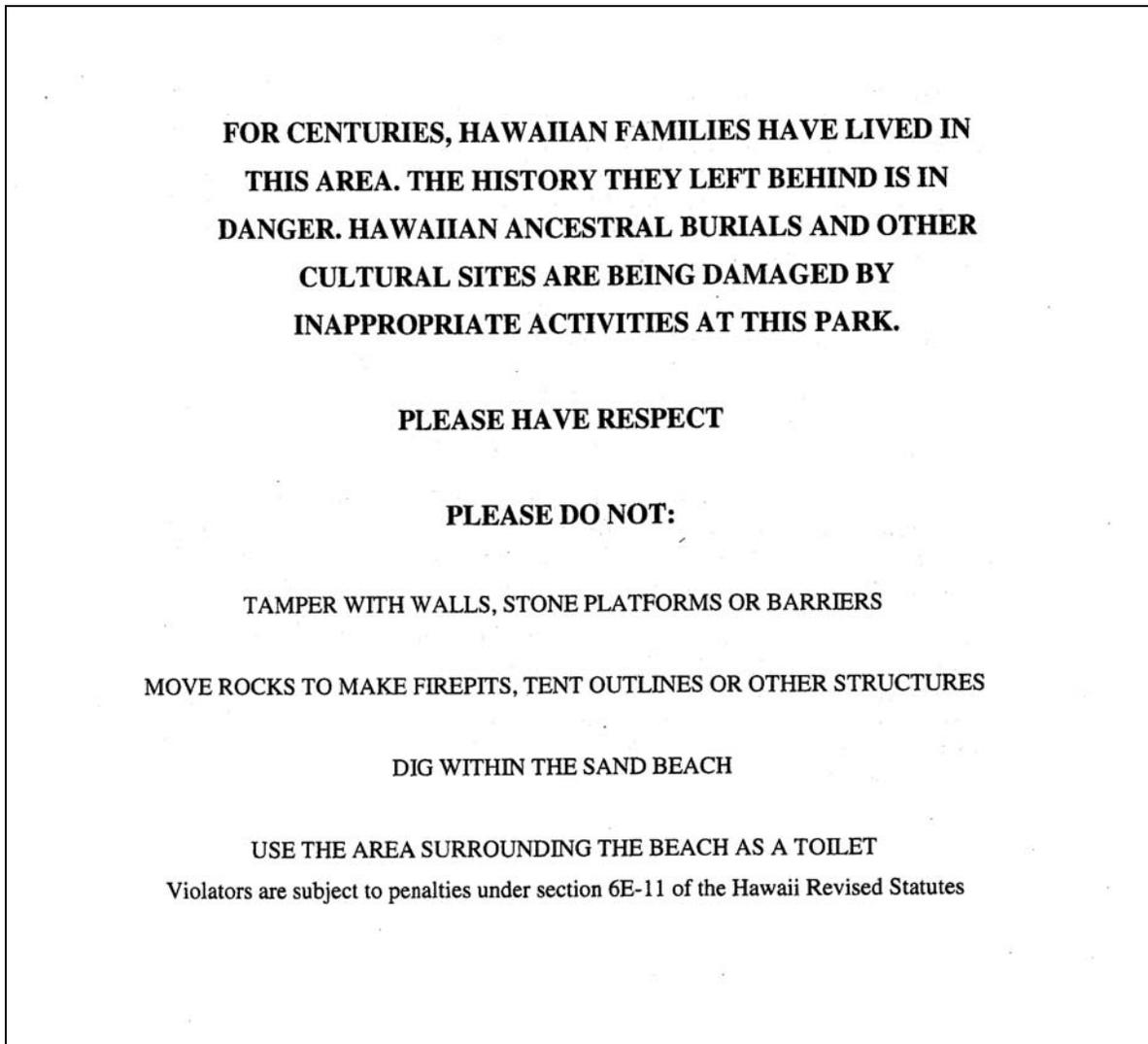


Figure 53. Proposed interpretative signage for portions of the project area (Carpenter et al 2007:12)

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