

**FINAL—Archaeological Assessment for TMK: (1) 5-6-001:028
(por.), Mālaekahana Ahupua‘a, Ko‘olaupua District, Island of
O‘ahu, Hawai‘i**



Prepared For:

John D'Amato and Kristina Inn

July 2016



Keala Pono Archaeological Consulting, LLC • PO Box 1645, Kaneohe, HI 96744 • Phone 808.381.2361

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Prepared By:

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MANAGEMENT SUMMARY

An archaeological inventory survey was conducted for TMK: (1) 5-6-001:028 (por.) in Mālaekahana Ahupua‘a, Ko‘olaupia District, on the Island of O‘ahu. A new septic system is proposed for the project area, which consists of three discontinuous zones totaling .066 ha (.163 ac.). Due to negative findings, the survey results are presented as an archaeological assessment per HAR §13–284.

The archaeological work included a pedestrian survey that covered 100% of the project area, as well as test excavations consisting of two trenches. No surface or subsurface archaeological remains were found, although archaeological monitoring is recommended because of the occurrence of human burials previously documented in nearby areas. The landowner and SHPD also concur that an archaeological inventory survey (AIS) will be conducted prior to any future proposed project involving ground disturbance within the parcel.

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INTRODUCTION

At the request of John D’Amato and Kristina Inn, Keala Pono Archaeological Consulting conducted an archaeological inventory survey (AIS) of TMK: (1) 5-6-001:028 (por.) in Mālaekahana Ahupua’a, Ko‘olaupua District, on the island of O‘ahu. A new septic system is proposed for the parcel, and the archaeological inventory survey was designed to identify any historic properties that may be located in the project area in anticipation of the proposed construction.

This report is drafted to meet the requirements and standards of state historic preservation law, as specified in the Hawaii Revised Statutes (HRS), Chapter 6E, and in the Hawaii Administrative Rules (HAR) §13-284, *Rules Governing Procedures for Historic Preservation Review to Comment on Section 6E-42, HRS, Projects*; and HAR §13-276, *Rules Governing Standards for Archaeological Inventory Surveys and Reports*. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-284.

The report begins with a description of the project area and a historical overview of land use and archaeology in the area. The next section delineates methods used in the fieldwork, followed by the results of the archaeological survey. Project results are summarized and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary at the end of the document.

Project Location and Environment

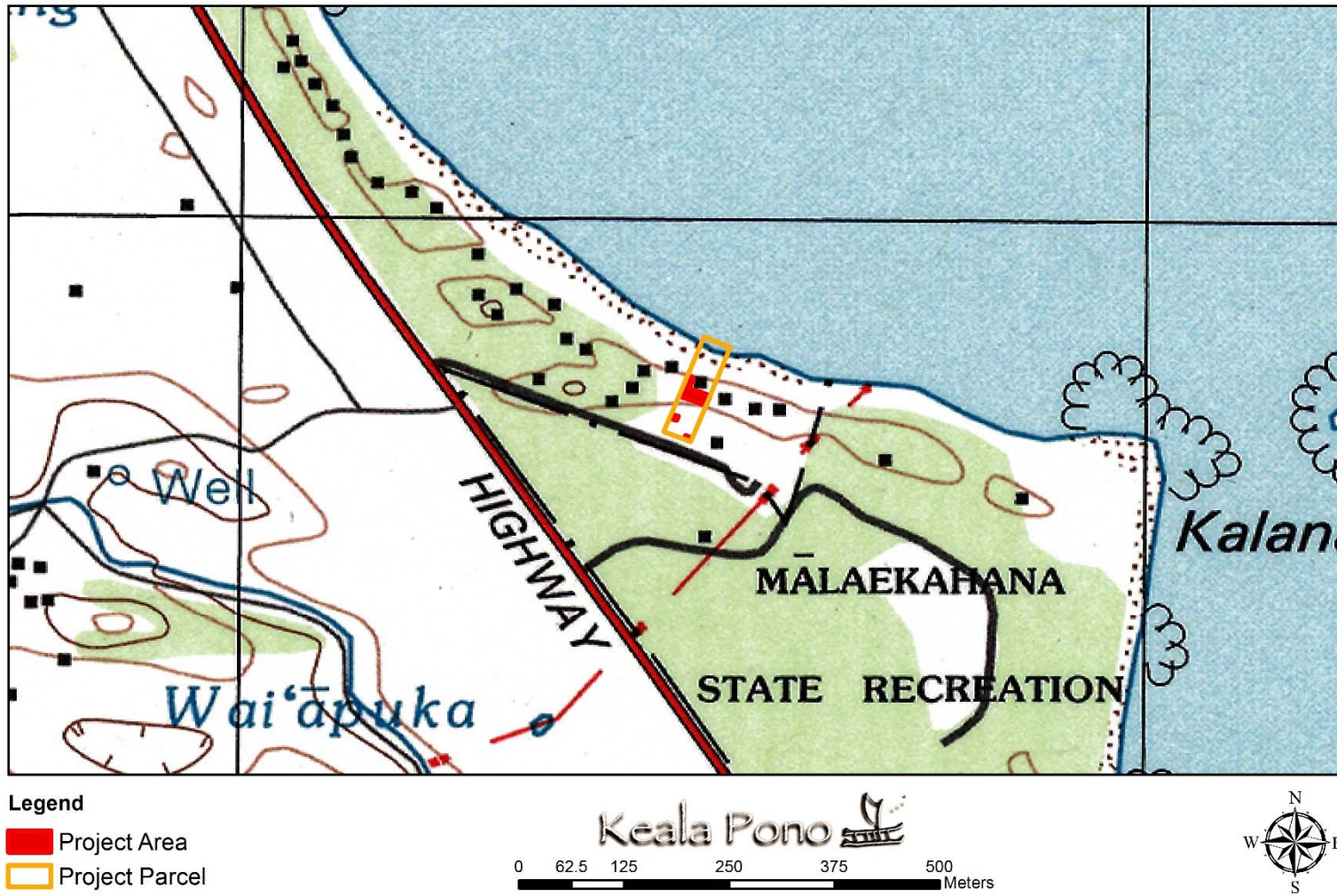
The project parcel is located in Mālaekahana Ahupua’a, Ko‘olaupua District, on the island of O‘ahu (Figure 1). Mālaekahana stretches from the ocean to the Ko‘olau Mountain Range, and is bounded by Keana Ahupua’a to the north and Lā‘ie to the south. The beach at Mālaekahana is a crescent-shaped bay, with Makahoa Point at the north end and Kalanai Point at the south. This southern point lies within Lā‘ie Ahupua’a, which also encompasses most of the Mālaekahana State Recreation Area.

Due to the potential of encountering burials, the project area was defined not as the entire parcel. The landowner proposed, and SHPD concurred, that the project area be limited to the three locations where ground disturbance will occur during implementation of the new septic system project. These three locations comprising the project area total 0.66 ha (.163 ac.) within TMK: (1) 5-6-001:028 (Figure 2). The landowner and SHPD also concur that an archaeological inventory survey (AIS) will be conducted prior to any future proposed project involving ground disturbance within the parcel.

TMK: (1) 5-6-001:028 is a .4 ha (1 ac.) parcel owned by John D’Amato and Kristina Inn. This is a beachfront property, located approximately 200 m (.12 mi.) northwest of the Mālaekahana State Recreation Area. The property is bounded by the beach on the east, an unpaved road on the west, and private parcels on the north and south. The project area covers a total of .066 ha (.163 ac.) of TMK (1) 5-6-001:028 in three discontinuous areas (see Figure 2). The project area boundaries were developed in consultation with SHPD.

The closest stream to the parcel is Waiapuka, which is roughly 500 m (.31 mi.) to the southwest. Waiapuka is an intermittent stream, however, and the closest perennial stream is Kaukanala‘au (also known as Mālaekahana Stream), which lies 1 km (.62 mi.) to the northwest of the project area. Rainfall averages 131 cm (51.5 in.) per year (Giambelluca et al. 2013). Vegetation within the area of study consists of landscaped grass.

Project area soils consist entirely of Jaucas sand, 0–15% slopes (JaC) (Figure 3). Jaucas series soils are “excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to



Layer Credits: USGS Topographical Kahuku Quadrangle Map 1998

Figure 1. Project area on a 7.5 minute USGS 1998 Kahuku quadrangle map.

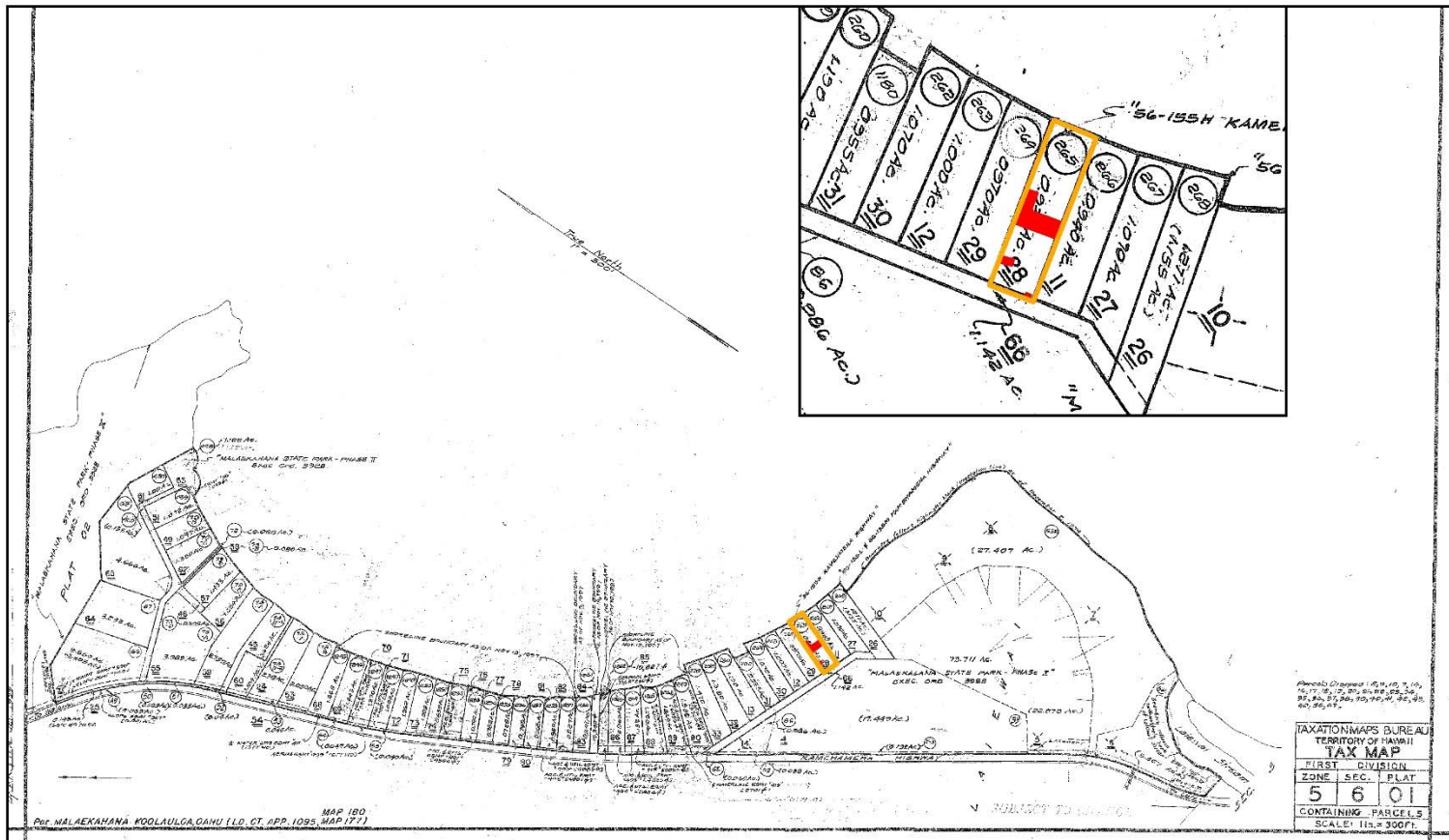


Figure 2. Project area (in red) on a 1932 plat map for TMK: (1) 5-6-001.

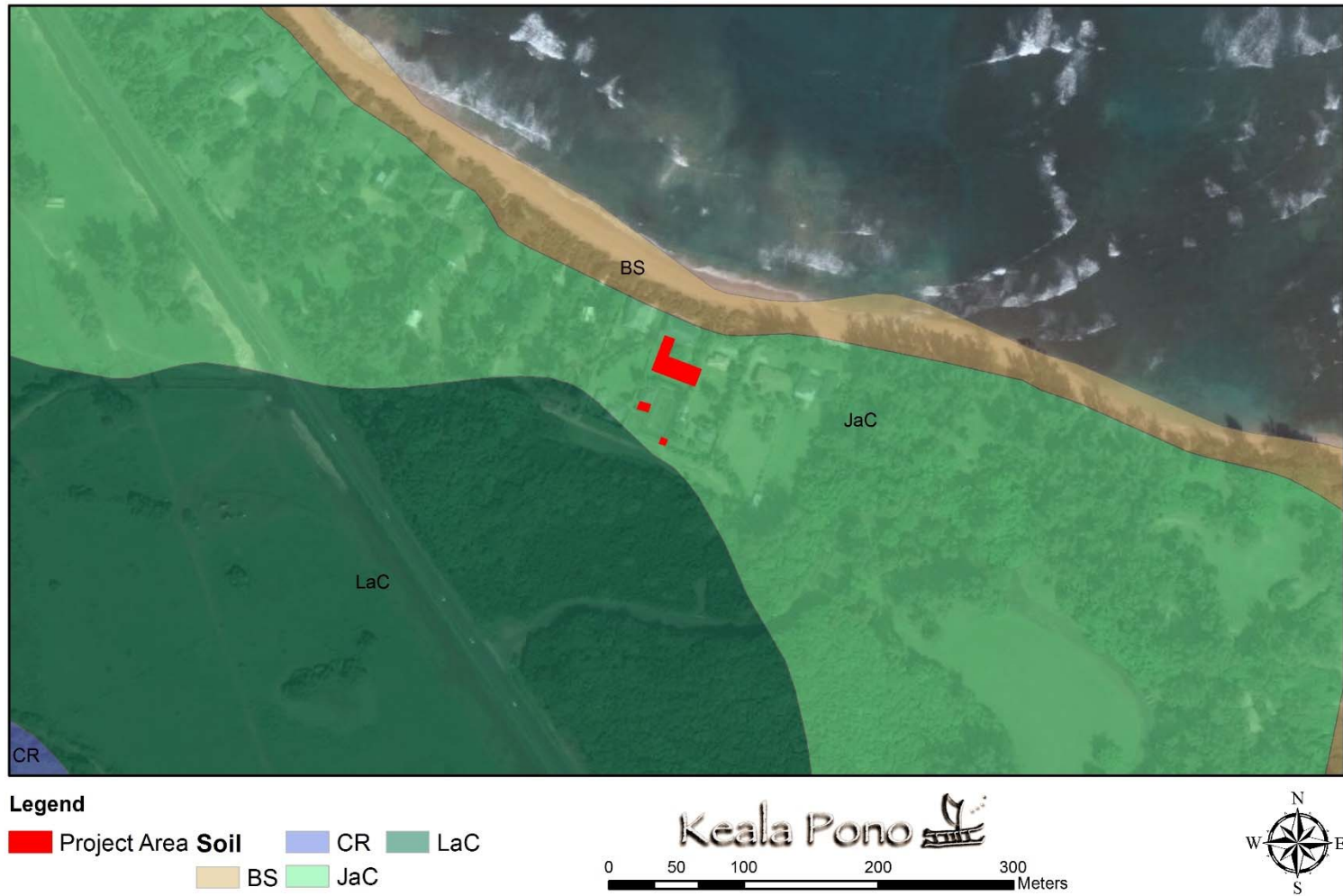
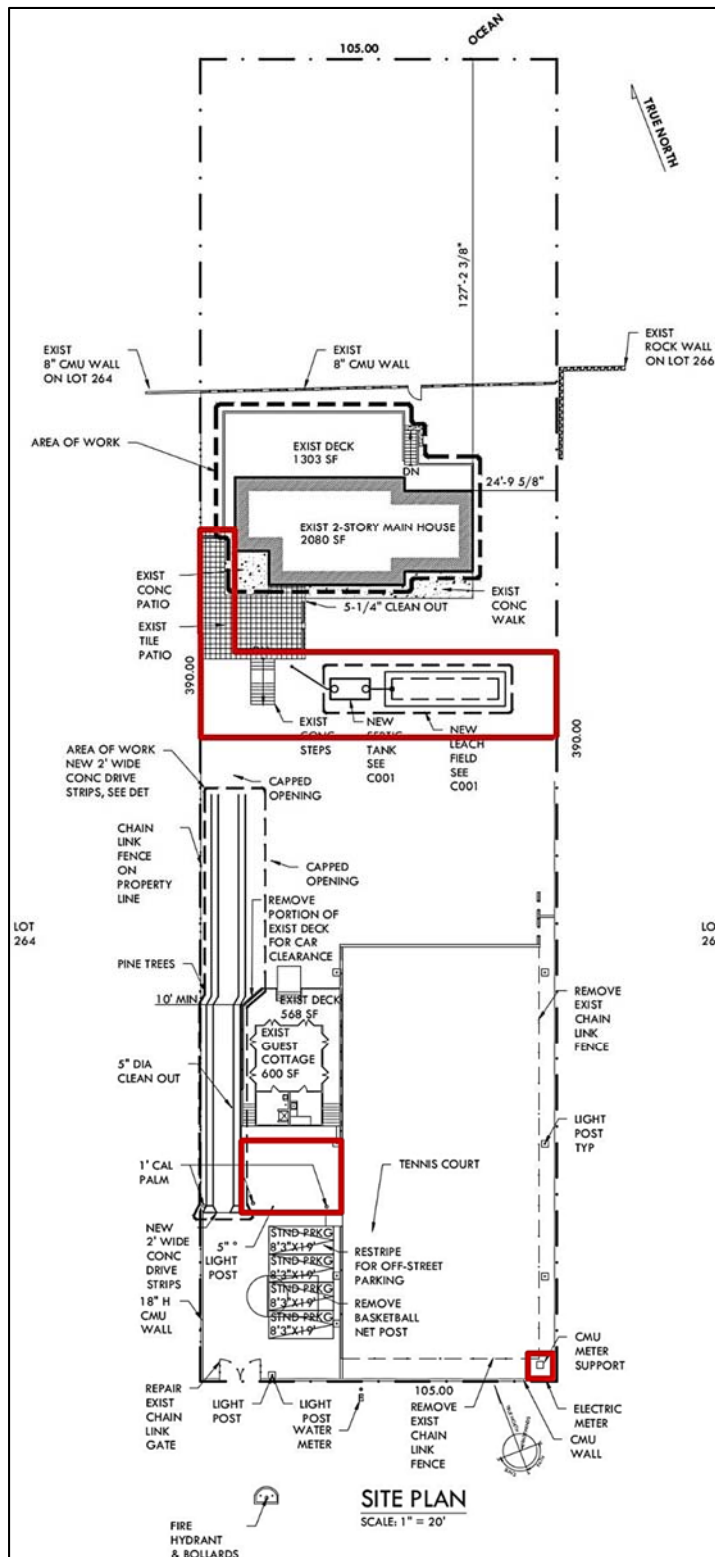


Figure 3. Soils in and near the project parcel.

the ocean” (Foote et al. 1972:48). This was a favored environment for human burial in traditional Hawai‘i.

The Project

Construction for the project consists of installation of a new septic tank, leach field system, sewer drain line, and main service electric concrete masonry unit (CMU) outbuilding (Figure 4). The septic tank excavation will measure approximately 2.5 x 3.4 m (8.5 x 11.25 ft.) and will extend to 2 m (6.5 ft.) below the surface. The leach field excavation will measure approximately 10.7 x 3.1 m (35 x 10 ft.) and will extend .6 m (2 ft.) deep. The sewer drain excavation will be approximately 22.9 m (75 ft.) long, .3 m (1 ft.) wide and .5 m (1.5 ft.) deep. These excavations will take place within the largest and northernmost of the three project areas. The CMU outbuilding excavation will measure 1.1 x 1.1 m (3.5 x 3.5 ft.) and .5 m (1.5 ft.) deep. This will be located in the smallest, southernmost project area. Replacement of another existing septic tank may occur within the central project area. The exact dimensions for this excavation will be determined once the existing septic tank in this location is removed. All excavations will be contained within the three discontinuous project areas.



BACKGROUND

A brief historic review of Mālaekahana is provided below, to offer a better holistic understanding of the use and occupation of the project area. In the attempt to record and preserve both the tangible (i.e., traditional and historic archaeological sites) and intangible (i.e., mo‘olelo) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawai‘i State Library, the SHPD library, and online on the Office of Hawaiian Affairs website and the Waihona Aina database. Archaeological reports and historical reference books were among the materials examined.

Place Names

The ahupua‘a of Mālaekahana may have been named after Lā‘ieikawai’s mother or the name of an image mentioned in the legend of Halemano (Pukui et al. 1976) (see Mo‘olelo Section). Handy et al. (1991:462) provide the translation of the ahupua‘a name as “Way-clear-for-work.” Moku‘auia is the largest of five islets off the coast of Mālaekahana. Its name translates to “island to one side” (Pukui et al. 1976). The other islets are Kīhewamoku or Kahiwamoku; Pulemoku, which means “broken prayer;” Kukuiho‘olua, which means “oven-baked candlenut;” and Mokuālai, or “island standing in the way” (Pukui et al. 1976). It is said that the islets were formed as Kana and Nīheu killed a mo‘o and threw pieces of its body into the ocean. Moku‘auia later got the name “Goat Island” for the goats that the Mormons moved there (Clark 1977:139). Makahoa is the prominent point on the Kahuku side of the ahupua‘a. It translates to “friendly point” (Pukui et al. 1976). Kalanai is the point on the Lā‘ie side of the ahupua‘a, although no translation is given by Pukui et al. (1976). This is also known as Cooke’s Point, referring to the family that lived there in the early 1900s.

Traditional Land Use

Not much has been written regarding traditional land use in Mālaekahana compared to the larger ahupua‘a in the vicinity such as Lā‘ie and Kahuku. Handy et al. (1991:460) write that the northern ahupua‘a of O‘ahu’s windward coast are less suitable for lo‘i cultivation than places such as Kahana and Punalu‘u, suggesting that wetland agriculture was not a major practice in Mālaekahana. Handy does note (in Sterling and Summers 1978:154) that “there were terraces in this ahupua‘a [Mālaekahana], irrigated by Kaukanalaau Stream,” indicating that lo‘i agriculture did occur there, though probably not on a large scale. He also states that “sweet potatoes were grown on the northwest coast from Keana to Laie” (Handy et al. 1940:75), and other dryland crops may have been cultivated in this environment as well. Handy et al. (1991:462) briefly describe Mālaekahana and the neighboring ahupua‘a of Keana:

These two small *ahupua‘a* intervening between La‘ie and Kahuku (the northernmost tip of Oahu) show much the same pattern, in miniature, of dune coasts, elevated coral, and broken level land seaward from the hills. Each has a small stream. There were formerly irrigated terraces in Malaekahana (Way-clear-for-work), but none in Keana (The-cave).

Ocean resources were plentiful in the ahupua‘a. There are two reefs off of Mālaekahana known as Kō and Hāli‘i, where moi and limu are found in abundance (Clark 1977:138–139). These reefs would have been a location for fishing and collecting limu in the past, and shellfish was likely harvested from nearshore areas. There was also a fishpond in Mālaekahana:

Formerly a fishpond was located near the point [Makahoa] and was known as Waipunaee. There are traditions about the mullet coming to this point from Pearl Harbor... To this day schools of mullet come around the island to this northern point of Malaekahana. They go no farther, and their apparent disappearance still mystifies the Hawaiians. (McAllister 1933:155)

From this scant information, it can be surmised that the small ahupua'a of Mālaekahana relied on both fishing and farming for subsistence in the pre-contact era (before the arrival of Westerners in 1778). There were lo'i for the cultivation of wetland taro, but the population relied on dryland farming as well. Ocean resources such as fish and limu were abundant, and there was a fishpond on Mālaekahana's shores.

Mo'olelo

The mo'olelo of Laniloa tells of the creation of the five islets off of Mālaekahana:

Laniloa is the name given to a point of land which extends into the ocean from Laie. In ancient times this point was a mo-o, standing upright, ready to kill the passerby.

After Kana and his brother had rescued their mother from Molokai and had taken her back to Hawaii, Kana set out on a journey around the islands to kill all the mo-o. In due time he reached Laie, where the mo-o was killing many people. Kana had no difficulty in destroying this monster. Taking its head, he cut it into five pieces and threw them into the sea, where they can be seen today as the five small islands lying off Malae-kahana: Malualai, Keauakaluapaaa, Pulemoku, Mokuaniwa and Kihewamoku.

At the spot where Kana severed the head of the mo-o is a deep hole which even to this day has never been fathomed. (Rice 1923:112)

The epic romance of Lā'ieikawai features a pool in Mālaekahana known as Wai'āpuka. Lā'ieikawai was a high chiefess, whose mother was named Mālaekahana. At the time of her birth Lā'ieikawai was hidden in a cave by Waka, her mo'o guardian. The subterranean cave could only be accessed by diving through the waters of Wai'āpuka Pool. While Lā'ieikawai was kept in the cave, her twin sister Lā'ielohelohe was taken to Kūkaniloko in Wahiawā. They were sequestered because the father of the twins had vowed to kill any baby girls that were born before a male heir. Lā'ieikawai was later betrayed by her guardian Waka and married a high chief. She went to live in the heavens with her husband, who betrayed her as well and was banished from that realm. Lā'ieikawai, however was reunited with her sister and revered as a goddess (Beckwith 1918:60–64; 1970:526).

In addition to being the name of Lā'ieikawai's mother, Mālaekahana was also the name of a wooden image featured in the mo'olelo of Halemano (Fornander 1919:236–237). Halemano was from Wai'anae and he fell in love with Kamalalawalu from Puna. Halemano's sister was a sorceress and she advised him to build toys such as kites and carved figures for Kumukahi, the favorite brother of Kamalalawalu. The sorceress presented Kumukahi with the toys and in exchange, he persuaded Kamalalawalu to go with him to O'ahu. Their canoe landed at Hau'ula, where Kumukahi saw the image named Mālaekahana. He liked the image so much that he stayed in Hau'ula. Halemano ended up marrying Kamalalawalu and they lived in Waialua, while Kumukahi returned home.

Manuwahi was a kahuna that lived in Mālaekahana. He was the keeper of the god of the same name as the ahupua'a. It is unclear if this is the same image named Mālaekahana that Kumukahi saw in Hau'ula. McAllister (1933:156) offers further information on Manuwahi and the battles fought at Mālaekahana:

The Hawaiians are still proud that the district of Malaekahana was never conquered by Kamehameha I. This is not recorded in Hawaiian history so far as I know. It may have been considered too insignificant a matter, or, as Dr. C.M. Cooke, Jr., suggests, an earlier *moi* [mō'i] of Oahu may have been unable to wrest Malaekahana from Manuwahi, and he may at present be confused with Kamehameha. The legend collected by Rice (70, p. 113) tells the story of Kamehameha's sending out Kahalaiu, who was unable to subdue Manuwahi because this powerful kahuna was aided in battle by the gods. After the battle, Kahalaiu joined forces with Manuwahi and is still spoken of by the older natives as the chief who

revolted against Kamehameha. Many skeletons were unearthed in plowing the cane fields of this region and in digging the foundations for the beach houses, indicative, some think, of many battles in the region.

Another mo‘olelo of the area tells of Mano-niho-kahi, or “Shark-with-one-tooth” (Rice 1923:111). He was a man that could transform into a shark, and he lived in Mālaekahana. The shark-man would go out to sea and bite and kill women that were fishing. In human form, Mano-niho-kahi still retained a shark’s mouth on his back, but he concealed it with a covering of kapa. To expose him, the chief of the area ordered everyone to gather together and remove their clothing. When Mano-niho-kahi refused, they pulled off his kapa and his shark’s mouth was revealed. He was killed and the women of Mālaekahana were now safe.

The Early Historic Period

Several of the early historic expeditions to Hawai‘i passed by O‘ahu’s north shore, beginning with the HMS *Resolution* in 1779. This early voyage described a landscape rich with vegetation, fertile valleys, and large villages (Beaglehole 1967). By 1794, however, the area was said to be sparsely inhabited and not flourishing (Vancouver 1798). Whereas Mālaekahana was not specifically mentioned, this ahupua‘a was likely in a similar state as the surrounding area. Mālaekahana is cited by name in 1828, when the missionary Levi Chamberlain traveled there to inspect O‘ahu’s schools. Chamberlain (1956:35) was “pleased with the appearance of the scholars.”

Māhele Land Tenure

The change in the traditional land tenure system in Hawai‘i began with the appointment of the Board of Commissioners to Quiet Land Titles by Kamehameha III in 1845. The Great Māhele took place during the first few months of 1848 when Kamehameha III and more than 240 of his chiefs worked out their interests in the lands of the Kingdom. This division of land was recorded in the Māhele Book. The King retained roughly a million acres as his own as Crown Lands, while approximately a million and a half acres were designated as Government Lands. The Konohiki Awards amounted to about a million and a half acres, however title was not awarded until the konohiki presented the claim before the Land Commission.

In the fall of 1850 legislation was passed allowing citizens to present claims before the Land Commission for parcels that they were cultivating within the Crown, Government, or Konohiki lands. By 1855 the Land Commission had made visits to all of the islands and had received testimony for about 12,000 land claims. This testimony is recorded in 50 volumes that have since been rendered on microfilm. Ultimately between 9,000 and 11,000 kuleana land claims were awarded to kama‘āina totaling only about 30,000 acres and recorded in ten large volumes.

Most of Mālaekahana Ahupua‘a was awarded to Analea Keohokālōle during the Māhele. A total of 3,280 ac. were given to Keohokālōle, who was the matriarch of a powerful line of ali‘i, including King Kalākaua and Queen Lili‘uokalani. Much of this land would later fall into the hands of the Campbell Estate. Only a few other small Land Commission Awards were made for Mālaekahana. They are less than 1 ac. each and none are near the project area. Testimony for these claims mention ‘uala, mai‘a, wauke, and house lots.

Historic Maps

Historic maps help to paint a picture of Mālaekahana in times past and illustrate the changes that have taken place in the region over the years. The earliest map found for this area is dated 1881 (Figure 5). The map shows the entire island of O‘ahu so it does not include much detail. “Laiekawai

Water hole” is labeled in Mālaekahana, and just mauka of that is “275 acres to Kahuku Ranch.” The islets off the coast are named, and the area around Lā‘ie Point reads “Dangerous Entrance.”

The next map is of the Lā‘ie Bay area and dates to 1884 (Figure 6). Again, the islets are named, and the area offshore is labeled “Dangerous rocky Bay Should never be approached.” Laieikawai is labeled, as well as the “Road to Kahuku.” Just mauka of the road, near the stream and nestled in hills are “Gentile Houses.” Mālaekahana is labeled as “Level grass land. Two boat houses are illustrated along the coast in Lā‘ie, although no structures are shown on Mālaekahana’s coast.

An aerial photo mosaic from 1928 shows that Mālaekahana is still very rural (Figure 7). The highway is in place, although there are no houses along the beach. Much of Mālaekahana appears to be open fields/pastures or in sugarcane cultivation.

A 1933 map shows the start of development in the project area (Figure 8). A boat house, bath house, and “green roof house” are pictured where Mālaekahana State Recreation area is today. Near the project area is a structure labeled “C.H. Cook green roof.” A little to the west is “end of fence” and “grass covered sand dunes.” Farther along Mālaekahana Bay is a 30 ft. water tank and several other structures. From south to north they are labeled as: “Jas. A. Kennedy black roof,” “14’ water tank,” “Henry C.A. Mead black roof,” “Burton Newcomb peaked roof,” and “E.L. Castle yellow house black roof.”

Mid-to Late-Historic Land Use

By 1863, Englishman Charles Gordon Hopkins owned large tracts of land in Mālaekahana and the neighboring ahupua‘a. He established the Kahuku Ranch, and the area was soon overrun by sheep and cattle, which quickly destroyed the native vegetation. The ranch was later renamed Kahuku and Mālaekahana Ranch, and by 1876 it was in the hands of James Campbell. An article from this year details the transfer:

It includes 25,000 acres in fee simple, and large tracts of mountain land under long leases, with \$34,000 worth of livestock, including 3,000 head of cattle, with the choice band of merino sheep and horses now on it. It is unquestionably the best stock ranch of these islands, and it has been brought to a high state of perfection under the management of the late proprietors, who divided the plain into ten or twelve large paddocks, walled with heavy stone walls. It stretches from Laie to Waimea, a distance of thirteen miles, and those who have ever visited it must have admired its lovely green pastures of manienie grass so fattening to stock. It is the intention of Mr. Campbell to increase his band of sheep to 30,000 of the choicest breed. The price paid is a handsome one, securing to its present proprietor the most desirable ranch of the Islands, and to Mr. Richardson a comfortable fortune, the result in part of his industry and good management, and in part of the Reciprocity Treaty, the first fruit from which he has been so fortunate as to reap. (*Hawaiian Gazette* 1876:3:2)

In 1889, Campbell leased the ranch to B.F. Dillingham and it remained in business until the mid-1900s. At this time the Kahuku Sugar Company was established, and soon at least 150 acres of sugarcane fields extended into Mālaekahana. By 1899 the Oahu Railway extended its track to Kahuku, linking the sugar mill with Honolulu, via Ka‘ena Point. By 1903 the railway crossed through Mālaekahana and continued to Lā‘ie. This rail line would eventually be extended all the way to Kahana Bay. In 1916, some of the Kahuku sugarcane lands were leased for pineapple cultivation, although this was not a major enterprise. Sugarcane was grown in the area until 1968, and the railroad continued its Kahuku operations until 1972 (Wilcox 1975:37).

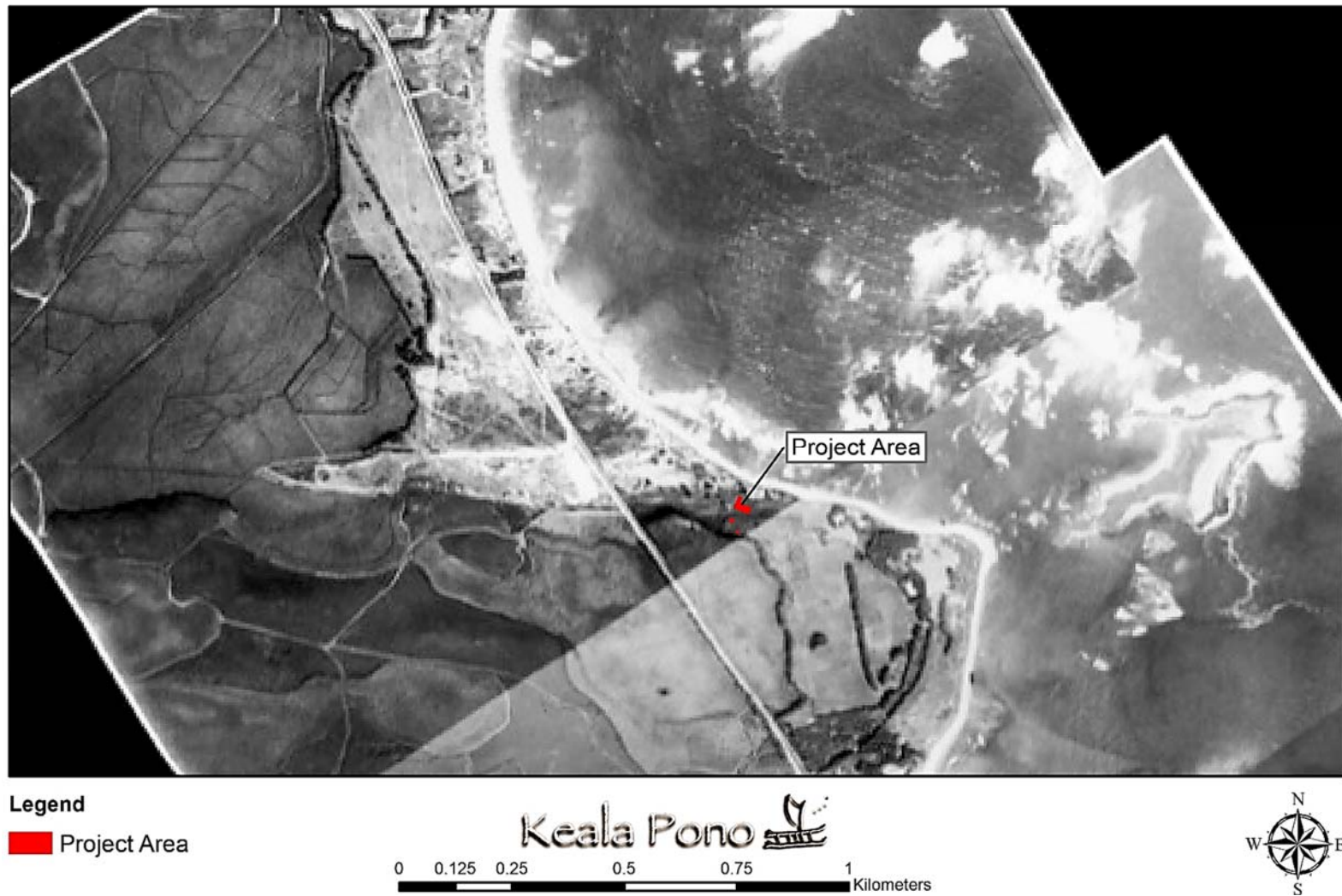
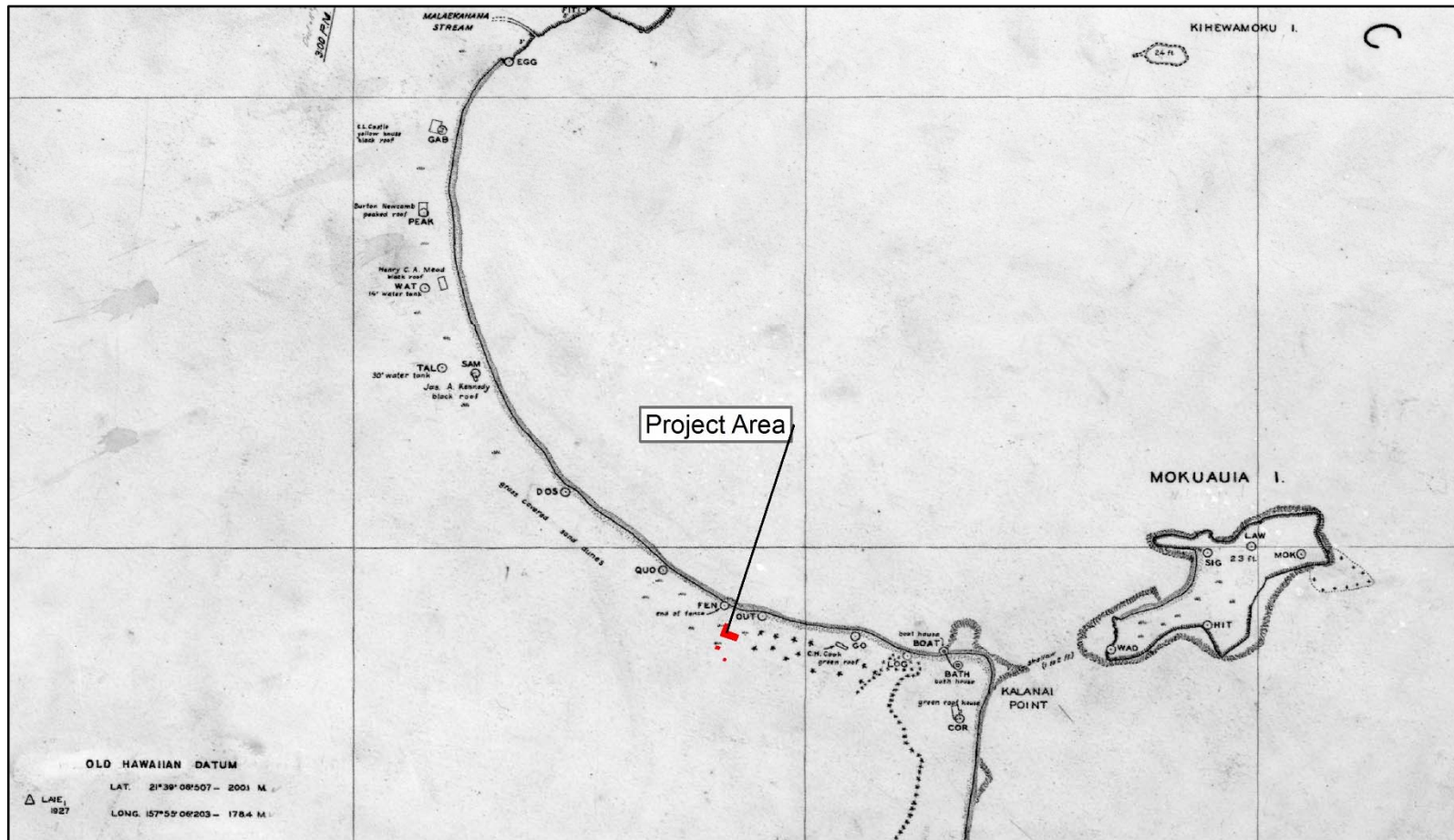


Figure 7. Portion of a 1928 aerial photo mosaic of Lā'ie (UH SOEST 1928).



Legend

Project Area

Keala Pono 

0 0.125 0.25 0.5 0.75 1 Kilometers



Figure 8. Portion of a 1933 map of Kahuku Point to Lā'ie (Paton 1933).

By 1954 Kamehameha Highway was already in place and scattered houses can be seen near the project area (Figure 9). At that time, the offshore islets are labeled as bird refuges, but the Mālaekahana State Recreation Area is not labeled, suggesting that it was not established yet. The roads leading into the recreation area are in place, however, and there are a few structures in the area. The plantation railroad can still be seen to the northwest of the project area. A 1965 map also shows the highway and bird refuges, but many more homes are now depicted near the project area (Figure 10). The plantation railroad is no longer illustrated on the 1965 map. The Mālaekahana State Recreation Area is not shown on maps until 1983 (USGS 1983).

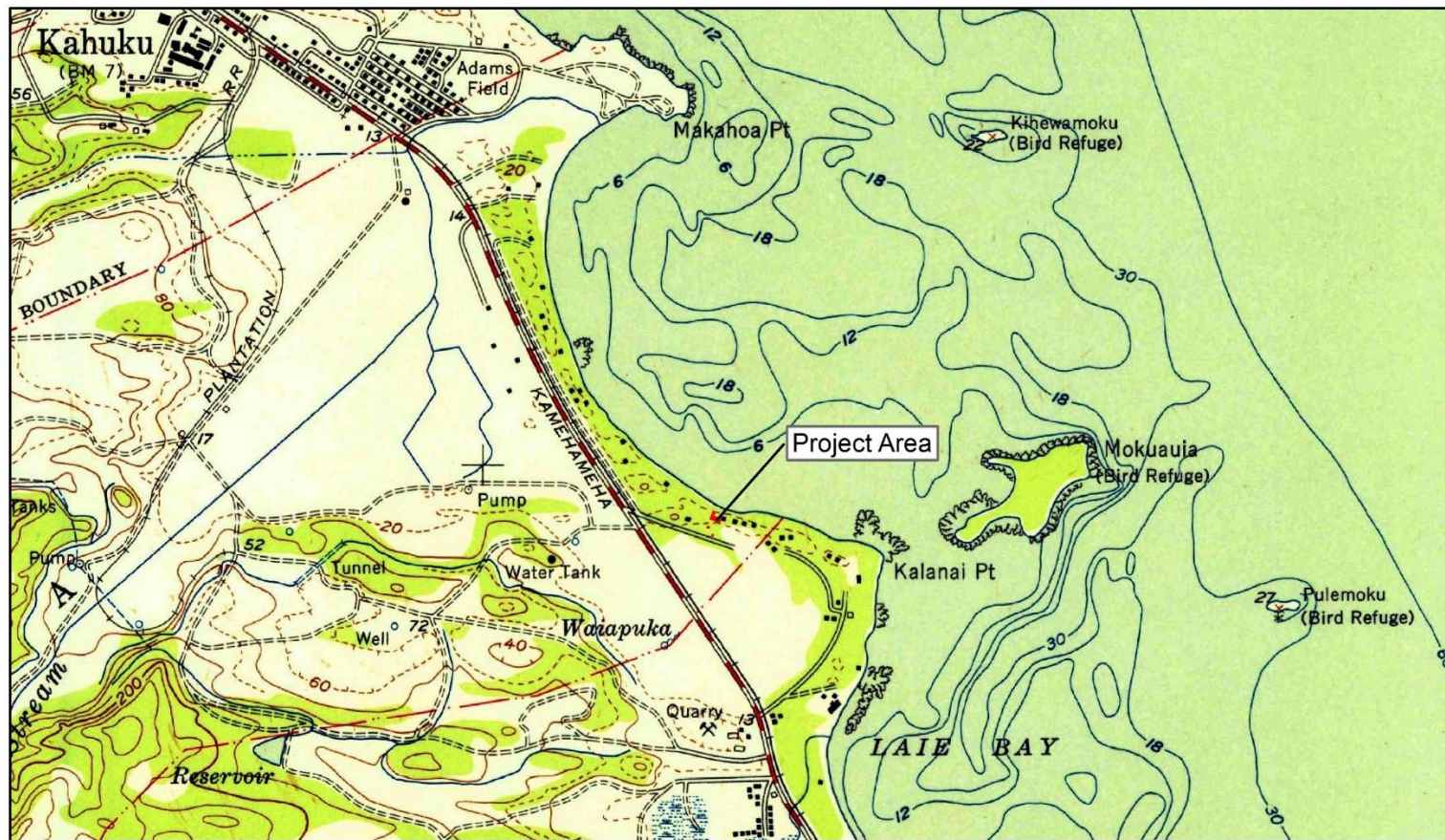
Previous Archaeology

Several archaeological studies have been conducted in Mālaekahana. The following discussion provides information on archaeological investigations that have been carried out within approximately 1 km of the project area, based on reports found in the SHPD library in Kapolei, Hawai'i (Figure 11, Table 1). State Inventory of Historic Places (SIHP) site numbers are prefixed by 50-80-02 (Figure 12).

The earliest archaeological work in Mālaekahana comes from McAllister's (1933) islandwide survey. McAllister recorded four sites in the ahupua'a. Site 272 is a ko'a located at Makahoa Point. At the time of his study, only a few rocks remained of the site. McAllister notes that there was once a fishpond near this location, and mullet still return to the area (1933:155). Site 273 is the house foundation of the kahuna Manuwahi, who was the "keeper of the god at Mālaekahana" (McAllister 1933:155). It is located in the current Mālaekahana State Recreational Area. Again, only a few rocks remained of the site during the time of McAllister's study. Site 274 is a ko'a called Kalanai, in the Lā'ie portion of Mālaekahana State Recreation Area. Kala and enenue were the fish offered at Kalanai, and in addition to fish remains, McAllister noted a human burial .6 m (2 ft.) below the surface (1933:156). Site 275 is Wai'āpuka Pool, located inland from Kamehameha Highway, in what was a sugarcane field during McAllister's survey. The pool is a noted location in the mo'olelo of Lā'ieikawai, where Waka hid Lā'ieikawai until she was grown. Local residents informed McAllister that there was once an underwater entrance in the pool that led to a hidden chamber, but the pool had been silted in during the 25 or so years prior to McAllister's visit (1933:157).

Between 1977 and 1990, archaeological work was conducted at Mālaekahana State Recreation Area in a sand dune system. In 1977, a short report was generated for the soils analysis in which the stratigraphy of two cultural layers was delineated (Hammatt 1977). A later report provided more details on the work, and human burials and a ko'a were documented at Kalanai Point (Yent and Estioko-Griffin 1980). Site 2801 was designated to cover the entire area between Kamehameha Highway, the ocean, and Kahawainui Stream, and includes at least three cultural layers and the ko'a. The site was thought to have been occupied during three distinct periods that occurred between AD 1600 and 1780 (Yent and Estioko-Griffin 1980:xxii). Material remains included infilled postholes, firepits, midden, animal bone, as well as fishing gear and other subsistence-related artifacts. The human remains were a child and an infant that were found adjacent to the ko'a. Volcanic glass flakes from the site were dated to the mid-1600s (Olson 1979). Further work was conducted at one of the cultural layers with auger coring (Yent and Ota 1982). This layer was found mostly near the mouth of Mālaekahana Stream. Several years later, two more rounds of auger coring were conducted at the State Recreation Area. They yielded no findings (Griffin and Yent 1986; Smith 1990).

A reconnaissance survey was completed in 1984 for a well site in upland Mālaekahana (Barrera 1984). While no archaeological resources were found within the well site project area, a traditional agricultural complex was noted on the opposite side of Mālaekahana Stream. This consisted of a system of terraces, an 'auwai, and a substantial rock wall. A concrete structure was also observed.



Legend

■ Project Area



Layer Credits: USGS Topographical Kahuku Quadrangle Map 1954

Figure 9. Portion of a 1954 USGS Kahuku quadrangle (USGS 1954).

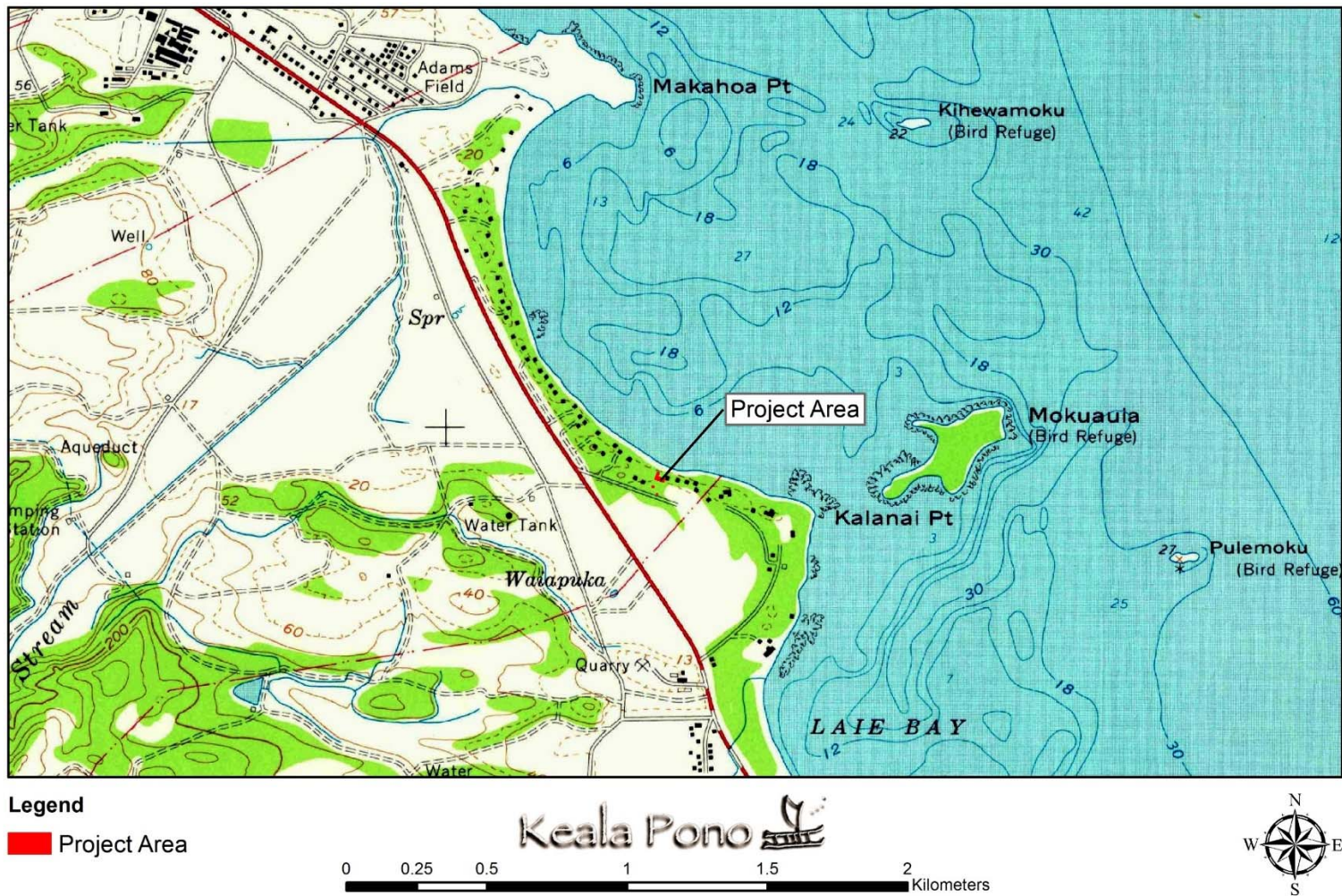


Figure 10. Portion of a 1965 USGS Kahuku quadrangle (USGS 1965).

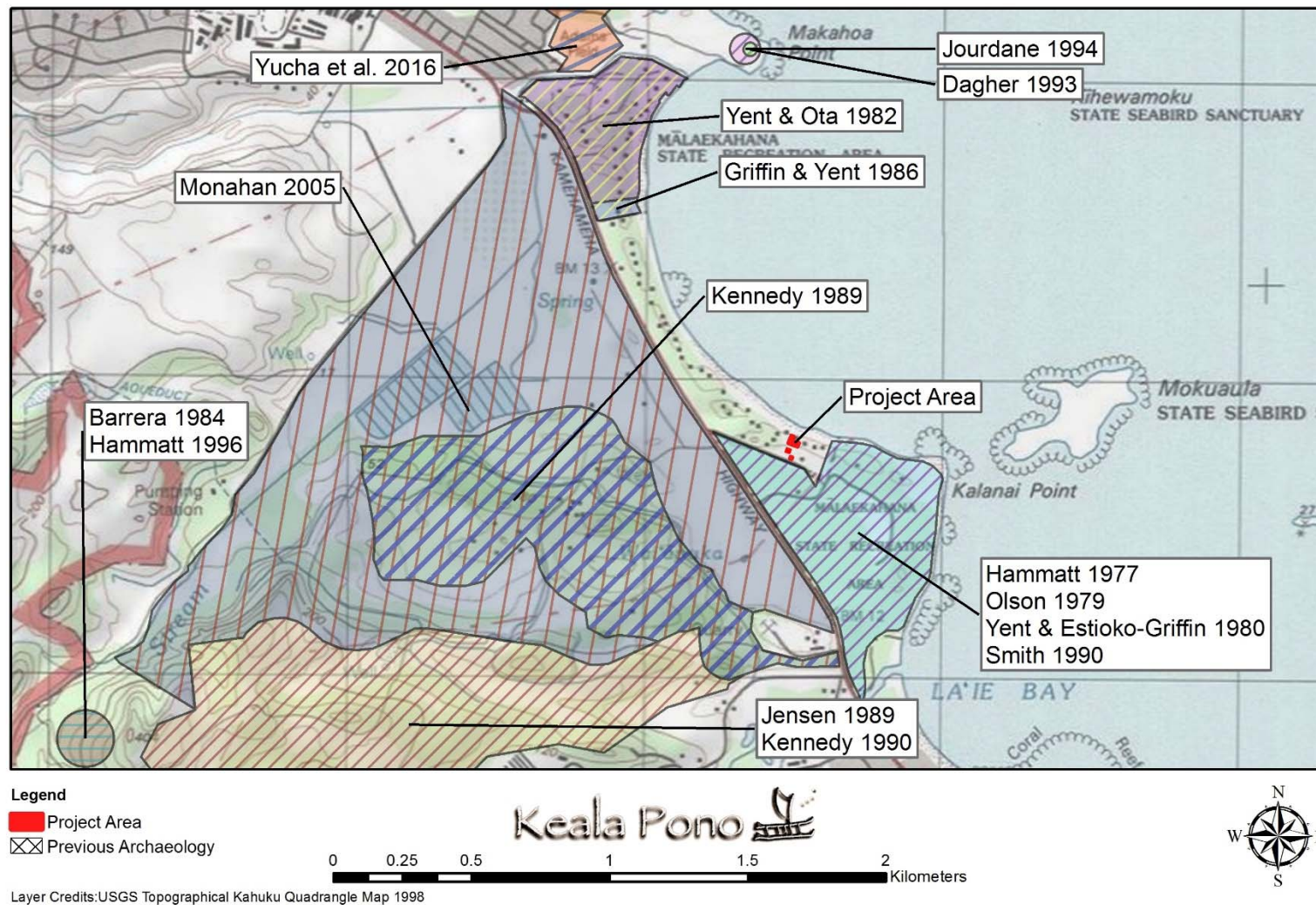


Figure 11. Location of previous archaeological studies in the vicinity of the project area.

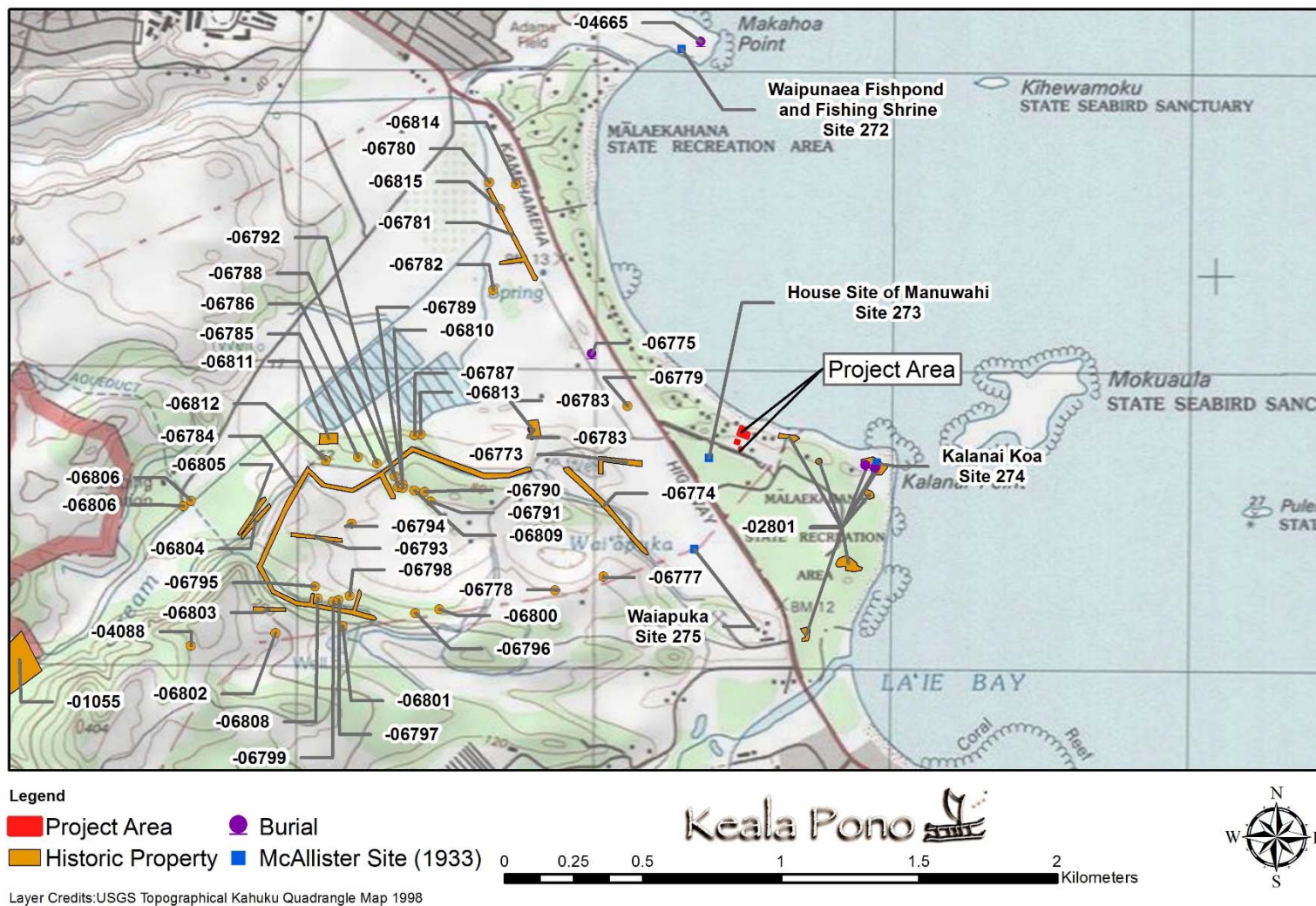


Figure 12. Location of recorded archaeological sites in the vicinity of the project area.

Table 1. Previous Archaeology in Mālaekahana

Author and Year	Location	Type of Study	Findings
McAllister 1933	Mālaekahana	Survey	Recorded four sites: two ko‘a, a house foundation, and a pool.
Hammatt 1977	Mālaekahana State Recreation Area	Soil Analysis	Documented two cultural layers.
Olson 1979	Mālaekahana State Recreation Area	Volcanic Glass Analysis	Volcanic glass flakes dated to the mid-17 th century.
Yent and Estioko-Griffin 1980	Mālaekahana State Recreation Area	Mapping and Excavation	Recorded Site 2801, which includes the two previously recorded cultural layers, a ko‘a, and two human burials.
Yent and Ota 1982	Mālaekahana State Recreation Area	Subsurface Testing	Further documented the Site 2801 cultural layer.
Barrera 1984	Upland Mālaekahana	Reconnaissance	Noted an agricultural complex outside of the project area.
Griffin and Yent 1986	Mālaekahana State Recreation Area	Subsurface Testing	None.
Jensen 1989	Upland Mālaekahana and Punamanō	Reconnaissance	Identified six sites in Mālaekahana: 4088–4093, consisting of habitation, agricultural, and a possible burial site.
Kennedy 1989	Upland Mālaekahana	Inventory Survey	Recorded 19 sites including traditional habitation and agricultural sites, and a historic gun emplacement and railroad bed.
Kennedy 1990	Upland Mālaekahana	Assessment	Reevaluated the sites recorded by Jensen (1989).
Smith 1990	Mālaekahana State Recreation Area	Subsurface Testing	None.
Dagher 1993	Makahoa Point	Report of Human Remains	Documented Site 4665, a human burial.
Jourdane 1994	Makahoa Point	Report of Human Remains	Recorded Site 4821, a human burial.
Hammatt 1996	Upland Mālaekahana	Reconnaissance	None.
Monahan 2005	Mauka of Kamehameha Hwy.	Inventory Survey	Documented 44 sites in Mālaekahana, the majority of which are historic sites relating to the sugarcane industry.
Yucha et al. 2016	Near Makahoa Point to Kahuku	Inventory Survey	No findings in Mālaekahana.

A reconnaissance of upland Mālaekahana identified six sites, while another 20 sites were recorded in Punamanō (Jensen 1989). Punamanō is a swamp and spring located to the northwest of Kahuku; as this is far away from the project area, the Punamanō findings will not be discussed further. The Mālaekahana sites were assigned numbers 4088–4093. Three of these are overhang habitations, two are cave habitations, one is an agricultural ditch and tunnel, and one is a platform that may be a human burial. The sites were later reevaluated by Kennedy (1990), although there were no significant new findings in Mālaekahana.

Another upland survey of Mālaekahana recorded an additional 19 sites (Kennedy 1989). The sites consisted of traditional habitation and agricultural areas, as well as a historic gun emplacement and railroad bed. SIHP numbers were not assigned at that time. The sites were later examined during a 2005 archaeological inventory survey and site numbers were designated, although the sites found in 2005 could not be positively correlated with those identified in 1989 (Monahan 2005:24, see discussion below).

A human burial was found in 1993 at Makahoa Point (Dagher 1993). The burial was designated as Site 4665. It was exposed during high surf and was in poor condition. One unidentified metal historic artifact was possibly associated with the remains.

Another human burial was encountered at Makahoa Point the following year (Jourdane 1994). The remains were partially exposed in the sand and were thought to represent a single individual. They were designated as Site 4821.

A reconnaissance survey was conducted for a proposed well site in upland Mālaekahana (Hammatt 1996). There were no archaeological findings, as the area showed evidence of disturbance by bulldozing.

An archaeological inventory survey in 2005 recorded 43 sites in Mālaekahana (Monahan 2005). The sites are located mauka of Kamehameha Highway and mostly consist of historic-era remains of the sugarcane industry. They were designated as SIHP 6673–6815. Traditional sites include rockshelters, habitation or agricultural sites, a cultural layer, and Wai‘āpuka Pool. Two human burials were also recorded. Radiocarbon dates ranged from the 14th century AD to the 17th century (Monahan 2005:ii). Some of the sites are thought to have been previously identified by Kennedy (1989), although this could not be conclusively determined:

For a variety of reasons—including the fact that this previous work [Kennedy 1989] was conducted over 15 years ago, it was not possible to confidently associate features and sites identified in the field with written descriptions in Kennedy (1989)...Without belaboring the point, in short, Kennedy’s (1989) report served as a guide for expected sites in the current project area, but it could not be used to locate, in a meaningful, one-to-one way, any given site. (Monahan 2005:24)

The most recent project was an archaeological inventory survey that spanned from near Makahoa Point to Kahuku (Yucha et al. 2016). There were no findings in Mālaekahana.

Summary and Settlement Patterns

Archival records and previous archaeological research indicate that the earliest settlement at Mālaekahana was probably “on or behind the dune system which places them at least 30 meters (100 feet) back from the shoreline” (Yent and Estioko-Griffin 1980:416). Early habitation of the area was likely based on marine subsistence, as Mālaekahana is teeming with marine resources such as fish, shellfish, and limu. Taro was grown along the streams, and sweet potato and other crops were

cultivated in the drier areas. Domestic animals may have been kept as well. The Mālaekahana coast was also used for human burial, and for ritual, as evidenced by ko‘a.

Later in time there was a greater reliance on agriculture and domestic animals, however marine resources continued to be utilized. It is likely that settlement and agriculture expanded inland, as this was the case in other parts of O‘ahu.

Mālaekahana grew into a ranching district in the historic era, with sugarcane and pineapple fields also a new feature of the landscape. The precursor of Kamehameha Highway was in place to transport people and goods around the island, and a railroad was also constructed to haul sugarcane from the north shore mills to Honolulu. Today, Mālaekahana is still used for ranching, and it is also known for the State Recreation Area on the south side of the bay.

Anticipated Finds and Research Questions

Previous research has identified a wide range of activities that were carried out traditionally and historically in Mālaekahana, including agriculture, habitation, ritual, and human burial. Evidence for these kinds of activities may be found within the project area. Previous archaeological research has in fact identified several burials not far from the area of study, at the Mālaekahana State Recreation Area. Historic-era archaeological resources might be associated with historic habitation or agriculture, considering that there were early 20th century houses and sugarcane fields nearby. Since the project area is landscaped, it is not likely that any vestiges of these activities are left on the surface. Subsurface remains may consist of buried walls, pavements, fire pits, agricultural deposits, traditional or historic artifacts, or human burials.

Research questions will broadly address the identification of the above archaeological resources and may become more narrowly focused based on the kinds of resources that are found. Initial research questions are as follows:

1. Is there any evidence of pre-contact use of the project area and what is the nature of that use? Possible use of the study area may be related to agriculture, habitation, ritual, and/or human burial.
2. Are there vestiges of historic use of the properties? Remnants of historic-era land use would likely be related to habitation or agriculture.
3. What time periods are represented by the archaeological remains on the properties? If fire pits or other datable archaeological features are encountered, radiocarbon dating may inform on the period of use for the area. Wood taxa identification should be performed prior to dating, and only material suitable for dating should be submitted for analysis. Historic occupation may be dated by material remains such as bottles or ceramics.

Once these basic questions are answered, additional research questions may be developed in consultation with SHPD, tailored to the specific kinds of archaeological resources that were identified.

METHODS

Pedestrian survey and subsurface testing were conducted on February 18, 2016 by Windy McElroy, PhD and Jeffrey Lapinad. McElroy served as Principal Investigator, overseeing all aspects of the project. For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with transects walked for the entire project area. Archaeologists were spaced approximately 5 m apart. The three locations comprising the project area total 0.66 ha (.163 ac.) within TMK: (1) 5-6-001:028. The northernmost location is 580 m², the central location is 55 m², and the southern location is 25 m². Of the .066 ha (.163 ac.) survey area, 100% was covered on foot. Vegetation was very light, consisting entirely of landscaped grass. Archaeological sites and their boundaries were identified visually, with any feature possibly made or used by humans and more than 50 years old considered a site, although none were found.

Test trenches (TR) were excavated in two locations in the largest of the three discontinuous project areas. The excavation strategy and trench locations were approved by SHPD. A backhoe was used for digging of the trenches (Figure 13). Vertical provenience was measured from the surface, and trenches were excavated to sterile sand and below the depth of excavation proposed for construction. Profiles were drawn and photographed, and sediments were described using Munsell soil color charts and a sediment texture flowchart (Thien 1979). Trench locations were recorded at both ends with a 3 m-accurate Garmin GPSmap 62st, and all trenches were backfilled after excavation.

The scale in all field photographs is marked in 10 cm increments. The north arrow on all maps points to magnetic north. Throughout this report rock sizes follow the conventions outlined in *Field Book for Describing and Sampling Soils*: Gravel <7 cm; Cobble 7–25 cm; Stone 25–60 cm; Boulder >60 cm (Schoeneberger et al. 2002:2–35). Collected materials are temporarily being curated at the Keala Pono office in Kāneʻohe until they can be returned to the land owner.



Figure 13. Excavation of TR 2 with backhoe. Orientation is to the northwest.

RESULTS

Pedestrian survey and subsurface testing were conducted in the .066 ha (.163 ac.) project area. No historic properties were found. Excavation of four test trenches did not yield any evidence of subsurface archaeological deposits or features.

Pedestrian Survey

The surface survey included 100% of the .163 ac. project area. Vegetation in the project area consisted entirely of landscaped grass. No surface archaeological remains were observed within the project area.

Subsurface Testing

Two trenches were excavated to determine the presence or absence of subsurface archaeological deposits or material (Figures 14 and 15, Table 2). None were found, and stratigraphy generally consisted on a thin fill layer at the surface with marine sand below. Two modern A horizons were observed within TR 2. Both trenches were excavated to sterile sand.

TR 1 was excavated in the central portion of the lot (see Figure 14). The trench measured 9.6 m long, 83 cm wide, and was excavated to 130 cm below surface (cmbs). Stratigraphy consisted of very dark grayish brown fill with sparse modern debris at the surface (0–7 cmbs) and very pale brown marine sand below (7–130+ cmbs; Figure 16). An intrusive dark grayish brown deposit of mixed fill and sand was found between 22 and 25 cmbs only in the eastern 3 m of the trench (Figure 17). No archaeological deposits or material were identified.

TR 2 was placed on the east side of the parcel (see Figure 14). The trench measured 8.2 m long, 81 cm wide, and 135 cm deep. Stratigraphy consisted of the same very dark grayish brown fill with sparse modern debris at the surface (0–8 cmbs) and very pale brown marine sand below it (40–135+ cmbs; Figure 18). Between these was a mottled very pale brown disturbed sand layer with sparse modern debris (8–40 cmbs). Two intrusive A horizons were found within this disturbed layer. Layer IIa was a light brownish gray sand with sparse modern debris, located only in the southeastern portion of the trench from 20–25 cmbs. Layer IIb was a grayish brown sand with sparse modern debris, located in the southern 5.5 m of the trench (Figure 19). This layer ranged from 30–50 cmbs in depth but was only 6 or less cm thick. A thin piece of green plastic, possibly a fragment of shopping bag, was observed in situ within this layer, clearly identifying Layer IIb and everything above it as modern (see Figure 19). Very sparsely scattered charcoal was present in a 1.3 m-long portion of the Layer IIb, toward the northern extent of that layer (Figure 20).

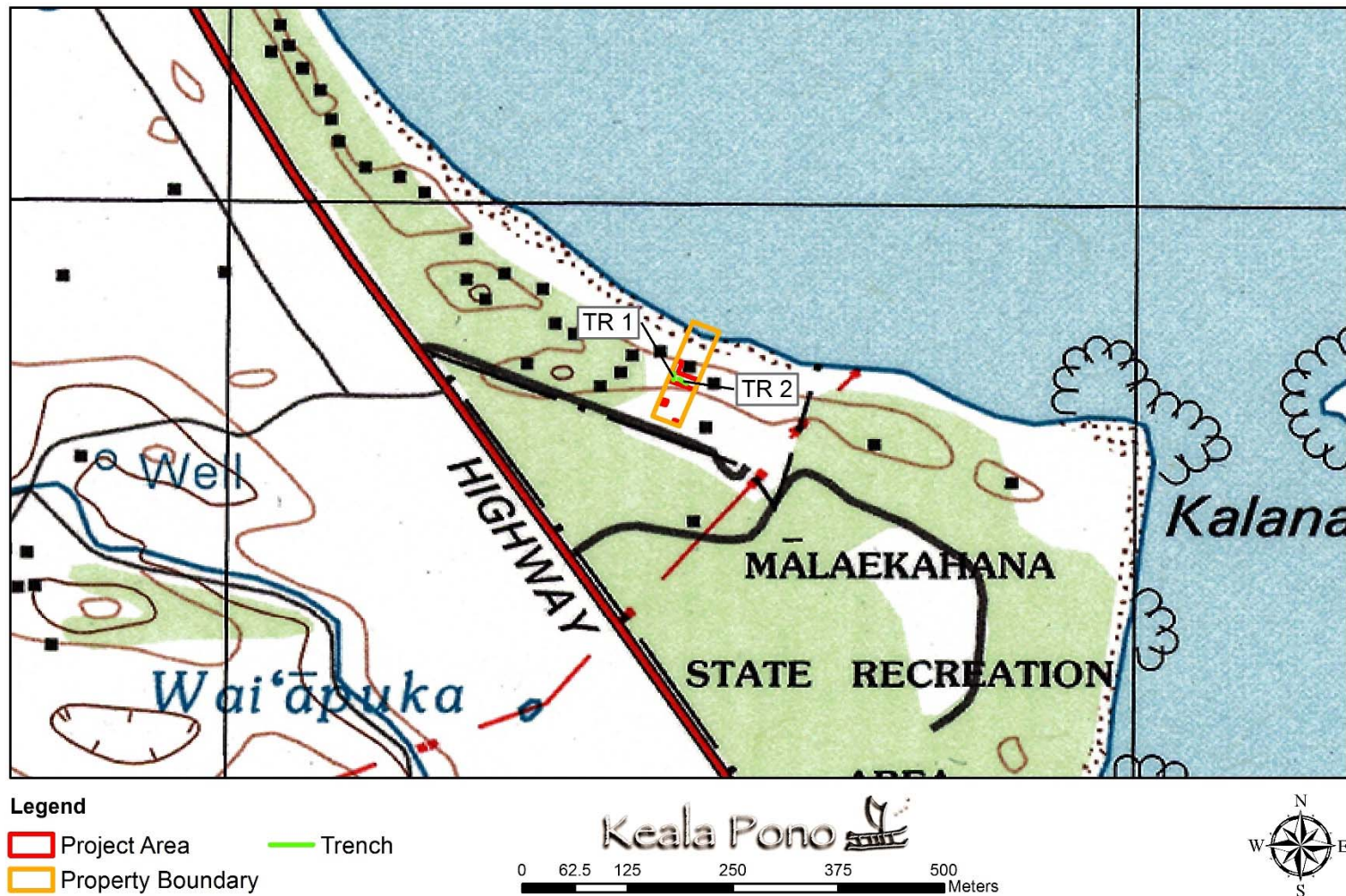
Laboratory Analysis

Cultural material was collected from TR 2 from the backdirt and less than 40 cmbs; the recovered items are likely modern, although there is a possibility that some of the material is more than 50 years old (Table 3).

Bag 1 consists of items recovered from the TR 2 backdirt. This material is thought to have come from 0–40 cmbs, where similar items were collected in situ from the trench face. Two pieces of glass and one ceramic sherd were recovered from the backdirt (Figure 21). The two glass fragments do not articulate but appear to be from the same vessel, a clear bottle. The ceramic piece is plain white and possibly part of a plate. Both are likely modern, although there is a possibility that they are more than 50 years old.



Figure 14. Location of Trenches 1 and 2 on aerial imagery.



Layer Credits: USGS Topographical Kahuku Quadrangle Map 1998

Figure 15. Location of Trenches 1 and 2 on USGS topographic map.

Table 2. Sediment Descriptions

Location	Layer	Depth (cmbs)	Color	Description	Interpretation
TR 1	I	0–7	10YR 3/2	Silty clay loam; 20% fine roots; sparse modern debris; smooth, very abrupt boundary.	Fill
	III*	7–130+	10YR 8/3	Fine sand; 10% roots; base of excavation.	Natural Marine Sand
	IIIa	22–25	10YR 4/2	Sandy clay loam; 10% fine roots; broken, very abrupt boundary.	Fill/Sand Mix
TR 2	I	0–8	10YR 3/2	Silty clay loam; 20% fine roots; sparse modern debris; smooth, very abrupt boundary.	Fill
	II	8–40	10YR 7/3, mottled	Fine sand; 10% roots; sparse modern debris; smooth, clear boundary.	Disturbed Marine Sand
	IIa	20–25	10YR 6/2	Fine sand; 5% roots; sparse modern debris; broken, very abrupt boundary.	Modern A Horizon
	IIb	30–50	10YR 5/2	Fine sand; 1% roots; sparse modern debris; scattered charcoal; broken, very abrupt boundary.	Modern A Horizon
	III	40–135+	10YR 8/3	Fine sand; 10% roots; base of excavation.	Natural Marine Sand

* note that Layer II was not present in TR 1

Bag 2 consists of charcoal collected from the east face of TR 2 at 30 cmbs. This is at the northern portion of the A horizon documented for TR 2 (see Figures 18 and 20). Wood identification and radiocarbon dating were not performed, as modern debris was found in this A horizon and the charcoal was likely deposited relatively recently.

Bag 3 contains items collected from the east and west face of TR 2 at 0–40 cmbs. These consist of two glass fragments, two metal pieces, and a plastic and metal item (Figure 22). The first glass fragment is clear and almost certainly modern. The second is a small piece of aqua glass. It is likely modern as well, although it could be more than 50 years old. The metal consists of a rusty, unidentifiable fragment and a rusty bottle cap. Both are likely modern, although there is a possibility that they are more than 50 years old. Finally, the plastic and metal item is unidentifiable, but also likely modern.

Summary of Findings

Pedestrian survey of TMK: (1) 5-6-001:028 (por.) did not yield any evidence of former use of the project area. The project area has been landscaped with grass and no surface features remain. Subsurface testing was conducted in two locations to determine the presence or absence of subsurface cultural material or deposits. The only findings were a few glass, metal, and plastic items, as well as charcoal, all of which are likely modern. Stratigraphy consisted of a thin fill layer at the surface with marine sand below. Two modern A horizons were observed within TR 2, from which the collected materials originated. The research questions developed at the onset of the project were all answered negatively, as no traditional or historic surface or subsurface archaeological remains were found.

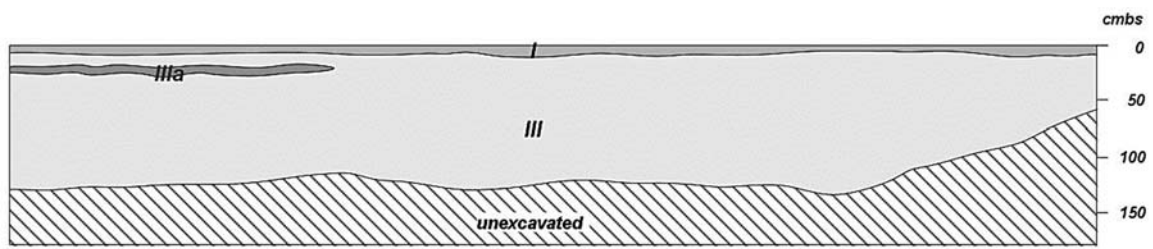


Figure 16. TR 1 south face profile drawing.



Figure 17. TR 1 photo, eastern portion of the trench, facing south.

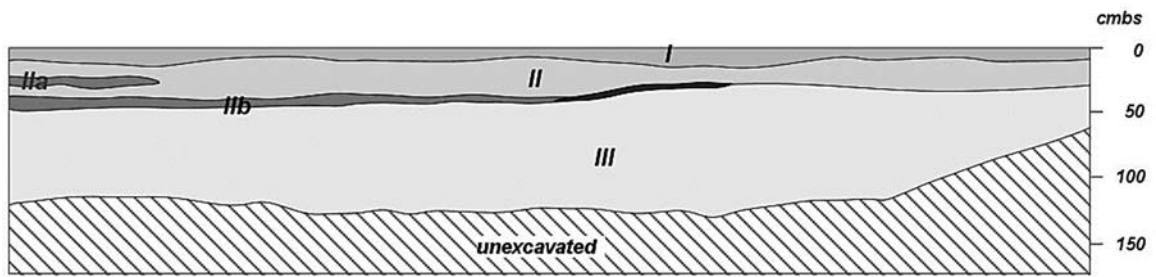


Figure 18. TR 2 east face profile drawing.

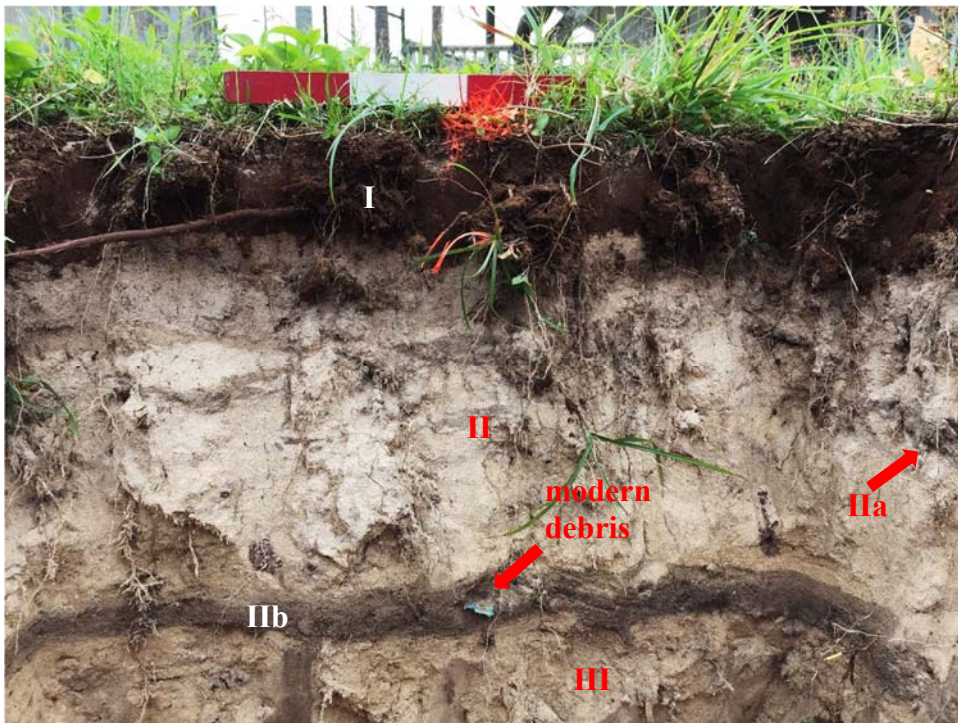


Figure 19. TR 2 photo, south end, facing south.



Figure 20. TR 2 photo, central portion of the trench, facing east. Note the sparsely scattered charcoal in this part of Layer IIb.

Table 3. Collected Material

Bag	Provenience	Item	Weight (g)	Description	Possible Age
1	TR 2 backdirt	Glass	12.8	Clear bottle fragment with patina; "17" and Owen's Illinois symbol embossed on base.	Modern
1	TR 2 backdirt	Glass	0.7	Tiny fragment of same bottle listed above.	Modern
1	TR 2 backdirt	Ceramic	53.6	Plain white ceramic fragment; possibly part of a plate.	Modern
2	TR 2 30 cmbs	Charcoal	0.3	Unidentified, scattered charcoal.	Modern
3	TR 2 0-40 cmbs	Glass	6.3	Clear glass fragment.	Modern
3	TR 2 0-40 cmbs	Glass	1.2	Aqua glass fragment with patina.	Modern
3	TR 2 0-40 cmbs	Metal	1.3	Rusty metal fragment.	Modern
3	TR 2 0-40 cmbs	Metal	1.2	Rusty bottle cap remnant.	Modern
3	TR 2 0-40 cmbs	Plastic and Metal	7.8	Plastic and metal fragment, unidentified.	Modern



Figure 21. Items from Bag 1. Left to right: glass, glass, ceramic.



Figure 22. Items from Bag 3. Left to right: glass, glass, unidentified metal, metal bottle cap, unidentified plastic/metal item.

SUMMARY AND RECOMMENDATIONS

An archaeological inventory survey was conducted for TMK: (1) 5-6-001:028 (por.) in Mālaekahana Ahupua‘a, Ko‘olaupia District, on the Island of O‘ahu. A new septic system is proposed for the project area, which consists of three discontinuous zones totaling .066 ha (.163 ac.). Due to negative findings, the survey results are presented as an archaeological assessment per HAR §13–284.

The archaeological work included a pedestrian survey that covered 100% of the project area, as well as test excavations consisting of two trenches. No surface archaeological remains were found during the pedestrian survey. The entire project area has been landscaped with grass. Likewise, subsurface testing did not yield any evidence of subsurface archaeological material or deposits. The only findings were a few glass, metal, and plastic items, as well as charcoal fragments, all of which are likely modern. Stratigraphy consisted of a thin fill layer at the surface with marine sand below. Two modern A horizons were observed within TR 2, from which the collected materials originated. The research questions developed at the onset of the project were all answered negatively, as no traditional or historic surface or subsurface archaeological remains were found.

In sum, an archaeological inventory survey was conducted on TMK: (1) 5-6-001:028 (por.) in Mālaekahana, and no archaeological remains were found. Improvements to the project area will have no effect on historic properties because no historic properties occur there. Nevertheless, archaeological monitoring is recommended because of the possibility of encountering human burials, as has been the case elsewhere in the ahupua‘a, particularly at nearby Mālaekahana State Recreation Area. It is possible that human remains may be discovered during construction activities, even though no such evidence was found during the survey. Should human burial remains be discovered during construction activities, work in the vicinity of the remains should cease and the SHPD should be contacted. The landowner and SHPD also concur that an AIS will be conducted prior to any future proposed project involving ground disturbance within the parcel.

GLOSSARY

ahupua‘a	Traditional Hawaiian land division usually extending from the uplands to the sea.
ali‘i	Chief, chiefess, monarch.
boulder	Rock 60 cm and greater.
cobble	Rock fragment ranging from 7 cm to less than 25 cm.
enenuē	Var. of nenuē, the chub, rudder, or pilot fish (<i>Kyphosus bigibbus</i> , <i>K. vaigiensis</i>).
gravel	Rock fragment less than 7 cm.
kahuna	An expert in any profession, often referring to a priest, sorcerer, or magician.
kala	The surgeonfish or unicorn fish, <i>Teuthidae</i> .
kapa	Tapa cloth.
ko‘a	Fishing shrine.
konohiki	The overseer of an ahupua‘a ranked below a chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.
kuleana	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
limu	Refers to all sea plants, such as algae and edible seaweed.
lo‘i, lo‘i kalo	An irrigated terrace or set of terraces for the cultivation of taro.
Māhele	The 1848 division of land.
mai‘a	The banana, or <i>Musa sp.</i> , whose fruit was eaten and leaves used traditionally as a wrapping for cooking food in earth ovens.
mānienie	<i>Cynodon dactylon</i> , or Bermuda grass, often used in lawns.
mauka	Inland, upland, toward the mountain.
mō‘ī	King.
moi	The threadfish <i>Polydactylus sexfilis</i> , a highly prized food item.
mo‘o	Lizard, dragon, water spirit.
mo‘olelo	A story, myth, history, tradition, legend, or record.
stone	Rock fragment ranging from 25 cm to less than 60 cm.
‘uala	The sweet potato, or <i>Ipomoea batatas</i> , a Polynesian introduction.
wauke	The paper mulberry, or <i>Broussonetia papyrifera</i> , which was made into tapa cloth in traditional Hawai‘i.

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