2. CULTURE-HISTORICAL CONTEXT AND AHUPUA'A SETTLEMENT PATTERNS

In an effort to provide a comprehensive and holistic understanding of the current project area, archival and historical data relevant to Kawailoa **Ahupua'a** along with the general settlement patterns for the Waialua District are presented.

CULTURE-HISTORICAL CONTEXT

The project area is located in the ***ahupua'a*** of Kawailoa, which has been translated by Pukui et al. (1974:98) as "the long water." Kawailoa is one of several ***ahupua'a*** that together form the ***moku*** (district) of Waialua (Figure 16), whose literal translation means "two waters" (J. Clark 2002:373). It has been reported that the name Waialua "…refers to the confluence of two (*a lua*) streams (*wai*) to form the Waialua River" (Handy, et al. 1991:466). However, with respect to the naming of Waialua, Thrum (1901:8) reported the following:

> Waialua district, Oahu, is said by natives to take its name from a loi (taro patch) situate near the former Halstead residence, and not from its twin streams as is generally supposed; the natural definition of the name being two waters. It was an ancient saying of the people that if one visited and traveled through the district and did not see this identical loi he had not seen Waialua.

In S. K. Kuhano's 1873 report on the ancient land divisions of O'ahu, he explained that the ***moku*** of Waialua was traditionally comprised of fourteen ***ahupua'a***: **Ka'ena, Keālia, Kawaihāpai, 'Auku'u, Kikahi, Mokulē'ia 1, Mokulē'ia 2, Kamananui, Pa'ala'a, Kawailoa, Lauhulu, Kukuiloloa, Punanue, and Kāpaeloa (c.f. Kame'eleihiwa 1992a)**. Research revealed that the current project area extends across the traditional land divisions of Kukuiloloa and Punanue, **which were two of four land division that were subsumed into Kawailoa Ahupua'a at the time of the 1848 *Māhele 'Āina***. While this report will refer to the single post-***Māhele*** **Kawailoa Ahupua'a, information specific to Kukuilolo**a and Punanue, although limited, are also **included.**

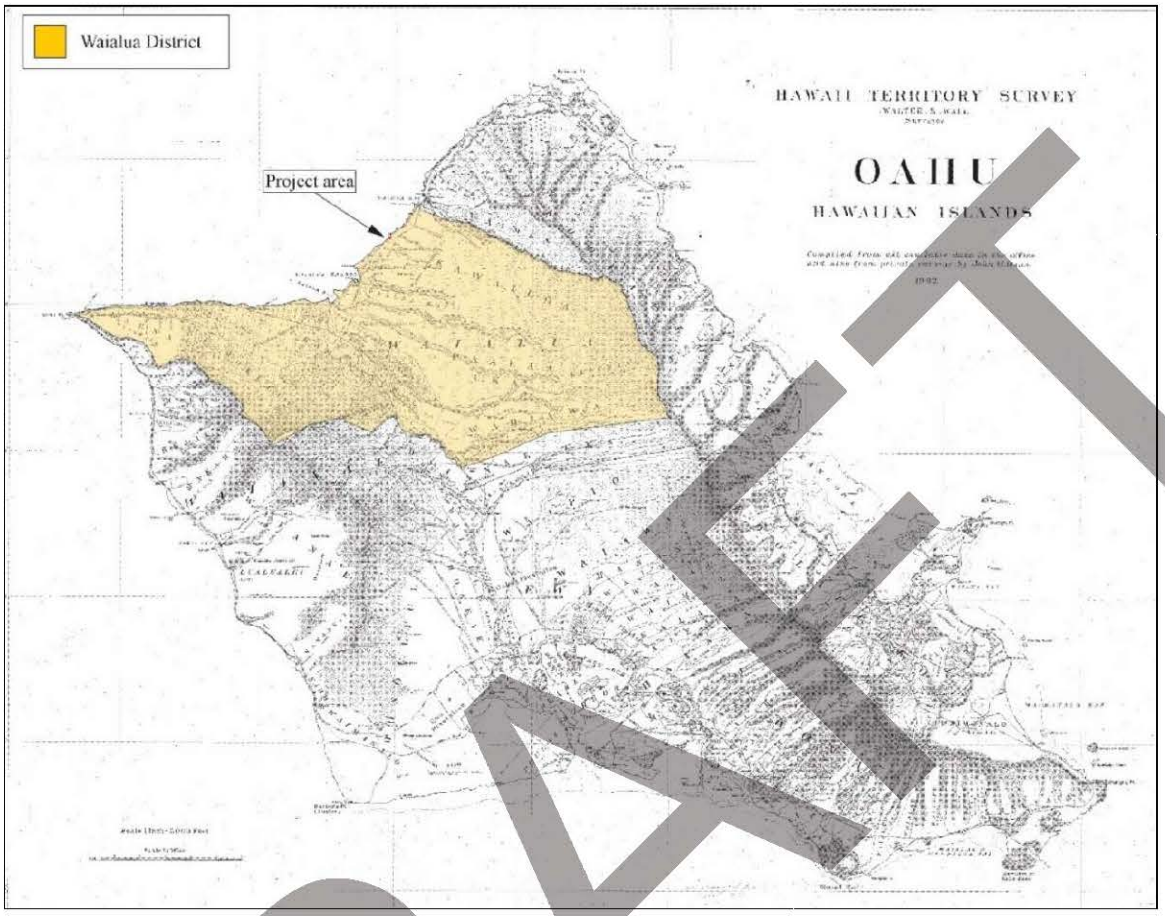

Figure 16. **Hawai'i Registered Map No. 2374 by J. M. Donn from 1902 showing the project area (shaded red) within the Kawailoa Ahupua'a, Waialua District.**

Kawailoa, with its expansive well-watered landscape including the Anahulu River Valley (Figure 17), is considered one of the ecological centers for Waialua during both Precontact and Historic times. In describing the general characteristics of Waialua as it appeared during their study conducted in the 1930s, Handy et al. in their book ***Native Planters in Old Hawai'i*** provided the following description:

> Waialua, on its seaward slopes, was as generously endowed with water as any area on Oahu. Much of the gently sloping and level land now covered by sugar cane, the sugar mill, and the town was formerly covered with wet-taro terraces. And beyond these was a great spread of *kula* land with red soil (where sugar cane now flourishes) which was ideal terrain for sweet-potato planting. The **Wai'anae range gave this area rich hinterland. Waialua had a fine bay with a broad beach, and there** were several fishponds which are described below. Altogether this was the most bounteously endowed area on the sunset coast. (Handy, et al. 1991:465-466)

As indicated by the subject ***ahupua'a*** and ***moku*** names, *wai* (freshwater) was and continues to be a culturally important natural resource. Valued for its life-giving properties, *wai* permeated all aspects of traditional life. The word *wai* is found in several other words associated with water such as ***kahawai*** (river, stream, creek), ***punawai*** (spring), *'auwai* (irrigation ditch), ***lokowai*** (freshwater pond, lake). The term *waiwai* (lit. water-water) is used to express the idea of prosperity and wealth of an individual or a place and refers to the abundance and access to fresh water (Handy, et al. 1991). The term ***kānāwai*** (law, rule, ordinance, to learn from experience) is also associated with water. The concept of ***kānāwai*** is said to originate from the customary practice of sharing water between neighbors especially for irrigated fields. Given that traditional irrigated fields were built along the water system, it was a customary practice for Hawaiian farmers to take only what water they needed, and to ensure those located below them had access to an ample and clean supply of water (Handy, et al. 1991). *Wai* was not just revered for its physical and life-sustaining properties but also for its spiritual importance.

Figure 17. Anahulu River located to the west of the current project area (Hawai'i State Archives, PP-41-09-008).

Wai is considered a ***kinolau*** (physical manifestation) of the *akua* (deity) Kāne, who along with his companion Kanaloa (whose dominion was over the ocean), came to Hawai'i from Kahiki (the ancestral homeland of the Hawaiian gods and people). Legend has it that Kāne and Kanaloa both enjoyed consuming *'awa*, a drink prepared by mixing the root of the *'awa* plant with fresh water. In their travels, they stopped at various places around the Hawaiian Islands and opened new freshwater springs from which they prepared their favorite drink (Handy, et al. 1991). The ***'ōlelo no'eau*** (Hawaiian proverb) "***He huewai ola ke kanaka na Kāne***" literally translates as "[m]an is Kāne's living water gourd," and emphasizes the relationship that Hawaiians have to freshwater, and thereby to the deity Kāne (Pukui 1983:68). Handy et al. elaborated on the spiritual relationship that Native Hawaiians have to water:

> Fresh water as a life-giver was not to the Hawaiians merely a physical element; it had a spiritual connotation. In prayers of thanks and invocations used in offering fruits of the land, and in prayers chanted when planting, and in prayers for rain, the "Water of Life of Kane" is referred to over and over again. Kane—the word means "male" and "husband"—was the embodiment of male procreative energy in fresh water, flowing on or under the earth in springs, in streams and rivers, and falling as rain (and also as sunshine), which gives life to plants. (Handy, et al. 1991:64)

Wai was also valued for its purifying properties. The continuous *mauka* to *makai* flow of *wai* provided fresh drinking water, supplied water to irrigated fields, and fishponds, recharged groundwater supplies and sustained productive estuaries and fisheries by transporting nutrients from the uplands to the sea (Sproat 2009). Because a flowing river was considered a vital artery for both the land and man, great care was paid to maintaining clean rivers. To that end, domestic duties involving the use of water were dispersed along the length of the river. For instance, "there was a place for bathing (*'au'au*) low down in the stream; a place up farther along the stream for washing utensils or soaking calabashes; still farther up were dams for *'auwai*; and above the dams was the place where drinking water was taken" (Handy, et al. 1991:61). Because of the high degree of dependency on *wai* to furnish and satisfy life's needs, *wai* was a public trust resource that was considered inalienable.

Freshwater captured by the Ko'olau Mountain on the east and the Wai'anae Mountains on the west provided an abundance of freshwater that helped to shape the physical landscape, settlement, and cultural traditions of Waialua and Kawailoa.

Settlement Patterns and Cultural Traditions of Kawailoa Ahupua'a and the Waialua District

During the Precontact and early Historic periods, densely populated areas of Waialua were centered along the floodplains near Kaiaka and Waialua bays, located to the southwest of the current study area in eastern Mokulē'ia, Kamananui, Pa'ala'a, and western Kawailoa Ahupua'a. Based on descriptions given by Handy et al. (1991:464), the lands lying westward from Waimea to western Kawailoa were considered a "…long, rather barren strip of coastal

land…" and that the areas beyond this were "rich in agricultural potential…" In the second volume of Anahulu titled ***The Archaeology of History***, Kirch (1992) reconstructed the settlement patterns of late Precontact coastal Waialua **based on Thrum and McAllister's descriptions of former archaeological sites, which he depicted on a map that has** been reproduced here (Figure 18). According to Sahlins (1992:20), "Kamananui was the ritual and political center of Waialua" until the late 1820s, when "the political center shifted to the Anahulu Valley." Kirch (1992) originally suggested **that Anahulu became more intensively used and modified after Kamehameha I occupied O'ahu in 1804.** However in more recent reevaluations of dates from sites in Anahulu Valley, Dega and Kirch (2002), proposed that during the late A.D. 1700s, the upper portions of Anahulu Valley were abandoned and the middle and lower portions of the valley were the loci of agricultural and residential activity.

Prior to that, it appears that the settlement of *mauka* lands in Kawailoa (Kawailoa-uka) did not begin until the 14th century and remained rather limited until the late 16th century (Kirch 1992). The fertile and well-watered lands of Kamananui, Pa'ala'a, and western Kawailoa comprised the agricultural and aquacultural center of Waialua District, which has been described by (Sahlins 1992:20):

> Geographically this heartland of Waialua consisted of the area around the neighboring bays—they are about a mile apart—of Kaiaka and Waialua. Into these bays, from their origins in narrow gorges deep in the mountains flowed four major streams. Dense settlements of people and large complexes of irrigated taro fields were situated on the floodplains of these streams. At Kamananui, the lowland fields were watered by means of a ditch some two miles long, the longest such waterway on O'ahu (McAllister 1933:133; Handy and Handy 1972:466). Irrigation on a smaller scale extended for a considerable distance up the river valleys, while rainfall agriculture was practiced on the adjoining slopes, upland plains (*kula*), and forest clearings in the higher gulches. Around Waialua Bay were two large and famous brackish water fish ponds 'Uko'a and Lokoea. Fish were also raised in the many smaller ponds of the same area as well as in taro pondfields (***lo'i***). Given such intensive production, the core region must have supported the substantial majority of the Waialua population, which was probably on the order of 6,000 to 8,000 people just before the coming of the Haole.

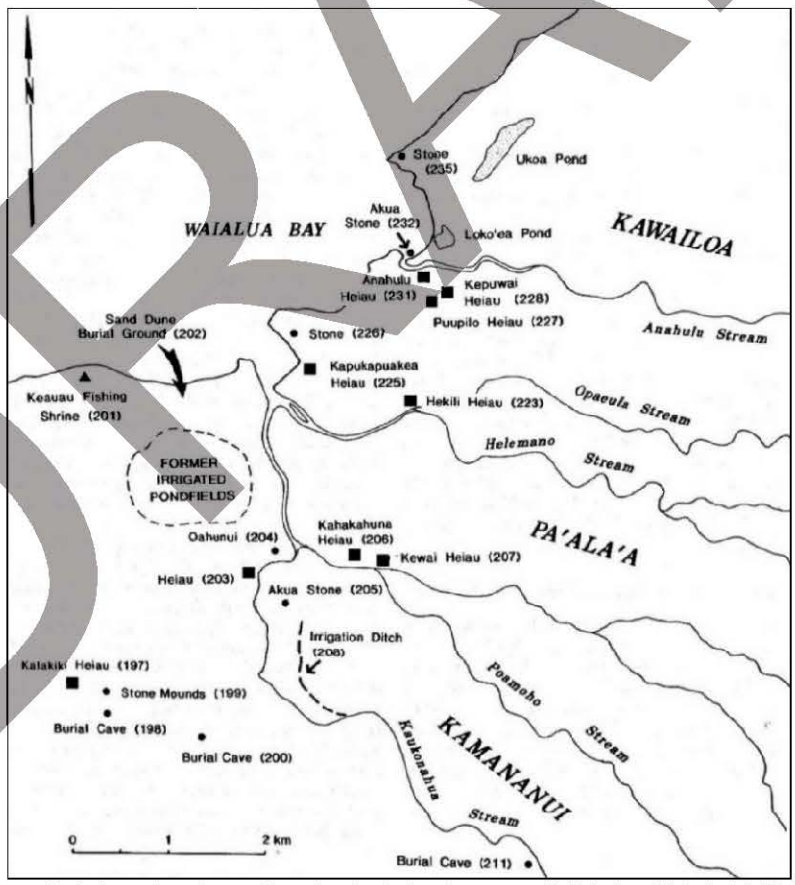

Figure18. Map of major archaeological sites in coastal Waialua (Kirch 1992:18).

As evidenced by the following description from the 1930s given by Handy et al., Waialua was famed for its fishponds and extensive irrigated taro fields such as Lokoea and 'Ukoa (Figure 19):

> Two large fishponds were among Waialua's greatest assets. Ukoa was a long, narrow fresh-water pond about a mile in length. Laniwai (Sky-water) was its ***mo'o*** guardian. With her lived her brother, Puhi-'ula (Red-eel). The pond was said to be connected with the ocean by a tunnel, through which the ***mo'o*** would go to the bathe in the sea (McAllister, 1933, p. 142). Another pond named Lokoea is mentioned elsewhere. (***Ku'oko'a***, November 5, 1864) but this is not described
>
> McAllister (1933, p. 133) also reports on Luakini fishpond, "once located on the summit of Mount Ka'ala." a fresh-water pond which was stocked with various shore or grazing fish, "***hinalea, wuwoa***, a kind of mullet and others," according to the native tradition. Kamaoha was the name of the ***mo'o*** goddess who dwelt in this pond. When McAllister visited the site, there was only a swamp.
>
> The longest irrigation ditch on Oahu was at Waialua. It was about two miles long. "Along part of its course the ditch [water] flowed along the side of a hill about 50 feet high…the old ditch was made by piling stones on the lower side, with a rubblle fill" (McAllister, 1933, p. 133). This ditch was rebuilt by Waialua Sugar Plantation and used for many years. The old ditch evidently irrigated taro ***lo'i*** in the area where the plantation mill stands. (Handy, et al. 1991:466)

In ***Fragments of Hawaiian History,*** Historian John Papa 'Ī'ī (1800-1870) recounts details of the extensive trail networks throughout O'ahu as he had experienced them in the early 19th century. 'Ī'ī mentions Kawailoa and the broader district of Waialua in his discussion of trails that connected the coastline with locales in the central plains of O'ahu. Over time, many of the trails became roadways including Kamehameha Highway which comprises much of the current project area (Figure 20).

> When travelers arrived in Kaena in the morning, they escaped the heat, for they were cooled by the Moae breeze. They rested at Waiakaaiea until afternoon, then continued traveling along the level places of Kawaihapai and Mokuleia, thence across the mouth of the Kaiaka River and over the sand to the plains of Paalaa and Kawailoa to Kamani, a village with a pond, the boundary walls of which separated it from the Anahulu River.
>
> On the opposite bank lies Maeaea, a sandy beach with a canoe landing and a good harbor for ships. A village stood at Leepoko Point, and nearby were the ponds of Ukoa and Lokoea, with many homes about them. Between the sandy stretch of Maeaea and the houses at Ukoa, on the seaward side, was the trail from Kamani to the place in front of the sluice gate of Lokoea, and on to Koolauloa.
>
> From the stream of Anahulu and from Kamani, above the houses and taro patches, a trail stretched along in front of Kuokoa's house lot and the church. This trail went on to meet the creeks of Opaeula and Halemano, the sources of the stream of Paalaa, on down to the stream of Poo a Moho, and on to the junction where the Mokuleia trail branched off to Kamananui and Keawawahie, to Kukaniloko, the birthplace of chiefs. (Ii 1993:98)

Figure 19. **'Uko'a** Pond located southwest of the current project area.

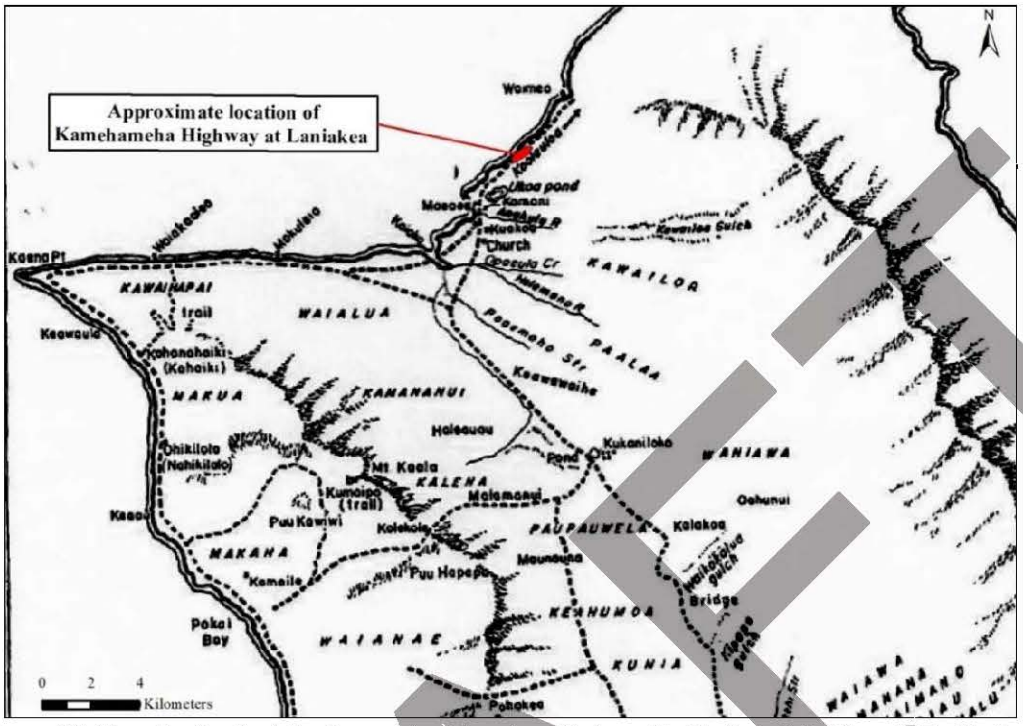

Figure 20. **Drawing by Paul Rockwood based on knowledge of trails from John Papa 'Ī'ī with the** approximate location of the project area, which is parallel to a trail.

Select Mo'olelo for Kawailoa **Ahupua'a and the Greater** Waialua District

Prior to the arrival of missionaries in 1820, traditional ***mo'olelo*** (stories, tales, and myths), ***ka'ao*** (fanciful tales), ***'ōlelo no'eau*** (proverbs and sayings), ***oli*** (chants), *mele* (songs) were passed down orally from one generation to the next. Imbued in these traditional accounts are important cultural information that shed light on important places, people, resources, and historical events. Legendary sources indicate that Kawailoa and Waialua were, among other things, renowned for an abundance of freshwater and ocean resources; a desirable location for ***ali'i***; and an important religious and political center. Also, many legends associated with this area feature humans, goddesses, and demi-gods interacting with ***mo'o*** (water spirit), including the famed Laniwahine.

Laniwahine, Kia'i of 'Ukoa

'Ukoa is one of two fishponds located in Kawailoa Ahupua'a and the ***hale hālau*** (longhouse) where the *kia'i* (guard, caretaker), Laniwahine, a ***mo'o*** and ***kama'āina*** (native-born) resided (Kamakau 1976). McAllister (1933:142) adds **that Laniwahine's brother, Puhi'ula, also resides at the pond. A tunnel that connected 'Ukoa to the ocean was utilized** by Laniwahine when she yearned to bathe in the ocean. The pond itself was said to be "strange" and full of "extraordinary fishes":

> A fish might be a *kumu* fish on one side and an *'anae* mullet, on the other; or one side might be a ***weke pueo***, and the other an *'anae*; or a fish might be silver white like a white cock and when scaled the flesh might be striped and variegated inside. (Kamakau 1976:84)

It was understood that all these fish were Laniwahine's descendants and to eat a strange fish was not ***pono*** (right, just). Most of the time the *'anae* (mullet; ***Mugil cephalus***) of 'Ukoa were fatty, but other times they were on the leaner side or did not come to the pond. The customary practice to ***ho'omana'o*** (commemorate) the *kia'i* of these ponds was to leave an offering nearby in hopes for the exchange of an abundance of fish, be healthy, thwart off illness, and preserve the welfare of friends and family (Kamakau 1976). A stone near the pond was where offerings to Laniwahine were made but according to McAllister (1933) the stone was later removed.

He Mo'olelo Ka'ao Hawai'i no Lauka'ie'ie

Hawaiian historian, Moses Manu, published an ongoing column in the Hawaiian language newspaper ***Ka Leo O Ka Lāhui*** about the legendary account titled ***He Mo'olelo Ka'ao Hawai'i no Lauka'ie'ie***. **The story begins in Waipi'o on Hawai'i Island with the mysterious birth of Lauka'ie'ie who was taken with the permission of her parents and raised by the mountain goddess Hinaulu'ōhi'a. Lauka'ie'ie's parents had another child, this time a boy**, who they named **Makanike'oe, and the brother and sister were raised separately** with no knowledge of each other. As the brother and sister matured, it was decided by their guardians that they would make suitable mates for each other, however, **Lauka'ie'ie had set her eyes on another individual. A portion of the story published in the** January 17, 1894 edition **describes the travels of Makanike'oe through Waialua arriving from the north.**

Upon departing the Ko'olauloa District and entering the Waialua District from the north, Makanike'oe and a companion stopped at the sands of Waimea to observe the imposing beauty of the land. As he reached Pupukea he **came upon the guardian of the roadway, Keahuohapuu, who kept watch over the Ko'olauloa and Waialua boundary. The guardian paid little heed to Makanike'oe and he continued onward. Without delay**, he quickly arrived at Kahokuwelowelo at Punanue and walked the plains of Lauhulu, where a multitude of people could be seen shouting **as they watched Maeaea, the famed girl who rides the waves of Pua'ena.**

As he watched Maeaea effortlessly riding the waves **of Pua'ena, he heard the inviting calls of Laniwahine, who sat wading in her large pond of 'Uko'a. Cautious of not heeding the temping calls of Laniwahine, Makanike'oe hurried past and made his way towards Mokulē'ia and Kawaihapai.** (M. Manu 1894)

Kalamainu'u, Mo'o 'Aumakua of Waialua

Kalamainu'u, a ***mo'o 'aumakua*** **(water spirit ancestor), resided at Makaleha, Mokulē**'ia in Waialua on O'ahu (Kamakau 1976:80). To the west of Makaleha is a ravine called Waile'a where Kalamainu'u lived with her tongue stretched to the back of the cave. Her tongue also served as a surfboard for Puna'aikoa'e, her lover, with whom she spent every night and day. Puna'aikoa'e did not know that his lover was a ***mo'o*** and after a few months, he grew pale and frail. One day he was able to hike to the ridge and saw the surf break at Pua'ena, Waialua. He longed to surf and Kalamainu'u allowed him but warned not to talk to anyone on his way to the beach even if they called him by name. **Puna'aikoa'e made his way towards the beach passing Pu'e'a, Hinale's *heiau***, Makapu'uhale, and Kanoa where two men—Hinale and 'Akilolo—were cultivating their crops. The pair called out to Puna'aikoa'e but he ignored them as he was instructed **by Kalamainu'u. After several failed attempts of getting Puna'aikoa'e's attention, the two men ran** towards the beach and said:

> "We speak to you of life; if you refuse to listen you will die."
>
> Puna'aikoa'e turned and looked at them and said, "My wife laid down her decree saying that I must speak to no one; but perhaps she does not know that I am talking to you two."
>
> The men said, "Your wife is an *akua*; we cannot hide our talking together. She is Kalamainu'u, a ***mo'o*** **of 'forty thousand' (*kini*) *mo'o***, a ***mo'o*** **of 'four hundred thousand' (*lehu*) *mo'o***. Those are bodies of your wife. Because we pity you, we are telling you this. The surfboard you are carrying is **your wife's tongue.**" (1976:80)

Puna'aikoa'e asked for advice on how to be saved and the two suggested he escape to Hawai'i Island, bathe in freshwater and then see his wife, Kalamainu'u. However, on his return to their cave, he encountered the ***mo'o*** body of Kalamainu'u. They had warned him, "When she shows you her akua forms, be courageous or you will die. Instead, she will come to kill the two of us" (1976:80). Puna'aikoa'e was filled with terror but withstood it courageously. Kalamainu'u traveled *makai* to Hinale and 'Akilolo and chased them until they disappeared into the ocean floor. Tired from chasing the pair of men, two of her companions—Kuao and Ahilea—asked how they could be of assistance to Kalamainu'u. She explained the story from beginning to end about Hinale and 'Akilolo. Kuao and Ahilea offered Kalamainu'u the following advice in detail:

> They were certainly in the wrong; they were supposed to be good brothers. You should kill them. They like ***'ohiki*** crabs of this beach, to eat with the sweet potatoes which they cultivate in Kanoa, Keone'ae, and the uplands of Makaleha, but they are unskilled in torch fishing. You can cause their deaths through the their fondness of ***'ohiki***. Go gather some *'inalua* vines, observing a kapu, and on your return weave them into a trap. Begin at the entrance and when the part that goes in [the funnel] is finished, then bend [the warps] back to form the container. Spread apart (***pu'umana a'e***) the *'inalua kukula* [the warps], and bend them to shape the round part of the basket. When you see that the container has filled out and is big enough, then decrease its size by pushing together (***hu'e***) the

> *'inalua kukula* until the ***hina'i*** is completed. When the weaving of the ***hina'i*** is completed, the kapu will be over. Then go and dig ***'ohiki*** crabs, take the ***hina'i*** into the sea, put in a crevice so that the sea runs in and out. The name of such **a 'good place' is au [haunt]. Remove pebbles until the *hina'i*** is properly balanced. Then go to a coral head, chew the ***'ohiki***, dive into the sea and place them in the ***hina'i*** and then go off to some distance. After a while dive again—Hinale and 'Akilolo will have come to eat their favorite food and you will find your enemies there in the ***hina'i***. (1976:82)

Kalamainu'u heeded their advice and followed their instructions. She killed Hinale and 'Akilolo tearing them into pieces, which became the ***hīnālea*** (wrasse; ***Labridae***) fish. Kamakau adds that those who wove ***hina'i hīnā****lea* (specially made baskets for wrasses) observed these ***kapu*** and ***hīnālea*** were plentiful. It is also said that because there was so much ***hīnālea*** caught by setting traps, the waters from Kumalaekawa to Ka'ena had a distinct stench that emitted when they were dried. Kalamainu'u became an *'aumakua* for trap fishing (Kamakau 1976:82).

*Ka-**lo**-aikanaka*

Ka-lo-aikanaka or Lo, the man-eater, was the chief of a band of non-native cannibals **that were banished to the foothills** of Waimea Ahupua'a on Kaua'i (Beckwith 1970). Ka-lo-**aikanaka's daughter was beautiful and eventually married a** Kaua'i chief but was later sentenced to death for breaking a ***kapu***. The band of cannibals retaliated by feasting on flesh and were ordered to leave the island. Ka-lo-ainakanaka and his men first landed in the ***ahupua'a*** of Kawailoa before moving *mauka* towards the mountain of H**ā'**upu (Beckwith 1970). Ka-lo-**aikanaka's servant, Kaanokaewa, built his** home across the pass at a place known as Kanewai, and began to harm travelers by pushing them over the cliff. **Kaanokaewa's wife, Kahoelehua sees that her brother**s are being pushed over and sacrificed to satisfy Ka-lo-**aikanaka's insatiable appetite for human flesh. Her youngest brother, Napopo, escaped to Kaua'i where he learned the** art of *lua* (hand-to-**hand fighting). Upon Napopo's return to O'ahu, he fought with K**aanokaewa where both fell off the cliff and died. Ka-lo-aikanaka is obliged to sail with his band of followers to another land (**Beck**with 1970).

Keaomelemele

The legendary account of Keaomelemele first appeared in ***Ka Nūpepa Kū'oko'a*** and was printed from 1861 to 1927 (Moses Manu 2002). The story of Keaomelemele was printed in a serial column beginning in September 1884 and ended in June 1885, appearing every week in approximately thirty-one ***helu*** (sections). The ***mo'olelo*** introduces Mooinanea, a supernatural ***mo'o*****, as well as male deities Kū and Olopana and female deities Hiilei and Hinawelelani** (Moses Manu 2002). The males and females were separated at birth to preserve their *mana* and at a later time, **Mooinanea decided to introduce the children to each other one by one. First, Kū and Hinawelelani met and** immediately they fell in love. The pair eventually had five children together—Kanaiakeakua (m), Paliuli (f), Keaomelemele (f), Kaumailiula (**m**), and Kaulanaikapokii (f). The **beginning** of the ***mo'olelo*** centers around Nu'uanu, O'ahu, and the upper reaches of the valley. However, there is also a great deal of traveling done by all parties throughout the ***pae 'āina*** (archipelago) and a portion of their journey takes them through the current project area vicinity including the land**s of Pua'ena and Lauhulu. The following passage describes Mooinanea traveling with her family to Kawailoa Ahupua'a** to find a *kia'i* to guard her lands:

> The great lizard made her decision and chose Wewehilani to guard the three lands. He was a lizard who was related to her and to him she gave everything including the authority. Mooinanea stood up and came after giving her last orders, "I am going because of the request of my lordly brothers, therefore, take care of the sacred borders of the Pillars of Kahiki." She left after she had finished speaking. It was said in this legend that before she left, she covered the islands with rain clouds and great darkness and they were invisible all night long. She arrived first at Puaena in Waialua. There she arranged her great company of lizards. The plain of Lauhulu in Waialua was covered with them. This was the first time that the supernatural lizards arrived on these islands. It was through the will of Mooinanea. This is how we know of the number of lizards, she set them two by two in the procession. When the first of the lizards reached the incline of Kapukaki (Red Hill). The last ones were still in Lauhulu and between the two places, from Waialua to Ewa, the places were covered with lizards. (Moses Manu 2002:157)

Pua'ena

Pua'ena Point is located southwest of the study area *makai* of 'Ukoa fishpond (Figure 21**). Pua'ena Point was the** resting place for beloved O'ahu chief, Elani (Sterling and Summers 1978). He was placed on a ledge of rocks at the point where his body decomposed. His resting place became known as Kahakakau Kanaka or "the ledge where the man was placed" (Alameida 1994:28). The smell of his decomposing body wafted towards Hale'iwa and this area

became known as Māeaea or stench. On the other side of the point, the area became known as Kupava. The term Kupava is closely related to the word ***kūpaoa*** or "overwhelming smell" (Alameida 1994; Sterling and Summers 1978).

Figure 21. **Pua'ena Point (right) and project area located just beyond the edge of photo** (UHM SOEST 2005).

The many ***'ōlelo no'eau*** (Hawaiian proverbs) and *mele* (songs) confirm a direct relationship which existed between the landscape of Kawailoa and the greater Waialua. For example, the saying, "***Ka 'ehu kai o Pua'ena***" or "the sea sprays of Pua'ena" describes the misty appearance of the area **from** the surf, which was a known ancient surfing area (Fornander 1918-1919:616; Pukui 1983:140; Pukui, et al. 1974:190). The following *mele*, ***Koni Au I Ka Wai*, written by King David Kalākaua describes the desire to visit the Kawailoa shoreline and** to feel the sea spray of Pua'ena, but is also a play on words or ***kaona*** (nuanced meaning) to the act of lovemaking **(Kalākaua 1916)**.

Koni au, koni au i ka wai,	I throb, I throb for liquid
Koni au i ka wai hu'ihu'i	I throb for cool liquid
I ka wai ali'i, 'o ke kini lā	Royal liquid, gin
'Olu ai ka nohona o ka la'i	To make life cool and peaceful
Ho'ohihi kahi mana'o	In me springs a desire
I ka 'ehu kai o Pua'ena	For the sea spray of Pua'ena
Kai hāwanawana i ka la'i lā	The whispering waters and peace
I ka la'i wale a'o Waialua	Of the shores of Waialua
Alia 'oe e ka 'ehu kai	Wait, o sea spray
E lelehune nei i ke one	Misting on the sands
One hanau o ke kupuna la	The birthsands of ancestors
Pu'ili lau li'i o ka uka	Small-leafed bamboo of the uplands
'Akahi ho'i au la 'ike	Finally I have known
I na la'i 'elua	Two-fold peace
'Elua maua i ka la'i la	We two in peace
Kapipi i ka pali	Liquid spattering on the cliff **(Kalākaua 1916)**.

'Ōlelo No'eau of Kawailoa and Waialua

The oral tradition of Hawai'i is perhaps best preserved in *'ōlelo no'eau*, which has been passed down throughout the generations. The following ***'ōlelo no'eau*** **speak of Kawailoa Ahupua'a and the greater Waialua. The following**

proverbs illustrate the character of Kawailoa and Waialua in great detail and appear below as they were interpreted and published in ***'Ōlelo No'eau, Hawaiian Proverbs & Poetical Sayings*** by Mary Kawena Pukui (1983).

> ***I Waialua ka po'ina a ke kai, o ka leo ka 'Ewa e ho'olono nei.***
>
> The dashing of the waves is at Waialua but the sound is being heard at 'Ewa.
>
> Sounds of fighting in one locality are quickly heard in another. (Pukui 1983:137).
>
> ***Like no Ka'ena me Waialua.***
>
> **Ka'ena and Waialua are one.**
>
> **Ka'ena Point is in Waialua. Similar to the saying,** "Six of one and half a dozen of the other." (ibid:215).
>
> ***Pupuhi ka i'a o Uko'a.***
>
> **The fish of Uko'a is gone.**
>
> **Uko'a is a famous pond in Waialua, O'ahu. Said of one who takes flight or of something quickly** and secretly taken. (ibid:301).
>
> ***Waialua, 'āina ku pālua i ka la'i.***
>
> Waialua, land that stands doubly becalmed.
>
> **Said in admiration for Waialua, O'ahu, where the weather was usually pleasant and the life of the** people tranquil. (ibid.:318).

Chiefly Rule in Waialua

According to Hawaiian historian Samuel Kamakau, Waialua is known as the birthplace of the first Hawaiian chief: "Kapawa was the first chief to be set up as a ruling chief. This was at Waialua, Oahu, and from then on, the group of Hawaiian Islands became established as chief-ruled kingdoms" (1964:3). Kamakau (1991) further states that Kapawa **was born at Kūkaniloko, the sacred birthplace built by his parents Nanakāoko (m) and Kahihiokalani (f) both of whom were descendants of the famed 'Ulu line of chiefs.** Fornander (1969) goes on to say that the distinction and privileges conferred upon the *ali'i* **born at Kūkaniloko were so sought after that despite the decayed state of the sacred site in the** late 18th-**century, Kamehameha I had wanted Liholiho to be born there; however, Keō**puolani was unable to travel **there for their son's birth due to illness.**

In addition to Kūkaniloko being noted as the birthplace of Kapawa, Kamakau (1991:39), also describes it as the birthplace of many other distinguished ***ali'i* including Mā'ilikūkahi, Kalanimanuia [Kalaimanuia], and Kākuhihewa, all of whom are celebrated O'ahu chiefs and noted for their deeds and establishing traditions that ultimately shaped** different aspects of Precontact Hawaiian culture. In relating information about the life and accomplishments of **Mā'ilikūkahi, Kamakau (1991:53) explains that:**

> **Pua'a**-a-**Kahuoi was the father and Nononui the mother of Mā'ili-kūkahi. He was born at Kūkaniloko and was named the *ali'i kapu*** for the land because of his dedication by the chiefs and priest and people; he had been vowed as such before the gods and had been anointed by the ***kahuna***. **Chiefs born at Kūkaniloko were the** *akua* of the land and were ***ali'i kapu*** as well.

Kamakau (1991) goes on to add that that at about the age **of twenty, Mā'ilikūkahi was chosen as the *mō'ī ho'oponopono o ke aupuni*** (administrator of the government), and after a rebellion, he replaced the ***mō'ī ali'i*** (head chief) Haka, whose reign is characterized by his mistreatment of the chiefs and people. At the age of twenty-nine, **Mā'ilikūkahi became *mō'ī ali'i***, where he was taken to the ***heiau* of Kapukapuākea in Pa'ala'a**-kai in Waialua and consecrated and proclaimed as the ***ali'i o ka moku*** (chief of the island). Unlike other chiefs who took their kingdoms by **force, the ceremonies conducted at Kapukapuākea for Mā'ilikūkahi were reserved for the "chiefs of Pōkano"** or those chiefs who had maintained an absolutely pure royal bloodline since ancient times (Pukui in Kamakau 1991:54). **Mā'ilikūkahi then moved O'ahu's royal center from Waialua and 'Ewa to Waikīkī in Honolulu. Another important hallmark of Mā'ilikūkahi's reign was his formalization of the land division system on O'ahu**—a system that appears to have been later implemented on the other islands. Kamakau (1991:54-55) writes:

> **When the kingdom passed to Mā'ili-kūkahi, the land divisions were in a state of confusion; the *ahupua'a***, the ***kū*** [***'ili kūpono***], the ***'ili 'āina***, the ***mo'o 'āina***, the ***paukū 'āina***, and the ***kīhāpai*** were nor clearly defined. **Therefore Mā'ili-kūkahi ordered the chiefs, *ali'i***, the lesser chiefs, ***kaukau ali'i***, the warrior chiefs, ***pū'ali ali'i***, and the overseers, *luna* **to divide all of O'ahu into *moku*** and ***ahupua'a***, ***'ili kūpono***, ***'ili 'āina***, and ***mo'o 'āina***. There were six districts, ***moku***, and six district

> chiefs, ***ali'i nui 'ai moku***. Chiefs were assigned to the ***ahupua'a*** – if it was a large ***ahupua'a***, a high chief, an ***ali'i nui***, was assigned to it. Lesser chiefs, ***kaukau ali'i***, were placed over the ***kūpono*** lands, and warrior chiefs over ***'ili 'āina***. Lands were given to the ***maka'āinana*** all over O'ahu.

Once the land division system was ordered, Mā'ilikūkahi commanded that all classes of people cultivate the land with food and animals and that stealing would not be tolerated and punishable by death. He forbade theft, especially between the chiefs and ***maka'āinana*** lest they face death. He suspended the practice of human sacrifices at the ***heiau*** *luakini* and ordered that the eldest child of each family be cared for by him. Despite efforts from the Maui and Hawai'i Island chiefs to conquer O'ahu, Mā'ilikūkahi managed to eliminate his enemies and maintain peace over his kingdom. Because of his great concern for the prosperity of his kingdom, the people willingly obliged to Mā'ilikūkahi's commands, and he ruled peaceably and religiously. Kamakau (1991) stated that because of Mā'ilikūkahi's character as an ***ali'i*** the population of Waialua grew during his reign.

In addition to Mā'ilikūkahi, Kalanimanuia, the famous chiefess who "lived *mauka* of Wahiawā" was born at Kūkaniloko around A.D. 1100 (Kamakau 1991:57). Similar to the rule of Mā'ilikūkahi, Kalanimanuia's reign was peaceful, religious, and productive. She accordingly relieved the chiefs and ***maka'āinana*** of their taxes and engaged in no wars during her reign. Kalanimanuia commanded that the chiefs and men erect ***heiau*** and construct *mua* (men's houses) to pray to their gods and ordered the construction of the fishponds Pā'aiau, Opu, and Kapa'akea. Kalanimanuia was married to Lupe-kapu-ke-aho-makali'i (Lupe), who was in the royal court of Mā'ilikūkahi, and together they had four children. During the reign of his wife, Lupe promoted the occupations of longline fishing and farming. After ruling for nearly sixty-five years, shortly before her death, Kalanimanuia proclaimed her eldest son Kū-a-Manuia head of the kingdom, and to her daughter Kekela, she gave the lands of Waialua and Ko'olauloa. Unlike his benevolent parents, Kū-a-Manuia's manner of rule was harsh and he sought to take control over all of O'ahu, of which portions were ruled by his siblings. However, in his attempt to wage war on his younger brother Ka'ihikapu-a-Manuia, who held the allegiance of the ***maka'āinana*** and the other siblings, Kū-a-Manuia was killed. Ka'ihikapu-a-Manuia ruled peacefully over his kingdom and ordered the restoration of ***heiau*** that were destroyed during his elder brother's reign and made circuits around the island to initiate the new construction of ***heiau*** in honor of the deities, Lono, Kāne, and Kanaloa.

Ka'ihikapu-a-Manuia was married to Ka'ū-nui-a-Kānehoalani, who held the status as a "Kumuhonua, a ***wohi***, and a ***lō***" and to them was born Kākuhihewa (Kamakau 1991:61). In providing additional insight into the ***lō*** chiefs and their association to the uplands of Waialua, Kamakau Kamakau (1964:5) explains:

> The chiefs of Lihue, Wahiawa, and Halemano on O'ahu were called ***Lo*** chiefs, ***po'e Lō Ali'i*** ["people from whom to obtain a chief"], because they preserved their chiefly kapus. The man had kapus, and the women had kapus, and when they joined their kapus and children were born, the children preserved their kapus. They lived in the mountains (***i kuahiwi***); and if the kingdom was without a chief, there in the mountains could be found a high chief (***ali'i nui***) for the kingdom. Or if a chief was without a wife, there one could be found—one from chiefly ancestors. Kauakahi'ailani, Ma'ilikukahi, Kalona, Piliwale, Kukaniloko, Pa'akakanilea [Pa'akanilea], Ka'akauualani, Ka'au, Lale, Paoakalani, Pakapakakuaua, Nononui, Kokoloea, and a great many others were ***Lo*** chiefs.

After the death of Ka'ihikapu-a-Manuia, his son Kākuhihewa, inherited his kingdom as well as the status of ***ali'i kapu*** (Kamakau 1991). Born at Kūkaniloko, Kākuhihewa was ushered into his royal status following all the customs and ceremonies of the ***ali'i*** born at the sacred royal birth center. He was later taken to the 'Ewa District and raised by his ***kahu*** (attendant) in the lands of Wipi'o, Waiawa, and Mānana. Kamakau (1991:68) goes on to describe Kākuhihewa's love for his lands stating that:

> 'Ewa was a land much loved by Kākuhihewa. The warmth of Wai'anae and Wai'alua; the thickness of the ***poi*** of Wai'anae; the sweetness of the ***poi*** of Kamaile; the soft mullet of Lualualei; the two calm places of Wai'alua, 'Uko'a and Loko Ea, the centers of choice fish; the delicious ***poi*** of Ke-awāwa-ihe-all these were loved by the chief.

Kākuhihewa's reign mirrored those of his predecessors as he restored peace by populating the lands with loyal supporters who cultivated it to an extent previously unseen. Kamakau (1991:69) opines that during Kākuhihewa's reign, "O'ahu became known for its productiveness; its smell reached Kaua'i there was so much cultivation." Accordingly, Kamakau (1991:70) reports that O'ahu was so abundant that it attracted chiefs from Hawai'i Island and Maui which resulted in a mixing of the genealogies and was "one of the things that bound the chiefs together in ancient times." Skilled in the art of spear throwing, combat, and shooting rats with bows and arrows (***pana 'iole***), Kākuhihewa established Pāmoa, his massive royal center at 'Ālele, Kailua. Because of his great benevolence and many deeds,

O'ahu became known as "*ke one o Kākuhihewa*" (the sands of Kākuhihewa) and "O'ahu-a-Kākuhihewa" (O'ahu of Kākuhihewa) (Kamakau 1991:69, 70).

By the 17th-century, King Kuali'i asserted his power over the priests in the Waimea area as part of his successful campaign to unify the entire Island of O'ahu. Following unification, Kuali'i continued to rule with the aid of the ***kahuna nui***. ***Kālaimoku*** was a special category of ***kahuna nui*** that advised chiefs concerning secular matters. A well-known ***kālaimoku*** from Waimea, known as Kaopulupulu, became a prominent adviser to powerful rulers, first to Chief Kamahana and later to Chief Kahahana from the Island of Maui. However, the prophetic abilities of the charismatic Kaopulupulu lead to his fall-out with both these corrupt chiefs; by 1773 Chief Kamahana was removed, while later on the new Chief Kahahana had Kaeopulupulu executed (Fornander 1969:129). During all this political intrigue that affected the entire Island of O'ahu, Kaopulupulu officiated at both of the prominent ***heiau*** at Waimea; one being Pu'u o Mahuka (Figure 22) on a high bluff north of where the river enters the ocean and the other being Kupopolo (Figure 23) near the beach south of the river mouth (Takemoto 1974:5).

Of the two ***heiau***, more orally-transmitted information is available for the massive Pu'u o Mahuka than for the smaller Kupopolo. Bingham (McAllister 1933:148) **recorded a tradition that huge fires lit on an altar at Pu'u o Mahuka** can be seen as far as the Island of Kauai. The same tradition also claims that this ***heiau*** was the birthplace of prominent *ali'i*. It is said that the much smaller Kupopolo Heiau, like Pu'u o Mahuka, was used for human sacrifices, among other activities (Cluff 1968).

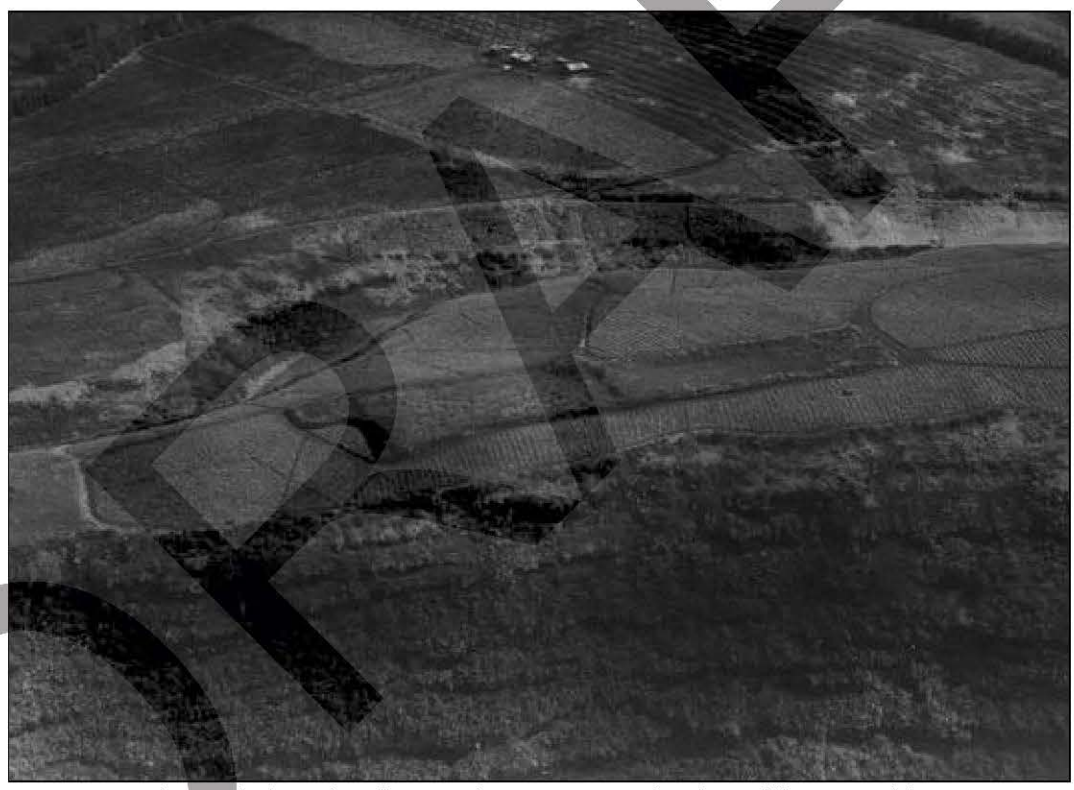

Figure 22. **Pu'u o Mahuka Heiau above Waimea Bay ca. 1930s (Hawai'i State Archives, PP**-35-7-025.

Figure 23. Kupopolo Heiau ca. 1905 looking *makai* **(Hawai'i State Archives, Thrum's Collection** PP-35-7-019)

In addition to the aforementioned ***heiau***, historical accounts concerning Kaopulupulu describes his travels through **the project area vicinity and Kahōkūwelowelo Heiau before proceeding to Waikīkī to meet the** *ali'i* (chief)**,** Kahahana. Kahekili, king of Maui, placed Kahahana, his foster son, as ruler of O'ahu. Kahahana chose to reside in the *'ili* of Ul**ukou in Waikīkī with his friend and companion, Alapai** (Thrum 1907). Kahahana heard of Kaopulupulu from Kahekili and the circle of other *ali'i* **in Waikīkī, in which he had a messenger send for the priest whose residence was in Waimea Ahupua'a. Kaopulupulu's profession enabled him to foresee the intentions of Kahahana if he were to join** his court. After receiving the royal order from the messenger, Kaopulupulu replied, "You return first and tell him that on the morning after the fourteenth night of the moon (***po o akua***), I will reach the place of the King" (Thrum 1907:205)**. Kaopulupulu bid farewell to his household and began to travel towards Punanue to Kahōkūwelowelo** Heiau, a temple for priests only:

> Entering the temple he prayed for success in his journey, after which he proceeded along the plains of Lauhulu till reaching the Anahulu stream, thence by Kemoo to Kukaniloko, the shelter of whose prominent rock chieftainesses of Oahu were wont to choose for their place of confinement (Thrum 1907:206).

In the ***ahupua'a*** of Pa'ala'a near the mouth of the Helemano Stream and Poamoho Stream (Figure 24), stood the *luakini* ***heiau*** (sacrificial temple) of Kapukapuakea. The ***heiau*** was uniquely constructed as it was erected by Menehune, a legendary race of people who worked at night building traditional sites such as fishponds and roads (McAllister 1933; Sahlins 1992). As previously mentioned, Kamakau (1991) related that Kapukapuakea was also the **site where high chief Ma'ilikūkahi was bestowed by priests** to be the ruler of O'ahu:

> **He [Ma'ilikūkahi] was taken to the *heiau*** of Kapukapuakea and anointed by the kahunas to rule as **Mō'ī [king], At the end of this ceremony he was taken inside the *heiau*** to have his navel cord cut [symbolically] just as at the birth of a chief. After, another important ceremony, that of circumcision [***'oki poepoe***] was enacted…When this ritual was over he was installed as ruler of the island. (Kamakau 1991:54)

Figure 24. Helemano Stream (above right) and Poamoho Stream (below right) emptying into Kaiaka Bay; where the streams converge to the bay is the former location of Kapukapuakea Heiau (UHM SOEST 2005).

According to Kame'eleihiwa (1992b:106) "**…in 1829, Waialua, O'ahu was controlled by Kekuapi'ia Nāmāhana [younger sister of Ka'ahumanu], who had probably received it from her brother Kahekili Ke'eaumoku at his death.**" **Kame'eleihiwa** (1992b) **goes on to add that Nāmāhana served a short term as the *kia'āina* (governor) of O'ahu in 1824 and that through an arrangement made several years prior by Kamehameha I, became married to Gideona La'anui. Both Nāmāhana and La'anui established their residence along the Anahulu River in Kawailoa. In her 1920 publication,** Elizabeth Pratt provided the following excerpt of their life at Waialua:

> Likewise Laanui and Piia were one of the first couples to be married by Mr. Bingham. Their favorite dwelling place was at Waialua, Island of Oahu. The found the climate there so salubrious and balmy that they loved it, visiting Honolulu only when their presence at court was demanded. (Pratt 1920)

Just before her death in 1829, Nāmāhana, requested that her lands, including those in Waialua pass to her husband, **La'anui** (Pratt 1920; Sahlins 1992). **By the 1830s La'anui became the resident chief of Kawailoa and other parts of** Waialua. He also served in other capacities including tax assessor and collector, maintained vital statistics for the district, functioned as a magistrate, and enforced the ***kapu*** of the higher ranking ***ali'i* such as Elizabeth Kīna'u, who** was the ***Kuhina Nui*** (Premier) (Sahlins 1992). **La'anui also took the liberty bestowed to him by Kīna'u to appoint new *konohiki* to oversee the lands, including a man named Lota Ku'oko'a. Through La'anui's efforts, Ku'oko'a became**

the ***konohiki*** of the royal fishpond of 'Uko'a in Kawailoa (Sahlins 1992). La'anui remained in power until his death in 1849, a year after the ***Māhele 'Āina*** had commenced. During the 1830s, while La'anui was serving as the resident chief of Waialua, Mataio Kekūanaō'a, father of Victoria Kamāmalu and ***Kia'āina*** of O'ahu, had a notable presence in Waialua.

A Brief History of Hawai'i After Western Contact

The arrival of Western explorers in Hawai'i in 1778 was the beginning of the end of traditional Hawaiian society. At the time that western explorers first made contact on O'ahu, Kamananui "was the ritual and political center of Waialua" (Sahlins 1992:20). However, by the late 1820s, the political center of Waialua had shifted over to the Anahulu Valley in Kawailoa Ahupua'a; "corresponding to a change in the residence of the ruling chief, this political development entailed a redrawing of ***ahupua'a*** boundaries" (Sahlins 1992:20). Sahlins (1992:20-21) explains the subsequent re-assignation of Waialua lands and the lasting impact of the shift in the location of political power as follows:

> Until 1824, the two royal fish ponds of Lokoea and 'Uko'a, although spatially separated from Kamananui (by the intervening ***ahupua'a*** of Pa'ala'a and Kawailoa), were nonetheless controlled directly from there, by stewards (***konohiki***) of Kamananui proper. Likewise the remote fishing community of Kapaeloa at the eastern border of Waialua: it was considered part of Kamananui until the late 1840s; the local people held their lands from and "under" a lesser chieftain of Kamananui. The ruling ***ahupua'a*** of Kamananui thus encompassed certain detached lands—which gave it privileged access to important piscine resources. However, in the early nineteenth century, when the Waialua chiefship gravitated to Kawailoa, these outlying sections were taken into the latter land. . .
>
> The historic shift in political domination from Kamananui to Kawailoa was paralleled by a transfer of the ceremonial center of the ***moku***. In effect the Protestant mission of Waialua, founded in Kawailoa in 1832, usurped the ritual hegemony from the temples of human sacrifice (***po'okanaka***) that not long before had sanctified the landscape of Kamananui. The ***ahupua'a*** of Kamananui was the site of two temples (***heiau***) of the royal or *luakini* class (cf. Valeri 1985). These ***heiau*** were probably presided over by an O'ahu form of the god Kū, the god of conquests and human sacrifice specially associated with kingship (Sterling and Summers 1978:103-4; Thrum 1906a:47, 1906b:52; cf. Valeri 1985). The shift of dominance from Kamananui to Kawailoa corresponded to a change in tabu systems.

Twenty years after sandalwood was first exploited on the Hawaiian Islands, King Kamehameha I, and subsequently various powerful chiefs, gained a monopoly over the sandalwood trade. Judging from historical documents, people living in the Waialua area were known for cutting sandalwood in the interior mountain forests. In a scramble to obtain foreign goods, chiefs in the area had commoners work very hard to cut and transport the sandalwood to the coast (Kirch 1985:314). Preoccupation with sandalwood extraction resulted in the abandonment of several residential homesteads in the upper Anahulu valley. The return of Kamehameha I with his court to Hawai'i Island in 1812 lead to additional abandonment; by 1820 the upper valley was almost deserted.

During the late 18th-century, when western explorers first made contact with O'ahu, Kamananui "was the ritual and political center of Waialua" (Sahlins 1992:20). Written accounts left by early visitors to the Island of O'ahu, such as those presented below, offer valuable insight into what life may have been like for the residents of Kawailoa and the greater district of Waialua. Many of these historical accounts were penned by seafaring men who dropped anchor at or near what they refer to as Waialua Bay. However, according to Sahlins because Kamananui Ahupua'a, which encompasses Kaiaka Bay "was the political center of the moku of Waialua, and the settlement there was thus known as Waialua, at least to Haole, as it still is" these unwitting visitors mistakenly called it Waialua Bay rather than Kaiaka Bay (Sahlins 1992:20 n.27).

In 1819, Kamehameha died and the ***kapu*** system that governed all aspects of traditional Hawaiian society was symbolically abolished when Liholiho, the son of Kamehameha and heir apparent ate in the presence of his biological mother Keōpūolani and ***hānai*** (adoptive mother) Ka'ahumanu. These two women were of high rank and of the two, Ka'ahumanu was designated as the ***Kuhina Nui*** or regent of the islands. In 1820, the first Protestant missionaries landed on Hawai'i Island and within several years they had converted many *ali'i* and established a firm foothold in the islands. By establishing mission stations around the islands, they were able to influence the greater population of ***maka'āinana*** (Ellis 1827; Fornander 1969; Kamakau 1992). To accomplish their goal of religious conversion, these early missionaries started schools, thereby introducing reading and writing into Hawaiian culture and formalizing Hawaiian orthography. One of the first missionaries to arrive in Waialua was Reverend John S. Emerson.

With the complete collapse of the sandalwood trade in 1829, chiefs who accumulated debt fell back to an earlier strategy of supplying provisions and other materials, such as *wauke* bark for caulking to visiting ships, especially whalers (Kirch 1985). In the early 1830s, the ***konohiki*** in the Waialua area gave land to cultivators with the aim of once again increasing the agricultural output of the area. Archaeological evidence suggests that previously abandoned terraces and canals were re-used and re-arranged to accommodate the newly placed cultivators. Taro, yams, bark cloth, and sweet potatoes were important products aimed to supply ships.

In July of 1832, Reverend Emerson and his wife Ursula landed in Waialua Bay where they was greeted by ***ali'i***, **La'anui, who resided near the Anahulu River** (O. P. Emerson 1928). The Emersons' authored their daily encounters that entailed (but not limited to) interacting with residents, field trips around the island, introduction to new foods, **describing the island's landscape, the establishment of the Protestant** faith, and the construction of a church. In September of 1832, Ursula noted in her diary that her husband attempted to deliver his sermon in Native Hawaiian **with La'anui present. She continued thusly:**

> We are very anxious to be able to speak this strange tongue with facility, but feel that it will be a long time before we can say all we wish. I tried today to teach the natives who live with us, and longed to be able to teach them as I could English children, but I could say so few words! For several weeks I have learned less by study than by daily intercourse with the natives, being obliged to talk to those living with us and in trading with those who frequently call to buy native books. You may think its strange that we do not give the books away. We do give away many, but where there is so little incentive to industry or exertion, it is important to encourage the natives to buy what they receive from us, and they value the books much more than if they were simply gifts. (O. P. Emerson 1928:61)

The following year, a meeting house estimated to hold approximately 2,000 people was erected near La'anui's home where the former Haleiwa Hotel stood in Hale'iwa. Mrs. Emerson's brother, Joseph, presided over the dedication and first service on September 25th, 1833 with Dr. Judd, Mr. Bingham, and Mr. Brinsmade in attendance (O. P. Emerson 1928). **La'anui demanded residents of the district attend the service or there would be consequences. With respect to the schools in Kawailoa, in Emerson's 1836 mission station report, he stated the following:**

> **Our children's schools, under our super**intendence at Kawailoa, embrace upwards of 100 children & a few adult females—these schools are under our weekly & sometimes daily inspection, yet taught by 5 men to whom we have given some compensation—**In these schools**, 30 have learned to read, during the year & many others have made some progress in Geog. Arithmetick & the knowledge of Animals. (J. S. Emerson 1836:2)

In 1865, Mr. and Mrs. Orramel H. Gulick opened the Waialua Female Seminary to further Emerson's efforts, which enrolled thirty-seven students and was known as ***Hale Iwa*** (O. P. Emerson 1928:227). Students were selected by pastors with the goal of raising "educated women, who might make teachers, and suitable partners for native Hawaiian ministers and missionaries" (American Board of Commissioners for Foreign Missions 1869:282). The following passage further describes their education at the seminary:

> It is not sought to impart to these daughters of Hawaii all the accomplishments and refinement of the highest type of civilization, but to give them as thorough an education, in their mother tongue, as their literature will afford. All the instruction, thus far, has been in the Hawaiian language, but English is about to be introduced. The branches pursued are Written and Mental Arithmetic, Algebra, Geography, Composition, Singing, Anatomy, Astronomy, History, Natural Theology, and Moral Philosophy. (American Board of Commissioners for Foreign Missions 1869:282)

Teachers of the school consisted of the Gulicks, E.W. Lyons, and a former graduate named Kaloke or Charlotte (American Board of Commissioners for Foreign Affairs 1869). In 1871, Mary Green took over the school as principal. In January 1882, Ms. Green became ill, closing the school, and returning to her hometown of Makawao on Maui (O. P. Emerson 1928:227).

The *Māhele 'Āina* of 1848

By the mid-19th century, the ever-growing population of Westerners in the Hawaiian Islands forced socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership. By 1840 the first Hawaiian constitution had been drafted and the Hawaiian Kingdom shifted from an absolute monarchy into a constitutional government. Convinced that the feudal system of land tenure previously practiced was not compatible with a constitutional government, the ***Mō'ī*** (King) Kauikeouli (Kamehameha III) and his high-ranking chiefs decided to separate and define the ownership of all lands in the Kingdom (King n.d.). This change was further promoted by

missionaries and Western businessmen in the islands who were generally hesitant to enter business deals on leasehold lands that could be revoked from them at any time. After much consideration, it was decided that three classes of people each had one-third vested rights to the lands of Hawai'i: the ***Mō'ī***, the ***ali'i*** and ***konohiki***, and the native tenants (***hoa'āina***). In 1862 the legislature created the Board of Commissioners to Quiet Land Titles (more commonly known as the Land Commission), first to adopt guiding principles and procedures for dividing the lands and granting land titles, and then to act as a court of record to investigate and ultimately award or reject all claims brought before them. All land claims, whether by chiefs for entire ***ahupua'a*** or ***'ili kūpono***, or by tenants for their house lots and gardens, had to be filed with the Land Commission within two years of the effective date of the Act (February 14, 1846) to be considered. This deadline was extended several times for chiefs and ***konohiki***, but not for native tenants (Soehren 2008).

The King and some 245 chiefs (Kuykendall 1938) spent nearly two years trying unsuccessfully to divide all the lands of Hawai'i amongst themselves before the whole matter was referred to the Privy Council on December 18, 1847 (King n.d.). Once the King and his chiefs accepted the principles of the Privy Council, the ***Māhele 'Āina*** (Land Division) was completed in just forty days (on March 7, 1848), and the names of all of the ***ahupua'a*** and ***'ili kūpono*** (nearly independent *'ili* land division within an ***ahupua'a***, that paid tribute to the ruling chief and not to the chief of the ***ahupua'a***) of the Hawaiian Islands and the chiefs who claimed them, were recorded in the *Buke* ***Māhele*** (Māhele Book) **(Buke Māhele 1848; Soehren 2008)**. As this process unfolded King Kamehameha III, who received roughly one-third of the lands of Hawai'i, realized the importance of setting aside public lands that could be sold to raise money for the government and also purchased by his subjects to live on. Accordingly, the day after the division with the last chief was recorded in the ***Buke Māhele***, the King commuted about two-thirds of the lands awarded to him to the government (King n.d.). Unlike the King, the chiefs and ***konohiki*** were required to present their claims to the Land Commission to receive their Land Commission Awards (LCAw.). The chiefs who participated in the ***Māhele*** were also required to provide to the government commutations of a portion of their lands in order to receive a Royal Patent giving them title to their remaining lands. The lands surrendered to the government by the King and chiefs became known as "Government Land," while the lands personally retained by the King became known as "Crown Land," and the lands received by the chiefs became known as "***Konohiki*** Land" (Chinen 1958:vii; 1961:13). To expedite the work of the Land Commission, all lands awarded during the ***Māhele*** were identified by name only, with the understanding that the ancient boundaries would prevail until the lands could be formally surveyed.

Disposition of Kawailoa Ahupua'a

At the time of the 1848 ***Māhele 'Āina***, Kawailoa **Ahupua'a was claimed by a very young Victoria Kamāmalu**, daughter **of Mataio Kekūanāo'a and Elizabeth Kīna'u,** and was awarded as ***'āpana*** (parcel) 33 of LCAw. 7713. In addition to the lands of Kawailoa **Ahupua'a proper, this award included the lands lying to the north including Lauhulu, Kukuiloloa, and Punanue where the current study area is located as well as Kapaeloa. Kamāmalu was also awarded Pa'ala'a Ahupua'a (*'āpana* 34 of LCAw. 7713)** located to the south of Kawailoa. Although only nine years old at the time of the ***Māhele,*** **Kamāmalu had inherited all of her mother's lands in Waialua which made her, at that time, the** third-largest landholder of the Hawaiian Kingdom **(Kame'eleihiwa 1992a). Kamāmalu had controlled portions of 163** ***ahupua'a*** on nearly every island, including 79 of the 86 ***ahupua'a*** **on O'ahu (Alameida 1994; Kame'eleihiwa 1992b).** To satisfy the one-**third commutation fee required by the Land Commission, Kamāmalu** relinquished all of her lands in western Waialua between the ***ahupua'a*** **of Kamananui and Ka'ena to the** ***Mō'ī*** who then placed them into the inventory of Government lands **(Kame'eleihiwa 1992a). Hawai'i Registered Map No. 1606 (**Figure 25) from 1892 **shows the lands claimed by and awarded to Kamāmalu at the** time of the 1848 ***Māhele 'Āina***.

After the death of Kamāmalu in 1866, her lands were inherited by her father, Mataio Kekūanāo'a who then passed them to his son, Lota (Lot) Kapuāiwa (Kamehameha V). Upon the death of Kapuāiwa, the land was acquired, by way of petition, by his half-**sister, Luka (Ruth) Ke'elikōlani. Upon the death of Ke'elikōlani in 1884, her estate was** inherited by her cousin, Bernice Pauahi Bishop. When Pauahi died in 1884, her lands were placed in trust for the establishment of Kamehameha Schools **(Kame'eleihiwa 1992a)**. Kamehameha Schools is currently the second-largest landowner in Waialua, with a land area of 25,291 acres and includes portions of the proposed project area (Cardno 2018).

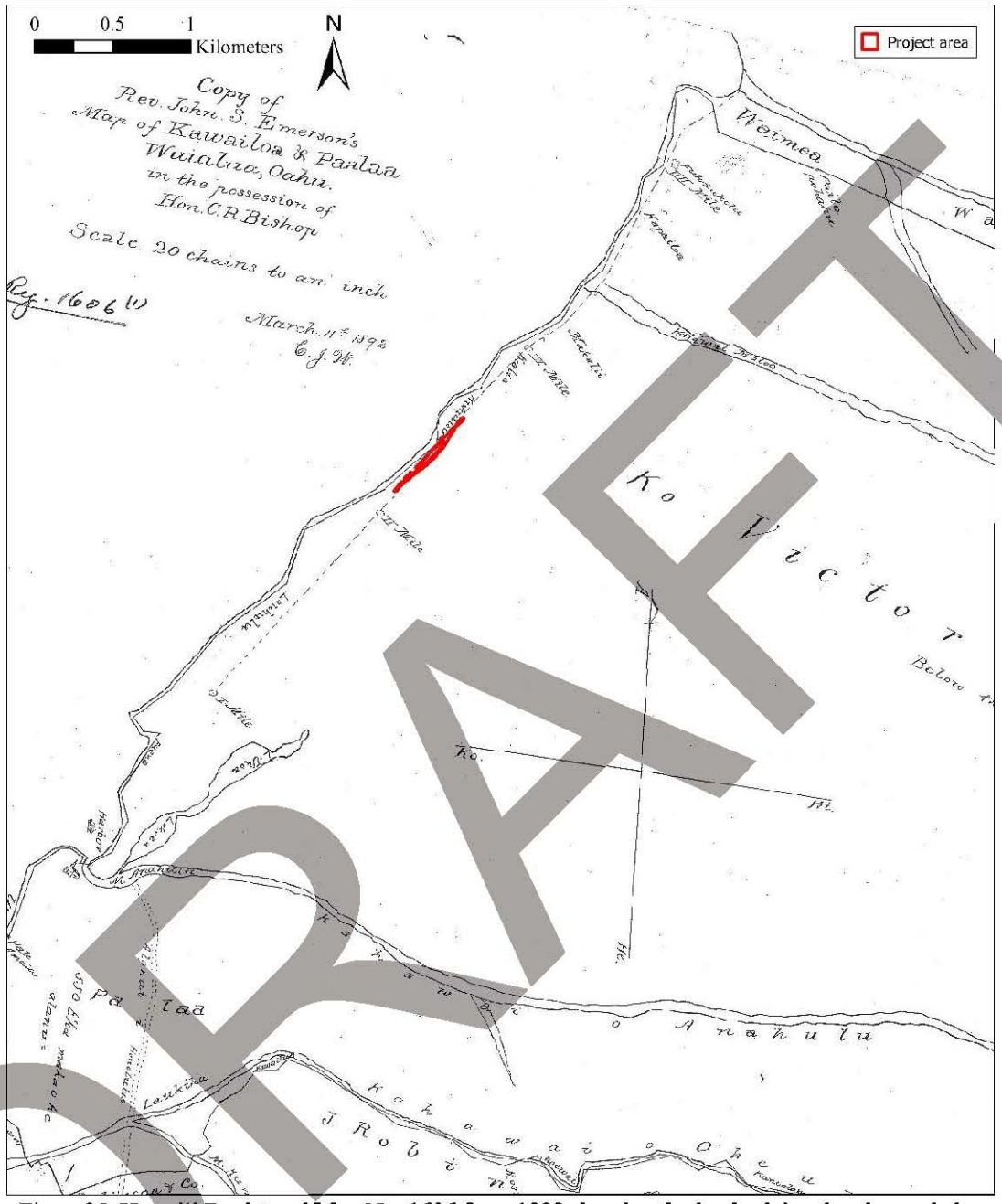

Figure25. **Hawai'i Registered Map No. 1606 from 1892 showing the lands claimed and awarded to Victoria Kamāmalu in Waialua with the project area.**

***Kuleana* Awards**

As the King and his ***ali'i*** and ***konohiki*** made claims to large tracts of land via the ***Māhele***, questions arose regarding the protection of rights for the native tenants. To resolve this matter, on August 6, 1850, the *Kuleana* Act (also known as the Enabling Act) was passed, clarifying the process by which native tenants could claim fee simple title to any portion of lands that they physically occupied, actively cultivated, or had improved (Garovoy 2005). The *Kuleana* Act also clarified access to *kuleana* parcels, which were typically landlocked, and addressed gathering rights within an ***ahupua'a***. Lands awarded through the *Kuleana* Act were and still are, referred to as *kuleana* awards or *kuleana* lands. The Land Commission oversaw the program and administered the *kuleana* as Land Commission Awards (LCAws.) (Chinen 1958). Native tenants wishing to make a claim to their lands were required to register in writing those lands

with the Land Commission, who assigned a number to each claim, and that number (the Native Register) was used to track the claimant through the entire land claims process. The native tenants registering their *kuleana* were then required to have at least two individuals (typically neighbors) provide testimony to confirm their claim to the land. Those testimonies given in Hawaiian became known as the Native Testimony, and those given in English became known as Foreign Testimony. Upon provision of the required information, the Land Commission rendered a decision, and if successful, the tenant was issued the LCAw. Finally, to extinquish any government interest in the property, the holder of a LCAw. obtained a Royal Patent Grant from the Minister of the Interior upon payment of the commutation fee. The information recorded in the Native Register and Native and Foreign Testimony provides insight into land use and settlement patterns during the mid-19th century. The details of the *kuleana* awards in the project area vicinity are further discussed below.

Within all of Kawailoa Ahupua'a, some ninety-five *kuleana* claims were awarded, the bulk of which are located to the southwest of the current project area in the vicinity of 'Uko'a Fishpond, Loko Ea Fishpond, and along the banks of the Anahulu Stream (Commissioner of Public Lands 1929). The general distribution of the *kuleana* parcels awarded in all of Kawailoa is shown in Hawai'i Registered Map No. 2054 (Figures 26and 27) and the six *kuleana* awardees within the immediate project area vicinity are listed in Table 1 and further discussed below.

Table 1. *Kuleana* Awards within the Project Area Vicinity

LCAw. No	*Awardee*	*'Ili*	*Acres*	*Year Awarded*	*Royal Patent Grant No.*	*No. of Parcels Awarded*
7374	Kapule	Punanue	0.20	1853	1463	2
7417	Kaukaliu	Kukuiloloa	0.53	1853	1468	1
8419	Kealainanea	Kukuiloloa	4.87	1853	1464	2
9948	Lole	Punanue	3.77	n/a	3067	1
10256	Makalii	Punanue	6.40	1856	3499	1
10364	Nonokaehu	Lauhulu	12.43	1853	1458	3

In Punanue, a total of three *kuleana* were awarded: LCAw. 7374 to Kapule, LCAw. 9948 to Lole, and LCAw. 10256 to Makalii. In Kukuiloloa and south of Kawailoa Ranch are two *kuleana* lots identified as LCAW. 7417 to Kaukaliu and LCAw. 8419:1 awarded to Kealainanea. Adjacent to Kealainanea's *kuleana* lot in Lauhulu is LCAw. 10364:2 awarded to Nonokaehu (see Figure 25). The location of LCAw. 9948 to Lole and another lot awarded to LCAw. 7374 are not shown in Hawai'i Registered Map No. 2054. However, a review of a 1951 Tax Maps for the City and County of Honolulu places these two *kuleana* awards *makai* of Kamehameha Highway to the southwest of LCAw. 7374 to Kapule.

Kuleana Claims in Punanue

A review of the land claim documents for Makalii indicates that claims were made for two parcels, only one of which was awarded. Makalii's claim for his second parcel was for a ***pali 'uala*** (sweet potato cliff) in the *'ili* of Kapaeloa. While Makalii's *kuleana* parcel is shown in Hawai'i Registered Map No. 2054 as being in Punanue, it may well be that the boundaries of Kapaeloa and or Punanue were reconfigured after the *kuleana* claims were made. Additionally, Makalii's Native Register document indicates that his lot was not isolated (see Figure 26). At the time the claim was made Makalii described neighbors on either side of the awarded lot, thus suggesting the presence of other native tenants in this area. The second claim in Punanue made by Kapule (LCAw. 7374) described several parcels dispersed across Waialua, however, the lot in Punanue was a ***pāhale*** (house lot). Similarly, the third claim in Punanue made by Lole (LCAw. 9948) was for a house lot.***Kuleana Claims in Kukuiloloa***

With respect to the *kuleana* claims made by Kaukaliu, multiple lots dispersed across Waialua are described in the Native Testimony, however with respect to the lot within Kukuiloloa, which was the only parcel that was awarded, Kaukaliu states that this lot was used to plant *'uala* (sweet potato), ***noni*** (Indian mulberry), ***kō*** (sugarcane), ***mai'a*** (banana), and *wauke* (paper mulberry). Regarding Kealainanea's claim, six lots were described, only two of which were awarded. A review of the Kealainanea's LCAw. document indicates that Apana 1, shown as being in Kukuiloloa (see Figure 26) was a partially enclosed lot used for cultivating *'uala*. Also noted in the Native Register for Kealainanea is the presence of ***kula pipi*** (cattle pasture) on the east and south side of the parcel, which was likely associated with the nearby Kawailoa Ranch, whose location is shown in the area north of Kealainanea's *kuleana* award (see Figure 26).

Kuleana Claims in Lauhulu

Concerning the *kuleana* claim made by Nonokaehu (LCAw. 10364), although no specific land use is described, Nonokaehu did indicate that he held five lots only three of which were awarded.

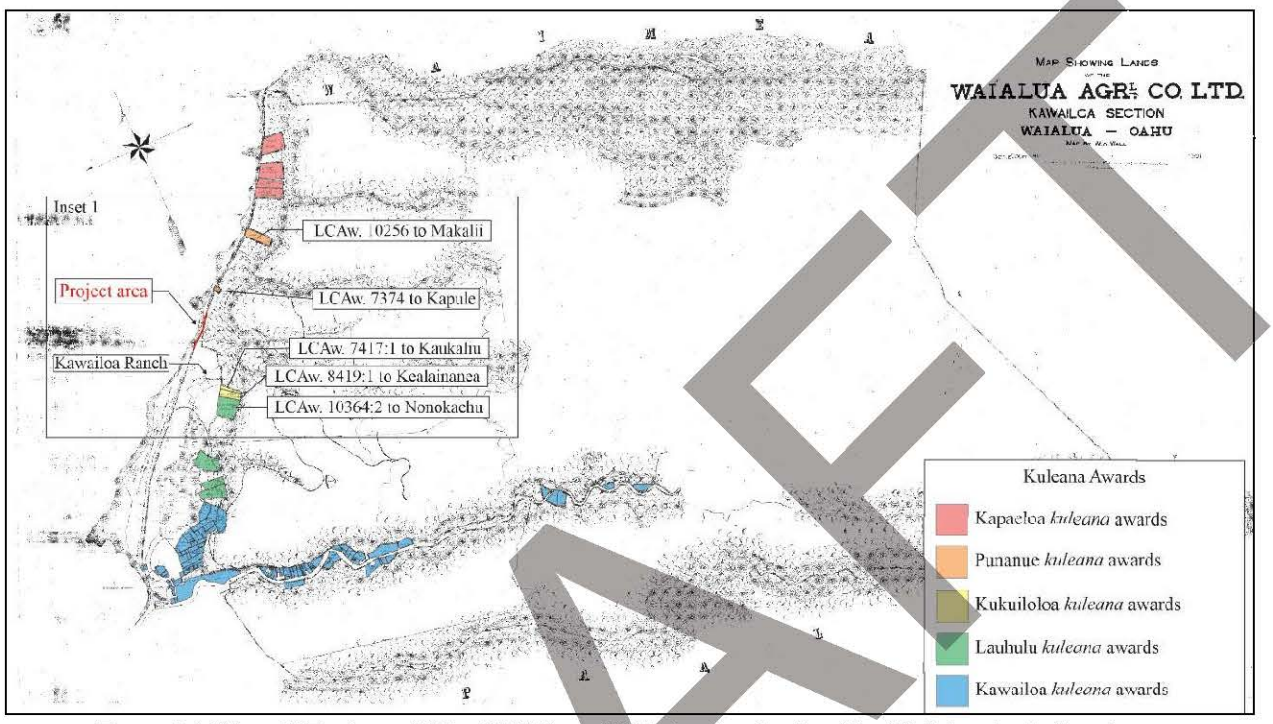

Figure 26. **Hawai'i Registered Map 2054 from 1901 showing lands of the Waialua Agricultural** Company in Kawailoa and the location of the *kuleana* parcels.

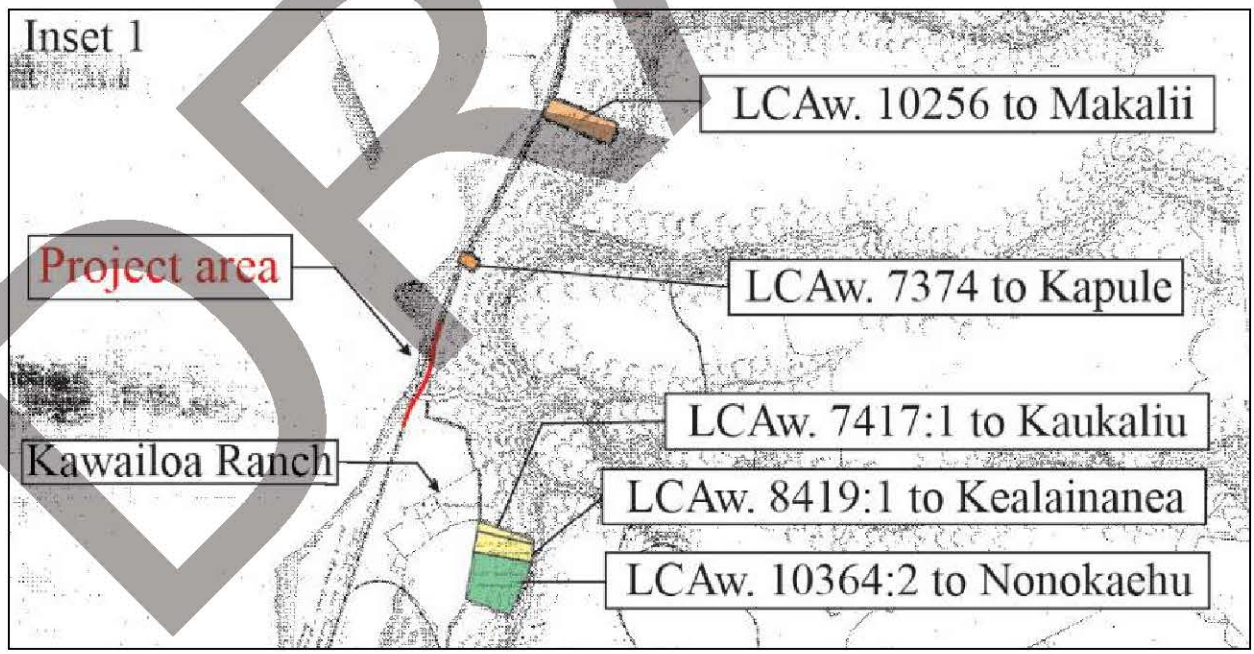

Figure 27. **Inset 1, a portion of Hawai'i** Registered Map No. 2054 showing a close up of the proposed project area vicinity.

Government Land Grants

Section 4 of the 1850 the *Kuleana* Act (Enabling Act), required that segments of Government land (allocated during the ***Māhele***) on each island be made available for purchase by the native tenants. Unlike the parcels awarded by the Land Commission, which averaged 2.57 acres each, the land grant parcels were often substantially larger (Van Dyke 2008). The Act resolved that portions of the Government Lands should be set aside and sold as grants ranging in size from one to fifty acres for fifty cents per acre. The stated goal of this program was to enable native tenants, many of whom were insufficiently awarded, failed to file a claim or were not awarded land through the *Kuleana* Act to purchase lands of their own (Van Dyke 2008). Despite the stated goal of the land grant program, this provided the mechanism that allowed many foreigners to acquire large tracts of the Government Lands and was a direct result of the passing of the heavily debated Alien Land Ownership Act of July 10, 1850. As noted by Van Dyke (2008), although most of the individual purchasers were Hawaiians, foreigners had managed to acquire nearly two-thirds of the total land area.

Although Kawailoa Ahupua'a was retained by the *ali'i* Kamāmalu, a single parcel located to the northeast of the current study area, identified as parcel 2 of Grant 33, was purchased by the Board of Education. While little information is known about this grant, J.S. Emerson's 1836 mission station report (previously described above), noted the presence of at least one school in Kawailoa. It is unclear from the historical records whether the school noted by Emerson is in reference to this land grant.

Commercial Sugar Industry and O'ahu Railroad and Land

The first sugarcane milled in the Waialua area dates to ca. 1840 and the missionary Rev. John Emerson, who set up a small mill powered by horses that made sugar and molasses for the natives on shares (Kuykendall 1938). The first commercially grown sugar in Waialua can be traced back to the Levi and Chamberlain Sugar Company in ca. 1865 (Wilcox 1996). In 1875, the sugar plantation at Waialua was purchased by R. Halstead and Gordon, and later owned by the Halstead brothers. In 1898 when the O'ahu Railway and Land Company's (O. R & L. Co.) railroad reached the Halstead brother's plantation at Waialua, the small mill did not produce much freight and large tracts of the surrounding land remained uncultivated (Dorrance and Morgan 2000). Benjamin Dillingham, who founded the O. R & L. Co., encouraged Castle & Cooke to purchase the Halstead brother's plantation. In that same year, Castle & Cooke formed the Waialua Agricultural (later changed to Sugar) Company primarily on lands leased from the Bishop Estate and Dillingham (Dorrance and Morgan 2000). Castle & Cooke hired William Goodale from the Onomea Plantation on Hawai'i Island as the first plantation manager.

Goodale described the plantation's humble beginnings in his final report as a manager, writing that, "at the time Waialua Agricultural Co., Ltd., was organized in October, 1898, it took over the old Halstead Plantation with about 600 acres of cane, certain leases of large tracts of unimproved land covered with lantana and stones, several hundred acres of rice and ranch land, a small mill, one five million gallon pumping station, no reservoirs or railroads, one small set of steam plows and other equipment of a small plantation" (Goodale in J. R. K. Clark 2007:57). Early in the plantation's history sugarcane did not extend higher than the 200-foot contour above sea level.

In the first years of ownership, Castle & Cooke expanded the acreage of the plantation, built a new mill, put in a railway system, and developed reliable water supply, utilizing both ground and surface water. The strategy resulted in sugar yields increasing from 5,000 tons in 1900 to nearly 20,000 tons in 1905 (Wilcox 1996). Hawai'i Registered Map No. 2054 from 1901 shows the extent of the Waialua Agricultural Company's lands in Kawailoa and shows ditches paralleling the 300-foot and 500-foot contours, a railway extending from the main O. R & L. Co. line along the coast into the Kawailoa fields, a collection of buildings and water tanks (an early plantation camp) located above the ***pali*** (cliff) and along the railroad tracks in the vicinity of Kawailoa Road, a pump house (Pump # 4) with a waterline running to the upper ditch line (following Kawailoa Road), and two reservoirs.

Above the sugarcane fields in Kawailoa pineapples were grown, and below the ***pali***, in the swampy areas surrounding 'Uko'a Pond, rice was cultivated. The sugar and pineapple companies modified and utilized most of the land clearing original vegetation, leveling landforms, digging ditches, constructing reservoir walls, and building roads and railroads. Substantial amounts of foreign laborers (mostly Chinese, Filipino, and Japanese) were imported to work the fields, with labor camps dotting the landscape. Many of the *mauka* lands were leased to the Hawaiian Pineapple Company, which was founded by James Dole in 1901. The Waialua Agricultural Co. and Hawaiian Pineapple Co. operated in such close proximity to one another that the field boundaries often changed. Castle & Cooke purchased a 21% share of the pineapple company in 1932, and the entire company in 1961. The name of the company was changed to Dole Food Company, Inc. in 1991.

Waialua Agricultural Company had the largest water storage capacity in Hawai'i, and arguably the most efficient irrigation system. The distribution system was especially flexible with interconnected ditches that allowed water to be

sent to any part of the plantation (Wilcox 1996). The Waialua Agricultural Company also had steam and electric powered pumping stations that sent groundwater from wells in the lower elevations of the plantation to the ditches in the upper elevations (Wilcox 1996). Developed between 1902 and 1911, the plantation had four surface water collection systems — the Wahiawa, Helemano, Opaeula, and Kamananui systems. On February 3, 1911, in the Waialua Agricultural Co. annual report for the year 1910, W. W. Goodale (1911:4), reported that:

> [Kamananui Ditch], referred to in the Annual reports of the years 1902, 1904 and 1909, was commenced in 1903, but abandoned in 1904. At that time 1,068 feet of tunnels had been excavated. On June 10, 1910 we began work again and have carried it on as rapidly as possible since that time.
>
> The ditch will deliver the water of the Kamananui stream at a point at a point 669 feet above sea level on the upper lands of Kawailoa and on the line of the ditch that crosses the plantation carrying the water from the Wahiawa reservoir.
>
> The ditch is 20, 175.5 feet long, with 17,852.5 feet of tunnels, 325 feet of flume and 1,998 feet of open ditch.
>
> On December 31, 1910, 13,832.5 feet of total length, had been completed leaving 6,343 feet unfinished. The entire cost of the work will be about $69,628.00, of which amount $35,561.00 had been paid on December 31, 1910. Water should be running in the ditch on or about May 1, 1911.

The Kamananui Ditch was completed on December 7, 1911 at a total cost of $76,963.81. From the outset it carried an average of 2,188,471 gallons of water a day to the Kawailoa fields (Goodale 1912). For the year 1910, it was reported that "the Opaeula Ditch system delivered during the year 2,112,401438 gallons of water, used entirely on Kawailoa" (Goodale 1911:4). The Kamananui ditch system was redesigned and realigned in the mid-1920s to increase its water carrying capacity and to allow it to function independent of the Opaeula ditch system (Wilcox 1996). Due to the innovative efforts of Goodale, a self-propelled drag-line excavator was digging new ditches by 1920. The same machine could also lift harvested cane bundles onto railway cars in the field (Dorrance and Morgan 2000).

When William Goodale retired in 1923, after 25 years as the plantation's manager, he summarized the growth of the Waialua Agricultural Company in the annual report for that year, writing "we now have 70 million gallons per day pumping capacity, 30 miles of permanent railway, the Wahiawā reservoir, capacity 2,540,000 gallons, and 33 other reservoirs, ditches to bring the water to Poanoho, Halemano, Opaeula, Kawaiiki, Kamananui and Waimea gulches, a good mill, six locomotives, cane cars, six plow engines and plows, tractors, trucks, buildings, and about 9,000 acres of cane" (Goodale in J. R. K. Clark 2007:57-58). Goodale had also installed a 450-kilowatt hydroelectric plant in the uplands of Kawailoa that supplied not only plantation's needs, but when excess energy was produced, it was sold to the Hawaiian Electric Co. (Dorrance and Morgan 2000). Goodale's management had made the Waialua plantation one of the most productive in the Hawaiian Islands. In 1925, shortly after his retirement, sugar production had grown to 32,585 tons annually (Dorrance and Morgan 2000).

A 1924 Hawai'i Territory Survey map of the Kawailoa Forest Reserve prepared by C. Murray (Figure 28 shows the upper limits of the sugarcane fields near the 650-foot contour in the Kawailoa fields and the 400-foot contour in the Waimea fields. The upper Waimea and Kawailoa fields in the northern section of the plantation are shown as planted in pineapples and the upper fields in the southern section of the Kawailoa tablelands (along the Kawailoa Road Corridor) are shown as a eucalyptus forest. Eucalyptus was first introduced from Australia by the Waialua Agricultural Company in the late nineteenth century to counteract deforestation and erosion caused by cattle (Sahlins 1992:169). Eucalyptus and other trees were also planted by the plantation as sources of lumber, fencing, and firewood (Goodale 1911, 1912).

Plantation camps were spread across the company's lands to allow workers to walk to the fields. The largest camp in the Kawailoa section of the plantation between Mid-Line Road and Ashley Road along a spur of the Waialua Plantation Railroad would eventually be known as Kawailoa Japanese Camp. The camp between Ashley Road and Mid-line Road was known as Camp 8. Kawailoa Camp was the largest of the company's villages. This large camp actually comprised the Waialua Agricultural Company's Camps 2, 3, 4, 5, and 6. The majority of the residents at Kawailoa Camp were Japanese. At its height, the camp included over 500 homes, an elementary school, a gym, a swimming pool, a theater, two stores, two barber's shops, three community *furo* (Japanese term for a type of bath), a Japanese-language school, and a Buddhist temple (the Kawailoa Ryusenji Soto Mission) (J. R. K. Clark 2007). The plantation built and maintained the homes, but the residents paid monthly rent, and they were owned by the Bishop Estate. A third camp shown along Ashley Road at an elevation of 600 feet above sea level on the 1929 map was not depicted on the 1924 map and may have been constructed during the intervening period. This camp, known as the Waimea Camp, was operated by the Hawaiian Pineapple Company until it was removed in ca. 1960. The location of the above-described camps is depicted in a portion of the 1929 USGS map (Figure 29).

Figure 28. Portion of Plat Map 2069, Kawailoa Forest Reserve map from 1924 by C. Murray depicting upper reaches of sugarcane.

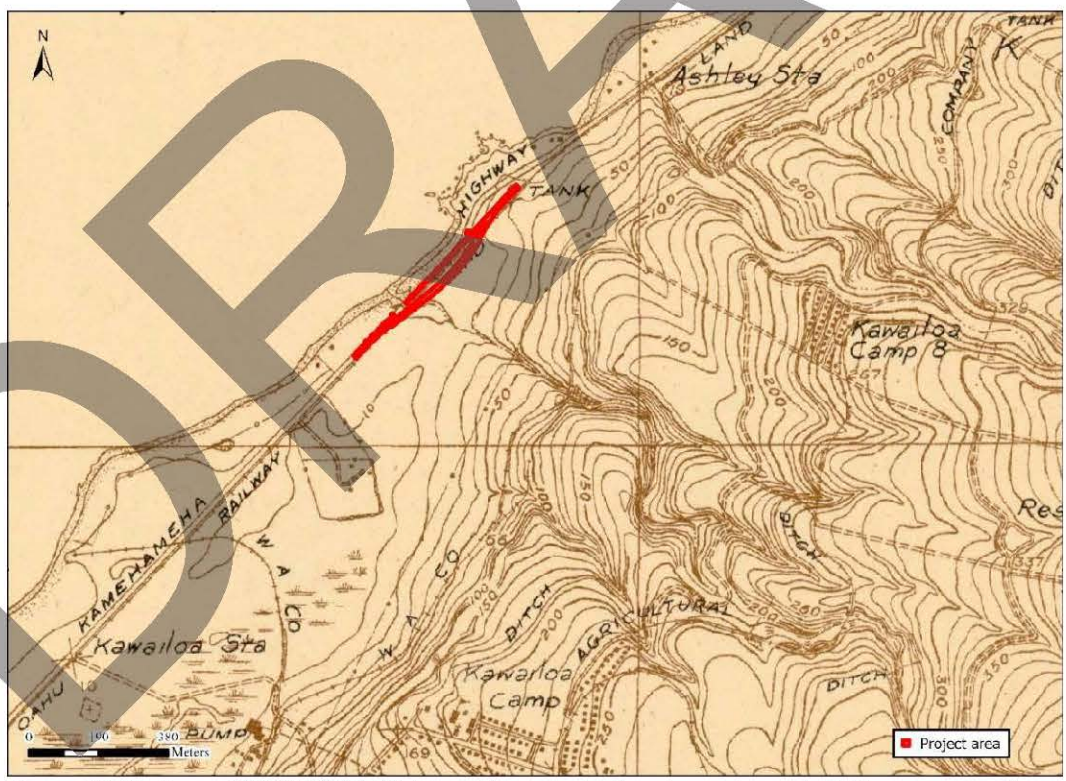

Figure 29. Portion of 1929 USGS, Haleiwa Quadrangle showing various plantation camps and infrastructure.In addition to the plantation camps, the 1929 U.S.G.S. quadrangle also shows irrigation ditches following contours at roughly every 100-foot change in elevation up to about the 650-foot contour in the Kawailoa fields and the 400-foot contour in the Waimea fields, with water

pipes (siphons) connecting the various ridgelines, and reservoirs feeding into ditches that are oriented upslope/downslope. Ashley Road and Mid-Line Road mostly match their current alignments shown in 1929; ditches are shown following the edge of Mid-Line Road. Rice paddies still occupy the swampy area surrounding 'Uko'a Pond. By 1936 improved irrigation and infrastructural development at the plantation had drastically increased sugar production output, which reached 54,671 tons in that year (Dorrance and Morgan 2000).

Military Operations in Kawailoa

Prior to the United States' involvement in World War II (WWII), the Hawaiian Defense Project revision of 1939 set into motion a large-scale modernization of the defenses of the Hawaiian Islands (Bennett 2002). During 1939 and the early 1940s defenses of O'ahu's north shore were vastly improved. These coastal defenses establishment of the Kawailoa Military Reservation and the Waimea Military Reservation, along with the Hale'iwa Airfield (Figure 30). Following the Japanese bombing of Pearl Harbor on December 7, 1941 and the United States involvement in WWII, the U. S. military drastically increased its coastal defenses on the north shore of O'ahu. Drum Road, which runs inland from Helemano to the Army's Kahuku training range and was constructed by the United States Army in the 1920s and 30s, was improved in the early years of the war to handle increased military vehicle traffic and to provide an alternative route to the north of the island in the event of potential damage to Kamehameha Highway.

Figure30. Haleiwa Field, ca. 1943-1944 (Hawai'i Aviation).

In 1942, the United States Army built Battery Carroll Riggs at the location of Opaeula plantation camp in an area that is currently known as Opaeula Ranch (Bennett 2002:49). Containing two 8-inch guns salvaged from the U. S. S. Lexington and U. S. S. Saratoga Navy ships, the battery was used to protect the north and west shores of O'ahu during WWII (Takamura 1995). Underground command posts and ammunition supply rooms were complimented by above-ground observation posts and towers. A few anti-aircraft gun emplacements occurred on the periphery of the battery.

Located on the level landform south of Battery Riggs and Opaeula River, Brodie Camp No. 4 had a cable hut and a 100-pair cable installed prior to 1939 (Bennett 2002:42, 49). This cable was part of a tactical network of subterranean communication cables, or trunk lines, through the northwestern interior portion of O'ahu. Numerous cable huts, concrete pedestals, manholes, and actual cables are physical testimony of this circum-island command and fire control communication system. A map prepared by Bennett (2002) shows that the two main lines of the cable ran (1) along the coast, and (2) from Brodie Camp No. 4 across the tablelands and gulches to Waimea Valley and then down to Fire Control Station "O" to the north of Waimea Bay. In 1939 an extension from the main cable was connected to Fire Control Station "T' at Battery Kawailoa (Bennett 2002); other extensions likely connected to Batteries Hale'iwa, Ashley, Waimea, and Pupukea, as well. The cable network was designed so that if any of the trunk lines were cut or damaged, they could be rerouted through other circuits to prevent a total shut down of communications while they

were fixed (Bennett 2002:44). Although many of these coastal defenses were dismantled after 1945, intact segments of this robust command and fire control cable system infrastructure are currently used by Verizon Hawaii.

Kawailoa Post-1950s

Following the war, by the end of 1947, the O'ahu Railway and Land Company, with its ailing infrastructure, went out of business, and by 1950 much of the railroad infrastructure had been dismantled. The Waialua Agricultural Co. also dismantled its plantation railways and began hauling the sugarcane by truck. During the modern era, the plantation would eventually grow to include over 12,000 acres of cultivated lands. By 1991, the renamed Waialua Sugar Company, which had merged with the Hawaiian Pineapple Company (in 1961), and was now operated by the Dole Food Co., Inc., the successor to Castle & Cook, produced 62,255 tons of sugar (Dorrance and Morgan 2000). By this time sugar production in the Hawaiian Islands had become largely unprofitable. In 1996 the Waialua Sugar Company, the last sugar plantation to operate on O'ahu, harvested its final crop of sugarcane. In 1998, after 100 years of operation, the company closed its doors for good.

When the Waialua Sugar Co. shut down, it voluntarily surrendered its lease of 24,000 acres of agricultural and conservation land to the Bishop Estates (Kamehameha Schools), the recipient entity of the lands amassed by Victoria Kamāmalu and other *ali'i* following the *Māhele 'Āina* of 1848 (IMUA 2005; Kame'eleihiwa 1992a). Currently, Kamehameha Schools operates the Kawailoa Plantation on this land, leasing plots to individual farmers for diversified agricultural purposes. Roughly 3,600 acres of land, mostly below the 400-foot elevation contour, is suitable for crops that are currently grown there including corn, lettuce, asparagus, plumeria, banana, tuberose, taro, and *noni*. Above the agricultural areas, Kamehameha Schools has planted *koa* trees in some areas, and large areas (mostly above the 650-foot contour) have been fenced for a cattle lease. Some of the water and electrical services on the leased lands are still provided by the infrastructure installed by the Waialua Agricultural Co. between 1898 and 1950 (IMUA 2005).

The current project area is a portion of the former location of Meadow Gold Dairy. The Dairymen's Association, Ltd. was created in August of 1897 and was comprised of seven dairies: Waialae Ranch Dairy, Kaipu Dairy, Manoa Dairy, Honolulu Dairy, Nu'uanu Valley Dairy, Woodlawn Dairy, and Kapahulu Dairy (Kimura 2016). The main site of operations occurred at Waialae Ranch and included improved pasteurization equipment and automatic bottling. In December of 1949, the company introduced a young calf to the people of Hawai'i and held a territory-wide contest for children to name it. The following year a name was selected and Lani Moo was the ambassador for the Dairymen's Association where she was the star attraction amongst a small zoo at the Waialae site (Kimura 2016). In December of 1956, the lease expired on the Waialae property where Bishop Estate planned a major residential development and golf course, which became The Kahala Hotel & Resort and the Waialae Country Club. The Dairymen's Association moved to a location across from Laniākea Beach in 1957, which they had also leased from Bishop Estate (J. Clark 2002). This included relocating Lani Moo and the zoo, which *keiki* (children) and residents would visit (Kimura 2016). Surfers nicknamed the surf break opposite this property as "Dairymen's" for the proximity, but also the distinct smell of the pasture when offshore winds occurred (J. Clark 2002). In 1959, the Dairymen's Association changed its name to Meadow Gold Dairies. The dairy eventually closed at the Kawailoa site in 1990 and moved to Waimanālo. The Kamehameha Schools portion of the current study area is currently leased as a horse boarding and equestrian facility.

PREVIOUS ARCHAEOLOGICAL STUDIES

This section of the report is divided between those studies conducted in broader vicinity of the project area (Table 2 and Figure 31) and those studies conducted within and in the immediate vicinity of the current project area (Table 3 and Figure 32).

Table 2. Prior studies conducted in the general vicinity of the project area.

Year	*Author(s)*	*Type of Study*
1968	Cluff	Surface Survey
1981	Welch	Reconnaissance Survey
1982	Athens and Shun	Archaeological Investigations and Mapping
1982	Hommon	Reconnaissance Survey
1988	Bath	Burial Report
1989	Smith and Masse	Burial Recovery
1990	McMahon	Burial Recovery
1995	Athens et al.	Paleoenvironmental Investigations
1995	Masterson et al.	Reconnaissance Survey
1998	Borthwick et al.	Inventory Survey
2006	Hammatt and Shideler	Literature Review and Field Inspection
2011	Rechtman et al.	Inventory Survey
2012	Tulchin and Hammatt	Inventory Survey
2014	Sroat et al.	Archaeological Monitoring
2015	Rechtman and Clark	Inventory Survey
2015	Morriss and Hammatt	Inventory Survey
2016	Carroll et al.	End of Year Report for Field School
2016	Monahan and Thurman	Reconnaissance Survey
2016	Nohopapa Hawai'i	Archaeological Investigation

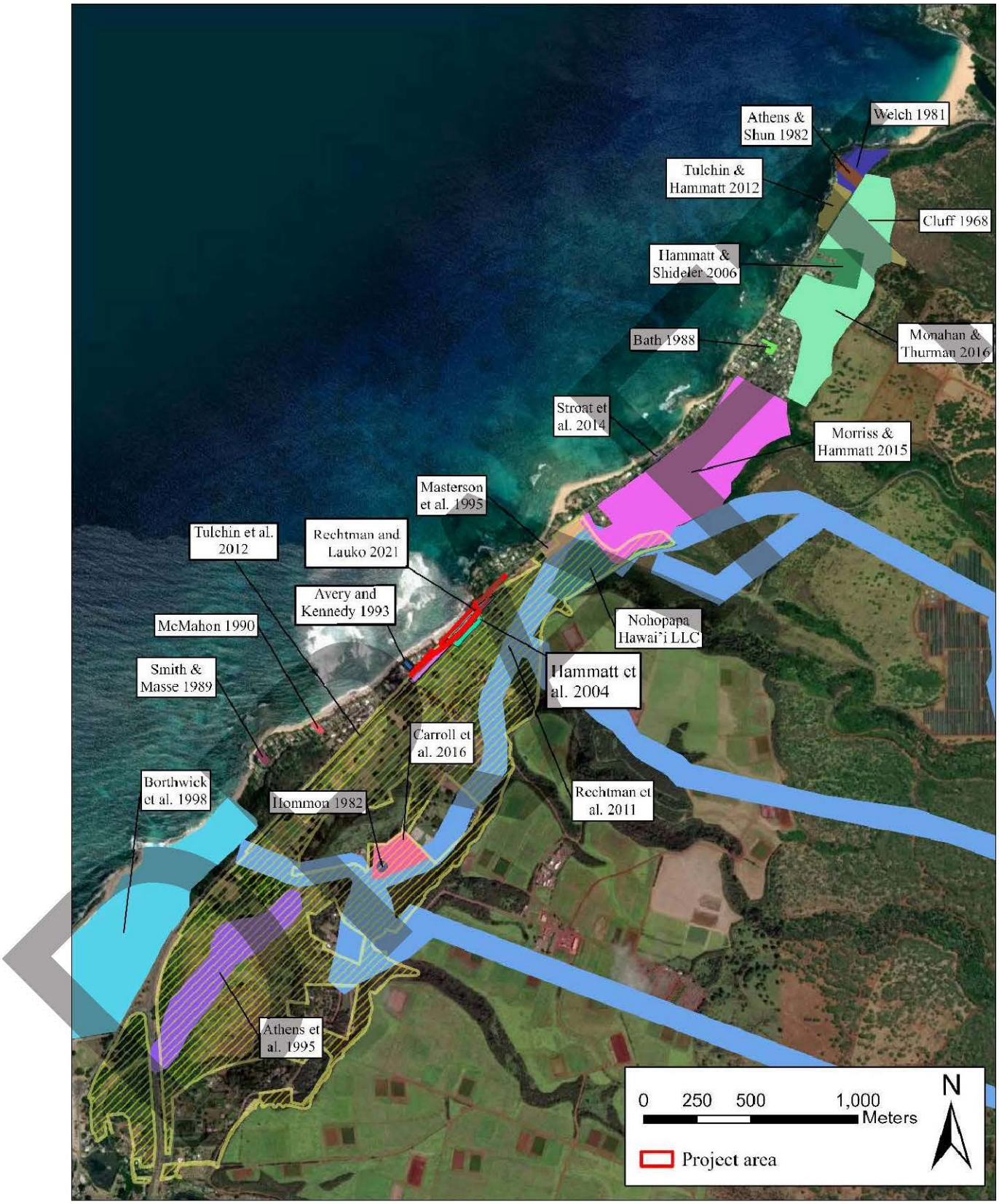

Figure31. Prior studies conducted in the general project area vicinity.

Table 3. Prior studies conducted within and in the immediate vicinity of the project area.

Year	*Author(s)*	*Type of Study*	*Ahupua‘a*
1993	Avery and Kennedy	Field Inspection and Archaeological Monitoring	Kawailoa
2004	Hammatt et al.	Inventory Survey	Kawailoa
2012	Tulchin et al.	Reconnaissance Survey	Kawailoa
2013	MKE and Fung	Historic Bridge Inventory and Evaluation	Kawailoa
2021	Reachtman and Lauko	Inventory Survey	Kawailoa

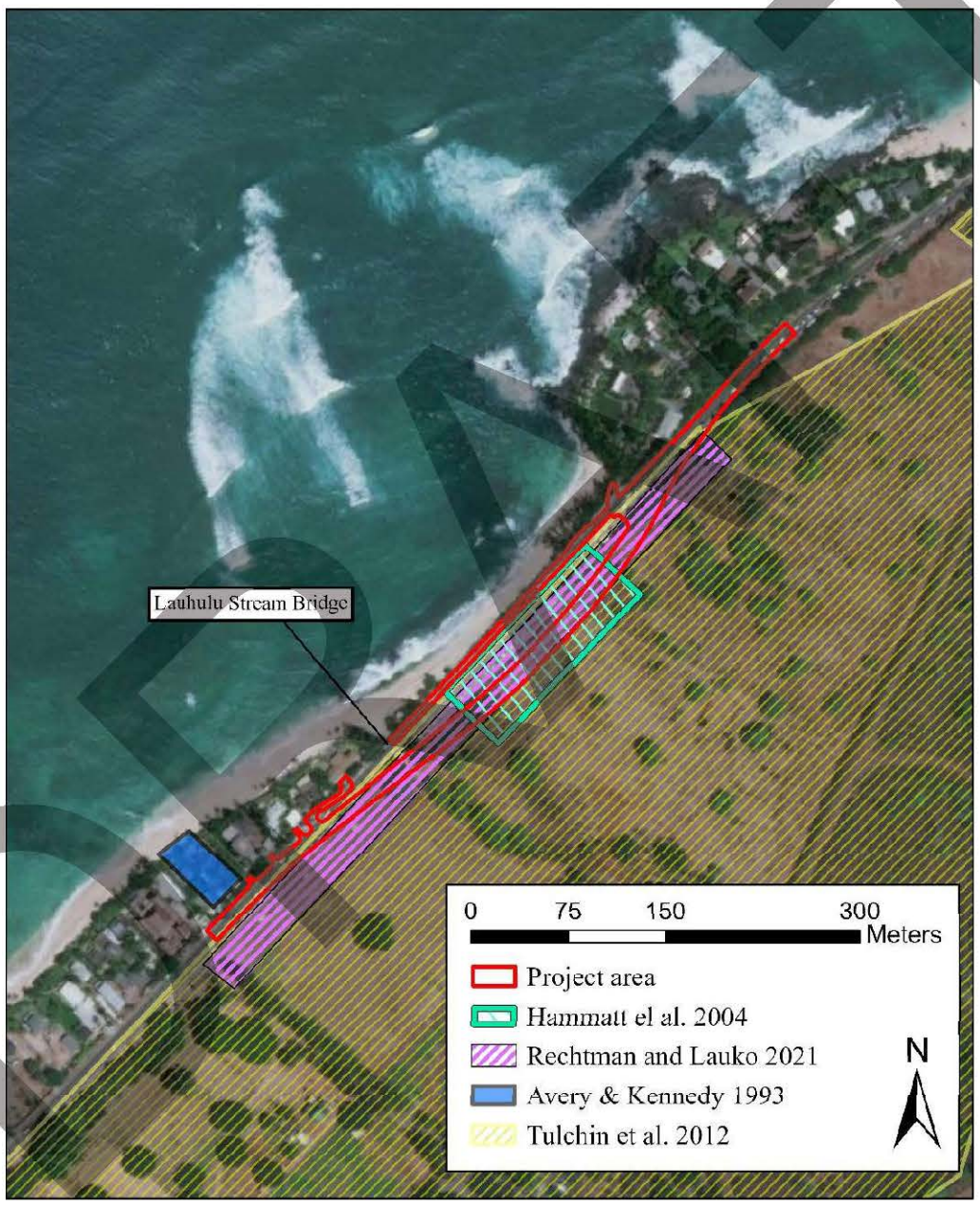

Figure 32. Prior studies conducted within and in the immediate vicinity of the project area

Prior Studies Conducted in the Broader Study Area Vicinity

The earliest published descriptions of archaeological sites near the project area were compiled by Thrum (1906) and McAllister (1933). These early descriptions were of sites that were readily visible on the surface, such as ***heiau*** platforms, stone mounds, caves, ditches, ponds, and unusual-looking stones (Table 4). From various sources, McAllister (1933) compiled stories concerning the sites and plotted them on maps based on actual surface remains or remembered former locations (Figure 33). McAllister described the sites and features in terms of ethnographic accounts that he and Thrum collected from people familiar with local history. The orally transmitted traditions recall interesting information on chiefs, priests, fishing, cultivation, deities, myths, rituals, and site functions. Among other things, the stories show how interconnected different parts of the landscape were in the minds of the people and how certain rituals were deemed necessary for subsistence purposes.

Table 4. Early-recorded sites in the general vicinity of the project area.

Site Number	*Site Type*	*Area/Ahupua'a*	*Author (date)*
197	Kalakiki Heiau	Waialua/Kamananui	McAllister (1933)
198	Burial Cave	Waialua/Kamananui	McAllister (1933)
199	Stone Mounds	Waialua/Kamananui	McAllister (1933)
200	Burial Cave	Waialua/Kamananui	McAllister (1933)
201	Keauau Fishing Shrine	Waialua/Kamananui	McAllister (1933)
202	Sand Dune Burials	Waialua/Kamananui	McAllister (1933)
203	Heiau	Waialua/Kamananui	McAllister (1933)
204	Oahunui Stone	Waialua/Kamananui	McAllister (1933)
205	Akua Stone	Waialua/Kamananui	McAllister (1933)
206	Kahakahuna Heiau	Waialua/Pa'ala'a	McAllister (1933)
207	Kawai Heiau	Waialua/Pa'ala'a	McAllister (1933)
208	Irrigation Ditch	Waialua/Kamananui	McAllister (1933)
211	Burial Cave	Waialua/Kamananui	McAllister (1933)
223	Hekili Heiau	Waialua/Kawailoa	McAllister (1933)
225	Kapukapuakea Heiau	Waialua/Kawailoa	McAllister (1933)
226	Pohaku Lanai Stone	Waialua/Kawailoa	McAllister (1933)
227	Puupilo Heiau	Waialua/Kawailoa	McAllister (1933)
228	Kepuwai Heiau	Waialua/Kawailoa	McAllister (1933)
229	Kawaipuolo Spring	Waialua/Kawailoa	McAllister (1933)
231	Anahulu Heiau	Waialua/Kawailoa	McAllister (1933)
232	Akua Stone	Waialua/Kawailoa	McAllister (1933)
235	Stone for Healing	Waialua/Kawailoa	McAllister (1933)
236	'Uko'a Pond	Waialua/Kawailoa	McAllister (1933)
237	Iliilikea Heiau	Waialua/Kawailoa	McAllister (1933)
238	Puupea Heiau	Waialua/Kawailoa	McAllister (1933)
239	Punanue Akua Stone	Waialua/Kawailoa	McAllister (1933)
240	Kohokuwelowelo	Waialua/Kawailoa	McAllister (1933)
241	Kupopolo Heiau	Waialua/Kawailoa	McAllister (1933)
242	Stone in Rock Shelter	Waialua/Kawailoa	McAllister (1933)

Southwest of the current study area, McAllister (1933:197) mentions a small ***heiau***, reputedly destroyed, near Kawailoa Gorge (the Anahulu River valley). According to local spokespeople, the small ***heiau*** was for the purposes of "husbandry," or, agricultural productivity. Another ***heiau***, known as 'Ili'ilikea (Site 237) (Sterling and Summers 1978:121), was located northeast of 'Uko'a pond in a sugarcane field. This ***heiau***, with its well-defined walls, was reputedly destroyed in 1916 by the Waialua Agricultural Company. A third ***heiau***, called Puupea (Site 238), which was not well remembered by old Hawaiians during McAllister's time, was described by Sterling and Summers (1978:121) as a few scattered stones located at Punanue Point not more than fifty feet from the beach. An *akua* stone

called Punanue (Site 239) was said to be located at the point near Puupea Heiau. Kohokuwelowelo (Site 240), located to the northeast of the current study area and inland of Cane Haul Road south of its intersection with Ashley Road (see Figure 32), was described by McAllister (1933) as a former dwelling place of priests that the commoners never approached. The site had a steep approach from the north, west and south, but from the east it was gradual. McAllister prepared a sketch map of the site (in Sterling and Summers 1978:122) showing several interconnected, partially enclosed, terraces with dirt floors and a number of small rock platforms. He also noted the presence of low walls and **a pavement 200 feet seaward of Kohōkūwelowelo at a lower elevation (Sterling and Summers 1978:122).**

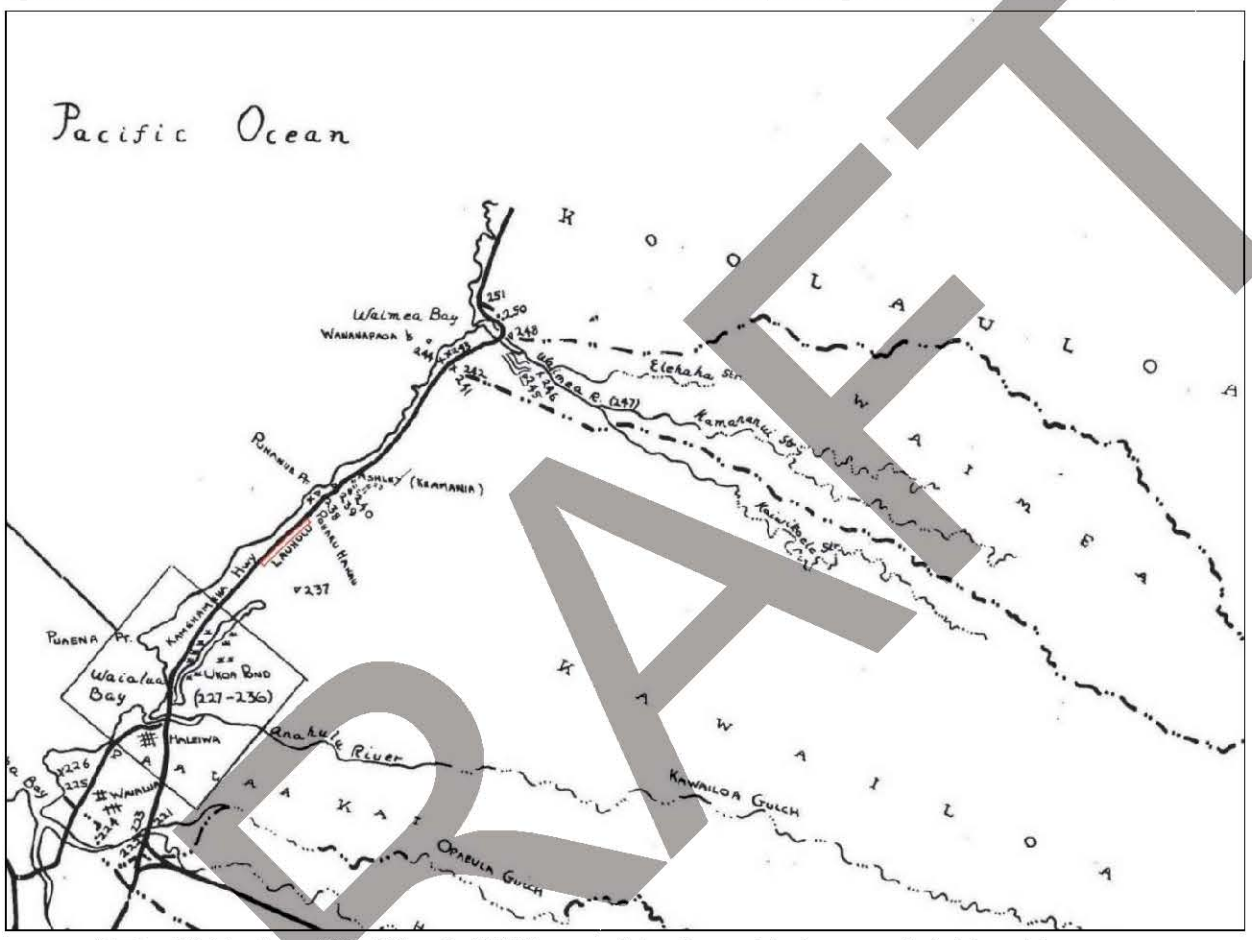

Figure 33. **Portion of McAllister's (1933) map of sites** located in the general vicinity of the current project area, which is outlined in red (from Sterling and Summers 1978).With the advent of Cultural Resource Management (CRM) work in the 1970s, archaeologists started to record less noticeable sites. In 1981, Bishop Museum staff conducted an archaeological reconnaissance survey (see Figure 31), which yielded ten historic properties (Welch 1981). Sites identified included a ***heiau***, a waterhole, enclosures, two stone walls, rock shelters, midden scatter, midden deposit, stone platforms, and a railroad bed. In 1982, Hommon reported a partial enclosure with an attached pavement on top of a bedrock outcrop near the intersection of Kawailoa Drive and Cane Haul Road (see Figure 31). Hommon (1982) interpreted the pavement as a possible foundation for a surface structure that was no longer present but was not able to determine the age or function of the site based solely upon the surface remains.

Near the bottom of a cliff line well to the northeast of the project area (see Figure 31), Cluff (1968)found a series of rock art panels with pecked depictions of human figures and dogs. This rock art rock shelter is not far from the coast and slightly southeast from the Kupopolo Heiau (Site 241), located on the narrow coastal plain south of Waimea River mouth. Pecked triangular-bodied human figures and dogs with curved tails are depicted within the shelter, as are some incised motifs. On the opposite side of Kamehameha Highway from Kupopolo Heiau (Site 241) and the petroglyphs, Athens and Shun (1982) discovered twelve sites on the coastline. These sites included two prehistoric midden areas, two stone-walled enclosures, two small rock shelters, a stone pile complex, a stone platform, a stone

wall, a ***heiau*** platform, a natural waterhole, and the O'ahu Railway and Land Company's railroad bed. Taken together, the Precontact sites recorded by Cluff (1968) and Athens and Shun (1982) were probably a southern extension of the Waimea River settlement spilling out of the valley down the coast.

Sites within the Waimea River Valley are among the first recorded within the general vicinity of the study area, considering that many are prominent features and/or features recalled in local oral histories. McAllister (1933) recorded four heiau, two fishing shrines, two rock shelters with burials, one rock shelter with a sacred stone, a boundary stone, and a prominent stone-walled agricultural terrace complex within the valley. Moore and Luscomb (1974) recorded an additional thirty-two sites within the valley, indicating that it was densely populated in both Precontact and early Historic times. Reported excavation results of previously discovered sites within the Waimea River Valley comes from two of Mitchell's excavations. The first set of excavations, on a heiau-like platform structure and associated walls and piles against the southern slopes of the valley, labeled Site D7-26, were reported by Mitchell (1977). In 1985 and 1986, Mitchell reported work on a separate stepped-platform structure, labeled Site D7-23, near its northern entrance. Whereas a radiocarbon assay of a coral fragment from the Site D7-23 platform yielded a calibrated date range of A.D. 1470 to 1700, the recovery of ceramic sherds, bottle glass, a nail, and a button from associated midden deposits suggests that the structure dates to the Historic Period.

In 1988, isolated human remains were found at Kuwai Place (see Figure 31) and reported to SHPD and designated as SIHP Site 5080-01-3724 (Bath 1988). South of the project area near Papailoa Road (see Figure 31), burials were reported and designated as SIHP Site 50-80-04-4240 (McMahon 1990; Smith and Masse 1989).

In 1995, Athens et al. (1995) built upon earlier studies at 'Uko'a Pond (SIHP Site 50-80-04-236), southeast of the current project area (see Figure 31). The paleoenvironmental study yielded core samples of eighteen stratigraphic layers with human occupation dating back 1,000 years. Although fish, ducks, and bulrushes used to be abundant within 'Uko'a pond, there is no mention in the historical record or any archaeological evidence that the pond was ever enhanced or modified through the construction of walls, gates, or canals (see discussion in Athens, et al. 1995). Historic sources, dating back to 1815, describe 'Uko'a pond as the property of the *ali'i*; fish could only be taken out with the local chief's permission (Athens et al. 1995:23-24). However, Land Commission Award documents suggest that by the time of the ***Māhele*** in 1848, royal control over fishing rights in the pond were virtually non-existent. At this time the *makai* edge of the pond contained seven small house sites and communally cultivated sweet potato plots (Athens et al. 1995:26). Four households made claim to aquatic resources in the pond, which included goby, surgeon, mullet, freshwater shrimp, and seaweed.

In 1995, Cultural Surveys Hawaii (CSH) (Masterson, et al. 1995) conducted an archaeological reconnaissance survey of an approximately 3-acre parcel at Kawailoa Beach (see Figure 30) where stacked boulder walls, a historic bridge constructed of mortar, and segment of the OR&L Railway right-of-way (SIHP Site 50-80-12-9714) were identified. Waimea Falls Cultural Historian, Rudy Mitchell, was consulted and indicated that the stacked boulder walls were likely remnants of Pu'upea Heiau but were impacted by historic and recent bulldozing based on scarring.

An inventory survey with subsurface testing was conducted in 1998 by Borthwick et al. (1998) on a 140-acre parcel in the vicinity of Pua'ena Point (see Figure 30). Among the sites they recorded were a Precontact coral ledge (SIHP Site 50-80-04-234), a human burial (-5495), WWII-era concrete features (-5641, -5642, and -5643), a historic trash dump (-5644), and disturbed Precontact cultural layers (-5661 and -5916). The burial was found in a former *kuleana* house lot in a flexed position suggesting it was a traditional Hawaiian burial.

CSH (Hammatt and Shideler 2006) conducted an archaeological literature review and field inspection of an approximately seven-acre parcel in the *mauka* region of Tūtū Street (see Figure 31). Traditional Hawaiian walls and rock structures were recorded during their inspection.

In 2011, Rechtman Consulting (Rechtman, et al. 2011) conducted an archaeological inventory survey for the then proposed Kawailoa Wind Farm on approximately 300-acres *mauka* and to the north and south of the current study area (see Figure 31). Seventeen Historic Period sites (SIHP Sites 50-80-04-7155 through -7171) were recorded, relating to plantation and military infrastructure (Rechtman et al. 2011). No Precontact sites were found on the surface of the wind farm project area during the inventory survey nor were any subsurface sites (of any kind) discovered during subsequent archaeological monitoring of the wind farm development activities (Gross and Rechtman 2019).

Tulchin and Hammatt (2012) of CSH conducted an archaeological inventory survey *makai* of Kamehameha Highway for the proposed Kamehameha Schools' Kāpaeloa Cultural Learning Center, across from Kupopolo Heiau on an approximately three and a half-acre parcel (see Figure 31), which included subsurface testing and Ground Penetrating Radar (GPR). Three historic properties were identified including a remnant of a Historic home site that consisted of a terrace, wall, alignment, and a wastewater treatment system (SIHP Site 7144). SIHP Site 2489 was a

previously identified section of the O.R.&L. railroad berm. SIHP Site 7145 is also part of a Historic house site and consists of a terrace, dirt road, and clearing with stone alignment and concrete foundations for a modern shower structure. GPR was performed in two locations and a total of fourteen test trenches were excavated where subsurface anomalies were discovered; no subsurface cultural layers or material were found.

Also in 2012, CSH conducted archaeological monitoring at a private residence (see Figure 31) along Kamehameha Highway (Sroat, et al. 2014). The existing home was to be demolished for the construction of a new residential structure with an attached garage and deck. No historic properties were found during monitoring.

In 2014, ASM Affiliates undertook an archaeological inventory survey (Rechtman and Clark 2015) of a roughly 360-acre area *mauka* and to the north of the current study area (see Figure 31) associated with the Kawailoa Solar Power Project. As a result of that study, one previously identified site (SIHP Site 7171) and one newly identified site (SIHP Site 7716) were recorded. Both sites date from the Historic Period and both were related to plantation infrastructure. No Precontact sites were observed, and archaeological monitoring was recommended. That monitoring has been occurring off and on since 2017, and to date one subsurface feature has been recorded. In 2018 a small earth oven (*imu*) was documented and yielded a radiocarbon date of "1416-1490 cal AD" with a 94% probability (BETA 554725).

CSH completed an archaeological inventory survey in 2015 for Kamehameha Schools' Pūnanue Parcels (Morriss and Hammatt 2015a, 2015b, 2015c). The approximately seventy-seven-acre property (see Figure 31) yielded twenty-three historic properties dating from both the Precontact and Historic periods, and included a historic pump house (SIHP Site 50-80-04-7609); multiple agricultural complexes (-7608, -7610, -7611, -7612, -7613, -7615, -7616, -7618, -7619, -7629); a boundary wall (-7615); a trail and terrace (-7617); a habitation site (-7620); a Historic complex related to a Meadow Gold Dairy Workers' camp (-7621); a wall (-7622, -7623, -7624); habitation complex (-7625); complexes associated with habitation and agriculture (-7626 and -7628); a historic ranching wall (-7627); and an Oahu Railway and Land Company railway berm and two associated culverts (-5791).

Carroll et al. (2016) wrote an End of Year Report for the archaeological field school at 'Uko'a Pond (see Figure 30). The field school was taught through the University of Hawai'i at Mānoa's (UHM) Anthropology Department in collaboration with Kamehameha Schools and the Waialua Hawaiian Civic Club.

In 2016, TCP Hawai'i LLC (Monahan and Thurman 2016) conducted an archaeological reconnaissance survey in the vicinity of Kupopolo Heiau (see Figure 30). The approximately 56-acre parcel yielded traditional and historic-era petroglyphs; Precontact and Historic period burials; rockshelters; agricultural complexes, and other sites.

In 2016, Nohopapa Hawai'i, LLC (2016) conducted an archaeological investigation of approximately 6.4-acres (see Figure 30) that included the ***pu'u*** and ***heiau*** complex known as Hōkūwelowelo (also known as Kahōkūwelowelo and Kohōkūwelowelo). The ***heiau*** is associated with the ***Kāhuna Nui*** class; traditions of priestly knowledge; and astronomical observation. Their study detailed the broader landscape and included oral and ethnohistorical information, land use and patterns, previous archaeological studies and results, an investigation of the study area; and concluded with a discussion on research questions and mitigation recommendations. Eleven archaeological sites were identified spanning from the Precontact Period (terrace and wall complex related to religious ceremonies; enclosure complexes; modified outcrops and pits) to historic times (ranching walls; C-shape structures for military-use; boulder walls; and a collapsed concrete bunker).

Prior Studied Conducted within and in the Immediate Vicinity of the Current Study Area

Five prior studies were conducted within and in the immediate vicinity of the current study area (see Table 3 and Table 5). The first of these studies occurred in 1993, when Avery and Kennedy (1993) responded to an inadvertent discovery (Dagher 1993) of human skeletal remains on TMK: (1) 6-1-010:006 (see Figure 32), situated *makai* of Kamehameha Highway and directly west of the southern end of the current study area. Disturbed skeletal remains of three individuals were documented and recorded as SIHP Site 50-80-04-4670. The remains were unearthed while digging footing trenches for a single-family residence, and as reported by Avery and Kennedy (1993), no in situ remains were observed and no positive stratigraphic associations could be made for the skeletal remains. Monitoring was carried out for the remainder of the subsurface development activities and no subsurface cultural deposits nor additional skeletal remains were encountered.

In 2004, Cultural Surveys Hawai'i (CSH; Hammatt, et al. 2004) conducted an archaeological inventory survey of an approximately three-acre parcel (TMK:(1) 6-1-005-014 por.; identified today as (1) 6-1-005:024) within the current project area limits (see Figure 32). This study was for the proposed Laniākea Beach Support Park that called for the creation of a parking area, landscaping, picnic tables, and a comfort station. As a result of a 100% surface

survey and the excavation of nine backhoe trenches, there were no historic properties nor cultural deposits encountered. Although outside of their project area, Hammatt et al. (2004) noted a site with multiple features located to the northeast that consisted of a platform and a terrace/enclosure with internal alignments. Also noted was the former O.R.&L railroad right-of-way situated on the northwest boundary of their project area along Kamehameha Highway. Hammatt et al. (2004:42) concluded that "subsurface testing indicated three relatively discrete stratigraphic soil sequences . . . [i]n the southwest corner . . . adjacent to Kamehameha Highway beach or Jaucus sands dominated the sequence. Inland (east) of the sand area the sequence is prominently deep alluvial soil. The northern third of the project area (north of the fence line) has shallow alluvial soils over bedrock." However, they did recommend that a program of "archaeological monitoring program be instituted during any future development in the project area due to known burials in sandy deposits in Kawailoa." (Hammatt et al. 2004:42).

In 2011, CSH (Tulchin, et al. 2012) conducted an archaeological reconnaissance survey of the Kamehameha Schools Kawailoa Ranch property that included the current project area (see Figure 32). Eighty-two historic properties were recorded which included stacked-stone walls, platforms, terraces, enclosures, mounds, modified stone outcrops, stone and mortar foundations, concrete irrigation ditches, and concrete bunkers. Fifteen of these sites were associated with the Precontact to early Historic era, while forty-one sites were associated with the Plantation era. Ten sites were associated with ranching, eight sites were related to WWII military activities, and the approximate time period of eight sites were deemed indeterminate. Interpretation of sites included possible burials, permanent and temporary habitation, ceremonial, ranching, and military. Of the eighty-two sites recorded by Tulchin et al. (2012), three sites (temporary site CSH 19, CSH 20 and CSH 29) were recorded very close to the north and northeastern boundary of the current project area (Figure 33). Site CHS 19 was describe as a metal bunker associated with World War II era military activities. Site CSH 20 was described as a stone-lined depression extending from an outcrop measuring 3.5 x 2 meters, which they interpreted to be used for water collection or ranching activities. Site CSH 29 was described as an enclosure/modified outcrop. The functional interpretation was indeterminate.

In the ***Hawaii State Historic Bridge Inventory and Evaluation*** (MKE and Fung 2013), the bridge carrying Kamehameha Highway over Lauhulu Stream (see Figure 32) was identified as a significant historic property (Bridge No. 003000830300339). MKE and Fung concluded that "[t]his bridge is eligible [for the NRHP] under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design" (2013:4-123). The bridge is within the current project area.

In 2021, ASM Affiliates (Rechtman and Lauko (2020) conducted an archaeological inventory survey as part of the current project. The 4.45-acre study corridor was located along the southeast boundary of the current project area and included a portion of Kamehameha Highway and the proposed realignment route which meanders eastward (*mauka*) onto adjacent lands and reconnects with the existing Kamehameha Highway (Figure 32). The survey area did not include the developed part of Kamehameha Highway which is included in the current project area. As a result of the 100% surface survey, one newly identified site (SIHP Site 8949) and one previously documented site (Lauhulu Stream Bridge, SIHP Site 8080) were identified. SIHP Site 8949 was identified as a modified outcrop, interpreted as having a ceremonial function due to its shape, the presence of coral on its surface, upright stones located as one end of the outcrop and the lack of habitation debris associated with the site. Site 8949 was determined as significant under both Criterion d and Criterion e. SIHP Site 8080 is a concrete slab bridge carrying Kamehameha Highway over Lauhulu Stream. This bridge had been identified in the ***Hawaii State Historic Bridge Inventory and Evaluation*** (MKE and Fung 2013) as Bridge No. 003000830300339. With respect to its significance, and retaining all aspects of integrity, MKE and Fung concluded that "[t]his bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii." Citing it as "a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design" (2013:4-123). In addition to the ground survey, seven test trenches were excavate with a Komastu PC 35MR hydraulic excavator to test for the presence of buried cultural deposits. The results of the subsurface testing were negative with respect to subsurface cultural deposits; however, the profile of three test trenches (TT-1,-2,-3), located on the southern side of the Lauhulu Street, consisted of a thin surface layer of sandy clay overlaying Jaucus sand deposits. Rechtman and Lauko (2020)(2021:70) observe that "such deposits have the potential for containing burials" and thus, recommend that archaeological monitoring for subsequent construction.

Table 5. Previous archaeological studies in the immeditae vicinity of the Project Area

Year	*Author*	*Type of Study*	*Findings/Results*
1993	Avery and Kennedy	Field Inspection and Archaeological Monitoring	3 sets of human skeletal remains (SIHP Site 50-80-04-4670)
2004	Hammatt et al.	Inventory Survey	No findings but noted multiple features consisting of a platform and a terrace/enclosure northeast of survey boundary and O.R.&L railroad northwest of boundary. Additionally recommended archaeological monitoring for further work in the area.
2012	Tulchin et al.	Reconnaissance Survey	Eighty-two historic sites
2021	Rechtman and Lauko	Archaeological Inventory Survey	Lauhulu Stream Bridge, SIHP Site 50-80-04-8080

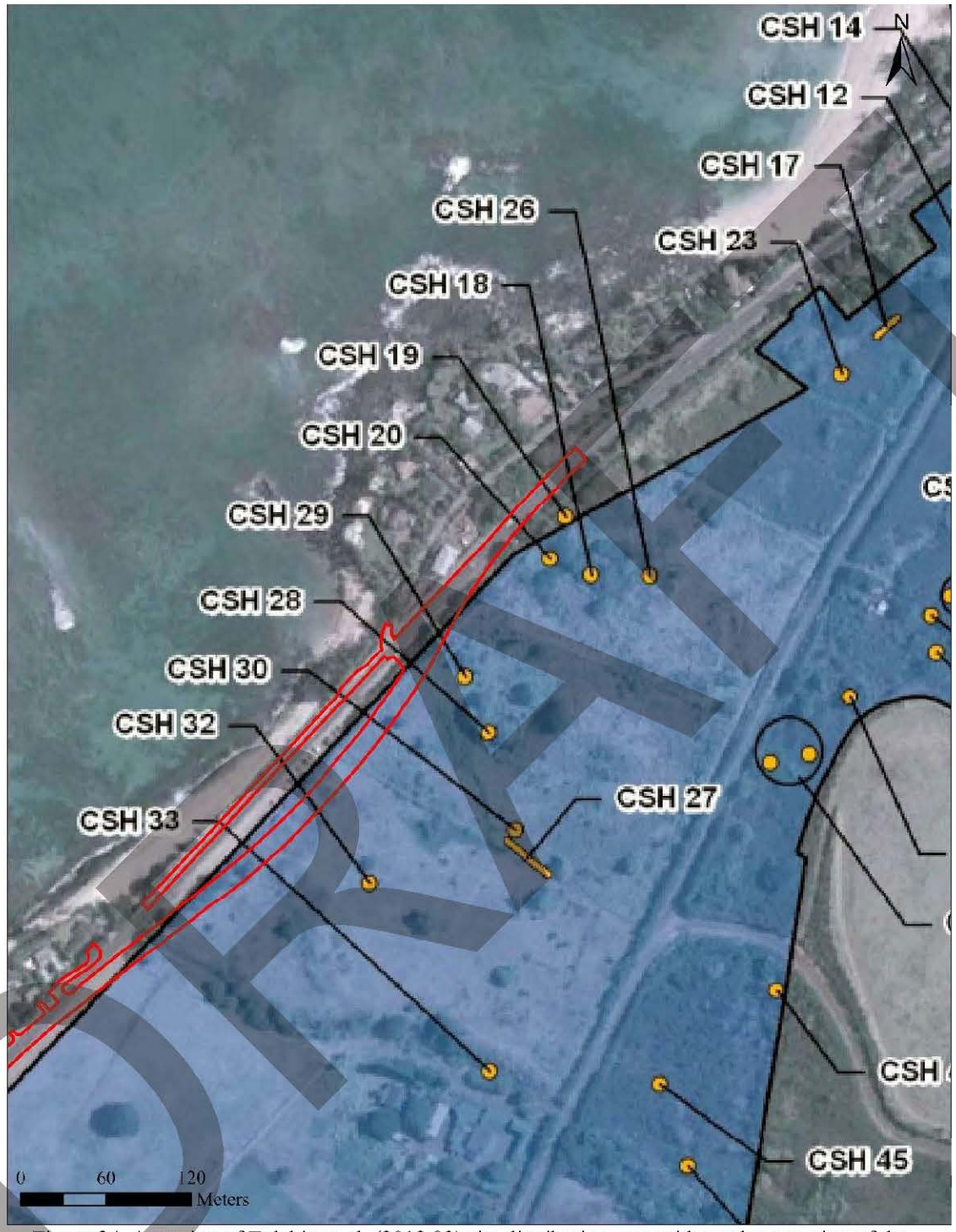

Figure 34. A portion of Tulchin et al. (2012:83) site distribution map with northern section of the current study area shaded red.

3. HISTORIC PROPERTIES AND ANTICIPATED REMAINS

Kawailoa **Ahupua'a was of great important in Precontact and historic times** and the ***ahupua'a*** contains numerous significant cultural sites and archaeological deposits, including ***heiau***, fishponds, (place of refuge), petroglyphs, burial areas, and Historic Period structures and bridges. Only one historic property, Laululu Strem Bridge (SHIP Site 8080) lies within the footprint of the project area (Figure 35).

KNOWN HISTORIC PROPERTIES WITHIN THE VICINITY OF THE AREA OF POTENTIAL EFFECT

Lauhulu Stream Bridge (SHIP Site 8080)

Built in 1937, Lauhulu Stream Bridge carries Kamehameha Highway over Lauhulu Stream. MKE and Fung (2013:4-123) (Figure 35). MKE and Fung (2013) identified the bridge as a significant historic property (Bridge No. 003000830300339) under Criterion c "for its association with early developments in concrete bridge construction in Hawaii." They cited the bridge as " **a good example of a 1930's reinforce**d concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design." Subsequent survey by Rechtman and Lauko (2021:71) found the bridge is currently in the same condition as it was when it was earlier evaluated, with no diminished integrity. Therefore, the Lauhulu Stream Bridge continues to be evaluated as significant under Criterion c as a representative example of 1930s engineering and design in the context of roadway construction in Hawai'i. Lauhulu Stream Bridge will not be physically impacted by the proposed roadway realignment project and will remain in place for pedestrian use. A draft preservation plan has been prepared for the bridge (Belluzzo and Oordt 2023).

Ceremonial Modified Outcrop (SIHP Site 8949)

Site 8949 is a modified bedrock outcrop interpreted to be a possible ceremonial site (Figure 35). Given this functional interpretation, the site is assessed as significant under Criterion d as a potential source of information relative to Precontact ceremonial activities within a cultural landscape where several other functionally similar sites have been identified, and under Criterion e for the cultural value that Hawaiian communities assign to such sites. While identified to be partially within the study corridor from Rechtman and Lauko (2021), this site falls outside of the proposed development footprint, and once roadway construction is complete the realignment Kamehameha Highway will be no closer to Site 8949 than it is currently. Additionally, the area of Site 8949 will not be acquired by the HDOT, but rather will remain under the ownership and control of Kamehameha Schools. Thus, beyond making sure the site is protected during construction activities, any long-term treatment of the site is not within the purview of the HDOT.