
Portions of TMK: (1) 4-8-003, -004, -005; 4-9-001, -002, -003, -004, -005, -006, -007, -008, -009; 5-1-001, -003, -006, -008, -009, and -013

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March 2015

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**MANAGEMENT SUMMARY**

Archaeological monitoring will be conducted for ground disturbing activity associated with improvements to Kamehameha Highway in Waikāne, Hakipu’u, and Kualoa 1 and 2 Ahupua’a in Ko’olaupoko District, and Ka’a’awa Ahupua’a in Ko’olauloa District, on the island of O’ahu, Hawai’i. The project route will cover 7.9 km (4.9 mi.), crossing through portions of TMK: (1) 4-8-003, -004, -005; 4-9-001, -002, -003, -004, -005, -006, -007, -008, -009; 5-1-001, -003, -006, -008, -009, and -013.

The monitoring level of effort will vary along the length of the project route based on the archaeological resources that can be expected in each area. The southern half of the project corridor, from Waikāne to Hakipu’u Ahupua’a will require once a week spot check and on call monitoring because of the low density of archaeological resources expected there. The northern half, from Kualoa 1 to Ka’a’awa Ahupua’a will necessitate full time monitoring because of the high density of archaeological resources expected and potential for encountering human burials.
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INTRODUCTION

At the request of Road and Highway Builders, Keala Pono Archaeological Consulting has prepared an archaeological monitoring plan for safety improvements to Kamehameha Highway, Waikåne, Hakipu‘u, and Kualoa 1 and 2 Ahupua‘a, Ko‘olaupoko District, and Ka‘a‘awa Ahupua‘a, Ko‘olauloa District, on the island of O‘ahu, Hawai‘i.

This monitoring plan is designed to identify historic properties that might be exposed during construction, and to treat them properly, in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended and the State Historic Preservation Division (SHPD) Rules Governing Standards for Archaeological Monitoring Studies and Reports (§ 13-279-4). The plan includes background information on the project area and an outline of field methods and post-field actions proposed for the archaeological monitoring. Hawaiian words, technical terms, and flora and fauna are defined in a glossary at the end of the document.

Project Location and Description of the Undertaking

The project area consists of a segment of Kamehameha Highway that runs through portions of TMK: (1) 4-8-003, -004, -005; 4-9-001, -002, -003, -004, -005, -006, -007, -008, -009; 5-1-001, -003, -006, -008, -009, and -013 (Figures 1 and 2). All work will take place in the existing right-of-way for Kamehameha Highway.

The project corridor crosses five ahupua‘a and two districts: Waikåne, Hakipu‘u, and Kualoa 1 and 2 Ahupua‘a in Ko‘olaupoko District, and Ka‘a‘awa Ahupua‘a in Ko‘olauloa District. The corridor stretches for 7.9 km (4.9 mi.) from the Kamehameha Highway/Waikåne Valley Road intersection on the south to Ka‘a‘awa Bridge on the north. Within this segment, there is an approximately 200 m (700 ft.) exception zone at the Hakipu‘u/Kualoa 1 Ahupua‘a boundary, where there will be no construction (see Figures 1 and 2).

The undertaking was initiated by the State of Hawai‘i Department of Transportation Highways Division under Federal Aid Project No. HSIP-083-1(069). SHPD concurred with the FHWA’s project determination of no adverse effect with agreed-upon archaeological monitoring, and requested an archaeological monitoring plan be prepared for this undertaking (July 23, 2014; Log No. 2014.03031, Doc. No. 1407NN15). SHPD’s NHPA Section 106 letters appears in Appendix A.

The undertaking includes the installation of milled centerline and shoulder rumble strips, pavement markings, signage, guardrail and end treatments, and drainage improvements. Guardrail work consists of removal and replacement of existing guardrails with the addition of new end treatments. Two storm drain drop inlets will be removed and replaced, and a grassy swale in Kualoa will be graded, with sod placed on top. These improvements will bring the roadway up to current safety standards and improve safety and drainage deficiencies that are present.

Physical Environment

Within the project area, Kamehameha Highway is generally 500 m (1,640 ft.) or less from the coast, except where it passes Kualoa regional park, where the distance from the coast is a few hundred meters more. The majority of the project corridor lies below 6 m (20 ft.) above mean sea level. For much of the route past Kualoa Point, the highway is adjacent to the coastline, and the construction of sea walls has caused widespread erosion of the beaches in this area. In other parts of the project route, the highway curves inland, with houses, marsh lands, fishponds, and parks on the makai side of the highway.
Figure 1. Project location (in red) on a 7.5 minute USGS Kaaawa quadrangle map with TMK overlay.
Figure 2. Construction plans showing limits of project and exception zone.
The project area receives a good amount of rainfall, approximately 150–200 cm (60–80 in.) annually (Juvik and Juvik 1998). Several major watercourses cross the project route, including Waikâne Stream, Hakipu‘u Stream, and Ka‘a‘awa Stream, all perennial waterways. Vegetation before human settlement of the area is thought to have been lowland dry and mesic forests, woodlands, and scrublands (Juvik and Juvik 1998). Today however, the project route is dominated by introduced plants, such as grasses, weeds, and large trees.

Soils along the project corridor are mostly of the Kaena-Waialua association, with a portion of Hakipu‘u consisting of the Lolekaa-Waikane association (Foote et al. 1972). The former are poorly to excessively drained soils with fine to coarse textured subsoils, while the latter are well-drained soils with mostly fine textured subsoil. A variety of specific soil types occur along the project route, as depicted in Figures 3 and 4 (data from Foote et al. 1972):

**Waikâne**
- Marsh (MZ)
- Waikane silty clay, 3–8% slopes (WpB)
- Waikane silty clay, 8–15% slopes (WpC)
- Hanalei stony silty clay, 2–6% slopes (HoB)

**Hakipu‘u**
- Hanalei stony silty clay, 2–6% slopes (HoB)
- Waikane silty clay, 25–40% slopes (WpE)
- Hanalei stony clay, 0–2% slopes (HnA)
- Lolekaa silty clay, 3–8% slopes (LoB)
- Waikane stony clay, 15–30% slopes (WpaE)

**Kualoa**
- Waialua stony silty clay, 3–8% slopes (WIB)
- Mokuleia clay loam (Mt)
- Mokuleia loam (Ms)
- Jaucas sand, 0–15% slopes (JaC)

**Ka‘a‘awa**
- Waialua stony silty clay, 12–30% slopes (WIE)
- Jaucas sand, 0–15% slopes (JaC)
- Mokuleia loam (Ms)
- Marsh (MZ)
Figure 3. Soils in the southern portion of the project area. The project area is shown in red and *ahupua’a* boundaries are marked in blue.
Figure 4. Soils in the northern portion of the project area. The project area is shown in red and ahupua'a boundaries are marked in blue.
This chapter presents traditional and historic background information for the project region, including place names, Hawaiian proverbs and *mo‘olelo*, land use, Māhele land tenure data, historic maps, and a summary of previous archaeological research.

**Inoa ‘Āina: Place Names**

Place names often shed light on traditional views of an area and can provide important contextual information. Most of the *ahupua‘a* names in the project area are associated with natural attributes of the place. Waikāne translates to “Kāne’s water,” and an old name was Wai-a-Kāne (Pukui et al. 1974:223). Hakipu‘u literally means “broken hill” (Pukui et al. 1974:35). Kualoa translates to “long back” (Pukui et al. 1974:119), and Ka‘a‘awa means “the wrasse fish” (Pukui et al. 1974:59). Palikū is an ancient name for Kualoa and is also the name of the ridge between Koʻolaupoko and Koʻolauloa. It literally means “vertical cliff” (Pukui et al. 1974:177).

Other important places are Mokoliʻi, Koholālele, Moliʻi, Kānehoalani, and ‘Āpua. Mokoliʻi is the islet off of Kualoa that is sometimes called Chinaman’s Hat. Mokoliʻi translates to “little mo‘o” (Pukui et al. 1974:154), for it is said that the islet is the form of a slayed dragon (see *Mo‘olelo* Section). Koholālele is a fishpond nearby whose name means “leaping whale” (Pukui et al. 1974:115). Moliʻi is another fishpond in the area. Its name means “small section” (Pukui et al. 1974:156). Kānehoalani is the mountain ridge behind Kualoa. Translating to “Kāne royal companion,” it was named for an ancestor of Pele (Pukui et al. 1974:84). ‘Āpua refers to the flats of Kualoa as well as a fishpond there. It literally means “fish basket” (Pukui et al. 1974:13), probably referring to the abundance of fish at that location.

**‘Ōlelo No‘eau and Mo‘olelo**

‘*Ōlelo no‘eau* and *mo‘olelo* offer insight into what life may have been like in the project area in ancient Hawai‘i. They also share topics of interest of the time that were meant to be passed down from one generation to the next.

**‘Ōlelo No‘eau**

‘*Ōlelo no‘eau*, or Hawaiian proverbs and poetical sayings, provide further insight to traditional beliefs and practices of the area. One *‘ōlelo no‘eau* was found for Hakipu‘u, two each for Kualoa and Ka‘a‘awa, and no *‘ōlelo no‘eau* could be found for Waikāne.

E aha ‘ia ana o Hakipu‘u i ka palaoa lāwalu ‘ono a Ka‘eihu?
What is happening to Hakipu‘u, with dough cooked in ti leaves, of which Ka‘eihu is so fond?
This is a line of a chant composed by Ka‘eihu, a poet and *hula* instructor from Kaua‘i. It refers to a part-white woman with whom he flirted. Used in humor when referring to Hakipu‘u, a place on the windward side of O‘ahu. (Pukui 1983:31)

Ho‘olalau ka helena i Kualoa, pi‘i ana i ka pali o Kānehoalani.
*In wandering about Kualoa, he ascends the cliff of Kānehoalani.*
He goes off his course and thereby gets nothing. On the cliff of Kānehoalani stands a phallic stone, a symbol of bad luck when seen in a dream. (Pukui 1983:117)

Ka limu lana o Kawahine.
*The floating seaweed of Kawahine.*
A term applied to the *kauwā* who were drowned at Kualoa, O‘ahu, before serving as sacrifices. (Pukui 1983:156)
He kai ʻaʻai ko Kaʻaʻawa

Kaʻaʻawa has a sea that wears away the land. (Pukui 1983:73)

He moe kai no Kaʻaʻawa

A sleeper in the sea of Kaʻaʻawa.
Applied to a lawbreaker who was to be put to death. When Kualiʻi was ruler of Oʻahu, he punished lawbreakers by drowning them in the sea of Kaʻaʻawa. (Pukui 1983:90)

Moʻolelo

The region of study was renowned in moʻolelo, with Kualoa being so sacred that canoes had to lower their sails when passing by (Fornander 1969 [1880]:278). Kualoa was formerly known as Palikū and was the home of Wākea and his wife Haumea, progenitors of the human race. It is said that there was an epic storm, tsunami, and flood in Hakipuʻu during the time of Wākea and at this time the first heiau was constructed (Handy et al. 1991:343). The story was chronicled in a chant summarized as follows:

Kanehoalani is the great ridge and promontory which juts out into the sea, marking the northwest boundary of lowlying Hakipuʻu. Kanehoalani was the father of Pele, Haumea was her mother. Lono, generally described as Pele’s uncle, was Kanehoalani’s brother (or cousin). Wakea, the ancestor of the Hawaiian race, was swept up by “the swelling sea, rising sea” of Lono. A kahuna (priest) told him to form a Lono shrine by cupping his upright hands together, with fingertips touching each other. Wakea so formed the shrine. Then, instructed by the kahuna, he presented an offering to Lono by placing a box fish (humuhumu-nukunuku-a-puaʻa) in his shrine (his cupped hands). This fish, which has a snout like a hog, is one of the forms of Kamapuaʻa (=Lono), the lord of wind and rain. After the offering was made, the storm subsided and Wakea found himself on dry land. (Handy et al. 1991:343)

An important saga involving the project lands is that of Hiʻiaka’s journey across the islands to save Lohiau, the lover of her sister, Pele. Handy et al. (1991:446–447) provide a review of the events that took place on the windward side of Oʻahu, culminating in the slaying of the dragon Mokoliʻi, which created the islet of that name:

Passing the shores of Waikane (the original name was Wai-a-Kane, Water-of-Kane), [Hiʻiaka] explained to her companion, Wahine-omaʻo, that here Kane first dug for water at a place called Poliuli (Dark breast), creating the Waiʻola-li which was male and the Waiʻola-la, which was female…These waters were also named in the Kumulipo creation chant as the progenitors of many subsequent generations…It was in the waters of Hakipuʻu, in fact but a short distance from the Moliʻi Fishpond, that Hiʻiaka encountered and slew her first, formidable adversary on Oahu, the reptile Mokoliʻi…It is the stumpy tail of this evil creature that to this day protrudes from the waters as the rocky islet Mokoliʻi (Little Reptile). As their canoe sailed on past the land of Kualoa at Kanehoalani’s feet, “Hiʻiaka said to Wahine-o-mao…” ‘this is the sacred land of Haloa’” (Hoku o Hawaii, January 1, 1926) the first man, and progenitor of the human race.

As the saga continues, the distinctive cliffs of Kaʻaʻawa were formed (Emerson 1978). The kupua named Kauhi was one of Pele’s followers that came from Kahiki. He was stationed on the cliffs of Kaʻaʻawa and could not leave. When Hiʻiaka arrived he longed to travel with her and when she politely refused, he attempted to rise. Kauhi could only get to a crouching position however, and there he became fixed, forming the cliff that is shaped like a crouching man.

A famous cave is said to be located on the cliff between Kualoa and Kaʻaʻawa (Kamakau 1991:38–39). The cave was on the cliffsides at Kanehoalani and it was named Pohukaina. A second entrance was at the spring, Kaʻahula. The cave extended through the Koʻolau Mountains where other openings were at Moanalua, Kaliihi, Puīwa, Waipahu, and Kahu. There were many watercourses within the cave, along with man-made decorations.
Kualoa also marks the boundary of Koʻolaupoko and Koʻolauloa Districts. It was here that tribute from each ahupua’a was amassed at the end of the makahiki circuit (Kamakau 1991:20–21). Tribute collected included items such as food animals, poi, kapa, fishing nets, feathers, woven mats, pearls, ivory, and adzes (Kamakau 1991:21). If the tribute from a given ahupua’a was deemed unworthy, that ahupua’a would be plundered (Kamakau 1991:21).

Kualoa and Waikāne were also designated as puʻuhonua, or places of refuge:

The puʻuhonua in ancient times was an ahupua’a portion of a district (ahupua’a ʻokana), like Kailua and Waikane for Koʻolaupoko district on Oahu, and also Kualoa, which was a very sacred land and a true puʻuhonua, where persons marked for death were saved if they entered it. (Kamakau 1991:18)

Hakipuʻu was one of the lands that were given to kahuna in very ancient times (Kamakau 1867 in Sterling and Summers 1978:184). It was also the place where Kahai first planted ‘ulu trees, the seeds of which he brought back from a voyage that took him as far as Samoa (Raphaelson 1929 in Sterling and Summers 1978:186).

Land Use and Subsistence

The project lands were rich in natural resources such as fresh water, prime agricultural areas, and bountiful fishing grounds. They likely supported large populations.

Waikāne has a large stream but it is not as well suited to irrigated agriculture as other comparable areas on the windward side of Oʻahu (Handy et al. 1991:442). Handy et al. elaborate on the land usage in Waikāne:

Nevertheless, Waikane was a major source of Koʻolau taro, especially in the broad area between the highway and the sea, and as much as half a mile inland there was extensive loʻi cultivation. The northern (and larger) section, extending mauka for two or more miles, used to have cultivated loʻi and home sites all along its Waikane Stream. The southern section of the valley, divided off by a low ridge, comprises a gulch where there were old terraces watered by Waikeʻeʻe Stream, no longer cultivated in taro. (1991:442)

Hakipuʻu is a shorter valley than Waikāne but its large stream and swamp also supported loʻi agriculture. Moliʻi Fishpond is a prominent feature of the ahupua’a and produced a great supply of fish. The area is described in more detail as follows:

Old loʻi areas once covered the swampy flats makai (to seaward) of the present Kamehameha Highway, and here as late as 1935 about a dozen loʻi were still cultivated along the Hakipuʻu Stream, with about the same number mauka (toward the mountains). This area was quite extensive originally, running for something more than a half mile southward from Moliʻi Fishpond, and throughout the level land up along the stream. An interesting series of abandoned loʻi was noted filling a small valley bottom in an S curve from Moliʻi Fishpond to a point up beyond the highway. This was formerly watered from Kailau Spring on the hillside above the fishpond. In 1935, a marshland patch just below the road to the southwest was being cultivated by an energetic Hawaiian using the old mounding method. It was the only swampy plantation of this type found on Oahu in the area survey of that year. (Handy et al. 1991:443)

Kualoa has no streams and is generally not suited for the cultivation of wetland taro. Nevertheless, Koholālele Pond in ʻĀpua may have been made from an abandoned loʻi (Handy et al. 1991:444), although some say that the pond was built by menehune, while others assert that the pond was excavated in the historic period (McAllister 1933; Morgan 1964 in Sterling and Summers 1978:180–181). Agriculturally, Kualoa was known for the cultivation of wauke to make kapa (Handy et al. 1991:444). Kualoa was rich in coastal resources, enhanced by man-made fishponds:
This land had been very rich in the olden days and even to the present, because of running schools of mullet from Kaihuopalaai, the awa fish and mullets that had been kept and fattened in ponds. These good things of the land are long past. (Apuakehau 1919 in Sterling and Summers 1978:117)

Ka‘a‘awa relied heavily on the ocean for its resources and once supported a fishing village. at least one ko‘a is known for the area (now destroyed), attesting to the importance of fishing (McAllister 1933). The valley’s stream created two passages in the reef, however, that make the beach not well protected. Ka‘a‘awa was not a good location for wetland taro, although there were some agricultural terraces on either side of the stream and in areas that have turned into swamplands (Handy et al. 1991:444). Handy et al. remark on the productivity of the region:

Ka‘a‘awa and Makaua must have been good only for sweet potatoes and no doubt there were coconut trees along the shore. There is hardly any beach, but a high shore and a well-protected lagoon make this a good fishing locality. (Handy et al. 1991:445)

The Region in the Historic Period

Taro, rice, pineapple, and sugarcane cultivation were practiced in the historic period (post-1778) in the project lands, and military and ranching interests also made large scale changes to the landscape.

Rice cultivation began as early as the 1860s in Ko‘o‘ulaupoko and was undertaken mostly by Chinese immigrant farmers. The traditional taro lo‘i were easy to transform into rice fields, and Waikāne Stream was one of the streams that provided water for the venture. By the 1880s there were at least three plantations in Waikāne and a decade later, 200 acres were planted in rice (Bowser in Devaney et al. 1982:51; Coulter and Chun in Miyagi 1963:108). By the early 1900s, there were 250 acres in rice cultivation, with much of that under the control of Sing Tai Wai, and a rice mill was operating under Wing Wo Tai (Young 1975). The rice fields in Waikāne extended to the present route of Kamehameha Highway.

Pineapple agriculture was practiced briefly in Waikāne and neighboring Waiāhole, with produce hauled to Waikāne landing via rail where it was shipped by boat to the Libby Cannery (Miyagi 1963). The railroad was also used to transport materials used in construction of the ditch system that spanned from Waiāhole to the sugarcane fields on the opposite side of the Ko‘o‘olau Mountains, but the railroad was removed in 1916 once the ditch system was built (Conde and Best 1973).

In Kualoa, sugarcane was grown as early as the 1860s by C.H. Judd and his son-in-law S.G. Wilder (Gunnness 1993:53). The two also constructed a sugar mill on the mauka side of the highway in Kualoa, the remains of which are still visible today. By 1871, the operation was shut down and the area was turned into a ranch. At Kualoa Regional Park, an airfield was built during World War II, with a 6,000 x 150 foot strip bulldozed, graded, and filled for this endeavor (Gunnness 1986:9). The park road was later constructed atop the airfield. Other military efforts in the vicinity of the project route include construction of cement bunkers and pillboxes, particularly along the cliffs above Kamehameha Highway from Kualoa to Ka‘a‘awa.

Another historic modification was the creation of Swanzy Beach Park on the makai side of the highway in Ka‘a‘awa. The 5 acre park was made possible by Mrs. F.M. (Julie Judd) Swanzy, who donated the property for the park in 1921 (Pukui et al. 1974:212).

Māhele Land Tenure and Historic Land Use

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

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

The Land Commission Awards (LCAs) that are in the immediate vicinity of the project area (adjacent to Kamehameha Highway) are shown in Figure 5. Data for these can be found in Table 1. For Waikāne 7 LCAs were found; there were 14 in Hakipuu, 30 in Kualoa, and 8 in Kaʻaʻawa. All of the awards mention loʻi, kula, and/or house lots, indicating that people were living and cultivating parcels along the project route in the mid-19th century. Other resources noted were coffee, oranges, breadfruit, melons, wauke, beans, wooded uplands, ponds, fisheries, and kai. Clearly, a diverse array of subsistence practices was taking place in the region.

**Historic Maps**

Historic maps help in visualizing what the project area was like in times past and illustrate the changes that have taken place in the region over the years. A few maps from the late 1800s to the early 1900s are presented below.

An early map of Waikāne appears to be labeled “Wakani, Koolau, Oahu,” although there is no date given (Figure 6). The coastal road is shown (likely the same route as the current Kamehameha Highway), and it is labeled “Alanui.” Near the Waikāne boundary with Waiāhole, the place where the Waikāne Stream enters the ocean is depicted as the “Muliwai o Waikane.” Around the muliwaʻi and straddling a good-sized portion on both side of the road is the “Aina kalo,” or taro lands. Further down the road, there is a rectangular area on the makai side which is labeled as a “kahua,” or open place or field, but the writing is too blurry to clarify what kind of field it is. Then near the Waikāne border with Hakipuu, a parcel of land makai of the road is clearly labeled “Aina hale pule,” or church grounds. The coastal road crosses only a little ways into Hakipuu Ahupua’a. On the Hakipuu side of the Waikāne-Hakipuu boundary, the makai side of the road is labeled “Aina kaakai.” which might be a misspelling of ‘Āina kahakai, meaning beach lands. On the mauka side of the road and going upland, it is labeled “Pahalona,” which is probably a family name.

The next map is a Hawaii Territory Survey titled “Hakipuu, Koolau, Oahu,” dated February 1880 (Figure 7). The map notes read, “The total area of the AHUPUAA is 1165.5 acres, of which area there remains to the KANAINA ESTATE 924.5 acres, comprising 10 acres of RICE LAND, the FISHPOND of 124.5 acres and 790 acres of GRAZING and MOUNTAIN LAND.” Yet in contrast to this text, the map shows two separate land grant parcels belonging to A.S. Cooke; another fairly large land grant labeled “Pahalona”; and a smaller parcel labeled “Nohonanahopu” which has a schoolhouse on it. There is one parcel of 56 acres which is labeled as the “Kanaina Estate,” and there is a very small piece of property, wedged between some kuleana lands and the 124-acre fishpond, which is labeled as the remnant estate of Kanaina. All of the land grants and Kanaina’s estate are along the coast within Hakipuu Ahupua’a, and most of them straddle the coastal road which is labeled as the “Gov’t Road.” A “Loko” (pond) and a lone coconut tree are illustrated in Kualoa, and not much is depicted in Waikāne Ahupua’a.

A map from October 1897 is titled “Waikane, Koolau Poko, Oahu” (Figure 8). Many names are written, and they appear to be the traditional place names within Waikāne Ahupua’a: Kamoa, Kahalaa, Kumuniu, Kaiki, Kaaiopuaa, Kiilau, Kahaiako, Kokowaleole, and Kaapoko. There is a coastal road that is labeled as the “Government Road,” and the lands along that road are depicted as rice lands or taro lands. Throughout the vicinity is a stream which comes from the uplands and ‘auwai which help to distribute water. A good amount of
Figure 5. Location of LCA awards along the project route. The project corridor is shown in red and ahupua'a boundaries are in blue.
<table>
<thead>
<tr>
<th>LCA</th>
<th>Claimant</th>
<th>Ahupua‘a</th>
<th>‘Ili</th>
<th>Land Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>5615</td>
<td>Kamai</td>
<td>Waikāne</td>
<td>Kumunui, Kokowaleole</td>
<td>lo‘i, house lot</td>
</tr>
<tr>
<td>5658</td>
<td>Kaheana, John Mes</td>
<td>Waikāne</td>
<td>Kaaipuaa, Puuweuweu, Kauaula, Paa, Mamane</td>
<td>lo‘i, coffee, oranges, breadfruit, melons, house lot</td>
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<tr>
<td>5712</td>
<td>Kuluahi</td>
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<td>Kahaiao, Kaapoko</td>
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<td>5919</td>
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<td>Waikāne</td>
<td>Kaaipuaa, Kupulonihoawa</td>
<td>lo‘i, kula, house lot</td>
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<td>Kumunui</td>
<td>lo‘i, kula, house lot</td>
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<td>Waikāne</td>
<td>Kamoa, Opuoa</td>
<td>lo‘i, kula, wauke, oranges</td>
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<td>10880B</td>
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<td>Waikāne</td>
<td>Kokowaleole, Kumunui, Uaa, Kaapoko</td>
<td>lo‘i, house lot</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hakipu‘u</td>
<td></td>
<td>lo‘i, house lot, wauke</td>
</tr>
<tr>
<td>3013</td>
<td>Mana</td>
<td>Hakipu‘u</td>
<td></td>
<td>lo‘i, house lot</td>
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<td>3054</td>
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<td>Hakipu‘u</td>
<td>Puukaluha</td>
<td>lo‘i, house lot</td>
</tr>
<tr>
<td>3059</td>
<td>Kaui</td>
<td>Hakipu‘u</td>
<td>Kaohewai</td>
<td>lo‘i</td>
</tr>
<tr>
<td>3062</td>
<td>Kauhiliki, wahine</td>
<td>Hakipu‘u</td>
<td>Kaohewai</td>
<td>lo‘i</td>
</tr>
<tr>
<td>3065</td>
<td>Kiloha</td>
<td>Hakipu‘u</td>
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<td>3068</td>
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<td>Hakipu‘u</td>
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<td>lo‘i, kula, house lot</td>
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<tr>
<td>4452</td>
<td>Kalama, Hazaleleponi</td>
<td>Multiple</td>
<td>Multiple</td>
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<td>5655</td>
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<td>sweet potatoes, house lot</td>
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<td>Aihulu</td>
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<td>3953</td>
<td>Niho</td>
<td>Ka‘a‘awa</td>
<td>lo‘i, kula, potatoes, bananas, wooded upland, house lot, fishery</td>
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<tr>
<td>4402</td>
<td>Kauiki</td>
<td>Ka‘a‘awa</td>
<td>lo‘i, kula, potatoes, wooded upland, house lot, kai</td>
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<td>4410</td>
<td>Kapu</td>
<td>Ka‘a‘awa</td>
<td>lo‘i, kula, potatoes, wooded upland, house lot, fishery</td>
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<tr>
<td>4443</td>
<td>Kuheleloa 1</td>
<td>Ka‘a‘awa</td>
<td>lo‘i, kula, sweet potatoes, melons, wooded upland, house lot, kai, wauke</td>
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</tr>
<tr>
<td>4469B</td>
<td>Hulue</td>
<td>Ka‘a‘awa</td>
<td>lo‘i, kula, potatoes, house lot</td>
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</tr>
<tr>
<td>8188</td>
<td>Heana</td>
<td>Ka‘a‘awa</td>
<td>lo‘i, kula, potatoes, melons, tobacco, wooded upland, house lot</td>
<td></td>
</tr>
<tr>
<td>10240</td>
<td>Makaokalai</td>
<td>Ka‘a‘awa</td>
<td>lo‘i, kula, potatoes, wooded upland, house lot</td>
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</table>
Figure 6. Portion of a Hawaiian Government Survey map of Waikāne (Kalama n.d.).
Figure 7. Portion of a Hawaii Territory Survey map of Hakipu‘u (Wall 1880).
Figure 8. Portion of a map of Waikāne (Monsarrat 1897a).
structures are also on both sides of the road. Two of these appear to be the homes of a person named Jones and a person named Maka. Other structures include a rice mill, a Protestant church, and a Roman Catholic church.

Another map is dated October 1897 but is titled “Portion of Waikane, Koolaupoko, Oahu” (Figure 9). Unlike the previous map, it shows no information for the neighboring ahupua’a of Waiāhole and Hakipu‘u. However, it does show all the same details within Waikāne and more. Like the previous map, the different place names within Waikāne are labeled; the road, streams, and ‘auwai are shown; and the various structures are depicted throughout. In addition, there is now a store on the makai side of the road around the halfway point as one drives through Waikāne. Furthermore, the many awardees of land parcels are named on this map along with the outline of their properties and their property numbers as written in the government record books.

The final map is titled “Oahu, Hawaiian Islands” and is dated 1902 (Figure 10). The map illustrates the moku, ahupua’a, and smaller land districts and features across the entire island of O‘ahu. A close-up of the region from Waikāne to Ka‘a‘awa shows the registered numbers of several land grants and LCAs. Interestingly, the map specifies only two land owners in this area by name: A.S. Cooke in Hakipu‘u; and Judd, who appears to have received former Crown Lands in Kualoa. Also, the Moli‘i Fishpond is illustrated near the Hakipu‘u-Kualoa boundary, and a rice mill is depicted in Waikāne near its border with Waiāhole.

**Previous Archaeology**

Many archaeological projects have been carried out in the vicinity of the project area. The following paragraphs summarize the most relevant reports that were found in the SHPD Kapolei library. Project locations are illustrated in Figure 11.

**Waikāne**

Very little archaeological work has been done along Kamehameha Highway in Waikāne (Table 2). An early island-wide archaeological survey identified two heiau, Site 317, Kukuianiani Heiau, and Site 318, Ka‘awakoa Heiau, in the vicinity of the highway (McAllister 1933). Site 317 was described as a small, overgrown two-terrace structure against the mountainside at the foot of Pu‘u Pueo. There is a large stone at the base of the structure that exhibits two cavities which may have been formed by pounding or grinding activity. Site 318 was once located “a few hundred feet south of Kukuianiani (Site 317)” but has since been destroyed (McAllister 1933:170).

Many decades later, an archaeological reconnaissance survey at the Waikane Golf Course identified an agricultural site on the mauka side of Kamehameha Highway (Shapiro et al. 1988). The site consists of an extensive pondfield complex of earthen berms situated along Waikāne Stream. The complex was utilized for rice agriculture in the early 1900s but may have originated earlier as a traditional lo‘i. It was given the State Inventory of Historic Places (SIHP) designation 50-80-10-4013.

An archaeological assessment was conducted for coastal areas in Waiāhole and Waikāne (Walsh et al. 1995). In the Waikāne area, several historic resources were reported, including the Waikane Store likely built in 1897, and a wooden pier that may date to 1913.

**Hakipu‘u**

Several studies have been conducted in Hakipu‘u in the vicinity of Kamehameha Highway (Table 3). McAllister’s (1933) island-wide survey identified two sites near the highway. These are Site 315, Puakea Heiau, and Site 316, a human burial that was exposed just mauka of the highway. The heiau was described as a large structure with three terraces located “above the road at the foot of a ridge” (McAllister 1933:168).
Figure 9. Portion of a map of Waikāne (Monsarrat 1897b).
Figure 10. Portion of a Hawaii Territory Survey O'ahu map (Wall 1902).
Figure 11. Previous archaeological projects. The project area is marked in red, *ahupua'a* boundaries are in blue, and approximate locations for McAllister’s (1933) sites are shown as black dots.
Table 2. Previous Archaeological Projects in the Vicinity of the Study Area, Waikāne Ahupuaʻa

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Location</th>
<th>Work Completed</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>McAllister 1933</td>
<td>Island-Wide</td>
<td>Survey</td>
<td>Identified two sites in the vicinity of the highway: Site 317 Kukuianiani Heiau and Site 318 Kaʻawakoa Heiau. The latter heiau was reported as destroyed.</td>
</tr>
<tr>
<td>Shapiro et al. 1988</td>
<td>Waikane Golf Course</td>
<td>Reconnaissance</td>
<td>Recorded Site 4013, an extensive pondfield complex along Waikāne Stream, mauka of the highway.</td>
</tr>
<tr>
<td>Walsh et al. 1995</td>
<td>Coastal Waikāne</td>
<td>Assessment</td>
<td>Recorded historic sites such as the Waikane Store and a wooden pier.</td>
</tr>
</tbody>
</table>

Table 3. Previous Archaeological Projects in the Vicinity of the Study Area, Hakipuʻu Ahupuaʻa

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Location</th>
<th>Work Completed</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>McAllister 1933</td>
<td>Island-Wide</td>
<td>Survey</td>
<td>Recorded two sites: 315, Puakea Heiau; and 316, a human burial.</td>
</tr>
<tr>
<td>Pfeffer et al. 1993</td>
<td>Hakipuʻu</td>
<td>Inventory Survey</td>
<td>Identified Site 4492, the remains of a concrete basement.</td>
</tr>
<tr>
<td>Hammatt 1994</td>
<td>Kamehameha Hwy. at Hakipuʻu</td>
<td>Archaelogical Assessment</td>
<td>Identified the disturbed remains of a historic mortuary house.</td>
</tr>
<tr>
<td>Moore &amp; Kennedy 2007</td>
<td>Hakipuʻu</td>
<td>Archaelogical Assessment</td>
<td>None.</td>
</tr>
</tbody>
</table>

An archaeological inventory survey was completed for a proposed mariculture pond expansion on 26 acres makai of the highway (Pfeffer et al. 1993). SIHP 50-80-06-4492, the remains of a concrete basement, was identified just makai of the highway.

An archaeological assessment was done for a waterline route on the makai side of Kamehameha Highway (Hammatt 1994). The disturbed remains of a 20th century mortuary house were located in the vicinity. Extensive modification for the highway roadbed was noted.

An archaeological assessment was carried out on the makai side of the highway (Moore and Kennedy 2007). No surface or subsurface historic properties were encountered.

Kualoa

The entire ahupua’a of Kualoa was placed on the National Register of Historic Places (NRHP) in 1973 for its mythological, legendary, and political importance. It was designated as SIHP 50-80-06-528. Moliʻi Fishpond is also listed on the NRHP because of its excellent state of preservation and interpretive potential. It was designated as SIHP 50-80-06-313. An early island-wide survey identified five sites: Site 308, a terrace at Lae o ka Oio; Site 310, Niuolaa Heiau; Site 311, Mokoliʻi Island; Site 312, Koholālele Pond; and Site 31, Moliʻi Pond (McAllister 1933). Site 310 is closest to the highway but McAllister reported that “nothing remains of the site” (1933:167).

Many prior studies have been conducted at Kualoa Regional Park (Table 4). Among the earliest work was a preliminary investigation that focused on subsurface testing (Barrera 1974). A total of 51 1x1 m test pits were excavated throughout the East Beach area of the park. A subsurface cultural deposit was identified in the north
Table 4. Previous Archaeological Projects in the Vicinity of the Study Area, Kualoa Ahupu‘a’a

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Location</th>
<th>Work Completed</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>McAllister 1933</td>
<td>Island-Wide</td>
<td>Survey</td>
<td>Identified five sites near the highway in Kualoa: Site 308, a terrace at Lae o ka Oio; Site 310, Niulolaa Heiau (reported destroyed; Site 311, Mokoli’i Island; Site 312, Koholālele Pond; and Site 313, Moli‘i Fishpond.</td>
</tr>
<tr>
<td>Barrera 1974</td>
<td>Kualoa Regional Park, East Beach</td>
<td>Subsurface Testing</td>
<td>Cultural deposit with pits, postholes, traditional and nontraditional artifacts, midden, and a human burial.</td>
</tr>
<tr>
<td>Clark &amp; Connoly 1975</td>
<td>Kualoa Regional Park, East Beach</td>
<td>Survey, Subsurface Testing</td>
<td>Buried fishpond wall; traditional artifacts on the reef.</td>
</tr>
<tr>
<td>Clark &amp; Connoly 1978</td>
<td>Kualoa Regional Park</td>
<td>Archaeological Recommendations</td>
<td>Proposed recommendations for interpretive programs.</td>
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<tr>
<td>Gunness 1978</td>
<td>Kualoa Regional Park</td>
<td>Reconnaissance</td>
<td>None.</td>
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<tr>
<td>Ahlo 1980</td>
<td>Kualoa Regional Park, East Beach</td>
<td>Subsurface Testing</td>
<td>Most of the project area previously disturbed, but remnants of cultural deposits were found below the surface.</td>
</tr>
<tr>
<td>Gunness 1984</td>
<td>Kualoa Regional Park, South Beach</td>
<td>Subsurface Testing</td>
<td>Recorded 98 subsurface features and roughly 3,500 traditional artifacts near the South Beach access road. Features included pits, post holes, a human burial, and a dog burial. A stone bath house, whole pig offering, and fishpond wall were recorded in other areas.</td>
</tr>
<tr>
<td>Gunness 1985a, 1985b</td>
<td>Kualoa Regional Park</td>
<td>Subsurface Testing, Archaeological Assessment</td>
<td>Recorded an imu surrounded by post holes and a large assemblage of traditional artifacts.</td>
</tr>
<tr>
<td>Hammatt 1985</td>
<td>Kualoa Ranch</td>
<td>Reconnaissance</td>
<td>None.</td>
</tr>
<tr>
<td>Rutkowski 1988</td>
<td>Kualoa Regional Park</td>
<td>Burial Report</td>
<td>A skull and &quot;several other bones&quot; found near second bathroom.</td>
</tr>
<tr>
<td>Omori 1989</td>
<td>Kualoa Regional Park</td>
<td>Burial Report</td>
<td>Two individuals identified, one of which was a young Hawaiian female.</td>
</tr>
<tr>
<td>Pietrusewsky &amp; Douglas 1989</td>
<td>Kualoa Regional Park</td>
<td>Burial Report</td>
<td>Analyzed 42 sets of remains, 41 of which were traditional Hawaiian and one post-contact.</td>
</tr>
<tr>
<td>Douglas 1990, Kawachi &amp; Johnson 1990</td>
<td>Kualoa Regional Park</td>
<td>Burial Report</td>
<td>Identified one adult female, two adult males, one child, and two unassociated bone fragments.</td>
</tr>
<tr>
<td>Douglas 1991</td>
<td>Kualoa Regional Park</td>
<td>Burial Report</td>
<td>One adult male recovered from the south side of East Beach</td>
</tr>
<tr>
<td>Goodman &amp; Cleghorn 1991</td>
<td>Kualoa Regional Park, East &amp; South Beaches</td>
<td>Monitoring &amp; Salvage Excavations</td>
<td>Two human burials, a historic rock wall, a row of post holes, and a small artifact assemblage were documented.</td>
</tr>
<tr>
<td>Meeker 1991</td>
<td>Kualoa Regional Park</td>
<td>Monitoring</td>
<td>Identified a disturbed midden deposit, two pits, and two post holes.</td>
</tr>
<tr>
<td>Somer 1991</td>
<td>Kualoa Regional Park</td>
<td>Burial Report</td>
<td>One adult male recovered from a pit feature.</td>
</tr>
<tr>
<td>Author &amp; Year</td>
<td>Location</td>
<td>Work Completed</td>
<td>Findings</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------</td>
<td>-------------------------</td>
<td>----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cleghorn 1994</td>
<td>Kualoa Regional Park, East Beach</td>
<td>Burial Report</td>
<td>One individual identified at East Beach.</td>
</tr>
<tr>
<td>Lee 1994</td>
<td>Kualoa Regional Park</td>
<td>Artifact Report</td>
<td>Reported on an adze exposed by erosion.</td>
</tr>
<tr>
<td>Colin, Heidel et al. 1995</td>
<td>Kualoa Regional Park</td>
<td>Data Recovery</td>
<td>Documented fire features and post holes and collected basalt flakes and midden.</td>
</tr>
<tr>
<td>Dye 1995</td>
<td>Kualoa Regional Park, East Beach</td>
<td>Burial Report</td>
<td>One coffin burial recorded.</td>
</tr>
<tr>
<td>Dye 1996a</td>
<td>Kualoa Regional Park</td>
<td>Burial Report</td>
<td>One individual recovered from the south side of East Beach.</td>
</tr>
<tr>
<td>Spear 1996; Dye 1996b</td>
<td>Kamehameha Hwy. outside Kualoa Ranch</td>
<td>Monitoring; Burial Report</td>
<td>Identified Site 5376, a human burial and cultural layer.</td>
</tr>
<tr>
<td>Borthwick et al. 1999</td>
<td>Kualoa Regional Park</td>
<td>Monitoring</td>
<td>None.</td>
</tr>
<tr>
<td>Hammatt &amp; Shideler 1999</td>
<td>Kualoa Regional Park</td>
<td>Assessment</td>
<td>Literature review completed, archaeological monitoring recommended.</td>
</tr>
<tr>
<td>Hammatt &amp; Shideler 2000</td>
<td>Kualoa Regional Park, East Beach</td>
<td>Investigation of Bulldozer</td>
<td>Three midden deposits and a trash pit.</td>
</tr>
<tr>
<td>Perzinski et al. 2000</td>
<td>Kualoa Regional Park</td>
<td>Monitoring</td>
<td>Documented a cultural layer with midden.</td>
</tr>
<tr>
<td>Hammatt &amp; Shideler 2001</td>
<td>Kualoa Regional Park</td>
<td>Monitoring</td>
<td>Midden and a ceramic sherd collected.</td>
</tr>
<tr>
<td>Cleghorn et al. 2002</td>
<td>Kualoa Ranch</td>
<td>Assessment</td>
<td>None.</td>
</tr>
<tr>
<td>Hamano &amp; Cleghorn 2003</td>
<td>Kualoa Ranch</td>
<td>Monitoring</td>
<td>Identified Site 6515, a human burial and two charcoal concentrations.</td>
</tr>
<tr>
<td>Rohrer 2005</td>
<td>Kualoa Regional Park</td>
<td>Monitoring</td>
<td>None.</td>
</tr>
<tr>
<td>Carson &amp; Athens 2006</td>
<td>Kualoa Regional Park</td>
<td>Monitoring and Data Recovery</td>
<td>Provided further documentation for the subsurface cultural deposit known for the area.</td>
</tr>
<tr>
<td>Dye &amp; Jourdane 2007</td>
<td>Kualoa Ranch</td>
<td>Historic Properties Assessment</td>
<td>None.</td>
</tr>
<tr>
<td>Colin &amp; Hammatt 2008</td>
<td>Kualoa Regional Park, East Beach and Kualoa Point</td>
<td>Assessment and Subsurface Testing</td>
<td>Testing at East Beach uncovered a cultural layer with scattered bone fragments, some of them human.</td>
</tr>
<tr>
<td>Morriss &amp; Hammatt 2015</td>
<td>Kualoa Regional Park</td>
<td>Data Recovery</td>
<td>Encountered Site 7397, a previously identified cultural layer, and Site 7752, a newly identified cultural layer.</td>
</tr>
</tbody>
</table>
end, thought to be associated with Site 50-Oa-G1-22 which had been recorded by the Bishop Museum. In all, 35 distinct archaeological features were identified, including pits, post holes, and a human burial. A wide range of artifacts were recovered, such as fishing gear, adzes and other tools, basalt and volcanic glass flakes, midden, and historic items.

Subsequent work aimed to “determine the nature and extent of archaeological remains” recorded by Barrera (1974) and to “enhance the cultural and environmental significance of the park through archaeological research and interpretive inputs” (Clark and Connolly 1975:i). Excavations at the South Beach of the park uncovered a fishpond wall thought to be associated with ʻĀpua Pond. Pre-contact artifacts were also recovered from reef areas. A later report proposed recommendations for interpretive programs (Clark and Connolly 1978). Sites with high interpretive value included East Beach, Mokoliʻi Island, ʻĀpua Fishpond, Moliʻi Fishpond, Koholālele Pond, a submerged fishpond wall, a stone house and pig burial area, and a stone platform in the northwest corner of the park that may be Niuolaa Heiau.

An archaeological reconnaissance survey was conducted for proposed beach replenishment between East and South Beach (Gunness 1978). A literature review, pedestrian survey, and test trenching did not identify historic properties, as the area had been extensively disturbed.

Subsurface testing was conducted at the East Beach of Kualoa Regional Park (Ahlo 1980). Most of the project area was found to be previously disturbed, however remnants of cultural deposits were identified below the surface in several locations.

Additional work was conducted at South Beach (Gunness 1984). Excavations at a stone bath house revealed a variety of traditional artifacts, post holes, and a whole pig skeleton. As the pig was not eaten, it is thought to have been placed as an offering at the ahupuaʻa boundary. Dates obtained from volcanic glass in this area suggested an age of the mid-15th century AD, although the method of dating volcanic glass has since been deemed unreliable (e.g., Graves and Ladefoged 1991). An area near the South Beach access road had been bulldozed without an archaeologist present, and a cultural layer with a large number of artifacts was disturbed. A total of 98 features were identified within seven test pits. They consisted of pits, post holes, a human burial, a dog burial, and roughly 3,500 artifacts, including worked bone and pearl shell, a niho palaoa, coral abraders, a range of basalt tools, 589 pieces of volcanic glass, and more than 1,500 basalt flakes. A fishpond wall was also found, although only 20th century historic material was recovered from that area.

Subsurface testing was conducted prior to road improvements throughout the park (Gunness 1985a, 1985b). Heavy disturbance was noted in most areas, although an intact imu surrounded by post holes was found. Thousands of basalt flakes and a variety of other traditional artifacts were associated with the feature. Items collected include adzes, awls, hammerstones, an ʻulu maika, coral abraders, and a poi pounder.

Archaeological monitoring and salvage excavations were carried out on the East and South Beaches of the park for tree removal and replanting (Goodman and Cleghorn 1991). Two human burials were excavated. One was located on East Beach and the other in the tree nursery near the maintenance building. A historic rock wall and row of post holes were also identified in the tree nursery. A small selection of traditional and historic artifacts was also recovered.

Archaeological monitoring was conducted for sand replenishment and tree removal and replanting activities at the park (Meeker 1991). Midden, charcoal flecks, basalt debitage, and fire cracked rock were observed along the edge of an old farm road near Moliʻi Pond. The area was found to be heavily disturbed. Four subsurface features were noted within tree removal holes, consisting of two pits and two post holes. A few years later, an adze was found eroding out of the sand at Kualoa Regional park (Lee 1994). The adze and an associated cultural layer were exposed during high tide.
Data recovery excavations were carried out at five subsurface features in the park (Colin, Heidel, et al. 1995). The features consisted of fire pits and post holes, and basalt flakes and midden were collected. The area was heavily disturbed by historic and modern activity. A set of human remains was also disinterred (Colin, Borthwick, and Hammatt 1995).

Archaeological monitoring was completed for the removal of contaminated soil at the maintenance yard in the park (Bush and Hammatt 1998). No cultural material or deposits were encountered. A year later, a literature review was completed for reconstruction of the wastewater system at the park (Hammatt and Shideler 1999). Archaeological monitoring was recommended. Monitoring was conducted for percolation test pits associated with the wastewater reconstruction (Borthwick et al. 1999). There were no findings.

Several areas of bulldozing within Kualoa Regional Park were inspected (Hammatt and Shideler 2000). Surface collection and sampling was conducted for three midden scatters and a trash pit. A range of traditional and historic artifacts were documented, the latter consisting of material dating from 1815 to the early 1900s.

Archaeological monitoring was conducted for Americans with Disability Act (ADA) improvements to the park (Perzinski et al. 2000). Two midden concentrations and a cultural layer were identified. Among the cultural material collected were 350 g of midden, a 1920s–1930s era glass bottle, and a few basalt artifacts.

Archaeological monitoring was completed for soil testing at the proposed multipurpose building in the park (Hammatt and Shideler 2001). Marine shell midden and a single ceramic sherd were the only materials recorded. A few years later, archaeological monitoring was carried out for a water line break at the second bathroom at the park (Rohrer 2005). No findings were reported.

Archaeological monitoring and data recovery were completed during road realignment and landscaping (Carson and Athens 2006). A previously recorded cultural layer was further documented. A variety of traditional artifacts and midden were recovered, and post holes, fire pits, and stone pavings were recorded. Radiocarbon dating from the base of the cultural layer placed the earliest occupation at ca. AD 1040–1280. A canal that linked Koholālele Pond to the sea was also found.

A literature review and subsurface testing were conducted for an erosion control project (Colin and Hammatt 2008). Two test units excavated at East Beach revealed a subsurface cultural layer that contained scattered bone fragments, some of them human.

Recent work at the park included data recovery at SIHP 50-80-06-7397 and 50-80-06-7752, two subsurface cultural layers (Morriss and Hammatt 2015). The former was previously recorded, but 13 new pits and a selection of midden and traditional artifacts were identified. The latter included nine pits and fragmented human remains.

Kualoa Regional Park has a long history of human remains being exposed by erosion, and a number of burial reports have been filed. Those reports found in the SHPD library in Kapolei are summarized in the following paragraphs.

A skull and “several other bones” were found makai of the second bathroom in the park (Rutkowski 1998:1). They were taken to the police station and then transferred to the City and County Morgue. Remains were later found at an undisclosed location in the park and taken to the Honolulu Medical Examiner’s Facility in Honolulu (Omori 1989). At least two individuals were represented, one of which was a young Hawaiian female.

A large assemblage of human remains from Kualua Regional Park were analyzed (Pietrusewsky and Douglas 1989). Of the 42 sets of remains, 41 were traditional Hawaiian and one was post-contact (dating to after 1778). Of these, roughly two-thirds were adults, and 14 were female and 11 male. All age groups were represented,
Several sets of remains were found eroding out of the sand at SIHP 50-80-06-528 and examined at SHPD (Douglas 1990, Kawachi and Johnson 1990). One adult female, one adult male, and one child were identified in the first burial, an adult male was found in a second burial, and two unassociated bone fragments were also recovered. Another set of remains was documented on the south side of East Beach (Douglas 1991). They were identified as an adult male. Yet another set of remains was collected after being exposed by erosion (Somer 1991). The remains were excavated from a pit feature and identified as an adult male.

Again, one individual was found eroding out of the sand at East Beach (Cleghorn 1994). The individual was in a flexed position within a burial pit and designated as part of SIHP 50-80-06-528. A coffin burial was found near the historic burial identified during earlier work by Gunness (1984) (Dye 1995). It was posited that the two burials are related and associated with the LCA parcel belonging to Kaneakalau (Dye 1995). Another burial was later identified eroding from the sand on the south side of East Beach (Dye 1996a). It consisted of one individual in a burial pit with no grave goods. The burial was designated as SIHP 50-80-06-5371.

A few previous studies have been conducted at Kualoa Ranch in the vicinity of Kamehameha Highway. The first was an archaeological reconnaissance between Moliʻi Pond and the highway (Hammatt 1985). The project site was previously graded and no surface archaeological remains were observed. Subsequent archaeological monitoring for another project identified a human burial and cultural deposit at Kualoa Ranch along Kamehameha Highway (Spear 1996, Dye 1996b). The remains were left in place at “approximately 400 feet [on the] Kaʻaʻawa side of the old sugar mill” near telephone pole #179 (Spear 1996:1). The burial was designated as SIHP 50-80-06-5376. A basalt awl and fragmented human remains were encountered in other excavations. An archaeological assessment was completed for a telecommunications facility just mauka of the highway across the street from Kualoa Regional Park (Cleghorn et al. 2002). There were no findings. Archaeological monitoring was conducted for a telecommunications facility at Koaia Point, mauka of the highway (Hamano and Cleghorn 2003). SIHP 50-80-06-6515 was recorded, consisting of a human burial and two charcoal concentrations. The human remains were left in place. Finally, a historic properties assessment was completed for a proposed cell antenna at Kualoa Ranch, just mauka of the highway in the vicinity of the paintball field (Dye and Jourdane 2007). The project area was located in a previously disturbed area with no surface archaeological remains.

Kaʻaʻawa

Several archaeological studies have been conducted in the vicinity of the project area in Kaʻaʻawa (Table 5). McAllister’s island-wide survey identified three sites near Kamehameha Highway. These consist of Site 305, a koʻa at Kalai o Kuonopuaa Point; Site 306, a burial near Lae o ka Ōio, and Site 307 a legendary cave. The cave is named Pohokaina, Pohukaina, or Pahukaina, and it is said to have many entrances, the most famous of which is at the boundary of Kualoa and Kaʻaʻawa.

A number of human burials have been found near Kamehameha Highway in Kaʻaʻawa. SIHP 50-80-06-3759 includes several burials and an associated cultural layer (Smith 1988, Cleghorn 1991, Dye and Lee 1996). SIHP 4728 is a single burial located on the mauka side of the highway (Jourdane 1993).

An archaeological assessment was conducted for wastewater improvements to Kaʻaʻawa Elementary School (Tulchin and Hammatt 2009). There were no findings. Another archaeological assessment of a private lot produced no findings (Winburn and Desilets 2009). Later archaeological monitoring at Kaʻaʻawa Elementary School identified SIHP 50-80-06-7121, a human burial; and 50-80-06-7122, a cultural layer with pit features, dog remains, midden, and sparse traditional artifacts (Groza and Hammatt 2010).
Table 5. Previous Archaeological Projects in the Vicinity of the Study Area, Kaʻaʻawa Ahupuaʻa

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Location</th>
<th>Work Completed</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>McAllister 1933</td>
<td>Island-Wide</td>
<td>Survey</td>
<td>Identified 3 sites near the highway: 305, a koʻa; 306, a human burial; and 307 a cave.</td>
</tr>
<tr>
<td>Jourdane 1993</td>
<td>Coastal Kaʻaʻawa</td>
<td>Burial Report</td>
<td>Documented Site 4728, a human burial.</td>
</tr>
<tr>
<td>Tulchin &amp; Hammatt 2009</td>
<td>Kaʻaʻawa Elementary School</td>
<td>Assessment</td>
<td>None.</td>
</tr>
<tr>
<td>Winburn &amp; Desilets 2009</td>
<td>TMK: (1) 5-1-002:004</td>
<td>Assessment</td>
<td>None.</td>
</tr>
<tr>
<td>Groza &amp; Hammatt 2010</td>
<td>Kaʻaʻawa Elementary School</td>
<td>Monitoring</td>
<td>Recorded Site 7121, a human burial; and Site 7122, a cultural layer.</td>
</tr>
</tbody>
</table>

Summary of Background Research

The project lands were rich in natural resources such as fresh water, agricultural areas, and coastal resources. Because of this, the region likely supported a sizeable population. Wetland taro was grown mostly in Waikāne and Hakipuʻu, but Kualoa and Kaʻaʻawa had plentiful fishing grounds. Several fishponds in Kualoa and Hakipuʻu added to the abundance of the region.

The study area is steeped in tradition, particularly Kualoa, which was so sacred that canoes would have to lower their sails when passing by. Kualoa was also where tribute from each ahupuaʻa was amassed at the end of the makahiki circuit. Hakipuʻu was the site of the first heiau and the first cultivation on ʻulu. The region also figures prominently in the Hiʻiaka and Lohiau epic, with Mokoliʻi Islet formed when Hiʻiaka slew a dragon.

A large number of LCA claims were awarded for parcels in the vicinity of the project route. Data for these claims indicates that loʻi, kula, and house lots were common, and diversified agriculture and fishing were practiced during the 19th century.

The historic period brought about widespread changes to the region, including rice, pineapple, and sugarcane agriculture and their associated infrastructure. Rice and pineapple cultivation were mostly focused in Waikāne, and a rice mill, railroad, and pier were in operation there. Sugarcane agriculture was short lived in Kualoa, but the remains of a sugar mill along Kamehameha Highway are a silent testament to the endeavor. Military interests also affected the landscape with an airstrip constructed at Kualoa and various bunkers established along the cliffs.

Previous archaeological projects have identified a wide range of archaeological sites, features, and cultural material in the area of study. In Waikāne, two heiau (one reported as destroyed), an agricultural complex, the historic Waikane Store, and a historic pier have been recorded. In Hakipuʻu, a heiau, a human burial, and the remains of two historic structures were reported. The entire ahupuaʻa of Kualoa is a NRHP site, and a wide variety of archaeological remains have been documented there. Most notable are cultural layers with fire pits, post holes, and abundant traditional artifacts and midden; a large number of human burials; fishpond remains; and a whole pig burial. Radiocarbon dating from the base of one of the cultural layers placed the earliest occupation at ca. AD 1040–1280. Cultural material and human remains continue to be exposed from erosion at Kualoa.
Regional Park. Work along the highway in Ka‘a‘awa has identified a ko‘a, a legendary cave, a cultural layer, and several human burials.

**Archaeological Implications and Anticipated Finds**

Background research indicates that a wide variety of archaeological remains may be encountered during monitoring along Kamehameha Highway from Waikāne to Ka‘a‘awa. As for traditional sites, agricultural remains are most likely to be found in Waikāne Ahupua‘a, while subsurface cultural layers, traditional artifacts, and human burials can be expected in Kualoa and Ka‘a‘awa. Post-contact sites may be present along the entire project route and may consist of agricultural, ranching, or military structural remains and cultural material.

One human burial is known to have been left in place on the mauka side of Kamehameha Highway in Kualoa. If ground disturbance is to occur in this area, the exact location of the burial and a designated buffer zone should be clearly marked so that the burial is protected during construction. The marker may consist of construction fencing, caution tape, or other barriers.
PROJECT DESIGN

Ground disturbing activity during construction may have an effect on historic properties that might occur along the project route. Any adverse effects may be mitigated through archaeological monitoring. The monitoring level of effort will vary along the length of the project corridor based on the archaeological resources that can be expected in each area. The southern half of the project route from Waikāne to Hakipuʻu Ahupuaʻa will require once a week spot checks and on call monitoring because of the low density of archaeological resources expected there. The northern half from Kualoa 1 to Kaʻaʻawa Ahupuaʻa will require full time monitoring because of the high density of archaeological resources expected and potential for encountering human burials.

Project Personnel

A senior archaeologist, qualified under Hawaiʻi Administrative Rules (HAR) §13-281 will serve as principal investigator for the project. The principal investigator will be responsible for overall project organization and management, will ensure high standards for field sampling and laboratory analyses, may conduct field visits and direct supervision of field personnel as appropriate, and will review the content of the monitoring report. The archaeological monitor will have sufficient fieldwork experience in Hawaiʻi or have completed sufficient college-level coursework in Anthropology and Hawaiian Archaeology. If archaeological remains are identified, the monitor has the authority to halt ground disturbing activities in the immediate area of the find.

Fieldwork

Prior to fieldwork, the archaeological monitor and/or principal investigator will meet with the construction team to discuss the monitoring plan. The archaeologist will ensure that the construction team understands the purpose of the monitoring and that the monitor has the authority to halt construction activity.

Field recording and sampling may include, but are not limited to, the drawing of stratigraphic profiles, photography, and controlled excavation of exposed features. Accurate map locations of test units, stratigraphic profiles, and archaeological features, deposits, and artifacts will be maintained. Field recording and sampling are intended to mitigate any potentially adverse effects to historic properties. Standards of documentation, recording, and analysis shall accord with HAR §13-279.

If human remains are discovered during monitoring, work in the vicinity of the remains will cease and the archaeological monitor will protect any exposed bones, secure the area, and notify the proper authorities. No further work will take place in the immediate vicinity, although work in other areas of the project site may continue. In the event of inadvertent discovery of non-burial historic properties, SHPD shall be consulted concerning appropriate mitigation measures. Any inadvertent discovery of burial historic properties will follow procedures as indicated in HAR §13-300-40 and HRS Chapter 6E-43. All burial material will be addressed as directed by the SHPD/Department of Land and Natural Resources (DLNR).

As noted previously, one human burial is known to have been left in place on the mauka side of Kamehameha Highway in Kualoa. The remains are located at “approximately 400 feet [on the] Kaʻaʻawa side of the old sugar mill” near telephone pole #179 (Spear 1996:1). If ground disturbance is to occur in this area, the exact location of the burial and a designated buffer zone should be clearly marked so that the burial is protected during construction. The marker may consist of construction fencing, caution tape, or other barriers.
Post-Field Actions

The nature and scope of post-field actions will vary according to the results of the fieldwork. At minimum, if no archaeological remains are discovered, a report documenting the negative findings will be produced and submitted to SHPD. If archaeological remains are discovered, appropriate analyses will be conducted and reported.

Laboratory analyses of cultural material and sediments will be conducted in accordance with HAR §13-279 and will follow the SHPD *Rules Governing Standards for Archaeological Monitoring Studies and Reports* (§ 13-279-4). The specific procedures employed in laboratory analysis will vary according to the kinds of remains that are recovered. For example, artifacts will be measured, weighed, sketched or photographed, and identified as appropriate. Faunal material will be weighed, counted, and taxonomically identified to the highest level of detail possible.

Materials not associated with human burials will be temporarily stored at the contracted archeologist’s facility until an appropriate curation facility is selected, in consultation with the landowner and SHPD. Any departure from these provisions will be in consultation with and written concurrence from SHPD.

Preparation of a final report shall conform to HAR §13-279. Photographs of excavations will be included in the monitoring report even if no historically-significant sites are documented. A draft monitoring report shall be prepared and submitted to SHPD in a timely manner, within four months following the end of fieldwork. A revised final report will be submitted within one month following receipt of review comments on the draft report. Should burials and/or human remains be identified, other letters, memos, and/or reports may be required.
SUMMARY AND CONCLUSION

In summary, archaeological monitoring will be conducted for ground disturbing activity associated with improvements to Kamehameha Highway in Waikāne, Hakipuʻu, and Kualoa 1 and 2 Ahupuaʻa, Koʻolaupoko District, and Kaʻaʻawa Ahupuaʻa, Koʻolaupoko District, on the island of Oʻahu, Hawaiʻi. The project route will cover 7.9 km (4.9 mi.), crossing through portions of TMK: (1) 4-8-003, -004, -005; 4-9-001, -002, -003, -004, -005, -006, -007, -008, -009; 5-1-001, -003, -006, -008, -009, and -013, aside from a 200 m-long exception zone at the Hakipuʻu/Kualoa 1 Ahupuaʻa boundary where there will be no construction.

Background research suggests that a wide variety of archaeological remains may be encountered along the project route. Archaeological sites are less frequent along the highway in Waikāne and Hakipuʻu Ahupuaʻa and occur in larger numbers in Kualoa and Kaʻaʻawa. Traditional agricultural remains may be found in Waikāne, while subsurface cultural layers, traditional artifacts, and human burials might be expected in Kualoa and Kaʻaʻawa. Post-contact sites also may be present along the entire project route and may consist of agricultural, ranching, or military structural remains and cultural material.

The monitoring level of effort will vary along the length of the project route based on the archaeological resources that can be expected in each place. The southern half of the project corridor from Waikāne to Hakipuʻu Ahupuaʻa will require once a week spot checks and on call monitoring because of the low density of archaeological resources expected there. The northern half from Kualoa 1 to Kaʻaʻawa Ahupuaʻa will necessitate full time monitoring because of the high density of archaeological resources expected and potential for encountering human burials.

One human burial is known to have been left in place on the mauka side of Kamehameha Highway in Kualoa. If ground disturbance is to occur in this area, the exact location of the burial and a designated buffer zone should be clearly marked so that the burial is protected during construction.
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ahupua‘a</td>
<td>Traditional Hawaiian land division usually extending from the uplands to the sea.</td>
</tr>
<tr>
<td>‘auwai</td>
<td>Ditch, often for irrigated agriculture.</td>
</tr>
<tr>
<td>awa</td>
<td>The milkfish, or <em>Chanos chanos</em>, often raised in fishponds in ancient times.</td>
</tr>
<tr>
<td>debitage</td>
<td>Waste by-products of stone tool manufacture.</td>
</tr>
<tr>
<td>hala</td>
<td>The indigenous pandanus tree, or <em>Pandanus odoratissimus</em>, which had many uses in traditional Hawai‘i. Leaves were used in mats, house thatch, and basketry; flowers were used for their perfume; keys were utilized in lei and as brushes; roots and leaf buds were used medicinally; and wood was fashioned into bowls and other items.</td>
</tr>
<tr>
<td>heiau</td>
<td>Place of worship and ritual in traditional Hawai‘i.</td>
</tr>
<tr>
<td>humuhumunukunukuāpua‘a</td>
<td>A triggerfish of the genus <em>Rhinocanthus</em>, either <em>R. aculeatus</em> or <em>R. rectangulus</em>.</td>
</tr>
<tr>
<td>‘ili</td>
<td>Land division, next in importance to ahupua‘a and usually a subdivision of an ahupua‘a.</td>
</tr>
<tr>
<td>imu</td>
<td>Underground pit or oven used for cooking.</td>
</tr>
<tr>
<td>inoa</td>
<td>Name, term, title.</td>
</tr>
<tr>
<td>kahakai</td>
<td>Beach, seashore, coast.</td>
</tr>
<tr>
<td>Kahiki</td>
<td>A far away land, sometimes refers to Tahiti.</td>
</tr>
<tr>
<td>kahua</td>
<td>Open place for sports, such as ‘ulu maika.</td>
</tr>
<tr>
<td>kahuna</td>
<td>An expert in any profession, often referring to a priest, sorcerer, or magician.</td>
</tr>
<tr>
<td>kai</td>
<td>Sea, sea water; area near the sea, seaside, lowlands; tide, current in the sea; insipid, brackish, tasteless.</td>
</tr>
<tr>
<td>kalo</td>
<td>The Polynesian-introduced <em>Colocasia esculenta</em>, or taro, the staple of the traditional Hawaiian diet.</td>
</tr>
<tr>
<td>kapa</td>
<td>Tapa cloth.</td>
</tr>
<tr>
<td>kapu</td>
<td>Taboo, prohibited, forbidden.</td>
</tr>
<tr>
<td>ko‘a</td>
<td>Fishing shrine.</td>
</tr>
<tr>
<td>konohiki</td>
<td>The overseer of an ahupua‘a ranked below a chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.</td>
</tr>
<tr>
<td>kula</td>
<td>Plain, field, open country, pasture, land with no water rights.</td>
</tr>
<tr>
<td>kuleana</td>
<td>Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.</td>
</tr>
<tr>
<td>kupua</td>
<td>Demigod, hero, or supernatural being below the level of a full-fledged deity.</td>
</tr>
<tr>
<td>lo‘i, lo‘i kalo</td>
<td>An irrigated terrace or set of terraces for the cultivation of taro.</td>
</tr>
<tr>
<td>loko</td>
<td>Inside, interior. Pond, lake, pool.</td>
</tr>
<tr>
<td>Māhele</td>
<td>The 1848 division of land.</td>
</tr>
</tbody>
</table>
makahiki  A traditional Hawaiian festival starting in mid October. The festival lasted for approximately four months, during which time there was a kapu on war.

makai  Toward the sea.

mauka  Inland, upland, toward the mountain.

menhune  Small people of legend who worked at night to build structures such as fishponds, roads, and heiau.

midden  A heap or stratum of refuse normally found on the site of an ancient settlement. In Hawai‘i, the term generally refers to food remains, whether or not they appear as a heap or stratum.

moku  District, island.

mo‘o  Lizard, dragon, water spirit.

mo‘olelo  A story, myth, history, tradition, legend, or record.

muliwai  River mouth, estuary, or pool near the mouth of a stream, enlarged by ocean water left there at high tide.

mullet  *Mugil cephalus*, or ‘ama‘ama, a very choice indigenous fish.

niho palaoa  Pendant fashioned from whale tooth worn by Hawaiian royalty.

‘ōlelo no‘eau  Proverb, wise saying, traditional saying.

poi  A staple of traditional Hawai‘i, made of cooked and pounded taro mixed with water to form a paste.

post-contact  After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.

pre-contact  Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.

pu‘uhonua  Place of refuge.

‘ulu  The Polynesian-introduced tree *Artocarpus altilis*, or breadfruit.

‘ulu maika  Stone used in the maika game, similar to bowling.

wauke  The paper mulberry, or *Broussonetia papyrifera*, which was made into tapa cloth in traditional Hawai‘i.
REFERENCES

Ahlo, H.M., Jr.

Barrera, W., Jr.
1974 Preliminary Archaeological Investigations at Kualoa, Oahu, Hawaii.

Borthwick, D.F., D.W. Shideler, and H.H. Hammatt
1999 Archaeological Monitoring Report for the Percolation Test Pits for the Upgrading of the Kualoa Regional Park Wastewater System Kualoa, Ko'olaupoko, O'ahu (TMK: 4-9-04:01). Cultural Surveys Hawaii, Kailua, Hawaii'i.

Bush, T. and H.H. Hammatt

Carson, M.T. and J.S. Athens
2006 Archaeological Monitoring and Data Recovery at Kualoa Regional Park, Kualoa Ahupua'a, Ko'olaupoko District, O'ahu Island, Hawai'i O'ahu Island Tax Map Key (TMK) 4-9-4:01. International Archaeological Research Institute, Inc., Honolulu.

Clark, S.D. and R.D. Connolly
1975 Progress Report of Archaeological Investigations at Kualoa Regional Park Island of Oahu TMK: (1) 4-9-4:1.

1978 A Report on Inputs for Interpretive Programs at Kualoa Regional Park Island of Oahu.

Cleghorn, J.
1991 Disinterment of Eroding Burial at Kanelu Beach, Ka'a'awa, Ko'olaualoa, O'ahu, Site 50-80-06-3759. State Historic Preservation Division, Honolulu.

Cleghorn, P.
1994 Eroding Burial from East Beach at Kualoa Park. Biosystems Analysis, Kailua, Hawai'i.

Cleghorn, P.L., C. Cesario, and B. Whitehead
2002 Archaeological Assessment of the Proposed Voicestream Telecommunications Facility at Kualoa Ranch, O'ahu (TMK 4-9-4:02). Pacific Legacy, Inc., Kailua, Hawaii'i.

Colin, B.L., M.J. Heidel, D.F. Borthwick, and H.H. Hammatt

Colin, B.L., D.F. Borthwick, and H.H. Hammatt

Colin, B.L. and H.H. Hammatt
2008 Archaeological Assessment and Sub Surface Testing for the Kualoa Erosion Control Project, Kualoa Regional Park, Kualoa, Oahu. Cultural Surveys Hawaii, Kailua, Hawaii'i.
Conde, J.C. and G.M. Best  

Devaney, D.M., M. Kelly, P.J. Lee, and L.S. Motteler  

Douglas, M.T.  

Dye, T.  
1995 *Coffin Burial Recovered at the Eroding East Beach of Kualoa Regional Park*. State Historic Preservation Division.


Dye, T. and M. Lee  

Dye, T.S. and E.H.R. Jourdane  

Emerson, N.B.  

Foote, D., E. Hill, S. Nakamura, and F. Stephens  
1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. United States Department of Agriculture, Soil Conservation Service. Published in cooperation with the University of Hawaii Agricultural Experiment Station, Washington, D.C.

Fornander, A.  

Goodman, W. and P.L. Cleghorn  

Graves, M.W. and T.N. Ladedfoged  
Groza, R. and H.H. Hammatt  

Gunness, J.  
1978 *Archaeological Reconnaissance Report for Kualoa Beach Sand Replenishment Project Kualoa Regional Park Island of Oahu*. Department of Parks and Recreation City and County of Honolulu.

1984 *An Interim Report on Archaeological Testing in the South Beach Area of Kualoa Regional Park, Oahu Island, Hawaii.*

1985a *Interim Report on Archaeological Testing for the Kualoa Regional Park Road Improvements Project.*

1985b *Archaeological Assessment of the Proposed Kualoa Residential Park “Road Improvements” Project.*

1986 *Final Report on Archaeological Testing prior to the Kualoa Regional Park Road Improvements Project.*


Hamano, L. and P.L. Cleghorn  

Hammatt, H.  


Hammatt, H.H. and D.W. Shideler  
1999 *Archaeological Assessment for Reconstruction of Wastewater Systems at Kualoa Regional Park, Kualoa Ahupuaʻa, Koʻolaupoko, Oʻahu, Hawaiʻi (TMK 4-9-04:1)*. Cultural Surveys Hawaii, Kailua, Hawaiʻi.

2000 *Archaeological Investigations of Recent Bulldozing at Kualoa Regional Park Kualoa, Koʻolaupoko, Oʻahu*. Cultural Surveys Hawaii, Kailua, Hawaiʻi.


Handy, E.S., E.G. Handy, and M.K. Pukui  
Jourdane, E.
1993 Inadvertent Discovery of Human Remains at 51-170 Kamehameha Highway, Ka’a’awa, Ko’olauloa, O’ahu TMK 5-1-001:001, Site 50-80-06-4728. State Historic Preservation Division, Honolulu.

Juvik, S. and J. Juvik (editors)

Kalama, S.P.

Kamakau, S.M.

Kawachi, C. and C. Johnson
1990 Eroding Beach Burials at Kualoa Beach Park, Kualoa, Koolaupoko, O’ahu. State Historic Preservation Division.

Lee, M.

McAllister, J.G.

Meeker, V.

Miyagi, M.

Monsarrat, M.D.

1897b Portion of Waikane Koolaupoko, Oahu Showing Hui Divisions. Scale 200 feet = 1 inch. October 1897. Register Map 1946.

Moore, J.R. and J. Kennedy

Morris, V. and H.H. Hammatt
2015 End of Fieldwork Letter for Data Recovery at SIHP # 50-80-09-7397 in Support of a Reconstructed Wastewater Systems and Bathhouse Replacement Project at Kualoa Regional Park, Kualoa Ahupua’a, Ko’olaupoko District, O’ahu, TMK: [1] 4-9-004:001 (por.). Cultural Surveys Hawaii, Kailua, Hawai‘i.
Omorí, A.I.
1989 Police and Medical Examiner’s Reports: Kualoa Skeletal Remains Site No. 80-06-528. Department of the Medical Examiner, City and County of Honolulu.

Perzinski, M., D. Shideler, and H. Hammatt

Pfeffer, M.T., H. Wong-Smith, and H.H. Hammatt

Pietrusewsky, M. and M.T. Douglas

Pukui, M.K.

Pukui, M.K., S.H. Elbert and E.T. Mookini
1974 Place Names of Hawai‘i. University of Hawaii, Honolulu.

Rohrer, S.

Rutkowski, L.A.
1988 Medical Examiner’s Report: Kualoa Beach Park Burial. Department of the Medical Examiner, City and County of Honolulu.

Shapiro, W.A., J.D. Mayberry, and A.E. Haun

Smith, M.

Sommer, L.

Spear, R.

Sterling, E.P. and C.C. Summers
Tulchin, J. and H.H. Hammatt
2009 *Archaeological Assessment for Ka’a’awa Elementary School, Ka’a’awa Ahupua’a, Ko’olauloa District, O’ahu Island TMK: [1] 5-1-002; 018*. Cultural Surveys Hawaii, Kailua, Hawai’i.

Wall, W.E.
1880 *Hakipuu Koolau Oahu*. Hawaii Territory Survey. Scale 500 feet = 1 inch. February 1880. Register Map 0328.

1902 *Oahu Hawaiian Islands*. Hawaii Territory Survey. Scale 5000 feet = 1 inch. Register Map 2374.

Walsh, P.O., D.F. Borthwick, and H.H. Hammatt
1995 *An Archaeological Assessment of Two Parcels at Wai‘ahole and Waikāne Ahupua’a, Ko’olauhau District, O’ahu (TMK: 4-8-01 and 4-8-03:por)*. Cultural Surveys Hawaii, Kailua, Hawai’i.

Winburn, M. and M. Desilets
2009 *Archaeological Assessment Report for Proposed Footing Locations at Property of James Oellien, Ka’a’awa Ahupua’a, Ko’olauloa District, O’ahu, Hawai’i TMK (1) 5-1-002; 004*. Garcia and Associates, Kailua, Hawai’i.

Young, L.P.
APPENDIX A: SHPD NHPA SECTION 106 LETTERS
February 20, 2014

Glenn Okimoto
Director of Transportation
State of Hawaii, Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Dr. Okimoto:

SUBJECT: National Historic Preservation Act Section 106 Consultation – Kamehameha Highway Safety Improvements from Waikane Valley Road to Ka'aawa Bridge Federal Aid Project No. HSIP-083-I(069)

Waikane, Hakipu'u, Kualoa, and Ka'aawa Ahupua'a, Ko'olaupoko and Ko'olauloa Districts, Island of O'ahu

TMK: (1) 4-8-003, 004, 005; 4-9-001 thru 009; 5-1-001, 003, 006, 008, 009, and 013

Thank you for your letter dated January 15, 2013, initiating consultation with SHPD in accordance with 36 CFR 800.3 for the proposed Kamehameha Highway Safety Improvement project extending from Waikane Valley Road to Ka'aawa Bridge on State Route 83 (HWY-DD 2.6188). Your letter indicates the proposed project is a State Department of Transportation (HDOT) project which will receive funding from the Federal Highway Administration (FHWA), Federal Aid Project No. HSIP-083-I(069). Therefore this is a federal undertaking requiring historic preservation review under Section 106 of the National Historic Preservation Act. The proposed project involves the installation of milled centerline/shoulder rumble strips, pavement markings, striping, signage, and guardrail and end treatments; drainage improvements; and re-setting of existing guardrail.

Your letter defines the project area consists of about 24,550 linear feet of roadway and the area of potential effects (APE) as comprising about 29.7 acres within the state's right of way. Your historical research indicates that the APE falls within the historic district to Kualoa Ahupua'a (SHHP 50-80-06-528), which is listed on both the Hawaii Register of Historic Places and the National Register of Historic Places. Also, the following several historic properties occur or extend into the APE: a burial (SHHP 50-80-06-4060) located at the Intersection of Kamehameha Highway and Johnson Road (Hammatt 1994), a burial cluster (SHHP 50-80-06-5376) located mauka of the highway and the Kualoa Ranch (Dye 1996 and Spear 1996), and a burial and cultural deposit (SHHP 50-80-06-7759) located near Ka'aawa Beach. In addition, your letter identifies 17 organizations and/or individuals to whom you are sending NHPA Section 106 consultation letters, and states your intent to place a NHPA Section 106 notice/advertisement in the Honolulu Star Advertiser newspaper.

Your letter also requests that SHPD provide any information we may have concerning historic resources within or near the APE, as well as any names and contact information for any individuals or organizations that may be knowledgeable about the project area or any person who may be a descendent with ancestral or cultural ties to the project area.

SHPD has no additional information to offer at this time. However, we request more information on the proposed undertaking in order to adequately determine the area of potential effects (APE), including all access and staging areas. We understand that the undertaking is in the preliminary planning phases and that the scope of work is subject to change pending consultation with stakeholders, including Native Hawaiian Organizations. We look forward to continuing consultation on the development of this undertaking, on the identification of historic properties (36 CFR Part 800.4), and on the assessment of adverse effects (36 CFR Part 800.5). We appreciate the consultation you're
conducted thus far with Native Hawaiian Organizations, and look forward to your continued consultation with all interested parties throughout the identification, evaluation and, if necessary, mitigation processes.

Please contact Deona Naboa at (808) 692-8015 or at Deona.Naboa@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Susan A. Lebo
Susan A. Lebo, PhD
Oahu Lead Archaeologist

cc: Li Nah Okita Li.nah.okita@dot.gov
    Meena Otani Meena.otani@dot.gov
July 23, 2014

Meena Otani  
Environmental Engineer  
300 Ala Moana Blvd. Rm 3-306  
Honolulu, HI 96850  
Archaeology

Dear Ms. Otani:

SUBJECT:  Chapter 6E-8 and National Historic Preservation Act (NHPA) Section 106 Consultation – Kamehameha Hwy Safety Improvements, Waikane Valley Road to Ka‘a‘awa Bridge  
Federal Aid Project No. HSIP-083-1 (069)  
Waikane, Hakipu‘u, Kualoa, Ka‘a‘awa Ahupu‘a, Ko‘olauloa District, Island of Oahu  
TMK: (1) 4-8-003 thru 005, 4-9-001 thru 009, 5-1-001 thru 003, 006, 008, 009, 013

Thank you for your letter dated June 3, 2014, initiating NHPA Section 106 consultation with SHPD in accordance with 36 CFR 800.3 for the Kamehameha Highway Safety Improvement Project located along Kamehameha Highway, Route 83, between Waikane Valley Road and Ka‘a‘awa Bridge. Your letter indicates the proposed project is a State Department of Transportation (HDOT) project which will receive funding from the Federal Highway Administration (FHWA), Federal Aid Project No. HSIP-08301 (069). Therefore this is a federal undertaking requiring historic preservation review under Section 106 of the National Historic Preservation Act. Our office is aware that this project is taking place on State land, by a State agency; therefore this is also a State undertaking that will also require historic preservation review under HRS Chapter 6E-8.

The proposed project involves the installation of milled centerline and shoulder rumble strips, pavement markings, guardrail and end treatments, and drainage improvements. Staging areas will be confined to the ROW. Most of the improvements will occur within previously disturbed areas of the existing roadway from shoulder edge to shoulder edge, also known as the right of way (ROW). Ground disturbing activities relating to drainage improvements are expected to exceed up to 3 feet below the previously disturbed substrate. The areas affected by this are a 6 ft. by 6 ft. section approximately 500 ft. north of Kamaka Place, and a 83 ft. by 5 ft. wide section near Moli‘i Fishpond.

Your letter defines the area of potential effect (APE) as the 50-60 foot wide ROW and as consisting of approximately 24,550 linear feet or 29.7 acres. Your historical research indicates that a portion of the project will be in the historic Kualoa District (50-80-06-528) that is listed on both the Hawaii State Register of Historic Places and the National Register of Historic Places. In addition, there are three historic properties within the APE in the following locations:

<table>
<thead>
<tr>
<th>SHHP Number</th>
<th>Historic Property Type</th>
<th>Specific Location</th>
<th>Associated Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-80-06-4060</td>
<td>Single human bone</td>
<td>Intersection of Kamehameha Hwy. and Johnson Road</td>
<td>Hummatt, 1994</td>
</tr>
<tr>
<td>50-80-06-5376</td>
<td>Several burials</td>
<td>Mauka side of the highway and the Kualoa Ranch</td>
<td>Dye, 1996 and Spear, 1996</td>
</tr>
<tr>
<td>50-80-06-3759</td>
<td>Burials and cultural layer</td>
<td>Mauka side of the highway and the Kualoa Ranch</td>
<td></td>
</tr>
</tbody>
</table>
July 23, 2014

Your letter also indicates that the no ground disturbing activities is anticipated to will take place in the historic Kualoa District, as well as in the vicinity the above burials. It also identifies 17 organizations and/or individuals to whom you sent NHHA Section 106 consultation letters. Of these, Kiersten Faulkner of Historic Hawaii Foundation (HHF) responded with concerns regarding the project’s impact to Site 528, the historic Kualoa District. Mr. Kaleo Manuel of DHHL requested an extension to provide comments but none was received by the extended comment period deadline. For those who did not respond within the 30 days, HDOT contacted each organization by email and or phone on February 19, 2014 and March 10, 2014. Edward Ayau of Hui Hoomano and Hui Malama I Na Kapuna o Hawai’i Nei, and Dr. Kamana opono Crabbe of OHA, requested that state laws and regulatory procedures relating to inadvertent discovery of human skeletal remains be followed. OHA requested other NHOs be contacted as consultants and provided HDOT with contact information for Ohana Maile and DeeDee Letts. HDOT sent emails to these individuals, but did not receive any responses. In addition you letter states that a Section 106 notice of consultation/advertisement was published in the Honolulu Star Advertiser on January 31, 2014. Ms. Andrea Anist responded and expressed concerns unrelated to historic properties.

You have determined that the proposed undertaking to install milled centerline and shoulder rumble strips, pavement markings, guardrail and end treatments, and drainage improvements will result in no adverse effect to historic properties because: (1) majority of the work will be confined within the previously disturbed substrate within the ROW, (2) archaeological monitoring will be conducted during excavation for the drainage improvements near Kamaka Place and Moli’i Fishpond as excavation is anticipated to exceed beyond previously disturbed substrate, and (3) no ground disturbing activities will be performed within the historic district or near historic properties identified in the APE.

We concur with the FHWA’s project determination of no adverse effect with agreed-upon archaeological monitoring for the sections near Kamaka Place (Station 585+00), approximately 500 feet north of Kamaka Place (Station 590+00), and near the Moli’i Fishpond (Station 666+00). The archaeological monitoring program will involve on-site monitoring below the base course to mitigate the project’s effects on any newly-identified historic properties. Any departure will occur only with written concurrence from SHPD.

Please submit an archaeological monitoring plan that accurately reflects the proposed work to our office for review and approval prior to the start of construction. The monitoring plan should contain information specified in Secretary of the Interior’s Standards for Archaeological Documentation and the requirements set forth in Hawaii Administrative Rules (HAR) §13-279-4. The monitoring plan must indicate that the project is a Section 106 undertaking.

Please contact Deona Nabo at (808) 692-8015 or at Deona.Nabo@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Susan A. Lebo, Ph.D.
Galiin Lead Archaeologist

cc: LiNah Okita linah.okita@hawaii.gov
    Todd Nishioka todd.nishioka@hawaii.gov