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## Section 7 Kīpū, Ha'ikū Ahupua'a

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### 7.1 Environmental Setting

#### 7.1.1 Natural Environment

The project area is located about 2 miles west of Līhu'e, *makai* of Kaumuali'i Highway in Ha'ikū Ahupua'a, Līhu'e District, on the southeastern quadrant of the island of Kaua'i (Figure 39 and Figure 40). The parcel is fairly far inland, about 3 miles from the southeastern coast. The project area lies on relatively level table land between the Hulē'ia (Hulā'ia) Stream just to the south and the Ho'inakūnalehua tributary just to the northeast.

The soils in the area consist predominately of Puhi silty clay loam (PnB), with a small percentage of Kapa'a silty clay (KkC and KkE) and rough broken land (rRR) (Figure 41). Puhi silty clay loam consists of well-drained soils on uplands. These soils developed in material derived from igneous rock. Slope ranges primarily from 3-15 percent. The run-off of the Puhi silty clay loam is slow, creating an only slight erosion hazard. Rough broken land (rRR) consists of very steep land broken by frequent intermittent drainage channels. Slope is 40-70 percent, runoff and geologic erosion are both rapid. Rainfall in this area averages 69 inches per year. Kapa'a silty clay is found on 8 to 15 percent and 25 to 40 percent slopes, runoff is slow ranges from slow to rapid and erosion hazard is slight to severe. Both the Puhi silty clay loam and Kapa'a silty clay soils are used for sugar cane, pasture, pineapple, orchards, wildlife habitat, and woodland (Foote et al. 1972:62, 75, 118: Sheet 22).

#### 7.1.2 Built Environment

Several small roads extend through the current project area and along its edges. Kīpū Road trends northeast/southwest through the western half of the project area (Figure 42). A'akukui Road enters the project area from the north in the eastern end of the project area, heading southwest, and curves to bound the southwest side of the project area. Hulemalu Road runs along the northeast boundary. There also appear to be unimproved cane haul roads that run through the project area. Puhi, on the outskirts of Līhu'e, is about one mile east of the project area and the Kaumuali'i Highway is less than a half-mile north. Other development in the area is very minimal.

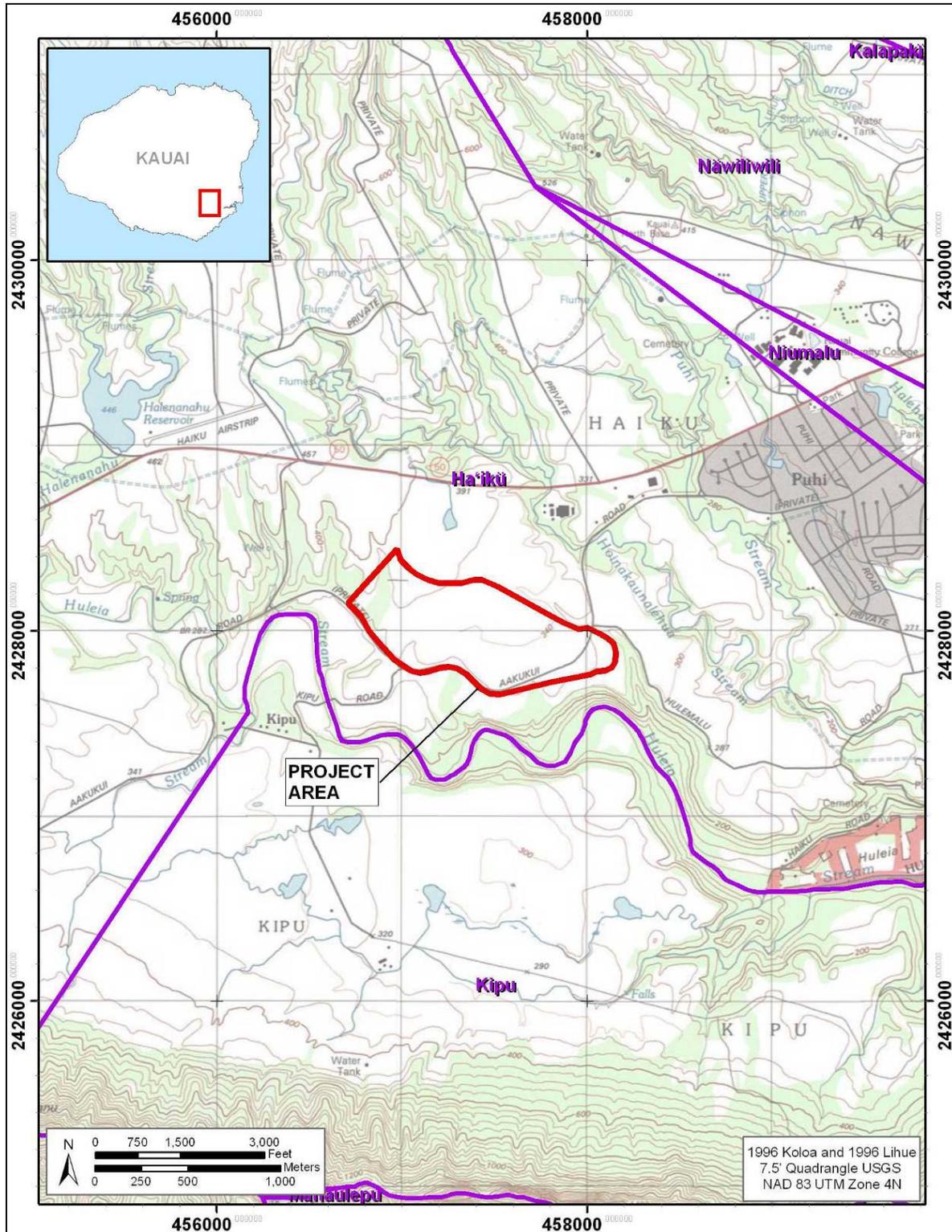


Figure 39. Portion of 1996 U.S.G.S. 7.5-minute topographic Kōloa and Līhu'e quadrangles, showing the Kīpū project area

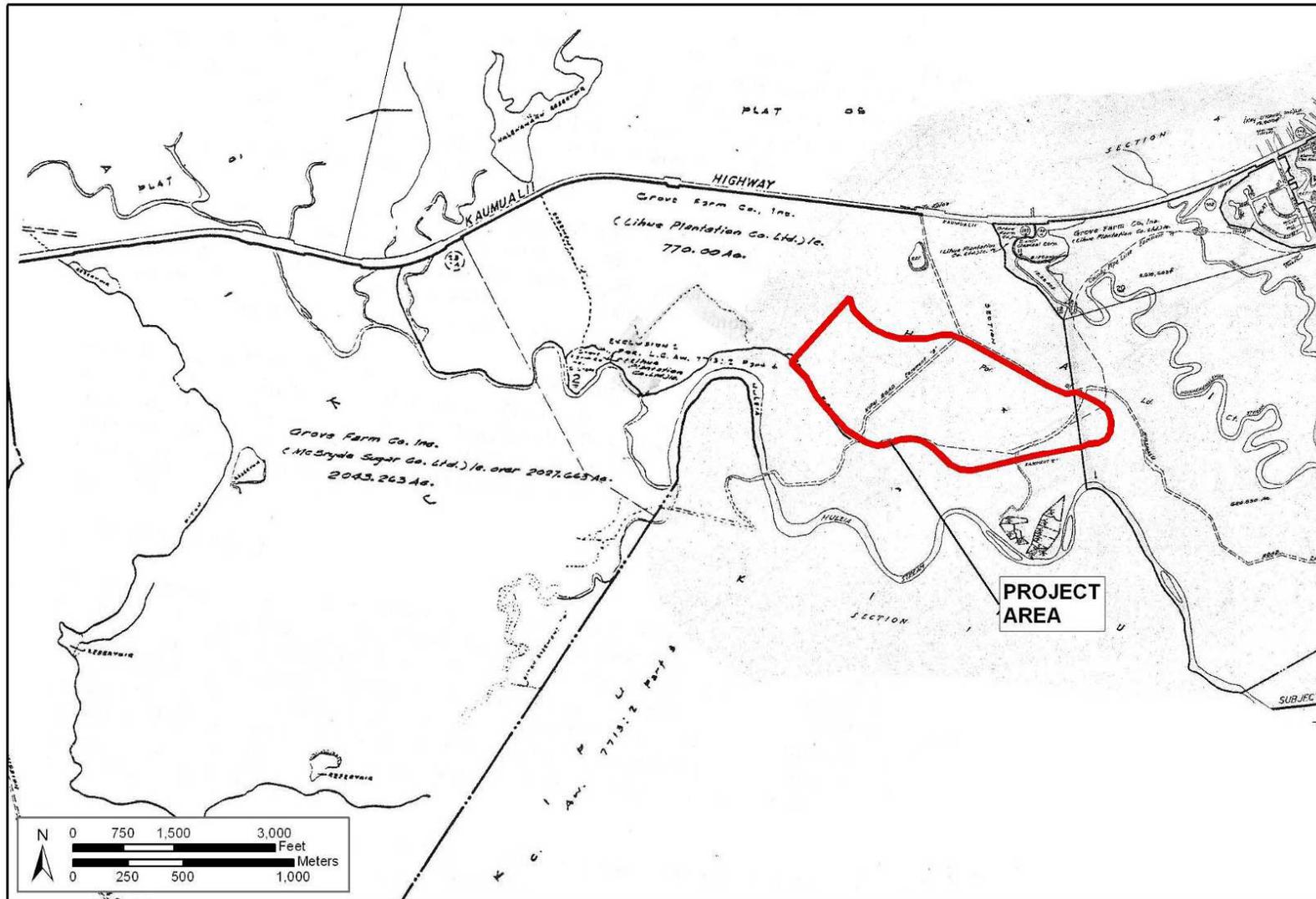


Figure 40. Tax map (TMK) [4] 3-3-002 showing Kīpū project area location

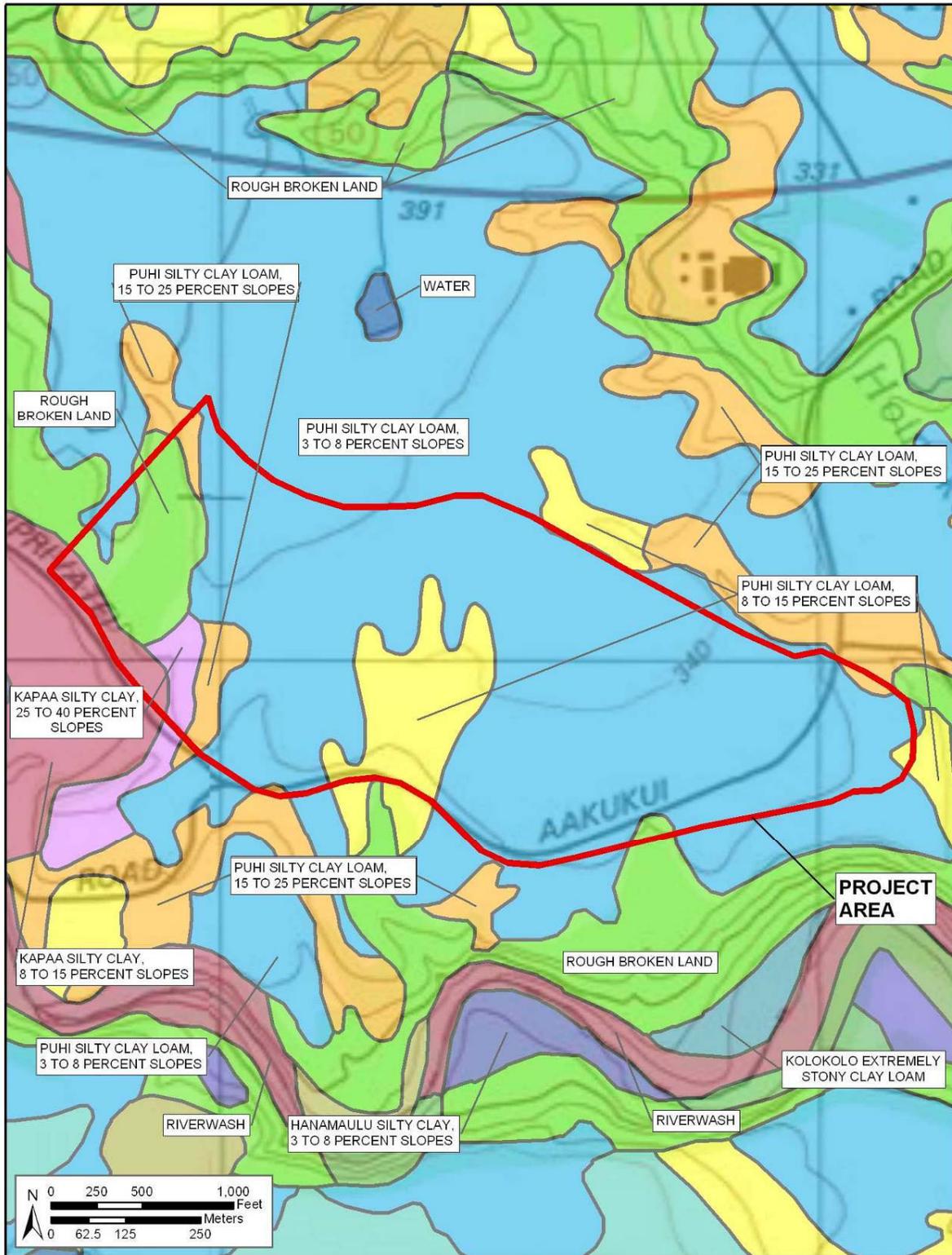


Figure 41. Soils map showing Kīpū project area location

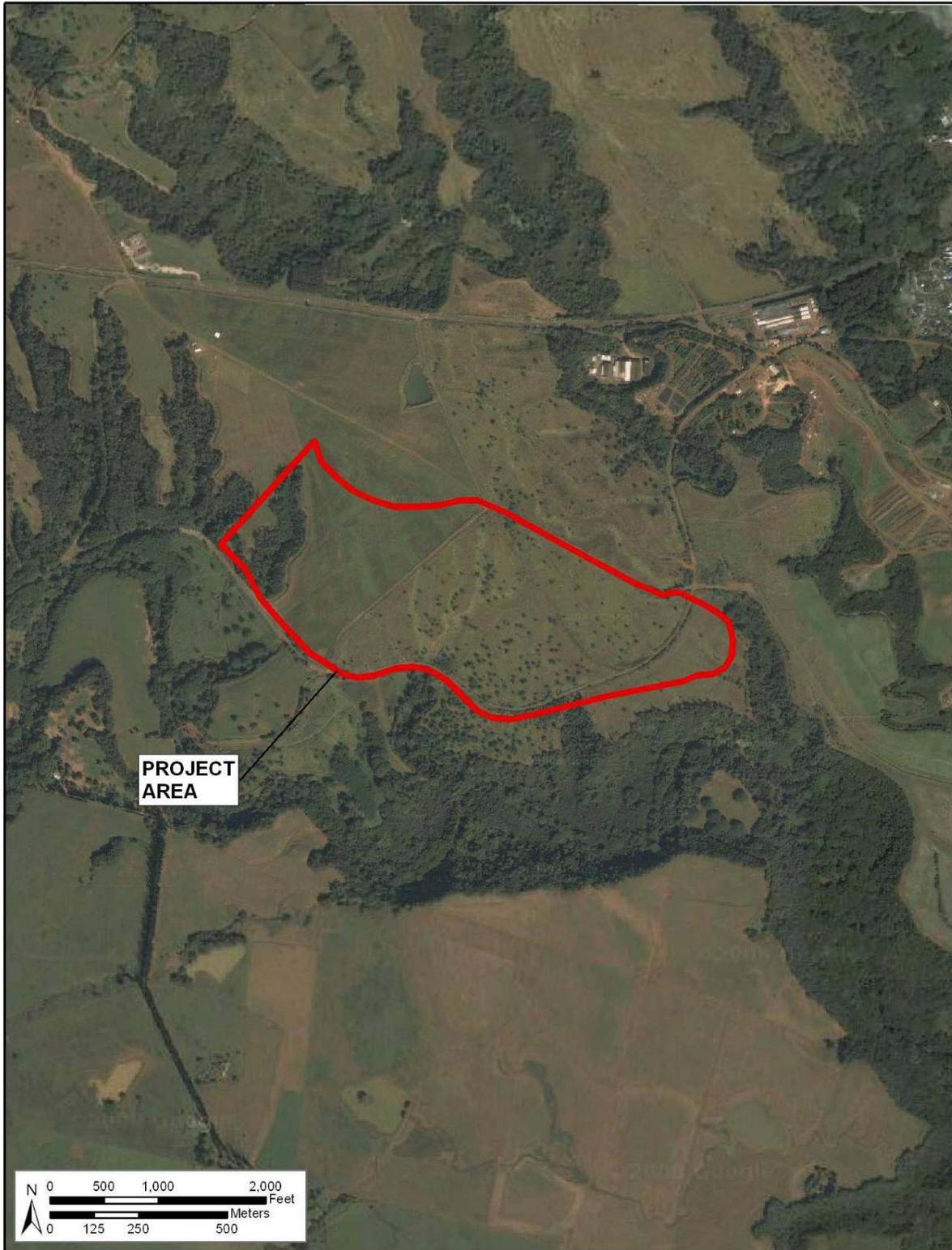


Figure 42. Aerial photograph showing Kīpū project area location

## 7.2 Traditional and Historical Background

This section begins with a review of the available documentary evidence for the general character of the present Kīpū, Ha'ikū project area as it had evolved in the years before western contact in the later 18th century. The development of Ha'ikū Ahupua'a during the 19th century and into the early 20th century was recorded in increasingly abundant documentation - including government records, private accounts (particularly those of Grove Farm Plantation), newspapers, maps and photographs. Finally, during subsequent decades of the 20th century, abundant documentation allows a more precise focus on the project environs.

### 7.2.1 Mythological and Traditional Accounts

The name "Ha'ikū" is translated as "speak abruptly" or "sharp break" (Pukui et al. 1984:34) but the meaning underlying this name is uncertain. Wichman (1998:51) offers additional translations of the name as "haughty" and "conceited" and asserts that "the story of its naming is lost and a new story has taken its place." This new story asserts that the name Ha'ikū means "pushed through" and the naming is related to ribald stories of the pig demi-god Kamapua'a having sexual relations with Kapo'ulakīna'u and her sister, the volcano goddess Pele. Pukui (Pukui et al. 1984:53) give this same account ("pushed through" from the Kamapua'a and Pele tradition) as the origin the place name "Hulā'ia", an old name for Hulē'ia Stream which runs through south western Ha'ikū. It is said in some accounts that Kamapua'a and Pele first met at Ha'ikū. Although this place name derivation may indeed be recent it seems plausible that the "pushed through" reference also relates to the unique gap feature on the west (Kōloa) side of Ha'ikū. As Joesting (1984:215) describes it:

There is one way through [the] thin mountain ridge [across central Kaua'i], a place where the barrier briefly parts. This lapse in the ridge is the way between east and west Kaua'i. It is called the Gap and travelers have used it since the beginning.

The route of the present Kaumuali'i Highway runs through the "Gap" likely following the alignment of the traditional trail system that joined east and west Kaua'i. The Gap itself was the subject of traditional Kaua'i legends and premonitory tales, "for the clump of *hau* trees formerly near the bend of the mountains at the Gap was said to have been the hiding place of robbers and '*akuas*' lurked in its hidden depths" (Rice 1991:53). On the 1878 W.D. Alexander government survey map, both Hulē'ia Stream and the original belt road (probably an ancient trail and now Kaumuali'i Highway) just 400 m north of the Kīpū study area can be seen (Figure 43).

The Hulē'ia River gulch (approximately 250 m south of the Kīpū study area) runs along much of the south west portion of Ha'ikū, and is an area where traditional Hawaiian agricultural activities dating to pre-contact times have been noted:

The broad delta of the Hulē'ia River is 1.5 miles long and a half mile wide, and is in the *ahupua'a* named Ha'ikū, the next to last of the southeasterly valleys of Puna. This area was ideal for wet taro. Terraces continue upriver, and there were terraces up the streams that empty into the river. Old breadfruit and mango trees indicate that there were many Hawaiian *kuleana* up to 6 miles inland from the delta. (Handy and Handy 1972:427)

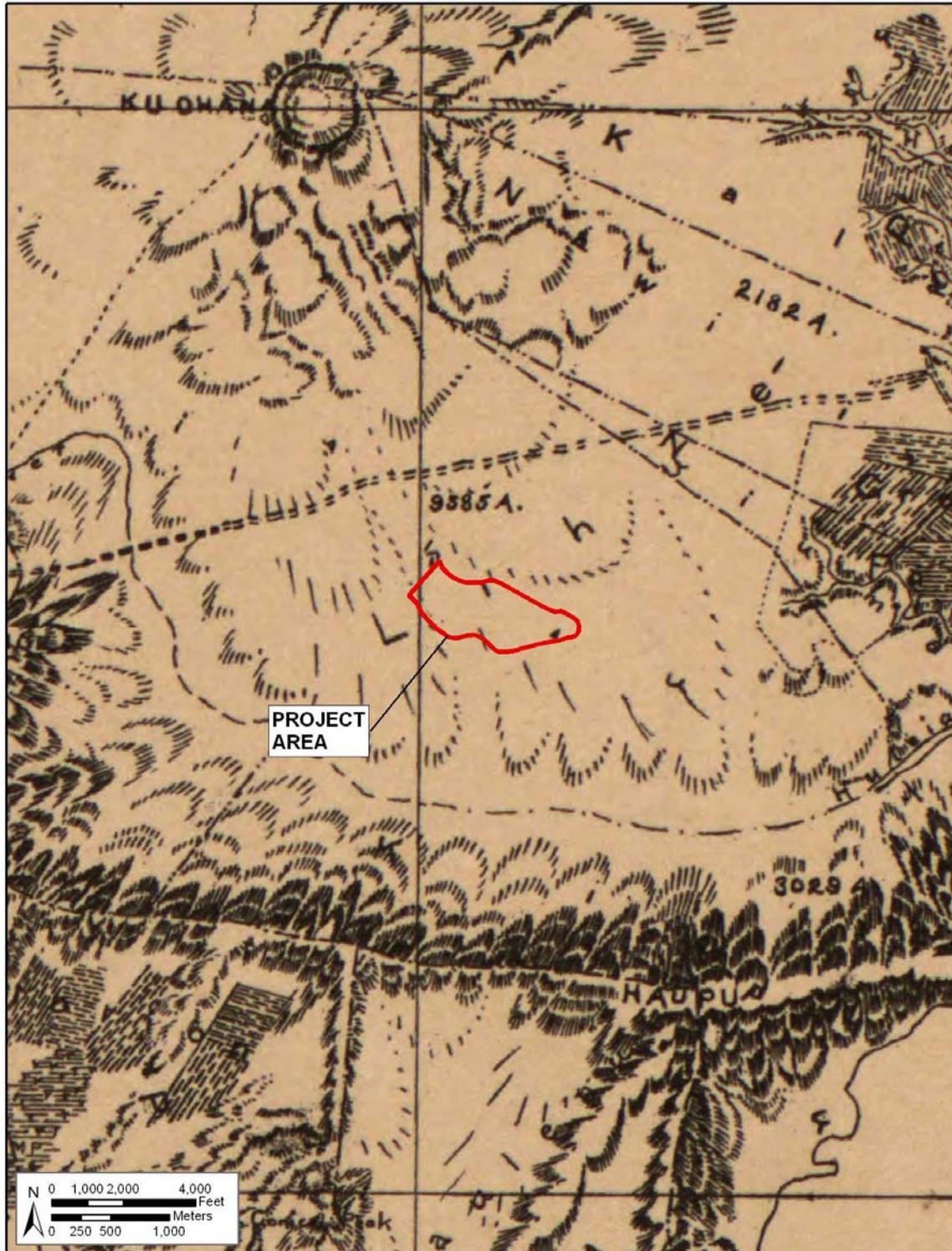


Figure 43. 1878 Government Survey map by W.D. Alexander, showing location of Kōloa project area

The only pre-contact structure we were able to find reference to at Ha'ikū was to the Kua'ā Irrigation Ditch located in an *'ili* land division of the same name (Wichman, 1998:51). This land division was located in the central portion of the Ha'ikū Land Court Awards along the seaward portion of the Hulē'ia River well away from the Kīpū study area.

### 7.2.2 Early Historic Period

Western homesteading and commerce moved into the lands above Nāwiliwili Bay that would evolve into Līhu'e Town within a few years after the establishment of the missionary and business activities at Kōloa in the mid 1830s. Accounts of 19th century travelers on the trail between Kōloa and Līhu'e present the first record of the lands surrounding Ha'ikū. William DeWitt Alexander, son of the former Waioli missionary William P. Alexander, described a return visit to Kaua'i in 1849, six years after his family had left the island. Traveling on horseback from Kōloa to Wailua, Alexander noted in his diary:

We then rode through a gap in the hills, leading out from Kōloa. The scenery was very fine, and worthy of Kaua'i. Mauna Kāhili was close on the left, & on the right a beautiful range of hills extending towards the northeast, and terminating in an abrupt peak which goes by the name of "Hoary Head" [Hā'upu]. We rode on over a beautiful undulating table land, dotted with groves of *lauhala* and *kukui*. After riding about five miles, we crossed a stream fitly called Stoney Brook. We afterwards crossed many other streams on our way. Five miles further we passed Dr. Lafon's former residence. Here we began to descend towards the sea. (Alexander 1991:122)

Apparently, Alexander observed no conspicuous Hawaiian settlements between the Gap and Dr. Lafon's residence in the Līhu'e area. It may be, however that substantial settlement down in the Hulē'ia Stream valley was largely obscured from his view.

### 7.2.3 Māhele and Land Commission Awards

The Organic Acts of 1845 and 1846 initiated the process of the Māhele - the division of Hawaiian lands - which introduced private property into Hawaiian society. In 1848 the crown and the *ali'i* (royalty) received their land titles. Ha'ikū and Nāwiliwili *ahupua'a* were awarded - LCA 7713 - to Victoria Kamāmalu, sister of Kamehameha IV, Kamehameha V, and Moses Kekuaiwa. Victoria Kamāmalu's holdings at Ha'ikū were estimated to contain 9585 acres. Documents associated with this award give no indication of specific land uses or activities other than for pasturage. The *Native Register* account (569 v 5) relates "Hule'ia, a district of Kaua'i, however, the Government cattle shall graze there." It appears that Victoria Kamāmalu almost immediately leased the Ha'ikū lands to Judge Widemann, probably in 1850 for the span of 25 years. When Victoria Kamāmalu died in 1866, Princess Ruth Ke'elikōlani inherited her lands.

*Kuleana* Land Commission Awards for individual parcels within the *ahupua'a* were subsequently granted in 1850. These awards were presented to tenants - native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-term resident foreigners - who could prove occupancy on the parcels before 1845 (Apple 1978:45).

Thirty-eight claims are made in Ha'ikū Ahupua'a, of which thirty-five are awarded. There are 20 'ili mentioned with 264 lo'i, 26 houses, 31 kula, 3 wauke kula, a pig enclosure, and 2 mentions of bulrushes. Thirty-two of these claims are located on the lower portion of Hulē'ia River. Of the remaining claims, one is near Kāhili Pali way up mauka, one is in Kuia 'Ili near the Kōloa border and another is on the path to Kilohana. Thus none of the kuleana (commoner) Land Commission Awards appear to be near the Kīpū study area.

#### 7.2.4 Mid-1800s to early 1900s

Līhu'e Plantation started as a partnership of Henry Augustus Pierce, Judge William Little Lee and Charles R. Bishop in 1849. The company obtained up to 3,000 acres of land and by 1851 a water-driven sugar mill was constructed (on the site of the present Līhu'e sugar mill). Hawaiians made up the labor force. Many built their homes on the land surrounding the mill. Planting was begun in 1850 and the first crop was ground in 1853 (Joesting 1984:173). Under the management of a former American Board of Commissioners for Foreign Missions (ABCFM) teacher, William Harrison Rice from 1854 to 1862, the plantation invested heavily in irrigation ditch infrastructure known initially as "Rice's Folly" (Krauss and Alexander 1984:67).

George Norton Wilcox, son of the ABCFM teacher Abner Wilcox, was raised on Kaua'i and observed Rice's successes with irrigation. He went to Yale and studied engineering and surveying, earning a certificate in 1862. Upon returning to Kaua'i in 1863 he soon went to work for Judge H. A. Widemann, owner of the Grove Farm Plantation as a surveyor.

Grove Farm (named after an old stand of *kukui* trees) was started by Warren Goodale in 1850, was sold the same year to James F. B. Marshall for \$3,000. In 1856 the plantation was again sold, to Mr. Widemann for \$8,000. At the end of 1863 Judge Widemann asked George Wilcox to undertake the supervision of the cutting of a water lead or irrigation ditch for the Grove Farm plantation using Hawaiian labor. Wilcox leased Grove Farm Plantation from H. A. Wiedemann at the end of 1864 and rapidly developed the irrigation infrastructure further.

Western commerce between Kōloa and Līhu'e took off during the second half of the 19th century. A visitor to Kaua'i in 1865, William T. Brigham, described the route between Līhu'e and Kōloa:

From Līhu'e the road led over the plain with the mountains on the left. A ditch crossed and recrossed the road as it wound along the hills from the fountains to the canefields below. Owls (*pueo*) were very abundant. The Pass over the mountains was very good and not at all steep, and all the way which was some twelve miles, the road was very good, in fact a carriage road. Two hours riding brought me to Dr. Smith's [in Kōloa] at eight. (Lydgate 1991: 143).

The "ditch" Brigham, described probably included "1<sup>st</sup> Ditch" excavated in 1864 and "2<sup>nd</sup> Ditch" which was completed in 1865

In 1870 Wilcox bought Grove Farm from Widemann for \$12,000, three-quarters of which was borrowed. Four years later he had 200 acres under cultivation. The cane was milled at the Līhu'e Mill and exported from Nāwiliwili. In 1874, Wilcox renewed a lease, for 25 years, for a 10,000-acre tract of Ha'ikū Ahupua'a from Princess Ruth Ke'elikōlani (Krauss and Alexander 1984:179). On April 1, 1881 George Wilcox bought 10,500 acres of Ha'ikū Ahupua'a from

Princess Ruth increasing the acreage of Grove Farm nearly ten-fold (Krauss and Alexander 1984:206). The sale was part of a package deal in which Willie Rice also received Kīpū and Kīpū Kai for a total price of \$27,500 - money which Princess Ruth used to build her palace which rivaled Kalākaua's palace which was completed the following year.

### 7.2.5 Modern Land Use

In the 1920s, Grove Farm began a building program at Puhi, along the route of the present Kaumuali'i Highway. The lack of development in the area prior to this is evident on the 1910 USGS map (Figure 44).

About 1920 George Wilcox began construction of a completely modern camp at Puhi in the heart of the expanding plantation. Instead of building houses haphazardly as new families moved in, a complete village was laid out with streets, a playground, room for gardens, and lawns. The houses had proper kitchens equipped with running water and enough bedrooms for each family depending upon the number of children (Krauss 1965:310).

It was during the 1930s, when Federal funds became available to assist the Territory of Hawai'i's highway construction program, that development of the present Kaumuali'i Highway accelerated. Between 1933 and 1937 the "construction or reconstruction" of the Belt Road was completed incrementally. Ho'omana Overpass (Ho'omana Road Bridge), was constructed in 1928, Waihohonu Bridge was built in 1934, the Līhu'e Mill Bridge, was constructed in 1936, and the Weoweopilau Bridge was built in 1937.

At the same time that the Belt Road construction program was underway, during the mid-1930s, Grove Farm was further expanding into Puhi. This development can be seen on the 1963 USGS map (Figure 45). It moved its headquarters there, constructing a new office building, shop and stables.

In 1948 Grove Farm merged with Kōloa Plantation. This doubled the size of Grove Farm, gave Grove Farm its own sugar mill for the first time, and eliminated duplication in manpower, equipment and administrative costs. In 1948/49 a cane haul truck tunnel (the Wilcox Tunnel) was excavated under the Hoary Head Range connecting the sugar cane fields of Ha'ikū to the Kōloa Mill.

In 1954 an airstrip was developed at Ha'ikū for aerial spraying of fertilizer and herbicides. In the early 1960s the nearly one mile long Kuia-Waita Tunnel was completed bringing Ha'ikū water to the drier Kōloa side.

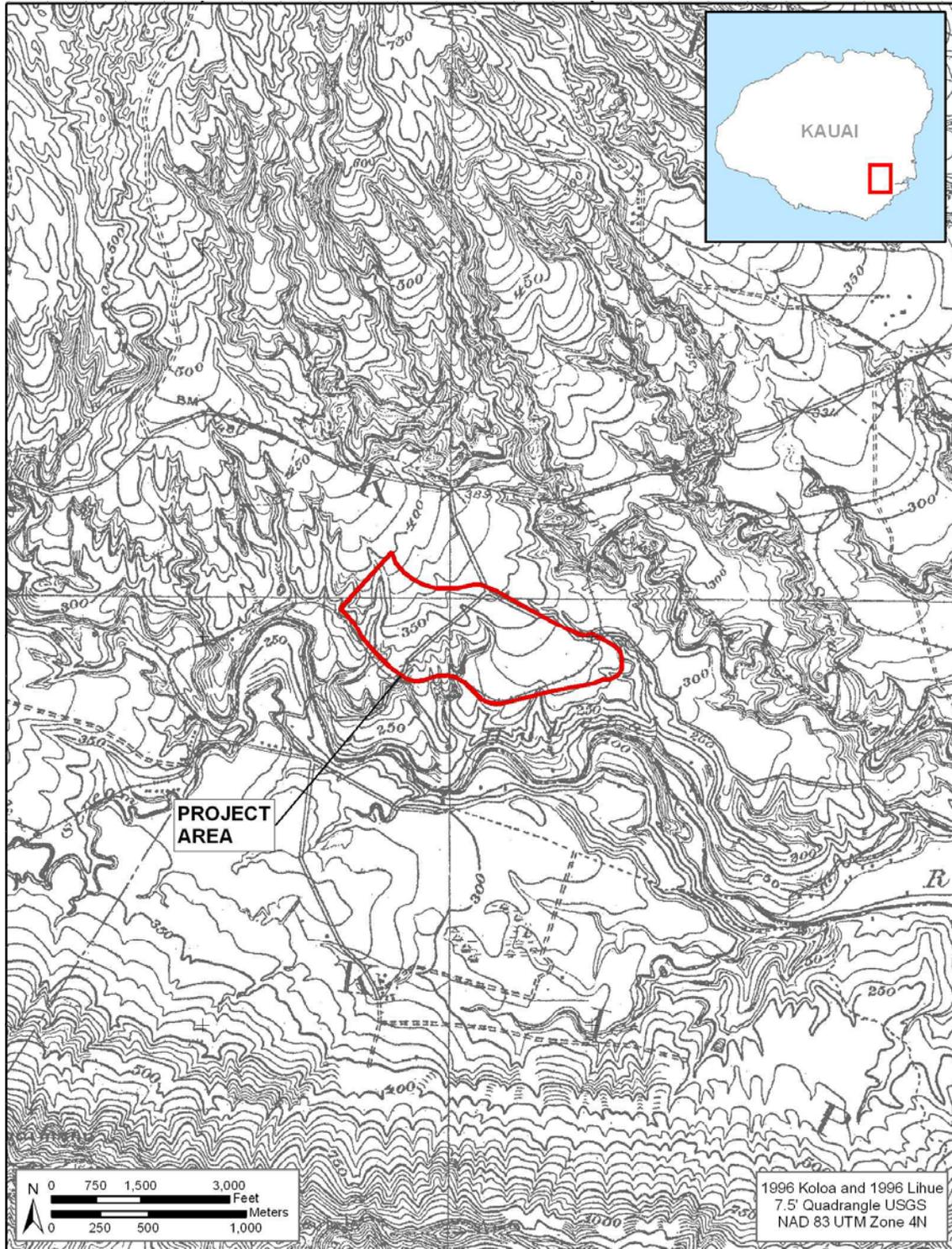


Figure 44. Portion of 1910 U.S.G.S. topographic Kōloa and Līhu'e quadrangles, showing the Kīpū project area

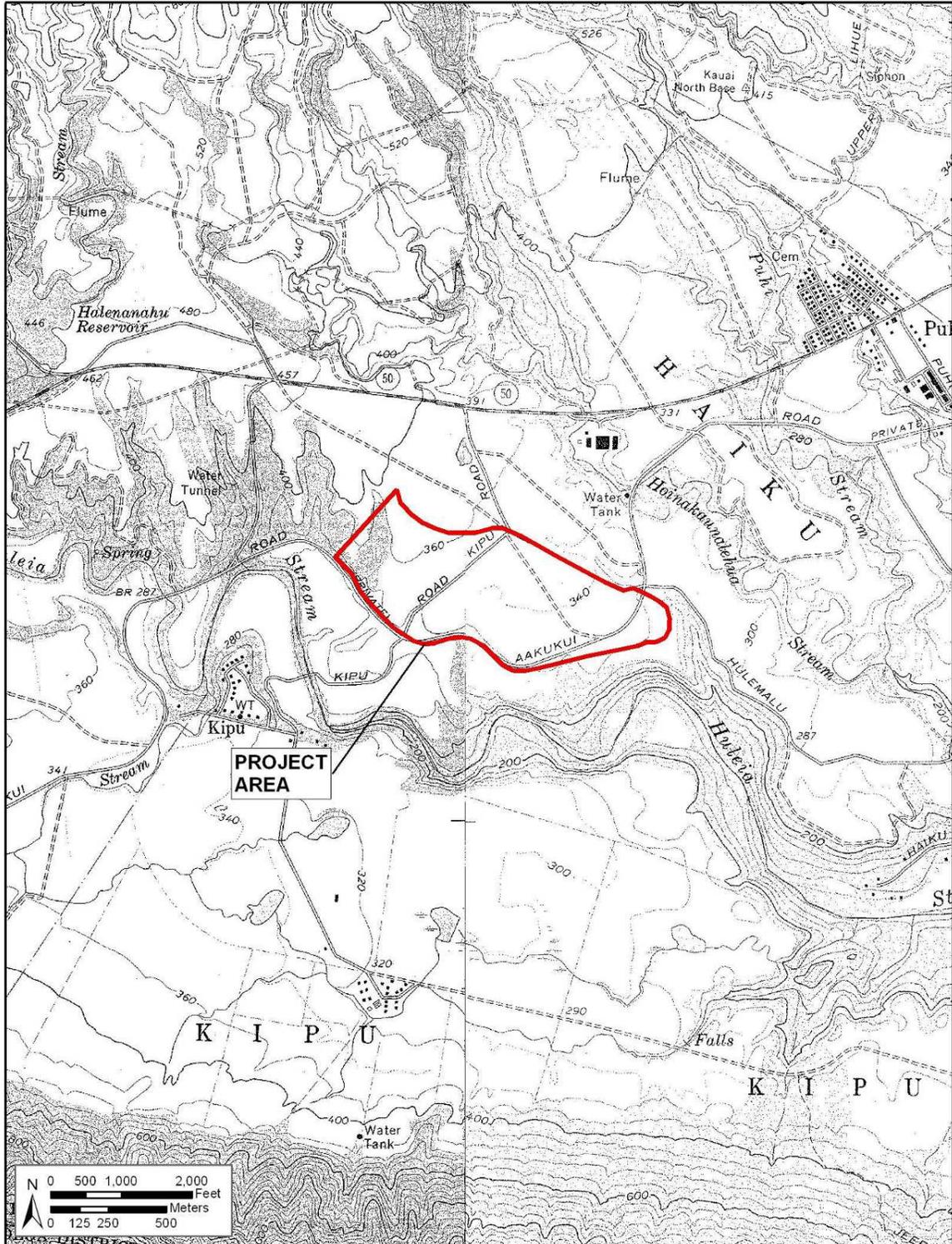


Figure 45. Portion of 1963 U.S.G.S. topographic Kōloa and Līhu'e quadrangles, showing the Kīpū project area

## 7.3 Previous Archaeological Research

### 7.3.1 Early Archaeological Studies

The first attempt at comprehensive archaeological survey of Kaua'i was undertaken by Wendell Bennett (1931) of the Bishop Museum. Bennett's survey report identifies no archaeological sites within or in the vicinity of the present project area. The closest sites Bennett shows are approximately 1.5 miles away on the way to Kīpū Kai (Bennett sites 93 and 94) and the "Niamalu" or "Menehune" Fishpond (Bennett Site 98).

The major focus for more recent archaeological studies in the vicinity has been at the mouth of the Hulē'ia River, Nawiliwili Bay, and the associated river banks leading down to the bay. As Figure 42 above shows, the area surrounding the project parcel has been converted to agricultural fields and, not surprisingly, relatively little archaeological work has been done nearby. Just south of the project area, however, is a portion of the river system leading down to Nawiliwili Bay, and some archaeological work has been done here.

The following discusses previous archaeological studies in the vicinity of the project area, with the work summarized in Figure 46 and Table 7. Figure 47 shows archaeological sites that have been identified in the vicinity of the project area, with 0.5 mile and 1.0 mile buffers displaying those sites of the highest concern.

In 1973, an archaeological reconnaissance of the Kaua'i Community College area *mauka* of Kaumuali'i Highway noted portions of an "old 'auwai" (conforming to Grove Farm's "Mauka Ditch") an old military complex and possible *lo'i* but nothing was felt to warrant further investigation (Palama 1973). No state site numbers were assigned, and Palama recommends no further work.

Neller and Palama (1973) carried out an archaeological reconnaissance of the lower portion of the Hulē'ia River and vicinity recording a number of sites. The archaeological richness of that area from the "Menehune Fishpond" downstream and near the crest of the trail to Kīpū Kai is clear. They did however also record four sites upstream of the Menehune Fishpond, the nearest of which (site -3010) consists of contiguous rock wall enclosures and several other features, and lies on a prominent flat above the river just south of the Kīpū project area. This site is described as:

...a compound, probably belonging to a chief or other important person. Nearby there are stone-faced river terraces, irrigation ditch (auwai), and a stone bridge crossing the auwai. The area is worth restoring to its prehistoric condition. It is an impressive site. (Neller and Palama 1973:3)

Site -3009, also identified by Neller and Palama, is about a mile from the current project area, and consists of an "agricultural area along both sides of the river, including rock-walled terraces and irrigation ditches (auwai). Also includes cement covered grave of G. Kalili, died Dec. 17, 1898" (Neller and Palama 1973:11).

Ching et al. (1973) conducted detailed research on Alekoko (Menehune) Fishpond and vicinity.

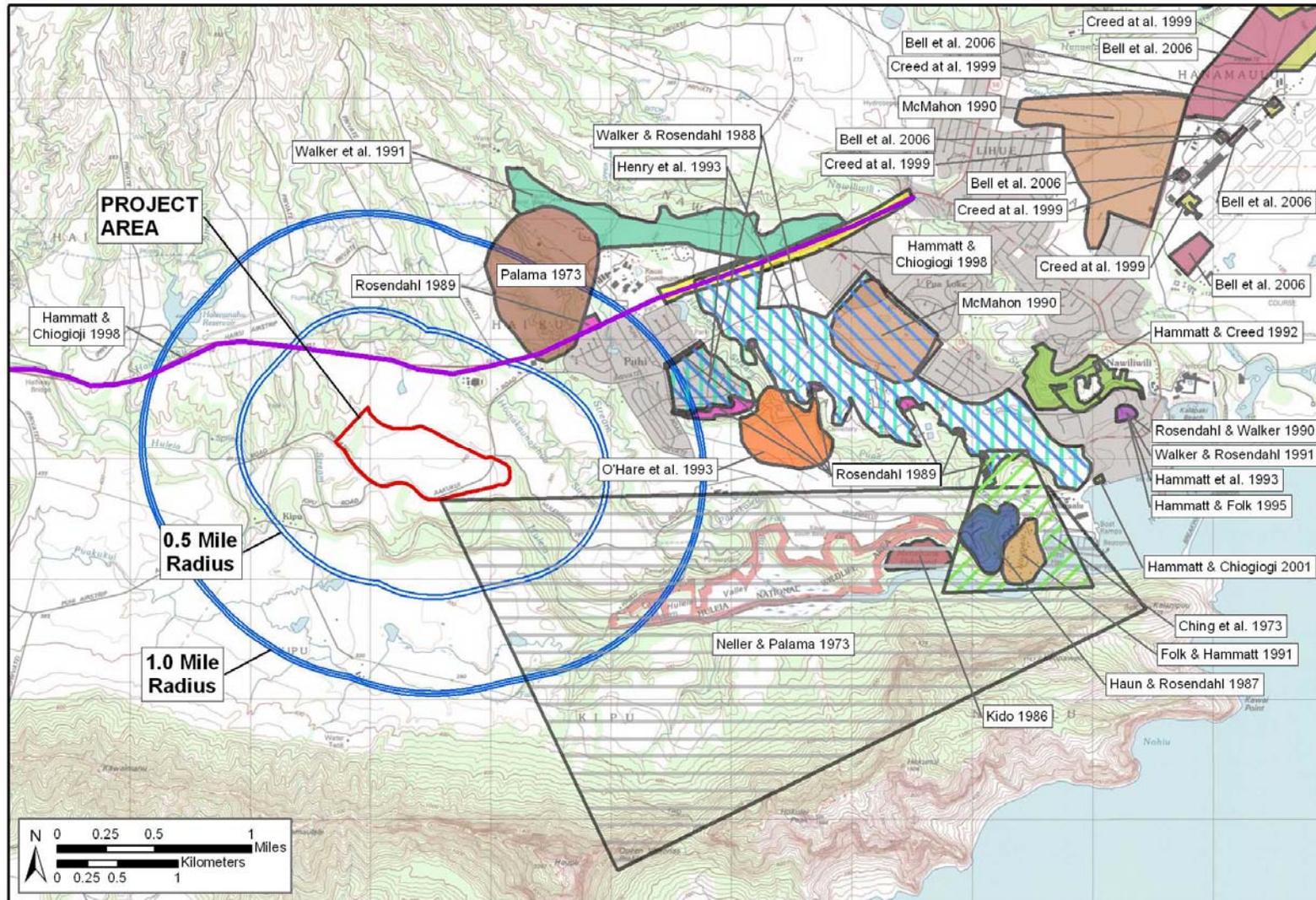


Figure 46. Map showing previous archaeological studies in vicinity of the project area

Table 7. Previous Archaeological Studies near the Kīpū project area

<b>Study</b>	<b>Location</b>	<b>Type</b>	<b>Findings</b>
Bennett 1931	Island Wide Survey including Ha'ikū	Recordation of Major Prehistoric Sites	Identified 3 sites in the area (Sites 93, 94 & 98)
Palama 1973*	Kaua'i Community College area <i>mauka</i> of Kaumuali'i Highway	Reconnaissance Survey	Noted portions of <i>'auwai</i> , possible <i>lo'i</i> , and an historic military complex
Neller & Palama 1973*	Lower portion of the Hulē'ia River	Reconnaissance Survey	31 sites identified including 1 historic human burial
Ching et al 1973	Kanoa Estate, Niumalu	Reconnaissance Survey	9 sites identified
Kikuchi 1981	Kilohana	Field Inspection	No cultural material observed
Ching 1982*	Proposed Landfill in Kīpū, 4-3-4-006:012	Reconnaissance Survey	No cultural material observed
Walker and Rosendahl 1988	Grove Farm Lihue/Puhi Project	Surface and sub-surface survey	Identified two sites
Rosendahl 1989*	Eight Additional Areas of the Grove Farm Lihue/Puhi Project	Archaeological Inventory Survey	No cultural material observed
Walker et al 1991	Līhu'e District	Archaeological Inventory Survey	Identifies 10 sites; 3 pre-contact, 7 historic
Henry et al 1993*	590-acre Grove Farm Līhu'e/Puhi Project Site	Inventory Survey w/ Subsurface Testing	2 historic sites identified including a cemetery (revised report same as Walker and Rosendahl 1988)
O'Hare et al 1993	100-acre Puakea Golf and Country Club	Inventory Survey w/ Subsurface Testing	No cultural material observed
Elbe & Cleghorn 1994	U. S. Fish and Wildlife storage facility	Archaeological Monitoring	No cultural material observed
Hammatt & Chiogioji 1998*	11.5 km portion of Kaumuali'i Highway corridor	Archaeological Assessment	4 historic sites identified
Hammatt et al 1999*	Kokolau Tunnel and Pipeline in Puhi, Ha'ikū	Archaeological Assessment	Historic tunnel complex and 2 historic <i>'auwai</i> identified

\*Designates studies located within one mile of the Kīpū project area

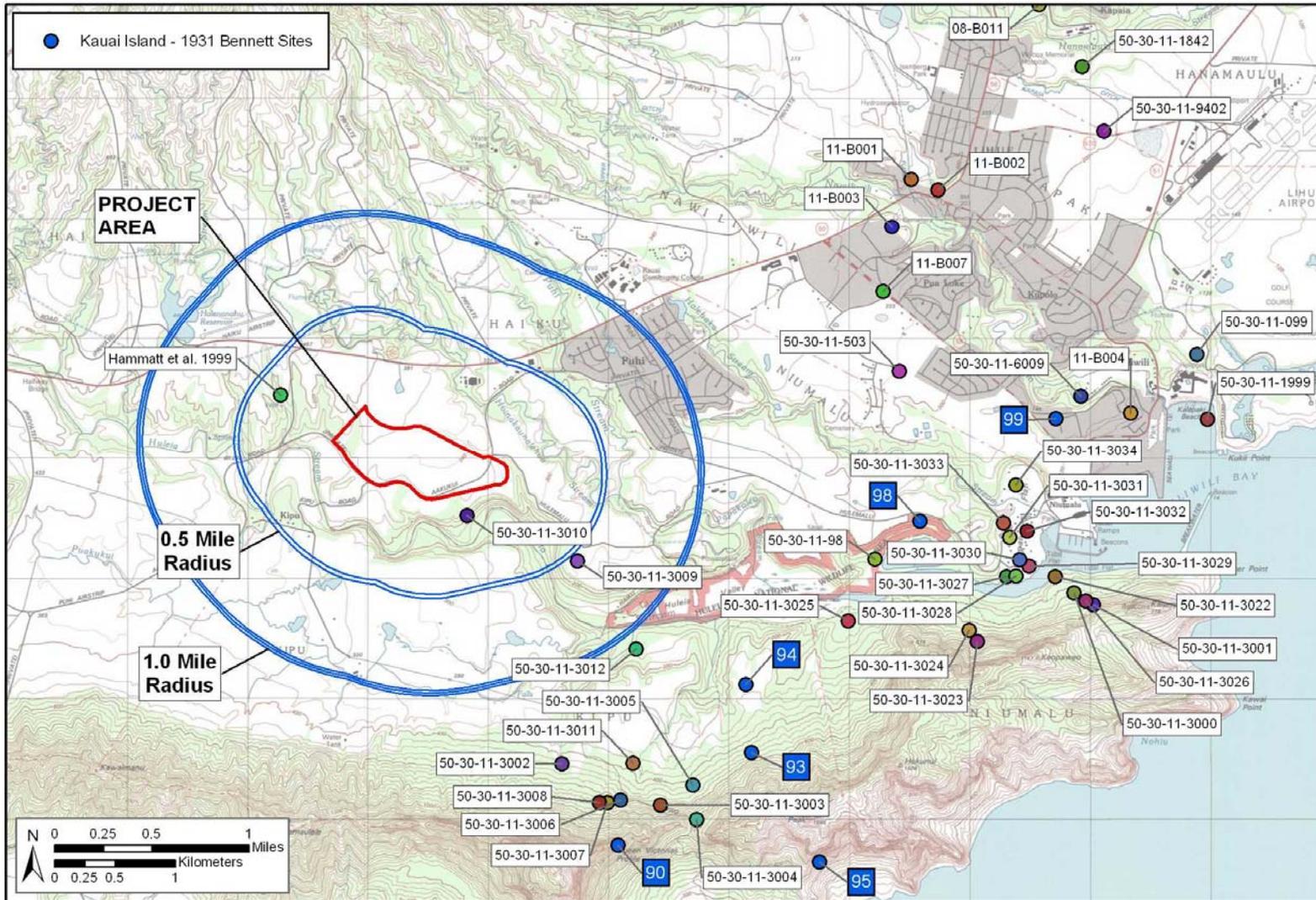


Figure 47. Map showing historic properties previously identified in the vicinity of the project area

In 1981, Patrick Kirch proposed a “Niumalu Archaeological and Historical District” for the rich archaeological area at the mouth of the Hulē'ia River extending west only as far as the west end of “Menehune Fishpond”.

In 1982 Ching conducted an archaeological reconnaissance of a proposed landfill site adjacent to the current project area in Kīpū. While the bluff tops, at the time planted with sugar cane, were not walked, no cultural remains were identified and no further archaeological work was recommended.

Walker and Rosendahl (1988) conducted an archaeological surface and subsurface inventory survey at a 450-acre Grove Farm Līhu'e/Puhi project area extending from Puhi Town nearly to Nāwiliwili Bay but identified only a historic Japanese cemetery and a historic residence. The following year, Paul Rosendahl (1989) produced an addendum report covering an additional eight separate small adjacent areas and again found no sites. Henry et al (1993) covers the same project area and is the final AIS for this area.

O'Hare et al. (1993) carried out an archaeological inventory survey on a 100-acre Puakea Golf and Country Club project area located approximately one kilometer south east of Puhi Town but identified no sites or cultural remains.

In 1994, Francis Eble and Paul Cleghorn carried out archaeological monitoring of construction activities for a proposed U. S. Fish and Wildlife storage facility about two kilometers up the Hulē'ia River from the Menehune Fishpond but identified no cultural remains.

In 1998, Hammatt and Chiogioji carried out an archaeological assessment of an approximately 11.5 kilometer-long portion of the Kaumuali'i Highway corridor through Nāwiliwili, Ha'ikū, and Kōloa *ahupua'a*. During the reconnaissance survey no surface traditional Hawaiian archaeological sites were observed but four historic sites (two bridges, a cemetery and an office building) were noted. No state site numbers were assigned.

In 1999, Hammatt et al. performed an archaeological assessment for the Kokolau Tunnel and Pipeline near Puhi. They identified a historic tunnel complex and two historic *'auwai*. Two sites of note were observed in the archaeological/historical review and the field inspection of the Kokolau project area: State Site 50-30-11-1562, the Kokolau Tunnel system itself (built in 1928-1929) and State Site 50-30-11-1563, the remnants of Grove Farm “3<sup>rd</sup> Ditch” constructed by George N. Wilcox for Grove Farm Plantation in 1866-1867.

In 2004 Hammatt and Shideler performed an archaeological and cultural impact study of the development of a “One-Stop Center” on the Puhi campus of Kaua'i Community College. They concluded that there were no archaeological concerns.

## 7.4 Assessment

### 7.4.1 Historic Properties within the Kīpū project area

There are no known archaeological sites in the proposed Kīpū project area. However, this is complicated by the fact that no archaeological studies have been done within the Kīpū project area. The aerial map (see Figure 42) shows that the Kīpū project area is largely agricultural lands. Overall, the chance of surface archaeological finds within the Kīpū project area is rather low.

### 7.4.2 Historic Properties within one mile of the Kīpū project area

Five archaeological studies have been conducted within one mile of the Kīpū project area (see Figure 46). Three of these studies resulted in no findings of any cultural material. The remaining two studies, Neller & Palama 1973 and Hammatt et al 1999, resulted in the finding of a total of four designated sites that are within approximately one mile of the project parcel. These include historic *'auwai* (Site -1563) and a tunnel complex (Site -1562) identified by Hammatt et al. 1999, as well as two sites (-3010 and -3009) identified by Neller & Palama (1973).

Two of the sites identified by Neller & Palama (1973) are in close proximity to the southeastern boundary of the Kīpū project area (-3009 and -3010). These sites consist of an agricultural complex (Site -3009), and a fairly impressive habitation complex (Site -3010). A marked historic burial is within the bounds of one of the sites, -3009. Hammatt et al (1999), whose project area is west of the Kīpū project area, identified only portions of two historic *'auwai*, believed to be part of the Grove Farm “3<sup>rd</sup> Ditch” and the historic water tunnel complex. No pre-contact cultural remains were identified.

### 7.4.3 Summary

The Kīpū project area contains no known historic properties and, although no archaeological inventory survey has been done within the parcel, there is a fairly low probability of any historic properties existing in the area due to agricultural disturbance (see Figure 42). Overall there is low site density in the area and archaeological concerns are minimal as the majority of the archaeological activity in the vicinity of the Kīpū project area appears concentrated around the Alekoko (Menehune) Fishpond.

However, there are some historic properties and a single identified historic burial within approximately one mile of the project area. These sites are located in a different environmental zone (along the river) than the project area, and their presence does not necessarily increase the likelihood of archaeological sites being found within the Kīpū project area. However, Site -3010 is relatively close to the project area's south boundary – within a quarter mile – and development of the Kīpū parcel may adversely impact that site. Development of this parcel would need to consider these possible adverse effects to known historic properties, specifically Site -3010 and possibly -3009 (although this site is reasonably distant to be considered outside of the development's area of potential effect). The historic sites (-1562 and -1563) identified by Hammatt et al. (1999) are not likely to be adversely impacted by development given the nature of those sites.