

1 **PRELIMINARY DRAFT REPORT**
2 **Archaeological Literature Review and**
3 **Field Inspection in Support the**
4 **Makawao Solar LLC-HI-Registration**
5 **Project, Maka‘ehu Ahupua‘a, Kula**
6 **Moku, Island of Maui**
7 **TMKs: (2) 2-3-007:036 por.**

8
9
10
11
12
13
14 *Prepared for:*
15 **Nexamp Solar, LLC**
16 1050 Queen St, Suite 100
17 Honolulu, Hawaii 96814

18
19 *On Behalf of:*
20 **Hawaiian Electric Company, Inc.**
21 1001 Bishop Street, Suite 2900
22 Honolulu, Hawaii 96813

23
24
25 April 2023
26
27

This Page Left Blank Intentionally

1 PRELIMINARY DRAFT REPORT
2 Archaeological Literature Review and Field Inspection in Support the
3 Makawao Solar LLC-HI-Registration Project, Maka‘ehu Ahupua‘a, Kula Moku, Island of Maui
4 TMK: (2) 2-3-007:036 por.
5
6
7
8

9 By
10 Nicole I. Vernon, M.A.
11
12
13
14
15

16 Prepared For:
17 Nexamp, LLC
18 1050 Queen St, Suite 100
19 Honolulu, Hawaii 96814
20

21 On Behalf of:
22 Hawaiian Electric Company, Inc.
23 1001 Bishop Street, Suite 2900
24 Honolulu, Hawaii 96813
25

26 Prepared By:
27 Pacific Consulting Services, Inc.
28 1130 N. Nimitz Hwy, Suite C-300
29 Honolulu, Hawaii 96817
30
31
32
33
34
35
36

37 April 2023
38

1
2
3
4
5
6
7
8

This Page Left Blank Intentionally

MANAGEMENT SUMMARY

Document Title:	Archaeological Literature Review and Field Inspection in Support the Makawao Solar LLC-HI-Registration Project, Maka‘ehu Ahupua‘a, Kula Moku, Island of Maui
Date/Revised Date:	April 2023
Archaeological Permit #:	SHPD Permit No. 23-08
Project Location:	Haleakalā Highway, Makawao, Maui
Project TMK:	(2) 2-3-007:036 por.
Land Owner:	Michael William Marcus, David J. and Patricia A. Chevalier, and Claudia S. Gerbaulet
Project Proponents:	Hawai‘i Electric Company (HECO)
Project Tasks:	Archaeological Literature Review and Field Inspection
Project Acreage:	21.44 acres
Principal Investigator:	Dennis Gosser, M.A.
Regulatory Oversight:	Chapter 6E-8, Hawaii Revised Statutes (HRS) and Hawaii Administrative Rules (HAR) Chapter 275
Project Background:	The proposed project involves construction of a solar facility in Makawao. Work will include installation of equipment, fencing, site roads, and connectivity to the power source.
SIHP #:	None
Findings:	<p>No previous archaeological investigations have been conducted in the project area. Immediately adjacent to the current project area, an archaeological inventory survey was conducted in 1990 prior to the construction of a new high school (Donham 1990). At the time the land was planted with pineapple, along with the current study area. No historic properties or artifacts were encountered. Pineapple cultivation in the current project area occurred into the 2000s, which likely obliterated any remnants of traditional Hawaiian activity.</p> <p>During field inspection, the ground surface was moderately vegetated with lantana, grasses, and weeds. No archaeological sites were observed. Modern cultivation of pineapple in the project area was evident based on the presence of plastic piping, bags, and other debris. More recently the project area was also used for cattle grazing.</p>
Human Skeletal Remains:	None identified within the project area, and no human skeletal remains have been documented within a 500-meter radius of the project area.
Project Effect:	The recommended project effect determination is “no historic properties affected,” as the proposed project will have no effect on significant historic properties.
Mitigation Recommendations:	No further work is recommended.

This Page Left Blank Intentionally

TABLE OF CONTENTS

MANAGEMENT SUMMARY	I
TABLE OF CONTENTS	III
LIST OF FIGURES	III
LIST OF TABLES	III
INTRODUCTION	1
PROJECT LOCATION AND DESCRIPTION	1
ENVIRONMENTAL SETTING	1
TOPOGRAPHY AND SOILS	1
HYDROLOGY AND VEGETATION.....	6
HISTORICAL BACKGROUND.....	6
TRADITIONAL LAND USE	6
HISTORIC LAND USE	8
PREVIOUS ARCHAEOLOGY	15
ANTICIPATED FINDS	20
FIELD INSPECTION	20
FIELD INSPECTION RESULTS AND DISCUSSION	20
SUMMARY AND ASSESSMENT.....	20
RECOMMENDATIONS	20
REFERENCES	24
GLOSSARY OF HAWAIIAN TERMS	28

LIST OF FIGURES

Figure 1. Project Area Location on 7.5-Minute Series USGS Kilohana Topographical Quadrangle (2017).	2
Figure 2. Tax Map Key for Plat (2) 2-3-007 (Tax Maps Bureau 1934).....	3
Figure 3. Site Plan for the Makawao Solar Project Area.	4
Figure 4. Soil Units Near the Project Area (Data Layer: USDA/NRCS 2015).	5
Figure 5. Portion Map Traced from a ca 1851 Map of Maka‘ehu (Monsarrat 1881).	11
Figure 6. Portion of Map of Halaekala Ranch (Foss 1926).	12
Figure 7. Portion of Lyons’s (1872) Map of Makawao, Maui Showing the Project Area Near Land Labeled Hobron’s Pasture.....	13
Figure 8. 1950 Aerial Image Showing Project Area Cultivated in Pineapple (USGS 1950).....	14
Figure 9. Previously Archaeological Investigations Near the Makawao Solar Project Area.....	16
Figure 10. Previously Identified Sites Near the Makawao Solar Project Area.	17
Figure 11. Locations of Photographs 1–5 (see Figures 12–16) Shown on Aerial Image Dated January 2022 (Google Earth 2023); Arrows Indicate Facing Direction.....	21
Figure 12. Photograph 1, Facing Northeast.	21
Figure 13. Photograph 2, Facing Northwest.	22
Figure 14. Photograph 3, Facing West.....	22
Figure 15. Photograph 4, Facing West.....	23
Figure 16. Photograph 5, Facing North.....	23

LIST OF TABLES

Table 1. List of Previous Archaeological Studies Near the Project Area.	18
--	----

This Page Left Blank Intentionally

INTRODUCTION

Under contract to the Nexamp Solar, LLC, Pacific Consulting Services, Inc. (PCSI) has prepared this Archaeological Literature Review and Field Inspection (ALRFI) report in support of the Makawao Solar LLC-HI-Registration Project, Maka'ehu Ahupua'a, Kula Moku, Island of Mauiin Maka'ehu Ahupua'a, Kula Moku, Island of Maui¹. The project proponent is the Hawai'i Electric Company (HECO), and land owner is multiple individuals: Michael William Marcus, David J. and Patricia A. Chevalier, and Claudia S. Gerbaulet. The extent of the proposed project is shown in Figure 1. The project scope of work includes installation of solar arrays, fencing, and equipment.

A historical, cultural, and archaeological background study and field inspection was conducted in order to evaluate any potential effect on historic properties and to recommend mitigation of any adverse effect, if warranted. This work was carried out in accordance with Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Section 6E-8, HRS).

PROJECT LOCATION AND DESCRIPTION

The current project area is on the south of Haleakalā Highway, east of Kula Highway, in Makawao. The total project area measures 20 acres (ac), or 8.09 hectares (ha). The project area consists of a portion of the 163.087-acre Tax Map Key (TMK) parcel is (2) 2-3-007:036 (Figure 2). The project scope of work includes installation of solar arrays, fencing, and equipment. An overall site plan is shown in Figure 3.

ENVIRONMENTAL SETTING

Maka'ehu Ahupua'a is on the northwestern slope of Haleakalā volcano on Maui Island. The land section is long and narrow, measuring approximately 13 kilometers (km) southeast-northwest and roughly one to four kilometers wide, and stretches from 128 to 1,220 meters (m) above mean sea level (amsl). The total *ahupua'a* land area measures approximately 7,133 ac.

TOPOGRAPHY AND SOILS

The project area is in the north rift zone of the Kula Volcanic Series of Haleakala. Cones in the vicinity include Pu'uoweli to the west, Pu'upane to the south, Pu'uonepohue and Pu'ualaea to the east, and Pi'iholo to the north. Kaluapulani Gulch is on the south side of the project area.

The project area is level at 563 m above mean sea level (amsl) and 12 km inland, or south, of the coastline. Soils in the project area consist primarily of Haliimaile silty clay loam, 7 to 15 percent slopes (HgC), with small sections of Pane silt loam with 7 to 25 percent slope (PXD) and rock land (rRK), as shown in Figure 4. The Haliimaile series consists of well-drained soils on uplands, which developed in material weathered from basic igneous rock (Foote et al. 1972:35). For the HgC unit, runoff is medium and erosion hazard is moderate. The Pane series consists of well-drained soils on uplands, which developed in volcanic ash (Foote et al. 1972:109). WID2 is eroded and stones cover 3 to 15 percent of the surface. Runoff is medium, and the erosion hazard is severe (Foote et al. 1972:127).

¹ PCSI follows the latest edition of the Society for American Archaeology (SAA) Style Guide (2021) regarding textual elements (e.g., numbers, dates, statistical copy, italicization, capitalization, hyphenation, and accents and diacritical marks). The authority for English spelling is the most recent edition of Merriam-Webster's Collegiate Dictionary. Unless noted, the authorities for Hawaiian spelling and geographic place names are the Hawaiian Dictionary (Pukui and Elbert 1986), the most recent listing of the Hawai'i Board on Geographic Names (HBGN), and Place Names of Hawaii (Pukui et al. 1976). PCSI uses the official spelling of Hawaii (without an okina) to refer to the State and State agencies (unless an alternative spelling has been officially adopted); spellings presented in quotations and references retain their original punctuation.

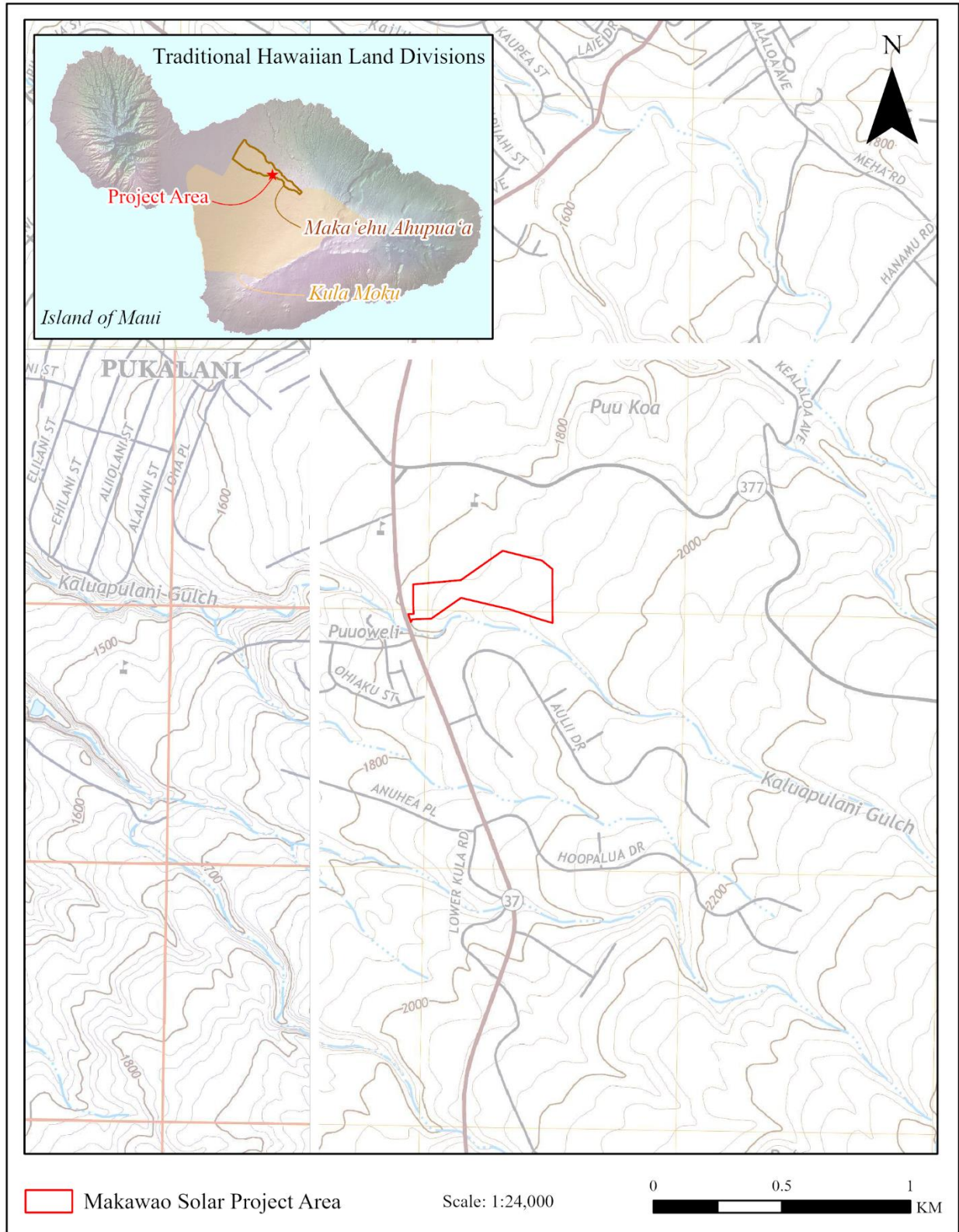


Figure 1. Project Area Location on 7.5-Minute Series USGS Kilohana Topographical Quadrangle (2017).

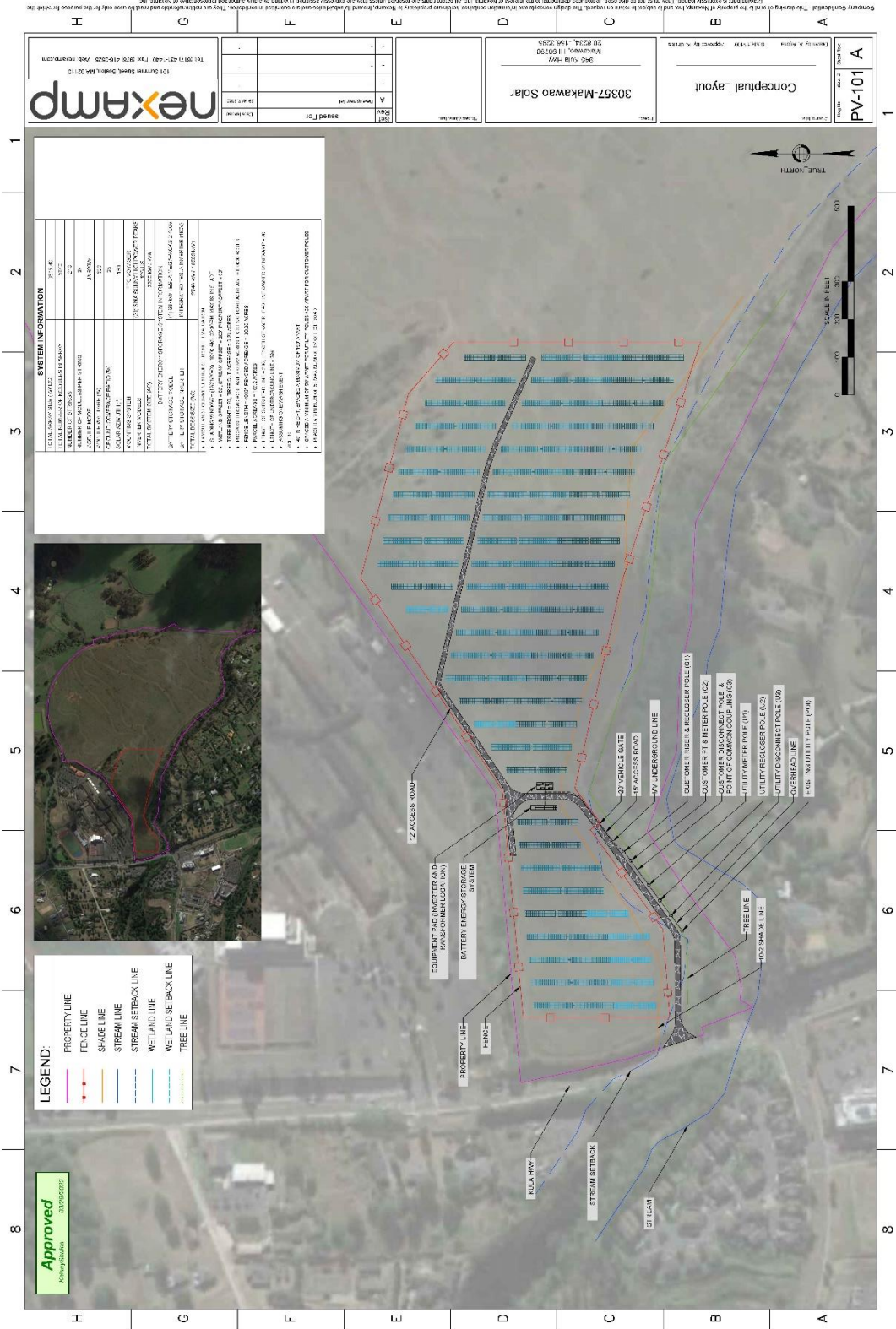


Figure 3. Site Plan for the Makawao Solar Project Area.

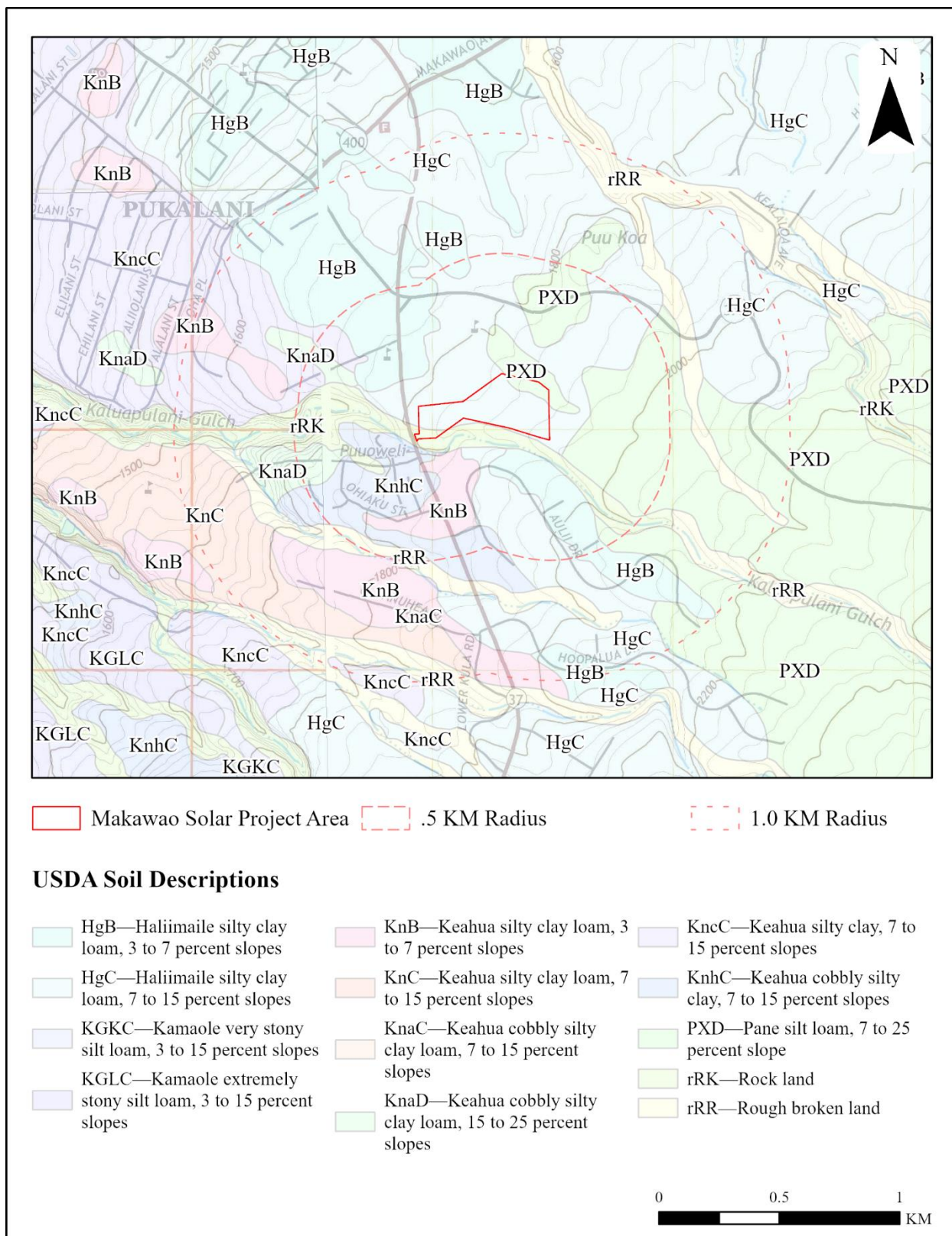


Figure 4. Soil Units Near the Project Area (Data Layer: USDA/NRCS 2015).

HYDROLOGY AND VEGETATION

The project area's climate is dry. Annual rainfall averages 996 millimeters (mm), or 39.22 inches (in) (Giambelluca et al. 2013). A majority of the rain occurs between November and March. There are no perennial streams in the vicinity. Along the south border of the project area is Kaluapulani Gulch, and roughly 1 km to the north is Kailua Gulch.

The project area is undeveloped and historically was used for ranching and cultivation of sugarcane and pineapple. Pineapple was grown on the parcel into the modern era and today the vegetation is primarily grasses such as Guinea grass (*Megathyrsus maximus*).

HISTORICAL BACKGROUND

This section presents the ethno-historical and archaeological background information of the project area. Data from the background research were compiled to create an overview of traditional Hawaiian and historic-era land use and subsistence practices. Previous archaeological research in the study area is reviewed, along with results of the field inspection, and anticipated archaeological findings are discussed.

TRADITIONAL LAND USE

The project area is situated in the *ahupua'a* of Maka'ehe. Maka'ehe traditionally belonged to Kula Moku, which was one of the 12 ancient districts of Maui (Barrère 1975; see various historical records in Maly and Maly 2005:64, 69, 203; Pukui et al. 1974; Sterling 1998). This is also the case in Māhele records, birth and death announcements in Hawaiian language newspapers in the 1860s, and some historical maps (see Dodge 1885), sometimes with alternate spellings, including Makehu. Today, the *ahupua'a* is within the Makawao District, which was designated in 1909 (Barrère 1975:30). Some sources also cite Ka'au'u as an *ahupua'a* or an *āpana* (portion of land), which historical maps show overlapping with a portion of the project area; the boundary can be seen in Figure 2 on the plat map. Ka'au'u refers to the *'ua'u*, or Hawaiian petrel (*Pterodroma sandwichensis*). Regarding the spelling and meaning of Maka'ehe, historical document research by Helen Wong Smith revealed the following:

Makaeha translates to sore or aching eyes. An alternative spelling of this *ahupua'a* is given by Keohokalole, who officially transferred this and other Makawao (Kula) Lands to the Government during the Mahele, and in the Indices of Land Commission A wards. In these sources, it is referred to as Makehu. Kehu is a variant spelling of ke ehu, meaning of the mist, or spray. Ehu of kehu may also refer to water mixed with fragrant herbs. 'Ehu as an adjective refers to people with ruddy, or reddish-brown complexions or reddish hair (Pukui and Elbert 1986:38) [Donham 1990:6].

Archaeological evidence indicates that initial settlement of the Hawaiian Islands occurred between AD 1000 and 1200 (Kirch 2011). On Maui, this occurred on the windward coast where there was fertile land, and abundant rainfall and fresh water. The current project area is in the upland forest where only temporary habitation occurred during resource procurement.

Handy (1940:161) mentioned *'uala* (sweet potato) were a diet staple:

Kula was always an arid region, throughout its long, low seashore vast stony kula [dryland field] lands, and broad uplands. Both on the coast, where fishing was good, and on the lower westward slopes of Haleakala a considerable population existed, fishing and raising occasional crops of potatoes along the coast, and cultivating large crops of potatoes inland, especially in the central and northeastern section including Keokea, Waiohuli, Koheo, Kaonoulu, and Waiakoa, where rainfall drawn round the northwest slopes of Haleakala increased toward Makawao [Handy 1940:161].

1 So far as I can learn Kula supported no Hawaiian taro, and the fisherman in this section
2 must have depended for vegetable food mainly on poi brought from Waikapu and Wailuku
3 across the plain to supplement their sweet potato staple diet [Handy 1940:114].

4 According to Hawaiian historian Samuel Kamakau (1992:428–429), paved roads on the islands of
5 Moloka'i and Maui were constructed by Kihapi'ilani, *ali'i nui* (high chief) of Maui. Kihapi'ilani had the
6 roads built around 1516 after his conquest and unification of Maui. Handy and Handy (1972:489–490) state
7 that at one point in time the Maui road traversed both the east and west ends, connecting the entire island.
8 At gulches, the trail passed along the beach and sometimes travelers were ferried across streams or along
9 the coast. Portions of this road area are still present on Maui. It is known as Ke Alaloa O Maui ("The Long
10 Road of Maui"), but has also been called the "King's Trail" or "Kipapa (pavement) of Kahipi'ilani" (Handy
11 and Handy 1972:489).

12 There is little legendary or traditional history available the *ahupua'a* of Maka'ehu. However, there
13 are stories of Kihapi'ilani living in the area. Kamakau (1992) wrote of how prior to becoming *ali'i nui*,
14 Chief Kihapi'ilani of Lahaina and his wife Kumaka and his wife Kumaka who fled to the boundary of Kula
15 and Makawao after an argument Kihapi'ilani's brother, Lonoapi'ilani. Lonoapi'ilani had succeeded their
16 father Pi'ilani as *ali'i nui* of Maui. Lonoapi'ilani was suspicious and jealous of his brother's kind nature
17 and talents, and wanted to kill Kihapi'ilani. For a time Kihapi'ilani's identity was kept secret, but his actions
18 hinted he was not a commoner. Traditionally, the uplands at Makawao and Kula cultivated in *'uala* (Abbott
19 1992:13–14). When there was a famine in Kula and Makawao, Kihapi'ilani cleared ferns and planted *'uala*,
20 doing the work of 80 men. When harvesting the field nearby, a man spoke to another, "There must be a
21 chief near by for this is the first time that a rainbow is spread before the trees" (Kamakau 1992:24).

22 In a story told by Moses Manu in *Ka Nupepa Koukoa*, Kihaapi'ilani farmed *'uala* at Maka'ehu:

23 One day after the chief had finished his morning meal, Kihaapiilani went to the stream of
24 Kapalai which was perhaps the boundary of Kula and Makawao. Seaward of this place,
25 along the stream on the side adjacent to Kula was a place called Makaehu [Makaeha]; that
26 is the place Kihaapiilani set fire to. There he farmed and planted sweet potatoes. This was
27 a large sweet potato patch which the chief cultivated [Manu in Sterling 1998:259].

28 Archaeological evidence indicates that initial settlement of the Hawaiian Islands occurred between
29 AD 1000 and 1200 (Kirch 2011). On Maui, this occurred on the windward coast where there was fertile
30 land, and abundant rainfall and fresh water. The current project area is in the upland forest and early on
31 would have been used for temporary habitation during resource procurement.

32 Handy and Handy noted in the 1930s that there was evidence of *lo'i* (wetland taro field) in Kailua
33 and Māliko gulches at lower elevations. "Maliko Stream, flowing in a gulch that widens and has a flat
34 bottom to seaward, in pre-sugar-plantation days had a considerable number of *lo'i*" (Handy and Handy
35 1972:498). In the uplands of Kula, *'uala* and Irish potatoes (grown in the 1800s) were noted:

36 Where potatoes are planted in crumbling lava with humus, as on eastern Maui and in Kona,
37 Hawaii, the soil is softened and heaped carelessly in little pockets and patches using
38 favorable spots on slopes the crumbling porous lava gives ample aeration without much
39 mounding [Handy and Handy 1972:131].

40 Kula was always an arid region, throughout its long, low seashore, vast stony *kula* lands,
41 and broad uplands. On the coast, where fishing was good, and on the lower westward slopes
42 of Haleakala a considerable population existed, fishing and raising occasional crops of
43 potatoes along the coast, cultivating large crops of potatoes inland, especially in the central
44 and northeastern section including Keokea, Waiohuli, Koheo, Kaunoulu, and Waiakoa,
45 where rainfall drawn round the northwest slopes of Haleakala increases toward Makawao
46 [Handy 1940:161]

HISTORIC LAND USE

After his conquest and the unification of the Hawaiian Kingdom (less Kauaʻi), Kamehameha I divided Maui among his warrior chiefs, as on other islands. These lands were considered *aina ho ʻoilina*, or “inherited lands” and were not to be taken by the king of the government (Barrère 1975:30).

Traditional land divisions of the fifteenth and sixteenth centuries persisted until the 1848 Māhele, which introduced private property into Hawaiian society (Kamakau 1991:54). During the Māhele, the Land Commission required the Hawaiian chiefs and *konohiki* (land agents for the *ali ʻi*) to present their claims to the Land Commission. In return they were granted awards for the land quit-claimed to them by Kamehameha III. The remaining unclaimed land was then sold publicly, “subject to the rights of the native tenants” (Chinen 1958:29). The new western system of ownership resulted in many losing their land. Often claims would be made for discontiguous cultivated plots with varying crops, but only one parcel would be awarded.

In the case of land claims made for *konohiki* lands, approval by the Land Commissioners was required before the award was made. If approved, then the awardee obtained a Royal Patent (RP) from the Minister of the Interior, which indicated that the government’s interest in the land had been settled with a commutation fee. This fee was typically no more than one-third of the value of the unimproved land. This fee was paid either with cash, or, more commonly, the return of one-third of the awardee’s lands, or total value of the lands awarded (Barrère 1975:28).

Following the Māhele of 1848, two acts were passed in 1850 that changed land ownership in Hawaiʻi. On 10 July 1850, the Alien Land Ownership Act was adopted, which allowed foreigners to own land. On 6 August 1850, the Kuleana Act of 1850 was adopted, which allowed *hoa ʻāina* (common people of the land, native tenants) to make claims to the Land Commission. The new western system of ownership resulted in many losing their land. Often *kuleana* (property) claims would be made for discontiguous cultivated plots with varying crops, but only one parcel would be awarded.

The Crown Lands became Government Lands when the Hawaiian Government was overthrown in 1895, making them public domain for sale by fee simple (Hammatt 2013:A-5). Patents were the certificates issued for the sale of such lands. Beginning in 1900, when Hawaiʻi became a U.S. territory, the certificates were called Land Patents, or Land Patent Grants (Hammatt 2013:A-5). The Crown Lands became Government Lands when the Hawaiian Government was overthrown in 1895, making them public domain for sale by fee simple (Hammatt 2013:A-5). Patents were the certificates issued for the sale of such lands. Beginning in 1900, when Hawaiʻi became a U.S. territory, the certificates were called Land Patents, or Land Patent Grants (Hammatt 2013:A-5).

At the Māhele, Makaʻehu was retained by Chieftess Keohokālōle, but she surrendered the land in lieu of commutation to the government. She had inherited the land through her father’s side and was a descendant of Kameʻeiamoku and Keawe-a-Heulu, who were two of the four Kona chiefs that supported Kamehameha I (*Hawaiian Gazette* 1869:4). There were multiple smaller lands, sometimes referred to as an *ahupuaʻa*, that Keohokālōle surrendered, which appear to be within Makaʻehu Ahupuaʻa on a majority of historical maps. A deed dated 1877 also states that high chiefs K. Kapaakea and A. Keohokalole (his wife) held a Māhele title to the land which they conveyed to Edward Bailey and Malaihi. Bailey noted Malaihi “is an assistant in various ways, sometimes a teacher, sometimes as caterer with the people, etc.” (ABCFM 1843:177). Malaihi was likely associated with Bailey in business. He is also listed as a Commissioner of Fences in Makawao in the Hawaiian Almanac for 1878, along with N.F. Sayre and M. Kapihe (Thrum 1877:35). In the Hawaii State Archives, a document dated 23 September 1840 states: “Malaihi Agreement, As above, between Kamehameha III and Malaihi to plant sugar Cane in Wailuku” (Interior Department of Land Matters 1840), while another dated 1849 mentions him as a school agent (Interior Department of Land Matters 1849).

1 Edward and Caroline Hubbard Bailey were Protestant missionaries with the American Board of
2 Commissioners for Foreign Missions (ABCFM) who arrived in Hawaii in 1837. Of their five children,
3 Edward Bailey Jr. and William Hervey Bailey later became partners with Edward Bailey, Sr., in Bailey and
4 Son's Sugar Plantation. Edward Bailey, Sr., first worked as a teacher at the Wailuku Female Seminary from
5 1840 until 1849 when it closed. He then purchased the seminary property, which became the Bailey family
6 residence (this is today's museum Hale Hō'ike'ike, or the Bailey House, in Wailuku), and the adjacent 47
7 acres, where he started Bailey and Son's Sugar Plantation (later part of the Wailuku Sugar Company).

8 Edward Bailey, Jr., married Emily Naka'ahiki (Kania) Bailey, a native Hawaiian, and had three
9 children: William K. Baily, Ella Aulani (Rhodes), and Mary Kaulaloa (Wilson). He was the only one of his
10 siblings to remain in Hawai'i his entire life. According to his descendant Matt Bailey, "My father, John
11 Ailau Bal remembered his grandfather [Edward Bailey, Jr.], on horseback, at a ranch in Makawao where
12 he remembered that his grandfather had only one hand but still could ride and round up cattle as if he had
13 both hands" (Bailey 2021).

14 Edward Bailey, Jr., and his wife lived on Vineyard Street in Wailuku. Sources indicated he had
15 various business ventures with his father, and his death certificate lists his occupation as landowner. In his
16 will he left his property to his wife. Upon Emily's death, Bailey had declared that the land should be divided
17 as follows: "To son William K. property known as the Bailey Block at Main and High Street, and land at
18 the south side of Vineyard Street; To daughter Ella, land between Main and Vineyard Street known as
19 Malaihe land and land known as Kaumu land; To grandson Joseph Bailey Wilson, land on Vineyard
20 (Edward Bailey's personal residence); and To daughter Mary Bailey, property on the east side of High
21 Street lying between the Bailey Block and the Kaumu land" (Bailey 2021).

22 William Hervey Bailey married Anna (Hobron) Bailey, whose father was Captain Thomas Henry
23 Hobron. Captain Hobron was responsible for building Maui's first narrow gauge railroad. William Bailey's
24 obituary below describes his years in the sugar business on Maui:

25 Word was received here Monday by cable and wireless of the death of William H. Bailey
26 in Los Angeles. No details of the immediate cause of death have yet been received but it is
27 known that when he was here four years ago he visited Waikapu valley in company with
28 Manager Wells and on the trip got his feet wet and his clothing damp in which condition
29 he remained at the home of Mr. Wells during the evening which resulted in his taking a
30 severe cold from which he never recovered.

31 William H. Bailey was born in Wailuku, January 24, 1842. He was a son of Rev. Edward
32 Bailey. He was associated with his father and brother Edward in the sugar industry and was
33 the outside manager for the firm while Edward Bailey was the manager of the mill which
34 stood on the grounds now occupied by the residence of Manager H. B. Penhallow.

35 After two years as outside manager he bought out the interest of his brother and two years
36 later amalgamated with the Wailuku Sugar Co. and became manager, succeeding Captain
37 Wilfong. He let out the land oil shares to James C. Bailey, E. H. Bailey, W. H. Cummings,
38 E. H. Rogers, W. O. Smith and one other and two years later the Wailuku Sugar Co. paid
39 its first dividend.

40 He remained as manager until 1885 when he sold out his interests and went to California
41 where he has since made his home.

42 In 1867 he was married to Miss Anna Hobron. A son and a daughter were born of this
43 union. Mrs. Bazata, a former resident of Sunnyside was his daughter. His son resides in
44 California.

45 Mr. Bailey was a highly respected resident of Maui and was one of the successful pioneers
46 in the sugar industry of the islands [Maui News 1910:1].

1 Land records indicate Edward Bailey, Sr., determined the boundaries of Maka‘ehu in 1851, which
2 totaled 1109.2 acres. The boundary map is shown in Figure 5, which also depicts Kauau, Keahua, Kukuiaeo,
3 Kohoilo (also known as Kahilo 1 and 2), and Makaua, while Maka‘ehu is depicted as a narrow stretch of
4 land between them. The boundary was disputed in the 1870s, which may account for later maps combining
5 these smaller land areas into Maka‘ehu. This map also shows several squares with names, which are likely
6 houses, along the ox cart road that ran through the project area. The names on the map, Mahiole, Lono, and
7 Kuana, are also associated with land grants at those locations. Other locations on the map and in the
8 boundary descriptions are as follows: running clockwise around the border starting at the “pile of stones”
9 and heading east to the wiliwili tree; hill of Kukuiaeo “crowned with cactus,” ravine of Koaie, two koa
10 groves the Great Spring of Kawaihou, the Cave of Holonokai, ravine of Kaakakai and A‘apueo, the great
11 gulch, or ravine, of Pu‘umahanalua, Ku‘uku‘u Spring.

12 No Land Commission Awards (LCA) were made in the project area, but there was one claim in
13 Maka‘ehu and a handful in the neighboring A‘apueo. Kekahuna made a claim for the ‘ili of Kukui in
14 Maka‘ehu, but it was not granted, and another claim for the ‘ili of Kamakaula in A‘apueo which was
15 granted. Both were for pastureland. Kukui ‘ili likely refers to the area labeled Kukuiaeo in Figure 6, which
16 other maps show as government land or Hobron’s pasture. All other land claims in the vicinity were also
17 for pasture or Irish potato fields. The Irish potatoes were first planted to provision whaling ships in the
18 1830, and then in the 1850s to send to California during the gold rush. This was when much of the
19 deforestation occurred in the area which led to erosions and drought (Honolulu Star-Bulletin 1962:A15).
20 After the potato demand diminished, the conditions were further exacerbated by ranching and other crop
21 cultivation that required more land clearing.

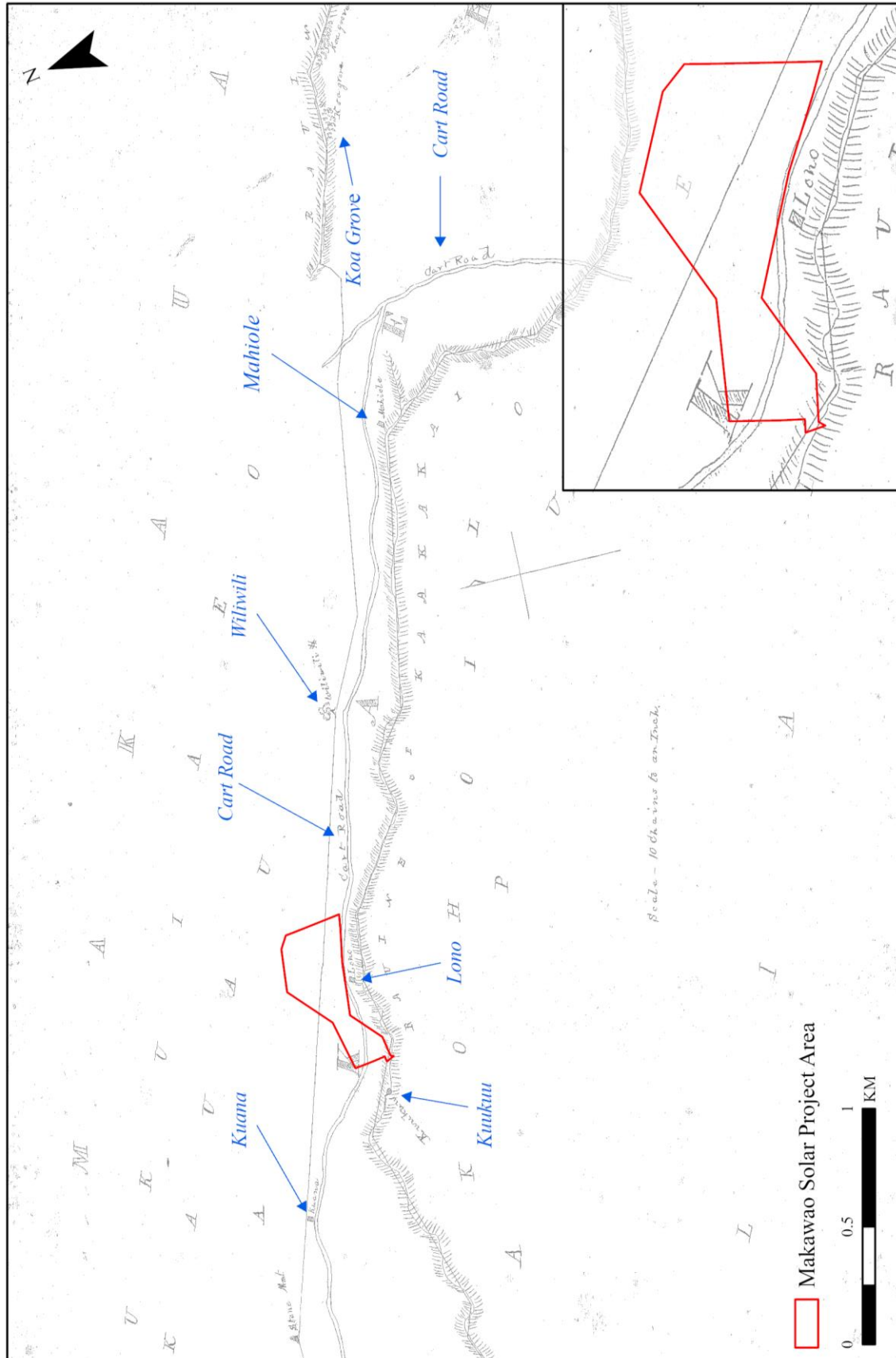
22 According to Privy Council information from the Hawaii State Archives, in 1853 large portions of
23 Ka‘ua‘u were sold as follows: the 115 acres for 230 dollars to Kahainapule as Land Grant 963, described
24 as Kauau 1 and 2; 150 acres for 300 dollars to Kekaha as Land Grant 964 (TM 2307), described simply as
25 Kauau; and 76 acres for 76 dollars to Kawahalama as Land Grant 1202 (TM 2309), described as Ulu,
26 Kauau. These grants can be seen on a historical map dated 1880 (see Figure 6).

27 An 1872 map of neighboring Makawao, shown in Figure 7, indicates a portion of the project area
28 possibly fell within Hobron’s pasture (most likely referring to Captain Thomas Hobron). Across the gulch
29 to the east there is land labeled “W. Bailey” (most likely William Hervey Bailey).

30 In 1876, William Hervey Bailey applied for a Royal Patent for Maka‘ahu, and this is when the
31 boundary dispute occurred. There is also mention of Kawaihou Spring, a prime water source for the area,
32 which was a boundary marker in the original survey in 1851. In 1877, the land of Maka‘ehu was deeded to
33 William Hervey Bailey. He was later a partner in Haleakala Ranch, Wailuku Sugar Company, and Olinda
34 Crude Oil Co., Cane Sugar and Oil Producer. He moved to San Francisco in 1885.

35 In 1895, rancher Jose de Freitas Phillipe requested to purchase Maka‘ehu at 6 dollars an acre. It is
36 unclear if this transaction was finalized, but he did purchase 27.97 acres in Keahua for \$335.65 dollars in
37 1897 as Grant 4002 (see Figure 6), and 115.4 acres in 1910 as Grant 5369 further south in ‘Ōma‘opio
38 Ahupua‘a in Kula.

39 Pineapple cultivation began in the area with the Baldwin family, one of the Big Five families in
40 Hawai‘i. Keahua Ranch Company was incorporated in 1909, which became Haleakala Pineapple Company,
41 Limited, in 1929. Then in 1932, pineapple operations of Haleakalā and Maui Agricultural Company were
42 consolidated to create Maui Pineapple Company, Ltd. (Speakman 1978:130–131). In Figure 8, a historical
43 aerial photograph dated 1950 shows the project area cultivated in pineapple, which remained that land use
44 into the modern era.



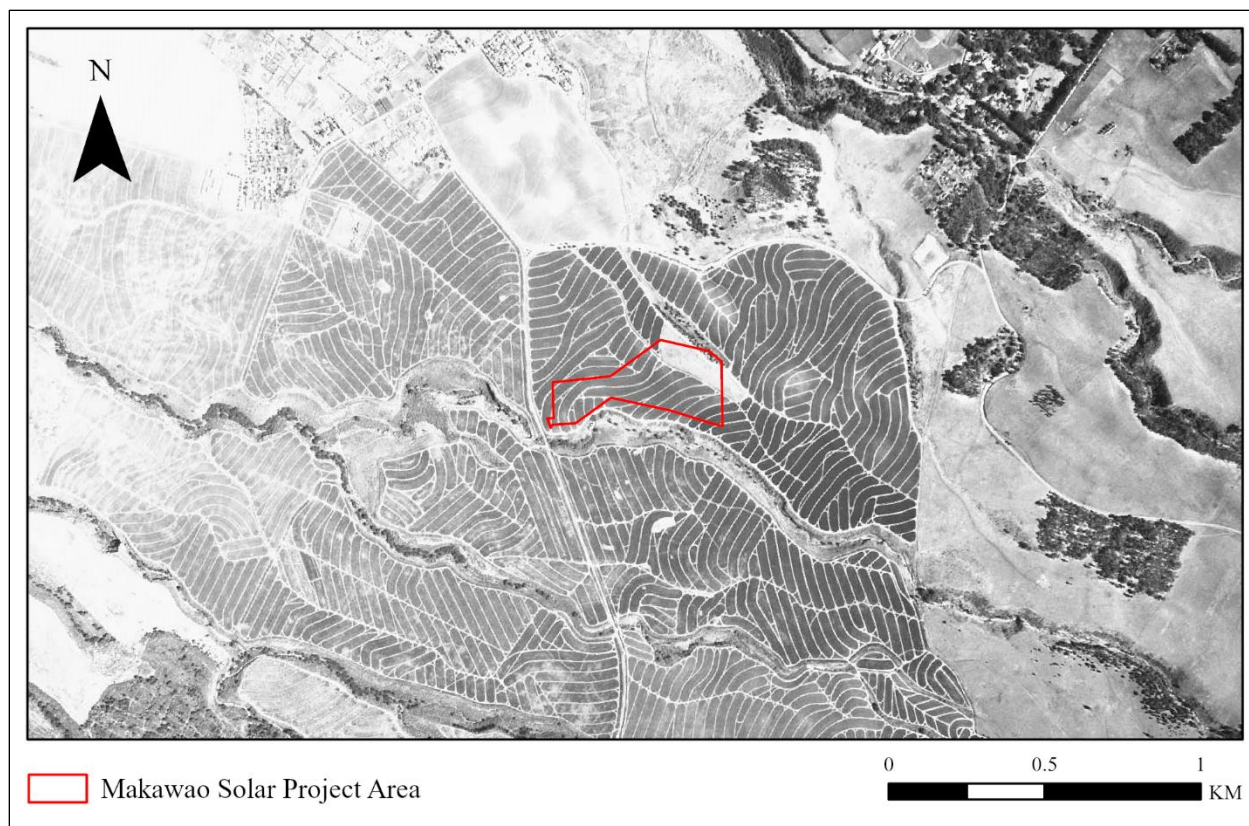


Figure 8. 1950 Aerial Image Showing Project Area Cultivated in Pineapple (USGS 1950).

PREVIOUS ARCHAEOLOGY

The current project area has not been subject to archaeological survey due to its long history of pineapple cultivation. Immediately adjacent to the current project area, an archaeological inventory survey was conducted in 1990 prior to the construction of a new high school (Donham 1990). At the time the land was planted with pineapple, along with the current study area. No historic properties or artifacts were encountered.

Several other archaeological surveys have been conducted in the area, which documented traditional Hawaiian and historic period sites. Traditional Hawaiian sites are typically near gulches and consist of petroglyphs, while historic period sites are related to agriculture. Table 1 summarizes previous archaeological investigations conducted within a one-kilometer radius, and the project locations are shown in Figure 9. Previously identified sites are shown in Figure 10. A discussion of previous archaeological investigations and identified sites within significant findings is presented below.

In 1990, a suspected *heiau* on the edge of a pineapple field was investigated (Kennedy 1990b). Former landowners stated that the structure was a clearing mound that took shape in 1916. The archaeologist interpreted the sites as a previously undocumented *heiau* based on structural form and results of subsurface excavations. The site was designated SIHP 50-50-10-02701. Small fragments of kukui nutshell, volcanic glass, one basalt flake (no polish), and one possible basalt flake were collected. The *heiau* foundation consisted of the natural outcrop of bedrock. The site was later subject to archaeological inventory survey (Pantaleo 2004). Several backhoe trenches were excavated, but no cultural materials were encountered. The site was recommended for preservation.

In 1992, a petroglyph site was documented southeast of the current project area along the gulch (Donham 1992). The site, designated SIHP 50-50-10-02901, is a 20 m long section of cliff with various glyphs, such as sailing canoes, canoes with no sails, a canoe with paddlers, numerous human figures (most of which have paddles held with both hands and raised over their heads), and two possible lizard figures.

Multiple investigations have been conducted at what is today's Pukulani area for proposed residential development (Chun and Dillon 2009; Jin and Dega 2021; Lauer 2015; McPhatter and Rosendahl 1996; Pickett et al. 2003; Wulzen and Rosendahl 1996). During reconnaissance survey of 250 acres (McPhatter and Rosendahl 1996), recorded sites included a petroglyph complex (SIHP 50-50-10-04179) in Kaluapulani Gulch and a historic period boundary wall (SIHP 50-50-10-04180). An archaeological inventory survey was subsequently conducted for an adjacent 44-acre area, which recorded one new site, SIHP 50-50-10-04181. This site is a historic period agricultural complex comprising two agricultural clearing piles and two rock alignments. Archaeological monitoring was then conducted in the 44-acres area (Pickett et al. 2003). Three new sites were recorded, which included SIHP 50-50-10-05173 (historic period Chinese cemetery), SIHP 50-50-10-05469 (pre-Contact rock mound and fire pit), and SIHP 50-50-10-05470 (historic period drainage or irrigation ditch).

In 1998, an archaeological inventory survey was conducted at a water tank site and pipeline corridor for the proposed Kulamalu development (Fredericksen and Fredericksen 1999). Five previously unrecorded sites were documented. SIHP 50-50-10-04677 and 04680 are both historic periods retaining walls associated with ranching. SIHP 50-50-10-04678 is a man-made, historic period storage or shelter cave. SIHP 50-50-10-04679, is a rock shelter, possibly used during the pre-Contact period. The fourth site is a probable burial dating to the historic period, which was designated SIHP Site 50-50-10-04681. No subsurface testing was conducted because all four sites were outside the area of proposed ground disturbance.

Archaeological inventory survey was conducted at a 2.79-acre parcel in Maka'eha Ahupua'a (Pestana and Dega 2008). A single post-Contact agricultural clearing mound was recorded and designated SIHP 50-50-10-06526.

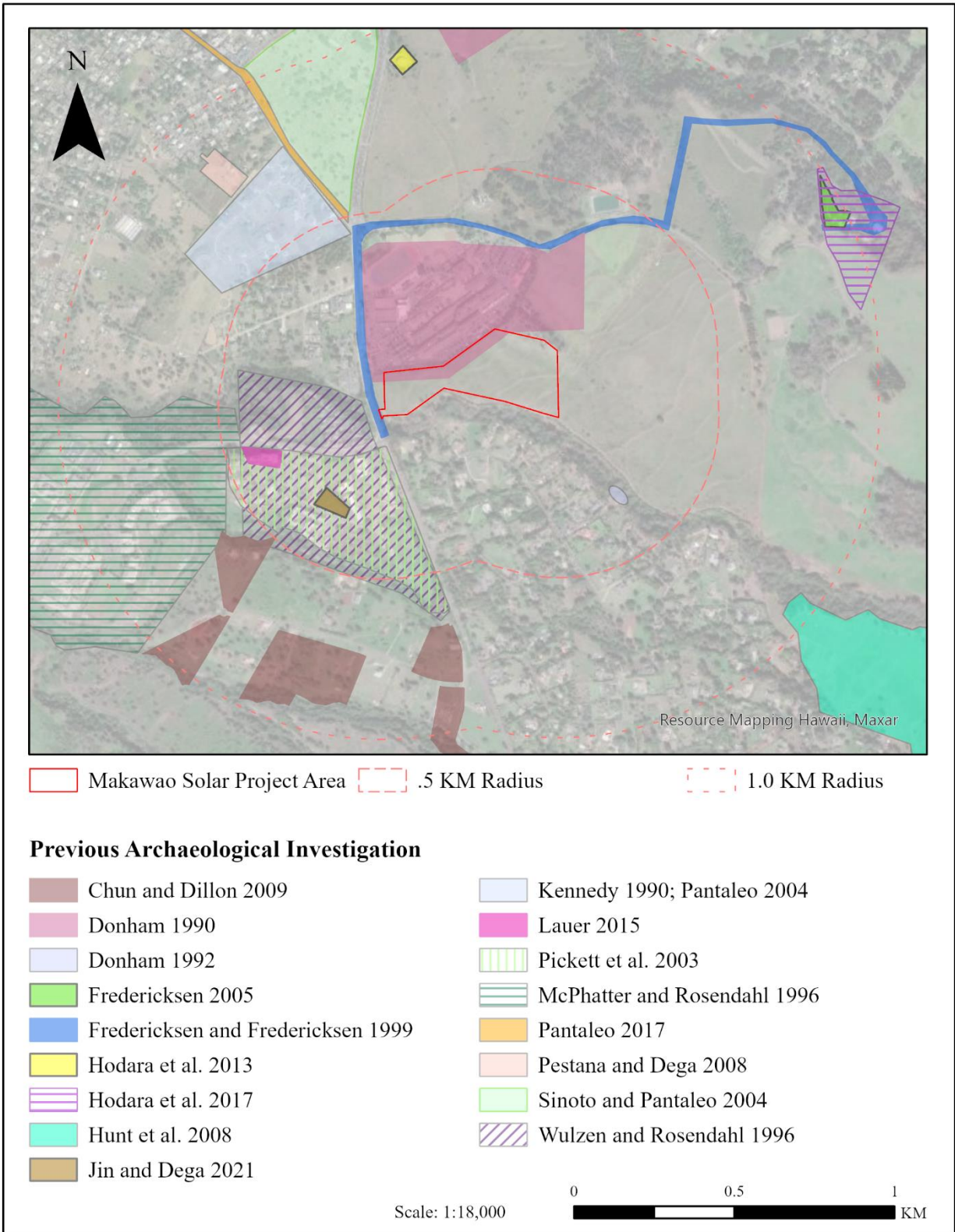


Figure 9. Previously Archaeological Investigations Near the Makawao Solar Project Area.

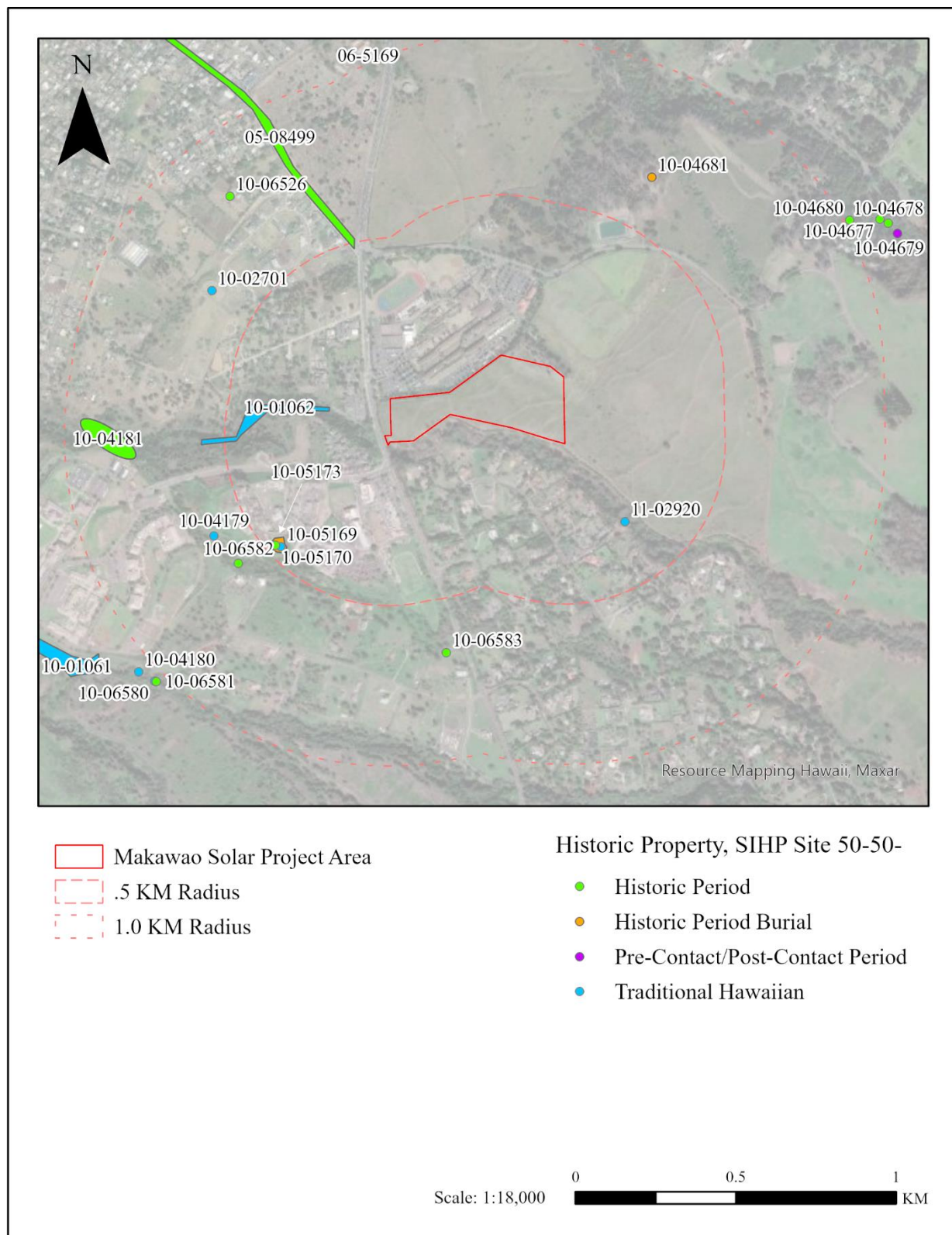


Figure 10. Previously Identified Sites Near the Makawao Solar Project Area.

Table 1. List of Previous Archaeological Studies Near the Project Area.

Reference	TMK(s) (2)/ Location	Nature of Study	SIHP Site 50-50-	Description
Walker 1931	Island-wide	Archaeological Reconnaissance Survey	-	No sites near the current project area
Donham 1990	2-3-009:007,013; 2-3- 007:010 por., 012; 2-4- 001:006 por./ Haliimaile, Hoku‘ula, Kailua, and Maka‘eha Ahupua‘a	Archaeological Inventory Survey	-	No sites recorded
Kennedy 1990b	2-3-011:001/ Pukalani	Archaeological Testing	10-02701	Unnamed <i>heiau</i>
Donham 1992	2-3-07:015/ Kula 200 Subdivision	Archaeological Field Inspection	11-02920	Petroglyph complex
McPhatter and Rosendahl 1996	2-3-008:005 por./ 250-Acre Pukalani Project Area	Archaeological Reconnaissance Survey	10-01061	Kalialinui Petroglyphs
			10-01062	Kaluapulani Petroglyphs
			10-04179	Petroglyph complex
			10-04180	Historic period boundary wall
Wulzen and Rosendahl 1996	2-3-008:005 por./ 44-Acre Pukalani Terrace Subdivision III	Archaeological Inventory Survey	10-04181	Historic period agricultural complex
Fredericksen and Fredericksen 1999	2-3-007: 010 and 011 pors./ Kulamalu Development	Archaeological Inventory Survey	10-04677	Post-Contact, dry-laid retaining wall
			10-04678	Man-made shelter or storage cave
			10-04679	Pre-Contact/Post-Contact period shelter cave
			10-04680	Historic period retaining wall
			10-04681	Probable historic grave site
Pickett et al. 2003	2-3-008:038 and 039 por./ Kulamalu Commercial Subdivision	Archaeological Monitoring	10-05173	Chinese cemetery
			10-05469	Rock mound and fire pit pre- Contact
			10-05470	Historic agricultural ditch
Pantaleo 2004	2-3-011:001 and 002/ Kualono Residential Subdivision	Archaeological Inventory Survey	05-02701	Unnamed <i>heiau</i>
Sinoto and Pantaleo 2004	2-3-007:008 por./ Pukalani Triangle	Archaeological Inventory Survey	-	No sites near the current project area

Reference	TMK(s) (2)/ Location	Nature of Study	SIHP Site 50-50-	Description
Fredericksen 2005	2-3-007:011/ 2.5-acre parcel on Hanamu Road	Archaeological Field Inspection	-	No sites recorded
Hunt et al. 2008	(2) 2-3-007:001/ 180-Acre parcel	Archaeological Inventory Survey	-	No sites near the current project area
Pestana and Dega 2008	2-3-011:008/ 2.79-acre parcel	Archaeological Inventory Survey	10-06526	Post-Contact agricultural clearing mound
Chun and Dillon 2009	2-3-008: 016, 019, 020, 025, 032, and 035	Archaeological Inventory Survey	11-06580	Petroglyph complex
			10-06581	Post-Contact retaining wall
			10-06582	Post-Contact boundary wall
			10-06583	Historic period agricultural complex
Hodara et al. 2013	2-3-007:030/ .994- Acres Proposed DLNR Well Site	Archaeological Assessment	-	No sites recorded
Lauer 2015	2-3-066:017/ 1.447-acre parcel	Archaeological Assessment	-	No sites recorded
Hodara et al. 2017	2-3-007:034/ 2.0-Acre Proposed DLNR Well Site	Archaeological Assessment	-	No sites recorded
Pantaleo 2017	Portions of Old Haleakalā Highway and Makani Road	Archaeological monitoring	05-08499	Subsurface Macadam-style gravel roadbed and perimeter stones of Old Haleakalā Highway
Jin and Dega 2021	2-3-066:047 and 048/ Kulamalu Market Apartments	Archaeological Literature Review and Field Inspection	-	No sites recorded

Archaeological inventory survey was conducted at six lots totaling 36.818 acres in A‘apueo Ahupua‘a (Chun and Dillon 2009). Four historic properties were recorded. SIHP 50-50-10-06580 is a petroglyph complex with at least 18 panels extending 50.0 meters in an unnamed gulch. SIHP 50-50-10-06581 is a post-Contact stacked rock wall (cattle retention barrier). SIHP 50-50-10-06582 is a post-Contact rock wall and fence line. SIHP 50-50-10-06583 consists of four post-Contact features: three earthen terraces and a portion of a drainage ditch.

Archaeological monitoring was conducted during resurfacing of portions of Old Haleakalā Highway between Aeloa Place and Kula Highway and Makani Road between Old Haleakalā Highway and Haleakalā Highway (Pantaleo 2017). SIHP 50-50-05-08499, a subsurface Macadam-style gravel roadbed and perimeter stones beneath the modern surface of Old Haleakalā Highway was recorded.

1 ANTICIPATED FINDS

2 In view of the prior past land use and archaeological findings north of the project area, traditional
3 Hawaiian archaeological sites are unlikely to be present in the project area. During the historic period the
4 entire project area was used for ranching, followed by pineapple cultivation, which likely obliterated any
5 remnants of traditional Hawaiian activity.

6 FIELD INSPECTION

7 An archaeological field inspection was conducted by a PCSI archaeologist, Richard Nees, B.A., on
8 22 March 2023. Dennis Gosser, M.A., served as Principal Investigator for the project. Field inspection
9 consisted of visually inspecting the ground surface of a portion of the 20-acre parcel and photographing
10 swaths of the landscape.

11 FIELD INSPECTION RESULTS AND DISCUSSION

12 Locations of Photographs 1–5 are shown on an aerial image dated January 2022 in Figure 11; the
13 photograph numbers correspond to those in Figures 12 through 16. During field inspection, the ground
14 surface was moderately vegetated with lantana, grasses, and weeds. Modern cultivation of pineapple in the
15 project area was evident based on the presence of plastic piping, bags, and other debris. More recently the
16 project area was also used for cattle grazing.

17 SUMMARY AND ASSESSMENT

18 The proposed Makawao Solar project area is situated east of Haleakalā Highway, Makawao, Maui.
19 The project proponent is HECO, and land owner is Michael William Marcus. The project area includes 20.0
20 acres of TMK (2) 2-3-007:036 por. (see Figures 1 and 2). An archaeological literature review that addresses
21 historical, cultural, and archaeological background, and a field inspection were conducted in order to
22 evaluate any potential effect on historic properties in the project area, and to recommend mitigation of any
23 adverse effect, if warranted. This work was carried out in accordance with Hawaii Revised Statutes (HRS)
24 Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic
25 Preservation Division Rules), Chapter 275 (*Rules Governing Procedures for Historic Preservation Review*
26 *for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*).

27 No previous archaeological investigations have been conducted in the project area. Immediately
28 adjacent to the current project area, an archaeological inventory survey was conducted in 1990 prior to the
29 construction of a new high school (Donham 1990). At the time the land was planted with pineapple, along
30 with the current study area. No historic properties or artifacts were encountered. In the current project area,
31 pineapple cultivation, which occurred into the 2000s, likely obliterated any remnants of traditional
32 Hawaiian activity.

33 RECOMMENDATIONS

34 The recommended project effect determination is “no historic properties affected,” as the proposed
35 project will have no effect on significant historic properties. Due to extensive land disturbance in the historic
36 and modern era, no further work necessary.



Figure 11. Locations of Photographs 1–5 (see Figures 12–16) Shown on Aerial Image Dated January 2022 (Google Earth 2023); Arrows Indicate Facing Direction.



Figure 12. Photograph 1, Facing Northeast.



Figure 13. Photograph 2, Facing Northwest.



Figure 14. Photograph 3, Facing West.



Figure 15. Photograph 4, Facing West.



Figure 16. Photograph 5, Facing North.

REFERENCES

- Abbott, Isabella Aiona
1992 *La'au Hawai'i: Traditional Hawaiian Uses of Plants*. Bishop Museum Press, Honolulu.
- American Board of Commissioners for Foreign Missions (ABCFM)
1843 *The Missionary Herald: Volume 39*. Crocker and Brewster, Boston.
- Bailey, Matt
2021 Edward Hubbard Bailey (1837 - 1910). Available online at <https://www.wikitree.com/wiki/Bailey-26513>. Accessed 2/23/2023.
- Barrère, Dorothy B.
1975 *Waile'a: Waters of Pleasure for the Children of Kama*. Department of Anthropology, Bernice P. Bishop Museum, Honolulu.
- Chinen, Jon
1958 *The Great Māhele: Hawaii's Land Division of 1848*. University of Hawai'i Press, Honolulu.
- Chun, Allison, and David "D²" Dillon
2009 *Archaeological Inventory Survey was conducted on six lots totaling 36.818 acres of land in 'A'apueo Ahupua'a, Makawao District, Maui Island, Hawai'i (TMKs 2-3-008: 016, 019, 020, 025, 032, and 035)*. Affordable Cultural & Ecological Services, LLC, Makawao.
- Dodge, F. S.
1885 *Maui, Hawaiian islands* [map]. 1:90,000. Surveyed by W. D. Alexander, C. J. Lyons, M. D. Monsarrat, F. S. Dodge, S. E. Bishop, E. D. Baldwin and W. R. Lawrence. Hawaiian Government Survey, Library of Congress Geography and Map Division Washington, D.C. 20540-4650.
- Donham, Teresa K.
1990 *Archaeological Inventory Survey Potential Upcountry Maui High School Sites Lands of Haliimaile, Hokuula, Kailua, and Makaeha Makawao District, Island of Maui*. Paul H. Rosedahl, Inc., Hilo.
- Foote, Donald E., Elmer L. Hill, Sakuichi Nakamura, and Floyd Stephens
1972 *Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. US Department of Agriculture Soil Conservation Service in Cooperation with the University of Hawaii Agricultural Experiment Station, Honolulu.
- Foss, J.H.
1926 *Map of a Portion of Kula and Makawao Maui Showing Lands of the Haleakala Ranch Co.* [Map]. Original scale 1000ft= one inch. Available online at <http://dags.hawaii.gov/survey>. Accessed 9 January 2023.
- Fredericksen, Erik M.
2005 *Letter report on an archaeological field inspection of a c. 2 1/2 -acre portion of land along Hanamu Road, Hoku'ula Ahupua'a, Makawao District, Maui (TMK:(2) 2-3-07: 011)*. Request for change in determination in reference to SHPD DOC NO: 0407CD39. Xamanek Researches, Pukalani.
- Fredericksen, Demaris L., and Erik M. Fredericksen
1999 *Archaeological Inventory Survey Report for the Kulamalu Watertank and Waterline Improvements, Hoku'ula Ahupua'a, Makawao District, Maui Island (TMK:2-3-07: por. 10 and 11)*. Xamanek Researches, Pukalani.

- Giambelluca, Thomas W., Qi Chen, Abby G. Frazier, Jonathan P. Price, Yi-Leng Chen, Pao-Shin Chu, John K. Eischeid, and Donna M. Delparte
2013 The Rainfall Atlas of Hawai‘i. *Bull. Amer. Meteor. Soc.* 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1. Available online at <http://rainfall.geography.hawaii.edu>. Accessed 20 December 2022.
- Google Earth
2023 *Makawao*. Google Earth. Imagery Date: 23 January 2022. Accessed 3/28/2023.
- Hammatt, Hallett H.
2013 *Archaeological Inventory Survey Report for the City Center (Section 4) of the Honolulu High-Capacity Transit Corridor Project, Kalihi, Kapālama, Honolulu, and Waikīkī Ahupua‘a, Honolulu (Kona) District, Island of O‘ahu TMK [1] 1-2, 1-5, 1-7, 2-1, 2-3 (Various Plats and Parcels)*. Cultural Surveys Hawai‘i, Inc. Kailua.
- Handy, E. S. Craighill, and Elizabeth Green Handy
1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Number 233 in B. P. Bishop Museum Bulletin. Bishop Museum Press, Honolulu.
- Handy, E.S.C.
1940 “The Hawaiian Planter.” *Bishop Museum Bulletin* Volume 1, No. 161. Bernice Pauahi Bishop Museum, Honolulu.
- Hawaiian Gazette*
1869 Obituary. *Hawaiian Gazette* 14 April, p. 4.
- Hodara, Rachel, David Perzinski, and Michael F. Dega
2013 *Archaeological Assessment report for a 0.994-Acre Water Tank Parcel in Pukalani, Hōkū‘ūla Ahupua‘a, Kula District, Island of Māui, Hawai‘i [TMK: (2) 2-3-007:030]*. Scientific Consultant Services Inc., Honolulu.
2017 *Archaeological Assessment of 2.0 Acres for the Proposed DLNR Well Site Kukuiaeo Ahupua‘a, Makawao District, Island of Maui, Hawai‘i. TMK: (2) 2-3-007:034*. Scientific Consultant Services Inc., Honolulu.
- Honolulu Star-Bulletin
1962 “Kula Farm Area’s Drought Blamed on the California Gold Rush of 1849.” *Honolulu Star-Bulletin* 1 July, p.A15.
- Hunt, Jennifer, Donna Shefcheck, and Michael F. Dega
2008 *Archaeological Inventory Survey Report for a 180-Acre parcel on the Ahupua‘a of A‘apueo I, 2 and 3, A‘apueonui, Kohoilo, Makaehu, Kauau and Kukuiaeo, Kula District, Island of Maui, Hawai‘i [TMK: (2) 2-3-007:001]*. Scientific Consultant Services, Inc., Honolulu.
- Interior Department of Land Matters
1840 Malaihi, Hawaii State Archives - Name Index 1790 – 1950. Image 4306. Hawaii State Archive, Honolulu.
1849 Malaihi, Hawaii State Archives - Name Index 1790 – 1950. Image 4308. Hawaii State Archive, Honolulu.
- Jin, Chong, and Michael Dega
2021 *An Archaeological Literature Review and Field Inspection (LRFI) for the Proposed Kulamalu Market Apartments in A‘apueo Ahupua‘a, Makawao District, Island of Maui, [TMK: (2) 2-3-066:047 and 048]*. Scientific Consultant Services, Inc., Honolulu.

- Kamakau, Samuel M.
 1991 *Tales and Traditions of the People of Old. Nā Mo'olelo a ka Po'e Kahiko*. Translated by Mary Kawena Pukui, edited by Dorothy B. Barrere. Bishop Museum Press, Honolulu.
 1992 *Ruling Chiefs of Hawaii*. Kamehameha Schools Press, Honolulu.
- Kennedy, Joseph
 1990a *Archaeological Inventory Survey of the Proposed Kuaaina Subdivision, Located at TMK:2-3-33:22, 24, 48&93 Pukalani, Maui*. Archaeological Consultants of Hawaii, Inc., Haleiwa.
 1990b *Letter Report to Mr. McClary from Archaeological Consultants of Hawaii*. Archaeological Consultants of Hawaii, Inc., Hale'iwa.
 1991 *Archaeological Inventory Survey and Test Results for the Proposed Pukalani Highlands Property Located at Pukalani, Ahupua'a of Kailua, District of Makawao, Island of Maui TMK: 2-3-44:20*. Archaeological Consultants of Hawaii, Inc., Hale'iwa.
- Kirch, Patrick
 1985 *Feathered Gods and Fishhooks. An Introduction to Hawaiian Archaeology and Prehistory*. University of Hawaii Press, Honolulu.
 2011 When Did the Polynesians Settle Hawai'i? A Review of 150 Years of Scholarly Inquiry and a Tentative Answer. *Hawaiian Archaeology* 12:3–26.
- Lauer, Adam
 2015 *Archaeological Assessment for Tax Map Key (2) 2-3-066:017, Pukalani, A'apueo Ahupua'a, Makawao District, Maui, Hawai'i*. International Archaeological Research Institute, Inc., Honolulu.
- Lyons, Curtis J.
 1872 *Makawao, Maui* [Map]. Original scale 1:12,000. Hawaii Government Survey Registered Map 603. Available online at <http://dags.hawaii.gov/survey/reg>. Accessed 9 January 2023.
- McPhatter, B., and Paul H. Rosendahl
 1996 *Archaeological Reconnaissance Survey, 250-Acre Pukalani Project Area, Land Aapueo, Makawao District, Island of Maui (TMK: 2-3-08:Por.5)*. Paul H. Rosendahl, Ph.D., Inc., Hilo.
- Maly, Kepa, and Onaona Maly
 2005 *He Mo'olelo 'Aina no Ka'eo me Kahi 'Aina e a 'e ma Honua'ula o Maui A Cultural-Historical Study of Ka'eo and Other Lands in Honua'ula, Island of Maui, TMK: (2) 2-1-07:67*. Kumu Pono Associates LLC, Hilo.
- Maui News
 1910 Death Claims W. H. Bailey. *Maui News* 8 January, p.1.
- Monsarrat, M.D.
 1881 *Map of Makaehu* [Map, traced]. Original scale 10 chain to an inch. Hawaii Government Survey Registered Map 1424. Available online at <http://dags.hawaii.gov/survey/reg>. Accessed 9 January 2023.
- Monsarrat, M.D., and F.S. Dodge
 1880 *Map of Kula, Maui* [Map]. Original scale 1:24,000. Hawaii Government Survey Registered Map 913. Available online at <http://dags.hawaii.gov/survey/reg>. Accessed 9 January 2023.

- Pantaleo, Jeffery
 2004 *Archaeological Inventory Survey of the Proposed Kualono Residential Subdivision, Pukalani, Makawao District, Maui Island (TMK 2-3-11:1,2)*. Archaeological Services Hawaii, LLC, Wailuku.
 2017 *Archaeological Monitoring Report for the Old Haleakala Highway and Makani Road Resurfacing Project, Makaeha Ahupua'a, Makawao District, Island of Maui (Portions of County Road Right-Of-Way)*. Archaeological Services Hawai'i, Pu'unene.
- Pestana, E., and M. Dega
 2008 *Archaeological Inventory Survey on 2.79 acres of undeveloped land located in Maka'eha Ahupua'a, Makawao District, Maui Island, Hawai'i [TMK (2) 2-3-011:008]*. Scientific Consultant Services, Inc., Honolulu.
- Pickett, Jenny, Diane Guerriero, Lisa J. Rotunno-Hazuka, and Jeffrey Pantaleo
 2003 *Archaeological monitoring Report for the Kulamalu Commercial Subdivision, TMK: 2-3-08:38 and portions of 39, A'apueo Ahupua'a, Kula District, Island of Maui*. Archaeological Services Hawai'i, Wailuku.
- Pukui, Mary Kawena, and Samuel H. Elbert
 1986 *Hawaiian Dictionary*. 2nd Edition. University of Hawai'i Press, Honolulu.
- Pukui, Mary K, Samuel H. Elbert, and Esther T. Mookini
 1974 *Place Names of Hawaii*. University of Hawai'i Press, Honolulu.
- Speakman, C.E.
 1978 *Mowee: An Informal History of the Hawaiian Island*. Peabody Museum of Salem, Salem.
- Sterling, Elspeth
 1998 *Sites of Maui*. Bishop Museum Press, Honolulu.
- Tax Maps Bureau
 1934 *Second Division, Zone 2 Section 3, Plat 07*. Available online at <https://www.mauicounty.gov/DocumentCenter/Home/Index/132>. Accessed 1/62/023.
- Thrum, Thomas G.
 1877 *Hawaiian Annual for 1878*. Thrum, Honolulu.
- U.S. Department of Agriculture (USDA)/ Natural Resources Conservation Service (NRCS) Soil Survey Center
 2015 *Soil Survey Geographic (SSURGO) database for Island of Hawaii Area, Hawaii* [data layer]. U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth.
- U.S. Geological Survey (USGS)
 1950 Makawao [photo]. Reference No.: 036-3560. Mission: MF00. Flight Line: 4. Frame: 58. <https://guides.library.manoa.hawaii.edu/aerials>. Accessed 1/5/2023.
 2017 *Kilohana, Hawai'i* [map]. 1:24,000. 7.5 Minute Series. United States Department of the Interior, Reston.
- Walker, Winslow
 1931 *Archaeology of Maui*. Manuscript. On file, Bishop Museum, Honolulu.
- Wulzen, Warren, and Paul H. Rosendahl
 1996 *Archaeological Inventory Survey 44-Acre Pukalani Terrace Subdivision III and of 'A'apueo, Makawao District Island for Maui (TMK:2-3-08:Por.5)*. Paul H. Rosendahl, Ph.D., Inc. Hilo.

GLOSSARY OF HAWAIIAN TERMS

ahupua‘a—land division and community

Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (*ahu*) of stones surmounted by an image of pig (*pua‘a*) or because a pig or other tribute was laid on the altar as tax to the chief. The landlord or owner of an *ahupua‘a* might be a *konohiki* (Pukui and Elbert 1986:9)

aina ho‘oilina—inherited land

Inherited property or estate (Pukui and Elbert 1986:11)

ali‘i—chief or chiefess

Chief, chiefess, officer, ruler, monarch, peer, headman, noble, aristocrat, king, queen, commander (Pukui and Elbert 1986:20); implies hereditary rank

‘āpana—land division of a Land Commission Award

Piece, slice, portion, fragment, section, segment, installment, part, land parcel, lot, district, sector, ward, precinct; chop, as of lamb. A *kuleana*, land division, may consist of several *‘āpana*, (Pukui and Elbert 1986:64)

heiau—ceremonial structure or place

Pre-Christian place of worship, shrine (Pukui and Elbert 1986:64)

hoa‘āina—common people of the land, native tenants

Tenant, caretaker, as on a *kuleana* (Pukui and Elbert 1986:73)

‘ili—division of land smaller than an *ahupua‘a*

Land section, next in importance to *ahupua‘a* an usually a subdivision of an *ahupua‘a* (Pukui and Elbert 1986:97)

konohiki—land managers

Headman of an *ahupua‘a* land division under the chief; land or fishing rights under the control of the *konohiki* (Pukui and Elbert 1986:166)

kula—dryland field

Plain, field, open country, pasture. An act of 1884 distinguished dry or *kula* land from wet or taro land (Pukui and Elbert 1986:179)

kuleana—small piece of land under the responsibility of a tenant

Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province (Pukui and Elbert 1986:179)

lo‘i—wetland taro field

Irrigated terrace, especially for taro, but also for rice (Pukui and Elbert 1986:209)

‘uala—Hawaiian sweet potato

The sweet potato (*Ipomoea batatas*), a perennial, wide-spreading vine, with heart-shaped, angled, or lobed leaves and pinkish-lavender flowers. The tuberous roots are a valuable food, and they vary greatly in many ways, as in color and shape. Though of South American origin, the plant has been a staple food since ancient times in many parts of Polynesia, as well as in some other regions (Pukui and Elbert 1986:362)

‘ua‘u—Hawaiian petrel (*Pterodroma sandwichensis*)

Dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*), an endangered sea bird, considered by some an *‘aumakua* (Pukui and Elbert 1986:362)