ARCHAEOLOGICAL INVENTORY SURVEY

TMK: (2) 2-3-02:3 AND 122

LAND OF KEALAHOU 3-4, MAKAWAO DISTRICT

ISLAND OF MAUI

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August 2007

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SUMMARY

At the request of Jeff Grundhauser and Debbie Von Tempsky, Haun & Associates conducted an archaeological inventory survey of the c. 140-acre TMK: 2-3-02:3 and 122 located in the Land of Kealahou 3-4, Makawao District, Island of Maui. The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

The archaeological survey identified 12 sites with 19 features. The identified sites consisted of ten single feature sites and two complexes of features that contain from four to five features. The identified features consist of terrace (n=6), wall (4), modified outcrop (3), platform (2) and one each of the following; cistern, enclosure, mound and walled terrace. Functionally the features are comprised of historic agriculture (n=5), prehistoric agricultural (4), livestock control (4), permanent habitation (3), historic foundation (1), historic fireplace (1) and water storage (1).

The 12 sites identified during the survey are all assessed as significant under Criterion “d”. The sites have yielded information important for understanding prehistoric and historic land use in project area. The mapping, written descriptions, and photography at nine of the 12 sites the sites adequately document them and no further work or preservation is recommended. The three remaining sites (6341, 6343 and 6347) retain the potential to yield information important for understanding prehistoric and early historic land use. These sites are recommended for data recovery, which would entail excavation obtain diagnostic portable remains and dating samples. The plans for data recovery would be detailed in a Data Recovery Plan prepared for DLNR-SHPD review and approval.
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INTRODUCTION

At the request of Jeff Grundhauser and Debbie Von Tempsky, Haun & Associates conducted an archaeological inventory survey of the c. 140-acre TMK: 2-3-02:3 and 122 located in the Land of Kealahou 3-4, Makawao District, Island of Maui (Figure 1). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules (2003).

The survey fieldwork was conducted May 1-4, 2007 under the direction of Dr. Alan Haun. The fieldwork required 12 person days to complete with a crew of three archaeologists. Described in this final report are the project scope of work, field methods, background information, survey findings, and significance assessments of the sites with recommended further treatments.

Scope of Work

Based on DLNR-SHPD rules for inventory surveys, the following specific tasks were determined to constitute an appropriate scope of work for the project:

1. Conduct background review and research of existing archaeological and historical documentary literature relating to the project area and its immediate vicinity—including examination of Land Commission Awards, ahupua'a records, historic maps, archival materials, archaeological reports, and other historical sources;

2. Conduct a high intensity, 100% pedestrian survey coverage of the project area;

3. Conduct detailed recording of all potentially significant sites including scale plan drawings, written descriptions, and photographs, as appropriate;

4. Conduct limited subsurface testing to determine function;

5. Analyze background research and field data; and


Project Area Description

The project area consists of an irregularly-shaped c. 140-acre parcel located in the land of Kealahou 3-4. The parcel is bordered on the north by a housing subdivision and an electrical transmission line that parallels Keahuaiwi Gulch, by undeveloped land to the west, by a stone wall and a wire fence to the south and by a pasture and house adjacent to the Kula Highway to the east. The project area ranges in elevation from 2,005 to 2,510 ft above sea level.

The terrain throughout the majority of the parcel slopes gently to moderately to the west, though areas in the north and east sections of the parcel slope to the north and northwest. There are four soil types present within the project area. The central portion of the parcel consists of Kula cobbly loam on 12-20 % slopes (Foote et al. 1972). The makai end of the parcel is comprised of Kamaole extremely stony silt loam on 3-15 % slopes. Pockets of Keahua silt clay on 7-15 % slopes are located to the north and south of the Kula cobbly loam soils. The Kula and Kamaole soils developed in volcanic ash from Haleakala, while the Keahua soil was derived from materials weathered from igneous rock.
Figure 1. Portion of USGS Kilohana (1991) and Puu O Kali (1992) Quadrangles showing Project Area
The three soils series are relatively similar, consisting of a surface layer of dark silt loams or silt clays, above a deposit of dark clay loam or silty clay loam. The substrate in all three soils is comprised of a weathered igneous rock. These soils are all classified as being used for pasturelands and wildlife habitat. The Keahua soil is also used for sugarcane, and the Kula soil for truck crops. Runoff for these soils varies from slow to moderate, with slight to moderate erosional hazards. The remaining portion of the project area, within the two drainages, consist of Rock land soils, which are typified by exposed basalt outcrops with very thin soils. This classification is utilized for wildlife habitat and water supply.

The majority of the project area has been impacted by modern/historic ranching and agricultural activity. Numerous bulldozed push piles of soil and rock are scattered throughout the parcel, along with a variety of modern/historic debris (metal fuel drums, corrugated tin roofing, sheets of black plastic, plastic pipes, and aluminum cans and glass bottles).

The vegetation throughout the majority of the project area is low grasses with small koa haole (Leucaena Leucocephala), scattered kiawe (Prosopis pallida [Humb, And Bonp. Ex Willd.]), panini or prickly pear cactus (Opuntia megacantha Salm-Dyck), wattle (Acacia decurrens Willd), and sisal (Agave sisalana [Engelm.] Perrine – Figure 2). A c. 6-acre portion of the project area in the western portion of the project area is currently under cultivation (Figure 3). This area is situated on the south side of a dirt road on the south side of a seasonal drainage.

Field Methods

The project area was subjected to a 100% surface examination with surveyors spaced at 10 meter intervals. Ground surface visibility during the survey was good to excellent due to the presence of grazing cattle within the parcel. The identified sites/features were flagged with pink and blue flagging tape and their locations plotted on a scaled project area map with the aid of Garmin Global Positioning System (GPS) III+ using the World Geodetic Survey (WGS) 1984 datum. The accuracy of the GPS device for a single point is +/- 15 m. This accuracy is increased to less than c. 3-5 meters by taking multiple points including property corners and overlying the plotted points on a scaled map using AutoCAD software.

Several agricultural features were identified during the project. These features consisted of clearing piles (mounds and modified outcrops) and terraces, which were subjected to minimal recording consisting of the recording of length, width, height, and shape. Photographs were taken of representative feature types. The non-agricultural sites were subjected to detailed recording including preparing scaled plan maps, completing standardized site/feature forms, and photographic documentation. A metal site tag was placed at each site and the tag’s location was plotted on the site plan map.

Subsurface testing during the project consisted of the excavation of one 0.3 m diameter shovel test, excavated at a permanent habitation terrace. The shovel test was excavated in one stratigraphic layer and was terminated on bedrock. A standardized excavation record was prepared after the completion of the stratigraphic layer. The soil removed during excavation was screened through ¼ "mesh. No cultural remains were present. Following the excavation, a section drawing depicting the stratigraphy was prepared and the shovel test was backfilled.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Historical Documentary Research

The project area is situated in the ahupua’a of Kealahou 1-2 in Kula, a sub-district or 'okana, of Makawao District. The ahupua’a of Omaopio, Pulehu Iki, Kealahou 1-4, Kamehame Nui, and Kamehame Iki may formerly have been part of Pulehu Nui because they are land-locked and probably were formed through fissioning resulting in smaller, narrower land units (Figure 4).

There is little mention of Kealahou or Kula in Hawaiian legendary and traditional history. Sterling (1998) and Wong-Smith (in Brown and Haun 1989) summarize the limited references, which primarily
Figure 2. Project Area Overview, view to north

Figure 3. Project Area Overview, view to northwest
Figure 4. Ahupua’a Boundaries and Land Commission Awards in Kealawahou
consist of accounts of events at the coast. Alapainui traveled to the area following the death of Kekaulike. In 1776, Kalananiopu'u's forces landed at the coast and defeated Kahekili at Wailuku. Kamehameha I landed his invasion force at the coast and defeated Maui's king, Kalanikupule, in 1790. References to inland areas include early historic accounts that describe bird catching and the cooling, moisture-laden clouds that form over Kula in the shadow of Haleakala.

According to Handy and Handy:

Kula was always an arid region, throughout its long, low seashore, vast stony kula lands, and broad uplands. Both on the coast, where fishing was good, and on the lower westward slopes of Haleakala a considerable population existed. So far as we could learn Kula supported no Hawaiian taro, and the fishermen in this section must have depended for vegetable food mainly on poi brought from the wet lands of Waikapu and Wailuku to westward across the plain to supplement their usual sweet-potato diet...Kula was widely famous for its sweet-potato plantations. 'Uala was the staple of life here (1972:510-511).

The Waihona 'Aina database (2000); which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), and Foreign Testimony (FT n.d.); indicates that 15 parcels were claimed by 14 individuals within Kealahou (Table 1). The entire ahupua'a, along with adjacent lands was awarded to A. Keohokalole under Land Commission Award (LCA) 8452. With the exception of this claim, no LCA's are present within the project area. The majority of the remaining LCAs could not be located on available tax maps, though several were identified and their locations are also depicted on Figure 4.

Many of the LCA claims were for multiple parcels in more than one ahupua'a and the majority were awarded. One claimed parcel was conveyed in 1832, one was conveyed in 1838 and ten were conveyed during the "time of Kamehameha I". The testimonies refer to 13 ili land divisions. Aipuaa is mentioned seven times and Ahanamulei is mentioned six times. Kaulaula is mentioned five times and Hanamulei, Kaopopololu and Pawaili are each mentioned three times. Pauili and Poolapehu are mentioned two times and there are single references to A wili, Keahuaiui, Kunanauahi, Noni and Paliku. Specific crops are mentioned for several of the claims. One claim mentions haole potato (10480:5), two mention Irish potato (5449:1 and 5488:4) and one mentions sweet potato (5449:1). No house lots are described and most parcels are described as either pasture (27), or kula land (5) or winter lot (1).

Sterling (1998:245) cites references to increasing aridity in Kula as a result of extensive forest clearance. The clearance is attributed to the expansion of Irish potato cultivation initially to provision whaling ships and beginning in 1849 to supply the California gold rush. Subsequent forest clearance occurred for pasture improvement for cattle ranching. According to Kuykendall (1968), Irish potato cultivation began in the 1830s and became the dominant crop during the 1840s and 1850s. Kula became known as the "potato district". The fields covered an area twelve miles in extent between 2,000 and 5,000 ft elevation. By 1847, annual production reached 20,000 barrels.

Unlike other areas of commercial agricultural production in Hawaii, individual farmers were able to sell the potatoes directly to the ships without the intervention of chiefs or middlemen (Kolb, Conte, and Cordy 1997). The opportunity for quick cash brought Hawaiians from other areas and Chinese to Kula. The Hawaiian government had government land surveyed and divided into 1 to 10 acre lots for lease or sale to encourage farming (Wong-Smith 1989). After the mid-1800s, the demand for potatoes decreased and the farmers diversified cultivation to include corn, beans, onions, cabbage, sweet potatoes, wheat, and cotton. The influx of Chinese farmers continued throughout the late 1800s and by 1900 there were over 700 Chinese in Kula (Wong-Smith 1989).

Figure 5, a portion of a map of Kula produced by Alexander and Monsarrat in 1880, shows a house enclosed by a wall a short distance inland of the project area. Additional enclosed house lots are present to the north and south on either side of the main road. Figure 6 appears to be an enlargement of a portion of the Alexander and Monsarrat map. A newspaper clipping attached to the map announces a public
### Table 1. Land Commission Award Claims

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**Table 1. Land Commission Award Claims (cont.)**

*Note: Additional information and footnotes for land claims.*
auction of 268 acres of grazing land in Pulehu Iki and Kamehame Iki on October 22, 1890 with an upset price of $400.00. The area is triangular and bordered by a heavy black line and is located inland of the project area. The map also shows an adjacent area of homestead lots. In the 1910s and 1920s, many farmers left Kula because of drought, depleted soil, expansion of homesteads, and land acquisition for ranching (Wong-Smith 1989).

In summary, historical documentary research indicates that the coastal portion of Kula was the site of late prehistoric and early historic battles between the chiefs of Hawaii Island and Maui. The Kula region had a sizable population concentrated along the coast and in the uplands where sweet potatoes were the dominant crop. The upland forests were a source of birds for food and chiefly regalia.

LCA claim testimony cited above and elsewhere (Haun and Henry 2000a, 2000b) indicates that habitations, agricultural fields, and pastures were present in the uplands of Kula. Most claims were for multiple parcels. Crops included taro, sweet potatoes, and Irish potatoes. Beginning in the 1830s, Irish potato production for whalers led to the transition of the traditional subsistence economy to a market economy. The California gold rush and the sale or lease of farmland by the government brought an influx of outsiders eager to participate in the new cash economy. By the mid-1800s, the Kula farmers diversified their crops in response to a decline in the demand for Irish potatoes and cattle ranching became established. Increasing aridity, soil depletion, homesteading, and ranch land acquisition contributed to an exodus of farmers from the region in the 1910s and 1920s. Subsequent 1900s land use included ranching and scattered farms and residences.

Previous Archaeological Research

A search of DLNR-SHPD the archaeological report database and other sources identified at least 23 reports for areas of Kula between Haliimaile and Keokea. Figure 7 shows the locations of the projects and Table 2 summarizes the projects. Not included in the figure or table are the studies by Walker (1931), which focused on major sites, primarily heiau, throughout Maui; a study by Kolb (1994), which also focused on heiau sites; and three reports that were unavailable for review (see below). None of the previous studies included the current project area.

Walker (1931) identified 23 heiau and an L-shaped enclosure in Kula. All were situated in a band between approximately 1,800 ft and 3,000 ft elevation. Three heiau were situated in Pulehu Nui and four in the adjacent land of Omaopio. The sites in Pulehu Nui consist of Haleokane Heiau, Nininiwai Heiau, and an unnamed heiau destroyed by clearing for pineapple cultivation. Moomuku, Mana, Mahia, and Poohinahe Heiau were identified in Omaopio. Mana Heiau was subsequently used for historic burials.

The surveys in Table 2 cover over 3,700 acres of Kula identifying 427 sites with 1,482 features. To aid in reconstructing settlement patterns, features were quantified by probable age and function. Traditional Hawaiian features were categorized as permanent habitation, temporary habitation, agricultural, burial, and ritual, trail, and rock art. Density per acre values are given for sites, features, and habitation and agricultural features. Overall, the studies have identified over 404 permanent habitation features, 137 temporary habitations, 615 agricultural features, and 22 burials and possible burials. Historic features were not segregated by function. The majority (141) of the historic features are ranch walls. Features not assignable to these categories were categorized as miscellaneous/indeterminate. Traditional sites in this category consist of a trail and 18 petroglyph sites.

Most of the studies conducted in areas between 1,000 and 2,200 ft elevation identified very few to no traditional Hawaiian sites. The four previous studies conducted in nearby Omaopio (Folk and Hammatt, 1993; Haun and Henry 2000a; and Fredrickson and Fredrickson 1992, 1993) covered a total of 107 acres between 1,090 and 3,100 ft elevation. The Folk and Hammatt survey identified agricultural features and relocated two previously identified sites, a heiau and petroglyphs. The other Omaopio surveys also identified historic features and a World War II bunker. Haun and Henry (2000b) conducted a survey of a 125-ac parcel in Pulehu Nui and encountered no sites. The absence of sites was attributed to the expected low density of sites in the area and extensive disturbance.
Figure 7. Previous Archaeological Work
### Table 2. Summary of Previous Archaeological Research

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<tr>
<th>Author (s)</th>
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<th>Land</th>
<th>Study Type*</th>
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<th>Perm Hab Fens</th>
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<th>Temp Hab Fens</th>
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<th>Ag Fens/acre</th>
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Total Average: 3733 | 427 | 0.33 | 1483 | 0.56 | 404 | 0.11 | 137 | 0.04 | 615 | 0.26 | 22 | 21 | 222 | 64

* IN=Inventory Survey, RS=Reconnaissance Survey, FI=Field Inspection
Only the large upland surveys by Kolb et al. (1997) and Brown and Haun (1989) encountered substantial numbers of sites. Habitation feature density in the study areas was similar; however agricultural feature density was much higher for the Kolb et al. (1997) area. The low density for the Brown and Haun (1989) study was because small agricultural mounds and terraces were not individually recorded, only the approximate extent of these features, which numbered in the hundreds, were documented.

Donham's (1990b) coastal study area was characterized by a moderate density of agricultural features and low density of habitation sites. The absence of sites in an adjacent parcel (Donham 1990a) was attributed to disturbance. Three studies of coastal areas by Cox (1976), Cordy (1977), and Kennedy (1986) were not available for review. The following summary of these studies is based on Donham (1990a, 1990b). Cox (1976) conducted a reconnaissance survey for the Piilani Highway. Cox identified a cairn in Pulehu Nui. The cairn was excavated and did contain cultural materials. The feature was interpreted as a possible agricultural feature. Cox also identified two C-shapes in Keokea. Cordy (1977) conducted a survey and literature search for nine major gulches and a 300-350 ft wide corridor paralleling the route of today's Piilani Highway between Kealia Pond and Wailea. Cordy identified a ranch wall in Waiohuli and seven sites in Keokea including seven low enclosures, a C-shape, a mound, a low platform, and a wall. Cordy identified wall remnants at the mouth of Waipuilani Gulch in Waiohuli using aerial photographs. The walls were interpreted to be possible remnants of a fishpond. Kennedy (1986) conducted a survey of the proposed Silversword Golf Course in Keokea and found no sites.

Kolb et al. (1997) provide a thorough summary of prehistoric chronology, settlement, and subsistence for Kula and portions of the adjacent district of Honua'ula. The chronology is based on a sample of over 200 radiocarbon dates. Only one upland site, a hearth in a temporary habitation, pre-dates AD 1200 and is interpreted to represent early exploitation of upland forest resources. An upland temporary habitation and a permanent habitation are dated to the 1200s to 1400s. Evidence from the sites indicates exploitation of birds. The permanent habitation site situated at approximately 2,300 ft elevation is thought to represent the initiation of agricultural use of the uplands. Only two coastal sites date to before 1200. Three coastal sites including both permanent and temporary habitations are dated to between 1200 and 1400.

The presence of both coastal and upland sites prior to 1400 is interpreted as indicating that a dual settlement pattern was established at the beginning of permanent occupation of the region. Comparable numbers of dates from both the coast and the uplands indicates continuous occupation of both areas from 1400 onwards. Upland permanent habitation increases markedly in the 1500s and 1600s and coincides with the development of agricultural field systems and heiau construction and use. During the 1660s and 1700s, the upland settlements continued to expand and are believed to have supported the largely external chiefly political economy through intensified production of pigs.

Coastal areas were used for small-scale gardening, fishing, collecting marine resources, and fishponds. Burials are present along the coast and in the upland settlements. Between the shoreline and the upland residences and fields, above c. 2,000 ft elevation, was a broad, arid area that was largely unoccupied as hypothesized by Cordy (1977). Sites in this intermediate zone are largely limited to trails linking the coast to the uplands and occasional temporary habitations.

Kolb et al.'s (1997) analysis of residential sites in the uplands suggests that the area was primarily occupied by commoners and low-ranking chiefs. Subsistence was based on sweet potatoes, dryland taro, and bananas. The primary source of protein was derived from the sea including fish, shellfish, and urchins. Birds provided an additional protein source. Pig and dog were also consumed, but did not represent a consistent or abundant element of the diet until after 1650. There was insufficient evidence to suggest differential access to dog and pigs based on social status; however, these animals were much more frequently consumed at ritual sites compared to residences.

**PROJECT EXPECTATIONS**

Prehistoric use of the project area is potentially evidenced by scattered habitation sites dating to as early as the 1200s, agricultural features (mounds, terraces, and enclosures), burials, heiau, trails, and petro-
glyphs. Habitation sites would consist of platforms, enclosures, caves and small walled shelters. Sites dating to the mid- to late 1800s would primarily consist of ranching and agriculture-related features such as walls, corrals, and clearing piles of stone associated with agriculture and pasture improvement.
FINDINGS

The archaeological survey identified 12 sites with 19 features (Table 3). The identified sites consisted of ten single feature sites and two complexes of features that contain from four to five features. The identified features consist of terrace (n=6), wall (4), modified outcrop (3), platform (2) and one each of the following: cistern, enclosure, mound and walled terrace. Functionally the features are comprised of historic agriculture (n=5), prehistoric agricultural (4), livestock control (4), permanent habitation (3), historic foundation (1), historic fireplace (1) and water storage (1). The location of the identified sites is illustrated in Figure 8. The sites are described below.

Subsurface testing during the project consisted of the excavation of one 0.3 m diameter shove test, excavated at the Site 6347 permanent habitation terrace. The results of this test unit are presented in the following site description.

Site 6339

Site 6339 is section of stone wall located in the northwestern portion of the project area on the northern side of a seasonal drainage that was dry at the time of the survey. The wall measures 61.5 m in length (north-northwest by south-southeast) and from 1.0 to 1.4 m in height (Figure 9). The wall is constructed of stacked rounded to subangular basalt cobbles and small boulders, with a core-filled interior of cobbles. The sides of the wall slope inward from the base to the top, measuring 0.8 to 0.9 m wide at the base and 0.5 to 0.65 m wide at the top. No cultural remains were found in association with the wall.

Site 6339 is interpreted as a livestock control feature likely used to restrict the movement of cattle. This is based on its height and method of construction. The section of wall likely represents a portion of a larger wall, the remainder of which has apparently been destroyed by ranching related activities. The site is altered and in fair to good condition.

Site 6340

Site 6340 is a disturbed section of stone wall located in the northwestern portion of the project area, 110.0 m northeast of the Site 6339 wall. The wall has an overall length of 59.9 m long (northeast by southwest). The majority of the wall section is comprised of a linear berm of subangular basalt cobbles and small boulders that is 1.7 to 2.0 m wide and 0.4 to 0.8 m in height. An intact section is present near in the inland end of the wall, partially covered by cactus (Figure 10). This intact section is 1.9 m long, 0.8 to 1.0 m wide at the base and 0.6 to 0.7 m wide at the top. The wall section varies in height from 0.75 to 0.9 m. No cultural remains were found in association with the wall.

Site 6340 is interpreted as a livestock control feature likely used to restrict the movement of cattle, based on its height and method of construction. As with Site 6339, this section of wall likely represents a portion of a larger wall, the remainder of which has apparently been destroyed by ranching related activities. The site is altered and in poor to fair condition.

Site 6341

Site 6341 is a walled terrace located in the central portion of the project area on the side of a moderate slope to the west. The structure is roughly oval in shape and is 5.9 m long (north-south) and 5.0 m wide (Figure 11). A stacked subangular basalt cobble and small boulder retaining wall extends along the west and south sides of the feature, ranging in width from 0.3 to 0.7 m. This wall is 0.5 to 0.7 m in height on the western (exterior) side and 0.1 to 0.4 m in height on the eastern (interior) side. The north and east sides of the structure are bordered by a raised bedrock outcrop that is 0.3 to 0.4 m in height. A stacked cobble and boulder wall is present on top of the outcrop. This wall is 0.3 to 1.0 m wide and from 0.55 to 0.9 m in height. The interior of the walled terrace is comprised of a level soil deposit with scattered cobbles. No cultural remains were present.
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Figure 8. Site Location Map
Figure 9. Site 6339 Wall, view to northwest

Figure 10. Site 6340 Wall Remnant, view to south
Figure 11. Site 6341 Plan Map

Figure 12. Site 6342 Wall, view to southwest
Site 6341 is interpreted as the foundation for a permanent habitation roofed structure. This interpretation is based on its formal type and area (29.5 sq m). The site is unaltered and in fair condition.

**Site 6342**

Site 6342 is a stone wall that forms a portion of the southwestern project area boundary (see Figure 12). The wall originates at the western end of a dirt road in the south-central portion of the project area. A gate is incorporated into the Site 6342 wall at the end of the road, and a house is located outside the project area opposite the gate. The wall extends to the southeast from the gate for 207.0 m, then angles to the southwest for 44.0 m. The wall then turns to the southeast from 53.5 m where it terminates. A wire fence continues to the southeast from the end of the wall along the southwestern portion of the parcel.

The wall is built of stacked subangular and rounded cobbles and small boulders with a core-filled cobble interior (Figure 12). Portions of the wall are collapsed though the majority is intact, ranging in width at the base from 1.2 to 1.3 m and at the top from 0.9 to 1.1 m. The wall varies in height from 0.9 to 1.05 m. Modern debris, likely deposited by the inhabitants of the adjacent house, is present on the wall. Site 6342 is interpreted as a livestock control feature likely used to restrict the movement of cattle, based on its height and method of construction. The site is unaltered and in fair to good condition.

**Site 6343**

Site 6343 is an enclosure located in the north-central portion of the project area in an area of level grass-covered soil. The structure is 14.2 m long (northeast by southwest) and 13.2 m wide with a 0.75 m opening into the interior in the northern corner (Figures 13 and 14). A probable cow trail is located in the western corner. The walls of the structure are collapsed along the southwest and portions of the northwest and southeast sides, ranging in width from 1.3 to 2.6 m and in height from 0.2 to 0.85 m. The remaining sides are intact built of stacked subangular and rounded basalt cobbles and small boulders. The intact sides are faced and range in width from 1.0 to 2.0 m and in height from 0.55 to 0.9 m. The interior of the enclosure is comprised of level grass-covered soil. No cultural remains were present.

Site 6343 is interpreted as a permanent habitation that served as a probable yard in which a pole and thatched roofed structure once existed. This interpretation is based on its formal type, its substantial construction (faced sides) and its large area (187.4 sq m). The site is unaltered and in fair condition.

**Site 6344**

Site 6344 is a rectangular shaped platform located in the north-central portion of the project area in an area of level grass-covered soil. The platform is 3.55 m long (east-northeast by west-southwest) and 2.85 m wide (Figures 15 and 16). The base of the platform is comprised of mortared subangular and basalt cobbles and small boulders that range in height from 0.35 to 0.66 m in height above the surrounding ground surface. A 0.1 m wide concrete stem wall is present on top of the base, measuring 3.0 m long (east-northeast by west-southwest) by 2.4 m wide. The northwestern corner of the stem wall is missing. The stem wall is 0.18 to 0.2 m in height above the base. The interior surface of the platform is coated in mortar.

Two mortared stone steps lead up to the platform surface along the northern side. The steps are 1.0 m long and from 0.4 to 0.52 m wide. The lower step is 0.1 m in height and the upper step is 0.23 m in height above the lower. No cultural remains were present at the site.

Site 6344 is interpreted as the foundation for an historic structure. This is based on its formal type and the condition of the mortar which appears to be historic. The relatively small size of the foundation (10.1 sq m) suggests the site did not function as a house. It is unaltered and in fair condition.

**Site 6345**

Site 6345 is a small platform located in the north-central portion of the project area in an area of relatively level grass covered soil. The platform is constructed of stacked subangular and rounded cobbles and small boulders that have been mortared together and veneered with mortar (Figures 17 and 18). The
Figure 13. Site 6343 Plan Map

Figure 14. Site 6343 Enclosure, view to east-northeast
Figure 15. Site 6344 Plan Map

Figure 16. Site 6344 Foundation, view to east
(0.65) = Height in meters

--- = Edge of outcrop

Figure 17. Site 6345 Plan Map

Figure 18. Site 6345 Fireplace, view to west
The platform is located on a level bench that is bounded along the north side by a boulder retaining wall that is 3.85 m long (northwest by southeast). The southeast side of the wall abuts the side of a bedrock outcrop. The northern side of the wall is 0.65 to 0.8 m in height and the south side is 0.2 m in height.

The platform is roughly square-shaped and is 1.85 m long (east-northeast by west-southwest) and from 1.8 to 2.2 m wide. The sides of the structure range in height from 0.1 to 0.48 m and the surface is coated with a cement veneer. A curved projection extends to the east from the platform and a concrete block is located adjacent to the platform along the west side.

There is a rectangular-shaped interior space that is 1.0 m long (east-northeast by west-southwest), 0.72 m wide and 0.4 to 0.45 m in depth below the surface of the platform. There is a 0.47 m wide opening into the interior space along the west side of the platform. There is an oval-shaped hole on top of the platform that is 0.25 m long and 0.18 m wide that angles down into the interior space (see Figure 18). The floor in the interior is comprised of a level ashy soil. This soil was examined with several trowel probes that extended to c. 0.2 m in depth. Square nails, glass fragments and pieces of burnt bone several of which evidenced cut marks were present within the ashy soil. A broken section of a 4" ceramic pipe was also noted. A 1.15 m long small boulder retaining wall extends to the west-southwest from the platform. It is 0.3 to 0.5 m in height on the north side and is level with the soil surface on the south side.

Site 6345 is interpreted as an historic cooking feature. The condition of the mortar suggests that the site is historic in age. The oval-shaped hole likely functioned as a flue, with the ceramic pipe serving as an associated chimney. These characteristics, along with the ashy soil and burnt bone noted within the interior indicate that wood was burned within the interior. The opening along the west side of the platform potentially functioned as a door through which ashes could be removed and wood could be loaded. There is no indication that the interior was ever covered, indicating that the structure did not function as an oven. It is more likely that the site served as an open fireplace or grill. Site 6345 is unaltered and in fair condition.

Site 6346

Site 6346 is an L-shaped stone wall that forms the border of the project area along the northeastern side. The wall originates at the intersection with a wire fence at the northern end and extends 197.0 m to the south-southwest. The wall then angles to the southeast for 496.0 m where it terminates at a paved road that leads from the post office into the project area. The wall is generally intact though collapsed sections are present. The intact sections range in width at the base from 0.8 to 0.9 m and at the top from 0.5 to 0.6 m (Figure 19). The height of the wall ranges from 1.0 to 1.4 m. The wall is constructed of stacked subangular to rounded basalt cobbles and small boulders.

The north-south section of the wall borders the Site 6347 terrace (discussed below) to the east (see Figure 20). A single strand of barbed wire extends along the west side of the wall in this area. A portion of the east-west section of the wall is bordered by the dirt access road that leads into the project area. The backyards of residences are located to the north of this wall section. Site 6346 is interpreted as a livestock control feature likely used to restrict the movement of cattle. This is based on its height and method of construction. The site is unaltered and in fair to good condition.

Site 6347

Site 6347 is a terrace retaining wall located adjacent to the north-south portion of the Site 6346 wall along the western side. The retaining wall is 9.65 m long (northeast by southwest) and 0.9 to 1.05 m wide (Figure 20). The wall is constructed of stacked and piled subangular to rounded basalt cobbles and small boulders with a vertical basalt small boulder present in the central portion. The retaining wall is 0.55 to 0.7 m in height on the northwestern (downslope) side and is 0.2 to 0.35 m in height on the southeastern (upslope) side. Scattered stones are present to the east of the retaining wall at the north and south ends.

The interior surface of the terrace is comprised of a level soil deposit with no cultural remains present. Several Wattle trees are growing out of the surface of the terrace. A 0.3 m diameter shovel test (ST-1) was excavated into the soil surface of the terrace revealing a single soil deposit over bedrock (see Figure
Figure 19. Site 6346 Wall, view to east

(0.6) = Height in meters

Figure 20 Site 6347 Plan Map (showing Site 6346 Wall) and ST-1 Stratigraphy

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues

Wattle Tree

Vertical slab

Datum

Level soil

Site 11xxx

Continues

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues

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Continues

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues

Layer 1 - Very dark brown (10YR 2/2) silt with 1-2% pebble and gravel inclusions; No cultural remains

Continues
Layer I consisted of 0.29 to 0.3 m of a very dark brown 910YR 2/2) silt with 1-2% pebble and gravel inclusions. No cultural remains were present.

Site 6347 is interpreted as the possible foundation for a permanent habitation roofed structure. This interpretation is based on its formal type, substantial construction (vertical boulder) and its area (38.6 sq m). The site is unaltered and in fair condition.

**Site 6348**

Site 6348 consists of what appears to be a buried cistern located adjacent to a dirt road in the northeastern portion of the project area. The interior of the cistern has been filled in with soil and subangular basalt cobble and small to medium boulders (*Figures 21 and 22*). The southeastern side of the cistern is level with the surrounding ground surface, with the remaining sides comprised of the cistern wall. The exposed portion of the structure indicates that the cistern originally measured 7.8 m long (northeast by southwest) by 4.5 m side. The walls of the cistern are comprised of subangular basalt cobbles and small boulders that have been mortared together and coated with a cement veneer. The wall is 0.3 m wide and varies in height from 0.05 to 0.65 m above the surrounding ground surface. There are voids between the cistern wall and the fill material along the northeast, northwest and southwest sides of the structure, with depths that range from 0.6 to 1.6 m below the top of the cistern wall.

A pile of basalt boulders is present on top of the cistern at the northern end, with a twisted section of 1" galvanized metal pipe situated on the pile. A section of corrugated metal roofing is located adjacent to the structure to the northwest. Site 6348 is interpreted as an historic water storage feature due to its formal type and the condition and appearance of the veneer. The site is altered and in poor condition.

**Site 6349**

Site 6349 is comprised of a complex of four features located in the north-central portion of the project area in an area of relatively level, grass-covered soil. The features are situated adjacent to a seasonal drainage to the south that was dry during the present project. The features are comprised of a mound (Feature A), a terrace (Feature B) and two modified outcrops (Features C and D - see *Figure 8*).

The Feature A mound is located at the southern end of the site, to the southeast of Site 6344. The mound is irregularly-shaped and is 4.5 m in length (north-south) and 3.2 m wide, built of piled cobbles and small boulders (*Figure 23*). The surface is slightly domed and evidences a maximum height of 0.7 m above the surrounding ground surface. The metal lid from a 55 gallon drum is located adjacent to the mound to the north. No other cultural remains were present.

The Feature B terrace is situated 50.0 m to the north of Feature A, on the side of a slightly slope that angles down to the seasonal drainage. The terrace is linear in shape and evidences an overall length of 33.5 m (east-west). The terrace retaining wall is built of stacked and piled subangular and rounded basalt cobbles and small boulders that is 0.35 to 0.65 m in height on the northern, downslope side and 0.0 to 0.15 m in height on the southern, upslope side (*Figure 24*). The area to the south of the retaining wall is level, grass-covered soil. No cultural remains were present.

The Feature C and D modified outcrops are located 45.0 m to the northwest of the Feature B terrace, situated above the southern bank of the seasonal drainage. Both features are irregular in shape and are constructed of roughly stacked and piled cobbles and small boulders. Feature C is 3.7 m long (northeast by southwest), 2.1 m wide and 0.6 m in height. Feature D is 2.7 m long (northeast by southwest), 1.55 to 1.75 m wide and 0.25 to 1.0 m in height (*Figure 25*). No cultural remains were present.

The Site 6349 features are interpreted as prehistoric agricultural clearing features. This is based on the features formal type, their relatively insubstantial method of construction and the absence of cultural remains. The site is unaltered and in fair condition.
Figure 21. Site 6348 Plan Map

Figure 22. Site 6348 Buried Cistern, view to southwest
Figure 23. Site 6349, Feature A Mound, view to west

Figure 24. Site 6349, Feature B Terrace, view to south
Figure 25. Site 6349, Feature D Modified Outcrop, view to north

Figure 26. Site 6350, Feature A Terrace, view to east
Site 6350

Site 6350 is a complex of five terraces located in the inland portion of the project area in an area of grass-covered soil that slopes to the west and north (see Figure 8). The features are identical in construction, and are comprised of stacked and piled cobble and small boulder and soil retaining walls built on the sides of slopes with level soil areas on the upslope sides. These retaining walls range in length from 33.0 to 76.5 m, with Features A and B located on slopes that angle to the northwest, Features C and D on slopes that angle to the north and Feature E on a slope that angles to the west. The retaining walls vary in height from 0.75 to 1.3 m. An example of a 6350 terrace retaining wall is depicted in Figure 26. The Feature B terrace has been truncated by a bulldozer cut that extends through this portion of the project area in a north-northeast by south-southwest direction.

Site 6350 is interpreted as a complex of probable historic agricultural features that were used to retain soil for planting. These features are considerably different in construction from the Site 6349 agricultural features, and based on their more substantial construction were likely built historically. The site is altered and in fair condition.
CONCLUSION

Discussion

The survey results generally conform to the expectations derived from historical and archaeological background research. Traditional Hawaiian sites consist of three permanent habitation sites and several features potentially resulting from late prehistoric to early historic agricultural activity (modified outcrops and mound). The density of these habitation sites is quite low c. 0.02 features per acre likely due to extensive historic modifications associated with ranching and farming. Kolb et al. (1997) survey of over 1600 acres of relatively undisturbed Kula lands yielded a permanent habitation feature density of 0.13 features per acre.

The surviving permanent habitation features consist of a walled terrace (Site 6341) on a rocky and relatively steep slope in the west central portion of the project area; a terrace (Site 6347 adjacent to a ranch wall that likely was built with stones taken from the terrace, and a large enclosure (Site 6343) adjacent to a seasonal drainage. The terraces likely served as the foundations for pole and thatched dwellings based on their areas (29.5-38.6 sq m). Radiocarbon age determinations by Kolb et al. (1997) document initial occupation of the Kula uplands in the 1200s with a marked increase during the 1400s to 1600s. The Site 6343 enclosure’s large area (187.4 sq m) indicates that it probably functioned as an enclosed yard in which one or more pole and thatched dwellings were present. Enclosed yards became common after free-ranging cattle became a problem in the early 1800s and it is likely that occupation of the site continued into early historic time.

Historic agriculture and ranching-related sites were also identified, as expected. Historic sites include walls, agricultural terraces, a buried cistern, and a concrete building foundation and nearby fireplace. These features likely result from ranching, farming, and residential activity spanning the late 1800s to 1900s. Use of the project area for grazing and farming continues today.

Significance Assessment

Pursuant to DLNR (1998) Chapter 275-6 (d), the initial significance assessments provided herein are not final until concurrence from the DLNR has been obtained. Sites identified and relocated during the survey are assessed for significance based on the criteria outlined in the Rules Governing Procedures for Historic Preservation Review (DLNR 1998: Chapter 275). According to these rules, a site must possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:

1. Criterion “a”. Be associated with events that have made an important contribution to the broad patterns of our history;

2. Criterion “b”. Be associated with the lives of persons important in our past;

3. Criterion “c”. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

4. Criterion “d”. Have yielded, or is likely to yield, information important for research on prehistory or history; and

5. Criterion “e”. Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity.

The sites are all assessed as significant under Criterion “d”. The sites have yielded information important for understanding prehistoric and historic land use in project area.
Recommended Treatments

The mapping, written descriptions, and photography at nine of the 12 sites adequately document them and no further work or preservation is recommended. The three remaining sites (6341, 6343 and 6347) retain the potential to yield information important for understanding prehistoric and early historic land use. These sites are recommended for data recovery, which would entail excavation obtain diagnostic portable remains and dating samples. The plans for data recovery would be detailed in a Data Recovery Plan prepared for DLNR-SHPD review and approval.

Table 4. Site Significance and Recommended Treatment

<table>
<thead>
<tr>
<th>SHIP Site Number</th>
<th>Type</th>
<th>Function</th>
<th>Significance Criteria*</th>
<th>Recommended Treatment**</th>
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<td>NFW</td>
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*Significance Criteria - C = Excellent Example of a Site Type, D = Information Content, E = Cultural Value

**Recommended Treatment - NFW=No Further work or preservation, DR=Data Recovery, PR=Preservation
References

Borthwick, D.F.

Brown, R.S., and A.E. Haun

Cordy, R.

Cox, D.
1976 The Archaeology of Kula, Maui From Pulehu Nui Ahupua'a to Kama'ole Ahupua'a; Surface Survey, Piilani Highway. Dept. of Transportation, State of Hawaii.

Cox, J.H. and E. Stasack

Dean, A.L.

DLNR (Department of Land and Natural Resources)
2003 Hawai'i Administrative Rules, Title 13, Department of Land and Natural Resources, State Historic Preservation Division.

Donham, T.K.


Folk, W.H. and H.H. Hammatt
1993 Archaeological Inventory Survey of Kula Lands in Omaopio, Kula, Maui (Portion of TMK:2-3-23). Prepared for Inter-Island Builders and Developers, Ltd.

Foote, D.E., E.L. Hill, S. Nakamura, and F. Stephens
Fredericksen, W.M and D.L. Fredericksen  

Fredericksen, W.M and D.L. Fredericksen  

Fredericksen, W.M and D.L. Fredericksen  
1994 An Inventory Survey of a 1.78-acre Parcel located in Hokuula Ahupua’a, Makawao District, Maui Island (TMK:2-3-44:31). Prepared for Plantation Properties II.

FR n.d. Foreign Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

FT n.d. Foreign Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

Hammatt, H.H., and W.H. Folk  
1993 Archaeological Inventory Survey and Subsurface Testing of the Proposed Kealahou Switching Station Site in the Ahupua’a of Kamehamenui, Makawao District, Island of Maui (TMK:2-3-02:3). Prepared for Dames and Moore.

Handy, E.S.C., and E.G. Handy  

Haun, A.E and D. Henry  


Indices  
1929 Indices of Awards Made by the Board of Land Commissioners to Quiet Land Titles in the Hawaiian Islands. Territory of Hawaii, Honolulu.

Juvik, S.P. and J.O. Juvik (editors)  

Kawachi, C.  

Kennedy, J.  
1991  Archaeological Inventory Survey and Test Results for the Proposed Pukalani Highlands Property Located at Pukalani, TMK:2-3-44, Ahupua’a of Kailua, District of Makawao, Island of Maui. Prepared for Pukalani Highlands Partners.


Kolb, M.J., P.J. Conte and R. Cordy 1997  *Kula: The Archaeology of Upcountry Maui in Waiohuli and Keokea*


NR  n.d.  Native Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

NT  n.d.  Native Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.


