

Appendix E

**Archaeological Inventory Survey of 77-acres for the Proposed
Construction of Kīhei High School in Kīhei, Ka'ono'ulu, Kōheo
1 & 2 and Waiohuli Ahupua'a, Makawao District,
Island of Maui, Hawai'i**

Scientific Consultant Services – December 2009



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 Archaeology

**SUBJECT: Chapter 6E-8 Historic Preservation Review – REVISED
 Archaeological Inventory Survey for the Proposed Kihai High School
 Ka'ono'ulu/Koheo 1-2/Waiohuli Ahupua'a, Wailuku/Makawao Districts, Maui
 TMK: (2) 2-2-002:015 por.; (2) 2-2-002:054 por.**

Thank you for the opportunity to review this revised report, which our staff received in PDF format on February 4 (Perzanski and Dega 2009). *Archaeological Inventory Survey of 77 Acres for the Proposed Construction of Kihai High School*. Scientific Consultant Services, Inc.

The report was first reviewed by SHPD staff on January 30 (SHPD LOG NO: 2010.0194; DOC NO: 1001PC26), resulting in several requested revisions.

The survey area as described in the report consists of a 77 acre (30.8 hectare) portion of TMKs (2) 2-2-002:015 and (2) 2-2-002:054. Fieldwork, undertaken between August 16 and September 1 of 2009, was comprised of a 100% pedestrian survey and included two manually excavated test units. One surface architectural site (partially previously recorded) comprised of eight features (seven rock mounds, one alignment), now on record as SHP #50-50-10-6393, was identified. All of the features are believed to have originated during the post-Contact ranching period.

The report now contains the required information as specified in HAR §13-276-5 regarding the documentation of inventory level fieldwork in general and is acceptable.

As stated in the initial review letter, we concur that SHP #50-50-10-6393 is significant under Criterion D of the Hawai'i and National Registers of Historic Places for its ability to yield important information related to prehistory or history and that no further work with respect to the site itself is needed because it is significant solely for information content and a reasonable and adequate amount of that information was collected during the survey.

However, we are still not comfortable with the recommendation for no monitoring during any portion of ground altering disturbance within the 77 acre project area. While continuous monitoring does not appear to be necessary, we believe a program of intermittent monitoring during initial phases of ground

Michael F. Dega, Ph.D.
 TMKs (2) 2-2-002:015 por. and (2) 2-2-002:054 por. REVISED Kihai High School AIS
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preparation and build out should be implemented. Such a program could then later be adjusted to address specific conditions within the project area. Therefore, we will reserve final comment pending review of all project related permit applications and plans.

Now that the archaeological inventory report has been accepted pursuant to HAR §13-276, please send one hardcopy, clearly marked **FINAL** (the revised electronic copy does not need to be sent again) to the attention of "SHPD Library" at the Kapolei SHPD office.

Aloha,

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**ARCHAEOLOGICAL INVENTORY SURVEY OF
77-ACRES FOR THE PROPOSED CONSTRUCTION
OF KĪHEI HIGH SCHOOL IN KĪHEI,
KA'ONO'ULU, KŌHEO 1 & 2 AND WAIOHULI AHUPUA'U,
MAKAWAO DISTRICT,
ISLAND OF MAUI, HAWAII
[TMK: (2) 2-2-002:015 (por.) and 054 (por.)]**

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December 2009

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INTRODUCTION

At the request of Group 70 and the State of Hawai'i Department of Education, Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey for the Proposed K he i High School in K he i, Ka ono' ulu, K heo 1 & 2 and Waiohuli Ahupua a, Waituku and Makawao District, Island of Maui, Hawai'i [TMK: (2) 2-2-002:015 (port.) and :054 (port.)] (Figures 1 and 2). The archaeological inventory survey consisted of historical background and archival research; pedestrian survey and inspection of the parcel; mapping and description of site features; manual subsurface testing; and, analysis, interpretation, and reporting of all relevant data. Fieldwork was conducted between August 16- September 1, 2009 by David Perzinski, B.A. and Brian Armstrong, B.A. under the overall direction of Michael Dega, Ph.D. (Principle Investigator).

Archaeological work in the project area was conducted to determine the presence/absence of archaeological deposits in surface and subsurface contexts through a thorough survey and representative subsurface testing. The ultimate goals of the project were to determine if significant cultural or historic resources, and/or human burials occurred on the parcel; and, to provide significance assessments and recommendations to the State Historic Preservation Division (SHPD).

The project area is planned for the development of a new high school and will include a library, auditorium, cafeteria, administration building, industrial arts building, ROTC facility, physical education and athletic buildings, gymnasium, swimming pool and bleachers. Ground disturbing activities associated with the proposed high school include mass excavation, site grading, excavation for retaining walls, landscaping, a stadium and baseball and softball fields. The project will be situated on a portion of 77-acres of undeveloped land currently owned by Ka'ono'ulu Ranch (Parcel 15) and Halekala Ranch Company Pacific Rim Land Holdings, Inc. (Parcel 54).

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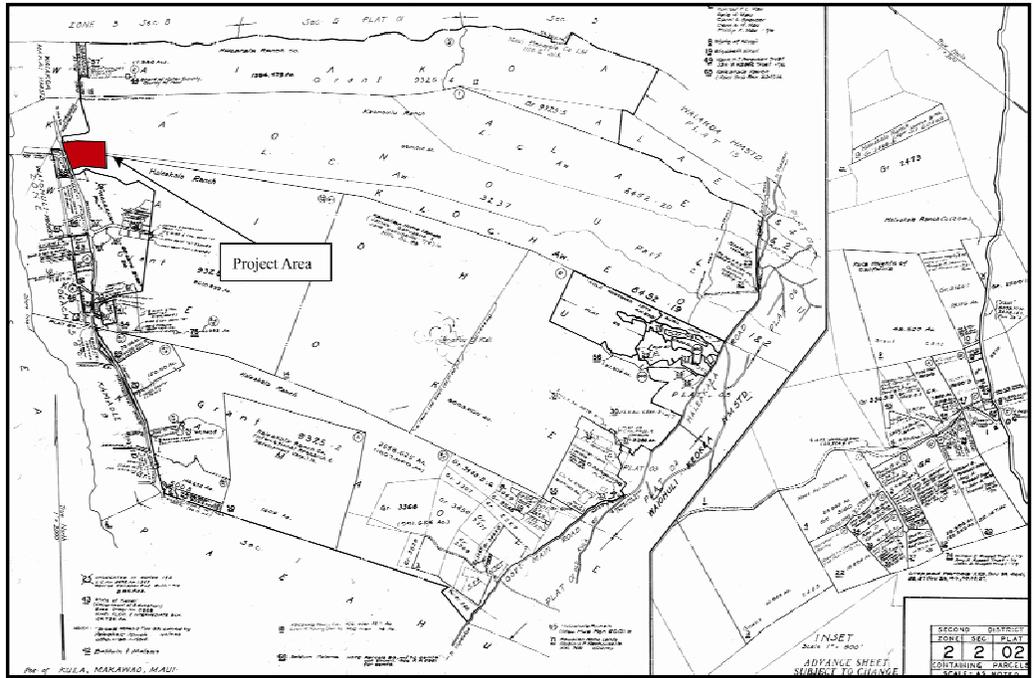


Figure 2: TMK (2) 3-9-09 Showing Location of Project Area

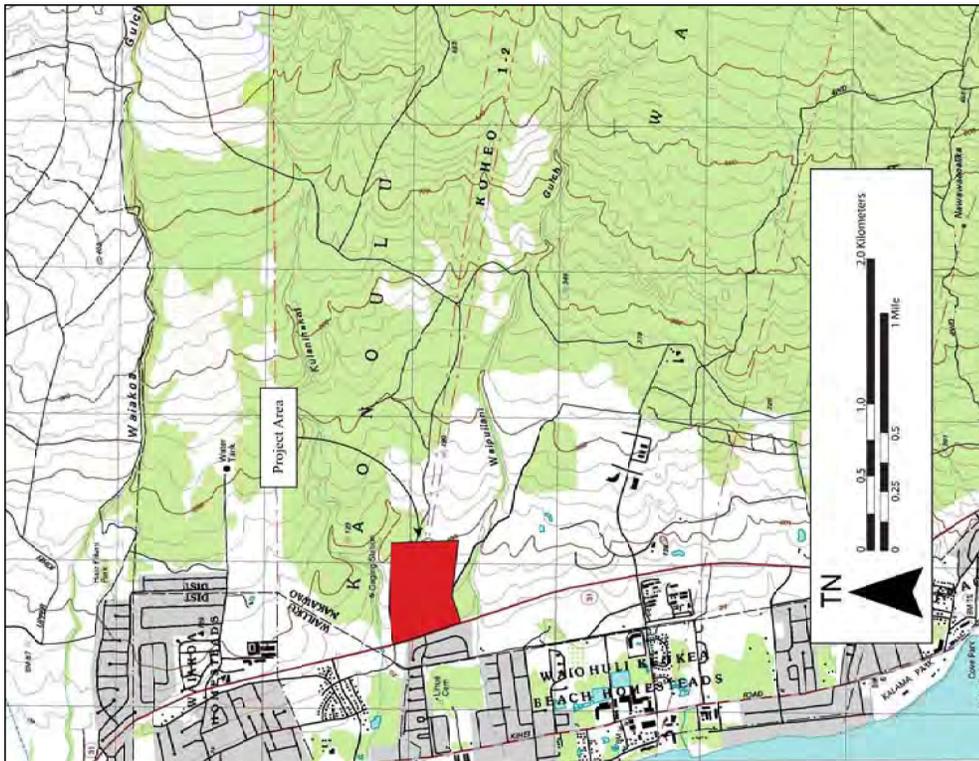


Figure 1: Portion of USGS Topographic Map Showing the Location of the Project Area

ENVIRONMENTAL SETTING

PROJECT AREA DESCRIPTION

The project area is roughly rectangular shaped and consists of a 77-acre lot that is bounded by Kulanihako'i Gulch to the north, Waipuilani Gulch to the south, undeveloped ranch land to the east and Pi'ilani Highway to the west. The parcel is located 1 kilometer inland from Kalepolepo Park at elevations ranging from 30 feet to 100 feet A.M.S.L. and is currently undeveloped.

SOILS

The project area soils are classified as "Waiahoa extremely stony silty clay loam" (Foote, et al., 1972). These soils form on smooth, low uplands, and stones cover 3 to 15 percent of the ground surface. In most areas where this soil occurs, approximately 50 percent of the surface layer has been eroded. Runoff levels are average, and the erosion hazard is severe (Foote et al. 1972). For these reasons, soils in the project area are generally only good for pastureland and wildlife habitat. Low bedrock outcrops are commonly associated with these soils, and cultivation is usually impractical unless the stones are removed. (*ibid.*, 127).

CLIMATE AND VEGETATION

Coastal K he'i, in general, is classified as a 'Kiawe and Lowland Shrubs' vegetation zone, and common, local plants include: *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), finger grass, and *pili* grass, (the latter is a native species) (Armstrong 1983). In traditional times, *i.e.*, before the historic-era introduction of *kiawe* and *koa haole*, the project area was probably covered with indigenous grasses (Kirch 1973a).

Coastal K he'i, in general, is classified as a 'Kiawe and Lowland Shrubs' vegetation zone, and common, local plants include: *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), finger grass, and *pili* grass, (the latter is a native species) (Armstrong 1983). In traditional times, *i.e.*, before the historic-era introduction of *kiawe* and *koa haole*, the project area was probably covered with indigenous grasses (Kirch 1973a). Today, vegetation in the project area includes beach *naupaka* (*Scaevola taccada*), coconut palm (*Cocos nucifera*), beach heliotrope (*Heliotropium* sp.), plumeria (*Plumeria acuminata*), *wilwili* (*Erythrina sandwicensis*), yellow hibiscus (Family, *Malvaceae*), and bougainvillea (*Bougainvillea spectabilis*) as well as various other introduced tropical flowering plants and extensive grassy lawns.

Annual rainfall in the project area ranges between 22 and 33 centimeters annually and is the lowest on Maui, making this region one of the driest in the Hawaiian Islands archipelago (Armstrong 1983). At the time of the present survey, the subject parcel was exceptionally dry and dusty, consistent with a period of prolonged drought in the area. In fact, because of this combination of low rainfall and fairly unproductive soils, the general area in which the subject parcel is located has been labeled the

"barren zone" (Cordy 1977), a characterization that has been supported by numerous archaeological surveys in the area.

BARREN ZONE

In geographical and physiographical terms, the barren zone is an intermediary zone between direct coastline and back beach areas to upland forests and more mountainous environments. The barren zone is a medial zone that appears to have been almost exclusively transitory, or at best, intermittently occupied through time. Intermittent habitation loci, as defined by surface midden scatters or small architectural features (*i.e.*, C-shapes and alignments) dominate the few documented traditional-period site types in the area through time. Post-Contact features are generally limited to walls and small alignments, respectively associated with ranching and military training in the area.

The barren zone was an intermediary region between verdant upland regions and the coastline. Apparently, agricultural endeavors were practically non-existent in the barren zone and tool procurement materials (basalt and wood) were selected from other locales as well. Sediment regimes in the area are shallow, most often overlying bedrock, and perennial water sources are virtually non-existent.

Cordy (1977) divided the K he'i area (inclusive of the project area) into three environmental zones (or subzones when one considers the entire *ahupua'a*): coastal, transitional/barren, and inland. The current project location occurs in the transitional or barren zone: the slopes back of the coast with less than 30 inches of rainfall annually (Cordy 1977:4).

This barren zone is perceived as dry and antagonistic to permanent habitation. Use of the area would primarily have been intermittent or transitory, particularly as the zone could have contained coastal-inland trails and would have marked an intermediary point between the two more profitable eco-zones. The region remains hostile to permanent habitation, only having been "conquered" in recent times through modern adaptation (*i.e.*, water feed systems, etc.).

Based on general archaeological and historic research, the barren zone was not subject to permanent or expansive population until recent times. This intimates that population pressure along the coast was minimal or non-existent in the K he'i coastal area through time. As such, architectural structures associated with permanent habitation sites and/or ceremonial sites are not often identified in the area. The prevailing model that temporary habitation / temporary use sites predominate in the barren zone has been authenticated further by recent research.

HISTORICAL BACKGROUND

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. The island was formed by two volcanoes, Mount Kūkūi in the west and Haleakalā in the east. The younger of the two volcanoes, Haleakalā, soars 3055 m or 10,023 feet (over 30,000 feet if measured from the sea floor) above sea level and embodies the largest section of the island. Unlike the amphitheater valleys of West Maui, the flanks of Haleakalā are distinguished by gentle slopes. Although it receives more rain than its counterpart in the east, the permeable lava flows of the Honomanu and Kula Volcanic Series prevent the formation of rain-fed perennial streams. The few perennial streams found on the windward side of Haleakalā originate from springs located at low elevations. Valleys and gulches were formed by intermittent water runoff.

The environment factors and resource availability heavily influenced pre-Contact settlement patterns. Although an extensive population was found occupying the uplands above the 30-inch rainfall line where crops could easily be grown, coastal settlement was also common (Kolb *et al.* 1997). The existence of three fishponds at Kalepolepo, north of the project area, and at least two *heiau* (shrine, temple, place of worship) identified near the shore confirm the presence of a stable population relying mainly on coastal and marine resources.

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kala'iaha'ia, during the time of the *ali'i* Kaka'alaneo (Beckwith 1979:383; Formander places Kaka'alaneo at the end of the fifteenth century or the beginning of the sixteenth century [Formander 1919-20, Vol. 6:248]). Land was considered the property of the king or *ali'i ai moku* (the *ali'i* who eats the island/district), which he held in trust for the gods. The title of *ali'i ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted; his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka'āinana* (commoners) worked the individual plots of land.

In general, several terms were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua'a*), which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua'a* were able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua'a* to be self sufficient by supplying needed resources from different environmental zones (Lyons 1875:11). The *'ili'āina* or *'i'i* were smaller land divisions next to importance to the *ahupua'a* and were administered by the chief who controlled the *ahupua'a* in which it was located (*ibid*:33; Lucas 1995:40). The

mo'ō'āina were narrow strips of land within an *'i'i*. The land holding of a tenant or *hoa'āina* residing in an *ahupua'a* was called a *kaleana* (Lucas 1995:61).

The project area is located in the *ahupua'a* of Ka'ono'ulu, which translated means literally "the desire for breadfruit" (Pukui *et al.*:86). Waiohuli "water of change" (*ibid*: 226), and K'heo "to show off" or "to twirl" (*ibid*: 115).

TRADITIONAL ACCOUNTS

There is little specific information pertaining directly to K'heo, which was originally a small area adjacent to a landing built in the 1890s (Clark 1980). Presently, K'heo refers to a six-mile section along the coast from the town of K'heo to Keawakapu. Scattered amongst the agricultural and habitation sites were places of cultural significance to the *kama'āina* of the district including at least two *heiau*. In ancient times, there was a small village at Kalepolepo (located approximately 1 km west of the present study parcel) based primarily on marine resources. Occasionally, it has been recorded, that the blustery Kaunuku Winds would arrive with amazing intensity along the coast (Wilcox 1921).

There were several fishponds in the vicinity of K'heo; Waiohuli, K'keo-kai, and Kalepolepo Pond (also known by the ancient name of K'heo Pond; Kolb *et al.* 1997). Constructed on the boundary between Ka'ono'ulu and Waiohuli: Ahupua'a, these three ponds were some of the most important royal fishponds on Maui. The builder of Kalepolepo and two other ponds (Waiohuli and K'keo-kai) have been lost in antiquity, but they were reportedly rebuilt at least three times through history, beginning during the reign of Pū'ilani (Cordy 2000).

Oral tradition recounts the repairing of the fishponds during the reign of Kiha-Pū'ilani, the son of the great chief Pū'ilani, who had bequeathed the ponds to Umi, ruler of Hawai'i Island. Umi's *kono'hiki* (land overseer or manager) ordered all the people from Maui to help repair the walls of Kalepolepo's fishponds. A man named Kikau protested that the repairs couldn't be done without the assistance of the *menehune* who were master builders (Wilcox 1921:66-67). The *kono'hiki* was furious and Kikau was told he would die once the repairs had been made. K'keo-kai was the first to be repaired. When the capstone was carried on a litter to the site, the *kono'hiki* rode proudly on top of the rock as it was being placed in the northeast corner of the pond. When it was time for repairs on Waiohuli-kai, the *kono'hiki* did the same. As the last pond, then known as Ka'ono'ulu-kai, was completed, the *kono'hiki* once again rode the capstone to its resting place. Before it could be put into position, the capstone broke throwing both the rock and *kono'hiki* into the dirt. The workers reportedly said "Ua *kono'hiki* Kalepolepo, ua eku i ka lepo," or, "the manager of Kalepolepo, one who roots in the dirt" (*ibid*:66). That night a tremendous storm threw down the walls of the fishponds. The *kono'hiki* implored Kikau to help him repair the damage. Kikau called the *menehune* who rebuilt the walls in one night. Umi sent for Kikau who lived in the court of Waipi'o valley from then on. The region of K'keo-kai and Ka'ono'ulu-kai fishpond became known as Kalepolepo fishpond (*ibid*).

The Kalepolepo fishponds were rebuilt by Kekaulike, chief of Maui in the 1700s, at which time it supplied *ʻama ʻama* (mullet) to Kahakiki II. Again, it was restored by Kamehameha I when he ruled as governing chief over Maui and for the last time in the 1840s when prisoners from Kahoʻolawe penal colony were sent to do repairs (Kamakau 1961; Wilcox 1921). At this time, stones were taken from Waiohuli-kai pond for the reconstruction of Kalepolepo. It was here at Kalepolepo that Kamehameha I reportedly beached his victorious canoes after subduing the Maui chiefs.

Trails extended from the coast to the mountains, linking the two for both economic and social reasons. A trail known as the *alamai* or “King’s trail” built by Kihapʻiliani, extended along the coast passing through all the major communities between L. hain and M. kena, including K. hei. One trail, named “*Kekuawaha ʻula ʻula*” or the “red-mouthed god”, extended from K. hei inland to K. kea. Another, the Kalepolepo trail, began at the Kalepolepo fishpond and continued to upland Waiohuli. These trails were not only used in the pre-Contact era, but were expanded to accommodate wagons bringing produce to the coast in the 1850s (Kolb et al. 1997:61).

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various ahupuaʻa. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River and stream valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinarum*) and *maiʻa* (banana, *Musa sp.*), were also grown and, where appropriate, such crops as *ʻuala* (sweet potato, *Ipomoea batatas*) were produced. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985).

The district of Kula (presently Makawao) was known for dry land agriculture, and later, pig husbandry. Dryland agricultural field systems were characterized by extensive stone and earthen embankments, reliance on rainfall, and regular rotation of crops (Kolb et al. 1997:6). These systems were also noted for their arid conditions and lack of perennial streams (Chun et al. 2005). In fact, the word *kala* is also used to describe lands which were dry and inaccessible to water, except from rainfall (Malo, 1951). According to Kolb et al. (1997), the key component of Kula’s economy was the dryland agriculture in and near the upland forests. *ʻUala* (*Ipomoea batatas*), or sweet potato, is a tuber that will not grow in very wet areas. In discussing the environs of the region, Handy (1940) noted that the primary staple of Kula was the *ʻuala*:

Kula was always an arid region, throughout its long, low seashore, vast stony *kala* lands, and broad uplands. Both on the coast, where fishing was good, and on the lower westward slopes of Halekaka a considerable population existed... [Activities included] fishing and raising occasional crops of potatoes along the coast, and cultivating large crops of potatoes

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inland, especially in the central and northeastern section including Keokea, Waiohuli, Koheo, Kaunoulu, and Waiakoa....Kula was widely famous for its sweet-potato plantations. *ʻUala* was the staple of life here. [1940: 161]

Agricultural development on the leeward side of Maui was likely to have begun early in what is known as the Expansion Period (A.D. 1200–1400, Kirch 1985). According to Handy:

On the south side of western Maui the flat coastal plain all the way from K. hei and Maʻalea to Honokahua, in old Hawaiian times, must have supported many fishing settlements and isolated fishermen’s houses, where sweet potatoes were grown in the sandy soil or red lepo [soil] near the shore. For fishing, this coast is the most favorable on Maui, and, although a considerable amount of taro was grown, I think it is reasonable to suppose that the large fishing population, which presumably inhabited this leeward coast, ate more sweet potatoes than taro with their fish...[1940:159].

Handy and Handy (1972:131) also describe the planting methods in the drier sections of Kula:

Where potatoes are planted in crumbling lava with humus, as on eastern Maui and in Kona, Hawaii, the soil is softened and heaped carelessly in little pockets and patches using favorable spots on slopes the crumbling porous lava gives ample aeration without much mounding.

At lower, drier elevations, in the so-called barren zone, agriculture was a relatively minor component of the traditional subsistence economy. In fact, the early historical accounts and archaeological evidence suggest that the barren zone, in which the subject parcel is situated, was a transitional area in which people moved resources between the coast and the uplands to heights of c. 1,000 feet (above mean annual sea level). Large, permanent settlements—with clusters of habitations, *heiau*, petroglyphs, and large agricultural terraces and garden enclosures—have been documented in the uplands, above the 30-inch annual rainfall line, while Fishponds and coastal *heiau* indicate a relatively sizable coastal population relying on marine resources (Kolb et al. 1997).

EARLY HISTORIC TO MID-1800’S

Early records, such as journals kept by explorers, travelers and missionaries, Hawaiian traditions that survived long enough to be written down, and archaeological investigations have assisted in the understanding of past cultural activities. Unfortunately, early descriptions of this portion of the Maui coast are brief and infrequent. Captain King, Second Lieutenant on the *Revolution* during Cook’s third voyage briefly described what he saw from a vantage point of “eight or ten leagues” (approximately 24 miles) out to sea as his ship departed the islands in 1779 (Beaglehole 1967). He mentions Puʻu laʻi, south of K. hei, and enumerates the observed animals, thriving groves of breadfruit, the excellence of the *taro*, and describes the sugarcane as being of an unusual height. Seen from this distance and the mention of breadfruit suggest the uplands of K. pahulu-Kaupo and ʻUlupalakua were his focus.

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In the ensuing years, LaPérouse (1786), Nathaniel Portlock and George Dixon, (also in 1786), sailed along the western coast, but added little to our direct knowledge of K he i. During the second visit of Vancouver in 1793, his expedition becalmed in the Ma'alaea Bay close to the project area. (A marker commemorating this visit is located across from the Maui Lu Hotel). He reported:

The appearance of this side of Mowee was scarcely less forbidding than that of its southern parts, which we had passed the preceding day. The shores, however, were not so steep and rocky, and were mostly composed of a sandy beach; the land did not rise so very abruptly from the sea towards the mountains, nor was its surface so much broken with hills and deep chasms; yet the soil had little appearance of fertility, and no cultivation was to be seen. A few habitations were promiscuously scattered near the waterside, and the inhabitants who came off to us, like those seen the day before, had little to dispose of. [Vancouver 1984:852]

Archibald Menzies, a naturalist accompanying Vancouver stated, "... we had some canoes off from the latter island [Maui], but they brought no refreshments. Indeed, this part of the island appeared to be very barren and thinly inhabited" (Menzies 1920:102). According to Kahekili, then chief of Maui, the extreme poverty in the area was the result of the continuous wars between Maui and Hawaii'i Island causing the land to be neglected and human resources wasted (Vancouver 1984:856).

Cultivation of Irish potatoes in the Kula district began shortly before 1840, after which time Kula became known as "the potato district" because of its great success in their cultivation. During Kula's peak potato producing period of the 19th century, dryland gardens in the uplands extended all the way from Kula to Kaupo. The resulting deforestation adversely affected the amount of rainfall in the district and periods of drought became more common (Kolb *et al.* 1997). The *Honolulu Advertiser* describes the changes to Kula and the K he i area:

Before 1850 Kula was supplied with moisture naturally through the existence of a large forest. That forest was cut down when land was cleared in Kula to open farm plots in 1850. This was in answer to the demand for food in California during the gold rush... [and] by ranchers clearing for pasture. A secondary result of clearing forests was destruction of existing fresh water ponds in Kiheti on the Maalaea Bay coast below Kula. When forest was cleared, water was free to rush down the mountains carrying soil from Kula and filling with mud the ponds for which Kiheti was once famous [1962:A15].

Ranching was also present in Kula prior to the 1840s (Land Court Awards, State Archives). Large sections of Crown Land were leased for grazing cattle, and, by the 1880s, lower Kula consisted primarily of pastureland for ranching. Archaeological evidence of ranching is present near the subject parcel (see below). In 1888, Edwin H. Baily, Lorrin A. Thurston, W.H. Baily, and Henry P. Baldwin met in Honolulu and purchased Maui ranch lands owned by Charles Alexander for \$50,000. The

resulting ranch included 33,817 acres with 400 to 500 acres set aside for corn cultivation. Haleakala Ranch Company historically used the land in and around the project area for ranching activities.

THE MĀHELE 1848-1851

During the late Historic Period, extreme modification to traditional land tenure occurred throughout all of the Hawaiian Islands. Kame'elehiwa (1992: 209), states that the Makawao District was the first area in Hawai'i to experiment with land sales. In January 1846, land was made available for eventual ownership to *maka'āinana* (commoners). According to Chinen (1961), land was sold for \$1.00 per acre; this would mark the beginning of land grants. Experimental lots purchased by Hawaiians ranged from five to ten acres and if applicants met all of the requirements (and were notified of the procedures), they eventually received the title to their land.

The transition from traditional Hawaiian communal land use to private ownership and division was commonly referred to as the M hele (division). The M hele of 1848 set the stage for vast changes to land holdings within the islands as it introduced the foreign (western) concept of land ownership to the Islands. Although it remains a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kame'eolou (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall Vol. I, 1938:145 footnote 47, 152, 165-166, 170; Daws 1968:111; Kelly 1983:45; Kame'elehiwa 1992:169-170, 176).

For natives that had been cultivating and living on the lands, lengthy and costly procedures enabled them to (possibly) claim some of the plots. The first Land Commission was formed in 1845, during which time all individuals holding land were required to submit their claims or forfeit their lands. Once lands were made available and private ownership was instituted the *maka'āinana* were able to claim the plots on which they had been cultivating and living, if they had been made aware of the foreign procedures (kuleana lands, Land Commission Awards, LCA). These claims could not include any previously cultivated or presently fallow land, *okipī* (on O'ahu), stream fisheries or many other resources necessary for traditional survival (Kelly 1983; Kame'elehiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed Land Commission Award (LCA), issued a Royal Patent number (RP), and could then take possession of the property (Chinen 1961: 16).

The land that *maka'āinana* received was less than one percent of total lands, all of which needed to be surveyed. A total of 88,000 people submitted 14,195 requests for land and of these only 8,421 were awarded. (Kame'elehiwa 1992: 295). In 1850, it became legal for foreigners to purchase land and they received large portions for diminutive prices. At this time, many Native Hawaiians lost access to their lands due to mortgage default.

The *Māhalele* statute paved the way for the private ownership of land [awarded claims were called Land Commission Awards]. The portion of the present project area within Ka`ono`ulu Ahupua`a appears to have been awarded to Hewahewa (LCA 3237 Part 2) (Waihoana Aina Database, 2009).

HISTORIC PERIOD

Ranching was present in Kula prior to the 1840's (Land Court Awards, State Archives). Large sections of Crown Lands were leased for grazing cattle and by the 1880s, lower Kula consisted primarily of pasture land for ranching. In 1888, Edwin H. Baily, Lorrin A. Thurston, W. H. Baily, and Henry P. Baldwin met in Honolulu and purchased Maui ranch lands owned by Charles Alexander for \$50,000. The resulting ranch included 33,817 acres with 400 to 500 acres set aside for corn cultivation. The land of Kea, particularly the lowland/coastal portion, was historically used for ranching activities by Haleakala Ranch Company.

Twentieth century activities in the Kula District included a significant WWII military presence along the beach of Ma`alaea Bay, a Combat Demolition training Station at Kamā`ole, two naval air stations at Pu`unā and Kahului, and Army camps and hospitals in the Kula and Makawao area. Large acreage was used for livestock breeding and comprised the majority of the land use (Mark 1975). Rapid commercial resort development and private residences, especially in the K he i area, has occurred in the Kula coastal section since the 1970s.

Within the present project area, commercial ranching encompasses the entire project area. Several bulldozed roads exist within the *maka'i* portion of the parcel and a fence running east/west divides Haleakala Ranch lands from Ka`ono`ulu Ranch lands.

PREVIOUS ARCHAEOLOGICAL RESEARCH

A substantial number of archaeological investigations have been conducted over the past few years near the present project area in the K he i area of Maui. The following presents a synthesis of studies within the transitional and "barren zone" of Kula District showing that despite a large number of studies, relatively few significant sites have been documented (Figure 3).

Work by Cordy (1977) in the K he i area resulted in a pre-Contact settlement model that divides the landscape into three environmental zones: coastal, transitional/barren, and inland. The current project area falls into the transitional/barren zone, which refers to "the slopes back of the coast with less than 30 inches of rainfall" (Cordy 1977:4). This barren zone is viewed as relatively marginal for permanent habitation because of its dryness, rocky soils, and dearth of natural resources. In general, archaeological surveys in the barren zone around K he i have confirmed these earlier suppositions about land use as there was very little evidence of pre-Contact Native Hawaiian settlement.

Cox (1976) surveyed near the project area along the corridor of the Pi'ilani Highway and failed to notice a single site or significant feature. Kirch (1985) examined similar geographic settings to the south (towards Makena) and also failed to find any evidence of traditional Native Hawaiian activities in the barren zone. In fact, as Kennedy (1986) observes, this settlement pattern of avoiding the barren zone probably continued from ancient times through the early historic period as LCAs were issued for land situated in the further upland reaches.

Just *maka'i* of the project area, within the two phases of the Pi'ilani Residential Community, four archaeological studies have been conducted. Cordy (1977), EISC (1982) and Donham (1989 and 1990) documented a total of 23 sites including wall segments, small structures, cairns, historic structures, enclosures and agricultural features. The surface features were interpreted as traditional Hawaiian (with the exception of the concrete structure remnants) related to temporary habitation and agricultural pursuits. Based on similar findings in leeward East Maui, it was suggested that the "features within the survey area post date c. AD 1500" (Donham, 1990:15).

(fighting positions) built during World War II training. Ten excavation units placed within these features yielded no cultural material.

McDermott (2001) conducted an archaeological inventory survey for a retention basin adjacent to the project area on the south side of Waipuilani Gulch. In total, four historic properties were located within the project area and three additional located just outside the parcel. The sites consisted of stone cairns, modified outcrop enclosures, terraces, stone mounds and alignments. The sites were thought to be traditional Hawaiian temporary habitations or ancillary features associated with the habitations. McDermott states that site densities are typically quite low within the “barren zone” with multiple studies having been conducted on large parcels (Kennedy 1986, Watanabe 1987, Hammatt and Shideler 2000) that did not lead to the identification any pre-Contact sites. However, military sites related to World War II training exercises have been previously documented in the area (McGerty *et al.* 2000), these sites often consisting of low, short alignments or walls. The few radiocarbon dates acquired from the area indicate definitive use of the landscape in later prehistory c. A.D. 1500 to 1600+.

Tome and Dega (2002) conducted an Inventory Survey on a 3.142-acre parcel located approximately 400 m inland from the Kama'ole coastline where one traditional archaeological site, four surface midden scatters, and a basalt alignment were identified. Interpretations of the survey reflected that the property had been utilized as a single-use site due to absence of subsurface cultural material from 14 stratigraphic trenches excavated on the parcel. Like this project, most of the ones mentioned above occurred just to the west of coastal sand deposits in what is commonly known as the “Barren Zone”. However, while some archaeological surveys were productive, there were those along the coast that were not. Namely, Callis' (2001) Inventory Survey directly in sandy sediment along Kamaole did not lead to the documentation of occupation or burials.

Tome and Dega (2002) also conducted an Archaeological Inventory Survey along the northeastern flank of the Elleair Maui Golf Club property. They identified a historical ranching corral and a short agricultural wall, collectively designated State Site No. 50-50-10-5233. No other structures or subsurface deposits were identified. No traditional Native Hawaiian sites or features were identified. Another Inventory Survey along the southern flank of the Elleair Maui Golf Course (Dega 2003) failed to yield any archaeological or historical site or features.

A more recent Inventory Survey (Dega and Tome 2003) conducted in K hei Town also failed to yield significant deposits or burials in sandy substrate. Recent exceptions to this rule

have been seen in Waiakoa Ahupua'a (Hamada-Takatai Subdivision at TMK: 3-9-006:40) where a fairly large number of burials and possible burials have been identified (Rotunno-Hazuka n.d.).

Monahan (2003) conducted an Archaeological Inventory Survey, including subsurface testing (excavation), of a 28.737-acre portion of the Maui Research and Technology Park, also within the area investigated by Kennedy (1986), situated immediately upslope (*mauka*) of Lot No. 1-B. Other than one surface feature—a small arrangement of stacked boulders interpreted as a ‘push pile,’ this survey yielded no evidence of historic or prehistoric significance.

Monahan (2004) also surveyed a 56 acre parcel located near Elleair Golf Course. Four surface features, consisting of stacked basalt stones, were identified and recorded as individual sites. Three of these sites were interpreted as traditional Hawaiian temporary habitation and work areas. Unfortunately two of the sites failed to yield datable materials and the other returned a modern radiocarbon date (0+/- 50 BP).

Shelfcheck, *et al* (2008) conducted an Archaeological Inventory Survey of 516 acres of land in Kā'ono'ono Lulu Ranch which included a portion of the present project area. Forty new archaeological sites were identified and recorded during this work. Of the forty sites recorded during this work, eight are associated with pre-Contact activities. These pre-Contact sites consisted of temporary rock shelters with petroglyph components, enclosures, platforms, a mound and a wall. Historic sites found during this work pertained to agriculture and military training activities.

In summary, previous archaeological research has documented a fairly limited degree of human settlement in the K hei area. Within the “barren zone”, archaeological reconnaissance and inventory surveys adjacent to, and nearby the subject parcel have yielded a modest amount of evidence of both historical and traditional human activities. Based on the over thirty years of archaeological study in the barren zone of the former Kula District, it is clear that the area was not a desirable location for either a permanent population or for large scale agricultural endeavors that were undertaken in the more upland locales. Whether this pattern was the result of poor soil development, low precipitation, or lack of population pressure that would have forced individuals to seek new areas to settle, it is likely that previous archaeological studies would have identified at least remnants of any permanent habitation or agricultural complexes that can be found in the more inland reaches of Kula.

SETTLEMENT PATTERNS

The settlement pattern for the district of Kula (Makawao) is varied, as are the models describing such settlement patterns. From environmental deterministic models to the “exclusive upland permanent settlement model”, the “exclusive coastal permanent habitation model”, the bimodal model-permanent habitation in the uplands and on the coast”, and the transhumance model” (Hayden in Kolb et al. 1997: 145-152), the history of Kula District has been somewhat dichotomized into a classic upland-lowland motif. All four models mentioned above are indeed directly relevant to Kula District. As is noted by Hayden (in Kolb et al. 1997:157), and must be considered in any settlement pattern modeling of the islands:

“One problem with the coastal sample set is that a large amount of construction had occurred prior to the introduction or enforcement of the preservation laws, particularly in the Kula area. This development proceeded without archaeological work, and as a result little information is available, and many of the coastal Kula sites have been destroyed. Thus, we know little yet about the coastal zone of Kula.”

The prevailing “model” at this time for Kula settlement pattern analysis has been formed by Kolb et al. (1997:191) and consists of a combination of all four models. The models take into account the entire district of Kula. A more succinct model pertaining solely to coastal and near coastal reaches of Kula District has been proposed by Cordy (1977, 2000). This model provides more in-depth discussion of zones characterizing the present project area.

The settlement pattern of the Kula District would include both permanent and temporary sites near the coast, a minimal amount of ceremonial sites (*heiau*), dryland field and field hale, and burials, although the latter have not yet been reported in large concentrations. Proceeding upland to the current project area, the “barren zone” would have trails and associated shelters leading to the uplands. Both the barren zone and coastal areas are suggested to have a low density of sites (see Cordy 2000:2). The barren zone and far above would contain the bulk of prehistoric through historic-period sites, and temporary habitation areas and trails, among other classes. By way of comparison, while the upland field zone was occupied contemporaneously with coastal reaches of Kula, the upland zone contains a higher density of sites as well as greater diversity of site types. Again, evidence for the Kula coastal zone may have been obscured by recent residential and commercial developments.

In specific terms of the barren zone wherein the present research was conducted, this intermediary zone between direct coastline and backbeach areas to upland forests appears to

have been almost exclusively transitory, or at best, intermittently occupied during traditional times. Intermittent habitation loci, as defined by surface midden scatters or small architectural features (i.e., C-shapes, alignments) dominate documented site types in the area through time. Divided within an inland-coastal dichotomy, the barren zone was a necessary area to access more productive upland regions and along the coastline. Apparently, agricultural endeavors were practically non-existent in the barren zone until historic times, and tool procurement materials (basalt, wood) were selected from other locales. Based on archaeological and historic research, the barren zone was not subject to permanent or expansive population (until recently with ranching). This intimates that population pressure along the coast was minimal or non-existent along the K he i coastline through time.

As such, architectural structures associated with permanent habitation sites and/or ceremonial sites were not expected within the project area prior to the inventory survey. The prevailing model that temporary habitation-temporary use sites and later ranching-period sites predominate in the barren zone has been authenticated further by the present research.

METHODS

The Field Inspection of the parcel was conducted by SCS archaeologist David Perzinski, B.A. and Brian Armstrong from August 16-September 1, 2009, under the direction of Michael Dega, Ph.D (Principal Investigator). The inventory survey covered a 100% pedestrian surveys utilizing 5-10 m transects oriented roughly north/south (upslope/down slope) depending on ground cover and visual range. The project area boundaries were clearly delineated by Pi'ilani Highway to the west, Waipulani Gulch to the south, Kalamihakoi Gulch to the north and survey stakes to the east.

When sites were encountered, the location was flagged, noted on a project area map and later recorded. The sites were plotted on a map using site topography and visual indicators and were documented with written descriptions, photographs and plan view maps. Site boundaries were determined by their horizontal and horizontal extent. In addition, 2 manually excavated units on 2 mounds were excavated for a better understanding of the function of the sites and chronological information. Site age and function were determined based on construction technique, spatial relationship to other sites and topography, presence/absence of historic indicators (i.e. introduced materials, construction techniques), and previous archaeological research.

Archival research entailed investigating the historic and archaeological background of the general project area. This examination included a documentary search of previous archaeological research conducted in this region of Maui as well as a review of archival literature relating to Land Commission Awards and local mythology. The review of historical documents was accomplished in order to understand the impact of post-Contact events on the cultural and archaeological landscape of the region. All project area records (i.e. notes, profiles, photographs, etc.) are currently being curated in the SCS Maui office.

D. Consultation with Individuals Knowledgeable About the Project Area

Informal interviews were conducted with a Haleakala Ranch worker, Haleakala Ranch Vice President of Land and Resources J. Scott Meidell (*vis* Patty Conte, SHPD Archaeologist), James Pa`amui (MLIBC Representative), Hinano Rodrigues (SHPD Cultural Historian) and Patty Conte (SHPD Maui Archaeologist) about the project area.

RESULTS OF FIELDWORK

One site was identified during the archaeological inventory survey of 77 acres in Ka'ono'ulu, K. heo 1 & 2, and Waiohuli Ahupua'a, Makawao District, Island of Maui, Hawaii [TMK (2) 2-2-02:15 (por.) and 54 (por.)]. A 100% pedestrian survey and limited subsurface testing re-documented one site, SIHP No.: 50-50-10-6393, which consists of 8 features (7 mounds, 1 alignment) (Figure 4). Three manually excavated test units were excavated to aid in the understanding of the functional interpretation of the features.

SIHP No.: 50-50-10-6393

Site Type: Mound Complex

Function: Agriculture/Ranching

Feature (#): 8

Age: Historic

Description: Site -6393 (Figure 5) is a complex of 8 features located in the northeastern portion

of the project area. The site is located on Keonoulu Ranch lands on a relatively level portion of the project area, approximately 300 m from Pi'ilani Highway at an elevation of 20 m A.M.S.L.

The eight features consist of a series of low mounds and one alignment constructed of basalt cobbles and boulders. A portion of this site was previously documented by SCS (Shefcheck *et al.* 2008) and was described as consisting of "three features, all of which are rock mounds that were likely constructed during bulldozer activities on the lot, due to the angular, broken up condition of stones in the features and the presence of a bulldozed area (possibly an old road) just north of Feature 3" (Shefcheck *et al.* 2008:23). The three features described by Shefcheck are believed to correspond to features A-C below.

Feature A is located in a dry, grassy area amid a landscape of weathered cobbles, boulders and exposed bedrock. The feature consists of a roughly constructed mound measuring 1.9 m in diameter with a maximum height of 60 cm (Figure 6 and 7). The feature is constructed of piled basalt cobbles and is not faced. The cobbles and boulders displayed relatively fresh breaks, as compared to the weathered cortex of the basalt, suggesting that the mounds are likely historic constructions. No additional cultural materials were observed on the surface. The feature is suggested to have functioned for ranching purposes.



Figure 4: Portion of USGS Map Showing Location of SIHP No. 50-50-10-6393

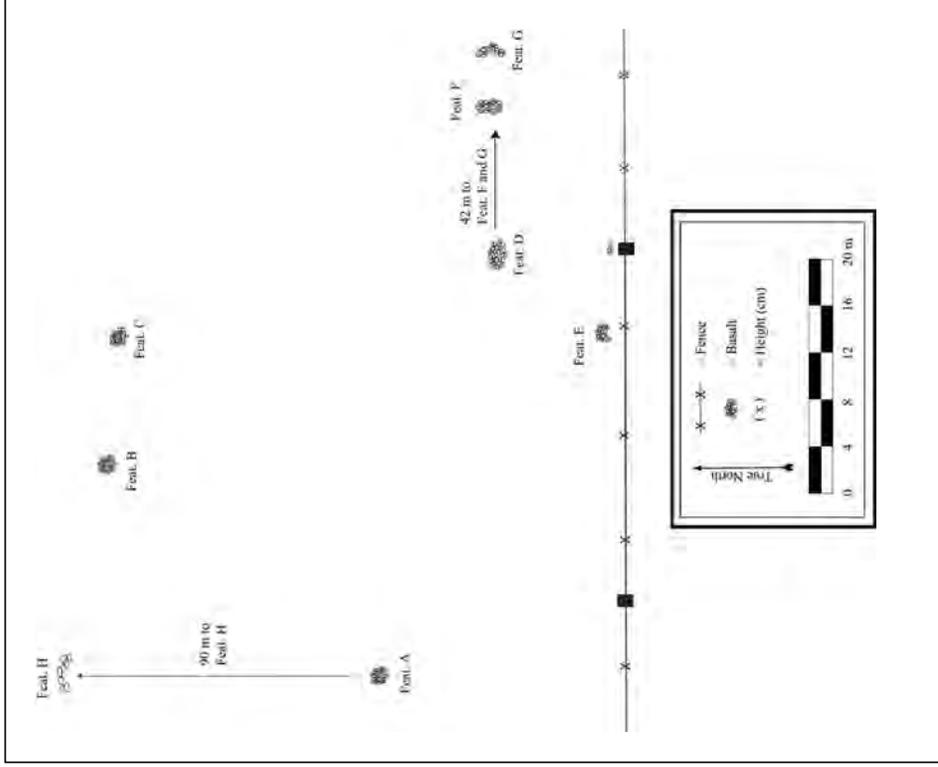


Figure 5: Plan View of SIHP No. -6393



Figure 7: View West of SIHP No. -6393 Feature A

25

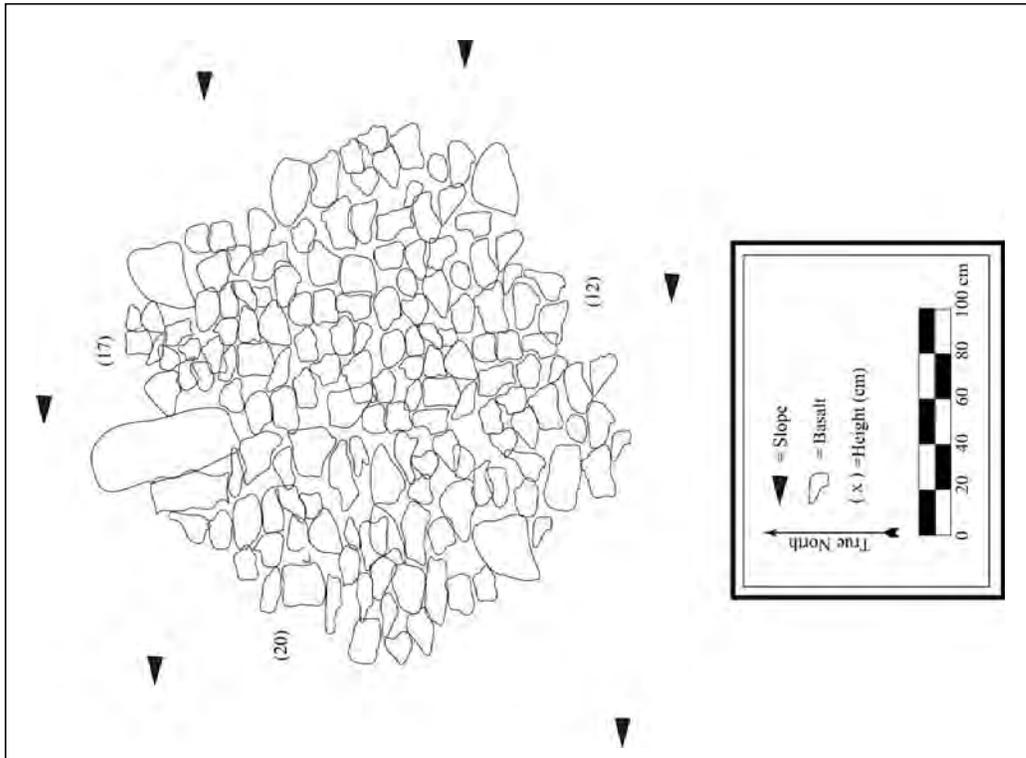


Figure 6: Plan View of SIHP No. -6393 Feature A

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A 1 m by 1 m test unit was excavated through Feature A to aid in determining the age and function of the mound (see Figure 8). The unit was placed in the center of the mound with all cobbles and boulders removed down to the ground surface. After the stones were removed, manual excavation continued into the underlying sediments. Stratum I consisted of dark reddish brown (5 YR 3/4) dry, silt that had fine, weak, granular structure. Stratum II consisted of dark reddish brown (5 YR 3/4) dry, hard silt surrounding decomposing basalt. Once sterile sediments were encountered excavation was halted. No cultural materials or midden was encountered.

Feature B consists of a low mound, roughly square in shape located 25 m north of Feature A (Figures 9 and 10). The mound measures 155 cm by 137 cm with a maximum height of 56 cm. The boulder mound is roughly stacked with broken basalt, of which the breaks look relatively fresh compared to the unbroken weathered cortex of the other boulders. No cultural materials or midden was observed on or around the mound. It is suggested that Feature B is a clearing mound.

Feature C consists of a rough alignment of basalt boulders located 11.5 m east of Feature B (Figures 11 and 12). The feature measures 4.82 m north/south by 3.60 m east/west with a maximum height of 47 cm. The north end of the alignment is marked by a small pile of basalt boulders piled 2 courses high. A small stack of stones define the western side of the feature. No cultural materials or midden was observed on or around the feature. The function of this alignment is indeterminate.

Feature D consists of a cobble and boulder mound located 33.8 m south of Feature C (Figures 13 and 14). The mound measures 2.1 m east/west by 1.22 m north/south with a maximum height of 60 cm. The mound is very roughly stacked with broken boulders, similar to Features A and B. No cultural materials or midden was observed and it is suggested that Feature D is a clearing mound related to ranching activities.

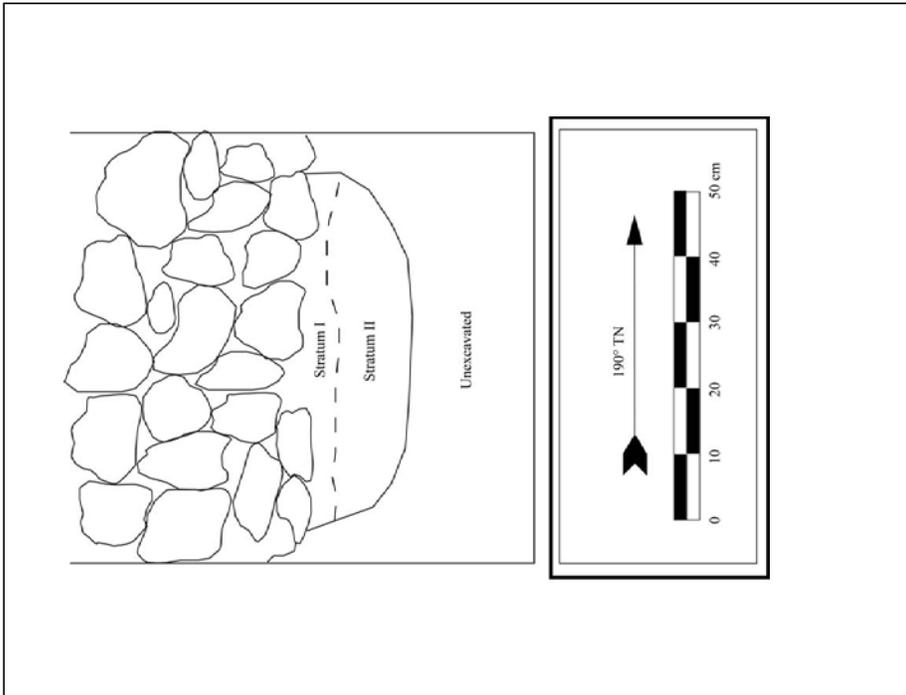


Figure 8: Profile of Stratigraphic Sequence of -6393 Feature A



Figure 10: View North of SIHP No. -6393 Feature B

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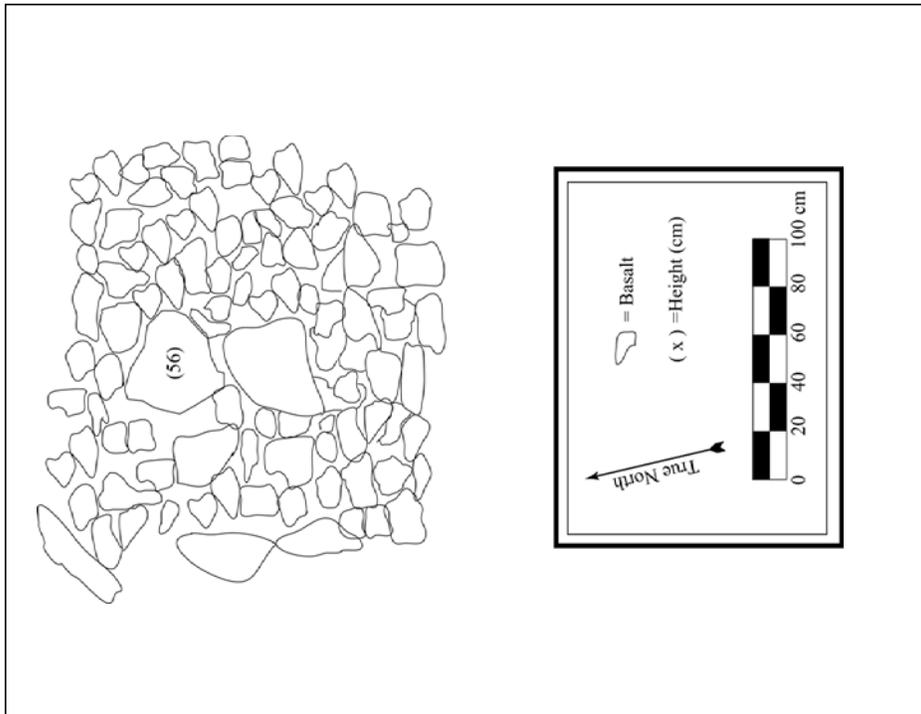


Figure 9: Plan View of SIHP No. -6393 Feature B

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Figure 12: View West of SIHP No. -6393 Feature C

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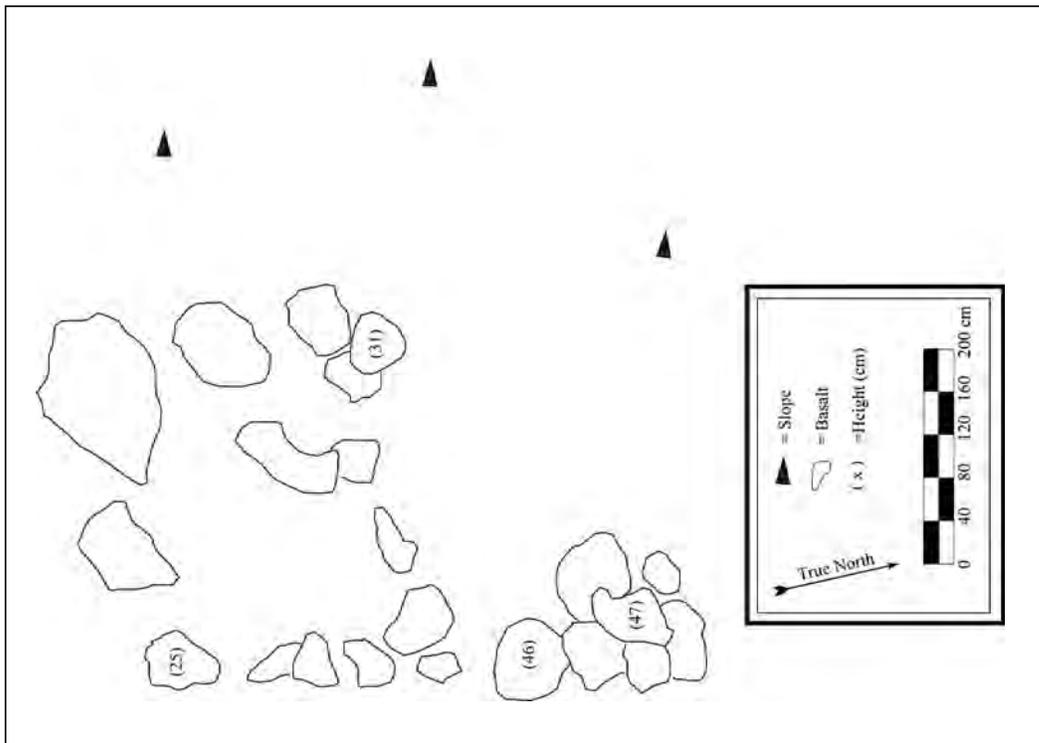


Figure 11: Plan View of SIHP No. -6393 Feature C

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Figure 14: View North of SIHP No. -6393 Feature D

33

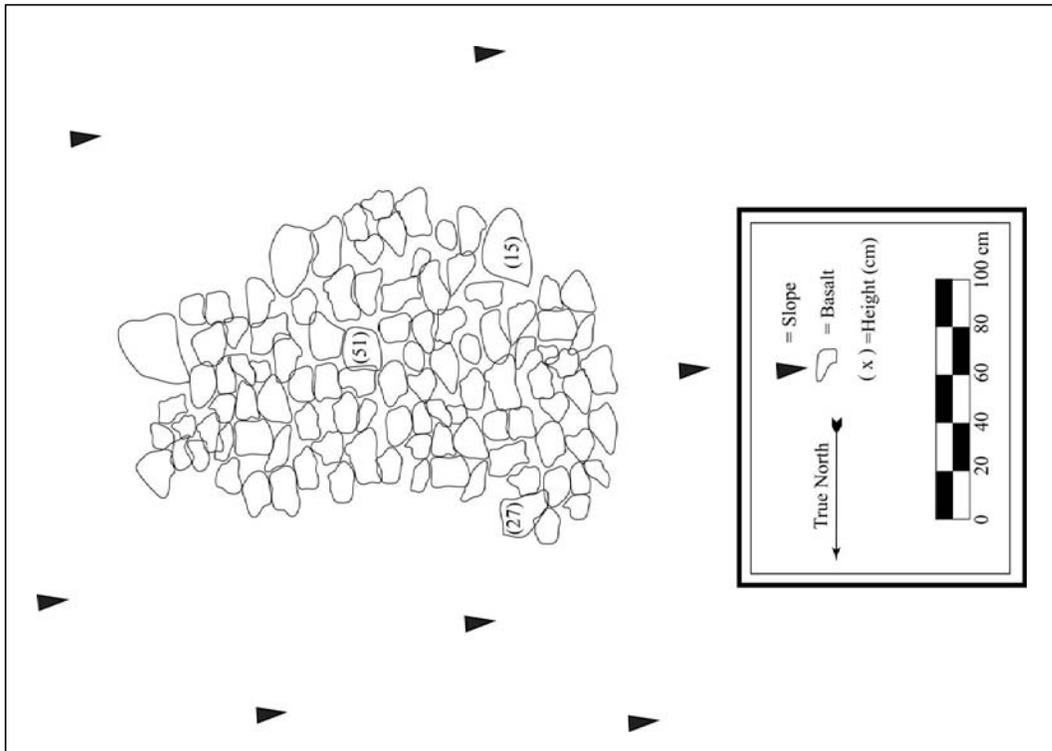


Figure 13: Plan View of SIHP No. -6393 Feature D

32

Feature E consists of a small basalt mound located 10.6 m south of Feature D and 1.5 m north of the Keonoulu Ranch and Haleakala Ranch boundary fence (Figures 15 and 16). The mound measures 120 cm north/south by 120 cm east/west and is constructed of broken basalt cobbles and boulders. No cultural materials or midden was observed on or around the feature. It is suggested that Feature E is a clearing mound related to ranching activities.

Feature F consists of a small oval basalt cobble and boulder mound (Figures 17 and 18). The feature measures 1.6 m by 1.1 m with a maximum height of 55 cm. The mound is constructed of piled, broken basalt cobbles and boulders. No cultural materials or midden was observed and it is suggested that the feature likely functioned as a clearing mound for ranching activities.

A 1 m by 1 m test unit was excavated through Feature F to aid in determining the age and function of the mound (Figure 19). The mound was taken down to the ground surface and construction techniques were noted. In general, the mound was constructed without formal stacking, and appeared to have been built by piling the stones. Once the ground surface was exposed, a 50 cm by 50 cm test unit was manually excavated. Like Feature A, Stratum I consisted of dark reddish brown (5 YR 3/4) dry, silt that had fine, weak, granular structure to a depth of 30 cm below surface. Stratum II consisted of dark reddish brown (5 YR 3/4) dry, hard silt surrounding decomposing basalt. Once sterile sediments were encountered excavation was halted. No cultural materials or midden was encountered. Based on the informal construction technique, unweathered breaks on the cobbles and boulders, lack of cultural material and location within an active ranch, it is suggested that the feature functioned as a clearing mound or other ancillary ranching feature.

Feature G consists of a roughly triangular mound situated 10 m east southeast of Feature F (Figures 17 and 20). The mound measures 2.5 m north/south by 1.55 m east/west with a maximum height of 51 cm. The mound is constructed of broken, angular basalt boulders. No cultural materials or midden scatters were observed and it is suggested that the feature functioned as an historic ranch related clearing mound.

Feature H consists of a small 3.2 m long by 1 m wide crescent shaped mound located approximately 90 m north of Feature A (Figures 21 and 22). The mound is constructed of weathered basalt cobbles and boulders stacked a maximum of 2 courses (33 cm). Feature H differs from the other mounds in that no shattered basalt is incorporated into the feature. No cultural material or midden scatters were observed on or around the mound.

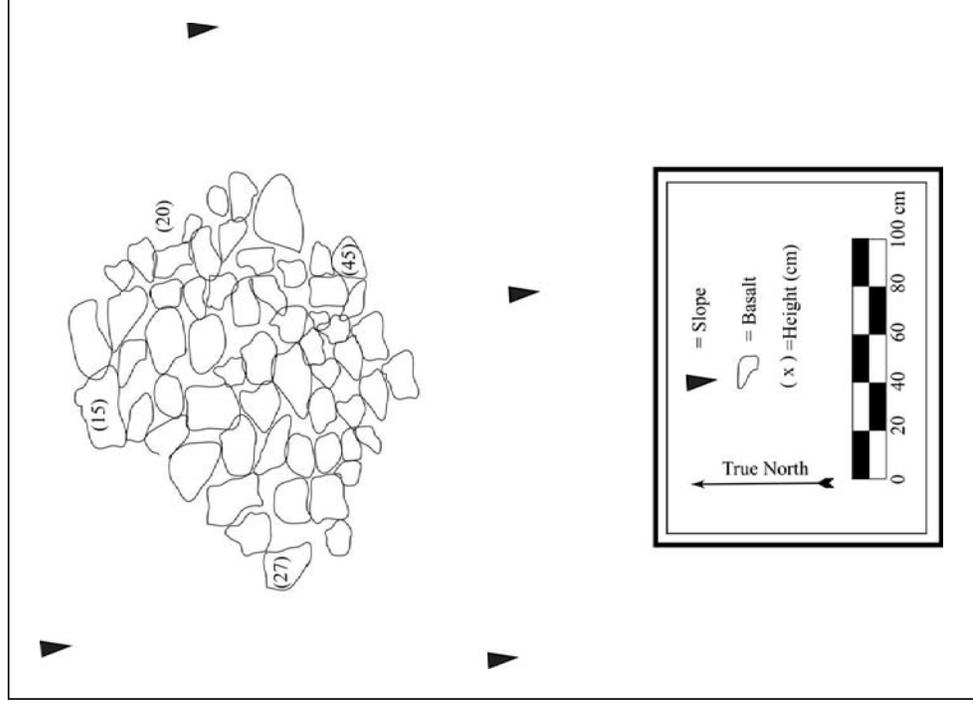


Figure 15: Plan View of Site of SIHP No. -6393 Feature E

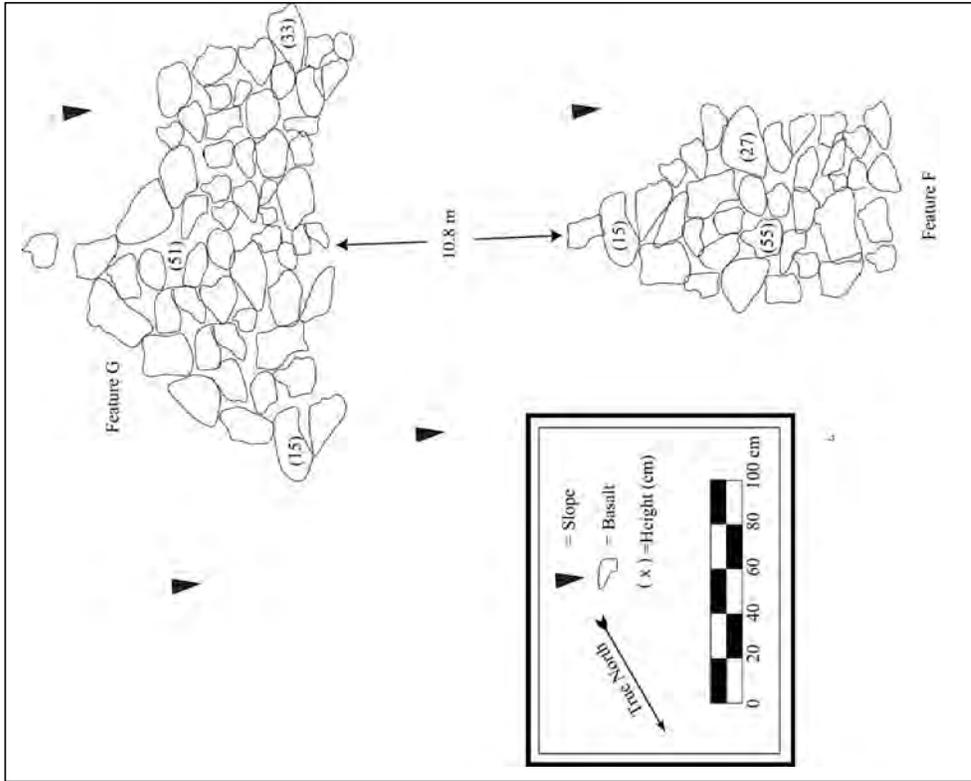


Figure 17: Plan View of SIHP No. -6393 Feature F and G



Figure 16: View Northeast of SIHP No. -6393 Feature E

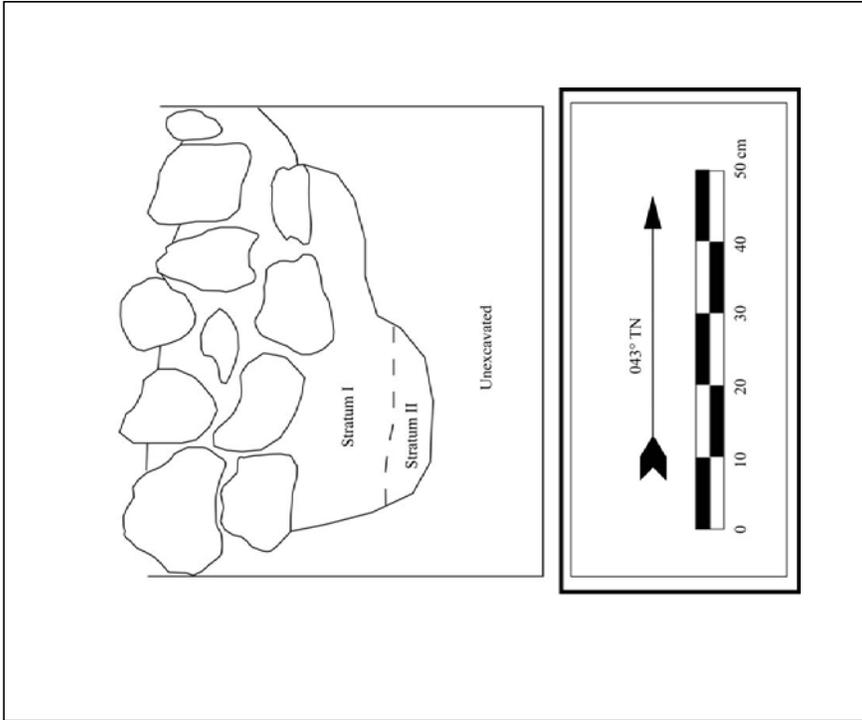


Figure 19: Profile of Stratigraphic Sequence of -6393 Feature F



Figure 18: View West of SIHP No. -6393 Feature F

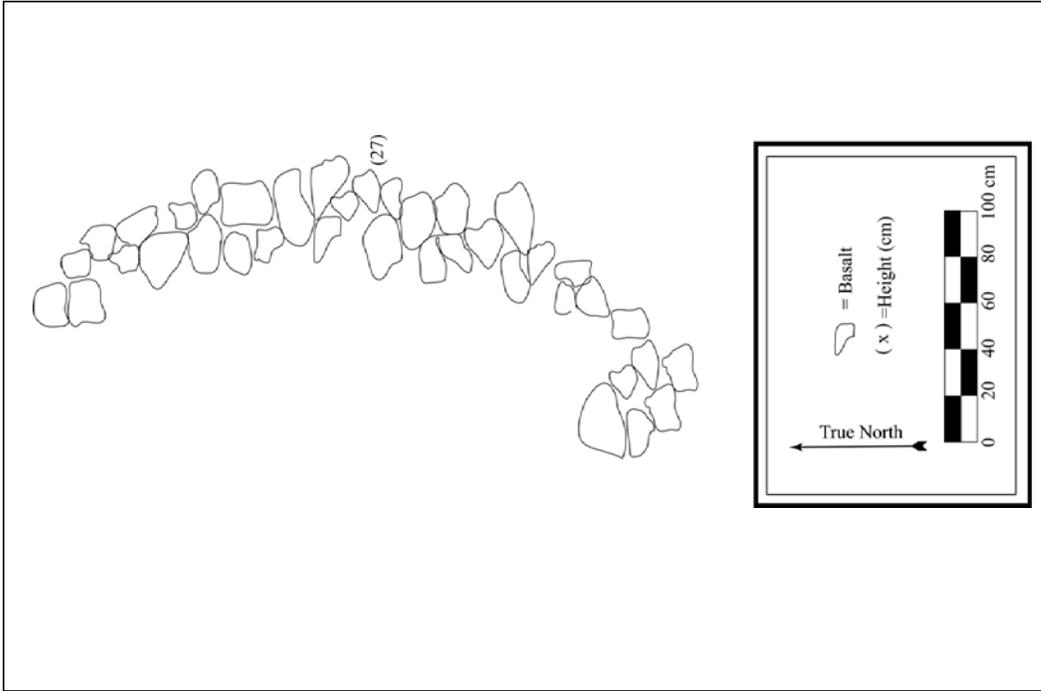


Figure 21: Plan View of SIHP No. -6393 Feature H



Figure 20: View North of SIHP No. -6393 Feature G

One additional modern platform was encountered during the inventory survey. The feature consists of a rectangular shaped basalt platform located in the southwestern portion of the project area, on a flat portion of a gently sloping landscape, approximately 60 m east of Pi`ilani Highway. The feature measures 2.7 m north/south by 2.0 m east/west with a maximum height of 104 cm (Figures 23 and 24). The platform is constructed of a maximum of 7 courses of stacked, angular blue rock basalt cobbles and boulders that show evidence of relatively fresh breaks. The surface of the platform is constructed of shattered blue rock as well and is relatively flat with a slightly concave surface.

Based on conversations with Mr. Scott Meidell (Vice President of Haleakala Ranch) and a veteran ranch worker, it is believed that the platform was constructed for the once proposed K he i Charter School sign that was not completed. Based on its age and function, this feature was not assigned a site number.



Figure 23: View West of Modern Platform



Figure 22: View Northwest of SIHP No. -6393 Feature H

SUMMARY

An archaeological inventory survey was conducted in advance of proposed construction of a new K he'i High School in Ka'ono'ulu, K he'o 1 and 2 and Waiohuli Ahupua'a, Makawao District, Maui, Hawai'i [TMK: (2) 2-2-002:015 (por.) and 054 (por.)]. An archaeological inventory survey was conducted to document and evaluate cultural resources on 77 acres of Haleakala and Ka'ono'ulu Ranch Lands. In all, one site (SIHP No. 50-50-9-6393) was documented within the study parcel consisting of historic era rock piles and one alignment.

Previous archaeological investigations and historic documentation in the vicinity of the project area suggests that the area was marginally utilized in pre-contact times and has been used in the historic era primarily for ranching activities and WWII military training exercises. The site re-identified during this survey is associated with the historic period activities.

SIGNIFICANCE ASSESSMENTS

One site composed of eight features was documented in the project area during Archaeological Inventory Survey. The site (see below) has been evaluated for significance according to the criteria established for the State and National Register of Historic Places. The five criteria are listed below:

- Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion B: Site is associated with the lives of persons significant to our past;
- Criterion C: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction;
- Criterion D: Site has yielded or has the potential to yield information important in prehistory or history;
- Criterion E: Site has cultural significance; probable religious structures or burials present (State of Hawai'i criteria only).

State Site 50-50-10-6393 is (and was previously) designated under Criterion D as a site that has yielded or has the potential to yield information important in prehistory or history. The eight features have been thoroughly documented with photographs, scale plan view maps and

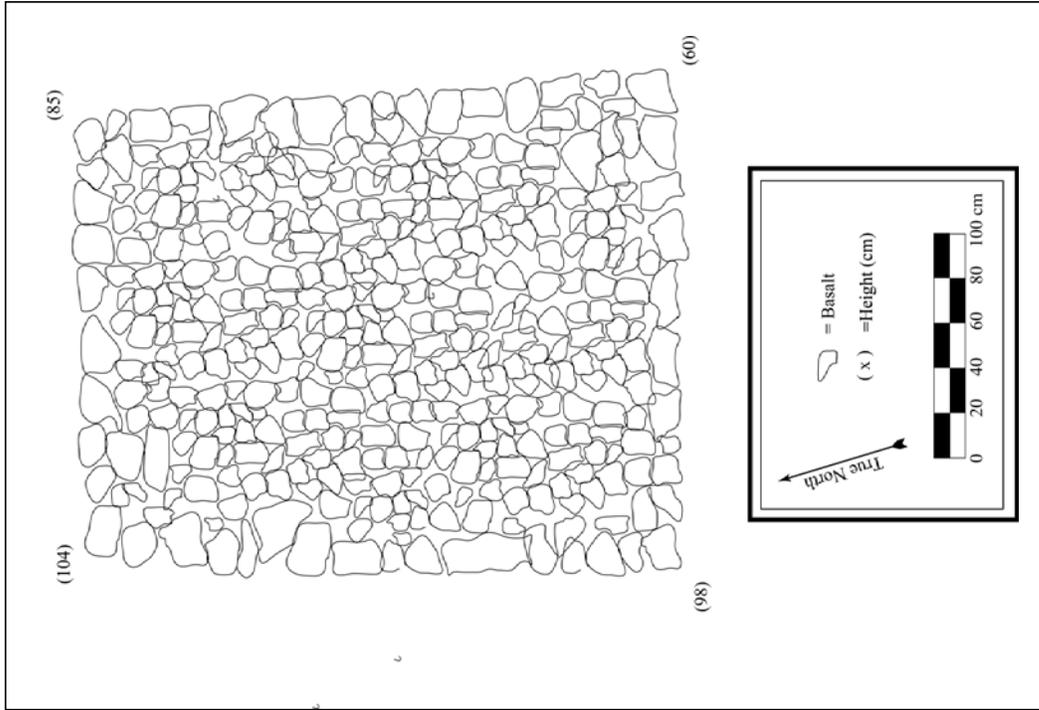


Figure 24: Plan View of Modern Platform

written descriptions and three of the features were manually tested to gather additional information.

RECOMMENDATIONS

STATE SITE 50-50-10-6393

No further work is recommended for SHP No. 50-50-10-6393. This recommendation follows a previously accepted recommendation made by Shelcheck (2008). It is believed that the features have been adequately documented and additional research focused on the site would not contribute to the interpretation of the area, region or Hawaiian prehistory and/or history. It is therefore recommended that no further archaeological work is warranted within the project area.

ARCHAEOLOGICAL MONITORING

Archaeological Monitoring is not recommended during the proposed construction for the new K he'i High School. However, should the inadvertent discovery of significant cultural materials and/or burials occur during construction, all work in the immediate area of the find must cease and the SHPD be notified to discuss mitigation.

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