

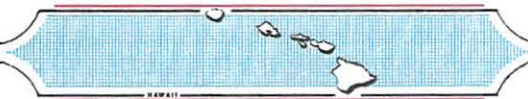
SCS Project Number 681-1

**AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT
ON 48.117 ACRES LOCATED IN,
KEALAHOU AHUPUA`A, KULA, MAKAWAO DISTRICT,
MAUI ISLAND, HAWAII
[TMK: 2-3-001:174]**

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ABSTRACT

Scientific Consultant Services, Inc. (SCS) conducted Archaeological Inventory Survey on 48.117 acres of land in Kealahou Ahupua`a, Makawao District, Maui Island (TMK: 2-3-001:174). A total of 18 archaeological sites consisting of 32 individual features were documented during the Inventory Survey. Identified sites included agricultural and habitation features represented by terraces, alignments, walls, modified outcrops, a rock mound, and an enclosure. Eighteen archaeological sites (50-50-11-5970 to 50-50-11-5987) were assessed as significant under Criterion D of Hawaii's State Historic Preservation criteria. All 18 sites have yielded sufficient information and no additional archaeological work is recommended.

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INTRODUCTION

Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey on 48.117 acres of land in Kealahou Ahupua’a, Makawao District, Maui Island (TMK: 2-3-001:174) (Figure 1). Archaeological Inventory Survey of the project area was conducted to determine the presence/absence of archaeological features/deposits within the project area and to provide recommendations to the State Historic Preservation Division (SHPD) concerning site mitigation during planned development within the project area.

ENVIRONMENTAL SETTING

LOCATION

The project area is parcel 174 of TMK 2-3-001. It consists of 48.117 acres of undeveloped land, owned by Clayton Nishikawa, AIA. The project area is located in the town of Kula, located in leeward east Maui, on the southwestern slopes of Haleakalā (Figure 2). Kula exists between the elevations of 2,792 and 3,017 ft. amsl (above mean sea level), in Kealahou Ahupua’a. It lies between Keāhuaiwi Gulch to the north, and Waiakoa Gulch to the south. The property is bounded by an easement to the south and southeast, which separates it from mostly undeveloped land. On its east and northeast perimeter, it is bounded by Keāhuaiwi Gulch. To the north, is a former quarry site. To the west is Kealahou Subdivision, and Kula Community Center (Randal and Dora Von Tempsky Memorial Park). A portion of the property has been used historically for habitation, and a currently occupied historic house exists on the property. At present, the property is also being utilized as a horse pasture. Extensive machine (bulldozer) alterations are evident in many areas of the project area. A four-wheel drive access road traverses through the project area.

The project area is located on an extensively altered piece of land. Ranching activity has most likely taken place on the project area for a minimum of one hundred years. Kula native Darlene Tavares (whose family previously owned the building that now houses Morihara Store, less than 0.25 miles from the project area), confirmed that the project area was most likely occupied by a Japanese farming family, which was commonplace in Kula in the mid to late 1800s. A historic house still stands on the property, typical of plantation-style homes of the 1930s. Bulldozer grading activity, including construction of a dirt road and the presence of horses, has altered much of the project area’s original integrity.

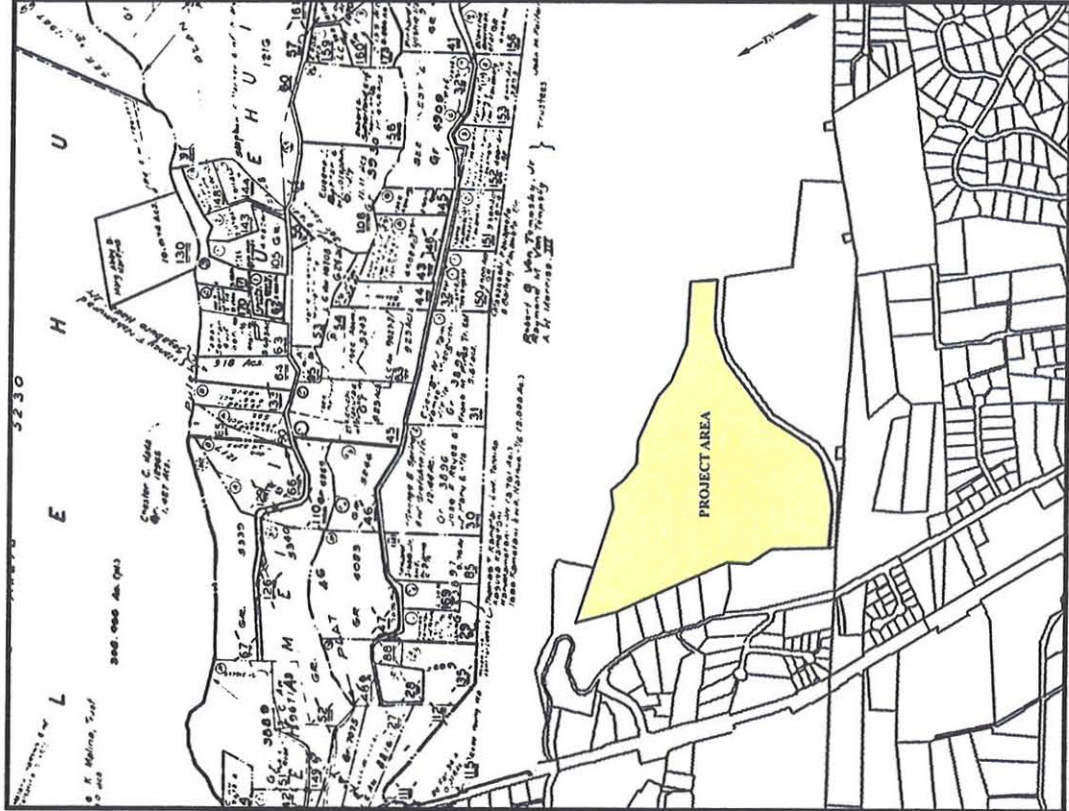


Figure 2: Tax Map Key [TMK] Showing Project Area.

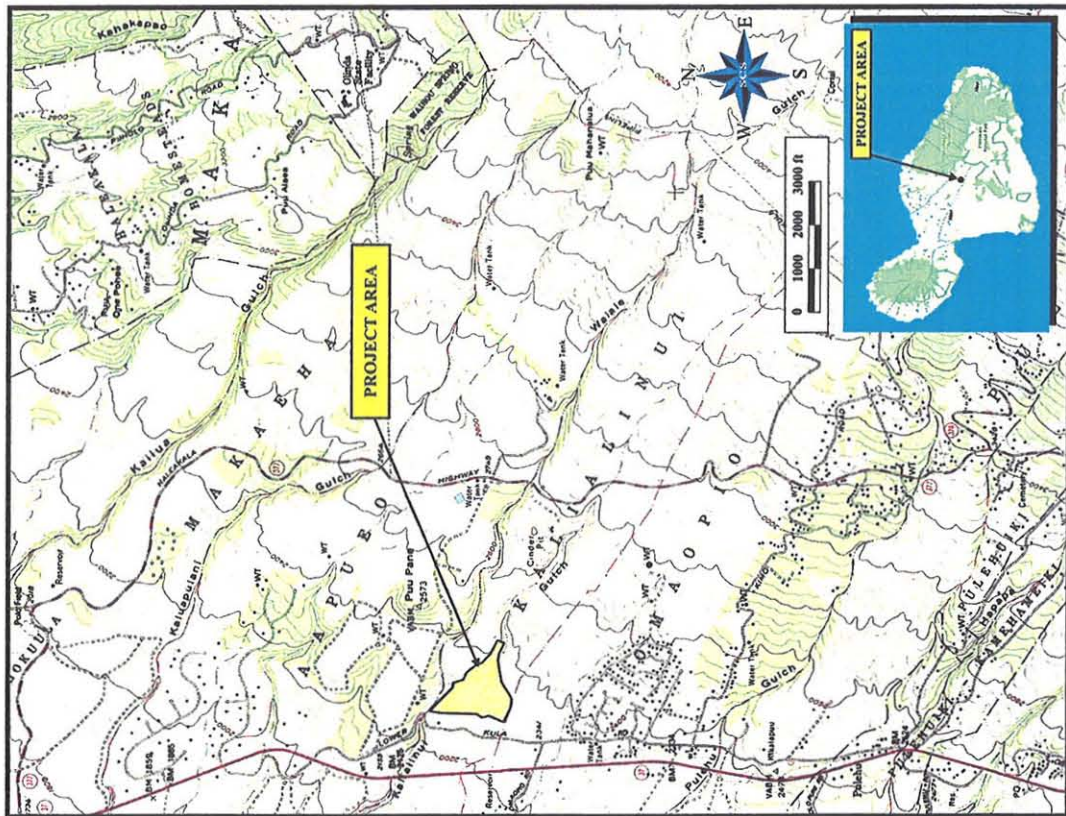


Figure 1: USGS Pu'u O Kali Quad Showing Project Area.

CLIMATE

Kula can be translated as “open country,” “field,” or “plain.” These descriptions are all fitting to Kula, where the land is spread out for many miles, along two parallel highways. Kula exists between the elevations of approximately 2,000 and 3,500 feet amsl. Kula is known for its temperate conditions, with an average annual temperature of 66° F. The region is relatively dry, with an average annual rainfall of 25-40" per year (Juvik and Juvik 1998).

SOILS

Kula lies on the southwestern slopes of Haleakalā. As this volcano reached maturity, cinder cones formed along rifts that extended to the east, southwest, and north of the summit. Volcanic flows from this development are classified as the Kula Volcanic Series. After a long period of erosion, huge canyons were cut and later filled by the volcanic flows of the Hana Volcanic Series (Kyselka and Lanterman 1980:22). Cones of this series can still be seen today, stretching from Hāna up to Haleakalā, and down to La Perouse Bay.

Kula is the physiographic region of Maui classified as “Kula Slightly Dissected Upland” (Juvik and Juvik 1998). The abundance of vegetation here is a reflection of the richness of the soils that exist in this region. Kula lies in the convergence zone of the Kula Volcanic Series and the Hana Volcanic Series. Soils found here developed in material weathered by volcanic ash and overlying fragmented *a`ā* lava.

The soils found in Kula are classified as having Puu Pa-Kula-Pane association. It is well-drained, medium textured, and exists on the medium to high uplands of Maui. These soils are gently sloping to steep, and make up about nine percent of the island. The Puu Pa-Kula-Pane association is utilized for truck crops, orchards, pasture, and wildlife habitat (Foote *et al.*, 1973).

VEGETATION

The volcanic flows from the cinder cones are classified as the Kula Volcanic Series (Kyselka and Lanterman 1980:22). The Hana Volcanic Series can still be seen today, stretching from Hāna up to Haleakalā and down to La Perouse Bay.

Kula is the physiographic region of Maui classified as “Kula Slightly Dissected Upland” (Juvik and Juvik 1998). The abundance of vegetation here is a reflection of the richness of the soils that exist in this region. Kula lies in the convergence zone of the Kula Volcanic Series and the Hana Volcanic Series. Soils found here developed in material weathered by volcanic ash, and overlying fragmented *a`ā* lava.

CULTURAL AND HISTORICAL CONTEXT

TRADITIONAL SETTLEMENT PATTERNS

The district of Kula was known for dry land agriculture, and later, pig husbandry. Dryland 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 *kula* 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. ‘*Uala*, or sweet potato, is a tuber that will not grow in very wet areas. Handy & Handy (1972) noted that the primary staple of Kula was the ‘*uala*: sweet potato:

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.....fishing and raising occasional crops of potatoes along the coast, and cultivating large crops of potatoes inland, especially in the central and northeastern section including Keokea, Waiohuli, Koheo, Kaunoulu, and Waiakoa...Kula was widely famous for its sweet-potato plantations. ‘*Uala* was the staple of life here.

Malo also noted the farming of ‘*uala* in the early Hawaiian agricultural practices of upland areas:

If a field of potatoes was desired, the soil was raised into hills, in which the stems were planted; or the stems might merely be thrust into the ground any how, and the hilling done after the plants were grown; the vines were also thrown back upon the hill. In six months the potatoes were ripe. Such was the cultivation of *kula* land [1951:205].

The upland forest was an important resource to early Hawaiians, and before the deforestation that occurred as a result of clearing that made way for pasture-land, there was a sizable amount of moisture and water available to the area. The large upland forest provided wood for fire, tools, weapons, houses, and canoes. It also provided a source of medicinal plants, a habitat for native birds that were hunted for food and feathers, and wood for temple images.

The upland forest also played a sacred role in pre-Contact times. As noted in “Maoli Nō” (Nature Conservancy, 2005):

The ancient Hawaiians recognized gods everywhere in nature and honored a pantheon of natural deities. The upland forest was *wao akua*, the realm of the gods, and trees were physical manifestations of various gods in this spiritual realm. Entry into the forest was

limited to a few consecrated individuals and involved a strict protocol, including a statement of identity and purpose and appropriate offerings. If the purpose was to collect trees, only a single tree or species could be collected at a time. The upland forest was sacred to Ku, the god of war, governance, and leadership.

Pigs played an important political and ceremonial role in the history of Hawai'i. Ruling chiefs collected pigs as taxes. They were used in extensive ritual ceremonies to solidify social relationships between the commoners and those who ruled them (Kolb *et al.* 1997). In order to raise a substantial amount of pigs, the success of crops, such as 'uala and taro, was important, as it provided the primary source of feed. The dry upland of Kula was an ideal place for raising pigs, as well as the crops of 'uala and dry land taro to feed them.

Agricultural products from Kula are among the earliest documented commodities to have been sold or traded with foreigners (Donham, 1992). La Pérouse, an explorer who visited Maui in 1786, recorded in his ship's log that three hundred pigs had been traded to restore his food supplies (La Pérouse 1969).

The many identified *heiau*, building platforms, rock walls, terraces, and petroglyphs located throughout Kula suggests a landscape of extensive agriculture across the open plains and pastures, with a dispersed population, not unlike Kula today (Tulchin *et al.*, 2003).

WAHI PANI (SIGNIFICANT PLACES)

Kula was important in legend and as a sacred place. In legend, A'apueo the owl, who is known to have instigated a well-known battle between the owls and the chiefs of Wailuku, was from Kula. As Uaua (1871) noted in Handy and Handy, "A certain ahupua'a there bears the name of Aapueo to this day." It has been determined that the sacred volcano Haleakalā served as a final resting place for the dead of Kula and Honua'ula (1972).

Numerous accounts in oral history and legend concerning Kula have been documented by Sterling (1998) and Wong Smith (Brown and Hiaun 1989). Wong Smith has a well-documented summary of references to Kula, a part of an archaeological study of Waiohuli and Keōkea. However, there has been little mention of Kealahou Ahupua'a in legend or history. Keāhuaiwi Gulch, which borders Kealahou, contains a few deposits of 'alaea and pictographs on its walls (Sterling, 1962). Sterling has also noted that further down the Gulch, a collection of petroglyphs was found high up on the walls. Fredericksen & Fredericksen (1992) noted that petroglyphs were recorded in Waiakoa Gulch, which is adjacent to the Kealahou Ahupua'a. Walker (1931) describes a *heiau* and a platform in the Waiakoa Ahupua'a.

PAST POLITICAL BOUNDARIES AND LAND TENURE

In ancient Hawaii, it was the role of the people to *malama 'aina*, or care for the land. It was a reciprocal relationship. If the people took care of the land, as a primary responsibility, the land would in turn care for the people, by providing food, clothing, and shelter. The harmony and balance of this relationship was called *pono*.

The *ali'i*, or chiefs, belonged to the ruling class and were considered the protectors of the *maka'ainana* (common people). They were believed to be the human representations of the *akua*, or gods. Their duty was to maintain a balance between appeasing the gods by caring for the land, and in return, the common people provided for the *ali'i* (Kame'eiehiwa, 1992).

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'ainana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku*, *ahupua'a*, *'ili* or *'ili 'aina* were used to delineate different land sections. A district (*moku*) contained smaller land divisions (*ahupua'a*) that 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 1875:111). The *'ili 'aina* or *'ili* were smaller land divisions next in importance to the *ahupua'a* and were administered by the chief who controlled the *ahupua'a* in which it was located (Lyons 1875:33; Lucas 1995:40). The *lele* or *'ili lele* were two *'ili* parcels within an *ahupua'a* that were separated from each other. The *mo'o'aina* were narrow strips of land within an *'ili*. The land holding of a tenant, or *hoa 'aina*, residing in an *ahupua'a* was called a *kuleana* (Lucas 1995:61).

HISTORIC PERIOD

By the mid-1800s, large-scale sugar production had begun with the partnership of two men, S.T. Alexander and H.P. Baldwin, and their sugar plantation, Hawaii Commercial & Sugar (HC&S). With the growth of the sugar industry and the establishment of numerous plantations, workers from all over the world were recruited, including Portugal, Germany, Russian, Puerto Rico, Philippines, China, and Japan. This diverse group of people joined together, under

government contract, to labor in the sugarcane fields. When their contracts were expired, many immigrants settled in the upcountry area. The predominant groups which settled in Kula were the Portuguese, Chinese, and Japanese.

In the 1840s, many Hawaiian and Chinese were growing Irish potatoes in the Kula area. Some Chinese working as contract laborers in Kohala on the Big Island heard about the demand for labor on Maui. Many left the Big Island and settled in the Kēōkea area on Maui. Potatoes were initially cultivated to provision whaling ships, and then in 1849, to supply mining areas in California during the gold rush.

Extensive clearing of the upland forest, for sugarcane fields and potato farming, contributed to the rise of aridity in the Kula. The cool, relatively dry climate, and rich soil was perfect for growing crops, as was evident from the traditional Hawaiian cultivation of *'uala* in the area. Potatoes became such a dominant crop on Maui, that the area became known as "the potato district." According to Kuykendall (1938), the fields covered an area as large as 12 miles, and by 1847, the annual production of potatoes was 20,000 barrels. With the expansion of ranching in the upcountry area, considerable amounts of land were cleared for pasture and ranch land, contributing to the deforestation of the upland forest, but creating the rich *paniolo* (cowboy) tradition for which the upcountry area is so famous.

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on Western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame'elehiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I:145). The Great *Māhele* of 1848 divided Hawaiian lands between the king, the chiefs, and the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka'āinana*, if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *'okipū* (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 LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

In 1848 the Hawaiian population was around 88,000, of which 29,220 were males over the age of 18. There were only 14,195 applications for LCA awards submitted by *maka'āinana*. Of these claims, only 8,421 were awarded to less than 30% of the eligible males. The land received by the *maka'āinana* was less than 1% of all the total land in Hawai'i (Kame'elehiwa 1992).

The entire *ahupua'a* of Kealahou was awarded to Kohokālole (LCA8452*M), mother of future king, Kalākaua and queen, Lili'uokalani. The majority of LCAs awarded in Kula during the *Māhele*, were located between the 2,000 to 4,000 foot elevation in each *ahupua'a* (Tulchin *et al.* 2003). According to Chun *et al.* (2005), citing Haun and Henry (2001):

The distribution of LCAs in Kula describes a narrow horizontal band within specific elevation ranges and vegetation zones, in contrast to a typical valley system layout in which awardees often claimed agricultural lands along alluvial valley terraces and house lots and *kula* land along the coast.

The Waihona Aina database (2006) lists a total of 21 land claims made for Kealahou Ahupua'a out of which 14 were awarded. Several were located within the project area and included, LCA9010 to Helehua, LCA 10144 to Makahiki, and LCA 9673 to Lonoaea. Claims were noted for *kula*, *koalkou* trees, and stream use.

The tradition of family farms in Kula began with the availability of homesteads at the end of the 19th century. Many sugar plantations had been leasing government land, and as the leases expired, pressure for homestead land grew. The government land was leased or sold in one to ten acre lots, in an effort to encourage farming (Brown and Haun 1989). Many lots were bought by former plantation workers, including the Chinese and Japanese. To this day, the Japanese have a rich history of farming in the Kula area. Goldman (2003) describes one account of a Japanese farming family, in a conversation with John Hashimoto, of Kula:

"My grandfather started the farm," said John Hashimoto, resting reluctantly on the back steps of the old Kula farmhouse. "His name was Shinichi Hashimoto, an *issei* who came here from Japan. My grandfather bought ten acres; I think that was before 1910. Those days, nobody bought land. They'd save money and go back to Japan. But he came and stayed. He bought this land when this road was impassible. Everybody said, 'fool, what will you do with the land?'"

Goldman goes on to say:

The answer would take generations—long enough for Shinichi’s son Isami to become a leader in Kula’s farming community, Isami’s son John to follow in his footsteps, and John’s son Howard to become the fourth generation to run what was by then a twenty-five acre farm.

PREVIOUS ARCHAEOLOGY

The earliest archaeological studies in Hawai‘i were conducted in the early 20th century by John Stokes, Thomas Thrum and, for Maui, Winslow Walker. At that time, there was a heavy emphasis in recording religious sites and features. Winslow Walker conducted an island-wide survey for the Bishop Museum in 1930. According to Kolb *et al.* (1997), Walker documented 23 *heiau* in the Kula area, all situated in a band existing between 1,800-3,000 feet in elevation. Other site types in the district were of significantly lower in number: 3 fishponds, 11 abandoned villages, and 5 ancient villages (replaced with modern communities). Winslow Walker, in his 1930 island-wide survey, noted the presence of one *heiau* in the land of Waiakoa, which is adjacent to the land of Kealahou. Another platform *heiau* in Waiakoa measuring 36 by 45 feet, was identified by Poepoe (in Sterling 1998).

Two large-scale archaeological studies of Kēōkea and Waiohuli to the west and south of the project area have produced an abundance of information on the archaeological patterns and cultural history of upcountry Maui. In 1986, the Bishop Museum was contracted to conduct a reconnaissance survey of both Kēōkea and Waiohuli. An inventory survey was conducted by Brown *et al.* (1989) that identified 159 archaeological sites consisting of 274 features. One hundred and eighty-seven of the features were associated with permanent habitation. According to Brown *et al.* (1989), radiocarbon dates from this study revealed dates ranging from A.D. 1680 to 1890.

In 1992, the State Historic Preservation Division (SHPD) conducted research in both Kēōkea and Waiohuli. During this survey, 217 sites were identified, consisting of 1,093 features. More than half of the features were associated with agriculture. Two hundred and twelve features were associated with permanent habitation, and 121 were associated with temporary habitation. Six *heiau* were also identified. According to Kolb *et al.* (1997), radiocarbon dates from this study revealed dates ranging from A.D. 1399 to 1955.

Over 200 radiocarbon dates presented in Kolb’s study (*ibid.* 1997) provides an extensive chronology and a detailed account of settlement and subsistence for Kula. Kolb’s analysis of upland residential sites suggested that the area was inhabited primarily by commoners and low-

ranking chiefs. The primary subsistence was based on sweet potato, dry land taro, and banana. Between the years A.D. 1660 and 1700, settlements in the uplands began to grow along with growth of pig husbandry. It is thought that these settlements supported the political structure of the *ali‘i* (Haun and Henry 2001).

Department of Hawaiian Homelands (DHHL) landholdings in the *ahupua‘a* of Kēōkea, are located approximately 5.5 miles to the southwest of Kealahou. Landholdings in Waiohuli, are located approximately 3.4 miles from Kealahou. The extensive archaeological testing that has been conducted in these areas has greatly contributed to the overall understanding of the archaeological patterns of upcountry Maui, as well as the cultural traditions of the past in both ancient and historic times.

In 2001, Haun & Associates conducted an inventory survey in the land of Kamehameui, which is adjacent to Kealahou. In this survey, three historic sites were identified, including an agricultural clearing mound and two cattle walls.

Within the Kealahou Ahupua‘a and the project area, archaeological field studies are very few and are limited in scope. The majority of archaeological studies in the region have focused on neighboring *ahupua‘a*. Ethnographic information for Kealahou *ahupua‘a* is also extremely limited.

Petroglyphs and pictographs were identified in Keāhuaiwi Gulch by Sterling (1962). She stated:

.....we went first to Keahuaiwi Gulch in Kealahou about 1/4 of a mile up the gulch from the old quarry. Here there is a natural crossing and on the Ulupalakua side is a bluff shelter. There were traces of alaea rubbings on the walls but it could not be determined whether they were actual pictographs...Further up the gulch on the Makawao side is a deposit of alaea and a series of pictographs fairly high up on the walls. In the streambed we found porous cooking stone and opihi shell....We then went below the Lower Kula Road to about .6 of mile down the same gulch from the old quarry. Here are a collection of petroglyphs fairly high up on the Makawao side of the gulch.

In 2003, Scientific Consultant Services conducted an inventory survey in Kealahou. This survey was of a 0.7 acre parcel of land, and two sites was identified, including two features, a historic cattle wall/boundary wall, and a pre-historic agricultural terrace.

ANTICIPATED SURVEY FINDINGS

Based on archival research of the area and adjacent *ahupua'a*, and the relatively large-scale archaeological studies of the nearby areas of Kōōkea and Waiohuli, it was thought that archaeological features associated with agricultural practices and habitation could be present within the confines of the project area and might include, stone and earth embankments, terraces, mounds, modified outcrops, petroglyphs, garden enclosures, animal enclosures, boundary walls, platforms, surface artifacts, and midden scatters. There is also the possibility of the presence of human burials.

METHODOLOGY

The Inventory Survey was conducted between April 17 and May 5, 2006 by Donna Shefcheck, Jennifer Frey, Ian Bassford, James Powell, Angela Susak, and Randy Ogg, Field Director Guerin Tome, under Principle Investigator, Michael Dega, Ph.D. The inventory survey incorporated 48.117 acres in Kealahou Ahupua'a. Fieldwork consisted of a systematic pedestrian survey of the project area with the crew spaced a variable 10 m, depending on ground visibility. Consultation was undertaken with the Department of Land and Natural Resources (DLNR) SHPD Maui archaeologist Dr. Melissa Kirkendall. All suggestions were implemented accordingly.

ARCHIVAL METHODS

In addition to referencing available SCS resources, archival research was conducted at the SHPD library facility (Wailuku and Kapolei, HI) and on the SHPD website. Archival work consisted of general research on the history and archaeology of the project area, as well as specific searches of previous archaeological studies in and around the subject parcel. Historic land use data were obtained from various sources including the Waihona 'Aina Database 2006 website.

FIELD METHODS

All of the identified archaeological sites were marked with flagging tape and notes describing their location, construction characteristics, and excavation potential were recorded. During the Inventory Survey all identified features were mapped to scale using a tape and compass and were photographed. Sites were recorded in sufficient detail to reflect their overall integrity, size, and location in the project area. All sites were located with a hand-held GPS unit. Sites deemed appropriate were subjected to limited sub-surface excavations in the form of test units (TU), shovel probes (SP), and stratigraphic trenches (ST). Test Units were excavated using

a trowel, by natural stratigraphic layers divided in 10 cm levels as necessary. Shovel Probes and Stratigraphic Trenches were excavated by natural layers, rather than arbitrary levels. Where noted, excavation fill was screened through 6 mm and 3 mm mesh nested in series. Profiles and standard planview maps were generated for each excavated unit. Soil layer color was recorded using Munsell color charts and soil composition was recorded on standard SCS stratigraphy forms.

LABORATORY METHODS

Artifacts were sorted, analyzed, and catalogued at the SCS laboratory in Honolulu and are presently curated at the SCS laboratory in Honolulu along with all field notes, illustrations, and photographs. Portable artifacts were transported to the SCS laboratory in Honolulu. These materials were catalogued, described and quantified, and analyzed and interpreted in the laboratory. Appendix A contains the results of the artifact analysis. Laboratory work also included digital drafting of site locations and plan views for reporting purposes and the digitizing of all photographs and maps for archival purposes.

ARCHAEOLOGICAL INVENTORY SURVEY RESULTS

A pedestrian survey of 48.117 acres revealed the presence of 18 archaeological sites including 33 features (Table 1). Figure 3 shows the location of the 18 archaeological sites. Two SP and six TU were excavated in Sites 50-50-11-5979, 5980, 5982, and 5983.

Table 1: Sites Identified During Inventory Survey

Site #	# of Fe.'s	Type	Function	Age
50-50-11-				
5970	1	Wall	Ranching	Historic
5971	1	Wall	Ranching	Historic
5972	1	Alignment/wall	Agriculture	Pre-Historic
5973	3	Ag Complex	Agricultural	Early Historic
5974	1	Modified Outcrop	Agriculture	Undetermined
5975	1	Terrace	Agricultural	Pre-Historic
5976	1	Modified Outcrop	Undetermined	Undetermined
5977	1	Platform	Habitation	Pre-Historic
5978	4	Terraces	Agricultural	Pre-Historic
5979	2	Terraces	Agricultural	Pre-Historic
		Modified Outcrop/Terrace/en-		
5980	8	closure	Agriculture/Habitation	Pre-Historic
5981	1	Wall	Ranching	Historic
5982	1	Terraces	Agriculture	Pre-Historic
5983	1	Mound	Activity Area	Pre-Historic
5984	1	House	Habitation	Historic
5985	2	Enclosure/Wall	Activity Area/Ranching	Historic
5986	1	Modified Outcrop, Rock Mound	Undetermined	Undetermined
5987	1	Wall	Ranching	Historic

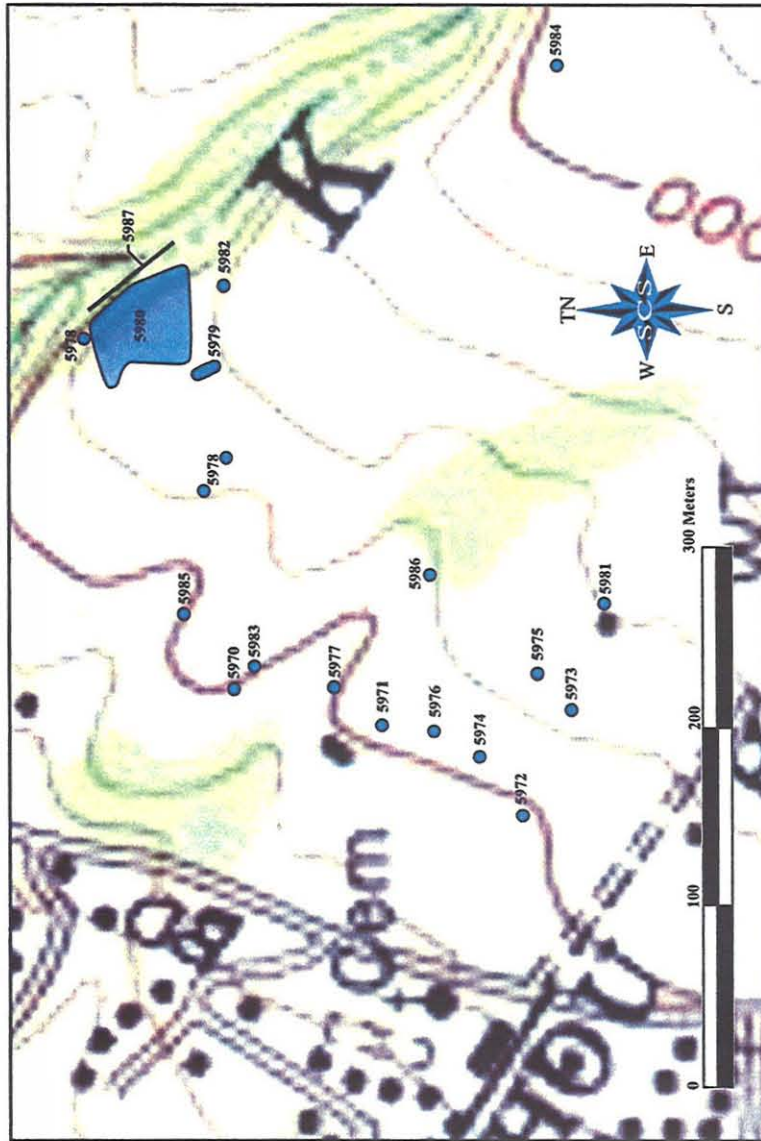


Figure 3: Map of Archaeological Sites Within the Project Area.

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SITE 50-50-11-5970 was located in the bottom of a drainage gully.

Feature 1 was a low-lying core-filled rock wall extending *mauka/makai*, incorporating *in situ* boulders and standing three courses high. It measured approximately 22.00 by 2.20 by 0.15/0.90 m high (Figure 4). The feature was in poor condition and had been severely altered by at least one bulldozed road that bisected the feature, as well as damage from cattle. The function of Feature 1 was interpreted as a ranching wall.

SITE 50-50-11-5971 was located south of Site 50-50-11-5970 and was oriented *mauka/makai*.

Feature 1 was a double-faced, core-filled wall that had been reduced to one course high. It was constructed with large boulders and a sub-angular cobble fill. The wall measured 30 m by 1.50 m by 0.30/0.67 m high (Figure 5). A horseshoe was identified on the surface near the feature. Although the wall had been impacted by cattle and bulldozer activities, it was in relatively good condition. Feature 1 is interpreted as the remains of a historic cattle/boundary wall.

SITE 50-50-11-5972 was located adjacent to a shallow swale and intersects the western boundary of the project area.

Feature 1 was one to two course high, stacked alignment/wall lying perpendicular to the slope contour. It measured 7.00 by 0.25/0.55 by 0.40/0.80 m high (Figure 6). Based on its location and style, Feature 1 is interpreted as the remnants of a partially stacked agricultural feature of prehistoric origin.

SITE 50-5-11-5973 consisted of three features and was located on top of moderately steep hill in the southwest portion of the project area. Visibility was hampered by thick vegetation and there had been recent bulldozer activity to the north and west. To the southeast was a barbed-wire fence, a driveway and an occupied house (Figure 7).

Feature 1 was a roughly stacked rock-faced terrace constructed with medium to large boulders and standing from one to three courses high. It measured 23.70 by 0.70 by 0.83m high. The surface of terrace was level. The terrace was interpreted to be an early historic agricultural feature.

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Feature 2 was a rock-faced, soil-surfaced terrace. The facing construction was informal and rough suggesting it was a later addition containing the soil surface. It measured 16.50 by 6.30 by 0.70 m high. The terrace was interpreted to be an early historic agricultural feature.

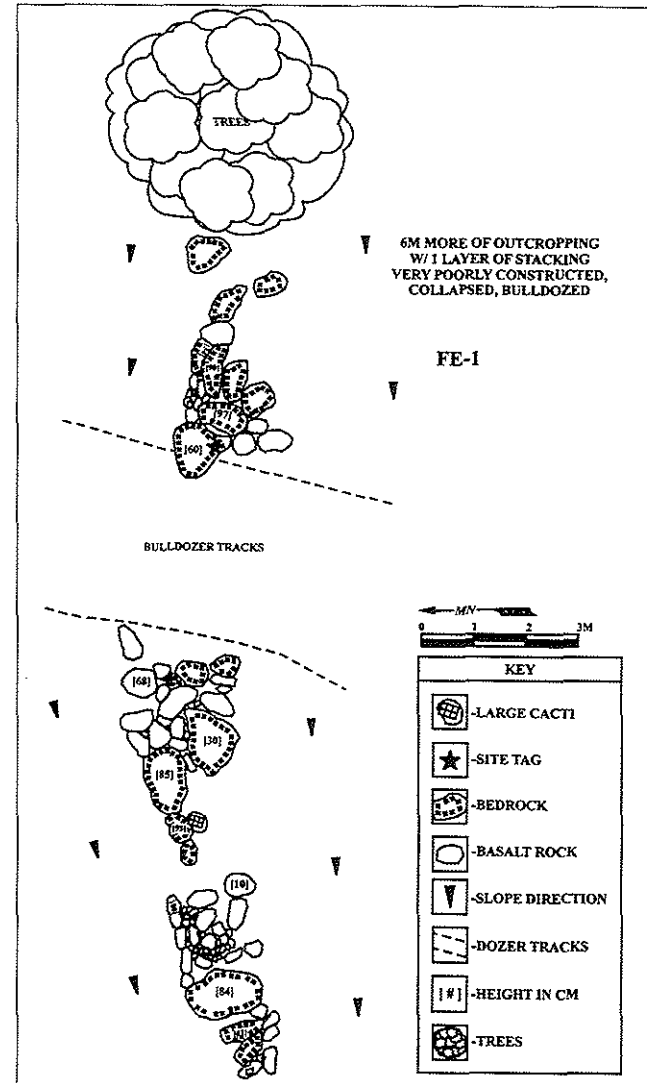


Figure 4: Site 5970, Feature 1 Plan View.

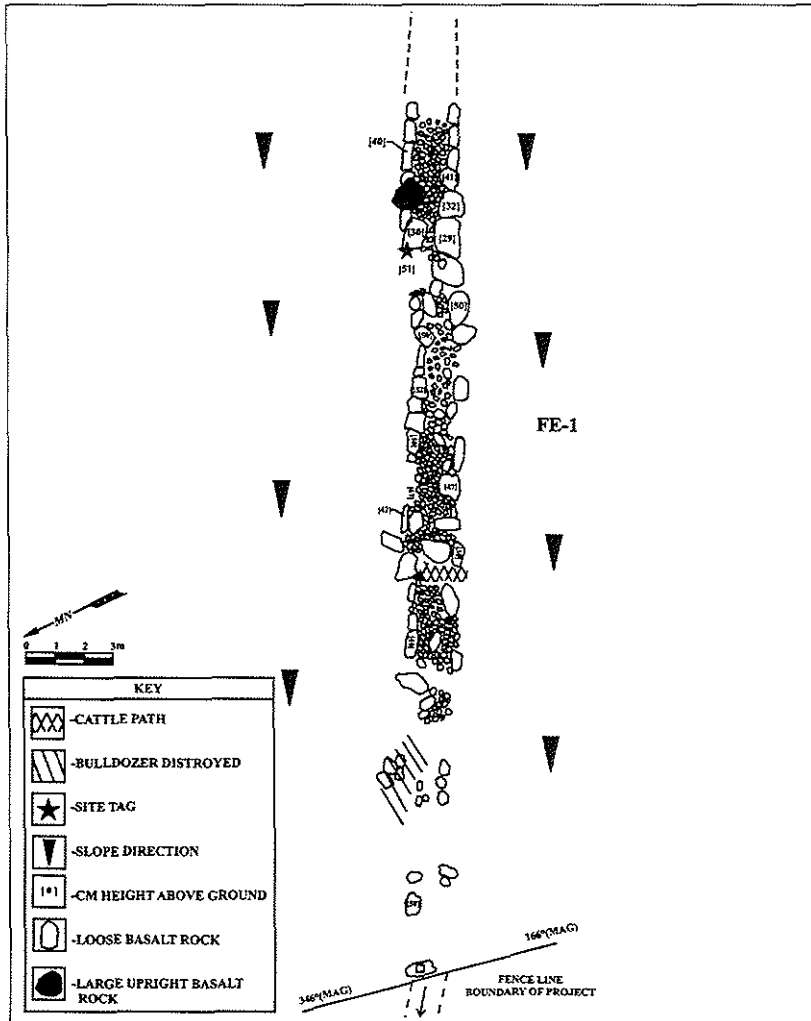


Figure 5: Site S971, Feature 1 Plan View.

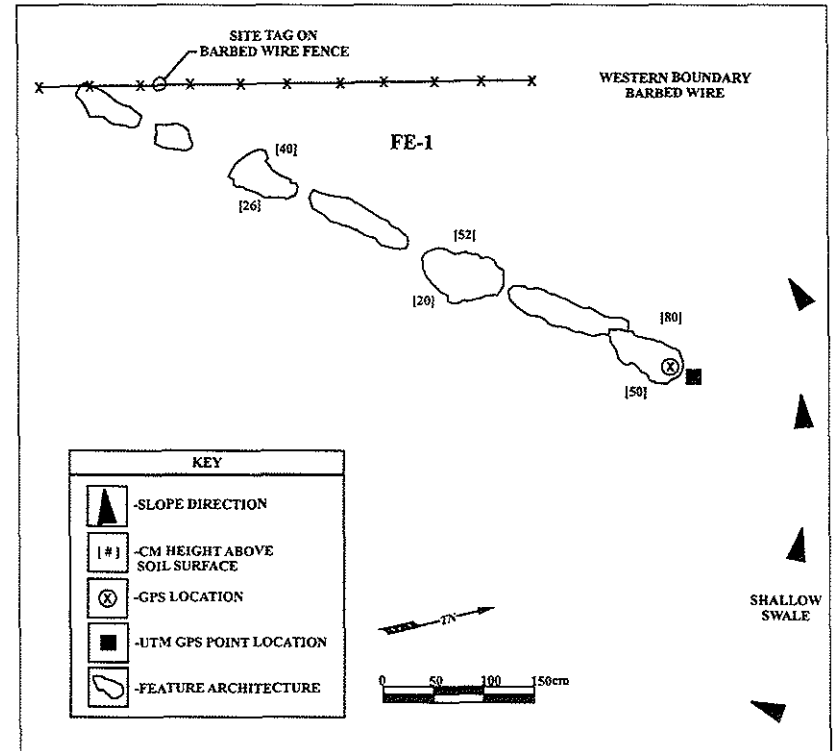


Figure 6: Site S972, Feature 1 Plan View.

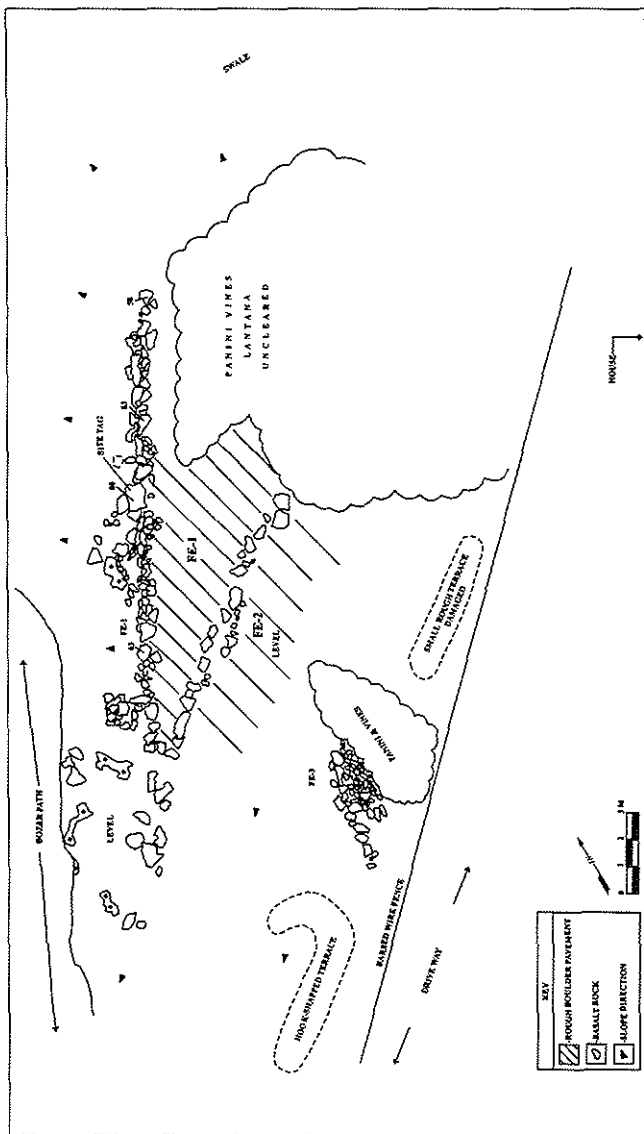


Figure 7: Site 5973, Features 1-3 Plan View.

Feature 3 was a roughly faced terrace constructed with piled pebbles, medium sized cobbles, large boulders, and incorporated some sections of bedrock. It measured 5.00 by 1.70 by 0.43 m high. It was interpreted as an early historic agricultural feature. A very eroded, rudimentary hook-shaped terrace was observed to the immediate southwest of Feature 3.

SITE 50-50-11-5974 was located on a hillside *mauka* of a dirt road that extended through the project area south of the southern gully and near the northwest boundary of the project area.

Feature 1 was a modified outcrop constructed with sub-angular cobbles arranged around *in situ* boulders. It measured 3.00 by 2.00 by 0.70 m high (Figure 8). A china teacup shard, a piece of wire and the flat portion of a tin can were lying on the surface of Feature 1 and are not considered associated with its function. The feature was interpreted as an agricultural feature from an undetermined time period.

SITE 50-50-11-5975 was located slightly northeast of Site 50-50-11-5973.

Feature 1 was a rock-faced soil-surfaced terrace constructed with medium cobbles and large boulders and standing one to two courses high (Figure 9). It measured 5.20 by 0.80 by 0.06/0.96 m high. The terrace was interpreted as a pre-Contact agricultural terrace.

SITE 50-50-11-5976 was located on the side of a gulch with many basalt outcrops.

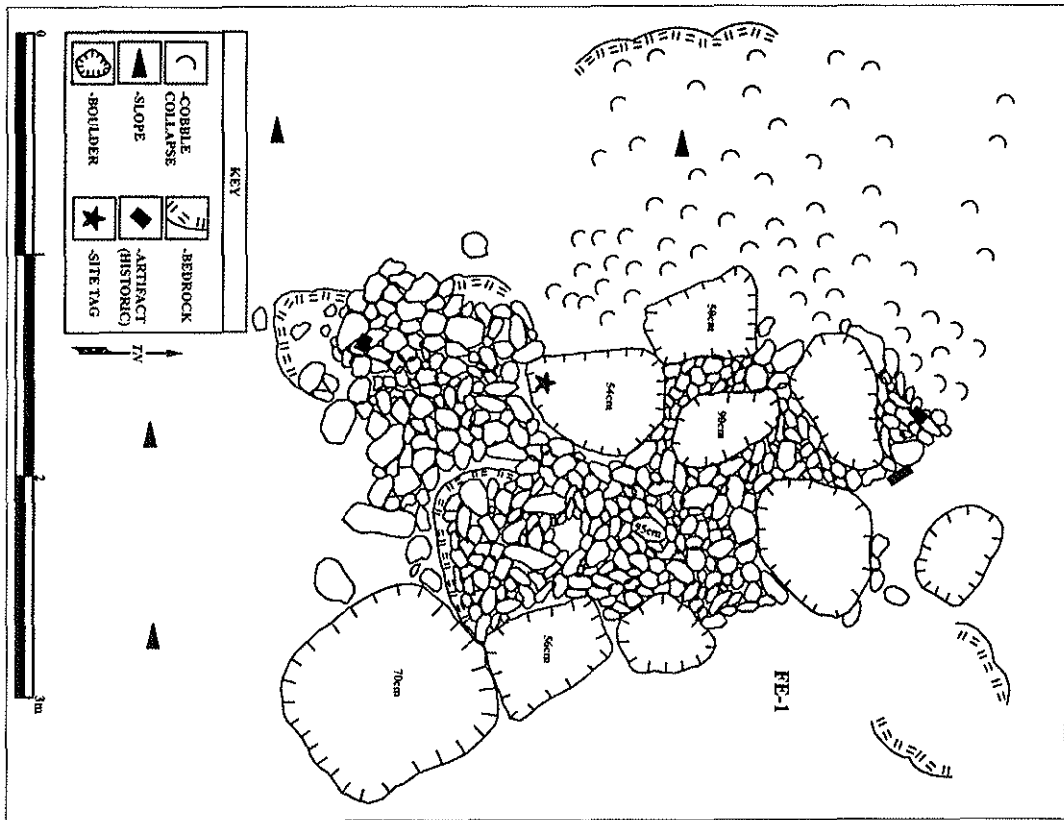
Feature 1 was a modified outcrop consisting of large *in situ* boulders and bedrock with cobble fill in between. It measured 5.00 by 2.60 by 0.75 m high (Figure 10). The function of this feature is undetermined.

SITE 50-50-11-5977 was located on a slope near a shallow gully. A glass bottle was found on the surface.

Feature 1 was a platform constructed with small cobbles and boulders (Figure 11). The basalt rocks are stacked three courses high in the northwest corner. It measured 4.50 by 4.20 by 0.70 m high in the interior and 0.30 m on the exterior. This feature was interpreted as a habitation platform.

SITE 50-50-11-5978 was located roughly at the center of the project area. It consisted of four terraces spanning the width of a gully/wash (Figure 12).

Figure 8: Site S974, Feature 1 Plan View.



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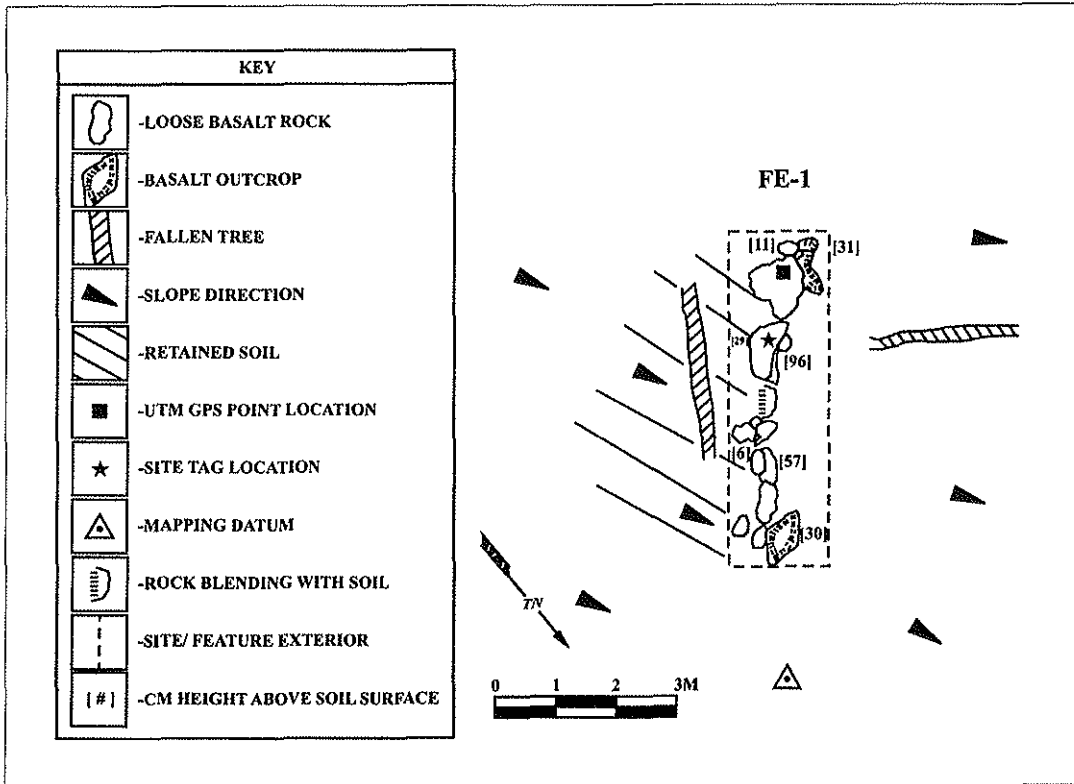


Figure 9: Site S975, Feature 1 Plan View.

Figure 10: Site S976, Feature 1 Plan View.

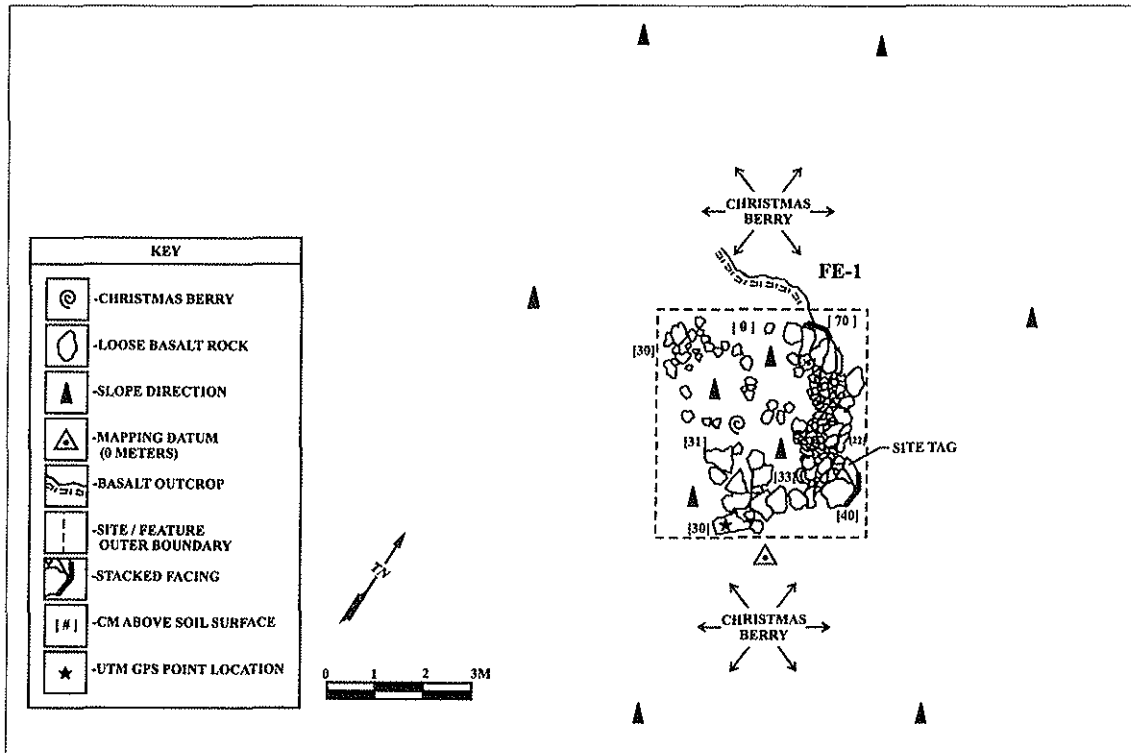
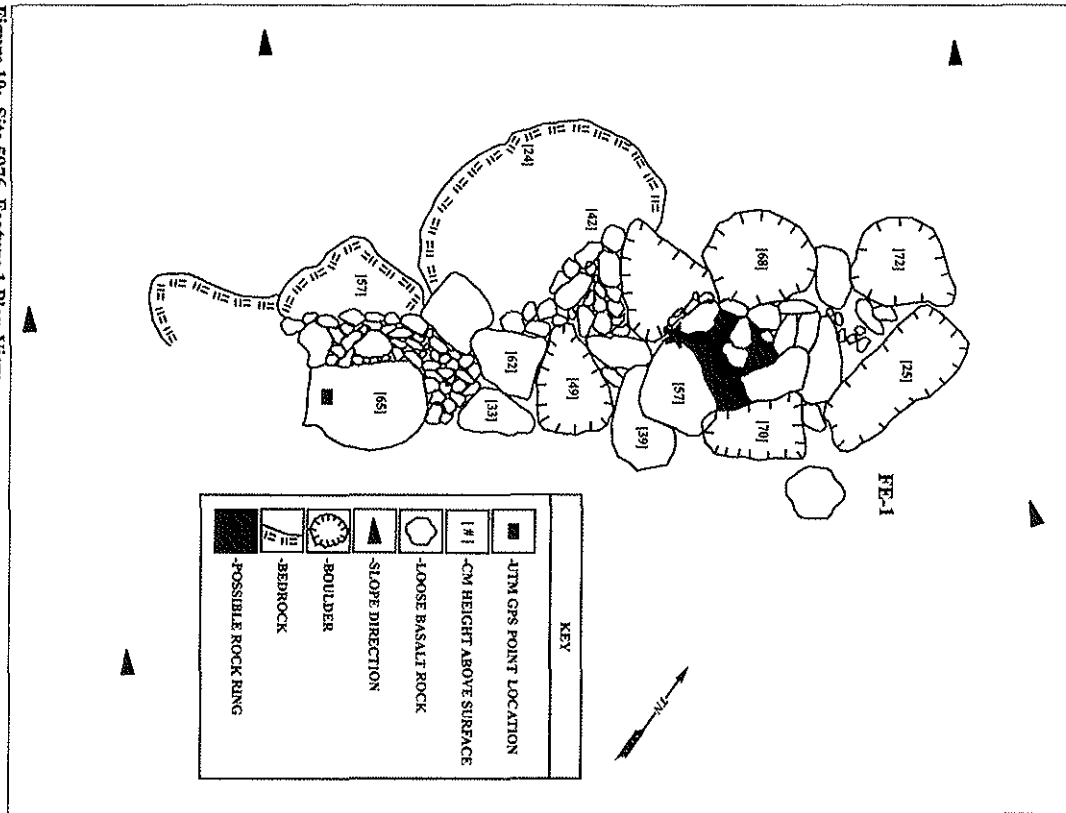


Figure 11: Site 5977, Feature 1 Plan View.

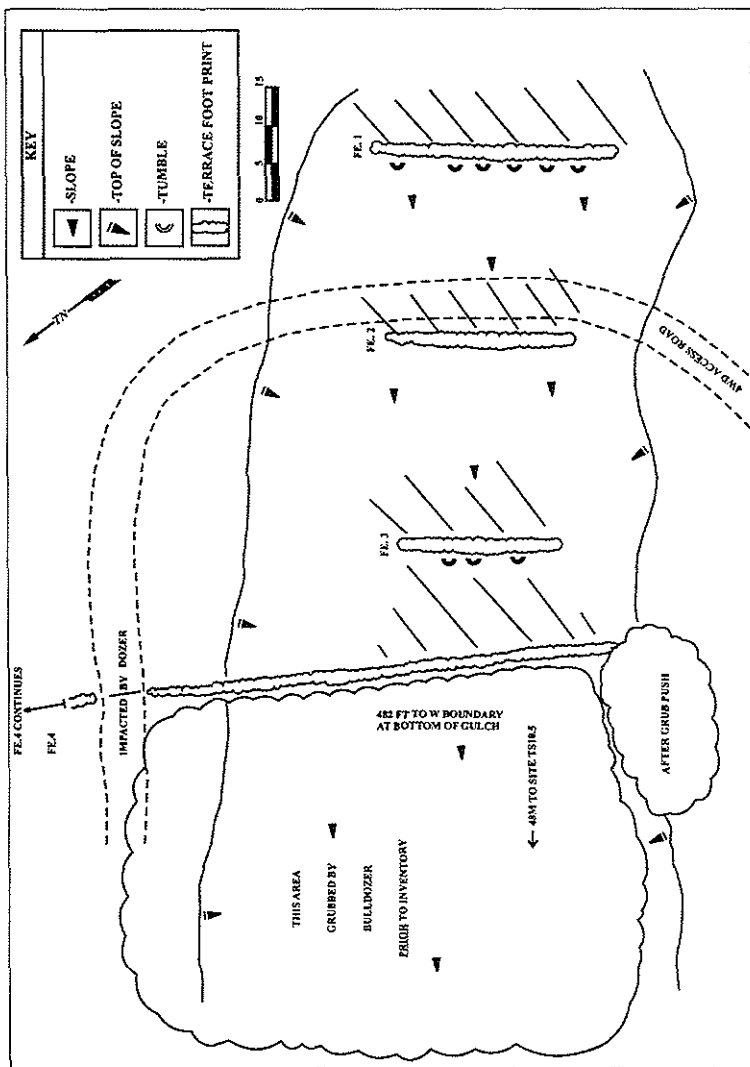


Figure 12: Site 5978, Feature 1-4 Plan View.

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Feature 1 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders situated at the head of the gully/wash. It measured 31.20 by 2.32 by 0.86 m high. The terrace facing was approximately 1.50 to 2.00 m thick.

Feature 2 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders and was standing three to seven courses high. It measured 23.20 by 2.10 by 0.72 m high. The terrace facing was approximately 1.50 m thick.

Feature 3 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders. It measured 21.60 by 2.10 by 0.63 m high.

Feature 4 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders and was standing three to seven courses high. A glass bottle was found on the surface. The terrace measured 62.00 by 0.32 m high on the interior and 2.52 m high on the exterior. The terrace facing was 1/1.5 m thick. This terrace extended out of the gully/wash and onto the flat surface to the north. All of these features were interpreted as pre-Contact agricultural terraces.

SITE 50-50-11-5979 consisted of two features located to the northeast of Site 50-50-11-5978 on a slight slope.

Feature 1 was a partially soil-surfaced and partially paved, rock-faced terrace (Figure 13). Cobble fill was situated in the southwest corner of the feature and the facing was three to six courses high. It measured 8.50 by 5.50 by 0.94/1.52 m high and the thickness of the facing was approximately 0.60 m.

SP-1 (0.50 by 0.50 m) was placed against the exterior of the *mauka* portion of Feature 1 on a slight southeast to northwest slope. The excavated fill was screened through 6-mm and 3-mm mesh nested in series. Three stratigraphic layers were identified in the exposed section (Figure 14).

Layer I (0-4 cmbs) consisted of a dark brown (10YR 3/3) fine silt containing no cultural material.

Layer II (4-13 cmbs) consisted of a very dark brown (7.5YR 2.5/2) with dark reddish brown (2.5YR 2.5/3) semi-compact, crumbly clay-silt containing no cultural material.

27

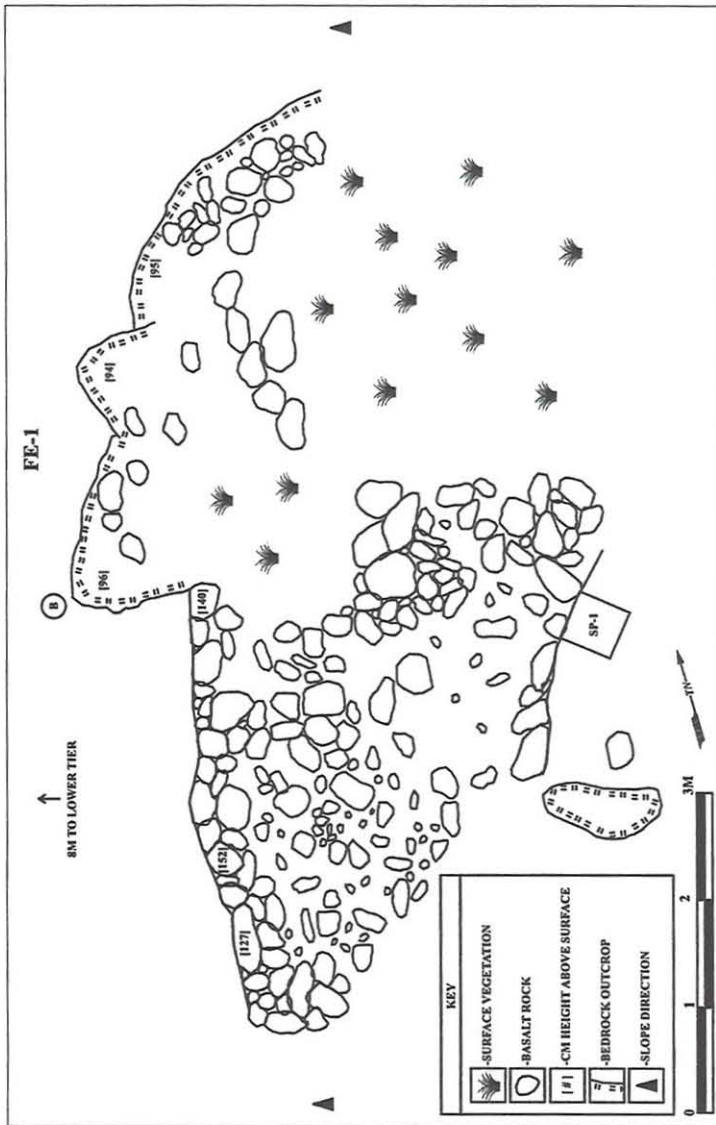


Figure 13: Site 5979, Feature 1 Plan View.

28

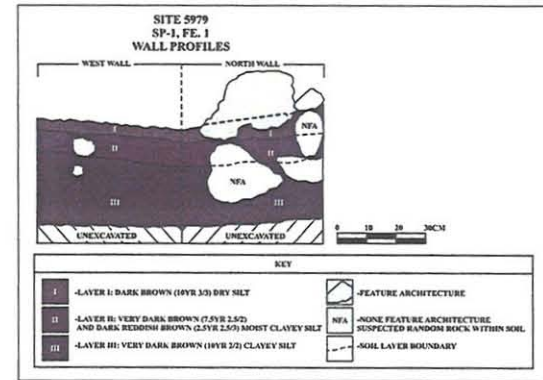


Figure 14: Site 5979, SP-1 Profile West And North Walls.

Layer III (13-25 cmbs) consisted of a very dark brown (10YR 2/2) semi-compact crumbly clay-silt containing one porcelain shard. Excavation was terminated on bedrock.

Feature 2 was a partially soil-surfaced and partially paved, rock-faced terrace constructed with medium to large cobbles and large boulders (Figures 15 and 16). It measured 14.40 m long by 1.08 m high with a terrace facing thickness of 0.60 m wide. The terrace was three to six courses high.



Figure 15: Site 5979, Feature 2 To East.

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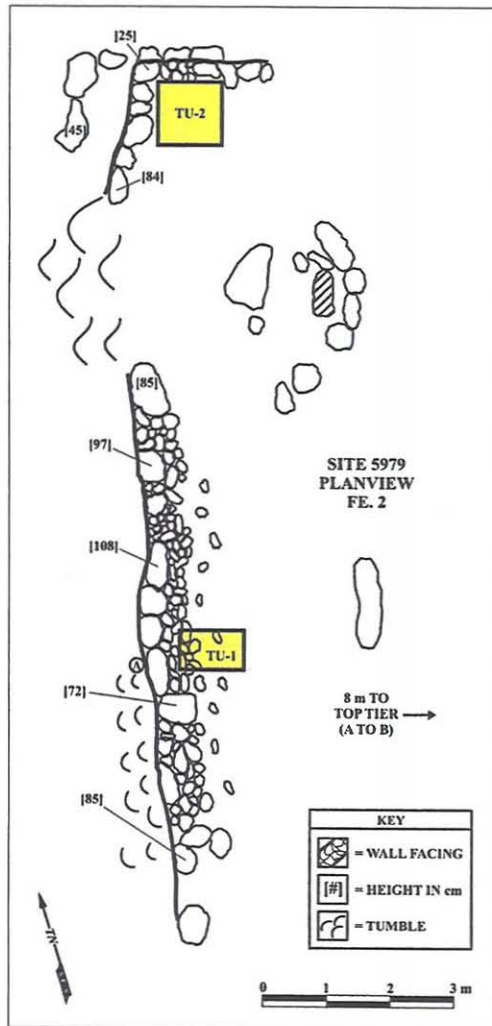


Figure 16: Site 5979, Feature 2 Plan View.

TU-1 (1.00 by 0.50 m) was placed in the center of the terrace interior. The excavated fill was screened through 3 mm mesh screen. Two stratigraphic layers were identified in the exposed section (Figure 17).

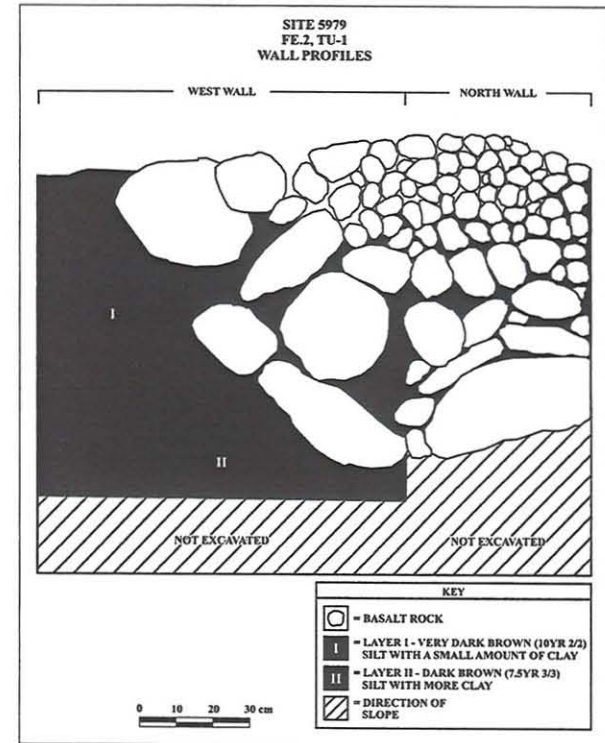


Figure 17: Site 5979, Feature 2, TU-1 North And West Wall Profiles.

Layer I (0-80 cmbs) consisted of a very dark brown (10YR 2/2) silty-clay containing no cultural material.

Layer II (80-100 cmbs) consisted of a dark brown (7.5YR 3/3) clay-silt containing no cultural material.

TU-2 (1.00 by 1.00 m) was placed in the northeast corner of the terrace. The excavated fill was screened through 3-mm mesh screen. Two stratigraphic layers were identified in the exposed section (Figure 18).

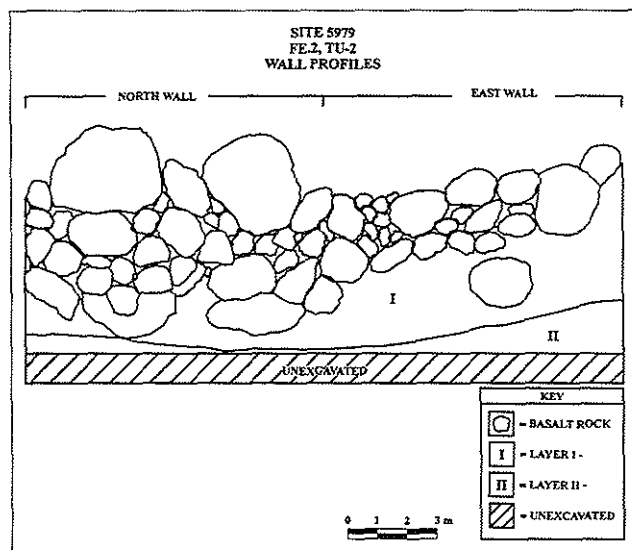


Figure 18: Site 5979, Feature 2, TU-2 North and East Wall Profiles.

Layer I (0-60 cmbs) consisted of a very dark brown (10YR 2/2) silty-clay containing charcoal flecks and the base of the facing.

Layer II (60-70 cmbs) consisted of a dark brown (7.5YR 3/3) clay-silt containing no cultural material.

Both Features 1 and 2 were interpreted as pre-Contact agricultural terraces.

SITE 50-50-11-5980 consisted of eight features located on the slightly raised edge of Keāhūaiwi Gulch that terminates in a steep *pu`u* at its north end. A shallow swale extended to the southwest. Basalt flakes, a basalt core, edge-altered basalt flakes, a basalt awl, an adze blank, two adzes and a possible awl were identified on the surface near Features 6 and 7.

Feature 1 was a modified outcrop forming an enclosure that became a soil-surfaced terrace with a stacked and piled rock facing (Figures 19 and 20). It measured 5.60 by 5.60 by 1.30 m high.

SP-1 (0.50 by 0.50 m) was placed within the enclosure of Feature 1. The excavated fill was screened through 6 mm and 3 mm mesh nested in series. Three stratigraphic layers were identified in the exposed section (Figure 21).

Layer I (0-16 cmbs) consisted of a dark brown (10YR 3/3) fine silty loam containing 70% cobbles and no cultural material.

Layer II (16-44 cmbs) consisted of a very dark brown (10YR 2/2) fine, semi-compact silt containing 70% cobbles and no cultural material.

Layer III (44-76 cmbs) consisted of a dark yellowish brown (10YR 3/6) fine, semi-loose silt containing 5% rock fill and no cultural material.

The function of Feature 1 was interpreted as agricultural.

Feature 2 was a rock-faced terrace constructed with stacked cobbles and boulders (Figure 22). There was a small level pebble pavement in the eastern portion of the terrace which measured 4.40 by 2.70 by 0.80 m high with a wall thickness of 0.60 m. The stacked facing was one to two courses high. This feature was interpreted as a temporary habitation/shelter.

Feature 3 was located on the edge of a gulch and consisted of a mound of piled boulders with piled cobbles on its west side (see Figure 22). It measured 3.50 by 2.40 by 0.90 m high. This feature was interpreted as a planting/clearing mound.

Feature 4 was located on the west slope of a *pu`u* and consisted of a modified outcrop constructed with cobbles and boulders stacked on bedrock (Figure 23). It measured 13.00 by 2.40 by 1.30 m high. Its function was undetermined.

Feature 5 was located on a south spur of a *pu`u* and consisted of cobbles and boulders stacked along a bedrock outcrop (Figure 24). It measured 13.00 by 0.50/2.00 by 0.75 m high and stood two to three courses high at its north end.

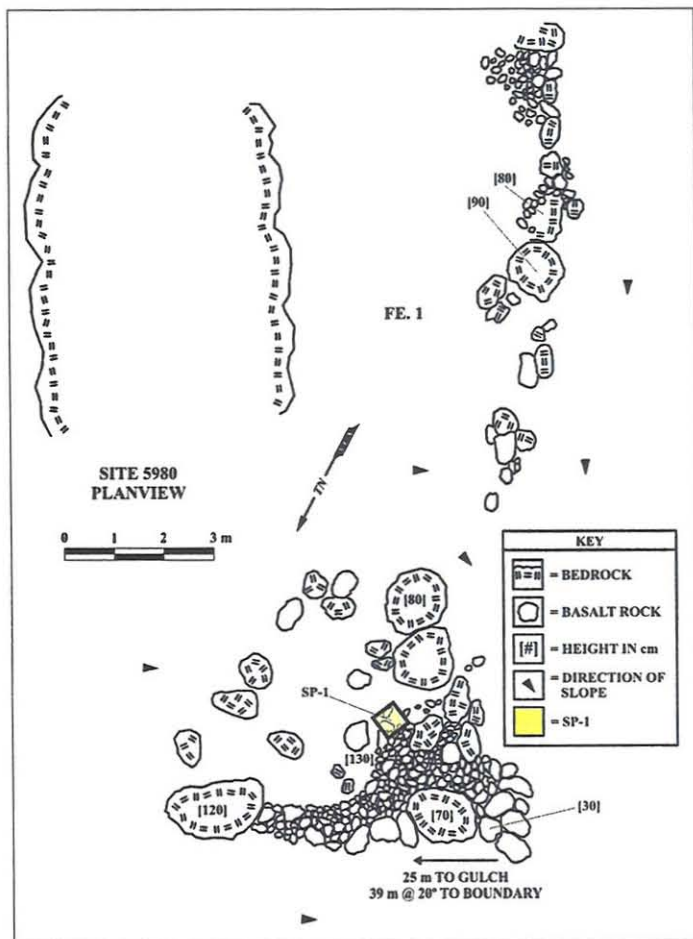


Figure 19: Site 5980, Feature 1 Plan View.



Figure 20: Site 5980, Feature 1 To Northeast.

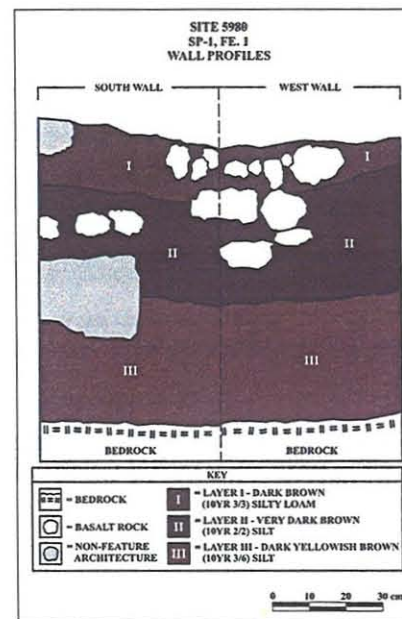


Figure 21: Site 5980, Feature 1, SP-1 South And West Wall Profiles.

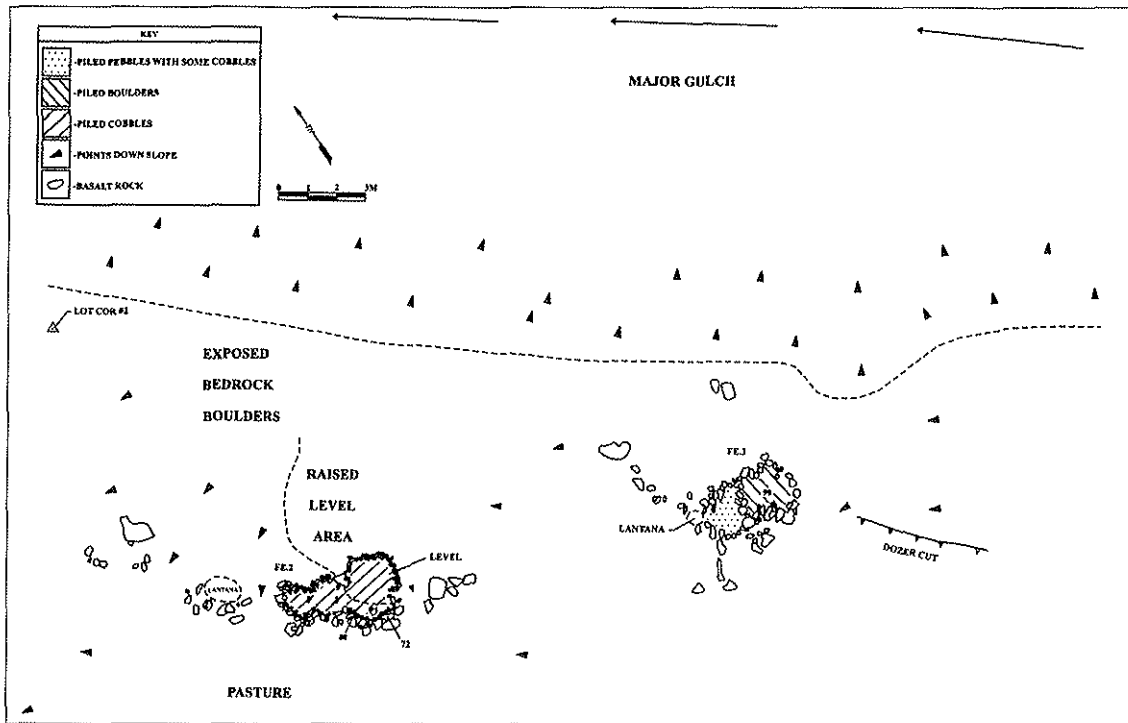


Figure 22: Site 5980, Features 2 And 3 Plan View.

36

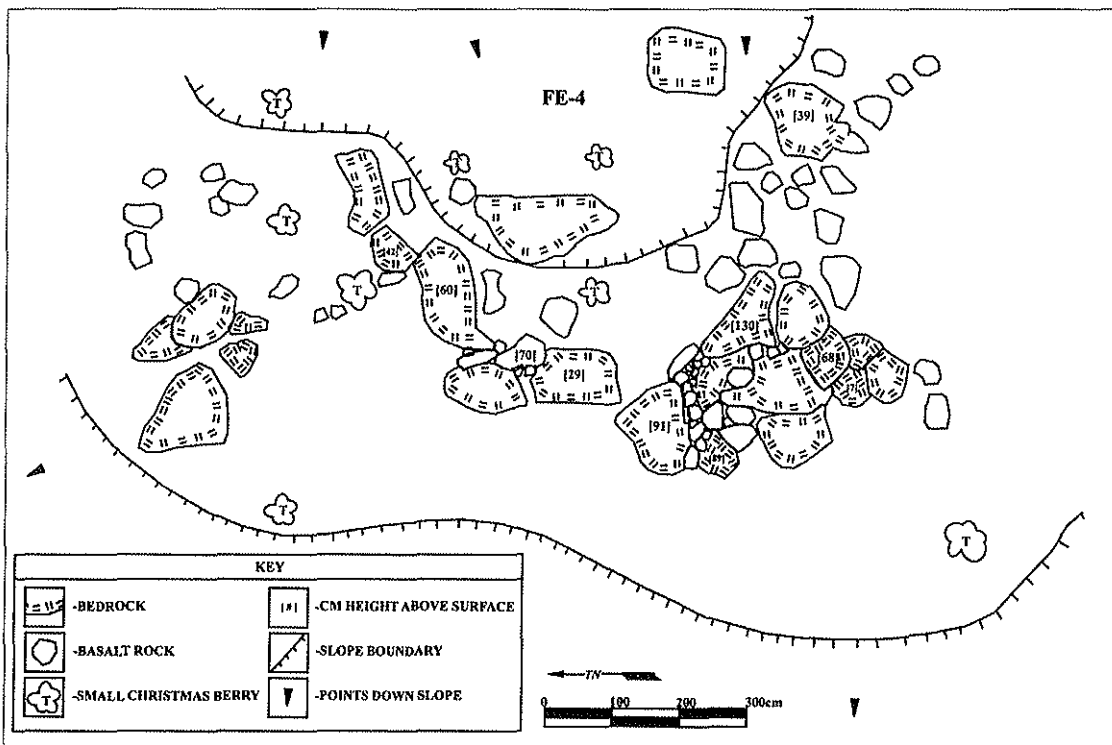


Figure 23: Site 5980, Feature 4 Plan View.

37

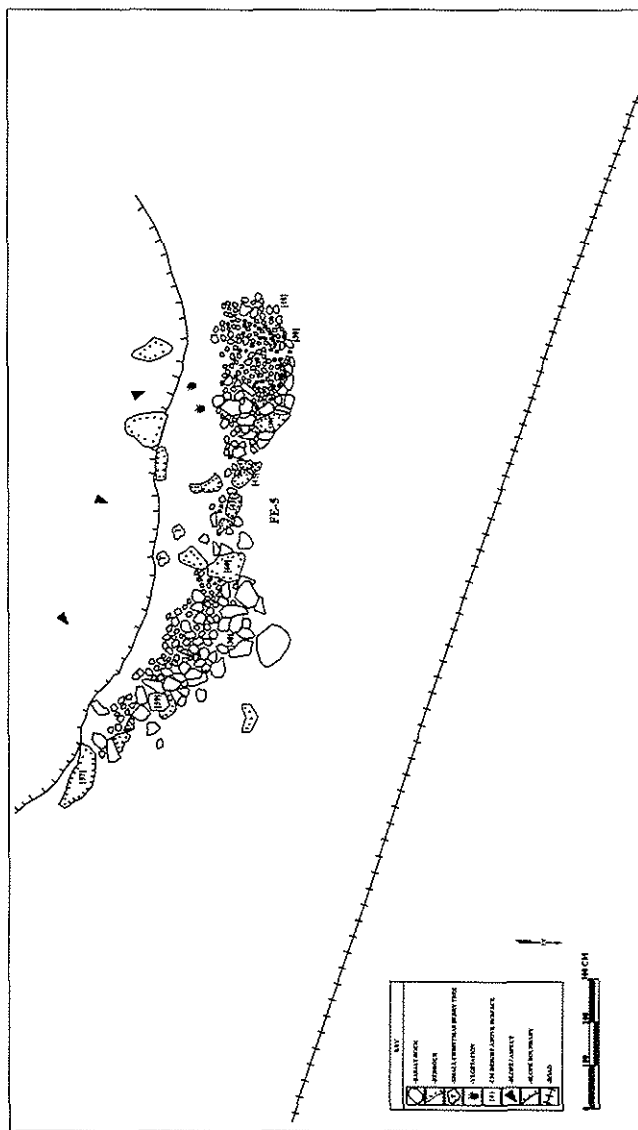


Figure 24: Site 5980, Feature 5 Plan View.

38

Feature 6 was located on a west spur of a *pu'u* and consisted of a soil-surfaced, rock-faced terrace constructed with cobbles and boulders stacked three courses high (Figures 25 and 26). It measured 14.00 by 2.40 by 1.00 m high. A possible re-worked large basalt flake was identified on the surface.

TU-1 (1.00 by 1.00 m) was placed in the southeast corner of the terrace. The excavated fill was screened through 6-mm and 3-mm mesh nested in series. Three stratigraphic layers were identified in the exposed section (Figure 27).

Layer I (0-30 cmbs) consisted of a very dark brown (7.5YR 2.5/2) very fine silt loam containing 80% gravel in the first 10 cm of matrix. A basalt core was recovered between 20 and 30 cmbs.

Layer II (30-64 cmbs) consisted of a very dark brown (10YR 2/2) very fine silt loam containing less than 10% gravel. At 36 cmbs and 48 cmbs two incised rocks were identified.

Layer III (64-70 cmbs) consisted of a dark reddish brown (5YR 3/4) silt loam containing no cultural material. Excavation was terminated on bedrock.

The incised rock may represent the results of what was traditionally known as a *hoana* stone which was often used for sharpening pointed tools, such as bone picks and needles, rather than a polishing or whetstone used most frequently on flat surfaces of larger tools (Figure 28).

Feature 7 was a modified outcrop constructed with stacked cobbles and boulders and incorporating some large, flat basalt slabs either standing on end or lying flat on two courses of stacked cobbles (Figure 29). It measured 6.00 by 2.00 by 0.65 m high. A lithic scatter was found on and around the feature and extended to the edge of a gully to the south.

Feature 8 was an enclosure constructed with basalt boulders stacked two to three courses high (Figures 30 and 31). It measured 2.40 by 2.25 by 0.47 m high. Both features had been impacted by animal activity. This site was interpreted as an agricultural/habitation complex.

SITE 50-50-11-5981 extended east-west and was located in the southern portion of the project area.

39

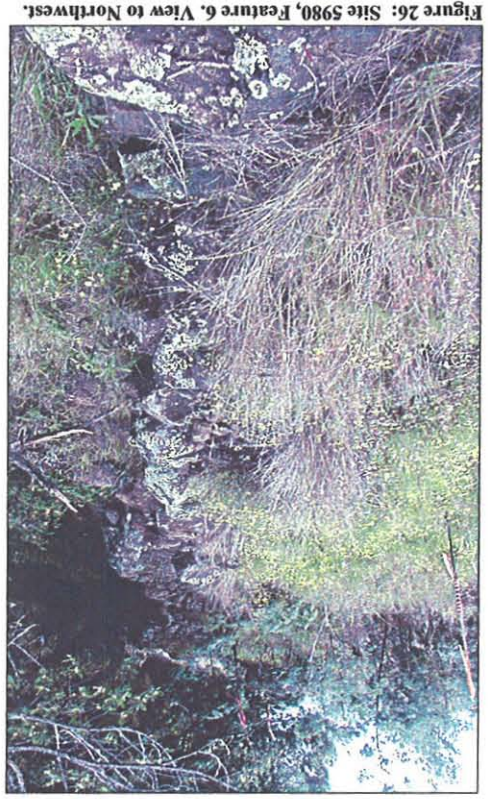


Figure 26: Site 5980, Feature 6, View to Northwest.

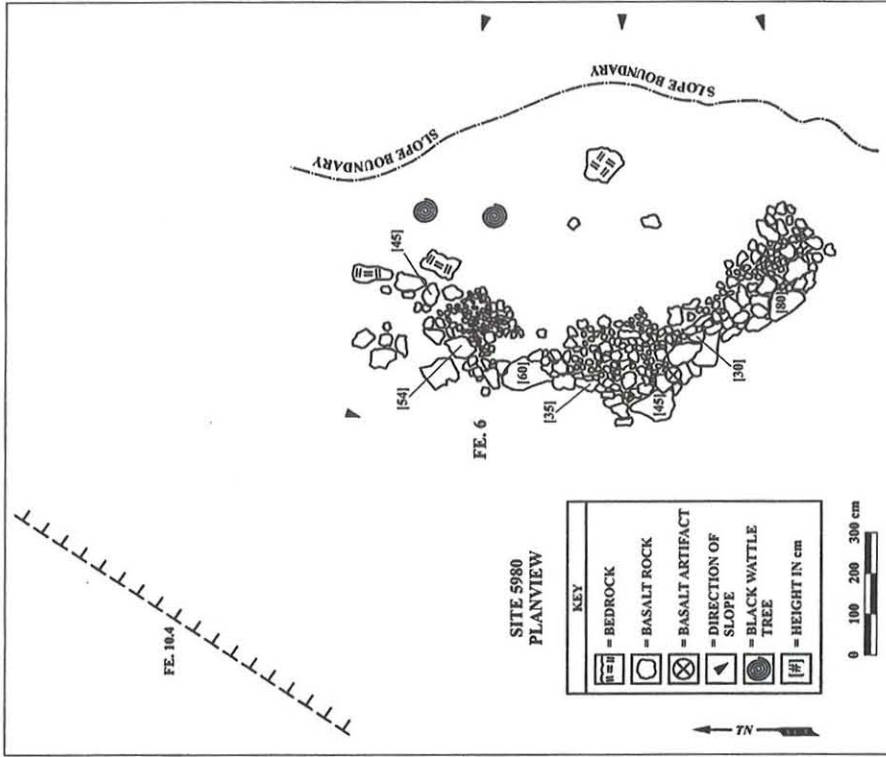
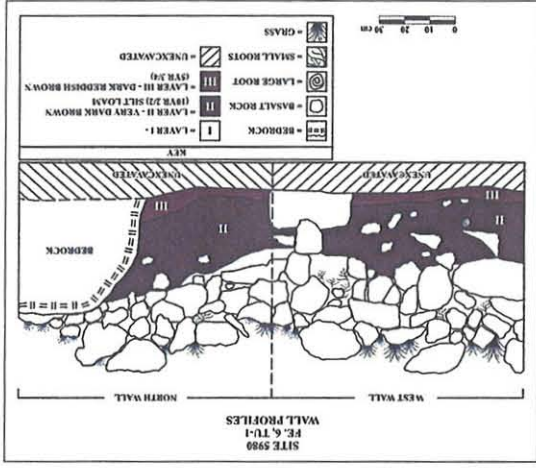


Figure 25: Site 5980, Feature 6 Plan View.



Figure 28: Site 5980 Incised Boulder From Feature 6, TU-1.

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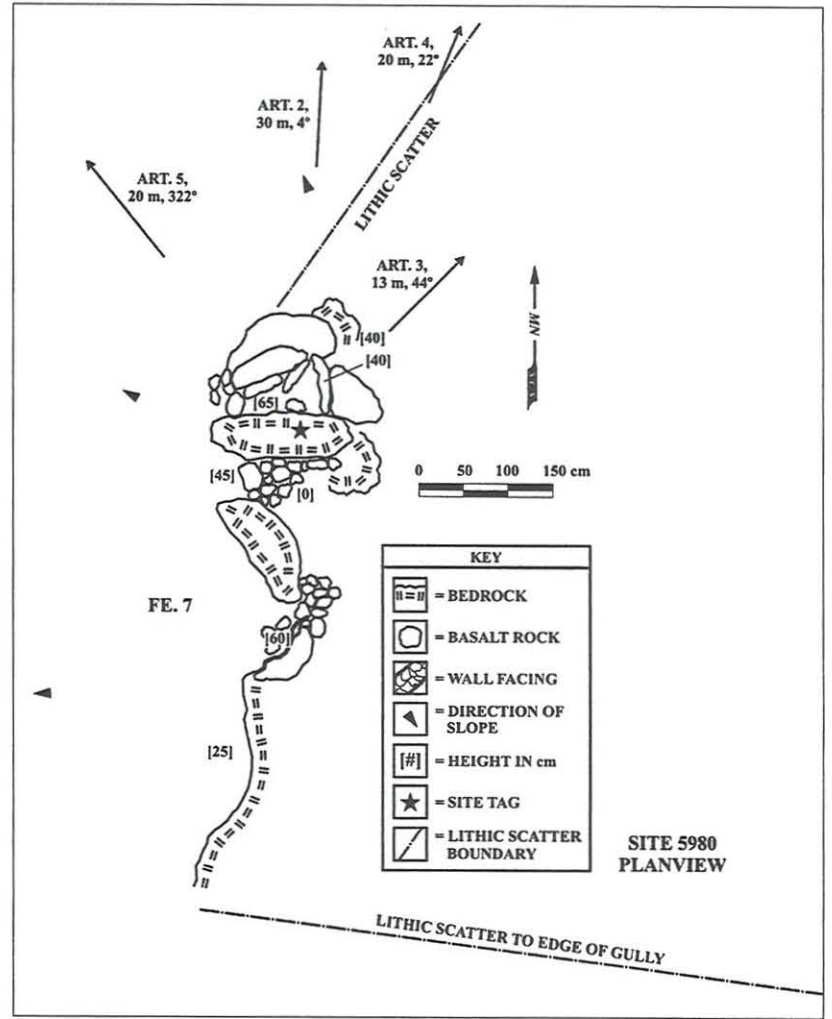


Figure 29: Site 5980, Feature 7 Plan View.

43

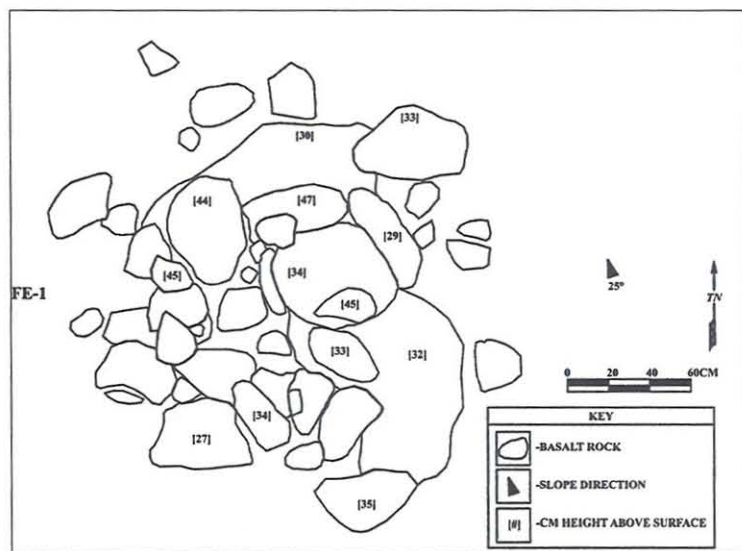


Figure 30: Site 5980, Feature 8 Plan View.



Figure 31: Site 5980, To North.

Feature 1 was a double-faced, cobble-filled, roughly L-shaped wall constructed with boulders and cobbles, and stacked three to six courses high (Figure 32). It measured 26.20 by 0.80 by 0.90 high to the north-south and 7.50 by 0.80 by 0.90 m high in the east-west jog. This feature was interpreted as an historic ranching wall.

SITE 50-50-11-5982 was located south of Site 50-50-11-5980.

Feature 1 consisted of a three-tiered, rock-faced terrace, three to five courses high in the middle and one to two courses high at the bottom terrace (Figures 33 and 34). The top terrace measured 9.00 by 1.40 by 1.30 m high and has been impacted by bulldozer activity. The lower terrace measured 11.00 by 0.75 by 0.62 m high.

TU-1 (0.50 by 0.50 m) was placed in the middle terrace and incorporated part of the facing. The excavated fill was screened through 6-mm and 3-mm mesh nested in series. Two stratigraphic layers were identified in the exposed section (Figure 35).

Layer 1 (0-57 cmbs) consisted of a very dark brown (10YR 2/2) fine, clay-silt consisting of some charcoal at the bottom of the facing construction.

Layer II (57-70 cmbs) consisted of very dark brown (10YR 2/2) mottled clay-silt containing no cultural material.

This site was interpreted as prehistoric agricultural terraces.

SITE 50-50-11-5983 was located to the southeast of Site 50-50-11-5978 on the slope of a gully.

Feature 1 is a rock mound constructed from piled pebbles, small to medium cobbles, and small boulders on top of bedrock (Figure 36). It measured 8.00 by 4.00 by 1.65 m high. A piece of plastic and a basalt core were identified on the surface of the feature.

TU-1 (1.00 by 0.50 m) was placed in the rock mound. The excavated fill was screened through 6 mm and 3 mm mesh nested in series. Three distinct layers of architecture were identified in the exposed section (Figure 37).

Layer I (0-25 cmbs) consisted of a basalt pebbles and cobbles 5 to 10 cm in length, roots, colluvial and aeolian silt.

Layer II (25-65 cmbs) consisted of medium sized rocks 8 to 15 cm in length and contained no cultural material.



Figure 32: Site 5981, Feature 1. View to Southeast.

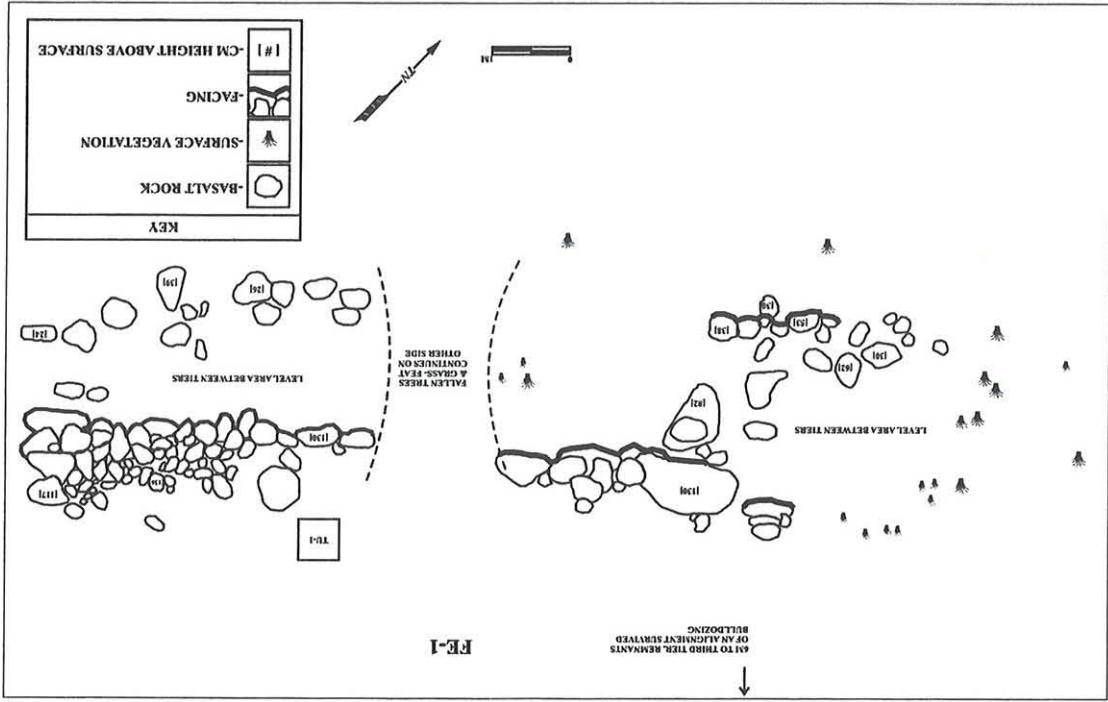


Figure 33: Site 5982, Feature 1 Plan View.



Figure 34: Site 5982, Feature 1. View to South.

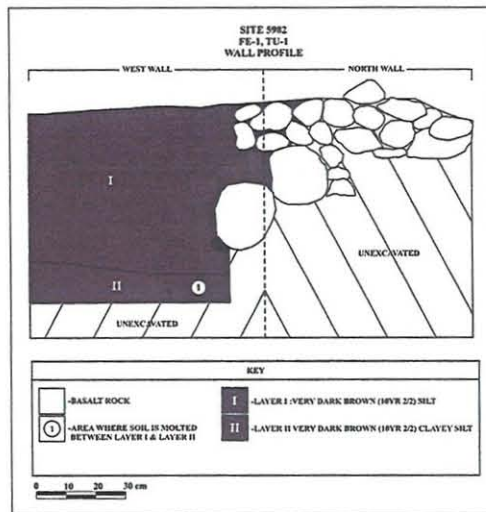


Figure 35: Site 5982, Feature 1, TU-1 West And North Wall Profiles.

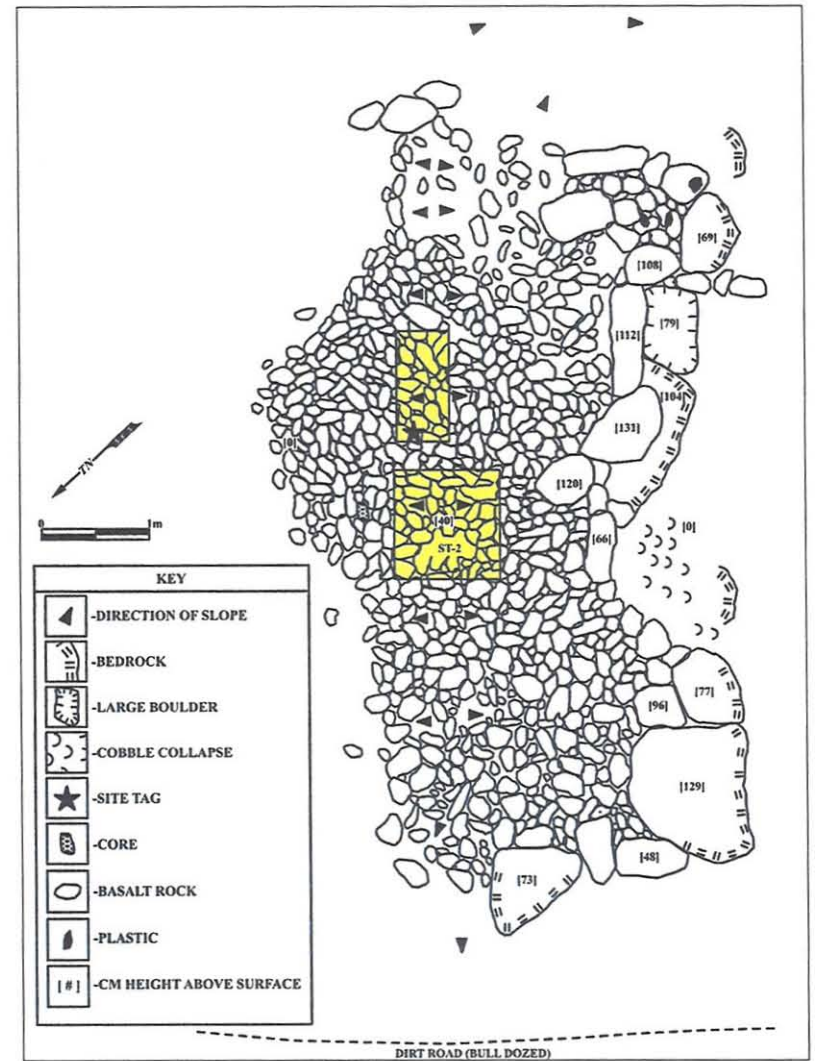


Figure 36: Site 5983, Feature 1 Plan View.

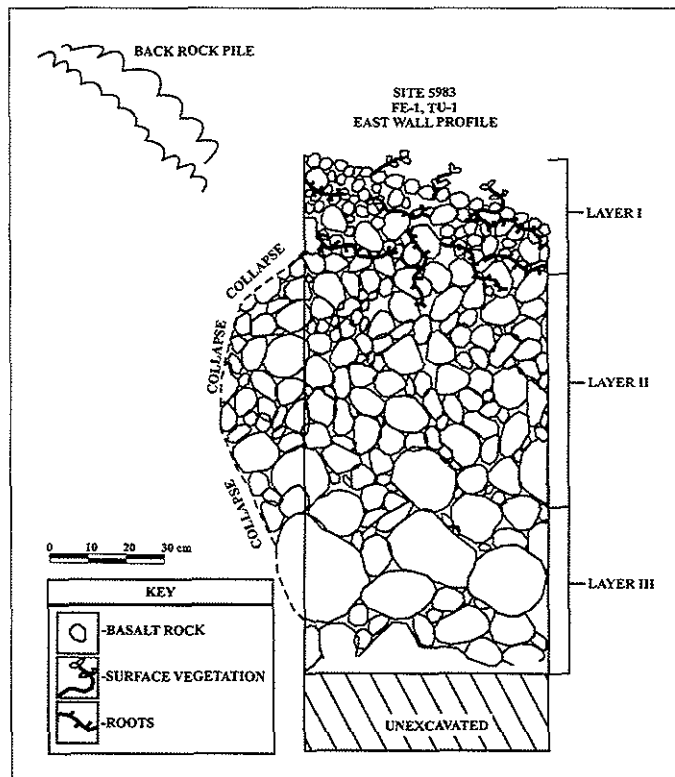


Figure 37: Site 5983, Feature 1, TU-1 East Wall Profile.

Layer III (65-95 cmbs) consisted of small boulders 25 to 30 cm in length and contained no cultural material.

TU-2 (1.00 by 1.00 m) was located to the west of TU-1 on top of Feature 1. Two distinct layers of architecture were identified in the exposed section (Figure 38).

Layer I (0-47 cmbs) consisted of dark brown (10YR 3/3) colluvial and aeolian silt, pebbles and cobbles measuring less than 10 cm in diameter, and no cultural material.

Layer II (47 to 100 cmbs) consisted of a dark brown (10YR 3/3) colluvial and aeolian silt, cobbles measuring 10 to 40 cm in diameter, and no cultural material.

Feature 1 was interpreted as a possible activity area.

SITE 50-50-11-5984 was located on a flat portion of rolling hills in the eastern section of the project area.

Feature 1 was an historic house site that had been bulldozed. Historic debris, including tin cans doorknobs, *sake* bottles, sections of metal roofing, pipes, and plastic were identified in the area (Figure 39). The site measured 30.00 by 50.00 m (1,500² m) and is adjacent to a well-established apricot tree. The structure is shown on TMK 2-3-01.

SITE 50-50-11-5985 consisted of two features and was located on the south side of a gulch in the northwestern portion of the project area.

Feature 1 was a basalt rock enclosure constructed of small cobbles and large boulders stacked six courses high on the exterior (Figures 40 and 41). It was built on top of bedrock and measured 5.20 by 4.40 by 2.00 m high. The wall thickness was 1.10 m. Historic midden was found on the surface of this feature, including glass and pottery shards, a leather shoe, aluminum cans and an aluminum pot handle (see Appendix A).

Feature 2 was located at the bottom of the nearby gulch and consisted of a core-filled, wall, with a stacked basalt rock facing four to six courses high (Figure 42). It measured 49.00 by 1.00 by 0.69 m high. This site was interpreted as agriculture and ranching.

SITE 50-50-11-5986 was located on the south side of the southern gulch in the center of the project area.

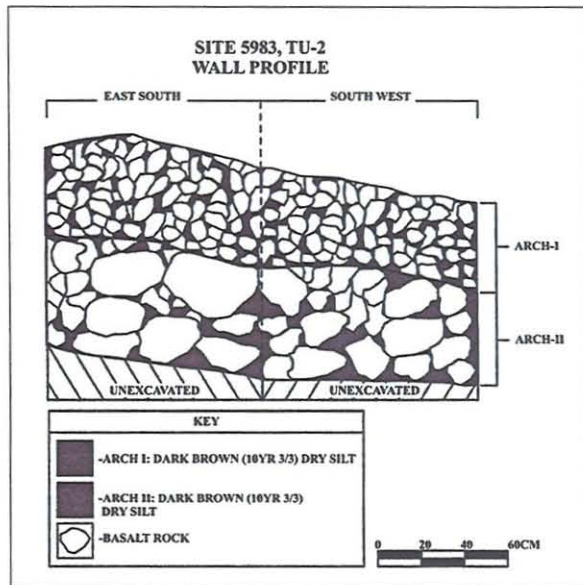


Figure 38: Site 5983, Feature 1, TU-2 East And Southwest Wall Profiles.



Figure 39: Site 5984, Feature 1, Historic Domestic Remnants.

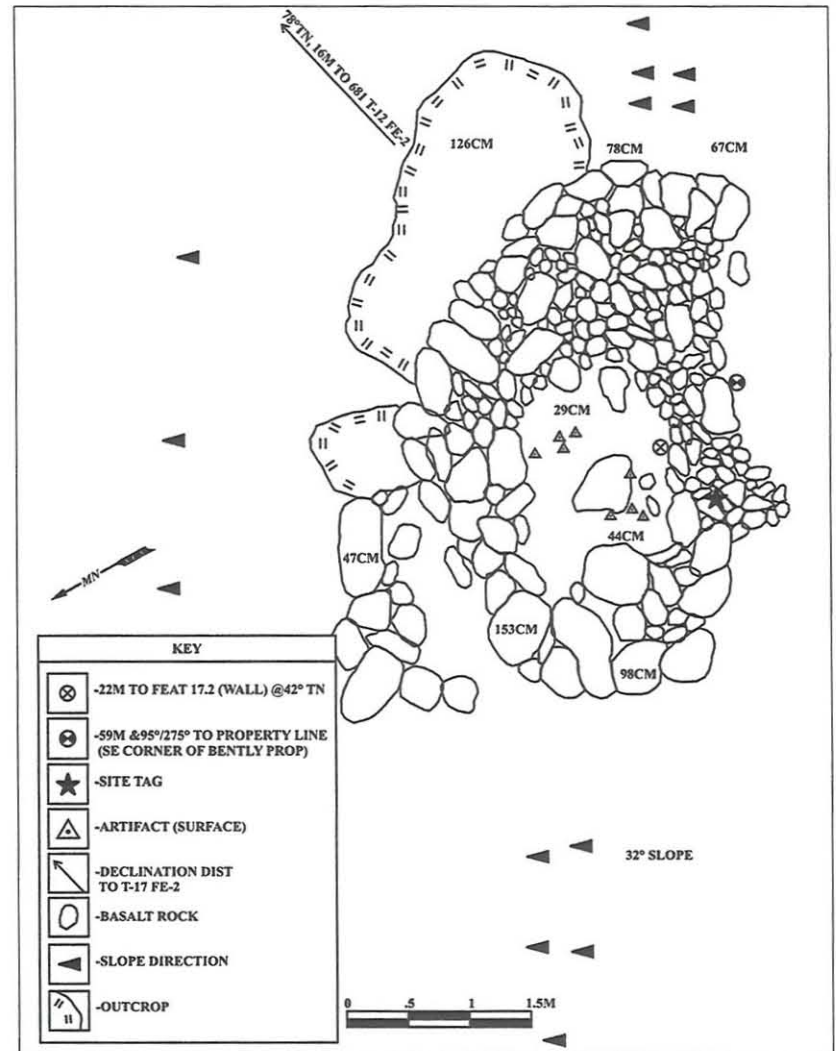


Figure 40: Site 5985, Feature 1 Plan View.



Figure 41: Site 5985, Feature 1. View to North.



Figure 42: Site 5985, Feature 2. View to North.

Feature 1 was a modified outcrop extending *mauka/makai* along the gully (Figure 43). It measured 30.00 by 1.00 by 0.60 m high and was constructed with large boulders stacked three courses high.

SITE 50-50-11-5987 was located on the southern top edge of Keāhuaiwi Gulch to the east of Site 50-50-11-5980.

Feature 1 was a double-faced, core-filled wall constructed with sub-angular basalt cobbles and boulders (Figure 44). It measured 43.00 by 1.00 by 1.30 m high and stood six courses on its northern side. There was a sudden drop into the gulch directly to the north of the wall. The feature was interpreted as a ranch wall.

DISCUSSION

The project area had been previously impacted by many years of cattle grazing and erosion and, as would be expected, the integrity of the identified sites was greatly altered by these activities. Extensive machine (bulldozer) alterations were evident in many areas of the project and a four-wheel drive access road traversed the land. The 18 identified sites were spread throughout the project area with the majority located at the 1,000-foot contour elevation. Eight sites were considered pre-Contact based on the architecture and type. Seven sites were interpreted as historic and three were undetermined. LCA claims in Kealahou Ahupua'a during the *Māhele* mainly clustered between 2,000 to 4,000 feet amsl and in the fourteen awarded, were claims for forest trees, stream use and *kula* for agriculture. The results of the survey confirmed the anticipated remains suggested by the historical and archaeological research.

Pre-Contact settlement patterns of modified outcrops (50-50-11-5976, 5980), rock mounds (5983), low walls (5972), a small enclosure that may represent temporary habitation (5980), agricultural terraces (5975, 5978, 5979, 5982), fit the model for upcountry occupation reflected in early historic documents (LCA) and archaeological studies and are appropriate for dry land cultivation. Also the forest, which extended to a lower elevation, would have provided many valued resources necessary for a subsistence economy.

Historical information indicated that during the 1840s, large-scale cultivation of potatoes included vast areas of *kula* land. The introduction of cattle combined with the agricultural

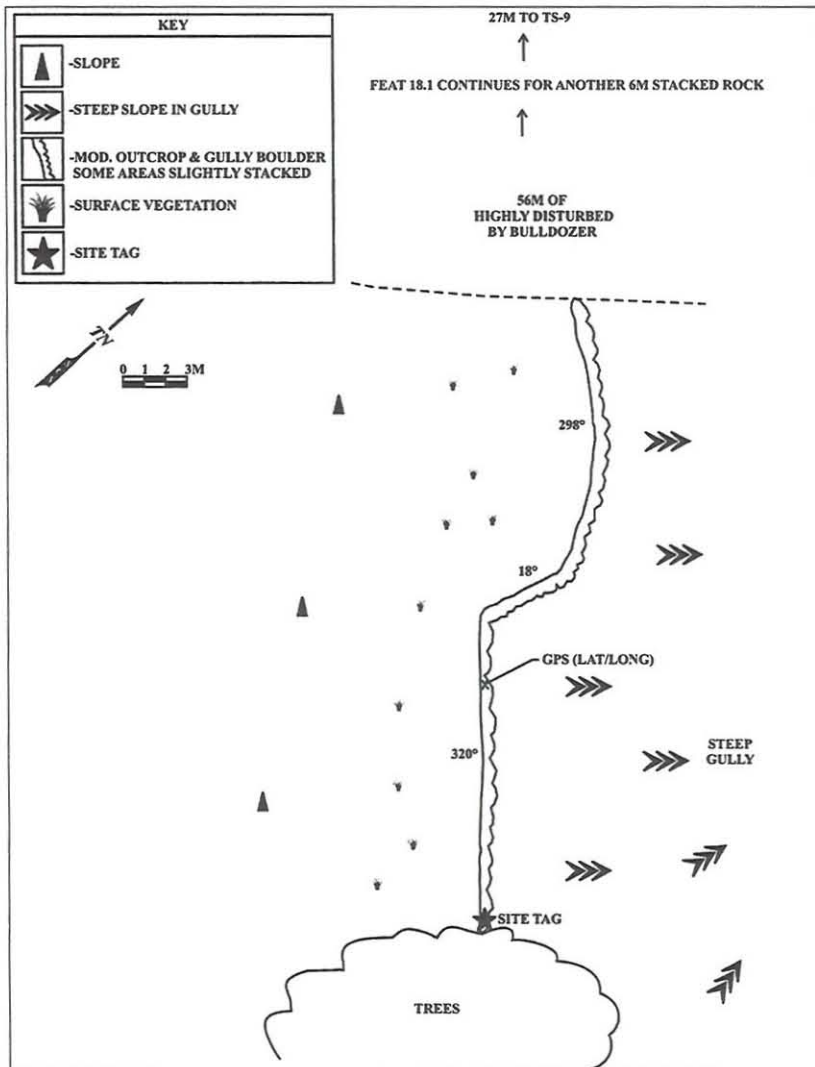


Figure 43: Site 5986, Feature 1 Plan View.

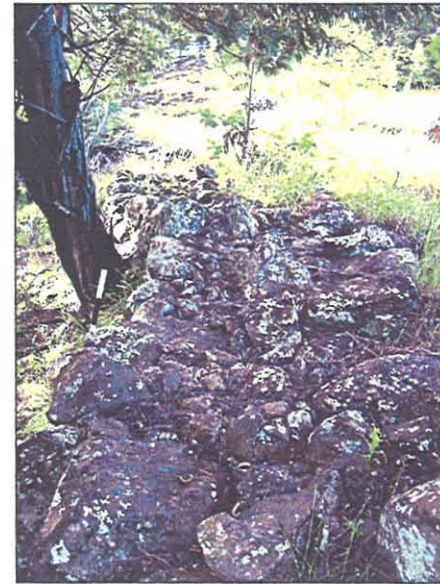


Figure 44: Site 5987, Feature 1. View to West.

pursuits meant land had to be cleared for pasture and planting. Ultimately, deforestation impacted the rainfall in the district and periods of drought became more common. Deforestation also allowed soil to be carried to the coast where it filled the fishponds with mud (*Honolulu Advertiser* 1962, A:15).

Part of the project area was used for habitation as Site 50-50-11-5984 confirm. Other sections were still being used as pasture. Sites 50-50-11-5970, 5971, 5981, 5985, and 5987 consisted of walls and an enclosure, and were interpreted as the results of historical ranching activities. House site 50-50-11-5984 was probably in use during this time. It is very probable that pre-Contact terraces were modified and re-used for potato cultivation in the 1800s.

The sites listed as undetermined (Sites 50-50-11-5974, 5976 and 5986), were difficult to define as traditional methods were still practiced during the early historic period.

Sub-surface testing by two shovel probes and six test units resulted in no identified cultural material. Sites 50-40-11-5980, Features six and seven included a sharpening stone

(hoana) and a surface lithic scatter, confirming traditional activities were present. Surface artifacts from Site 50-50-11-5985 reflected domestic 19th century historic activities.

SIGNIFICANCE ASSESSMENT AND RECOMMENDATIONS

Eight traditional, seven historic, and three undetermined archaeological sites were documented in approximately 48 acres of land in Kealahou Ahupua`a. All traditional sites are likely remnants of pre-Contact agricultural and temporary habitation sites. The seven historic sites are the remnants of historic agriculture and ranching and associated activities. The three undetermined sites represent traditional architecture that may have continued into the historic period.

These sites have been evaluated for significance according to the criteria established for the Hawai`i State Register of Historic Places. The five criteria are classified 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 to an ethnic group; examples include religious structures, burials, major traditional trails, and traditional cultural places

All 18 of the sites have been assessed as significant under Criterion D. Sufficient information in the form of photographs and maps have been recovered from the 18 sites and no further archaeological work is recommended as further archaeological procedures would not contribute a significant volume of additional data to the interpretation of the history of the region.

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APPENDIX A : CULTURAL MATERIAL INVENTORY

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY									
Field Bag	Site	Feature	Unit	Layer	Depth	Collected Material Identification	Measurements	Count	Remarks
1	5977	-		Surface	-	Glass Bottle	Overall Height: 20.1 cm Body Height: 10.5 cm Mouth Diameter (inner): 1.7 cm Base Diameter: 5.3 cm	1	See below.
Complete, light green glass bottle, automatic machine made (base and two sides), crown top finish, sloped and embossed collar, steeply sloped shoulders, cylindrical and embossed body, flat and embossed base. Collar embossment (raised): 9. Bottle body front embossment: 1st line (arched): PROPERTY OF, 2nd line (arched): MAUI, 3rd line (arched): SODA WORKS, 4th line (horizontal, near base) illegible, appears to be an isosceles triangle. Bottle back embossment: 1st line (horizontal): NET CONTENTS, 2nd line (horizontal): 9 FLUID OUNCES. Base embossment: M or W. Bottle manufacturer unknown due to illegible embossment; suspect Illinois Pacific Glass Co. (1902-25), Illinois Pacific Glass Corp. (1925-30), or Illinois Pacific Coast Co. (1930-32) due to presence of isosceles triangle.									
2	5978	5	-	Surface	-	Glass Bottle	Overall Height: 21.9 cm Body Height: 13.9 cm Mouth Diameter (inner): 1.7 cm Base Diameter: 4.2 cm	1	See below.
Complete, clear glass bottle, automatic machine made (base and two sides), crown top finish, sloped collar, steeply sloped shoulders, raised ring around shoulder, cylindrical and embossed body, body also displays several raised rings around bottle, flat and embossed base. Bottle body front embossment (all horizontal): 1st line: PROPERTY OF, 2nd line: HINODE, 3rd line: 1/2 of a rising sun motif, 4th line: NET CONTENTS 6 1/2 FL. OZ. Bottle body back embossment (horizontal): CITRIC ACID ADDED 2. Base embossment: 1st line (horizontal): 54, 2nd line (arched): 4911 G 21 manufacturer's stamp 7. The manufacturer's stamp is a horizontal diamond bisected by a vertical oval and a capital I in the intersection of the two shapes. Bottle manufacturer is Owens-Illinois Pacific Coast Co. (1932-43).									
3	5979		TU-2	1/6	52 cmbs	Charcoal	0.1 g	-	Recovered from TU-2 southwest quadrant
4	5979	2	TU-2	1/6	58 cmbs	Charcoal with Matrix	1.0 g	-	Recovered from TU-2 southwest quadrant
5	5979	2	TU-2	1/1	60 cmbs	Charcoal	0.1 g	-	Recovered from TU-2 southwest quadrant
6	5979	2	TU-2	1	64 cmbs	Charcoal with Matrix	0.9 g	-	Recovered from TU-2 northwest quadrant
7	5979	2	TU-2	1/1/1	60-70 cmbs	Charcoal with Matrix	5.4 g	-	-
8	5979	-	-	Surface	-	Basalt Adze	11.5 cm Length 3.5 cm Width 3.0 cm Thickness (max)	1	Polished steep bevel, 3-sides polished, rectangular cross-section
9	5980	-	-	Surface	-	Possible Basalt Adze Blank	-	1	-
10	5980	7	-	Surface	-	Edge Altered Basalt Flake	-	1	Based on secondary flake; one altered convex edge; artifact found 44°/224° @ 13 m from site tag
11	5980	7	-	Surface	-	Possible Basalt Awl	-	1	Artifact found 4° @ 20 m from site tag
12	5980	6	-	Surface	-	Basalt Core	-	1	Bi-polar striking platforms

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY									
Field Bag	Site	Feature	Unit	Layer	Depth	Collected Material Identification	Measurements	Count	Remarks
13	5980	6	TU-2	I/3	20-30 cmbs	Edge Altered Basalt Flake	-	1	Based on interior flake; one altered, convex edge
14	5980	6	TU-2	II/1	36 cmbs	Incised Basalt Stone	-	1	Incising extends from one side of stone to the other; stone underside displays crossed incising
15	5980	6	TU-2	II/2	40-50 cmbs	Incised Basalt Stone Fragments	-	3	Associated with previously described incised stone
16	5984	-	-	Surface	-	Ferrous Metal Door Knob with Vertical Rimlock	-	1	Artifact design suggest post 1860 manufacture
17	5985	1	-	Surface	-	Ferrous Metal Can Fragments	-	2	Can is rectangular, lap side seam, hand soldered; design post 1840
17	5985	1	-	Surface	-	Non-Diagnostic Ferrous Metal Fragments	-	50+	-
17	5985	1	-	Surface	-	Bottle Glass Body Sherds	-	2	Amethyst colored
17	5985	1	-	Surface	-	Bottle Glass Body Sherd	-	1	Clear, flat
17	5985	1	-	Surface	-	Bottle Glass Body Sherd	-	1	Olive green colored
17	5985	1	-	Surface	-	Whiteware Rim Sherd	-	1	Exterior and interior glazed, exterior decorated underglaze with horizontal green, pink/red, and blue stripes
17	5985	1	-	Surface	-	Rubber Shoe Sole Fragments	-	11	Shoe nails present
18	5985	1	-	Surface	-	Bottle Glass Base Sherd	-	1	Olive green colored, push-up style
18	5985	1	-	Surface	-	Whiteware Base Sherd	-	1	-
19	5985	1	-	Surface	-	Bottle Glass Body Sherd	-	1	Amethyst colored
19	5985	1	-	Surface	-	Ferrous Metal Can Fragment	-	1	Can is round cornered, hand soldered tapered can; design post 1875
19	5985	1	-	Surface	-	Ferrous Metal Can Fragments	-	2	Can is cylindrical, double seamed; design post 1895

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY									
Field Bag	Site	Feature	Unit	Layer	Depth	Collected Material Identification	Measurements	Count	Remarks
19	5985	1	-	Surface	-	Non-Diagnostic Ferrous Metal Can Fragments	-	5	-
20	5985	1	-	Surface	-	Whiteware Rim Sherds	-	2	Exterior and interior glazed, exterior decorated underglaze with horizontal green, pink/red, and blue stripes
20	5985	1	-	Surface	-	Whiteware Body Sherds	-	5	Exterior and interior glazed, exterior decorated underglaze with horizontal green, pink/red, and blue stripes
20	5985	1	-	Surface	-	Non-Bottle Glass Vessel Rim Sherd	-	1	Green colored, rim is undulated and exterior decorated with molded floral pattern
20	5985	1	-	Surface	-	Non-Bottle Glass Vessel Body Sherd	-	2	Green colored, exterior decorated with molded floral pattern
20	5985	1	-	Surface	-	Bottle Glass Finish Sherd	-	1	Amber colored brandy/wine finish
20	5985	1	-	Surface	-	Bottle Glass Finish Sherd	-	1	Crown top finish; post 1904
20	5985	1	-	Surface	-	Bottle Glass Finish Sherd	-	1	Crown top finish; post 1904
20	5985	1	-	Surface	-	Bottle Glass Body Sherd	-	1	Embossed with words and symbols; DISTILLERIES and a crown picture
20	5985	1	-	Surface	-	Bottle Glass Body Sherds	-	3	Light green colored
20	5985	1	-	Surface	-	Bottle Glass Base Sherd	-	1	Light green colored
20	5985	1	-	Surface	-	Bottle Glass Body Sherds	-	4	Clear
20	5985	1	-	Surface	-	Bottle Glass Body Sherds	-	6	Olive green colored
20	5985	1	-	Surface	-	Bottle Glass Body/ Base Sherd	-	1	Body embossed: 1st line (horizontal); NET CONTENTS, 2nd line (horizontal); 9 FLUID CONTENTS

APPENDIX E.

Archaeological Inventory Survey, April 2006

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY									
Field Bag	Site	Feature	Unit	Layer	Depth	Collected Material Identification	Measurements	Count	Remarks
20	5985	1	-	Surface	-	Bottle Glass Body Sherds	-	4	One sherd embossed: 1st line (horizontal): ...AM'S No., 2nd line (horizontal): STANDARD .
20	5985	1	-	Surface	-	Bottle Glass Body Sherd	-	1	Amethyst tinted
20	5985	1	-	Surface	-	Bottle Glass Body/Base Sherd	-	1	Amethyst tinted, body is multi-faceted
21	5985	2	-	Surface	-	Sad Iron Fragment	-	1	Iron for pressing clothing
22A	ISO	-	-	Surface	-	Yellowware Body Sherd	-	1	Artifact found 50 m from Site 5987 @ 205°
22B	ISO	-	-	Surface	-	Whiteware Rim Sherd	-	1	Artifact found 20 m from Site 5987 @ 205°
23	5974	1	-	Surface	-	Porcelain Tea Cup Rim/Body/Base Sherd	Overall Height: 6.8 cm	1	Exterior and interior glazed, exterior decorated underglaze with blue and green floral transfer print