APPENDIX C.

Biological Resources Survey

BIOLOGICAL RESOURCES SURVEY

for the

KAHOMA SUBDIVISION
LAHAINA, MAUI

by

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August 2005

Prepared for:
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BIOLOGICAL RESOURCES SURVEY
KAHOMA SUBDIVISION

INTRODUCTION

The project area consists of two contiguous parcels of land in Lahaina situated along the Kahoma Stream channel. They are TMK 4-5-10:5 & 6 and total 17.?6 acres. The property is bounded on the north by the Kahoma Stream Flood Control Channel, on the south and east by residential homes and on the west by the Lahaina-Kaanapali Railroad corridor. The property is a narrow strip of land about a half mile long and 200 to 300 feet wide.

SITE DESCRIPTION

The two parcels are presently open, undeveloped land. The terrain slopes down gently to the west with elevations ranging from about 120 ft. above sea level at the top to about 35 ft. at the bottom along the train tracks. Soils are of the Ewa Silty Clay Loam complex, developed from igneous material, alluvial in origin, neutral in pH and well drained (Foote et al, 1972). Rainfall averages 12-15 inches per year with the bulk falling between November and April (Armstrong,1983).

BIOLOGICAL HISTORY

During the Hawaiian Government period this area was intensively cultivated for agricultural crops, mostly irrigated by ditch systems for kalo production. During the 1800's and for over 100 years the area was part of Pioneer Mill Co.'s sugar operation and the entire area was under cane. During this period it was repeatedly plowed, planted, burned and harvested. These parcels were heavily disturbed during the construction of the Kahoma Flood Control Channel during the 1980's. For the past 20+ years this area has stood idle since the discontinuation of cane production here and the area has regrown with such dryland grass and shrub species as can survive in this dry area.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Kahoma Subdivision property that was conducted in August, 2005. The objectives of the survey were to:

1. Document what plant, bird and mammal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.
5. Note which aspects of the proposed development pose significant concerns for plants or for wildlife and recommend measures that would mitigate or avoid these problems.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used following routes that would ensure complete coverage of the property. Areas most likely to harbor native or rare plants such as gullies or rocky outcrops were more intensively examined. Notes were made on plant species, distribution and abundance as well as on terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation is rather uniformly a dry open grassland with a scattering of shrubs and a few small trees. One species, buffelgrass (*Cenchrus ciliaris*), is abundant throughout both parcels and characterizes the vegetation of the area. Two other species were common: spiny amaranth (*Amaranthus spinosus*) and koa haole (*Leucaena leucocephala*). All other species were uncommon or rare on the property.

A total of 62 plant species were recorded from the two parcels. Of these just two were indigenous to Hawaii: 'uhaloa (*Waltheria indica*) and 'ilima (*Sida fallax*). Both of these are very common and widespread throughout Hawaii as well as some other Pacific islands.

DISCUSSION AND RECOMMENDATIONS

Little about the vegetation that currently occupies this property is worthy of comment or concern. No Federally Endangered or Threatened plants were recorded nor were any species seen that are candidates for such status.

No wetlands occur on this arid property. Kahoma Stream that runs between the two parcels is completely channelized and contains no riparian habitat.

Proposed developments on these two parcels will have no significant negative impact on the botanical resources of this part of Maui. No recommendations are deemed necessary or appropriate regarding the flora resources on this property.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within two groups: Monocots and Dicots. Taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:
   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   Polynesian introduction = plants introduced to Hawai'i in the course of Polynesian migrations and prior to western contact.
   non-native = all those plants brought to the islands intentionally or accidentally after western contact.
4. Abundance of each species within the project area:
   abundant = forming a major part of the vegetation within the project area.
   common = widely scattered throughout the area or locally abundant within a portion of it.
   uncommon = scattered sparsely throughout the area or occurring in a few small patches.
   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MONOCOTS			
ARECACEAE (Palm Family)			
Washingtonia robusta Wendl.	Mexican fan palm	non-native	rare
POACEAE (Grass Family)			
Cenchrus ciliaris L.	buffelgrass	non-native	abundant
Chloris barbata (L.) Sw.	swollen fingergrass	non-native	rare
Cynodon dactylon (L.) Pers.	*manienie*	non-native	rare
Digitaria violascens Link	*kukae pua'a*	non-native	rare
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	non-native	rare
Eragrostis tenella (L.) P.Beauv.ex Roem.&Schult.	Japanese lovegrass	non-native	uncommon
Melinis repens (Willd.) Zizka	Natal redtop	non-native	rare
Panicum maximum Jacq.	Guinea grass	non-native	uncommon
Setaria verticillata (L.) P. Beauv.	bristly foxtail	non-native	rare
DICOTS			
AIZOACEAE (Fig-marigold Family)			
Trianthema portulacastrum L.	---------	non-native	uncommon
AMARANTHACEAE (Amaranth Family)			
Amaranthus spinosus L.	spiny amaranth	non-native	common
Amaranthus viridis L.	spleen amaranth	non-native	rare
ANACARDIACEAE (Mango Family)			
Mangifera indica L.	mango	non-native	rare
ASTERACEAE (Sunflower Family)			
Bidens pilosa L.	Spanish needle	non-native	rare
Tridax procumbens L.	coat buttons	non-native	rare
Verbesina encelioides (Cav.) Benth. & Hook.	golden crown-beard	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Xanthium strumarium L.	*kikania*	non-native	rare
BORAGINACEAE (Borage Family)			
Cordia sebestena L.	geiger tree	non-native	rare
Heliotropium procumbens Mill.	----------	non-native	rare
CHENOPODIACEAE (Goosefoot Family)			
Atriplex suberecta Verd.	----------	non-native	uncommon
Chenopodium murale L.	*'aheahea*	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea triloba L.	little bell	non-native	uncommon
Merremia aegyptia (L.) Urb.	hairy merremia	non-native	rare
CUCURBITACEAE (Gourd Family)			
Momordica charantia L.	balsam pear	non-native	rare
EUPHORBIACEAE (Spurge Family)			
Chamaesyce hirta (L.) Millsp.	hairy spurge	non-native	uncommon
Chamaesyce hyssopifolia (L.) Small	----------	non-native	rare
Ricinus communis L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
Acacia farnesiana (L.) Willd.	klu	non-native	rare
Albizia lebbeck (L.) Benth.	siris tree	non-native	rare
Chamaecrista nictitans (L.) Moench	partridge pea	non-native	rare
Crotalaria incana L.	fuzzy rattlepod	non-native	rare
Crotalaria pallida Aiton	smooth rattlepod	non-native	rare
Desmanthus pernambucanus (L.) Thellung	slender mimosa	non-native	uncommon
Desmodium tortuosum (Sw.) DC	Florida beggarweed	non-native	rare
Indigofera hendecaphylla Jacq.	creeping indigo	non-native	rare
Indigofera suffruticosa Mill.	iniko	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Leucaena leucocephala (Lam.) deWit	*koa haole*	non-native	common
Macroptilium lathyroides (L.) Urb.	wild bean	non-native	uncommon
Prosopis pallida (Humb.&Bonpl.Ex.Willd.) Kunth	*kiawe*	non-native	uncommon
Senna occidentalis (L.) Link	coffee senna	non-native	uncommon
Tamarindus indica L.	tamarind	non-native	rare
LAMIACEAE (Mint Family)			
Leonotis nepetifolia (L.) R.Br.	lion's ear	non-native	uncommon
MALVACEAE (Mallow Family)			
Abutilon grandifolium (Willd.)Sweet	hairy abutilon	non-native	uncommon
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native	rare
Sida fallax Walp.	*'ilima*	indigenous	rare
Sida rhombifolia L.	Cuban jute	non-native	rare
Sida spinosa L.	prickly sida	non-native	rare
MORINGACEAE (Horseradish Tree Family)			
Moringa oleifera Lamark	horseradish tree	non-native	rare
MYRTACEAE (Myrtle Family)			
Syzygium cumini (L.) Skeels	Java plum	non-native	rare
NYCTAGINACEAE (Four-o'clock Family)			
Boerhavia coccinea Mill.	----------	non-native	uncommon
PAPAVERACEAE (Poppy Family)			
Argemone mexicana L.	Mexican poppy	non-native	rare
PORTULACACEAE (Purslane Family)			
Portulaca oleracea L.	pigweed	non-native	rare
SOLANACEAE (Nightshade Family)			
Nicandra physalodes (L.) Gaertn.	apple of Peru	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Nicotiana glauca R.C. Graham	tree tobacco	non-native	rare
STERCULIACEAE (Cacao Family)			
Waltheria indica L.	*'uhaloa*	indigenous	uncommon

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

One species of mammal was observed during two visits to the property. Taxonomy and nomenclature follow Tomich (1986).

Cat (*Felis catus*) – One cat was observed in the area during the evening portion of the survey. Domesticated cats wander here from nearby residences to hunt for rodents and birds.

Other mammals one could expect to occur on the property include rats (*Rattus rattus*), mice (*Mus musculus*), mongoose (*Herpestes auropunctatus*) and dogs (*Canis familiaris*). Rats and mice feed on seeds and herbaceous vegetation and cats and mongoose hunt for the rodents as well as birds. The property is not far from residential areas and domestic dogs and cats could be expected to wander here periodically.

A special effort was made to look for the Hawaiian hoary bat by making an evening survey of the area. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. Bats are not known to inhabit this area, being mostly from mid-elevation, leeward habitats in East Maui. No bats were observed on or around the property though visibility was excellent.

BIRDS

Birdlife was somewhat reduced on this dry open property due to the dryness of the habitat and sparse vegetation. Nine species of non-native birds were observed during two visits to the property. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Zebra dove (*Geopelia striata*) – Doves were scattered throughout the property in small flocks. They feed on seeds in the openings in the vegetation.

African silverbill (*Lonchura cantans*) – A few small flocks of African silverbills were observed feeding in the grasslands within the project area.

Gray francolin (*Francolinus pondicerianus*) – A few gray francolins were seen in openings in the grasslands and their distinctive calls were heard during the evening.

Japanese white-eye (*Zosterops japonica*) – Several pairs of white-eyes were seen in trees and shrubs and their persistent twitterings could be heard.

Common myna (*Acridotheres tristis*) – Mynas, mostly in pairs, were seen in trees and shrubs throughout the property or flying overhead.

Spotted dove (*Streptopelia chinensis*) – A few spotted dove were seen flying through the property and landing in a trees

Nutmeg manikin (*Lonchura punctulata*) – One small group of these small birds were observed in the area during the evening portion of the survey.

Cattle egret (*Bubulcus ibis*) One small flock was seen flying over the property during the evening. This area does not represent habitat for these birds either for feeding or roosting.

Chicken (*Gallus gallus*) – Chickens were heard in and around adjacent residences and they undoubtedly occasionally wander into the project area.

A few other common introduced birds might be expected to occasionally frequent this property, but it does not represent habitat for any native forest or open country birds. One might expect to see a few migratory golden plovers (*Pluvialis fulva*) here during the fall and winter months.

INSECTS

While insects in general were not tallied, there were a diversity of insects seen though not in great numbers. Only one native insect Blackburn's sphinx moth (*Manduca blackburni*) has thus far been put on the Federal Endangered Species List (USFWS 2000) and this designation requires special focus to ascertain whether any are present. Blackburn's sphinx moth is not currently known to occur in this part of Maui although it probably occured here in the past. Its native host plants are species of 'aiea (*Nothocestrum).* A non-native alternative host plant is tree tobacco (*Nicotiana glauca*). No 'aiea were found on the property. One small tree tobacco, was observed on the property. It was carefully examined. No sphinx moths or their larvae were seen.

DISCUSSION AND RECOMMENDATIONS

Fauna surveys are seldom comprehensive due to the short window of observation, the seasonal nature of animal activities and the often unpredictable nature of their daily movements. Other animals undoubtedly utilize this property on a daily or seasonal basis. This survey, however, does not represent important habitat for native fauna and is far removed from such areas. No Federally Endangered or Threatened mammals, birds or insects were found to inhabit the property and are unlikely to do so. No native fauna of any kind were observed. As a result of these findings it is apparent that the proposed uses of this property should not have a significant negative impact on the fauna resources in this part of Maui.

No recommendations were deemed necessary or appropriate regarding the fauna resources on this property.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within two groups: Mammals and Birds. For each species the following information is provided:

1. Common name
2. Scientific name
3. Bio-geographical status. The following symbols are used:

   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

   abundant = many flocks or individuals seen throughout the area at all times of day.
   common = a few flocks or well scattered individuals throughout the area.
   uncommon = only one flock or several individuals seen within the project area.
   rare = only one or two seen within the project area.

COMMON NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
MAMMALS			
Cat	*Felis catus*	non-native	rare
BIRDS			
Zebra dove	*Geopelia striata*	non-native	common
African silverbill	*Lonchura cantans*	non-native	uncommon
Gray francolin	*Francolinus pondicerianus*	non-native	uncommon
Japanese white-eye	*Zosterops japonica*	non-native	uncommon
Common mynah	*Acridotheres tristis*	non-native	uncommon
Spotted dove	*Streptopelia chinensis*	non-native	uncommon
Nutmeg mannikin	*Lonchura punctulata*	non-native	rare
Cattle egret	*Bubulcus ibis*	non-native	rare
Chicken	*Gallus gallus*	non-native	rare

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Foote, D.E. , E.L. Hill, S. Nakamura, and F. Stephens. 1972. Soil survey of the islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Dept. of Agriculture, Soil Conservation Service. Washington, D.C.

Tomich, P.Q. 1986. Mammals in Hawaii. Bishop Museum Press, Honolulu.

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APPENDIX D.

Archaeological Assessment

SCS Project Number 608-2

AN ARCHAEOLOGICAL ASSESSMENT FOR 16.8-ACRES IN LAHAINA, MOALIʻI AHUPUAʻA, LĀHAINĀ DISTRICT, MAUI ISLAND, HAWAIʻI [TMK (2) 4-5-10: 005 & 006 (por.)].

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ABSTRACT

Scientific Consultant Services (SCS) Inc. conducted Archaeological Inventory Survey on a parcel of land measuring 16.8-acres in Kahoma, Moali`i Ahupua`a, Lāhainā District, Maui Island, Hawai`i [TMK (2) 4-5-10: 005 & 006 (por.)]. The current landownership is in transition from Kahoma Land Company, LLC to West Maui Land Corporation. The study concentrates on portions within a land section that has been entirely modified. The Inventory Survey was conducted on the parcel to determine the presence or absence of archaeological deposits within surface and/or subsurface contexts. Methods for the current study involved complete intensive pedestrian survey and representative subsurface testing through backhoe test trenching.

A total of 15 backhoe test trenches were placed throughout the project area. All trenches contained artificial (fill) soils that proved major land alterations have occurred throughout the entire study area. The old Kahoma Stream was originally located along the southern boundary but has been diverted, and currently follows a concrete culvert pathway along the northern boundary of the project area. The old Mill Road and adjacent Sugar Cane Train tracks are located to the west adjacent to project area's boundaries. There were no archaeological or cultural findings identified in surface or sub-surface contexts during the project. Due to the negative finds of this investigation, the Inventory Survey has been classified as an Archaeological Assessment for reporting purposes.

The entire parcel has been previously grubbed, graded, cut and/or filled and most of the area is presently utilized as a dumping and/or storage area. Extensive machine (bulldozer) alterations are evident throughout the area and bulldozer push-piles along with large boulder-piles render the area completely modified. No further archaeological work is recommended for this project area.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

Scientific Consultant Services (SCS) Inc., conducted Archaeological Inventory Survey on a 16.8-acre parcel in Lahaina, Moali`i Ahupua`a, Lāhainā District, Maui Island, Hawai`i [portion of TMK: (2) 4-5:-10:005 & 006 (Figures 1 and 2)]. The study area is conceptually planned to be an employee/special needs/affordable/market housing project (Figure 3). Kahoma Stream was once aligned along the southern project area boundary but has been diverted through a concrete culvert (see below: *Kahoma Stream Flood Control*) along the northern boundary of the project area (Figure 4).

The objective of the current project was to determine the presence/absence of archaeological features or deposits within surface and subsurface contexts and if present, to evaluate the significance of the sites. As the project only yielded negative results, this report has been re-classified as an Archaeological Assessment document. All methods used in the survey were consistent with those performed in a full Inventory Survey program. The Archaeological Assessment has been written following with State of Hawai`i Historic Preservation Division (SHPD) Guidelines for Archaeological Assessment Reports.

Specific archaeological methods utilized during this project included the following: historical background investigations; archival research; full, systematic pedestrian survey; representative subsurface testing in the form of backhoe trenching; locating, profile mapping, and drafting of trenches; soil analysis, interpretation; reporting of all relevant data; and consultation with SHPD Maui archaeologist Melissa Kirkendall. Fieldwork was conducted on September 6 and 9, 2005 by Ian Bassford, B.A. and Jenny Pickett, B.A., with Principal Investigator M. Dega, Ph.D.

ENVIRONMENTAL SETTING

PROJECT AREA LOCATION

The project area consists of 16.8-acres occurring between the Kahoma Flood Control Channel and the existing residential area of Kelawea Village in Lāhainā. The project area is located in Kahoma, Moali`i Ahupua`a, Lāhainā District, roughly 609 meters (1,998 feet) inland from the coast at 20.90° latitude and 156.63° longitude (see Figures 1 and 2). The natural grade of the parcel slopes moderately from east to west, ranging from a maximum elevation of approximately 68 m (223 ft.) to a minimum elevation of c. 40 m (130 ft.).

Figure 1: USGS Lahaina Quadrangle Map of Project Area and Maui Island Inset.

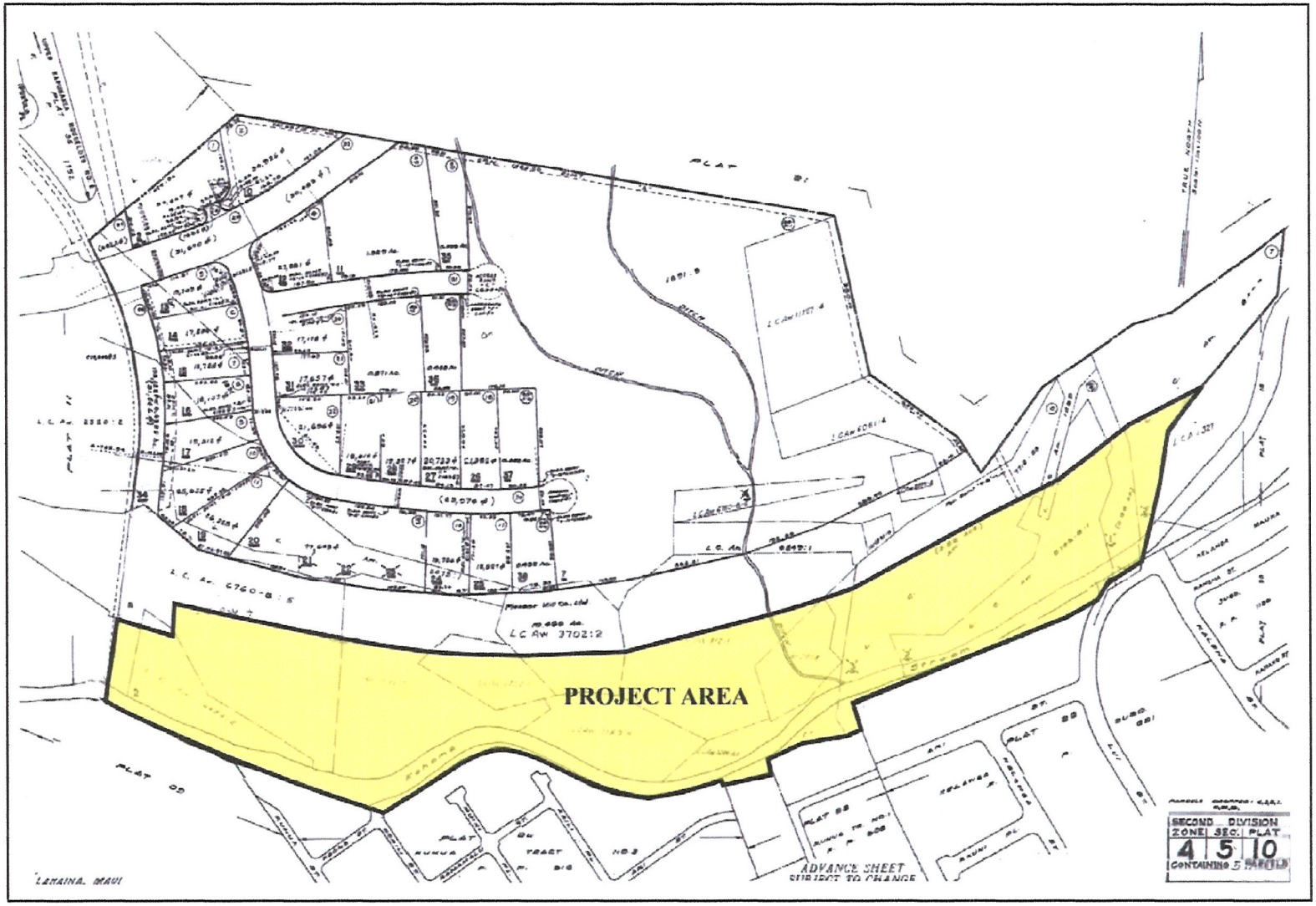

Figure 2: Figure 2 Project Area Tax Map Key 4-5:-10:005 & 006.

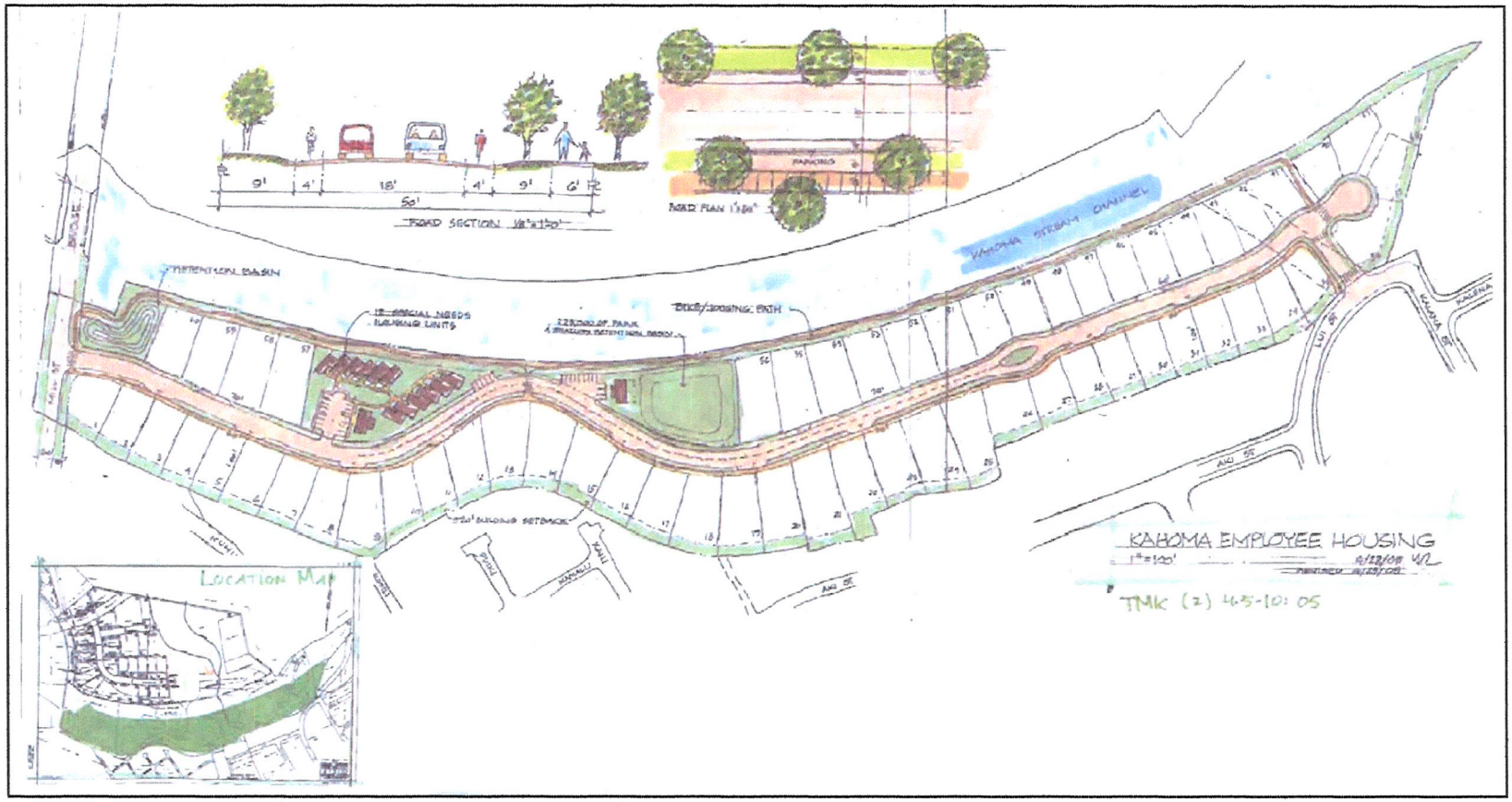

Figure 3: Conceptual Plan of Future Development and Location of Project Area.

Figure 4: Aerial Photograph of Project Area (foreground) and Kahoma Stream Flood Control Project.

The subject parcel is bounded on the west by the old Mill Road with train tracks to the west. The tracks belong to the old historic Sugar Cane Train that was constructed in 1882 and currently conducts daily tours. To the south of the parcel is the ancient village of Kelawea, a current residential community. The remains of the old Pioneer Mill smokestack and sugar mill are located in the central region on adjacent parcels. The eastern boundary also consists of a residential area with a connecting dirt roadway. The northern extreme is bounded by the flowing waters of the Kahoma Flood Control Channel (see Figures 3 & 4).

PROJECT AREA DESCRIPTION

In 1990, Kahoma Stream was diverted and a concrete culvert traces the new water route (see Figures 3 & 4). The entire parcel has been previously grubbed, graded and/or otherwise mechanically altered by bulldozers. Exposed soils, bedrock, and the rate of vegetative re-growth indicated that the most severe alterations probably occurred within the last five to ten years. A local informant (anonymous neighbor) supplied additional information about the project area. The resident stated that the boulder piles and approximately 2.5 meters of 'fill' located throughout the area are the results of an HC&S dumping site. Construction during the Kahoma Stream Flood Control project also severely affected the current study area.

CLIMATE

Climatic conditions in this area of Maui are exemplified by mild and consistent year-round temperatures, moderate humidity, and steady north-northeasterly trade-winds. Lāhainā is located in the dry leeward portion of Maui. Local weather stations have measured average temperatures for Lāhainā from a variable 64-88 degrees year round (Fahrenheit). Monthly average temperatures vary approximately 5°-10° between the coolest and warmest months. Summer months are much drier and hotter. Precipitation varies on an average monthly basis but the average yearly rainfall is only c. 20 inches per year.

SOILS

According to Foote *et al.* (1972: Sheet 94), soils in the project area consist exclusively of Wahikuli very stony silty clay (WdB). According to Foote et al. (1972:126), this series consists of well-drained soils on uplands that have developed in material weathered from basic igneous rock and are gently to moderately sloping. This WdB series essentially is the same as Wahikuli silty clay but with an added 3% surface coverage of stones. However, this classification was made prior to massive land alterations. At present times, nearly all soils in the project area are severely disturbed. When grading occurred during the Kahoma Stream Alignment project, soil and rocks were pushed throughout the project area. Subsurface observations concluded that

almost no original or undisturbed soils were present. Several trenches exposed portions of the old Kahoma stream alignment. Aside from the few alluvial deposits (gravel and pebbles), soils consisted of a combination of loose and compact silt.

KAHOMA STREAM FLOOD CONTROL PROJECT

The study parcel has been completely modified most recently by the Kahoma Stream Flood Control project that was planned in 1986 and completed in April 1990. According to the State of Hawai`i U.S. Army Corps of Engineers, additional work was completed in October, 1996 that provided the County with an improved access ramp and maintenance of the debris basin. Based on analyzed records since 1879, at least 20 damaging floods occurred in the area due to over-stopping of Kahoma Stream. Sponsored by the County of Maui Department of Public Works, and in accordance with the Flood Control Act of 1965, the drainage basin was installed within a 5.4 square mile area. The project consisted of construction of a 5,415 foot concrete channel, a debris basin, an offshore rubble apron, three pre-stressed concrete bridges, and related utility relocations. Federal and non-Federal costs covered the project, including the underpass to the Cannery Mall, a vehicular traffic bypass at Front Street, widening of the Honoapiilani Highway Bridge, and a drainage outlet structure.

TRADITIONAL HAWAIIAN AND HISTORIC SETTING

PRE-CONTACT/TRADITIONAL HAWAIIAN ERA

Intensive research with attention to oral tradition and local folklores is most effective to identify or re-create pre-Contact, traditional Hawaiian, and even post-Contact contexts. There are countless stories regarding ancient Lāhainā and only some will be summarized that relate to the current study area.

Lāhainā was one of the central population bases for ancient Hawaiians. At least eight *heiau* were recorded around the old village of Lāhainā. *Ko`a* (fishing shrine) were scattered along the beaches and *heiau* (temples, or places of worship) were located throughout the slopes surrounding the town and above the bays. *Lo`i*, or taro fields lined the beautiful and lush slopes above and surrounding Lāhainā. It was a political center for *ali`i* (royalty) and many tales are told of ancient times in royal Lāhainā.

Petroglyphs were identified surrounding Lāhainā, although their meanings have yet to be fully understood (Thrum 1908, 1916, 1917; Walker 1930:103). In fact, petroglyphs were identified next to Kahoma Stream near the current study area. Pearl shells were collected from

Makaiwa Beach for the eyes of ancient *ki`i* (sacred image) and many battles were fought in the area (Sterling 1998:45). There are also many documented ancient Hawaiian human burials throughout sandy deposits along the coastline.

Pu`u Keka`a, was made famous for the birthplace of the sons of *ali`i* and has been associated with ghosts, strange occurrences, and the skeletons of defeated invaders. Fornander 1918–19, Vol. 5:542 documents Kaha saying:

> On account of the great number of people at this place there are numerous skeletons [several bloody battles occurred here], as if thousands of people died there; it is there that the Lāhaināluna students go to get skeletons for them when they are studying anatomy. The bones are plentiful there; they completely cover the sand.
>
> This is a ghostly place. Some time a number of people came from Kaanapali (from the other side) going to Lāhainā in the dark. When they came to Keka`a stones rolled down from the top of the hill without any cause. Listening to it, it seemed as if the hill was tumbling down; the people going along were startled and they explained, Keka`a is ghostly! Kekaa is ghostly!" Certainly this is a strange thing for this hill to do [*ibid*].

Pu`u Keka`a was also a *leina a ka`uhane*, or soul's leap, as told by Fornander (1918–19, Vol. 5:542). There are many legends, songs, and stories with reference to areas in Lāhainā. According to legend, lands surrounding Pu`u Keka`a were areas of intense cultivation and the capital and home of the Maui chief, Kaka`alaneo. While he ruled West Maui, he lived on the *pu`u* with his wife, a chiefess from Moloka`i. Fornander 5:540–541 further explains:

> Kekaa was the capital of Maui when Kalaalaneo was reigning over West Maui. Many houses were constructed and people cultivated a great deal of potatoes, bananas, sugar cane, and things of a like nature. I have been told that the country from Kekaa to Hahakea and Wahikuli –that country now covered by cactus, in a northwesterly direction for Lahaina-was all cultivated. This chief also planted bread fruit and kukui trees down at Lahaina. Some of these trees southwest of the Lahaina Fort were called the bread fruit trees of Kauheana.

Kaka`alaneo's possessions included fishponds in Hana and a famous breadfruit grove he planted outside of Lāhainā (Handy and Handy 1972). His son, Ka`ulula`au, became famous for

traveling around Lāna`i fighting ghosts (Sterling 1998). Maui, the demi-god himself, was associated with Pu`u Keka`a as relayed in "Tales from the Temples" (Thrum 1909). Pu`u Keka`a is known as a culturally rich location brimming with oral histories and ancient stories.

Pu`u Keka`a was said to be the burial place of Kekaulike's oldest son, Kauhi`aimoku-a-kama, who was defeated by his brother and Uncle at the Battle of Koko-o-na-moku at Makaiwa Beach (Sterling 1998). The famous chief Kahekili succeeded his brother Kamehameha-Nui as ruler of Maui and to prove he was a true descendant of the gods, he leapt from the `Ū-ha-ne lele or Soul-Leaping Place of Maui. No ordinary man would dare to do this (*ibid.*). Kamakau (1964: 39) refers to a burial site used by the *maka`āinana* of the district:
"Waiuli...is a deep pit where the corpses of the common people were thrown...It is directly Mauka of Honokohau, Honolua, and Honokahua, and for those from Lahaina to Kahakuloa, it was the common burial place".

Those who died on Molokai were also brought back to that place.

Throughout all of Hawai`i, coastal lands were utilized for chiefly residences and Lāhainā was no different. Oceanfront areas provided easily accessible resources such as elaborate offshore and onshore fish ponds as well as open-ocean or deep-water fishing. Surfing was very popular among the elite and was known as the sport of kings. Lāhainā provided some of the best surfing locales throughout the entire island. Some of the most extensive and fertile wet land taro patches were located throughout the Lahaina-luna area (Kirch and Sahlins, 1992 Vol. 1:19). Inland resources such as taro and sweet potatoes were brought to *ali`i* residences at the coast from nearby plantations.

Agricultural concentration was situated in the lower portions of stream valleys (such as near the current project area) where there were broader alluvial flat lands or along bends in the streams. Alluvial terraces were often modified and ditches painstakingly maintained to help create a complex hydrologic system utilizing the natural stream-flow. Dry land cultivation occurred in colluvial areas at the base of gulch walls or on flat slopes (Kirch 1985; Kirch and Sahlins 1992, Vol. 2:59). Lāhainā had the extra advantage of a calm roadstead and is in close proximity to Lāna`i, and Moloka`i (Handy and Handy 1972). Perhaps that is part of the reason Lāhainā was such a beloved destination.

CONTACT PERIOD

From the late A.D. 1500s until Western contact in 1778, Maui was under control of Kahekili, the brother of King Kamehameha I, and others (Fornander 1969 Vol. II: 78). In November 1778, Captain James Cook of the H.M.S. Cook sailed along-side Maui and Kahekili visited the ship as it anchored off the northeast coast near Kahului. Cook's arrival commonly denotes the *Contact* era, as he was the first explorer to document communication with native Hawaiians and for plotting Hawai`i on a map. Four years later, Kahekili unified Maui, Lana`i, and Moloka`i (Barrére 1975). A short time later, Maui was conquered by Kamehameha I unifying all the Hawaiian Islands. At that time, Lāhainā became the capital of the Hawaiian Kingdom until it transferred to Honolulu in 1855.

POST-CONTACT PERIOD

Ancient Hawaiians resided in a very different Maui than is known today. Rainfall sustained a larger forest zone of native animals, plants, and trees. Extensive cultivation of taro, sweet potatoes, breadfruit, various fruits and herbs supplemented by coastal fishing, supported a sizeable Hawaiian population. Landscapes and lifestyles changed drastically with the introduction of foreign animals, and more influentially, the foreign "market" economy (Bartholomew 1994:118). The economy essentially facilitated from a redistributive one to a market economy.

Once Hawai`i was documented on the map, whalers, missionaries, businessmen, and curious foreigners migrated to the islands. Whalers were attracted to the beautiful and resourceful humpback whales that occupy Hawaiian waters during the months of December through May. In the 1820s, Lāhainā and Honolulu were central ports for whalers from around the globe. There were as many as six-hundred sailors interacting with the local residents at any given time in either town. According to Kame'eleihiwa (1992:140):

> As the maka`āinana flocked to the port towns to see the foreigners and their ships and to earn money, agriculture in the countryside was neglected...the population dwindled in outlying villages it became increasingly difficult to maintain the complicated irrigation systems necessary for wetland taro production, systems that required much communal labor. Drunkenness, which occurred perhaps from despair and especially when the fleet was in, because all too frequent among both foreigner and Hawaiian, while syphilis and other foreign diseases were freely exchanged.

The Native peoples of Hawai`i lacked the immunity to fight many foreign diseases.

Christian missionaries came to the islands in 1821. This produced further implications. Just a few years before, in 1819, Queen Ka`ahumanu assisted in the abolishment of the ancient Hawaiian spiritual belief system known as *`ai kapu,* so the new religion was widely accepted. Lāhainā was one of Hawai`i's central locations for missionaries and Christian services.

According to Taylor 1928:42-43, Rev. C.S. Stewart, a missionary in 1823, was assigned to the Lāhainā station. The Rev. commented on the attractiveness of the luxurious area:

> The settlement is far more beautiful than any place we have yet seen on the Islands. The entire district stretching nearly three miles along the seaside, is covered with luxuriant groves, not only of the cocoanut, the only tree we have before seen except on the tops of the mountains, but also of the breadfruit and the kou...while the banana plant, kappa and sugar-cane are abundant, and extend almost to the beach, on which a fine surf constantly rolls
>
> ...The breadfruit trees stand as thickly as those of a regularly planted orchard, and beneath them are kalo patches and fishponds, 20 or 30 yards square, filled with stagnant water, and interspersed with kappa trees, groves of banana, rows of the sugar cane, and bunches of the potato and melon...It scarcely ever rains, not oftener, we are told, than half a dozen times during the year, and the land is watered entirely by conducting streams, which rush from the mountains, by artificial courses, on every plantation. Each farmer has a right, established by custom, to the water every fifth day.

Lāhainā was the Hawaiian center for education that was originally established by missionaries. Many missionary families and Hawaiian royalty spent time learning and studying in Lāhainā.

Menzies (1920:105) was a naturalist and surgeon on board HMS Discovery during Captain George Vancouver's 1793 tour. He made these observations of the Lāhainā coast and village:

> [We]...soon entered the verge of the woods where we observed the rugged bands of a large rivulet that came out of the chasm cultivated and watered with great neatness and industry. Even the shelving cliffs of rock were planted with esculent roots, banked in

> and watered by aqueducts from the rivulet with as much art as if their level had been taken by the most ingenious engineer...
>
> ...to see the village of Lāhainā, which we could scattered along shore on a low tract of land that was nearly divided into little fields and laid out in the highest state of cultivation and improvement by being planted in the most regulated manner with the different esculent roots and useful vegetables of the country, and watered at pleasure by aqueducts that ran here and there along the banks intersecting the fields, and in this manner branching through the greatest part of the plantation [112].

As recorded in Handy and Handy 1972:493, little had changed twenty-six years later when J. Arago visited Hawai`i with Captain Louis de Freycinet in 1819:

> The environs of Lāhainā are like a garden. It would be difficult to find a soil more fertile, or a people who can turn it to greater advantage...various sorts of vegetables and plants...amongst which we distinguish the Caribee-cabbage, named here taro; double rows of banana, bread-fruit, cocoa-nut, palma-christi, and the paper-mulberry trees.

Lāhainā was indeed an area of vast agricultural fields which supported a sizable Native population.

With the influx of diseases and such, Native Hawaiian populations were decimated. More and more people from all directions of the globe were drawn to the magical Islands as the Native population dwindled. Eventually, a whole new society formed. A Hawaiian monarchy ensued and society changed drastically from ancient Hawaiian days. The mid 1800s were a political turning-point for the Hawaiian Islands.

MĀHELE

To protect Hawaiian sovereignty from foreigners, Kauikeaouli (Kamehameha III) enacted a new system of legal land ownership processes for the Hawaiian population that Kirch (1985:309) summarizes:

> By mid-century ...the single most significant inducement to cultural change, the Great *Māhele* or division of lands between the king, chiefs, and government, establish[ed] land ownership on a Western-style, fee-simple basis. From this single act, an entire

> restructuring of the ancient social, economic, and political order followed.

Because of the Māhele, lands that were once under *ali`i* care either became privately owned or were turned over to the government.

LAND GRANTS

According to the Waihona `Aina database (2005), some of the King's lands (some later known as *Ceded Lands*) belonged to *ali`i* and were exchanged back to the King for Commutation of the property. Other returned portions became Land Grants, or Government lands that were sold in attempt to generate income for the Kingdom (in which the King had no power). If the Government land was sold to a foreigner, the text is written in English, and if it were sold to a Native Hawaiian, the text was written in Hawaiian. By 1915, documents were written only in English, regardless of the buyer's ethnicity.

According to the most currently available TMK map, two Land Grants were issued in the project area. The first is Land Patent Grant #1891 issued to Dwight Baldwin for 46.50 acres in 1850. He paid $232.00 for these fee simple lands (see APPENDIX A). The document describes the area by chains and the said heirs. The survey describes the landscape containing: house lots, a pond, a coconut tree, Moalii creek, a Government swamp, taro patches, kulas, a road, a fence boundary and a great stone. The second Land Patent Grant listed on the TMK map in the current project area was issued in 1865 (see Appendix A). Grant #2998 was issued to William Ap. Jones for 0.70 acre and who paid $20.00 fee simple. According to the Waihona `Aina (2005) document, the land was:

> Kula land. Stoney & barren partially surrounded by a low stone wall containing one thatched house belonging to Nehowahilani, and in the North West portion several graves indicated by stones and in the South West also.

The land was assigned to William Ap. Jones and his heirs and assigns forever. The land was subject to taxes.

LAND COMMISSION AWARDS (LCAS)

For Natives that had been cultivating and living on the lands, lengthy and costly procedures enabled them to possibly claim some of the plots. Awarded claims were called Land Commission Awards (LCAs) and each was issued a Royal Patent number (RP). The present

project area contains multiple LCAs. Many records have been misplaced and/or are unidentified. The most recent TMK map has completely different LCAs than were listed for the area on a Government Survey map from 1884 (Figure 5). The LCAs that were located at the time of the 1884 map and the identifiable LCAs from the most current TMK map are presented In Appendix A.

Ethnographic and historical literature indicated Lāhainā was an agriculturally-rich locale irrigated by impressive aqueducts that originated in well-watered valleys, with permanent occupation predominately along the coastline. Handy and Handy (1972:593) state the space cultivated by the natives of Lāhainā at about "three leagues [9 miles] in length, and one in its greatest breadth. Beyond this all is dry and barren; everything recalls the image of desolation". Crops in cultivated areas included coconut, breadfruit, paper mulberry, banana, taro, sweet potato, sugar cane, and gourds.

Lāhainā was the port of choice for commercial endeavors that succeeded the traditional economy. With the demise of the whaling industry and the location change of the Hawaiian Kingdom from Lāhainā to Honolulu, population fluctuated. By the mid-1800s the area was entirely converted from traditional agriculture to commercial sugar cane. As early as 1849, Judge A.W. Parsons operated a sugar mill in Lāhainā. Henry Dickenson began a sugar plantation in 1859 that was quickly followed by the Pioneer Mill Co. By 1883, Pioneer Mill Co. had assets in excess of $50,000,000 (Simpich 1974). Pioneer Mill's railroad extended from the center of Lāhainā Village to a point north of the town of Pu`ukoli`i in Hanaka`ō`ō and was as close as 350 feet AMSL at its northern end (Condé 1975). Pioneer Mill Co. re-organized in 1900, at which time the cane fields were located along the coast for 10 miles, with some areas extending back as far as two and one half miles.

PIONEER MILL

The famous Pioneer sugar mill smokestack ascends from central Lāhainā north and adjacent to the current study area and is representative of local history. The mill sits on about 1.5 acres of land within LCA 3702:2. According to the Hawai`i Sugar Plantation Association (HSPA) plantation archives, James Campbell started the sugar plantation in 1860. Henry Turton and James Dunbar soon joined Campbell and they formed *Campbell & Turton.* In 1865, Dunbar left the company and the name was changed to *Pioneer Mill Company*. By 1874, Campbell and Turton added to the Mill's holdings: Lāhainā Sugar Company and Kamehameha V's venture of West Maui Sugar Company. In 1877, Campbell sold his half to Turton for $500,000 with agents Hackfeld & Company holding a second mortgage of $250,000. By 1885, Turton declared

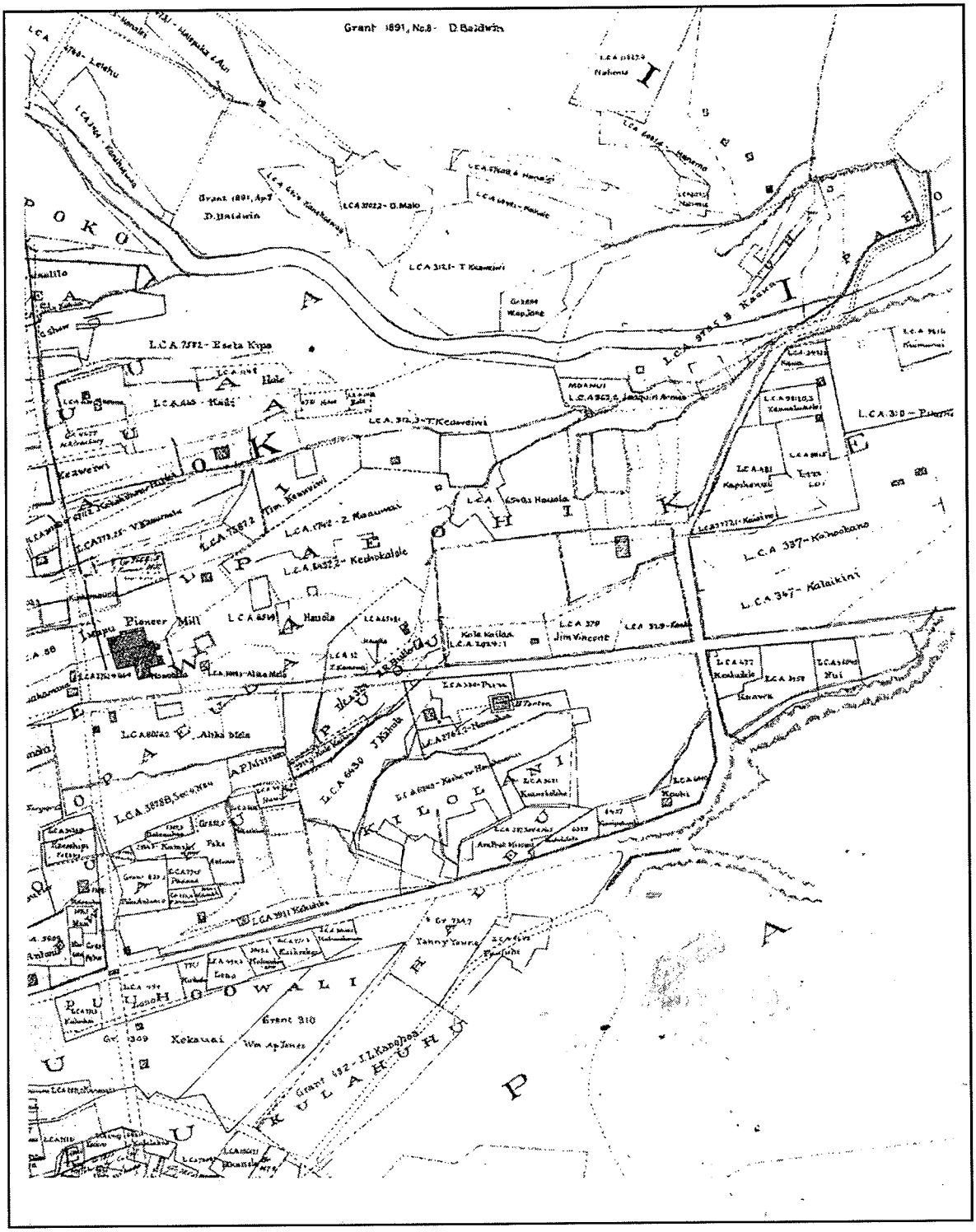

Figure 5: Hawaiian Government Survey Map for the Town of Lahaina and Showing Land Commission Awards within the Environs of the Project Area (S.E. Bishop 1884).

bankruptcy and sold the property back to Campbell and Paul Isenberg (Hackfeld & Co.). In 1916, Pioneer Mill Company was owned by 1,500 individual stockholders and valued at $5,000,000. By 1935, over 10,000 acres of land (half-owned and half leased) produced cane for Pioneer Mill. In 1960, Pioneer Mill Company became a complete subsidiary of the agent company.

Since the commencement of sugarcane production in Lāhainā, a large plantation community evolved around the Pioneer sugar mill. Plantation camps were established for workers and their families. Plantation settlements were once scattered among the cane fields from Olowalu to Honokohau. Lāhainā Light and Power Company, Lāhainā Ice Company, the Pioneer Mill Hospital, and the Lāhainā and Pu`ukoli`i Stores were all associated with the plantation, providing services to employees as well as other Lāhainā residents. The Second World War caused a severe labor shortage, forcing Pioneer Mill Company to drop over 1,000 acres from cultivation. The neighboring high school operated on a four day week so that students could spend Fridays and Saturdays on the plantation.

The sugar cane train tracks border the western terminus of the current project area. HSPA states that Pioneer Mill was one of the first plantations to use a steam tramway for transporting harvested cane from the fields to the mill. Approximately 1,000 acres of cane was flumed directly to the mill cane carrier and the remainder was delivered to the mill by rail. Sugar was taken by train to the landing at Pu`u Keka`a in Kā`anapali at Black Rock. Work areas and buildings were constructed there to aid in plantation activities such as oil and molasses tanks, a pavilion and some beach cottages for the use of Pioneer Mill Company's personnel (Clark 1980:61). In addition, a quarter-mile track had been constructed on the tidal flats (previously the site of the Battle of Koko-o-na-moku) behind Hanaka`ō`ō for horse racing on holidays.

Between 1948 and 1951, a rock removal program rehabilitated 3,153 acres of Pioneer land to permit mechanical planting, cultivating, and harvesting. In 1952, the railroad was eliminated. The train has more recently been cared for and is now the presently operating sugar cane train that conducts daily tours. The Kā`anapali Landing was abandoned before World War II and by 1957 plans were established for a multi-million dollar resort to be built around Pu`u Keka`a. Among other things, the shift to tourism in the 1950s sent sugar plantations into decline. Agriculture was replaced by high profit developments of golf courses, five-star hotels, condominiums, numerous strip malls, restaurants, and shops.

Currently, the smokestack is still standing but is very dilapidated and filled with cobwebs and rats. According to Kubota (2004), there are a number of issues surrounding the historical site. When the wind blows, fiberglass sheets curl up and the heavy metal corrugated sheet pieces actually break off. Pioneer Mill Co. has tried to reduce the number of rats that cross the road from the mill to residences at night, with no success. Adding to the problems are several years of unresolved talks among the landowner's agent, Kaanapali Development Corp., Maui County, and historic preservation advocates. In 2001, after community objections, Kaanapali Development scuttled plans to destroy most of the site, including the smokestack. Since then, no proposals have been put forth to finance the projected $300,000 preservation and maintenance of the smokestack alone or any other structures on the site. A number of Maui residents are interested in preserving portions of Pioneer Mill, including the smokestack and the mill office. However, long-term preservation desires are not presently financially backed. The sugar cane train and the Pioneer Mill smokestack site are presently infamous landmarks that appear to be some of the few remains of the sugar company's once foremost influence in Lāhainā town.

PREVIOUS ARCHAEOLOGY

Previous archaeology in the area is relatively extensive due to the rich archaeological resources in the area and the impetus for modern development. The following summary begins relatively early with Walker's survey of *heiau* on the island (1930). Walker documented Wailehau Heiau (50-50-03-6) at Malika Beach, Halekumukalani Heiau (50-50-03-7) in the Puehuehunui cane fields above Lāhainā, and Apahua Heiau (50- 50-0308) in Kuia Ahupua'a near upper Waine'e. Additionally, *Heiau* are known relatively near the current project area named Wai'ie, Luakona, Halulukoakoa, and the further discussed Moku'ula.

According to Burgett and Spear (1994:10), the Kahoma Complex (State Site # -1203) is located on the south bank of Kahoma Stream approximately 1.7 miles inland of the coastline. Originally recorded in 1978, the site consisted of a rock-shelter and thirty-eight petroglyphs. Barrera relocated the site and recorded additional features in 1989 (*ibid.*). Jensen (1989) documented habitation and agricultural features in the vicinity of Site# -1203. The site also included 13 probable burial features and a large cairn/marker.

The area on the south side of the mouth of Kahoma Stream was the focus of numerous archaeological investigations during the 1970s and 1980s. Studies were conducted in association with the proposed flood control project for Kahoma Stream by: Hommon (1973); Connoly (1974); Joerger and Kaschko (1979); and Ahlo & Morgenstein (1980)

More extensive analyses were documented at the mouth of Kahoma Stream near Mala Wharf by Sinoto (1975), Davis (1974), and Hammatt (1978). Numerous Hawaiian and Historic burials were located in the sandy beach dunes that continue to be exposed and weathered to this day. Hammatt (1978) recorded a ditch that may have connected `Alamihi Fishpond and Kahoma Stream to the north and monitored the removal of 90 burials with a cultural deposit from the sand dune.

Jenson (1988) and Haun (1988) conducted studies near `Alamihi Fishpond and Mala Wharf. Jenson excavated eight backhoe trenches on the south side of fishpond that resulted in negative findings. Haun excavated 19 backhoe trenches that uncovered some of the pond-field remains and a .25-.50 m thick cultural deposit that yielded a date from AD 1260 to 1761 (Haun 1988:17).

Walter and Demaris Fredericksen completed a number of archaeological investigations in the area including the 1965 excavations at King Kamehameha I's brick palace at TMK: (2)-4-6-001:007 (State Report # M-00019). In 1970, they drafted the final report for the preparation of the exhibit of the palace (State Report # M-00018).In 1978, they conducted excavations at the outbuildings adjacent to the Baldwin House [TMK (2)-4-6-008:007], under contract with the Lāhainā Restoration Foundation (State Report #M-00183). In 1981-1982, they conducted excavations at Hale Pa'i site at TMK (2)-4-6-018:005. (State Report #M-00180), and in 1988, the Aus Site: H.S. State site #50-03-1707.

A preliminary Archaeological Inventory Survey Report was submitted by Walter and Demaris with the help of Eric Fredericksen at TMK (2)-4-6-009:021 (State Report #M-00186). In1989, they prepared an archaeological Inventory Survey of the Plantation Inn Site at TMK (2)-4-6-009:042 and 043 (State Report #M-00219) Also in 1989, they conducted an archaeological Data Recovery report for the previously investigated Aus Site at TMK (2)-4-6-009-021 (State Report #M00222). The same year, they conducted an Inventory Survey of a parcel of land adjacent to Malu-ulu-o-lele park at TMK (2)-4-6- 007:001 (State Report #M-00239). In 1990 they prepared the Data Recovery Report for the Plantation Inn Site (State Report #M00285). Finally in 1993, they completed an Inventory Survey on a Parcel of land located in the Ahupua'a of Paunau at TMK (2)-4-6-009:012 (State Report #M-00448).

Kurashina and Sinoto (1984) identified two sites associated with Pioneer Mill during Reconnaissance Survey on 11.7 acres. The project area was located on the east side of Front Street between Baker and Papalaua Streets. The two sites mentioned were an irrigation gate that once regulated the flow of water from Kahoma Stream into the cane fields; and surface remains

of the Pioneer Mill Hospital. The report indicated that no archaeological sites or portable artifacts were located (Kurashina & Sinoto 1984:8-9).

An archaeological Reconnaissance survey was conducted in an area near Waine'e Village in 1992 by Robert Hommon at TMK (2)-4-6 (State Report #M-00074). There was an Archaeological walk-through examination of proposed housing by Joseph Kennedy at TMK (2)-4-6-013:006 in 1986 (State Report #M-00140). In1988, there was a Historic site survey for Lāhaināluna Road and Waine`e Street widening projects by Spencer Mason Architects at TMK (2)-4-6 [State Report#M-00261). In 1989 Kennedy submitted an archaeological report concerning subsurface testing at TMK (2) 4-6-008:012 (State Report #M-00210). A Supplemental Archaeological Survey was completed for the Lāhainā Master-Planned Project Offsite Sewer, Water Improvements, & Cane Haul Road, Lands of Wahikuli, Hanaka'o'o, Honokawai,Kuhua, Kuholilea, Puou, Pu'uiki, and Aki in 1991 by Peter Jensen and Jenny O'Claray at TMK (2) 4-4, 5, and 6 (State Report #M-00336).

In 1994, an Archaeological Inventory Survey was prepared for Waiola Church in the Ahupua'a of Waine'e by Melody Heidel, William Folk, and Hallet Hammatt at TMK (2)-4-6-007:016 (State Report #M-00517). In 1995, Moku'ula a History and Archaeological Excavations at the Private Palace of King Kamehameha III was competed by Paul Klieger, Ed Christiaan; Boyd Dixon, Susan Lebo, Heidi Lennstrom, Dennis Gosser, and Stephan Clark at TMK (2)-4-6-002:023, 2-4-6-007:001; 002; 035; 036; 037; 038; and 041 (State Report #M-00503). Stephan Clark, Paul Klieger, and Ed Christiaan reported human burials at Moku'ula in 1995 Site 50-50-03-2967 at TMK (2)-4-6-007:002 (State Report #M-005471). The same year, Paul Klieger and Lonnie Somer submitted a draft for emergency mitigation at Malu'ulu o Lele Park at Moku'ula Site 50-50-03-2967 at TMK (2)-4-6-007: 002 (BPBM 50-Ma-D5-12 State Report #M-00734).

Burgett and Spear (1994) conducted Inventory Survey of 8.8 acres in a neighboring area at Kainehi (makai). Mechanical trenches were excavated systematically throughout the study area. A human burial was encountered and a burial treatment plan was completed.

In 1996, Maurice Major, Ed Christiaan, Paul Klieger, and Susan Lebo completed the historical background and archaeological testing at Pikanele's *Kuleana* and an Inventory Survey report of LCA 310.3 (Royal Patent 1729, TMK [2] 4-6-07:13). An archaeological survey of the northeastern edge of Loko o Mokuhinia was conducted. In this portion of Kalua o Kiha, a combination of pre-and post-Contact artifacts were collected. Additional reports were prepared

in conjunction with Front Street widening and other improvements (e.g. Klieger and Prismont 1994).

An abundance of archaeological sites in the Lāhainā District have been severely impacted and/or completely destroyed by early historic and modern day activities. Moku'ula (the brick castle)is one of the most publicized site in the area that was buried under about .60 m of fill in 1914, and is now in the process of being rediscovered through local community and government efforts (Klieger 1995). The site was once an island known as Moku'ula within Malu'ulu o Lele Park in Lāhainā, which is west of the current project area. Moku'ula was the private residential complex of King Kamehameha III from 1837 to 1845, when Lāhainā was the capital of the kingdom of the Hawaiian Islands. The site is on the state and national registers of historic places within the Lāhainā Historic District that consists of 60 sites administered by the County of Maui Cultural Resource Commission since 1962. Phase I Archaeological Inventory and Survey Excavations of Moku'ula were undertaken by the Bishop Museum in 1993 (Klieger 1995).

SITE PATTERNS

Based on all available physiographic, archaeological, and historical evidence, there was a limited, yet significant, chance of finding traditional Hawaiian (*i.e.,* Pre-Contact) sites and features in the project area. The probability of surface architecture or cultural remains was minimal due to severe land alterations from commercial agricultural sugarcane ventures and significant machine land alterations from the re-alignment of Kahoma Stream. If not for major historical land alterations, based on Māhele documentation, there would have been traditional surface features in the form of rock terraces, enclosures, footings, alignments and other features related to agriculture and permanent habitation. LCA research documented a number of house lots, Kula land for sweet potatoes, numerous kalo patches (most had Lo`i listed that involved intensive agri/aquaculture). There were probably plantings of other types of fruits, herbs, and vegetables. Based on extensive use of the area and the established widespread landscape disturbance, it was expected that any archaeological findings would be located in sub-surface contexts.

METHODOLOGY

The work described in this report consists of historical background and archival research; pedestrian survey of the parcel; mapping and describing of surface features; subsurface testing (excavation by backhoe); analysis, interpretation, and reporting of all relevant data. Fieldwork was conducted by SCS archaeologists Ian Bassford, B.A., and Jenny Pickett, B.A. on

September 6 and 9, 2005. J. Pickett conducted the background and archival research; Dr. M. Dega is the project Principal Investigator.

ARCHIVAL METHODS

Archival research was conducted at the SHPD-Maui library facility and on the SHPD website (SHPD 2005) before, during, and after the fieldwork described in this report. Archival work consisted of general research on the history and archaeology of Lāhainā in general, as well as specific searches of previous archaeological studies in and around the subject parcel. Historic land use data from in and around the site were obtained from the Waihona `Aina website and a copy of the LCAs within the project area are (as previously noted) located in **APPENDIX A** (Waihona `Aina 2005).

FIELD METHODS

Fieldwork involved systematic pedestrian survey (5-meter spacing) of the entire project area and representative testing. All aspects of field work were photographed with a digital camera and copies of these photographs have been archived on the SCS computer network. As no surface features or deposits were identified during survey and the area was previously grubbed/graded and utilized for a storage/dump area, emphasis was placed on subsurface investigations. Trenches were placed across various portions of the project area to provide representative coverage and test areas most amenable to potentially yielding archaeological information. All backhoe trenches were described using standard archaeological recording forms with sufficient detail to exhibit character, size, location, and inter-relationships. Figure 6 illustrates trench locations. Scaled profile drawings of soil stratigraphy; soil layer colors (Munsell; dry), and soil compositional data were acquired from each trench.

LABORATORY METHODS

As there were no significant finds on the surface or through testing, laboratory work primarily consisted of digital drafting of stratigraphic trench profiles, trench locations, and project area maps. All field notes, maps, photographs, and communications pertaining to this project are being curated at the SCS laboratory in Honolulu.

FIELDWORK RESULTS

Complete pedestrian survey of the subject parcel failed to reveal any structures, artifacts, or surface deposits. Survey did reveal the large extent of previous grading and overall disturbance to the project area surface. In addition, a total of fifteen stratigraphic backhoe

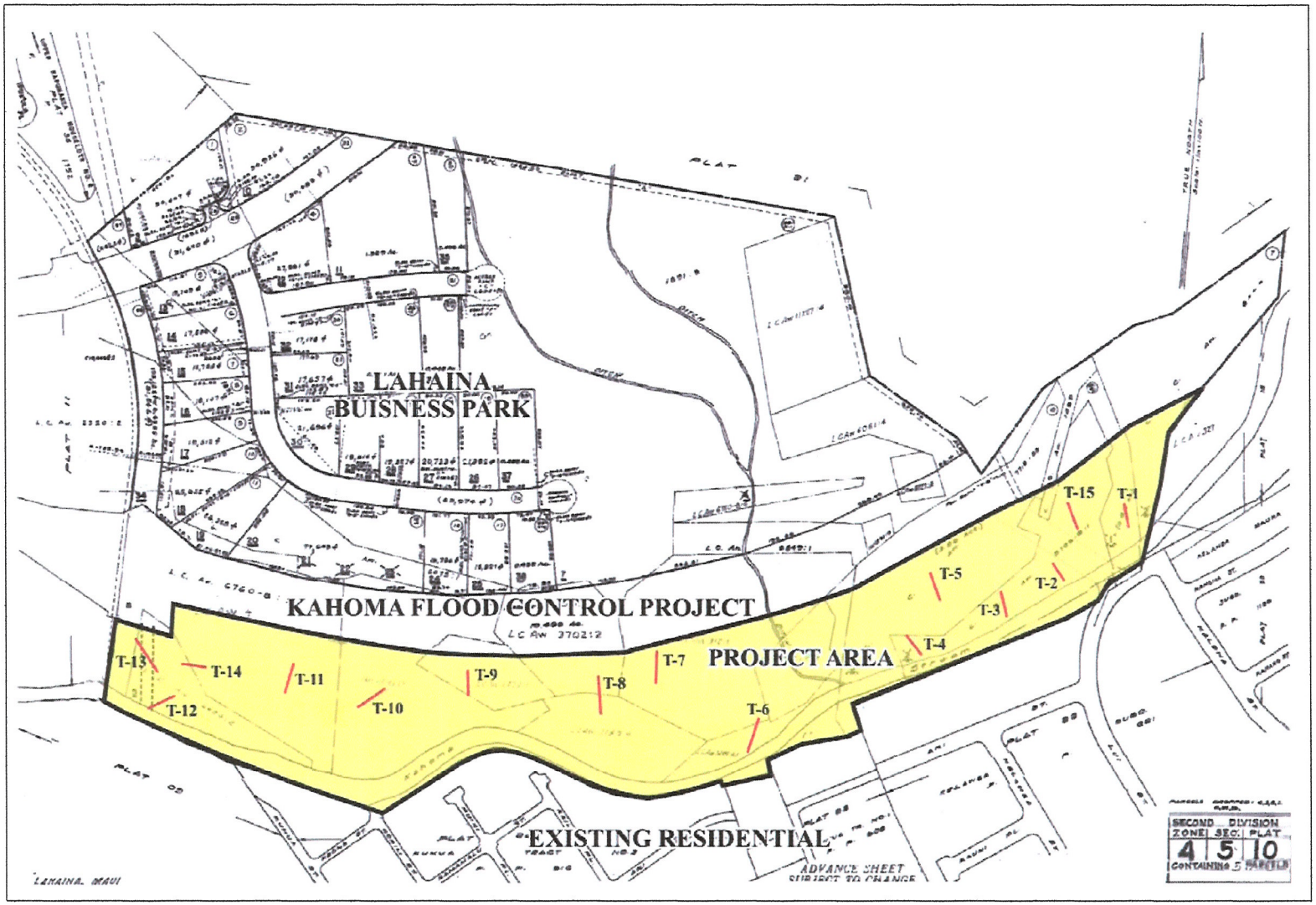

Figure 6: Plan View Map Depicting Testing Locations in Project Area.

Trenches (T-1 through T-15) were excavated across the parcel. Table 1 summarizes trench excavation results:

Table 1: Excavation Trench Data and Results

Trench No.	Length (m)	Width (m)	Depth (m)	Orientation (degrees)	Soil Type	Additional Information
1	5	1.2	1.1	40/220	Possibly Original (Layer II)	Excavation terminated at saprolitic/bed rock.
2	6.3	1.5		150/330	Fill	Maximum Depth.
3	6.9	1.25	1.5	170/350	Fill	White plastic pipe at about 1m. Excavation terminated at saprolitic/bed rock.
4	5.1	1.1	0.75	150/330	Fill	Black plastic at about .50m. Excavation terminated at saprolitic/bed rock.
5	7.7	1.2	1.6	160/340	Multiple Layers of Fill	Wood, soda can, black plastic throughout. Old A-horizon observed. Excavation terminated at saprolitic/bed rock.
6	5.2	1.15	1.18	160/340	Possibly Original (Layer I)	Significant grass roots/rootlets. Excavation terminated at saprolitic/bed rock.
7	5.8	1.25	1.75	20/200	Fill	Large boulders-old HC&S boulder dump-site. Wood at about 1m.
8	5.75	1.3	1.75	170/350	Possibly Original (Layer II)	Black plastic throughout Layer I.
9	6.11	1.3	1.95	160/340	Fill	Black plastic throughout Layer.
10	6.3	1.15	1.98	256/66	Fill & old streambed	Black plastic throughout Layer I. Old Kahoma streambed Layer II.
11	7	1.15	1.6	180/360	Multiple Layers of Fill	Black plastic throughout both Layers. Wood at about .50m.
12	7	1.05	1.55	100/280	Fill & old streambed	Black plastic and wood located in Layer I. Old Kahoma streambed Layer II.
13	7.4	1.25	2.7	140/320	Possibly Original	Old Kahoma streambed Layer II. Maximum depth.
14	8.3	1.2	2.7	50/230	Fill	Black plastic throughout Layer. Maximum Depth.
15	6.8	1.2	1.9	360/180	Fill	Large boulders-possibly old HC&S boulder dump-site.

Trenches were intentionally positioned throughout the project area in order to obtain the broadest coverage. Average trench length was 6.44 m with an average width of 1.13 m. The depth of excavation ranged from 0.5–2.7 m at an average of 1.78 m below surface (bs). Trench locations were recorded using tape and compass and documented on a TMK map (see Figure 6). Field notes, stratigraphic profiles, and soil descriptions were recorded for each trench according to standard archaeological resource management procedures. All trenches yielded negative results.

As all trenches yielded negative results and were somewhat redundant in profile, trench descriptions, orientation, and measurements are included herein as **Appendix B**. Photographs and illustrations of all stratigraphic profiles are available upon request.

DISCUSSION

Fairly intensive surface and subsurface investigations of the project area failed to yield evidence for traditional or historic-period activities. All investigations yielded only negative results. The reasons for this absence of cultural resources appear to be primarily related to modern land disturbances. Mechanical clearing and grading have certainly affected the surface area of the parcel. These same activities, combined with removal of natural soil and importation of fill soils, is another cause for the absence of any subsurface cultural materials. Construction of the Kahoma Flood Control Channel certainly played in role in disturbance to surface and subsurface contexts of the project area.

RECOMMENDATIONS

Based on archival research, LCA documentation, and previous archaeology noted herein, it appears that the current project area would be deemed significant to the cultural history of the area. However, extensive machine (bulldozer) alterations are evident throughout the area and bulldozer push-piles along with large boulder-piles have completely modified the original surface and into subsurface contexts. Given the fairly extensive investigations conducted herein and the absolute lack of cultural resources documented during this project, no further archaeological work is recommended for the project area. In the unlikely event that significant cultural resources, including burials, are encountered during construction, the contractor must contact SHPD-Maui to discuss the find(s) and potential mitigation on the parcel.

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APPENDIX A: LCA DATA

LCAs IN PROJECT AREA:

Number: 04878BB

Claim Number:	**04878BB**		
Claimant:	**Honu**		
Other claimant:			
Other name:			
Island:	**Maui**		
District:	**Lahaina**		
Ahupuaa:	**Makila**		
Ili:			
Apana:	**2**	Awarded:	**1**
Loi:	**1**	FR:	
Plus:		NR:	**215v6**
Mala Taro:		FT:	**39v7**
Kula:	1	NT:	
House lot:	**1**	RP:	**3585, 4506**
Kihapai/Pakanu:		Number of Royal Patents:	**2**
Salt lands:		Koele/Poalima:	**No**
Wauke:		Loko:	**No**
Olona:		Lokoia:	**No**
Noni:		Fishing Rights:	**No**
Hala:		Sea/Shore/Dunes:	**No**
Sweet Potatoes:		Auwai/Ditch:	**No**
Irish Potatoes:		Other Edifice:	**No**
Bananas:		Spring/Well:	**No**
Breadfruit:		Pigpen:	**No**
Coconut:		Road/Path:	**No**
Coffee:		Burial/Graveyard:	**No**
Oranges:		Wall/Fence:	**No**
Bitter Melon/Gourd:		Stream/Muliwai/River:	**No**
Sugar Cane:		Pali:	**No**
Tobacco:		Disease:	**No**
Koa/Kou Trees:		Claimant Died:	**No**
Other Plants:		Other Trees:	
Other Mammals:	**No**	Miscellaneous:	

Cl. 4878BB, Honu, Part 24, June 1, 1849

F.T. 39v7

Kauhikapa, sworn, I know the land of claimant. They are in "Makila," Lahaina and consist of 2 pieces. In one is a house lot and kula. The other is not in "Makila" but is in Alio and is kalo land.

The kalo land which is one loi I gave to the claimant in 1837 and he has occupied it in peace ever since. The house lot and kula he received from Makaena in 1837 and he has not been disputed in his title to this piece.

The house lot and kula are bounded:
Mauka by the land of Pupuka
Olowalu by the dry creek bed
Makai by the main road of Lahaina
Kaanapali by the land of Kekua.

The kalo land is bounded:
Mauka and Olowalu sides by my lois
Makai by the poalima lois of Serang or Victoria
Kaanapali by Kainaiki.

[Award 4878BB; R.P. 4506 & 3585; Makila Lahaina; 1 ap.; 1 rood 9 rods; Makila Lahaina; 1 ap.; 2 roods 23 rods; See 4878 for Native Register document for Pi in list of Upai ma claimants]

Number: 04878F

Claim Number:	**04878F**		
Claimant:	**Pi**		
Other claimant:			
Other name:			
Island:	**Maui**		
District:	**Lahaina**		
Ahupuaa:	**Makila**		
Ili:			
Apana:	**2**	Awarded:	**1**
Loi:	**40**	FR:	
Plus:		NR:	**215v6**
Mala Taro:		FT:	**28v7**
Kula:		NT:	
House lot:	**2**	RP:	**8226,2705,7458**
Kihapai/Pakanu:		Number of Royal Patents:	**3**

Salt lands:		Koele/Poalima:	**No**
Wauke:		Loko:	**No**
Olona:		Lokoia:	**No**
Noni:		Fishing Rights:	**No**
Hala:		Sea/Shore/Dunes:	**No**
Sweet Potatoes:		Auwai/Ditch:	**No**
Irish Potatoes:		Other Edifice:	**No**
Bananas:		Spring/Well:	**No**
Breadfruit:		Pigpen:	**No**
Coconut:		Road/Path:	**Yes**
Coffee:		Burial/Graveyard:	**No**
Oranges:		Wall/Fence:	**No**
Bitter Melon/Gourd:		Stream/Muliwai/River:	**Yes**
Sugar Cane:		Pali:	**No**
Tobacco:		Disease:	**No**
Koa/Kou Trees:		Claimant Died:	**No**
Other Plants:		Other Trees:	
Other Mammals:	**No**	Miscellaneous:	

Cl. 4878F, Pi, Part 5
F.T. 28v7

Holi, sworn, I know the lands of Pi. They are in "Makila," Lahaina, and they consist of three moos or ridges of kula land on which his house stands, which are in one piece. Also one House lot separated from this, and one piece of kalo land containing 40 lois.

Claimant received these lands from Kaulunae in 1824 and he has held them without dispute ever since. The King is the great Lord of "Makila" and to him belongs the poalima.

The piece of kula is bounded:
By the House lot of Maimaoe Mauka
Olowalu by the land of Kekua
Makai by the road to Olowalu
Kaanapali by the land of Paele.

The house lot further mauka is bounded:
Mauka by the stream
Olowalu and Makai by Kapuka's land
Kaanapali by the land of Maimai.

The kalo land is bounded:

Mauka by the Auwai dividing it from the lois of Makakapu
Olowalu by the creek
makai by the land of Kekua
Kaanapali sides is a water course dividing it from uncultivated kula.

See page 32 volume 15

F.T. 32v15
No. 4878F, Pi, from p. 28v7

Claimant appeared in person and stated that he had given up the piece of kula land disputed by Pupule, surveyed for him by Mr. Alexander.

[Award 4878F; Land Patent 8226, Makila Lahaina; 1 ap.; 3 roods 8 rods; R.P. 2705; Maikila Lahaina; 2 ap.; 1 Ac.; & R.P. 7458; Makila Lahaina; 1 ap.; 1 Ac. 29 rods; See 4878 for Native Register document]

Number: 04878II

Claim Number:	**04878II**
Claimant:	**Pupuka**
Other claimant:	
Other name:	
Island:	**Maui**
District:	**Lahaina**
Ahupuaa:	**Lahaina**
Ili:	

Apana:	Awarded:	**1**
Loi:	FR:	
Plus:	NR:	**215v6**
Mala Taro:	FT:	**42v7**
Kula:	NT:	
House lot:	RP:	**1749,1201,2707**
Kihapai/Pakanu:	Number of Royal Patents:	**3**
Salt lands:	Koele/Poalima:	**No**
Wauke:	Loko:	**No**
Olona:	Lokoia:	**No**
Noni:	Fishing Rights:	**No**

Hala:		Sea/Shore/Dunes:	**No**
Sweet Potatoes:		Auwai/Ditch:	**No**
Irish Potatoes:		Other Edifice:	**No**
Bananas:		Spring/Well:	**No**
Breadfruit:		Pigpen:	**No**
Coconut:		Road/Path:	**No**
Coffee:		Burial/Graveyard:	**No**
Oranges:		Wall/Fence:	**No**
Bitter Melon/Gourd:		Stream/Muliwai/River:	**No**
Sugar Cane:		Pali:	**No**
Tobacco:		Disease:	**No**
Koa/Kou Trees:		Claimant Died:	**No**
Other Plants:		Other Trees:	
Other Mammals:	**No**	Miscellaneous:	

No. 4878II, Pupuka, Part 31, June 1, 1849
F.T. 42v7

Kamohai, sworn, I know the land of claimant. They are in "Makila," Lahaina. They consist of 2 pieces. One a kula land and the other a kalo land.

The claimant obtained these lands from Kauluwae soon after Liholiho went to England, about 1835 and his title to them is without dispute.

The kula is bounded:
Mauka by the house lot of Kapuka
Olowalu by the creek
Makai by the house lot of Muonou
Kaanapali by the land of Kaleiopu.

The kalo land is bounded:
Mauka by the lois of Kaleiopu
Olowalu by the pali
Makai by my lois
Kaanapali by the pali.

[Award 4878II; R.P. 1749; Makila Lahaina; 1 ap.; 1.75 Acs; R.P. 1201; Makila Lahaina; 1 ap.; 1.7 Acs; R.P.2707; Makila Lahaina;1 ap.; 1.13 Acs; See 4878 for Native Register document]

Number: 04878KK

Claim Number:	**04878KK**			
Claimant:	**Kelea**			
Other claimant:				
Other name:				
Island:	**Maui**			
District:	**Lahaina**			
Ahupuaa:	**Makila, Polaiki**			
Ili:				
Apana:	**2**		Awarded:	**1**
Loi:	**2**		FR:	
Plus:	+		NR:	**215v6**
Mala Taro:			FT:	**43v7**
Kula:		1	NT:	
House lot:	**1**		RP:	**4429**
Kihapai/Pakanu:			Number of Royal Patents:	**1**
Salt lands:			Koele/Poalima:	**No**
Wauke:			Loko:	**No**
Olona:			Lokoia:	**No**
Noni:			Fishing Rights:	**No**
Hala:			Sea/Shore/Dunes:	**No**
Sweet Potatoes:			Auwai/Ditch:	**No**
Irish Potatoes:			Other Edifice:	**No**
Bananas:			Spring/Well:	**No**
Breadfruit:			Pigpen:	**No**
Coconut:			Road/Path:	**Yes**
Coffee:			Burial/Graveyard:	**No**
Oranges:			Wall/Fence:	**No**
Bitter Melon/Gourd:			Stream/Muliwai/River:	**Yes**
Sugar Cane:			Pali:	**No**
Tobacco:			Disease:	**No**
Koa/Kou Trees:			Claimant Died:	**No**
Other Plants:			Other Trees:	
Other Mammals:	**No**		Miscellaneous:	

Cl. 4878KK, Kelea, Part 32, June 1, 1849

F.T. 43v7

Pupuka, sworn, I know the lands of the claimant. They consist of [a] section of kalo patches on "Puehuehueiki" and a house lot and kula and loi on "Makila."

The claimant obtained these lands in the days of King Liholiho from Kaleikana [?], and has possession [of] them in peace ever since.

The piece on "Makila" is bounded:
Mauka by my land
Olowalu by the creek
Makai by the main road of Lahaina
Kaanapali by the land of Kanehiwa.

The piece of kalo land is bounded:
Mauka by the land of Laahili
Olowalu by the same
Makai by the lois of Haukolea [?]
Kaanapali by the lois of Keawekane.

[Award 4878KK; R.P. 4429; Makila Lahaina; 1 ap.; 1 rood 78 rods; no R.P.; Polaiki Lahaina; 1 ap.; 12 rods; See 4878 for Native Register document]

Number: 06210

Claim Number:	**06210**		
Claimant:	**Kapuka**		
Other claimant:			
Other name:			
Island:	**Maui**		
District:	**Lahaina**		
Ahupuaa:	**Makila**		
Ili:			
Apana:		Awarded:	**1**
Loi:		FR:	
Plus:		NR:	**355v6**
Mala Taro:		FT:	**103v7**
Kula:		NT:	
House lot:		RP:	**2706**
Kihapai/Pakanu:		Number of Royal Patents:	**1**

<B>No. 312, T. Keaweiwi
N.R. 76-77v2</B>

To the Land Commissioners, Greetings: I hereby tell you of my right, at Lahaina. Aki and Kuhua are the lands where my lot is, and this is my residence.

A portion has been occupied from ancient times and a portion is new. It has not been surveyed - it is for you to survey it.
Farewell, and thank you
TIM. KEAWEIWI
Witnesses: Imiwale, Kaleoku

<B>N.T. 12v15</B>
No. 312, Timoteo Keaweiwi, Lahaina 15. November 1852

Ahuli, sworn, says he knows the House Lot of Claimant in Waiokama, Lahaina. Witness has lived there under Claimant for the last ten years. Claimant received this Lot from Kekahiko about 1836, and there is no dispute to his title.

The Lot is bounded:
Mauka by Nalehu
Olowalu by Malokuakea
Makai by Nalehu
Kaanapali by Napahi's house Lot.

<B>N.T. 87v2</B>
No. [312], Keaweili, Lahaina, January 1847

Postponed - work to be resumed when (he) returns.

<B>N.T. 195v2</B>
No. 312, Timoteo Keaweiwi, See T.

Hoohei, sworn by the Word of God, This place which Timoteo is claiming is at Aki and are small sections of land. It was acquired during the time of Kalehu and the right was received from Kalehu, who was the konohiki of Aki, who had received his interest from Kalaimoku and Kalaimoku had received his interest from Kamehameha. Imiwale and Kaiahua both have a small piece of that place. He (Timoteo) has two lots there which have been enclosed with a fence. There is a mud house standing in there, also another enclosure and he is living there now. No one has objected to him.

It (claim) is postponed and will resume when a witness is found.

[Award 312; R.P. 2650; Waiokama Lahaina; 1 ap.; 16 rods; Kuhua Lahaina; 1 ap.; .43 Ac. & Uhao (See 11146) Lahaina; 3 ap.; 1.36 Acs; R.P. 1180; Moalii Lahaina; 2 ap.; 7.62 Acs; Aki Lahaina; 1 ap.; 6 Acs 2 roods 10 rods; R.P. 1179, Akiaiole Lahaina; 1 ap.; 3.47 Acs; See also Award 11146 & 11150]

<B>No. 11150, Keone
F.T. 68v15</B>

Claimant, being sworn, deposed that she gave in her claim to Mr. Richards, at lahaina, in the year 1847, and had it surveyed at the same time by J. Richardson (produced a copy of the survey).

T. Keaweiwi, sworn, says he knows the House lot of Keone, in Kuhua, Lahaina.

It is bounded on:
Olowalu side by Alaala's land
Makai by Hale's lot
Kaanapali side by "Kuhuanui"
Mauka by Imiewale's land.

Claimant has also a piece of Kula land, in "Kuhuanui," it is surrounded by the land of Konohiki, I think.

She has also another House lot, in "Kuhuanui,"

Bounded on:
Olowalu side by a stream
Makai by Moaliis[?]
Kaanapali side by Timoteo
Mauka by Kekahuna's land.

It is enclosed and belonged to Claimant's husband and is still occupied by some of her relatives.

Claimant has also a kalo patch, adjoining the first mentioned House lot, in "Kuhua." It is

Bounded on:
Olowalu side by a watercourse
Makai by Wahine's land
On the other side by the same.

Claimant derived her lands from her husband who got them from Kipa in ancient times, and has always held undisturbed possession of them.

[Award 312; R.P. 2650; Waiokama Lahaina; 1 ap.; 16 rods; Kuhua Lahaina; 1 ap.; .43 Ac. & Uhao (See 11146) Lahaina; 3 ap.; 1.36 Acs; R.P. 1180; Moalii Lahaina; 2 ap.; 7.62 Acs; Aki Lahaina; 1 ap.; 6 Acs 2 roods 10 rods; R.P. 1179, Akiaiole Lahaina; 1 ap.; 3.47 Acs; See also Award 11146 & 11150]

<B>No. 11150, Keone
F.T. 68v15</B>

Claimant, being sworn, deposed that she gave in her claim to Mr. Richards, at lahaina, in the year 1847, and had it surveyed at the same time by J. Richardson (produced a copy of the survey).

T. Keaweiwi, sworn, says he knows the House lot of Keone, in Kuhua, Lahaina.

It is bounded on:
Olowalu side by Alaala's land
Makai by Hale's lot
Kaanapali side by "Kuhuanui"
Mauka by Imiewale's land.

Claimant has also a piece of Kula land, in "Kuhuanui," it is surrounded by the land of Konohiki, I think.

She has also another House lot, in "Kuhuanui,"

Bounded on:
Olowalu side by a stream
Makai by Moaliis[?]
Kaanapali side by Timoteo
Mauka by Kekahuna's land.

It is enclosed and belonged to Claimant's husband and is still occupied by some of her relatives.

Claimant has also a kalo patch, adjoining the first mentioned House lot, in "Kuhua." It is

Bounded on:
Olowalu side by a watercourse
Makai by Wahine's land
On the other side by the same.

Claimant derived her lands from her husband who got them from Kipa in ancient times, and has always held undisturbed possession of them.

Kuheleloa, sworn, says he is Luna of "Kuhua" under Haalelea and he knows the pieces of land claimed by Keone. She and her family have held them ever since witness came to live on "Kuhua," seven years ago.

[Award 11150; R.P. 2651; Kuhua Lahaina; 4 ap.; 1 Ac. 3 roods 21 rods]

<B>No. 6424, Kanehoewaa, Lahaina, February 4, 1848
N.R. 371v6</B>

Greetings to the Commissioners of the Mo'i: I have a little claim for a lot, at Moalii, adjoining the flowing stream; it is 68 fathoms long by 68 fathoms wide.

[DIAGRAM]

Furthermore, there is a kihapai for planting sweet potatoes, 11 fathoms in length and 24 fathoms in width /sic/.

This is its diagram

[DIAGRAM]

This is its diagram, adjoining the stream of Moalii in Lahaina on the Island of Maui.
KANEHOEWAA

<B>F.T. 18v7</B>
Cl. 6424, Kanehoewaa

for house lot and farm

Lelehu, sworn, I know these lands. Claimant had them from Hoaai who had them from me about 10 years since. I had them from Kaahumanu. I never head claimant's title disputed.

The house lot is in Lahaina, the part called Moalii.
Mauka is David Malo's land
Olowalu is Kaulakukui's
Makai is my land
Kaanapali is my yard.
The fence is the true boundary.

The farm lot is bounded:
Mauka by my land
Olowalu by Moalii Creek
Makai by my land and Kaanapali.
[Award 6424; R,P. 1840; Moalii Lahaina; 1 ap.;. 1.6 Acs]

GRANTS:

B>No. 1891, Baldwin, Dwight, Moalii, Ahupuaa, District of Lahaina, Island of Maui, Vol. 10, pps. 183-185</B> [LG Reel 3, 01321-01323.tif]

No. 1891
Royal Patent

Kamehameha IV, By the Grace of God, King of the Hawaiian Islands, by this His Royal Patent, makes known, unto all men, that he has for himself and his successors in office, this day granted and given, absolutely, in Fee Simple unto Dwight Baldwin his faithful and loyally disposed subject for the consideration of Two Hundred and Thirty two Dollars, paid into the Royal Exchequer, all that certain piece of Land situated at Moalii, Lahaina in the Island of Maui and described as follows:

No. 1.
Beginning at South West corner on shore the boundary runs
South 52 1/?° East 1.00 Chains along Alamihi
North 18° East 155 Chains along Manakaumi's house lot
South 72° East 67 Chains along said
South 16° 14' West 1.42 along Do
South 60° East 181 Chains along Alamihi's boundary to Unahiole pond
North 31 1/2° East 0.94 Chains along house
North 62° West 0.90 along Kauakanui's house lot
North 31° East 215 Chains along lots to a cocoanut tree
North 70° West 7.12 Chains along Hauki's pond
North 14 1/2° East 2.90 Chains along Keawe's
South 72 1/?° East 1.66 Chains along Keawe's to road
North 4° West 2.89 Chains to road West 1.20 Chains along Kaiaakekoa
North 1° East 6.70 Chains along said lot to road
North 11 3/4° West 741 Chains along road of Punakea
North 42° West 4.52 Chains along Kealiipio
South 26° East 6.52 along sea shore
South 1° East 11.56 Chains along sea shore
South 11° West 8.47 Chains along sea shore to commencement.
Area 3 Acres, 1 Road, 9 Rods.

No. 2
Begin at South West corner on the main road, run
South 70 3/4° East 6.90 Chains along Palea
South 14 1/2° West 2.80 Chains along Palea to creek
South 84 1/3° East 1.64 Chains along creek
North 9 1/2° East 1.62 Chains along Kuaikawai's House lot
South 78 1/2° East 2.50 Chains along D
South 89° East 2.13 Chains along D
North 85° East 2.24 Chains along D
North 25° West 1.00 Chains along Nalimanui's

North 4° East 2.64 Chains along D & Kaulakukui's
South 82 1/2° East 2.15 Chains along Nalimu
South 81 1/2° East 2.47 Chains
North 86° East 1.68 Chains along D, North 0.27 Chains along Moakaka
South 82° West 1.30 Chains
North 83° West 2.81 Chains
North 79° West 2.08 Chains all along Keawe's
North 11 1/2° East 2.90 Chains along Nalimu, Keawe, & Moakaka
North 80° West 6.08 Chains along Moakaka
South 11° West 1.22 Chains along Moakaka & Nalimu
North 78 1/2° West 2.54 Chains
North 67 1/2° West 3.96 Chains both along nalimu
North 4° West 1.36 Chains along Malimu & Moakaka
North 81 1/4° West 3.00 along Government Swamp
South 4° East 1.70 Chains along main road
South 78 1/2° East 3.00 Chains along Kaiki & Keawe
South 67 1/2° East 3.96 Chains along Keawe
South 78 1/2° East 2.52 Chains along D
South 11° West 2.41 Chains along Keawe & Kaulakukui & Kaiki to North east corner of Koopahea taro patch
North 81 3/4° West 1.25 Chains along Kaiki on bank of Koopahea
South 13° 3/4 West 0.71 Chains along Kauakanui
North 71° West 6.92 Chains along D to road
South 6 1/4° East 0.70 Chains along main road to place of beginning.
Area 7 Acres, 1 Road, 21 Rods.

[page 184]

No. 3.
Begin at South West corner on Main Road, run
South 81° 1/4 East 2.94 Chains along middle of Government Swamp
South 71° 1/2 East 1.00 Chains
South 74° East 3.63 Chains
South 86° [?] 2.05 Chains
South 79° East 3.00 Chains
South 80 1/2° East 3.06 Chains these boundaries run along Moakaka, South 0.67 Chains along 2 Moo's of Moakaka
South 78° 1/2 East 5.09 Chains
South 34° East 0.30 Chains
South 73° 1/2 East 2.23 Chains
South 6° West 0.46 Chains
South 84° East 1.58 Chains all along Moakaka
North 6 1/2° East 0.54 Chains
North 67° 1/4 West 4.66 Chains, North 0.93 Chains along Naolalo
North 70° West 2.48 Chains
North 75° West 2.47 Chains along Kaiwi, South 0.76 Chains along Naolalo

North 85° 1/4 West 2.12 Chains
North 83° 1/2 [?] 3.82 Chains
North 4° 1/2 West 0.48
North 88° West 1.64 Chains
North 78° West 3.50 Chains
North 2 1/2° East 0.66 Chains
North 81 1/2° West 0.72 Chains all along Naolalo
North 83° West 3.70 Chains to road
South 4° East 1.52 Chains along Main Road to place of beginning.
Area 3 Acres, 1 Road, 28 Rods.

No. 4.
Begin at South West corner run
South 77° 1/4 West 3.06 Chains
South 66° 1/2 East 2.60 Chains, South 0.90 Chains
South 87 1/2° East 1.12 Chains
South 11° 1/4 West 0.55 Chains
South 71° 1/4 East 4.70 Chains, all these boundaries running along Moakaka, North 0.51 Chains along Hale Parker
South 84° 1/2 East 2.30 Chains along D
North 41° West along lava land to a great Gorge
North 65° West 7.32 Chains along Government lava land
South 15° West 1.83 Chains
North 82° 1/2 West 3.46 Chains both along Naolalo, South 0.52 Chains along Moakaka to place of beginning.
Area 3 Acres

No. 5. A moo in Ili o Kapaahu
Begin at South West corner run
South 77° 1/2 East 5.08 Chains
North 25° East 0.61 Chains both along Keawe
North 72° 1/2 West 5.08 Chains along Nalimu
South 17° West 0.90 Chains along Nalimu & Nalimunui to place of beginning.
Area 1 Road, 21 Rods

No. 6, A short Moo North of No. 3.
Begin at South West corner run
South 85° [?] 2.68 Chains, North 0.36 Chains
North 82° 3/4 West 2.80 Chains, South 0.47 Chains all these boundaries running along Naolalo to place of beginning.
Area 18 Square Rods

containing [left blank] Acres, more or less, excepting and reserving to the Hawaiian Government, all mineral or metallic mines of every description.

To have and to hold the above granted Land in Fee Simple, unto the said [left blank]

Heirs and Assigns forever, subject to the taxes to be from time to time imposed by the Legislative Council equally, upon all landed Property held in Fee Simple.

In Witness whereof, I have hereunto set my Hand, and caused the Great Seal of the Hawaiian Islands to be affixed, at Honolulu, this [left blank] day of [left blank] 18[left blank].

[page 185]

Helu
Palapala Sila Nui

Ma keia palapala sila nui ke hoike aku nei o Kamehameha IV, ke Alii nui a ke Akua i kona lokomaikai i hoonoho ai maluna o ko Hawaii Pae Aina, i na kanaka a pau, i keia la, nona iho; a no kona mau hope alii, ua haawi lilo loa aku oia ma ke ano alodio ia [left blank] i kona [left blank] kanaka i manao pono ia ia i kela apana aina a pau e waiho la ma [left blank] ma ka Mokupuni o [left blank], a penei hoi ka waiho ana o na Mokuna.

No. 7, In Ili of Puco
Begin at South West corner on the creek, run
South 80 1/2° East 1.80 Chains
North 47 1/2° East 3.77 Chains
North 64 3/4° East 1.79 Chains along Moalii Creek
North 43° East 1.20 Chains
North 45 1/2° West 0.40 Chains both along Keoni's yard
South 77 1/2° West 2.90 Chains
North 71 3/4° West 2.11 Chains
North 43 1/2° 1.85 Chains along Kanehoewaa
North 86° East 2.05 Chains along D: (a stone wall)
North 41° West 1.20 Chains along Kaula Kukui
South 77 1/2° West 5.50 Chains along Hale Parker
South 12° East 5.90 Chains along Lelehu of Kanehoewaa to Moalii Creek to place of beginning.
Area 2 Acres, 3 Roads, 22 Rods.

No. 8, East part of Moalii lava land
Begin at South West part at great stone, run
South 41° East 3.45 Chains along Government lava land
South 64° 1/4 East 3.73 Chains along Hale Parker & stone wall
North 87° 1/2 East 3.98 Chains along Hale Parker & Kaula Kukui
North 71° East 2.32 Chains along Kaula Kukui
North 55° East 2.79 Chains along Timateo
North 30° West 1.00 Chains
North 60° East 4.11 Chains along Kula of Kane's
North 77° 1/4 East 5.76 Chains along Kanau & Keawe
North 22° 3/4 West 3.00 Chains along Nalimu Taro patch

North 77° 1/2 West 1.61 Chains
South 51° West 2.77 Chains
North 39° West 1.78 Chains all along Hanems
South 62° 1/2 West 1.61 Chains
North 21° West 5.86 Chains
North 58° East 3.46 Chains all along Nalimu
South 77° West 21.60 Chains along Waikuli
South 65° 1/2 East 7.32 Chains along Government land to a great stone, the place of beginning.
Area 32 Acres, 1 Road, 27 Rods.

No. 9, Taro Patch in Kapaahuiki
Begin at South West corner, run
North 60 3/4° East 1.00 Chains along fence boundary
North 29° 1/4 West 1.25 Chains along Keawe
South 60° 3/4 West 1.00 Chains along Kaneino
South 29° 1/4 East 1.25 Chains along Nalimu & Keawe to place of beginning.
Area 20 Square Rods.

[Land Patent Grant No. 1891, Baldwin, Dwight, Moalii, Ahupuaa, District of Lahaina, Island of Maui, 46.50 Acres, 1850]

APPENDIX B: TRENCH DESCRIPTIONS

APPENDIX B : TRENCH DESCRIPTIONS

Trench Descriptions

For all trench locations, please refer to Figure 6. All trenches were sterile.

Trench 1 (T-1) was located along the existing residential neighborhood in the easternmost section of the project area. The excavation unit measured 5 x 1.2 m and extended to a maximum 1.1 m deep. The trench was oriented at 40°/220°. Two stratigraphic layers were revealed:

> ***Layer I*** was composed of dark yellowish brown (10 YR 3/6) stony silt and ranged from surface (0.0)-0.38 mbs; loose, non-sticky, and non-plastic when dry. Layer I was found directly overlying Layer II and had a non-abrupt, indistinct lower boundary with approximately 15-20 cm of transition.
> ***Layer II*** was a dark reddish brown (5 YR 2.5/2), silt ranging from 0.58 - 1.10 mbs; loose, non-sticky, and non-plastic when dry. Layer II was found directly overlying saprolite.

Trench 2 (T-2) was located in the southeast corner of the project area near the existing residential neighborhood. The excavated trench measured 6.3 x 1.5 m with a maximum depth of 2.7 mbs. The trench was oriented at 150°/330°. The southernmost portion of the trench was shallow due to the presence of bedrock reached at 0.38 mbs. Two stratigraphic layers were identified in T-2:

> ***Layer I*** was composed of dark yellowish brown (10 YR 3/6) stony silt and ranged from the surface-2.2 mbs; loose, non-sticky, and non-plastic when dry. Layer I was found directly overlying Layer II and had an abrupt, distinct lower boundary.
> ***Layer II*** was a dark reddish brown (5 YR 2.5/2) stony silt ranging from 1.10-1.80 mbs; loose, non-sticky, and non-plastic when dry. Layer II continued beneath the extent of excavation.

Trench 3 (T-3) was located southeast of T-2 and angled against the old Kahoma Stream alignment. T-3 measured 6.9 x 1.25 m and extended to 1.5 mbs. The trench was oriented at 170/350. One stratigraphic layer was encountered:

> ***Layer I*** consisted of three mottled soils: a dark yellowish brown (10 YR 3/6), dark reddish brown (5 YR 2.5/2), and dark reddish gray (7.5 YR 4/2) stony silt. Boundaries ranged from surface to 1.5 mbs and the soil was loose, non-sticky, and non-plastic when dry. Layer I was found with heavy grass rootlets and numerous sub-angular basalt cobbles. Black plastic pipe shreds located throughout. Layer I continued until saprolite covered the trench floor.

Trench 4 (T-4) was placed along the southern edge of the project area. The trench measured 5.1 x 1.1 m and extended to 0 .75 mbs. The trench was oriented at 150/330°. One stratigraphic layer was identified:

> ***Layer I*** consisted of three equally parceled mottled soils: a dark yellowish brown (10 YR 3/6), dark reddish brown (5 YR 2.5/2), and dark reddish gray (7.5 YR 4/2) stony silt. Boundaries ranged from surface to 1.5 mbs and the soil was loose, non-sticky, and non-plastic (dry). Layer I contained many grass rootlets and numerous sub-angular basalt cobbles. Black plastic and piping shreds were located throughout the layer. Layer I ceased on a saprolitic floor.

Trench 5 (T-5) was placed in the northwest section of the project area. The trench measured 7.7 x 1.2 m and extended to a maximum 1.6 mbs. The trench was oriented at 160/340°. Two stratigraphic layers were identified:

> ***Layer I*** was composed of dark reddish brown (5 YR 3/2) silt and ranged from surface to 1.2 mbs; loose, non-sticky, non-plastic when dry and contained wood, recent soda can, and sub-angular basalt cobbles. Layer I was found directly overlying the distinct abrupt lower boundary of the old/original (A-horizon) with an intact grass line observed. Layer II was below and had an abrupt, distinct lower boundary with approximately .05-0.10 m of transition.
> ***Layer II*** consisted of one soil unit with three mottles: a dark yellowish brown (10 YR 3/6), dark reddish brown (5 YR 2.5/2), and dark reddish gray (7.5 YR 4/2) stony silt. Boundaries ranged from surface to 1.25 mbs and the soil was loose, non-sticky, and non-plastic when dry. Sub-angular basalt cobbles, black plastic, and piping shreds were located throughout. Layer II ceased upon a saprolitic floor.

Trench 6 (T-6) was located in the south-central section of the project area. The trench measured 5.2 x 1.15 m and extended to 1.18 mbs. The trench was oriented at 160/340°. A single stratigraphic layer was encountered:

> ***Layer I*** was composed of brown (7.5 YR 4/3) stony silt, ranging from surface to 1.18 mbs; loose, non-sticky, and non-plastic when dry; Layer I directly overlay saprolite.

Trench 7 (T-7) was placed in the north-central portion of the project area within a HC& S sub-surface boulder field. The trench measured 5.8 x 1.25 m and extended to a maximum 1.75 mbs. The trench was oriented at 20/200°. A single, disturbed stratigraphic layer was identified:

> ***Layer I*** was composed of dark brown (7.5 YR 3/4) stony silt, ranging from surface to 1.75 mbs; very loose, non-sticky, and non-plastic when dry; wood and large boulders were identified throughout the stratum. Layer I was based on a saprolitic floor.

Trench 8 (T-8) was placed just west of T-7. The trench measured 5.75 x 1.3 m at extended to a maximum 1.75 mbs. The trench was oriented at 170/350°. Two stratigraphic layers were identified in T-8:

> ***Layer I*** was composed of dark brown (7.5 YR 3/4) stony silt and ranged from surface to 0.78 mbs; loose, non-sticky, and non-plastic when dry; Layer I was directly overlying the transition soils of Layers I and II. Approximately 0.25 m of a mixture of the two soil types was designated as transition that was a non-abrupt, indistinct lower boundary.
> ***Layer II*** consisted of dark yellowish brown (10 YR 3/6) stony silt and ranged from 0.98-1.75 mbs; loose, non-sticky, and non-plastic when dry; Layer II was based on a saprolitic layer.

Trench 9 (T-9) was located to the west of T-8 and to the east of T-10. T-9 measured 6.11 x 1.3 m and reached 1.95 mbs. The trench was oriented at 160/340°. A single, disturbed stratigraphic layer was encountered:

> ***Layer I*** was composed of dark brown (7.5 YR 3/3) stony silt and ranged from surface to 1.95 mbs; very loose, non-sticky, and non-plastic when dry. large boulders and black plastic shreds and plastic pipes were identified throughout the stratum; Layer I was based on a saprolitic floor.

Trench 10 (T-10) was placed near the HC & S boulder field in the western section of the project area. The trench measured 6.3 x 1.15 m and extended to 1.98 mbs. The trench was oriented on a 256/66° axis. Two stratigraphic layers were identified:

> ***Layer I*** was composed of dark brown (7.5 YR 3/3) stony silt fill and ranged from surface to 1.25 mbs; very loose, non-sticky, and non-plastic when dry; large boulders and black plastic shreds and plastic pipes were identified throughout the stratum; Layer I was found directly overlying Layer II with an abrupt, distinct, alluvial lower boundary.
> ***Layer II*** consisted of brown (10 YR 4/3) silt ranging in depth from 1.0 to 1.98 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition.

Trench 11 (T-11) was located in the western section of the project area between T-10 and T-14. The trench measured 7.0 x 1.15 m at reached 1.6 mbs. The trench was oriented on a north-south axis at 180/360°. Two stratigraphic layers were revealed:

> ***Layer I*** was composed of dark reddish brown (5 YR 3/4) stony silt and ranged from surface to 0.92 mbs; loose, non-sticky, and non-plastic when dry; wood fragments and black plastic shreds were located throughout the stratum; Layer I had a non-abrupt, indistinct lower boundary with no immediate transition to Layer II.

Layer II consisted of dark brown (7.5 YR 3/3) stony very compact silt and ranged from 0.58-1.10 mbs; compact, non-sticky, and non-plastic when dry; black plastic shreds were located throughout the stratum; Layer II was found mixed with saprolite.

Trench 12 (T-12) was placed in the southwestern portion of the project area near the old Kahoma stream route. T-12 measured 7.0 x 1.05 m and extended to 1.55 mbs. The trench was oriented at 100/280°. Two stratigraphic layers were identified:

Layer I was composed of dark reddish brown (5 YR 3/4) stony silt and ranged from surface to 1.25 mbs; loose, non-sticky, and non-plastic when dry; wood pieces and black plastic shreds were located throughout the stratum; Layer I had a non-abrupt, indistinct lower boundary with no transition to Layer II but for slight color difference.
Layer II consisted of brown (10 YR 4/3) silt and ranged from 1.1-1.55 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition.

Trench 13 (T-13) was placed along the western edge of the project area. T-13 measured 7.4 x 1.25 m and reached a depth of 2.7 m. The trench was oriented at 140/320°. Three stratigraphic layers were identified:

Layer I was composed of dark reddish brown (5 YR 3/3) silty loam and ranged from surface to 1.25 mbs; compact, non-sticky, and non-plastic when dry; Layer I had an abrupt, distinct lower boundary.
Layer II consisted of brown (10 YR 4/3) silt and ranged from 1.25-1.80 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition; Layer II had an abrupt, distinct lower boundary.
Layer III was composed of dark reddish brown (2.5 YR 3/3) silt and ranged from 1.80-2.70 mbs; compact, non-sticky, and non-plastic when dry.

Trench 14 (T-14) was placed in the western portion of the project area near T-12 and T-13. The trench measured 8.3 x 1.2 m and extended to 2.7 mbs. The trench was oriented at 50/230°. A single stratigraphic layer was identified:

Layer I was composed of dark reddish brown (5 YR 3/3) silty loam and ranged from surface to 1.25 mbs; mildly compact, non-sticky, and non-plastic when dry; wood, black plastic shreds, and black plastic pipes were identified throughout the stratum; Layer I consisted of imported fill material that extended beyond the maximum base of excavation.

Trench 15 (T-15) was placed between T-1 and T-2 in the eastern portion of the project area on a gentle eastern slope. The trench measured 6.8 x 1.2 m and extended to 1.9 mbs. The trench was oriented at 360/180°. A single stratigraphic layer was identified:

Layer I was composed of dark grayish brown (10 YR 4/2) silty loam and ranged from surface to 1.25 mbs; mildly compact, non-sticky, and non-plastic when dry; large sub-angular boulders were located throughout the stratum; Layer I consisted of imported fill material that extended beyond the base of excavation.

APPENDIX D-1.

State Historic Preservation Division Approval Letter

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

608

February 9, 2006

Michael Dega, PhD
Scientific Consultant Services
711 Kapiolani Boulevard. Suite 975
Honolulu, Hawai'i 96813

LOG NO: 2006.0230
DOC NO: 0602MK10
Archaeology

Dear Dr. Dega:

SUBJECT: Chapter 6E-42 Historic Preservation Review –
An Archaeological Assessment for 16.8-Acres of Land in Lahaina
Moali'i Ahupua'a, Lahaina District, Island of Maui
TMK (2) 4-5-010:005 & 006 por.

Thank you for the opportunity to review this report which our staff received on November 18, 2005, (Pickett and Dega 2005, *An Archaeological Assessment for 16.8 Acres in Lahaina, Makila Ahupua'a, Lahaina District, Maui Island, Hawai'i [TMK (2) 4-5-10:005 & 006 por.]*... Scientific Consultant Services, Inc., ms).

The background section acceptably establishes the *ahupua'a* settlement pattern and predicts the likely site pattern in the project area. The historical information provided summarizes the history of the post-Contact period land uses. The summary of previous archaeological work in the area provides a baseline for the current work.

The subject parcel comprises portions of two (2) Land Grants, Land Patent Grant #1891 (Dwight Baldwin for 46.5-acres, 1850) and Land Patent Grant #2998 (issued to William Ap. Jones, 0.70 acre, 1865). Both land patents indicated that house lots, taro patches, and low stone walls constituted the improvements in the area.

The survey has adequately covered the project area documenting no historic properties. Subsurface testing, fifteen (15) backhoe trenches were also negative for evidence of cultural deposits. Backhoe trenches were excavated to a basal depth of between 0.75 meter (TU 4) and 2.70 meters (TU 13 and TU 14). Multiple fill episodes were encountered in all trenches.

We agree that no further archaeological work is warranted in this area, as numerous impacts from commercial agriculture and fill episodes have been directly observed in the subsurface stratigraphy.

We find this report to be acceptable.

The assessment meets our minimum requirements, as set forth in HAR 276-5 (a) and (c).The historic preservation review process is concluded. Development of the project areas will have "no effect" on significant historic sites.

As always, if you disagree with our comments or have questions, please contact Dr. Melissa Kirkendall at (808) 243-5169 as soon as possible to resolve these concerns.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

MK:kf:dlb

cc: Bert Ratte, DPWEM, County of Maui
Michael Foley, Director, Dept of Planning, 250 S. High Street, Wailuku, HI 96793
Maui Cultural Resources Commission, Dept. of Plng, 250 S. High Street, Wailuku, HI 96793