

**DRAFT ENVIRONMENTAL
ASSESSMENT**

FOR

**PROPOSED KAHOMA ACCESS
EASEMENTS**

Prepared for:
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EXECUTIVE SUMMARY

<i>Project Name:</i>	Proposed Kahoma Access Easements
<i>Type of Document:</i>	Draft Environmental Assessment
<i>Applicable Chapter 343 Review "Trigger":</i>	Use of State lands
<i>Approving Agency:</i>	State of Hawaii, Department of Land & Natural Resources
<i>Anticipated Agency Determination:</i>	FONSI
<i>Applicants:</i>	Kahoma Land LLC / General Finance Group Contact: Rory Frampton (808) 877-4202
<i>Consultant:</i>	Rory Frampton, Land Use Planner Contact: Rory Frampton (808) 877-4202
<i>Subject Properties:</i>	TMK: (2) 4-5-21: 003, 004, 022 and 023
<i>Land Use Controls:</i>	State Land Use: Urban (U) Community Plan: Agriculture (AG) County Zoning: Agricultural (AG)
<i>Project Summary:</i>	The applicants are seeking re-locatable access/utility easements across State lands in order to formalize access to their properties, which are located <i>mauka</i> of State lands. The proposed accessways include two (2) <i>makai/mauka</i> easements and three (3) lateral easements.
<i>Anticipated Impacts:</i>	No impacts are associated with approval of the access easements. In the event the access easements are granted, there is a potential for secondary impacts associated with a proposed future subdivision of the lands owned by the applicants. The proposed subdivision(s) would be subject to future review and approval from the County of Maui.

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I. PROJECT OVERVIEW

A. Proposed Action, Purpose and Need

The applicants (Kahoma Land LLC and General Finance Group, hereinafter referred to as “Kahoma”) are requesting access/utility easements across State owned land to formalize access to their properties. The applicable Chapter 343 review “trigger” for this Environmental Assessment (EA) is the applicants’ submittal for a request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement over State land for the creation of two (2) 40-foot wide mauka/makai right-of-ways and (3) 40-foot wide lateral easements.

The requested action is necessary to formally document historical access to Kahoma’s mauka lands. Pioneer Company Ltd. (PMCO) used much of the Wahikuli / Kahoma area lands - planted in sugar cane, cattle and other ag-related operations. PMCO also established supporting irrigation systems and plantation villages along with a network of haul cane roads throughout the properties. These haul cane roads that traversed leased lands in the Wahikuli area, provided access to fields and supporting plantation villages including access to mauka lands. As PMCO operations included both leased and owned properties, access to mauka lands was not an issue at the time. When sugar cane planting operations ceased, land leases with the State were not renewed and mauka properties were sold (to Kahoma Land LLC) with the responsibility of establishing access to mauka properties from a public roadway resting with the purchaser.

The northern access right-of-way (Accessway C) will provide access along an existing cane haul road that traverses through Ka’anapali Land Management Corp. (KLM) land and State land. The southern access (Accessway B-1) will continue *mauka* from Wahikuli Street through State land. Both rights-of-way utilize former agricultural roads traditionally

used by PMCO, as access to the applicants' *mauka* lands and will intersect the proposed Lahaina Bypass. Accessway B-1 (Wahikuli Road) is currently used by the County of Maui to access the Wahikuli Water Tank and served as the traditional access to Crater Village. **See Figure 1, Site Plan.**

The majority of the applicants' properties are in active agricultural use. The requested easements are necessary to allow the applicants to continue to attend to, develop and manage diversified agricultural pursuits on their agriculturally zoned lands including, but not limited to cattle ranching, water reservoir management and agricultural tour operations. A portion of the applicants' properties are in the conservation zone and approval of the easements will enable the applicants to continue to provide access to and maintain their management agreements with Malama Kahalawai, Inc. / West Maui Mountains Watershed Partnership and The Nature Conservancy. No change in use is anticipated for lands in the Conservation zoned areas.

An agricultural subdivision has been proposed for the applicants' properties, however the access easements over State lands will be required whether or not the proposed subdivision is implemented. This EA addresses the request for Grant of Perpetual Non-Exclusive (re-locatable) Easements as the primary action and the 55-lot agricultural subdivision of three (3) parcels with varying lot sizes of five (5) to 25 acres as a potential future secondary action.

B. Property Location and Ownership

The proposed makai/mauka access easements traverse lands identified by Tax Map Key Parcels (2) 4-5-021:003, 004, and 022; the majority of which are encompassed by the Hawaii Housing Finance and Development Corporation's (HHFDC) planned "Villages of Leialii" project (Parcel 3 is

owned by HHFDC). The three (3) lateral access/utility easements traverse state lands identified by Tax Map Key Parcel (2) 4-5-021:023 and would serve to provide access between the Kahoma lands for management, utility and emergency access. **See Figure 3, Proposed Kahoma Accessways.** The properties are located in the Lahaina region of Maui. **See Figure 2, Regional Location Map.** Kahoma Stream lies to the south and Lahainaluna Road and associated residential areas beyond. The Ka'anapali South Golf Course lies to the north. Bordering the State lands to the west are the Wahikuli and Hawaiian Homes Subdivisions, and the Lahaina Civic Center.

C. Existing and Historical Land Use

The proposed access easements traverse lands that were previously part of Pioneer Mill's sugar plantation. These lands are currently fallow but contain existing access roadways, non-potable irrigation systems, a County water storage tank and transmission lines. The majority of the lands are included in HHFDC's proposed master plan for the Villages of Leiali'i residential project.

D. Applicants' Land Ownership

General Finance Group and Kahoma Land, LLC (collectively "Kahoma") own the applicants' properties in fee simple. Kahoma Land, LLC purchased the property from Pioneer Mill Company Ltd., in August 2000. General Finance Group purchased the two (2) northern parcels from Kahoma Land, LLC on December 21, 2006. The applicant's properties are identified by Tax Map Key Parcels (2) 4-5-021: 002, 006, and 024.

The lands owned by the applicants are currently in diversified agricultural uses, including but not limited to: cattle ranching, water reservoir

management, and agricultural tour operations. Similar to the makai State-owned lands, these lands previously were used for sugar cane cultivation, pasturage and auxiliary purposes. Elevations range from approximately 500 feet at the western boundary to approximately 2,050 feet at the eastern boundary with an average slope of about 15.5%. Kahoma Valley runs along the southern boundary of the southern parcel, Hahakea Gulch runs along the northern boundary for the northern property. *Makai* (seaward) from the applicants' parcels are the Wahikuli and Crater Reservoirs, Ka'anapali Land Management's Ka'anapali 2020 and the State's Villages of Leiali'i Master Plan project areas. Lahainaluna subdivisions are south of Kahoma Stream. The *mauka* portions of the applicants' properties are designated conservation and involve watershed management activities under a joint agreement with the West Maui Watershed Partnership.

E. Alternatives

1. No Action

Under the No Action Alternative, the applicants would not seek to establish re-locatable access easements across State land; thus maintaining the lack of a documented access to the applicants' *mauka* properties for current agricultural pursuits, conservation land management and the possibility of a future subdivision.

2. Alternative Accessway

A number of access easement routes have been considered, based upon consultation with the Department of Land and Natural Resources, Department of Transportation (who are in the process of developing the Lahaina Bypass Highway) and Hawaiian Housing and Finance Development Corporation (who is responsible for the Villages of Leali'i project). The alternative accessways that were considered included Accessway A and Accessway B-2. **Refer to Figure 1, Site Plan.** Accessway A included using the Keawe Street

extension where it connects with the Lahaina Bypass Highway. However based upon the most recent alignment of the Lahaina Bypass Highway, this alternative accessway was determined to be infeasible. The portion of the Accessway A route which is mauka of the Bypass alignment could potentially impact pre-historic archaeological sites. Accessway B-2 included using the northern portion of the modified alignment of Phase 1A Lahaina Bypass Highway then continuing *mauka* of the highway along the same alignment as Accessway B-1.

3. Preferred Action

The Preferred Action is the project described in Section IA, Proposed Action, Purpose and Need. It was arrived at through careful consideration of the alternatives and was found to be the most practicable, as well as minimizing any potential environmental impacts. The requested action is necessary to formally document historical access to Kahoma's properties. Regardless of which alternative action the applicants ultimately pursues, the two (2) makai/mauka and three (3) lateral 40 foot wide rights-of-way over State land will be needed to access Kahoma lands for current agricultural and watershed management activities.

F. Entitlements and Approvals

1. Request for Use of State Lands

As the primary proposed action, the applicants are submitting a request for a Grant of Perpetual, Non-Exclusive (re-locatable) Easement over State Land for the creation of two (2) mauka/makai and (3) lateral 40-foot wide right-of-ways. These right-of-ways will provide access along existing cane haul roads for current agricultural and watershed management activities and a possible future agricultural subdivision.

The primary action will require approval from the BLNR. Since portions of the the preferred southern access (B-1) cross over Parcel 3, a separate request will need to be processed through HHFDC, the owner of Parcel 3.

2. Subdivision Approval (future)

In the event that the proposed agricultural subdivision is pursued, final subdivision approval from the County of Maui will be required.

3. Grading Permit (future)

Other than routine maintenance, no improvements to the roads are intended at this time. Should the agricultural subdivision be pursued, the accessways would need to be improved to meet minimal subdivision requirements for off-site access to the properties.

II. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

A. Physical Environment

1. Existing and Surrounding Land Uses

Existing Conditions. The requested mauka/makai accesses traverse the Hawaii Housing Finance and Development Corporation's (HHFDC) planned "Villages of Leiali'i" Master Plan project area and the lateral accesses cross the State land identified as TMK: (2) 4-5-021: 023. The project areas are primarily fallow agricultural lands formerly used for sugar cane and pineapple cultivation. To the South, Lahainaluna Road leads to a single-family residential area; to the north is the Ka'anapali South Golf Course. Honoapiilani Highway, the Wahikuli and Hawaiian Homes Subdivisions and the Lahaina Civic Center are *makai* (shoreward).

Potential Impacts and Mitigation Measures. Since the request involves the continued use of existing agricultural roadways, no significant impacts to the surrounding lands are anticipated. In the short term, little to no increased use is anticipated on the existing agricultural roads. The easement routes have been selected to coincide with future roadways within the planned Villages of Lei'alii project. In the event said roadway plans are changed, the easement requests are re-locatable. The subject project is considered to be compatible with the existing and future land uses. Should the proposed agricultural subdivision occur, it is an allowable action within the Agricultural District.

2. Topography and Soils

Existing Conditions. Geologically, the island of Maui is comprised of two shield volcanoes, Mauna Kahalawai (West Maui Mountains) in the west, and Haleakala to the east. These landforms create the subsections of Maui characterized as East and West Maui. The proposed accessways traverse lands located on the south western slope of the West Maui Mountains, which were formed from lava flows and subsequent erosion. The area is geologically characterized by Wailuku basalt as the parent rock and lavas of the Lahaina volcanic series. The Wailuku basalt is the primary and most widespread formation in West Maui, while the Lahaina series is restricted to a few outcrops east of Lahaina Town. Puu Laina, in which Crater Reservoir is located, is the focus of the Lahaina series rock. Typically, the volcanic basalt in the project area is thin-bedded *a'a* and *pahoehoe* lavas that erupted through narrow cracks so that few cinder cones were produced. Towards the end of the eruptive period (*Pleistocene*), violent explosions are indicated by interstratified beds of tuff and agglomerate containing large blocks.

Potential Impacts and Mitigation Measures. No impacts on the geology and topography are anticipated as a result of the request for access easements across State land as the proposed accessways are existing agricultural roads and no construction, other than minor maintenance to the existing roadways is anticipated.

Should the proposed agricultural subdivision proceed all construction activities will comply with all applicable Federal, State, and County regulations and rules for erosion control. Before issuance of a grading permit by the County of Maui, the final erosion control plan and best management practices required for the NPDES permit will be completed. All construction activities

will also comply with the provisions of Chapter 11-60.1, HAR, Section 11-60.1-33, Fugitive Dust.

3. Natural Hazards

Existing Conditions. Natural hazards impacting the Hawaiian Islands include hurricanes, tsunamis, volcanic eruptions, earthquakes, and flooding.

Devastating hurricanes have impacted Hawaii twice since 1980: Hurricane Iwa in 1982 and Hurricane Iniki in 1992. While it is difficult to predict these natural occurrences, it is reasonable to assume that future events could be likely given the recent record.

Tsunamis are large, rapidly moving ocean waves triggered by a major disturbance of the ocean floor, usually caused by an earthquake but sometimes can be produced by a submarine landslide or a volcanic eruption. About 50 tsunamis have been reported in the Hawaiian Islands since the early 1800s. Seven caused major damage, and two of these were locally generated. The proposed Kahoma agricultural subdivision and access areas are outside of the Civil Defense Tsunami Evacuation Zone.

Volcanic hazards are not a concern in the Lahaina area due to the extinct status of the West Maui Mountains.

In Hawaii, most earthquakes are linked to volcanic activity, unlike other areas where a shift in tectonic plates is the cause of an earthquake. Each year, thousands of earthquakes occur in Hawaii, the vast majority of them so small they are detectable only with highly sensitive instruments. However, moderate and disastrous earthquakes have rocked the islands.

The 1938 Maui Earthquake, with a magnitude of 6.7-6.9 on the Richter Scale and an epicenter six (6) miles north of Maui, created landslides and forced the closure of the road to Hana. Damaged water pipes and ground fractures were also reported in Lahaina.

Flood hazards are primarily identified by the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA), National Flood Insurance Program. According to the FIRM, the proposed access easements as well as the applicants' properties are located in Zone C, areas of minimal flooding. **See Figure 6, Flood Map.**

Potential Impacts and Mitigation Measures. No impacts to natural hazards are anticipated because of the request for access easements across State land along existing agricultural roads.

Should the proposed agricultural subdivision occur, all work will comply with applicable flood zone standards, such as set forth in Chapter 19.62, "Flood Hazard Areas", Maui County Code. The proposed agricultural subdivision is not anticipated to significantly impact the neighboring properties with regard to flood hazard potential.

4. Flora and Fauna

Existing Conditions. The proposed easement corridors are on former sugar cane fields which are well upslope from the coast and follow along existing haul cane roads on extensively disturbed agricultural lands. Since sugar cane agriculture shut down in the 1990s, these fields have largely been abandoned and are now in an array of non-native low growing weed species.

Biological Resources Surveys conducted following the road alignment corridors and on the applicants' lands revealed predominantly non-native flora and fauna with no special designations. **See Appendix A, Biological Resources Survey January, 2008 and May, 2008.**

While not directly affecting the accessways, one endemic plant species, rare enough to be designated a Species of Concern (*Schiedea menziesii*), and one endemic Endangered bird (nene goose) was found on the applicants' lands. Further descriptions of the various flora and fauna are summarized below:

Plants. The old agricultural fields are mostly overgrown with herbaceous grasses and weeds with the occasional shrubs and young trees. Common non-native species along the proposed accessway corridors and include abandoned pineapple plants, buffelgrass Guinea grass (*Panicum maximum*), ribbed paspalum (*paspalum malacophyllum*), spiny amaranth (*Amaranthus spinosus*), tiny bell (*Ipomoea triloba*), hairy merremia (*Merremia aegyptia*), lion's ear (*Leonotis nepetifolia*) and smooth rattlepod (*Crotalaria pallida*). The plants common on marginal lands and in deep gulches include the Polynesian kukui (*Aleurites moluccana*), the non-native koa haole (*Leucaena leucocephala*) and the widespread native species 'uhaloa (*Waltheria indica*), 'ūlei (*Osteomeles anthyllidifolia*) and 'a'ali'i (*Dodonaea viscosa*). For a complete listing of plant species refer to Appendix A.

Mammals. No mammal species of any kind were observed with the road corridors surveyed and three were observed during five site visits to the applicants' property. One small feral pig (*Sus scrofa*) was seen near the top of the property, but an abundant sign of the animal, in the form of rooting, was widespread. A herd of domestic cattle (*Bos Taurus*) was being grazed on the lower portion of the property. One mouse (*Mus domesticus*) was seen scurrying

through the underbrush. Abundant grass seeds and herbaceous vegetation guarantee a sizeable population of these rodents.

Other mammals likely to occur in the area include rats (*Rattus rattus*), mongoose (*Herpestes auro punctatus*) and feral cats (*felis catus*).

A special effort was made to look for the native Hawaiian hoary bat during the evening surveys, focusing on the area around Crater Reservoir, Kahoma Reservoir and the rim of Kahoma Gulch where potential suitable habitat occurs. When present in an area, these bats can be easily identified as they forage for insects. No evidence of such activity was observed though visibility was excellent and plenty of flying insects were seen.

A few additional non-native birds would be expected to be observed if survey times were extended, but none of these would be of sensitive environmental concern. This habitat is not suitable for Hawaii's native forest birds due to the lack of preferred food sources, but more importantly due to the presence of mosquito borne avian diseases with which they cannot cope.

The endemic and endangered nene goose was seen in two different areas of the applicants' property. These geese were reintroduced to West Maui a few years ago and are multiplying and spreading. These geese are strong fliers and can quickly traverse many miles in their daily foraging activities. They prefer tender green grass as food and are thus attracted to damp sites such as reservoirs, ditches and irrigated golf fairways. There is nothing on this property, however, that can be considered core habitat or critical habitat for nene that would require the restriction of land uses or the setting aside of special habitat for them.

Insects. While insects in general were not tallied, a diversity of them were seen throughout the area and fueled the bird species observed. One native moth, Blackburn's sphinx moth (*Manduca blackburni*) and several damsel flies (*Megalagrion spp.*) have been put on the Endangered Species list (USFWS 2000); however, none were found on the applicants' properties or the roadway corridors during the insect survey.

Blackburn's sphinx moth occurs on Maui although it has not been found in this area. Its native host plants are species of 'aiea (*Nothecestrum*). A non-native alternative host plant is tree tobacco (*Nicotiana glauca*). There are no 'aiea on or near the property. A small patch of tree tobacco was found in the disturbed area at the bottom of the property. These plants were carefully examined but no Blackburn's sphinx moth or their larvae were observed.

A search was made for native damselflies along flowing ditches and on the margins of Kahoma Reservoir. One species, the relatively common native *Megalagrion blackburni* was found as well as the non-native familiar bluet but no *Megalagrion jugorum* (that has not been seen for 80 years) was seen.

Potential Impacts and Mitigation Measures. No impacts on flora and fauna are anticipated as a result of the request for access easements across State land or should the proposed subdivision occur.

While some native plant and animal species were identified on the applicants' lands during the botanical survey, the project area is predominantly populated with non-native flora and fauna with no special designations. One endemic plant species, rare enough to be designated a Species of Concern (*Schiedea menziesii*), and one endemic, endangered bird (nene goose) were found on the applicants' lands.

Threats to native plant species in general within the project area include wildfires, the competition from invasive non-native plant species and the depredations of feral pigs. Most native species thrive in the steep gulch habitats because most threats are reduced there, and because human disturbances are less likely. To continue this trend, to the extent feasible, development work will exclude the Hahakea Gulch habitat. Other portions of the applicants' property are highly disturbed habitats that do not contain sensitive native plants or special ecosystem remnants and are not of particular botanical concern.

The endemic and endangered nene goose was seen in two different areas of the applicants' property. Although the project area does not contain core habitat or critical habitat for nene that would require restrictions of land uses or setting aside of habitat for the goose; should the prospective agricultural subdivision occur special care will be taken not to harass or harm these birds while they are present during construction of the site.

5. Air Quality

Existing Conditions. The air quality in the Lahaina area is generally good. Existing impacts to air quality include periodic impacts from distant volcanic emissions (VOG) and possibly occasional localized impacts from traffic congestion or agricultural activities.

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the Lahaina area is very much affected by its location on the western slopes of the West Maui Mountains. Typically the west side of all the Hawaiian Islands is the dry side due to the

prevailing eastern wind. This condition, in combination with the low elevation, creates an arid climate around Lahaina.

Both Federal and State standards have been established to maintain ambient air quality. Seven parameters are regulated: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone, and lead. State of Hawaii air quality standards are either equally or more stringent than the comparable national standards.

Potential Impacts and Mitigation Measures. No impacts on air quality are anticipated as a result of the request for access easements across State land as these easements are on existing cane haul roads and improvements are not anticipated unless a subdivision is approved. Routine maintenance activities will be performed by the applicant in order to minimize dust generation. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

Grading and activities related to the improvement of the access roads will result in short-term impacts to air and noise quality. Best Management Practices (BMPs) will help to mitigate such impacts. Adequate dust control measures, in compliance with Section 11-60-1-33, "Fugitive Dust", of the Hawaii Administrative Rules will be implemented during all phases of construction. Grading and construction-related activities will be limited to normal daylight hours in order to limit noise impacts and adhere to the Department of Health's noise regulations for construction equipment.

Project implementation is not anticipated to result in substantive impacts to air quality in the long-term.

6. Noise Quality

Existing Conditions. The dominant noise sources in the vicinity are from vehicles associated with existing watershed maintenance, agricultural and eco-tour activities. Other noise sources include vehicular traffic on other roads in the area, occasional aircraft flyovers, wind, birds, and crickets.

Potential Impacts. No impacts on the ambient quality of the site are anticipated as a result of the request for access easements across State land.

7. Historical and Archaeological Resources

Existing Conditions. Scientific Consultant Services conducted an Archaeological Inventory Survey of two proposed access roads in April 2008 (access roads identified as A and C on Figure 1, Site Plan). **See Appendix B1, Archaeological Inventory Survey of Two Sections Access Roads.** Fieldwork consisted of a full systematic pedestrian survey of the corridors for both access roads.

Scientific Consultant Services also conducted an Archaeological Inventory Survey of four other proposed access roads in August 2008 (access road identified as B1 and three lateral connections between the north and south property on Figure 1, Site Plan). **See Appendix B2, Archaeological Inventory Survey of Four Access Road Easements.** Fieldwork consisted of a full systematic pedestrian survey of the four easement corridors.

The findings these surveys are summarized below.

Archaeological Inventory Survey of Two Proposed Access Roads

Three previously undocumented features (features 1 thru 3) were identified during the survey, all of which pertain directly to Pioneer Mill Company commercial sugar cultivation. These features consisted of a cement bridge over Honokahau Ditch, a large ramped clearing mound and a basalt stone-and-mortar culvert. All three features have been registered under the previously-assigned state site number 50-50-03-4420.

Two previously documented sites (Jensen's (1989) Site -2488 and Site -2485) were also noted during the survey near the proposed alignment A. Both sites, described as rock enclosures, have been interpreted as dating to the pre-Contact Period and have been recommended for data recovery.

Potential Impacts and Mitigation Measures. Written, photographic and cartographic documentation of features 1 thru 3 has been conducted. The survey concludes that as these feature types are not unique to the project area, nor do they represent particularly excellent examples of feature types. Mitigation or preservation measures are not necessary for these features.

Sites -2485 and -2488 have been recommended for data recovery. Site -2488 is in immediate danger of being adversely impacted by the southern road corridor identified as route A on Figure 1. Site -2485 lies outside the proposed southern road corridor, lending the site well to preservation rather than data recovery. The survey recommends that such a measure be implemented on behalf of this feature should alignment A be chosen, with a 10-foot buffer to be

placed around the site, and archaeological monitoring of road work in the area in order to enforce the preservation proceedings.

Archaeological Inventory Survey of Four Access Road Easements

Five newly identified Historic-period features (Features 4 thru 8) relating to sugar cane cultivation infrastructure were documented during the survey, all of which pertain directly to Pioneer Mill Company commercial sugar cultivation. These features consisted of two reservoirs, one concrete-lined 'auwai ditch, and two earthen furrows or ditches occurring along current access roads. All five features have been registered under the previously-assigned state site number 50-50-03-4420.

Potential Impacts and Mitigation Measures. Written, photographic and cartographic documentation of features 4 thru 8 has been conducted. The survey concludes that as these feature types are not unique to the project area, nor do they represent particularly excellent examples of feature types, no mitigation or preservation measures are necessary for these features.

8. Cultural Impact Assessment

Existing Conditions. A Cultural Impact Assessment was prepared for proposed accessways to the applicants' lands and prospective Kahoma Agricultural Subdivision in August 2008. **See Appendix C, Cultural Impact Assessment Report.**

The project area is located in the lands of Wahikuli, meaning literally "noisy place", and Aki, the meaning of which is uncertain. The entire project area including proposed accessways and the applicants' properties was previously in sugar cane. The report identified several areas of cultural importance within the region; however, none were within the proposed access easements or within the applicants' properties. Areas of cultural importance in the

region included at least eight *heiau* in the vicinity of the ancient village of Lahaina, fishing *ko'a* (shrine) along the beaches, a portion of the paved trail built by Kihapi'ilani, son of the great chief Pi'ilani, and numerous petroglyphs. Additionally, numerous battles were fought along the coast.

Historically, the area was used for bird catching, dry land gardens, arboriculture, timber, and the gathering of mauka resources. The gulches, with their perennial streams, were ideal for *kalo lo'i*.

There was no response to requests from agencies for information concerning the potential for cultural resources to occur in the access corridors, or with additional suggestions for further contacts. The cultural report included transcripts of interviews from individuals with knowledge of the Kahoma vicinity. The interviews were collected as part of a report on a 16.8 acre parcel located adjacent to the south side of the Kahoma Flood Control Project. While these interviews did not specifically pertain to the subject properties, they do present information related cultural activities in the surrounding area. Although, the river valleys, fishing, and Lahaina town were discussed, there was no mention of any cultural activity taking place in the project area, or the immediate vicinity, other than activities related to sugar cane agriculture

Potential Impacts and Mitigation Measures. The cultural assessment concludes that the project area parcels "...have not been used for traditional cultural purposes within the recent past". Based on the lack of any identified cultural or traditional practices or resources on the property, no cultural impacts are anticipated to result from the proposed actions.

The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur. No impacts to cultural resources, practices, and beliefs are anticipated as a result of the proposed subdivision. The cultural assessment states that "...it is reasonable to conclude that, pursuant to Act 50, the exercise of Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities within the project

parcels will not be affected and there will be no direct adverse effect upon cultural practices or beliefs". Although culturally important areas exist in the region, no significant cultural resources or ongoing cultural practices are associated with the applicants' lands. The proposed accessways or Kahoma Agricultural Subdivision will not substantially affect the cultural resources or practices of the community or State.

9. Visual Resources

Existing Conditions. The applicants' property is located on the western slope of Mauna Kahalawai, (West Maui Mountains), *mauka* (east) of Lahaina Town, in West Maui. Notable visual resources in the area include the Pacific Ocean and the Island of Lanai to the west, the peak of Kahalawai to the east, (typically obscured by clouds). There are no publicly-identified and protected view-planes in the project vicinity. The slope on which the applicants' properties lie is visible from the Honoapi'ilani Highway.

Potential Impacts and Mitigation Measures. No impacts on visual resources are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

The natural beauty of the area will be considered during the construction and layout of residences on the property to reduce the amount of grading required and to preserve mountain views from the Honoapi'ilani Highway. Because one potential use of this land is eco-tourism, the preservation of natural beauty and view-planes is important to the land owners, and will be maintained. The prospective agricultural subdivision project will not substantially impact public views along the area roadways.

10. Agricultural Resources

Existing Conditions. The proposed accessways areas and the majority of the applicants owned parcels are former sugarcane fields. The Pioneer Mill Company, Ltd. (PMC) was a major cultivator of sugarcane from the late 1800's until 1999 when sugar production ceased in West Maui. Some of PMC lands were subsequently bought or leased by Maui Land and Pineapple Company (MLP), which began cultivation of pineapple on the northwest slopes of Kahalawai. The State lands proposed for the accessways are currently fallow and the area makai of the applicants' lands are within the HHFDC's Villages of Leiali'i Master Plan. The applicants' properties lie further south from MLP's active pineapple fields and large scale crop agriculture has been replaced with smaller scale diversified agricultural uses such as cattle and eco-tourism activities. A program for the propagation and reintroduction of native plants is also being explored for a portion of the northern parcel.

Potential Impacts and Mitigation Measures. No impacts on agricultural resources are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

There are no significant impacts to agricultural resources from the proposed project. Creation of the proposed Kahoma Agricultural Subdivision will keep the approximately 620 acres of previous sugarcane land in agricultural use. Grading, home placement, and landscaping will aim to preserve the natural beauty of this mountain slope and *makai* views that is so valuable to the character of the region.

11. Hazardous Substances

Existing Conditions. The project area and applicants' lands were formerly cultivated for sugar cane. As part of its agricultural operations, Pioneer Mill Company, Ltd. used herbicides, insecticides, rodenticides, and plant growth regulators in compliance with all product labeling and applicable government regulations. Sugar cane cultivation ceased in the area of the applicants' lands and accessways in the mid to late 1990's.

Potential Impacts and Mitigation Measures. No impacts from hazardous substances are anticipated as a result of the request for access easements across State land.

B. Socio-Economic Environment

1. Population

Existing Conditions. Resident population in Maui County has experienced rapid growth, nearly doubling in the last 25 years. The Year 2005 resident population expanded from 1980's 70,991 to 139,995. This represents a 97.2 percent increase (Maui County Data Book [MCD], 2006). Population growth is expected to continue with the year 2020 resident population projected at 229,700. Visitor counts have increased even more dramatically, with the average daily visitor count increasing from 15,363 in 1980 to 48,409 in 2005. This represents a 215 percent increase in visitors per day. Thus the County's de facto population, which includes residents and visitors, grew from 85,803 in 1980 to 181,534 in 2005, representing a 112 percent increase.

Population projections calculated by the Hawaii State Department of Business, Economic Development and Tourism, Research and Economic Analysis Division estimate that Maui County population will reach 199,550 people in 2030 (MCD 2006).

According to the Maui County Planning Department's Socio-Economic Forecast (2006), the 2005 Lahaina population was 19,852 people and is forecasted to be 25,096 people by the year 2020. In comparison to Maui as a whole, the Lahaina population is fairly representative of the island's age groups and ethnic composition; it has fewer vacant housing units, but a similar percentage of owner-occupied units (MCD 2006).

Currently the project area and the proposed Kahoma Agricultural Subdivision site do not contain residents.

Potential Impacts and Mitigation Measures. The proposed accessways or potential subdivision will not contribute significantly to population growth. It will, rather, create opportunities for lifestyle farmers seeking manageable lots for agricultural pursuits. The new agricultural lots will revive a traditionally agricultural area.

2. Housing

Existing Conditions. Historically, vast potentially habitable areas of Maui and significant water resources have been devoted to agriculture. Until the past decade, the long term viability of the sugar industry was unquestioned and the business remained a major employer and tax payer. As a result, cane land was reclassified for urban uses only after lengthy public agency reviews and negotiation with labor unions.

The West Maui region has experienced fair growth in development recently; the number of households in this area has increased by approximately 12 percent from 6,031 in 2000 to 6,765 in 2005. Housing projections estimate that this rate of growth will continue with an estimated 10,801 housing units in 2030. These housing forecasts project a need for more than 4,000 homes (mid-point estimate) in the Lahaina area during the next 16 years (Maui County Planning Department, Socio-Economic Forecast).

Potential Impacts and Mitigation Measures. No impacts to housing are expected as a result of approval of the access easements. The prospective Kahoma Agricultural Subdivision will contain approximately 55 agricultural lots with the potential for one (1) farm dwelling plus one (1) accessory farm dwelling per lot. This agricultural subdivision would contribute a valuable variety of lot sizes to the limited West Maui real estate supply. No negative impacts are anticipated as a result of this project.

3. Economy

Existing Conditions. Tourism and agriculture are the predominate components of Maui County's economy. Maui County hosted 2,207,826 visitors in the year 2004 and hotels experienced a 78.69 percent occupancy rate. In West Maui, economic activity centers on visitor and service industries, including air and water transportation. The cessation of sugarcane cultivation in the 1990's significantly reduced West Maui's contribution to agricultural production on Maui.

Large-scale mono-crop agriculture, including sugar, pineapple, and cattle ranching, is the County's dominant agricultural land use and generates the majority of agricultural revenues. As of 2002, approximately 256,690 acres of the County were in farm use of

some kind. This is a decrease from the 355,786 acres in farmland in 1992. West Maui has followed this trend. Due to the distance from Central Maui and the difficulty in pursuing large-scale agriculture, West Maui has diminished in its agricultural importance.

Potential Impacts and Mitigation Measures. No impacts on the socio-economic environment are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

The proposed agricultural subdivision is expected to generate short-term economic benefits in the form of construction-related employment. Long-term benefits will accrue from the increase of local agricultural activities.

C. Public Services

1. Recreational Facilities

Existing Conditions. There are 19 County Park facilities in the West Maui Community Plan region, comprising approximately 61.24 acres. The West Maui area has nine (9) beach parks, offering swimming, surfing, snorkeling, camping, barbeque grills and picnic tables, and playgrounds. Other parks in the area offer eleven (11) tennis courts, six (6) mixed use ball fields, three (3) regulation-size basket ball courts. Several canoe hale, community centers, recreation, and boys and girls clubs are available for public use. A “warm-up” pool, and a 50 meter competition pool with scoreboard and bleachers are located at the Lahaina Aquatic Center. Large scale sporting, social, sales, and performing arts events are hosted at the Lahaina Civic Center. Recreation facilities near the applicants’ project area include:

- Wahikuli Terrace Park, Ainakea Road
- Wahikuli Wayside Park, Kaniau Road & Honoapiilani Highway
- Lahaina Civic Center, Honoapiilani Highway
- Hanakao'o Beach Park, Honoapiilani Highway
- Kamehameha Iki Park, Front Street
- Malu Ulu O Lele, Front Street
- Lahaina Aquatic Center, Shaw Street
- Lahaina Recreation Center, Shaw Street

Potential Impacts and Mitigation Measures. No impacts on recreational facilities are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

The project is not anticipated to increase demand on area recreational facilities. The applicants will comply with subdivision approval requirements should the subdivision occur.

2. Medical Facilities

Existing Conditions. Maui Memorial Medical Center, located approximately 30 miles from the applicants' properties in Wailuku, is the island's only acute care hospital. It is an approximately 240 bed hospital. Various private medical offices and facilities are located in the West Maui area.

Potential Impacts and Mitigation Measures. No impacts on medical facilities are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

The proposed Kahoma Agricultural Subdivision is not anticipated to substantively increase demand upon medical facilities. The construction of a West Maui Emergency Medical Center is currently being planned for by the County of Maui. This medical center will offer relief to Emergency Medical Technicians who now drive the thirty plus miles from the West Side to the hospital, and will reduce crowding at Maui Memorial.

3. Police and Fire Protection Services

Existing Conditions. The applicants' properties fall within the Maui Police Department's (MPD) District 4 – Lahaina (West Maui). This police district is served by the Lahaina Station, located little more than 1 mile west of the proposed subdivision at 1850 Honoapiilani Highway.

The proposed agricultural subdivision will be serviced by the Lahaina Fire Station. The fire station is located at 1860 Honoapiilani Highway approximately 1 mile west of the community.

Potential Impacts and Mitigation Measures. No impacts on police and fire protection services are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

The proposed agricultural subdivision is not expected to increase emergency service area limits or place undue additional demand upon police or fire protection services. The County of Maui Department of Fire and Public Safety has expressed appreciation for the proposed roadways as it provides better access for

emergency vehicles to the *mauka* lands. Approval for documented accessways will allow the applicants to more quickly assist and respond to requests for access from emergency personnel and first responders in times of emergency.

4. Schools

Existing Conditions. The applicants' lands are located within the State Department of Education's (DOE) Lahainaluna District, and are serviced by King Kamehameha III Elementary, Princess Nahi'ena'ena Elementary, Lahaina Intermediate and Lahainaluna High School. Private schools in the area include Sacred Hearts Elementary and Maui Preparatory Academy.

Potential Impacts and Mitigation Measures. No impacts on schools are anticipated as a result of the request for access easements across State land.

5. Solid Waste

Existing Conditions. Currently, significant levels of solid waste are not being generated on the State's or applicants' lands as most of the area is either fallow fields or used for cattle grazing.

Potential Impacts and Mitigation Measures. No impacts on solid waste are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

D. Infrastructure

1. Roadways

Existing Conditions. The request for access easements should have no short term impact on local traffic conditions since there would be no anticipated increase in use of the roadways. A Traffic Impact Analysis Report (TIAR) was prepared for the proposed agricultural subdivision in December 2008, to: 1) determine and describe the traffic characteristics of the Kahoma Agricultural Subdivision; 2) quantify and document the traffic related impacts of the Kahoma Agricultural Subdivision; and 3) identify and evaluate traffic related improvements required to provide adequate access to and egress from The Kahoma Agricultural Subdivision and mitigate traffic impacts. **See Appendix E, Traffic Impact Analysis Report.**

The analysis indicates that, in general, the above intersections currently operate relatively smooth; however, during the PM peak hour of traffic, many of the turning movements at the intersections operate below acceptable levels. **Refer to Appendix D, p. 7-12.**

Potential Impacts and Mitigation Measures. In the long-term, the proposed accessways will need to be aligned relative to planned intersections along the Lahaina Bypass as well as internal roadways with in the proposed Villages of Leiali'i project. The route of the Bypass in the project area has been recently revised. The applicants will continue to coordinate with the State Department of Transportation and the HHFDC on this issue.

Based on the analysis, the proposed Kahoma Subdivision is not expected to have a significant impact on traffic operations in the vicinity of the project, as the critical movements at the study intersections along Honoapiilani Highway are anticipated to

continue operating at levels of service similar to Base Year conditions without the project.

The TIAR further notes that proposed agricultural subdivision traffic will comprise a small percentage of the total traffic projected at the studied intersections. This indicates that the existing and projected traffic conditions are regional issues that should be addressed on a regional scale.

2. Utilities

Existing Conditions. There are existing power, telephone, and cable television transmission facilities to the west of the State owned parcels. A Maui Electric Company, Inc. (MECO) primary electrical distribution overhead pole-line is routed *mauka* of the Honoapi'ilani Highway in the vicinity of the applicants' property.

Potential Impacts and Mitigation Measures. No impacts on utilities are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

Proposed electrical, telephone, and cable television distribution systems will be served from the existing facilities and will be located within the requested easement areas. Within the applicants' lands all distribution systems will be installed underground. Streetlights will be installed at intervals determined by the project's electrical engineer.

3. Drainage

Existing Conditions. In general, runoff from the existing roadway areas presently sheet flows toward Honoapiilani Highway. Small drainage control structures and irrigation ditches partially dissipate flows with the agricultural lands. The existing access roads have an average slope of approximately 13%.

There are no existing drainage facilities in the vicinity of the proposed agricultural subdivision. Kahoma Stream is a major gulch which traverses along the southern boundary of the proposed agricultural subdivision and Hahakea Gulch and Kealii Gulch traverse along the northern boundary of the project site.

The existing drainage pattern from the applicants' lands is generally for runoff to sheet flow from the east to the west toward Honoapiilani Highway. At Honoapiilani Highway, most of the runoff is conveyed across the highway by existing culverts. A portion of the onsite runoff sheet flows directly into Kahoma Stream, Hahakea Gulch or Kealii Gulch. A small portion of the onsite runoff sheet flows directly into the existing reservoirs.

Potential Impacts and Mitigation Measures. In the short term, no impacts on drainage are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

Roadway improvements will be engineered to provide adequate drainage and prevent an increase in onsite runoff. The proposed drainage plan is to collect storm runoff from the paved and graded roadways by grassed swales and divert it to detention basins which

will be placed at appropriate locations. No additional runoff will be released into the existing streams or irrigation ditches. The net result of the proposed drainage system will be no increase in runoff from the improved roadways as well as the proposed subdivision site.

All drainage improvements will be developed in accordance with applicable DOH and County of Maui drainage requirements and standards.

Storm runoff during site preparation will be controlled in compliance with the County Code Chapter 20.08 "Soil Erosion and Sediment Control Minimum BMPs". Typical mitigation measures are appropriately stockpiling materials on-site to prevent runoff and building over or establishing landscaping as early as possible on disturbed soils to minimize length of exposure.

4. Water

Existing Conditions. Potable water service in the Lahaina area is currently provided from the County of Maui, Department of Water (DWS), Lahaina Water System. The water system consists of two surface water sources, a number of wells, and three water reservoirs.

The applicants' lands are currently not connected to the Lahaina Water System.

Potential Impacts and Mitigation Measures. In the short term no impacts on water systems are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

Domestic water, fire, and irrigation flow for the proposed project will be provided by either a private water system or by connecting to the Lahaina Water System. Connection to the Lahaina Water System would require off-site water system improvements to extend a water main from the nearest connection point to the project site.

The alternate water source for the Kahoma Subdivision is to develop a private water system consisting of wells, storage tanks, and a booster pumping station. The private water system would comply with applicable regulatory design standards and would initially be owned and operated by the Applicants and subsequently turned over to the subdivision's homeowners association for supervision by a qualified water Management Company.

The potable water system for the proposed subdivision is defined as a "*Public Water System*" by Chapter 11-20, HAR since it would provide water for human consumption and has at least 15 service connections or regularly serves a minimum of 25 persons daily for at least 60 days annually. Since "*Public Water Systems*" are regulated by the DOH, Safe Drinking Water Branch, the potable water system for the subdivision would be developed in accordance with Chapter 11-20, HAR.

The private water system would comply with all applicable Federal and State drinking water regulations, including the State Water Code and any permit-related conditions that may be imposed.

5. Wastewater

Existing Conditions. The collection, transmission, treatment, and disposal of wastewater fall under the jurisdiction of the County of Maui Department of Environmental Management, Wastewater Reclamation Division (WWRD). The WWRD operates a network of sewer lines and pump stations that convey sewage to the Lahaina Wastewater Reclamation Facility at Honokowai for treatment and disposal. Developed areas of the West Maui region are serviced by the County wastewater system. The State Department of Health regulates Individual Wastewater Systems for areas not serviced by the County's system.

Potential Impacts and Mitigation Measure. No impacts on wastewater are anticipated as a result of the request for access easements across State land. The following is an analysis of potential impacts and mitigation measures should the proposed subdivision occur.

The proposed Kahoma Agricultural Subdivision will not impact the region's public wastewater collection system and treatment facility as there is no public wastewater system serving the project area. Individual wastewater systems (septic tanks) will be utilized by lot owners for wastewater disposal as no sewer system will be installed for the proposed subdivision.

The design, installation, and operation of individual wastewater systems are regulated by the State Department of Health (DOH) in accordance with Chapter 11-62, HAR (*Wastewater Systems*). As part of the building permit application process, lot owners will be required to submit plans for their individual wastewater systems to the DOH for review and approval.

E. Cumulative and Secondary Impacts

Cumulative impacts are defined as the impact on the environment, which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

The request for grant of re-locatable access easements will provide a recorded access to manage on-going diversified agricultural and watershed management activities. Documented access will also help the applicants better assist fire, police and other first responders in times of emergency affecting surrounding areas. The proposed Kahoma Agricultural Subdivision, should it occur, would revive the intended agricultural use of this area *mauka* of Lahaina Town. The subdivision of these large parcels will make these lands more manageable for private farmers, ranchers, and eco-tour businesses operators. The proposed fifty-five (55) agricultural lots will not significantly contribute to Lahaina's population expansion, but will rather maintain the rural feel of these *mauka* lands in this rapidly urbanizing area.

Secondary impacts are those that have the potential to occur later in time or farther in distance, but which are reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing transportation impediments to growth.

There are no substantial, adverse, secondary impacts associated with the requested accessways or prospective subdivision. The potential build-out of 55 agricultural residences would create small impacts upon area infrastructure, as discussed above. However, mitigation measures such as the roadway improvements and connection to the Lahaina Bypass will

ensure that these are minimal and will not generate a need to expand public infrastructure.

F. Summary of Unavoidable Impacts on the Environment and Resources

As noted in this EA, there are minimal to no impacts associated with the request for access easements. Should the prospective agricultural subdivision move forward, construction-related activities will generate moderate, unavoidable, short-term impacts. Once the subdivision is completed, the project is not anticipated to have substantial adverse impacts upon the environment or residents of the area. The following mitigation measures could reduce impacts to air and water quality, and reduce noise, and vector impacts.

- Provide vector control before construction activities in accordance with the rules and regulations of the Department of Health
- Provide Best-Management-Practices (BMPs) to contain dust and runoff from the project area. Such measures could include dust and silt screens, construction watering, covering disturbed and loose soils, and covering vehicular loads of materials leaving and entering the proposed subdivision site.
- Provide environmental noise control by limiting construction activities to daylight hours, requiring engine-driven machinery to have the appropriate mufflers, and obtaining a construction noise permit, if required, from the Department of Health
- Properly disposing of demolition wastes in a designated landfill and/or recycling construction materials

The prospective subdivision would require the irretrievable commitment of time, energy, and land.

III. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. State Land Use

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission (LUC), establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as “Urban”, “Rural”, “Agricultural”, and “Conservation”. The majority of the proposed access easements are located within the Urban District, with a small portion of the upper areas in the Agricultural District. The prospective subdivision lands are located within the Agricultural District. See **Figure 9, State Land Use Map**.

As the primary proposed action, the applicants is submitting a request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement over State Land for the creation of two (2) mauka/makai and (3) lateral 40 foot wide rights-of-way. These rights-of-way will provide access along existing haul cane roads for current agricultural pursuits and the possible future agricultural subdivision. Use of State Land requires the preparation of an Environmental Assessment, which will be prepared in accordance with Chapter 343, Hawaii Revised Statutes.

Subsequent to the establishment of the accessway, the applicants may also subdivide the three parcels into approximately 55 lots, most of which vary in size from 5 to 25 acres. Such subdivision for the purpose of creating smaller agricultural lots is allowed within the State Agricultural District.

B. Maui County General Plan

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long-range development of the County. As stated in the Maui County Charter:

The general plan shall indicate desired population and physical development patterns for each island and region within the county; shall address the unique problems and needs of each island and region; shall explain the opportunities and the social, economic, and environmental consequences related to potential developments; and shall set forth the desired sequence, patterns, and characteristics of future developments. The general plan shall identify objectives to be achieved, and priorities, policies, and implementing actions to be pursued with respect to population density, land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design, and other matters related to development.

The request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement over State Land for the creation of two (2) mauka/makai and (3) lateral 40-foot wide rights-of-way have no significant bearing on the Maui County General Plan.

C. West Maui Community Plan

Within Maui County, there are nine (9) community plan regions. From a General Plan implementation standpoint, each region is governed by a Community Plan which sets forth desired land use patterns, as well as goals, objectives, policies, and implementing actions for a number of functional areas including infrastructure-related parameters.

The request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement over State Land for the creation of two (2) mauka/makai and (3) lateral 40 foot wide rights-of-way have no bearing on the West Maui Community Plan.

The prospective agricultural subdivision area is located within the West Maui Community Plan region. The prospective agricultural subdivision area is designated for “Agricultural” uses in the Community Plan. See **Figure 10 Community Plan**.

D. County Zoning

The majority of the subject properties are zoned “Agricultural” by the County of Maui. The requested use is compatible with this designation. All current and proposed activities on the subject property are in conformance with Maui County Code Chapter 19.30A “Agricultural District”.

IV. FINDINGS AND CONCLUSIONS

The accepting authority anticipates a Finding of No Significant Impact (FONSI). A final declaration will be made after the authority has considered all agency and public comments on the Draft Environmental Assessment.

According to the Department of Health Rules (11-200-12), an applicants or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. In making the determination, the Rules establish "Significance Criteria" to be used as a basis for identifying whether significant environmental impact will occur.

1. The proposed action will not result in an irrevocable commitment to loss or destruction of natural or cultural resources.

Analysis. Approval of the request for access easements will not result in an irrevocable commitment to loss or destruction of any natural or cultural resources. All accessways are proposed for existing haul cane roads and improvements to easement corridors are only anticipated should the agricultural subdivision be approved. Archaeological features in the vicinity of the proposed access easements are from the Historic period and relate to historical agricultural use of the area. Archaeological evidence of pre-contact settlements has been found in areas surrounding the prospective subdivision. Should the subdivision be approved, eventual site development will require archaeological monitoring, however after several decades of cultivation no evidence of past use for Hawaiian cultural practices, resources, or beliefs is anticipated to be found. Rare, threatened or endangered species of flora, fauna and avifauna are not anticipated to be affected by the access roads or potential future subdivision.

2. The proposed action will not curtail the range of beneficial uses of the environment.

Analysis. Approval of the request for access easements will not curtail the range of beneficial uses of the environment. Documented accessways will aid in maintenance and management operations for the *mauka* Agricultural and Conservation (watershed) lands.

3. The proposed action will not conflict with State or County long-term environmental policies and goals as expressed in Chapter 344, HRS, and those which are more specifically outlined in the Conservation District Rules.

Analysis. The State's Environmental Policy is set forth in Chapter 344-3, Hawaii Revised Statutes.

- (1) *Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.*
 - (2) *Enhance the quality of life by:*
 - (A) *Setting population limits so that the interaction between the natural and artificial environments and the population is mutually beneficial;*
 - (B) *Creating opportunities for the residents of Hawaii to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;*
 - (C) *Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and*
-

- (D) *Establishing a commitment on the part of each person to protect and enhance Hawaii's environment and reduce the drain on nonrenewable resources.*

Approval of the request for access easements is in accord with these policies and goals.

4. The proposed action will not substantially affect the economic or social welfare and cultural activities of the community, county or state.

Analysis. As documented in this report, approval of the request for access easements will have an insignificant impact of economic, social or cultural activities.

5. The proposed action will not substantially affect public health.

Analysis. As documented in this report, the approval of the request for access easements are not expected to substantially affect public health.

6. The proposed action will not result in substantial secondary impacts.

Analysis. As noted throughout this report, approval of the requested access easements is one of the steps necessary to obtain approval of the proposed Kahoma Subdivision. As such, the approval of the proposed subdivision could be considered as a secondary impact. The 55 agricultural lots of the Kahoma Subdivision represent a relatively insignificant population increase in West Maui. Kahoma Subdivision residents are not expected to adversely impact public services such as police, fire, and emergency medical operations, nor are they anticipated to have an adverse effect upon educational and recreational facilities. State and county revenues generated by The Kahoma Subdivision will offset any costs to public services that may occur as a result of the subdivision.

7. The proposed action will not involve substantial degradation of environmental quality.

Analysis. As documented in this report, the request for access easements will not involve a substantial degradation of environmental quality.

8. The proposed project will not produce cumulative impacts and does not have considerable effect upon the environment or involve a commitment for larger actions.

Analysis. The request for access easements does not involve a commitment to larger actions. Separate review and approval processes will need to be complied with in order to received Final Subdivision approval. While the Kahoma Subdivision will add residents to the area, impacts from these new residents are not expected to be significant, and can be accommodated without substantially increasing public infrastructure or services.

9. The proposed project will not affect a rare, threatened, or endangered species, or its habitat.

Analysis. A Biological Resources Survey was conducted in May of 2008. Areas most favorable to native or rare plant and animal species were intensively examined and revealed few native and no endangered or threatened flora or fauna. All lands proposed for the right-of-ways are disturbed agricultural lands containing no special or important habitats for protected wildlife. Future construction of the access roads and future site development are not expected to have a significant negative impact on wildlife resources.

The findings of the Biological Resources Survey indicate no need for special measures to preserve the habitats observed during the construction phases of this project. Nonetheless, Best Management Practices will be implemented to prevent secondary impacts to rare, threatened, or endangered species.

10. The proposed action will not substantially or adversely affect air and water quality or ambient noise levels.

Analysis. The request for access easements will not result in impacts to air and water quality or ambient noise levels and as such, no significant long-term impacts are anticipated.

Future construction activities, if implemented, will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction-related activities. It is anticipated that construction will be limited to daylight working hours. Water quality is not expected to be affected.

11. The proposed action will not substantially affect or be subject to damage by being located in an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone areas, estuary, fresh waters, geologically hazardous land or coastal waters.

Analysis. The access routes and proposed Kahoma Subdivision are not located within, and will not affect, environmentally sensitive areas. The site is not subject to flooding or tsunami inundation. There are no geologically hazardous lands, estuaries, or coastal waters within or adjacent to the site.

12. The proposed action will not substantially affect scenic vistas or view planes identified in county or state plans or studies.

Analysis. The proposed access routes as well as the applicants' properties are not specifically identified in any county or State plans or studies as containing scenic vistas or view planes.

13. The proposed action will not require substantial energy consumption.

Analysis. No substantial increase in energy consumption is expected as a result of the request for access easements. The accessways and proposed Kahoma Subdivision will involve the short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this use is not anticipated to result in a substantial consumption of energy resources. In the long-term, the subdivision will create an additional demand for electricity. However, this demand is not deemed substantial or excessive within the context of the region's overall energy consumption.

Based on the foregoing findings, it is anticipated that the request for access easements will not result in any significant impacts.

V. CONSULTATION AND REVIEW

A. Early Consultation

The following agencies were requested to provide early consultation comments regarding the proposed project. **See Appendix G, Early Consultation Comment and Response.**

Federal

1. U.S. Department of Agriculture, Natural Resources Conservation Service
2. U.S. Army Corps of Engineers, Regulatory Branch
3. U.S. Fish and Wildlife Service

State of Hawaii

4. Department of Business Economic Development & Tourism
 5. Department of Business Economic Development & Tourism, Office of State Planning
 6. Department of Health
 7. Department of Health, Clean Water Branch
 8. Department of Health, Environmental Planning Office
 9. Department of Health, Maui District Health Office
 10. Department of Health, Clean Air Division
 11. Department of Health, Wastewater Branch
 12. Department of Education
 13. Department of Land & Natural Resources
 14. Department of Land & Natural Resources, Land Division
 15. Department of Land & Natural Resources, Historic Preservation Division
 16. Department of Transportation
 17. Department of Transportation, Statewide Planning Office
 18. Department of Transportation, Maui District Office
 19. Department of Hawaiian Homelands
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- 20. Office of Hawaiian Affairs
- 21. University of Hawaii, Environmental Center

County of Maui

- 22. Department of Fire Control & Public Safety
- 23. Department of Housing & Human Concerns
- 24. Department of Parks & Recreation
- 25. Department of Planning
- 26. Department of Public Works & Environmental Services Management
- 27. Department of Water Supply
- 28. Police Department
- 29. Department of Transportation

Local Utilities

- 30. Maui Electric Company, Ltd.

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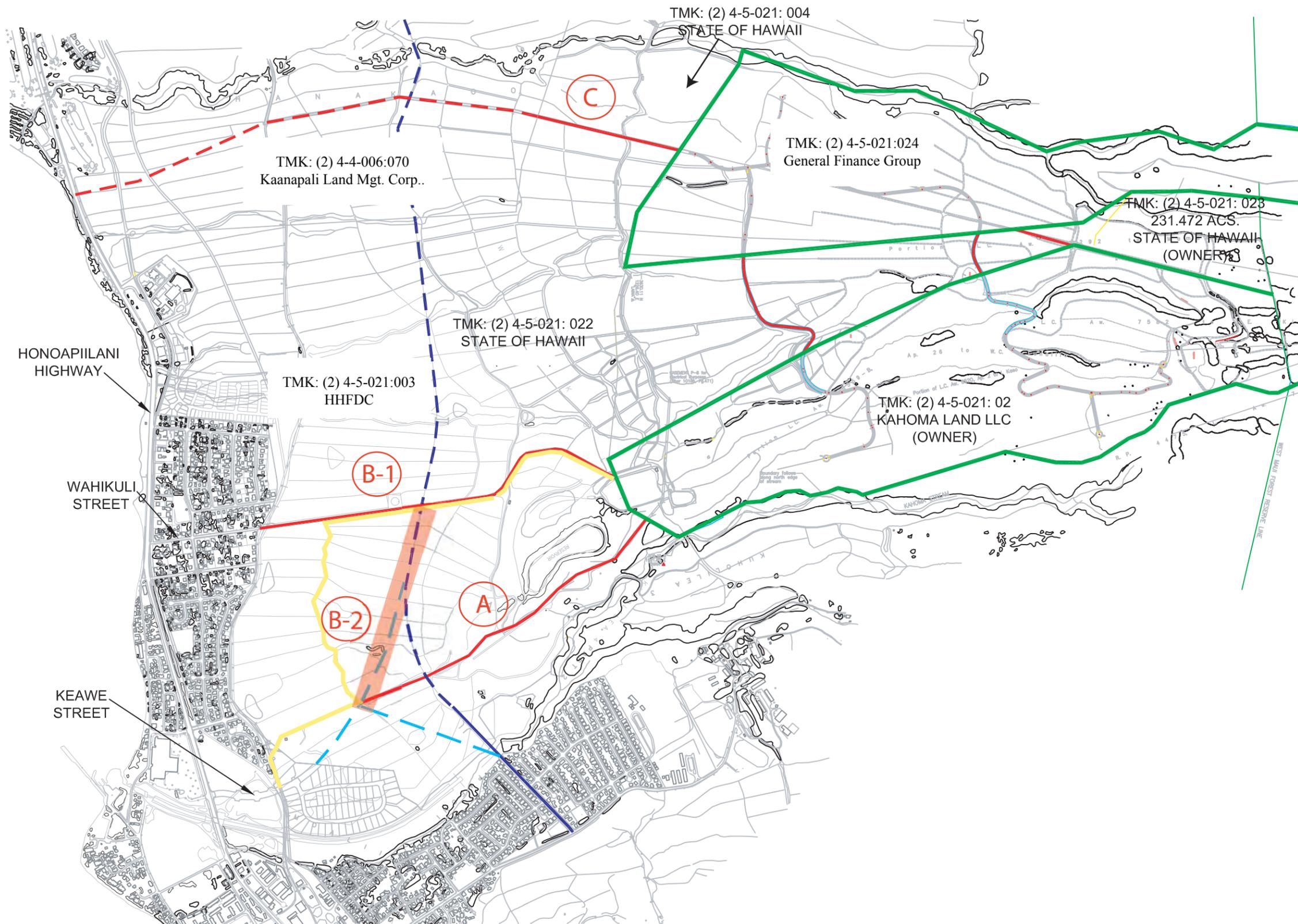
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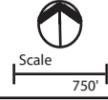
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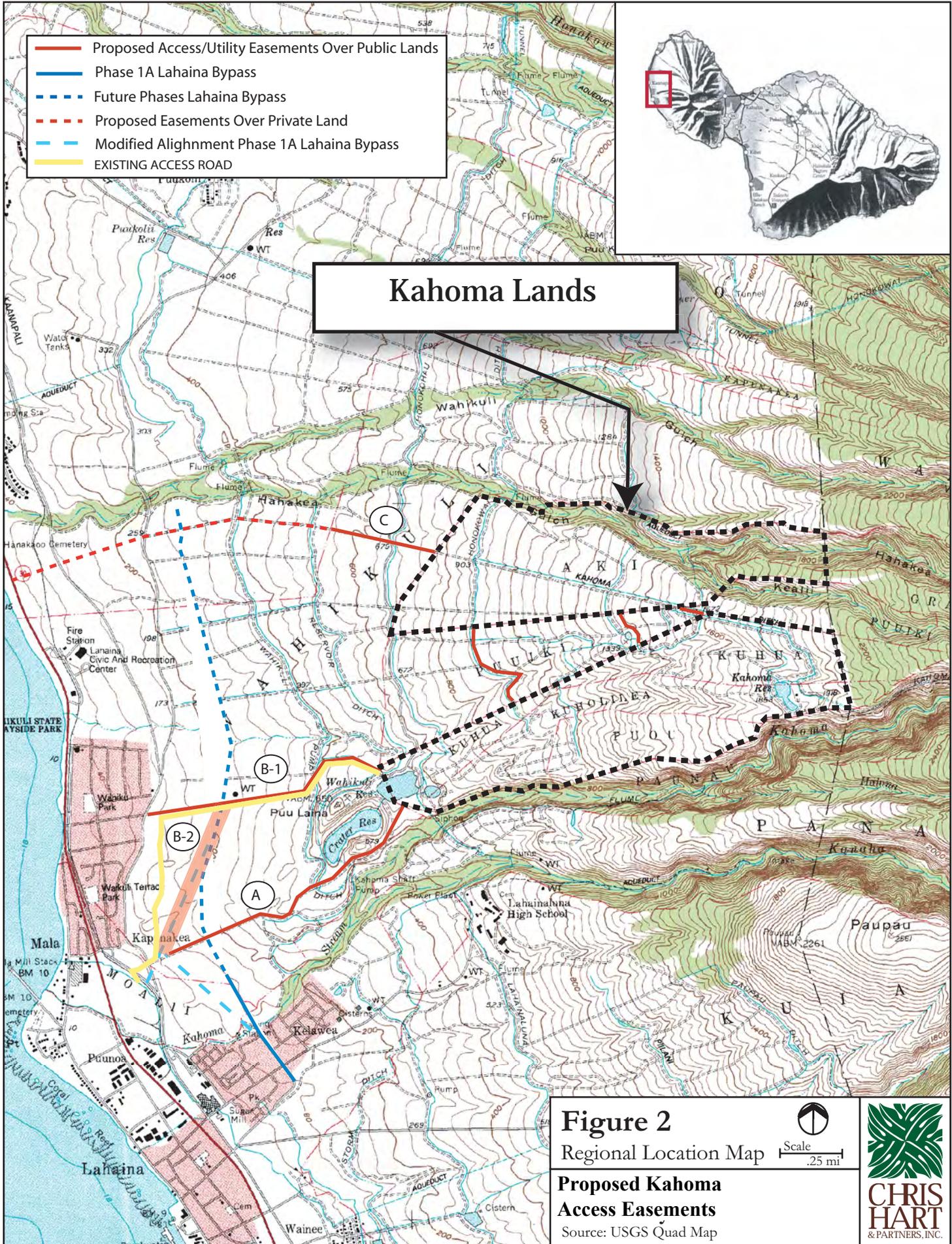
Figures



- KAHOMA AG LANDS
- PROPOSED ACCESS/UTILITY EASEMENTS OVER PUBLIC LANDS
- PHASE 1A LAHAINA BYPASS
- - - FUTURE PHASES LAHAINA BYPASS
- - - PROPOSED EASEMENTS OVER PRIVATE LAND
- - - MODIFIED ALIGNMENT PHASE 1A LAHAINA BYPASS
- EXISTING ACCESS ROAD

Figure 1
 Site Plan
Proposed Kahoma Access Easements
 Source: Otomo Engineering, Inc./CH&P, Inc.





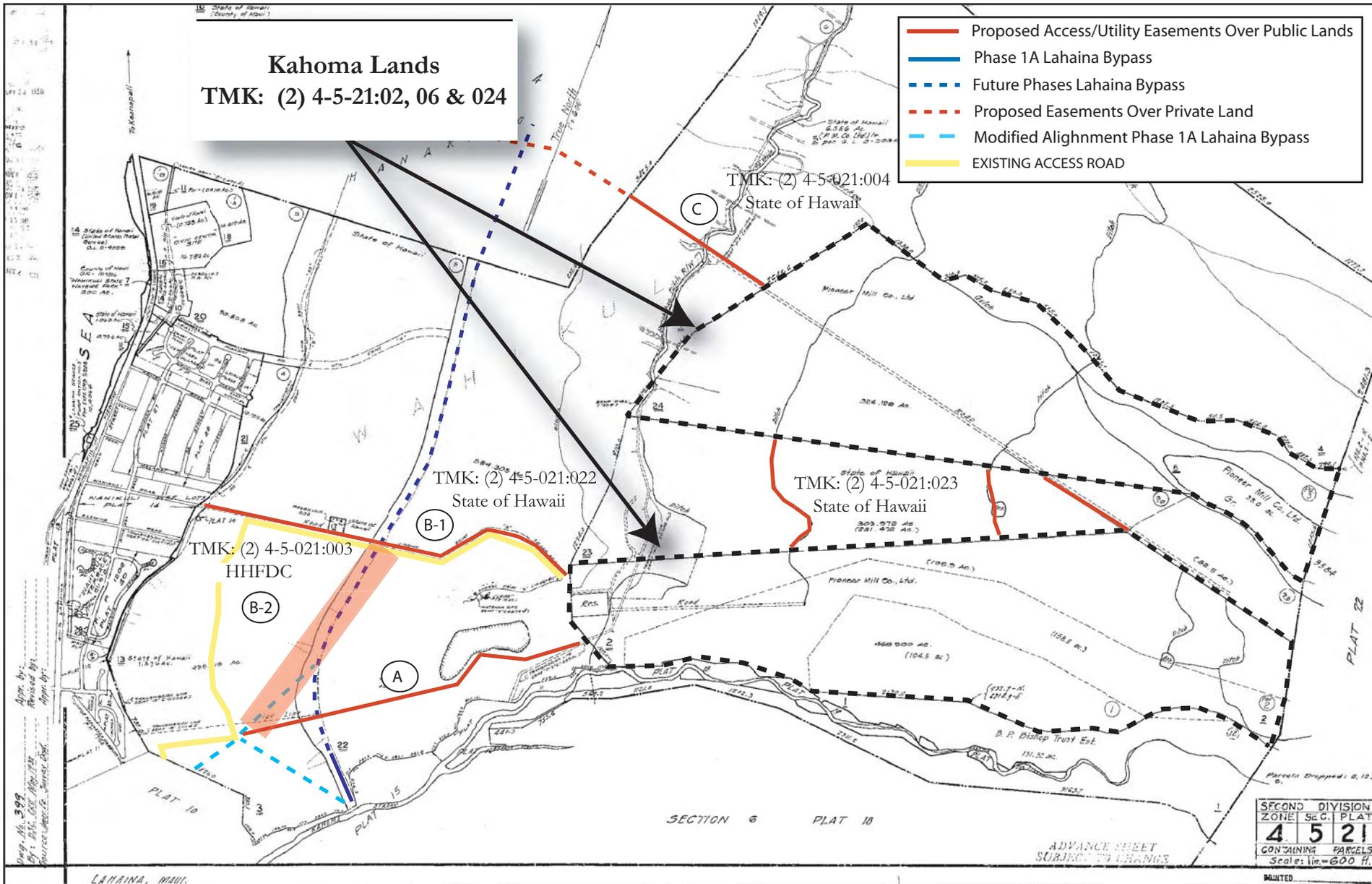


Figure 3

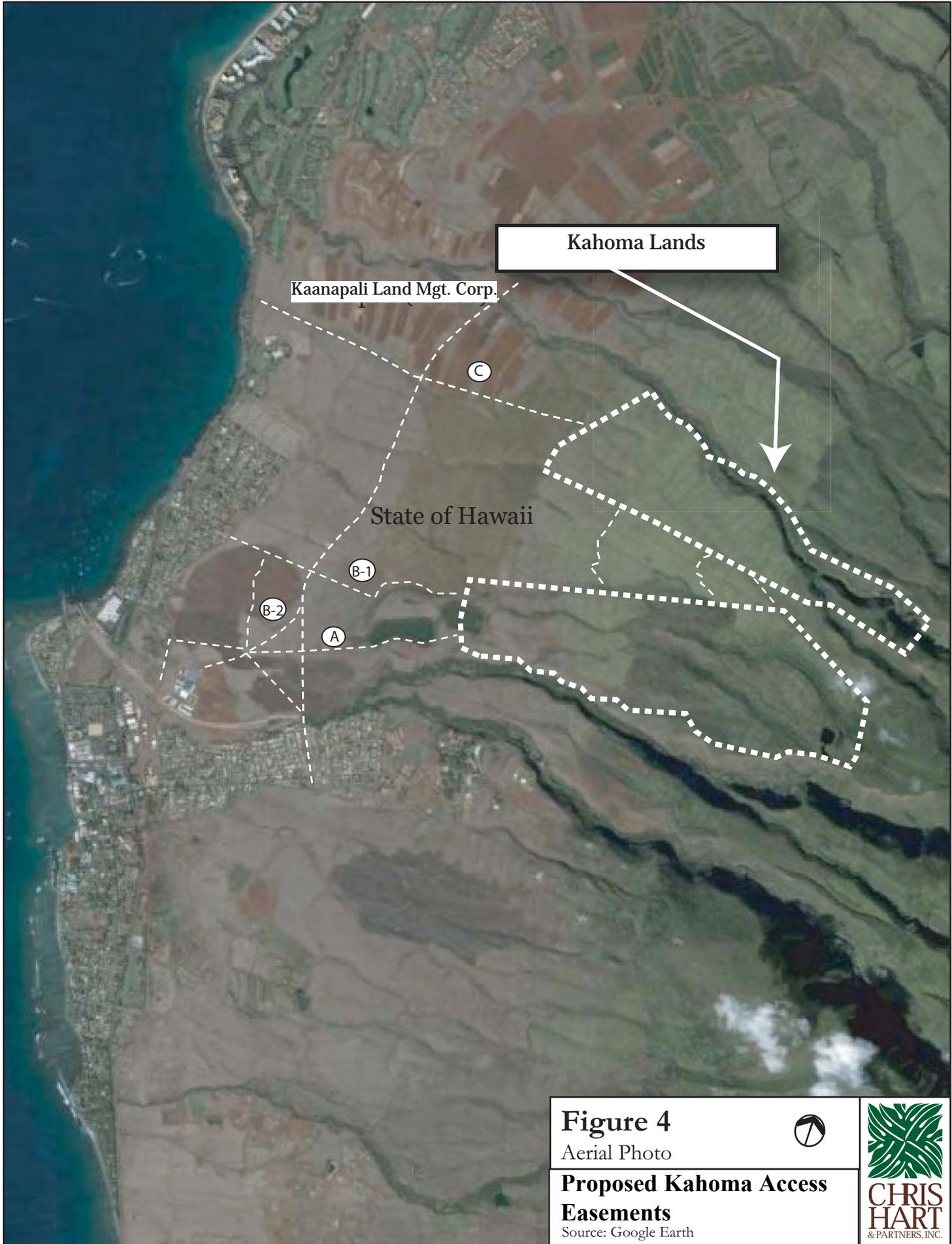
Tax Map

Not to Scale

Proposed Kahoma Access Easements

Source: Territory of Hawaii, Taxation Map Bureau





Kahoma Lands

Kaanapali Land Mgt. Corp.

State of Hawaii

C

B-1

B-2

A

Figure 4

Aerial Photo



Proposed Kahoma Access Easements

Source: Google Earth





E West view from makai point of southern property across area of Proposed Southern Easment (just left of crater lake)



G North-east (mauka) view across existing cane haul road and area of Proposed Easement



F West view from approximate location of intersection between Proposed Southern Easment and Lahaina Bypass



H Aerial view of mauka portion of Southern Property and Kahoma Reservoir

Legend

- North Parcel
- South Parcel
- - - Proposed Easements
- Lahaina Bypass
- KLM Land
- Reservoir

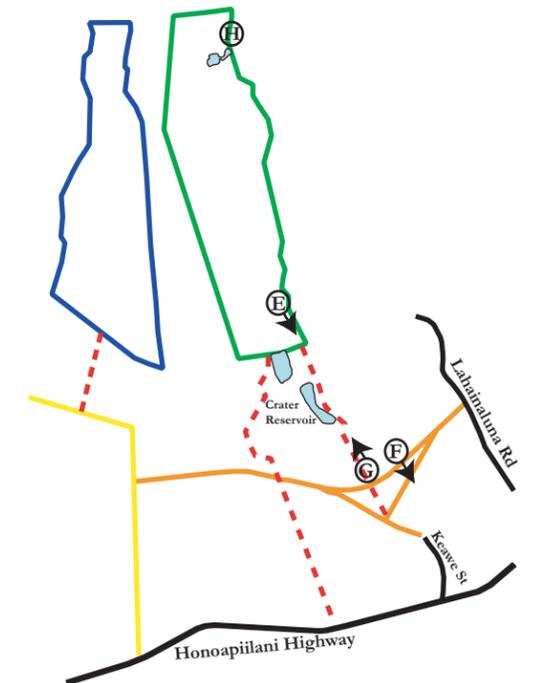


Figure 5 e-h
 Site Photos
Proposed Kahoma Access Easements
 Source: CH&P, Inc/ Kahoma Land LLC





A East view across Proposed Easement to northern parcel from the *mango tree*



B South view from the *mango tree*



C North-west view across northern parcel and Proposed Easement area

Legend

- North Parcel
- South Parcel
- - - Proposed Easements
- Lahaina Bypass
- KLM Land
- Reservoir



D South view across State land toward Crater Lake

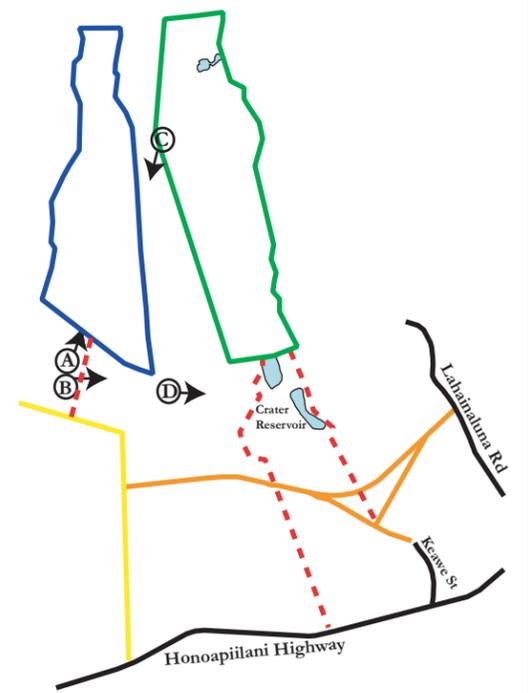
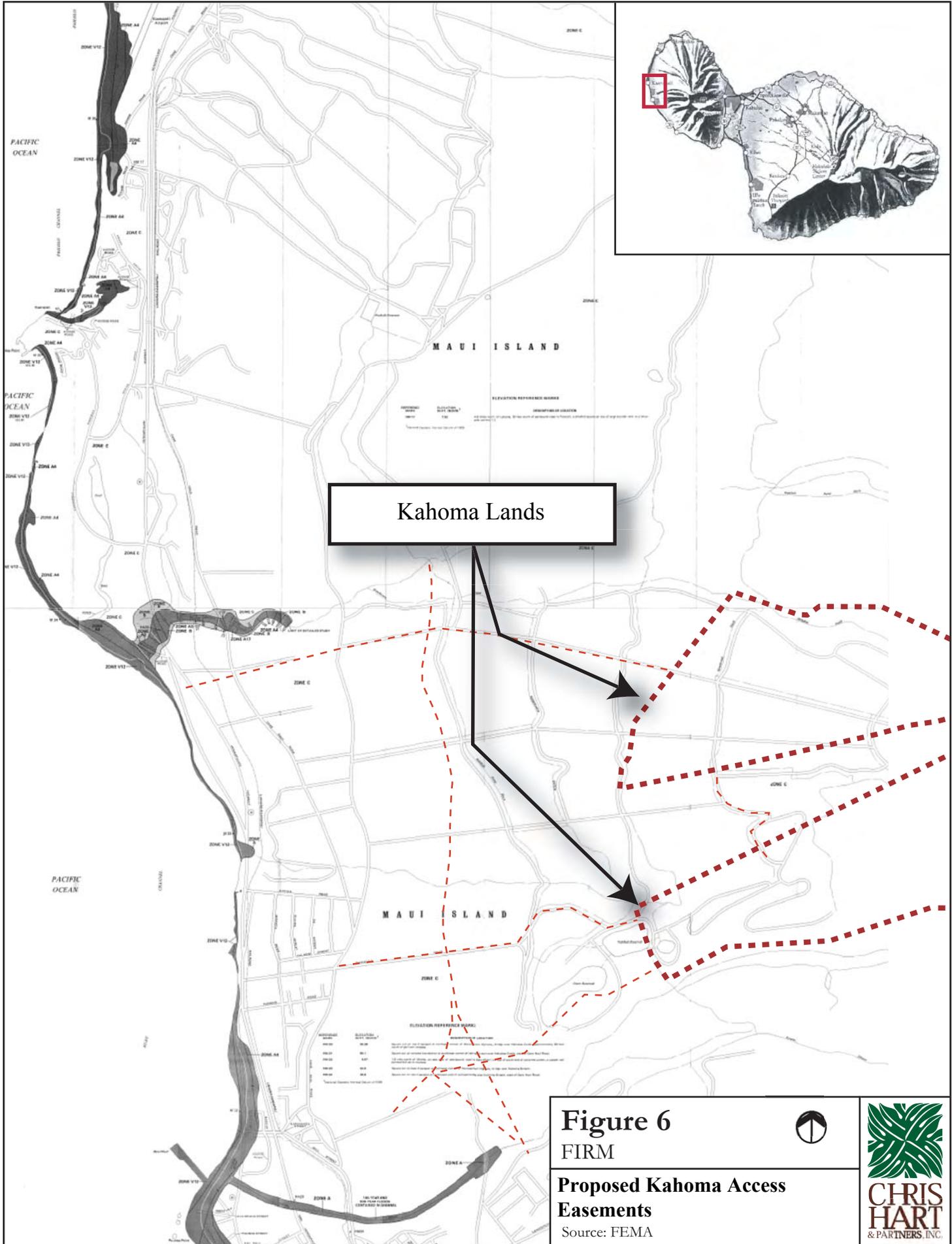
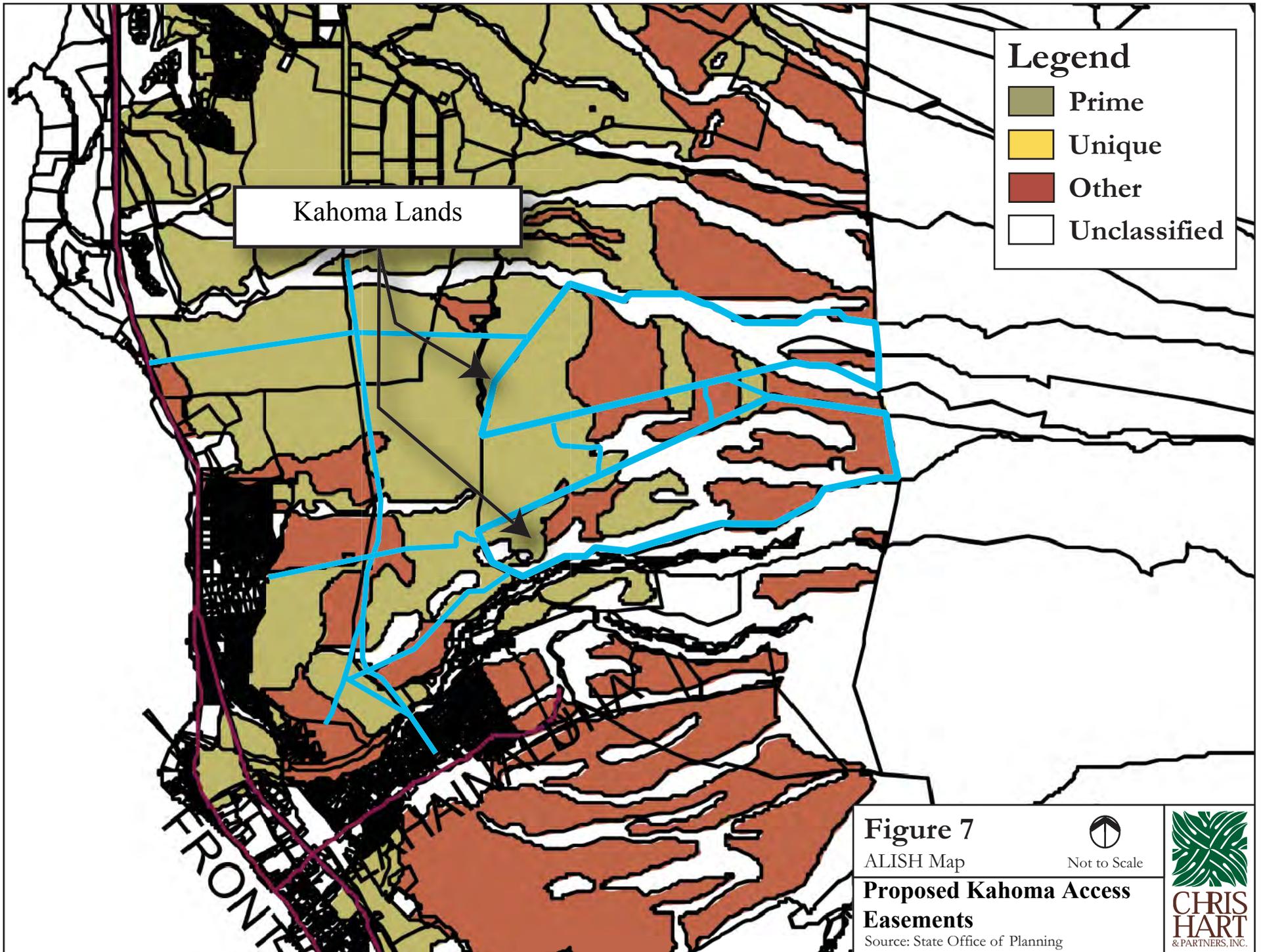


Figure 5 a-d
 Site Photos
Proposed Kahoma Access Easements
 Source: CH&P, Inc/ Kahoma Land LLC







Legend

- Prime
- Unique
- Other
- Unclassified

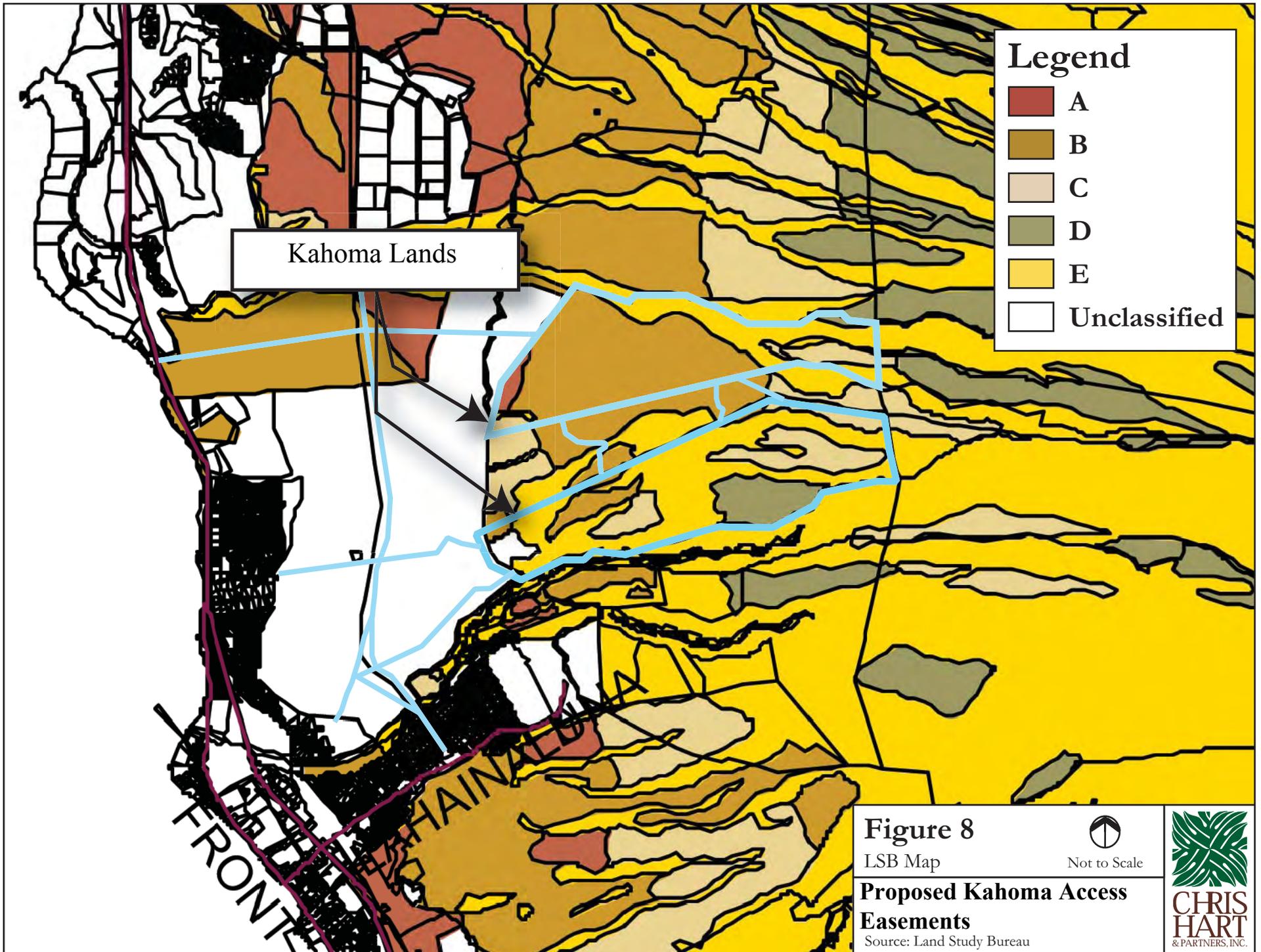
Kahoma Lands

FRONTIER
KATAVIA

Figure 7
 Alish Map
Proposed Kahoma Access Easements
 Source: State Office of Planning

Not to Scale





Legend

- A
- B
- C
- D
- E
- Unclassified

Kahoma Lands

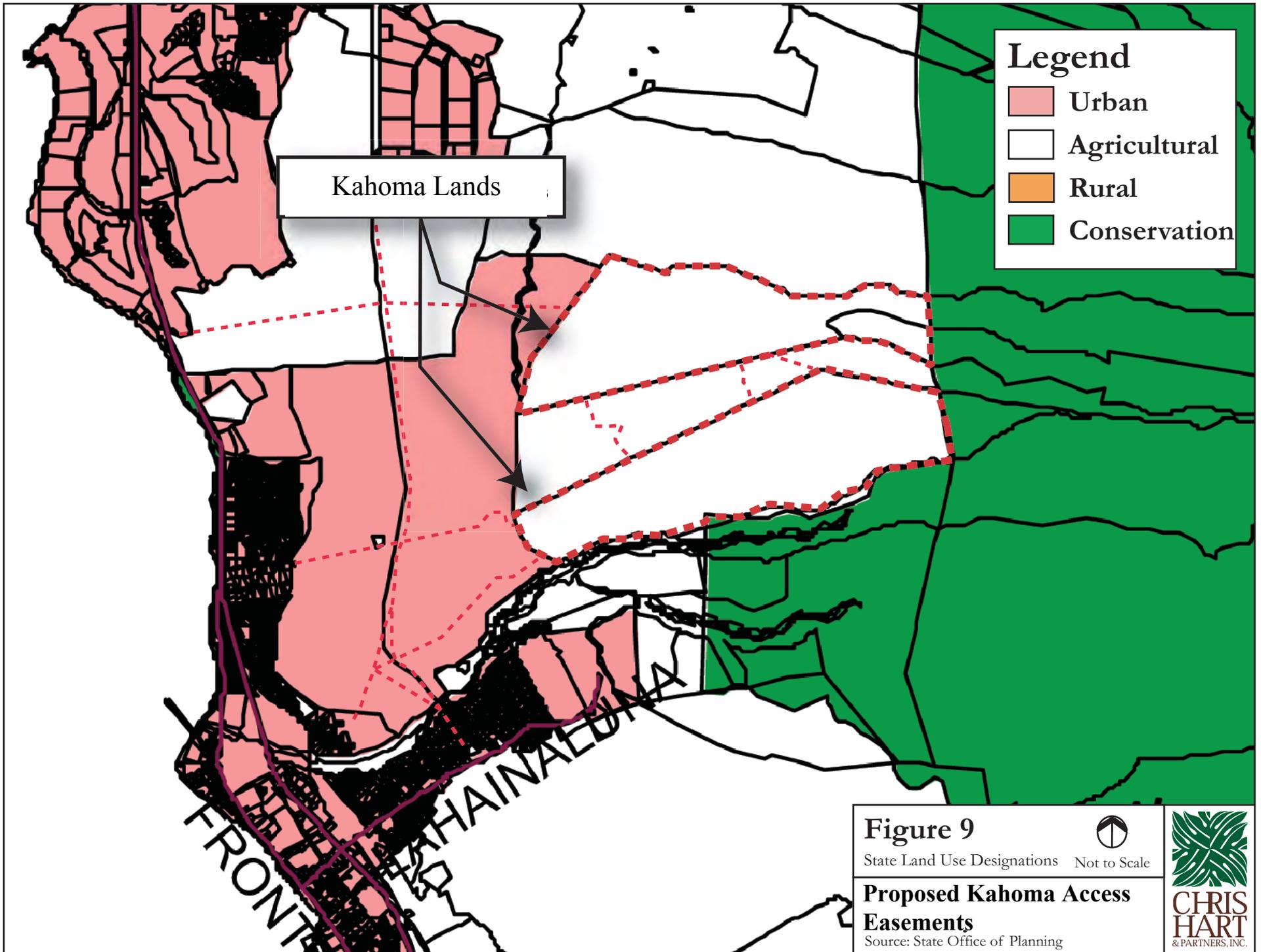
FRONT

HAINALL

Figure 8
 LSB Map ⬆
Not to Scale

Proposed Kahoma Access Easements
 Source: Land Study Bureau

CHRIS HART
 & PARTNERS, INC.



Legend

- Urban
- Agricultural
- Rural
- Conservation

Kahoma Lands

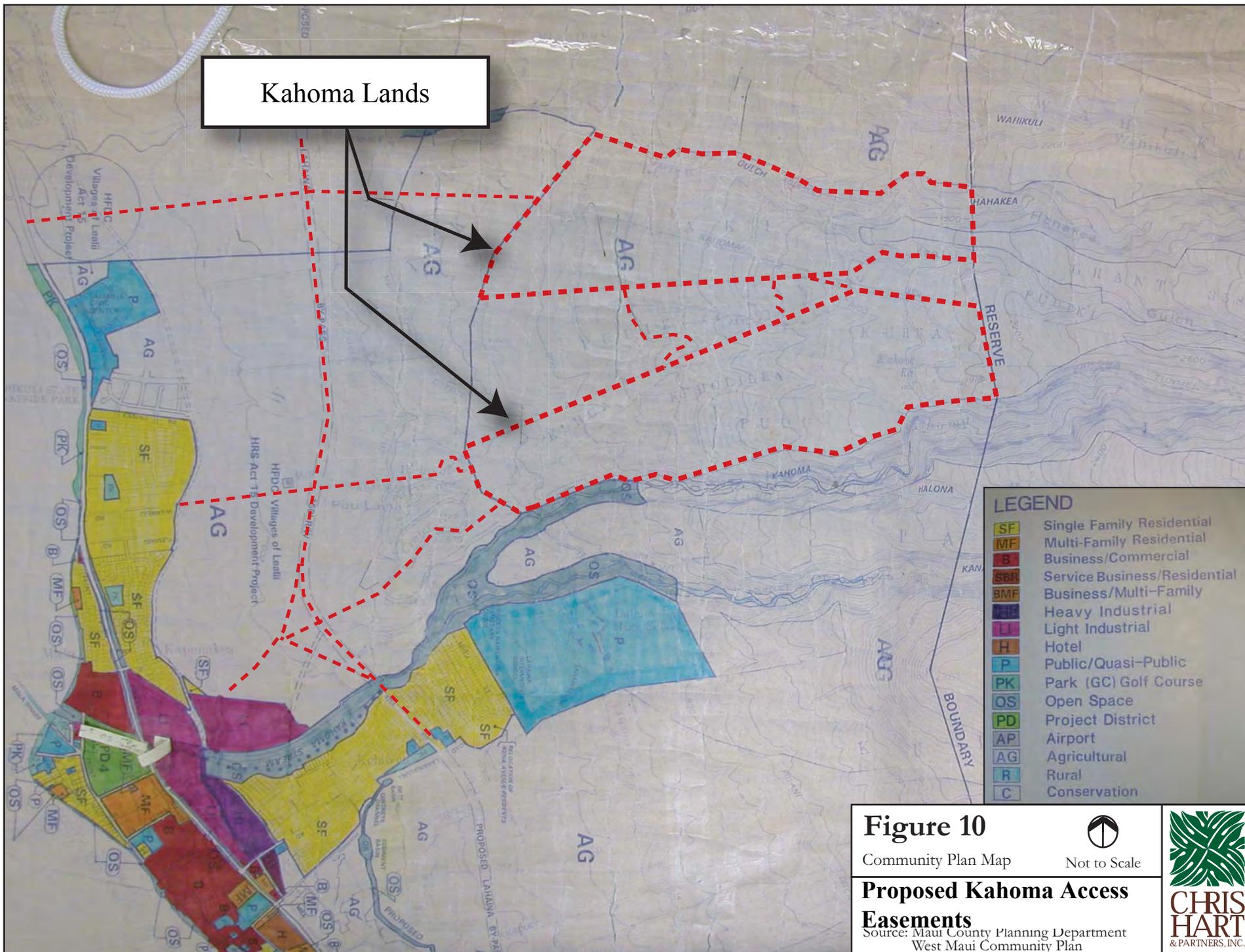
FRONT STREET
HAINALUTA

Figure 9
 State Land Use Designations Not to Scale

Proposed Kahoma Access Easements
 Source: State Office of Planning



CHRIS HART
 & PARTNERS, INC.



Appendix A:
Biological Resources Surveys

BIOLOGICAL RESOURCES SURVEY

for

KAHOMA ACCESS ROADS PROJECT

WAHIKULI, LAHAINA, MAUI

by

**ROBERT W. HOB DY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
January 2008**

**Prepared for:
West Maui Land Company, Inc.**

BIOLOGICAL RESOURCES SURVEY

Kahoma Access Roads Project

INTRODUCTION

The Kahoma Access Roads Project consists of two road corridors that run mauka through old agricultural fields on State lands of Wahikuli between one mile and two miles north of Lahaina town. These two corridors connect private land parcels above with access roads in the coastal zone below. This report is a survey and assessment of flora and fauna resources along these corridors completed in fulfillment of environmental requirements of the planning process.

SITE DESCRIPTION

These road corridors are on moderately sloping land on the lower slopes of the West Maui Mountains. The southernmost runs up along the south side of Crater Hill between 275 feet and 550 feet elevation, while the northernmost runs upslope south of Hahakca Stream between 560 feet and 775 feet elevation. Soils are of the Wahikuli Stony and Very Stony Silty Clay Series (WcC and WdB) as well as the Lahaina Silty Clay Series (Lac and LaD) which have moderate runoff and erosion potential (Foote et al, 1972). Rainfall averages only 15 inches per year with the bulk falling between November and March.

BIOLOGICAL HISTORY

Prior to western contact these slopes would have been vegetated by dryland native shrubs and grasses and with a few scattered trees, vines and ferns. There would have been a rich diversity of plant species complemented by an array of native birds and insects. Hawaiians would have lived primarily along the shoreline and farmed in the fertile valley bottoms, but they would have used these upland slopes regularly to harvest a variety of resources.

In the mid-1800s these slopes were gradually converted to sugar cane agriculture and remained so for over a hundred years. This intensive management included plowing, burning and harvesting effectively eliminated the native plants and wildlife from huge areas.

Since cane agriculture shut down in the 1990s these fields have largely been abandoned and are now in an array of non-native low growing weed species.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Kahoma Access Roads Project which was conducted in January, 2008. 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 the road alignment corridors identified in the plans. A 200 ft. wide study area was surveyed along these alignments. Areas most likely to harbor native or rare plants such as gullies or rocky outcroppings were more intensively examined. Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

The old agriculture fields are mostly overgrown with herbaceous grasses and weeds with the occasional shrubs and young trees. Common non-native species include abandoned pineapple (*Ananas comosus*) plants, buffelgrass (*Cenchrus ciliaris*), Guineas grass (*Panicum maximum*), little bell (*Ipomoea triloba*), hairy merremia (*Merremia aegyptia*) and lion's ear (*Leonotis nepetifolia*). The somewhat less disturbed area along the rim of the Crater Reservoir included koa haole (*Leucaena leucocephala*).

A total of 76 plant species were recorded during the course of the survey. Of these 3 were endemic native species: kumuniu (*Doryopteris decora*), nehe (*Melanthera lavarum*) and Hawaiian moon flower (*Ipomoea tuboides*). Three additional indigenous native species were: 'ilima (*Sida fallax*), 'a'ali'i (*Dodonaea viscosa*) and 'uhaloa (*Waltheria indica*). All 6 of these native species are widespread in Hawaii and relatively common to abundant in occurrence. The remaining 70 species recorded are all non-native plants that are of no particular conservation importance in Hawaii.

DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project area is comprised mainly of non-native species with a few common native species scattered about. No Federally listed Threatened or Endangered species (USFWS, 1999) were found on the property nor were any found that are candidates for such status. No special habitats were found here either. No wetlands as defined by the U.S. Army Corps of Engineers occur on the property.

Because of the above existing conditions there is little of botanical concern with regard to the property, and the proposed project is not expected to have a

significant negative impact on the botanical resources in this part of Maui. No recommendations regarding the flora on this property are deemed necessary or appropriate.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within three groups: Ferns, Monocots and Dicots. Taxonomy and nomenclature of the Ferns are in accordance with (Palmer 2003) and those of the Monocots and Dicots 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.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
FERNS			
PTERIDACEAE (Brake Fern Family)			
<i>Doryopteris decora</i> Brack.	<i>kumuniu</i>	endemic	rare
MONOCOTS			
ALOEACEAE (Aloe Family)			
<i>Aloe vera</i> (L.) N.L. Burm.	aloe	non-native	rare
BROMELIACEAE (Bromeliad Family)			
<i>Ananas comosus</i> (L.) Merrill	pineapple	non-native	common
POACEAE (Grass Family)			
<i>Bromus madritensis</i> L.	-----	non-native	rare
<i>Cenchrus ciliaris</i> L.	buffelgrass	non-native	common
<i>Chloris barbata</i> (L.) Sw	swollen fingergrass	non-native	uncommon
<i>Chloris virgata</i> Sw	feather fingergrass	non-native	rare
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	non-native	rare
<i>Dactyloctenium aegyptium</i> (L.) Willd.	beach wiregrass	non-native	rare
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	non-native	uncommon
<i>Eragrostis ciliaris</i> (All.) Link	stinkgrass	non-native	rare
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	non-native	uncommon
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	non-native	uncommon
<i>Panicum maximum</i> Jacq.	Guinea grass	non-native	common
<i>Tragus berteronianus</i> Schult.	bur grass	non-native	rare
<i>Vulpia myuros</i> (L.) C.C. Gmelin	rat tail fescue	non-native	rare
DICOTS			
AMARANTHACEAE (Amaranth Family)			
<i>Amaranthus spinosus</i> L.	spiny amaranth	non-native	rare

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Amaranthus viridis</i> L.	slender amaranth	non-native	uncommon
ANACARDIACEAE (Mango Family)			
<i>Mangifera indica</i> L.	mango	non-native	rare
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	non-native	rare
ASTERACEAE (Sunflower Family)			
<i>Ageratum conyzoides</i> L.	<i>maile hohono</i>	non-native	rare
<i>Bidens pilosa</i> L.	Spanish needle	non-native	rare
<i>Conyza bonariensis</i> (L.) Cronq.	hairy horseweed	non-native	rare
<i>Emilia fosbergii</i> Nicolson	red pualele	non-native	rare
<i>Galinsoga parviflora</i> Cav.	-----	non-native	rare
<i>Gamochaeta purpurea</i> (L.) Cabrera	purple cudweed	non-native	rare
<i>Melanthera lavarum</i> (Gaud.) Wagner & Rob.	<i>nehe</i>	endemic	rare
<i>Pluchea carolinensis</i> (Jacq.) G. Don	sourbush	non-native	rare
<i>Sonchus oleraceus</i> L.	<i>pualele</i>	non-native	rare
<i>Tridax procumbens</i> L.	coat buttons	non-native	rare
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crown-beard	non-native	rare
<i>Xanthium strumarium</i> L.	<i>kikania</i>	non-native	rare
<i>Zinnia peruviana</i> (L.) L.	<i>puapihi</i>	non-native	rare
BIGNONIACEAE (Bignonia Family)			
<i>Spathodea campanulata</i> P. Beauv.	African tulip-tree	non-native	rare
BRASSICACEAE (Mustard Family)			
<i>Lepidium virginicum</i> L.	pepperwort	non-native	rare
BUDDLEIACEAE (Butterfly Bush Family)			
<i>Buddleia asiatica</i> Lour.	dogtail	non-native	rare
CACTACEAE (Cactus Family)			

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Opuntia ficus-indica</i> (L.) Mill.	<i>panini</i>	non-native	rare
CHENOPODIACEAE (Goosefoot Family)			
<i>Atriplex suberecta</i> Verd.	-----	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
<i>Ipomoea triloba</i> L.	little bell	non-native	common
<i>Ipomoea tuboides</i> Degener & Oostr.	Hawaiian moon flower	endemic	rare
<i>Merremia aegyptia</i> (L.) Urb.	hairy merremia	non-native	common
CUCURBITACEAE (Gourd Family)			
<i>Momordica charantia</i> L.	balsam pear	non-native	rare
EUPHORBIACEAE (Spurge Family)			
<i>Chamaesyce hirta</i> (L.) Millsp.	hairy spurge	non-native	rare
<i>Chamaesyce hypericifolia</i> (L.) Millsp.	graceful spurge	non-native	rare
<i>Chamaesyce prostrata</i> (Aiton) Small	prostrate spurge	non-native	rare
<i>Euphorbia heterophylla</i> L.	<i>kaliko</i>	non-native	rare
<i>Ricinus communis</i> L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
<i>Acacia farnesiana</i> (L.) Willd.	klu	non-native	rare
<i>Albizia lebeck</i> (L.) Benth.	Siris tree	non-native	rare
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	non-native	rare
<i>Crotalaria incana</i> L.	fuzzy rattlepod	non-native	rare
<i>Crotalaria pallida</i> Aiton	smooth rattlepod	non-native	uncommon
<i>Desmanthus pernambucanus</i> (L.) Thellung	slender mimosa	non-native	rare
<i>Desmodium tortuosum</i> (Sw.) DC.	Florida beggarweed	non-native	rare
<i>Indigofera hendecaphylla</i> Jacq.	creeping indigo	non-native	rare
<i>Indigofera suffruticosa</i> Mill.	<i>'iniko</i>	non-native	rare

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Leucaena leucocephala</i> (Lam.) deWit	<i>kōa haole</i>	non-native	common
<i>Macroptilium atropurpureum</i> (DC.) Urb.	-----	non-native	rare
<i>Macroptilium lathyroides</i> (L.) Urb.	wild bean	non-native	rare
<i>Pithecellobium dulce</i> (Roxb.) Benth	'opiuma	non-native	rare
<i>Prosopis pallida</i> . Humb.& Bonpl ex. Willd.) Kunth	<i>kiawe</i>	non-native	rare
<i>Senna surratensis</i> (N.L. Burm.) H. Irwin & Barneby	<i>kolomona</i>	non-native	rare
LAMIACEAE (Mint Family)			
<i>Leonotis nepetifolia</i> (L.) R.Br.	lion's ear	non-native	common
MALVACEAE (Mallow Family)			
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon	non-native	rare
<i>Malva parviflora</i> L.	cheeseweed	non-native	rare
<i>Sida fallax</i> Walp.	'ilima	indigenous	uncommon
<i>Sida rhombifolia</i> L.	Cuban jute	non-native	uncommon
<i>Sida spinosa</i> L.	prickly sida	non-native	rare
<i>Waltheria indica</i> L.	'uhaloa	indigenous	common
MORINGACEAE (Drumstick Tree Family)			
<i>Moringa oleifera</i> Lamarck	drumstick tree	non-native	rare
MYRTACEAE (Myrtle Family)			
<i>Psidium guajava</i> L.	guava	non-native	rare
<i>Syzygium cumini</i> (L.) Skeels	Java plum	non-native	rare
NYCTAGINACEAE (Four-o'clock Family)			
<i>Boerhavia coccinea</i> Mill.	scarlet spiderling	non-native	uncommon
SAPINDACEAE (Soapberry Family)			
<i>Dodonaea viscosa</i> Jacq.	'a'alii	indigenous	rare
SOLANACEAE (Nightshade Family)			

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Nicandra physalodes</i> (L.) Gaertn.	apple of Peru	non-native	rare
<i>Solanum lycopersicum</i> L.	cherry tomato	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through fauna 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

No mammals of any kind were observed within these two road corridors during three site visits to the area. Dense grass and herbaceous vegetation resulting from ample winter rains made it difficult to see any small ground-dwelling mammals, but this dense growth provided an abundant food supply that guaranteed the presence of rodents such as rats (*Rattus rattus*) and mice (*Mus domesticus*). The presence of these rodents further guaranteed the presence of mongoose (*Herpestes auropunctatus*) and feral cats (*Felis catus*) which prey on rodents.

A special effort was made to look for the native Hawaiian hoary bat during the evening survey, focusing on the area around Crater Reservoir and the rim of Kahoma Gulch where potential suitable habitat occurs. 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. No evidence of such activity was observed though visibility was excellent and plenty of flying insects were seen. In addition a bat detector (Batbox IIID) device was used, set to the known frequency of 27,000 to 28,000 hertz typical of the Hawaiian hoary bat, to search for these animals. None were detected.

BIRDS

There was moderate birdlife diversity in this open grassy area. An ample supply of grass and herbaceous plant seeds was available following good winter rains. Ten species of non-native birds and one migratory species were recorded during three site visits. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Common myna (*Acridotheres tristis*) - Many of these easily recognizable and assertive birds were seen feeding in the open areas during the late afternoon and heading toward roosting trees in the evening.

Zebra dove (*Geopelia striata*) – Many of these small doves were seen in small groups feeding in openings across the property.

Gray francolin (*Francolinus pondicerianus*) – Small families of these birds were seen on roadways and in field openings and could be heard making their distinctive calls.

Northern mockingbird (*Mimus polyglottos*) – Several of these long-tailed gray birds were seen on trees or shrubs, making their varied calls.

Black francolin (*Francolinus francolinus*) – Several of these francolins were heard making their distinctive buzzing calls from grassy fields.

African silverbill (*Lonchura cantans*) – Small flocks of these tiny birds were seen feeding on grass seeds in open fields.

House finch (*Carpodacus mexicanus*) – A few pairs of these finches were seen in shrubs or flying across open fields.

Northern cardinal (*Cardinalis cardinalis*) – A few individuals of these bright red birds were seen and heard calling from small trees and underbrush.

House sparrow (*Passer domesticus*) – A few of these small brown sparrows were seen and heard making their insistent calls from underbrush.

Spotted dove (*Streptopelia chinensis*) – A few of these large doves were seen perched on small trees or flying across the property.

Pacific golden-plover, KOLEA (*Pluvialis fulva*) – One individual was seen during the day flying over the property, and a small group was seen in the evening near

the cinder quarry gathering to bed down for the night. These migratory birds are in Hawaii from late August through April when they depart for their summer breeding grounds in the arctic.

A few additional non-native birds would be expected to be observed if survey times were extended, but none of these would be of sensitive environmental concern. This habitat is not suitable for Hawaii's native forest birds due to the lack of preferred food sources, but more importantly due to the presence of mosquito borne avian diseases with which they cannot cope.

INSECTS

While insects in general were not tallied, a diversity of them were seen throughout the area and fueled the bird activity observed. One native insect Blackburn's sphinx moth (*Manduca blackburni*) has been put on the Federal Endangered species list (USFWS 2000) and this designation requires special focus to ascertain if it is present. None were found.

Blackburn's sphinx moth occurs on Maui although it has not been found in this area. Its native host plants are species of 'aiea (*Nothocestrum*). A non-native alternative host plant is tree tobacco (*Nicotiana glauca*). There are no 'aiea on or near the project area, nor were any tree tobacco plants seen. No Blackburn's sphinx moths or their larvae were observed.

CONCLUSIONS AND RECOMMENDATIONS

No Federally endangered or threatened mammal, bird or insect species was observed on the project corridors during the course of the survey. All parts of the project were disturbed agricultural lands and no special or important habitats for protected wildlife were found. The construction of the proposed access roads within these two corridors is not expected to have a significant negative impact on wildlife resources in this part of Maui. No recommendations were deemed necessary regarding wildlife or their habitats on this project area.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within one group: 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 individuals seen within the project area.

BIRDS

Common myna	<i>Acridotheres tristis</i>	non-native	common
Zebra dove	<i>Geopelia striata</i>	non-native	common
Gray francolin	<i>Francolinus pondicerianus</i>	non-native	uncommon
Northern mockingbird	<i>Mimus polyglottos</i>	non-native	uncommon
Black francolin	<i>Francolinus francolinus</i>	non-native	uncommon
African silverbill	<i>Lonchura cantans</i>	non-native	uncommon
House finch	<i>Carpodacus mexicanus</i>	non-native	uncommon
Northern cardinal	<i>Cardinalis cardinalis</i>	non-native	rare
House sparrow	<i>Passer domesticus</i>	non-native	rare
Spotted dove	<i>Streptopelia chinensis</i>	non-native	rare
Pacific golden-plover, kolea	<i>Pluvialis fulva</i>	migratory	rare

BIOLOGICAL RESOURCES SURVEY
for
KAHOMA SUBDIVISION PROJECT
HAHAKEA, KUHOLILEA & PUOU - LAHAINA, MAUI

by
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May 2008

Prepared for:
Kahoma Land, LLC.

BIOLOGICAL RESOURCES SURVEY

Kahoma Subdivision Project

INTRODUCTION

The Kahoma Subdivision Project is located just north of Lahaina, West Maui on three parcels of land (TMKs (2) 4-5-21:002 (por.),006,024) plus 3 easement corridors that total approximately 620 acres. These lands lie in the ahupua'a of Hahakea, Pu'uiki, Kuhua, Kuholile'a and Puou. This report includes a survey and assessment of flora and fauna resources on these lands completed in fulfillment of environmental requirements of the planning process.

SITE DESCRIPTION

These lands lie on former agricultural fields well upslope from the coast between 675 ft. and 2,050 ft. elevation. Ridge tops are moderately sloping but of smooth terrain. These areas have three gulches running down slopes through them. One of these, Hahakea Gulch, is about 300 ft. deep with steep sides. Soils are mostly silty clays of the Lahaina, Wahikuli and Alaeloa Series, while the gulches are rough broken land or rock land (Foote et al, 1972). Rainfall averages between 20 inches and 40 inches per year with the bulk falling during the winter months (Armstrong, 1983).

BIOLOGICAL HISTORY

Prior to western contact these slopes would have been vegetated by dryland native shrubs and grasses and with a few scattered trees, vines and ferns. There would have been a rich diversity of plant species complemented by an array of native birds and insects. Hawaiians would have lived primarily along the shoreline and farmed in the fertile valley bottoms, but they would have used these upland slopes regularly to harvest a variety of resources.

In the mid-1800s these slopes were gradually converted to sugar cane agriculture and remained so for over a hundred years. This intensive management included plowing, burning and harvesting effectively eliminated the native plants and wildlife from huge areas.

Since cane agriculture shut down in the 1990s these fields have largely been abandoned and are now in an array of non-native low growing weed species.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Kahoma Subdivision Project which was conducted in May, 2008. 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 covering all the ridge top areas and rocky gulches as well as following the road alignment corridors identified in the plans. A 40 ft. wide study area was surveyed along these road alignments. Areas most likely to harbor native or rare plants such as gulches and rocky outcroppings were more intensively examined. Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

The old agriculture fields are mostly overgrown with herbaceous grasses and weeds with the occasional shrubs and young trees. Common non-native species include Guinea grass (*Panicum maximum*), ribbed paspalum (*Paspalum malacophyllum*), spiny amaranth (*Amaranthus spinosus*), tiny bell (*Ipomoea triloba*), hairy merremia (*Merremia aegyptia*) and smooth rattlepod (*Crotalaria pallida*). The plants common on marginal lands and in deep gulches include the Polynesian kukui (*Aleurites moluccana*), the non-native koa haole (*Leucaena leucocephala*) and the widespread native species 'uhaloa (*Waltheria indica*), 'ūlei (*Osteomeles anthyllidifolia*) and 'a'ali'i (*Dodonaea viscosa*).

A total of 158 plant species were recorded during the course of the survey. Of these 15 were native species endemic to the Hawaiian Islands: kilau fern (*Pteridium aquilinum* var. *decompositum*), kumuniu (*Doryopteris decora*), (*Achyranthes splendens*) no common name, kuluī (*Nototrichium sandwicense*), 'ohe makai (*Reynoldsia sandwicensis*), ko'oko'olau (*Bidens micrantha*), nehe (*Melanthera lavarum*), (*Schiedea menziesii*) no common name, lama (*Diospyros sandwicensis*), koa (*Acacia koa*), wiliwili (*Erythrina sandwicensis*), 'ōhi'a (*Metrosideros polymorpha*), puakala (*Argemone glauca*), 'iliahi alo'e (*Santalum ellipticum*) and 'akia (*Wikstroemia oahuensis*). An additional 11 species were indigenous in the Hawaiian Islands as well as in other countries: uluhe fern (*Dicranopteris linearis*), pala'ā fern (*Sphenomeris chinensis*), (*Cyperus polystachyos*) no common name, koali awahia (*Ipomoea indica*), 'ala'ala wai nui (*Plectranthus parvifolius*), 'ilima (*Sida fallax*), 'uhaloa (*Waltheria indica*), 'ala'ala wai nui (*Peperomia blanda*), 'ūlei (*Osteomeles anthyllidifolia*), 'a'ali'i (*Dodonaea viscosa*) and pukiawe (*Leptecophylla tameiameia*). Two species were Polynesian introductions: hau (*Talipariti tiliaceum*) and kukui (*Aleurites moluccana*). The remaining 130 plant species were non-natives that are of no particular conservation importance in Hawaii.

The upper portion of Hahakea Gulch contains the greatest diversity and numbers of native plants within the project area. But even in this area the native plants are greatly outnumbered by non-native grasses, shrubs and trees.

DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project area is comprised mainly of non-native plants species but has a good array of 26 native species scattered within the upper elevation of the property and more of a concentration within upper Hahakea Gulch. None of these is a Federally listed Threatened or Endangered species, nor were any found that are candidates for such status (USFWS, 1999). One species, however is rare enough to be designated a Species of Concern. This is the *Schiedea menziesii*, a herbaceous plant that forms small clumps on ledges of the cliffs in Hahakea Gulch at 1,200 feet elevation. There is also a population of 'ohe makai in the same area, which is a tree species that is uncommon in West Maui. Fifteen trees were found scattered along the gulch bottom and slopes.

Threats to native plant species in general within the project area include wildfires, the competition from invasive non-native plant species and the depredations by feral pigs. Most native species thrive in the steep gulch habitats because most threats are reduced there, and because human disturbances are less likely. To continue this trend it is recommended that any development work exclude the Hahakea Gulch habitat.

Other portions of the property are highly disturbed habitats that do not contain sensitive native plants or special ecosystem remnants and are not of particular botanical concern.

Another recommendation is that any landscaping work associated with the development process consider the use of some of those native plants found in the project area.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within four groups: Ferns, Conifers, Monocots and Dicots. Taxonomy and nomenclature of the Ferns are in accordance with (Palmer 2003) and those of the Conifers, Monocots and Dicots are in accordance with Wagner et al. (1999) and Staples and Herbst (2005)..

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.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
FERNS			
BLECHNACEAE (Chain Fern Family)			
<i>Blechnum appendiculatum</i> Willd.	-----	non-native	rare
DENNSTAEDTIACEAE (Bracken Family)			
<i>Pteridium aquilinum</i> (L.) Kuhn var. <i>decompositum</i> (Gaud.) R.M.Tryon	<i>kīlau</i>	endemic	uncommon
GLEICHENIACEAE (False staghorn Fern Family)			
<i>Dicranopteris linearis</i> (Burm.f.) Underw.	<i>uluhe</i>	indigenous	rare
LINDSAEACEAE (Lindsaea Fern Family)			
<i>Sphenomeris chinensis</i> (L.) Maxon	<i>pala'a</i>	indigenous	rare
NEPHROLEPIDACEAE (Sword Fern Family)			
<i>Nephrolepis multiflora</i> (Roxb.) F.M. Jarret & C.V. Morton	sword fern	non-native	uncommon
PTERIDACEAE (Brake Fern Family)			
<i>Adiantum hispidulum</i> Sw.	rough maidenhair fern	non-native	uncommon
<i>Cheilanthes viridis</i> (Forssk.) Sw.	green cliff brake	non-native	uncommon
<i>Doryopteris decora</i> Brack.	<i>kumuniu</i>	endemic	rare
<i>Pityrogramma austroamericana</i> Domin	gold fern	non-native	rare
THELYPTERIDACEAE (Marsh Fern Family)			
<i>Christella parasitica</i> (L.) H. Lev.	-----	non-native	uncommon
CONIFERS			
ARAUCARIACEAE (Araucaria Family)			
<i>Araucaria columnaris</i> (G. Forster) J.D. Hooker	Cook pine	non-native	uncommon
CUPRESSACEAE (Cypress Family)			
<i>Cupressus macrocarpa</i> Gordon	Monterey cypress	non-native	rare
PINACEAE (Pine Family)			

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Pinus elliottii</i> Engelm.	slash pine	non-native	rare
<i>Pinus radiata</i> D. Don	Monterey pine	non-native	rare
MONOCOTS			
COMMELINACEAE (Spiderwort Family)			
<i>Commelina diffusa</i> N.L. Burm.	honohono	non-native	uncommon
CYPERACEAE (Sedge Family)			
<i>Cyperus polystachyos</i> Rottb.	-----	indigenous	rare
<i>Cyperus rotundus</i> L.	nutsedge	non-native	rare
<i>Eleocharis radicans</i> (Poir.) Kunth	<i>pīpīwai</i>	non-native	rare
<i>Kyllingia brevifolia</i> Rottb.	<i>kīlī'o'opu</i>	non-native	rare
ORCHIDACEAE (Orchid Family)			
<i>Spathoglottis plicata</i> Blume	Phillipine ground orchid	non-native	rare
POACEAE (Grass Family)			
<i>Andropogon virginicus</i> L.	broomsedge	non-native	uncommon
<i>Axonopus fissifolius</i> (Raddi) Kuhl.	narrow-leaved carpetgrass	non-native	rare
<i>Brachiaria subquadrifera</i> (Trin.) Hitchc.	-----	non-native	rare
<i>Cenchrus ciliaris</i> L.	buffelgrass	non-native	uncommon
<i>Chloris barbata</i> (L.) Sw	swollen fingergrass	non-native	rare
<i>Coix lacryma-jobi</i> L.	Job's tears	non-native	rare
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	non-native	uncommon
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	non-native	uncommon
<i>Digitaria violascens</i> Link	smooth crabgrass	non-native	rare
<i>Echinochloa crus-galli</i> (L.) P. Beauv.	barnyard grass	non-native	rare
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	non-native	uncommon
<i>Melinis minutiflora</i> P. Beauv.	molasses grass	non-native	uncommon
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	non-native	uncommon

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Panicum maximum</i> Jacq.	Guinea grass	non-native	abundant
<i>Paspalum conjugatum</i> Bergius	Hilo grass	non-native	rare
<i>Paspalum dilatatum</i> Poir.	Dallis grass	non-native	rare
<i>Paspalum malacophyllum</i> Trin.	ribbed paspalum	non-native	common
<i>Paspalum urvillei</i> Steud	Vasey grass	non-native	rare
<i>Pennisetum clandestinum</i> Chiov.	kikuyu grass	non-native	rare
<i>Pennisetum purpureum</i> Schumach.	Napier grass	non-native	rare
<i>Polypogon monspeliensis</i> (L.) Desf.	rabbitfoot grass	non-native	rare
<i>Saccharum officinarum</i> L.	sugar cane	non-native	uncommon
<i>Sacciolepis indica</i> (L.) Chase	Glenwood grass	non-native	rare
<i>Setaria parviflora</i> (Poir.) Kerguelen	yellow foxtail	non-native	rare
<i>Sporobolus diander</i> (Retz.) P. Beauv.	Indian dropseed	non-native	rare
ZINGIBERACEAE (Ginger Family)			
<i>Hedychium coronarium</i> J. Konig	white ginger	non-native	rare
DICOTS			
AMARANTHACEAE (Amaranth Family)			
<i>Achyranthes splendens</i> Mart. ex Moq.	-----	endemic	rare
<i>Alternanthera pungens</i> Kunth	khaki weed	non-native	rare
<i>Amaranthus spinosus</i> L.	spiny amaranth	non-native	common
<i>Nototrichium sandwicense</i> (A.Gray) Hillebr.	<i>kului</i>	endemic	rare
ANACARDIACEAE (Mango Family)			
<i>Mangifera indica</i> L.	mango	non-native	rare
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	non-native	uncommon
APIACEAE (Parsley Family)			
<i>Centella asiatica</i> (L.) Urb.	asiatic pennywort	non-native	rare
APOCYNACEAE (Dogbane Family)			

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Asclepias physocarpa</i> (E.Mey.) Schlecter	baloon plant	non-native	rare
ARALIACEAE (Ginseng Family)			
<i>Reynoldsia sandwicensis</i> A. Gray	'ohe maka'i	endemic	rare
ASTERACEAE (Sunflower Family)			
<i>Acanthospermum australe</i> (Loofl.) Kunze	spiny bur	non-native	uncommon
<i>Ageratina adenophora</i> (Spreng.) R.King & H. Robinson	Mau'i pamakani	non-native	uncommon
<i>Ageratum conyzoides</i> L.	maile hohono	non-native	uncommon
<i>Bidens micrantha</i> Gaud.	ko'oko'olau	endemic	rare
<i>Bidens pilosa</i> L.	Spanish needle	non-native	rare
<i>Conyza bonariensis</i> (L.) Cronq.	hairy horseweed	non-native	uncommon
<i>Crassocephalum crepidioides</i> (Benth.)	redflower ragleaf	non-native	rare
<i>Elephantopus mollis</i> Kunth	-----	non-native	rare
<i>Emilia fosbergii</i> Nicolson	red pualele	non-native	rare
<i>Gamochaeta purpurea</i> (L.) Cabrera	purple cudweed	non-native	rare
<i>Hypochoeris glabra</i> L.	smooth cat's ear	non-native	rare
<i>Hypochoeris radicata</i> L.	gosmore	non-native	rare
<i>Melanthera lamarum</i> (Gaud.) Wagner & Rob.	nehe	endemic	rare
<i>Pluchea carolinensis</i> (Jacq.) G. Don	sourbush	non-native	uncommon
<i>Sonchus oleraceus</i> L.	pualele	non-native	uncommon
<i>Tridax procumbens</i> L.	coat buttons	non-native	rare
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crown-beard	non-native	uncommon
<i>Xanthium strumarium</i> L.	kikania	non-native	uncommon
<i>Youngia japonica</i> (L.) DC.	Oriental hawskbeard	non-native	rare
BIGNONIACEAE (Bignonia Family)			
<i>Spathodea campanulata</i> P. Beauv.	African tulip-tree	non-native	rare
BRASSICACEAE (Mustard Family)			

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Lepidium africanum</i> (Burm.f.) DC.	-----	non-native	rare
<i>Lepidium bonariense</i> L.	-----	non-native	rare
<i>Lepidium virginicum</i> L.	pepperwort	non-native	rare
CACTACEAE (Cactus Family)			
<i>Opuntia ficus-indica</i> (L.) Mill.	<i>panini</i>	non-native	rare
CARYOPHYLLACEAE (Pink Family)			
<i>Schiedea menziesii</i> Hook.	-----	endemic	rare
CONVOLVULACEAE (Morning Glory Family)			
<i>Ipomoea indica</i> (J.Burm.) Merr.	<i>koali awahia</i>	indigenous	rare
<i>Ipomoea triloba</i> L.	little bell	non-native	common
<i>Merremia aegyptia</i> (L.) Urb.	hairy merremia	non-native	common
EBENACEAE (Ebony Family)			
<i>Diospyros sandwicensis</i> (A.DC.) Fosb.	<i>lama</i>	endemic	rare
ERICACEAE (Heath Family)			
<i>Leptecophylla tameiameia</i> (Cham.&Schlect.) C.M. Weiller	<i>pukiawe</i>	indigenous	uncommon
EUPHORBIACEAE (Spurge Family)			
<i>Aleurites moluccana</i> (L.) Willd.	<i>kukui</i>	Polynesian	common
<i>Chamaesyce hirta</i> (L.) Millsp.	hairy spurge	non-native	rare
<i>Chamaesyce hypericifolia</i> (L.) Millsp.	graceful spurge	non-native	rare
<i>Ricinus communis</i> L.	Castor bean	non-native	uncommon
FABACEAE (Pea Family)			
<i>Acacia confusa</i> Merr.	Formosa koa	non-native	uncommon
<i>Acacia farnesiana</i> (L.) Willd.	klu	non-native	uncommon
<i>Acacia koa</i> A. Gray	<i>koa</i>	endemic	rare
<i>Canavalia cathartica</i> Thouars	<i>mauna'oa</i>	non-native	rare
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	non-native	uncommon

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Crotalaria incana</i> L.	fuzzy rattlepod	non-native	rare
<i>Crotalaria pallida</i> Aiton	smooth rattlepod	non-native	common
<i>Desmodium incanum</i> DC.	kaimi clover	non-native	uncommon
<i>Desmodium tortuosum</i> (Sw.) DC.	Florida beggarweed	non-native	rare
<i>Desmodium triflorum</i> (L.) DC.	three-flowered beggarweed	non-native	rare
<i>Erythrina sandwicensis</i> Degener	wilīwīlī	endemic	uncommon
<i>Indigofera suffruticosa</i> Mill.	'inīko	non-native	uncommon
<i>Leucaena leucocephala</i> (Lam.) deWit	koa haole	non-native	common
<i>Macroptilium atropurpureum</i> (DC.) Urb.	-----	non-native	rare
<i>Macroptilium lathyroides</i> (L.) Urb.	wild bean	non-native	rare
<i>Pithecellobium dulce</i> (Roxb.) Benth	'opiuma	non-native	rare
<i>Prosopis pallida</i> (Humb.&Bonpl.ex.Willd.) Kunth	kiawe	non-native	rare
<i>Senna pendula</i> (Humb. & Bonpl.ex.Willd.) H. Irwin & Barneby	-----	non-native	rare
<i>Senna surratensis</i> (N.L. Burm.) H. Irwin & Barneby	kolomona	non-native	rare
LAMIACEAE (Mint Family)			
<i>Hyptis suaveolens</i> (L.) Poit.	-----	non-native	rare
<i>Leonotis nepetifolia</i> (L.) R.Br.	lion's ear	non-native	uncommon
<i>Plectranthus parviflorus</i> Willd.	'ala'ala wai nui	indigenous	rare
<i>Salvia coccinea</i> B. Juss. ex Murray	scarlet sage	non-native	rare
LYTHRACEAE (Loosestrife Family)			
<i>Cuphea carthagenensis</i> (Jacq.) Macbr.	tarweed	non-native	rare
MALVACEAE (Mallow Family)			
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon	non-native	uncommon
<i>Malva parviflora</i> L.	cheeseweed	non-native	rare
<i>Malvastrum cormandelianum</i> (L.) Garcke	false mallow	non-native	rare
<i>Sida cordifolia</i> L.	-----	non-native	rare

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Sida fallax</i> Walp.	' <i>ilima</i>	indigenous	uncommon
<i>Sida rhombifolia</i> L.	Cuban jute	non-native	uncommon
<i>Sida spinosa</i> L.	prickly sida	non-native	rare
<i>Talipariti tileaceum</i> (L.) Fryxell	<i>hau</i>	Polynesian	rare
<i>Waltheria indica</i> L.	' <i>uhaloa</i>	indigenous	common
MELASTOMATACEAE (Melastoma Family)			
<i>Tibouchina herbacea</i> (DC.) Cogn.	cane tibouchina	non-native	rare
MELIACEAE (Mahogany Family)			
<i>Melia azedarach</i> L.	pride of India	non-native	rare
MORACEAE (Mulberry Family)			
<i>Ficus microcarpa</i> L. fil.	Chinese banyan	non-native	rare
MORINGACEAE (Drumstick Tree Family)			
<i>Moringa oleifera</i> Lamarck	horseradish tree	non-native	rare
MYRTACEAE (Myrtle Family)			
<i>Metrosideros polymorpha</i> Gaud.	' <i>ohi'a</i>	endemic	rare
<i>Psidium cattleianum</i> Sabine	<i>waiowī</i>	non-native	uncommon
<i>Psidium guajava</i> L.	guava	non-native	uncommon
<i>Syzygium cumini</i> (L.) Skeels	Java plum	non-native	uncommon
<i>Syzygium jambos</i> (L.) Alston	rose apple	non-native	rare
ONAGRACEAE (Evening Primrose Family)			
<i>Ludwigia octovalvis</i> (Jacq.) Raven	primrose willow	non-native	rare
PAPAVERACEAE (Poppy Family)			
<i>Argemone glauca</i> (Nutt. ex Prain) Pope	<i>puakala</i>	endemic	rare
PASSIFLORACEAE (Passion Flower Family)			
<i>Passiflora suberosa</i> L.	<i>huehue haole</i>	non-native	uncommon
PIPERACEAE (Pepper Family)			

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Peperomia blanda</i> (Jacq.) Kunth	'ala'ala wai nui	indigenous	rare
PLANTAGINACEAE (Plantain Family)			
<i>Plantago major</i> L.	broad-leaved plantain	non-native	rare
POLYGALACEAE (Milkwort Family)			
<i>Polygala paniculata</i> L.	milkwort	non-native	rare
PORTULACACEAE (Purslane Family)			
<i>Portulaca oleracea</i> L.	pigweed	non-native	rare
PRIMULACEAE (Primrose Family)			
<i>Anagallis arvensis</i> L.	scarlet pimpernel	non-native	rare
PROTEACEAE (Protea Family)			
<i>Grevillea robusta</i> A. Cunn ex R. Br.	silk oak	non-native	uncommon
ROSACEAE (Rose Family)			
<i>Osteomeles anthyllidifolia</i> (Sm.) Lindl.	'ulei	indigenous	common
<i>Rubus rosifolius</i> Sm.	thimbleberry	non-native	rare
RUBIACEAE (Coffee Family)			
<i>Richardia brasiliensis</i> Gomes	-----	non-native	rare
SANTALACEAE (Sandalwood Family)			
<i>Santalum ellipticum</i> Gaud.	'iliahí alo'e	endemic	rare
SAPINDACEAE (Soapberry Family)			
<i>Dodonaea viscosa</i> Jacq.	'a'alí'i	indigenous	common
SCROPHULARIACEAE (Figwort Family)			
<i>Buddleia asiatica</i> Lour.	dog tail	non-native	uncommon
SOLANACEAE (Nightshade Family)			
<i>Nicandra physalodes</i> (L.) Gaertn.	apple of Peru	non-native	rare
<i>Nicotiana glauca</i> R.C. Graham	tree tobacco	non-native	rare
<i>Solanum americanum</i> Mill.	popolo	non-native	rare

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Solanum lycopersicum</i> L.	cherry tomato	non-native	rare
THYMELAEACEAE ('Akia Family)			
<i>Wikstoemia oahuensis</i> (A. Gray) Rock	'akia	endemic	rare
TILIACEAE (Linden Family)			
<i>Triumfetta semitriloba</i> Jacq.	Sacramento bur	non-native	rare
VERBENACEAE (Verbena Family)			
<i>Lantana camara</i> L.	lantana	non-native	uncommon
<i>Stachytarpheta australis</i> Moldenke	'owí	non-native	rare
<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	nettle-leaved vervain	non-native	rare
<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Jamaica vervain	non-native	rare
<i>Verbena littoralis</i> Kunth	'owí	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through fauna 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

Three mammal species were observed during five site visits to the property. Taxonomy and nomenclature are in accordance with Tomich (1986).

Feral pig (*Sus scrofa*) – One small pig was seen near the top of the property but abundant sign in the form of rooting was widespread.

Cattle (*Bos Taurus*) – A herd of domestic cattle was being grazed on the lower portion of the property.

Mice (*Mus domesticus*) – One mouse was seen scurrying through the underbrush. Abundant grass seeds and herbaceous vegetation guarantee a sizeable population of these rodents.

Other mammals likely to occur on the property include rats (*Rattus rattus*) that would feed on much the same things as the mice, and mongoose (*Herpestes auropunctatus*) and feral cats (*Felis catus*) that would hunt for the rodents as well as birds.

A special effort was made to look for the native Hawaiian hoary bat during the evening survey, focusing on the area around Kahoma Reservoir and the rim of Kahoma Gulch where potential suitable habitat occurs. 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. No evidence of such activity was observed though visibility was excellent and plenty of flying insects were seen. In addition a bat detector (Batbox IIID) device was used, set to the known frequency of 27,000 to 28,000 hertz typical of the Hawaiian hoary bat, to search for these animals. None were detected.

BIRDS

There was considerable diversity of birdlife due to the many types of habitats and uses across this large property. Nineteen species of birds were recorded during five visits to the property including two endemic Hawaiian species, four domesticated species and thirteen wild non-native species. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Common myna (*Acridotheres tristis*) - Mynas were scattered over the entire property usually in pairs. They are assertive and noisy.

Zebra dove (*Geopelia striata*) – These small doves were found in all parts of the property in small groups feeding in openings in the vegetation.

Spotted dove (*Streptopelia chinensis*) – These large doves were common in flight or perched in small trees singly or in pairs.

Gray francolin (*Francolinus pondicerianus*) – These francolins were found throughout the property in field margins. Their loud, distinctive calls, could be heard everywhere.

Japanese bush warbler (*Cettia diphone*) – These small brown birds are rarely seen but have two different calls. They were common in the upper half of the property.

Nutmeg mannikin (*Lonchura punctulata*) – Several sizeable flocks of these small brown birds were seen in the grasslands near the bottom of the property.

Black francolin (*Francolinus francolinus*) – These beautiful dark francolins were scattered through much of the property. Their distinctive buzzing calls were heard regularly.

Japanese white-eye (*Zosterops japonicus*) – Several of these small green birds were seen gleaning for insects in trees in the upper part of the property.

Northern cardinal (*Cardinalis cardinalis*) – These red birds were found in trees where they eat fruits and insects. Their loud and distinctive calls can be heard from a distance.

Northern mockingbird (*Mimus polyglottos*) – These grayish birds have long tails with white marginal feathers that flash when they take flight. A few of these birds were seen near the bottom of the property.

African silverbill (*Lonchura cantans*) – A few small groups of these tiny pale birds were seen feeding on seeds in the grasslands.

Chestnut mannikin (*Lonchura malacca*) – These tiny dark brown birds were seen in the grasslands feeding on seeds. They were occasional in the lower parts of the property.

Nene, Hawaiian goose (*Branta sandvicensis*) – Two of these inquisitive geese were seen on the roof of a building in the lower part of the property, and three were seen in the vening around Kahoma Reservoir. These endemic Hawaiian geese are Endangered under Federal Law (USFWS, 1999).

Chicken (*Gallus gallus*) – A few chickens were seen around a small garden area near the top of the property. These are semi-domesticated birds.

Hwamei (*Garrulax canorus*) – A few of these garrulous songsters were heard in the forests at the top of the property. These shy birds are rarely seen.

Common peafowl (*Pavo cristatus*) – One peahen was seen near the garden area. This is another semi-domesticated bird on this property.

Chinese domestic goose (*Anser x cygnoides*) – This large white gander was obviously released into Kahoma Reservoir where it seemed quite at home.

Muscovy duck (*Cairina moschata*) – One white Muscovy duck was seen at Kahoma Reservoir where it too had no doubt been released.

Pueo, short-eared owl (*Asio flammeus sandwichensis*) – One of these endemic owls was seen starting its hunting foray during the evening survey near Kahoma Reservoir. This owl is listed as Endangered on O’ahu but is still fairly widespread on Hawaii, Maui, Lana’i and Kaua’i.

A few additional non-native birds would be expected to be observed if survey times were extended, but none of these would be of sensitive environmental concern. This habitat is not suitable for Hawaii’s native forest birds due to the lack of preferred food sources, but more importantly due to the presence of mosquito borne avian diseases with which they cannot cope.

INSECTS

While insects in general were not tallied, a diversity of them were seen throughout the area and fueled the bird species observed. One native moth, Blackburn’s sphinx moth (*Manduca blackburni*) and several damsel flies (*Megalagrion spp.*) have been put on the Endangered Species list (USFWS 2000) and this designation requires special focus to ascertain if these organisms are present. None were found.

Blackburn’s sphinx moth occurs on Maui although it has not been found in this area. Its native host plants are species of ‘aiea (*Nothocestrum*). A non-native alternative host plant is tree tobacco (*Nicotiana glauca*). There are no ‘aiea on or near the property. A small patch of tree tobacco was found in a disturbed area at the bottom of the property. These plants were carefully examined but no Blackburn’s sphinx moth or their larvae were observed.

A search was made for native damselflies along flowing ditches and on the margins of Kahoma Reservoir. One species, the relatively common native *Megalagrion blackburni* was found as well as the non-native familiar bluet but no *Megalagrion jugorum* (that has not been seen for 80 years) was seen.

CONCLUSIONS AND RECOMMENDATIONS

Most of the wildlife observed is non-native and of little environmental concern. Two native birds, however, were observed and these deserve comment.

The endemic and Endangered nene goose was seen in two different areas of the property. These geese were reintroduced to West Maui a few years ago and are multiplying and spreading. These geese are strong fliers and can quickly traverse many miles in their daily foraging activities. They prefer tender green grass as food and are thus attracted to damp sites such as reservoirs, ditches and irrigated golf fairways. They can show up almost anywhere, even landing on the roofs of buildings as observed during this survey. In all of their wandering they carry their Federal Endangered status with them, and thus must be given the utmost consideration whenever and wherever they show up. There is nothing on this property, however, that can be considered core habitat or critical habitat for nene that would require the restrictions of land uses or the setting aside of special habitat for them. The land owners just need to be aware of protections these birds carry with them and to ensure that they and their employees do not harass or harm these birds when they are present.

The pueo or short-eared owl is a distinctive native member of Hawaii's avifauna. While not a Federally protected species the pueo is not as abundant as it once was and deserves some consideration. It prefers open fields and pastures where it hunts for rodents usually in the evenings. Its needs are not complex, mostly open fields and rodents. It just should be given the consideration and respect it deserves.

Other than these two native birds there is not much concern for fauna species on this property. No other special recommendations are deemed appropriate or necessary.

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: Birds and mammals. 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 individuals seen within the project area.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<u>MAMMALS</u>			
Feral pig	<i>Sus scrofa</i>	non-native	common
Cattle	<i>Bos taurus</i>	non-native	uncommon
Mice	<i>Mus domesticus</i>	non-native	rare
<u>BIRDS</u>			
Common myna	<i>Acridotheres tristis</i>	non-native	common
Zebra dove	<i>Geopelia striata</i>	non-native	common
Spotted dove	<i>Streptopelia chinensis</i>	non-native	common
Gray francolin	<i>Francolinus pondicerianus</i>	non-native	common
Japanese bushwarbler	<i>Cettia diphone</i>	non-native	common
Nutmeg mannikin	<i>Lonchura punctulata</i>	non-native	common
Black francolin	<i>Francolinus francolinus</i>	non-native	uncommon
Japanese white-eye	<i>Zosterops japonicus</i>	non-native	uncommon
Northern mockingbird	<i>Cardinalis cardinalis</i>	non-native	rare
African silverbill	<i>Lonchura cantans</i>	non-native	rare
Chestnut mannikin	<i>Lonchura malacca</i>	non-native	rare
Nene, Hawaiian goose	<i>Branta sandvicensis</i>	endemic/Endangered	rare
Chicken	<i>Gallus gallus</i>	non-native	rare
Hwamei	<i>Garrulax canorus</i>	non-native	rare
Common peafowl	<i>Pavo cristatus</i>	non-native	rare
Chinese domestic goose	<i>Anser x cygnoides</i>	non-native	rare
Muscovy duck	<i>Cairina moschata</i>	non-native	rare
Pueo, Short-eared owl	<i>Asio flammeus sandwichensis</i>	endemic/Endangered	rare

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Appendix B1:
Archaeological Inventory Survey of Two
Sections of Access Roads

**AN ARCHAEOLOGICAL INVENTORY SURVEY
OF TWO SECTIONS OF ACCESS ROADS
THROUGH LANDS OWNED BY
THE STATE OF HAWAII AND
MAUI LAND AND PINEAPPLE, CO.
IN WAHIKULI AHUPUA`A, LAHAINA DISTRICT,
MAUI ISLAND, HAWAII
[TMK: 4-5-21:022]**

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ABSTRACT

Scientific Consultant Services (SCS), Inc. was contracted by Kahoma Land, LLC. to conduct Archaeological Inventory Survey (AIS) of two easement corridors in preparation for the construction of two access roads on State of Hawaii Land (owner) in Lahaina, Wahikuli Ahupua`a, Lahaina District, Maui Island, Hawai`i [TMK: (2) 4-5-021:022]. The survey consisted of full systematic pedestrian survey along road two proposed road corridors. During this work, three Historic features were identified and recorded under previously established site number 50-50-03-4420. These features are: a cement bridge and associated stone-and-cement mortared ditch (Feature 1), an agricultural clearing mound (Feature 2), and a stone-and-cement mortared culvert (Feature 3). No further work is recommended for these features. Two previously documented sites were also identified within the survey area (Jensen 1989). Sites 50-50-03-2485 and -2488 are pre-Contact, well-constructed enclosures, and they will be adversely impacted by the planned road construction. Site -2485 lies to the south of proposed Road A. SCS recommends preservation of this site. Site -2488 lies within the corridor of proposed Road A. As such, SCS recommends Data Recovery for this site.

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INTRODUCTION

Scientific Consultant Services (SCS), Inc. was contracted by Kahoma Land, LLC. to conduct Archaeological Inventory Survey (AIS) of two State (owner) easement corridors in preparation for the construction of two access roads on State of Hawaii Land in Lahaina, Wahikuli Ahupua`a, Lahaina District, Maui Island, Hawai`i [TMK: (2) 4-5-021:022] (Figures 1 and 2).

Archaeological Inventory Survey (AIS) was conducted within the road corridors the proposed Roads A and B by SCS Archaeologists D. Dillon, B.A. and A. Chun, Ph.D., under the supervision of the Principal Investigator M. Dega, Ph.D. This work was conducted intermittently from January 15 through 31, 2008. Fieldwork consisted of full systematic pedestrian survey of the corridors for Roads A and B. During this work, three newly identified Historic features relating to the operations of commercial agriculture on the lot. These features have been recorded and designated under previously identified site number 50-50-03-4420. In addition, two previously documented sites, -2485 and -2488 were relocated and found to be in close proximity to Road A. The details of this work are presented herein.

This AIS has been conducted in accordance with the rules of the State Historic Preservation Division (SHPD), Department of Land and Natural Resources (DLNR) (§13-279 HAR).¹. The following text provides more detailed information on the environmental setting, cultural historic setting, previous archaeology, methodology and results of field work.

ENVIRONMENTAL SETTING

Lahaina lies on the western slope of the West Maui Mountains, on a wide coastal plain that fronts the Moloka`i Channel. Wahikuli Ahupua`a composes the northern end of Lahaina Town, spanning from the coastline upland to 600 feet above mean sea level (amsl). The *ahupua`a* then narrows into a steep gulch, jogging northward and inland to its terminus at approximately 5000 amsl. Modern urban development has extensively altered the landscape of the Wahikuli coastline since the Historic Period, particularly on the southern half of the *ahupua`a*. Hanakao`o and Pu`unoa Points bound the seaward edges of Wahikuli Ahupua`a to the north and south, respectively. Honoapi`ilani Highway, lies to the south of the project area, skirting the sea. Wahikuli State Wayside Park lies along the coast west of the project parcel.

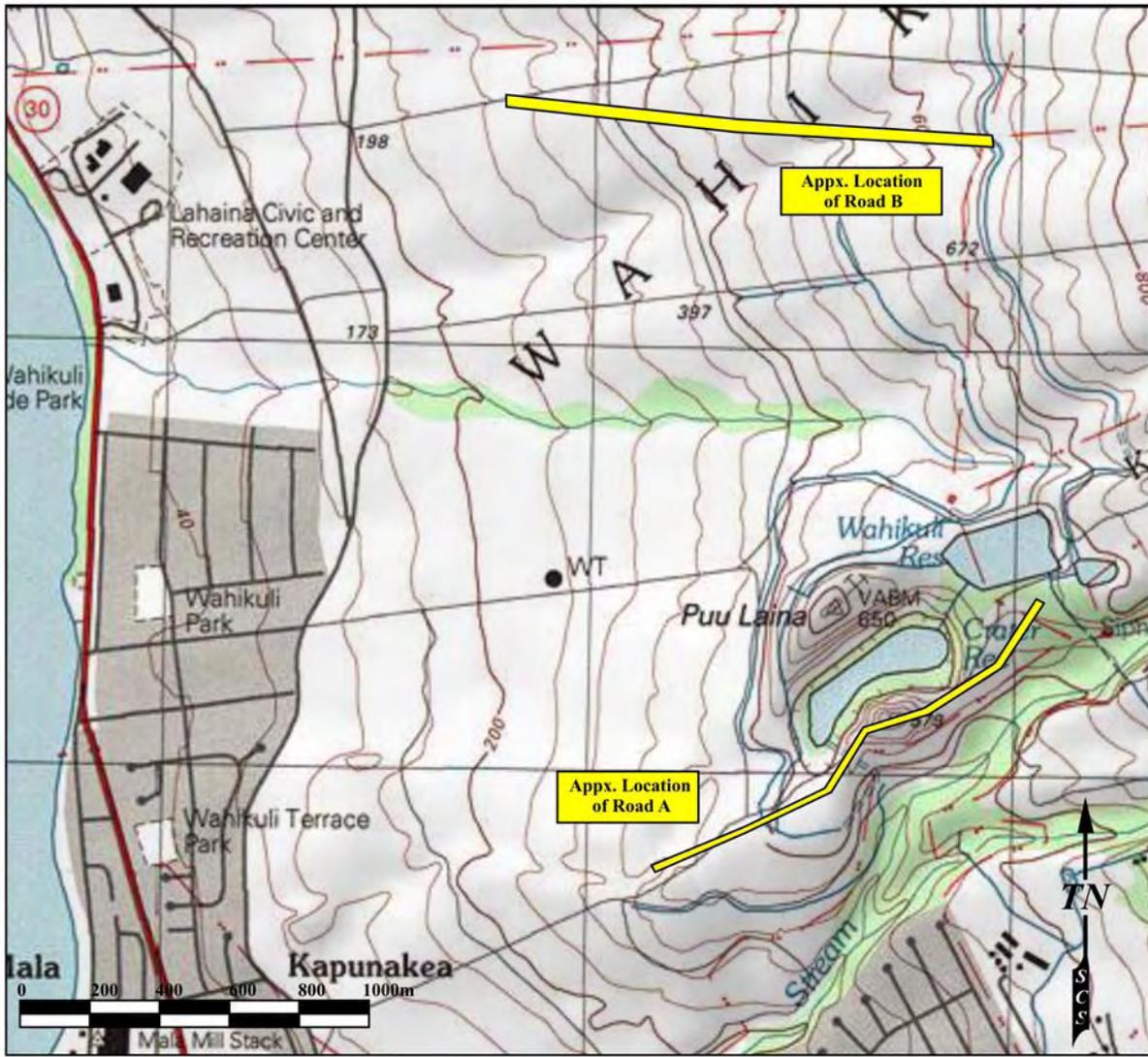


Figure 1: USGS Lahaina Quadrangle Showing the Approximate Locations of Roads A and B.

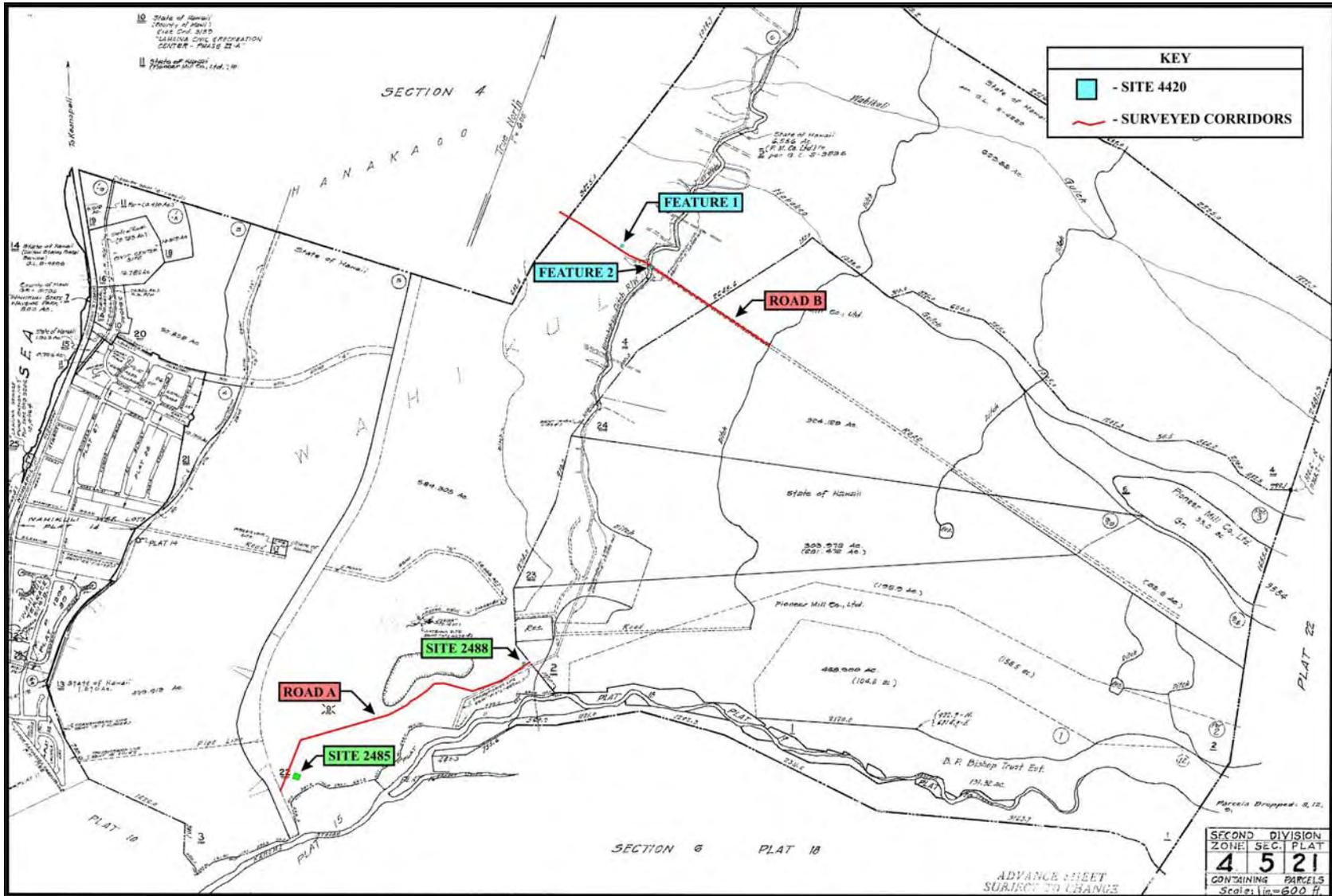


Figure 2: Tax Map Key [TMK] Showing the Roads A and B Corridors, and Locations of Newly Relocated Sites and Features.

Archaeological Inventory Survey was conducted within the corridors for two planned access road extensions. These planned road locations, referred herein as Road A and Road B, bear *mauka-makai* on opposite sides of the parcel (Figure 3). Road A originates on the *makai* end at the nexus of the Keawe Street Extension (existing) and the planned Phase IA Lahaina Bypass. This road extends *makai* past two reservoirs, terminating at Kahoma Land, LLC boundaries. Road B extends from the *mauka* end of the planned Ka'anapali Land Development along an existing cane haul road to the edge of the planned subdivision area

The project area receives approximately 16 inches of precipitation per annum (Giambelluca *et al.* 1986), though precipitation increases steadily with increasing elevation. The soils in the area vary slightly, but are generally composed of silty clay. At its *makai* end, Road A crosses deposits of Wahikuli Stony Silty Clay (WcC) and Wahikuli Very Stony Silty Clay (WdB) (Foote *et al.* 1972: 94). The Wahikuli Series, inclusive of both these soil types, was formed from basic igneous rock with some inclusions of volcanic ash from nearby cinder cones. The soil is well drained, and is associated with gentle slopes from sea level to 600 feet amsl. These soil types are associated with sugar cane cultivation (*ibid.*: 125-126). Road B crosses Lahaina Silty Clay (LaC and LaD). This soil association, like the Wahikuli Series, eroded from basic igneous rock, but is more widely present on Maui (*ibid.* 78). This well-drained soil type is found on 7 to 25 percent slopes from 10 to 1500 feet amsl. These soils are used for sugarcane, as well as pineapple and, to a lesser extent, for truck crops and pastures.

A cursory examination of the USGS Lahaina Quadrangle reveals extensive Historic alteration to the natural landscape. Several streams traverse the landscape in the general vicinity of the project parcel, and there was likely some fresh water within the parcel prior to the Historic Period. However, the area's stream channels were altered extensively in this area in support of commercial agricultural endeavors in the Historic Period (see Historical Background). To the north of the project area lie Wahikuli and Hahakea Streams. Kahoma, Halona and Kanaha Streams flow to the south of the project parcel. Several Historic irrigation features are apparent, the most notable of which are two reservoirs that lie very close to the planned location of Road A. Several irrigation ditches originate from these reservoirs, as well as directly from the Kahoma Stream, just outside Wahikuli Ahupua`a, carrying water from south to north across the project parcel. Of particular note, Honokowai and Honokohau Ditches, two of the several traversing ditches within the project area, have gained some Historic importance, due to their role as principal water resources during the Sugar Period.

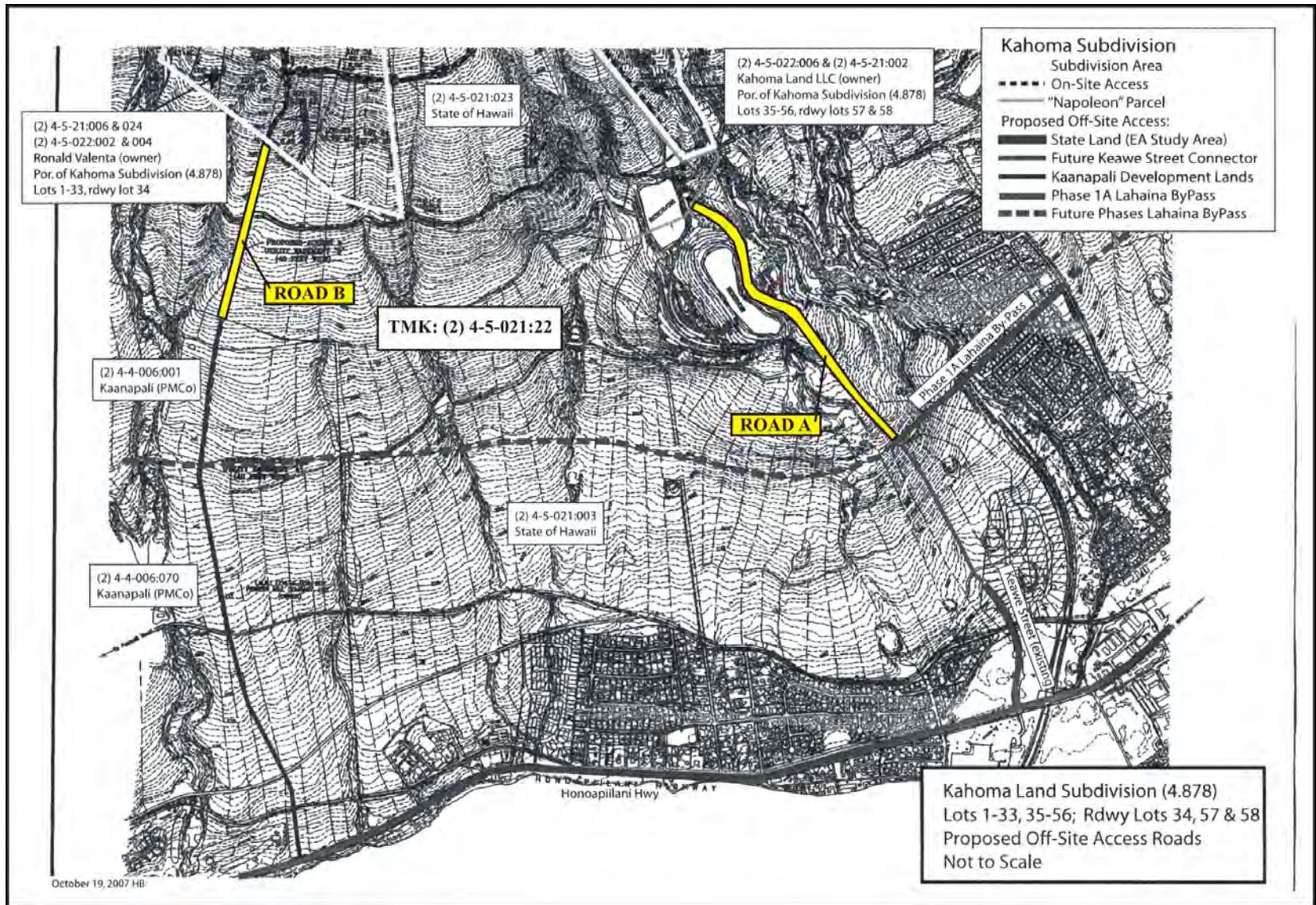


Figure 3: Maui Land and Pineapple, Co. Map Showing the Project Area and Roads A and B Corridors

HISTORICAL BACKGROUND

Traditionally, it was reported that the division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* named Kalaiha`ōhia, during the time of the *ali`i*, Kaka`alaneo (Beckwith 1940:383; Fornander places Kaka`alaneo at the end of the 15th century or the beginning of the 16th century [Fornander 1916/17, Vol. 6:248]). Further land divisions within the *moku* were *ahupua`a* which ideally incorporated all the natural resources necessary for traditional subsistence strategies. The ancient subdivisions of the *ahupua`a* were said to have been established approximately 500 years ago and have remained unchanged to the present, although land tenure itself has gone through radical changes (Sterling 1998:3). The project areas is located within the *ahupua`a* of Wahikuli, Lahaina District.

Lahaina town was recorded as a Historic District and assigned State Site 50-50-03-3001 in 1962 and amended to include a second district in 1967 (Belt-Collins 1992:II-1). Lahaina has a varied history ranging from the traditional fishing and cultivation of early Hawaiians, the residence and surfing grounds of various members of the *ali`i* class, and a period of island unification involving high ranking *ali`i* from other Mokupuni (islands) in Hawai`i. Later, Maui became the capital of commercial whaling in the Pacific in the early to mid 1800's, and then it was later a base for sugar plantation and, eventually, tourism.

The pre-Contact Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock, and wild plant and bird collecting. Extended household groups settled in various *ahupua`a*. Here, they were able to harvest from both the land and the sea. Ideally, this allowed each *ahupua`a* to be self-sufficient by supplying resources needed for survival from many different environmental zones.

Kalo (taro) was a food staple throughout the Hawaiian Islands, and its vitality depended largely on available water. Hawaiians developed extensive irrigated taro terraces (*lo`i*) and drainage systems (*auwai*) that provided water for these terraces. Kanaha and Kahoma (Mahoma), streams fed extensive *auwai* systems that flooded *kalo* systems throughout Panaewa and neighboring *ahupua`a*. Water utilization was regulated through time schedules ranging from a few hours to a few days. Ownership of resources as essential as water was not sustainable in a society that depended heavily on communal accessibility. Such fragility of access and distribution, was, therefore, greatly vulnerable to the tides of conflict and warfare. Samuel Kamakau (1961:74) illustrates the conflict of 1738 by the Big Island chief Alapa`i, after a full year of war preparation:

What was the war like? It employed the unusual method in warfare of drying up the streams of Kaua`ula, Kanaha, and Mahoma. (which is the stream near Lahainaluna) The wet taro patches and the brooks were dried up so that there was no food for the forces of Ka-uhi or for the country people. Alapa`i 's men kept close watch over the brooks of Olowalu, Ukumehame, Wailuku, and Honokawai. When Pele-io-holani heard that Alapa`i was at Lahaina he gathered all his forces at Honokahua and at Honolua. At Honokawai an engagement took place between the two armies, and the forces of Alapa`i were slaughtered and fled to Keawawa. There Alapa`i heard that Pele-io-holani had landed at Honokahua and had an army stationed at Keawawa, and he disposed his forces, some on sea and some on land. Although Pele-io-holani had but 640 men against Alapa`i's 8,440 from the 6 districts of Hawai`i, there were among them some famous warriors, such as Hana, a warrior intimate of Pele-io-holani, Malama-kuhi`ena, Moko-ka-la`i, Kulepe, `Opu-hali, Kuakea, Lono-nui-akea, Pa-i-kahawai, Kawelo-iki-a-kula, and Ka-mahu-a-koai`e. Pele-io-holani intended to unite his forces with those of Ka-uhi, but Alapa`i's men held Lahaina from Ukumehame to Mala on the north, and in attempting to aid Ka-uhi, Pele-io-holani became involved in difficulty. The hardest fighting, even compared with that at Napili and at Honokahua in Ka`anapali, took place on the day of the attack at Pu`unene. Pele-io-holani was surrounded on all sides, mauka and makai, by the forces of Alapa`i, led by Ka-lani-`opu`u and Keoua. The two ruling chiefs met there again, face to face, to end the war and became friends again, so great had the slaughter been on both sides....

Lahaina was reportedly designated as a *pu`uhonua* (place of refuge; Sterling 1998:17). Prior to the 10th century, according to Thrum (1909), Chief Hua-a-Pohukaina constructed the first *heiau* on Maui at Lahaina, where he was born. It was reported that the chief Kaka`alaneo lived on Keka`a Hill (Ka`anapali) in the Lahaina District. Keka`a became the capital of Maui during his reign, and an area of intense cultivation (Handy and Handy 1940:106). Lahaina was very attractive to the *ali`i* due to its climate, access to marine resources, as well as fresh water for agriculture.

Lahaina is renown traditionally and historically for its verdant and abundant groves of breadfruit. Elspeth Sterling's *Sites of Maui* references Lahaina as second only to Puna, Hawai`i as a favorable location for breadfruit culture (1998). In the section of her book addressing the significance and meaning of the naming of Lahaina, Sterling points to an interpretation from Thrum involving the history of the naming of the place now known as Lahaina. Thrum (1909)

proposes that “others say the original name was Lele.” Here, Lele is interpreted as a “flying piece of the kuleana, that which is near the shore.” Thrum (1909) points out that as Lahaina fronts the shoreline this application does apply. E.S.C. Handy in Sterling points out that Lahaina is referred to in traditional *mele*’s (songs) as *ka malu ulu o Lele* (the breadfruit shade tree of Lele) (1998:17). In Mary Kawena Pukui’s *Place Names of Hawai`i*, Lahaina is mentioned as being associated with the Kaua`ula wind (Pukui *et al.* 1974:127). This Kaua`ula wind is referenced as being the cause of destruction of churches and building in Lahaina in 1828 and again in 1858 (Pukui *et al.* 1974). Pukui also points out that the changed spelling and old pronunciation of Lahaina meant cruel sun.

Cultural practices in the area also included the cultivation of `uala (sweet potato). `Uala was cultivated as a basic food source in the Hawaiian Islands. `Uala proved more favorable to farmers in some respects because it flourishes in more difficult climates and needs substantially less water to grow than most high-yielding crops cultivated during traditional times. `Uala is also beneficial as it matures in three to six months and requires much less labor exertion in planting as opposed to nine to eighteen months for taro (Handy and Handy 1972:127).

E.S.C. Handy in *Hawaiian Planter* discusses the proliferation of fishing settlements and isolated fishermen houses all the way from Kihei to Honokahua and mentions the cultivation of `uala in the red *lepo* (sandy soil) near the shore. Handy points out that this coast is the most favorable on Maui for fishing and that *kula* lands (uplands) were ideal for the cultivation of sweet potato (1940:159).

According to Thrum, in *Hawaiian Annual*, an infamous *ali`i* called Hua, who reigned prior to the 10th century, is credited with the construction of the first temple on Maui (1909:44). Hua, who is referred to as Hua-a-Pohukaina and as Hua-a-Kapuaimanaku, names by which his father was also known, was reportedly born in Lahaina and this was the site of the first *heiau* in Maui. Hua, reported by Thrum, was known for constructing two *heiau* in Lahaina and another Hua, two generations later is credited with constructing a third. The ruins of three additional Heiau are reported by Thrum, are said to belong to, or just prior to, the reign of Kahekili.

Lahaina was known as a *pu`uhonua*, or place of refuge, in Maui. The *pu`uhonua* at Lahaina was associated with Ka`ahumanu who inherited her lands from her husband Kamehameha. Samuel Manaiakalani Kamakau in *Ruling Chiefs of Hawai`i* discusses how Ka`ahumanu’s lands Waipukua in Waihe`e, Kalua`aha in Molokai, and Pu`umau in Lahaina were declared as places where people could be saved from death (1961:312).

Fornander, as well as Kamakau, discusses how Lahaina figured prominently in battles between various island chiefs. In the early 1700s, wars between Alapa`inui of Hawai`i, in conjunction with Kamehamehanui of Maui against Kauhi (Kamehamehanui's brother) occurred. Alapa`inui established his headquarters at Lahaina village, the rest of his army extending along the coast from Honokowai to Ukumehame. With the pending arrival of Peleioholani from O`ahu, who was to assist Kauhi, Alapa`inui destroyed the *kalo* patches and broke down *`auwai* belonging to the followers of Kauhi in the vicinity of Lahaina. Eventually the forces met:

...The fortune of the battle swayed back and forth from Honokowai to near Lahaina; and to this day heaps of human bones and skulls, half buried in various places in the sand, attest to the bitterness of the strife and carnage committed [Fornander 1969 Vol. II:140].

1778 to the mid 1800s

Western descriptions of Maui were given by Captain Cook and his men who were the first Europeans to record their impression of the island, on November 26, 1778 (Beaglehole 1967: Part I, Vol. III). After returning from Alaska, they spotted Maui and sailed down a portion of the east side of the island. David Samwell, a surgeon on the *Discovery*, reported "...the ships lay to all day about 3 miles off shore, trading with the Natives who came off in their canoes in great number..." (Samwell 1967:1151).

It had been a time of war between Kalaniopu`u, ruler of Hawai`i Island, and Kahekili, chief of Maui and Moloka`i. During this season of the year (*Makahiki*), however, the fighting was temporarily suspended and Kahekili was free to visit the foreign ships. Samwell describes the great King and the windward slopes calling Kahekili "... a middle aged man... rather of a mean appearance..." and the land as "...mountainous, the sides of the hills are covered with trees... large open plains on which stand their houses and where they have their plantations of sweet potatoes, and taro..." (*ibid*).

The leeward side of the island was dry and an early account (1786) suggests inhabitants were much poorer in health and resources at its southern end (La Perouse in Sterling 1998:222). However, further up the coast towards Lahaina, the population increased and the habitations situated in coconut grooves became numerous. Lahaina Village, with access to the mountain streams, was described in 1973 by Vancouver and Menzies as:

...laid out in the highest state of cultivation and improvement by being planted in the most regular 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... In short, the whole plantation was cultivated with such studious care and artful industry as to occupy our minds and attention with a constant gaze of admiration... (Menzies 1920:112).

The war between Kahekili of Maui and Kalaniopu`u of Hawai`i Island had not ended with the death of Kalaniopu`u in 1782, but was continued by his nephew, Kamehameha I. Vancouver was not as impressed as Menzies with the Lahaina landscape and was told it was the result of the continued disputes:

...To the ravage and destruction of *Tamaahmaah's* wars, the wretched appearance of the crops was to be ascribed of this they grievously complained, and were continually pointing out the damage they had sustained; the despoiled aspect of the country was an incontrovertible evidence of the melancholy truth. Most of the different tenements in the lands formerly cultivated, were now lying waste, their fences partly or intirely [sic] broken down, and their little canals utterly destroyed; nor was a hog or fowl any where to be seen. By far the larger portion of the plain was in this ruinous state; and the small part that was in flourishing condition bore the evident marks of very recent labor (Vancouver 1986:870).

After defeating Kahekili's army and subjugating all but the island of Kaua`i, Kamehameha moved his fleet of *peleleu* (war canoes) to Lahaina for a year to collect tribute (in 1802-1803). His headquarters were a two-story brick house near the landing. The building was surrounded by *kalo* patches and fish ponds, coconut, *hala*, and *kou* trees (The Maui Historical Society: 1964). The *kalo* patches stretched along the beach, behind which were huts, and behind them, a mulberry and cane plantation belonging to a Mr. Butler, the land having been a gift from Kamehameha I (Litten in Sterling 1998:19). To be able to supply his retinue with provisions, Kamehameha ordered the repair of the damage previously done to Lahaina and vicinity during the wars with Kahekili. Walls for the *lo`i* were rebuilt and crops were again successfully grown.

At the same landing where Kamehameha I had made his headquarters there was also a *heiau*. L.R. Duperrey, the cartographer with Louis Claude de Sauses de Freycinet, mapped the Lahaina Village in 1819 depicting points of interest. Figure 4 shows the location of: a) the observatory of Freycinet, b) the brick palace of Kamehameha I, c) the *heiau*, d) Mr. Butlers house, e) *kalo lo`i* and *`auwai*, f) *wauke* plantation, and g) sugar cane plantation.

In describing Lahaina Village Freycinet said:

...the first thing we noticed upon our arrival at Raheina was a red brick structure. Standing right next to the landing point, it was an excellent guide for the vessels... to the south was the habitation of the priests and next to it a *morai* constructed on a pile of dry rocks and forming a sort of dike on the beach. A little farther up in the interior one comes across hand-dug reservoirs used for taro culture. They stretch along the coast for quite some distance and are fed by the streams brought there through artificial canals. The houses, instead of being grouped next to each other, are dispersed over a rather wide terrain... (Kelly 1978:41)

Freycinet was impressed with the fertility of Lahaina:

...Here were found vast orchards of the paper mulberry, whole fields of bananas and of sugar cane of fine appearance, fields of taro and other vegetables fit for human food, enormous breadfruit trees scattered here and there, finally the fertility and freshness of the soil everywhere maintained by frequent irrigation and well husbanded (ibid.:32)

Arago, draftsman and artist on Freycinet's voyage, recorded that Lahaina occupied approximately nine miles along the coast by three miles, inland (14.4 by 4.8 kilometers). He described the same orderly cultivated system of *kalo*, bananas, breadfruit, coconut, *wauke* and housesites (Arago 1823).

...Every cabin has its enclosure, and every enclosure is well taken care of; it seems to suffice for the wants of the family... The space cultivated by the natives of Lahaina is about three leagues in length and one in its greatest breadth.

Kamehameha I died in 1819 in Kona and his oldest living son died four years later in London. At the age of nine years old, this left Kamehameha's youngest son, Kauikeaouli, the reigning monarch (under the guidance of Ka`ahumanu). During his reign, Lahaina became the capital of the Kingdom and favorite headquarters of the *ali`i*.

In 1823, the mother of the King, and sacred wife of Kamehameha I, Keopuolani, brought the Reverends Stewart and Richards and their families to Lahaina. Land was eventually given to the missionaries along what was to become Front Street. The population of Lahaina was estimated at 2,300 around this time and consisted of 700 grass houses with a few permanent buildings (Belt-Collins 1992). With the arrival of the missionaries and the conversion of several powerful *ali`i* such as Ka`ahumanu and Keopuolani, a shift occurred and Lahaina's new buildings began to reflect western influence. The first stone dwelling in Hawai`i, located on Front Street, besides the mission houses occupied by the Stewarts' and Richards', and Baldwins', were several other buildings, such as the Marine hospital, Seaman's Chapel and Reading Room. Dr. Baldwin constructed a medical office in conjunction to his residence on Front Street in 1834. By the late 1820's, stone houses were being built by many of the *ali`i* on their land in Lahaina, many of which are in close proximity to the current project area.

A fort was constructed in 1831-32 near the brick palace, where a sailor would drum at sundown as a signal for all the seamen to board their ships. In 1854 the old coral blocks that had been a part of the fort walls were dragged across Front Street to become a part of the new Hale Pa`ahao or Lahaina Prison.

Whaling ships, by the dozens, filled the shallow anchorage between Spring and Fall from the 1820's through the 1860's. Lahaina had already provided supplies, sailors, and recreation for countless voyagers participating in the trans-Pacific fur/sandlewood trade. The harbor in Honolulu required excessive port charges, unlike Lahaina (Belt-Collins 1992). Because Lahaina was a roadstead, no pilot was needed to guide the ships, as was the case for Honolulu, and ships could come and go as they pleased. The ships' boats would travel up the canal (what is now Canal Street) and barter in the government-regulated market place which had a large grass house extending the entire length of the canal.

In 1825 there were already 19 schools in Lahaina with 380 students. The schools were only outnumbered by the 23 grog shops. By 1826, the school number had increased to 29, instructing 568 male and 570 female students. In spite of the law against selling ardent spirits, the number of grog shops in Lahaina had increased to 30 by the early 1830's. In 1837, there were five school houses of stone and adobe in Lahaina. In 1846, 429 whaling ships anchored at Lahaina, which had grown into a town of 3,000 people with 59 stone or wooden houses and 882 grass houses (Maui Historical Society 1971)

Lahaina's constable expressed his frustration at trying to keep order:

...There are so many Beer shops here, and they have so many chances of selling spirits in their Beer without detection that do all I can, and use all the means in my power, I cannot get a fair chance to fine them...(Maui Historical Society 1971:9)

The traditional subsistence economy had quickly changed to a market economy and Lahaina was at the center of activity. The buying and selling of produce had been strictly regulated under Kamehameha I. His successors, however, quickly gave into the pressure of the lesser chiefs to share in the bounty and their desire for exotic merchandise. Soon, free enterprise dominated commerce. In 1833, Brinsmade, Ladd, and Hooper in partnership with Hoapili, the Governor of Maui, established a large store and hotel in Lahaina. Pierce and Brewer owned a large trading house in Lahaina by 1837 (Belt-Collins 1992).

Dr. Dwight Baldwin, a missionary doctor in the 1830's whose residence was the old Richard's house located on Front Street, recorded the main food items supplied to the ships were "...water, hogs, goats, bananas, melons, pumpkins, onion, squashes, sweet potatoes, young turkeys, ducks, fowls and beef, all of which can be had in abundance; but the greatest article for which they come is Irish potatoes which grow plentifully in the interior of this island" (in Maui Historical Society 1971:7).

Charles Wilkes visited Maui in 1841 as part of his scientific expedition in the Pacific region. When viewing Lahaina, he recorded, "...The town of Lahaina is built along the beach for a distance of three-quarters of a mile: it is principally composed of grass houses, situated as near the beach as possible: it has one principal street with a few others running at right angles. After the King's palace, the fort is the most conspicuous object: its form is quadrangular. The longest side facing the sea: it is of little account, however, as a defense, serving chiefly to confine unruly subjects and sailors (Wilkes 1845:4).

Lahaina's commerce continued to expand with new ventures appearing frequently. A boarding house had been built in Lahaina by George W. Punchard to accommodate the transient population arriving in Lahaina and J. Armas opened a restaurant in 1843. An enterprising Milo Calkin built a store and office for ship chandlery and general merchandise and direct possible customers to Front Street by saying "the canal leads direct to the store" (Belt-Collins 1992). The many retail businesses established in Lahaina by the 1840s included Dow Drugstore, Gilman and Company, and A.H. Koon with many more to come. Punchard, Bush, Makee, Mellish, Sheik

Mohamet, Halstead, McIntyre, Banks and Chairman had all applied for licenses to peddle foreign goods at Lahaina.

The first official census was taken in Lahaina in 1846 and recorded 3,445 Hawaiians, 112 foreigners, 882 grass houses, 155 adobe houses, 59 stone and 59 stone and wooden houses, and 99 sheds or *lānai* used as houses, 528 dogs and some 600 seamen (Belt-Collins 1992).

Economically, everything was booming in Lahaina. Not only were the merchants supporting the whaling ships, but in California the gold rush had begun with Hawai`i supplying many commodities, including, potatoes to the west coast. In 1850, 51,957 barrels of Irish potatoes and 43,923 barrels of sweet potatoes were exported from Lahaina to California (*ibid.*)

By this time, Lahaina had two hotels, two bowling alleys, and a billiard room. Grass houses could also be rented for \$4 dollars a month. As Lahaina prepared for another whaling season it was recorded “victualers or better known as beer-shop keepers have commenced with great activity in cleaning up their houses for the fall season. No less than 15 or 20 of these licensed houses, besides several “sly: houses, two dance-houses and a native hulahula in the lower part of town” were preparing for sailors (*ibid.*).

1850 AND BEYOND

From 1850 to 2006, the project area has been under cultivation in sugar by the Pioneer Mill Company. During this time, the natural landscape was drastically altered in support of the commercial sugar industry. Through business partnerships with Honolua Ranch and long-term land leases and agreements with landholders, Pioneer Mill set up extensive irrigation systems and a railroad through the study parcel, as well as massively altered the surface and subsurface makeup within the cane fields by removing stones and tilling the soil, harvesting ripe cane, and installing an extensive system of access roads throughout the fields. The following is a summary of archival data pertaining directly to the project area itself. A more extensive discussion of Pioneer Mill and its operations is provided in Goodwin and Leineweber (1997).

Vastly outpacing any other export crop, sugar plantations quickly became Maui’s largest industry, and remained so until modern times. Lahaina’s sugar mogul, the Pioneer Mill Company was founded in the 1863 by James Campbell, Hentry Turton and Benjamin Pitman (Dorrance and Morgan 2000: 63). Construction of the mill was completed in 1865 and, until 2006, the Pioneer Mill stood at its original location along Lahainaluna Road. At the beginning of its operations, Pioneer Mill Company had only 126 acres of land under cultivation, relying

heavily on smaller growers to supply the crop (*ibid.*). Through time, Pioneer Mill increased its land cultivated acreage by leasing land throughout Lahaina and Ka'anapali.

Irrigation systems were built throughout Lahaina in support of the growing sugar industry. In 1904 Honolua Ranch built Honokohau Ditch, an extensive irrigation system that crosses the present project area. Honolua Ranch, the predecessor to today's Maui Land and Pineapple Company (ML&P), built the Honokohau Ditch following an agreement with Pioneer Mill Company (Wilcox 1996:126). "Honolua Ranch would build and own the Honokohau Ditch, while, Pioneer Mill would finance it and use the water" (*ibid.*). The original ditch, spanning about 12.5 miles, consisted primarily of open-water ditches and flumes, with only 16,300 feet of tunnels. This first ditch exhibited severe seepage, and was completely renovated twelve years later. In the second attempt, Honokohau Ditch was converted to "34,241 feet of tunnel, 726.3 feet of covered crossings, 1183 feet of inverted siphons, and only 427.3 feet of open ditch" (*ibid.*: 127). In her description, Wilcox (*ibid.*:131) explains that "Some 1904 stone-lined ditches remain, as do the tunnels, now used to gain access to the intake."

This renovation increased the ditch's efficiency enough to satisfy the needs of Pioneer Mill for the time being. However Pioneer Mill endeavored to re-line the entire ditch in concrete in 1923 in order to maximize the ditch's efficiency. In addition to making renovations to Honokohau Ditch, Pioneer Mill Company constructed seven of its own ditch systems, three of which traverse the present study parcel. Honokowai Ditch, lying *mauka* and parallel to the Honokohau Ditch within the project area, was initially constructed in 1898 (*ibid.*:131-132). Honokowai Ditch was originally constructed of semicircular galvanized iron flumes. In 1918 Pioneer Mill replaced this system with a concrete-lined tunnel measuring 1.5 miles long (*ibid.* 134). Kahoma and Kanaha are the other ditches built within the subject parcel by Pioneer Mill Company. These last two ditches supplied water to the mill, but also provided water to Lahainaluna School and other community entities (*ibid.* 136-137).

Land Tenure and the Māhele

The land tenure system in prehistoric Hawai'i was rooted in a different epistemological framework than the subsequent colonially-imposed framework that is understood today as land ownership. The idea of holding land was not synonymous with owning it, but is described as closer to a trusteeship between the *ali'i nui* (ruling chiefs) of the island and the traditional Hawaiian *akua* (gods) Lono and Kane (Handy and Handy 1972:41). Each island was divided into *moku* (districts) that were solely geographical subdivisions. The number of these *moku* depended upon the size of each island. *Moku* were partitioned into smaller landholding units

known as *ahupua`a* that were governed by *ali`i* or designated *konohiki*. The *ahupua`a* varied in size, but ideally encompassed land from the mountain to the sea, providing the chiefs and *maka`ainana* (people who cultivated the land) with the opportunity to recover both terrestrial and marine resources. All persons from chiefs to commoners were entitled to portions of these resources (Chinen 1958:5)

The prehistoric/traditional period in the Hawaiian Islands came to an end with the arrival of Captain Cook on Kaua`i in 1778. The years to follow would drastically change the political, agricultural, and social relationships and patterns of the Hawaiian Kingdom. Destabilization of Hawaiian society was further intensified by the profound reformation of traditional land systems. In 1848, the *Māhele* curtailed communal access to land. The *Māhele* system led to the introduction and implementation of privatization that required both chiefs and commoners to retain private land title (Kame`eleihiwa 1992). If properly informed of the procedures, Hawaiians were permitted to claim lands on which they had worked or lived.

Under the *Māhele* and the first Land Commission of the Trust Territory of Hawai`i, lands were allocated in three ways. A third of all lands became Crown Lands belonging to the *ali`i*, a third was distributed to the chiefs, and a third was awarded to the general populace, which were represented by a large portion of foreigners as well as Hawaiians during this time. The first Land Commission was formed in 1845, during which time all individuals holding land were now required by new Western notions of law to submit their claims or forfeit their land.

While LCA records inherently establish historic land utilization in Hawai`i (during the *Māhele*), documented testimony from many land recipients have also demonstrated continuous generational occupation of the land. Settlement patterns illustrated in the LCA records highlight the multi-functional land use practices related to habitation and agriculture and perhaps the clear connection of these strategies.

Many hundreds of LCA claims were made in Lahaina during the *Mahele*, the majority of which are along the coastal plain. As described in Jensen (1989: 9), two land claims were made within the *ahupua`a* of Wahikuli. LCA 477-F was awarded to P. Keliipio and LCA 7724 was awarded to Poholapu. Neither of these claims lie within the present study parcel.

PREVIOUS ARCHAEOLOGY

Previous Archaeological research within Wahikuli Ahupua`a began with Winslow Walker's island-wide archival survey of *heiau* on Maui (n.d.). Walker cites Thrum, identifying

Halulukoakoa Heiau (Site 11) as being located just west of the present study parcel. This *heiau* was destroyed at the time of Walker's recordation.

More recent archaeological investigations began in Wahikuli in the 1970s, concentrating primarily on coastal locations. Findings around the Wahikuli coast include identification of a fishpond (Ahlo and Morgenstein 1980), and several human burial finds (Shun 1990; Pietrusewsky 1989). These archaeological investigations have been described in detail in Goodwin and Leinweber (1997) and Jensen (1989). As such, the discussion of previous work offered herein will concentrate solely on those projects that were conducted within the present study parcel.

In an Archaeological Inventory Survey of the 1,200-acre parcel of the Lahaina Master Planned Project Site (the present study parcel) PHRI identified eleven previously un-documented pre-Contact sites (Jensen 1989). This work consisted of full pedestrian survey of the entire parcel, but, as the majority of the area was actively being cultivated in sugar, the sites were concentrated in areas that have seen minimal impacts in Historic times. Sites 50-50-03-2478 through 2482 were identified along the edge of Hanakea Gulch. These sites consisted collectively of six agricultural terraces and two walled enclosures. The remaining sites are concentrated around two reservoirs in the southeast corner of the parcel. These sites consist of eight agricultural terraces (Site 2483) four walled enclosures (Sites 2483, 2484, 2485, 2488), one possible burial platform (Site 2487), thirteen grave markers (2487), and a historic agricultural road (Site 2487). In addition to these, Jensen re-identified a previously documented rockshelter and petroglyph (Site 1203).

Jensen's recommendations for these sites vary depending on their form and significance assessment. Five sites were recommended for Data Recovery. These sites include 2480, 2483, 2485, 2488 and 1203. No further work was recommended for Site 2487, the historic agricultural road. Finally, preservation in place was recommended for Site 2486, which may contain burials.

A second Archaeological Inventory Survey was conducted by International Archaeological Research Institute Incorporated (IARII) (Goodwin and Leinweber 1997). The findings from this work consisted entirely of Historic agricultural structures and features relating to sugar cane cultivation. Six buildings identified here were collectively designated under state site number 50-50-03-4420. The features documented by Goodwin and Leinweber (*ibid.*) as well as the sites identified by Jensen (1989) are presented in Figure 5.

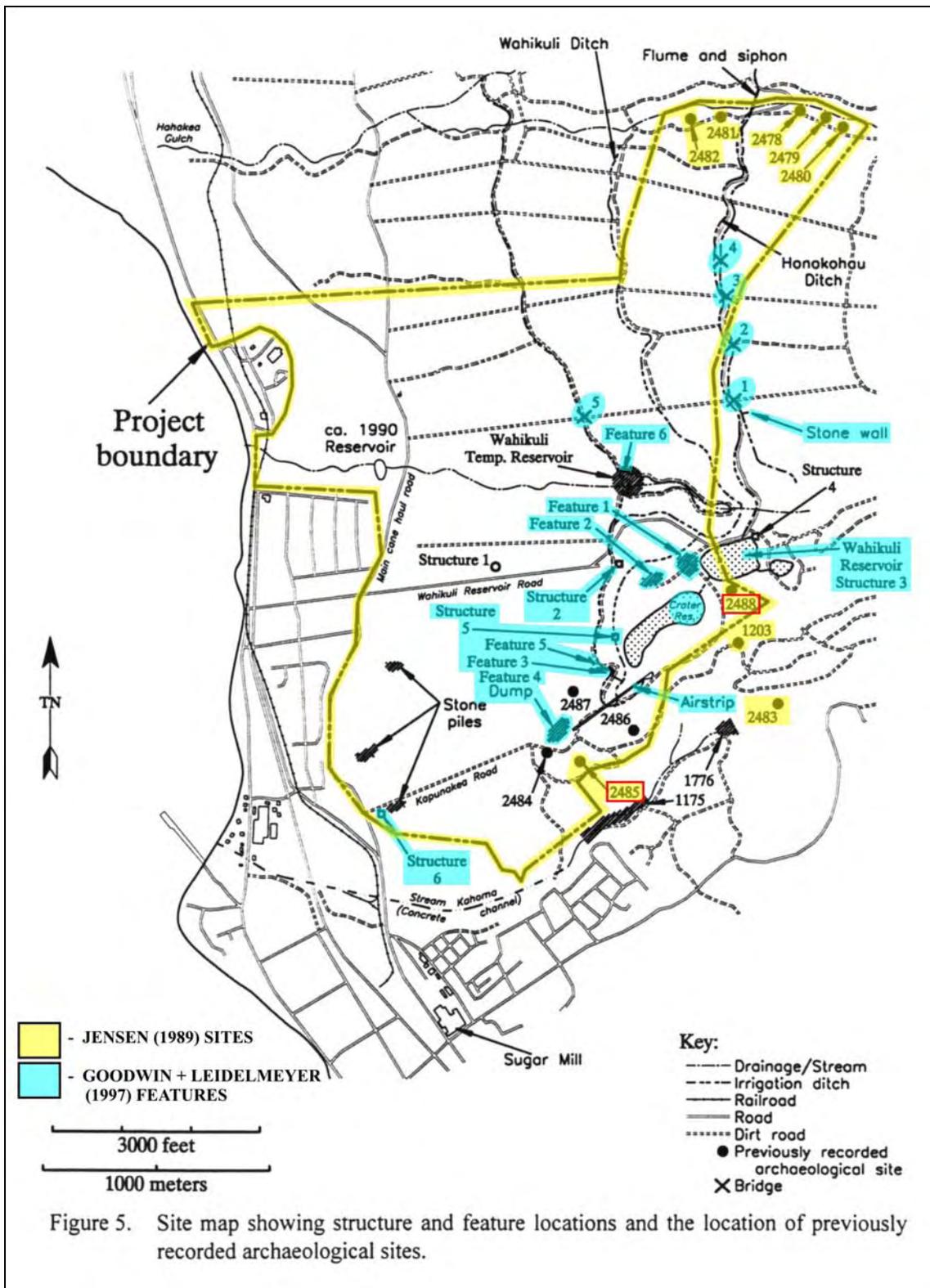


Figure 5: Jensen (1989) and Goodwin and Leidelmeyer (1997) Sites Shown in Plan View.

Goodwin and Leineweber (*ibid.*) report six Historic structures relating to the agricultural operations. These include a water tank, a booster pump, the Wahikuli Reservoir, two electric power buildings, and a stone cistern. In addition, several access roads are recording, including Cane Haul Road, Wahikuli Reservoir Road, Wahikuli and Honokohau Ditch Roads, and Crater Reservoir Road. Honokohau and Wahikuli Ditches are documented in this report, as well as several associated bridges, flumes, intakes and sluice gates. Also included in this document were an airstrip near Crater Reservoir and the 31-gauge railroad track skirting the *makai* end of the project area. Finally, six historic midden dumps were documented at various locations around the parcel. The authors recommend Historic American Buildings Survey (HABS) Level 2 recordation for the irrigation ditches and associated features.

EXPECTED FINDINGS

Previous archaeology immediately within the project area has identified pre-Contact sites associated with traditional habitation and agricultural practices (Jensen 1989). A second Inventory Survey recorded a number of features associated with Pioneer Mill Company (Goodwin and Leineweber 1997), documenting all these features under a single site number. The site expectations for the present study included similar features to those previously documented. To some extent, the purpose of the present study was to ascertain the impacts that the planned roads would have on previously identified sites. Historic features were anticipated to a greater degree, as commercial agriculture practices usually obscure traditional surface features. The upper (*mauka*) reaches of Road B were expected to be near, but not impact, Jensen's Sites 2478 through 2482.

METHODOLOGY

This Inventory Survey consisted of full systematic pedestrian survey covering approximately 10 m on each side of the existing dirt roads. The planned access roads are expected measure approximately 15 m in width. The total width of the surveyed area measured between 23 and 27 m, varying depending on the width of existing dirt roads. No subsurface excavation was conducted during this survey, as no features were identified that necessitated subsurface exploration. Rather, the features identified during this work were fully described and either documented photographically, mapped in plan view, or both. GPS coordinates were acquired for each newly identified feature, as well as the previously documented features relocated during this work.

RESULTS

Three Historic features were identified during this Archaeological Inventory Survey. These features consisted of a cement bridge over Honokohau Ditch, a large, ramped clearing mound and a basalt stone-and-mortar culvert. Each of these features is related to Pioneer Mill sugar cultivation. As such, these features have been added to state site 50-50-03-4420. The following is a detailed description of these features.

FEATURE 1

Feature 1 is a cement bridge that crosses Honokohau Ditch near the center of the surveyed section of Road B (Figures 6, 7 and 8). The bridge is embossed with the date February 12, 1930 on one side and February 1930 on the other. The bridge is formed cement, measuring approximately 10 m long by 3.5 m wide. The side walls, standing 76 cm from the bottom of the bridge on the exterior side, measure 23 cm wide. A section of the ditch, measuring approximately 18.5 m long and 4.5 m wide, is lined with stacked sub-angular basalt cobbles set in cement mortar. This road is still in use. The precise GPS location for this feature is shown in Figure 2. The GPS data is pertinent only within the context of the client's engineering maps, as these coordinates are based on an arbitrary control point established for engineering purposes.

FEATURE 2

Located at the corner of an agricultural field, approximately 150 m with of Feature 1, Feature 2 consists of a large, ramped clearing mound (Figure 9). This feature measures 32.3 m long by 15 m wide, and stands 3 m tall at its highest point. The feature lies within the Road B corridor. Feature 2 is constructed of piled basalt cobbles and boulders, piled and stacked with a sloping ramped top. Features similar to these are strongly associated with commercial agricultural practices, and such features have been documented elsewhere in the Lahaina area, particularly in Launiupoko (Parasao and Dega 2006). The precise GPS location for this feature is shown in Figure 2. As stated previously, the GPS data is pertinent only within the context of the client's engineering maps, as these coordinates are based on an arbitrary control point established for engineering purposes.

FEATURE 3

Feature 3 consists of a basalt cobble and cement mortar culvert through the existing dirt road along the Road A corridor (Figures 10 and 11). The culvert consists of two U-shaped walls stacked 7 to 10 courses high on the east and west sides of the existing dirt road. The east side of the culvert measures 5 m long by 3.35 m wide, and spans between 0.9 to 2.1 m in height. The



Figure 6: Feature 1 Bridge and Stone-and-Cement Lined Ditch. View to Northeast.



Figure 7: Feature 1 Showing Embossed Date “February 13, 1930.”



Figure 8: Feature 1 Showing Embossed Date “February 1930.” View to West.



Figure 9: Feature 2 Clearing Mound. View to Northeast.



Figure 10: Feature 3, West Culvert Showing Subterranean Pipes. View to Southwest.



Figure 11: Feature 3, West Culvert Overview. View to East.

width of the wall spans 45 to 55 cm in thickness. The west side of the culvert measures 5.4 m long by 4.7 m wide and 0.61 to 1.9 m in height. The width of the west side wall spans from 40 to 110 cm in thickness. The west side has a sluice gate on its southwest corner, which opens to the south. Though partially buried, two cement pipes traverse the road at the base of the culvert. These pipes bear 82/262° (tN). This feature may have been constructed in order to bypass a low spot in the road, where water would have collected in the road way. The precise GPS location of this feature was not acquired during fieldwork.

RELOCATION OF JENSEN (1989) SITES

Of interest during this survey was the potential impact that the proposed Roads would have on sites previously documented by Jensen (1989). During the current work, no previously documented sites were identified within the proposed Road B corridor. Jensen's (*ibid.*) Sites - 2485 and -2488 were indeed relocated during the present work but will not be impacted at all by road construction.

Site -2485, a large, well-constructed stacked rock enclosure, was found approximately 50 m north of the western extent of the planned Road A corridor. While this site does not lie within the current proposed road corridor, changes to the planned corridor location may impact this site. The GPS grid locations were acquired using an arbitrary surveyor control point. The GPS data is, therefore, pertinent only within the context of the client's engineering maps. These locations have been accurately plotted and transferred onto a TMK map in order to simplify the information, and are shown in Figure 2.

Site -2488 is another neatly constructed basalt rock enclosure. GPS points were acquired for the four corners of this feature, accurately locating it within the corridor for the proposed Road A. As previously stated, the GPS data is, therefore, pertinent only within the context of the client's engineering maps. These locations have been accurately plotted and transferred onto a TMK map in order to simplify the information, and are shown in Figure 2.

DISCUSSION AND CONCLUSION

Three previously undocumented features were identified during this survey, all of which pertain directly to Pioneer Mill Company commercial sugar cultivation. Features 1 and 3 are irrigation features; Feature 2 is a ramp-shaped clearing mound. Clearing mounds are typologically homogenous throughout Maui. Their presence in sugar cane fields throughout Maui is well documented (see Parasao and Dega 2006). Conversely, the morphology of

Honokohau Ditch and the related irrigation features documented in this report is diagnostic to very specific time frames, thanks to very specific Historic documentation of the ditch's construction phases and an actual date embossed onto Feature 1.

Features 1 and 3, both irrigation features, consist of basalt stone and mortar lined components. As discussed above, Wilcox described the 1904 ditch system as "stone-lined" (*ibid.* 1996:131). The implication is that the stone and cement-mortared components of Features 1 and 3 date to the original Honokohau Ditch construction. The cement bridge component of Feature 1 requires no guess work or hazy implications. The bridge is embossed, not once but twice, with dates reading "February 1930" and "February 12, 1930," placing it well beyond the completion of the second Honokohau Ditch. Typologically, these features are not unique to the project area. However, no prior archaeological record for this project area has documented a dated bridge.

All three of the features identified herein are Historic, and relating to the operations of Pioneer Mill Company. As such, they have been registered under the previously-assigned state site number 50-50-03-4420. This number was assigned collectively to all Historic commercial sugar features in Goodwin and Leineweber (1997).

Jensen's (1989) Site -2488 has been interpreted as dating to the pre-Contact Period, and has been recommended for Data Recovery. This site is in immediate danger of destruction during the construction of Road A. Site -2485 is similarly interpreted and recommended, however it is not in immediate danger of being destroyed during the proposed road construction. However, its proximity to the Road A corridor does mean that any changes to the proposed plan may adversely affect this site.

SITE SIGNIFICANCE ASSESSMENTS AND RECOMMENDATIONS

These sites have been evaluated for significance according to the criteria established for the Hawai'i State Register of Historic Places. The five criteria are presented below:

- Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B: Site is associated with the lives of persons significant to our past
- Criterion C: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or

possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction

Criterion D: Site has yielded or has the potential to yield information important in prehistory or history

Criterion E: Site has cultural significance to an ethnic group; examples include religious structures, burials, major traditional trails, and traditional cultural places

Features 1 through 3 are being added to state site number 50-50-03-4420, and assessed as significant under Criterion D. No further work is recommended for Features 1 through 3. Written, photographic and cartographic documentation of these features has been conducted for each, and, as these feature types are not unique to the project area, nor do they represent particularly excellent examples of feature type, no mitigation or preservation measures are necessary for these features.

As with Features 1, 2 and 3, Sites 50-50-03-2485 and -2488 bear the potential for yielding information to further our understanding of the area history is high, and are therefore assessed as significant under Criterion D.

Sites -2485 and -2488 have been recommended for Data Recovery in the past, though no such work has been conducted. Site -2488 is in immediate danger of being adversely impacted by the planned Road A corridor. SCS continues to recommend Data Recovery for this site. Site -2485 lies outside the proposed Road A corridor, lending the site well to Preservation, rather than Data Recovery. SCS recommends that such a measure be implemented on behalf of this feature, with a 10-foot buffer to be placed around the site, and Archaeological Monitoring of road work in that area in order to enforce the Preservation proceedings. Greater details can be proposed in a Preservation Plan, pending agreement between the State, Land owners and interested cultural practitioners in the area. In addition to the Preservation Plan for Site -2485, an Archaeological Monitoring Plan will need to be composed.

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Appendix B2:
Archaeological Inventory Survey of Four
Access Road Easements

LINDA LINGLE
GOVERNOR OF HAWAII



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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

November 24, 2008

Michael F. Dega, Ph.D.
Scientific Consultant Services, Inc.
711 Kapiolani Boulevard, Suite 975
Honolulu, Hawai'i 96813

LOG NO: 2008.4837
DOC NO: 0811PC30
Archaeology

Dear Dr. Dega:

**SUBJECT: Chapter 6E-42 Historic Preservation Review – REVISED
Archaeological Inventory Survey of Four Access Road Easements
Wahikuli/Kuhua/Pu'uiki Ahupua'a, Lahaina District, Island of Maui, Hawai'i
TMK: (2) 4-5-021:003 por., 022 por., 023 por. and (2) 4-5-022:002 por.**

Thank you for the opportunity to review this revised report, which our staff received on November 21, 2008 (Cordle and Dega 2008): *An Archaeological Inventory Survey of Four Access Road Easements...* Scientific Consultant Services, Inc.

The report was first reviewed by SHPD staff on September 28 of 2008 (SHPD LOG NO: 2008.3776; DOC NO: 0809PC31), resulting in a series of requested revisions. The most recent version of the report was reviewed in PDF format to confirm completion of those revisions and suggestions.

The survey area as described in the report consists of a 9.6 acre portion of land situated within TMKs (2) 4-5-021:003 por., :022 por., 023 por. and (2) 4-5-022:002 por. Fieldwork, undertaken over the course of five days between May 12 and 29 of 2008 resulted in the re-identification of previously known site (SHPD LOG NO: 2008.3962; DOC NO: 0809PC30; LOG NO: 2008.4836; DOC NO: 0811PC29) to which five additional features (10 through 14) were added during the current work. Incorporated into the record for SIHP #50-50-03-4420 (Pioneer Mill), the newly identified features are comprised of two reservoirs (Features 10, 12), a concrete lined ditch (Feature 11) and two earthen ditches (Features 13, 14) located along current access roads. Because the function and relative age of the five features added to SIHP #50-50-03-4420 was clearly identified as post-Contact period commercial sugar cane infrastructure, subsurface testing was not warranted.

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

As stated in the initial review letter, with respect to the Hawai'i Register of Historic Places, we concur that Features 10 through 14 of SIHP #50-50-03-4420 are significant under Criterion D for their potential to yield information important to history or prehistory.

We agree that no further archaeological work, such as data recovery or preservation, or mitigation such as precautionary archaeological monitoring, is warranted *with respect to the portion of SIHP #50-50-03-*

Michael F. Dega, Ph.D.
Page 2

4420 discussed herein because an adequate and reasonable amount of information was recorded during the current survey. Please note that that this finding does not apply to all culturally significant sites within the current or proposed project area, as those which have been previously identified through other work must be treated in accordance with recommendations set forth at the time relevant documents were reviewed and accepted by the SHPD.

Now that the archaeological inventory survey report has been accepted pursuant to HAR §13-276, please send one hardcopy of the current version, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF file on CD to the attention of "SHPD Library" at the Kapolei SHPD office.

Should you have any questions or comments regarding this letter, please contact Patty Conte (Patty.J.Conte@hawaii.gov).

Aloha,



Nancy McMahon, Deputy SHPO/State Archaeologist
State Historic Preservation Division

c: Jeff Hunt, Director, Dept. of Planning, 250 S. High Street, Wailuku, Hawai'i 96793
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**AN ARCHAEOLOGICAL INVENTORY SURVEY
OF FOUR ACCESS ROAD EASEMENTS
IN WAHIKULI, KUHUA, AND PUUIKI AHUPUA`A,
LAHAINA DISTRICT, MAUI ISLAND, HAWAII
[TMK: (2) 4-5-021: por. 003, por. 022, por. 002; and (2) 4-5-22: por. 02]**

Prepared by:
Shayna Cordle
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August 2008

Prepared for:
Kahoma Land, LLC.
33 Lono Ave Suite 450
Kahului, HI 96732

ABSTRACT

Scientific Consultant Services (SCS), Inc. was contracted by Kahoma Land, LLC., to conduct an Archaeological Inventory Survey (AIS) of four easement corridors in advance of proposed construction of four access roads on State of Hawaii Land (owner) in Lahaina, within Wahikuli, Kuhua, and Puuiki Ahupua`a, Lahaina District, Maui Island, Hawai`i [TMK: (2) 4-5-021: por. 003, por. 022, por. 023; and (2) 4-5-22: por. 002]. The survey consisted of full systematic pedestrian survey within and along the perimeter of the four easements, all of which are arterial cane haul roads with existing dirt surfaces.

Inventory Survey led to the identification and documentation of five Historic-period features which are associated functionally, temporally, and geographically with a previously established site, 50-50-03-4420, which also contains historic-period infrastructure. The five features discussed herein have been designated as Features 4, 5, 6, 7, and 8, all part of Site -4420. The current features consist of two reservoirs (Features 4 and 6), a concrete-lined *auwai* ditch (Feature 5), and two earthen furrows or ditches occurring along two of the existing dirt roads (Features 7 and 8). The feature numbers are a continuation of those associated with Site -4420 which was recently recorded by SCS (a cement bridge and associated stone-and-cement mortar ditch, Feature 1; an agricultural clearing mound, Feature 2; and a stone-and-cement mortar culvert, Feature 3).

The site itself remains significant under Criterion D. No further work is recommended for the five features discussed herein, or Site -4420 in general.

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INTRODUCTION

Scientific Consultant Services (SCS), Inc. was contracted by Kahoma Land, LLC to conduct Archaeological Inventory Survey (AIS) of four easement corridors on State of Hawaii Land (owner) in advance of proposed formalizing construction of four existing dirt corridors. The general area of the four easements occurs just outside of Lahaina, in Wahikuli, Kuhua, and Puuiki Ahupua`a, Lahaina District, Maui Island, Hawai`i [TMK: (2) 4-5-021: por. 003, por. 022, por. 023; and (2) 4-5-22: por. 002] (Figures 1, 2, and 3).

Archaeological Inventory Survey was conducted within the proposed road corridors by SCS Archaeologist I. Bassford, B.A., under the supervision of Principal Investigator M. Dega, Ph.D, over a five-day period between May 12 and May 29, 2008. Fieldwork consisted of full systematic pedestrian survey of the four easement corridors. No excavation was completed during this project (see below). Five newly identified Historic-period features relating to sugar cane cultivation infrastructure were documented: two reservoirs (Features 4 and 6), one concrete-lined *auwai* ditch (Feature 5), and two earthen furrows or ditches occurring along current access roads (Features 7 and 8). The arterial roads were not assigned feature numbers.

All five features documented during this survey have been identified as components of a previously identified site 50-50-03-4420, also related to sugar cane infrastructure (see below). The current features are similar in age, form, function, and proximity to the previously recorded Site -4420 complex, and thus the features reported here are designated as Features 4 through 8. Site -4420 was first recorded by Goodwin and Leinweber (1997), and was again by Shefcheck and Dega (2008) during which Features 1, 2, and 3 were identified.

This AIS has been conducted in accordance with the rules of the State Historic Preservation Division (SHPD), Department of Land and Natural Resources (DLNR) (§13-279 HAR). The following text provides more detailed information on the environmental setting, cultural historic setting, previous archaeology, methodology, results of field work, significance assessments, and recommendation.

ENVIRONMENTAL SETTING

PROJECT AREA LOCATION

Lahaina lies on the western slope of the West Maui Mountains, on a wide coastal plain that fronts the Pailolo Channel cutting between Maui and Molokai. Wahikuli Ahupua`a

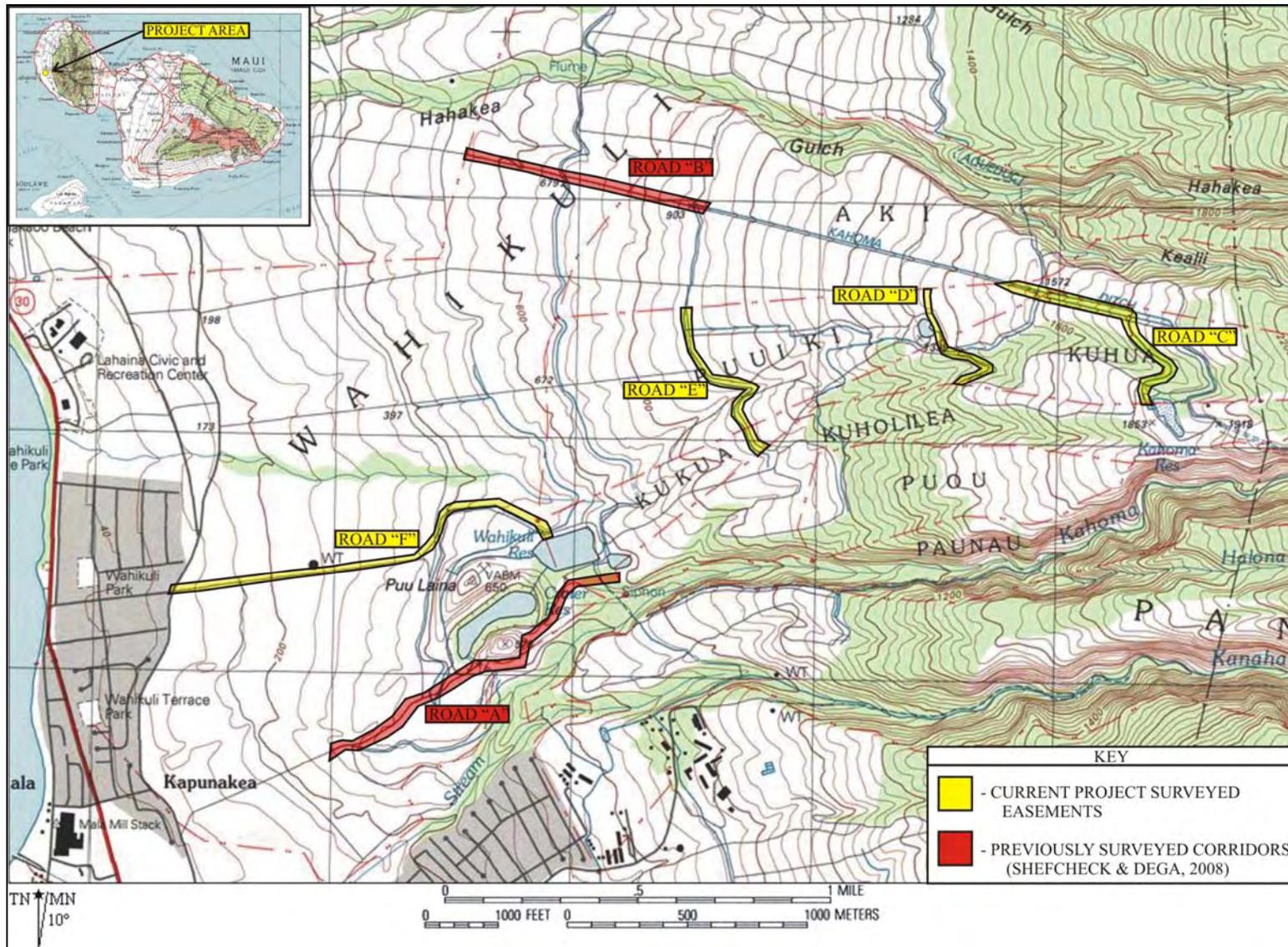


Figure 1: USGS Lahaina Quadrangle Showing the Approximate Locations of Roads A through F.



Figure 3: Aerial Photograph of Project Area Depicting Portions Surveyed During Study. Adapted from Google Earth.

composes the northern end of Lahaina Town, spanning from the coastline upland to 600 feet above mean sea level (amsl). The *ahupua`a* then narrows into a steep gulch, jogging northward and inland to its terminus at approximately 5000 amsl. Modern urban development has extensively altered the landscape of the Wahikuli coastline since the Historic Period, particularly on the southern half of the *ahupua`a*. Hanakao`o and Pu`unoa Points bound the seaward edges of Wahikuli Ahupua`a to the north and south, respectively. Honoapi`ilani Highway, lies to the south of the project area, skirting the sea. Wahikuli State Wayside Park lies along the coast west of the project parcel. Kukhua Ahupua`a represents a small wedge shaped *ahupua`a* cutting between Kuholilea and Pu`uiki Ahupua`a on an east-west axis. Additionally, Pu`uiki Ahupua`a is adjacent to the eastern most boundary of Wahikuli located in a higher elevation than the previous; it is immediately south of Aki Ahupua`a.

Archaeological Inventory Survey was conducted within four easement corridors that are referred to herein as the following: Road C, Road D, Road E, and Road F. Road A and Road B were previously surveyed by SCS (Shefcheck and Dega 2008), with the current easements simply following in alphabetical ordering. Three of the four planned road locations bear

perpendicular to the slope (north-south; Roads C, D, and E), with Road F bearing *mauka-makai* (east-west) across the area (see Figure 2). Road C is the uppermost of the north-south bearing easements, near the conservation line, while D and E occur down slope at various intersections. Road F, Wahikuli Road, originates at its intersection with Honoapiʻilani Highway.

RAINFALL, SOILS, AND VEGETATION

Given the project area's elevation range, from 99 feet amsl to 1820 feet amsl, precipitation varies widely throughout the project area. The amount of rainfall increases steadily with increasing elevation. In the *makai* portions of the project area, at lower elevations, an average of 400 millimeters (16 inches) of rainfall per year, while higher elevations receive upwards of 1000 millimeters (40 inches) of rainfall per year (Giambelluca *et al.* 1986).

Because the project area extends across a number of soil types, topography, and elevation it is important to discuss the variety of soils which have been documented within the project area (Figure 4). Portions of Roads E and F show deposits of Wahikuli Stony Silty Clay, 7 to 15 percent slopes (WcC), additionally, Road F has deposits of Wahikuli Stony Silty Clay, 3 to 7 percent slopes (WbC) and Wahikuli Very Stony Silty Clay, 3 to 7 percent slopes (WdB) (Foote *et al.* 1972: 126). The Wahikuli Series, inclusive of these three soil types, was formed from basic igneous rock with some inclusions of volcanic ash from nearby cinder cones. The soil is well drained, and is associated with gentle slopes from sea level to 600 feet amsl. These soil types are associated with sugar cane cultivation (*ibid.* 125-126). Roads C and E cross Lahaina Silty Clay, 7 to 15 percent slopes (LaC), additionally, Roads C and D show deposits of Lahaina Silty Clay, 15 to 25 percent slopes (LaD). This soil association, like the Wahikuli Series, eroded from basic igneous rock, but is more widely present on Maui (*ibid.* 78-79). This well-drained soil type is found on 7 to 25 percent slopes from 10 to 1500 feet amsl. These soils are used for sugarcane, as well as pineapple and, to a lesser extent, for truck crops and pastures.

Additionally, Roads C, D, and E cross over Rough Broken Land (rRR), which usually consists of "very steep land, broken by numerous intermittent drainage channels" that are 20 to 60 inches deep over weathered rock. This soil type is usually used as watershed and wildlife habitat as well as pasture and woodland (*ibid.* 119). Lastly, a portion of Road C crosses over Alaeloa Silty Clay, 15 to 35 percent slopes (AeE). These are well-drained soils on uplands used for pineapple, pasture, wildlife habitat, home sites, and water supply which are located on smooth side slopes and toe slopes of the uplands (*ibid.* 26).

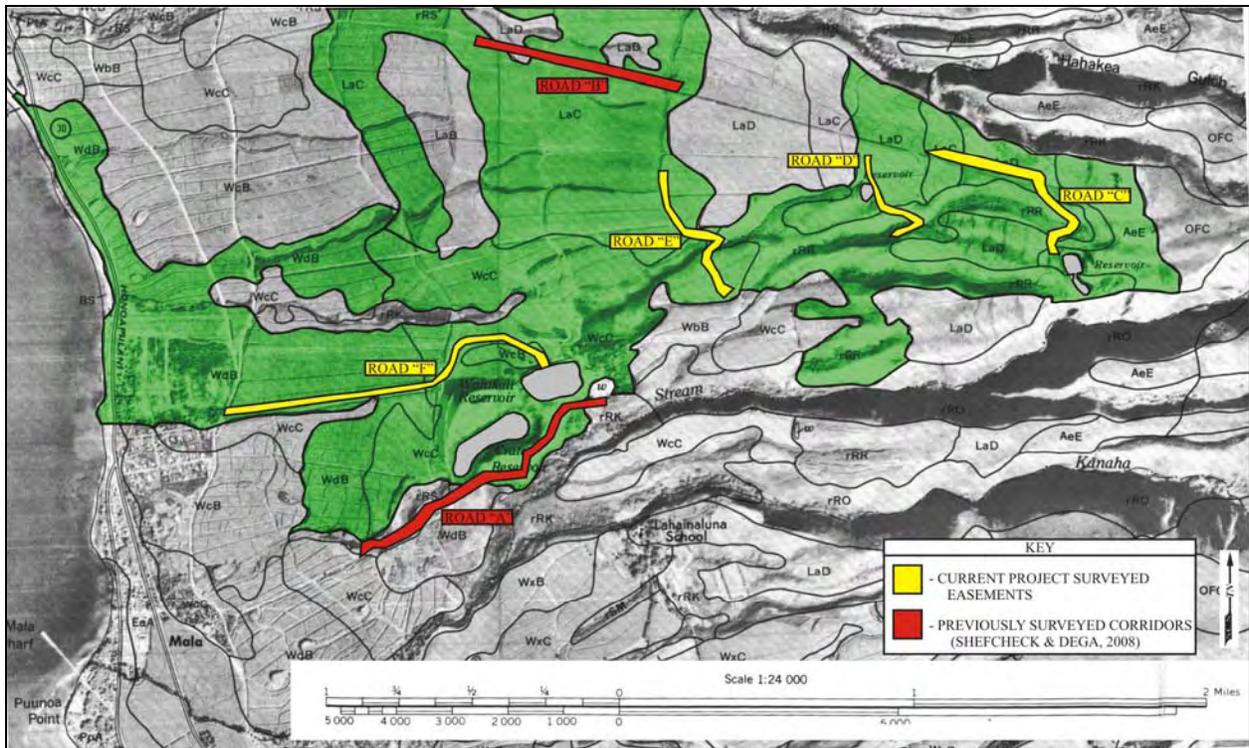


Figure 4: U.S.D.A. Soil Map depicting the Soil Types within the Project Area’s Surveyed Portions in Green.

A cursory examination of the USGS Lahaina Quadrangle reveals extensive Historic alteration to the natural landscape. Several streams traverse the landscape in the general vicinity of the project parcel, and there was likely some fresh water within the parcel prior to the Historic Period. However, the area’s stream channels were altered extensively in this area in support of commercial agricultural endeavors in the Historic Period (see Historical Background). To the north of the project area lie Wahikuli and Hahakea Streams. Kahoma, Halona and Kanaha Streams flow to the south of the project parcel. Several Historic irrigation features are apparent, the most notable of which are two reservoirs that lie very close to the planned location of Road A, as well as the reservoirs (Features 6 and 7) which lie close to Roads C and D. Several irrigation ditches originate from these reservoirs, as well as directly from the Kahoma Stream, just outside Wahikuli Ahupua`a, carrying water from south to north across the project area. Of particular note, Honokowai and Honokohau Ditches, two of the several traversing ditches within the project area, have gained some Historic importance, due to their role as principal water resources during the Sugar Period.

Vegetation in the project area and the immediate surrounds consists of mostly introduced, post-Contact species. Described by Armstrong (1983: 70), the project area lies within the

“Kiawe and lowland shrubs” zone, typical below 1,000 feet (305 m) in altitude. Characteristically, the vegetation in this zone contains *kiawe* (*Prosopis pallida*), *koa haloe* (*Leucaena leucocephala*), finger grass (*Eustachys* spp.), and *pili* grass (*Heteropogon contours*) (*ibid.*). The upper reaches of the project area stretch into what Armstrong describes as the “Lantana-Koa Haole Shrubs” zone typical below 3,000 ft (915 m) in altitude. Characteristically, this zone contains *Lantana*, *koa haole*, *klu* (*Acacia farnesiana*), *Panini* (*Penelopides Panini*), *ilima* (*Sida fallax* Walp.), and natal redtop grass (*Melinis repens subsp. Repens*) (*ibid.*). Figure 5 reflects the different plants seen within the project area.

HISTORICAL BACKGROUND

Traditionally, it was reported that the division of Maui’s lands into districts (*moku*) and sub-districts was performed by a *kahuna* named Kalaiha`ōhia, during the time of the *ali`i*, Kaka`alaneo (Beckwith 1940:383; Fornander places Kaka`alaneo at the end of the 15th century or the beginning of the 16th century [Fornander 1916/17, Vol. 6:248]). Further land divisions within the *moku* were *ahupua`a* which ideally incorporated all the natural resources necessary for traditional subsistence strategies. The ancient subdivisions of the *ahupua`a* were said to have been established approximately 500 years ago and have remained unchanged to the present, although land tenure itself has gone through radical changes (Sterling 1998:3). The project area is located within the *ahupua`a*’s of Wahikuli, Kuhua, and Puuiki of the Lahaina District.

Lahaina town was recorded as a Historic District and assigned State Site 50-50-03-3001 in 1962 and amended to include a second district in 1967 (Belt-Collins 1992:II-1). Lahaina has a varied history ranging from the traditional fishing and cultivation of early Hawaiians, the residence and surfing grounds of various members of the *ali`i* class, and a period of island unification involving high ranking *ali`i* from other Mokupuni (islands) in Hawai`i. Later, Maui became the capital of commercial whaling in the Pacific in the early to mid 1800’s, and then it was later a base for sugar plantation and, eventually, tourism.

The pre-Contact Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock, and wild plant and bird collecting. Extended household groups settled in various *ahupua`a*. Here, they were able to harvest from both the land and the sea. Ideally, this allowed each *ahupua`a* to be self-sufficient by supplying resources needed for survival from many different environmental zones.

Kalo (taro) was a food staple throughout the Hawaiian Islands, and its vitality depended largely on available water. Hawaiians developed extensive irrigated taro terraces (*lo`i*) and



Figure 5: Photograph of Representative Vegetation Present within the Project Area. View to North

drainage systems (*auwai*) that provided water for these terraces. Kanaha and Kahoma (Mahoma), streams fed extensive *auwai* systems that flooded *kalo* systems throughout Panaewa and neighboring *ahupua'a*. Water utilization was regulated through time schedules ranging from a few hours to a few days. Ownership of resources as essential as water was not sustainable in a society that depended heavily on communal accessibility. Such fragility of access and distribution, was, therefore, greatly vulnerable to conflict and warfare. Samuel Kamakau (1961:74) illustrates the conflict of 1738 by the Big Island chief Alapa`i, after a full year of war preparation:

What was the war like? It employed the unusual method in warfare of drying up the streams of Kaua`ula, Kanaha, and Mahoma. (which is the stream near Lahainaluna) The wet taro patches and the brooks were dried up so that there was no food for the forces of Ka-uhi or for the country people. Alapa`i 's men kept close watch over the brooks of Olowalu, Ukumehame, Wailuku, and Honokawai. When Pele-io-holani heard that Alapa`i was at Lahaina he gathered all his forces at Honokahua and at Honolua.

At Honokawai an engagement took place between the two armies, and the forces of Alapa`i were slaughtered and fled to Keawawa. There Alapa`i heard that Pele-io-holani had landed at Honokahua and had an army stationed at Keawawa, and he disposed his forces, some on sea and some on land. Although Pele-io-holani had but 640 men against Alapa`i's 8,440 from the 6 districts of Hawai`i, there were among them some famous warriors, such as Hana, a warrior intimate of Pele-io-holani, Malama-kuhi-`ena, Moko-kala`i, Kulepe, `Opu-hali, Kuakea, Lono-nui-akea, Pa-i-kahawai, Kawelo-iki-a-kula, and Ka-mahu-a-koai`e. Pele-io-holani intended to unite his forces with those of Ka-uhi, but Alapa`i's men held Lahaina from Ukumehame to Mala on the north, and in attempting to aid Ka-uhi, Pele-io-holani became involved in difficulty. The hardest fighting, even compared with that at Napili and at Honokahua in Ka`anapali, took place on the day of the attack at Pu`unene. Pele-io-holani was surrounded on all sides, mauka and makai, by the forces of Alapa`i, led by Ka-lani-`opu`u and Keoua. The two ruling chiefs met there again, face to face, to end the war and became friends again, so great had the slaughter been on both sides....(*ibid.*,1961:74).

Lahaina was reportedly designated as a *pu`uhonua* (place of refuge; Sterling 1998:17). Prior to the 10th century, according to Thrum (1909), Chief Hua-a-Pohukaina constructed the first *heiau* on Maui at Lahaina, where he was born. It was reported that the chief Kaka`alaneo lived on Keka`a Hill (Ka`anapali) in the Lahaina District. Keka`a became the capital of Maui during his reign, and an area of intense cultivation (Handy and Handy 1940:106). Lahaina was very attractive to the *ali`i* due to its climate, access to marine resources, as well as fresh water for agriculture.

Lahaina is renowned traditionally and historically for its verdant and abundant groves of breadfruit. Elspeth Sterling's *Sites of Maui* references Lahaina as second only to Puna, Hawai`i as a favorable location for breadfruit culture (1998). In the section of her book addressing the significance and meaning of the naming of Lahaina, Sterling points to an interpretation from Thrum involving the history of the naming of the place now known as Lahaina. Thrum (1909) proposes that "others say the original name was Lele." Here, Lele is interpreted as a "flying piece of the kuleana, that which is near the shore." Thrum (1909) points out that Lahaina fronts the shoreline and this application does apply. E.S.C. Handy in Sterling points out that Lahaina is referred to in traditional *mele`s* (songs) as *ka malu ulu o Lele* (the breadfruit shade tree of Lele) (1998:17). In Mary Kawena Pukui's *Place Names of Hawai`i*, Lahaina is mentioned as being associated with the Kaua`ula wind (Pukui *et al.* 1974:127). This Kaua`ula wind is referenced as being the cause of destruction of churches and building in Lahaina in 1828 and again in 1858

(Pukui *et al.* 1974). Pukui also points out that the changed spelling and old pronunciation of Lahaina meant cruel sun.

Cultural practices in the area also included the cultivation of *`uala* (sweet potato). *`Uala* was cultivated as a basic food source in the Hawaiian Islands. *`Uala* proved more favorable to farmers in some respects because it flourishes in more difficult climates and needs substantially less water to grow than most high-yielding crops cultivated during traditional times. *`Uala* is also beneficial as it matures in three to six months and requires much less labor exertion in planting as opposed to nine to eighteen months for taro (Handy and Handy 1972:127).

E.S.C. Handy in *Hawaiian Planter* discusses the proliferation of fishing settlements and isolated fishermen houses all the way from Kihei to Honokahua and mentions the cultivation of *`uala* in the red *lepo* (sandy soil) near the shore. Handy points out that this coast is the most favorable on Maui for fishing and that *kula* lands (uplands) were ideal for the cultivation of sweet potato (1940:159).

According to Thrum, in *Hawaiian Annual*, an infamous *ali`i* called Hua, who reigned prior to the 10th century, is credited with the construction of the first temple on Maui (1909:44). Hua, who is referred to as Hua-a-Pohukaina and as Hua-a-Kapuaimanaku, names by which his father was also known, was reportedly born in Lahaina and this was the site of the first *heiau* in Maui. Hua, reported by Thrum, was known for constructing two *heiau* in Lahaina and another Hua, two generations later is credited with constructing a third. The ruins of three additional *heiau* are reported by Thrum, are said to belong to, or just prior to, the reign of Kahekili.

Lahaina was known as a *pu`uhonua*, or place of refuge, in Maui. The *pu`uhonua* at Lahaina was associated with Ka`ahumanu who inherited her lands from her husband Kamehameha. Samuel Manaiakalani Kamakau in *Ruling Chiefs of Hawai`i* discusses how Ka`ahumanu's lands Waipukua in Waihe`e, Kalua`aha in Molokai, and Pu`umau in Lahaina were declared as places where people could be saved from death (1961:312).

Fornander, as well as Kamakau, discusses how Lahaina figured prominently in battles between various island chiefs. In the early 1700s, wars between Alapa`inui of Hawai`i, in conjunction with Kamehamehanui of Maui against Kauhi (Kamehamehanui's brother) occurred. Alapa`inui established his headquarters at Lahaina village, the rest of his army extending along the coast from Honokowai to Ukumehame. With the pending arrival of Peleioholani from

O`ahu, who was to assist Kauhi, Alapa`inui destroyed the *kalo* patches and broke down `auwai belonging to the followers of Kauhi in the vicinity of Lahaina. Eventually the forces met:

...The fortune of the battle swayed back and forth from Honokowai to near Lahaina; and to this day heaps of human bones and skulls, half buried in various places in the sand, attest to the bitterness of the strife and carnage committed (Fornander 1969 Vol. II:140).

1778 TO THE MID 1800S

Western descriptions of Maui were provided by Captain Cook and his men who were the first Europeans to record their impression of the island, on November 26, 1778 (Beaglehole 1967: Part I, Vol. III). After returning from Alaska, they spotted Maui and sailed down a portion of the east side of the island. David Samwell, a surgeon on the Discovery, reported "...the ships lay to all day about 3 miles off shore, trading with the Natives who came off in their canoes in great number..." (1967:1151).

It had been a time of war between Kalaniopu`u, ruler of Hawai`i Island, and Kahekili, chief of Maui and Moloka`i. During this season of the year (*Makahiki*), however, the fighting was temporarily suspended and Kahekili was free to visit the foreign ships. Samwell describes the great King and the windward slopes calling Kahekili "... a middle aged man... rather of a mean appearance..." and the land as "...mountainous, the sides of the hills are covered with trees... large open plains on which stand their houses and where they have their plantations of sweet potatoes, and taro..." (*ibid*).

The leeward side of the island was dry and an early account (1786) suggests inhabitants were much poorer in health and resources at its southern end (La Perouse in Sterling 1998:222). However, further up the coast towards Lahaina, the population increased and the habitations situated in coconut grooves became numerous. Lahaina Village, with access to the mountain streams, was described in 1773 by Vancouver and Menzies as:

...laid out in the highest state of cultivation and improvement by being planted in the most regular 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... In short, the whole plantation was cultivated with such studious care and artful industry as to occupy our minds and attention with a constant gaze of admiration... (Menzies 1920:112).

The war between Kahekili of Maui and Kalaniopu`u of Hawai`i Island had not ended with the death of Kalaniopu`u in 1782, but was continued by his nephew, Kamehameha I. Vancouver was not as impressed as Menzies with the Lahaina landscape and was told it was the result of the continued disputes:

...To the ravage and destruction of *Tamaahmaah's* wars, the wretched appearance of the crops was to be ascribed of this they grievously complained, and were continually pointing out the damage they had sustained; the despoiled aspect of the country was an incontrovertible evidence of the melancholy truth. Most of the different tenements in the lands formerly cultivated, were now lying waste, their fences partly or intirely [sic] broken down, and their little canals utterly destroyed; nor was a hog or fowl any where to be seen. By far the larger portion of the plain was in this ruinous state; and the small part that was in flourishing condition bore the evident marks of very recent labor (Vancouver 1986:870).

After defeating Kahekili's army and subjugating all but the island of Kaua`i, Kamehameha moved his fleet of *peleleu* (war canoes) to Lahaina for a year to collect tribute (in 1802-1803). His headquarters were a two-story brick house near the landing. The building was surrounded by *kalo* patches and fish ponds, coconut, *hala*, and *kou* trees (The Maui Historical Society: 1964). The *kalo* patches stretched along the beach, behind which were huts, and behind them, a mulberry and cane plantation belonging to a Mr. Butler, the land having been a gift from Kamehameha I (Litten in Sterling 1998:19). To be able to supply his retinue with provisions, Kamehameha ordered the repair of the damage previously done to Lahaina and vicinity during the wars with Kahekili. Walls for the *lo`i* were rebuilt and crops were again successfully grown.

At the same landing where Kamehameha I had made his headquarters there was also a *heiau*. L.R. Duperrey, the cartographer with Louis Claude de Sauses de Freycinet, mapped the Lahaina Village in 1819 depicting points of interest. Figure 6 shows the location of: a) the observatory of Freycinet, b) the brick palace of Kamehameha I, c) the *heiau*, d) Mr. Butler's house, e) *kalo lo`i* and *`auwai*, f) *wauke* plantation, and g) sugar cane plantation.

In describing Lahaina Village Freycinet said:

...the first thing we noticed upon our arrival at Raheina was a red brick structure. Standing right next to the landing point, it was an excellent guide for the vessels... to the south was the habitation of the priests and next to it a *morai* constructed on a pile of dry rocks

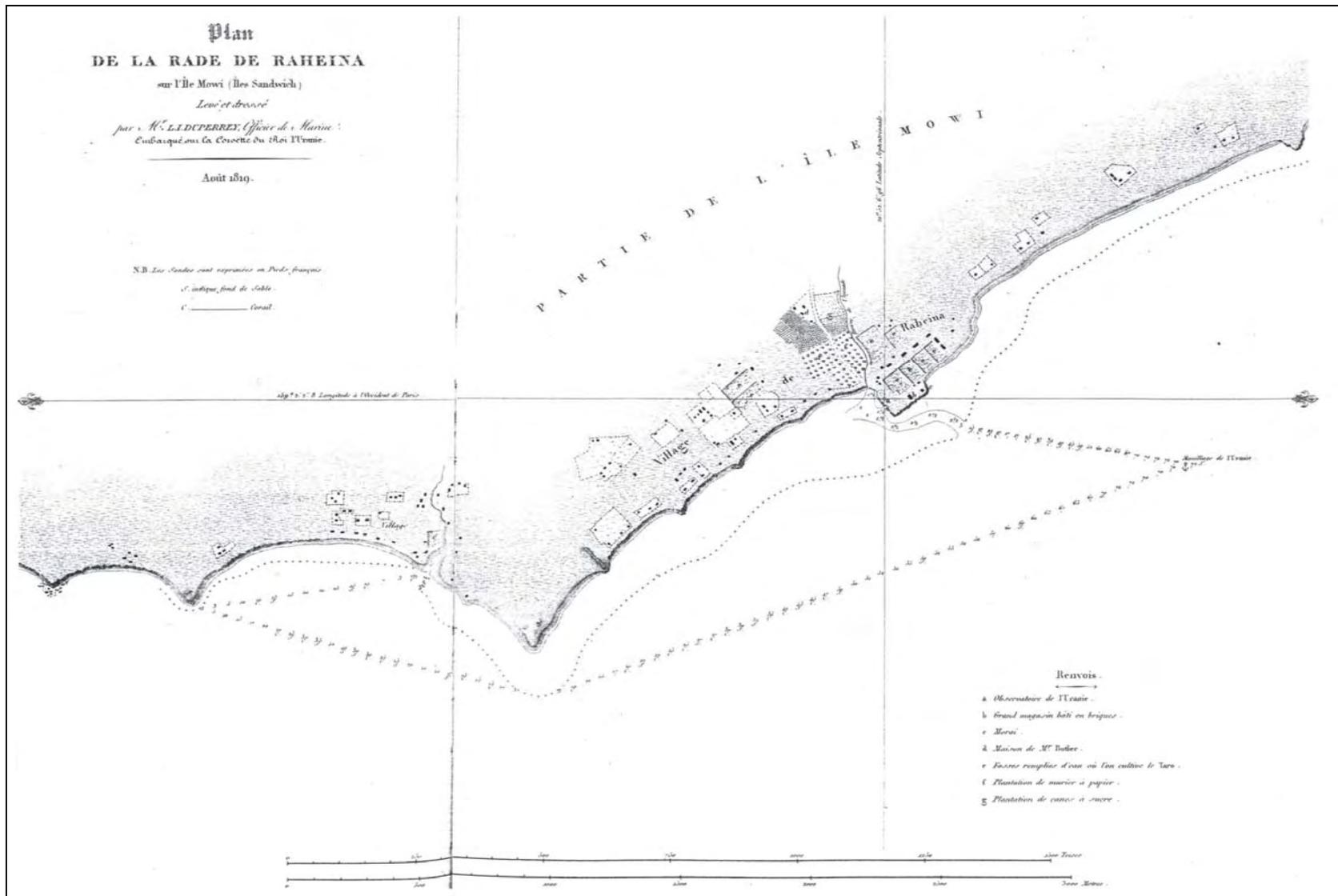


Figure 6: L.R. Duperrey's Map of Lahaina in 1819 (From Goodwin and Leineweber, 1997:11).

and forming a sort of dike on the beach. A little farther up in the interior one comes across hand-dug reservoirs used for taro culture. They stretch along the coast for quite some distance and are fed by the streams brought there through artificial canals. The houses, instead of being grouped next to each other, are dispersed over a rather wide terrain... (Kelly 1978:41)

Freycinet was impressed with the fertility of Lahaina:

...Here were found vast orchards of the paper mulberry, whole fields of bananas and of sugar cane of fine appearance, fields of taro and other vegetables fit for human food, enormous breadfruit trees scattered here and there, finally the fertility and freshness of the soil everywhere maintained by frequent irrigation and well husbanded (*ibid.*:32)

Arago, draftsman and artist on Freycinet's voyage, recorded that Lahaina occupied approximately nine miles along the coast by three miles, inland (14.4 by 4.8 kilometers). He described the same orderly cultivated system of *kalo*, bananas, breadfruit, coconut, *wauke* and house sites.

...Every cabin has its enclosure, and every enclosure is well taken care of; it seems to suffice for the wants of the family.... The space cultivated by the natives of Lahaina is about three leagues in length and one in its greatest breadth. (Arago 1823)

Kamehameha I died in 1819 in Kona and his oldest living son died four years later in London. At the age of nine years old, this left Kamehameha's youngest son, Kauikeaouli, the reigning monarch (under the guidance of Ka`ahumanu). During his reign, Lahaina became the capital of the Kingdom and favorite headquarters of the *ali`i*.

In 1823, the mother of the king, and sacred wife of Kamehameha I, Keopuolani, brought the Reverends Stewart and Richards and their families to Lahaina. Land was eventually given to the missionaries along what was to become Front Street. The population of Lahaina was estimated at 2,300 around this time and consisted of 700 grass houses with a few permanent buildings (Belt-Collins 1992). With the arrival of the missionaries and the conversion of several powerful *ali`i* such as Ka`ahumanu and Keopuolani, a shift occurred and Lahaina's new buildings began to reflect western influence. The first stone dwelling in Hawai`i,

located on Front Street, besides the mission houses occupied by the Stewarts and Richards, and Baldwins, were several other buildings, such as the Marine hospital, Seaman's Chapel and Reading Room. Dr. Baldwin constructed a medical office in conjunction to his residence on Front Street in 1834. By the late 1820s, stone houses were being built by many of the *ali'i* on their land in Lahaina, many of which are in close proximity to the current project area.

A fort was constructed in 1831-32 near the brick palace, where a sailor would drum at sundown as a signal for all the seamen to board their ships. In 1854 the old coral blocks that had been a part of the fort walls were dragged across Front Street to become a part of the new Hale Pa`ahao or Lahaina Prison.

Whaling ships, by the dozens, filled the shallow anchorage between Spring and Fall from the 1820s through the 1860s. Lahaina had already provided supplies, sailors, and recreation for countless voyagers participating in the trans-Pacific fur/sandalwood trade. The harbor in Honolulu required excessive port charges, unlike Lahaina (Belt-Collins 1992). Because Lahaina was a roadstead, no pilot was needed to guide the ships, as was the case for Honolulu, and ships could come and go as they pleased. The ships' boats would travel up the canal (what is now Canal Street) and barter in the government-regulated market place which had a large grass house extending the entire length of the canal.

In 1825 there were already 19 schools in Lahaina with 380 students. The schools were only outnumbered by the 23 grog shops. By 1826, the school number had increased to 29, instructing 568 male and 570 female students. In spite of the law against selling ardent spirits, the number of grog shops in Lahaina had increased to 30 by the early 1830s. In 1837, there were five school houses of stone and adobe in Lahaina. In 1846, 429 whaling ships anchored at Lahaina, which had grown into a town of 3,000 people with 59 stone or wooden houses and 882 grass houses (Maui Historical Society 1971).

Lahaina's constable expressed his frustration at trying to keep order:

...There are so many Beer shops here, and they have so many chances of selling spirits in their Beer without detection that do all I can, and use all the means in my power, I cannot get a fair chance to fine them...(Maui Historical Society 1971:9)

The traditional subsistence economy had quickly changed to a market economy and Lahaina was at the center of activity. The buying and selling of produce had been strictly

regulated under Kamehameha I. His successors, however, quickly gave into the pressure of the lesser chiefs to share in the bounty and their desire for exotic merchandise. Soon, free enterprise dominated commerce. In 1833, Brinsmade, Ladd, and Hooper in partnership with Hoapili, the Governor of Maui, established a large store and hotel in Lahaina. Pierce and Brewer owned a large trading house in Lahaina by 1837 (Belt-Collins 1992).

Dr. Dwight Baldwin, a missionary doctor in the 1830s whose residence was the old Richards' house located on Front Street, recorded the main food items supplied to the ships were "...water, hogs, goats, bananas, melons, pumpkins, onion, squashes, sweet potatoes, young turkeys, ducks, fowls and beef, all of which can be had in abundance; but the greatest article for which they come is Irish potatoes which grow plentifully in the interior of this island" (in Maui Historical Society 1971:7).

Charles Wilkes visited Maui in 1841 as part of his scientific expedition in the Pacific region. When viewing Lahaina, he recorded, "...The town of Lahaina is built along the beach for a distance of three-quarters of a mile: it is principally composed of grass houses, situated as near the beach as possible: it has one principal street with a few others running at right angles. After the King's palace, the fort is the most conspicuous object: its form is quadrangular. The longest side facing the sea: it is of little account, however, as a defense, serving chiefly to confine unruly subjects and sailors (Wilkes 1845:4).

Lahaina's commerce continued to expand with new ventures appearing frequently. A boarding house had been built in Lahaina by George W. Punchard to accommodate the transient population arriving in Lahaina and J. Armas opened a restaurant in 1843. An enterprising Milo Calkin built a store and office for ship chandlery and general merchandise and direct possible customers to Front Street by saying "the canal leads direct to the store" (Belt-Collins 1992). The many retail businesses established in Lahaina by the 1840s included Dow Drugstore, Gilman and Company, and A.H. Koon with many more to come. Punchard, Bush, Makee, Mellish, Sheik Mohamet, Halstead, McIntyre, Banks and Chairman had all applied for licenses to peddle foreign goods at Lahaina.

The first official census was taken in Lahaina in 1846 and recorded 3,445 Hawaiians, 112 foreigners, 882 grass houses, 155 adobe houses, 59 stone and 59 stone and wooden houses, and 99 sheds or *lānai* used as houses, 528 dogs and some 600 seamen (Belt-Collins 1992).

Economically, everything was booming in Lahaina. Not only were the merchants supporting the whaling ships, but in California the gold rush had begun with Hawai`i supplying many commodities, including, potatoes to the west coast. In 1850, 51,957 barrels of Irish potatoes and 43,923 barrels of sweet potatoes were exported from Lahaina to California (*ibid.*)

By this time, Lahaina had two hotels, two bowling alleys, and a billiard room. Grass houses could also be rented for \$4 dollars a month. As Lahaina prepared for another whaling season it was recorded “victualers or better known as beer-shop keepers have commenced with great activity in cleaning up their houses for the fall season. No less than 15 or 20 of these licensed houses, besides several “sly: houses, two dance-houses and a native hulahula in the lower part of town” were preparing for sailors (*ibid.*).

1850 AND BEYOND

From 1850 to 2006, the project area has been under cultivation in sugar by the Pioneer Mill Company. During this time, the natural landscape was drastically altered in support of the commercial sugar industry. Through business partnerships with Honolua Ranch and long-term land leases and agreements with landholders, Pioneer Mill set up extensive irrigation systems and a railroad through the study parcel, as well as massively altered the surface and subsurface makeup within the cane fields by removing stones and tilling the soil, harvesting ripe cane, and installing an extensive system of access roads throughout the fields. The following is a summary of archival data pertaining directly to the project area itself. A more extensive discussion of Pioneer Mill and its operations is provided in Goodwin and Leineweber (1997).

Vastly outpacing any other export crop, sugar plantations quickly became Maui’s largest industry, and remained so until modern times. Lahaina’s sugar mogul, the Pioneer Mill Company was founded in the 1863 by James Campbell, Henry Turton and Benjamin Pitman (Dorrance and Morgan 2000: 63). Construction of the mill was completed in 1865 and, until 2006, the Pioneer Mill stood at its original location along Lahainaluna Road. At the beginning of its operations, Pioneer Mill Company had only 126 acres of land under cultivation, relying heavily on smaller growers to supply the crop (*ibid.*). Through time, Pioneer Mill increased its land cultivated acreage by leasing land throughout Lahaina and Ka`anapali.

Irrigation systems were built throughout Lahaina in support of the growing sugar industry. In 1904 Honolua Ranch built Honokohau Ditch, an extensive irrigation system that crosses the present project area. Honolua Ranch, the predecessor to today’s Maui Land and Pineapple Company (ML&P), built the Honokohau Ditch following an agreement with Pioneer

Mill Company (Wilcox 1996:126). “Honolua Ranch would build and own the Honokohau Ditch, while, Pioneer Mill would finance it and use the water” (*ibid.*). The original ditch, spanning about 12.5 miles, consisted primarily of open-water ditches and flumes, with only 16,300 feet of tunnels. This first ditch exhibited severe seepage, and was completely renovated twelve years later. In the second attempt, Honokohau Ditch was converted to “34,241 feet of tunnel, 726.3 feet of covered crossings, 1183 feet of inverted siphons, and only 427.3 feet of open ditch” (*ibid.*: 127). In her description, Wilcox (1996:131) explains that “Some 1904 stone-lined ditches remain, as do the tunnels, now used to gain access to the intake” (1996:131).

This renovation increased the ditch’s efficiency enough to satisfy the needs of Pioneer Mill for the time being. However Pioneer Mill endeavored to re-line the entire ditch in concrete in 1923 in order to maximize the ditch’s efficiency. In addition to making renovations to Honokohau Ditch, Pioneer Mill Company constructed seven of its own ditch systems, three of which traverse the present study parcel. Honokowai Ditch, lying *mauka* and parallel to the Honokohau Ditch within the project area, was initially constructed in 1898 (Wilcox, 1996:131-132). Honokowai Ditch was originally constructed of semicircular galvanized iron flumes. In 1918 Pioneer Mill replaced this system with a concrete-lined tunnel measuring 1.5 miles long (*ibid.* 134). Kahoma and Kanaha are the other ditches built within the subject parcel by Pioneer Mill Company. These last two ditches supplied water to the mill, but also provided water to Lahainaluna School and other community entities (Wilcox, 1996:136-137).

LAND TENURE AND THE MĀHELE

The land tenure system in prehistoric Hawai`i was rooted in a different epistemological framework than the subsequent colonially-imposed framework that is understood today as land ownership. The idea of holding land was not synonymous with owning it, but is described as closer to a trusteeship between the *ali`i nui* (ruling chiefs) of the island and the traditional Hawaiian *akua* (gods) Lono and Kane (Handy and Handy 1972:41). Each island was divided into *moku* (districts) that were solely geographical subdivisions. The number of these *moku* depended upon the size of each island. *Moku* were partitioned into smaller landholding units known as *ahupua`a* that were governed by *ali`i* or designated *konohiki*. The *ahupua`a* varied in size, but ideally encompassed land from the mountain to the sea, providing the chiefs and *maka`ainana* (people who cultivated the land) with the opportunity to recover both terrestrial and marine resources. All persons from chiefs to commoners were entitled to portions of these resources (Chinen 1958:5).

The prehistoric/traditional period in the Hawaiian Islands came to an end with the arrival of Captain Cook on Kaua`i in 1778. The years to follow would drastically change the political, agricultural, and social relationships and patterns of the Hawaiian Kingdom. Destabilization of Hawaiian society was further intensified by the profound reformation of traditional land systems. In 1848, the *Māhele* curtailed communal access to land. The *Māhele* system led to the introduction and implementation of privatization that required both chiefs and commoners to retain private land title (Kame`eleihiwa 1992). If properly informed of the procedures, Hawaiians were permitted to claim lands on which they had worked or lived.

Under the *Māhele* and the first Land Commission of the Trust Territory of Hawai`i, lands were allocated in three ways. A third of all lands became Crown Lands belonging to the *ali`i*, a third was distributed to the chiefs, and a third was awarded to the general populace, which were represented by a large portion of foreigners as well as Hawaiians during this time. The first Land Commission was formed in 1845, during which time all individuals holding land were now required by new Western notions of law to submit their claims or forfeit their land.

While LCA records inherently establish historic land utilization in Hawai`i (during the *Māhele*), documented testimony from many land recipients have also demonstrated continuous generational occupation of the land. Settlement patterns illustrated in the Land Commission Awards (LCA) records highlight the multi-functional land use practices related to habitation and agriculture and perhaps the clear connection of these strategies.

A total of 913 LCA claims were made in Lahaina during the *Mahele*, the majority of which are along the coastal plain. The Waihona database reveals that there were 12 LCAs awarded in the *ahupua`a* of Wahikuli, 23 claimed in Kuhua Ahupua`a, and 4 claimed in Puuiki Ahupua`a. See Appendix A for the full listing of which LCA numbers were awarded (Waihona`Aina Corporation 2008).

PREVIOUS ARCHAEOLOGY

Previous Archaeological research within Wahikuli Ahupua`a began with Winslow Walker's island-wide archival survey of *heiau* on Maui (n.d.). Walker (1931) cites Thrum, identifying Halulukoakoa Heiau (Site 11) as being located just west of the present study parcel. This *heiau* was destroyed at the time of Walker's recordation.

More recent archaeological investigations began in Wahikuli in the 1970s, concentrating primarily on coastal locations. Findings around the Wahikuli coast include identification of a fishpond (Ahlo and Morgenstein 1980), and several human burial finds (Shun 1990, Pietrusewsky 1989). Additionally, William Barrera (1988) conducted a reconnaissance along the proposed route Alternative C of the Honoapiilani Highway during which the presence of sites - 1776 and -1775 were noted just outside the south edge of the Goodwin's and Leinweber's (1997) project boundary (as cited in Goodwin and Leinweber, 1997: 31). These archaeological investigations have been described in detail in Goodwin and Leinweber (1997) and Jensen (1989). As such, the discussion of previous work offered herein will concentrate solely on those projects that were conducted within the region of the present project area (Figure 7).

In an Archaeological Inventory Survey of the 1,200-acre parcel of the Lahaina Master Planned Project Site (partially overlapping the present study parcel) PHRI identified eleven previously un-documented pre-Contact sites and one previously partially recorded site (Jensen 1989). This work consisted of full pedestrian survey of the entire parcel, but, as the majority of the area was actively being cultivated in sugar, the sites were concentrated in areas that have seen minimal impacts in Historic times.

Sites 50-50-03-2478 through 2482 were identified along the edge of Hanakea Gulch. These sites consisted collectively of six agricultural terraces and two walled enclosures. The remaining sites are concentrated around two reservoirs in the southeast corner of the parcel. These sites consist of eight agricultural terraces (Site 2483) four walled enclosures (Sites 2483, 2484, 2485, 2488), one possible burial platform (Site 248), thirteen grave markers (2486), and a historic agricultural road (Site 2487). In addition to these, Jensen re-identified a previously documented rockshelter and petroglyph (Site 1203). Table 1 summarizes the distribution of the 44 features among the 12 identified sites (Jensen 1989:13-25).

Jensen's recommendations for these sites vary depending on their form and significance assessment. Five sites were recommended for Data Recovery. These sites include 2480, 2483, 2485, 2488 and 1203. No further work was recommended for Site 2487, the historic agricultural road. Finally, preservation in place was recommended for Site 2486, which may contain burials.

A second Archaeological Inventory Survey was conducted by International Archaeological Research Institute Incorporated (IARII) (Goodwin and Leinweber 1997). The findings from this work consisted entirely of historic agricultural structures and features relating to sugar cane cultivation. Six buildings identified here were collectively designated under state

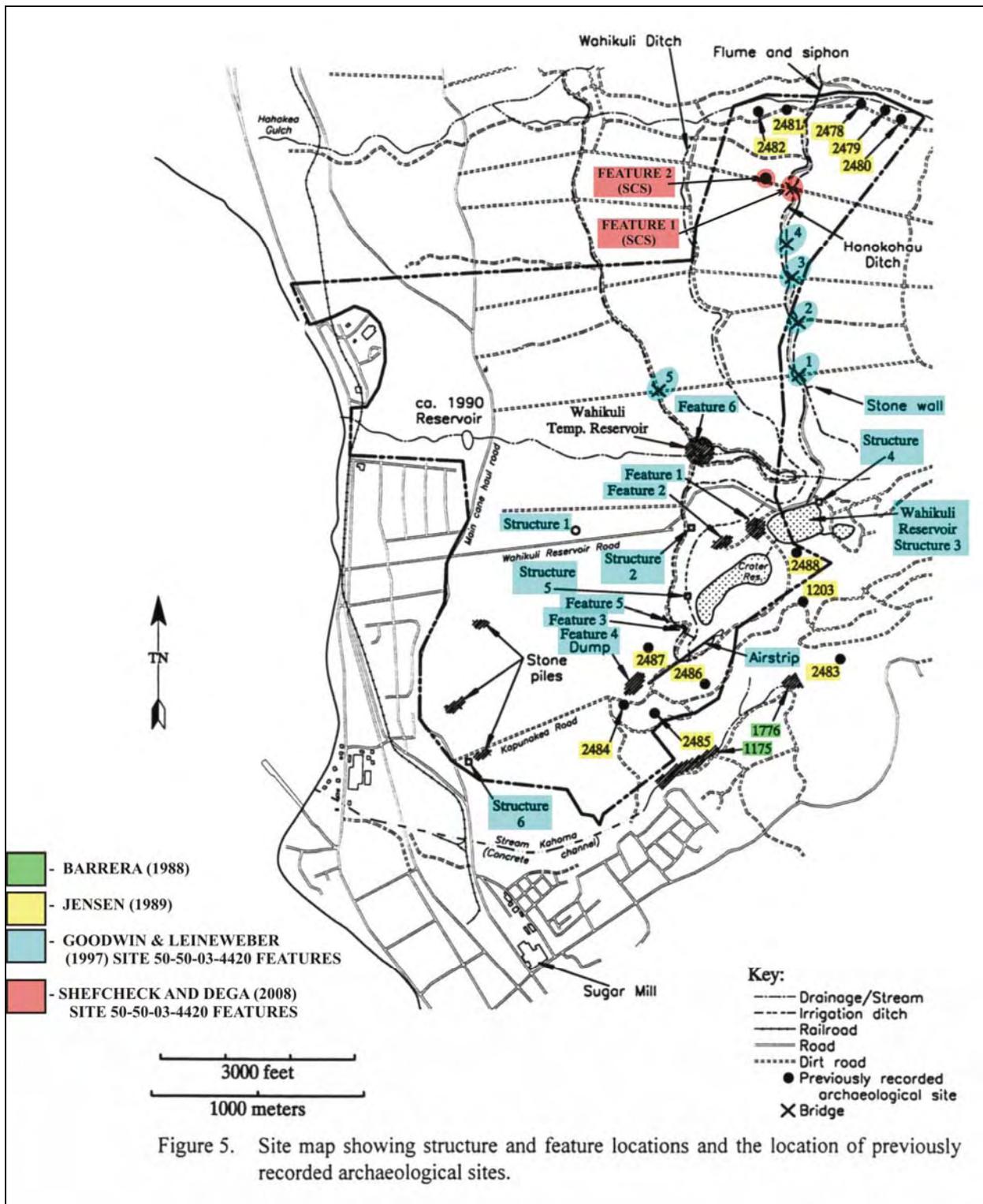


Figure 5. Site map showing structure and feature locations and the location of previously recorded archaeological sites.

Figure 7: Previous Archaeology Conducted Near the Project Area. Adapted from Goodwin and Leineweber, 1997: 12).

Table 1: Summary of Sites and Features, (From Jensen [1989:14]).

Field Site #	Notes Comments	SIHP Site #	Ovrhng/ Caves	Platform	Feature Type					Total At Site
					Walled Encl.	Petro-glyphs	Grave Marker	Agri. Terrace	Hist. Ag. Road	
Project 89-653										
HFDC Project Area, Inventory Survey										
SIHP No.										
2478	Hahakea Gulch		-	-	-	-	-	1	-	1
2479	Hahakea Gulch		-	-	-	-	-	2	-	2
2480	Hahakea Gulch		-	-	2	-	-	-	-	2
2481	Hahakea Gulch		-	-	-	-	-	2	-	2
2482	Hahakea Gulch		-	-	-	-	-	1	-	1
2483	So. Brnch Kahoma St.		-	-	1	-	-	8	-	9
2484	Near ag. air strip		-	-	1	-	-	-	-	1
2485	Near ag. air strip		-	-	1	-	-	-	-	1
2486	Near ag. air strip		-	1	-	-	13	-	-	14
2487	Near Puu Laina		-	-	-	-	-	-	1	1
2488	North of Puu Laina		-	-	1	-	-	-	-	1
-12	Deleted -- contemp. rd.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50-03-1203	No. Brnch Kahoma St.		1	-	1	1 (38)	-	6	-	9
Total Fea. Type Represented			1	1	7	1	13	20	1	44
Fea. Type as % of Total			2%	2%	16%	2%	30%	46%	2%	100%

site number 50-50-03-4420. The features documented by Goodwin and Leineweber (*ibid.*) as well as the sites identified by Jensen (1989) are presented in Figure 7. Three historic features were identified during a subsequent Archaeological Inventory Survey conducted by SCS Archaeology in 2008 (see below). These features consisted of a cement bridge over Honokohau Ditch, a large, ramped clearing mound and a basalt stone-and-mortar culvert. Each of these features is related to Pioneer Mill sugar cultivation. As such, these features have been added to state site 50-50-03-4420. The following is a detailed description of these features.

Goodwin and Leineweber (*ibid.*) report six historic structures relating to the agricultural operations. These include a water tank, a booster pump, the Wahikuli Reservoir, two electric power buildings, and a stone cistern. In addition, several access roads are recording, including Cane Haul Road, Wahikuli Reservoir Road, Wahikuli and Honokohau Ditch Roads, and Crater Reservoir Road. Honokohau and Wahikuli Ditches are documented in this report, as well as several associated bridges, flumes, intakes and sluice gates. Also included in this document were an airstrip near Crater Reservoir and the 31-gauge railroad track skirting the *makai* end of the project area. Finally, six historic midden dumps were documented at various locations around the parcel. The authors recommend Historic American Buildings Survey (HABS) Level 2 recordation for the irrigation ditches and associated features.

In January of 2008, SCS Archaeology conducted an Inventory Survey of two easement corridors in preparation for the construction of two access roads on State of Hawaii Land (Shefcheck and Dega 2008). The survey consisted of full systematic pedestrian survey along road two proposed road corridors. During this work, three historic features were identified and recorded under previously established site number 50-50-03-4420. These features are: a cement bridge and associated stone-and –cement mortared ditch (Feature1), and agricultural clearing mound (Feature 2), and a stone-and- cement mortar culvert (Feature 3). Additionally, two previously documented sites were also identified within the survey area; these sites are 50-50-03-2485 and -2488 which were recorded as pre-Contact, well-constructed enclosures, which will be adversely impacted by the planned road construction. Preservation for site -2485, lying to the north of Road A, was recommended by SCS for preservation of the site. Site -2488 was recommended for Data Recovery lying within the corridor of proposed Road A.

Because so many features have been added to the historic sugar cane related site complex 50-50-03-4420, please see Table 2 for descriptions of the features identified by Goodwin and Leineweber (1997), Shefcheck and Dega (2008), as well as the current study.

EXPECTED FINDINGS

Previous archaeology near the project area has identified pre-Contact sites associated with traditional habitation and agricultural practices (Jensen 1989). Two additional Inventory Surveys recorded a number of features associated with Pioneer Mill Company (Goodwin and Leineweber 1997 and Shefcheck and Dega 2008), documenting all these features under a single site number. The site expectations for the present study included similar features to those previously documented. To some extent, the purpose of the present study was to ascertain the impacts that the planned roads would have on previously identified sites. Historic features were anticipated to a greater degree, as commercial agriculture practices often destroy traditional surface features. The upper *mauka* reaches of Road E were expected to be near, but not expected to impact, Jensen's Sites -2478 through -2482.

METHODOLOGY

This Inventory Survey consisted of full systematic pedestrian survey covering approximately 10 m on each side of the existing dirt roads. The planned access roads are expected to measure approximately 15 m wide. The total width of the surveyed area measured between 23 and 27 m, varying depending on the width of existing dirt roads. No subsurface

Table 2: Summary of State Site 50-50-03-4420 Feature Descriptions.

Site Number 50-50-03-4420					
Feature	Form	Notes on Feature	Dimensions	Age	Identified By:
Structure 1	Wahikuli Tank Site	green colored, owned by State of Hawaii	over 100 ft in diameter and c. 200 ft tall	Modern; built between 1965 and 1976	Goodwin and Leineweber, 1997: 33
Structure 2	K Pump building	Plantation infrastructure essential to the operation of Pioneer Mill. Located at base of Pu`u Laina	20 ft x 14 ft height: < 20 ft	Historic	Goodwin and Leineweber, 1997: 33
Structure 3	Wahikuli reservoir	Plantation infrastructure essential to the operation of Pioneer Mill. Main portion composed of concrete lined stone walls	None given	Historic; built c. 1902	Goodwin and Leineweber, 1997: 33
Structure 4	Corrugated metal sheathed structure	Plantation infrastructure essential to the operation of Pioneer Mill. Abandoned electric power station building at Wahikuli reservoir	None given	Historic	Goodwin and Leineweber, 1997: 36
Structure 5	small wooden building	Plantation infrastructure essential to the operation of Pioneer Mill. Electrical system junction at top of Pu`u Laina	None given	Historic	Goodwin and Leineweber, 1997: 36
Structure 6	Stone cistern	Plantation infrastructure essential to the operation of Pioneer Mill. Abandoned, in late 20th century the cistern served part of water source for the Kapunakea settlement	None given	Historic; built in early 1900s	Goodwin and Leineweber, 1997: 37
Road	Cane Haul Road, Wahikuli and Honokohau irrigation ditches, Crater Reservoir road	Plantation infrastructure essential to the operation of Pioneer Mill. Runs north-south horizontally across the slopes from the factory in Lahaina northwards toward Kaanapali and beyond	None given	Historic	Goodwin and Leineweber, 1997: 38
Road	Wahikuli Reservoir Road	Plantation infrastructure essential to the operation of Pioneer Mill. Runs east-west uphill to the reservoir and beyond	None given	Historic	Goodwin and Leineweber, 1997: 38
Road	Wahikuli and Honokahau irrigation ditch roads	Plantation infrastructure essential to the operation of Pioneer Mill. Roads follow along side the ditches	None given	Historic	Goodwin and Leineweber, 1997: 38
Road	Crater Reservoir	Plantation infrastructure essential to the operation of Pioneer Mill. Circles the Crater Reservoir	None given	Historic	Goodwin and Leineweber, 1997: 38

Road	Kahoma Pump Road and Civic Center Haul Road	Plantation infrastructure essential to the operation of Pioneer Mill. Smaller roads used for hauling cut cane from the individual fields downhill or across slope to the main roads	None given	Historic	Goodwin and Leineweber, 1997: 38
Ditch 1	Honokohau Ditch	Plantation infrastructure essential to the operation of Pioneer Mill. Honokohau ditch flume and inverted siphon pipe run across Hahakea gulch	None given	Historic; originally constructed between 1912 and 1914, new Honokohau ditch built 1912-1914; relined with concrete between 1923 and 1928	Goodwin and Leineweber, 1997: 39-40
Ditch 2	Wahikuli Ditch	Plantation infrastructure essential to the operation of Pioneer Mill. Carries water from the reservoir and Crater Lake into the cane fields, recharged by the K pump	None Given	Historic (presumably)	Goodwin and Leineweber, 1997: 40
Bridges 1, 2, 3, and 4	Honokohau Ditch Bridges	Plantation infrastructure essential to the operation of Pioneer Mill. Small bridges built at various intervals along the ditch; adjacent to bridge #2 is the remnant of a smaller wooden foot bridge; second small wooden footbridge located between Bridge 3 and the flume	None given	Historic; Bridges 1, 2, and 3 built c. 1930.	Goodwin and Leineweber, 1997: 39-40
Bridge 5	Wahikuli Ditch Bridge	Plantation infrastructure essential to the operation of Pioneer Mill. Further northward and down slope is a concrete bridge across the ditch	spans less than 10 ft	Historic (presumably)	Goodwin and Leineweber, 1997: 40
Airstrip	Airstrip southwest of Crater Reservoir	Plantation infrastructure essential to the operation of Pioneer Mill. Located on the southwest side of Crater Reservoir. Serve as small facility for crop dusting planes	Not Given	Historic; constructed after 1928	Goodwin and Leineweber, 1997: 40
Railroad	Pioneer Sugar Train Railroad	Plantation infrastructure essential to the operation of Pioneer Mill. From the old Pioneer sugar train system; parallel with the main coastal highway	Not Given	Historically constructed; today, one of the old trains has been converted into a tourist attraction.	Goodwin and Leineweber, 1997: 40
Feature 1	Domestic Debris	Re-deposition of trash applied to plantation road beds. Large scatter of historic debris, visible primarily in the dirt roadway below the west side of Wahikuli Reservoir	85 paces northeast/ southwest x 50 paces northwest/ southeast	Historic; 1890-1940	Goodwin and Leineweber, 1997: 45-46

Feature 2	Domestic Trash scatter	Re-deposition of trash applied to plantation road beds. Cinder borrow pit located on the north side of Pu`u Laina/Crater Lake	Not Given	Historic	Goodwin and Leineweber, 1997: 46-47
Feature 3	Dump Site	Small abandoned Lahaina municipal dump site along the edge of a road on the southwestern portion of Crater Reservoir.	Not Given	Historic	Goodwin and Leineweber, 1997: 47
Feature 4	Dump Site	Some crater-like depressions were used as a large Lahaina municipal dump on the north/northwest side of the old airplane runway (on the southwestern side of Crater Lake)	Not Given	Historic to Modern; Lahaina stopped using this area as its dump site in the 1960s- 1970s	Goodwin and Leineweber, 1997: 47
Feature 5	Domestic Trash scatter	Re-deposition of trash applied to plantation road beds. Along one of the plantation roads, located at the intersection of two roads at the western end of Crater Lake.	Not Given	Historic to Modern	Goodwin and Leineweber, 1997: 48
Feature 6	Domestic Trash scatter	Re-deposition of trash applied to plantation road beds. Located in the road around the Wahikuli temporary reservoir.	Not Given	Historic to Modern	Goodwin and Leineweber, 1997: 48
Feature 1 (SCS)	Bridge	Cement bridge that crosses Honokohau Ditch near the center of Road B	10 m x 3.5 m	Historic (inscribed with February 12, 1930)	Shefcheck and Dega, 2008: 25
Feature 2 (SCS)	Clearing Mound	Large, ramped clearing mound. Lies within the Road B corridor	32.3 m x 15 m x 3 m	Historic	Shefcheck and Dega, 2008: 25
Feature 3 (SCS)	Culvert	Basalt cobble and cement mortar culvert through the existing dirt road along the Road A corridor.	7-10 courses high; 5 m x 3.35 m. 2.1 m	Historic	Shefcheck and Dega, 2008: 25
Feature 4 (SCS)	Reservoir	Newly identified Feature; Large Reservoir dug into ground. Shaped like a Figure-8, pulls and holds water from Kahoma Gulch and feeds all the fields on the Kahoma ridge flat	91 x 76 m	Historic	Current Study
Feature 5 (SCS)	Formal Auwai	Newly identified Feature; Running off of Feature 4 (SCS). Constructed in three ways: concrete, stone and mortar, and earth furrow	340 x 2 m	Historic (inscribed with "A.O. Christe 11/8/36" or "A.O. Christe 11/8/56")	Current Study
Feature 6 (SCS)	Reservoir	Newly identified Feature; Large Reservoir dug into ground.	75 m in diameter	Historic	Current Study
Feature 7 (SCS)	Earth Furrow or Ditch	Newly identified Feature; flows <i>makai</i> from Feature 6 (SCS) outside of existing corridor	20 + x 2 m	Historic	Current Study
Feature 8 (SCS)	Earth Furrow or Ditch	Newly identified feature; follows the <i>makai</i> side of Road C, it continues outside of existing corridor to north and to south	762 x 2 m	Historic	Current Study

excavation was conducted during this survey, as no features were identified that necessitated subsurface exploration. Rather, the features identified during this work were fully described and either documented photographically, mapped in plan view, or both. GPS coordinates were acquired for each newly identified feature.

RESULTS

PEDESTRIAN SURVEY

A 100-percent pedestrian survey of the project area revealed the presence of five newly identified features to be added to site complex 50-50-03-4420. These five archaeological features, all related to historic agriculture, were located within the identified easements. Each of these features is purely historic in construction.

FEATURE DESCRIPTIONS

Inventory Survey led to the identification and documentation of five Historic-period features are associated functionally, temporally, and geographically with a previously established site, 50-50-03-4420, which also contains historic-period infrastructure. The current features consist of two reservoirs (Features 4 and 7), a concrete-lined *auwai* (Feature 5), and two earthen furrows or ditches occurring along two of the existing dirt roads (Features 7 and 8) (see Figure 2). The feature numbers are a continuation of those associated with Site -4420 and recently recorded by SCS (a cement bridge and associated stone-and-cement mortar ditch, Feature 1; an agricultural clearing mound, Feature 2; and a stone-and-cement mortared culvert, Feature 3). The five features discussed herein have been designated as Features 4, 5, 6, 7, and 8; part of Site -4420 (see Table 2).

Feature 4

Feature 4, large historic reservoir, is dug into the ground and in the shape of a figure-eight. This reservoir pulls and holds water from Kahoma Gulch and presumably feeds all of the fields on the Kahoma Ridge Flat. The reservoir stretches approximately 91 m by 76 m. The feature remains in fair to good condition (Figure 8). The GPS points for this feature are E 0745381 and N 2313185; the feature is located 582 m amsl.

Feature 5

Feature 5, a concrete-lined *auwai*, is a historic ditch running off of Feature 4, a reservoir. In some areas it is constructed of poured in place concrete (Figure 9), other areas are stone and mortar (Figure 10); still other areas are just an earthen furrow (Figure 11). One section of the



Figure 8: Overview Photograph of Feature 4, Reservoir. View to Southeast.



Figure 9: Photograph of Feature 5, Formal *Auwai*. Example of Concrete Construction. View to North.



Figure 10: Photograph of Feature 5, Formal *Auwai*. Example of Stone and Mortar Construction.



Figure 11: Photograph of Feature 5, Formal *Auwai*. Example of Earth Furrow. View to North.



Figure 12: Photograph of Inscription on Concrete Portion of Feature 5, Formal *Auwai*, Depicting Date Constructed.

concrete fill has the inscription, “A.O. CHRIST 11/8/36 [or 56]” (Figure 12). The feature runs the length of approximately 340 m and has the width of 2 m. The *auwai* varies in alignment with its axis running north, south, and west. The feature is in poor to good condition. The GPS points for this feature are E 0745381 and N 2313185; the feature is located at 582 m amsl.

Feature 6

Feature 6, a large historic reservoir, is dug into the ground. The reservoir is approximately circular with a diameter of 75 m. The feature is in fair condition. The GPS points for the feature are E 0744418 and N 2313528; the feature is located at 417 m amsl.

Feature 7

Feature 7, a historic *auwai*, is an earth furrow ditch which flows *makai* from Feature 6, reservoir, outside the existing survey corridor (Figure 13). The feature extends in length over 20 m and is 2 m in width. The integrity of the feature is poor to fair. The GPS points for the feature are E 0744345 and N 2313454; the feature is located at 417 m amsl.



Figure 13: Overview Photograph of Feature 7, Furrow or Ditch. View to East.

Feature 8

Feature 8, a historic *auwai*, is an earth furrow which follows the *makai* side of Easement C (Figure 14) and continues outside of the existing easement both to the north and the south. The feature runs 762 m along a north/south axis, and is 2 m wide. The integrity of the feature is poor. The GPS points for the feature are E 0743711 and N 2313063; the feature is located at 290 m amsl.

DISCUSSION AND CONCLUSION

Five previously undocumented features were identified during this survey, all of which pertain directly to Pioneer Mill Company commercial sugar cultivation. The current features are similar in age, form, function, and location to the previously recorded Site 50-50-03-4420 historic agricultural complex (Shefcheck and Dega 2008), and thus the features reported here are designated as Features 4 through 8.



Figure 14: Photograph of Feature 8, Earth Furrow Ditch. View to South.

Features 4 and 6 are reservoir features; Features 5 is a formal *auwai*, and Features 7 and 8 are earth furrows or ditches. Given the extensive use of this land for sugar cane plantation work during the historic era coupled with the actual date embossed onto Feature 4, a specific diagnostic dating period can be reported. We can rightly deduce the construction and utilization of these features to belong to the historic era.

Each of these features are forms of agricultural and irrigation features, constructed of earth, basalt stone, concrete, and/or mortar. The cement component of Feature 4 requires no guess work or hazy assumptions, aside from deciphering between which decades in the historic sugarcane agricultural period (1936 versus 1956). Typologically, these features are not unique to the project area.

All five of the newly identified features discussed herein are historic, and relate to the operations of Pioneer Mill Company. As such, they have been registered under the previously-assigned state site number 50-50-03-4420. This number was assigned collectively to all Historic commercial sugar features in Goodwin and Leineweber (1997).

SITE SIGNIFICANCE ASSESSMENTS AND RECOMMENDATIONS

These sites have been evaluated for significance according to the criteria established for the Hawai'i State Register of Historic Places. The five criteria are presented below:

Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history

Criterion B: Site is associated with the lives of persons significant to our past

Criterion C: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction

Criterion D: Site has yielded or has the potential to yield information important in prehistory or history

Criterion E: Site has cultural significance to an ethnic group; examples include religious structures, burials, major traditional trails, and traditional cultural places

Features 4 through 8 have been recorded as components of state site number 50-50-03-4420, and assessed as significant under Criterion D. No further work is recommended for Features 4 through 8. Written, photographic, and cartographic documentation of these features has been conducted for each, and, as these feature types are not unique to the project area, nor do they represent extraordinary examples of feature type, no further archaeological mitigation measures are recommended for these features.

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APPENDIX
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LCA	Claimant	Island	District	Ahupuaa	Ili	Awarded	Price (\$)	
00477F	Keliipio, P.	Maui	Lahaina, Kaanapali	Wahikuli, Puunoa, Honokohau	Lipuu 4	1	11	Add
01551	Keliipio, Phillip	Maui	Lahaina	Wahikuli	Mala	0	11	Add
01815	Keaweaeheulu	Maui	Lahaina	Paunau, Kuholilea, Wahikuli	Kahou	0	11	Add
06472	Kekoko	Maui	Lahaina	Wahikuli		0	11	Add
06473	Kaahaukauna	Maui	Lahaina	Wahikuli		0	11	Add
06474	Kaihuhauna	Maui	Lahaina	Wahikuli		0	11	Add
06475	Koohana	Maui	Lahaina	Wahikuli		0	11	Add
06476	Keliikuli	Maui	Lahaina, Kaanapali	Wahikuli, Honokowai	Papaolena	1	11	Add
06477	Pakeaniani	Maui	Lahaina	Wahikuli		0	11	Add
07724	Poholopu/Poholapu	Maui	Lahaina	Kuholilea, Wahikuli	Kahoma	1	11	Add
07759	Kumaewa	Maui	Lahaina	Wahikuli, Hahakea		0	11	Add
07762*M	Kaninaualii Kaleoku	Maui	Lahaina	Wahikuli		1	11	Add



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Mahele Database Search

Your Search returned (23) claim numbers: You have (0) document(s) in your cart.

Showing Results from 1 to 20 (Results page 1 of 2)

LCA	Claimant	Island	District	1 2	Awarded Price (\$)		
08452*M	Keohokalole, A. wahine	Maui	Kula, Lahaina, Hana	Ahupuaa Ili Aapueo, Alae 3, Kamehame, Kealahou 3 & 4, Koheo 2, Kukuiaeo, Paeohi, Hana, Kuhua, Kooka	1	11	Add
08849	Kukaeleiki Coles, wahine	Maui	Lahaina	Kuhuaiki	1	11	Add
10789*M	Pilanaia	Maui	Hamakualoa, Lahaina	Kealia, Kuhuaniui, Kuhuaiki	1	11	Add
10712	Pahoa, wahine	Maui	Lahaina	Kuhua	0	11	Add
11146	Kialoa (for T. Keaweiki)	Maui	Lahaina	Kuhua, Aki, Waikama	1	11	Add
11148	Hale	Maui	Lahaina	Kuhua	1	11	Add
11150	Keone, wahine	Maui	Lahaina	Kuhua	1	11	Add
00143	Read, Robert	Maui	Lahaina	Kuhua	1	11	Add
00312	Keaweiki, Timoteo	Maui	Lahaina	Aki, Kuhua, Waiokama, Uhao, Moalii, Akiaiole	1	11	Add
00313	Imiwale	Maui	Lahaina	Kuhua	0	11	Add
00350	Kamaikaaloo	Maui	Lahaina	Kuhua	1	11	Add
00467	Imiwale	Maui	Lahaina	Kuhua	0	11	Add
00469	Kalli	Maui	Lahaina	Kuhua	1	11	Add
00485	Alaala	Maui	Lahaina	Kuhua	0	11	Add
00585*M	Lewis, Isaac	Maui	Lahaina	Kuhua	1	11	Add

<https://www.waihona.com/getResultsMahele.asp?island=Maui&claimNumber=&claimant...> 7/11/2008

00638	Imiwale	Maui	Lahaina	Kuhua	Halilio	1	11	<input type="button" value="Add"/>
00972	Liwai, T.H.	Maui	Lahaina	Kuhua	Kulaia	0	11	<input type="button" value="Add"/>
01913	Umalele, Joel	Maui	Kaanapali, Lahaina	Honokowai, Puako, Kuhua		0	11	<input type="button" value="Add"/>
06247*M	Kanaulu	Maui	Lahaina	Paunau, Kuhua		0	11	<input type="button" value="Add"/>
06781	Hihio ma	Maui	Lahaina	Kuhua		1	11	<input type="button" value="Add"/>

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Showing Results from 21 to 23 (Results page 2 of 2)

LCA	Claimant	Island	District	Ahupuaa Ili	Awarded	Price (\$)	
					1 2		
07582	Kipa, Eseta	Maui	Lahaina	Kuhua	1	11	<input type="button" value="Add"/>
07682	Kuluwaimakalani	Maui	Lahaina	Kuhua	1	11	<input type="button" value="Add"/>
07716*M	Keelikolani, Ruta	Maui	Kahikinui, Lahaina, Honuaula	Auwahi, Kuhua, Kuia, Kanahena	1	11	<input type="button" value="Add"/>
					1 2		



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Mahele Database Search

Your Search returned (4) claim numbers: You have (0) document(s) in your cart.

Showing Results from 1 to 4 (Results page 1 of 1)

LCA	Claimant	Island	District	Ahupuaa	Ili	Awarded Price (\$)		
10279	Mamaki	Maui	Lahaina	Puuiki		0	11	Add
00468	Mahana	Maui	Lahaina	Moalii, Puuiki		1	11	Add
00474	Kalei, wahine	Maui	Lahaina	Puuiki		1	11	Add
				Waihee, Paunau, Aki, Kelaweia, Moalii, Kalua, Haiku, Makapuu, Kawela, Onouli, Kaumanu, Kahalehili, Kaeleku, Honokolani, Kawaipapa, Niumalu, Palemo, Pakakia, Kahuakamalii, Ihuula, Oloewa, Papalauhau, Mokae, Puekahi, Puuiki, Kapohoe, Pukuilua, Kaou, Hal				
07713*M	Kamamalu, Victoria	Maui	Lahaina, Wailuku, Hamakualo			1	11	Add

<https://www.waihona.com/getResultsMahele.asp?island=Maui&claimNumber=&claimant...> 7/11/2008

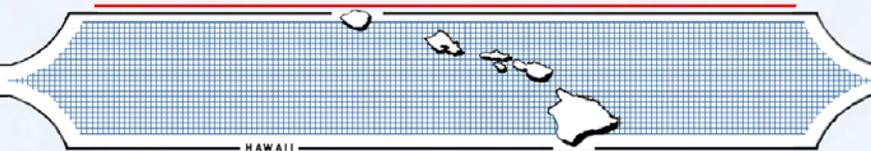
Appendix C:
Cultural Impact Assessment Report

**A CULTURAL IMPACT ASSESSMENT OF TWO
LAND PARCELS IN THE KAHOMA PROJECT
IN THE LANDS OF WAHIKULI AND AKI,
LAHAINA DISTRICT,
ISLAND OF MAUI, HAWAII
[TMK (2) 4-5-021: 002, 006, & 024; 4-5-022:002, 004 & 006]**

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Revised August 2008

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INTRODUCTION

Scientific Consultant Services (SCS), Inc. has been contracted by Kahoma Land LLC, to conduct a Cultural Impact Assessment (CIA) on two land parcels FOR THE Kahoma Project located in Lands of Wahikuli and Aki, Lahaina District, Maui [TMK (2) 4-5-021: 002, 006, & 024; 4-5-022:002, 004 & 006] (Figure 1). According to exhibits submitted by Kahoma Land LLC, their plans propose the construction of two roads allowing access a proposed 55 lot agricultural subdivision.

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua`a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778” (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua`a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, “native Hawaiian rights...may extend beyond the *ahupua`a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawai`i (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that:

...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii’s culture, and traditional and customary rights...[H.B. NO. 2895].

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the “cultural practices of the community and State” as part of the HRS Chapter 343 environmental review process (2001). Its purpose has broadened, “to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other

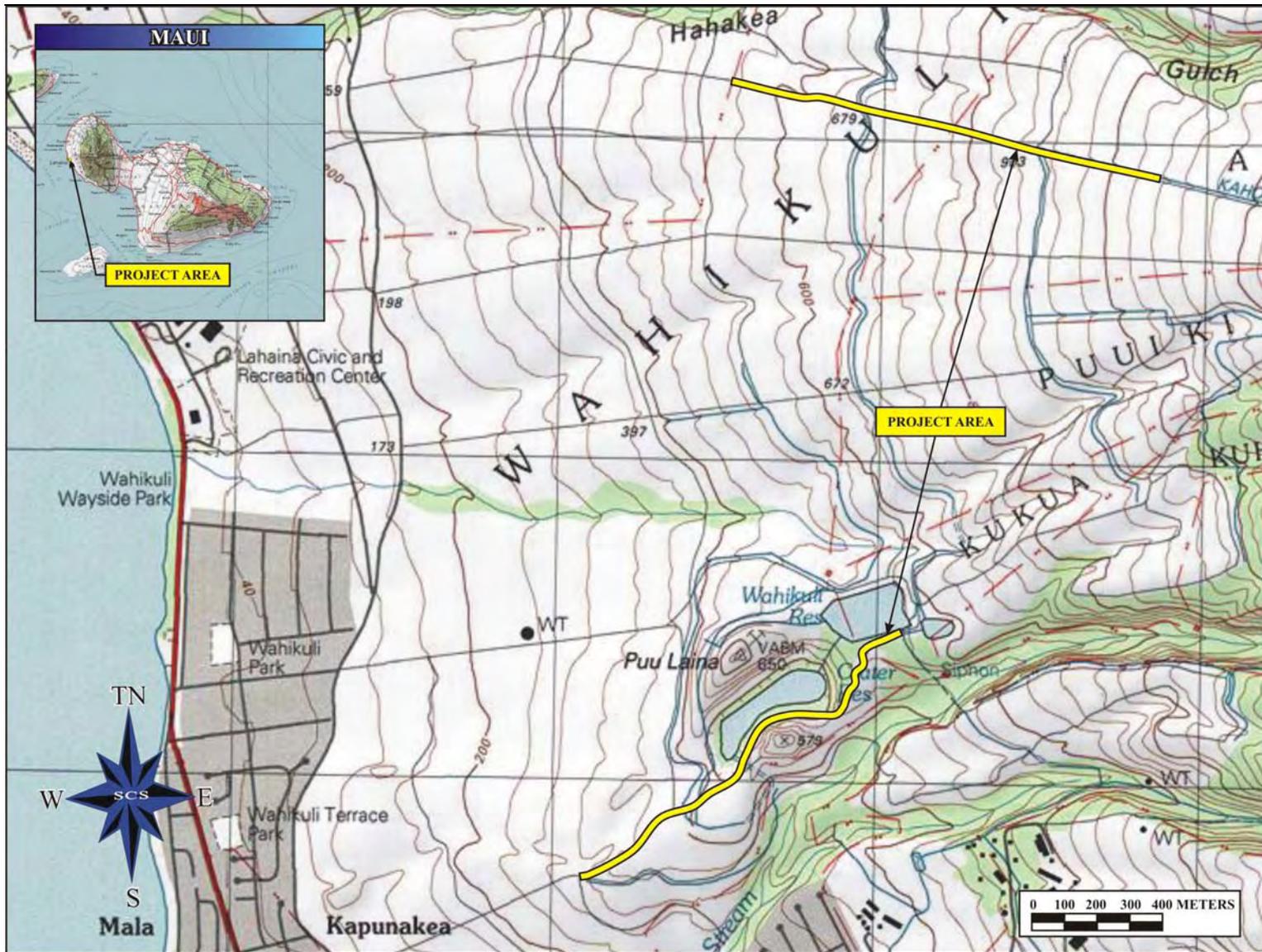


Figure 1: USGS Paia Quadrangle Showing Project Area Location.

ethnic groups. Cultural resources include a broad range of often overlapping categories, including places behaviors, values, beliefs, objects, records, stories, etc. (H.B. 2895, Act 40, 2000).

Act 50 also amended the definition of ‘significant effect’ to be re-defined as “the sum of effects on the quality of the environment including actions that are...contrary to the State’s environmental policies...or adversely affect the economic welfare, social welfare, or cultural practices of the community and State” (H.B. 2895, Act 50, 2000). Thus, not only are native Hawaiian cultural resources evaluated, but those of other ethnic groups as well.

Act 50 requires that an assessment of cultural practices be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, “the broad geographical area, e.g. district or *ahupua`a*” (OEQC 1997). It was decided that the process should identify ‘anthropological’ cultural practices, rather than ‘social’ cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

According to Article XII, Section 7, of the Constitution of the State of Hawai`i:

The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religions purposes and possessed by ahupua`a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

Additionally, Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997) specifies what is meant by cultural practices and resources:

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, and stories occurring within the project area and its vicinity (H.B. 2895, Act 50, 2000).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the “Cultural Impact Assessment Methodology”, the OEQC states: that “...information may be obtained through scoping, community meetings, ethnographic interviews and oral histories...” (1997).

This report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The assessment concerning cultural impacts should address, but not be limited to, the following matters:

- (1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained;
- (2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;
- (3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;
- (4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or being interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;
- (5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;
- (6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;
- (7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

- (8) an explanation of confidential information that has been withheld from public disclosure in the assessment;
- (9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;
- (10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices, or beliefs; the potential of the proposed action to isolate cultural resources, practices, or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;
- (11) the inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts; and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information. Often people are recommended for their expertise or can be located by visiting the area. Organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are invited to contribute their input and suggest further avenues of inquiry, as well as specific individuals to interview.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the

information available for this study. When telephone interviews occur, a summary of the information is often sent for correction and approval, or dictated by the informant and then incorporated into the document. Key topics discussed with the interviewees vary from project to project, but usually include: personal association to the *ahupua`a*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous activities identified while in the project vicinity.

In this case, letters were sent to organizations whose jurisdiction included knowledge of the area. Consultation was sought from Kai Markell, Office of Hawaiian Affairs, O`ahu; Thelma Shimaoka, Maui Office of Hawaiian Affairs, Community Resource Coordinator; the Cultural Resources Commission of the Maui Planning Department; Hawaiian Civic Club, Lahaina Branch; Native Hawaiian Preservation Council; Nā Kupuna O Maui; and Hinano Rodrigues, Cultural Historian with the State Historic Preservation Division, Maui Office (SHPD) (Appendix A). In addition, a previous report prepared for West Maui Land Company and containing five interviews of individuals with knowledge of the Kahoma vicinity, was obtained for study (Tau`a and Kapahulehua 2005; Appendix B). Based on the responses from the organizations and research, an assessment of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

PROJECT AREA AND VICINITY

The project area is located *mauka* and slightly north of Lahaina Town and north of Lahainaluna Road. The entire area was previously in sugar cane. This right-of-way will provide access along existing cane haul roads for a future agricultural subdivision.

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. Pu`u Kukui, forming the west end of the island (1,215m above mean sea level), is composed of large, heavily eroded amphitheater valleys that contain well-developed permanent stream systems that watered fertile agricultural lands extending to the coast. The deep valleys of West Maui and their associated coastal regions have been witness to many battles in ancient times and were coveted productive landscapes.

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kalaiha`ōhia, during the time of the *Ali`i* Kaka`alaneo (Beckwith 1940:383; Fornander places Kaka`alaneo at the end of the 15th century or

the beginning of the 16th century [Fornander 1919-20, Vol. 6:248]). Land was considered the property of the king or *ali`i `ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i `ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili` āina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*) which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were therefore, able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili` āina*, or *`ili*, were smaller land divisions and were next to importance to the *ahupua`a*. They were administered by the chief who controlled the *ahupua`a* in which it was located (*ibid*: 33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa`āina* residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the lands of Wahikuli, meaning literally “noisy place” (Pukui *et al.* 1974:218), and Aki, the meaning of which is uncertain (*ibid.*:8).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinarum*) and *mai`a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were cultivated. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Agricultural development on Maui was likely to have begun early in what is known as the Expansion Period (A.D. 1200-1400, Kirch 1985).

WAHI PANA (LEGENDARY PLACES)

Scattered amongst the agricultural and habitation sites were other places of cultural significance to the *kama`āina* of the district. The majority of these sites are found in the coastal region in and around Lahaina, in the vicinity of the project areas.

Previous studies have recorded at least eight *heiau* in the vicinity of the ancient village of Lāhainā (old pronunciation of Lahaina), fishing *ko`a* (shrine) were present along the beach and on the slopes above the bays, and petroglyphs were inscribed in many places whose meanings have yet to be fully understood (Thrum 1908, 1916, 1917; Walker 1930:103). Pearl shell was gathered from Makaiwa Beach for the eyes of the *ki`i* (image, picture) and battles were fought along the coast (Sterling 1998:45). A portion of the paved trail built by Kihapī`ilani, son of the great chief Pī`ilani, was identified along the Kā`anapali coast (Sterling 1998).

To the north was Pu`u Keka`a, made famous by being the birthplace of the sons of chiefs and long associated with ghosts, strange occurrences, and the skeletons of defeated invaders (Fornander 1918–19, Vol. 5:542). In Fornander, S. Kaha stated:

Concerning the great amount of human bones at this place. On account of the great number of people at this place there are numerous skeletons [this was the vicinity of several bloody battles], as if thousands of people died there; it is there that the Lahainaluna 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 Lahaina in the dark. When they came to Kekaa 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, Kekaa is ghostly! Kekaa is ghostly!” Certainly this is a strange thing for this hill to do [*ibid*].

It was also believed that Pu`u Keka`a was a *leina a ka`uhane*, or soul’s leap similar to O`ahu’s Ka`ena Point. Naha says:

It is said that when a person dies his spirit journeys to Kekaa; if he has a friend there who had previously died, that one would drive it away when the spirit is nearing Kekaa. Sometimes the spirit of a person would return and re-enter the body, and cause it to come to life again; that is what happened to those who are living again. Many souls came to this place Kekaa. It is called the Leina-a-ka-uhane, the leaping place of the soul... [*ibid*].

According to legend, the lands surrounding Pu`u Keka`a were once areas of intense cultivation and the capital and home of the Maui chief, Kaka`alaneo, when he ruled West Maui. Kaka`alaneo lived on the *pu`u* with his wife, a chiefess from Moloka`i.

Kekaa was the capitol 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 [Kakaalaneo] 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 [Fornander 5:540–541].

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 the hill:

At Kekaa lived Maui and Moemoe... The great desire of one [Moemoe] was to sleep. The other [Maui] desired to travel. When Moemoe slept, Maui was traveling, each according to his taste... [Moemoe] made up his mind... to search for his friend, Maui. A road on the northeast side of Kekaa was named after one of these men; it is called “Ke alanui kikeekee a Maui”-the zig zag pathway of Maui” [Fornander 1918-19, Vol. 5:540–544].

It is recorded that Pu`ū Keka`a was the burial place for Kekaulike's oldest son, Kauhi`aimoku-a-kama who was defeated by his brother and Uncle at the Battle of Koko-o-na-moku further south at Makaiwa Beach (Sterling 1998). 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.*).

LĀHAINĀ DISTRICT SETTLEMENT PATTERNS

Not much information was identified as referring specifically to the uplands, but traditionally, this area was used for bird catching, dry land gardens, arboriculture, timber, and the gathering of other *mauka* resources. The gulches, with their perennial streams, were ideal for *kalo lo`i*.

In Hawai`i, much of the coastal lands were preferred for chiefly residence. Easily accessible resources such as offshore and onshore fish ponds, the sea with its fishing and surfing—known as the sports of kings, and some of the most extensive and fertile wet taro lands were located in the area (Kirch and Sahlins, 1992 Vol. 1:19). Inland resources necessary for subsistence, could easily be brought to the *ali`i* residences on the coast from nearby inland plantations. The majority of farming was situated in the lower portions of stream valleys where

there were broader alluvial flat lands or on bends in the streams where alluvial terraces could be modified to take advantage of the stream flow. Often, 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 added advantage of a calm roadstead and close proximity to Lāna`i, and Moloka`i (Handy and Handy 1972).

Trails extended from the coast to the mountains, linking the two for both economic and social reasons. A trail known as the *alanui* or “King’s trail” built by Kihapī`ilani, extended along the coast passing through all the major communities between Lāhainā and Mākena. After the conquest of Maui by Kamehameha I, Lāhainā became the capitol of the Hawaiian Kingdom until it moved to Honolulu in 1855.

HISTORIC PERIOD

From early times, Lāhainā was favored by the *ali`i*. Kahekili, who became ruler of Maui in the 1700s, maintained his home and royal court here until his death in 1794. After laying waste to Lāhainā in the process of subjugating Maui, Kamehameha I proceeded to O`ahu, where he finally united all the islands (except Kaua`i) under his rule. He later returned and established residence and his seat of government in Lāhainā, constructing the first brick house in the town a short way north of the project area. During Kamehameha’s time, Lāhainā thrived as a center for the lucrative sandalwood trade. His son, Liholiho, and his wife resided in Lāhainā until they sailed to England in 1823 never to return alive to their kingdom. Kamehameha III (Kauikeaouli) built a new royal residence, a complex of fine, thatched-roofed houses, for his entourage called Pākalā. In addition, he began to construct a palace of coral rock, two stories high, known as Hale Piula, close to the sea.

Whaling ships began coming to Hawai`i by the hundreds in the 1820s. The peak year of 1859 brought 549 whaling ships to the roadstead. Lāhainā became saturated with sailors, whalers, deserters, and other unsavory types as well as western businessmen. Soon missionaries followed to set straight, both sailor and Hawaiian, and to impose their foreign standards on the population, whether they wanted it or not. The golden age of whaling was between 1843 and 1860, when Lāhainā underwent a building frenzy initiated by those hoping to buy and sell and make their fortune. Kamehameha III built a private residential complex on the Moku`ula, a tiny island located in a freshwater fishpond near the project area. The death of his sister, Nāhi`ena`ena, affected the king deeply. He had her body and that of their mother brought to Moku`ula where they were laid to rest in a specially constructed mausoleum and where he was to reside for the next eight years. In 1845, the court moved to O`ahu, as the port of Honolulu had become the commercial center of the kingdom.

Ethnographic and historic literature, often our only link to the past, reveals that the land around Lāhainā was rich in agricultural areas irrigated by aqueducts originating in well-watered valleys with permanent occupation predominately on the coast. Handy and Handy have stated 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" (1972:593). Crops cultivated included coconut, breadfruit, paper mulberry, banana, taro, sweet potato, sugar cane, and gourds.

Menzies, the naturalist and surgeon on board HMS Discovery during Captain George Vancouver's 1793 tour, made these observations of upland horticulture and Lāhainā 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...[Menzies 1920:105].

...to see the village of Lahaina, 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 [Menzies 1920:112].

Little had changed twenty-six years later when J. Arago visited Hawai'i with Captain Louis de Freycinet in 1819. He recorded:

The environs of Lahaina 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...[Arago cited in Handy and Handy 1972:493].

Rev. C.S. Stewart, a missionary in 1823 assigned to the Lāhainā station, also commented on the attractiveness of the environs:

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 [Taylor 1928:42].

...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 [*ibid.*:43].

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame`eleihiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I:145). The Great Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka`āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, `okipū (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16). There were 12 LCA claims with only four awarded in the lands in Wahikuli Ahupua`a. Aki Ahupua`a, awarded to Lunalilo, received 59 LCA claims. No LCAs were identified in the project areas.

Sugar was to be the economic future of Hawai`i and as early as 1828, two Chinese brothers, Ahung and Atai, of Honolulu's Hungtai Company arrived in Wailuku to explore the

possibility of setting up one of its earliest sugar mills. Atai soon created a plant that processed sugar cane cultivated by Hawaiians, named the Hungtai Sugar Works (Dorrance and Morgan 2000:15–16). Ahung later joined Kamehameha III’s sugar producing enterprise, although by 1844 both operations had ceased. The Wailuku Sugar Company was the next to follow, in 1862, and would expand sugar production over the next 126 years of its existence—4,450 acres by 1939. The Pioneer Mill Company was organized in 1863 by James Campbell, Henry Turton and Benjamin Pitman on land belonging to Pitman that had been previously under the jurisdiction of the Lahaina Sugar Company (Dorrance and Morgan 2000). Starting with 126 acres under cultivation, their an annual production was 500 tons of sugar. By 1872, the mill was yielding 1,000 tons a year and growing. In 1885, the Pioneer Mill Company was sold to H. Hackfield & Company, predecessor of Amfac/JMB-Hawai`i Inc., who remained the owners until it closed in 1999 (*ibid.*). The project area corridors were cane haul roads allowing access to the cane fields.

SUMMARY

The “level of effort undertaken” (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be a “good faith effort”. However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort would undoubtedly mean an entirely different level of research activity.

Historical and cultural source materials that were extensively used and can be found listed in the References Cited portion of the report. Such scholars as Beckwith, Chinen, Kame`eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku`i and Elbert, Thrum, and Walker have contributed, and continue to contribute, to our knowledge and understanding of Hawai`i, past and present. The works of these, and other authors, were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina 2007 Database.

CIA INQUIRY RESPONSE

As suggested in the “Guidelines for Accessing Cultural Impacts” (OEQC 1997), CIAs incorporating personal interviews should include ethnographic and oral history interview

procedures, circumstances attending the interviews, as well as the results of the consultation. It is also permissible to include organizations with individuals familiar with cultural practices and features associated with the project area.

Letters were sent to organizations whose jurisdiction included knowledge of the area. Consultation was sought from Kai Markell, Office of Hawaiian Affairs, O`ahu; Thelma Shimaoka, Maui Office of Hawaiian Affairs, Community Resource Coordinator; the Cultural Resources Commission of the Maui Planning Department; Hawaiian Civic Club, Lahaina Branch; Native Hawaiian Preservation Council; Nā Kupuna O Maui; and Hinano Rodrigues Cultural Historian with the State Historic Preservation Division, Maui Office (SHPD). None of these organizations responded with information concerning the potential for cultural resources to occur in the access corridors, or with additional suggestions for further contacts. Therefore, no interviews were conducted for this property, as there were no interviewees identified.

However, research showed that five interviews had been previously conducted for West Maui Land Company, Inc. and included in a report for a different project in the land of Kahoma. The interviewees were Harold Kaniho, Iwalani Shim, Joseph Lai, Keola Squeira, and Earl Ray Kukahiko and all were interviewed by Keli`i Tau`a and Kimokeo Kapahulehua in 2005 (Appendix B).

All were connected to Kahoma in some way and the information they gave reflected a very different Maui than what we see today. Most of the interviewees had been born in the 1930s when there were still taro patches in the valley, as well as fruit trees, and *lo`i* containing goldfish and *o`opu*. Students from Lahainaluna School would go down to gather seeds for cattle food and to tend some of the taro patches. Families would go together up into the valley where the kids could swim in Kahoma River, or gather *pepeiao*, *`opae*, and *hi`iwai*.

Mom-and-pop stores were selling crack seed and boiled peanuts in Lahaina and before the breakwater and harbor were built, they could bring canoes right up on the beach and leave them there. Many people lived in the old plantation camps, with such names as Ah Mau Camp, Mill Camp, and Haole Camp. In those days, fishing was as an important activity as any, and the bays of Honolua, Punalau and Honokahau were popular destinations.

The recorded information was extremely interesting and illustrated how really close in time we are to the many traditional life-ways that was Hawai`i. Although, the river valleys, fishing, and Lahaina town were discussed, there was no mention of any cultural activity taking place in the project area, or there vicinity, other than sugar cane agriculture.

CULTURAL ASSESSMENT

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). The project areas were cane haul roads previously and have not been used for traditional cultural purposes within the recent past. Based on historical research and the lack of responses received from Office of Hawaiian Affairs, O`ahu; Maui Office of Hawaiian Affairs, Community Resource Coordinator; the Cultural Resources Commission of the Maui Planning Department; Hawaiian Civic Club, Lahaina Branch; Native Hawaiian Preservation Council; Nā Kupuna O Maui; and Cultural Historian with the State Historic Preservation Division, Maui Office (SHPD), and no mention in previous reports containing interviews in the vicinity, it is reasonable to conclude that, pursuant to Act 50, the exercise or Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities within the project parcels will not be affected and there will be no direct adverse effect upon cultural practices or beliefs.

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APPENDIX A

(Without exhibits enclosed with letters)

SCIENTIFIC CONSULTANT SERVICES, Inc.



711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Patty Nishiyama
Nā Kupuna O Maui
320 Kaeo Place
Lahaina, Hawaii 96761

January 17, 2008

Dear Ms. Nishiyama:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua'a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs... The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the construction of these two access roads. The assessment results are dependent on the response and contributions made by individuals and organizations such as yours.

Enclosed are maps showing the proposed project areas. Please contact me at our SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

Ph: 808-597-1182 SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS Fax: 808-597-1193

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SCIENTIFIC CONSULTANT SERVICES, Inc.



711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Hinano Rodrigues, Cultural Historian
DLNR Maui Office
130 Mahalani Street
Wailuku, HI 96791

January 17, 2008

Dear Hinano:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua'a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

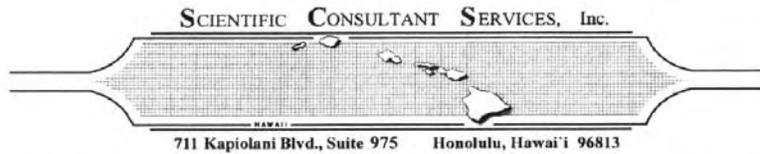
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



Kamika Kepa`a
Native Hawaiian Preservation Council
606 Kalo Place
Lahaina, HI 96761

January 17, 2008

Dear Mr. Kepa`a:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua`a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

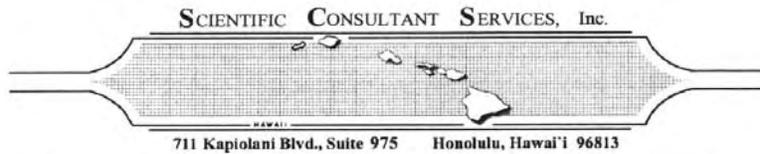
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



County of Maui
Department of Planning
Cultural Resources Commission
250 S. High Street
Wailuku, HI 96793

January 17, 2008

Dear Sir or Madam:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua'a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

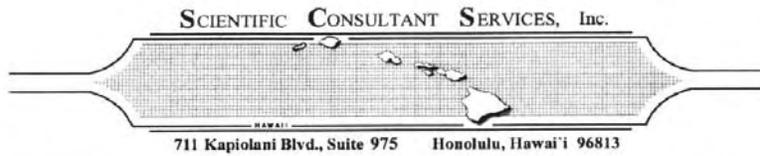
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



Thelma Shimaoka
c/o Office of Hawaiian Affairs
140 Hoohana St.
Suite 206
Kahului, HI 96732

January 17, 2008

Dear Ms. Shimaoka:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua`a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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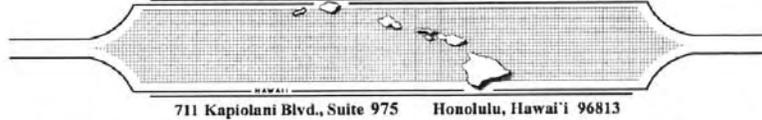
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.



Holouamoku Ralar
Hawaiian Civic Club, Lahaina Chapter
P.O. Box 10965
Lahaina, Hawai'i 96761

January 17, 2008

Dear Holouamoku:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua'a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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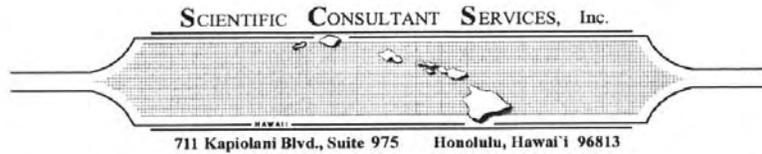
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

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Thelma Shimaoka
c/o Office of Hawaiian Affairs
140 Hoohana St.
Suite 206
Kahului, HI 96732

January 17, 2008

Dear Ms. Shimaoka:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua`a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

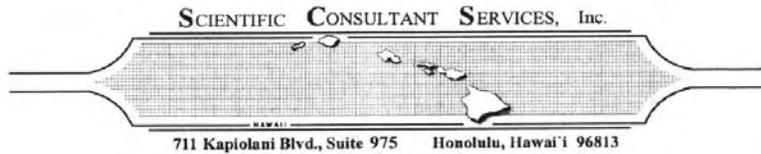
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Enclosed are maps showing the proposed project areas. Please contact me at our SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



Kai Markell
Director of Native Rights
C/o Office of Hawaiian Affairs
711 Kapi'olani Blvd, Suite 500
Honolulu, HI 96813

January 17, 2008.

Dear Mr. Markell:

Scientific Consultant Services, Inc. (SCS) has been contracted by West Maui Land Company, to conduct a Cultural Impact Assessment (CIA) on two proposed access road corridors, Lahaina, Ahupua'a, Lahaina District, Maui (TMK: 4-5-21:002, 006 & 024; 4-5-022:002, 004 & 006). Information provided by West Maui Land Company, proposes the construction of two roads giving access to Kahoma Land Subdivision. As you know, this involves assessing the probability of impacting cultural values and rights within the two corridors and the vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

APPENDIX B: KAHOMA FINAL REPORT

KAHOMA

(Thin or Hollow)

FINAL REPORT

TMK (2) 4-5-10: parcels 5 & 6 which consist of a 16.8-acre parcel. This Proposed Project includes twelve special needs units and sixty single family residential lots for Kahoma Employee Special Needs.

Prepared for:

WEST MAUI LAND COMPANY, INC.

33 Lono Ave, Suite 450

Kahului, Maui, Hawaii 96732

Contact Heidi Bigelow

Ph (808) 877-4202

Fax (808) 877-9409

Prepared by:

HANAPONO

2275 Apala Place

Haiku, Maui, Hawaii 96708

Keli'I Tau'a & Kimokeo Kapahulehua

Ph & Fax (808) 572-6162

Kimokeo Cell (808) 276-7219



INTERVIEW: Harold Kaniho
By Keli'i Tau'a and Kimokeo Kapahulehua
Oct 17, 2005



Interviewers = KT/KK and Consultant = C

KT – Harold, please give us your full name?

C – Harold Kale Kaniho & I am 72. Born in Lahaina on July 24, 1933 & attended the old Kamehameha III when it was 2 story building from kindergarten to 8th grade. In those days, they had schools @ Honokawai, Pukoli'i??, then after they merged the schools then they came to Lahaina Front Street. Some had only K to 5th. After, students went Lahainaluna.

KT – Borders @ Labainaluna have a lot of personal experiences in Kahoma.

C – I've been in there. There's lots of foliage, kukui trees, etc

KT – Did you see taro patches?

C – Yea. That-I saw. I think those belonged to the Keahi family from Mala. Now one of the relatives live up there by that place. The Neizman girl married to that guy named Hans. He raises goats over there. Up there was a camp called Crater Camp. There was a little Crater up there and that's why they called it Crater Camp. We use to p/u the kids to come to school and to play sports.

KT – You folks played against the camps?

C – Yeah. Some team names were Launiupoko, Lahaina Pump, etc.

KT – You worked for Pioneer Mill. Can you remember when (it) Kahoma overflowed?

C – I know when it did it flooded out Mala Camp. The water jumped the river bank. Up there had good kind awa.

KK – What was your job @ Pioneer Mill?

C – Everything. I worked for the co. over 45 yrs. I know that Kamehameha III school had developed a very good band and challenged all the high schools. The teacher's name was Sam Mo'okini. The students could play every instrument in the band. Everytime we had May Day, Emma Sharpe and Eddie Kamae's grandmother (Eddie Kamae) from this area use to participate. Eddie Kamae had patents of land up in Kaua'ula as told by Ke'eaumoku who is working and living up there now. My father didn't want anything to do with land cause he knew the challenges it would bring to the family.

KK – What was your father & mother's name?

C – Humihumi Kaniho father and mother Mary who was pure Portuguese. Grandfather was Joseph Kalakaua Andrade. He was a luna for Pioneer Mill. I remember all the Tutus meet under the banyan tree during Mayday with their holoku, mu'umu'u, hats, leis. The old style Valley called or referred to as Halona. My family was up @ Kauaula. John Paul and Mahelonas. When I was young, I use to go up Kauaula, had taro patches and lots of fruit trees. In the patches had gold fish, o'opu, etc. I didn't finish here @ Lahainaluna School, I went to work for the plantation early. The water was not flowing all the way to 'Olowahu. One man water had to take its course.

KK – What about the seashore?

C – Our family was very sad and in tears when they built the breakwater and harbor, We were not able to beach the canoes right on the beach in front of Front St. It was a sad day in Lahaina. People were very upset right in front of Pioneer Hotel. When we were small kids, we learned to swim over there. It was sloped in first steps, second steps, third steps. I know the Nai'a and the Mana used to come in @ Mala Wharf. We used to go dive way outside of Mala and catch any kind of fish. Planty of taco all the over to Puamana and Launiupoko Stream. My wife comes from Kahana Stream. Lot's of pepeiao. I do lots of crafts @ home and lot's of collections of old artifacts like bottles, (Lemon soda, bottle), Tahauri, (Cream soda), We had a lot of JPO's for school. We lived right behind the park.

INTERVIEW: Ewalani Shim
By Keli'i Tau'a and Kimokeo Kapahulehua
Nov 17, 2005



Interviewers= KT /KK and Consultant=C

KK – What is your name?

C– My name is Gwendolyn Ewalani Lum Shim

KK – When were you born?

C– 1941 @ Honolua Bay, Maui. My Tutus had a home there in the year 1848 and the tidal wave took it in 1946. On April Fool's Day I was born @ my Tutu's home and my mother had a mid-wife, her name was Akeneki Kane. My older brother and I were both delivered in the same way under Haili Keahi. Next to Honolua is Punalau where after the tidal wave my Tutu went to reside @ Punalau on top of the hill in 1946. Past Punalau is Honokahau Bay and valley.

KT – What was Honolua Bay like before the tidal wave?

C– It was called Slaughter House called Honokahua. There was a ranch there run by Maui Land & Pine which was Baldwin Packers. Henry Baldwin was the big man @ that time raising cattle and pineapple. My great-grandfather Haili Keahi was a supervisor for Baldwin Packers and the other Hawaiian families, the Kukahikos, they all worked for Baldwin Packers. I'm a graduate of Kamehameha III School. My mom & dad moved to Honolulu so I was raised by my grandparents until I moved w/ mom & dad to Honolulu.

My Tutu lived in Honolua Bay the year 1848 with the home my great great grandfather Haili Keahi had a shed on the side of the house to pound their own poi. Honolua Bay was where my grandfather Joseph Haili (fisherman) gathered their food. Honolua Bay was famous for Akule fishing. Honolua Bay area was a cattle ranch run by Inez Ashdown's husband. It was

under Henry Baldwin, Baldwin Packer's Pineapple Co. My great great grandfather Haili Keahi was a supervisor for the pineapple company under David Fleming Senior. Mr. Fleming Senior had his akule boat launched by the ramp. When it was akule season, great ` great grandfather and all the family and workers from the pineapple company went out with the boat. My mom said that there was always a big gathering there with all the families enjoying a big pa'ina (food feast like a luau).

Mom & dad moved back to Maui & lived in Lahaina at Baby beach so we walked to Kamehameha III School. I lived down by Mala Wharf. Went to Lahainaluna for four years. There were 10 children and I am the 2nd oldest child.

KT – Where is the oldest?

C – He passed away. He lived in Waimanalo married to a prominent Sanborn family. (Granddaughter)

KT – When you moved back to Maui, did you get to play @ Kahoma Stream?

C – When we moved back, we lived @ Ah mau Camp where the Hinaiu family was our neighbor..

KT – Betty Hinaiu?

C – Yes, her husband. We lived close to Ah mau Camp and the Leong family lived close by right by the stream. My father use to pick mangoes by the stream to make mango seed & pickled mangoes.

KT/KK – The joining of Kahoma and Kahana caused big water flow. What about the fish?

C – My Tutu said all the fishing was @ Honolua & Punalau and Honokahau Bay.

KT – Do you recall walking up Kahoma?

C – No but I had uncles who attended Lahainaluna High school. The school had lots of spirits. The school library burnt down in 1959 and lost much and most of the valuable history and very old documents. I worked in the library. Some of my classmates, Julian Kaleopu and Kenneth Kenui (Alexa Vaught's brother) who live in Lahaina. Norbert Hinaiu who lives in Honolulu would know more about Kahoma Stream. The border at Lahainaluna school would know more about the Kahoma Stream.

C – In Lahaina, they need more roads and low income housing. My classmates climbed up to the L (the high school symbol above the school) to help clean and paint and see David Malo's grave. Lahaina hardly rains but the plantation took a lot of the water. All the borders at Lahainaluna were familiar with the streams. The Meyer boys from Moloka'i, Pinhos and William Mederios from Hana, Aunty Barbara Kukahiko was our cafeteria manager. One of the uncles got very sick which was believed to have been of a spiritual nature.

KT – You are presenting something that in the western mind is unbelievable but our kupuna understood it. Very important for us to document for our youth to understand. What are some significant events?

C – I remember May Day under the Banyan Tree. We use to do the Maypole dance that I thought was very special but we don't see it anymore. Aunty Emma Sharpe, aunty Sanborn, all of us. We sang a lot, it was very special for me. Nobody talked to us about Hawaiiana

when I went to school. In fact, we didn't even learn the language. My mom and Tutus spoke Hawaiian fluently but they asked us to speak English, no pidgin and simple Hawaiian. My grandparents were taro farmers in Honokahau valley, laid nets @ Punalau, we all had to go help take all of the fishes out from the nets and put it in big pakinis, Then grandpa and the boys use to go to Honokahau valeey to pull taro. I had three cousins that lived with grandparents, one cousin cooked the taro, after, we went over to peel and clean and get it ready for grandma to put it in the hamburger grinder. During my great great grandfather's time, they pounded the poi. At great grandpa Haili Keahi's house he had a board in there so w/ poi pounders, I sat there and watched great grandfather pound poi. I have his poi pounder which I gave to my son.

KT – You are 64, who is next to you?

C – My brother is 65. My sister is 63 who lives in Lahaina. We all went Kamehameha III and graduated from Lahainakuna. I am a graduate of Honolulu Business College, worked for Honolulu Star-Bulletin then went to the mainland Berkeley to live. I worked 30 years at Savings & Loans. My sister, Beverly, & I both worked in the mainland for lots of years. I was raised in Honokahau and my grandparents had a Model – A truck. They had a home in the valley which was very nice. They had the old fashion cranking phonograph. They always had problems w/ the water Grandpa, Uncle Phillip, and uncle Loui Chun always fought over the water. The dam that they built controlled all the water in the year 1900 by Baldwin Packers now Maui Land and Pine. My grandfather Joseph Haili had taro patches in Honokohua Valley. Poi was put on the table breakfast, lunch and dinner. Fish was put on the table every weekend by my grandma and grandpa Joseph Haili. They shared their fish and poi to lots of Hawaiian families like the Jessie Nako'oka family, uncle Charlie Aukela family, Peter's, Lindsey, Sato, Kauhane families, all neighbors. The Haili Tutus were very well known in Lahaina. My grandfather Joseph Haili worked for the County of Maui for 35 years. He was also ??? Veterans for World War I. Buried at Makawao memorial Veteran's ??? Park.

My grandfather Joseph Kaili Keahi was 100% Hawaiian. A very humble man, soft spoken always smiling had lots of love for his Hawaiian people, always sharing his poi and fish, never a harsh word to his workers and his own family. I consider them # 1 Grandma and Grandpa in my life—him and my grandma Mary. Very very hard workers; they raised a total of 18 children in the Honolua house.

INTERVIEW: Joseph Lai
by Keli'i Tau'a and Kimokeo Kapahulehua
Oct 12, 2005



Interviewers= KT & KK and Consultant=C

KT – What is your name Joe?

C- Joseph Lai

KT – You got a Hawaiian name?

C– No Hawaiian name. Only Chinese name.

KT – What is it?

C– Yee Leong Lai. That's my middle name now.

KK – What does Yee Leong mean?

C– I don't know

KK – Maybe Lichee or something.

KT – When were you born?

KK – 1932//// 1/16/32

KT – Where were you born?

C– I think I was born in Haiku.

KT – Haiku, Maui yeah because there are other Haikus on other islands?

C– I was adopted by the Lai family. The family live up Kula I think the original family.

KT – Now where you live? What's your address?

C – 970 Malanai St. My father-in-law's phone number :Ph. No. 661 – 9282//// Cell –269 – 0552

KT – When did you move to Lahaina. How old were you when you moved to Lahaina?

C – I was 2 and a half yrs. Old.

KT – What can you remember about Lahaina?

KK – All the Pakes were selling crack seeds, manapua, moyashi & boil peanuts(penachi)

Joseph laughs

KK – When I came here in 1963, Front Store by Planet Hollywood, Japanese store before, boil peanuts they had all the jaws(containers outside) filled w/crackseed.

C – That was by Hopwo Store every Sunday selling Okolie, Omako, liberty soled chow lun or call it dry soup. Every Saturday sold manapua and pie were sold

KK – You folks(parents) had a store right here, by the cannery, what was the store name?

C – Lai Tong Store

KT – You worked PT for Pioneer Mill? Herbert Eberly was my boss.

C – Yeah, in 1955. Baldwin Packers.. (Intermediate = Part Time)

KT – What was your job? What did you do?

C – Empty cans, Cannery, stacker, warehousing.

KT - Pineapple

KK – How much you get paid?

C – Dollar quarter an hour. No benefits until I joined the union, ILWU. In 1957, I worked there for 7 yrs. And then Maui Pine for 1 year and a half. That's when Baldwin Packers and Maui Pine merged .

KT – Where did you go to school?

C – Lahainaluna and graduated 1955. Then I worked @ Sheraton Maui 3 1/2 years as a cook.

KT – With Earl Kukahiko yeah when he was a boarder.

C – I think so.

KK – Only boys boarding school at that time.

C – Only boys but I was a day student.

KT – Did you know Thomas Cummings?

C – Yeah

KT – Thomas told me but you day student so you might not know. He told me they use to let the cattle go down to the river, Kahoma River, they go down to get them to milk the cows.

KT – Have you been down to Kahoma River?

C – I've been down but not with the cattle. I know they had cattle, pig, chicken, vegetables (corn, string beans) and what not down there.

KT – Why did you go down Kahoma River?

C – To play and p/u pepeiao, koa, and milkweed for rabbits, plus swim in the river.

KK – What about the V & 'O'opu? Fresh water 'opihi.

C – When I went up, I saw the shrimp and the 'opae and 'o'opu. Over here use to get plenty. Come all the way down.

KT – All the way down to where?

C – All the way down to the ocean where there were plenty of shrimp.

KK – The l'il'i'i one yeah. What about the ocean, fish, the papio and mullet use to go up river. What about the ulua? Kumu, mullet & papio

C – Not that I know. Some fishes, mullet go up, red fish.

KT – How far did the fish go up river?

C – To the bridge and sometime higher depending on the tide by Safeway or side of Longs.

KK – What about the birds? Never had Hawaiian birds?

C – Minjiro, myna, doves, sparrow, cardinals and rice birds.

KK – What about Hawaiian birds? Hawn duck, Hawn Stilt?

KK – What about the plants, had Koa trees?

C – Yea, had koa trees, kiawe, monkey pod, tamarine, plum and mango trees, date trees.

KK – What about lama, lauhala, etc.

KK – Had the same train tracks? By Mill road.

C – I think so, modified it. I KNOW FROM TRAIN TRACK DOWN. Ran to Mala Wharf to load sugar and bring in gas to the storage tanks at the mouth of Mala Stream.

KK – You know the gravesite by the ocean by Jodo Mission?

C – The Chinese close to the Wharf and the Japanese close to the Jodo Mission. Had Chinese also on Japanese side.

KK – You get any relatives over there?

C – No, my relatives by the county graveyard. I was adopted in the 1930's.. I Chinese/protuguese

KK – You know how to speak Chinese?

C – Very few words, simple words.

KT – Did you remember growing up seeing the taro patches?

C – Had some up @ Lahainaluna school by private owner

KK – Was it owned by the people or the school?

C – The community had their own garden

KK – You know their names, you know the type of or varieties like lehua, moi, ahakea

C – No I don't

KK – They had poi factory in Lahaina?

C – Yeah. Chung. They all bring the taro to the Chungs.

KK – You guys had poi factory in Honokahau?

C – No. Just the Chungs. The Chuns had one by where auntie Vicky was living.

KK – You went all the way up Kahoma Stream? They had a dam up there?

C – All cane fields. Had few homes, Japanese family. Had dam diverting the water to the Lahainaluna irrigation ditch all the way to Ukumehame ditch. (Honokahau to Lahaina)

KK – The one go lateral yeah?

C – Yeah! Above the cannery was all cane fields. Had few homes, Japanese families, Filipinos, Okinawans, Spanish & Portuguese).

KK – Can you remember when Kahoma had flash flood?

C – The year I don't know, around 30's, 40's, 50's. When the big water came breaking branches and debris all got stuck at the bridge causing the Flash flood to go into the cannery by Pioneer Mill.

KT – Where was the cannery located?

C – Same place as it is today. Before my father(hana) used to leave here in 1921 use to have flash floods with water going into the cannery. The land was low up to the Canoe restaurant. All the Mala camp, the land was low. Can see across the cannery now the land is low across the road.

KT – When you were living, where were the important properties that you can remember?

C – I think there was a heiau in front Jesus Coming Soon in the middle of Holao.

KK – What did the workers do after work in the camps. The companies provided housing.

C – They had camp parties in their plantation housing provided by Pioneer Mill w/\$100 subsidize

KK – Was the weather always like it is, dry & hot

C – Yea. Now more dry but now more trees. Mango trees, monkey pod and plum

KT – Who were some important people?

C – Clarence Agena who worked for Pioneer Mill. He worked @ Lahaina Store. He did community works. Japanese Festival "Bon Dance."

KT – What kind of events:

C – I can remember parades. Moon festival, Bon Dance.

KT – What kind of cars/roads. Model T's on partly paved roads

C – I used to drive a jeep on good roads till Honolua then it was dirt roads.

KT – Did you go fishing?

C - Some times I fished @ Mala Wharf catching Papio, Moi, Moana ula, with light reels using opae bait, opelu belly, bread,

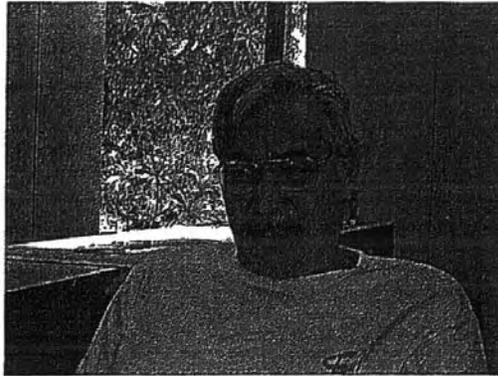
KT - Are there any stories you want to pass on?

C - Spooky Kine? When at the Wharf, can hear ukulele and singing but when we go there, nobody there. Also, Dad used to hear voices calling him just like me.

KT - What changes would you like to see?

C - Stop building more hotels. When we only had Sheraton & Royal Lahaina, we use to have 100% most of the time but now it goes down 30 to 40%. Now more hotels and cost of living higher. Gotta lay off hotel employees because hotels not full. Too much traffic. Our environment, too many people. Too many commercial fishing, too many boats, too many cars.

INTERVIEW: Keola Sequeira
By Keli'i Tau'a and Kimokeo Kapahulehua
Oct 17, 2005



Interviewers= KT/KK and Consultant =C

KT – How old are you?

C-60

KK-Please give your full-name?

C- Levanne Keola o kalani Sequeira Born Feb. 7, 1945 in Honolulu and adopted by Seq where I lived all my life. Went Kamehameha Schools O'ahu, 1 yr. BYU –O'ahu then 3 half yrs. Air Force. Then returned to Lahaina, joined Police department till retired.

KT – We are specifically targeting Kahoma but gathering info on neighboring ahupua'a. Can you start sharing about yours?

C – I live @ Pakala, it is adjacent to Mokuhinia on the Ka'anapali side of Honwanji Church. The Church area was the residence of King Kamehameha's governor Hoapili. This land here was for the Kaukau Chiefs (the chiefs that did not have the genealogical bloodlines to move them up the ranks of chiefs.) Hoapili gave this land to Catalina, his blacksmith to live right next to him. Eventually, Catalina sold out to my grandfather who was Russell Newton Sr. From him went to my grandmother Eldredge then to my mother and father Sequeira and then they gave it to me so now I am the kahu of this place. This Eldredge Newtons has been in the family since the 1860's. Dad says I'll give it to you but you can't sell it, only to the family because he wants the land in the family. I respect that and that's why I live here. I'm not the owner, I'm just the kahu.

Moku'ula is right across the street and grandma use to say, father use to go outside the porch and listen and he could here music coming from where the park is located, Mokuhinia and the music was nose flute type which made an impression on me. Although my grand

mother was Mormon, Christian, she had Hawaiian beliefs she really didn't go into it but now that I look back, I can see where she was coming from.

She learned la'au lapa'au from the Opunui family and she was pretty good at it. She had recipes that I don't see people using now. I use to gather the plants with her. Her name was Lili Newton Eldredge. She use to gather popolo, ihe, uhaloa, other things on the ground but she impressed upon me that you can get the plants but without the prayers, it will not be any good. She had a combination of plants including sugar can in the medicines.

KT – So the prayers was important?

C – Yeah. She said without the prayers, it won't work.

KK – What about the limu?

C – I'm not to sure but we used to get our limu from Launiupoko. That was the primary place and Hanaka'o'o. We would get ogo, wawae'ole, lipoa. Now no more that fragrance, that iodine smell. They destroyed the park when they put the breakwater in. She didn't talk much about Kihawahine or the mo'o but Grandma warned not to kill the mo'o. Whatever you do, you don't kill the lizards. Of course, in the old days, they don't explain but now when I look back, I can see why. It was an understanding and respect for the spirit.

KK & KT – After showing Keola that maps where the Kahoma housing will be built, he responded

C – That use to be all camps, called Mill Camp. I remember, we used to play in the stream because used to be built up w/ rocks. When use to overflow, use to be flooded especially the cannery where Safeway today is located. Once the Kahoma Flood Control was developed, it eliminated the problem.

KK – You remember fishing in the stream?

Everything mauka of the cannery was all cane fields. Use to have old stone platforms.

C – No. As kids, we saw fishes in there but we never went after them. The old cannery used to be subdivided and used to overflow. In the 70's, we had to close the bridge in Front Street because of the flood and went into the old cannery. Used to have a camp w/10 to 12 houses up by Kahoma and an airstrip for the airplanes that use to spray the crops. Had cold running water, Crater Village. When you talking about Mill Camp, you talking about lot's of Japanese that lived up there. That's why they all went to Lahainaluna High School. If you talk to the old-timer Japanese, they going remember that area. Just start walking through that camp and you'll find a lot of people that know the area real good.

1950 – Father had a house mauka side of Dickenson. Plantation House that he rented. Mill Rd was adjacent to the house. Queen Lili'uokalani came and the Royal Hawaiian Band came play for her as she sat on the puna'e. Found pottery that came from the house where the Queen visited.

KT – Who were the outstanding people

C – Was plantation town so Puamana was Haole Camp for plantation hierarchy. When we were growing up, my father was like a supervisor in the plantation, a Portuguese on the dark side so although they were all on a friendly basis, the haoles considered him a step below even though he was in a supervisor position. He was a dark-skinned leader. That kind of thinking existed in the community but my father was one of the leaders in the community.

Another was Judge Freeland, owner of Pioneer Mill and prominent business. The rest was Japanese mom and pop stores, very few Chinese stores. Demello family was prominent, she was good at lomilomi, can take care of huli opu. (Old managers -Moyer family married into Farden family and Chesters who built a house on Front St.

KT – Major events? You building Mo'olele 74 – 75.

C – Reverend Kukahiko who lived @ was highly respected. He was the Hawn exorcist, he did it one time on me. Back in 61, my grandmother was still alive saw that I was not eating and looked pale. Grandma took me to see Rev. Kukahiko, she knew it wasn't physical. Grandma explained what she thought was happening so then he instructed me to place my fingers on the scripture that he opened. After that, he placed his hands on my head and blessed me. After the blessing, he explained that someone was jealous of you and that's why you weren't eating well and was possessed. When I walked out of the house and put my feet on the ground, I felt that something had been lifted. I had a lot of respect for that man. Everybody looked at him as a Christian minister but he know a lot of Hawaiian things. People like him and his son Earl Kukahiko who had a lot of influence up in Lahainaluna. Lot of people respected and looked up to him. Kahoma was alive w/common mango trees. Same type of birds we have today, no native. Kahoma wasn't flowing all the time.

KK – We came last week, flowing. Today, nothing.

C – Yep. Rain in the mountain, flow. My wife and I living here have found the significance of the place. Opposite side of Mokuhinia is Shaw who married one of the Ka'ai women. She was a lady in waiting for Queen Lil'uokalani. There property was on the Olowalu side of Kamehameha Iki Park. The parking lot underneath used to be a pond. When I was a kid, I saw fishes as it filled up there in the pond. Her house was on the makai side of the pond. Lot of people were afraid of her thinking she was a kahuna. Grandma said to respect her but not be afraid of her.

Today, I treat this place as clean as I can not allowing liquor anymore and if people are arguing, I ask them to step outside of the property. My wife pointed out that we are basically living on sacred property so keep it clean so we can have things come through. There are some who are letting alcohol and drugs influencing their lives. Presently, I feel we are like the kaukau ali'i. Do something as our elder. I do have the respect and love for this place, as father said, pass it on in the family. Some people no more roots, moving around. Our family get roots going back hundreds of years. At family reunions, I always remind the family of our roots.

INTERVIEW: Earl Ray Kukahiko
By Keli'i Tau'a and Kimokeo Kapahulehua
Oct 12, 2005



Interviewers= KT/KK and Consultant=C

C- Get two you know (He was referring to Kahoma St. and the other one is Kanahaa by Lahainaluna, the 2 streams come down from each side and they come narrow coming out over here then goes out to one reaching the bottom.

KT- Let's start from the beginning. What is your full name?

C- Full name is Earl Ray Kanakaonaha Kukahiko.

KT - When were you born?

C- Dec. 16, 1930 in Lahaina. I'll be 75 in Dec. Add: 152 Malanai St. ph: 661-3460.

KT - Thomas Cummings, Bishop Museum Education Director suggested we visit you to give us background on why you folks (students of Lahainaluna) went down to Kahoma Stream when you were students at Lahainaluna. He said they use to get the cows every morning to milk.

C- We went down to pick koa every morning about 5am to collect koa seedlings to feed the cattle. About 100 lbs. If less, had to go back and get more so that it would weigh 100 lbs. That was our regular chores. The luna there was kepani. I graduated in 52 and became a luna. In 51, I had the job already. I became a counselor for the high school boarding students.

KT - What can you tell me about Kahoma?

C- There was a plantation camp down there. What we had to do was cross Kanaha first and then there was that island.

KT - Kanaha was as high as the school?

C – Oh yeah. They had all the taro beds. The principal @ that time wanted that. The guys who living up there, that's Lahainaluna property, the plantation went and claimed that and put it on the map. I talked to the guy HANS, and questioned how they own all the lands up there.

095057 Second pod

C – These are the kind of things I learned from my Dad. How to do things the right way and not to hana 'ino the culture. That's why there is a lot of people that call me and I go, sometimes I read the Bible. Lot of people appreciate that. Sometimes I can sense things from the knowledge that I have. Lot of people appreciate. Some people going build a house so they call because they say I am highly recommended. Sometimes they find bones so they took care of it.

KT – We know that when people take advantage, there are ramifications that need to be made.

C – First thing is to Pule to have ke Akua help me. Then I do blessing on them. If unusual things still occur, please call. When I see people in Wailuku, they mention that pule have helped them. Sometimes people, Kepani from Kula and Makawao call and I go and help.

KT – Who were important people in Lahaina.

C – Pua and Ned Lindsey. Pua taught me many things.

KT – Where did she get her knowledge come from?

C – She was Big Island. Ned was great man. They both worked today. 11:07

KT – What are the cultural things passed down to you that people should know?

C – They passed down their knowledge to me. My dad passed to me and Pua.

KT – What was her focus/expertise, la'au, mahi'ai, etc?

C – Hers was more mahi'ai. When I asked, "You sure," her response was that is the way she was brought up. She was really really nice. We worked good together.

KT – Are they older than you?

C – Oh yeah. She was in her 80's when she passed.

KT – What were some of the events you would people to remember?

C – They were good decorators, whenever there was an activity, auntie Pua would get the call. She and the husband would get it done. The things they did was beautiful. Auntie Pua, no matter how big she was, she was a graceful dancer. That's why the daughter Rozelle was a good entertainer.

KT – Now that you bring that up, what about Emma Sharpe?

C – Emma Sharpe was more of an entertainer and not a decorator. That was the difference. Emma good entertainer, Pua good decorator.

KT – Let me go through some Hawaiian cultural things since Lahaina is rich in that area. We know that Kamehameha the Great after conquering Maui came back and resided in Lahaina for a year or more. We know that his canoes beached right on the 'aina/shore. However, the lower part of Lahaina was all wet lands and kalo.

KT – So where was the community? They lived above?

C – O yeah, way up.

KT – So where does Kahoma start.

C – Below the school. Where that island is there is a cinder pit up there. There is a road that takes you up to Kahoma to go into the valley and to the island in Kahoma. -- owned a portion of that. Frank Silva was the luna for the plantation. He was always the one who would come and talk story. I asked him who owned this land because I knew Lahainaluna use to own all this land down to the ocean.

KT – Who owned Lahainaluna

C – The STATE. Before that was the missionaries. Mr. Silva showed me the map of Kanaha and next to it Kahoma. One day, I wanted to go and see. I wanted to know and I found out get plenty water come down because of these two streams.

KT – So the source of these two streams was Pu'u Kukui?

C – Yea. Every day we talk story (Silva) Nalaelua, from the Keahi Ohana, own a portion up there. We use to send our cows down Kanaha. Mr. Silva said he had a small piece of land down there. They use to raise the taro on the land in Kahoma. Where they were had taro but from Lahainaluna down was the schools. On the other side had a lot of kuleana lands. The Sharpes, Kekuewas, they all own inside there but nobody come back they land all inside there so nobody knows who own's that but in my mind I know who owns that but they no come back. When I talk to the Kekuewa girls, e Ramsay, you guys don't want ????. Their response is they live on O'ahu and not interested. Nobody wants to come back. That's the thing now. The right of way to go on the property. There should be a right of way because when we use to go up, there was a right of way to go inside. They gotta go talk to the school. Anyway, that was the kuleana in there and it was aall taro patch. We all use to go in there, all families, good friends, aunty Kamehameha, the Amarals, we had a long house, your family over here, your family over there, sleep. The mothers were the ones who prepared the food, it was fun days and all that while the men and children worked the taro patches. Mr. Silva talked to me about a lot of stuff and told me that during the war, Lahainaluna School was used as a hospital. They put in a big sewer and he showed me, it's where they are building now. When they were going to dig a new one, I went up to the school to show the principal, they called the State inspector and they identified the sewer. The bulldozer operator was going to mow it down because the plans didn't show it. The operator Bergau from Hana stopped the job. The himakamaka, the State, the County all came up to check and I let them know that my friend Silva told me about it. After they properly identified the sewer, they changed the manhole plans. Coming back to Kahoma, I didn't know about the two streams Kanaha & Kahoma. That's the ones, the people lived up there and planted gardens near the stream beds. Lots of people used to walk to school from up there since there weren't any buses. Some of the students from that area used to complain because they had to cross two streams, Kahoma & Kanaha.

KT – So when the water was high, they no come school?

C – No can, they no can cross. But the Lahainaluna one they had a phloom to water the cane and that comes from Kahoma.

KT – When Tom Cummings was talking about Kahoma, he said that the students were assigned to go down to Kahoma to plant taro to eat.

C – Well, that was the old days. Yea, my papa was up there and graduated in 1910.

KT – Did he tell you that?

C – RIGHT. Very few people lived down. They were the ones that really helped the King. They were the suppliers of all the food(middle men).

KT – Again, when the foreigners came, the valley people were the ones who supplied the sailors with food and water, all the needs. I appreciate you confirming that it was the lifestyle and kuleana of the West Maui people. All these valleys used to supply the newcomers.

KT – Let's go deeper into culture. Mokuhinia. As you were growing up, what is your memory of Mokuhinia and Moku'ula?

C – My memory was more of Honokohua. I came to Lahainaluna in 1947 as a student and p/u all these things that was going on but my dad and Sam Makekai, fire chief told me that where Waiola Church was all water up to the water pump and to the village of Waine'e. Ships use to come all the way up to Waiola Church to baseball park to Mokuhinia.

KT – In your day, traveling was difficult so you stayed in your ahupua'a.

C – RIGHT.

KT – How long did it take you folks to come to Lahaina?

C – When we use to walk from Honokohua, it use to take us about hour and a half to two hrs. to reach Lahaina. We walked on the rock road. Wasn't macadamized yet since the county took care of the road.

KT -Before the paving, what kind of cars were there?

C – Model T's. Lot's of Model T's & Model A's. We had a Model T.

KT – Was trains running by then?

C – No, No! Trains came after when the sugar came in, it then went out to Honokohua to p/u the pineapple to take to the Lahaina Cannery. Sometime we walked, other times hitch hike.

KT – You boarded up there so it was convenient. What were some of the other influential immigrant cultures.

C – When the Chinese came, some of them settled in Honokohau right where the Church was then they started moving to Lahaina, they were all single men. They were planting opium in the water way back then brought from China. When Pakalolo started, it was in the rabbit food and got all the animals hyperped.

KT – Plantation people Pioneer Mill was - -Pauwela-pineapple from Upcountry Kahului – Pineapple from upcountry

C – When we were born had mid-wives. Name came out Kapalua @ Ritz-Carlton given by Mr. Fleming. Before, it was called Honokohua. There was a scout camp there. Many people who have moved off Maui that lived @ Honokohua ask about Kapalua when they return for a visit and are surprised to find the name change from Honokohua to Kapalua. Our house was the last house @ the corner with the coconut trees that my dad planted next to the store. My father gained his theology training by remaining another year @ Lahainaluna. My dad was a luna in the pineapple field. He served at Paia pineapple & Makena fishing before Fleming invited him home. First day of work, he saddled and prepared the horses. His boss asked, "How did you do that so fast?" His father's response. I learned it @ Lahainaluna. At Paia Church, he learned more about ke Akua.

Appendix D:
Traffic Impact Analysis Report

TRAFFIC IMPACT ANALYSIS REPORT PROPOSED KAHOMA ACCESSWAYS

Lahaina, Maui, Hawaii

December 2008

Prepared for:

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TRAFFIC IMPACT ASSESSMENT REPORT

PROPOSED KAHOMA ACCESSWAYS

Lahaina, Maui, Hawaii

I. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate the potential traffic impacts resulting from creating a temporary access to the Kahoma Agricultural Subdivision in Maui, Hawaii. The site is located north of Kahoma Stream and mauka of the future Lahaina Bypass Road (LBR). The purpose of this study is to determine the impacts as a result of the future traffic generated by a potential development on the surrounding transportation system.

A. Location

The existing agricultural subdivision development is bounded by Kahoma Stream to the south, mauka of the future LBR/Villages of Leialii, and the future Kaanapali 2020 development to the north. The Kahoma Agricultural Subdivision is more specifically identified as TMK: (2) 4-5-021:002, 006, and 024. Figure 1 shows the location of proposed subdivision.

B. Project Description

The Kahoma Agricultural Subdivision proposed has the potential of a 55-lot single-family development on an approximate 780-acre site. The minimum lot size is proposed to be about 5 acres, while the largest lot proposed to be about 80 acres. Also, based on information provided, the owners of the individual lots will be allowed to construct a care takers cottage within their parcel



and therefore could conceivably have two (2) units per lot. Therefore, for purposes of this report, it is assumed that 110 single-family units could be constructed as a worst case scenario.

The proposed development is expected to be built out in five years or by the year 2013. Vehicular access to the Kahoma Agricultural Subdivision will initially be provided via Wahikuli Street at its intersection with Honoapiilani Highway. See Figure 2 for Project site map.

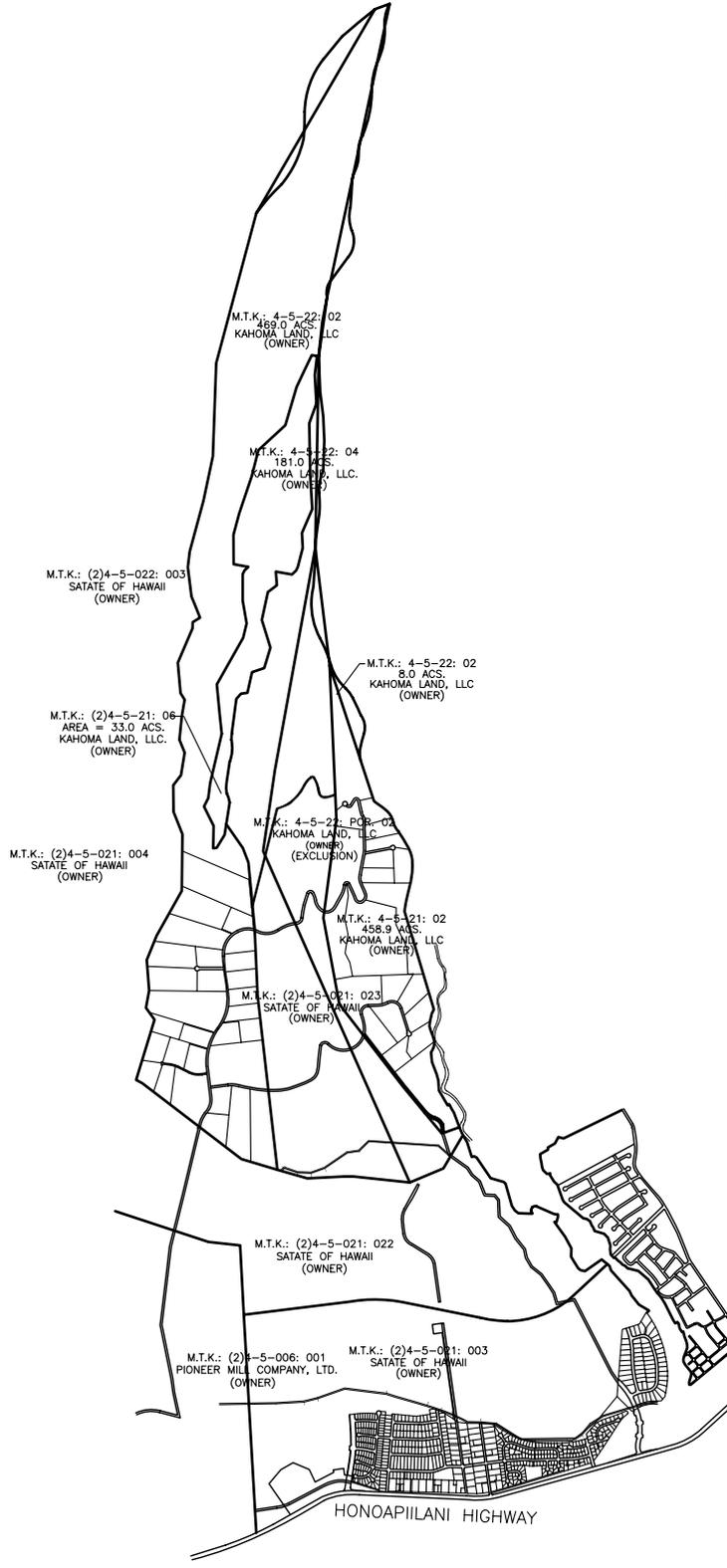
C. Study Methodology

This study will address the following:

1. Existing traffic operating conditions at key locations within the study area.
2. Base Year 2013 (buildout year for the potential Kahoma Agricultural Subdivision) traffic projections (without the potential Kahoma Agricultural Subdivision) including traffic generated by a defacto growth rate and the other known developments in the vicinity of the potential Kahoma Agricultural Subdivision, which would be completed and occupied by 2013 and which are expected to generate significant traffic demand within the study area.
3. Identify potential traffic mitigation measures for the Base Year 2013 Traffic.
4. Trip generation and traffic assignment characteristics.
5. Determination of the impact of Project-generated traffic.
6. Recommendations for roadway improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by the potential Kahoma Agricultural Subdivision.



NOT TO SCALE



PROPOSED KAHOMA
ACCESSWAYS

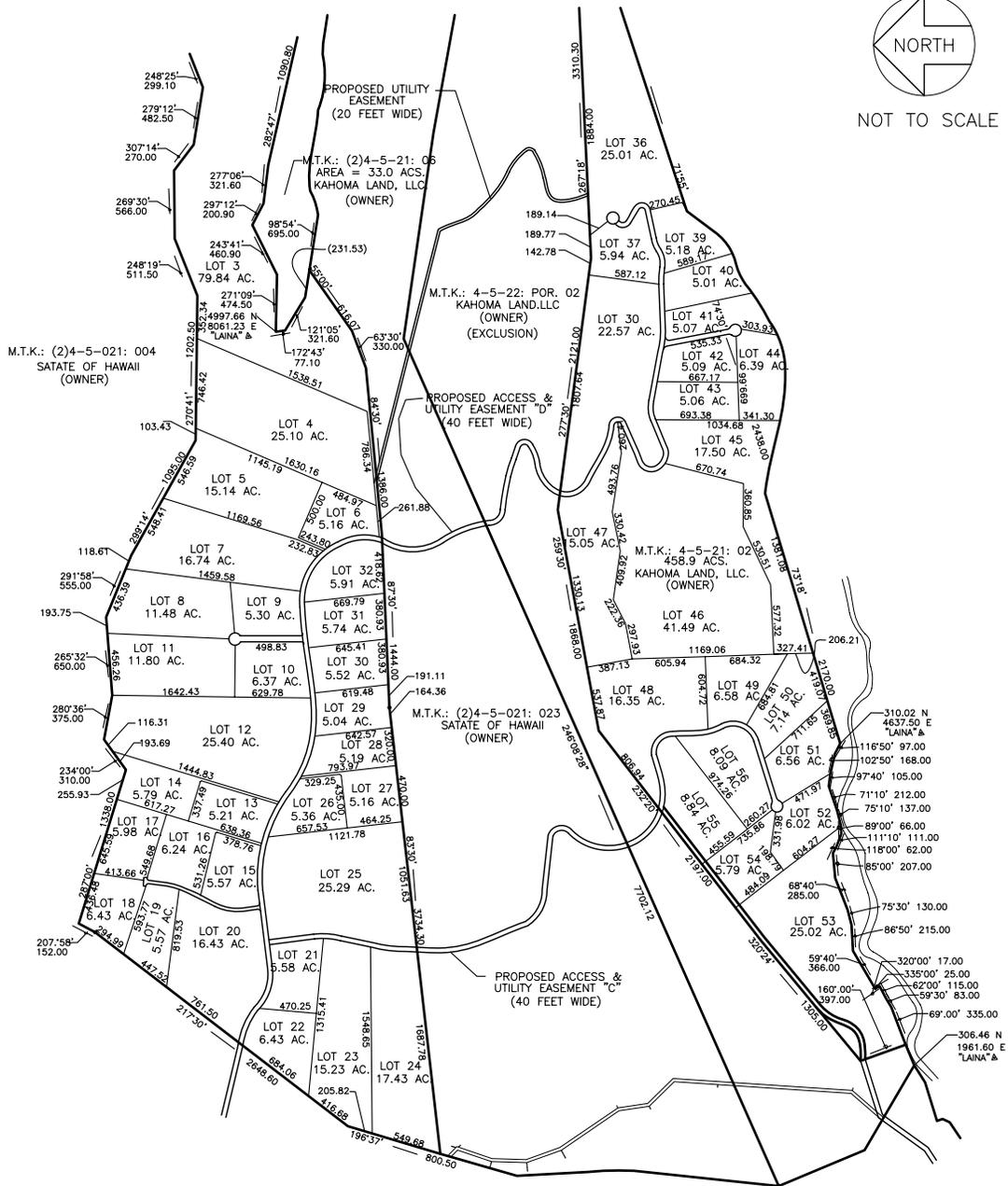
 **AUSTIN, TSUTSUMI & ASSOCIATES, INC.**
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

PROJECT LOCATION

FIGURE
1



NOT TO SCALE



PROPOSED KAHOMA
ACCESSWAYS



AUSTIN, TSUTSUMI & ASSOCIATES, INC.
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HONOLULU, HAWAII

FIGURE

SITE PLAN

2



D. Definitions

- **Base Year 2013** – describes scenario where vehicular traffic volumes for the year 2013 are projected without the traffic generated by the potential Kahoma Agricultural Subdivision. In simple terms, this is the “no-build” or “do-nothing” alternative.
- **Mitigation** – applies to recommendations aimed at improving unsatisfactory conditions (i.e. LOS = F, volume/capacity ratio>1) experienced as a result of Base Year 2013 conditions.
- **Year 2013 with Project** – describes estimated vehicular traffic volumes for the year 2013 with the traffic generated by the potential Kahoma Agricultural Subdivision.
- **Level-of-Service (LOS)** – as based on The Highway Capacity Manual – Special Report 209 (HCM), dated 2000, LOS is a qualitative measure used to describe the conditions of traffic flow at intersections. Values range from LOS A (minimal delay) to LOS F (congested).
- **Trips** – for the purposes of this report, vehicles traversing the roadway network. Note that this term can also signify other modes of transportation, however vehicular trips will be the only trips considered in this report.
- For a complete glossary of terms, refer to Appendix E.

II. EXISTING CONDITIONS

A. Roadway System

The following are brief descriptions of the existing roadway network in the vicinity of the Kahoma Agricultural Subdivision:

Honoapiilani Highway is a regional, State facility, between Kapalua and Wailuku that serves as the primary route connecting West Maui to other regions of the island. The portion of Honoapiilani Highway between Lower Honoapiilani Road and Dickenson Street is a two-way, four-lane highway oriented in the north-



south direction and serves as the primary access and circulation route for the areas of Lahaina, Wahee, Puunoa, Kapunakea, Mala, and Kaanapali. North of Lower Honoapiilani Road and south of Dickenson Street, Honoapiilani Highway narrows to a two-lane highway. Dedicated left-turn lanes and traffic signal systems are provided on Honoapiilani Highway at its major intersections in West Maui.

The traffic signal systems along Honoapiilani Highway in West Maui are optimized and coordinated (“synchronized”) to provide the maximum green time for through traffic on the Highway (the major movements). See Section II.C for discussion on signal coordination.

Leiali'i Parkway is currently an east-west, two-way, two-lane, County collector roadway, which extends east from Honoapiilani Highway and provides access to the Lahaina Civic Center (Lahaina District Court, Lahaina Health Center, Lahaina Post Office and the County fire and police stations) and the Villages of Leialii, Phase 1A. On the west side of Honoapiilani Highway across from its intersection with Leiali'i Parkway is a driveway servicing the Wahikuli Beach Park.

Wahikuli Road is an east-west, two-lane, County collector roadway which extends east from Honoapiilani Highway and serves a residential area.

Fleming Road is an east-west, two-lane, County collector roadway which extends east from Honoapiilani Highway and serves a residential area.

Front Street is a north-south, two-lane, County collector roadway intersecting Honoapiilani Highway at its northern terminus across from Fleming Road. Front Street serves the residential and commercial areas of Mala Wharf, Puunoa, Lahaina, and Puamana. Front Street generally runs parallel to Honoapiilani Highway following the coastline and also intersects Honoapiilani Highway at its southern terminus in Puamana.



B. Existing Traffic Volumes

The hourly turning movement data utilized in this report was collected between Tuesday, February 5, 2008 and Thursday, February 7, 2008, and on Tuesday, June 3, 2008 as part of that study.

Due to the close proximity to the proposed Kahoma Agricultural Subdivision, the following intersections along Honoapiilani Highway were studied:

- Fleming Road and Front Street (Signalized)
- Wahikuli Road (Unsignalized/Stop-Controlled)
- Leialif'i Parkway (Signalized)

Based on traffic count data, the peak hours of traffic were determined to be from 7:00 AM to 8:00 AM and 3:30 PM to 4:30 PM on weekdays. The traffic count data is provided in Appendix A.

C. Existing Traffic Conditions Analysis and Observations

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A to congested conditions at LOS F. The Highway Capacity Manual – Special Report 209 (HCM), dated 2000, methods for calculating volume to capacity ratios, delays and corresponding Levels of Service were utilized in this study. LOS definitions for signalized intersections are provided in Appendix B.

The HCM recommends that successive intersections along a major arterial and within proximity of less than a half of a mile of each other be synchronized in order to facilitate optimal vehicular flow along the arterial. Currently, most of Honoapiilani Highway's signalized intersections between Lower Honoapiilani Road and Shaw Street meet this criterion, with the exception of the high volume Kaanapali Parkway/Halelo Street intersection. Coordination is accomplished by ensuring that each intersection in the coordinated region is bound by the same cycle length (or multiples thereof), and that the through traffic in the high-volume direction along the arterial is allowed to flow at carefully



planned offsets through consecutive intersections. This reduces the “stop and go” effect that drivers experience on uncoordinated systems, where stop lights sometimes appear at each successive intersection, thus increasing motorist frustration and delay.

As a consequence of coordination and fixed-cycle lengths in general, the lower-volume side streets often must wait at the intersection, despite the absence of vehicles traversing the main road.

Methodology

Analysis for the study intersections was performed using Synchro, which is able to prepare reports based on the methodologies prescribed by the HCM. These reports contain control delay results, as based on intersection lane geometry, signal timing (including coordination and actuated minimums and maximums), and hourly traffic volume. Based on the vehicular delay at the intersection, a LOS is assigned (see Appendix B) as a qualitative measure of performance. These results, as confirmed or refined by field observations, constitute the technical analysis that will form the basis of the recommendations outlined in this report.

Regional Analysis

West Maui is a “mixed bag” of various land uses, ranging from long-established residential and commercial areas of historic Lahaina, to the hotel, timeshare, and upscale residential land uses seen in Kaanapali and Kapalua. Local traffic is comprised primarily of tourists, hotel/commercial workers, construction workers, and those attending schools.

Traffic along Honoapiilani Highway between Leiali'i Parkway and Lower Honoapiilani Road generally flows smoothly during the AM and PM peak hours of traffic. South of Leiali'i Parkway, congestion begins to occur, in part due to the narrowing of Honoapiilani Highway from four (4) lanes to two (2) lanes near Dickenson Street.



Pedestrian volumes were observed to be relatively low at all of the study intersections, as Honoapiilani Highway generally does not provide sidewalks at these intersections.

Results of Intersection Analysis

The analysis and observations described below are based on prevailing conditions during the time at which the data was collected. The counts were taken during a time when all nearby schools were known to be in session, to represent the worst-case conditions. Hereinafter, observations that are expressed as ongoing and current shall represent the conditions that prevailed at the time at which the data was collected in 2008.

Fleming Road/Front Street/Honoapiilani Highway

Due to the fact that this intersection serves a junction point between Front Street and Honoapiilani Highway, which to the south become parallel roads through the Lahaina Corridor, a high turning movement occurs between them. It is likely that a plurality of the traffic that utilize Front Street are destined for either residential areas or the commercial areas and restaurants of historic Lahaina Town, whose heavy pedestrian traffic all but precludes the use of Front Street as a diversionary route for regional traffic on Honoapiilani Highway.

While the Front Street eastbound approach experiences LOS F during the PM peak hours of traffic, movements along Honoapiilani Highway generally flow smoothly. Note that although the Honoapiilani Highway southbound left-turn movement experiences LOS F during PM peak hours of traffic, less than ten (10) vehicles make this movement during the AM or PM peak hours of traffic.

Wahikuli Road/Honoapiilani Highway

This unsignalized tee-intersection currently provides access to a residential subdivision. Note that although Wahikuli Road westbound approach experiences LOS F conditions during PM peak hours of traffic, less than ten (10) vehicles make this movement during the AM or PM peak hours of traffic. However, it is not uncommon for a low volume side street to experience long



delays especially when trying to access a major facility such as Honoapiilani Highway.

Leiali'i Parkway/Honoapiilani Highway

This signalized intersection currently provides access to the Lahaina Civic Center, Post Office, the Lahaina District Courthouse and the 104-unit Phase 1A of the Villages of Leialii. Vehicular traffic entering and exiting these public facilities are generally low. Therefore, the delays experienced by these vehicles are limited to that caused by the coordinated traffic signal system and associated fixed cycle length. Note that although the Honoapiilani Highway northbound left-turn movement experiences LOS F during PM peak hours of traffic, less than ten (10) vehicles make this movement during the AM or PM peak hours of traffic.

Table 1 summarizes the existing LOS for the study intersections. Figure 3 shows the existing traffic volumes and overall LOS for the study intersections. In addition, LOS for the individual turning movements are shown. LOS worksheets are provided in Appendix C.

**Table 1
Existing Level of Service Summary**

	Existing Year 2007					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
Flemming Road/Honoapiilani Highway						
NB LT	E	66.5	0.08	E	70.5	0.31
NB TH/RT	A	5.6	0.57	B	11.9	0.62
SB LT	A	0.0	0.00	E	79.6	0.53
SB TH	A	6.2	0.41	B	12.1	0.64
SB RT	A	4.5	0.06	A	7.4	0.20
WB LT/TH/RT	E	53.4	0.72	D	46.8	0.00
EB LT/TH/RT	E	54.3	0.63	F	131.0	1.07
<i>Overall</i>	B	10.9	0.6	C	21.5	0.71
Wahikuli Road/Honoapiilani Highway						
SB LT	B	13.9	0.09	B	14.5	0.19
WB LT/RT	D	32.1	0.34	F	131.1	0.49
<i>Overall</i>	--	--	--	--	--	--
Leialii Drive/Honoapiilani Highway						
NB LT	E	63.3	0.28	E	62.8	0.15
NB TH/RT	B	13.1	0.6	B	14.1	0.72
SB LT	E	66.5	0.59	E	69.6	0.69
SB TH/RT	A	5.4	0.44	B	10.5	0.70
WB LT	E	61.3	0.48	E	63.1	0.62
WB TH/RT	E	56.1	0.03	D	52.8	0.10
EB LT/TH/RT	E	56.2	0.04	D	52.0	0.00
<i>Overall</i>	B	12.8	0.62	B	16.3	0.70

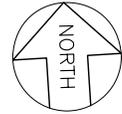
LEGEND:

###(###) - AM(PM) PEAK HOUR OF TRAFFIC VOLUMES

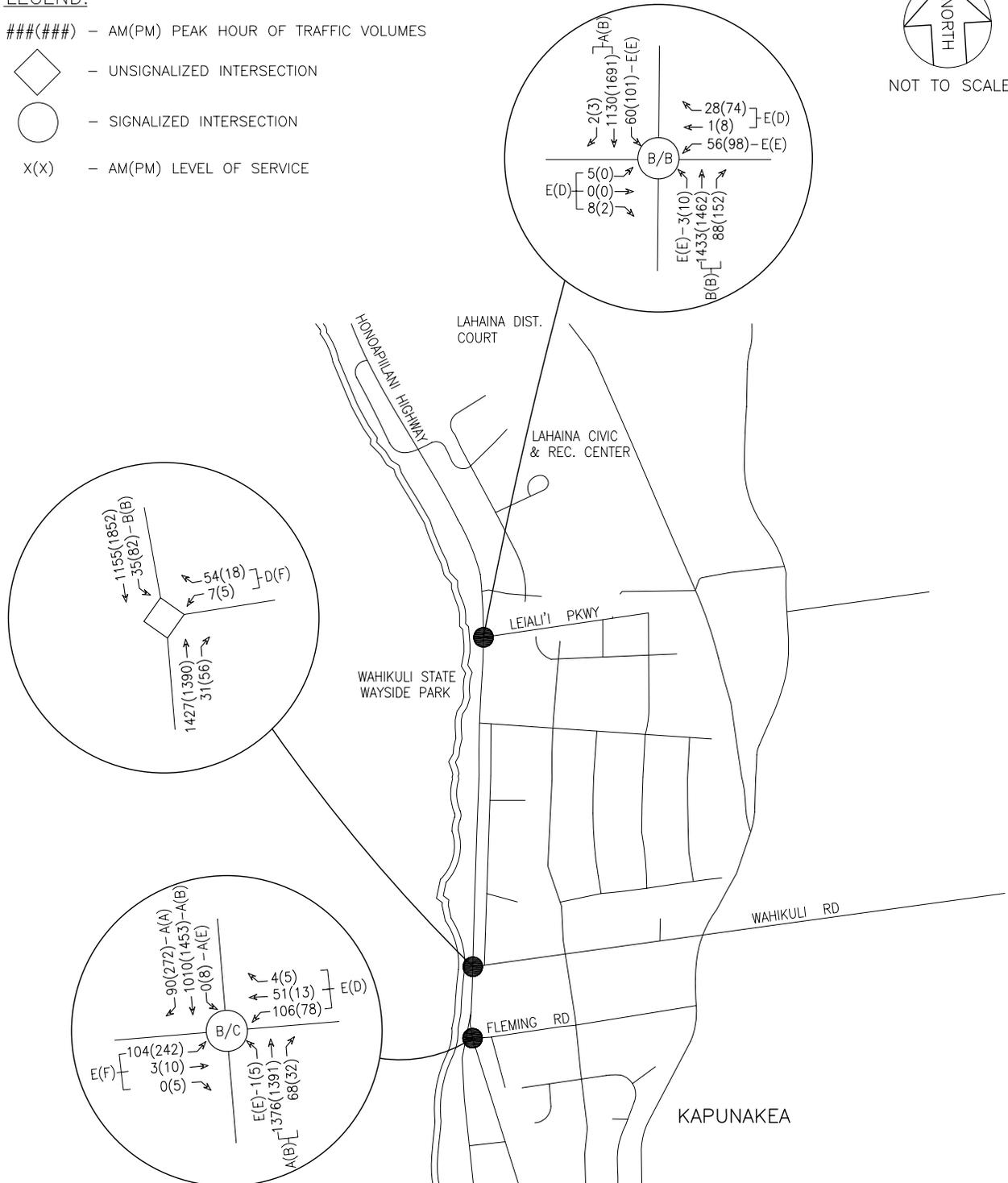
◇ - UNSIGNALIZED INTERSECTION

○ - SIGNALIZED INTERSECTION

X(X) - AM(PM) LEVEL OF SERVICE



NOT TO SCALE



PROPOSED KAHOMA
ACCESSWAYS

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

**EXISTING
TRAFFIC VOLUMES AND LEVEL OF SERVICE**

FIGURE
3



III. BASE YEAR 2013 SCENARIO

The Year 2013 was selected as the Base Year to reflect the potential Kahoma Agricultural Subdivision projected buildout year of 2013. Base Year 2013 was estimated by applying a defacto growth rate to the existing 2008 hourly vehicular traffic volumes and subsequently adding vehicular traffic volumes projected to be generated by other known developments that are expected to be completed and occupied by Year 2013.

A. Defacto Growth Rate

The traffic projections in the most recent (1997) Maui Long-Range Land Transportation Plan (MLRLTP) indicate that vehicular traffic volumes will increase by approximately 1.65 percent through the study area annually. Therefore, a defacto growth rate of 9.5 percent was applied to the existing 2008 traffic volumes. In addition, traffic volumes generated by the other known developments that are expected to be completed and occupied by the Year 2013 were utilized to estimate the Base Year 2013. The following section describes the other known developments.

B. Traffic Forecasts for Other Known Developments

The following are descriptions of new/future developments near the Kahoma Agricultural Subdivision that are expected to be completed or occupied by 2013 and to generate significant traffic demand within the study area.

Honua Kai is the fourth of four (4) lots in Kaanapali North Beach Subdivision. Situated west of Honoapiilani Highway, north of Halawai Drive and south of Lower Honoapiilani Road, Honua Kai will consist of 700 vacation homes, which will operate similarly to resort hotel units. As for February 2007, the project was under construction, with the first of its two towers to be completed by the end of 2008. The project anticipates completion by the end of Year 2011.

Hoonanea, Kahee, and a commercial development west of Honoapiilani Highway near Keawe Street are projects for which only limited information was available. Therefore, it was assumed that a 200 unit residential multi-family development and 51,575 square foot commercial development would be constructed by Year 2013.



Hyatt Regency Maui Addition proposes to further develop the existing Hyatt Regency Resort. The expansion will incorporate a new 12-story, 121-unit timeshare guestroom building and pool. While 97 of the timeshare units will be 2-bedroom units, the remaining 24 will 3-bedroom units, which will provide the optional “lock-out” feature. The “lock-out” feature will allow a separate party to occupy the third bedroom, thus effectively turning the 3-bedroom unit into one (1) 2-bedroom unit and another 1-bedroom unit. Access to the Hyatt Regency Maui is provided via Nohea Kai Drive which connects to Kaanapali Parkway. This report assumes the Hyatt Regency Maui Addition will be completed by 2009.

Kaanapali Coffee Farms (formerly known as Pioneer Farms) is currently under construction, with a total of 115 single-family agricultural units. For the purposes of this report, it was assumed that Pioneer Farms will be completed by Year 2013.

Kahoma Residential Subdivision will be located east of Honoapiilani Highway between Lahainaluna Road and the Kahoma Stream. The project entails the development of 25 multi-family homes and 70 single-family residential lots. This proposed development is estimated to be completed by Year 2011. Traffic projections for Kahoma Residential Subdivision were obtained from the Traffic Impact Report for Kahoma Residential Subdivision, dated October 2007, prepared by Wilson Okamoto Corporation.

Kapalua Mauka is a 690 unit residential, golf and commercial project adjacent to the Kapalua Resort. This project is assumed to be completed by Year 2013.

Lahaina Cannery Mall proposes to expand the center to an additional 33,160 square feet of development that is expected to complete by the end of Year 2008. Lahaina Cannery Mall is located adjacent to Honoapiilani Highway and about 0.5 miles south of Wahikuli Road.

Lahaina Gateway Mall is situated on the east side of Honoapiilani Highway along the proposed Keawe Street extension, directly east of Lahaina Cannery Mall. Lahaina Gateway Mall proposes approximately 135,300 square



feet of retail space over a 11.63 acre parcel. Lahaina Gateway Mall anticipates completion by 2008.

Landtec Kaanapali is proposed to be an 18-lot single-family residential subdivision with a neighborhood park. Each lot will include a main dwelling with a detached dwelling. Landtec Kaanapali is situated east of Honoapiilani Highway, north of its intersection with Kaanapali Parkway. This report assumes Landtec Kaanapali will be completed by 2009.

Landtech Napili is a development for which limited information was available. Situated in Napili, this development was assumed to have 28 single-family units, and was assumed to be completed by 2013

Lanikeha is proposed to be a 132-unit single-family gated community situated on 111 acres of land. Located to the east of Honoapiilani Highway and north of the Kaanapali Golf South Course, Lanikeha anticipates completion by the fourth quarter of 2006.

Maui Ocean Club Sequel (Marriot Expansion) expects completion of 146 new 2- and 3-bedroom villas, in concert with additional amenities. This project is expected to be completed by Year 2009.

Maui Preparatory Academy is proposed to be a new college preparatory school in west Maui. The Maui Preparatory Academy is located mauka of Honoapiilani Highway with access via Napilihau Street located north of Lower Honoapiilani Road. The Maui Preparatory Academy anticipates enrolling 540 students by the year 2013. Traffic projections for Maui Preparatory Academy were obtained from the Traffic Impact Report for Maui Preparatory Academy, dated April 2004, prepared by Wilson Okamoto Corporation.

Opukea is situated east of Honoapiilani Highway, south of and adjacent to Kahoma Stream. The development will be comprised of 114 multi-family resort condominiums. This project is expected to be completed by Year 2013.

Puukolii Mauka is proposed to be an 800-unit single-family residential subdivision located east of the Proposed LBR. A new roadway, Kakaalaneo Road will connect Puukolii Mauka to Honoapiilani Highway between Halawai



Drive and Puukoolii Road. For the purpose of this report, it was assumed that 500 units will start construction during 2010 and be completed by 2015. Therefore, for purposes of this study approximately 60 percent of the units are assumed to be completed by 2013.

Pulelehua is proposed to be a 895-unit single-family residential subdivision located on the west side (makai) of the existing Kapalua Airport. This report assumes that the 895 units will start construction during 2012 and be completed by 2017. Therefore, for purposes of this study approximately 20 percent of the units are assumed to be completed by 2013.

Residences at Kapalua Bay entails the redevelopment of the existing Kapalua Bay Hotel to include approximately 155, 2- and 3-bedroom units. The project is located in Kapalua on the east side of Honoapiilani Highway. The anticipated completion date is by Year 2008.

Walgreens (Lahaina) is proposed to be a 15,000 square-foot building, which will be located at the southeast corner of Honoapiilani Highway and Keawe Street. The new drugstore will feature a drive-thru pharmacy. This report assumes that the new drugstore will be completed by late 2008.

West Maui Breakers is proposed to be a 90-unit condominium consisting of 1, 2, and 3 bedroom units in five (5) different buildings. Access to West Maui Breakers will be provided off of Lower Honoapiilani Road. West Maui Breakers anticipates completion by Year 2008

West Maui Hospital represents a joint effort between the West Maui Taxpayer's Association and the Kaanapali Land Management Corporation to address the need for hospital care for the geographically remote region. The 90,000 square foot hospital will be situated east of Honoapiilani Highway, with access provided via Leali'i Parkway, and eventually, the Kaanapali Connector Road when it is built. Twenty-five medical surgical and ten (10) intensive care beds will be provided. It is anticipated that the project will be complete by the Year 2009.



West Maui Village is a project to include approximately 90 affordable units and approximately 68 residential units in Napili, near the Kapalua Resort. This project is assumed to be completed by Year 2013.

Westin Kaanapali Resort is the last undeveloped lot of four (4) lots in Kaanapali North Beach Subdivision. Situated west of Honoapiilani Highway and with its access at the Halawai Drive/Honoapiilani Highway intersection, will include approximately 390 timeshare units located adjacent and immediately north of the existing Westin Kaanapali Ocean Resort, Lot 2. Buildout of the project is uncertain at this time. However, for purposes of this study, it is assumed that the project will be complete by the Year 2013.

Table 2 summarizes the traffic generated by the other known developments listed above.

Table 2
Peak Hour Trips for Other Known Developments

Other Known Developments	Size	AM Peak Hour			AM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Honua Kai (includes 7 acre Beach Park)	700 units	174	68	242	147	191	344
Commercial development west of Honoapiilani Highway, near Keawe Street (Unknown)	51,575 GLA	64	41	105	194	210	404
Hoonanea/Kahee	200 units	15	75	90	71	35	106
Hyatt Regency Maui Addition	145 units	12	5	17	15	20	35
Kaanapali Coffee Farms	115 units	23	67	90	77	45	122
Kahoma Residential Subdivision	95 units	17	54	71	59	35	94
Kapalua Mauka (Full Buildout 690 D.U.)	690 units	112	72	184	112	124	236
Lahaina Cannery Mall	33,160 GLA	16	11	27	58	62	120
Lahaina Gateway Mall	135,300 GLA	115	73	188	367	397	764
Landtech Kaanapali	18 units	6	16	22	14	9	23
Landtech Napili	28 units	7	22	29	21	13	34



Table 2
Peak Hour Trips for Other Known Developments

Lanikeha	132 units	11	53	64	50	25	75
Maui Ocean Club Sequel (Marriot Expansion)	146 units	13	5	18	15	20	35
Maui Preparatory Academy	540 students	109	73	182	15	25	40
Opukea	114 units	10	47	57	45	22	67
Pioneer Farms	133 units	29	83	112	91	54	145
Puukolii Mauka	895 units	442	539	981	751	707	1458
Pulelehua	895 units	258	486	744	563	422	985
Residences at Kapalua Bay	155 units	12	59	71	56	27	83
Walgreens	15,000 GLA	45	31	76	63	63	126
West Maui Breakers	90 units	8	39	47	37	18	65
West Maui Hospital	90,000 GFA	152	75	227	98	200	298
West Maui Village	158 units	13	61	74	58	29	87
Westin Kaanapali Resort, North Beach Subdivision, Lot 3	390 units	109	42	151	83	111	194
Total Non-Project Traffic		1,772	2,097	3,687	3,045	2,839	5,900

Table 3 summarizes the ITE, Trip Generation, 7th Edition, trip rates used to generate traffic for the other known projects where a traffic study was not available.

Table 3
Trip Generation Rates for Other Known Developments

Land Use (ITE Code)	Independent Variable	AM Peak Hour		PM Peak Hour	
		Trip Rate	% Enter	Trip Rate	% Enter
Single-Family Detached Housing (210)	Dwelling Units	0.75	25	1.01	63
Residential Condominium/Townhouses (230)	Dwelling Units	0.44	17	0.52	67
Resort Hotel (230)	Rooms	0.31	72	0.42	43
Shopping Center (820)	1,000 sq. ft. GLA	1.03	61	3.75	48



The following mitigative measures were assumed based on the recommendations contained in the available other known development's traffic studies:

- Leiali'i Parkway/Honoapiilani Highway
 - Construct a dedicated northbound right-turn lane on Honoapiilani Highway.
 - Modify the westbound approach on Leiali'i Parkway to incorporate a dedicated left-turn lane, shared through/left turn lane, and dedicated right-turn lane.
- Fleming Road/Front Street/Honoapiilani Highway
 - Modify the eastbound approach on Front Street to incorporate a dedicated left-turn lane and a shared through/right-turn lane.

C. Planned Roadway Projects

Lahaina Bypass Road

According to the Final Supplemental Environmental Impact Statement for Honoapiilani Highway, Launiupoko to Honokowai, the LBR is planned as a limited access highway between Launiupoko and Honokowai, generally parallel and to the east of Honoapiilani Highway on the slopes of the West Maui Mountains. It is proposed to be built in two (2) phases, initially as a two-lane highway and will ultimately be widened to have four (4) lanes. Proposed connector roadways at Puukoolii, Kaanapali, Wahikuli, Kapunakea, Lahainaluna Road, and Puamana will provide vehicular circulation between Honoapiilani Highway and the LBR.

The LBR was included in the February 1997 MLRLTP and was proposed to be constructed by the State of Hawaii Department of Transportation (SDOT). The roadway will improve the traffic operations on Honoapiilani Highway within the Kaanapali/Lahaina corridor between Honokowai and Puamana. Currently, Phase 1A of construction of the LBR, which will construct the segment from Keawe Street to Lahainaluna Road, began in January 2007.



According to SDOT, the LBR is expected to be complete by the Year 2020. Thus, it is assumed that completion of the entire Lahaina Bypass will not be in place to affect traffic by the build-out year of the Kahoma Agricultural Subdivision in Year 2013 due to the unlikelihood of the event. However, the LBR is seen as the primary remedy to the capacity problems in the West Maui corridor.

Mill Street Extension

The County of Maui is proposing to construct an alternative road parallel to and east of Honoapiilani Highway, west of the proposed LBR, between Aholo Street and Keawe Street along an existing Cane Haul Road. The construction schedule of the Mill Street Extension is currently unknown at this time. Thus, this traffic study assumes that the Mill Street Extension will not be completed by Year 2013.

D. Base Year 2013 Traffic and Analysis

While the application of the 1.65 percent annual growth factor led to a 9.5 percent increase in north-south through traffic over existing volumes, the other known projects slated to be constructed by 2013 are projected to generate an additional 55 percent (approximate) increase in traffic. In total, traffic is projected to increase by approximately 65 percent over existing volumes. Therefore, under Base Year 2013 (without the proposed project), traffic operations, in the vicinity of the project, will generally deteriorate from existing conditions during both the AM and PM peak hours of traffic due to ambient traffic growth and the development of the other known projects.

With the 65 percent increase in traffic, congestion will occur along Honoapiilani Highway and its intersecting minor streets due to the lack of regional north-south capacity along Honoapiilani Highway.

Improved transit, Travel Demand Management (TDM) measures, and the eventual completion of the LBR will create additional corridor capacity, which will further relieve congestion along Honoapiilani Highway. See the following section



for further discussion of possible regional improvements that could reduce demand and increase capacity throughout the north-south corridor.

Figure 4 shows the Base Year 2013 Traffic and overall LOS with mitigative measures. Table 4 summarizes the Base Year 2013 LOS with mitigative measures.

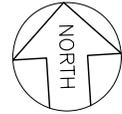
LEGEND:

###(###) - AM(PM) PEAK HOUR OF TRAFFIC VOLUMES

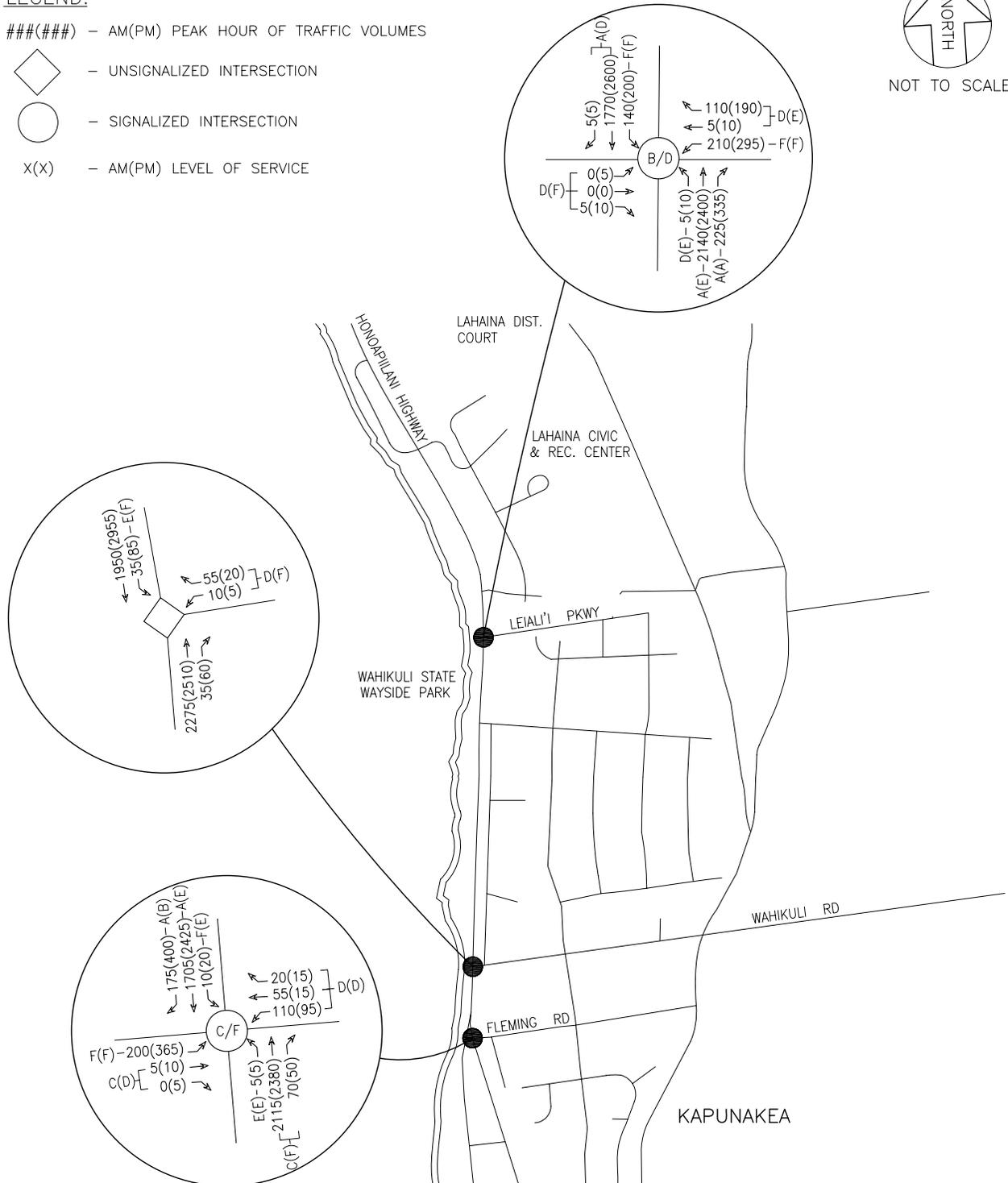
◇ - UNSIGNALIZED INTERSECTION

○ - SIGNALIZED INTERSECTION

X(X) - AM(PM) LEVEL OF SERVICE



NOT TO SCALE



PROPOSED KAHOMA
ACCESSWAYS

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**BASE YEAR 2013
TRAFFIC VOLUMES AND LEVEL OF SERVICE**

FIGURE
4

**Table 4
Base Year 2013
Level of Service Summary**

	Existing Year 2007						Base Year 2013 Without Project-Generated Traffic					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
Flemming Road/Honoapiilani Highway												
NB LT	E	66.5	0.08	E	70.5	0.31	E	60.0	0.45	F	334.1	0.83
NB TH/RT	A	5.6	0.57	B	11.9	0.62	C	25.6	0.99	F	87.0	1.11
SB LT	A	0.0	0.00	E	79.6	0.53	F	151.4	0.79	F	157.0	0.92
SB TH	A	6.2	0.41	B	12.1	0.64	A	6.0	0.77	E	78.8	1.10
SB RT	A	4.5	0.06	A	7.4	0.20	A	1.2	0.12	B	18.0	0.36
WB LT/TH/RT	E	53.4	0.72	D	46.8	0.00	D	48.9	0.74	D	54.9	0.36
EB LT/TH/RT	E	54.3	0.63	F	131.0	1.07	--	--	--	--	--	--
EB LT	--	--	--	--	--	--	F	116.3	1.01	F	173.4	1.18
EB TH/RT	--	--	--	--	--	--	C	33.7	0.01	D	49.5	0.03
<i>Overall</i>	<i>B</i>	<i>10.9</i>	<i>0.59</i>	<i>C</i>	<i>21.5</i>	<i>0.71</i>	<i>C</i>	<i>22.5</i>	<i>0.99</i>	<i>F</i>	<i>83.9</i>	<i>1.10</i>
Wahikuli Road/Honoapiilani Highway												
SB LT	B	13.9	0.09	B	14.5	0.19	E	35.3	0.24	F	221.4	1.10
WB LT/RT	D	32.1	0.34	F	131.1	0.49	D	46.4	N/A	F	N/A	N/A
<i>Overall</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
Leialii Drive/Honoapiilani Highway												
NB LT	E	63.3	0.28	E	62.8	0.15	D	44.3	0.06	E	69.5	0.22
NB TH/RT	B	13.1	0.6	B	14.1	0.72	--	--	--	--	--	--
NB TH	--	--	--	--	--	--	A	9.8	0.94	C	29.0	1.10
NB RT	--	--	--	--	--	--	A	0.7	0.19	A	3.7	0.31
SB LT	E	66.5	0.59	E	69.6	0.69	F	102.7	0.96	F	148.5	1.12
SB TH/RT	A	5.4	0.44	B	10.5	0.70	A	8.9	0.74	D	37.5	1.09
WB LT	E	61.3	0.48	E	63.1	0.62	F	116.4	0.97	F	158.1	1.16
WB TH/RT	E	56.1	0.03	D	52.8	0.10	--	--	--	--	--	--
WB LT/TH	--	--	--	--	--	--	F	128.7	1.00	F	162.8	1.17
WB RT	--	--	--	--	--	--	D	45.0	0.34	E	73.4	0.74
EB LT/TH/RT	E	56.2	0.04	D	52.0	0.00	D	41.4	0.00	F	69.7	0.04
<i>Overall</i>	<i>B</i>	<i>12.8</i>	<i>0.62</i>	<i>B</i>	<i>16.3</i>	<i>0.70</i>	<i>B</i>	<i>18.0</i>	<i>0.95</i>	<i>D</i>	<i>43.5</i>	<i>1.08</i>



IV. REGIONAL IMPROVEMENTS

Additional regional capacity or reduced demand throughout the north-south corridor would help to reduce congestion during Year 2013 without or with the proposed project. This could be accomplished through a combination of some of the following improvements:

- Extend LBR to the Kaanapali Connector Road or Honokowai
- Construct the Mill Street Extension
- TDM Measures (including a shuttle service)

While based on its current construction schedule, LBR is only expected to be constructed between Lahainaluna Road and Keawe Street by 2013, this section aims to briefly consider different buildout scenarios and likely outcomes relative to different phases of the construction of LBR.

LBR from Lahainaluna Road to Keawe Street

- Assumed to be complete by 2013.
- Heavy southbound left-turn demand and circuitous nature of the diversion to LBR limit its use to 25 percent of prevailing through traffic along Honoapiilani Highway.

Extend LBR from Launiupoko to Kaanapali Connector Road

- Would divert some of the heavy turning movement volumes from the Keawe Street Extension to the Kaanapali Connector Road.
- Would allow a greater percentage of vehicles to access the LBR.

Extend LBR to Completion (Honokowai)

- Would allow most of the regional trips (Honokowai to South of Lahaina) to utilize LBR instead of Honoapiilani Highway, and to bypass the critical Kaanapali Parkway/Halelo Street/Honoapiilani Highway intersection without significant turning movement delay.
- 50 percent or more of the north/south traffic could be diverted to LBR.



- Would provide nearby access for Pulelehua trips to use LBR, thereby minimalizing Pulelehua's effect on Honoapiilani Highway.
- Would allow for students and teachers to bypass Honoapiilani Highway altogether in their commute to the school along Lahainaluna Road and the middle school proposed for Puukolii Mauka.

Construct the Mill Street Extension

The Mill Street Extension is described in Section III.C, and similar to LBR, would serve as an alternate and parallel route to Honoapiilani Highway. However, this route would differ from LBR in that it would not be a limited access facility. Therefore, Wahikuli residents would be able to access the road directly. Furthermore, its proximity to Honoapiilani Highway would make it more accessible than LBR as a means of local circulation.

TDM Measures

Travel demand management (TDM) attempts to reduce the number of single occupant vehicular trips by incentives programs encouraging the use of multi-occupant vehicles such as bus transit, carpooling and shuttle service.

TDM measures could include incentive programs for carpooling by employers; further subsidy of bus fares; and an increase in the frequency and capacity of the existing bus routes.

As based on the 2000 census, Hawaii currently has a 6.3 percent transit ridership share, which is statistically dominated by Honolulu, which has a 12.02 percent transit ridership. The West Maui Commuter Needs Survey (WMCNS) received responses from 2,433 West Maui workers, and came up with the following pertinent statistics:

- 3 percent currently utilize the existing bus system, while 86 percent drive alone during their morning commute.
- Of those who live outside of West Maui,
 - 22 percent carpool
 - 5 percent ride the bus



- Of those who live in West Maui,
 - 10 percent carpool
 - 1 percent ride the bus
- 39 percent of Housekeepers carpool

While the current bus system offers one (1) bus per hour at a given bus stop in each direction and requires transfers, and the recently initiated “Maui Bus Commuter Service” currently offers one (1) round trip per day per route, Honolulu’s bus service provides bus service every 30 minutes in most places. Increasing the number of stops and reducing the number of required transfers have the potential to increase ridership and in turn, relieve congestion along the roadway network.

If the ridership were to be increased to match the statewide average of 6.3 percent, a 3.3 percent reduction in overall traffic would be realized. This would equate to a decrease in north-south through traffic of approximately 100 vehicles in either direction at the intersection of Leialii Parkway and Honoapiilani Highway. If ridership were to be increased to Honolulu’s levels, a 9.02 percent decrease in north-south through traffic would be realized, which would equate to approximately 300 vehicles in either direction during the PM peak hour of traffic, and 250 during the AM peak hour of traffic at the intersection of Leialii Parkway and Honoapiilani Highway.

Expand Shuttle Service

Currently, two (2) free shuttles are available through Kaanapali and Lahaina, but they currently are geared towards tourists. The hourly “Lahaina Shuttle” (available to Starwood guests) stops at the Kaanapali Ocean Resort, Sheraton Maui, Westin Maui, Lahaina Cannery Mall, Lahaina Wharf Center, and Hilo Hattie’s. The Kaanapali Inter-Resort Shuttle comes every 15 to 20 minutes, and stops at the Westin Villas, Sheraton Maui, and Westin Maui.

The WMCNS determined that 48 percent of West Maui’s workers work in Kaanapali, and 30 percent work in Lahaina. The remaining 22 percent work in Kapalua, Kahana, and Honokowai. Therefore, a shuttle service with wider and more frequent service between Pulelehua, Kaanapali, and Lahaina would encourage people to seek transportation mode alternatives.



V. YEAR 2013 WITH PROJECT SCENARIO

A. Trip Generation

Trip generation estimates the total number of trips produced by a given land use. Trip rates contained in the nationally published ITE, Trip Generation, 7th Edition were used to estimate the number of trips generated by the potential Kahoma Agricultural Subdivision.

Table 5 shows the trip rates used and Table 6 shows the trips potential generated by the Kahoma Agricultural Subdivision.

**TABLE 5
 Trip Generation Rates for the Project**

Land Use (ITE Code)	Independent Variable	AM Peak Hour		PM Peak Hour	
		Trip Rate	% Enter	Trip Rate	% Enter
Single-Family Detached Housing (210)	DU	[a]	25	[b]	63

[a] $0.7 * x + 9.43$

[b] $EXP (0.9 * \ln(x) + 0.53)$

where "x" is the independent variable

**TABLE 6
 Trips Generated by the Project**

	Independent Variable	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Project-Generated Traffic	110 DU	21	65	86	74	43	117



B. Trip Distribution/Assignment

Trip distribution provides an estimate of the origins and destinations of vehicle trips to/from the Project site. Traffic assignment refers to the allocation of vehicle trips to and from the surrounding roadway network based on the directional distribution. Based on the north-south directional distribution of the existing manual turning movement counts at the Wahikuli Road/Honoapiilani Highway intersection and Fleming Road/Front Street/Honoapiilani Highway intersection, it was assumed that 60 percent of the Project-generated traffic would be headed northbound and that the remaining 40 percent would be headed southbound.

Figure 5 shows the traffic assignment for the potential trips generated by the Kahoma Agricultural Subdivision.

The following sections identify the traffic impacts resulting from the potential Kahoma Agricultural Subdivision.

C. Year 2013 with Project

As with Base Year 2013, the study intersections along Honoapiilani Highway will continue to experience LOS F and over-capacity conditions. It is projected that the future Kahoma Agricultural Subdivision will generate approximately 86 total trips during the AM peak hour of traffic and 117 total trips during the PM peak hour of traffic, which is approximately 1.2 percent over Base Year 2013 conditions.

Wahikuli Road/Honoapiilani Highway

The westbound to southbound left turns out of Wahikuli Road at its unsignalized tee-intersection with Honoapiilani Highway will operate at LOS F during the AM and PM peak hours of traffic. With the additional project generated traffic, the intersection of Wahikuli Road/Honoapiilani Highway will not warrant the installation of a traffic signals system. As such the residents will utilize Ainakea Street, which runs parallel to Honoapiilani Highway on the mauka side, to access southbound Honoapiilani Highway through the Fleming Road/Front Street signalized intersection. As stated in Section IIIB, the following



mitigative measures contained in the available other known developments traffic study will need to be constructed to help alleviate the congestion at the Fleming Road/Front Street/Honoapiilani Highway intersection:

- Modify the eastbound approach on Front Street to incorporate a dedicated left-turn lane and a shared through/right-turn lane.

With the proposed mitigative measure, the Fleming Road/Front Street/Honoapiilani Highway intersection will continue to operate at LOS F during the PM peak hour of traffic due to the additional regional traffic demand.

D. Year 2013 with Project Regional Roadway Improvements

Regional roadway improvements will be required to alleviate the future congestion without and with the proposed project. Widening of Honoapiilani Highway along the study intersections to a six-lane roadway would be counter productive towards the construction of the LBR. Therefore regional roadway improvements were limited to the following projects that could improve traffic within the vicinity of the project and, in general, West Maui:

- Extend the LBR to the Kaanapali Connector Road or Honokowai.
- Construct the Mill Street Extension
- Traffic Demand Management (TDM) Measures

See Figure 6 for volumes and overall LOS during Year 2013 with Project. Table 7 summarizes the level of service during the Year 2013 with Project.

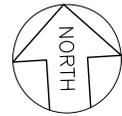
LEGEND:

###(###) - AM(PM) PEAK HOUR OF TRAFFIC VOLUMES

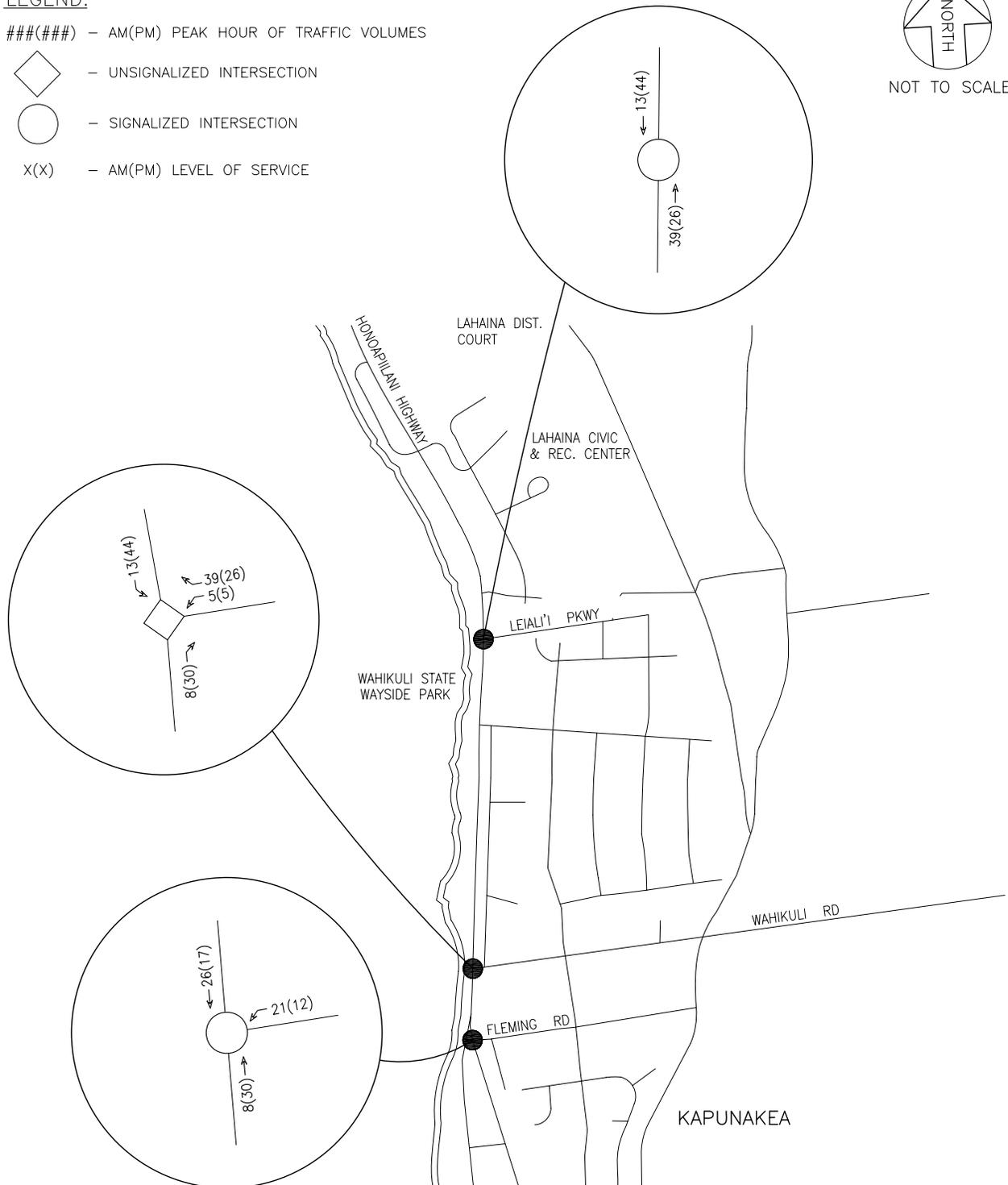
◇ - UNSIGNALIZED INTERSECTION

○ - SIGNALIZED INTERSECTION

X(X) - AM(PM) LEVEL OF SERVICE



NOT TO SCALE



PROPOSED KAHOMA
ACCESSWAYS

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**PROJECT ONLY
TRAFFIC VOLUMES**

FIGURE
5

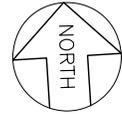
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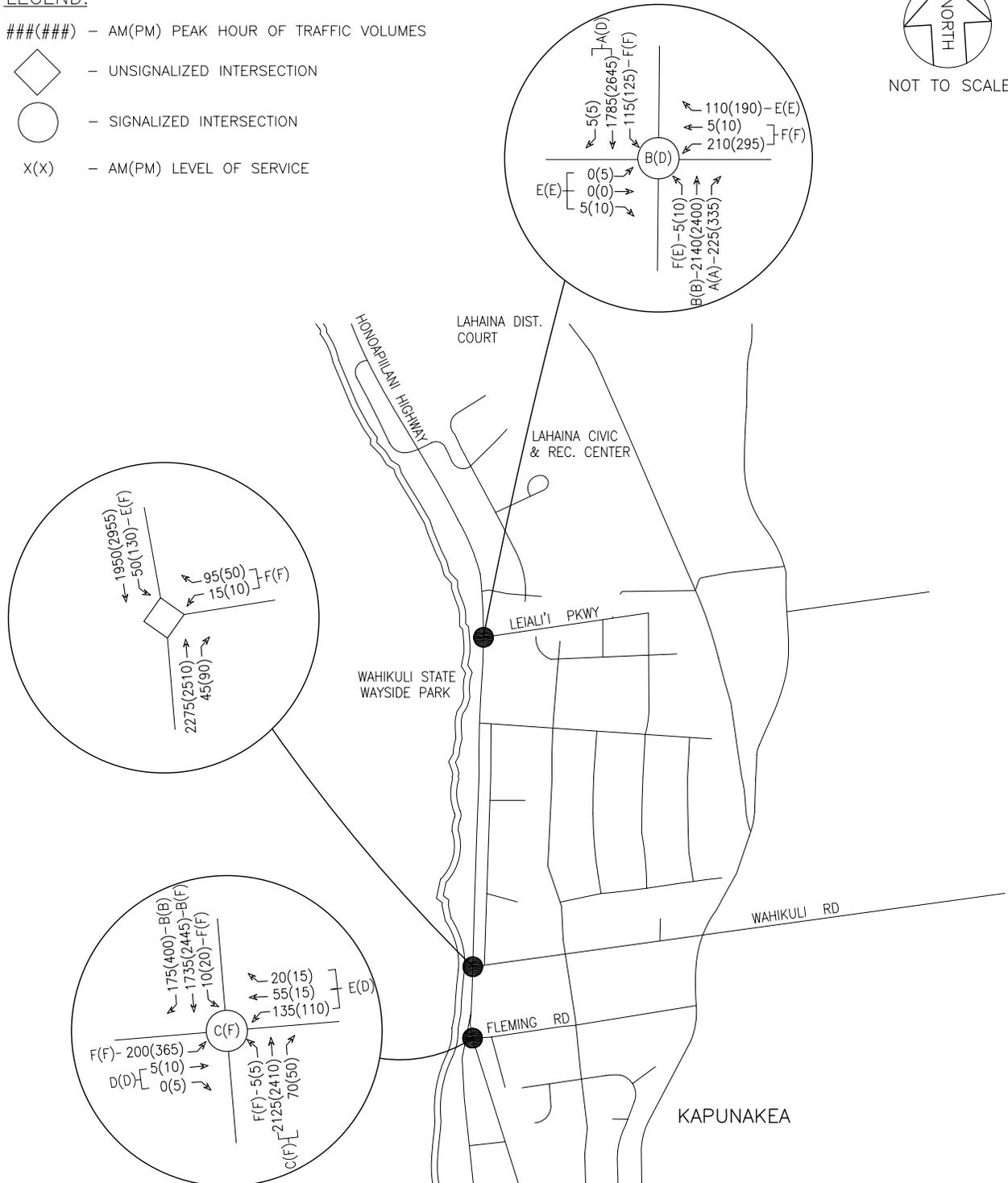
◇ - UNSIGNALIZED INTERSECTION

○ - SIGNALIZED INTERSECTION

X(X) - AM(PM) LEVEL OF SERVICE



NOT TO SCALE



PROPOSED KAHOMA
ACCESSWAYS

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**YEAR 2013 WITH PROJECT
TRAFFIC VOLUMES AND LEVEL OF SERVICE**

FIGURE
6

**Table 7
Future Year 2013
Level of Service Summary**

	Existing Year 2007						Base Year 2013 Without Project-Generated Traffic						Future Year 2013 With Project-Generated Traffic					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
Flemming Road/Front Street/Honoapiilani Highway																		
NB LT	E	66.5	0.08	E	70.5	0.31	E	60.0	0.45	F	334.1	0.83	F	213.1	0.71	F	213.1	0.71
NB TH/RT	A	5.6	0.57	B	11.9	0.62	C	25.6	0.99	F	87.0	1.11	C	29.0	0.95	F	103.0	1.16
SB LT	A	0.0	0.00	E	79.6	0.53	F	151.4	0.79	F	157.0	0.92	F	84.8	0.55	F	83.5	0.76
SB TH	A	6.2	0.41	B	12.1	0.64	A	6.0	0.77	E	78.8	1.10	B	17.3	0.74	F	87.1	1.13
SB RT	A	4.5	0.06	A	7.4	0.20	A	1.2	0.12	B	18.0	0.36	B	11.2	0.13	B	11.3	0.35
WB LT/TH/RT	E	53.4	0.72	D	46.8	0.00	D	48.9	0.74	D	54.9	0.36	E	68.3	0.78	D	46.7	0.43
EB LT/TH/RT	E	54.3	0.63	F	131.0	1.07	--	--	--	--	--	--	--	--	--	--	--	--
EB LT	--	--	--	--	--	--	F	116.3	1.01	F	173.4	1.18	F	102.0	0.95	F	188.2	1.24
EB TH/RT	--	--	--	--	--	--	C	33.7	0.01	D	49.5	0.03	D	46.9	0.01	D	41.3	0.03
<i>Overall</i>	<i>B</i>	<i>10.9</i>	<i>0.59</i>	<i>C</i>	<i>21.5</i>	<i>0.71</i>	<i>C</i>	<i>22.5</i>	<i>0.99</i>	<i>F</i>	<i>83.9</i>	<i>1.10</i>	<i>C</i>	<i>29.2</i>	<i>0.95</i>	<i>F</i>	<i>93.9</i>	<i>1.18</i>
Wahikuli Road/Honoapiilani Highway																		
SB LT	B	13.9	0.09	B	14.5	0.19	E	35.3	0.24	F	221.4	1.10	E	1.1	0.38	F	708.4	2.24
WB LT/RT	D	32.1	0.34	F	131.1	0.49	D	46.4	N/A	F	N/A	N/A	F	1381.0	282.59	F	N/A	N/A
<i>Overall</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Leialii Drive/Honoapiilani Highway																		
NB LT	E	63.3	0.28	E	62.8	0.15	D	44.3	0.06	E	69.5	0.22	F	85.3	0.08	E	73.0	0.08
NB TH/RT	B	13.1	0.6	B	14.1	0.72	--	--	--	--	--	--	--	--	--	--	--	--
NB TH	--	--	--	--	--	--	A	9.8	0.94	C	29.0	1.10	B	10.9	0.93	B	18.7	1.02
NB RT	--	--	--	--	--	--	A	0.7	0.19	A	3.7	0.31	A	1.3	0.20	A	2.9	0.29
SB LT	E	66.5	0.59	E	69.6	0.69	F	102.7	0.96	F	148.5	1.12	F	85.2	0.79	F	148.8	1.01
SB TH/RT	A	5.4	0.44	B	10.5	0.70	A	8.9	0.74	D	37.5	1.09	A	9.7	0.71	D	51.3	1.06
WB LT	E	61.3	0.48	E	63.1	0.62	F	116.4	0.97	F	158.1	1.16	F	91.6	0.81	F	182.8	1.14
WB TH/RT	E	56.1	0.03	D	52.8	0.10	--	--	--	--	--	--	--	--	--	--	--	--
WB LT/TH	--	--	--	--	--	--	F	128.7	1.00	F	162.8	1.17	F	99.2	0.85	F	190.1	1.16
WB RT	--	--	--	--	--	--	D	45.0	0.34	E	73.4	0.74	E	59.4	0.08	E	74.1	0.69
EB LT/TH/RT	E	56.2	0.04	D	52.0	0.00	D	41.4	0.00	F	69.7	0.04	E	57.9	0.00	E	57.8	0.04
<i>Overall</i>	<i>B</i>	<i>12.8</i>	<i>0.62</i>	<i>B</i>	<i>16.3</i>	<i>0.70</i>	<i>B</i>	<i>18.0</i>	<i>0.95</i>	<i>D</i>	<i>43.5</i>	<i>1.08</i>	<i>B</i>	<i>17.0</i>	<i>0.88</i>	<i>D</i>	<i>45.1</i>	<i>1.08</i>



VI. CONCLUSIONS

The existing Kahoma Agricultural Subdivision is on approximately 780 acres of land located mauka of Lahaina Town and north of Lahainaluna Road. The Kahoma Agricultural Subdivision may be developed in the future with a minimum lot size proposed to be about 5 acres, while the largest lot proposed to be about 80 acres. Based on information provided, the maximum units that can be constructed on each lot are two (2) units. Therefore, the project may consist of 110 single-family homes. Vehicular access to the existing Kahoma Agricultural Subdivision will initially be provided via Wahikuli Road at its intersection with Honoapiilani Highway.

A. Existing Traffic Conditions

The study intersections are defined as:

- Fleming Road/Front Street/Honoapiilani Highway
- Wahikuli Road/Honoapiilani Highway
- Leialifi Parkway/Honoapiilani Highway

Currently, these intersections operate relatively smooth; however, Highway Capacity Manual analysis, as created using Synchro, indicate that during the PM peak hour of traffic, many of the turning movements at the study intersections operate a LOS E or LOS F.

B. Base Year 2013

During Base Year 2013, the other known developments, in conjunction with the de facto growth rate of 1.65 percent (annually), will lead to an approximate 65 percent increase in overall north-south through traffic through the study intersections. This will lead to over-capacity and LOS F conditions at the study intersections. Regional roadway improvements or TDM measures will be required to accommodate the future traffic demand.

A review of the Base Year 2013 traffic volumes at the Wahikuli Road/Honoapiilani Highway intersection illustrate that the intersection will not warrant installation of a traffic signal system.



The following mitigative measures were assumed based on the recommendations contained in the available other known development's traffic studies:

Leiali'i Parkway/Honoapiilani Highway

- Construct a dedicated northbound right-turn lane on Honoapiilani Highway.
- Modify the westbound approach on Leiali'i Parkway to incorporate a dedicated left-turn lane, shared through/left turn lane, and dedicated right-turn lane.

Fleming Road/Front Street Honoapiilani Highway

- Modify the eastbound approach on Front Street to incorporate a dedicated left-turn lane and a shared through/right-turn lane.

Despite the improvements described above, congestion will still occur along Honoapiilani Highway and its intersecting minor streets due to the lack of regional north-south capacity along Honoapiilani Highway.

C. Year 2013 with Project

It is projected that the potential Kahoma Agricultural Subdivision will generate approximately 86 total trips during the AM peak hour of traffic and 117 total trips during the PM peak hour of traffic, which is approximately 1.2 percent over Base Year 2013 conditions. Based on the analysis, the potential Kahoma Agricultural Subdivision is not expected to have a significant impact on traffic operations in the vicinity of the project, as the critical movements at the study intersections along Honoapiilani Highway are anticipated to continue operating at level of service similar to Base Year conditions without the project.

Nevertheless, congestion will still occur along Honoapiilani Highway and its intersecting minor streets due to the lack of regional north-south capacity along Honoapiilani Highway.



VII. RECOMMENDATIONS

The following regional roadway improvements will be required without and with the proposed project and would improve the traffic conditions within the vicinity of the project and, in general, West Maui:

Extend the LBR to the Kaanapali Connector Road

The extension of the LBR to the Kaanapali Connector Road would divert some of the turning movements along Honoapiilani Highway in Lahaina Town, particularly Keawe Street, to the Kaanapali Connector. This would allow a greater percentage of vehicles to access the LBR.

Extend the LBR to Completion (Honokowai)

The completion of the LBR to Honokowai would allow most of the regional trips (Lahaina to Honokowai) to utilize the LBR instead of Honoapiilani Highway, and bypass the critical intersections without significant turning movement delay. It is also, estimated that 50 percent or more of the north/south traffic on Honoapiilani Highway could be diverted to the Lahaina Bypass.

Construct the Mill Street Extension

The Mill Street Extension would serve as an alternate and parallel route to Honoapiilani Highway. This route would not be a limited access facility and therefore, Wahikuli, would be able to access the road directly. Furthermore, its proximity to Honoapiilani Highway would make it more accessible than the LBR as a means of local circulation.

TDM Measures

TDM measures could include:

- Carpooling incentives.
- Improvements to bus service/subsidies.

As stated in Section IIIB, the following mitigative measures contained in the available other known developments traffic study will need to be constructed to help alleviate the congestion at the Fleming Road/Front Street/Honoapiilani Highway



intersection due to the increased demand resulting from the development of the Kahoma Agricultural Subdivision:

- Modify the eastbound approach on Front Street to incorporate a dedicated left-turn lane and a shared through/right-turn lane.



REFERENCES

1. Austin, Tsutsumi and Associates, Inc., Traffic Impact Analysis Report, Westin Kaanapali Ocean Resort Villas Expansion, November 2003.
2. Austin Tsutsumi and Associates, Inc., Traffic Impact Analysis Report, Honua Kai, April 2004.
3. Chris Hard & Partners, Inc., Environmental Impact Statement Preparation Notice, Maui Ocean Club Sequel, September 2002.
3. Institute of Transportation Engineers, Trip Generation, 7th Edition, 1997.
4. Kaku and Associates, Maui Long-Range Land Transportation Plan, February 1997.
5. Parsons Brinckerhoff Quade & Douglas, Inc., Traffic Impact Analysis Update, Napili Villas, August 2000.
6. Parsons Brinckerhoff Quade & Douglas, Inc., Traffic Impact Analysis, Kapalua PD-2, December 2001.
7. State of Hawaii, Department of Businesses, Economic Development and Tourism, Data Book, 2001.
8. Transportation Research Board, Highway Capacity Manual, 2000.
9. Wilson Okamoto Corporation, Traffic Impact Report for Maui Preparatory Academy, April 2004.

Appendix E:
Early Consultation Comment and
Response

EARLY CONSULTATION COMMENTS AND RESPONSES

Letters requesting early consultation comments on the proposed project were sent to the following agencies and organizations on December 14, 2007. Where indicated, the agency or organization submitted written comments and response letters are included on the following pages.

AGENCY	COMMENTS	RESPONSES
FEDERAL		
Natural Resources Conservation Service		
US Army Corps of Engineers		
US Fish & Wildlife Service	16-Jan-07	27-Mar-09
STATE		
Dept of Accounting and General Services		
Dept of Business Economic Development & Tourism (DBEDT)		
DBEDT, Hawaii Housing Finance and Development Corporation	27-Dec-08	03-Jan-08
DBEDT, Office of State Planning		
Department of Education	04-Jan-08	27-Mar-09
Department of Hawaiian Homelands (DHHL)		
Department of Health (DOH) - Waste Water Branch		
DOH, Safe Drinking Water Branch		
DOH, Environmental Planning Office		
DOH, Maui District Health Office	18-Jan-08	27-Mar-09
DOH, Office of Environmental Quality Control (OEQC)		
Dept of Land & Natural Resources (DLNR)	10 & 18-Jan-08	27-Mar-09
DLNR, OCCL	11-Jan-08	27-Mar-09
DLNR SHPD		
Dept of Transportation (DOT)		
DOT, Statewide Planning Office		
DOT, Maui District Engineer		
Office of Hawaiian Affairs (OHA)	04-Jan-08	27-Mar-09
UH Environmental Center		
UH Sea Grant Extension Office		
COUNTY		
Dept of Fire Control & Public Safety	11-Jan-08	27-Mar-09
Office of Economic Development		
Department of Environmental Management		
Dept of Housing & Human Concerns	12/22/07, 12/24/07	27-Mar-09
Dept of Parks & Recreation	26-Dec-07	27-Mar-09
Dept of Planning		
Dept of Public Works	09-Jan-08	27-Mar-09
Department of Transportation		

AGENCY	COMMENTS	RESPONSES
Dept of Water Supply		
Police Dept		
LOCAL UTILITIES		
MECO	10-Jan-08	27-Mar-09
COMMUNITY BUSINESSES, GROUPS & INDIVIDUALS		
BISHOP B P TRUST ESTATE		
GANDELL, Robert K.		
KAANAPALI LAND MANAGEMENT CORP.	24-Jan-08	27-Mar-09
KALEPA, Lilia - C/O Lilian Sutter	10-Jan-08	27-Mar-09
Haia, Louella L.	03-Jan-08	27-Mar-09
I'i, Lehua	14-Jan-08	27-Mar-09
Jospehine Keliipio	28-Jan-08	27-Mar-09

December 14, 2007

Mr./Ms. XXXXXXXX, Title
Department of XXXXXXXX
XXXXXX Drive
XXXXXX, HI 96XXX

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021:002, 006, 024
(2) 4-5-022:002, 004, 006

Dear Mr./Ms. XXXXXXXX,

Kahoma Land LLC and associates propose to develop an approximately 55-lot agricultural subdivision in the vicinity of Kahoma Stream. The subject property is located *mauka* of Lahaina Town, and north of Lahainaluna Road. **See: Figure 1, Regional Location Map, and Figure 2, Site Plan.**

The majority of the project site is zoned Agricultural by the County of Maui, and State Land Use and Community Plan designations are Agricultural. The *mauka* parcels, (2) 4-5-022:002, 004, 006 are designated for Conservation and are not proposed for development.

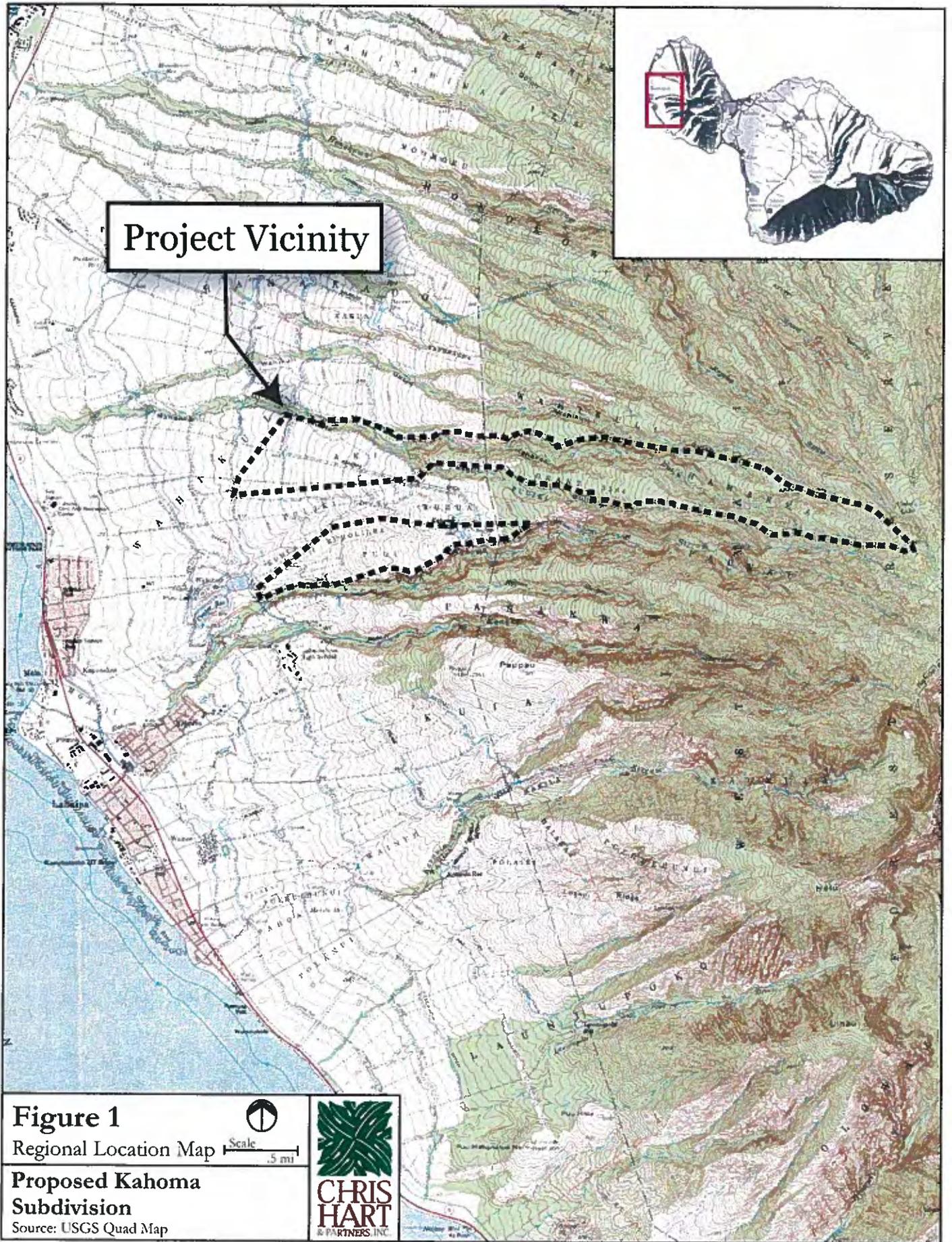
As part of the proposed action, the applicant is submitting a request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement over an approximately 2,270 square foot area of State Land for the creation of a 40 foot wide right-of-way. This right-of-way will provide access along existing cane haul roads for current agricultural pursuits and the future agricultural subdivision. Use of State Land requires the preparation of an Environmental Assessment, which will be prepared in accordance with Chapter 343, Hawaii Revised Statutes. In this regard, we are, on behalf of the applicant, requesting early review and comment on the proposed project in accordance with the requirements of Chapter 343, HRS, and of the Hawaii Administrative Rules, Title 11, Chapter 200.

Please provide all written comments to our office by January 14, 2008. Should you have any additional questions or require additional information, please call me at (808) 242 1955.

Respectfully,

Matthew M. Slepín, Senior Planner

ENCLOSURE



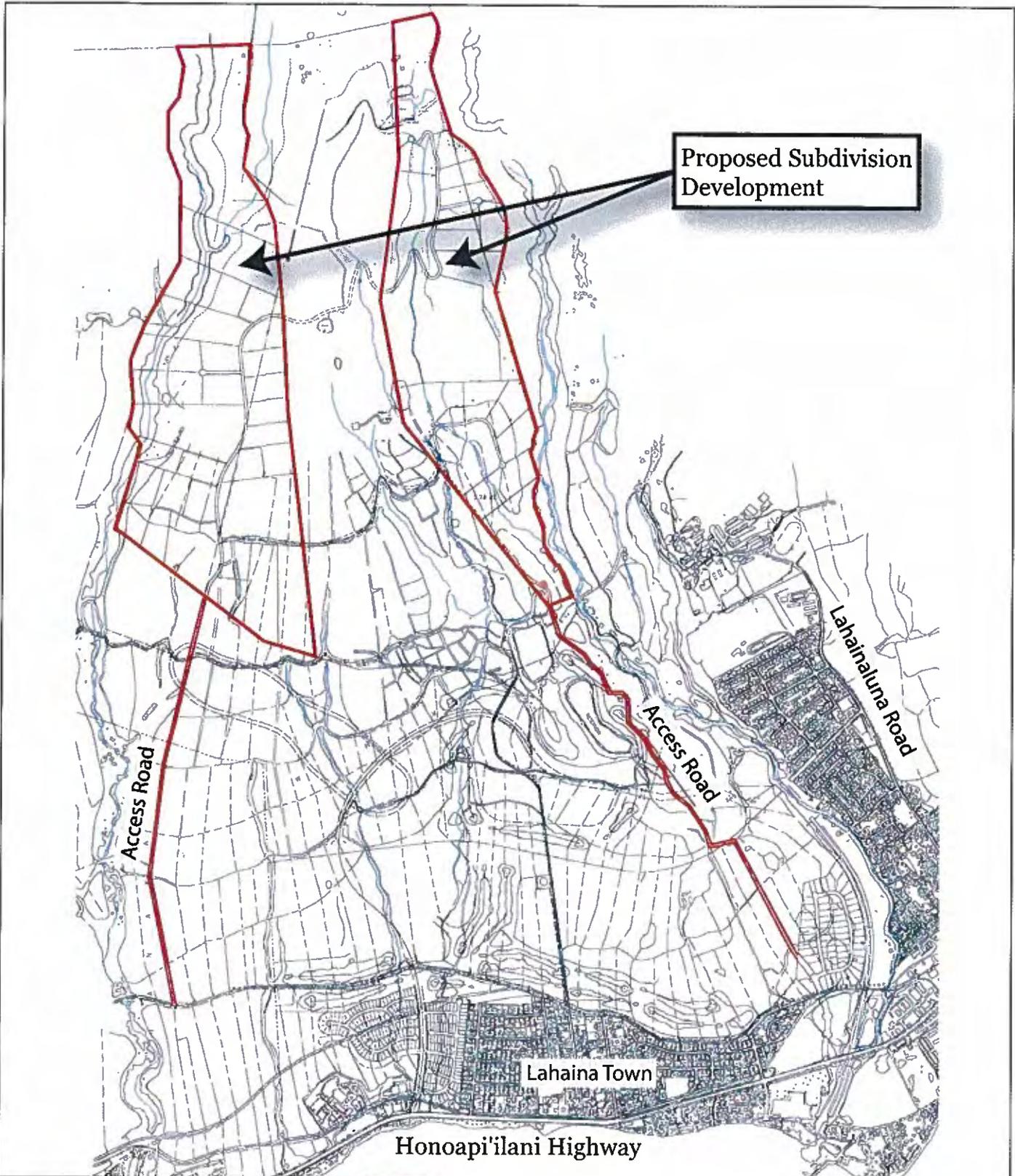


Figure 2
 Site Plan



Not to Scale

Proposed Kahoma Subdivision
 Source: Otomo Engineering, Inc./CH&P, Inc.





United States Department of the Interior



FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2008-TA-0081
2008-FA-0042

JAN 16 2008

07/107

Mr. Matthew M. Slepín
Senior Planner
Chris Hart and Partners, Inc.
115 North Market Street
Wailuku, Maui, Hawaii 96793-1706

Subject: Request for Technical Assistance for Proposed Agricultural Subdivision in the Vicinity of Kahoma Stream, TMK (2) 4-5-021:002, 006, 024, Lahaina, Maui, Hawaii

Dear Mr. Slepín:

Thank you for your December 14, 2007, letter indicating that you are compiling information that will be incorporated into an Environmental Assessment for the development of a 55-lot agricultural subdivision in Lahaina, Maui. We received your request on December 17, 2007. Based on the project information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, endangered Hawaiian stilts (*Himantopus mexicanus knudseni*) occur in the vicinity of the Wahikuli Reservoir, that is within the project area. In addition, the threatened Newell's shearwater (*Puffinus auricularis newelli*) and endangered Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*) (collectively referred to as seabirds), and endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) are known to occur in the project vicinity. The proposed project is located on the dry leeward side of West Maui where wildland fires interdependent with the proposed project may also affect endangered *Ctenitis squamigera*, *Diellia erecta*, *Gouania hillebrandii*, *Hesperomannia arbuscula*, *Remya mauiensis*, *Spermolepis hawaiiensis*, *Tetramolopium capillare*, and *Tetramolopium remyi* as well as designated critical habitat for *Alectryon micrococcus*, *Colubrina oppositifolia*, *Ctenitis squamigera*, *Cyanea glabra*, *Cyanea lobata*, *Cyrtandra munroi*, *Gouania vitifolia*, *Hesperomannia arbuscula*, and *Remya mauiensis*. Because our data may be incomplete, we recommend you conduct surveys for endangered species within the project area.

We recommend you address potential direct and indirect project impacts to these listed species and critical habitat areas and include measures to minimize project impacts in your environmental review document. The following recommendations are provided to assist you in your plan development:

- Potential impacts to the Hawaiian stilt include harm and harassment associated with vegetation clearing and domesticated animal predation. In order to minimize or avoid

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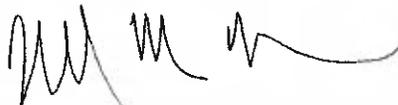
RECEIVED JAN 18 2008

vehicle and machinery impacts to nesting stilts, vegetation clearing in the vicinity of Wahikuli Reservoir and other existing and proposed ponds associated with the project could be limited to periods when biological surveys indicate the area is free of waterbird nests. Predator-proof fences could be erected to prevent domesticated animals associated with the project from impacting endangered waterbirds.

- Potential impacts to seabirds could be minimized by shielding outdoor lights in the project footprint throughout the construction period and within the completed subdivision so the bulb can only be seen from below, by avoiding use of lights at night during the peak fallout period of September 15 through December 15, and by providing all project staff and residents with information about seabird fallout.
- Information about Hawaiian hoary bat use of the project area is incomplete. Bat surveys could be conducted in areas where cutting or removal of trees is proposed. If Hawaiian hoary bats are found in the project area, you should contact our office for additional information about how to address potential impacts to this species. Because bat pups are found in nursery trees during the April through August breeding season, it is particularly important to avoid disturbance to trees during this period in areas where bats occur.
- Measures to minimize fire risk should be incorporated into your project. The West Maui Fire Task Force has formed to support efforts to coordinate development of area firebreaks, a system of fire suppression helicopter dip-sites (which could include the Wahikuli Reservoir), and fire prevention materials to minimize impacts of fires associated with increases in the West Maui area population.
- To minimize erosion, sedimentation, and other adverse impacts to aquatic fish and wildlife resources and nearby coral reef ecosystems, we recommend that applicable measures identified in the enclosed list of Standard Best Management Practices (BMP) for fish and wildlife be incorporated into the project's BMP Plan.

If, as project planning progresses, you determine the proposed subdivision may adversely impact federally listed species or critical habitats, please contact our office for further assistance. If you have questions or would like additional information, please contact Consultation and Technical Assistance Program Fish and Wildlife Biologist Dawn Greenlee (phone: 808-792-9400; fax: 808-792-9581).

Sincerely,



Patrick Leonard
Field Supervisor

for

Enclosure

Enclosure

**US Fish and Wildlife Service
Recommended Standard Best Management Practices**

The Fish and Wildlife Service recommends that the following measures be incorporated into projects to minimize the degradation of water quality and impacts to fish and wildlife resources:

- a. Turbidity and siltation from project-related work shall be minimized and contained to within the vicinity of the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse weather conditions;
- b. dredging and filling in the aquatic environment shall be designed to avoid or minimize the loss special aquatic site habitat (pool/riffle areas, wetlands, etc.) and the unavoidable loss of such habitat shall be compensated for;
- c. all project-related materials and equipment (dredges, barges, backhoes etc) to be placed in the water shall be cleaned of pollutants prior to use;
- d. no project-related materials (fill, revetment rock, pipe etc.) should be stockpiled in the water (stream channels, wetlands etc.);
- e. all debris removed from the aquatic environment shall be disposed of at an approved upland or ocean dumping site;
- f. no contamination (trash or debris disposal, alien species introductions etc.) of adjacent aquatic environments (stream channels, wetlands etc.) shall result from project-related activities;
- g. fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored on-site, if appropriate, to facilitate the clean-up of accidental petroleum releases;
- h. any under-layer fills used in the project shall be protected from erosion with (rock, core-loc units, etc) as soon after placement as practicable; and
- i. any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric etc.) after exposure and stabilized as soon as practicable (with vegetation matting, hydroseeding, etc.).

The Fish and Wildlife Service believes that incorporation of these measures into projects will greatly minimize the potential for project-related adverse impacts to fish and wildlife resources.



March 27, 2009

Patrick Leonard, Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, HI 96850

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Leonard,

Thank you for your January 16, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision. In response to your comments we offer the following.

Thank you for providing us with the information on the endangered flora and fauna occupying the vicinity of the subject property. To protect the endangered flora and fauna of our island, and preserve their fragile habitats Kahoma Land LLC contracted Environmental Consultant Robert W. Hobdy to conduct a Biological Resources Survey. A walk-through botanical survey method was used covering all the ridge top areas and rocky gulches as well as following the

road alignment corridors. Land features favorable to endangered native plant and animal species were given special attention.

The proposed accessway corridors follow along existing cane haul roads on extensively disturbed agricultural lands. The applicants' properties are also predominantly an extensively disturbed area of long-term agricultural cultivation. The lands lie on former sugar cane fields well upslope from the coast. The applicants' properties also include moderately sloping ridge tops and gulches with steep sides. Since sugar cane agriculture shut down in the 1990s, these fields have largely been abandoned and are now in an array of non-native low growing weed species.

The study found that the applicants' lands are predominantly populated with non-native flora and fauna with no special designations. One endemic plant species, rare enough to be designated a Species of Concern (*Schiedea menziesii*), and one endemic, endangered bird (nene goose) were found on the project site. The endemic and endangered nene goose was seen in two different areas of the property. Although the project area does not contain core habitat or critical habitat for nene that would require restrictions of land uses or setting aside of habitat for the goose; should construction of the subdivision occur, special care will be taken not to harass or harm these birds while they are present.

No impacts on flora and fauna are anticipated as a result of the request for access easements across State land. Additionally, no significant impacts are anticipated as a result of the proposed subdivision.

We acknowledge you office's concern regarding the destruction of critical habitats and endangered flora resulting from wildfires and project development. We would like to note that the County of Maui Department of Fire and Public Safety are in support of the creation of a forty-foot right of way that will assist emergency vehicles in controlling future wildfires. Agriculture and landscape irrigation will also help prevent the start of wildfires in the project area.

Patrick Leonard
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024, 002 (portion)
March 27, 2009
Page 2 of 3

These lands have been in agricultural uses since the early 1800's and have since been subject to plowing, burning and harvesting. The actions of this project will not exceed the allowable agricultural uses.

Project plans will be modified to include the recommendations provided by your office where applicable.

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File

LINDA LINGLE
GOVERNOR



ORLANDO "DAN" DAVIDSON
EXECUTIVE DIRECTOR

STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

EXECUTIVE ASSISTANT

IN REPLY REFER TO:

07:DEV/0312

December 27, 2007



Mr. Matthew M. Slepín, Senior Planner
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Maui, Hawaii 96793-1706

Dear Mr. Slepín:

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK (2) 4-5-021: 002, 006, 024
TMK (2) 4-5-022: 002, 004, 006

The Hawaii Housing Finance and Development Corporation (HHFDC) acknowledges receipt of your letter dated December 14, 2007 requesting for early consultation comments to a proposed 55-lot agricultural subdivision with proposed access over State lands comprising the mauka portion (TMK 4-5-021: 004 & 022) of the Villages of Leiali'i project in Lahaina, Maui, Hawaii.

As indicated in our last letter to the West Maui Land Company, Inc. dated May 25, 2007, HHFDC has retained Belt Collins Hawaii Ltd. to re-look at the Villages of Leiali'i master plan and the feasibility of the immediate development of the area of the Villages of Leiali'i below the proposed Lahaina By-Pass Highway for affordable housing on a leasehold basis. Access to the above projects through the Villages of Leiali'i project will be addressed as part of the study done by Belt Collins. Our initial comments to the requested access at that time were as follows:

1. The access easements shall be for access purposes based upon current agriculture and conservation zoning for agricultural pursuits including, but not limited to cattle ranching, water reservoir management and eco-tour operations. There shall be no utilities in the easement.
2. The access easements shall be non-exclusive and re-locatable at grantor's request and grantee's expense (no limit).

Mr. Matthew M. Slepik, Senior Planner
December 27, 2007
Page 2

3. The 40' width appears excessive. Please submit a justification with a cross section illustrating the proposed use relative to the requested width.
4. The easement to TMK 4-5-21: 002 shall be subject to a perpetual easement from grantee in favor of, and in forms agreeable to, HHFDC, Maui Electric Company, and the County of Maui Department of Water Supply, over Easements "A," "B" and "C" as well as lots 1, 2, and 4 on grantee's property for future water facility and storage purposes for the Villages of Leiali'i project.
5. The easement to TMK 4-5-22: 024 shall be subject to a perpetual easement from grantee in favor of and in forms agreeable to, HHFDC, Maui Electric Company, and the County of Maui Department of Water Supply, over the easement area to be designated by HHFDC on grantee's property for future water facility and storage purposes for the Villages of Leiali'i project.

The access easements should not be finalized until after HHFDC has satisfactorily completed its review of the Villages of Leiali'i master plan.

In addition, please find enclosed, a letter dated December 21, 2007 to West Maui Land Company, Inc. inquiring about the ownership and use of the irrigation system and reservoirs also on the mauka portion of the proposed Villages of Leiali'i project. Will the proposed agricultural subdivisions require the use of the irrigation system and reservoirs, and if so, what are the proposed inspection, repair and maintenance programs for the irrigation system?

Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,



fu Orlando "Dan" Davidson
Executive Director

Attachment

- c: Charlene Unoki, DLNR Senior Land Agent, letter only
Daniel Ornellas, DLNR Maui Land Agent, letter only
Sue Sakai, Belt Collins Hawaii Ltd., letter only

KAHOMA LAND LLC

33 Lono Avenue • Suite 450
Kahului, HI • 96732

Phone 808• 877•4202

Fax 808•877•9409

January 3, 2008

Mr. Orlando "Dan" Davidson, Executive Director
Mr. Stan S. Fujimoto, Project Manager
State of Hawaii
Hawaii Housing Finance and Development Corporation
677 Queen Street, Suite 300
Honolulu, HI 96793

Subject: Irrigation Ditches and Reservoir at Villages of Leiali`i
Lahaina, Maui, Hawai`i
TMK (2) 4-5-21: 3; Por. 4, 18, 19, 20, 21, por. 22
HHFDC Ref: 07:DEV/0304

Dear Mr. Davidson and Fujimoto,

Thank you for your correspondence of December 21, 2007 advising of the renewal and updating of the Villages of Leali`i master planning. In response to your questions:

1. Please confirm whether the Wahikuli Reservoir or any other part of the irrigation ditches and reservoirs (Wahikuli and Crater Reservoirs) on the mauka portions of the Village of Leiali`i project, TMK (2) 4-5-21: por. 004 & 022 (Leiali`i mauka lands) belongs to Kahoma Land.
 - *Wahikuli Reservoir: 2/3 of the reservoir is located on land owned by Kahoma Land LLC TMK: (2) 4-5-21: 002; 1/3 of the reservoir is located on State land TMK: (2) 4-5-21:022.*
 - *Crater Reservoir is located wholly within State Lands TMK: (2) 4-5-21:022*
2. Does Kahoma Land have easements for the irrigation ditches and reservoir(s) on the Leali`i mauka lands? Is so may we have copies of these easements? Does Kahoma Land have easements it has granted to others for the use of the Wahikuli reservoir on its property? If so, may we have copies of these easements?
 - *Wahikuli Reservoir (portion located on Kahoma Land) includes a recorded non-exclusive easement in the area of the reservoir in favor of Amfac/Pioneer Mill. Amfac/Pioneer Mill has retained all rights pertaining to the use of the water within the easement and Kahoma Land LLC receives no benefit of the water.*
 1. *Please see Doc. No. 2000-118778, d/8/28/2000 - Grant of Exclusive Easements and Other Rights attached for review*

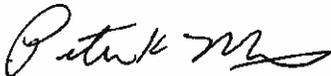
3. Is Kahoma Land using irrigation water from the Wahikuli Reservoir or any other part of the irrigation water system on the Leiali'i mauka lands? If so, what lands and crops is this irrigation system used to irrigate?
 - *No, Kahoma Land does not use irrigation water from the Wahikuli Reservoir irrigation water system on the Leiali'i mauka lands.*

4. Please confirm whether there are any dams at the Wahikuli or Crater Reservoirs. If so, is Kahoma Land responsible for any part of the inspection, repair and maintenance program for the reservoirs and dam(s)? When was the last regular inspection of the dam(s) by the US Corps of Engineers or other applicable governmental inspection agency? When was the last repair done for the dams(s)? What and when is the next scheduled inspection and maintenance action for the reservoirs and dam(s)?
 - *Per the attached Grant of Exclusive Easements and Other Rights, Amfac/Pioneer Mill has retained all rights and responsibility including repair and maintenance pertaining to the use of the water within the easement for Wahikuli Reservoir.*
 - *Per correspondence to DLNR, Engineering Division dated July 20, 2006 and September 28, 2006; Kahoma Land LLC advised of recorded easements in favor of Amfac/Pioneer Mill.*
 - *A Limited Visual Dam Safety Inspection Summary Report; MA-055; Wahikuli Reservoir; Maui, Hawaii; dated May 2006 prepared by the US Army Corp of Engineers for DLNR is attached for review.*

5. What are your plans for the continued use of this irrigation system?
 - *Kahoma Land LLC currently has no plans for use of the Wahikuli and Crater Reservoir irrigation systems.*

Should you have any questions or comments please let contact Arlene Torricer, project coordinator, at (808) 877-4202 or by email at arlene@westmauiand.com.

Sincerely,
Kahoma Land LLC



Peter Martin
Managing Member

Attachments

Cc: Charlene Unoki, DLNR Senior Land Agent (letter only)
Daniel Ornellas, DLNR Maui Land Agent (letter only)
Sue Sakai, Belt Collins Hawaii Ltd. (letter only)
\\Wmlsbs\WML\Master Documents\Kahoma\Kah Access\Kah access_state\Villages of Lealii\kahlealii_HHFDC_ltr Davidson_03jan08.doc



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

January 4, 2008

Mr. Matthew M. Slepik, Senior Planner
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawaii 96783-1706

Dear Mr. Slepik:

SUBJECT: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui (TMK (2) 4-5-021:002, 006, 024; 4-5-022:002, 004, 006)

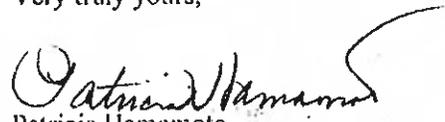
The Department of Education (DOE) has reviewed your request for early consultation on the proposed 55-lot Kahoma subdivision.

Both non-contiguous portions of this subdivision are adjacent to the Villages of Leialii housing project where two sites have been designated by the DOE for future elementary schools. Please address potential impacts to these sites in the Environmental Assessment (EA) from the 40-foot wide access road or from other elements of the Kahoma subdivision. The Villages of Leialii affordable housing project is currently being developed by the Hawaii Housing Finance & Development Corporation (HHFDC).

The 2007 Legislature passed Act 245 establishing school impact fees and is in the process of being implemented. Under this new law, it is possible the Project will be required to pay an impact fee. We currently do not know whether Lahaina will be in an impact area, or the amount of the fee per residential unit. If the project falls within an impact area, the DOE will meet with the developers of the project to discuss an agreement to mitigate the impacts of enrollment growth generated by this project.

Should you have any questions, please call George Casen of the Facilities Development Branch at (808) 586-0430.

Very truly yours,


Patricia Hamamoto
Superintendent

PH:jmb

cc: Randolph Moore, Assistant Superintendent, OSFSS
Duane Kashiwai, Public Works Administrator, FDB
Ron Okamura, CAS, Hana/Lahaina/Lanai/Molokai Complex Areas

RECEIVED JAN 04 2008

CL: matt
07/103



March 27 2009

Patricia Hamamoto, Superintendent
State of Hawaii
Department of Education
P.O. Box 2366, Honolulu, Hawaii 96804

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Ms. Hamamoto,

Thank you for your January 4, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment (EA) since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

With regard to your comments we offer the following:

We acknowledge the proximity of the proposed Kahoma subdivision to the Villages of Leialii, and the corresponding two sites designated by the DOE for future elementary schools. No impacts are anticipated to these sites as a result of the access easements over state land.

Patricia Hamamoto, Superintendent
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-4-021: 024, 006 & 002 (portion)
March 27, 2009
Page 2 of 2

If it is determined that the proposed Kahoma subdivision is affected by the 2007 Legislature Act 245, the applicant will coordinate with the DOE to determine the appropriate measures to be taken as required by Section 302A-1603(b), HRS.

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "M. Slepina".

Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M. D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M. D., M. P. H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2102

January 18, 2008

Mr. Matthew M. Slepín
Senior Planner
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawai'i 96793

Dear Mr. Slepín:

Subject: **Early Consultation Request for Proposed Kahoma
Subdivision, Lahaina, Maui**
TMK: (2) 4-5-021: 002, 006, 024 & (2) 4-5-022: 002, 004, 006

Thank you for the opportunity to comment on the proposed Kahoma Subdivision. The following comments are offered:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage is required for this project. The Clean Water Branch should be contacted at 808 586-4309.
2. The methods by which wastewater will be disposed of is a concern. The Wastewater Branch should be contacted at 808 586-4294.
3. Development of the drinking water system for the subdivision will require the approval of the Safe Drinking Water Branch.
4. All lands formerly in the production of sugarcane should be characterized for arsenic contamination. If arsenic is detected above the US EPA Region Preliminary Remediation Goal (PRG) for non-cancer effects, then a removal and/or remedial plan must be submitted to the Hazard Evaluation and Emergency Response Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, Hawaii Revised Statutes, and Title 11, Chapter 451, Hawaii Administrative Rules (HAR), State Contingency Plan.

RECEIVED JAN 22 2008

07/103

Mr. Matthew M. Slepín
January 18, 2008
Page 2

5. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in (HAR), Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work.

It is strongly recommended that the Standard Comments found at the Department's website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230.

Sincerely,



Herbert S. Matsubayashi
District Environmental Health Program Chief

c: EPO



March 27, 2009

Herbert S. Matsubayashi, District Environmental Health Program Chief
State of Hawaii
Department of Health, Maui District Health Office
54 High Street
Wailuku, Hi 96793

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Matsubayashi,

Thank you for your January 9, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

We have noted that you offer no comments or concerns regarding the request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement. With regard to your comments concerning the subdivision we note the following:

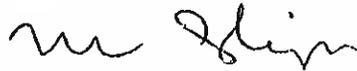
1. The State Department of Health, Clean Water Branch will be consulted concerning the acquisition of a National Pollution Discharge Elimination System (NPDES) permit.
2. Individual wastewater systems (septic tanks) will be utilized by lot owners for wastewater disposal as no sewer system will be installed for the proposed subdivision. As part of the building permit application

process, lot owners will submit plans for their individual wastewater systems to the DOH for review and approval.

3. Approval for the Kahoma Subdivision drinking water system will be sought from the State Department of Health, Safe Drinking Water Branch.
4. Harding Lawson Associates conducted a Phase 1 Preliminary Hazardous Materials Site Assessment of the project site in May 1991. The assessment found no indication of arsenic present at the site and concluded that the site appeared to be well maintained and free of areas of environmental concern. Should the subdivision occur, soil testing for hazardous materials will be conducted on the subdivision site prior to development and habitation of the site. If any hazardous substances are detected a removal and/or remedial plan will be submitted to the State Department of Health.
5. A noise permit will be obtained before the commencement of work if it is determined that the noise created during the construction phase of the project exceeds maximum allowable levels as set forth in (HAR), Chapter 11-46, "Community Noise Control". The presence of an ATV tour company on the subject property may negate the needs for a noise permit since the noise generated during project implementation will not exceed that of the daily ATV tours.

Our office will review the Standard Comments found at your Department's website. Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. TICHELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 18, 2008

Chris Hart & Partners
115 N. Market Street
Wailuku, Hawaii 96793

Attention Mr. Matthew Slepín

Gentlemen:

Subject: Early Consultation Request for Proposed Kahoma Subdivision, Lahaina,
Maui, Tax Map Key: (2) 4-5-21:2, 6, 24; 4-5-22:2, 4, 6

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,


Morris M. Atta
Administrator

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071153

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA O. THOLEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 10, 2008

RECEIVED JAN 11 2008

01/10/08
CC: MUAH

Chris Hart & Partners
115 N. Market Street
Wailuku, Hawaii 96793

Attention: Mr. Jordan Hart

Gentlemen:

Subject: Early Consultation Request for Proposed Kahoma Subdivision, Lahaina, Maui, Tax Map Key: (2) 4-5-21:2, 6, 24; 4-5-22:2, 4, 6

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, Commission on Water Resource Management, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,


Morris M. Atta
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII

07 DEC 24 AM 10:37 E



L. LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 21, 2007

MEMORANDUM

TO: **DLNR Agencies:**
 Div. of Aquatic Resources
 Div. of Boating & Ocean Recreation
 Engineering Division
 Div. of Forestry & Wildlife
 Div. of State Parks
 Commission on Water Resource Management
 Office of Conservation & Coastal Lands
 Land Division – Maui District

RECEIVED
LAND DIVISION
2008 JAN -1 P 2:58
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

FROM: *for* Morris M. Atta *Maalene*
SUBJECT: Proposed Luakini Street Parking Lot
LOCATION: Lahaina, Maui, TMK: (2) 4-6-7:13
APPLICANT: Chris Hart & Partners Inc.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 4, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Chris Hart*
Date: 1/6/08

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/MorrisAlta
Ref.: LaukiniStreetParking
Maui.386

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- (X) Please take note that according to the maps that you provided, it appears that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone C. The National Flood Insurance Program does not have any regulations for developments within Zone C.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

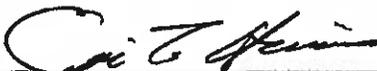
Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- () Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
 - () Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
 - () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
 - () Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
- () The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
 - () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

- () Additional Comments: _____

- () Other: _____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: 

ERIC T. HIRANO, CHIEF ENGINEER

Date: 11/6/08

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA B. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 18, 2007

MEMORANDUM

From

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Maui District

FROM:

Morris M. Atta

Chalens

SUBJECT:

Early Consultation for Proposed 55 lot Kahoma Subdivision

LOCATION:

Lahaina, Maui, TMK: (2) 4-5-21:2, 6, 24 and 4-5-22:2, 4, 6

APPLICANT:

Chris Hart & Partners on behalf of Kahoma Land LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 5, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: _____

W. Ray Faulkner

Date: _____

1/2/08

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
CHAIRPERSON
MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIWARA
CHIYOME I. FUKINO, M.D.
DONNA FAY K. KIYOSAKI, P.E.
LAWRENCE H. MIKE, M.D., J.D.
KEN C. KAWAHARA, P.E.
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

January 3, 2008

TO: Morris Atta, Acting Administrator
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management **R**

SUBJECT: Early Consultation for Proposed 55 lot Kahoma Subdivision, Lahaina, Maui

FILE NO.:

REF: JAN 14 10 41 AM '08
RECEIVED
COMMISSION

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrn>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at www.hawaii.gov/dlnr/cwrn/forms.htm.

- 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
- 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- 6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

DRF-IA 03/02/2006

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.
- OTHER:

If there are any questions, please contact Robert Chong at 587-0266.



March 27, 2009

Mr. Morris M. Atta, Administrator
State of Hawaii
Department of Land & Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Atta,

Thank you for your January 3, 10, and 18, 2008 letters providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

In response to the comments offered by the Commission on Water Resource Management we offer the following:

The appropriate action will be taken to coordinate with the Planning Department and/or Department of Water Supply to incorporate this project into the county's Water Use and Development Plan.

Thank you for the information regarding stream channel alterations and diversions. If any these actions are deemed necessary as part of the project the appropriate permit(s) and/or petitions will be filed.

Mr. Morris M. Atta, Administrator
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-4-021: 0024, 006, & 002 (portion)
March 27, 2009
Page 2 of 2

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



Matthew M. Slep, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

HRD07/3425

January 4, 2008

Mathew Slepín, Senior Planner
Chris Hart & Partners
115 N. Market Street
Wailuku, Maui, Hawai'i 96793-1706

**RE: Early Consultation, Kahoma Subdivision, Lahaina, Maui, Hawai'i,
TMKs: 4-5-021:002, 006, 024 and 4-5-022:002, 004, and 006.**

Dear Mr. Slepín,

The Office of Hawaiian Affairs (OHA) is in receipt of your request for written comments regarding an early consultation for the Kahoma Subdivision in Lahaina, Maui. We have the following comments:

OHA generally is not supportive of the development of agriculturally zoned lands for a variety of reasons. In this case, the development of a 55-lot agricultural subdivision is particularly unattractive. The January 14, 2006 issue of the Maui News reported that Maui Mayor Alan Arakawa said his administration has estimated the need for all types of housing at 2,640 units. Within three to five years, approximately 3,400 units should "come online" with a long-range estimate of 7,700. There were, at that time, 38,000 units that had been approved or proposed which would double the size of Maui within ten years.

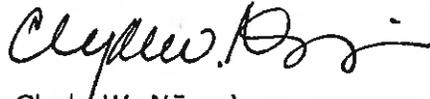
OHA, therefore, will be interested in how this project reveals itself via the environmental review process. We look forward to more information as it becomes available.

Thank you for the opportunity to comment. If you have any further questions or concerns please contact Grant Arnold at (808) 594-0239 or granta@oha.org.

RECEIVED JAN 10 2008

Mathew Slepik, Senior Planner
Chris Hart & Partners
January 4, 2008
Page 2

Sincerely,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Clyde W. Nāmu'o
Administrator

C: Thelma Shimaoka, Community Resource Coordinator
Office of Hawaiian Affairs, Maui Office
140 Ho'ohana St., Ste. 206
Kahului, Hawai'i 96732



March 27, 2009

Mr. Clyde Namu'o, Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
- TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Namu'o,

Thank you for your January 4, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision. In response to your comments we offer the following:

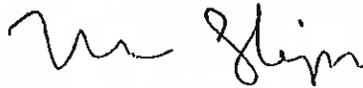
In response to your comments we note that conditions and projections regarding housing have changed in the three years intervening between the January 14, 2006 issue of the Maui News and now. We further note that "farm dwellings" are an approved use of Agriculturally-zoned lands.

We look forward to continuing to work with your office as the proposed project develops.

Clyde W. Namu'o, Administrator
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024, 002 (portion)
March 27, 2009
Page 2 of 2

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "M. Slepina". The signature is fluid and cursive, with the first name being more prominent.

Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File

CHARMAINE TAVARES
MAYOR



CARL M. KAUPALOLO
CHIEF

NEAL A. BAL
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

780 ALUA STREET
WAILUKU, HAWAII 96793
(808) 244-9161
FAX (808) 244-1363

January 11, 2008

Mr. Matthew M. Slepín, Senior Planner
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, HI 96793-1706

Subject: Early Consultation Request for Proposed Kahoma Subdivision

Dear Mr. Slepín,

I have had an opportunity to review the brief summary of the right of way project. We do appreciate the creation of the 40 foot right of way that will assist emergency vehicles in the future. We currently have no further requests or comments.

Our office will take a look at the details of the project during the subdivision review process. Please contact Lt. Paul Haake of our office if you have any questions regarding this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Valeriano F. Martin".

Valeriano F. Martin
Captain
Fire Prevention Bureau

RECEIVED JAN 15 2008

CC: matt
07/103



March 27, 2009

Mr. Valeriano F. Martin, Capitan
County of Maui
Fire Prevention Bureau
780 Alua Street
Wailuku, HI 96793

SUBJECT: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Martin,

Thank you for your January 11, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

We are glad to hear that your office is in favor of the creation of these 40-foot rights of way.

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,

Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

CHARMAINE TAVARES
Mayor

VANESSA A. MEDEIROS
Director

LORI TSUHAKO
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165 • EMAIL director.hhc@mauicounty.gov

December 20, 2007

Mr. Matthew M. Sleppin
Chris Hart & Partners
115 Market St.
Wailuku, Hawaii 96793

RECEIVED
DEC 26 2007

CHECKMATE PLANNING
1155 SOUTH MARKET STREET, WAILUKU, HI 96793

CC: matt
07/103

Dear Mr. Sleppin:

**SUBJECT: Early Consultation Request for Proposed Kahoma
Subdivision, Lahaina, Maui
TMK (2) 4-5-021:002, 006, 024
(2) 4-5-022-002: 004, 006**

We have reviewed your December 14, 2007 early consultation letter and enclosures for the subject project and would like to offer the following comments:

1. Kahoma Land LLC is proposing to develop an approximately 55-lot agricultural subdivision.
2. Since the proposed project will involve the construction of five or more lots, the project is subject to the requirements of Chapter 2.96, Maui County Code (MCC).
3. Section 2.96.080A, MCC, states that before final subdivision approval or issuance of a building permit, the developer shall enter into a residential workforce housing agreement with the County of Maui that sets forth the detailed terms and conditions of compliance with the residential workforce policy.
4. The Department has no comments regarding the Grant of Perpetual Non-Exclusive (re-locatable) Easement at this time.

Thank you for the opportunity to comment.

Sincerely,

VANESSA A. MEDEIROS
Director of Housing and Human Concerns

xc: Housing Division



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

CHARMAINE TAVARES
Mayor

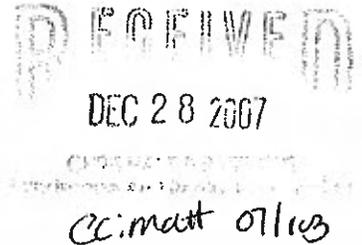
VANESSA A. MEDEIROS
Director

LORI TSUHAKO
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165 • EMAIL director.hhc@mauicounty.gov

December 24, 2007

Mr. Matthew M. Sleppin
Chris Hart & Partners
115 Market St.
Wailuku, Hawaii 96793



Dear Mr. Sleppin:

**SUBJECT: Early Consultation Request for Proposed Kahoma
Subdivision, Lahaina, Maui
TMK (2) 4-5-021:002, 006, 024
(2) 4-5-022:002, 004, 006 (corrected TMK)**

This letter supersedes the response letter we previously submitted, dated December 20, 2007. There was a typo in the tax map key number on the previous response which we have corrected.

We have reviewed your December 14, 2007 early consultation letter and enclosures for the subject project and would like to offer the following comments:

1. Kahoma Land LLC is proposing to develop an approximately 55-lot agricultural subdivision.
2. Since the proposed project will involve the construction of five or more lots, the project is subject to the requirements of Chapter 2.96, Maui County Code (MCC).
3. Section 2.96.080A, MCC, states that before final subdivision approval or issuance of a building permit, the developer shall enter into a residential workforce housing agreement with the County of Maui that sets forth the detailed terms and conditions of compliance with the residential workforce policy.
4. The Department has no comments regarding the Grant of Perpetual Non-Exclusive (re-locatable) Easement at this time.

Thank you for the opportunity to comment.

Sincerely,


VANESSA A. MEDEIROS
Director of Housing and Human Concerns

xc: Housing Division



March 27, 2009

Ms.Lori Tsuhako, Director
County of Maui
Department of Housing & Human Concerns
200 South High Street
Wailuku, Hawaii 96793

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Ms. Tsuhako,

Thank you for your letters of December 20 and December 24, 2007 providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

We have noted that you offer no comments regarding the request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement.

With regard to your comments on the requirements of Chapter 2.96 of the Maui County Code, we would like to note that preliminary approval was granted for the subject subdivision on November 22, 2003. **(Subdivision File No. 4.878)**

Per Maui County Code 2.96.030B-3: "A subdivision granted preliminary subdivision approval prior to the effective date of this chapter", the proposed Kahoma Subdivision is exempt from this action.

Ms.Lori Tshako, Director
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-4-021: 0024, 006, & 002 (portion)
March 27, 2009
Page 2 of 2

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File

CHARMAINE TAVARES
Mayor



TAMARA HORCAJO
Director

ZACHARY Z. HELM
Deputy Director

(808) 270-7230
Fax (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

December 26, 2007

Matthew M. Slepín, Senior Planner
Chris Hart & Partners, Inc.
1955 Main Street, Suite 200
Wailuku, Hawaii 96793

**SUBJECT: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 002, 006, 024
(2) 4-5-022: 002, 004, 006**

Dear Mr. Slepín:

Our Department is requiring the applicant to satisfy the parks and playgrounds requirements for the subject subdivision with a cash contribution in lieu of providing land.

The current parks and playground assessment fee rate for the West Maui Community Plan Area is \$26,795 per lot. Since the 3-lot exemption has not been utilized, the parks and playgrounds assessment fee for the subject fifty-five (55) lot subdivision is \$1,393,340 [\$26,795/lot x (55 - 3 lots)]. The fee is valid till June 30, 2008, and is subject to change thereafter.

Thank you for the opportunity to review and comment on the proposed Kahoma Subdivision. Please feel free to contact me or Mr. Baron Sumida, CIP Coordinator Parks Planning and Development, at 270-6173 should you have any other questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tamara Horcajo".

TAMARA HORCAJO
Director

xc: Patrick Matsui, Chief of Parks Planning & Development
Baron Sumida, CIP Coordinator Parks Planning & Development

cc: matt
07/103
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March 27, 2009

Tamara Horcajo, Director
County of Maui
Department of Parks and Recreation
700 Hali'a Nakoia Street, Unit 2
Wailuku, Hi 96793

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Ms. Horcajo,

Thank you for your December 26, 2007 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

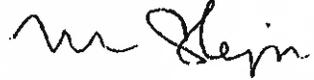
We have noted that you offer no comments or concerns regarding the request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement. With regard to your comments concerning the proposed subdivision we offer the following:

We acknowledge your requirement for a cash contribution of \$1,393,340, in lieu of providing land. We understand that the required fee calculation was valid through June 30, 2008, and is now subject to change.

Tamara Horcajo, Director
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024, 002 (portion)
March 27, 2009
Page 2 of 2

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File

CHARMAINE TAVARES
Mayor

MILTON M. ARAKAWA, A.I.C.P.
Director

MICHAEL M. MIYAMOTO
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955



RALPH NAGAMINE, L.S., P.E.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 9, 2008

Mr. Matthew M. Slepín, Senior Planner
CHRIS HART & PARTNERS, INC.
115 North Market Street
Wailuku, Maui, Hawaii 96793-1706

Dear Mr. Slepín:

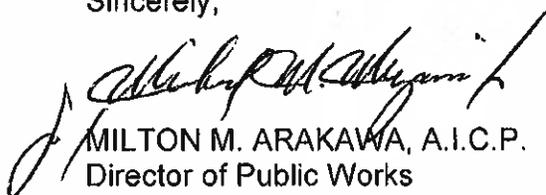
**SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED
KAHOMA SUBDIVISION**

We reviewed the subject application and have the following comment:

1. Describe what controls will be utilized to minimize any impacts to Hanakao Stream or Kahoma Stream.

Please call Michael Miyamoto at 270-7845 if you have any questions regarding this letter.

Sincerely,



MILTON M. ARAKAWA, A.I.C.P.
Director of Public Works

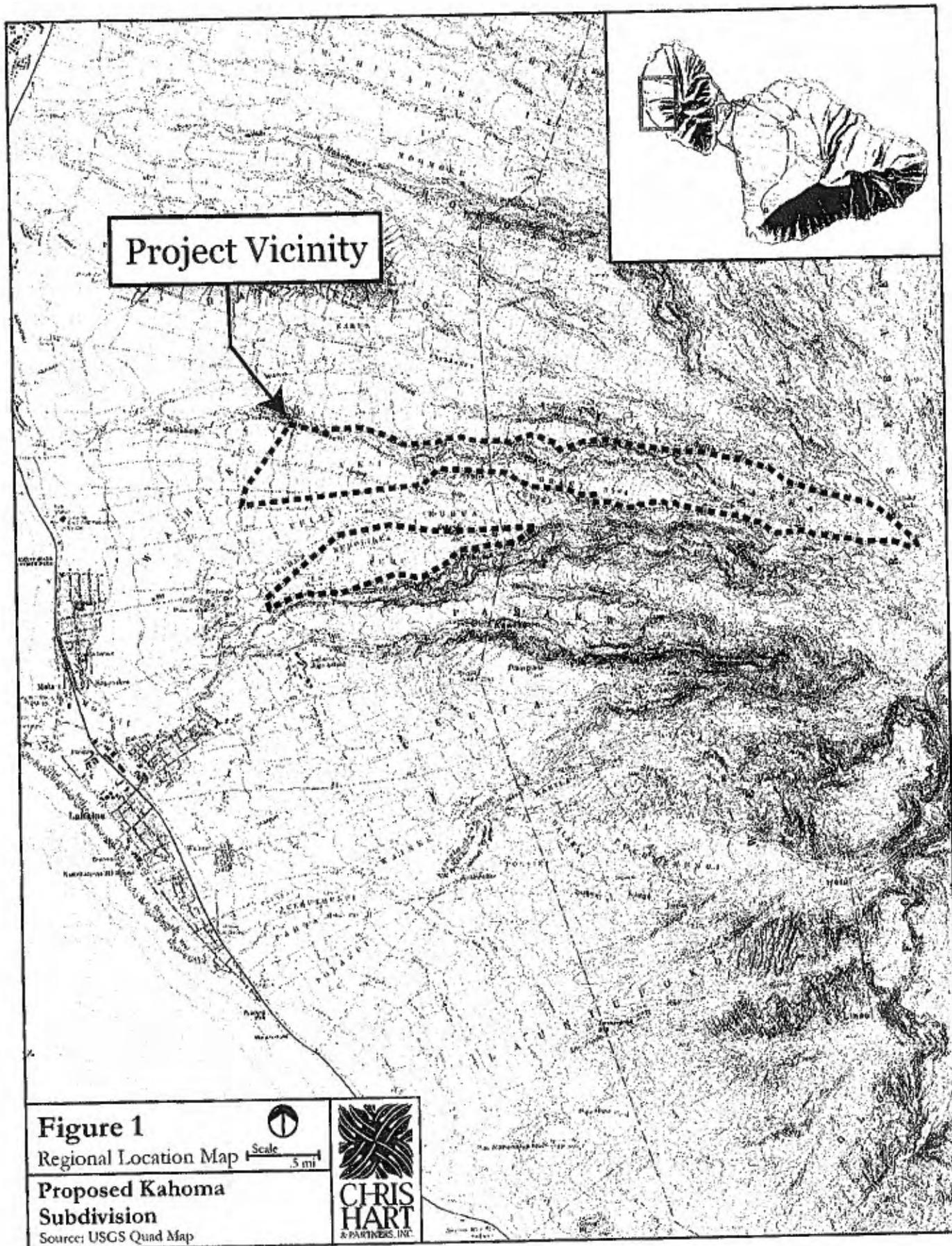
MMA:MMM:ls

xc: Highways Division
Engineering Division

S:\LUCA\GZM\Prop_Kahoma_subdiv_ery_45021002_006_024_45022002_004_006_ls.wpd

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07/103





March 27, 2009

Milton M. Arakawa, A.I.C.P. Director of Public Works
County of Maui
Department of Public Works
200 South High Street
Wailuku, Hi 96793

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Arakawa,

Thank you for your January 9, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

We have noted that you offer no comments regarding the request for a Grant of Perpetual Non-Exclusive (re-locatable) Easement. With regard to your comments we note the following:

The applicant is requesting access easements across State land to provide access to their properties. All accessways are proposed for existing cane haul roads. Improvements to easement corridors are only anticipated should the agricultural

Milton M. Arakawa, A.I.C.P. Director of Public Works
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024, 002 (portion)
March 27, 2009
Page 2 of 2

subdivision occur, in which case roadway improvements will be engineered to provide adequate drainage and prevent an increase in onsite runoff. No additional runoff will be released into the existing streams or irrigation ditches. The net result of the proposed drainage system will be no increase in runoff from the project site. The proposed drainage plan is to collect storm runoff from the paved and graded roadways by grassed swales and divert it to detention basins which will be placed at appropriate locations.

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



Matthew M. Slepín, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File



January 10, 2008

Mr. Matthew M. Slepín, Senior Planner
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Hawaii 96793

Dear Mr. Slepín,

Subject: Proposed Kahoma Subdivision
Lahaina, Maui, Hawaii
TMK: (2) 4-5-021:002, 006, 024
(2) 4-5-022:002, 004, 006

Thank you for allowing us to comment on the early consultation phase for the above subject project, which was received on December 17, 2007.

In reviewing our records and the information received, Maui Electric Company (MECO) has no objection to the project at this time. However, in addition to an electrical line extension, upgrades to our existing substation, transmission, and/or distribution system may be necessary to accommodate this project's anticipated load demand. We highly encourage the developer's electrical consultant to submit the electrical demand requirements and project time schedule as soon as practical so that any upgrades to our system and service can be carried out on a timely basis.

In addition, may we suggest that the developer and/or their consultant make contact with Sage Kiyonaga of our Demand Side Management (DSM) group at 872-3283 to review potential energy conservation and efficiency opportunities for their project.

Should you have any other questions or concerns, please call Kimberly Kawahara at 871-2345.

Sincerely,

A handwritten signature in black ink, appearing to read "Neal Shinyama". The signature is fluid and cursive, written over the printed name.

Neal Shinyama
Manager, Engineering

NS/kk:lh

cc: Sage Kiyonaga – MECO DSM

RECEIVED JAN 14 2008

cc: Matt 01/10



March 27, 2009

George Kauhi, Manager, Engineering
Maui Electric Company, Ltd
P.O. Box 398
Kahului, HI 96733

SUBJECT: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Kauhi,

Thank you for your firm's January 10, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

We acknowledge that MECO has reviewed its records and the information transmitted, and has no objections to the proposed project at this time. The applicant will continue to work closely with your department to address details of the electrical needs for the Kahoma subdivision.

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,

Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File



Kaanapali Land Management Corp.

275 Lahainaluna Road • Lahaina, Maui, HI 96761 • t: (808) 661-9652 • f: (808) 667-9658 • www.KaanapaliLand.c

*Honoring our roots.
Preserving our spirit.*

January 24, 2008

Mathew Slepín, Senior Planner
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Maui, Hawaii 96793-1706

SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED KAHOMA
SUBDIVISION, LAHAINA, MAUI
TMK (2) 4-5-021:002, 006, 024
TMK (2) 4-5-022:002, 004, 006

Dear Mr. Slepín:

This is in response to your December 14, 2007 request for comments on a request to the State of Hawaii from Kahoma Land, LLC, for a Grant of Perpetual Non-Exclusive (re-locatable) Easement over an approximately 2,270 square foot area of State Land for the creation of a 40 foot wide right-of-way.

Our comments are as follows:

1. The northern most proposed roadway will need to also gain legal access through Kaanapali Land Management Corp. (KLM) lands. Specifically, the affected parcels appear to need access over TMK (2) 4-4-006:001 and 070. The proposed roadway currently does not have the approval of KLM or legal access over these parcels.
2. The design and the construction of the roadways must take into account and must protect the existing irrigation ditches that traverse through the State and KLM lands.
3. The design of the roadways must also incorporate Best Management Practices and professionally engineered drainage measures to protect the lower lands from the impacts of drainage, sedimentation, and erosion from the new construction.

Please call me should you have any questions regarding these comments.

Very truly yours,

Howard Hanzawa
Vice President

RECEIVED JAN 28 2008



March 27, 2009

Howard Hanzawa, Vice President
Kaanapali Land Management Corp.
275 Lahainaluna Road
Lahaina, HI 96761

SUBJECT: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Mr. Hanzawa,

Thank you for your January 24, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

We have numbered our responses to correspond with your comments:

1. We acknowledge that Kahoma Land LLC. does not have approval or legal access to go over TMK parcels (2) 4-4-006:001 and 070. Kahoma Land LLC. is currently discussing the logistics of the northern easement with Kaanapali Land Management Corp. (KLM). It is our understanding that The Villages of Lealii is still in the design stages and that the proposed easement will tie into this plan. Kahoma Land LLC. has informed us that KLM does not oppose this project merge, and we look forward to an

Howard Hanzawa, Vice President
Proposed Kahoma Subdivision
Lahaina, Maui, HI .
TMK: (2) 4-4-021: 024, 006, & 002 (portion)
March 27, 2009
Page 2 of 2

amenable arrangement. Formal approval and legal access to these properties will be requested upon receipt of the Grant of Perpetual Non-exclusive (Re-locatable) Easement through and across State land.

2. The applicant is requesting access easements across State land to provide access to their properties. All accessways are proposed for existing cane haul roads. Improvements to easement corridors are only anticipated should the agricultural subdivision occur, in which case roadway design and construction will take into account existing irrigation ditches that traverse State and KLM lands.
3. Should the subdivision occur, the design of roadways will incorporate Best Management Practices and professionally engineered drainage measures to protect lower lands from the impacts of drainage, sedimentation and erosion from the new construction.

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



Matthew M. Slepina, Senior Planner

CC. Arlene Torricer, Kahoma Land LLC.
Project File

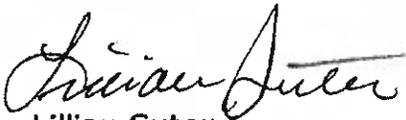
January 10, 2008

Matthew M. Slep
115 N Market Street
Wailuku, HI 96793

Dear Mr. Slep,

I received your letter dated December 14, 2007, about the early consultation request for the proposed Kahoma Subdivision in Lahaina. I would like to see a better map showing where our parcel (TMK2-4-5-018) is in relationship to the other parcels you have mentioned in your letter. Your map is ambiguous and should show other properties located in the vicinity of the proposed subdivision.

Sincerely,



Lillian Suter
22 Kekai Rd.
Lahaina, HI 96761

RECEIVED JAN 14 2008

07/103
CC: matt



March 27, 2009

Lillian Suter
22 Kekai Rd
Lahaina, HI 96761

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Ms. Suter,

Thank you for your January 10, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision.

We apologize for the ambiguity of the maps we included. Much care and effort go into the creation of our visual resources with the intention of providing clear information. We have enclosed the TMK Plat Map for this project with the subject property outlined in green.

I would be glad to provide you with a highlighted TMK Map showing the properties proposed for subdivision in relation to your property, but you will have to send us a more complete TMK number. You provided the first six digits

Lillian Suter
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024, and 002 (portion)
March 27, 2009
Page 2 of 2

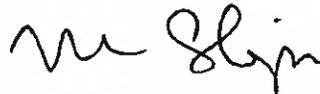
of a nine digit number. From the number you provided I can see that your property is south of Kahoma Land LLC's portion of parcel (2) 4-5-021:002. Again, with out the last three digits we cannot tell exactly where your property is.

For further clarification of project location we recommend you review the Taxation Maps for this area. These maps can be found in the County Building in Wailuku, or online at:

<http://webmail.co.maui.hi.us/com/webload/Zone4.htm#z4s4>

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



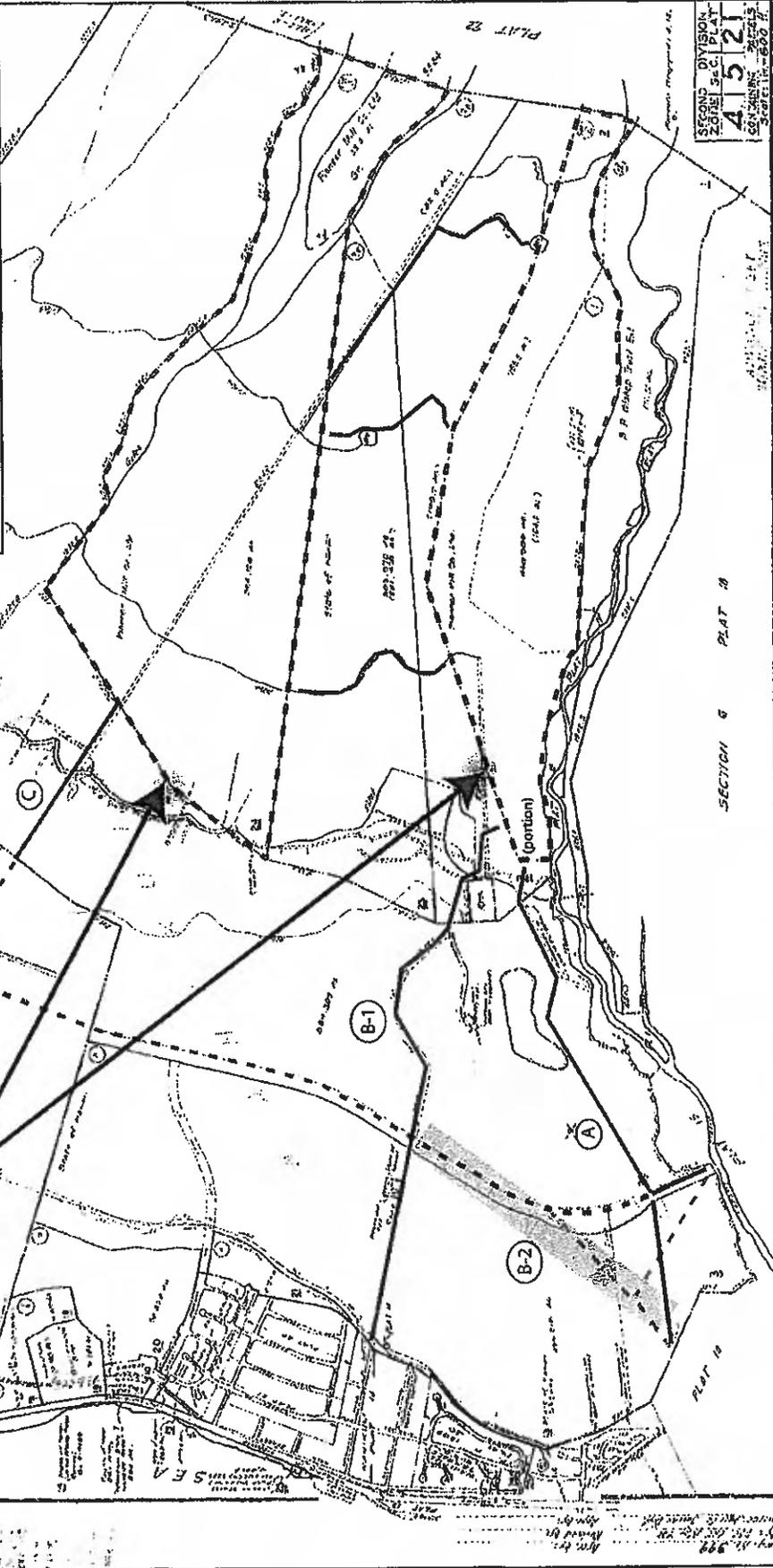
Matthew M. Slepina, Senior Associate

Enclosure

CC. Arlene Torricer, Kahoma Land LLC
Project File

Subject Property
 TMK: (2) 4-5-21:06,24
 (2) 4-5-21:02 Portion

- Proposed Access/Utility Easements Over Public Lands
- Phase 1A Lahaina Bypass
- Future Phases Lahaina Bypass
- Proposed Easements Over Private Land
- Keawe Street Connector
- Modified Alignment Phase 1A Lahaina Bypass



SECTION 9 PLAT 10
 SECTION 9 PLAT 10
 SECTION 9 PLAT 10
 SECTION 9 PLAT 10



Tax Map
 Plat (2) 4-5-021

Not to Scale

**Proposed Kahoma
 Accessways**

Source: Territory of Hawaii, Taxation Map Bureau

Louella L. Haia
377-C Lahainaluna Road
Lahaina, HI., 96761

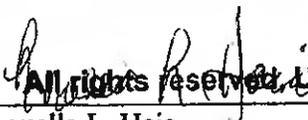
Re: Early Consultation Request for Proposed Kahoma Subdivision, Lahaina, Maui
TMK: (2) 4-5-021:002, 006, 024
(2) 4-5-022:002, 004, 006

Dear Chris Hart & Partners, Inc.

My name is Louella L. Haia, and I was just informed about you and your associates proposal to develop 55-lot agricultural subdivision in the vicinity of Kahoma Stream. I am informing you that this subject property which is located mauka of Lahaina Town does not interfere within any of my family lands. I understand the mauka parcels, are designated for Conservation and are not proposed for development and if so, then why is there an ATV and Zipline tour in Kahoma.

Also, in 1974 and 1989, there was an archeological Phase 1 and II done. So, where is this 55-lot subdivision suppose to be developed? I am very much concern about this project that is supposed to happen, so could you send additional informations to me, at the above address.

Sincerely,


All rights reserved, UCC1-308
Louella L. Haia

RECEIVED JAN 03 2008

CC : mat
01/103



March 27, 2009

Louella L. Haia
377-C Lahainaluna Road
Lahaina, HI 96761

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Ms. Haia,

Thank you for your letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision.

We would like to reiterate that the three aforementioned parcels, above the conservation line, are mauka of the proposed subdivision and no action is being taken with these parcels. The three remaining parcels are proposed for subdivision into approximately 55 lots. The Zipline and ATV tours you mentioned operate partially on the lands proposed for subdivision and well below the conservation line.

The Phase I and Phase II archaeological work done in 1974 and 1989 took place on the south side of the mouth of Kahoma Stream. The proposed 55-lot subdivision is located along the north side of Kahoma stream, mauka of Wahikuli reservoir. This site is not in close proximity to the archaeological site you mentioned.

Louella L. Haia
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024 & 0002
March 27, 2009
Page 2 Of 2

Scientific Consultant Services Inc. conducted archaeological surveys of the subdivision site and all access roads in April, August and September 2008 and found no evidence of significant historic or archaeological resources. More detail on the results of the surveys will be provided in the Environmental Assessment. If cultural artifacts are encountered on the subdivision site or access roads at any time all work will cease and the appropriate authorities will be notified.

We have enclosed the TMK Plat Map for this project [(2) 4-5-021] with the subject property outlined in green. For further clarification of project location we suggest you review the Taxation Maps for this area at the County Building in Wailuku, or online at:

<http://webmail.co.maui.hi.us/com/webload/Zone4.htm#z4s4>

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



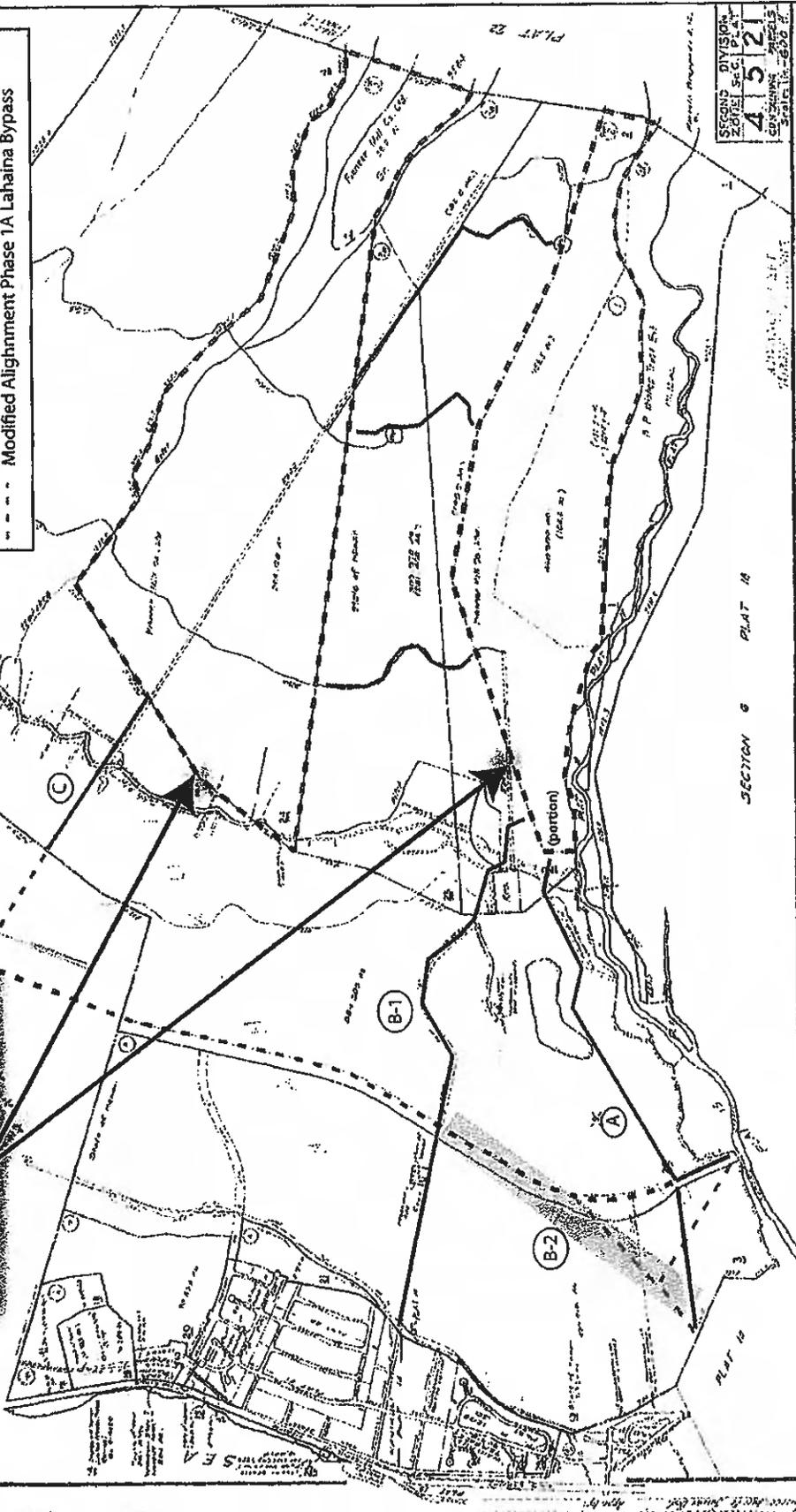
Matthew M. Slepina, Senior Associate

Enclosure

CC. Arlene Torricer, Kahoma Land LLC
Project File

Subject Property
 TMK: (2) 4-5-21:06,24
 (2) 4-5-21:02 Portion

- Proposed Access/Utility Easements Over Public Lands
- Phase 1A Lahaina Bypass
- Future Phases Lahaina Bypass
- Proposed Easements Over Private Land
- Keawe Street Connector
- Modified Alignment Phase 1A Lahaina Bypass



SECOND DIVISION
 ZONING S.C. PLAT
 4 5 21
 CONVEYANCE
 SCALE 1"=500'



Tax Map
 Plat (2) 4-5-021 Not to Scale

**Proposed Kahoma
 Accessways**
 Source: Territory of Hawaii, Taxation Map Bureau

Lehua Ii
c/o Ms. Lilia Kalepa
22 Kekai Rd.
Lahaina, HI. 96761

Re: Proposed Kahoma Subdivision
Dated: December 14, 2007

To Whom It May Concern,

I have received a letter from my Aunt who still pays the taxes for her kuleana lands, about a proposal to develop 55-lot agricultural subdivision in the vicinity of Kahoma Stream.

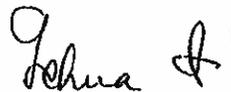
I am informing you and your constituents that my Aunt is not interested about any of your future planning development. She is only concern about her family Kuleana Lands. Now, as for these mauka parcels, TMK (2)-4-5-022, 004, 006, which you claim is designated for Conservation and are not proposed for development, I want to know, under who's authority?
and if any of these parcels still have living heirs, it becomes their kuleana.

Many of the kuleana land owners are very much aware of your intentions of utilizing their family lands to make a buck or two, so as for these so-called Chapter 343, HRS, and of the Hawaii Administrative Rules, Title 11, Chapter 200, Hopefully, you understand the certain categories of action which requires seven geographical categories, such as any use within any historic site as designated.

My understanding, there was a Phase I and Phase II, Archeological Site done about 1974 and another done about 1989, etc., my question to you is, what has happened to the bones of these kupuna(s)?

Also, I would like for you to address, better copies of these two land maps you have sent to my aunt.

Mahalo for your understanding.



Lehua Ii

RECEIVED JAN 15 2008

CC: matt

07/103



March 27, 2009

Lehua Ii
c/o Ms. Lilia Kalepa
22 Kekai Rd
Lahaina, HI 96761

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Ms. Ii,

Thank you for your January 4, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are located in the conservation district, mauka of the proposed subdivision. In response to your comments we offer the following:

TMK parcels (2) 4-5-022: 002, 004, 006 were designated Conservation land by the State of Hawaii Department of Land and Natural Resources under the 1961 State Land Use Law (Act 187). This designation does not challenge or decide' ownership; it details allowable activities on the subject property as determined by the State Land Use Commission. Kahoma Land LLC. maintains that they hold title to this land. If you or your relatives believe you own land within these parcels there are legal processes you can pursue to substantiate your claim.

Ms. Lehua Ii
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024, 002 (portion)
March 27, 2009
Page 2 of 2

The Phase I and Phase II archaeological work done in 1974 and 1989 took place on the south side of the mouth of Kahoma Stream. The site consisted of a rock-shelter and thirty-eight petroglyphs. Habitation and agricultural features were recorded later. The site also included 13 probable burial features and a large cairn/marker. No skeletal remains were discovered or excavated from this site.

Scientific Consultant Services Inc. conducted archaeological surveys of the subdivision site and all access roads in April, August and September 2008 and found no evidence of significant historic or archaeological resources. More detail on the results of the surveys will be provided in the Environmental Assessment. If cultural artifacts are encountered on the subdivision site or access roads at any time all work will cease and the appropriate authorities will be notified.

We have enclosed the TMK Plat Map for this project [(2) 4-5-021] with the subject property outlined in green. For further clarification of project location we recommend the concerned party review the Taxation Maps for this area. These maps can be found in the County Building in Wailuku, or online at:
<http://webmail.co.maui.hi.us/com/webload/Zone4.htm#z4s4>

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



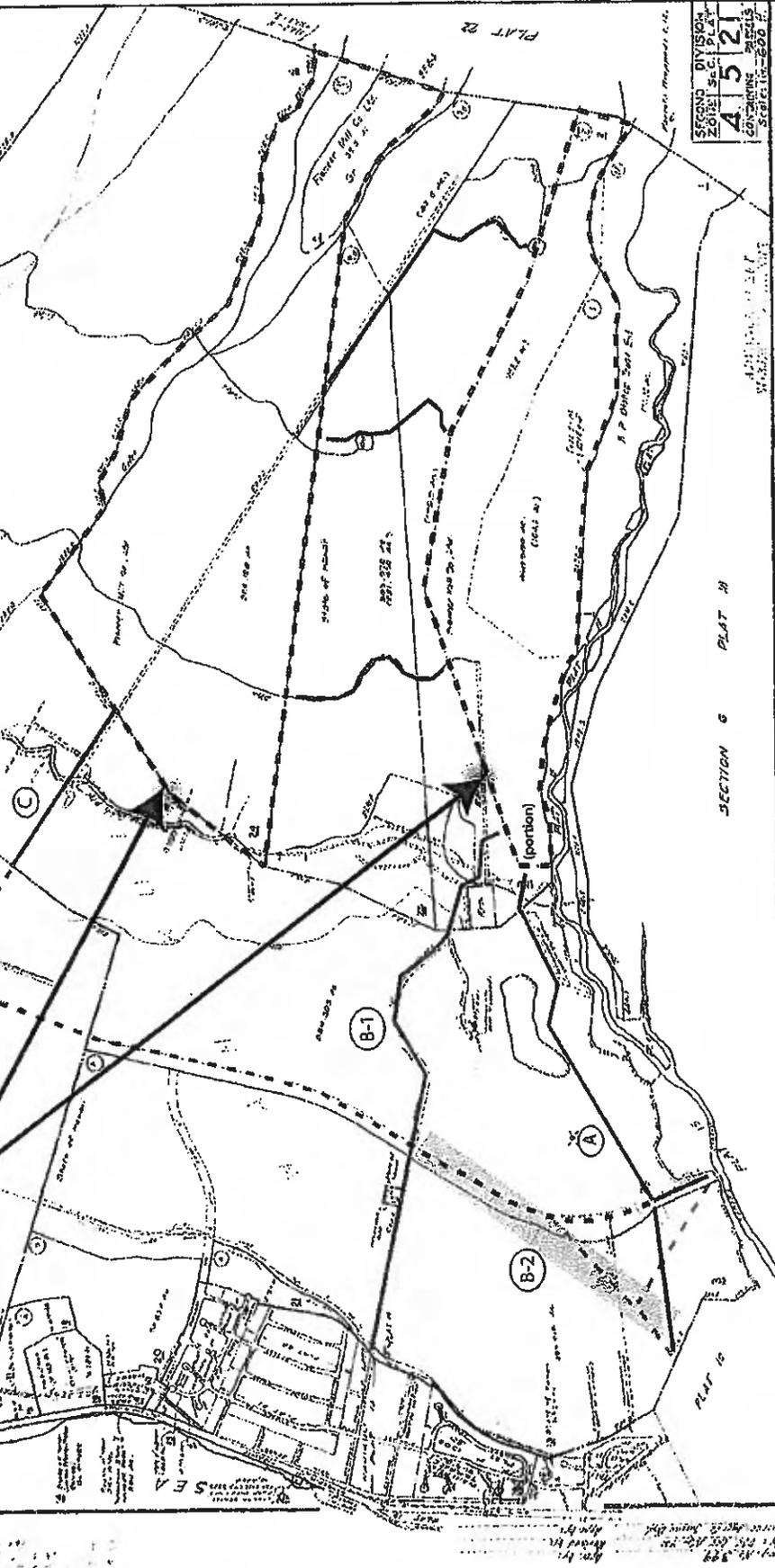
Matthew M. Slepín, Senior Associate

Enclosure

CC. Arlene Torricer, Kahoma Land LLC
Project File

Subject Property
 TMK: (2) 4-5-21:06,24
 (2) 4-5-21:02 Portion

- Proposed Access/Utility Easements Over Public Lands
- Phase 1A Lahaina Bypass
- Future Phases Lahaina Bypass
- Proposed Easements Over Private Land
- Keawe Street Connector
- Modified Alignment Phase 1A Lahaina Bypass



SECOND DIVISION
 ZONE 1 SEC 1 PLAT
 4 5 21
 GOV. ENGINEERING SERVICE
 SCALE 1"=500'



Tax Map

Plat (2) 4-5-021 Not to Scale

**Proposed Kahoma
 Accessways**

Source: Territory of Hawaii, Taxation Map Bureau

January 28, 2007

Re: Proposed Kahoma Subdivision
Lahaina, Maui
TMK: 4-5-021;002,006,024
4-5-022;002,004,006

Dear Chris Hart Partners, Inc.,

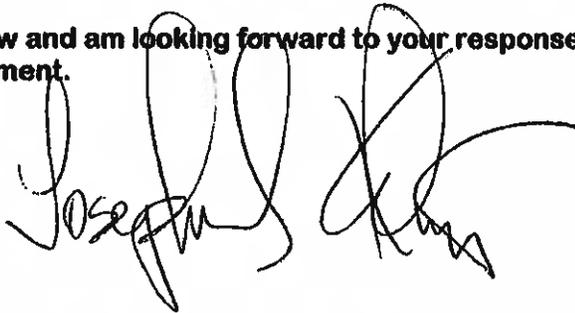
Mahalo for allowing me to provide comment regarding Kahoma Land LLC's 55-lot agricultural subdivision that lies north of Kahoma Valley. We (my siblings and I) own a kuleana property north and alongside Kahoma Stream so access for Kahoma Land LLC's subdivision could be of interest to us. We are also related to the Kalepa family who received notice of this development and called us.

The following are some questions that we hope you can answer for us:

- 1) I understand that some of the land that was turned over to Kahoma Land LLC by Pioneer Mill was actually land that Pioneer Mill leased from many Hawaiians in the 1800s who are now deceased. When will Kahoma Land LLC return these leased parcels back to the families of the deceased? This question is asked because we feel that resolving the leased lands issue should take precedence over any development planned by Kahoma Land LLC.
- 2) How many total acres are in each of the parcels to be developed?
- 3) Are the cane haul roads that are located outside of State land legal roads?
- 4) Are the cane haul roads located on kuleana land that was leased to Pioneer Mill?
- 5) If the cane haul roads are on kuleana land that was leased to Pioneer Mill, then shouldn't Kahoma Land LLC be making a request for easement across the kuleana land as well?
- 6) How many miles away from the village is this development located?
- 7) How will this development provide electricity and water?
- 8) If there is an emergency like a brush fire, what are the escape plans for this development?
- 9) What will it cost the public to rescue people via helicopter if there is a fire?
- 10) Will your Environmental Assessment tell us that Kahoma Land LLC is still holding on to land that does not legally belong to them and provide a plan of when that land will be returned to the families of the legal owners?

I think I am done for now and am looking forward to your response. Mahalo again for allowing me to comment.

Josephine Keliipio
P.O. Box 368
Kealahou, HI 96750
(808) 326-7998



C.C. Math
RECEIVED JAN 29 2008

07/103



March 27, 2009

Josephine Keliipio
P.O. Box 368
Kealahou, HI 96750

Subject: Early Consultation Request for Proposed Kahoma Subdivision
Lahaina, Maui
TMK: (2) 4-5-021: 006, 024, 002 (portion)

Dear Ms. Keliipio,

Thank you for your January 28, 2008 letter providing early consultation comments on the proposed Kahoma Subdivision. Subsequent to our December 14, 2007 Early Consultation Letter, the proposed access road alignments have been clarified and TMK parcel numbers (2) 4-5-022: 002, 004, 006 have been removed from the Environmental Assessment since these parcels are not proposed for subdivision. These parcels are Mauka of the proposed subdivision and lie in the conservation district. We have numbered our responses to correlate with your comments.

- 1) Kahoma Land LLC and associates maintain that they hold title to this land. If you or your relatives believe you own land within these parcels there are legal processes you can pursue to substantiate your claim. No action will be taken on lands proven to be the property of another owner, unless otherwise permitted. To avoid unnecessary legal action, we recommend the concerned party review the Taxation Maps for this area.

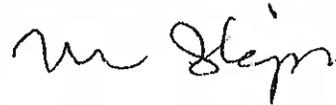
We have enclosed the TMK Plat Map for this project [(2) 4-5-021] with the subject property outlined in green. For further clarification, taxation maps can be found in the County Building in Wailuku, or online at:
<http://webmail.co.maui.hi.us/com/webload/Zone4.htm#z4s4>

- 2) TMK: (2) 4-5-021: 006 33 acres
TMK: (2) 4-5-021: 024 324.128 acres
TMK: (2) 4-5-021: 002 (portion) 263 acres
- 3) The existing cane haul roads were created solely for private agricultural uses and are not recognized by the State Department of Transportation (DOT) as "legal" roads.
- 4) If it is determined that the existing roads cross through a third party's kuleana land use of these roadways will cease and the rights of way will be relocated, unless otherwise permitted.
- 5) If it is determined that the proposed easements cross through a third party's kuleana land a request for use of this land will be made. If permission is denied the rights of way will be relocated.
- 6) The nearest corner of the project site is approximately 1.8 miles north east of Mala Harbor.
- 7) Should the proposed agricultural subdivision occur, electrical, telephone, and cable television distribution systems will be served from the existing facilities along Honoapiilani Highway. Domestic water, fire, and irrigation flow for the proposed project will be provided by either a private water system or by connecting to the Lahaina Water System. More detail on utilities and water for the proposed subdivision will be provided in the Environmental Assessment.
- 8) This project is a subdivision, not a development. When future development occurs evacuation plans will be implemented.
- 9) The County of Maui, Department of Fire and Public Safety has expressed support for the proposed rights-of-way because they will assist emergency vehicles in the case of a brush fire or other disaster. Improved access to these remote properties will lessen the potential need for air rescue.
- 10) See response to question #1.

Josephine Keliipio
Proposed Kahoma Subdivision
Lahaina, Maui, HI
TMK: (2) 4-5-021: 006, 024, and 002 (portion)
March 27, 2009
Page 3 Of 3

Thank you again for providing us with your comments. Please feel free to call me at (808) 242-1955 should you have any questions.

Respectfully submitted,



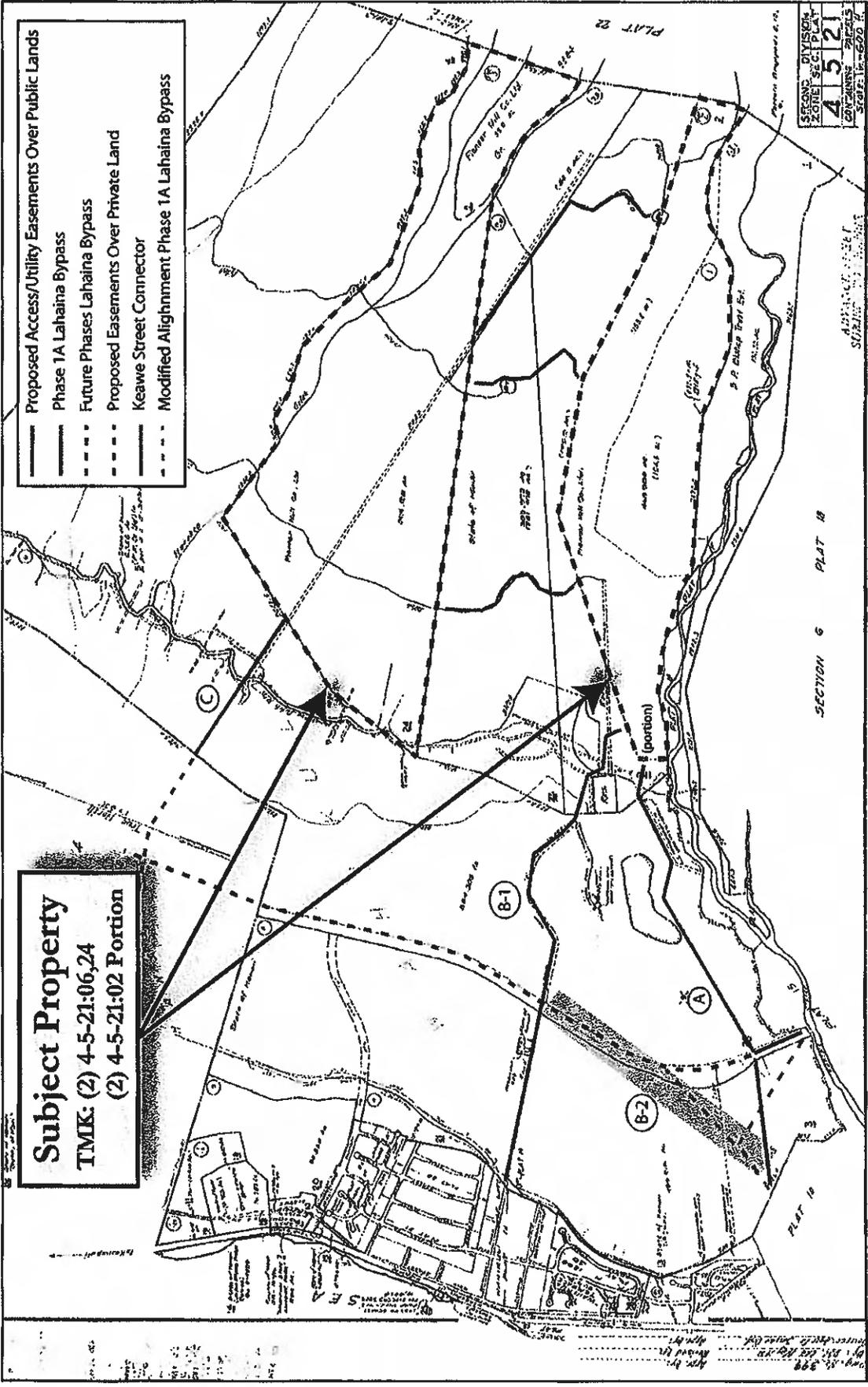
Matthew M. Slepina, Senior Associate

Enclosure

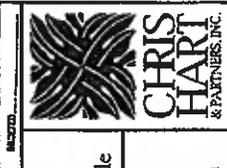
CC. Arlene Torricer, Kahoma Land LLC
Project File

Subject Property
 TMK: (2) 4-5-21-06,24
 (2) 4-5-21-02 Portion

- Proposed Access/Utility Easements Over Public Lands
- Phase 1A Lahaina Bypass
- Future Phases Lahaina Bypass
- Proposed Easements Over Private Land
- Keawe Street Connector
- Modified Alignment Phase 1A Lahaina Bypass



SECTION 6 DIVISION
 ZONING DISTRICT
 4-5-21
 CONVEYANCE DISTRICTS
 SCALE: 1" = 200'



Tax Map

Plat (2) 4-5-021 Not to Scale

**Proposed Kahoma
 Accessways**

Source: Territory of Hawaii, Taxation Map Bureau

