

Draft Environmental Assessment

PROPOSED KAHOMA RESIDENTIAL SUBDIVISION (TMK 4-5-010:005)

Prepared for:

West Maui Land Company, Inc.

February 2008

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Executive Summary

Project Name: Proposed Kahoma Residential Subdivision

Type of Document: Draft Environmental Assessment

Legal Authority: Chapter 343, Hawai`i Revised Statutes

Agency Determination: Anticipated Finding of No Significant Impact (FONSI)

Applicable Environmental Assessment Review "Trigger": Use of State and County Lands

Location: TMK: (2) 4-5-010:005
Lahaina
Maui Island

Applicant: West Maui Land Company, Inc.
33 Lono Avenue, Suite 450
Kahului, Hawai`i 96732

Approving Agency: Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawai`i 96793
Contact: Vanessa Medeiros, Director
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Consultant: Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793
Contact: Kyle Ginoza
Phone: (808) 244-2015

Project Summary: The applicant, West Maui Land Company, Inc., proposes the development of the 88-unit Kahoma Residential Subdivision in Lahaina, Maui, Hawai`i. The project includes a mix of single-family and multi-family residential units, as well as a neighborhood park. The project will satisfy the requirements of the Maui Residential Workforce Housing Policy (MRWHP) and will be developed in conjunction with Lokahi Pacific and Habitat for Humanity.

The project will consist of 63 single-family homes/parcels and 25 multi-family units in a two-story duplex and four-plex configuration. Of the 63 single-family homes/parcels, four

(4) will be self-help parcels under the direction of Habitat for Humanity and 24 parcels will be developed by Lokahi Pacific. Thirty-five parcels will be sold lot only to afford prospective owners flexibility in their building design. In addition, all 25 of the affordable multi-family units will be developed by Lokahi Pacific for the purposes of special needs accommodations (includes one (1) manager's unit). All 88 units will be in the affordable price range.

Towards facilitating project implementation, the Department of Housing and Human Concerns has determined that the project qualifies as a Section 201H project. Thus, a Section 201H application will be filed with the County of Maui. Additionally, the Land Use Commission petition for State Land Use District Boundary Amendment will be filed pursuant to Section 15-15-97 of the Land Use Commission Rules relating to procedures for processing applications under Section 201H.

I. PROJECT OVERVIEW

I. PROJECT OVERVIEW

A. PROJECT LOCATION, EXISTING USE, AND OWNERSHIP

The subject property comprises approximately 16.7 acres and is identified by Tax Map Key (TMK) (2) 4-5-010:005. See **Figure 1** and **Figure 2**.

The subject property is located in Lahaina, Maui to the east (mauka) of Honoapi'ilani Highway and along the southern edge of the Kahoma Stream Flood Control Channel. The subject property is currently vacant and undeveloped, but was formerly used for sugar cane cultivation. See **Figure 3**.

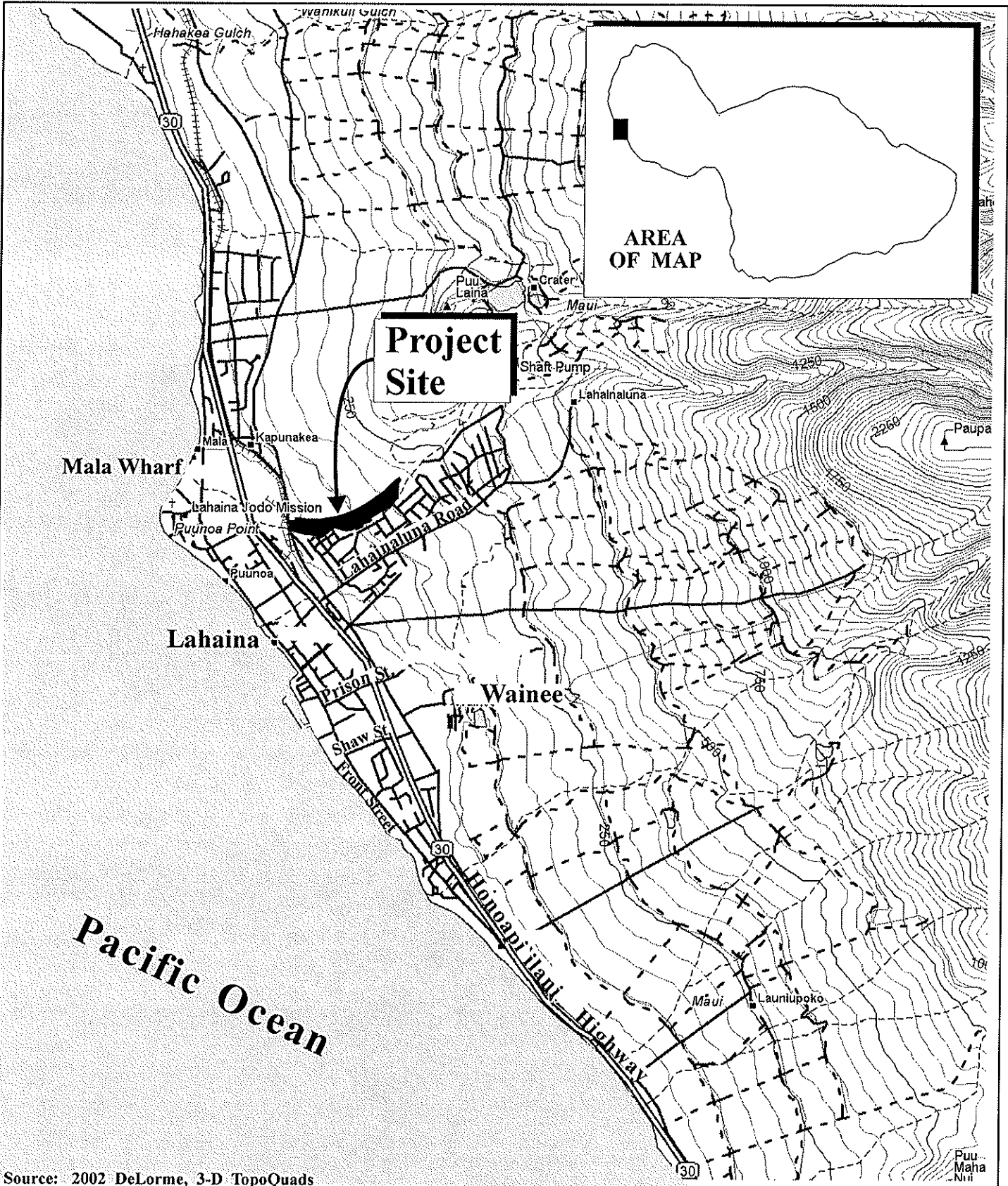
Access to the property is proposed to be provided by Lui Street from the east and via the proposed Mill Street Extension roadway from the west. See **Figure 4**.

The subject property is owned by Kahoma Land LLC. The applicant has an agreement to purchase the parcel from Kahoma Land LLC.

B. PROPOSED ACTION

The applicant, West Maui Land Company, Inc., proposes the development of the 88-unit Kahoma Residential Subdivision in Lahaina, Maui, Hawai'i. The project includes a mix of single-family and multi-family residential units, as well as a neighborhood park. The project will satisfy the requirements of the Maui Residential Workforce Housing Policy (MRWHP) and will be developed in conjunction with Lokahi Pacific and Habitat for Humanity.

The project will consist of 63 single-family homes/parcels and 25 multi-family units in a two-story duplex configuration. Refer to **Figure 4**. Of the 63 single-family homes/parcels, four (4) will be self-help parcels under the direction of Habitat for Humanity to reduce construction costs and 24 homes will be developed by Lokahi Pacific. Thirty-five parcels will be sold lot only to afford prospective owners flexibility in their building design. In addition, all 25 of the multi-family units will be in the affordable category and will be developed by Lokahi Pacific for the purposes of special needs accommodations (includes one (1) manager's unit). All 88 units will be priced in the affordable category. See **Table 1**.



Source: 2002 DeLorme, 3-D TopoQuads

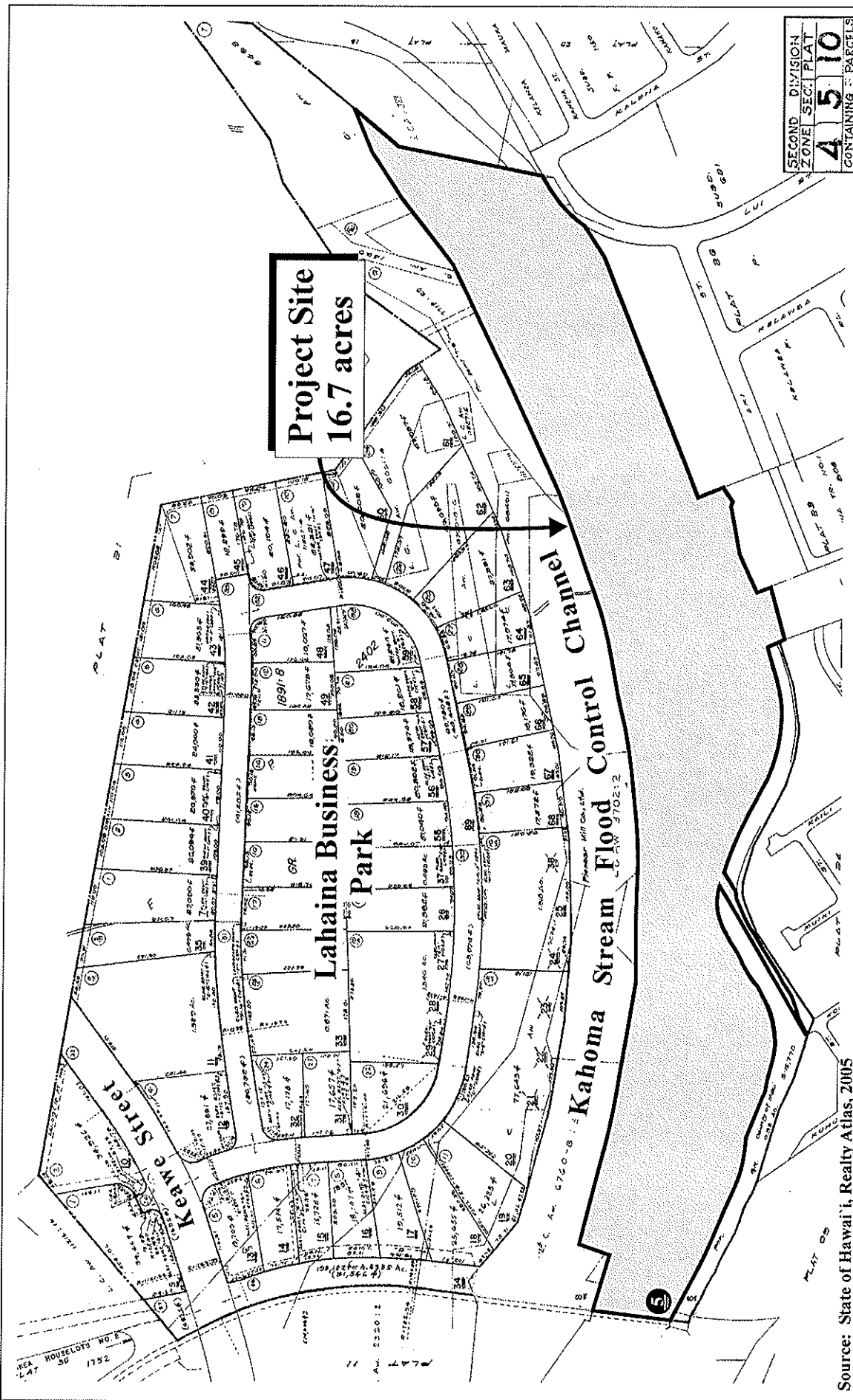
Figure 1

Proposed Kahoma Residential
Subdivision
Regional Location Map



MUNEKIYO & HIRAGA, INC.

Prepared for: West Maui Land Company, Inc.



Source: State of Hawaii, Realty Atlas, 2005

Figure 2

Proposed Kahoma Residential Subdivision Site Location and Tax Map Key



NOT TO SCALE

Prepared for: West Maui Land Company, Inc.



MUNEKIYO & HIRAGA, INC.

Kahoma/Empe/Hg/st/location



SOUTHEAST VIEW



EAST VIEW

Source: West Maui Land Company, Inc.

Figure 3 Proposed Kahoma Residential Subdivision Site Photos

NOT TO SCALE

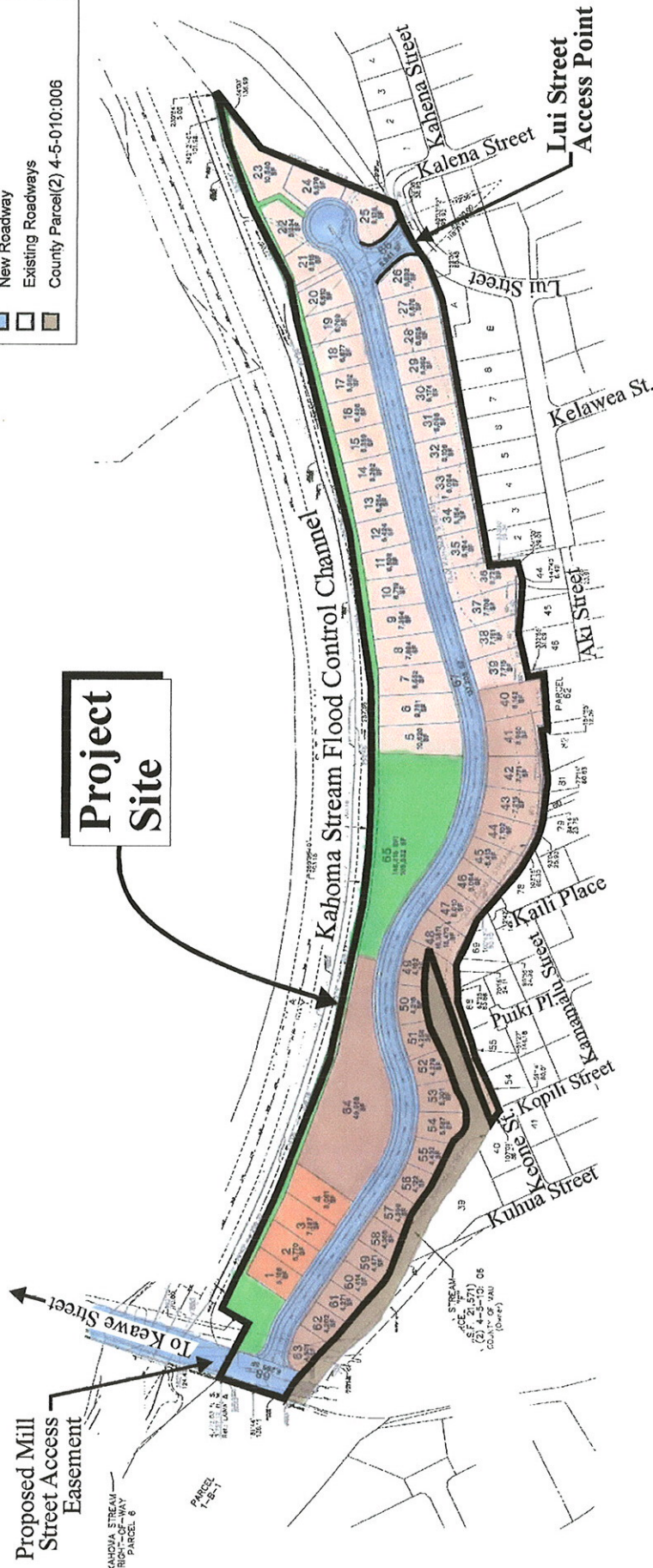
Prepared for: West Maui Land Company, Inc.


MUNEKIYO & HIRAGA, INC.

Kahoma\EmpeeHsg\Site Photos

Kahoma Residential Subdivision
 (2) 4-5-010:005, Lahaina, Maui
Alternative A: 88 Units

- Habitat Homes (4 lots)
- Lokahi Special Needs Lot (25 MFR Units)
- Lokahi Pacific Affordable Homes (24 lots)
- Affordable Lots (35 lots)
- Park, Bike Path, Drainage Lot
- New Roadway
- Existing Roadways
- County Parcel(2) 4-5-010:006



Source: R.T. Tanaka Engineers, Inc.

Figure 4



Proposed Kahoma Residential Subdivision
 Subdivision Plan

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.

Table 1. Housing Unit Breakdown by Developer

Developer	Number of Units	Unit Type
Habitat for Humanity	4	Single-Family Residential
Lokahi Pacific	25	Multi-Family Residential
	15	Single-Family Residential (R-0)
	9	Single-Family Residential
West Maui Land Company, Inc.	35	Single-Family Residential
Total Housing Units	88	

1. Habitat for Humanity Lots (4 total)

Four (4) parcels will be developed under the direction of Habitat for Humanity. These four (4) parcels range from approximately 6,186 to 8,061 square feet in area. Habitat for Humanity has a number of single-family home designs, which have already received approval from the County of Maui. The selected homeowner will be able to choose from those designs which may be accommodated based on the site topography and geometry.

Habitat for Humanity is a non-profit organization whose mission is to eliminate poverty housing and homelessness from the world, and to make decent shelter a matter of conscience and action. Through volunteer labor and donations of money and materials, Habitat for Humanity builds houses with the help of the homeowner (partner) families. Habitat houses are sold to partner families at no profit and are financed with affordable loans.

Families in need of decent shelter apply to local Habitat for Humanity affiliates. The affiliate's family selection committee chooses homeowners based on their level of need, their willingness to become partners in the program, and their ability to repay the loan. Every affiliate follows a nondiscriminatory policy of family selection. Neither race nor religion is a factor in choosing the families who receive Habitat for Humanity houses.

2. **Lokahi Pacific Units (49 total)**

A total of 49 housing units will be developed by Lokahi Pacific, including single-family R-0 residential, conventional single-family residential, and multi-family residential units. Lokahi Pacific is a non-profit housing and community development organization. Its mission is to improve the quality of life, both economically and socially, of residents of the County of Maui. With goal-oriented vision and broad collaboration, Lokahi Pacific develops sensible and successful projects that enrich the economic climate of the county, increase the inventory of affordable and special needs housing, and insure that residents participate in that enrichment and share in its benefits.

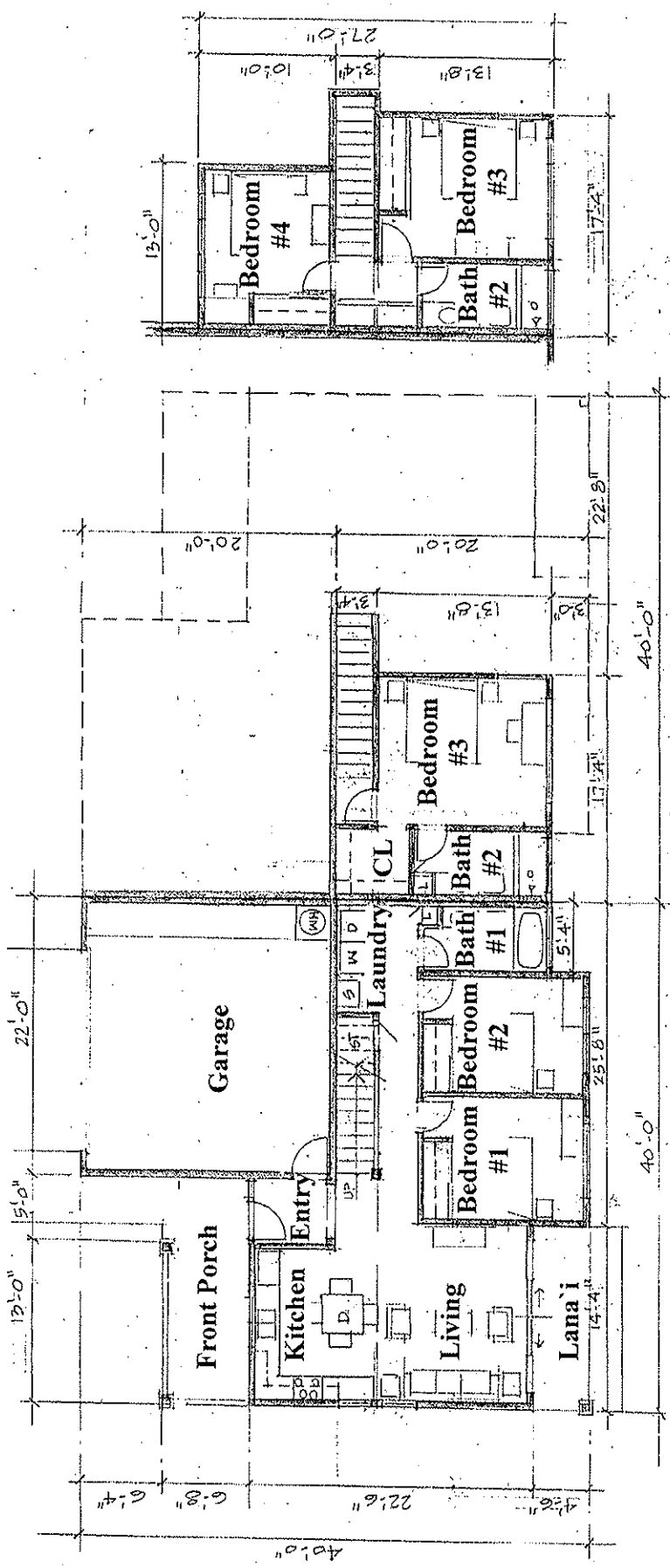
a. **Single-Family (R-0, Zero Lot Line) Residential Housing**

Lokahi Pacific proposes to develop 15 of the single-family lots in an R-0, zero lot line configuration. The lots range from approximately 4,122 to 5,587 square feet in area. The single-family homes would be offered with three (3) different models from which to choose as described below. See **Figure 5** and **Figure 6**.

- Unit A – 3BR
 - Two story, 1,243 square feet
 - 3 bedroom, 2 bath, kitchen, living room, garage, porch, and lana`i

- Unit A – 4BR
 - Two story, 1,373 square feet
 - 4 bedroom, 2 bath, kitchen, living room, garage, porch, and lana`i

- Unit B– 3BR
 - Two story, 1,152 square feet
 - 3 bedroom, 2 bath, kitchen, living room, garage, porch, and lanai



Lower Floor 976 Sq. Ft.

Upper Floor 267 Sq. Ft.
3-Bedroom Unit

Upper Floor 397 Sq. Ft.
4-Bedroom Unit

Source: Lokahi Pacific

Figure 5

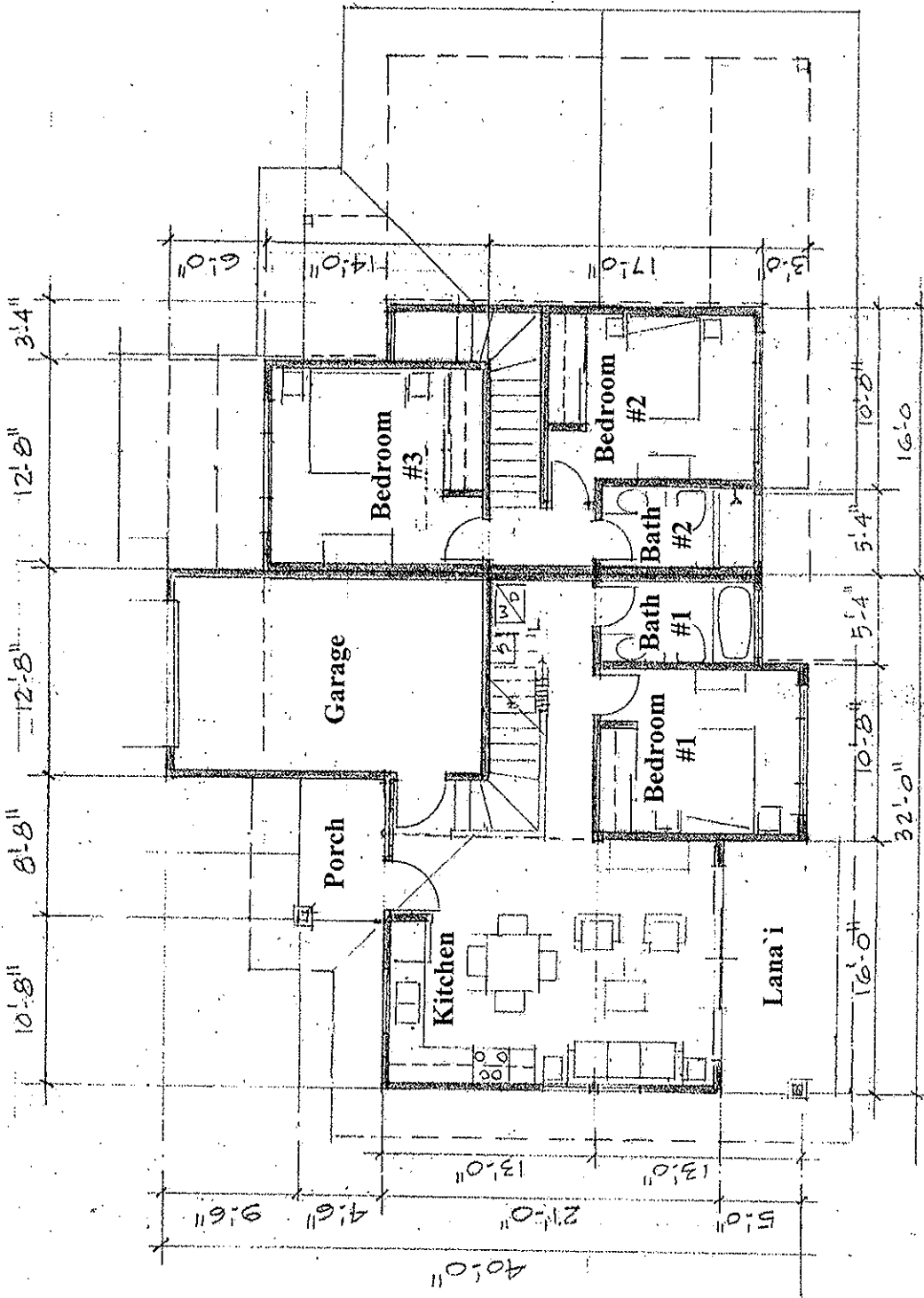
Proposed Kahoma Residential Subdivision Unit "A" Floor Plan

NOT TO SCALE



MUNEKIYO & HIRAGA, INC.

Prepared for: West Maui Land Company, Inc.



Ground Floor 640 Sq. Ft. Upper Floor 512 Sq. Ft.

Figure 6

Proposed Kahoma Residential Subdivision
Unit "B" Floor Plan

NOT TO SCALE



MUNEKIYO & HIRAGA, INC.

Prepared for: West Maui Land Company, Inc.

b. **Conventional Single-Family Residential Housing**

Lokahi Pacific also proposes to develop conventional single-family homes on lots ranging from 6,010 to 15,473 square feet in area. Refer to **Figure 4**. Prospective homeowners will be able to choose from various models in 3- and 4-bedroom, 2-bath configurations.

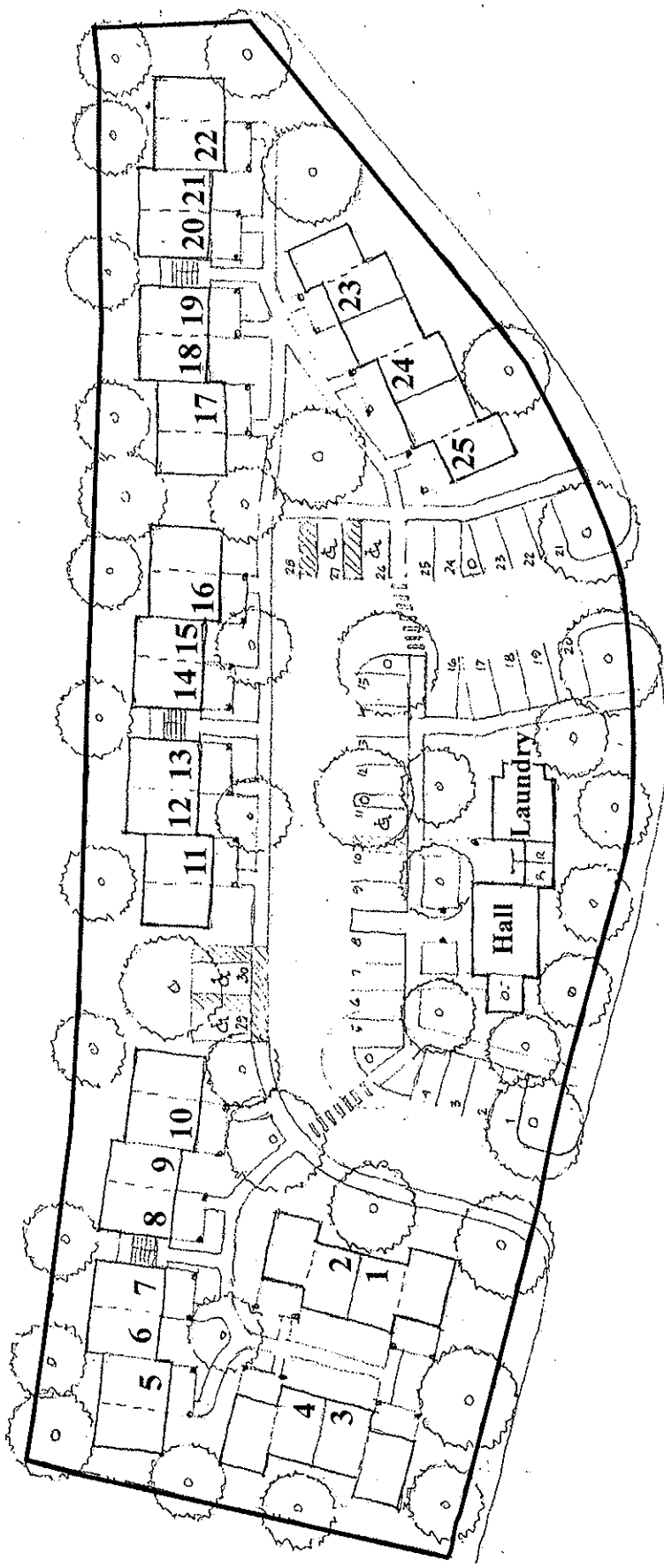
c. **Multi-Family Special Needs Housing**

In light of the dearth of special needs housing in the West Maui region, Lokahi Pacific felt that this project presented an opportunity to provide affordable rentals to accommodate special needs individuals. Special needs individuals are defined as people who have physical or mental disabilities. Lokahi Pacific administers a screening program to qualify individuals for special needs housing. Lokahi Pacific intends on contracting an outside organization to employ a property manager and maintain the special needs accommodations.

Lokahi Pacific proposes to construct the multi-family special needs housing units on a lot approximately 49,968 square feet in area. Refer to **Figure 4**. There will be 25 total units, which includes 24 special needs units and one (1) manager's unit. See **Figure 7**. Each unit will be 1-bedroom, 1-bath with a kitchen/dining and living area of approximately 540 square feet. See **Figure 8**.

3. **Affordable Lots (35 total)**

The applicant will retain the 35 affordable lots for eventual sale. The lots range from approximately 6,094 to 10,620 square feet. At this point in time, based on the project's location proximate to established residential subdivisions, it is anticipated that the lots will be priced to be affordable to individuals and families in the 140 percent to 160 percent of the household median income range, assuming affordable lot only prices are 50 percent of the affordable 4-bedroom house and lot prices. As mentioned, these 35 lots will be offered for sale lot only, to allow the prospective homeowner independence in home design. The applicant may also contract with a builder and offer house/lot packages for one (1) or more lot(s), depending on the community needs.



25 One-Bedroom Units
30 Parking Stalls

Source: Lokahi Pacific

Figure 7



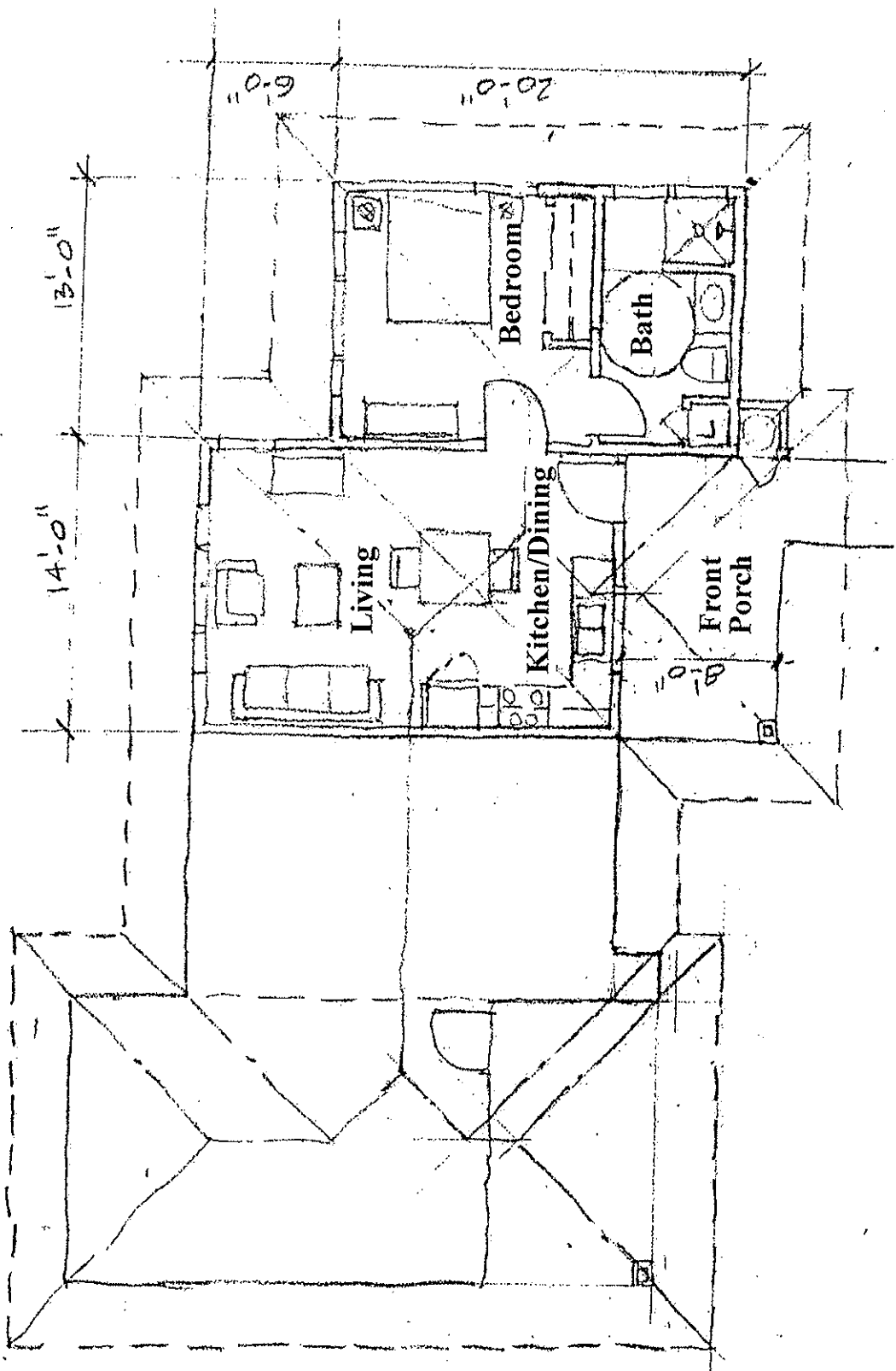
Proposed Kahoma Residential Subdivision
Lokahi Pacific Special Needs Housing Site Plan

NOT TO SCALE

Prepared for: West Maui Land Company, Inc.



MUNEKIYO & HIRAGA, INC.



Source: Lokahi Pacific

Figure 8

Proposed Kahoma Residential Subdivision
 Lokahi Pacific Special Needs Housing Floor Plan

NOT TO SCALE

Prepared for: West Maui Land Company, Inc.



In addition to developing housing units, the applicant will develop a neighborhood park with a comfort station, bicycle paths, and walking trails to promote recreational pursuits within the project limits. Refer to **Figure 4**. The neighborhood park will be located adjacent to the multi-family units and will also serve as a retention basin for the upper portion of the project. There will be a new paved bicycle path along the entire length of the project, along the Kahoma Stream Flood Control Channel.

The Kahoma Residential Subdivision is a stand-alone project and is not part of another development. In other words, the applicant will not seek affordable housing credits from this project for development activities it may pursue in the future.

Towards facilitating project implementation, the Department of Housing and Human Concerns has determined that the project qualifies as a Section 201H project. Thus, a Section 201H application will be filed with the County of Maui. Additionally, the Land Use Commission petition for State Land Use District Boundary Amendment will be filed pursuant to Section 15-15-97 of the Land Use Commission Rules relating to procedures for processing applications under Section 201H. This provision of the Rules permits fast-track processing of the petition to include action by the State Land Use Commission within 45 days of receipt of the completed petition.

C. PROJECT NEED

The proposed action will increase the supply of available housing, including the supply of affordable housing units, at a time when housing is expensive and in short supply on Maui. According to the Realtors Association of Maui, the median sales price year-to-date in 2007 through December 31 of a single-family house and lot on Maui was \$630,069.00 and in Lahaina was \$1,125,000.00 (Realtors Association of Maui, 2008). At these prices, many residents are unable to purchase their own homes.

In light of the current and projected housing market conditions and prices, the proposed Kahoma Residential Subdivision is considered to provide a significant community benefit by offering residents new opportunities to secure affordable housing products.

D. AFFORDABLE HOUSING PROGRAM

The Kahoma Residential Subdivision proposes to provide housing for rent and for sale in accordance with income allocations set forth in **Table 2**.

Table 2. Proposed Affordable Housing Program

Income Category	Product Type	No. of Units	Rental or Ownership	Price Range*
20% to 60% of HUD	Self-Help Housing	4	Ownership	Below \$212,000
40% to 100% of HUD	Multi-Family Housing	25	Rental	\$524 to \$1,311/month
80% to 120% of HUD	Single-Family Housing	24	Ownership	\$245,000 to \$423,000
140% to 160% of HUD	Single-Family Lots	35	Ownership	\$247,000 to \$282,000
*Assumes 6% interest rate and 2007 dollars.				

An affordable housing agreement will be executed to set forth the specific terms of pricing, marketing, and rental/sale prioritization.

E. EXISTING LAND USE DESIGNATIONS

The existing land use information for the project is summarized in **Table 3** below.

Table 3. Current Land Use Summary

Land Use Parameter	Existing Designation
State Land Use District	Agricultural
West Maui Community Plan	Open Space
County Zoning	Agricultural

1. State Land Use District

The property is currently within the “Agricultural” state land use district. This use indicates areas assigned for agricultural activity within the State of Hawai‘i. The applicant will file a Section 201H-38 petition with the State Land Use Commission (SLUC) for a District Boundary Amendment to re-designate the entire 16.7-acre project site from the “Agricultural” to the “Urban” District. As indicated previously, the petition filing will be made in accordance with Section 15-15-97 of the Land Use Commission Rules.

2. **West Maui Community Plan**

The property is currently designated as “Open Space” in the West Maui Community Plan. The applicant will file a Section 201H-38 application with the Maui County Council to allow residential development on these “Open Space” lands.

3. **County Zoning**

The property is currently within the “Agricultural” county zoning district. The applicant will seek, as part of its Section 201H-38 application mentioned above, allowance of residential uses on the subject property in this zoning district.

F. APPROVALS REQUIRED

The Kahoma Residential Subdivision has been designed and programmed to meet the criteria for a Section 201H-38, HRS project by the County of Maui’s Department of Housing and Human Concerns. Section 201H-38 of the Hawai`i Revised Statutes promotes the delivery of affordable housing by exempting endorsed projects from *“all statutes, ordinances, charter provisions, and rules of any governmental agency relating to planning, zoning, construction standards for subdivisions, development and improvement of land, and the construction of units thereon.”*

As such, the applicant will file a Section 201H-38 application with the Maui County Council to seek exemptions from the Change in Zoning and Community Plan Amendment approval processes, as well as County requirements, including public infrastructure and construction fees. The requested exemptions from Maui County Code (MCC) requirements are described below.

The applicant will seek the following exemptions for the entire project.

1. **Exemption from Title 2, MCC, Administration and Personnel**

An exemption from Chapter 2.80B, MCC, General Plan and Community Plans, shall be granted to permit the project to proceed without obtaining a community plan amendment.

2. **Exemption from Title 18, MCC, Subdivisions**

Exemptions from Section 18.04.030, MCC, Administration, and Section 18.16.020, MCC, Compliance, shall be granted to exempt the project from obtaining a change in zoning and community plan amendment.

3. **Exemption from Title 19, MCC, Zoning**

An exemption from Chapter 19.30A, MCC, Agricultural District, shall be granted to permit the development and use of the parcel for single-family and multi-family residential purposes. Further, the exemption shall allow the subdivision of the property in the plat configuration shown in **Figure 4**.

The following zoning standards shall apply to the proposed single-family lots:

Minimum lot size:	4,000 square feet
Height:	No building shall exceed two (2) stories or thirty (30) feet in height
Lot width:	Minimum of 35 feet
<u>SETBACK:</u>	
Front yard	Minimum of 15 feet
Garage	Minimum of 20 feet
One-story homes side and rear	Minimum of 6 feet
Two-story homes side and rear	Minimum of 10 feet

The following zoning standards shall apply to the proposed multi-family lot:

Minimum lot size:	1 acre
Height:	No building shall exceed two (2) stories or thirty (30) feet in height
<u>SETBACK:</u>	
Front yard	Minimum of 15 feet
Side and rear	Minimum of 10 feet

4. **Exemption from Title 12, MCC, Streets, Sidewalks, and Public Places**

An exemption from Chapter 12.08, MCC, Driveways, shall be granted to exempt the project from payment of driveway permit and inspection fees.

5. **Exemption from Title 14, MCC, Public Services**

An exemption from Chapter 14.62.070, MCC, West Maui Traffic Impact Fees, shall be granted to exempt the project from payment of traffic impact fees.

6. **Exemptions from Title 16, MCC, Buildings and Construction**

Exemptions from MCC Chapters 16.04A, Fire Code, 16.18A, Electrical Code, 16.20A, Plumbing Code, and 16.26, Building Code, shall be granted to exempt the project from payment of fire, electrical, plumbing, and building permit fees, as well as inspection fees.

7. **Exemptions from Title 18, MCC, Subdivisions**

An exemption from Section 18.16.320, MCC, Parks and Playgrounds, shall be granted to exempt the project from payment of park and playground fees.

8. Exemption from Title 20, MCC, Environmental Protection

An exemption from Section 20.08.090, MCC, Grubbing and Grading Permit Fees, shall be granted to exempt the project from payment of grading, grubbing, and excavation permit fees, as well as inspection fees.

The U.S. Department of Housing and Urban Development (HUD) Description of Materials form is included in **Appendix “A”** of this document.

G. CHAPTER 343, HAWAII REVISED STATUTES REQUIREMENT

The proposed project will connect to Lui Street, which is a County roadway. The use of County lands is a trigger for an environmental impact analysis pursuant to Chapter 343, Hawai'i Revised Statutes (HRS). In particular, based on the anticipated scope of work, the proposed action requires the preparation and processing of an Environmental Assessment (EA).

This EA is intended to cover any use of State and County lands and funds, for purposes including, but not limited to, any roadway, infrastructure, utility system or other improvements relating to the development of the project. This would include, but not be limited to, roadway, infrastructure, utility systems and improvements to Lui Street and Kalena Street, as well as at offsite locations.

H. IMPLEMENTATION TIME FRAME

The implementation of the proposed Kahoma Residential Subdivision land use plan sought by the applicant will commence upon receipt of land entitlements, regulatory permits, and approvals. It is estimated that the entitlements process will take approximately two (2) years to complete, followed by approximately two (2) years for the design and the approval of construction plans. Site construction is estimated to be initiated in 2010 with build-out of the project estimated over a two (2) year period until 2012.

**II. DESCRIPTION OF THE
EXISTING
ENVIRONMENT,
POTENTIAL IMPACTS,
AND PROPOSED
MITIGATION MEASURES**

II. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS, AND PROPOSED MITIGATION MEASURES

A. PHYSICAL SETTING

1. Surrounding Land Uses

a. Existing Conditions

The project area is located near the southern gateway of Lahaina town, between Lahainaluna Road and the Kahoma Stream Flood Control Channel. The project area is located east (mauka) of Honoapi'ilani Highway. The Lahaina Business Park is located along the north boundary of the Kahoma Stream Flood Control Channel, across the project site. The Lahaina Small Boat Harbor is located approximately 0.8 mile to the southwest of the project site. The entire project site is located outside of the Lahaina National Historic Landmark district.

The coastal area of Lahaina, to the west of the project site, includes visitor-oriented commercial areas along Front Street, including the Lahaina Cannery Mall, Lahaina Center, and the Wharf Cinema Center. In addition, within one (1) mile to the east of the project site are Princess Nahi'ena'ena Elementary School, Lahaina Intermediate School, and Lahainaluna High School. Adjacent to the project site to the east and south are existing residential subdivisions.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action is intended to provide residential dwelling units to address the need for increased housing inventory for West Maui residents. The property is located adjacent to existing urban areas and has ready access

to supporting infrastructure systems. The project will continue the residential character of proximate land uses in Lahaina town.

2. Climate

a. Existing Conditions

Like most areas of Hawai'i, West Maui's climate is relatively uniform year-round. The region's tropical latitude and its position relative to storm tracts, the Pacific anticyclone, and the surrounding ocean combine to produce a stable climate. Variations in climate among the different regions on Maui are largely dependent on local terrain.

August is historically the warmest month in Lahaina, with an average high temperature of 88 degrees Fahrenheit and an average low temperature of 70 degrees. On the other hand, February is normally the coolest month of the year, with an average high temperature of 81 degrees Fahrenheit and an average low temperature of 63 degrees Fahrenheit (Maui County Data Book, 2006).

Rainfall in Lahaina is highly seasonal. Most of the precipitation occurs from November to April when winter storms hit the area. Precipitation data for Lahaina shows that January is the wettest month, with 3.15 inches on average, while only 0.08 inch of precipitation occurs in June, the driest month. The annual average precipitation in Lahaina is 14.62 inches (Maui County Data Book, 2006).

The winds in the region are also quite seasonal. The northeasterly tradewind occurs 90 percent of the time during the summer and just 50 percent of the time in the winter with average wind speeds of approximately 10 miles per hour. However, wind patterns vary on a daily basis, with tradewinds generally being stronger in the afternoon. During the day, winds blow onshore toward the warmer land mass. In the evening, the reverse occurs, as breezes blow toward the relatively warm ocean.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action is not anticipated to alter local micro-climates. The proposed development will have a low profile and is not anticipated to alter wind patterns in the area.

3. Topography and Soils

a. Existing Conditions

The proposed Kahoma Residential Subdivision project site is characterized by a gently sloping topography and generally slopes in a westerly direction toward the ocean. The site elevation is approximately 32 feet above mean sea level (amsl) near the bottom (makai end) of the site to roughly 145 feet amsl near the top of the site.












Underlying the subject property are soils from the Pulehu-Ewa-Jaucas association. See **Figure 9**. The Soil Survey of the Islands of Kaua'i, O'ahu, Maui, Moloka'i, and Lana'i, State of Hawai'i characterizes the soils of the Pulehu-Ewa-Jaucas association as consisting of a mixture of well-drained and excessively drained, medium-textured, moderately fine-textured, and coarse-textured soils on alluvial fans and in basins on the island of Maui. These soils are nearly level to moderately sloping. This association makes up approximately four (4) percent of the island.

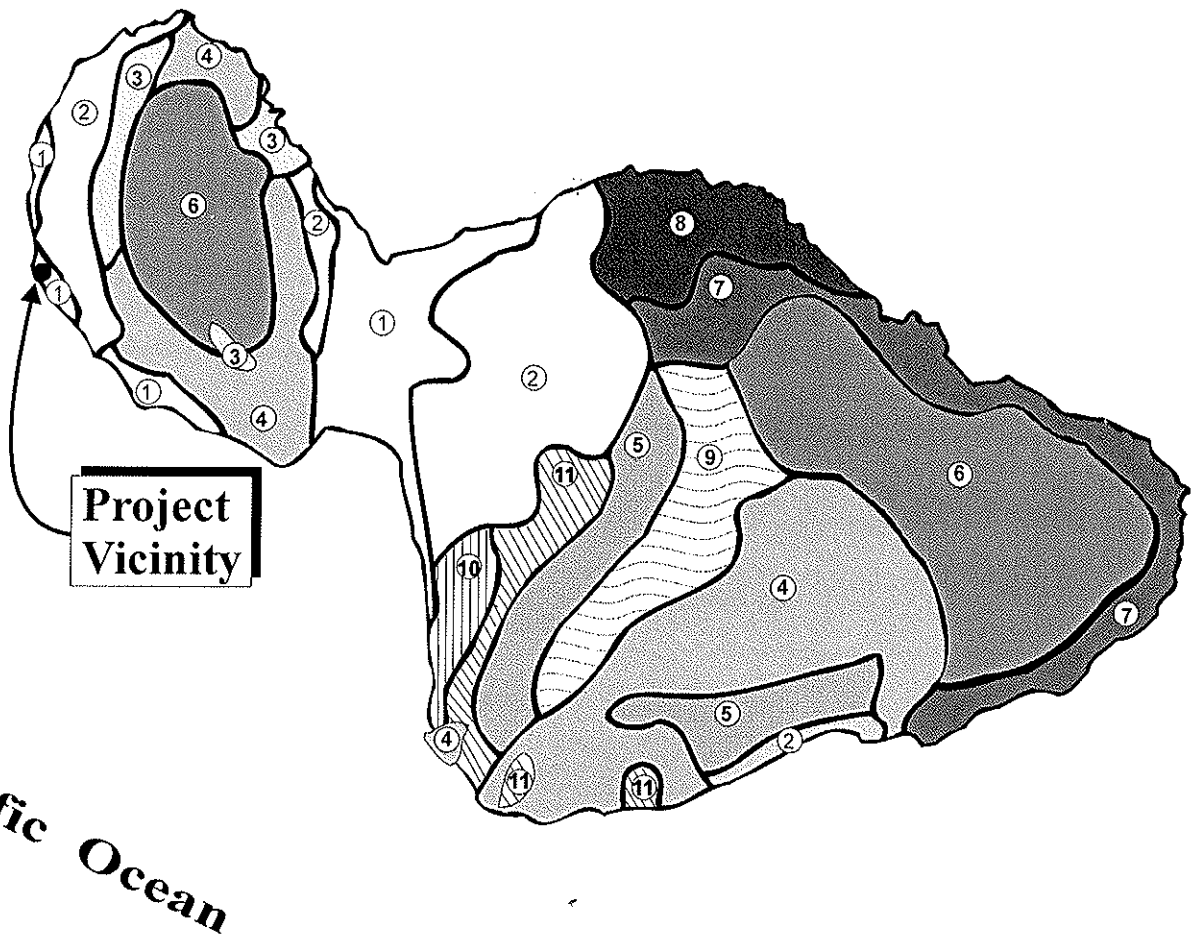
The specific soil type underlying the project site is Wahikuli very stony silty clay, 3 to 7 percent slopes (WdB). See **Figure 10**. On this type of soil, as much as three (3) percent of the surface is covered with stones. Accordingly, this soil is primarily used for sugar cane cultivation with smaller acreages used for home sites or pasture.

b. Potential Impacts and Proposed Mitigation Measures

There are no geologic or soil hazard limitations associated with the subject property. As such, the residential neighborhood proposed for the subject property is compatible with its underlying soil characteristics.

LEGEND

- | | | | |
|---|--|---|-----------------------------------|
|  | Pulehu-Ewa-Jaucas association |  | Hana-Makaalac-Kailua association |
|  | Waiakoa-Keahua-Molokai association |  | Pauwela-Haiku association |
|  | Honolua-Olelo association |  | Laumaia-Kaipoi-Olinda association |
|  | Rock land-Rough mountainous land association |  | Keawakapu-Makena association |
|  | Puu Pa-Kula-Panc association |  | Kamaole-Oanapuka association |
|  | Hydrandepts-Tropaquods association | | |



Source: USDA Soil Conservation Service

Figure 9

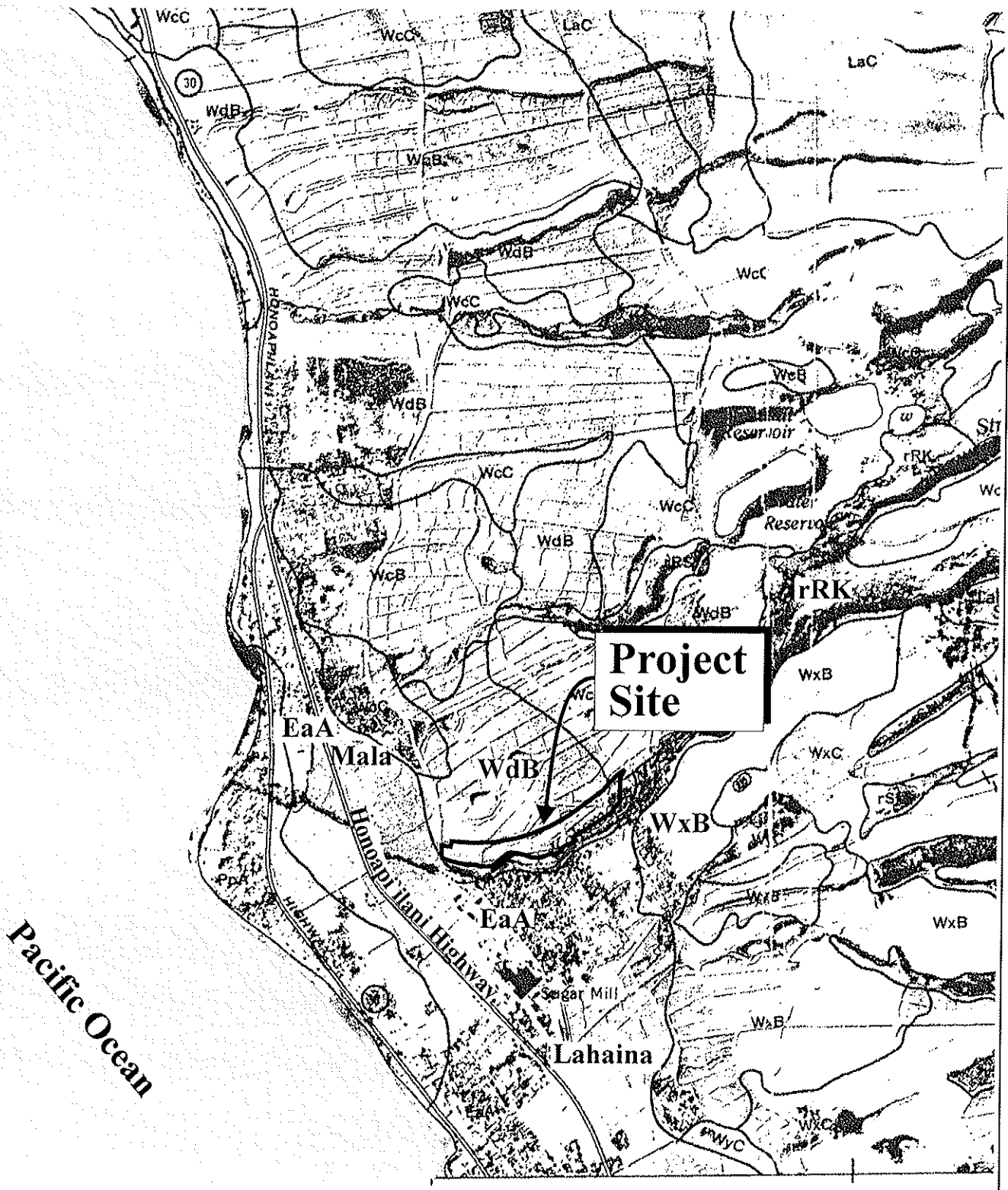
Proposed Kahoma Residential
Subdivision
Soil Association Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.

MUNEKIYO & HIRAGA, INC.



Source: USDA Soil Conservation Service

Figure 10

Proposed Kahoma Residential
Subdivision
Soil Classification Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.

MUNEKIYO & HIRAGA, INC.

4. Agriculture

a. Existing Conditions

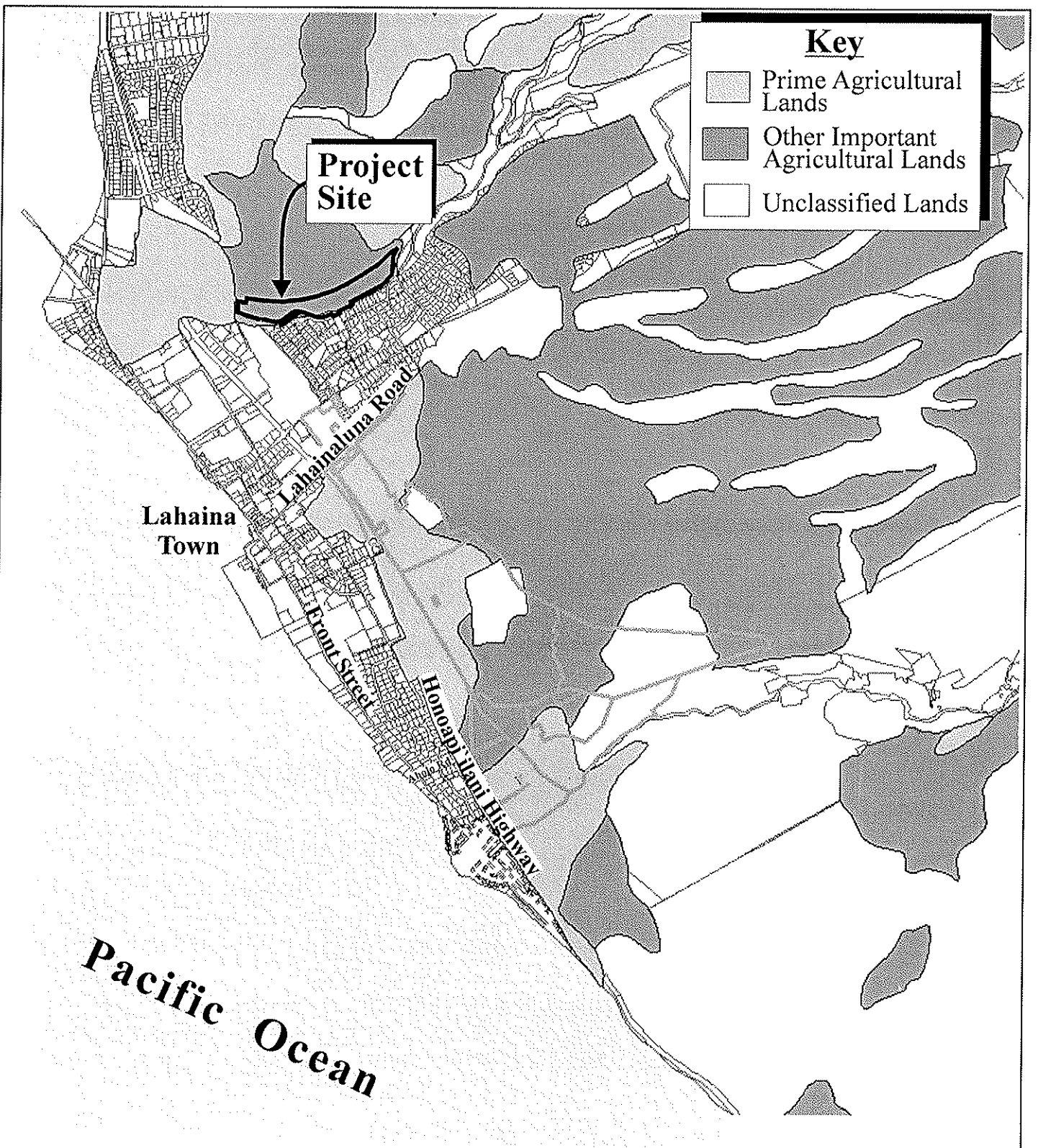
In 1977, the State Department of Agriculture developed a classification system to identify Agricultural Lands of Importance to the State of Hawai'i (ALISH), based primarily, though not exclusively, on their soil characteristics. The three (3) classes of ALISH lands are: "prime", "unique", and "other important" agricultural lands, with the remaining non-classified lands categorized as "unclassified". When utilized with modern farming methods, "prime" agricultural lands have a soil quality, growing season, and moisture supply to produce sustained crop yields economically; while "unique" agricultural lands possess a combination of soil quality, growing season, and moisture supply to produce sustained high yields of a specific crop. "Other important" agricultural lands include those that have not been designated "prime" or "unique". As reflected by the ALISH map for the Lahaina area, the project site includes lands which have been defined as "other important" agricultural lands. See **Figure 11**.

In addition, the University of Hawai'i, Land Study Bureau (LSB) classifies productivity characteristics on a scale of "A" through "E", with lands designated as "A" reflecting the highest productivity and "E" representing lands with the lowest productivity. These letters are followed by numbers which further classify the soil types and convey information such as texture, drainage, and stoniness (Land Study Bureau, 1967).

Lands underlying the project site have been classified by the LSB as B72i. These lands generally have moderately suited machine tillability and are primarily used for sugar cane cultivation and grazing. The soil is moderately fine and well-drained (Land Study Bureau, 1967).

b. Potential Impacts and Proposed Mitigation Measures

The subject property lies within the State Agricultural district, however, the location of these lands is such that many agricultural uses would not be compatible with the adjacent residential uses, which are up against the southern and eastern borders of the subject parcel.



Source: State of Hawai'i, Department of Agriculture

Figure 11

Proposed Kahoma Residential
Subdivision
ALISH Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.

MUNEKIYO & HIRAGA, INC.

Kahoma\Empce\Hsg\ALISH

The geometry of the subject area itself is somewhat problematic for agriculture. Since these project lands are bounded by the Kahoma Stream Flood Control Channel to the north, residential subdivisions to the south and east, and the former Pioneer Mill facility to the west, the slender geometry of these project lands does not lend itself to the creation of an adequate buffer from adjacent uses. In large part, that is why the parcels have remained out of active agriculture for years.

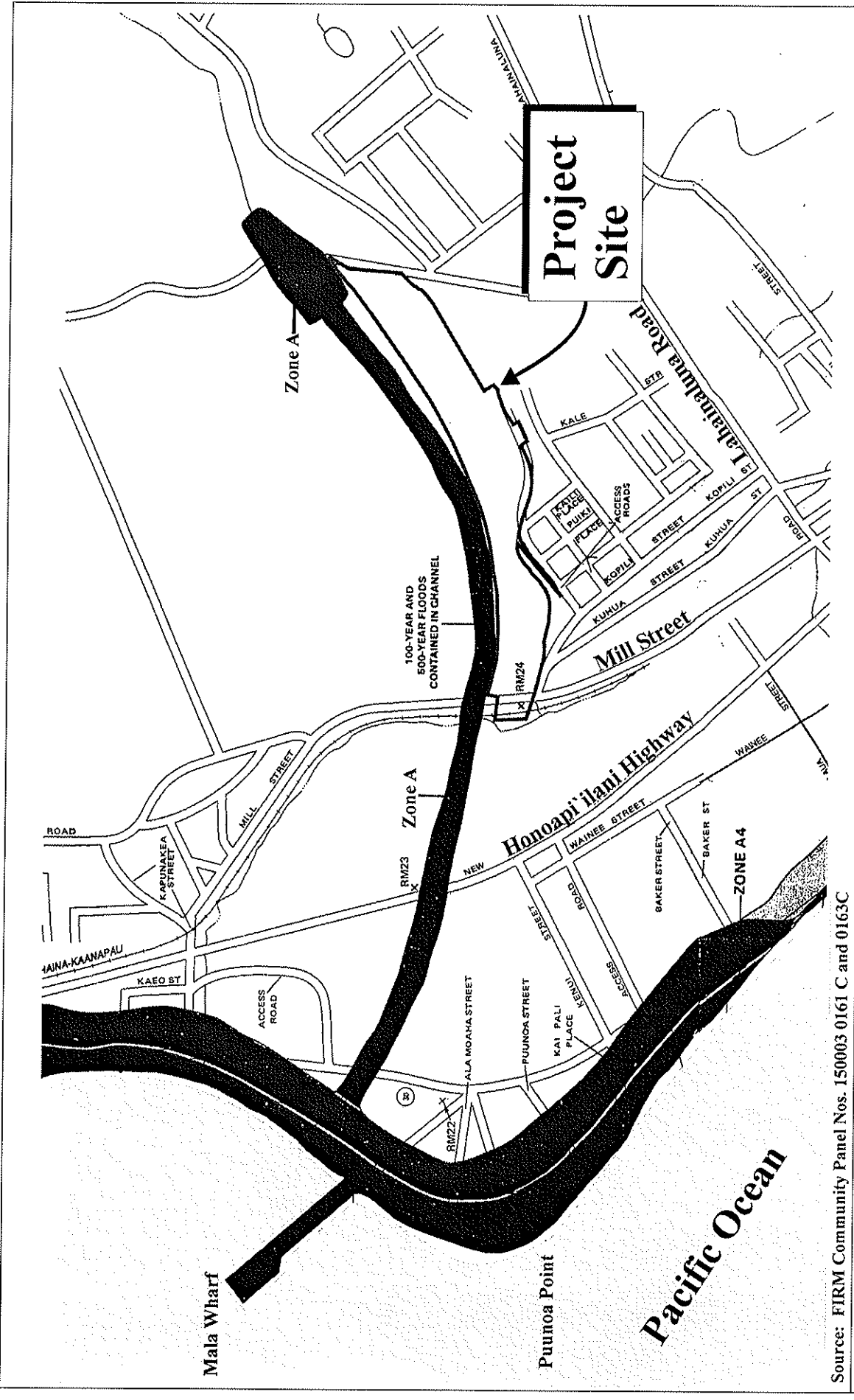
However, the agricultural impact of this project is near negligible when taken in the context of the recent trends occurring on Maui. In the last 30 years, the closures of Wailuku Sugar and Pioneer Mill on Maui have taken significant acreages out of active sugar cane cultivation. These actions have greatly increased the supply of non-sugar based agricultural lands. In fact, much of the lands of these former plantations remain fallow. The proposed project will ultimately involve the use of approximately 16.7 acres of land, which represents approximately 0.007 percent of the roughly 245,000 acres of State Agricultural district lands on the island of Maui.

Lastly, when taken in the context of the housing shortage existing on Maui, coupled with the scarcity of properly entitled, undeveloped residential lands in West Maui, the conversion of agriculture lands into residential development presents a beneficial opportunity.

5. Flood and Tsunami Hazards

a. Existing Conditions

As indicated by the Flood Insurance Rate Map (FIRM) for the Lahaina area, the project site is located wholly within Zone C, denoting areas of minimal flooding. See **Figure 12**. As noted in **Figure 12**, Zone A, denoting areas affected by 100-year and 500-year floods, is contained within the Kahoma Stream Flood Control Channel. In addition, the project site is situated in a location which is outside the tsunami inundation area.



Source: FIRM Community Panel Nos. 150003 0161 C and 0163C

Figure 12

Proposed Kahoma Residential Subdivision
Flood Insurance Rate Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.



Kahoma/Empeet/sg/FIRM

b. **Potential Impacts and Proposed Mitigation Measures**

There are no restrictions on development as it pertains to the Zone C designation. Moreover, because the project site is located outside of the tsunami inundation area, there are no threats to the surrounding areas from coastal wave action.

6. **Flora and Fauna**

a. **Existing Conditions**

A Biological Resources Survey of the project site was conducted by Robert Hobdy, Environmental Consultant, in August 2005. See **Appendix "B"**. The study noted that the area had been intensively cultivated for agricultural crops during the Hawaiian Government period, but has since been repeatedly plowed, planted, burned, and harvested by Pioneer Mill Company until its sugar operations ceased in the project area in the 1980's. The parcel was further disturbed during the construction of the Kahoma Stream Flood Control Channel in the late 1980's. Since that time, dryland grass and shrub species have grown in this arid area.

Buffelgrass was the only species of vegetation listed as abundant on the project site and best defined the botanical landscape of the property. Spiny amaranth and koa haole were also common onsite. Only two (2) native plants, `uhaloa and `ilima, were found on the property, but both are common indigenous plants and widespread on Maui. No endangered or threatened plant species were identified on the property.

Avifauna and mammals expected to be common to the project site and surrounding areas are typical of species found near other developed areas in Lahaina. Although only a single cat was observed during two visits to the project site, it is likely that rats, mice, mongoose, and dogs frequent the area given its proximity to domestic habitation. There is no evidence of the native Hawaiian hoary bat at the subject property.

b. Potential Impacts and Proposed Mitigation Measures

Given that the flora and fauna at the project site are generally limited to non-native, abundant species, the proposed project is not anticipated to have significant negative impact on the biological resources in the region.

The U.S. Fish and Wildlife Service noted that Newell's shearwater seabirds and the Hawaiian petrel are known to fly in the area. These seabirds are prone to collisions with objects in artificially lighted areas. As such, lights mounted in the project footprint, throughout the construction period, and within the completed residences, will be appropriately down-shielded to reduce seabird mortality.

7. Streams, Wetlands, and Reservoirs

a. Existing Conditions

As mentioned, the Kahoma Stream Flood Control Channel forms the northern boundary of the project site. Aside from during moderate to heavy rains, there is no active flow in the Kahoma Stream Flood Control Channel. According to the Department of the Army, "*navigable waters and other special aquatic sites such as anchialine ponds, springs, and wetlands are known to be absent in the proposed project area*".

b. Potential Impacts and Proposed Mitigation Measures

The project site has been situated to be outside of the flood area attributable to the Kahoma Stream Flood Control Channel. The drainage characteristics within the Kahoma Stream channel will not be altered. Mitigation measures, such as Best Management Practices (BMPs) for erosion and sediment control, will be implemented to ensure that the functional integrity of the Kahoma Stream Flood Control Channel is not affected. See Section II.D.5. Drainage in this document.

8. Archaeological Resources

a. Existing Conditions

An archaeological inventory survey was completed for the project site in November 2005 by Scientific Consultant Services, Inc. See **Appendix "C"**. The archaeological inventory survey included a combination of fieldwork, laboratory work, and document review. The fieldwork involved the execution of an intensive pedestrian survey of the entire project area for the purpose of site inventory and representative subsurface testing through backhoe trench testing (15 total test trenches) to evaluate the significance of any subsurface deposits. Laboratory work consisted of digital drafting of stratigraphic trench profiles, trench locations, and project area maps. Finally, document review involved a review of all previous archaeological work conducted in the vicinity of the project.

The survey noted that the area had been previously grubbed, graded, cut, and/or filled. In addition, there was evidence of extensive machine (bulldozer) alterations throughout the area with bulldozer push-piles and large boulder-piles comprising the modified landscape. Not only had the area been modified by the construction activities related to the historical agricultural use, but the site has been further disturbed during the activities related to the construction of the Kahoma Stream Flood Control Channel.

b. Potential Impacts and Proposed Mitigation Measures

The inventory survey showed the absence of notable archaeological deposits within the surface and subsurface contexts, which can largely be attributed to the significant agricultural activities that had occurred over the past century, as well as disturbance associated with the construction of the Kahoma Stream Flood Control Channel. Since there were no archaeological finds during the inventory survey, the survey has been classified as an archaeological assessment for reporting purposes. There are no anticipated impacts to archaeological resources in the region associated with development of the property. The archaeological assessment report has been reviewed and approved by the State Historic Preservation Division (SHPD). See **Appendix "C-1"**.

In accordance with Section 6E-43.6, Hawai'i Revised Statutes and Chapter 13-300, Hawai'i Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) will be contacted. Pursuant to the Office of Hawaiian Affairs' (OHA) request, the OHA will also be contacted by the applicant.

9. Cultural Resources

a. Existing Conditions

Cultural Landscape

The Lahaina District is described as a rich agricultural oasis watered from nearby valleys (Handy and Handy, 1972). This oasis "extended about three leagues in length (about nine miles along the coast) and one (three miles) in breadth". The name Lahaina ("cruel sun") likely refers to the droughts that affected the surrounding area from time to time (Pukui et al., 1974). In pre-contact times, Lahaina itself was apparently a garden-like area with taro lo'i, ditches ('auwai), and separating embankments creating a verdant landscape. Brackish water and fresh water ponds (loko) were also present. At lower elevations, dry land cultivation took place in areas around alluvial fans, while at higher elevations, lo'i and 'auwai systems were constructed within valleys for taro production. In coastal settlement areas, marine resources were utilized for subsistence. In Lahaina, several fishponds existed, of which two (2) were most prominent, Loko o Mokuhinia and the smaller Loko Puako, around which intensive taro and breadfruit cultivation occurred. Scattered around the fishponds and taro lo'i, and situated on higher ground, were the homes of the laborers who worked the land. As suggested by Handy (1940, 1972), by late pre-contact times, the fairly sizable population dwelling in the region utilized coastal fishing areas and inland garden plots for subsistence and cultivated sweet potatoes near shore or taro in terraced lo'i in the wetter valleys inland.

By the time of contact, the Lahaina region had become an important socio-political center and the residence of several powerful chiefs, most notably Kahekili, one of the highest ranking on Maui. Lahaina was considered by

high chiefs to be a favorable place due to the abundance of natural resources and its close proximity to the islands of Lana`i and Moloka`i (Handy and Handy, 1972).

In 1789, Kamehameha I invaded Maui and defeated Kahekili at the Battle of Kepaniwai O Iao (Speakman, 1978). In post-contact times, Lahaina became the center of the Hawaiian monarchy. Kamehameha I spent time there between his battles of conquest, while his son, Kamehameha III, resided in Lahaina in preference to Honolulu. Many high status individuals connected with the monarchy lived in Lahaina, even after the official capital of the kingdom was moved to Honolulu in 1845.

In 1820, about 40 years after Captain James Cook's discovery of the Hawaiian Islands, the islands transitioned from the traditional Hawaiian social system to one influenced by New England whaling ships and missionaries. The population of West Maui continued to decline in the second half of the 19th century as a result of the collapse of the Pacific whaling industry in the 1860's. The Pacific whaling industry collapse was prompted by the discovery of oil in Pennsylvania a decade or so earlier. In the Lahaina area, sugar production developed in the mid-1800s, while further north, different crops were tried, including coffee and pineapple.

With the introduction of sugarcane cultivation and the importation of foreign labor to work on the plantation, the character of Lahaina changed. Combined with the industrialization of the local sugar industry, Lahaina emerged as a plantation town with residential camps surrounding the downtown commercial area. Although now reliant on the visitor industry, Lahaina town's present character reflects a blend of its whaling and plantation era past.

Informant Documentation

To obtain a perspective about cultural resources relative to the project corridor, informant interviews were conducted with Joseph Lai, Keola Sequeira, and Earl Ray Kukahiko. These interviews, as well as other source material, are found in the Cultural Impact Assessment prepared by Hanapono in 2006. See **Appendix "D"**. Summaries of their interviews follow.

Joseph Lai

Joseph Lai was born in 1932 in Haiku, Maui. He is of Portuguese/Chinese descent and was adopted by the Lai family. He moved to Lahaina when he was about two and a half years old. Mr. Lai graduated from Lahainaluna High School and worked at the Sheraton Maui for 31 and a half years as a cook. His parents had a store called Lai Tong Store by the cannery. Mr. Lai also worked part-time for Baldwin Packers in 1955 emptying cans, stacking, and warehousing.

Mr. Lai's recollection of the Kahoma Stream area was the existence of cattle, pigs, chickens, and vegetables (corn and string beans) raised nearby. He used to play there and pick up pepeiao, koa, and milkweed for his rabbits near the river, as well as swim in the river.

In terms of avifauna, he recalled mejiro (Japanese white-eye), mynah, dove, sparrow, cardinals, and rice birds in the area. In addition, there were koa, kiawe, monkey pod, tamarine, plum, date, and mango trees in the vicinity.

Mr. Lai mentioned the flash floods which occasionally occurred, where large flows broke branches and the debris caused blockages, resulting in the flooding of the cannery. These flooding conditions occurred before the Kahoma Stream Flood Control Channel was constructed.

Keola Sequeira

Keola Sequeira was born in 1945 and has lived in Lahaina most of his life, outside of secondary schooling and service in the Air Force. He worked for the police department in Lahaina after returning from the military and retired from the police department. He still lives in his family's home near the Lahaina Hongwanji Mission in Lahaina town.

After seeing the Kahoma Residential project location, Mr. Sequeira recalled that the area contained plantation camps, particularly Mill Camp. He mentioned that there were 10 to 12 houses in Mill Camp by Kahoma and a nearby airstrip for the airplanes that sprayed the agricultural crops. Mill Camp contained a lot of people of Japanese descent. Mr. Sequeira said that

the Kahoma area was once alive with common mango trees. There were the same types of birds (no native species) in the past as are present today.

He remembered that the cannery, where Lahaina Cannery Mall exists today, on occasion got flooded. He mentioned that the Kahoma Stream Flood Control Channel eliminated the flooding problem of the area. The flow in Kahoma Stream is not constant. When there is rain in the mountains, there is flow in the stream bed.

Earl Ray Kukahiko

Earl Ray Kukahiko was born in 1930 in Lahaina. His early recollection of the Kahoma area was of picking koa seedlings down by the Kahoma Stream to feed the cattle, which provided milk every morning for the residents. Mr. Kukahiko recalled needing to pick koa seedlings totaling 100 pounds in weight everyday. They would have to return to the area if they did not get the full 100 pounds the first time around.

Mr. Kukahiko recalled that there was a plantation camp in the area as well, located below Lahainaluna High School. There were two (2) streams in the area, Kanaha and Kahoma. People lived near the stream beds and planted gardens. A lot of children walked to school since there were no buses at the time. Some children had to traverse both streams to get to school. These children were unable to go to school when the flows in the stream were high since they could not get across.

Additionally, there were areas in Kahoma where taro was cultivated. Students were assigned to go down to Kahoma to plant the taro for consumption. The Lahainaluna High School principal at the time wanted the students to help with the taro. He felt that the plantation later took those lands.

b. Potential Impacts and Proposed Mitigation Measures

Archaeological review and historic recollections of the project site and surrounding vicinity do not indicate adverse cultural impacts arising from the proposed action.

In general, the proposed project will employ appropriate management and coordination practices to ensure that impacts to cultural values and practices are appropriately mitigated.

10. Air and Noise Quality

a. Existing Conditions

The air quality of the Lahaina area is considered good with existing airborne pollutants attributed primarily to automobile exhaust from the region's roadways. There are no point sources of airborne emissions in the immediate vicinity of the project site. Other sources of airborne emissions may include construction activities around Lahaina. These sources are intermittent, however, and prevailing tradewinds quickly disperse any particulates which are generated.

There are no significant noise generators in the vicinity of the project site. The predominant background noise source in the area is attributed to vehicle traffic along Honoapi`ilani Highway and surrounding roadways.

b. Potential Impacts and Proposed Mitigation Measures

The primary potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Site work, such as clearing, grubbing and grading, roadwork, and construction, will generate airborne particulates. In addition to regular watering and sprinkling, the following measures will be implemented by the applicant's contractor during construction activities to minimize the proliferation of fugitive dust, in accordance with Hawai'i Administrative Rules (HAR), Chapter 11-60.1, Air Pollution Control.

The use of wind screens and/or limiting the area that is disturbed at any given time will help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed may be controlled by mulching. Trucks hauling soil material would be covered to mitigate dust. A routine road cleaning and tire washing program would help reduce fugitive dust emissions from trucks and vehicles tracking dirt onto nearby paved roadways.

Installation of landscaping early in the construction schedule will also help to control dust.

Graded and grubbed areas will be vegetated to mitigate dust-generated impacts. In the long term, the proposed project is not expected to adversely impact local and regional ambient air quality.

Ambient noise conditions will be temporarily impacted by construction activities. Heavy construction equipment, such as bulldozers, front-end loaders, and material-transport vehicles, will likely be the dominant sources of noise during the construction period.

The planning, design, and construction of the project will be undertaken in accordance with the maximum allowable sound levels as set forth by HAR, Chapter 11-46. These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels set forth in the Chapter 46 rules.

It is noted that the subdivision road referenced in **Figure 4** is aligned along the proposed single- and multi-family units within the project itself. Traffic using the subdivision road is not anticipated to affect either of the residential areas due to the relatively low peak hour volumes and expected speed limits imposed for the roadway. As an example, preliminary peak hour volumes at the makai extent of the project show under 100 vehicle trips during the morning and afternoon peak hours. The speed limit for the subdivision road will likely fall between 20 and 30 miles per hour. The overall long-term impact of the proposed project on ambient noise levels is not anticipated to be significant given the predominantly residential character of the proposed project.

11. Scenic Resources

a. Existing Conditions

The subject property is located mauka of Honoapi`ilani Highway with the West Maui Mountains visible to the east and the island of Lana`i visible to the west. The project site is not located within a scenic view corridor.

b. **Potential Impacts and Proposed Mitigation Measures**

The proposed residential community will be developed as an architecturally integrated area with low-rise residential structures. Landscaping will be established as part of the development improvements to ensure visual buffering and softening of the built landscape. Adverse impacts to scenic and open space resources resulting from the project are not anticipated.

B. SOCIO-ECONOMIC SETTING

1. **Land Use and Community Character**

a. **Existing Conditions**

The vast majority of lands in West Maui are either State designated “Conservation” or “Agricultural”. Generally, “Conservation” lands occupy the higher elevations, while the “Agricultural” district spans the middle ground. Major exceptions to this trend are the Honolua Stream and Pohakupule Gulch areas, where the “Conservation” district extends down to sea level.

“Urban” designated lands, then, are left to occupy the lower elevations along the coast. Kapalua and Ka’anapali contain Community Plan designations reflective of their resort nature. The communities of Kahana and Napili contain a mixture of resort, residential, and business uses.

Lahaina, meanwhile, encompasses a diverse mix of land uses, including residential, business, light and heavy industrial, recreational, and agricultural uses. The town of Lahaina is the commercial center of West Maui. The town contains several shopping centers and retail business areas, and serves as a hub for the region’s residential housing. To the east (mauka) of the Pioneer Mill smokestack in Lahaina, there exists a multitude of single-family homes for island residents.

West Maui’s attraction can be attributed to its year-round dry and warm climate, complemented by its many white-sand beaches and scenic landscapes. Visitor accommodations are located in Lahaina and the resort

communities of Ka'anapali, Kahana, Napili, and Kapalua. The State of Hawai'i's Kapalua-West Maui Airport at Mahinahina links the region to O'ahu and other neighbor islands.

Diversified agriculture and pineapple fields occupy much of the land in the West Maui region. Maui Land & Pineapple Company's fields span along the slopes of the West Maui Mountains north of Lahaina.

b. Potential Impacts and Proposed Mitigation Measures

The proposed Kahoma Residential Subdivision is located adjacent to an existing residential subdivision to the south and east and is, therefore, consistent with land uses present in the region. Moreover, the regional character of the Lahaina area will not be adversely impacted by the extension of residential uses to the Kahoma Stream Flood Control Channel. In the context of the pronounced housing shortage existing in West Maui, the project's location, situated in proximity to neighboring residential uses and to commercial centers of Lahaina, represents an appropriate area for urban expansion.

2. Population and Demography

a. Existing Conditions

The population of the County of Maui has exhibited relatively strong growth over the past decade. The resident population of the County of Maui in 2005 is estimated to be 140,050 (SMS, June 2006) and is projected to increase to approximately 151,300 in 2010 (SMS, June 2006).

The subject property is located near the western coast of Maui, within the West Maui Community Plan region. Just as the County's population has grown, the resident population of the West Maui region has also increased. The estimated population of Lahaina in 2000 was 17,967 (SMS, June 2006), which comprised 15.3 percent of the island's population. The projection of the resident population for this region in 2010 is estimated to be 21,577 (SMS, June 2006).

The overall West Maui population in 2000 differed from the County in terms of age and ethnic distribution as reflected in **Table 4**. West Maui has a larger percentage of its population in the eligible labor force than the County as a whole.

Table 4. Age and Ethnicity

Population	Maui County	West Maui
	128,094	17,748
Age		
Under 5	7 percent	7 percent
5 to 19	21 percent	17 percent
20 to 44	37 percent	42 percent
45 to 64	24 percent	24 percent
65 and older	11 percent	10 percent
Median Age	36.8 years	39.3 years
Ethnicity		
Caucasian	34 percent	55 percent
Japanese	10 percent	5 percent
Hawaiian	9 percent	6 percent
Filipino	17 percent	13 percent
All Others	30 percent	21 percent
Source: U.S. Census Bureau, 2000.		

As noted in the preceding table, 66 percent (66%) of West Maui's population is in the labor force age bracket of 20 to 64 years, while Countywide, 61 percent (61%) of the population is in this age category. West Maui has a slightly higher median age of 39.3 years, when compared to the Countywide median of 36.8 years.

b. Potential Impacts and Proposed Mitigation Measures

The Lahaina area currently contains a mix of housing types, both multi- and single-family, as well as a scattering of local commercial areas. The Kahoma

Residential Subdivision housing mix is, therefore, congruent with existing types of land uses in Lahaina. The proposed project is intended to satisfy a portion of the region's residential demand for housing, which may result in a slight increase in the population of the region (i.e., buyers/renters may relocate from other areas of Maui). However, aside from this potentially slight increase in population, no significant impacts to population and demography are anticipated.

3. Housing

a. Existing Conditions

The project site is located in Lahaina, the commercial and residential center of West Maui. A range of housing types and conditions exists within the area, from owner-occupied homes to luxury condominiums for part-time residents.

West Maui is presently experiencing an acute shortage of housing and record high prices, with the median sales price of a single-family home exceeding \$1,100,000.00. Low unemployment rates on Maui are also increasing residents' prospects of owning a home. With these conditions, the demand for home ownership exceeds the supply on Maui.

b. Potential Impacts and Proposed Mitigation Measures

The proposed Kahoma Residential Subdivision project will add 88 residential units, all affordable units, to the supply of housing in West Maui. The proposed project will assist in providing relief to the current overall shortage of housing. Moreover, the subject property's central location suggests that its impact will be beneficial to West Maui's commercial sector. No significant negative impacts on housing conditions are anticipated.

4. **Labor Force**

a. **Existing Conditions**

As of December 2007, the unemployment rate for Maui County and the island of Maui both stood at 3.4 percent and 3.3 percent, respectively (State Department of Labor and Industrial Relations, January 2008).

In terms of the profile of employed persons, West Maui generally follows the Countywide trends for the labor force characteristics shown in **Table 5**.

Table 5. Labor Force Characteristics

Occupational Category	Maui County	West Maui
Agriculture	3 percent	2 percent
Manufacturing	2 percent	<1 percent
Construction	4 percent	2 percent
Transportation, Communication, and Utility	4 percent	2 percent
Trade	20 percent	22 percent
Banking & Finance	4 percent	4 percent
Service	31 percent	40 percent
Government	10 percent	4 percent
Self-employed	23 percent	23 percent

Source: SMS, June 2006

However, more West Maui workers were employed in the service industry (40 percent) than the Countywide profile (31 percent). Because of the West Maui's emphasis on service jobs, most other job sectors exhibited slightly lower distribution rates.

b. Potential Impacts and Proposed Mitigation Measures

On a short-term basis, the project will support construction and construction-related employment. In the long-term, the project will supply needed workforce and affordable housing for the labor market. No significant negative impacts on labor conditions are anticipated.

5. Economy

a. Existing Conditions

The economy of Maui is heavily dependent upon the visitor industry. The dependency on the visitor industry is especially evident in West Maui, one of the State's major resort destination areas. As such, a community of tourism service sector workers has developed in the area. This group includes former sugar workers and their families, younger mobile workers, and immigrants from Mexico, Asia, and other Pacific Islands.

Pioneer Mill Company, Ltd. had in the past handled agriculture, another vital component of the West Maui economy. Until the cessation of sugar cane cultivation in September 1999, Pioneer Mill cultivated most of its approximately 6,700 acres of fee simple and leased lands. Ka'anapali Land Management Corp. (successor to Pioneer Mill Company, Ltd.) is in the process of diversifying its agricultural operations by utilizing portions of its lands to grow seed corn, with a portion of its land set aside for coffee production. In addition, Maui Land & Pineapple Company's fields are an important component of the region's agricultural base.

b. Potential Impacts and Proposed Mitigation Measures

In the short-term, the project will have a beneficial impact on the local economy during the period of construction. From a long-term perspective, project residents will require goods and services related to family maintenance which are expected to further support local business owners. Real property taxes generated by project residents will contribute to the County's tax revenue base to support any increase in regional public service demands over time.

C. PUBLIC SERVICES

1. Police and Fire Protection

a. Existing Conditions

The proposed Kahoma Residential Subdivision project area is within the Lahaina Police Station service area, which includes the entire Lahaina district. The Lahaina Station, built in the early 1970's, is located in the Lahaina Civic Center complex at Wahikuli. The Lahaina Patrol includes 54 full-time personnel, including management-level officers and field police officers. Additional personnel consist of public safety aides and administrative support staff.

Fire prevention, suppression, and protection services for the Lahaina District are provided by personnel housed at the Lahaina Fire Station, also located in the Lahaina Civic Center, and the Napili Fire station, located about nine (9) miles to the north of the project area. The Lahaina Fire Station includes an engine and a ladder company and is staffed by approximately 30 full-time personnel. The Napili Fire Station consists of an engine company, including approximately 15 full-time fire-fighting personnel.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project will create a need for additional police and fire protection. It is anticipated that real property tax revenues generated from the project will be considered for allocation to these public services in the form of additional personnel and/or supporting equipment and technologies. The service area for emergency response for both police and fire will not be significantly increased by the proposed action.

2. **Medical Facilities**

a. **Existing Conditions**

The only major medical facility on the island is Maui Memorial Medical Center, located midway between Wailuku and Kahului. This 231-bed facility provides general, acute, and emergency care services.

Private medical offices, however, are found in West Maui. For example, regular hours are offered by the Maui Medical Group, Lahaina Physicians, West Maui Healthcare Center, and Kaiser Permanente Lahaina Clinic.

b. **Potential Impacts and Proposed Mitigation Measures**

The proposed project is not anticipated to affect the service capabilities of emergency medical or general care operations.

3. **Recreational Facilities**

a. **Existing Conditions**

West Maui has numerous recreational facilities offering diverse opportunities for the region's residents. These facilities include several County and State parks and beach parks. Approximately one-third of the County parks are situated along the shoreline and offer excellent swimming, diving, and snorkeling areas. In addition, Ka'anapali and Kapalua Resorts operate world-class golf courses available for public use.

Recreational facilities in Lahaina town include the Lahaina Aquatic Center, the West Maui Youth Center, and the Lahaina Recreation Center. The Lahaina Aquatic Center contains an Olympic-size swimming pool, a children's wading pool, a paved parking lot, and office and storage space, as well as shower, restroom, and changing room facilities. The 15-acre Waine'e Park expansion includes new fields, parking, and washroom facilities. The West Maui Youth Center has a building for youth activities, as well as paved parking, an outdoor playground, and a basketball court. The Lahaina

Recreation Center has baseball fields and other playfields for soccer and football, as well as restrooms and paved parking facilities.

The clear ocean waters and well-developed reef systems along the Lahaina coast offer many recreational opportunities for residents. Fishing, by shorecasting and netting, is practiced in the waters near the outlet of Kauaula Stream and Makila Point. Edible seaweed collecting, octopus diving, and spearfishing occur on the adjacent reef flat.

An inventory of Maui's coral reefs, published by the Army Corps of Engineers, documents excellent visibility in deeper waters off Makila Point, with extensive coral cover. This water quality characteristic is important to the commercial diving charter and glass-bottom boats operating out of Lahaina Harbor.

b. **Potential Impacts and Proposed Mitigation Measures**

The applicant has been in coordination with the County of Maui, Department of Parks and Recreation to discuss parks and playgrounds assessment requirements for the project. The applicant will develop a neighborhood park near the center of the project and adjacent to the multi-family portion of the project. The applicant will seek a 201H exemption from the parks and playground assessment requirement for the project.

4. **Educational Facilities**

a. **Existing Conditions**

The West Maui region is served by four (4) public schools (Lahainaluna High School, Lahaina Intermediate School, Princess Nahi'ena'ena Elementary School, and Kamehameha III Elementary School) operated by the State of Hawai'i, Department of Education (DOE) and two (2) smaller private schools (Sacred Hearts School and Maui Preparatory Academy). All four (4) of the public schools are located within Lahaina town and three (3) of the schools are located along Lahainaluna Road, mauka of Honoapi'ilani Highway. The enrollments in the four (4) schools have grown significantly in concert with the growth of residential development in the area. See **Table 6**.

Table 6. Actual and Projected Enrollments at Department of Education Schools

School	Capacity	Actual Enrollment		Projected Enrollment					
	SY 05-06	SY 04-05	SY 05-06	SY 06-07	SY 07-08	SY 08-09	SY 09-10	SY 10-11	SY 11-12
Lahainaluna High School	969	1,038	1,033	1,000	907	810	765	762	796
Lahaina Intermediate	571	637	578	596	565	581	545	500	490
Kamehameha III Elementary	646	702	744	766	817	869	958	1,033	1,077
Princess Nahi'ena'ena Elementary	612	664	598	630	620	617	636	651	653

Source: Department of Education, 2006.

Maui Community College (MCC), which is located in Kahului, is a branch of the University of Hawai'i system. As well, there is an MCC-Lahaina Education Center that opened in Fall 2007. MCC is the primary higher education institution serving Maui.

b. Potential Impacts and Proposed Mitigation Measures

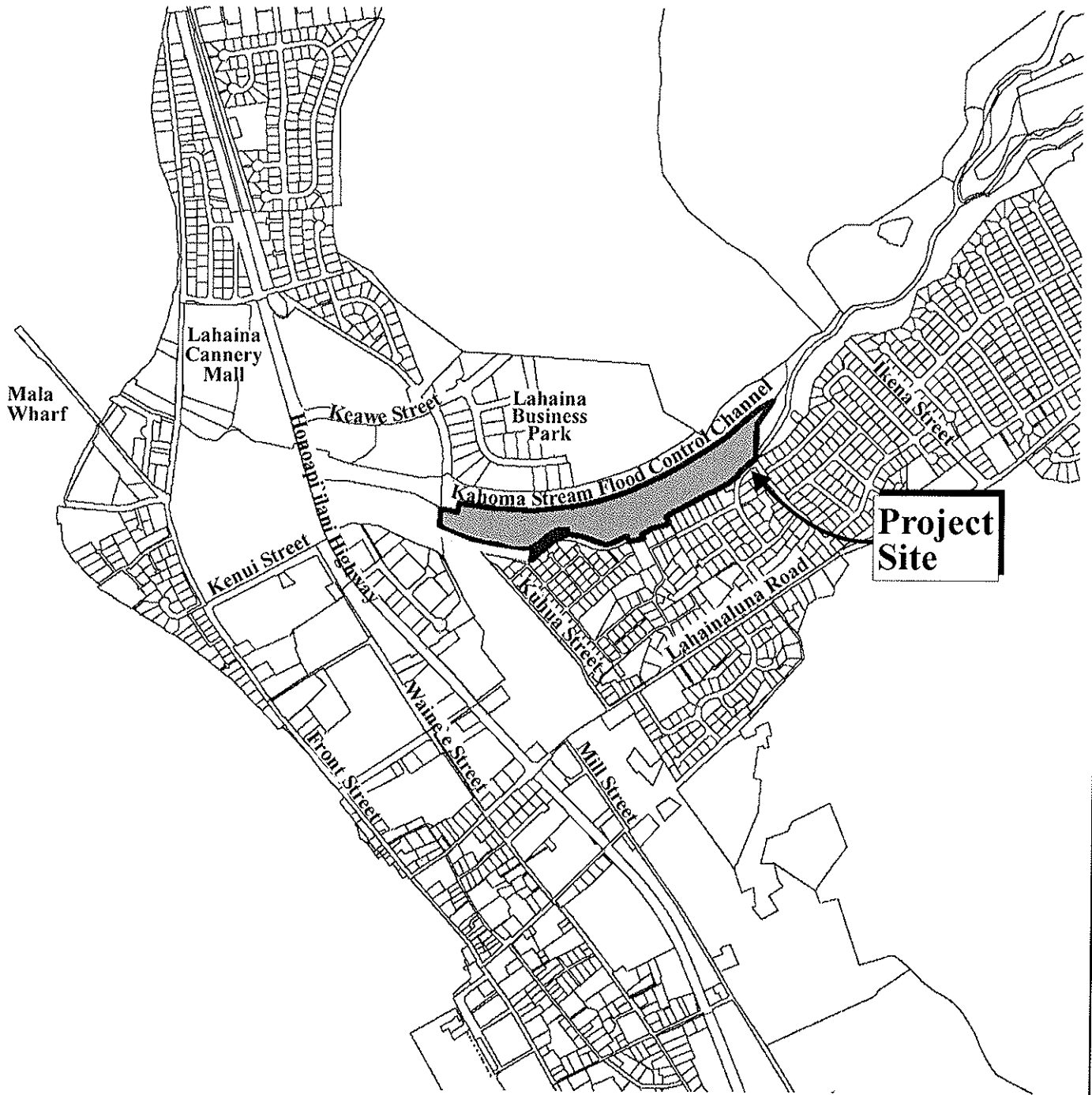
The entire project will be priced in the affordable range. The applicant will seek a 201H exemption from the educational assessment for the project.

D. INFRASTRUCTURE

1. Roadways

a. Existing Conditions

Access to the Lahaina region is provided by Honoapi'ilani Highway from Central (Wailuku/Kahului) and South (Kihei/Wailea) Maui. The following is a summary of the major roadways in the vicinity of the project site. See **Figure 13**.



Source: County of Maui, Department of Planning

Figure 13 Proposed Kahoma Residential Subdivision Area Roadways

NOT TO SCALE



Prepared by: West Maui Land Company, Inc.



Honoapi`ilani Highway

This principal arterial roadway provides north-south regional mobility and access to communities in the region. For most of its length, Honoapi`ilani Highway is a two-lane, two-way arterial roadway with median left-turn lanes provided at major intersections. From Lahaina town (at Lahainaluna Road) to the Honokowai Stream bridge, Honoapi`ilani Highway functions as a four-lane arterial roadway.

Lahainaluna Road

This collector roadway provides east-west circulation for mauka residential areas to Honoapi`ilani Highway, as well as the commercial areas of Lahaina. There are three (3) public schools located on this two-lane, two-way collector roadway. The former Pioneer Mill Company facility is located off of Lahainaluna Road. The intersection of Lahainaluna Road and Honoapi`ilani Highway is signalized.

Mill Street

Mill Street is an access-restricted, agricultural road that is privately owned and maintained. A 45-foot wide easement across Mill Street is provided for access and utility purposes. An upgrade of Mill Street to a two-lane, two-way public roadway is in the planning stages, though development is still years away. The applicant will improve Mill Street between the project site and Keawe Street to the north.

Ikena Street

This local roadway is maintained by the County of Maui and currently serves residents of the Kelaweia Mauka Subdivision. This two-lane, two-way roadway has been selected to be the alignment for the eventual Lahaina Bypass Highway and will connect to Keawe Street to the northwest in the first phase (Phase IA) of the bypass highway.

Keawe Street

This local roadway currently terminates at the Lahaina Cannery Mall at its western terminus. Eventually, this two-lane, two-way roadway will connect to Ikena Street as part of the first phase of the Lahaina Bypass Highway.

Currently, from the Lahaina Cannery Mall, Keawe Street crosses Honoapi`ilani Highway at a signalized intersection and serves the Lahaina Business Park located east (mauka) of Honoapi`ilani Highway.

Front Street

This two-lane, two-way collector roadway stretches the entire span of Lahaina town from Puamana in the south to Wahikuli in the north. A multitude of apparel stores, restaurants, curio shops, and art galleries dot the Front Street landscape. Front Street generally parallels Honoapi`ilani Highway throughout its length. Residential neighborhoods bracket the commercial core of Front Street to the north and the south.

b. Potential Impacts and Proposed Mitigation Measures

A traffic impact analysis report (TIAR) was developed for the Kahoma Residential Subdivision in October 2007 by Wilson Okamoto Corporation. See **Appendix “E”**. The report analyzed existing conditions based on current land use, population, the existing roadway network, and recent roadway counts. An average growth rate of approximately 1.6 percent per year was utilized to account for increased daily traffic on Honoapi`ilani Highway due to statewide population, employment, and visitor forecasts. Traffic impacts attributable to other proposed land development projects in the region were also accounted for in the analysis.

Using 2011, the anticipated start of the construction phase of the Kahoma Residential Subdivision, as the forecast date, future projections of two (2) scenarios were performed in conjunction with the growth rate: a baseline scenario (without the proposed project) and a project scenario (baseline with the proposed project). The report further analyzed the local and regional impacts the proposed Kahoma Residential Subdivision would have on the roadway infrastructure with respect to the baseline future condition.

1. Baseline Scenario (without the proposed project)

The TIAR predicted that, in the year 2011, traffic improvements will be necessary just to accommodate the baseline condition. Traffic

operations in the project vicinity (baseline scenario without the proposed project) are expected to deteriorate from existing conditions during both the morning and afternoon peak hours of traffic due to ambient traffic growth and the development of other projects in the vicinity.

The State and the County are currently in the process of developing two (2) major roadways which will significantly alleviate the congestion along Honoapi`ilani Highway that exists today. The State Lahaina Bypass Highway will be developed in phases and will eventually span from Launiupoko in the south to Honokowai in the north. The first phase of the bypass highway (Phase IA) will connect Ikena Street with Keawe Street. Future phases of the bypass highway will roughly parallel Honoapi`ilani Highway to the east.

In addition, the County is coordinating with private developers to design and construct the Mill Street Extension, a roadway which will generally follow the old cane haul Mill Street alignment. The Mill Street Extension roadway will span from the southern terminus of Front Street to Keawe Street. The Lahaina Bypass Highway and the Mill Street Extension will provide alternative routes to Honoapi`ilani Highway in and around Lahaina town.

2. **Project Scenario (baseline with the proposed project)**

The TIAR noted that fewer than 100 peak hour trips would be generated as a result of the project. See **Table 7**.

Table 7. Project Trip Generation Counts

Hour	Direction	Projected Trips
Morning (AM) Peak Hour	Enter	17
	Exit	54
	Total	71
Afternoon (PM) Peak Hour	Enter	59
	Exit	35
	Total	94

The Kahoma Residential Subdivision is anticipated to generate an increase of less than 2 percent on Honoapi`ilani Highway during both the morning and afternoon peak hours of traffic. The increase in the total traffic volumes are in the range of daily volume fluctuations along the highway and represent a minimal increase in the overall traffic volumes. Nevertheless, the four (4) improvements recommended by the TIAR are as follows.

1. Maintain sufficient driveway width to accommodate safe vehicle ingress and egress.
2. Maintain adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
3. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.
4. Maintain adequate onsite loading and off-loading service areas and prohibit offsite loading operations.

As mentioned, the traffic conditions in the region are expected to continue to decline over time even in the absence of the proposed project. The

construction of the Lahaina Bypass Highway and the Mill Street Extension will serve to alleviate traffic congestion.

The above four (4) project-specific recommendations will be implemented as part of the subdivision development to minimize impacts caused by the increase in traffic. As a whole, the proposed Kahoma Residential Subdivision is not anticipated to have a significant impact on traffic operations in the vicinity of the project site.

2. Water

a. Existing Conditions

The West Maui region is served by the County's Department of Water Supply domestic water system. The County water system services the coastal areas from Launiupoko to Ka'anapali and from Honokowai to Napili. The County's system includes both surface and groundwater sources.

The sources of water for Lahaina are four (4) deepwells located above Alaeloa and referred to as Napili Wells 1, 2, and 3 and Honokohau Well A. These wells are supplemented by water treatment plants above Honokowai and Lahainaluna High School that draws surface water from the Honolua Ditch and Kanaha Valley. Several miles of 12- and 16-inch lines and two (2) in-line booster stations convey water from these sources to consumers in Lahaina. Storage is provided by a 1.5 million gallon (MG) storage tank above Wahikuli and a 1.0 MG and a 0.5 MG tank on Lahainaluna Road.

In the project area, there are existing water lines which serve the adjacent residential subdivisions to the south. The system consists of water mains with sizes ranging from 2-inch to 12-inch pipes. The system is fed by the existing 0.5 and 1.0 MG concrete water reservoirs located east (mauka) of the project site along Lahainaluna Road.

b. Potential Impacts and Proposed Mitigation Measures

The Preliminary Civil Engineering and Drainage and Soil Erosion Control Report prepared by R. T. Tanaka Engineers, Inc. for the Kahoma Residential

Subdivision in October 2007, contains information regarding the anticipated domestic and fire flow water demands for the project. Refer to **Appendix “F”**. The estimated average and maximum daily domestic water demands, as well as the fire flow requirements are summarized in **Table 8** below.

Table 8. Estimated Domestic Water Flow Requirements

Average Daily Demand	Unit Type	Flow (gallons per day, gpd)
	Single-Family	42,600 gpd
	Multi-Family	13,440 gpd
	Manager’s Residence	600 gpd
Total Average Daily Demand		56,640 gpd
Maximum Daily Demand		84,960 gpd
Fire Flow		Flow (gallons per minute, gpm)
	Single-Family	1,000 gpm
	Multi-Family	1,500 gpm

As is typical of residential developments of this scale, the size of the distribution line for the project is governed by the fire flow requirements. The fire flow demand of 1,500 gpm for the multi-family residential units was used to size the main distribution line. An 8-inch water line, which is capable of delivering 1,565 gpm, will be utilized to provide the required fire flow.

The domestic water system for the proposed project will be comprised of an 8-inch water line, with fire hydrant and service lateral connections. The single-family units will be served by 5/8-inch water meters, while the multi-family units and the neighborhood park area will be served by larger meters, tentatively 1.5-inch meters, for both domestic and irrigation purposes.

The County of Maui recently approved Ordinance No. 3502, relating to water availability. This ordinance requires that a long-term reliable supply of water

be verified at the time of subdivision approval. The ordinance provides that *“No subdivision shall be approved, unless prior to submittal of subdivision construction plans ..., the director shall provide written verification of a long-term reliable supply of water.”* As such, it will be the applicant’s responsibility during the course of the future planning and design of the project to satisfy the requirements of Ordinance No. 3502 and to establish an adequate and viable water source for the project.

The Department of Water Supply noted that County water availability will be determined at the time of water meter application. The applicant will coordinate with the County Department of Water Supply to incorporate this project into the County’s Water Use and Development Plan. The applicant’s discussions with the department are ongoing.

Regarding measures to reduce drinking water consumption, the applicant will explore the availability of non-drinking water sources in the region. The applicant would like to be able to utilize R-1 recycled water, where appropriate. The applicant will examine partnership opportunities for the potential use of non-drinking water and will consult with the Department of Environmental Management staff concerning the extension of the R-1 water line.

Additionally, the applicant will explore the availability of other non-drinking water sources for landscape irrigation purposes, which will be pursued further during the civil design phase of the project. The information on “Maui County Planting Plan – Plant Zone 3” from the Department of Water Supply, will be utilized, as applicable, to place plants in landscaping, which will help to conserve water and protect the watershed from degradation. Rain sensors will be provided on all automated irrigation controllers in common landscaping areas. The applicant will initiate a regular maintenance program to check and reset the automated irrigation controllers.

Plumbing fixtures will be installed in accordance with Maui County Code Section 16.20A.680, which requires the utilization of low-flow fixtures and devices in an effort to conserve water. The applicant will advise owners to maintain fixtures and devices to minimize leakage.

3. Wastewater Systems

a. Existing Conditions

The County Department of Environmental Management's Wastewater Reclamation Division provides sanitary sewer service for the West Maui region.

Wastewater from the Ka'anapali and Lahaina areas is treated at the County's Lahaina Wastewater Reclamation Facility (LWRF) located approximately five (5) miles north of the project site on the east (mauka) side of Honoapi'ilani Highway. The LWRF's total treatment capacity is 9.0 million gallons per day (mgd), with 6.0 mgd for secondary treatment and 3.0 mgd for R-1 treatment. Presently, the facility treats about 5.4 mgd of wastewater. About 1.2 mgd of the R-1 treated effluent is used to irrigate the Royal Ka'anapali golf courses, the landscaped areas along Honoapi'ilani Highway, and the landscaped median of Ka'anapali Parkway. The remaining treated effluent (4.2 mgd) is disposed into four (4) injection wells located within the facility. Under the conditions of its Environmental Protection Agency (EPA) permit, the County is allowed to dispose a maximum flow of 6.7 mgd into the injection wells.

b. Potential Impacts and Proposed Mitigation Measures

The Preliminary Civil Engineering and Drainage and Soil Erosion Control Report prepared by R. T. Tanaka Engineers, Inc. for the Kahoma Residential Subdivision in October 2007, contains information regarding the anticipated wastewater demands for the project. Refer to **Appendix "F"**. The estimated average daily wastewater demands are summarized in **Table 9** below.

Table 9. Estimated Wastewater Flow Requirements

Average Daily Demand	Unit Type	Flow (gallons per day, gpd)
	Single-Family	24,850 gpd
	Multi-Family	6,120 gpd
	Manager's Residence	350 gpd
Total Average Daily Demand		31,320 gpd

Based on the average daily wastewater demand of 31,320 gpd, the onsite system will consist of 6-inch and 8-inch PVC sewer pipes, sewer manholes, and a wastewater pump station. Further, each proposed lot will be served by a single service lateral as required by the Department of Environmental Management. The system will discharge into the existing County sewer system.

Regarding the connection to the County sewer system, there are currently two (2) connection points being investigated. The first option would connect the onsite system to the existing 8-inch sewer line at the upper end of Papalaua Street. This option could include both force main and gravity pipes. Alternatively, the second option consists of a force main that will discharge into the Keawe Street sewer line. The implementation of the second option requires approval from the U.S. Army Corps of Engineers due to the crossing of the Kahoma Stream Flood Control Channel. In addition, both options require easements as they would cross beneath private properties.

The applicant has been in early consultation with the Department of Environmental Management to ensure that there is adequate capacity to serve the project. The discussions with the department are ongoing.

4. **Solid Waste**

a. **Existing Conditions**

Single-family residential refuse collection is provided in Lahaina by the County's Department of Environmental Management's Solid Waste Division on a once-a-week basis. Private refuse collectors provide solid waste disposal services for multi-family, commercial, and institutional accounts. With the exception of the Hana region, residential and commercial solid waste from throughout the island is transported to the Central Maui Landfill at Puunene.

A refuse transfer station at Olowalu accepts household and green wastes, as well as used oil, for transport to the Central Maui Landfill in Puunene. The disposal of commercial and institutional refuse is not permitted at the Olowalu transfer station.

b. **Potential Impacts and Proposed Mitigation Measures**

The single-family residential units in the proposed residential subdivision will be served by the County of Maui's solid waste disposal facilities. The multi-family units will be served by private waste collection companies. The proposed project is not anticipated to affect the service capabilities of County or private waste collection operations.

5. **Drainage**

a. **Existing Conditions**

The Kahoma Residential Subdivision project area is largely undeveloped, at present, and vegetated by grasses, weeds, shrubs, and trees. The property gently slopes in a westerly direction and varies in elevation from approximately 32 feet amsl at its western extent to approximately 145 feet amsl along its southeastern extent.

The site is situated within the limits of the 2,140-acre Lahaina subwatershed, one of two (2) subwatersheds that comprise the 4,920-acre Lahaina Watershed. The other subwatershed is the 2,780-acre Kauaula Watershed.

The Lahaina subwatershed rises from the Pacific Ocean to an elevation of 2,561 feet amsl. The coastal area of the subwatershed is relatively flat and has been developed for residential and commercial uses. The area above the developed flatland to about the 1,400-foot elevation is gently sloping and was formerly utilized for growing sugar cane. The remaining upper area of the Lahaina subwatershed is steep and was previously utilized for sugar cane cultivation or pasturing.

Runoff generated in the former sugar cane fields above Lahaina town is conveyed by numerous small drainage ways through the former sugar cane fields and cane haul roads, through culverts in Honoapi'ilani Highway, and into Lahaina town where it drains into the ocean or ponds in low spots and dissipates through infiltration or evaporation. The storm drainage system within Lahaina town consists of short, limited capacity culverts which outlet into the ocean.

b. **Potential Impacts and Proposed Mitigation Measures**

A Preliminary Civil Engineering and Drainage and Soil Erosion Control Report was prepared by R. T. Tanaka Engineers, Inc. for the project in October 2007. Refer to **Appendix "F"**. The report notes that drainage measures will be implemented to maintain storm runoff at or below pre-development conditions. Based on County of Maui Drainage Standards, drainage features have been sized to retain the 50-year, 1-hour storm runoff volume increase that is anticipated to be generated by the proposed project.

Two (2) open-cut retention ponds (drainage basins) will be located onsite, one (1) located near the bottom of the project site and one (1) near the center of the project site. The basin near the center of the project site will also be used for a portion of the neighborhood park. In addition to the retention ponds, the proposed drainage system will also include catch basins and/or grated drain inlets to collect runoff, non-perforated pipes to convey runoff to the retention ponds, and drainage manholes.

During construction, the following recommended Best Management Practices (BMPs) will be considered for erosion and sedimentation control.

- Constructing of detention basins to capture sedimentation to minimize the quantity of sediment leaving the site
- Staging construction
- Protecting of natural vegetation
- Stockpiling topsoil, and covering or stabilizing of the soil stockpiles
- Using wind erosion control
- Intercepting runoff above disturbed slopes
- Constructing of benches, terraces, or ditches at regular intervals to intercept runoff on long or man-made slopes
- Providing linings or other method to prevent erosion of storm channels
- Using seeding and fertilizing or other soil erosion control
- Providing vehicle wheel wash-down facilities
- Using stabilized construction entrances
- Using vegetated filter strips

Greater detail of the design information for the proposed drainage and erosion control plan will be provided when the project progresses to the engineering design phase of development.

In summary, despite the increase in impervious surfaces, such as building roofs, pavement, and concrete walkways, storm runoff to downstream properties will not increase above pre-development levels. Further, the onsite drainage basins and the implementation of soil erosion control measures will reduce the potential of sediments contained in the runoff from entering the ocean. As a result, the proposed project is not anticipated to result in significant drainage impacts to downstream properties.

6. **Electrical, Telephone, and CATV Service**

a. **Existing Conditions**

Electrical, telephone, and cable television (CATV) services for the West Maui region are provided by Maui Electric Company, Ltd., Hawaiian Telcom, and Oceanic Time Warner Cable Company, respectively.

b. **Potential Impacts and Proposed Mitigation Measures**

The applicant has been in early consultation with Maui Electric, Hawaiian Telcom, and Oceanic Time Warner to provide services for the proposed project. The service providers did not note significant issues in providing service, considering they already serve the adjacent Kuhua Village and Kelaweia Subdivision. The applicant will engage these entities in further consultation during the design phase of the project. The proposed project is not anticipated to have significant impacts to electrical, telephone, or CATV services.

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 proposed project is not part of a larger action, nor would it occur within the context of such actions. It is noted, however, that the County of Maui's ongoing General Plan update process will involve the formulation of a Maui Island Plan which would delineate urban and rural growth boundaries. Other landowners in the vicinity may seek to have portions of their respective land holdings placed on the Maui Island Plan for purposes of defining future development potential in the Lahaina region. Should lands other than the proposed Kahoma Residential Subdivision be identified as potential future areas for urban and/or rural growth, planning for such areas would need to consider land planning integration opportunities. Upon completion of the General Plan update, the respective community plans, including the West Maui Community Plan, will be updated. The timeframe for the overall completion of the updating of the community plans has not yet been established. However, the overall timeframe for the General Plan covers a planning horizon up to the year 2030.

The applicant acknowledges the possibility that future regional growth opportunities in surrounding lands in the Lahaina region may be possible. Specifically, the project's interior roadway system provides opportunity for connection to areas beyond the project limits itself, to the east of the project site. Similarly, should opportunities for joint development of water storage and conveyance systems become available, integration with adjoining properties' water systems can be accomplished.

Secondary impacts are those which have the potential to occur later in time or farther in distance, but are still 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 one of the impediments to growth-transportation access. Aside from the direct development impacts discussed in the previous sections of this chapter, secondary impacts may be attributed to project effects on the island's overall housing situation. That is, the provision of new affordable housing in Lahaina may open up housing (for rental or purchase) in other areas of the island, depending on market conditions at the time of project development. In general, however, the proposed action is not considered a generator of significant secondary impacts.

III. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

III. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE DISTRICTS

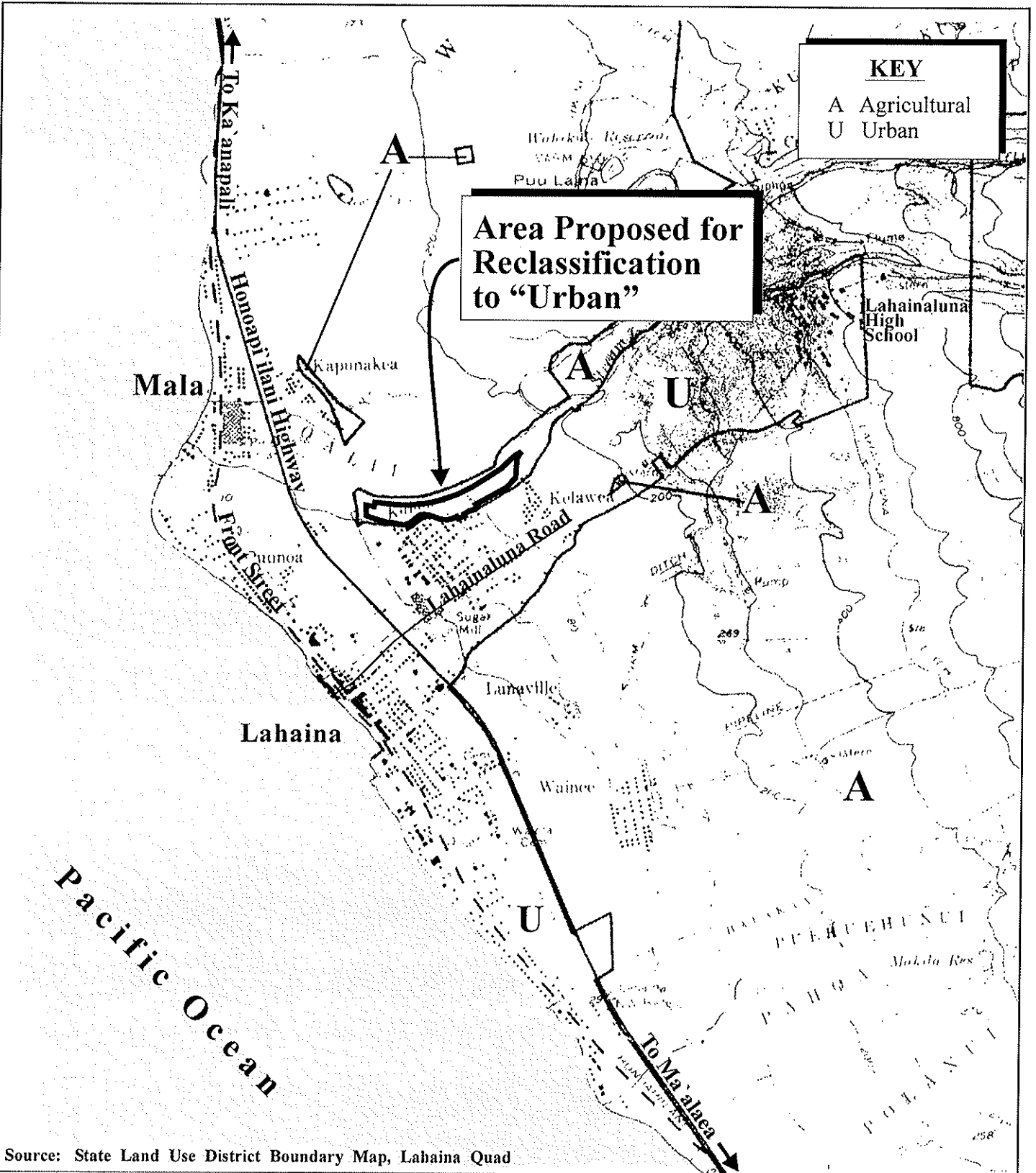
Chapter 205, Hawai'i Revised Statutes, relating to the Land Use Commission, establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as "Urban", "Rural", "Agricultural", and "Conservation". The subject property is located within the "Agricultural" district. See **Figure 14**.

A State Land Use District Boundary Amendment for the project area for reclassification to the "Urban" district is being requested as part of the entitlement application to enable implementation of the proposed Kahoma Residential Subdivision project. As previously described, the district reclassification will be implemented pursuant to Section 15-15-97 of the Land Use Commission Rules to allow for the timely review and action of the 201H proposal. Criteria considered in the reclassification of lands are set forth in the State Land Use Commission Rules (Chapter 15-15, Hawai'i Administrative Rules).

It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban level of services, and other related land uses.

Comment:

The area proposed for reclassification is situated adjacent to the existing Kuhua Village and Kelawea Subdivision to the south, which are located on lands classified as "Urban." Infrastructure systems implemented in conjunction with the Kahoma Residential Subdivision project will serve all areas within the limits of the project site. The proposed development will include city-like concentrations of people in a community which will include single-family homes and apartments. An internal road network and park/open space will serve the needs of the community.



Source: State Land Use District Boundary Map, Lahaina Quad

Figure 14 Proposed Kahoma Residential Subdivision
 State Land Use District Classifications



Prepared by: West Maui Land Company, Inc.

MUNEKIYO & HIRAGA, INC.

Pioneermill/wainee/ceispn/stud

It shall take into consideration the following specific factors:

- 1. Proximity to centers of trading and employment except where the development would generate new centers of trading and employment.**

Comment:

The area proposed for reclassification is proximately located to existing commercial and employment centers in Lahaina. Numerous employment opportunities exist in the retail, resort, and service industries in the Lahaina/Ka'anapali/Napili/Kapalua areas while Wailuku and Kahului serve as the central business districts of the island. Additionally, Federal, State, and County government offices and courts are located in Wailuku.

- 2. Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection.**

Comment:

Domestic water supply, wastewater service, and solid waste collection for the project will be coordinated with the County of Maui, Departments of Water Supply and Environmental Management, respectively. The area is located in close proximity to major roadways, such as Honoapi'ilani Highway, Lahainaluna Road, and the proposed Mill Street Extension. Three (3) State Department of Education (DOE) schools are located in the Lahainaluna area. Health care facilities as well as police and fire protection services are available in Lahaina.

- 3. Sufficient reserve areas for foreseeable urban growth.**

Comment:

As noted previously, a significant increase in housing supply will be needed to accommodate the region's anticipated growth. The project will provide resident housing opportunities in both the short and long term, which in turn is anticipated to result in a more balanced housing market. The proposed project involves the development of a community involving a range of different housing types, including both single-family and multi-family product varieties. The project will be constructed as a single phase over a period of approximately two (2) years. Completion of the project is expected to partially address the shortage of housing currently being experienced in Maui County.

It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil conditions, and other adverse environmental effects.

Comment:

The project site has an average slope of approximately 4.5 percent and is suitable for the planned uses. The project site is situated within Zone C, areas of minimal flooding. The site is not situated within any tsunami inundation zone. Drainage improvements will be designed in consultation with applicable governmental agencies to mitigate potential runoff and adverse environmental impacts. No foreseeable adverse environmental effects are anticipated in conjunction with the project.

Land contiguous with existing urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for future urban use on state or county general plans.

Comment:

The project site is contiguous with Urban district lands to the south. Additionally, the West Maui Community Plan designates adjacent lands for residential land uses.

It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the State and County plans.

Comment:

The project site is designated Open Space by the West Maui Community Plan. The project area is in the vicinity of the residential land uses of the Kuhua Village and Kelawea Subdivision. The West Maui Community Plan also designates lands adjacent to the project site for residential use. The lands proposed for reclassification are, therefore, located within an area suitable for new urban growth as evidenced by the existing urban uses in the vicinity of the project area.

It may include lands which do not conform to paragraphs (1) to (5):

When surrounded by or adjacent to existing urban development; and only when those lands represent a minor portion of this district.

It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services.

It may include lands with a general slope of twenty percent (20%) or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, as adopted by any Federal, State, or County agency, are adequate to protect the public health, welfare and safety, and the public's interest in the aesthetic quality of the landscape.

Comment:

As mentioned previously, the project site is located adjacent to areas of existing urban development. Existing urban designated lands lie to the south and include Kuhua Village and the Kelawea Subdivision to the south and east. The development of the project will not necessitate an unreasonable investment in public infrastructure or support systems. All requisite infrastructure systems for the project will be provided. The project area has an average slope of approximately 4.5 percent and is suitable for the planned uses. Governmental regulations will be followed to ensure the protection of public health, safety, and welfare.

B. HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawai'i State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. Examples of State objectives and policies relevant to the proposed project are as follows:

1. **Section 226-05, Objectives and policies for population. To achieve this objective, it shall be the State policy to:**
 - a. Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands.
 - b. Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.

2. **Section 226-13, Objectives and policies for physical environment-land, air, and water quality. To achieve this objective, it shall be the State policy to:**

- a. Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.
- b. Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.
- c. Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.
- d. Encourage urban developments in close proximity to existing service and facilities.

3. **Section 226-14, Objectives and policies for facility systems-in general. To achieve the general facility systems objective, it shall be the policy of the State to:**

- a. Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvements in consonance with State and County plans.
- b. Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.
- c. Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

4. **Section 226-15, Objectives and policies for facility systems-solid and liquid wastes. To achieve the solid and liquid waste objectives, it shall be the policy of the State to:**

- a. Encourage the adequate development of sewage facilities that complement planned growth.
- b. Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.

5. **Section 226-16, Objectives and policies for facility systems-water. To achieve the facilities systems water objectives, it shall be the policy of the State to:**
- a. Coordinate development of land use activities with existing and potential water supply.
 - b. Support research and development alternative methods to meet future water requirements well in advance of anticipated needs.
 - c. Reclaim and encourage the productive use of runoff water and wastewater discharges.
 - d. Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.
 - e. Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.
6. **Section 226-17, Objectives and policies for facility systems-transportation. To achieve the facilities systems transportation objective, it shall be the policy of the State to:**
- a. Encourage a reasonable distribution of financial responsibilities for transportation among participating government and private parties.
 - b. Encourage transportation systems that serve to accommodate present and future development needs of communities.
7. **Section 226-19, Objectives and policies for socio-cultural advancement – housing. To achieve the housing objectives, it shall be the policy of the State to:**
- a. Effectively accommodate the housing needs of Hawai`i's people.
 - b. Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.
 - c. Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.

The Kahoma Residential Subdivision is located in close proximity to existing public services and infrastructure. The project will provide a range of housing types which will serve to meet the varied housing needs of the region at an attractive and central location in Lahaina. Additional housing choices will provide healthy competition and allow for a more balanced

housing market. The applicant will participate in transportation network improvements to alleviate the increased demands on area roadways. To this end, the proposed project is in conformance with the above-noted objectives and policies of the Hawai'i State Plan.

The State Functional Plans define actions for implementation of the Hawai'i State Plan through the identification of needs, problems and issues, and recommendations on policies and priority actions which address the identified areas of concern. The proposed reclassification request is consistent with the following State Functional Plans:

1. State Agricultural Functional Plan

The proposed project will reclassify approximately 16.7 acres of land from the State Agricultural district to the State Urban district. While the project site for the proposed subdivision was formerly used for sugar cane cultivation, the site is now fallow. The proximity of the project site to existing urban land uses provides a reasonable nexus and an appropriate foundation for the proposed reclassification request, particularly in the context of meeting affordable housing needs of the community.

2. State Housing Functional Plan

The growing public demand for affordable housing indicates a current shortage of single-family and multi-family housing units on Maui. The proposed 88 residential units within the Kahoma Residential Subdivision project will help address a critical community need.

3. State Recreational Functional Plan

Outdoor recreation is recognized by the Hawai'i State Plan as an important part of life for Hawaii's residents. As the population rises and residential land uses increase, creating areas dedicated to outdoor recreation becomes increasingly vital. The State Functional Plan for Recreation urges the improvement and expansion of recreational facilities in urban areas and local communities. The proposed project will address recreational needs through the provision of park/open space lands, bicycle paths, and walking trails.

4. **State Transportation Functional Plan**

The Hawai'i State Plan addresses the vital role of transportation, particularly in light of population increases and community growth. The State Functional Plan for transportation calls for a statewide transportation system consistent with planned growth objectives throughout the State. The proposed project's roadway system will be developed in consultation with the County Department of Public Works to insure consistency with the objectives of the State Transportation Functional Plan. The internal subdivision road will be constructed to County of Maui design standards.

5. **State Historic Preservation Functional Plan**

The State Historic Preservation Functional Plan deals with the preservation of historic properties, the collection and preservation of historic records, artifacts and oral histories, and the provision of public information and education on the ethnic and cultural heritages and history of Hawai'i. An archaeological assessment report has been completed for the project by Scientific Consultant Services, Inc. in compliance with applicable historic preservation requirements. Refer to **Appendix "C"**. The archaeological assessment report has been reviewed and approved by the State Historic Preservation Division (SHPD). Refer to **Appendix "C-1"**. The proposed project is, therefore, consistent with the objectives outlined under the State Historic Preservation Functional Plan.

C. **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 within the county; shall address the unique problems and needs of each island and region within the county; 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 Maui County General Plan advances five (5) major themes that focus on the overall goals of the plan. The proposed project responds to the following General Plan themes:

Theme Number 2

Prepare a Directed and Managed Growth Plan

Amendments to the General Plan will preserve a desired quality of life where areas of urban settlement must be managed and directed within a framework that consistently and concurrently balances growth demands against human service needs and physical infrastructure supply.

Theme Number 5

Provide for Needed Resident Housing

Amendments to the General Plan address the development of resident housing as a major social need in our community.

The proposed action is in keeping with the following General Plan objectives relating to Population, Land Use, Environment, Cultural Resources, Economic Activity (General), Housing, Urban Design, Transportation, Water, and Recreation and Open Space:

POPULATION

Objective

- To plan the growth of resident and visitor population through a directed and managed growth plan so as to avoid social, economic, and environmental disruptions.

Policies

- Manage population growth so that the County's economic growth will be stable and the development of public and private infrastructures will not expand beyond growth limits specified in the appropriate community plans or negatively impact our natural resources.
- Balance population growth by achieving concurrency between the resident employee work force, the job inventory created by new industries, affordable resident/employee

housing, constraints on the environment and its natural resources, public and private infrastructure, and essential social services such as schools, hospitals, etc.

LAND USE

Objective

- To preserve for present and future generations existing geographic, cultural, and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in accordance with the individual character of the various communities and regions of the County.

Policies

- Provide and maintain a range of land use districts sufficient to meet the social, physical, environmental, and economic needs of the community.
- Identify and preserve significant historic and cultural sites.

Objective

- To use the land within the County for the social and economic benefit of all the County's residents.

Policies

- Encourage land use patterns that foster a pedestrian oriented environment to include such amenities as bike paths, linear parks, landscaped buffer areas, and mini-parks.
- Encourage land use methods that will provide a continuous balanced inventory of housing types in all price ranges.
- Encourage programs to stabilize affordable land and housing prices.

ENVIRONMENT

Objective

- To preserve and protect the County's unique and fragile environmental resources.

Policy

- Preserve scenic vistas and natural features.

CULTURAL RESOURCES

Objective

- To preserve for present and future generations the opportunity to know and experience the arts, culture, and history of the County of Maui.

Policy

- Encourage the recordation and preservation of all cultural and historic resources to include culturally significant natural resources.

ECONOMIC ACTIVITY (General)

Objectives

- To provide an economic climate which will encourage controlled expansion and diversification of the County's economic base.
- Utilize an equitable growth management program which will guide the economic well-being of the community.

Policies

- Maintain a diversified economic environment compatible with acceptable and consistent employment.
- Encourage the adoption of a resource allocation program which gives a high priority to affordable residential projects.

HOUSING

Objectives

- To provide a choice of attractive, sanitary, and affordable homes for all our residents.
- Provide affordable housing to be fulfilled by a broad cross-section of housing types.

Policies

- Provide or require adequate physical infrastructure to meet the demands of present and planned future affordable housing needs.

- Encourage the construction of housing in a variety of price ranges and geographic locations.
- Encourage the use of innovative performance standards and building methods to reduce housing costs to the consumer.
- Streamline or “fast-track” the governmental review process for affordable single-family and multi-family housing projects.
- Ensure that each community plan region contains its fair share of affordable housing.

URBAN DESIGN

Objective

- To encourage developments which reflect the character and the culture of Maui County’s people.

Policies

- Encourage community design which establishes a cohesive identity.
- Encourage the establishment of continuous green areas, bike-paths, active and passive recreation areas, and mini-parks in new subdivision development.

TRANSPORTATION

Objective

- To develop a program for anticipating and enlarging the local street and highway systems in a timely response to planned growth.

Policies

- Ensure that transportation facilities are anticipated and programmed for construction in order to support planned growth.
- Support Maui County's street tree plan and encourage landscape planting, irrigation, and maintenance programs along all public highways and rights-of-way.

Objective

- To develop a Maui County transportation system linked to land use planning that is less dependent on the automobile as its primary mode of moving people.

Policy

- Direct economic development toward existing communities in order to minimize employee commuting and foster a healthy job/housing balance.

WATER

Objective

- To provide an adequate supply of potable and irrigation water to meet the needs of Maui County's residents.

Policies

- Monitor growth activities throughout Maui County in order that development of new water sources is concurrent with approval of new developments.
- Support the Board of Water Supply in its determination of future water needs consistent with the General Plan, Community Plans, and the growth management strategy.

RECREATION AND OPEN SPACE

Objective

- To provide high quality recreational facilities to meet the present and future needs of our residents of all ages and physical ability.

Policies

- Maintain and upgrade existing recreational facilities to meet community needs.
- Maintain recreational facilities for both active and passive pursuits.
- Maintain the natural beauty of recreational areas.
- Develop facilities that will meet the different recreational needs of the various communities.
- Develop multi-purpose recreational facilities.

D. 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 proposed Kahoma Residential Subdivision is located within the West Maui Community Plan region and is currently designated “Open Space” in the community plan. See **Figure 15**. The applicant will submit a Section 201H-38, HRS application to seek an exemption from Chapter 2.80B of the Maui County Code to enable project implementation without the filing and processing of a Community Plan Amendment application.

The proposed project is in keeping with, among others, the following goals, objectives, and policies of the West Maui Community Plan.

LAND USE

Goal

An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well-being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.

Objectives and Policies

- Preserve and enhance the mountain and coastal scenic vistas and the open space areas of the region.
- Ensure that appropriate lands are available to support the region's present and future agricultural activities.
- Establish an appropriate supply of urban land within the region to meet the needs of the community over the next 20 years. The Community Plan and its map shall define the urban growth limits for the region and all zoning requests and/or proposed land uses and developments shall be consistent with the West Maui Community Plan and its land use map.

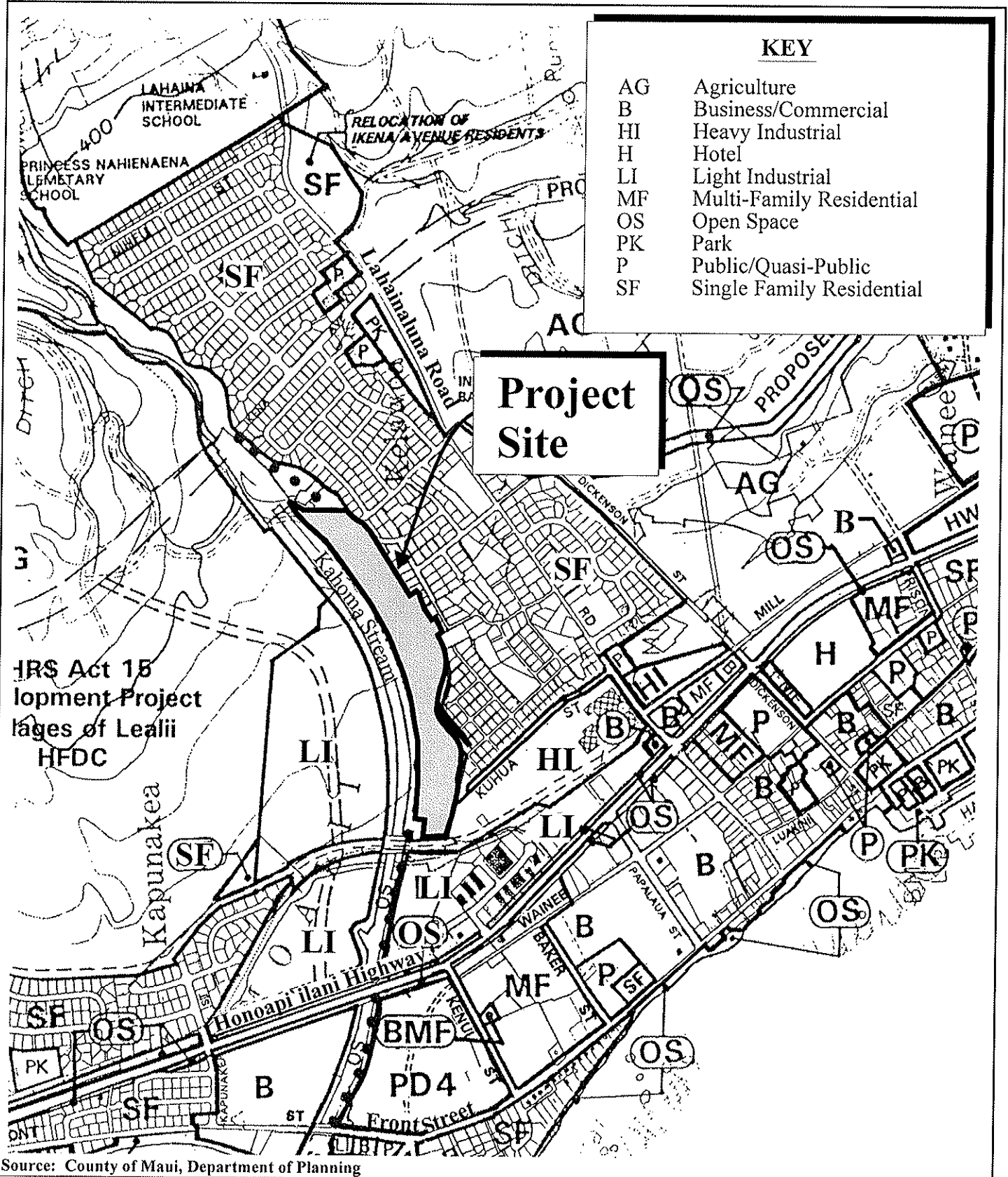
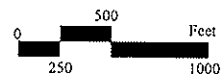


Figure 15 Proposed Kahoma Residential Subdivision
Existing Community Plan Land Use Designations



HOUSING

Goal

A sufficient supply and choice of attractive, sanitary, and affordable housing accommodations for a broad cross section of residents.

Objectives and Policies

- Accommodate the 20-year housing needs of the planning region.
- Coordinate the planning, design, and construction of public infrastructure improvements with major residential projects that have an affordable housing component.
- Maintain acceptable standards for affordable housing projects, including but not limited to, the installation of sidewalks and provision of adequate off-street parking.
- Support efforts to develop housing for the elderly and for the homeless.

URBAN DESIGN

Goal

An attractive and functionally integrated urban environment enhances neighborhood character, promotes quality design at the resort destinations of Ka'anapali and Kapalua, defines a unified landscape planting and beautification theme along major public roads and highways, watercourses, and at major public facilities, and recognizes the historic importance and traditions of the region.

Objectives and Policies

- Integrate stream channels and gulches into the region's open space system for the purposes of safety, open space greenways for public use, and visual separation.
- Enhance the appearance of major public roads and highways of the region.
- Improve pedestrian and bicycle access within the region.

INFRASTRUCTURE

Goal

Timely and environmentally sound planning, development, and maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters, and visitors through the provision of clean water, effective waste disposal, and efficient transportation systems which meet the needs of the community.

Objectives and Policies (Transportation)

- Support ridesharing, programs to promote safe bicycle and pedestrian travel, alternative work schedules, traffic signal synchronization, and other transportation demand management strategies.
- Promote residential communities that provide convenient pedestrian and bicycle access between residences and neighborhood commercial areas, parks, and public facilities, in order to minimize use of the automobile.

Objectives and Policies (Drainage)

- Construct necessary drainage improvements in flood-prone areas, incorporating landscaped swales and unlined channels to provide open space continuity. Urge the use of landscaped/green belt drainage channels as opposed to concrete-lined channels or culverts.
- Insure that new developments will not result in adverse flooding conditions for downstream properties by requiring onsite retention facilities for stormwater run-off generated by the development.

SOCIAL INFRASTRUCTURE

Goal

Develop and maintain an efficient and responsive system of public services which promotes a safe, healthy, and enjoyable lifestyle, and offers opportunities for self improvement and community well-being.

Objectives and Policies (Recreation and Open Space)

- Provide adequate community-oriented park facilities including facilities for field and court games, children's play, and picnicking within, or adjacent to, existing and future residential areas at the following existing or planned park sites:
 - a. Waine`e area near the existing swimming pool and youth center.

- b. Major residential projects.
- c. Napili.
- Provide urban park space for passive activities which allow respite from shopping and sightseeing activities within Lahaina town.
- Establish park areas appropriate for nature study.

Objectives and Policies (Health and Public Safety)

- Encourage the expansion of community and social service facilities and programs in West Maui in convenient and accessible locations through public and private partnerships.

GOVERNMENT

Goal

Government that demonstrates the highest standards of fairness, responsiveness to the needs of the community, fiscal integrity, effectiveness in planning, and implementing programs and projects to accommodate a stable social and economic well-being for residents, a fair and equitable approach to taxation, and efficient and results-oriented management.

Objectives and Policies

- Coordinate and direct future public and private development, including capital improvement projects, consistent with the Community Plan and the island-wide directed and managed growth plan required by the General Plan.
- Expedite the review and approval process for projects, which will result in public benefit by “fast-tracking.”
- Insure that adequate infrastructure is or will be available to accommodate planned development.
- Support public and private partnerships to fund the planning and construction of infrastructure, subject to advanced public notification.

The Kahoma Residential Subdivision consists of 88 units in an area that is an infill location, between an existing residential area and a natural feature (Kahoma Stream Flood Control Channel). Necessary infrastructure systems and services are within close proximity to serve the project. Recreational needs for the proposed project will be addressed through the

provision of a neighborhood park, bicycle paths, and walking trails. A public bicycle path and walking trail will be developed along the northern boundary of the project. The proposed project is in conformance with the above-noted goals, objectives, and policies of the West Maui Community Plan.

E. COUNTY ZONING

The lands underlying the proposed Kahoma Residential Subdivision are zoned "Agricultural" by Maui County Zoning. See **Figure 16**. As with the community plan land use designation, the Section 201H-38, HRS application will seek an exemption from Chapter 19.510 of the Maui County Code to allow the project to proceed without the filing and processing of a Change in Zoning application.

According to Chapter 19.30A.020 of the Maui County Code, agricultural lands that meet at least two (2) of the following criteria should be given the highest priority for retention in the agricultural district:

1. Agricultural Lands of Importance to the State of Hawai'i (ALISH);
2. Lands not classified by the ALISH system whose agricultural land suitability, based on soil, topographic, and climatic conditions, supports the production of agricultural commodities, including but not limited to coffee, taro, watercress, ginger, orchard and flower crops, and non-irrigated pineapple. In addition, these lands shall include lands used for intensive husbandry, and lands in agricultural cultivation in five of the ten years immediately preceding the date of approval of this chapter; and
3. Lands which have seventy-five percent or more of their boundaries contiguous to lands within the agricultural district.

While portions of the project site partially meet Criteria "1" and Criteria "2" above, there are a number of factors which limit feasibility of the project site for active agriculture use. The project area is designated as "Other Important" agricultural lands and the Kahoma Stream Flood Control Channel effectively isolates these lands from other lands farther north. The geometry of the subject property, with its relatively narrow configuration defined by the Kahoma Stream Flood Control Channel to the north and Kuhua Village and the Kelawea Subdivision to the south, poses logistical and compatibility challenges to long-term productive agricultural use. Refer to **Figure 2**. With the proposed project, the Kahoma Stream Flood Control Channel would become the natural buffer between light-industrial lands farther to the north and the proposed project and existing residential development to the south.

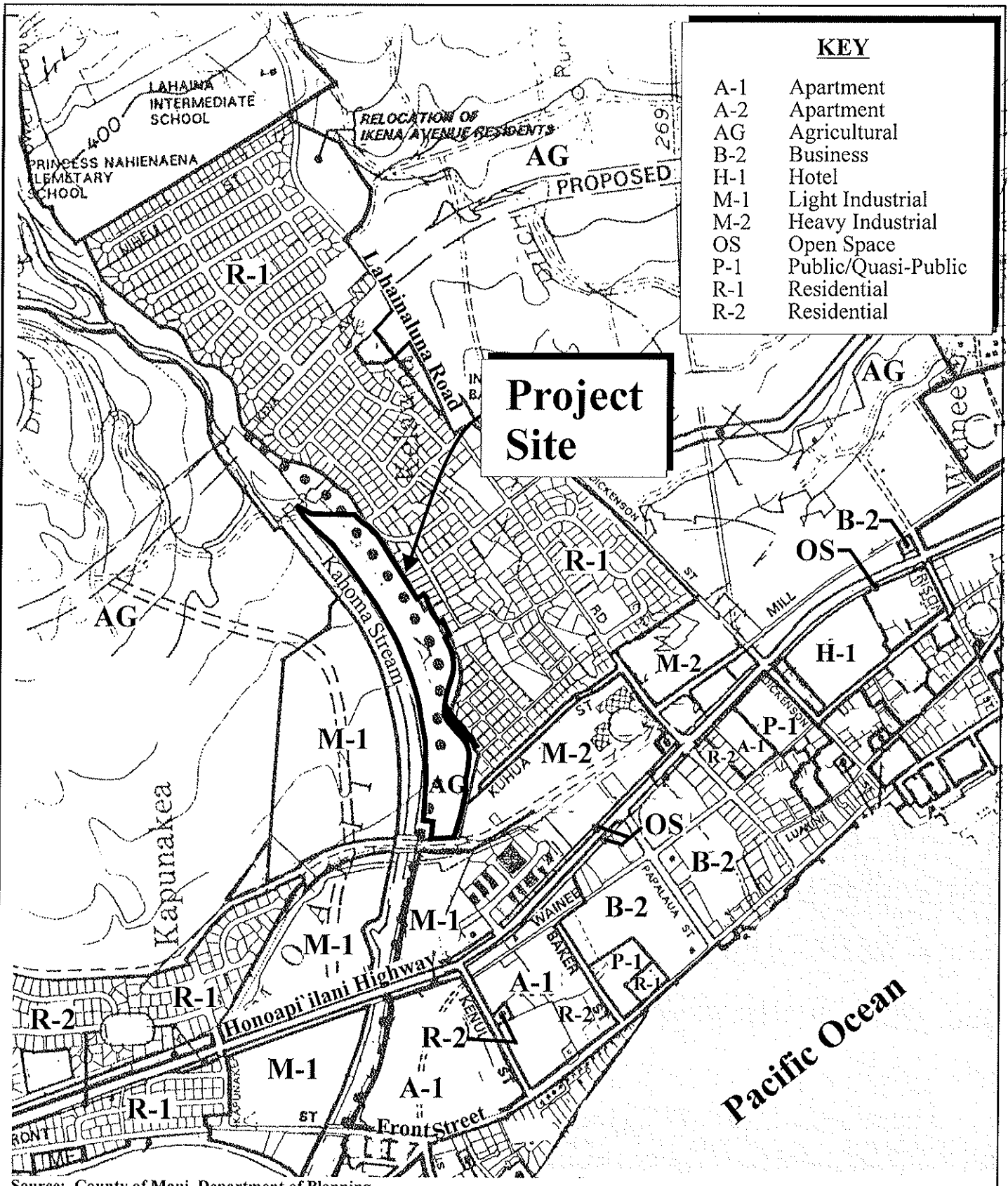
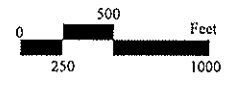


Figure 16 Proposed Kahoma Residential Subdivision
 Existing Maui County Zoning Designations



The agricultural impact of this project is near negligible when taken in the context of the recent trends occurring on Maui. In the last 30 years, the closures of Wailuku Sugar and Pioneer Mill on Maui have taken significant acreages out of active sugar cane cultivation. These actions have greatly increased the supply of non-sugar based agricultural lands. In fact, much of the lands of these former plantations are still fallow. The proposed project will ultimately involve the use of approximately 16.7 acres of land, which represents 0.007 percent of the roughly 245,000 acres of State Agricultural district lands on the island of Maui.

When evaluated based on the housing shortage that exists on Maui, coupled with the scarcity of entitled, undeveloped residential lands in West Maui, the conversion of the project's agricultural lands to residential development presents a beneficial opportunity. The expansion of the urban district boundary in West Maui will allow residential use up to a natural buffer at the Kahoma Stream Flood Control Channel. This project will supply additional housing units at a site deemed less than optimal for long-term agricultural use.

In terms of Criteria "3", the boundaries of the 16.7-acre project site border both Urban and Agricultural designated lands. Less than 75 percent of the project site's boundaries are contiguous to lands within the Agricultural district.

F. SECTION 201H-38, HRS APPLICATION

As described in Chapter I.F. of this document, Section 201H-38, HRS allows eligible developers/housing projects to be exempt "*from all statutes, ordinances, charter provisions, and rules of any governmental agency relating to planning, development and improvement of land, and the construction of units thereon...*" in order to facilitate the timely and cost effective implementation of proposed affordable housing projects.

As part of the Section 201H-38, HRS application, exemptions from County of Maui Code requirements will be requested. The full list of proposed exemptions requested were previously described in Chapter I of this report.

A Section 201H-38, HRS application will be prepared and filed with the County of Maui's Department of Housing and Human Concerns. The review of the Draft EA will be coordinated with the Department to ensure that issues raised during the Draft EA review process, which are pertinent to Section 201H-38, HRS criteria, are appropriately addressed.

The Final EA will be included in the Section 201H-38, HRS application which will be transmitted to the Maui County Council for review and action.

G. COASTAL ZONE MANAGEMENT/SPECIAL MANAGEMENT AREA

The Hawai'i Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawai'i's coastal zone. Although the proposed Kahoma Residential Subdivision is not within the County of Maui's Special Management Area, consideration of County coastal zone objectives and policies will be carried out. See **Figure 17**.

As set forth in Chapter 205A, HRS, and the rules of the Maui Planning Commission, this section addresses the project's relationship to applicable coastal zone management considerations.

1. Recreational Resources


Objective

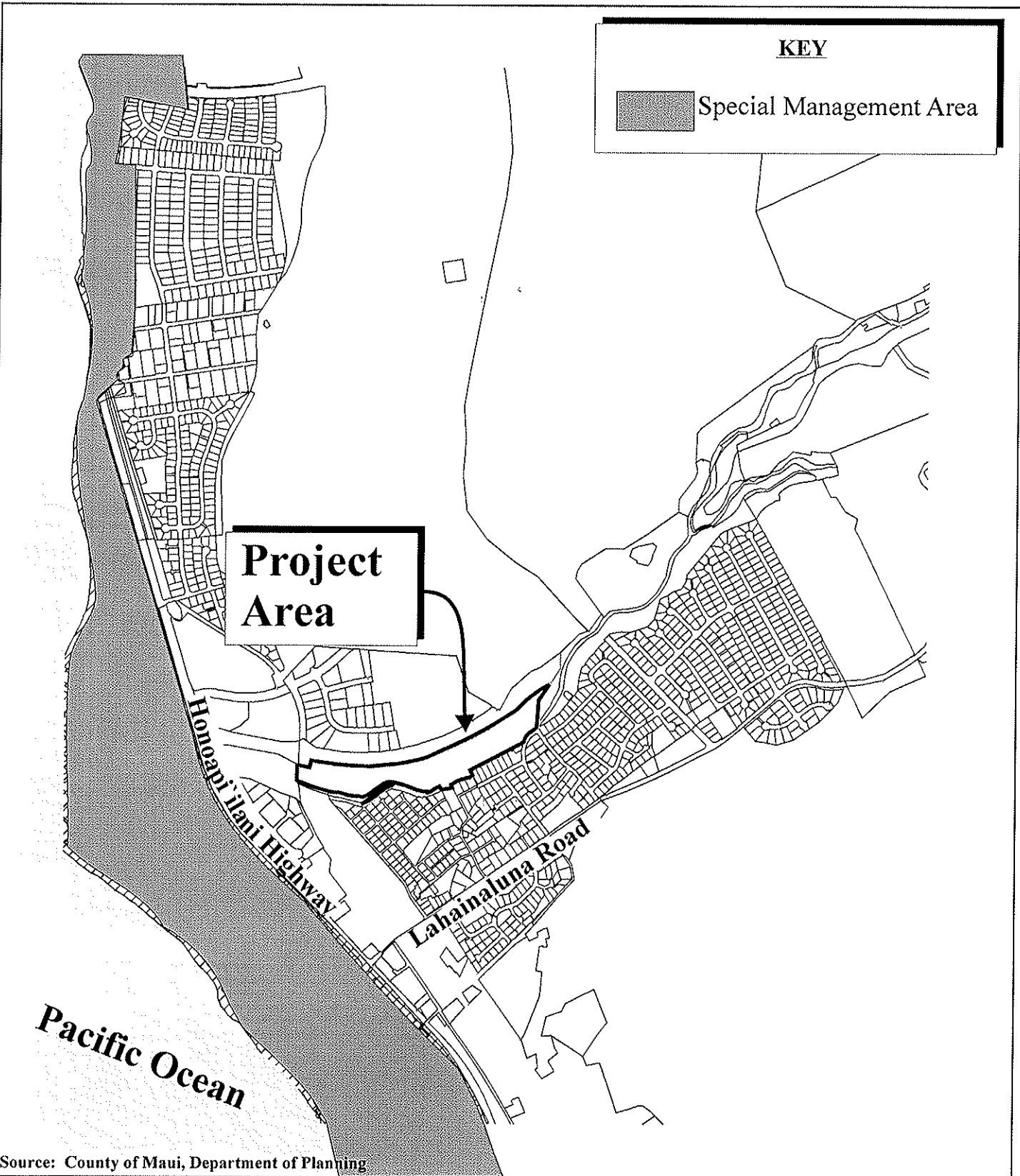
Provide coastal recreational opportunities accessible to the public.

Policies

- (A) Improve coordination and funding of coastal recreational planning and management; and
- (B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
 - (i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;
 - (ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

KEY

 Special Management Area



Source: County of Maui, Department of Planning

Figure 17 Proposed Kahoma Residential
Subdivision
Special Management Area (SMA)
Boundary Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.



Kahoma\Empeel\sg\SMABoundary

- (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
- (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;
- (v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;
- (vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;
- (vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and
- (viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6, HRS.

Response: Recreational area needs of the proposed project will be addressed through the development of a 1.06-acre neighborhood park located within the project limits, adjacent to the multi-family dwelling units. Adverse impacts to coastal recreational resources are not anticipated from the project.

2. **Historic Resources**

Objective

Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawai`ian and American history and culture.

Policies

- (A) Identify and analyze significant archaeological resources;

- (B) Maximize information retention through preservation of remains and artifacts or salvage operations; and
- (C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Response: An archaeological inventory survey was undertaken by Scientific Consultant Services, Inc. in 2005 in order to identify, protect, and preserve historic resources. The archaeological investigation did not reveal any significant historic resources at the project site. Should historic finds be uncovered during construction activities, appropriate measures with SHPD will be followed.

3. **Scenic and Open Space Resources**

Objective

Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies

- (A) Identify valued scenic resources in the coastal zone management area;
- (B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
- (C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
- (D) Encourage those developments which are not coastal dependent to locate in inland areas.

Response: The project site is located along the lower slopes of the West Maui Mountains above Honoapi'ilani Highway and Lahaina town from approximately 32 feet amsl rising to approximately 145 feet amsl. The low-rise urban forms established by the proposed project plan will be buffered with landscaped areas to mitigate the impact on visual resources.

4. **Coastal Ecosystems**

Objective

Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies

- (A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
- (B) Improve the technical basis for natural resource management;
- (C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
- (D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
- (E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Response: With implementation of Best Management Practices (BMPs), the proposed project should have minimal long-term adverse effects on the downstream coastal ecosystems. Appropriate BMPs and erosion-control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities.

5. **Economic Uses**

Objective

Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies

- (A) Concentrate coastal dependent development in appropriate areas;

- (B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and
- (C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
 - (i) Use of presently designated locations is not feasible;
 - (ii) Adverse environmental effects are minimized; and
 - (iii) The development is important to the State's economy.

Response: The proposed project is not located at or near the coastline and will, therefore, not involve coastal development. The proposed action does not contravene the objective and policies for economic uses.

6. Coastal Hazards

Objective

Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policies

- (A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
- (B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;
- (C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
- (D) Prevent coastal flooding from inland projects.

Response: The proposed project will not be located within environmentally sensitive areas that are subject to natural hazards. Appropriate technical measures will be designed and implemented to address stormwater management requirements

for the proposed project plan. The proposed project will be designed in accordance with the Drainage Standards of the County of Maui, as applicable, to ensure that the project will not adversely affect downstream and adjoining properties.

7. **Managing Development**

Objective

Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies

- (A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
- (B) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
- (C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Response: Opportunities for public understanding of the proposed project are provided for during processing of the EA in accordance with Chapter 343, HRS, notice and public review provisions. All aspects of development will be conducted in accordance with applicable Federal, State, and County standards. Opportunity for public review and participation will also be provided by the Section 201H-38, HRS application review process.

8. **Public Participation**

Objective

Stimulate public awareness, education, and participation in coastal management.

Policies

- (A) Promote public involvement in coastal zone management processes;

- (B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and
- (C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: As previously mentioned, the EA document will be processed in accordance with Chapter 343, HRS, and opportunity for comment by agencies and the public will be provided. Additionally, public input opportunities will be provided through the Section 201H-38, HRS application processes.

9. **Beach Protection**

Objective

Protect beaches for public use and recreation.

Policies

- (A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;
- (B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and
- (C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: In broad objective terms, the proposed project will provide appropriate Best Management Practices (BMPs) in the upland region to manage overall drainage for the project site. In the long term, upland drainage improvements will help protect beach resources from flood damage and reduce the adverse impact to recreation caused by "red tide" from upland sedimentation in stormwater runoff.

10. Marine Resources

Objective

Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies

- (A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
- (B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;
- (C) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
- (D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
- (E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: Appropriate BMPs and erosion control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities.

In addition to the foregoing objectives and policies, SMA permit review criteria pursuant to Act 224 (2005) provides that:

No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:

- (1) Directly illuminates the shoreline and ocean waters; or

- (2) Is directed to travel across property boundaries toward the shoreline and ocean waters.

Response: The proposed project is not located on or near the shoreline. The preliminary lighting plan for the project will be designed to ensure that no lighting is directed across property boundaries towards the shoreline.

H. OTHER REGULATORY APPROVALS

The proposed project will not involve alterations to the adjacent Kahoma Stream Flood Control Channel. As such, requirements for Department of the Army permitting and Section 401 Water Quality Certification are not triggered. Additionally, there are no other Federal permits or licenses required which would trigger the need for a Coastal Zone Management Consistency review.

**IV. SUMMARY OF
UNAVOIDABLE IMPACTS
AND COMMITMENTS OF
RESOURCES**

IV. SUMMARY OF UNAVOIDABLE IMPACTS AND COMMITMENTS OF RESOURCES

The proposed development of the Kahoma Residential Subdivision will result in certain unavoidable construction-related environmental impacts as outlined in Chapter II.

In the short-term, construction associated with the proposed development will generate noise impacts. These impacts will be limited to the immediate vicinity of the project construction areas. Sound attenuating construction equipment will be used, where practicable, to mitigate noise impacts caused by construction.

Unavoidable air quality impacts will also arise as a result of construction activities, such as the generation of dust and other airborne pollutants. Appropriate BMPs will be incorporated in the construction process to mitigate adverse impacts such as frequent watering of exposed surfaces and regular maintenance of construction equipment to minimize construction-related impacts.

The project will commit approximately 16.7 acres of agricultural land formerly used for sugar cane cultivation to urban use. The production of sugar cane ceased several years ago and the land has been fallow since then.

The visual resources of the project site will be maintained as view corridors will not be blocked by the Kahoma Residential Subdivision project. Design standards will establish landscaping details with open space, roadways, and buffer zones to minimize visual impacts from the project site.

Additional traffic is anticipated with the completion of this development due to project generated traffic flows and increased ambient traffic associated with regional population growth. However, implementation of the traffic improvements outlined in the recommendations section of the TIAR (Refer to **Appendix "E"**) is anticipated to mitigate the anticipated traffic increases.

V. ALTERNATIVES TO THE PROPOSED ACTION

V. ALTERNATIVES TO THE PROPOSED ACTION

The applicant has looked at a variety of options in the future use of the subject area.

A. PREFERRED ALTERNATIVE

In light of the acute housing shortage experienced on Maui in recent years, including in West Maui, the applicant performed an assessment of whether its lands would be suited for workforce and affordable residential development. The subject property was evaluated for development since it has been unutilized for many years.

The proposed development plan represents the preferred alternative. This alternative, covering 16.7 acres, integrates various types of affordable-priced housing units with a neighborhood park. Eighty-eight (88) housing units will be developed in a combination of single-family homes and apartments. The applicant chose this particular mix of housing types to be consistent with the neighboring residential subdivision to the south and east. Landscaping and open space will be used to provide unity to the project and interconnectivity between the housing units.

Although other mixes of housing types were looked at, for compatibility purposes with adjacent residential development and to accommodate residents seeking home ownership, the applicant selected the 88-unit preferred alternative. This location is not ideal for developing a resort community setting, given its proximity to a workforce-oriented residential subdivision. Further, a higher density configuration may cause too great a strain on the roadway infrastructure considering its setting near the gateway to West Maui.

Lastly, the project location is within reach of significant existing infrastructure systems, such as for wastewater treatment, roadways, and water transmission.

B. ALTERNATIVE SITE PLAN

The applicant has also evaluated site plan alternatives which included the slender, remnant parcel identified as TMK 4-5-010:006, as the applicant is actively pursuing ownership of the parcel. The alternative including parcel 006 is anticipated to yield 95 residential units instead of the preferred 88-unit configuration which utilizes only parcel 005. Refer to **Appendix "G"**.

In the alterative site plan, the seven (7) units which will be added (88 to 95) will be single-family homes developed by Lokahi Pacific in the southwestern portion of the project. As a consequence, there would be seven (7) more affordable units developed in the project. In this configuration, all 95 units will be considered affordable according to the Maui Residential Workforce Housing Policy.

C. AGRICULTURAL USES

As mentioned in the agriculture section of this document, many agricultural uses would not be compatible at the project site. The slender nature of the site does not allow for a sizable buffer from the neighboring residential subdivision to the south and east. Due to the presence of the Kahoma Stream Flood Control Channel to the north, the former Pioneer Mill facility to the west, and the Kuhua Village and Kelawea, and Kelawea Mauka Subdivisions to the south and east, there would not be much allowance for expansion. Moreover, the entire project site is only considered "Other Important" agricultural lands, the lowest classified designation by the State Department of Agriculture.

With the recent closures of two (2) sugar plantations on Maui, the stock of lands for diversified agriculture increased sizably. Therefore, the supply of "Prime" lands for agribusiness has expanded, such that these project lands bounded on four (4) sides are not as attractive a location for agriculture as many others on Maui. This reason helps explain why the property has remained fallow since it was taken out of sugarcane cultivation.

D. COMMERCIAL USES

The applicant also looked at commercial uses of the subject property. However, due to the slender geometry of the parcel with no highway frontage and its proximity to the adjacent residential subdivisions, large-scale commercial uses would be incompatible. Moreover,

with the commercial areas along Honoapi`ilani Highway and along Front Street, the applicant reasoned that there was not a need for an additional shopping complex in such proximity to those establishments.

E. NO ACTION ALTERNATIVE

The no action alternative would involve continued underutilization of the 16.7-acre project site. The no action alternative is not appropriate given the pronounced shortage of affordable and moderately priced homes on the island. The proposed development responds appropriately to current market conditions and needs.

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The development of the proposed project would involve the commitment of lands and funds. In addition, labor and material resources would be expended as part of the project's construction phase. Commitment of these resources are considered irreversible and irretrievable. This commitment, however, is also considered appropriate in the context of providing a long-term, comprehensive land use plan for the proposed Kahoma Residential Subdivision area.

Addressing land use development issues and market needs from a comprehensive planning perspective provides an efficient and effective means of developing and implementing infrastructure and related service components.

VII. FINDINGS AND CONCLUSIONS

VII. FINDINGS AND CONCLUSIONS

The "Significance Criteria", Section 12 of the Administrative Rules, Title 11, Chapter 200, "Environmental Impact Statement Rules", were reviewed and analyzed to determine whether the proposed project will have significant impacts to the environment. The following criteria and preliminary analysis are provided.

1. **Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.**

As mentioned in Chapter II of this document, the archaeological inventory survey concluded that no historic properties would be affected while the cultural impact assessment of the project area concluded that no significant impacts to cultural practices were anticipated. Refer to **Appendix "C"** and **Appendix "D"**, respectively. There are no sensitive natural resources impacted by the proposed action.

2. **Curtails the range of beneficial uses of the environment.**

The proposed project will not curtail the range of beneficial uses of the environment. Development of specific site plans will allow for the identification of applicable Best Management Practices (BMPs) to minimize any construction-related impacts.

3. **Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.**

The proposed project does not conflict with the State's Environmental Policy and Guidelines as set forth in Chapter 344, Hawai'i Revised Statutes (HRS).

4. **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.**

The proposed project will directly benefit the local economy by providing construction and construction-related employment. In the long term, the project will

support the local economy through the contribution of salaries, wages, benefits and taxes, as well as through the purchases of goods and services.

5. **Substantially affects public health.**

The proposed project will not affect public health.

6. **Involves substantial secondary impacts, such as population changes or effects on public facilities.**

The proposed project will be a slight extension of population for the West Maui Community Plan region and for Lahaina in particular. In this regard, the proposed project will require public services in the region such as schools, police, and fire protection. The need for such services will be mitigated through additional tax revenues and assessments which are levied by local government and agencies. The applicant is in the process of coordinating with State and County agencies to ensure that all services and facilities requirements for the proposed Kahoma Residential Subdivision are addressed.

7. **Involves a substantial degradation of environmental quality.**

Impacts to the natural environment are being mitigated through a combination of land planning and engineering design measures. For example, the project limits have been defined to avoid the 100-year flood limits of Kahoma Stream. In addition, drainage improvements for the proposed project have been designed to limit post-development peak flows to current levels. Refer to **Appendix "F"**.

8. **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.**

The proposed project does not involve a commitment to larger actions. While the impacts assessed in this document are based on the entire action, the design of the project considers long-range planning opportunities as discussed in the "Cumulative and Secondary Impacts" Section II.E. herein.

9. **Substantially affects a rare, threatened, or endangered species, or its habitat.**

As reported in the biological resources survey, the project site is generally limited to non-native, abundant species of flora and fauna. Refer to **Appendix "B"**. No rare, threatened, or endangered species were observed during the surveys.

10. **Detrimentially affects air or water quality or ambient noise levels.**

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, and installation of dust screens, will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction equipment. Equipment mufflers or other noise attenuating equipment, as well as proper equipment and vehicle maintenance, will be used during construction activities. Construction noise impacts will be mitigated through compliance with the provisions of the State of Hawai'i, Department of Health Administrative Rules Title 11, Chapter 46, "Community Noise Control". These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels set forth in the Chapter 46 rules.

11. **Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.**

The project lands are currently wholly within Flood Zone C, an area of minimal flooding. Additionally, site drainage improvements will be implemented to ensure that there is no net increase in drainage flows as a result of project development. No other foreseeable environmental effects attributed to environmentally sensitive areas are anticipated in conjunction with the project.

12. **Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.**

The proposed project will not affect any previously identified scenic vistas or viewplanes. The proposed project will be separated from the neighboring subdivision through the use of landscaping and buffer zones around developed areas.

13. Requires substantial energy consumption.

The proposed project will involve the commitment of fuel for construction equipment, vehicles, and machinery during construction and maintenance activities.

Coordination with Maui Electric Company (MECO) will be undertaken during the electrical plans preparation phase of work to ensure all operational parameters are addressed for the proposed project.

In summary, the project's location provides for a site well-suited for the provision of additional housing for island residents. Sensitive natural and cultural environments are being avoided and appropriate use of BMPs will be utilized to ensure that offsite natural ecosystems are not impacted. Infrastructure systems may require upgrades which can be implemented without adversely affecting overall system capacities or resources.

Based on the foregoing analysis, it is anticipated that the proposed action will result in a Finding of No Significant Impact (FONSI).

VIII. LIST OF PERMITS AND APPROVALS

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The following list of permits and approvals are anticipated to be needed for project implementation:

1. **State of Hawai'i**

- A. Section 201H-38, Hawai'i Revised Statutes, District Boundary Amendment Approval
- B. NPDES Permits, as applicable

2. **County of Maui**

- A. Section 201H-38, Hawai'i Revised Statutes, Approval
- B. Subdivision Approval
- C. Construction Permits

**IX. PARTIES
CONSULTED IN THE
PREPARATION OF THE
DRAFT ENVIRONMENTAL
ASSESSMENT; LETTERS
RECEIVED AND
RESPONSES TO
SUBSTANTIVE
COMMENTS**

IX. PARTIES CONSULTED IN THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

The following list of agencies, organizations and individuals were consulted in the preparation of the Draft Environmental Assessment (EA). Agency comments and responses to substantive comments are included here in.

1. Ranae Ganske-Cerizo, Soil Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawai'i 96793-2100
2. George Young
Chief, Regulatory Branch
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Regulatory Branch
Building 230
Fort Shafter, Hawai'i 96858-5440
3. Gordon Furutani, Field Office Director
**U. S. Department of Housing and Urban
Development**
500 Ala Moana Boulevard, Suite 3A
Honolulu, Hawai'i 96813-4918
4. Patrick Leonard
Field Supervisor
U. S. Fish and Wildlife Service
300 Ala Moana Blvd., Rm. 3-122
Box 50088
Honolulu, Hawai'i 96813
5. Dan Davidson, Executive Director
**Hawai'i Housing Finance and Development
Corporation**
677 Queen Street
Honolulu, Hawai'i 96813
6. Sandra Lee Kunimoto, Chair
Department of Agriculture
1428 South King Street
Honolulu, Hawai'i 96814-2512
7. Theodore E. Liu, Director
State of Hawai'i
**Department of Business, Economic
Development & Tourism**
P.O. Box 2359
Honolulu, Hawai'i 96804
8. Patricia Hamamoto, Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804
9. Ron Okamura, Complex Area
Superintendent
State of Hawai'i
Department of Education
54 High Street, 4th Floor
Wailuku, Hawai'i 96793
10. Alec Wong, P.E., Acting Chief
Clean Water Branch
State of Hawai'i
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawai'i 96814

11. Herbert Matsubayashi
District Environmental Health
Program Chief
State of Hawai'i
Department of Health
54 High Street
Wailuku, Hawai'i 96793
12. Laura H. Thielen, Interim Chairperson
State of Hawai'i
**Department of Land and Natural
Resources**
P. O. Box 621
Honolulu, Hawai'i 96809
13. Melanie Chinen, Administrator
State of Hawaii
**Department of Land and Natural
Resources**
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawaii 96707
14. Barry Fukunaga, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813
- cc: Fred Cajigal
15. Anthony J. Ching, Executive Officer
State of Hawaii
State Land Use Commission
P.O. Box 2359
Honolulu, Hawai'i 96804
16. Rosalyn H. Baker, Senator
Hawai'i State Senate
Hawai'i State Capitol, Room 210
415 S. Beretania Street
Honolulu, Hawai'i 96813
17. Angus L.K. McKelvey, Representative
House of Representatives
Hawai'i State Capitol, Room 315
415 S. Beretania Street
Honolulu, Hawai'i 96813
18. Laurence K. Lau, Interim Director
Office Of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, Hawai'i 96813
19. Haunani Apoliona, Board of Trustee
Chair
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawai'i 96813
20. Mary Lou Kobayashi, Planning Program
Administrator
State of Hawai'i
Office of Planning
P.O. Box 2359
Honolulu, Hawai'i 96804
21. Charmaine Tavares, Mayor
County of Maui
200 South High Street
Wailuku, Hawaii 96793
22. Gen Inuma, Administrator
Maui Civil Defense Agency
200 South High Street
Wailuku, Hawaii 96793
23. Carl Kaupololo, Chief
County of Maui
**Department of Fire
and Public Safety**
200 Dairy Road
Kahului, Hawai'i 96732
24. Vanessa A. Medeiros, Director
County of Maui
**Department of Housing and
Human Concerns**
200 South High Street
Wailuku, Hawai'i 96793
25. Tamara Horcajo, Director
County of Maui
Department of Parks and Recreation
700 Halia Nakoa Street, Unit 2
Wailuku, Hawai'i 96793
26. Jeffrey Hunt, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawai'i 96793
27. Thomas Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawai'i 96793

28. Milton Arakawa, Director
County of Maui
Department of Public Works
200 South High Street
Wailuku, Hawai'i 96793
29. Cheryl Okuma, Director
County of Maui
Department of Environmental Management
200 South High Street
Wailuku, Hawai'i 96793
30. Donald Medeiros, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawai'i 96793
31. Jeffrey Eng, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawai'i 96793
32. G. Riki Hokama, Council Chair
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
33. Danny Mateo, Council Vice Chair
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
34. Councilmember Michelle Anderson
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
35. Councilmember Gladys Baisa
Maui County Council
200 South High Street
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36. Councilmember Jo Anne Johnson
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
37. Councilmember Bill Medeiros
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
38. Councilmember Michael J. Molina
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
39. Councilmember Joseph Pontanilla
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
40. Councilmember Mike Victorino
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793
41. Theo Morrison, Executive Director
Lahaina Bypass Now
505 Front Street, Suite 202
Lahaina, Hawai'i 96761
42. Keoki Freeland, Executive Director
Lahaina Restoration Foundation
120 Dickenson Street
Lahaina, Hawai'i 96761
43. Karee Karlucci, Executive Director
Lahaina Town Action Committee
648 Wharf Street, Suite 102
Lahaina, Hawai'i 96761
44. Joe Pluta, President
West Maui Improvement Foundation
P. O. Box 10338
Lahaina, Hawai'i 96761
45. Mahealani Strong, Executive Director
West Maui Taxpayers Association
P.O. Box 10338
Lahaina, Hawai'i 96761
46. May Fujiwara
Lahaina-Honolua Senior Citizens Club
P. O. Box 1086
Lahaina, Hawai'i 96767

SEP 13 2007



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:
2007-TA-0316

SEP 12 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Proposed Kahoma Residential Subdivision, Maui, Hawaii

Dear Mr. Ginoza:

This is in response to your August 10, 2007, letter received on August 13, 2007, requesting information for the preparation of a draft Environmental Assessment (EA), for the proposed Kahoma Residential Subdivision on the island of Maui. The proposed project is located on 16.7 acres of undeveloped land that was formerly under sugar cane production and is identified by Tax Map Key (2) 4-5-010:005. The project will entail the construction of single-family and multi-family units as well as a neighborhood park.

To assist you with this project we have reviewed the information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program and the Hawaii GAP Program. Our species database indicates the federally-threatened and -endangered seabirds Newell's shearwater (*Puffinus auricularis newell*) and the Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), are known to fly through the project area.

We offer the following suggestions to assist you in the development of the draft EA. The EA should address all potential direct and indirect impacts of the project on listed seabirds. Hawaiian petrel and Newell's shearwater are prone to collisions with objects in artificially lighted areas. Early project planning should include minimizing or down-shielding external artificial lighting to reduce seabird mortality.

We hope this information assists you in developing a comprehensive and thorough EA. If, as the project development progresses, it is determined that the proposed project will adversely impact federally-listed species, we recommend you contact our office early in the process, that we may assist you in developing avoidance and minimization measures for these species.

TAKE PRIDE[®]
IN AMERICA 

Mr. Kyle Ginoza

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If you have questions, please contact Dr. Jeff Zimpfer, Consultation and Technical Assistance Program (phone: 808/792-9431; fax: 808/792-9581).

Sincerely,

Christa Russell

for Patrick Leonard
Field Supervisor



MICHAEL T. MUNEKIYO
GWEN OKASHI HIRAGA
MITSUHIKO MITSUHIRANO
KAROLYN KAWAHARA

MARK ALEXANDER BOY

February 26, 2008

Patrick Leonard, Field Supervisor
United States Fish and Wildlife Service
U.S. Department of the Interior
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd., Room 3-122, Box 50088
Honolulu, Hawai'i 96850

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i; Reference No. 2007-TA-0316

Dear Mr. Leonard:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 12, 2007 (reference 2007-TA-0316), regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

The applicant acknowledges that seabirds, such as Hawaiian petrel and Newell's shearwater, are prone to collisions with objects in artificially lighted areas. As such, lights mounted in the project footprint, throughout the construction period, and within the completed residences, will be appropriately down-shielded to reduce seabird mortality.

We appreciate the input we received from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 28 2007



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FORT SHAFTER, HAWAII 96858-5440

August 23, 2007

REPLY TO
ATTENTION OF:

Regulatory Branch

File Number POH-2007-271

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793


Dear Mr. Ginoza:

This responds to your request for written comments for the draft Environmental Assessment Preparation Notice (dEAPN) which addresses activities and impacts of the proposed Kahoma Residential Subdivision, at Lahaina, Maui Island (about 16.7 acres at TMK (2) 4-5-010: 005).

Our records indicate that waters of the United States, as represented by the Kahoma Stream Flood Control Channel are adjacent and abutted to the project area. The dEA should provide additional geotechnical information regarding flood zones and potential impacts to floodplain management issues and policies. The Corps will reserve comments regarding the applicability of Section 404 of the Clean Water Act and any requirement for a Department of Army (DA) permit application until we have the opportunity to evaluate that information in the forthcoming dEA. It is acknowledged that navigable waters and other special aquatic sites such as anchialine ponds, springs, and wetlands are known to be absent in the proposed project area. The dEA should address in appropriate sections the potential for the Kahoma Flood Control structure to be impacted by construction of project structures and an evaluation of how associated ground disturbing activities within the proposed residential development will be avoided or minimized to the maximum extent practicable.

Thank you for your consideration of potential impacts to the aquatic environment in the Lahaina watershed. Please contact Mr. Farley Watanabe of my staff at 808-438-7701, or facsimile 808-438-4060, or email at Farley.K.Watanabe@usace.army.mil if you have any questions or need additional information.

Sincerely,


for George P. Young, P.E.
Chief, Regulatory Branch



MICHAEL T. MUNEKIYO
GUYEN O. HIRAGA
MITSURU "MIMI" HIRANO
KAZUHIKO KAWAHARA
MAUI AIRBORNE BOMBER

February 26, 2008

George P. Young, P.E.
Chief, Regulatory Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawai'i 96858-5440

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i; File No. POH-2007-271

Dear Mr. Young:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 23, 2007 (File Number POH-2007-271), regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. A discussion on the flood zone designation of the project site will be included in the Draft Environmental Assessment (EA).
2. The applicant acknowledges that navigable waters and other special aquatics sites, such as anchialine ponds, springs, and wetlands, are known to be absent in the proposed project area.
3. The project will not impact sections of the Kahoma Stream Flood Control Channel. The implementation of Best Management Practices (BMPs) will mitigate potential impacts to the channel during ground disturbing activities. A discussion on BMPs will be included in the Draft EA.

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

George P. Young, P.E.
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', written over a horizontal line.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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LINDA LINGLE
GOVERNOR



AUG 17 2007

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

IN REPLY REFER TO:

07:PEO/102

August 15, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Re: Proposed Kahoma Residential Subdivision
TMK: (2) 4-5-010:005, Lahaina, Maui

The proposed project will provide 53 affordable housing units in compliance with the Maui Residential Workforce Housing Policy. It appears the project is consistent with the affordable housing policy set forth in the Hawaii State Plan of increasing homeownership and rental opportunities and choices in terms of quality, location, cost densities, style and size of housing.

Thank you for consulting with us on the subject residential subdivision.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Davidson".

Orlando "Dan" Davidson
Executive Director



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

August 31, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Mr. Ginoza:

Subject: Early Consultation on Kahoma Residential Subdivision
Lahaina, Maui, TMK:4-5-10:5

The Department of Education (DOE) has reviewed your request for early consultation on a proposed 88-unit residential project called the Kahoma Residential Subdivision (Kahoma).

The DOE is unable to make specific statements as to the anticipated effects of Kahoma since your August 10, 2007, request does not include detailed information on the size of housing being proposed for the project. We expect more details on housing types in the Draft Environmental Assessment (EA). To estimate the student impact of Kahoma, we will need to know the number of bedrooms anticipated in each type of housing and the general price range for various housing types.

The 2007 Legislature passed a bill establishing school impact fees. The bill became Act 245 and is in the process of being implemented. Under this new law, we believe the project will be required to pay an impact fee. We currently do not know the amount of the fee per residential unit in Kahoma but we should have a better idea once the EA is circulated.

If you have any questions, please call Heidi Meeker of the Facilities Development Branch at (808) 733-4862.

Very truly yours,

A handwritten signature in cursive script that reads "Patricia Hamamoto".

Patricia Hamamoto
Superintendent

PH:jmb

c: Randolph Moore, Assistant Superintendent, OBS
Duane Kashiwai, Public Works Administrator, FDB
Ron Okamura, CAS, Hana/Lahaina/Lanai/Molokai Complex Areas



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITCHELL "MIKE" HIRAGA
KAROL KAWAHARA

MAHI, AKAHUAHUA RD

February 26, 2008

Patricia Hamamoto, Superintendent
State of Hawai'i
Department of Education
P.O. Box 2360
Honolulu, Hawai'i 96804

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Ms. Hamamoto:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 31, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

The Draft Environmental Assessment (EA) for the project will contain detailed information on the size of housing being proposed, including the number of bedrooms and the approximate price range for the various housing types.

The applicant recognizes that the 2007 Legislature passed a bill establishing school impact fees. As a 100 percent affordable development, the applicant will seek a 201H exemption from the payment of school impact fees.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.

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SEP 1 1 2007

PHONE (808) 594-1888

FAX (808) 594-1865



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

HRD07/3169

September 4, 2007

Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

RE: Proposed Kahoma Residential Subdivision, TMK (2) 4-5-010:005, Lahaina, Maui, Hawai'i

Dear Kyle Ginoza,

The Office of Hawaiian Affairs (OHA) is in receipt of your August 10, 2007 submission concerning the proposed Kahoma Residential Subdivision and offers the following comments:


Our staff urges that a complete environmental assessment, including a Cultural Impact Assessment be completed as part of this Draft Environmental Assessment (DEA). A complete analysis of the long term availability of water for the project is also recommended. OHA looks forward to reviewing and offering further comments upon completion of the DEA.

OHA also asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) and OHA shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jason Jeremiah, Policy Advocate-Preservation, Native Rights, Land and Culture, at (808) 594-1816 or jasonj@oha.org.

Kyle Ginoza
Munekiyo & Hiraga, Inc.
August 27, 2007
Page 2

Aloha,


Clyde W. Nāmu'o
Administrator

C: Thelma Shimaoka
Community Resource Coordinator
OHA – Maui Office
140 Hoohana St., Ste. 206
Kahului, HI 96732



MICHAEL T. MUNEKIYO
GWEN OKADA HIRAGA
MITSUHI "MIKI" HIRANO
KARUNO KAWAHARA

MAHE A. LEWALOHU-ROY

February 26, 2008

Clyde W. Nāmu`o, Administrator
Office of Hawaiian Affairs
State of Hawai`i
711 Kapi`olani Boulevard, Suite 500
Honolulu, Hawai`i 96813

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai`i

Dear Mr. Nāmu`o:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 4, 2007 (reference HRD07/3169), regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai`i.

We offer the following comments, in response to your remarks:

1. A cultural impact assessment (CIA) was performed for the project and will be included in the Draft Environmental Assessment (EA).
2. Water for the project is anticipated to be provided by the County of Maui Department of Water Supply. The applicant has been coordinating with the department regarding adequate long-term water source. A discussion on the water source will be included in the Draft EA.
3. In accordance with Section 6E-43.6, Hawai`i Revised Statutes and Chapter 13-300, Hawai`i Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) and your office will be contacted. This language will be included in the Draft EA.

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Clyde W. Nāmu`o, Administrator
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Kyle Ginoza", with a long horizontal flourish extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 29 2007

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

August 28, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Mr. Ginoza:

Subject: **Early Consultation Request for Proposed Kahoma Residential Subdivision, TMK: (2) 4-5-010:005 Lahaina, Hawaii**

Thank you for the opportunity to participate in the early consultation process for the proposed Kahoma Residential Subdivision. The following comments are offered:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage may be required for this project. The Clean Water Branch should be contacted at 808 586-4309.
2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work.
3. The proposed subdivision is located within the area served by the Lahaina sewer system. Wastewater disposal shall be through this system. No on-site wastewater disposal is allowed.

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,

A handwritten signature in black ink, appearing to read "Herbert S. Matsubayashi".

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Roland Tejano
EPO



MICHAEL T. MUNEKIYO
GWEN O'HARA HIRAGA
MITCHELL M. HIRAGA
KARIN J. KAWAHARA

MAIL ROOM

February 26, 2008

Herbert S. Matsubayashi
State of Hawai'i
Maui District Health Office
Department of Health
54 High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Matsubayashi:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 28, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. The applicant's civil engineer will coordinate with the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project.
2. Pursuant to Hawai'i Administrative Rules (HAR), Chapter 11-46, "Community Noise Control", a noise permit will be secured prior to commencement of construction, as applicable.

The planning, design, and construction of the project will be undertaken in accordance with the maximum allowable sound levels as set forth by HAR, Chapter 11-46.

3. The project will connect to the County sewer system.
4. The applicant will review the Department of Health's standard comments and will adhere to comments specifically applicable to this project.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Herbert S. Matsubayashi
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', with a long horizontal line extending to the right.

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 28 2007

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD / CWB

08066PKP.07

August 27, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**Subject: Early Consultation Request for Proposed Kahoma Residential Subdivision
Wailuku, Maui, Hawaii**

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at <http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf>.

1. Any project and its potential impacts to State waters must meet the following criteria:
 - a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
 - b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
 - c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).
2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR,

Mr. Kyle Ginoza
August 27, 2007
Page 2

Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

- a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.
- b. Once through cooling water less than one (1) million gallons per day.
- c. Hydrotesting water.
- d. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at:

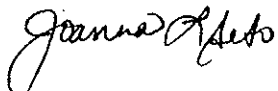
<http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.

3. You must also submit a copy of the NOI to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.
4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation.

Mr. Kyle Ginoza
August 27, 2007
Page 3

If you have any questions, please visit our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,



for ALEC WONG, P.E., CHIEF
Clean Water Branch

KP:np



MICHAEL T. MURPHY
GWEN O'HARA HIRAGA
MITSUHIKO MURAHARA
KARUHO KAWAHARA
MAUI ALEXANDER BOY

February 26, 2008

Alec Wong, P.E., Chief
State of Hawai'i
Clean Water Branch
Department of Health
P.O. Box 3378
Honolulu, Hawai'i 96801

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Wong:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 27, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

The applicant's civil engineer will review the branch's standard comments and will incorporate applicable recommendations into the construction plans. With regards to the specific comments provided by you, please see below.

1. The applicant's civil engineer will evaluate potential impacts to State waters to determine whether or not specific sections of Hawai'i Administrative Rules (HAR), Chapter 11-54 are applicable. All discharges related to project construction or operation activities will comply with relevant State Water Quality Standards. Discharges will be kept at a minimum through the application of engineering Best Management Practices (BMPs).
2. The applicant's civil engineer will coordinate with the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project, including the possible submittal of a Notice of Intent (NOI) for general permit coverage.
3. The NOI will be submitted for review by the State Historic Preservation Division of the Department of Land and Natural Resources. The applicant will submit a copy of its request for review by SHPD or SHPD's determination letter for the project along with the NOI or NPDES permit application, as applicable.
4. All discharges related to project construction or operation activities will comply with the applicable State Water Quality Standards as specified in HAR, Chapter 11-54

Alec Wong, P.E., Chief
February 26, 2008
Page 2

and/or permitting requirements as specified in HAR, Chapter 11-55. Discharges will be kept to a minimum through the application of engineering BMPs.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,



Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

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SEP 07 2007

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
INTERIM 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

September 5, 2007

Munekiyo & Hiraga, Inc.
305 High Street Suite 104
Wailuku, Hawaii 96793

Attention: Mr. Kyle Ginoza

Gentlemen:

Subject: Proposed Kahoma Residential Subdivision, Lahaina, Maui, Tax Map Key:
(2) 4-5-10:5

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,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
INTERIM 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

August 8, 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 -

COMMISSION ON WATER
RESOURCE MANAGEMENT

07 AUG 21 AIO : 02

RECEIVED

FROM: Russell Y. Tsuji
SUBJECT: Proposed Kahoma Residential Subdivision
LOCATION: Lahaina, Maui, Tax Map Key: (2) 4-5-10:5
APPLICANT: Munekiyo & Hiraga, Inc. on behalf of West Maui Land Company, 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 September 1, 2007.

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. Royo
Date: 8/29/07

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
INTERIM CHAIRPERSON
MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIWARA
CHYOME L. 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

August 29, 2007

REF: Kahoma subd.dr

TO: Russell Tsuji, Administrator
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Proposed Kahoma Residential Subdivision, Lahaina, Maui, TMK (2) 4-5-10:5

FILE NO.:

R

RECEIVED
LAND DIVISION
2007 AUG 31 A 10:35
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

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/cwrm>.

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/cwrm/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-JA 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:

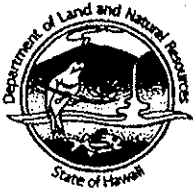
The EA should discuss water resources in the area and the potential impact of the proposed development upon such resources. The Commission's Water Resource Protection Plan provides information on hydrologic unit boundaries and groundwater sustainable yields (<http://www.hawaii.gov/dlnr/cwrm/planning/hwo.htm>). In addition, the County of Maui, Department of Water Supply (DWS) is in the process of updating its Water Use and Development Plan for the Lahaina region; we recommend you contact the DWS to obtain current information on existing and projected water demands for this area.

If there are any questions, please contact Lenore Nakama at 587-0218.

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
INTERIM 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

August 8, 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 -

RECEIVED
LAND DIVISION
2007 AUG 31 P 3:21
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

FROM: Russell Y. Tsuji
SUBJECT: Proposed Kahoma Residential Subdivision
LOCATION: Lahaina, Maui, Tax Map Key: (2) 4-5-10:5
APPLICANT: Munekiyo & Hiraga, Inc. on behalf of West Maui Land Company, 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 September 1, 2007.

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: *Caitlin*
Date: 8/31/07

07 AUG 2007 10:35 ENGINEERING

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LA/RYT

Ref.: KahomaResSubdLahaina

Maui.368

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 based on the maps provided it appears that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zones C and A. The Flood Insurance Program does not have any regulations for developments within Flood Zone C however, it does regulate developments within Zone A as indicated in bold letters below.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- (X) 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.
 - (X) 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 Agraan of the Planning Branch at 587-0258.

Signed: 
ERIC T. HIRANO, CHIEF ENGINEER

Date: 8/31/07



MICHAEL T. MURPHY, JR.
GUYU OZAKI, HIRAGA
MITSURU "MICK" HIRAGA
KAZUYUKI KAWAHARA

MARK A. SHARPE, PRES.

February 26, 2008

Laura Thielen, Chairperson
Department of Land and Natural
Resources
State of Hawai'i
P. O. Box 621
Honolulu, Hawai'i 96809

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Ms. Thielen:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your department's letter dated September 5, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

1. The applicant has been in contact with County of Maui, Department of Water Supply (DWS) staff regarding project water requirements. As recommended, the applicant will coordinate with the DWS to incorporate this project into the County's Water Use and Development Plan.
2. The project does not involve any alterations to the stream bed and/or banks of the Kahoma Stream Flood Control Channel.
3. The applicant remains in discussions with the DWS regarding the water source of the project. Feasible, alternative non-drinking water sources for the project, including reclaimed wastewater, will be considered as part of the development.
4. To the extent possible, the Draft Environmental Assessment (EA) will contain a discussion of water resources in the area and the potential impact of the proposed development upon such resources. As mentioned above, the applicant will coordinate with the DWS to incorporate this project into the County's Water Use and Development Plan.
5. Regarding the flood zone designation of the project site, the Flood Insurance Rate Map (FIRM) for the area denotes the 100-year and 500-year floods as contained in the Kahoma Stream Flood Control Channel. The project site is located outside of

Laura Thielen, Chairperson
February 26, 2008
Page 2

the concrete channel and is designated in flood zone "C". A more thorough discussion of the flood zone designation will be included in the Draft EA.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Kyle Ginoza", with a long horizontal line extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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LINDA LINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

SEP 10 2007

BARRY FUKUNAGA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2606

September 5, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Subject: Environmental Assessment Early Consultation
Proposed Kahoma Residential Subdivision, West Maui Land Company, Inc.
TMK: 4-5-010: 005, Lahaina, Maui

Thank you for your notification on the subject proposed subdivision project. We have the following initial comments:


1. The project will impact traffic on our highways by its contribution of vehicle activity onto the local streets and the collective traffic's access/use of State highway infrastructure.
2. The project's access to Honoapiilani Highway and any future connection to the Lahaina By-Pass should be identified and described.
3. A traffic assessment or traffic impact analysis report should be prepared by the developer/landowner and submitted as part of the project's environmental assessment. The traffic report should cover both project and regional impacts and the mitigation measures the project will provide, including any developer/landowner projects or financial contributions toward these mitigation measures.
4. We will defer further comment on the project until our review of the completed environmental assessment. We request that at least four (4) copies of the environmental assessment report be provided to permit simultaneous review by the appropriate DOT staff.

Mr. Kyle Ginoza
Page 2
September 5, 2007

STP 8.2606

We appreciate the courtesy of this early consultation and for the opportunity to provide comments.

Very truly yours,



BARRY FUKUNAGA
Director of Transportation



MICHAEL T. MUNEKIYO
GARY O. HIRAGA
MITSUO T. MUNEKIYO
KAZUO J. KAWANABA
MADE IN HAWAII BY

February 26, 2008

Brennon Morioka, Interim Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Morioka:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your department's letter (reference STP 8.2606) dated September 5, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

A traffic impact analysis report (TIAR) has been prepared for the project. The TIAR will be included in the Draft Environmental Assessment (EA). The TIAR identifies access points to the local roadway network, the anticipated project and regional impacts, and proposed mitigation measures the project will provide.

We appreciate the input we received from you. Four (4) copies of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 22 2007

LINDA LINGLE
GOVERNOR



ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

August 22, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Ginoza:

Subject: Proposed Kahoma Residential Subdivision
TMK No.: (2) 4-5-010: 005
Kihei, Maui, Hawaii

We have reviewed your transmittal dated August 21, 2007, requesting preliminary comments on the proposed development of the Kahoma Residential Subdivision.

Based upon preliminary review of the proposed development, we have the following comments:

1. We confirm that the subject parcel is located within the State Land Use Agricultural District.
2. Pursuant to §205-3.1(c), Hawai'i Revised Statutes (HRS) and given the location, scope, and nature of the proposed activity, I would expect that the County of Maui will need to consider all relevant aspects of the State Land Use Law (§205 HRS) and appropriate county regulations regarding the subdivision of land in processing this application.
3. As the proposed project may qualify for certification and processing as a fast-track affordable housing project under Chapter 201H-38, HRS, the proposed project should be processed first through the County of Maui prior to submission to the Land Use Commission.

We have no further comments to offer at this time. Thank you for the opportunity to comment on the proposed development. Please do not hesitate to contact Cameron Lowry of my office at 587-3822 should you require further assistance or clarification.

Sincerely,

A handwritten signature in black ink, appearing to read "Anthony J. H. Ching".
ANTHONY J. H. CHING
Executive Officer



MICHAEL T. MUNEKIYO
GIWU OYASHI HIRAGA
MITSUHIKO MUNEKIYO
KAZUYUKI KAWAHARA

MARK A. GRANBERG, RECIPIENT

February 26, 2008

Rodney Maile, Interim Executive Director
State of Hawai'i
State Land Use Commission
P.O. Box 2359
Honolulu, Hawai'i 96804

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Maile:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your office's letter dated August 22, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

The Draft Environmental Assessment (EA) for the project will contain detailed information addressing all relevant aspects of State Land Use Law (Chapter 205, Hawai'i Revised Statutes) and County community plan and zoning regulations.

The applicant will submit a Section 201H-38 application with the State Land Use Commission in seeking a district boundary amendment. Separately, the applicant will submit a Section 201H-38 application at the County level to secure County land use entitlements and exemptions. The applicant understands that these 201H-38 applications would not be processed until the Final EA is accepted.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.

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SEP 11 2007



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
LAURA H. THIELEN
DIRECTOR
OFFICE OF PLANNING

OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2848
Fax: (808) 587-2824

Ref. No. P-11905

September 10, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Subject: Proposed Kahoma Residential Subdivision
TMK: (2) 4-5-010: 005
Lahaina, Maui, Hawaii

Thank you for submitting your request for comments and early consultation on the above referenced proposal regarding development of 16.7 acres of land in Lahaina, Maui, Hawaii. The subject project proposes the development of 88 residential units, including 63 unattached single-family homes/parcels and 25 multi-family units.

The subject property comprises a long and narrow stretch of land, sandwiched between the Kahoma Stream Flood Control Channel to the north and a number of residential subdivisions to the south. A few hundred meters *makai* of the property's western boundary, Honoapiilani Highway runs in a north-south direction, with the Lahaina bypass road planned along a roughly parallel route just *mauka* of the parcel's eastern edge.

Because the proposed project may involve the use of government lands for roadway and utility connections, the applicant is preparing an Environmental Assessment (EA), for which it seeks early consultation comments from relevant agencies. The Office of Planning offers the following comments on issues of crosscutting State concern:

1. **State and County Plans** – Development of the proposed project will require reclassification of the subject property from the State Agricultural District to the State Urban District. Because the area proposed for development will presumably comprise more than 15 acres, such reclassification will be subject to the approval of the State Land Use Commission. Please discuss whether the proposed project is consistent with the standards for determining State Urban District boundaries, as outlined in §15-15-18, Hawaii Administrative Rules.

We recommend that the EA provide information about County plans for the subject property, including the parcel's current zoning, its classification under the West Maui Community Plan, and the status of any proposed amendments to such County designations.

2. **Water Supply** – Water resource protection is a critical State issue, particularly for the island of Maui. Please include information on the availability and capacity of potable and non-potable water sources for the project, plans for transmission and storage, and efforts to promote water conservation, including, if applicable, the use of recycled or irrigation water for landscaping and other non-domestic uses. In addition, please discuss coordination efforts and agreements reached with the Maui Department of Water Supply and, if necessary, the State Commission on Water Resource Management.
3. **Agricultural Lands** – Preservation of important agricultural lands is a priority for the State and Counties. As the subject property is currently classified within the State Agricultural District, we recommend that the applicant discuss how the loss of these farmlands can be justified, or how other agricultural lands of equal importance can be protected. Information should be provided about the productive value and agricultural potential of the subject property, based on the most commonly used rating schemes: the Agricultural Lands of Importance to the State of Hawaii (ALISH) system and the Land Study Bureau's (LSB) classifications for soil productivity. We also require that the applicant provide information about prior use of the land, with particular emphasis on current agricultural activity that may be displaced by development of the proposed project.
4. **Affordable Housing** – Increasing the supply of affordable housing is a critical State and County issue, particularly for the island of Maui, which has seen some of the highest home prices in the islands. The Maui County Council recently passed Ordinance No. 3418, codifying the County's residential workforce housing policy, which requires that at least 40 percent of new housing units be reserved and priced to accommodate lower-income groups. The proposed project would provide for the development of 88 residential units. We understand that all 25 of the proposed multi-family units and 28 of the 63 single-family homes will be designated as affordable, resulting in a total workforce housing component of 53 units or 60.2 percent. The proposal therefore exceeds the requirements set forth in Maui's residential workforce housing policy, and may qualify the project for certain exemptions and expedited processing available under Chapter 201H, Hawaii Revised Statutes, for housing projects that are primarily or exclusively designated for lower-income groups. We recommend that the applicant clarify whether it intends to seek the Chapter 201H exemptions for the proposed project.

5. **Transportation** – The State and County have serious concerns about the traffic implications associated with new developments. Please provide a Traffic Impact Analysis Report (TIAR) that: assesses current traffic conditions based on actual counts; projects future traffic conditions, incorporating cumulative impacts associated with the proposed project and any other developments currently planned for the region; describes relevant transportation improvements planned by the State and/or County, along with the status of such efforts; and proposes measures to mitigate the traffic generated by the proposed project. Of particular interest within the project region is the status of the Lahaina bypass road, which, according to our records, is slated to run just *mauka* of the subject property. Please discuss the Petitioner's efforts to coordinate project development and traffic mitigation with the State Department of Transportation and the County Department of Public Works.
6. **Ocean Resources** – The subject property is located roughly half a mile *mauka* of Maui's western shoreline. However, the proposed project lies immediately adjacent to the Kahoma Stream channel, a major *mauka–makai* waterway that flows from the West Maui mountains through Lahaina town, ultimately draining into the ocean near Mala Wharf. Due to high levels of turbidity, Kahoma Stream was included in the most recent (2004) list of "impaired waters" compiled by the State Department of Health, Environmental Planning Office. Please discuss the project's drainage systems as well as other measures and best management practices that will be undertaken to prevent stormwater runoff generated on site from flowing into the Kahoma Stream channel and the coastal waters beyond. Given the project's close connection to the ocean, the developers should take special care to ensure protection of the region's valuable coastal and marine resources, including the recreational and commercial activities at Mala Wharf, the sensitive corals located offshore, and the coastal reaches of the Hawaiian Islands Humpback Whale National Marine Sanctuary.
7. **Public Health** – If the project will have the potential to generate hazardous materials or result in the possible contamination of the air, soil or water, the EA should explain how public health and safety will be protected. We note that the agricultural history of the subject property may necessitate soil testing to detect elevated levels of fertilizers, pesticides, and other contaminants with the potential to impact the proposed use.

Please discuss the wastewater disposal systems for the project. Because individual wastewater systems have the potential to pollute and contaminate coastal waters, we encourage developers to install a project connection to the County's sewage treatment facility. Please provide estimates of the wastewater flow to be generated by the project and current capacity at the Lahaina Wastewater Reclamation Facility. We recommend that the applicant note the status of any discussions with the Maui

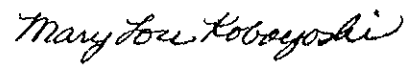
Department of Environmental Management regarding contributions toward maintenance and improvement of the County wastewater system.

8. **Cultural/Historic Resources** – The State has a duty to protect archaeological resources and cultural access rights. The EA should include an archaeological inventory survey that identifies historically significant sites and recommends appropriate monitoring and preservation measures as necessary. Such study should be submitted to the State Historic Preservation Division for review and approval. A cultural impact assessment should also be conducted to identify any cultural resources, customary practices, or historically significant landmarks associated with the project site. Where relevant, please discuss how traditional access rites will be preserved for Native Hawaiians.
9. **Environmental, Recreational, and Scenic Resources** – An inventory of flora and fauna on the project site should be completed. Please discuss the findings of those studies and any proposed protections for important species. The reports should include an assessment of any aquatic life associated with Kahoma Stream, which runs directly adjacent to the project site. In addition, please include a description of scenic resources and recreational uses on or near the subject property.
10. **Education** – Although Act 245, Session Laws of Hawaii 2007, has established a formal process for determining educational impact fees, that law applies only to designated “school impact districts,” the identification of which may take a year or more to complete. Until that process has been finalized, education contribution agreements must continue to be negotiated on a case-by-case basis between developers and the DOE. We therefore recommend that the EA estimate the increase in school enrollment associated with the project and discuss the status of negotiations with the Hawaii Department of Education (DOE) toward Petitioner’s fair-share contribution.
11. **Coastal Zone Management** – The State oversees protection of natural and cultural resources within the coastal zone. Although the subject property is located outside the Special Management Area, the adjacent Kahoma Stream channel provides a direct connection between the project site and the ocean. Please discuss any impact the proposed project may have on coastal and marine resources, and how the project will balance the competing values of economic development and preservation of coastal resources, including protection from flood hazard and soil erosion. As noted previously, we recommend that the applicant discuss the potential impact of project-generated runoff and non-point source pollution on nearshore waters and coastal resources, with a detailed explanation of the stormwater management systems that will be implemented to minimize this impact.

Mr. Kyle Ginoza
Page 5
September 10, 2007

The Office of Planning looks forward to receiving the EA addressing potential impacts and mitigation measures relative to the issues raised above. If you have any questions, please contact the Land Use Division at 587-2842.

Sincerely,



Mary Lou Kobayashi
Planning Program Administrator

c: Anthony Ching, Land Use Commission



MICHAEL T. MURKIN
GUYEN O. HIRAGA
MITSUHIKO "MIKI" HIRANO
KAREN P. KAWAHARA

MAIL ADDRESS BOX

February 26, 2008

Mary Lou Kobayashi, Planning Program Administrator
Department of Business, Economic
Development & Tourism
Office of Planning
State of Hawai'i
P. O. Box 2359
Honolulu, Hawai'i 96804

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i; Reference No. P-11905

Dear Ms. Kobayashi:

We are writing to you on behalf of the applicant, West Maui Land Company, to thank you for your letter dated September 10, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

On behalf of the applicant, we would like to provide the following information to help address your comments, following the order set forth in your letter:

1. **State and County Plans** – We acknowledge that the project comprises an area over 15 acres and, as such, the reclassification of land from agricultural to urban will be subject to the approval of the State Land Use Commission. The Draft Environmental Assessment (EA) for the project will discuss consistency with State Urban District standards, as outlined in Section 15-15-18, Hawai'i Administrative Rules. In addition, the subject property's current zoning and West Maui Community Plan designation will be evaluated in detail in the Draft EA.
2. **Water Supply** – The applicant will initiate dialogue with the County of Maui, Department of Water Supply (DWS) to discuss drinking and non-drinking water source and transmission coordination efforts. The applicant intends to dedicate the water transmission system to the DWS upon completion of the improvements. The Draft EA will address issues relating to water provision, including source, storage, and transmission. The applicant would like to note that they plan to undertake water conservation measures, where appropriate. A discussion of coordination activities with the DWS will be included in the Draft EA.

3. **Agricultural Lands** – The Draft EA will include a discussion of the agricultural designations of the land according to the Agricultural Lands of Importance to the State of Hawai'i (ALISH) and the Land Study Bureau (LSB) classification systems. Decades ago, the prior use of the land was for sugar cane cultivation and the land is currently fallow.
4. **Affordable Housing** – The proposed development will provide affordable housing, as required by applicable County of Maui affordable housing policies. The applicant has been coordinating with the County of Maui, Department of Housing and Human Concerns and the County of Maui Housing Commissioner to ensure the fulfillment of affordable housing requirements. The Draft EA will include a discussion on how the proposed subdivision will satisfy the requirements. The applicant intends on utilizing the 201H process with both the State Land Use Commission and the County of Maui. A discussion of the proposed 201H exemptions will be included in the Draft EA.
5. **Transportation** – The applicant has contracted with Wilson Okamoto Corporation, for preparation of a Traffic Impact Analysis Report (TIAR), which will address issues relating to traffic impacts generated and traffic mitigation measures proposed by the project. The Draft EA will include the findings of the report and a copy of the report will be attached as an appendix. The TIAR addresses the status of the State Lahaina Bypass Highway development. Additionally, the applicant has been in discussions with the County of Maui, Department of Public Works to coordinate project development and traffic mitigation measures. The Draft EA will include a discussion of these efforts.
6. **Ocean Resources** – The applicant recognizes the importance of the ocean resources in the vicinity of the subject project, particularly the Hawaiian Islands Humpback Whale National Marine Sanctuary. National Pollutant Discharge System (NPDES) and/or other permits will be obtained, as applicable, during the building permit and subdivision review processes. A more detailed discussion regarding State of Hawai'i, Department of Health guidelines and engineering Best Management Practices (BMPs), which will be utilized to mitigate potential drainage and runoff impacts to downstream properties, the Kahoma Stream, and coastal ecosystems, will be discussed in the Draft EA.
7. **Public Health** – As applicable, appropriate mitigation measures will be implemented and BMPs will be utilized where possible, to minimize infiltration and runoff from construction activities. The Draft EA will include a discussion on the wastewater system including estimates of flow. The Kahoma Residential Subdivision will connect to the County wastewater system. The applicant has

initiated discussions with the County of Maui, Department of Environmental Management regarding wastewater capacity and project requirements. The Draft EA will include a discussion of these efforts.

8. **Cultural/Historic Resources** – The Archaeological Inventory Survey report was submitted to the State Historic Preservation Division (SHPD). The SHPD's findings, as well as the Archaeological Inventory Survey report, will be included in the Draft EA. Moreover, the Draft EA will include a discussion of the Native Hawaiian traditional and customary practices in the area, as applicable. The Cultural Impact Assessment report will be included in the Draft EA as an appendix.
9. **Environmental, Recreational, and Scenic Resources** – The Draft EA will include a discussion of the inventory of flora and fauna at the project site. Additionally, a copy of the flora and fauna study will be included in the Draft EA as an appendix. There is no aquatic life associated with the Kahoma Stream that borders the project to the north, as the stream is normally dry. Lastly, the Draft EA will include a discussion of the scenic resources and recreational uses on or near the project site.
10. **Education** – The applicant is aware that the 2007 State Legislature established a formal process for determining educational impact fees. As a 100 percent affordable development, the applicant will seek a 201H exemption from the payment of school impact fees.
11. **Coastal Zone Management** – The Draft EA will include a discussion of any potential impact to coastal and/or marine resources, economic development, and preservation of coastal resources, including protection from flood hazard and soil erosion, associated with the proposed project.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Mary Lou Kobayashi, Planning Program Administrator
February 26, 2008
Page 4

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Kyle Ginoza", with a long horizontal flourish extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 29 2007



The Senate

STATE CAPITOL
HONOLULU, HAWAII 96813

August 28, 2007

COLLEEN HANABUSA
PRESIDENT

DONNA MERCADO KIM
VICE PRESIDENT

GARY L. HOOSER
MAJORITY LEADER

FRED HEMMINGS
MINORITY LEADER

FIRST DISTRICT
LORRAINE R. INOUE

SECOND DISTRICT
RUSSELL S. KOKUBUN

THIRD DISTRICT
PAUL WALEN

FOURTH DISTRICT
SHAN S. TSUTSUI

FIFTH DISTRICT
ROSALYN H. BAKER

SIXTH DISTRICT
J. KALANI ENGLISH

SEVENTH DISTRICT
GARY L. HOOSER

EIGHTH DISTRICT
SAM SLOM

NINTH DISTRICT
LES HARA, JR.

TENTH DISTRICT
BRIAN T. TANIGUCHI

ELEVENTH DISTRICT
CAROL FUKUNAGA

TWELFTH DISTRICT
GORDON TRIMBLE

THIRTEENTH DISTRICT
SUZANNE CHUN OAKLAND

FOURTEENTH DISTRICT
DONNA MERCADO KIM

FIFTEENTH DISTRICT
NORMAN SAKAMOTO

SIXTEENTH DISTRICT
DAVID Y. IGE

SEVENTEENTH DISTRICT
RON MENOR

EIGHTEENTH DISTRICT
CLARENCE K. NISHIHARA

NINETEENTH DISTRICT
MIKE GABBARD

TWENTIETH DISTRICT
WILL ESPERO

TWENTY-FIRST DISTRICT
COLLEEN HANABUSA

TWENTY-SECOND DISTRICT
ROBERT BUNDA

TWENTY-THIRD DISTRICT
CLAYTON HEE

TWENTY-FOURTH DISTRICT
JILL N. TOKUDA

TWENTY-FIFTH DISTRICT
FRED HEMMINGS

CHIEF CLERK
CAROL TANIGUCHI

Mr. Kyle Ginoza
Project Manager
Kahoma Residential Subdivision
Munekiyo & Hiraga Inc.
305 South High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza,

I am in receipt of your letter requesting my comments on the proposed development of an 88-unit Kahoma Residential Subdivision in Lahaina, Maui. The project looks like an interesting and potentially fruitful collaboration between West Maui Land Company, Lokahi Pacific and the Habitat for Humanity in the creation of much-needed affordable housing. The proposed subdivision seems an appropriate fill-in project for the land-use you have specified.

Thank you so much for taking the time to request my comments. I am always interested in projects that can provide affordable housing for Maui's workforce without adverse impact on the environment or the community.

Me ke aloha pumehana,

A handwritten signature in black ink, appearing to read "Rosalyn H. Baker".

Rosalyn H. Baker

SENATOR

5th District – South and West Maui

Council Chair
G. Riki Hokama

Vice-Chair
Danny A. Mateo

Council Members
Michelle Anderson
Gladys C. Balsa
Jo Anne Johnson
Bill Kauakea Medeiros
Michael J. Molina
Joseph Pontanilla
Michael P. Victorino



COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/council

SEP 06 2007
Director of Council Services
Ken Fukuoka

September 4, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Ginoza:

SUBJECT: Proposed Kahoma Residential Subdivision
Tax Map Key (2)4-5-010:005, Lahaina, Maui, Hawaii

Thank you for the opportunity to provide early consultation comments for the proposed Kahoma Residential Subdivision.

After review of the preliminary proposal, I have no comments at the present time.

Sincerely,

A handwritten signature in black ink that reads "Joseph Pontanilla".

JOSEPH PONTANILLA,
COUNCIL MEMBER

SEP 11 2007



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

September 7, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyō & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**SUBJECT: Proposed Kahoma Residential Subdivision
TMK (2) 4-5-010:005, Lahaina, Maui, Hawai'i**

We have reviewed your August 10, 2007 early consultation letter and enclosures for the subject project and would like to offer the following comments:

1. West Maui Land Company, Inc. is proposing to develop 16.7 acres of land for the construction of an 88-unit residential subdivision. The project will consist of 63 single-family residential units (of which 28 shall be designated affordable) and 25 multi-family residential units (all of which shall be designated affordable). Of the proposed 88 units, 53 units shall be designated affordable.
2. Since the proposed project will involve the subdividing 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.

Thank you for the opportunity to comment.

Sincerely,

Handwritten signature of Vanessa A. Medeiros in cursive.

VANESSA A. MEDEIROS
Director of Housing and Human Concerns

xc: Assistant Housing Administrator



MICHAEL T. MUNEKIYO
GIVEN OHASHI HIRAGA
MITCHELL "MIKE" HIRANO
KAROLYN KAWANABE

MARIE ALEXANDER BOY

February 26, 2008

Vanessa A. Medeiros, Director
Department of Housing and Human Concerns
County of Maui
200 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Ms. Medeiros:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 7, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:


1. The applicant acknowledges that the proposed project will be subject to the requirements of Chapter 2.96, Maui County Code, regarding the Maui Residential Workforce Housing Policy.
2. The applicant will coordinate with the department in the development of an affordable housing agreement, which sets forth the detailed terms and conditions of compliance with the residential workforce policy.

We appreciate the input from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Vanessa A. Medeiros, Director
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Kyle Ginoza", written over a horizontal line.

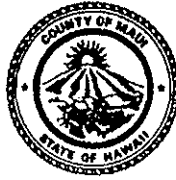
Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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CHARMAINE TAVARES
Mayor



SEP 14 2007

TAMARA HORCAJO
Director

ZACHARY Z. HELM
Deputy Director

(808) 270-7230
Fax (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nako'a Street, Unit 2, Wailuku, Hawaii 96793

September 10, 2007

Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**SUBJECT: PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
LAHAINA, MAUI, HAWAII
TMK: (2) 4-5-010:005**

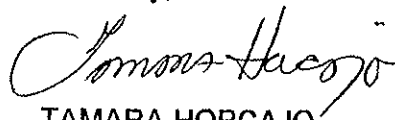
Thank you for the opportunity to review and comment on the subject project. Pursuant to Section 18.16.320, Maui County Code, the project will be subject to park assessment requirements. Our Department will be requiring the applicant to satisfy these requirements with a cash contribution in lieu of land.

The current parks and playgrounds assessment fee rate for the West Maui Community Plan Area is \$26,795.00 per lot in excess of three (3). Utilizing the 3-lot/unit exemption, the parks and playgrounds assessment fee for the subject eighty-eight (88) lot/unit project is **\$2,277,575.00** [\$26,795.00/lot or unit x (88-3) lot/unit].

The aforementioned rate and fees, are valid until June 30, 2008 and are subject to change. The applicant is required to satisfy the applicable parks and playgrounds requirements at the time of final subdivision approval.

Should there be any questions, please contact Karla Peters, of our Parks Planning and Development Division, at 270-7981.

Sincerely,


TAMARA HORCAJO
Director

c: Patrick Matsui, Chief of Parks Planning and Development



MICHAEL T. MUNEKIYO
GIVEN, ORIZO, HIRAGA
MITSURU, MITSU HIRANO
KAORI, KAWABARA

MAIL ADDRESS: BLDG

February 26, 2008

Tamara Horcajo, Director
Department of Parks and Recreation
County of Maui
700 Hali'a Nakoia Street, Unit 2
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Ms. Horcajo:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 10, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

The applicant acknowledges that, pursuant to Maui County Code Section 18.16.320, the project will be subject to the parks and playgrounds assessment requirements. We understand that the parks and playgrounds assessment fee amount of \$26,795.00 per lot in excess of three (3) lots for the West Maui Community Plan area is only valid until June 30, 2008.

The applicant intends on submitting a 201H application for this project, which consists of 100 percent affordable units. The applicant will seek exemption from the parks and playgrounds assessment fees for the project. A discussion on the proposed exemptions will be included in the Draft Environmental Assessment (EA).

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Tamara Horcajo, Director
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'K. Ginoza', with a long horizontal line extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

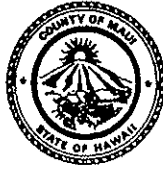
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CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

COLLEEN M. SUYAMA
Deputy Director

SEP 28 2007



COUNTY OF MAUI
DEPARTMENT OF PLANNING

September 25, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**SUBJECT: PRE-CONSULTATION COMMENTS IN PREPARATION OF
A DRAFT ENVIRONMENTAL ASSESSMENT FOR THE
PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
LOCATED AT TMK: 4-5-010:005, LAHAINA, MAUI, HAWAII
(EAC 2007/0028)**

The Maui Planning Department (Department) is in receipt of the above-referenced document for the proposed Kahoma Residential Subdivision. The Department understands the proposed action includes the following:

- West Maui Land Company proposes the development of 88 residential units on approximately 16.7 acres of land;
- The project will be comprised of 63 single-family residential units and 25 multi-family unit as well as a neighborhood park;
- 28 of the single-family residential units will be designated affordable pursuant to Maui Residential Workforce Housing Policy (MRWHP); and
- All of the 25 multi-family units will be affordable pursuant to the MRWHP. These 25 units will be developed by Lokahi Pacific and Habitat for Humanity.

Based on the foregoing, the Department provides the following comments in preparation of the Draft EA:

1. The land use designations for the project area are as follows:

- a. State Land Use – Agricultural
 - b. Community Plan – Open Space & Bike Path
 - c. County Zoning – Agricultural
 - d. Other – Located outside of the Special Management Area and the Lahaina National Historic Land Mark District.
2. Petitions to reclassify lands designated Agricultural that are 15 acres or greater are processed by the Land Uses Commission (LUC);
 3. The Maui Planning Commission may not be the accepting authority for the Environmental Assessment as the only administrative action is the proposed reclassification of lands designated State Agricultural. This action is taken by the LUC. The Office of Environmental Quality Control (OEQC) should be consulted to determine the appropriate accepting authority for the environmental assessment;
 4. The current Community Plan designation of Open Space was identified as Matrix Item #29 and adopted as part of West Maui Community Plan update in 1996.
 5. The current Community Plan designation of Bikeway was identified as Matrix Item #3 and adopted as part of the West Maui Community Plan update in 1996.
 6. The document should contain a thorough discussion of the relationship of the proposed project with the Lahaina Town Village Drainage Master Plan developed by Maui County.
 7. The document should contain a thorough discussion of the proposed project with the West Maui Community Plan. At a minimum, the following elements should be discussed:

ENVIRONMENT

6. Integrate stream channels, gulches and other areas deemed unsuitable for development into the region's open space system for the purposes of safety, open space relief, greenways for public use and visual separation. Existing development of the stream channels, gulches and other areas shall be maintained and shall not be expanded. Drainage channels and siltation basins should not be considered for building sites, but used, rather, for public open space.

Mr. Kyle Ginoza
September 25, 2007
Page 3

The following major streams and gulches, as named on the United States Geologic Survey topographic maps (Lahaina and Honolua, Hawaii, 7.5 minute series, 1:24,000 scale), are to be kept as open space;

a. Kahoma Stream.....

URBAN DESIGN

5. Integrate stream channels and gulches into the region's open space system for the purposes of safety, open space relief, greenways for public use and visual separation. Drainage channels and siltation basins should not be used for building sites, but, rather, for public open space. Drainage channel rights-of-way and easements may also be used for pedestrian walkways and bikeway facilities.

8. With the ongoing update of the Maui General Plan and subsequent Community Plan updates, the Department may not support the proposed Community Plan Amendment from Open Space and Bikeway at this time pending the outcome of the West Maui Community Plan Update currently scheduled for 2008.

Thank you for the opportunity to comment. Please include the Department on the distribution list for the Draft EA. Should you require further clarification, please contact Staff Planner. Robyn Loudermilk by email at robyn.loudermilk@mauicounty.gov or by phone at 270-7180.

Sincerely,



Jr JEFFREY S. HUNT, AICP
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator
Robyn L. Loudermilk, Staff Planner
Joe Krueger, Department of Public Works

JSH:RLL:bv

EA Project File
General File

K:\WP_DOCS\PLANNING\EAC\2007\0028_KahomaResidential\comments.wpd



MICHAEL T. MUNRO
GLENN ORASHI HIRAGA
MICHELE "MIMI" HIRANO
KAROLYN KAWAHARA

MARK ALEXANDER ROSS

February 26, 2008

Jeffrey S. Hunt, AICP
Planning Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Hunt:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 25, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. We concur with the land use designations listed in your letter.
2. We understand that petitions to reclassify lands designated Agricultural that are 15 acres or greater are processed by the State Land Use Commission.
3. After consultation with the County Department of Housing and Human Concerns (DHHC), the DHHC will be the accepting agency for the Environmental Assessment (EA).
4. We acknowledge that the subject property is designated as Open Space in the West Maui Community Plan.
5. We further acknowledge that a Bikeway is aligned through the subject property in the West Maui Community Plan.
6. The proposed project will retain additional post-development drainage flows onsite. In other words, no additional flows will be drained into the Kahoma Stream Flood Control Channel to the north or the Lahaina Watershed project to the south.

Jeffrey S. Hunt, AICP
Planning Director
February 26, 2008
Page 2

7. With the implementation of the fortified concrete Kahoma Stream Flood Control Channel, the 100-year and 500-year flood areas are contained within the channel. Therefore, the subject property is not located within a portion of the adjacent stream or drainage channel. A public bicycle path and walking trail will be developed along the northern boundary of the Kahoma Residential project.
8. The applicant will first seek a District Boundary Amendment from the State Land Use Commission. We acknowledge that the West Maui Community Plan Update is scheduled for 2008.

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

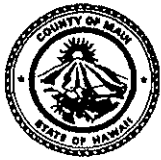


Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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CHARMAINE TAVARES
MAYOR

OUR REFERENCE
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

SEP 13 2007



THOMAS M. PHILLIPS
CHIEF OF POLICE

GARY A. YABUTA
DEPUTY CHIEF OF POLICE

August 20, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Ginoza:

SUBJECT: Proposed Kahoma Residential Subdivision
TMK (2) 4-5-010:005, Lahaina, Maui, Hawaii

Thank you for your letter of August 10, 2007, requesting comments on the above subject.

We have reviewed the information submitted for this project and would like to defer and comments and/or recommendations until the draft for the Environmental Assessment is completed and submitted by the applicant. Thank you for giving us the opportunity to comment on this project.

Very truly yours,

Assistant Chief Wayne T. Ribao
for: Thomas M. Phillips
Chief of Police

Enclosure
c: Jeff Hunt, Planning Department

COPY

TO : THOMAS PHILLIPS, CHIEF OF POLICE
VIA : CHANNELS @ 8/15/07
FROM : RICKY UEDO, SERGEANT, LAHAINA PATROL DIVISION
SUBJECT : PROPOSED KAHOMA RESIDENTIAL SUBDIVISION

CONCUR:
AC [Signature]
08/16/07

This form of communication is being forwarded to your office regarding a request for early consultation for a proposed Kahoma Residential Subdivision. The applicant is proposing a development of an 88-unit subdivision in Lahaina. The subject property comprises approximately 16.7 acres.

At this time, there is no input for an early consultation on the proposed project from the police standpoint; therefore, I would recommend that we defer this matter until we receive the draft for the Environmental Assessment from the applicant. At that time, we can address any concerns that the police may have.

Submitted for your information.

Respectfully submitted,

[Signature]

Sgt. Ricky E. Uedoi #1512
Lahaina Patrol Division
August 15, 2007 @ 1030 hours

SEP 06 2007

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

August 31, 2007

Mr. Kyle Ginoza
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Ginoza:

SUBJECT: PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
TMK: (2) 4-5-010:005

We reviewed the subject application and have the following comments:

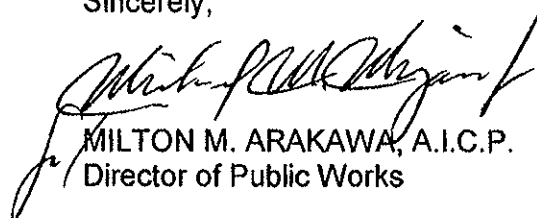
1. A detailed review will be conducted upon submittal of appropriate documents.
2. It is unclear from the figure as to the project site's property relationship to the Kahoma Flood Control Facility access road along Kahoma Stream. In any case, access must be provided and the access road must be kept clear for use by County heavy equipment to access the Kahoma Stream Flood Control facility for maintenance.
3. The U.S. Army Corps of Engineers has concerns regarding projects adjacent to projects they design, such as the Kahoma Stream Flood Control Facility. We would recommend that they be included in the agencies to review projects such as this one, adjacent to the Kahoma Stream Flood Control Facility. Of particular interest may be the deletion of the Existing Easement A which is being proposed to be deleted or relocated, and which was a requirement of the original Kahoma Stream project design.

Mr. Kyle Ginoza
August 31, 2007
Page 2

4. Trees and shrubs cannot be planted adjacent to the access road, such that the landscaping's roots grow into the access road. A root barrier will be required at the boundary between the project's property and the Kahoma Stream access road, paralleling the entire length of Kahoma Stream. ok
5. We would not have any objections if the developer chose to grass and maintain our access road to minimize dust.
6. We would like to suggest that the 21,571 square foot County lot denoted as the "Old Kahoma Stream" on Figure 3, be swapped for additional buffer space between the Kahoma Stream and the adjoining development. I do not believe that parcel serves any useful purpose for the County and would be problematic for future maintenance. However, I would suggest that other agencies review to see if they have need of the property.
7. Clarify access to the proposed development as the timing of the Mill Street extension is uncertain.
8. It may be beneficial to have an additional access to the proposed development in the vicinity of the Existing Easement A and Lui Street. In the present configuration, the project access is an extended cul-de-sac without another egress point. Any blockages of the road on the makai portion of the road would "trap" all users mauka of the blockage.
9. Indicate whether the project roadway is intended to be kept under private ownership and maintenance or proposed for dedication to the County of Maui.

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: Engineering Division
Highways Division

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MICHAEL T. MUNEKIYO
GWEN DUNN HIRAGA
MITSUO "MIKE" HIRAGA
KAZUHIKO KAWAHARA
MILTON ARAKAWA, B.S.

February 26, 2008

Milton M. Arakawa, A.I.C.P.
Director of Public Works
County of Maui
Department of Public Works
200 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Arakawa:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 31, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. We acknowledge that a detailed review will be conducted upon submittal of appropriate documents.
2. Fencing will be installed between the limits of the proposed project and the Kahoma Stream Flood Control facility. The existing access road along the southern side of the flood control facility will not be altered by the proposed project.
3. We acknowledge that the U.S. Army Corps of Engineers would want to be consulted to review projects such as this one, and as such, we sent an early consultation to the Department of Army. We note that Easement A, which traverses the mauka portion of the property, is no longer in existence. The agreement which created Easement A auto-terminated a number of years ago.
4. We acknowledge that trees and shrubs cannot be planted next to the access road along the Kahoma Stream Flood Control facility and understand that a root barrier may be required at the boundary between the access road and the project site.
5. We note that the department would not have any objections if the developer chose to grass and maintain the access road to minimize dust.

Milton M. Arakawa, A.I.C.P.
Director of Public Works
February 26, 2008
Page 2

6. The applicant is exploring acquisition of the 21,571 square foot lot.
7. The applicant will be funding the construction of the portion of the Mill Street extension between the project site and Keawe Street.
8. The site plan has been revised to include an additional access point near Lui Street.
9. The project roadway is intended to be designed and constructed to County standards for subsequent dedication to the County of Maui.

We appreciate the input from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 31 2007

CHARMAINE TAVARES
MAYOR



DON A. MEDEIROS
Director
WAYNE A. BOTEILHO
Deputy Director
Telephone (808) 270-7511
Facsimile (808) 270-7505

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
200 South High Street
Wailuku, Hawaii, USA 96793-2155

August 28, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

**SUBJECT: PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
(TMK (2) 4-5-010:005, LAHAINA, MAUI, HAWAII)**

Dear Mr. Ginoza:

Thank you for the opportunity to comment on this project.

Should the opportunity present itself, the Department of Transportation requests the consideration of a bus stop for this project, perhaps even a street cut-out. We believe you have an opportunity to build a walkable community. Residents of the area will be able to bus to and from work, and they'll be able to shop at the commercial areas nearby. If done right, your project could become a very desirable place to live.

Please do not hesitate to contact me at 270-7511 if I can be of any assistance or clarification.

Sincerely,

A handwritten signature in cursive script, appearing to read "Don Medeiros".

DON MEDEIROS
Director of Transportation



MICHAEL T. MUNEKIYO
GWEN ORASHI HIRAGA
MITSURU "MIKE" HIRANO
KAZUYUKI KAWAHARA

MAUI ALEXANDER BOX

February 26, 2008

Don Medeiros, Director
Department of Transportation
County of Maui
200 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Medeiros:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 28, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

This project is local residential housing development, where 100 percent of the units will be in the affordable price range. As such, the applicant is trying to minimize costs for the development. Nonetheless, your request for consideration of a bus stop either within or adjacent to the project site will be forwarded to the project civil engineer.

We appreciate the input from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, R. T. Tanaka Engineers, Inc.

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SEP 05 2007

CHARMAINE TAVARES
Mayor



JEFFREY K. ENG
Director
ERIC H. YAMASHIGE, P.E., L.S.
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauewater.org

August 27, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

SUBJECT: Proposed Kahoma Residential Subdivision
TMK: (2) 4-5-010:005, Lahaina, Hawaii

Dear Mr. Ginoza:

Thank you for the opportunity to participate in the Environmental Assessment early consultation process for the above stated project proposal.

Source Availability and Consumption

The project area is served by our Lahaina system. The main sources of water for this portion of the system are wells withdrawing from Launiupoko aquifer and surface water from Kanaha Stream. DWS does not grant or imply any guarantee of water until an application for water meter has been received and reviewed. Additional water for development is not currently available at the Lahaina system pending completion of new source projects. However, water availability will be determined at time of meter application. DWS will not issue reservations for future meters until new development efforts which include the expansion of Lahaina and Mahinahina Water Treatment Plants are completed.

The EA should address anticipated potable and non-potable water use for the proposed development. Anticipated daily consumption would be in the range of 51,800 to 83,500 gallons based on system standards. However, empirical usage information for Lahaina suggests that actual demand will likely be higher.

System Infrastructure

The applicant will be required to provide domestic and irrigation services as well as fire protection in accordance with system standards. Required fire flow for residential subdivisions is 1000 gallons per minute at 350 feet spacing for a 2 hour duration.

Conservation

In order to reduce demand in the Lahaina system, we recommend that the following water conservation measures be included in the EA:

"By Water All Things Find Life"

The Department of Water Supply is an Equal Opportunity provider and employer. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington DC 20250-9410. Or call (202) 720-5964 (voice and TDD)



Mr. Kyle Ginoza
Proposed Kahoma Residential Subdivision

Use brackish and/or reclaimed water sources for dust control and for all non-potable water uses during various phases of construction. Reclaimed water is readily available at the Lahaina Wastewater Reclamation Facility.

Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.

Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets, and hose bibs. Water conserving washing machines, ice-makers and other units are also available.

Use Climate-adapted Plants: The project is located in the "Maui County Planting Plan"- Plant Zones 3, 4, & 5. We encourage the applicant to utilize appropriate native and non invasive species in landscaping. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. Please refer to the attached brochure: "Saving Water in the Yard- What and How to Plant in Your Area".

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip".

Limit Irrigated Turf: Limit irrigated turf to 25% or less of total landscaped area. Low-water use shrubs and ground covers can be equally attractive and require substantially less water than turf.

Look for Opportunities to Conserve Water: A few examples of these are as follows: When clearing driveways, etc. of debris, use a broom instead of a hose; check for leaks in faucets and toilet tanks.

Pollution Prevention

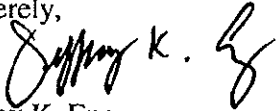
The project overlies the Launiupoko aquifer which has an estimated sustainable yield of 8 MGD of potable water. In order to protect ground and surface water resources, we recommend that the applicant utilize Best Management Practices (BMPs) designed to minimize infiltration and runoff from construction and vehicle operations. We ask the applicant to take precautionary measures during construction to prevent construction materials and debris and eroded soils from entering the Kahoma Stream. We have attached sample BMPs for principle operations for reference. Additional mitigation measures are enumerated below and should be implemented during construction:

1. Prevent cement products, oil, fuel and other toxic substances from falling or leaching into the water.
2. Properly and promptly dispose of all loosened and excavated soil and debris material from drainage structure work.
3. Retain ground cover until the last possible date.
4. Stabilize denuded areas by sodding or planting as soon as possible. Replanting should include soil amendments, fertilizers and temporary irrigation. Use high seeding rates to ensure rapid stand establishment.
5. Avoid fertilizers and biocides, or apply only during periods of low rainfall to minimize chemical run-off.
6. Keep run-off on site.

Mr. Kyle Ginoza
Proposed Kahoma Residential Subdivision

Should you have any questions regarding system infrastructure and requirements, please call our Engineering Division at 270-7835 and any questions on source availability or conservation and resource matters, please contact our Water Resources and Planning Division at 244-8550.

Sincerely,



Jeffrey K. Eng
Director
eam

c: engineering division

applicant, with attachments:

The Costly Drip

Maui County Planting Plan - Saving Water in the Yard - What and How to Plant in your Area

Ordinance No. 2108 - A Bill for an Ordinance Amending Chapter 16.20 of the Maui County Code, Pertaining to the Plumbing Code

Selected BMP's from "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters"-EPA

A Checklist of Water Conservation Ideas for the Home and Yard

D:\My Documents\Districts\Lahaina\Lahaina_comment\EA_EIS_DEA early cons\Kahoma Residential Subdivision_EA_pre_cons.wpd



MICHAEL T. MURKIN
GWYN DUNN HIRAGA
MITSURU "MICK" HIRANO
KARUHO KAWAHARA

MARK A. LEWIS BOY

February 26, 2008

Jeffrey K. Eng, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Eng:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 27, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

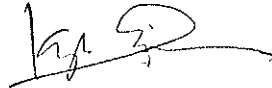
1. We acknowledge that County water availability will be determined at the time of water meter application. The proposed project will utilize County water to satisfy its daily consumption requirements.
2. We note that the required fire flow for residential subdivisions is 1,000 gallons per minute at 350 feet spacing for a two (2) hour duration.
3. We will forward the suggested water conservation measures to the applicant for incorporation into the landscaping design of the project, as applicable.
4. A list of the Best Management Practices (BMPs) which will be utilized for the project may be found in the Preliminary Civil Engineering and Drainage and Erosion Control Report in the Draft Environmental Assessment (EA).

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Jeffrey K. Eng, Director
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Kyle Ginoza", with a long horizontal flourish extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

F:\DATA\Kahoma\EmpeeHsg\DWSEcl.resp.wpd

X. REFERENCES

X. REFERENCES

- County of Maui, The General Plan of the County of Maui, September 1990 Update.
- County of Maui, West Maui Community Plan, February 1996.
- County of Maui, Office of Economic Development, Maui County Data Book, December 2006.
- Federal Emergency Management Agency, Flood Insurance Rate Map Community/Panel No. 150003 0161C and 0163C, August 1998.
- Hobby, Robert W., Biological Resources Survey, August 2005.
- Munekiyo & Hiraga, Inc., Draft Environmental Assessment Proposed Keawe Street Extension, January 2006.
- R.T. Tanaka Engineers, Inc., Preliminary Civil Engineering and Drainage and Erosion Control Report, October 2007.
- Realtors Association of Maui, Facts and Figures website, http://www.mauiboard.com/facts_figures.html , 2007.
- SMS, Maui County Community Plan Update Program: Socio-Economic Forecast, June 2006.
- Scientific Consultant Services, Inc., An Archaeological Assessment for 16.8-Acres in Lahaina, Makila Ahupua`a, Lahaina District, Maui Island, November 2005.
- State of Hawai`i, Department of Agriculture, Agricultural Lands of Importance to the State of Hawai`i, January 1977.
- State of Hawai`i, Department of Labor and Industrial Relations, <http://hawaii.gov/labor>, June 2007.
- State of Hawai`i, Land Use Commission, <http://luc.state.hi.us/>, October 2006.
- University of Hawai`i, Land Study Bureau, Detailed Land Classification, Island of Maui, May 1967.
- U. S. Department of Agriculture, Soil Conservation Service, The Soil Survey of the Islands of Kaua`i, O`ahu, Maui, Moloka`i and Lana`i, State of Hawai`i, August 1972.

APPENDIX A.

U.S. Department of Housing and Urban Development Description of Materials

Proposed Construction

DESCRIPTION OF MATERIALS

No. _____
(To be inserted by Agency)

Under Construction

Property address _____ City _____ State _____

Mortgagor or Sponsor _____
(Name) _____ (Address) _____

Contractor or Builder _____
(Name) _____ (Address) _____

INSTRUCTIONS

1 For additional information on how this form is to be submitted, number of copies, etc., see the instructions applicable to the FHA Application for Mortgage Insurance, VA Request for Determination of Reasonable Value or other, as the case may be

2 Describe all materials and equipment to be used, whether or not shown on the drawings, by marking an X in each appropriate check-box and enter the information called for in each space. If space is inadequate enter "See misc." and describe under item 27 or on an attached sheet. THE USE OF PAINT CONTAINING MORE THAN THE PERCENT OF LEAD BY WEIGHT PERMITTED BYLAW IS PROHIBITED.

3. Work not specifically described or shown will not be considered unless

required, then the minimum acceptable will be assumed. Work exceeding minimum requirements cannot be considered unless specifically described

4 Include no alternates, "or equal" phrases, or contradictory items. (Consideration of a request for acceptance of substitute materials or equipment is not thereby precluded.)

5 Include signatures required at the end of this form

6. The construction shall be completed in compliance with the related drawings and specifications, as amended during processing. The specifications include this Description of Materials and the applicable building code.

1. EXCAVATION:

Bearing soil, type _____

2. FOUNDATIONS:

Footings: concrete mix _____; strength psi _____ Reinforcing _____

Foundation wall: material _____ Reinforcing _____

Interior foundation wall: material _____ Party foundation wall _____

Columns: material and sizes _____ Piers: material and reinforcing _____

Girders: material and sizes _____ Sills: material _____

Basement entrance airway _____ Window airways _____

Waterproofing _____ Footing drains _____

Termite protection _____

Basementless space: ground cover _____; insulation _____; foundation vents _____

Special foundations _____

Additional information _____

3. CHIMNEYS:

Material _____ Prefabricated (make and size) _____

Flue lining: material _____ Heater flue size _____ Fireplace flue size _____

Vents (material and size): gas or oil heater _____; water heater _____

Additional information _____

4. FIREPLACES:

Type: solid fuel, gas-burning, circulator (make and size) _____ Ash dump and clean-out _____

Fireplace Facing _____; lining _____; hearth _____; mantel _____

Additional information _____

5. EXTERIOR WALLS:

Wood frame: wood grade, and species _____ Corner bracing Building paper or felt _____

sheathing _____; thickness _____; width _____ solid; space _____ o.c.; diagonal; _____

Siding: _____; grade _____; type _____; size _____; exposure _____; fastening _____

Shingles: _____; grade _____; type _____; size _____; exposure _____; fastening _____

Stucco: _____; thickness _____; Lath _____; weight _____ lb.

Masonry veneer _____ Sills _____ Lintels _____ Base flashing _____

Masonry: solid faced stuccoed, total wall thickness _____; facing thickness _____; facing material _____

Backup material _____; thickness _____; bonding _____

Door sills _____ Window sills _____ Lintels _____ Base flashing _____

Interior surfaces: dampproofing, _____ coats of _____; furring _____

Additional information: _____

Exterior painting: material _____; number of coats _____

Gable wall construction: same as main walls, other construction _____

6. FLOOR FRAMING:

Joists: wood, grade, and species _____; other _____; bridging _____; anchors _____

Concrete slab: basement floor; first floor; ground supported; self-supporting, mix _____; thickness _____; reinforcing _____; insulation _____; membrane _____

Fill under slab, material _____; thickness _____; Additional information: _____

7. SUBFLOORING: (Describe underflooring for special floors under item 21.)

Material: grade and species _____; size _____; type _____

Laid: first floor; second floor attic _____ sq. ft.; diagonal, right angles. Additional information: _____

8. FINISH FLOORING: (Wood only. Describe other finish flooring under item 21.)

LOCATION	ROOMS	GRADE	SPECIES	THICKNESS	WIDTH	BLDG. PAPER	FINISH
First floor							
Second floor							
Attic floor							

Additional information: _____

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0575-0042. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

9. PARTITION FRAMING:

Studs wood, grade, and species _____ size and spacing _____ Other _____

Additional information _____

10. CEILING FRAMING:

Joists wood, grade, and species _____ Other _____ Bridging _____

Additional information _____

11. ROOF FRAMING:

Rafters wood, grade, and species _____ Roof trusses (see detail) grade and species _____

Additional information _____

12. ROOFING:

Sheathing wood, grade, and species _____ solid spaced _____

Roofing _____, grade _____, size _____, type _____

Underlay _____, weight or thickness _____, size _____, fastening _____

Built-up roofing _____, number of plies _____, surface material _____

Flashing material _____, gage or weight _____ gravel stops, snow guards

Additional information _____

13. GUTTERS AND DOWNSPOUTS:

Gutters material _____, gage or weight _____, size _____, shape _____

Downspouts material _____, gage or weight _____, size _____, shape _____, number _____

Downspouts connected to Storm sewer, sanitary sewer, dry-well Splash blocks material and size _____

Additional information _____

14. LATH AND PLASTER:

Lath walls, ceilings material _____, weight or thickness _____ Plaster coats _____, finish _____

Dry-wall walls, ceilings material _____, thickness _____, finish _____

Joint treatment _____

15. DECORATING: (Paint, wallpaper, etc.)

ROOMS	WALL FINISH MATERIAL AND APPLICATION	CEILING FINISH MATERIAL AND APPLICATION
Kitchen _____		
Bath _____		
Other _____		

Additional information _____

16. INTERIOR DOORS AND TRIM:

Doors type _____, material _____, thickness _____

Door trim type _____, material _____ Base type _____, material _____, size _____

Finish doors _____, trim _____

Other trim (item, Type and location) _____

Additional information _____

17. WINDOWS:

Windows type _____, make _____, material _____, sash thickness _____

Glass grade _____ sash weights, balances, type _____, head flashing _____

Trim type _____, material _____ Paint _____, number coats _____

Weatherstripping type _____, material _____ Storm sash, number _____

Screens: full, half, type _____, number _____, screen cloth material _____

Basement windows: type _____, material _____; screens, number _____; Storm sash, number _____

Special windows _____

Additional information _____

18. ENTRANCES AND EXTERIOR DETAIL:

Main entrance door: material _____; width _____; thickness _____ Frame: material _____; thickness _____

Other entrance doors: material _____; width _____; thickness _____ Frame: material _____; thickness _____

Head flashing _____ Weatherstripping: type _____; saddles _____

Screen doors: thickness _____; number _____; screen cloth material _____ Storm doors: thickness _____; number _____

Combination storm and screen doors: thickness _____; number _____; screen cloth material _____

Shutters: hinged; fixed. Railings _____; Attic louvers _____

Exterior millwork: grade and species _____ Paint _____; number coats _____

Additional information _____

19. CABINETS AND INTERIOR DETAIL:

Kitchen cabinets, wall units: material _____; lineal feet of shelves _____; shelf width _____

Base units material _____; counter top _____; edging _____

Back and end splash _____ Finish of cabinets _____; number coats _____

Medicine cabinets: make _____, model _____

Other cabinets and built-in furniture _____

Additional information _____

20. STAIRS:

STAIR	TREADS		RISERS		STRINGS		HANDRAIL		BALUSTERS	
	Material	Thickness	Material	Thickness	Material	Thickness	Material	Thickness	Material	Thickness
Basement _____										
Main _____										
Attic _____										

Disappearing make and model number _____

Additional information _____

21. SPECIAL FLOORS AND WAINSCOT: (Describe carpet as listed in Certified Products Directory.)

Floors	Location	Material, Color, Border, Sizes, Gage, Etc.	Threshold Material	Wall Base Material	Underfloor Material
	Kitchen				
	Bath				
Wainscot	Location	Material, Color, Border, Sizes, Gage, Etc.	Height	Height Over Tub	Height in Showers (From Floor)
	Bath				

Bathroom accessories Recessed, material _____, number _____, Attached, material _____, number _____
 Additional information _____

22. PLUMBING

Fixture	Number	Location	Make	MP's Fixture Identification No	Size	Color
Sink						
Lavatory						
Water closet						
Bathtub						
Shower over tub						
Stall shower						
Laundry trays						

A Curtain rod A Door Shower pan material _____
 Water supply public, community system; individual (private) system *
 Sewage disposal public, community system; individual (private) system *
 * Show and describe individual system in complete detail in separate drawings and specifications according to requirements.
 House drain (inside): cast iron; tile, other _____ House sewer (outside): cast iron; tile, other _____
 Water piping galvanized steel; copper tubing; other _____ Still cocks, number _____
 Domestic water heater type _____; make and model _____, heating capacity _____
 _____ gph 100' rise Storage tank, material _____, capacity _____ gallons.
 Gas service utility company; liq pet gas, other _____ Gas piping: cooking, house heating
 Footing drains connected to storm sewer; sanitary sewer, dry well Sump pump; make and model _____
 _____; capacity _____, discharges into _____

23. HEATING

Hot water Steam Vapor One-pipe system Two-pipe system
 Radiators, Convectors, Baseboard radiation Make and model _____
 Radiant panel, floor, wall, ceiling, Panel coil: material _____
 Circulator Return pump Make and model _____; capacity _____ gpm.
 Boiler make and model _____ Output _____ Btuh, net rating _____ Btuh.
 Additional information _____
 Warm air Gravity Forced Type of system _____
 Duct material supply _____, return _____, Insulation _____, thickness _____ Outside air intake
 Furnance make and model _____ Input _____ Btuh, output _____ Btuh
 Additional information _____
 Space heater, floor furnace, wall heater Input _____ Btuh, output _____ Btuh, number units _____
 Make, model _____ Additional information _____
 Controls make and types _____
 Additional information _____
 Fuel Coal; oil, gas, liq pet gas, electric, other _____, storage capacity _____
 Additional information _____
 Firing equipment furnished separately Gas burner, conversion type Stoker hopper feed bin feed
 Oil burner pressure atomizing, vaporizing _____ Control _____
 Make and model _____ Additional information _____
 Electric heating system type _____ Input _____ watts, @ _____ volts, output _____ Btuh
 Additional information _____
 Ventilating equipment attic fan, make and model _____, capacity _____ cfm.
 Kitchen exhaust fan, make and model _____
 Other heating, ventilating, or cooling equipment _____

24. ELECTRIC WIRING:

Service, overhead, underground. Panel: fuse box, circuit-breaker; make _____ AMP's _____ No circuits _____
 Wiring: conduit armored cable, nonmetallic cable, knob and tube, other _____
 Special outlets: range, water heater; other _____
 Doorbell Chimes Push-button locations _____ Additional information _____

25. LIGHTING FIXTURES:

Total number of fixtures _____ Total allowance for fixtures, typical installations, \$ _____
 Nontypical installation _____
 Additional information _____

26. INSULATION:

Location	Thickness	Material, Type, and Method of Installation	Vapor Barrier
Roof			
Ceiling			
Wall			
Floor			

27. MISCELLANEOUS: (Describe any main dwelling materials, equipment, or construction items not shown elsewhere, or use to provide additional information where the space provided was inadequate. Always reference by item number to correspond to numbering used on this form.)

HARDWARE: (make, material, and finish.)

SPECIAL EQUIPMENT: (State material or make, model and quantity. Include only equipment and appliances which are acceptable by local law, custom and applicable FHA standards. Do not include items which, by established custom, are supplied by occupant and removed when he vacates premises or chattels prohibited by law from becoming realty.)

PORCHES:

TERRACES:

GARAGES:

WALKS AND DRIVEWAYS:

Driveway width _____, base material _____, thickness _____, surfacing material _____, thickness _____

Front walk width _____, material _____, thickness _____ Service walk width _____, material _____, thickness _____

Steps: material _____, treads _____, risers _____; Check walls _____

OTHER ONSITE IMPROVEMENTS:

(Specify all exterior onsite improvements not described elsewhere, including items such as unusual grading, drainage structures, retaining walls, fence, railings, and accessory structures.)

LANDSCAPING, PLANTING, AND FINISH GRADING:

Topsoil _____" thick: front yard, side yards, rear yard to _____ feet behind main building.

Lawns (seeded, sodded, sprigged): front yard _____, side yards _____, rear yard _____

Planting as specified and shown on drawings, as follows

_____ Shade trees, deciduous _____" caliper.	_____ Evergreen trees _____, to _____', B & B.
_____ Low flowering trees, deciduous _____, to _____'	_____ Evergreen shrubs _____, to _____', B & B.
_____ High-growing shrubs, deciduous _____, to _____'	_____ Vines, 2-years _____
_____ Medium-growing shrubs, deciduous _____, to _____'	
_____ Low-growing shrubs, deciduous _____, to _____'	

IDENTIFICATION. This exhibit shall be identified by the signature of the builder, or sponsor, and/or the proposed mortgagor if the latter is known at the time of application.

Date _____ Signature _____

Signature _____

APPENDIX B.

Biological Resources Survey

BIOLOGICAL RESOURCES SURVEY

for the

**KAHOMA SUBDIVISION
LAHAINA, MAUI**

by

**ROBERT W. HOBDY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
August 2005**

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

BIOLOGICAL RESOURCES SURVEY

KAHOMA SUBDIVISION

INTRODUCTION

The project area consists of two contiguous parcels of land in Lahaina situated along the Kahoma Stream channel. They are TMK 4-5-10:5 & 6 and total 17.76 acres. The property is bounded on the north by the Kahoma Stream Flood Control Channel, on the south and east by residential homes and on the west by the Lahaina-Kaanapali Railroad corridor. The property is a narrow strip of land about a half mile long and 200 to 300 feet wide.

SITE DESCRIPTION

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

BIOLOGICAL HISTORY

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

SURVEY OBJECTIVES

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

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

BOTANICAL SURVEY REPORT

SURVEY METHODS

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

DESCRIPTION OF THE VEGETATION

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

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

DISCUSSION AND RECOMMENDATIONS

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

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

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

PLANT SPECIES LIST

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

For each species, the following information is provided:

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

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

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Xanthium strumarium</i> L.	<i>kikania</i>	non-native	rare
BORAGINACEAE (Borage Family)			
<i>Cordia sebestena</i> L.	geiger tree	non-native	rare
<i>Heliotropium procumbens</i> Mill.	-----	non-native	rare
CHENOPODIACEAE (Goosefoot Family)			
<i>Atriplex suberecta</i> Verd.	-----	non-native	uncommon
<i>Chenopodium murale</i> L.	'aheahea	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
<i>Ipomoea triloba</i> L.	little bell	non-native	uncommon
<i>Merremia aegyptia</i> (L.) Urb.	hairy merremia	non-native	rare
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	uncommon
<i>Chamaesyce hyssopifolia</i> (L.) Small	-----	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 lebbek</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	rare
<i>Desmanthus pernambucanus</i> (L.) Thellung	slender mimosa	non-native	uncommon
<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.	iniko	non-native	rare

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

SCIENTIFIC NAME

Nicotiana glauca R.C. Graham

COMMON NAME

tree tobacco

STATUS

non-native

ABUNDANCE

rare

STERCULIACEAE (Cacao Family)

Waltheria indica L.

'uhaloa

indigenous

uncommon

FAUNA SURVEY REPORT

SURVEY METHODS

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

RESULTS

MAMMALS

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

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

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

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

BIRDS

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

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

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

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

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

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

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

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

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

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

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

INSECTS

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

DISCUSSION AND RECOMMENDATIONS

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

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

ANIMAL SPECIES LIST

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

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

endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.

migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

abundant = many flocks or individuals seen throughout the area at all times of day.

common = a few flocks or well scattered individuals throughout the area.

uncommon = only one flock or several individuals seen within the project area.

rare = only one or two seen within the project area.

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

Literature Cited

- American Ornithologists' Union 2005. Check-list of North American Birds. 7th edition. American Ornithologist's Union. Washington D.C.
- Armstrong, R. W. (ed.) 1983. Atlas of Hawaii. (2nd. ed.) University of Hawaii Press.
- Foote, D.E. , E.L. Hill, S. Nakamura, and F. Stephens. 1972. Soil survey of the islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Dept. of Agriculture, Soil Conservation Service. Washington, D.C.
- Tomich, P.Q. 1986. Mammals in Hawaii. Bishop Museum Press, Honolulu.
- U.S. Fish and Wildlife Service. 2000. Endangered and threatened wildlife and Plants. 50 CFR 17.11 & 17.12
- U.S. Fish and Wildlife Service. 2000. Endangered and threatened wildlife and plants: determination of endangered status for Blackburn's sphinx moth from Hawaii. Federal Register 65(21): 4770-4779.
- Wagner, W. L., D.R. Herbst, and S. H. Sohmer. 1999. Manual of the flowering plants of Hawai'i. Univ. of Hawai'i Press and Bishop Museum Press. Honolulu.

APPENDIX C.

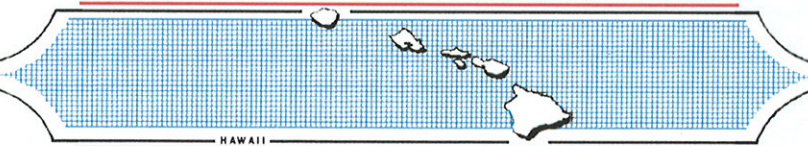
Archaeological Assessment

**AN ARCHAEOLOGICAL ASSESSMENT FOR
16.8-ACRES IN LAHAINA,
MĀKILA AHUPUA`A, LĀHAINĀ DISTRICT,
MAUI ISLAND, HAWAII
[TMK (2) 4-5-10: 005 & 006 (por.)].**

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November 2005

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ABSTRACT

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

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

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

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INTRODUCTION

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

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

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

ENVIRONMENTAL SETTING

PROJECT AREA LOCATION

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



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

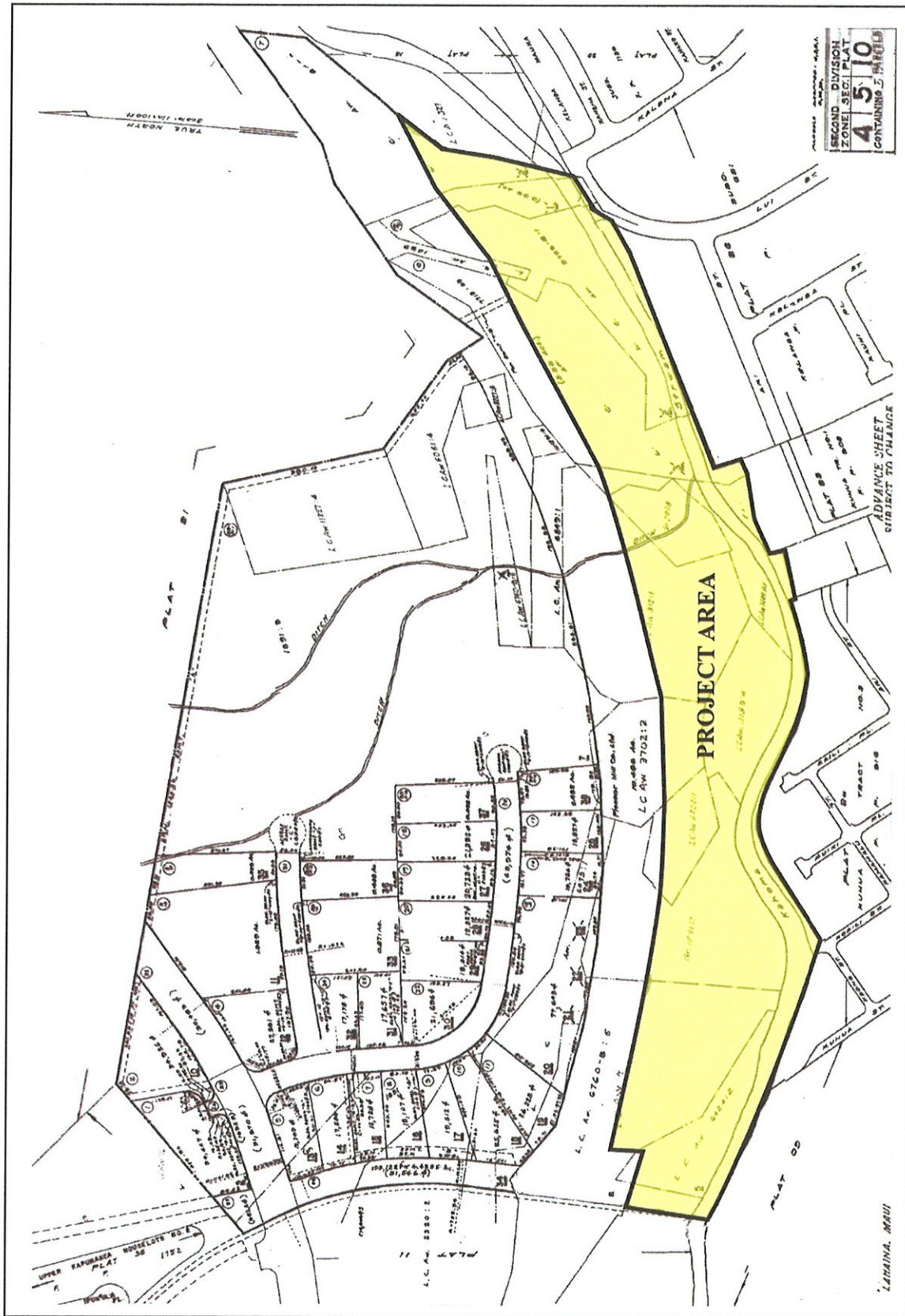


Figure 2: Figure 2 Project Area Tax Map Key 4-5:-10:005 & 006.

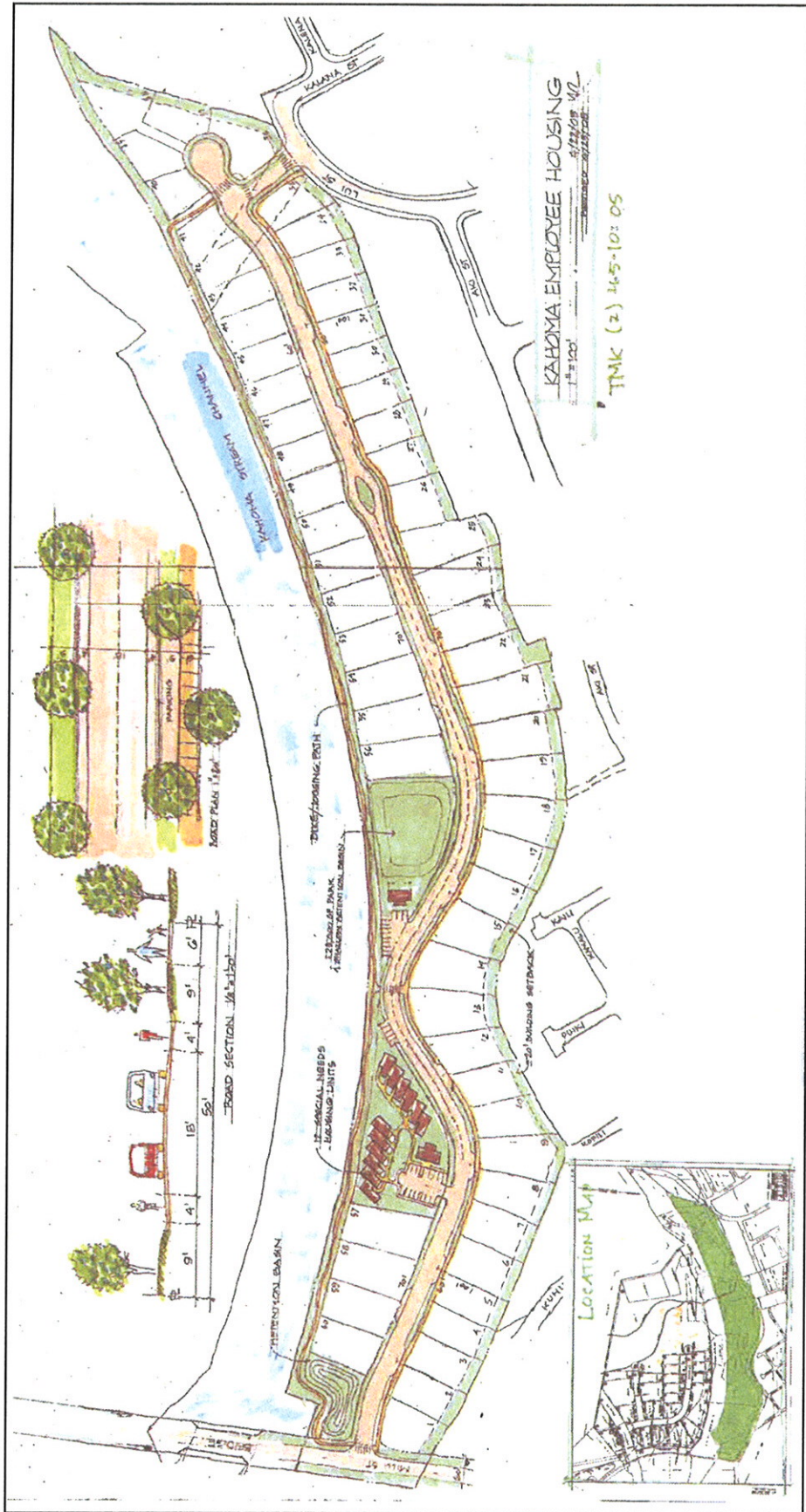


Figure 3: Conceptual Plan of Future Development and Location of Project Area.



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

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

PROJECT AREA DESCRIPTION

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

CLIMATE

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

SOILS

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

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

KAHOMA STREAM FLOOD CONTROL PROJECT

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

TRADITIONAL HAWAIIAN AND HISTORIC SETTING

PRE-CONTACT/TRADITIONAL HAWAIIAN ERA

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

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

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

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

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

On account of the great number of people at this place there are numerous skeletons [several bloody battles occurred here], as if thousands of people died there; it is there that the Lāhaināluna students go to get skeletons for them when they are studying anatomy. The bones are plentiful there; they completely cover the sand.

This is a ghostly place. Some time a number of people came from Kaanapali (from the other side) going to Lāhainā in the dark. When they came to Keka`a stones rolled down from the top of the hill without any cause. Listening to it, it seemed as if the hill was tumbling down; the people going along were startled and they explained, Keka`a is ghostly! Kekaa is ghostly!” Certainly this is a strange thing for this hill to do [*ibid*].

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

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

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

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

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

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

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

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

CONTACT PERIOD

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

POST-CONTACT PERIOD

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

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

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

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

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

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

The settlement is far more beautiful than any place we have yet seen on the Islands. The entire district stretching nearly three miles along the seaside, is covered with luxuriant groves, not only of the coconut, the only tree we have before seen except on the tops of the mountains, but also of the breadfruit and the kou...while the banana plant, kappa and sugar-cane are abundant, and extend almost to the beach, on which a fine surf constantly rolls

...The breadfruit trees stand as thickly as those of a regularly planted orchard, and beneath them are kalo patches and fishponds, 20 or 30 yards square, filled with stagnant water, and interspersed with kappa trees, groves of banana, rows of the sugar cane, and bunches of the potato and melon...It scarcely ever rains, not oftener, we are told, than half a dozen times during the year, and the land is watered entirely by conducting streams, which rush from the mountains, by artificial courses, on every plantation. Each farmer has a right, established by custom, to the water every fifth day.

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

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

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

and watered by aqueducts from the rivulet with as much art as if their level had been taken by the most ingenious engineer...

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

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

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

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

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

MĀHELE

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

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

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

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

LAND GRANTS

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

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

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

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

LAND COMMISSION AWARDS (LCAS)

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

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

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

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

PIONEER MILL

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

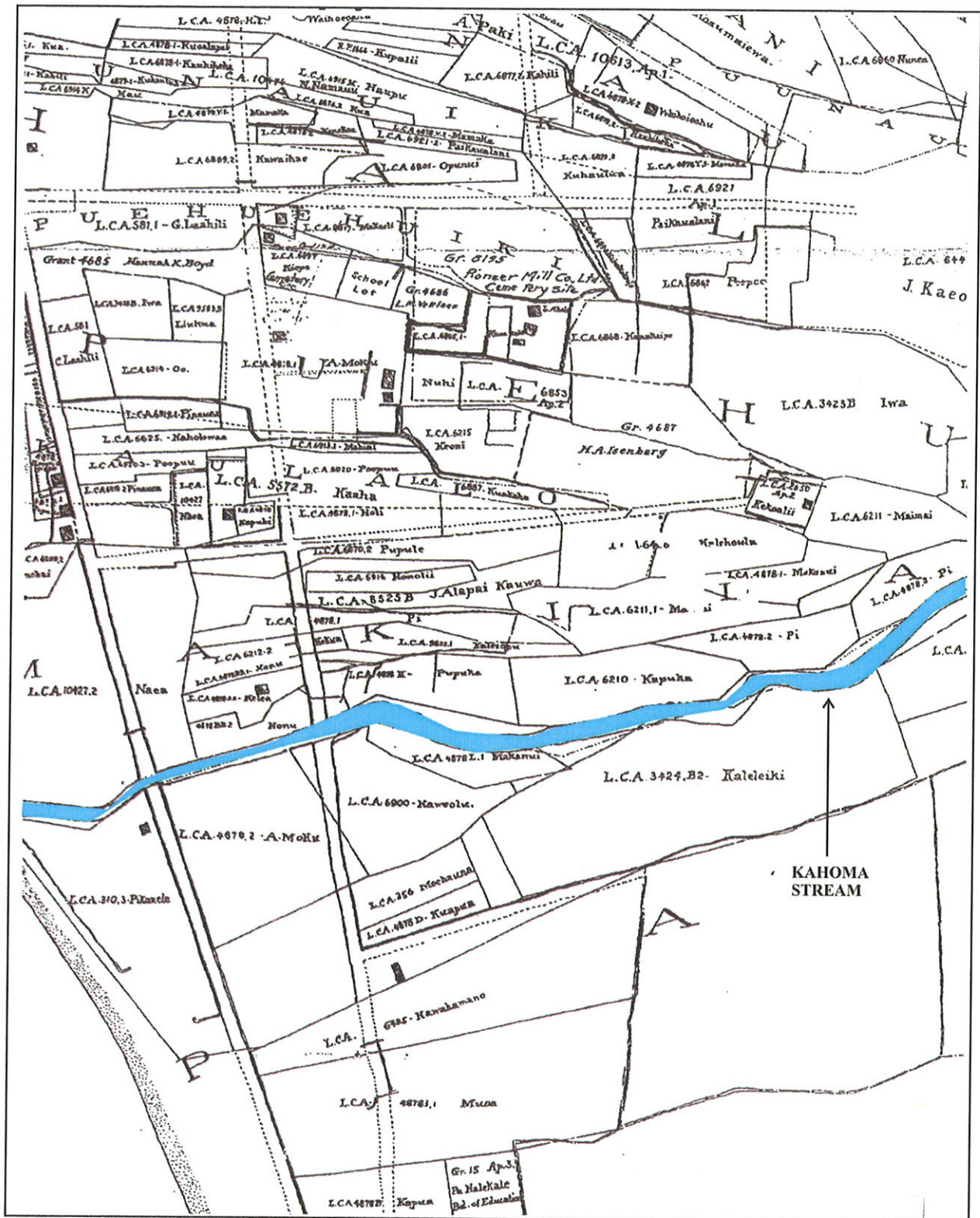


Figure 5: Hawaiian Government Survey Map for the Town of Lahaina and Showing Land Commission Awards Within the Environs of the Project Area (S.E. Bishop 1884).

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

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

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

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

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

PREVIOUS ARCHAEOLOGY

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

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

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

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

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

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

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

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

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

An archaeological Reconnaissance survey was conducted in an area near Waine'e Village in 1992 by Robert Hommon at TMK (2)-4-6 (State Report #M-00074). There was an Archaeological walk-through examination of proposed housing by Joseph Kennedy at TMK (2)-4-6-013:006 in 1986 (State Report #M-00140). In 1988, there was a Historic site survey for Lāhaināluna Road and Waine`e Street widening projects by Spencer Mason Architects at TMK (2)-4-6 [State Report#M-00261]. In 1989 Kennedy submitted an archaeological report concerning subsurface testing at TMK (2) 4-6-008:012 (State Report #M-00210). A Supplemental Archaeological Survey was completed for the Lāhainā Master-Planned Project Offsite Sewer, Water Improvements, & Cane Haul Road, Lands of Wahikuli, Hanaka'o'o, Honokawai, Kuhua, Kuholilea, Puou, Pu'uiki, and Aki in 1991 by Peter Jensen and Jenny O'Claray at TMK (2) 4-4, 5, and 6 (State Report #M-00336).

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

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

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

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

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

SITE PATTERNS

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

METHODOLOGY

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

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

ARCHIVAL METHODS

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

FIELD METHODS

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

LABORATORY METHODS

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

FIELDWORK RESULTS

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

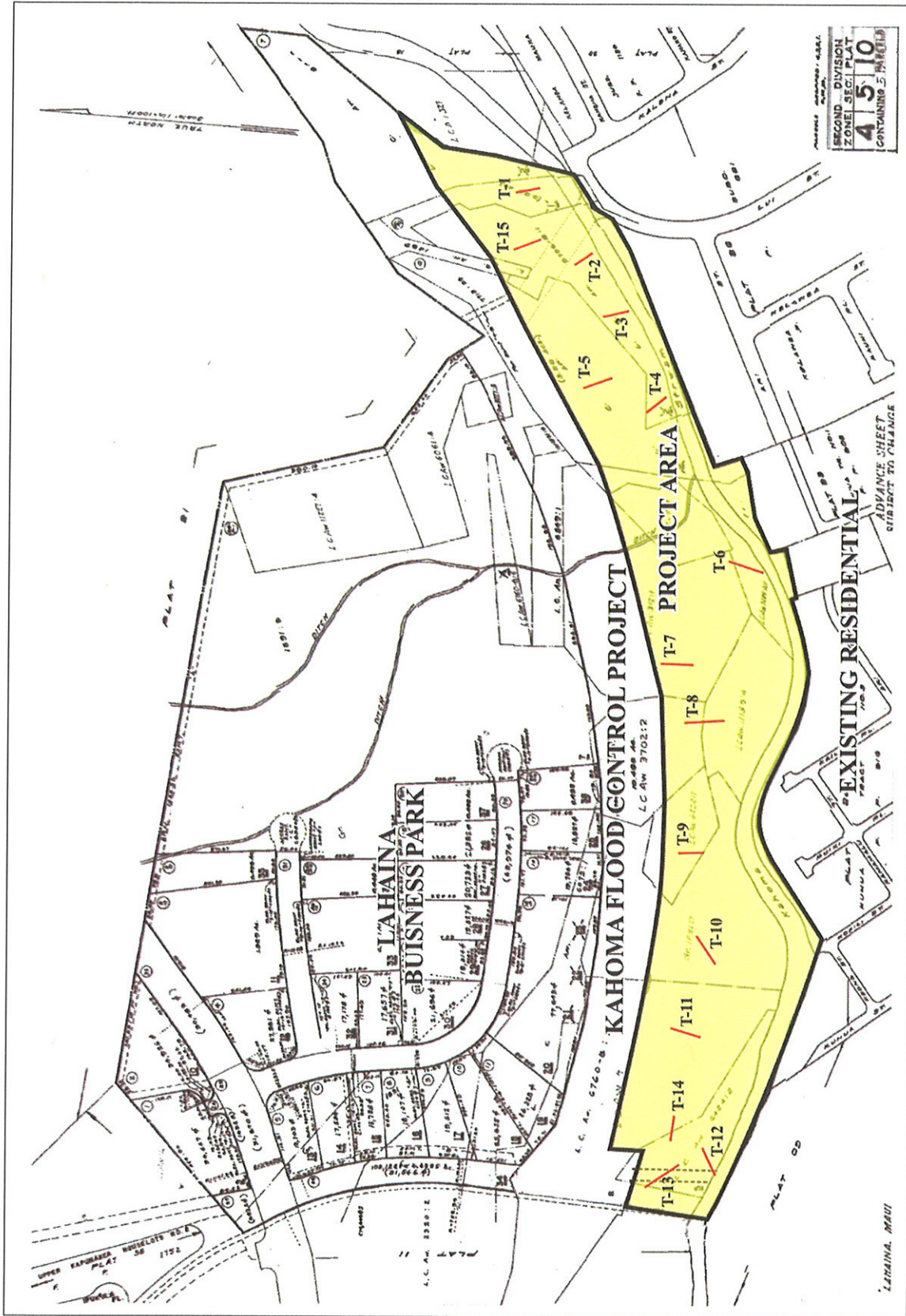


Figure 6: Plan View Map Depicting Testing Locations in Project Area.

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

Table 1: Excavation Trench Data and Results

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

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

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

DISCUSSION

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

RECOMMENDATIONS

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

REFERENCES

- Ahlo, H.M., and M.E. Morgenstein
1980 *Archaeological Test Excavations Near the Mouth of Kahoma Stream, Lahaina, Maui, Hawaii*. Marine Research, Inc., Honolulu. Army Corp of Engineers, Pacific Ocean Division, Department of the Army, Fort Shafter, HI.
- Barrera, W., Jr.
1989 *Honoapiilani Highway, Maui: Archaeological Reconnaissance*. Environmental Communications, Inc., Honolulu, HI.
- Burgett, Bee and R.L. Spear
1994 *An Archaeological Inventory Survey of a 8.8 Acre Parcel in the Land of Kainehi, District of Lahaina, Paunau Ahupua`a Island of Maui [TMK (2) 4-5-03:12, 13, 15, 38, 39, and 40]*. Aki Sinoto Consulting, Honolulu
- Condé, Jesse, and Gerald Best
1973 *Sugar Trains, Narrow Gauge Rails of Hawaii*. Glenwood Publishers: Felton, California.
- Connelly, R.D.
1974 *Phase I Archaeological Survey of Kahoma Stream Flood Control Project Area, Lahaina, Maui*. B.P. Bishop Museum
- Cooper, George and Gavan Daws.
1985 *Land and Power in Hawaii*. Benchmark Books, Honolulu, HI.
- Davis, B.D.
1974 *Preliminary Report. Mala Wharf Burials, Phase I, Mala, Lahaina, Maui Island*. Report No. 14-105. Archaeological Research Center of HI. Inc. (Lawai, Kaua`i)
- Daws, G.
1968 *Shoal of Time: History of the Hawaiian Islands*. University of Hawai`i Press. Honolulu.
- Folk, W.
1991 *Lahaina (Front Street) Archaeological Test Excavations, TMK 4-5-03:12, Island of Maui*. Cultural Surveys of HI.
- Foote, D.E., E.L. Hill, S. Nakamura, and F. Stephens
1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. U.S. Department of Agriculture, Soil Conservation Science and University of Hawai`i Agricultural Experimentation Station. Washington D.C., U.S. Govt. Printing Office.

- Fornander, Abraham
 1969 *An Account of the Polynesian Race, Its Origins and Migrations*. Vol. 1 to 3. Charles E. Tuttle Co. Inc.: Jutland.
- 1919 *Hawaiian Antiquities and Folklore*. Bishop Museum Press: Honolulu.
- Handy, E.S.C.
 1940 *The Hawaiian Planter, Vol. I: His Plants, Methods and Areas of Cultivation*. B.P. Bishop Museum, Bulletin 161. Honolulu, HI.
- Handy, E.S. Craighill and E.G. Handy
 1972 Native Planters in Old Hawai'i. *Bishop Museum Bulletin* 233. Honolulu.
- Hammatt, H.H.
 1978 *Archaeological Investigations and Monitoring, Mala Wharf Boat Launch Ramp Area, Lahaina, Maui*. Archaeological Research Center HI. Inc. State of HI. Water Transportation Facilities Division, Honolulu.
- Haun, A.E.
 1988 *Subsurface Archaeological Reconnaissance Survey, Lahaina Cannery Makai and Mauka Parcels, Land of Moalii, Lahaina District, Island of Maui* [TMK: (2) 4-5:9, 10, 11; (2) 4-5—11:3]. PHRI Proj 653-1000689.
- Hawai'i Sugar Plantation Association (HSPA)
Plantation Archives at University of Hawai'i at Manoa Library, Hawaiian Collection. http://www2.hawaii.edu/~speccoll/p_pioneer.html#scope
- Hommon, R.J.
 1973 *Report of a Walk-Through Survey of Kahoma Stream Flood Control Project Area*. MS.072073. B.P. Bishop Museum
- Jensen, P.M.
 1988 *Subsurface Archaeological Reconnaissance Survey, Puunoa Subdivision Project Area, Land of Puunoa, Lahaina District, Island of Maui* [TMK (2)-4-5-04:8]. PHRI 653-1000689 HI Omori Corporation.
- 1989 *Archaeological Inventory Survey, Lahaina Master Planned Project Site, Land of Waihikuli, Lahaina District, Island of Maui*. PHRI 653-100689. Housing Finance and Development.
- Joerger, P.K. and M.W. Kaschko
 1979 *Cultural History Overview of the Kahoma Stream Flood Control Project, Lahaina, Maui, and the Ma'alaea Small Boat Harbor Project, Ma'alaea, Maui, HI*. Marine Research U.S. Army Corps of Engineers, Pacific Ocean Division, Honolulu, HI.

- Joesting, Ann
 1986 *Historical Research for the Makena-Keoneoio road in Makena, Maui*. B.P. Bishop Museum, Honolulu
- Kamakau, Samuel
 1964 *Ka Po'e Kahiko*. *Bishop Museum Special Publication* 51. Honolulu.
- Kame`eleihiwa, Lilikalā
 1992 *Native Land and Foreign Desires: Pehea La E Pono Ai?* Bishop Museum Press. Honolulu.
- Kennedy, J.
 1989 Archaeological Report Concerning Subsurface Testing at TMK 4-6-08:12. Archaeological Consultants of Hawai'i, Inc.
- Kirch, Patrick
 1985 *Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory*. University of Hawaii Press, Honolulu.
- Kirch, Patrick V. and Marshall Sahlins
 1992 *Anahulu*. Vol. 1 and 2. University of Chicago Press. Chicago.
- Klieger, P.C.
 1993 *Moku'ula: The Last Resort, A Preliminary Report on the History of the Private Residential Complex of King Kamehameha III in Lahaina*. Manuscript 0393, B.P. Bishop Museum
- Kubota, Gary
 2004 Honolulu Star Bulletin *Maui Mill's Preservation in Limbo* Monday, September 13 <http://starbulletin.com/2004/09/13/news/story5.html>
- Kurashino, H., and A. Sinoto
 1984 *Archaeological Reconnaissance Survey of the Proposed Shopping Center at Lahaina, Maui [TMK 4-5-02:9]*. B.P. Bishop Museum Report Prepared for Case, Kay, & Lynch, Attorneys for the 300 Corporation.
- Kuykendall, R.S.
 1938 *The Hawaiian Kingdom*. Vol. 1. University of Hawai'i Press. Honolulu.
- Lucas, Paul F. Nahoā
 1995 *A Dictionary of Hawaiian Legal Land-terms*. Native Hawaiian Legal Corporation. University of Hawai'i Committee for the Preservation and Study of Hawaiian Language, Art and Culture.. University of Hawai'i Press.
- Lyons, C.J.
 1875 "Land Matters in Hawaii". *The Islander*, Vol. I. Honolulu.

- Menzies, Archibald
 1928 *Hawaii New, 128 Years ago*. W.F. Wilson, ed. New Freedom Publishers: Honolulu.
- Morawski, L. and M. Dega
 2003 Archeological Inventory Survey of a 7.65 Acre Property at Lot 10-H Ahupua`a of Hanakao`o, District of Lāhainā, Island of Maui, Hawai`i. [TMK:4-4-06:56]. Prepared by SCS
- Pukui, M.K., S. Elbert, and E.T. Mookini
 1974 *Place Names of Hawaii*. Revised and Expanded Edition. University of Hawaii Press, Honolulu, HI.
- Simpich, F.
 1974 *Dynasty in the Pacific*. New York: McGraw-Hill Book Co.
- Sinoto, A.
 1975 *An Archaeological Reconnaissance of the Mala Wharf Boat-Launch Ramp Area, Lahaina, Maui*. MS. 082075 B.P. Bishop Museum.
- Speakman, Cummins
 1978 *Mowee, An Informal History of the Hawaiian Island*. Cal Central Press: San Francisco.
- Spear, R.L
 1994 A Burial Treatment Plan for Site 50-50-03-3550 Kenui Street Project, Paunau, Lahaina, Maui [TMK (2) 4-5-03: 12, 13, 15, 38-40]. Aki Sinoto Consulting, HI.
- State of Hawaii US Army Corps of Engineers
 1993 Civil Works Projects and Studies website at:
<http://www.poh.usace.army.mil/CW/civilworks.html>
- Sterling, Elspeth
 1998 *Sites of Maui*. Bishop Museum Press. Honolulu.
- Taylor, A.P.
 1928 *Lāhainā: The Versailles of Old Hawaii*. Thirty-Seventh Annual Report, Hawaiian Historical Society.
- Thrum, Thomas
 1908 Heiaus and Heiau Sites Throughout the Hawaiian Islands. *Hawaiian Almanac and Annual for 1909*. Honolulu

1916 Maui's Heiaus and Heiau Sites Revised. *Hawaiian Almanac and Annual for 1917*. Honolulu.

1917 More Heiau Sites. *Hawaiian Almanac and Annual for 1918*. Honolulu

Walker, W.M.

1929 *Archaeology of Maui*. Ms. On file State Historic Preservation Division.
Honolulu.

Waihona `Aina

2005 *Mahele Database*. Kailua, HI.

APPENDIX A: LCA DATA

LCA's IN PROJECT AREA:

Number: 04878BB

Claim Number: **04878BB**

Claimant: **Honu**

Other claimant:

Other name:

Island: **Maui**

District: **Lahaina**

Ahupuaa: **Makila**

Ili:

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

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

P.T. 39v7

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

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

The house lot and kula are bounded:

Mauka by the land of Pupuka
Olowalu by the dry creek bed
Makai by the main road of Lahaina
Kaanapali by the land of Kekua.

The kalo land is bounded:

Mauka and Olowalu sides by my lois
Makai by the poalima lois of Serang or Victoria
Kaanapali by Kainaiki.

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

Number: 04878F

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

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

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

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

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

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

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

The kalo land is bounded:

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

See page 32 volume 15

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

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

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

Number: 04878II

Claim Number:	04878II	
Claimant:	Pupuka	
Other claimant:		
Other name:		
Island:	Maui	
District:	Lahaina	
Ahupuaa:	Lahaina	
Ili:		
Apana:	Awarded:	1
Loi:	FR:	
Plus:	NR:	215v6
Mala Taro:	FT:	42v7
Kula:	NT:	
House lot:	RP:	1749,1201,2707
Kihapai/Pakanu:	Number of Royal Patents:	3
Salt lands:	Koole/Poalima:	No
Wauke:	Loko:	No
Oloha:	Lokoia:	No
Noni:	Fishing Rights:	No

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

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

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

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

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

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

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

Number: 04878KK

Claim Number: **04878KK**

Claimant: **Kelea**

Other claimant:

Other name:

Island: **Maui**

District: **Lahaina**

Ahupuaa: **Makila, Pōlaiki**

Ili:

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

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

F.T. 43v7

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

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

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

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

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

Number: 06210

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

No. 312, T. Keaweiiwi
N.R. 76-77v2

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

A portion has been occupied from ancient times and a portion is new. It has not been surveyed - it is for you to survey it.

Farewell, and thank you

TIM. KEAWEIWI

Witnesses: Imiwale, Kaleoku

N.T. 12v15

No. 312, Timoteo Keaweiiwi, Lahaina 15. November 1852

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

The Lot is bounded:

Mauka by Nalehu

Olowalu by Malokuakea

Makai by Nalehu

Kaanapali by Napahi's house Lot.

N.T. 87v2

No. [312], Keaweili, Lahaina, January 1847

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

N.T. 195v2

No. 312, Timoteo Keaweiiwi, See T.

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

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

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

No. 11150, Keone
P.T. 68v15

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

T. Keawe'iwi, sworn, says he knows the House lot of Keone, in Kuhua, Lahaina.

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

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

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

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

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

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

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

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

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

No. 11150, Keone
F.T. 68v15

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

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

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

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

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

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

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

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

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

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

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

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

No. 6424, Kanehoewaa, Lahaina, February 4, 1848
N.R. 371v6

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

[DIAGRAM]

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

This is its diagram

[DIAGRAM]

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

F.T. 18v7
Cl. 6424, Kanehoewaa

for house lot and farm

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

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

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

GRANTS:

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

No. 1891

Royal Patent

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

No. 1.

Beginning at South West corner on shore the boundary runs
South $52\frac{1}{2}^{\circ}$ East 1.00 Chains along Alamihi
North 18° East 155 Chains along Manakaumi's house lot
South 72° East 67 Chains along said
South $16^{\circ} 14'$ West 1.42 along Do
South 60° East 181 Chains along Alamihi's boundary to Unahiole pond
North $31\frac{1}{2}^{\circ}$ East 0.94 Chains along house
North 62° West 0.90 along Kauakanui's house lot
North 31° East 215 Chains along lots to a cocoanut tree
North 70° West 7.12 Chains along Hauki's pond
North $14\frac{1}{2}^{\circ}$ East 2.90 Chains along Keawe's
South $72\frac{1}{2}^{\circ}$ East 1.66 Chains along Keawe's to road
North 4° West 2.89 Chains along road West 1.20 Chains along Kaiaakekoa
North 1° East 6.70 Chains along said lot to road
North $11\frac{3}{4}^{\circ}$ West 741 Chains along road of Punakea
North 42° West 4.52 Chains along Kcaliipio
South 26° East 6.52 along sea shore
South 1° East 11.56 Chains along sea shore
South 11° West 8.47 Chains along sea shore to commencement.
Area 3 Acres, 1 Road, 9 Rods.

No. 2

Begin at South West corner on the main road, run
South $70\frac{3}{4}^{\circ}$ East 6.90 Chains along Palea
South $14\frac{1}{2}^{\circ}$ West 2.80 Chains along Palea to creek
South $84\frac{1}{3}^{\circ}$ East 1.64 Chains along creek
North $9\frac{1}{2}^{\circ}$ East 1.62 Chains along Kuaikawai's House lot
South $78\frac{1}{2}^{\circ}$ East 2.50 Chains along D
South 89° East 2.13 Chains along D
North 85° East 2.24 Chains along D
North 25° West 1.00 Chains along Nalimanui's

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

[page 184]

No. 3.

Begin at South West corner on Main Road, run
 South 81° 1/4 East 2.94 Chains along middle of Government Swamp
 South 71° 1/2 East 1.00 Chains
 South 74° East 3.63 Chains
 South 86° [?] 2.05 Chains
 South 79° East 3.00 Chains
 South 80 1/2° East 3.06 Chains these boundaries run along Moakaka, South 0.67 Chains
 along 2 Moo's of Moakaka
 South 78° 1/2 East 5.09 Chains
 South 34° East 0.30 Chains
 South 73° 1/2 East 2.23 Chains
 South 6° West 0.46 Chains
 South 84° East 1.58 Chains all along Moakaka
 North 6 1/2° East 0.54 Chains
 North 67° 1/4 West 4.66 Chains, North 0.93 Chains along Naolalo
 North 70° West 2.48 Chains
 North 75° West 2.47 Chains along Kaiwi, South 0.76 Chains along Naolalo

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

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

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

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

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

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

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

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

[page 185]

Helu
Palapala Sila Nui

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

No. 7, In Ili of Puco

Begin at South West corner on the creek, run

South 80 1/2° East 1.80 Chains

North 47 1/2° East 3.77 Chains

North 64 3/4° East 1.79 Chains along Moalii Creek

North 43° East 1.20 Chains

North 45 1/2° West 0.40 Chains both along Keoni's yard

South 77 1/2° West 2.90 Chains

North 71 3/4° West 2.11 Chains

North 43 1/2° 1.85 Chains along Kanehoewaa

North 86° East 2.05 Chains along D: (a stone wall)

North 41° West 1.20 Chains along Kaula Kukui

South 77 1/2° West 5.50 Chains along Hale Parker

South 12° East 5.90 Chains along Lelehu of Kanehoewaa to Moalii Creek to place of beginning.

Area 2 Acres, 3 Roads, 22 Rods.

No. 8, East part of Moalii lava land

Begin at South West part at great stone, run

South 41° East 3.45 Chains along Government lava land

South 64° 1/4 East 3.73 Chains along Hale Parker & stone wall

North 87° 1/2 East 3.98 Chains along Hale Parker & Kaula Kukui

North 71° East 2.32 Chains along Kaula Kukui

North 55° East 2.79 Chains along Timateo

North 30° West 1.00 Chains

North 60° East 4.11 Chains along Kula of Kane's

North 77° 1/4 East 5.76 Chains along Kanau & Keawe

North 22° 3/4 West 3.00 Chains along Nalimu Taro patch

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

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

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

APPENDIX B: TRENCH DESCRIPTIONS

APPENDIX B : TRENCH DESCRIPTIONS

Trench Descriptions

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

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

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

Layer II was a dark reddish brown (5 YR 2.5/2), silt ranging from 0.58 - 1.10 mbs; loose, non-sticky, and non-plastic when dry. Layer II was found directly overlying saprolite.

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

Layer I was composed of dark yellowish brown (10 YR 3/6) stony silt and ranged from the surface-2.2 mbs; loose, non-sticky, and non-plastic when dry. Layer I was found directly overlying Layer II and had an abrupt, distinct lower boundary.

Layer II was a dark reddish brown (5 YR 2.5/2) stony silt ranging from 1.10-1.80 mbs; loose, non-sticky, and non-plastic when dry. Layer II continued beneath the extent of excavation.

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

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

Trench 4 (T-4) was placed along the southern edge of the project area. The trench measured 5.1 x 1.1 m and extended to 0.75 mbs. The trench was oriented at 150/330°. One stratigraphic layer was identified:

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

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

Layer I was composed of dark reddish brown (5 YR 3/2) silt and ranged from surface to 1.2 mbs; loose, non-sticky, non-plastic when dry and contained wood, recent soda can, and sub-angular basalt cobbles. Layer I was found directly overlying the distinct abrupt lower boundary of the old/original (A-horizon) with an intact grass line observed. Layer II was below and had an abrupt, distinct lower boundary with approximately .05-0.10 m of transition.

Layer II consisted of one soil unit with three mottles: a dark yellowish brown (10 YR 3/6), dark reddish brown (5 YR 2.5/2), and dark reddish gray (7.5 YR 4/2) stony silt. Boundaries ranged from surface to 1.25 mbs and the soil was loose, non-sticky, and non-plastic when dry. Sub-angular basalt cobbles, black plastic, and piping shreds were located throughout. Layer II ceased upon a saprolitic floor.

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

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

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

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

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

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

Layer II consisted of dark yellowish brown (10 YR 3/6) stony silt and ranged from 0.98-1.75 mbs; loose, non-sticky, and non-plastic when dry; Layer II was based on a saprolitic layer.

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

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

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

Layer I was composed of dark brown (7.5 YR 3/3) stony silt fill and ranged from surface to 1.25 mbs; very loose, non-sticky, and non-plastic when dry; large boulders and black plastic shreds and plastic pipes were identified throughout the stratum; Layer I was found directly overlying Layer II with an abrupt, distinct, alluvial lower boundary.

Layer II consisted of brown (10 YR 4/3) silt ranging in depth from 1.0 to 1.98 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition.

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

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

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

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

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

Layer II consisted of brown (10 YR 4/3) silt and ranged from 1.1-1.55 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition.

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

Layer I was composed of dark reddish brown (5 YR 3/3) silty loam and ranged from surface to 1.25 mbs; compact, non-sticky, and non-plastic when dry; Layer I had an abrupt, distinct lower boundary.

Layer II consisted of brown (10 YR 4/3) silt and ranged from 1.25-1.80 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition; Layer II had an abrupt, distinct lower boundary.

Layer III was composed of dark reddish brown (2.5 YR 3/3) silt and ranged from 1.80-2.70 mbs; compact, non-sticky, and non-plastic when dry.

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

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

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

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

APPENDIX C-1.

State Historic Preservation Division Approval Letter

LINDA LINGLE
GOVERNOR OF HAWAII



PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONSERVATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES DIVISION
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAOHOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

February 9, 2006

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

LOG NO: 2006.0230
DOC NO: 0602MK10
Archaeology

Dear Dr. Dega:

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

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

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

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

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

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

Dr. Michael Dega
Page 2

We find this report to be acceptable.

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

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

Aloha,


Melanie Chinen, Administrator
State Historic Preservation Division

MK:kf:dlb

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

APPENDIX D.

Cultural Impact Assessment

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.

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Kahului, Maui, Hawaii 96732

Contact Heidi Bigelow

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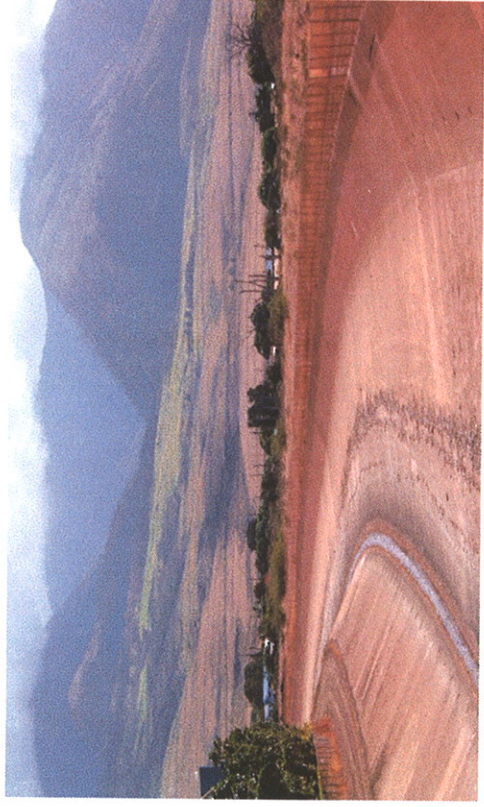
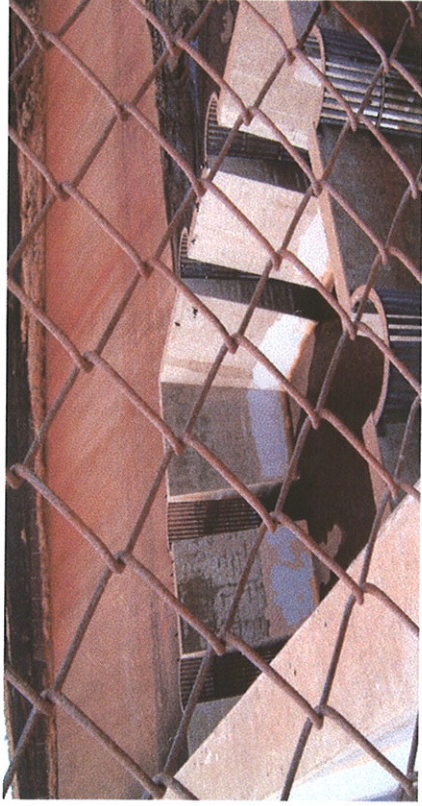


Kahoma

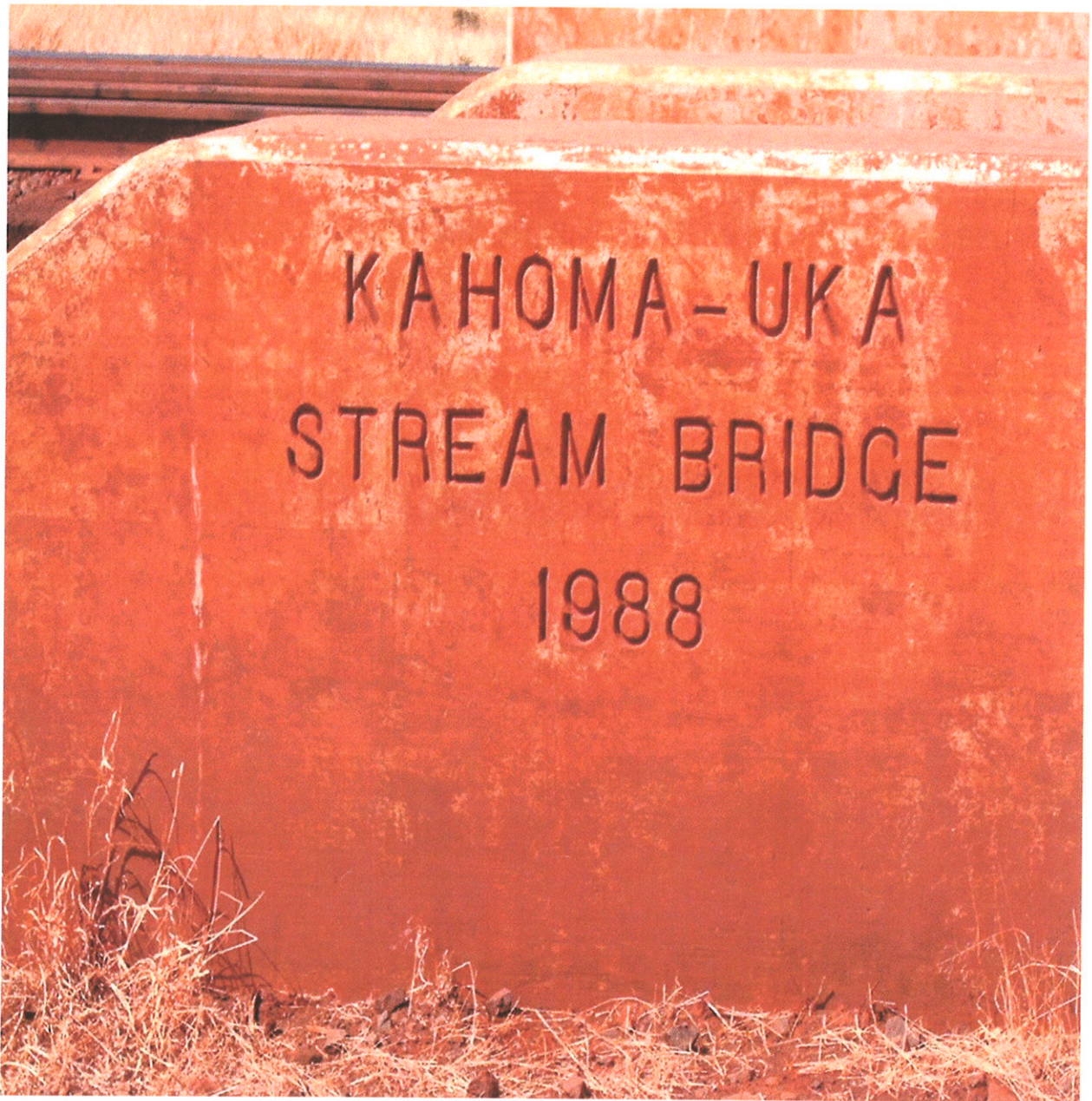
(Thin or Hollow)

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Kahoma Stream Dam Mauka-Makai



Flood Dirt Overflow 1988 on
White Bridge before Flood
Control Project 1990



Kahoma Project Site- Stream Pioneer Mill Smoke Stack Background -Boats,Moloka'i



Scope

The scope of this report will be to compile various historical, cultural and topographical accounts and facts of the Kahoma area and its adjacent ahupua'a (land divisions). The Kahoma ahupua'a may be clearly identified from the ocean with Mala Wharf as its identifying landmark and moving mauka (upland) with the Kahoma Stream serving as our guide into the valley.

Kahoma, as part of West Maui, has remained obscure all these years since Central Lahaina, the first capital for the Hawaiian Islands, was the focal point. Lahaina was attracting all the popular attention with Hawai'i's Royalty; such as King Kamehameha's one year occupancy; his wife's, Queen Ka'ahumanu and Queen Keopuolani, last years; King Kamehameha III's residency and the rowdy waterfront during the whaling years. Meanwhile, Kahoma was receiving periodic negative publicity with its river banks overflowing, causing major floods in the lowlands of Lahaina, Mala, and Hanaka'o'o. Today, the new Kahoma Flood Control Project aides in the control of future floods and will not be a distraction with the building of the Kahoma Subdivision, a project consisting of Employee, Special Needs and Market homes.

Introduction

Hana Pono, under contract to West Maui Land Company, Inc. (WMLC) has conducted a Cultural Impact Assessment (CIA) for WMLC, Inc.'s proposed Kahoma Subdivision on a 16.8-acre parcel between Kahoma Flood Control Channel and a residential area in Kahoma, Lahaina, Maui TMK: (2) 4-5-10: parcels 5 & 6. It includes twelve special needs units and sixty single family residential lots approximately 6,000 square feet in size.

The CIA was conducted in accordance with the State of Hawai'i Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts {1997}, and includes oral interviews with knowledgeable consultants of Kahoma and its surrounding areas and archival research.

Lahaina's Borders

According to author researcher Elspeth P. Sterling of the book "Sites of Maui", Lahaina is part of the large moku (section) at West Maui stretching from South Ukumehame to the borders of Hanaka'o'o, just before Ka'anapali. The Ka'anapali ahupua'a continues around North Maui and includes the district called Kahakuloa.

Kahoma's Place in Lahaina's Legacy

Kahoma, a section of the 'Alamihi ahupua'a, is a small part of the many isolated but rich valleys located in the middle of the large Lahaina moku (section). Lahaina's shape was like a rounded shield that just finished its eruption laying prey to very aggressive erosion all along the mountainous terrain. Exposure to erosion developed Kahoma's steep cliffs, ridges and a water outlet that enriched the wetland areas mauka (upland) and makai (lowland) of Kahoma.

Kahoma is on the kona side of the island of Maui. The description of kona is hot, dry and windy. During the winter months it is common for the trade winds to cease, producing heavy humidity, sticky weather and storms from the south.

Lahaina was the punana (nest) of the West Maui chiefs. In the great battle between two powerful chiefs, Kauhi'aimoku-a-kama and Kamehameha-nui, the former chief was able to seize and collect from 'Alamihi ahupua'a sufficient food to support his army's march across the island (Kamakau, 73). It suggests that 'Alamihi ahupua'a was capable of providing a rich resource for needy chiefs and visitors. Handy & Handy note that along these southwest coast lands of West Maui mountains beginning at Olowalu and continuing through Launiupoko, Laupakanui, Waine'e and Lahaina onward to small terraced valleys of Kahoma, Honokawai, Honolua and Honokahau were taro lands irrigated from the flowing streams and that Lahaina itself was flanked by excellent fishing grounds (Kamakau 272).

Early accounts of Lahaina by a famous missionary whose proselytizing efforts in the South Pacific Islands and brief moments in Hawai'i were penned by William Ellis.

At day-break, on the 4th, we found ourselves within about four miles of Lahaina, which is the principal district of Maui, on account of its being in the general residence of the chiefs, and the common resort of ships that touch at the island. The appearance of Lahaina from the anchorage is singularly romantic and beautiful. A fine sandy beach stretches along the margin of the sea, lined for a considerable distance with homes, and adorned with shady clumps of koa trees, or waving groves of coconuts. The level land of the whole district, for about three miles, is one continuous garden, laid out in beds of taro, potatoes, yams, sugar-cane, or cloth-plants (wauke). The lowly cottage of the farmer is seen peeping through the leaves of the luxuriant plantain and banana tree, and in every direction white columns of smoke ascend, curling up among the wide-spreading branches of the bread-fruit tree. The sloping hills immediately behind, and the lofty mountains in the interior, cloth with verdure to their very summits, intersected by deep and dark ravines, frequently enlivened by waterfalls, or divided by winding valleys, terminate the delightful prospect (Ellis, 76).

Pu'u Kukui's Wealth

The great wealth of this area stems from the waterways flowing from Pu'u Kukui, the highest point on West Maui at 5,788 ft. above sea level. Pu'u Kukui receives about 400 inches of rain a year while rain is scarce along the coast. From the abundant Pu'u Kukui water source, many streams feed the valleys below. "Uwe ka lani, ola ka honua." When the heavens weep, the earth will grow.

The Kahoma Stream

The Kahoma Stream is an intermittent stream originating in the West Maui Mountains at the base of Kaho'olewa Ridge which joins up with the tributary Kahana Stream close to the Lahainaluna High School elevation. Collectively, the streams provided a powerful single flowing force that flooded the lowland areas of Lahaina and Ka'anapali many times over.

U.S. ARMYCORP OF
ENGINEERS
HONOLULU DISTRICT
1990



Although Pu'u Kukui provides water outlets for many other streams, Kahoma and Kahana, being the closest direct waterway to the ocean, sent a destructive water force flowing which deemed necessary for the U.S. Army Corps of Engineers (USACE) to address the repetitive excessive flooding during the winter months in Lahaina. The interviewed consultants (Kupuna Joe Lai & Keola Sequeira), stated that it wasn't unusual to see the old cannery, now the Lahaina Cannery Mall, flooded. The USACE completed the Kahoma Stream Flood Control Project (KSFCEP) in 1990 to prevent further flooding (Kanalei Shun 1991).

The waiwai (richness) of West Maui stemmed from the abundant flow of fresh water from Ka Mauna Kahalawai (West Maui Mountains). The fresh water fed the food crops mauka and makai. The eroded soils at the mouths of the valleys provided optimum conditions with the available water flow to irrigate the Hawaiians wet land taro (kalo), paper mulberry (wauke), bananas (mai'a), and other food crops. Later, the sugar and plantation owners used the established irrigation system to water their crops which we can see even today at most of the ahupua'a (Hammon-Kahoma Stream Study: Bishop Museum 1973).

Streams of Pu'u Kukui

From the south, Pu'u Kukui provided water for Manawainui Gulch, Ukumehame Gulch, Olowalu Stream and Launiupoko Stream. Closer to Lahaina are Kaua'ula Stream, Kanaha and Kahoma Stream. North from Lahaina are Honokowai Stream, Kahana Stream, Mailepai Stream, Honokahua Stream, Honolua Stream, Honokohau Stream, and lastly Kahakuloa Stream rolling down on the extreme north side of the island all originating from Pu'u Kukui.

With the present town structure in Lahaina, the lay of the land clouds our vision on how Lahaina used to be. In ancient times, Lahaina was surrounded by wetlands from the ocean shoreline up to present Malu'ulu'olele Park. Wetland taro occupied much of the area mauka and makai as late as the early 1900's.

Fornander tells an interesting Hawaiian love story about E'eke and Lihau, two prominent landmarks in the uplands of Lahaina ahupua'a next door to Kahoma. E'eke and Lihau had been married for some time when E'eke became entangled. He saw a beautiful maiden from Kaua'ula named Pu'uwaiohina, the younger sister of Lihau and he committed adultery. E'eke was punished for his unfaithfulness by their god Hinaikauluau turning E'eke to a mountain, Pu'uwaiohina a mountain ridge while big sister Lihau became the hill in back of Olowalu. Pu'uwaiohina is the prominent mountain ridge at Kaua'ula today (Fornander, 534).

Lahaina Shelters Ships

The surrounding islands of Kaho'olawe, Molokini, Lana'i and Moloka'i provided Lahaina with desirable sheltered conditions for conquering chiefs and their large sailing canoes. Later, the whaling ships found the attractive conditions very suitable for them to anchor in Lahaina and remain throughout the winter months. Even today, it is not unusual to see two or more large ocean cruise ships and many other smaller boats in the same location where the whaling ships used to anchor.

One of the interviewed consultants got teary-eyed when he shared his childhood stories about seeing the canoes riding right up to the shoreline before the reconstruction of modern day Lahaina. He said that he remembered the canoes coming into the wet land area at 505 Front Street

HISTORICAL SITES-Lahainaluna

First High School

West of Rocky Mountains and Printing Press



TOMBSTONES OF NA ALI'I

QUEEN KEOPUOLANI - CHIEF KAUMUALI'I

PRINCESS NAHI'ENA'ENA



all the way up to the baseball park now the area which included a fishpond is covered up and is used for parking, stores and the present Malu'ulu-'o-Lele ball park (Kaniho).

Maui Chief Pi'ilani

A powerful chief who assisted in the physical architecture and cultural outlay of the island of Maui in the 1500's was Pi'ilani. He took up residence on the strip of land on the beach side of Moku'ula. The chief's ruling power extended from Hana in East Maui to the six bays of West Maui collectively called Honoapi'ilani or the bays acquired by Pi'ilani. The bays were Hononana (animated bay), Honokeana (the cave bay), Honokowai (bay drawing water), Honokohau (bay drawing dew), Honolua (two harbors) and Honokahua (sites bay).

Another great contribution Pi'ilani made unique only to Maui was the famed Alaloa or long road. This road, which the king started, was the only ancient highway to encircle any Hawaiian island which he completed at West Maui. His son Kiha'api'ilani followed through by completing the East Maui area. The road was four to six feet wide, 138 miles long, and a rock-paved thoroughfare prominently called the King's Highway. Historical accounts refer to the Alaloa running through Kahoma and the Ka'anapali Resort but it was destroyed by bulldozers when the plantations prepared the grounds for pineapple and sugar cane (Kamakau, 1961).

Lahaina, A Port Of Aloha

Upon investigating the living conditions of Kamehameha the Great's one year occupancy around 1802 which would establish Lahaina as the capital of the Hawaiian Islands, we were impressed by the fact that the West Maui Hawaiian community could supply their guests with the needed food for about 2,500 Lahaina residents. The Lahaina village during the time of King Kamehameha stretched from Mokuhinia Pond to the neighborhood known today as Mala. Mala Wharf and the Royal Coconut Grove were planted and maintained by orders of Queen Ka'ahumanu. At one point, it was estimated that Kamehameha had attacked Maui with 10,000 canoes. Multiply that figure by 4 to 6 warriors per canoe and that would give us an estimate of the large number of warriors the residents had to serve.

Kamehameha and Sandalwood

The Lahaina District had already been fulfilling the demand for supplies during Kamehameha the Great's sandalwood trade. During those early years, it was expected of the Maui natives to cut the sandalwood from distant Haleakala, drag it down to Central Maui, and deliver the fragrant sandalwood logs ('iliahi) to those ships in Lahaina that would deliver the King's cargo to China to be made into several items such as perfume, furniture, oils, etc. It certainly removed the Maui islanders out of their laid back lifestyle. The burden to supply large groups of uninvited guests did not stop with Kamehameha.

Whaling Ships

By 1822, there were recorded 34 American whaling ships replenishing supplies in the Hawaiian Islands, mainly in Lahaina. In 37 years, the number of whaling ships increased to a whopping 549 ships that docked for the winter months in Lahaina. The ship's captains expected to procure provisions and construct much needed repair work on their ships. The townspeople, including the influx of Christian missionaries who had taken up residence earlier, were not ready to handle the pleasure-bent, unruly and hard to handle crew.

With further study, we came to the realization that the entire Lahaina District was filled with an abundance of land crops such as taro and banana mauka and makai due to the abundance of water. The town of Lahaina was expected to assist in fulfilling the needs of the sailors. Exposure to the outside world brought rapid growth to Lahaina as well as rapid challenges. Every ahupua'a from Ukumehame to little Kahoma and out to North Honokohau and Kahakuloa was expected to provide the needed supplies.

'Alamihi, Kahoma's Loko I'a

The rich shorelines of Lahaina assisted the community with supplies from the sea such as fish, squid, octopus, seaweed, etc. Maui had been at the forefront in developing ocean aquaculture (loko i'a) that first started in Maui as early as the 13th century. The developments of the loko i'a at various locations in the Hawaiian Islands were created for the specific purpose of sheltering and nurturing fish for consumption.

The building of the first fishpond starts with a famous ancient story of the fish deity named Ku'ula who lived at Lehoula in the district called Aleamai, Hana, Maui with his wife Hinapuku'ia. The first work he was inspired to fulfill was to construct a loko i'a handy to his house but close to the shore where the surf breaks. This pond he stocked with all kinds of fish. Upon a rocky platform he also built a house to be sacred for the fishing kapu which he called by his own name Ku'ula.

Although Moloka'i has revived the cultivation their fishponds, the mokupuni (island) of Maui lists many fish pond sites that were built in ancient times but many are now dormant or covered by man today.

In our cultural search of Kahoma, we found that some investigators of the past had been aware of the presence of a possible fishpond named 'Alamihi which extended south from the south bank of Kahoma Stream. The Territory of Hawai'i granted a permit to Sizuko Suehiro to use the pond in the early 1900's. It is not known whether it was really utilized for aquaculture purposes by Suehiro. Surveys taken from 1908 concerning its size at 5.230 acres showed a significant decrease in size to 2.417 acres in 1953. In the later 1920's, 13,400 cubic yards of fill material was added to the pond as part of a public works improvement project to the Mala Wharf area. Though it was unclear where the material was put, it was thought to have been placed along the existing access road to Mala Wharf which would cut right in the middle of the fishpond.

All indications point that the 'Alamihi pond was intentionally filled in very rapidly by man. These factors, combined with a probable drop in the water table during this century, rapidly decreased the utility of the pond for aquaculture (Kanalei Shun Report).

Moku'ula and Mokuhinia

South of Kahoma, at today's 505 Front Street, was the more popular fishpond of Mokuhinia which housed Moku'ula, an ancient royal palace and religious site. This pond was fed by the freshwaters of Kaua'ula Stream. There were other fishponds in the neighborhood but Mokuhinia received most of the attention because it was the original home of the lizard goddess Kihawahine. Hawaiians believe that the essence of this sacred goddess has been present in fishponds throughout the State of Hawai'i. Kamehameha I called upon her powers when he was on his quest to conquer all the islands.

Later in the 1830s and 1840s, Kamehameha III used Moku'ula as his private residence. The Hawaiian government was run from the secluded island until 1845 when the capital was moved to Honolulu. While residing on the secluded island of Moku'ula, King Kamehameha III passed the land law called the Great Mahele. This law allowed land to be purchased by foreigners

On the opposite side of Kihawahine's home North of Kahoma was Pu'u Keka'a, the residence of King Kaka'alaneo. Pu'u Keka'a is known as the leina a ka 'uhane (the place of the passing of spirits). Hawaiians believed the souls after passing went to a sacred place to leap off into the next world.

In Fornander, Vol. 5:542, he writes:

On account of the great number of people at this place there are numerous skeletons 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 Ka'anapali (from the other side) going to Lahaina in the dark. When they came to Keka'a stones rolled down from the top of the hill without any cause. It prompted the neighbors to run around shouting, Keka'a is ghostly! Keka'a is ghostly!

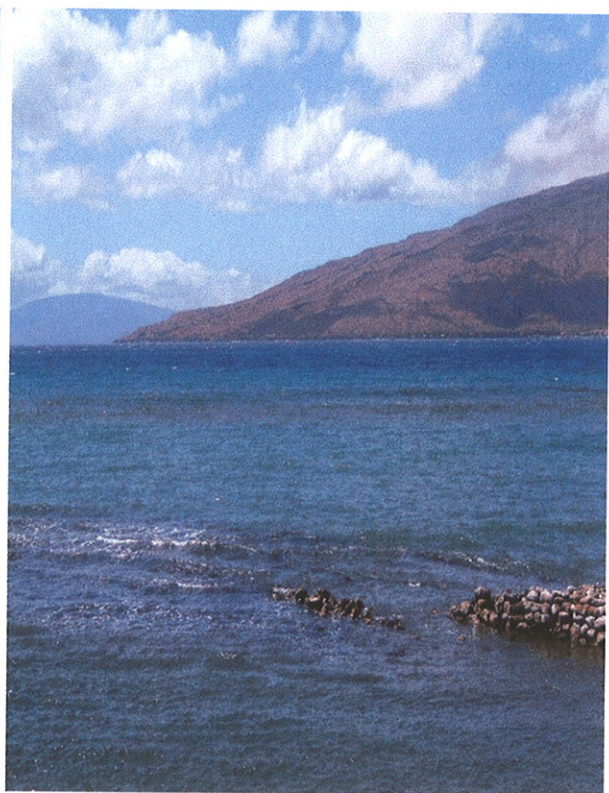
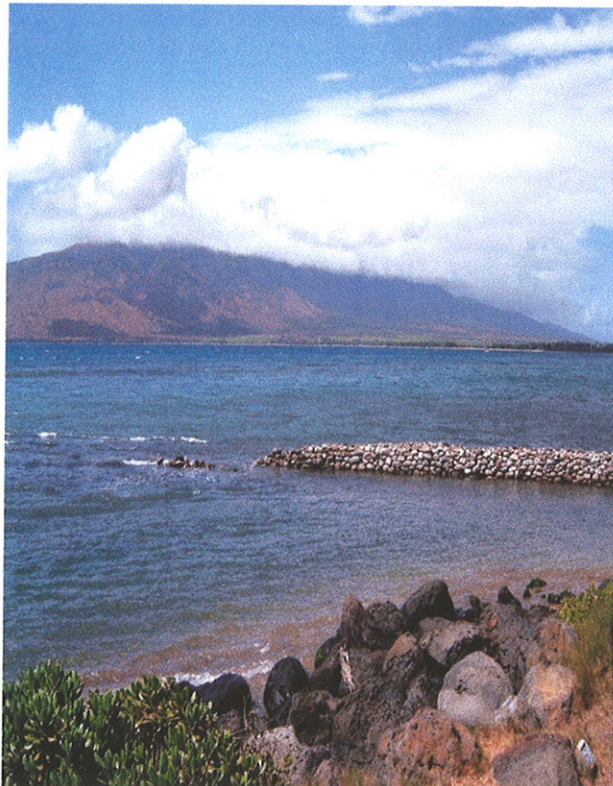
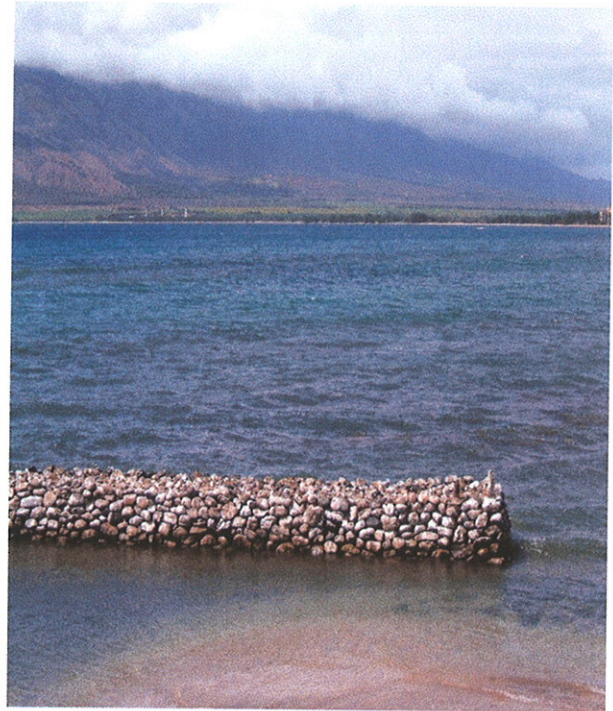
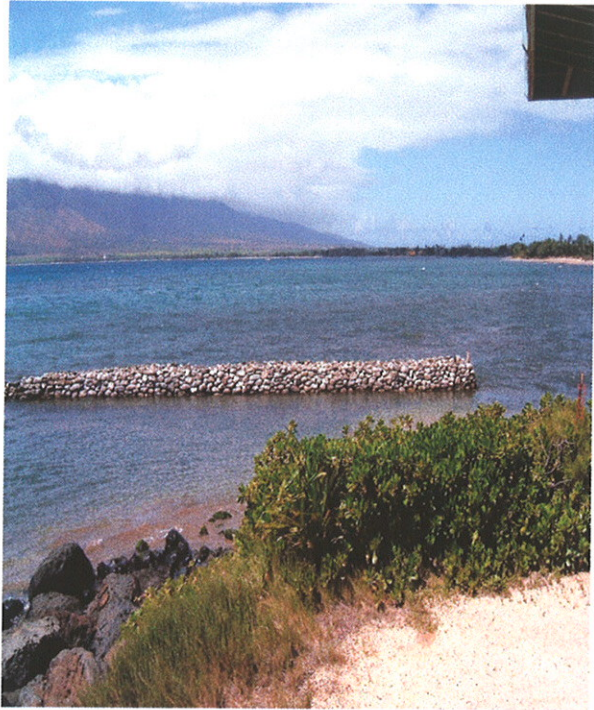
One of the reasons for finding so many corpses at Pu'u Keka'a was that a historical battle called Koko'o'na'moku took place there.

There are existing gravesites at Pu'upiha at the mouth of Mala Wharf. The neighboring Japanese Jodo Temple reported that many of the graves there are Japanese, Chinese and Hawaiian. The sandy coastline all along the Lahaina ahupua'a was the burial site of many local families. Many students reported to the KSFP that the banks of Kahoma Stream also served as gravesites to past residents in the area (Shun Report).

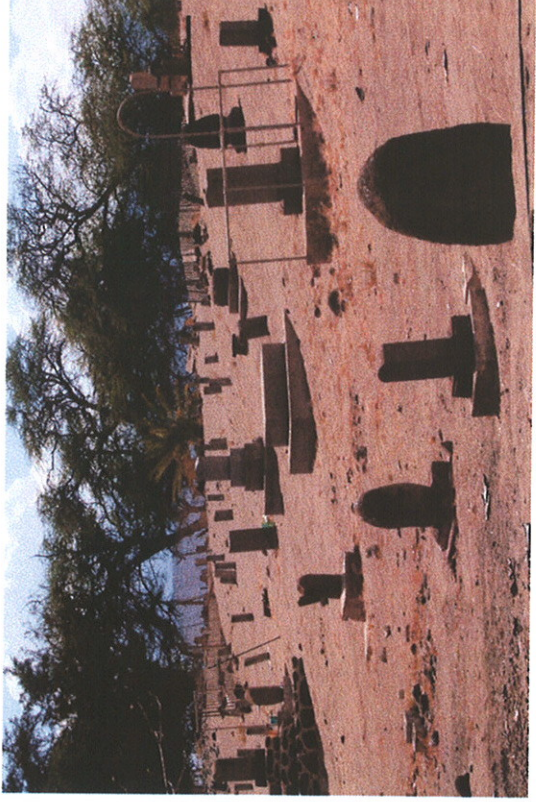
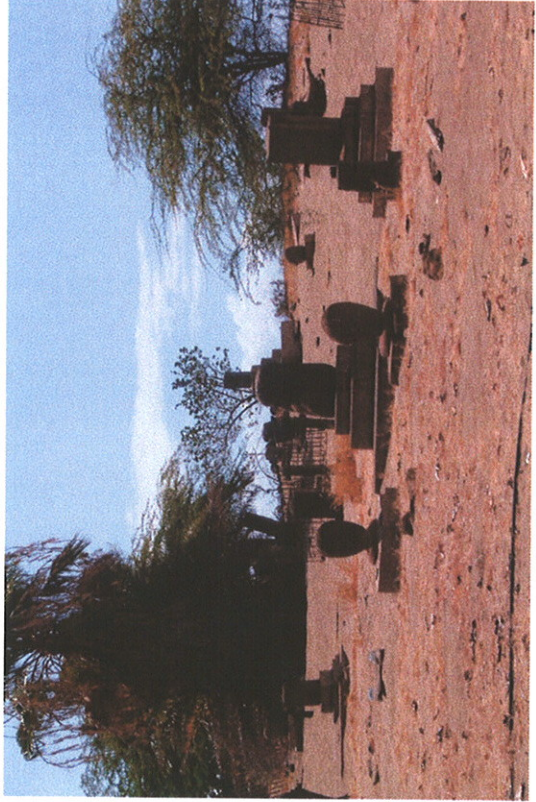
Lahaina's Ancient Temples

Kahoma sported its own heiau (ancient temple) called Luakona Heiau located at the rear of the old Chinese Store at Moali'i Bridge over the Kapa'ulu Stream between the wharf and the cannery (Ashdown). Ashdown goes on to list several other heiau starting with Wailehau at Malika Beach, Halekumukalani in the Puehuehunui cane fields above Lahaina and Apa'ahua heiau in the cane fields above Pioneer Mill Company's power house. She lists others such as: Wai'ie, Halulukoakoa and Moku'ula. It is appropriate to recognize that a thriving community required having their own temples so that the residents could conveniently go to worship their gods on their own accord. In "Sites of Maui", Sterling writes that a chief of Maui named Oho'ohukulani, was

LOKO I'A - Fish pond CONSTRUCTION IN PROGRESS



MALA WHARF BURIALS



Recent Erosion of Ocean Grave

at Mala Wharf

- Lahaina Jodo Mission provided valuable data on the oceanside graveyards @ Mala were filled with early Chinese & Japanese corpses. Since it's location is on the sandy seashore, many of the graves were recently uprooted by high surf in the area as indicated in the picture.



taken to the Pu'uhale heiau in Lahaina and offered as a sacrifice after he was killed by Kaka'alaneo's son Kaulula'au. This type of sacrificial heiau is called Luakini.

Ki'i Pohaku

Histories of the past were documented on the rocks and the walls of the river beds throughout Hawai'i. Many petroglyphs are still being discovered as archeologists and cultural assessors walk the land with a fine tooth comb. In Connolly III's Phase I KSFCP, he sites a location of Kahoma petroglyphs with an accompanying map of its location right in the middle of Pioneer Mill Company property.

Less known and apparently of far older origin are petroglyphs of strictly matchstick type located on the side of a cliff up Kahoma Valley, just below Lahainaluna School. Also located on Pioneer Mill Co. property, they were recently discovered by J.B. McConkey, of Lahaina Light & Power Co. Ltd. Along the left side of the road, the figures are found at intervals for at least a sixth of a mile. Since the area has been relatively unexplored, it is believed that more of the figures may exist behind the dense underbrush at the base of the cliff. Others probably exist on the buried faces of slate which have fallen from the parent cliff (Sterling, 42).

Pioneer Mill

High above the Lahaina town backdrop of Kahoma Stream is the landmark smokestack that represents an era that changed the lifestyle of the residents of Lahaina. Started in 1860 by James Campbell, Henry Turton and James Dunbar, they ran the newly created Pioneer Mill Company that expanded into sugar production which was delivered by train to Pu'u Keka'a in Ka'anapali at Black Rock. In 1957, they proposed a multi-million dollar resort which started replacing sugar plantations with golf courses, hotels, condominiums, shopping malls, restaurants and shops.

Except for the smokestack and the train that still runs vacationers on a scenic ride, Pioneer Mill is closed for business.

Hauola Rock

One of the most sacred and significant sites that have come down through infinity is the Hauola Rock that sits close to shore in Lahaina Town. The rock relates to a woman by the name of Hauola who fled from her enemies. When she reached the shore, her gods turned her into the Hauola Rock. Hau means to worship and ola means life (Ashdown).

Report Summary

Anchored upon the definition of Hauola, here is our response to the development of the Kahoma Subdivision. The Kahoma project will assist in providing much needed affordable housing in the surrounding area in the spirit of Hauola or the appreciation of life. The designated developing area TMK {2} 4-5-10: Parcels 5 &6 are far back from the ocean so that it won't affect the shoreline. The development would not influence the Kahoma Stream run off after development because it is high and far removed from the fence line and serves as a barrier for irregular pollution activities. No cultural sites and artifacts were found on the actual piece of land by the cultural assessors. Even though there were many significant sites in ancient times, there is nothing left that might have impact on Hawai'i's culture. We are including a list of native trees and plants that can help the weather patterns and overall environment of Kahoma and retain the Hawaiianess of the ahupua'a. The suggested plan to have an entry/exit road that leads to Lahainaluna Road and another entry/exit road towards Honoapi'ilani will help the flow of the neighborhood traffic. In short, we leave this report me ke aloha pumehana (with our sincerest aloha) and the wisdom of our kupuna who said, "E ho'olohe i ka leo o ka 'aina" (Listen to the voice of the land).

Bibliography

Ahlo, Hamilton M. Jr. & Maurice E. Morgenstein, Archaeological Test Excavations Near the Mouth Area of Kahoma Stream, Lahaina, Maui. Report prepared for US Army Corps of Engineers Division. Pacific Ocean 1971.

Ashdown, Inez. Stories of Old Hawai'i, Ace Printing Company, Inc. 1974.

Beckwith, Martha. Hawaiian Mythology, The University Press of Hawai'i, Honolulu 1970.

Ellis, William. Journal of William Ellis, Advertiser Publishing Company, Ltd. Honolulu, Hawai'i 1963.

Ellis, William. Polynesian Researches Hawai'i, Charles E. Tuttle Company 1969.

Fornander, Abraham. Fornander Collection: Volume V Part III pgs. 534, 542. Bishop Museum Press, Honolulu, Hawai'i 1919.

Grace, Jean Mckean. Editor and Lois S. Nishimoto, Cartographer, Marine Atlas of Hawai'i Bays and Harbors. University of Hawai'i Press of Hawai'i 1974.

Handy, E.S.C. The Hawaiian Planter Volume I: His Plants, Methods and Areas of Cultivation. Bernice P. Bishop Museum Bulletin 161 1940.

Handy, E.S. Craighill, Native Planters in Old Hawai'i: Their Life, Lore, and Environment. Bishop Museum Press, Honolulu, Hawai'i 1972.

Harold Hall, Chairman. Lahaina Historical Guide, Lahaina Historical Society. Honolulu:Star Bulletin Print Company 1969.

Ii, John Papa. Fragments of Hawaiian History. Bishop Museum Press, Honolulu, Hawai'i 1959.

Interviews:

Kaniho, Harold. Personal interview Nov. 18, 2005.

Kukahiko, Earl. Personal interview Nov. 22, 2005.

Lai, Joseph Y.L. Personal interview Nov. 18, 2005.

Sequeira, Keola Levan. Personal interview Nov. 21, 2005.

Shim, Ewalani. Personal interview Nov. 18, 2005.

Kamakau, S.M. Ruling Chiefs of Hawai'i. Kamehameha School Press, Honolulu, Hawai'i 1961.

Kliger, Christiaan P., Moku'ula Maui's Sacred Island. Bishop Museum Press. Honolulu, Hawai'i 1998.

Malo, David. Hawaiian Antiquities, Bishop Museum Press, Honolulu, Hawai'i 1959.

Nickerson, Roy. Lahaina Royal Capital of Hawai'i Graphic Arts & Letters Unlimited. Printed in Hawai'i USA 1978.

Pukui, Mary Kawena and Samuel H. Elbert. Hawaiian Dictionary. University of Hawai'i Press, Honolulu, Hawai'i 1986.

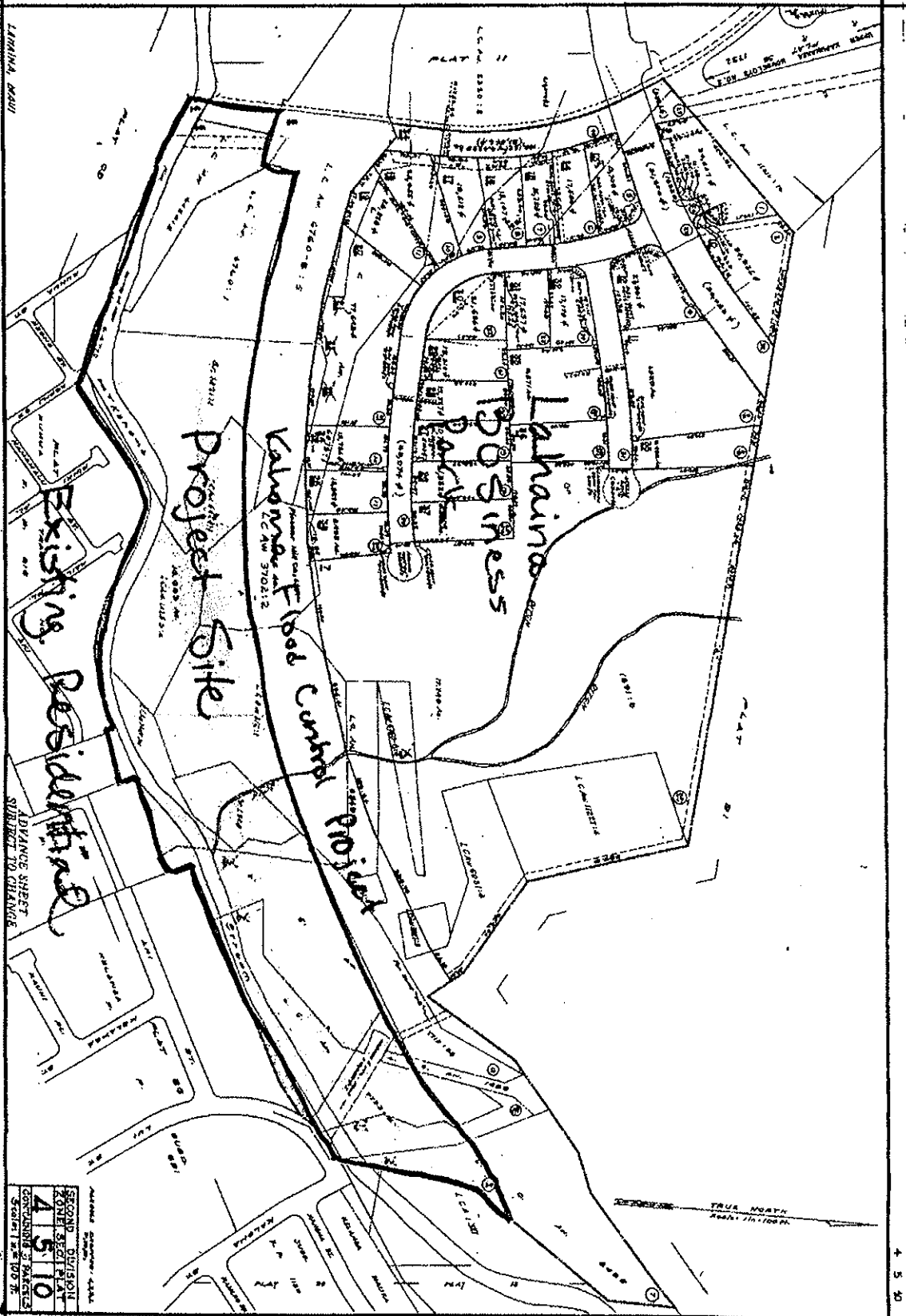
Sahara, Tamotsu, Edwin T. Murabayashi Jr., Arthur Y. Ching Jr., Land Classification Specialists, Iwao Kuwahara Jr., Faith N. Fujimura Jr., Eunice L. Awai Jr., Specialists in Cartography and Harold L. Baker, Director and Land Economist Detailed Land Classification—Island of Maui. Land Study Bureau, University of Hawai'i at Manoa 1959.

Shun, Kanalei. M.A. Archaeological Excavation of Human Bone Remains, Kahoma Stream Flood Control Project, Kahoma Stream, Lahaina, Island of Maui. Report prepared for US Army Engineer District, Honolulu Corp of Engineers. Archaeological Associates Oceania, Kaneohe, Hawai'i 1991.

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ADVANCE SHEET
SUBJECT TO CHANGE

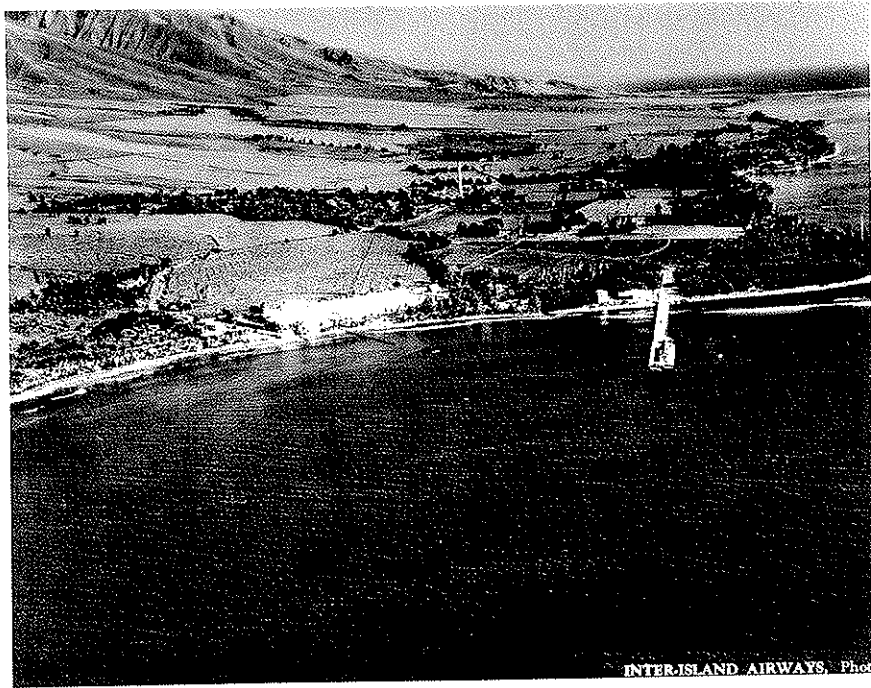
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LOCATION MAP



KAHOMA
EMPLOYEE
SPECIAL NEEDS
MARKET SITE







Coconut Grove - Maui, H.

Some Kahoma Native Plants

Type*	Scientific Name	Hawaiian Name	Family
S	<i>Achyranthes splendens</i>	Ewa hinahina	Amaranthaceae
T	<i>Charpentiera ovata</i>	Papala	Amaranthaceae
S	<i>Nototrichium sandwicense</i>	Kulu'i	Amaranthaceae
T	<i>Rhus sandwicensis</i>	Neneleau	Anacardiaceae
L	<i>Alyxia oliviformis</i>	Maile	Apocynaceae
T	<i>Rauvolfia sandwicensis</i>	Hao	Apocynaceae
T	<i>Reynoldsia sandwicensis</i>	Ohe makai	Araliaceae
T	<i>Tetraplasandra hawaiiensis</i>	Ohe mauka	Araliaceae
T	<i>Pritchardia forbesiana</i>	Loulu	Arecaceae
S	<i>Bidens mauiensis</i>	Ko'oloa'ula	Asteraceae
S	<i>Artemisia mauiensis</i>	Ahinahina	Asteraceae
S	<i>Lipochaeta succulenta</i>	Nehe	Asteraceae
T	<i>Cordia subcordata</i>	Kou	Boraginaceae
S	<i>Capparis sandwichiana</i>	Maiapilo	Capparaceae
S	<i>Chenopodium oahuense</i>	Aweoweo	Chenopodiaceae
L	<i>Ipomoea indica</i>	>>Ipomoea indica	Convolvulaceae
G	<i>Jacquemontia ovalifolia</i>	Pa'uohi'iaka	Convolvulaceae
L	<i>Bonamia menziesii</i>	Hawai'i lady's nightcap	Convolvulaceae
L	<i>Sicyos hispidus</i>	Anunu	Cucurbitaceae
GS	<i>Carex wahuensis</i>	Oahu sedge	Cyperaceae
F	<i>Nephrolepis cordifolia</i>	Kupukupu	Dryopteridaceae
T	<i>Diospyros sandwicensis</i>	Lama	Ebenaceae
S	<i>Styphelia tameiameia</i>	Pukiawe	Epacridaceae
T	<i>Acacia koaia</i>	Koaia	Fabaceae
L	<i>Canavalia haleakalaensis</i>	Awikiwiki	Fabaceae
S	<i>Senna gaudichaudii</i>	Kolomona	Fabaceae
S	<i>Scaevola gaudichaudii</i>	ridgetop naupaka	Goodeniaceae
G	<i>Dianella sandwicensis</i>	Uki'uki	Liliaceae
T	<i>Pleomele auwahiensis</i>	Hala pepe	Liliaceae
T	<i>Hibiscus kokio</i>	Koki'o 'ula	Malvaceae
T	<i>Hibiscus brackenridgei</i>	Ma'o hau hele	Malvaceae
S	<i>Sida fallax</i>	Ilima	Malvaceae
S	<i>Abutilon menziesii</i>	Ko'oloa 'ula	Malvaceae
L	<i>Cocculus trilobus</i>	Huehue	Menispermaceae
T	<i>Myoporum sandwicense</i>	Naio	Myoporaceae
T	<i>Metrosideros polymorpha</i>	Ohi'a lehua	Myrtaceae
T	<i>Pisonia sandwicensis</i>	Papala kepau	Nyctaginaceae
G	<i>Peperomia leptostachya</i>	Ala'ala wai nui	Piperaceae
T	<i>Pittosporum glabrum</i>	Hoawa	Pittosporaceae
GS	<i>Eragrostis variabilis</i>	Kawelu	Poaceae
GS	<i>Heteropogon contortus</i>	Pili	Poaceae
T	<i>Alphitonia ponderosa</i>	Kawila	Rhamnaceae
T	<i>Santalum ellipticum</i>	Iliahi	Santalaceae
T	<i>Dodonaea viscosa</i>	A'ali'I	Sapindaceae
T	<i>Pouteria sandwicensis</i>	Ala'a	Sapotaceae

Type*: T = Tree, S = Shrub, G = Groundcover, L = Liana, F = Fern, GS =Grass Sedge

Some Kahoma Native Plants

L	<i>Smilax melastomifolia</i>	Hawai'i greenbrier	Smilacaceae
T	<i>Nothocestrum latifolium</i>	Aiea	Solanaceae
T	<i>Wikstroemia oahuensis</i>	Akia	Thymelaeaceae
S	<i>Pipturus albidus</i>	Mamaki	Urticaceae

Type*: T = Tree, S = Shrub, G = Groundcover, L = Liana, F = Fern, GS = Grass Sedge

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 @ Lahainaluna 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 'Olowalu. 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 Hinau family was our neighbor..

KT – Betty Hinau?

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 Hinau 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, auntie 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 Lahainaluna. 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 ??? Vetrans for World War I. Buried at Makawao memorial Vetrans'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 li'ili'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(hanai) 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?

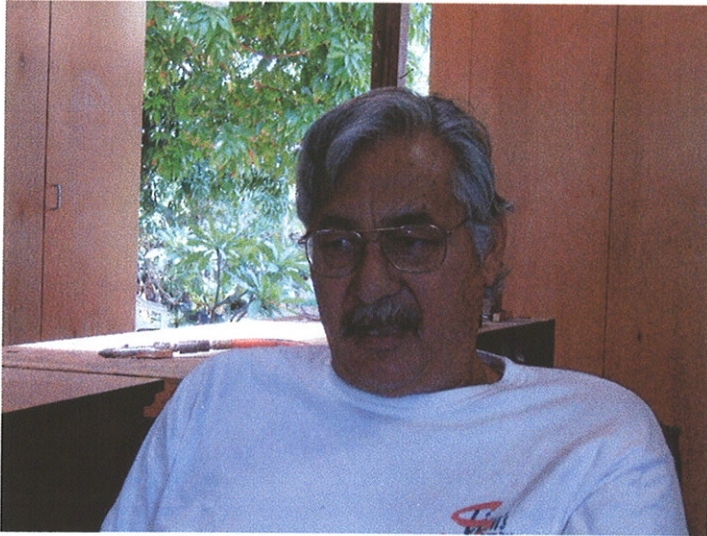
C – Spooky Kine? When at the Wharf, can hear ukulele and singing but when we go there, nobody there. Also, Dad used to hear voices calling him just like me.

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 tarketng 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 governer 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 Oponui 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 punee. 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 Lili'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 she comes 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 Kanakaonahe 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 – 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) Nalaielua, 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 aaall 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 – 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 – 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 Makekau, 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

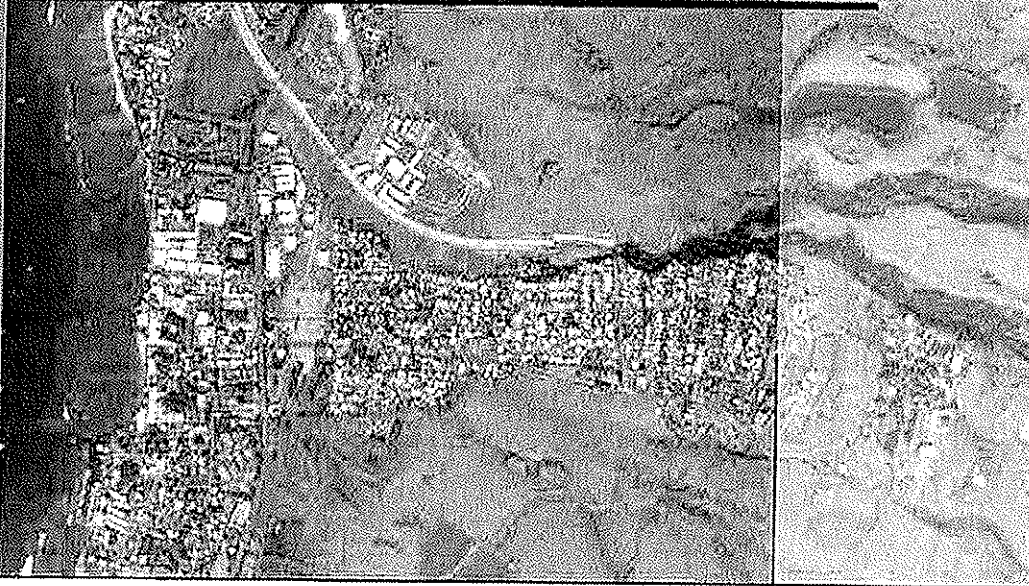
C – When we were born had mid-wives. Name came out Kapalua @ Ritz-Carlton given by Mr. Fleming. Before, it was called Honokohua. There was a scout camp there. Many people who have moved off Maui that lived @ Honokohua ask about Kapalua when they return for a visit and are surprised to find the name change 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 E.

Traffic Impact Analysis Report

Traffic Impact Report

Kahoma Residential Development



Prepared for
West Maui Land
Company, Inc.

Prepared by
Wilson Okamoto
Corporation

October 2007

TRAFFIC IMPACT REPORT
FOR THE
KAHOMA RESIDENTIAL DEVELOPMENT

Prepared for:

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October 2007

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to assess anticipated traffic conditions resulting from the proposed Kahoma Residential Development located east of Honoapiilani Highway in Lahaina on the island of Maui. The project entails the development of 25 special needs multi-family rental units and 70 single-family residential lots.

B. Scope of Study

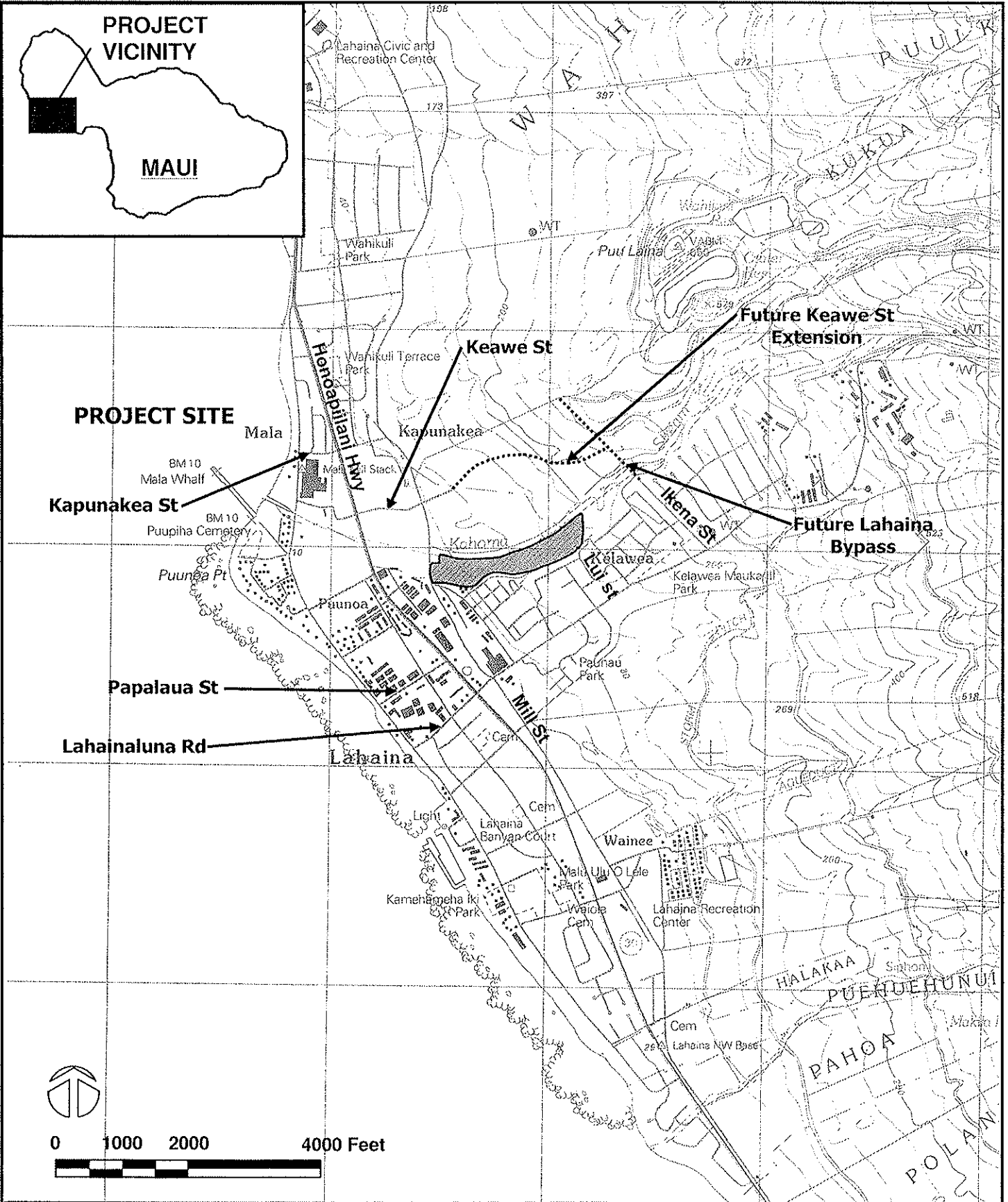
This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

II. PROJECT DESCRIPTION

A. Location

The project site for the proposed Kahoma Residential Development is located east of Honoapiilani Highway between Lahainaluna Road and the Kahoma Stream. The project site is further identified as Tax Map Keys: (2) 4-5-10: 5 and 6 (see Figure 1). Access to the project site would be via provided via connections to the local roadway network on the west and east ends of the project site.



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KAHOMA RESIDENTIAL DEVELOPMENT

Location Map and Vicinity Map

FIGURE
1

B. Project Characteristics

The proposed Kahoma Residential Development will be located on an approximately 16.8-acre site bordered by the Kahoma Stream to the north and existing residential homes to the south. The proposed project is expected to be completed by the Year 2011 and includes 25 special needs multi-family rental units and 70 single-family residential lots. The one-bedroom special needs units will provide independent living opportunities to qualified individuals. Access to Kahoma Residential Development will be provided via roadway connections on the west and east ends of the project site. Access to the west end of the project site will be provided via Mill Street and Keawe Street while access at the east end will be provided via Lui Street and Lahainaluna Road. Figure 2 shows the project site plan.

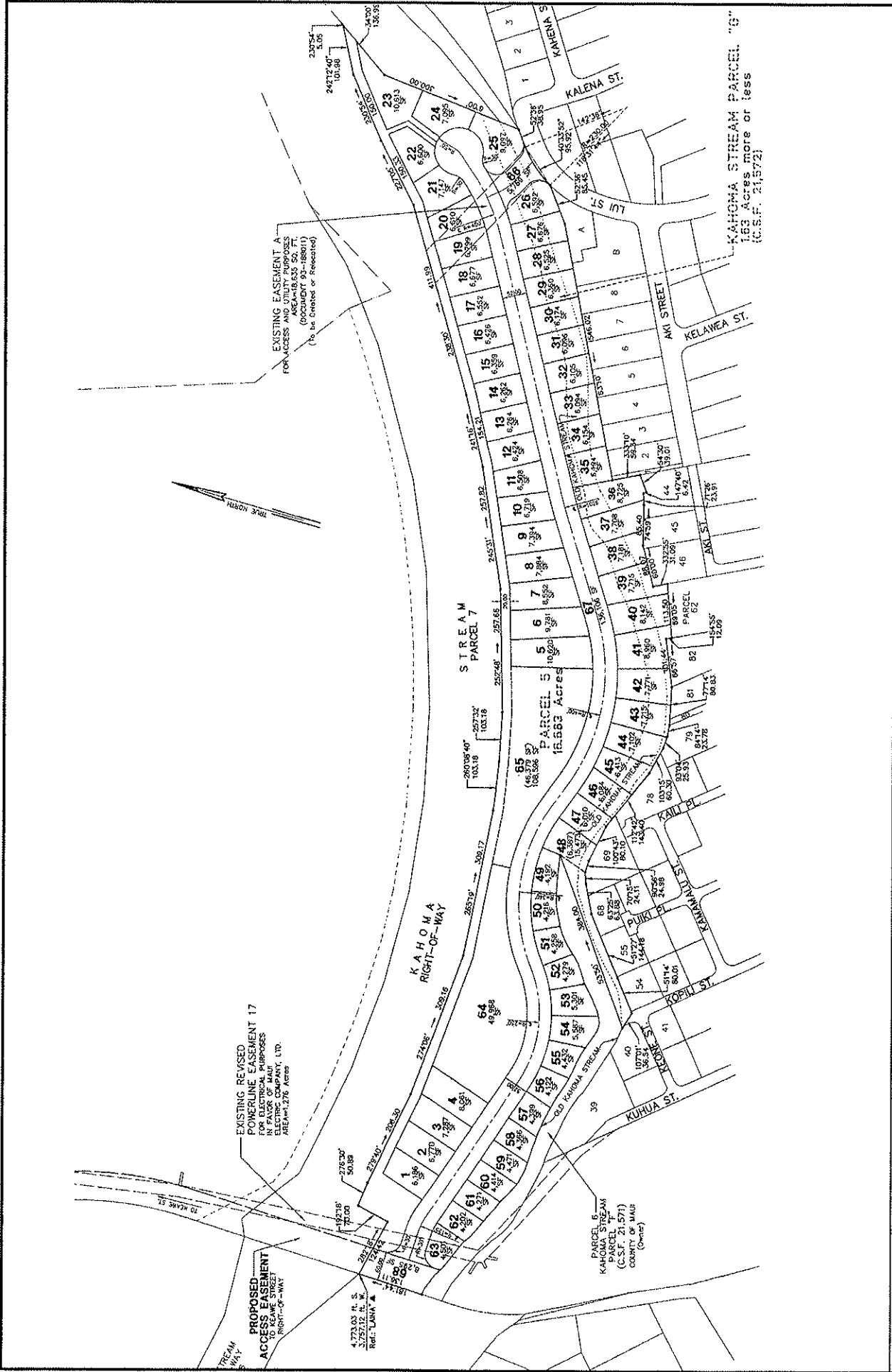
III. EXISTING CONDITIONS

A. General

The proposed project site is located approximately east of Honoapiilani Highway north of Lahainaluna Road. Honoapiilani Highway serves as a major collector roadway through central Maui and along the northwest coast of the island from its origin in Wailuku to its terminus near the north shore of Maui. In the project vicinity, Honoapiilani Highway is generally linked to east-west roadways that serve the surrounding residences, resort areas, agricultural lands, and commercial areas.

B. Area Roadway System

In the vicinity of the proposed project, Honoapiilani Highway is primarily a two-way, four-lane, undivided State of Hawaii roadway generally oriented in the north-south direction. At the signalized intersection with Kapunakea Street on the northern end of the project study area, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Kapunakea Street is generally a two-lane, two-way County of Maui roadway that originates near the coast at Front Street and continues northeast past the intersection with the highway to its terminus at Nahale Place. At the intersection with Honoapiilani Highway, the westbound approach of Kapunakea Street has an exclusive



KAHOMA RESIDENTIAL DEVELOPMENT

PROJECT SITE PLAN

FIGURE
2

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left-turn lane and a shared through and right-turn lane while the eastbound approach includes a shared left-turn and through lane, and an exclusive right-turn lane.

South of the intersection with Kapunakea Street, Honoapiilani Highway intersects Keawe Street and the Lahaina Cannery Mall driveway. At this signalized intersection, the northbound approach of the highway has exclusive turning lanes and two through lanes while the southbound approach has an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Keawe Street is generally a two-lane, two-way County of Maui roadway that provides access to an adjacent industrial area. At the intersection with the highway, the Keawe Street approach has an exclusive right-turn lane and a shared left-turn and through lane. The eastbound approach of this intersection is comprised of the Lahaina Cannery Mall driveway which has an exclusive right-turn lane and a shared left-turn and through lane.

South of the intersection with Keawe Street, Honoapiilani Highway intersects Papalaua Street. At this signalized intersection, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Papalaua Street is generally a two-lane, two-way County of Maui roadway generally oriented in the east-west direction between Front Street and the highway. At the intersection with Honoapiilani Highway, the eastbound approach of Papalaua Street has an exclusive right-turn lane and a shared left-turn and through lane while the westbound approach has one lane that serves all traffic movements.

At the southern end of the project study area, Honoapiilani Highway intersects Lahainaluna Road. At this signalized intersection, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Lahainaluna Road is a predominately two-lane, two-way County of Maui roadway generally oriented in the east-west direction between its origin at Front Street and its terminus near Lahainaluna High School. At the intersection with the highway, the westbound approach has exclusive turning lanes and one through lane while the eastbound approach has an exclusive left-turn lane and a shared through and right-turn lane.

C. Traffic Volumes and Conditions

1. General

a. Field Investigation

The field investigations were conducted on September 13 & 20, 2007. The field investigation consisted of manual intersection turning movement count surveys and field observations of traffic conditions in the vicinity. The traffic count surveys were conducted between the morning peak hours of 6:15 AM and 8:30 AM, and between the afternoon peak hours of 3:00 PM and 6:00 PM at the following intersections:

- Honoapiilani Highway and Kapunakea Street
- Honoapiilani Highway, Keawe Street, Lahaina Cannery Mall Driveway
- Honoapiilani Highway and Papalaua Street
- Honoapiilani Highway and Lahainaluna Road

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the “Highway Capacity Manual”, Transportation Research Board, 2000, and the “Highway Capacity Software”, developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS).

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS “A” through “F”. LOS “A” represents ideal or free-flow traffic operating conditions and LOS “F” represents unacceptable or potentially congested traffic operating conditions. LOS “B”, “C”, “D”, and “E” represent the intermediate traffic operational characteristics between the two extremes of LOS “A” and LOS “F”. The LOS definitions are included in Appendix B.

“Volume-to-Capacity” (v/c) ratio is another measure indicating the relative traffic demand to the roadway carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 generally indicates that the traffic demand exceeds the road’s carrying capacity.

2. Existing Peak Hour Traffic

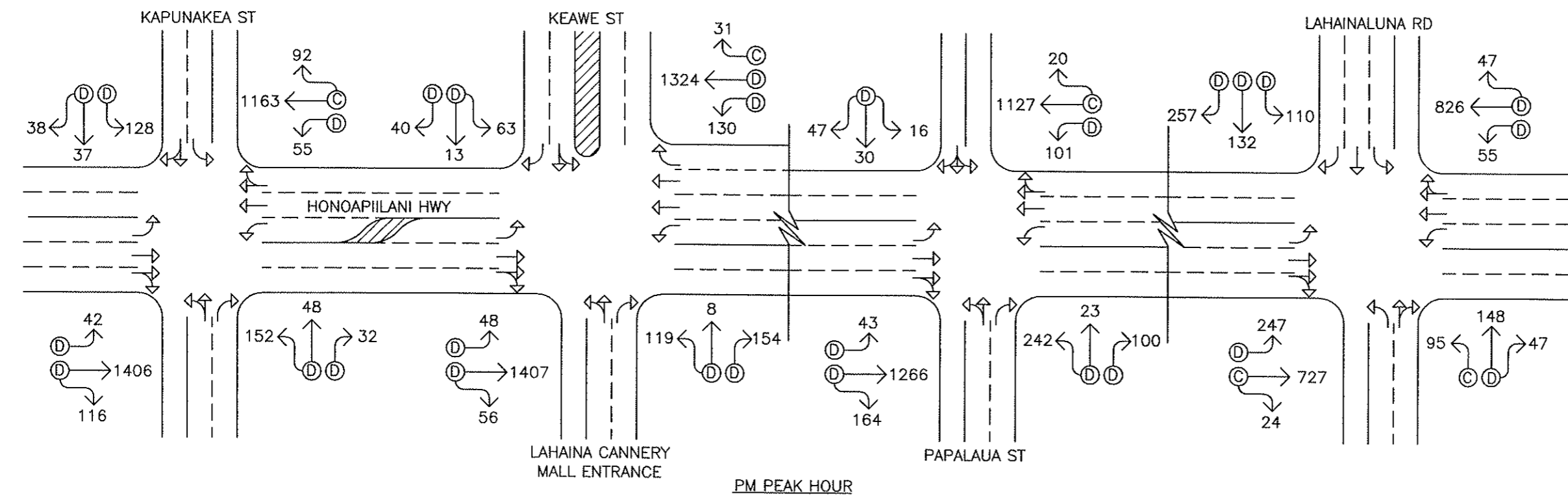
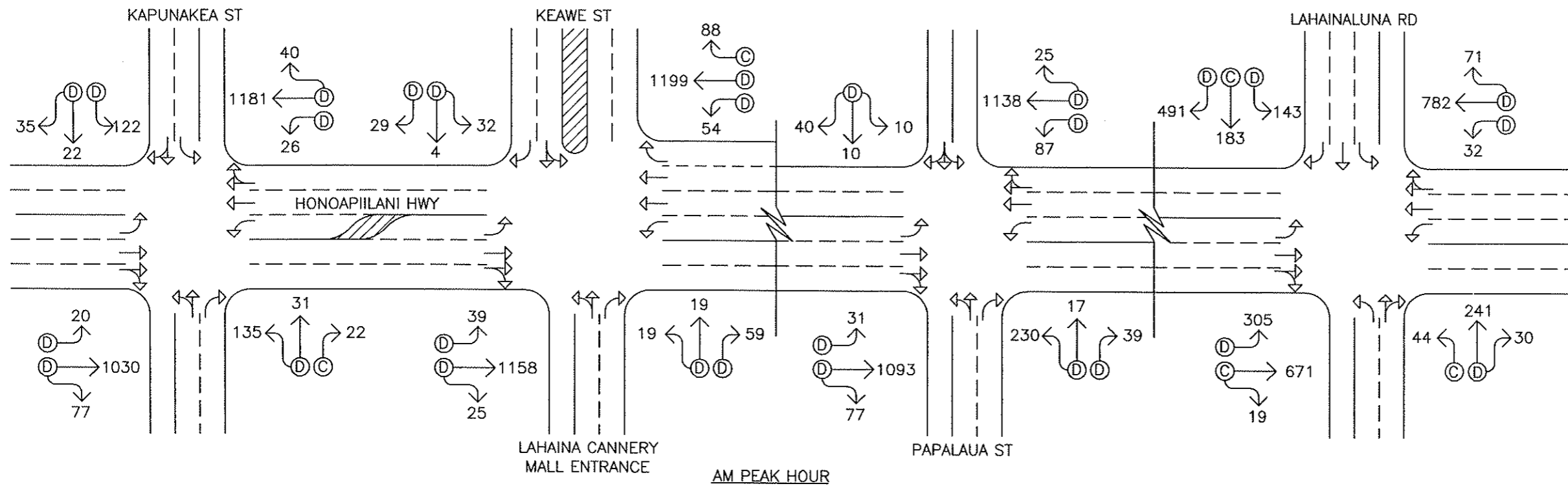
a. General

Figure 3 shows the existing AM and PM peak hour traffic volumes and traffic operating conditions along Honoapiilani Highway in the project vicinity. The morning peak hour of traffic generally occurs between 7:00 AM and 8:00 AM in the project vicinity and represents commuter, as well as, school-related traffic. In the afternoon, the peak hour of traffic generally occurs between the hours of 3:00 PM and 4:00 PM in the project vicinity. Although the peak hours of traffic generally occur around the same time periods at each of the study intersections, the absolute commuter peak hour time periods for each intersection may differ slightly as shown in Table 1.

Table 1: Peak Hours of Traffic

Intersection	AM Peak	PM Peak
Honoapiilani Hwy/ Kapunakea St	7:00 AM-8:00 AM	3:15 PM-4:15 PM
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy	7:00 AM-8:00 AM	3:15 PM-4:15 PM
Honoapiilani Hwy/ Lahainaluna Rd	7:00 AM-8:00 AM	3:00 PM-4:00 PM

The analysis is based on the above absolute commuter peak hour time periods for each intersection to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.



LEGEND

90 ↗ TRAFFIC MOVEMENT VOLUME (VPH)

↔ LANE USAGE

ⓐ LANE GROUP LEVEL OF SERVICE

DATE OF COUNT: September 13 & 20, 2007

b. Honoapiilani Highway and Kapunakea Street

At the intersection with Kapunakea Street, Honoapiilani Highway carries 1,247 vehicles northbound and 1,127 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,310 vehicles traveling northbound and 1,564 vehicles traveling southbound. The critical movements on the highway approaches of the intersection are the northbound left-turn traffic movement and the traffic movements on the southbound approach which operate at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring during the PM peak period. Average queue lengths of 10-12 vehicles were observed on both approaches during this peak period. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Kapunakea Street approaches of the intersection carry 188 vehicles eastbound and 179 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are slightly higher with 232 vehicles traveling eastbound and 203 vehicles traveling westbound. The critical movements on the Kapunakea Street approaches of the intersection are the eastbound left-turn and westbound left-turn and through traffic movements which operate at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the Kapunakea Street approaches of the intersection with average queue lengths of 5-7 vehicles observed on both approaches during the AM and PM peak hours of traffic. However, these queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

c. Honoapiilani Highway, Keawe Street, and the Lahaina Cannery Mall Driveway

At the intersection with Keawe Street and the Lahaina Cannery Mall driveway, Honoapiilani Highway carries 1,341 vehicles northbound and 1,222 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,485 vehicles traveling northbound and 1,511 vehicles traveling southbound during the PM peak period. The critical movements on the highway approaches of the intersection are the northbound left-turn and southbound through and right-turn traffic movements which operates at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring during the PM peak period. Average queue lengths of 8-10 vehicles were observed on both approaches during this peak period. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Keawe Street approach of the intersection carries 65 and 116 vehicles westbound during the AM and PM peak periods, respectively. The traffic movements on the Keawe Street approach operate at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the Keawe Street approach of the intersection with average queue lengths of 1-2 vehicles were observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

The eastbound approach of the intersection is comprised of the Lahaina Cannery Mall driveway which carries 97 vehicles and 281 vehicles eastbound during the AM and PM peak periods, respectively.

The traffic movements on the driveway approach of the intersection operate at LOS “D” during both peak periods. Traffic queues periodically formed on the driveway approach of the intersection with average queue lengths of 3-5 vehicles were observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

d. Honoapiilani Highway and Papalaua Street

At the intersection with Papalaua Street, Honoapiilani Highway carries 1,250 vehicles northbound and 1,201 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,248 vehicles traveling northbound and 1,473 vehicles traveling southbound. The critical movements on the highway approaches of the intersection are the northbound left-turn and southbound through and right-turn traffic movements which operate at LOS “D” during both peak periods. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring on the southbound approach of the intersection. Average queue lengths of 8-10 vehicles were observed on this approach during both peak periods and, occasionally, queues from the downstream intersection with Lahainaluna Road extended through the intersection. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Papalaua Street approaches of the intersection carry 286 vehicles eastbound and 60 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 365 vehicles traveling eastbound and 93 vehicles traveling westbound. The critical movements on the Papalaua Street approaches of the intersection are the eastbound left-turn and through traffic movement

and the traffic movements on the westbound approach which operate at LOS "D" during both peak periods. Traffic queues periodically formed on the Papalaua Street approaches of the intersection with the most significant queuing occurring on the eastbound approach of the intersection. Average queue lengths of 5-7 vehicles were observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

e. Honoapiilani Highway and Lahainaluna Road

At the intersection with Lahainaluna Road, Honoapiilani Highway carries 885 vehicles northbound and 995 vehicles southbound during the AM peak period. During the PM peak period, the overall traffic volume is slightly higher with 928 vehicles traveling northbound and 998 vehicles traveling southbound. The critical movements on the highway approaches of the intersection are the northbound through and right-turn traffic movement and the southbound left-turn traffic movement which operate at LOS "D" during both peak periods. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring on the southbound approach of the intersection. Average queue lengths of 8-10 vehicles were observed on this approach during both peak periods with queues occasionally extending through the upstream intersection with Papalaua Street. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Lahainaluna Road approaches of the intersection carry 315 vehicles eastbound and 817 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is less with 290 vehicles traveling eastbound and 499 vehicles traveling

westbound. The critical movements of the Lahainaluna Road approaches are the westbound left-turn and right-turn traffic movements which operate at LOS “D” during both peak periods. Traffic queues periodically formed on the Lahainaluna Road approaches of the intersection with average queue lengths of 5-7 vehicles observed on both approaches during the AM and PM peak hours of traffic. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in “Trip Generation, 7th Edition,” 2003. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per dwelling unit. Table 2 summarizes the project site trip generation characteristics applied to the AM and PM peak hours of traffic.

Table 2: Peak Hour Trip Generation

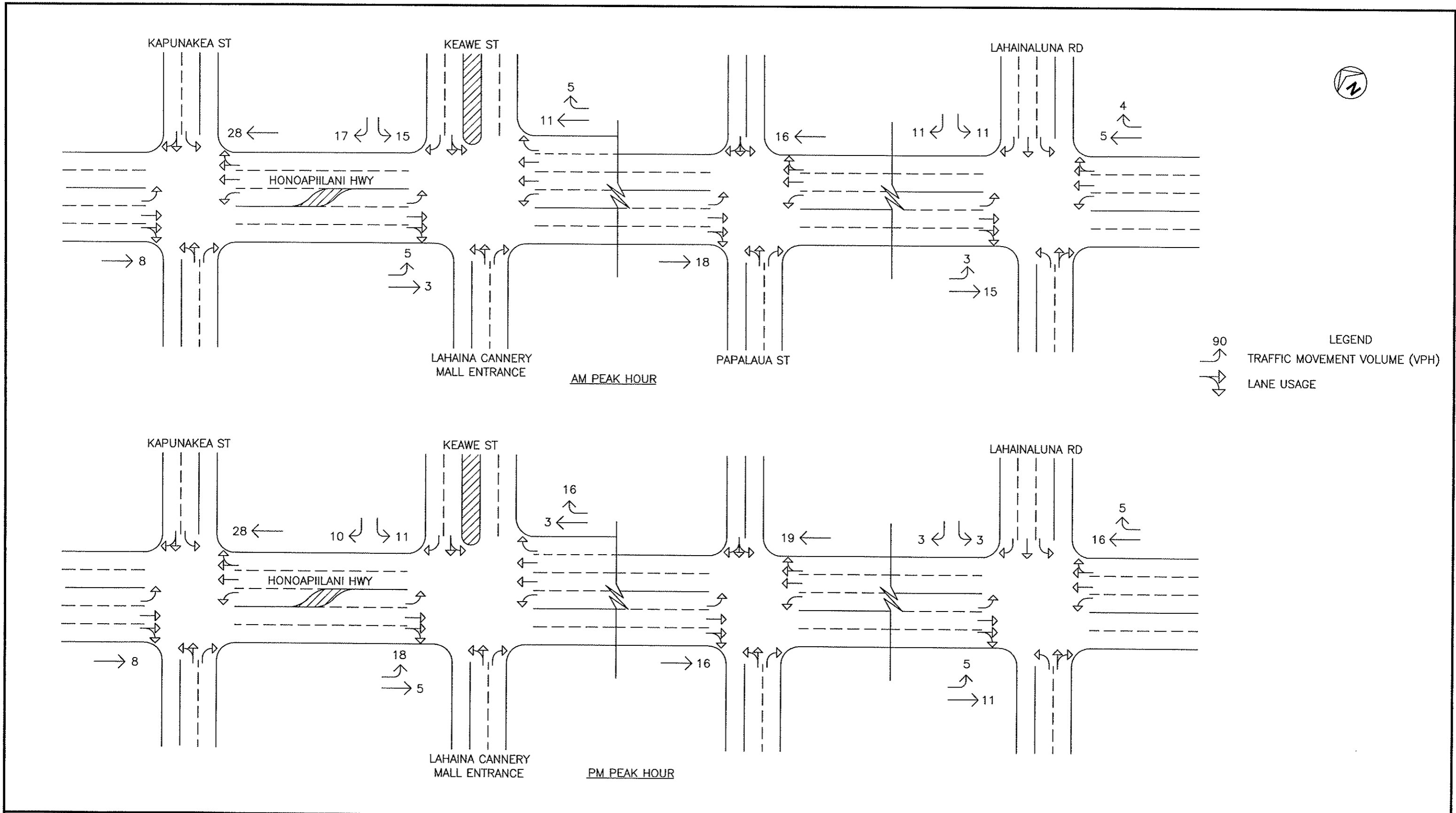
APARTMENT		
INDEPENDENT VARIABLE:		# of dwelling units = 25
		PROJECTED TRIP ENDS
AM PEAK	ENTER	3
	EXIT	10
	TOTAL	13
PM PEAK	ENTER	10
	EXIT	6
	TOTAL	16

Table 2: Peak Hour Trip Generation (Cont'd)

SINGLE-FAMILY DETACHED HOUSING		
INDEPENDENT VARIABLE:		# of dwelling units = 70
		PROJECTED TRIP ENDS
AM PEAK	ENTER	14
	EXIT	44
	TOTAL	58
PM PEAK	ENTER	49
	EXIT	29
	TOTAL	78
TOTALS		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	17
	EXIT	54
	TOTAL	71
PM PEAK	ENTER	59
	EXIT	35
	TOTAL	94

2. Trip Distribution

Figure 4 shows the AM and PM peak hour traffic distribution of project site-generated traffic at each of the study intersections. Access to the project site will be provided via roadway connections on the west and east ends of the project site. The directional distribution of traffic was based on the prevalent distribution of traffic along Honoapiilani Highway. As such, 51.8 % were assumed to be traveling northbound and 48.2% were assumed to be traveling southbound during the AM peak period. Similarly, during the PM peak period, 47.8% were assumed to be traveling northbound and 52.2% were assumed to be traveling southbound. These vehicles were then distributed between the two roadway connections from the project site based on the proximity of the dwelling units to the connections and then routed to Honoapiilani Highway via Keawe Street or Lahainaluna Road.



B. Through Traffic Forecasting Methodology

The travel forecast is based upon the average annual traffic growth rate as described in the Maui Long-Range Land Transportation Plan (MLRLTP). The MLRLTP, prepared for the State of Hawaii Department of Transportation in cooperation with the County of Maui Department of Public Works and Planning Department, serves as a guide for the development of the major surface transportation facilities and programs to be implemented on Maui. The Plan identifies strategies and actions that will lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods. Use of the MLRLTP more accurately reflects the anticipated impacts of traffic growth in the region than the use of historical traffic count data. Based upon statewide population, employment, and visitor forecasts to the Year 2020, the MLRLTP estimates that the average daily traffic along Honoapiilani Highway would increase at an average rate of approximately 1.6% per year. Using 2007 as the Base Year, a growth factor of 1.066 was applied to the existing through traffic demands along the highway to achieve the projected Year 2011 traffic demands.

C. Other Considerations

The following are other developments expected to be completed by the Year 2011 when the Kahoma Residential Development is anticipated to occur:

- Maui Breakers project in Mahinahina, which includes 90 multi-family affordable residential units, is expected to be completed in late 2005 or early 2006.
- Villas at Kahana Ridge development includes 117 multi-family residential units and is expected to be completed in Year 2005.
- Lokahi Pacific project in Lahaina with an expected completion in Year 2005. The Lokahi Pacific project includes 12 single-family residential units.
- North Beach Lot 1 project of the Kaanapali Ocean Resort subdivision, which includes a total of 280 timeshare units. At the time of the study, North Beach Lot 1 included 103 units, with the balance of 177 units currently under construction and soon to be completed.
- North Beach Lot 2 of Kaanapali Ocean Resort subdivision, located adjacent to North Beach Lot 1, is currently in the planning stages at this writing, and includes approximately 258 multi-family units with potential lockouts for each unit.

- Honua Kai, also referred to as North Beach Makai, Lot 4, located mauka of Honoapiilani Highway in the vicinity of Lower Honoapiilani Road which includes a total of 700 multi-family units to be constructed in five phases, this first of which is expected to be completed by the Year 2011.
- Kaanapali Golf Estates Parcels 22 and 23 residential subdivision located mauka of Honoapiilani highway within the South Beach Mauka are will include 132 single-family recreational homes. Construction is expected to start mid-2005 with completion anticipated by Year 2007.
- Pioneer Farms Phases I and II residential subdivision located in Kaanapali, mauka of Honoapiilani Highway. The proposed project will include 108 residential lots with expected completion by Year 2008.
- Maui Preparatory Academy located mauka of Honoapiilani Highway with access to and from the highway via the Napilihau Street intersection. The project is expected to include a total of 540 students from pre-kindergarten to grade 12 with the expected completion by Year 2013. The project will be completed by three phases. The first two phases will include an enrollment of 198 students total with build-out in Year 2008. Therefore, only 198 students will be included in the trip-generation for this analysis.
- Pulelehua, a planned community located mauka of Honoapiilani Highway in the Mahinahina area. The project is expected to include 895 primary units with a potential of 318 additional Ohana-type units. Build-out for the Pulelehua project is expected to occur by the Year 2011.
- Residences at Kapalua Bay project located in Kapalua on the makai side of Honoapiilani Highway. The proposed project entails the redevelopment of the existing Kapalua Bay Hotel to include approximately 155, 2- and 3-bedroom units with expected completion by Year 2008.
- Villages at Lealii, a residential development by the Housing and Community Development Corporation of Hawaii that includes a total of 4,846 dwelling units, 2,006 single-family units and 2,840 multi-family units. Based on available data, it is assumed that approximately 104 residential units will be developed by Year 2011.
- Kihune, a residential development located in Napili that includes a total of 20 dwelling units. The proposed project is expected to be completed by Year 2011.
- Land Tech, a residential development located in Kaanapali. The proposed project entails 18 dwelling units with expected completion by Year 2011.
- Plantation Inn, a residential development located in Lahaina. The proposed project entails 14 dwelling units with expected completion by 2011.
- Royal Lahaina Resort project located in Kaanapali on the makai side of Honoapiilani Highway. The proposed project entails the revitalization of the existing resort to include approximately 330 hotel units in a 12-story tower and 125 condominium/hotel units in 11 new building with expected completion by Year 2009.

- Honolua Ridge is a 56-lot agricultural subdivision located within the Kapalua Resort area directly east of the existing Plantation Estates subdivision and the Plantation Golf Course. Currently, three homes are under construction. It is anticipated that a total of 12 homes will be constructed by Year 2011.
- Kaanapali 2020, a development to include approximately 2,800 residential dwelling units located on the slopes of the West Maui Mountains between Honokowai Stream and the Lahaina Civic Center, is expected to be completed by Year 2027. Construction of Phase I of the overall development is expected to start in Year 2007, and be completed by Year 2015. For the purpose of this study, approximately 50% of Phase I is assumed to be completed by the Year 2011.
- Westin Kaanapali Ocean Resort, Lot 3, also referred to as North Beach Makai, Lot 3, 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 writing. However, for the purposes of this study, 75% of the total number of units are assumed to be completed by Year 2011.
- Kapalua Resort Site 6-0 is located adjacent to Lower Honoapiilani Road in Kapalua and includes the development of 58, 1-, 2-, and 3-bedroom units and approximately 35,000 square feet of light industrial uses. Construction is expected to be completed by Year 2008.
- Kapalua Central Resort is south of Office Road between Honoapiilani Highway and Lower Honoapiilani Road in Kapalua and includes the development of 196 residential homes, 61,008 square feet of commercial use, and 10,355 square feet of office use. Construction is expected to be completed by Year 2010.
- The Lahaina Cannery Mall is located adjacent to Honoapiilani Highway south of Kapunakea Street. The proposed expansion project includes an additional 33,160 square feet of development that is expected to be completed by the Year 2008.

The traffic generated by the above projects, as applicable, were estimated based on the generation rates and procedures identified in the Institute of Transportation Engineers publication on trip generation for specific land use types, and other traffic studies associated with each proposed development. The determined traffic generation was applied to the ambient traffic growth, thus incorporating these additional applicable projects in the baseline traffic conditions. The purpose of including traffic demands from these other developments is to obtain a more realistic traffic forecast model and to ensure that any adverse traffic operational impacts can be properly addressed. Thus, the traffic analysis would include the cumulative traffic demands on the roadways in the vicinity of the project at its build-out. Should there be additional developments not accounted for in the analysis, the average annual

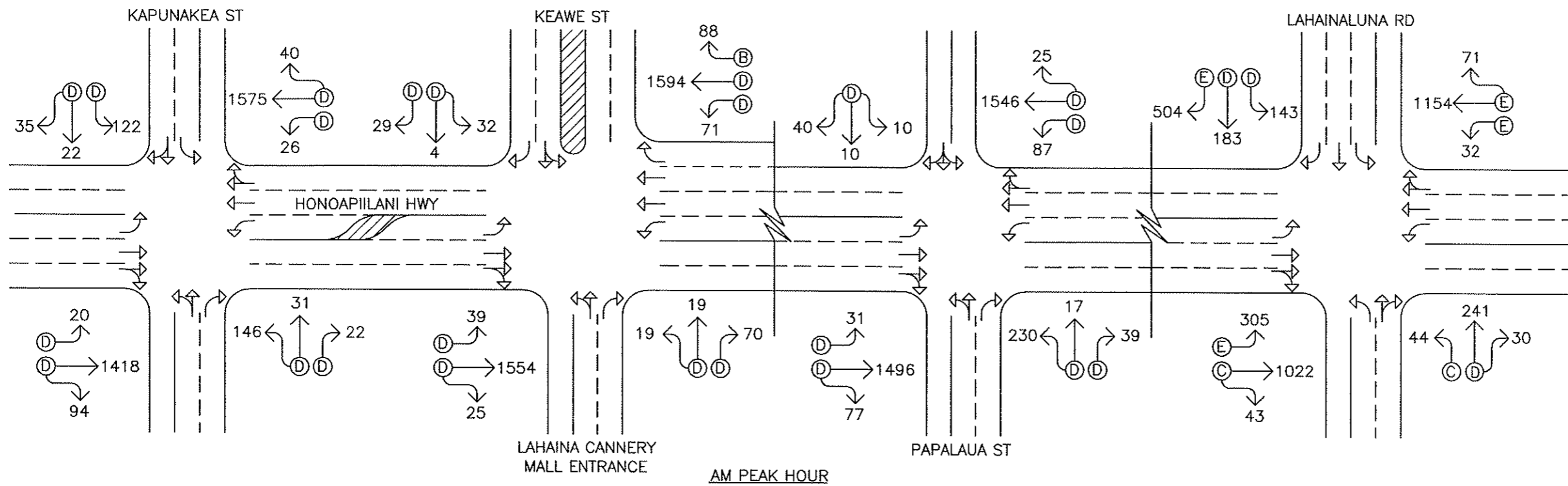
ambient traffic growth rate utilized in the traffic forecast is expected to encompass the increase traffic demands resulting from these unknown developments. Should there be no additional developments other than those stated above, including the average annual ambient growth rate would represent a conservative traffic analysis in terms of future traffic projections.

D. Traffic Operations Without Proposed Project

The projected Year 2011 AM and PM peak hour traffic volumes and operating conditions without the development of the proposed Kahoma Residential Development are shown on Figure 5 and summarized in Table 3. The levels of service shown in Table 3 include the projected growth in ambient traffic, as well as, the development of other projects in the vicinity. The existing levels of service are provided for comparison purposes. LOS calculations are included in Appendix D.

Table 3: Existing and Projected (Without Project) Levels of Service

Intersection	Critical Traffic Movement		AM		PM	
			Exist	Year 2011 w/out Proj	Exist	Year 2011 w/out Proj
Honoapiilani Hwy/ Kapunakea St	Eastbound	LT-TH	D	D	D	D
	Westbound	LT	D	D	D	E
	Northbound	LT	D	D	D	E
	Southbound	LT	D	D	D	E
		TH-RT	D	D	D	E
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy	Eastbound	LT-TH	D	D	D	D
		RT	D	D	D	E
	Westbound	LT-TH	D	D	D	D
		RT	D	D	D	D
	Northbound	LT	D	D	D	E
	Southbound	TH-RT	D	D	D	E



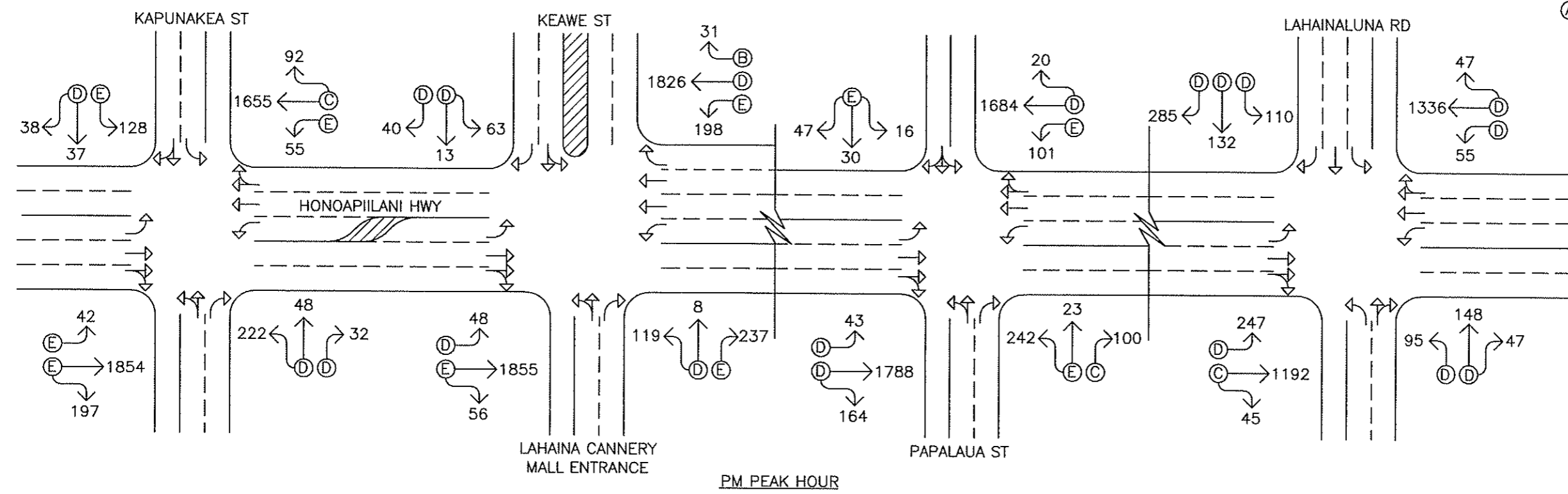
LEGEND

90 ↗
 ↘
 ↗
 ↘

TRAFFIC MOVEMENT VOLUME (VPH)

LANE USAGE

Ⓐ LANE GROUP LEVEL OF SERVICE



KAHOMA RESIDENTIAL DEVELOPMENT

YEAR 2011 AM AND PM PEAK HOURS OF TRAFFIC WITHOUT PROJECT

Table 3: Existing and Projected (Without Project) Levels of Service (Cont'd)

Intersection	Critical Traffic Movement		AM		PM	
			Exist	Year 2011 w/out Proj	Exist	Year 2011 w/out Proj
Honoapiilani Hwy/ Papalaua St	Eastbound	LT-TH	D	D	D	E
	Westbound	LT-TH-RT	D	D	D	E
	Northbound	LT	D	D	D	E
	Southbound	TH-RT	D	D	D	E
Honoapiilani Hwy/ Lahainaluna Rd	Westbound	LT	D	D	D	D
		RT	D	E	D	D
	Northbound	TH-RT	D	E	D	D
	Southbound	LT	D	E	D	D

Under Year 2011 without project conditions, traffic operations in the project vicinity without the development of the project are expected, in general, to deteriorate from existing conditions during both peak periods of traffic due to ambient traffic growth and the development of other projects in the vicinity. The westbound right-turn traffic movement and the critical traffic movements on the northbound and southbound approaches of the intersection of Honoapiilani Highway with Lahainaluna Road are expected to deteriorate from LOS “D” to LOS “E” during the AM peak period. During the PM peak period, the critical traffic movements on the westbound, northbound, and southbound approaches of the intersection of Honoapiilani Highway with Kapunakea Street, as well as, the eastbound right-turn traffic movement and the critical traffic movements on the northbound and southbound approaches of the intersection with Keawe Street and the Lahaina Cannery Mall driveway are anticipated to deteriorate from LOS “D” to LOS “E.” Similarly, the critical traffic movements at the intersection with Papalaua Street are anticipated to deteriorate from LOS “D” to LOS “E” during the PM peak period.

E. Traffic Operations With Proposed Project

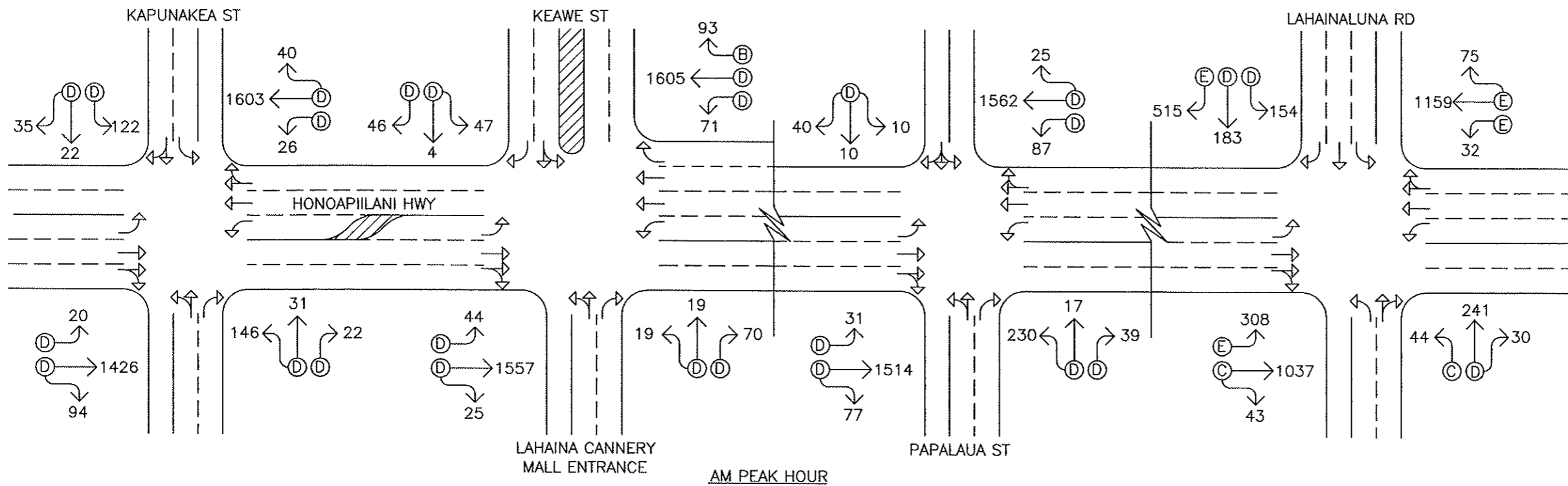
The cumulative AM and PM peak hour traffic conditions resulting from the projected external traffic and the proposed Kahoma Residential Development are shown on Figure 6. The cumulative volumes consist of site-generated traffic superimposed over projected Year 2011 traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

V. TRAFFIC IMPACT ANALYSIS

The Year 2011 cumulative AM and PM peak hour traffic conditions with the Kahoma Residential Development are summarized in Table 4. The existing and projected Year 2011 without project levels of service are included for comparison purposes. LOS calculations are included in Appendix E.

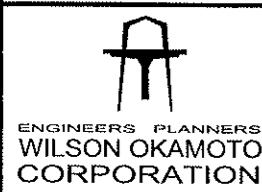
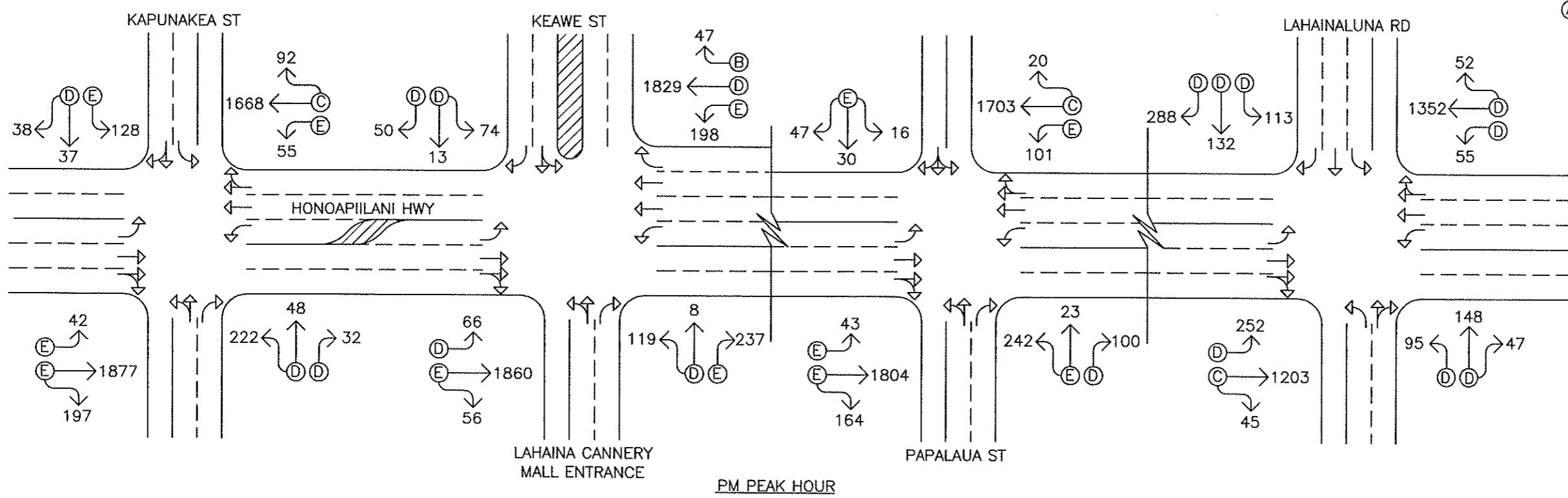
Table 4: Existing and Projected (Without and With Project) Levels of Service

Intersection	Critical Traffic Movement		AM			PM		
			Exist	Year 2011		Exist	Year 2011	
				w/out Proj	w/ Proj		w/out Proj	w/ Proj
Honoapiilani Hwy/ Kapunakea St	Eastbound	LT-TH	D	D	D	D	D	D
	Westbound	LT	D	D	D	D	E	E
	Northbound	LT	D	D	D	D	E	E
	Southbound	LT	D	D	D	D	E	E
		TH-RT	D	D	D	D	E	E
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy	Eastbound	LT-TH	D	D	D	D	D	D
		RT	D	D	D	D	E	E
	Westbound	LT-TH	D	D	D	D	D	D
		RT	D	D	D	D	D	D
	Northbound	LT	D	D	D	D	E	E
	Southbound	TH-RT	D	D	D	D	E	E
Honoapiilani Hwy/ Papalaua St	Eastbound	LT-TH	D	D	D	D	E	E
	Westbound	LT-TH-RT	D	D	D	D	E	E
	Northbound	LT	D	D	D	D	E	E
	Southbound	TH-RT	D	D	D	D	E	E



LEGEND

90
 TRAFFIC MOVEMENT VOLUME (VPH)
 LANE USAGE
 LANE GROUP LEVEL OF SERVICE



KAHOMA RESIDENTIAL DEVELOPMENT

YEAR 2011 AM AND PM PEAK HOURS OF TRAFFIC WITH PROJECT

FIGURE

6

Table 4: Existing and Projected (Without and With Project) Levels of Service (Cont'd)

Intersection	Critical Traffic Movement		AM			PM		
			Exist	Year 2011		Exist	Year 2011	
				w/out Proj	w/ Proj		w/out Proj	w/ Proj
Honoapiilani Hwy/ Lahainaluna Rd	Westbound	LT	D	D	D	D	D	
		RT	D	E	E	D	D	
	Northbound	TH-RT	D	E	E	D	D	
	Southbound	LT	D	E	E	D	D	

Traffic operations in the vicinity of the proposed project are expected to remain similar to Year 2011 without project conditions. The critical movements at all of the study intersections are anticipated to continue operating at levels of service similar to without project conditions. Low levels of service are anticipated for the critical movements at intersection of the highway with Lahainaluna Road during the AM peak period, as well as, at the other three study intersections during the PM peak period without and with the proposed project due to the high volume of turning traffic at Lahainaluna Road and through traffic along Honoapiilani Highway. However, there are future plans to extend Keawe Street and connect it to Lahainaluna Road to provide an alternate route between the residential neighborhoods mauka of the highway. This alternate route is anticipated to reduce traffic at the intersection of Honoapiilani Highway with Lahainaluna Road thereby improving operating conditions at this intersection, as well as, reduce through traffic along Honoapiilani Highway north of Lahainaluna Road alleviating congestion along this corridor. In conjunction with the extension, intersection modifications are anticipated at the intersection with Keawe Street to accommodate the anticipated increase in traffic at that intersection. The westbound approach of Keawe Street is expected to be modified to provide exclusive turning lanes and one through lane. The projected Year 2011 AM and PM peak hour traffic conditions with the proposed Kahoma Residential Development and the construction of the Keawe Street Extension are summarized in Table 5. The projected Year 2011 with project operating conditions without the extension is provided for comparison purposes. LOS calculations are included in Appendix F.

**Table 5: Projected Year 2011 With Project (Without and With the Extension)
Levels of Service**

Intersection	Critical Traffic Movement		AM		PM	
			w/out Ext	w/Ext	w/out Ext	w/Ext
Honoapiilani Hwy/ Kapunakea St	Eastbound	LT-TH	D	D	D	D
	Westbound	LT	D	D	E	E
	Northbound	LT	D	D	E	E
	Southbound	LT	D	D	E	E
		TH-RT	D	D	E	E
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy*	Eastbound	LT-TH	D	D	D	D
		RT	D	D	E	D
	Westbound	LT	D	D	D	D
		TH		D		D
		RT	D	D	D	D
	Northbound	LT	D	D	E	D
	Southbound	TH-RT	D	D	E	D
Honoapiilani Hwy/ Papalaua St	Eastbound	LT-TH	D	D	E	E
	Westbound	LT-TH-RT	D	D	E	E
	Northbound	LT	D	D	E	E
	Southbound	TH-RT	D	D	E	E
Honoapiilani Hwy/ Lahainaluna Rd	Westbound	LT	D	D	D	D
		RT	E	D	D	D
	Northbound	TH-RT	E	D	D	D
	Southbound	LT	E	D	D	D

*Intersection modifications implemented.

With the construction of the Keawe Street Extension, traffic operations at the study intersections along Honoapiilani Highway are expected, in general, to improve from without and with project (without extension) conditions. The most significant improvements are anticipated at the intersections of the highway with Keawe Street and Lahainaluna Road where the critical traffic movements are anticipated to operate at LOS “D” or better during both peak periods.

VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study associated with the proposed project to be incorporated during the design phase:

1. Maintain sufficient driveway width to accommodate safe vehicle ingress and egress.
2. Maintain adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
3. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.
4. Maintain adequate on-site loading and off-loading services areas and prohibit off-site loading operations.

VII. CONCLUSION

The proposed Kahoma Residential Development is not expected to have a significant impact on traffic operations in the vicinity of the project site. The critical traffic movements at the study intersections are anticipated to continue operating at levels of service similar to without project conditions. In addition, the total traffic volumes entering the intersections along Honoapiilani Highway are expected to increase by less than 2% during both peak periods of traffic with the proposed residential development. These increases in the total traffic volumes are in the range of daily volume fluctuations along the highway and represent a minimal increase in the overall traffic volumes. In addition, there are future plans to extend Keawe Street to provide an alternate route between the residential neighborhoods mauka of the highway thereby alleviating traffic conditions along the highway.

APPENDIX A

EXISTING TRAFFIC COUNT DATA

WILSON OKAMOTO CORPORATION
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter:D4-3889, D4-3890
 Counted:EK, ER
 Weather:Clear

File Name : KapHonoAM
 Site Code : 00000001
 Start Date : 9/20/2007
 Page No : 1

Start Time	Groups Printed- Unshifted																
	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:15 AM	3	153	7	163	21	1	12	34	5	253	13	271	16	4	6	26	494
06:30 AM	1	141	10	152	13	3	14	30	3	273	10	286	18	5	5	28	496
06:45 AM	8	231	13	252	47	3	10	60	9	256	7	272	18	4	6	28	612
Total	12	525	30	567	81	7	36	124	17	782	30	829	52	13	17	82	1602
07:00 AM	3	256	18	277	26	6	7	39	5	276	12	293	21	3	11	35	644
07:15 AM	6	289	18	313	48	8	6	62	9	255	4	268	33	13	6	52	695
07:30 AM	3	309	27	339	32	5	9	46	6	318	9	333	35	9	4	48	766
07:45 AM	8	176	14	198	16	3	13	32	6	332	15	353	46	6	1	53	636
Total	20	1030	77	1127	122	22	35	179	26	1181	40	1247	135	31	22	188	2741
08:00 AM	3	227	15	245	30	4	8	42	9	249	20	278	24	6	8	38	603
08:15 AM	9	223	31	263	31	4	6	41	9	214	12	235	28	5	6	39	578
Grand Total	44	2005	153	2202	264	37	85	386	61	2426	102	2589	239	55	53	347	5524
Approch %	2	91.1	6.9	68.4	68.4	9.6	22	7	2.4	93.7	3.9	46.9	68.9	15.9	15.3	6.3	
Total %	0.8	36.3	2.8	39.9	4.8	0.7	1.5	7	1.1	43.9	1.8	46.9	4.3	1	1	6.3	

Start Time	Peak Hour for Entire Intersection Begins at 07:00 AM																
	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	256	18	277	26	6	7	39	5	276	12	293	21	3	11	35	644
07:15 AM	6	289	18	313	48	8	6	62	9	255	4	268	33	13	6	52	695
07:30 AM	3	309	27	339	32	5	9	46	6	318	9	333	35	9	4	48	766
07:45 AM	8	176	14	198	16	3	13	32	6	332	15	353	46	6	1	53	636
Total Volume	20	1030	77	1127	122	22	35	179	26	1181	40	1247	135	31	22	188	2741
% App. Total	1.8	91.4	6.8	68.2	68.2	12.3	19.6	7.22	2.1	94.7	3.2	46.9	71.8	16.5	11.7	6.3	
PHF	.625	.833	.713	.831	.635	.688	.673	.722	.722	.889	.667	.883	.734	.596	.500	.887	.895

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D4-3889, D4-3890
Counted: EK, ER
Clear

File Name : KapHonoPM
Site Code : 00000001
Start Date : 9/20/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	3	303	20	326	23	7	5	35	12	278	20	310	43	14	9	66	737
03:15 PM	10	349	33	392	31	8	6	45	16	288	17	321	37	11	9	57	815
03:30 PM	12	354	25	391	47	10	14	71	16	295	28	339	40	14	7	61	862
03:45 PM	5	307	20	332	29	7	10	46	13	299	26	338	47	10	6	63	779
Total	30	1313	98	1441	130	32	35	197	57	1160	91	1308	167	49	31	247	3193
04:00 PM	15	396	38	449	21	12	8	41	10	281	21	312	28	13	10	51	853
04:15 PM	7	310	36	353	35	8	12	55	15	264	31	310	51	10	9	70	788
04:30 PM	5	322	25	352	31	7	9	47	12	284	24	320	37	10	12	59	778
04:45 PM	10	262	31	303	33	3	16	52	15	295	27	337	42	15	6	63	755
Total	37	1290	130	1457	120	30	45	195	52	1124	103	1279	158	48	37	243	3174
05:00 PM	13	264	36	313	20	11	10	41	13	268	31	312	45	16	8	69	735
05:15 PM	9	255	40	304	33	6	9	48	20	238	33	291	31	8	11	50	693
05:30 PM	7	273	35	315	28	11	8	47	12	239	23	274	32	12	2	46	682
05:45 PM	3	237	31	271	22	8	7	37	12	195	14	221	43	11	2	56	585
Total	32	1029	142	1203	103	36	34	173	57	940	101	1098	151	47	23	221	2695
Grand Total	99	3632	370	4101	353	98	114	565	166	3224	295	3685	476	144	91	711	9062
Approch %	2.4	88.6	9		62.5	17.3	20.2	6.2	4.5	87.5	8		66.9	20.3	12.8		
Total %	1.1	40.1	4.1	45.3	3.9	1.1	1.3	6.2	1.8	35.6	3.3	40.7	5.3	1.6	1	7.8	

Start Time	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:15 PM	10	349	33	392	31	8	6	45	16	288	17	321	37	11	9	57	815
03:30 PM	12	354	25	391	47	10	14	71	16	295	28	339	40	14	7	61	862
03:45 PM	5	307	20	332	29	7	10	46	13	299	26	338	47	10	6	63	779
04:00 PM	15	396	38	449	21	12	8	41	10	281	21	312	28	13	10	51	853
Total Volume	42	1406	116	1564	128	37	38	203	55	1163	92	1310	152	48	32	232	3309
% App. Total	2.7	89.9	7.4		63.1	18.2	18.7	7.15	4.2	88.8	7		65.5	20.7	13.8		
PHF	.700	.888	.763	.871	.681	.771	.679	.715	.859	.972	.821	.966	.809	.857	.800	.921	.960

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:15 PM

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D4-3888

Counted: TO

Weather: Clear

File Name : KeaHonoAM
Site Code : 00000001
Start Date : 9/20/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound				Keawe Street Westbound				Honoapiilani Highway Northbound				Keawe Street Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
06:15 AM	8	168	3	179	2	2	12	16	9	258	18	285	1	2	5	8
06:30 AM	5	169	3	177	5	0	3	8	8	282	21	311	1	0	8	9
06:45 AM	10	244	4	258	4	1	11	16	14	257	24	295	4	2	8	14
Total	23	581	10	614	11	3	26	40	31	797	63	891	6	4	21	31
07:00 AM	8	279	7	294	5	0	2	7	14	288	16	318	3	0	12	15
07:15 AM	10	323	6	339	7	0	7	14	14	257	26	297	4	4	16	24
07:30 AM	8	341	8	357	9	1	8	18	12	321	16	349	4	4	13	21
07:45 AM	13	215	4	232	11	3	12	26	14	333	30	377	8	11	18	37
Total	39	1158	25	1222	32	4	29	65	54	1199	88	1341	19	19	59	97
08:00 AM	12	247	10	269	11	2	9	22	15	266	26	307	3	5	26	34
08:15 AM	17	239	11	267	11	4	13	28	15	217	20	252	5	6	15	26
Grand Total	91	2225	56	2372	65	13	77	155	115	2479	197	2791	33	34	121	188
Apprch %	3.8	93.8	2.4	43.1	41.9	8.4	49.7	2.8	4.1	88.8	7.1	50.7	17.6	18.1	64.4	3.4
Total %	1.7	40.4	1	43.1	1.2	0.2	1.4	2.8	2.1	45	3.6	50.7	0.6	0.6	2.2	3.4

Start Time	Honoapiilani Highway Southbound				Keawe Street Westbound				Honoapiilani Highway Northbound				Keawe Street Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
07:00 AM	8	279	7	294	5	0	2	7	14	288	16	318	3	0	12	15
07:15 AM	10	323	6	339	7	0	7	14	14	257	26	297	4	4	16	24
07:30 AM	8	341	8	357	9	1	8	18	12	321	16	349	4	4	13	21
07:45 AM	13	215	4	232	11	3	12	26	14	333	30	377	8	11	18	37
Total Volume	39	1158	25	1222	32	4	29	65	54	1199	88	1341	19	19	59	97
% App. Total	3.2	94.8	2	43.1	49.2	6.2	44.6	2.8	4	89.4	6.6	50.7	19.6	19.6	60.8	3.4
PHF	.750	.849	.781	.856	.727	.333	.604	.625	.964	.900	.733	.889	.594	.432	.819	.655

Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

WILSON OKAMOTO CORPORATION
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter:D4-3888
 Counted:TO
 Weather:Clear

File Name : KeaHonoPM
 Site Code : 00000001
 Start Date : 9/20/2007
 Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound				Keawe Street Westbound				Honoapiilani Highway Northbound				Keawe Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	9	300	18	327	31	6	15	52	30	305	8	343	20	3	33	56	778
03:15 PM	16	359	6	381	17	1	13	31	29	281	4	314	17	2	43	62	788
03:30 PM	10	354	14	378	22	2	12	36	43	337	10	390	42	1	34	77	881
03:45 PM	7	298	25	330	18	5	10	33	19	288	10	317	34	4	38	76	756
Total	42	1311	63	1416	88	14	50	152	121	1211	32	1364	113	10	148	271	3203
04:00 PM	15	396	11	422	6	5	5	16	39	418	7	464	26	1	39	66	968
04:15 PM	6	321	4	331	20	2	6	28	30	320	9	359	27	2	41	70	788
04:30 PM	5	331	17	353	22	5	11	38	32	318	1	351	23	2	35	60	802
04:45 PM	8	266	17	291	12	0	13	25	40	268	2	310	22	0	28	50	676
Total	34	1314	49	1397	60	12	35	107	141	1324	19	1484	98	5	143	246	3234
05:00 PM	6	249	18	273	17	4	14	35	20	270	6	296	29	1	33	63	667
05:15 PM	5	270	14	289	13	2	8	23	31	275	3	309	21	0	41	62	683
05:30 PM	2	279	16	297	15	0	7	22	32	291	5	328	17	2	25	44	691
05:45 PM	3	243	11	257	5	0	6	11	26	253	4	283	12	0	31	43	594
Total	16	1041	59	1116	50	6	35	91	109	1089	18	1216	79	3	130	212	2635
Grand Total	92	3666	171	3929	198	32	120	350	371	3624	69	4064	290	18	421	729	9072
Approch %	2.3	93.3	4.4	43.3	56.6	9.1	34.3	3.9	9.1	89.2	1.7	44.8	39.8	2.5	57.8	8	
Total %	1	40.4	1.9	43.3	2.2	0.4	1.3	3.9	4.1	39.9	0.8	44.8	3.2	0.2	4.6	8	

Start Time	Honoapiilani Highway Southbound				Keawe Street Westbound				Honoapiilani Highway Northbound				Keawe Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	16	359	6	381	17	1	13	31	29	281	4	314	17	2	43	62	788
03:30 PM	10	354	14	378	22	2	12	36	43	337	10	390	42	1	34	77	881
03:45 PM	7	298	25	330	18	5	10	33	19	288	10	317	34	4	38	76	756
04:00 PM	15	396	11	422	6	5	5	16	39	418	7	464	26	1	39	66	968
Total Volume	48	1407	56	1511	63	13	40	116	130	1324	31	1485	119	8	154	281	3393
% App. Total	3.2	93.1	3.7	43.3	54.3	11.2	34.5	3.9	8.8	89.2	2.1	44.8	42.3	2.8	54.8	8	
PHF	.750	.888	.560	.895	.716	.650	.769	.806	.756	.792	.775	.800	.708	.500	.895	.912	.876

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D4-3889

Counted:ER

Weather:Clear

File Name : HonoPap AM
Site Code : 00000002
Start Date : 9/13/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound				Papalaua Street Westbound				Honoapiilani Highway Northbound				Papalaua Street Eastbound					
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
06:15 AM	1	0	12	13	0	3	2	5	10	0	0	0	10	37	0	7	44	72
06:30 AM	1	0	20	21	1	0	1	2	13	0	2	15	33	33	3	10	46	84
06:45 AM	2	0	25	27	1	1	2	4	14	0	5	19	40	40	3	4	47	97
Total	4	0	57	61	2	4	5	11	37	0	7	44	110	110	6	21	137	253
07:00 AM	4	0	19	23	2	2	6	10	21	0	6	27	50	50	4	13	67	127
07:15 AM	6	0	26	32	2	2	9	13	15	0	3	18	55	55	6	5	66	129
07:30 AM	9	0	17	26	4	4	12	20	19	0	9	28	64	64	1	8	73	147
07:45 AM	12	0	15	27	2	2	13	17	32	0	7	39	61	61	6	13	80	163
Total	31	0	77	108	10	10	40	60	87	0	25	112	230	230	17	39	286	566
08:00 AM	12	0	27	39	6	2	6	14	25	0	5	30	44	44	3	14	61	144
08:15 AM	12	0	22	34	5	6	5	16	23	0	6	29	44	44	4	18	66	145
Grand Total	59	0	183	242	23	22	56	101	172	0	43	215	428	428	30	92	550	1108
Approch %	24.4	0	75.6		22.8	21.8	55.4		80	0	20		77.8	77.8	5.5	16.7		
Total %	5.3	0	16.5	21.8	2.1	2	5.1	9.1	15.5	0	3.9	19.4	38.6	38.6	2.7	8.3	49.6	

Start Time	Honoapiilani Highway Southbound				Papalaua Street Westbound				Honoapiilani Highway Northbound				Papalaua Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:30 AM	9	0	17	26	4	4	12	20	19	0	9	28	64	1	8	73	147
07:45 AM	12	0	15	27	2	2	13	17	32	0	7	39	61	6	13	80	163
08:00 AM	12	0	27	39	6	2	6	14	25	0	5	30	44	3	14	61	144
08:15 AM	12	0	22	34	5	6	5	16	23	0	6	29	44	4	18	66	145
Total Volume	45	0	81	126	17	14	36	67	99	0	27	126	213	14	53	280	599
% App. Total	35.7	0	64.3		25.4	20.9	53.7		78.6	0	21.4		76.1	5	18.9		
PHF	.938	.000	.750	.808	.708	.583	.692	.838	.773	.000	.750	.808	.832	.583	.736	.875	.919

Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D4-3889
Counted:ER
Weather:Clear

File Name : HonoPap PM
Site Code : 00000002
Start Date : 9/13/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound			Papalaau Street Westbound			Honoapiilani Highway Northbound			Papalaau Street Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
03:00 PM	11	0	19	4	7	14	20	0	2	69	5	26
03:15 PM	12	0	48	4	7	10	24	0	9	50	7	27
03:30 PM	5	0	50	4	11	14	26	0	1	58	6	22
03:45 PM	15	0	47	4	5	9	31	0	8	65	5	25
Total	43	0	164	16	30	47	101	0	20	242	23	100
04:00 PM	13	0	50	5	6	18	11	0	7	61	5	23
04:15 PM	5	0	34	7	9	12	18	0	5	65	6	21
04:30 PM	8	0	40	8	9	8	18	0	5	60	3	16
04:45 PM	11	0	66	6	5	13	8	0	6	42	0	23
Total	37	0	190	26	29	51	55	0	23	228	14	83
05:00 PM	6	0	57	14	3	7	22	0	4	69	6	30
05:15 PM	4	0	53	4	4	11	16	0	8	59	2	21
05:30 PM	5	0	67	4	4	3	15	0	3	53	2	17
05:45 PM	3	0	58	4	4	8	17	0	6	50	7	15
Total	18	0	235	26	15	29	70	0	21	231	17	83
Grand Total	98	0	589	68	74	127	226	0	64	701	54	266
Apprch %	14.3	0	85.7	25.3	27.5	47.2	77.9	0	22.1	68.7	5.3	26.1
Total %	4.3	0	26	3	3.3	5.6	10	0	2.8	30.9	2.4	11.7
Start Time	Honoapiilani Highway Southbound			Papalaau Street Westbound			Honoapiilani Highway Northbound			Papalaau Street Eastbound		
03:00 PM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
03:15 PM	12	0	48	4	7	10	24	0	9	50	7	27
03:30 PM	5	0	50	4	11	14	26	0	1	58	6	22
03:45 PM	13	0	50	5	6	18	11	0	7	61	5	23
Total Volume	45	0	195	17	29	51	92	0	25	234	23	97
% App. Total	18.8	0	81.2	17.5	29.9	52.6	78.6	0	21.4	66.1	6.5	27.4
PHF	.750	.000	.975	.850	.659	.708	.742	.000	.694	.900	.821	.898
			.952		.836		.750		.750		.932	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:15 PM

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D4-3888, D4-3891
Counted:ZW, EK
Weather:Clear

File Name : HonoLah AM
Site Code : 00000001
Start Date : 9/13/2007
Page No : 1

Start Time	Groups Printed- Unshifted																
	Honoapiilani Highway Southbound				Lahainaluna Road Westbound				Honoapiilani Highway Northbound				Lahainaluna Road Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:15 AM	20	110	5	135	27	49	103	103	12	176	10	198	13	45	2	60	496
06:30 AM	19	83	7	109	24	85	135	135	14	217	15	246	4	18	7	29	519
06:45 AM	62	112	10	184	21	38	90	149	15	195	28	238	17	34	1	52	623
Total	101	305	22	428	72	91	224	387	41	588	53	682	34	97	10	141	1638
07:00 AM	86	125	4	215	33	44	115	192	7	172	19	198	19	71	14	104	709
07:15 AM	105	214	8	327	33	53	119	205	9	202	18	229	6	64	4	74	835
07:30 AM	73	196	4	273	44	47	143	234	7	175	23	205	11	68	6	85	797
07:45 AM	41	136	3	180	33	39	114	186	9	233	11	253	8	38	6	52	671
Total	305	671	19	995	143	183	491	817	32	782	71	885	44	241	30	315	3012
08:00 AM	33	92	7	132	35	43	82	160	12	154	9	175	9	10	5	24	491
08:15 AM	42	146	7	195	16	25	47	88	14	171	10	195	8	33	4	45	523
Grand Total	481	1214	55	1750	266	342	844	1452	99	1695	143	1937	95	381	49	525	5664
Approch %	27.5	69.4	3.1		18.3	23.6	58.1		5.1	87.5	7.4		18.1	72.6	9.3		
Total %	8.5	21.4	1	30.9	4.7	6	14.9	25.6	1.7	29.9	2.5	34.2	1.7	6.7	0.9	9.3	

Start Time	Groups Printed- Unshifted																
	Honoapiilani Highway Southbound				Lahainaluna Road Westbound				Honoapiilani Highway Northbound				Lahainaluna Road Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	86	125	4	215	33	44	115	192	7	172	19	198	19	71	14	104	709
07:15 AM	105	214	8	327	33	53	119	205	9	202	18	229	6	64	4	74	835
07:30 AM	73	196	4	273	44	47	143	234	7	175	23	205	11	68	6	85	797
07:45 AM	41	136	3	180	33	39	114	186	9	233	11	253	8	38	6	52	671
Total Volume	305	671	19	995	143	183	491	817	32	782	71	885	44	241	30	315	3012
% App. Total	30.7	67.4	1.9		17.5	22.4	60.1		3.6	88.4	8		14	76.5	9.5		
PHF	.726	.784	.594	.761	.813	.863	.858	.873	.889	.839	.772	.875	.579	.849	.536	.757	.902

Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D4-3888, D4-3891
Counted:ZW, EK
Weather:Clear

File Name : HonoLah PM
Site Code : 00000001
Start Date : 9/13/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound				Lahaina Road Westbound				Honoapiilani Highway Northbound				Lahaina Road Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	62	180	4	246	27	39	56	122	15	190	11	216	37	41	13	91	675
03:15 PM	79	184	5	268	31	32	60	123	15	218	7	240	24	46	15	85	716
03:30 PM	36	178	7	221	24	22	69	115	17	221	9	247	15	41	7	63	646
03:45 PM	70	185	8	263	28	39	72	139	8	197	20	225	19	20	12	51	678
Total	247	727	24	998	110	132	257	499	55	826	47	928	95	148	47	290	2715
04:00 PM	69	112	6	187	14	35	65	114	9	225	9	243	22	38	6	66	610
04:15 PM	80	146	8	234	24	25	50	99	4	218	13	235	19	63	4	86	654
04:30 PM	68	173	5	246	22	38	70	130	18	188	17	223	13	52	2	67	666
04:45 PM	76	176	8	260	30	34	57	121	6	220	13	239	16	55	4	75	695
Total	293	607	27	927	90	132	242	464	37	851	52	940	70	208	16	294	2625
05:00 PM	56	137	6	199	20	31	50	101	18	223	13	254	18	40	5	63	617
05:15 PM	69	159	2	230	23	36	48	107	10	201	11	222	11	33	5	49	608
05:30 PM	34	155	2	191	14	29	50	93	13	172	13	198	19	47	7	73	555
05:45 PM	31	91	3	125	16	33	43	92	11	160	12	183	18	28	6	52	452
Total	190	542	13	745	73	129	191	393	52	756	49	857	66	148	23	237	2232
Grand Total	730	1876	64	2670	273	393	690	1356	144	2433	148	2725	231	504	86	821	7572
Approch %	27.3	70.3	2.4	35.3	20.1	29	50.9	17.9	5.3	89.3	5.4	36	28.1	61.4	10.5	10.8	
Total %	9.6	24.8	0.8		3.6	5.2	9.1		1.9	32.1	2		3.1	6.7	1.1		

Start Time	Honoapiilani Highway Southbound				Lahaina Road Westbound				Honoapiilani Highway Northbound				Lahaina Road Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	62	180	4	246	27	39	56	122	15	190	11	216	37	41	13	91	675
03:15 PM	79	184	5	268	31	32	60	123	15	218	7	240	24	46	15	85	716
03:30 PM	36	178	7	221	24	22	69	115	17	221	9	247	15	41	7	63	646
03:45 PM	70	185	8	263	28	39	72	139	8	197	20	225	19	20	12	51	678
Total Volume	247	727	24	998	110	132	257	499	55	826	47	928	95	148	47	290	2715
% App. Total	24.7	72.8	2.4	35.3	22	26.5	51.5	17.9	5.9	89	5.1	36	32.8	61.4	16.2	10.8	
PHF	.782	.982	.750	.931	.887	.846	.892	.897	.809	.934	.588	.939	.642	.804	.783	.797	.948

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	≤ 10.0
B	> 10.0 and ≤ 20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

APPENDIX C

**CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	135	31	22	122	22	35	26	1181	40	20	1030	77
Lane Width	12.0		12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol	2			4			4			8		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	39.0				27.0 54.0			
Yellow	4.0				4.0 4.0			
All Red	1.0				1.0 1.0			

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	385	1333	0.49	0.29	40.7	D	40.0	D
R	457	1583	0.05	0.29	34.7	C		

Westbound

L	290	1004	0.58	0.29	44.1	D		
TR	491	1700	0.15	0.29	35.8	D	41.6	D

Northbound

L	391	1956	0.08	0.20	44.0	D		
TR	1561	3903	0.89	0.40	44.8	D	44.7	D

Southbound

L	391	1956	0.06	0.20	43.8	D		
TR	1553	3883	0.85	0.40	41.9	D	42.0	D

Intersection Delay = 43.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	152	48	32	128	37	38	55	1163	92	42	1406	116
Lane Width	12.0 12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	3			4			9			12		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	38.0				19.0 63.0			
Yellow	4.0				4.0 4.0			
All Red	1.0				1.0 1.0			

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	369	1310	0.59	0.28	44.2	D	43.1	D
R	446	1583	0.07	0.28	35.6	D		
Westbound								
L	255	906	0.70	0.28	51.9	D		
TR	487	1729	0.20	0.28	37.1	D	46.6	D
Northbound								
L	275	1956	0.21	0.14	51.7	D		
TR	1811	3881	0.71	0.47	30.0	C	31.0	C
Southbound								
L	275	1956	0.17	0.14	51.4	D		
TR	1810	3879	0.96	0.47	52.4	D	52.4	D

Intersection Delay = 43.4 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	19	19	59	32	4	29	54	1199	88	39	1158	25
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			6			3			9			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		33.0				31.5	55.5	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	390	1597	0.15	0.24	40.2	D	40.6	D
R	387	1583	0.21	0.24	40.9	D		

Westbound

LT	334	1368	0.17	0.24	40.5	D	40.1	D
R	387	1583	0.11	0.24	39.7	D		

Northbound

L	456	1956	0.13	0.23	41.1	D		
T	1612	3920	0.84	0.41	39.8	D	39.0	D
R	719	1750	0.12	0.41	24.7	C		

Southbound

L	456	1956	0.10	0.23	40.7	D		
TR	1607	3909	0.85	0.41	41.1	D	41.1	D

Intersection Delay = 40.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	119	8	154	63	13	40	130	1324	31	48	1407	56
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			15			4			3			6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		31.0				28.0	61.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	281	1223	0.50	0.23	46.6	D	45.8	D
R	364	1583	0.42	0.23	45.1	D		

Westbound

LT	251	1095	0.37	0.23	44.8	D	43.7	D
R	364	1583	0.12	0.23	41.4	D		

Northbound

L	406	1956	0.40	0.21	46.9	D		
T	1771	3920	0.93	0.45	46.9	D	46.4	D
R	791	1750	0.04	0.45	20.7	C		

Southbound

L	406	1956	0.13	0.21	43.7	D		
TR	1762	3900	0.92	0.45	44.2	D	44.2	D

Intersection Delay = 45.3 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	230	17	39	10	10	40	87	1138	25	31	1093	77
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			4			4			3			8

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		25.0	12.0			25.5	57.5	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	416	1780	0.67	0.27	47.9	D	46.5	D
R	434	1583	0.09	0.27	36.6	D		

Westbound

LTR	234	1264	0.29	0.19	48.0	D	48.0	D
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Northbound

L	369	1956	0.27	0.19	47.2	D		
TR	1665	3909	0.79	0.43	36.3	D	37.1	D

Southbound

L	369	1956	0.11	0.19	45.5	D		
TR	1655	3885	0.92	0.43	47.5	D	47.4	D

Intersection Delay = 43.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L	TR		L	TR	
Volume	242	23	100	16	30	47	101	1127	20	43	1266	164
Lane Width	12.0		12.0	12.0			12.0	12.0		12.0	12.0	
RTOR Vol	10			5			2			16		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	27.0	12.0			23.5	57.5		
Yellow	0.0	4.0			4.0	4.0		
All Red	0.0	1.0			1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	407	1781	0.70	0.29	48.2	D	45.3	D
R	457	1583	0.21	0.29	36.6	D		

Westbound

LTR	242	1212	0.43	0.20	48.6	D	48.6	D
-----	-----	------	------	------	------	---	------	---

Northbound

L	340	1956	0.31	0.17	49.2	D		
TR	1666	3911	0.73	0.43	34.0	C	35.2	D

Southbound

L	340	1956	0.14	0.17	47.3	D		
TR	1643	3858	0.93	0.43	47.8	D	47.7	D

Intersection Delay = 42.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	44	241	30	143	183	491	32	782	71	305	671	19
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			123			7			2

Duration	1.00	Area Type	All other areas									
Signal Operations												
Phase Combination	1	2	3	4	5	6	7	8				
EB Left		A			NB Left	A						
Thru					Thru			A				
Right					Right			A				
Peds					Peds							
WB Left		A			SB Left	A	A					
Thru					Thru		A	A				
Right					Right		A	A				
Peds					Peds							
NB Right					EB Right							
SB Right					WB Right							
Green		5.0	44.0			17.0	19.0	40.0				
Yellow		0.0	4.0			0.0	0.0	4.0				
All Red		0.0	1.0			0.0	0.0	1.0				
Cycle Length: 135.0 secs												

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	386	1770	0.15	0.40	25.9	C		
TR	598	1834	0.59	0.33	39.5	D	37.6	D
Westbound								
L	269	1770	0.61	0.40	43.6	D		
T	607	1863	0.35	0.33	34.9	C	46.2	D
R	516	1583	0.82	0.33	52.9	D		
Northbound								
L	246	1956	0.15	0.13	52.8	D		
TR	1148	3875	0.84	0.30	50.4	D	50.5	D
Southbound								
L	522	1956	0.77	0.27	52.8	D		
TR	1707	3906	0.53	0.44	28.2	C	35.7	D

Intersection Delay = 42.5 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	110	132	257	55	826	47	247	727	24
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			64			5			2

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	38.0			30.0	8.0	44.0
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	381	1770	0.31	0.36	33.5	C		
TR	507	1801	0.47	0.28	40.8	D	38.4	D
Westbound								
L	305	1770	0.40	0.36	36.8	D		
T	524	1863	0.28	0.28	38.1	D	39.1	D
R	446	1583	0.48	0.28	41.1	D		
Northbound								
L	435	1956	0.14	0.22	42.2	D		
TR	1268	3891	0.73	0.33	42.4	D	42.4	D
Southbound								
L	551	1956	0.48	0.28	41.0	D		
TR	1503	3902	0.54	0.39	32.5	C	34.6	C

Intersection Delay = 38.5 (sec/veh) Intersection LOS = D

APPENDIX D

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2011 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	146	31	22	122	22	35	26	1575	40	20	1418	94
Lane Width	12.0 12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	2			4			4			10		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	36.0				19.0		65.0	
Yellow	4.0				4.0		4.0	
All Red	1.0				1.0		1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	355	1332	0.55	0.27	44.4	D	43.7	D
R	422	1583	0.05	0.27	36.9	D		
Westbound								
L	253	949	0.64	0.27	49.5	D		
TR	453	1699	0.15	0.27	38.0	D	46.1	D
Northbound								
L	275	1956	0.11	0.14	50.8	D		
TR	1881	3907	0.95	0.48	48.4	D	48.4	D
Southbound								
L	275	1956	0.08	0.14	50.5	D		
TR	1872	3887	0.89	0.48	38.2	D	38.3	D

Intersection Delay = 43.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	222	48	32	128	37	38	55	1655	92	42	1854	197
Lane Width	12.0 12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	3			4			9			20		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	38.5				7.0		74.5	
Yellow	4.0				4.0		4.0	
All Red	1.0				1.0		1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
LT	369	1295	0.77	0.29	54.6	D	52.7	D
R	451	1583	0.07	0.29	35.2	D		
Westbound								
L	204	717	0.84	0.29	76.2	E		
TR	493	1729	0.19	0.29	36.7	D	62.2	E
Northbound								
L	101	1956	0.54	0.05	68.6	E		
TR	2148	3892	0.81	0.55	27.0	C	28.2	C
Southbound								
L	101	1956	0.44	0.05	65.1	E		
TR	2135	3869	1.00	0.55	70.5	E	70.4	E

Intersection Delay = 52.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig	LT R			LT R			L	T R		L	TR	
Volume	19	19	70	32	4	29	71	1594	88	39	1554	25
Lane Width	12.0 12.0			12.0 12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	7			3			9			3		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	28.0				27.0	65.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	329	1588	0.18	0.21	44.3	D	45.1	D
R	328	1583	0.29	0.21	45.6	D		
Westbound								
LT	281	1354	0.20	0.21	44.6	D	44.2	D
R	328	1583	0.13	0.21	43.7	D		
Northbound								
L	391	1956	0.20	0.20	45.3	D		
T	1887	3920	0.94	0.48	45.0	D	43.8	D
R	843	1750	0.10	0.48	19.2	B		
Southbound								
L	391	1956	0.11	0.20	44.3	D		
TR	1884	3912	0.93	0.48	43.2	D	43.2	D

Intersection Delay = 43.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	119	8	237	63	13	40	198	1826	31	48	1855	56
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			24			4			3			6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		28.0				21.5	70.5	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	252	1213	0.56	0.21	50.7	D	54.8	D
R	328	1583	0.71	0.21	57.2	E		

Westbound

LT	222	1068	0.42	0.21	47.8	D	46.5	D
R	328	1583	0.13	0.21	43.8	D		

Northbound

L	312	1956	0.67	0.16	58.9	E		
T	2047	3920	0.94	0.52	41.3	D	42.7	D
R	914	1750	0.03	0.52	15.7	B		

Southbound

L	312	1956	0.16	0.16	49.2	D		
TR	2039	3904	0.98	0.52	58.8	E	58.6	E

Intersection Delay = 50.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L	TR		L	TR	
Volume	230	17	39	10	10	40	87	1546	25	31	1496	77
Lane Width	12.0 12.0			12.0			12.0	12.0		12.0 12.0		
RTOR Vol	4			4			3			8		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		24.0	11.0			21.5	63.5	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	393	1780	0.71	0.26	51.6	D	49.9	D
R	410	1583	0.10	0.26	38.1	D		
Westbound								
LTR	210	1184	0.32	0.18	49.3	D	49.3	D
Northbound								
L	312	1956	0.31	0.16	50.8	D		
TR	1840	3912	0.95	0.47	48.1	D	48.2	D
Southbound								
L	312	1956	0.11	0.16	48.7	D		
TR	1832	3894	0.95	0.47	48.8	D	48.8	D

Intersection Delay = 48.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L	TR		L	TR	
Volume	242	23	100	16	30	47	101	1684	20	43	1788	164
Lane Width	12.0		12.0	12.0			12.0	12.0		12.0	12.0	
RTOR Vol	10			5			2			16		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A	A			NB Left	A		
Thru	A	A			Thru	A		
Right	A	A			Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	23.0	11.0			14.0	72.0		
Yellow	0.0	4.0			4.0	4.0		
All Red	0.0	1.0			1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	353	1781	0.81	0.25	61.8	E	56.4	E
R	399	1583	0.24	0.25	40.6	D		
Westbound								
LTR	159	932	0.66	0.17	62.5	E	62.5	E
Northbound								
L	203	1956	0.52	0.10	59.8	E		
TR	2087	3914	0.86	0.53	31.1	C	32.7	C
Southbound								
L	203	1956	0.22	0.10	56.1	E		
TR	2067	3875	0.99	0.53	59.3	E	59.2	E

Intersection Delay = 47.8 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL Inter.:
 Agency: Area Type: All other areas
 Date: 10/9/07 Jurisd:
 Period: AM PEAK Year : Year 2011 w/out proj
 Project ID:
 E/W St: Lahainaluna Road N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	44	241	30	143	183	504	32	1154	71	305	1022	43
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			126			7			4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NE Right					EB Right			
SB Right					WB Right			
Green	5.0	42.0			9.0	20.0	49.0	
Yellow	0.0	4.0			0.0	0.0	4.0	
All Red	0.0	1.0			0.0	0.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	366	1770	0.16	0.39	27.2	C		
TR	571	1834	0.62	0.31	41.7	D	39.7	D
Westbound								
L	251	1770	0.65	0.39	47.8	D		
T	580	1863	0.36	0.31	36.5	D	53.9	D
R	492	1583	0.88	0.31	64.5	E		
Northbound								
L	130	1956	0.28	0.07	61.1	E		
TR	1412	3889	0.96	0.36	63.3	E	63.2	E
Southbound								
L	420	1956	0.81	0.21	62.5	E		
TR	1993	3899	0.59	0.51	23.6	C	32.3	C

Intersection Delay = 47.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	110	132	285	55	1336	47	247	1192	45
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			71			5			5

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	33.5			24.0	7.5	55.0
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	336	1770	0.35	0.32	37.4	D		
TR	447	1801	0.53	0.25	45.1	D	42.6	D
Westbound								
L	261	1770	0.47	0.32	41.5	D		
T	462	1863	0.32	0.25	41.8	D	44.4	D
R	393	1583	0.61	0.25	47.6	D		
Northbound								
L	348	1956	0.17	0.18	47.3	D		
TR	1590	3902	0.91	0.41	47.3	D	47.3	D
Southbound								
L	456	1956	0.57	0.23	47.5	D		
TR	1806	3901	0.72	0.46	30.6	C	33.4	C

Intersection Delay = 41.0 (sec/veh) Intersection LOS = D

APPENDIX E

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2011 PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	146	31	22	122	22	35	26	1603	40	20	1426	94
Lane Width	12.0 12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	2			4			4			10		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	36.0				18.0	66.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	354	1327	0.55	0.27	44.5	D	43.7	D
R	422	1583	0.05	0.27	36.9	D		
Westbound								
L	253	949	0.67	0.27	51.0	D		
TR	453	1700	0.16	0.27	38.1	D	47.1	D
Northbound								
L	261	1956	0.11	0.13	51.7	D		
TR	1910	3907	0.95	0.49	48.2	D	48.2	D
Southbound								
L	261	1956	0.08	0.13	51.4	D		
TR	1900	3887	0.88	0.49	36.7	D	36.9	D

Intersection Delay = 43.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	222	48	32	128	37	38	55	1668	92	42	1877	197
Lane Width	12.0 12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	3			4			9			20		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	38.5				6.5		75.0	
Yellow	4.0				4.0		4.0	
All Red	1.0				1.0		1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	369	1295	0.77	0.29	54.6	D	52.7	D
R	451	1583	0.07	0.29	35.2	D		
Westbound								
L	204	717	0.84	0.29	76.2	E		
TR	493	1729	0.19	0.29	36.7	D	62.2	E
Northbound								
L	94	1956	0.59	0.05	72.3	E		
TR	2162	3892	0.81	0.56	26.7	C	28.1	C
Southbound								
L	94	1956	0.47	0.05	66.3	E		
TR	2149	3869	1.01	0.56	74.8	E	74.6	E

Intersection Delay = 54.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	19	19	70	47	4	46	71	1605	93	44	1557	25
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			7			5			9			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		28.0				27.0	65.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	326	1570	0.18	0.21	44.3	D	45.1	D
R	328	1583	0.29	0.21	45.6	D		

Westbound

LT	270	1304	0.30	0.21	45.8	D	45.3	D
R	328	1583	0.20	0.21	44.5	D		

Northbound

L	391	1956	0.20	0.20	45.3	D		
T	1887	3920	0.94	0.48	46.5	D	45.1	D
R	843	1750	0.11	0.48	19.2	B		

Southbound

L	391	1956	0.13	0.20	44.5	D		
TR	1884	3912	0.93	0.48	43.5	D	43.5	D

Intersection Delay = 44.4 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig	LT R			LT R			L	T	R	L TR		
Volume	119	8	237	74	13	50	198	1829	47	66	1860	56
Lane Width	12.0 12.0			12.0 12.0			12.0	12.0	12.0	12.0	12.0	
RTOR Vol	24			4			3			6		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	27.5				21.5	71.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	235	1156	0.60	0.20	52.9	D	56.5	E
R	322	1583	0.73	0.20	58.6	E		
Westbound								
LT	215	1054	0.50	0.20	49.5	D	47.8	D
R	322	1583	0.18	0.20	44.7	D		
Northbound								
L	312	1956	0.67	0.16	58.9	E		
T	2062	3920	0.93	0.53	39.9	D	41.2	D
R	920	1750	0.05	0.53	15.6	B		
Southbound								
L	312	1956	0.22	0.16	49.8	D		
TR	2054	3905	0.98	0.53	55.4	E	55.2	E

Intersection Delay = 48.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L	TR		L	TR	
Volume	230	17	39	10	10	40	87	1562	25	31	1514	77
Lane Width	12.0 12.0			12.0			12.0	12.0		12.0	12.0	
RTOR Vol	4			4			3			8		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		24.0	11.0			21.0	64.0	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	393	1780	0.71	0.26	51.6	D	49.9	D
R	410	1583	0.10	0.26	38.1	D		
Westbound								
LTR	210	1184	0.32	0.18	49.3	D	49.3	D
Northbound								
L	304	1956	0.32	0.16	51.3	D		
TR	1855	3912	0.95	0.47	48.3	D	48.4	D
Southbound								
L	304	1956	0.11	0.16	49.1	D		
TR	1846	3894	0.95	0.47	49.5	D	49.5	D

Intersection Delay = 49.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L TR			L TR		
Volume	242	23	100	16	30	47	101	1703	20	43	1804	164
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0		
RTOR Vol	10			5			2			16		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		23.0	11.0			13.5	72.5	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	353	1781	0.81	0.25	61.8	E	56.4	E
R	399	1583	0.24	0.25	40.6	D		
Westbound								
LTR	159	932	0.66	0.17	62.5	E	62.5	E
Northbound								
L	196	1956	0.54	0.10	60.9	E		
TR	2102	3914	0.86	0.54	31.1	C	32.7	C
Southbound								
L	196	1956	0.23	0.10	56.6	E		
TR	2081	3875	0.99	0.54	60.0	E	59.9	E

Intersection Delay = 48.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	44	241	30	154	183	515	32	1159	75	308	1067	43
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			129			8			4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	42.5			6.5	22.0	49.0
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	371	1770	0.16	0.39	26.8	C		
TR	577	1834	0.61	0.31	41.2	D	39.2	D
Westbound								
L	255	1770	0.69	0.39	50.7	D		
T	586	1863	0.36	0.31	36.1	D	55.3	E
R	498	1583	0.89	0.31	66.2	E		
Northbound								
L	94	1956	0.38	0.05	64.9	E		
TR	1411	3888	0.97	0.36	66.3	E	66.3	E
Southbound								
L	413	1956	0.83	0.21	65.6	E		
TR	2051	3899	0.60	0.53	22.6	C	32.0	C

Intersection Delay = 48.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	113	132	288	55	1352	52	252	1203	45
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			72			5			5

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	33.5			23.5	7.5	55.5
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	336	1770	0.35	0.32	37.4	D		
TR	447	1801	0.53	0.25	45.1	D	42.6	D
Westbound								
L	261	1770	0.48	0.32	42.0	D		
T	462	1863	0.32	0.25	41.8	D	44.6	D
R	393	1583	0.61	0.25	47.8	D		
Northbound								
L	340	1956	0.17	0.17	47.7	D		
TR	1603	3900	0.92	0.41	47.9	D	47.9	D
Southbound								
L	449	1956	0.59	0.23	48.4	D		
TR	1820	3901	0.72	0.47	30.3	C	33.4	C

Intersection Delay = 41.2 (sec/veh) Intersection LOS = D

APPENDIX F

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2011 PEAK HOUR TRAFFIC ANALYSIS
WITH PROJECT AND KEAWE STREET EXTENSION**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID: With Keawe St Ext
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig		LT	R	L	TR		L	TR		L	TR	
Volume	146	31	22	122	22	35	26	1603	40	20	1426	94
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			2			4			4			10

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		36.0				18.0	66.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	354	1327	0.55	0.27	44.5	D	43.7	D
R	422	1583	0.05	0.27	36.9	D		
Westbound								
L	253	949	0.67	0.27	51.0	D		
TR	453	1700	0.16	0.27	38.1	D	47.1	D
Northbound								
L	261	1956	0.11	0.13	51.7	D		
TR	1910	3907	0.95	0.49	48.2	D	48.2	D
Southbound								
L	261	1956	0.08	0.13	51.4	D		
TR	1900	3887	0.88	0.49	36.7	D	36.9	D

Intersection Delay = 43.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	222	48	32	128	37	38	55	1668	92	42	1877	197
Lane Width	12.0 12.0			12.0 12.0			12.0 12.0			12.0 12.0		
RTOR Vol	3			4			9			20		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	38.5				6.5 75.0			
Yellow	4.0				4.0 4.0			
All Red	1.0				1.0 1.0			

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	369	1295	0.77	0.29	54.6	D	52.7	D
R	451	1583	0.07	0.29	35.2	D		
Westbound								
L	204	717	0.84	0.29	76.2	E		
TR	493	1729	0.19	0.29	36.7	D	62.2	E
Northbound								
L	94	1956	0.59	0.05	72.3	E		
TR	2162	3892	0.81	0.56	26.7	C	28.1	C
Southbound								
L	94	1956	0.47	0.05	66.3	E		
TR	2149	3869	1.01	0.56	74.8	E	74.6	E

Intersection Delay = 54.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID: With Keawe St Ext
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig	LT R			L	T	R	L	T	R	L	TR	
Volume	19	19	70	107	4	237	71	1414	93	160	1441	25
Lane Width	12.0 12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol	7			24			9			3		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	34.5				26.0		59.5	
Yellow	4.0				4.0		4.0	
All Red	1.0				1.0		1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	419	1638	0.14	0.26	38.9	D	39.7	D
R	405	1583	0.23	0.26	40.1	D		
Westbound								
L	342	1340	0.42	0.26	42.7	D		
T	476	1863	0.01	0.26	37.5	D	48.2	D
R	405	1583	0.70	0.26	51.1	D		
Northbound								
L	377	1956	0.21	0.19	46.1	D		
T	1728	3920	0.91	0.44	43.7	D	42.7	D
R	771	1750	0.12	0.44	22.4	C		
Southbound								
L	377	1956	0.47	0.19	49.3	D		
TR	1724	3911	0.94	0.44	49.9	D	49.8	D

Intersection Delay = 46.3 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig		LT	R	L	T	R	L	T	R	L	TR	
Volume	119	8	237	113	13	124	198	1755	47	180	1746	56
Lane Width		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			24			12			5			6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		29.0				23.5	67.5	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	291	1356	0.48	0.21	47.7	D	52.1	D
R	340	1583	0.69	0.21	54.8	D		

Westbound

L	231	1075	0.61	0.21	52.4	D		
T	400	1863	0.04	0.21	42.0	D	49.0	D
R	340	1583	0.41	0.21	46.4	D		

Northbound

L	340	1956	0.61	0.17	54.8	D		
T	1960	3920	0.94	0.50	44.1	D	44.6	D
R	875	1750	0.05	0.50	17.3	B		

Southbound

L	340	1956	0.56	0.17	53.0	D		
TR	1952	3904	0.97	0.50	52.8	D	52.8	D

Intersection Delay = 49.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID: With Keawe St Ext
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			L/TR			L	TR		L	TR	
Volume	230	17	39	10	10	40	87	1371	25	31	1458	77
Lane Width	12.0 12.0			12.0			12.0	12.0		12.0	12.0	
RTOR Vol	4			4			3			8		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NE Right					EB Right			
SB Right					WB Right			
Green		24.0	12.0			22.0	62.0	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	406	1780	0.69	0.27	49.5	D	48.0	D
R	422	1583	0.09	0.27	37.3	D		
Westbound								
LTR	213	1198	0.31	0.18	49.2	D	49.2	D
Northbound								
L	319	1956	0.30	0.16	50.3	D		
TR	1796	3911	0.86	0.46	37.4	D	38.2	D
Southbound								
L	319	1956	0.11	0.16	48.3	D		
TR	1788	3893	0.95	0.46	49.9	D	49.8	D

Intersection Delay = 44.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L	TR		L	TR	
Volume	242	23	100	16	30	47	101	1629	20	43	1729	164
Lane Width	12.0 12.0			12.0			12.0	12.0		12.0 12.0		
RTOR Vol	10			5			2			16		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		23.5	11.5			15.0	70.0	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	365	1781	0.78	0.26	57.7	E	53.1	D
R	410	1583	0.24	0.26	39.8	D		
Westbound								
LTR	170	978	0.62	0.17	58.4	E	58.4	E
Northbound								
L	217	1956	0.49	0.11	58.1	E		
TR	2029	3914	0.85	0.52	32.1	C	33.6	C
Southbound								
L	217	1956	0.21	0.11	55.1	E		
TR	2009	3874	0.98	0.52	59.2	E	59.1	E

Intersection Delay = 47.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID: With Keawe St Ext
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	44	241	30	94	183	324	32	1159	75	192	1097	43
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			81			8			4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	38.0			22.0	7.5	52.5
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	327	1770	0.18	0.36	29.9	C		
TR	516	1834	0.68	0.28	47.0	D	44.6	D
Westbound								
L	213	1770	0.51	0.36	40.7	D		
T	524	1863	0.40	0.28	39.8	D	42.4	D
R	446	1583	0.63	0.28	45.1	D		
Northbound								
L	319	1956	0.11	0.16	48.3	D		
TR	1512	3888	0.90	0.39	47.5	D	47.5	D
Southbound								
L	427	1956	0.50	0.22	47.2	D		
TR	1733	3900	0.73	0.44	32.4	C	34.5	C

Intersection Delay = 41.5 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	74	132	214	55	1352	52	138	1242	45
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			54			5			5

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right				A	Right			A
Peds					Peds			
WB Left		A			SB Left	A		
Thru				A	Thru		A	
Right					Right			A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	32.0			27.0	56.0	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	321	1770	0.37	0.31	38.8	D		
TR	427	1801	0.56	0.24	46.9	D	44.2	D
Westbound								
L	246	1770	0.33	0.31	35.4	D		
T	442	1863	0.33	0.24	43.1	D	42.5	D
R	375	1583	0.47	0.24	45.2	D		
Northbound								
L	391	1956	0.15	0.20	44.7	D		
TR	1618	3900	0.91	0.41	46.3	D	46.2	D
Southbound								
L	391	1956	0.37	0.20	47.3	D		
TR	1619	3902	0.83	0.41	39.4	D	40.1	D

Intersection Delay = 43.2 (sec/veh) Intersection LOS = D

APPENDIX F.

Preliminary Civil Engineering and Drainage and Erosion Control Report

PRELIMINARY
CIVIL ENGINEERING
AND
DRAINAGE AND SOIL EROSION CONTROL REPORT

FOR

KAHOMA RESIDENTIAL PROJECT

LAHAINA, MAUI, HAWAII

TAX MAP KEY: (2) 4-5-10:005 & 006

PREPARED FOR:

WEST MAUI LAND COMPANY, INC.
33 LONO AVENUE, SUITE 450
KAHULUI, HAWAII - 96732

PREPARED BY:



CIVIL ENGINEERING • LAND SURVEYING • CONSTRUCTION MANAGEMENT & INSPECTIONAL SERVICES

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JOB 05-105

OCTOBER 19, 2007

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FOR MILL STREET EXTENSION

I. **PURPOSE:**

The purpose of this preliminary report is to investigate the infrastructure requirements for the proposed project. This report will present a description of the existing conditions and provide anticipated improvements, such as roadway, drainage, water and sewer systems for subdivision development required by the appropriate governmental agencies.

II. **PROPOSED PROJECT:**

The proposed project consists of the consolidation of Parcels 05 and 06 of Tax Map Key (2) 4-5-10. The consolidated parcels, with an area of 17.603 acres, will then be subdivided into 76 lots that include forty nine (49) lots for single-family residences; one (1) for multi-family unit; one (1) for park use; twenty two (22) lots for zero-lot line residences; and three (3) lots for roadway purposes. The single-family lots have areas ranging from 6,010 to 10,620 square feet, while the areas for lots for zero-lot line residences range from 3,299 to 9,493 square feet. The layout of the proposed subdivision is shown on Figure 9.

Appurtenant to the proposed subdivision are grading, roadway, water, sewer and drainage systems that will be designed and constructed in accordance with the requirements of governmental agencies that review this type of development. The proposed improvements are discussed in their respective sections of this report.

III. LOCATION AND ACCESS:

A. LOCATION:

The project site is located in Lahaina, Maui, Hawaii. It is particularly situated on the southern side of Kahoma Stream Flood Control channel. Refer to Figures 1 and 2. Across the stream channel is Lahaina Business Park; while to the south of the proposed project are single-family residential subdivisions.

B. ACCESS:

Lui Street provides present access to the project site. This street joins Kalena Street which is in turn connected to Lahainaluna Road. Lahainaluna Road, which is the major access to the adjacent residential subdivisions, connects to Honoapiilani Highway that links West Maui to other parts of the island.

C. PROPOSED ROADWAY IMPROVEMENTS:

The future subdivision will be serviced internally by a 52-foot roadway that is planned to be privately owned and maintained. The upper (east) end will be connected to Lui Street, while the lower (west) end will tie into the existing old road that connects to Keawe Street. Refer to Figure 2. Another option is to connect to the planned Mill Street extension (by others) as shown on Exhibit A.

A typical section of the proposed onsite roadway is shown on Figure 9. It includes a 6-foot wide concrete sidewalk along the northern side of the right-of-way; 9-foot wide planter on each side of the road; 4-foot wide bike lane along each side of the 20-foot wide paved travelway; and concrete curbs. The

proposed roadway will also include traffic calming features such as speed humps; signage; and pavement markings. It is also planned that parallel parking stalls (bubbled parking area) will be provided within the planter areas where space is available.

IV. EXISTING SOILS AND TOPOGRAPHY:

A. SOIL:

The U.S. Department of Agriculture Soil Conservation Service's Soils Survey of the Island of Kauai, Oahu, Maui, Molokai and Lanai [2], classifies the soils within the project site as Wahikuli Very Stony Silty Clay (WdB), 3 to 7 percent slopes (Figure 3). WdB is characterized as having moderate permeability, slow runoff and slight erosion hazard.

WdB belongs to Wahikuli soil series that consist of well-drained soils on uplands on the island of Maui at elevations ranging from nearly sea level to 600 feet. These soils developed in material weathered from basic igneous rock.

B. TOPOGRAPHY:

The existing topography of the project site is shown on Figure 8.

The existing ground has elevations ranging from 32 feet to 145 feet above mean sea level. In general, the ground surface slopes down in a westerly direction from the east end to the west end of the project site, at an average slope of about 4½ percent.

V. **WASTEWATER SYSTEM:**

A. **EXISTING:**

The existing wastewater system serving the adjacent residential subdivision and vicinity is part of the County's Lahaina Sewerage System. A portion of the system that collects wastewater flows generated by existing developments in the vicinity of the project site is shown on Figure 6. The collected wastewater is transmitted by a series of force mains and gravity sewerlines to the Lahaina Wastewater Reclamation Facility above the intersection of Honoapiilani Highway and Lower Honoapiilani Road, about 5 miles north of the project site.

B. **PROJECTED WASTEWATER FLOW:**

Based on the Wastewater Flow Standards [8], the estimated average wastewater flow generated by the proposed development is as follows:

Single-Family Residence	= 71 lots x 350 gpd	= 24,850 gallons per day
Apartment	= 24 units x 255 gpd	= 6,120 gallons per day
Managers Residence	= 1 unit x 350 gpd	= <u>350</u> gallons per day
Total Wastewater Flow		= 31,320 gallons per day

C. **PROPOSED WASTEWATER SYSTEM:**

The proposed wastewater system consists of onsite and offsite systems that will discharge into the existing sewer system on Keawe Street or to the existing sewerline at the upper end of Papalaua Street. Refer to Figures 7 and 10 for conceptual offsite and onsite systems, respectively.

The onsite system will consist of 6" and 8" PVC sewer pipes, sewer manholes and a wastewater pump station. Each proposed lot will be served by a single service lateral as required by the Wastewater Reclamation Division of the Department of Environmental Management.

There are two (2) options that were considered for the proposed offsite system. Option 1 is to connect to the existing 8" sewerline at the upper end of Papalaua Street. This option could include both force main and gravity pipes. Option 2 consists of a force main that will discharge into the Keawe Street sewer system. Both options need easements across private properties. Additionally, Option 2 requires approval from the U.S. Army Corp of Engineers for crossing of the Kahoma Stream Channel.

VI. WATER SYSTEM:

A. EXISTING:

There are existing waterlines that currently serve the existing adjacent residential subdivisions south of the project site. Refer to Figure 5. The system consists of water mains with sizes ranging from 2-inch to 12-inch pipes. It is fed by the existing 0.5 and 1.0 M.G. concrete water reservoirs on the upper reaches of Lahainaluna Road.

B. PROJECTED WATER REQUIREMENTS:

1. Domestic:

According to Table 100-18, Domestic Consumption Guidelines, of the Department of Water Supply (DWS) Standards, the average daily domestic demands for single-family residences and multi-family low rise apartments are 600 gallons and 560 gallons per unit, respectively. Hence the average daily demand for the proposed project is as follows:

Single Family	= 71 x 600 gals./lot	= 42,600 gpd
Multi-Family	= 24 x 560 gals./unit	= 13,440 gpd
Manager's Residence	= 1 x 600 gals./unit	= <u>600</u> gpd
Total Average Daily Demand		= 56,640 gpd

The maximum daily demand will be about 84,960 gpd which is 1.5 times the average daily demand (Table 100-20, Demand Factors).

2. Fire Flow:

The fire flow requirements (Table 100-19, Fire Flow Requirements) for the proposed single-family residential site is 1,000 gallons per minute (gpm) while the low rise apartments, need 1,500 gpm. Fire hydrant spacing will be at no more than 350 feet and 250 feet for single family and low rise apartments, respectively.

C. PROPOSED WATER SYSTEM IMPROVEMENTS:

With a relatively small residential development like this, the size of the distribution line is usually governed by the fire flow requirements. The needed fire flow of 1,500 gpm for the planned multi-family residential units will be used to size the main distribution line. Thus, an 8-inch waterline, which can deliver about 1,565 gpm at a velocity of 10 feet per second, is sufficient to provide the needed fire flow.

The conceptual water system is laid out on Figure 11. It consists of both onsite and offsite facilities. The onsite component includes 8-inch waterline, fire hydrants and service laterals. Individual single-family lots will be served by 5/8" water meters. The multi-family (Lot 72) and park (Lot 73) sites will be served by larger meters, tentatively 1½" meters, for both domestic and irrigation purposes. In keeping with the guidelines of the DWS Standards, the proposed fire hydrants will be spaced at no more than 350 feet apart along the single family residential lots and at no more than 250 feet spacing in front of the planned multi-family site.

Both ends of the onsite system will be tied-in to the existing waterline network serving the adjacent residential subdivisions. The upper end will be connected to the existing 8" and 4" waterlines at the intersection of Kahena and Kalena Streets through Lui Street. The lower end of the onsite system will be connected to the existing 6" and 4" waterlines at the intersection of Kamamalu and Kuhua Streets via an 8-inch pipe across private lands and along Kuhua Street. An easement across TMK: (2) 4-5-09:07 will have to be obtained from the landowner of this parcel.

VII. DRAINAGE, GRADING AND SOIL EROSION:

A. GENERAL:

The preliminary Drainage Study, in general, is based on the requirements, formulas, charts and tables of the Rules of the Design of Storm Drainage Facilities of the County of Maui [1] hereinafter referred to as County Drainage Standards; whereas, the Best Management Practices to control soil erosion are in accordance with the Construction Best Management Practices (BMPs) for the County of Maui [2] hereinafter referred to as "County Standard BMPs".

B. FLOODING HAZARD:

The site is found on Panel 15003-0161C, map revised August 3, 1998, of the Flood Insurance Rate Map (FIRM) for the County of Maui. The site is situated within Flood Designation Zone C where areas are subject to minimal flooding. Refer to Figure 4.

C. EXISTING DRAINAGE CONDITIONS:

The present onsite drainage flow pattern is generally characterized by sheet flow across the project site in a westerly direction discharging into Kahoma Stream channel on the upstream side of the existing cane haul bridge.

The site is part of the Kahoma Stream watershed.

D. STORM RUNOFF QUANTITIES:

Hydrologic calculations are given in Appendix A - Preliminary Drainage Calculations. According to the County Drainage Standards, the 10-year, 1-hour

storm is used for design of surface drainage facilities such as roadway gutter flow, while the 50-year, 1-hour duration is used for the design of culverts and retention basins.

Based on the preliminary drainage calculations, the overall project site is anticipated to increase the existing 1-hour rainfall storm as follows:

10-year Runoff Rate:	10.7 cfs, from 15.1 to 25.8 cfs
50-year Runoff Rate:	13.4 cfs, from 18.9 to 32.3 cfs
50-year Runoff Volume:	33,589 cf, from 47,132 to 80,721 cf

E. CONCEPTUAL DRAINAGE PLAN:

The drainage system scheme is laid out on Figure 12. The main feature of the proposed system is the construction of onsite surface (open) retention ponds that will be sized, at a minimum, to retain the 50-year, 1-hour storm runoff volume increase that is anticipated to be generated by the proposed project site. Storing the volume increase is expected to maintain the runoff volume leaving the project site below or at pre-development level.

Aside from the open-cut retention ponds, the proposed drainage system will also include catch basins and/or grated drain inlets to collect runoff; non-perforated pipes to convey runoff to the drainage ponds; and drain manholes. It will also include the rerouting of the existing 30" and 36" drainlines between Lui Street and the Kahoma Stream Channel. Overflow from the proposed ponds will be discharged to the existing Kahoma Stream concrete channel via culverts with the outlets set above the channels water surface elevation.

The proposed drainage ponds (Pond A and B) will be constructed on Lot 73 which is designated for park and open space. Pond B should be designed so that it could be used for sports related activities such as little league baseball and softball fields.

F. GRADING REQUIREMENTS:

Grading for the proposed development will be performed in compliance with the applicable requirements of the Maui County Grading Ordinance. It is expected that grading will be essentially associated with the construction of the proposed roadways and developing building pads on each lot. This will involve grading almost the whole site that includes cut and fill areas between the lots with minimum slopes at 2 horizontal to 1 vertical (2:1), if sufficient space is available; otherwise, grade adjustment walls will have to be constructed along the lot boundaries to obtain level surfaces for the future residential buildings especially on the zero-lot line lots.

Grading will also include the development of the proposed onsite drainage ponds.

G. BEST MANAGEMENT PRACTICES:

Requirements for the temporary control of soil erosion and dust during site improvement will be outlined and shown on the construction plans during the design development for the project. Some of the temporary control measures will be as follows:

1. Installation of BMP such as silt fence, gravel bag berms or other approved sediment trapping devices at the downstream side of the grading area and sediment pits.
2. Installation of dust control fence surrounding the project site.
3. Control dust by means of water trucks or by installing temporary sprinkler systems or both if necessary.
4. Graded areas shall be thoroughly watered after construction activity has ceased for the day and for weekends and holidays.
5. All exposed areas shall be paved, grassed, or permanently landscaped as soon as finished grading is completed.
6. Storm runoff will be diverted away from graded areas to natural drainageways during construction by means of sand bag berms or lined temporary swales.
7. Time of construction will be minimized.
8. Only areas that are needed for new improvements will be cleared.
9. Early construction of drainage control features.
10. Construction of pit for proposed drainage pond prior to mass grading of project site. The pit will be temporarily utilized as sediment catchment during construction.
11. Temporary control measures shall be in place and functional prior to construction and shall remain operational throughout the construction period or until permanent controls are in place.

The Contractor will also be required to submit a satisfactory soil erosion control plan to minimize soil erosion prior to an issuance of a grubbing and

grading permit. Best Management Practices shall be in compliance with Section 20.08.035 of the Maui County Code (Ord. No. 2684) and County Standard BMPs.

The grading area is expected to be larger than 1.0 acre. Hence, NPDES General Permit Coverage Authorizing Discharges of Storm Water associated with construction activities will need to be obtained from the State Department of Health, Clean Water Branch, prior to any land disturbance at the project site.

H. CONCLUSION:

Based on this preliminary drainage study, the proposed development will increase the existing storm runoff due to addition of impervious surfaces such as building roofs, pavement and concrete walkways. Despite the increase in runoff, the proposed development is not anticipated to have adverse drainage effects on adjacent and downstream properties. In keeping with the guidelines of the County Drainage Standards, the proposed drainage improvements will include the impoundment of the 50-year, 1-hour storm runoff volume increase to be generated by the future development. The future onsite drainage ponds will result in a zero runoff increase for the 50-year storm to downstream properties and will also have the effect of reducing the potential for sediments contained in the runoff from entering the ocean.

Soil erosion and dust control measures (BMPs) will be instituted during development of the proposed project. These measures will include BMPs in compliance with County Standard BMPs and Section 20.08.035 of the Maui County Code. Additionally, NPDES General Permit Coverage Authorizing Discharge of Storm Water Associated with Construction Activities will be obtained

from the Clean Water Branch of the State Department of Health prior to any land disturbance. Conditions of the permit will be implemented during site construction.

IX. CONSTRUCTION PLAN APPROVALS:

Approval of construction plans and appropriate permits for site grading and infrastructural improvements of the proposed project will be obtained from the Department of Public Works; Department of Environmental Management; Department of Water Supply; Fire Prevention Bureau; State Department of Health, Wastewater and Clean Water Branches; and the U.S. Army Corp of Engineers. The various infrastructures will be designed in compliance with the applicable requirements of these governmental agencies.

X. REFERENCES:

1. Rules for the Design of Storm Drainage Facilities in the County of Maui, Title MC-15, Department of Public Works and Waste Management, County of Maui, Chapter 4.
2. Construction Best Management Practices (BMPs) for the County of Maui, Department of Public Works and Waste Management, May 2001.
3. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, August 1972.
4. Erosion and Sediment Control Guide for Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, March 1981.
5. Rainfall-Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43, U. S. Department of Commerce, Weather Bureau, 1962.
6. Flood Insurance Rate Maps for the County of Maui, June 1981.

7. Water System Standards, Department of Water Supply, County of Maui, 2002.
8. Wastewater Flow Standards, Wastewater Reclamation Division, Department of Public Works & Environmental Management, February 2, 2000.

APPENDIX A

KAHOMA RESIDENTIAL PROJECT LAHAINA, MAUI, HAWAII TMK: (2) 4-5-10:005 & 006

PRELIMINARY DRAINAGE CALCULATIONS

October 19, 2007

- I. Reference: Rules for the Design of Storm Drainage Facilities in the County of Maui, April 14, 1995
- II. Purpose: To determine the overall pre and post development storm runoff discharges.
- III. Hydrologic Criteria:
 - A. 10-Year, 1-Hour: for surface runoff flow design such as gutter
1-Hr. Rainfall Value = 2.0"
 - B. 50-Year, 1-Hour: for design of retention ponds and roadway culverts
1-Hr. Rainfall Value = 2.5"
- IV. Runoff Quantity:
 - A. Runoff Discharge Rate & Volume:
 1. Methodology:

Rational Method, $Q = CIA$

Where Q = Flow rate in cubic feet per second (cfs)

C = Runoff Coefficient

I = Rainfall intensity in inches per hour for a duration equal to the time of concentration

A = Drainage Area in Acres

= 6.70 Acs. (Drainage Area 1)

= 10.90 Acs. (Drainage Area 2) } See Figure 14

Calculations employing this method were performed on computer using hydrologic software "Hydraflow Hydrographs 2004" by Intelisolve. The Standard Rational Method is used to calculate storm runoff peak discharge rates while the Modified Rational Method is employed to determine storm runoff volumes.

2. Runoff Coefficient, C:

Existing Condition:

$$C = 0.30 \text{ (Unimproved)}$$

Future Condition:

$$C = 0.55 \text{ (Residential)}$$

$$= 0.70 \text{ (Apartment)}$$

$$= 0.22 \text{ (Park/Open Space)}$$

Area 1:

$$\text{Apartment} = 1.15 \text{ Acs.}$$

$$\text{Residential} = 4.48 \text{ Acs.}$$

$$\text{Park/Open} = \underline{1.07} \text{ Acs.}$$

$$\text{Total Area} = 6.70 \text{ Acs.}$$

$$C_w = \frac{1.15 \times 0.70 + 4.48 \times 0.55 + 1.07 \times 0.22}{6.70}$$

$$= \frac{3.50}{6.70}$$

$$= 0.52$$

Area 2:

Residential = 9.48 Acs.

Park/Open = 1.42 Acs.

Total Area = 10.90 Acs.

$$\begin{aligned}C_w &= \frac{9.48 \times 0.55 + 1.42 \times 0.22}{10.90} \\&= \frac{5.53}{10.90} \\&= 0.51\end{aligned}$$

3. Time of Concentration, Tc:

Area 1:

Length of Flow = 1,000 ft.

Average Slope = 4.5%

Tc = 27 min. (Ave. Grass)

Area 2:

Length of Flow = 1,500 ft.

Average Slope = 4.5%

Tc = 30 min. (Ave. Grass)

4. Storm Runoff Quantity:

(Refer to attached Hydrograph Report)

10–Year, 1-Hour Storm Peak Discharge Rate:

	<u>Existing</u>	<u>Future</u>	<u>Increase</u>
Area 1	= 5.9 cfs	= 10.2 cfs	= 4.3 cfs
Area 2	= <u>9.2 cfs</u>	= <u>15.6 cfs</u>	= <u>6.4 cfs</u>
Total	= 15.1 cfs	= 25.8 cfs	= 10.7 cfs

50–Year, 1-Hour Storm Peak Discharge Rate:

	<u>Existing</u>	<u>Future</u>	<u>Increase</u>
Area 1	= 7.4 cfs	= 12.8 cfs	= 5.4 cfs
Area 2	= <u>11.5 cfs</u>	= <u>19.5 cfs</u>	= <u>8.0 cfs</u>
Total	= 18.9 cfs	= 32.2 cfs	= 13.4 cfs

5. Runoff Volume (50-Year, 1-Hour Storm):

(Refer to attached Hydrograph Report)

	<u>Existing</u>	<u>Future</u>	<u>Increase</u>
Area 1	= 17,937 cf	= 31,090 cf	= 13,153 cf
Area 2	= <u>29,195 cf</u>	= <u>49,631 cf</u>	= <u>20,436 cf</u>
Total	= 47,132 cf	= 80,721 cf	= 33,589 cf

The 50-year, 1-hour rainfall volume increases are the minimum volumes to be retained onsite in order to attain zero runoff increase to adjacent/downstream properties.

V. Retention Pond:

In accordance with the County Drainage Standards, retention pond shall have a storage capacity to at least equal to the anticipated 50-year, 1-hour storm runoff volume increase for drainage areas less than 100 acres; however, in determining the storage capacity, soil percolation shall not be taken into account. Based on this guideline, Drainage Area 1 will require a minimum storage of 13,153 cf; while Drainage Area 2 needs a minimum storage of 20,436 cf.

Hydraflow IDF Report

Return Period (Yrs)	Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	-----
2	0.0000	0.0000	0.0000	-----
3	0.0000	0.0000	0.0000	-----
5	0.0000	0.0000	0.0000	-----
10	27.3279	9.9000	0.6180	-----
25	0.0000	0.0000	0.0000	-----
50	32.9258	9.5000	0.6097	-----
100	0.0000	0.0000	0.0000	-----

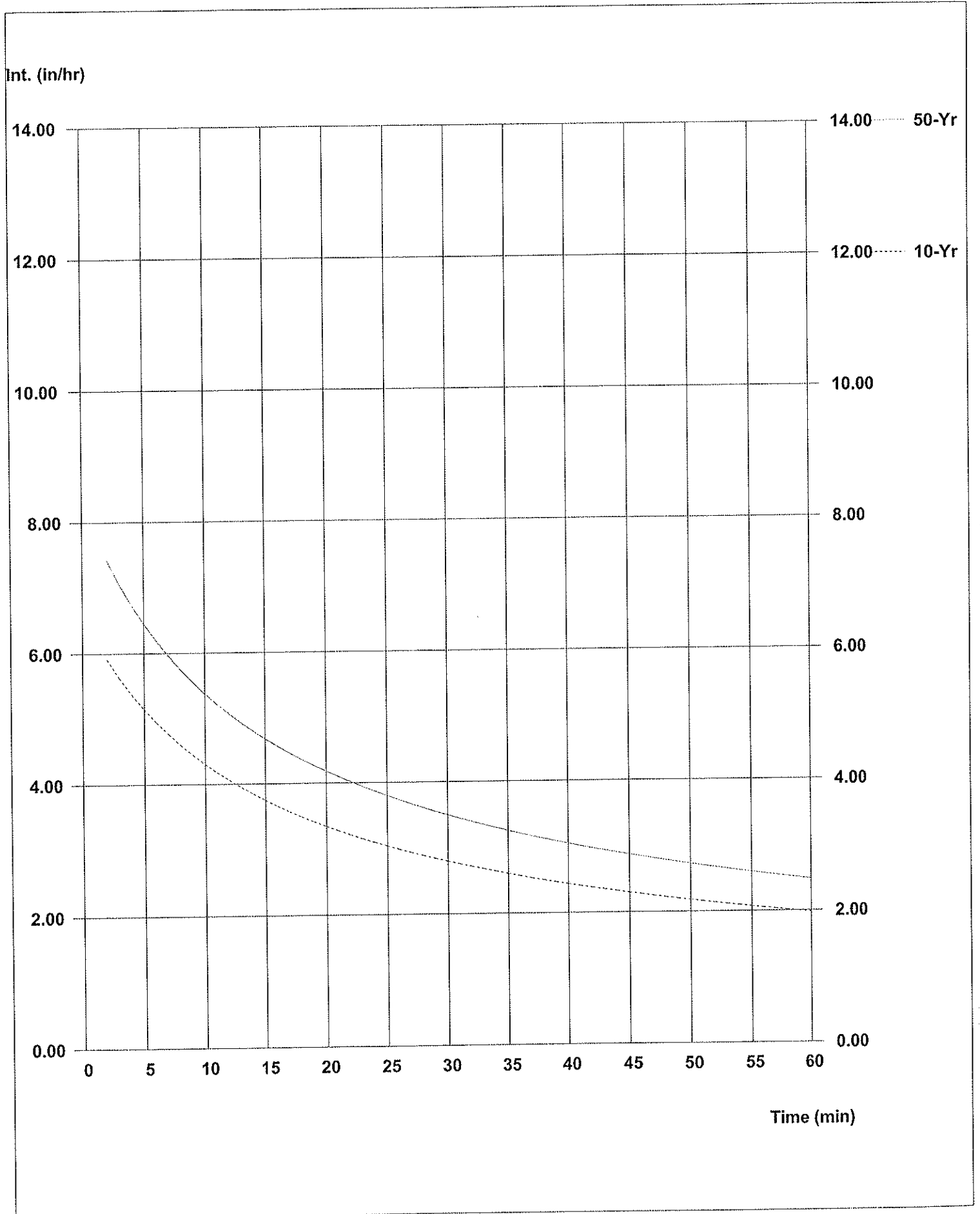
C:\Program Files\Hydraflow\Hydrographs\2004\Tai O\Tele-05-105-IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	5.15	4.30	3.75	3.35	3.04	2.80	2.60	2.44	2.30	2.18	2.07	1.98
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	6.45	5.38	4.68	4.18	3.80	3.50	3.25	3.05	2.88	2.73	2.60	2.48
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tc = time in minutes

Hydrograph IDF Curves



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	5.91	1	27	9,569	----	-----	-----	Area 1 Runoff Rate (Existing)
2	Rational	10.24	1	27	16,586	----	-----	-----	Area 1 Runoff Rate (Future)
3	Rational	9.16	1	30	16,481	----	-----	-----	Area 2 Runoff Rate (Existing)
4	Rational	15.57	1	30	28,017	----	-----	-----	Area 2 Runoff Rate (Future)
5	Mod. Rational	3.98	1	27	14,321	----	-----	-----	Area 1 Runoff Volume (existing)
6	Mod. Rational	6.90	1	27	24,822	----	-----	-----	Area 1 Runoff Volume (future)
7	Mod. Rational	6.47	1	30	23,309	----	-----	-----	Area 2 Runoff Volume (existing)
8	Mod. Rational	11.01	1	30	39,625	----	-----	-----	Area 2 Runoff Volume (future)
Lai O Lele 05-105.gpw					Return Period: 10 Year		Friday, Oct 12 2007, 1:53 PM		

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	7.38	1	27	11,959	---	----	-----	Area 1 Runoff Rate (Existing)
2	Rational	12.80	1	27	20,729	---	----	-----	Area 1 Runoff Rate (Future)
3	Rational	11.45	1	30	20,601	---	----	-----	Area 2 Runoff Rate (Existing)
4	Rational	19.46	1	30	35,022	---	----	-----	Area 2 Runoff Rate (Future)
5	Mod. Rational	4.99	1	27	17,937	---	----	-----	Area 1 Runoff Volume (existing)
6	Mod. Rational	8.64	1	27	31,090	---	----	-----	Area 1 Runoff Volume (future)
7	Mod. Rational	8.11	1	30	29,195	---	----	-----	Area 2 Runoff Volume (existing)
8	Mod. Rational	13.79	1	30	49,631	---	----	-----	Area 2 Runoff Volume (future)
Lai O Lele 05-105.gpw					Return Period: 50 Year		Friday, Oct 12 2007, 1:53 PM		

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

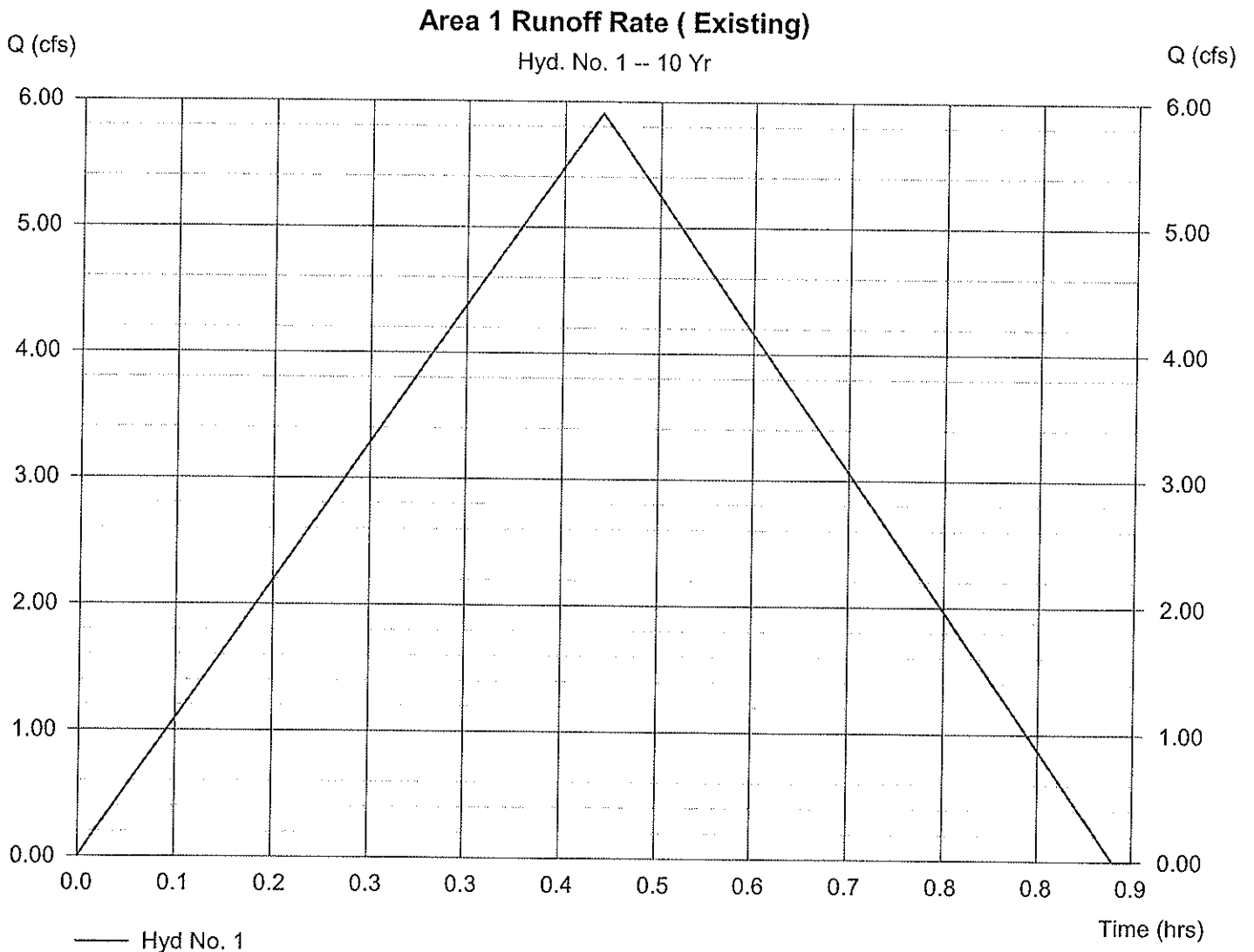
Hyd. No. 1

Area 1 Runoff Rate (Existing)

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 6.700 ac
Intensity = 2.939 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 5.91 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Tc by User = 27.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 9,569 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

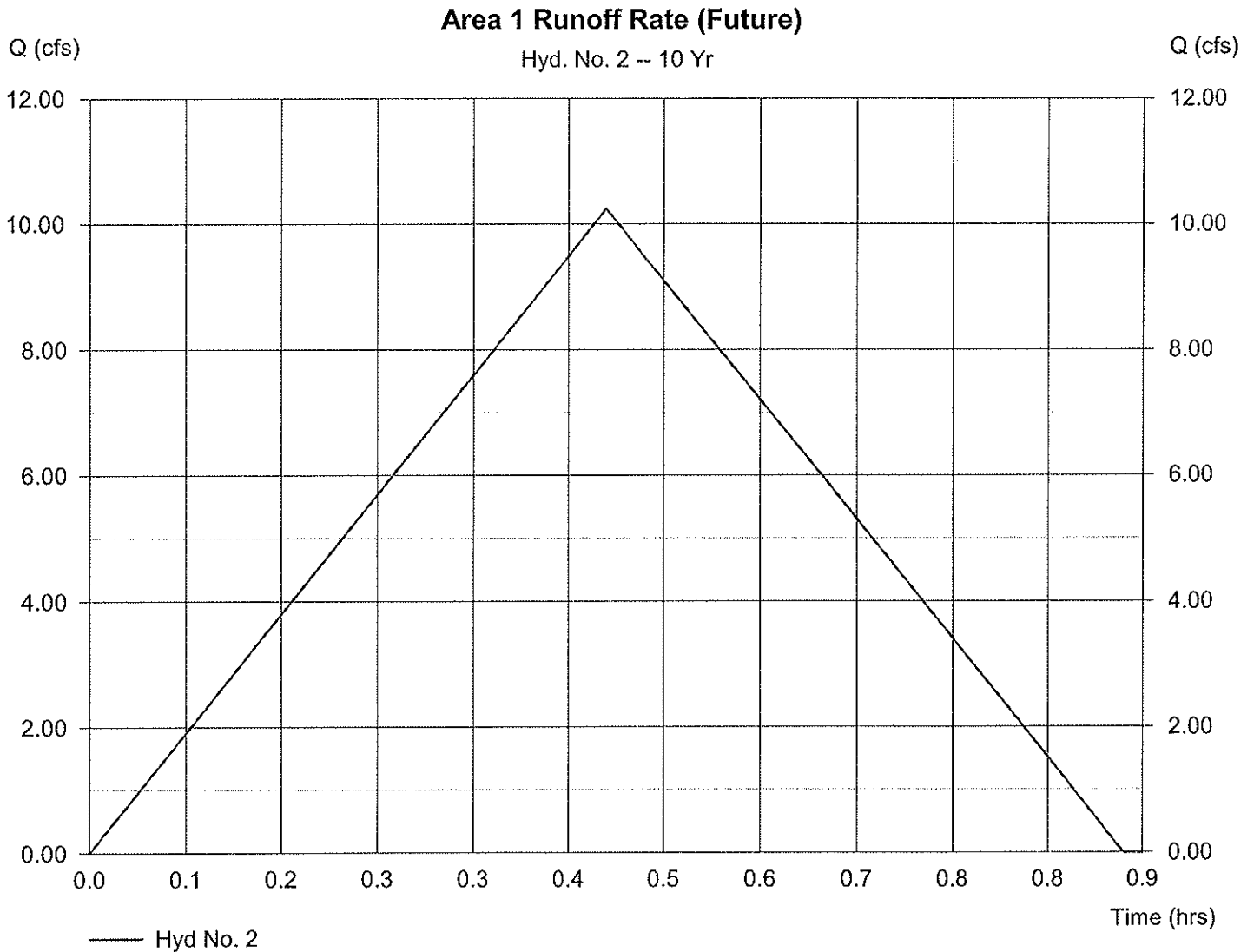
Hyd. No. 2

Area 1 Runoff Rate (Future)

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 6.700 ac
Intensity = 2.939 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 10.24 cfs
Time interval = 1 min
Runoff coeff. = 0.52
Tc by User = 27.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 16,586 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

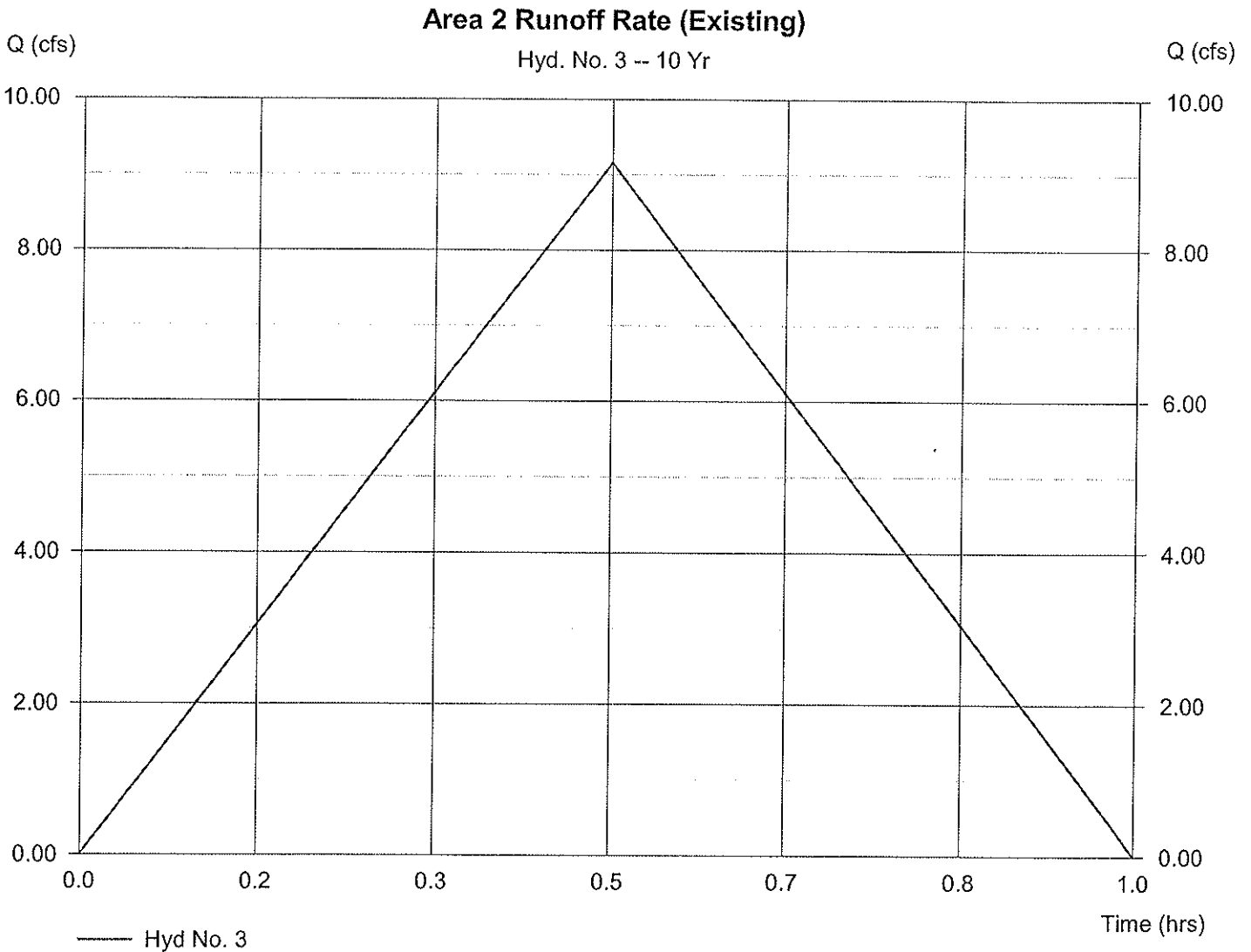
Hyd. No. 3

Area 2 Runoff Rate (Existing)

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 10.900 ac
Intensity = 2.800 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 9.16 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Tc by User = 30.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 16,481 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

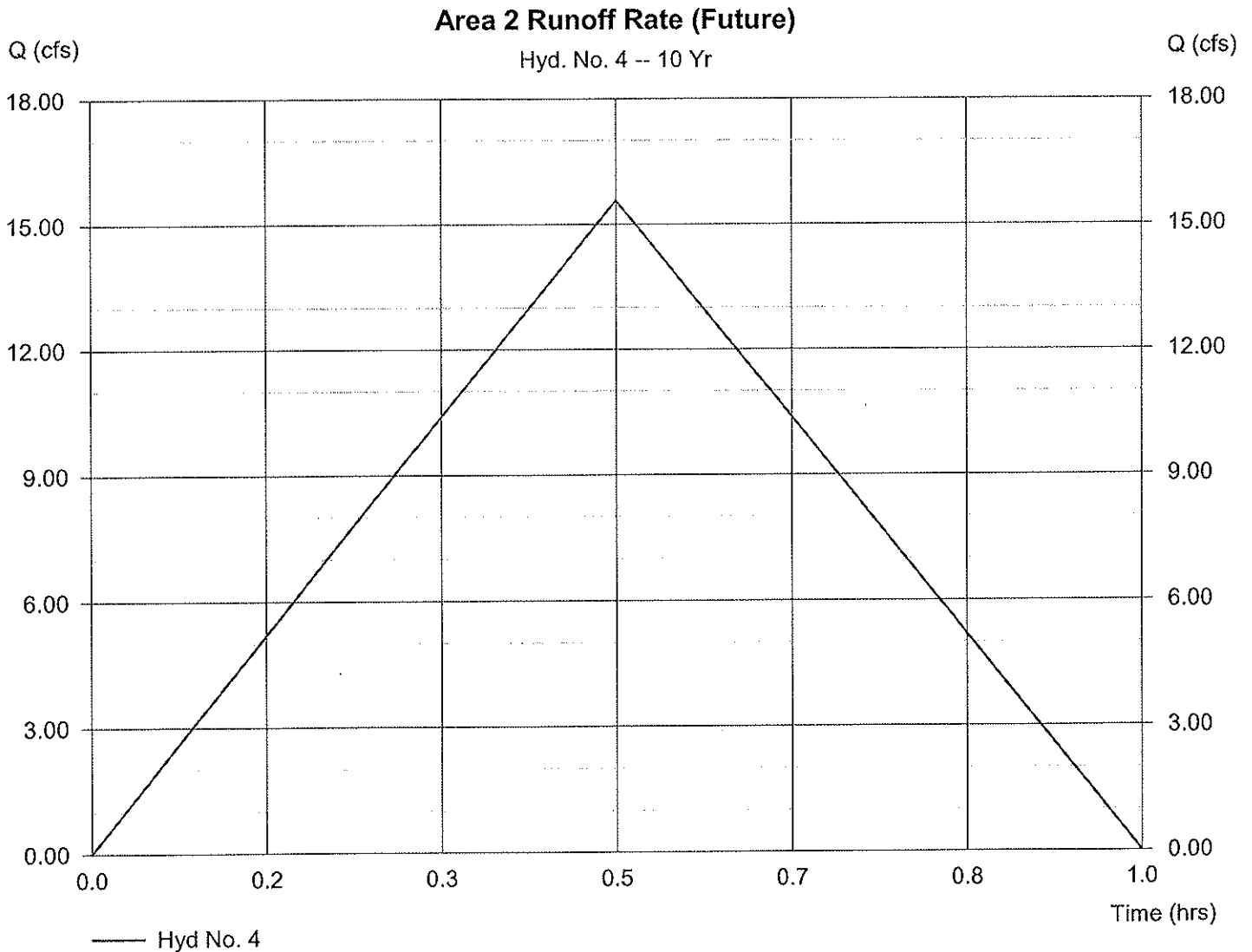
Hyd. No. 4

Area 2 Runoff Rate (Future)

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 10.900 ac
Intensity = 2.800 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 15.57 cfs
Time interval = 1 min
Runoff coeff. = 0.51
Tc by User = 30.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 28,017 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

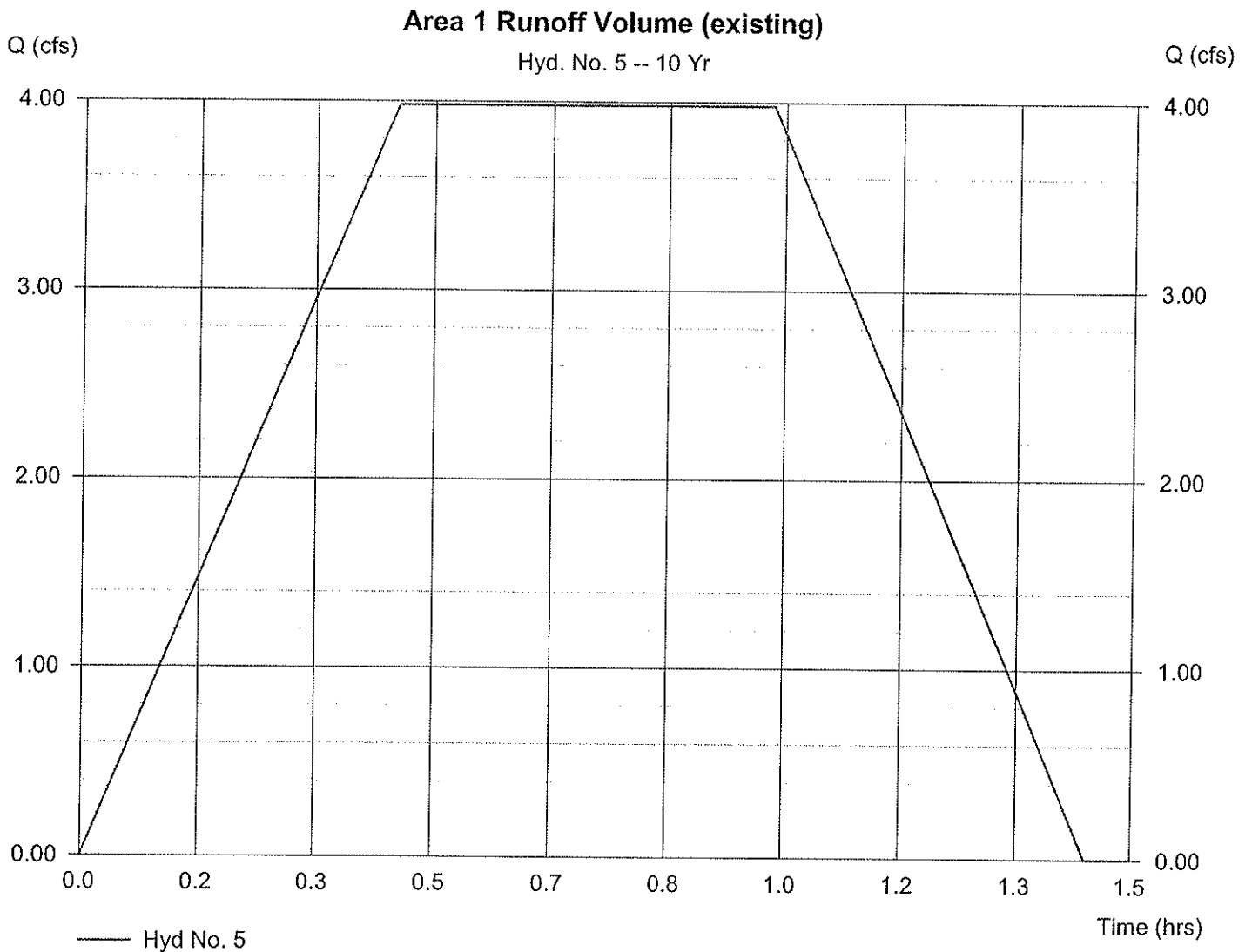
Hyd. No. 5

Area 1 Runoff Volume (existing)

Hydrograph type = Mod. Rational
Storm frequency = 10 yrs
Drainage area = 6.700 ac
Intensity = 1.981 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 3.98 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Tc by User = 27.00 min
Storm duration = 2.22 x Tc

Hydrograph Volume = 14,321 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

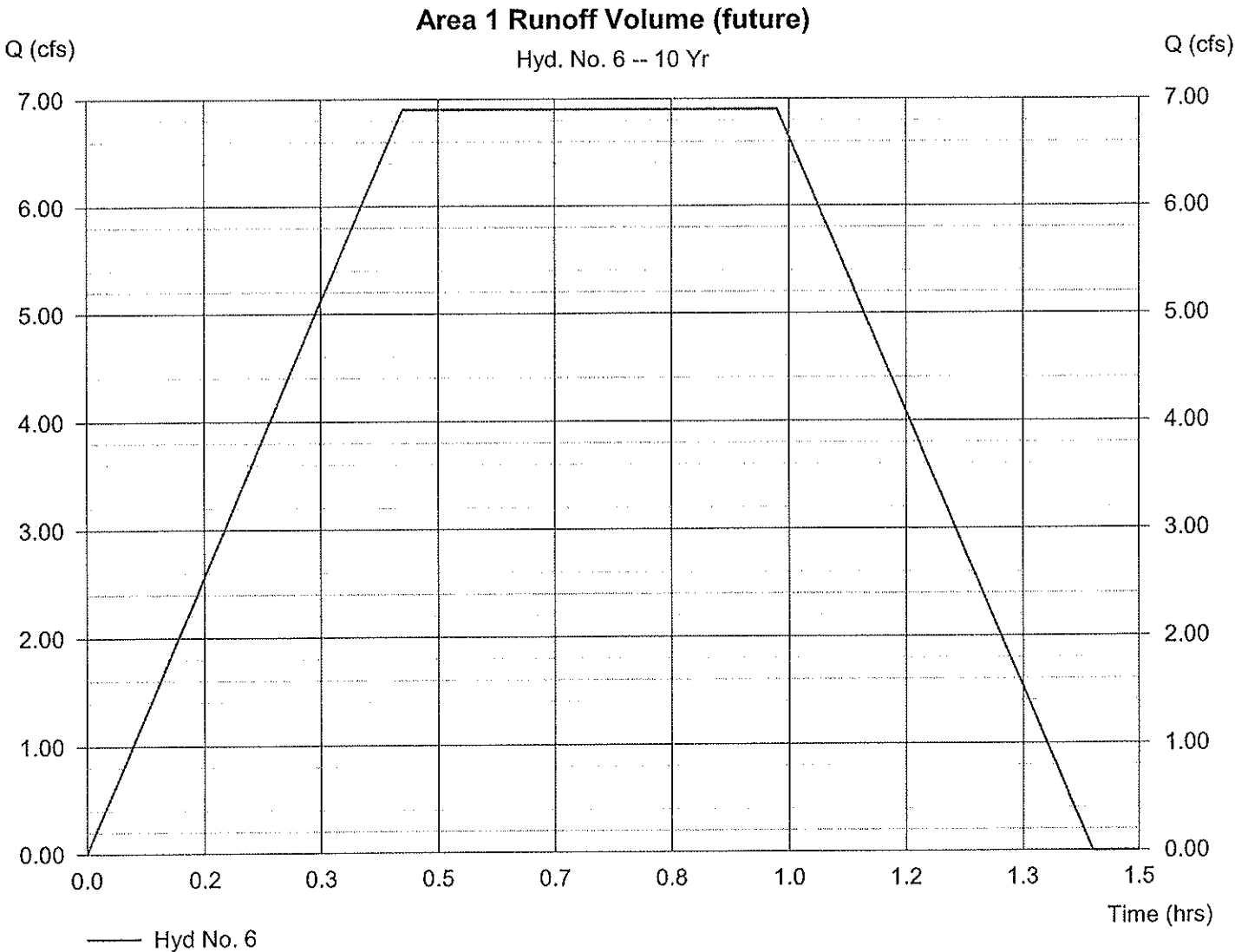
Hyd. No. 6

Area 1 Runoff Volume (future)

Hydrograph type = Mod. Rational
Storm frequency = 10 yrs
Drainage area = 6.700 ac
Intensity = 1.981 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 6.90 cfs
Time interval = 1 min
Runoff coeff. = 0.52
Tc by User = 27.00 min
Storm duration = 2.22 x Tc

Hydrograph Volume = 24,822 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

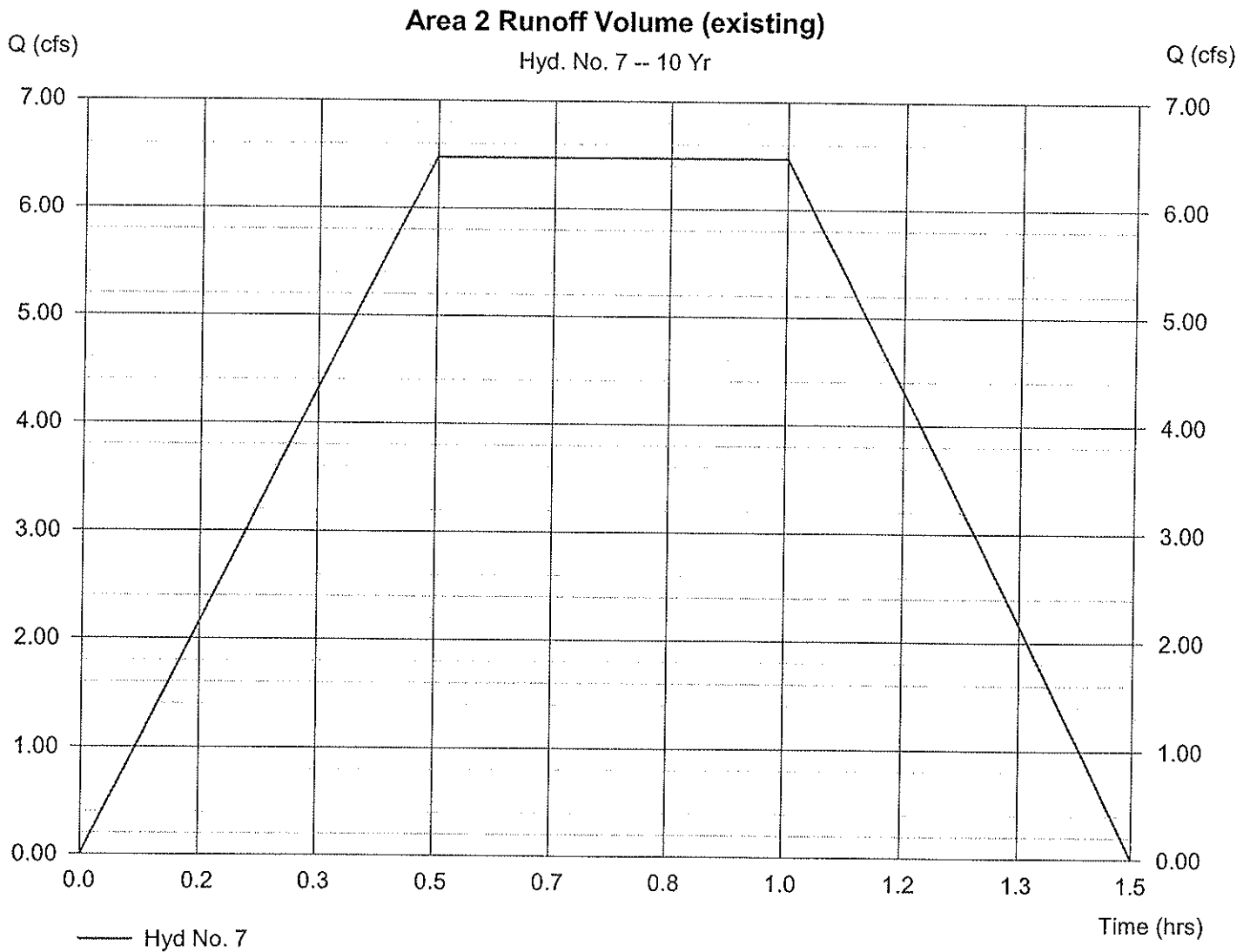
Hyd. No. 7

Area 2 Runoff Volume (existing)

Hydrograph type = Mod. Rational
Storm frequency = 10 yrs
Drainage area = 10.900 ac
Intensity = 1.980 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 6.47 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Tc by User = 30.00 min
Storm duration = 2 x Tc

Hydrograph Volume = 23,309 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

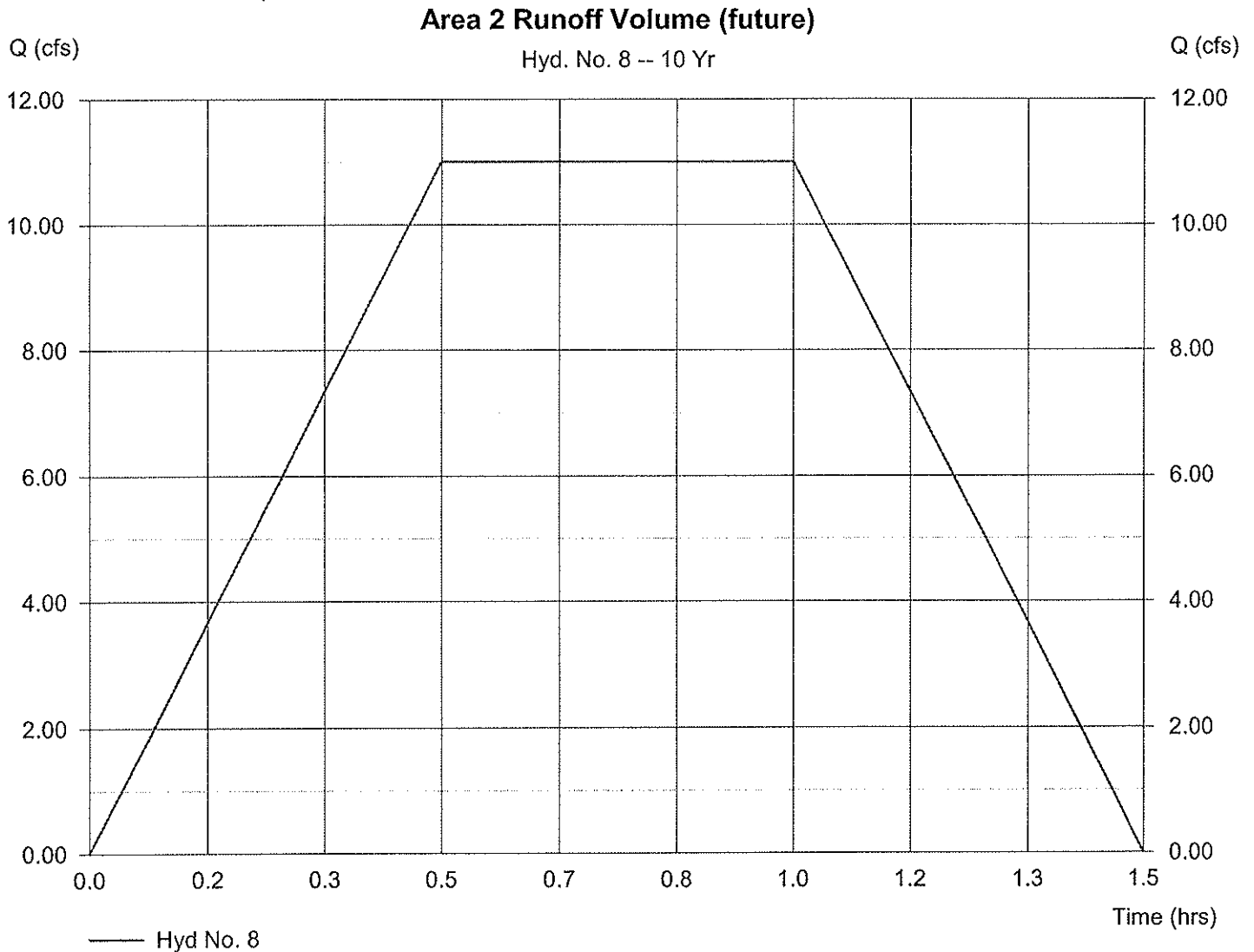
Hyd. No. 8

Area 2 Runoff Volume (future)

Hydrograph type = Mod. Rational
Storm frequency = 10 yrs
Drainage area = 10.900 ac
Intensity = 1.980 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 11.01 cfs
Time interval = 1 min
Runoff coeff. = 0.51
Tc by User = 30.00 min
Storm duration = 2 x Tc

Hydrograph Volume = 39,625 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

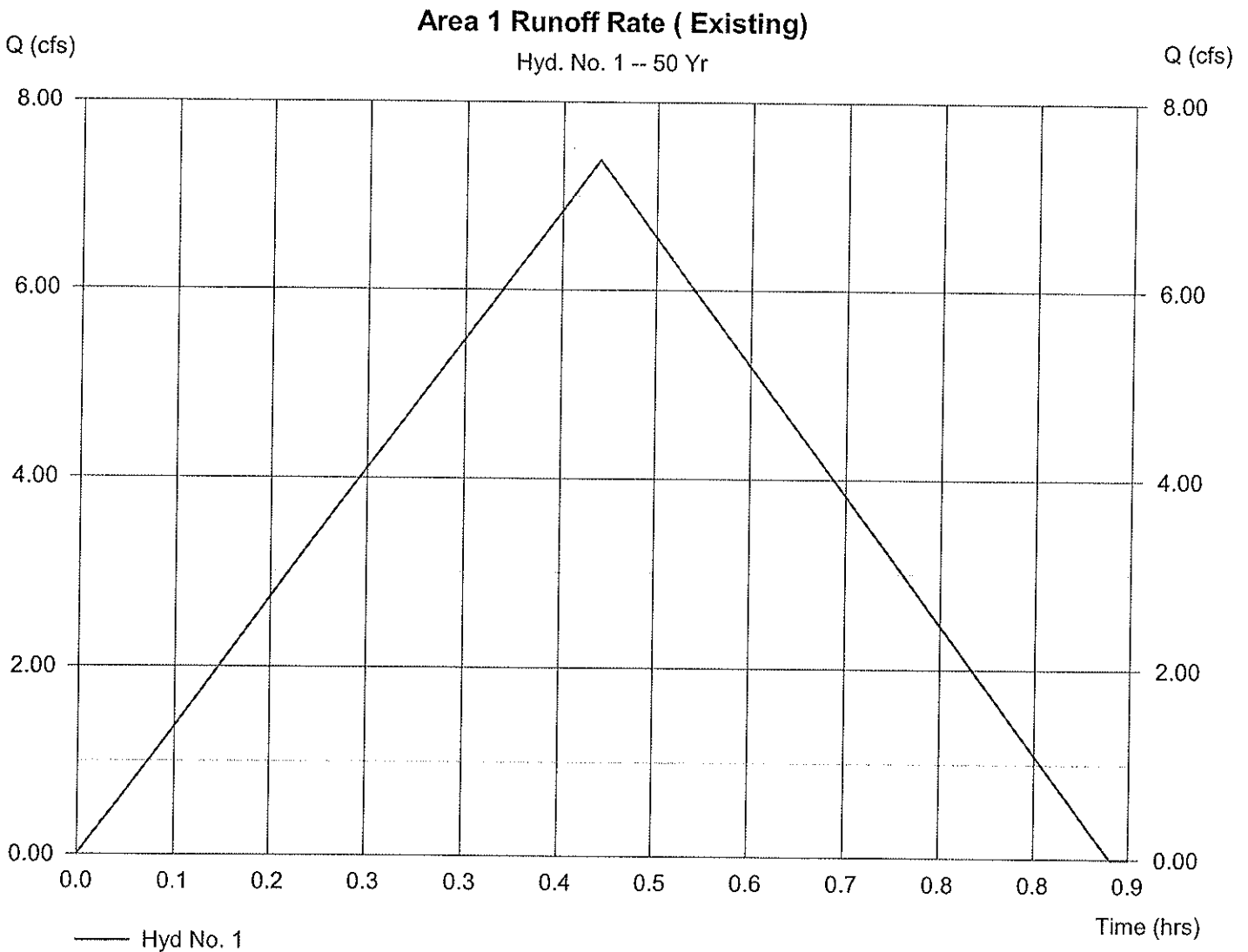
Hyd. No. 1

Area 1 Runoff Rate (Existing)

Hydrograph type = Rational
 Storm frequency = 50 yrs
 Drainage area = 6.700 ac
 Intensity = 3.673 in/hr
 IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 7.38 cfs
 Time interval = 1 min
 Runoff coeff. = 0.3
 Tc by User = 27.00 min
 Asc/Rec limb fact = 1/1

Hydrograph Volume = 11,959 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

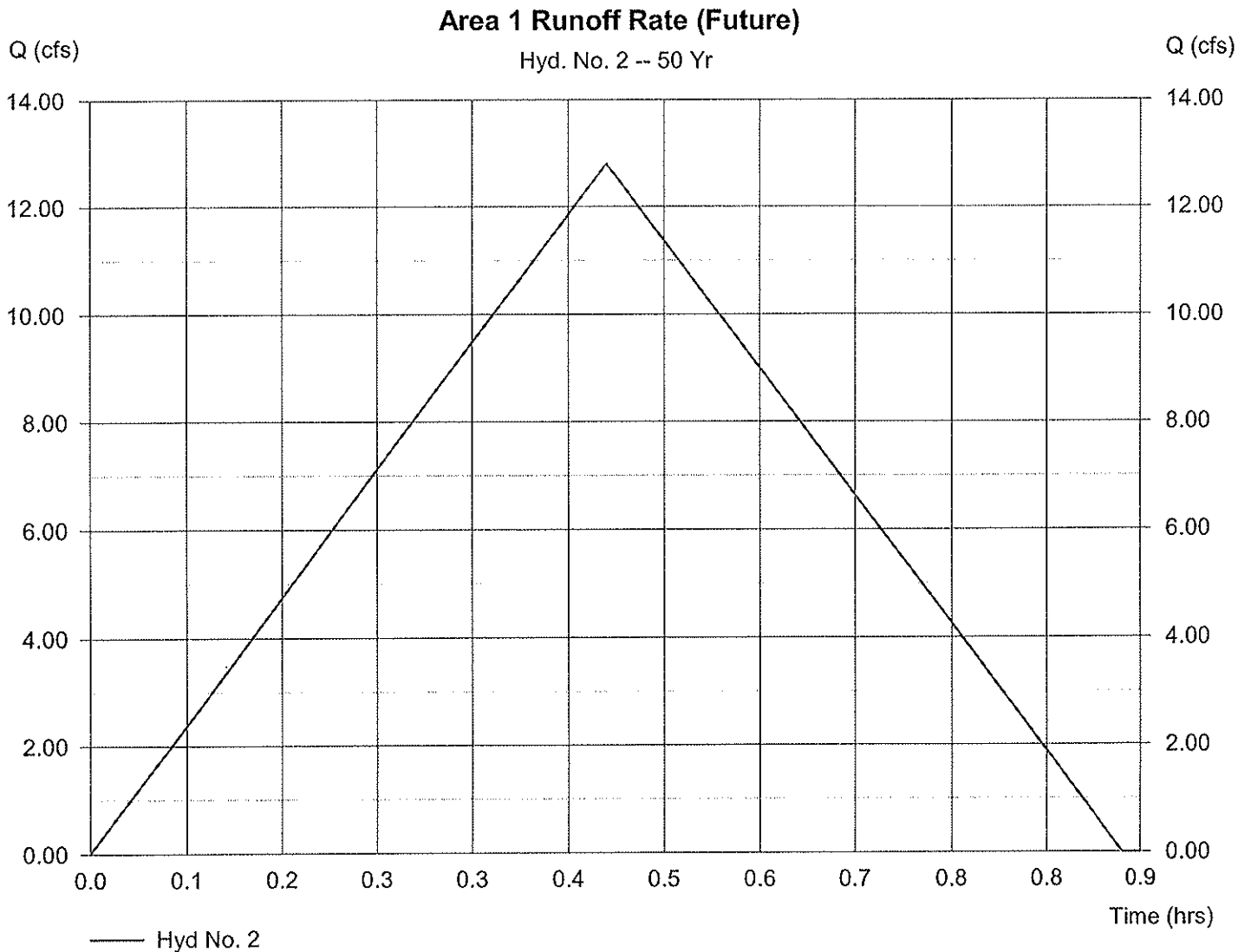
Hyd. No. 2

Area 1 Runoff Rate (Future)

Hydrograph type = Rational
Storm frequency = 50 yrs
Drainage area = 6.700 ac
Intensity = 3.673 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 12.80 cfs
Time interval = 1 min
Runoff coeff. = 0.52
Tc by User = 27.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 20,729 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

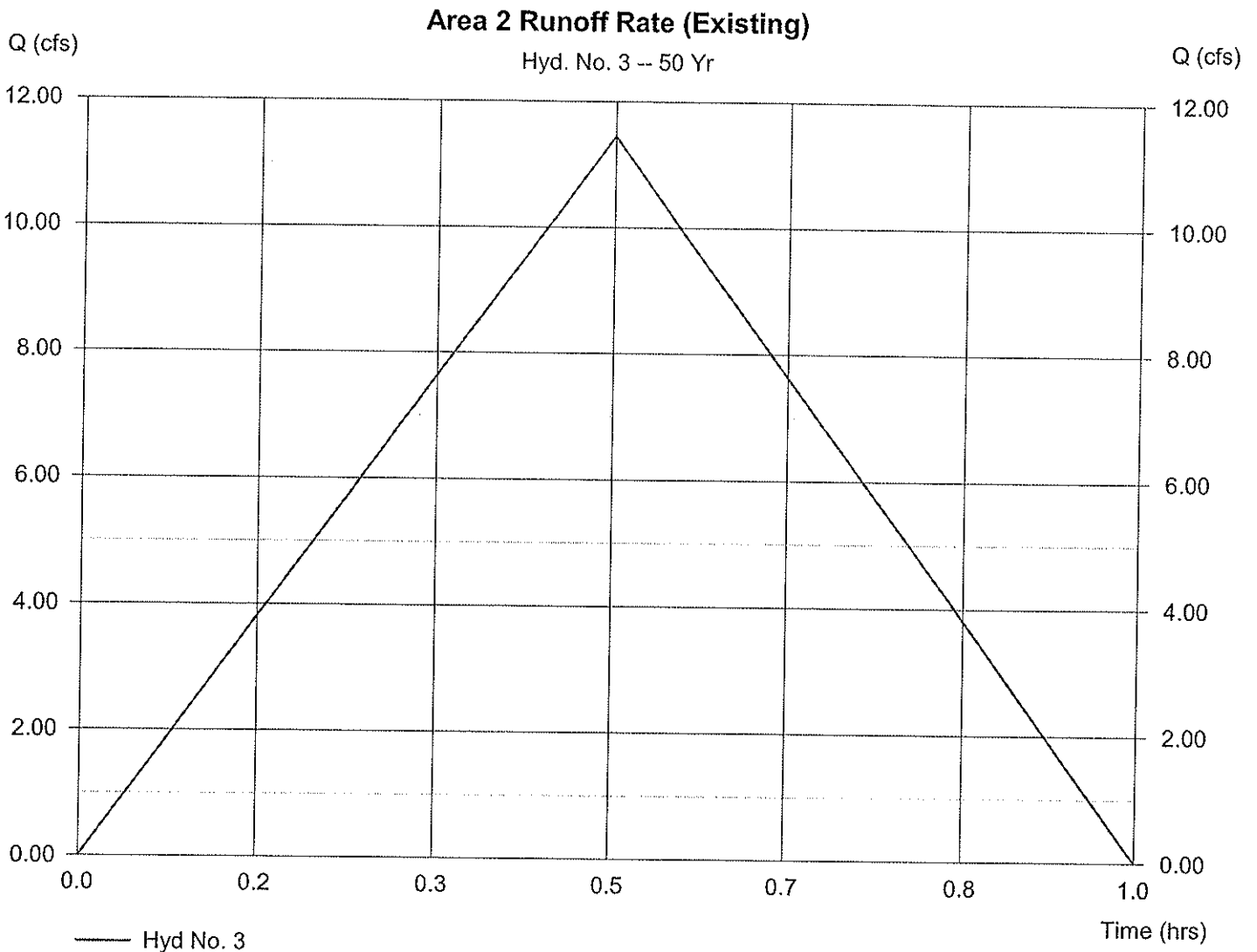
Friday, Oct 12 2007, 1:55 PM

Hyd. No. 3

Area 2 Runoff Rate (Existing)

Hydrograph type	= Rational	Peak discharge	= 11.45 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 10.900 ac	Runoff coeff.	= 0.3
Intensity	= 3.500 in/hr	Tc by User	= 30.00 min
IDF Curve	= Lai O Lele 05-105.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 20,601 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

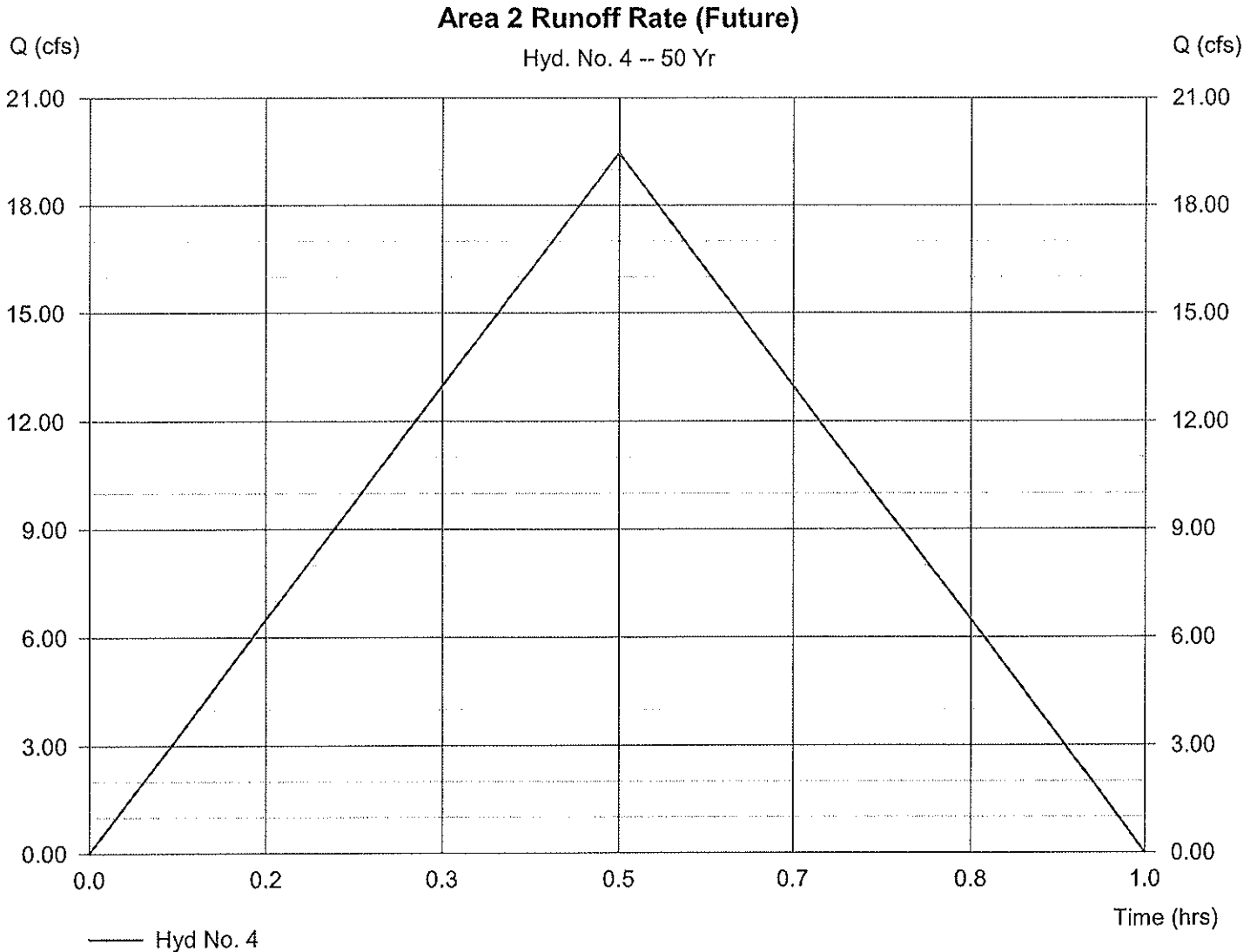
Hyd. No. 4

Area 2 Runoff Rate (Future)

Hydrograph type = Rational
 Storm frequency = 50 yrs
 Drainage area = 10.900 ac
 Intensity = 3.500 in/hr
 IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 19.46 cfs
 Time interval = 1 min
 Runoff coeff. = 0.51
 Tc by User = 30.00 min
 Asc/Rec limb fact = 1/1

Hydrograph Volume = 35,022 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellsolve

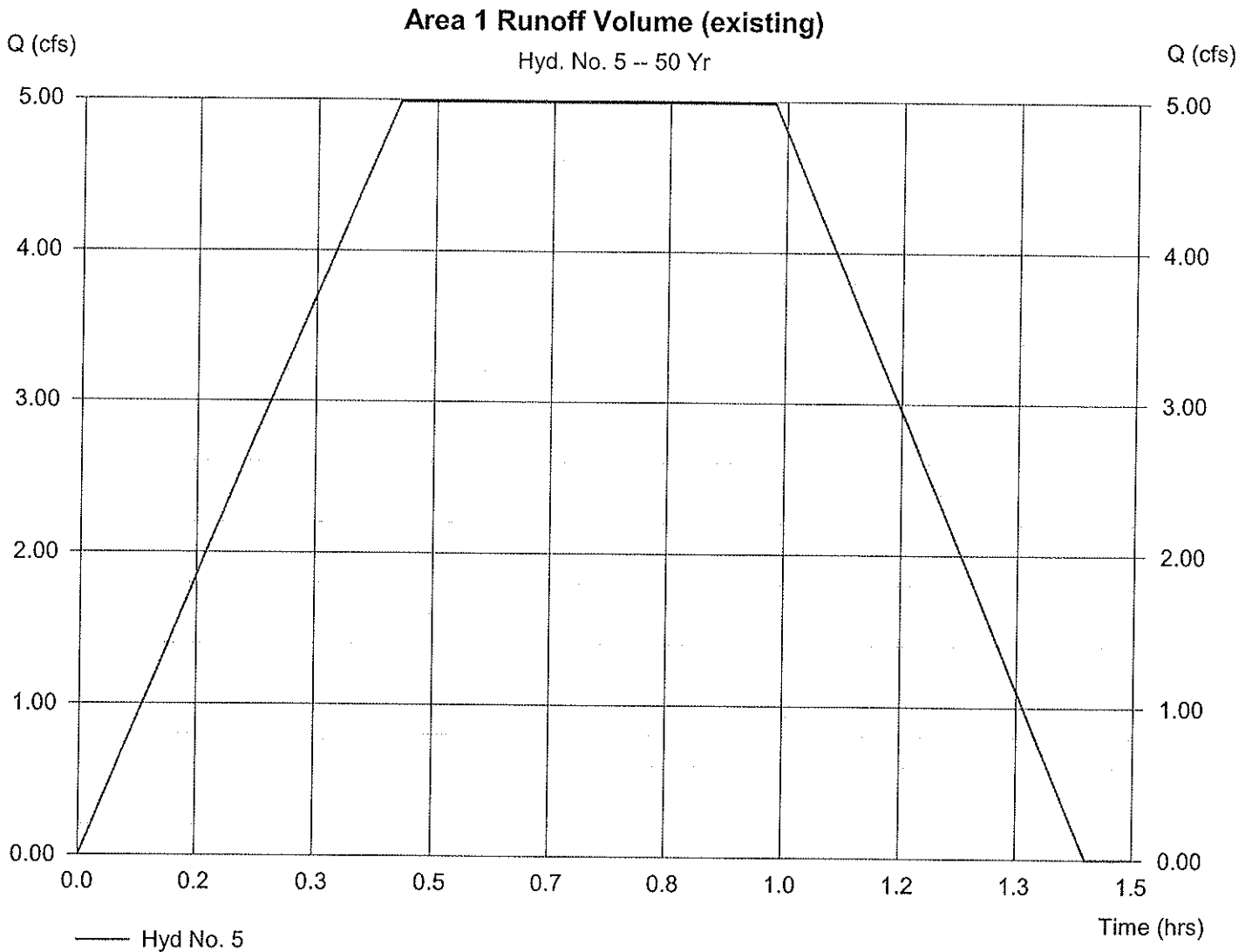
Friday, Oct 12 2007, 1:55 PM

Hyd. No. 5

Area 1 Runoff Volume (existing)

Hydrograph type	= Mod. Rational	Peak discharge	= 4.99 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 6.700 ac	Runoff coeff.	= 0.3
Intensity	= 2.481 in/hr	Tc by User	= 27.00 min
IDF Curve	= Lai O Lele 05-105.IDF	Storm duration	= 2.22 x Tc

Hydrograph Volume = 17,937 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

Hyd. No. 6

Area 1 Runoff Volume (future)

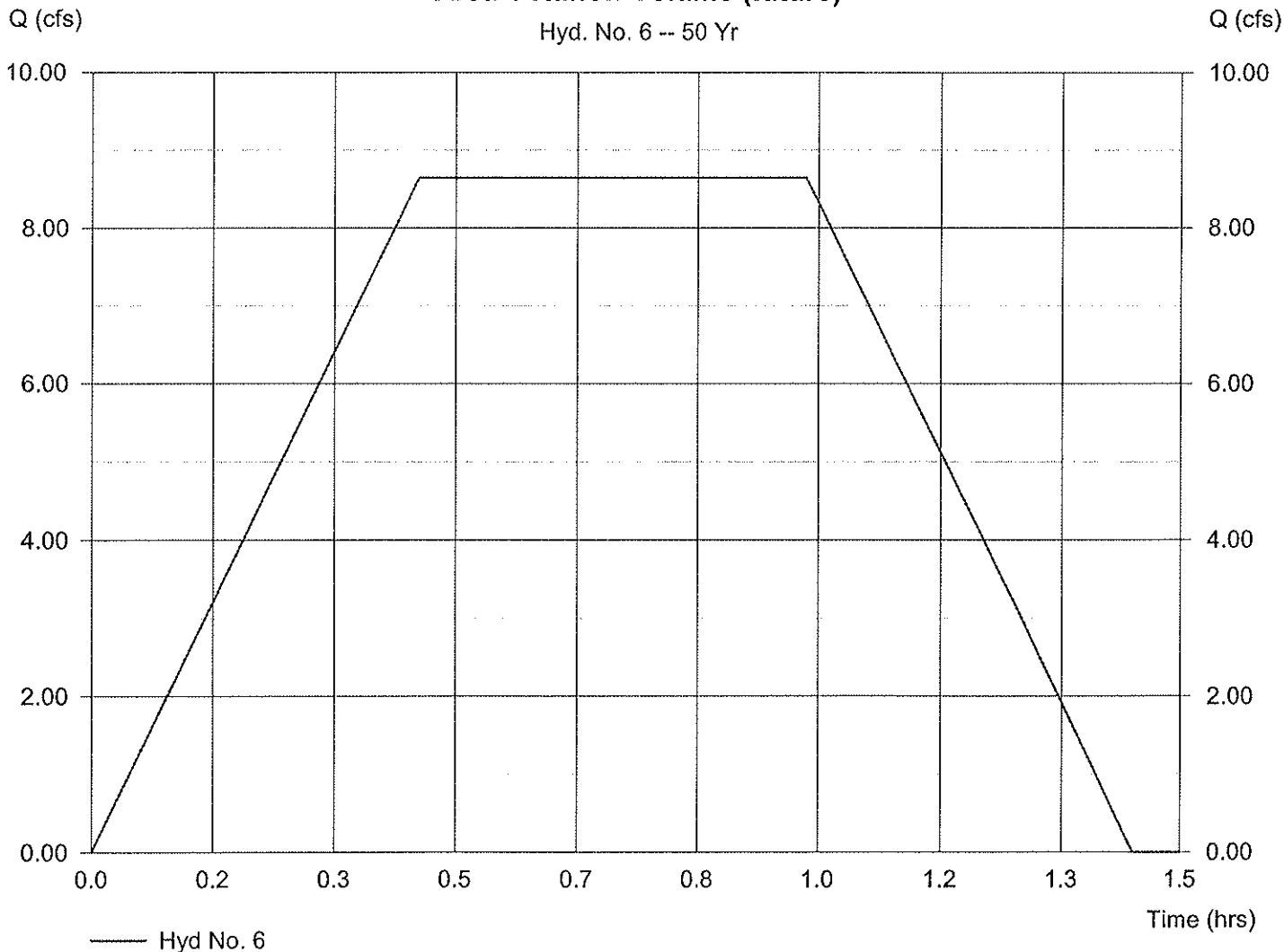
Hydrograph type = Mod. Rational
Storm frequency = 50 yrs
Drainage area = 6.700 ac
Intensity = 2.481 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 8.64 cfs
Time interval = 1 min
Runoff coeff. = 0.52
Tc by User = 27.00 min
Storm duration = 2.22 x Tc

Hydrograph Volume = 31,090 cuft

Area 1 Runoff Volume (future)

Hyd. No. 6 -- 50 Yr



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

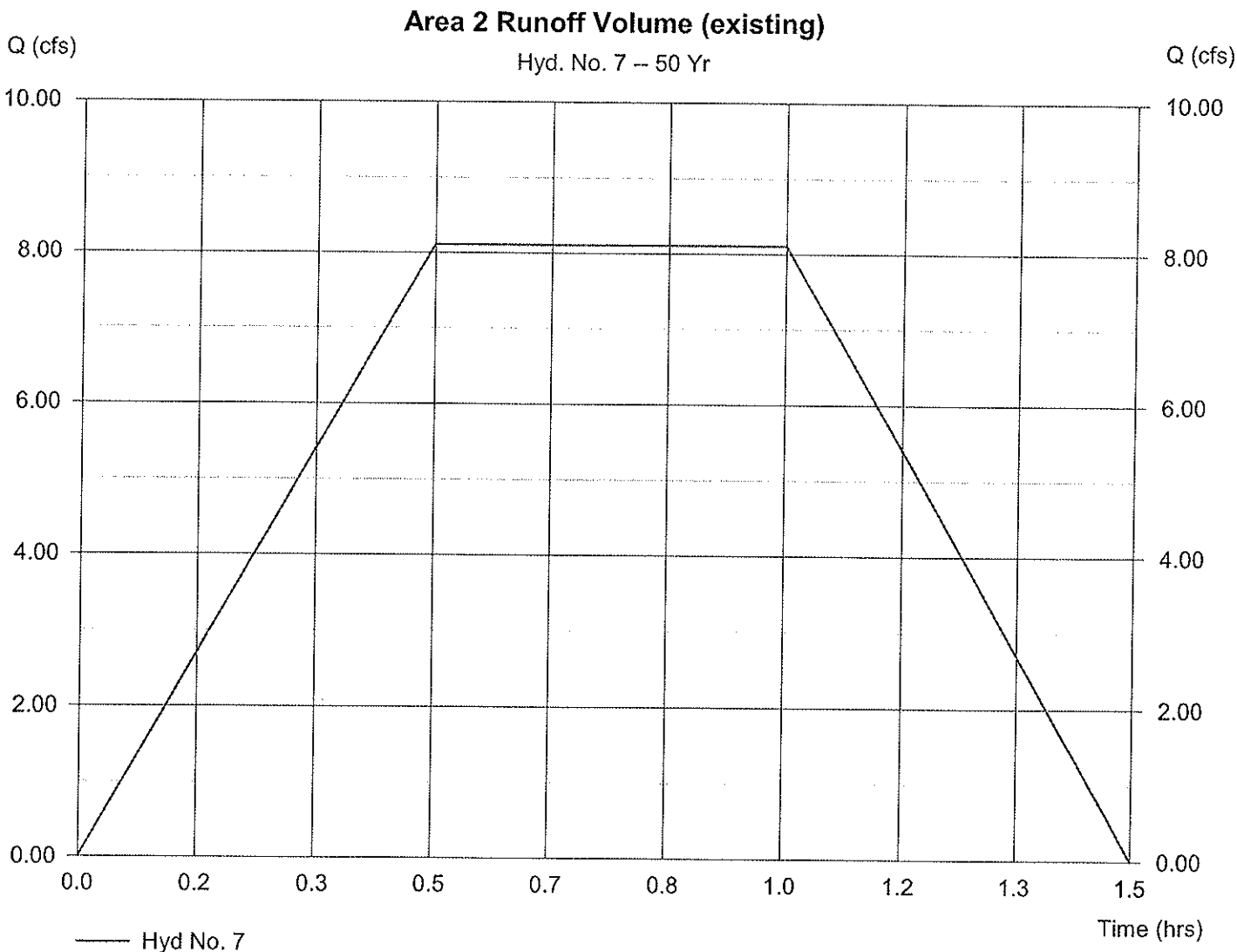
Friday, Oct 12 2007, 1:55 PM

Hyd. No. 7

Area 2 Runoff Volume (existing)

Hydrograph type	= Mod. Rational	Peak discharge	= 8.11 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 10.900 ac	Runoff coeff.	= 0.3
Intensity	= 2.480 in/hr	Tc by User	= 30.00 min
IDF Curve	= Lai O Lele 05-105.IDF	Storm duration	= 2 x Tc

Hydrograph Volume = 29,195 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Oct 12 2007, 1:55 PM

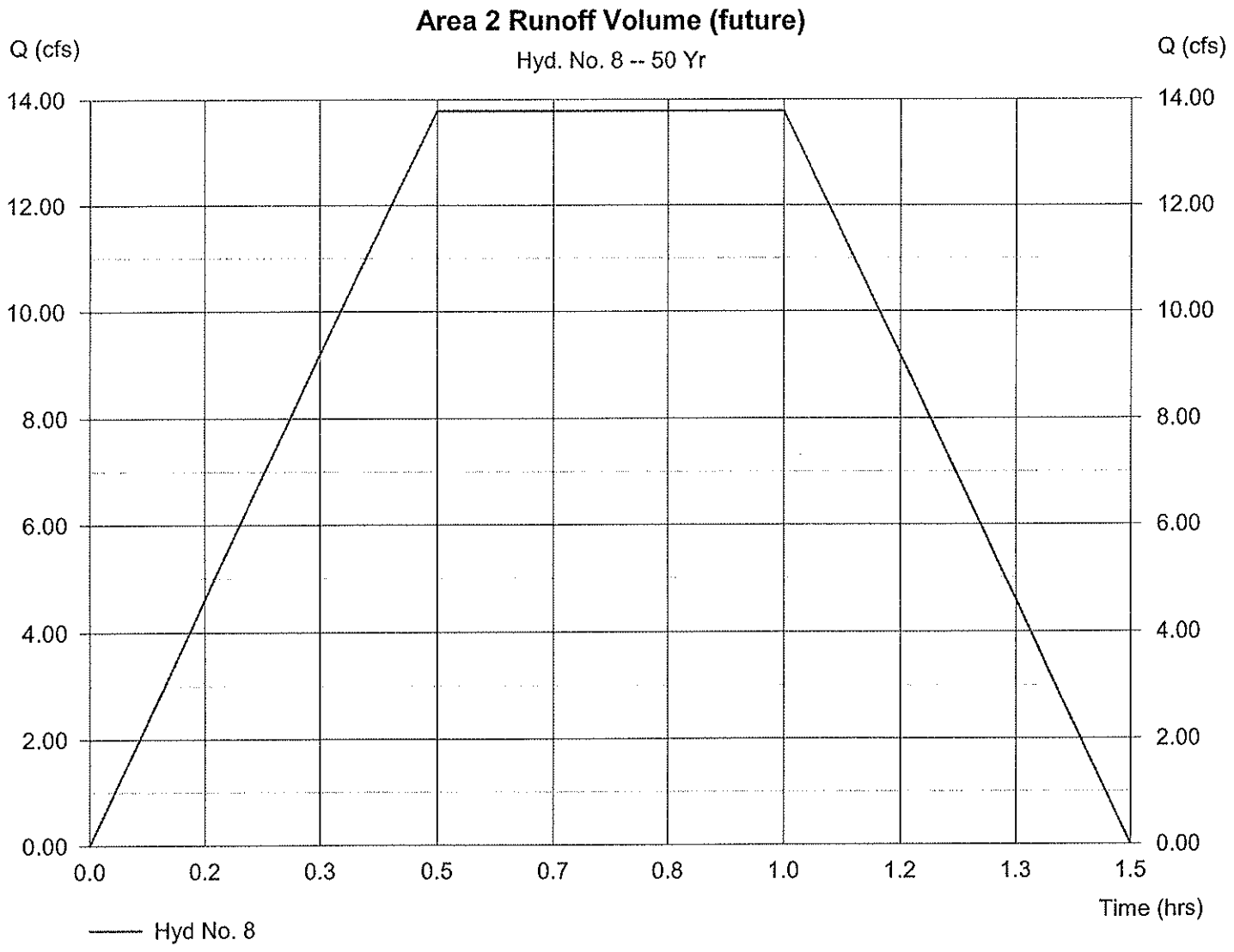
Hyd. No. 8

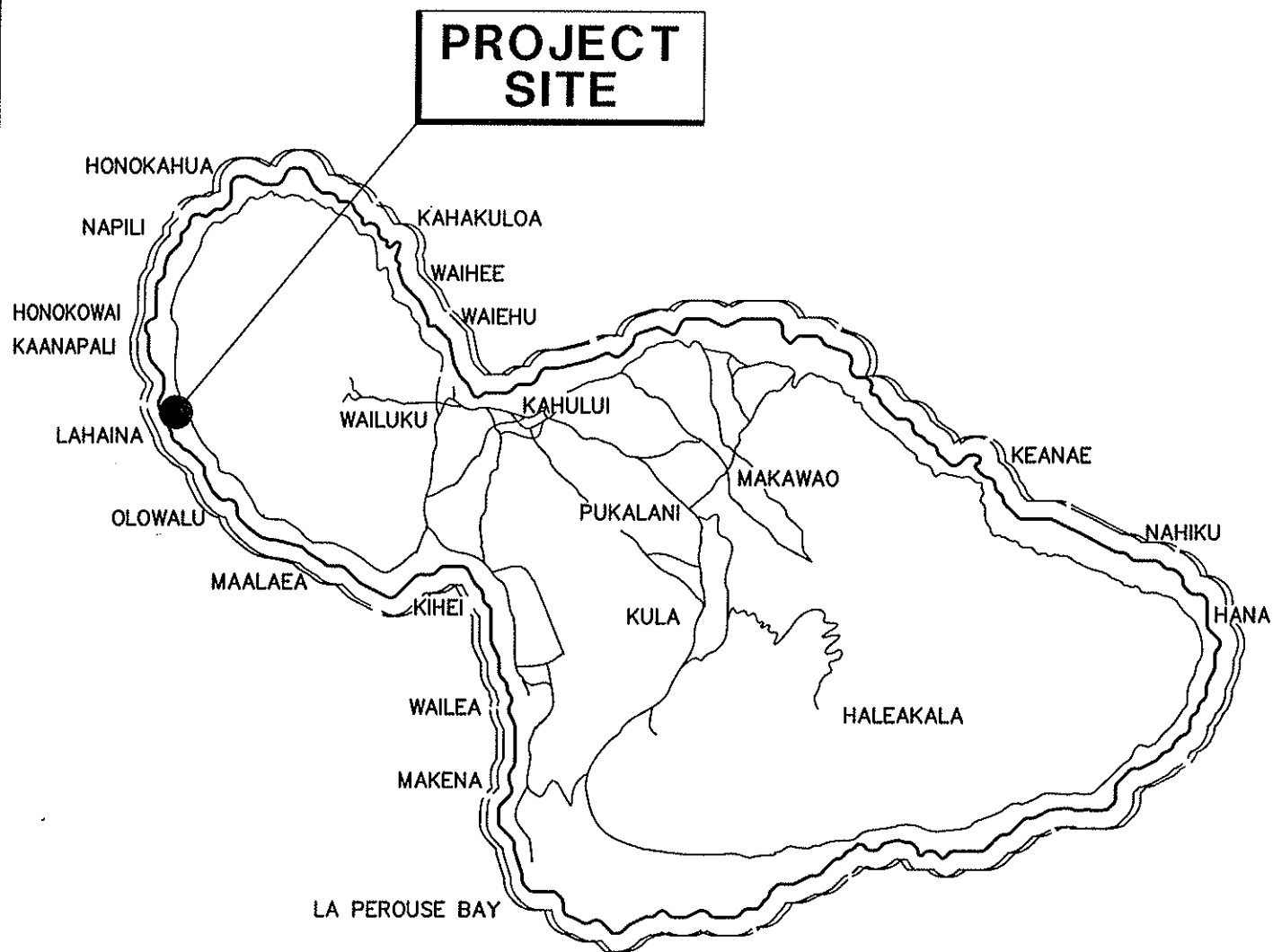
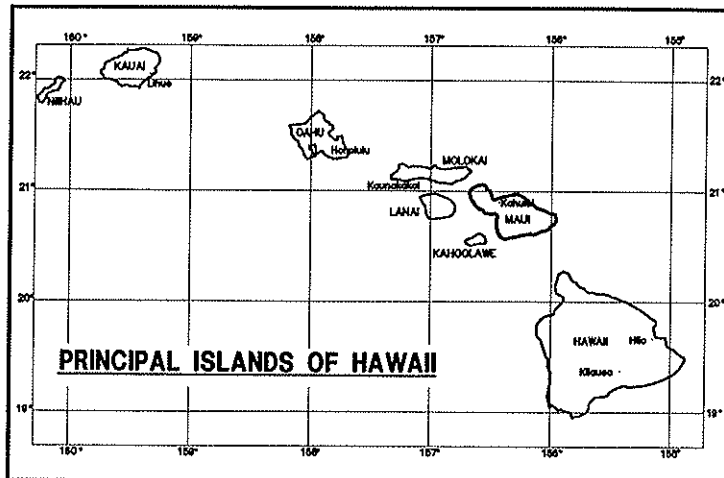
Area 2 Runoff Volume (future)

Hydrograph type = Mod. Rational
Storm frequency = 50 yrs
Drainage area = 10.900 ac
Intensity = 2.480 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 13.79 cfs
Time interval = 1 min
Runoff coeff. = 0.51
Tc by User = 30.00 min
Storm duration = 2 x Tc

Hydrograph Volume = 49,631 cuft

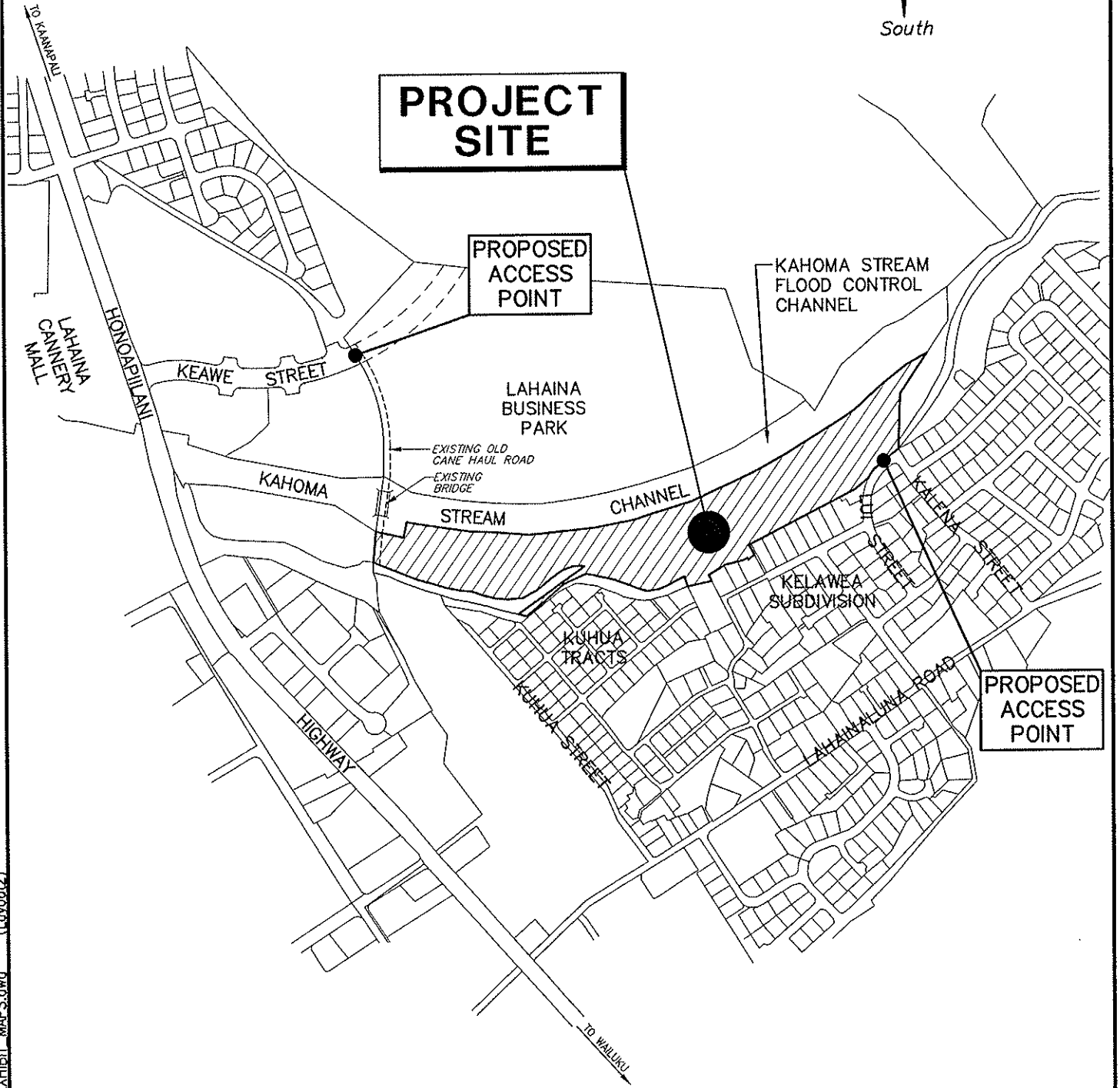
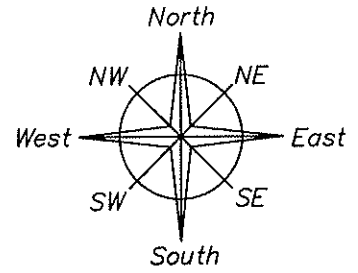




**LOCATION MAP
ISLAND OF MAUI**

FIGURE 1

2005\05-105\WML\CI_SUBD_EXHIBIT_MAPS.dwg (Layout1)

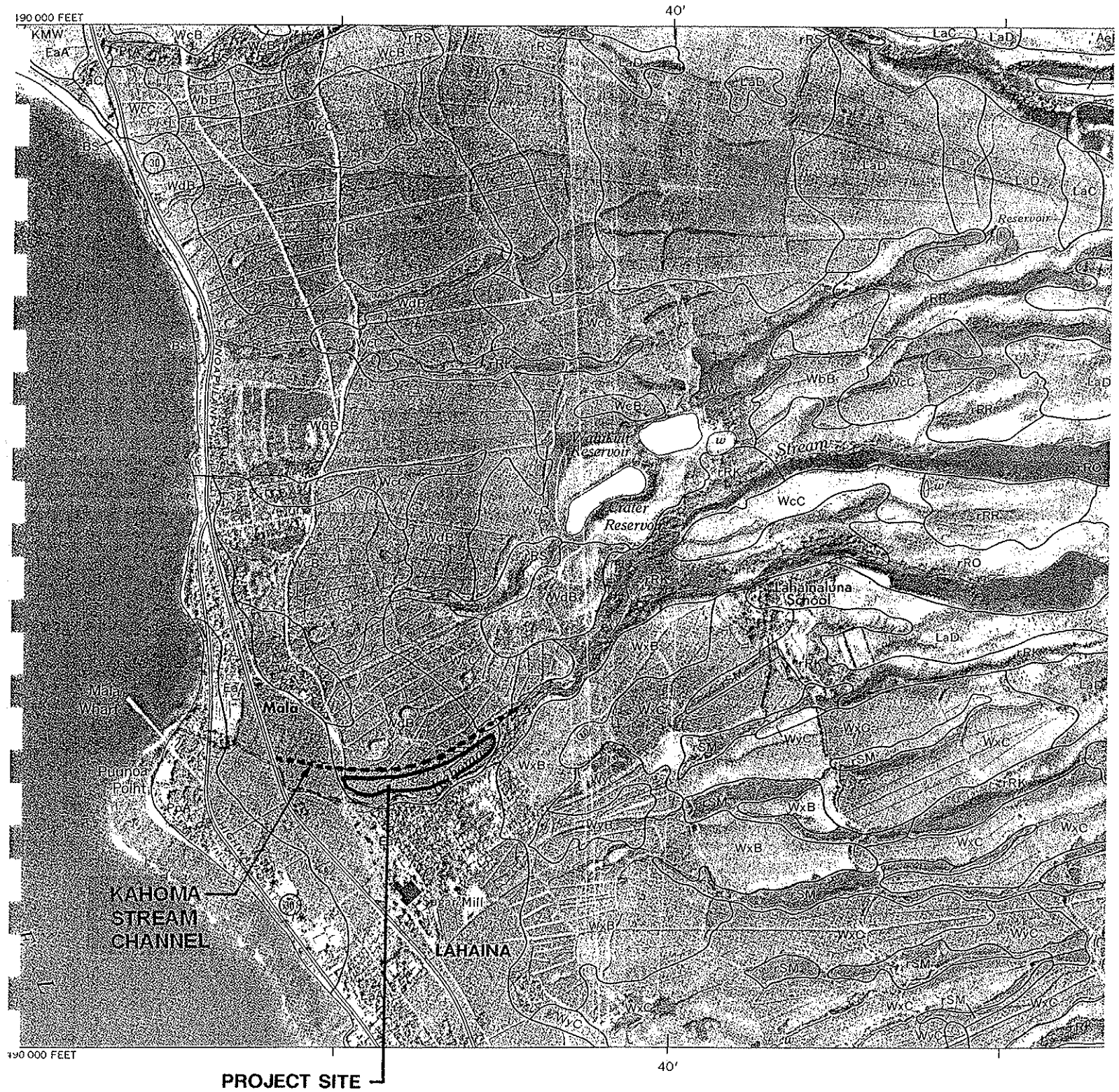


VICINITY MAP
NOT TO SCALE

FIGURE 2

2005\05-105\WML.CI SUBD_EXHIBIT_MAPS.dwg (Layout2)

Source: Soil Survey of
 Islands of Kauai, Oahu
 Maui, Molokai and Lanai,
 State of Hawaii, August 1972
 Sheet 94

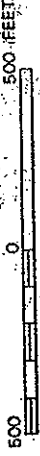


SOILS MAP
 Scale: 1" = 2,000'

FIGURE 3



APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MAUI COUNTY, HAWAII

PANEL 161 OF 400
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
150003 0161-C

MAP REVISED:
AUGUST 3, 1998



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

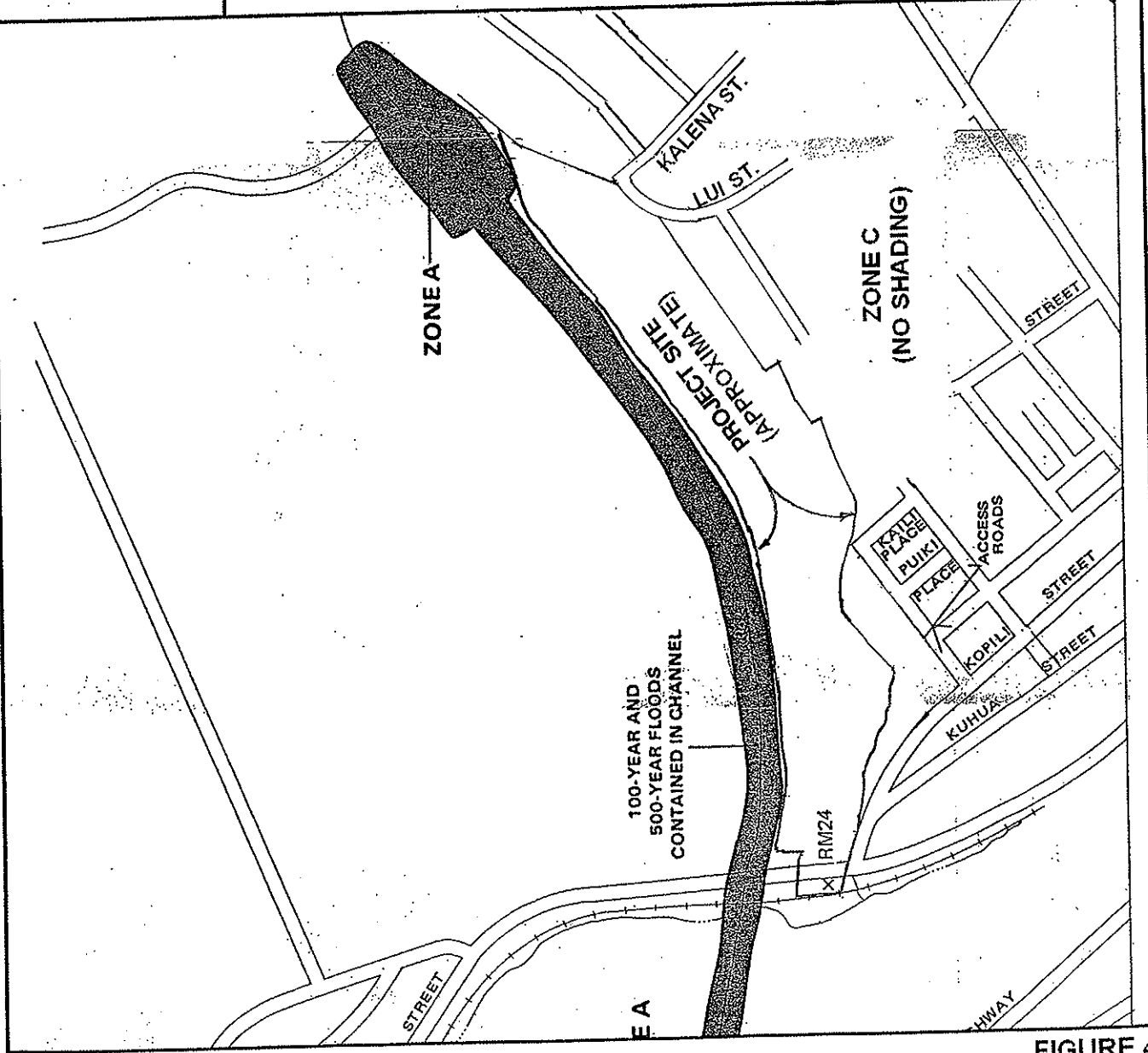
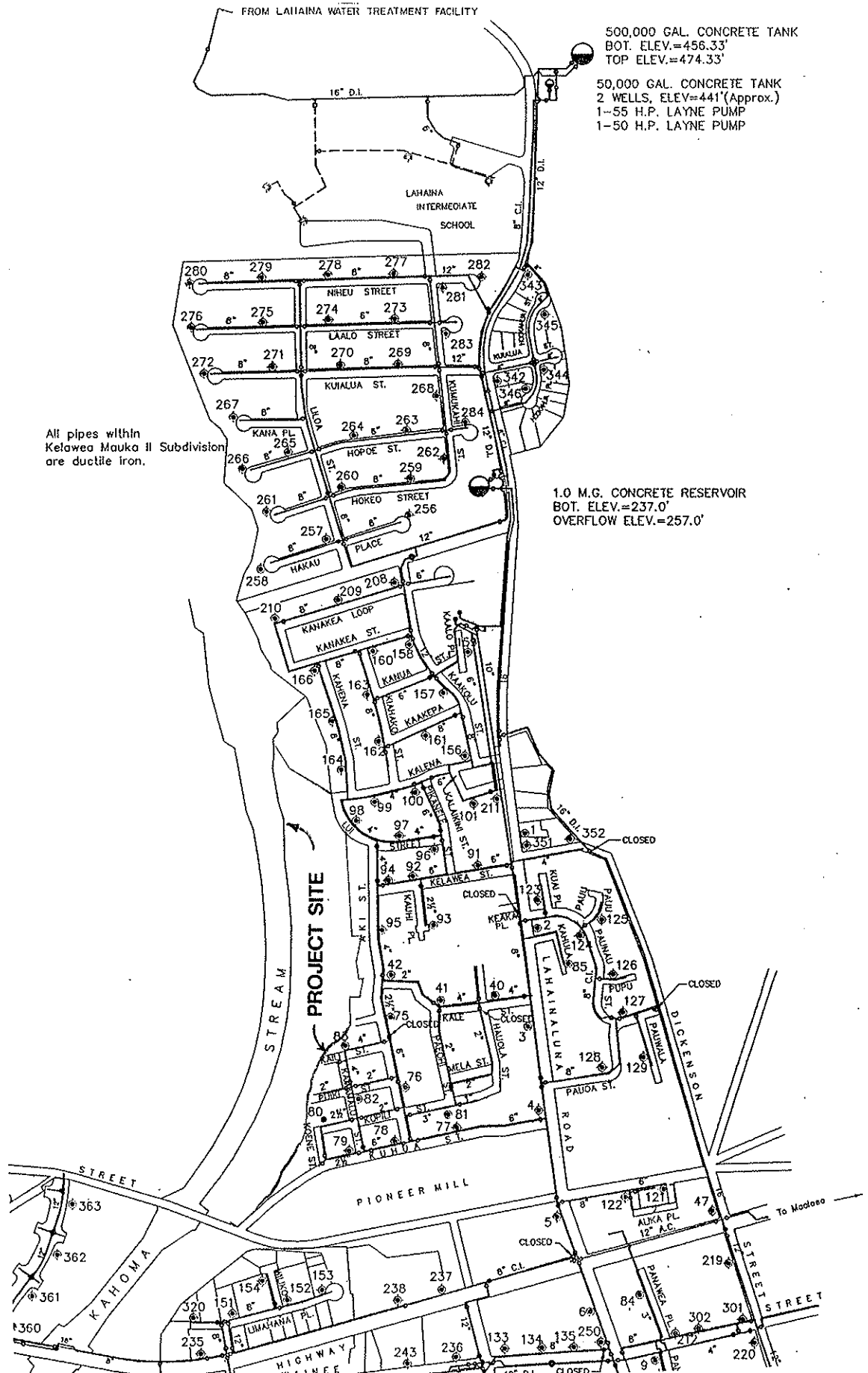


FIGURE 4



All pipes within
Kelaewa Mauka II Subdivision
are ductile iron.

500,000 GAL. CONCRETE TANK
BOT. ELEV.=456.33'
TOP ELEV.=474.33'

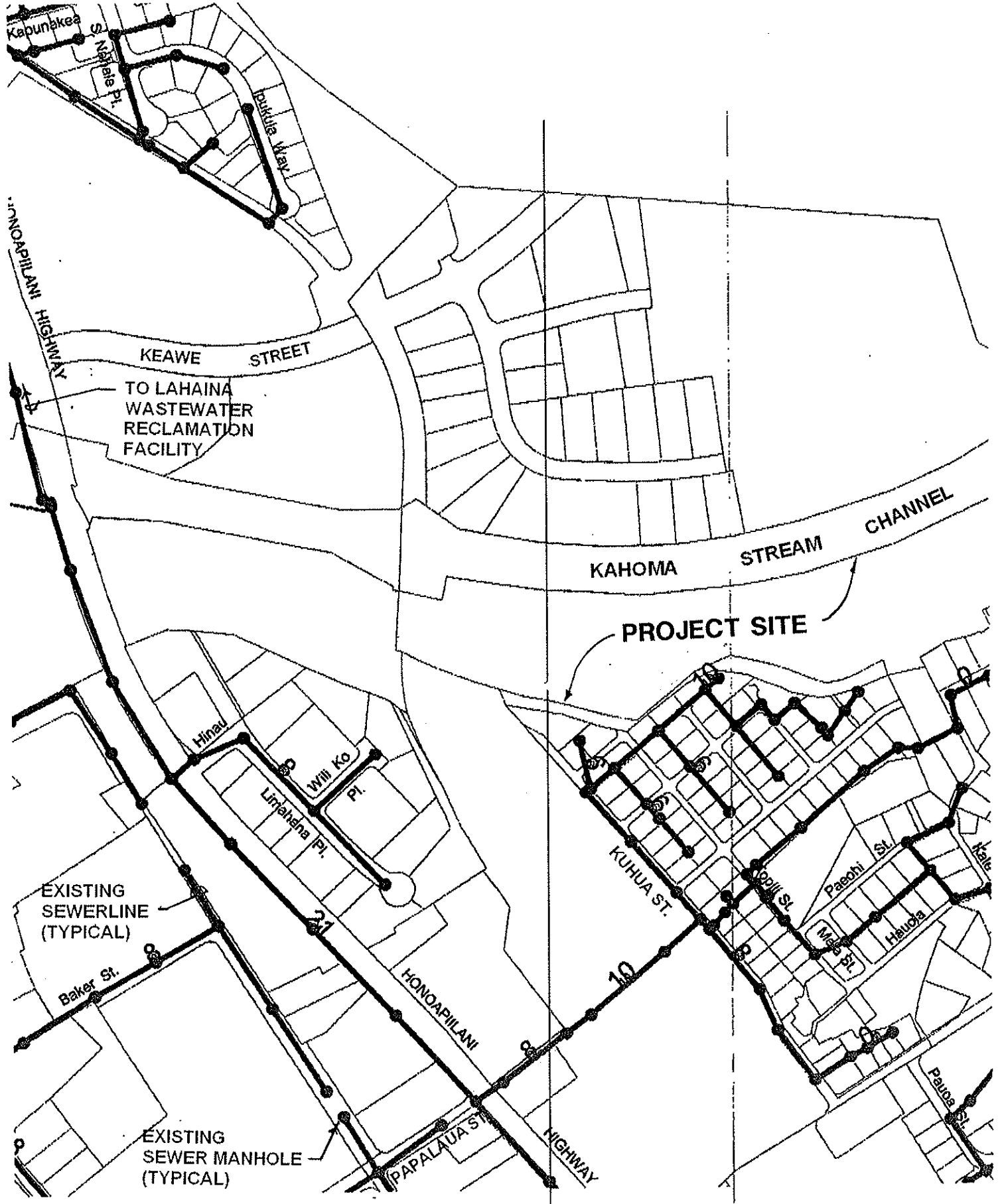
50,000 GAL. CONCRETE TANK
2 WELLS, ELEV.=441'(Approx.)
1-55 H.P. LAYNE PUMP
1-50 H.P. LAYNE PUMP

1.0 M.G. CONCRETE RESERVOIR
BOT. ELEV.=237.0'
OVERFLOW ELEV.=257.0'

EXISTING COUNTY WATER SYSTEM

Scale: 1" = 800'

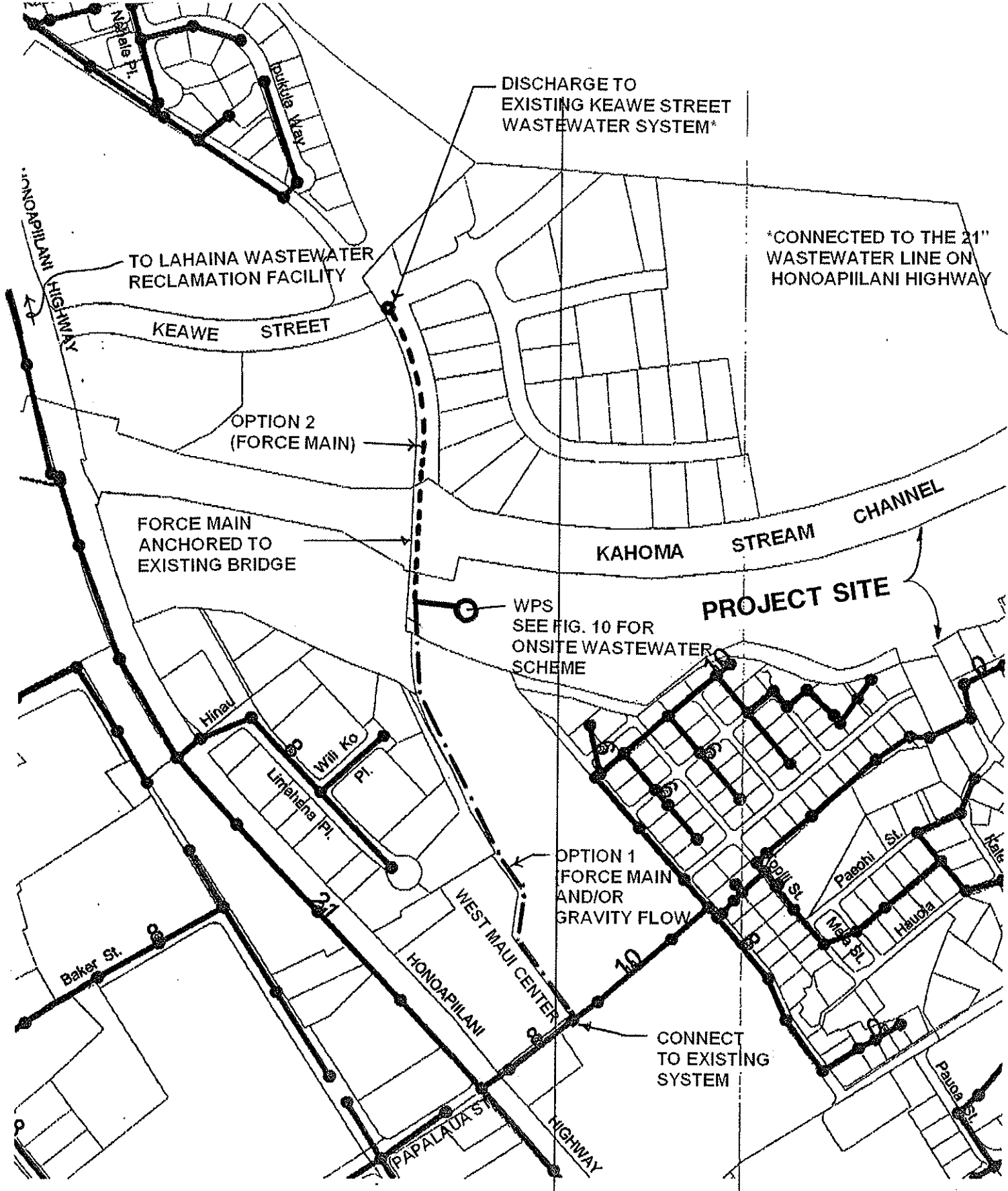
FIGURE 5



EXISTING COUNTY WASTEWATER SYSTEM

Not to Scale

FIGURE 6



OFFSITE WASTEWATER SYSTEM SCHEME

Not to Scale

FIGURE 7

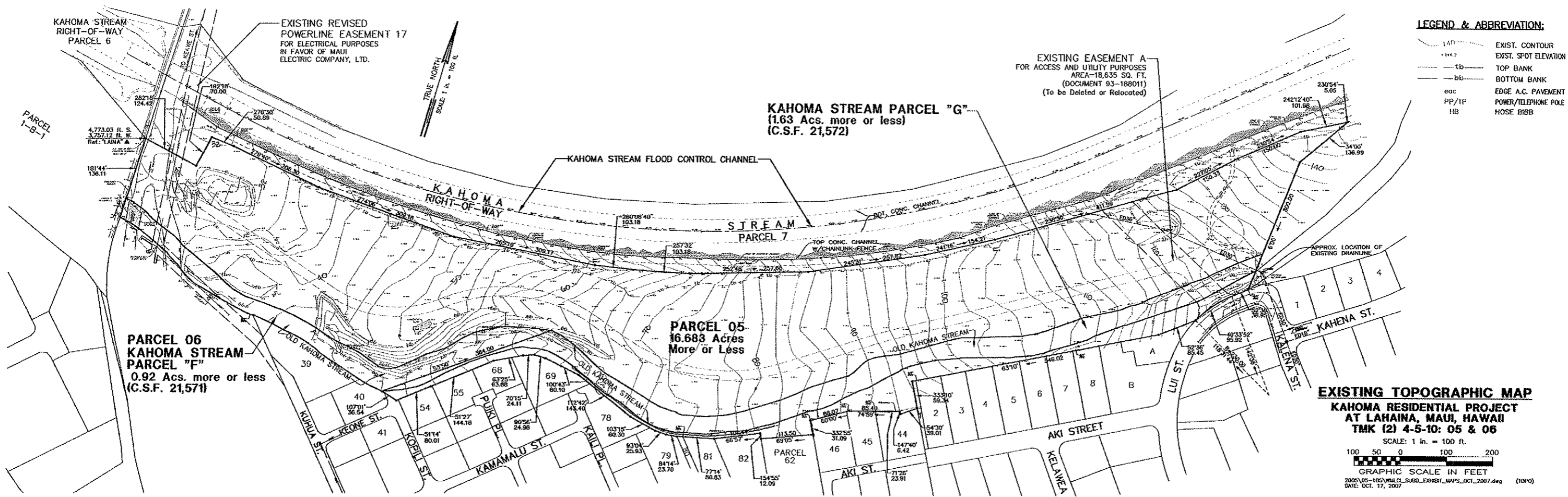


FIGURE 8

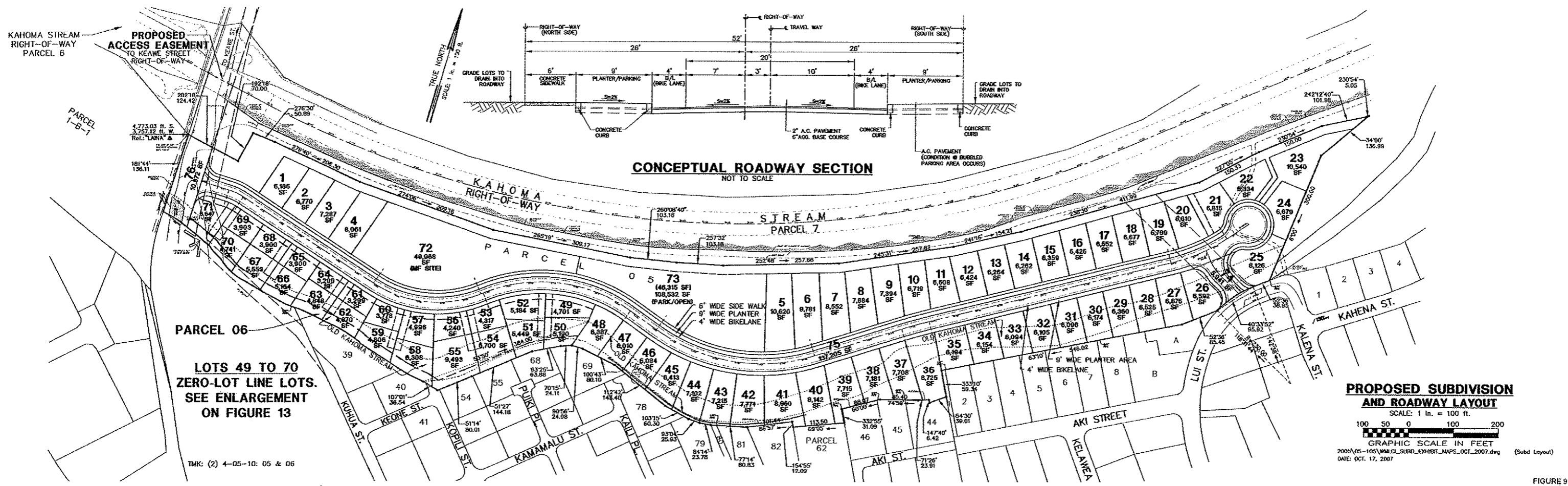


FIGURE 9

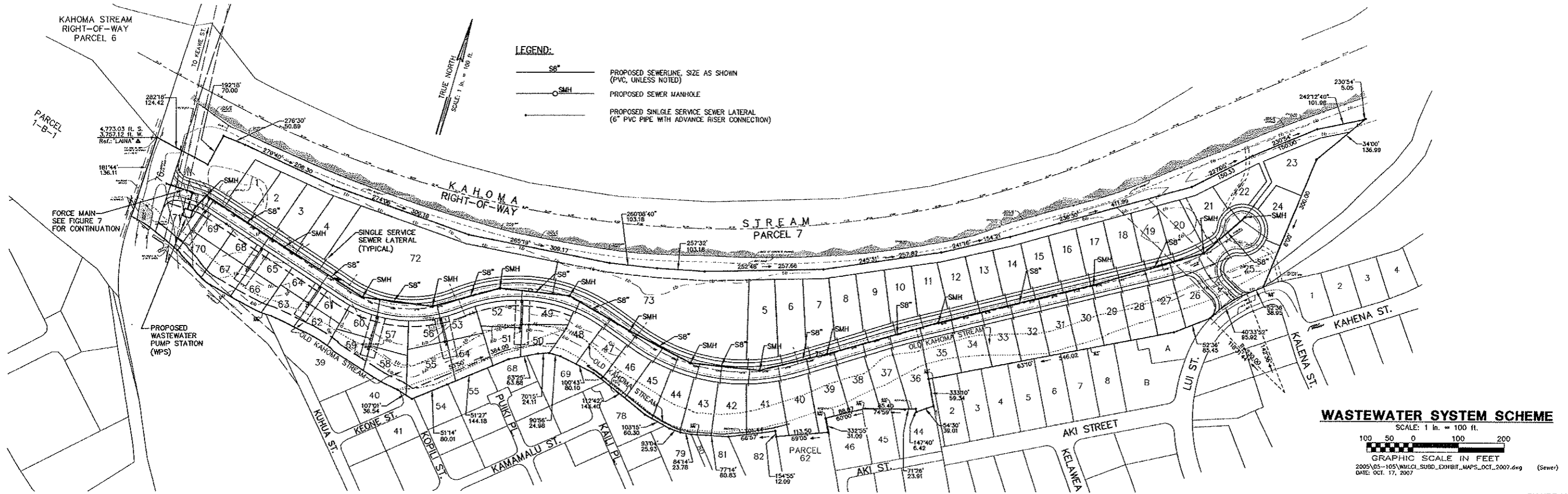


FIGURE 10

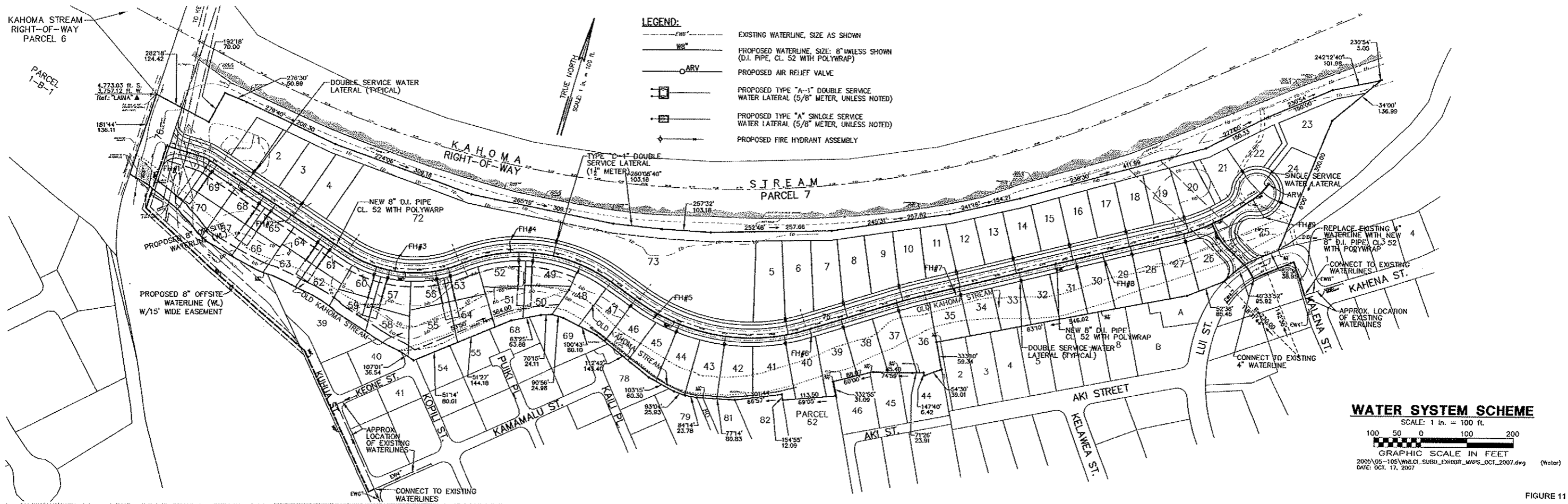


FIGURE 11

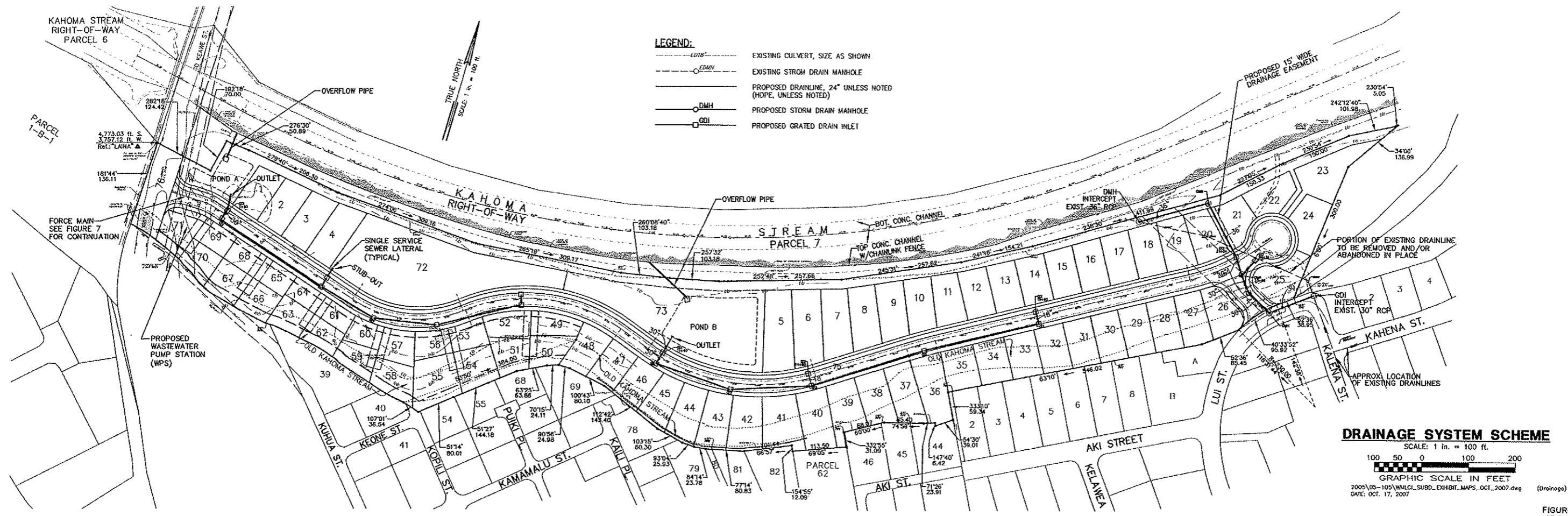


FIGURE 12

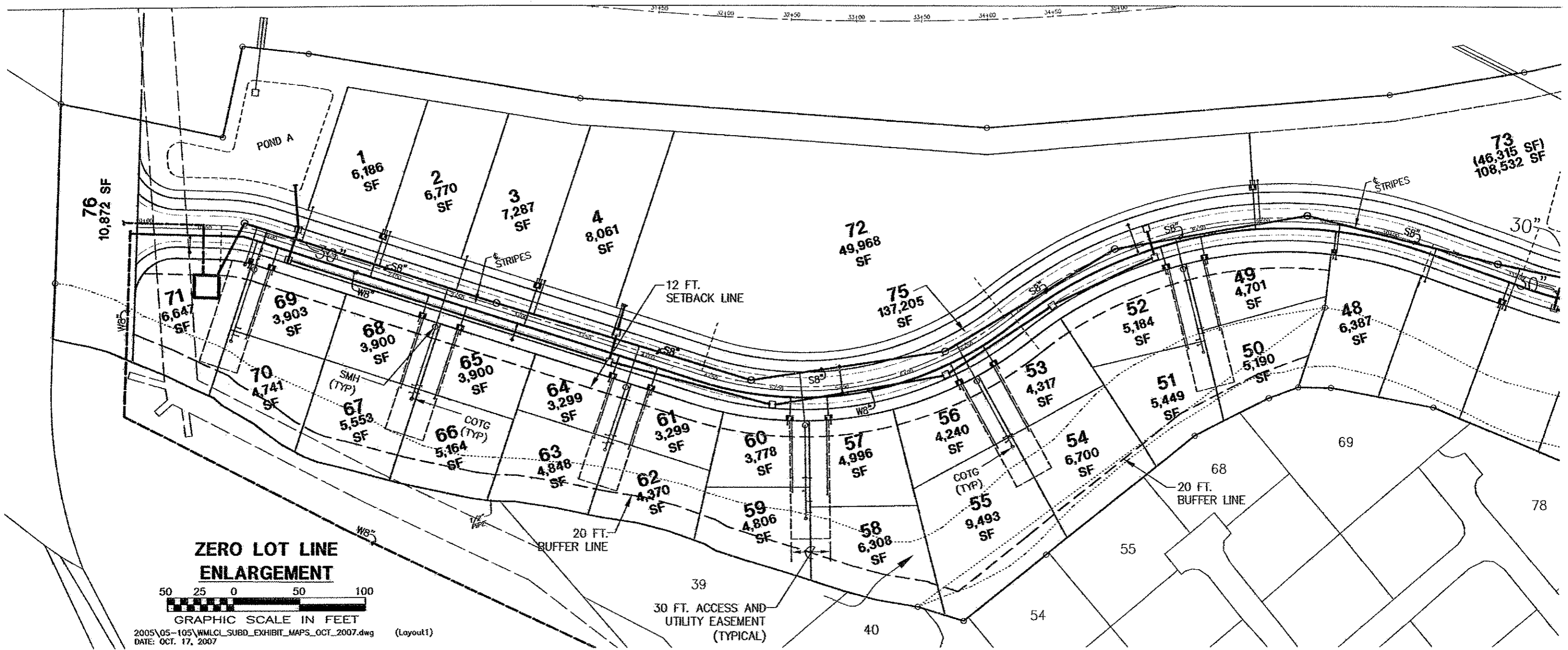


FIGURE 13

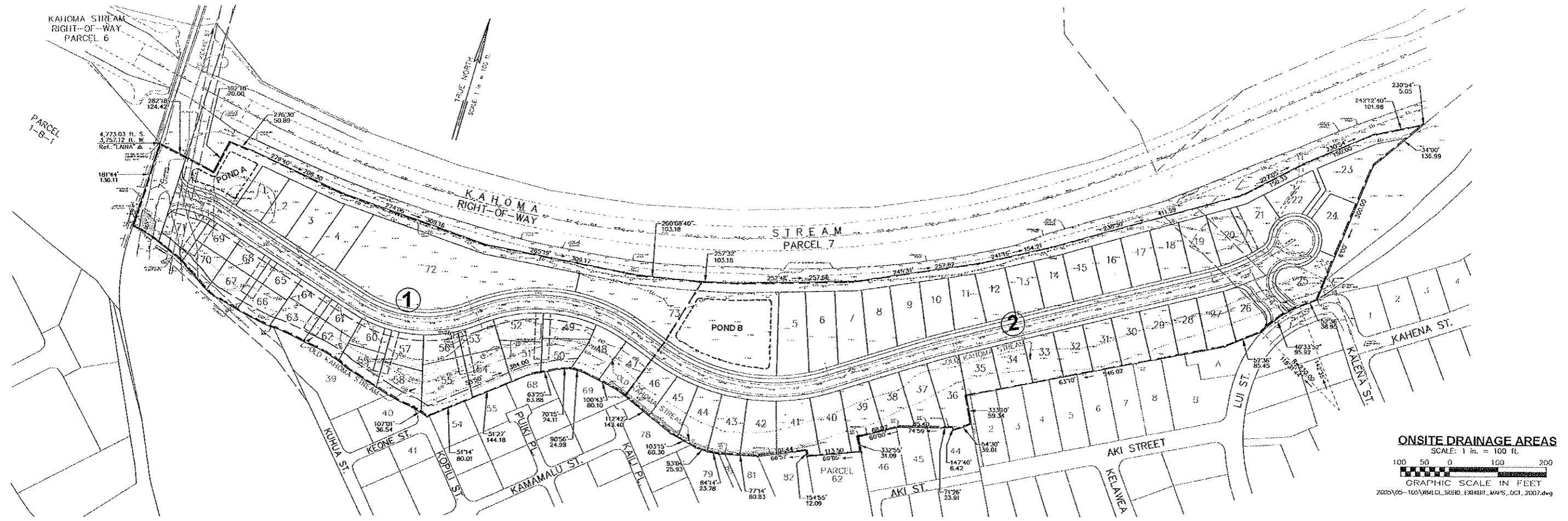
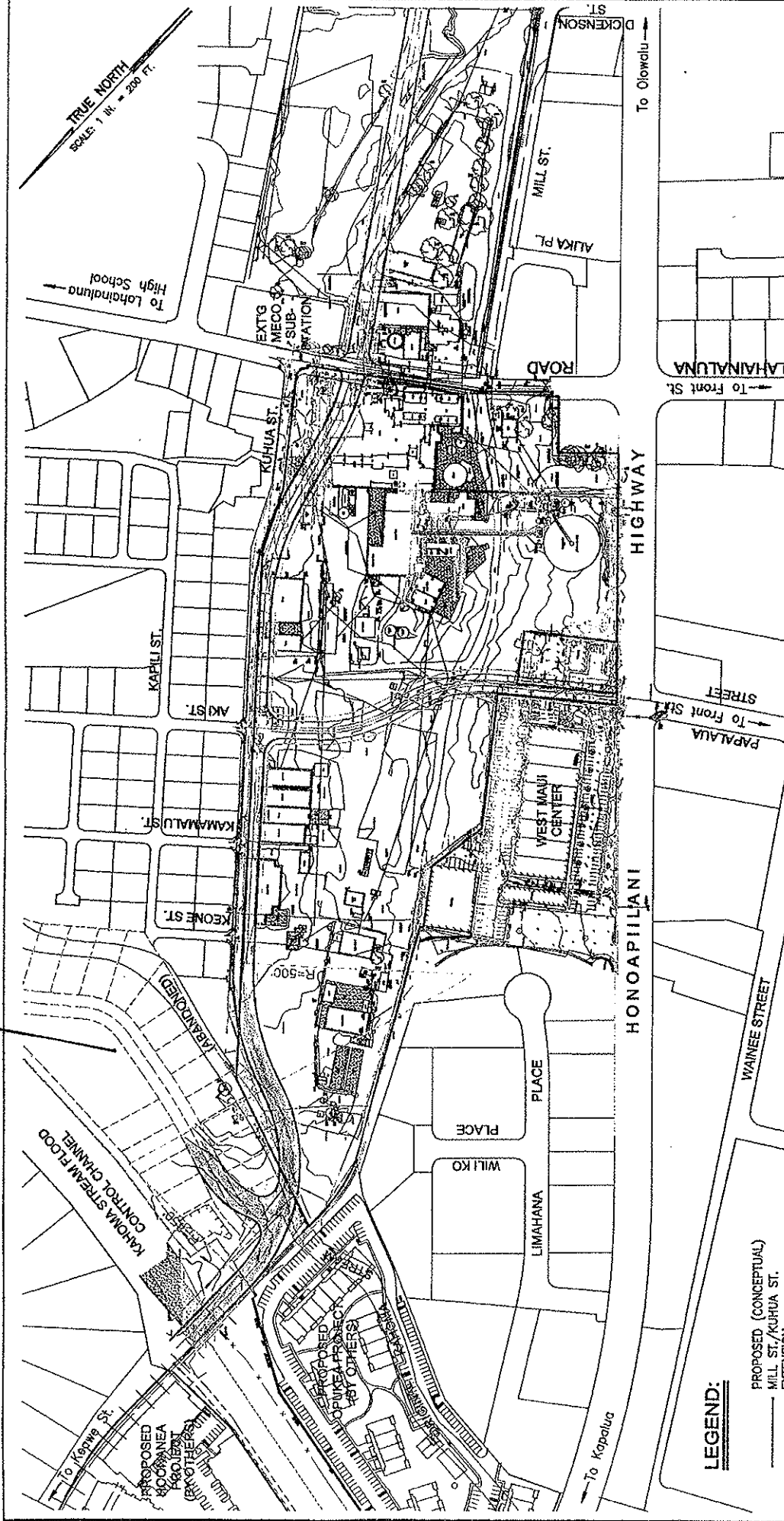


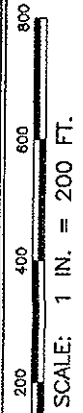
FIGURE 14

PROPOSED KAHOMA HOUSING PROJECT



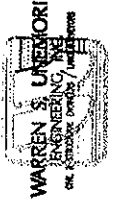
CONCEPTUAL ALIGNMENT STUDY (KAHEE SCHEME 1)

FOR MILL STREET EXTENSION



- LEGEND:**
- PROPOSED (CONCEPTUAL) MILL ST./KUHUA ST. EXTENSION
 - PROPOSED (CONCEPTUAL) KAHEE DEVELOPMENT PLAN (BY OTHERS)

TMK: 4-5-009:007



September 8, 2006

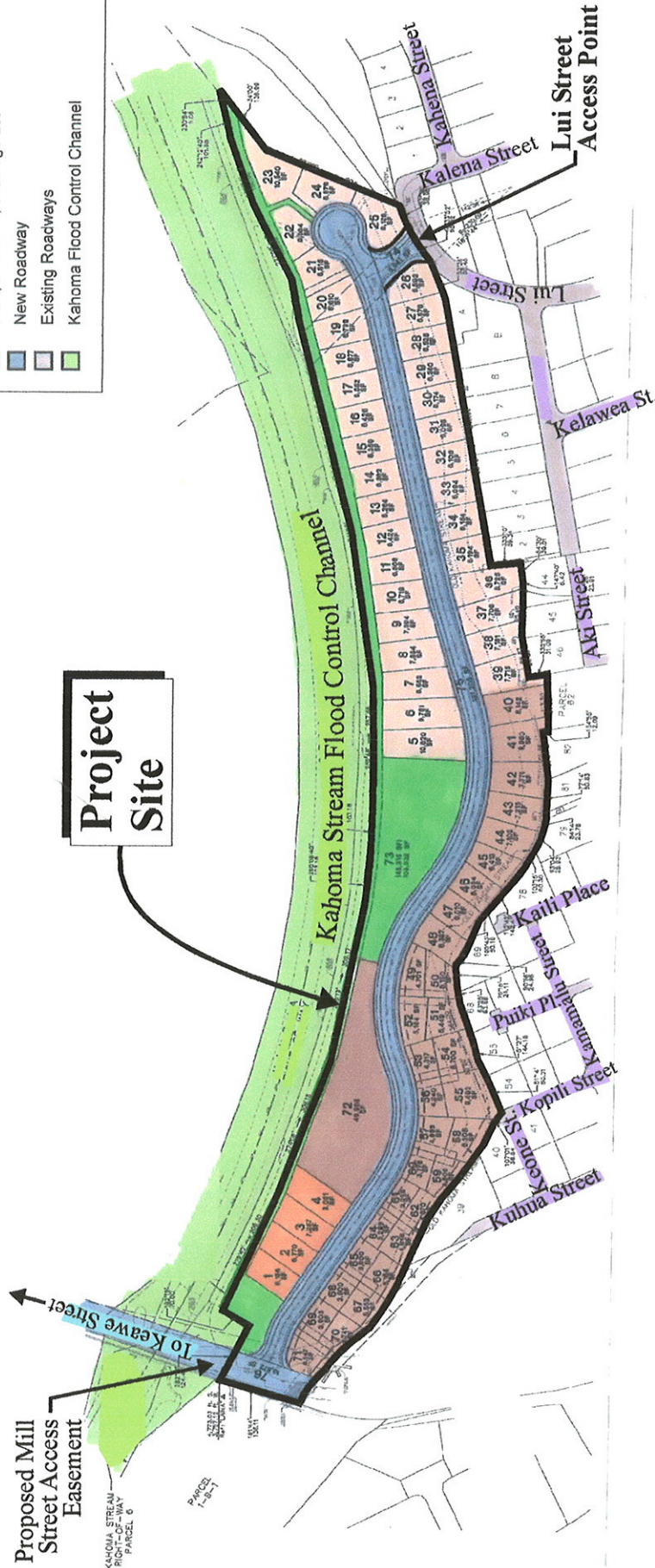
EXHIBIT A

APPENDIX G.

Alternate Site Plan 95 Units

Kahoma Residential Subdivision
 (2) 4-5-010:005, Lahaina, Maui
95 Units Proposed

- Habitat Homes (4 lots)
- Lokahi Special Needs homes (25 MFR Units)
- Lokahi Pacific Affordable Homes (31 lots)
- Affordable Lots (35 lots)
- Park, Bike Path, Drainage Lot
- New Roadway
- Existing Roadways
- Kahoma Flood Control Channel



Source: R.T. Tanaka Engineers, Inc.

Proposed Kahoma Residential Subdivision
 Alternate 95-Unit Subdivision Plan

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.