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JOSEPH K. CONANT
EXECUTIVE DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
HOUSING FINANCE AND DEVELOPMENT CORPORATION

IN REPLY REFER TO:
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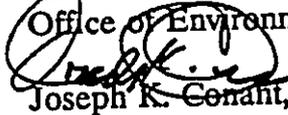
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OFFICE OF ENVIRONMENTAL
QUALITY

June 13, 1991

TO: Mr. Brian J. J. Choy, Director
Office of Environmental Quality Control

FROM: 
Joseph K. Conant, Executive Director
Housing Finance and Development Corporation

SUBJECT: Offsite Infrastructural Components
Lahaina Master Planned Project

Pursuant to Section 11 of the Environmental Impact Statement Rules, transmitted for processing are four (4) copies of the Environmental Assessment and Notice of Determination (Negative Declaration) for the subject project. Also attached is a completed OEQC Bulletin Publication Form.

If there are any questions on this matter, please have your staff contact Mr. Neal Wu, Project Coordinator, at 543-2937.

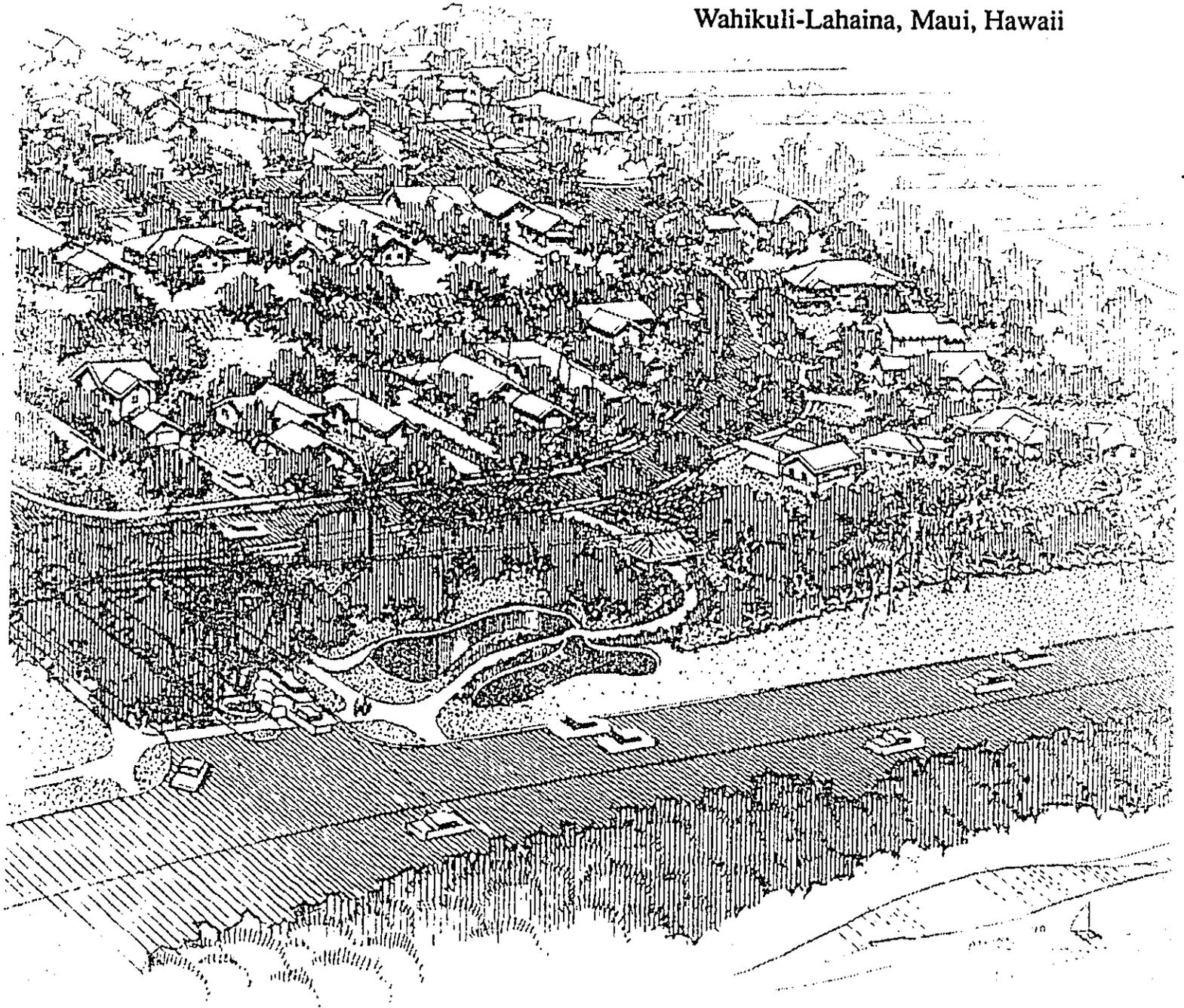
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1991-06-23-MA-PEA

FILE COPY
ENVIRONMENTAL ASSESSMENT

Offsite Infrastructural Components Lahaina Master Planned Project

Wahikuli-Lahaina, Maui, Hawaii



June 1991

ENVIRONMENTAL ASSESSMENT

Offsite Infrastructural Components
Lahaina Master Planned Project

Wahikuli-Lahaina, Maui, Hawaii

Prepared For: State of Hawaii
Housing Finance
Development Corporation

Submitted by:



Mr. Joseph K. Conant, Executive Director

Prepared By: PBR HAWAII

June 1991

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ENVIRONMENTAL ASSESSMENT

FOR

OFFSITE INFRASTRUCTURE: LAHAINA MASTER PLANNED COMMUNITY

LAHAINA, MAUI

TMK 4-5-21: VARIOUS

4-4-06: VARIOUS

4-4-02: VARIOUS

4-3-05: 37

June 1991

The Applicant

APPLICANT:

Housing Finance and Development Corporation
Seven Waterfront Plaza, Suite 300
500 Ala Moana Boulevard
Honolulu, Hawaii 96813

Mr. Joseph Conant
Executive Director

LAND OWNER:

State of Hawaii
Various Land Owners*

AGENCIES CONSULTED IN
MAKING REPORT:

County of Maui
Planning Department
Department of Public Works
Department of Human Services
Department of Water Supply

State of Hawaii
Department of Transportation
Department of Education
Department of Health
Department of Land and Natural Resources

Federal Agencies

U.S. Army Corps of Engineers

* Easements or other access to be negotiated by the State of Hawaii where necessary.
See Tax Map Key and Owner table for details.

The Application

In the matter of the Application of)
HOUSING FINANCE AND DEVELOPMENT CORPORATION)
To prepare an Environmental Assessment)
for the proposed Offsite Infrastructural Components)
Maui Tax Map Key 4-5-21: Por. 02,03,07,10,11,14,15, and 16;)
4-4-06: Por. 01,02,05,09, and 10; 4-4-02: Por. 02,31,32,)
33,34, and 35; 4-3-05:37; 4-4-02:29 all)
at Wahikuli-Lahaina, Island of Maui, State of Hawaii.)

THE APPLICANT

Housing Finance and Development Corporation
Seven Waterfront Plaza, Suite 300
500 Ala Moana Boulevard
Honolulu, Hawaii
(808) 543-6806

Agent: PBR HAWAII
1042 Fort Street Mall, Suite 300
Honolulu, Hawaii 96813
(808) 521-5631

THE APPLICATION

This matter arises from an Environmental Impact Statement (herein referred to as EIS) for the Lahaina Master Planned Community filed by the State Housing Finance and Development Corporation and accepted in February of 1990 by the State of Hawaii. Pursuant to Hawaii Revised Statutes (HRS) 343 and Chapter 200, Sections 11-200-9 through 13(b), Environmental Impact Statement Rules of the State Department of Health, the Housing Finance and Development Corporation ("Applicant"), herein requests an environmental assessment for the Offsite Infrastructural Components of the Lahaina Master Planned Community, situated at Wahikuli-Lahaina, Island of Maui, and further identified as Maui Tax Map Keys (TMK) by study area, i.e. Water System Study Area, Gravity Sewer Study Area, Intersection and Drainage Study Area, Cane Haul Road Re-alignment Study Area, and Booster Pump Station Areas. Figures 1, 2 and 3 provide location and Tax Map Key details. Table 1 shows study areas by TMK.

TABLE 1

TAX MAP KEY AND OWNER BY STUDY AREA

Water System Area

TMK 4-5-21:02 portion - Amfac/JMB

Cane Haul Road Re-alignment Area

TMK 4-4-06: 01 portion - Amfac/JMB

Gravity Sewer Main Area

TMK 4-5-21: 07 portion - State of Hawaii

TMK 4-5-21: 11 portion - Amfac/JMB

TMK 4-5-21: 11 portion - Amfac/JMB

Booster Pump Station Areas

TMK 4-5-21: 16 portion - State of Hawaii

TMK 4-3-05: 37 all - County of Maui

Intersection and Drainage Area

TMK 4-5-21: 03 portion - Amfac/JMB

TMK 4-5-21: 07 portion - State of Hawaii

TMK 4-5-21: 10 portion - State of Hawaii

TMK 4-5-21: 11 portion - Amfac/JMB

TMK 4-5-21: 14 portion - State of Hawaii

Gravity Sewer Study Area

TMK 4-4-06: 01 portion - Amfac/JMB

TMK 4-4-06: 05 portion - Tobishima Inc.

TMK 4-4-06: 06 portion - International Colony
Club

TMK 4-4-06: 09 portion - Amfac/JMB

TMK 4-4-06: 10 portion - Amfac/JMB

TMK 4-4-02: 02 portion - Amfac/JMB

TMK 4-4-02: 29 all - County of Maui

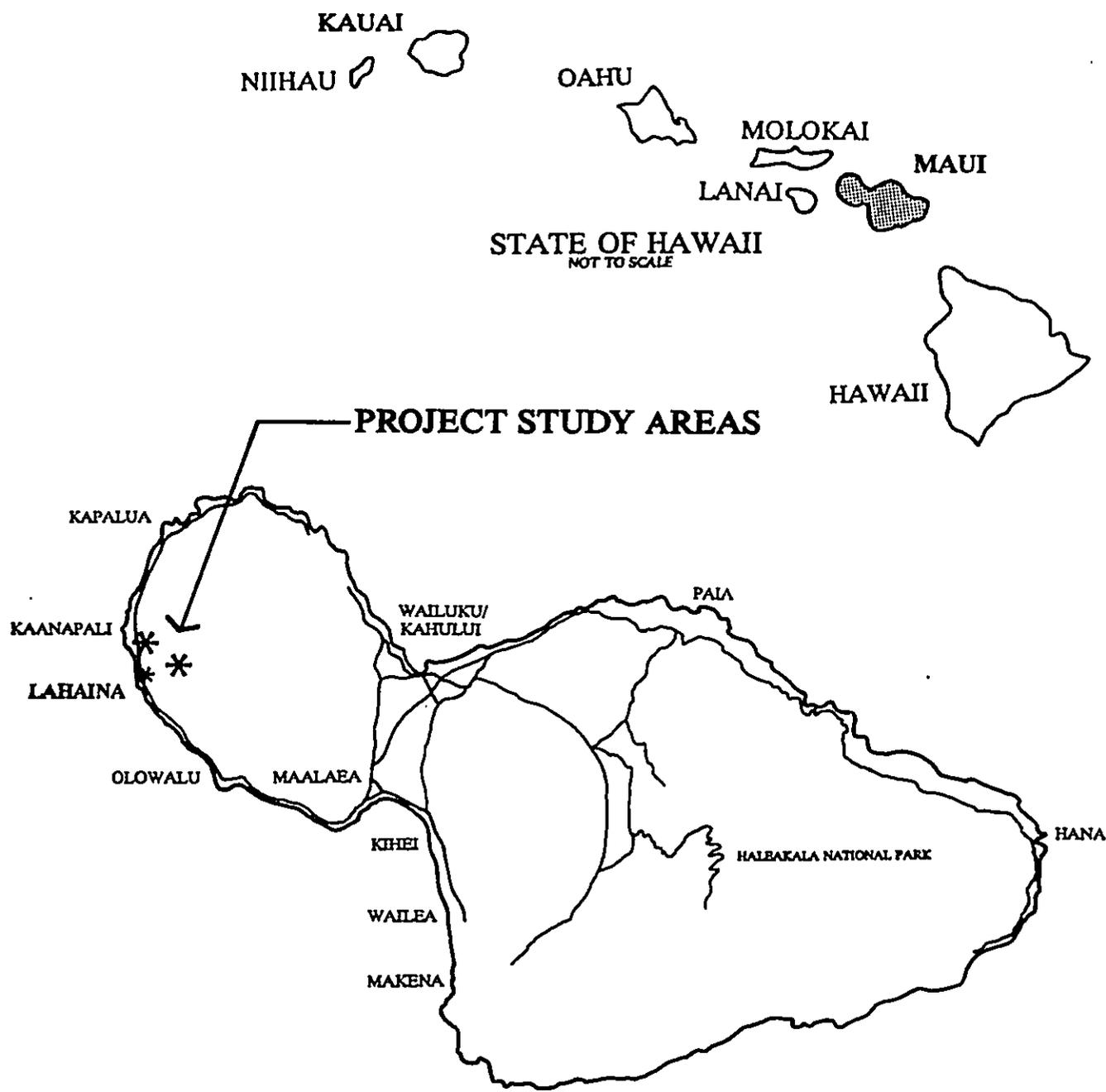
TMK 4-4-02: 31 portion - Trans Warehouse
Assoc.

TMK 4-4-02: 32 portion - Amfac/JMB

TMK 4-4-02: 33 portion - Amfac/JMB

TMK 4-4-02: 34 portion - Amfac/JMB

TMK 4-4-02: 35 portion - Amfac/JMB

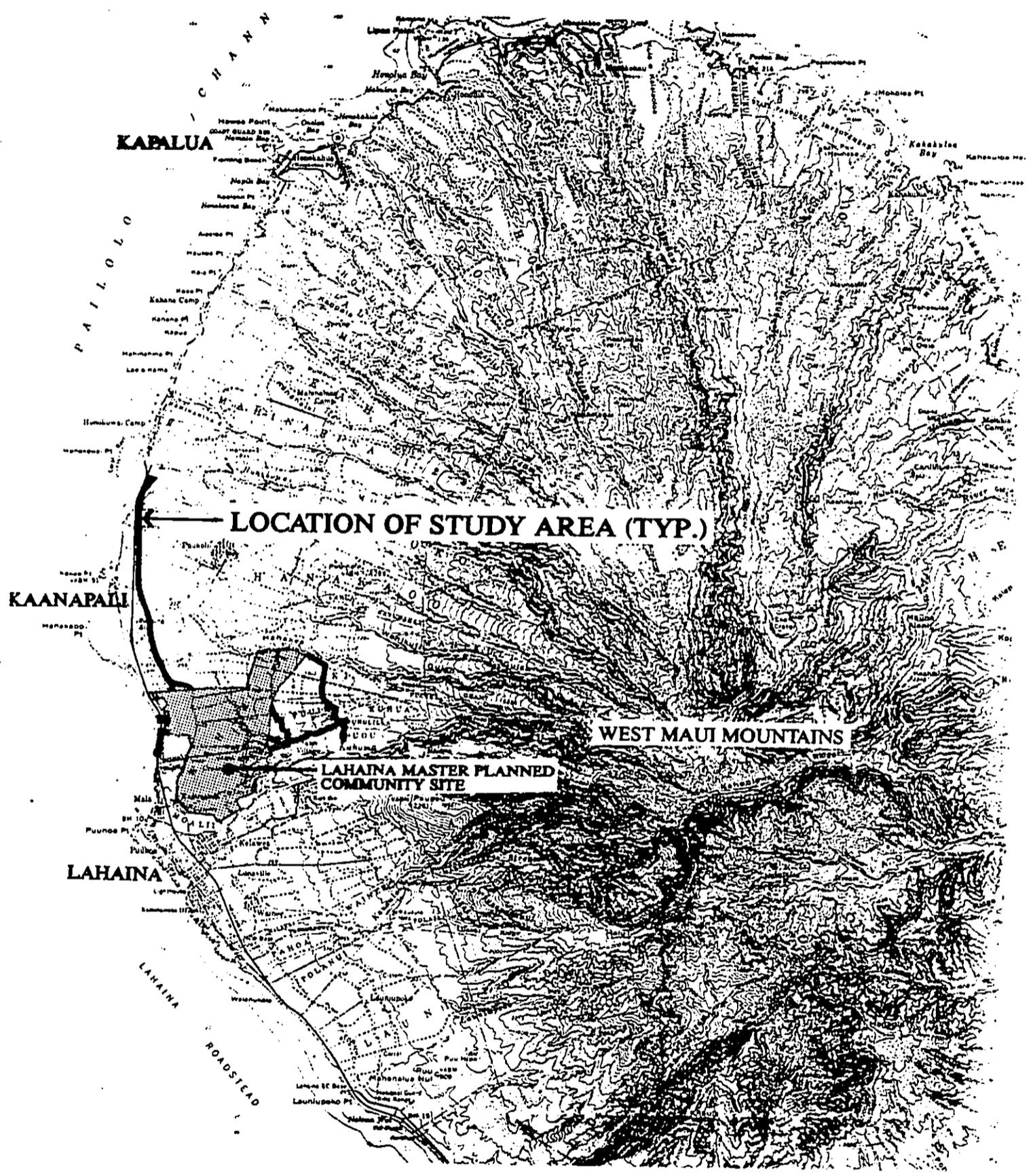


Prepared for: Housing Finance and
Development Corporation
Prepared by: PBR HAWAII
Date: May 1991

FIGURE 1
ISLAND LOCATION MAP
LAHAINA OFFSITE INFRASTRUCTURE EA

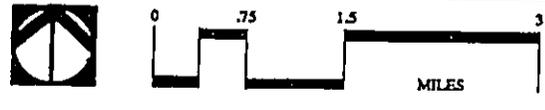


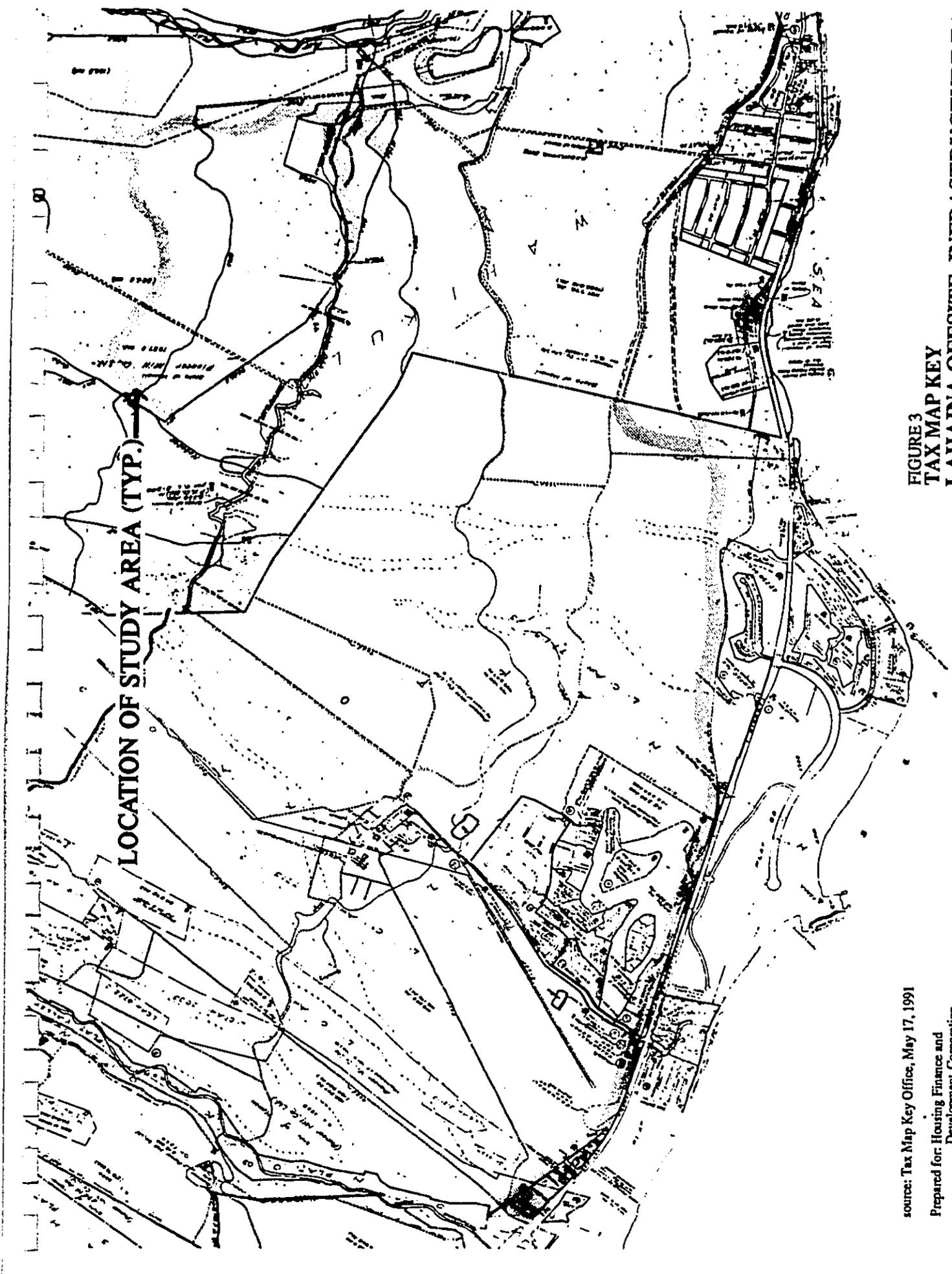
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source: USGS 1957
 Prepared for: Housing Finance and
 Development Corporation
 Date: May 1991

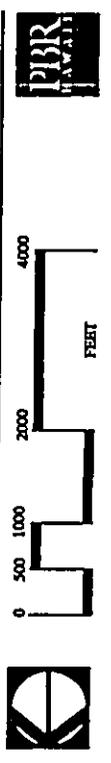
FIGURE 2
REGIONAL LOCATION MAP
LAHAINA OFFSITE INFRASTRUCTURE EA





source: Tax Map Key Office, May 17, 1991
 Prepared for: Housing Finance and
 Development Corporation
 Date: May 1991

FIGURE 3
 TAX MAP KEY
 LAHAINA OFFSITE INFRASTRUCTURE EA



PURPOSE OF THE APPLICATION

The 1990 EIS and this Environmental Assessment (EA), are herein submitted in support of the Housing and Finance Development Corporation's (HFDC) improvement of offsite potable water source and systems, wastewater transmission systems, drainage improvements, and intersection improvements on Honoapiilani Highway and Primary Road "A", in addition to realignment of an offsite cane haul road. These are improvements necessary for the development of Village I in the Lahaina Master Planned Community. The lands on which the proposed offsite potable water source and system would be developed consist of TMK 4-5-21:02, while the wastewater transmission system, drainage improvements, intersection improvements, and cane haul road involve numerous TMK parcels. Please refer to Table 1.

This EA has also been prepared to support permit applications that may be required for the proposed project as well as to insure environmental review prior to the expenditure of State funds for capital improvements.

A description of the affected environment, proposed mitigation measures, preliminary impact determinations based on the information contained herein, and the reasons supporting those determinations are provided. The information contained in this EA has been developed from site visits, studies conducted specifically for this document and the Lahaina Master Planned Community EIS, as well as generally available information regarding the environmental characteristics of the project site and the surrounding area.

APPROVING AGENCY

State of Hawaii
Housing Finance and Development Corporation

CONSULTING AGENCIES

County of Maui
Planning Department
Department of Public Works
Department of Human Services
Department of Water Supply

State of Hawaii
Department of Transportation
Department of Education
Department of Health
Department of Land and Natural Resources

Description

GENERAL DESCRIPTION

Description of the Property

1. The proposed project site encompasses several disparate areas near the Housing Finance Development Corporation's (HFDC) Lahaina Master Planned Project. The proposed Lahaina Master Planned Project lands are located adjacent to the Civic Center and Wahikuli subdivision area near Lahaina town and north of the existing Kelawea subdivision and Lahainaluna High School. Figures 1 and 2 provide regional location information.

The lands proposed for the offsite potable water system component and cane haul road re-alignment are owned by the State of Hawaii and Amfac/JMB and are presently leased to Pioneer Mill Company Ltd., a owned subsidiary of Amfac/JMB Hawaii, Inc., for sugar cane cultivation and are primarily classified Agriculture by the State Land Use Commission. Lands adjacent to the proposed project site are owned by various private land owners as well as the State. Lands proposed for the offsite wastewater transmission and drainage improvements lie within existing utility corridors adjacent to Honoapiilani Highway and within Wahikuli Park, however, a portion of the proposed sewer line will run through Amfac/JMB owned land leased to Pioneer Mill for sugar cane cultivation. The Lahaina Waste Water Treatment Plant (WWTP) and the pump station are located about three miles from the HFDC Lahaina Master Planned community site. The Pioneer Mill is situated in the immediate vicinity of the proposed project, but would be unaffected by the project.

2. The Land Use Designations for the Property are as follows:

Offsite Potable Water System

- a. State Land Use District: Agriculture & Urban
- b. Wahikuli-Lahaina Community Plan: No project district
- c. Zoning: AG
- d. Special Management Area: None
- e. Other Special Districts: None

Offsite Wastewater Irrigation, Transmission, Pumping and Treatment Improvements

- a. State Land Use District: Agriculture, Conservation & Urban
- b. Wahikuli-Lahaina Community Plan: Project Districts 3 & 4
- c. Zoning: AG, SF, PK, MF, LI, OS
- d. Special Management Area: Portions of the offsite wastewater system are in SMA
- e. Other Special Districts: None

Intersection Improvements, Road Re-alignment and Drainage Improvements

- a. State Land Use District: Agriculture & Urban
- b. Wahikuli-Lahaina Community Plan: Project Districts 3 & 4
- c. Zoning: AG, PK, OS
- d. Special Management Area: Portions of the drainage improvements and intersection alignment are in SMA
- e. Other Special Districts: None

Please refer to Figures 4 and 5 for a graphic depiction of the proposed offsite infrastructure improvements as they relate to zoning and the community plan.

3. The project area covered in this EA is generally close to the Lahaina Master Planned Community which is adjacent to the town of Lahaina. The proposed sewer line runs along the utility corridor of Honoapiilani Highway, then follows the lower cane haul road to the boundary of the Lahaina Master Planned Community. A new sewer line will be constructed through Wahikuli State Park to SPS #3. The proposed potable water system is situated mauka of Honokohau Ditch. The re-aligned cane haul road is situated at about the 200 foot elevation, mauka of the Hanakaoo Cemetery and below the Hanakea flume. Intersection improvements are planned for the intersection of Honoapiilani Highway and the project entrance road, Primary Road "A". The drainage improvements are located near the intersection as well. These improvements are shown individually in Figures 6,7,8,9,9A,and 10.

The project is generally bounded by the Lahaina Wastewater Treatment Facility on the north, the shoreline to the west (makai), the town of Lahaina to the south, and runs to an elevation of over 1,000 feet on the eastern hills (mauka). The land rises gently mauka from Honoapiilani Highway toward the foothills of the West Maui Mountains. The project elements near the highway are located at approximately 10 feet Mean Sea Level (MSL) and project elements to the east are situated at approximately 1,050 feet MSL in the mauka area.

In summary, the surrounding Land Uses are as follows:

- a. North: Urban/Residential - Lahaina Wastewater Treatment Plant and cane fields
 - b. East: West Maui Mountain foothills
 - c. South: Lahaina Master Planned Community
 - d. West: Shoreline
4. The primary use of the project area currently is sugar cane cultivation in the makai areas. A few cane haul roads traverse the property. Wahikuli Reservoir

LEGEND

- | | |
|----|---------------------------|
| AG | Agricultural |
| SF | Single Family Residential |
| MF | Multi-Family Residential |
| B | Business/Commercial |
| BR | Business/Multi-Family |
| HI | Heavy Industrial |
| LI | Light Industrial |
| H | Hotel |
| P | Public/Quasi-Public |
| PK | Park |
| OS | Open Space |
| PD | Project District |
| AP | Airport |
| | Conservation |

source: Maui County Planning Dept., Oct. 1990

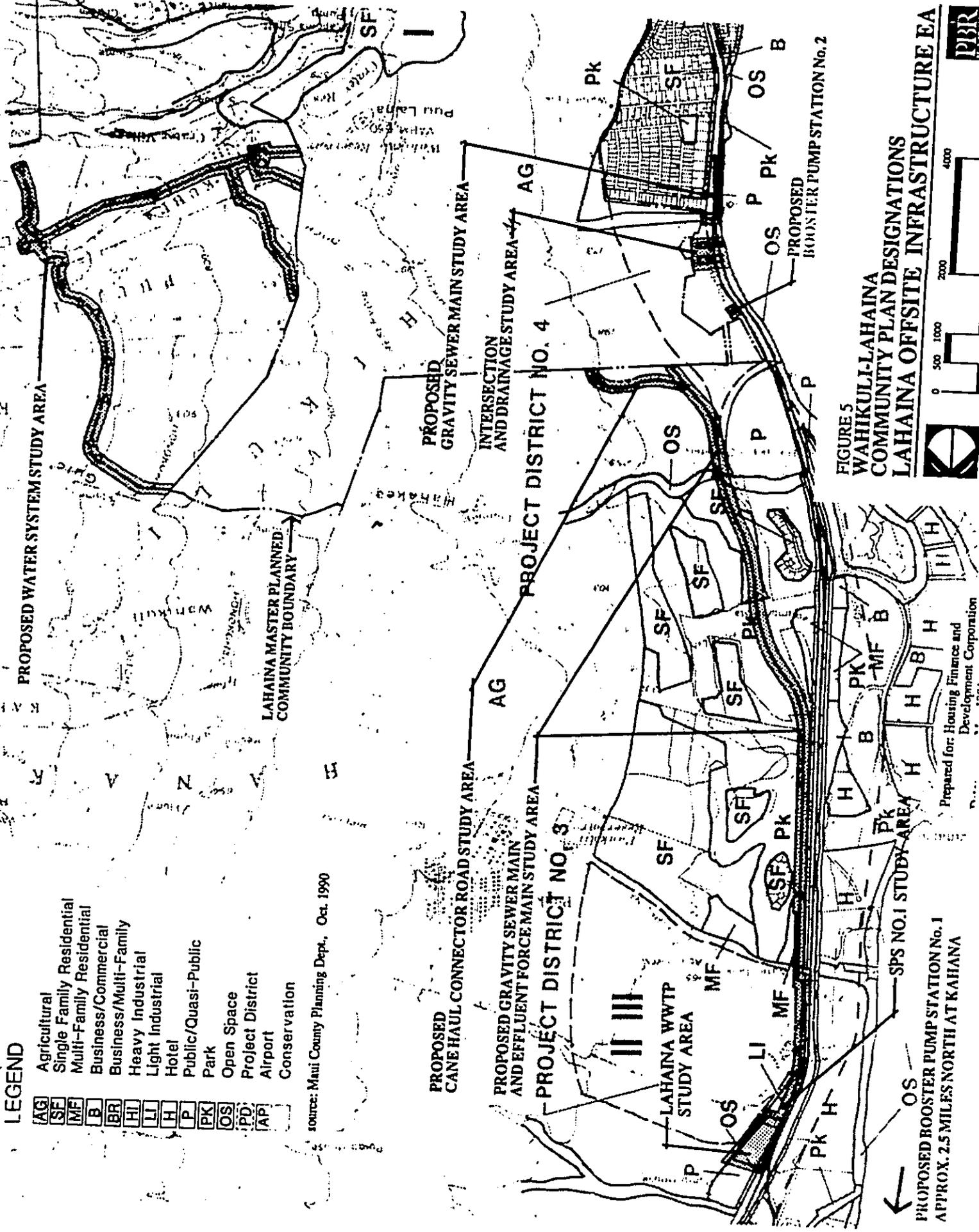
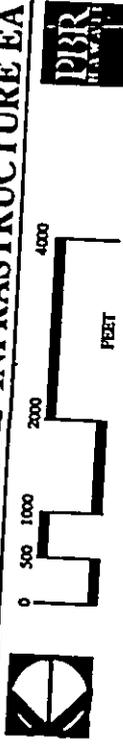


FIGURE 5
WAHIKULI-LAHAINA
COMMUNITY PLAN DESIGNATIONS
LAHAINA OFFSITE INFRASTRUCTURE EA



Prepared for Housing Finance and Development Corporation

← PROPOSED BOOSTER PUMP STATION No. 1
 APPROX. 2.5 MILES NORTH AT KAHANA



lies near the proposed potable water portion of the project, and most of the mauka area is in brush. The proposed wastewater transmission and drainage improvements are located in existing utility corridors along Honoapiilani Highway on already developed sites, except for the portion of the sewage and irrigation lines which will be constructed along the lower cane haul road. The intersection improvements and drainage improvements occur within and adjacent to an existing road and intersection right-of-way.

5. Existing Services

- a. **Water** - No potable water lines currently serve the HFDC Lahaina Master Planned Community area. The County water system in West Maui, which extends from Lahaina to Napili, is served by three surface sources and eight wells. These sources include: sub-intake water from Kahana Valley, and four groundwater or well sources (Kahana 1 and 2 and Waipuka 1 and 2); sub-intakes from Honokahau Ditch and four wells above Napili (Napili wells 1, 2 and 3 and Honokahau well A). These potable water sources are not sufficient to provide projected potable water requirements for the HFDC Lahaina Master Planned Project. The Kaanapali and Kapalua Resorts both have their own private water systems.

Water storage for the West Maui municipal water system is provided by a 1.0 million gallon (mg) tank at Alaeloa, a 1.5 mg tank above Wahikuli, and a 1.0 mg tank above Lahaina Town.

There is an existing 16-inch water transmission line connecting the Wahikuli tank with the Wahikuli subdivision, however, due to inadequate pressure in this line, the Wahikuli tank is never completely full. The potable storage tanks near Napili and Kanaha connect to the town of Lahaina through a series of 8-, 12-, and 16-inch lines. These are insufficient transmission lines and storage tanks to serve the Lahaina Master Planned Community.

- b. **Sewer** - There are no wastewater transmission lines presently serving the proposed HFDC Lahaina Master Planned Community development. The existing wastewater transmission system between the proposed HFDC Lahaina Master Planned Project site and the Lahaina WWTP consists of three major sewage pump stations and force mains, and two gravity transmission lines. Wastewater from Lahaina Town area is pumped by County Sewage Pump Station (SPS) No. 3 via a 20 inch force main to a manhole at the upstream end of Sewer Line B. This line, consisting of approximately 2,260 feet of 27 inch gravity sewerline, conveys the wastewater by gravity to SPS No. 2 which is located east of the Kaanapali Parkway/Honoapiilani Highway intersection.

Wastewater from the Kaanapali and Lahaina areas is pumped by SPS No. 2 via a 20 inch force main to a manhole at the upstream end of Sewer Line C. Sewer Line C, consisting of approximately 6,380 feet of 27 inch gravity sewerline, then conveys the combined wastewater flows by gravity to SPS No. 1. The wastewater is then pumped by a 20 inch force main to the Lahaina WWTP. Wastewater is then treated and disposed of via injection wells located at the WWTP site. Each of these injection wells have an average capacity of 1 - 2 mgd, with a total maximum capacity of 5.2 mgd. There are no standby wells at present.

- c. **Roadways** - The western edge of the project site is lined by Honoapiilani Highway, an improved two lane road connecting Wailuku and Waikapu to northwestern Maui. In the vicinity of the proposed project site, Honoapiilani Highway was recently widened to four lanes with two lanes in each direction. The four lane segment extends from Lahainaluna Road in Lahaina to Kaanapali Parkway in Kaanapali. There are two unpaved cane haul roads which traverse the project area. The lower roadway will be closed and a new connection made to the upper road to continue access to the lower road. The intersection of Primary Road "A" and Honoapiilani will be widened and repositioned for use as the primary entrance to the HFDC Lahaina Master Planned Community.
- d. **Drainage** - General drainage in the project area is accommodated by naturally occurring gullies. Both Kahoma and Kanaha streams collect storm water in the area where the proposed reservoirs, well field, and transmission lines would be constructed.
- e. **Solid Waste Disposal** - At present solid waste is collected and disposed by the County and private contractors. Residential waste is transported to the new Puunene landfill site in Central Maui.
- f. **Utilities** - Electrical services in the project area are provided by Maui Electric Company (MECO), and phone services are provided by the Hawaiian Telephone Company.
- g. **Recreational Services/Resources** - The West Maui area is serviced by 17 County parks and three State beach parks.
- h. **Police and Fire Protection** - Police are currently dispatched from headquarters located in Lahaina District at Wahikuli. Lahaina Fire Station, situated in the adjacent Lahaina Civic and Recreation Center, provides fire protection services to the area.

- i. **Schools** - The schools nearest the offsite infrastructure project area are Lahainaluna High School (9-12), Lahaina Intermediate School (6-8), King Kamehameha III Elementary School (K-5), and Princess Nahienacua Elementary School (K-3).

DESCRIPTION OF THE PROPOSED DEVELOPMENT

In order to provide necessary infrastructure for the Lahaina Master Planned Project (see Appendix E, Lahaina Master Planned Project EIS) offsite intersection and roadway improvements, drainage improvements, potable water sources, water storage tanks, booster pump stations, water transmission lines, wastewater treatment expansion, an irrigation force main, wastewater transmission lines and modification and replacement of existing wastewater pump stations will be required. The offsite improvements under design and consideration meet the requirements for between 3,800 and 4,800 residential units. The offsite infrastructure components described below are essential infrastructural components needed to serve the proposed housing project. The proposed project is anticipated to be completed within five years. Figures 6, 7, 8, 9 and 10 provide a graphic representation of the proposed project elements.

Offsite Roadway Improvements

Realignment of the lower cane haul road for connection to an upper cane haul road is required to allow continued access to existing cane fields, since development of the HFDC Lahaina Master Planned Community will displace a portion of the existing lower cane haul road. Realignment will not require cane haul trucks to traverse steep uphill grades. A 50 foot road (40 foot travel way with 5 foot shoulders), with a 35 foot height clearance, will be constructed as required by design criteria. (Figure 6).

The existing intersection of Honoapiilani Highway and Primary Road "A" will be realigned and widened as shown in Figure 7. The intersection improvements allow for safe entrance to the Lahaina Master Planned Community, the Civic Center and State Wahikuli Park, and accommodates the anticipated traffic increase into the residential area.

Offsite Potable Water System Improvements

The average daily water demand for the entire HFDC Master Planned Project is 2.8 million gallons per day (mgd). To produce potable water in a thin basal lens, like that found in Lahaina, a balance between the depth of the well, head in the aquifer and pump capacity must be reached. Groundwater opportunities near the HFDC site (the proposed



FIGURE 6
 PROPOSED ROAD REALIGNMENT
 LAHAINA OFFSITE INFRASTRUCTURE EA



source: Warren S. Umemori Engineering Inc., May 1991
 Prepared for: Housing Finance and
 Development Corporation
 Date: May 1991

project) are constrained by allowable pump capacity, therefore a single well will be limited to a capacity of 400 to 450 gallons per minute (gpm), and will require drilling from ground elevation of 1,050 feet to 35 feet below sea level (1,085 total depth). Wells would have a casing diameter of 12 or 14 inches for a pump size of 450 gpm. Each well would be drilled to 35 feet below sea level and fitted with a louvered screen reaching from sea level to 20 feet below sea level. Rock packing and grouting would follow standard specifications.

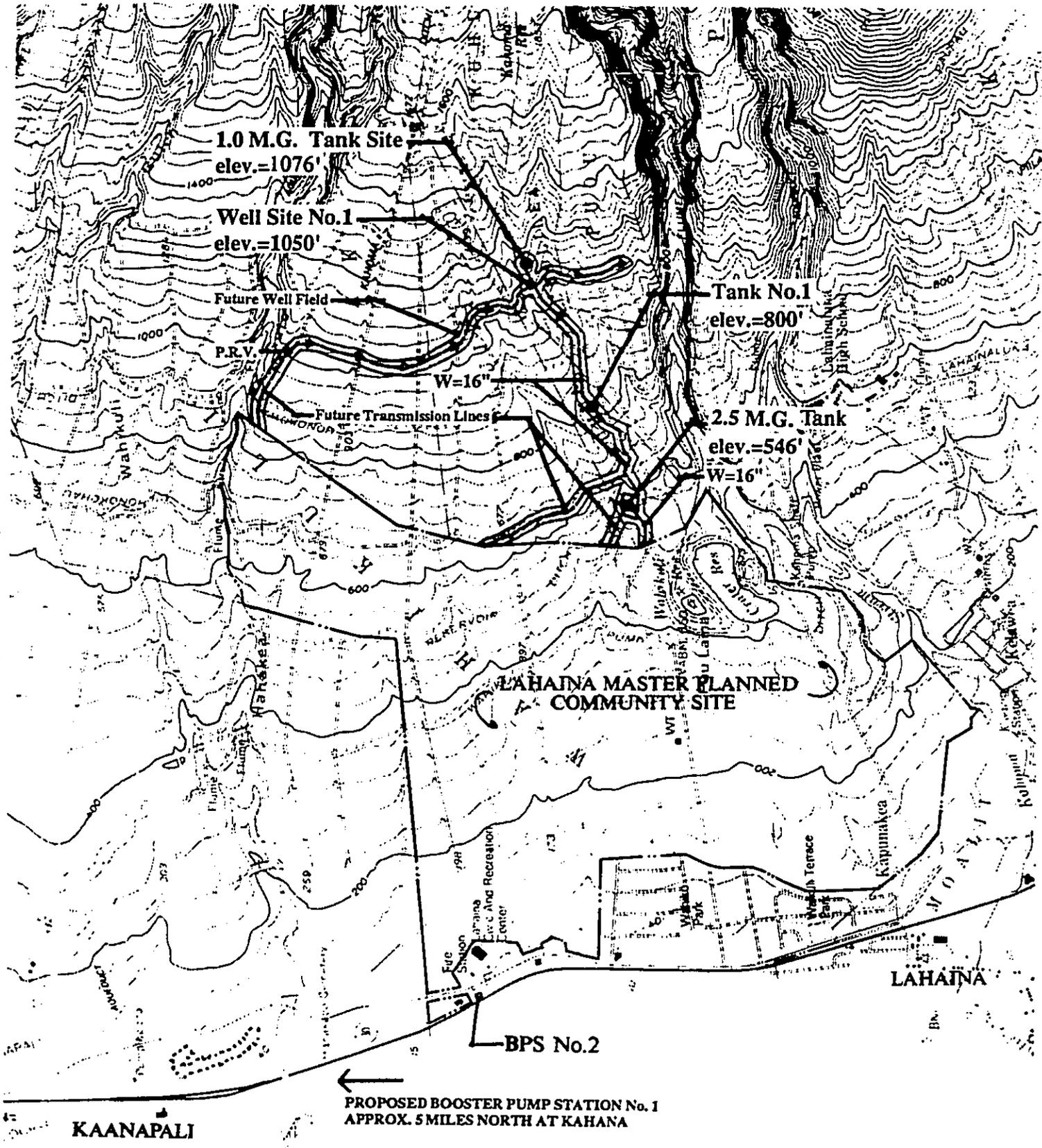
Drilling of six new 400 to 450 gallon per minute (gpm) wells and two standby wells is planned. These wells will be located along the 1,050 foot contour elevation and spaced about 750 feet apart. Distance inland to the line of wells is approximately 10,000 feet, and the expected head is 4.4 feet;

Also required will be: construction of one 2.5 million gallon (mg) storage reservoir at an elevation of 550 feet and one 1.0 mg storage reservoir at an elevation of 1,076 feet, with required valve assemblies for maintenance of system pressure; construction of two storage tanks (one at the 800' foot elevation and one at the 410' elevation); and installation of approximately 8,000 feet of 16 inch diameter transmission line between the well source, the Lahaina Master Planned Community, and the existing 1.5 mg County reservoir at Wahikuli. Two booster pump stations will also be needed to transmit potable water to the HFDC site. The booster pump stations are located at Kahana and near the Lahaina Civic Center. These improvements are shown in Figure 8. In addition to water line placement, separate electrical and telephone lines will be required to service the well sites and storage tanks. The power lines will be situated in the same easement as water transmission lines.

Offsite Wastewater System

The proposed HFDC Lahaina Master Planned Project is anticipated to generate an average 2.5 mgd with a peak flow of 6.56 mgd. SPS No. 3 will service the first Village and the new SPS No. 1 will service the remaining Villages in the project.

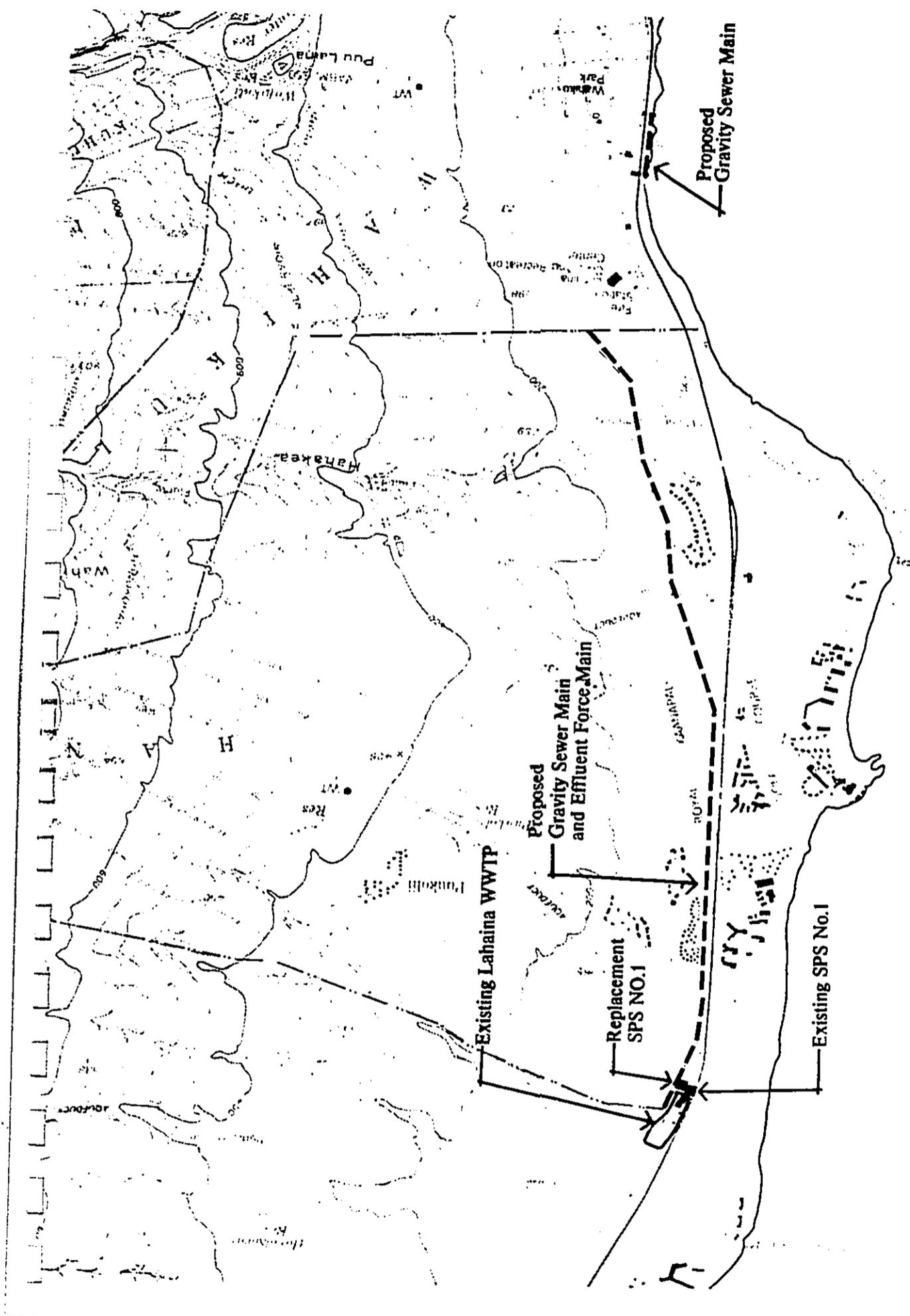
The County's existing SPS No. 1, located near the WWTP, will be replaced by a completely new sewer pump station capable of handling sewage flows from the HFDC Lahaina Master Planned Community, Amfac's Kaanapali Resort, and other projects, as well as the County of Maui's existing flows. The new SPS #1 is to be constructed near the existing No. 1 pump station. The existing SPS No. 3 is located south of the HFDC Lahaina Master Planned Community on the west side of Honoapiilani Highway within Wahikuli Park. (See Figure 9). Associated with each of these sewer pump stations are three existing force mains. To accommodate estimated future wastewater generation, a new minimum 20 inch force main will be constructed between the new SPS No. 1 and the WWTP. Please refer to Figure 9A. Wastewater generated from Village I of the HFDC Project will be directed, via a new 12 inch 1,575 foot long gravity line between Village I, transversing under Honoapiilani Highway and through Wahikuli State Park, to



source: Warren S. Unemori Engineering Inc., May 1991
 Prepared for: Housing Finance and Development Corporation
 Date: May 1991

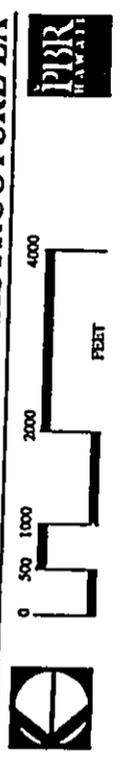
FIGURE 8
WATER SOURCE, STORAGE, BOOSTER PUMPS,
AND TRANSMISSION SYSTEM
LAHAINA OFFSITE INFRASTRUCTURE EA



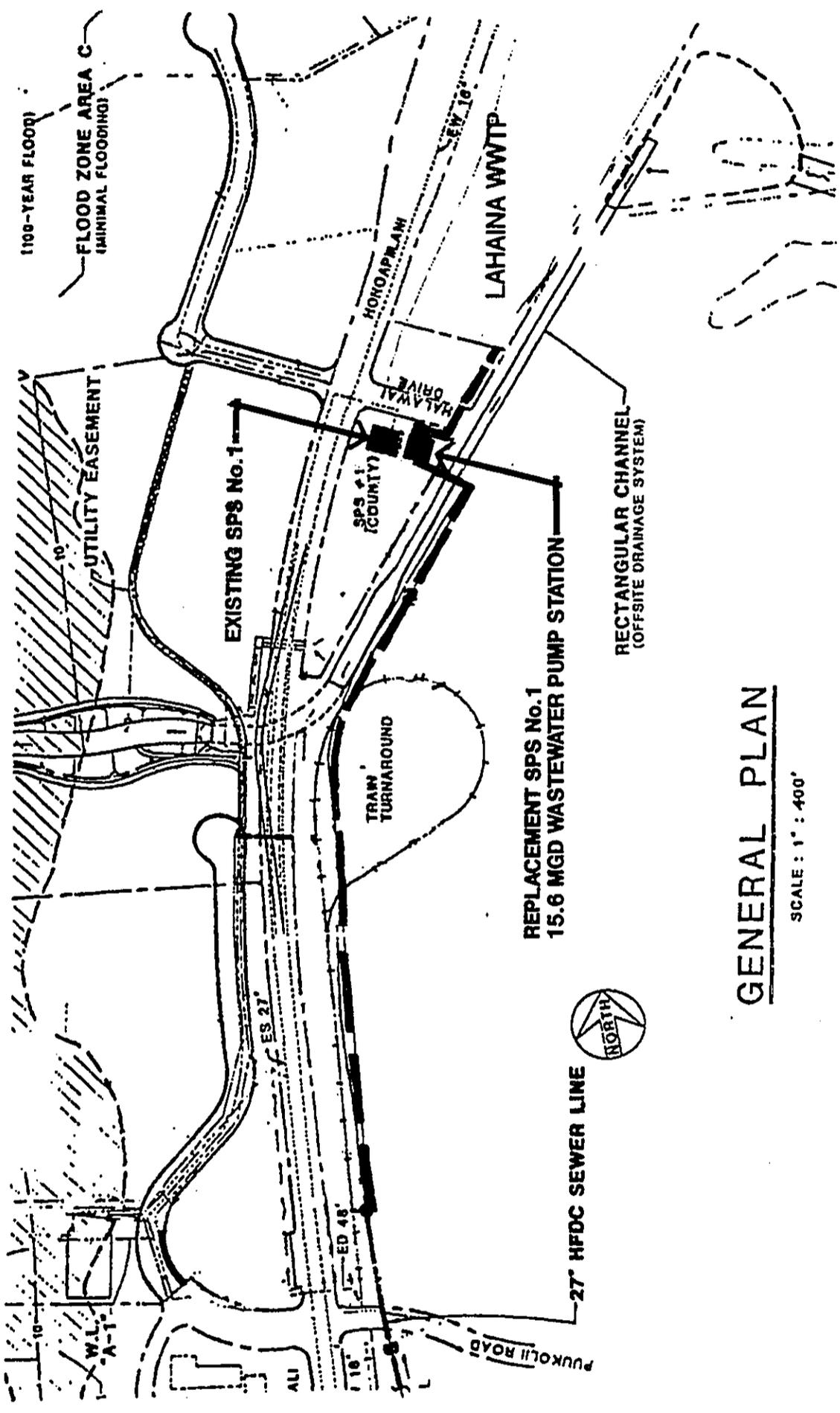


source: Warren S. Unemori Engineering Inc., May 1991
Prepared for: Housing Finance and
Development Corporation
Date: May 1991

FIGURE 9
OFFSITE SEWER SYSTEM
LAHAINA OFFSITE INFRASTRUCTURE EA



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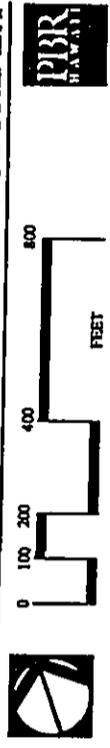


GENERAL PLAN

SCALE : 1" : 400'

source: Warren S. Unemori Engineering Inc., May 1991
 Austin, Tsutsumi, & Associates, Inc.
 Prepared for: Housing Finance and
 Development Corporation
 Date: May 1991

FIGURE 9A
 SEWAGE PUMP STATION REPLACEMENT PLAN
 LAHAINA OFFSITE INFRASTRUCTURE EA



the SPS No. 3. The existing pumps and controls will be modified to accommodate the additional flow from Village I. Wastewater from subsequent villages in the HFDC project will be directed to the WWTP via approximately 14,000 feet of a new minimum 27 inch gravity line along Pioneer Mill Company's lower cane haul road to the replacement SPS No. 1. Due to future sewage demand from other sources in the West Maui area, the size of the gravity line may be increased. This line is shown in Figure 9.

A new, separate effluent irrigation line, which is anticipated to transmit effluent or non-potable water for the golf course and common areas, will be installed adjacent to the 27 inch sewer line. All irrigation will be conducted in accordance with the Department of Health rules for golf course management and irrigation (Lahaina Master Planned Community FEIS, 1990).

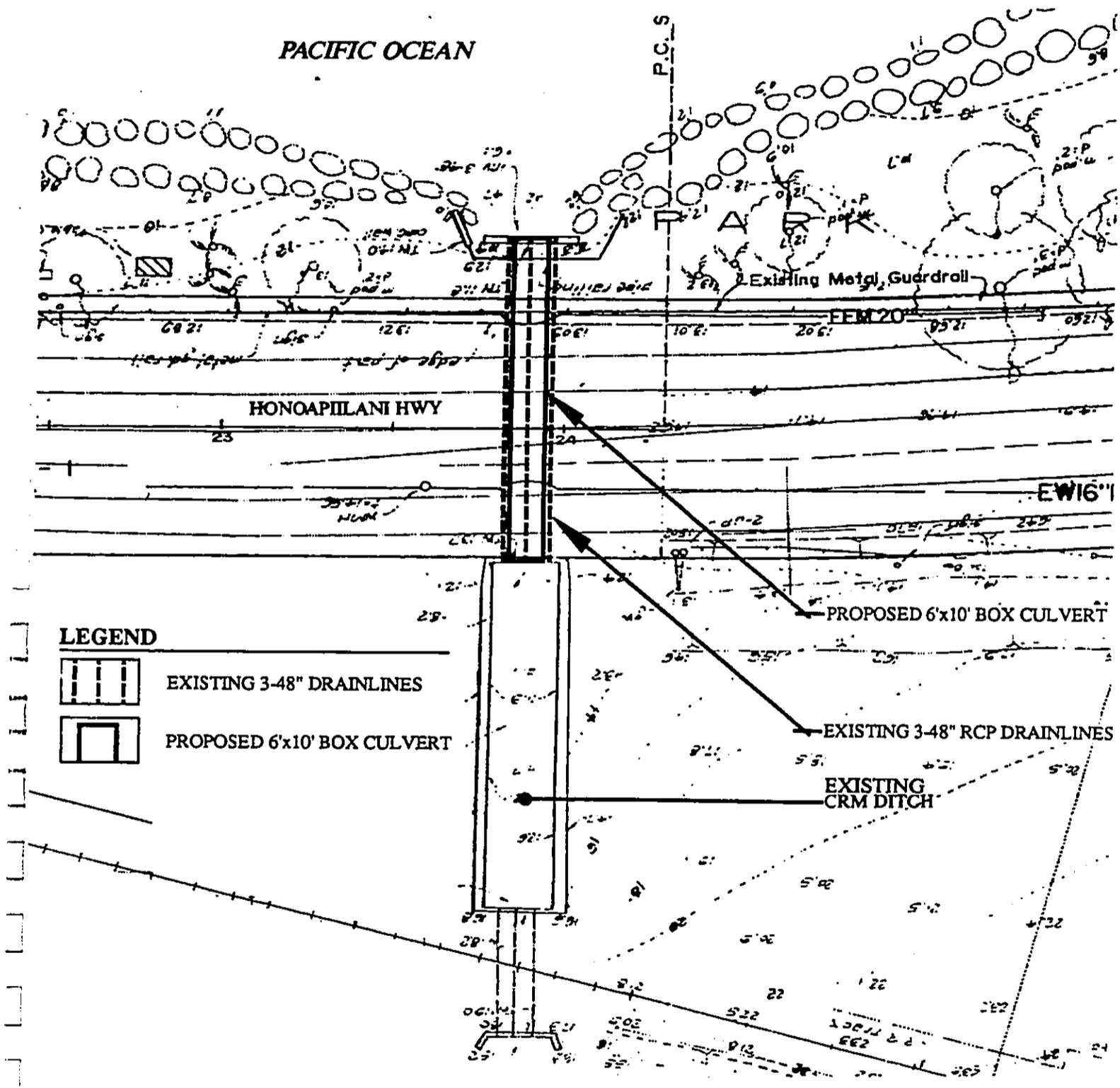
When the expansion of the Lahaina WWTP and the new pump station No. 1 are completed (projected 1994 at the earliest), connection will be made to the municipal system. Please refer to Figure 9 for detailed site information.

According to the County of Maui Wastewater management, new injection wells are planned for the WWTP expansion. Only a portion of these wells' capacity would be needed to adjust for increased wastewater generation from the Lahaina Master Planned Community. The balance of the wells will be required to accommodate other existing and planned development in the area. An Environmental Assessment is being prepared by the County of Maui for this expansion.

Offsite Drainage

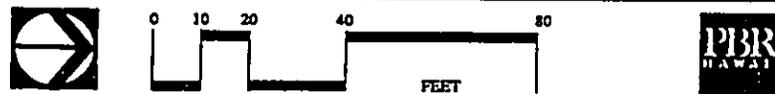
Near the intersection of Honoapiilani Highway and Primary Road "A", three 48 inch reinforced concrete pipes will be replaced by a 6' by 10' reinforced concrete box culvert. An increase in capacity from 210 cubic feet per second (cfs) to 478 cfs will result (Lahaina Master Planned Community FEIS - 1990). A detention basin will be constructed on site to assist drainage control during high storm flow conditions. See Figure 10.

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source: Warren S. Uncrom Engineering Inc., May 1991
 Prepared for: Housing Finance and Development Corporation
 Date: May 1991

FIGURE 10
DRAINAGE MODIFICATIONS
LAHAINA OFFSITE INFRASTRUCTURE EA



Existing Environment and Environmental Impacts

EXISTING ENVIRONMENT AND ENVIRONMENTAL IMPACTS

Agriculture

Presently, the sugar cane cultivation in the area is compatible with the surrounding rural character of the area. The sugar cane cultivation on the proposed offsite infrastructure site would very minimally impacted. Due to the removal of a portion of the existing lower cane haul road, a connector road will require about 6.9 acres of land will be removed, based on disturbance of a 100 foot wide by 3,000 foot long road area. Construction activities would temporarily impact a 40 foot wide strip along the utility corridors and road right-of-way.

To identify which lands in Hawaii are most appropriately used for agriculture all lands are commonly rated for agricultural purposes in terms of three classification systems; (1) U.S.D.A. Soil Survey which reflects land capability, (2) Agricultural Lands of Importance to the State of Hawaii (ALISH), and (3) productivity ratings determined by the University of Hawaii Land Study Bureau. Refer to Figures 11, 12, and 13.

Soil Survey

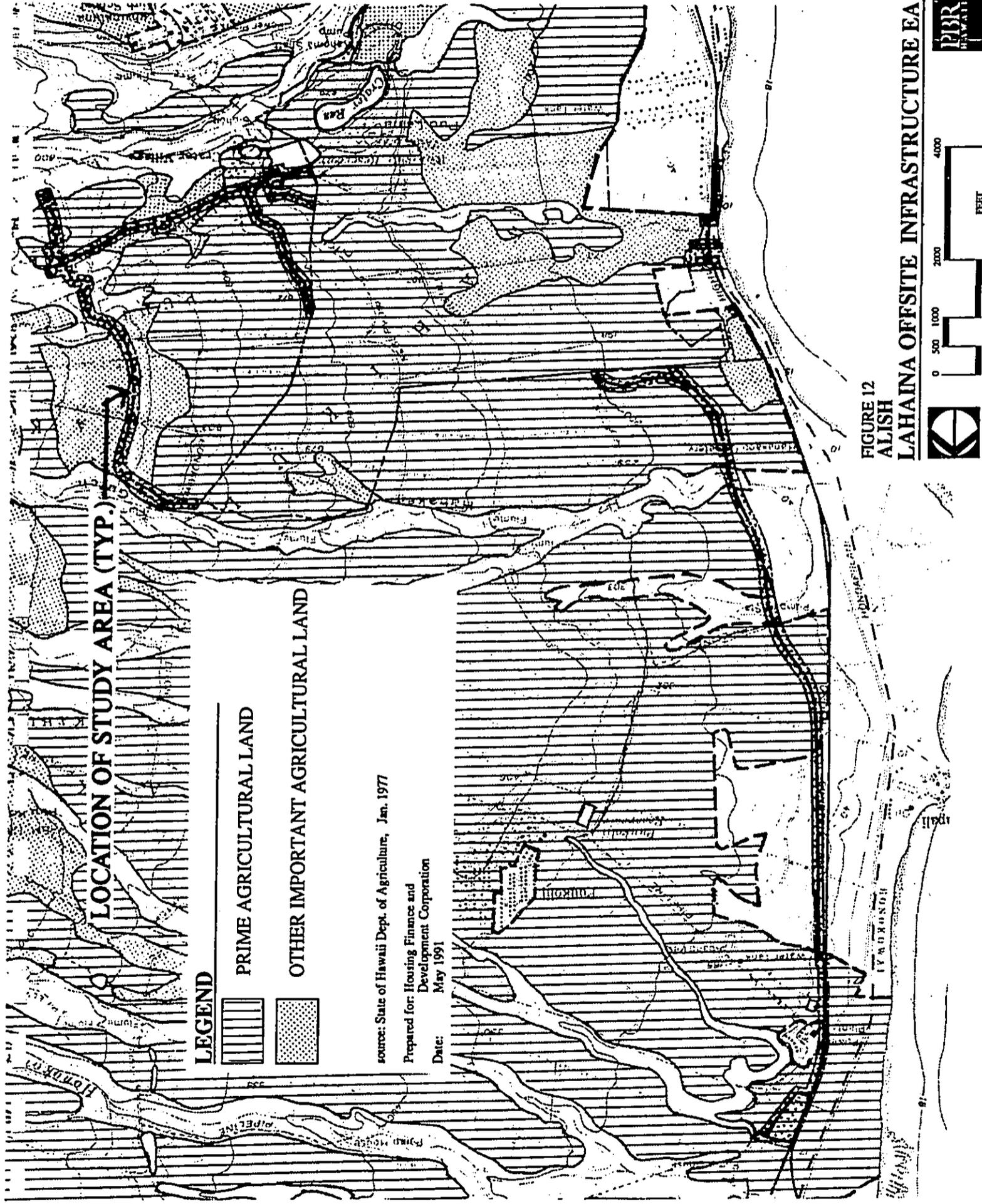
According to the U.S.D.A. Soil Conservation Service, "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai," the major soils (shown in Figure 11) characteristic of the proposed offsite infrastructural components areas are identified as:

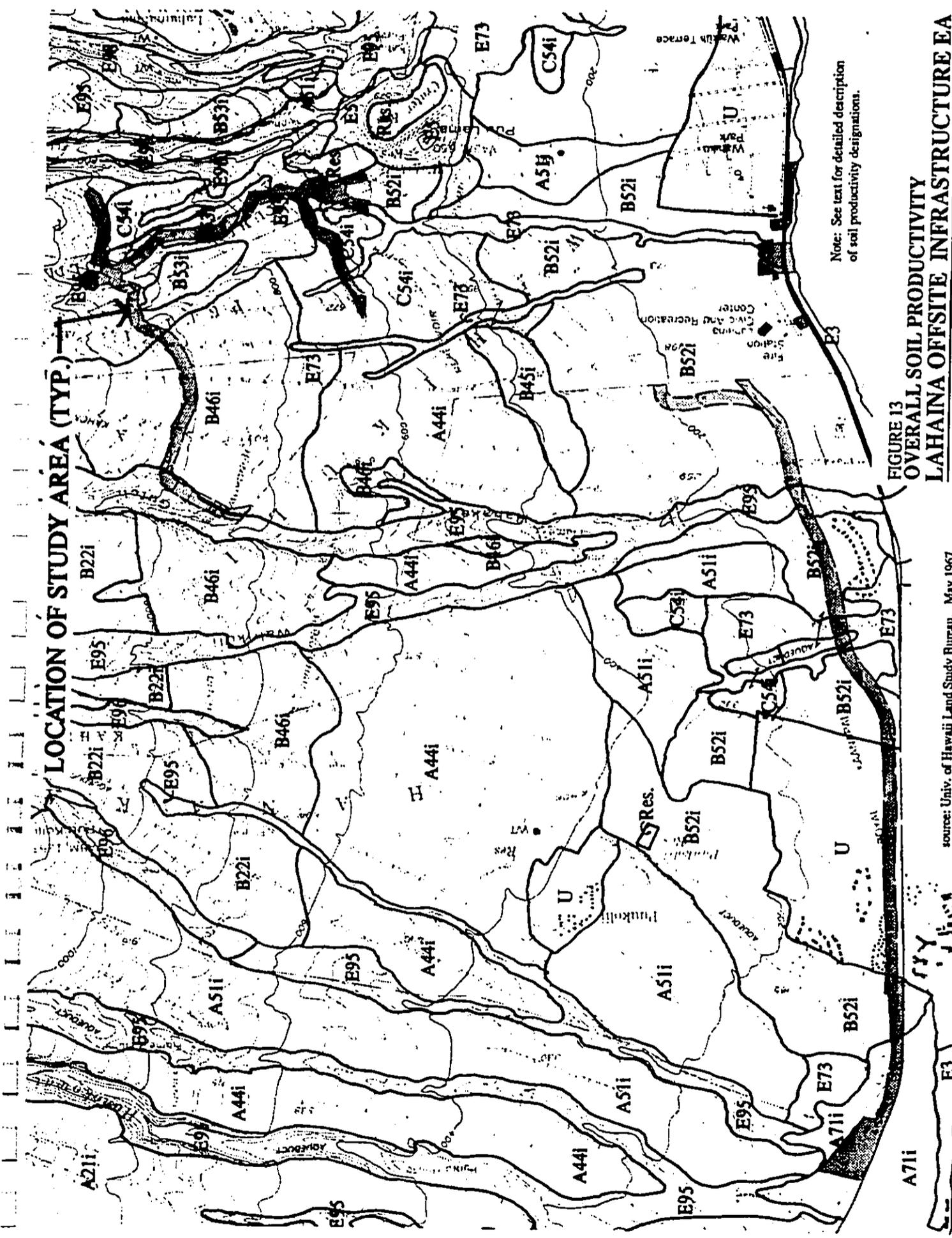
Iao clay (IcB) - This soil is generally well-drained and located at elevations ranging from 100 to 500 feet above sea level with slopes ranging from 3 to 7 percent. Annual rainfall amounts are approximately 25 to 40 inches. The topsoil is approximately 15 inches thick with a subsoil of approximately 45 inches. The soil is generally not acidic, permeability is moderately slow, runoff medium, and erosion hazard slight.

Wailuku silty clay (WvC) and (WvB) - These soils are characteristic of slopes ranging from 3 to 15 percent. Elevations range from 50 to 1,000 feet; annual rainfall amounts to 20 to 40 inches. Permeability is moderate, runoff is slow to medium, and erosion hazard is slight to moderate.

Agricultural Lands of Importance to the State of Hawaii (ALISH)

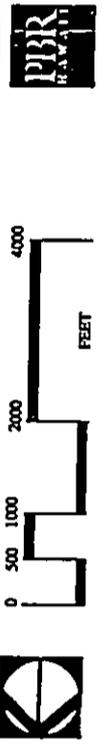
The Agricultural Lands of Importance to the State of Hawaii (ALISH) system has also identified some of the project lands as "Prime". These "Prime" lands (currently under sugarcane cultivation) are defined as having the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern farming methods. The balance of the proposed project improvements occur on urbanized lands of little agricultural value. Please refer to Figure 12.





Note: See text for detailed description of soil productivity designations.

FIGURE 13
OVERALL SOIL PRODUCTIVITY
LAHAINA OFFSITE INFRASTRUCTURE EA



source: Univ. of Hawaii Land Study Bureau, May 1967
 Prepared for: Housing Finance and Development Corporation
 Date: May 1991



Land Study Bureau Productivity Rating

The Land Study Bureau system of agricultural land classification, rates the project site as "A" or "B" lands. Based on the rating scale of "A" to "E" ("A" representing the highest suitability for agricultural production), the "A" rated soils are considered as the highest suitability for soil based agricultural production. The "B" soils are also highly suitable for agricultural production. The proposed project, when crossing non-urbanized land, is situated over various soil types as shown in Figure 13. In general, "B" and "E" soils are affected by the proposed offsite infrastructure improvement project.

Archaeological, Cultural or Historical Resources

Substantial portions of the subject property have been or are under active sugarcane cultivation. Both historic and contemporary cultivation have involved deep plowing and extensive surface modification. Consequently, any archaeological sites that may have existed on the subject property are limited.

During an archaeological survey in April 1991 conducted in the areas where the proposed offsite infrastructure improvements would impact non-urbanized land (primarily agricultural land), no new archaeological sites were identified. Three historic construction features were located in the proposed mauka well field area, however, these features will not be affected by the proposed project. See Appendix A for details on archaeological survey of the proposed project sites.

Should any sub-surface archaeological/historic sites be uncovered on the property during any future construction, appropriate mitigation measures would be taken and the State Historic Sites Division will be immediately notified. If the need for further archaeological study of the site is indicated, the study will adhere to all applicable requirements of the Department of Land and Natural Resources, including providing for on-call archaeologists.

Impacts on Infrastructure and Services

- a. **Water** - The proposed offsite infrastructure for the Lahaina Master Planned Community will add six supply wells and two standby wells to the potable water sources available to Maui residents, specifically to those residing in the new community. Two storage reservoirs and two pressure breaker tanks will be installed, along with over a mile and a half of 16 inch transmission line. Due to the limited nature of the proposed source development, no potential significant adverse impacts are expected to occur to existing potable water sources or transmission lines due to the proposed project. These are shown in Figure 8.

b. **Sewer** - One new replacement pump station (SPS No.1) will be installed, and modifications will be made to the pump controls of an existing pump stations (SPS No.3). In addition, 14,000 feet of new 27 inch gravity line will be connected to the pump stations. A 12 inch irrigation force main for the proposed golf course and common areas will be located next to the 27 inch gravity line. About 1,575 feet of 12 inch sewer line will be installed from the makai boundary of the Lahaina Master Planned Project, adjacent to the Lahaina Civic Center site, and will cross Honoapiilani Highway and run along the middle of the State Wahikuli Park to SPS No. 3. Because the majority of the planned improvements involve existing facilities, no potential significant adverse impacts are anticipated as a result of expansion of the existing facilities and the installation of offsite wastewater transmission infrastructure.

c. **Roadways/Traffic** - A portion of an existing cane haul road will be relocated to accommodate existing agricultural traffic outside proposed utility corridors created by offsite infrastructure development. Since the relocation occurs through existing cane fields, no significant adverse impacts to road and traffic are expected.

An existing intersection along Honoapiilani Highway and Primary Road "A" will be widened and repositioned to accommodate traffic anticipated for the HFDC Lahaina Master Planned Community. This road change is expected to positively impact traffic related to the HFDC development by improving traffic flow and providing a safer intersection alignment.

d. **Drainage** - An existing drainage structure will be impacted by development and improvements of offsite infrastructure for the Lahaina Master Planned Community. Three 48 inch reinforced concrete culverts running beneath Honoapiilani Highway will be replaced by a 6' x 10' reinforced concrete box culvert. Although the capacity of this drainage feature will increase from 210 cfs to 478 cfs, no significant adverse impact to area drainage, or to aquatic resources, is expected. A detention basin, to be constructed on the HFDC Lahaina Master Planned Community site, along with a fertilizer and herbicide management program for the golf course and common areas, will assist in minimizing potential impacts to nearshore marine biota and in maintaining water quality (Lahaina Master Planned Community FEIS - 1990).

e. **Solid Waste Disposal** - No significant expansion in solid waste disposal, beyond a small increase during construction, would occur due to installation of offsite infrastructure for the Lahaina Master Planned Community.

- f. **Utilities** - Some increase in electrical demand is anticipated after the development of the proposed improvements to the offsite infrastructure for the HFDC project. No significant adverse impacts are anticipated on utilities due to the improvements, since the increased electrical demand is modest.
- g. **Recreational Services/Resources** - No official recreational resources or services exist in the project area. Since the magnitude of the proposed project is small in terms of disturbed area, no adverse impact on recreational resources is expected.
- h. **Police and Fire Protection** - While the proposed development of offsite infrastructure for the Lahaina Master Planned Community would not require additional police services, it will increase the availability of water for fire protection services.
- i. **Schools** - Since no new population will be created by the proposed offsite infrastructure project, no significant adverse impact would occur to schools.

ENVIRONMENTAL IMPACTS

Climate, Topography and Drainage

The existing natural climatic characteristics of the project area are typical of west central Maui with average annual precipitation around 12 inches and average temperatures ranging from about 71 degrees F to 79 degrees F. The proposed project contains no structures large enough to disrupt wind patterns which might affect localized climatic conditions and no significant adverse impacts to climate are anticipated.

Geographic conditions at the proposed offsite infrastructure areas range from olivine basalt in the mauka portion to a sedimentary base near the shoreline. The topography of the site slopes downward to the east, ranging in elevation from about 1,000 feet MSL to about 10 feet MSL near Honoapiilani Highway. The project area slopes range from about 6 to 14 percent. There are no known geothermal or other thermal sources below the project site. While installation of the proposed offsite infrastructure may require some minor grubbing and grading, no significant adverse impacts to topography is expected. Please refer to Figures 14, 15, and 16 for further details regarding flooding, geology and topography.

The proposed project area contains several natural drainage features including Kahoma stream and tributaries. No long term adverse effects are anticipated on drainage or aquatic resources. Temporary construction activities may affect some natural drainage ways, however these impacts are expected to be short term and negligible. The proposed replacement of the existing 48 inch culverts with a box culvert, along with construction of a detention basin on site, will mitigate

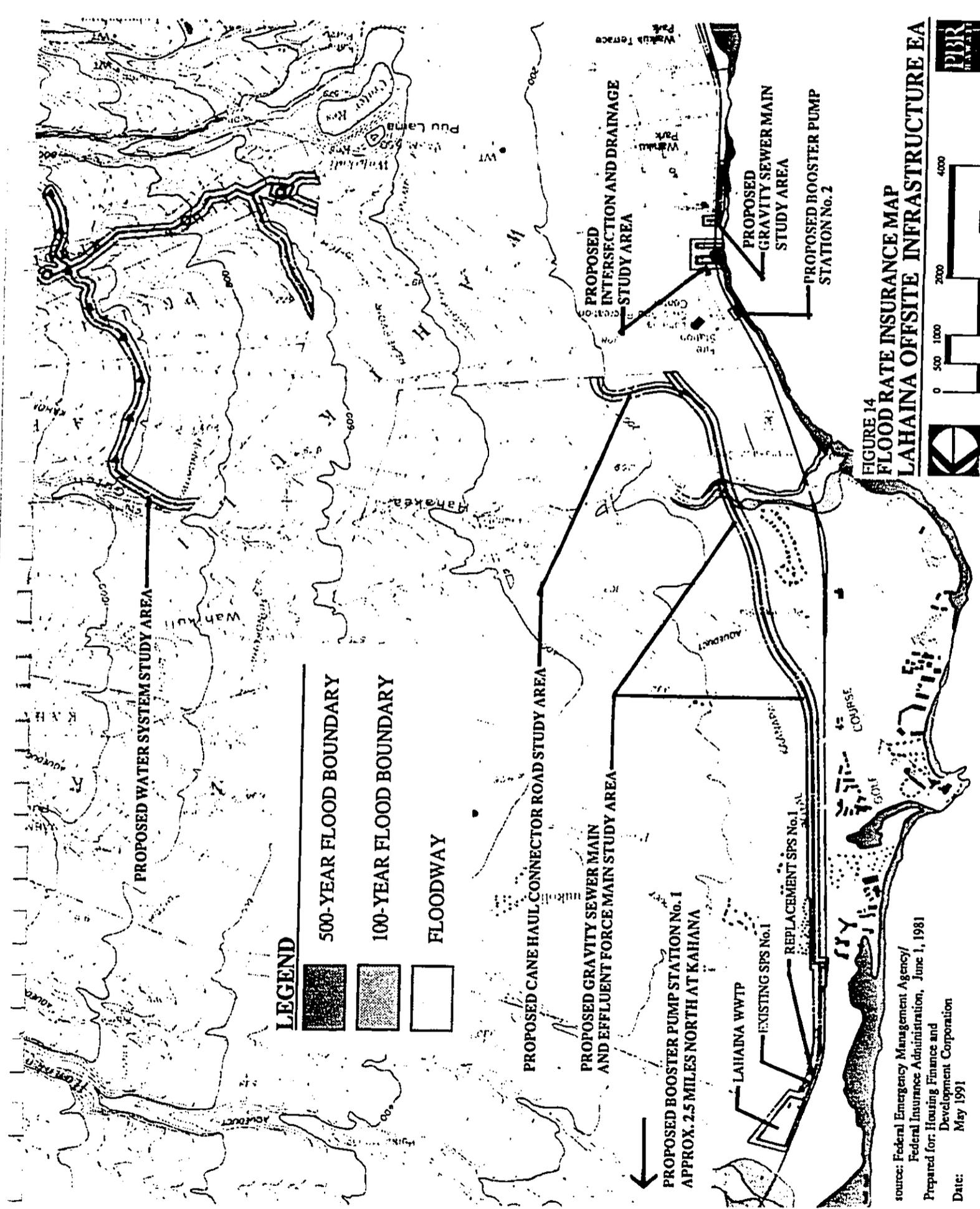
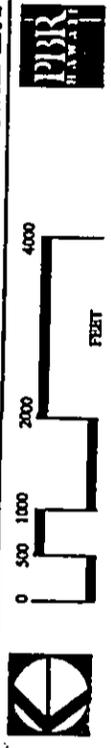
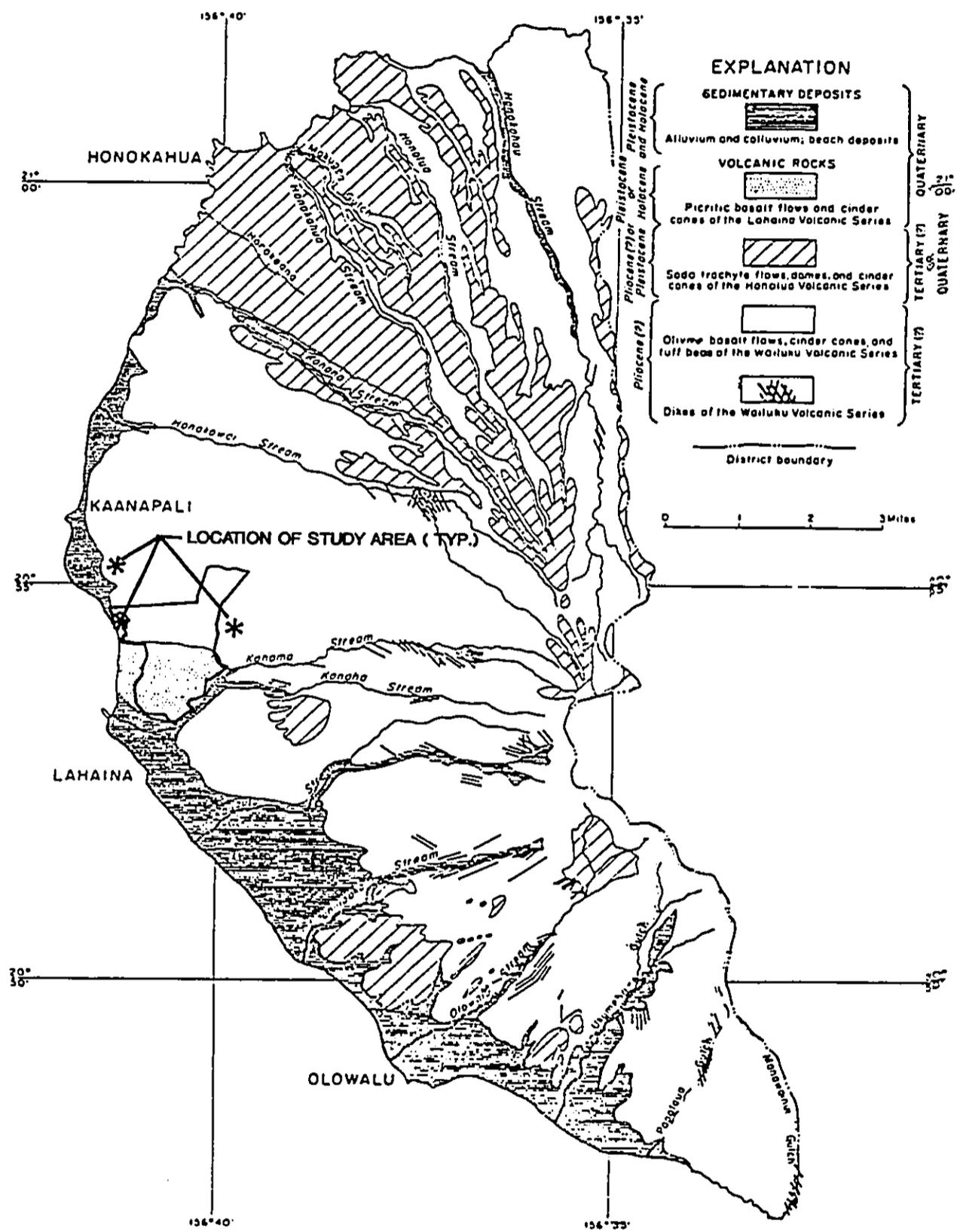


FIGURE 14
FLOOD RATE INSURANCE MAP
LAHAINA OFFSITE INFRASTRUCTURE EA

source: Federal Emergency Management Agency/
Federal Insurance Administration, June 1, 1981
Prepared for: Housing Finance and
Development Corporation
Date: May 1991



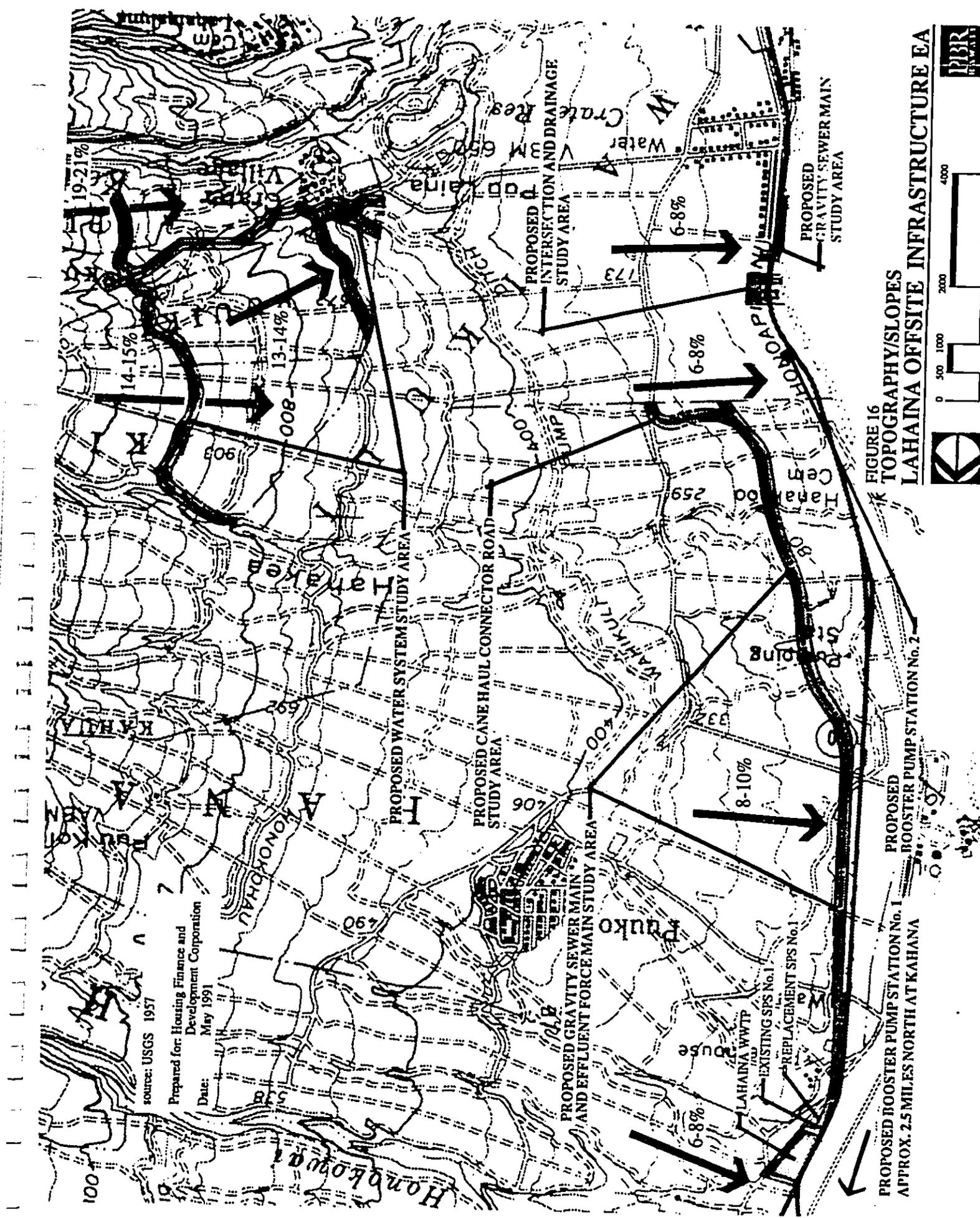
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source: Yamanaga & Huxel, 1969
 Prepared for: Housing Finance and Development Corporation
 Date: May 1991

FIGURE 15
GEOLOGY
LAHAINA OFFSITE INFRASTRUCTURE EA





source: USGS 1957
 Prepared for: Housing Finance and Development Corporation
 Date: May 1991

FIGURE 16
 TOPOGRAPHY SLOPES
 LAHAINA OFFSITE INFRASTRUCTURE EA



PROPOSED BOOSTER PUMP STATION No. 1
 APPROX. 2.5 MILES NORTH AT KAHANA

PROPOSED BOOSTER PUMP STATION No. 2



increased drainage from development of the Lahaina Master Planned Community (FEIS, 1990).

The Flood Rate Insurance Map (FIRM) shows that most portions of the project site are outside the 500 year flood boundaries. A small part of the proposed gravity sewer main and drainage improvements are within the 500 year flood boundary. These improvements would remain unaffected by flooding as they are either underground or are specifically designed to improve drainage in the area.

Flora

As noted previously, most of the project site is under sugar cane cultivation. No known threatened or endangered plant species designated by federal and/or state agencies occur on the site. A botanical survey of the non-urbanized areas of the proposed project sites was completed on April 18, 1991, and is included as Appendix B. A 100 foot wide corridor was surveyed along the study areas shown in Figures 6 through 10. Since most of the waterline and storage tanks will be situated on actively cultivated cane fields, and cane shades out weedy species, it is expected cane will dominate the botanical spectrum found in the area. Shrubland vegetation occurs in gulches and gullies on some portions of the study area. The shrubland is dominated by introduced koa-haole and a'ali'i. Other portions of the study area are urbanized land, and contain flora characteristic of disturbed urbanized areas.

No officially listed threatened and endangered species, or proposed candidates for such status were found during the botanical study, and no significant adverse impact on botanical or floral resources is anticipated due to the development of offsite infrastructure for the HFDC Lahaina Master Planned project. Other than revegetating disturbed shrubland areas as quickly as possible after construction, no further mitigation measures are necessary.

Fauna

The fauna of the project site consists of typical mixed agricultural cropland birds and mammals, such as doves, mynas, cardinals, rats, mice, small Indian mongoose and other introduced species. No known threatened or endangered species of birds or mammals occur on the site. On March 30 -31, 1991 a fauna study was conducted on the non-urbanized areas of the project sites using a 100 foot wide corridor. The report is attached as Appendix C. No endemic birds were recorded, but two non-migratory indigenous (native) night heron (*Nycticorax nycticorax*) were noted during the survey. Of the migratory indigenous birds three species were observed: the Pacific Golden Plover (*Pluvialis fulva*), the Ruddy Turnstone (*Arenaria interpres*), and the Wandering Tattler (*Heteroscelus incanus*). Fourteen species of exotic or introduced birds were recorded during the survey. The survey report concluded that the site provides a limited range of habitat for faunal populations and that the numbers recorded were not unusual. Any changes in the overall bird or mammal populations in this region of Maui, as a result of this project, will be negligible.

Air and Noise Conditions

Over the portions of the project located in rural areas, the air and noise quality of the project sites are typical of rural agricultural areas. Typically northeast trade winds predominate with seaward moving air between Haleakala and the West Maui Mountains. As a result, wind-blown particulate matter generally moves out to sea. However, during harvesting periods, dust and smoke generated upwind of the site could cause potential adverse impacts at and downwind from the project site. Although the proposed project is not expected to contribute significantly to the air quality of the area or region, off-site existing agricultural operations could potentially affect the air quality of the site.

Sections of the project along Honoapiilani Highway display air and noise characteristics characteristic of major roadways. Emissions from motor vehicles are the primary impact on air quality. The construction planned along the highway will be short term and is not expected to add significantly to the overall emission level, therefore, impacts on air quality is anticipated to be minimal.

During construction, emissions from equipment on rural project sites may temporarily impact air quality. Increased fugitive dust may be created during road construction. Due to limited nature of the construction, no mitigation measures are suggested, other than adhering to existing State emission controls, and implementation of a frequent watering program.

The noise regime of the rural project sites is also typical of rural agricultural areas, with sound levels presumably in the 25 to 45 dBA range. The project, however, would not significantly added to the noise regime of the area because of the confined characteristics of construction activity. Noise along Honoapiilani Highway is likely to exhibit levels typical of major roadways (the 65 dBA range). No significant increase in noise levels is anticipated from the short term construction planned at project sites along roadways. Other than limiting construction activity to day time hours, no further mitigation measures are warranted.

Visual Impact

During the construction period, visual impacts would be limited to temporary construction buildings, drill rigs and some heavy equipment in cultivated cane and open space areas. After construction, no visual impacts are anticipated because offsite infrastructure lines, pipes and culverts would be installed underground. Modification to pump stations are internal modifications and will not have visual impact. Installation of the new booster stations would reflect the urbanized look of existing urbanized light industrial development.

While the reservoir tanks will be seen in the agricultural area, the visual impact would likely be similar to that of other tanks in the area. The tanks would provide greater evidence of greater urbanization in the area, but this impact is expected to be diminished as the Lahaina Master Planned Community begins construction and is built-out.

Infrastructure Impact

The major positive impact that would result from the project would be the installation of infrastructure which will support between 3,800 and 4,800 units of residential housing at the adjacent Lahaina Master Planned Community. Sixty percent of the residential units to be constructed would fall under the affordable category as defined by the State Housing Functional Plan (HFDC, 1989).

Impacts, resulting from construction of the offsite infrastructure for the Lahaina Master Planned Community, to the natural environment of the project site and area would be minimal or positive. The project has not resulted in the necessity to relocate any residences or businesses, nor has there been any need for people, either residents or employees, to relocate to another area. In general, the impacts of the project have been positive and beneficial to the County and State. As such, mitigation measures to minimize potential adverse impacts, other than continued adherence to existing County and State environmental protection regulations during construction of the proposed project, do not appear warranted.

OTHER IMPACTS

Social Impacts

The property is located adjacent to approximately 1,120 acres designated for the Lahaina Master Planned Community in the area of Wahikuli - Lahaina, Maui. According to the EIS for the Lahaina Master Planned Project, Maui County has experienced a severe housing shortage during the 1980's, and the cost of housing has risen steadily. By December of 1988, the mean price of a single family house on Maui Island was roughly three times the price appropriate for a household earning the median County income. The development of offsite infrastructure for the Lahaina Master Planned Project is necessary to support the construction of residential housing on the site.

The project has been designed to provide the infrastructure (water, sewer drainage and roadways) necessary for the development of the Lahaina Master Planned project. As such, this project would allow the positive social and economic impacts of the residential housing project to be realized.

Economic Impacts

The economic characteristics of the project are based primarily on the support the project provides for the planned community adjacent to the site. The project would require the direct expenditure of State funds for new and improved public facilities, however, the fiscal impact analysis done for the Lahaina Master Planned Project EIS shows a revenue cost ratio of 1.2 to 1. Inasmuch as the proposed project would affect direct public expenditures, associated general excise tax, and real property tax increases, it appears that the project would have a positive

impact and that both State and County revenues would exceed expenditures. A summary of costs is included in the following summary.

SUMMARY OF OFFSITE IMPROVEMENT COSTS

Item	Cost	Total
<u>Roadway System (Parkway only)</u>		
(1) Initial Phase	\$1,700,000 (1)	
(2) Future Phase	\$24,500,000 (2)	
		\$26,200,000
 <u>Water System</u>		
Source Development:		
First Two Wells	\$2,600,000 (1)	
Future Six Wells	\$7,800,000	
Storage Tanks:		
First Phase 1.0 MG	\$1,700,000 (1)	
Future 2.5 MG	\$3,500,000	
Transmission:		
First Phase, including Two pressure breaker tanks	\$1,250,000 (1)	
		\$16,850,000
 <u>Wastewater System</u>		
Transmission:		
Village I, Phases I & II includes 12" gravity line to SPS #3 and pump modifications	\$ 500,000 (1)	
Transmission line to LWWTP	\$4,200,000* (2)	*prorated cost
Force Main	\$ 550,000* (2)	
SPS #1	\$4,000,000* (2)	
Lahaina WWTP expansion	\$15,000,000* (2)	
		\$24,250,000
 <u>Drainage System</u>		
First Phase, including box culvert and retention basin	\$1,000,000 (1)	
Future Retention Basin	\$2,500,000 (2)	
Future Concrete Lined Channel to Kahoma Stream	\$5,000,000 (2)	
		\$ 8,500,000

Electrical

Initial Phase (power to wells)	\$ 250,000 (1)	
Future Phase	\$1,000,000 (2)	\$ 1,250,000

Subtotal	\$77,050,000
20% Contingency	\$15,410,000

Total Estimated Offsite Cost \$92,460,000

The project would not directly or significantly affect the physical, natural or social environmental characteristics of the project area, County or State. Similarly, the indirect support which the proposed project provides for the housing project will not result in any negative impacts to the environmental characteristics of the area, County or State.

Regulatory Compliance

COMPLIANCE WITH GOVERNMENT STATUTES, ORDINANCES AND RULES

Implementation of the project will depend upon various approvals from the County governments. These include; 1) drilling permits from the State Department of Water and Land Development, 2) compliance with applicable State Department of Health and County Department of Public Works rules, regulations, and permit requirements.

A Conservation District Use Application (CDUA) is not required as the majority of improvements are in the State Urban District, or within existing utility corridor easements in the Conservation District. However, an easement for installation of a 12 inch wastewater transmission line in a Maui County park area (TMK 4-5-21:7 {por}) was granted to HFDC by the Department of Land and Natural Resources (DLNR) on January 11, 1991. This easement was granted subject to a number of conditions including relocation of any trees affected by the construction activities, repositioning of an affected picnic shelter, and adjustment of the irrigation system to meet any new landscape conditions. The entire list of conditions is provided in Appendix D. Under the order for a new easement for the 12 inch sewer line to SPS No. 3., DLNR confirms that portion of the project is in the Urban District.

The requirement for an Special Management Area permit has been waived by the County of Maui. A letter to HFDC from Maui County regarding the waiver is also included in Appendix D.

No significant negative impacts on the environmental, cultural, recreation, scenic, historic, or other resources of the area are anticipated from approval of necessary permits. It is anticipated all drilling and development permits for the proposed project will be completed by mid-1996.

As previously indicated, the project would support the Lahaina Master Planned Project which is adjacent to the project area and is designated by the LUC as "Urban". No significant negative impacts on the environmental, cultural, recreation, scenic, historic, or other resources of the area are anticipated.

THE HAWAII STATE PLAN

The Hawaii State Plan, as set forth in Chapter 226, Hawaii Revised Statutes, consists of a series of long-range, comprehensive plans, goals, and policies which serve as a guide for the growth and future long range development of the State. Amendments to the land use district boundaries must be consistent with these plans and policies. The State goals and their relationship to the proposed offsite infrastructure project are as follows:

Sec. 226-4

- a. *Goal: A strong, viable economy characterized by stability, diversity, and growth that enables the fulfillment of the needs and expectations of Hawaii's*

present and future generations.

Response: The development of offsite infrastructure in support of the Lahaina Master Planned Project would offer jobs to residents of Maui. Over the long term, the project would provide the foundation for development of between 3,800 and 4,800 residential housing units for Maui County residents.

b. Goal: A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness that enhances the mental and physical well-being of the people.

Response: The proposed offsite infrastructure project is a desirable extension of infrastructure services to the Wahikuli-Lahaina area and supports development of affordable housing in a master-planned setting for residents of the community.

c. Goal: Physical, social, and economic well-being for individuals and families in Hawaii that nourishes a sense of community responsibility, of caring, and of participation in family life.

Response: The housing opportunities promoted by development of offsite infrastructure for the Lahaina Master Planned project would increase the economic well-being of the community as a whole, as well as providing affordable housing for Maui residents.

Sec. 226-7

Objectives and polices for the economy - agriculture

- 1) Continued viability in Hawaii's sugar and pineapple industries.*
- 2) Continued growth and development of diversified agriculture throughout the State.*

Response: While the construction of offsite infrastructure for the Lahaina Master Planned project would not directly contribute to the development of diversified agriculture or assist in the viability of Hawaii's sugar and pineapple industries, it is not anticipated to negatively affect the viability or diversification of agriculture in Hawaii.

FUNCTIONAL PLANS

Thirteen State Functional Plans have been prepared to manage and coordinate the various functional area activities, and to guide resource allocation and decision making. Each plan addresses Statewide needs, problems and issues, and recommends policies and priority actions to mitigate those problems and bring about desirable conditions. Objectives of several functional

plans relating closely to the requests in this petition are discussed below.

State Agricultural Functional Plan

The State Agricultural Functional Plan identifies major issues of statewide concern affecting Hawaiian agriculture and the underlying needs and requirements of the commodity industries for resources.

Objective: (1) Conserve and protect important agricultural lands in accordance with the Hawaii State Constitution.

Response: The development of offsite infrastructure for the Lahaina Master Planned Project would not cause a loss of Prime agricultural lands. The proposed housing project would be developed in a designated Urban area.

State Conservation Lands Functional Plan

The State Conservation Lands Functional Plan defines and addresses areas of statewide concern including watersheds, sensitive habitats, ocean space, and scenic, historic and cultural sites. The plan specifically deals with the protection of rare and endangered species and habitats.

Objective: (a) Effective protection and prudent use of Hawaii's unique, fragile and significant environmental and natural resources.

Response: The project would not adversely impact any of Hawaii's unique, fragile and significant environmental and natural resources.

The State Energy Functional Plan

The purpose of the State Functional Energy Plan is to define and implement objectives which provide dependable, efficient and economical statewide energy systems capable of supporting the needs of the people, as well as moving toward energy self-sufficiency.

Objective: (1) Promote legislation and other measures to encourage, support, and provide incentives for energy conservation and efficiency and alternate and renewable energy resources.

Response: The proposed project is contiguous to existing urban areas and provides for the logical extension of existing electrical services. Development of offsite water and sewer infrastructure to serve the planned residential community would satisfy an efficient and economical criteria of providing services from adjacent areas, and for establishing water and energy conservation policies for the project.

The State Recreational Functional Plan

The State Recreational Functional Plan is oriented toward improving public recreation opportunities in Hawaii. Its objectives focus on land use planning, recreational facilities and programs, conservation and resource management, public access, and coordination of facilities.

Response: The proposed project is not anticipated to adversely or significantly affect recreational resources.

HAWAII COASTAL ZONE MANAGEMENT ACT

The objectives of the Hawaii Coastal Zone Management (CZM) Act as set forth in Chapter 205A, Hawaii Revised Statutes, applies to the protection and maintenance of valuable coastal resources and generally conforms to the applicable CZM objectives.

Erosion control measures will be undertaken during project construction to mitigate any potential runoff of sediment during intense storm events. The design of the project will protect and enhance existing drainage systems. All design standards of the County of Maui will be followed to ensure the safe conveyance and discharge of storm water runoff. Protection of groundwater resources will also be strengthened by the installation of additional sewage treatment facilities.

CHAPTER 343, ENVIRONMENTAL IMPACT STATEMENT (EIS) REGULATIONS

An Environmental Impact Statement (EIS), as defined by Chapter 343 HRS and by the State Office of Environmental Quality Control is required only if the accepting agency (State of Hawaii) finds that the proposed action may have "significant environmental effects" [Section 11-200-6(b)] and if (1) the proposed development is contrary to the County General Plan, (2) the petition area were located in the SLUC Conservation District or shoreline setback areas, (3) the project contained a historic site listed on the State or National Registers of Historic Places, or (4) the project required the use of State or County funds.

Since the proposed project requires use of State funds for capital improvements, the proposed project is subject to the provisions of Chapter 343, Hawaii Revised Statutes and the Office of Environmental Quality Control (OEQC), Chapter 200 of Title 11, Administrative Rules.

Determination

As previously described, it has been determined that development of the proposed project is not expected to have a "significant environmental effect" on the subject property or the surrounding environment. As such, it is determined that the proposed project will not have a significant impact on the environment and that a negative declaration is appropriate. An Environmental

Impact Statement (EIS), therefore, is not required.

In considering the significance of potential environmental effects, the applicant has considered the sum of effects on the quality of the environment and evaluated the overall cumulative effects of the proposed action. The applicant has considered every phase of the proposed action, the expected consequences, both primary and secondary and the cumulative as well as the short and long-term effects of the proposed action. As a result of these considerations, the applicant has determined that:

- The proposed action will not involve an irrevocable commitment to any significant natural or cultural resource;
- The proposed action may increase the range of beneficial uses of the environment;
- The proposed action appears to be in concert with the State and County long-term environmental policies, goals and guidelines;
- The proposed action will not involve significant secondary impacts such as population changes or effects on public facilities that are not already contemplated;
- The proposed action does not appear to include elements that would substantially affect public health or overall environmental quality;
- The proposed action will not affect known rare, threatened or endangered species or habitats;
- The proposed action will not detrimentally affect long-term air or water quality or ambient noise levels;
- While the proposed action is not individually limited and does involve a larger commitment for larger actions, the accepted EIS for the Lahaina Master Planned Project, along with the Urban designation demonstrate previous acceptance of the larger action.

THE GENERAL PLAN FOR THE COUNTY OF MAUI

The actions described in this EA are included under Act 15 (SLH), an act relating to housing, and are thus excluded from the provisions of standard zoning practices and procedures of Maui County, however, the proposed project will assist in supporting the County zoning classifications by contributing to the development of the Lahaina Master Planned Community.

The County General Plan sets forth the broad objectives and policies for guiding development on Maui, Molokai and Lanai. The proposed action will further the County General Plan objectives and policies for the economy, agriculture, and the environment. The development

objectives of the Applicant are in concert with the County's policies for encouraging land use methods that will provide land use development patterns in sympathy with an area's natural topographic features, environmental hazards, constraints, scenic amenities, and other natural resources.

The proposed development largely conforms to the objectives of the General Plan of the County of Maui. The development's relationship to relevant General Plan objectives is addressed as follows:

- *Land Use Objective 1: To use the land within the County for the social and economic betterment of the County's residents.*

Response: The project activities provide both social and economic benefits for Maui County residents, as described in the section on Other Impacts.

- *Environmental Objective 1: To preserve and protect our unique and fragile environmental resources.*

Response: Development of the project would not negatively impact environmental resources in the region or on a County-wide basis.

- *Agriculture Objective 1: To foster growth and diversification of agriculture and aquaculture throughout Maui County.*

Response: The proposed project would not affect the use of prime agricultural land for diversified agricultural and possible aquacultural activities.

- *Urban Design Objective 1: To see that all developments are well designed and are in harmony with their surroundings.*

Response: The Applicant intends to provide an integrated, well-designed, master-planned project which would be supported by development of the proposed project.

- *Public Utilities and Facilities Objective 1: To provide public utilities which will meet community needs.*

Response: Existing utilities are provided according to State of Hawaii and Maui County standards. Additional water and sewer facilities would be provided through the development of the proposed project in accordance to State and County rules and regulations.

LAHAINA COMMUNITY PLAN

While the proposed project and requested action is part of an Act 15 project, nevertheless, the proposed project will assist in accomplishing the recommendations of the Lahaina Community Plan relating to economic activity, agriculture, population, environment, land use, and urban design support systems.

SPECIAL MANAGEMENT AREA; OBJECTIVES, POLICIES, GUIDELINES, AND SIGNIFICANCE CRITERIA

While portions of project site are located within the Maui County Special Management Area (SMA), Appendix D contains a ruling stating the proposed project is exempt from requirements of the Special Management Area because the work qualifies as "installation of underground utility lines and appurtenant above ground fixtures less than four feet in height along existing corridors".

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Mitigation Measures

MITIGATION MEASURES

Mitigation measures are composed of two types: generic and specific. Generic mitigation measures are those where standard actions to reduce or eliminate impact have already been institutionalized through County, State, or Federal regulations, codes or ordinances. These types of mitigation usually apply to control of temporary, or short-term, impacts such as construction impacts of soil loss, noise, air quality effects, etc. Specific mitigation measures are recommended for actions which have potential residual or long term effects that require monitoring or some kind of compensation for the environmental effect.

Since no significant adverse residual or long terms impacts are anticipated due to the proposed improvement of offsite infrastructure for the HFDC Lahaina Master Planned project, mitigation measures discussed in this EA are wholly of the generic type, and involve mitigation measures necessary during the construction and maaintencance periods of the project. These include, but are not limited to:

- limiting construction to dry periods as much as practicable
 - retention of groundcover until the latest possible date
 - immediate stabilization of any denuded areas through sodding or planting
 - early construction of drainage control features such as berms
 - installation of siltation basins where warranted
 - application of fertilizers or biocides only during periods of low rainfall to minimize chemical runoff
 - covering of open vehicles carrying soils, gravel or other particulate matter which may affect air quality
 - controlling dust by watering and use of proper stockpiling procedures.
 - landscaping around tanks and reservoirs
- a. **Water** -- The short-term mitigation measures discussed above will serve to protect aquatic resources during the construction of the proposed project. In the long-term, the increased consumption of potable water, called for with the development of the Lahaina Master Planned Community, is anticipated. The proposed project would mitigate this water demand expansion by providing new storage, transmission, and source development which would augment existing system capacity. No significant adverse impacts to the potable water system is anticipated.
- b. **Sewers** -- Existing sewage transmission and treatment facilities are not adequate for the development of the Lahaina Master Planned Community. This deficiency would be mitigated by the development of offsite infrastructure as outline in this EA. All offsite components will be constructed and connected to the County of Maui Lahaina system in accordance with all applicable State Department of Health and County of Maui requirements. Other than employing the mitigation measures

for construction activities, discussed previously, no further mitigation appears warranted.

- c. **Roadways/Traffic** -- The project roadways will be adequate with the realignment of the cane haul road and improvements to the project intersection as described on page 11, Description of the Proposed Development. Besides construction activity mitigation measures, no further mitigation measures are required.
- d. **Drainage** - No long term, off-site drainage impacts will result from project development. Replacement of the three existing culverts with a reinforced concrete boxed culvert will improve an existing drainage system. Some short term impacts to natural drainage features may occur during construction activities, these will be mitigated as discussed previously in this document.
- e. **Solid Waste Disposal** -- The proposed project will not cause a change in the manner in which area-wide solid wastes are presently collected and disposed. As such, the project is not expected to result in any adverse impacts relative to solid waste disposal.
- f. **Utilities** -- No negative impacts on utility systems will result from the development of this project. However, cumulative impacts of this and other projects on an island-wide scale will impact future needs. To mitigate the impact of electrical and communication system development, all necessary on-site utility infrastructure will be provided by the applicant.
- g. **Recreational Services/Resources** - No adverse impacts to active recreational facilities in the area will be generated from project development.
- h. **Police and Fire Protection** -- Police protection services will be adequate to serve the project. Fire protection capability will be enhanced by the development of the proposed project. No mitigation measures appear warranted.
- i. **Schools** -- While two elementary schools are presently planned to serve the new Lahaina Master Planned Community (FEIS, 1990), the offsite infrastructural components proposed will not impact any State Department of Education facilities. The proposed infrastructure project will not generate any new students, therefore no mitigation measures are necessary.

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U.S. Department of Housing and Urban Development, Federal Insurance Administration, National Flood Insurance Program. Flood Insurance Rate Map Maui County.

Appendix A: Archaeological Reconnaissance Survey

PHRI

Paul H. Rosendahl, Ph.D., Inc.

Archaeological • Historical • Cultural Resource Management Studies & Services

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May 16, 1991
91-1013

Housing Finance and Development Corporation
State of Hawaii
c/o PBR Hawaii
1042 Fort Street Mall, Suite 300

Attention: Ms. Ramona Mattix

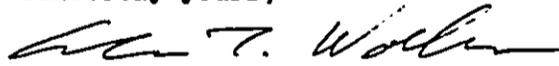
Subject: Supplemental Archaeological Survey
Lahania Master Planned Project
Offsite Sewer, Water Improvements and Cane Haul Road
Land of Wahikuli, Hanakaoo, Honokawai, Kuhua,
Kuholilea, Puou, Puuiki, and Aki
Lahaina District, Island of Maui

Dear Ms. Mattix:

Enclosed are three copies, two bound and one camera-ready, of PHRI Final Report No. 1013-042591 for the above subject project.

If you have any questions or comments, please contact me at our main office in Hilo (808) 969-1763.

Sincerely yours,



 Paul H. Rosendahl, Ph.D.
President and Principal
Archaeologist

Encl: PHRI Final Report No. 1013-042591 (three copies)

**Supplemental Archaeological Survey
Lahaina Master Planned Project
Offsite Sewer, Water Improvements,
And Cane Haul Road**

**Lands of Wahikuli, Hanakaoo, Honokawai, Kuhua,
Kuholilea, Puou, Puuiki, and Aki**

Lahaina District, Island of Maui

by

**Peter M. Jensen, Ph.D.
Associate Senior Archaeologist**

and

**Jenny O'Claray, B.A.
Supervisory Archaeologist**

Prepared for

**Housing Finance and Development Corporation
State of Hawaii
c/o PBR Hawaii
1042 Fort Street Mall, Suite 300
Honolulu, Hawaii 96813**

May 1991

PHRI

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SUMMARY

At the request of Ms. Ramona Mattix of PBR Hawaii, on behalf of their client, the Housing Finance and Development Corporation (HFDC) - State of Hawaii, Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted supplemental archaeological inventory survey relating to construction of three offsite features associated with the proposed residential development of the c. 1,097.765-acre Lahaina Master Planned Project project area. Portions of the area of construction impacts originate in the Land of Wahikuli, Lahaina District, but fall outside of the originally-defined Master Planned Project project area, which was located entirely within Wahikuli. The newly proposed linear features extend into the lands of Hanakao, Honokawai, Kuhua, Kuholilea, Puou, Puuiki, and Aki. Since the original project area was restricted to lands located with a portion of Wahikuli, not all of the land areas to be affected by construction of these new features were inventoried for significant cultural resources during the original survey (Jensen 1989). The present supplemental survey work conforms with recommendations contained in the original inventory survey report, and is in compliance with state and county requirements. The basic

objective of the present supplemental survey was essentially the same as that specified for the original inventory survey—to provide appropriate cultural resource information and evaluations for use in the Environmental Impact Statement for the Lahaina Master Planned Project.

The supplemental inventory survey work was conducted April 18-26, 1991, under the overall supervision of Associate Senior Archaeologist Dr. Peter M. Jensen and Supervisory Archaeologist Ms. Jenny O'Claray, B.A.. During the survey, no new sites were identified within the areas of potential effect for the three newly identified construction features—the offsite sewer, water improvement features, and road extension. Four previously unidentified historic-era features related to sugar cane irrigation were observed on lands close to water improvement features. However, it was determined that all of these historic features (ditch segments and associated wood flume remains) were located outside of the present project impact area and will not be affected by developments as presently proposed.

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INTRODUCTION

BACKGROUND

At the request of Ms. Ramona Mattix of PBR Hawaii, on behalf of their client, the Housing Finance and Development Corporation (HFDC) - State of Hawaii, Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted supplemental archaeological inventory survey work relating to construction of sewer line, water improvement features, and a road extension associated with the proposed residential development of the c. 1,097.765-acre Lahaina Master Planned Project project area (Figure 1). Some of the offsite features originate within Wahikuli, Lahaina District, Island of Maui, but most of the proposed new linear features are outside of the originally-defined Master Planned Project Area. As a consequence, the areas to be affected by this construction were not surveyed for cultural resources during the original survey work (Jensen 1989). The present supplemental survey work conforms with recommendations contained in the original inventory survey report, and will ensure compliance with state and county requirements. The basic objective of the present supplemental survey was essentially the same as that specified for the original inventory survey—to provide appropriate cultural resource information and evaluations for use in the Environmental Impact Statement (EIS) for the Lahaina Master Planned Project.

The present report is the Final Report for the current project. It includes a scope of work, a discussion of field methods and procedures, and a description of the three new features to be added to the original project area. The report concludes with feature descriptions and evaluations, as appropriate, and final project recommendations. Because the present document is a supplement to the existing inventory survey report, previous archaeological investigations within the region are not reviewed in this report. For this and other relevant background information the reader is referred to the original survey report (Jensen 1989).

SCOPE OF WORK

The basic purpose of an inventory survey is to identify—to discover and locate on available maps—all sites and features of potential archaeological significance present within a specified project area. An inventory survey is an initial level of archaeological investigation. It is extensive rather than intensive in scope, and is conducted with the primary aim of determining the presence or absence of

archaeological resources. A survey of this type indicates the general nature and the variety of archaeological remains present, and the general distribution and density of such remains. It permits a general significance assessment of the archaeological resources, and facilitates formulation of realistic recommendations and estimates for any further mitigation work that might be necessary or appropriate. Such mitigation work could include further data collection involving detailed recording of sites and features, and limited excavations. It might also include construction monitoring, interpretive planning and development, or preservation of sites and features with significant scientific research potential, interpretive qualities, or cultural value.

In consideration of the above, the basic objectives of the present survey were fourfold: (a) to identify (find and locate) all sites and site complexes present within the three newly identified project features; (b) to evaluate the potential general significance of all identified archaeological remains; (c) to determine the possible affects of proposed development upon the identified remains; and (d) to define the general scope of any further data collection or other mitigation work that might be necessary or appropriate.

Based on a review of readily available background literature, familiarity with the general project area, PHRI's familiarity with the current requirements of pertinent review authorities, and on discussions with Ms. Ramona Mattix of PBR Hawaii, the following specific tasks were determined to constitute an adequate and appropriate scope of work for the present supplemental inventory survey:

1. Conduct limited additional archaeological and historical documentary background research involving review and evaluation of readily available archaeological and historical literature, historic documents and records, and cartographic sources relevant to the immediate project area;
2. Conduct a 100% coverage, low-level (30-50 ft altitude) aerial reconnaissance survey (helicopter) of the newly identified project area features and corridor routes, with special emphasis on (a) identification of any sites (new and previously recorded) with surface structural remains, as well as identification of areas devoid of sites (e.g., mechanically altered lands under past/current cultivation or pasture), and (b) locational plotting of sites and disturbed areas on aerial photos and/or topographic maps;

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INTRODUCTION

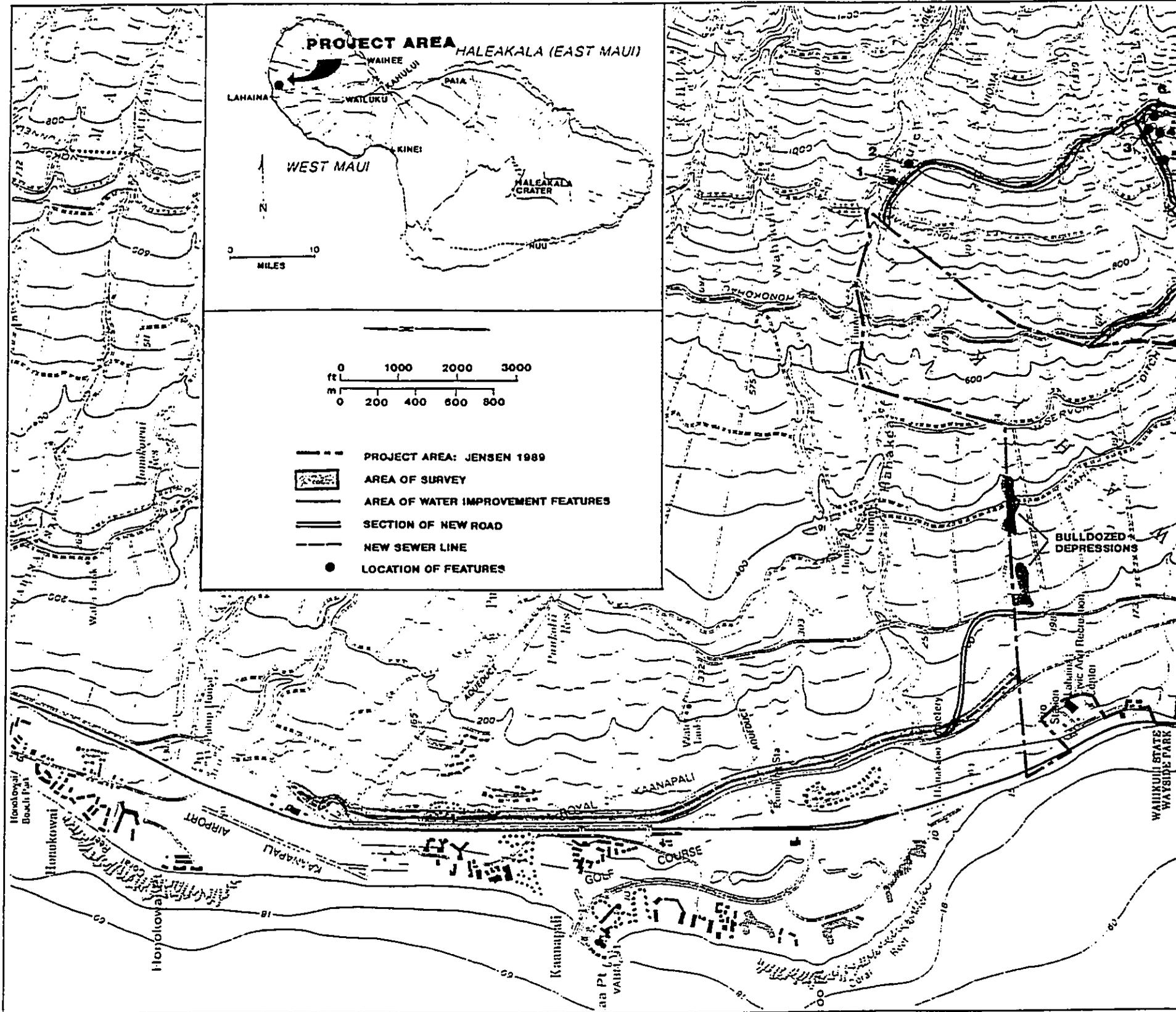


Figure 1. Project Area and Feature Location Map

3. Conduct sample coverage, variable intensity, ground survey of woodland, gulch, and any other relatively unmodified portions of the newly identified project area features and corridor routes;
4. Conduct limited subsurface testing by hand-excavation or mechanical backhoe of selected locations and selected sites and features within the project area in order to determine the presence or absence of potentially significant buried cultural features or deposits, and to obtain suitable samples for age determination analyses; and
5. Analyze background and field data, and prepare an appropriate supplemental report.

The inventory survey was carried out in accordance with the standards for inventory-level survey recommended by the Hawaii State Department of Land and Natural Resources-Historic Preservation Department (DLNR-SHPD). The significance of all archaeological remains identified within the project area was to be assessed in terms of (a) the National Register criteria contained in the Code of Federal Regulations (36 CFR Part 60), and (b) the criteria for evaluation of traditional cultural values prepared by the national Advisory Council on Historic Preservation. DLNR-SHPD uses these criteria to evaluate eligibility for both the Hawaii State and National Register of Historic Places.

PROJECT CONTEXT

It was determined that review of information from several sources would improve the accuracy of field survey results by ensuring that field workers were familiarized with the types of sites most likely to be encountered, and the primary distribution patterns of such resources. The information to be reviewed included (a) the relationship between survey area locations and topographical features and prior physical disturbance, (b) the results of historic documentary background research, and (c) the findings of the initial inventory survey work, which involved examination of more than 1,000 acres of adjoining land.

PROJECT AREA LOCATION

As noted in the Introduction, the present project involved examination of (a) the site of a new sewer line to connect the residential development area with the State's existing wastewater treatment plant facility, located inland from Honokowai Point and near Honokowai Stream, (b) the site of an expanded system for water storage and distribution, and (c) new sections of roadway. These areas are identified in Figure 1, and may be described, as follows.

New Sewer Line and Expanded Water Reclamation Plant Site

The offsite section of sewer line exits the project area along what is currently known as the "lower" cane haul road. At this point, this road exits Wahikuli and enters Hanakao, and proceeds northward into Hanakao through cane fields and passes adjacent to existing residential areas and the Lahaina Civic Center. Eventually the road parallels and proceeds adjacent to the east side of Highway 30 and the Pioneer Mill railroad tracks. The sewer line will proceed northward past the Pioneer Mill Railroad turn-around yard, and then enter Honokawai, terminating at the existing State wastewater treatment plant site, which is on the south side of Honokawai Stream.

New Section of Road

The offsite section of new roadway exits the project area and the *ahupua'a* of Wahikuli and enters Hanakao between the existing "upper" and "lower" cane haul roads. After proceeding a short distance in a northwesterly direction, the road swings west and proceeds along the northern margin of

a "false gulch" or depression that was created by bulldozing and aligning boulders within a shallow swale, within lands that were subsequently developed for sugar cane cultivation. The roadway again swings northwest and will connect with the existing "lower" cane haul road and the route of the new sewer line before crossing Hahakea Gulch. From this point north, both the sewer line and the new roadway follow the same corridor, currently the route of the "lower" cane haul road.

Well Field and Storage Facilities and Associated Interconnecting Pipelines

The system of tanks, wells and interconnecting pipelines constituting the expanded well field and water storage facilities originates east (mauka) of Puu Laina and existing reservoirs in this area and proceeds upslope through Kuhua and into Kuholilea. At this point, one branch of the well field (containing well Sites 2 and 3) will proceed south a short distance into Puou. The remaining well sites are distributed in a broad north-south arc that dips down into existing sugar cane fields through Puuiki and into Aki. Before entering Hahakea Gulch, the system pipeline turns west (makai) and proceeds along the edge of an existing agricultural access road, above and outside of the margins of Hahakea Gulch (along the south side of the Gulch).

Approximately 90% of these lands have been fully developed for agricultural use, and are currently planted in sugar cane. Those lands that are not in active cultivation exhibit evidence of past agricultural use (most of the large boulders and cobbles appear to have been removed), or they have been used extensively for grazing. Vegetation thus ranges from sugar cane within areas under active cultivation, to low shrubs and immature *koa haole* (*Leucaena glauca* [L.] Benth.) within areas not under active cultivation.

Major gulches are located both north (Hahakea) and south (Komohana) of the project area, but with one exception, only minor, unnamed gulches, are affected by the proposed construction. The single exception is where the new sewer line route crosses Hahakea Gulch at the point where the Pioneer Mill Railroad tracks meet the "lower" cane haul road. However, even this area has been extensively modified and disturbed during agricultural field clearing and later by bulldozing associated with construction of the railroad track and haul road crossings at Hahakea Gulch.

FINDINGS OF ORIGINAL PHRI SURVEY OF HFDC PROJECT AREA

From August 28 to September 10, 1989, PHRI completed the initial inventory survey of the c. 1,200-acre Lahaina Master Planned Project Site, situated in the Land of Wahikuli, Lahaina District, Island of Maui (Jensen 1989). In conjunction with the survey, PHRI also examined a short section of the proposed Alternative C Honoapiilani Highway Corridor. The basic objective of the survey was to provide information appropriate to and sufficient for the preparation of an Environmental Impact Statement to be prepared in conjunction with a Land Use Boundary Amendment petition to be submitted to the State Land Use Commission.

Under the overall supervision of Associate Senior Archaeologist Dr. Peter M. Jensen and Supervisory Archaeologist Alan T. Walker, B.A., the initial survey work resulted in the identification of a total of 12 sites containing 44 component features within the project area. Of the 12 sites, one had been previously identified and partially recorded (SIHP Site 1203*) (Barrera 1989) and the remaining 11 sites were newly identified. Ranging in physical condition from poor to excellent, the identified sites included single and multiple components, and displayed a range of feature types that included overhangs and caves, platforms, walled enclosures, petroglyphs, graves, agricultural terraces, and a single historic agricultural access road alignment. Tentatively identified functional types include habitation, agriculture (prehistoric and historic), ceremonial, probable burial, recreation, and indeterminate.

Six of the 12 identified sites were assessed as significant solely for information content. For one of these six sites (Site 2487) no further work was recommended; for the remaining five sites, further work in the form of vegetation clearing, detailed archaeological recording, and further refinement of the evaluations of subsurface components was recommended.

The remaining six sites were assessed as significant for information content, and provisionally, as good examples of site types. These sites included one complex in Hahakea Gulch containing relatively well-preserved habitation features (Site 2480); two site complexes identified within the two branches of Kahoma Stream (Site 2483, located within the south branch of the stream [also known as Kanaha Stream], and previously recorded Site 1203 located within the north branch); and two well-constructed walled enclosures in the general vicinity of Puu Laina (Sites 2485 and 2488). For these five sites, further work in the form of vegetation

clearing and further data collection was recommended (i.e., detailed recording, surface collections, and limited excavations), to be followed by a decision as to whether preservation "as is," or preservation with some level of interpretive development, is appropriate. This determination is to be based on functional interpretations, dating results, and evaluation of nearby areas for similar preserved examples. The final project area site (Site 2486) was assessed as significant for information content, and also as potentially culturally significant, because the site may contain a burial).

These findings and conclusions were reviewed by DLNR-SHPD and Maui County, and the recommendations for treatment were subsequently accepted. In approving the petition of HFDC to reclassify the project area from an Agricultural Land Use District to Urban Land Use District, the Department of Land and Natural Resources appended the following conditions regarding cultural resources:

1. For specific archaeological sites that had been identified and evaluated within the original project area, the following treatment has been required by the State: (a) further data recovery: Sites 2478, 2479, 2481, 1482 and 2484; and (b) preservation "as is": Sites 2480, 2483, 2485, 2488, 1203 and 2486.
2. For potential effects to non-specific cultural features associated with the historic Pioneer Mill, the State recommended further evaluation of structures and features, additional historical documentary research, and final recommendations re any identified sites for either additional data recovery work or preservation with possible interpretive development.

These conditions are being treated in an archaeological mitigation plan for this project, which is currently in preparation.

HISTORICAL DOCUMENTARY RESEARCH

The *ahupua'a* of Wahikuli (lit. "noisy place") has been overshadowed during historic times by its much-visited neighbor just to the south, Lahaina. As a result, relatively little is available in terms of sources referring specifically to Wahikuli. For this reason, references to Lahaina have been substituted here, since it is nearby and thus closely associated with Wahikuli.

* State Inventory of Historic Places (SIHP) designation system: all four-digit numbers prefixed by 50-50-03- (50=State of Hawaii, 50=Island of Maui, 03=USGS 7.5" series quad map ["Lahaina, Maui"]).

Inez Ashdown (personal notes) claims that Lahaina was originally *Laha'aina*, literally meaning "land [of] prophesy," deriving from the ancient *alii* prophets who made their predictions there. Another interpretation of the name is "cruel sun"; as noted by Albert Pierce Taylor, "[a] thin-haired chief who lived at Kauaula Valley, while going to and fro without a hat, felt annoyed at the effects of the scorching rays of the sun. He looked up and gazed into the heavens and cursed at the sun thus: 'He keu hoi keia o kala haina!' ('What an unmerciful sun!')" (Taylor 1928:36).

Another old variant name for Lahaina, attributed to a number of sources, is *Lele* (literally, "jump"). According to Ashdown, "The surf of U-o at Lele was even more important to ali'i...than others such as Ka-lehua-wehe at Waikiki" (personal notes).

Traditional References and Legends

Kamakau tells of a burial site north of the project area. His description suggests that people from Wahikuli were buried there:

Waiuli...is a deep pit where the corpses of the common people were thrown (he lua meki ho'olei kupapa'u ia no na maka'ainana). It is directly mauka of Honokohau, Honolua, and Honokahua, and for those from Lahaina to Kahakuloa, it was the common burial place (ho'oilina kupapa'u). The body of anyone from those places who had died on Molokai was brought back to that place. (Kamakau 1964:39)

Following are two legends which are associated with the Lahaina area, the first from Kamakau, and the second from Beckwith.

This is the main reason why the people of Maui worshipped sharks—in order to be saved from being eaten by a shark when they went fishing. At...Lahaina...a fisherman was in danger of being devoured by a shark when he went out fishing with a dip net ('upena 'aki'iki'i), or fishing for octopus with a lure (lawai'a lu'uhe'e), or setting traps for hinala fish (ho'olu'ulu'u hinala), or diving with a scoop net...or whichever kind of fishing a man would be doing alone. It would be better to stay ashore, but the fisherman craves fish to eat, and so might be devoured by a shark. Hence the people of that island worshiped sharks. Most of the people of that land do not eat shark even to this day; those who do are malihini—the kama'aina are afraid to eat shark (Kamakau 1964:78).

Fornander (1917-19) describes nearby Kekaa in a reference that also mentions Wahikuli:

Kekaa was the capital of Maui when Kakaalaneo 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 Habakea and Wahikuli—that country now covered by cactus, in a northwesterly direction from Lahaina—was all cultivated. This chief (Kakaalaneo) also planted bread fruit and kukui trees down at Lahaina. Some of these trees southwest of the Lahaina fort, were called the bread fruit of Kauheana (Fornander, Vol. 5:540-541).

Clark (1989) mentions the Kekaa area in Ka'anapali in his book *Beaches of Maui County*:

Ka'anapali is the name of an ancient *kalana* that was obliterated by the Hawaiian Legislature in 1859 by combining its lands in a new Lahaina district. The name was preserved by American Factors, Ltd., the developer of the Ka'anapali resort complex. The outstanding geographical feature in the resort area is Pu'u Keka'a, "the rumbling hill," a volcanic cinder and spatter cone. Pu'u Keka'a is most commonly known to local residents as Black Rock, a reference to the color of the cone.

According to legend, the lands surrounding Pu'u Keka'a were once an area of intense cultivation and the home of the Maui chief Kaka'alaneo when he ruled West Maui. Kaka'alaneo's son, Ka'ulula'au, was born there and became famous in his own right. An extremely mischievous youngster, he vandalized many of the shady breadfruit trees of Lele (Lahaina), for which the village was renowned. He was finally banished to Lana'i, an island then inhabited only by spirits. Using his mental and physical agility, Ka'ulula'au outwitted the spirits and made Lana'i safe for human habitation. Pu'u Keka'a, according to tradition, is a *leina a ka 'uhane*, a soul's leap." When a person lay on his deathbed, his soul would leave his body and wander about. If all earthly obligations had been fulfilled, the soul found its way to Pu'u Keka'a. There it was taken by minor gods and at that moment physical death came to the individual's body. Every island had at least one if not several locations designated as a *leina a ka 'uhane* (Clark 1989:60-1).

Handy concludes that there was "continuous cultivation on the coastal region along the northwest coast" of Maui. He writes:

On the south side of western Maui the flat coastal plain all the way from Kihei and Maalaea to Honokahua, in old Hawaiian times, must have supported many fishing settlements and isolated fishermen's houses, where sweet potatoes were grown in the sandy soil or red lepo near the shore. For fishing, this coast is the most favorable on Maui, and, although a considerable amount of taro was grown, I think it is reasonable to suppose that the large fishing population which presumably inhabited this leeward coast ate more sweet potatoes than taro with their fish. Almost no sweet potatoes are planted in this section now, however, which is partly due to the displacement of Hawaiians by Orientals on the industrialized sugar and pineapple plantations (Handy 1940:159).

Handy and Handy later presented the following summary of this important region:

Lahaina District was a favorable place for the high chiefs of Maui and their entourages for a number of reasons: the abundance of food from both land and sea; its equable climate and its attractiveness as a place of residence; it had probably the largest concentration of population, with its adjoining areas of habitation; easy communication with the other heavily populated areas of eastern and northeastern West Maui and with the people living on the western, southwestern and southern slope of Haleakala; and its propinquity to Lanai and Molokai... All this area, like that around and above Lahaina, is now sugar-cane land.... Lahaina's main taro lands, on the lower slopes running up to the west side of Pu'u Kukui, were watered by two large streams, Kanaha and Kahoma, which run far back into deep valleys whose sides were too precipitous for terracing. (1972:492)

Early Historic References

Menzies, the naturalist and surgeon on board HMS *Discovery* during Captain George Vancouver's 1793 tour, made these observations of the Lahaina coast and the village:

...[We] soon entered the verge of the woods where we observed the rugged banks 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....

March 17...to see the village of Lahaina, which we found scattered along shore on a low tract of land that was neatly divided into little fields and laid out in the highest state of cultivation and improvement by being planted in the most regulated manner with the different esculent roots and useful vegetables of the country, and watered at pleasure by aqueducts that ran here and there along the banks intersecting the fields, and in this manner branching through the greatest part of the plantation (Menzies 1920:105,112).

J. Arago, who visited Hawaii with Captain Louis de Freycinet in 1819, was impressed with the area as well:

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

The space cultivated by the natives of Lahaina is 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 (IN Handy and Handy 1972).

Rev. C.S. Stewart visited Hawaii twice, first as a missionary in 1823 assigned to the station at Lahaina, then as Chaplain of the U.S. Frigate *Vincennes*. His diary entry for May 31, 1823 reads:

The settlement is far more beautiful than any place we have yet seen on the Islands. The entire district stretching nearly three miles along the seaside, is covered with luxuriant groves, not only of the cocoanut, the only tree we have before seen except on the tops of the mountains, but also of the breadfruit and of the kou... while the banana plant, kapa and sugar-cane are abundant, and extend almost to the beach, on which a fine surf constantly rolls (Taylor 1928:42).

Another Stewart entry reads:

...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 kapa 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 (Taylor 1928:43).

The *Pacific Commercial Advertiser* (February 12, 1857) devoted itself to the port of Lahaina. The following excerpt reports on the population as well as the agriculture:

...Fruits are generally abundant. The grape seems to luxuriate in the rich soil, and the sunny, clear weather of Lahaina.... Figs, bananas and melons are produced in abundance, and pumpkins enough for all New England to make pies for a general Thanksgiving....

In riding through [a] "Tropic road"...we counted twenty varieties of trees and shrubs growing by the road side, and presenting within a mile's ride, as fine specimens of tropical productions as any similar drive to be found on the Islands.

The population of Lahaina is estimated at fifteen hundred, the foreign part of which will not probably exceed one to two hundred. The causes that have been at work depopulating the islands have likewise tended to reduce the numbers here. "Years ago there was a hut under every breadfruit tree," was the statement of an old man who has seen the four Kamehamehas as the rulers of the land. So far as local diseases, we are singularly free. The climate is unequalled; the mild, sea breezes temper the heat of the day, and the cool breeze of the night makes sleeping a luxury to be enjoyed.

Finally, the *Maui News* (February 3, 1926) provided the following narrative of a 1926 trip on horseback, in an article entitled "Historic Lahaina":

The road during the rest of the journey to Lahaina [rider is departing the Honokohau area, North of Wahikuli] is first-class. For a great part of the way the traveler can indulge in a brisk canter whenever he chooses. It skirts the sea beach very closely, running, in some places, within eight or ten feet of high water mark. Beyond this part, all the way into Lahaina, it lies further from the sea, but is equally good for riding.

...The large number of mango, bread fruit, tamarind, and other trees, with innumerable bananas, which are growing in all parts of the town and around it, give the place a most picturesque appearance. The luxuriance with which these trees grow here I have not seen equalled at any other place in the Kingdom. Mr. Turton's sugar plantation also is quite near to the town.

Sugar cane is planted here wherever land can be obtained, a proof how rich the soil is....It [Lahaina] has suffered from the advance of other places, and also, in common with all the formerly populous parts of the Kingdom, from the lamentable depopulation, which is the most striking feature in the history of the islands since they became known to European nations. It has, I believe, experienced of late some revival, but its prospects are by no means so good as those of many other Hawaiian towns, which, under the influence of what is now the staple industry of the Kingdom, sugar growing, are making rapid strides in advance. -George Cummings, clerk in the Office of the County Auditor.

Land Commission Awards

The testimony that was given in support of Land Commission Awards (LCA) often contains descriptions of land use for the area concerned. Excepting minor parcels, the entire *ahupua'a* of Hanakao (LCA 7715) was awarded to Lot Kamehameha (Kamehameha V). At the State Survey Division is Bishop's 1883 map (Reg. 1883), but it shows only the location of Puukolii School, the roadway and railway for Pioneer Mill Co., and indicates that there was sugar cultivation within the project area. Hommon (1982) indicates that this parcel was evidently irrigated by a canal leading from Honokowai Stream. Native Testimony on LCA 7715 reveals only that Lot Kamehameha relinquished the land of Kahikinui on East Maui to acquire grants for his lands (said to be 18 in number), without further commutation or divisions (Vol. 10:244). North of Hanakao lie the parcels of LCA 5121:3 to Kuku, and LCA 76:21 to Shaw. LCA 5121:3, situated in the Honokowai Gulch, contained taro land, pasture and a house site (Archives Vol. 5:225). Since there is limited data for Hanakao, testimonies for parcels in the neighboring *ahupua'a* of Honokowai are presented here:

LCA 3925H:1 *Kaaha* Native Testimony Vol. 5:234

Kauwealoha wrote and sent this claim to Oahu, but no document has been returned as yet. Makamaikai (F), sworn she has seen *Kaaha's* 6 sections in the ilis listed below. Section 1 - 4 taro patches at Naunaunahawele, Section 2 - Pasture land in Maili,

Section 3 - House lot at Kahananui, Section 6 - Pasture land at Kailepai. Sections at Honokowai from Kaaha. Sections in Kahana are ancient. The section in Mailepai from Kalalau and Alaala. These 6 sections were obtained Feb. 14, 1848. Kaaha is deceased, Kahinalua, his son is heir, no objection.

LCA 4242 *Kaaha* Native Testimony Vol. 5:143

Kaluaiuka sworn he has seen 5 sections in these ilis of Honokowai. Land from Kaaha's parents at the time of Kamehameha I, no objection and the boundaries are: Sec 1 - 9 patches in Naunaunahawe, Sec 2 - Potato hill in Naunaunahawe ili, Sec 3 - Potato pasture in Maele ili, Sec 4 - Potato pasture in Honokowai ili, Sec 5 - House site in the ili of Moomuku. Work on award No. 6396 Kaaha is included in No. 4242 above.

LCA 3988:3 *Hilahila* Native Testimony Vol. 5:147

Maui sworn he has seen Hilahila's lands in these ilis of Honokowai ahupua'a. Land from Hilahila's parents at the time of Kamehameha I, no one had objected. Sec 1 - Taro in the ili of Puulena: Mauka and Lahaina - Honokowai Stream, Makai - Poalima, Kahakuloa - Honokowai pali, Sec 2 - Potato pasture at Puulena: Kahakuloa - Honokowai. Sec 3 - Pasture in Puulena ili, Sec 4 - Potato pasture at Ilikikoo ili, Sec 5 - House site in Honokowai ili land.

LCA 4249:1 *Kameeui* Native Test. Vol. 5:222

Maui sworn he has seen 5 sections in the ahupua'a of Honokowai. Sec 1 - Taro land in Honokowai ili: Mauka - Keaweluaole, Lahaina - Keaweluaole/Kalalako, Makai - King's poalima, Kahakuloa - pali/poalima. Sec 2 - Pasture land in Honokowai ili: Mauka - govt pasture, Lahaina - Kahaleola's land, Makai - govt enclosure, Kahakuloa - Pupuka. Sec 4 - Pasture land in Ulukikoo ili: Mauka and Lahaina - Stream, Makai - Kuana, Kahakuloa - Honokowai pali. Sec 5 - Pasture land in Ulukioo ili...Land from J. A. Kuakini to Kameeui's parents at the time of Kamehameha I, no objection.

LCA 3765 *Aio* Native Test. Vol. 5:121

Kahanaumaikai sworn he has seen 5 sections in these ilis of Honokowai. Lands at Moomuku were from Aumai at the time of Kamehameha I. Pasture at Ilikikao from Keawe at the time of Pili. Pasture at Haenaiki from Haihe in 1845. Sec 1 - House lot at Moomuku, Sec 2 - pasture in Moomuku, Sec 3 - two patches in Moomuku, Sec 4 - Pasture in Ilikikoa, Sec 5 - Pasture at Haenaiki.

LCA 3689 *Maui* Native Test. Vol. 5:120

Kahanaumaikai sworn he has seen two sections in these ilis of Honokowai. This land was from Maui's parents at the time of Kamehameha I, no objections and these are the boundaries. Sec. 1 - Potato pasture at Ilikikoa, Sec 2 - Potato pasture at Kipapa.

LCA 3987:1 *Holona* Native Test. Vol. 5:142

Kaukau sworn he has seen Holona's lands in these ili lands of Honokowai of 4 sections, no objection. This land was from Puaa at the time of Kamehameha I, the boundaries are: Sec 1 - house lot in the ili and of Ahaloa, Sec 2 - 10 taro patches in Kapili ili, Sec 3 - Potato patch in Wainalo ili, Sec 5 - 14 taro patches in Wainalo ili land.

LCA 5002:2,5 *Kahanaumaikai* Native Test. Vol. 5:119

Kaukau sworn he has seen 5 sections at Kapili in Honokowai. This land was from Kahanaumaikai's parents at the time of Kamehameha I, no one has objected. Sec 1 - One potato moo makai of here in Kapili, Sec 2 - One potato moo in upland, Sec 3 - Potato moo in upland, Sec 4 - Upland potato moo, Sec 5 - Taro section. Makapuu sworn he has seen 4 sections at Poopohaku and Poehu in Honokowai. This interest was from Pikanele in 1845, no objection. The boundaries are: Sec 6 - Taro at Poopohaku, Sec 7 - pasture, Sec 8 - Taro at Poehu, Sec 9 - Pasture at Poehu.

LCA 3850:1 *Paki* Native Test. Vol. 5:134

Kaukau sworn he has seen 5 sections in the ili land of Kapili in Honokowai. Land from Paki's parents at the time of Kamehameha I, no objections, the boundaries are: Sec 1 - Potato pasture, Sec 2 - Pasture, Sec 3 - Pasture (J. Kalai'ini's boundaries all around) Sec 4 - 4 taro patches. Work for award # 6600 has been included in award # 3850, these are similar.

LCA 4239:3 *Kaukau* Native Test. Vol. 5:117

Kahanaumaikai sworn he has seen 14 sections belonging to Kaukau here in these ilis in the ahupuaa of Honokowai. This land was from his father at the time of Kamehameha I, Sec 1 - House lot and pasture at Mahinahina 1: Mauka, Lahaina and makai - Charles Amara's land, Sec 2 - Pasture at Kapili, Sec 3 potato moo in uplands of Kapili, Sec 4-2 patches at Naunaunahawe, Sec 5-13 patches at Naunaunahawe, Sec 6-1 patch at Puulena, Sec 7-1 patch at Kapili, Sec 8-1 patch at Kapili, Sec 9 - 7 patches at Kapili, Sec 10-6 patches at Kapili, [Kahakuloa] sec 11-2 patches at Kapili, Sec 12-2

patches at Kapili, Sec 13 - Pasture at Kapili, Sec 14 - Pasture at Kapili. No. 4239 is similar to the award above.

LCA 327B:2 John Previer Native Register 2:85

We, Kamehameha III and Kuakini hereby give and convey absolutely to John Preever [sic] a certain land at Honokowai, called Waihale, and its house lot also, at Wainalu. This land and this house lot shall be for John Preever and his heirs born here in Hawaii, for them in perpetuity, however, they shall not be conveyed to a foreigner from another country. And we give all the rights pertaining to said land and the house lot from ancient times. In witness whereof we set our hands on this 6th day of January in the year of our Lord 1840, at Maui. Witness to the signature: Wm. Richards, Gov. Adams, Kamehameha III.

The Interior Department file has the following data regarding lands in Hanakao:

Interior Dept. Aug 27, 1850: Set apart for Lot Kapuaiwa in the land division of Hanakao'o.

Interior Dept Dec. 31, 1855: In letter from J. W. Austin to Minister of Int. (Young) enclosing a statement of a/c which is attached, showing that \$50 had been paid to Kaiheekai for road damages over lands in the above place.

Interior Dept. April 7, 1865: In letter from Campbell & Turbun to C. C. Harris asking information relative to the # of acres, the lowest figure asked, together with the terms of payment which may be accepted for the king's lands of the above land.

Interior Dept Aug. 11, 1866: In letter from P. Nahalehua to J. O. Dominis stating that he had spoken to him relative to the desire of Hema, et al to lease the kula of the above land & Ahikuli for \$300, but states that said Ahikuli belongs to C. C. Harris and H. A. Widemann.

Interior Dept Sept 30, 1873: In letter from P. Nahalehua to J. O. Dominis inquiring as to whether the boundaries of the above land belonging to R. Keelikolani, had been settled.

The Indices to Land Commission Awards lists only two awards for the *ahupua'a* of Wahikuli: LCA 477-F to P. Keliipio for 1 acre, 2 roods, 3 roods, and LCA 7724 to

Poholapu for 12 acres. Keliipio's parcel is listed as a house lot alongside Kaanapali Road and Chandler's land (Alexander map Aug. 20, 1851). Poholapu's parcel, which was bounded by Kahoma Stream on the Olowalu side, was cultivated in taro (Hawaii State Archives, Native Testimony). A large percentage of Wahikuli was Crown Land. The Index of Kamehameha Deeds shows that 2,194 acres were leased from Kamehameha III to Kamehameha V on March 1, 1854 for the amount of \$250 per annum (State Survey Office, Personal Communication).

A 1913 map by W. E. Wall (Reg. #2569) depicts another LCA, #5483:2 to Kaeo, as well as Grant 1891 to D. Baldwin. The map also reveals that 14,797 acres were devoted to cane land, and 221 acres to pasture land. This cane cultivation was under the management of Pioneer Mill Company.

Pioneer Mill Co.

Lahaina was the setting of some of the earliest sugar enterprises in Hawaii. In 1849 Judge A. W. Parsons operated a sugar mill here. This mill, along with 1,000 acres of land, was sold to O. H. Gulick at auction. Henry Dickenson, a Lahaina store owner, began a plantation in 1859, and the success of his Lahaina Sugar Co. encouraged the establishment the following year of a second plantation, Pioneer Mill Co. It was founded by three partners: James Campbell, a carpenter who later became Hawaii's first millionaire, Henry Turton, and James Dunbar, on lands deeded to them by Benjamin Pittman. In 1863, Lahaina Sugar Co. went bankrupt and sold out to Pioneer Mill Co. (HRHP Site Form 50-03-1598, and Conde 1973:252). Another plantation, formed by Lot Kamehameha and others in 1870, was also bought out by Pioneer Mill Co. a few years later (HRHP Site Form 50-03-1598). The firm of Walker & Allen appears to have been the plantation agency in the early years, but in 1877 H. Hackfeld replaced them as agents (Conde 1973:252). An 1883 evaluation of plantations represented by H. Hackfeld lists Pioneer Mill Co. assets at \$500,000 (Simpich 1974).

A section of Pioneer Mill's railroad ran through the project area. The main line extended north from the mill, which is several blocks from the center of Lahaina Village, to a point north of the town of Puukolii in Hanakao, five miles distant and, at the north end, about 350 feet above the sea (Conde 1975:169). The *Pacific Commercial Advertiser* reported on the construction of the railway on Oct. 23, 1882:

Turton's railroad to Kaanapali is making rapid progress. The grading is finished for over two miles out from the mill, and the track is laid on same for nearly the whole distance. Mr. Johnstone, the civil

and every other kind of engineer, has management of the whole thing, and is making things hum along the route — he expects to be hauling cane [to] Kaanapali by January next...

Formerly the cane was brought to Lahaina at the rate of twenty cart loads a day — the carts would come into Lahaina in the morning and return in the afternoon to load up for the next day's trip. It took from six to eight bullocks to a cart, a driver for each team, and a luna to go back and forth with them. Now however, 120 loads will be hauled by steam in a day and it will require but the engineer, and say two trainmen on the cars — the wear and tear and loss of cattle and mules on the Kaanapali route was more than running expenses and wear and tear on the railroad will be.

The *Hawaiian Gazette* added to this on November 29, 1882:

Mr. Turton's railroad to Honokowai has made good progress; the grading is now substantially completed and three miles of track are laid. About one mile has been heavy grading along a rocky tract, where a large amount of dynamite has been used. The whole length of the permanent track is four and one half miles; width of track 31 inches, steel rails. There will be some 5000 feet more movable track in addition. One and one quarter miles of railway will be laid from the mill to the south end of Lahaina. The whole cost of the railway and other plant will not exceed \$30,000. This will dispense with about \$20,000 invested in carts and teams, heretofore employed in conveying cane to the mill.

Pioneer Mill Co. reorganized in 1900. The prospectus for the change is interesting, as it designates the land areas comprised by the plantation property:

Lahaina - 1,000 acres of land on the flat and outside of small kuleanas, the land is fee simple.

Launiupoko - 2,900 acres of fee simple land, lying between Lahaina and Olowalu.

Wahikuli - A tract of Government land of 5,000 acres, under lease for eighteen years, lies between Lahaina and Kaanapali.

Kaanapali - Some 3,600 acres at various levels, fee simple land, beyond Wahikuli. (The area also comprises streams at Kahumu, Lahainaluna, Kawaulu and Launiupoko.)

The extent of sugar cultivation is noted in the *Hawaii Sugar Manual*:

The cane fields of the estate have a sea frontage of ten miles, and while cultivated to 1 1/2 miles average depth in some sections raising of cane is followed so far back as two and one half miles as the farthest reach up the slopes of the West Maui mountains.

The bulk of the crop is raised on lands that range from 10 feet to 700 feet elevation above sea level; the highest being cultivated at 1500 feet (IN Conde 1973:254).

Beginning in 1929, the company's Annual Report lists equipment retirements, signalling the decline of the railroad. The 1933 report lists "Railroads & Bridges—1,020 linear feet of 26 lb. rail, acquired in 1920 was retired in 1933." The 1934 report notes "1 Velocipede track-car, acquired 1921, retired 1934." Starting in 1943, the company experimented with loading harvested cane into trucks using grab loaders. The 1946 report reveals that by that year, serious consideration was being given to abandoning the railroad and harvesting exclusively by trucks. The final rail report appeared in 1953: "Change in operation—...All cane will be hauled by truck on a time shift basis...All railroad tracks were taken up, sorted and subsequently sold to a mainland buyer. Most of the railroad equipment was sold to various purchasers. The mill yard was graded, dressed with cinders and a direct cane dumping arrangement was built." (Conde 1973:254).

An article in the *Maui News* reports that a large number of ties were purchased by ranchers for use as fence posts, and that portable track iron, all of the old rails, and old rail switches, frogs, fishplates angle bars and spikes were sold to the Purdy Co. of San Francisco.

The renaissance of the railway began when A.W. McKelvey received capital from Taylor A. "Tap" Pryor to construct the "Lahaina, Kaanapali & Railroad" in 1968. The new railway began several blocks from the center of Lahaina, north of Pioneer Mill, on the old railroad grade, alongside cane haul dirt roads. New track was laid, and a trestle was built, at the cost of \$15,000, near the golf course to offer a panoramic view of Kaanapali. In 1973 the operation was sold to Willis B. Kyle who hired R.D. Ranger to run the line (Conde 1975:169).

Wahikuli State Wayside Park, *makai* of the project area, is described in *The Beaches of Maui County*:

Wahikuli means "noisy place" and is an alternate name of the ahupua'a of Mala which includes this

park. Wahikuli State Wayside Park is one of the most popular beach parks in West Maui. It is usually crowded with picnickers, swimmers, and sunbathers, especially on weekends and holidays. Wahikuli's popularity is undoubtedly due to its size, its good swimming conditions, its excellent facilities, and its proximity to Lahaina....Almost the entire shoreline is lined with a retaining wall composed of large boulders (Clark 1989:60).

Clark also describes Hanaka'o'o in the following passage:

Hanaka'o'o means the "digging stick bay," but the origin of the name is now unknown. The beach fronting the park was once known to Maui residents as Sand Box Beach. Sand Box was also the name of a still-popular surfing break fronting the neighboring Hyatt Regency Maui. During the early 1900s Pioneer Mill constructed a rock crusher near Hanaka'o'o Cemetery, now situated with the park. The rock crusher had several large storage bins to hold the crushed material, including a box for sand. The sand box was kept filled with beach sand, which was bagged as needed for various construction projects. The rock crusher shut down operations in the 1920's, but the sand box remained on the beach for many years, giving the beach its once-popular name...(ibid.).

In these excerpts, Clark brings us up to the present explaining the buildup of the Ka'anapali Resort area by the Pioneer Mill Company and American Factors:

In more recent times the Ka'anapali area was acquired by Pioneer Mill Company for cultivation in sugar cane. A landing was built on the north side of Black Rock to ship out the sugar that was processed and bagged at the mill in Lahaina and hauled to the landing by train.... The bagged sugar was stored in a warehouse to the rear of Black Rock. When the sugar boats called, the bags were run out to the end of the landing on flatcars...Other buildings in the area included oil and molasses tanks and, on the beach, a pavilion and beach cottages reserved for the use of Pioneer Mill Company's supervisors. There was also a quarter-mile track on the tidal flats to the rear of Hanaka'o'o Point, used for racing horses on special occasions and holidays. The ruins of Ka'anapali Landing, abandoned just prior to World War II, can still be seen on the north side of Black Rock...

In December 1957 American Factors, Ltd., the owner of Pioneer Mill Company, announced plans for a multi-million dollar resort to be built around Pu'u Keka'a and its two long white sand beaches. The complex was to be called Ka'anapali, thus preserving an old Hawaiian name. Title clearance delayed the project for several years, and construction on the first hotels commenced in the early 1960's...(ibid:61).

The Ka'anapali and Lahaina areas are now filled with hotels, condominiums, and shops along the coast which cater to tourists. Sugar is still cultivated in the upper lands of these areas.

FIELD METHODS AND PROCEDURES

Field work for the present project was undertaken in three phases. The initial phase involved a limited field inspection of all project areas, conducted on April 18, 1991 by Peter M. Jensen, accompanied by HFDC Senior Planner Mr. Neal Wu. During this field inspection, project features were identified in the field, and flagging tape was placed at strategic locations to assist the subsequent aerial and pedestrian surveys.

The second phase involved the aerial inspection of all project alignments and feature areas. This work was undertaken by Peter M. Jensen and Jenny O'Claray on April 19, 1991. All linear corridors were over-flown at least twice by helicopter, at approximately 30 to 50 ft altitude. Project feature locations were confirmed from the air by visual identification of the flagging tape that had been placed the previous day. Additionally, blue flagging tape, which had apparently been set out by land surveyors along linear corridors, was also spotted during the aerial reconnaissance.

Finally, pedestrian survey was undertaken along the portions of all linear corridors and other project area locations located within lands not currently under active sugar cane cultivation. This work was undertaken April 23 through 26, 1991, by Supervisory Archaeologists Jenny O'Claray and Diane Guerrero. The pedestrian survey involved walking zig-zag transects along linear corridors, with transect spacing maintained at approximate 30-60 ft intervals.

Both the aerial and pedestrian surveys were conducted with detailed topographic maps as well as recent aerial photographs of the project area.

FINDINGS

No prehistoric or historic archaeological sites were identified within the areas of potential effect of the proposed construction areas (sewer line, water improvement features, and road extension). However, six previously unidentified historic-era features related to sugar cane irrigation were observed on lands close to several of the water improvement features. None of these features was formally recorded, but locations were noted on project area maps, and brief descriptions are provided below.

Feature 1 consists of the dilapidated remains of a wooden, trestle-supported flume. The remains were observed on both sides of Hahakea Gulch near the northeasternmost corner of the present project area. Lying some 20 meters below the lip of the gulch, the wooden remains are well outside of the present impact area and will not be affected by the proposed water wells and pipelines, as they are presently proposed.

Feature 2 consists of two old and heavily weathered fence posts. They are located within about 30 meters of the Feature 1 remains and outside of the area of potential effect of the present project.

Features 3 and 4 are short segments of wood flume remains that spanned shallow ravines located within the general vicinity of Water Well Sites 1 and 2. The two segments were initially observed during the aerial inspection of the property, and were relocated during the pedestrian survey by their proximity to the blue flagging tape that had

been placed in the field to mark the route of the pipeline and access road into the well site areas. The features are located more than 30 m west of the west side of the impact corridor for these features, and will not be affected by the project as presently planned. No evidence of additional features or artifact associations were observed at or within the immediate vicinity of either of these flume segments. Both flume segments are tentatively considered only minimally significant for information content.

Feature 5 was identified during a pedestrian survey sweep. It is located 13.7 m at 140 degrees Az from the sugar cane road and presently lies within Well-Line 16. Feature 5 consists of an historic wooden flume built across an inactive streambed. The flume is constructed of milled lumber and is supported by concrete mortared stone footings. Its dimensions are 0.72 m wide by 0.86 m tall by 7.0 m long, and it is raised c. 0.56 m above streambed surface.

Feature 6 was also identified during a pedestrian survey sweep. It is located c. 50.0 m at 140 degrees Az. from Water Well No. 1. Feature 6 consists of a small and narrow historic dam built across an inactive streambed. It is constructed of concrete mortared boulders with PVC pipes inserted in the center of the structure. The dimensions are 0.54 m wide by 0.3-1.0 m tall by 8.0 m long. It is faced on the southwest side and stacked two to three courses high. Feature 6 is outside of the present project area.

CONCLUSION

In view of the negative findings of both the pedestrian field survey and the examination of relevant historic documentary records, it is reasonable to conclude that the construction activities associated with the proposed offsite project features will not affect significant or potentially significant cultural resources.

However, it should be noted that this conclusion is based on the findings of an aerial survey and surface inventory survey

only. There is always the possibility, however remote, that potentially significant unidentified cultural remains might be encountered in the course of future development activities involving ground surface modification. In such a situation, archaeological consultation should be sought immediately.

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Appendix B: Botanical Survey

SUPPLEMENTAL FLORA ASSESSMENT
LAHAINA MASTER PLANNED PROJECT
OFF-SITE IMPROVEMENTS
LAHAINA DISTRICT, ISLAND OF MAUI

by

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May 1991

SUPPLEMENTAL FLORA ASSESSMENT
LAHAINA MASTER PLANNED PROJECT
OFF-SITE IMPROVEMENTS
LAHAINA DISTRICT, ISLAND OF MAUI

INTRODUCTION

A supplemental flora study of the off-site improvements for the Lahaina Master Planned Project was conducted in April 1991. The areas surveyed were the proposed alignment for the offsite sewer; the proposed alignment for the offsite water improvements including waterlines, storage tanks and well sites; and the proposed "new" cane haul road.

The field studies involved a walk-through survey along the areas proposed for the improvements; a 100-foot wide corridor was surveyed. Notes were made on plant associations and distributions, substrate types, moisture regimes, topography, etc. Plants which could not be positively identified were collected for later determination in the herbarium and for comparison with the most recent taxonomic treatment.

DESCRIPTION OF THE VEGETATION

The vegetation on the site consists largely of actively cultivated sugar cane fields. Scrub or shrubland vegetation occurs on uncultivated areas such as gulches, small gullies, and on parts of the proposed wellfield. Portions of the sewerline alignment and wellfield were surveyed during studies for AMFAC's proposed South Beach Mauka project (Char 1989a) and for the State's Hono-a-Pi'ilani Highway realignment project (Char 1988). The two basic vegetation types found on the areas for the proposed improvements

were also noted in the previous surveys. A checklist of all the plant species inventoried during the field studies is presented at the end of this report.

Cane Fields

The sewerline alignment, "new" cane haul road, and most of the waterline and storage tanks will be sited on actively cultivated sugar cane fields or near existing cane haul roads. The cane fields are almost monodominant, with the fast growing cane (Saccharum officinarum) shading out most of the weedy species. Thus, most weedy species tend to occur along the margins of fields and alongside the cane haul roads. Commonly observed weeds include golden crownbeard (Verbesina encelioides), young koa-haole shrubs (Leucaena leucocephala), spiny amaranth (Amaranthus spinosus), slender amaranth (Amaranthus viridis), wild bittermelon (Momordica charantia), hairy fleabane (Conyza bonariensis), pualele (Emilia fosbergii), and hairy spurge (Chamaesyce hirta). On some of the roads which are less frequently used, swollen finger grass (Chloris barbata) is abundant. Where the cane fields or cane haul roads abut gulches and small gullies, Guinea grass (Panicum maximum) and koa-haole shrubs become more numerous.

Shrubland Vegetation

Two variants of this vegetation type are recognized. The first is a koa-haole shrubland composed of rather dense koa-haole shrubs, from 3 to 6 ft. tall; Guinea grass, up to 3 ft. tall, fills in the matrix between the shrubs. Scattered through this shrubland are a few trees of Java plum (Syzygium cumini) and guava (Psidium guajava) shrubs. This type of shrubland is found in the unnamed gulch which parallels the proposed waterline; portions of the waterline cross this gulch just above the 2.5 M.G. storage tank site. Smaller gullies near the sewer alignment and the "new"

cane haul road also support koa-haole shrubland. These smaller gullies are often filled in with large boulders. They typically support a more or less dense thicket of koa-haole. Vines of hairy merremia (Merremia aegyptia) are seasonally abundant, scrambling over the shrubs during the wetter months. Locally common in scattered patches of varying sizes are castor bean (Ricinus communis) and wild tomato (Lycopersicon pimpinellifolium).

A'ali'i (Dodonaea viscosa) shrubland is found on the site of the 1.0 M.G. storage and control tank and on certain portions of the well field.; this occurs at the 1,050 to 1,100-foot elevation. This a'ali'i shrubland was formerly grazed as evidenced by old fence posts and wire. The a'ali'i shrubs form an open to closed shrubland, 3 to 6 ft. tall. Silk oak trees (Grevillea robusta) are a common component and form roughly 20% cover. Grassy patches dominated by Natal redtop (Rhynchelytrum repens) and molasses grass (Melinis minutiflora) are scattered through the shrubland. Less common are patches of Guinea grass and sour grass (Digitaria insularis). Other shrub and subshrub species scattered through this vegetation type are 'uhaloa (Waltheria indica), koa-haole, indigo (Indigofera suffruticosa), klu (Acacia farnesiana), and lantana (Lantana camara). Large, heavily eroded areas with about 50% plant cover are found adjacent to and above the storage and control tank. 'Uhaloa is locally abundant on these eroded sections; a few plants of a'ali'i, silk oak, and various grasses also occur on these badly eroded areas.

DISCUSSION AND RECOMMENDATIONS

The great majority of the proposed off-site improvements will occur on lands already disturbed by agricultural activities. These areas support sugar cane fields as well as their associated network of cane haul roads and irrigation ditches and common weedy species. Shrublands dominated by the introduced koa-haole or by a'ali'i, a native indigenous species, are found on the more

steeply sloping areas unsuitable for cultivation. During the field studies, a total of 46 species were inventoried. The majority, 40 (87%), are introduced or alien species; one (2%) is originally of Polynesian introduction; and five (11%) are indigenous, i.e. native to the Hawaiian Islands and elsewhere throughout the Pacific. None are officially listed threatened and endangered species (U. S. Fish and Wildlife Service 1989); nor are any currently being proposed or are candidates for such status (U. S. Fish and Wildlife Service 1990). A botanical survey for the Lahaina Master Planned Project as well as surveys of adjacent areas (Char 1988, 1989a, 1989b) also recorded similar findings.

The proposed off-site improvements are not expected to have a significant negative impact on the botanical or floral resources and there are no botanical reasons to impose any restrictions, constraints, or impediments to their construction. Of concern, is the increased soil erosion which would result from removal of vegetation during construction activities on the more steeply sloping areas occupied by the shrubland vegetation. It is recommended that those disturbed areas within the shrublands be revegetated as soon as possible to prevent loss of soil through wind and water. Some of the grasses already found in the area, such as molasses grass and Guinea grass, could be used for revegetation.

PLANT SPECIES LIST -- Off-site Improvements, Lahaina Project

Following is a checklist of all those vascular plants inventoried during the field studies. The plants are arranged into two groups: Monocots and Dicots. The taxonomy and nomenclature of the flowering plants, for the most part, are in accordance with Wagner et al. (1990). The common and/or Hawaiian names given follow St. John (1973) or Porter (1972).

For each species, the following information is provided:

1. Scientific name with author citation.
2. Common English and/or Hawaiian name, when known.
3. Biogeographic status. The following symbols are used:
 - I = indigenous = native to the Hawaiian Islands and elsewhere
 - P = Polynesian = plants originally of Polynesian introduction prior to Western contact (1778)
 - X = introduced or alien = all those plants brought to the islands intentionally or accidentally after Western contact; not native.
4. Presence (+) or absence (-) of a particular species within each of two vegetation types recognized on the project site (See text for discussion):
 - cf = cane fields
 - sv = shrubland vegetation

Scientific name

ASTERACEAE (Daisy Family)
Acanthospermum australe (Loefl.) Kuntze
Ageratum conyzoides L.
Bidens pilosa L.

Conyza bonariensis (L.) Cronq.
Crassocephalum crepidioides (Benth.)
S. Moore

Emilia fosbergii Nicolson
Sonchus oleraceus L.
Verbesina encelioides (Cav.) Benth.
& Hook.

Xanthium strumarium var. canadense
(Mill.) Torr. & A. Gray

CACTACEAE (Cactus Family)
Opuntia ficus-indica (L.) Mill.

CONVOLVULACEAE (Morning Glory Family)
Ipomoea indica (J. Burm.) Merr.
Merremia aegyptia (L.) Urb.

CUCURBITACEAE (Squash Family)
Momordica charantia L.

EUPHORBIACEAE (Spurge Family)
Chamaesyce hirta (L.) Millsp.
Chamaesyce hypericifolia (L.) Millsp.
Ricinus communis L.

FABACEAE (Pea Family)
Acacia farnesiana (L.) Willd.
Chamaecrista nictitans (L.) Moench
Crotalaria pallida Aiton
Indigofera suffruticosa Mill.
Leucaena leucocephala (Lam.) de Wit

Vegetation type

Status

Common name

cf

sv

star bur	X		+	+
maile hohono	X		+	-
Spanish needle, beggar's tick	X		+	+
hairy horseweed	X		+	+
Crassocephalum	X		+	-
red pualele, emilia	X		+	+
milkweed, pualele	X		+	+
golden crownbeard	X		+	-
cocklebur, kikania	X		+	-
panini	X		-	+
koali-'awania	I		-	+
hairy merremia	X?		+	+
wild bittermelon	X		+	-
hairy spurge	X		+	+
graceful spurge	X		+	-
castor bean, koli	X		-	+
klu	X		-	+
partridge pea, lauki	X		+	-
rattlebox	X		+	+
indigo, 'iniko	X		-	+
koa-haole	X		+	+

Vegetation type

<u>Scientific name</u>	<u>Common name</u>	<u>Status</u>	<u>Vegetation type</u>	
			<u>cf</u>	<u>sv</u>
MALVACEAE (Hibiscus Family) Sida fallax Walp.	'ilima	I	-	+
MYRTACEAE (Myrtle Family) Psidium guajava L. Syzygium cumini (L.) Skeels	guava, kuawa Java plum	X X	+	+
PROTEACEAE (Protea Family) Grevillea robusta A. Cunn. ex R. Br.	silk oak	X	-	+
RUBIACEAE (Coffee Family) Richardia brasiliensis Gomes	richardsonia	X	+	-
SAPINDACEAE (Soapberry Family) Dodonaea viscosa Jacq.	a'ali'i	I	-	+
♂ ∞ SOLANACEAE (Tomato Family) Lycopersicon pimpinellifolium (Jusl.) Mill.	currant tomato, wild tomato	X	-	+
STERCULIACEAE (Cocoa Family) Waltheria indica L.	'uhaloa, hi'aloa	I?	+	+
VERBENACEAE (Verbena Family) Lantana camara L.	lantana, lakana	X	-	+

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Appendix C: Faunal Study

**SURVEY OF THE AVIFAUNA AND FERAL MAMMALS AT LAHAINA, MAUI
FOR THE LAHAINA HFDC MASTER PLAN PROJECT/OFFSITE SEWER
AND WATER IMPROVEMENTS**

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INTRODUCTION

The purpose of this report is to summarize the findings of a two day (30-31 March 1991) bird and mammal field survey of lands proposed for sewer and water improvements at Lahaina, Maui (see Fig.1). Also included are references to pertinent literature and unpublished reports.

The objectives of the field survey were to:

- 1- Document what bird and mammal species occur on the property or may likely occur given the type of habitats available.
- 2- Provide some baseline data on the relative abundance of each species.
- 3- Determine the presence or likely occurrence of any native fauna particularly any that are considered "Endangered" or "Threatened". If such occur or may likely be found on the property identify what if any features of the habitat may be essential for these species.
- 4- Determine if the property contains any special or unique habitats that if lost or altered by development might result in a significant impact on the fauna in this region of the island.

GENERAL SITE DESCRIPTION

Figure One indicates the limits of the various properties that were surveyed. Sugarcane covers large areas of the site. The mauka lands where the wells are to be located contain scrubby second growth forest of Silk Oak (Grevillea robusta), Java Plum (Syzygium cumini), Lantana (Lantana camara), Koa Haole (Leucaena leucocephala) and A'alii (Dodonaea viscosa). Haul cane roads with exotic weeds and grasses along their margins provide additional habitat.

Weather during the survey was partly cloudy. Winds were gusty and from the east.

STUDY METHODS

Field observations were made with the aid of binoculars and by listening for vocalizations. These observations were concentrated during peak bird activity periods of early morning and late afternoon.

At various locations and in all representative habitats eight minute counts were made of all birds seen or heard. Between these count stations observations of birds were also kept. These data provide the basis for the relative abundance estimates given in this report. Unpublished reports of birds known from this region were also reviewed in order to acquire a more complete picture of

possible avifaunal activity (Bruner 1986, 1988a, 1988b, 1989a, 1989b). Observations of feral mammals were limited to visual sightings and evidence in the form of scats and tracks. No attempts were made to trap mammals in order to obtain data on their relative abundance and distribution. One evening was devoted to searching for the presence of owls and the Hawaiian Hoary Bat (Lasiurus cinereus semotus).

Scientific names used herein follow those given in the most recent American Ornithologist's Union Checklist (A.O.U. 1983); Hawaii's Birds (Hawaii Audubon Society 1989); A Field Guide to the Birds of Hawaii and the Tropical Pacific (Pratt et al. 1987); Mammal Species of the World (Honacki et al. 1982); Hawaiian Coastal Plants (Merlin 1980a) and Hawaiian Forest Plants (Merlin 1980b).

RESULTS AND DISCUSSION

Resident Endemic and Indigenous (Native) Birds:

No endemic birds were recorded. One possible species which may occur occasionally in this area is the Hawaiian Owl or Pueo (Asio flammeus sandwichensis). Pueo are known from agricultural lands on Maui but are seen less frequently in more urban habitat (Hawaii Audubon Society 1989). No permanent wetlands occur on the properties involved with the proposed sewer and water improvements. Irrigation ditches and reservoirs are found nearby.

During periods of heavy rain the gulches in the mauka lands are prone to flooding. These water resources are utilized by Black-crowned Heron (Nycticorax nycticorax). Two night heron were recorded during the survey. Both were seen at a reservoir down slope from well site number One. Black-crowned Night Heron are the only native waterbird that is not listed as an endangered species.

Migratory Indigenous (Native) Birds:

Migratory shorebirds winter in Hawaii between the months of August through May. Some juveniles will stay over the summer months as well (Johnson et al. 1981, 1983, 1989). Of all the shorebird species which winter in Hawaii the Pacific Golden Plover (Pluvialis fulva) is the most abundant. Plover prefer open areas such as mud flats, lawns, pastures, plowed fields and roadsides. They arrive in Hawaii in early August and depart to their arctic breeding grounds during the last week of April (Johnson et al. 1981). Bruner (1983) has also shown plover are extremely site-faithful on their wintering grounds and many establish foraging territories which they defend vigorously. Such behavior makes it possible to acquire a fairly good estimate of the abundance of plover in any one area. These populations likewise remain relatively stable over many years (Johnson et al. 1989). A total of 43 plover were recorded over the two days of the survey.

Ruddy Turnstone (Arenaria interpres) is another common migrant that utilizes plowed fields. None, however, were recorded on this survey.

One Wandering Tattler (Heteroscelus incanus) was observed along an irrigation ditch in the mauka lands. This species generally forages solitarily along rocky shorelines and in mountain streams and irrigation systems.

Resident Indigenous (Native) Seabirds:

This site is totally unsuitable for nesting or roosting seabirds. Several species can be seen offshore but would not utilize this property.

Exotic (Introduced) Birds:

A total of 14 species of exotic birds were recorded during the field survey. Table One shows the relative abundance of each species. In addition to these species other exotic birds which potentially could occur on the property include: Common Barn Owl (Tyto alba), Cattle Egret (Bubulcus ibis), Ring-necked Pheasant (Phasianus colchicus) and Eurasian Skylark (Alauda arvensis) (Pratt et al. 1987; Hawaii Audubon Society 1989; Bruner 1989b).

Three species not recorded on an earlier survey of nearby lands (Bruner 1989b) but found on this survey include: Northern Mockingbird (Mimus polyglottus), Red-crested Cardinal (Paroaria coronata) and Hwamei (Garrulax canorus). Warbling Silverbill

(Lonchura malabarica) were also much more abundant on this survey than in 1989.

Feral Mammals:

Wild (feral) cats were seen as well as Small Indian Mongoose (Herpestes auropunctatus). Mice were also observed. Without a trapping program it is difficult to conclude much about the relative abundance of these species, but it is not unlikely that their numbers are similar to comparable habitats elsewhere.

Maui records of the endemic and endangered Hawaiian Hoary Bat are sketchy (Tomich 1986; Kepler and Scott 1990). None were observed on this field survey despite late evening observations. This species generally roosts solitarily in trees. Much remains to be known about the natural history of this bat and its ecological requirements here in Hawaii. Kepler and Scott (1990) suggest that the bat occurs on Maui only as a "migrant, probably from the Big Island". Others, (Duvall and Duvall 1991), challenge this notion and report evidence that would suggest a resident breeding population of bats exists on Maui.

CONCLUSION

A brief field survey can at best provide only a limited perspective of the wildlife present in any given area. Not all species will necessarily be observed and information on their use of the site must be sketched together from brief observations.

the available literature and from reports by people familiar with the region. The number of species and the relative abundance of each species may vary throughout the year due to available food resources and reproductive success. Species which are migratory will quite obviously be an important part of the faunal picture only at certain times during the year. Exotic species sometimes prosper for a time only to later disappear or become a less significant part of the faunal community (Williams 1987, Moulton 1990). Thus only long term studies can provide an in depth view of the bird and mammal populations in a particular area. However, when brief field studies are viewed in the light of data gathered from other similar habitats the value of the conclusions drawn can be significantly increased. The following are some general conclusions related to bird and mammal activity on this property.

- 1- This site provides a limited range of habitats which are utilized by the typical array of exotic species of birds one would expect in this region of the island. No unusual concentrations of any exotic species were discovered. However, some species typically found in this area were not recorded. This could have been due to a number of reasons such as: the survey was too brief, their numbers were so low that they went undetected or a combination of these and other factors.
- 2- The only native birds recorded were Black-crowned Night Heron, Pacific Golden Plover and Wandering Tattler. The numbers of these species were typical of this type of habitat on Maui.

- 3- Data on feral mammals were limited to observations. No unusual concentrations were noted. No endangered species were recorded.
- 4- No unusual or special habitat for wildlife was found on these sites. The changes in the overall populations of birds in this region of Maui, as a result of the proposed development, will be negligible.



Fig. 1. Location of offsite sewer and water improvements for HFDC project, Lahaina, Maui.

-9-

C-10

TABLE 1

Exotic species of birds recorded at HFDC Lands, Lahaina, Maui.

COMMON NAME	SCIENTIFIC NAME	RELATIVE ABUNDANCE*
Gray Francolin	<u>Francolinus pondicerianus</u>	C= 6
Rock Dove	<u>Columba livia</u>	R= 1
Spotted Dove	<u>Streptopelia chinensis</u>	U= 3
Zebra Dove	<u>Geopelia striata</u>	A= 15
Common Myna	<u>Acridotheres tristis</u>	C= 9
Northern Mockingbird	<u>Mimus polyglottus</u>	C= 6 (recorded only on mauka lands)
Northern Cardinal	<u>Cardinalis cardinalis</u>	C= 8
Red-crested Cardinal	<u>Paroaria coronata</u>	U= 3
Hwamei	<u>Garrulax canorus</u>	R= 2
Japanese White-eye	<u>Zosterops japonica</u>	A= 12
Nutmeg Mannikin	<u>Lonchura punctulata</u>	A= 25
Warbling Silverbill	<u>Lonchura malabarica</u>	C= 8
House Finch	<u>Carpodacus mexicanus</u>	U= 4
House Sparrow	<u>Passer domesticus</u>	C= 5

(see page 11 for key to symbols)

KEY TO TABLE 1

Relative abundance = number of times observed during survey or frequency on eight minute counts in appropriate habitat.

A= abundant (ave. 10+)

C= common (ave. 5-10)

U= uncommon (ave. less than 5)

R= recorded (seen or heard at times other than on 8 min. counts.
Number which follow is the total individuals seen or heard)

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Appendix D: CDUA, SMA Exclusion

JOHN WAIHEE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF LAND MANAGEMENT
P. O. BOX 621
HONOLULU, HAWAII 96806

CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 11, 1991

Board of Land and
Natural Resources
State of Hawaii
Honolulu, HI

Gentlemen:

MAUI

Subject: Housing Finance and Development Corporation
Requests Grant of Non-Exclusive Wastewater
Transmission Pipeline Easement to County of
Maui at Wahikuli, Lahaina, Maui; Tax Map Key:
(2) 4-5-21:7 (Por.)

STATUTE: Section 171-95, Hawaii Revised Statutes, as
amended

APPLICANT: COUNTY OF MAUI, DEPARTMENT OF PUBLIC WORKS,
by application of Housing Finance and
Development Corporation, Department of Budget
and Finance

FOR: Perpetual, non-exclusive wastewater
transmission pipeline easement, fifteen (15)
feet-wide, over, under, in and across portion
of the Government Land of Wahikuli, situate
at Wahikuli, Lahaina, Maui, Hawaii, being a
portion of that certain parcel of land
identified by Tax Map Key: 2nd Div./4-5-21:7,
as shown delineated in red on maps labeled
Land Board Exhibits "A" and "B,"
respectively, appended to the basic file.

STATUS OF
LAND TITLE: Subsection 5(b) lands of the Admission Act.

STATUS: Encumbered under Governor's Executive Order
No. 2947 dated December 14, 1978 to the
Department of Land and Natural Resources,
Division of State Parks and Outdoor
Recreation, for use as an addition to
Wahikuli State Wayside Park.

ZONING: State Land Use Commission: Urban District
County of Maui: Park

APPROVED BY THE BOARD OF
LAND AND NATURAL RESOURCES
AT ITS MEETING ON

1-11-91

ITEM F-2

LAND AREA: 1,575 feet-long x 15 feet-wide = 23,625 sq. feet, more or less.

Exact land area and its configuration to be determined by the Housing Finance and Development Corporation, subject to the review and confirmation by Survey Division, Department of Accounting and General Services.

SPECIFIC USE: To construct, use, operate, maintain and repair off-site wastewater transmission pipeline to service Housing Finance and Development Corporation's Lahaina Master Planned Project, Phase 1.

CONSIDERATION: Gratis

REMARKS:

The Housing Finance and Development Corporation (HFDC) proposes to install a new 12-inch gravity wastewater (sewer) transmission pipeline within the eastern (mauka) premises of the 8.26-acre Wahikuli State Wayside Park, identified by Tax Map Key: 2nd Div./4-5-2:7 at Wahikuli, Lahaina, Maui, Hawaii. The Wahikuli State Wayside Park is situated within a portion of the State-owned, Government Land of Wahikuli, and is set aside by Governor's Executive Order No. 2947 to the State Department of Land and Natural Resources, Division of State Parks and Outdoor Recreation.

The proposed 1,575-foot-long sewer transmission pipeline will be placed within and along the eastern (mauka) boundary of the State Honoapiilani Highway right-of-way. One end of the sewer transmission pipeline will be connected to the existing County of Maui, Department of Public Works-operated Sewage Pump Station No. 3 at the point where the existing 27-inch diameter sewer transmission pipeline ends. The other end of the pipeline will cross under the Honoapiilani Highway and connect to an on-site wastewater collection system being planned and developed by HFDC.

When installation of the new off-site sewer transmission pipeline and on-site wastewater collection system is completed, the combined sewer system will serve the first phase of HFDC's Lahaina Master Planned Project development on State-owned lands surrounding the Lahaina Civic and Recreation Center site.

In order to commence with installation of the off-site sewer transmission pipeline within Wahikuli State Wayside Park, HFDC is now requesting Land Board approval for an immediate construction right-of-entry to the subject State-owned premises.

When this sewer pipeline installation project is completed in accordance with County of Maui construction standards, the new off-site sewer system will be turned over to the Department of Public Works, County of Maui and made a part of the County-operated Lahaina sewage system. Therefore, Land Board approval is needed for a perpetual, non-exclusive sewer easement in favor of the County of Maui, Department of Public Works.

RECOMMENDATION: That the Board:

- A. Authorize the granting of a perpetual, non-exclusive sewer easement to the County of Maui, Department of Public Works, over, under, in and across the subject State land, subject to the terms and conditions previously-listed, which are by reference incorporated herein, including the following additional terms and conditions:
 1. Standard indemnification and hold-harmless clause;
 2. Standard one (1)-year reverter clause upon non-use or abandonment of the easement;
 3. Standard relocation clause;
 4. Other standard terms and conditions covering easements of this nature; and
 5. Such other terms and conditions as may be prescribed by the Chairperson.
- B. Until the issuance of the Grant of Non-Exclusive document and recordation of same at the Bureau of Conveyances, State of Hawaii, grant an immediate construction right-of-entry to the proposed easement area (premises), subject to the following terms and conditions:
 1. HFDC, its agents, officers, employees, contractors and/or vendors shall at all times with respect to the premises use due care for public safety and agree to indemnify, defend and hold harmless the State of Hawaii from and against all claims or demands for damage, including claims for property damage, personal injury or

death, arising on or about the premises, or by any fire or explosion, thereon, or growing out of, or caused by any failure on the part of the HFDC, its agents, officers, employees, contractors and/or vendors to maintain the premises in accordance with the terms and conditions of this right-of-entry permit;

2. HFDC, its agents, officers, employees, contractors and/or vendors shall observe and comply with all applicable statutes, laws, ordinances, rules and regulations of the Federal, State and County governments relative to and affecting the premises;
3. HFDC, its agents, officers, employees, contractors and/or vendors shall cease work and immediately notify the State Historic Preservation Program Office in Honolulu at 587-0047 in the event that any unanticipated historic site(s) or any archaeological remains are encountered during construction work performed on or within the premises;
4. HFDC, its agents, officers, employees, contractors and/or vendors shall keep the premises in a clean, sanitary, and orderly condition;
5. HFDC, its agents, officers, employees, contractors and/or vendors shall not make, permit, or suffer, any waste, strip, spoil, nuisance or unlawful, improper or offensive use of the premises;
6. HFDC, its agents, officers, employees, contractors and/or vendors shall be responsible for clearing and removing all materials and debris generated during and resulting from the construction work performed on or within the premises;
7. No open burning of any type shall be permitted on or within the premises;

8. Entry onto the subject premises shall be coordinated with Department Land and Natural Resource's Division of State Parks and Outdoor Recreation;
- 9: HFDC shall notify the Maui District Land Agent prior to the start and also upon completion of any construction work on or within the premises; and
10. Such other terms and conditions as may be prescribed by the Chairperson.

Respectfully submitted,

W. Mason Young
W. MASON YOUNG
Land Management Administrator

APPROVED FOR SUBMITTAL:

W. Paty
W. Paty
WILLIAM W. PATY, Chairperson

re January 11, 1991 Board meeting, Item F-2

Recommended additional conditions are:

1. Relocate all trees existing within the easement to a) a State Parks designated location elsewhere in the park premises, or b) at the discretion of State Parks, an offsite location for use in the HFDC housing project, or c) at the discretion of State Parks, cut down. All relocated trees shall be cared for by the contractor for a period of 6 months.
2. Any large canopied trees with trunks immediately outside of the easement shall be relocated as above or pruned and assurance must be given to right such trees if toppled by winds as a result of destruction of root system in the excavated easement. Such assurance shall be for a period of one (1) year.
3. All developed facilities (guardrail, picnic shelters, irrigation, pavement, underground utilities, landscaping, etc.) affected by work on the easement shall be disrupted for the least amount of time before such facilities are restored to prior condition or better. Picnic shelter should be relocated to State Parks designated locations elsewhere in the park premises, or if infeasible to relocate, replacement shelter must be erected. Irrigation system must be adjusted to meet any new landscape conditions in the vicinity of easement or relocated trees/shelters.
4. Vehicular and pedestrian access to park premises shall be kept open at all times unless given prior State Parks approval.
5. Any required shut down of a comfort station shall be with prior State Parks approval and shall require posting of appropriate signs, barricades at entries, and when appropriate portable toilet. If project adversely affects existing waste disposal from comfort stations, provision should be included to hookup to project.
6. Applicant should be aware of existing County sewer line along proposed alignment.

7. Project vehicles and equipment and materials shall not be parked/stored on paved parking or driveway areas, except when construction traverses such areas. Otherwise these areas shall be kept open to general public use to the fullest extent possible.
8. The monkeypod tree, located approximately 575 feet north of Lahaina Sewer Pump Station No. 3, shall be pruned, to include cleaning out of dead growth and thinning of tree canopy, when its root structure is cut by trench excavation.
9. The existing park comfort station wastewater system shall be tied into new sewer transmission pipeline at stub-out when project is completed and new sewer pipeline system is hooked-up to Lahaina Sewer Pump Station No. 3.

HANNIBAL TAVARES
Mayor

RECEIVED
H.F.D.C. *Duplicate*
JUN 29 12 10 PM '90



CHRISTOPHER L. HART
Planning Director
RALPH N. MASUDA
Deputy Planning Director

COUNTY OF MAUI
PLANNING DEPARTMENT
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

June 25, 1990

Mr. Joseph Conant
Executive Director
Housing Finance and
Development Corporation
Seven Waterfront Plaza, Ste. 300
500 Ala Moana Blvd.
Honolulu, Hawaii 96813

Dear Mr. Conant:

" Re: Special Management Area Assessment/Determination for
the proposed construction of offsite wastewater
transmission lines for Phase I of the Lahaina Master
Planned Project

We have reviewed your application and find that the offsite
wastewater transmission lines are underground located within
the existing right-of-way and will connect to the existing pump
station site and the Lahaina Wastewater Reclamation Plant at
Kaanapali. The proposed improvements qualify as "installation
of underground utility lines and appurtenant aboveground
fixtures less than four feet in height along existing
corridors" and therefore is exempt from the requirements of the
Special Management Area Rules and Regulations of the County of
Maui.

Thank you for the opportunity to comment on the above
application. If additional clarification is required please
contact Ms. Colleen Suyama of the my office.

Very truly yours,

Christopher L. Hart
CHRISTOPHER L. HART
Planning Director

cc: Neal Wu, HFDC
Ed Okubo, Housing
Aaron Shinmoto, LUCA
LUCA, CZM
LUCA, Bldg
Colleen Suyama

Honorable Yukio Takemoto

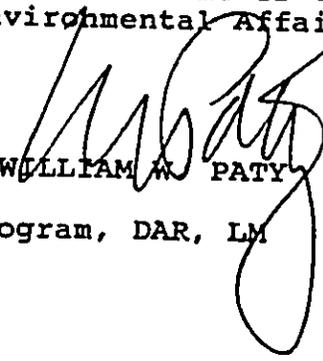
-2-

Doc. No.: 8385E

We also approve of the EA's proposal to have archaeologists on call, and if significant remains are encountered, work would be stopped and the appropriate State and County agencies would be consulted.

Finally, our Division of Land Management has no objections to the above-captioned wastewater transmission line project. However, if the transmission line traverses over, under, in, and across State lands, authorization will need to be secured from the Board of Land and Natural Resources for the occupancy and use of State lands.

If you have any questions, please call me or Cathy Tilton at our Office of Conservation and Environmental Affairs at 548-7837.



WILLIAM W. PATY

cc: Historic Preservation Program, DAR, LM