



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

JUN 26 P 4:00

JUN 22 2001

MEMORANDUM:

To: Genevieve Salmonson, Director
Office of Environmental Quality Control

From: Harry Yada, Land Administrator 
Land Division, Department of Land and Natural Resources

Subject: Finding of No Significant Impact (FONSI) for Kukio: Mauka Lands Expanded
Utility and Other Related Improvements, TMK: (3) 7-2-04: 4 (Portion), North
Kona, County of Hawaii, State of Hawaii

The Department of Land and Natural Resources has reviewed the comments received during the 30-day public comment period which began on April 8, 2001. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the July 8, 2001 OEQC *Environmental Notice*.

We have enclosed a completed OEQC Publication Form and four copies of the Final EA. Please call Sam Lemmo at 587-0381 if you have any questions.

Cc: PBR Hawaii

83

JUL 8 2001

FILE COPY

2001-07-08-HI-FEA - Kuki'o Resorts
Water System Improvements
KŪKI'O:

**MAUKA LANDS - EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS**

Kūki'o, North Kona, Hawai'i



**CONSERVATION DISTRICT USE APPLICATION
and FINAL ENVIRONMENTAL ASSESSMENT**

Prepared by
PBR HAWAII

For
WB KŪKI'O RESORTS, LLC

May 2001

STATE OF HAWAII
DEPARTMENT OF LAND AND
NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809
CONSERVATION DISTRICT USE
APPLICATION FORM

FOR DLNR USE ONLY

Reviewed by _____
Date _____
Accepted by _____
Date _____
Docket/Fine No. _____
180-Day Exp. _____
EIS Required _____
PH Required _____
Board Approve _____
Disapproved _____

SUMMARY PAGE

I. LANDOWNER

(If State land, to be filled by State of Hawaii or government entity with management control over parcel.)

Name:

Address:

Telephone No.:

SIGNATURE:

Its: _____

Date: _____

NOTE: Signature of an authorized representative of DLNR under this section is not to be construed as an approval or as an application which shall be submitted separately with the appropriate fee. Also, for private lands with multiple owners, the application shall be signed by landowners whose property interests constitute or exceed 85% of the fee ownership of the parcel(s).

II. APPLICANT

Name: **WB Kukio Resorts, LLC**

Address: **PO Box 5349
Kailua-Kona, HI 96745-5349**

Telephone No.: **(808) 325-2711**

Interest in Property: **Owners of adjoining land and developer of proposed utility improvements over State lands.**

(Indicate interest in property, submit written evidence of this interest.)

SIGNATURE:



Date: 2/6/01

If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.

AGENT: **James Leonard, AICP
PBR HAWAII**

Address: **101 Aupuni Street, Suite 310
Hilo, Hawaii 96720**

Telephone No. **(808) 961-3333**

III. TYPE OF PERMIT

- (1) Departmental permit (see section 13-5-33);
- (2) Board permit (see section 13-5-34)
- (3) Emergency permit (see section 13-5-35)
- (4) Temporary variance (see section 13-5-36)
- (5) Nonconforming use (see section 13-5-37)
- (6) Site plan approval (see section 13-5-38); or
- (7) Management plan (see section 13-5-39)

IV. LAND PARCEL LOCATION

Island: **Hawaii**
County: **Hawaii**
District: **North Kona**
Tax Map Key: **(3) 7-2-04: 4 (Portion)**
Area of Parcel: **5.5 acres**
Term (if lease):

V. SUMMARY OF PROPOSED IDENTIFIED LAND USE: (Cite applicable section of Title 13-5, HAR. Attached additional sheet (s) as needed.)

See Section 2, Project Description, in the attached Draft Environmental Assessment.

VI. ENVIRONMENTAL REQUIREMENTS

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Title 11; Chapter 200, Environmental Impact Statement Rules for applicant actions, a Draft Environmental Assessment of the proposed use must be attached. The Draft Environmental Assessment shall include, but not be limited to the following:

- (1) Identification of applicant or proposing agency;
- (2) Identification of approving agency, if applicable;
- (3) Identification of agencies consulted in making assessment;
- (4) General description of the action's technical, economic, social, and environmental characteristics;
- (5) Summary description of the affected environment, including suitable and adequate location and site maps;
- (6) Identification of summary of major impacts and alternative considered, if any;
- (7) Proposed mitigation measures, if any;
- (8) Determination;
- (9) Findings and reasons supporting determination; and
- (10) Agencies to be consulted in the preparation of the EIS, if applicable.

A Draft Environmental Assessment prepared in accordance with Chapter 343, *Hawaii Revised Statutes* and with "Hawaii Administrative Rules, Title 11, Chapter 200, Environmental Impact Statement Rules" is attached.

VII. DESCRIPTION OF PARCEL

- A. Existing structures/use. (Attach description or map and one set of original photographs. Also, if applicable, include any previously obtained Federal, State and/or County permit approvals.)
- B. Existing utilities. (If available, indicate size and location on map. Include electricity, water, telephone, drainage, and sewerage.)
- C. Existing access. (Provide map showing roadways, trails, if any. Give street name. Indicate if rare or endangered native plants and/or animals are present.)
- D. Flora and Fauna. (Describe and provide map showing location and types of flora and fauna. Indicate if rare or endangered native plants and/or animals are present.)
- E. Topography; if ocean area, give depths. (Submit contour maps for ocean areas and area where slopes are 40% or more. Contour maps will also be required for uses involving tall structures, gravity flow and other special cases.)
- F. If shoreline area, describe shoreline. (Indicate if shoreline is sandy, muddy, rocky, etc. Indicate cliffs, reefs, or other features such as access to shoreline.)
- G. Existing covenants, easement, restrictions. (If State lands, indicate present encumbrances.)
- H. Historic site affected. (If applicable, attach map and descriptions.)

See the attached Draft Environmental Assessment.

VIII. COMMENCEMENT DATE : Within 6 months of CDUA and BLNR approvals.

COMPLETION DATE: Last phase - 2005 (or later)

IX. CITE AND DESCRIBE IN DETAIL THE PROPOSED IDENTIFIED LAND USE.

See the attached Draft Environmental Assessment, Section 2.

X. AREA OF PROPOSED USE: 1) Utility lease and improvements in an area encompassing approximately 3.5 acres, and 2) Grading over 2 acres.

XI. NAME AND DISTANCE OF NEAREST TOWN OR LANDMARK: Located generally between Queen Ka'ahumanu Highway and Māmalahoa Highway. Kailua-Kona is located approximately 14 miles to the south.

- XII. **LAND USE COMMISSION BOUNDARY INTERPRETATION:** If the area is within fifty feet of the boundary of the conservation district, include a map showing the interpretation of the boundary by the State Land Use Commission.

See Figure 5 in the Draft Environmental Assessment.

- XIII. **SUBZONE DETERMINATION:** Prior to the department receiving for processing any application for a permit, if the applicant's proposed land use lies within fifty feet of a subzone boundary, the applicant shall first notify the department of the intended use and seek a determination of the precise boundary of the subzone with respect to the parcel in questions. (Refer to Section 13-5-17, HAR.)

- XIV. **FEES.** Each application shall be accompanied by such filing fees as specified in Chapter 13-5, HAR. All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii.

A check for Seven Hundred Dollars (\$700.00) is enclosed.

- XV. **PLANS.** All applications shall contain associated plans such as a location map, site plan, floor plan, elevations and landscaping plans drawn to scale. Additionally, all plans should include a north arrow and graphic scale.

- A. **Area Plan.** Area plan should include but not be limited to relationship of proposed uses to existing and future uses in abutting parcels; identification of major existing facilities; names and addresses of adjacent property owners.
- B. **Site Plan:** Site plan (maps) should include, but not be limited to dimensions and shape of lot; metes and bounds, including easements and their use; existing features, including vegetation, water, area, roads, and utilities. (For Site Plan Approvals, see Section 13-5-38, HAR.)
- C. **Construction Plan:** Construction plans should include, but not be limited to, existing and proposed changes in contours; all buildings and structures with indicated use and critical dimensions (including floor plans); open space and recreation area; landscaping, including buffers; roadways, including widths; off street parking area; existing and proposed drainage; proposed utilities and other improvements; revegetations plans; drainage plans including erosion sedimentation controls; and grading, trenching, filling, dredging or soil disposal.
- D. **Maintenance Plans:** For all uses involving power transmission, fuel lines, drainage systems, unmanned communication facilities and roadways not maintained by a public agency, plans for maintenance shall be included.
- E. **Management Plans:** If required, refer to Section 13-5-39, HAR, and Exhibit 3, entitled "Management plan Requirements, dated September 6, 1994.

- F. **Historic or Archaeological Site Plan:** Where there exists historic or archaeological sites on the State or Federal Register, a plan must be submitted including a survey of the site(s); significant features; protection, salvage, or restoration plans.

Appropriate plans are included in the Draft Environmental Assessment. These include a Regional Location Map (Figure 1), Site Plan (Figure 4), and an archaeological and cultural impact assessment report (Appendix B) which includes a survey area map and which determined that no archaeological or cultural sites exist on the project area.

XVI. DEMONSTRATE THAT THE PROPOSED USE IS CONSISTENT WITH THE FOLLOWING CRITERIA:

1. The proposed land use is consistent with the purpose of the Conservation District;
2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;
3. The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled "Coastal Zone Management," where applicable;
4. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region;
5. The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding area, appropriate to the physical conditions and capabilities of the specific parcel or parcels;
6. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;
7. Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District; and
8. The proposed land use will not be materially detrimental to the public health, safety and welfare.

See the attached justification for the proposed action.

XVII. JUSTIFICATION AND REASONS SUPPORTING THE PROPOSED ACTION

The proposed action represents an appropriate use of the State Conservation District in that it is supportive of the following criteria used to evaluate such actions.

1. The proposed land use is consistent with the purpose of the Conservation District.

Discussion: As stated in Title 13, Chapter 5, Section 1 of the Hawaii Administrative Rules (HAR), the purpose of the Conservation District is as follows:

“Purpose. The purpose of this chapter is to regulate land use in the Conservation district for the purpose of conserving, protecting, and preserving the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare.”

Based on the findings of the enclosed Environmental Assessment, the requested utility lease and water utility related improvements within certain Conservation District, State-owned lands do not represent a threat to the natural resources of the area, will add to the long-term sustainability, and will promote the health, safety, and welfare of the public by improving the existing access and management options for the subject lands while presenting a minimal impact to the existing environment.

2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.

Discussion: The proposed use includes land designated within the General (G) subzone of the State Conservation District. The objective of the General subzone as defined under section 3-5-14, HAR, is to designate open space where specific conservation uses may not be defined, but where urban use would be premature. The proposed improvements are not anticipated to have any noticeable impact to the scenic and open space resources of the area due to the significant distance (over one mile) from Queen Ka'ahumanu Highway, the nearest public roadway. The 0.5 MG water tank, planned at the 620-ft elevation, would be recessed into the existing topography; and therefore, would have no significant effect on the scenic vistas or views of travelers on the highway. To further minimize the visibility of the proposed structures, the water tank and water treatment plant building will be painted to blend with the surrounding environment.

3. The proposed land use complies with provisions and guidelines contained in Chapter 205, HRS, entitled “Coastal Zone Management,” where applicable.

Discussion: The proposed action does not include the use of coastal property, and is not located in the County Special Management Area (SMA). As noted above, the proposed improvements are of a character and scale so as not to have a significant impact on the scenic or open space character of the area, and the improvements would not impact the existing public views to the shoreline.

4. The proposed land use will not cause substantial adverse impacts to existing natural resources within the surrounding area, community, or region.

Discussion: The attached Draft Environmental Assessment fully describes the existing natural resources within the project area and surrounding lands. Through field surveys by the project biologist, the flora and wildlife resources were assessed and no important species were found. The proposed irrigation reservoir has been determined to be an asset to the natural resources

of the area for two purposes: 1) regional helicopter fire control, and 2) to potentially attract waterbirds to the area, thereby increasing biodiversity on the property.

By expanding the planned water system utilities in the area, the proposed uses are not expected to have a significant adverse impact to the existing natural resources and are expected to have a positive impact on the surrounding area, the State, the County, and planned community development at Kukio.

5. The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding area, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

Discussion: The proposed water system improvements have been planned to be compatible with the surrounding area and physical conditions of the environment as described in the Draft Environmental Assessment, Section 4.

6. The existing physical and environmental aspect of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.

Discussion: As noted, the proposed uses, including the reservoir and water tank will be recessed into the existing landscape and of a scale and distance from the nearest public highway so as not to have a significant impact on scenic vistas or view planes. Additionally, structures will be painted to blend with the surrounding environs to minimize their potential visual impact on the existing natural conditions.

7. Subdivision of the land will not be utilized to increase the intensity of land uses in the Conservation District.

Discussion: The area of the proposed utility improvements would be leased to a public utility established by the applicant. Although the leased area must be subdivided from the larger parcel, the subdivided parcel would be established solely for utility purposes to support the adjacent urban development and, therefore, would not lead to an increase in the intensity of land use within the Conservation District.

8. The proposed land use will not be materially detrimental to the public health, safety and welfare.

Discussion: The proposed action is expected to be generally beneficial to the health safety, and welfare of the public in that the proposed action:

- a) has been planned in a manner to present the least amount of impact as practical to the existing environmental conditions;
- b) will allow for the utilization of existing water resources that are intended to support a community development in a manner that is in keeping with the State and County long-range plans for the area, including the appropriate land use, General Plan, zoning, and SMA Use Permit approvals; and

c) will help to support other State and County activities in the area by providing improved pressurized irrigation and/or potable water to the County's West Hawaii Veterans' Memorial Cemetery, and would provide available water for regional fire control. Relocation of the water tank from Pu'u Mūhe'enui and grading of the escarpment on State land would also help to achieve the objectives of the State Conservation District by helping to preserve the natural beauty and open space character of the land.

KŪKI'O:
MAUKA LANDS - EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS

Kūki'o, North Kona, Hawaii

CONSERVATION DISTRICT USE APPLICATION
and FINAL ENVIRONMENTAL ASSESSMENT

Prepared by
PBR HAWAII

For
WB KŪKI'O RESORTS, LLC

May 2001

KŪKI‘O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

TABLE OF CONTENTS

Conservation District Use Application (CDUA)

1.0	DESCRIPTION OF THE PROPOSED ACTION	1
1.1	Project Summary	1
1.2	Background	1
1.3	Chapter 343, HRS Compliance	2
1.4	Location and Ownership	3
1.5	Existing and Surrounding Uses	3
1.6	Consultation with Community Advisory Group	3
2.0	PROJECT DESCRIPTION	8
2.1	Project Development Goals and Objectives	8
2.2	Technical Background	8
2.3	Project Description and Phasing	9
2.3.1	Water System Improvements and Utility Lease	9
2.3.2	Other Related Improvements - Grading of a Two-acre Area to "Naturalize" the Contours	12
2.4	Supporting Infrastructure	12
2.5	Purpose, Need, and Public Benefits of the Proposed Actions	12
2.5.1	Purpose and Need	12
2.5.2	Public Benefits	13
2.6	Development Timetable and Approximate Costs	13
3.0	REQUIRED APPROVALS AND PERMITS	15
3.1	State of Hawai‘i	15
3.1.1	Chapter 343, Hawai‘i Revised Statutes	15
3.1.2	State Land Use District	15
3.2	County of Hawai‘i	15
3.2.1	General Plan	15
3.2.2	County Zoning	15
3.2.3	Special Management Area	15
3.3	Approvals and Permits	19
4.0	DESCRIPTION OF THE AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES	20
4.1	Physical Characteristics	20
4.1.1	Climate	20
4.1.2	Topography	21
4.1.3	Soils	25
4.1.4	Groundwater Hydrology	25
4.1.5	Flora and Fauna	27
4.1.6	Drainage	27
4.1.7	Noise and Air Quality	27
4.1.8	Visual Quality	28

**KŪKI‘O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment**

4.2	Historical and Cultural Resources	31
4.3	Summary of Potential Impacts and Proposed Mitigation Measures	32
5.0	ALTERNATIVES CONSIDERED	33
5.1	No Action	33
5.2	Alternative Locations for the Utility Improvements	33
5.3	Postponing Action Pending Further Study	34
6.0	DETERMINATION WITH SUPPORTING FINDINGS AND REASONS	35
6.1	Significance Criteria	35
6.2	Determination	38
7.0	AGENCIES CONSULTED	39
8.0	COMMENTS AND RESPONSES	40
9.0	REFERENCES	Following Comment Letters

LIST OF FIGURES

1	Regional Location Map	5
2	Project Location map	6
3	Land Ownership Map	7
4	Preliminary Site Plan	10
5	State Land Use District Map	16
6	Hawai‘i County General Plan	17
7	Zoning Map	18
8	SCS Soil Survey Map	23
9	LSB Detailed Land Classification Map	24
10A	Site Photographs	29
10B	West Hawai‘i Veterans’ Cemetery Photos	30

LIST OF TABLES

1	Summary of Water System Phasing Plan	12
2	Required Permits and Approvals	19

APPENDICES

A	Flora/Fauna Survey
A-1	U.S. Fish and Wildlife Service Letter
B	Archaeology and Cultural Impact Assessment Report

**KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS**

Conservation District Use Application / Final Environmental Assessment

1.0 DESCRIPTION OF THE PROPOSED ACTION

This environmental assessment is prepared in accordance with Chapter 343, *Hawai'i Revised Statutes* (HRS), for the use of State of Hawai'i owned lands within the Conservation District.

1.1 PROJECT SUMMARY

- Project Name:** Kūki'o: Mauka Land Expanded Utility and Other Related Improvements
- Applicant:** WB Kūki'o Resorts, LLC
- Landowner:** State of Hawai'i
- Tax Map Key:** TMK: (3) 7-2-04: Portion of 4
- Existing Use:** Disturbed vacant land
- Proposed Uses:** *Utility Improvements (3.5 acres):* 1) Development of an irrigation reservoir, 2) Construction of a 0.5 million gallon water tank, 3) Construction of a water treatment plant, 4) Laying of an overland waterline from the irrigation reservoir to the County's West Hawai'i Veterans' Memorial Cemetery, and
Other Related Improvements: Grading (2 acres) to "naturalize" contours.
- Land Use Designations:** *State Land Use:* Conservation (General subzone)
County General Plan: Open
- SMA:** The subject property is not in the SMA.
- Actions Requested:** 1) Conservation District Use Permit, and 2) County Subdivision for a utility lease under the provisions of Section 23-11 of the County Code, and 3) Lease Agreement for the proposed utility facilities
- Approving Agency:** Board of Land and Natural Resources

1.2 BACKGROUND

This Environmental Assessment (EA) has been prepared to support a request to the State Board of Land and Natural Resources (BLNR) for the following: 1) a Conservation District Use Permit and 2) right of entry and utility lease for certain Conservation District, State-owned lands at the ahupua'a of Kūki'o 2nd, North Kona, Hawai'i.

Kūki'o, situated along the North Kona coast of Hawai'i on property identified as TMKs: 7-2-4: 5 and 16, is a resort development currently under construction by its owner, WB Kūki'o Resorts, LLC. This project was initially planned and approved in 1988 as Regent Kona Coast Resort whose master plan included 1,620 residential and 1,250 hotel room units for a total of 2,870 units and 36 holes of

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

golf. Under the present ownership by the Applicant, the project master plan, now named "Kūki'o", supports a total of 320 units consisting of 300 residential and 20 hotel units, a standard 18-hole golf course, and a 10-hole practice course, a significant reduction from what was formerly approved.

An Environmental Impact Statement (EIS) for the Kūki'o project was prepared and processed according to the requirements of Chapter 343, HRS, and a Final EIS was published on May 16, 1986. The Final EIS contains discussion on the water requirements and planned water system improvements for the Kūki'o project, including mauka well development and utility connections across State lands to the project in Section 3.12 Water Supply (pages 3-36 to 3-37). The EIS describes the test well development in 1985 and the need for a transmission line and storage system from the mauka off-site location to the Kūki'o property. The Conservation District Use Permit and utility easement which the Applicant received in May 2000 implemented the objectives as stated in the 1986 Final EIS. The subject application is an extension of the 2000 BLNR approval.

Between 1986 and the present, various alternative siting plans for the potable water tank and the irrigation reservoir have been discussed by the previous and current owners. Engineering analyses indicate the need for the water tank to be at the 620' elevation. Thus, the Pu'u Mūhe'enui location was determined to be the only possible location on the Kūki'o property which could accommodate the water tank. However, as noted in the subject EA, its relocation to the off-site State property is the result of the Applicant's desire to halt any further alteration to the pu'u as recommended by the lineal descendants of the ahupua'a.

In May 2000 the Applicant was granted a Conservation District Use Permit and utility easement for the right, privilege and authority to construct, lay, install, use, maintain, repair, replace and remove underground water transmission pipelines; two (or more) "breaker" tank sites; overhead telecommunication, CATV and electrical transmission lines, poles, guy wires and anchors; and associated service road over, under, and across State-owned land. The alignment alternatives, as described in the application for the initial easement, include crossing State lands and various privately owned parcels. The design plan and metes and bounds description for this easement has been prepared and submitted to the State DLNR for processing.

The subject CDUA is to request a permit to construct certain water system improvements situated immediately adjacent to the approved utility easement and for other related grading improvements on two acres of State-owned lands along the mauka boundary of the Kūki'o property (TMK: 7-2-04: portion of 4). The uses which are proposed include the following: *Utility Improvement Area (lease of 3.5 acres)*: 1) Development of an irrigation reservoir, 2) Construction of a 0.5 million gallon water tank, 3) Construction of a water treatment plant, 4) Laying an irrigation waterline to the County's Veterans' Cemetery, and *Other Related Improvements*: Grading of a two-acre escarpment area to "naturalize" the contours.

1.3 CHAPTER 343, HRS COMPLIANCE

The proposed action involves the use of State-owned lands within the Conservation District, thus, requiring the need for compliance with Chapter 343, HRS. This EA has been prepared in accordance with the provisions of Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules. Provided within this EA is a description of the affected environment and the alternatives considered, proposed mitigation measures, preliminary impact determinations based upon the

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

information contained herein, and the reasons supporting these determinations. The information contained in this EA has been developed from site visits, technical surveys, and generally available information regarding the environmental characteristics of the project site and surrounding areas.

1.4 LOCATION AND OWNERSHIP

The affected State land includes Tax Map Key (TMK) parcel (3) 7-2-04: portion of 04 which is located approximately one mile mauka of Queen Ka'ahumanu Highway, approximately seven miles north of Keāhole Airport, and 14 miles north of Kailua-Kona. The Island and regional location of the proposed project are shown in Figure 1 and the project location site map in Figure 2.

The lease of the surrounding State land was initially awarded to Huehue Ranch Associates, and subsequently assumed by WB Kūki'o Resorts, LLC, the present owner and developer of the Kūki'o property. Hence, WB Kūki'o Resorts, LLC is the current lessee of the subject State lands identified in this application. A land ownership map identifying the project area is shown on Figure 3.

1.5 EXISTING AND SURROUNDING USES

The subject lands, located adjacent to the WB Kūki'o property, are vacant and have no specific recorded uses. Further mauka, beyond the subject property, lands with appropriate soils have been utilized for grazing.

To the north of the project, within the ahupua'a of Kūki'o 1st, is the Kūki'o property belonging to the Applicant, WB Kūki'o Resorts, LLC. The adjacent lands to the east, which are within the ahupua'a of Ka'ūpūlehu, are owned by Kamehameha Schools (KS) and are subject to a long-term lease agreement to Potomac Investment Associates (PIA). To the west and south is the bulk of the State's Manini'ōwali and Kūki'o 2nd lands.

The affected State land and the surrounding parcels on the same TMK parcel are mostly vacant with the exception of the West Hawai'i Veterans' Memorial Cemetery which is located to the northwest of the subject project area and the Applicant's property and accessed from Queen Ka'ahumanu Highway. Irrigation water will be provided to the Veterans' Cemetery as part of this project.

Approximately 2.5 miles to the south of the State lands are the Makalei Hawaii, Corp. properties, on which four of the five wells owned by the Applicant are located. The Applicant's fifth well and transmission line are located on two privately owned parcels of approximately 48 acres each. The land ownership of the affected lands and surrounding properties is shown in Figure 3.

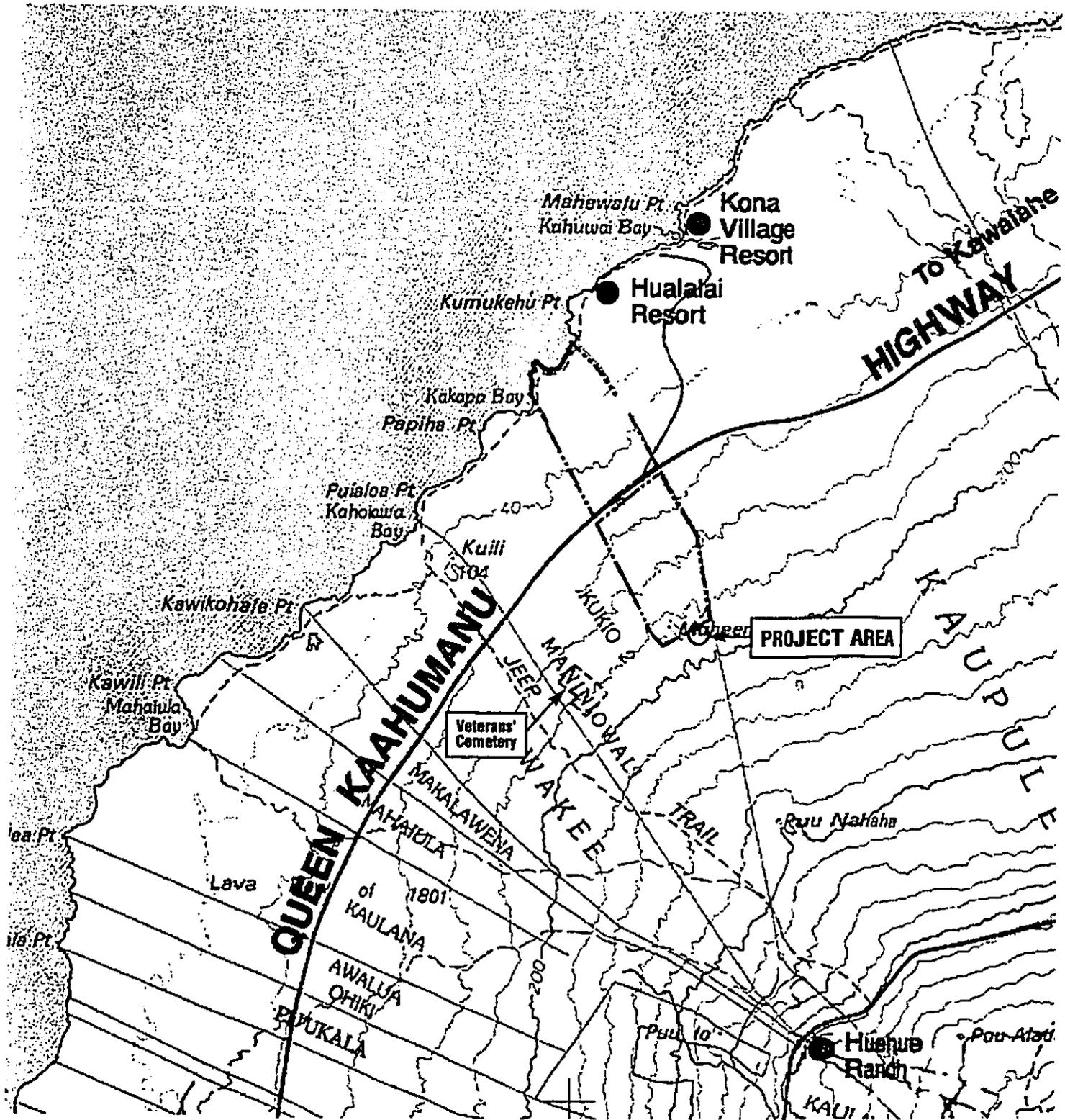
The Mūhe'enui cinder cone or pu'u is a notable landmark located at the southern boundary within the WB Kūki'o property. Mūhe'enui is directly north of the subject project area.

1.6 CONSULTATION WITH COMMUNITY ADVISORY GROUP

The Applicant, WB Kūki'o Resorts, LLC, has had on-going consultation with a community advisory group of lineal descendants of the Kūki'o ahupua'a in the course of developing all aspects of the project. The descendants include Hannah Kihalani Springer, the Robert Punihaole family, Thomas Lindsey, and George Kahananui. In planning the subject improvements on State Conservation

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

District land, the advisory members were consulted and provided their input. Their contribution is documented in the archaeological report which is cited in Section 4 of this report and attached as Appendix B.



LEGEND

 WB Kukio Resort Property



FIGURE 1
Regional Location Map

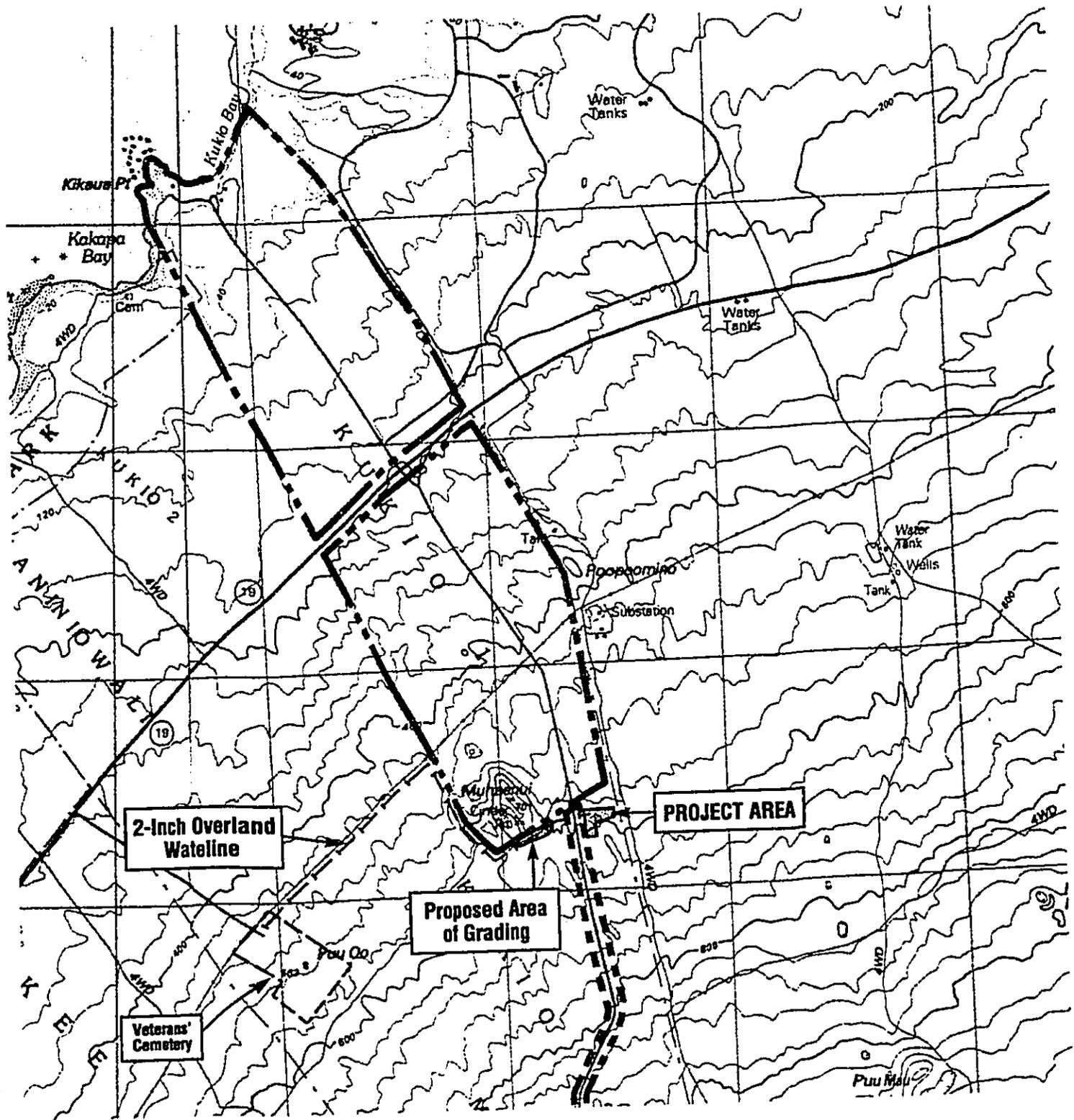
WB KŪKI'O EXPANDED UTILITY IMPROVEMENTS



May 2001



Source: USGS Topographical Map



LEGEND

-  WB Kukio Resort Property
-  Project Area
-  Existing Utility Easement
-  Irrigation Waterline To Veterans' Cemetery

FIGURE 2
Project Location Map

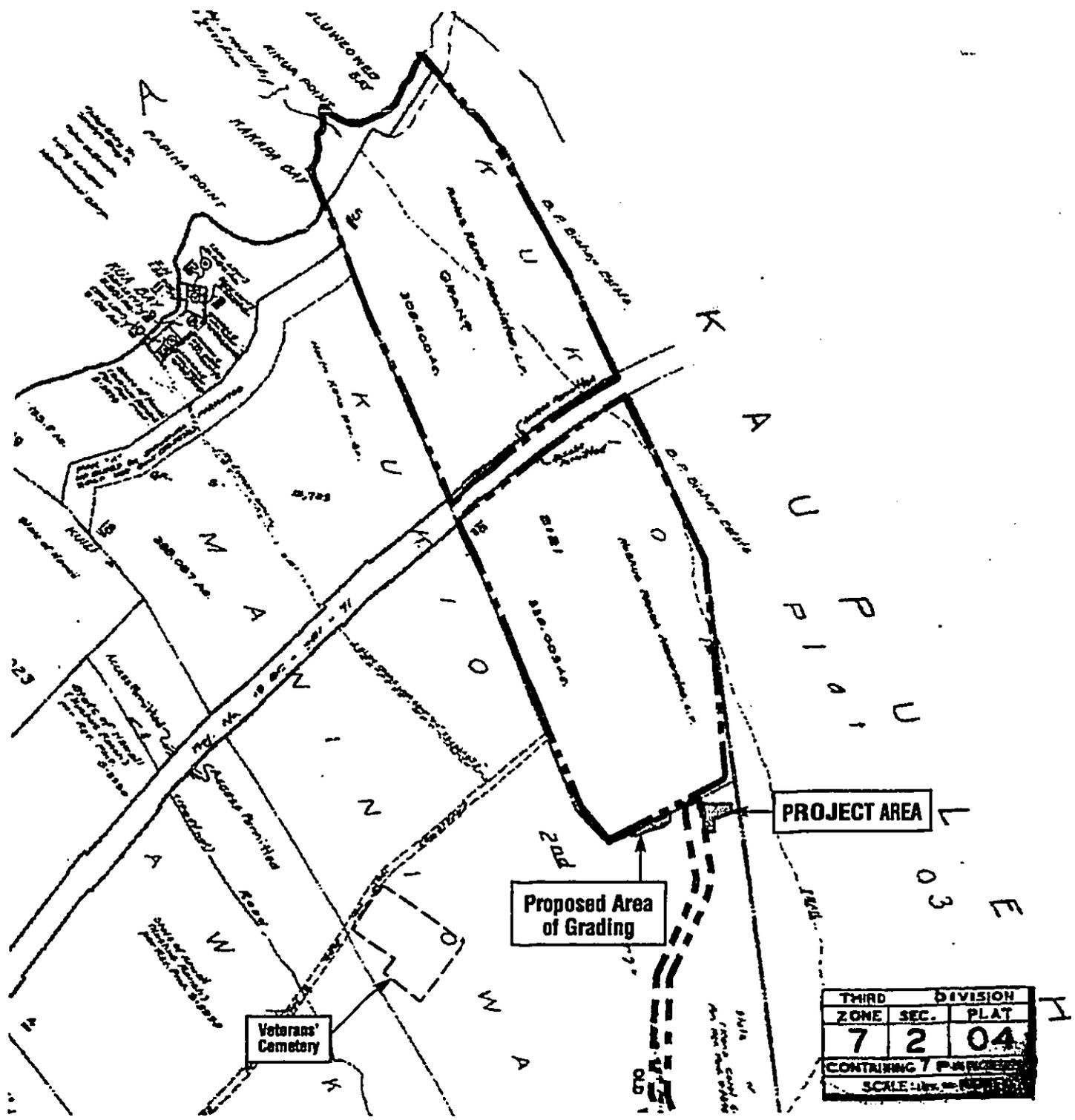
WB KŪKI'Ō EXPANDED UTILITY IMPROVEMENTS



May 2001



Source: USGS Topographical Map



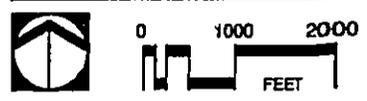
LEGEND

-  WB Kukio Resort Property
-  Project Area

Source: Tax Map Key

FIGURE 3
Land Ownership Map

WB KUKI'O EXPANDED UTILITY IMPROVEMENTS



May 2001



KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

2.0 PROJECT DESCRIPTION

The description of the proposed project, construction activities, and preliminary development timetable and approximate development costs are described below.

2.1 PROJECT DEVELOPMENT GOALS AND OBJECTIVES

After a hiatus of approximately seven years since the initial construction of the Kūki'o project, construction activity at this recognized resort node along the Kona-Kohala Coast was renewed in 1999 under the ownership of WB Kūki'o Resorts, LLC. To further the development objectives of Kūki'o, additional approvals for infrastructure development are being sought to meet the overall goal of creating a world class resort facility. Thus, this report describes the proposed actions which would fully allow the development of the water system infrastructure in a phased manner.

The Applicant is therefore requesting 1) regulatory approval for uses within the Conservation District and 2) a utility lease of a 3.5 acre portion for the purpose of providing potable and non-potable water related improvements.

The specific improvements include an irrigation reservoir, potable water tank, a mechanical water treatment plant, and an overland 2-inch waterline to the Veterans' Cemetery. In addition, grading of an escarpment which remains from previous quarrying is requested to "naturalize" the contours of a two-acre portion of State land immediately adjacent to the Kūki'o property.

2.2 TECHNICAL BACKGROUND

The subject proposed improvements for the potable and non-potable water system facilities would be ancillary to Kūki'o's existing water utility system. The wells that provide the water resources to the utility system are located on the Kūki'o property and on privately-owned mauka lands and include the following:

- Non-Potable Wells KI-1, KI-2, KI-3. Located on the Kūki'o property at the mauka boundary (approximately 590 ft. MSL)
- Potable Wells HR-1, HR-2, HR-3, HR-4, HR-5. Located offsite on Makalei Hawaii, Corp. private lands approximately 2.5 miles mauka of the Kūki'o property (approximately 1,500 ft. MSL). An additional well, HR-6, is planned for late 2001 at the same elevation.

The previously approved utility easement includes a 30-foot utility and service easement that generally follows an existing ranch road. Portions of the utility easement would run along the existing "Old Kona Village Road", a mauka-makai cinder access road which extends makai from Māmalahoa Highway through State-owned land and Queen Ka'ahumanu Highway and to Kona Village. The road was constructed in 1968 by Huehue Ranch and Signal Landmark to provide access to the Kona Village Resort and the historical Huehue Ranch lands which are now owned by Makalei Hawaii, Corp. No formal easements had been previously recorded for this roadway.

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

The subject proposed improvements and lease agreement would augment the already approved utility easement and allow water from the Kūki'o onsite non-potable KI wells and the mauka HR wells to be treated and stored in a phased manner.

2.3 PROJECT DESCRIPTION AND PHASING

2.3.1 Water System Improvements and Utility Lease

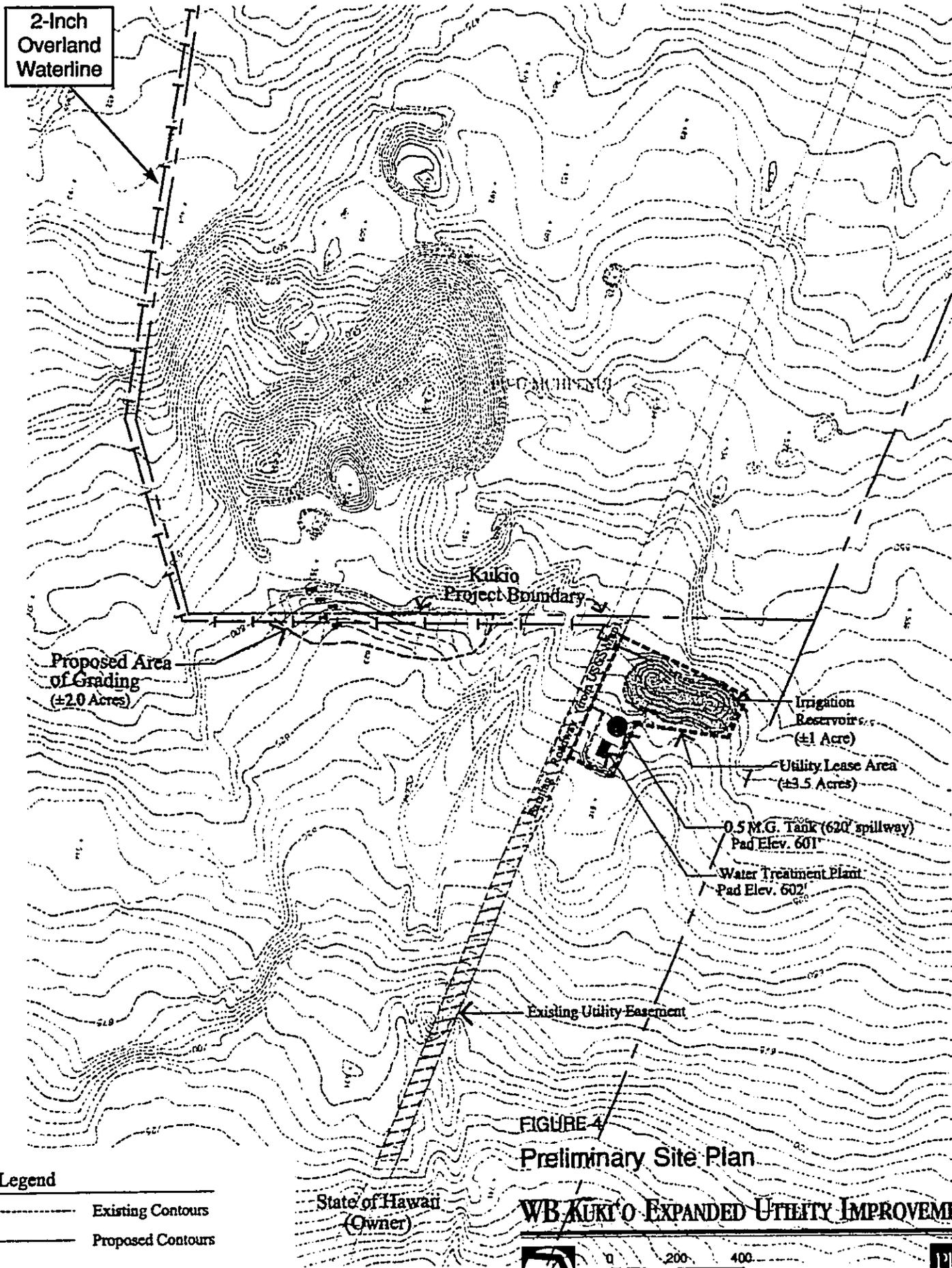
The uses which are proposed as part of the expanded utility improvements which would encompass an area of approximately 3.5 acres, include: 1) Construction of a 0.5 million gallon water tank, 2) Development of an irrigation reservoir, 3) Construction of a water treatment plant, and 4) Installing an overland irrigation waterline to the County's West Hawai'i Veterans' Memorial Cemetery. A site improvement plan is shown in Figure 4 and each component is described below.

In summary, the proposed water system is planned as an integrated system with components which are interdependent. Relocating the 620' water tank to the proposed site would prevent further alteration to the profile of Mūhe'enui pu'u. This would then require the potable water treatment system to be located above it (between the off-site source wells and the 620' water tank). The process involves the following sequence: 1) The Kūki'o source water flows through the treatment plant, 2) the treated potable water flows into the 620' water storage tank, and 3) the rejected water from the treatment plant flows to the one-acre irrigation reservoir. Hence, the potable water treatment facility and the one-acre reservoir require siting in proximity to the 620' water tank at the proposed location.

Water Treatment Plant. A 30 ft. x 60 ft. (1,800 sq. ft.) structure to house a mechanical water treatment plant would be constructed just mauka of the 620' water tank to "soften" and treat the high mineral potable water from the HR mauka wells before entering the water tank. The storage building would be constructed of materials which may include wood, concrete blocks, or metal and would be painted to blend with the natural environment.

620' Water Tank. A 0.5 million gallon (MG) tank with a pad elevation at 601' MSL and a spillway at 620' MSL would provide storage of treated potable water. The approximately 29 ft. high, 60 ft. in diameter tank would be constructed of reinforced steel and be painted to blend with the natural landscape. The tank will be sited in a low-lying area to minimize potential negative visual impacts from the surrounding properties and the Queen Ka'ahumanu Highway.

Previously, the tank was proposed to be sited on Pu'u Mūhe'enui, the only location within the Kūki'o property which could attain the required 620-foot elevation for the necessary pressure. Through the consultation process with the Kūki'o lineal descendant advisory members, a concern was raised regarding the tank's location on the pu'u and the potential impact this would have on the visual integrity of the pu'u. Locating the water tank at that location would require additional grading of the pu'u and installation of associated transmission lines. Hence, alternatives were evaluated which resulted in the selection of the present proposed location.



Legend
 - - - - - Existing Contours
 ——— Proposed Contours

FIGURE 4
Preliminary Site Plan

WB KUKI'O EXPANDED UTILITY IMPROVEMENTS



May 2001



KŪKI'Ō:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

Irrigation Reservoir. A reservoir lake with a storage capacity of 4 million gallons of non-potable irrigation water to be supplied from the Applicant's KI wells located on the Kūki'ō property would provide irrigation water for the Kūki'ō project. The one-acre reservoir would store water from the KI wells and eventually from the HR wells and discharge water from the water treatment plant.

The preliminary concept for the reservoir includes a polyvinyl lining and a maximum depth of approximately 25 feet. The surface area (or footprint) will be approximately one acre in size. Dimensions of the irrigation reservoir, including slope, depth, and volume, will be determined during the Design Phase of the project and specified in plans to be submitted to DLNR for Final Plan approval.

The primary use of the reservoir is for private use by the Applicant, however, this water source would be made available for irrigation water to the County's Veterans' Memorial Cemetery and for fire control in the event of brush fires within the North Kona region.

Overland Irrigation Waterline to Veterans' Cemetery. WB Kūki'ō Resorts, LLC has agreed to provide irrigation water and a transmission line to the County's West Hawai'i Veterans' Memorial Cemetery. Since the initial establishment of the Cemetery in the early 1990's the County Department of Parks and Recreation has been trucking in water six to eight times each month at a cost of \$190 per load.

Initially, the allocation to the County is 600 gallons per day (GPD), with a provision that the portion reserved for the State's mauka Agricultural lots may be reallocated to the Veteran's Cemetery (up to a maximum of 3,600 GPD).

The overland pipe will be a flexible 2-inch high density polyethylene (HDPE) line. WB Kūki'ō will be responsible for the maintenance of this line to the Cemetery property. The alignment for the overland irrigation water transmission line will be from the proposed irrigation reservoir and will follow the WB Kūki'ō Resorts south and east property boundary up to the HELCO 69 KV electrical easement, and parallel to the 69 KV easement to the cemetery access roadway into the cemetery property to an existing 10,000 gallon tank. Should the tank require upgrading to a larger size, it would be constructed at the same location of the existing tank. WB Kūki'ō will continue to work with the Department of Parks and Recreation in the planning of these improvements.

The full length of the irrigation waterline would be on State Conservation land. Detailed construction plans will be submitted to DLNR for review and approval. The County of Hawai'i would be responsible for seeking an easement (or other disposition) from the State for the approximately 1.4 mile length for the overland transmission waterline.

Perimeter Fencing of the 3.5-acre Easement Area. A six-foot high chain link perimeter fence would be erected around the Irrigation Reservoir, Water Tank, and Water Treatment Plant (approximately 3.5-acre area) for security purposes.

Phasing of the Water System Improvements. The water system will be phased according to the overall water infrastructure development, thus, these proposed improvements will be phased as summarized in Table 1. Phases I and II would transition to Phase III, the ultimate phase in 2005 (or later).

**KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment**

Table 1. Summary of Water System Phasing Plan

PHASING	WATER SYSTEM
Phase I Late 2001	KI wells (1 - 3) to 620' Water Tank (0.5 MG) Overspill to 4 MG Irrigation Reservoir
Phase II 2002 - 2003	Redirect KI wells to 310' elevation Irrigation Pond (on Kūki'o property) HR-5 and HR-6 to 620' Water Tank (0.5 MG), overspill to 4 MG Irrigation Reservoir
Phase III (Ultimate Phase) 2005 or Later	HR-1 to HR-6 wells to Water Treatment Plant, to 620' Water Tank, with discharge water (18%±) going to 4 MG Irrigation Reservoir

2.3.2 Other Related Improvements - Grading of a Two-acre Area to "Naturalize" the Contours

Pu'u Mūhe'enui is a significant landform at Kūki'o. Under previous ownership dating to the 1950's, a cinder quarrying operation was approved and implemented along the mauka portion of the pu'u. While this has not affected the visual quality of the pu'u from makai areas and from Queen Ka'ahumanu Highway, a scar remains and is evident from the mauka areas. As shown in Photographs 4 and 5 in Figure 10, the portion of the pu'u on State Conservation land presently creates an uneven and unnatural appearance, along with a potentially dangerous cliff condition. Thus, the Applicant proposes grading in an area approximately two acres to "naturalize" the contours of the Mūhe'enui mauka slope. Over a short period of time, Fountain grass, the dominant vegetation of the area is expected to colonize the graded area.

2.4 SUPPORTING INFRASTRUCTURE

Access and maintenance roadway. To access the State property from the Kūki'o parcel the existing Old Kona Village access roadway would be utilized and maintained to provide service access to the WB Kūki'o utility improvements as approved by the previous utility easement approval.

Water main and transmission lines. Water transmission lines from the KI wells would be routed through the previously approved utility easement.

Kūki'o east/south boundary road. The installation of the overland waterline to the Veterans' Cemetery will be from the Kūki'o perimeter road along the south and east boundary.

2.5 PURPOSE, NEED, AND PUBLIC BENEFITS OF THE PROPOSED ACTIONS

2.5.1 Purpose and Need

The Kūki'o property and the five wells that provide it water are separated by State lands. Thus, a utility easement through the State's land was previously approved by BLNR (May 2000) to provide underground water transmission lines to the Kūki'o property. At the present time the Applicant, WB Kūki'o Resorts, LLC, seeks to augment the water system improvements to enhance operations within its property, but also to provide a few important public benefits to the surrounding North Kona region.

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

The proposed utility improvements on the State lands, in addition to providing a means to connect the Applicant's water sources with the planned Kūki'o development, will also enhance the Applicant's ability to provide non-potable irrigation water, and potentially potable water, to the County's West Hawai'i Veterans' Memorial Cemetery.

2.5.2 Public Benefits

620' Water Tank. The primary reason and purpose of relocating the 620' water tank from the Pu'u Mūhe'enui location to the proposed location is to maintain the integrity of the pu'u. As indicated by the Kūki'o advisory members, the pu'u is a historic landform traditionally used by fishermen in association with other pu'u in the area to mark offshore fishing areas. Relocating the tank to the proposed location would prevent further alterations to the pu'u yet maintain the required 620 feet elevation for pressure.

At the proposed location, the tank would be recessed below the existing grade to minimize the potential negative visual impacts when viewed from the surrounding properties, from the Ka'ūpūlehu Trail, and the Queen Ka'ahumanu Highway.

Irrigation Reservoir. A reservoir with a storage capacity of 4 million gallons of non-potable irrigation water supplied from the Applicant's wells would primarily be used by the Applicant to supplement the Kūki'o project's irrigation requirements. However, a reservoir at this elevation would also provide pressurized irrigation water to the Veterans' Memorial Cemetery more efficiently, saving the County of Hawai'i approximately \$18,000 annually. The provision of irrigation water to the cemetery could be provided more economically as the proposed irrigation reservoir would allow water to be "gravity-fed" to the Veterans' Cemetery site.

In addition, this water source could be made available for fire control in the event of brush fires within the North Kona region and including fire fighting within the mauka area of the ahupua'a of Ka'ūpūlehu where the U.S. Fish and Wildlife Service has identified a remnant dryland forest which contains rare and endangered plant species (see FWS letter, Appendix A-1). Helicopters would be able to safely access the pond over an undeveloped area for efficient firefighting.

Grading. Pu'u Mūhe'enui is a significant landform at Kūki'o. Under previous ownership dating to the 1950's, a cinder quarrying operation was approved and implemented along the mauka portion of the pu'u. While this has not affected the visual quality of the pu'u as viewed from makai areas and from Queen Ka'ahumanu Highway, a scar remains and is evident from the mauka areas. As shown in Photos 4 and 5 in Figure 10, the portion of the pu'u on State Conservation land presently creates an uneven and unnatural appearance. Thus, the Applicant proposes grading in an area of approximately two acres to "naturalize" the contours and improve the visual character. Temporary irrigation lines may be utilized to assist the re-establishment of the existing vegetation (Fountain grass) over the graded area.

2.6 DEVELOPMENT TIMETABLE AND APPROXIMATE COSTS

Following the receipt of the necessary regulatory approvals from the State and County, including the proposed utility lease, construction plan approval from DLNR, and County subdivision, the Applicant anticipates that the construction of the water tank and reservoir will start within six

KŪKI‘O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

months and will be completed within one year of project commencement. The waterline to the Veterans' Cemetery will follow the completion of the reservoir.

As described in Table 1 above, the improvements will be in three phases according to the overall development of the water system. The subject ancillary improvements are, therefore, planned in phases beginning in late 2001 to the ultimate improvements in 2005, or later.

The costs for the development of the subject proposed water system improvements (water tank, irrigation reservoir, and water treatment plant) is estimated to be approximately \$2.5 million (in 2001 dollars) and grading to naturalize the contours to be \$400,000 (in 2001 dollars).

**KŪKI‘O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment**

3.0 REQUIRED APPROVALS AND PERMITS

The processing of various approvals and permits are prerequisites to implementation of the proposed actions. Relevant State of Hawai‘i and County of Hawai‘i land use plans, policies, and ordinances are described below.

3.1 STATE OF HAWAI‘I

3.1.1 Chapter 343, Hawai‘i Revised Statutes

Compliance with Chapter 343, HRS is required for the use of State of Hawai‘i owned lands and for uses within the State Land Use Conservation District.

3.1.2 State Land Use District

The proposed actions lie within lands owned by the State of Hawai‘i. As shown in Figure 5, the land is designated by the State Land Use Commission as within the Conservation District (General Subzone), therefore, a Conservation District Use Permit approval is required for the proposed actions. The area of the proposed improvements will be conveyed by way of an utility lease issued by the State under the provisions of Section 171-95, HRS. According to lineal descendants of Kūki‘o, the subject lands were not utilized during historic times, although mauka of this property the higher elevation State Agricultural lands have been used intermittently for ranching due to the presence of appropriate soil type and greater grazing potential.

3.2 COUNTY OF HAWAI‘I

3.2.1 General Plan

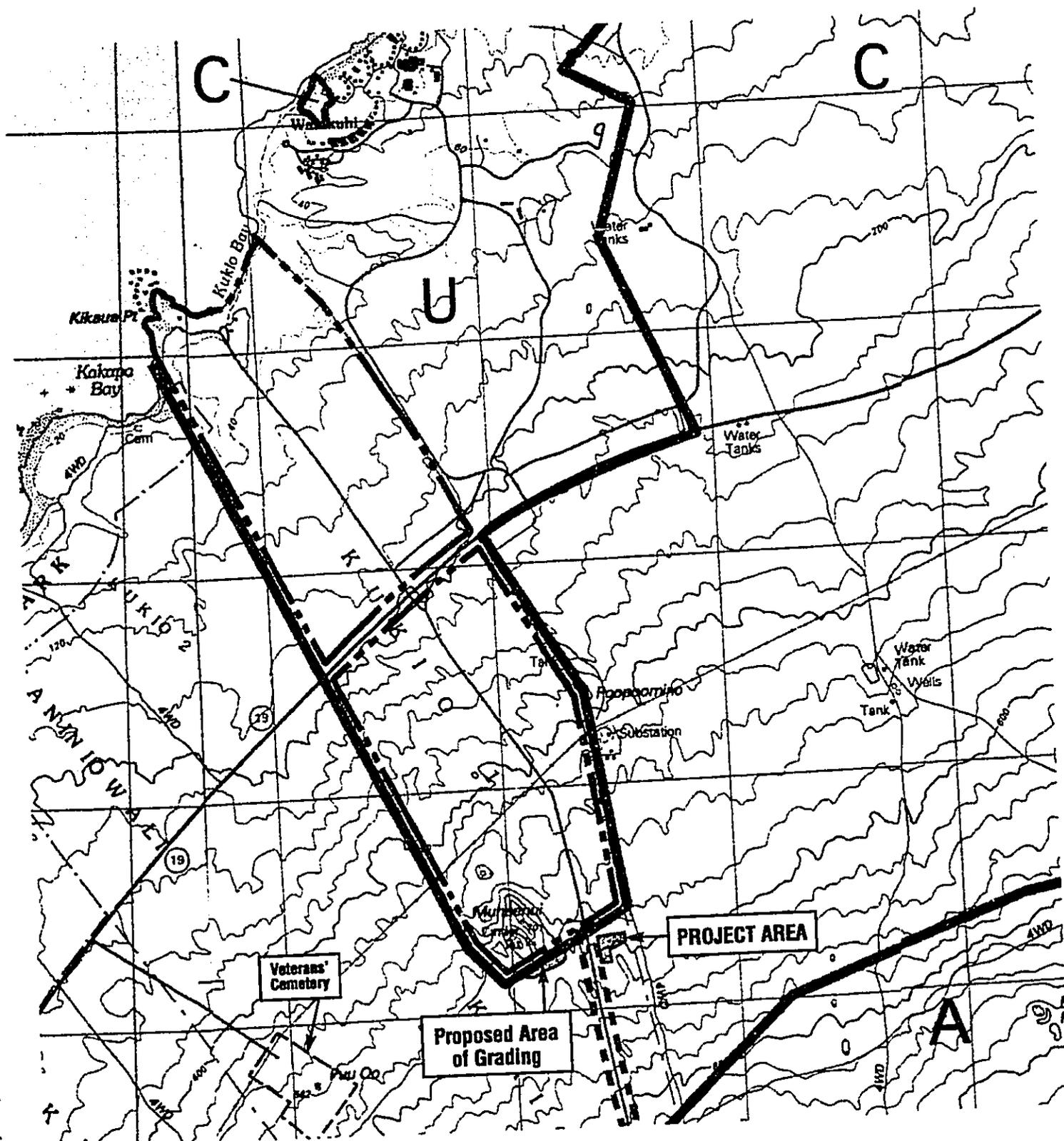
The land uses designated on the Hawai‘i County General Plan, Land Use Allocation Guide (LUPAG) map for the area of the project site is “Conservation”. This reflects the area’s open space character and the State Land Use designations for the area (Figure 6).

3.2.2 County Zoning

The zoning designation for the project area is shown in Figure 7. The proposed use of the subject lands for utility purposes is consistent with Section 25-4-11 of the County Zoning Code, which allows for the transmission of public or private utilities within any district.

3.2.3 Special Management Area

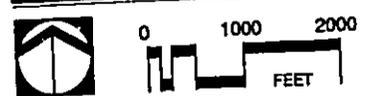
The property is not in the Special Management Area.



- LEGEND**
-  WB Kūki'o Resort Property
 -  Project Area
 - A** Agriculture
 - U** Urban
 - C** Conservation

FIGURE 5
State Land Use District Map

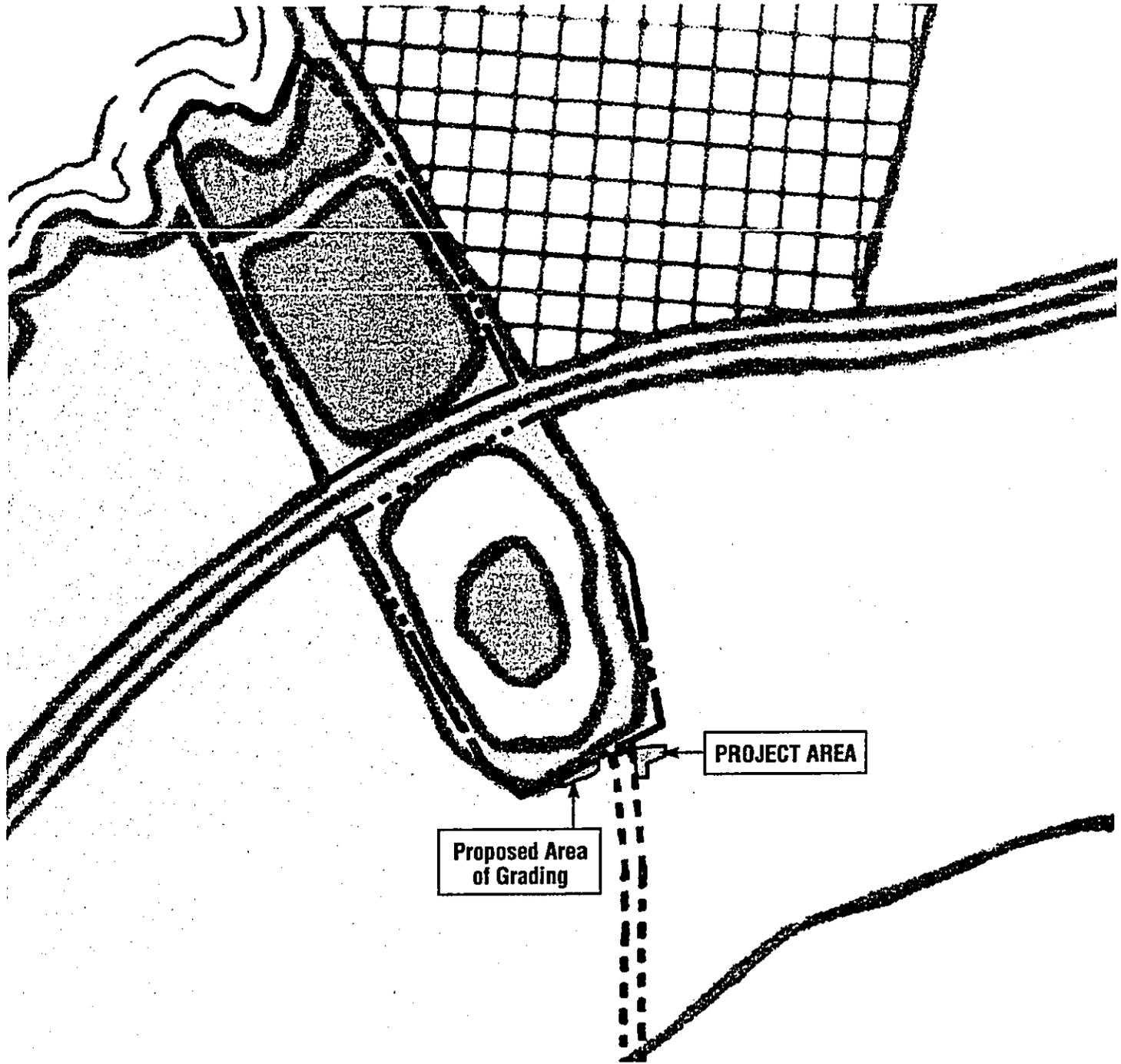
WB KŪKI'Ō EXPANDED UTILITY IMPROVEMENTS



May 2001



Source: State Land Use Map



LEGEND

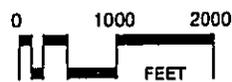
-  WB Kūki'o Resort Property
-  Project Area
-  High Density Urban Development
-  Medium Density
-  Low Density
-  Orchards
-  Open Area
-  Conservation

Source: Hawaii County General Plan, LUPAG Map

FIGURE 6

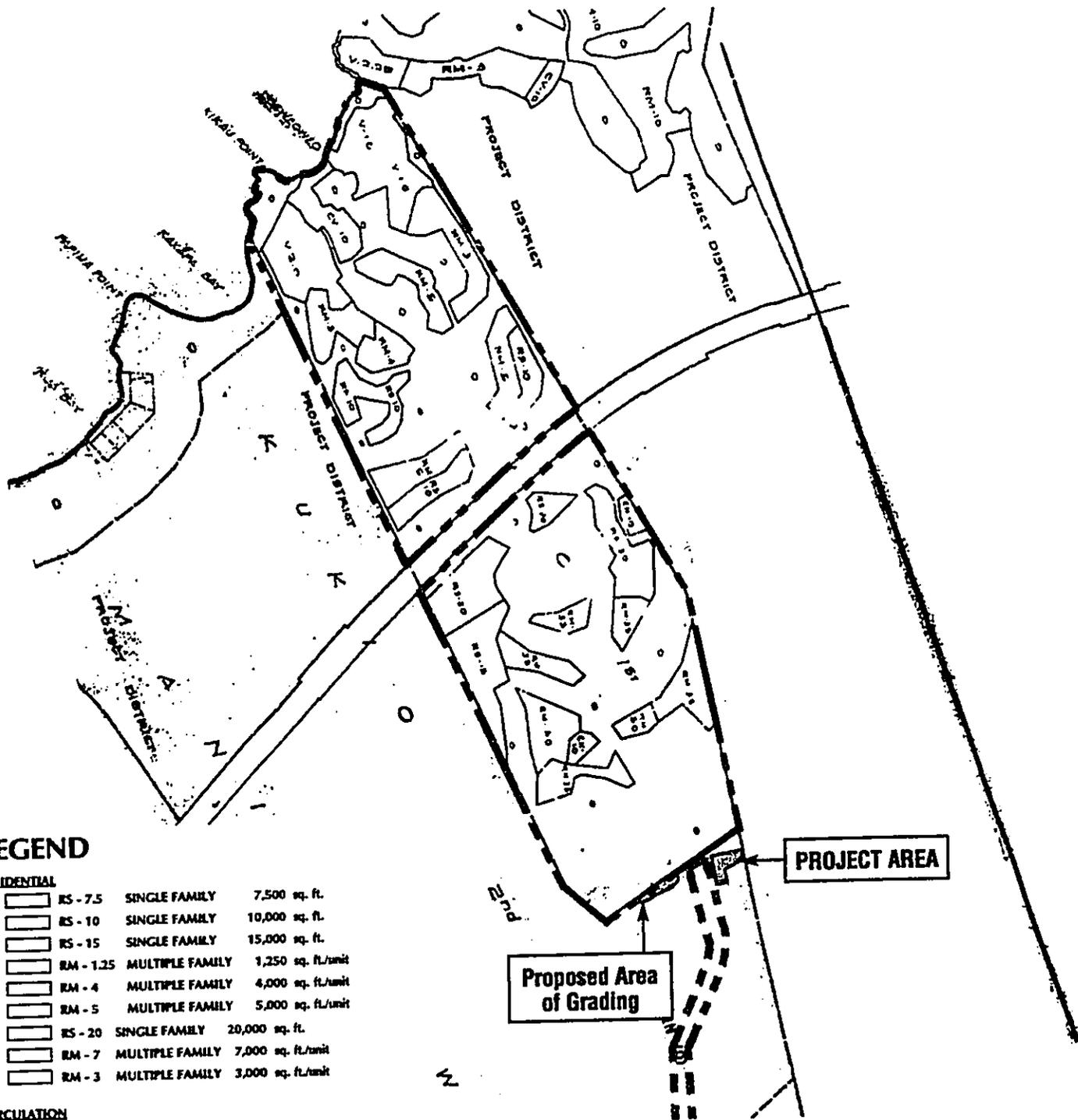
Hawai'i County General Plan

WB KŪKI'O EXPANDED UTILITY IMPROVEMENTS



May 2001





LEGEND

RESIDENTIAL

RS - 7.5	SINGLE FAMILY	7,500 sq. ft.
RS - 10	SINGLE FAMILY	10,000 sq. ft.
RS - 15	SINGLE FAMILY	15,000 sq. ft.
RM - 1.25	MULTIPLE FAMILY	1,250 sq. ft./unit
RM - 4	MULTIPLE FAMILY	4,000 sq. ft./unit
RM - 5	MULTIPLE FAMILY	5,000 sq. ft./unit
RS - 20	SINGLE FAMILY	20,000 sq. ft.
RM - 7	MULTIPLE FAMILY	7,000 sq. ft./unit
RM - 3	MULTIPLE FAMILY	3,000 sq. ft./unit

CIRCULATION

PROPOSED SECONDARY ARTERIAL
(MINIMUM 100 FT. RIGHT-OF-WAY)

COMMERCIAL

CH - 10	NEIGHBORHOOD - COMMERCIAL	10,000 sq. ft.
CV - 10	VILLAGE - COMMERCIAL	10,000 sq. ft.

AGRICULTURE

A - 1a	AGRICULTURE	1 Acre
A - 3a	AGRICULTURE	3 Acres
A - 5a	AGRICULTURE	5 Acres
A - 20a	AGRICULTURE	20 Acres
A - 500a	AGRICULTURE	500 Acres
A - 900a	AGRICULTURE	900 Acres
RA - 1a	RESIDENTIAL AG	1 Acre

UNPLANNED

U UNPLANNED

OPEN

O OPEN

FIGURE 7
Zoning Map

WB KŪKI'Ō EXPANDED UTILITY IMPROVEMENTS



May 2001



Source: USGS Topographical Map

**KŪKI‘O:
 MAUKA LANDS EXPANDED UTILITY
 and OTHER RELATED IMPROVEMENTS
 Conservation District Use Application / Final Environmental Assessment**

3.3 APPROVALS AND PERMITS

The proposed uses are on State lands in the State Conversation District. As such, an approval of a Conservation District Use Permit and utility lease is required from the State Board of Land and Natural Resources. Other permits would be limited to subdivision of the lease parcel and construction related permits.

During the implementation stages of the Project, the applicant will be working with State and County agencies in the review and approval of Project plans and specifications. The required permits for the project include, without limitation, those listed in Table 2.

Table 2. Required Permits and Approvals

Approval/Permit	Responsible Agency
Chapter 343, HRS Compliance	State of Hawai‘i, Board of Land and Natural Resources Office of Environmental Quality Control
Conservation District Use Permit Right-of-Entry and Utility Lease	State of Hawai‘i, Board of Land and Natural Resources
Public Utility Subdivision	County of Hawai‘i, Department of Planning
Plan Approval	State of Hawai‘i, Department of Land and Natural Resources
Grading/Building Permits	County of Hawai‘i, Department of Public Works
Compliance w/ Chapter 6E, HRS	State of Hawai‘i, Historic Preservation Division

4.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

The environment surrounding the proposed project includes the physical or natural environment and human or social environment. This section describes the existing conditions, potential impacts to the environment, and appropriate mitigative measures.

4.1 PHYSICAL CHARACTERISTICS

4.1.1 Climate

Existing Conditions

The subject lands are located in the lee of the Hualālai Volcano, which generally buffers the site from the gusty trade winds. The predominant wind pattern comes from convection processes occurring from the daily heating and cooling of the land. Temperatures in the winter months (October through April) range from 60 to 75 degrees Fahrenheit, and in the summer months (May through September) temperatures range from 70 to 85 degrees Fahrenheit.

Rainfall is closely linked to elevation. The area receives approximately 7 to 8 inches of rainfall annually. While the subject lands are sheltered from the trade winds, rainfall usually occurs in the late afternoons and evenings, caused by sea breezes moving onshore and up slope during the day.

Potential Impacts and Mitigative Measures

The proposed uses are expected to have little impact on the climate of the area.

4.1.2 Topography

Existing Conditions

Elevations on the Kūki'o property range from sea level to approximately 200 feet above mean sea level at the makai boundary with Queen Ka'ahumanu Highway to approximately 600 feet MSL at the mauka boundary at the base of the Pu'u Mūhe'enui. The summit of the pu'u is at 701 feet MSL. A portion of the northwestern or mauka portion of the pu'u was quarried in the early 1960's by the previous owner of the property, thus, an escarpment is present at the Kūki'o/State boundary.

The project area for the expanded utility improvements and related grading improvements on State land generally ranges from approximately 600 feet to 700 feet MSL. The northeastern slope of the Mūhe'enui pu'u extends into the State property. Due to the past cinder quarrying activities, the pu'u's slope on State land now exists as an escarpment rising sharply before it slopes back down to approximately 600 feet (see Figure 10, Photos 4 and 5).

The Irrigation Waterline to the Veterans' Cemetery from the Irrigation Reservoir will range from approximately 600 feet to 450 feet MSL.

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

The topography of the land is generally uniform with a gradual mauka-makai slope. The bulk of the site consists of rough lava land with vegetation dominated by Fountain grass. There are no existing drainages or other major topographic features on the project area.

Potential Impacts and Mitigative Measures

Grading to "naturalize" the contours. The Applicant is proposing to grade an escarpment which is present on the State land to "naturalize" the contours and remove the scar which has been left by the past quarrying activities. Approximately 2 acres of the 30 feet high escarpment would be graded to blend with the existing surrounding contours of approximately 600 feet MSL.

Field surveys for natural, biological and cultural resources indicate that none of any significance are present which be affected by the proposed action, therefore no negative impacts are anticipated from the proposed grading activities.

Irrigation Reservoir. The construction of the polyvinyl-lined reservoir will be on lava rock lands and will require excavation which may include the use of explosives and mechanized equipment (e.g. bulldozers) to create a depression no greater than 25 feet deep.

Short term impacts occurring during the construction phase should not be noticeable due to the distance from any residential or habitable structures, the nearest of which is nearly two miles away. Any blasting that may be necessary, would be infrequent and of short duration, and dust would be dispersed in the atmosphere rapidly.

Water Tank and Water Treatment Plant. The 0.5 million gallon water tank and the water treatment plant would be sited within the 3.5 acre project site. To minimize any visual impacts from the highway the structures will be recessed in a naturally low-lying area; some excavation would be required to prepare the tank and water treatment plant site which would be limited to an area of approximately one acre (within the 3.5-acre utility lease area).

Overland 2-inch Waterline. The 2" HDPE line is a flexible line which will be laid on the surface of the ground. Therefore, the existing lava land will not be altered since no trenching would be required. The waterline will traverse along approximately 1.4 miles from the location of the proposed irrigation reservoir at the 600 ft. elevation to the approximately 450 ft. elevation at the entrance of the Veterans' Cemetery. The alignment will be on State land along the south Kūki'o property boundary to and parallel to the HELCO 69 KV easement to the cemetery access roadway. The gradual drop in elevation will allow gravity flow of the water to the cemetery property.

4.1.3 Soils

Existing Conditions

The soils underlying the proposed utility improvement project area consist primarily of pāhoehoe and 'a'a lava flows with little or no soil cover. Cinderland underlies the two-acre area which is proposed for grading to naturalize the contours.

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

Soil Conservation Survey. The *Soil Survey of the Island of Hawai'i, State of Hawai'i, U.S. Department of Agriculture, Soil Conservation Service* (Sato, et al, 1973), describes the soils underlying the project site, as shown in Figure 8, and as described below:

- Lava Flows, Pāhoehoe (rLW): Pāhoehoe lava has no soil covering and is typically bare of vegetation with the exception of mosses and lichens. Predominant characteristics are relatively smooth surface with a billowy, glassy texture broken by rough hummocks and pressure domes.
- Lava Flows, 'A'ā (rLV): This lava has practically no soil covering and is bare of vegetation with the exception of mosses, lichens, and a few 'ōhi'a trees. The lava is characterized by rough, broken, glassy, sharp fragments piled in heaps.
- Cinder Land (rCL): Cinder lands consist of a combination of volcanic cinders, pumice and ash. Materials range in color from black, red, yellow, brown, to variegated, characterized by jagged edges and a glassy appearance. These lands support grasses, however, they are not recommended for pasture land due to a loose consistency.

Fountain grass is the predominant vegetation on all three soil types in the past two decades since its introduction and proliferation along the Kona Coast.

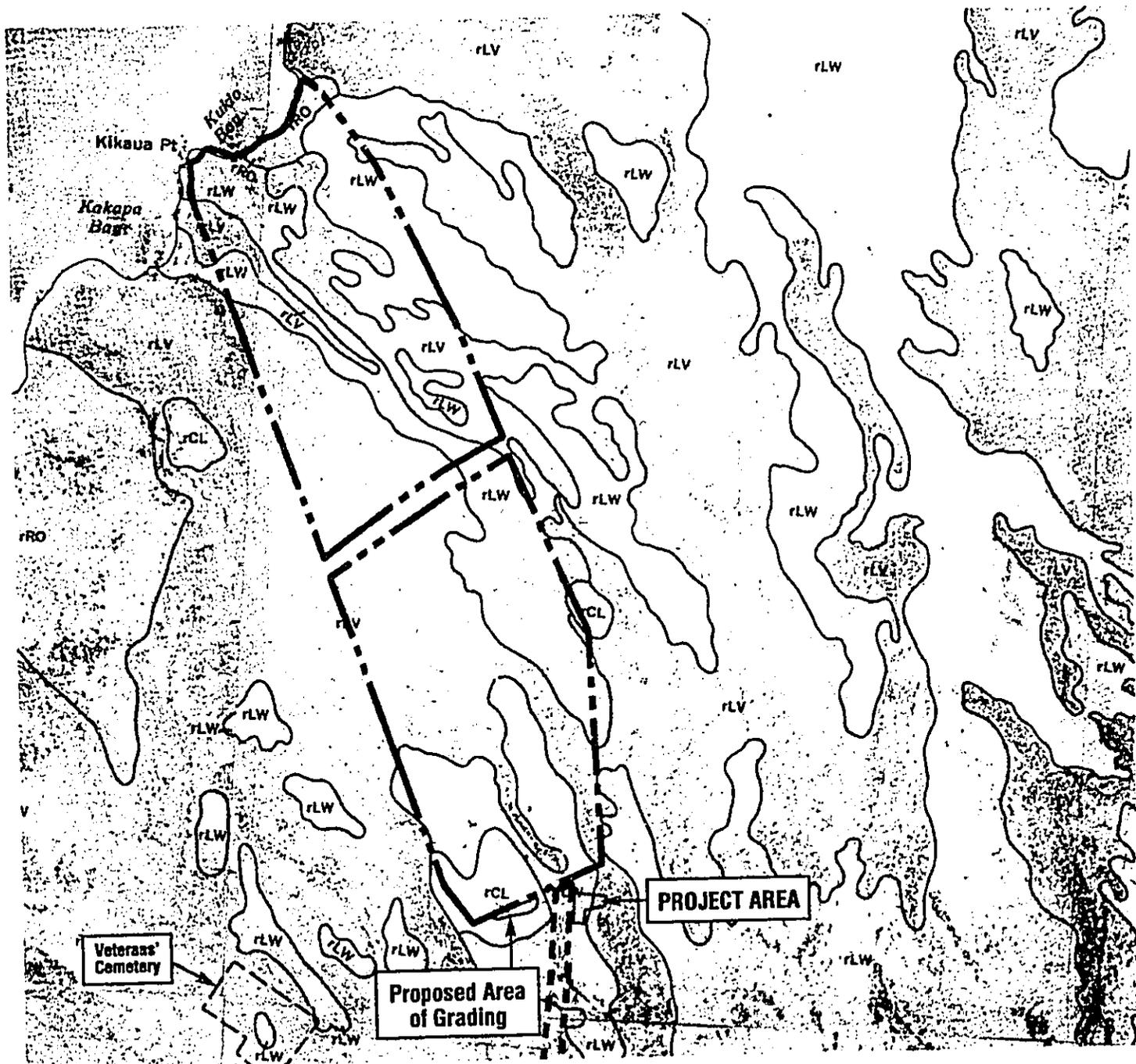
Detailed Land Classification. From an agricultural perspective, these lands are of poor agricultural quality. As shown in Figure 9, according to the Land Study Bureau Detailed Land Classification Report for the Island of Hawai'i (University of Hawai'i, 1965), the soils within the study area are classified as Class E. The area is specifically classified as Class E319 soils which contain sharp 'a'ā clinkers with no soil material, are excessively drained, with slopes of 0 - 12%. The two-acre area proposed for grading is classified E324, with deep, unweathered cinders, which are stony, well drained, with slopes of 36 - 80% slope. From an agronomic perspective these soils are poorly suited for agricultural use due to their rocky character, lack of soils and precipitation.

Agricultural Lands of Importance to the State of Hawai'i (ALISH). None of the soils are classified under the Department of Agriculture - ALISH System as Prime or Unique Agricultural Lands.

Potential Impacts and Mitigative Measures

The subject lands are not known for any cultural or traditional agricultural uses due to the lack of soils in the lava-dominated landscape and although leased to the Huehue Ranch, these lands were not suitable for grazing. In the 1960's however, watermelons were successfully grown as an experimental crop in the cut areas of the cinder quarry on the Kūki'o property, however, water was trucked in daily for irrigation.

The proposed improvements provide the potential for improved access and water transmission to portions of the State lands and will have no known detrimental effects on existing agricultural (grazing) activities on the mauka areas, the potential impacts to the agricultural use of the lands are deemed to be positive and do not justify mitigative measures.



LEGEND

- WB Kukio Resort Property
- Project Area
- rRO Rock Outcrop
- rLW Lava Flows, Pahoehoe
- rLV Lava Flows, Aa
- rCL Cinder Land
- rPYD Punaluu
- rKED Kaimu

Source: USDA, Soil Conservation Service Soil Survey of Island of Hawaii, State of Hawaii

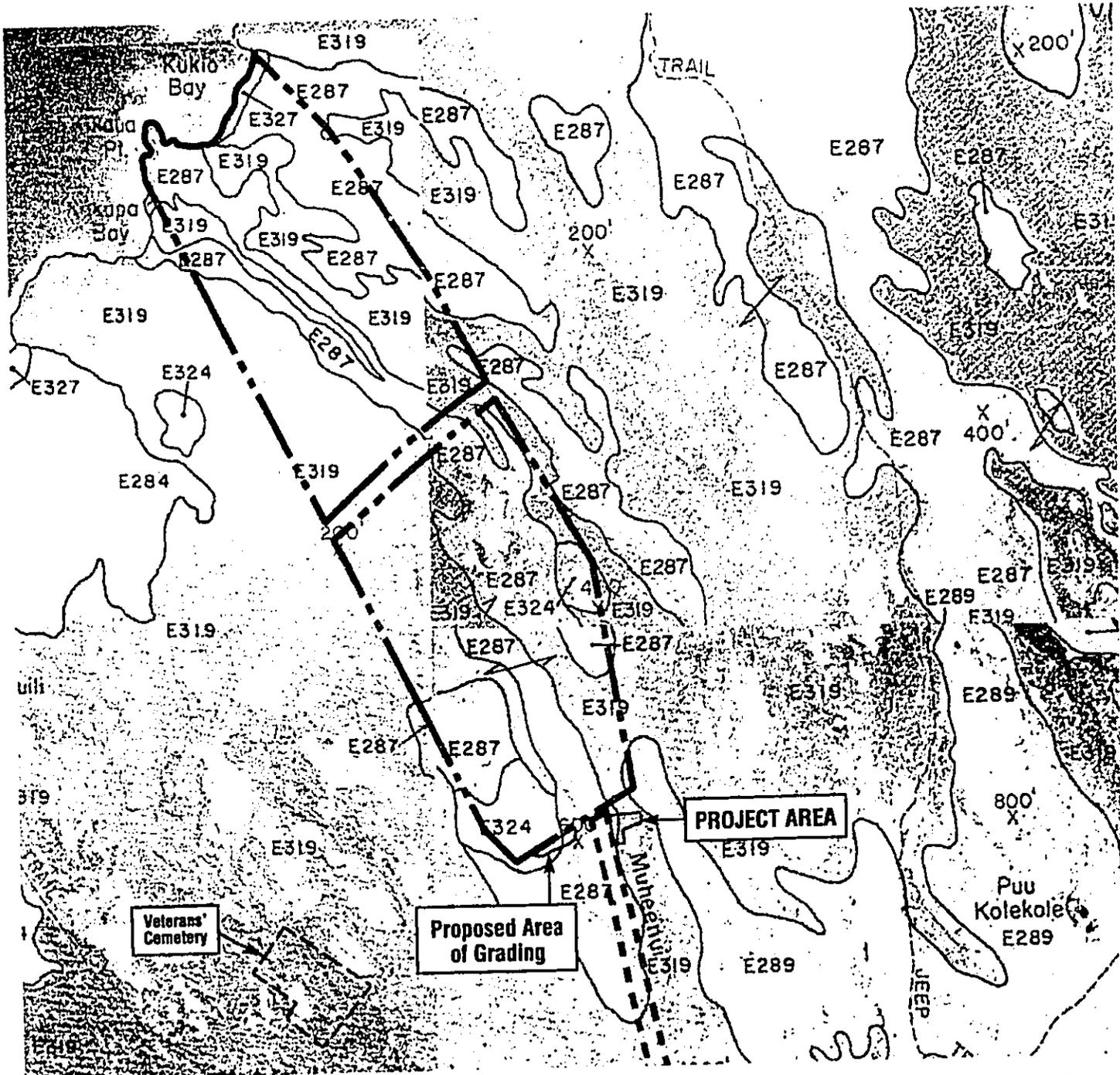
FIGURE 8
SCS Soil Survey Map

WB KŪKI'Ō EXPANDED UTILITY IMPROVEMENTS



May 2001





LEGEND

-  WB Kukio Resort Property
-  Project Area
-  C55 Shallow depth, moderately fine Texture, Pehoehe outcrops, well drained, and 0 - 20% slope
-  E319 No soil material, sharp aa clinkers, excessively drained, and 0 - 12% slope
-  E320 No soil material, well drained, and 0 - 12% slope
-  E259 No soil material, sharp lava clinkers, excessively drained, and 0 - 35% slope
-  E289 No soil materials, well drained, and 0 - 35% slope
-  E287 No soil materials, well drained, and 0 - 10% slope

-  E324 Deep, unweathered cinders, stony, well drained, and 36 - 80% slope
-  E327 Deep, coarse, nonstony to stony, excessively drained, and 0 - 20% slope
-  E262 No soil material, sharp lava clinkers, excessively drained, and 0 - 35% slope

-  E268 No soil material, sharp lava clinkers, excessively drained, and 0 - 35% slope
-  E267 Limited soil material, sharp lava clinkers, very well drained, and 0 - 35% slope
-  E293 Shallow, moderately fine texture, stony, well drained, and 0 - 35% slope

FIGURE 9

LSB Detailed Land Classification Map

WB KŪKI'Ō EXPANDED UTILITY IMPROVEMENTS



May 2001



Source: University of Hawaii
Detailed Land Classification, Island of Hawaii

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

4.1.4 Groundwater Hydrology

Existing Conditions

The North Kona district is geologically divided by the northwest rift zone of Hualālai Volcano. The subject property generally experiences light daily rain showers that provide the area's source of water recharge. Groundwater occurs in a basalt lens configuration. The basal lens is a layer of fresh water floating on top of salt water that varies in thickness.

Groundwater recharge is relatively dependant on rainfall patterns. The rain is precipitated in light daily showers, as opposed to high volume, short duration storms. These conditions result in a relatively low recharge volume over the subject lands, because the infiltration water is first consumed by existing vegetation before it percolates into the groundwater supply. The primary source of groundwater recharge is from lands considerably mauka of the project site.

Potential Impacts and Mitigative Measures

The proposed uses are not anticipated to significantly affect existing drainage patterns, surface runoff, or groundwater recharge. Withdrawals of potable water from the existing wells at higher elevations are based on sustainable yields as approved by the State Commission on Water Resources and Management through the well permitting process, and are not expected to alter groundwater salinity in the basal lens.

4.1.5 Flora and Fauna

A reconnaissance survey of the flora and fauna was undertaken on the subject lands in November and December 2000 by Ron Terry, Ph.D. and Patrick Hart, Ph.D. (Appendix A, December 2000) to assess the natural resources within a 60-acre study area which includes the two-acre grading area and 3.5 acre utility improvement area. The field surveys occurred following unusually heavy rains to detect the presence of any recently established seedlings.

The objectives of the survey were to 1) describe the vegetation; 2) list all species encountered; 3) identify threatened or endangered species; and 4) assess the value of the vegetation for native vertebrate habitat.

Existing Conditions

Flora. No rare, threatened or endangered species as listed by the U.S. Fish and Wildlife Service are present on the parcel, nor are there unique or valuable wildlife habitats. Based on elevation, rainfall and geologic substrate, the area probably supported a Lowland Dry to Mesic Forest with 'ōhi'a (*Metrosideros polymorpha*) and lama (*Diospyros sandwichensis*) as co-dominants. The original vegetation of the property was probably long ago lost to disturbance from ranching activities and fire. The vegetation is now almost completely dominated by the introduced Fountain grass (*Pennisetum setaceum*). This fire-adapted grass is known to efficiently out-compete many native Hawaiian plant species. Four native flowering plant species were found: a'ali'i (*Dodonea viscosa*), lama (*Diospyros sandwichensis*), 'uhaloa (*Waltheria indica*), and Prickly poppy (*Argemone glauca*). With the exception of 'uhaloa, only a few remnant individuals of each were located. The only other

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

flowering plant species located on the property were the introduced Silk oak (*Grevillea robusta*), Garden spurge (*Chamaesyce hirta*), Indigo (*Indigofera suffruticosa*), and 'Akulikuli (*Portulaca pilosa*). In addition, a few recently sprouted individuals of what was most likely the native 'iwa'iwa fern (*Doryopteris sp.*) were located.

Fauna. No native fauna were observed on the sites. The native Hawaiian owl or Pueo (*Asio flammeus sandwichensis*) probably makes some use of the area for hunting or nesting. It is also possible that certain native seabirds or migratory birds utilize or fly over the site, but it is unlikely that any with threatened or endangered status would find the site suitable habitat or be affected by activities that occur on the parcel. The only native Hawaiian land mammal, the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*), may also be present in the area, as it is common in many areas on the island of Hawai'i. None were observed at any of the sites. Observation took place in daylight, and therefore the lack of bat observations does not signify an actual absence of bats. The project area would not be expected to represent essential habitat for this species. The introduced Common Myna (*Acridotheres tristis*) was the only bird species detected during the surveys. Introduced mongooses (*Herpestes auro-punctatus*), goats (*Capra hircus*), feral cats (*Felis catus*), rats (*Rattus spp.*) and mice (*Mus musculus domesticus*) undoubtedly inhabit or use the property, and goat scat was common throughout all the area surveyed.

Potential Impacts and Mitigative Measures

Terry and Hart (2000) concluded that the proposed actions would not have any impact on the botanical resources within the project area. The survey noted that offsite, approximately five miles from the project site in the ahupua'a of Ka'ūpūlehu and mauka of Māmalahoa Highway, there is one of the best remaining examples of a native dry-forest community left in the state. Numerous endangered plant species are present within this forest at elevations above approximately 1,500 feet (Cabin et al. 2000 in Terry & Hart).

In a separate correspondence from the U.S. Fish and Wildlife Service (Henson, January 2000, Appendix A-1) on the CDUA for the previous utility easement, the USFWS noted the lack of any federally endangered, threatened, or candidate species in the area of the proposed utility improvements and grading. However, USFWS noted the presence of listed endangered plants at Ka'ūpūlehu, as noted by Terry and Hart (2000). USFWS further identified that the likelihood for fire is great due to the high density of Fountain grass within this locale.

In response to brush fire threats, the proposed Kūki'o irrigation reservoir would serve as a regional resource for helicopter fire control purposes. Its location in an uninhabited location would not compromise public safety and the supply of 4 million gallons would be a public asset for such emergency uses.

The development of the reservoir would also create a permanent surface water in this dry area and may become an attractant for a wide variety of introduced and possibly native birds. The physical characteristics of the reservoir and the surrounding vegetation could greatly influence the types of birds that are attracted to the area. A deep reservoir with steep edges and little surrounding vegetation would minimize its usage by birds. Even with such a design, it is possible that the reservoir would be visited by native species such as the endangered Hawaiian Duck (*Anas*

KŪKI‘O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

wyvilliana), the endangered Coot (*Fulica americana alai*), the endangered Nēnē (*Nesochen sandvicensis*), and the Black-Crowned Night Heron (*Nycticorax nycticorax*).

4.1.6 Drainage

Existing Conditions

Due to the low rainfall and highly porous ground conditions, natural runoff from seasonal rainfall is very limited and flood hazards are remote. What little surface runoff that occurs during storm events is predominantly carried as sheet flow before percolating to the groundwater table.

There are no natural drainage features in the project area and no floodways are indicated in the area of the project site on the Flood Insurance Rate Maps (FIRM) on file with the Department of Public Works.

Potential Impacts and Mitigative Measures

The alteration to the topography through grading and development of a reservoir is anticipated to affect surface drainage patterns, however, the proposed actions are not expected to affect the percolation rates at this highly porous location. Since precipitation is low in this area the project is not expected to have a significant impact on drainage patterns in the area.

4.1.7 Noise and Air Quality

Existing Conditions

Noise. Existing noise sources in the area are limited to the distant traffic along Queen Ka‘ahumanu Highway, infrequent vehicular activity along the Old Kona Village Road, natural sources (wind), and traffic along the Māmalahoa Highway. The site is well removed from the Keāhole Airport departure zone, seven miles to the west.

Air Quality. Present air quality in the project area is mostly affected by air pollutants from natural and vehicular sources. There are no industrial or agricultural air pollution sources in the area. Natural sources of air pollution that may affect the air quality in the project area include aero-allergens from plants and wind-blown dust from areas of bare soil. Currently, the greatest intermittent natural contributor to air pollution is the eruptive activity at Kīlauea Volcano, more than 50 miles east of the project site.

Queen Ka‘ahumanu Highway, makai of the project site, is a major arterial roadway. Depending upon the prevailing wind direction, emissions from motor vehicles traversing Queen Ka‘ahumanu Highway may be carried over the project site.

The Department of Health maintains monitoring stations in Hilo and in Honoka‘a, about 60 miles east and northeast of the project site, but the data collected are specific to those localities and are of little relevance in describing the conditions at the project area. Based on available air quality studies conducted in the general area, it appears that both state and national ambient air quality standards are currently being met despite the persistent vog.

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

Potential Impacts and Mitigative Measures

During construction grading and excavation (which may include blasting) the proposed actions will generate noise and dust, however, these activities would occur over a relatively short period of time and during daylight hours. There are no residences in the area of the proposed project. These impacts are expected to be of relative short-term duration and will occur during daylight hours. Noise levels that would occur in these areas are anticipated to be similar to those experienced during periods of roadway maintenance along Māmalahoa Highway.

The ongoing maintenance and operation of the reservoir, water tank, water treatment plant, and waterline is expected to have minimal impact on the noise and air quality of the area.

4.1.8 Visual Quality

Existing Conditions

The visual character of the project area, as viewed from Queen Ka'ahumanu Highway, the nearest public roadway, is that of an open and expansive landscape dominated by various aged 'a'ā and pāhoehoe lava flows covered with Fountain grass. The Mūhe'enui cinder cone (pu'u) and other pu'u intermittently appear against a backdrop of Mount Hualālai. The project site, at its closest point is located nearly a mile mauka of Queen Ka'ahumanu Highway. Between the highway and the corridor is the Applicants' property which is planned for residential and golf use as part of the planned Kūki'o development.

Views of the project area are shown in photographs in Figures 10A and 10B. The Queen Ka'ahumanu Highway, as depicted in Photo 2, is more than a mile away and is barely visible due to the topography of the intervening land. Pu'u Mūhe'enui at the mauka boundary of the Kūki'o property and the two-acre escarpment on State land which is proposed for grading is shown in Photos 4 and 5. The mauka-makai Ka'ūpūlehu Trail is located from 35 to 50 feet from the proposed water tank, water treatment facility, and irrigation reservoir. The view from the trail towards the project area is shown in Photo 6. The two-inch overland waterline to serve the County's Veterans' Memorial Cemetery would traverse approximately 1.4 miles along the Kūki'o property boundary and the 100-foot wide HELCO 69 KV easement (see Figure 10B, Photos 7 and 8).

Potential Impacts and Mitigative Measures

The potential visual impact to the landscape is anticipated to be relatively low due to the following factors: 1) the significant distance between viewers (generally, travelers on the Queen Ka'ahumanu Highway) and the affected area; 2) the size of the improvement (3.5 acres) relative to the overall land area; 3) the intervening topography that limits views of the area; 4) the lower vantage point of viewers from the highway; 5) the limited duration of views to the affected area; and 6) the scale and color of the proposed improvements as viewed from the potential vantage points.

As shown in Figure 10A, Photo 2 taken at the mauka edge of the project site (at the approximate elevation of the top of the proposed water tank), Queen Ka'ahumanu Highway is barely visible. Conversely, the tank would be recessed into a natural depression and painted to blend with the surrounding landscape, and would therefore be barely visible to passing motorists.

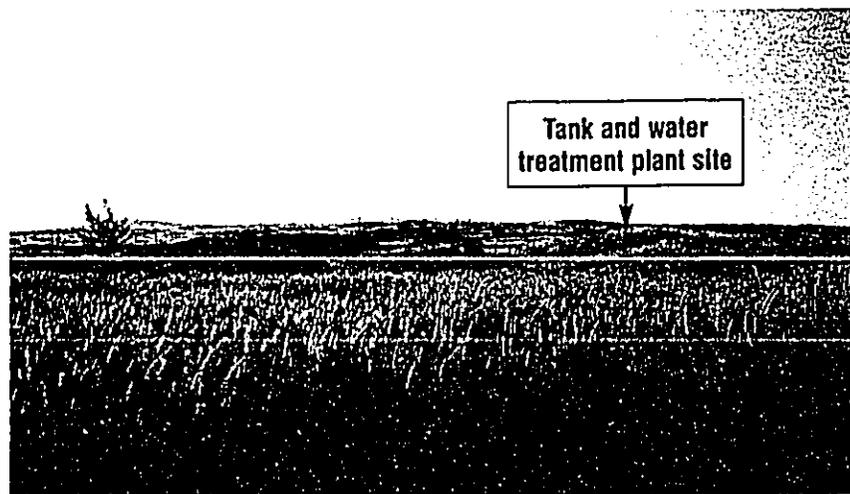


PHOTO 1: Southeast view (towards mauka) from the mauka Kūki'o property boundary towards the project site. Note the topographic depression at the right center where the tank and water treatment plant are planned to be located.



PHOTO 2: View from the existing utility easement site. Structures in the distance and equipment (located adjacent to the Kūki'o property). At the approximate distance visible from the Old Kona Village Road toward the proposed expanded site.



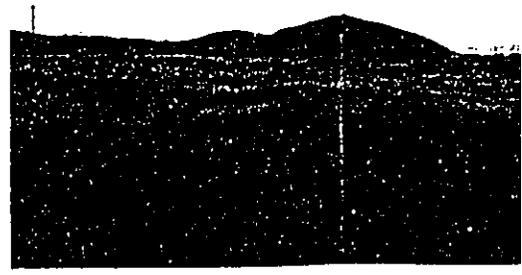
PHOTO 3: Makai view (to the northwest) toward the Kūki'o property. The vehicle at the left of the photo is located at the mauka boundary of the Kūki'o property near the existing "Old Kona Village Road".

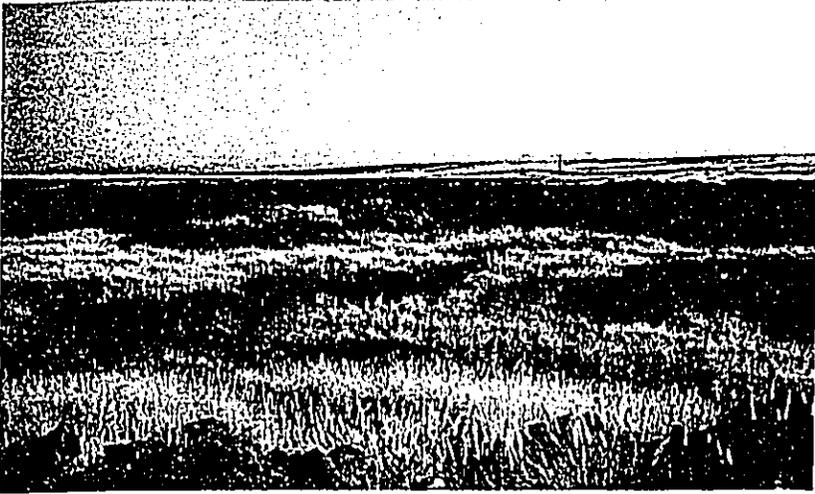


PHOTO 4: View from the improvement site toward the grading site.



PHOTO 5: The effects of past quarrying activities at Pu'u Muhe'enui have left an escarpment on State lands (this perspective from the Kūki'o property). The proposed grading of approximately 2 acres would naturalize the contours and remove the sharp projection. The material would be blended to soften the cut area.





Structures in the distance are the Hualalai Resort related construction trailers at the approximately 420 foot elevation Queen Ka'ahumanu Highway is not expanded site.

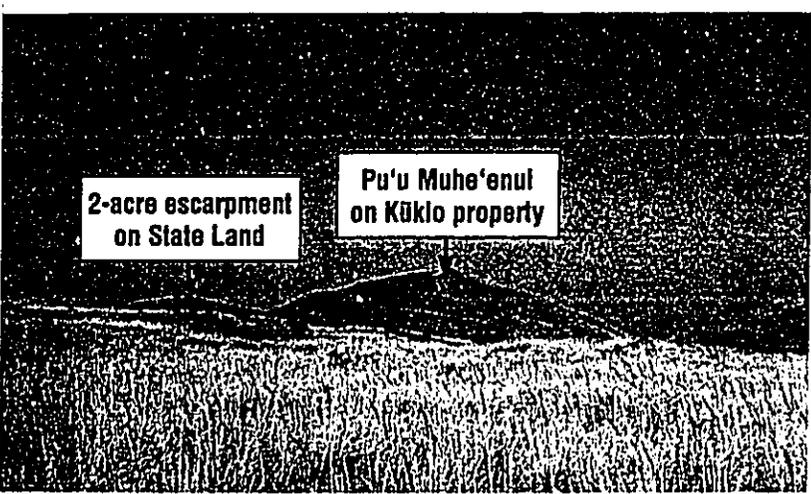


PHOTO 4: View from the Old Kona Village Road near the proposed utility improvement site towards the maka face of Pu'u Muhe'enui and the 2-acre escarpment site.

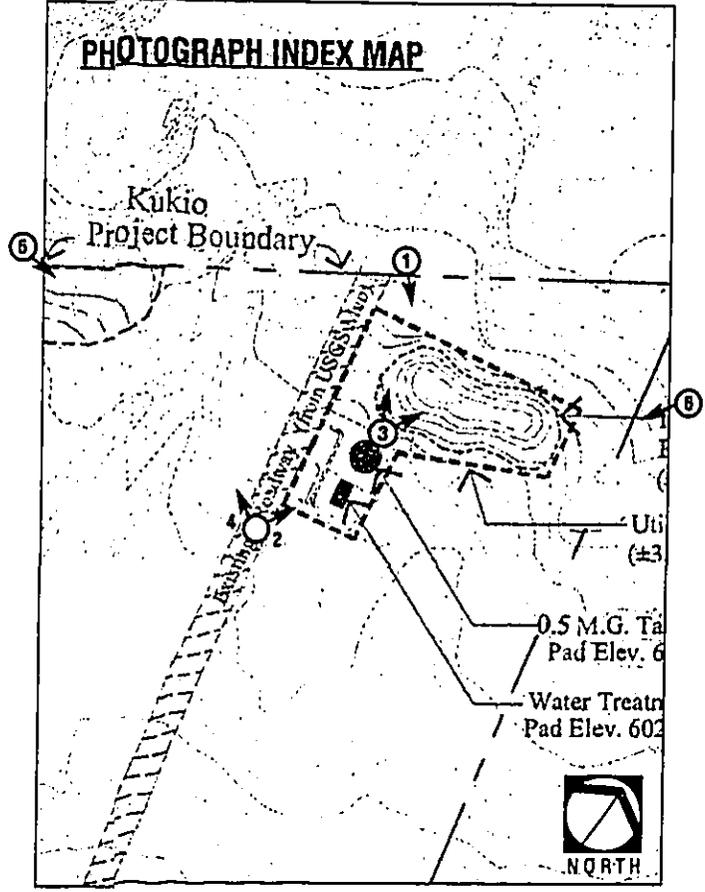


PHOTO 6: Views of the 3.5-acre site for the water system improvements from the Ka'upulehu trail would be visible from approximately 35 to 50 feet from the proposed improvements. The site was selected based on the depressed topographic contours that would mitigate the full view of the water tank and water treatment facility.

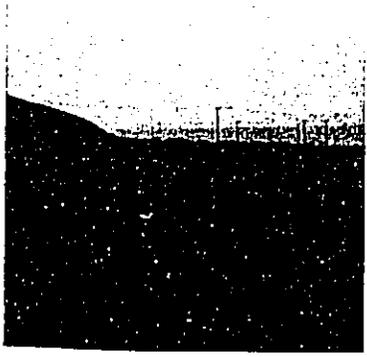


FIGURE 10A
Site Photographs

WB KŪKI'Ō EXPANDED UTILITY IMPROVEMENTS

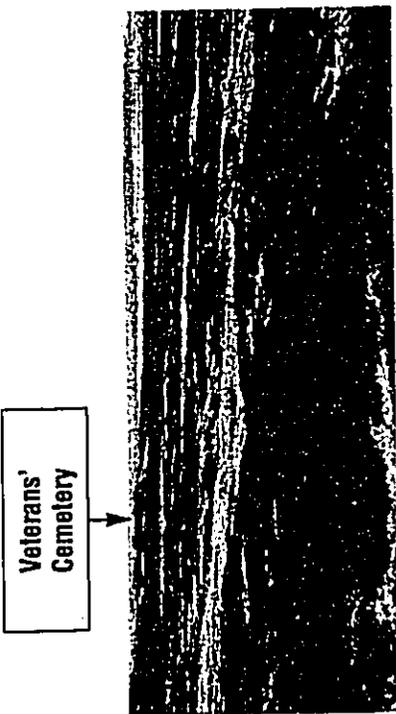


PHOTO 7: The County of Hawaii West Hawaii Veterans' Memorial Cemetery was established in the early 1990's. It is accessed from Queen Kaahumanu Highway and is located in the vicinity of the puu, seen in the distance. The proposed overlaid 2-inch HDPE irrigation waterline would traverse along the south boundary of the WB Kukio property and the eastern mauka boundary of the HELCO 69 kv easement. The black 2-inch flexible pipe will be placed on the existing grade and will not require trenching; it will blend into the landscape.

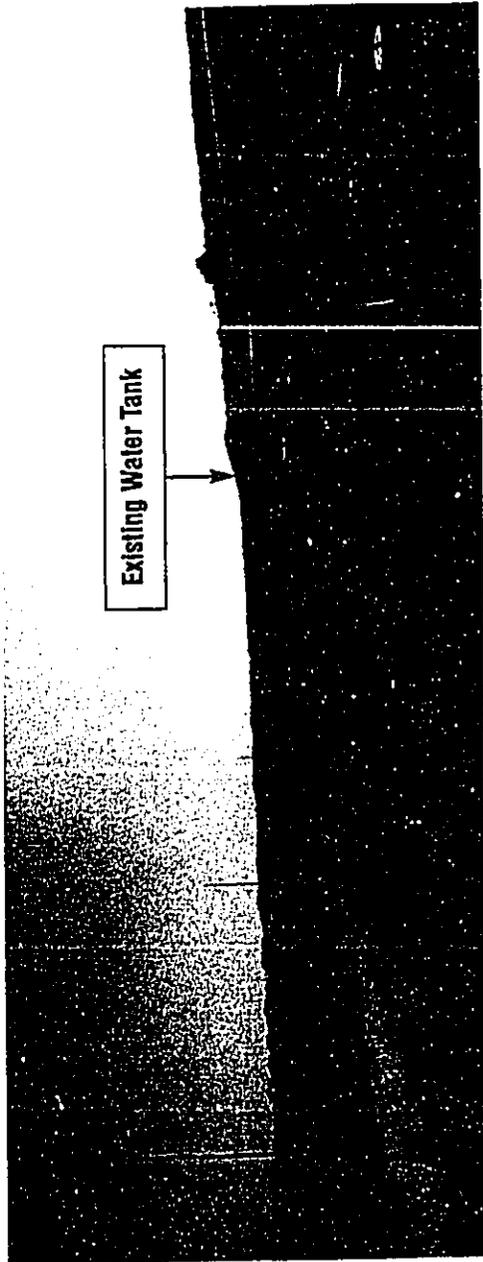


PHOTO 8: On a weekly basis, the County trucks in irrigation water to the Veterans Cemetery which is stored in an existing steel water tank. WB Kukio will provide the County with 600 GPD initially (and possibly up to a maximum of 3,600 GPD). The 69 kv easement is marked by the electrical poles.

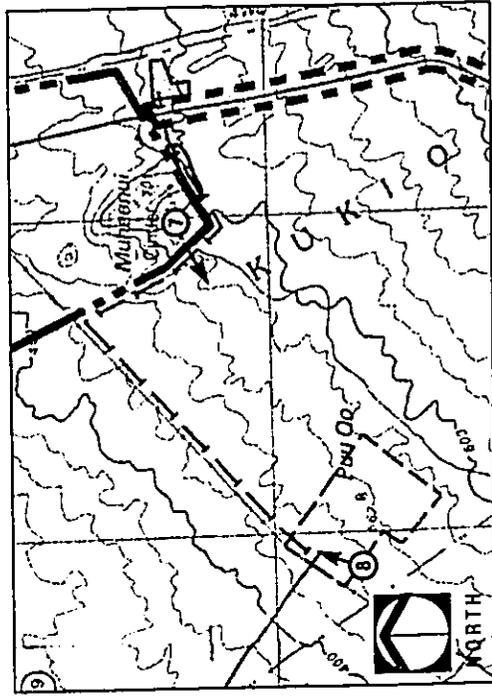


FIGURE 10B
West Hawaii Veterans' Cemetery
Photographs
WB KUKI'O EXPANDED UTILITY IMPROVEMENTS



May 2001

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

The proposed site for the 3.5-acre utility lease was selected based on the topographic contours that would conceal the structures, thus mitigating the visual impacts. The proposed structures include a 29-foot high steel water tank and a single story building (1,800 sq. ft.) to house the water treatment plant. These structures will be painted to blend with the surrounding landscape. The irrigation reservoir will be a subsurface feature and therefore, is not anticipated to be visible from the highway. The 3.5-acre area would be fenced at the perimeter for security purposes and be painted, if necessary, to blend with the natural landscape.

Views of the improvements from the Ka'ūpūlehu Trail, located approximately 35 to 50 feet from the proposed improvements would be visible, however, the site was selected based on the topographic contours that would mitigate direct views of the water tank and water treatment facility.

The proposed improvements would not impede the views to the shore or to the mountains from the Ka'ūpūlehu Trail and the proposed improvements that would be visible from the Trail would be in character with similar utility improvements that are planned or existing at the adjacent Kūki'o and Ka'ūpūlehu developments which the Ka'ūpūlehu Trail crosses.

The 2-inch waterline to the Veterans' Cemetery would be laid on the existing ground surface and traverse approximately 1.4 miles along the Kūki'o property boundary and the 100-foot wide HELCO 69 KV easement. The black pipe will blend with the lava, thus the visual impact would be minimal.

4.2 HISTORICAL AND CULTURAL RESOURCES

An archaeological survey and a cultural impact assessment of a 73-acre study area including the approximately 5.5 acres of the proposed grading and utility improvement area was undertaken by Paul H. Rosendahl, Inc. in November and December 2000 (Appendix B).

Existing Conditions

No archaeological sites or features, or historic resources of any kind, were found during the surface survey of the 73-acre study area.

None of the informants consulted as part of the cultural assessment had any direct knowledge of any current or recent use of the assessment study area by native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes. Additionally, none of the informants had any direct knowledge of any specific place name features located within the study area.

Potential Impacts and Mitigative Measures

Based on the entirely negative results of the archaeological assessment survey fieldwork, the study concluded that no further archaeological work of any type would be necessary (Rosendahl 2000). Therefore, the study recommended that full "archaeological clearance" for the study area given, and that permit applications for grading and construction be approved, as there would be no impact upon any significant or potentially significant historic resources. This evaluation and recommendation was given with the general qualification that there is always the possibility, however remote, that as yet unidentified and potentially significant resources are revealed in the course of subsequent land

**KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment**

modification activities; in such a situation, archaeological consultation should be sought immediately.

Based on the negative results of the cultural impact assessment informant consultations - both informal interviews and the group cultural informant site visit, it was concluded that the project area is not accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses, that the proposed project would thus have no effects, much less any adverse cultural impacts, and therefore no mitigation measures of any kind needed to be proposed. Therefore, it was recommended that full "cultural impact clearance" for the project area be given, and that any permit applications for grading and construction be approved, as there will be no impact upon the exercise of any native Hawaiian traditional and customary access and use rights.

The 2-inch overland waterline between the proposed irrigation reservoir and the Veterans' Cemetery will be adjacent to and along existing boundaries and easements and will not require any grading or trenching. Thus, no impact is anticipated.

4.3 SUMMARY OF POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

The proposed action includes the request by WB Kūki'o Resorts, LLC, for lease of 3.5 acres of State land which is needed to provide potable water and non-potable water infrastructure for the proposed Kūki'o project.

The proposed Conservation District Use Permit and utility lease would allow the development of improved water delivery to the Kūki'o Resort, the West Hawai'i Veterans' Memorial Cemetery, and would facilitate fire fighting capability in the area, and in particular to provide non-potable water for brush fire control.

The subject land is absent of any significant features from a historical, cultural or biological perspective. Further, the proposed use would not contradict the presently leased but unused State lands. The current lessee is the Applicant. Additionally, from an economic and social perspective, the proposed improvements would be generally beneficial to both the Applicant, the State, and the County. Therefore, mitigation measures to address potential environmental, social or economic impacts are not warranted.

5.0 ALTERNATIVES CONSIDERED

In compliance with the provisions of Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 11-200-17(f), the alternatives to the proposed actions, including "no action" have been evaluated.

WB Kūki'o Resorts, LLC, the current owner and developer of the Kūki'o project has reevaluated the master plan water system infrastructure and in its Preferred Alternative proposes the subject actions to create a more efficient and manageable system which includes a utility lease of 3.5 acres for water system improvements consisting of an irrigation reservoir, 0.5 million gallon water tank, a water treatment plant, and grading of a two-acre escarpment to "naturalize" the contours. In addition, an irrigation waterline would also be provided to the County's Veterans' Cemetery through a 2-inch overland HDPE line.

5.1 NO ACTION

The "no action" alternative would maintain the water system facilities, including the 620' elevation steel water tank and the 4 MG irrigation reservoir at the planned locations on Kūki'o property and the water treatment plant on Makalei Hawaii, Corp. land near the HR wells approximately 2.5 miles from the Kūki'o property. By maintaining the separate locations of these related facilities inefficiencies would occur in the management and operation of the water system.

As described in Section 2.4.2, benefits would accrue to the public from the proposed actions which would otherwise not be available. The placement of the 620' water tank on Pu'u Mūhe'enui to achieve the 620' elevation would require additional alteration to the profile of the cinder cone. The pu'u is the only significant cultural resource on the mauka Kūki'o lands, as identified in technical studies and confirmed by lineal descendants of the ahupua'a.

The location of the 4 MG irrigation reservoir in an open area away from developed uses would safely allow its use for regional helicopter fire control purposes. In addition, its location at a higher elevation would provide pressurized water to the County Veterans' Memorial Cemetery more efficiently through a "gravity-fed" system.

The two-acre escarpment of the mauka edge of Pu'u Mūhe'enui would remain in the existing condition, however, the scar which remains from the past cinder quarrying operation would continue to stand as an eyesore and erode over time.

5.2 ALTERNATIVE LOCATIONS FOR THE UTILITY IMPROVEMENTS

Within the Kūki'o property, the pu'u is the only practical location for the 620' water tank. Alternate locations on the pu'u have been evaluated, as shown in Figure 4, all of which would require modifications to the profile of the pu'u and the placement of the proposed improvements which would be clearly visible to the public when viewed from Queen Ka'ahumanu Highway.

The proposed location was identified in that it was proximate to the existing or planned utility improvements on State land, would minimize the total area required for the proposed improvements,

**KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS**

Conservation District Use Application / Final Environmental Assessment

and would present the least visual impact to the landscape by utilizing a natural depression for the above-ground structures.

5.3 POSTPONING ACTION PENDING FURTHER STUDY

WB Kūki'o, in proposing the subject improvements, has studied the water system infrastructure proposed by the previous owner which was designed in 1988. The proposed actions is believed to be more efficient for the long-term operation and management of the system. Thus, the alternative of postponing actions pending further study has already been accomplished.

6.0 DETERMINATION WITH SUPPORTING FINDINGS AND REASONS

To determine whether the proposed action may have a significant impact on the environment, the project and its expected consequences, both primary and secondary, and the cumulative as well as short- and long-term effects have been evaluated. Based on the studies performed and research evaluated, a finding of no significant impact is anticipated and is summarized below.

6.1 SIGNIFICANCE CRITERIA

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

- (1) **Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;**

The proposed project area consists of rough lava land with a dominant vegetation cover of the fire-adapted aggressive alien Fountain grass (*Pennisetum setaceum*) species and supports a minimum of dryland vegetation that is scattered throughout the property. Based on elevation, rainfall, and geologic substrate, the area may have previously supported a Lowland Dry to Mesic Forest with 'ōhi'a (*Metrosideros polymorpha*) and lama (*Diospyros sandwichensis*) as co-dominants. The original vegetation of the property was probably lost long ago to ranching activities and fire. Fountain grass is a fire-adaptive grass known to efficiently out-compete many native plant species. Native species which are present include a'ali'i (*Dodonea viscosa*), lama, 'uhaloa (*Waltheria indica*), prickly poppy (*Argemone glauca*), and 'iwa'iwa fern (*Doryopteris* spp.). None are rare, threatened, or endangered species.

No native fauna were observed on the project area. Although the native Hawaiian owl or Pueo (*Asio flammeus sandwichensis*) and the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) may utilize or be present in the area.

The development of a reservoir would provide a water source for helicopter aerial fire control and a permanent water surface may be an attractant to a variety of native birds including the endangered Hawaiian Duck (*Anas wyvilliana*), the endangered Coot (*Fulica americana alai*), the endangered Nēnē (*Necochea sandvicensis*), and the Black-Crowned Night Heron (*Nycticorax nycticorax hoactli*). Should this occur, the development of the reservoir may abet the biodiversity of the area.

No archaeological sites or features were observed in the area of the proposed grading and utility improvements. However, in the event that any cultural deposits or human burials are uncovered in the area, all work will immediately be halted and plans will be modified to avoid any sensitive areas. All construction plans will include the following language as recommended by the State Historic

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

Preservation Division. "Should historic remains such as artifacts, burials, concentrations of shell or charcoal be encountered during the construction activities, work shall cease immediately in the immediate vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact the State Historic Preservation Division (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary."

(2) Curtails the range of beneficial uses of the environment;

The proposed public utility lease of 3.5 acres of State lands will support potable and non-potable water system infrastructure including a reservoir, water tank and water treatment plant. The grading area of two acres to naturalize the contours will remain as open space lands upon completion.

The successful implementation of the proposed actions would allow the approved Kūki'o property to be developed as envisioned in the master plan and approved by the State Land Use Commission and County of Hawai'i. This includes full use of the existing water system (e.g. developed wells and waterlines) located on mauka lands. The proposed water system improvement will also allow for the improved provisions (e.g. greater amount and greater pressure) of non-potable water to the West Hawai'i Veterans' Memorial Cemetery located southeast of the project site and Kūki'o property. In addition, the reservoir will be available for fire control purposes of brush fires in the surrounding region. Hence, the proposed improvements will enhance the range of beneficial uses of the environment.

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

The proposed development is consistent with the Environmental Policies established in Chapter 344, HRS.

(4) Substantially affects the economic or social welfare of the community or state;

The proposed project will beneficially affect the economic welfare of the community, County and State by expanding the water system infrastructure for potable and non-potable water to serve the approved Kūki'o, the West Hawai'i Veterans' Memorial Cemetery, State of Hawai'i parcels, and for regional fire control of brush fires. Surrounding land use patterns will not be negatively altered, nor will unplanned population growth or its distribution be stimulated.

(5) Substantially affects public health;

The project area of the proposed improvements are not located within a populated area, therefore, it is unlikely that the public health would be affected by the short-term construction impacts. Any impacts to air, noise, traffic, and water quality should, therefore, not be significant especially when weighed against the positive economic and social implications associated with the project. Mitigation measures will be used to address impacts that could potentially affect public health.

**KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment**

- (6) Involves substantial secondary impacts, such as population changes or effects on public facilities;**

The proposed utility related improvements are in support of the Kūki'o project which has been fully described in a separate EIS (PBR HAWAII, May 1986) which was prepared and approved pursuant to Chapter 343, *Hawai'i Revised Statutes* and Hawai'i Administrative Rules, Title 11, Department of Health, Chapter 200. Therefore, any secondary impacts associated with the development of the utility lease have been described in the subject Environmental Assessment and Kūki'o EIS and the subsequent County of Hawai'i and State of Hawai'i regulatory approval processes.

- (7) Involves a substantial degradation of environmental quality;**

The development of the proposed facilities will allow the efficient use of an approved water source. There are no anticipated impacts that would degrade environmental quality.

- (8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;**

The cumulative social and environmental effects of the proposed uses and the ultimate development of the approved Kūki'o project its potable and non-potable water wells have been fully described in a separate EIS (PBR HAWAII, May 1986). Kūki'o has received State of Hawai'i and County of Hawai'i approvals for its development and is consistent with the existing and planned urban character expressed in the State Land Use map and County LUPAG and zoning maps. The proposed use of the State land for expanded utility purposes is consistent with Section 25-4-11 of the County Zoning Code which allows for the development and transmission of public or private utilities within the effected zoning districts. The commitment of fiscal resources to construct the improvements at the property will foreclose other uses of those resources.

- (9) Substantially affects a rare, threatened or endangered species or its habitat;**

Assessments of the flora and fauna resources indicate that there are no endangered plant or wildlife species within the project area. However, the development of a permanent water surface area could potentially become an attractant to native birds including the endangered Hawaiian Duck or Koloa, the endangered Coot or 'Alae Ke'oke'o, the endangered Nēnē, and the Black-Crowned Night Heron or 'Auku'u.

- (10) Detrimentially affects air or water quality or ambient noise levels;**

The proposed construction within the project area will be contained within 5.5 acres and is more than one mile from the Highway. Due to the dry climatic conditions at this location and the lack of any drainages within the project area, water quality impacts to the near shore waters are not anticipated. Any blasting that may be necessary, would be infrequent and of short duration, and dust which may result, would be dispersed in the atmosphere rapidly and should therefore, not affect air quality. Construction activities are planned during daylight hours and will be in compliance with DOH noise rules and any impacts to air quality will be mitigated by appropriate measures. The nearest residential structures from the proposed project site is approximately two miles away, hence, no residences are expected to be affected by the construction actions.

KŪKI‘O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

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

The project area like all other areas in the region are susceptible to earthquakes and possible volcanic activity associated with dormant volcanoes. All improvements will be designed to meet the existing State and County standards.

- (12) **Substantially affects scenic vistas and view planes identified in County or State plans or studies;**

The mauka viewplane from Queen Ka‘ahumanu Highway is identified in the County General Plan as an example of natural beauty in the Kona district. The improvements within the project area will be recessed into the ground or be below the ground or at the ground level. The water tank and water treatment plant planned at the 620' elevation would be located more than one mile from Queen Ka‘ahumanu Highway at its closest point and will be placed at a topographically appropriate location which is not anticipated to be visible from the public thoroughfare. Therefore, the scenic vistas and view planes would not be significantly affected to motorists traveling on the Highway. Views of the improvements from the Ka‘ūpūlehu Trail would be visible to the hiker, therefore the water tank and water treatment structure will be painted to blend in with the surrounding environs. All other improvements including the irrigation reservoir and the 2-inch overland waterline will be at the ground level and will not affect scenic vistas and viewplanes.

- (13) **Requires substantial energy consumption;**

Construction and operation of the proposed project will not require substantial energy consumption.

6.2 DETERMINATION

On the basis of the above criteria, and the discussion of impacts and mitigative measures contained in this document, it is anticipated that the proposed project will not have a significant negative effect on the environment and will conversely, result in positive effects to the natural, cultural, and social environments.

KŪKIʻO:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

7.0 AGENCIES CONSULTED

The following agencies or agency documents were consulted in the preparation and review of this environmental assessment:

County of Hawai'i

Planning Department
Department of Parks and Recreation
Department of Public Works
Department of Water Supply

State of Hawai'i

Department of Defense
Department of Land and Natural Resources, Commission on Water Resource Management
Department of Land and Natural Resources, Division of Aquatic Resources
Department of Land and Natural Resources, Division of Conservation and Resources Enforcement
Department of Land and Natural Resources, Division of Forestry and Wildlife
Department of Land and Natural Resources, Division of State Parks
Department of Land and Natural Resources, Historic Preservation Division
Department of Land and Natural Resources, Land Division (Hawai'i Office)
Department of Transportation
Department of Health, Clean Water Branch
Office of Environmental Quality Control
Office of Hawaiian Affairs

**KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment**

8.0 COMMENTS AND RESPONSES

Comments which were received during the review of the Draft EA resulted in the following responses from governmental agencies. The comment letters and the Applicant's responses are included in this section.

8.1 COMMENT LETTERS RECEIVED

State of Hawai'i

Department of Land and Natural Resources
Department of Land and Natural Resources - Commission on Water Resource Management
Department of Land and Natural Resources - Historic Preservation Division
Department of Health
Office of Environmental Quality Control

County of Hawai'i

Department of Parks and Recreation
Planning Department

8.2 DRAFT EA COMMENT LETTERS AND THE APPLICANT'S RESPONSES

All letters received and the Applicant's responses follow below.



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

REF. PB:EAH

MAR 30 2001

File No. CDUA : HA-3021B

Acceptance Date: March 23, 2001
180-Day Exp. Date: September 19, 2001

Mr. Sam Ainslie
WB Kukio Resorts, LLC
P.O. Box 5349
Kailua-Kona, HI 96745

Dear Mr. Ainslie,

**NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION
CONSERVATION DISTRICT USE APPLICATION (CDUA) HA-3021
BOARD PERMIT**

This letter acknowledges the acceptance for processing of your CDUA submission for a water tank, a one acre reservoir, a potable water treatment plant and the grading of a topographical feature at state-owned lands, Kukio 1st, North Kona, TMK 3rd 7-2-04: por. 4. The land is located within a General Subzone of the conservation district.

We understand that at present, a utility easement and water pipe infrastructure exist along a roadway leading to the Kukio Resort property from water wells located Mauka of the proposed project area. The water system improvements would be located in a 3.5 acre lease area. We understand that the 620' water tank was initially designated to be located within Kukio Resort land Makai of the project site at Puu Muheenui. However, you are now seeking approval to locate the tank at the proposed site due to concern regarding grading work that would be necessary to install the water tank and the visual integrity of the puu. According to the information submitted, the proposed site for the water tank is the only nearby site at an appropriate elevation. The tank would be sited in a low lying area to minimize potential negative visual impacts from the Queen Kaahumanu Highway. The one acre, 4 million gallon reservoir would be used primarily by Kukio Resorts. The potable water treatment plant would consist of 1,800 square feet of floor area and would serve to soften and treat well water before it enters the water tank. We understand that wastewater treatment for the resort is not part of the proposed use. A six foot tall chain link perimeter fence is proposed to be erected around the 3.5 acre water system utility lease area.

Within the conservation district, grading would also take place over an area of approximately 2 acres that was previously altered by a cinder quarry operation Mauka of Puu Muheenui. You would seek to grade the area to make it more visually appealing. You propose to plant fountain grass to cover the area after grading.

After reviewing the application, we find that:

1. The proposed use is an identified land use within the Conservation District, pursuant to Section 13-5-22 (P-6) PUBLIC PURPOSE USES (D-2), Hawaii Administrative Rules (HAR);
2. Pursuant to Section 13-5-40(a), HAR, a public hearing is not required as the proposed project does not involve a commercial use; and
3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, a finding of no significant impact (FONSI) to the environment is anticipated for the proposed project. The anticipated FONSI for the project will be submitted to the Office of Environmental Quality Control (OEQC) and will be noted in an upcoming edition of OEQC's Environmental Notice.

The applicant's responsibility includes complying with the provisions of Chapter 205A, HRS relating to the Special Management Area (SMA) requirements. Negative action by the Board of Land and Natural Resources on this CDUA can be expected should the applicant fail to obtain from the County and provide to the department at least thirty (30) days prior to the 180-day expiration date (as noted on the first page of this notice) one of the following:

1. A determination that the proposed development is exempt from the provisions of the county rules relating to the SMA;
2. A determination that the proposed development is outside the SMA; or
3. An SMA Use Permit for the proposed development.

At this time, in connection with your application, please inform us why it is necessary to locate the potable water treatment facility and one acre reservoir at the proposed sites. Please also provide descriptions, plans and photographs which enable the board to obtain an understanding of the visual impacts of the project and the magnitude and potential impacts all proposed grading work within the conservation district. Approximately how much borrow and fill would be involved in implementing each project element? How would proposed grading work and landscaping at the former quarry site make the area more visually appealing? What would be the visual impact of the water tank on users of trails and roadways near the project area?

We are concerned regarding your proposal to replant graded proposed project areas with fountain grass, which according to Chapter 4-69, Hawaii Administrative Rules, Hawaii State Department of Agriculture, is an invasive plant species. Please describe the fountain grass problem in the area and

discuss how you propose to control fountain grass within the project or surrounding areas. Please provide a preliminary landscaping plan.

Regarding the project's environmental assessment, the proposed project appears to be consistent with the Kukio Beach Resort's 1986 EIS and, therefore, pending consultation with the County of Hawaii, pursuant to Chapter 11-200, HAR, a supplemental EIS does not appear to be necessary for the proposed project. However, please refer to specific pages of the 1986 EIS and discuss how the entire proposed project and its environmental assessment relate to the previously prepared EIS. In the project's environmental assessment, please also include relevant descriptions and discussions of impacts of all elements of the entire new proposed water system and grading project.

Pending action on your application by the Board of Land and Natural Resources in the near future, your cooperation and early response to the matters presented herein will be appreciated. Should you have any questions, please contact Eric Hill of our Land Division's planning staff at 587-0380.

Sincerely,


GILBERT S. COLOMA-AGARAN
Chairperson

c: Hawaii Board Member
DOCARE/DAR/HPD/Na Ala Hele/LD(HDLO)
OEQC/OHA/DOH(Clean Water Branch)
County of Hawaii, Department of Planning
James Leonard, PBR Hawaii, 101 Aupuni Street, Suite 310, Hilo, HI 96720



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

May 4, 2001

Mr. Gilbert S. Coloma-Agaran, Chairperson
State of Hawaii
Department of Land and Natural Resources
PO Box 621
Honolulu, Hawaii 96809

**SUBJECT: KUKIO: MAUKA LANDS - EXPANDED UTILITY and OTHER
RELATED IMPROVEMENTS (FILE NO. CDUA: HA-3021B)
RESPONSE TO NOTICE OF ACCEPTANCE AND PRELIMINARY
ENVIRONMENTAL DETERMINATION**

Dear Mr. Coloma-Agaran:

We are writing on behalf of Mr. Sam Ainslie, President of WB Kukio Resorts, LLC, applicant for a Conservation District Use Permit currently under review and in response to your CDUA Acceptance Letter dated March 30, 2001.

We have obtained a letter from the County Planning Department stating that the subject property is not within the County's Special Management Area. The letter dated April 24, 2001 is attached.

In response to your questions and concerns, we have the following responses.

1. Why it is necessary to locate the potable water treatment facility and one acre reservoir at the proposed sites.

The proposed water system is an integrated system with components which are interdependent. Relocating the 620' water tank to the proposed site would prevent further alteration to the Muhe'enui pu'u. This would then require the potable water treatment system to be located above it (between the off-site source wells and the 620' water tank). The process involves the following sequence: 1) The KI source water flows through the treatment plant, 2) the treated potable water flows into the 620' water storage tank, and 3) the rejected water from the treatment plant flows to the one-acre irrigation reservoir. Hence, the potable water treatment facility and the one-acre reservoir require siting in proximity to the 620' water tank at the proposed location.

Wm. Frank Brandt • Thomas S. Witten • R. Stan Duncan • Russell Y. J. Chung

HONOLULU OFFICE
100 BISHOP STREET, PACIFIC TOWER, SUITE 600 HONOLULU, HAWAII 96813-3129
TELEPHONE: (808) 521-5631 FAX: (808) 521-1102 E-MAIL: wso@pbrhawaii.com

WAILUKU OFFICE
2124 KAMOHU STREET, WAILUKU, HAWAII 96793-2201
TELEPHONE: (808) 242-2878 FAX: (808) 242-2902

HILOKO OFFICE
191 ALUPEA STREET, THE CLAYDON CENTER, SUITE 310, HILO, HAWAII 96720-4276
TELEPHONE: (808) 961-3333 FAX: (808) 961-0989

Mr. Gilbert Coloma-Agaran

SUBJECT: KUKIO: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS (FILE NO. CDUA: HA-3021B) — RESPONSE TO NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION

May 4, 2001

Page 2

2. Provide descriptions, plans, and photographs that show the visual impacts of the project.

The detailed plans for each element of the project will be prepared after approval of the CDUA and will be submitted to DLNR for approval. The visual impacts of the project are described in the Environmental Assessment (PBR Hawaii February 2001, Section 4.1.8, page 27).

3. Provide descriptions, plans, and photographs to show the magnitude and potential impacts of proposed grading work within the conservation district.

A grading plan will be prepared and submitted to DLNR after the approval of the CDUA. The plans will indicate the quantities of Cinder land (rCL) which will be moved. The total area to be affected is approximately two acres. Our flora, fauna and archaeology surveys indicate that the proposed grading will not affect any biological or archaeological/cultural resources since none are present. In addition, the proposed grading is intended to improve the visual quality of the previously quarried area and reduce the visual impact of the proposed utility improvements.

4. Approximately how much borrow and fill would be involved in implementing each project element?

Grading of the escarpment: There will be no borrow or fill.

Reservoir: The reservoir will be excavated. There will be no borrow or fill.

Water Tank: The platform for the water tank will be graded and compacted. There will be no borrow or fill.

Water treatment plant: The site to support the 30' x 60' water treatment plant will be graded and compacted. There will be no borrow or fill.

5. Describe how proposed grading work and landscaping at the former quarry site make the area more visually appealing.

The escarpment which remains from the previous quarrying activities juts out (as shown in Figure 10, Photo 4), thus emphasizing the cuts from past grading. The proposed naturalizing of the contours through grading will remove the scarp and create a uniform contour which will blend with the surrounding area by a cover of fountain grasses.

Mr. Gilbert Coloma-Agaran

SUBJECT: KUKIO: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS (FILE NO. CDUA: HA-3021B) — RESPONSE TO NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION

May 4, 2001

Page 3

6. What would be the visual impact of the water tank on users of trails and roadways near the project area?

The nearest public roadway in the area is the Queen Kaahumanu Highway located more than a mile away. The mauka-makai Kaupulehu trail is located from 35 to 50 feet from the proposed improvements. The improvements will be visible from the trail, however, as described in Section 4.1.8 Visual Quality, the site was selected based on the topographic contours that would mitigate direct views of the water tank and water treatment facility.

7. Describe the fountain grass problem in the area and discuss how you propose to control fountain grass within the project or surrounding areas. Provide a preliminary landscape plan.

Fountain grass (*Pennisetum setaceum*) is the dominant vegetation at this location and many other areas of North Kona. Fountain grass is an aggressive invasive weed with no known controls, hence, it has spread rapidly over the past three decades. Within the project area, grading activities associated with the improvements would remove the fountain grass layer. Subsequently, fountain grass at the perimeter of the project site would be controlled with approved herbicides (e.g. Round-up). There are no controls planned for the surrounding area, since no effective means of control are presently known that would not involve land alteration.

8. Refer to specific pages of the 1986 EIS and discuss how the entire proposed project and its environmental assessment relate to the previously prepared EIS. In the EA, include relevant descriptions and discussions of impacts of all elements of the entire new proposed water system and grading project.

The 1986 Final EIS, Section 3.12 Water Supply, pages 3-36 to 3-37 describes the general water supply improvements for the project. The EIS describes the test well development in 1985 and the need for a transmission line and storage system from the mauka off-site location to the Kukio property.

The Conservation District Use Permit and utility easement which the Applicant received in May 2000 (as stated in the subject EA on page 2) implemented the objective as stated in the 1986 Final EIS. The subject application is an extension of the 2000 BLNR approval.

Between 1986 and the present, various alternative siting plans for the potable water tank and the irrigation reservoir have been discussed by the previous and current owners. Engineering analyses indicate the need for the water tank to be at the 620' elevation. Thus, the Pu'u Muhe'enui location was determined to be the only possible location on the Kukio property which

Mr. Gilbert Coloma-Agaran

SUBJECT: KUKIO: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS (FILE NO. CDUA: HA-3021B) — RESPONSE TO NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION

May 4, 2001

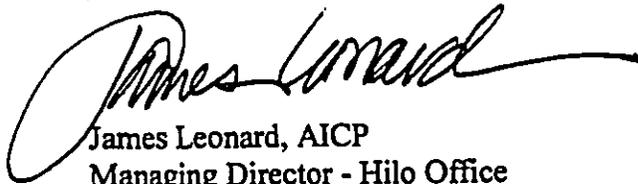
Page 4

could accommodate the water tank. However, as noted in the subject EA, its relocation to the off-site State property is the result of the Applicant's desire to halt any further alteration to the pu'u as recommended of the lineal descendants of the ahupuaa.

We hope this adequately responds to your questions. I can be reached at (808) 961-3333, should you have any additional questions.

Sincerely yours,

PBR HAWAII



James Leonard, AICP
Managing Director - Hilo Office

Attachment

c: Mr. Sam Ainslie, WB Kukio Resorts, LLC
Dr. Fred Holschuh, Hawaii Board Member
County of Hawaii, Department of Planning

783.14\Kukio\CDUA Acceptance Response

Harry Kim
Mayor



Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

PLANNING DEPARTMENT

25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8742

April 24, 2001

Mr. James Leonard, Managing Director
PBR Hawaii
101 Aupuni Street, Suite 310
Hilo, HI 96720

Dear Mr. Leonard:

**Conservation District Use Application (HA-3021)
WB Kukio Resort, LLC
TMK: 7-2-04: Portion of 4**

In response to your letter of April 4, 2001, please be informed that the above-mentioned property is not within the County's Special Management Area (SMA).

Should you need further information, please feel free to contact Norman Hayashi at 961-8288.

Sincerely,

A handwritten signature in cursive script, appearing to read "Chris Yuen".

CHRISTOPHER J. YUEN
Planning Director

NH:pak

P:\wpwin60\norm\letters\leonard edua ha-3021 4-24-01

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION

2001 MAR 22 P 2:11

RECEIVED
WATER RESOURCES DIVISION
STATE OF HAWAII



GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
ROBERT G. GIRALD
BRIAN C. NISHIDA
DAVID A. NOBRIGA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

March 21, 2001

TO: Mr. Dean Uchida, Administrator
Land Division

FROM: Linnel T. Nishioka, Deputy Director *Linnel T. Nishioka*
Commission on Water Resource Management (CWRM)

SUBJECT: CDUA including use of State land for WB Kukio Resorts

FILE NO.: CDUA HA-3021-B

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

- We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.
- We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.
- If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).
- If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.
- OTHER:

Attached are maps showing the locations of wells currently in place and also wells currently being applied for. Also, attached printouts of our well database show: a) wells being applied for (Well Application Query) and wells already constructed (Well Index). The wells are located in the Kiholo Aquifer System (sustainable yield = 18 MGD) of the Hualailai Aquifer Sector (sustainable yield = 56 MGD).

If there are any questions, please contact Ryan Imata at 587-0255.

Well Application Query

80901											
AQUA_CODE	WELL_NO	TYPE	WELL_NAME	APPLICANT	RCVD	ACCEPT	APPROVED	WCP_ISSUED	WCR/ACCEPT	PP_ISSUED	WCR/ACCEPT
	4459-01	WELL	Huehue Ranch 2	Huehue Ranch Ass	6/16/1989	6/16/1989	8/24/1989	8/24/1989			
	4459-01	PUMP	Huehue Ranch 2	Huehue Ranch Ass	2/6/1991		4/2/1991			4/2/1991	
	4459-02	BOTH	Huehue Ranch 4	Huehue Ranch Ass	2/6/1991		4/2/1991	4/2/1991		4/2/1991	
	4559-01	PUMP	Huehue Ranch 1	Huehue Ranch Ass	2/6/1991		4/2/1991			4/2/1991	
80902											
AQUA_CODE	WELL_NO	TYPE	WELL_NAME	APPLICANT	RCVD	ACCEPT	APPROVED	WCP_ISSUED	WCR/ACCEPT	PP_ISSUED	WCR/ACCEPT
	4558-01	WELL	Huehue Ranch 3	Huehue Ranch Ass	6/16/1989	6/16/1989	8/24/1989	8/24/1989			
	4558-01	PUMP	Huehue Ranch 3	Huehue Ranch Ass	2/6/1991		4/2/1991			4/2/1991	
	4558-02	BOTH	Huehue Ranch 5	Huehue Ranch Ass	3/11/1991	3/19/1991	5/29/1991	5/29/1991		3/31/1993	
	4558-03	BOTH	Stand-by HR-6	WB Kukio Resorts,	11/6/2000	12/28/2000	1/16/2001	2/22/2001			
	4759-01	PUMP	KI-1	Huehue Ranch Ass	2/6/1991		4/2/1991			4/2/1991	
	4759-01	PUMP	KI-1	WB Kukio Resorts,	9/27/1999	10/8/1999	11/23/1999			12/10/1999	
	4759-01	WELL	KI-1	Huehue Ranch Ass	9/5/1989	9/5/1989	10/24/1989	10/24/1989			
	4759-02	WELL	KI-2	Huehue Ranch Ass	9/5/1989	9/5/1989	10/24/1989	10/24/1989			
	4759-02	PUMP	KI-2	Huehue Ranch Ass	2/6/1991		4/2/1991			4/2/1991	
	4759-02	PUMP	KI-2	WB Kukio Resorts,	9/27/1999	10/8/1999	11/23/1999			12/10/1999	

Friday, March 16, 2001

4759-03	BOTH	KI-3	Huehue Ranch Ass	2/6/1991	4/2/1991	4/2/1991
4759-03	PUMP	KI-3	WB Kukio LLB	9/27/1999	10/8/1999	11/23/1999
						12/10/1999

STATE OF HAWAII / DEPARTMENT OF LAND AND NATURAL RESOURCES / COMMISSION ON WATER RESOURCE MANAGEMENT
GROUND WATER WELL INDEX / SUMMARY

ISLAND CODE 8

Well No.	Well Name	Aquif Code	Owner/User	Coordinates			Physical Data				Elevations in feet (msl)				Initial		Pump Test Result	
				Year Drilled	Latitude	Longitude	Type	Case Dia in.	Total Depth ft.	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head	Ci- Temp	Specific Capacity	Installed Capacity	T	Use
4459-01	Huehue Ranch 2	80901	Huehue Ranch	1991	194448	1555910	PER 14	1642	1537	0	-25	-105	7.3	63	.720	UNU		
4459-02	Huehue Ranch 4		Huehue Ranch	1992	194457	1555907	ROT 14	1625	1532	-3	-33	-93	7	110	.720	MUN		
4558-01	Huehue Ranch 3	80902	Huehue Ranch	1991	194533	1555859	PER 14	1598	1519	4	-26	-79	7	114	.720	MUN		
4558-02	Huehue Ranch 5	80902	Huehue Ranch	1992	194545	1555842	ROT 14	1600	1529	19	-21	-71	22.5	35	.720	MUN		
4559-01	Huehue Ranch 1	80901	Huehue Ranch	1985	194511	1555903	PER 10	1690	1579	0	-30	-111	7.8	60	.504	MUN		
4658-01	Kaupulehu 1	80902	Kaupulehu Wtr	1981	194640	1555810	ROT 12	1440	1343	49	-31	-97	6.9	38	.648	MUN		
4658-02	Kaupulehu 2	80902	Kaupulehu Wtr	1986	194639	1555811	ROT 12	1444	1343	3	-77	-101	7	21.0	.648	MUN		
4759-01	KI-1	80902	Wb Kukio Lib	1990	194742	1555924	PER 14	610	591	1	-19	-19	1.6	590		UNU		
4759-02	KI-2	80902	Wb Kukio Lib	1991	194750	1555908	PER 12	570	552	2	-18	-18	1.2	460	.720	OTH		
4759-03	KI-3		Wb Kukio Lib	1992	194746	1555916	PER 16	618	594	-4	-24	-24	0	720	25.3	62	UNU	
4858-01	Kona Village 1	80902	Pia-Kona Ltd	1960	194820	1555824	ROT 4	528	501	-16	-27	-27	0.8	385	.05	UNU		
4858-02	Kona Village 2	80902	Kona V/I Assoc	1968	194818	1555824	ROT 8	523	503	0	-20	-20	1.8	22.0	.334	DOM		
4858-03	Kona Village 3	80902	Kona V/I Assoc	1973	194820	1555825	ROT 10	534	500		-14	-34	2.8	300	.250	DOM		
4859-01	Hualalai Makai		Hualalai Dev	1994	194859	1555901	ROT 10	270	250	0	-20	-20	1.6	20.0		UNU		



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

May 29, 2001

Mr. Linnel T. Nishioka, Deputy Director
Commission on Water Resources Management
Department of Land and Natural Resources
State of Hawai'i
PO Box 621
Honolulu, Hawaii 96809

SUBJECT: KŪKI'O: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS RESPONSE TO COMMENTS ON THE CDUA AND DRAFT EA

Dear Mr. Nishioka:

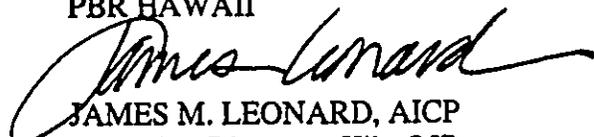
Thank you for your letter dated March 21, 2001 concerning the Kūki'o Mauka Lands CDUA and Draft EA.

The Kūki'o project is planned to utilize both potable and non-potable water resources. The subject proposed actions would support the overall water system for domestic and irrigation uses.

1. The County of Hawai'i is fully aware of this project through the review and approval of numerous Construction and Building Permits.
2. All wells, except one (HR6), have been permitted with Construction Permits and Pump Installation Permits. Permits for the remaining well will be soon processed with the Water Commission.
3. We acknowledge the receipt of the maps showing the locations of wells currently in place and also wells currently under application and the database of wells in the Kīholo Aquifer System of the Hualālai Aquifer Sector.

We appreciate your participation and comments on the Draft EA.

Sincerely yours,
PBR HAWAII



JAMES M. LEONARD, AICP
Managing Director - Hilo Office

c: Sam Ainslie, WB Kūki'o Resorts, LLC, President
Eric Hill, Department of Land and Natural Resources

Wm. Frank Brandt • Thomas S. Witten • R. Stan Duncan • Russell Y. J. Chung

HONOLULU OFFICE
1001 BISHOP STREET, PACIFIC TOWER, SUITE 650, HONOLULU, HAWAII 96813-4129
TELEPHONE: (808) 521-5631 • FAX: (808) 521-1102 • MAIL: wsadmm@pbrhawaii.com

WAILUKU OFFICE
2121 KAWAII STREET, WAILUKU, HAWAII 96791-2201
TELEPHONE: (808) 242-2878 • FAX: (808) 242-2992

HILO OFFICE
101 ALUPUN STREET, THE LAGOON CENTER, SUITE 110, HILO, HAWAII 96720-1276
TELEPHONE: (808) 961-3733 • FAX: (808) 961-0180

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION

DEPUTIES
JANET Z. KAWELO
LINNEL NISHIOKA

2001 MAY 11 A 7 34
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

HISTORIC PRESERVATION DIVISION
Kekuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

May 4, 2001

LOG NO: 27392 ✓
DOC NO: 0105PM01

MEMORANDUM

TO: Dean Uchida, Administrator
Land Division

FROM: Don Hibbard, Administrator
State Historic Preservation Division 

SUBJECT: Conservation District Use Application HA-3021B
Applicant: WB Kukio Resorts
Kukio, North Kona, Hawaii Island
TMK: 7-2-04:Por.4

The applicant, WB Kukio Resorts, proposes to construct a 1-acre reservoir, a water tank, and a wastewater treatment plant on the subject parcel. Paul H. Rosendahl, Ph.D. Inc (PHRI) conducted an archaeological and cultural impact assessment study of the parcel in November and December 2000. No historic properties were found in survey of a roughly 73 acre area that includes the approximately 5.5 acre project area. Informants that were interviewed for the cultural impact study had no knowledge of traditional Hawaiian place names or cultural practices in the area. The negative results of both studies indicate that the proposed project will have "no effect" on historic sites and Hawaiian cultural practices.

PM:amk



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

May 29, 2001

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

SUBJECT: KŪKI'O: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS RESPONSE TO COMMENTS ON THE CDUA AND DRAFT EA

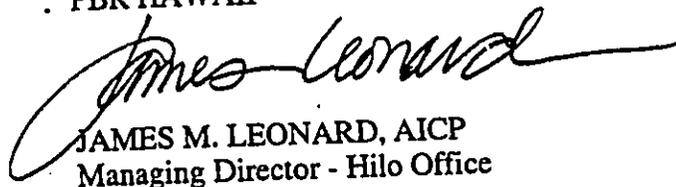
Dear Mr. Hibbard:

Thank you for your letter dated May 4, 2001 concerning the Kūki'o Mauka Lands CDUA and Draft EA.

We acknowledge your determination that the negative results of the archaeological and cultural impact assessment studies indicate that the proposed project will have "no effect" on historic sites and Hawaiian cultural practices.

We appreciate your participation and comments on the Draft EA.

Sincerely yours,
PBR HAWAII



JAMES M. LEONARD, AICP
Managing Director - Hilo Office

c: Sam Ainslie, WB Kūki'o Resorts, LLC, President
Eric Hill, Department of Land and Natural Resources

Wm. Frank Brandt • Thomas S. Witten • R. Stan Duncan • Russell Y. J. Chung

HONOLULU OFFICE
1001 BISHOP STREET, PACIFIC TOWER, SUITE 650, HONOLULU, HAWAII 96813-3129
TELEPHONE (808) 521-5631 FAX (808) 523-1102 E-MAIL wsadmm@pbhawaii.com

WAILUKU OFFICE
2123 KYOBU STREET, WAILUKU, HAWAII 96793-2204
TELEPHONE (808) 212-2575 FAX (808) 212-2102

HILO OFFICE
104 ALPINE STREET, HILO LAGOON CENTER, SUITE 310, HILO, HAWAII 96720-1270
TELEPHONE (808) 961-0033 FAX (808) 961-1989

BENJAMIN J. CAYETANO
GOVERNOR

RECEIVED
LAND DIVISION



BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

2001 APR 18 P 3:50

STATE OF HAWAII
DEPARTMENT OF HEALTH

P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD/CWB

04032PKP,01

DEPT. OF LAND & NATURAL RESOURCES
SURFACES DIVISION

April 11, 2001

TO: Dean Uchida
Administrator
Land Division
Department of Land and Natural Resources

FROM: Thomas E. Arizumi, P.E., Chief
Environmental Management Division
Department of Health

A handwritten signature in cursive script, reading "Thomas E. Arizumi".

SUBJECT: Conservation District Use Application
Water System Improvements and Grading of a Topographical Feature
Kukio, North Kona, Hawaii

The Department of Health, Clean Water Branch (CWB) has reviewed the request and has the following comments:

1. The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for this project. If it is determined that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would also be required from CWB.
2. If the project involves any of the following discharges into State waters classified as Class A or Class 2, a National Pollutant Discharge Elimination System (NPDES) general permit is required for each activity:
 - a. Storm water runoff associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than five (5) acres of total land area. (Note: If construction begins or continues after March 10, 2003, NPDES general permit coverage would also be required for construction activities, including clearing, grading, and excavation, that result in the disturbance of one (1) acre or more).

Dean Uchida
April 11, 2001
Page 2

- b. Hydrotesting water.
 - c. Construction dewatering effluent.
3. If the discharges mentioned in Item 2 above enter State waters classified as Class 1 or Class AA, an NPDES individual permit would be required. One individual permit could cover any or all types of discharges.

The CWB requires that Notices of Intent (NOI) for NPDES general permits be submitted 30 days before the discharge is to occur. NPDES individual permit applications should be submitted 180 days before the discharge is to occur. NOI and NPDES individual permit applications can be picked up at the CWB office or downloaded from our website at <http://www.state.hi.us/doh/eh/cwb/forms/index.html>.

Should you have any questions, please contact Ms. Kris Poentis of the Engineering Section of the CWB, at 586-4309.

KP:cr



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

May 29, 2001

Mr. Thomas E. Arizumi, P.E., Chief
Environmental Management Branch
State of Hawai'i
Department of Health
PO Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: KŪKI'O: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS RESPONSE TO COMMENTS ON THE CDUA AND DRAFT EA

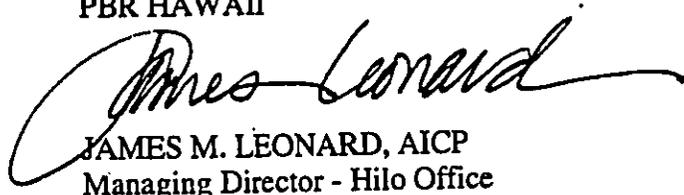
Dear Mr. Arizumi:

Thank you for your letter dated April 11, 2001 concerning the Kūki'o Mauka Lands CDUA and Draft EA.

1. The project area consists of well drained lava land, thus there are no drainages or waters of the United States on the property that would warrant a review by the Army Corps of Engineers.
2. The project area is classified as Class 2 inland waters. Presently, the area to be graded is estimated to be 5.5 acres; the exact area will be determined when the detailed construction plans are prepared. Any hydro testing which may be performed would be directly into the constructed reservoir.
3. There are no Class 1 State waters present within or near the vicinity of the project. The nearest Class AA waters are at the shoreline located approximately two miles from the project.

We appreciate your participation and comments on the Draft EA.

Sincerely yours,
PBR HAWAII



JAMES M. LEONARD, AICP
Managing Director - Hilo Office

c: Sam Ainslie, WB Kūki'o Resorts, LLC, President
Eric Hill, Department of Land and Natural Resources

Wm. Frank Brandt • Thomas S. Witten • R. Stan Duncan • Russell Y. J. Chung

HONOLULU OFFICE
1001 BISHOP STREET, PACIFIC TOWER, SUITE 650, HONOLULU, HAWAII 96813-3129
TELEPHONE: (808) 521-5631 FAX: (808) 523-1102 E-MAIL: wsadman@pbrhawaii.com

WAILUKU OFFICE
2125 KAOHUKU STREET, WAILUKU, HAWAII 96793-2204
TELEPHONE: (808) 242-2858 FAX: (808) 242-2902

HILO OFFICE
101 ALPINE STREET, HILO LAGOON CENTER, SUITE 310, HILO, HAWAII 96720-4276
TELEPHONE: (808) 961-3333 FAX: (808) 961-1989

BENJAMIN J. CAYETANO
GOVERNOR



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
236 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

May 8, 2001

WB Kuki'o Resorts
P.O. Box 5349
Kailua Kona, Hawai'i 96745

Mr. James Leonard
PBR Hawai'i
101 'Aupuni Street, Suite 310
Hilo, Hawai'i 96720

Mr. Eric Hill
Department of Land and Natural Resources, State of Hawai'i
1151 Punchbowl Street, Room 220
Honolulu, Hawai'i 96813

Dear WB Kuki'o Resorts, and Messrs. Leonard and Hill:

We have reviewed the draft environmental assessment entitled "Kuki'o: Mauka Lands - Expanded Utility and Other Improvements" in support of requests before the Board of Land and Natural Resources to: (1) approve a utility lease over a 3.5 acre portion of state land for the purpose of providing potable and nonpotable water related improvements; and (2) a conservation district use application for the use of 5.5 acres of state-owned land for the development of an irrigation reservoir, the construction of a 0.5 million gallon water tanks, the construction of a water treatment plant and the grading of two-acres to "naturalize" topographic contours on the site of a former cinder quarry near Pu'u Muhe'enui. We offer the following comment for your consideration and response.

GRADING OF A TWO-ACRE ESCARPMENT OF PU'U MUHE'ENUI: The description of the grading operation remains unclear to us. Although figure 10 shows Pu'u Muhe'enui and figure 4 shows the site plan, please explain whether this means that portions of the quarry will be filled in. A photography of the cinder quarry as it exists today along with an overlay of the proposed grading would be very helpful in understanding the action. We urge you to use native xerophytic vegetation in any proposed landscaping.

Again we thank you for the opportunity to comment. If there are any questions, please call me or Leslie Segundo at (808) 586-4185.

Sincerely,

A handwritten signature in cursive script that reads "Genevieve Salmonson".

GENEVIEVE SALMONSON
Director



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

May 29, 2001

Ms. Genevieve Salmonson, Director
State of Hawai'i
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

SUBJECT: KŪKI'O: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS RESPONSE TO COMMENTS ON THE CDUA AND DRAFT EA

Dear Ms. Salmonson:

Thank you for your letter dated May 8, 2001 concerning the Kūki'o Mauka Lands CDUA and Draft EA.

The grading of the two-acre escarpment created from past quarrying of Pu'u Muhe'enui is intended to remove the scarp which remains on the State lands and to reduce the effects of erosion over the long term. As you suggested, a photograph of the cut pu'u taken from within the Kūki'o property is included in the Final EA, Figure 10A, Photo 5.

Regarding the use of landscaping materials, the Kūki'o project will incorporate dryland native plants which are adapted to this area of Kona.

We appreciate your participation and comments.

Sincerely yours,
PBR HAWAII

JAMES M. LEONARD, AICP
Managing Director - Hilo Office

c: Sam Ainslie, WB Kūki'o Resorts, LLC, President
Eric Hill, Department of Land and Natural Resources

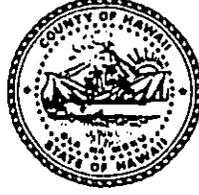
Wm. Frank Brandt • Thomas S. Witten • R. Stan Duncan • Russell Y. J. Chung

HONOLULU OFFICE
1001 BISHOP STREET, PACIFIC TOWER, SUITE 650, HONOLULU, HAWAII 96813-3129
TELEPHONE: (808) 521-5631 FAX: (808) 523-1102 E-MAIL: ssahama@pbhawaii.com

WAHUKU OFFICE
2123 KAOHUA STREET, WAHUKU, HAWAII 96793-2201
TELEPHONE: (808) 242-2575 FAX: (808) 242-2907

HILO OFFICE
101 ALUPUN STREET, HILO LAGOON CENTER, SUITE 310, HILO, HAWAII 96720-1276
TELEPHONE: (808) 961-3333 FAX: (808) 961-1989

Harry Kim
Mayor



Patricia G. Engelhard
Director

Pamela N. Mizuno
Deputy Director

County of Hawai'i
DEPARTMENT OF PARKS AND RECREATION
25 Aupuni Street, Room 210 • Hilo, Hawai'i 96720-4252
(808) 961-8311 • Fax (808) 961-8411

May 7, 2001

James Leonard
Managing Director-Hilo Office
PBR Hawaii
101 Aupuni Street
Hilo Lagoon Center, Suite 310
Hilo, HI 96720-4276

Re: Kuki'o Mauka Lands CDUA and Draft EA
WB Kuki'o Resorts, LLC

Dear James:

Thank you for the opportunity to review the above.

While the project includes the providing of water to the County's Veterans' Cemetery, please assure that the CDUA and EA include sufficient information to have the waterline provision covered by a CDU permit and final EA, to avoid having to file separate applications.

We look forward to working with you on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Glenn Miyao".

Glenn Miyao
Planner



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

May 29, 2001

Mr. Glenn Miyao, Planner
County of Hawai'i
Department of Parks and Recreation
25 Aupuni Street, Room 210
Hilo, Hawaii 96720-4252

SUBJECT: KŪKI'O: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS RESPONSE TO COMMENTS ON THE CDUA AND DRAFT EA

Dear Mr. Miyao:

Thank you for your letter dated May 7, 2001 concerning the Kūki'o Mauka Lands CDUA and Draft EA.

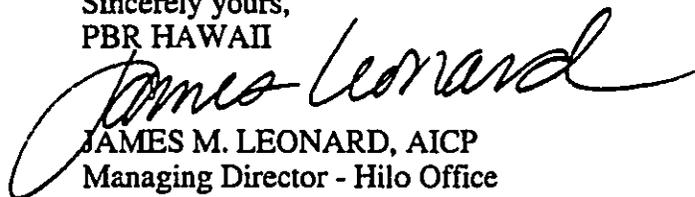
WB Kūki'o Resorts, LLC has agreed to provide irrigation water to the County's Veterans' Cemetery. Initially, the allocation to the County is 600 gallons per day (GPD), with a provision that the portion reserved for the State's mauka Agricultural lots may be reallocated to the Veterans' Cemetery up to a maximum of 3,600 GPD.

In response to your comment, we are revising the environmental assessment to include the necessary description of the proposed waterline so that the County would not need to file a separate environmental assessment and CDUA for the proposed waterline.

As we have discussed with you, the proposed waterline will be a 2" HDPE overland line which will traverse State land along the south boundary of the WB Kūki'o Resorts, LLC property and HELCO's 69 kV easement and up the access road to the Veterans' Cemetery. Therefore, no ground alteration would be required.

We appreciate your participation and comments.

Sincerely yours,
PBR HAWAII



JAMES M. LEONARD, AICP
Managing Director - Hilo Office

cc: Sam Ainslie, WB Kūki'o Resorts, LLC, President
Eric Hill, Department of Land and Natural Resources

Wm. Frank Brandt • Thomas S. Witten • R. Stan Duncan • Russell Y. J. Chung

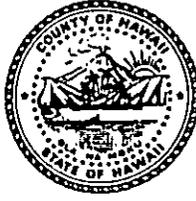
HONOLULU OFFICE
1001 BISHOP STREET, PACIFIC TOWER, SUITE 650, HONOLULU, HAWAII 96813-3129
TELEPHONE: (808) 521-5631 FAX: (808) 528-1102 E-MAIL: ssadun00@pbrhawaii.com

WAILUKU OFFICE
2127 KAOHUA STREET, WAILUKU, HAWAII 96793-2203
TELEPHONE: (808) 212-2875 FAX: (808) 212-2902

HILO OFFICE
101 AUPUNI STREET, HILO LAGOONS CENTER, SUITE 310, HILO, HAWAII 96720-4276
TELEPHONE: (808) 961-3933 FAX: (808) 961-1359

Harry Kim
Mayor

RECEIVED
LAND DIVISION



Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

2001 MAY -7 P 2:30

County of Hawaii

PLANNING DEPARTMENT

25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8742

April 30, 2001

Mr. Dean Uchida, Administrator
Land Division
Department of Land and Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Uchida:

**Conservation District Use Application – W B Kukio Resorts, LLC
CDUA HA-3021
Water System Improvements and Grading of Topographic Feature
Tax Map Key: (3) 7-2-004:04 portion**

We have received your letter of March 30, 2001 requesting our review of this proposal.

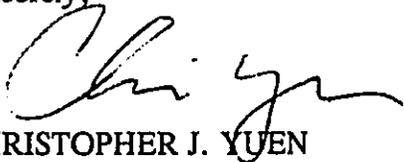
The application consists of four parts, (1) development of an irrigation reservoir, (2) Construction of a 0.5 million-gallon water tank, (3) Construction of a water treatment plant, and (4) Grading (2 acres) to “naturalize” contours. We have no objections to the approval of all 4 parts of the application.

On page 1 of the Draft Environmental Assessment, the discussion of the Hawaii County Zoning is incorrect. The County of Hawaii does not have any authority to zone lands within the Conservation District.

Mr. Dean Uchida, Administrator
Land Division
Department of Land and Natural Resources
Page 2
April 30, 2001

Should you have any questions, please feel free to contact Rodney Nakano of this department at 961-8288.

Sincerely,



CHRISTOPHER J. YUEN
Planning Director

RKN:pak
P:\WP60\RODNEY\2001-2\LCDUAKukio.doc

cc: West Hawaii Office



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

May 29, 2001

Mr. Christopher J. Yuen, Director
Planning Department
County of Hawai'i
25 Aupuni Street
Hilo, Hawaii 96720

SUBJECT: KŪKI'O: MAUKA LANDS - EXPANDED UTILITY and OTHER RELATED IMPROVEMENTS RESPONSE TO COMMENTS ON THE CDUA AND DRAFT EA

Dear Mr. Yuen:

Thank you for your letter dated April 30, 2001 concerning the Kūki'o Mauka Lands CDUA and Draft EA.

We acknowledge that the Planning Department has no objections to the approval of the proposed actions. The Final EA has been revised regarding the zoning designation of the property.

We appreciate your participation and comments on the Draft EA.

Sincerely yours,
PBR HAWAII

JAMES M. LEONARD, AICP
Managing Director - Hilo Office

c: Sam Ainslie, WB Kūki'o Resorts, LLC, President
Eric Hill, Department of Land and Natural Resources

Wm. Frank Brandt • Thomas S. Witten • R. Stan Duncan • Russell Y. J. Chung

HONOLULU OFFICE

1001 BISHOP STREET, PACIFIC TOWER, SUITE 650, HONOLULU, HAWAII 96813-3129
TELEPHONE: (808) 521-5631 FAX: (808) 523-1402 E-MAIL: ssidman@pbrhawaii.com

WAILUKU OFFICE

2125 KAOHILU STREET, WAILUKU, HAWAII 96793-2204
TELEPHONE: (808) 242-2878 FAX: (808) 242-2902

HILO OFFICE

101 AUPUNI STREET, HILO LAGOON CENTER, SUITE 316, HILO, HAWAII 96720-4276
TELEPHONE: (808) 961-3333 FAX: (808) 961-4983

KŪKI'O:
MAUKA LANDS EXPANDED UTILITY
and OTHER RELATED IMPROVEMENTS
Conservation District Use Application / Final Environmental Assessment

9.0 REFERENCES

County of Hawai'i, Department of Research and Development. *County of Hawai'i Data Book 1997*. Hilo, Hawai'i, July 1998

County of Hawai'i, *General Plan*, Ordinance No. 89-142 (An Ordinance Adopting the County of Hawai'i General Plan and Repealing Ordinance No. 439, as amended).

County of Hawai'i, *Hawai'i County Code*, Chapter 25 (Zoning)

Hawai'i Administrative Rules, Chapter 11-200, Department of Health, Environmental Impact Statement Rules.

Hawai'i Revised Statutes, Chapter 205 (Land Use Commission) (1985 & Supp. 1992).

Hawai'i Revised Statutes, Chapter 226 (State Plan) (Supp. 1992)

Heliker, C. *Volcanic and Seismic Hazards on the Island of Hawai'i*. U.S. Geological Survey, 1991.

Kon, M. *Hawai'i County Water Use and Development Plan*. Prepared for the Department of Water Supply, County of Hawai'i, February 1992.

McCall, W. *Soil Classification in Hawai'i*, Cooperative Extension Service, University of Hawai'i, Circular 476, 1975.

Rosendahl, Ph.D., P. Archaeological and Cultural Impact Assessment Study: Kūki'o and Related Improvements Project, Land of Kūki'o 1", North Kona District, Island of Hawai'i, Report 2132-122200, Hilo, Hawai'i

Terry, Ph.D., R. and P. Hart, Ph.D. Flora and Fauna Reconnaissance, Lands Mauka of Mūhe'enui Cinder Cone, Kūki'o, North Kona, Island of Hawai'i, December 2000.

University of Hawai'i, Department of Geography, *Atlas of Hawai'i* (3d. ed). Honolulu: University of Hawai'i Press, 1998.

U.S. Department of Agriculture, Soil Conservation Service. *Soil Survey of Island of Hawai'i*. State of Hawai'i, 1973.

Appendix

A

Flora / Fauna Survey

**FLORA AND FAUNA RECONNAISSANCE
LANDS MAUKA OF MUHEENUI CINDER CONE
KUKI'O, NORTH KONA, ISLAND OF HAWAII**

By Ron Terry, Ph.D. and Patrick Hart, Ph.D.
December 2000

Introduction

This report describes the results of a biological reconnaissance within an approximately 60 acre area of land mauka of Muheenui cinder cone in the ahupua'a of Kuki'o. The area lies 1.1 miles southeast of Queen Kaahumanu Highway at an elevation of approximately 600 – 700 feet above sea level.

Purpose and Methodology

The objectives of the survey were to 1) describe the vegetation; 2) list all species encountered; 3) identify threatened or endangered species; and 4) assess the value of the vegetation for native vertebrate habitat. Initial transects were walked in an 8-acre area just mauka of Muheenui cone by P. Hart and R. Terry on November 3, 2000. Because unusually heavy rains fell on the site two days before, the site was re-visited on December 5 in order to detect the presence of any recently established seedlings. All portions of this project area, including an approximately 20-m wide "buffer zone" just outside the boundary, were surveyed on both days. In addition, 3 potential pond sites within the parcel, labeled "alternatives 1, 2, and 3" on field maps provided by PBR Hawaii, were surveyed on December 5. All flowering plant species were identified in the field.

About five miles from the project site, in the ahupua'a of Kaupulehu, there is one of the best remaining examples of a native dry-forest community left in the state. Numerous endangered plant species are present within this forest at elevations above approximately 1,500 feet (Cabin et al. 2000). Accordingly, special attention was given on both survey days to the possible presence of any state or federally (USFWS 2000) listed endangered plant or animal species at the survey site.

Results

No rare, threatened or endangered species as listed by the U.S. Fish and Wildlife Service are present on the parcel, nor are there unique or valuable wildlife habitats. Based on elevation, rainfall and geologic substrate, the area probably supported a Lowland Dry to Mesic Forest (Gagne and Cuddihy 1990), with 'ohi'a (*Metrosideros polymorpha*) and lama (*Diospyros sandwichensis*) as co-dominants. The original vegetation of the property was probably long ago lost to disturbance from ranching activities and fire. The vegetation is now almost completely dominated by the introduced Fountain grass (*Pennisetum setaceum*). This fire-adapted grass is known to efficiently out-compete

many native Hawaiian plant species. Four native flowering plant species were found: a'ali'i (*Dodonea viscosa*), lama (*Diospyros sandwichensis*), 'Uhaloa (*Waltheria indica*), and Prickly poppy (*Argemone glauca*). With the exception of 'Uhaloa, only a few remnant individuals of each were located. The only other flowering plant species located on the property were the introduced Silk oak (*Grevillea robusta*), Garden spurge (*Chamaesyce hirta*), Indigo (*Indigofera suffruticosa*), and 'Akulikuli (*Portulaca pilosa*). In addition, a few recently sprouted individuals of what was most likely the native 'Iwa'iwa fern (*Doryopteris sp.*) were located.

No native fauna were observed on the sites. The native Hawaiian owl or Pueo (*Asio flammeus sandwichensis*) probably makes some use of the area for hunting or nesting. It is also possible that certain native seabirds or migratory birds utilize or fly over the site, but it is unlikely that any with threatened or endangered status would find the site suitable habitat or be affected by activities that occur on the parcel. The only native Hawaiian land mammal, the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*), may also be present in the area, as it is common in many areas on the island of Hawaii. None were observed at any of the sites. Observation took place in daylight, and therefore the lack of bat observations does not signify an actual absence of bats. The project area would not be expected to represent essential habitat for this species. The introduced Common Myna (*Acridotheres tristis*) was the only bird species detected during the surveys. Introduced mongooses (*Herpestes auro punctatus*), goats (*Capra hircus*), feral cats (*Felis catus*), rats (*Rattus spp.*) and mice (*Mus musculus domesticus*) undoubtedly inhabit or use the property, and goat scat was common throughout all the area surveyed.

Any permanent surface water in this dry area will almost surely be an attractant for a wide variety of introduced and possibly native birds. The physical characteristics of the reservoir and the surrounding vegetation could greatly influence the types of birds that are attracted to the area. A deep reservoir with steep edges and little surrounding vegetation would minimize its usage by birds. Even with such a design, it is possible that the reservoir would be visited by native species such as the endangered Hawaiian Duck (*Anas wyvilliana*), the endangered Coot (*Fulica americana alai*), the endangered Nene (*Nesochen sandvicensis*), and the Black-Crowned Night Heron (*Nycticorax nycticorax hoactli*).

Literature Cited

- Cabin, R.J., S.G. Weller, D.H. Lorence, T.W. Flynn, A.K. Sakai, D. Sandquist, and L.J. Hadway. 2000. Effects of long-term ungulate exclusion and recent alien species control on the preservation and restoration of a Hawaiian tropical dry forest. *Conservation Biology* 14: 439-453.
- Cuddihy, L., J.A. Davis, and S.J. Anderson. 1982. A botanical survey of twelve cinder cones in South Kohala, island of Hawai'i. Endangered Plant Species Program, Division of Forestry and Wildlife, Department of Land and Natural Resources, Hilo, Hawaii.
- U.S. Fish and Wildlife Service (USFWS). 2000. *Threatened and endangered plants in Hawaii*. Washington: GPO.

Appendix

A-1

U.S. Fish and Wildlife Service Letter



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
500 Ala Moana Blvd, Rm 3-122
Box 50088
Honolulu, HI 96850

In Reply Refer To: JAK

Mr. Timothy E. Johns
Chairperson
State of Hawaii
Department of Land and N
P.O. Box 621
Honolulu, HI 96809

Re: Conservation District Use Permit (CDUP) Application and Draft Environmental Assessment (DEA) for the Proposed Water Utility and Service Access Easement at Kukio Beach Resort, North Kona, Hawaii

Dear Mr. Johns:

The U.S. Fish and Wildlife Service (Service) received your November 24, 1999 letter requesting comments on the CDUP application and DEA for the proposed water utility and service access easement in Kukio, North Kona, Hawaii. The proposed project sponsor is WB Kukio Resort, LLC. The proposed easement will allow for the establishment of a temporary above ground irrigation line, installation of a twelve-inch underground pipeline, installation of two 40,000 gallon "breaker" tanks, and the widening and grading of the Old Kona Village Road to 30 feet in width. The proposed improvements will connect water sources to the proposed Kukio Beach Resort development and enable service access to utility lines. We offer the following comments for your consideration.

Based on our review of the information provided with your letter and in our database, there are no federally endangered, threatened, or candidate species, or other federal trust resources, within the proposed easement. There are records of the federally listed endangered plants, *Pleomelin hawaiiensis* or *halapepe* and *Flueggea neowawraea* or *mehamehame*, occurring adjacent to the area proposed under Alternative D. However, the Service has determined that the proposed actions are not likely to adversely affect federally listed species based on the minimal ground disturbance that will be caused by improvements to and construction within the narrowly designated portion of land along an existing road.

Nevertheless, the Service is concerned that the likelihood for fire in the proposed project area is great due to the high density of fountain grass (*Pennisetum setaceum*) and the association of fire with vehicular traffic. In the vicinity of the proposed easement, fire is an immediate threat to the above-listed species. Therefore, to prepare for potential fires which may occur during the proposed activities, the Service recommends that personnel working in the area be equipped with effective fire extinguishing equipment and be able to respond immediately to prevent the spread of fire.

JAN 13 12:00 PM '00
2000
JAN 13 AM 11:45

The Service appreciates the opportunity to offer our comments on the proposed easement. We are grateful for your patience in awaiting these comments, which were delayed due to the temporary misplacement of the review documents. We hope that this delay has not caused any problems for your agency. If you have questions regarding these comments, please contact Fish and Wildlife Biologist James Kwen by telephone at (808) 541-3441 or by facsimile transmission at (808) 541-3470.

Sincerely,



Paul Henson
Field Supervisor
Ecological Services

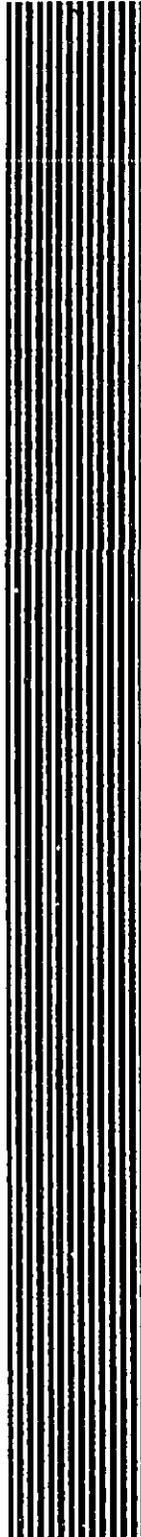
cc: DOFAW, Honolulu
DOFAW, Hilo

Appendix

B

Archaeology and Cultural Impact Assessment Report

Report 2132-122200



Archaeological and Cultural Impact Assessment Study

**Kūki‘o Expanded Utility Easement
and Related Improvements Project**

Land of Kūki‘o 1st, North Kona District
Island of Hawai‘i

PHRI

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

Archaeological • Historical • Cultural Resource Management Studies & Services

Archaeological and Cultural Impact Assessment Study

Kūki'ō Expanded Utility Easement and Related Improvements Project

Land of Kūki'ō 1st, North Kona District
Island of Hawai'i (TMK: 3-7-2-04:Por.4)

PREPARED BY

*Paul H. Rosendahl, Ph.D., Inc. (PHRI)
224 Waianuenue Avenue
Hilo, Hawaii 96720*

PREPARED FOR

*W.B. Kukio Resorts, LLC
P.O. Box 5349
Kailua-Kona, HI 96745-5349*

DECEMBER 2000

PHRI

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

Archaeological • Historical • Cultural Resource Management Studies & Services

HAWAII: 204 Waianuenue Avenue • Hilo, Hawaii 96720 • (808) 969-1763 • GUAM: P.O. Box 23305 • G.M.F. Guam 96921 • (671) 472-3117

SUMMARY

At the request of WB Kukio Resorts, LLC, Paul H. Rosendahl, Ph.D., Inc. (PHRI) prepared an Archaeological and Cultural Impact Assessment Study for the Kūki'o Expanded Utility Easement and Related Improvements Project in the Land of Kūki'o Ist, North Kona District, on the West Coast of Hawai'i Island (TMK:3-7-2-04:Por.4). This assessment study was done in connection with a Conservation District Use Application (CDUA) for use of State owned land to be submitted by WB Kukio Resorts to the Department of Land and Natural Resources—State of Hawaii, and the preparation of an Environmental Assessment (EA) in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*. WB Kukio Resorts wishes to utilize portions of the c. 73 ac study area for construction and placement of a 0.5 M.G. water tank, a water treatment plant, and an irrigation reservoir adjacent to an existing utility easement and access road, and to grade an area immediately adjacent to the existing cinder quarry on the *mauka* side of Pu'u Muhe'enui cinder cone for aesthetic purposes related to adjacent golf course development within their adjacent Kūki'o Project. Archaeological assessment fieldwork was conducted on November 11, and December 11, 2000. Individual cultural impact assessment informal informant interviews were carried out during the period November 8-20, 2000, and a project area site visit involving several cultural informants and Kūki'o Project staff and consultants was conducted on December 1, 2000.

No archaeological sites or features, or historic resources of any kind, were found during the surface survey of the assessment study project area. Based on these entirely negative results, it can be concluded that no further archaeological work of any type is necessary. Therefore, it is recommended that full "archaeological clearance" for the assessment study project area be given, and that any permit applications for grading and construction be approved, as there will be no impact upon any significant or potentially significant historic resources.

None of the informants consulted as part of the cultural impact assessment had any direct knowledge of any current or recent use of the assessment study project area by native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes. Additionally, none of the informants, however, had any direct knowledge of any specific traditional place name features located within the present assessment study project area. Based on the entirely negative results of the cultural impact assessment informant consultations—both informal interviews and the group cultural informant site visit, it can be concluded that the project area is not being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses, that the proposed project would thus have no effects, much less any adverse cultural impacts, and therefore no mitigation measures of any kind need by proposed. Therefore, it is recommended that full "cultural impact clearance" for the assessment study project area be given, and that any permit applications for grading and construction be approved, as there will be no impact upon the exercise of any native Hawaiian traditional and customary access and use rights.

Contents

Introduction	•	1
<i>Project Background</i>	•	1
<i>Project Area Description</i>	•	3
Previous Research	•	3
<i>Summary</i>	•	3
<i>Implications of Previous Research</i>	•	7
Archaeological Assessment	•	7
<i>Objectives and Methodology</i>	•	7
<i>Findings</i>	•	8
Cultural Impact Assessment	•	8
<i>Objectives and Methodology</i>	•	8
<i>Findings</i>	•	11
Conclusion	•	11
References Cited	•	11

Illustration

<i>Figure 1. Project Area Location</i>	•	2
--	---	---

INTRODUCTION

PROJECT BACKGROUND

At the request of WB Kukio Resorts, LLC, Paul H. Rosendahl, Ph.D., Inc. (PHRI) has prepared this Archaeological and Cultural Impact Assessment Study for the Kūki'o Expanded Utility Easement and Related Improvements Project in the Land of Kūki'o 1st, North Kona District, on the West Coast of Hawai'i Island (TMK:3-7-2-04:Por.4). More specifically, the present assessment study project area consists of approximately 73 acres (29.5 hectares) of State land situated c. 5,500 ft (1.0 mile, 1.7 km) *mauka* (inland) of Queen Ka'ahumanu Highway, and immediately *mauka* of and adjacent to the Kūki'o Project which is currently being developed by WB Kukio Resorts (*Figure 1*).

The Kūki'o Project is situated five miles north of the Keāhole International Airport, along the Queen Ka'ahumanu Highway, and immediately adjacent to the southwest of the Hualālai Resort at Ka'ūpūlehu; it consists of two parcels (c. 675 ac) situated on a lower slope of Hualālai Volcano, in the Land of Kūki'o 1st (Kūki'o nui), North Kona District, Island of Hawai'i (TMK:3-7-2-04:5,16) (*Figure 1*). The parcels are separated by the Queen Ka'ahumanu Highway, which cuts across the Land of Kūki'o 1st along the 200-ft elevation contour. The seaward parcel (Parcel 5) is c. 317 acres in area, and the inland parcel (Parcel 16) is c. 358 acres. The present assessment study project area is situated immediately adjacent to the *mauka* boundary of latter parcel (Parcel 16).

The owner and developer of the Kūki'o Project is WB Kukio Resorts, LLC, and its local address is: W.B. Kukio Resorts, P.O. Box 5349, Kailua-Kona, HI 96745-5349. The principal planning consultant for the project is PBR Hawaii, and its address is: 1001 Bishop Street, Pacific Tower, Suite 650, Honolulu, HI 96813-3420. W.B. Kukio Resorts, LLC intends to develop the project area as a private residential community featuring many physical amenities, including a golf course and a Lodge and Residential Community Facility that would serve as a center for community social, recreational, and educational activities.

This assessment study has been done in connection with a Conservation District Use Application (CDUA) to be submitted by WB Kukio Resorts to the Department of Land and Natural Resources—State of Hawaii, and the preparation of an Environmental Assessment (EA) in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*. WB Kukio Resorts wishes to utilize portions of the study area for construction and placement of a 0.5 M.G. water tank, a water treatment plant, and an irrigation reservoir adjacent to an existing utility easement and access road, and to grade an area immediately adjacent to the existing cinder quarry on the *mauka* side of Pu'u Muhe'enui cinder cone for aesthetic purposes related to adjacent golf course development within the Kūki'o Project.

The basic objectives of the archaeological assessment survey were to determine the following: (a) the general nature, extent, and potential significance of any archaeological—historical remains present, (b) the historic preservation implications of such remains for the feasibility of proposed development and land use; and (c) the general scope of work and level of effort for any subsequent archaeological—historic preservation work that might be needed.

The basic objectives of the cultural impact assessment were to determine the following (a) if the project area is currently being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses; (b) if the proposed project would have any adverse impacts upon any identified current native Hawaii cultural uses of the area; and (c) what measures might be proposed to mitigate any adverse impacts the proposed project might have upon any identified current native Hawaiian uses of the area.

Based on discussions with professional planners from PBR Hawaii, and with Mr. Marc Smith—Staff Archaeologist with the State Historic Preservation Division (SHPD), PHRI familiarity with the general project area, and the current regulatory review requirements of the SHPD and the Hawaii County Planning Department, the following tasks were determined to be appropriate scope of work for the archaeological assessment survey and cultural impact assessment:

1. Appropriate background review and research;

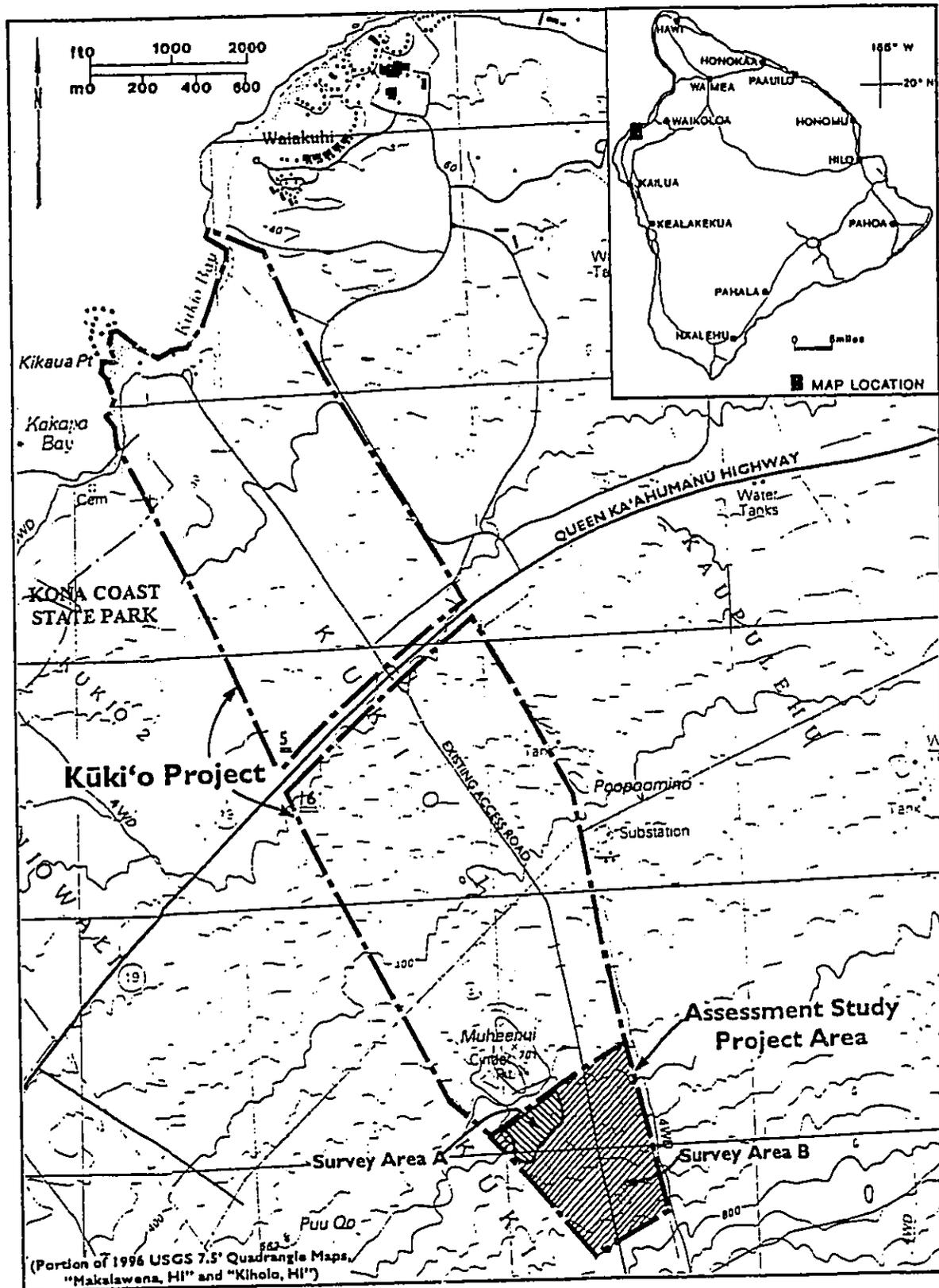


Figure 1. Project Area Location

2. Data collection fieldwork—including archaeological survey fieldwork and cultural impact assessment informal informant interviews;
3. Data analysis and preparation of written report; and
4. Coordinate and consult with client, client representatives, agency staff, etc.

Archaeological assessment fieldwork for the c. 8 ac portion adjacent to the existing cinder quarry on the *mauka* side of Pu'u Muhe'enui cinder cone (Survey Area A) was conducted by Principal Archaeologist Paul H. Rosendahl, Ph.D., on November 11, 2000, while that for the remaining c. 65 ac portion (Survey Area B) was conducted by Supervisory Archaeologist Alan B. Corbin, M.A., and Field Archaeologist Suzan Keris, B.A., on December 11, 2000. Individual cultural impact assessment informal informant interviews were carried out by Dr. Rosendahl during the period November 8-20, 2000, and a project area site visit involving several cultural informants and Kūki'o Project staff and consultants was conducted on December 1, 2000, under the guidance of Cultural Resources Specialist Kepā Maly of Kumu Pono Associates.

PROJECT AREA DESCRIPTION

The Kūki'o Expanded Utility Easement and Related Improvements Project study area consists of approximately 73 acres (29.5 hectares) of State land situated c. 5,500 ft (1.0 miles, 1.7 km) *mauka* (inland) of Queen Ka'ahumanu Highway, and c. 10,500 ft (2.0 miles, 3.2 km) inland from the shoreline of Kūki'o Bay (*Figure 1*). Access to the study area is greatly facilitated by the existing, roughly paved access road that extends inland from Ka'ahumanu Highway, through the study area, and onward to the Māmalahoa Highway (Hawai'i Belt Road).

The northwestern (seaward) limit of the study area is coterminous with the Kūki'o Project boundary, while the northeastern side follows the boundary with the adjacent privately owned Land of Ka'ūpūlehu; the remaining two sides of the study area are within the State owned Lands of Kūki'o 1st and 2nd. In plan dimensions, the study area ranges in width from c. 2,150 ft (655 m) on the seaward side to c. 1,080 ft (329 m) on the inland side, and has a maximum seaward-inland length of c. 2,000 ft (610 m); it rises in elevation from c. 550-600 ft (168-183 m) AMSL on the seaward side to c. 745 ft (227 m) on the inland side.

The rugged, irregular terrain of the study area is generally barren in aspect; it consists primarily of lightly weathered 'a'ā lava, and limited exposures of *pāhoehoe* lava, which support a variable density vegetation ground cover almost entirely of introduced fountain grass (*Pennisetum setaceum*). Scattered about the study area, principally the more inland portions, are small specimens of the native trees *lama* (*Diospyros ferrea* var. *sandwicensis*) and *naio* (*Myoporum sandwicense*), and the introduced tree silky or silver oak (*Grevillea robusta*).

PREVIOUS RESEARCH

SUMMARY

PHRI has conducted several archaeological projects within the privately owned portion of the Land of Kūki'o 1st since 1984 in connection with previous different proposed development projects for the current Kūki'o Project area. In November 1984, PHRI conducted a preliminary archaeological reconnaissance survey (Rosendahl 1985) which included sample inspection of three portions of the project area: c. 60 ac in the immediate coastal zone, c. 25 ac in the far inland portion of Parcel 5, and c. 20 ac in Parcel 16. Seventeen previously identified sites and 13 newly identified sites were recorded.

The first complete archaeological survey of the project area was a full reconnaissance survey (inventory survey-level work) conducted by PHRI in August 1985 (Walker and Rosendahl 1985). Sixty-nine sites comprised of more than 178 component features were identified; of the 69 sites, 34 (74+ features) had been previously identified, and 35 sites (104+ features) were newly identified. Formal feature types encountered within sites included walled shelters and enclosures, cave shelters, overhang shelters, walls, trails, raised stone platforms, cairns, petroglyphs, surface midden concentrations, cleared areas, a brackish well, and anchialine ponds with internal structural modifications.

Within the project area, the identified sites were generally distributed as follows: (a) thirty-three (97+ component features) were located within the immediate coastal area of Parcel 5, an area of c. 80 ac extending approximately 1,000 ft inland from the shoreline. Tentative functional site types included habitation features, recreation features, foot trails (both coastal and inland-oriented), an aquacultural pond complex, boundary walls, and a possible *heiau* and/or shrines; (b) sixteen sites (38+ component features) were located within the inland portion of Parcel 5. Tentative functional site types included habitation features, burial caves, and foot trails; and (c) twenty sites (43+ component features) were located within Parcel 16. Tentative functional site types included habitation features and foot trails.

Most of the sites and features were situated in the immediate coastal zone—especially in the southwest part of the zone. Inland portions of the project area had a relative paucity of sites and features. Functional feature types identified in the project area included both temporary and permanent habitation features (walled shelters, caves and overhang shelters, and raised stone platforms), burial caves, foot trails, aquacultural sites, recreations sites (petroglyphs), a possible ceremonial complex (*heiau*), boundary walls, and several sites of undetermined function.

The 1985 PHRI survey findings and preliminary conclusions, including tentative evaluations and recommendations, were formally reviewed and approved by the State Historic Preservation Division—DLNR (SHPD) and the Hawaii County Planning Department (HCPD). General significance assessments and recommended mitigation treatments (including both data recovery and site preservation), initially presented by PHRI in 1987, were later reviewed and agreed with by both SHPD and HCPD in 1989. Based on reviews of an initial mitigation plan prepared in 1987 (Rosendahl and Haun 1987), and subsequent discussions with SHPD and HCPD concerning current standards and procedures for mitigation work, it was agreed that a phased archaeological mitigation program, as detailed in a subsequent revised mitigation plan (Jensen et al. 1989) would constitute an appropriate means for the treatment and preservation of the significant cultural information and materials which remained at 50 of the 69 sites identified in the overall project area.

The revised mitigation plan (Jensen et al. 1989) contained a Data Recovery Plan outlining relevant research questions to be addressed and research methods to be employed for the 50 sites requiring further work. The data recovery phase of the mitigation program was carried out by PHRI during the period 1991–1992; fieldwork was conducted in May–July 1991, post-field data analyses and report preparation followed, and the final report (Goodfellow et al. 1992) was submitted to SHPD for review and approval in November 1992. However, SHPD never reviewed the report, and it was subsequently resubmitted for review and approval in January 2000. Current review status is unknown.

Two general research topics were addressed by the data recovery investigations, (a) chronology, culture history, and social organization, and (b) subsistence patterns and resource exploitation. During the data recovery fieldwork, the sites specified in the project scope of work were recorded in detail, surface collections were conducted, auger tests were placed at one site, and excavations were carried out at 29 different sites. The information yielded by the data recovery work correlated well with the results that had been anticipated and the goals that had been established for the project in the mitigation plan. The dating results conformed closely with prior research findings for Kūiki'o and Ka'ūpūlehu, and indicated an overall occupation sequence of c. 700 years in duration. Sites and features in the project area appeared to represent a series of semi-discrete episodes of occupation that may have begun as early as AD 1230, and ended shortly after the beginning of the 19th century. Previous research had clearly established that the use of the project area had been primarily for temporary habitation related to exploitation of local marine resources. Data recovery project results confirmed this general settlement pattern, but also expanded the reconstruction of area prehistory by the identification of four episodes of probable continuous or permanent occupation, and by the association of temporary habitation patterns with coastal exploitation patterns and major coastal-inland trails systems.

A draft Site Preservation Plan (SPP) (PHRI 2000) has been recently prepared in accordance with the previously approved mitigation plan (Jensen et al. 1989). Preparation of this plan was deferred for several years due to the abandonment of prior development plans and activities in the early 1990s; under the direction of the new project owner and developer, plan preparation was initiated once again.

A substantial number of archaeological investigations have been conducted in the immediately adjacent Land of Ka'ūpūlehu. Much of this work has concentrated in the coastal zone and the barren lands inland to the alignment of Ka'ahumanu Highway. Initial work was conducted in 1929–30 by Bishop Museum (Reinecke n.d.). Bishop Museum carried out further reconnaissance work in Ka'ūpūlehu in the early 1960s (Soehren 1963). In 1970, the State Parks Division of DLNR conducted reconnaissance work

for what is now Queen Ka'ahumanu Highway (Ching 1971). In 1981 and again in 1984, Bishop conducted extensive reconnaissance surveys covering major portions of the *makai* lands of Ka'upulehu (Komori 1981, Carter 1985). As part of the 1984 Bishop Museum study, extensive historical documentary research was undertaken (Kelly 1985). Since 1986, PHRI has conducted a series of archaeological surveys and other projects, historical documentary efforts, and oral historical studies in conjunction with the development of the *makai* lands of Ka'upulehu resort area (Head et al. 1995, Jensen and Rosendahl 1989, Kalima 1991, 1994; Maly and Rosendahl 1993, 1997; Silva n.d.; Sullivan et al. 1996; Walker and Rosendahl 1988, 1990).

Of direct relevance to the present study area are archaeological inventory surveys of *mauka* portions Ka'upulehu, between Ka'ahumanu Highway and Māmalahoa Highway (Hawaii Belt Road), that PHRI carried out in 1990 (Goodfellow and Head 1995), 1991-2 (Head et al. 1996), and 2000 (Rechtman 2000). The areas inspected by these surveys included portions of both the barren zone lands and lower uplands of Ka'upulehu. During these surveys, approximately 5,600 ac were covered with various intensities of surface coverage; some 110 sites, consisting of c. 470 components features of a wide range of formal and functional types, were identified and documented. Results of these surveys indicated that the area had been occupied and utilized during both precontact and historic period times, beginning potentially as early as the middle of the 15th century AD.

In connection with the present development of the Kūki'o Project, Cultural Resources Specialist Kepā Maly of Kumu Pono Associates was asked by WB Kukio Resorts to prepare a report presenting the cultural and historical setting of the Kekaha region of coastal North Kona in general, and more specifically the Lands of Kūki'o. Maly's report (Maly 2000) contains a wealth of information derived from historical literature, archival documents, and oral history interviews; it has sections on traditional and historical accounts of the region and Kūki'o (including information on the nature and significance of local place names, and stories about places and events of importance in the traditional history of the area), descriptions of the region by foreign visitors during the historic period, the history and development of residency and land tenure at Kūki'o and in the immediate vicinity, a summary overview of selected historical studies from the period 1930 to 1992, and an overview of historical notes recorded in oral history interviews.

The following section is taken from the Detailed Executive Summary of Maly's report, and it provides a good indication of the content and cultural feeling of the study, and its' continuing contribution to the knowledge and understanding of the Kūki'o Project area:

At the request of Steven S.C. Lim, Esquire, cultural resources specialist, Kepā Maly (*Kumu Pono Associates*), prepared a study of archival documents and historical literature for the land of Kūki'o nui (Kūki'o 1*), and neighboring lands of the Kekaha region, North Kona District, Island of Hawai'i (TMK 7-2-04). Maly also conducted several oral history interviews and cites selected historical interviews as a part of [this] study.... Unlike many studies undertaken in the State of Hawai'i, this study was not conducted as a part of a land use permitting process. It was undertaken as a result of the landowner's (developer's) interest in better understanding the history of the land, and their desire to develop a culturally sensitive interpretive/educational program for the people who will visit and/or reside at Kūki'o in the future.

This study focuses on Kūki'o and the larger Kekaha Region of which Kūki'o is a part, and incorporates research and oral history interviews undertaken by Maly since the early 1990s to the present date. Documentation cited in this study was researched in both private and public collections, and includes — nineteenth century records of the Hawaiian Kingdom (such as government records of land tenure, roadways, public lands and public facilities); and native and foreign accounts authored in the nineteenth and early twentieth centuries (many of which have not received broad exposure in the past). H. Kihalani Springer also contributed the use of several historical photographs from the Kukui'ohiwai collection, to this study. The photographs are a significant contribution which provide visual reference to documentation recorded in the oral history interviews.

Historical Overview

The native accounts cited in this study provide readers with an understanding of traditional and customary practices and land use of the native families of Kūki'o. The traditions share with readers how places were named, the kinds of activities that were associated with those places, and the intimate relationship shared by the families of the land with their natural environment. While not all questions are, or can be answered regarding the history and sites of Kūki'o, through the native accounts, we can appreciate

the various aspects of the landscape. It will be seen that some of the documentation is site specific (recorded for the immediate study area), while the larger body of documentation provides *ahupua'a*-specific documentation of sites, practices, and customs associated with the families and lands of Kūki'o and the larger Kekaha region.

One of the important histories collected from a native resident of the Kūki'o vicinity in the 1880s, tells us that Kamehameha I built (or rebuilt) a *heiau* (temple) on the shore of Kakapa Point, overlooking Kakapa Bay (in Kūki'o iki, south of the present study area). From this small account (one line recorded by a Kingdom surveyor), we can perhaps begin to understand something of the diversity of sites in this once remote coastal area of the district of Kekaha. A variety of sites ranging from temporary shelters to high status residences, as well trails, planting areas, *ilina* (interments), enclosures, a sophisticated system of pond division walls, and ceremonial sites, have been recorded in Kūki'o.... Additionally, the pond and ocean fisheries of Kūki'o were rich and highly valued. From these cultural and natural resources, we see that long-term residency occurred at Kūki'o. It is likely that the native tenants who resided year-round at Kūki'o, were always prepared to refurbish the residence of their *konohiki* (overlord) and *ali'i nui* (high chief) for such occasions as the visit of their king. Whether for fishing and surfing, or in ceremonial and ritual observances, Kūki'o, with its sheltered and watered bays, was one of the choice areas of Kekaha for royal retreat.

In the historical accounts of Kūki'o, readers learn of transitions in residency, and efforts of the native families of the land to maintain their connection with their ancestral seaside home. By the late nineteenth century and in the early 1900s, residency had dwindled, and was generally limited to one family with additional seasonal visitation over extended periods. The native system of land use, resource stewardship, and collection of resources in which families traveled between the coastal settlements and the upland agricultural fields and residences, changed to a new economic system that focused on ranching and the transfer of currency. Access to once important areas from the shore to uplands was restricted, and the families of the land dispersed to other locations where a few more people could gather together. By the early 1900s, the shores of Kūki'o became a vacation retreat for the owners (some of whom shared common ancestors with the native residents of Kūki'o), their friends and extended family, and ranch employees. Finally, the *kula* (plains) and coastal lands of Kūki'o were sold in 1968. At this time, the new owners are working a way of incorporating the history and important aspects of the cultural and natural landscape into their plans for continued use of Kūki'o.

Kama'āina Observations and Recommendations

The *kama'āina* (native children of the land – descendants of the native families of Kūki'o) who participated in recent interviews as a part of this study, shared important personal and historical recollections, documentation on cultural-historical sites, and thoughts on care of both the natural and cultural resources of Kūki'o. These thoughts include, but are not limited to the following paraphrased observations [taken from recorded oral history interviews]...:

- The *ilina* (ancestral burials) and traditional sites of the land are important to the native families. Care must be given to the sites associated with the *ilina*, and family members should be involved in long-term protection planning efforts.
- The *pā niu* (coconut grove) fronting Uluweuweu Bay was an important natural resource to the families of the land. It was carefully tended, and protected from the ocean by an old wall (*pale kai*) on the beach side.
- Also within the *pā niu*, near the *loko wai* (ponds) were the *loulou* (*Pritchardia* palms) and *ulu hala* (pandanus groves) that were carefully tended and regularly harvested for weaving and thatching uses by the *kama'āina*. All of these plants (the *niu*, *loulou*, and *hala*) are very important to the families, and it is urged that an active program of stewardship and propagation be undertaken.
- The *loko wai* (ponds), including the *ki'o pua* and *ki'o 'ōpae 'ula* (fish-fry and shrimp ponds) were an integral part of the life and well being of the families who dwelt at Kūki'o. The ponds were cared for, cleaned, deepened in places,

and division walls made in them to promote water circulation and fish propagation. Individuals who work on the ponds and neighboring features should consult with *kama'āina* of Kūki'o to ensure that the resources are properly cared for and restored.

- The family members concur with selective interpretation and careful, monitored site visitation to those sites at which visitation is appropriate. In general, it is suggested that site stabilization be done. While discussions of "restoration" were cautious, due to the fact that the knowledge of specific site functions and form, is limited. Also, it is urged that the carrying capacities of the cultural and natural resources be carefully monitored. There may be times when visitation or wide spread resource collection or use is inappropriate (Maly 2000:ii-iv).

IMPLICATIONS OF PREVIOUS RESEARCH

Review of reports on previous archaeological and cultural-historical research for Kūki'o and Ka'ūpūlehu is useful because it provides an indication of the nature and distribution of archaeological sites and features that might be anticipated to be present within the current project area. Discussions of models for general patterns of traditional settlement in the North Kona District and the adjacent Land of Ka'ūpūlehu (Goodfellow and Head 1995:23-30; Head et al. 1996:19-22) are directly applicable to Kūki'o. The area of occupation can be conceptually divided into three principal environmental zones: a narrow and arid coastal zone associated with marine resources; a sloping, rocky, barren, intermediate zone; and an upland habitation-agricultural zone. General settlement patterns of traditional occupation and exploitation can be summarized as follows:

- **Coastal Occupation**—Residential occupation, both permanent and extended/recurrent, as evidenced by small clusters, or hamlets, of habitation features along the shore and frequently near fishponds and small bays; inhabitants principally engaged in marine resource exploitation, including both near-shore and deep-water fishing, shellfish gathering, aquaculture, and salt production; very limited agriculture, including cultivation of coconut, sweet potato, and possibly banana, in small beach areas and pockets of sand and gravel in rocky areas
- **Barren Zone Occupation**—Movement of people and goods as evidenced by presence of *mauka-makai* foot trails and associated habitation features, both structural shelters and lava tube caves, indicating recurrent temporary use; access to both coastal and upland occupation zones indicated by presence of both marine and terrestrial midden remains
- **Upland Occupation**—Major occupation area, with dispersed, small residential hamlets with both permanent and extended/recurrent occupation; extensive dryland agricultural exploitation, with major emphasis on cultivation of taro and sweet potato, with other crops such as breadfruit, banana, paper mulberry, ti, and sugar cane

Based on the location of the present project area within the barren zone of traditional occupation, it would be anticipated that any archaeological remains that might be present would likely be *mauka-makai* foot trails and associated small shelter structures or lava tube caves evidencing recurrent temporary, or transient, occupation. Exploitation of the general area would likely have been limited by the paucity of useful resources.

ARCHAEOLOGICAL ASSESSMENT

OBJECTIVES AND METHODOLOGY

The basic objectives of the archaeological assessment survey were to determine the following: (a) the general nature, extent, and potential significance of any archaeological-historical remains present, (b) the

historic preservation implications of such remains for the feasibility of proposed residential development; and (c) the general scope of work and level of effort for any subsequent archaeological-historic preservation work that might be needed.

Archaeological assessment fieldwork was carried in two phases: fieldwork for Survey Area A—the c. 8 ac portion adjacent to the existing cinder quarry on the *mauka* side of Pu'u Muhe'enui cinder cone to be graded for aesthetic purposes related to adjacent golf course development—was conducted by Principal Archaeologist Paul H. Rosendahl, Ph.D., on November 11, 2000, while that for Survey Area B—the remaining c. 65 ac portion to be used for construction and placement of a 0.5 M.G. water tank, a water treatment plant, and an irrigation reservoir—was conducted by Supervisory Archaeologist Alan B. Corbin, M.A., and Field Archaeologist Suzan Keris, B.A., on December 11, 2000 (*Figure 1*).

Basic fieldwork methodology consisted of 100% pedestrian surface survey coverage. Survey Area A, which consisted of c. 8 ac of lightly weathered 'a'ā lava terrain, was inspected by a single person walking a series of transects oriented roughly *mauka-makai* and spaced approximately 15 to 20 m (49-66 ft) apart. Survey Area B, which consisted of the remaining c. 65 ac primarily of lightly weathered 'a'ā lava and limited exposures of *pāhoehoe* lava, was inspected by two persons walking a series of transects oriented northeast-southwest and spaced approximately 20 to 25 m (66-82 ft) apart. Surface visibility varied from relatively poor to excellent, depending primarily upon the density of the fountain grass cover.

FINDINGS

Fieldwork findings were entirely negative. No archaeological sites or features of any kind were found during the surface survey of the c. 73 ac of the assessment study project area. Approximately one-third of Survey Area A—the northeastern portion—was found to have been graded at some time in the past, as evidenced by the relatively flat ground surface, occasional push piles of rubble, and tread scars on exposed bedrock. Several portable items of recent historic age were noted in the immediate area, including a vehicle tire with rim, rusted pieces of metal, and pieces of milled wood. Information obtained subsequently indicated that Hu'ehu'e Ranch had modified the area during the late 1970 as part of an experimental attempt to raise melons using brackish water for irrigation (C.A. Carlson, pers.comm.; KPA 2000). No areas of similar modification were noted during the coverage of Survey Area B.

CULTURAL IMPACT ASSESSMENT

OBJECTIVES AND METHODOLOGY

The basic objectives of the cultural impact assessment were to determine the following (a) if the project area is currently being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses; (b) if the proposed project would have any adverse impacts upon any identified current native Hawaii cultural uses of the area; and (c) what measures might be proposed to mitigate any adverse impacts the proposed project might have upon any identified current native Hawaiian uses of the area. In accomplishing these objectives, the Environmental Assessment (EA) for the project will be in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*, as recently amended by H.B. No.2895 H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as Act 50 on April 26, 2000, which among other things requires the assessment of the effects of any proposed project upon native Hawaiian traditional and customary access and use rights.

Individual cultural impact assessment informal informant interviews were carried out by Dr. Rosendahl during the period November 8-20, 2000, and a project area site visit involving several cultural informants and Kūki'o Project staff and consultants was conducted on December 1, 2000, under the guidance of Cultural Resources Specialist Kepā Maly of Kumu Pono Associates. In undertaking this assessment study, the "Guidelines for Assessing Cultural Impacts" put out in 1997 by the State Office of Environmental Control (OEQC 1997) were consulted for general overall guidance.

Basic study methodology involved a series of simple steps. First, an initial list of potential information sources was assembled. This list included both (a) previously identified cultural informants knowledgeable in native Hawaiian culture and traditions of Kūki'o and adjacent North Kona District lands and (b) other

individuals believed likely to provide either relevant information and/or suggest other potentially knowledgeable cultural informants. List assembly concluded when no new names were forthcoming, and contacted individuals all generally began referring to the same potential cultural informants. Secondly, telephone contacts, and a limited number of in person contacts, were made with many of the individuals on the list of potential information sources. Because Dr. Rosendahl was personally acquainted with most of these individuals, it was felt that this manner of contact and information collection by means of informal interview was both a reliable and efficient methodology for initial identification of any native Hawaiian cultural practitioners who might be accessing the project area for any traditional and customary cultural uses. Finally, a site visit bringing together the cultural informants most knowledgeable about Kūki'o and the adjacent lands was undertaken.

During the period of November 8-20, 2000, Dr. Rosendahl contacted and carried out informal informant interviews with the following potential information sources:

- **Carl A. Carlson, Jr.**—former manager of Hu'ehu'e Ranch, and current trustee of Parker Ranch Trust; contacted by telephone on November 20, 2000; no direct knowledge of any cultural practitioner access or use; provided names of potential informants; provided information on recent historic period Hu'ehu'e Ranch use of project area and general vicinity
- **Lelina'ala Keakealani Lightner**—representative of the Keakealani family, and a *kama'āina* whose ancestors have resided within the adjacent lands of Ka'ūpūlehu and Pu'uana'hulu for generations; contacted by telephone on November 15, 2000; no direct knowledge of any cultural practitioner access or use; provided names of potential informants
- **Kepā Maly**—cultural resources specialist who has done extensive documentary and oral historical informant research in recent years on the central-Kona area, and especially the Lands of Kūki'o, Ka'ūpūlehu, and Pu'uana'hulu; contacted by telephone on November 8, 2000; multiple additional telephone and in person contacts; no direct knowledge of any cultural practitioner access or use; provided names of potential informants; provided cultural and historical information about Kūki'o and adjacent lands
- **Ruby Keana'aina McDonald**—Liaison Officer in the West Hawai'i Office of OHA, and a member of the Kona Hawaiian Civic Club; also a former member of the Hawai'i Island Burial Council; contacted by telephone on November 13, 2000; no direct knowledge of any cultural practitioner access or use; provided names of potential informants
- **Robert Ka'iwa Punlhaole, Sr.**—direct kinship and residence ties to Kūki'o; elder *kama'āina* who was raised at Kūki'o in the 1920s and 1930s, and was actively involved in the maintenance and operation of the anchialine pond complex in coastal Kūki'o; contacted in person on November 9, 2000; no direct knowledge of any cultural practitioner access or use; provided names of potential informants
- **Hannah Kihalani Springer**—direct kinship and residence ties to Kūki'o; a *kama'āina* of the Land of Kūki'o whose family formerly owned Hu'ehu'e Ranch, and who has spent many years exploring, experiencing, studying and writing about the lands of Kūki'o and Ka'ūpūlehu; contacted by telephone on November 10, 2000; no direct knowledge of any cultural practitioner access or use; provided names of potential informants; provided cultural and historical information about Kūki'o and adjacent land
- **Ron Terry**—private environmental consultant to WB Kukio Resorts; contacted on November 10, 2000; no direct knowledge of any cultural practitioner access or use; based on recent field surveys, provided information about botany of the project area
- **Marc Smith**—SHPD Staff Archaeologist based on Hawai'i Island; contacted by telephone on November 14, 2000; no direct knowledge of any cultural practitioner access or use; no knowledge of any archaeological sites or features that might be present within the project area

- **Harry Yada**—DLNR Hawai'i Island Land Agent; contacted by telephone on November 14, 2000; no direct knowledge of any cultural practitioner access or use; provided names of potential informants

On December 1, 2000, a project area site visit involving several cultural informants and Kūki'o Project staff and consultants was conducted under the guidance of Cultural Resources Specialist Kepā Maly of Kumu Pono Associates. Comments made by participants during the site visit were taped recorded and subsequently transcribed by Mr. Maly (KPA 2000) Site visit participants included the following cultural informants and project staff and consultants:

Cultural Informants

- **George Kinolau Kahananui, Sr.**—long-time employee, now retired, of Hu'ehu'e Ranch; long association with and knowledge of Kūki'o and adjacent lands
- **Kaleo Kualī**—nephew to Thomas Kamaki Lindsey; student of traditional Hawaiian culture and practice
- **Thomas Kamaki Lindsey, Jr.**— long-time employee, now retired, of Hu'ehu'e Ranch; long association with and knowledge of Kūki'o and adjacent land
- **Hanohano Punahaole**—adult daughter of Robert Ka'iwa Punahaole; has spent time at Kūki'o, and through her father has gained knowledge of and developed similar deep ties of feeling and affection for the Land of Kūki'o
- **Kalei Punahaole**— adult son of Robert Ka'iwa Punahaole; has spent time at Kūki'o, and through his father has gained knowledge of and developed similar deep ties of feeling and affection for the Land of Kūki'o;
- **Robert Ka'iwa Punahaole, Sr.**—direct kinship and residence ties to Kūki'o; elder *kama'āina* who was raised at Kūki'o in the 1920s and 1930s, and was actively involved in the maintenance and operation of the anchialine pond complex in coastal Kūki'o;
- **Hannah Kihalani Springer**—direct kinship and residence ties to Kūki'o; a *kama'āina* of the Land of Kūki'o whose family formerly owned Hu'ehu'e Ranch, and who has spent many years exploring, experiencing, studying and writing about the lands of Kūki'o and Ka'ūpūlehu

Kūki'o Project Staff and Consultants

- **Sam Ainslie**—President and CEO, WB Kukio Resorts; formerly involved with development of Hualālai Resort in adjacent Land of Ka'ūpūlehu
- **James Leonard**—professional planner with PBR Hawaii (Hilo Office); involved with various previously proposed development projects at Kūki'o since mid-1980s
- **Kepā Maly**—cultural resources specialist with Kumu Pono Associates who has done extensive documentary and oral historical informant research in recent years on the central-Kona area, and especially the Lands of Kūki'o, Ka'ūpūlehu, and Pu'uana'hulu
- **Milton Morinaga**—Construction Manager/Special Projects, WB Kukio Resorts; involved with various previously proposed development projects at Kūki'o since mid-1980s
- **Paul H. Rosendahl**—principal archaeologist and cultural resources management specialist with PHRI; involved with archaeological and cultural resources management work at Kūki'o since 1984
- **John Russell**—professional photographer with WB Kukio Resorts

FINDINGS

The informal informant interviews and the cultural informant site visit produced a range of information relating to general traditional history and land use, traditional place names, and historic period occupation and land use of the inland portions of Kūki'o and adjacent lands. However, none of the informants had any direct knowledge of any current or recent use of the present assessment study project area by any native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes. A number of the informants did suggest it likely that hunting of feral pig, and perhaps donkey, might occasionally take place in the general vicinity of, and possibly within, the present project area.

Many of the informants had knowledge regarding traditional place names for prominent natural geological features of the landscape—such as Pu'u Mūhe'enui ("large cuttlefish hill"), Kanakaloa ("long man", a formation on the *makai* side of Pu'u Mūhe'enui), and Pu'u Po'opo'omino ("hill [with] dimpled hollows", descriptive of the hill topography) (Maly 2000:5, 13-14)—which are located in the immediate general vicinity seaward of the present project area and within the privately owned portion of Kūki'o being developed as the Kūki'o Project. None of the informants, however, had any direct knowledge of any specific traditional place name features located within the present project area.

CONCLUSION

No archaeological sites or features, or historic resources of any kind, were found during the surface survey of the c. 73 ac assessment study project area. Based on the entirely negative results of the archaeological assessment survey fieldwork, it can be concluded that no further archaeological work of any type is necessary. Therefore, it is recommended that full "archaeological clearance" for the assessment study project area be given, and that any permit applications for grading and construction be approved, as there will be no impact upon any significant or potentially significant historic resources. This evaluation and recommendation is given with the general qualification that there is always the possibility, however remote, that as yet unidentified and potentially significant historic resources might be revealed in the course of subsequent land modification activities; in such a situation, archaeological consultation should be sought immediately.

None of the informants consulted as part of the cultural impact assessment had any direct knowledge of any current or recent use of the assessment study project area by native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes. Additionally, none of the informants, however, had any direct knowledge of any specific traditional place name features located within the present assessment study project area. Based on the entirely negative results of the cultural impact assessment informant consultations—both informal interviews and the group cultural informant site visit, it can be concluded that the project area is not being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses, that the proposed project would thus have no effects, much less any adverse cultural impacts, and therefore no mitigation measures of any kind need be proposed. Therefore, it is recommended that full "cultural impact clearance" for the assessment study project area be given, and that any permit applications for grading and construction be approved, as there will be no impact upon the exercise of any native Hawaiian traditional and customary access and use rights.

REFERENCES CITED

Carter, L.A.
1985

An Archaeological Reconnaissance of the *Makai* Parcel of Kaupulehu *Ahupua'a*, North Kona, Hawaii Island. Report Ms. 020585. Department of Anthropology, B.P. Bishop Museum. Prepared for Barnwell Industries, Inc.

- Ching, F.K.W.
1971 The Archaeology of South Kohala and North Kona: From the Ahupua'a of Lalamilo to the Ahupua'a of Hamanamana; Surface Survey, Kailua-Kawaihae Road Corridor (Section III). *Hawaii State Archaeological Journal* 71-1. Department of Land and Natural Resources.
- Goodfellow, S.T., and J. Head
1995 Archaeological Inventory Survey, Kaupulehu Mauka Lands, Golf Course II Area and Remaining Area; Land of Kaupulehu, North Kona District, Island of Hawaii. PHRI Report 1142-031595. Prepared for Potomac Investment Associates. (March)
- Goodfellow, S.T., P.M. Jensen, and P. Bower
1992 Archaeological Mitigation Program, Phase II - Archaeological Data Recovery, Regent Kona Coast Resort; Land of Kukio 1st, North Kona District, Island of Hawaii. PHRI Report 1009-090992. Prepared for PBR Hawaii. (October)
- Head, J., S.T. Goodfellow, and P.H. Rosendahl
1996 Archaeological Inventory Survey, Ka'upulehu Mauka Lands Project Area; Land of Ka'upulehu, North Kona District, Island of Hawai'i. PHRI Report 897-050596. Prepared for Potomac Investment Associates. (May)
- Head, J., P.H. Rosendahl, and A.T. Walker
1995 Archaeological Inventory Survey, Ka'upulehu Makai - Lot 4; Land of Ka'upulehu, North Kona District, Island of Hawai'i. PHRI Report 1397-083195. Prepared for Kaupulehu Developments. (September)
- Jensen, P.M., A.E. Haun, and P.H. Rosendahl
1989 Archaeological Mitigation Program, Regent Kona Coast Resort: Phase I: Mitigation Plan for Data Recovery, Interim Site Preservation, and Burial Treatment; Land of Kukio 1st, North Kona District, Island of Hawaii. PHRI Report 726-100489. Prepared for Huehue Ranch. (October)
- Jensen, P.M., and P.H. Rosendahl
1989 Phase I: Mitigation Plan for Data Recovery, Interim Site Preservation, and Burial Treatment, Kaupulehu Makai Resort. PHRI Report 593-060189. Prepared for Kaupulehu Developments.
- Kalima, P.A.
1991 Human Skeletal Remains Recovered During Driving Range Construction at Kaupulehu Makai Resort. Archaeological Monitoring: Phase IV, Kaupulehu Makai Resort Mitigation Project; Land of Kaupulehu, North Kona District, Island of Hawaii. PHRI Report 788-021491. Prepared for Kajima Engineering and Construction, Inc.
- 1994 Ka'upulehu Burials: Cranial Non-Metric Traits Suggest Familial Affinity. A Limited Osteological Examination of Human Skeletal Remains from the Ka'upulehu Makai Resort Project Area, North Kona District, Island of Hawai'i. PHRI Report 788-060392. Prepared for Potomac Investment Associates.
- Kelly, M.
1985 Appendix C: Notes on the History of Kaupulehu. IN: Carter 1985.
- Komorl, E.
1981 Archaeological Reconnaissance Survey of Makai Area (TMK:7-2-3:2) at Ka'upulehu, Hawaii Island. Report Ms. 071081. Department of Anthropology, B.P. Bishop Museum.

- KPA (Kumu Pono Associates)**
2000 December 1, 2000 Trip and Field Discussions (Mūhe'enui and Po'opo'omino Vicinity). Transcription by Kepā Maly of tape recorded comments made during site visit with cultural informants.
- Maly, K.**
2000 Kūki'o Ma Ka 'Āina Kaha: A Collection of Traditional and Historical Accounts of Kūki'o at Kekaha, North Kona. Kumu Pono Associates Report Hiku38b (030300). Prepared for Steven S.C. Lim, Esq. (March)
- Maly, K., and P.H. Rosendahl**
1993 Ka'upulehu Makai Resort Burial Treatment Plan, Land of Ka'upulehu, North Kona District, Island of Hawaii. Report 1318-121792. Prepared for Kaupulehu Land Company.
- 1997 Identification of Traditional Cultural Properties, Beach Safety Improvements at Hualalai Resort; Land of Ka'upulehu, North Kona District, Island of Hawai'i. PHRI Report 1733-043197. Prepared for Hualalai Development Company (May)
- OEQC (Office of Environmental Quality Control, State of Hawai'i)**
1997 Guidelines for Assessing Cultural Impacts. Adopted by the Environmental Council; November 19, 1997.
- O'Hare, C.R.**
1997 Interim Report: Limited Archaeological Test Excavations at Waiakauhi Pond, Hualalai Resort; Land of Ka'upulehu, North Kona District, Island of Hawai'i. PHRI Report 1763-031197. Prepared for Hualalai Development Company (March)
- Rechtman, R.H., and J.D. Henry**
2000 Addendum to Archaeological Inventory Survey, Ka'upulehu Mauka Lands Project Area; Land of Ka'upulehu, North Kona District, Island of Hawai'i. PHRI Report 2038-030300. Prepared for PIA Kona LP. (March)
- Reinecke, J.E.**
n.d. Survey of Hawaiian Sites, 1929-1930. Manuscript. Department of Anthropology, B.P. Bishop Museum.
- Rosendahl, M.L.K., and A.E. Haun**
1987 Mitigation Plan for Site Preservation and Data Recovery Excavations, Kukio Beach Resort Project Area, Land of Kukio 1st, North Kona, Island of Hawaii. PHRI Report 378-102387. Prepared for PBR Hawaii and Huehue Ranch. (October)
- Rosendahl, P.H.**
1985 Preliminary Archaeological Reconnaissance Survey, Kukio Resort Development Project Area, Kukio 1st, North Kona, Island of Hawaii. PHRI Report 148-010285. Prepared for Phillips, Brandt, Reddick & Associates and Huehue Ranch. (January)
- Silva, C.L.**
n.d. Kaupulehu - A Cultural and Historical Report, Kaupulehu, Kona, Hawaii. Manuscript prepared for PHRI. (September 1997)
- Soehren, L.J.**
1963 Archaeology and History in Kaupulehu and Makalawena, Kona, Hawaii. Manuscript. Department of Anthropology, B.P. Bishop Museum.
- Sullivan, R.B., S.T. Goodfellow, and A.T. Walker**
1996 Kaupulehu Makai Resort Phased Archaeological Mitigation Program, Phase II - Archaeological Data Recovery, Land of Ka'upulehu, North Kona District, Island of Hawai'i. PHRI Report 593-060496. Prepared for Ka'upulehu Developments.

Report 2132-122200

- Walker, A.T., and P.H. Rosendahl**
- 1985 Full Archaeological Reconnaissance Survey, Kukio Resort Development Project Area, Kukio 1st, North Kona, Island of Hawaii. PHRI Report 167-090385. Prepared for Phillips, Brandt, Reddick & Associates and Huehue Ranch. (October)
- 1988 Archaeological Survey and Test Excavations, Kaupulehu Makai Resort Project Area, Land of Kaupulehu, North Kona, Island of Hawaii. PHRI Report 213-032686. Prepared for Kaupulehu Developments.
- 1990 Archaeological Resources Assessment, Kaupulehu Phase II Master Plan; Land of Kaupulehu, North Kona District, Island of Hawaii. PHRI Report 642-021590. Prepared for Potomac Investment Associates. (February)