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GOVERNOR



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Acting Director

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
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HONOLULU, HAWAII 96813

March 21, 1991

Mr. Norman K. Hayashi, Director
Planning Department
25 Aupuni Street, Room 109
Hilo, Hawaii 96720

Dear Mr. Hayashi:

SUBJECT: Azabu Kona Beach Resort, Negative Declaration

The Office of Environmental Control reviewed this above-mentioned Negative Declaration which was to be published in the March 23, 1991, OEQC Bulletin. A Negative Declaration is a document "that does not have a significant effect on the environment." The definition is found in Title 11, Administrative Rules, Chapter 200, Environmental Impact Statements.

On page 10, Archeological and Cultural Resources, it states that the project lies within the Kahalu'u Historic District and that "17 significant sites within the project area will undergo data recovery and (be) subsequently released." On page 16, Socio-Economic and Land Use Considerations, the assessment continues with the phrase, "the submittal of an interpretive management plan will ensure that the sites are not only preserved, but integrated into a public awareness and educational theme for the resort." Preservation is required and the integration of a public awareness and education theme is commendable. However, based on this report, it is evident that the document should be processed as an environmental impact statement. The statute and rules do not say that a determination of "negative declaration" can be issued with proper management of significant effects. The presence of "significance" triggers an environmental impact statement and allows for general public review.

We respectfully request that you withdraw this negative declaration and resubmit it as an environmental impact statement preparation notice.

Sincerely,

Brian J. J. Choy
Brian J.J. Choy

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1991

ENVIRONMENTAL ASSESSMENT - NEGATIVE DECLARATION
* AZABU KONA BEACH RESORT
KEAUHOU, NORTH KONA, HAWAII *

I. APPLICANT

Azabu U.S.A. Corporation
c/o Belt, Collins and Associates
680 Ala Moana Boulevard, Suite 200
Honolulu, Hawaii 96813

II. CONSULTANT

Belt, Collins and Associates
680 Ala Moana Boulevard, Suite 200
Honolulu, Hawaii 96813
(808) 521-5361

III. AUTHORITY

Planning Department for the
Planning Commission
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

IV. CLASS OF ACTION

Development (1) within the Kahalu'u
Historic District which is on the
National Register of Historic Places; and
(2) within the minimum 40-foot shoreline
setback area.

V. CONSULTED AGENCIES County: Department of Parks & Recreation
Department of Public Works
Police Department
Real Property Tax Office
Department of Water Supply
State: Department of Land and Natural
Resources
Department of Transportation-
Highways Division
Department of Education
Department of Health
Other: Kona Soil and Water Conservation
District

VI. BRIEF DESCRIPTION OF THE PROPOSED ACTION

The applicant, Azabu U.S.A. Corporation, proposes to upgrade its resort facilities at Keauhou Beach and Kona Lagoon Hotels. Improvements would include the construction of a new swimming pool, restaurant, landscaping, an entry drive and parking modifications, and repair of a shoreline wall within the grounds of the Hotels. A white sand area will be constructed around the swimming pool and deck. In addition, the existing tennis complex would be demolished and a new tennis complex would be constructed mauka of Alii Drive. An underpass would be installed in order to cross Alii Drive from the tennis courts to the Hotel complex. The site is situated in the ahupua'a of Keauhou, North Kona, TMK Nos. 7-8-13: 2, 13, 43 and 46; 7-8-10: Portion of 35.

VII. BACKGROUND

Azabu U.S.A. Corporation is the owner of TMK: 7-8-13:13 and 46; Kamehameha Investment Corporation is the owner of TMK: 7-8-10: Portion of 35; and Kamehameha Schools/B.P. Bishop Estate owns TMK: 7-8-13: 2 and 43. Azabu U.S.A. Corporation is the long-term lessee of the parcels owned by Kamehameha Investment Corporation and Kam Schools/Bishop Estate.

VIII. DESCRIPTION OF PROPOSED PROJECT

According to the SMA Use Permit application, Azabu's overall strategy is to create a unified resort complex geared mainly to families which offers a wide range of amenities. Operated in the past as separate properties, the two hotels presently have physical layouts which make them difficult to operate as a single resort. Similarly, recreational amenities and support facilities are below the standard desired by the applicant in order to market the resort. The applicant feels that the exterior improvements and interior renovations are needed to appeal to both families (Kona Lagoon) and the business market (Keauhou Beach), as well as to achieve an average occupancy of at least 70 percent that is deemed necessary to provide a satisfactory return on investment.

Specifically proposed are the following:

- (A) Freshwater swimming pool. Construction of a freshwater swimming pool has been designed to resemble a natural lagoon. Maximum depth of the pool will be about 5 feet.

Situated about 3 feet above mean sea level (msl) atop a natural landform, the lava rock-like deck bordering the pool will afford view of Kahaluu Bay and the nearby shoreline. The freshwater pool will be a principal focus of leisure and recreation activities. The large deck area surrounding the pool will include distinct sub-areas devoted to specific activities such as children's swimming, water sports instruction, sunbathing, snackbar and outdoor entertainment activities.

- (B) Restaurant. Construction of a two story restaurant with the capacity to seat 200 persons in the dining and lanai areas adjacent to the freshwater pool. The restaurant structure will also accommodate small concession shops, a snack bar and locker rooms. The main dining room and lounge area will be located on the second floor to take advantage of the elevation for better view of the ocean, shoreline and resort grounds. The restaurant will be constructed to accommodate two natural wells identified by the project archaeologist. The wells will be preserved in their natural condition.
- (C) Recreation and Leisure Facilities. In addition, the newly landscaped grounds will also have function lawns for luaus, volleyball, badminton, and other recreational lawn and Hawaiian craft demonstration activities.
- (D) Resort entrance. Instead of the existing two entrances leading to the two hotels, a single main entry to Kona

Beach Resort will be constructed. It will be composed of an entry structure, plantings, and a traffic flow concept designed to accommodate pedestrians and vehicles and provide guests with easy access to and from the beach facilities makai of Alii Drive and the proposed tennis complex mauka of Alii Drive. An underpass will be constructed to enable pedestrians, tennis carts and maintenance carts to cross Alii Drive.

- (E) Tennis Complex. A new tennis complex consisting of eight to ten courts and a clubhouse for a pro shop, snack bar, and locker rooms will be constructed mauka of Alii Drive. The tennis complex will serve resort guests as well as local residents belonging to the Kona Beach Resort Tennis Club. It is anticipated that community tennis matches will be regular events at the complex.
- (F) Parking lot. A new parking lot will be installed mauka of Alii Drive approximately 200 feet to the south (Keauhou direction) of the Makolea Street-Alii Drive intersection. The parking lot would be used primarily for visitor parking during special events. Such events may include tennis championships, community sponsored luaus and fund raisers and business/government sponsored conferences. The parking lot is also expected to serve the need for additional employee parking during busy periods when extra help is required.

(G) Shoreline wall. The wall will not be raised in height nor extended in length. A small section of the wall has collapsed and will be repaired. Other sections may require repair and minor surface treatment. The existing form and structural integrity of the wall will be kept in tact.

(H) Sandy area. A sandy area will be created between the existing shoreline wall and coconut grove. It will cover an area of about 18,300 square feet. It will require the transport of approximately 680 cubic yards of sand from an off-site location.

The first quarter of 1991 has been targetted for securing all government permits and approvals. Construction of all proposed improvements is expected to take about 18 months and the project completed by late 1992.

The cost of the proposed improvements is estimated to be about \$15.2 million in current dollar terms.

IX. DESCRIPTION OF THE AFFECTED ENVIRONMENT:

Topography and Soils

The project site is part of the resort community of Keauhou in the North Kona District. Heavily influenced by the Hualalai and Mauna Loa volcanoes, the area has very little soil covering and is designated as Pahoehoe Lava Flow by the U.S. Department of Agriculture, Soil Conservation Service, Soil Survey Report. This

lava has a billowy, glassy surface that is relatively smooth. In some areas, however, the surface is rough and broken, and there are hummocks and pressure domes.

The project site has a gradual 10 percent slope towards the ocean.

Climate

In general, the weather in the Kona area is mild, with a mean annual temperature of 75.1 degrees Fahrenheit and relatively small daily and seasonal fluctuations. Average annual rainfall is less than 40 inches. Winds are diurnal-blowing onshore during the day and reversing to offshore in the evening. With the exception of occasional storm conditions, winds in Kona are gentle.

Hydrology, Drainage, and Flooding

No streams or natural drainageways traverse the project site.

The Flood Insurance Rate Map (FIRM) prepared by the U.S. Army Corps of Engineers depicts the shoreline areas to be in a coastal high hazard area and tsunami inundation zone. The base flood elevation for the 100-year coastal flood ranges from 7 to 13 feet for that portion of the site within the inundation zone.

Flora and Fauna

While no botanical survey has been conducted of the specific project site, a "Botanical Survey of the Keauhou Resort Property" was conducted by George K. Linney and Winona Char in June 1988, adjacent to the Azabu properties. The most common species of plant identified during the survey were monkey pod, 'opiuma,

Christmas berry, noni, pluchea, and maia-pilo. Various weeds and grasses grow on the site. However, no listed, proposed, or candidate threatened and endangered species were found on the surveyed property.

"A Survey of the Avifauna and Feral Mammals at Keauhou Resort Project Property" was conducted by Phillip L. Bruner dated August 4, 1988, which covered areas adjacent to and mauka of the project site. No endemic or indigenous birds were recorded during the course of the field survey. Exotic species, such as the Japanese White-eye, Zebra Dove, House Finch, Yellow-billed cardinal, were identified.

The only feral mammals observed during the survey were the Small Indian Mongoose and cats.

While records of the endemic and endangered Hawaiian Hoary Bat have been reported along the Kona coast, none were observed in the night field survey.

Marine Environment

The ocean waters offshore of the project site are classified Class AA by the State Department of Health. An area adjacent to the Kona Lagoon Hotel is also classified as a wetland coastal area by the Department of Interior due to the quantity of freshwater discharge along the coastline. No improvements are planned within the wetland area.

The nearshore area fronting the hotels consists of a broad lava basalt shelf, 400 to 500 feet wide, with elevation generally ranging from -1 to +1 feet msl. The basalt shelf surface is smooth pahoehoe

lava, overlain with rocks, cobbles, and boulders. The seaward edge of the shelf is irregular and drops almost vertically to a depth of 10 to 20 feet. The shoreline is predominantly rocky with some scattered coarse sand and gravel-sized beach material. There is a freshwater pond on the grounds of the Kona Lagoon Hotel which may contribute to the brackish water in the low-lying backshore areas and freshwater seepage found along the shore. The relatively high elevation of much of the rock shelf restricts circulation in the nearshore area except during periods of high tide. Poor circulation in the lower elevation pond areas along the shore is indicated by extensive algae growth.

Although waters along the Kona coast are characteristically calm, the area is subject to periodic storm and tsunami wave action. Potentially destructive waves may be generated by Kona storms, the North Pacific swell (caused by severe winter storms in the Aleutians), southern swells originating in the Southern Hemisphere or Western Pacific, and by passing hurricanes.

A baseline assessment of the marine environment was conducted in October 1988 by Marine Research Consultants. The purpose was to develop a baseline of biotic community structural parameters and to establish water chemistry parameters. Ten coral species were encountered on the study transects. Coral cover ranged from 9-71%. Along transects, the wrasse fish trigger fish, parrot fish, surgeon fish and goat fish were identified. The threatened green sea turtle, the endangered hawksbill turtle and the endangered humpback whale are also found in waters off the coast.

Air and Noise Quality

The principal source of long-term air quality impacts may be automotive emissions and electrical power generation. The project will contribute to a slight increase in automotive emissions.

The principal source of long-term noise will be generated around the new swimming pool and mauka tennis courts. The courts are planned to be opened only during daylight hours. Significant landscaped buffers will be planted to reduce noise levels.

Archaeological and Cultural Resources

The project lies within the Kahalu'u Historic District which was placed on the National Register of Historic Places in 1974. A large number of heiau and other archaeological features have been identified within the District, including the Papakoholua, Po'o Hawaii, Kapuanoni, Hapaialii, Ke'eku, and Makolea Heiau.

An inventory survey of the project area was conducted by Paul H. Rosendahl, Ph.D. The survey located 33 significant archaeological sites on the makai side of Alii Drive and 12 significant sites on the mauka side of Alii Drive project area. The inventory survey report recommends the preparation of a detailed historic preservation mitigation plan. Seven sites (Sites 1619, 10997, 3817, 3818, 3819, 439-53, and 439-54) are identified as a being heiau, a pond and petroglyphs. Another seven sites (Sites 439-22, 439-36, 439-37, 439-41, 439-42, 439-46 and 439-47) have been provisionally categorized for long-term preservation, pending confirmation of burials. If further field work finds that the sites do not contain burials, further data recovery will be performed and

the site released. The remaining 17 significant sites within the project area will undergo data recovery and subsequently released. Additionally, Kuakini Wall and the two Historic Preserves near the project boundary have been identified for protection during construction.

Socioeconomic Considerations

The proposed project is in a planned resort community composed of three hotels (the 535-room Kona Surf Resort is located about a half mile from the two Azabu hotels), single- and multi-family residential units, a 27-hole golf course (9-holes under construction), pier and boat ramp, and shopping center. A County beach park (Kahalu'u Park) is located just north of the Keauhou Beach Hotel. To the south, adjacent to the Kona Lagoon Hotel, is a 193-unit condominium known as the Keauhou Kona Surf and Racquet Club. The Kona Gardens botanical park is located mauka of the Azabu hotels across Alii Drive.

In recent years, low occupancy rates at the Keauhou Beach and Kona Lagoon Hotels have resulted in a poor return on investment. The proposed project, together with the interior renovations in progress, are intended to increase the Azabu Kona Resort's appeal to potential guests thereby reversing this trend and increasing profitability.

The Keauhou Beach and Kona Lagoon Hotels currently have the equivalent of 195 full-time employees. After completion of all improvements, an additional 70 more full-time equivalent positions will be required to accommodate higher occupancy rates, larger party

sizes at the Kona Lagoon, and greater restaurant capacities (a total of 265 full-time equivalent positions). All personnel are expected to be recruited from the existing Kona regional labor market.

In spite of a reduction in the total number of rooms (due to the planned conversion of Kona Lagoon rooms into suites), it is projected that the two hotels will have a larger guest population. Based on an assumed peak-month average occupancy rate of 90 percent, the average daily guest population would number about 1,500 (compared with the estimated peak-month average daily guest population of approximately 965 before the improvements).

This higher level of economic activity is expected to result in additional household income and government tax revenues. The estimated \$30 million in capital improvements (including interior renovations costs) will generate additional construction employment, household income, and tax revenue during the construction period.

X. INSTITUTIONAL SETTING

The subject properties are classified Urban by the State Land Use Commission.

The County General Plan designates the area for Resort Uses and Open along the shoreline. Additionally, the General Plan document describes the Keauhou area as a tourist destination point for major resort development.

The Kona Regional Plan adopted by Resolution by the Planning Commission in 1984, recommends the area for resort uses.

The Hawaii County Code zones the mauka parcel (7-8-10:Por of 35) as Resort/Hotel-4,000 square feet per unit (V-4). Makai of Alii Drive, parcels are zoned Resort/Hotel-750 square feet per unit (VH-.75) with height limits for a building or structure at 90 feet.

Since the parcels are located within the Special Management Area (SMA) of the County of Hawaii, an SMA Use Permit Petition has been filed with the Planning Department together with a Shoreline Setback Variance Application for work within the 40-foot shoreline setback area.

A shoreline survey was conducted on March 5, 1990, and certified by the Chairman of the Board of Land and Natural Resources on July 3, 1990.

XI. PUBLIC SERVICES AND INFRASTRUCTURE

Alii Drive has a road right-of-way of 50 feet and a pavement width of approximately 20 feet with 6- to 8-foot wide shoulders. The wide shoulders are used by pedestrians and bicyclists, especially on the mauka side.

Water is available for the proposed project.

Utilities, police, fire protection, and other public services are already provided to the existing hotels.

The County's Kahaluu Beach Park is situated immediately to the north of the project site. The 5.4-acre Park offers a unique and readily accessible coral garden with an abundance of marine life.

XII. SUMMARY OF IMPACTS AND MITIGATION MEASURES

Socio-Economic and Land Use Considerations

On a short-term basis, construction period employment will be created by development of the planned ground improvements. Cost of improvements is expected to amount to about \$15.2 million, which would result in the creation of about 128 annual jobs. With a construction period of about 18 months, an estimated 85 full-time equivalent (FTE) construction jobs would be created as a result of the planned ground improvements. In the long-term, a total of 310 FTE jobs will be on line, with 50 FTE positions created by the upgrade.

Relatedly, the expansion of resorts in the North Kona and South Kohala Districts have resulted in an emergent social concern where a lack of employee housing created overall housing shortages and serious overflow of campers and squatters. This situation is not anticipated to be relieved in the near future even with the affordable housing or construction housing requirements imposed on developers. Therefore, to address the employee housing impacts in support of the General Plan, a condition of any future permits will require an employee housing assessment and mitigation plan.

In the long-term, employment within the hotel industry should create opportunities for residents. A job training program for employees will be required to upgrade skills and opportunities for residents. This should improve the socio-economic profile of the Kona population.

The anticipated increase in users to the Kona Beach Resort project would have impacts on the Kahalu'u Beach Park and its facilities. The creation of a sandy area around the swimming pool and within the 40-foot shoreline setback area should assist somewhat in relieving the overload currently experienced by the Park by providing an on-site beach. According to the SMA Use Permit Application, the applicant has offered to assist the County in the future improvement of Kahaluu Beach Park in accordance with the County's improvement schedule. Improvements required will be made a condition of any future permits, if approved.

Public access along the shoreline and to the significant historic sites would be improved with the upgrade; however, an integrated formal access plan must be established and approved. With the implementation of an approved public access plan and an interpretive management plan for historic sites, the resources of the area will be enhanced.

Impacts to nearshore ponds and wetlands can be expected due to increased hotel and public usage of pond areas and potential nutrient loading caused by the maintenance of newly landscaped areas. These will be minimized by the implementation of an acceptable off-shore water quality and pond monitoring program.

The project area is in the Kahalu'u Historic District and contains numerous archaeological features. Of these, seven will be preserved. These include heiaus, a pond and petroglyphs. Another seven sites will be provisionally preserved until further data

recovery can be performed. The submittal of an interpretive management plan will ensure that the sites are not only preserved, but integrated into a public awareness and educational theme for the resort. The applicant is working with a community-based cultural advisory committee to address the issue of public access to recreational and historic resources on the shoreline and to inland portions of the project. Thus, significant effects are not anticipated to cultural resources of the County.

The project site is within a coastal hazard area, which historically experiences high storm wave action. The largest structure proposed is the restaurant located over 200 feet from the shoreline. This structure and accessory buildings will be constructed in accordance with Chapter 27 of the Hawaii County Code relating to Flood Control. Furthermore, the shoreline rockwall will not be expanded or moved. The proposed improvements will create minimal disruption to the shoreline processes. The coordination of an emergency preparedness and response plan with the appropriate agencies will be required to facilitate evacuation and emergency response.

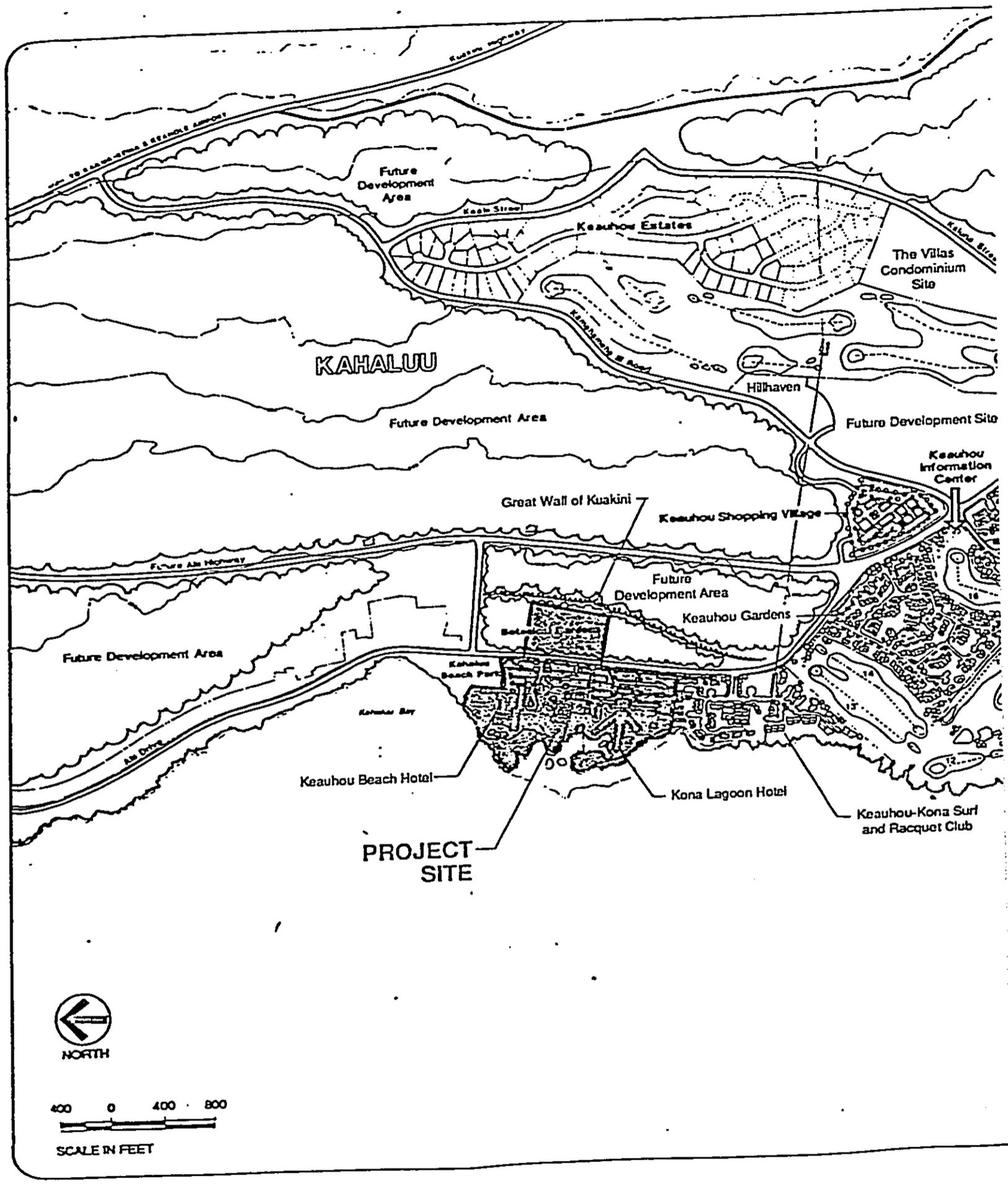
Viewplanes to the shoreline not be adversely affected since the existing hotels and landscaping already provide a visual buffer between the shoreline and Alii Drive.

The proposed improvements are expected to result in an increase of about 4 percent in peak-hour vehicular traffic on Alii Drive. Exiting out of one resort single approach lane entrance driveway, it is projected that this approach would operate at LOS D during the

AM peak hour and would experience LOS F, or over capacity conditions, during the PM peak hour. Traveling out of the mauka tennis center, that intersection would operate at LOS C. The study concluded that northbound and southbound left turn traffic on Alii Drive would remain at LOS A during the AM and PM peak hours. The applicant will be required to improve Alii Drive in accordance with the Department of Public Works. The installation of a parking lot on the mauka side of Alii Drive would alleviate parking problems that might be generated by special events. There will be traffic measures that must be implemented to assure safe pedestrian crossing and vehicular turning movements. The construction of an underpass will relieve the burden of cross-traffic on Alii Drive due to the project's split location. Traffic improvements and circulation patterns, including channelization and curbs, gutters and sidewalks, will be handled at the time of permitting.

XIII. DETERMINATION

Based on the foregoing, it is determined that the proposed development will have no significant impacts on the environment, the historic resources of the Kahaluu Historic District or the 40-foot shoreline setback area; provided appropriate mitigation measures are implemented prior to or in conjunction with the construction of the project. Therefore, a notice of Negative Declaration is now being filed with this Environmental Assessment.



FILE COPY

DATA RECOVERY PLAN

for

**AZABU KEAUKOU RESORT PROJECT,
NORTH KONA, ISLAND OF HAWAII**

A CULTURAL RESOURCE MANAGEMENT PLANNING DOCUMENT

by

H. David Tuggle

INTERNATIONAL ARCHAEOLOGICAL RESEARCH INSTITUTE, INC.

HONOLULU, HAWAII

1989

DATA RECOVERY PLAN
for
AZABU KEAUKOU RESORT PROJECT
NORTH KONA, ISLAND OF HAWAII

A CULTURAL RESOURCE MANAGEMENT PLANNING DOCUMENT
with

- A) General Archaeological Data Recovery Plan
- B) Scope of Work for Preservation Plan
- C) Scope of Work for Data Recovery Project 1,
36 Sites (Appendix VII)

prepared by:

H. David Tuggle, Ph.D.

International Archaeological Research Institute, Inc.
949 McCully St., Suite 5
Honolulu, Hawaii 96826

at the request of:

Belt, Collins and Associates
680 Ala Moana Blvd., Suite 200
Honolulu, Hawaii 96813

for submittal to:

Historic Sites Section
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96819

May 1989

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PREFACE

This document is prepared under the guidelines of the Cultural Resort Management Plan for Cultural Resource Management at the Keauhou Resort, County of Hawaii Ordinance No. 820, and Historic Sites Section (D.L.N.R., State of Hawaii) Draft Minimal Standards for Archaeological Data Recovery Studies and Reports.

All state site numbers in this report are prefixed by 50-10-28; other numbers are temporary site numbers.

EXECUTIVE SUMMARY

The Azabu Keauhou Resort Project area, North Kona District, Island of Hawaii, contains 110 identified archaeological sites. Development in the project area entails a cultural resource management process, with the participation of the County of Hawaii and the Historic Sites Section of the Department of Land and Natural Resources of the State of Hawaii.

Archaeological reconnaissance has been completed for the entire 70 acre project area, and significance evaluations and basic recommendations for site action have been made. The present document addresses subsequent steps of data recovery and preservation. Two management tracks and two phases of data recovery are proposed for each. One management track is for sites intended for long-term preservation/interpretation; the other is for non-preservation sites. Phase I data recovery is the same for both management tracks: detailed mapping and/or test excavation for specific questions of site assessment. Phase II data recovery varies with the management track: Preservation Data Recovery (PRD, Phase II) emphasizes research related to potential public interpretation; Non-Preservation Data Recovery (NPDR, Phase II) emphasizes research necessary for the mitigation of specified impacts on archaeological sites.

The present document contains:

- 1) A General Archaeological Data Recovery Plan for the entire project area, including Phase I and NPDR Phase II details.
- 2) A Scope of Work for the preparation of a Preservation Plan, focusing on a conservation and interpretive program for all sites that have been placed in a preservation category; and
- 3) An outline scope of work for Data Recovery Project 1 (Appendix VII) for data recovery for 36 sites of immediate concern in AZKRP development, with a listing of tasks that may be used for reference in subsequent scopes of work.

AZABU KEAUKOU RESORT PROJECT (AZKRP):
CULTURAL RESOURCE MANAGEMENT PLANNING DOCUMENT

INTRODUCTION

Purpose

The present document is a contribution to the cultural resource management process for the Azabu Keauhou Resort Project (AZKRP*), part of the development of the Keauhou-Kahalu'u area, Island of Hawaii (Maps 1 and 2), initiated by the Kamehameha Investment Corporation (KIC). This document contains (1) a Data Recovery Plan for the archaeological sites of the project area, and (2) a Scope of Work for the preparation of a Preservation Plan for sites designated for preservation.

Project Area

AZKRP covers some 70 acres within KIC Keauhou Development Parcels 14 A, B, and C, as well as part of an unnumbered parcel (Map 2), (TMK: 3-7-8-10: 35; 3-7-8-13:2,13,42,43; for complete description of project area, see Walker and Rosendahl 1988: 2-5).

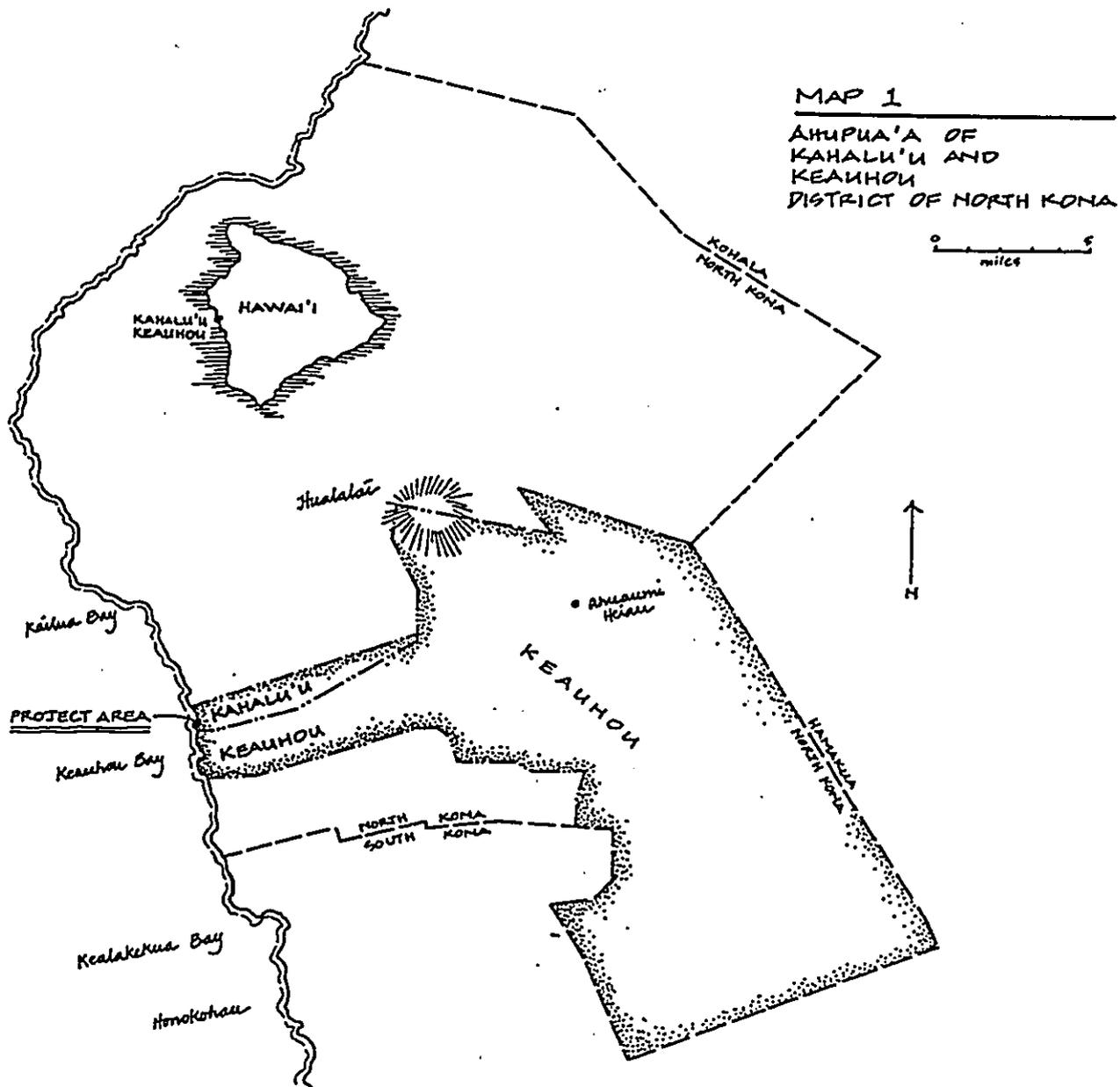
The AZKRP area is cross-cut by Alii Drive; for the purposes of archaeological site location the landward (mauka) section has been designated Study Area 2, and the seaward (makai) section Study Area 3 (Walker and Rosendahl 1988: 2-3). Study Area 2 corresponds to Development Parcels 14 A, B, and C; Study Area 3 corresponds to the unnumbered Development Parcel (Map 2).

Cultural Resource Management Process

In the development review process for the entire KIC property (Map 2), the County of Hawaii enacted Ordinance No. 820 that made a number of stipulations relating to cultural resource management (Tomonari-Tuggle 1985, Appendix A).

In meeting the terms of Ordinance 820, KIC contracted for the preparation of a plan that combined the interpretive management plan and the salvage program; this was called the Cultural Resource Management Plan (CRMP) for Cultural Resource Management at the Keauhou Resort (Tomonari-Tuggle 1985).

* Acronyms defined in Appendix V.



Map 1. Ahupua'a of Kahalu'u and Keauhou, District of North Kona.

The development of individual parcels within the KIC Keauhou project area entails implementation of the CRMP and the relevant portions of Ordinance 820, in consultation with the Hawaii County Planning Department (HCPD) and the Historic Sites Section (HSS) of the Department of Land and Natural Resources of the State of Hawaii.

Stipulations affecting the AZKRP area include preparation of an interpretive management plan for the entire project area, development of a three-stage salvage program, establishment of two Historic Preserves, preservation and restoration of significant sections of the Kuakini Wall, proper reinterment of burials, and cessation of grading on discovery of any archaeological remains.

The Keauhou CRMP (Tomonari-Tuggle 1985: 87, 154-155; Fig. 9) suggests several steps of archaeological research for the Development Parcels in general, and for those incorporated by AZKRP in particular:

1. Completion of reconnaissance survey, if necessary (identification of the archaeological portion of cultural resources), with subsequent evaluation of significance;
2. Intensive survey, including test excavations where appropriate (identified herein as Data Recovery, Phase I);
3. Preparation and implementation of a Data Recovery Plan for sites not in a preservation category; and
4. Development of a preservation plan that addresses interpretive and conservation programs.

(Note: these recommendations referred specifically to Parcels 14 B/C, or Study Area 2; for various reasons Study Area 3 was not considered in the CRMP. However, under general guidelines of Ordinance 820 and the CRMP, and in consultation with HCPD and HSS, AZKRP is applying the CRMP process--see Tomonari-Tuggle 1985, Fig. 9--to the entire development property.)

Step 1 (reconnaissance survey) has been completed (see Walker and Rosendhal 1988 for summary of all survey work). Evaluations of significance and recommendations for data recovery and site preservation prepared by Walker and Rosendhal (1988) have generally been accepted by the HSS (Nagata letter of 10/26/88).

The present document concerns steps 2, 3, and 4, which have been combined into two plans, a data recovery plan and a preservation plan.

Cultural Resource Management Plans

The present document addresses the cultural resource management concerns for the AZKRP parcel development (Table 1; Map 2). The first section, The General Archaeological Data Recovery Plan (GDRP), is a program for dealing with all archaeological remains in the area (110 sites; Map 3; Appendix I). The second section, a scope of work for Preservation Plan, outlines the management steps related to those sites that have been placed, or might be placed, in a preservation category (Appendix II; Map 4.).

A scope of work for a specific data recovery project (number 1) is presented in Appendix VII. This is based on the GDRP and treats 36 sites that are of immediate concern to AZKRP and the planning firm, Belt Collins and Associates.

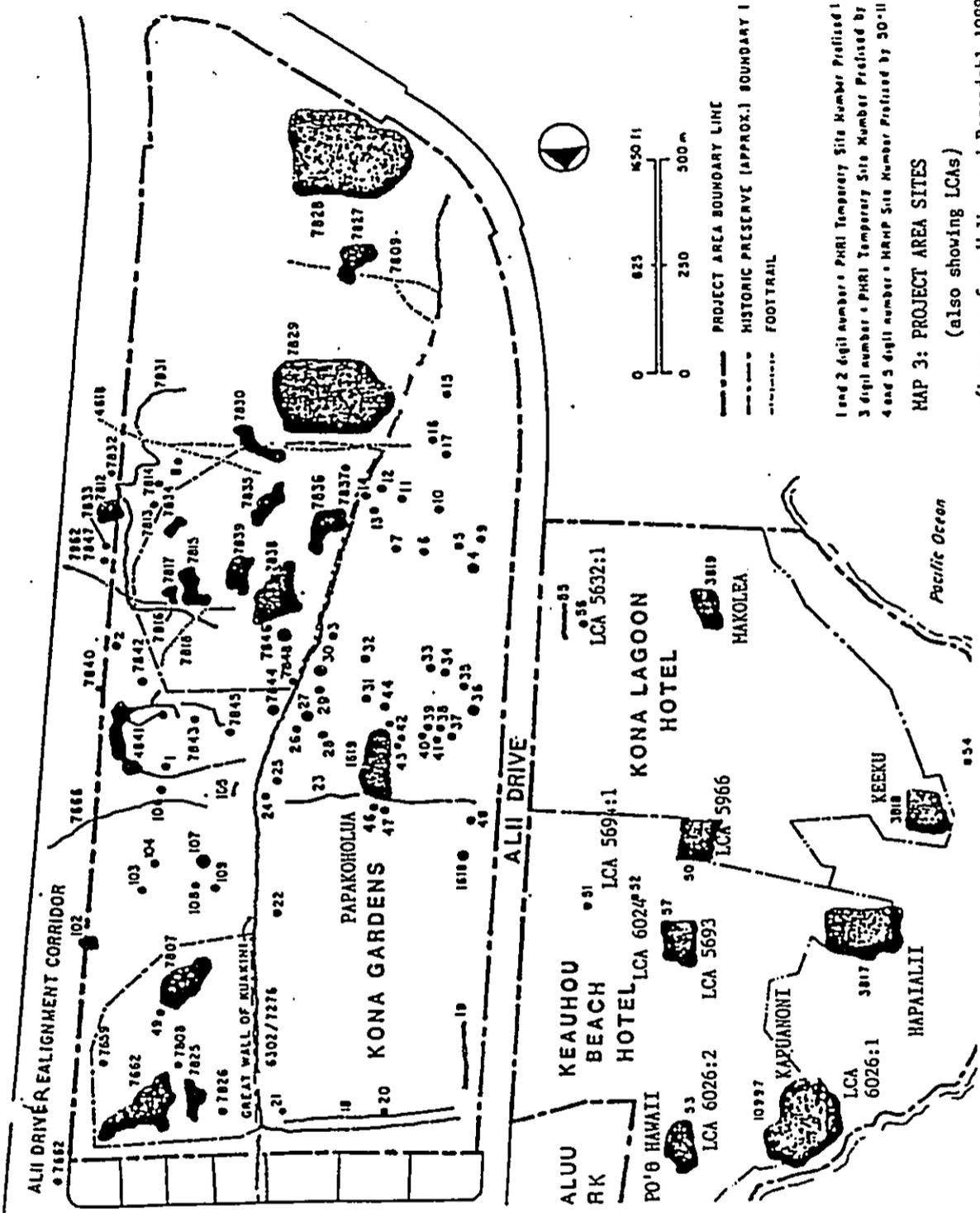
Conceptual Organization (see Appendix VI)

The General Data Recovery Plan is the organizing plan for all sites within the AZKRP area. Site categories are specified for purposes of cultural resource management action. Two management tracks are identified (preservation and non-preservation), a two phase data recovery program is proposed, and a research framework is established.

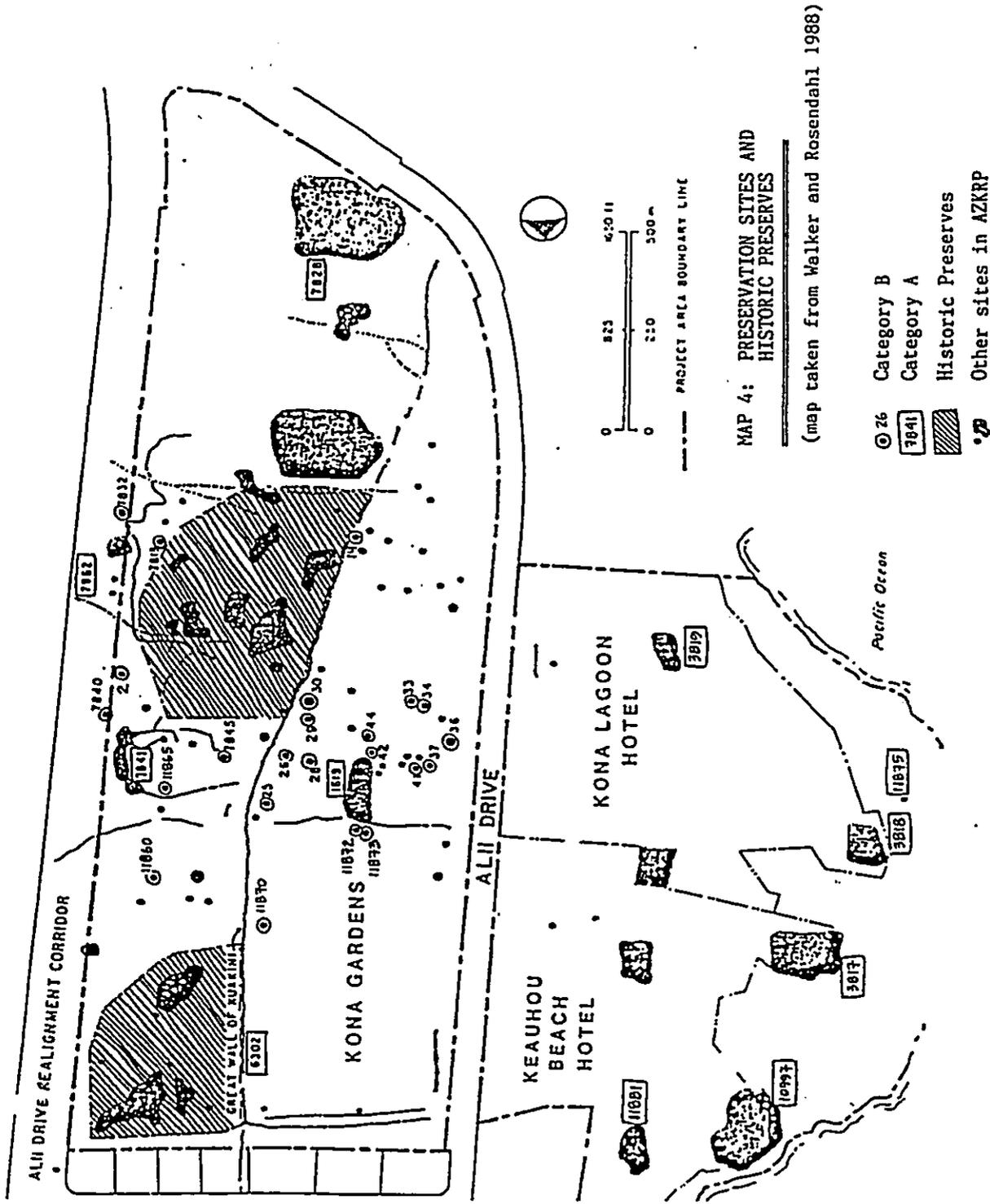
Phase I data recovery is outlined for all sites; this also involves a final placement of sites into preservation or non-preservation tracks. Phase II data recovery is outlined for sites on the non-preservation track.

The Preservation Plan is proposed to overlap the first part of the GDRP, until all sites have been placed on a preservation or a non-preservation track. The Preservation Plan addresses all of the preservation sites and Phase II preservation data recovery.

Data recovery projects deal with specific sets of sites.



Map 3. Azabu project area archaeological sites and Land Commission Awards.



Map 4. Preservation sites and historic preserves.

Table 1: Cultural Resource Management Process for AZKRP

Keauhou Resort Project (KIC):
Hawaii County Ordinance 820

Cultural Resource Management Plan (Tomonari-Tuggle 1985)

Azabu Keauhou Resort Project:

Reconnaissance Survey (archaeological site inventory)	(Walker and Rosendahl 1988; others)
General Data Recovery Plan (GDRP) Data Recovery Phase I	(IARII, this document)
DR Project 1 (36 Sites)* (14 preservation sites) (22 non-preservation sites)	(IARII, to be scheduled)
additional sites	to be scheduled
Data Recovery (NPDR) Phase II	to be scheduled
Scope of Work for Preservation Plan	(IARII, this document)
Preservation Plan (Data Recovery Phase I, included under GDRP, above)	to be scheduled ---
Data Recovery (PDR) Phase II	to be scheduled
Final Plan	to be scheduled
Implementation	to be scheduled

* Scope of Work for DR Project 1: Appendix VII.

AZKRP: GENERAL ARCHAEOLOGICAL DATA RECOVERY PLAN

Purpose

The GDRP presents a program for data recovery for 105 sites in the AZKRP area.

Environment, History, and Cultural Resources of the AZKRP Area

The environment, history, and cultural resources of the AZKRP area are presented in detail in previous research documents covering the Keauhou Project area (Hammatt and Folk 1980; Hammatt, Folk, and Ida 1981; Tomonari-Tuggle 1985; Walker and Rosendahl 1988; for complete bibliographies see Tomonari-Tuggle 1985, Appendix B; and Walker and Rosendahl 1988, pp. 5, ff). The following sections provide a brief summary of each.

Environment

The AZKRP project area extends from sea level to about 100 feet a.s.l. The ground surface is primarily weathered pahoehoe, with limited soil accumulation and extensive koa-haole (Leucaena glauca) growth. Rainfall averages between 30 and 40 inches per year. Modern cultural features include roads, hotels, and landscaping.

History

A summary of the history of the area, based on traditional sources and archaeological research, can be found in Tomonari-Tuggle (1985:13-34). An historical summary of the adjacent northern Kona area is found in Schilt (1984:276-284).

Limited chronometric data indicate coastal settlement by at least A.D. 1000. Agricultural expansion into the uplands occurred by the 14th century. Traditional histories and archaeology suggest increasing social complexity and the development of political power in the region. Umi-a-liloa is associated with Kona (and by virtue of place names associated with Keauhou and Kahalu'u), and subsequent chiefs are identified with specific residences and heiau in Keauhou and Kahalu'u. These chiefs include Lono-i-ka-makahiki, Alapainui, Kalaniopu'u, Kamehameha, Keeaumoku, and Kamehameha III. Schools, churches, and population decline followed European contact. By the 20th

century, the coastal population had become very small, but an upland population based on ranching and cultivation was thriving.

Significance of the Keauhou-Kahalu'u Area

The Keauhou Resort area and AZKRP are located in one of the most important historical zones in the Hawaiian Islands, the center of power for the leeward side of the Island of Hawaii, stretching from Honaunau to Kailua (Map 1). This importance is well indicated by the Hawaiian traditions (see summaries in Schilt 1984, Tomonari-Tuggle 1985), the high population density that existed around the time of contact (Ellis 1969:121), the subsistence base represented by the massive Kona Field System, the numerous state heiau, the chiefly residences, and the associated games of the elite (suggested by surfing areas, surfing heiau, and a holua slide).

In addition, several events of major historical importance, such as the battle of Kuamo'o, also occurred in the area.

Resources of the AZKRP Area

Cultural resources (generally referring to archaeological remains, historical buildings, places of traditional importance, archives, and oral history) of the AZKRP area are best represented by its archaeological remains, with some 110 archaeological sites identified in the 70 acre project zone (Map 3; Appendix I; also see Walker and Rosendahl 1988, Table 1). These sites represent a range of temporal periods and inferred functions, including burials and well-known heiau.

The non-archaeological cultural resources of the area are summarized in Tomonari-Tuggle (1985) and Walker and Rosendahl (1988). It is proposed that these be treated in more detail in the Preservation Plan.

Special Categories of Cultural Resources

National Register Properties or Eligible Properties

Kona Field System:

Although the Kona Field System does not extend into the AZKRP area, there is the possibility that "agriculture was practiced in the swale areas or on rocky outcrops in the project area" (Walker and Rosendahl 1988:44). Some of the habitation features in the project area may be associated with such local agricultural manifestations or with the nearby Kona Field System itself (Map 2).

Kahalu'u Historic District:

The project area falls within the Kahalu'u Historic District which has been found eligible for the National Register due to its large number of heiau and petroglyphs, its association with significant persons and events, and its high research potential. Of the 110 sites in the project area, 105 have been found to be significant and may by implication be considered as properties contributing to the Historic District.

Kuakini Wall:

This property has been found eligible for the National Register, and has also been recognized for special attention by Hawaii County Ordinance 820.

Properties Identified by Hawaii County Ordinance 820

Two Historic Preserves were established by Hawaii County Ordinance No. 820 (see Tomonari-Tuggle 1985: Appendix A). These preserves are shown on Maps 3 and 4 (also see Appendix II). Ordinance 820 also notes particular treatment for the Kuakini Wall and for burials.

Island of Hawaii Community Interest

In general the community of the Island of Hawaii has concern for all archaeological remains, but in particular, there is interest in the appropriate treatment of burials, heiau, and locales of traditional importance.

AZKRP Cultural Resource Management: Archaeological Sites

"Action" Categories

The archaeological reconnaissance report by Walker and Rosendahl (1988) identifies 110 sites within the AZKRP area (Appendix I). The sites were divided into five categories based on elements of significance and with five related recommended actions (Walker and Rosendahl 1988, Table 5). The categories are here identified by the letter designations A through F for convenience (see Table 2). These designations should not be confused with the letters used for significance categories in Walker and Rosendahl (1988, Table 5).

Cultural Resource Management Tracks

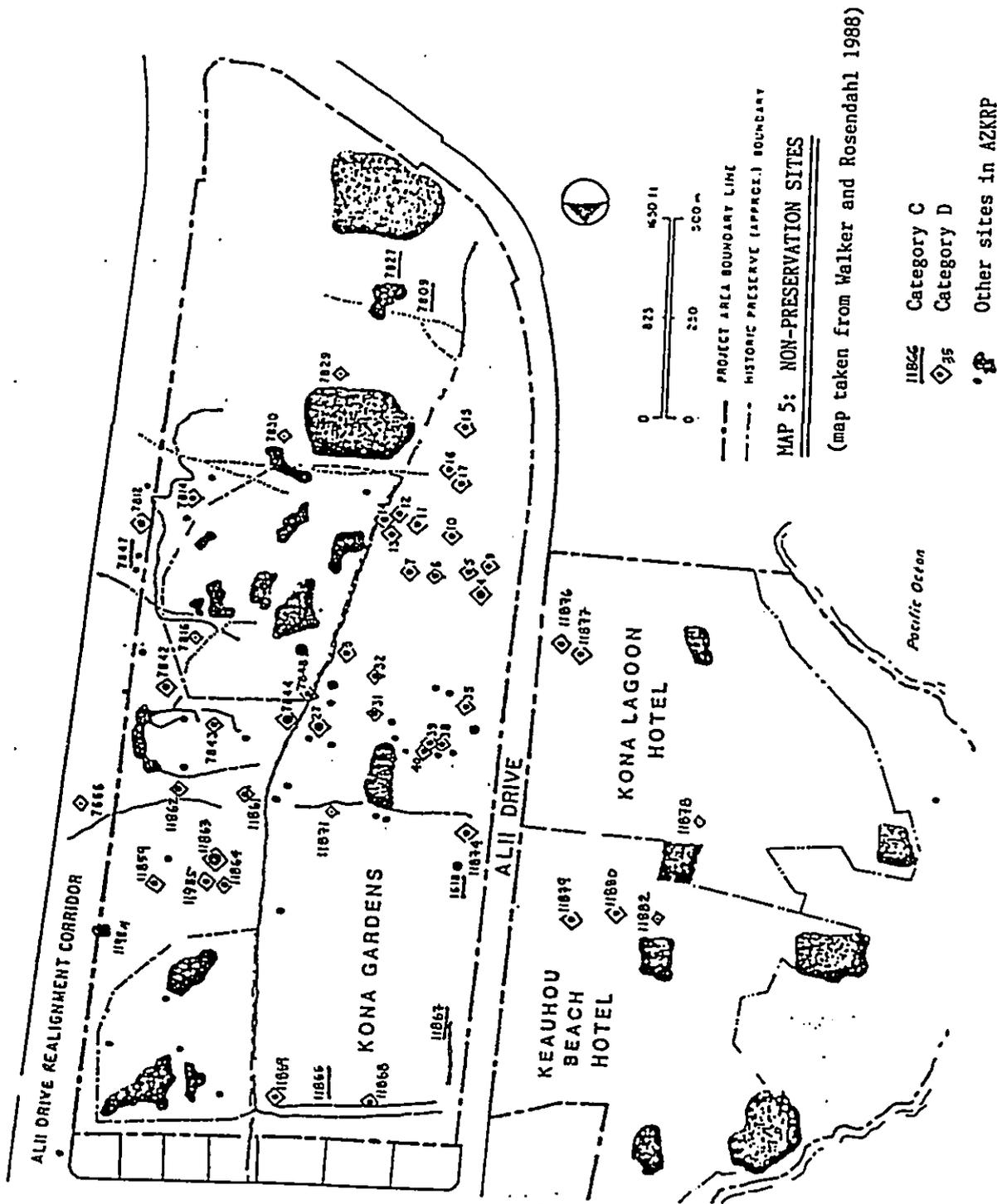
The overall cultural resource management planning for the Keauhou development (Tomonari-Tuggle 1985) suggests two management tracks for archaeological sites: a preservation track and a non-preservation track.

The preservation track is the planning process for sites that are intended for conservation/interpretation. These include the sites in Category A, and all those sites that are determined in the data recovery process to belong to Category B. Their locations are indicated in Map 4.

The non-preservation track is the planning process for sites that may be completely destroyed in the development of the project area. These include the sites in Categories C, D, and E. Their locations are indicated in Map 5.

In addition, the sites within the Historic Preserves are placed on the preservation track, regardless of their individual categorization. Any proposed changes in Historic Preserve boundaries or site inclusion must follow the procedures of the Hawaii County ordinance process (Nagata letter of 10/26/88), and this should be addressed in the Preservation Plan.

Following Data Recovery Phase I (see below), some sites, particularly those in Category B, may be recategorized.



Map 5. Non-preservation sites in AZKRP.

Table 2. "Action" Categories for AZKRP Archaeological Sites

-
- Category A: Sites recommended for preservation/interpretation, with appropriate data collection (Recommendations FDC and PID*).
- Category B: Sites recommended for preservation "as is" following a Phase I** data recovery determination of the presence of human interment (Recommendations FDC and PAI). Sites are thus provisionally placed in Category B. If data recovery establishes that no human interment is present, site may be appropriately reclassified.
- Category C: Sites recommended for data recovery, Phase I** adequate (Recommendation FDC* only).
- Category D: Sites recommended for Phase I** data recovery and Phase II** if appropriate (Recommendation FDC* only).
- Category E: Sites recommended for no additional work (Recommendation NFW*).
- Category F: (added to the Walker and Rosendahl grouping) Unnumbered isolated features, noted but not recorded, or yet to be recognized.
- Category U: Unrelocated sites (Rosendahl and Walker 1988), no recommendation.

For detailed category recommendations from Walker and Rosendahl 1988, see Appendix III.

Note: Category designations above (A-U) are not equivalent to significance categories (A,X,B,C) in Walker and Rosendahl (1988 Table 5).

* Action classification from Walker and Rosendahl 1988, Table 5:

- FDC: "Further data collection necessary (intensive survey and testing, and possible subsequent data recovery...);"
- PID: "Preservation with some level of interpretive development recommended (including appropriate related data recovery work)";
- PAI: "Preservation 'as is,' with no further work (and possible inclusion into landscaping), or minimal further data collection necessary";
- NFW: "No further work of any kind necessary...no preservation potential (possible inclusion in landscaping)."

** Data Recovery Phase I = intensive survey (detailed mapping, possible test excavation);
Data Recovery Phase II = intensive excavation.

Data Recovery Phases: General

Archaeological field data collection generally begins with reconnaissance survey, or the general identification of archaeological remains in a project area; the result is, minimally, an inventory of sites.

More intensive data collection is usually continued in two more phases, here termed Data Recovery Phase I (intensive survey, entailing detailed mapping and test excavation where appropriate), and Data Recovery Phase II (intensive excavation).

Data recovery for all sites is conducted within the framework of research questions for the region (defined below). However, the manner in which data recovery proceeds may vary depending on the management track of any site under investigation. This is discussed in detail below under AZKRP Data Recovery Program.

AZKRP: Research Questions and Data Collection

Research Themes

The CRMP for the entire Keauhou Resort Project identified eight major research topics, all related to the theme of the development of the ahupua'a as a traditional Hawaiian mechanism for socio-economic integration: settlement pattern, archaeological manifestations of the ahupua'a, nucleation and dispersal of settlements, marine resource exploitation, development of the agricultural systems, evolution of chiefdoms, archaeology and traditional history, and historical archaeology (Tomonari-Tuggle 1985:67-75; Walker and Rosendahl 1988:45).

For the parcels that have become part of the AZKRP, the CRMP suggests the following research issues: relationship of residential sites to the many heiau of the general area, the archaeological manifestation of the ahupua'a, evolution of chiefdoms, marine resource exploitation, and archaeology and traditional history (Tomonari-Tuggle 1985:153-154).

Further, the interpretive theme proposed for the general resort development was "the ali'i of Keauhou-Kahalu'u" (Tomonari-Tuggle 1985:60).

These various research questions were proposed based on the historical traditions, on the recognition of the elite associations with the archaeological remains of the region, and on the important archaeological research in the general area that identified archaeological manifestations of the development of elite power and conflict (e.g. Kirch 1973; Schilt 1984).

AZKRP Research: Central Research Issue

These various concerns can be summarized in one research issue directly related to sites within the AZKRP area: the development, use, and abandonment of elite habitation and religious centers.

The issue can be approached through a matrix analysis: one axis of the matrix is formed by a set of general problems, and the other axis is formed by questions oriented toward specific data-sets.

General Problems:

1. History of construction of complex habitation sites;
2. History of construction of religious sites;
3. Functional variation of complex habitation sites (e.g. dealing with the issue of identification of a "men's house");

4. Development of trails and ahupua'a boundaries;
5. Specialization in the occupation of caves;
6. History of subsistence, with possible inferences regarding association with development of the Kona Field System.
7. Settlement history, including initial occupation and occupational intensification.
8. Post-contact change in the elite occupational pattern.
9. History of abandonment.

Data-sets, Research Questions, Data Collection:

All research questions are devised within the framework of the general archaeological model presented in Appendix IV. These are data-specific questions that provide the avenues to understanding the larger questions of socio-cultural development identified above (these are conceptually the two axes of a problem matrix). The five specific data-sets considered below are sites, settlement, landscape, archival data, and chronometric data.

1. Site specific questions: occupation and functional history of individual sites:
 - Data collection: excavation (structural, artifactual, midden, and soil matrix data).
 - Data collection: mapping (size, volume, and configuration).

Analysis: Although all domains of site analysis will be evaluated (Appendix IV), special attention will be given to the occupational and socio-cultural characteristics of sites. Duration, intensity, and change of site occupation are measured by artifactual and structural variation. Occupational analysis follows the Sullivan model (1980, also see Appendix IV), in which, for example, "seasonal" vs "permanent" is part of a more complex characterization of occupational duration.

Socio-cultural characteristics involve types of cultural activities conducted at a site ("functional" analysis) and the character of the occupational group or groups, evaluated through the functional analysis of site features and artifacts.

Variability in artifact and midden content is an important consideration in both occupational and socio-cultural analysis. Quantitative variability analysis will be based on the J-score measure of diversity (Reid 1982; also see Appendix IV).

Specialized analyses will include age determinations (see below) and the identification of vertebrate faunal remains, charcoal, macro-botanical remains, and artifacts.

2. Settlement data: settlement history.

- Data collection: mapping and excavation data from excavation of specific sites;
- Data collection: in-field site relationship analysis (problem-oriented mapping).

Analysis:

- Settlement structure; trails, walls, and site/feature clustering; identification of the problems for settlement analysis created by "holes" in the data caused by modern activities; definitions of sites and site boundaries (appropriate feature inclusions/associations).
- Distributional pattern of habitation complexes, heiau, and burials.
- Comparison of settlement pattern above and below the Kuakini Wall, considering variation in time, function and complexity; comparative study of Kuakini Wall and the similar settlement boundary pattern found in Kohala (Tomonari-Tuggle 1981)
- Comparison of settlement houselot variation: houselot complexity, spatial organization in relation to heiau, and other specialized features (e.g. refuge cave entrances, cf. Walker and Rosendahl 1988).
- Heiau structural variation; comparison of heiau size, construction, and features; evaluation in light of traditional histories.

Analyses will entail locational studies, structural and quantitative feature comparisons, computer-aided pattern analysis, and feature/site complexity seriation.

3. Landscape data: landscape history.

The work by Schilt (1984) in the northern section of the North Kona District has clearly demonstrated the impact of the Kona Field System cultivation on the surrounding landscape, and the influence this had on site occupation and formation.

Data collection relevant to landscape history comes from archaeological site excavation, augmented by aerial photo analysis and excavation in non-site deposits.

4. Archives and the direct historical approach.

The archaeological history of an area extends to the present; the direct historical approach provides a specific set of data for field investigation relating to occupational history and site formation. For Kahalu'u some of this information includes: evidence of modern destruction of remains from earlier periods (indicating that settlement pattern analysis must take this into account); evidence for houses along the Kahalu'u coastline in 1928; historical evidence for settlements, including some Chinese, in the late 1800s; clear evidence in the land distribution records for occupation in the mid-1800s; and there are historical records and traditional histories that refer to specific events in the region.

Based on this range of information, it is necessary to look for evidence of the occupation during the last 200 years. At the same time it is not logical to assume (as is often done) that sites are "prehistoric" in the absence of direct data to that effect. In the AZKRP area several structures are located in property identified as 19th century Land Commission Awards, yet some reports identify these sites as "prehistoric" in age, ignoring the historical data.

Evaluation of the site data collected to date suggests that a substantial percentage of the sites of the AZKRP area have a significant post-contact component.

Data collection: archival search, followed by field study of historically identified locales. This is a critical element in identifying historical change, as well as in being able to better identify patterns that existed prior to contact.

5. Chronometric data.

Age determination is one of the most difficult tasks in archaeological research; it provides the foundation for the great majority of archaeological inferences, yet is often the weakest component of the data base.

Data collection: all materials suitable for age determination analysis are to be collected and subjected to as many evaluations as possible (see Appendix IV for discussion of age determinations). This includes material for radiocarbon and volcanic glass age determinations. All supporting forms of data need to be evaluated, from archival information to the assessment of excavation materials for the presence of historically introduced plants and animals (cf. Schilt 1984).

AZKRP Data Recovery Program

Data Recovery, Phase I:
Intensive Survey
(mapping and test excavations)

All sites in Categories A and B (preservation track; preservation data recovery--PDR) and all sites in Categories C and D (non-preservation track; non-preservation data recovery--NPDR) will be investigated through Phase I data recovery directed toward site and settlement characterization (see Appendix IV, A1 and B1), primarily related to: the evaluation of site potential for problem resolution; the establishment of a preliminary temporal framework; and evaluation of methods and appropriate sampling for intensive data recovery, and preliminary contribution to settlement analysis.

Further, sites in Category A will also be investigated for interpretive potential. Analysis of test excavation materials will be primarily qualitative in nature.

Data from preservation track sites will be compared carefully with data from non-preservation track sites in order to develop a strategy for Phase II data recovery. For example, intensive Phase II data recovery from non-preservation sites may provide appropriate and adequate information for the interpretation of preservation sites, requiring little PDR. Conversely, NPDR may suggest the presence of features at preservation sites that should be uncovered for interpretive purposes.

Phase I Data Recovery by Site
Category and Site Type (see Appendix I)

These summaries refer to sites not located in the two Historic Preserves; the Historic Preserves are treated as special cases and are dealt with in the Preservation Plan.

Category A: Preservation/Interpretation

For all sites: detailed mapping, with particular attention to evidence for site construction pattern, to relationship among features, and to relationship with other nearby sites; surface collection with point specific mapping; preliminary assessment of interpretive possibilities; assessment of scale of excavation (PDR) needed for various interpretive possibilities.

--For complexes: habitation/ceremonial (7828, 7841):

limited test excavations for assessment of site structure, possible presence of burials.

--For Ohia Cave (7962): detailed mapping, surface collection, and possible testing.

--For identified heiau (1619, 3817, 3818, 3819, 10997):

detailed mapping only; excavation at any level should be addressed in the Preservation Plan (taking into account HSS recommendations for sites 3817 and 10997--HSS 1986a, and 1986b). Mapping at Site 10997 should also take into account LCA archival data. Site 1619 is an exception; because of questions concerning its condition and nature, limited testing should be conducted to allow adequate site evaluation.

--For Kuakini Wall (6302/7276):

detailed mapping, evaluation of condition to determine "significant segments...to be preserved and restored" (Hawaii County Ordinance 820); determination of any areas suitable for Phase II study (PDR) relating to interpretation of wall construction, dating, and association with other sites.

--For petroglyphs (11875):

detailed mapping, and evaluation for interpretive potential. This is an extremely important set of petroglyphs because of its association with Keeku heiau and Stokes' suggestion (reported in Walker and Rosendahl 1988: A-73) that it is associated with an important event reported in the traditional histories.

--For platform (439-49):

detailed mapping and testing; determination of burial presence; evaluation of its relationship with site 7807.

--For pond, Po'o Hawaii (11881):

detailed mapping; sediment coring for pollen record.

Category B: Preservation "as is"

For all sites (see list in Appendix I): Detailed mapping and surface collection; limited work necessary to determine presence or absence of human interment. If human interment absence, site recategorized; analysis of any ceremonial features and evaluation of association with other sites/features

Category C: Non-preservation Sites; Limited Data Recovery

For all sites (see Appendix I): Detailed mapping, surface collection, and test excavation if appropriate: collection of all data necessary for site analysis; no Phase II data collection forseen. The one exception is site 7847; this site is reported to contain a burial and should thus be placed in another category.

Category D: Non-preservation Sites; Intensive Data Recovery

For all sites (see Appendix I): Detailed mapping, surface collection, and test excavation where possible; Phase I research primarily concerend with establishing strategy for Phase II data recovery; eg, determining depth and extent of deposits, datable material, appropriate sampling domains, etc.

Category E:

Sites require no Phase I or Phase II data recovery. However, they will be re-examined to confirm this assessment.

Category F:

Features that have been noted but not adequately recorded (e.g. Wallace and Rosendahl 1988: 75), will be recorded, categorized, and subjected to Phase I data recovery.

Category U:

If sites are relocated, they will be assessed for appropriate further investigations.

General Considerations

Any human interment located in Phase I DR will be left in place. If the interment is in a Category A or B site, all excavation materials will be properly replaced. If the interment is in a Category D or F site, determination will be made regarding Phase II requirements. If removal in Phase II proves necessary, proper treatment, analysis, and reinterment will be conducted (see Archaeological Standards and Practices, below).

All Phase I excavations will be properly back-filled or stabilized and protected.

It is unlikely that all Phase I work will be conducted as one project (see Appendix VII). A report will be prepared as each project is completed. For general excavation and recording procedures and for curation, see section following Data Recovery Phase II.

Phase II Data Recovery for
Non-Preservation Sites (NPDR)

All sites in Category D (and perhaps site 7827 from Category C): Phase II is intensive excavation designed to provide the data relevant to the problems identified above in the research framework. Questions and data recovery will follow the guidelines presented in "Data-sets, Research Questions, and Data Collection", particularly those under "Site specific" investigations. The results of Phase I testing will determine much of the strategy of excavation and excavation sampling.

The majority of these sites will ultimately be removed by development; thus the Phase II excavation will be the last archaeological data recovery possible. For this reason the research will need to be as exhaustive as possible to ensure collection of data adequate to answer the critical site-specific questions. Further, excavation in these sites may well be much more intensive than that in preservation track sites, in which case much of the data would be critical to the interpretive program.

Phase II Data Recovery for Preservation Sites (PDR) is not discussed here, but will be presented in detail in the Preservation Plan.

Archaeological Standards and Practices:
Phases I and II

All excavation and recording (including mapping and photography) will follow accepted archaeological standards, the guidelines of HSS (1987) and the particular standards of IARII. In addition, video recording will also be carried out.

Any burials that must be removed during fieldwork will be appropriately treated, analyzed, and reinterred, according to HRS, Chapter 338-25.5, and in accordance with Hawaii County Ordinance 820. A reinterment locale will be established prior to fieldwork. One recommendation has been made that a reinterment site for burials be established in a section of the proposed Ohia Cave historic preserve (Rosendahl 1985)

Preliminary reports will be prepared at the completion of each stage of fieldwork. A Final Phase I report will be completed at the end of all Phase I fieldwork. A Final Phase II (NPDR) report will be completed at the end of all non-preservation Phase II fieldwork. Final reports will include summaries of all specialized analyses.

All archaeological materials recovered during collection and excavation will be curated at the Department of Anthropology, University of Hawaii-Manoa, under agreement between the Department and IARII.

All records accumulated during fieldwork will be curated at the offices of IARII.

AZABU KEAUKOU RESORT PROJECT
PRELIMINARY SCOPE OF WORK FOR A
PRESERVATION PLAN FOR CULTURAL RESOURCES

Purpose

This document is a preliminary scope of work for the preparation of a Preservation Plan for the cultural resources associated with the property in North Kona, Island of Hawaii being developed by the Azabu Keauhou Resort Project.

The Preservation Plan will be a part of the cultural resource management process involved in the development of the entire Keauhou Resort Project area, as indicated in Hawaii County Ordinance 820, by the Keauhou Resort Cultural Resource Management Plan (Tomonari-Tuggle 1985), and by consultation with the staff of the Hawaii County Planning Department and of the Historic Sites Section of the Department of Land and Natural Resources, State of Hawaii.

The Preservation Plan will complement the General Archaeological Data Recovery Plan (GDRP) prepared for the Azabu Keauhou Resort Project. The Preservation Plan is intended to establish the plans for the conservation, protection, and interpretation of the archaeological sites of the AZKRP property, and to identify a program for additional cultural resource collection and management.

Archaeological Sites

The archaeological sites that are to be considered for the Preservation Plan include those that have been placed in the "preservation" category by prior work, as summarized in the GDRP (Appendix II). Their locations are indicated in Map 4.

Outline of Tasks

Tasks to be performed in preparation of a Preservation Plan for the cultural resources of the AZKRP area:

- I. Development of a preliminary program for site protection to serve immediately during pre-construction and construction activities.*

* It is recommended that an interim program for site protection be implemented as soon as possible, given the overall amount of activity in the area today.

II. Formalization of background data and guidelines:

1. Obtain AZKRP development overview, phasing, and long-term goals.
2. Clarify guidelines for establishing buffers for Historic Preserves.
3. Identify the scale of the interpretive program to be developed.

III. Evaluate adequacy of cultural resource information, including archaeological data, archival materials, and oral history data.

IV. Outline scope and character of interpretive program.

V. Preparation of protection plan:

- 1:
 - A. Identify development impacts, short-term and long-term, on preservation sites and the means to mitigate these impacts, including delineation of buffer zones and periodic monitoring.
 - B. Identify means to comply with Hawaii County Ordinance 820 stipulation for the protection of unanticipated sites uncovered during grading and/or grubbing.
2. Identify any maintenance measures needed.
3. Identify measures for special protection of burial sites against vandalism.

VI. Interpretive Plan: data collection and analysis program:

- 1:
 - A. Complete any Phase I data recovery for preservation sites not accomplished under other programs; minimally this will include the detailed mapping of the Historic Preserves (CRMP), not included in actions of the GDRP.
 - B. Determine if any changes in Historic Preserves are needed.
 - C. Finalize list of preservation sites and their appropriate categories.
2. Conduct final archival research, if necessary.
3. Conduct settlement study and prepare preliminary settlement analysis designed to answer problems defined in the research section of the GDRP. This may involve problem-oriented mapping and aerial photo analysis. (Note: this is a critical step in the analytical process. All of the other research as presently defined is site-specific. This step is necessary for the synthesis of all data.)
4. Prepare a place name analysis. Such an analysis may provide an understanding of some dimensions of the history of an area unavailable through any other source. For example, the occurrence of "Umi" in place names of

the region is suggestive, as is the name Papakoholua for a heiau in the Keauhou-Kahalu'u area, an area traditionally associated with royal births.

5. Prepare a preliminary summary of the prehistory and history of the AZKRP area, with a region-wide perspective, and an associated interpretive theme for the AZKRP preservation sites.
6. Prepare a data recovery plan (Phase II) for preservation sites, related to interpretation and stabilization (see e.g. HSS 1986a and 1986b).
7. Complete Phase II data recovery.
8. Prepare final synthesis of AZKRP area cultural history.

VII: Interpretive Plan: Public interpretation.

1. Prepare a public interpretation program for the preservation sites, in the framework of Item IV, and based on the synthesis of Item VI.8.
2. Include specifications for all interpretive features and facilities.
3. Include details of public access, parking, accomodation.

VIII: Prepare final preservation plan, containing protection plan and interpretive plan.

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APPENDIX I-A

AZKRP SITE LISTING: ALL SITES BY CATEGORY

Key: AC=Action Category: A=preservation/interpretation;
 B=preservation "as is", w/verification;
 C=Phase I data recovery; no Phase II;
 D=Phase I and Phase II data recovery;
 E=no further action;
 F=unrecorded, need Phase I;
 U=unrelocated

1-8: Classification from Walker and Rosendahl 1988, Table 5:
 1=A, 2=X, 3=B, 4=C, 5=FDC, 6=NFW, 7=PID, 8=PAI.

(Note: these letter classifications and those above in
 CAT are not equivalent.)

OTHERNO=temporary numbers in Rosendahl and Walker 1988);
 N=located in North Historic Preserve;
 S=located in South Historic Preserve;

BCA=Sites identified for Data Recovery Project 1 (Appendix VII)

SITENO	AC	SITETYPE	1	2	3	4	5	6	7	8	OTHERNO	N	S	BCA
01619	A	HEIAU	X											
03817	A	HEIAU	X	X	X	X			X					X
03818	A	HEIAU	X	X	X	X			X					X
03819	A	HEIAU	X	X	X	X			X					X
04618	A	TRAIL	X	X	X	X			X					X
06302	A	KUAKINI WALL	X	X	X	X			X				X	
07662	A	COMPLEX:HAB/CER	X	X	X	X			X					X
07807	A	COMPLEX:HAB/CER	X	X	X	X			X			X		
07815	A	COMPLEX:HAB	X	X	X	X			X			X		
07817	A	COMPLEX:HAB	X	X	X	X			X				X	
07818	A	TRAIL	X	X	X	X			X				X	
07828	A	COMPLEX:HAB/CER	X	X	X	X			X				X	
07834	A	COMPLEX (BURIAL)	X	X	X	X			X					
07835	A	COMPLEX (BURIAL)	X	X	X	X			X				X	
07836	A	COMPLEX:HAB.	X	X	X	X			X				X	
07838	A	COMPLEX:HAB	X	X	X	X			X				X	
07839	A	COMPLEX:HAB(BUR.)	X	X	X	X			X				X	
07841	A	COMPLEX:HAB/CER	X	X	X	X			X				X	
07846	A	HAB.TUBE (BURIAL)	X	X	X	X			X					X
07962	A	HAB.TUBE (BURIAL)	X	X	X	X			X			X		
10997	A	HEIAU	X	X	X	X			X					
439-49	A	PLATFORM (BURIAL)	X	X	X	X			X					X
11881	A	POND/HAB	X	X	X	X			X					
11875	A	PETROGLYPHS	X	X	X	X			X	439-53				X
07659	B	TERRACE (BURIAL)	X	X	X	X			X	439-54				X
07813	B	COMPLEX (BURIAL)	X	X	X				X			X		
07832	B	COMPLEX (BURIAL)	X	X	X				X					
07840	B	TERRACE (BURIAL)	X	X	X				X					
07845	B	MOUND (BURIAL)	X	X	X				X					
11860	B	MOUND (BURIAL)	X	X	X				X					
11865	B	COMPLEX:HAB/CER	X	X	X				X	T-104				X
439-02	B	COMPLEX:HAB/CER	X	X	X				X	439-01				X
439-14	B	TERRACE (BURIAL)	X	X	X				X					
11870	B	MOUND (BURIAL)	X	X	X				X					
439-25	B	PLATFORM (BURIAL)	X	X	X				X	439-22			X	
439-26	B	COBBLE-F (BURIAL)	X	X	X				X					
439-28	B	COBBLE-F (BURIAL)	X	X	X				X					
439-29	B	TERRACE (BURIAL)	X	X	X				X					
439-30	B	TERRACE (BURIAL)	X	X	X				X					

Appendix I-A: continued

439-33	B PLATFORM (BURIAL)	X	X	X		
439-34	B PLATFORM (BURIAL)	X	X	X		
439-36	B PLATFORM (BURIAL)	X	X	X		
439-37	B PLATFORM (BURIAL)	X	X	X		
439-41	B COBBLE-F (BURIAL)	X	X	X		
439-42	B COBBLE-F (BURIAL)	X	X	X		
439-44	B COBBLE-F (BURIAL)	X	X	X		
11872	B MOUND (BURIAL)	X	X	X	439-46	X
11873	B BURIAL-LAVA CRACK	X	X	X	439-47	X
01618	C PETROGLYPHS	X	X	X		X
07809	C TRAIL	X	X	X		
07827	C COMPLEX:HAB/CER	X	X	X		
07837	C PLATFORM (BURIAL)	X	X	X		X
07847	C PLATFORM (BURIAL)	X	X	X		
11866	C TRAIL	X	X	X	439-18	X
11867	C ROAD	X	X	X	439-19	X
07666	D CART ROAD	X	X	X		X
07808	D COMPLEX:HAB/CER	X	X	X		X
07812	D COMPLEX:HAB	X	X	X		
07814	D HAB.CAVE	X	X	X		
07816	D BOUNDARY WALL	X	X	X		X
07825	D COMPLEX:HAB	X	X	X		X
07826	D HAB.CAVE	X	X	X		X
07829	D COMPLEX:HAB/CER	X	X	X		
07830	D COMPLEX:HAB	X	X	X		
07842	D COMPLEX:HAB	X	X	X		
07843	D TERRACE:HAB/CER	X	X	X		X
07844	D TERRACE:HAB/CER	X	X	X		
07848	D HAB.TUBE	X	X	X		
T-102	D RUBBLE W/MOUNDS	X	X	X		X
11859	D COMPLEX:HAB	X	X	X	T-103	X
11861	D WALL	X	X	X	T-105	X
11862	D COMPLEX:HAB	X	X	X	T-106	X
11863	D COMPLEX:HAB	X	X	X	T-107	X
T-108	D TERRACE:IND	X	X	X		X
11864	D TERRACE:HAB	X	X	X	T-109	X
439-03	D TERRACE:HAB	X	X	X		
439-04	D TERRACE:HAB	X	X	X		
439-05	D TERRACE:HAB	X	X	X		
439-07	D TERRACE:HAB	X	X	X		
439-06	D L-SHP WALL	X	X	X		
439-09	D WALL FOUND-HAB	X	X	X		
439-10	D COMPLEX:HAB	X	X	X		
439-11	D TERRACE:HAB	X	X	X		
439-12	D TERRACE:HAB	X	X	X		
439-13	D ENCL:HAB	X	X	X		
439-15	D L-SHAPED WALL	X	X	X		
439-16	D TERRACE:HAB	X	X	X		
439-17	D MOUND:IND	X	X	X		
11868	D HAB.CAVE	X	X	X	439-20	X
11869	D HAB.TUBE	X	X	X	439-21	X
11871	D BOUNDARY WALL	X	X	X	439-23	X
439-27	D PLATFORM:HAB	X	X	X		
439-31	D TERRACE:HAB	X	X	X		
439-32	D TERRACE?/HAB?	X	X	X		
439-35	D TERRACE:HAB	X	X	X		
439-38	D TERRACE:HAB	X	X	X		
439-39	D TERRACE:HAB	X	X	X		
439-40	D PAPAMU	X	X	X		
11874	D PETROGLYPHS	X	X	X	439-48	X

Appendix I-A: continued

11878	D MIDDEN	X	X	439-50	X
11879	D WELL	X	X	439-51	X
11880	D WELL	X	X	439-52	X
11876	D WALL	X	X	439-55	X
11877	D HAB "YARD"	X	X	439-56	X
11882	D ENCL: HAB	X	X	439-57	X
07831	E BOUNDARY WALL	X	X		
07833	E ENC: HAB	X	X		
439-08	E L-SHAPE WALL	X	X		
439-24	E BEDROCK MORTAR	X	X		
439-43	E BEDROCK MORTAR	X	X		
(01616)	U				
(D4-52)	U				
(D4-53)	U				
(16)	U				
(33)	U				

Report count: 116

APPENDIX I-B

AZKRP SITE LISTING: ALL SITES BY NUMBER

Key: see Appendix I-A.

SITENO	AC	SITETYPE	OTHERNO	NOTES	BCA
(01616)	U				
(16)	U			unrelocated; exc-B	
(33)	U			unrelocated	
(D4-52)	U			unrelocated	
(D4-53)	U			unrelocated; Keawahala pond	
01618	C	PETROGLYPHS		unrelocated	
01619	A	HEIAU		Papakoholua	X
03817	A	HEIAU		Hapaialii	X
03818	A	HEIAU		Keeku	X
03819	A	HEIAU		Makole'a	X
04618	A	TRAIL			X
06302	A	KUAKINI WALL			
07276				also 7276	
07659	B	TERRACE (BURIAL)		see 6302	X
07662	A	COMPLEX:HAB/CER		CER	
07666	D	CART ROAD		Historical	
07807	A	COMPLEX:HAB/CER		Heiau? Burial?	X
07808	D	COMPLEX:HAB/CER		CER	
07809	C	TRAIL		Prehistoric	
07812	D	COMPLEX:HAB			
07813	B	COMPLEX (BURIAL)			
07814	D	HAB.CAVE			
07815	A	COMPLEX:HAB			
07816	D	BOUNDARY WALL		Prehistoric?	
07817	A	COMPLEX:HAB			
07818	A	TRAIL		Prehistoric?	
07825	D	COMPLEX:HAB.			
07826	D	HAB.CAVE			
07827	C	COMPLEX:HAB/CER		CER: assoc/trails; change AT	
07828	A	COMPLEX:HAB/CER		CER: exc-H, 81	
07829	D	COMPLEX:HAB/CER		CER: exc H-81	
07830	D	COMPLEX:HAB			
07831	E	BOUNDARY WALL		Prehistoric?	
07832	B	COMPLEX (BURIAL)			
07833	E	ENC:HAB			
07834	A	COMPLEX (BURIAL)			
07835	A	COMPLEX (BURIAL)			
07836	A	COMPLEX:HAB.			
07837	C	PLATFORM (BURIAL)		w/ papamu	
07838	A	COMPLEX:HAB		Built over lava tube	
07839	A	COMPLEX:HAB (BUR.)			
07840	B	TERRACE (BURIAL)		w/ cave feature	
07841	A	COMPLEX:HAB/CER		Heiau?, Inter Potent	X
07842	D	COMPLEX:HAB.			
07843	D	TERRACE:HAB/CER		CER	
07844	D	TERRACE:HAB/CER		CER	X
07845	B	MOUND (BURIAL)			
07846	A	HAB.TUBE (BURIAL)			
07847	C	PLATFORM (BURIAL)			
07848	D	HAB.TUBE		exc. H-81	
07962	A	HAB.TUBE (BURIAL)			
10997	A	HEIAU		Ohoa Cave	
11859	D	COMPLEX:HAB	T-103	Kapuanoni; LCA 6026:1	X
11860	B	MOUND (BURIAL)	T-104		X
11861	D	WALL	T-105	Prehistoric?	X

Appendix I-B: continued

11862	D COMPLEX:HAB	T-106		X
11863	D COMPLEX:HAB	T-107		X
11864	D TERRACE:HAB	T-109		X
11865	B COMPLEX:HAB/CER	439-01	CER, w/ cave feature	X
11866	C TRAIL	439-18	Makole'a trail:pre/hist	X
11867	C ROAD	439-19	Prehist/hist?	X
11868	D HAB.CAVE	439-20		X
11869	D HAB.TUBE	439-21		X
11870	B MOUND (BURIAL)	439-22		X
11871	D BOUNDARY WALL	439-23	Prehistoric?	X
11872	B MOUND (BURIAL)	439-46		X
11873	B BURIAL-LAVA CRACK	439-47		X
11874	D PETROGLYPHS	439-48		X
11875	A PETROGLYPHS	439-54		X
11876	D WALL	439-55		X
11877	D HAB"YARD"	439-56	LCA 5632-1	X
11878	D MIDDEN	439-50	LCA 5966, near LCA 5694-1	X
11879	D WELL	439-51	Prehistoric/hist?	X
11880	D WELL	439-52	Prehistoric/hist?	X
11881	A POND/HAB	439-53	Po'o Hawaii; LCA 6026-2	X
11882	D ENCL:HAB	439-57	LCA 15693?	X
439-02	B COMPLEX:HAB/CER		Cer	X
439-03	D TERRACE:HAB.			
439-04	D TERRACE:HAB.			
439-05	D TERRACE:HAB.		exc by ?	
439-06	D L-SHP WALL			
439-07	D TERRACE.HAB.			
439-08	E L-SHAPE WALL			
439-09	D WALL FOUND-HAB			
439-10	D COMPLEX:HAB			
439-11	D TERRACE:HAB.			
439-12	D TERRACE:HAB.			
439-13	D ENCL:HAB.		w/cave	
439-14	B TERRACE (BURIAL)			
439-15	D L-SHAPED WALL			
439-16	D TERRACE:HAB		w/cave	
439-17	D MOUND:IND			
439-24	E BEDROCK MORTAR			
439-25	B PLATFORM (BURIAL)			
439-26	B COBBLE-F (BURIAL)			
439-27	D PLATFORM:HAB.			
439-28	B COBBLE-F (BURIAL)			
439-29	B TERRACE (BURIAL)			
439-30	B TERRACE (BURIAL)			
439-31	D TERRACE:HAB			
439-32	D TERRACE?/HAB?			
439-33	B PLATFORM (BURIAL)			
439-34	B PLATFORM (BURIAL)			
439-35	D TERRACE:HAB			
439-36	B PLATFORM (BURIAL)			
439-37	B PLATFORM (BURIAL)			
439-38	D TERRACE:HAB			
439-39	D TERRACE:HAB			
439-40	D PAPAMU			
439-41	B COBBLE-F (BURIAL)			
439-42	B COBBLE-F (BURIAL)			
439-43	E BEDROCK MORTAR			
439-44	B COBBLE-F (BURIAL)			
439-49	A PLATFORM (BURIAL)			
T-102	D RUBBLE W/MOUNDS		unrecorded feature	X
T-108	D COMPLEX:IND			X

APPENDIX II

AZKRP PRESERVATION SITES

Sites in Categories A or B, or
Sites in Historic Preserves
Key: see Appendix I-A

SITES IN STUDY AREA 2 (NON-HISTORIC PRESERVE):

Siteno	AC Sitetype	BCA
01619	A HEIAU	X
06302	A KUAKINI WALL	X
07828	A COMPLEX:HAB/CER	
07841	A COMPLEX:HAB/CER	X
07962	A HAB.TUBE (BURIAL)	
439-49	A PLATFORM (BURIAL)	
07813	B COMPLEX (BURIAL)	
07832	B COMPLEX (BURIAL)	
07840	B TERRACE (BURIAL)	
07845	B MOUND (BURIAL)	
11860	B MOUND (BURIAL)	X
11865	B COMPLEX:HAB/CER	X
439-02	B COMPLEX:HAB/CER	
439-14	B TERRACE (BURIAL)	
11870	B MOUND (BURIAL)	X
439-25	B PLATFORM (BURIAL)	
439-26	B COBBLE-F (BURIAL)	
439-28	B COBBLE-F (BURIAL)	
439-29	B TERRACE (BURIAL)	
439-30	B TERRACE (BURIAL)	
439-33	B PLATFORM (BURIAL)	
439-34	B PLATFORM (BURIAL)	
439-36	B PLATFORM (BURIAL)	
439-37	B PLATFORM (BURIAL)	
439-41	B COBBLE-F (BURIAL)	
439-42	B COBBLE-F (BURIAL)	
439-44	B COBBLE-F (BURIAL)	
11872	B MOUND (BURIAL)	X
11873	B BURIAL-LAVA CRACK	X

SITES IN STUDY AREA 2 SOUTH HISTORIC PRESERVE:

SiteNo	AC Sityetype	BCA
04618	A TRAIL	
07815	A COMPLEX:HAB	
07817	A COMPLEX:HAB	
07818	A TRAIL	
07834	A COMPLEX (BURIAL)	
07835	A COMPLEX (BURIAL)	
07836	A COMPLEX:HAB.	
07838	A COMPLEX:HAB	
07839	A COMPLEX:HAB (BUR.)	
07846	A HAB.TUBE (BURIAL)	
07837	C PLATFORM (BURIAL)	
07816	D BOUNDARY WALL	

SITES IN STUDY AREA 2: NORTH HISTORIC PRESERVE:

SiteNo	AC Sitetype	BCA
07662	A COMPLEX:HAB/CER	
07807	A COMPLEX:HAB/CER	
07659	B TERRACE (BURIAL)	
07808	D COMPLEX:HAB/CER	
07825	D COMPLEX:HAB.	
07826	D HAB.CAVE	

SITES IN STUDY AREA 3:

SiteNo	AC Sitetype	BCA
03817	A HEIAU	X
03818	A HEIAU	X
03819	A HEIAU	X
10997	A HEIAU	X
11881	A POND/HAB	X
11875	A PETROGLYPHS	X

Note: Site 439-49 not listed as a Historic Preserve site (Walker and Rosendahl 1988), but it is located within the boundary of the North Historic Preserve.

APPENDIX III

PREVIOUS SITE RECOMMENDATIONS
(from Walker and Rosendahl 1988:47-50)

SUMMARY OF GENERAL SIGNIFICANCE ASSESSMENTS
AND RECOMMENDED GENERAL TREATMENTS
AZABU KEAUKOU RESORT PROJECT AREA

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
1619	+	-	+	+	+	-	+	-
3817	+	-	+	+	+	-	+	-
3818	+	-	+	+	+	-	+	-
3819	+	-	+	+	+	-	+	-
4618	+	-	+	+	+	-	+	-
6302/7276	+	-	+	+	+	-	+	-
7662	+	-	+	+	+	-	+	-
7807	+	-	+	+	+	-	+	-
7815	+	-	+	+	+	-	+	-
7817	+	-	+	+	+	-	+	-
7818	+	-	+	+	+	-	+	-
7828	+	-	+	+	+	-	+	-
7834	+	-	+	+	+	-	+	-
7835	+	-	+	+	+	-	+	-
7836	+	-	+	+	+	-	+	-
7838	+	-	+	+	+	-	+	-
7839	+	-	+	+	+	-	+	-
7841	+	-	+	+	+	-	+	-
7846	+	-	+	+	+	-	+	-
7862	+	-	+	+	+	-	+	-

General Significance Categories:

- A=Important for information content, further data collection necessary (PHRI=research value);
- X=Important for information content, no further data collection necessary (PHRI=research value, SHPD=not significant);
- B=Excellent example of site type at local, region, island, State, or National level (PHRI=interpretive value); and
- C=Culturally significant (PHRI=cultural value).

Recommended General Treatments:

- FDC=Further data collection necessary (intensive survey and testing, and possibly subsequent data recovery/mitigation excavations);
- NFW=No further work of any kind necessary, sufficient data collected, archaeological clearance recommended, no preservation potential (possible inclusion into landscaping suggested for consideration);
- PID=Preservation with some level of interpretive development recommended (including appropriate related data recovery work); and
- PAI=Preservation "as is," with no further work (and possible inclusion into landscaping), or minimal further data collection necessary.

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
10997	+	-	+	+	+	-	+	-
439-49	+	-	+	+	+	-	+	-
439-53	+	-	+	+	+	-	+	-
439-54	+	-	+	+	+	-	+	-
Subtotal:	24	0	24	24	24	0	24	0
7659	+	-	-	*	+	-	-	*
7813	+	-	-	*	+	-	-	*
7832	+	-	-	*	+	-	-	*
7840	+	-	-	*	+	-	-	*
7845	+	-	-	*	+	-	-	*
T-104	+	-	-	*	+	-	-	*
439- 1	+	-	-	*	+	-	-	*
439- 2	+	-	-	*	+	-	-	*
439-14	+	-	-	*	+	-	-	*
439-22	+	-	-	*	+	-	-	*
439-25	+	-	-	*	+	-	-	*
439-26	+	-	-	*	+	-	-	*
439-28	+	-	-	*	+	-	-	*
439-29	+	-	-	*	+	-	-	*
439-30	+	-	-	*	+	-	-	*
439-33	+	-	-	*	+	-	-	*
439-34	+	-	-	*	+	-	-	*
439-36	+	-	-	*	+	-	-	*
439-37	+	-	-	*	+	-	-	*
439-41	+	-	-	*	+	-	-	*
439-42	+	-	-	*	+	-	-	*
439-44	+	-	-	*	+	-	-	*
439-46	+	-	-	*	+	-	-	*
439-47	+	-	-	*	+	-	-	*
Subtotal:	24	0	0	24	24	0	0	24
1618	+	-	-	+	+	-	-	-
7809	+	-	-	+	+	-	-	-
7827	+	-	-	+	+	-	-	-
7837	+	-	-	+	+	-	-	-
7847	+	-	-	+	+	-	-	-
439-18	+	-	-	+	+	-	-	-
439-19	+	-	-	+	+	-	-	-
Subtotal:	7	0	0	7	7	0	0	0

*Provisional assessment; definite assessment pending further data collection (i.e., testing for presence/absence of skeletal remains).

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
7666	+	-	-	-	+	-	-	-
7808	+	-	-	-	+	-	-	-
7812	+	-	-	-	+	-	-	-
7814	+	-	-	-	+	-	-	-
7816	+	-	-	-	+	-	-	-
7825	+	-	-	-	+	-	-	-
7826	+	-	-	-	+	-	-	-
7829	+	-	-	-	+	-	-	-
7830	+	-	-	-	+	-	-	-
7842	+	-	-	-	+	-	-	-
7843	+	-	-	-	+	-	-	-
7844	+	-	-	-	+	-	-	-
7848	+	-	-	-	+	-	-	-
T-102	+	-	-	-	+	-	-	-
T-103	+	-	-	-	+	-	-	-
T-105	+	-	-	-	+	-	-	-
T-106	+	-	-	-	+	-	-	-
T-107	+	-	-	-	+	-	-	-
T-108	+	-	-	-	+	-	-	-
T-109	+	-	-	-	+	-	-	-
439- 3	+	-	-	-	+	-	-	-
439- 4	+	-	-	-	+	-	-	-
439- 5	+	-	-	-	+	-	-	-
439- 6	+	-	-	-	+	-	-	-
439- 7	+	-	-	-	+	-	-	-
439- 9	+	-	-	-	+	-	-	-
439-10	+	-	-	-	+	-	-	-
439-11	+	-	-	-	+	-	-	-
439-12	+	-	-	-	+	-	-	-
439-13	+	-	-	-	+	-	-	-
439-15	+	-	-	-	+	-	-	-
439-16	+	-	-	-	+	-	-	-
439-17	+	-	-	-	+	-	-	-
439-20	+	-	-	-	+	-	-	-
439-21	+	-	-	-	+	-	-	-
439-23	+	-	-	-	+	-	-	-
439-27	+	-	-	-	+	-	-	-
439-31	+	-	-	-	+	-	-	-
439-32	+	-	-	-	+	-	-	-
439-35	+	-	-	-	+	-	-	-
439-38	+	-	-	-	+	-	-	-
439-39	+	-	-	-	+	-	-	-
439-40	+	-	-	-	+	-	-	-
439-48	+	-	-	-	+	-	-	-
439-50	+	-	-	-	+	-	-	-
439-51	+	-	-	-	+	-	-	-

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
439-52	+	-	-	-	+	-	-	-
439-55	+	-	-	-	+	-	-	-
439-56	+	-	-	-	+	-	-	-
439-57	+	-	-	-	+	-	-	-
Subtotal:	50	0	0	0	50	0	0	0
7831	-	+	-	-	-	+	-	-
7833	-	+	-	-	-	+	-	-
439-8	-	+	-	-	-	+	-	-
439-24	-	+	-	-	-	+	-	-
439-43	-	+	-	-	-	+	-	-
Subtotal:	0	5	0	0	0	5	0	0
Total:	105	5	24	55	105	5	24	24

APPENDIX IV

GENERAL MODEL OF ARCHAEOLOGICAL RESEARCH QUESTIONS
(DATA-SET ANALYSIS)

A. SITES: Occupational and Functional History

1. Archaeological, site composition (or structure): extent of deposits; depth and stratification of deposits; artifact and midden density; presence of features; presence of datable materials; preservation conditions; disturbance. Understanding the archaeological structure of sites is a step in evaluating sites for their potential contribution to anthropological/historical problems.
2. Event analysis, determination of the types of natural and cultural events that created a site; depositional and erosional processes; cultural events (construction, trash deposition, storage, etc.).
3. Occupational analysis, history and nature of site occupation; duration, intensity, change; measured by age determination techniques, stratigraphic analysis, artifact and feature variability (see Sullivan model, below).
4. Socio-cultural analysis: types of cultural activities conducted at the site, and character of the occupation groups; measured by functional and comparative analysis of features, artifacts, and sites.
5. Historical analysis: identification of historically known events or occupations; association with activities of historically known persons.

B: REGION: Settlement History

1. Archaeological: characterization of sites of region in terms of their archaeological site structure and related potential for their contribution to anthropological/historical questions; size of region under consideration and relation to scale of research questions; site preservation/destruction in region; potential for undiscovered sites (buried sites, underwater sites, beneath modern construction, etc.).
2. Settlement configuration: patterns of settlement in broad terms, including environmental associations.
3. Settlement development analysis: patterns of settlement change.
4. Socio-cultural analysis at the regional level.
5. Historical analysis at the regional level.

C. LANDSCAPE: Landscape History

Landscape and human activity relationship; analysis through

geomorphological studies, including site and non-site deposit analysis.

D. ARCHIVES and the Direct Historical Approach

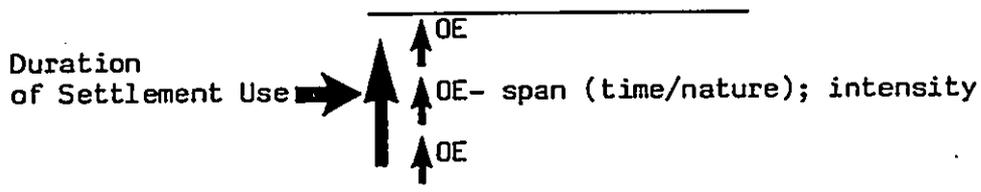
The use of historical sources to establish a research framework and potentially identify specific sites/structures referenced in historic documents.

E. Datable Materials

Age determination is one of the most difficult of archaeological inferences. Hawaiian site age determinations require large numbers of radiocarbon age determinations. Though use of volcanic glass will not be discounted, uncertainties in its application as a reliable chronometric technique suggest that it should not be the primary source of dates.

F: SPECIAL MODELS: Sullivan Occupation Model AND J-SCORE

Occupational Variability (adapted with modification from Sullivan --1980)



Duration: total length of site occupation, all OEs;
 Occupation episode: one period of occupation;
 Number of OEs: 1 to n;
 Span (time): length of an OE;
 Span (nature, following Beardsley, et. al 1956): ephemeral; temporary, seasonal, semipermanent, permanent.
 Intensity: group size/OE; or differences in activities performed/person/OE; one possible measurement is the J-score, used for the measure of occupational diversity.

* * * * *

J-score Measure of Diversity (Reid 1982: 196-202)

$$J = \frac{H}{H_{max}} \quad H = \frac{n \log n - \sum_{i=1}^k f_i \log f_i}{n}$$

$$H_{max} = \log k$$

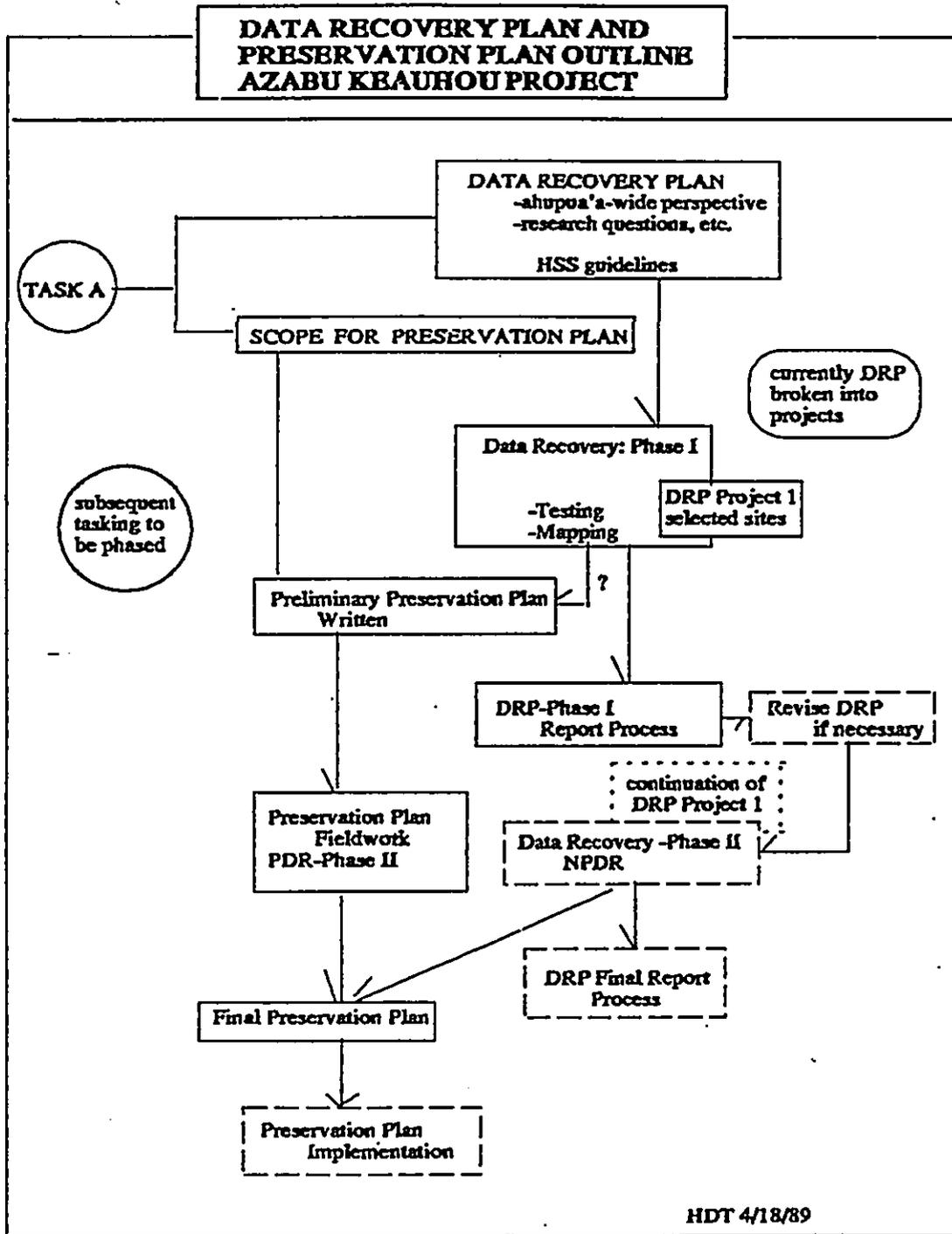
where: 1. n = sample size; 2. f_i = number of observations in category i ; 3. k = number of categories; 4. any log base (e.g.10). J-score of 1.00 represents maximum diversity.

APPENDIX V

ACRONYMS

AZKRP	Azabu Keauhou Resort Project
BCA	Belt Collins and Associates
CRMP	"Cultural Resource Management Plan for the Keauhou Resort" (Tomonari-Tuggle 1985)
GDRP	AZKRP General Archaeological Data Recovery Plan
HCPD	Hawaii County Planning Dept.
HSS	Historic Sites Section, D.L.N.R, State of Hawaii
IARII	International Archaeological Research Institute, Inc.
KIC	Kamehameha Development Corporation
LCA	Land Commission Award
NPDR	Non-preservation data recovery
PRD	Preservation data recovery

APPENDIX VI
PROPOSED ACTIVITY/TASK SCHEDULE



APPENDIX VII

OUTLINE SCOPE OF WORK FOR AZKRP DATA RECOVERY,
PROJECT 1 (36 SITES)

Introduction

Belt Collins and Associates (BCA), planners for AZKRP development, originally listed 34 archaeological sites for data recovery in the near future (Table VII-1); however, this list has now been expanded to 36 (Table VII-2; Map VII-1).

The AZKRP area contains a total of 110 recorded archaeological sites, of which 105 are subject to further data recovery (Walker and Rosendahl 1988; Nagata letter 10/26/88). These 105 fall into four categories:

- A. preservation/interpretation;
- B. preservation (burials), subject to verification;
- C. non-preservation, Phase I data recovery;
- D. non-preservation, Phase I and Phase II data recovery.

The AZKRP General Archaeological Data Recovery Plan (GDRP) presents the research design, management tracks, and data recovery phases in reference to these sites. In addition, a Preservation Plan, referring to Category A and B sites, has been outlined. With approval of the GDRP, Phase I data recovery can proceed on all sites and Phase II data recovery can proceed on Category D sites. Under guidelines from the Historic Sites Section of D.L.N.R., Phase II data recovery on preservation sites (Categories A and B) with the completion and approval of the Preservation Plan.

For planning purposes, BCA has separated sites into landward (mauka) and seaward (makai) parcels.

With this overall planning structure taken into consideration, the present AZKRP Data Recovery, Project 1 is organized to allow work on sets of sites as specific tasks to allow easy reference in scopes of work.

Project 1 Data Recovery Tasks (36 sites)

All work is conducted according to the research problems and guidelines specified in the GDRP; specific work identified in the present scope is a brief summary and not intended to be exhaustive.

Task 1: Phase I data recovery, landward (mauka) side of project area; all site categories.

Data recovery includes mapping and test excavation, unless otherwise indicated. All mapping includes surface collection of artifacts with point provenience information. All work will be undertaken with appropriate record keeping, photography, and videography.

Category A: Sites 1619: Heiau
6302: Kuakini Wall (mapping only)
7841: Complex: Habitation

Data collection oriented toward Phase II evaluation, preservation work.

Category B: Sites 11860: Burial mound (T-104)
11865: Complex: Hab (439-1)
11870: Burial mound (439-22)
11872: Burial mound (439-46)
11873: Burial, lava crack (439-47)

Data collection for burial verification.

Category C: Sites 1618: Petroglyphs (mapping only)
11866: Trail (439-18) (mapping only)
11867: Road (439-19) (mapping only)

Data collection intended to be complete.

Category D: Sites 7666: Cart road (mapping only)
7843: Complex: Hab.
11859: Complex: Hab. (T-103)
11861: Wall (T-105) (trenching)
11862: Complex: Hab. (T-106)
11863: Complex: Hab. (T-107)
11864: Complex: Hab. (T-109)
11868: Hab.cave (439-20)
11869: Hab.tube (439-21)
11871: Boundary wall (439-23)
11874: Petroglyphs (439-38) (mapping only)
11984: Rubble mounds (burial?; T-102)
11985: Complex: Ind. (T-108)

Data collection to establish guidelines for Phase II excavation strategy and sampling.

Note: official state site numbers have been assigned to all sites in the present group of 36; all numbers have the prefix 50-10-28.

Table VII-1: Belt, Collins and Associates Site Listing for DRP.

KEAUHOU ARCHAEOLOGICAL SITES NEEDING FURTHER DATA COLLECTION
 Belt Collins & Associates, October 6, 1988

Site No.	Type	Preserve w/ Interp Dev	Preserve "as is"	Detailed Recording	Surface Collection	Test Excavation	Comments
1618	Petroglyphs			X			
1619	Heiau	X			X	X	
3017	Heiau	X		X	X	X	
3818	Heiau	X		X	X	X	
3819	Heiau	X		X	X	X	Don't disturb/move anything
6302/7276	Boundary wall	X		X	X	X	Road thru wall somewhere betw sites 22824?
7666	Cart road			X			
7841	Complex-Habit/Cer	X		X	X	X	
7843	Terrace-Habit/Cer			X	X	X	Mispainted on map as site 4841?
10997	Heiau	X		X	X	X	
T-103	Complex-Habitation			X	X	X	
T-104	Burial mound			X	X	X	
T-105	Wall			X	X	X	
T-106	Complex-Habitation			X	X	X	
T-107	Complex-Habitation			X	X	X	
T-109	Terrace-Habitation			X	X	X	
439-1	Complex-Habit/Cer			X	X	X	
439-18	Trail			X	X	X	*Provisional assessment
439-19	Road			X			
439-20	Cave-Habitation			X	X	X	
439-21	Lava tube-Habit.			X	X	X	
439-22	Burial mound			X	X	X	
439-23	Boundary wall			X	X	X	*Provisional assessment
439-46	Burial mound			X			
439-47	Burial area			X	X	X	*Provisional assessment
439-48	Petroglyphs			X	X	X	*Provisional assessment
439-54	Petroglyphs	X		X			
439-55	Boundary wall			X			
439-56	House site			X			
439-50	Midden			X	X	X	
439-51	Well			X	X	X	
439-52	Well			X	X	X	
439-53	Pond			X	X	X	
439-57	Enclosure-Habit.	X		X	X	X	

Map VII-1

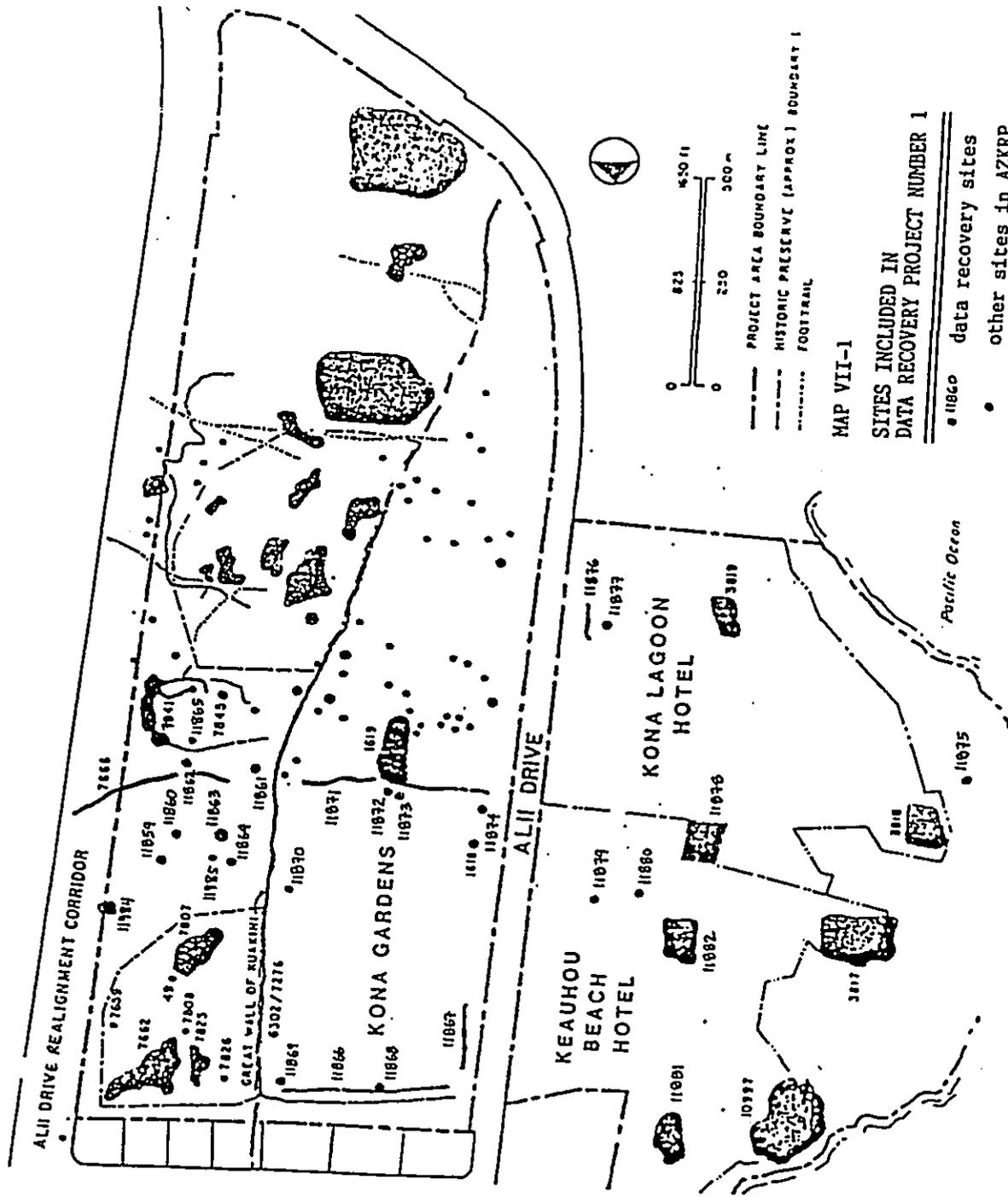


Table VII-2: Data Recovery Project 1 Sites

Site no.	"Action" Category	Site Type	Location	Other no.
01618	C	PETROGLYPH	2	-
01619	A	HEIAU	2	-
03817	A	HEIAU	3	-
03818	A	HEIAU	3	-
03819	A	HEIAU	3	-
06302	A	KUAKINI WALL	2	-
07666	D	CART ROAD	2	-
07841	A	COMPLEX: HAB	2	-
07843	D	TERRACE: HAB	2	-
10997	A	HEIAU	3	-
11859	D	COMPLEX: HAB	2	T-103
11860	B	BURIAL MOUND	2	T-104
11861	D	WALL	2	T-105
11862	D	COMPLEX: HAB	2	T-106
11863	D	COMPLEX: HAB	2	T-107
11864	D	COMPLEX: HAB	2	T-109
11865	B	COMPLEX: HAB	2	439-01
11866	C	TRAIL	2	439-18
11867	C	ROAD	2	439-19
11868	D	HAB. CAVE	2	439-20
11869	D	HAB. TUBE	2	439-21
11870	-B	BURIAL MOUND	2	439-22
11871	D	BOUNDARY WALL	2	439-23
11872	B	BURIAL MOUND	2	439-46
11873	B	BURIAL-LAVA CK	2	439-47
11874	D	PETROGLYPHS	2	439-48
11875	A	PETROGLYPHS	3	439-54
11876	D	WALL	3	439-55
11877	D	HAB. YARD	3	439-56
11878	D	MIDDEN	3	439-50
11879	D	WELL	3	439-51
11880	D	WELL	3	439-52
11881	A	POND	3	439-53
11882	D	ENCL: HAB	3	439-57
11984	D	RUBBLE (BURIAL?)	2	T-102
11985	D	COMPLEX: IND	2	T-108

KEY: "action" category (see GRDRP);
 Location: 2 = study area 2 (mauka)
 3 = study area 3 (makai)
 Other = numbers from Walker and Rosendahl (1988)

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**AZABU KONA RESORT:
HISTORIC PRESERVATION MITIGATION
PHASE I ARCHAEOLOGICAL INVESTIGATIONS**

A CULTURAL RESOURCE MANAGEMENT PLANNING DOCUMENT

by

H. David Tuggle

INTERNATIONAL ARCHAEOLOGICAL RESEARCH INSTITUTE, INC.

HONOLULU, HAWAII

**AZABU KONA RESORT:
HISTORIC PRESERVATION MITIGATION
PHASE I ARCHAEOLOGICAL INVESTIGATIONS**

A Cultural Resource Management Planning Document

with

**Part I: Project Overview
Part II: Data Recovery, Phase I Summary Report
Part III: Preservation, Phase I Summary Report
Part IV: Burial Treatment Plan**

prepared by:

H. David Tuggle, Ph.D.

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January, 1990

*1/7/90
REVIEW COPY*

EXECUTIVE SUMMARY

Azabu Kona Resort, North Kona, Island of Hawaii, is proposing an improvement project on portions of its property that contain significant archaeological sites. Archaeological field investigations of these sites were conducted as part of a Historic Preservation Mitigation Plan, involving a Data Recovery Plan and a Preservation Plan. Data Recovery sites were mapped and test excavated. Preservation sites were mapped in detail.

Three sites in the Data Recovery category are recommended for Phase II data recovery; other sites in Data Recovery are recommended for Conditional Preservation or for no further work.

Two sites were identified as human burial locales; these sites will remain in a Conservation category for long-term protection.

It is recommended that Phase II investigations of three Exhibition sites involve exterior excavations to determine subsurface boundaries and to establish final buffer areas.

Recommendations are made for site buffers and for site protective actions.

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PREFACE

BACKGROUND

The present document is submitted as the interim summary report for Azabu Kona Resort Archaeological Investigations (contractual letters of July 29, 1989 and August 7, 1989). This summary report covers Phase I of the Data Recovery Plan and also Phase I of the preliminary Preservation Plan. Technical analysis of materials recovered in the Phase I work is still ongoing and subsequent phases of data recovery and preservation are planned; when these have been completed final reports will be prepared. Thus it should be emphasized that the Phase I archaeological research conducted for this project is described only briefly in the present report.

The fieldwork presented in this report was conducted from August 20 to October 1, 1989, under the direction of Dr. H. David Tuggle. Crew members included Myra Jean Tomonari-Tuggle, Marilyn Swift, Randy Harper, and Mary Clark. Field consultation was provided by Michael Kaschko.

This report is written to meet the planning needs and historic preservation concerns of Belt Collins & Associates, Azabu U.S.A., the Kahalu'u Cultural Advisory Committee, the Hawaii County Planning Department, and the Historic Sites Section of the State of Hawaii.

This summary report is to be read in conjunction with two background documents:

Walker, Alan and Paul H. Rosendahl, 1989: Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS), Azabu Keauhou Resort Project. Paul H. Rosendahl, Ph.D., Inc.

Tuggle, H. David, 1989: Historic Preservation Mitigation Plan for Proposed Improvements at the Azabu Kona Resort. International Archaeological Research Institute, Inc.

These two reports contain extensive detail which is not repeated in the present document. Ultimately, two final reports will be issued, a Data Recovery Report and a Preservation Report, each of which will be independent, containing all relevant detail.

The present report is in four sections:

Part I: Overview; this section contains background information, a summary of project results, a final site numbering system, and a reorganization of sites and site classifications based on project results.

Part II: Data Recovery, Phase I Summary Report; this section summarizes the research on data recovery sites, and presents the Phase II Data Recovery Plan.

Part III: Preservation, Phase I Summary Report; this section summarizes fieldwork conducted in Phase I, recommends site reclassifications, recommends Phase II data collection related to site protection, and makes site protection recommendations.

Part IV: Burial Treatment Plan, for inadvertent encounter of human burials in subsequent data recovery or in improvement project actions.

ORGANIZATIONAL NOTES

Site Numbering and Classification

Numerous changes in site numbers and classification are made in this report; these changes are necessary, but can be a source of confusion. The reviewer is asked to carefully note the "prior" numbers and classifications, referring to Walker and Rosendahl (1989), versus the "new" numbers and classifications of the present report.

New site numbers and classifications, cross-referenced with the prior ones, are found in Tables 1; also see the Appendix.

The inventory report for sites in the Azabu Kona Resort (Walker and Rosendahl 1989) includes temporary field numbers (identified as PHRI-) and permanent Hawaii Register of Historic Places (HRHP) site numbers. The 1989 field work also included temporary site designations (AZK-). In the present report, final site numbers are assigned. However, note that many of the previous "sites" are now combined under single permanent site numbers (the former "sites" now identified as features), thus there is no 1:1 change in designations.

Terminology: Temporal Designations:

"Pre-Contact period": Hawaiian history prior to A.D. 1778; the term "prehistory" is an outmoded term and certainly inappropriately applied to Hawaii, with its rich historical record prior to European contact.

"Post-Contact period": Hawaiian history after A.D. 1778.

"Early post-Contact": from A.D. 1778 to about 1830, the period in which there is limited archaeological evidence of European contact, due to a very restricted distribution of introduced artifacts (Laura Carter, personal communication).

This is sometimes also called the proto-historic, where the emphasis is on the beginnings of written records; note that the Kirch (1985: 306) use of the term "Proto-Historic", referring to the time period from 1650 to 1795, is inappropriate.

"Traditional Hawaiian artifact": artifacts that were produced in Hawaii prior to European contact, but which also may have been manufactured for some period of time after contact; such artifacts do not, thus, necessarily clearly serve as time markers.

"Introduced artifact": commonly called "historical artifacts", artifacts from Europe, America, or Asia introduced after contact, or artifacts manufactured in Hawaii based on introduced models. Such artifacts serve as a horizon marker; their presence indicates occupation after A.D. 1778.

"Modern artifact": items from about the last 50 years.

Terminology; Hawaiian Names and Terms:

Hawaiian names and place names are spelled with a glottal stop "'", but other diacritical marks are not employed, because of lack of a standard reference. In the final report, an examination of the place names of Kahalu'u will include alternative spelling and pronunciation possibilities. Commonly used Hawaiian terms are not italicized.

The terms "ruling chief" and "king" are used synonymously; cross-culturally, the ruling chiefs of Hawaii were equivalent to the rulers frequently called kings elsewhere.

Site Categories

Note that the term "Conservation" is used in the present text in place of "Preservation 'as is'"; and that the term "Exhibition" is used in place of "Preservation with Interpretation"; additional discussion is in Part I.

Measurements

Site measurements are given in metric: "m"=meters, "cm"=centimeters; width, length, and height (or depth) are commonly given as, e.g. "1x3.5x1m".

Genealogical Dating

References to calendrical years A.D. in pre-Contact Hawaiian history based on genealogical generations employ the 20 year generational count, following Hommon (1976).

ACKNOWLEDGEMENTS

We are very grateful to the staffs of the library and the photo archives of the Bernice P. Bishop Museum for assistance and access to archival materials, and to the staff of the Kona Historical Society for very valuable assistance.

We wish to express our appreciation for the support and assistance provided by Matthew Bailey, manager of the Keauhou Beach Hotel, and by all of his fine staff. In addition we are especially appreciative of the discussions, support, and information provided by the members of the Cultural Advisory Committee to Azabu U.S.A., Hawaii.

AZABU KONA RESORT:
HISTORIC PRESERVATION MITIGATION REPORT
PHASE I ARCHAEOLOGICAL INVESTIGATIONS

PART I: OVERVIEW

PART I: OVERVIEW

INTRODUCTION

The Azabu Kona Resort, in the area of Kahalu'u, North Kona, Island of Hawaii, is proposing development improvements that will have an impact on significant archaeological remains (Figs. 1 and 2). The present report is a summary of the preliminary archaeological investigations conducted in 1989 as part of the historic preservation mitigation process.

The report as a whole identifies the sites in the project area, presents their classification in historic preservation categories, summarizes the archaeological fieldwork, and presents recommendations for additional work. Part I summarizes the results of the current fieldwork, presents a reclassification of sites in terms of historic preservation categories, and includes a set of new site numbers. In subsequent sections, details are presented according to site classification: Data Recovery and Preservation.

BACKGROUND

The Azabu Kona Resort property (Fig. 1) covers some 70 acres along the coast of the ahupua'a of Kahalu'u, North Kona, Island of Hawaii (TMK 7-8-13:2,13,42,43 and 46; 7-8-10: por 35). The portion makai of Ali'i Drive is heavily developed, with two large hotels and extensive landscaping, yet still has several major archaeological sites. The property mauka of Ali'i Drive has had only limited development, primarily an outdoor botanical facility called Kona Gardens, no longer in operation. The mauka area has the remains of numerous archaeological sites.

An archaeological inventory of the property was carried out in 1988 (Walker and Rosendahl 1989), with the identification of 110 sites, 105 of which were proposed as "significant" in terms of the evaluation criteria of the National Register of Historic Places and the Historic Sites Section (HSS) of the Department of Land and Natural Resources of the State of Hawaii. The Walker and Rosendahl report placed sites into categories of value, with associated recommendations for action. The evaluations of significance and value, as well as the recommendations, were accepted by HSS (Nagata letter of October 26, 1988).

An improvement project has been proposed for some 34 acres of the Azabu Kona Resort (Environmental Assessment 1989), an area that includes a number of significant sites (Fig. 2).

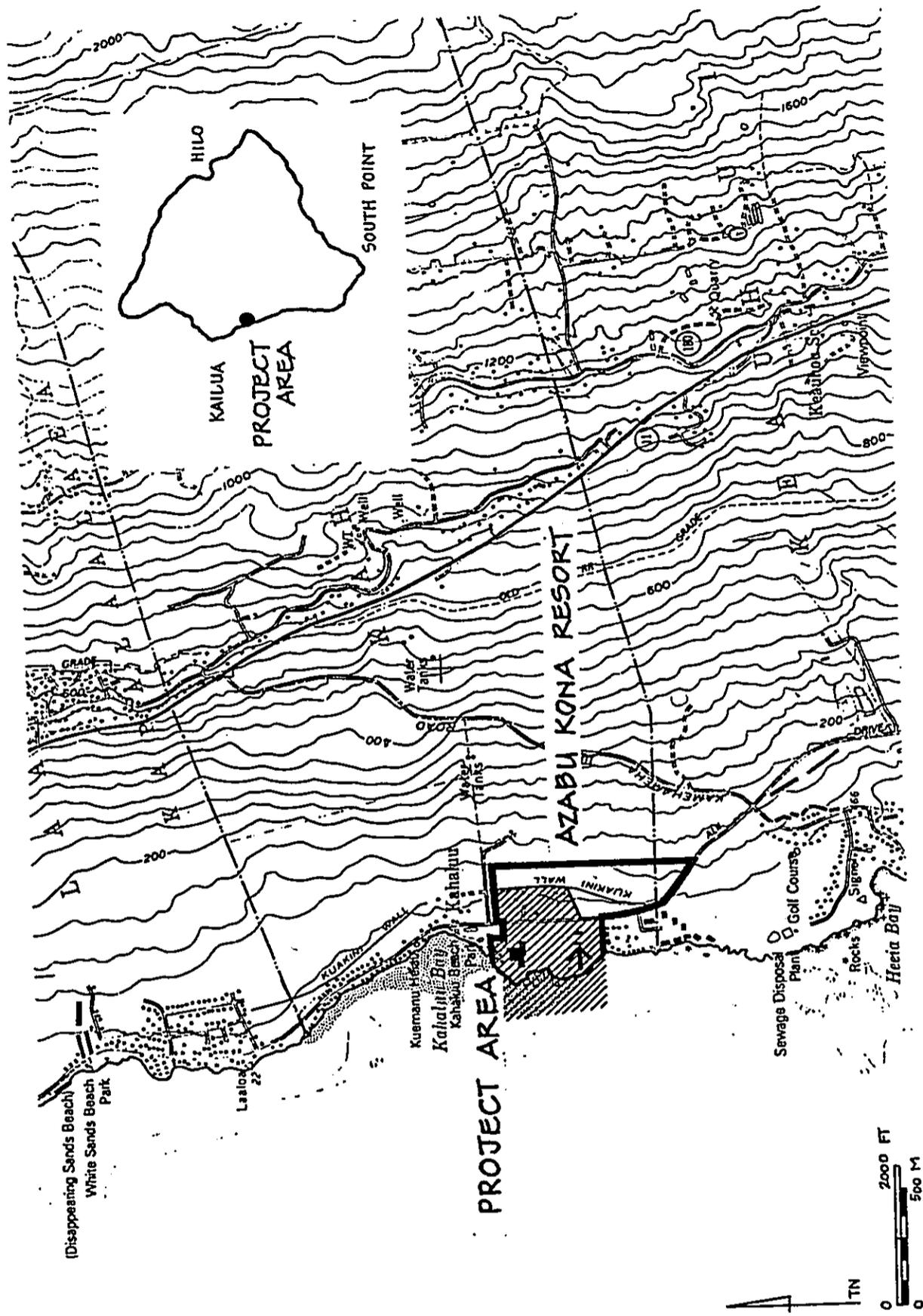


FIGURE 1. PROJECT LOCATION

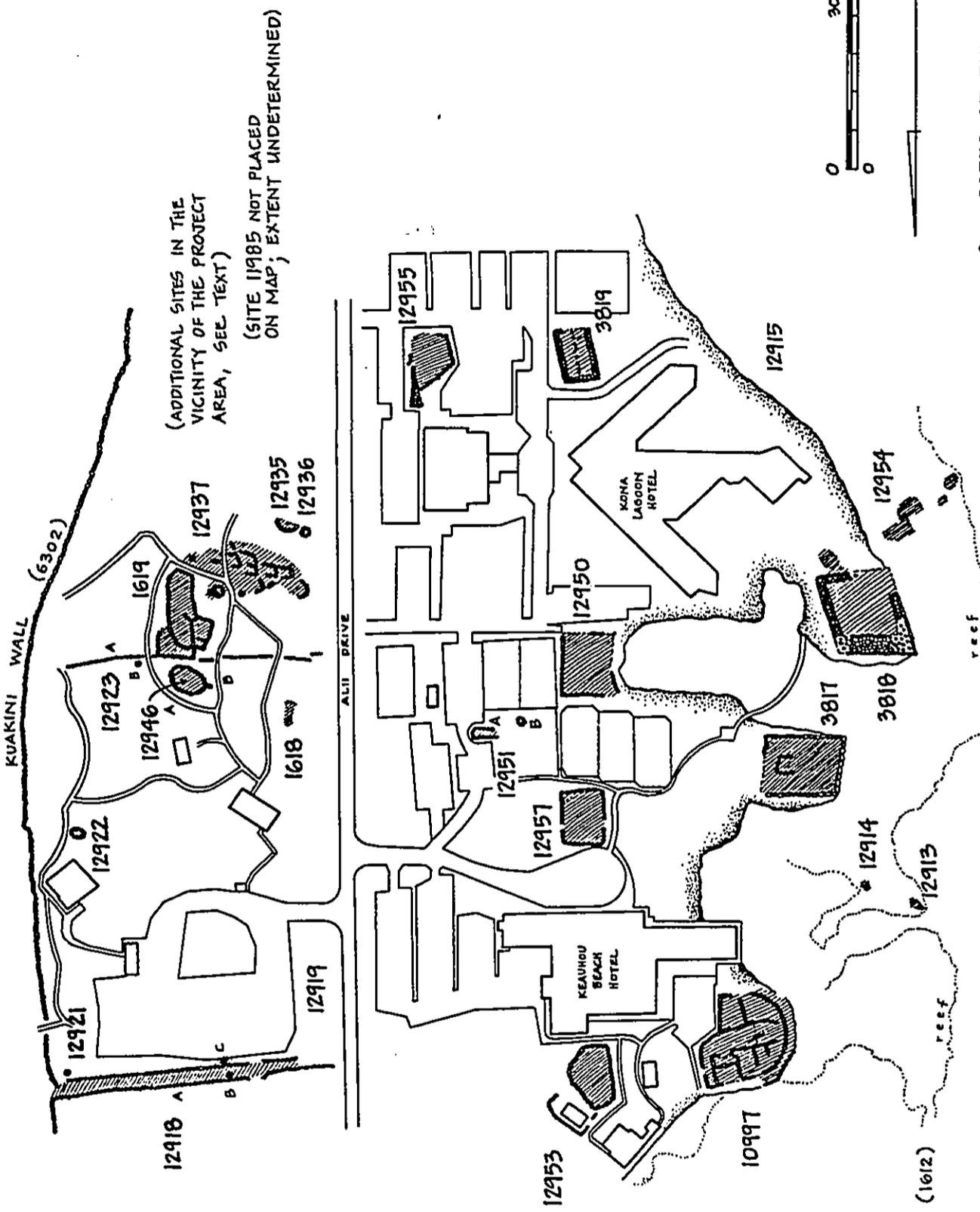


FIGURE 2. SITES OF THE PROJECT AREA

As part of the permit process for the improvement project, a Historic Preservation Mitigation Plan (Tuggle 1989) was prepared that included a Data Recovery Plan (Phase I and a preliminary Phase II) and Phase I of a Preservation Plan. The Historic Preservation Plan was approved by the Planning Department of the County of Hawaii (letter of June 6, 1989) and HSS (letters of July 28, 1989 and August 3, 1989).

Fieldwork for the first phases of data recovery and preservation was conducted by the International Archaeological Research Institute, Inc., from August 20 to October 1, 1989. The results are presented here in summary form; they will be presented in complete detail in the Final Report that will follow the Phase II investigations.

SITE CLASSIFICATION IN HISTORIC PRESERVATION

The following classification of significant sites is derived from the Historic Sites Section (HSS) of the Department of Land and Natural Resources, State of Hawaii.

Data Recovery: sites whose primary value lies in the historical and scientific information they contain; these are sites that need not be preserved if adequate information has been collected from them (i.e., where sufficient "data recovery" has taken place, usually through archaeological excavation). If adequate information is not collected, or if they will be preserved for an indefinite period, these sites may be placed in a category of "conditional preservation" (see below).

Preservation: sites whose value lies in more than just the information they may contain; sites that should be preserved because of their overall importance in history, their associations with important individuals, their cultural value, or their representativeness of important site or architectural types.

Preservation includes the following sub-categories:

Conservation (sometimes called preservation "as is"): sites that should be preserved and protected "as is".

Provisional Conservation: sites that are tentatively placed into the Conservation category, pending fieldwork, usually the identification of human burials; if no burials are found, sites may be reclassified.

Exhibition (sometimes called "preservation with interpretation"): sites that will be preserved and interpreted for the public; preservation may involve various degrees of stabilization and reconstruction.

Conditional Preservation: "Data Recovery" sites that are being protected for an interim period, and are temporarily included within the Preservation Plan.

PROJECT AREA ARCHAEOLOGICAL SITE INVENTORY

Table 1 is a final compilation of all sites in the project area (also see Fig. 1), including newly identified sites (Fig. 1). This is a synthesis of the results of Phase I investigations, with new numbers and new recommended classifications. Table 2 presents a listing of sites outside the impact zone, but in the project vicinity.

Table 1 includes recommended site reclassifications following fieldwork, along with new numbers in the system of the Hawaii Register of Historic Places. Note that in several cases the permanent number incorporates several "sites" that had been given separate designations in the temporary field numbering system summarized in Table 3. The current fieldwork found that in these cases, these "sites" were better understood as features of a larger site, rather than as individual sites unto themselves.

Note that the categories under Class marked with an "*" and the recommendations under Action require review and approval by HSS. Definitions of classifications are presented above under "Site Classification in Historic Preservation".

Table 1: Project Area, Final Site Inventory:
New Site Numbers and Recommended Classification

HRHP	Field No.	Type/Name	Class.		Action*/Notes
			New	Prior	
01618-A	-	Petroglyphs	DR	(DR)	No further work
" -B	439-48	Petroglyphs	DR	(DR)	No further work
01619	-	Papakoholua	PE	(PE)	PP, Interpretation
03817	-	Hapaiali'i	PE	(PE)	EE, PP, Interpretation
03818	-	Ke'eku	PE	(PE)	EE, PP, Interpretation
03819	-	Makole-a	PE	(PE)	EE, PP, Interpretation
10997	-	Kapuanoni	PE	(PE)	EE, PP, Interpretation
11985	AZK-3	Cave	DR-PC*		Final evaluation (1)
12913	AZK-5	Petroglyphs	PE*	-	PP, Interpretation
12914	AZK-6	Petroglyphs	DR*	-	No further work
12915	AZK-7	Burial area	DR-PC*	-	AM, PP (2)
12918-A	439-18	Makole-a Trail	DR	(DR)	No further work
" -B	AZK-8	Petroglyph	DR*	-	No further work
" -C	439-20	Cave	DR	(DR)	No further work
12919	439-19	Hist. road	DR-CP*(DR)		AM, PP, Conservation (3)
12921	439-21	Cave shelter	DR	(DR)	Data Recovery, Phase II
12922	439-22	Platform	DR	(PPC)	Data Recovery, Phase II
12923-A	439-23	Boundary wall	DR	(DR)	No further work
" -B	AZK-4	Cave	DR*	-	No further work (4)
12935	439-35	Terrace	DR	(DR)	No further work
12936	439-36	Burial platform	PC	(PPC)	PP, Conservation
12937-A	439-37	Terrace	DR-CP*(PPC)		PP, Conservation
" -B	439-38	Terrace	DR-CP*(DR)		"
" -C	439-39	Terrace	DR-CP*(DR)		"
" -D	439-40	Papamu	DR-CP*(DR)		No further work
" -E	439-41	Terrace	DR-CP*(PPC)		PP, Conservation
" -F	AZK-1	Cave shelter	DR-CP*	-	"
" -G	439-42	Cobble area	DR	(PPC)	No further work
" -H	AZK-2	Cave	DR-CP*	-	PP, Conservation
" -I	AZK-9	Terrace	DR-CP*	-	"
12946-A	439-46	Burial platform	PC	(PPC)	PP, Conservation
" -B	439-47	Cobble area	DR	(PPC)	No further work
12950	439-50	Enclosure	DR	(DR)	Data recovery, Phase II
12951-A	439-51	Hist. well	DR	(DR)	No further work, GM (5)
" -B	439-52	Hist. well	DR	(DR)	No further work, GM (5)
12953	439-53	Po'o Hawai'i	PE	(PE)	DC, PP, Interpretation
12954	439-54	Petroglyphs	PE	(PE)	PP, Interpretation
12955-A	439-55	Wall	DR-CP*(DR)		PP, Conservation
" -B	439-56	House site	DR-CP*(DR)		PP, Conservation
12957	439-57	Enclosure	DR-CP*(DR)		PP, Conservation

(Key: continued next page)

Table 1: Key, Notes

All HRHP (permanent) site numbers are prefaced by 50-10-37.

Key: Class: PC=Preservation/Conservation

DR=Data Recovery

DR-CP=Data Recovery placed in interim Conditional
Preservation

PE=Preservation/Exhibition

*=Recommendation to HSS, pending approval.

Action: EE=Exterior excavation, prior to final Preservation Plan
recommendations.

AM=Archaeological Monitoring during any associated
construction.

GM=General Monitoring during construction.

PP=To be incorporated into Preservation Plan.

DC=Data collection.

Note: See specific recommendations in text.

Notes:

- (1) Extent of cave system and associated cultural materials has yet to be determined; there is also the possibility that several of the other cave sites are connected with this system.
- (2) Burial area reported, but not verified.
- (3) Site not relocated; buried.
- (4) This recommendation is provisional, pending work identified, note (1).
- (5) No further work refers to wells, but GM recommended for general area.

Table 2: Sites in the Project Vicinity

HRHP No.	Field No.	Type/Name
01612	-	N. Hist. Preserve
06302	-	Menehune BK
12925	439-25	Kuakini Wall
12926-A	439-26	Platform, Bur?
12926-B	439-27	Cobbles, Bur?
12926-C	439-28	Platform, Hab.
12931	439-31	Cobbles, Bur?
12933-A	439-33	Terrace, Hab.
12933-B	439-34	Platform, Bur?
12944	439-44	Platform, Bur?

SUMMARY OF FIELDWORK AND SITE RECLASSIFICATION

Prior Site Inventory and Classification

There were 31 sites originally identified in the project area requiring some form of field recording (Table 3), as identified in the Historic Preservation Mitigation Plan (Tuggle 1989). Seventeen were sites in the category of Data Recovery, seven were possible burial sites provisionally in the category of Conservation (or Preservation "as is"), and seven were in the category of Exhibition (Preservation with Interpretation).

Table 3: Project Area, Prior Site Inventory;
Prior Numbering and Classification (Walker and Rosendahl 1989)

Prior No.	Type/Name	Class	New Number (HRHP)
01618	Petroglyphs	DR	01618-A
01619	Papakoholua H.	PE	01619
03817	Hapaialii Heiau	PE	03817
03818	Keeku Heiau	PE	03818
03819	Makole-a Heiau	PE	03819
10997	Kapuanoni Heiau	PE	10997
439-18	Makole-a Trail	DR	12918-A
439-19	Road	DR	12919
439-20	Cave-hab	DR	12918-C
439-21	Lava Tube	DR	12921
439-22	Burial Mound?	PPC	12922
439-23	Bdy. Wall	DR	12923-A
439-35	Terrace-Hab.	DR	12935
439-36	Platform-Burial?	PPC	12936
439-37	Platform-Burial?	PPC	12937-A
439-38	Terrace-Hab.	DR	12937-B
439-39	Terrace-Hab.	DR	12937-C
439-40	Papamu	DR	12937-D
439-41	Cobbles, Bur?	PPC	12937-E
439-42	Cobbles, Bur?	PPC	12937-G
439-46	Burial Mound?	PPC	12946-A
439-47	Cobbles, Bur?	PPC	12946-B
439-48	Petroglyphs	DR	1618-B
439-50	Midden	DR	12950
439-51	Well	DR	12951-A
439-52	Well	DR	12951-B
439-53	Po'o Hawaii Pond	PE	12953
439-54	Petroglyphs	PE	12954
439-55	Bdy. Wall	DR	12955-A
439-56	House Site	DR	12955-B
439-57	Enclosure	DR	12957

Key: DR=Data Recovery; PPC=Provisional Preservation/Conservation;
PE=Preservation/Exhibition.

Note: Site numbers "439-" are field numbers from Walker and Rosendahl (1989). Other site numbers are HSS numbers, preceded by 50-10-37.

Data Recovery Sites, Prior Classification

Of the seventeen sites in the original Data Recovery category (Table 4), 16 were mapped in detail and the 13 with deposits were test excavated. One site (439-19) was not located. We believe that adequate information has now been collected from nine of these sites and that no additional work need be carried out.

Table 4: Data Recovery Sites (Prior Classification);
Fieldwork and New Recommendations

Field No.	HRHP No.	Type	Fieldwork	New Recommendation
1618	1618-A	Petroglyphs	M,T	No additional work
439-18	12918-A	Historic trail	M,T	No additional work
439-19	12919	Historic Road	(1)	Conditional Preservation
439-20	12918-C	Cave	M,T	No additional work
439-21	12921	Cave	M,T	Data Recovery, Phase II
439-23	12923-A	Wall	M	No additional work
439-35	12935	Terrace	M,T	No additional work
439-38	12937-B	Terrace	M,T	Conditional Preservation
439-39	12937-C	Terrace	M,T	Conditional Preservation
439-40	12937-D	Papamu	M	No additional work
439-48	1618-B	Petroglyphs	M	No additional work
439-50	12950	Kuleana	M,T	Data Recovery, Phase II
439-51	12951-A	Historic well	M,T	No additional work
439-52	12952-B	Historic well	M,T	No additional work
439-55	12955-A	Wall	M,T	Conditional Preservation
439-56	12955-B	Terrace	M,T	Conditional Preservation
439-57	12957	Kuleana	M,T	Conditional Preservation

Key: Fieldwork: M=Mapping; T=Test excavations.
(1) Site not located.

Seven sites require additional data recovery if they are to be impacted by improvement project actions. Evaluation of project plans has led to the proposal that four of the sites in the prior Data Recovery category be avoided by project actions; it is thus recommended that these be placed in a category of Conditional Preservation. These sites are 439-38 (12937-B), 439-39 (12937-C), 439-56 (12955-B), and 439-57 (12957). Thus three sites are recommended for additional data recovery: 439-21 (12921), 439-22 (12922), and 439-50 (12950).

There has been adequate data recovery for nine of the sites and it is recommended that these be reclassified as "not significant."

Remnants of the unlocated site, 439-19 (12919), may exist beneath terrace landscaping of Kona Gardens; if this area is impacted, monitoring should be carried out to attempt to identify and record remnants of the site.

Fieldwork on these sites is summarized in the Data Recovery Report, Phase I (below).

Provisional Conservation Sites (Preservation "As Is")

The category of Conservation ("preservation 'as is'") was used as a provisional grouping for sites that might contain human burials (Table 5). These sites were tested to establish whether or not burials were present. Two of the sites contain burial cists, and were definitely constructed as burial platforms. Thus they retain the Conservation classification.

Table 5: Provisional Conservation Sites:
Fieldwork and Recommendations

Field No.	HRHP No.	Type	Fieldwork	Result, New Recommendation
439-22	12922	Platform	M,T	Not a burial; Data Recovery
439-36	12936	Platform	M,T	Burial; Conservation
439-37	12937-A	Terrace	M,T	Not a burial; Conditional Preservation
439-41	12937-E	Terrace	M,T	Not a burial; Conditional Preservation
439-42	12942-A	Cobbles	M,T	Not a burial; no further work
439-46	12946-A	Platform	M,T	Burial; Conservation
439-47	12946-B	Cobbles	M,T	Not a burial; no further work

Key: Fieldwork: M=Mapping; T=Test excavations.

Five of the sites (Table 5) proved to contain no burials and were clearly constructed for other purposes. There has been adequate data recovery from two of these sites and it is recommended that they be reclassified as "not significant." Three of the sites should be reclassified as Data Recovery, two of which will be excluded from improvement project impact, so they should be placed in Conditional Preservation. The third, 439-22 (12922) is recommended for Phase II Data Recovery.

The fieldwork for the five sites that contained no burials is presented in the Data Recovery Report (below). The sites that remain in Conservation are discussed in the Preservation Report (below).

Exhibition Sites (Preservation with Interpretation)

All seven sites in the category of Exhibition Sites (Preservation with Interpretation) were recorded in detail (Table 6), and one of these, 1619, was tested.

Table 6: Sites for Exhibition (Prior Classification):
Fieldwork and Recommendations

Field No.	HRHP No.	Type	Fieldwork	New Recommendations(1)
1619	1619	Heiau	M,T	Buffers.
3817	3817	Heiau	M	Exterior excav., buffers
3818	3818	Heiau	M	Exterior excav., buffers
3819	3819	Heiau	M	Exterior excav., buffers
10997	10997	Heiau	M	See detailed recommendations
439-53	12953	Pond	M	See detailed recommendations
439-54	12954	Petroglyphs	M	Buffers.

Key: Fieldwork: M=Mapping; T=test excavation.

Note (1) Detailed recommendations are provided in a subsequent section, along with provisional recommendations for the location of buffers.

To complete preservation fieldwork prior to the implementation of the improvement project, it is recommended that limited excavations be conducted in some of the exterior areas of sites 3817, 3818, and 3819 in order to determine the nature and extent of external deposits, define subsurface site boundaries, and allow final buffer recommendations.

Fieldwork and recommendations are presented in the Preservation Report (below).

Newly Identified Sites or Features

During the 1989 fieldwork, sites or features were encountered that had previously been unreported. These are listed below (Table 7) and described in subsequent sections (under recommended category).

Table 7: Newly Identified Sites or Features:
Recommendations

Field No.	HRHP No.	Type	Recommendation
AZK-1	12937-F	Cave shelter	Conditional Preservation
AZK-2	12937-H	Cave shelter	Conditional Preservation
AZK-3	11985	Cave	See Preservation Report
AZK-4	12923-B	Cave shelter	Conditional Preservation
AZK-5	12913	Petroglyphs	Preservation/Exhibition
AZK-6	12914	Iso. petroglyph	Data collected; no further work
AZK-7	12915	Traditional burial area	See Preservation Report
AZK-8	12918-B	Petroglyph	Data collected; no further work

Final Recommended Classifications

As noted in the sections above, following fieldwork site numbers and classifications have been revised. Thus Tables 3 through 7 have been superseded; final classification is presented in Table 1. Fieldwork on individual sites is summarized in the reports on Data recovery and Preservation, with cross-referencing where appropriate.

DOCUMENTARY RESEARCH

Background documentary research has been conducted for sites in all categories. The following summarizes important sources.

The term "recorded traditions" refers primarily to the work of Kamakau (1961, 1964, 1976) Fornander (1969; 1916-20), Kepelino (Beckwith 1932) Ii (1959), Malo (1951), and Thrum (1907, 1908). The work of Thrum belongs in an isolated category because it combined a wide variety of sources, but seldom with attribution. A summary and critique of these sources is provided in Valeri (1985).

Non-published documentary material or sources include the following:

Baldwin (1909): "Baldwin Survey Map, 1909, Kahaluu Beach Kuleanas, Bishop Estate". Bernice P. Bishop Museum Library.

Emerson, J.S. (1883): "Primary Triangulations, Kona Hawaii, Vol.5": Survey Book Reg. No. 255; Hawaii State Survey Office. A topographic survey fieldbook, containing a sketch of the Kahaluu Bay area. A map of "Kona, Hawaii" Reg. No. 1281, based on Emerson's data, also exists in the Survey Office.

Forbes, A.O. (n.d.): "List of Names of Heiaus known & seen by A.O. Forbes". A handwritten note in the library of the Bishop Museum, presumably prepared by Forbes; no date, but Forbes lived between 1833 and 1888. Additional research is being done to determine when Forbes was in Kahalu'u and who his informant may have been.

"Grants and LCAs in the District of N.Kona, Hawaii Island, 1882-1883". Hawaii State Survey Office. A recording of information for grants and LCS surveyed in 1851 and 1852; the date in the title apparently refers to the transferring of the survey information to the record book.

Kahulumu, Thomas Robert: the Kahalu'u informant for Reinecke (n.d.), in 1929 and 1930, described by Reinecke as "a kamaaina of the third generation and my chief informant for Kahaluu". The Reinecke MS also includes a typed sheet entitled "LIST of HEIAU in KAHALUU furnished by Kahulumu".

Ka'opua, Naluahine: the Kahalu'u informant of Kekahuna (1952). Ka'opua was said to be the great grandson of Lana'i, called the last high priest of Kapuanoni (Kekahuna and Kelsey 1954). Lana'i was awarded the LCA claim for the parcel that included part of Kapuanoni (6026:1), but Barrere (1971: 7), without details, argues that Lana'i was not the last high priest of Kapuanoni.

Kekahuna, H.P. (1952): "Map of Kahaluu Beach". Bernice P. Bishop Museum; copy in the Historic Sites Section, State of Hawaii.

Malanui: Kahalu'u informant for Stokes (n.d., 1910) in 1906. Stokes described Malanui as the "grandson of the last priest of the ...heiau of Kapuanoni", 86 years old (in 1906), whose knowledge came from his grandfather and father (Stokes 1910: 45, 47). The house of Malanui is shown on the 1883 Emerson map; this is the house shown in the Baldwin and Podmore maps in LCA 5694 (see Figure 6). Unfortunately this parcel was destroyed without historic preservation work.

Native Register, Testimony, and related documents: Land Commission Award information (1848-1852); translations in the Hawaii State Archives.

Podmore, G. (1924-25): "Bishop Estate Map No. 1249"; map of coastal Kahalu'u, copy in the Hawaii State Survey Office.

Reinecke, J.E. (n.d.) "Survey of Hawaiian Sites, 1929-1930". MS, Bernice P. Bishop Museum; copy in the Historic Sites Section, State of Hawaii.

Stokes, John (n.d.) "Survey of Heiaus of Hawaii". MS, Bernice P. Bishop Museum; copy in the Historic Sites Section, State of Hawaii. The fieldwork was conducted in 1906.

In addition, Stokes' handwritten notes and photographs may be found in the library and photo archives of the Bernice P. Bishop Museum. There is also some of Stokes' material, not otherwise available, quoted in the Reinecke (n.d.) manuscript.

PLACE NAMES

Table 8 presents the primary place names associated with the project area or the immediate vicinity (Figure 3). "Traditions" refers to recorded references in traditional literature; "Date of Place Id." refers to the date (and the source) when a name was identified with a specific site or locality.

Table 8: Place Names of the Project Area and Vicinity

Name	Traditions	Date of Place Id.
Halekumukalani Heiau	K-76, T-07	1906, Stokes
Haleokapuni Heiau (Makole-a?)		1800s, Forbes
Hanakalauai Heiau	T-07	1800s, Forbes; 1906, Stokes
Hanakalawai Heiau		1850, LCA testimony
Hapaialii 'Ili	T-07	1800s, Forbes; 1906, Stokes
Hapaialii Heiau		1850, LCA testimony
Hokio 'Ili	all	
Kahalu'u		1883, Emerson
(Ka)Laa u o Kalaikini		1909, Baldwin
Kalaauokalaekini		1952, Kekahuna
Ka laau o Ka-lei-kini		1929, Reinecke
Kaluokele		
Ka-lua-o-ke-li'i	K-61, T-07 M-51	1800s, Forbes; 1906, Stokes
Kamai-i-ke'e-ku H.		1883, Emerson
Ke'eku Heiau		1850, LCA testimony
Ke'eku Point		1800s, Forbes
Kamauii 'Ili		1906, Stokes
Kamoku uwahi ole H.		1929, Reinecke
Mokuahirole		1800s, Forbes; 1906, Stokes
Mokuheole		1952, Kekahuna
Kapuanoni Heiau		1952, Kekahuna
Ke'alialia Lagoon		
Keawehala Pond		
(Keeku, see Kamaikeeku)		1906, Stokes
Ke'eku mauka		1929, Reinecke
Keekuapuaa Heiau		
alt. for Makole-a		1892 see notes, below
Kuakini Wall		1800s, LCA testimony
Kukuiokahinu 'Ili		1929, Reinecke
Kapukini Heiau		1929, Reinecke
Makuahane Heiau	FN, T-07	1800s, Forbes; 1906, Stokes
Makole-a Heiau		1850, LCA testimony
Makolea 'Ili		1883, Emerson
Makole-a Bay		1929, Reinecke
Makole-a Trail		1952, Kekahuna
Makole-a Beach		
(Mokuahioli, see Kamokuahirole)		
'Ohi'amukumuku H.	FN, K-61, T-07	1906, Stokes
Ohia Heiau		1800s, Forbes
Paniau Point		1909, Baldwin
Papakoholua Heiau		1929, Reinecke
Pohakuloa Rock		1929, Reinecke
Poho o Kapo hole		1952, Kekahuna
Poohawaii 'Ili		1850, LCA testimony
Po'o Hawaii'i Pond		1929, Reinecke
Ulupalakua Rock		1952, Kekahuna

(Key, continued next page)

Table 8, continued, Key, Notes:

Key: K-76= Kamakau (1976); K-61=Kamakau (1961); FN=Fornander;
M-51=Malo (1951); T-07=Thrum (1907, 1908).
For information on sources, see "Documentary Sources".

Notes on Names in Table 8:

- Halekumukalani: a major luakini of Kahalu'u, but location uncertain.
Trans.: "house of the foundations of heaven" (Stokes n.d.);
Thrum (1907) considers it same as Haleokane, but unlikely.
- Haleokapuni: location uncertain, possibly another name for Makole-a. Kapuni was one of the gods of Kamehameha.
- Hanakalauai: no structure left (Stokes n.d.); name of a star (Pukui and Elbert 1971; Johnson and Mahelona 1975).
- Kaha-lu'u: Trans.: "diving place", Pukui, Elbert, and Mookini (1974);
- Ka-lua-o-ke-li'i: Trans.: "cavern of the chief", Pukui, Elbert, and Mookini (1974);
- Ke'eku: Trans: "abrupt turn", Pukui, Elbert, and Mookini (1974).
- Kuakini Wall: originally "Kuakini Great Wall", named sometime between 1850 and 1892, after Kuakini, governor of Hawaii from 1820-1844, thought to have ordered its construction (Kelly and Barrere 1980: 30).
- Kapukini: Kapukini was the name of a wife and a daughter of Umi.
- Makole-a: name of a legendary princess; Trans.: "glowing red eye" Pukui, Elbert, and Mookini (1974).
- Makuahane: Reinecke (n.d.) calls it a heiau for making the king's canoes.

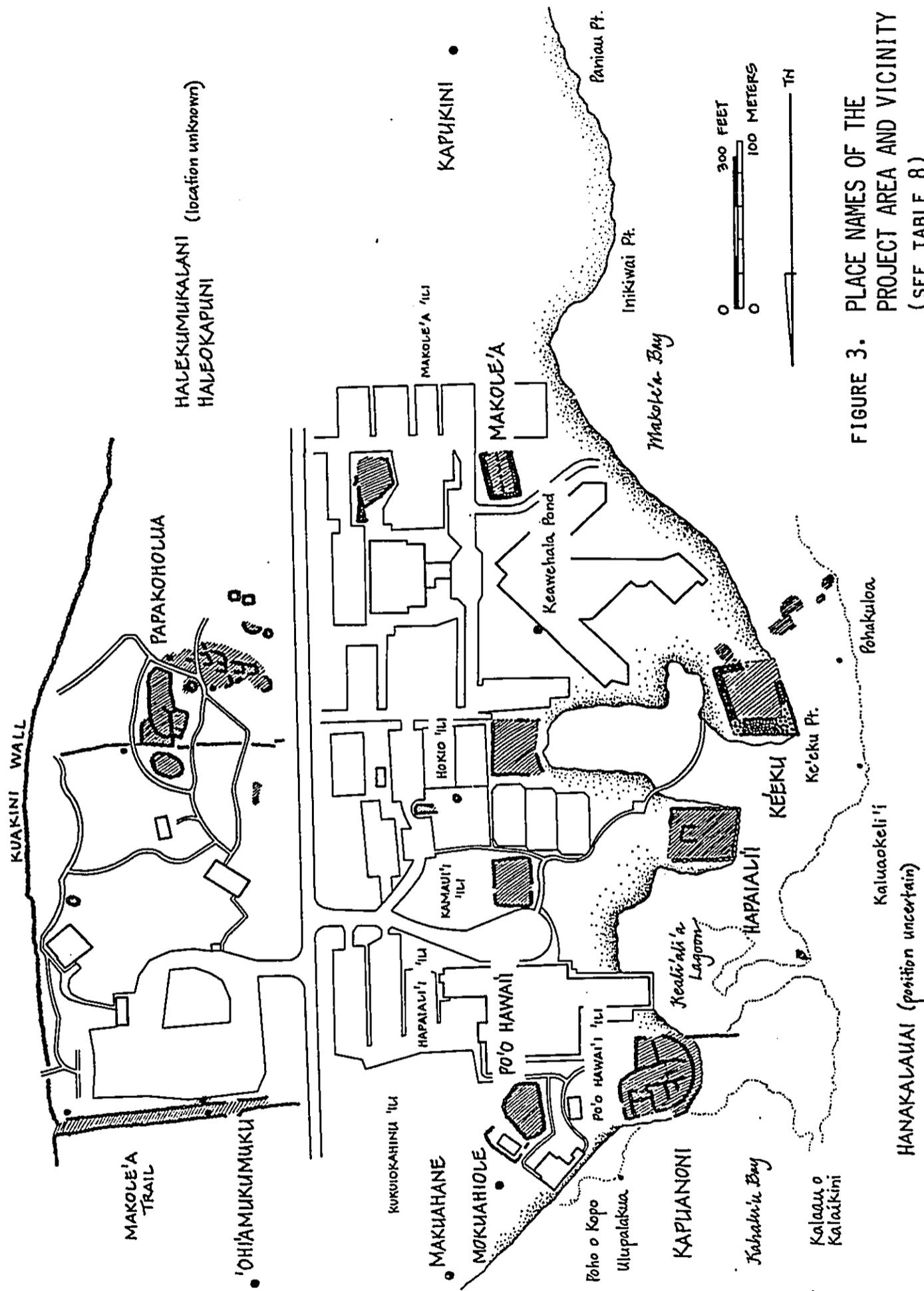


FIGURE 3. PLACE NAMES OF THE PROJECT AREA AND VICINITY (SEE TABLE 8)

KAHALU'U: HISTORICAL CONTEXT AND IMPORTANCE

It has long been recognized that Kahalu'u has an unusually dense concentration of heiau, a rich traditional association with ali'i, and presumably an intensive ali'i settlement. This provides a basic framework for all historical research in Kahalu'u (see Tomonari-Tuggle 1985). The research is gradually accumulating (e.g. Kirch, 1973; Hay et. al., 1984) that will allow a reconstruction of the events and processes that led to this development. The present research contributes to this ongoing investigation.

A general reconstruction of the 18th century settlement of the ahupua'a of Kahalu'u is shown in Figure 4. Although information is currently limited, the archaeological evidence suggests coastal settlement around A.D.1000 with agricultural expansion into the uplands by the 14th century. Archaeology and the traditions suggest increasing socio-political complexity and the associated elaboration of the massive Kona agricultural system. This information is summarized in Walker and Rosendahl (1989), Tuggle (1989), Tomonari-Tuggle (1985), and Schilt (1984). In the final reports for the present project, the background information will be examined in detail.

In the project area, it appears that most of the early occupations have been destroyed; the areas that have the most potential for intact early deposits are those adjacent to heiau, and in the area of Po'o Hawai'i.

The development of religious and political power is, of course, best represented by the remains of the great temples themselves. (A comparison--by size, not volume--of Kahalu'u heiau with other major heiau of Kona and Kohala is shown in Figure 5.) Their physical presence manifests the spirit of the past that is recorded in associations with most of the great kings of Hawaii, from the early period, immediately after Paao, to the time of Kamehameha, and subsequently Kalakaua. In the project area, the location with the highest potential for ali'i residential remains is Po'o Hawai'i.

At the time of European contact, Kahalu'u was thus within the center of power of the leeward side of Hawai'i, stretching from Kailua to Honaunau, and its heiau and residences were commonly used by chiefs, including Kamehameha. Following the death of Kamehameha, the struggle for power that was to define the course of Hawaiian history was embodied in the battle of Kuamo'o that took place two miles to the south.

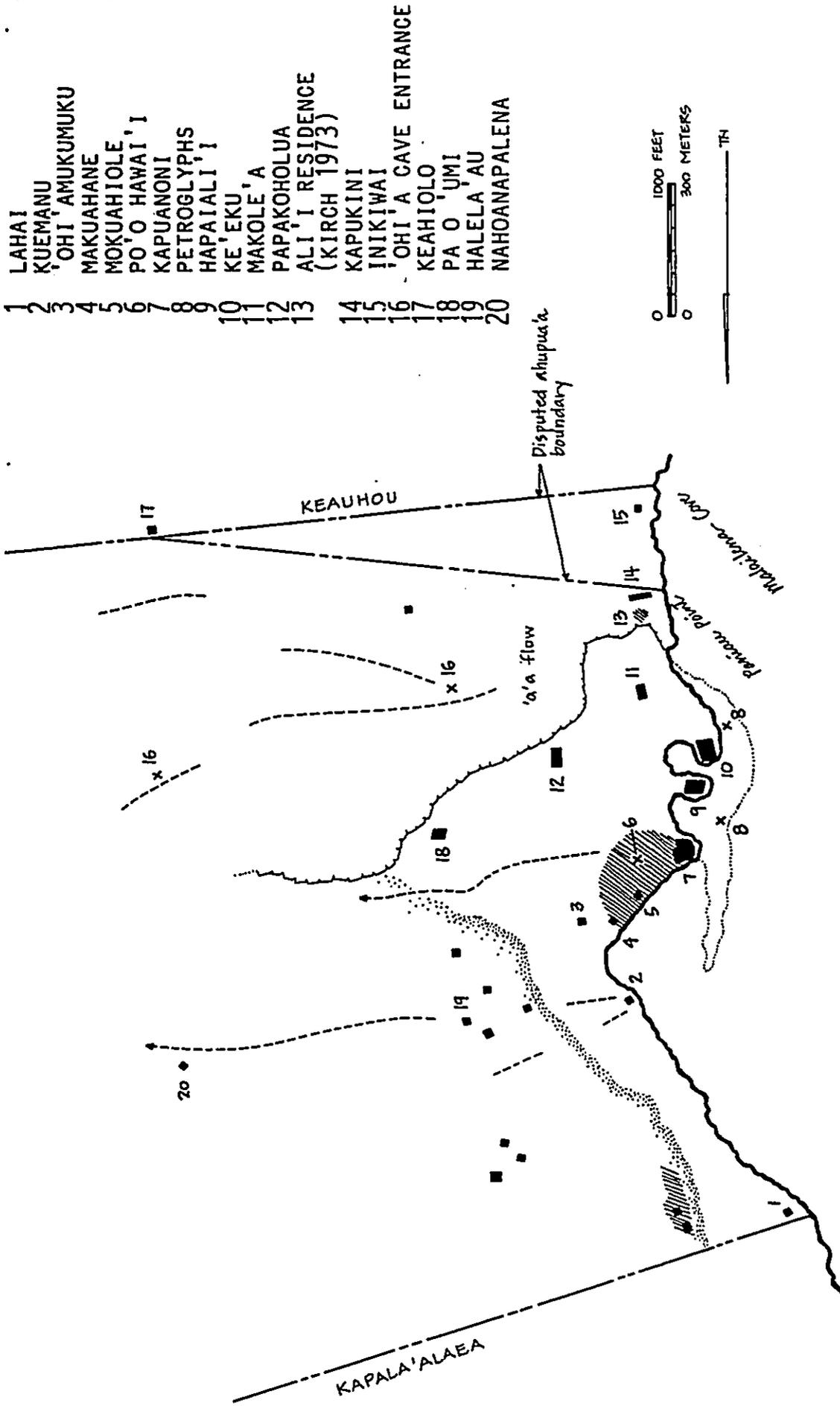


FIGURE 4. LOWER KAHALU'U SETTLEMENT IN THE 18TH CENTURY

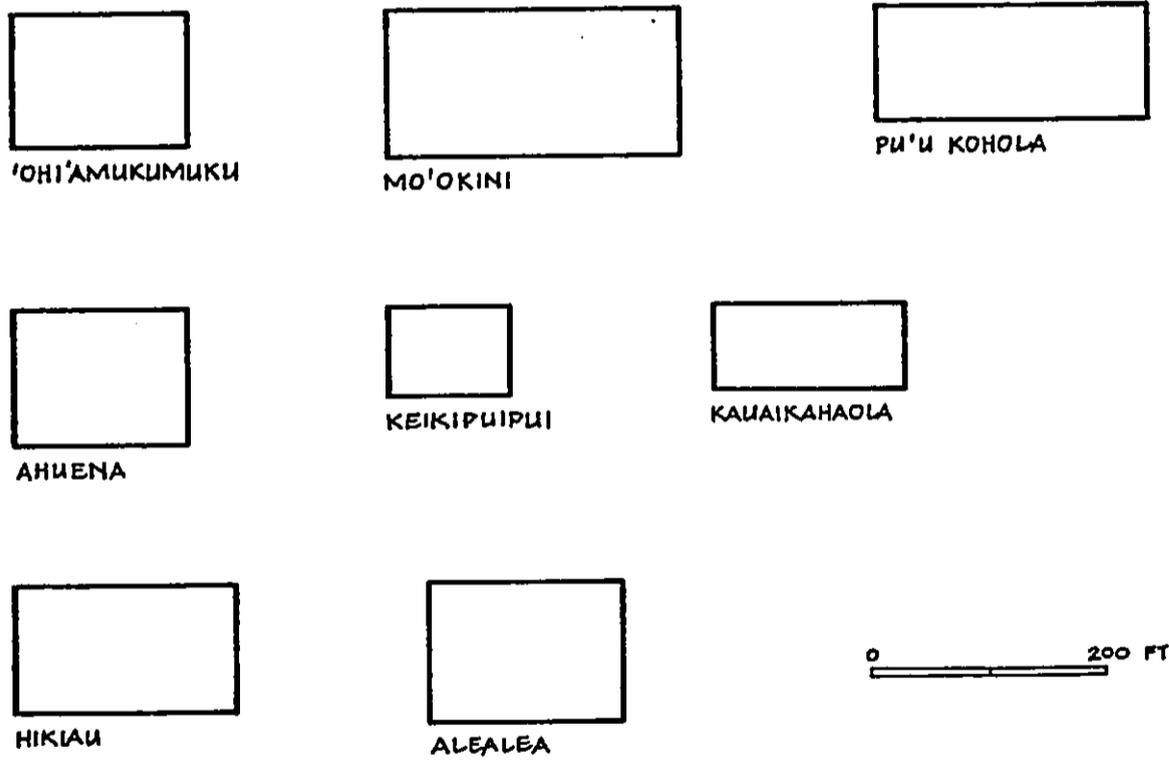
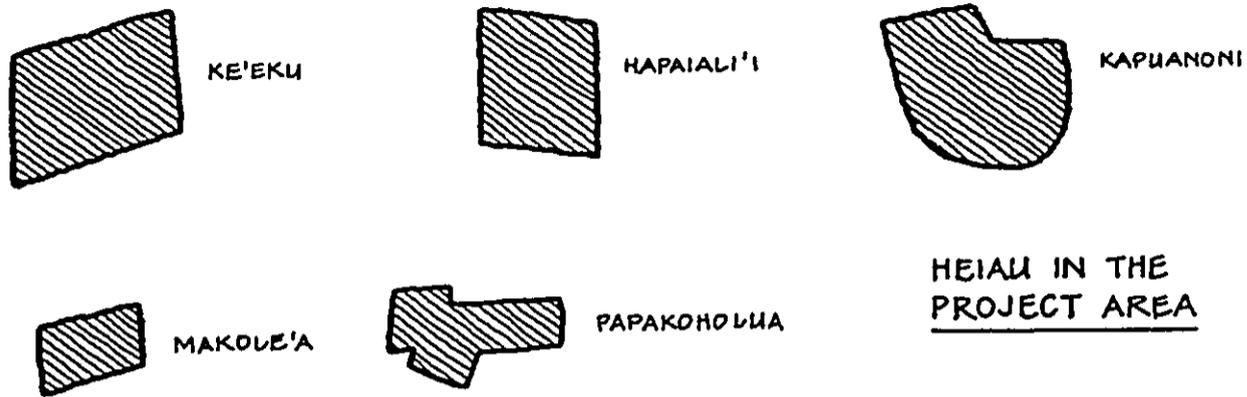


FIGURE 5. PLAN COMPARISON OF HEIAU OF KAHALU'U WITH OTHER MAJOR HEIAU OF KONA AND KOHALA (SCHEMATIC)

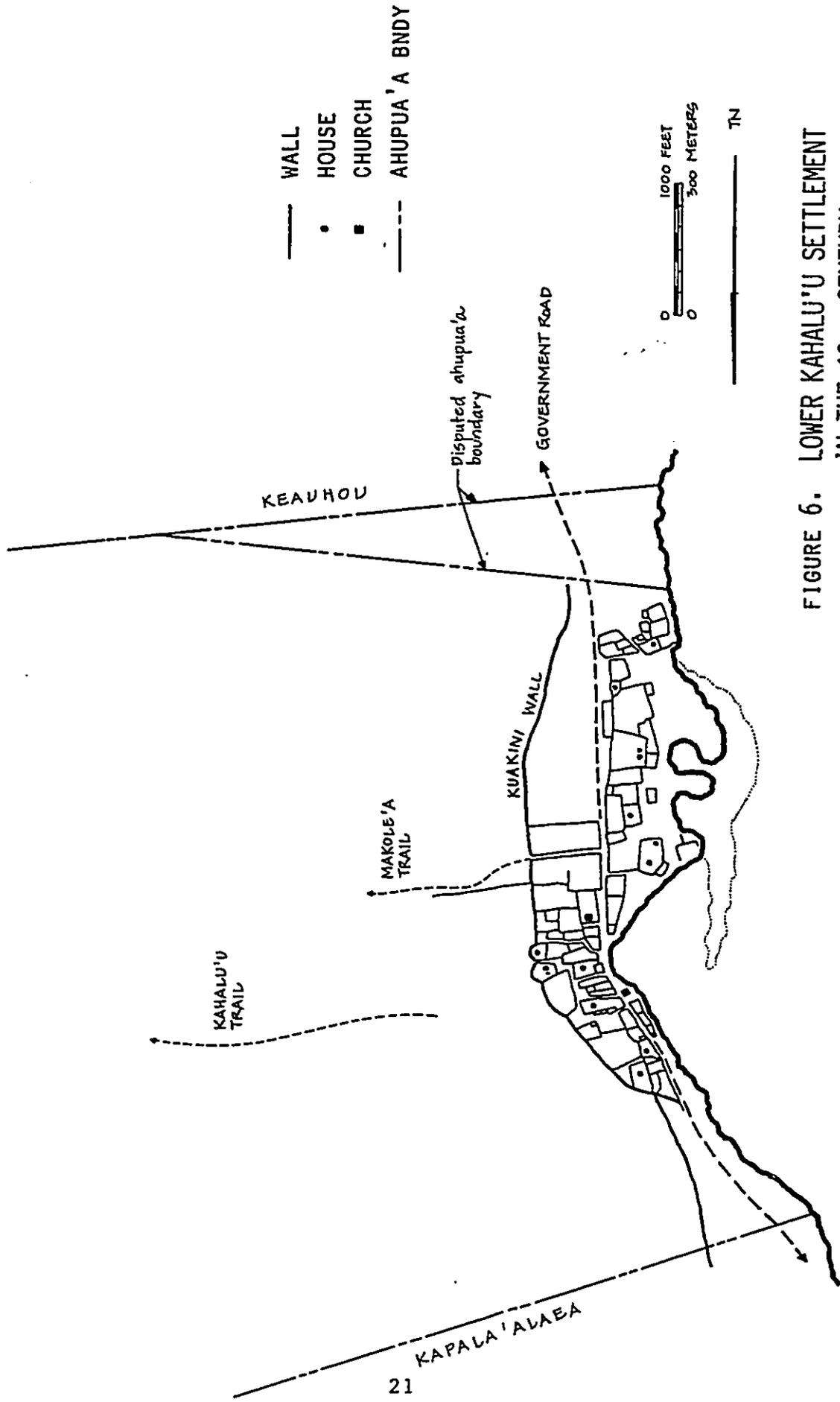


FIGURE 6. LOWER KAHALU'U SETTLEMENT
 IN THE 19TH CENTURY
 (BASED ON BALDWIN 1909)

NOTE: MAUKA AGRICULTURAL PLOTS
 NOT SHOWN

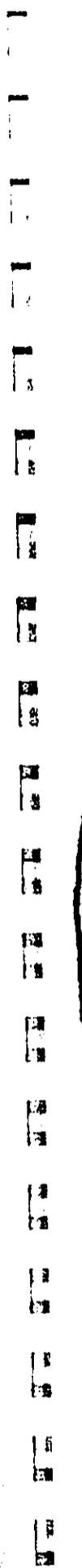
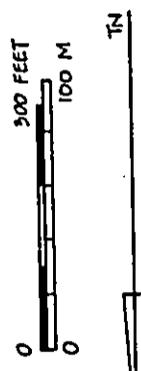
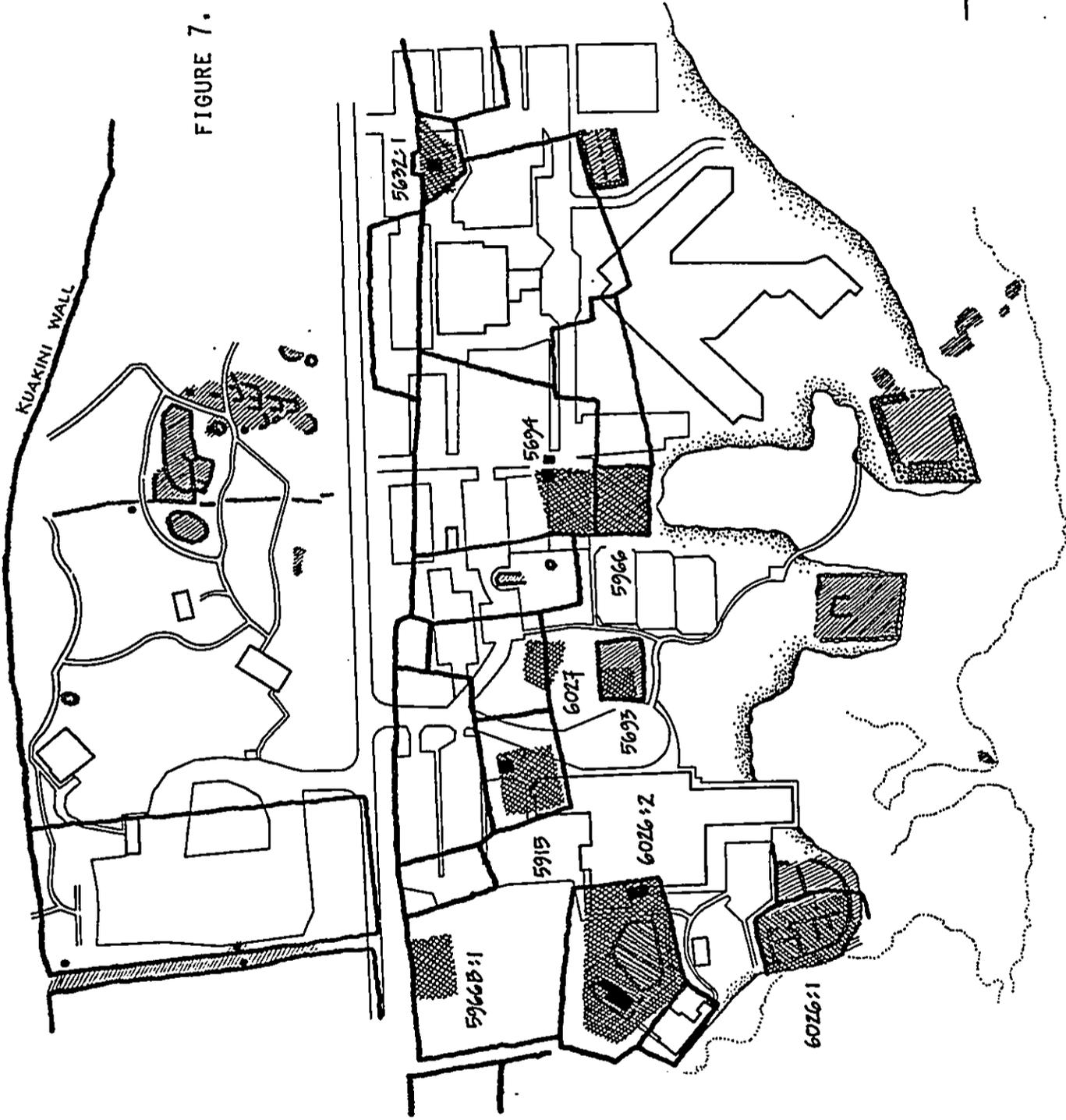


FIGURE 7. PROJECT AREA:
OVERLAY OF LAND
COMMISSION AWARDS
AND 19TH CENTURY
WALLS (BASED ON
BALDWIN 1909)



Within the project area, remains from the early post-Contact period are well represented in many deposits; this material has the potential to be of major importance in contributing to the understanding of Hawaiian history.

Extensive wall building took place in the first half of the 19th century, with much of the wall system shown in Figures 6 and 7 probably having been completed by 1850 (based on written accounts, although the source map--Baldwin--was not drawn until 1909).

Although population was declining in Kahalu'u by the mid-1800s, numerous LCA claims were made (see Figure 7 for the LCAs of the project area), the great majority including a coastal residential lot and a two to three acre agricultural plot mauka. By the turn of the century there were only a few families living at coastal Kahalu'u, with population now growing in the upland agricultural zone. Remains of the mid-1800s to mid-1900s occupation of Kahalu'u are well represented in the project area.

**AZABU KONA RESORT:
HISTORIC PRESERVATION MITIGATION
PHASE I. ARCHAEOLOGICAL INVESTIGATIONS**

**PART II: DATA RECOVERY
PHASE I. SUMMARY REPORT**

SUMMARY

PART II: DATA RECOVERY: PHASE I REPORT

DATA RECOVERY SITES AND RESEARCH

The original Data Recovery Plan for the Azabu Kona Resort Improvement Project is presented in Tuggle (1989). The discussion below includes prior Data Recovery sites investigated under the Phase I fieldwork of this plan (Table 4), along with sites reclassified from Conservation (Table 5), and newly identified sites (Table 7). These sites are summarized in Table 9.

The Data Recovery Plan emphasizes research on settlement history, history of subsistence, abandonment, development of trails and ahupua'a boundaries, and specialization in the occupation of caves. The results of the investigations are summarized below on a site by site basis, with a summary at the end of this section. The Phase I fieldwork, reported here, is intended to provide the foundation for refining questions for additional data recovery. (At the moment, most of the sites in the category of Data Recovery will be placed into an interim category of Conditional Preservation.) The details of the Phase II research questions are presented below. Complete site descriptions and information on all phases of research will be included in the Final Data Recovery Report, as outlined in the Data Recovery Plan (Tuggle 1989).

Table 9: Data Recovery Sites: Phase I Investigations

HRHP	Fieldwork	New Recommendation
1618-A	M	No further work
1618-B	M	No further work
12914	M	No further work
12918-A	M,T	No further work
12918-B	M	No further work
12918-C	M,T	No further work
12919	(1)	AM, Conservation
12921	M,T	Data Recovery, Phase II
12922	M,T	Data Recovery, Phase II
12923-A	M	No further work
12923-B	M	No further work
12935	M,T	No further work
12937-A	M,T	Conditional Preservation
12937-B	M,T	Conditional Preservation
12937-C	M,T	Conditional Preservation
12937-D	M	No further work
12937-E	M,T	Conditional Preservation
12937-F	M	Conditional Preservation
12937-G	M,T	No further work
12937-H	M	Conditional Preservation
12937-I	M	Conditional Preservation
12946-B	M,T	No further work
12950	M,T	Data Recovery, Phase II
12951-A	M,T	No further work
12951-B	M,T	No further work
12955-A	M	Conditional Preservation
12955-B	M,T	Conditional Preservation
12957	M,T	Conditional Preservation

Key: Fieldwork: M=Mapping, T=Test Excavation.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

Table 9: Data Recovery Sites: Phase I Investigations

HRHP	Fieldwork	New Recommendation
1618-A	M	No further work
1618-B	M	No further work
12914	M	No further work
12918-A	M,T	No further work
12918-B	M	No further work
12918-C	M,T	No further work
12919	(1)	AM, Conservation
12921	M,T	Data Recovery, Phase II
12922	M,T	Data Recovery, Phase II
12923-A	M	No further work
12923-B	M	No further work
12935	M,T	No further work
12937-A	M,T	Conditional Preservation
12937-B	M,T	Conditional Preservation
12937-C	M,T	Conditional Preservation
12937-D	M	No further work
12937-E	M,T	Conditional Preservation
12937-F	M	Conditional Preservation
12937-G	M,T	No further work
12937-H	M	Conditional Preservation
12937-I	M	Conditional Preservation
12946-B	M,T	No further work
12950	M,T	Data Recovery, Phase II
12951-A	M,T	No further work
12951-B	M,T	No further work
12955-A	M	Conditional Preservation
12955-B	M,T	Conditional Preservation
12957	M,T	Conditional Preservation

Key: Fieldwork: M=Mapping, T=Test Excavation.

FIELDWORK SUMMARY: SITE DESCRIPTIONS

Fieldwork for data recovery was conducted from August 20 to October 1, 1989. Brief summaries of sites and the 1989 fieldwork are presented below (for site locations, see Figure 2). Site descriptions from Walker and Rosendahl (1989) are not repeated unless it is necessary to make modifications. Complete descriptions and details of excavations will be presented in the Final Report.

SITE 1618

Site 1618 (Fig. 8) consists of two sets of petroglyphs on the pahoehoe flats makai of Papakoholua Heiau. The number of figures is small and all are poorly pecked and extremely faint. Site 1618-A has four human figures; 1618-B (PHRI 439-48) has one figure, some letters, and two small holes. The figures were drawn and photographed.

Conclusions and Recommendations: 1618

Site 1618 is a small set of petroglyphs that may have been associated with a nearby trail, such as the "King's Highway" that probably ran just makai (see Site 12919), but now are isolated.

They have been recorded and no further work is recommended.

SITE 12914 (AZK-6)

This is a newly identified site, recommended for Data Recovery. It consists of two isolated petroglyphs (human figures in stick form), located in the lagoon area. The figures were drawn and photographed.

Conclusions and Recommendations: 12914

The two petroglyphs have been recorded and no further work is recommended.

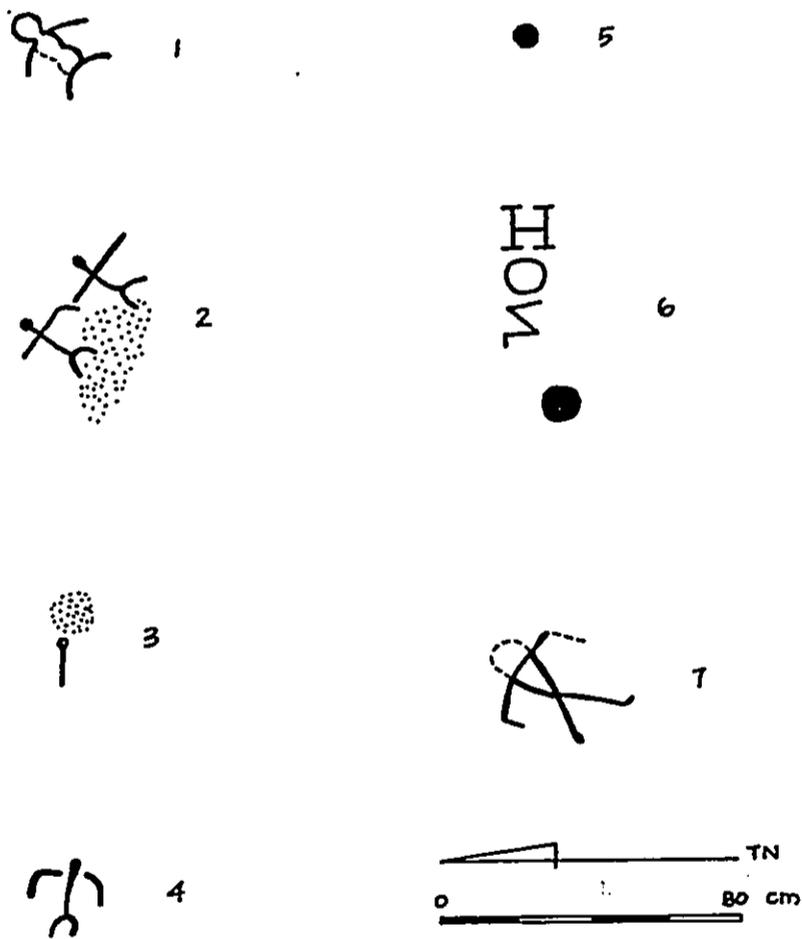
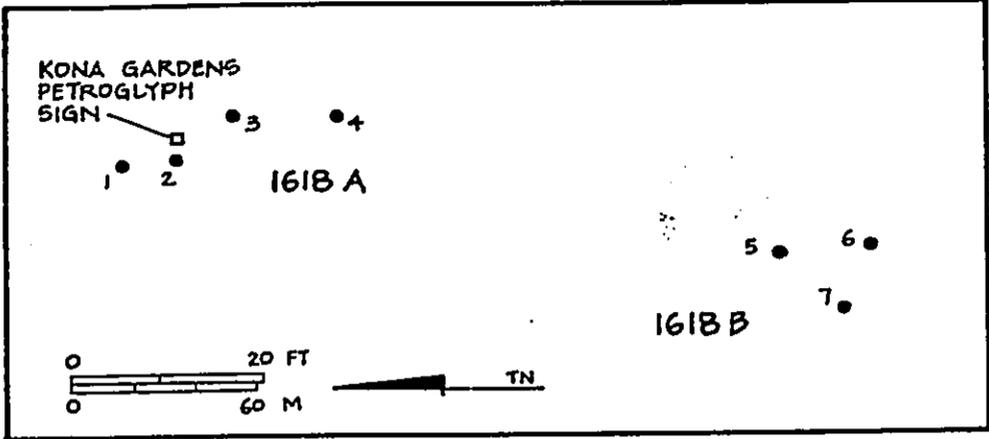


FIGURE 8. SITE 1618

SITE 12918

Site 12918 contains three features: 12918-A, Makole-a Trail (PHRI 439-18); 12918-B, a petroglyph (AZK-8), and 12918-C, a cave shelter (PHRI-439-20).

12918-A (PHRI 439-18)

The earliest known reference to Makole-a Trail is the Baldwin map of 1909, where it is shown but not named; subsequently it is shown on the U.S.G.S. quadrangle Kainaliu (1924). It is named on the Podmore map of 1925. Reinecke (n.d.) noted that the trail was still in use in the late 1920s. The trail extended mauka from the Kailua-Keauhou Beach Road (now Ali'i Drive) to at least the old Keauhou Road.

Today the lower part of the trail appears to be walled, but in fact the trail is the area between two enclosure walls, using the Kuakini Wall as the mauka boundary, as indicated on the Baldwin map (1909). The date of the enclosures is unknown, but they were probably constructed as part of ranching activities at least as early as the late 1800s. It is possible that they were built around 1850 (see discussion of Site 12956).

The trail and associated enclosure walls were mapped and photographed. The section of the trail in the project area is about 120m long and from six to seven m between the walls. The northern wall is from 1.5 to 2m high; the southern wall is generally less than 1m in height; both are bi-faced core-filled. There is substantial alluvial accumulation against the northern side of the north wall, but none on the south side, the trail serving as drainage for runoff.

The makai portion of the trail is now destroyed by the landscaping of Kona Gardens and Ali'i Drive. The portion of the trail in the study area has an irregular surface that runs over pahoehoe outcropping, with several sinkholes and steep areas. There is little modifications and no evidence of wear. This area of the trail appears to have had only limited use, and only as a foot and horse trail. It is probable that the area defined by the enclosure walls is not the original trail. The original trail probably meandered in this lower portion to avoid the rugged portions, and was otherwise modified to create a more appropriate surface. When the enclosures were constructed, the space was left between them in the general area of the original trail.

The trail passes through Kuakini Wall and then, defined by curbstones and other features, passes a number of habitation structures mauka of the wall. The junctures of the enclosure walls and the Kuakini Wall were examined in order to determine the construction relationship. However, the opening has been used as a cattle gate and the abutments have been modified several times, making it impossible to determine the original construction pattern of the junctures. However, the enclosure walls are narrower than Kuakini Wall, and stacked in a different manner; it is probable that they were built later than Kuakini

Wall. Kuakini Wall is commonly believed to have been built between 1820 and 1844, and enclosure walls may have been built around 1850 (see Site 12956).

Sections of what became known as the Kuakini Wall were apparently being built as early as 1812, the date in which John Papa Ii (1963: 111) notes that at Honua'ulu: "A stone wall to protect the food plots stretched back of the village from one end to the other and beyond." It is clear that Ii is referring to upland food plots, therefore the original "village" walls were intended to keep domesticated animals, presumably primarily pigs, at the coast. Wild cattle and pigs apparently did not become a problem in the uplands until after 1850 (see Kelly and Barrere 1980: 30).

Three test units were placed along the northern wall, indicating that it was built directly on the pahoehoe bedrock, with no areas of pre-wall fill.

One of the sinkholes in the trail was tested (50x50cm), and all of a deposit was removed from a small cave (12918-C) just outside the trail. Both of these tests confirmed the impression that the trail and the shallow cave passages beneath it (too small to enter) are subject to heavy sheet flooding. Soil traps contain runoff deposited alluvium and a mixture of modern and older artifacts. There is no evidence for in situ cultural deposits, either by construction or deposition, on the trail or in the sinkholes.

12918-B (AZK-8)

A single petroglyph, rectangular in shape but of no identifiable character, was located on the surface of the trail, toward the makai end. The petroglyph, not of recent origin, was drawn and photographed.

12918-C (PHRI 439-20)

This small cave and sink (2x1x1m) lies just along the wall to the south of Makole-a trail. It is not large enough for habitation. This is part of a series of shallow caves that are subject to sheet flooding. The only deposit was in a small soil trap that was completely excavated, yielding mixed cultural items from secondary deposition.

Conclusions and Recommendations: 12918

Site 12918 has been mapped, photographed and test excavated. The site is an unmodified trail, two associated historical enclosure walls, a petroglyph, and sinkholes. There are no primary deposits that could be excavated for further information, nor are there any deposits located beneath the walls of the associated enclosures. No further information needs to be collected from this site.

SITE 12919 (PHRI 439-19)

This site was described in 1979 by Soehren as a historical roadbed probably dating to the 19th century. However, after Soehren's survey this area was modified by Kona Gardens landscape terracing and parking lot construction. The 1989 field examination found no evidence of the original site; if any remnants of the original roadbed exist, they are buried beneath these recent features.

Conclusions and Recommendations: 12919

This area will not be affected by current project plans; as such it will be placed into the category of Conditional Preservation. Should the area be affected by future activity, any earth-moving work should be archaeologically monitored for evidence of the road.

SITE 12921 (PHRI 439-21)

This is a small cave shelter (3x1x1m) in a lava tube near the junction of Kuakini Wall and Makole-a Trail. The shelter was mapped and test excavated.

The test (1x1m) was placed in what appeared to be the deepest area of deposit, near the front of the cave. The deposit is 40 to 50 cm deep, lying on bedrock, and contains three primary strata and some internal lensing. No features were identified, but an ashy lens at one side of the pit could prove to be the edge of a firepit.

The top 10 to 15 cm contain modern artifacts, primarily broken glass. The main occupational unit is 20 to 30 cm in thickness, composed of ashy cultural deposits, spalled basalt fragments, and some alluvial lensing. This deposit contained midden, a small number of flakes of volcanic glass and basalt, and three adz fragments. The lowest unit is about 5 cm thick and although it contains some midden it appears to be primarily a pre-cultural silt.

There is a large slab of roof-fall within the main deposit. Thus the limited depth of the deposit is probably further compromised by roof-fall scattered throughout it. There are approximately 10 sq m of deposit in the cave.

Conclusions and recommendations: 12921

The original promise of the deposit was not realized in the test excavation. There is clearly an undisturbed deposit without introduced artifacts, but it is not deep, nor does it appear to reflect a long occupation, as might be indicated by multiple complex strata or features. The site is too small to have been an important habitation or refuge cave.

The cave does warrant additional excavation as it may yield material for radiocarbon dating which could be of use in providing a baseline date for the occupation of this area. Further, a large sample of material will allow conclusions regarding duration and permanency of occupation, and will provide a basis for quantitative comparison with the permanently occupied cave 7702 (Hay et.al, 1986) located to the north.

SITE 12922 (PHRI 439-22)

This site was originally proposed as a possible burial mound; it is a low platform or mound (4x5.2x0.5m) constructed of 'a'a cobbles. A test trench was placed through the structure, demonstrating that there was no burial present, nor any intent of constructing a burial facility. It is a rubble-filled area with no midden, but some quantity of 'ili'ili, suggesting preparation of an occupational surface. No artifacts were recovered.

Conclusions and Recommendations: 12922

Site 12922 proved to have no burial function, and thus is recommended for placement in the category of Data Recovery. It is a functionally ambiguous structure; additional data recovery is recommended to make a functional identification. This will contribute to the understanding of a number of similar features in the general area.

SITE 12923

Site 12923 consists of two features: 12923-A, a long wall (PHRI 439-23); and 12923-B, a cave entrance (AZK-4).

12923-A

Feature 12923-A is a long, low, bi-faced, core-filled wall (0.7x60x0.5m), extending mauka and makai of the north end of Papakoholua Heiau. The wall is not shown on the Podmore map (1925), but is drawn on the Reincke map (n.d.).

This wall was mapped in detail in the 1989 season. It is attached to Papakoholua Heiau (1619), but has no functional relation to it. It is certainly a historical feature, probably constructed with the other enclosing walls of the 19th century (see Site 12918).

12923-B

Feature 12923-B is a cave entrance adjacent to 12923-A. The entrance (1x2x1m) is on a slope, facing uphill, so that sheetwash drains into the cave system. There is debris, including some shell and modern glass fragments, accumulated in soil traps on the sloping floor of the cave, but examination of the material indicated that it is all sheetwash deposit. Lower portions of the cave become too narrow for passage.

Conclusions and Recommendations: 12923

Feature 12923-A is a historical wall, a remnant of a series of 19th century enclosures. No additional data recovery is recommended. Further, the sections of the wall that fall within the preservation area of Papakoholua Heiau will necessarily be retained.

No additional work needs to be conducted on 12923-B, unless the mapping of the cave system of Site 11985 should indicate a connection with this feature.

SITE 12935 (PHRI 439-35)

The site is defined as a terrace, but described as an "aa cobble-filled area..." (Walker and Rosendahl 1989: A-37). The description is appropriate; the site is not a constructed terrace, but a natural outcrop (6x10m) that has been leveled with some filling. Despite this filling, the surface is very rough, primarily exposed bedrock.

A test excavation (1x1m) indicated a fill of 15 to 20 cm of pebbles and cobbles. No midden or artifactual materials were recovered from the surface nor from the excavation.

Conclusion and Recommendations: 12935

Although this feature is located on the edge of a small gully with a number of other structures in the vicinity, it appears not to have been used in any significant manner. No additional work is recommended.

SITE 12937

Site 12937 is a habitation complex located on the edge of a small gully. The complex consists of five small terraces, a rock-filled area, two cave entrances, and one bedrock papamu. The complex was mapped and six test pits were placed in the various features.

12937-A (PHRI 439-37)

Feature 12937-A is a terrace that was originally placed in the category of "Provisional Conservation" to be test excavated to determine if this was a burial feature. A test trench (1x2m) was excavated in this structure. The terrace proved to contain no human remains nor any evidence of burial intent, such as a cyst or capping stones. It was constructed in a single event, to serve as a habitation base; it consists of a facing set against a natural outcrop, with additional fill above the outcrop. Construction material is 'a'a pebbles and cobbles.

A hammerstone, coral tool, and midden were collected from the surface. Midden, but no artifacts, was obtained from the excavation.

12937-B (PHRI 439-38)

Feature 12937-B consists of a terrace (2x6.5x1m) built on bedrock outcropping, with a deposit along the face of the bedrock. A test (1x1m) was placed in the deposit, yielding evidence of 35 to 40 cm of cultural material, including the remnant of a firepit. Midden, flakes of volcanic glass, an adz fragment, and a basalt abrader were found in the deposit.

The area of deposition is constrained by outcropping and is too small to have served as a daily habitation area. The nature of the debris suggests that this area served as a trashpit for habitation on the terrace just above it. The firepit was probably a single brief event.

12937-C (PHRI 439-39)

Feature 12937-C is a set of small terraces (8x10x1m). A test unit (1x1.4m) was excavated on the main terrace, including a slab-lined firepit visible on the surface. The test revealed a deposit of nearly 40cm depth representing a complex series of events that will require additional excavation for clarification. The present evidence indicates limited occupation prior to terrace construction. The building of the terrace facing and fill included contemporaneous construction of a large firepit, followed by construction of the firepit identified by the surface slabs.

Although the occupation appears to have been intense, there is no indication that it was of long duration. The deposit contained pieces of volcanic glass, a pecking stone, a coral tool, and a number of glass beads.

The preliminary examination of the beads indicates that they date to the early post-Contact period of Hawaiian history (Laura Carter, personal communication). The beads were located in trash in the lower deposit of the small firepit. There were no remains of a fire in the feature; it had either been cleaned out or never used for a fire. It contained debris that appears to be final platform fill.

12937-D (PHRI 439-40)

Feature 12937-D is a large papamu (1x1.1m) pecked into a smooth area of bedrock, associated with the terrace complex. The feature was drawn and photographed. No further work.

12937-E (PHRI 439-41)

Feature 12937-E is a cobble-filled area, or low terrace (4x4m), identified as a possible burial (see Provisional Conservation). A test unit (1x1m) demonstrated that no human burial was present nor had there been any intent to construct a burial feature.

The feature is a filled area in pahoehoe outcropping, from 45 to 60 cm deep. The main fill is basalt pebbles and cobbles; however, there is a concentration of midden mixed within the rock in the upper part of the deposit and beach sand within the rock in the lower part. In neither case does the material appear to represent an occupational surface, but is probably fill derived from elsewhere, creating a "loading effect". The looseness of the fill as a whole also allows for a substantial degree of percolation. The upper layer is composed of basalt cobbles, forming a relatively smooth occupation surface.

Midden was found throughout the fill. A few pieces of volcanic glass and a pecking stone were recovered from the deposit.

12937-F (AZK-1)

Feature 12937-F is a cave entrance (2x3.5x1.2m), with a cultural deposit, located just mauka of the main terrace complex. The cave was used for a Kona Gardens exhibit, and thus the deposit may be disturbed. It was not tested.

12937-G (PHRI 439-42)

Feature 12937-G is a cobble-filled area (2.5x3m) in a pahoehoe outcrop. This feature was originally interpreted as a possible burial (Provisional Conservation), but a test excavation indicated that no human remains were present, nor was there any evidence of burial feature construction.

The test pit (1x1m) indicated that the feature was intentionally filled in two units, a lower rock and soil fill and an upper level of pebbles. A small quantity of midden and a few pieces of volcanic glass were found throughout the fill, either as part of the fill material or through percolation from surface deposition. Two adz fragments came from the lower part of the deposit. There is no evidence of an occupational surface within the fill. No further work recommended.

12937-H (AZK-2)

Feature 12937-H is a small cave entrance (1x1.5x1m) associated with the terrace complex. It appears to contain a shallow deposit, but was not tested. A bedrock mortar (PHRI 439-43) is located on the pahoehoe just above the cave.

12937-I (AZK-9)

Feature 12937-I is a rock-filled area (4x5m) associated with the terrace complex, but isolated by a Kona Gardens asphalt path. The path has damaged part of the feature, but it appears that this was another low terrace that would have abutted Feature C. It was not tested.

Conclusions and Recommendations: 12937

The complex of habitation terraces was constructed by facing and filling the edge of a pahoehoe outcrop located along the side of a small gully. The small size of each terrace (16 to 18 sq m

or less), and the low to moderate level of construction labor involved, indicate that the complex does not represent an elite occupation. Much larger housesites, more indicative of ali'i residence, are located in northern Kahalu'u (Fig. 4).

However, this complex takes on particular importance in two respects. First, it may be part of an even larger habitation complex that includes features within the Papakoholua Heiau boundary (discussed under Site 1619). Secondly, the presence of the introduced beads in the firepit of Feature C indicates that the bulk of the occupation could fall within the early post-Contact period. This is a period that is very difficult to identify archaeologically. The possibility of retrieving relevant information from this set of features makes data recovery here of very great importance.

The absence of artifacts from later time periods (very common in sites makai of Ali'i Drive) indicate that the complex was abandoned by the mid to late 1800s.

The general impression created by the depositional structure is of a relatively brief period of occupation.

This complex of sites has high potential for additional data recovery, with only two features (D and G) requiring no further work. At the moment, however, plans for the improvement project do not involve any impact in this area of sites, so it is recommended that the complex be placed in the category of Conditional Preservation.

SITE 12946-B (PHRI 439-47)

This feature, a small, cobble-filled area (2x2m), was tested as a possible burial site, but it proved to have no human remains. It is a single event fill, 30 cm deep, with a few flakes of volcanic glass and fragments of midden. The surface served as a working area; the artifacts were in the fill material or filtered through the working surface. No further work is recommended.

SITE 12950 (PHRI 439-50)

This site, defined as a "midden area and 'ili'ili scatter" (Walker and Rosendahl 1989: A-40) is a low-walled enclosure, representing the remains of a kuleana parcel. This parcel was awarded to Maheu (also "Meheu"), as LCA 5966. It is described in the mid-19th century records as enclosed, with two houses (Native Testimony 1848). The land to the south and makai was identified as "idle", the land mauka belonging to Kaukoekoe (or Poohina), and the land to the north belonging to the konohiki (Native Register and Native Testimony). No 'ili name was noted for this parcel, but the LCA mauka (5694:1) was located in the 'ili of Hokio, which may thus include 5966. Maheu was also awarded a two acre agricultural parcel somewhere mauka.

By the time of the Baldwin survey (1909) no house was located on the parcel, corroborated by the Podmore map of 1925. In both cases, however, an enclosing wall was shown, presumably representing the original kuleana walls constructed by Maheu (although not exactly the area ultimately awarded). The walls were still intact when the area was mapped in 1969 (Keauhou Beach plot plan) and again in 1971 (McCoy and Emory 1971, Fig. 4).

The site was mapped and test excavated (three 1x1m pits) in the 1989 season. The makai portion of the site has been heavily damaged by storm surf (the site is located at the inland edge of a shallow lagoon), but fragments of a wall could be seen. Only a portion of the south wall remains, much of it destroyed (or covered) by construction activities of the adjoining Kona Lagoon Hotel. The north and mauka walls are in good condition, but appear to have been substantially rebuilt. There are no surface indications of the two houses said to have existed in 1848.

The surface of the interior area is heavily covered with midden, but no traditional artifacts were found except for one fragment of a grinding stone. In addition, large quantities of modern trash are scattered over the surface.

The three excavation pits indicated that the deposits in the area are shallow and highly disturbed. Although there are large quantities of modern trash, there are also remnant undisturbed deposits with 19th century artifacts, as well as some flakes of basalt and volcanic glass that may derive from the pre-Contact period.

Much of the modern material, from the 1950s and 1960s, was deposited from the adjoining parcel where structures existed until about 1970.

Conclusion and Recommendations: 12950

Site 12950 is clearly the location of a 19th century kuleana lot. Despite substantial disturbance and modern trash, there are some remnants from the 19th century occupation, including wall sections and deposits.

Additional data recovery is recommended. There is a possibility of locating house foundations from the 19th century, and a good probability of obtaining a good sample of the 19th century artifactual inventory. Information from this important occupational period is difficult to obtain in general, and certainly so in the remainder of the project area due to extensive disturbance.

SITE 12951

This site consists of two wells, 12951-A (439-51) and 12951-B (439-52). These are faced structures that extend to the water table. Both structures have been substantially rebuilt by recent landscaping. These features are not part of kuleana lots, but do fall within the area of extensive 19th century wall construction, as shown in the Baldwin map of 1909. Feature 12951-B was noted in 1930 by Reinecke (n.d., Site 29) and described as "Fine brackish pool, with very carefully laid steps leading into it." This has been rebuilt so that no steps exist now. Reinecke does not mention 12951-A, a site that now has steps leading into it. (It is possible that Reinecke's site 29 is mislocated and could be 12951-A instead of B, but his sketch suggests they are not the same.)

Test pits were placed near each of the wells. The pit near 12951-A immediately encountered large cobble and boulder construction fill, and could not be excavated to any depth. Another pit showed nothing but disturbance and modern material. In the latter case some midden was found on the surface, but this is a recent secondary deposition.

Two test pits (each 1x1m) near 12951-B were quite similar in content. Each had a substantial deposit of modern landscaping fill above a truncated original deposit some 10 to 15 cm thick. This deposit contains a few pieces of midden, a few flakes of volcanic glass and basalt, plus two adz fragments. However, this does not appear to be a primary deposit, but rather a secondary deposition in gravels.

Conclusions and Recommendations: 12951

The two wells could date from the 19th century, but there is no clear evidence in support of this; further, one (and probably both) has undergone substantial modification in recent years. Near 12951-B is a remnant unit with cultural material, but in a secondary deposition.

No further work is recommended for the wells. The deposit with the cultural material is not substantial enough to warrant direct archaeological monitoring during construction; however, provision should be made for the accidental encounter of intact cultural deposits that could exist in the general area.

SITE 12955

Site 12955 contains two features, 12955-A, a large wall (PHRI 439-55), and 12955-B, a house site (PHRI 439-56). This area was left as a landscaped island when the parking lot for the Kona Lagoon Hotel was constructed.

Site 12955 is the remnant of a kuleana lot (LCA 5632:1). The LCA was awarded to Keikihookama; it was described in the

original testimony (1848) as having a house but no fence. The mauka boundary was the "Government Road", with other sides described as konohiki land (Native Register and Native Testimony). The property was identified as located in the 'ili of Makolea. This award was accompanied by a three acre agricultural parcel somewhere mauka.

By the time of the government survey in 1852, the house lot had been walled (Grants...1882-1883). A house in this location is shown on the Emerson drawing (1883) and identified as belonging to "Rev. W.N. Lono". The 1909 Baldwin map and the 1925 Podmore map both show a house and a kuleana enclosing wall; the massive wall (12955-A) has an opening, providing access to the main road mauka. A 1971 map (McCoy and Emory 1971: Fig. 4) indicates a "shed" where the house of Rev. Lono once stood, and a house on the mauka side of the wall. When this change took place is uncertain. The Kekahuna map of 1952 has the house of "Rev. J. Upchurch" in this location, but it does not show the kuleana walls, so it is not clear if this house is mauka or makai of the large wall. Information from Mrs. Mary Green (personal communication, 1989), who lived in the house in the 1950s, indicates that it was, by this time, mauka of the wall. The shed shown in the 1971 map was built on a stone platform, with the platform used to dry fish nets, while the shed contained saddles and was also used to cure pork.

Thus there is documentary evidence that the locale was occupied (continuously?) from at least 1848 to the mid-1900s, although the main house was shifted from makai to mauka of the wall sometime after 1930 and before 1950. The information indicates that the kuleana walls were constructed between 1848 and 1852, possibly including the large mauka wall that is part of the complex of enclosures shown in the 1909 Baldwin map. This thus allows the hypothesis that this entire complex of enclosures was constructed around 1850.

The site area was mapped and test excavated (three 1x1m pits) in the 1989 field season. The large mauka wall (12955-A) is certainly the wall shown in the 1909 Baldwin map, but it has been rebuilt, probably as a part of the landscaping of the Kona Lagoon Hotel. The northern wall is a remnant of the kuleana wall, also shown on the Baldwin map.

The surface of the area has been landscaped, so that there is no evidence of any of the structures identified in earlier maps. The terrace line shown in the 1971 map (McCoy and Emory 1971: Fig. 4) has also been obscured.

The test unit along the mauka wall indicated that the wall is built on bedrock with a shallow adjacent deposit. (The wall needs to be trenched at this point to isolate the rebuilt components.) The test along the lower wall indicated extensive fill, serving to level the area between the terrace face and the makai wall; this may have been done as part of the recent landscaping, using part of the cultural deposit as fill.

The test in the center of the old terrace location revealed intact deposits as deep as 65 to 70 cm, with a complex history of occupational deposition and feature construction. Historical artifacts were found throughout the deposit, along with large quantities of midden; very few traditional Hawaiian artifacts were located.

The analysis of the introduced artifacts is still underway, but preliminary examination indicates that an extensive time range is represented, consistent with the documentary evidence, from the early 1800s to the mid-1900s.

Conclusions and Recommendations: 12955

Although there has been some disturbance from modern landscaping, there is a substantial intact deposit remaining in this kuleana enclosure, the bulk of it in the terrace of a house site that existed well into the 20th century. Extensive data recovery at this site, along with the documentary information, could well provide the most complete record of late 19th and early 20th century occupation of the project area. Detailed data recovery is recommended if the area is to be affected by any project activities. At the moment the plans are to avoid this area; thus the current recommendation is to place this site into the category of Conditional Preservation.

SITE 12957 (PHRI 439-57)

This site is an enclosure (currently landscaped and used as a hotel garden) that is the location of a kuleana parcel (LCA 5693). The parcel was awarded to Koolau, and was described as being idle land prior to Koolau's use of the land as a "house lot" (Native Register and Native Testimony). The area around this parcel was identified as belonging to the konohiki. No 'ili is named for this lot, but the parcel immediately mauka (LCA 6027) was located in the 'ili of Kamauii. Unlike most awards in the project area, LCA 5693 did not include a mauka agricultural parcel.

The original testimonies for LCA 5693 do not mention an enclosing wall, but the survey of 1852 (Grants...1882-1883) indicates that walls existed at least on the makai and south sides. The testimonies call the property a "house lot", but there is no mention, as there usually is, of an actual house. The 1883 Emerson map does not indicate any house in this locale, while the Baldwin map of 1909 (and Podmore 1925) shows a walled enclosure twice the size of the original parcel, but no house.

If a house was ever built on the lot, it was abandoned prior to 1883. The walled enclosure noted in 1852 had been expanded by 1909 to about twice the original size.

The site was mapped and two test pits (each 1x1m) were excavated. The present enclosure is clearly the walled area shown on the 1909 map, and thus was built sometime between 1852 and 1909, although with some rebuilding and landscaping. (A "well" in the center is of recent construction, part of the hotel garden.) A papamu has been incorporated as part of the wall foundation in the southeast corner.

Within the enclosure, fragments of midden and pieces of porcelain are present on the surface; testing indicated that this material was recently deposited (perhaps from the construction of the "well").

One test pit in the original kuleana area indicated largely recent or disturbed deposits; the lowest level (30 to 40 cm deep, on bedrock) may contain a remnant deposit from the 19th century, but more extensive excavation would be required to determine if significant remains exist.

The test pit on the south side, within the enclosure but outside the original kuleana, is much more promising. There is less recent disturbance. The 19th century wall is built on undisturbed beach sand. There is no clear cultural deposit associated with the wall; the deposit may have been removed during landscaping, or may never have been significant, as suggested by the absence for any documentary evidence for a house in this location. Beneath the wall the beach sand is about 35cm in thickness (in two depositional units) and contains a few pieces of midden and some traditional Hawaiian artifacts, including flakes of volcanic glass and basalt, and a coral abrader. No introduced artifacts were in this deposit, so it may well be pre-Contact or early post-Contact. The sand is deposited on top of a shallow, non-cultural beach gravel, that in turn lies on bedrock.

The sand deposit is not, however, a primary cultural occupation; the amount of cultural material is small, there are only a few flecks of charcoal, and there are no features or living surfaces. In all probability, this is the margin of the original occupational area, (and as a coastal deposit, may well have been a pre-Contact habitation of considerable importance. No testing was done outside the enclosure, so it is uncertain where the main occupation might have been located. The area around the enclosure has been subjected to extensive development, so the probability of such a deposit still existing is limited.

Conclusions and Recommendations: 12957

The present enclosing walls of 12957 probably date from the mid to late 19th century, but define an area larger than the original kuleana. There is no documentary or archaeological evidence that a house ever existed within the enclosure.

A deposit exists below the wall on the south side that is important in suggesting a significant occupation in the vicinity.

The limited historical deposit in the northern section of the enclosure would merit additional data recovery for final verification of the nature of the 19th century occupation. More extensive data recovery in the southern portion of the enclosure is important to provide more information on the intact deposit of that area.

Currently, the improvement project involves no actions that will affect the site. It is recommended that it be placed in Conditional Preservation. At the same time, it is recommended that there be archaeological monitoring of project activities involving earth-moving in the area outside the site. There is a high probability that remnant dune deposits will be encountered.

DATA RECOVERY, PHASE I, SUMMARY CONCLUSIONS

The Data Recovery Plan (Tuggle 1989) presents a number of research issues for the Azabu Kona Resort project. The fieldwork was conducted with these issues in mind and they are discussed below. The site-specific conclusions are presented above.

Methodological Issues

Most archaeological inferences depend on comparisons based on a common event-defined unit on one hand and by a common time-frame on the other. In Hawaiian archaeology, the framework for these comparisons remains poorly developed. These issues are discussed here in the context of the data recovery excavations.

Many of the features were constructed as single event actions, including most of the free-standing walls and some terraces and cobble-filled areas (e.g., 12937-A, 12937-E, G, and I, and 12946). Such units allow direct volumetric comparisons. Other features, (such as 12937-C) show multiple construction phases (i.e., two or more event actions), which then require separation for quantitative (volumetric) comparisons. If such measures are combined with areal unit measurements (e.g., floor area), then a basis can be established for comparisons that relate to occupation (e.g., occupational nature, from ephemeral to permanent; and occupational class, commoner to elite).

Depositional units require more complex analyses or more simplified assumptions because of the unknown variable of duration. If assumptions are made regarding depositional duration, then variability of midden and artifact content can be measured. Cave deposits (e.g. 12921) and habitation trash deposits (e.g. 12937-B) fall into this category.

A cross-cutting problem is the nature of Hawaiian deposition; if sites have a longer duration than depth of deposits would suggest, then it is probable that material is being disposed elsewhere (ocean, gardens?). The implication of this is that the archaeological remains are a sample of an unknown universe, calling into question inferences that depend upon the sample being representative. What the archaeological sample represents has to be carefully argued. This is one of the many dimensions of the complex problem of sampling in Hawaiian archaeology (see Cordy 1984).

The final data recovery report will explore quantitative analysis in both domains discussed above, that is, in volumetric comparison and in deposit content variability.

The problem of temporal control remains an absolute concern in Hawaiian archaeology, but will not be discussed at length here. The specific problems of the project sites in this regard are simple. Very little material suitable for radiocarbon analyses was obtained from acceptable proveniences; no hearths or ovens with solid carbonized remains were excavated. However,

additional excavation of Site 12921 does have the possibility of exposing datable hearth material. The bulk of the dating for the Azabu project at this point depends on the presence of introduced artifacts, on traditional accounts, and on relative stratigraphic placement.

Substantive Problems

Settlement History; occupation and abandonment:

Two areas of the project have clearly distinct settlement histories. One area is mauka of Ali'i Drive (the old "Government Road") and south of Makole-a Trail. The other section includes Makole-a Trail and all of the area makai of Ali'i Drive.

The area makai of Ali'i Drive included several kuleana awards. Archaeologically, the information indicates generally continuous occupation from the mid-1800s to the mid-1900s. Makole-a Trail seems to have been used throughout this period as well. However, the area south of Makole-a Trail, although perhaps used for cattle, was abandoned for habitation in the early post-Contact period.

Although the makai area was certainly intensively occupied in the pre-Contact era, very little remains from this time, due to modern construction. In the excavations of data recovery sites, only fragments of deposits and a few artifacts that might date to this period were located. Any significant remains from the pre-Contact period will almost certainly be found, if at all, in association with the sites in the Preservation category (the major heiau and Po'o Hawai'i).

In the project area mauka of Ali'i Drive, we hypothesize that the occupational history was of short duration (excluding the unknown history of Papakoholua Heiau). No absolute dates for original occupation are available, but the limited construction and the relatively shallow depositional units argue for a brief period of occupation.

Little information was collected relevant to subsistence; midden was obtained from virtually all deposits, but generally in low quantity. There were no deposits that have a midden sample well-controlled for temporal variation. Variation measured would be more spatial than temporal, reflecting either difference in nature of occupation, season of year, or class. Artifacts were collected in too low a quantity to allow evaluation of subsistence models.

Understanding of the social dimensions of occupation was little advanced. No residences of elite were excavated, nor were any remnant features of such residences identified. The structures of 12937 are most certainly those of non-elite, although the possibility of specialized occupation associated with Papakoholua Heiau cannot be dismissed. This issue will be explored in detail in the final report.

DATA RECOVERY, PHASE II

It has been decided that several of the Data Recovery sites will now be avoided by the improvement project. These sites include 12919, 12937, 12955, and 12957. Thus these sites have been placed into the category of Conditional Preservation and are treated in the Preservation Plan. Three sites remain for Phase II data recovery: 12921, 12922, and 12950 (Fig. 2).

SITE 12921

Site 12921, a cave shelter adjacent to Makole-a Trail, will be excavated intensively. This is the one site that has a high probability of providing datable material to establish some archaeometric time depth for the project area. Extensive excavation will also provide a solid base for comparison with other Kona cave excavations, particularly the large habitation cave site of 7702 (Hay et.al, 1986). Such analysis involves the character of occupation and the nature of the occupational group. Site 12921 is much smaller than 7702, and it is unlikely that it served for permanent habitation, as has been inferred for 7702. Depositional and artifactual comparison will allow a test of this proposition.

The excavation will be conducted with careful stratigraphic control (the test pit has established the basis for this), and with water screening. Information relevant to depositional processes will be carefully collected, related to identification of unit structure and duration, as discussed under Methodology above. Hearths will be excavated for collection of datable charcoal.

SITE 12922

Site 12922, a low, cobble platform (or mound), will be intensively excavated. This site is functionally ambiguous, but is representative of a number of features in this general region. These are cobble-filled areas and low cobble mounds whose functions are uncertain. The test excavation of this site indicated that it was constructed as a single event and contains very little occupational debris.

Intensive excavation will be directed toward the question of functional identification through evaluation of midden and artifact content, and determination of construction elements.

SITE 12950

Site 12950 is a kuleana enclosure with extensive disturbance and large quantities of modern trash, but with some intact original deposits dating to the mid-1800s, with a possibility of an earlier component.

Intensive excavation will be conducted to identify any remains of house foundations and to recover the 19th century artifact assemblage. The artifact assemblage needs to be defined for understanding commoners' access to the imported goods in the economic system of this time period.

DATA RECOVERY, FINAL REPORT

Detailed information and analysis of all data recovery excavations, Phase I and Phase II, will be presented in the Final Report. The report will have all of the specifications identified in the Data Recovery Plan (Tuggle 1989).

AZABU KONA RESORT:
HISTORIC PRESERVATION MITIGATION REPORT
PHASE I ARCHAEOLOGICAL INVESTIGATIONS

PART III: PRESERVATION
PHASE I SUMMARY REPORT

PART III: PRESERVATION, PHASE I SUMMARY REPORT

This section presents a brief discussion of the investigation of sites in the Preservation category, additional fieldwork recommendations, and protective recommendations.

PRESERVATION SITES

Phase I Investigations

In the original inventory (Walker and Rosendahl 1989, Table 5) sites were placed into two categories of Preservation: provisional Preservation 'as is' (here called provisional Conservation), and "Preservation with Interpretation" (here called Exhibition). An additional category has been added (see Part I) called Conditional Preservation.

Conditional Preservation Sites

Data Recovery sites that will not be affected by the improvement project are placed in the interim category of Conditional Preservation (Table 10). The Phase I investigations of these sites are discussed in Part II.

These sites are treated in the protective section of the Preservation Plan (see below). If future actions should involve an impact on these sites, they will be returned to the Data Recovery category and investigated under an appropriate Data Recovery Plan, requiring the review and approval of the Historic Sites Section of the State of Hawaii.

Table 10: Conditional Preservation Sites

HRHP No.
12919
12937
12955
12957

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

PART III: PRESERVATION, PHASE I SUMMARY REPORT

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Table 10: Conditional Preservation Sites

HRHP No.
12919
12937
12955
12957

Provisional Conservation Sites

On the basis of structural appearance, a number of sites in the project area were identified as possibly containing human burials (Tables 5 and 11), provisionally classified as Conservation (preservation 'as is'; Walker and Rosendahl 1989, Table 5). These sites were tested to determine if there were human remains present or if they were constructed to contain human remains. The testing was conducted to minimize disturbance to the structures and to allow reconstruction of the excavated portion, should burials prove to be present.

Table 11: Provisional Conservation Sites (Prior Classification)*

HRHP	Field No.	Type	Fieldwork	Result	New Recommendation
12922	439-22	Mound	M,T	Not a burial	DR, Phase II
12936	439-36	Platform	M,T	Burial	PC
12937-A	439-37	Terrace	M,T	Not a burial	CP
12937-E	439-41	Terrace	M,T	Not a burial	CP
12937-G	439-42	Cobbles	M,T	Not a burial	DR, NFW
12946-A	439-46	Platform	M,T	Burial	PC
12946-B	439-47	Cobbles	M,T	Not a burial	DR, NFW

Key: Fieldwork: M=Mapped; T=Test excavated.
 Recommendation: DR=Data Recovery; PC=Preservation/Conservation;
 CP=Conditional Preservation; NFW=No further work.

*Also see Table 13.

SITE 12922 (PHRI 439-22).

The testing indicated no human remains present. The site is recommended for Data Recovery; see discussion under Data Recovery (Part II).

SITE 12936 (PHRI 439-36).

This is a circular platform (4x4xlm), with a number of uprights as exterior retaining stones. A test trench was placed into the structure through a sinkhole, which, with capping stones, created a burial chamber. A small portion of the chamber was exposed and the excavated area was then rebuilt. The platform itself was constructed as a single event by covering the burial cavity, placing a number of large upright stones in a circle, then filling with large cobbles and boulders, with capping stones on top.

This burial platform is constructed in a manner very similar to some of those that have been opened by vandals in the "Lekeleke Burial Ground" south of Keauhou Bay.

It is recommended that Site 12936 be retained in the Conservation category.

SITE 12937-A (PHRI 439-37)

Testing indicated no human remains present, nor any construction of a burial facility. The site is recommended for Conditional Preservation; see discussion under Data Recovery (Part II).

SITE 12937-E (PHRI 439-41)

Testing indicated no human remains present, nor any construction of a burial facility. The site is recommended for Conditional Preservation; see discussion under Data Recovery (Part II).

SITE 12937-G (PHRI 439-42)

Testing indicated no human remains present, nor any construction of a burial facility. This site is recommended for no further work; see discussion under Data Recovery (Part II).

SITE 12946-A (PHRI 439-46)

This large, low stone platform or mound (11x12x0.75m) is located immediately north of Papakoholua Heiau. Limited testing disclosed capped burial chambers in the structure; stone alignments visible on the surface represent probably four chambers.

It is recommended that the site remain in the category of Conservation.

SITE 12946-B (PHRI 439-47)

Testing indicated no human remains present, nor any construction of a burial facility. This site is recommended for no further work; see discussion under Data Recovery (Part II).

Exhibition Sites

Sites in the category of Exhibition (also called Preservation with Interpretation) (Table 12) are designated for interpretive treatment, to be presented in the final Preservation Plan. The work in the present project was aimed primarily at collecting baseline information for future preservation action, for establishing recommendations for site protection during improvement project implementation, and for long-term buffers.

Table 12: Exhibition Sites*

HRHP No.	Field No.	Type	Fieldwork	Recommendation
01619	1619	Heiau, Papakoholua	M,T	Buffers
03817	3817	Heiau, Hapaiali'i	M	Exterior test, buffers
03818	3818	Heiau, Ke'eku	M	Exterior test, buffers
03819	3819	Heiau, Makole-a	M	Exterior test, buffers
10997	10997	Heiau, Kapuanoni	M	Exterior test, buffers
12953	439-53	Pond, Po'o Hawai'i	M	See detailed recommendation
12954	439-54	Petroglyphs	M	Buffers

* Also see Table 13.

The first phase of preservation fieldwork was primarily detailed mapping of the Exhibition sites; excavation was carried out only on Site 1619 (Papakoholua Heiau).

The following descriptions include only brief summaries of site histories. The final Preservation Plan will include complete site descriptions, detailed maps, structural comparisons, and historical analyses.

SITE 1619, Papakoholua Heiau

Site 1619, Papakoholua Heiau, was first recorded by Reinecke in 1930 (Reinecke, n.d.).

Kahalu'u is known for its many named heiau; these began to be recorded in the 1800s (Forbes, n.d.). By the early 1900s, there were nine named heiau recorded for coastal Kahalu'u (Stokes n.d.), but Papakoholua was not among these. This raises the question of the antiquity of the name and, perhaps, its identification as a heiau. Reinecke presumably obtained the name from his informant, Kahulumu, and also noted that Papakoholua was a "minor heiau." *

In Phase I fieldwork, the heiau was mapped in detail. Three firepits in various platforms were partially excavated and a trench was placed into rubble on the mauka side.

* Attached to Reinecke's manuscript is a typed list headed "LIST of HEIAU in KAHALUU furnished by Kahulumu" that does not include Papakoholua as a numbered heiau, but rather, inexplicably, in parentheses. Did this mean it was questionable? There is a similar problem with the name of the structure now commonly called "Lonoikamakahiki's residence", south of the project area. Reinecke calls it Kapukini Heiau, but it had also been called Paniau Heiau by Podmore in 1925; neither name occurred on earlier lists, nor is either a traditional heiau name.

The only heiau with a similar name known to me is "Koholuapapa", located on Maui, but this appears to be a local place name, and not necessarily the name of the heiau itself (HRHP files). Further, there is no known reference to any heiau or place of this name in the written traditions of Hawaii.

Without diacritical marks the name cannot be properly translated, but it contains intriguing possibilities. For example, a "koholua" is a sharp object, specifically a stick to cause abortions, and is also used figuratively ("He papa koholua oi ke alii." Andrews 1974). Lua is the name of a being who appears with the goddess Papa in some traditions. The possibility that "lua" may refer to the many caves of the area is also suggestive (the various translations of "lua" include not just "cave", but also "burial cave"—cf. the translation in Kamakau 1961: 388). It is the name of the goddess Papa that occurs, of course, in "hale o papa", a structure associated with luakini heiau. Also of interest is that the heiau at Honaunau named Akahipapa is called a "Heiau no na Wahine" (Thrum 1907: 46).

The structure is a series of platforms, beginning with a high, massive one to the north, and gradually descending to low platforms at ground level to the south. There is a rough, low wall that encircles much of the structure (called a "pen" by Reinecke). Reinecke (n.d.) describes Papakoholua as "in torn up condition" and notes that the "floor of the pen to the south is natural rock". Both of these statements require qualification.

The main, massive, northern terrace has been heavily stone robbed in sections (probably for the building of the low associated wall, 12923, or for the building of Kuakini Wall), but the major part of the structure exists, including much of the north facing. The floor of the "pen" is not natural rock, but a continuation of the terraces. The "pen" itself does not appear to be an animal pen, but rather a kuleana-style, 19th century houselot enclosure. In fact, no large animals were ever maintained within the "pen" because the terraces are virtually undamaged. The low wall, of whatever purpose, is a late addition to the main structure.

The northern, high terrace of Papakoholua is a distinctive structure, built of large cobbles and boulders, with a rough surface and numerous depressions (some from disturbance). The remainder of the structure, however, takes on a different character, with small, but well-formed, habitation terraces. There is a variety of surface pavings, several exposed firepits, some possible burials, and large quantities of surface midden. Much of the structure appears to have been used for habitation.

If the structure is considered without the low enclosing wall, and if the Kona Gardens path is disregarded, it becomes clear that the platforms at the south end of Papakoholua merge with the habitation terraces of Site 12937, forming a substantial habitation complex.

The excavation trench (1x1.8m) was placed on the mauka side of the structure, in what appeared to be rubble, in order to locate the original exterior face and to identify any subsurface deposits. The "rubble" proved to be a ramp that was constructed against the original wall. It is probably a post-Contact construction and may be associated with the construction of the low enclosing wall on top of the structure. Midden and some pieces of volcanic glass were obtained in the excavation. There were no introduced artifacts.

Three slab-lined firepits, partially exposed on the surface, were sectioned. None of the firepits contained carbonized remains. Two contained midden, and one contained a cowry shell lure, a pecking stone, and a fragment of unworked chert. It is not yet determined if the chert is Hawaiian or continental in geological origin. If continental, it would place the final occupation in the early post-Contact period. Although a meagre item of evidence, it would be consistent with the data from Site 12937, indicating an early post-Contact date for the final occupational horizon of this entire complex.

Surface artifacts on Papakoholua included a hammerstone and a coral abrader. No introduced artifacts (except the chert?) were found on the surface or in any excavations.

Conclusions and Recommendations: 1619, Papakoholua

Papakoholua Heiau remains ambiguous; although quite probably a heiau, the documentary and archaeological evidence is not conclusive. Other functions of the massive terrace are possible, such as the foundation for a chief's house. At the same time, if Papakoholua was a heiau, the incorporation of numerous habitation terraces as part of the structure is unusual. Habitation terraces and platforms are found in association with heiau, but seldom so closely integrated.

The enclosing wall on top of the terraces appears to be a late structure, probably 19th century, and unrelated to any heiau function. The site was probably abandoned before the end of the 1800s.

The presently limited data (documentary and artifactual) suggest, in fact, that there was very little activity in this general area (south of Makole'a Trail and mauka of the old government road, now Ali'i Drive) after the mid-1800s. This is in sharp contrast to the area makai of the government road, and that north of Makole'a Trail, areas of intensive 19th century occupation.

Papakoholua and the associated burial platform, 12946, require protection during construction and a buffer zone for final siting of improvement facilities. The boundary of the buffer is identified in Figure 10. This should be marked during project activity by a lightweight, but sturdy fence, at least five feet high, and clearly identified with signs indicating "Non-Construction Area; Keep Out". Following construction, a permanent fence with appropriate access to the area should be installed along approximately the same boundary.

Papakoholua, with its complex of terraces, partial demolition, and associated features has high potential for interpretive exhibiton. Details for interpretation and long-term maintenance will be recommended in the final Preservation Plan.

No additional excavations are recommended at present; recommendations for excavations for long-term interpretive plans will be included in the final Preservation Plan.

SITE 3817: Hapaiali'i Heiau

Hapaiali'i Heiau is not mentioned in any of the written traditions, but it is included in the Forbes's heiau list (n.d.) of the mid-1800s, and subsequently described by Thrum (1907) and Stokes (n.d.). "Hapaiali'i" was also an 'ili name mentioned in the testimony for LCA 5915, indicating the name itself is traditional.

Stokes' informant Malanui (see Sources in Part I) indicated that the temple of Hapaiali'i was built by a Maui priest named Maa, sometime later than the time of Paa'o (Stokes n.d.), but before Ke'eku. Cordy (1986b) places this, by genealogical count, sometime between A.D. 1200 to 1400.

Malanui said the temple was "for prayers only." Thrum (1908) collected information that Kamehameha built (rebuilt?) this temple, with Hewahewa as its priest, after the battle of Mokuohai near Honaunau, about 1782, the first major battle for the control of Hawai'i after the death of Kalaniopu'u. There is no corroboration that this dedication took place at Hapaiali'i, but it is quite likely that Kamehameha would have rededicated one of the Kahalu'u temples because of the importance of Ke'eaumoku's role at Mokuohai.

Hapaiali'i is translated by Pukui, Elbert, and Mookini (1974) as "elevating chief".

The Phase I fieldwork included detailed mapping and photography of Hapaiali'i. The temple is a massive platform, with paving and a low walled enclosure on top. Stokes (n.d) believed the enclosure to have been recent when he mapped the site in 1906. The temple has suffered major damage from wave action, particularly on the makai and north sides. Fortunately, the massive foundation stones of these two walls remain in place. The mauka side is largely covered in sand.

Conclusions and Recommendations: 3817, Hapaiali'i

Based on informant information, Hapaiali'i is one of the oldest temples in Kahalu'u, and may have been used until the time of Kamehameha.

Before finalizing recommendations regarding buffers, excavation is needed on the exterior area mauka to determine the location and condition of the mauka wall, and to identify any associated features or subsurface deposits.

SITE 3818: Ke'eku Heiau (Kamaike'eku; and Halekumukalani?)

Ke'eku (or Kamaike'eku) was a major luakini temple of Kahalu'u. 'Ohi'amukumuku and Kamaike'eku are listed by Kamakau (1961: 180) as Kamehameha's two luakini in Kahalu'u. But the temple is certainly much older than the time of Kamehameha.

There a reference to Ke'eku's use as a luakini by one of the earliest kings of Hawaii (following the "Migratory Period"). The king Kalaunuiohua (Malo 1951: 251), genealogically dated to the mid-1400s, sacrificed a famous seer named Waahia, and used the generated power to begin an inter-island war of conquest, the first waged from Hawaii. (The significance of this remarkable association with Ke'eku will be discussed fully in the final Preservation Plan.)

Stokes' informant Malanui attributed the building of Ke'eku to Lonoikamakahiki. For final usage, there is also a common tradition that the bones of Kuakini were buried here (Kekahuna 1952).

The name "Keeku" is found on the 1800s Forbes' heiau list (n.d.—mid-1800s). The Emerson map (1883) refers to "Keeku Point", but does not mention the heiau.

Malanui indicated to Stokes (n.d.) that a small structure to the south of the main heiau was a Hale o Papa, or temple for rites connected to the female gods, conducted at the close of the luakini ceremony. The presence of this structure adds to the importance of Ke'eku.*

The association of Ke'eku with the petroglyph field that includes the image of Kamalalawalu (see Site 12954) further contributes to this importance.

Pukui, Elbert, and Mookini (1974) translate Ke'eku as "abrupt turn". The name "Ke'eku" itself is of some importance. It occurs not only in association with this heiau, but in an alternate name for Makole-a (Ke'ekuapua'a), as the name of a temple in the 'ohia forest ("Ke'eku mauka"—Stokes n.d.), and is also the name of a temple in Kau (HRHP files). There is also a possibility that Ke'eku had another alternate name, Halekumukalani.

The final Preservation Plan will discuss the importance of these names, the association with the petroglyph field (12954), the place of the Hale o Papa, variations in associated accounts by Thrum and Fornander, and the possibility that Ke'eku also had the name of Halekumukalani.

* No effort has been made to determine the number of cases where Hale o Papa and luakini temples are definitely known to be associated, but one well-known example is that of the great temple of Wahaula in Puna.

Ke'eku Heiau and the Hale o Papa were mapped in detail in the Phase I fieldwork. The massive structure of Ke'eku was constructed of several major facings of stone (at least one of which may include cut stone). This may represent a building technique, as Stokes suggests (n.d.), or more probably, individual periods of rebuilding. Not every fill section is faced; the faced units are readily identified and appear to number at least four.

Some of the layers have collapsed or been destroyed by wave action, particularly on the makai and north sides, leaving the foundations exposed. The north wall is intact, but the southern wall was severely damaged by recent storm surf.

For the Hale o Papa, only a few alignments are currently exposed; the bulk of the structure is covered in sand. An informal path crosses one portion of the structure.

Conclusions and Recommendations: 3818, Ke'eku

Ke'eku is regarded by McCoy and Emory (1971: 19), as "unquestionably the most important surviving ruin" in the entire Kahalu'u-Keauhou area. The present research strongly supports this position. Ke'eku and the associated Hale o Papa and petroglyph field deserve the utmost in historic preservation attention.

It is recommended that excavations be conducted on the exterior of the mauka wall of Ke'eku to determine the nature and extent of any associated subsurface deposits. This is necessary to establish a base for final recommendations regarding buffers, improvement project protection, and future interpretation options. Excavations are also recommended to establish the exterior boundaries of the Hale o Papa.

SITE 3819: Makole-a Heiau

In the recorded traditions, Makole-a Heiau is associated with Lonoikamakahiki (Fornander 1880: 152), a chief genealogically placed in the early 16th century. The connection with Lono is further supported by the work of Thrum (1907, 1908) and Stokes (n.d.). There is also a possible association with a Kona female chief named Makole-a, who can be genealogically placed in the 15th century (Barrere 1971: 3). There is no reference to the heiau in this story of Makole-a, but this association was made by Kekahuna and Kelsey (1954, March 14), and is an important tradition in the Kahalu'u community today.

The name "Makolea" is on the Forbes (n.d.) list of heiau; it existed as an 'ili name (including LCAs 5632:1 and 5691); and it is listed as the name of a bay on the Emerson map of 1883, the small inlet just south of Ke'eku. Makole-a is thus a name of some

importance, and presumably antiquity, in Kahalu'u. The association of the female chief with the temple is thus not improbable. There is also the possibility of associating the heiau with Pele. Makole-a can be translated as "glowing red eye" (Pukui, Elbert, and Mookini 1974; cf: Kamapua'a's words to Pele: "Makole, makole akahi, Hele i kai o Piheka, Heaha ka ai e ai, Lihilihi pau i ke akua, He akua ia, he akua, He akua na'lii o Kona..."—Kahlolo 1978: 61).

Makole-a was consecrated by Lono as thanks for his victories (Fornander 1880: 122), and at least one human sacrifice was planned. Malanui, Stokes' informant, said that it was for "prayers in general and not for sacrifice" (Stokes' n.d.).

Reinecke (n.d.) lists Keeku-apuaa as an alternative name for Makole-a Heiau, and there is the possibility that Makole-a was also named Haleokapuni (Forbes n.d.). The complexities of the associations of the name Makole-a, alternative names, and a possible relationship with the Makahiki will be addressed in the Preservation Plan.

Makole-a Heiau, a large enclosure in style, was mapped and photographed in the Phase I fieldwork. The bulk of the main structure remains intact, but it has been damaged in recent years. The south wall has been damaged by bulldozing, and all of the exterior adjacent areas have been damaged or buried by construction and landscaping. The interior crossing wall has been largely destroyed, and portions of the exterior wall have been poorly rebuilt.

Conclusions and Recommendations: 3819, Makole-a

Makole-a has been neglected as a historic resource in recent years, and needs to be returned to its place of historical importance; it will thus have a major place in the Preservation Plan.

Prior to finalizing the plan and associated recommendations about buffers, it is recommended that exterior excavations take place to establish the nature and extent of any associated deposits.

SITE 10997: Kapuanoni Heiau

Kapuanoni is on the Forbes' heiau list (n.d.—mid-1800s), on which it is noted as "Alapai's residence". The reference to Alapai's residence was also made by Reinecke's informant, Kahulumu, in 1930. Stokes' informant, Malanui, who was the grandson of the "last high priest" of Kapuanoni, said the heiau was built by Kalaniopu'u and that it was used for "prayers in general". There is no mention of Alapai in Stokes' notes.

Thrum (1908: 72) notes that Kapuanoni was "an ancient puuhonua and luakini, built in the time of Lono." Thrum also refers to "Malaihi", the kahu during the time of Lono.

Cordy (1986b) argues that Thrum's information is unreliable, in part because only 'Ohi'amukumuku and Ke'eku are otherwise listed as luakini in Kahalu'u. However, Makole-a and Halekumukalani are also listed as sacrificial heiau (Fornander 1969: 122; Kamakau 1976: 145), so other luakini are known (although it is possible that Halekumukalani was another name for Ke'eku), allowing the possibility that Kapuanoni may have served as one as well, at least in some periods; there is no reason to believe that heiau use was static. At the same time, with the meagre evidence available, it is certain that the temple was not primarily associated with human sacrifice, but, as Cordy argues (1986b), with rites directed specifically toward resource abundance.

During the mid-19th century land division, one LCA (6026:1) included a portion of the heiau of Kapuanoni (Fig. 7). The award was made to Isaaka Lana'i, who also obtained another apana (6026:2) in the area that is today called Po'o Hawai'i (see below). Lana'i was called the "last priest of Kapuanoni" (Kekahuna and Kelsey 1954) by his descendants, but this is disputed by Barrere (1971: 7) without details. The award information indicates that the area of Po'o Hawai'i and Kapuanoni fell within the 'ili named "Pohawaii" (Native Testimony).

Lana'i claimed his land from Kuakini, with whom he apparently had an important relationship. The association of the area of Po'o Hawai'i with Kuakini and Ke'eaumoku is clearly documented (see discussion of Po'o Hawai'i). The testimony indicates that the property of LCA 6026:2 was fenced, (built by "Lana'i and the people of Kahalu'u"—Native Testimony), and that it contained three houses. Lana'i lived within this property. The 1851 survey data corroborate the fact that the property was stone fenced (Grants...1882, 1883), but do not indicate if houses were present.

By the time Stokes (n.d.) examined the area in 1906, it was heavily overgrown with hau, and "only portions of walls could be traced...The place had the appearance of having been much disturbed in early times." Stokes does not seem to have known that it had been used for habitation, apparently for much of the early 19th century.

Because of the hau, Kapuanoni was not well-mapped by the early recorders. Only a few lines show on the Baldwin map (1909) and Reinecke map (n.d.). The map lines do, however, correspond to the LCA information, with only the northern half of the heiau being awarded and fenced as a kuleana. (It should be noted that there are other examples of kuleana awarded or claimed elsewhere in Hawaii that are located on what had been heiau platforms.)

When the Keauhou Beach Hotel was built, it incorporated Kapuanoni into the landscaping; a swimming pool was constructed adjacent to the heiau, destroying a portion of the south side.

In the Phase I project, Kapuanoni was mapped and photographed in detail, and these data will be presented in the final Preservation Report. Most of the walls on the surface of the structure have been recently "rebuilt" in one fashion or another. Assuming that the rebuilt walls on the surface of the structure approximate those that existed at the time of Lana'i, the outlines of Lana'i's house enclosures can be identified. A concreted stone wall has also been constructed along the seaward edge.

The Phase I mapping also identified a massive set of foundation stones outside the northwest (seaward) corner of the present structure. This may be part of the foundation of Kapuanoni before Lana'i rebuilt it for a residence, or it may be the foundation of a structure earlier than that historically known as Kapuanoni.

It is speculatively suggested that this might be the foundation of the temple known as Hanakalauai (Forbes n.d.; Stokes n.d.), also spelled Hanakalawai (Thrum 1907: 44). Stokes recorded the name, but said there was no structure left. It was said to have existed in the area around Kapuanoni and Hapaiali'i, and Stokes considered it probably a "very ancient heiau" (quoted in Reinecke, n.d.). The name "Hana-kalau-'ai" is that of a star, usually a companion of the star Hana-kauluna, both associated with calamity (Pukui and Elbert 1971; Johnson and Mahelona 1975).

Conclusions and Recommendations: 10997, Kapuanoni

Although there has been some superficial remodeling, Kapuanoni undoubtedly retains much of its structural integrity. Traditions indicate that it was both a temple and a residence in the pre-Contact period. Land records indicate that houses were built on it in the early 1800s. It should be considered part of the ali'i residential complex of inner Kahalu'u Bay (see Po'o Hawai'i). It is speculated that it may rest on the foundation of an ancient temple named Hanakalauai.

The associated swimming pool area will be remodeled during the improvement project. At this point we have no specific information on what actions will be taken as part of the renovation. It is recommended that plans for renovation be

worked out with us and with the Cultural Advisory Committee as part of the Preservation Plan. Secondly, it is recommended that any removal of the modern features or foundations be monitored by an archaeologist.

As part of a long-term preservation plan, excavations in Kapuanoni are clearly called for, to provide a reconstruction of what appears to be a very complex history of use and to clearly define the modern rebuilding activities.

SITE 12953, Po'o Hawai'i (PHRI 439-53)

Po'o Hawai'i is a walled pond and an associated area commonly considered an ali'i residential locale. There are no known traditional references to Po'o Hawai'i, but the name occurs in the land records of the mid-1800s as an 'ili (Native Register and Native Testimony), including not only the site here indicated, but the area of nearby Kapuanoni Heiau as well. ('Ili Po'o Hawai'i did not include the area just mauka—now in Kahalu'u County Park—which was part of the 'ili of Kukuiokahinu.)

The first recorded use of the name Po'o Hawai'i to refer to the pond was by Reinecke (n.d.), who also noted that one of the traditional "fish-gods" (ku-ula) of the area was also called "Po'o Hawaii", presumably based on information from his informant, Kahulumu. This is probably the ku-ula "Ka-naio" of Kekahuna (1952).

Associated with Po'o Hawai'i (immediately outside the Azabu Kona Resort property) was a structure called Mokuahiole. Stokes (n.d.) recorded that although Mokuahiole was "on the list of heiau, the local information was to the effect that it was Keeaumoku's residence", and in his notes he wrote "built by Keeaumoku." It is probable that this was the temple that was part of the royal house compound that also included Po'o Hawai'i. Forbes (n.d.) spelling is "Kamoku-uwahiole" on his list of heiau.

Kekahuna (1952) notes that the area of Po'o Hawai'i and Mokuahiole served as a residence for Kamehameha, Ke'eaumoku, and Kalakaua. Kamehameha resided in Kahalu'u during the Makahiki of 1812-1813 (Barrere 1975: 7). The location of his residence is not recorded, but it could have been Po'o Hawai'i. (Reinecke--n.d.--notes that a bathing pool offshore was associated with Kamehameha.)

Ke'eaumoku Papa'iahiahi, one of Kamehameha's most valued chiefs, almost certainly had one of his main residences here. His son Kuakini (Ka-lua-i-Konahale) was born in Kahalu'u in 1791 (Kamakau 1961: 388), possibly at Po'o Hawai'i or Mokuahiole. Kuakini was governor of Hawaii from 1820 to 1844. At his death, he was first given a Christian service in Kailua, then his body was taken by Lana'i to Kahalu'u "where it was prepared in the old manner, and the remains were laid away in a cave in the vicinity"

(Barrere 1975: 40, based on information from a witness before the Board of Genealogy of Hawaiian Chiefs in 1885). Kekahuna (1952) says that Lana'i (who held Po'o Hawai'i as an LCA award) dried the bones of Kuakini at Kuakini's house at Po'o Hawai'i.

Kalakaua is said to have torn down Kuakini's stone house at Po'o Hawai'i to build a frame structure to serve as a "summer house"; a granddaughter of Lana'i, Kealoha-pau-ole Ka-opua (Ka-huina) performed the ceremony before the demolition (Kekahuna and Kelsey (1954). *

Kekauluohi, one of Kamehameha's wives, the third Kuhina nui and the mother of Lunailo, via Kanaina, was brought up at Kahalu'u and Keauhou (Kamahau 1961: 394), around 1800; she was the granddaughter of Ke'eaumoku and reared by him, thus probably living at Po'o Hawai'i and Mokuahiole when she was in Kahalu'u.

There is thus substantial evidence that Po'o Hawai'i and Mokuahiole served as a major site for ali'i residence in Kahalu'u during the early post-Contact period until the time of Kalakaua.

Po'o Hawai'i is the logical locale for the residence of ali'i. Protected by the breakwater, it is situated on the inner bay of Kahalu'u on what was once a sandy shoreline. Mokuahiole, probably a royal family temple, was adjacent; 'Ohi'amukumuku, the major luakini of Kahalu'u was just inland; Kapuanoni, a temple for resource abundance, was immediately makai.

Pre-Contact ali'i residence of the general area is suggested by the information that the adjacent Kapuanoni was the residence of the early 18th century king Alapai'i (discussed above).

This area may also have been a residence of the great king Kalanipou'u, who is known to have spent time at Kahalu'u and Keauhou (Kamakau 1961: 105; Fornander 1988: 200). It was possibly

* In 1917, Lana'i's great-grandson, Naluahine Ka'opua performed a similar ceremony before the destruction of a structure in Kailua that had been used by Kamehameha and Kuakini (Barrere 1975: 43). Naluahine, a resident of Kahalu'u, later served as Kekahuna's informant.

also the dwelling area of Lonoikamakahiki. Lono has ties to Ke'eku, Makole-a, and 'Ohi'amukmuku, and is also recorded as having lived at Kahalu'u (Fornander 1916-17: 4:356).*

An LCA parcel that includes the area now called Po'o Hawai'i (LCA 6026:2) was awarded to Isaaka Lana'i. The testimony indicates that the property was received from Kuakini, that it contained five houses, and that it had been enclosed with a stone fence by Lana'i and "missionaries". Lana'i did not live here, but in the makai parcel, Kapuanoni. This lot was occupied by "Palapala", according to the testimony. Family traditions indicate that Palapala, also called Na-palapala, (ancestor of the present Kona Nahale family) was a foster son of Lana'i, and appointed a konohiki by Lana'i and Kuakini (Kekahuna and Kelsey 1954).

It is an unusual situation where the LCA awardee continued as a caretaker for ali'i residence on the Kuleana; this continued through the time of Kalakaua, when the Nahales had become the official owners of Po'o Hawai'i (around 1883 according to land title records). The association of the Nahales and Kalakaua is also documented in the story of Kalakaua's search for the bones of Kamehameha, in which he was accompanied by J.K. Nahale to the caves of Kaloko (Barrere 1975: 67, 98).

* In this light the interpretation of the area to the south near the ahupua'a boundary (outside the project area) as "Lonoikamakahiki's residence" needs re-evaluation. This structure, listed as Kapukini Heiau in Figure 4, was identified as "Paniau Heiau" in 1925 (Podmore), but called Kapukini Heiau by Kahulumu (in Reinecke, n.d.). It was identified by Kekahuna as the residence of Umi and also that of Lonoikamakahiki (Kekahuna 1952; Kekahuna and Kelsey 1954). It is unknown whether this information came from Kekahuna's informant, Ka'opua, or was Kekahuna's inference (McCoy and Emory 1971: 30). There are no traditional references to a "Kapukini Heiau", nor is this mentioned in the documentary sources prior to Reinecke. However, the structure has much more the appearance of a heiau than that of a residence (although an elite residence platform is located nearby—Kirch 1973), so Reinecke's identification of this as "Kapukini Heiau" is accepted here. ("Kapukini" was the name of a wife and a daughter of Umi, giving some credence to the Umi association.) Given the traditional associations of elite residence with the Po'o Hawai'i area, and the commodious living conditions of this locale, Lono's residence was probably here rather than at Kapukini.

There were five houses recorded in LCA testimony (presumably one being the stone house of Kuakini), but the first map (Baldwin 1909) shows only two houses. One of these was the frame house of Kalakaua that had replaced the house of Kuakini. The two houses appear on Reinecke's 1930 map (n.d.), but only the Kalakaua house remained when Kekahuna (1952) mapped Po'o Hawai'i. That structure was torn down shortly afterward. A reconstruction of the Kalakaua house, now standing, was built in the 1970s. An architectural historian with the Historic Sites Section of the State of Hawaii indicates that, unfortunately, it is not an accurate rendering.

The area is currently landscaped, and the southern section of the Po'o Hawaii kuleana was destroyed when the present hotel was constructed (Keauhou Beach plot plan, 1969). Nonetheless the possibility is high that some of the remains of the ancient royal house foundations still exist. When nearby Waikua'a'ala Pond (in adjacent Kahaluu Beach Park) was dredged large quantities of pre-Contact and introduced artifacts were encountered (Rosendahl and Severance 1981: 22).

Conclusions and Recommendations: 12953, Po'o Hawai'i

There is a strong possibility that Po'o Hawai'i was an ali'i residence of great antiquity. Any additional deposits here would be among the most important in Kahalu'u, possibly containing a cross-section of the entire history of the region.

There are no improvement plans for this area, but excavations should be conducted here as part of a long-range preservation plan to determine if there are any intact deposits. (Note: this is not included in the next phase of fieldwork, but will be proposed for interpretive excavation under the Preservation Plan.)

SITE 12954 (PHRI 439-54): Ke'eku Petroglyphs

The first record of the petroglyph field adjacent to Ke'eku Heiau is found in Stokes (1910); they were pointed out to him by his informant, Malanui, in 1906. The field contains a large number of figures, nearly all of stick form, with no triangular bodies. It is located on a pahoehoe flat that is submerged at high tide, as was the case when Stokes recorded it (1910: 35).

Malanui's primary interest was showing the petroglyph he called the figure of Kamalalawalu, the great Maui chief who was killed on Hawai'i in a war with Lonoikamakahiki. Malanui said that Kamalalawalu was slain near Waimea and, in Stokes' words, "His body was brought to Kahaluu, a picture of it made on the rock, and the body sacrificed in the nearby heiau of Keeku" (Stokes 1910: 46).

In Forbes' (n.d.) notes of the mid-1800s, he records that "Kamalalawalu was slain on the pahoehoe rocks just beyond Keeku". The petroglyphs are not mentioned, but this makes it clear that the story of Kamalalawalu and Ke'eku was well known before 1900.

The petroglyph figure of Kamalalawalu is thus of great importance; it is one of the few pre-Contact petroglyphs in Hawaii that was recorded as being the commemoration of a specific event (cf. Cox and Stasack 1970: 73), the event itself being a very significant one in the history of Hawaii. This will be discussed at length in the final Preservation Plan, along with the variations in the history of the death of Kamalalawalu.

Malanui apparently had no information on the other petroglyphs in the field. Stokes provides his interpretation of a number of them, including a birth scene, a hula scene, and phallic representations. The birth scene includes the mother, child, and two males; in rather vague wording Stokes' (1910: 262) implies that the two males may represent a biological father and a genealogical father, or the Hawaiian identification of double paternity, called "po'olua".

The birth scene and the adjacent hula scene are suggestive. A historical association could be the birth of Kuakini (who was a chief of "double paternity") and the famous accompanying hula (Kamakau 1961: 388). However, it seems likely that this association would have been known by Malanui; the petroglyphs may thus represent a similar event from an earlier time.

The petroglyph field was mapped and photographed in the Phase I fieldwork; a detailed description will be included in the Preservation Plan. It should be noted that the figure of "Kamalalawalu" is a remarkable one.* Stokes' (1910: 35, 40) describes it as "doubly outlined" and "deeply incised"; in fact, it is in low relief, a nearly unique stone sculptural form in Hawaii. It does not appear to be the result of artistic evolution (as implied by Cox and Stasack 1970: 61), but the sculptural technique is probably a measure of its importance. If it did represent the sacrificed Kamalalawalu, it was probably created with the ritual and attention associated with the carving of the images of gods.

Stokes (1910:49) reported the story that King Kalakaua had tried to "break off some of the petroglyphs to take them to Honolulu", but he saw no evidence of this. The figures remain in excellent condition today.

* In a popular book on petroglyphs (McBride 1969: 33) a drawing labeled the petroglyph of Kamalalawalu is misidentified; the drawing is of another petroglyph in the Ke'eku field.

Conclusions and Recommendations: 12954, Ke'eku Petroglyphs

The recorded association of one of the petroglyphs with a specific historical event, and the location of the field near the heiau of Ke'eku and Makole-a, and near the sand burial area (12915, see below) suggest that these petroglyphs may contain the references to a number of important events in the history of Kahalu'u (including the birth of ali'i), giving them a significance well beyond that commonly attributed to petroglyphs.

Improvement plan projects have no identifiable impact on this area, but it should be well marked so that avoidance will be assured. The field is also remarkably undamaged by attempts to make rubbings or castings. Vigilance should be maintained, particularly by those around the hotel who take "tours" to the area, to prevent attempts at rubbings, chalking, or casting. The detailed Preservation Plan will include additional protective recommendations.

New Sites: Recommended Preservation

Three newly identified sites are recommended for Preservation (Table 13), with qualifications in two cases.

Table 13: New Sites: Recommended Preservation

HRHP	Field No.	Comment
11985*	AZK-3	Recommended for Preservation, pending final field evaluation
12913	AZK-5	Recommended for Exhibition
12915*	AZK-7	Recommended for Conservation

*Identification as a definite site not yet established.

SITE 11985 (AZK-3)

The site number 11985 has been assigned to a cave complex in the project area that has not been explored. One entrance area was examined and it appeared that this might be part of a large complex of negotiable passages. This is listed in a "probable" category because no definite cultural materials have yet been associated with the cave. However, this appears large enough that it will have additional openings, and possibly cave burials (in the latter case suggesting a possible Conservation classification.)

Conclusions and Recommendations: 11985

The extent, location, and cultural materials of this cave system need to be determined as part of the inventory process, prior to any project activity, with determination of classification dependent upon final results.

SITE 12913 (AZK-5)

Site 12913 (Figure 9) is a set of petroglyphs located at the side of the small channel entering Ke'alialia Lagoon. The petroglyphs are pecked onto smooth pahoehoe, among a field of large boulders. The petroglyphs are submerged at high tide, as are those of Ke'eku (Site 12954). The petroglyphs are a number of stick figures in one concentration, with one isolated figure. Although they do not have the variations of the Ke'eku field, these figures are of the same general style and give the overall impression of being a companion set. A detailed comparison will be made in the final report.

Conclusion and Recommendations: 12913

Although this is not a large set of petroglyphs, its location and its similarity to the Ke'eku field suggest that it is of some importance.

It is recommended that these be placed in a category of Exhibition and included in the Preservation Plan.

SITE 12915 (AZK-7)

The dune area along the coast south of Ke'eku Heiau has been noted as a burial area by members of the Kahalu'u community. No information is currently available on the exact locations of the burials, and it is unknown whether any remain following the construction of the Kona Lagoon Hotel. This area thus is listed as a "probable site", one that would be placed in a Conservation category if it proves to be definite.

Conclusions and Recommendations: 12915

It is recommended that any earth-moving activity in this vicinity be archaeologically monitored.

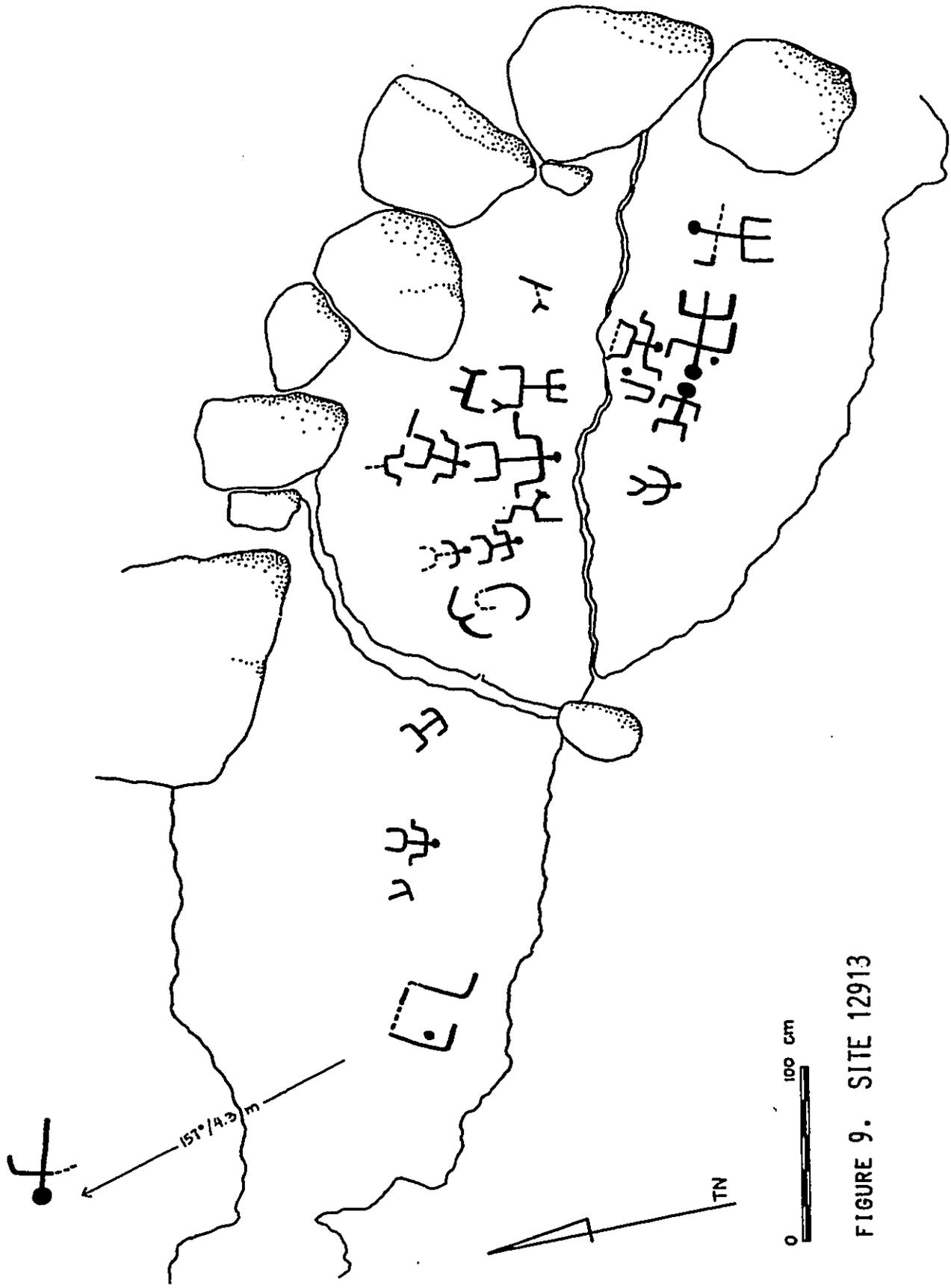


FIGURE 9. SITE 12913

Sites in the Vicinity of the Improvement Project

Regardless of classification, sites that are in the vicinity of the improvement project require protection; because project boundaries have been drawn to exclude these sites, it is assumed that they will be avoided (thus they have not been individually considered in the historic preservation mitigation review process). However, on-the-ground activities do not always follow project plans, such sites need to be incorporated into protective plans.

The sites in this category (Tables 2 and 14) include Site 1612, the Menehune Breakwater. This site is something of a mystery because so little information is available and because it has never been clearly defined archaeologically as a cultural site. The first recorded reference to the breakwater was by Reinecke (n.d.), presumably based on information from Kahulumu in 1929-30, in which he noted that it was "the most conspicuous piece of engineering in Kahaluu...It extended from the point Kaumehaole on the north to the point Inikiwai on the south." He attributes its construction to "King Kalaikini", but also notes that the breakwater had been "broken down" and that the boulders are "scattered over the lava flat...". Thus it remains unclear if Reinecke saw a distinct cultural feature, or if he assumed that it had existed, based on the informant information. An archaeological study of the portion in Kahalu'u Bay was inconclusive (Rosendahl and Severance 1981).

Reinecke's description does make it clear, however, that the breakwater was recognized as a cultural feature by Kahulumu. The name of Kalaikini, the king mentioned by Kahulumu, as a place name on early maps supports of this as a Kahalu'u tradition. The end of the breakwater was called Ka Laau o Kalaikini as early as 1883 (Emerson map). The place name recorded again in 1909 on the Baldwin map.

The Hawaii Historic Places Review Board tentatively accepted it as a site, identified as the Kahalu'u Breakwater (1612) and included it within the Kahalu'u Historic District (HRHP files).

PRESERVATION SITES: PROTECTIVE RECOMMENDATIONS

Preservation Site Inventory

Sites that are included in the Preservation Plan are summarized in Table 14.

Table 14: Preservation Site Inventory

	<u>Name/Location</u>
Exhibition:	
1619	Papakoholua Heiau
3817	Hapaial'i
3818	Ke'eku
3819	Makole-a
10997	Kapuanoni
12953	Po'o Hawai'i
12954	Ke'eku petroglyphs
New Sites:	
11985, Conservation*	Cave Complex, mauka
12913, Exhibition*	Lagoon petroglyphs
12915, Conservation*	Burial area, Makole-a Beach
Conservation:	
12936	Mauka
12946	Mauka
Conditional Preservation:	
12919	Mauka
12937	Mauka
12955	Makai
12957	Makai
Sites in the Vicinity:	
N.Historic. District	Mauka of Kuakini Wall
01612	Menehune Breakwater
06302	Kuakini Wall
12925	South of mauka project area
12926	"
12931	"
12933	"
12944	"

***Recommendations.**

Prior to initiation of any improvement projects, all project managers should be briefed in detail on protective actions for all historical properties, and all project plans should have protected areas clearly identified. The briefing should include identification of the protective areas in the field and should include information on archaeological monitoring and actions to be taken if historical remains or burials are inadvertently encountered.

Preservation Recommendations

The following recommendations are keyed to areas of the improvement project, as identified in Figure 10. Also refer to the specific recommendations for individual sites as listed above.

Preservation, Phase II Archaeological Investigations

Figure 10, References 1 through 4:

Most of major sites in the Preservation category have been defined only on the basis of the surface structural remains. Several of these sites require excavations in the exterior areas to establish presence of any associated cultural deposits in order to properly identify site boundaries and to allow definition of buffer zones for protection during construction activities of the improvement project.

Thus it is recommended that a second phase of field investigations of sites 3817, 3818, and 3819 take place in order to define any subsurface deposits, exterior to the main structures (Figure 10, references 1 through 4). Such information may also be used toward site interpretation.

These excavations will be limited test trenches that follow all of the guidelines for data collection identified in the Historic Preservation Mitigation Plan (Tuggle 1989), and those specified by HSS. The results will be included in the final Preservation Plan, following the HSS guidelines for data reporting. If any human remains are encountered the unit excavations will cease and the unit re-filled.

A final recommendation for buffers will be made following this action; they will be incorporated into the Final Preservation Plan.

(These Phase II field investigations should not be confused with Task II in the Scope of Work for the Preservation Plan, nor are these intended as excavations that would be adequate for long-term interpretive purposes, although they would contribute to this.)



6302 (MINIMUM 15 FOOT BUFFER)

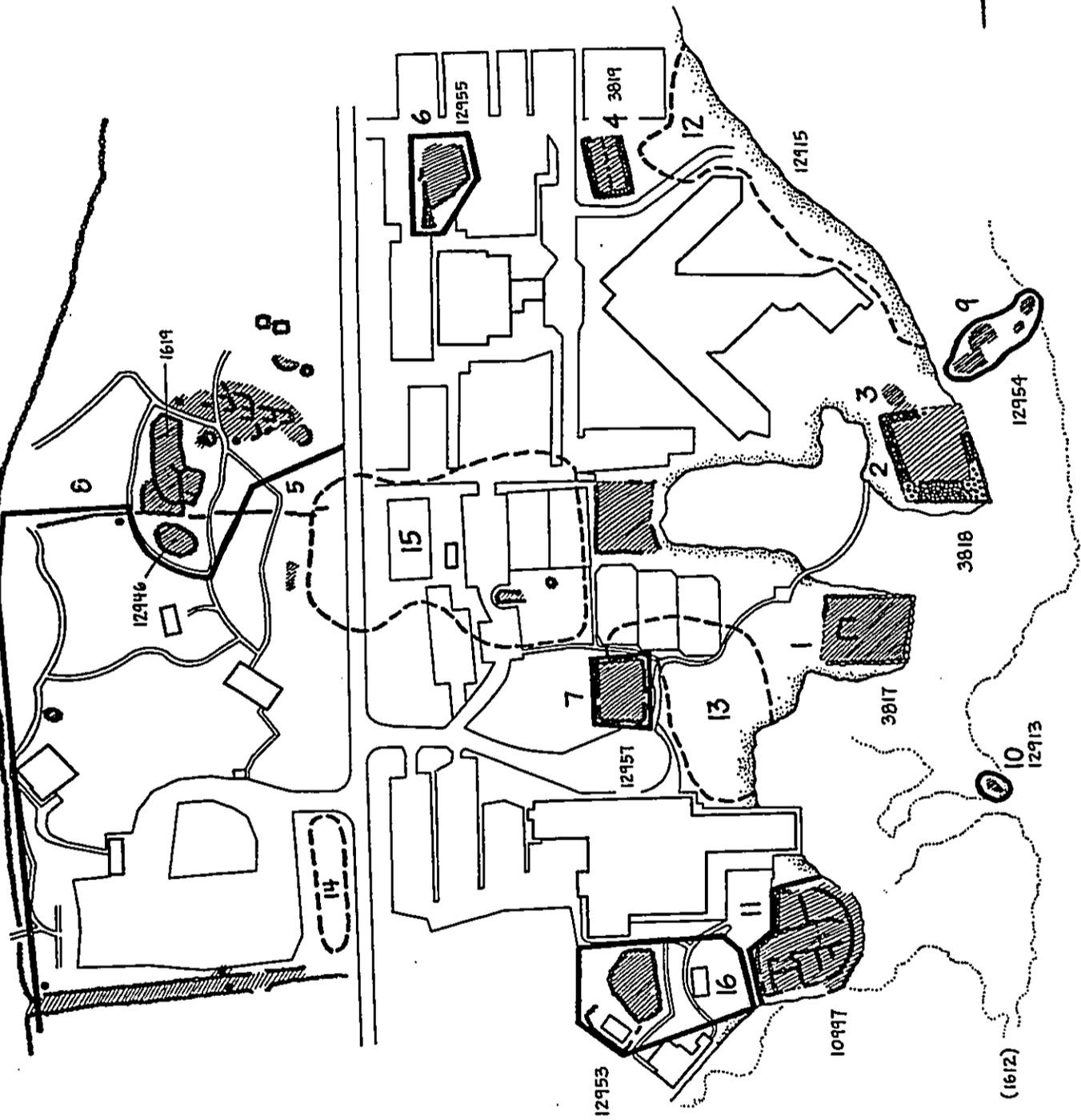


FIGURE 10.
PRESERVATION
RECOMMENDATIONS
(SEE TEXT)

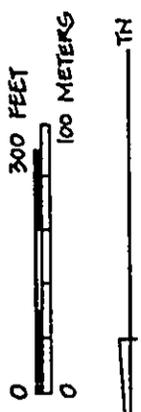


Figure 10, Reference 5:

The final recommended action for Preservation Phase II is the completion of the investigation of Site 11985 (see discussion above), (Figure 10, reference 5).

Buffers

The recommended buffers for sites 12955, 12957, 12954, 12913, and 10997, plus Papakohloua Heiau (1619), Kuakini Wall (6302) and the associated complex of sites are shown in Figure 10. These buffers refer to sites in Preservation categories, plus sites identified as "in the vicinity" of the project. No protective action is recommended for Site 1612 since no intact portions appear to exist (see Rosendahl and Severance 1981).

Figure 10, Reference 6:

Site 12955 should be protectively fenced during construction activities.

Figure 10, Reference 7:

Site 12957 is defined by a stone wall and need not be fenced, but this should be well-marked on construction plans.

Figure 10, Reference 8:

The mauka buffer line should be protectively fenced; this line is subject to some modification following Phase II investigation of Site 11985. The minimum buffer for Kuakini Wall is recommended as 15 feet.

Figure 10, References 9 and 10:

Sites 12913 and 12914 should be clearly marked for avoidance on construction plans. It is assumed that no construction activities will take place in the immediate vicinity of 12954 (Figure 10, reference 9), but that such activity will take place around 12913. Therefore, 12913 (Figure 10, reference 10) should be clearly marked for avoidance by whatever means are employed by engineers to identify construction boundaries.

Figure 10, Reference 11:

The renovation of the pool area near Kapuanoni need not involve protective fencing, but any subsurface excavation should be archaeologically monitored. Further, renovation of the area should involve consultation with the archaeologist and the Cultural Advisory Committee for the preparation of the Preservation Plan to achieve a compatible relationship between this area and Kapuanoni.

Note that buffers for Sites 3817, 3818, and 3819 will be recommended following Phase II investigations (Figure 10, references 1 through 4, see above).

Monitoring

In Table 7, general monitoring is distinguished from archaeological monitoring. The distinction here identified is that general monitoring involves warning project engineers that encountering historical remains requires stopping and bringing in an archaeologist for consultation, while archaeological monitoring requires that an archaeologist be present while earth-moving activities are on-going.

Figure 10, References 12, 13, and 14:

Archaeological monitoring is recommended for the areas identified in Figure 10 by reference numbers 12, 13, and 14. These areas have the highest potential for containing remnant site deposits.

Figure 10, Reference 15:

The area of Figure 10, reference 15, is recommended for general monitoring, with some possibility of encountering subsurface remains.

Figure 10, Reference 16;

Po'o Hawaii and the associated area could well contain some of the most important deposits in Kahalu'u (as discussed above under Site 12953). It is assumed that no improvement project actions will take place in this area. It is recommended that no modifications of the area take place without prior archaeological testing.

It will be recommended in the long-term Preservation Plan that a high priority be placed on excavations in this area for identification and interpretive purposes.

**AZABU KONA RESORT:
HISTORIC PRESERVATION MITIGATION REPORT
PHASE I ARCHAEOLOGICAL INVESTIGATIONS**

PART IV: BURIAL TREATMENT PLAN

**PART IV: BURIAL TREATMENT PLAN:
INADVERTENT DISCOVERY OF HUMAN REMAINS**

In the final data recovery excavations for the Azabu Kona Resort Improvement Project, there are no plans to disinter or move any human remains or burials. Thus the Burial Treatment Plan involves no conditions for intentional burial removal.

In the Phase I fieldwork in the project area, two human burial structures were identified (Sites 12936 and 12946-A); these sites are thus placed into a Conservation category and will not be affected by the improvement project. No other burial structures were identified, nor were any human bones encountered in other excavations. There remains the possibility that human burials may exist in the cave system of Site 11985, but this site will not be investigated until Phase II; if any remains are found they will not be disturbed, and a separate report will be prepared for appropriate action. Any such burials would not be considered "inadvertent discovery" and are not included in the present plan.

In the proposed excavations associated with Preservation sites, any burials encountered will be left in place. Again, a separate report will be prepared and such burials would not be considered "inadvertent discovery".

"Inadvertent discovery" of burials thus refers to two situations: encountering human burials in the excavation of Data Recovery sites, or encountering human burials in the construction activities associated with the improvement project.

The sites for Data Recovery have been tested (see Part II), and based on this information, there is virtually no possibility of encountering human burials in the final data recovery.

For the areas of improvement project construction, there is little chance of encountering burials. The areas are generally either locales of extensive disturbance and prior construction, or they have been tested archaeologically.

However, although the probabilities are very low, there is always some chance that isolated burials will be encountered; such an encounter in project activity is here considered "inadvertent discovery".

When inadvertent discovery of an isolated burial has been made, work will cease and immediate notification will be given to the Historic Sites Section (HSS), a consulting professional archaeologist, representatives of the police and medical examiner, and a designated representative of the Cultural Advisory Committee to Azabu, U.S.A. If it is immediately determined by these individuals that the human remains are not modern and not within police jurisdiction, and if (according to HRS Chapter 6E, Section 43), the HSS identifies the remains as significant, they will be removed by the archaeologist, following

the research guidelines of the general Data Recovery Plan. The remains will be studied by a professional physical anthropologist; this information and the information collected by the archaeologist will be used to determine the ethnic affiliation of the individual and the approximate date of interment. It should be noted that any burial encountered may not necessarily be a native Hawaiian; members of many ethnic groups have lived, and died, in Kahalu'u since the early 1800s, and thus the ethnicity has to be determined to allow proper treatment. If it appears that more than "isolated burials" have been discovered, a project re-evaluation will take place.

Adequate archaeological investigation and data recovery will be carried out of the area of any located burial. It should be noted that this might also involve identification of an archaeological site, aside from the burial itself, which would then require procedures for site discovery described in the guidelines of the HSS. The data recovery associated with these circumstances will be conducted according to the research design indicated in other sections of the Historic Preservation Mitigation Plan.

Once the ethnic affiliation of a located burial has been determined, consultation will take place with the Cultural Advisory Committee regarding proper reburial or regarding what other members of the Kahalu'u community should be consulted in the matter. Appropriate reinterment will then take place.

Under HRS 6E-34, HSS is also mandated to notify the Office of Hawaiian Affairs if it is likely that the remains are those of a native Hawaiian.

It is recommended that the Cultural Advisory Committee to Azabu, U.S.A. prepare a general plan for reinterment of human remains that may be inadvertently discovered not only in actions of the present improvement project, but under any circumstances on the property of the Azabu Kona Resort. It should be recognized that burials be encountered at any time by a variety of events, such as exposure in coastal deposits by high surf or uncovered by incidental daily activities on the grounds of the hotels, such as repairing underground pipes and cables.

Once approved, such a general burial treatment plan would be attached as an addendum to the one prepared here. Currently burial treatment plans are reviewed and approved by the Historic Sites Section of the State of Hawaii, but a number of changes are being considered in the burial review system and will have to be taken into account in the future.

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HISTORIC PRESERVATION MITIGATION REPORT
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APPENDIX II

ALI'I ASSOCIATED WITH KAHALU'U

	Res.	Po'o H.	Hapai.	Kapua.	Ohia.	Keeku	Mako.	notes	date
Maa, Maui priest			x						1200-1400?
Kalaunuiohua						x			ca.1450
Makole-a (assoc. w/ Kakaalaneo)	x						?		ca.1520
Umi								(1)	ca.1580
Lono	x				x	x	x		ca.1620
Kamalalawalu					x	x	x		ca.1620
Alapa'i	x			x		x		(2)	ca.1720
Kalaniopu'u	x					x			ca.1730+
Kamehameha	x		x			x	x	(3)	ca.1780+
Ke'eaumoku	x	x							ca.1780+
Kuakini	x	x							1791+
Kekauluohi	x								1800+
Kalakaua	x	x							1840s+

Key: Res.=general residence; Po'o H.=Po'o Hawai'i; Hapai.=Hapaiali'i;
Kapua.=Kapuanoni; Ohia='Ohi'amukumuku; Keeku; Mako.=Makole-a
date=genealogically based, 20 year generations.

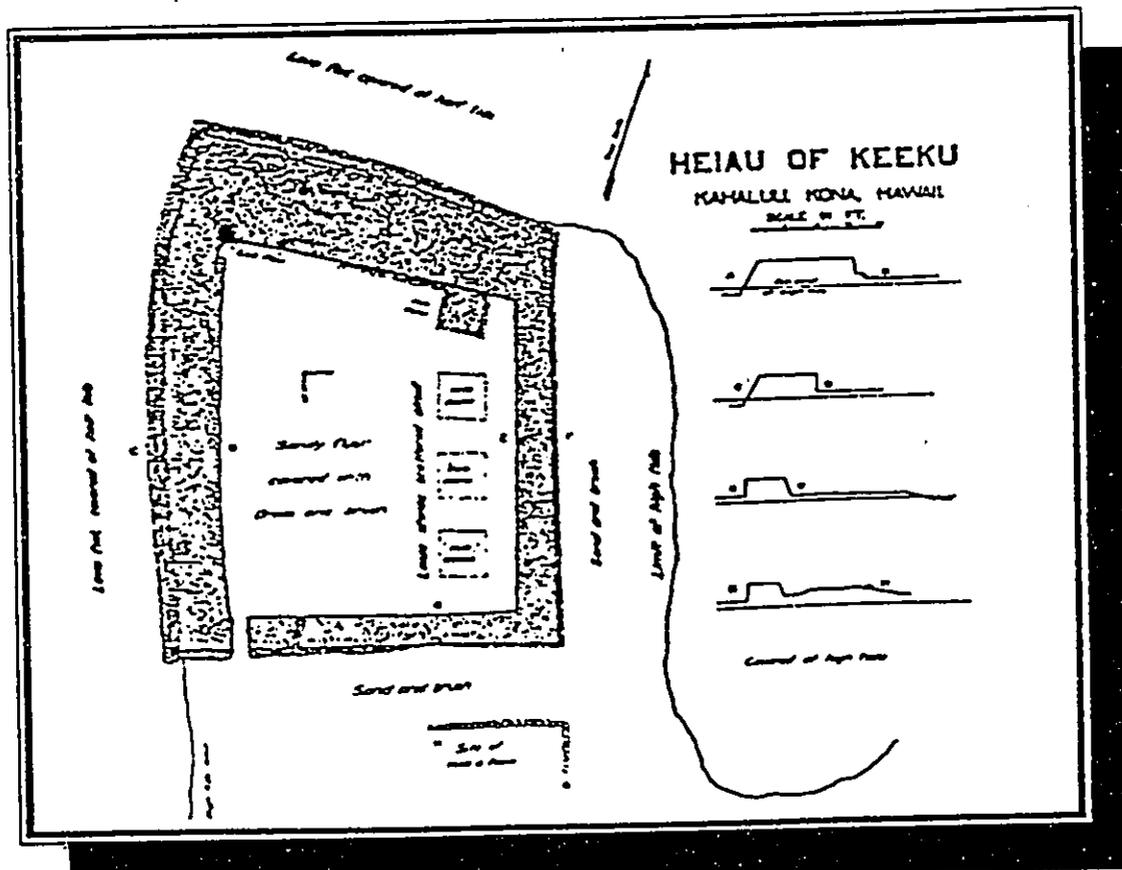
- Notes: (1) Umi is associated with Kahalu'u through place names only:
Pa-o-umi and Kapukini.
(2) Alapa'i is credited with building "Ke'eku mauka" (Stokes n.d.).
(3) Residence during Makahiki of 1812-1813.

FILE COPY

Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS)

Azabu Keauhou Resort Project

Land of Kahaluu
North Kona District, Island of Hawaii



PHRI

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Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS)

Azabu Keauhou Resort Project

Land of Kahaluu
North Kona District, Island of Hawaii

(TMK:3-7-8-10:35; 3-7-8-13:2,13,42,43)

by

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and

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SUMMARY

At the request of Mr. Glen Koyama of Belt, Collins & Associates, Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological reconnaissance survey of the Azabu Keauhou Resort Project site, consisting of c. 70 acres located within the Land of Kahaluu, North Kona District, Island of Hawaii (TMK:3-7-8-10:35; 3-7-8-13:2,13,42,43). The basic objective of the survey was to provide information appropriate to and sufficient for the preparation of an Environmental Impact Statement (EIS), prepared in conjunction with development permit applications submitted to the County of Hawaii. The survey was conducted June 15-18, 1988. Approximately 62 man-hours of labor were expended on the survey field work.

One hundred ten sites (including 211+ component features) were recorded during the survey. Of the 110 sites, 87 had been previously identified and 23 were newly identified. The sites included both single- and multiple-components. Formal feature types present at the sites include petroglyphs, terraces, trails, C- and L-shaped walls, boulder- and cobbled-filled areas, enclosures, free-standing walls, platforms, mounds, roads, caves/tubes, and various miscellaneous types. Functional types tentatively identified include habitation, ceremonial (possible burials, heiau, shrines, etc.), habitation/ceremonial, transportation, boundary, recreation, rock art, and miscellaneous.

The project area is situated within the Kahaluu Historic District and the Kona Field System. The Kahaluu Historic District (Site 50-10-37-4150*) has been placed on the National Register of Historic Places (NRHP). The district was nominated to the register because it contained numerous heiau within a concentrated area, because of the unique architecture of several of the heiau, because of the intrinsic value of petroglyphs within the area, because of the area's association with important traditional political and religious activities, and because of the area's high scientific research value. Previously declared eligible for inclusion on the NRHP, the Kona Field System (Site 6601) is a complex of aboriginal Hawaiian dryland cultivation and habitation remains which covers an area approximately 3 by 18 miles, extending from the Kailua area south to Hookena.

* Hawaii Register of Historic Places (HRHP) site designation system: all four-digit site numbers prefixed by 50-10-28 or 37 (50=State of Hawaii, 10=Island of Hawaii, 28 or 37=USGS 7.5" series quad map ["Kailua or Kealakekua, Hawaii"]).

Within the project area is the Great Wall of Kuakini (Site 6302 [also listed as 7276]). This site, highly significant in terms of interpretive and cultural values, has been declared eligible for inclusion on the NRHP.

Of the 110 sites identified during the current project, 55 (50.0%) are assessed as significant solely for scientific information content. Further data collection is recommended for 50 (45.5%) of the 55 sites. After further data collection is completed, if warranted, a data recovery plan should be prepared and implemented for sites not recommended for preservation or interpretation (Tomonari-Tuggle [1985:154]). No further work is recommended for the remaining five (4.5%) of the 55 sites. Data collected from them during the present and previous reconnaissance surveys is considered sufficient; their preservation is not essential, although some sites could perhaps be considered for inclusion into development landscaping.

Of the remaining 55 sites (50.0%), 24 (21.8%) are assessed as significant for information content, cultural value, and as excellent examples of site types. These sites include named and unnamed heiau, residential structures, Kuakini Wall, trails, probable burial structures, a refuge cave, a pond (at Po'o Hawaii), and petroglyphs. For these 24 sites, further data collection followed by preservation with some level of interpretive development is recommended. Another 24 of the remaining 55 sites (21.8%) are assessed as significant for information content, and are also tentatively evaluated as culturally significant. These sites may contain burials. For these 24 sites, further data collection is recommended, and preservation "as is" is tentatively recommended, pending data collection results. The remaining seven of the 55 sites (6.4%) are assessed as culturally significant and valuable for information content. For these seven sites (primarily foot trails, petroglyphs, and structures with identified human remains), further data collection is recommended. After further data collection is completed, if warranted by the findings, a data recovery plan for sites not recommended for preservation or interpretation (Tomonari-Tuggle 1985:154) should be prepared and implemented.

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INTRODUCTION

BACKGROUND

At the request of Mr. Glen Koyama of Belt, Collins & Associates, Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted a surface archaeological reconnaissance survey (100% coverage) of the approximately 70-acre Azabu Keauhou Resort Project site, situated in the Land of Kahaluu, North Kona District, Island of Hawaii. The project site consists of two portions: Study Area 2, located on the inland side of Alii Drive (TMK:3-7-8-10:35); and Study Area 3, located on the seaward side of Alii Drive (3-7-8-13:2,13,42,43). The basic objective of the survey was to provide information appropriate to and sufficient for the preparation of an Environmental Impact Statement (EIS) being prepared in conjunction with development permit applications submitted to the County of Hawaii.

Field investigations were conducted June 15-18, 1988, under the supervision of PHRI Supervisory Archaeologist Alan T. Walker, and under the overall direction of PHRI Principal Archaeologist Dr. Paul H. Rosendahl. Approximately sixty-two (62.0) man-hours of labor were expended in conducting the field work. At the conclusion of field work, survey findings and preliminary conclusions—including tentative evaluations and recommendations—were discussed with Ms. Virginia Goldstein, historic sites specialist in the Hawaii County Planning Department (HCPD), and Dr. Ross Cordy, chief archaeologist in the Hawaii State Department of Land and Natural Resources-Historic Sites Section (DLNR-HSS). Ms. Goldstein and Dr. Cordy are currently reviewing the conclusions and recommendations presented here regarding further archaeological work to be conducted within the Azabu Keauhou Resort Project site.

The present document is the final report on the reconnaissance survey. This document includes (a) background information on the environment and cultural-historical setting of the project area, (b) a summary of previous archaeological investigations relevant to the project area, (c) a description of field methodology, (d) a discussion of findings, and (e) site significance evaluations and recommended general treatments for each site.

SCOPE OF WORK

The basic purpose of an archaeological reconnaissance survey is to identify—to discover and locate on available maps—sites or features of possible archaeological significance. A reconnaissance survey is simply a pedestrian, or walk-

through, survey—extensive rather than intensive in scope—conducted to determine the presence or absence of archaeological resources within a specified project area. A reconnaissance survey indicates both the general nature and variety of archaeological remains present, and the general distribution and density of such remains. A reconnaissance survey permits a preliminary evaluation of the archaeological resources, and facilitates formulation of realistic recommendations and estimates for such further archaeological work as might be necessary or appropriate. Such further work could include intensive survey—detailed recording of sites and features, and selected test excavations; and possibly subsequent mitigation—data recovery excavations, interpretive planning and development, and/or preservation of sites and features with significant scientific research, interpretive, and/or cultural values.

The principal objectives of the present surface reconnaissance survey were four-fold: (a) to identify (find and locate) all sites present within the project area, including both previously recorded and any newly identified sites; (b) to evaluate the potential significance of all identified archaeological remains; (c) to determine the possible impacts of any proposed development upon the identified remains; and (d) to define the scope of any subsequent archaeological work that might be necessary or appropriate.

Based on a review of available background literature and on discussions with Ms. Goldstein, Dr. Cordy, and Mr. Tim Lui-Kwan, deputy director at HCPD, the following specific tasks were determined to constitute an adequate and appropriate scope of work for the surface reconnaissance survey:

1. Review available background archaeological and historical literature relevant to the immediate project area;
2. Conduct 100% coverage high-intensity surface reconnaissance of the entire project area, with emphasis upon (a) relocation and evaluation of all previously recorded sites, and (b) identification, recording, and evaluation of any previously unidentified sites; and
3. Analyze background and field data, and prepare appropriate reports.

The reconnaissance survey was carried out in accordance with the standards for reconnaissance-level survey recommended by the Society for Hawaiian Archaeology (SHA). These standards are currently used by the HCPD and DLNR-HHS/SHPO as guidelines for reviewing and evaluating archaeological reconnaissance survey reports submitted in conjunction with various development permit applications.

PROJECT AREA DESCRIPTION

The Azabu Keauhou Resort Project site consists of approximately 70 acres located in the Land of Kahaluu, North Kona District, Island of Hawaii (Figure 1). The site consists of two areas: Study Area 2, located on the inland side of Alii Drive (TMK:3-7-8-10:35); and Study Area 3, located on the seaward side of Alii Drive (TMK 3-7-8-13:2,13,42,43). Study Area 2 consists of c. 47 acres; it is bounded to the north by small privately owned parcels, to the south and west by Alii Drive, and to the east by the proposed Alii Drive Realignment Corridor. Study Area 2 includes in its northern portion the former grounds of Kona Gardens, a botanical and cultural park. Remains of Kona Gardens within the study area include concrete pavilions, a parking lot, asphalt-paved paths, interpretive signs, preserved archaeological sites, and scattered native trees, shrubs, and exotic ornamentals. Within the southern portion of Study Area 2 are several very roughly bulldozed roads. Within a portion of the proposed Alii Drive Realignment Corridor (within Study Area 2) is a large pipeline trench. Also present within the study area are two proposed historic preservation areas referred to as the north and south preserves (Allen 1984:1)(Figure 1). Hammatt and Folk (1980:12), due to the well-preserved state and integration of sites in those two areas, initially recommended the areas for preservation. Subsequently, Tomonari-Tuggle (1985) recommended conservation for the two areas with eventual preservation and interpretive development. The remaining portions of Study Area 2 are generally unaltered.

Vegetation within the central portion of Study Area 2 consists primarily of a thick overstory of *koa-haole* (*Leucaena leucocephala* [Lam.] de Wit), sparse *'opiiuma* (*Pithecellobium dulce* [Roxb.] Benth.), monkeypod (*Samanea saman* [Jacq.] Merr.), and a groundcover of *Portulaca* sp. The southern portion of Study Area 2 generally consists of open aa with sparse *'uhaloa* (*Waltheria americana* L.), passion flower (*Passiflora foetida* L.), and scattered specimens of *koa-haole*, Christmas-berry (*Schinus terebinthifolius* Raddi), *pua-pilo* (*Capparis sandwichiana* DC.), *noni* (*Morinda citrifolia* L.), and *panini* (*Opuntia megacantha* Salm-Dyck). Study Area 2 rises in elevation from c. 20 ft AMSL (above mean

sea level) along its seaward (west) end to c. 115 ft AMSL along its inland (east) end.

Study Area 3 consists of c. 23 acres; it is bounded on the north by Kahaluu Beach Park, to the south by the Keauhou Kona Surf and Racquet Club, to the east by Alii Drive, and to the west by the Pacific Ocean. Study Area 3 includes large areas extensively altered by activities related to construction of the Kona Lagoon and Keauhou Beach Hotels. Besides altered areas, the study area includes a brackish-water pond (at Po'o Hawaii residential site on the grounds of the Keauhou Beach Hotel) and a small brackish-water ponded area (resulting from discharge) present immediately north and west of the Kona Lagoon Hotel. Extending from the ponded area is a shallow intermittent channel which flows into tidal pools. The coastline in Study Area 3 consists mostly of a flat pahoehoe bedrock shelf on which are very large boulders and many shallow tidal pools which extend into the surge zone. Present on the southern end of the study area is a small bay with a rocky sand beach. Vegetation within Study Area 3 consists predominately of landscaping plants—exotic ornamentals and scattered native trees and shrubs.

Rainfall in the general vicinity of the project area (Study Areas 2 and 3) ranges between 30-40 inches per year, and the mean annual temperature in the project area is approximately 75 degrees F (Armstrong 1983:63,64). Terrain in the project area generally consists of aa and pahoehoe lavas. Soil within the project area consists primarily of Punaluu extremely rocky peat (6-20% slopes), representing the Punaluu series of well-drained, thin organic soils which have developed over pahoehoe lava bedrock (Sato et al. 1973).

The entire project area is situated within the boundaries of the Kahaluu Historic District and the Kona Field System. The Kahaluu Historic District (Site 50-10-37-4150) has been placed on the National Register of Historic Places (NRHP). The district was nominated to the register: (a) because it contains numerous *heiau* within a concentrated area, (b) because of the unique architecture of several of the *heiau*, (c) because of the intrinsic value of petroglyphs within the area, (d) because of the area's association with important traditional political and religious activities, and (e) because of the area's high scientific research value. Previously declared eligible for inclusion on the NRHP, the Kona Field System (Site 6601) is a complex of aboriginal Hawaiian dryland cultivation and habitation remains which covers an area approximately 3 by 18 miles, extending from the Kailua area south to Hookena. Specific archeological sites within the project area include the Great Wall of

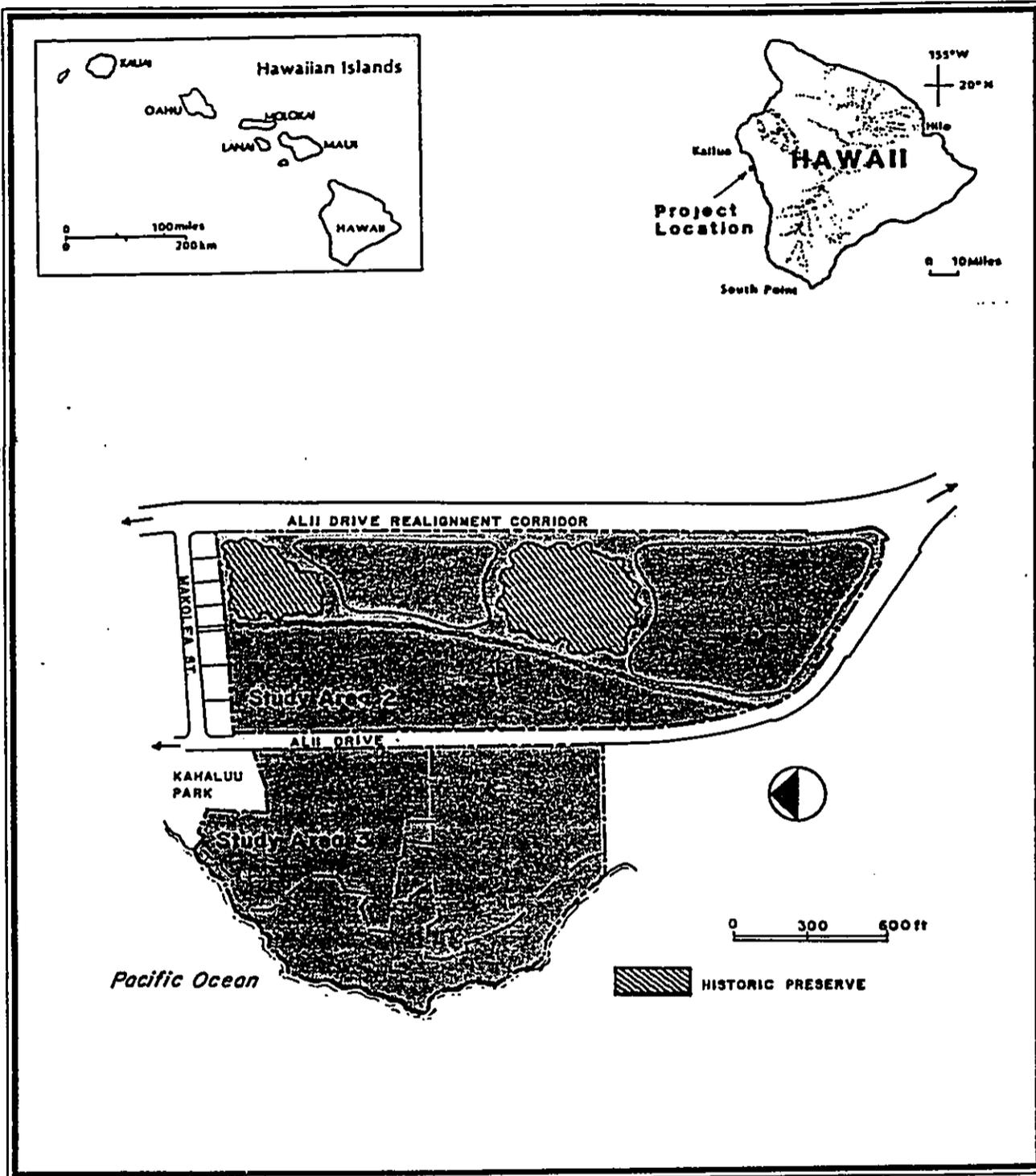


Figure 1. PROJECT LOCATION MAP
Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS)
Azabu Keauhou Resort Project
Land of Kahaluu, North Kona District Island of Hawaii
(TMK:3-7-8-10:35; 3-7-8-13:2,13,42,43)
PHRI Project 88-439 September 1988

Kuakini (Site 6302 [also listed as 7276]). This site, highly significant in terms of interpretive and cultural values, has been declared eligible for inclusion on the NRHP (see Historical Documentary Research section for discussions of other important sites in the project area).

PREVIOUS ARCHAEOLOGICAL WORK

Previous archaeological work conducted within the present project area includes field investigations, reconnaissance surveys, and test excavations. The field investigations and surveys include those by Stokes (n.d.), Reinecke (n.d.), Statewide (Hawaii) Inventory of Historic Places (HRHP 1970a,b,c), Emory et al. (1971), Soehren (1979), Hammatt and Folk (1980), Hommon and Rosendahl (1983), Rosendahl (1984), Allen (1984), and Cordy (1986a,b). The test excavations were conducted by Hammatt (Hammatt et al. 1981 - in conjunction with preparation of an archaeological salvage research plan) and Barrera (1971). Archaeological documents relevant to the project area, other than those related to the above projects, include a list of known heiau (Thrum 1908), a sketch map of archaeological sites situated along the coast (Kekahuna 1952), a cultural resource management plan for Keauhou Resort (Tomonari-Tuggle 1985), and a scope of work for two heiau restoration projects (Cordy 1986c,d). The following are discussions of the above investigations, surveys, excavations, and archaeological documents (in chronological order):

The earliest archaeological work in the present project area was conducted for B.P. Bishop Museum by J.F. Stokes (Stokes n.d.; c. 1906). Stokes focused on identifying heiau; he recorded numerous heiau within the Land of Kahaluu, of which four (Kapuanoni, Hapaialii, Keeku, and Makolea) are within the project area. In his manuscript, Stokes includes brief descriptions, historical notes, and several sketches of heiau. Stokes notes a petroglyph concentration (Site 439-54) situated seaward of Keeku Heiau; this concentration was later reidentified and recorded by Reinecke (n.d.) and Emory et al. (1971). Stokes also notes the remains of an enclosure (Haleopapa) in the project area; this enclosure was not relocated during the present survey.

In 1908 T.G. Thrum compiled a list of heiau within Kahaluu (Thrum 1908). The list included 12 heiau: Lahae, Kuemanu, Haleokane, Halelaau, Kapuanoni, Hanakalawai, Hapaialii, Kamaikeeku (or simply Keeku), Paoumi, Makoea, Kaionea, and Ohiamukumuku.

In 1930 J.E. Reinecke, surveying the immediate coastline of North and South Kona for B.P. Bishop Museum, surveyed sections of Kahaluu and Keauhou (Reinecke n.d.). Reinecke recorded numerous sites within Kahaluu, however, his

descriptions are so brief and his sites are plotted on such a small scale that in many cases the sites could not be correlated with sites identified during the present survey. In addition to the four heiau identified by Stokes, Reinecke recorded Papakoholua Heiau, Po'o Hawaii, and numerous other sites and features. Reinecke's sites were later included in an inventory of Hawaii Island sites prepared in 1970 by B.P. Bishop Museum for the HCPD (Emory 1970). That inventory was based entirely on records existing in the museum's Department of Anthropology and did not involve any field work. In the inventory, apparently only four of the major heiau in Kahaluu were assigned HRHP site numbers, while many other sites and features recorded by Reinecke were overlooked. Several of Reinecke's sites (Sites 151, 152, 154, and/or 155) may be the later designated Site 7828 (Allen 1984:6; Tomonari-Tuggle 1985:152).

Between 1949 and 1950, H.E.P. Kekahuna drafted sketch maps of the Kahaluu-Keauhou coastline (Kekahuna 1952). His maps depict portions of the present Study Area 3. Kekahuna's maps indicate the location of Keawe Hala Pond (Site D4-52, since destroyed), Keeku or Kueku Heiau (Site 3818), rock carvings, Hapaialii Heiau (Site 3817), Kapuanoni Heiau (Site 10997), Po'o Hawaii (Site 439-53), and includes notes on immediately adjacent areas.

In 1970, as part of the Statewide Inventory of Historic Places (HRHP 1970a,b,c), State Historic Preservation Office (SHPO) staff archaeologists assigned several new HRHP site numbers (Sites 1617, 1618, and 1619) to Reinecke's sites. The records for these sites are available for inspection at the DLNR-HSS. One site (Site 1617) was subsequently divided in three and assigned separate HRHP site numbers (Sites 7827, 7828, and 7829) by Hammatt and Folk (1980). Because the numbers assigned by Hammatt and Folk are appropriate, in terms of spatial association among features, they are used within this report.

In March of 1971, B.P. Bishop Museum conducted a reconnaissance survey of Bishop Estate land within Kahaluu and Keauhou for Kamehamecha Development Corporation (Emory et al. 1971). The survey included portions of the present Study Area 3. The survey identified eight sites, of which five (D4-3, -5, -47, -49, and -54) were relocated during the present survey. Emory appears to have mistakenly identified one site (D4-47 - a wall reidentified during the present survey) as Kuakini Wall. Kuakini Wall is actually situated a short distance inland of D4-47. Included within Emory et al. (1971) is a report on the prehistory and history of the general Kahaluu-Keauhou (by D.B. Barrere). Based on Barrere's research and on the findings of the survey, the sites identified by Emory et al. (1971) were determined to contain significant scientific research potential. Detailed

mapping, excavations, and eventual restoration and preservation were recommended for the sites.

Barrera in mid-1971 subsequently excavated and/or recorded Sites D4-34, -52, and -53, initially identified by Emory et al. (Barrera 1971). Excavation of Site D4-34 (1616), a stone platform, revealed a small lava bubble. Excavation of the c. 15 cm thick soil deposit within the bubble revealed sparse amounts of marine shell, kukui (*Aleurites* sp.) nut shell and dog bone. No human remains were present within the bubble; however, a human phalange was present within the platform fill. Although no intact human burial was identified within Site D4-34, Emory recommended archaeological monitoring when remaining portions of the platform were removed (1971a). Data recovery at Sites D4-52 and -53 consisted of scaled plan maps and descriptions. The sites were determined by Emory to be in poor condition, and as better examples were present nearby, the sites were considered expendable (Emory 1971a). Emory recommended preservation for Sites D4-3 (Keeku Heiau, 3818), D4-5 (Makolea Heiau, 3819), D4-47 (Wall, 439-55), D4-49 (House site, 439-56), and D4-54 (Petroglyphs, 439-54) (Emory 1971b). Sites D4-34 and -52 apparently were destroyed during construction of the Kona Lagoon Hotel. Site D4-53, not relocated during the present survey, may also have been destroyed, or it may be hidden in the low cover of weeds which surrounds the brackish-water pond northwest of Kona Lagoon Hotel.

In mid-1979, L.J. Soehren conducted a reconnaissance survey of the northern portion of the present Study Area 2, which included the area of the then proposed Kona Gardens botanical and cultural park (Soehren 1979). During the survey, Soehren identified 42 sites, of which 40 were reidentified during the present project. The two sites which could not be relocated were Site 16, a low crude stone wall, and Site 33, a small bedrock mortar. These sites may have been inadvertently destroyed during construction of the botanical and cultural park. Soehren reidentified the Great Wall of Kuakini (Site 6302), Papakoholua Heiau (Site 1619), two smaller possibly unnamed heiau, numerous possible burial structures, habitation features, petroglyphs, and many other miscellaneous features. All sites identified by Soehren to be within the Kona Gardens portion of the survey area were to have been stabilized, preserved, and developed into an interpretive park.

Between 1980 and 1981, Archaeological Research Center Hawaii, Inc. (ARCH) conducted a study of Study Area 2 (excluding the parcel west of Kuakini Wall) for Keauhou-Kona Resort. This study was part of a larger c. 750-acre reconnaissance survey (Hammatt and Folk 1980) conducted in conjunction with test excavations and the

preparation of an archaeological salvage research plan (Hammatt et al. 1981). The general objectives of the reconnaissance survey were (a) to locate, map, describe, and inventory all archaeological resources, and (b) to evaluate these resources in terms of scientific and cultural values, and to recommend appropriate treatment for the resources. The purposes of the test excavations were to develop meaningful future archaeological work standards and to evaluate the cultural resources present (Hammatt et al. 1981:1). The purpose of the salvage research plan was to develop an overall program regarding future archaeological work (testing, analysis, and reporting) for sites within the Keauhou-Kona Resort area excluded from historic preservation areas. During the reconnaissance and testing phases of work conducted by ARCH, 39 sites were identified within the present Study Area 2. During the present survey, all 39 sites were relocated; however, four features of Site 7827 (Features A, B, E-1, and E-2) were not relocated. Of the four features, two (A and B) are not on the ARCH site location map. During the ARCH project, test excavations were conducted at four of the 39 sites, and surface excavations were conducted at two sites. The excavations yielded sparse marine shell midden, mammal bone, kukui (*Aleurites moluccana*), charcoal, coral, artifacts (volcanic glass and basalt flakes), and a human burial. Age determination analyses of volcanic (basaltic) glass recovered from the entire ARCH project area yielded an overall range of 1180 BC-AD 1850 (this range is expressed in basaltic glass years, not actual calendar years [Hammatt et al. 1981:82]). Based on the reconnaissance survey and limited test excavations, the salvage research plan (Hammatt et al. 1981) recommended that two site complexes within the present Study Area 2 be designated as historic preserves (Figure 1). Subsequently, Hawaii County Rezoning Ordinance No. 820 mandated the establishment and maintenance of the two historic preserves. For the remaining sites in Study Area 2, additional excavations and detailed recording were recommended (Hammatt et al. 1981:91-94).

In early-1983, PHRI and Science Management Inc. (SMI) during a reconnaissance survey inspected sites situated within the Alii Drive Realignment Corridor. The primary goal of the survey was to provide archaeological data for updating an EIS being prepared at that time for the County of Hawaii by Belt, Collins & Associates (Hommon and Rosendahl 1983). The objectives of the survey were (a) to determine the presence or absence and general nature of archaeological resources in the survey area, (b) to evaluate identified resources, (c) to determine the scope of any possible future archaeological work, and (d) to sufficiently record data at sites which warrant no further work. Of the sites the survey reidentified within the Alii Drive Realignment Corridor, 12 are situated in the western half of the corridor,

and although the corridor is not a formal part of the present Study Area 2, these sites, because they are either partially within or are immediately adjacent to Study Area 2, are included within the present report. Based on the findings of their survey, Hommon and Rosendahl (1983) recommended intensive survey (including detailed mapping and test excavation) for ten of the 12 sites. Data collected during the reconnaissance survey for Site 7833 (two terraces) and Site 7831 (wall) was considered sufficient, and no further work was recommended (Hommon and Rosendahl 1983:126, 128). One site in the corridor, Site 7962 (Ohia Cave) extends westward below (underground) Alii Drive Realignment Corridor and into the present project area. Ohia Cave is of specific concern because it contains human burial remains.

In August 1983, PHRI briefly inspected the portion of Study Area 2 situated east of Kuakini Wall (Site 6302) as part of limited field inspections of development parcels at Keauhou. The field inspections were being conducted in conjunction with the preparation of a cultural resource management plan (CRMP) (Tomonari-Tuggle 1985) for Kamehameha Investment Corporation and Keauhou Resort. The CRMP is an extensive document which outlines interpretive development (preservation) and data recovery programs for Keauhou Resort. The general objectives of the CRMP were: (a) to identify the nature and extent of cultural resources in the Keauhou Resort area; (b) to set the criteria for and assess the significance of cultural resources and specific sites in Keauhou Resort; (c) to discuss alternatives available for management of the cultural resources; and (d) to identify specific actions which must be taken to effectively implement CRMP alternatives. Included within the CRMP are (a) a discussion of the environment and history of Keauhou and Kahaluu, (b) a discussion of the nature and significance of cultural resources in Keauhou and Kahaluu, (c) a conservation program for cultural resources, (d) an interpretive program, (e) a data recovery program, (f) a summary of recommendations and overall cultural resource management considerations, (g) historical documentary research on Keauhou and Kahaluu, and (h) appendices. In the documentary research section Tomonari-Tuggle presents a detailed model of the cultural history of the Keauhou-Kahaluu area (1985:14-34). The Tomonari-Tuggle model consists of the following periods: (a) the beginnings of settlement, pre-AD 1000 to the 1300s; (b) settlement expansion, the early traditional period; (c) 'Umi and Lono, the late traditional period; (d) Kalaniopuu and Kamehameha, last of the ruling chiefs; (e) the early 1800s, merchants and missionaries; (f) the mid-century, government land records; (g) the late 19th century; and (h) the 20th century, quiescence and revival. The appendices in the Tomonari-Tuggle report include (a) Hawaii County Ordinance No. 820, Sections M

through S; (b) archaeological and historical documentary sources for Keauhou and Kahaluu; (c) development parcel profiles (summary); (d) interpretive themes and research problems in Hawaii Island archaeology; and (e) a botanical list for Keauhou Resort CRMP. Regarding Development Parcel 14B/C Profile (Study Area 2 portion east of Kuakini Wall), the CRMP indicates the sites within this parcel are significant for scientific research, cultural, and interpretive potential. Tomonari-Tuggle states that Development Parcel 14B/C is significant for scientific research value largely because of its proximity to a complex of ceremonial (predominately heiau) sites (1985:153). Suggested research questions relative to Parcel 14B/C put forth in the CRMP involve: (a) the dimensions (duration, continuity, and intensity) of the settlement, (b) the archaeological manifestation of the ahupua'a in the parcel, (c) the evolution of complex chiefdoms, (d) marine resource exploitation in the parcel, and (e) archaeology and traditional history relative to the parcel (Tomonari-Tuggle 1985:153). Culturally valuable sites within Parcel 14B/C include Kuakini Wall (Site 6302), Ohia Cave (Site 7962), and numerous burial sites (such as Sites 7813, 7834, and 7847). Tomonari-Tuggle (1985:154) states that the cultural value of the area is further documented by the NRHP nomination form which states Kahaluu as an ahupua'a of "major importance in Hawaiian culture and history during the times before European contact...Kahaluu appears to have been a major seat of political power" (NRHP n.d.). According to Tomonari-Tuggle, the interpretive value of the parcel "is in the variety and density of residential sites, particularly in the north preservation area and in DP 14C (specifically Site 7828)" (1985:154). Based on a review of previous archaeological work and the results of the limited field inspection conducted by PHRI, Tomonari-Tuggle recommended a reconnaissance survey be conducted in Parcel 14B. The survey would focus on locating unidentified sites and would be followed by an intensive survey (including detailed recording and test excavations). If the intensive survey findings proved significant, Tomonari-Tuggle stated "a data recovery plan should be prepared and implemented for sites not recommended for preservation or interpretation" (1985:154). Tomonari-Tuggle also recommended stabilization, reconstruction, and/or salvage excavation for several sites in Parcel 14B.

In December 1983, PHRI conducted a field inspection of Study Area 2 (then Development Parcel 14). The inspection was conducted for Mr. Glen T. Koyama of Belt, Collins & Associates (Rosendahl 1984). The purpose of the inspection was to determine if subdivision of the parcel according to proposed lot boundaries would adversely affect significant sites/features. The inspection located numerous previously identified archaeological sites and features. Based on the findings of the field inspection and on a review of

previous archaeological work, Rosendahl (1983) recommended shifting a proposed lot boundary to conform with the boundary of a historic preservation area, and intensive-level archaeological work (including detailed recording and test excavations) for all sites to be adversely impacted by proposed subdivision lot lines. Rosendahl also recommended that as an initial step, an evaluation of archaeological sites and features within Development Parcel 14 be undertaken. This evaluation was to include (a) a detailed review of all prior archaeological work, (b) a detailed field examination of all individual sites and features, and (c) evaluations and recommendations for the disposition of individual sites and features within the framework of specific development plans.

In March of 1984, PHRI conducted a limited reconnaissance survey within a portion of the present Study Area 2 (portion east of Kuakini Wall) for Mr. A.J. McDanold (Allen 1984). The purposes of the survey were: (a) to relocate sites previously identified by Hammatt and Folk (1980; survey by ARCH), (b) to evaluate coverage of the previous ARCH survey, (c) to determine the next level of work appropriate for sites in the area, and (d) to evaluate the significance and coherence of sites comprising the two designated historic preserves. During the survey, 37 previously identified and nine newly identified sites were recorded. One newly identified site (Site T-101 - trail) was subsequently found to be an extension of a previously identified trail (Site 7809). Based on the findings of the survey, Allen recommended that in conjunction with implementation of the CRMP (Tomonari-Tuggle 1985), a two-phase intensive-level survey be conducted. Phase I tasks included detailed recording, mapping, surface collections, and preliminary historical documentary research; Phase II tasks included test excavations. Regarding the two historic preservation areas, Allen recommended their boundaries be maintained wherever possible. Allen also recommended that non-unique sites and/or sites in conflict with the needs of the developer should be included within overall mitigation plans (1984:6,8). Allen also strongly recommended that Site 7828, situated outside the preservation areas, also be preserved due to its high scientific research, interpretive, and cultural values (1984:6).

Cordy conducted the most recent archaeological work within the present project area (Cordy 1986a,b). Cordy's work consisted of field checks and historical overviews of Kapuanoni (Site 10997) and Hapaialii (Site 3817) heiau. The overviews provide information on the heiau relative to historic background, prior archaeological work, description and condition, and possible functional interpretations. Cordy recommended further work and restoration for both heiau (Cordy 1986c,d). Further work included detailed mapping

and controlled excavations in order to determine possible construction phases, age, and function, and in order to recover portable remains. The restoration tasks Cordy outlined included specifics such as building materials to be used and details concerning wall construction, resurfacing, vegetation clearing, and interpretive signs.

Previous archaeological work conducted in the general vicinity of the present project area includes, but is not limited to, reconnaissance surveys of the southern portion of Kahaluu Bay (Rosendahl and Severance 1981); reconnaissance surveys of private parcels situated immediately north of the present project area (Rosendahl 1986a,b,c); excavations at Kamehameha III Road (Crozier 1971) and Kahaluu (Kirch 1973; Walker and Rosendahl 1985; Kaschko 1985); data recovery excavations at Cave Site 7702 (Hay et al. 1986), Keauhou-Kona Resort (Shun 1984), and inland of Kahaluu Bay (Landrum and Rosendahl 1985); and preliminary management planning for the lower section of Ohia Cave (Rosendahl 1985).

In all, previous archaeological surveys identified 87 archaeological sites within the present project area. Of the 87 sites, Kuakini Wall (6302), Ohia Cave (7962), a possible heiau (7841), and a possible ceremonial complex or high status residence (7828), in addition to c. 20 sites situated within two proposed historic preservation areas, were recommended for preservation and interpretive development.

HISTORICAL DOCUMENTARY RESEARCH

Historical documentary research on the present project area was conducted in order to broaden understanding of archaeological sites in the project area through understanding the cultural contexts in which the sites existed. Prior to the present study, a number of historical studies relevant to the project area have been conducted. Barrere's "Glimpses of History," (Barrere 1985) details the history of Keauhou and Kahaluu by centuries, starting with the 15th century. Barrere's study focuses on the pre-Contact period and genealogies of ruling chiefs. Other historical studies include studies by Hammatt et al (1981), M.J. Tomonari-Tuggle (1985), Carol L. Silva (Silva 1985), and brief historical overviews by Cordy (1986a and b).

The present research consists of a summation of information in the above studies plus new information. Like most of the earlier studies, the present study considers the Lands of Keauhou and Kahaluu together. This is practical, as the land units are situated adjacent to each other and are often mentioned together in historic references, and is also

somewhat necessary, as early information on both land units is scarce. Keauhou and Kahaluu, though not unimportant, were secondary villages between Kailua and Kaawaloa; hence, western ships with their attendant early historians aboard had little reason to stop at them and describe them in their journals. The present research is divided into three sections: (a) references to prehistoric and historic Keauhou and Kahaluu, (b) references to specific sites within or near the present project area, and (c) government land records on Keauhou and Kahaluu.

References to Prehistoric and Historic Keauhou and Kahaluu

The pre-Contact history of Keauhou and Kahaluu is recorded primarily in Formander (1969) and Kamakau (1961), both of whom in the 19th century recorded Hawaiian legends, genealogies, and traditions. M.J. Tomonari-Tuggle (1985) constructed a prehistoric cultural sequence for the Keauhou-Kahaluu area based primarily on Kamakau's and Formander's work and on archaeological work conducted in the area during the 20th century. Tomonari-Tuggle notes that the sequence is a rough construction—the dating based on available genealogical data, which is open to dispute, and limited hydration-rind age determinations.

The Tomonari-Tuggle prehistoric sequence extends from c. AD 1000 to AD 1778 and is divided into three periods. Summaries of the three periods, presented below, provide a convenient overview of the Keauhou-Kahaluu area prior to 1778, when Captain James Cook arrived in the islands:

Pre-AD 1000 to the 1300s - Keauhou-Kahaluu is initially settled sometime after AD 1000. Settlement is marine resource-oriented with habitation probably focused around Kahaluu and Keauhou Bays. Kin-based social and economic ties link the coastal areas in the vicinities of the bays. By AD 1300, upland areas at least 4,000 feet inland are cultivated. Subsequently, areas further inland are cultivated.

Early Traditional Period - Generally covers 14th-16th centuries. Initial development of social organization recorded by early western explorers. During 14th century Kona Field System established. During 15th century occupation of dry uplands probably permanent. Increasing separation of chiefly class from commoners. In 16th century population stabilized and ahupua'a established as socio-economic unit.

Late Traditional Period - Generally covers 16th-18th centuries. First references to Keauhou-Kahaluu in traditional literature.

The arrival of Captain James Cook generally marks the beginning of Hawaii's literary history. It is about fifteen years after Cook's arrival that the first literary reference to Keauhou-Kahaluu appears. The first reference is by Menzies, a surgeon with the Vancouver expedition. Menzies describes Keauhou in 1794 as "a small cove surrounded by a scattered village belonging to Ke'eaumoku" (1920:149). Thirty years later the missionary William Ellis, on a tour of the island in 1823 described Keauhou as "a pleasant village, containing one hundred and thirty-five houses...we had not been long in the village when about one hundred and fifty people collected round the house in which we stopped" (Ellis 1969:121). On July 18, 1823 Ellis and missionary companions spent the night at Keauhou. That day Ellis had counted 610 houses and 19 heiau on the eight-mile stretch of land between Kailua and Keauhou and estimated the uplands contained another 100 houses. Allowing five persons to a house, Ellis and his companions estimated that there were 3,550 persons in the area. Sometime later, Keauhou was described by Mackintosh, editor of a journal, as "a picturesque retreat...said to have been a favorite residence of the Queens of olden days, at the periods when in the maturity of events, they were inclined to confer upon the nation new heirs to royalty." (Mackintosh 1838:L2). Other early missionary accounts which contain references to Keauhou and Kahaluu include those by A. Bishop (1892), S.E. Bishop (1916), and J.D. Paris (n.d.). Unpublished documents with references to the two areas include mission station reports and missionary letters. The mission station reports provide information on births, deaths, and marriages, but the information is by district, not by specific ahupua'a.

Several early Hawaiian scholars who wrote of early Hawaii were trained by missionaries, and it is primarily from the works of these scholars that Hawaiian genealogies and chronologies of events in early Hawaii have been formulated. The following information—a general chronology of events relevant to Keauhou and Kahaluu—has been derived from later works (primarily Tomonari-Tuggle 1985) which have largely been based on the works of these early scholars. Of the scholars, S. Kamakau in his chronicle of the ruling chiefs of Hawaii (1961) overall provides the most noteworthy information on Keauhou and Kahaluu. His work provides the first reference in traditional Hawaiian literature to the general area of Keauhou and Kahaluu. Kamakau writes that when 'Umi-a-liloa killed his half-brother Hakau, the ruling chief of Hawaii, most of the district chiefs rebelled. 'Umi then conquered each district in turn and declared himself chief over them. He then

"...desired to dwell in Kona where the climate was warm... 'Umi did two things with his own hands, farming and fishing... much of this [farming] was done in Kona." (1961:19). Though Liloa had formally and publically [sic] acknowledged 'Umi as his son, and 'Umi's prowess and accomplishments had vindicated his assumption of power, yet doubtless not a few of the higher chiefs, while acknowledging the pure descent of 'Umi's mother, considered her rank as so much inferior to that of Liloa, as to materially prejudice the rank of 'Umi himself in his position as *Moi* and as a chief of the highest *tabu*. So great had been the discontent and disgust of the entire people, chiefs, priests, and commoners, with the tyrannical and unusually barbarous rule of Hakau, that, as a matter of political reaction and as an expression of relief, the great feudatory chiefs in the various districts of the island cordially received and freely acknowledged the sovereignty of 'Umi as he made his first imperial tour around the island shortly after his accession to power (Fornander 1969:96-97). Kamakau's work indicates that Keauhou and Kahaluu were the birthsites of several high-ranking Hawaiian chiefs (Kuakini in 1791, Kekauluohi in 1794, and Kauikeaouli [Kamehameha III] in 1814, and that Keopuolani, Kamehameha's "sacred" wife and mother of Kauikeaouli, lived at Keauhou for a few years between 1789-1795.

According to Barrere (1971), it is from the time of 'Umi that Kona became the residence of the Hawaii Island ruling chief. During the time of 'Umi the Kahaluu coastal area grew in political and religious significance, and its population also grew. With the population increase came an increase in demand for food, hence, during this period agricultural systems in the area were probably expanded or used more intensively.

The first chief tradition speaks of as linked specifically with Keauhou-Kahaluu is Lonoikamakahiki, grandson of 'Umi (Barrere 1971). The story of Lonoikamakahiki is presented in Kamakau (1961:47-61) and in Fornander (1916-1917, 4:256-358; 1918-1919, 5:436-445) and the stories in each are somewhat different. One story goes that Lono was an *alii nui* who directly controlled the districts of Kau and Puna. During Lono's reign, chiefs of other Hawaii Island districts rebelled against him. Lono, with the help of a Puna chief, repelled the rebellion and restored order. It was during Lono's time that the Maui chief Kamalalawalu invaded Hawaii. Lono defeated Kamalalawalu and it is said that Kamalalawalu was sacrificed on a Kahaluu *heiau*, either Ohiamukumuku or Keeku (Barrere 1971:4). According to Fornander, after his wars and travels were over, Lono lived in Kahaluu. Various *heiau* in Kahaluu are attributed to Lono, including Lonoikamakahiki, Keahiolo, Makolea, and Kapuanoni *heiau*.

The numerous *heiau* and the large residential features in the Keauhou-Kahaluu area attest to the religious significance of Keauhou-Kahaluu during that period. Keeku, Makolea, and Kapuanoni *heiau* mentioned above are situated within the present project area. Also near or within the project area are Ohiamukumuku and Hapaialii *heiau* and Lonoikamakahiki and Po'o Hawaii resident sites. These *heiau* residences are discussed individually, in detail, later.

Following the time of Lono one oral tradition has it that the island remained unified, with a brief upheaval leading to Alapainui's gaining power. Another oral tradition indicates it was not until the first half of the 18th century that Hawaii was once again under rule as a single political unit. Alapainui, a member of a Kohala family of chiefs, ruled the island. In 1752, Alapainui was challenged by Kalaniopuu, chief of Kau and Puna. Kalaniopuu declared himself independent of Alapainui, and when Alapainui later died, Kalaniopuu defeated his successor and became the *alii nui* (Fornander 1969:145). It was during Kalaniopuu's rule that James Cook arrived in Hawaii. During his rule Kalaniopuu visited Keauhou and Kahaluu intermittently. After Kalaniopuu's dispatch of Captain Cook, he was said to have spent time in Kahaluu and Keauhou "diverting himself with *Hula* performances" (Fornander 1969:200). According to Kamakau (1961:105), Kalaniopuu moved to Keauhou "where he could surf in the waves of Kahaluu and Holualoa."

Concurrent with the Hawaii Island rule of Kalaniopuu was the rule of Kamehameha I. When Kalaniopuu died, Kamehameha rose to power on Hawaii Island. Helping him rise was Keeaumoku. As a reward, Keeaumoku was apparently awarded Keauhou and Kahaluu. The period under Kalaniopuu and Kamehameha ended at the battle of Kuamoo, which partly took place on the southern coast of Keauhou. After Kamehameha died in 1819, his successor, Liholiho was encouraged by Kamehameha's widows to break the old religious laws. A small band of chiefs who wished to maintain the old laws battled Liholiho's army at Kuamoo, and the new way triumphed. Lekeleke Burial Ground in south Keauhou is the grave of three-hundred of Liholiho's warriors.

References to Specific Sites Within or Near the Project Area

Major sites in the present project area include Kapuanoni, Hapaialii, Makolea, and Keeku *heiau*, and Poo Hawaii, a residential site. Another major site, Ohiamukumuku *heiau*, is situated adjacent to the project area. According to available information, these sites were used by high ranking chiefs who typically resided in the immediate area of *heiau*

(Barrere 1971)). These chiefs included: Lonoikamakahiki in the AD 1600s, Kamehameha in 1812-13, and Keeaumoku and Kuakini in the 1790s; also, Alapainui and Kalaniopuu, for at least short periods of time.

Kapuanoni Heiau is located on the grounds of the Keauhou Beach Hotel in parcel TMK:7-8-13:43. Information on this heiau is scant and is primarily from the early 20th century. The heiau was first recorded by John Stokes (1906). Stokes' information was from Malanui, who was the grandson of the priest of the heiau. Malanui was informed of the heiau by his father and grandfather. According to Malanui, the heiau was used for prayer in general and was built by Kalaniopuu. Another early 1900 reference to the heiau is by Thrum (1908a,b; 1938). According to Thrum, Kapuanoni was an "ancient luakini and puuhonua" built during the reign of Lonoikamakahiki. However, the Thrum reference is disputed by Stokes' informant, who attests that Keeku and Ohiamukumuku were the only luakini in the area, and only Keeku was a puuhonua. Other traditional sources (Malo, Fornander, Kamakau) mention that Keeku and Ohiamukumuku were luakini. Reinecke in 1930 was given oral information on the heiau to the effect that the heiau was once the residence of Alapainui, a ruler in the mid-1700s. Kekahuna, in 1949-50 was informed by Naluahine Kaopua that the heiau was "to increase food and fish." According to Cordy (1986a), based on his assessment of the various references to the heiau and the heiau's relationship to other nearby heiau, it is likely that Kapuanoni was used for farming and fishing sources, and for worship in relation to agriculture.

Hapaialii Heiau is also on the grounds of the Keauhou Beach Hotel (in TMK:7-8-13:43). Information on Hapaialii Heiau is from early 1900 accounts. Stokes in 1919 writes that the heiau was for prayers only and that it was built by a priest named Maa, who lived after Pa'ao. Stokes also mentions that the heiau is older than adjacent Keeku Heiau. Stokes' information came from the same Malanui as mentioned in the preceding paragraph. Thrum (1908a,b,1938) indicates Hapaialii was built by Kamehameha after the Battle of Mokuohai in 1782, and that it was used for human sacrifices. Thrum, however, adds that "the character of its stones [dressed] indicate it as belonging more likely to the early period of Umi" (1907). Thrum indicates that the heiau was 300 by 170 feet. According to Cordy (1986b), Thrum's contention that the heiau was used for human sacrifices contradicts other oral information gathered on heiau in Kahaluu; Cordy indicates Thrum's information is suspect. In assessing the role of Hapaialii Heiau in history, Cordy, based on an assessment of early literature and informant information, indicates that Hapaialii Heiau was probably

used not as a luakini or puuhonua, but for "other important religious activities" and that the heiau was built sometime between 1200-1400.

Makolea Heiau, according to Kekahuna and Kelsey (1954), was once the dwelling place of Makolea, purported to be a beautiful chiefess of great fame. Kekahuna also states "Chief Lonoikamakahiki held ceremonies in the heiau, formerly a women's heiau" (1952). Thrum (1907:71) and Stokes (Ms:21) mention the heiau only in connection with Lono. Reinecke (Ms:6) gave the heiau name as "Keekuapuaa"...known as...Makolea, a beautiful chiefess, daughter of Keolonahiti and Kahaluu." Kekahuna and Kelsey indicate that a chiefess by the name of Makolea appears in "Legend of Kepakailiula" as the daughter of Kahaluu and Keauhou (Fornander, 1918-1919, 4:500) but in the legend there is no connection between her and any heiau. In the legend she is the wife of both Kepakailiula of Puna and Kakaalaneo, king of Maui. Kakaalaneo appears in genealogies as a contemporary of the 15th century Kona chief Ehu (Fornander 1880:82).

Information on Keeku Heiau is very limited. Keeku Heiau, according to Stokes (Ms:20) (according to information from informant Malanui), was where Kamalalawalu, former ruler of Maui, after he lost a battle to Lonoikamakahiki, chief of Hawaii Island, was sacrificed by Lonoikamakahiki. In connection with this sacrifice, an informant to Reinecke, Kahulamau, told Reinecke that "Kamalalawalu was impaled for ten or eleven days on the beach by Keeku" before his body was given to sharks (Ms:6). Stokes was also told by Malanui that Keeku served as a puuhonua. According to Kamakau (1961:180), Keeku was one of the heiau Kamehameha established as "heiaus for the sacrifice of human beings to his blood-thirsty gods."

Contrary to Stokes' information, Thrum (1907:71) indicates that it was Ohiamukumuku Heiau where Kamalalawalu was sacrificed. Thrum also says of Ohiamukumuku heiau that it was "one of the early heiaus of the district (traditionally said to have been built by the gods, not by the people)..." According to Kekahuna (1961:180) Ohiamukumuku Heiau, like Keeku Heiau, was one of the heiau Kamehameha established for sacrifice of human beings. Kekahuna and Kelsey in their newspaper article (1954) indicate that in modern times the stones of Ohiamukumuku Heiau were used in building the first Helani church.

Po'o Hawaii, a major residential site in the present project area, is shown on Kekahuna's map (1952). Po'o Hawaii is said to be the traditional site of Keeaumoku's

residence. It is here that chief Kalua was probably born (to Namahana and Keeaumoku Papaiahiahi). Po'o Hawaii, according to Kekahuna, about 1812-13 may also have been the residence of Kamehameha I; however, Kekahuna also notes that Kamehameha's residence during that time could also have been at Lonoikamakahiki Residential Site. This site is within a few hundred yards southwest of the present project area.

Government Land Records

Government land records provide a limited amount of information on Keauhou-Kahaluu. Records indicate that during the Great Mahele of 1848 Victoria Kamamalu received Kahaluu (LCA 7713:6; Royal Patent 6856) and half of Keauhou (Keauhou 1); her brother, Lot Kamehameha, received the other half of Keauhou (Keauhou 2). Kamamalu and Lot Kamehameha were great-grandchildren of Keeaumoku and Namahana. In addition, 126 Land Commission Awards (LCAs) were granted in Keauhou and Kahaluu. Fifty-six of the LCAs were awarded in Kahaluu. The lots ranged from 0.07-4.40 acres. Fifty LCAs were awarded in Keauhou 1, and 19 LCAs were awarded in Keauhou 2. The lots in Keauhou ranged from 0.14 to 6.66 acres. In Kahaluu, 28 of the LCAs are clustered along the north edge of Kahaluu Bay. The other 15 are scattered south of the bay. In Keauhou, house lots are located primarily on the promontory between Keauhou and Heeia bays. Based on LCA records, early crops grown in the LCAs include sweet potato, pumpkin, yam, coffee, taro, breadfruit, oranges, gourds, and melons. LCAs awarded in the present project area include 5632:1 to Keikihookama (R.P. 4439), 5694:1 to Kawakoekoe (R.P.4345), 5966 to Maheu (R.P.4359), 5915 to Pawai (R.P.4336), 5693 to Koolau, 6026 to Lanai (R.P.6787), and 6027 to Kapiiwi (Figure 2). Several of these LCAs correspond with sites identified in the present project area.

The land records, aside from showing to whom land was distributed, also indicate the general population of and the distribution of the population in Keauhou-Kahaluu. It is well-documented that under the reigns of Keeaumoku and Kamehameha, Keauhou-Kahaluu was a focus of political and religious activity and sustained a village population that extended at least 1,200-1,500 feet inland of the coast. However, land records indicate that by the mid-1800s the population was declining, as it was all along the Kona coast. By 1885, according to an early map, Keauhou consisted of only about 16 structures, including a store and a school house. Little is known about Kahaluu during this period; the only records for Kahaluu for this period indicate the taxable population declined from 57 to 40. Meanwhile, in upland Kona areas the population, involved in ranching and

commercial coffee production, was growing rapidly. This growth was not only in terms of the traditional ethnic population, but in terms of a new population of Chinese immigrants. The presence of Chinese at Keauhou and Kahaluu in the late 1800s is supported by government records which show Chinese residing in the area since 1870. The early 1900s continued the pattern of population movement from the coastal areas to the uplands. During this period Keauhou was described as the "end of the road" and Kahaluu was merely a cluster of houses on the way to the end of the road. A visitor during this period described Keauhou Bay as "miles off the beaten path...a place where people used to live in numbers and now live no more." (Schenck 1931:80). On a 1928 USGS map, only 15 structures are shown around Heeia and Keauhou Bays and 12 structures are shown around Kahaluu.

FIELD METHODS AND PROCEDURES

Field work was conducted June 15-18, 1988 by PHRI Supervisory Archaeologists Alan T. Walker and Victoria K. Kai. Principal Investigator Dr. Paul H. Rosendahl was on-site June 18, 1988. The surface reconnaissance survey (100% coverage) of Study Areas 2 and 3 was accomplished by way of a series of systematic pedestrian transects which were oriented approximately east-west and perpendicular to the major axis of the project area. Intervals between sweeping crew members were 15.0-20.0 m, depending on vegetation and terrain encountered. The survey focused on areas exclusive of the two designated historic preserves. The areas of the preserves were only briefly examined and sites within the preserves were not reinspected.

As sites were identified, they were flagged with pink-and-blue flagging tape and most sites were assigned a PHRI temporary sequential number prefixed by "439-," beginning with 439-1. Previously identified Hawaii State sites (sites identified in Hammatt and Folk [1980] and Hammatt et al. [1981]) were designated by their four- or five-digit HRHP numbers. Previously identified PHRI sites (Allen 1984) were designated by their previously assigned PHRI "T-" numbers, or in one case (T-101), the site's HRHP number (7809). Sites identified by Emory et al. (1971) and/or Soehren (1979) were designated by their respective HRHP site numbers or, if no HRHP number existed, were subsumed under the 439- sequence used in the present project or were designated by their original numbers.

All sites in Study Area 2 were plotted on a blue-line topographic map (1"=50' scale, 2-ft contours) produced by R.M. Towill Corp. (1980). Sites in Study Area 3 were plotted on a blue-line map (1"=50' scale) of existing hotel

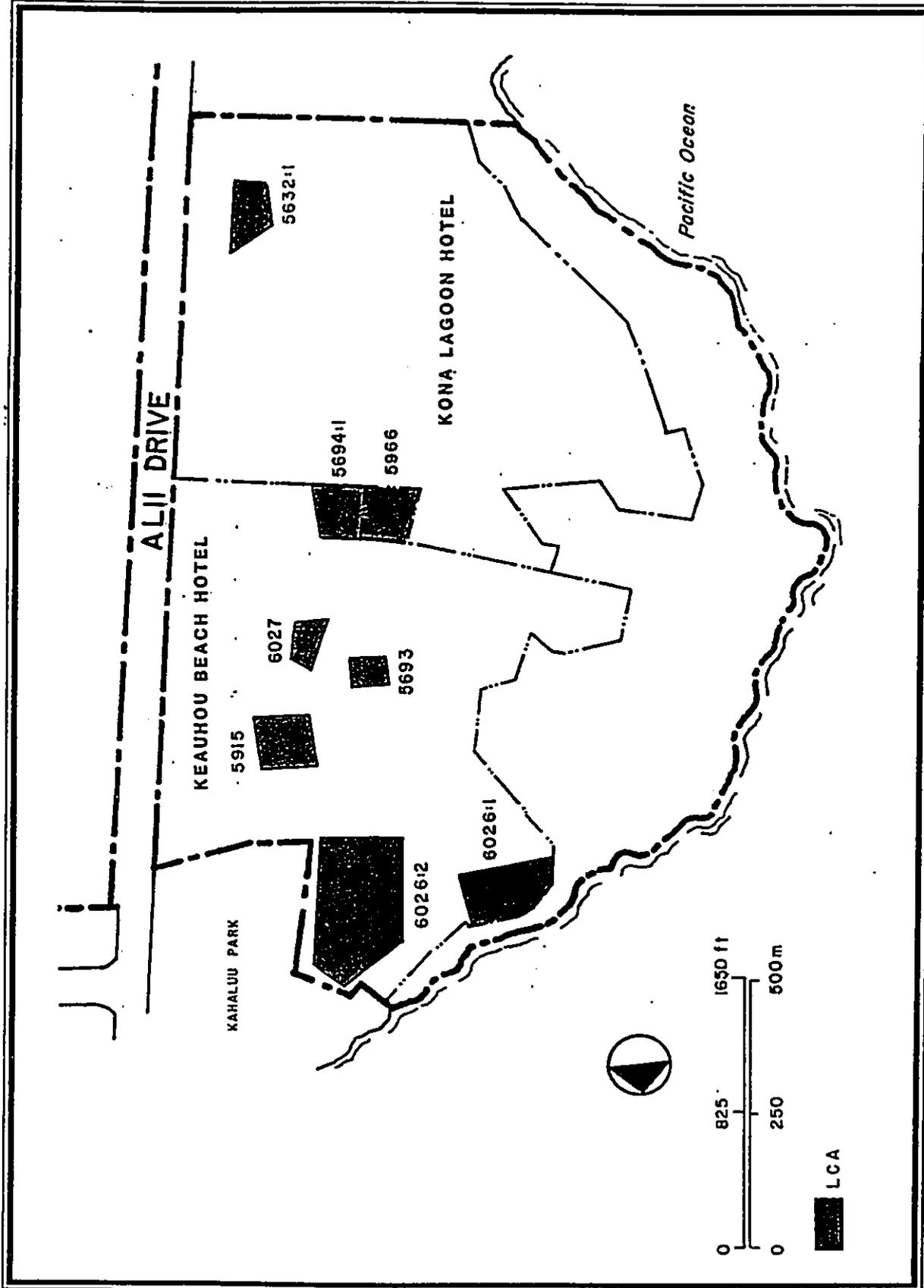


Figure 2. LAND COMMISSION AWARD (LCA) LOCATION MAP

grounds provided by Belt, Collins & Associates. Site plotting was aided by a c. 1"=300' scale color aerial photo (R.M. Towill Corp., 1980: Photo No. 1-19-80).

Newly identified sites were plotted using metric tape and compass, were recorded on standard PHRI site record forms, and were sketch-mapped. Previously identified sites were field-checked and were compared with existing site descriptions. When appropriate, additional information on

previously identified sites was recorded. A complete 35 mm black-and-white photographic record of field work was kept (PHRI Roll Nos. 800-801). Sites were tagged with an aluminum strip bearing the site number, PHRI project number (88-439), and the date. The same information as on the aluminum strip was written on pieces of flagging tape, which were then wrapped around stones and placed in protected places on the site.

FINDINGS

During the present survey, 23 sites were newly identified and 87 previously identified sites were relocated (total sites: 110 containing 211+ component features). Three sites previously identified by Emory et al. (1971) and two sites previously identified by Soehren (1979) were not relocated. Four of these five unrelocated sites apparently were destroyed during construction of the Kona Lagoon Hotel and Kona Gardens botanical and cultural park. The remaining unrelocated site (D4-53), identified by Emory et al and evaluated by Emory et al as in poor condition and expendable (1971a), may still exist beneath weeds surrounding the pond northwest of Kona Lagoon Hotel (see Table 1 for descriptions of unrelocated sites; unrelocated sites are not included in site/feature counts and significance assessments and recommendations in this report).

Of the 87 relocated sites, 33 are subsumed under PHRI temporary site numbers (prefixed by 439-). Eight sites previously identified by PHRI (Allen 1984) are subsumed under PHRI temporary numbers prefixed by T-. The remaining 46 sites are subsumed under HRHP site numbers. Figure 3 shows the locations of all identified/reidentified sites. Table 1 provides a summary of sites and their component features in terms of site numbers, formal type, functional type, CRM value mode assessments, and field work tasks. Table 2 provides correlation of site numbers for sites which have multiple numbers. Appendix A provides detailed descriptions for each site.

Appendix A includes for each site:

1. Site number - either HRHP numbers, Soehren (1979) numbers, B.P. Bishop Museum (BPBM) site numbers, and/or PHRI temporary site numbers. HRHP numbers are four- and five-digit numbers prefixed by 50-10-28 or 37 (50=State of Hawaii; 10=Island of Hawaii; 28 or 37=USGS 7.5' series quad map ["Kailua or Kealakekua, Hawaii"]). Soehren (1979) site numbers are sequential one- and two-digit numbers. BPBM site numbers are one- and two-digit site numbers prefixed by 50-HA-D4 (50=State of Hawaii, HA=Island of Hawaii, D=North Kona District, 4=Land of Kahaluu). PHRI-temporary numbers are either three-digit numbers prefixed by "T-" (Allen 1984) or one- and two-digit numbers prefixed by "439-";
2. A site type designation - provides formal feature type for sites consisting of a single feature, or designates the site as a complex if site is comprised

of more than one feature. Also lists total number of features present;

3. A description of site topography - a brief description of the terrain in the area of the site;
4. A listing of site vegetation - lists principal components of the vegetation within and in the vicinity of the site;
5. A statement of site condition - overall state of preservation of the site (poor, fair, good, or excellent);
6. An assessment of site integrity - degree of post abandonment modification by human agencies (unaltered, partially altered, and completely altered) and nature of modifications, if any;
7. A probable age - indicates probable/possible (?) age of the site (i.e., historic or prehistoric);
8. A functional interpretation - probable or possible functions (?) for each site; or, if function cannot be determined, assigns indeterminate function. For sites with multiple functions, functions are separated by "/";
9. A site description - a brief overall description of the site listing types of constituent features, portable remains present, if any, and other site data; and
10. Feature dimensions - maximum length, width, and height or depth. Dimensions immediately followed by a description of feature construction, associated portable remains, and other descriptive information.

Twenty-eight (28) site complexes and 82 single-feature sites were identified in the project area. The sites and site complexes were comprised of a variety of formal features—petroglyphs, terraces, trails/roads, C- and L-shaped walls, boulder-/cobble-filled areas, enclosures, free-standing walls, platforms, mounds, caves/tubes, and numerous miscellaneous features (Table 3). The miscellaneous features generally consist of bedrock mortars, cupboards, a midden and 'ili'ili scatter, a pond, wells, and various modified areas such as rubble concentrations, pavings, level areas, and walled depressions. Compound features present in the project area include a terraced platform, a stepped platform, a stepped terrace, an enclosed paved area, a walled terrace, and a

Table 1.

SUMMARY OF IDENTIFIED SITES AND FEATURES

Site/ Feature Number*	Formal Site/Feature Type	Tentative Functional Interpretation	#CRM Value Mode Assess.			+Field Work Tasks		
			R	I	C	DR	SC	EX
Summary of Sites in North Preserve								
7659	Terrace (1)	Ceremonial-burial	M	L	L/H	+	-	+
7662	Complex (10)	Habitation/ ceremonial	H	H	H	+	+	+
A	Platform							
B	Platform							
C	Platform							
D	Terrace							
E	Enclosure							
F	Cave							
G	Enclosure							
H	Enclosure							
I	Platform							
J	Platform							
7807	Complex (3)	Habitation/ ceremonial	H	M/H	M/H	+	+	+
A	Stepped terrace							
B	Terrace							
C	Platform							
7808	Complex (2)	Habitation	M	L	L	+	+	+
A	Enclosure							
B	Enclosure							

* Either HRHP numbers, Soehren (1979) numbers, B.P. Bishop Museum (BPBM) site numbers, and/or PHRI temporary site numbers. HRHP numbers are four- and five-digit numbers prefixed by 50-10-28 or 37 (50=State of Hawaii; 10=Island of Hawaii; 28 or 37=USGS 7.5' series quad map ["Kailua or Kealakekua, Hawaii"]). Soehren (1979) site numbers are sequential one- and two-digit numbers. BPBM site numbers are one- and two-digit site numbers prefixed by 50-HA-D4 (50=State of Hawaii, HA=Island of Hawaii, D=North Kona District, 4=Land of Kahaluu). PHRI temporary numbers are either three-digit numbers prefixed by "T-" (Allen 1984) or one- and two-digit numbers prefixed by "439-";

Cultural Resource Management

Value Mode Assessment—Nature: R = scientific research,
I = interpretive, C = cultural;
—Degree: H = high, M = moderate, L = low.

+ Field Work Tasks: DR = detailed recording (scaled drawings, photographs, and written descriptions), SC = surface collections,
EX = test excavations.

Table 1. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Summary of Sites in North Preserve (cont.)								
7825	Complex (4)	Habitation	M	L	L	+	+	+
A	Enclosure							
B	Enclosure							
C	Enclosure							
D	C-shape							
7826	Cave (1)	Habitation	M	L	L	+	+	+
Summary of Sites in South Preserve								
4618	Trail (1)	Transportation	M	M	H	+	-	-
7815	Complex (3)	Habitation	M	M	H	+	+	+
A	Platform							
B	Platform							
C	Enclosure							
7816	Wall (1)	Boundary wall	M	L	L	+	-	+
7817	Complex (3)	Habitation	H	M	H	+	+	+
A	Cave							
B	Terraced platform							
C	Platform							
7818	Trail (1)	Transportation	M	M	H	+	-	+
7834	Complex (2)	Ceremonial-burial	M	M	L/H	+	-	+
A	Platform							
B	Platform							
7835	Complex (3)	Ceremonial-burial	M	M	L/H	+	-	+
A	Platform							
B	Platform							
C	Mounds							
7836	Complex (3)	Habitation	H	M	M	+	+	+
A	Platform							
B	Platform							
C	Papamu							
7837	Platform with lava tube	Ceremonial-burial	M	M	L/H	+	+	+

Table 1. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Summary of Sites in South Preserve (cont.)								
7838	Complex (6)	Habitation	H	H	M	+	+	+
A	Enclosure							
B	Cobble pavement							
C	Enclosure							
D	Cobble pavement							
E	Platform							
F	Cobble pavement/platform							
7839	Complex (3)	Habitation/ ceremonial-burial	H	M	M	+	+	+
A	Cave							
B	Platform							
C	Platform							
7846	Lava tube (1)	Habitation/ ceremonial-burial	H	M	H	+	+	+
Previously Identified Sites								
1618	Petroglyphs(1)	Rock art	M	L	M	+	-	-
1619	Platform (1)	Ceremonial-heiau	H	H	H	+	+	+
3817	Platform (1)	Ceremonial-heiau	H	H	H	+	+	+
3818	Enclosure (1)	Ceremonial-heiau	H	H	H	+	+	+
3819	Enclosure (1)	Ceremonial-heiau	H	H	H	+	+	+
6302/7276	Wall (1)	Boundary wall	M	H	H	+	-	-
7666	Cart road (1)	Transportation	M	L	L	+	-	-
7809	Trail (1)	Transportation	M	L	H	+	-	-
7812	Complex (2)	Habitation	M	L	L	+	-	+
A	Enclosure							
B	Enclosure							
7813	Complex (3)	Ceremonial-burial	M	L	L/H	+	-	+
A	Platform							
B	Platform							
C	Platform							

Table 1. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Previously Identified Sites (cont.)								
7814	Cave (1)	Habitation	M	L	M	+	+	+
7827	Complex (9)	Habitation/ ceremonial	M	L	M	+	+	+
A	Enclosure							
B	Cobble filled area							
C-1	Platform							
C-2	Platform							
D	Pavement							
E-1	Cupboard							
E-2	Cupboard							
F	Stepped platform							
G	C-shape							
7828	Complex (21)	Habitation/ ceremonial	H	H	H	+	+	+
A	Terrace							
B	Terrace							
C	C-shape							
D	C-shape							
E	Terrace							
F	Terrace							
G	Terrace							
H	Terrace							
I	C-shape							
J	C-shape							
K	C-shape							
L	Terrace							
M	C-shape							
N	C-shape							
O	C-shape							
P	C-shape							
Q	Terrace							
R	Terrace							
S	Enclosure							
T	Enclosure							
U	Terrace							
7829	Complex (18)	Habitation/ ceremonial	M	L	L	+	+	+
A	Platform							
B	Enclosed paved area							
C	Leveled area							
D	Platform							

Table 1. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Previously Identified Sites (cont.)								
7829 (cont.)								
E	C-shape							
F	C-shape							
G	Enclosure							
H	Terrace							
I	Enclosure							
J	Terrace							
K	Terrace							
L	Terrace							
M	Terrace							
N	L-shape							
O	Box C-shape							
P	Enclosure							
Q	C-shape							
R	Enclosure							
7830	Complex (4)	Habitation	M	L	L	+	+	+
A	Enclosure							
B	Cave							
C	Wall							
D	Enclosure							
7831	Wall (1)	Boundary wall	L	L	L	-	-	-
7832	Complex (2)	Ceremonial-burial	M	L	L/H	+	-	+
A	Terrace							
B	Terrace							
7833	Enclosure (1)	Habitation	L	L	L	-	-	-
7840	Terrace (1)	Ceremonial-burial	M	L	L/H	+	+	+
7841	Complex (5)	Habitation/ ceremonial	M	H	H	+	+	+
A	Platform							
B	Platform							
C	Platform							
D	Boulder filled area							
E	Terrace							
7842	Complex (2)	Habitation	M	L	L	+	-	+
A	Terrace							
B	Walled depression							

Table L. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Previously Identified Sites (cont.)								
7843	Terrace (1)	Habitation/ ceremonial	M	L	L	+	-	+
7844	Terrace (1)	Habitation/ ceremonial	M	L	L	+	+	+
7845	Mound (1)	Ceremonial-burial	M	L	L	+	-	+
7847	Platform (1)	Ceremonial-burial	M	L	H	+	-	+
7848	Lava tube (1)	Habitation	H	L	L	+	+	+
7962	Lava tube (1) complex	Habitation/ ceremonial-burial	H	H	H	+	+	+
10997	Enclosure (1)	Ceremonial-heiau	H	H	H	+	+	+
T-101		(see 7809)						
T-102	Amorphous rubble concentration w/mounds	Indeterminate	M	L	L	+	-	+
T-103 A B	Complex (2) Lava tube Boulder cobble paving	Habitation	M	L	L	+	+	+
T-104	Mound (1)	Ceremonial-burial	M	L	L/H	+	-	+
T-105	Wall (1)	Indeterminate	M	L	L	+	-	+
T-106 A B C D E	Complex (5) Terrace Walled depression Cobble/boulder rubble area Terrace Wall	Habitation	M	L	L	+	+	+
T-107 A B C	Complex (3) Terrace Terrace Terrace	Habitation	M	L	L	+	+	+
T-108 A B	Complex (2) Terrace Terrace	Indeterminate	M	L	L	+	-	+

Table 1. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Previously Identified Sites (cont.)								
T-109	Terrace (1)	Habitation	M	L	L	+	-	+
439-1	Complex (3)	Habitation/ ceremonial	M	L	L/H	+	+	+
A	Mound							
B	Terrace							
C	Cave							
439-18	Trail (1)	Transportation	M	L	H	+	-	-
439-19	Road (1)	Transportation	M	L	H	+	-	+
439-20	Cave (1)	Habitation	M	L	L	+	+	+
439-21	Lava tube (1)	Habitation	M	L	L	+	+	+
439-22	Mound (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-23	Wall (1)	Boundary wall	M	L	L	+	-	-
439-24	Bedrock mortar (1)	Habitation	L	L	L	-	-	-
439-25	Platform (1)	Ceremonial-burial	M	L	L/H	+	-	+
439-26	Cobble filled area (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-27	Platform (2)	Habitation	H	M	L	+	+	+
A	Platform							
B	Lava tube							
439-28	Cobble filled area (1)	Ceremonial-burial	M	L	L/H	+	-	+
439-29	Terrace (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-30	Terrace (1)	Ceremonial-burial	M	L	L/H	+	-	+
439-31	Terrace (1)	Habitation	M	L	L	+	-	+
439-32	Leveled area/ possible terrace (1)	Habitation	M	L	L	+	-	+
439-34	Platform (1)	Ceremonial-burial	M	L	L/H	+	-	+

Table 1. (Cont.)

Site Feature Number*	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Previously Identified Sites (cont.)								
439-36	Platform (1)	Ceremonial-burial	M	L	L/H	+	-	+
439-37	Platform (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-38	Terrace (1)	Habitation	M	L	L	+	+	+
439-39	Terrace (1)	Habitation	M	L	L	+	+	+
439-40	Papamu (1)	Recreation	M	L	L	+	-	-
439-41	Cobble-filled area (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-42	Cobble-filled area (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-43	Bedrock mortar (1)	Habitation	L	L	L	-	-	-
439-44	Cobble-filled area (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-45		(see 1619)						
439-46	Mound (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-47	Cobble-filled area (1)	Ceremonial-burial	M	L	L/H	+	-	+
439-48	Petroglyphs (1)	Rock art	M	L	L	+	-	-
439-49	Platform (1)	Ceremonial-burial	M	M	L/H	+	-	+
439-54	Petroglyphs (1)	Rock art	M	H	H	+	-	-
439-55	Wall (1)	Boundary wall	M	L	L	+	-	-
439-56	House site (1)	Habitation	M	L	L	+	-	+
Newly Identified Sites								
439-2	Complex (2)	Habitation/ ceremonial	M	L	L/H	+	+	+
A	Platform							
B	Terrace							

Table 1. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Newly Identified Sites (cont.)								
439-3	Terrace (1)	Habitation	M	L	L	+	+	+
439-4	Terrace (1)	Habitation	M	L	L	+	+	+
439-5	Terrace (1)	Habitation	M	L	L	+	+	+
439-6	L-shaped wall (1)	Habitation	M	L	L	+	-	+
439-7	Terrace (1)	Habitation	M	L	L	+	+	+
439-8	L-shape wall (1)	Habitation	L	L	L	-	-	-
439-9	Wall foundation (1)	Habitation	M	L	L	+	+	+
439-10 A B	Complex (2) Walled terrace Terrace	Habitation	M	L	L	+	+	+
439-11	Terrace (1)	Habitation	M	L	L	+	-	+
439-12	Terrace (1)	Habitation	M	L	L	+	+	+
439-13	Enclosure (1)	Habitation	M	L	L	+	+	+
439-14	Terrace (1)	Ceremonial-burial	M	L	L/H	+	+	+
439-15	L-shape wall foundation (1)	Habitation	M	L	L	+	+	+
439-16	Terrace (1)	Habitation	M	L	L	+	+	+
439-17	Mound (1)	Indeterminate	M	L	L	+	-	+
439-33	Platform (1)	Ceremonial-burial	M	L	L/H	+	-	+
439-35	Terrace (1)	Habitation	M	L	L	+	-	+
439-50	Midden and 'ili'ili scatter (1)	Habitation	M	L	L	+	+	+
439-51	Well (1)	Habitation	M	L	L	+	-	+
439-52	Well (1)	Habitation	M	L	L	+	-	+

Table 1. (Cont.)

Site Feature Number	Formal Site/Feature Type	Tentative Functional Interpretation	CRM Value Mode Assess.			Field Work Tasks		
			R	I	C	DR	SC	EX
Newly Identified Sites (cont.)								
439-53	Pond (1)	Habitation	H	H	H	+	-	+
439-57	Enclosure (1)	Habitation	M	L	L	+	+	+
Unrelocated Previously Identified Sites								
1616 (D4-34)	Platform	Ceremonial	L	L	M	-	-	-
<i>Notes: Initially recorded as D4-34 by Emory et al. (1971:21,22). Subsequent data recovery by Barrera (1971:12-14). Excepting monitoring during hotel construction, Emory recommends no further work; states site may be destroyed (1971a:35; 1971b:38). Site destroyed during construction of Kona Lagoon Hotel.</i>								
D4-52	Ke-awe-hala Pond	Ceremonial/ habitation	L	L	H	-	-	-
<i>Notes: Initially identified on Kekahuna's map (1952). "[W]as supposed to be the dwelling place of twin-sister moq [mo'q], supernatural beings sometimes invoked for aid by those living in the vicinity" (Emory 1971a:34) and "the bathing pool for the local chiefs" (Emory et al. 1971:23). Initially recorded by Emory et al. (1971:23). Additional recording and mapping by Barrera (1971:15-16). Emory recommends no further work and states pond can be covered (1971a:34; 1971b:38). Site destroyed during construction of Kona Lagoon Hotel.</i>								
D4-53	Petroglyphs	Rock art	L	L	M	-	-	-
<i>Notes: Initially recorded by Emory et al. (1971:23). Plane-table map and additional recording by Barrera (1971:16-17). Emory evaluates site as poor—recommends no further work and states site may be destroyed (1971a:34; 1971b:38). Site not relocated during present survey but may exist.</i>								
16	Wall	Boundary	L	L	L	-	-	-
<i>Notes: Initially identified by Soehren (1979:5). According to Soehren, "Stone wall...irregular, discontinuous, rude alignment of large stones...sometimes singly, sometimes a true wall two feet high and wide...follows the crest of a low ridge between the Pa Kuakini and Alii Drive...obviously intended as a visual rather than a physical barrier, but...purpose not readily apparent...virtually all the archaeological features so far recorded in the area lie to the south of the 'wall'" (1979:5). Not relocated during present survey; probably destroyed or incorporated into a concrete wall during construction of Kona Gardens botanical and cultural park.</i>								
33	Bedrock mortar	Habitation	L	L	L	-	-	-
<i>Notes: Initially identified by Soehren (1979:7). According to Soehren: "Bedrock mortar...a good, medium sized poho, about six inches in diameter and four inches deep" (1979:7). Not relocated during present survey; probably destroyed during construction of an asphalt foot path for Kona Gardens botanical and cultural park.</i>								

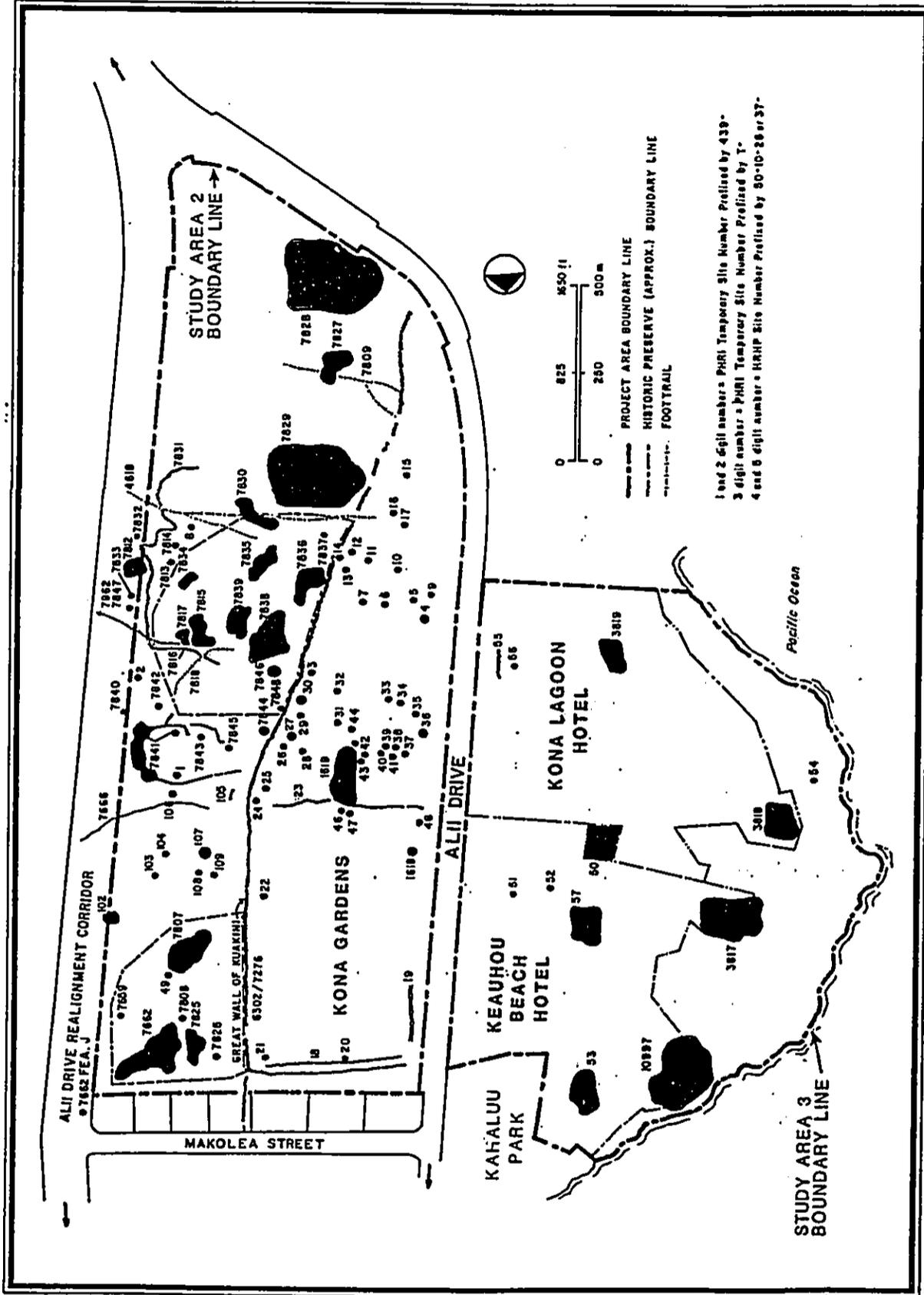


Figure 3. SITE LOCATION MAP

Table 2.
CORRELATION OF SITE NUMBERS

PHRI (1988) Site Number	HRHP Site Number	Soehren (1979) Site Number	BPBM Site Number	Allen (1984) Site Number
439- 1	---	14	---	---
439-18	---	2	---	---
439-19	---	3	---	---
439-20	---	4	---	---
439-21	---	5	---	---
439-22	---	17	---	---
439-23	---	21	---	---
439-24	---	23	---	---
439-25	---	24	---	---
439-26	---	25	---	---
439-27	---	27	---	---
439-28	---	26	---	---
439-29	---	28	---	---
439-30	---	29	---	---
439-31	---	31	---	---
439-32	---	30	---	---
439-34	---	41	---	---
439-36	---	42	---	---
439-37	---	40	---	---
439-38	---	39	---	---
439-39	---	38	---	---
439-40	---	36	---	---
439-41	---	37	---	---
439-42	---	34	---	---
439-43	---	35	---	---
439-44	---	32	---	---
439-45	1619	22	---	---
439-46	---	18	---	---
439-47	---	19	---	---
439-48	---	20	---	---
439-49	---	6	---	---
---	6302/7276	1	---	---
---	7807B	8	---	---
---	7807C	7	---	---
---	7841A	10	---	---
---	7841C	11	---	---
---	7842A	12	---	---
---	7843	13	---	---
---	7844	15	---	---
---	---	9	---	T-103
---	7809	---	---	T-101
---	3817	---	D4- 2	---
---	3818	---	D4- 3	---
---	3819	---	D4- 5	---
439-54	---	---	D4-54	---
439-55	---	---	D4-47	---
439-56	---	---	D4-49	---

Table 3.

FREQUENCIES OF FORMAL FEATURE TYPES

Formal Type	Number	Approx. %
Terrace	50	23.7
Platform	39	18.5
Enclosure	28	13.3
C-shape	15	7.1
Cave/Tube	14	6.6
Wall	9	4.3
Boulder/Cobble filled area	8	3.8
Mound	7	3.3
Road/Trail	6	2.8
Petroglyphs	5	2.4
L-shape	4	1.9
Miscellaneous	26	14.2
TOTAL	211	100.0

platform with a lava tube. The most common feature types in the project area were terraces (24% of total features), platforms (19%), enclosures (13%), C-shapes (7%), walls (4%), boulder-/cobble-filled areas (4%), mounds (3%), and roads/trails (3%).

Probable functional interpretations were determined for most sites. Functional types encountered in the project area include habitation, ceremonial (*heiau*, shrines, possible burials, etc.), transportation, boundary, recreation, rock art, and indeterminate. Thirteen (13) sites were assigned more than one functional interpretation (ceremonial/habitation). Table 4 lists the number and percentage of features assigned each function.

Based on an assessment of quantitative differences concerning structural complexity and scale of formal feature type, and based also on location, a habitation function was assigned to 41.8% (N=46) of the total number of sites. Sites which were assigned a habitation function (Figure 4) includes features such as terraces, C- and L-shaped walls, enclosures, platforms, caves, walls, cobble pavements, bedrock mortars, wells, a pond, and a midden and 'ili 'ili scatter which may or may not contain portable remains. Habitation functions were assigned based on the presence or absence of (a) an identified cultural deposit, (b) food remains (midden), and/

or (c) surface artifacts. Due to the preliminary nature of the present reconnaissance survey, no attempt was made to definitely distinguish temporary habitation sites from permanent habitation sites. The overall data, however, indicates that site 7828 may be a permanent habitation site and that Sites 7662, 7807, 7841, 7817, 7815, 439-27, and the general area of site 439-53 (Po'o Hawaii Pond) are probably permanent habitation sites.

Thirty-two (32) sites (29.1%) were assigned ceremonial functions (ceremonial functions include burials, shrines, and *heiau*). Ceremonial functions were assigned based on structural form of features and presence/absence of coral at the features (test excavations are necessary to verify ceremonial functions). Formal feature types assigned a ceremonial function include terraces, mounds, platforms, a platform with a lava tube, and cobble-filled areas. Formal feature types assigned a ceremonial function and interpreted to be *heiau* include enclosures and platforms. Five named *heiau* are recorded within the present project area—Papakoholua (Site 1619), Hapaialii (3817), Keeku (3818), Makolea (3819)(Figure 5), and Kapuanoni (10997).

Sites in the project area assigned both a ceremonial and habitation function (11.8%; N=13) include platforms, terraces, enclosures, caves/tubes, pavements (including leveled

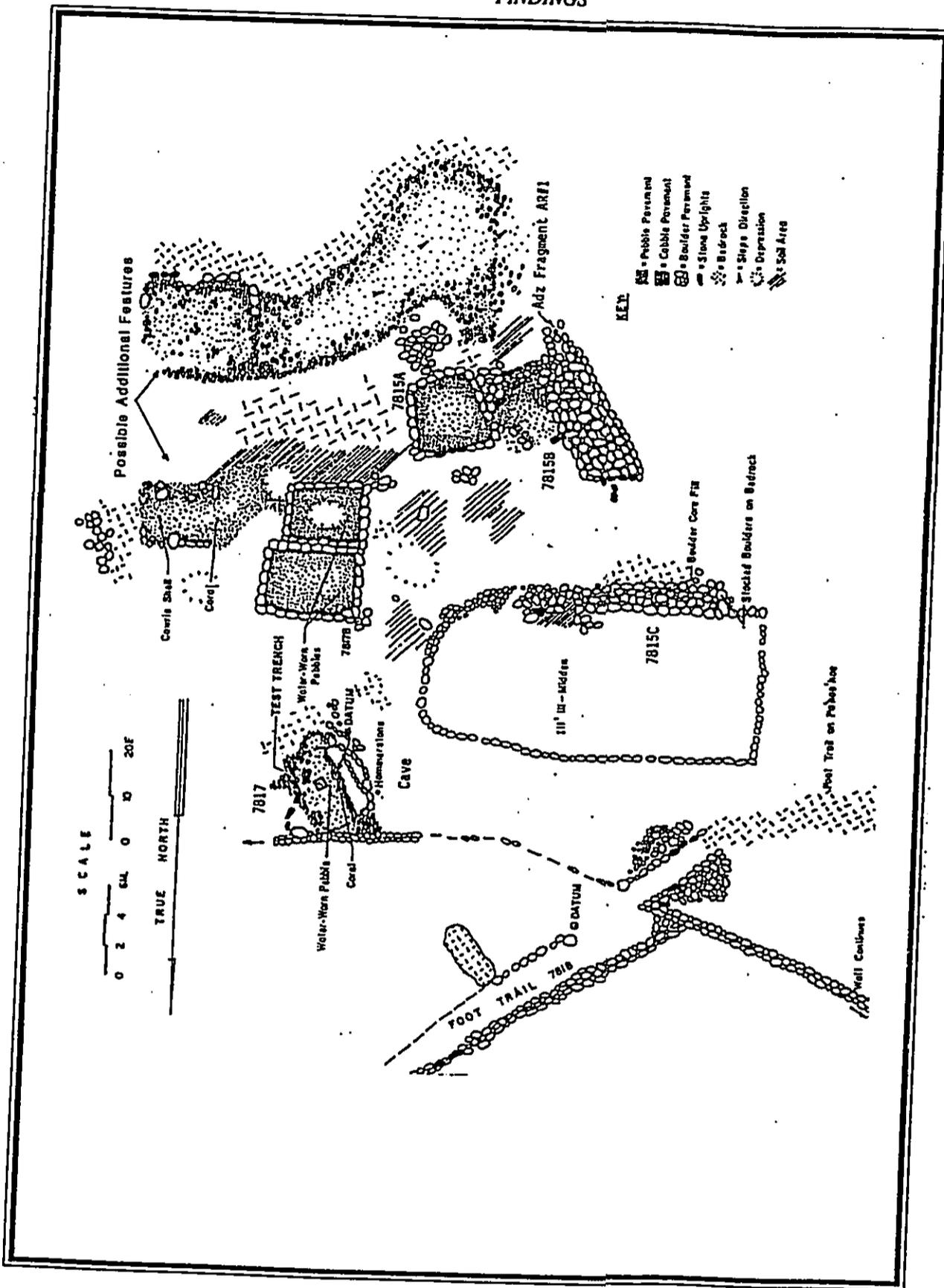


Figure 4. SITE 7815 AND SITE 7817 (Hammatt et al. 1981:64)

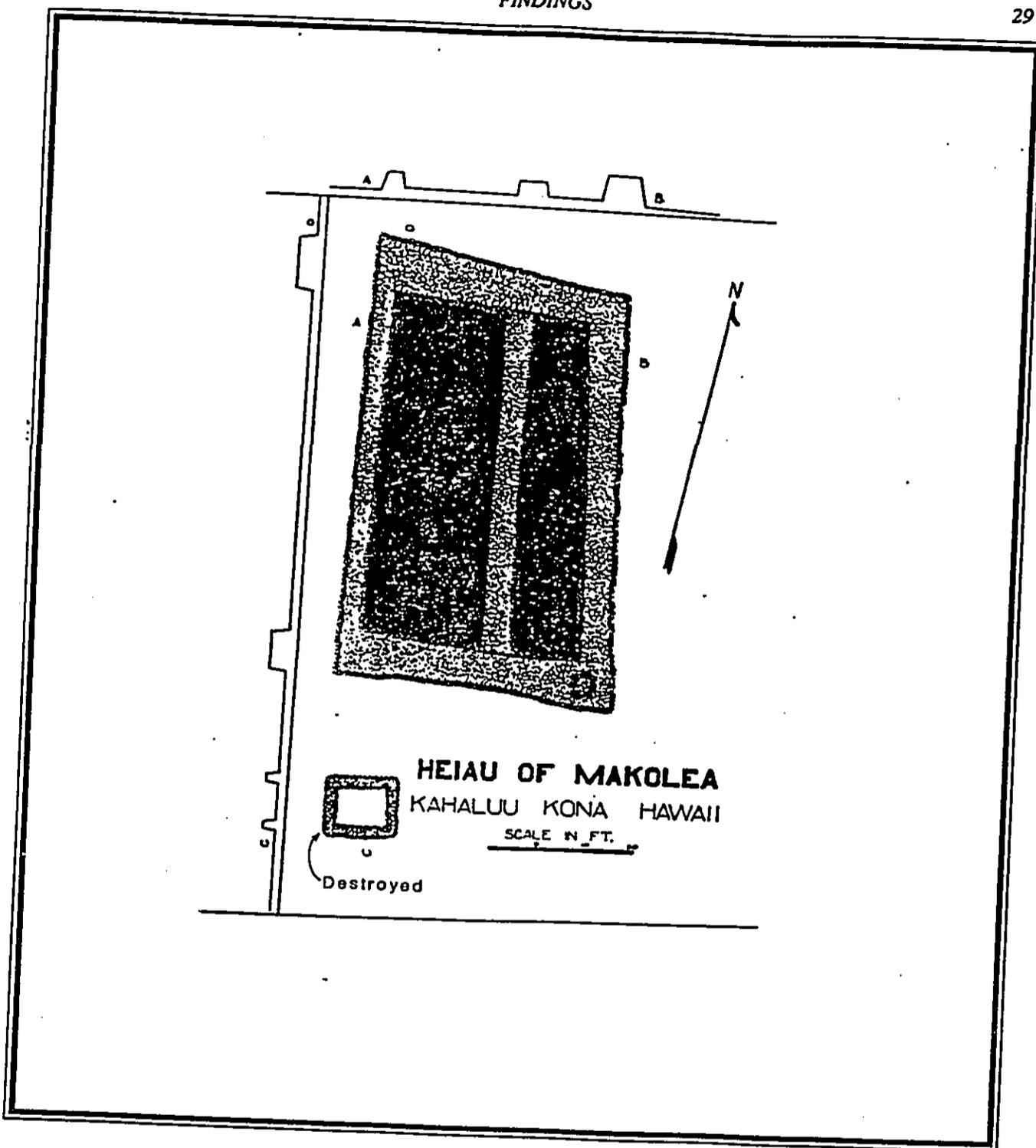


Figure 5. SITE 3819, MAKOLEA HEIAU
(Stokes n.d. map in Emory et al. 1971:18)

Table 4.

FREQUENCIES OF FUNCTIONAL SITE TYPES

Formal Type	Number	Approx. %
Habitation	46	41.8
Ceremonial	32	29.1
Ceremonial/Habitation	13	11.8
Transportation	6	5.5
Boundary	5	4.5
Indeterminate	4	3.6
Rock art	3	2.7
Recreation	1	0.9
TOTAL	110	99.9

and filled areas), cupboards, L- and C-shapes, and mounds. These sites are complexes which contain both structures suspected of being *heiau* and/or structures containing human burial remains (of the combined totals for ceremonial and ceremonial/habitation functions 80% are burials), and habitation structures. The burial and residential structures at these complexes, rather than being random features, appear to be associated with each other (Figure 6).

Sites in the project area assigned a transportation function (5.5%; N=6) include trails, a cart road, and a section of a historic roadbed. Individual designations were assigned to three major coastal-inland oriented prehistoric foot trails (Sites 4618, 7809, and 439-18 [Makolea Trail]). The transportation routes identified within the project area are characterized by: (a) worn/crushed aa gravel and pebbles rarely incorporating steppingstones (N=2); (b) parallel alignments of free-standing walls or collapsed rubble-like walls (N=2); (c) flat slab steppingstones with crude kerbstones (N=1); and (d) a roadbed retaining wall foundation (N=1). The trails identified within the project area appear to comprise trail types: "A" (a type which is tentatively dated to pre-AD 1819), "AB" (tentatively dated to AD 1820-1840); and possibly type "C" (tentatively dated to AD 1841-1918) (Apple 1965).

Five sites (4.5%) within the project area, all walls, were assigned a boundary function. Site 439-23 is associated with Papakoholua Heiau (Site 1619) and another possible *heiau* or high-status residence (Site 7841) situated inland of Site 439-23. The Great Wall of Kuakini (Site 6302/7276) has been declared eligible for inclusion on the NRHP.

All petroglyphs, aside from bedrock mortars and *papamu* (usually bedrock mortars and *papamu* are considered petroglyphs), were assigned a rock art function, indicating they are interpreted as symbolic representations. Three sites (2.7%) contained symbolic petroglyphs (Figure 7). The *papamu* identified in the present study was assigned a recreation function (only one site in the project area was assigned a recreation function [0.9%]). The bedrock mortars identified in the present study are included in sites assigned a habitation function.

Four sites (3.6%) within the project area were assigned an indeterminate function. These four sites consist of amorphous rubble mounds (Site T-102), a wall (T-105), a terrace (T-108), and a mound (Site 439-17). Indeterminate functions were assigned if the functions of features could not be determined due to poor condition.

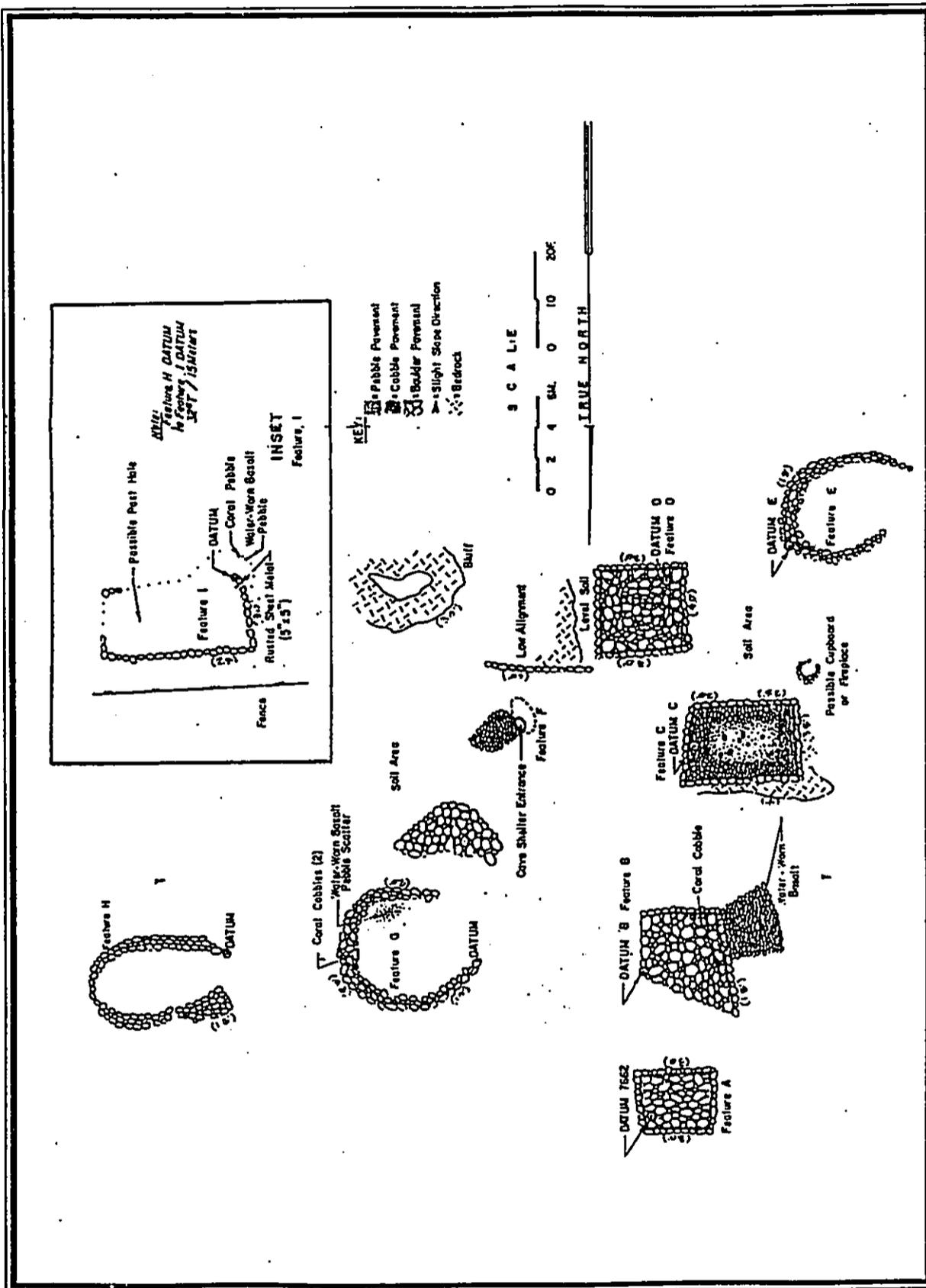
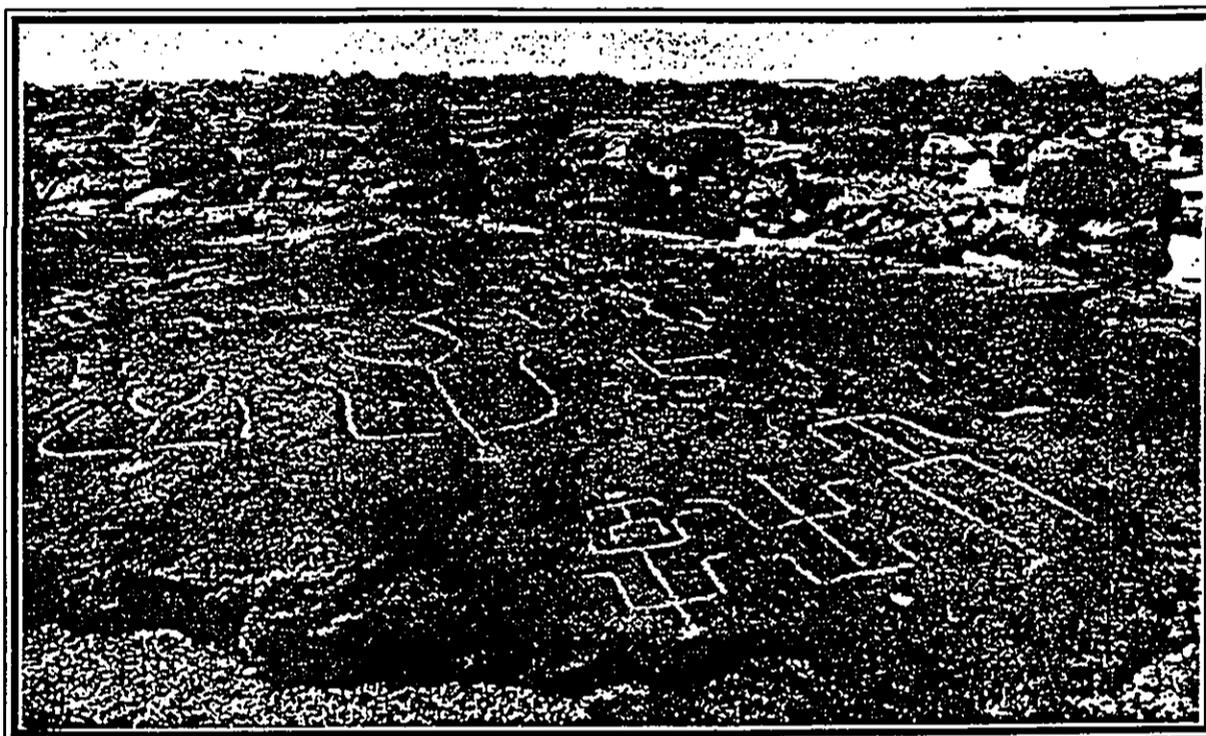


Figure 6. SITE 7662 (Hammett and Folk 1980:49)



*Figure 7. PETROGLYPHS, SITE D4-54, SEAWARD OF KEEKU HEIAU.
(Photo by Rev. A.S. Baker, 1918)*

CONCLUSION

DISCUSSION

The documentary research conducted for the present project indicates that the Land of Kahaluu prehistorically and historically had considerable cultural and political significance. Early historic accounts depict Kahaluu as the birthplace of and gathering place for certain members of Hawaii's chiefly class. Kahaluu's religious significance is attested to by the numerous *heiau* that have been recorded in the area (Thrum 1908; NRHP n.d.). The eight LCA claims within the project area, the numerous LCA claims within the whole of Kahaluu, and the fact that Victoria Kamamalu, sister to Kamehameha IV and V and half-sister to Ruth Keelikolani, was deeded the entire *ahupua'a* of Kahaluu, attests to the socio-economic significance of the area.

Previous archaeological work indicates there are two major archaeological areas in Kahaluu—the Kahaluu Historic District and the Kona Field System—and a major site, the Great Wall of Kuakini. As mentioned in the Project Area Description of this report, the Kahaluu Historic District has been placed on the NRHP: (a) because it includes numerous *heiau*, (b) because of the unique architecture of several of the *heiau*, (c) because of the intrinsic value of petroglyphs associated with a *heiau* (Keeku Heiau; the petroglyphs are thought to represent Kamalalawalu, King of Maui, an adversary of Lonoikamakahiki [Stokes n.d.]), and (d) because of the district's association with important traditional political and religious activities. The Kona Field System (Site 6601), a complex of aboriginal Hawaiian dryland cultivation and habitation sites and features which covers an area approximately 3 by 18 miles, extending from the Kailua area south to Hookena, has been declared eligible for inclusion on the NRHP. The field system, which dates to c. AD 1050-1400 (Schilt 1984), is divided into a number of zones (*kula*, *kaluuu*, *'apa'a*, and *'ama'u*; zones are summarized in Schilt [1984:6]). The present project area lies within the *kula* (coastal area) zone, which includes the area from sea level to c. 500 ft (150 m) elevation. General chronological phases for the Kona Field System are discussed further in Schilt 1984:276-284). The Great Wall of Kuakini (Site 6302 [also listed as 7276]) has also been declared eligible for inclusion on the NRHP. The wall is highly significant in terms of both interpretive and cultural values. Named after Kuakini, governor of Hawaii from 1820-1844, the wall was probably constructed in the early 19th century (Tomonari-Tuggle 1985:152-153). The wall is interpreted to function either to prevent pigs from entering cultivated agricultural uplands (Baker 1915) or to prevent herbivores from straying into the coastal villages (Emory et al. 1971; Soehren 1979).

Given the established historical significance of Kahaluu and the previous archaeological work conducted in the area, it was not surprising that the present survey identified/reidentified 110 sites in the project area. The sites and features are mostly within Study Area 2. Study Area 3, because it was altered in the course of constructing Kona Lagoon and Keauhou Beach Hotels, contains relatively few sites. The overall physical condition and integrity of sites/features varies from poor to good, with most sites/features being in fair condition. The condition and integrity of the sites/features varies greatly between study areas. Sites/features in Study Area 2, in contrast to Study Area 3, are generally intact and contain very little historic modifications. Sites and features within Study Area 3 generally represent isolated and/or selected conservation of known archaeological structures.

In Study Area 3 the general areas of Kapuanoni and Makolea *heiau* and the area of Po'o Hawaii have been extensively altered. In addition, Kapuanoni Heiau has been rebuilt historically with concrete and has been partially incorporated into Keauhou Beach Hotel. Hapaalii Heiau, also in Study Area 3, has been naturally eroded historically by storm surf. Despite the historic land modifications in Study Area 3, the sites in the area still contain excellent potential in terms of interpretive development, scientific research value, and cultural values.

Study Area 2 provides an excellent opportunity for preserving archaeological sites. Although construction and landscaping of the Kona Gardens botanical/historical park has altered much of the original terrain in the area, the present survey indicated that archaeological sites in the area were only slightly affected. Of the 42 sites previously identified within or adjacent to the park, 40 were relocated during the present survey. The conservation of the sites in the park is largely due to the historical theme of the park. The sites include a wide variety of features. The features are in fair condition, and the features are in their original environment. Conservation of these features would insure an adequate sample of archaeological remains would be preserved for future generations, whether it be for pure research, public recreation and education, or promotion of cultural and ethnic identity and values.

No components of the Kona Field System were identified during the present survey. Allen (1984) had previously interpreted several sites identified within the present project area to function as agricultural features. Reevaluation of these sites (T-105, T-108, and possibly 7659 and 7825)

during the present survey indicates they may not have functioned as agricultural features. Despite the lack of Kona Field System agricultural features in the project area, given the habitation features in the area it is probable that agriculture was practiced in low swale areas or on rocky outcrops in the project area where there was adequate soil.

An analysis of functional site types in the project area indicates the project area contains a high number of ceremonial sites. Approximately 40.9% of sites in the project area include either burials, shrines, or *heiau*. The project area contains five of the 10-12 *heiau* identified as being within the Kahaluu Historic District. The five *heiau* include Papakoholua, Kapuanoni, Hapaialii, Keeku, and Makolea, of which four are situated along the shoreline on the grounds of the Keauhou Beach and Kona Lagoon Hotels (Study Area 3). Two other unnamed *heiau* (Sites 7807 and 7841) had been previously identified (Allen 1984; Hommon and Rosendahl 1983) within Study Area 2. The *heiau* in the project area vary in configurations of floor plans and material used in construction. This suggests the *heiau* were built for specific purposes and that specialized activities were conducted at the *heiau*.

The high number of ceremonial sites within the project area, in particular the high number of *heiau*; the specificity of the *heiau* in terms of structural form relative to specialized activities, and the range of formal and functional sites identified within the project area all indicate that the present project area comprises a major and significant portion of the Kahaluu Historic District.

GENERAL RESEARCH TOPICS

Future archaeological research within the Azabu Keauhou Resort project area and the entire Keauhou Resort is guided by the Cultural Resource Management Plan prepared by Tomonari-Tuggle (1985). General research topics contained within the data recovery program and research design (Tomonari-Tuggle 1985:66-81) for the Keauhou Resort include:

1. Defining settlement pattern dimensions through duration, continuity (nature), and intensity of occupation;
2. Defining the archaeological manifestation of the *ahupua'a* as the postulated socio-economic local community group;
3. Examination of nucleation and dispersal of settlements, in terms of their growth and correlation

with the development of the *ahupua'a* as socio-economic units;

4. Defining marine resource exploitation resources, methods, techniques, and technologies;
5. Development of agricultural systems and the relationship with such variables as population pressures, ecological constraints, and political demands on food production;
6. Evolution of complex chiefdoms and the archaeological expression of status differentiation;
7. Examination and analyses of archaeological data with traditional and historic references; and
8. Development and formation of historic archaeological studies focusing upon acculturation during the contact period (especially the 19th and 20th centuries).

GENERAL SIGNIFICANCE ASSESSMENTS AND RECOMMENDED GENERAL TREATMENTS

To facilitate outside review, general significance assessments and recommended general treatments for all identified sites are summarized in Table 5. Significance categories used in the site evaluation process are based on the National Register criteria for evaluation, outlined in the Code of Federal Regulations (36 CFR Part 60). The Hawaii State Historic Preservation Office uses these criteria for evaluating cultural resources. Sites determined to be potentially significant for information content (Category A, Table 5) fall under Criterion D, which defines significant resources as ones which "...have yielded, or may be likely to yield, information important in prehistory or history." Sites potentially significant as representative examples of site types (Category B) are evaluated under Criterion C, which defines significant resources as those which "...embody the distinctive characteristics of a type, period, or method of construction...or that represent a significant and distinguishable entity whose components may lack individual distinction."

Sites with potential cultural significance (Category C) are evaluated under guidelines prepared by the Advisory Council on Historic Preservation (ACHP) entitled "Guidelines for Consideration of Traditional Cultural Values in Historic Preservation Review" (Draft Report, August 1985). The guidelines define cultural value as "...the contribution made by an historic property to an ongoing society or cultural

system. A traditional cultural value is a cultural value that has historical depth." The guidelines further specify that "[a] property need not have been in consistent use since antiquity by a cultural system in order to have traditional cultural value."

Significance evaluations for the previously identified sites in the present project area generally concur with evaluations derived during previous surveys (see previous archaeological work section within this report). Evaluations have been revised only for the following sites: 4618, 7659, 7812, 7825, 7826, 7830, 7831, 7833, 7835, 7838, 7846, and 439-21 (Soehren's Site 5). Sites 7812, 7833, 7835, 7838, and 7846 had been recommended, due to their poor condition, for either stabilization/reconstruction or salvage excavation (Tomonari-Tuggle 1985:155). The present survey recommends: (a) Sites 7835, 7838, and 7846 within the southern historic preservation area be preserved and interpretively developed; (b) Site 7812 be removed from preservation status and be submitted to further intensive-level data collection; and (c) for Site 7833, no further work (recommendation based on evidence gathered during the present and prior (Hommon and Rosendahl 1983:126) surveys. Sites 7659, 7825, and 7826 had previously been included within the north historic preservation area; however, Allen (1984:8) indicates that these sites could be adequately handled through intensive-level data collection; the present report recommends intensive-level data collection for all three of these sites. Sites 7825 and 7826 (and possibly 7659), pending intensive-level data collection results, could probably be removed from preservation status. Site 7659, if human remains are present at the site, may be recommended for preservation "as is." Site 7831 had also been included within the south historic preservation area (Tomonari-Tuggle 1985:157). However, based on findings during present and prior (Hommon and Rosendahl 1983:128) surveys, it is recommended that Site 7831 be removed from the south historic preservation area and that no further work be conducted at the site. Site 7830, also originally within the south historic preservation area (Tomonari-Tuggle 1985:157), has been recommended to be removed from preservation status and is recommended for further data collection (Allen 1984:8,11). Initially, Site 4618 (trail) had been recommended for no further work (Hommon and Rosendahl 1983:130); however, during the present survey the status of Site 4618 has been upgraded—the present survey recommends the site be preserved and be included within the south historic preservation area. Regarding Site 439-12, Soehren recommended preservation and interpretive development subsequent to testing and salvage of archaeological deposits (1971:3). The present survey recommends intensive-level data recovery for the site; due to the site's poor interpretive

potential, preservation and interpretive development are not recommended. The above recommendations that certain sites be added to, or possibly added to, or be removed from preservation areas will necessitate that preservation area boundaries be redrawn to accommodate the inclusion or exclusion of sites. Redrawing of boundaries will have to be done, of course, subsequent to definite assessments of site significance, i.e., after the results of the recommended further data collection work recommended. Redrawing will require altering county ordinance-establish boundaries.

Of the 110 sites identified/reidentified within the Azabu Keauhou Resort project area, 55 (50.0%) are assessed as significant solely for information content. No further work is recommended for five (4.5%) of these 55 sites. These five sites (a habitation enclosure, an L-shaped wall, a boundary wall, and two bedrock mortars) lack cultural deposits and portable remains; they have been measured, mapped, described, photographed, and plotted. Data collected from them during the present and previous surveys (Hommon and Rosendahl 1983:126,128; Soehren 1979:5, 7) is considered sufficient; their preservation is not essential, although some sites could perhaps be considered for inclusion into development landscaping. For the remaining 50 of the 55 sites (45.5%), additional data collection in the form of intensive survey-level data collection (i.e., detailed recording, surface collections, and test excavations) is recommended. After further data collection is completed, if warranted by the data collection findings, a data recovery plan should be prepared and implemented for sites not recommended for preservation or interpretation according to guidelines presented in Tomonari-Tuggle (1985:154).

Twenty-four of the 110 sites identified/reidentified during the present survey (21.8%) are assessed as significant for information content, cultural value, and as excellent examples of a site type. These 24 sites, several of them present within Study Area 3 and others present within the historic preservation areas within Study Area 2, include named and unnamed heiau, residential structures, Kuakini Wall, trails, probable burial structures, a refuge cave, a pond (Po'o Hawaii), and petroglyphs. For these 24 sites, further data collection followed by preservation with some level of interpretive development is recommended. Interpretive development themes have been discussed in Tomonari-Tuggle (1985) and scopes of work for restoration of Hapaialii (3817) and Kapuanoni heiau (10997) are presented in Cordy (1986c,d). One of the 24 sites (Site 7662) includes one feature (Feature J) which is situated outside the present project area. Because Feature J may be of recent construction (Hommon and Rosendahl 1983:106), it should be excluded from preservation and/or interpretive development; final

Table 5.

**SUMMARY OF GENERAL SIGNIFICANCE ASSESSMENTS
AND RECOMMENDED GENERAL TREATMENTS**

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
1619	+	-	+	+	+	-	+	-
3817	+	-	+	+	+	-	+	-
3818	+	-	+	+	+	-	+	-
3819	+	-	+	+	+	-	+	-
4618	+	-	+	+	+	-	+	-
6302/7276	+	-	+	+	+	-	+	-
7662	+	-	+	+	+	-	+	-
7807	+	-	+	+	+	-	+	-
7815	+	-	+	+	+	-	+	-
7817	+	-	+	+	+	-	+	-
7818	+	-	+	+	+	-	+	-
7828	+	-	+	+	+	-	+	-
7834	+	-	+	+	+	-	+	-
7835	+	-	+	+	+	-	+	-
7836	+	-	+	+	+	-	+	-
7838	+	-	+	+	+	-	+	-
7839	+	-	+	+	+	-	+	-
7841	+	-	+	+	+	-	+	-
7846	+	-	+	+	+	-	+	-
7962	+	-	+	+	+	-	+	-

General Significance Categories:

- A = Important for information content, further data collection necessary (PHRI=research value);
- X = Important for information content, no further data collection necessary (PHRI=research value, SHPO=not significant);
- B = Excellent example of site type at local, region, island, State, or National level (PHRI=interpretive value); and
- C = Culturally significant (PHRI=cultural value).

Recommended General Treatments:

- FDC = Further data collection necessary (intensive survey and testing, and possibly subsequent data recovery/mitigation excavations);
- NFW = No further work of any kind necessary, sufficient data collected, archaeological clearance recommended, no preservation potential (possible inclusion into landscaping suggested for consideration);
- PID = Preservation with some level of interpretive development recommended (including appropriate related data recovery work); and
- PAI = Preservation "as is," with no further work (and possible inclusion into landscaping), or minimal further data collection necessary.

Table 5. (Cont.)

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
10997	+	-	+	+	+	-	+	-
439-49	+	-	+	+	+	-	+	-
439-53	+	-	+	+	+	-	+	-
439-54	+	-	+	+	+	-	+	-
Subtotal:	24	0	24	24	24	0	24	0
7659	+	-	-	*	+	-	-	*
7813	+	-	-	*	+	-	-	*
7832	+	-	-	*	+	-	-	*
7840	+	-	-	*	+	-	-	*
7845	+	-	-	*	+	-	-	*
T-104	+	-	-	*	+	-	-	*
439-1	+	-	-	*	+	-	-	*
439-2	+	-	-	*	+	-	-	*
439-14	+	-	-	*	+	-	-	*
439-22	+	-	-	*	+	-	-	*
439-25	+	-	-	*	+	-	-	*
439-26	+	-	-	*	+	-	-	*
439-28	+	-	-	*	+	-	-	*
439-29	+	-	-	*	+	-	-	*
439-30	+	-	-	*	+	-	-	*
439-33	+	-	-	*	+	-	-	*
439-34	+	-	-	*	+	-	-	*
439-36	+	-	-	*	+	-	-	*
439-37	+	-	-	*	+	-	-	*
439-41	+	-	-	*	+	-	-	*
439-42	+	-	-	*	+	-	-	*
439-44	+	-	-	*	+	-	-	*
439-46	+	-	-	*	+	-	-	*
439-47	+	-	-	*	+	-	-	*
Subtotal:	24	0	0	24	24	0	0	24
1618	+	-	-	+	+	-	-	-
7809	+	-	-	+	+	-	-	-
7827	+	-	-	+	+	-	-	-
7837	+	-	-	+	+	-	-	-
7847	+	-	-	+	+	-	-	-
439-18	+	-	-	+	+	-	-	-
439-19	+	-	-	+	+	-	-	-
Subtotal:	7	0	0	7	7	0	0	0

* Provisional assessment; definite assessment pending further data collection (i.e., testing for presence/absence of skeletal remains).

Table 5. (Cont.)

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
7666	+	-	-	-	+	-	-	-
7808	+	-	-	-	+	-	-	-
7812	+	-	-	-	+	-	-	-
7814	+	-	-	-	+	-	-	-
7816	+	-	-	-	+	-	-	-
7825	+	-	-	-	+	-	-	-
7826	+	-	-	-	+	-	-	-
7829	+	-	-	-	+	-	-	-
7830	+	-	-	-	+	-	-	-
7842	+	-	-	-	+	-	-	-
7843	+	-	-	-	+	-	-	-
7844	+	-	-	-	+	-	-	-
7848	+	-	-	-	+	-	-	-
T-102	+	-	-	-	+	-	-	-
T-103	+	-	-	-	+	-	-	-
T-105	+	-	-	-	+	-	-	-
T-106	+	-	-	-	+	-	-	-
T-107	+	-	-	-	+	-	-	-
T-108	+	-	-	-	+	-	-	-
T-109	+	-	-	-	+	-	-	-
439- 3	+	-	-	-	+	-	-	-
439- 4	+	-	-	-	+	-	-	-
439- 5	+	-	-	-	+	-	-	-
439- 6	+	-	-	-	+	-	-	-
439- 7	+	-	-	-	+	-	-	-
439- 9	+	-	-	-	+	-	-	-
439-10	+	-	-	-	+	-	-	-
439-11	+	-	-	-	+	-	-	-
439-12	+	-	-	-	+	-	-	-
439-13	+	-	-	-	+	-	-	-
439-15	+	-	-	-	+	-	-	-
439-16	+	-	-	-	+	-	-	-
439-17	+	-	-	-	+	-	-	-
439-20	+	-	-	-	+	-	-	-
439-21	+	-	-	-	+	-	-	-
439-23	+	-	-	-	+	-	-	-
439-27	+	-	-	-	+	-	-	-
439-31	+	-	-	-	+	-	-	-
439-32	+	-	-	-	+	-	-	-
439-35	+	-	-	-	+	-	-	-
439-38	+	-	-	-	+	-	-	-
439-39	+	-	-	-	+	-	-	-
439-40	+	-	-	-	+	-	-	-
439-48	+	-	-	-	+	-	-	-
439-50	+	-	-	-	+	-	-	-
439-51	+	-	-	-	+	-	-	-

Table 5. (Cont.)

Site or Feature No.	Significance Category				Recommended Treatment			
	A	X	B	C	FDC	NFW	PID	PAI
439-52	+	-	-	-	+	-	-	-
439-55	+	-	-	-	+	-	-	-
439-56	+	-	-	-	+	-	-	-
439-57	+	-	-	-	+	-	-	-
Subtotal:	50	0	0	0	50	0	0	0
7831	-	+	-	-	-	+	-	-
7833	-	+	-	-	-	+	-	-
439-8	-	+	-	-	-	+	-	-
439-24	-	+	-	-	-	+	-	-
439-43	-	+	-	-	-	+	-	-
Subtotal:	0	5	0	0	0	5	0	0
Total:	105	5	24	55	105	5	24	24

recommendation regarding its disposition should await further data collection results.

Twenty-four (21.8%) of the 110 sites identified/reidentified during the present survey are assessed as significant for information content and are tentatively evaluated as culturally significant. These sites may contain burials. For these 24 sites, further data collection is recommended, and preservation "as is" is tentatively recommended, pending data collection results. These 24 sites, generally consisting of platforms, terraces, mounds, and various rubble-filled areas, are not within previously designated historic preservation areas. Any human burial remains recovered from these 24 sites, in the event preservation of such remains is not feasible, should be reentered according to guidelines presented in Tomonari-Tuggle (1985).

Seven sites of the 110 sites (6.4%) are assessed as culturally significant and valuable for information content. These sites primarily consist of foot trails, petroglyphs, and structures with previously reported and positively identified human burial remains. For these seven sites, further data collection is recommended. Subsequent to data collection, due to the poor to marginal condition of the sites (they are not excellent examples of site types), preservation of the sites is not essential. Again, any human burial remains recovered from these seven sites should be reentered according to guidelines presented in Tomonari-Tuggle (1985).

To further facilitate management decisions regarding the subsequent treatment of resources, the general significance of the archaeological resources identified during the reconnaissance survey are also evaluated in terms of potential scientific research, interpretive, and/or cultural values (Cultural Resource Management Value Modes - see Table 1 for individual assessments of sites). Research value, refers to the potential of archaeological resources for producing information useful in the understanding of culture history, past lifeways, and cultural processes at the local, regional, and interregional levels of organization. Interpretive value refers to the potential of archaeological resources for public education and recreation. Cultural value, within the framework for significance evaluation used here, refers to the potential of archaeological resources for the preservation and promotion of cultural and ethnic identity and values.

The evaluations and recommendations presented within this final report have been based on the present surface reconnaissance survey of the project area and on data from previous archaeological research. Sites recommended for preservation are listed by parcel in Table 6. There is always the possibility, however remote, that potentially significant, unidentified subsurface cultural remains will be encountered in the course of future archaeological investigations or subsequent development activities. In such situations, archaeological consultation should be sought immediately.

Table 6.

**SUMMARY OF SITES RECOMMENDED
FOR PRESERVATION**

Site or Feature No.	Preservation As Is / Interp. Develop.	Site or Feature No.	Preservation As Is / Interp. Develop.
Study Area 2			
439-44	- *		
1619	+ -	439-46	- *
6302/7276	+ -	439-47	- *
7813	- *	439-49	+ -
7828	+ -		
7832	- *	North Preserve	
7838	+ -		
7839	+ -	7659	- *
7840	- *	7662	+ -
7841	+ -	7807	+ -
7845	- *		
7846	+ -	South Preserve	
7962	+ -		
T-104	- *	4618	+ -
439- 1	- *	7815	+ -
439- 2	- *	7817	+ -
439-14	- *	7818	+ -
439-22	- *	7834	+ -
439-25	- *	7835	+ -
439-26	- *	7836	+ -
439-28	- *		
439-29	- *	Study Area 3	
439-30	- *		
439-33	- *	3817	+ -
439-34	- *	3818	+ -
439-36	- *	3819	+ -
439-37	- *	10997	+ -
439-41	- *	439-53	+ -
439-42	- *	439-54	+ -

* Provisional assessment; definite assessment pending further data collection (i.e., testing for presence/absence of skeletal remains).

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APPENDIX A

SITE DESCRIPTIONS

SITENO.: State: 10997 Soehren:—BPBM:—PHRI:—

SITE TYPE: Enclosure

TOPOGRAPHY: Located on the south point of Kahaluu Bay along the rocky shoreline. Situated on the grounds of the Keauhou Beach Hotel.

VEGETATION: Nil, grass

CONDITION: Fair

INTEGRITY: Partially altered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-heiau

DIMENSIONS: 46.00 m by 30.00 m by 2.00 m (approx.)

DESCRIPTION: "Kapuanoni Heiau is a large structure—having an area of c. 30 x 46 meters (1,380 m²) and having walls perhaps 2.0 meters high. It has two internal divisions—a set of 3 pavings and a set of 2 enclosures...The field check found the heiau virtually as Kekahuna [1952] mapped it. The main enclosure appears to be the same shape. The field check shows that Kapuanoni has definitely been altered [prior to Kekahuna]. The exterior wall is clearly not the original wall. The original wall seems to have once been rectangular in shape. Also, interior walls have been restored. However, the internal features and deposits still seem to be present, and the original wall foundation is visible" (Cordy 1986:11,12)(Figure A-1). Listed on the present tax key maps as LCA 6026:1.

SITENO.: State: 1618 Soehren:—BPBM:—PHRI:—

SITE TYPE: Petroglyphs

TOPOGRAPHY: Smooth pahoehoe bedrock

VEGETATION: Native and exotic ornamental landscape plants

CONDITION: Good

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Rock art

DIMENSIONS: 2.10 m by 0.50 m (approx. area covered)

DESCRIPTION: According to HRHP (1970) "These petroglyphs are located about 40 meters mauka of Alii Drive, directly across from the Keauhou Beach Hotel tennis courts. There are four human stick figures. They are on a small pahoehoe outcrop. The vegetation is primarily koa-haole and kiawe."

SITENO.: State: 3817 Soehren:—BPBM:—PHRI:—

SITE TYPE: Platform

TOPOGRAPHY: Situated on the pahoehoe shore fronting Kona Lagoon Hotel. Surrounded to the north, west, and south by tidal pools.

VEGETATION: Uhaloa and grasses

CONDITION: Fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-heiau

DIMENSIONS: 39.00 m by 29.00 m by 2.40 m (approx.)

DESCRIPTION: Stokes' description of the heiau (Hapaialii Heiau, Figure A-2) as a large rectangular platform faced with large blocks of pahoehoe is accurate...The facings are highly damaged along the north and west wall, and the interior fill is eroded in these areas. The facings are largely intact only in the southern wall...the basal course of the facing alignments are visible around all the walls of the heiau...The intact section along the south wall, and the southwest corner...indicate that the basal stones are large pahoehoe blocks laid lengthwise...The second course is sometimes also sizable, but generally the upper 2-3 courses are smaller pahoehoe blocks, although still large...Behind the facing is the fill of much smaller boulders...smaller stones and coral are also present...The top of the heiau has a three-sided enclosure and a low paving or platform just west of it...Rough coral is visible on the surface...A lower rectangular depression lies just west of this platform, and this may be an original feature of the heiau" (Cordy 1986:11,14).

During the present survey a human long bone was noted eroding from the sand within the northern half of the heiau.

SITENO.: State: 3818 Soehren:—BPBM: D4-3 PHRI:

SITE TYPE: Enclosure

TOPOGRAPHY: Situated on a pahoehoe shore; at high tide surrounded by water to the west, north, and east.

VEGETATION: Native and exotic trees and shrubbery

CONDITION: Fair

INTEGRITY: Unaltered to possibly altered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-heiau

DIMENSIONS: 56.00 m by 44.00 m by 3.40 m (approx.)

DESCRIPTION: "Ke'eku [Heiau] is an irregularly shaped, quadrilateral enclosure formed by thick, high walls, with an open court on the S [Figure A-3]...The present length of the N wall is 36 meters (122 ft), but it originally extended another 7 meters (21 ft) to the W. The present length of the S side is 37 meters (124 ft), but it also originally extended 6.5 meters to the west. The thickness of the N and W walls varied between 8 and 10 meters (25 to 30 ft), forming a wide platform about 3 meters above the ground surface...The E and S walls were about half the width of the N and W walls, and slightly lower...Our investigation verified Stokes' measurements and his observation of foundation alignments paralleling and outside of the present outer

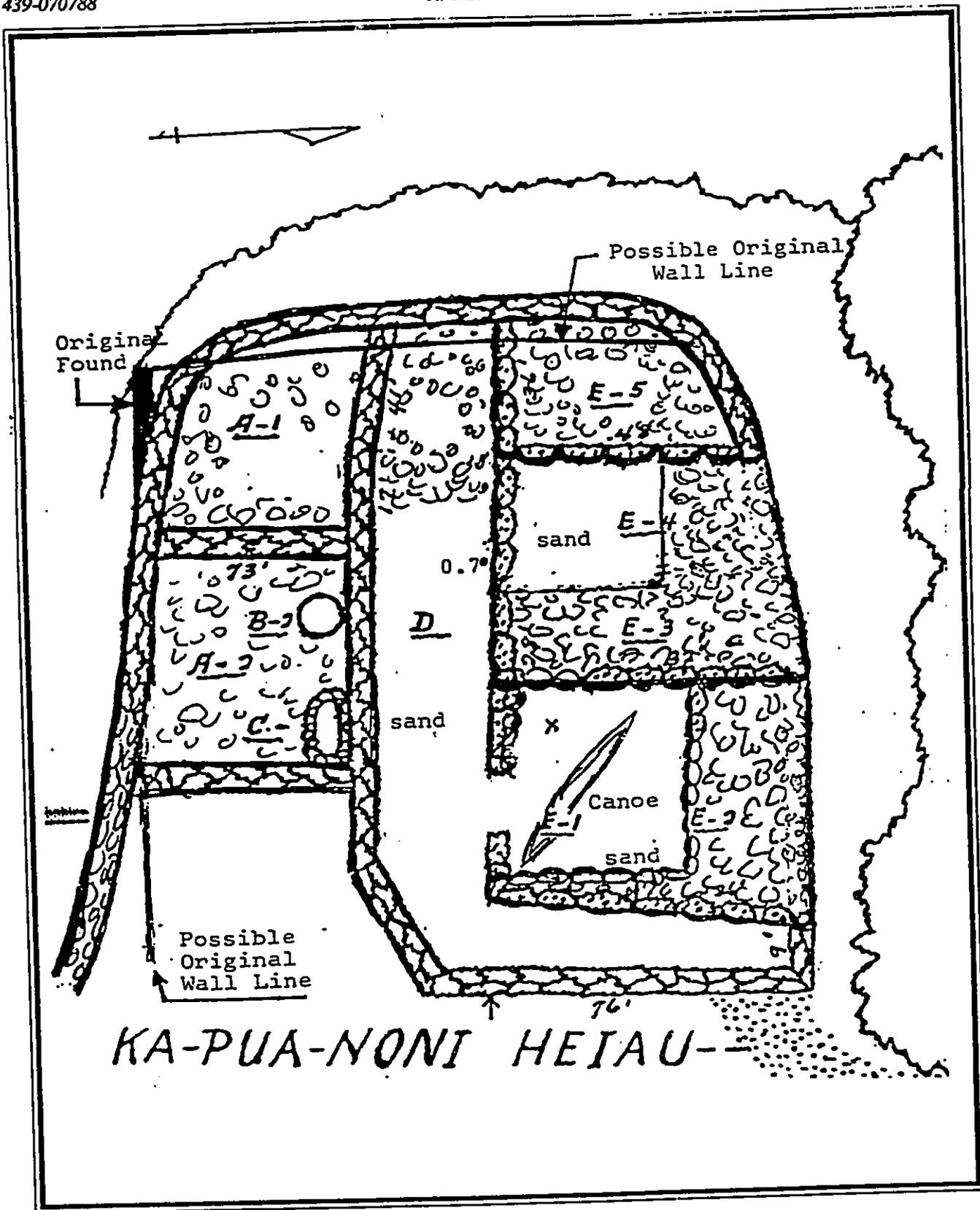


Figure A-1 - SITE 10997, KAPUANONI HEIAU
(based on Kekahuna map modified in Cordy 1986a:10)

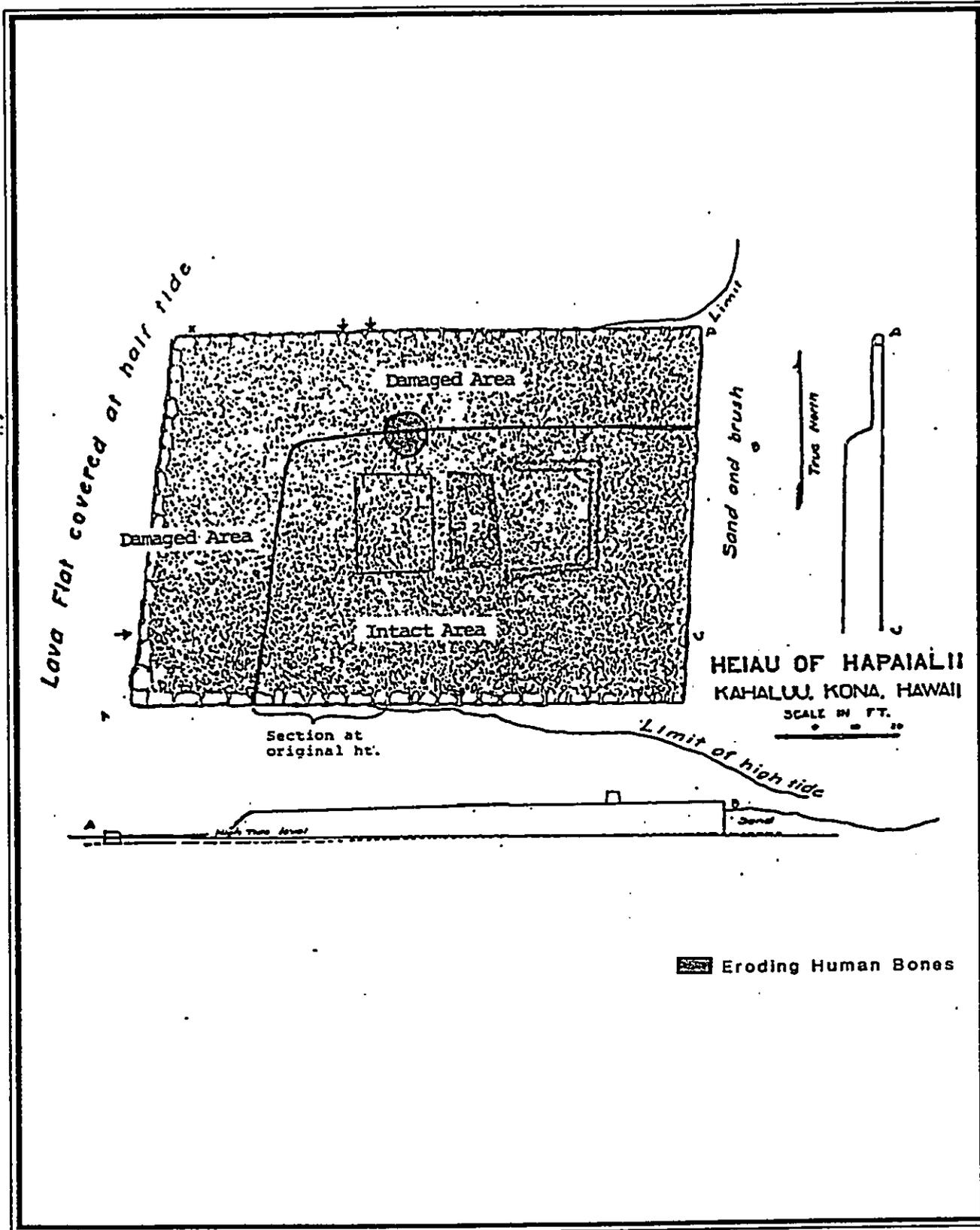


Figure A-2 - SITE 3817, HAPAIALII HEIAU
(Stokes n.d. map modified in Cordy 1986b:13)

facings. They show that originally the seawall extended out as far as the outermost alignment and may have been stepped...On the S of the heiau enclosure are scattered remains of curbs of a house or of a pavement, and the corner of a low stone platform...Stokes was told that this open-court area was the location of the Hale o Papa (House of Papa) or the part of the heiau where the chiefesses could carry on their worship" (Emory et al. 1971:16-19).

"The entrance was on the south wall, in the southwest corner. The present floor is level sand, 3 feet above mean tide, in which may be found traces of flat-stone pavements and beach-worn pebbles for filling in..." Stokes (n.d.:19).

Stokes (n.d.) covers this heiau thoroughly and, in fact, describes it as a *luakini* (sacrificial) temple. "This heiau was said to have been one in which human sacrifices were offered, and it also served as a puuhonua, built by Lonoikamakahiki. The tradition was that after building it Lonoikamakahiki attacked Kamalalawala, King of Maui, who had invaded Hawaii, defeated him and offered him a sacrifice at Keeku..." (Stokes n.d.:19-20).

SITE NO.: State: 3819 Soehren: — BPBM: D4-5 PHRI:
SITE TYPE: Enclosure
TOPOGRAPHY: Situated on the grounds of Kona Lagoon Hotel.

VEGETATION: Ornamental landscape plants
CONDITION: Fair
INTEGRITY: Unaltered-possibly altered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-heiau
DIMENSIONS: 27.00 m by 18.00 m by 2.00 m (approx.)
DESCRIPTION: "Makole-'a Heiau is smaller and less imposing than Ke'eku; it is further inland and S, and above the high-tide zone that encircles Ke'eku. It is also an irregular quadrilateral enclosure constructed of pahoehoe...The walls vary from 1 meter to 2 meters in height and reach a maximum width of 3 meters. The interior is crossed along the N-S axis by a stone wall about a meter lower than the N and S walls it joins, dividing the court into two sections, the seaward one about one-third and the inland one about two-thirds of the entire area. In the SE corner Stokes observed a pit not quite a meter (2.5 ft) deep. The location of this pit and the whole W wall have been covered with rocks pushed against it by a bulldozer. Also obliterated by the bulldozer in putting through a road was a small, low, walled enclosure 6 meters S, which Stokes believed was probably an outpost of the heiau. The floor of the heiau enclosure is on a level with the ground outside but paved with smooth beach pebbles. Kekahuna saw the pits in the top of the N wall in 1953; he believed they had been for the placement of

images. In the tradition recorded by Fornander (1916-1917, 4:330), Lonoikamakahiki held a dedication service "...at the temple of Makolea." (Emory et al. 1971:20).

SITE NO.: State: 4618 Soehren: — BPBM: — PHRI: —
SITE TYPE: Trail
TOPOGRAPHY: Gently sloping aa lava flow
VEGETATION: Christmas-berry, noni, koa-hao'le, and grasses

CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Transportation
DIMENSIONS: 13.0 m by 1.50 m (approx.)
DESCRIPTION: "A foot trail 1.5 feet wide, running roughly east to west that passes between Sties [sic] 4612 and 4613" (Hammatt and Folk 1980:151).

"Trail extending approximately east-west...It is 0.5 to 1.5 meters wide and is marked by wear and water-worn pebbles scattered along the route (Hommon and Rosendahl 1983:130).

"Waterworn pebbles present along the trail. One piece branch coral noted on surface. It is overgrown with vegetation making it rather obvious in an otherwise relatively barren aa surface" (Hommon and Rosendahl 1983 Field Records).

SITE NO.: State: 6302/7276 Soehren: 1 BPBM: —
PHRI: —
SITE TYPE: Wall
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Kiawe, koa-hao'le, 'opiuma, kolu, portulaca, uhaloa, grasses and vines
CONDITION: Poor-good
INTEGRITY: Unaltered-partially altered
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Boundary wall
DIMENSIONS: 732.00 m by 1.00 m by 1.20 m (approx.)
DESCRIPTION: According to the HRHP site form "The Great Wall of Kuakini is a massive, linear, mortar-less public works structure reportedly built by the order or proclamation of Governor Kuakini (John Adams)... This structure is located entirely within the North Kona District of Hawaii... To date, the exact purpose of the Wall is unclear from early historic records...Constructed mostly of locally available pahoehoe blocks...some sections [consist] of boulder-sized beach cobbles or large clinker type lava...the structure varies in thickness from 3 to 6 feet (1 to 2 meters) and in height from 4 to 9 feet (1.5 to 3 meters)...At present the Great Wall is 5.6 miles (9 kilometers) long and lies in a north

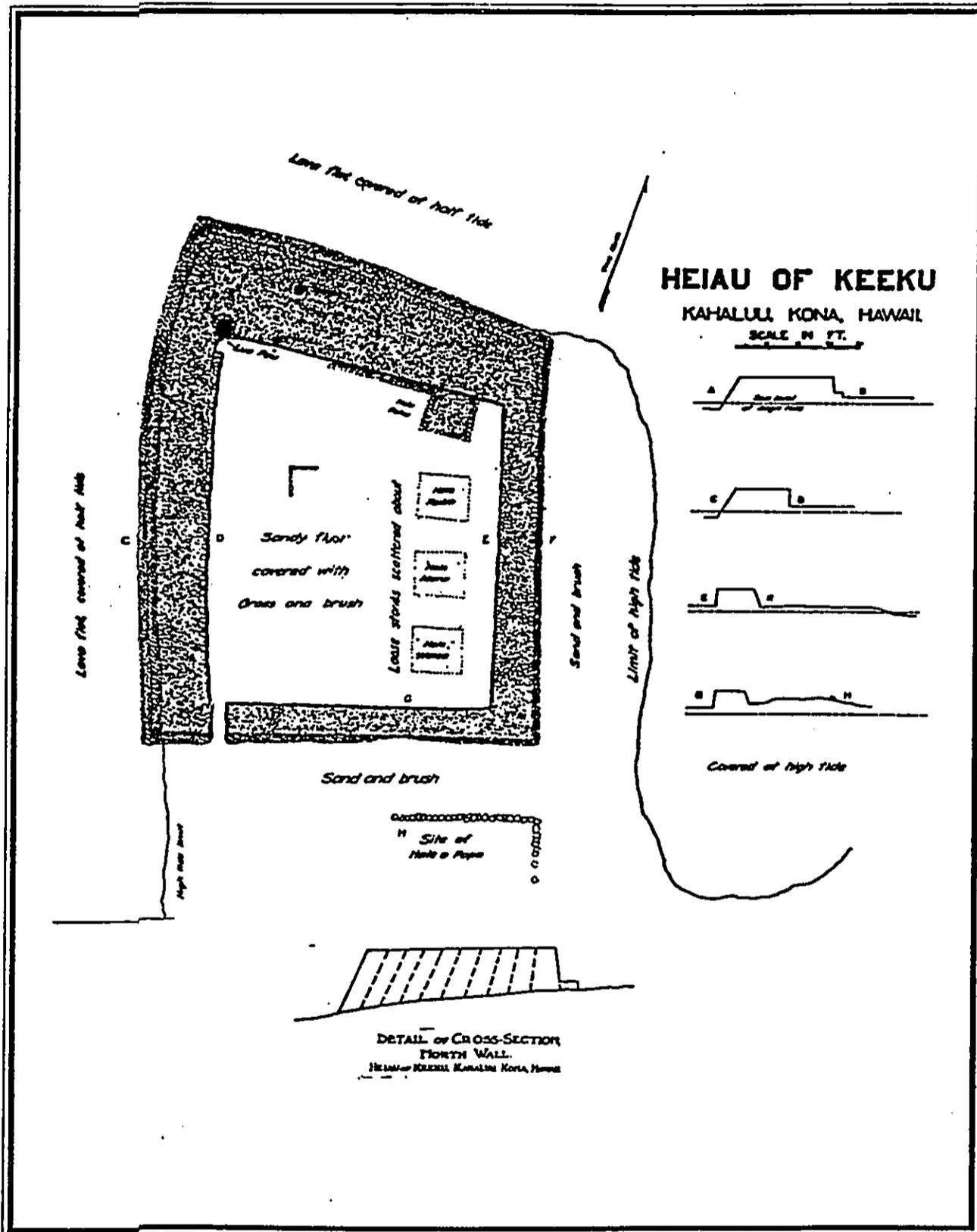


Figure A-3 - SITE 3818, KEEKU HEIAU
(Stokes n.d. map in Emory et al. 1971:18)

to south orientation roughly parallel to the coastline...The Wall is well stacked on both sides and is reinforced by an internal fill of similar pahoehoe material. A typical cross-section of the Great Wall is trapezoidal, being narrower at the top than at the base...certain lengths of the exterior faces appear to show differences in the method of wall construction—which may be attributed to individual laborers or groups of laborers. In this respect, existing sections of the Wall very likely represent examples of the different kinds of wall construction in use for the period..." (HRHP 1977).

According to Baker, the wall was "built in Kuakini's time to keep pigs from the cultivated lands above..." (Baker 1915). Another interpretation is offered by Emory et al. who suggests the wall was built "by Kuakini, governor of Hawaii from 1820-1844, to keep the introduced grass-eating animals from straying into the villages" (Emory et al. 1971:22). Soehren also agrees with Emory's interpretation:] "The Great Wall of Kuakini... was built, presumably between 1820 and 1844 when Kuakini was governor of the island, to keep the herbivores introduced by westerners from eating the grass thatching off the houses along the shore where the majority of the people lived" (1979:3).

The wall is constructed over various enclosures, walls, and habitation sites and utilizes these sites' construction material.

SITENO.: State: 7659 Soehren:—BPBM:—PHRI:—
SITE TYPE: Terrace
TOPOGRAPHY: Flat area at foot of gently sloping pahoehoe
VEGETATION: Koa-haole and grasses
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 2.30 m by 2.10 m by 0.60 m (approx.)
DESCRIPTION: "This is a small platform [sic], pebble and cobble paved. One coral pebble atop this surface pavement" (Hammatt and Folk 1980:82).

"Small terrace (3 sides free-standing) other modifications in general area...appear to be agricultural" (Allen Field Records 1984).

A possible small terrace of the same construction type is ca. 20.0 m to the southeast.

SITENO.: State: 7662 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (10 Features)
TOPOGRAPHY: Flat to undulating pahoehoe and aa flows

VEGETATION: Koa-haole and moderately dense grass
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric-historic
FUNCTIONAL INTERPRETATION: Habitation-ceremonial
DESCRIPTION: Overall complex area measures approximately 53.0 by 46.0 m. Complex consists of six platforms, three enclosures, and a cave shelter. Possible rubble terrace located west of Feature A. Features C and D may contain burials (Allen 1984 field records). Feature J is situated outside the present project area.

FEATURE A: Platform
DIMENSIONS: 4.60 m by 4.00 m by 1.00 m (approx.)

"Feature A is a platform that measures 13 by 15 feet by 3.5 feet high, with a fairly level paving of pebbles and cobbles, with some boulders scattered atop" (Hammatt and Folk 1980:110).

FEATURE B: Platform
DIMENSIONS: 6.40 m by 4.60 m by 0.60 m (approx.)

Feature B is a platform measuring 15 by 21 feet by 2 feet high that is cobble/pebble paved with a scatter of waterworn pebbles. One coral cobble was observed on the surface. Extending out from the southwest corner is an 11 by 25 foot cobble/pebble pavement" (Hammatt and Folk 1980:110).

FEATURE C: Platform
DIMENSIONS: 7.00 m by 5.00 m by 0.60 m (approx.)

"Feature C is a rectangular platform, 17 by 23 feet, faced on all sides. It has a relatively level pebble/cobble pavement with a scatter of waterworn pebbles" (Hammatt and Folk 1980:110).

FEATURE D: Terrace
DIMENSIONS: 6.00 m by 5.00 m by 0.90 m (approx.)

"Feature D is a platform [terrace] constructed on bedrock, measuring 17 by 19 feet. It is well faced on all sides, with an empty cupboard in the west face. The fairly level surface is pebble/cobble paved with a scatter of coral and waterworn pebbles. There are three low agricultural terraces off the south side of the platform" (Hammatt and Folk 1980:110).

FEATURE E: Enclosure
DIMENSIONS: 6.00 m by 5.00 m by 0.30 m (approx.)

"Feature E is a U-shaped enclosure 17 by 20 feet, with (1 foot high) low mounded cobble/pebble walls with a maximum

width of 4 feet. The interior is level soil" (Hammatt and Folk 1980:110).

FEATURE F: Cave

DIMENSIONS: 7.60 m by 4.60 m by 0.75 m (approx.)

"Feature F is a blister shelter with interior dimensions of 15 by 25 feet. The entrance is 14 feet in diameter. The blister also features a soil/rubble floor on which was observed an *opih*i shell scraper, other shell midden, waterworn pebbles and boulders, and a horse skeleton" (Hammatt and Folk 1980:110).

FEATURE G: Enclosure

DIMENSIONS: 6.00 m by 6.00 m by 0.40 m (approx.)

"Feature G is a U-shaped enclosure [enclosed terrace] measuring 19 by 20 feet with low mounded walls 3 feet wide and a level soil interior. A coral cobble scatter was observed on the enclosure walls. Very similar to Feature E" (Hammatt and Folk 1980:111).

FEATURE H: Enclosure

DIMENSIONS: 9.00 m by 6.00 m by 0.60 m (approx.)

"Feature H enclosure measures 20 by 30 feet, with soil interior and bedrock visible. Well faced with boulders" (Hammatt and Folk 1980:111).

FEATURE I: Platform

DIMENSIONS: 6.00 m by 4.60 m by 0.50 m (approx.)

"Feature I is a roughly rectangular platform, measuring 15 by 20 feet. The top surface is a level pavement...surrounded by boulder scatter. No midden visible on the pavement" (Hammatt and Folk 1980:111).

FEATURE J: Platform

DIMENSIONS: 6.00 m by 4.00 m by 1.10 m (approx.)

"Constructed of angular aa boulders and cobbles. Feature J was not previously recorded. It is covered with historic material scatter on the surface, and wire cables...wooden stump sticking out of the sides" (Hommon and Rosendahl Field Records 1983). Its function and age is questionable.

SITENO.: State: 7666 Soehren: — BPBM: — PHRI: —

SITE TYPE: Cart road

TOPOGRAPHY: Gently sloping pahoehoe and aa flow

VEGETATION: *Kiawe*, *koa-haole*

CONDITION: Poor

INTEGRITY: Unaltered-possibly altered

PROBABLE AGE: Historic

FUNCTIONAL INTERPRETATION: Transportation

DIMENSIONS: 137.00 m by 4.90 m by 0.60 m (approx.)

DESCRIPTION: "This is a historic cart trail, 12.5 feet wide, with level pavement of cobbles with a 2.0-foot wide curbing, 2.0 feet high. The trail is first traced from the fence line mauka to a bulldozer road. The trail is not traceable thereafter" (Hammatt and Folk 1980:153).

"Most of the cart road within the Alii Drive Realignment corridor has been disturbed by recent bulldozing" (Hommon and Rosendahl Field Records 1983).

SITENO.: State: 7807 Soehren: 7,8 BPBM: — PHRI:

SITE TYPE: Complex (3 Features)

TOPOGRAPHY: Undulating aa flow, situated along a very large outcrop

VEGETATION: *Kiawe*, *koa-haole* and grasses

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation-ceremonial

DESCRIPTION: Overall complex area measures c. 30.0 m by 30.0 m.

FEATURE A: Stepped terrace

DIMENSIONS: 5.00 m by 5.00 m by 0.30 m (approx.)

"Stepped terrace with cobble paving. Several w/w cobbles and coral on structure and in area. Some shell. Probably habitation—could be burials" (Allen Field Records 1984).

FEATURE B: Terrace

DIMENSIONS: 4.00 m by 4.00 m by 0.30 m (approx.)

"Probable burial terrace/platform with 2 broken w/w cobbles on surface and 2 pc. coral. Low area across middle w/ cobble fill" (Allen Field Records 1984). "A very rough structure about two fathoms square, on the brow of a small pali at the end of a lava flow. No facings are intact, but it may have been two feet high. It is surfaced with small stones, including several broken waterworn pebbles" (Soehren 1979:4).

FEATURE C: Platform

DIMENSIONS: 21.00 m by 10.00 m by 1.00 m (approx.)

"A massive heap of rubble five fathoms wide and ten fathoms long north-south. The surface, much torn up, slopes sharply seaward as if it had once been terraced. No exterior facings remain, but the makai side could have been six feet or more high in places. At the northeast corner is a pavement of small pebbles, about 1 x 1 1/2 fathoms. The

structure is built near the top of the pali at the end of a lava flow, with a fine view and a cool breeze" (Soehren 1979:4). "Several ahu and depressions on the surface" (Hammatt and Folk 1980:112). Noted during the present survey was evidence of a small (excavated) pothole on its surface.

SITENO.: State: 7808 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Undulating aa flow
VEGETATION: Moderate *koa-haole* and grasses
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Site complex is actually a single feature site measuring ca. 9.1 m (N-S) by 5.5 m (E-W).

FEATURE A: Enclosure
DIMENSIONS: 6.00 m by 2.00 m by 0.45 m (approx.)

"Feature A is a [n enclosure] platform 8 by 30 feet by 1.5 feet high. It has a rough boulder/cobble surface with a scatter of waterworn cobbles" (Hammatt and Folk 1980:112).

FEATURE B: Enclosure
DIMENSIONS: 6.00 m by 6.00 m by 0.45 m (approx.)

"Feature B is a low, rectangular enclosure 30 by 40 feet, with an opening on the west side. The walls are mounded boulders, cobbles, and pebbles, are 8 to 11 feet thick, and surround a soil interior" (Hammatt and Folk 1980:113).

SITENO.: State: 7812 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Uneven aa flow with aa clinker rocks
VEGETATION: *Koa-haole*, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 18.0 m (N-S) by 15.0 m (E-W). Waterworn cobbles are present. Feature B is c. 6.0 m west of Feature A.

FEATURE A: Enclosure
DIMENSIONS: 7.00 m by 5.00 m by 0.80 m (approx.)

"Feature A is a rectangular enclosure, 13 by 22 feet, of stacked aa boulders and large cobbles, 4 feet high. The interior is paved with pebbles and small cobbles. The northeast portion of the enclosure has been bulldozed" (Hammatt and Folk 1980:136).

FEATURE B: Enclosure
DIMENSIONS: 6.00 m by 5.00 m by 0.70 m (approx.)

"Feature B is a partially destroyed enclosure 20 by 20 feet, the remaining walls are 2.5 feet high and are constructed of stacked aa boulders [and cobbles]. To the northwest of the enclosure are two 2-foot high ahu, one 2.5 feet in diameter and the other 3.5 by 5.5 feet" (Hammatt and Folk 1980:136). "The interior and exterior appears to be level and paved with aa cobbles and pebbles" (Hommon and Rosendahl Field Records 1983).

SITENO.: State: 7813 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: Gently sloping aa flow
VEGETATION: *Koa-haole* and grasses
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DESCRIPTION: Overall complex area measures c. 15.0 by 15.0 m

FEATURE A: Platform
DIMENSIONS: 3.00 m by 2.60 m by 0.60 m (approx.)

A low platform with a boulder perimeter and level pebble/cobble pavement.

FEATURE B: Platform
DIMENSIONS: 4.00 m by 2.50 m by 0.50 m (approx.)

A low platform with a boulder perimeter and a level pebble/cobble pavement.

FEATURE C: Platform
DIMENSIONS: 2.50 m by 2.50 m by 0.30 m (approx.)

A low platform with a boulder perimeter and a level pebble/cobble pavement.

SITENO.: State: 7814 Soehren:—BPBM:—PHRI:—
SITE TYPE: Cave
TOPOGRAPHY: Undulating aa and pahoehoe flow
VEGETATION: *Koa-haole* and grasses
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 3.00 m by 3.00 m by 0.90 m (approx.)
DESCRIPTION: "A cave shelter with interior dimensions 10 feet in diameter by 3 feet high. Another

possible chamber extends to the north. The floor is mostly bedrock with a shallow soil layer in some areas. Observed on the cave floor was a ha'uke'uke spine, kukui shell, waterworn pebbles, and a human molar. A pavement surrounds the opening of the cave" (Hammatt and Folk 1980:141).

SITENO.: State: 7815 Soehren:—BPBM: —PHRI: —
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: Slightly sloping to undulating aa flow
VEGETATION: Koa-haole, portulaca, grasses
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 30.0 by 30.0 m. Immediately adjacent to and may actually be a part of Site 7817 complex. A higher, smaller platform east of the complex may be a burial.

FEATURE A: Platform
DIMENSIONS: 3.70 m by 3.00 m by 0.50 m (approx.)

"Feature A is a platform 10 by 12 feet with a rough pebble/cobble pavement, incorporating a few pahoehoe slabs, that slopes to the west" (Hammatt and Folk 1980:113).

FEATURE B: Platform
DIMENSIONS: 4.30 m by 3.00 m by 0.50 m (approx.)

"Feature B is a platform 10 by 14 feet by 1.5 feet high with a fairly level pebble/cobble pavement" (Hammatt and Folk 1980:113).

FEATURE C: Enclosure
DIMENSIONS: 18.00 m by 12.00 m by 0.50 m (approx.)

Rectangular in plan and constructed of boulders and cobbles. 'Ili'ili and midden are present on the surface interior. Cultural and soil deposit also present.

SITENO.: State: 7816 Soehren:—BPBM: —PHRI: —
SITE TYPE: Wall
TOPOGRAPHY: Undulating aa flow
VEGETATION: Kiawe, koa-haole, portulaca, grasses
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Boundary wall
DIMENSIONS: 48.80 m by 0.90 m by 0.90 m (approx.)
DESCRIPTION: "This wall is constructed with stacked boulders; it is 160 feet long and is oriented east to west. A small paved area is situated at the wall's east end" (Hammatt and Folk 1980:155).

SITENO.: State: 7817 Soehren:—BPBM: —PHRI: —
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: Undulating aa flow
VEGETATION: Kiawe, koa-haole, portulaca, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 52.0 m (N-S) by 7.6 m (E-W). Immediately adjacent to and may actually be a part of Site Complex 7815.

FEATURE A: Cave
DIMENSIONS: 5.50 m by 3.00 m by 1.00 m (approx.)

"Feature A is a cave shelter with an entrance 11 feet wide and 3.5 feet high. Interior dimensions are 10 by 18 feet with a soil and rubble floor...Observed on the cave floor was a pig skeleton, kukui, waterworn pebbles and cobbles, assorted shell midden, and coral fragments" (Hammatt and Folk 1980:113). "Partial enclosing wall to North. Terrace abuts cave entrance. Good excavation potential. Scoria abrader on surface. Evidence of testing or pothunting" (Allen Field Records 1984).

FEATURE B: Terraced platform
DIMENSIONS: 9.00 m by 5.40 m by 0.50 m (approx.)

"Feature B is a terraced platform, the upper level of which measures 15 by 16 feet by 1.5 feet high. Adjoining it to the north is the lower level, 16 by 21 feet by 1 foot high. The difference between levels is 1 foot. Both are pebble paved with a few waterworn basalt and coral pebbles on the surface" (Hammatt and Folk 1980:113).

FEATURE C: Platform
DIMENSIONS: 4.60 m by 3.00 m by 0.90 m (approx.)

"Feature C is a rectangular-shaped platform 10 by 15 feet. The surface is cobble paved. The north, west, and south sides are faced to a maximum height of 3 feet. Also on the surface is a circular alignment 4 feet in diameter, possibly a fireplace" (Hammatt and Folk 1980:114).

SITENO.: State: 7818 Soehren:—BPBM: —PHRI: —
SITE TYPE: Trail
TOPOGRAPHY: Sloping to undulating aa flow
VEGETATION: Kiawe, koa-haole, opiuma, portulaca, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Transportation
DIMENSIONS: 38.00 m by 3.50 m by 0.75 m (approx.)
DESCRIPTION: Site 7818, oriented east-west, is situated adjacent to site complexes 7815 and 7817.

"This site features a foot trail that leads up to a 3.0-foot high modified pahoehoe bluff. A large inclined pahoehoe slab set against a 4-foot high wall serves as a step to mount the wall to the top of the paved bluff" (Hammatt and Folk 1980:153).

"Trail is demarcated by two parallel rubble mounds of boulders and cobbles discontinuous in places. These rubble mounds are 1.50 m wide and 0.75 m high" (Hommon and Rosendahl Field Records 1983).

SITENO.: State: 7825 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (4 Features)
TOPOGRAPHY: Slightly undulating aa flow
VEGETATION: *Kiawe*, *koa-haole*, portulaca, grasses
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 61.0 m (N-S) by 9.0 m (E-W).

FEATURE A: Enclosure
DIMENSIONS: 3.60 m by 1.80 m by 0.45 m (approx.)

"Feature A is an oval enclosure 6 by 12 feet, probably used for planting. Walls are low and very wide with an interior facing 1.5 feet high surrounding a soil area. No midden...visible" (Hammatt and Folk 1980:147).

FEATURE B: Enclosure
DIMENSIONS: 4.60 m by 4.00 m by 0.45 m (approx.)

"Feature B is a circular enclosure 15 feet in diameter that is adjacent [to] and similar to Feature A. Wall height is 1.5 feet...soil interior. No midden visible" (Hammatt and Folk 1980:147).

FEATURE C: Enclosure
DIMENSIONS: 6.00 m by 3.60 m by 0.60 m (approx.)

"Feature C is three probable planting enclosures averaging 12 by 20 feet, with an average wall height of 1.5 to 2.0 feet" (Hammatt and Folk 1980:147).

FEATURE D: C-shape
DIMENSIONS: 5.00 m by 4.00 m by 0.60 m (approx.)

Opens seaward. It is constructed with boulders, cobbles and utilizes bedrock. Walls are rubbly and are not faced.

SITENO.: State: 7826 Soehren:—BPBM:—PHRI:—
SITE TYPE: Cave
TOPOGRAPHY: Undulating aa and pahoehoe flows
VEGETATION: *Kiawe*, *koa-haole*, portulaca, grasses
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 5.00 m by 4.00 m by 0.76 m (approx.)
DESCRIPTION: "The cave [collapsed blister] measures 12 feet in diameter, with an entrance height of 2.0 to 2.5 feet, with large waterworn cobbles scattered atop the dirt floor interior. One *wana* spine was located within the cave; no other shell midden were visible. Atop the cave ledge is a fairly level cobble/pebble pavement which extends 8.0 feet in length and 3.0 feet in width" (Hammatt and Folk 1980:114).

A rusted tin can, pig bone, *Conidae*, coral, and waterworn pebbles are present on the site surface. Situated on the seaward side of the blister is a terrace c. 0.3 m in height. Site may be mitigated and removed from the preservation area.

SITENO.: State: 7827 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (9 Features)
TOPOGRAPHY: Level to slightly sloping aa flow
VEGETATION: Sparse grass, *noni*, and *uhaloa*
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation-ceremonial
DESCRIPTION: Overall complex area measures 52.0 m (E-W) by 46.0 m (N-S) (Figure A-4). Features A, B, and E were not relocated. Recorded a cairn (0.8 m in diameter by 0.8 m in height) near Kuakini Wall, ca. 25.0 m southwest of Feature D.

"Area between features also appears to have been artificially leveled. Trail 7809 also flagged at E end of site. Continues eastward above bulldozer road. Marked by vegetation (mostly grasses and *Waltheria*)" (Allen Field Records 1984).

The locations of Features A, B, E-1, and E-2 are not shown on the Hammatt et al (1981:66) site map and were not found during the present survey. Site 7827 was originally recorded as features of HRHP Site 1617 (HRHP 1970C).

FEATURE A: Enclosure
DIMENSIONS: 2.70 m by 2.70 m by 0.60 m (approx.)

"Feature A is a C-shaped enclosure constructed with aa cobbles and boulders, measuring 9.0 feet in diameter, with a 1.0 to 2.0-foot high wall. At the top of the mauka extension is an exposed 2.0 feet of pahoehoe bedrock. No pavement

or midden visible within the enclosures" (Hammatt and Folk 1980:114). This feature was not relocated during the present survey.

FEATURE B: Cobble-filled area

DIMENSIONS: 1.80 m by 1.20 m (approx.)

"Feature B is a possible burial situated in a 4.0 by 6.0-foot aa crevice. A (human) lower mandible, bleached, was found atop the aa fill of the burial" (Hammatt and Folk 1980:114). This feature was not relocated during the present survey.

FEATURE C-1: Platform

DIMENSIONS: 4.50 m by 3.50 m by 0.45 m (approx.)

"Feature C consists of two platforms situated on an aa flow. Platform A [Feature C-1] is constructed with aa boulders with a roughly level pebble pavement. On the north and east edge is an alignment of cobbles and boulders 0.5 to 1.0 feet high" (Hammatt and Folk 1980:114). According to Allen Field Records (1984) a waterworn cobble flake was present on the surface and no midden was visible.

FEATURE C-2: Platform

DIMENSIONS: 5.75 m by 3.00 m by 0.30 m (approx.)

"Platform B [Feature C-2] is similar in construction, [as Feature C-1]...and is situated directly south (2.0 feet) of Platform A [Feature C-1]" (Hammatt and Folk 1980:114). It consists of aa boulders and a roughly level pebble pavement.

FEATURE D: Pavement

DIMENSIONS: 9.00 m by 9.00 m (approx.)

"Feature D consists of an aa pebble pavement 30 by 30 feet, situated on an open aa flow. In the southeast corner of the pavement is a possible pit, 0.5 feet in depth. An alignment of single cobbles and boulders partially encompasses the northeast corner" (Hammatt and Folk 1980:114). During the 1984 survey no midden was visible. A cairn (0.8 m in diameter x 0.8 m in height) was located near Kuakini Wall ca. 25.0 m SW of Feature D.

FEATURE E-1: Cupboard

DIMENSIONS: 0.25 m by 0.25 m by 0.38 m (approx.)

"Feature E consists of two cupboards. Cupboard A [E-1] is a modified vertical hole situated in an aa flow. Aa cobbles are stacked on the north side, level to the surface. A single waterworn pebble was found within the cupboard" (Hammatt and Folk 1980:114). This feature was not relocated during the present survey.

FEATURE E-2: Cupboard

DIMENSIONS: 0.30 m by 0.30 m by 0.15 m (approx.)

"Cupboard B [E-2] is a modified horizontal hole 1.0 feet deep, with an opening 1.0 feet wide...and 6 inches high, located 5.0 feet southeast of Cupboard A [E-1]. A single waterworn pebble also was found within this cupboard" (Hammatt and Folk 1980:114). This feature was not relocated during the present survey.

FEATURE F: Stepped platform

DIMENSIONS: 12.00 m by 10.00 m by 0.65 m (approx.)

"Feature F is a terraced [stepped] platform constructed with aa boulders and cobbles, with a surface pebble pavement..." (Hammatt and Folk 1980:115) of worn aa pebbles, some 'ili'ili pebbles, and a shell. A bulldozed road passes east of the platform.

FEATURE G: C-shape

DIMENSIONS: 2.70 m by 2.70 m by 0.30 m (approx.)

"Feature G is a C-shape, constructed with aa boulders and cobbles, featuring an interior pebble pavement. The C-shape measures 9.0 feet in diameter, with a wall height of 1.0 feet. A waterworn boulder was found 5.0 feet south of this site" (Hammatt and Folk 1980:115).

SITE NO.: State: 7828 Soehren: — BPBM: — PHRI: —

SITE TYPE: Complex (21 Features)

TOPOGRAPHY: Situated along the top of, across the slope of, and at the base of an aa bluff

VEGETATION: Sparse grasses, uhaloa, Christmas-berry, noni

CONDITION: Good

INTEGRITY: Unaltered-partially altered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation-ceremonial

DESCRIPTION: Overall complex area measures c. 75.0 m (E-W) by 56.0 m (N-S) (Figure A-5). "Site 7828 is a complex situated atop a bluff and the surrounding ground area below" (Hammatt and Folk 1980:115). Situated atop the bluff are Features A-F. The remaining features are located below. Possible additional cairns, leveled areas, and walled shelters in the area. The trails are vague and indistinct. According to Allen (1984) there is "...'ili'ili pebble paving on most features...scattered midden also present. Site 7828, originally recorded as features of HRHP Site 1617 (HRHP 1970c), may be Reinecke's Site 151 or 152.

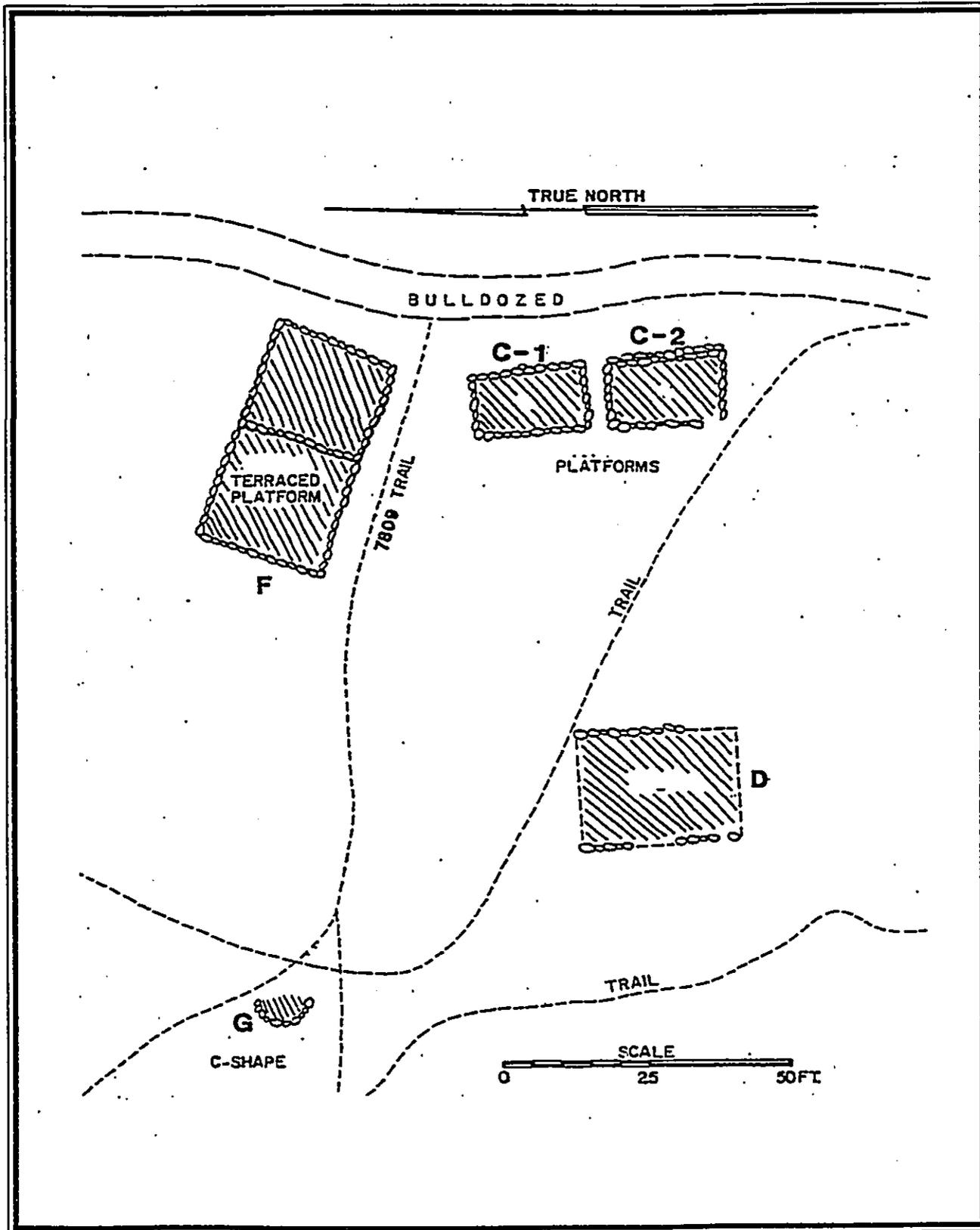


Figure A-4 - SITE 7827 (Hammatt et al. 1981:66)

FEATURE A: Terrace**DIMENSIONS:** 14.00 m by 9.00 m by 1.50 m (approx.)

Feature A is located on top of an aa bluff. It is rectangular in plan and is constructed of aa boulders and cobbles. It is faced on the north and east sides. The upper surface consists of a level cobble/pebble pavement with some 'ili'ili present. Pits/depressions are on the upper surface visible. Abutting the terrace is a west extension ca. 13.0 m (E-W) by 8.0 m (N-S) by 2.4 m in height.

FEATURE B: Terrace**DIMENSIONS:** 3.80 m by 2.80 m by 0.70 m (approx.)

Constructed of aa boulders and cobbles; raised along the east half. Upper surface is fairly level with cobbles and boulders.

FEATURE C: C-shape**DIMENSIONS:** 4.50 m by 3.50 m by 0.60 m (approx.)

C-shape opens to the west. Constructed of aa boulders and cobbles. The wall is ca. 0.7 m wide, raised but not faced. The interior surface is level and consists of aa pebbles and cobbles. An adjoining terrace (4.5 m by 4.5 m by 0.65 m in height) is located south of the C-shape. It is raised on the south and east faces and has a level interior surface.

FEATURE D: C-shape**DIMENSIONS:** 3.70 m by 2.40 m by 0.40 m (approx.)

Open to the west. Constructed of small aa boulders. The walls are constructed of rubble and are c. 0.6 m wide. The interior surface is uneven with loose boulders and cobbles.

FEATURE E: Terrace**DIMENSIONS:** 8.00 m by 4.50 m by 0.90 m (approx.)

Raised on the east and south sides and partly raised on the west side. Consists of aa boulders and cobbles. The interior surface is fairly level and consists of cobbles and boulders. Pits, 'ili'ili, and a cairn visible on the interior surface. The south face is partially collapsed. This feature may have been previously excavated by ARCH in 1981.

FEATURE F: Terrace**DIMENSIONS:** 5.75 m by 5.00 m by 1.10 m (approx.)

Constructed of aa boulders and cobbles. Faced on the north and west sides; raised 5-7 courses high. The interior surface is level and consists of cobbles and boulders. A possible trail segment visible along the east end.

FEATURE G: Terrace**DIMENSIONS:** 5.00 m by 4.00 m by 0.50 m (approx.)

Terrace is walled on the N and E sides. The wall averages 0.4 m and the wall is 0.5 m high. The interior surface is level and consists of aa boulders and cobbles. About 15 waterworn basalt boulders and some 'ili'ili present on surface.

FEATURE H: Terrace**DIMENSIONS:** 4.00 m by 2.00 m by 0.30 m (approx.)

Terrace is walled along portions of the east and south sides. Constructed of aa boulders and cobbles; wall width averages 0.5 m. The terrace interior is roughly level and consists of aa boulders and cobbles. A possible walled shelter present approximately south of Feature H.

FEATURE I: C-shape**DIMENSIONS:** 4.00 m by 3.00 m by 0.65 m (approx.)

Opens to the NW; constructed of aa boulders and cobbles. Wall width ranges between 0.6-0.8 m.

FEATURE J: C-shape**DIMENSIONS:** 4.00 m by 3.00 m by 0.40 m (approx.)

Opens to the NW; it is constructed of aa boulders and cobbles. Wall width is c. 0.7 m. A noni tree is growing from within the feature.

FEATURE K: C-shape**DIMENSIONS:** 2.80 m by 2.80 m by 0.90 m (approx.)

Opens to the north. Wall constructed of aa boulders and cobbles. The wall width ranges between 0.5-0.8 m; wall height is between 0.35-0.90 m. The interior surface is paved with 'ili'ili. This feature may have been excavated in 1981 by ARCH.

FEATURE L: Terrace**DIMENSIONS:** 3.00 m by 2.30 m by 1.20 m (approx.)

Rectangular in plan; faced on the west side. Interior surface level and filled with aa cobbles.

FEATURE M: C-shape**DIMENSIONS:** 4.00 m by 3.50 m by 0.70 m (approx.)

Walled C-shape situated at base of bluff. Walls are 0.6 m wide by 0.25-0.70 m high. The interior of the C-shape consists of aa pebble paving. Coral, waterworn basalt boulders, and 'ili'ili present.

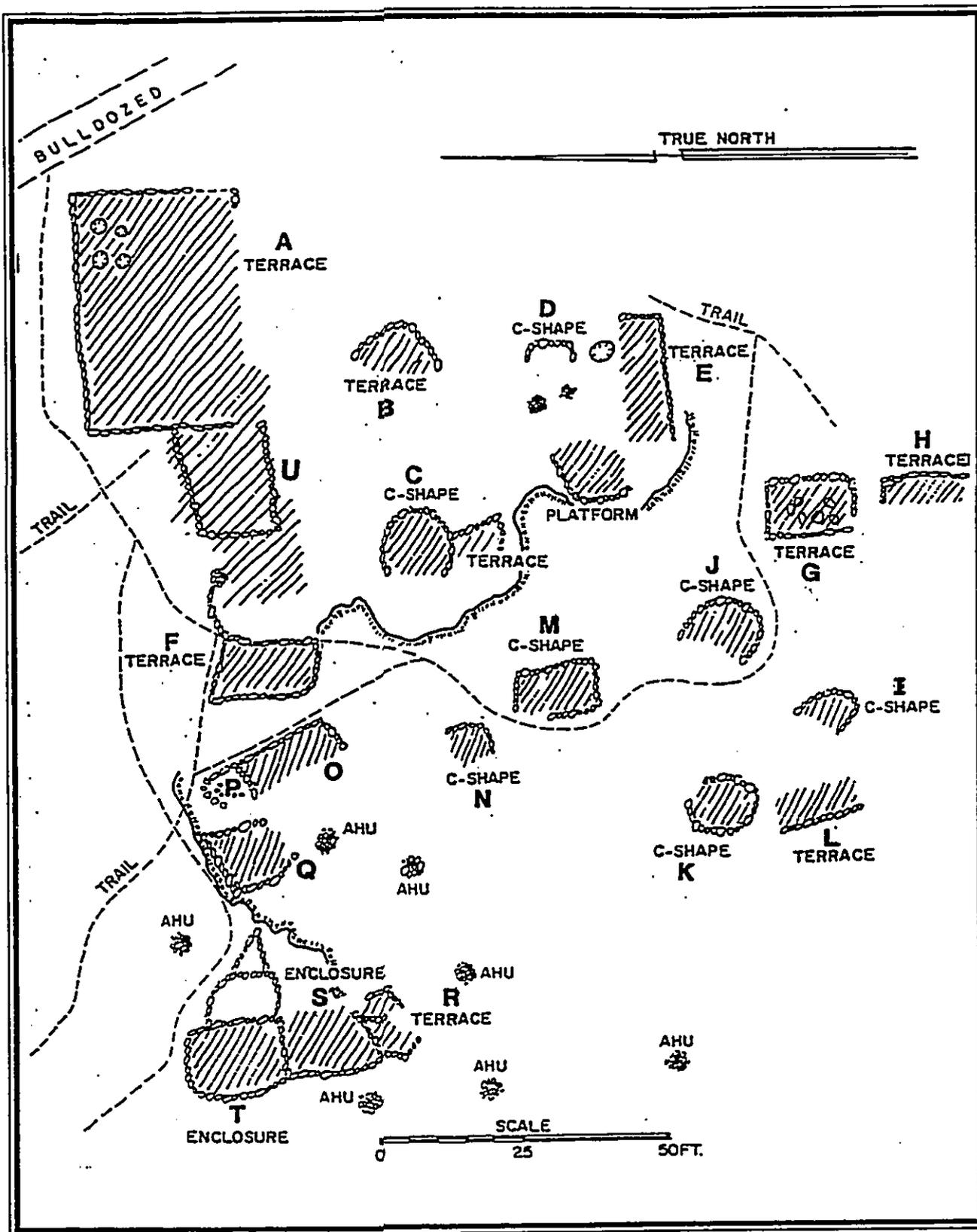


Figure A-5. SITE 7828 (Hammatt et al. 1981:67)

FEATURE N: C-shape
DIMENSIONS: 4.00 m by 3.50 m by 0.20 m (approx.)

Walled C-shape in poor condition; appears to open to the NW. The 1.0 m wide walls are collapsed.

FEATURE O: C-shape
DIMENSIONS: 5.00 m by 3.50 m by 0.60 m (approx.)

Walled C-shape open to the west. Constructed with aa boulders and cobbles; wall width is c. 0.6 m. Interior consists of aa cobble paving.

FEATURE P: C-shape
DIMENSIONS: 3.00 m by 3.00 m by 0.45 m (approx.)

North of and adjoining Feature O. C-shape open to the west. Constructed of aa boulders and cobbles. The wall width is 0.6 m and the interior floor consists of level 'ili'ili paving.

FEATURE Q: Terrace
DIMENSIONS: 3.00 m by 3.00 m by 0.35 m (approx.)

Level aa cobble and pebble paving. Crude boulder windbreaks on the north, east, and west sides, ranging from 0.2-0.5 m in height.

FEATURE R: Terrace
DIMENSIONS: 6.50 m by 3.80 m by 0.70 m (approx.)

Crude wall on the SE corner c. 0.7 m wide and high. Terrace platform consists of level aa cobble, pebble, and 'ili'ili paving. An internal boulder alignment divides the terrace.

FEATURE S: Enclosure
DIMENSIONS: 7.50 m by 4.00 m by 1.00 m (approx.)

Rectangular in plan. Utilizes bedrock outcrop as its south wall. Walls constructed with aa boulders and cobbles. Walls are raised and faced, 1.0 m high and 1.0 m wide. To the north and adjoining Feature S is Feature T.

FEATURE T: Enclosure
DIMENSIONS: 4.20 m by 2.90 m by 1.40 m (approx.)

Constructed of aa boulders. Walls raised and faced on four sides. Wall widths average 0.5-1.0 m. Possible cupboard located within the west wall. Interior surface is level and consists of aa cobbles, aa pebbles, and 'ili'ili. A crude enclosure extending east and adjoining Feature T. It measures 3.0 m (N-S) by 2.0 m (E-W). The wall width is 0.6 m and the wall height is 1.0 m.

FEATURE U: Terrace
DIMENSIONS: 4.00 m by 3.50 m by 1.30 m (approx.)

This terrace abuts the base of the western extension of Feature A. The terrace is faced on the west and south sides. The interior surface of the terrace is level and consists of aa cobbles and pebbles. A slightly sunken/depressed area within the interior may indicate that this feature had been tested in 1981 by ARCH.

SITENO.: State: 7829 Soehren: — BPBM: — PHRI: —
SITE TYPE: Complex (18 features)

TOPOGRAPHY: Slightly sloping to undulating pahoehoe and aa flows

VEGETATION: Christmas-berry, uhaloa, and grasses

CONDITION: Good

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation-ceremonial

DESCRIPTION: Overall complex measures c. 76.0 m (E-W) by 53.0 m (N-S) (Figure A-6). "A complex of numerous features in close proximity covering a 200 by 250-foot area on an open aa flow...Also noted was a system of intra-complex foot trails connecting various features as well as a trail connecting this complex with Site 7827 complex. Shell midden as well as waterworn pebbles and cobbles and coral were observed scattered in and around many of the features" (Hammatt and Folk 1980:115). Site 7829 was originally recorded as features of HRHP Site 1617 (HRHP 1970s).

FEATURE A: Platform
DIMENSIONS: 4.50 m by 3.80 m by 0.80 m (approx.)

Roughly square in plan. Partially faced with aa cobbles and boulders; other portions collapsed. Interior surface consists of level aa cobbles. This feature may have been tested by ARCH in 1981.

FEATURE B: Enclosed paved area
DIMENSIONS: 7.00 m by 4.00 m by 0.45 m (approx.)

Aa pebble-paved area with 'ili'ili; area is enclosed by walls 0.50 m wide and 0.45 m high. Walls are raised but are not faced.

FEATURE C: Levelled area
DIMENSIONS: 7.50 m by 4.00 m by 0.55 m (approx.)

Level aa pebble paved area; south side of area paved with crude rubble. Wall width is 0.5 m and wall height is 0.55 m. One piece *Cypraea* shell noted.

FEATURE D: Platform
DIMENSIONS: 2.30 m by 1.90 m by 0.45 m (approx.)

Low platform constructed of aa boulders and cobbles; upright present in NW corner. Upper surface is fairly level and consists of aa cobbles.

FEATURE E: C-shape
DIMENSIONS: 4.00 m by 3.50 m by 0.45 m (approx.)

C-shape has crude walls constructed of rubbly boulders and cobbles. Walls are c. 0.55 m wide. The interior floor of the C-shape is level and is paved with aa pebbles. Four waterworn basalt boulders present south of C-shape. The C-shape opens to the WNW and faces Feature F. Feature E shares a wall with Feature F.

FEATURE F: C-shape
DIMENSIONS: 5.00 m by 3.50 m by 0.45 m (approx.)

Has crude walls constructed of rubbly boulders and cobbles. Walls are c. 0.55 m wide. Interior floor is level and is paved with aa pebbles.

FEATURE G: Enclosure
DIMENSIONS: 7.50 m by 5.00 m by 0.70 m (approx.)

Rectangular enclosure constructed of boulders and cobbles. The walls average 0.9 m in width. Portions of the enclosure are faced. Other portions are collapsed.

FEATURE H: Terrace
DIMENSIONS: 5.00 m by 2.50 m by 0.40 m (approx.)

Fairly level area of cobbles and pebbles. Situated NNW of Feature G.

FEATURE I: Enclosure
DIMENSIONS: 4.00 m by 2.60 m by 0.30 m (approx.)

Roughly rectangular in plan. The walls are collapsed and rubbly and average 0.6 m in width.

FEATURE J: Terrace
DIMENSIONS: 5.00 m by 4.50 m by 0.40 m (approx.)

Terrace with crude collapsed walls (0.6 m wide) on the N and E sides. An upright present in the center of the north wall. Aa cobble/pebble paved interior surface. A pahoehoe excavation, 3.0 m (N-S) by 2.0 m (E-W), present immediately south of feature. Midden eroding from terrace along west edge.

FEATURE K: Terrace
DIMENSIONS: 4.00 m by 4.00 m by 0.56 m (approx.)

Interior surface is level and consists of aa cobbles and pebbles. A crude collapsed wall (0.6 m wide) present along the west edge. This feature is situated immediately north of and adjoining Feature J. Midden eroding from terrace along west edge of Feature K.

FEATURE L: Terrace
DIMENSIONS: 2.50 m by 1.50 m by 0.50 m (approx.)

Crudely faced terrace with aa cobble paving. Is in poor condition, is vague, and is collapsed. To the south is a blister with boulders piled along its north edge. The blister measures c. 3.0 m in diameter and does not appear to contain a cultural deposit.

FEATURE M: Terrace
DIMENSIONS: 9.00 m by 5.00 m by 0.60 m (approx.)

Raised on the north, west, and south sides. Interior surface appears to be aa cobble/pebble paved.

FEATURE N: L-shape
DIMENSIONS: 4.00 m by 4.00 m by 0.70 m (approx.)

L-shaped shelter with collapsed and rubbly walls 0.7 m wide. Shelter is partially enclosed on the north and east sides. The interior surface of the shelter is paved with aa cobbles.

FEATURE O: Box C-shape
DIMENSIONS: 6.00 m by 6.00 m by 0.50 m (approx.)

Box C-shape opens to the west. The walls are constructed with aa boulders and cobbles to an average width of 0.7 m. The interior surface is paved with aa cobbles and pebbles. A waterworn pebble is present.

FEATURE P: Enclosure
DIMENSIONS: 4.75 m by 4.75 m by 0.55 m (approx.)

Square in plan; constructed with aa boulders and cobbles. The wall is stacked three courses high along a portion of the east face. The remaining sections are mostly rubbly and collapsed. The walls average 0.65 m in width. The interior surface is level with aa boulders and cobbles. A waterworn basalt boulder is present in the SE corner of the enclosure. A bulldozed road is present immediately west of feature.

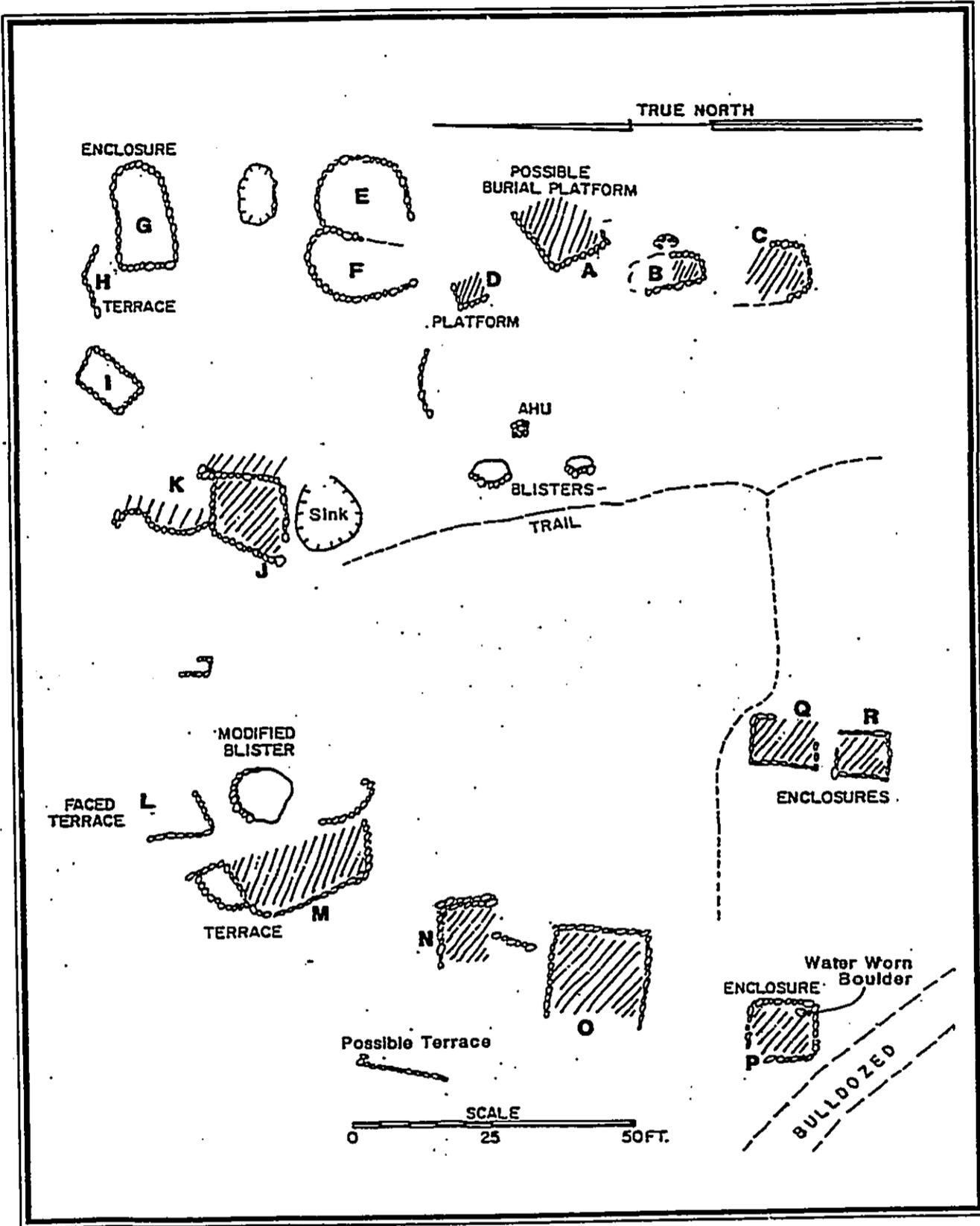


Figure A-6 - SITE 7829, (Hammatt et al. 1981:69)

FEATURE Q: C-shape
DIMENSIONS: 3.50 m by 3.50 m by 0.60 m (approx.)

Slightly raised on all sides. A wall surrounds the north half. Faced along portions of the interior; sloping exterior face. Wall width averages c. 0.8 m. Interior surface is paved with aa cobbles.

FEATURE R: Enclosure
DIMENSIONS: 4.50 m by 3.75 m by 0.70 m (approx.)

The wall is constructed with aa boulders and cobbles. Portions of the wall are faced. The remaining sections are raised, but not faced. Wall width averages 0.6 m. The interior floor of the enclosure is level and is paved with aa cobbles and pebbles. Waterworn basalt cobbles and four pieces of *Cypraea* present.

SITE NO.: State: 7830 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (4 Features)
TOPOGRAPHY: Slightly sloping to undulating aa flows
VEGETATION: Kiawe, koa-haole, portulaca, and grasses
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 53.0 m in diameter

FEATURE A: Enclosure
DIMENSIONS: 7.60 m by 0.90 m by 0.60 m (approx.)

"Feature A is a low enclosure...constructed with loosely stacked aa cobbles and boulders with some pebble paving in the interior" (Hammatt and Folk 1980:116).

FEATURE B: Cave
DIMENSIONS: 3.70 m by 1.80 m by 0.80 m (approx.)

"Feature B is a small lava bubble cave with a roughly oval-shaped interior, 6.0 feet (east to west) by 12 feet (north to south), with a maximum interior height of 2.5 feet. The entrance is slightly modified" (Hammatt and Folk 1980:116). According to Allen Field Records (1984), two pieces coral and one waterworn cobble present inside the cave.

FEATURE C: Wall
DIMENSIONS: 5.50 m by 1.80 m by 0.45 m (approx.)

"Feature C is a low, L-shaped, stacked aa boulder wall measuring 18.0 feet maximum length" (Hammatt and Folk 1980:116).

FEATURE D: Enclosure
DIMENSIONS: 7.60 m by 7.60 m by 1.20 m (approx.)

Overall feature area measures 23.0 m (N-S) by 7.6 m (E-W). "Feature D consists of an enclosure and adjoining pavement [terrace 8 m by 4 m] of pebbles and cobbles. The enclosure is on a raised area and measures 25.0 by 25.0 feet, with walls 6.0 to 8.0 feet [1.8-2.4 m] wide and 2.0 to 4.0 feet [0.6-1.2 m] high of stacked aa boulders. The interior of the enclosure is oval-shaped, 10.0 by 12.0 feet [3.7 m by 3.0 m], with a maximum wall height of 3.0 feet [0.9 m] on the mauka side. A low wall of stacked boulders extends 70.0 feet [21.0 m] south of the southeast corner of the enclosure, 1.0 feet [0.3 m] high and 2.0 feet [0.6 m] wide" (Hammatt and Folk 1980:116).

SITE NO.: State: 7831 Soehren:—BPBM:—PHRI:—
SITE TYPE: Wall
TOPOGRAPHY: Gently sloping aa flow
VEGETATION: Kiawe, koa-haole, Christmas-berry, pua-pilo, *Opiuma*
CONDITION: Poor-fair
INTEGRITY: Partially altered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Boundary wall
DIMENSIONS: 76.00 m by 0.90 m by 0.90 m (approx.)
DESCRIPTION: "Site 7831 is a low wall 3 feet high and 3 feet wide of upright boulders on the makai edge. This wall continues into Site 7812B and joins to wall 7816" (Hammatt and Folk 1980:155).

"This multiple stacked wall runs along the base of the lobe of aa on which 7812 is situated. The notes prepared during the reconnaissance survey provide an adequate record of relevant data. Because the site's significance is due to the information it contains, and because that information has been recorded during the survey, no further work is recommended" (Hommon and Rosendahl 1983:128).

SITE NO.: State: 7832 Soehren:—BPBM:—PHRI:—
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Rocky aa lava flow
VEGETATION: Koa-haole, several monkeypod trees, Christmas-berry, grasses
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DESCRIPTION: Overall complex area measures c. 4-8.0 m (N-S) by 6.5 m (E-W). It is bulldozed on the east side.

FEATURE A: Terrace**DIMENSIONS:** 4.00 m by 3.50 m by 1.10 m (approx.)

Raised on three sides (N,S,W); constructed of piled aa boulders and cobbles. Stacked boulders and cobbles in NW corner. The platform has a fairly level surface paved with aa pebbles. Portions of the structure appear to be unaltered; however, the mauka end has been destroyed by bulldozing. Three large waterworn basalt boulders and one cobble are present on the surface of the structure.

FEATURE B: Terrace**DIMENSIONS:** 4.00 m by 3.00 m by 0.40 m (approx.)

Feature B abuts Feature A to the SW. Raised on the N, W, and S faces. Constructed of piled aa boulders and cobbles. Platform of terrace is fairly level and consists of aa pebbles.

SITENO.: State: 7833 Soehren:—BPBM:—PHRI:—**SITE TYPE:** Enclosure**TOPOGRAPHY:** Rocky and undulating aa and pahoehoe flows; slopes slightly to the west**VEGETATION:** Koa-haole, monkeypod tree, grasses**CONDITION:** Poor**INTEGRITY:** Unaltered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Habitation**DIMENSIONS:** 10.00 m by 8.00 m by 0.90 m (approx.)**DESCRIPTION:** Site 7833 is adjacent to Sites 7847A, 7812, and 7832. These three sites may be considered as one site complex.

"This is a probable habitation enclosure. The makai portion of the wall remains. The rest of the enclosure has been destroyed by a bulldozer road. The remaining wall remnant is constructed with stacked aa boulders 2.0 to 3.0 feet wide, 15 feet long, and 4.0 feet high" (Hammatt and Folk 1980:136).

East half of the enclosure has been extensively damaged by bulldozing, only part of the west wall is intact. It is constructed of stacked aa boulders. Two terraces abut the enclosure to the west. They are constructed of a rough piling of aa boulders and cobbles. A few waterworn cobbles are present on surface.

The elements of this site are evidently only remnants of a formerly larger structure of unknown function...The notes prepared during the reconnaissance survey provide an adequate

record of relevant data. Because the site's significance is due to the information it contains, and because that information has been recorded during the survey, no further work is recommended" (Hommon and Rosendahl 1983:126).

SITENO.: State: 7834 Soehren:—BPBM:—PHRI:—**SITE TYPE:** Complex (2 Features)**TOPOGRAPHY:** Flat to undulating aa and pahoehoe flows**VEGETATION:** Kiawe, koa-haole, grasses**CONDITION:** Fair**INTEGRITY:** Unaltered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Ceremonial-burial**DESCRIPTION:** Overall complex area measures c. 15.0 by 15.0 m. "This site consists of two sets of two contiguous platforms offset from one another" (Allen Field Records 1984).**FEATURE A: Platform****DIMENSIONS:** 6.00 m by 3.70 m by 0.90 m (approx.)

"Feature A is a platform roughly rectangular-shaped, 12.0 by 20.0 feet, with boulder paving. The platform is well faced on all sides with a maximum height of 3.0 feet. There is a possible water channel diversion oriented north to south" (Hammatt and Folk 1980:116).

FEATURE B: Platform**DIMENSIONS:** 6.00 m by 2.40 m by 0.90 m (approx.)

Feature B is roughly rectangular-shaped and is paved with boulders. The faces utilize large upright boulder slabs.

SITENO.: State: 7835 Soehren:—BPBM:—PHRI:—**SITE TYPE:** Complex (3 Features)**TOPOGRAPHY:** Slightly sloping aa pahoehoe flows**VEGETATION:** Kiawe, koa-haole, grasses**CONDITION:** Poor-fair**INTEGRITY:** Unaltered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Ceremonial-burial**DESCRIPTION:** Overall complex area measures c. 30.0 m (N-S) by 23.0 m (E-W).**FEATURE A: Platform****DIMENSIONS:** 6.00 m by 6.00 m by 1.50 m (approx.)

"Feature A is a probable burial platform/mound rectangular in shape...It is constructed with aa boulders and well faced on the north and east sides, although slightly collapsing on the west and south sides" (Hammatt and Folk 1980:83).

FEATURE B: Platform
DIMENSIONS: 6.00 m by 6.00 m by 1.00 m (approx.)

"Feature B is a platform...with a rough paving of pebbles, cobbles, and boulders. The platform is faced on the makai side but is generally in good [fair] condition" (Hammatt and Folk 1980:83).

FEATURE C: Mounds
DIMENSIONS: 3.60 m by 3.60 m by 0.75 m (approx.)

Constructed of aa boulders and cobbles. Mounds are raised and are not faced. Additional mounds, probably burials, in the immediate vicinity.

SITENO.: State: 7836 Soehren: —BPBM: —PHRI: —
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Kiawe, koa-haole, portulaca, and grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 30.0 m (N-S) by 23.0 m (E-W)

FEATURE A: Platform
DIMENSIONS: 35.00 m by 9.00 m by 0.90 m (approx.)

"Feature A is a large platform 30.0 by 115 feet, by 1.5 to 3.0 feet high. There are two fireplaces [not relocated by Allen 1984] atop the platform surface; the pavement on them of cobbles and boulders is fairly level. The rest of the platform surface is a rough pavement of boulders and cobbles" (Hammatt and Folk 1980:116). May be a double platform.

FEATURE B: Platform
DIMENSIONS: 4.60 m by 3.00 m by 0.30 m (approx.)

"Feature B is a low platform 10.0 by 15.0 feet, 1.0 feet high, with midden scatter near and makai of Feature A" (Hammatt and Folk 1980:116).

FEATURE C: Papamu
DIMENSIONS: 1.10 m by 0.00 m by 0.60 m (approx.)

"Feature C is a papamu situated within a very flat pahoehoe bedrock outcrop. Some of the game stones are scattered nearby. The papamu measures 2.0 by 3.5 feet, 8 rows by 14 rows accordingly" (Hammatt and Folk 1980:117).

SITENO.: State: 7837 Soehren: —BPBM: —PHRI: —
SITE TYPE: Platform with lava tube
TOPOGRAPHY: Somewhat flat aa and pahoehoe flow
VEGETATION: Kiawe, koa-haole, portulaca, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 18.00 m by 6.00 m by 1.80 m (approx.)
DESCRIPTION: "This is a probable burial tube with its opening in the center of a raised platform situated on a low bluff. The platform is roughly rectangular in shape, 20 by 20 feet with a maximum height of 5.0 to 6.0 feet, and is well faced on the makai side. A possible posthole was located in the northwest corner. The tube entrance measures 2.0 by 4.0 feet. The floor of the tube is 6.0 feet below the platform surface. The platform surface is pebble and cobble paved, with waterworn pebbles and coral on the surface. Within the tube are a scatter of (human) bone fragments and some shell midden. Within the tube, at one time, there might have been a low platform near the tube entrance, now dismantled" (Hammatt and Folk 1980:83).

Allen (1984) did not follow the lava tube to the end and therefore was not able to verify the burial mentioned by Hammatt and Folk (1980). According to Allen the interior of the cave is rocky with a waterworn cobble on the surface. Coral cobbles, waterworn boulders, cowrie and a large bivalve also present.

SITENO.: State: 7838 Soehren: —BPBM: —PHRI: —
SITE TYPE: Complex (6 Features)
TOPOGRAPHY: Undulating aa and pahoehoe flows
VEGETATION: Kiawe, koa-haole, portulaca, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 53.0 m (N-S) by 30.0 m (E-W)

FEATURE A: Enclosure
DIMENSIONS: 6.70 m by 4.60 m by 0.60 m (approx.)

"Feature A is a partial enclosure with a platform on one side...The enclosure is open at the makai side, however it may have been closed in at one time. Perhaps rock stealing occurred in building the Great Wall of Kuakini. The mauka wall is 2 feet high by 3 feet wide of stacked pahoehoe boulders. The north and south walls are 3 to 5 feet long, 1 to 2 feet high, and 3 feet wide, of stacked pahoehoe boulders.

Midden is scattered makai of the enclosure. The platform adjoins the south wall. The platform measure 10.0 by 10.0 feet, with a rough boulder pavement" (Hammatt and Folk 1980:117).

Waterworn cobbles and one piece coral are present on structure.

FEATURE B: Cobble pavement
DIMENSIONS: 5.50 m by 3.70 m by 0.00 m (approx.)

"Feature B is a 12 by 18 foot cobble pavement. Some aligned stones outline the pavement edges. Coral and waterworn pebbles are scattered atop the pavement surface". Four possible post holes are located on this pavement" (Hammatt and Folk 1980:117).

FEATURE C: Enclosure
DIMENSIONS: 6.00 m by 4.60 m by 0.45 m (approx.)

"Feature C is an enclosure measuring 15 by 20 feet. The walls have been almost completely dismantled, with just a low course of boulder alignment left. The interior of the enclosure features a level dirt and pebble pavement. A possible hearth area is in the interior and midden was visible on the surface. The surrounding area of this site is cobble paved" (Hammatt and Folk 1980:117).

FEATURE D: Cobble pavement
DIMENSIONS: 7.60 m by 6.00 m (approx.)

"Feature D is a triangular-shaped 20 by 25 foot low pavement, similar to 7838B. It is cobble paved with many loose boulders on the surface, along with waterworn stones, coral, and midden. North of Feature D is another paved and faced area which measures 15.0 by 20.0 feet [6.0 by 4.6 m] adjoining the triangular pavement. It is faced on the west and south edges, is 1.0 to 1.5 feet [0.3 to 0.45 m] high, and is cobbled paved" (Hammatt and Folk 1980:117).

FEATURE E: Platform
DIMENSIONS: 10.70 m by 7.60 m by 0.50 m (approx.)

"Feature E is a large platform built on a low bluff directly mauka of 7838A and 7838C. It is rectangular in shape and measures 25.0 to 35.0 feet. Walls have a double alignment, indicating that they were probably core filled and much higher than at present (dismantled). The center of the platform area is dirt and pebble paved with two interior alignments. A low adjoining platform, 8.0 by 10.0 feet, extends from the southeast corner of the major platform" (Hammatt and Folk 1980:117,118).

FEATURE F: Cobble pavement/platform
DIMENSIONS: 3.20 m by 3.20 m by 0.00 m (approx.)

This feature was identified on ARCH Topographic Map 1"=50' as 7839F and was not described. It appears to be a square platform or cobbled area constructed of boulders and cobbles.

SITENO.: State: 7839 Soehren: — BPBM: — PHRI: —
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Kiawe, koa-haole, portulaca, grasses
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation-ceremonial-burial
DESCRIPTION: Overall complex area measures c. 30.0 m (N-S) by 15.0 m (E-W)

FEATURE A: Cave
DIMENSIONS: 3.00 m by 1.50 m by 0.90 m (approx.)

"Feature A consists of two blister shelters. The larger shelter entrance measures 5.0 feet wide, 3.0 feet high, and 10 feet deep. The entrance has been modified with a low wall. Kukui and shell fish remains are scattered about the dirt floor. Six feet to the south is a smaller blister featuring a possible cupboard area. No midden/cultural material visible on the surface" [of this smaller blister] (Hammatt and Folk 1980:118).

FEATURE B: Platform
DIMENSIONS: 6.00 m by 5.50 m by 0.80 m (approx.)

"Feature B is a platform roughly rectangular in shape, measuring 18.0 by 25.0 feet, with waterworn stones on cobble pavement. The makai side is 2.5 feet high; the mauka, 1.0 feet" (Hammatt and Folk 1980:118).

FEATURE C: Platform
DIMENSIONS: 7.60 m by 4.60 m by 0.60 m (approx.)

"Feature C is a platform 15 by 25 feet, 2.0 feet high, and is cobble paved. Atop the north end of this platform is a similar platform, cobbled paved, 6.0 by 6.0 feet by 1.0 foot high, thought to be a possible burial. Five feet makai of Feature C is a small paved area 8.0 by 8.0 feet; coral and waterworn stones are scattered atop this cobble pavement" (Hammatt and Folk 1980:118).

SITENO.: State: 7840 Soehren:—BPBM: —PHRI: —
SITE TYPE: Terrace
TOPOGRAPHY: Gently sloping pahoehoe flow
VEGETATION: *Kiawe*, *koa-haole*, portulaca, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial
DIMENSIONS: 2.5 m by 2.5 m by 1.5 m (approx.)
DESCRIPTION: "This site is a small platform [terrace] which measures 8.0 by 8.0 feet with a maximum height of 5.0 [0.5] feet on the makai side. It features a cobble and pebble paving with waterworn pebbles atop its surface" (Hammatt and Folk 1980:94).

"Site 7818 Trail runs south of the site, and southern edge of trail has a small lava bubble that could have been used as a cupboard" (Hommon and Rosendahl Field Records 1983). Site 7840 may be a grave monument (Hommon and Rosendahl 1983:116).

SITENO.: State: 7841 Soehren: 10, 11 BPBM: —PHRI:
SITE TYPE: Complex (5 Feature)
TOPOGRAPHY: Fairly level but rocky pahoehoe flow
VEGETATION: *Kiawe*, *koa-haole*, monkeypod, portulaca, grasses
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-habitation
DESCRIPTION: Overall complex area measures c. 46.0 m (N-S) by 30.0 m (E-W). This is a large complex structure and possible high status residence with interpretive development potential. Features A, B, and C are connected to each other and may be considered as one site. Approx. 8.0 m east of Site 7841A is a paved (2.0 m x 3.0 m) area. West of Sites 7841 B and 7841C are more depressions, a pavement, and terracing.

FEATURE A: Platform
DIMENSIONS: 23.00 m by 6.00 m by 1.50 m (approx.)

According to Hammatt and Folk (1980:118) and Hommon and Rosendahl (1983) Feature A is a well-stacked platform (raised on four sides) of angular basalt boulders and cobbles. The platform is level and is possibly paved with angular basalt boulders, cobbles, and pebbles. Several depressions/pits are present on the surface.

A boulder alignment oriented N-S begins c. 3.0 m west of the northeast corner and ends at a raised area (6.0 m by 3.0 m by 0.45 m high) of the platform. A... "few waterworn

basalt pebbles are on this surface. A low wall or possible ramp extends from the northwest corner to B platform's northeast corner. It is well built, boulder constructed, 2.0 to 3.0 feet wide, 1.0 to 3.0 feet high, and 40.0 feet long. The ramp wall extends 28 feet and encloses the east and north sides of Feature B platform" (Hammatt and Folk 1980:118).

This wall ends "...a short way from the Kuakini Wall. A short dog-leg to the northwest at the end suggests that the wall might have once connected to its counterpart running east from Papakoholua heiau; the missing portion might have been robbed to build the Kuakini Wall" (Soehren 1979:4).

FEATURE B: Platform
DIMENSIONS: 10.00 m by 8.00 m by 0.85 m (approx.)

According to Hommon and Rosendahl (1983), the platform is constructed of upright facings on the west, and a wall on the north edge and part of the east edge. The platform interior surface is level to slightly sloping. The surface appears to be paved with angular basalt boulders, cobbles, and pebbles. Possible firepit consisting of ashly soil on bedrock present in the NE corner. A stepped terrace (5.5 by 3.6 m) just exterior of the west face. Waterworn cobbles present on structure.

FEATURE C: Platform
DIMENSIONS: 12.00 m by 5.00 m by 0.80 m (approx.)

According to Hommon and Rosendahl Field Records (1983), Feature C is a rubble platform of angular basalt boulders, cobbles, and pebbles. Raised but not faced with rubble walls along the south and east edges. Possibly stepped toward the east end of the platform and appears paved with angular pebbles. Waterworn cobbles and one waterworn boulder present on the structure.

"A very disturbed feature, apparently a series of three platforms each about two fathoms square, adjoining and descending from mauka to makai about one foot each. A collapsed wall two feet high and wide runs along the east and south sides. Many waterworn pebbles and cobbles are scattered about. The feature is almost physically connected to the base of the heiau at the latter's southwest corner, and may even be a part of it. The possible remains of still another platform about two fathoms square lie a few yards to the south" (Soehren 1979:4). A crudely walled depression is present on the south side of Feature C.

FEATURE D: Boulder filled area
DIMENSIONS: 7.00 m by 5.00 m (approx.)

"This feat[ure] was id[entified] on ARCH [Topographic Map 1"=50'] map but not described. It consists of a large boulder filled lava collapse. There is a wall/alignment along the W (4 m long) and S (5.0 m) [ends]. The central area is rubbly and uneven" (Allen Field Records 1984). The wall is 1.4 m wide and 0.6-1.0 m high.

FEATURE E: Terrace

DIMENSIONS: 3.00 m by 2.50 m by 0.40 m (approx.)

"Downslope [of 7841D] ca. 7.0 m is a small terrace not recorded by ARCH which measures 4 m (E-W) by 4 m (N-S) and is built with a boulder facing and pebble/cobble fill" (Allen Field Records 1984).

SITE NO.: State: 7842 Soehren: 12 BPBM: — PHRI:

SITE TYPE: Complex (2 Features)

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Kiawe, koa-haole, kolu, portulaca, grasses

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DESCRIPTION: Overall complex area measures c. 15.0 by 15.0 m. According to Allen (1984) there appears to be additional minor modifications in area, possibly agricultural.

FEATURE A: Terrace

DIMENSIONS: 9.00 m by 6.00 m by 1.20 m (approx.)

"Feature A platform [terrace] is [boulder/]cobble paved. A stacked boulder wall extends 30 feet from the northeast corner of the platform [terrace]" (Hammatt, Folk 1980:94).

Situated on a ridge; the surface is somewhat rough and sloping. The walls are mostly collapsed. Another terrace face present downslope to the SW.

FEATURE B: Walled depression

DIMENSIONS: 1.50 m by 1.50 m by 0.45 m (approx.)

"Feature B is a walled depression. The wall is on the west side of the depression" (Hammatt, Folk 1980:95).

Walls constructed of blocky basalt boulders and cobbles crudely stacked 2-3 courses high. The wall width is 2.0 m and the height is 0.65 m.

SITE NO.: State: 7843 Soehren: 13 BPBM: — PHRI:

SITE TYPE: Terrace

TOPOGRAPHY: Sloping aa and pahoehoe flows

VEGETATION: Kiawe, kolu, koa-haole, portulaca, 'opiuna, grasses

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation-Ceremonial

DIMENSIONS: 6.40 m by 4.60 m by 0.50 m (approx.)

DESCRIPTION: "This is a platform [terrace] which measures 15 by 21 feet, featuring a rough paving of cobbles, boulders, and pebbles. The platform [terrace] is in poor condition, with sloping edges [on the N and W sides] and no definite facing. A [natural] depression 3 by 3 feet and 1.0 foot deep is in the middle of the mauka [east] portion of the platform" (Hammatt and Folk 1980:95).

"Some flat boulders suggest it once had an even paving. [It is] built against a natural slope to the S and E" (Allen Field Records 1984).

According to Soehren (1979:4,5): "Grave site. A vague heap of rubble on the pahoehoe, about 1 x 1 1/2 fathoms north-south, with no facings or alignments. The surface is covered with small lava pebbles, including one waterworn."

SITE NO.: State: 7844 Soehren: 15 BPBM: — PHRI:

SITE TYPE: Terrace

TOPOGRAPHY: Sloping aa and pahoehoe

VEGETATION: Kiawe, kolu, koa-haole, portulaca, grasses

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation-Ceremonial

DIMENSIONS: 6.00 m by 5.00 m by 0.45 m (approx.)

DESCRIPTION: The overall site area measures 22.0 m (N-S) by 15.0 m (E-W). "Site 7844 is a large paved area bounded by a bedrock outcrop to the east. The makai side is parallel to and 15 feet mauka of the Kuakini Wall. It is roughly paved with pebbles, cobbles, and boulders, with midden scatter between pavement and the Kuakini Wall. Some waterworn stones and historic glass are present on the surface pavement" (Hammatt, Folk 1980:95).

According to Allen Field Records (1984), five pieces of coral, two possible hammerstones, two cowrie, one conus, and five waterworn cobbles were present on the terrace surface. Also located at the site was a hearth.

According to Soehren (1979:5): "Grave site. A rubble filled area about 3 fathoms square, with many waterworn pebbles and vague stone alignments on the south and west sides, lies on the mauka side of the Kuakini Wall, above the house site."

SITENO.: State: 7845 Soehren: — BPBM: — PHRI: —
SITE TYPE: Mound
TOPOGRAPHY: Sloping aa and pahoehoe flows
VEGETATION: *Kiawe, koa-haole, kolu, portulaca, grasses*
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 3.00 m by 3.00 m by 1.20 m (approx.)
DESCRIPTION: "Ahu, 10 feet in diameter, 4 feet high, of stacked boulders. A possible burial site" (Hammatt and Folk 1980:150).

According to Allen Field Records (1984) "It is located on open level aa pebble-cobble area (probably natural) at end of wall [no site designation]. May be part of or associated with wall (i.e., a boundary marker). One waterworn cobble on open area. Located ca. 5 m [from the site?] is a small tube which may contain one or more burials. Flagged with 3 red streamers. Did not fully explore. Inside [the tube] is a large upright slab to W and a coral cobble associated with a rubble pile. The east end looks like it may have once been sealed as well."

SITENO.: State: 7846 Soehren: — BPBM: — PHRI: —
SITE TYPE: Lava tube
TOPOGRAPHY: Sloping aa and pahoehoe flows
VEGETATION: *Kiawe, koa-haole, kolu, portulaca, grasses*
CONDITION: Fair
INTEGRITY: Unaltered-possibly altered (by pot hunters)
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation-ceremonial-burial
DIMENSIONS: 46.00 m by 7.60 m (approx.)
DESCRIPTION: "This site features a sink and lava tube system. The sink opening is 30 feet in diameter and 15 feet deep. The entrance is well faced, 4.0 wide, with two steps leading down into the tube. The interior of the sink has been totally modified with two walls and leveled cobble and pebble-paved areas. The lava tube continues makai for 85 feet, then continues another 80 feet narrowing considerably. At least four major holes by pothunters. The mauka portion of the tube is very narrow and relatively short, containing disturbed burials. Dense midden scatter" (Hammatt, Folk 1980:141)(Figure A-7. According to Allen Field Records (1984), coral abraders identified.

SITENO.: State: 7847 Soehren: — BPBM: — PHRI: —
SITE TYPE: Platform
TOPOGRAPHY: Rocky and undulating pahoehoe and aa flows
VEGETATION: Dense *koa-haole*, one monkeypod, grasses
CONDITION: Poor-fair

INTEGRITY: Unaltered-possibly altered (pot hunters)
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 7.00 m by 5.00 m by 1.00 m (approx.)
DESCRIPTION: "This site features a probable burial/ mound and platform. The main platform measures 12 by 12 feet with a maximum height of 4.0 feet. It is well faced on the makai and south side, and somewhat collapsed on the north side. The smaller platform measures 8 by 8 feet, with a maximum height of 2.0 feet and adjoins the main platform at the southeast corner. Both platforms have level surfaces of boulder and cobble pavement" (Hammatt and Folk 1980:83)(Figure A-8).

"Structure appears to have been disturbed by excavation. An area from the northwest corner to the center of the structure has been backfilled" (Hommon and Rosendahl Field Records 1983).

"Hammatt et al. (1981:80, 73; Figure 26, p.72) report having excavated a test trench in the higher section. They encountered (presumably human) bones, but apparently did not expand the excavation or remove the skeletal material" (Hommon and Rosendahl 1983:125).

SITENO.: State: 7848 Soehren: — BPBM: — PHRI: —
SITE TYPE: Lava tube
TOPOGRAPHY: Sloping aa and pahoehoe flows
VEGETATION: *Kiawe, koa-haole, portulaca, grasses*
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 5.00 m by 3.60 m by 0.80 m (approx.)
DESCRIPTION: Tube opens to the west. Entrance c. 1.7 m wide and 0.8 m in height. "This lava tube extends 15 feet northeast. It has a low ceiling and narrows. Midden scatter present" (Hammatt and Folk 1980:141).

"Numerous coral, waterworn cobbles plus shell, pig skull, kukui, bone, five coral abraders, one basalt adze fragment, one grooved coral, and hammerstone present on surface. On Kuakini Wall, directly opposite opening is a large coral abradar and what appears to be the handle of a basalt poi pounder. Some evidence of previous pothunting, but limited" (Allen Field Records 1984).

SITENO.: State: 7962 Soehren: — BPBM: — PHRI: —
SITE TYPE: Lava tube complex
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: *Kiawe, koa-haole, kolu, portulaca, grasses*
CONDITION: Poor to good

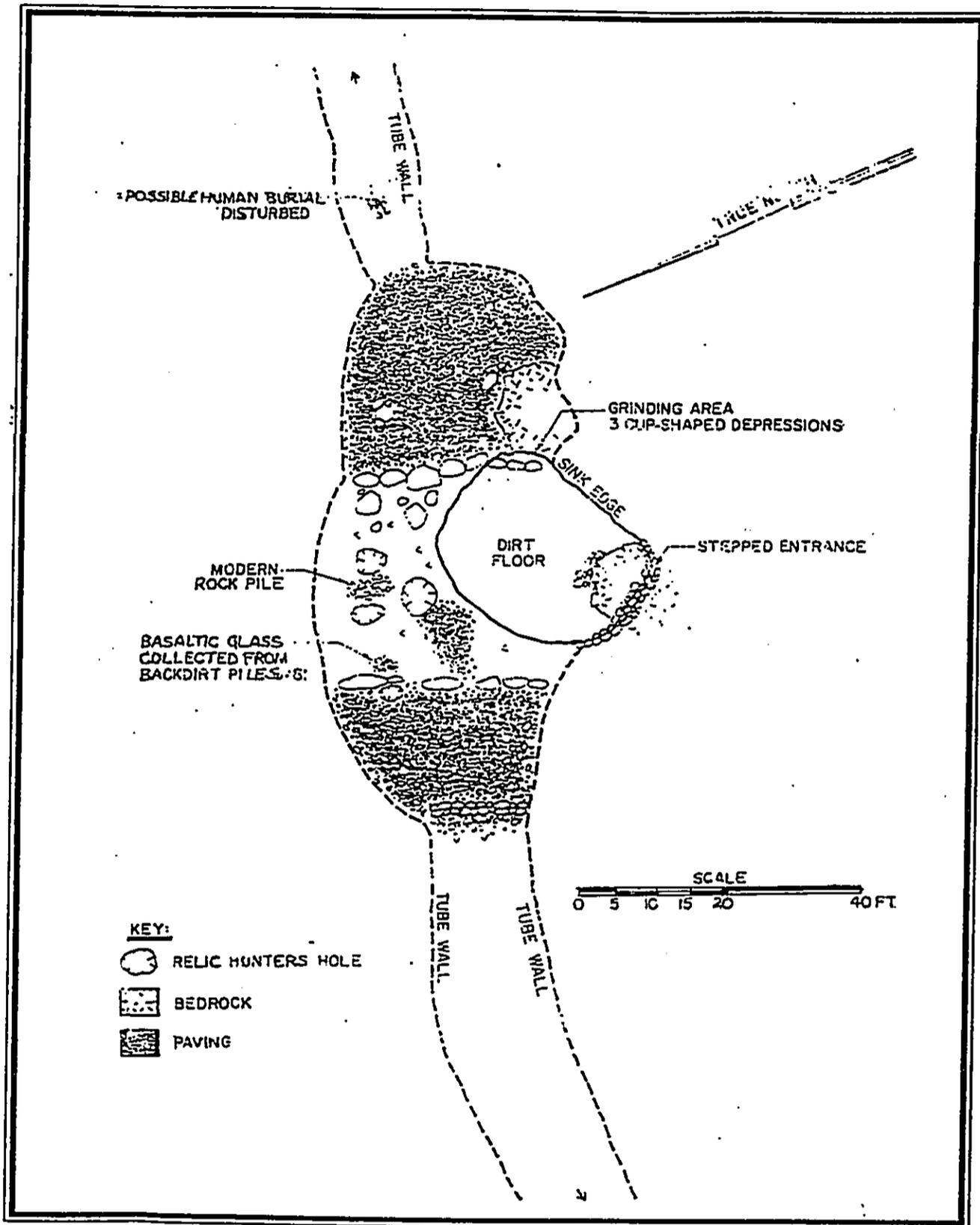


Figure A-7. SITE 7846. (Hammatt et al. 1981:571)

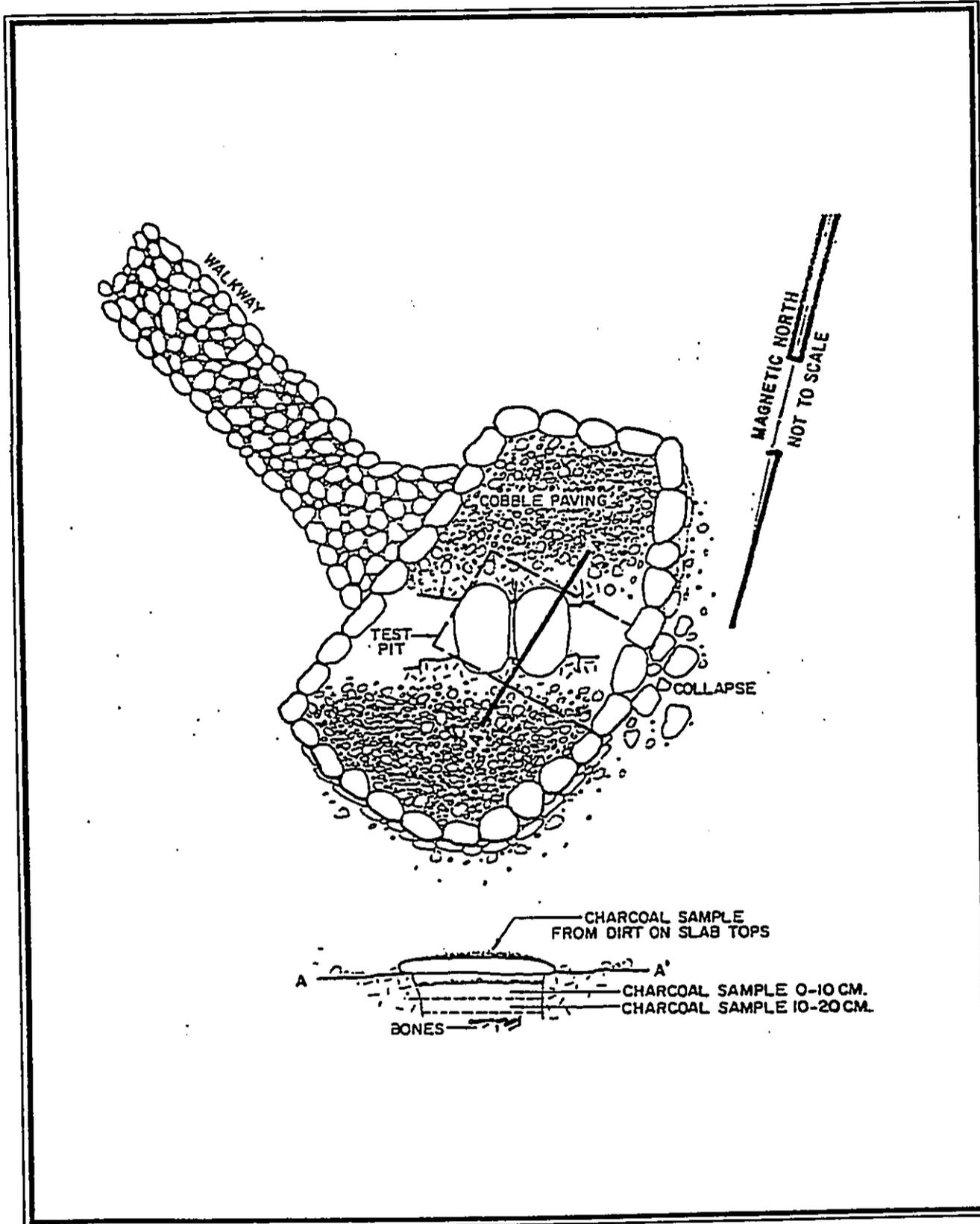


Figure A-8. SITE 7847. (Hammatt et al. 1981:72)

INTEGRITY: Altered to unaltered
PROBABLE AGE: Prehistoric to historic
FUNCTIONAL INTERPRETATION: Habitation-ceremonial-burial

DIMENSIONS: 610.00 m by 9.00 m by 6.00 m (approx.)
DESCRIPTION: This is a portion of the lava tube complex known as Ohia Cave. It is more than 610 m (approx. 2,000 feet) in length (measured westward from an entrance along Kamehameha III road). The section of the tube complex that is within the project area, varies from c. "1.5 to 9 m wide and the floor to ceiling height varies from about 1.2 to 6 m. This section of the tube contains scatters of midden material, charcoal concentrations, a few simple stone structures including terraces, alignments, and a small oval enclosure, as well as at least four human burials, covered with rocks. Some of the burials include items of metal, cloth and leather, indicating post-contact origin" (Hommon and Rosendahl 1983:120).

SITE NO.: State:— Soehren: 14 BPBM:— PHRI: 439-1
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: Undulating pahoehoe bedrock
VEGETATION: Monkeypod, koa-haole, portulaca, kiawe and kolu

CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation-ceremonial

DESCRIPTION: Overall complex area measures c. 20.0 by 20.0 m. Site complex consists of a mound (Feature A; possible burial), a terrace (Feature B), and a cave (Feature C). There is a large monkeypod tree growing out of the south edge of Feature A. A crude rock wall c. 8.0-9.0 m south of the complex leads to Site 7841-B.

FEATURE A : Mound
DIMENSIONS: 3.00 m by 2.00 m by 0.30 m (approx.)

Generally oval in plan. Constructed of blocky basalt boulders and cobbles piled 1-2 courses high. Several large boulders present on the mound perimeter and one large boulder in the center. The mound is centrally raised, but it contains no formally faced sides. Built in a soil-filled depression surrounded by pahoehoe bedrock. Large monkeypod tree growing out of south edge of mound.

"Grave site. A very rough platform 2 x 3 fathoms north-south in a depression in the pahoehoe. The surface is covered with small lava pebbles, including a few waterworn. The makai side has a facing about 1 1/2 feet high, broken down. Near the center of the mauka side someone has torn up the surface" (Soehren 1979:5).

FEATURE B : Terrace
DIMENSIONS: 3.00 m by 2.50 m by 0.50 m (approx.)

Generally square in plan. Constructed of blocky basalt boulders and cobbles. Terrace perimeter contains large boulders; interior of terrace is level and is filled with cobbles. Terrace is crudely faced and is raised (one boulder) on the north and west sides. Terrace is located 7-8.0 m south of a rock wall which leads to Site 7841-B. No portable remains and no cultural deposit visible (remains and deposit possibly present subsurface).

FEATURE C : Cave
DIMENSIONS: 4.30 m by 3.70 m by 0.90 m (approx.)

Natural lava cave with no structural modifications visible. Opens to the south; opening is 0.75 m high. The cave floor is level and on the floor is about c. 5 cm of soil. Scattered cobbles, small boulders, and sparse *Cypraea* spp. are present on the floor. One piece coral present at the cave entrance. No definite cultural deposit visible, but shell midden indicates cultural deposit probably present subsurface.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-2
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Undulating pahoehoe flow with pockets/depressions of boulder/cobble rubble
VEGETATION: Koa-haole, monkeypod, kolu, portulaca and kiawe

CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation-ceremonial

DESCRIPTION: Overall complex area measures c. 15.0 by 15.0 m. Complex consists of a platform (Feature A; possible burial) and a terrace (Feature B). Feature B located about 6.0 m from and 205 degrees Az of Fea. A.

FEATURE A : Platform
DIMENSIONS: 2.80 m by 2.80 m by 0.70 m (approx.)

Roughly square in plan with collapsing sides. Constructed of rough blocky pahoehoe boulders and cobbles stacked 3-4 courses high. Stacked and faced along some sections, collapsed and rubble in other portions. Surface is level, but slopes slightly with the topography. One to two waterworn basalt cobbles present on surface. The structural form of the feature and the lack of cultural material at the feature, suggest the feature may be a burial.

FEATURE B: Terrace**DIMENSIONS:** 6.00 m by 2.50 m by 0.45 m (approx.)

Constructed of crudely stacked blocky basalt boulders and cobbles. Contains large boulder foundation/perimeter on seaward (west) side. Raised and crudely faced on the west side. Surface is not level, but slopes slightly to the west. No definite cultural deposit visible, but deposit possibly present subsurface.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-3**SITE TYPE:** Terrace**TOPOGRAPHY:** Undulating pahoehoe**VEGETATION:** Koa-haole, portulaca, and kiawe**CONDITION:** Poor**INTEGRITY:** Unaltered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Habitation**DIMENSIONS:** 5.00 m by 5.00 m by 0.30 m (approx.)

DESCRIPTION: Constructed of crudely stacked blocky basalt boulders and cobbles. Raised slightly on the south and east sides, but not formally faced. South and west sides contain a foundation/perimeter of boulders. Portable remains include waterworn basalt boulders and marine shell midden.

No definite cultural deposit visible, but deposit probably present subsurface. Site is located c. 15.0 m south of Kona Gardens' rock wall. West of structure is a level cobble/boulder paved area c. 20.0 by 20.0 m. Incorporated into the paving are coral cobbles and waterworn basalt boulders and cobbles. A surveyor's cut line crosses over site.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-4**SITE TYPE:** Terrace**TOPOGRAPHY:** Undulating pahoehoe**VEGETATION:** Koa-haole, monkeypod, and portulaca**CONDITION:** Poor**INTEGRITY:** Unaltered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Habitation**DIMENSIONS:** 20.00 m by 6.00 m by 0.50 m (approx.)

DESCRIPTION: Roughly rectangular in plan; consists of crudely stacked blocky basalt boulders and cobbles. The terrace perimeter consists of a foundation of boulders. Portions of the platform area of the terrace are level and are basalt cobble paved; other portions consist of bedrock outcrops. Very thin soil is present on the platform area. The terrace is raised on the south side; a bedrock outcrop is present east of the terrace.

Portable remains consist of waterworn basalt pebbles, coral, and a Cypraea sp. shell. No definite cultural deposit visible, but deposit probably present subsurface. Terrace built to within c. 5.0 m of fence line and Alii Drive.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-5**SITE TYPE:** Terrace**TOPOGRAPHY:** Undulating pahoehoe**VEGETATION:** Koa-haole, monkeypod, and portulaca**CONDITION:** Poor**INTEGRITY:** Altered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Habitation**DIMENSIONS:** 10.00 m by 5.00 m by 0.60 m (approx.)

DESCRIPTION: Generally rectangular in plan. The terrace consists of stacked blocky basalt boulders and cobbles. It contains a perimeter foundation of boulders, several of which are upright. Terrace platform is paved with cobbles. Terrace is raised and crudely faced on the west and south sides. Several boulders on the south side appear disturbed.

Portable remains consist of marine shell midden, waterworn pebbles, coral, and 'ili'ili. No definite cultural deposit visible, but deposit probably present subsurface.

A previous pit/test excavation present on terrace surface. Pit measures 1.10 m by 0.75 m by 0.40 m deep.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-6**SITE TYPE:** L-shape wall**TOPOGRAPHY:** Undulating pahoehoe**VEGETATION:** Koa-haole, kiawe, and portulaca.**CONDITION:** Poor-fair**INTEGRITY:** Appears unaltered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Habitation**DIMENSIONS:** 15.00 m by 8.00 m by 0.65 m (approx.)

DESCRIPTION: Wall constructed of blocky basalt boulders (several upright) stacked 1-2 courses high by 0.90 m wide. Wall is bifaced and cobble core-filled. Walls crudely faced on both sides and collapsed in places.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-7**SITE TYPE:** Terrace**TOPOGRAPHY:** Undulating pahoehoe**VEGETATION:** Koa-haole, kiawe, kolu, and portulaca**CONDITION:** Poor**INTEGRITY:** Unaltered**PROBABLE AGE:** Prehistoric**FUNCTIONAL INTERPRETATION:** Habitation**DIMENSIONS:** 15.00 m by 15.00 m by 0.30 m (approx.)

DESCRIPTION: Generally amorphous in plan possibly due to additions to the original form. Site consists of a large fairly level area which is crudely paved with basalt boulders and cobbles. North, east, and central areas of paved area contain boulder alignments. The alignments appear to delineate separate smaller terraces.

A mound (or small collapsed platform) is present on the north portion of the site. It measures c. 2.0 by 2.0 by 0.6 m in height. Cupboard consisting of a small blister with boulder cap present west of mound. Second blister to north possibly utilized as a cupboard.

SITE NO.: State: — Soehren: — BPBM: — PHRI: 439-8
SITE TYPE: L-shape wall
TOPOGRAPHY: Aa clinker flow
VEGETATION: Christmas-berry, *koa-haole* and *kolu*
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 3.00 m by 2.50 m by 0.50 m
DESCRIPTION: L-shape is opened to the southeast. Constructed of aa clinker cobbles and boulders piled 1-2 courses high. The walls are raised slightly, but the sides are not formally faced. The walls appear collapsed in profile. Interior surface is level and consists of aa pebbles. The walls measure 0.5-0.7 m wide. Located north of Site 4618 (trail)(Figure A-9).

SITE NO.: State: — Soehren: — BPBM: — PHRI: 439-9
SITE TYPE: Wall foundation
TOPOGRAPHY: Undulating pahoehoe bedrock
VEGETATION: *Koa-haole*, *kiawe*, and dense grasses
CONDITION: Poor
INTEGRITY: Appears altered (rocks robbed from original structure)
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 22.00 m by 10.00 m by 0.60 m (approx.)
DESCRIPTION: Foundation may originally have been rectangular in plan but is presently a box C-shape. Foundation opens to the south. A short wall section (c. 2-3.0 m long) partly encloses open south side. Foundation consists of lichen-covered basalt cobbles and boulders. Portions of foundation consist of cobble fill surrounded by boulders. Several foundation boulders are placed upright.

Portable remains consist of marine shell midden, coral, waterworn cobbles, and scattered 'ili'ili (on interior surface). Brownish soil deposit at site probably contains cultural remains. Site is immediately adjacent to and inland of Ali'i Drive and a barbed-wire fence.

SITE NO.: State: — Soehren: — BPBM: — PHRI: 439-10
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Undulating aa flow and rough broken pahoehoe
VEGETATION: Dense *koa-haole*

CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 15.0 by 15.0 m. Site complex consists of a walled terrace (Feature A) and a terrace (Feature B).

FEATURE A : Walled terrace
DIMENSIONS: 6.50 m by 5.60 m by 1.10 m (approx.)

Crude terrace walled on three sides (N, S, and E)(Figure A-10); opens to the west. Wall consists of stacked blocky basalt boulders and cobbles. Portions of the wall are formally faced and other portions are collapsed. The platform of the terrace is level and consists of rubble with some soil. The terrace is raised slightly on the west side but is not faced. The west side is rounded or sloping in profile.

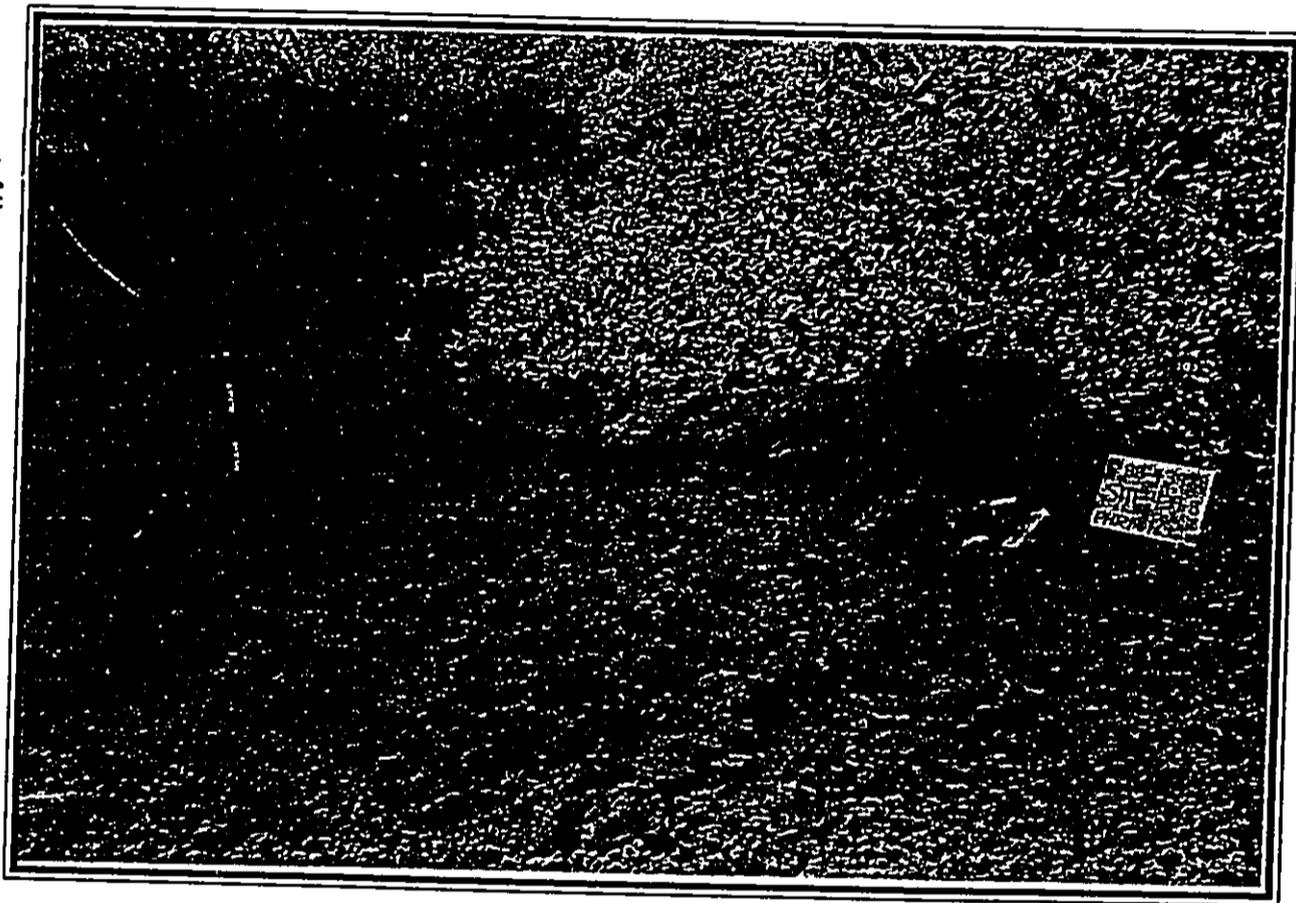
Portable remains consist of waterworn basalt boulders and cobbles, coral, and one piece of *Cypraea* sp. shell. Brownish organic soil associated with feature may contain cultural material.

FEATURE B : Terrace
DIMENSIONS: 11.00 m by 3.00 m by 0.90 m (approx.)

Terrace consists of stacked rough pahoehoe boulders and cobbles. Raised and faced on the west and south sides. Terrace platform is roughly level and is crudely paved with cobbles and pebbles.

Portable remains consist of waterworn basalt cobbles, coral, and one piece *Cypraea* sp. shell. No definite cultural deposit visible, but deposit probably present subsurface. Feature B is situated immediately south of Feature A.

SITE NO.: State: — Soehren: — BPBM: — PHRI: 439-11
SITE TYPE: Terrace
TOPOGRAPHY: Undulating aa and pahoehoe bedrock
VEGETATION: Dense *koa-haole*
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 6.00 m by 5.00 m by 1.00 m (approx.)
DESCRIPTION: Consists of stacked blocky basalt boulders and angular aa cobbles. Walls of terrace are raised and west and north walls are formally faced. Several large upright boulders are incorporated into the face. The terrace platform area is roughly level and consists of cobble fill.



*Figure A-9. SITE 439-8, L-SHAPED WALL SHELTER, VIEW TO NORTHWEST
(PHRI Neg.800-2).*



*Figure A-10. SITE 439-10, FEATURE A, WALLED TERRACE, VIEW TO NORTHWEST
(PHRI Neg.800-26).*

A small (c. 3.0 m [N-S] by 2.0 m [E-W]) terrace abuts the main terrace on the north. Waterworn basalt cobble present at site. No deposit visible, but deposit probably present subsurface.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-12
SITE TYPE: Terrace
TOPOGRAPHY: Undulating pahoehoe and aa
VEGETATION: Dense koa-haole
CONDITION: Poor
INTEGRITY: Appears altered (rocks poss. robbed and used at Site 6302)

PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 8.00 m by 5.00 m by 0.50 m (approx.)
DESCRIPTION: Site is immediately south of Site 439-13. It consists of stacked blocky basalt boulders and cobbles. Several boulders are set upright. The terrace is raised and crudely faced on the north and west sides. Crude/vague boulder alignment delineates the south side. The cobble surface is roughly level.

One piece Cypraea sp. shell on surface. No definite cultural deposit visible, but deposit probably present subsurface.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-13
SITE TYPE: Enclosure
TOPOGRAPHY: Undulating pahoehoe and aa
VEGETATION: Dense koa-haole
CONDITION: Poor-fair
INTEGRITY: Appears altered (rocks robbed for Site 6302 - Kuakini Wall)

PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 16.00 m by 16.00 m by 0.85 m (approx.)
DESCRIPTION: Enclosure is generally rectangular in plan. The wall consists of boulders and cobbles and is bifaced and cobble-filled. The wall is raised, is crudely faced, and is collapsed in places. The wall averages 1.0 m wide and the height of the wall is 0.40-0.85 m.

The northeast corner of the enclosure appears to continue under Site 6302/7276, Kuakini Wall. A blister cave is present at the site. This cave contains sandy silt; it may have been used as a cupboard. Cave should be investigated further. One piece of Cypraea and coral on enclosure surface. No definite cultural deposit visible, but deposit possibly present subsurface.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-14
SITE TYPE: Terrace
TOPOGRAPHY: Undulating pahoehoe and aa

VEGETATION: Dense koa-haole
CONDITION: Poor-fair
INTEGRITY: Possibly altered (rocks robbed for Site 6302 - Kuakini Wall)
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 2.75 m by 2.25 m by 0.35 m (approx.)
DESCRIPTION: Generally rectangular in plan. Consists of blocky basalt boulders and aa cobbles. Perimeter of terrace consists of large boulders and the platform area consists of a roughly level fill of cobbles. Terrace appears raised very slightly on the north, south, and west sides.

Possible additional feature nearby consisting of foundation stones. Vegetation at site needs to be cleared. Waterworn basalt cobbles and coral on and in vicinity of terrace.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-15
SITE TYPE: L-shape wall foundation
TOPOGRAPHY: Undulating aa and pahoehoe flows
VEGETATION: Dense koa-haole, monkeypod and vines
CONDITION: Poor

INTEGRITY: Altered (rocks probably robbed for Site 6302/7276 - Kuakini Wall)
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 20.00 m by 10.00 m by 0.70 m (approx.)
DESCRIPTION: The wall foundation consists of two parallel alignments of boulders. Cobble fill between alignments. Width of foundation is 0.6-0.9 m and foundation height is 0.2-0.7 m. Only basal stones of original wall left. Several foundation boulders are set upright. Low bedrock outcrop delineates east side of site. Waterworn coral, basalt cobbles, and one piece Cypraea sp. shell associated with foundation. Dark brownish soil deposit within L-shape wall foundation may contain cultural remains.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-16
SITE TYPE: Terrace
TOPOGRAPHY: Undulating pahoehoe and aa
VEGETATION: Large monkeypod tree in the NW corner of terrace

CONDITION: Poor
INTEGRITY: Possibly altered (rocks robbed for Site 6302/7276 - Kuakini Wall)
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 19.00 m by 8.00 m by 0.45 m (approx.)
DESCRIPTION: Terrace constructed of blocky basalt boulders, waterworn basalt boulders, and blocky cobbles. Terrace is raised on the north and west sides, but is not formally faced. The east side of the terrace is delineated by a probable wall foundation consisting of two parallel boulder alignments. Several boulders in alignments are set upright.

Interior surface of terrace consists of rocky level soil deposit. The soil deposit is very dark brown; it may contain cultural remains. *Cypraea*, *Tellina*, *Thaididae*, coral and waterworn basalt cobbles are associated with the site.

Small blister cave noted c. 15.0-20.0 m SW of terrace. A foundation alignment noted 10.0-15.0 m NW of terrace (possibly a second terrace foundation). One piece *Cellana* sp. shell and coral noted at terrace. A possible trail remnant consisting of an intermittent alignment of waterworn basalt boulders extends NNE from site.

SITE NO.: State:— Soehren:— BPBM — PHRI: 439-17
SITE TYPE: Mound

TOPOGRAPHY: Undulating aa and pahoehoe flows
VEGETATION: *Koa-haole* and monkeypod
CONDITION: Poor-fair

INTEGRITY: Appears unaltered

PROBABLE AGE: Possibly prehistoric

FUNCTIONAL INTERPRETATION: Indeterminate

DIMENSIONS: 4.50 m by 1.50 m by 0.90 m (approx.)

DESCRIPTION: The mound is generally oval in plan. It consists of crudely stacked aa boulders and cobbles. The mound is centrally raised and is very crudely faced on the inland (east) side; otherwise generally rounded or sloping in profile. The mound may be a remnant of a wall that was once part of an enclosure which utilized aa outcrops as its south, east, and north sides. Additional boulder/cobble rubble noted north of mound.

SITENO.: State:— Soehren: 2 BPBM:— PHRI: 439-18
SITE TYPE: Trail

TOPOGRAPHY: Undulating to even pahoehoe and aa flows

VEGETATION: *Kiawe*, grasses, *koa-haole*, and other exotics

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Transportation

DIMENSIONS: 122.00 m by 7.00 m (approx.)

DESCRIPTION: Identified as "*Makole-'a Trail*" on Bishop Estate maps and tax maps. The portion of the trail between Alii Drive and Pa Kuakini is bordered with stone walls. The trail varies from 10-20 feet wide. The trail undoubtedly dates to ancient times when *mauka-makai* trails were of major economic and social importance. "*Makole-'a*" is also the name of a *heiau* (HRHP 10-37-3819) near the Kona Lagoon Hotel" (Soehren 1979:3).

SITENO.: State:— Soehren: 3 BPBM:— PHRI: 439-19

SITE TYPE: Road

TOPOGRAPHY: Level bulldozed and landscaped area

VEGETATION: *Opiuma*, *philodendron*, and other exotics

CONDITION: Fair

INTEGRITY: Possibly altered

PROBABLE AGE: Prehistoric/Historic

FUNCTIONAL INTERPRETATION: Transportation

DIMENSIONS: 30.50 m by 3.70 m by 0.30 m (approx.)

DESCRIPTION: "Probably a portion of the so-called "*King's Highway*" which girdles the island near the shore and which has here been superseded by the present Alii Drive about 50 feet to the west. A section of the road over 100 feet long and 12 feet wide can be traced by the few remaining kerbstones along the mauka side. Several low places on the makai side have been built up a foot or more. Quantities of small waterworn pebbles of basalt and coral in some places, together with the unusual width, at first gave the impression of a house floor" (Soehren 1979:3). This road may also be a historic foundation.

SITE NO.: State:— Soehren: 4 BPBM:— PHRI: 439-20

SITE TYPE: Cave

TOPOGRAPHY: Fairly flat pahoehoe

VEGETATION: *Kiawe*, *portulaca*, and grasses

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 2.00 m by 1.50 m by 0.60 m (approx.)

DESCRIPTION: "Near the *Makole-'a Trail* is a very small lava blister cave with an opening in the roof. Too small and shallow, with scarcely two ft headroom to accommodate more than a child, it could have served as a temporary storage cache. A metal bucket and piece of strap iron were found inside, along with a cowry shell" (Soehren 1979:3). No definite cultural deposit visible, but possibly present subsurface.

A geometric petroglyph was noted nearby in area of *Makole-'a Trail*.

SITE NO.: State:— Soehren: 5 BPBM:— PHRI: 439-21

SITE TYPE: Lava tube

TOPOGRAPHY: Flat to undulating pahoehoe flow

VEGETATION: *Kiawe*, *koa-haole*, *portulaca*, and grasses

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 10.00 m by 2.90 m by 0.60 m (approx.)

DESCRIPTION: "A section of lava tube about 30 ft long, with its entrance on the makai (west) side of the Kuakini Wall and a small opening on the mauka side of the wall, and a few feet south of the *Makole-'a Trail*. A metal bucket and a cowry shell attest to human occupation. Its

proximity to the trail would have made it well known, and its comfortable size would have made it a convenient camping place for travelers or a cool retreat for a craftsman" (Soehren 1979:3).

SITE NO.: State:— Soehren: 17 BPBM:— PHRI: 439-22

SITE TYPE: Mound

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Unaltered

INTEGRITY: Fair

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 4.60 m by 3.70 m by 0.30 m (approx.)

DESCRIPTION: "A low mound of aa stones and pebbles, about 2 x 2 1/2 fathoms, without any structural features but with many 'ili'ili scattered about and two pieces of coral visible" (Soehren 1979:5).

SITE NO.: State:— Soehren: 21 BPBM— PHRI: 439-23

SITE TYPE: Wall

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Boundary wall

DIMENSIONS: 61.00 m by 0.70 m by 0.50 m (approx.)

DESCRIPTION: Constructed of boulders and cobbles; bi-faced and core-filled. "Very similar to, but more distinct than, feature 16, this 'wall' extends mauka and makai from the north end of Papakoholua heiau. The western end is cut off by Alii Drive, and the Pa Kuakini ends the eastern section. It may once have continued mauka to join the wall descending from feature 10" (Soehren 1979:5). Feature 16 (Soehren's Site 16) referred to in Soehren's description was not located during present survey. Feature 10 (Soehren's Site 10) is also Site 7841A.

SITE NO.: State:— Soehren: 23 BPBM:— PHRI: 439-24

SITE TYPE: Bedrock mortar

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Good

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 0.20 m by 0.20 m by 0.15 m (approx.)

DESCRIPTION: "This poho, about eight inches in diameter and six inches deep, is rather far removed from any habitation site" (Soehren 1979:5). Another bedrock mortar (Soehren's Site 33) has not been relocated. It may have been covered or destroyed.

SITE NO.: State:— Soehren: 24 BPBM:— PHRI: 439-25

SITE TYPE: Platform

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 2.40 m by 2.40 m by 0.90 m (approx.)

DESCRIPTION: Generally collapsed in appearance. "A stone platform eight feet square and three feet high, faced with large stones and filled with small rubble, stands on a slight eminence below the Pa Kuakini. The north and west sides have collapsed. It is typical of several grave monuments in the area, and could easily be repaired for interpretation" (Soehren 1979:6).

SITE NO.: State:— Soehren: 25 BPBM:— PHRI: 439-26

SITE TYPE: Cobble-filled area

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 5.50 m by 3.70 m (approx.)

DESCRIPTION: "A depression in the pahoehoe, about 2 x 3 fathoms, is filled with small rubble, including several waterworn stones and pebbles, some coral and a cowry shell fragment" (Soehren 1979:6).

SITE NO.: State:— Soehren: 27 BPBM— PHRI: 439-27

SITE TYPE: Platform

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

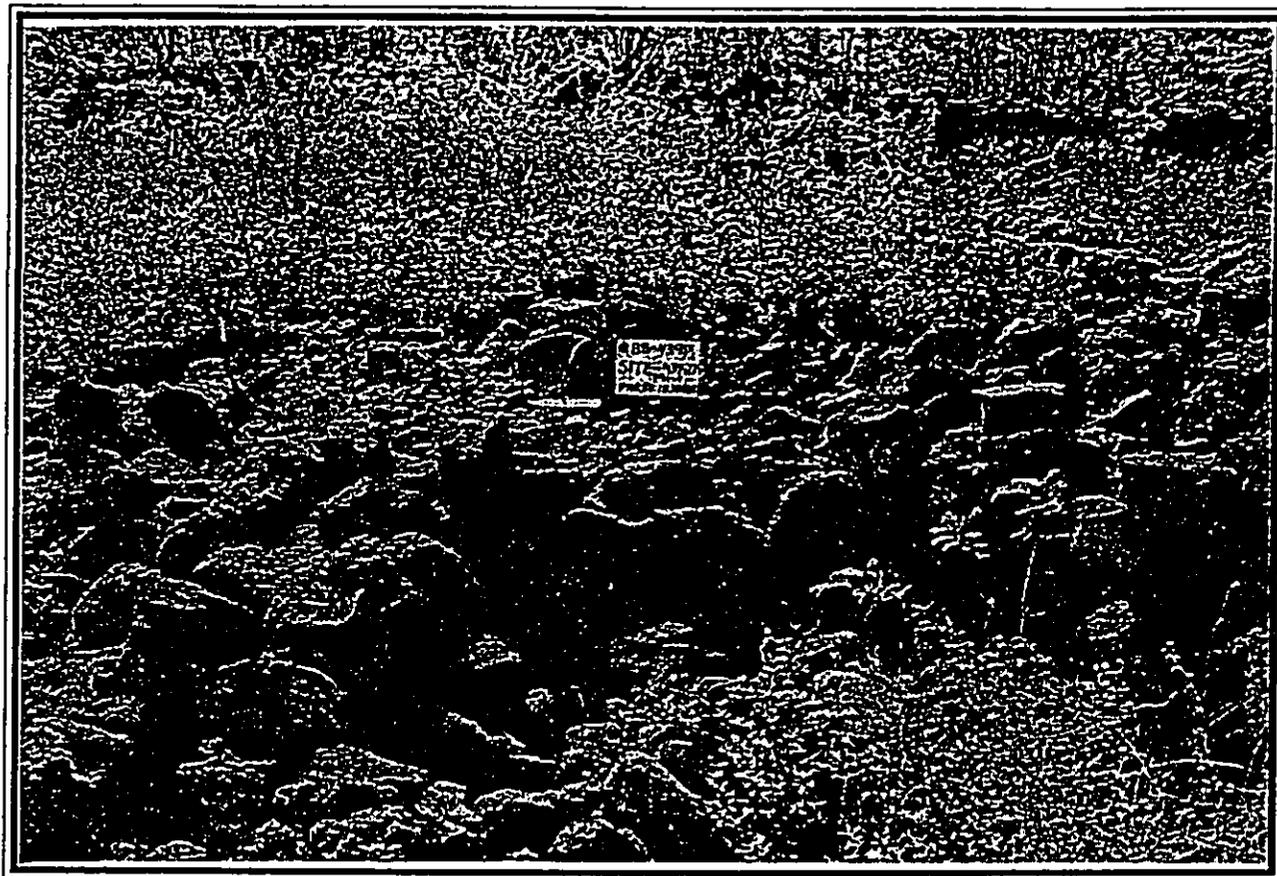
CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DESCRIPTION: The overall complex area measures



*Figure A-11. SITE 439-27, HOUSE PLATFORM, VIEW TO NORTHEAST
(PHRI Neg.800-32).*

approximately 15-20 m N-S by E-W. Feature A is a habitation platform (Figure A-11) and Feature B is a lava tube/cave shelter.

FEATURE A: Platform

DIMENSIONS: 9.00 m by 5.50 m by 1.00 m (approx.)

"Situated on a rise overlooking the heiau and with a clear view in all directions is the only house site found in the park area. It is a platform 3 x 5 fathoms, oriented east-west, built around a flat pahoehoe ledge extended by terracing [on] the south and west sides. Large stones were used in the facings, one in the center of the south side being at least three feet square and a foot and a half thick. The southwest corner has collapsed but can easily be repaired. A substantial though rough stone wall, two to four feet high, extends three fathoms west from the north-west corner of the platform, then turns southwest and south to embrace a level area which may have accommodated another house. There is considerable coral, shell and 'ili'ili on the surface. A similar level area lies a few yards south of the platform. The site thus might have contained three or more houses, making it a kauhale or residential compound of a person of rank, perhaps a priest of the nearby heiau" (Soehren 1979:6).

An adze and a whetstone fragment were noted on the platform surface. Also present, was a slab-lined hearth.

FEATURE B: Lava tube

DIMENSIONS: 3.00 m by 3.00 m by 0.70 m (approx.)

"At the end of the stone wall is the entrance to a deep lava tube, partially filled with loose rubble which makes entry awkward. The accessible portion does not appear habitable, and the few shell fragments, waterworn stones and coral fragments [present in the tube] have been thrown in. The tube descends sharply and should be examined further" (Soehren 1979:6).

The tube opening measures c. 1.5 m east-west by 0.6-0.7 m high. The tube opens to the northeast. No cultural deposit visible, but deposit possibly present subsurface on cave floor.

SITE NO.: State:—Soehren: 26 BPBM:—PHRI: 439-28

SITE TYPE: Cobble-filled area

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 5.50 m by 3.70 m by 0.00 m (approx.)

DESCRIPTION: "Similar [to Soehren's Site 25 and PHRI 439-26], about 2 x 3 fathoms, but fewer waterworn pebbles. The butt of a quadrangular adz was found on the surface. It is 1.87 inches wide, 1.1 inches thick and 1.75 inches long" (Soehren 1979:6). Coral present.

SITE NO.: State:—Soehren: 28 BPBM:—PHRI: 439-29

SITE TYPE: Terrace

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 12.00 m by 8.00 m by 1.00 m (approx.)

DESCRIPTION: "Built in a depression in the pahoehoe, about 1 1/2 x 2 fathoms and with a partially collapsed facing one and a half feet high on the west" (Soehren 1979:6). Coral is present on the terrace surface. May have functioned as a habitation site.

SITE NO.: State:—Soehren: 29 BPBM:—PHRI: 439-30

SITE TYPE: Terrace

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 5.50 m by 3.00 m by 0.90 m (approx.)

DESCRIPTION: "At the head of an aa flow channel (mawae) and partly in a depression is a platform three fathoms long north-south, filled with small rubble and of indeterminate width, with its west side faced with large aa boulders to a height of three feet. Many waterworn pebbles are scattered about. The structure may be a complex of several smaller, adjoining features" (Soehren 1979:6).

SITE NO.: State:—Soehren: 31 BPBM:—PHRI: 439-31

SITE TYPE: Terrace

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 5.50 m by 3.00 m by 0.60 m (approx.)

DESCRIPTION: "On the north bank of the *mawae* is another camp site, with a terrace facing three fathoms long and two feet high, partly collapsed. The southwest corner is paved with 'ili'ili" (Soehren 1979:7).

SITE NO.: State:— Soehren: 30 BPBM:— PHRI: 439-32

SITE TYPE: Leveled area/possible terrace

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 2.70 m by 2.70 m by 0.00 m (approx.)

DESCRIPTION: "On the south bank of the *mawae*, on a small promontory, is a leveled area about 1 1/2 fathoms in diameter with a smaller portion paved with 'ili'ili. Many cone and cowry shells, and pieces of coral, are scattered about. It is probably a temporary camp site, such as might have been used by mauka residents when visiting or working near the shore" (Soehren 1979:6). Site type may also be a possible terrace.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-33

SITE TYPE: Platform

TOPOGRAPHY: Undulating aa flow

VEGETATION: Koa-haole, noni, monkeypod

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 4.00 m by 3.00 m by 0.60 m (approx.)

DESCRIPTION: Low rectangular platform; consists of crudely stacked blocky basalt boulders and aa cobble fill. Perimeter of platform consists of boulders and a cobble fill. Portions of the platform are crudely faced. A crude wall or terrace extends SW from the platform. A waterworn basalt boulder and wood (2x4) blocks are also present. The site is located c. 10.0 m SE of Soehren's Site 41 (PHRI 439-34). No definite cultural deposit visible, but deposit possibly present subsurface.

SITE NO.: State:— Soehren: 41 BPBM:— PHRI: 439-34

SITE TYPE: Platform

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Fair-good

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 7.30 m by 3.70 m by 1.20 m (approx.)

DESCRIPTION: "Atop the south bank of the *mawae* is a well built platform 2 1/2 x 3 fathoms east-west with well made facings and filled with small rubble. In the center is pavement of 'ili'ili and coral about 1 x 1 1/2 fathoms. Some parts of the facings have collapsed but can easily be repaired. About three feet makai is an unfinished structure 3 x 3 fathoms, outlined by unfinished walls two feet high and wide, faced with slabs of lava" (Soehren 1979:7,8).

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-35

SITE TYPE: Terrace

TOPOGRAPHY: Located along the NE edge of a hill. A flat and level grass and soil area present to the northeast

VEGETATION: Dense grasses and vines

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 11.00 m by 6.50 m by 0.80 m (approx.)

DESCRIPTION: Natural raised bedrock area roughly oval in plan; abutting the NE edge of a hill. Level aa cobble-filled area with scattered waterworn basalt cobbles and 'ili'ili on the surface. No definite cultural deposit visible, but deposit may be present subsurface.

SITE NO.: State:— Soehren: 42 BPBM:— PHRI: 439-36

SITE TYPE: Platform

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 5.50 m by 4.50 m by 0.90 m (approx.)

DESCRIPTION: "On the south side of the floor of the *mawae* is a platform 2 x 2 fathoms, two feet high, well paved with small pebbles. Most of the facings have collapsed" (Soehren 1979:8). Upright slab facings present on the west and south sides.

SITE NO.: State:— Soehren: 40 BPBM:— PHRI: 439-37

SITE TYPE: Platform

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Fair

- INTEGRITY:** Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 7.30 m by 3.70 m by 1.20 m (approx.)
DESCRIPTION: "Although virtually a continuation of the foregoing, [Soehren's Site 39 and PHRI 439-38] this structure has more the appearance of a grave site than of a camp. The south terrace facing is four fathoms long and up to four feet high, continuing the south side of feature 39 [Soehren's Site 39 and PHRI 439-38], while the west side is two fathoms long and two feet high. It is filled with small rubble, including many waterworn stones and pebbles, and has some coral on top. Along the north side is a rough wall of single large stones piled two feet high, and one fathom long" (Soehren 1979:7). Midden also noted on surface. Associated with 439-38 and 439-39 as one large stepped terrace complex.
- SITE NO.:** State:—Soehren: 39 BPBM:—PHRI: 439-38
SITE TYPE: Terrace
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 6.40 m by 1.80 m by 0.90 m (approx.)
DESCRIPTION: "A few yards makai is another camp site, with a terrace facing 3 1/2 fathoms long, three feet high, overlooking the mawae, and one fathom long, one foot high on the makai side. The surface has many waterworn pebbles and stones, shells and a smooth sitting stone" (Soehren 1979:7). Associated with 439-37 and 439-38 as one large stepped terrace complex.
- SITE NO.:** State:—Soehren: 38 BPBM:—PHRI: 439-39
SITE TYPE: Terrace
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 5.50 m by 1.80 m by 0.90 m (approx.)
DESCRIPTION: "On the north bank of the mawae is a terrace two to three feet high and three fathoms long by about one fathom wide, built against a pahoehoe flat to enlarge it. Many waterworn stones and pebbles, some coral and shell are scattered about" (Soehren 1979:7). Associated with 439-37 and 439-38 as one large stepped terrace complex.
- SITE NO.:** State:—Soehren: 36 BPBM:—PHRI: 439-40
SITE TYPE: Papamu
TOPOGRAPHY: Fairly level pahoehoe bedrock
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Good
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Recreation
DIMENSIONS: 0.50 m by 0.50 m by 0.00 m (approx.)
DESCRIPTION: "A fine, large "checkerboard" for the old game of konane is cut into a vesicular pahoehoe outcrop near the camp sites. It has 12 rows of 13 holes each" (Soehren 1979:7).
- SITE NO.:** State:—Soehren: 37 BPBM:—PHRI: 439-41
SITE TYPE: Cobble filled area
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 2.70 m by 2.70 m by 0.00 m (approx.)
DESCRIPTION: "A rubble filled depression in the pahoehoe about 1 1/2 fathoms in diameter has waterworn pebbles and a cowry fragment on it" (Soehren 1979:7).
- SITE NO.:** State:—Soehren: 34 BPBM:—PHRI: 439-42
SITE TYPE: Cobble filled area
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 3.60 m by 1.80 m by 0.00 m (approx.)
DESCRIPTION: "In a depression in the pahoehoe is a rubble filled area about 1 x 2 fathoms. The west side is marked by an alignment of single stones about one foot high. Some coral and shell fragments and many waterworn pebbles are in the area" (Soehren 1979:7).
- SITE NO.:** State:—Soehren: 35 BPBM:—PHRI: 439-43
SITE TYPE: Bedrock mortar
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Good

INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 0.25 m by 0.20 m by 0.15 m (approx.)
DESCRIPTION: "Another, larger poho, elliptical, eight by ten inches across and six inches deep" (Soehren 1979:7).

A bedrock mortar (Soehren's Site 33) has not been relocated. It may have been covered or destroyed.

SITE NO.: State: — Soehren: 32 BPBM: — PHRI: 439-44
SITE TYPE: Cobble-filled area
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 3.70 m by 1.80 m by 0.60 m (approx.)
DESCRIPTION: "Along the mid-slope of the north side of the mawae is a rough platform 1 x 2 fathoms, filled with small rubble but lacking any distinct facings. Many waterworn pebbles are in the area. Other small platforms probably lie along the lower banks of the lava channel, obscured by talus" (Soehren 1979:7).

The site presently appears as a cobble-filled area. Marine shell midden (*Cypraea*) noted on surface.

SITE NO.: State: 1619 Soehren: 22 BPBM —
 PHRI: 439-45
SITE TYPE: Platform
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Fair
INTEGRITY: Possibly altered—may have been added to over the years
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-heiau
DIMENSIONS: 40.00 m by 15.00 m by 0.00 m (approx.)
DESCRIPTION: "PAPAKOHOLUA HEIAU. A minor heiau. It is now in such a torn-up condition that the original shape and measurements are uncertain. Those of the plan are approximate only. The original height seems to have been 6', the height of the lower platforms, flush with the bottom of the main wall, 3'. There is an interesting hole in the platform a little over one foot across but 4' deep. The floor of the pen to the south is natural rock. There is a

platform-like pile of small stones to the north" (Reinecke 1930:60).

"It is constructed of piled lava and is rubble filled... Numerous building stages are visible. It is a complex of platforms and walls. The vegetation is too dense for mapping, especially the south end" (HRHP 1970b).

SITE NO.: State: — Soehren: 18 BPBM: — PHRI: 439-46
SITE TYPE: Mound
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 5.50 m by 3.70 m by 0.55 m (approx.)
DESCRIPTION: "A low mound of aa pebbles, about 2 x 3 fathoms, with a barely discernible alignment of stones. Many 'iii'ili, but little coral, are scattered on and around the feature" (Soehren 1979:5). Site possibly a collapsed platform. Boulder alignments present on surface.

SITE NO.: State: — Soehren: 19 BPBM — PHRI: 439-47
SITE TYPE: Cobble-filled area
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 2.70 m by 1.80 m by 0.00 m (approx.)
DESCRIPTION: "A rubble filled crack in the pahoehoe, about 1 x 1 1/2 fathoms, lies 10 feet makai of feature 18 [Soehren's Site 18; PHRI Site 439-46]. Pieces of coral and small waterworn pebbles are associated with it" (Soehren 1979:5).

SITE NO.: State: — Soehren: 20 BPBM: — PHRI: 439-48
SITE TYPE: Petroglyphs
TOPOGRAPHY: Smooth pahoehoe bedrock
VEGETATION: Native, exotic, and ornamental landscape plants
CONDITION: Good
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric-historic
FUNCTIONAL INTERPRETATION: Rock art
DIMENSIONS: 2.00 m by 1.80 m (approx.)

DESCRIPTION: "A single, faint stick figure with triangular body about 10 inches high was found about 6 feet west of the letters HON. A shallow cup, about 4 inches in diameter and one inch deep, is near the letters. Other figures, including HRHP 10-37-1618 previously recorded, will likely be found as clearing progresses" (Soehren 1979:5).

SITE NO.: State: — Soehren: 6 BPBM — PHRI: 439-49
SITE TYPE: Platform

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Poor-fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial
DIMENSIONS: 3.70 m by 3.70 m by 1.80 m (approx.)

DESCRIPTION: "Possibly a burial, this odd structure is built against the north side of a lava ledge. It is roughly a semi-circle with a diameter of two fathoms, and stands as much as six feet high on the north-west side" (Soehren 1979:3). This feature resembles a terrace rather than a platform. It is associated with Site 7807.

SITE NO.: State: — Soehren: — BPBM: — PHRI: 439-50
SITE TYPE: Midden and 'ili'ili scatter

TOPOGRAPHY: Flat soil area inland of the tidewater area

VEGETATION: Akulikuli-kai, kiawe, milo, hau, ornamentals, and exotics

CONDITION: Poor

INTEGRITY: Possibly altered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 30.00 m by 23.00 m (approx.)

DESCRIPTION: Midden and 'ili'ili scatter is roughly rectangular in plan. It is bordered to the south and to the east by wall foundations. The south wall is collapsed and measures c. 0.5-0.6 m wide and 0.2-0.3 m high. The east wall adjacent to the tennis court may have been rebuilt as part of the hotel's landscape. This site is also listed in the present tax maps as LCA 5966.

SITE NO.: State: — Soehren — BPBM: — PHRI: 439-51

SITE TYPE: Well

TOPOGRAPHY: Fairly level landscaped area within area of Kona Lagoon Hotel

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Good-excellent

INTEGRITY: Possibly altered

PROBABLE AGE: Prehistoric-historic

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 1.50 m by 1.50 m by 1.15 m (approx.)

DESCRIPTION: Circular in plan; constructed of basalt boulders; interior faced. It has probably been rebuilt as part of the hotel's landscape.

SITE NO.: State: — Soehren: — BPBM: — PHRI: 439-52

SITE TYPE: Well

TOPOGRAPHY: Fairly level landscaped area within grounds of Kona Lagoon Hotel

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Good-excellent

INTEGRITY: Possibly altered

PROBABLE AGE: Prehistoric-historic

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 1.50 m by 1.50 m by 1.25 m (approx.)

DESCRIPTION: Circular in plan; constructed of basalt boulders; interior faced. It has probably been rebuilt as part of the hotel's landscape.

SITE NO.: State: — Soehren: — BPBM: — PHRI: 439-53

SITE TYPE: Pond

TOPOGRAPHY: A slightly depressed area located on the grounds of the Keauhou Beach Hotel

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Good-excellent

INTEGRITY: Possibly altered

PROBABLE AGE: Prehistoric-historic

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 34.00 m by 23.00 m by 0.90 m (approx.)

DESCRIPTION: Po'o Hawaii Pond. Brackish water pond with a retaining rock wall built along its perimeter. Constructed with blocky basalt boulders and is well-faced. Identified on the present tax key maps as LCA 6026:2. Reinecke (1930) and Kekahuna (1952) identifies the area of this site as a residence for the ancient royalty as well as a bathing area for the ali'i.

SITE NO.: State — Soehren: — BPBM: D4-54

PHRI: 439-54

SITE TYPE: Petroglyphs

TOPOGRAPHY: Situated on flat pahoehoe bedrock along the shoreline

VEGETATION: Heliotrope, akulikuli-kai in vicinity

CONDITION: Fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Rock art

DIMENSIONS: 7.60 m by 7.60 m (approx.)

DESCRIPTION: "Outside the entrance to the heiau [Heiau of Keeku], and towards the southwest are a number of

petroglyphs on the pahoehoe. One of them is said to represent Kamalalawalu [King of Maui]" (Stokes n.d.:21).

"This is a pahoehoe field containing petroglyphs and numerous bedrock mortars, on the tidal flats a short distance SW of Ke'eku heiau...Stokes (1910). This is a typical group of Hawaiian petroglyphs, readily accessible...The probable meaning of such petroglyphs is discussed by Halley Cox, in *Hawaiian Petroglyphs* (1970)" (Emory et al. 1971:23-24).

SITE NO.: State: - Soehren: — BPBM: D4-47
PHRI: 439-55

SITE TYPE: Wall

TOPOGRAPHY: Situated on the grounds of the Kona Lagoon Hotel

VEGETATION: Ornamental landscape plants

CONDITION: Poor-fair

INTEGRITY: Unaltered-partially altered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Boundary wall

DIMENSIONS: 10.00 m by 2.00 m by 1.50 m (approx.)

DESCRIPTION: This wall was mistakenly identified as the Great Wall of Kuakini by Emory et al. (1971): "It was constructed of odd-sized stones, including some waterworn stones, and averages 2 meters wide and 1.25 to 1.5 meters high (Emory et al. 1971:22). The wall has been partially destroyed and at present is shorter than when recorded by Emory.

SITE NO.: State: — Soehren: — BPBM: D4-49
PHRI: 439-56

SITE TYPE: House site

TOPOGRAPHY: Situated on the grounds of the Kona Lagoon Hotel

VEGETATION: Ornamental landscape plants.

CONDITION: Poor

INTEGRITY: Unaltered-possibly altered

PROBABLE AGE: Prehistoric-historic

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 26.00 m by 16.00 m by 0.20 m (approx.)

DESCRIPTION: "This was a Hawaiian house yard, the full extent of which is not known. The W and S sides, 26 and 13 meters long respectively, are well defined by a rock wall 20 cm high. The N side appears to be the line traversed by the kuleana wall estimated to be c. 16 meters long. There is no indication of a border on the E" (Emory et al. 1971:22). On tax key maps area of walls is in LCA 5632:1. The walls are no longer present; yard area is within the Kona Lagoon Hotel parking lot; yard may be preserved.

SITE NO.: State:— Soehren:— BPBM:— PHRI: 439-57
SITE TYPE: Enclosure

TOPOGRAPHY: Situated on the grounds of the Keauhou Beach Hotel

VEGETATION: Native, exotic, and ornamental landscape plants

CONDITION: Good

INTEGRITY: Unaltered-possibly altered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DIMENSIONS: 30.00 m by 23.00 m by 1.00 m (approx.)

DESCRIPTION: A low-walled enclosure. It is bi-faced and core filled on the east, south, and west sides. On the north end is a retaining wall retaining an earthen embankment. This wall appears to be of recent construction; it probably is associated with the parking lot. The wall is 0.6-1.0 m high; wall width averages 0.9 m.

Presently, there are entrances on the west and east sides of the enclosure. Neither entrance appears to be part of the original construction. A *papamu* stone used as a wall foundation stone was located within the SE corner of the enclosure. The interior area of the enclosure is presently fully landscaped with coconut trees and numerous ornamentals.

Identified presently on the tax maps as LCA 15693. LCA number may be an error. LCA 5693 (total area of 0.07 acre) belonging to Koolau is situated in Kahaluu.

SITE NO.: State: 7809 Soehren: — BPBM: —
PHRI: T-101

SITE TYPE: Trail

TOPOGRAPHY: Slightly sloping aa flow

VEGETATION: *Uhaloa* and grasses

CONDITION: Fair

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Transportation

DIMENSIONS: 91.00 m by 1.00 m (approx.)

DESCRIPTION: "A foot trail, generally running north to south, over an aa flow that leads to a possible burial platform (Hammatt and Folk 1980:153).

According to an ARCH Topographic Map 1"=50' it is oriented east to west. The inland extension appears to have been recorded as Site T-101 by Allen (1984).

"The trail crosscuts Site 7809 and runs NNE to a point where a mauka-makai dozer road cuts and obliterates it. The foot trail ca. 0.75 m wide, marked by shallow depression in aa and slightly worn aa pebbles. Runs basically NNE to SSW, across contours. One piece cowrie and one waterworn cobble present along the trail" (Allen Field Records 1984).

At present, the trail is overgrown with mostly grasses and *Waltheria*, making it rather obvious in the relatively barren aa surface.

SITENO.: State: — Soehren: — BPBM: — PHRI: T-102
SITE TYPE: Amorphous rubble concentration with mounds
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Kiawe, koa-haole, 'opiuma, leucaena
CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Indeterminate

DIMENSIONS: 9.50 m by 8.00 m by 5.00 m (approx.)

DESCRIPTION: Overall site area measures c. 25.0 m by 20.0 m. The following description is adapted from Allen's Field Records (1984): roughly rectangular in plan and constructed of basalt cobbles and small boulders. The surface is uneven and not level. Appears to be built around a natural depression. Low mound present on outcrop at NE, NW, and SE corners. Another low mound to the NW of the feature. Seven waterworn cobbles on surface. May contain burials or function as an agricultural shrine. Bulldozing at northeast end of feature. Located c. 30-35 m SW of T-102 is a lava tube which should be investigated. A large boulder presently blocks the entrance to the tube.

SITENO.: State: — Soehren: 9 BPBM: — PHRI: T-103
SITE TYPE: Complex

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Kiawe, koa-haole, monkeypod,

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Habitation

DESCRIPTION: Overall complex area measures c. 25.0 by 25.0 m. According to Soehren (1979:9), "[a] section of lava tube about 25 feet long, 10 feet wide and five feet high in the center is entered from the mauka end and has a small 'window' at the makai end. On the floor were noted waterworn pebbles, cowry and cone shell fragments, and kukui nuts. A coral saw-file and a sea urchin spine file were collected."

FEATURE A : Lava tube

DIMENSIONS: 7.00 m by 4.00 m by 0.90 m (approx.)

"A lava tube with a filled collapsed area of ca. 9.5 m in length. The mauka tube entrance is .60 m in height [and] appears to be unutilized but the collapse area has a small cobble/pebble pavement near this entrance 2.0 m x 2.0 m x 0.25 m. The makai tube entrance height is .90 m and is fronted by an alignment of boulders (terrace face?) and contains midden and evidence of a hearth. This arm of the tube [extends west] and has been blocked by boulder rubble. There is a piece of branch coral within the rubble. There is

a small skylight above here. This should be explored for burials. Outside the tube, above this skylight is an ahu of boulders (1.5 by 1.2 m by .60 m in height). Portable remains include wana shell, bone, wood, kukui, w/w pebbles and one basalt flake inside the tube" (Allen Field Records 1984).

FEATURE B : Boulder/cobble paving

DIMENSIONS: 4.00 m by 3.50 m by 0.00 m (approx.)

"To the NW ca. 12 m is an area of boulder/cobble 'paving'. An alignment of small boulders is distinguishable along the E end of the feature. There is a single large upright set on end and aligned E-W near the N boundary. The center area is somewhat depressed. This may be part of a lava tube collapse which has been filled" (Allen Field Records 1984).

SITENO.: State: — Soehren: — BPBM: — PHRI: T-104
SITE TYPE: Mound

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Kiawe, koa-haole, portulaca, and grasses

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Ceremonial-burial

DIMENSIONS: 1.40 m by 1.25 m by 0.90 m (approx.)

DESCRIPTION: The following description is compiled from Allen (1984) Field Records: circular cairn constructed of large boulders at the base and smaller boulders on top. Associated with a concentration of boulder cobble rubble which may have once been a structure. An alignment is visible below the cairn running N-S across the slope, but otherwise there is no apparent structure. A small pile of boulders visible c. 7 m to the NW of cairn. Area possibly terraced.

SITENO.: State: — Soehren: — BPBM: — PHRI: T-105
SITE TYPE: Wall

TOPOGRAPHY: Flat to undulating aa and pahoehoe flows

VEGETATION: Kiawe, koa-haole, portulaca, and grasses

CONDITION: Poor

INTEGRITY: Unaltered

PROBABLE AGE: Prehistoric

FUNCTIONAL INTERPRETATION: Indeterminate

DIMENSIONS: 6.00 m by 0.80 m by 5.00 m (approx.)

DESCRIPTION: It consists of blocky basalt boulders piled 2-3 courses high and 2-3 courses wide. Flat pahoehoe area to the east and shallow natural depression to the west.

North of Site 7841 wall, c. 8-10 m south of Site T-105, is a level cobble-filled area (c. 1.0 by 1.0 m) with possible testing potential.

SITENO.: State: — Soehren: — BPBM: — PHRI: T-106
SITE TYPE: Complex (5 Features)
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Kiawe, monkeypod, kolu, koa-haole, portulaca, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: A complex of undetermined size and significance. Overall complex area measures c. 90.0 m (E-W) by 23.0 m (N-S). The following feature descriptions are from Allen's Field Records (1984).

FEATURE A: Terrace
DIMENSIONS: 8.00 m by 5.00 m by 0.80 m (approx.)

Terrace constructed of basalt cobbles, pebbles, and few boulders. Surface is uneven with several waterworn cobbles on feature surface. A low rubble alignment extends from north end of terrace downslope for 6.0 m, turns and continues 8.0 m north to cart road (Site 7666). Within this alignment is a thin deposit with one piece of volcanic glass, 'ili'ili, and shell midden. Located c. 10 m upslope from Feature A is a fairly level area of basalt cobble/pebble rubble.

FEATURE B: Walled depression
DIMENSIONS: 8.00 m by 7.00 m by 0.75 m (approx.)

Feature B is a natural depression; within the depression is a soil deposit 0.25 m thick and one piece of coral. SW end of depression includes a wall segment. This segment is bifaced and core-filled but is only 2.0 m in length, 0.9 m wide, and 0.7 m high. The remaining perimeter of the depression is enclosed by a single-course alignment of boulders.

FEATURE C: Cobble/boulder rubble area
DIMENSIONS: 4.00 m by 3.00 m by 0.00 m (approx.)

East of Feature B is a rubble area, possibly a terrace with a fallen face, and several waterworn cobbles. The cobble/boulder area continues for an undetermined length. South of the cobble/boulder area is another small wall segment which extends over a natural gully.

FEATURE D: Terrace
DIMENSIONS: 6.00 m by 3.50 m by 0.75 m (approx.)

A sloping rubble terrace with a pebble-cobble fill; three waterworn rocks and one piece of coral present. About 2.0 m SE of terrace is another similar terrace (5 m by 3 m).

FEATURE E: Wall
DIMENSIONS: 9.00 m by 0.60 m by 0.80 m (approx.)

About 5.0 m west of Feature A; oriented E-W. It is rubbly at the east end and its west end consists of 12+ large upright boulders.

SITENO.: State: — Soehren: — BPBM: — PHRI: T-107
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Kiawe, koa-haole, kolu, portulaca, grasses
CONDITION: Poor-fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DESCRIPTION: Overall complex area measures c. 30.0 m by 20.0 m. Allen's Field Records (1984) indicate that two pieces of cowrie, coral, Nerita sp., and a whetstone were found at the complex.

FEATURE A: Terrace
DIMENSIONS: 7.00 m by 3.00 m by 1.00 m (approx.)

"The site is a set of three stair stepped terraces. The upper terrace [Feature A] is constructed of boulders and cobbles and has a faced edge of about 2.5 m on the west side. Behind this terrace is a soil deposit ca. 5 x 5 m. There is a low rock pile on the south side of this depression. The rock pile measures 1.3 m by 0.9 m by 0.5 m in height" (Allen Field Records 1984).

FEATURE B: Terrace
DIMENSIONS: 7.00 m by 3.00 m by 0.80 m (approx.)

"The middle terrace is faced on the south end. Between Feature A and Feature B are numerous loose rocks" (Allen Field Records 1984).

FEATURE C: Terrace
DIMENSIONS: 9.00 m by 3.00 m by 0.60 m (approx.)

The following information is from Allen's Field Records (1984): the lowermost terrace is rubbly; it has a sloping face and consists of boulders and cobbles. Between Features C and B is rock rubble. On the same contour as Feature B, 6-8 m south of Feature B, is a short boulder alignment 0.70 m high and two or three stones wide. The alignment measures 2.5 m long and is located on an outcrop. East of Feature C is pahoehoe and rubble. Fronting the terrace is a drop and a rocky low area; there is a flat waterworn boulder in this low area.

SITENO.: State: — Soehren: — BPBM: — PHRI: T-108
SITE TYPE: Complex
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Kiawe, koa-haole, kolu, portulaca, grasses
CONDITION: Poor
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Indeterminate
DESCRIPTION: "Overall complex area measures 20.0 m by 10.0 m. Probably additional modifications in the area" (Allen Field Records 1984).

FEATURE A : Terrace

DIMENSIONS: 5.00 m by 2.00 m by 0.60 m (approx.)

"A rough terrace, partially faced on the west side. It partially encloses a rock-filled natural depression. There is also an alignment along the north interior of the depression. The terrace surface is uneven" (Allen Field Records 1984).

FEATURE B : Terrace

DIMENSIONS: 4.50 m by 2.50 m by 0.50 m (approx.)

About 5.0 m SSE of Feature A is a paved aa pebble- to cobble-filled area with a sloping face on the west side. "This runs across the top of a shallow gulch and abuts a bedrock outcrop. One waterworn pebble noted on surface. Upslope on the bedrock outcrop is another small paved area with a few large boulders defining the downslope edge. Two waterworn cobbles noted here" (Allen Field Records 1984).

SITENO.: State: — Soehren: — BPBM: — PHRI: T-109
SITE TYPE: Terrace
TOPOGRAPHY: Flat to undulating aa and pahoehoe flows
VEGETATION: Kiawe, koa-haole, kolu, portulaca, grasses
CONDITION: Poor
INTEGRITY: Altered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Habitation
DIMENSIONS: 10.00 m by 6.00 m by 1.00 m (approx.)
DESCRIPTION: The following description is based on Allen's Field Records (1984) and the present survey field records: Site T-109 is a terrace which measures c. 8.0 x 5.0 m. The terrace is faced but the facing is deteriorated. The terrace, constructed against an outcrop, consists of cobbles and small and large boulders. Some large boulders, possibly upright, are incorporated into the facing. There may be an internal division within the N half of the terrace (one half is .20-.30 m higher than the other).

To the west is a relatively level cobble area, possibly paved. About 8-10 m to the NW is a cobble-paved area c. 3.5 by 3.0 m within an outcrop depression. Allen noted two coral cobbles and two waterworn pebbles in the area (1984).

APPENDIX B

Table 1.

SUMMARY OF IDENTIFIED SITES WITH POSSIBLE BURIALS

Site/ Feature Number	Formal Site/Feature Type	Site/ Feature Number	Formal Site/Feature Type
North Preserve		Survey Area 2 (cont.)	
7659	Terrace	7832	Complex
7662	Complex	A	Terrace
C	Platform	B	Terrace
D	Terrace	7845	Mound
7807	Complex	7847	Platform
A	Stepped		
B	terrace		
	Terrace		
South Preserve		439-46	Mound
7834	Complex	439-47	Cobble-filled
A	Platform		area
B	Platform	439-49	Platform
7835	Complex		
A	Platform	7962	Lava tube
B	Platform		complex
C	Mounds		
7837	Platform	T-102	Amorphous rubble
	with lava tube		concentration
			with mounds
7839	Complex	T-103	Complex
C	Platform	A	Lava tube
7846	Lava tube	T-104	Mound
Survey Area 2		439-1	Complex
7813	Complex	A	Mound
A	Platform	439-2	Complex
B	Platform	A	Platform
C	Platform	439-14	Terrace
7827	Complex	439-22	Mound
B	Cobble-filled		
	area	439-25	Platform

Table 1.(cont.)

Site/ Feature Number	Formal Site/Feature Type	Site/ Feature Number	Formal Site/Feature Type
Survey Area 2 (cont.)		439-34	Platform
439-26	Cobble filled area	439-36	Platform
439-28	Cobble filled area	439-37	Platform
439-29	Terrace	439-41	Cobble-filled area
439-30	Terrace	439-42	Cobble-filled area
439-33	Platform	439-44	Cobble-filled area